THM HYDRAULICS

THM HUADE HYDRAULICS (P) LTD

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THM HYDRAULICS

CARTRIDGE VALVES AND MANIFOLDS

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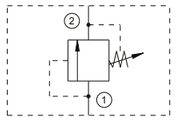
Warranty Information

Model Selection

Relief Valves



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TRDH042	04-2	4	350	A-1
TRV-08	08-2	10	250	A-3
TRV-08A	08-2	10	250	A-5
TADRV2-08	08-2	22.7	250	A-7
TRV08-20	08-2	22.7	250	A-9
TRV58-20	08-2	22.7	345	A-11
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TRBAE	T-8A	10	350	A-179
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TRDDA	T-10A	95	350	A-25
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TRDJA	T-18A	760	350	A-181
TRV3-08	T-2106	18.9	210	A-31
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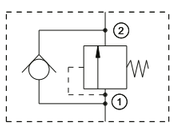
TRV2-10	T-2303	45.6	315	A-37
TRV-08M	M201.5T	22.7	315	A-39
TRV-M22	M221.5T	50	350	A-41
TRVSAE3	Page A-43	10	207	A-43
TRVSAE6	Page A-44	10	207	A-44
TRV-06	CV-06	10	300	A-45
TRV-SDV40	RV-SDV40	150	240	A-47
TRV-SDV70	RV-SDV70	265	250	A-49
TRV-1DRX91	08-2	30	460	A-51
TRV-G1/4	RV-G1/4	3	350	A-53
TDRV-10S	DRV-10S	114	350	A-55
TCMV1	CMV1	20	500	A-57
TBRV-M26	Page A-59	28	22	A-59



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TBRV-M33	Page A-60	90	420	A-60

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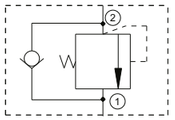
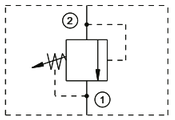
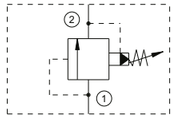
Model Selection



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TACR-M18	Rexroth-730	60	380	A-61
TACR75-M20	VH003	75	420	A-187
TACR-M24	Rexroth-870	90	400	A-62



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TDRV-08	08-2	30	250	A-63
TDRV-10	10-2	113.6	250	A-65
TRV-LR	RV-LR	150	350	A-67



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TRPCC	T-162A	45	350	A-69
TRPEE	T-10A	95	350	A-71
TRPEC	T-10A	95	350	A-73
TRPGE	T-3A	200	350	A-75
TRPGC	T-3A	200	350	A-77
TRPIC	T-16A	380	350	A-79
TRPIE	T-16A	380	350	A-81
TYF10-01	T-2301	60	315	A-83
TYF10-02	T-2301	60	315	A-85
TRAH101-S	10-2	113	380	A-87
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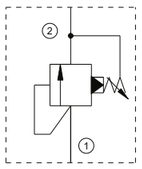
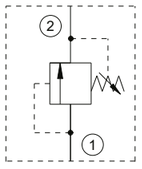
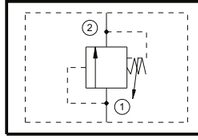
TPSRV2-08	08-2	37.8	350	A-91
TRV07-20	RV07-20	110	350	A-93
TRV-G1/2	RV-G1/2	85	350	A-95



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TRV-M24	T-2306	60	315	A-97



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TRV-M20	MRV-M20	50	315	A-99
TRV2-M24	T-2301	100	315	A101



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TRVS-10	10-2L	80	350	A-103

Model Selection

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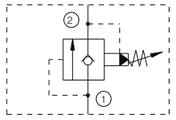
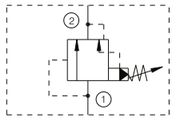
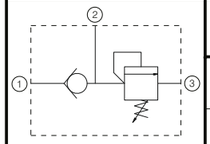
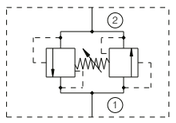
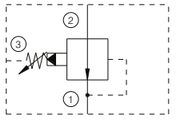
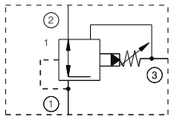
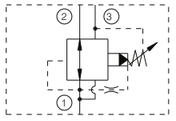
	TRV10-28	10-2	7.6-113.6	240	A-105
	THCD6.1	HCD6.1	110	350	A-107
	THCF-1/OR	HCF-1/OR	150	350	A-109
	TGZF-1/OR	GZF-1/OR	113	350	A-111
	TDYF25-02	T-2407	150	315	A-113
	TPRVC60-A	PRVC60-A	225	350	A-115
	TDF15	T-2114	63	315	A-117
	TDF20	T-2402	113	315	A-119
	TDF25	T-2413	180	315	A-121
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TRQEB	T-10A	95	350	A-123
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TZYF15-01	T-2501	100	280	A-183
	TZYF25-01	T-2502	150	280	A-125
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TBRV-08-3R	BRV	30	350	A-127
	TRVBD-10	10-2	75	350	A-129

Pressure Reducing Valves

	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPBBB	T-163A	20	350	A-131
	TPBDB	T-11A	40	350	A-133
	TPBFB	T-2A	80	350	A-135
	TPBHB	T-17A	160	350	
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPRDB	T-11A	40	350	A-137
	TPPDB	T-11A	40	350	A-139
	TPPDF	T-11A	40	350	A-141
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TDPRR-08	08-3	23	350	A-143

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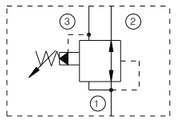
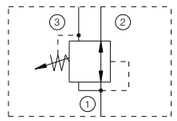
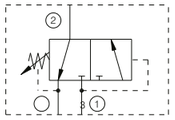
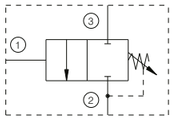
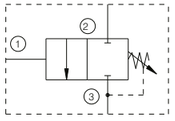
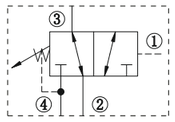
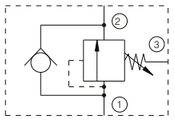
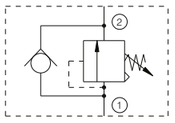
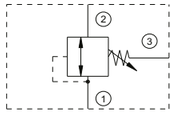
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPRH081	08-3	30	350	A-185
	TPR10-36	10-3	56.8	210	A-145
	TDRM10130P-01	10130	150	350	A-147
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TDPR-08	08-3	11.4	207	A-149
	TDPR-10	10-3	30	207	A-151
	TDPR-1PD20	A5572	30	350	A-153

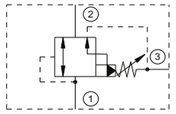
Sequence Valves

	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPSCS-08	08-3	22.7	350	A-157
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPS2-10	10-3	37.9	207	A-159
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TSF10-00	10-3	60	345	A-161
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TPS10-43	10-4	38	240	A-191
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	T1PSC30	A6610	30	350	A-189
	TSCCA	T-11A	60	350	A-163
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TSCCB	T-13A	60	350	A-165

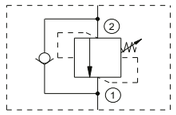
Model Selection



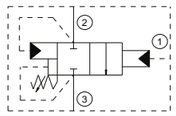
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TSXCA	T-11A	60	350	A-167



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TSQDB	T-11A	60	350	A-169
TSQFB	T-2A	120	350	A-171

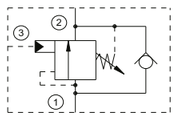


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TSVL-G3/8	----	40	350	A-173
TSVL-G1/2	----	80	350	A-173



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TQPAB	T-11A	0.75	350	A-175

Counterbalance Cartridge Valves



Part Number	Cavity	Pilot Ratio	Flow(lpm)	Pressure (bar)	Page
TCBBA	T-11A	3:1	20	280	B-1
TCBBD	T-11A	4.5:1	40	280	B-3
TCBCA	T-11A	3:1	60	280	B-5
TCBCG	T-11A	4.5:1	60	350	B-5
TCBCH	T-11A	10:1	60	350	B-5
TCBCA-X	T-11A	4.5:1	60	350	B-7
TCBCG-X	T-11A	4.5:1	60	350	B-7
TCBEA	T-2A	3:1	120	280	B-9
TCBEG	T-2A	4.5:1	120	350	B-9
TCBEH	T-2A	10:1	120	350	B-9
TCBGA	T-17A	3:1	240	280	B-11
TCBGG	T-17A	4.5:1	240	350	B-11
TCBGH	T-17A	10:1	240	350	B-11
TCBIA	T-19A	3:1	480	350	B-13
TCBIG	T-19A	4.5:1	480	350	B-13
TCBIH	T-19A	10:1	480	350	B-13
TVBSN-10A	VC10-S3	3:1	60	350	B-29
TVBSN12	CA-12A-3C	4:1	120	350	B-31
TBVE-R1	16021	4.8:1	100	350	B-15
TCBPA10	T-3304S	4:1	60	350	B-17
TCBPA10A	T-3304	4:1	60	350	B-19
TCBPA12	C1225	4:1	132	350	B-21
T1500150400	A20081	4:1	140	380	B-37
T1CE30	A6610	5:1	30	350	B-41

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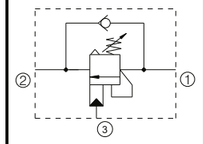
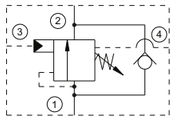
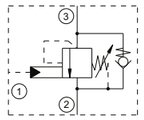
Model Selection



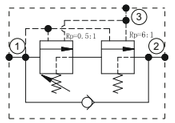
Part Number	Cavity	Pilot Ratio	Flow(lpm)	Pressure (bar)	Page
TCACA	T-11A	3:1	60	280	B-23
TCACG	T-11A	5:1	60	420	B-23
TCAEG	T-2A	5:1	120	420	B-33
TCAGG	T-17A	5:1	240	420	B-43
TCAIG	T-19A	5:1	480	420	B-35



Part Number	Cavity	Pilot Ratio	Flow(lpm)	Pressure (bar)	Page
TCWIA	T-24A	3:1	480	280	B-25



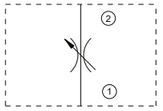
Part Number	Cavity	Pilot Ratio	Flow(lpm)	Pressure (bar)	Page
TVCB06-EN	NCS06/3	4:1:1	60	350	B-27



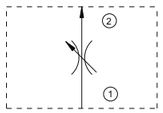
Part Number	Cavity	Pilot Ratio	Flow(lpm)	Pressure (bar)	Page
T1500150405	A20081	6:1	140	380	B-39

Model Selection

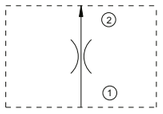
Cartridge Needle Valves



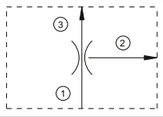
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TNV2-08	08-2	30	250	C-1
TS-08	08-2	18	250	C-3
TNV2-10	10-2	45	250	C-5
TNV-16	16-S2	200	240	C-7
TNFBC	T-162A	20	350	C-9
TNFCC	T-13A	28	350	C-11
TNFCD	T-13A	80	350	C-13
TNFDC	T-5A	45	350	C-15
TNFDD	T-5A	200	350	C-17
TNFED	T-16A	340	350	C-19
TNFFD	T-18A	530	350	C-21
TNV-M12	see page C-23	10	207	C-23
TNV-M201.5	NV-M201.5	50	250	C-25
TDVE-12	DVE-12	160	350	C-27



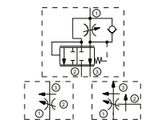
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFRA-08	08-2	20	240	C-29
TFRA-10	10-2	26	240	C-31



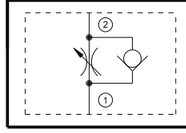
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFR-08	08-2	22.7	250	C-33
TFR-10	10-2	22.7	250	C-35
TFR12-20F	12-2	55	240	C-37
TBH-6T	Page C-39	12	210	C-39
TBH-8T	Page C-39	12	210	C-39
TBH-6T/8T	Page C-39	12	210	C-39
TIFC-6T	Page C-41	10	210	C-41
TIFC-04	Page C-42	12	210	C-42



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFR12-30F	12-3	94.6	240	C-43



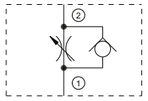
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFR10-39	10-3	0-38	240	C-45



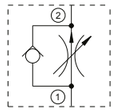
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFC-08	08-2	18	250	C-47

THM HYDRAULICS

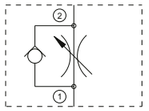
Model Selection



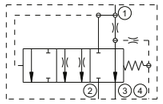
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TNCEB	T-5A	45	350	C-49



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFDBA	T-13A	23	350	C-51

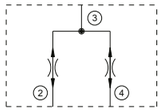


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TNCCB	T-13A	28	350	C-53

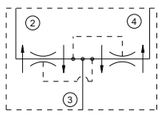


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFVCA	T-5A	45	350	C-55

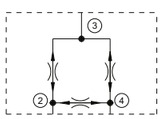
Flow Dividers/Combiners



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFSDA	T-32A	60	350	C-57

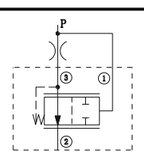


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFD50-45	10-4	45.4	345	C-59
TFD52-45	12-4	90.8	345	C-61



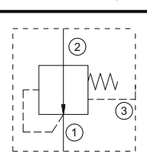
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFSCS	T-31A	6-30	350	C-63

Pressure Compensator Valve



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TEC10-30	10-3	30.3	207	C-65

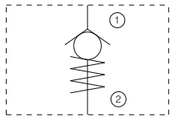
Normally Open Modulating Element



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TLPDC	T-11A	60	350	C-67

Model Selection

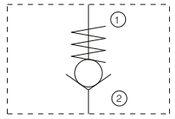
Check Valves



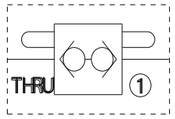
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCV2-08-B	08-2	19	250	D-1
TCV-08-B-HIEX	08-2	19	250	D-3
TCVFB-08	08-2	38	350	D-5
TCV-08-P	08-2	20	250	D-7
TCV2-08-P	08-2	20	250	D-9
TCV-10-P	10-2	38	350	D-11
TCV-10-20	10-2	76	240	D-13
TCV50-20	10-2	76	345	D-15
TCV12-20	12-2	95	240	D-17
TCV16-20	16-2	151	240	D-19
TCV-20-P	20-2S	380	240	D-21
TCXBA	T-162A	40	350	D-23
TCXDA	T-13A	80	350	D-25
TCXFA	T-5A	160	350	D-27
TCV-06	CV-06	20	210	D-29
TCV-2H	CV-2H	150	350	D-31
TCV-M221.5	CV-M221.5	50	207	D-33
TCV-G1/8	Page D-35	10	350	D-35
TCV-G1/4	Page D-35	20	350	D-35
TCV-G3/8	Page D-35	50	350	D-35
TCV-G1/2	Page D-35	80	350	D-35
TCV-G3/4	Page D-35	120	350	D-35
TCV-M141.5	Page D-35	20	350	D-35
TRK3-G1/2	Page D-37	80	350	D-37
TCVS4-S10	VH011	30	350	D-39
TCVB-G1/8	Page D-41	10	350	D-41
TCVB-G1/4	Page D-41	20	350	D-41
TCVB-G3/8	Page D-41	30	350	D-41
TCVB-G1/2	Page D-41	50	350	D-41
TCVB-G3/4	Page D-41	80	350	D-41
TRVM10120	TRVM10120	30	350	D-43
TVU-G1/4	Page D-45	30	500	D-45
TVU-G3/8	Page D-45	45	500	D-45
TVU-G1/2	Page D-45	70	500	D-45
TVU-G3/4	Page D-45	110	400	D-45
TVU-G1	Page D-45	160	350	D-45
TVU-G1"1/4	Page D-45	210	350	D-45
TVU-G1"1/2	Page D-45	320	350	D-45
TVU-G2	Page D-45	460	250	D-45

THM HYDRAULICS

Model Selection

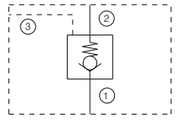


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCVR-08-P	08-2	25	350	D-47
TCVR-10-P	10-2	60	350	D-49
TCXAD	T-162A	30	350	D-51
TCVR-G1/8	Page D-49	10	350	D-53
TCVR-G1/4	Page D-49	20	350	D-53
TCVR-G3/8	Page D-49	50	350	D-53
TCVR-G1/2	Page D-49	80	350	D-53
TCVR-G3/4	Page D-49	120	350	D-53
TCV-M241.5	T-2301	60	350	D-55

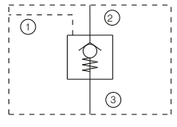


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCDAQ	T-162DP	4.7	350	D-57

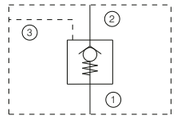
Pilot Check Valves



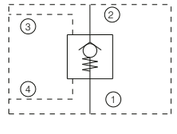
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCODA	T-11A	80	350	D-59
TCOFA	T-2A	160	350	D-61
TCOHA	T-17A	320	350	D-63
TCOJA	T-19A	610	350	D-65



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TDPC-08-P	08-3	19	207	D-67
TPC08-30	08-3	22.7	240	D-69
TPC10-30	10-3	30.2	240	D-71
TRPC06	NCS06/3	40	315	D-83

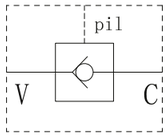


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCKBB	T-163A	30	350	D-73
TCKCB	T-11A	60	350	D-75
TCKEB	T-2A	120	350	D-77
TSC5H	A12336	90	350	D-79



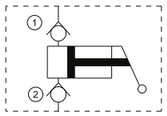
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TCVCV	T-21A	60	350	D-81

Model Selection



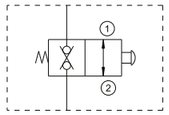
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TVBPSL-G3/8	Page D-117	30	300	D-117
TVBPSL-G1/2	Page D-117	45	300	D-117

Manual Pump



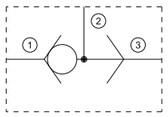
Part Number	Cavity	Output Flow (ml/ time)	Pressure (bar)	Page
THP-100	10-2	9	207	D-85

Manual Valves

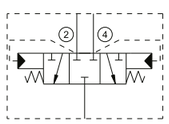


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TMRV-08B	08-2K	18	250	D-87

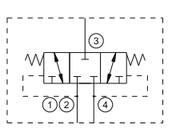
Shuttle Valves



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TSLV-06	T4-S2	15	240	D-89
TSLV-08	08-3	15	240	D-91
TLS10-30	10-3	30	240	D-93
TSLV-G18	Page D-95	10	250	D-95
TSLV2-01	Page D-96	10	250	D-96
TSLV2-G18	Page D-97	10	350	D-97



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TDSCH	T-31A	40	350	D-99

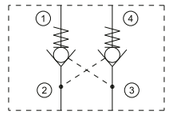


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
THS50-43	10-4	45.4	345	D-101

THM HYDRAULICS

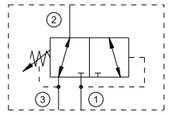
Model Selection

Dual Pilot-operated Check Valves

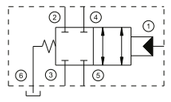


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
MDPC2-08	08-4	19	207	D-103
MDPC-10	10-4	30	240	D-105
MDPC0S08	Page D-89	50	420	D-107

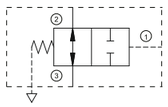
Directional Valves



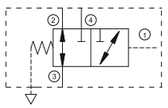
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TSQV08-3	08-3	22.7	240	D-109
TPS-10	10-3	34	207	D-111
TDRBC	T-11A	28	350	D-113



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
THPD16-S63	HVC16-S6	151	350	D-115

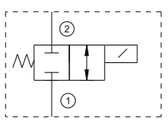


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TVDSD-16A	16-3	160	350	D-119

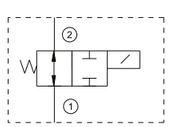


Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TVDSJ-16A	16-4	160	350	D-121

2-Way, 2-Position

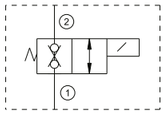
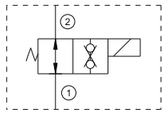
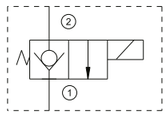
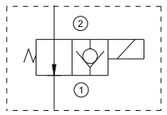
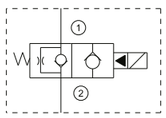
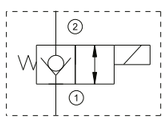
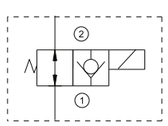


Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
TSV3-08-2NCS	08-2	Use circle	9.5	207	E-1
TSV-08-24	08-2	MC*-13-C-***	17	207	E-3
TSV10-24	10-2	MC*-16-C-***	61	207	E-5



Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
TSV-08-25	08-2	MC*-13-C-***	9.5	207	E-7
TSV10-25	10-2	MC*-16-C-***	22.7	207	E-9

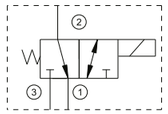
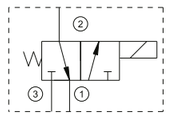
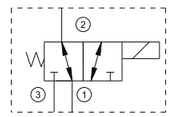
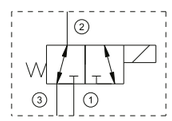
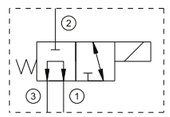
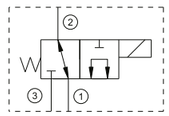
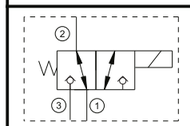
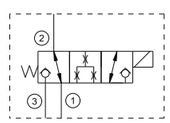
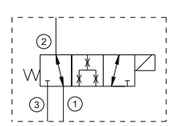
Model Selection

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-28	08-2	MC*-13-C-***	19	207	E-11
	TSV10-28	10-2	MC*-16-C-***	75.7	240	E-13
	TSV12-28	12-2	MC*-16-C-***	113.6	240	E-15
	TSV-08-2NCSPL	08-2	MC*-16-C-***	18.9	250	E-17
	TWS08W-01	08-2	MC-18-C-***	19	250	E-19
	TDTBF- *C*	T-162A	MC3-16-C-***	34	350	E-21
	TDTDA- *C*	T-13A	MC-19-C-***	40	350	E-23
	TDTDF- *C*	T-13A	MC3-16-C-***	40	350	E-25
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TDTBF- *H*	T-162A	MC3-16-C-***	34	350	E-27
	TDTDF- *H*	T-13A	MC3-16-C-***	40	350	E-29
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-2NCP	08-2	MC-13-C-***	18.9	207	E-31
	TSV2-08-2NCP	08-2	MC*-13-C-***	23	207	E-33
	TDSV-08-2NCP	08-2	MC*-13-C-***	18.9	210	E-35
	TSF08-20	08-2	MC*-13-C-***	19	345	E-149
	TSV2-10-2NCP	10-2	MC*-16-C-***	57	207	E-37
	TSV12-20	12-2	MC*-16-C-***	57	207	E-39
	TDSH161C	16-2	MC*-16-C-***	150	350	E-41
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-2NOP	08-2	MC*-13-C-***	30	207	E-43
	TSV2-10-2NOP	10-2	MC*-16-C-***	68	207	E-45
	TSV12-21	12-2	MC*-16-C-***	113.6	240	E-47
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TDSH161N	16-2	MC*-16-C-***	150	350	E-49
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-2NCRP	08-2	MC*-13-C-***	23	250	E-51
	TSV2-10-2NCRP	10-2	MC*-16-C-***	56.8	207	E-53
	TDSH161CR	16-2	MC*-16-C-***	150	350	E-55
	TDS201CR	VC20-2	MC*-16-S-***	260	210	E-143
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-2NORP	08-2	MC*-13-C-***	30	207	E-57
	TSV2-10-2NORP	10-2	MC*-16-C-***	68	207	E-59
	TSV12-23	12-2	MC*-16-C-***	113.6	240	E-61
	TDSH161NR	16-2	MC*-16-C-***	150	350	E-63

THM HYDRAULICS

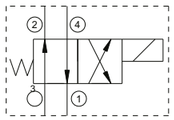
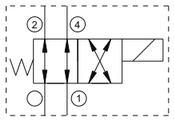
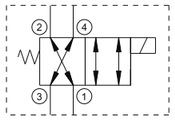
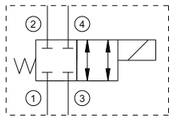
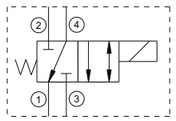
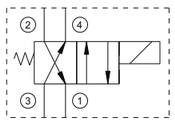
Model Selection

3-Way , 2-Position

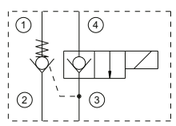
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-30	08-3	MC*-13-C-***	15.1	207	E-65
	TSV58-30	08-3	MC*-16-C-***	15.1	276	E-67
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-3B	08-3	MC*-13-C-***	13.2	207	E-69
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV10-34	10-3	MC*-16-C-***	22.7	207	E-71
	TSV12-34	12-3	MC-19-S-***	63.5	240	E-73
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TWK08D-01	08-3	MC-18-C-***	19	350	E-75
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-33	08-3	MC*-13-C-***	11.4	207	E-77
	TSV10-33	10-3	MC*-16-C-***	18.9	207	E-79
	TTS-01	TS-01	Special coil	30	45	E-81
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-31	08-3	MC*-13-C-***	11.4	207	E-83
	TSV10-31	10-3	MC*-16-C-***	22.7	207	E-85
	TSV-10-30D	10-3D	MC*-16-C-***	40	210	E-87
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-3-L	08-3	MC2-16-C-***	18.9	350	E-89
	TSV-10-3-L	10-3	MC2-16-C-***	25	350	E-91
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TDWDA -*A*	T-11A	MC-19-C-***	30	350	E-93
	TDWDF -*A*	T-11A	MC3-16-C-***	30	350	E-95
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TDMDA -*A*	T-11A	MC-19-C-***	45	350	E-97

Model Selection

4-Way , 2-Position

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-4CO	08-4	MC*-13-C-***	11.4	207	E-99
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSEV-S08-560	08-4	MC-13-S-***	19	250	E-101
	TSV10-40	10-4	MC-16-C-***	23	207	E-103
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TWK06Y-01	FC06-4	MC4-13-C-***	10	350	E-105
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-4NC	08-4	MC*-13-C-***	11.4	207	E-107
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV2-08-4TC	08-4	MC*-13-C-***	11.4	207	E-109
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	THF08-242	08-4	MC*-13-C-***	11.4	210	E-111
	THF10-242	10-4	MC2-16-C-***	22.4	210	E-113

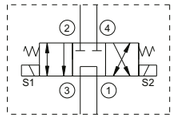
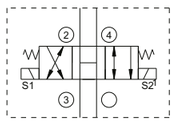
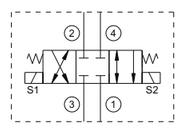
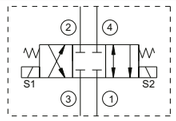
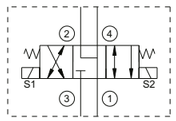
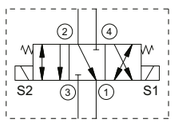
Electronically Controlled Hydraulic Lock

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSPC-08-04	08-4	MC-13-C-***	19	207	E-115
	TSPC-10-4	10-4	MC-16-C-***	30	240	E-117

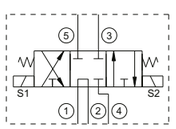
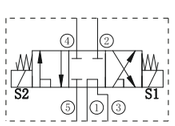
THM HYDRAULICS

Model Selection

4-Way, 3-Position

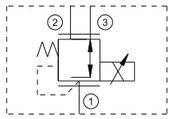
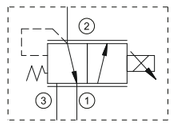
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-47A	08-4	MC*-13-C-***	11.4	210	E-119
	THF08S-34M	08-4	MC*-13-C-***	11.4	210	E-121
	TSV10-47A	10-4	MC*-16-C-***	19	240	E-123
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-47B	08-4	MC*-13-C-***	11.4	210	E-125
	TSV10-47B	10-4	MC*-16-C-***	22.7	240	E-127
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-47C	08-4	MC*-13-C-***	11.4	207	E-129
	TSV10-47C	10-4	MC*-16-C-***	23	240	E-131
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	THF08S-340	08-4	MC*-13-C-***	11.4	210	E-133
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-47D	08-4	MC*-13-C-***	11.4	207	E-135
	TSV10-47D	10-4	MC-16-C-***	23	240	E-137
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-47E	08-4	MC*-13-C-***	11.4	207	E-145

5-Way , 3-Position

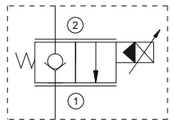
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV-08-35P	08-5	MC*-13-C-***	13.3	207	E-139
	TSV10-5907C	10-5	MC*-16-C-***	15.1	250	E-141
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TSV08-58C	08-5	MC2-13-C-***	11.4	207	E-147

Model Selection

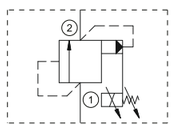
Electro-proportional Reducing Cartridge Valves

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TPDR08-01	08-3	MC2- 18- C-***	12	75	F-1
	TPVRM3-10	M241.5T	Use circle	40	18.5	F-3
	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TIP-RDS-27	T-222	Use circle	30	60	F-5

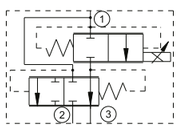
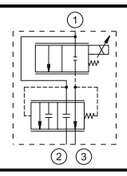
Electro-proportional Directional Cartridge Valves

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TEC16T/AO	16-2	MC2- 19- C-***	150	350	F-7

Solenoid proportional type valves

	Part Number	Cavity	Coil	Flow (lpm)	Pressure (bar)	Page
	TMP10T	10-2	MC2- 19- C-***	60	350	F-9

Electro-proportional Flow Cartridge Valves

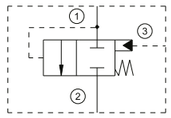
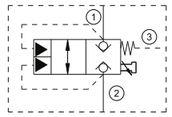
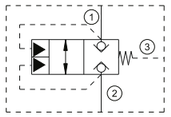
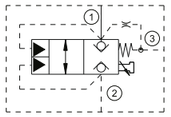
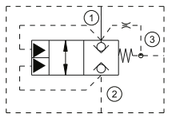
	Part Number	Cavity	Coil	(lpm) Regulated Flow	Pressure (bar)	Page
	TPV70-30	10-3	Use circle	A:26 B:17	207	F-11
	Part Number	Cavity	Coil	(lpm) Regulated Flow	Pressure (bar)	Page
	TFE12PC-32S	12-3	MC2- 19- C-***	55	300	F-13

THM HYDRAULICS

Model Selection

Model Selection

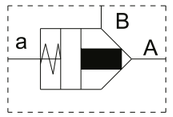
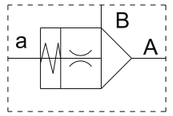
Hydraulic Control Logic Valves

	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TEP-16S	16-S3	189	240	H-1
	TEP16-S35	VC16-S3	190	240	H-3
	TEP-20S	20-S3	380	345	H-5
	TEP10-S35	VC10-S3	75.8	345	H-7
	TEP20-S35	VC20-S3	380	345	H-9
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TLOFC	T-2A	200	350	H-11
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TLOKC	T-19AU	1100	350	H-13
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TLOFA	T-2A	200	350	H-15
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TLOKA	T-19AU	1100	350	H-17

THM HYDRAULICS

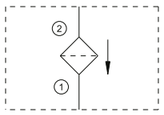
Model Selection

Logic Valves

	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TGV-16-E	MGV-16	200	315	H-19
	TGV-25-E	MGV-20	450	315	H-20
	TGV-32-E	MGV-32	700	315	H-21
	TGV-40-E	MGV-40	1100	315	H-22
	TGV-50-E	MGV-50	3000	315	H-23
	TGV-63-E	MGV-63	5000	315	H-24
	Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
	TGV-16-B	MGV-16	200	315	H-19
	TGV2-16-B	MGV-16	200	315	H-19
	TGV-25-B	MGV-25	450	315	H-20
	TGV-32-B	MGV-32	700	315	H-21
	TGV-40-B	MGV-40	1100	315	H-22
	TGV-50-B	MGV-50	3000	315	H-23
	TGV-63-B	MGV-63	5000	315	H-24

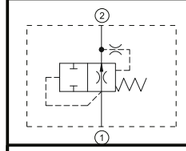
Model Selection

Filter



Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TFLDA	T-13A	40	350	I-1
TFLHA	T-16A	160	350	I-3

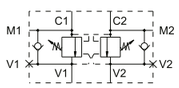
Specialty Cartridges Valves



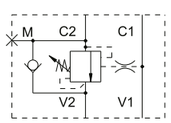
Part Number	Cavity	Flow (lpm)	Pressure (bar)	Page
TNQEB	T-3A	15-200	350	I-5

Manifolds

Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
TMB-DCB40-2G	4:1	40	350	J-7
TMB-DCB60-3G	4.2:1	60	350	J-1
TMB-DCB110-4G	4.2:1	110	350	J-11
TMB-DCB150-6G	4:1	150	350	J-15
TMB-DCB40-2G	4:1	40	350	J-8
TMB2-DCB60-3G	4.2:1	60	350	J-2
TMB-DCB110-4G	4.2:1	110	350	J-12
TMB-DCB150-6G	4:1	150	350	J-16



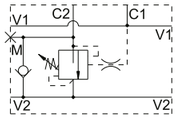
Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
TMB-DCB90-4G	4:1	90	350	J-17



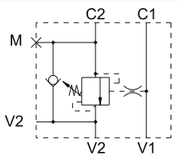
Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
TMB-SCB40-2G	4:1	40	350	J-5
TMB-SCB110-4G	4.2:1	110	350	J-9
TMB-SCB150-6G	4:1	150	350	J-13
TMB2-SCB60-3G	4.2:1	60	350	J-3

THM HYDRAULICS

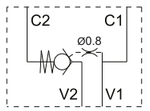
Model Selection



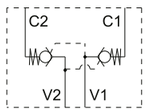
Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
TMB-SCB40-2G	4:1	40	350	J-6
TMB2-SCB60-3G	4.2:1	60	350	J-4



Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
TMB-SCB110-4G	4.2:1	110	350	J-10
TMB-SCB110-4G	4:1	150	350	J-14

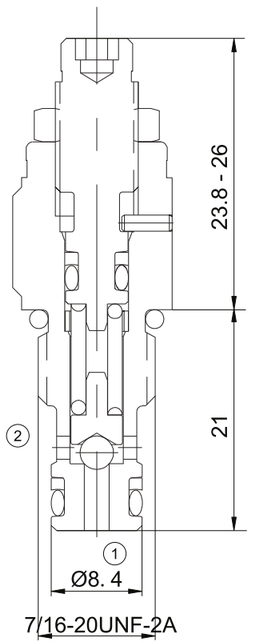


Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
LTB-SPC30-3G	7:1	30	350	J-19
LTB-SPC60-4G	4:1	60	350	J-22

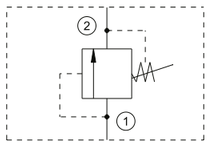


Part Number	Pilot Ratio	Flow (lpm)	Pressure (bar)	Page
LTB-DPC30-3G	7:1	30	350	J-20
LTB-DPC60-4G	4:1	60	350	J-23
TMB-DPC30-3G	7:1	30	350	J-21
TśMB-DPC60-4G	4:1	60	350	J-24

TRDH042 - Directly Operated Relief Valve



Hydraulic Symbol:



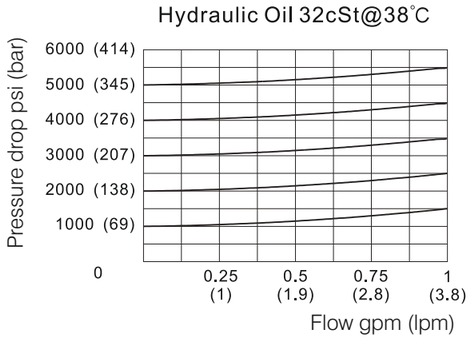
Specifications:

Operating Pressure	350 Bar
Flow	4 L/min
Internal Leakage	10 drops/min@75% of crack pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	04-2 see page K-8
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened,precision ground parts for durability
- Compact size for reduce space requirements
- Low leakage design
- All external part zinc plated
- Fast response to pressure surges

Performance Curve
Pressure Drop vs Flow

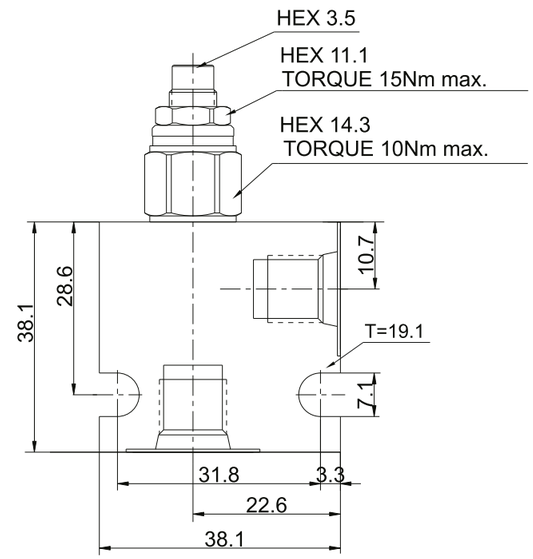


Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TRDH042					

Adjustment:
Screw Adjust = S

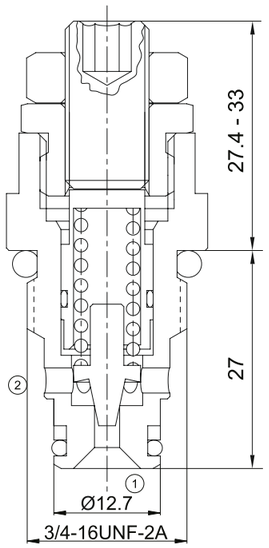
Pressure Range:
100-3000psi(6.9-207bar) Preset:1500psi(103bar) = 30
1500-5000psi(103-345bar) Preset:2500psi(172bar) = 50

Seal Kits:
Buna N = N
Viton = V

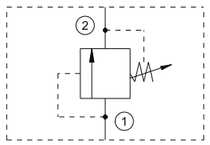
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
Other porting is available

TRV-08 - Directly Operated Relief Valve



Hydraulic Symbol:



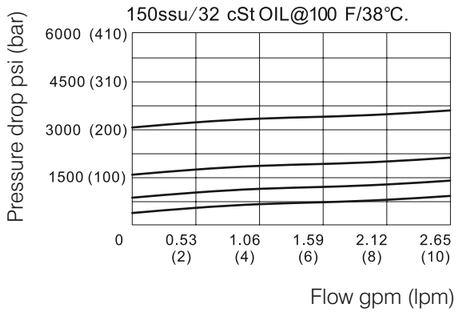
Specifications:

Operating Pressure	250 Bar
Flow	10L/min
Internal Leakage	5 drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

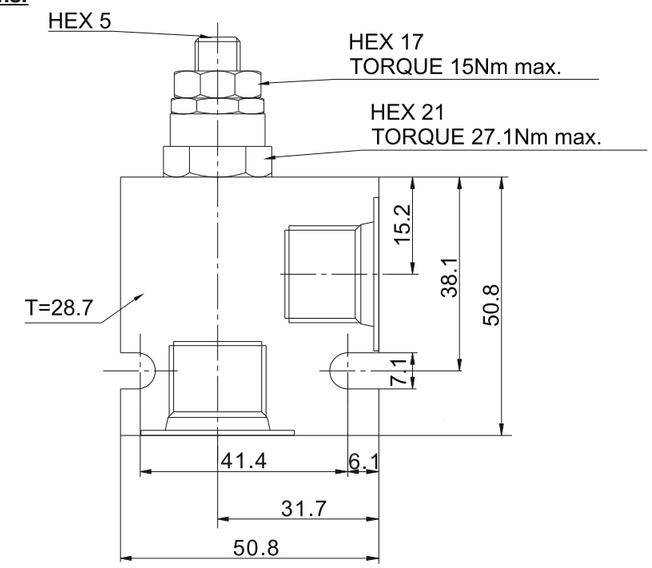
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV-08					

Adjustment:
Screw Adjust = No code
Non-adjustable = X

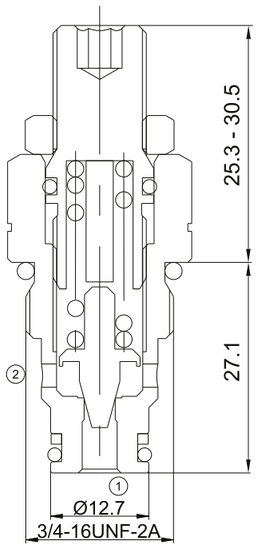
Pressure Range:
200-600psi(15-42bar) Preset:450psi(30bar) = 6
300-1000psi(20-69bar) Preset:600psi(41bar) = 10
600-2300psi(41-160bar) Preset:1800psi(127bar) = 23
200-3600psi(80-250bar) Preset:3000psi(210bar) = 36

Seal Kits:
Buna N = N
Viton = V

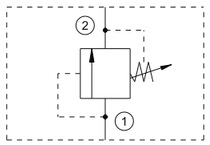
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV-08A - Directly Operated Relief Valve



Hydraulic Symbol:



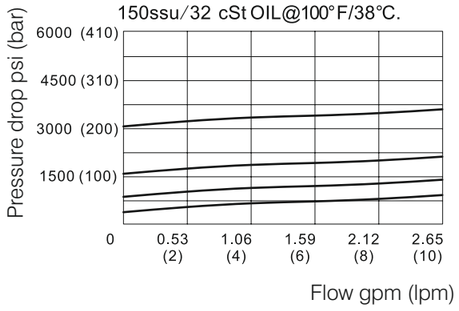
Specifications:

Operating Pressure	250 Bar
Flow	10L/min
Internal Leakage	5 drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

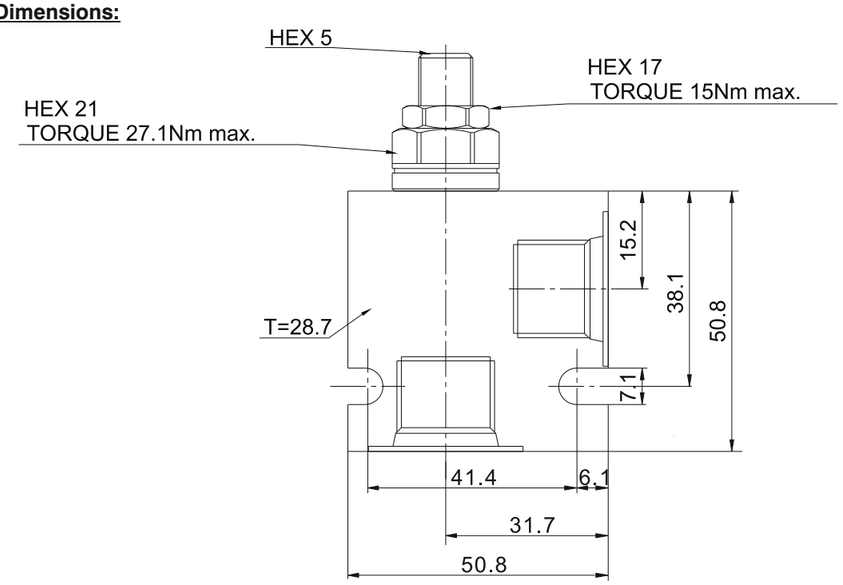
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV-08A				

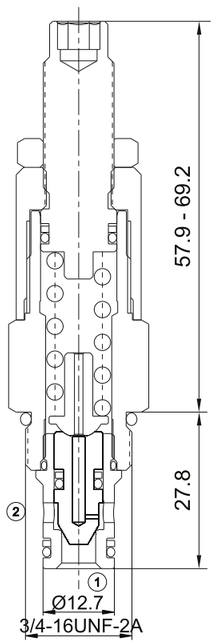
Pressure Range:
150-700psi(10-50bar) Preset:500psi(35bar) = 5
600-1450psi(40-100bar) Preset:1200psi(80bar) = 8
1200-2500psi(70-175bar) Preset:2300psi(160bar) = 10
1200-3000psi(120-210bar) Preset:2900psi(200bar) = 20

Seal Kits:
Buna N = N
Viton = V

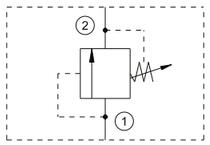
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TADRV2-08 - Directly Operated Relief Valve



Hydraulic Symbol:



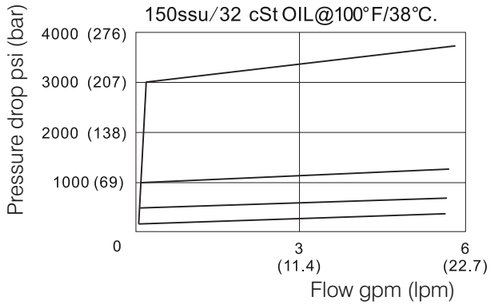
Specifications:

Operating Pressure	250 Bar
Flow	22.7L/min
Internal Leakage	3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

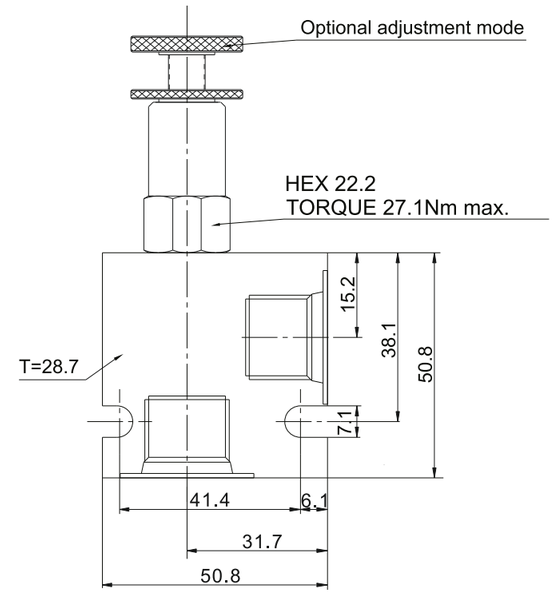
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TADRV2-08					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K
Hidden Adjustment = S

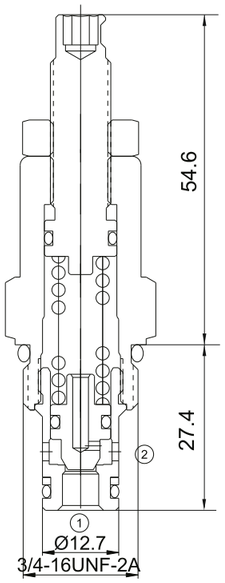
Pressure Range:
50-500psi(3.4-34.4bar) Preset:246psi(17bar) = 5
100-1100psi(6.9-75.8bar) Preset:550psi(38bar) = 9
250-2300psi(17.2-158.5bar) Preset:1160psi(80bar) = 18
250-3600psi(17.2-248.2bar) Preset:1800psi(124bar) = 33

Seal Kits:
Buna N = N
Viton = V

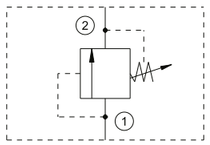
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV08-20 - Directly Operated Relief Valve



Hydraulic Symbol:



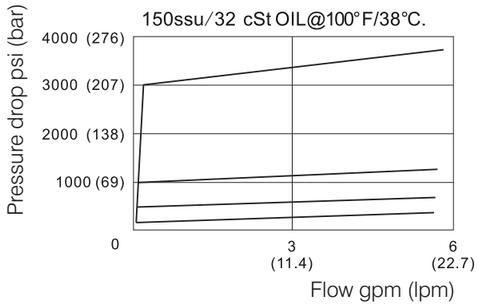
Specifications:

Operating Pressure	250 Bar
Flow	22.7L/min
Internal Leakage	5drop/min. max.to 75% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

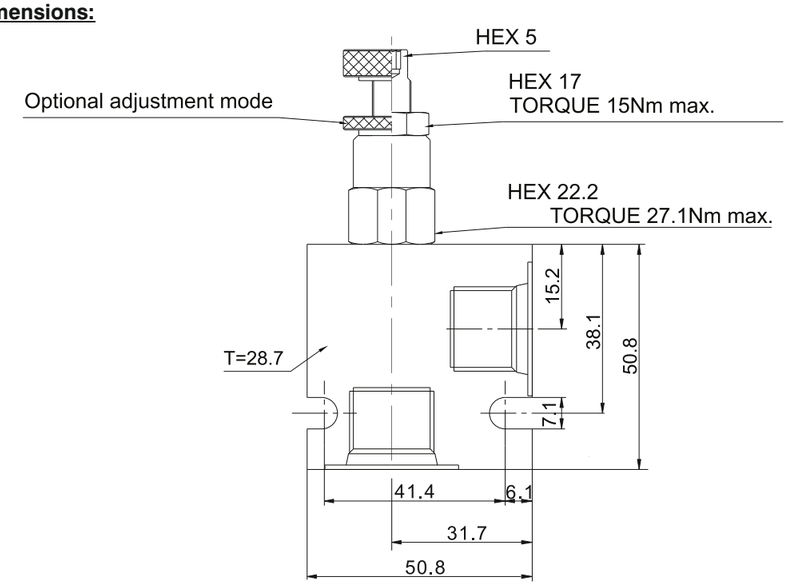
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV08-20					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

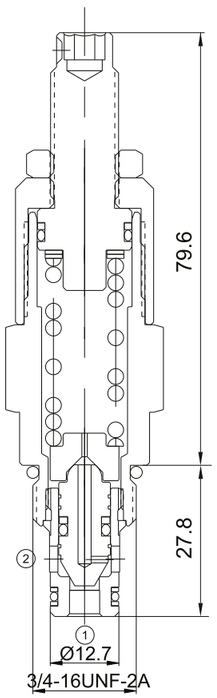
Pressure Range:
50-500psi(3.4-34.4bar) Preset:246psi(17bar) = 5
100-1100psi(6.9-75.8bar) Preset:550psi(38bar) = 9
250-2300psi(17.2-158.5bar) Preset:1160psi(80bar) = 18
250-3600psi(17.2-248.2bar) Preset:1800psi(124bar) = 33

Seal Kits:
Buna N = N
Viton = V

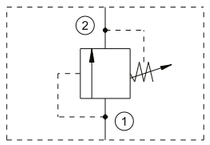
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV58-20 - Directly Operated Relief Valve



Hydraulic Symbol:



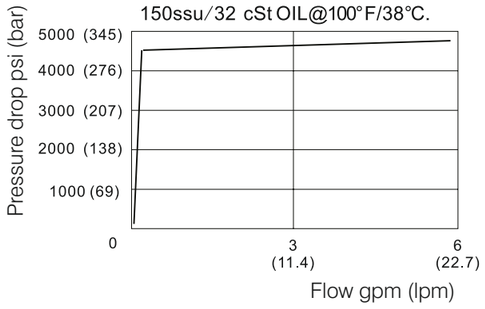
Specifications:

Operating Pressure	345 Bar
Flow	22.7L/min
Internal Leakage	0.25ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

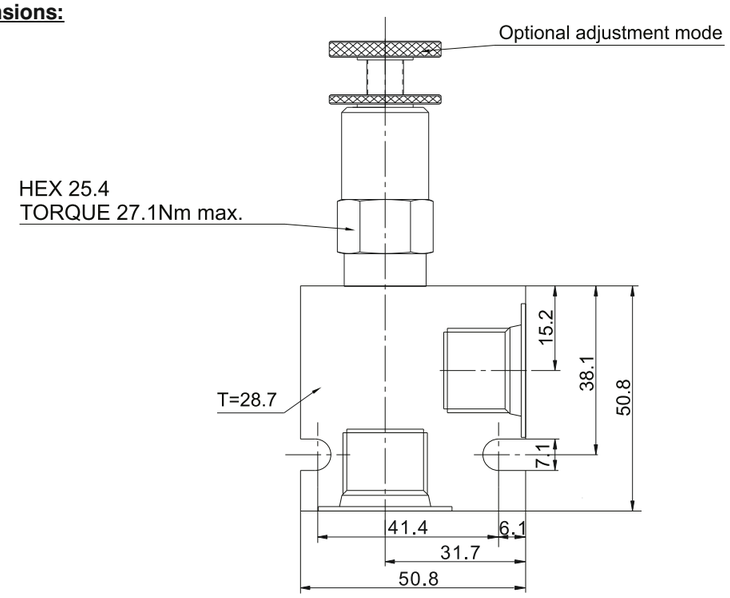
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Performance Curve
Pressure Drop vs Flow



Operation:
The valve prevents flow from ① to ② untill the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV58-20 | | | | | | |

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K
Tamper Resistant = C

Pressure Range:
400-4600psi(27.6-317.2bar) = 46

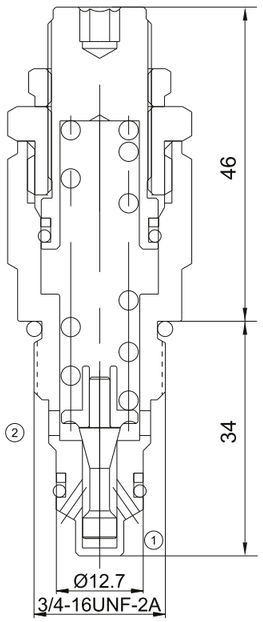
Setting In Bar:
Preset = No code
For Example: 50=50bar 100=100bar etc.

Seal Kits:
Buna N = N
Viton = V

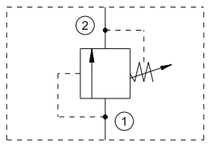
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNRV-08 - Directly Operated Relief Valve



Hydraulic Symbol:



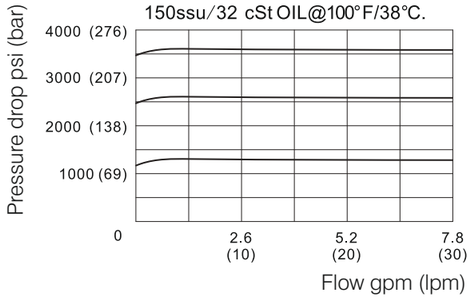
Specifications:

Operating Pressure	350 Bar
Flow	30L/min
Internal Leakage	5 drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Low leakage design
- Fast response to pressure surges

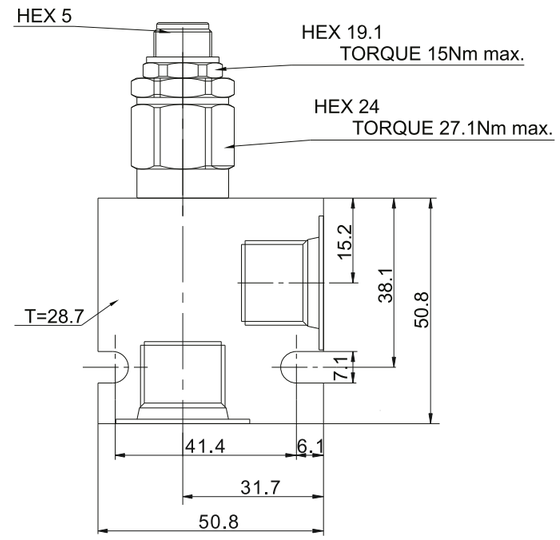
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TNRV-08 | | | | |

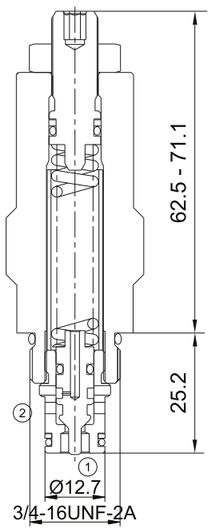
Pressure Range:
300-1800psi(20-125bar) Preset:1000psi(69bar) = 18
600-2600psi(40-180bar) Preset:2000psi(138bar) = 26
2600-5000psi(180-350bar) Preset:3000psi(207bar) = 50

Seal Kits:
Buna N = N
Viton = V

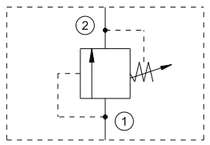
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV2-08 - Directly Operated Relief Valve



Hydraulic Symbol:



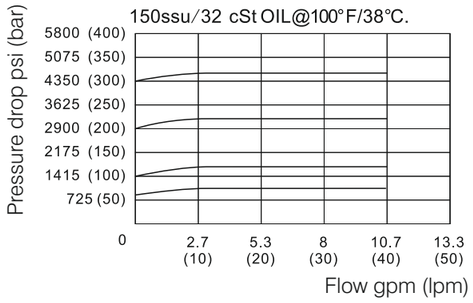
Specifications:

Operating Pressure	400 Bar
Flow	30L/min
Internal Leakage	5 drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

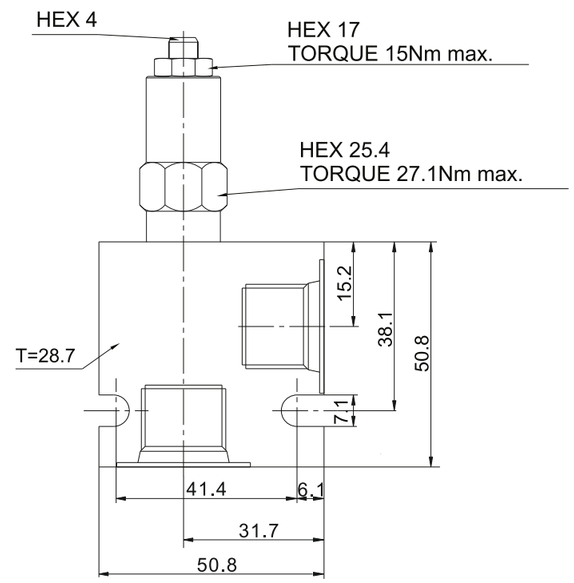
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV2-08 | | | | |

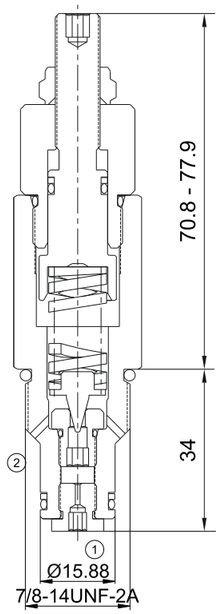
Pressure Range:
100-1500psi(7-100bar) Preset:1000psi(70bar) = 10
600-3000psi(35-210bar) Preset:1500psi(100bar) = 20
700-5800psi(50-400bar) Preset:4000psi(280bar) = 40

Seal Kits:
Buna N = N
Viton = V

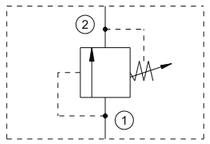
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV-10 - Directly Operated Relief Valve



Hydraulic Symbol:



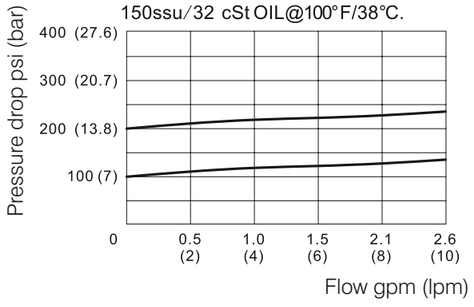
Specifications:

Operating Pressure	315 Bar
Flow	10 L/min
Preset Pressure	200 Bar
Internal Leakage	5 drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

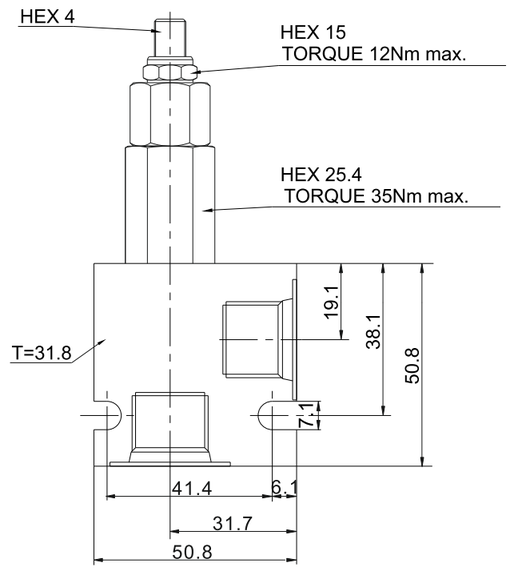
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

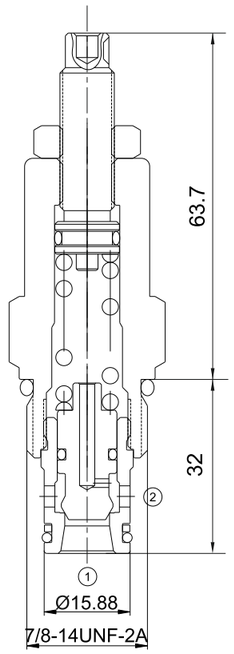
TRV-10			

Seal Kits:
Buna N = N
Viton = V

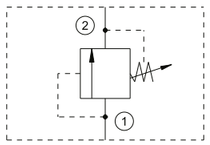
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV-10-20 - Directly Operated Relief Valve



Hydraulic Symbol:



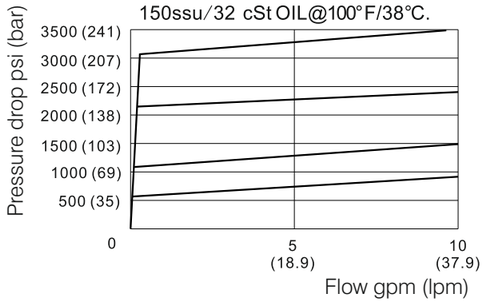
Specifications:

Operating Pressure	230 Bar
Flow	37.9L/min
Internal Leakage	5 drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

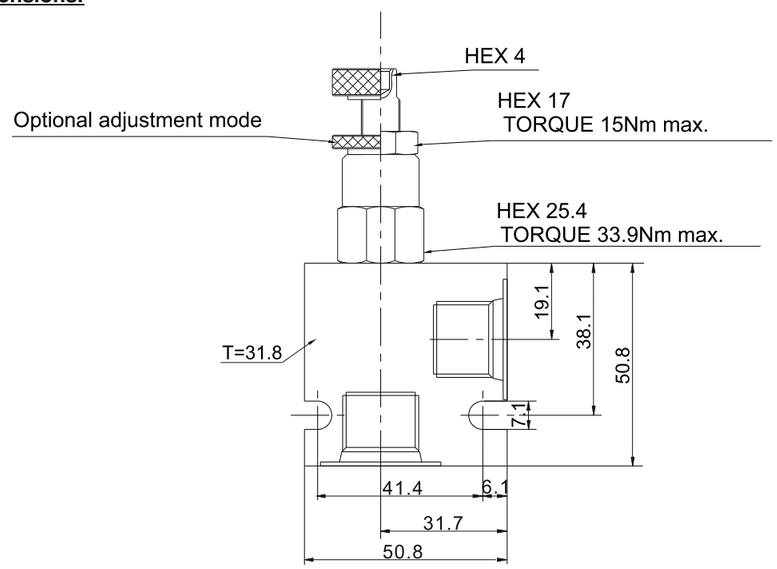
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV10-20 | | | | | |

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

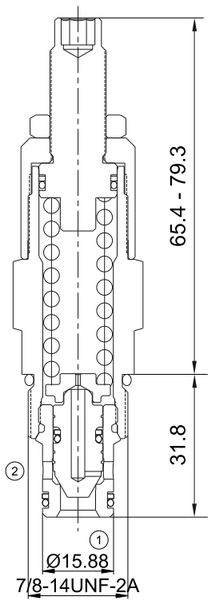
Pressure Range:
50-600psi(3.45-41.38bar) Preset:300psi(20.7bar) = 6
150-1200psi(10.34-82.7bar) Preset:600psi(41.4bar) = 12
250-2300psi(17.24-158.62bar) Preset:1160psi(80bar) = 23

Seal Kits:
Buna N = N
Viton = V

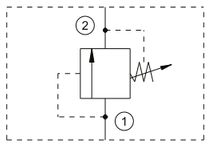
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TADRV2-10 - Directly Operated Relief Valve



Hydraulic Symbol:



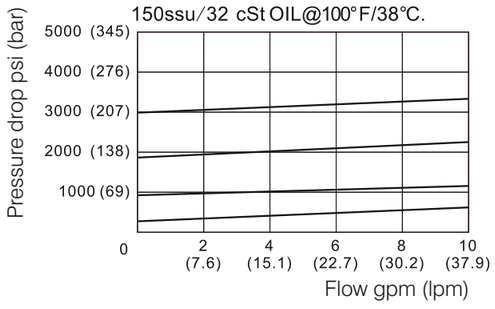
Specifications:

Operating Pressure	207 Bar
Flow	37.5L/min
Internal Leakage	5 drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

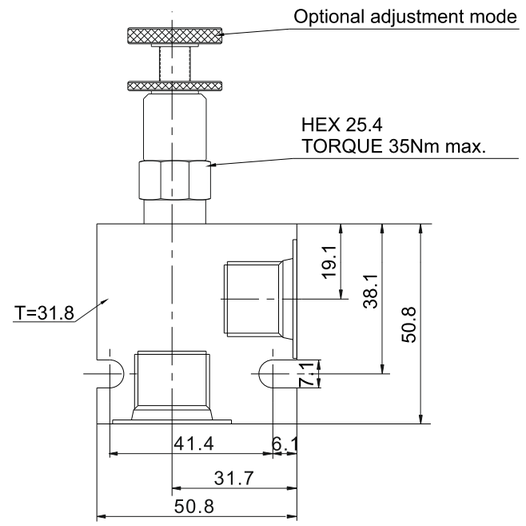
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TADRV2-10					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K
Hidden Adjustment = S

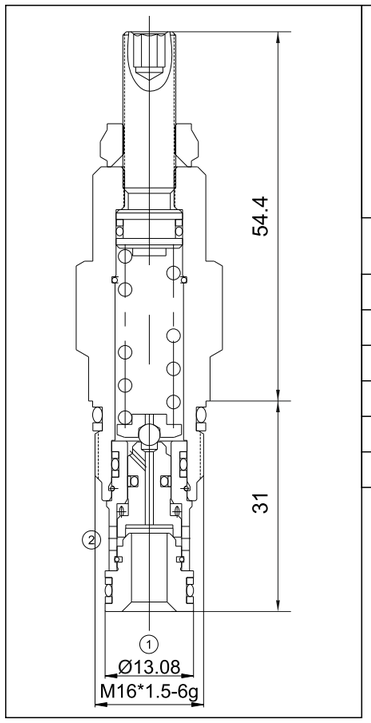
Pressure Range:
50-600psi(3.45-41.38bar) Preset:300psi(20.7bar) = 6
150-1200psi(10.34-82.7bar) Preset:600psi(41.4bar) = 12
250-2300psi(17.24-158.62bar) Preset:1160psi(80bar) = 23
250-3300psi(17.24-227.59bar) Preset:1650psi(113.8bar) = 33

Seal Kits:
Buna N = N
Viton = V

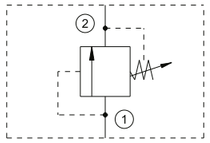
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 6N
Other porting is available

TRDBA - Directly Operated Relief Valve



Hydraulic Symbol:



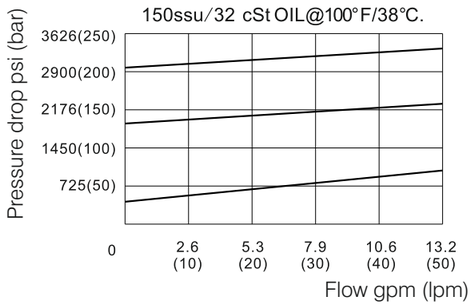
Specifications:

Operating Pressure	350 Bar
Flow	45L/min
Internal Leakage	0.7ml/min.max.to 90% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil contamination.

Performance Curve
Pressure Drop vs Flow

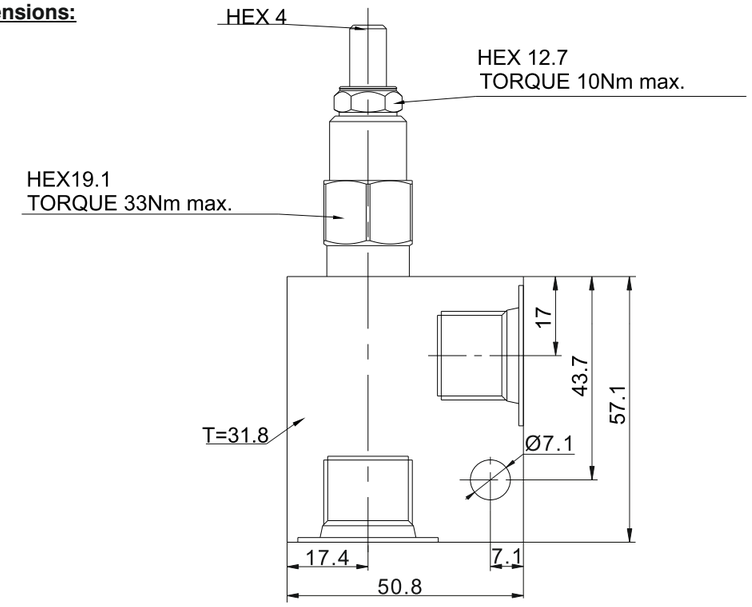


Operation:

Direct-acting relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TRDBA					

Adjustment:
Screw Adjust = L

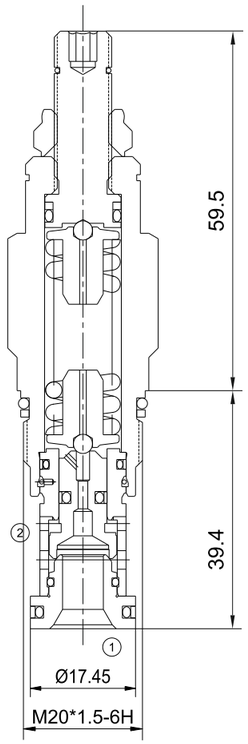
Pressure Range:
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
800-4500psi(55-315bar) Preset:1000psi(70bar) = W
1000-6000psi(70-420bar) Preset:1000psi(70bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
50-200psi(3.5-14bar) Preset:100psi(7bar) = S

Seal Kits:
Buna N = N
Viton = V

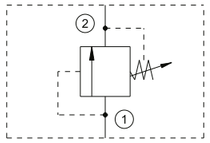
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

TRDDA - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	95L/min
Internal Leakage	0.7ml/min.max.to 90% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-10A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

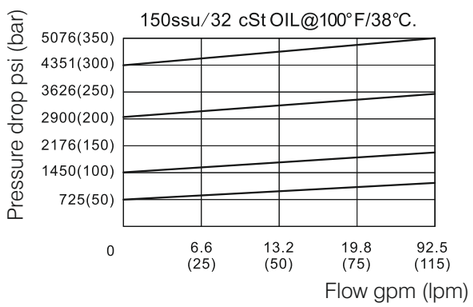
Features:

- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil contamination.

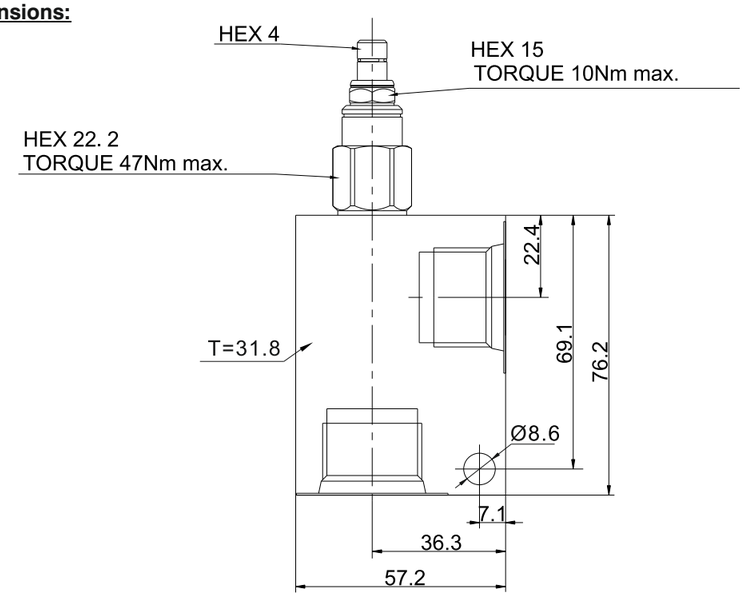
Operation:

Direct-acting relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulic components from Pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRDDA					

Adjustment:
Screw Adjust = L

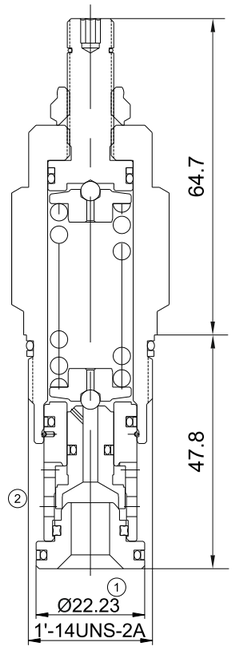
Pressure Range:
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
800-4500psi(55-315bar) Preset:1000psi(70bar) = W
1000-6000psi(70-420bar) Preset:1000psi(70bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
50-200psi(3.5-14bar) Preset:100psi(7bar) = S

Seal Kits:
Buna N = N
Viton = V

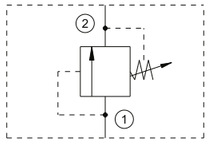
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 12T = 12T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRDFA - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	200L/min
Internal Leakage	0.7ml/min.max.to 90% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

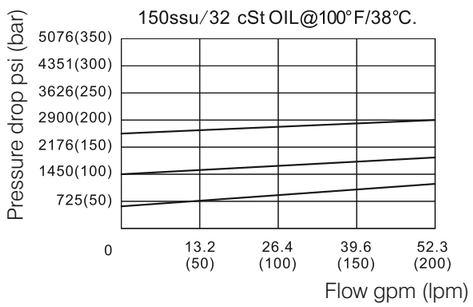
Features:

- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil contamination.

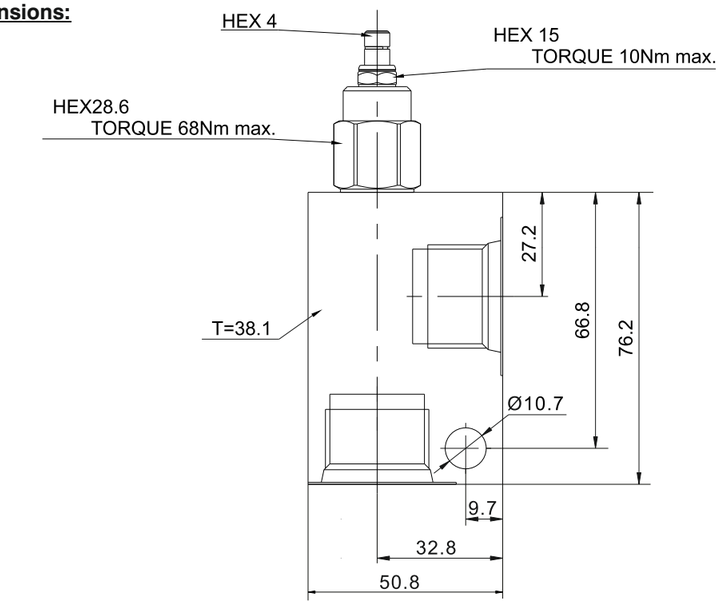
Operation:

Direct-acting relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRDFA					

Adjustment:
Screw Adjust = L

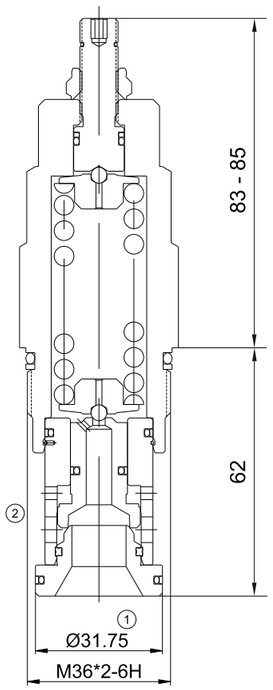
Pressure Range:
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
800-4500psi(55-315bar) Preset:1000psi(70bar) = W
1000-6000psi(70-420bar) Preset:1000psi(70bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
50-200psi(3.5-14bar) Preset:100psi(7bar) = S

Seal Kits:
Buna N = N
Viton = V

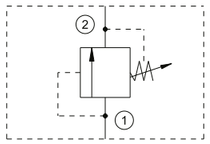
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 12T = 12T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRDHA - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	380L/min
Internal Leakage	0.7ml/min.max.to 90% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-16A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

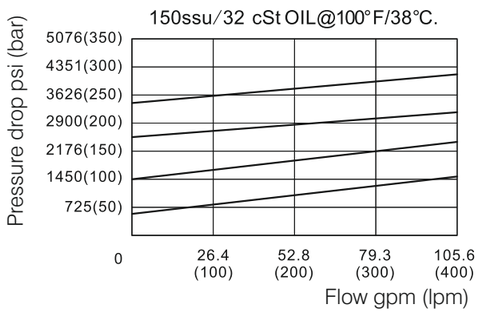
Features:

- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil contamination.

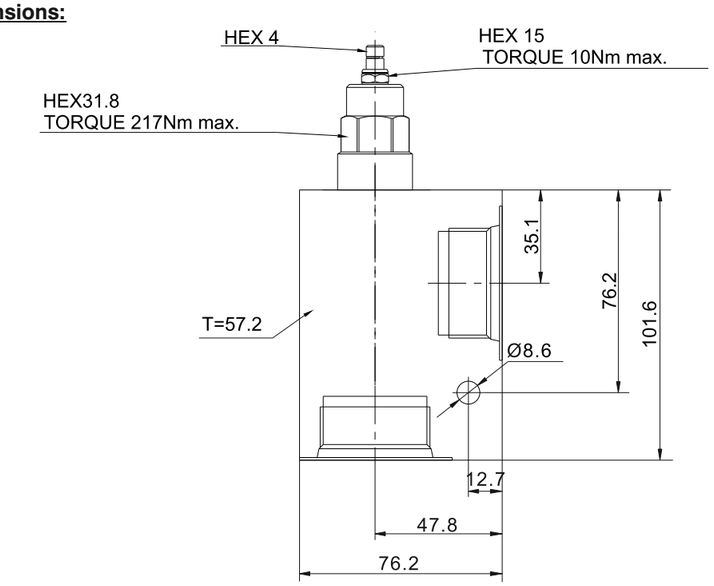
Operation:

Direct-acting relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRDHA					

Adjustment:
Screw Adjust = L

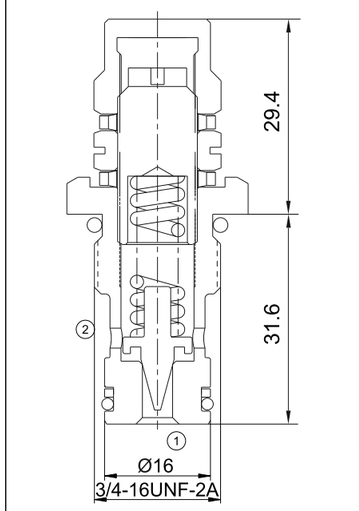
Pressure Range:
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
800-4500psi(55-315bar) Preset:1000psi(70bar) = W
1000-6000psi(70-420bar) Preset:1000psi(70bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
50-200psi(3.5-14bar) Preset:100psi(7bar) = S

Seal Kits:
Buna N = N
Viton = V

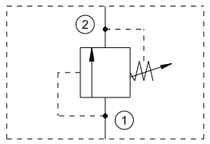
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 12T = 12T
SAE 20T = 20T
G1 = 8G
NPT1 = 8N
Other porting is available

TRV3-08 - Directly Operated Relief Valve



Hydraulic Symbol:



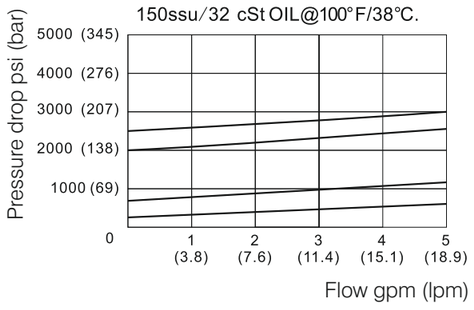
Specifications:

Operating Pressure	210 Bar
Flow	18.9L/min
Internal Leakage	3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2106 see page K-16
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

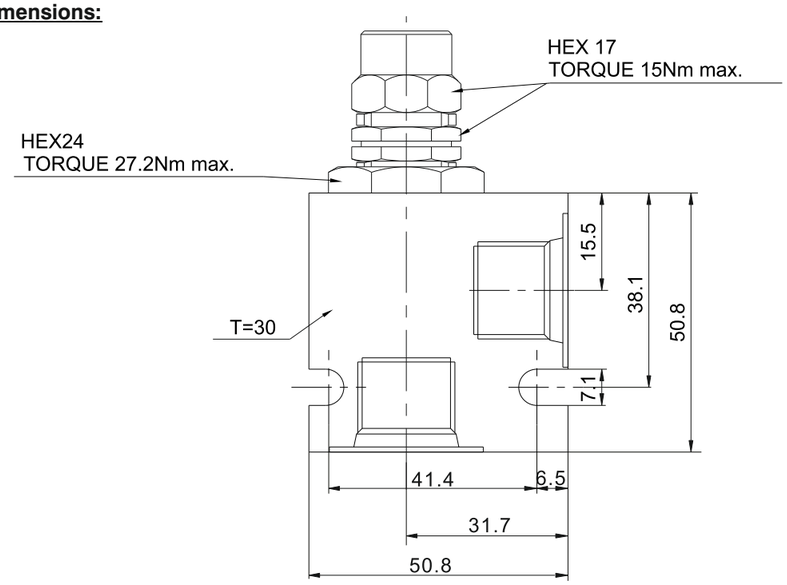
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization

Installation Dimensions:



Ordering code details:

TRV3-08				

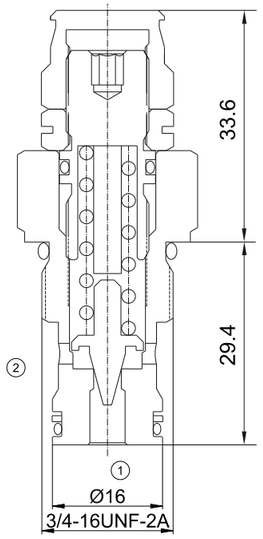
Pressure Range:
100-700psi(7-47bar) Preset:600psi(40bar) = 5
600-1400psi(39-98bar) Preset:1200psi(80bar) = 10
1200-2500psi(73-171bar) Preset:1900psi(130bar) = 15
1800-3000psi(123-210bar) Preset:2500psi(170bar) = 20

Seal Kits:
Buna N = N
Viton = V

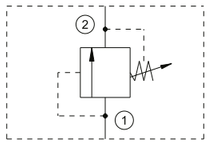
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV3-08S - Directly Operated Relief Valve



Hydraulic Symbol:



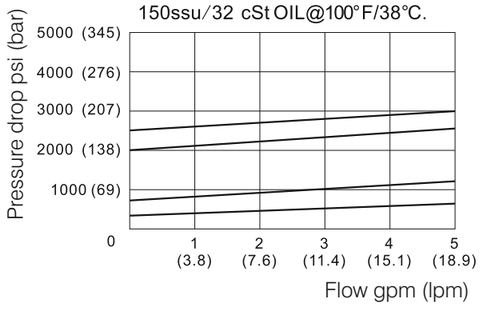
Specifications:

Operating Pressure	210 Bar
Flow	18.9L/min
Internal Leakage	3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2106 see page K-16
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

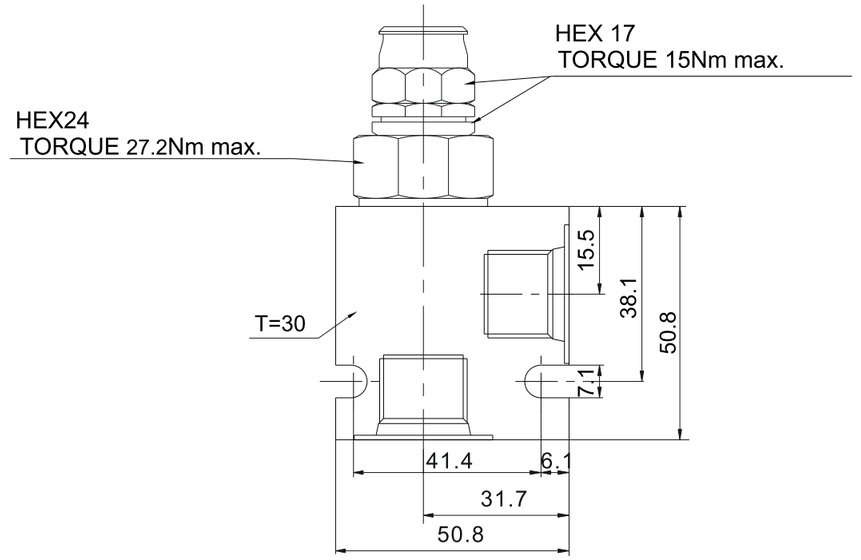
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV3-08S | | | | |

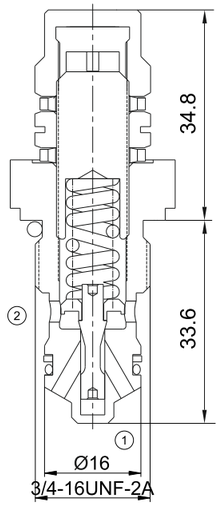
Pressure Range:
150-700psi(10-50bar) Preset:500psi(35bar) = 5
600-1450psi(40-100bar) Preset:1200psi(80bar) = 8
1200-2500psi(70-175bar) Preset:2300psi(160bar) = 10
1200-3000psi(120-210bar) Preset:2900psi(200bar) = 20

Seal Kits:
Buna N = N
Viton = V

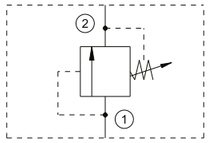
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV4-08 - Directly Operated Relief Valve



Hydraulic Symbol:



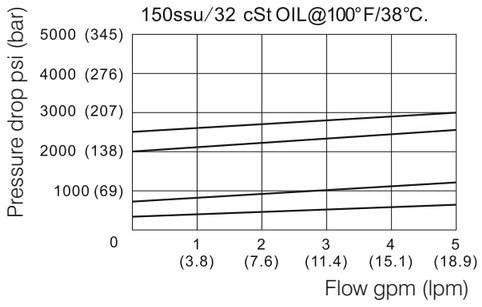
Specifications:

Operating Pressure	250 Bar
Flow	35L/min
Internal Leakage	3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2106 see page K-16
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

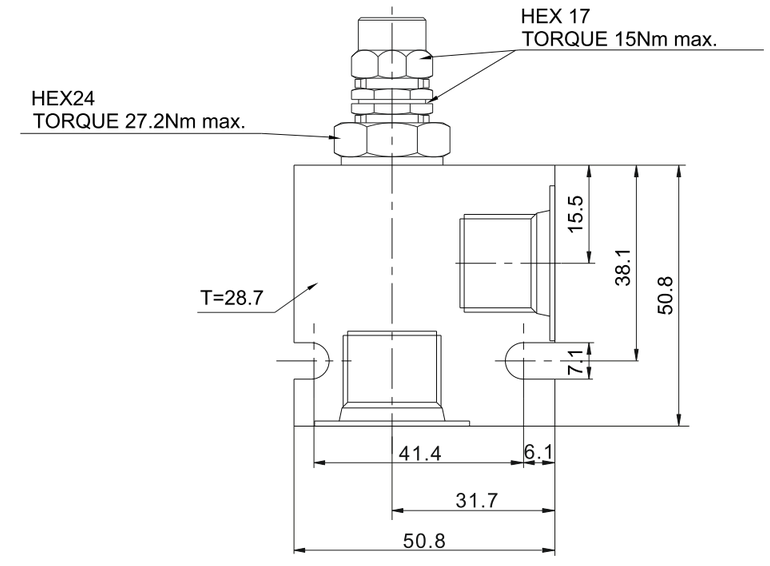
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

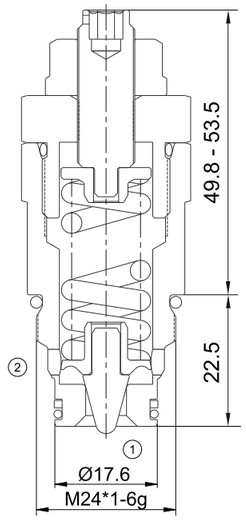
TRV4-08 | | | |

Seal Kits:
Buna N = N
Viton = V

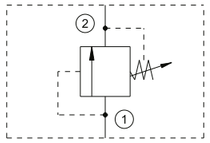
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV2-10 - Directly Operated Relief Valve



Hydraulic Symbol:



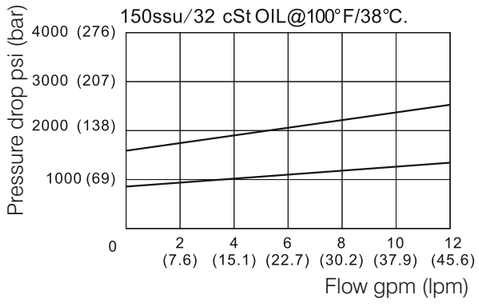
Specifications:

Operating Pressure	315 Bar
Flow	45.6L/min
Internal Leakage	5 drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2303 see page K-18
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

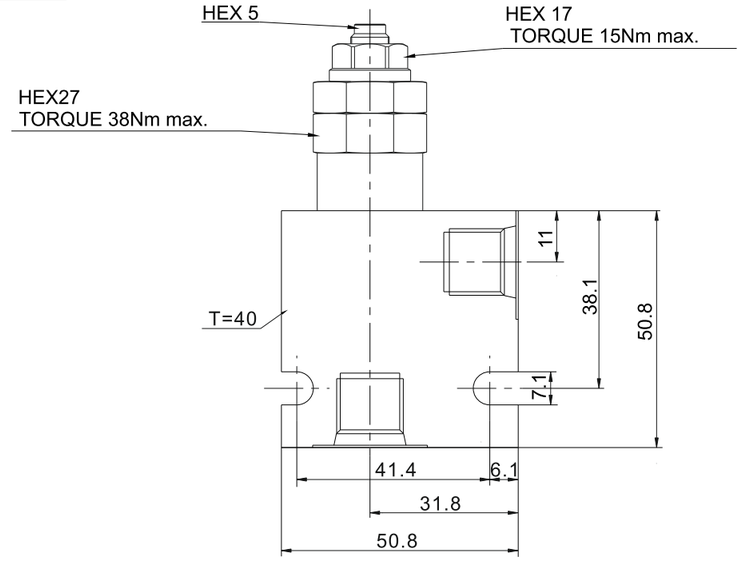
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV2-10				

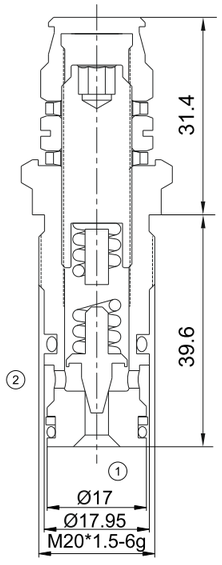
Pressure Range:
300-1500psi(20-100bar) Preset:1200psi(80bar) = 10
300-3800psi(20-260bar) Preset:3000psi(210bar) = 26

Seal Kits:
Buna N = N
Viton = V

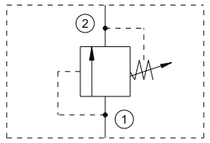
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-08M - Directly Operated Relief Valve



Hydraulic Symbol:



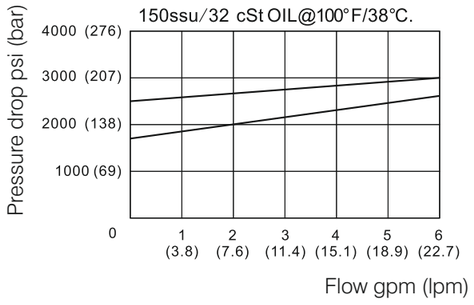
Specifications:

Operating Pressure	315 Bar
Flow	22.7L/min
Internal Leakage	5 drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	M201.5T see page K-21
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

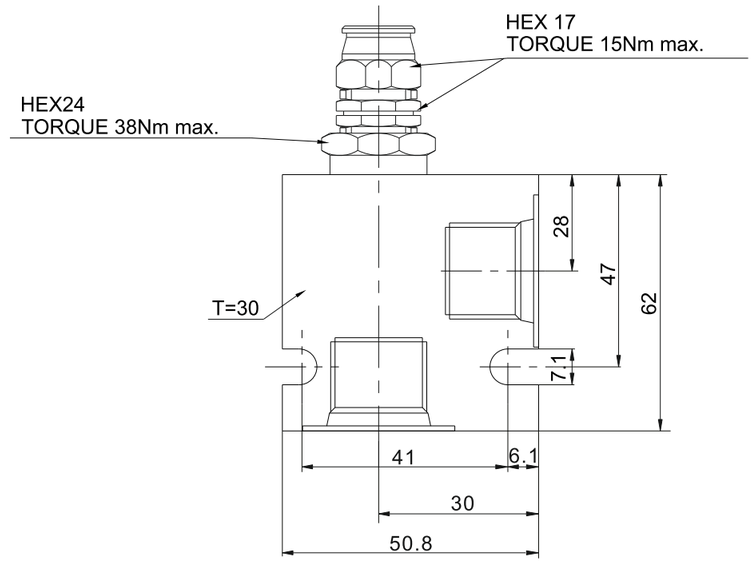
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV-08M				

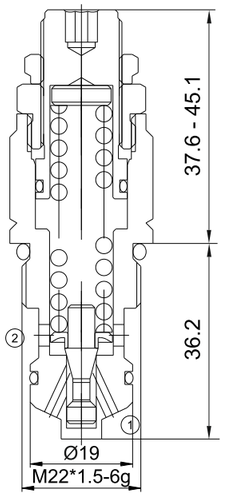
Pressure Range:
1000-2500psi(70-175bar) Preset:2300psi(160bar) = 16
1700-3000psi(120-210bar) Preset:2900psi(200bar) = 20

Seal Kits:
Buna N = N
Viton = V

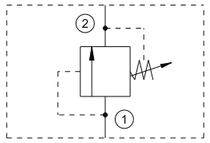
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-M22 - Directly Operated Relief Valve



Hydraulic Symbol:



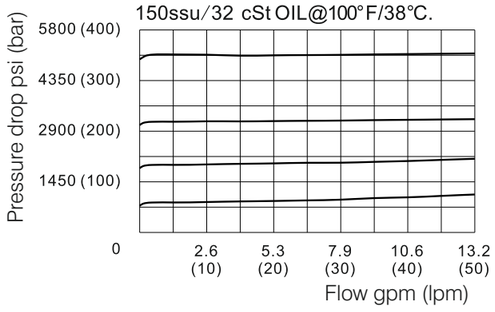
Specifications:

Operating Pressure	350 Bar
Flow	50L/min
Internal Leakage	0.25ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	M221.5T see page K-22
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

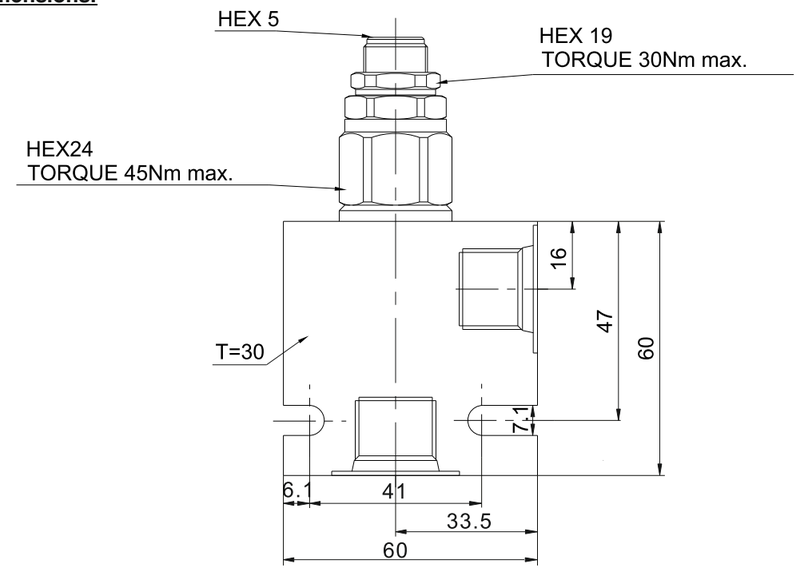
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV-M22				

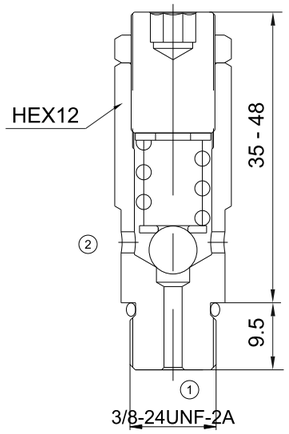
Pressure Range:
200-870psi(15-60bar) Preset:650psi(45bar) = Y
360-1900psi(25-135bar) Preset:1000psi(70bar) = N
700-3200psi(50-220bar) Preset:1500psi(100bar) = B
1700-5000psi(120-350bar) Preset:3000psi(210bar) = G

Seal Kits:
Buna N = N
Viton = V

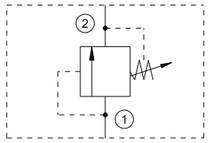
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRVSAE3 - Directly Operated Relief Valve



Hydraulic Symbol:



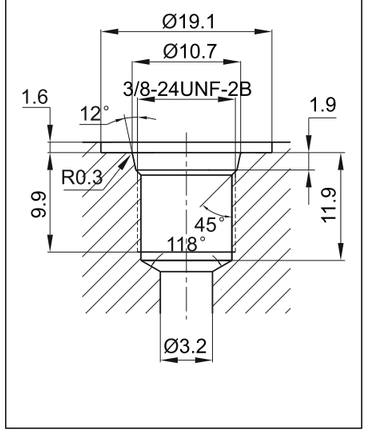
Specifications:

Operating Pressure	207 Bar
Flow	10L/min
Internal Leakage	5drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Pressure Range:
1000-3000psi(70-207bar) Preset:2300psi(160bar) = 30

Features:

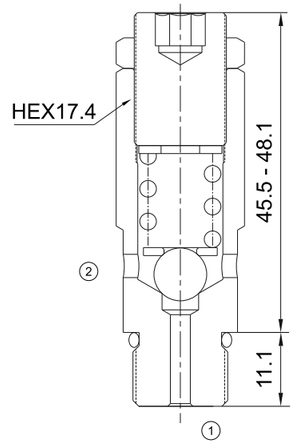
- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges



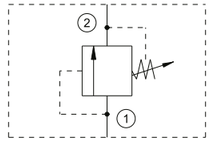
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

TRVSAE6 - Directly Operated Relief Valve



Hydraulic Symbol:



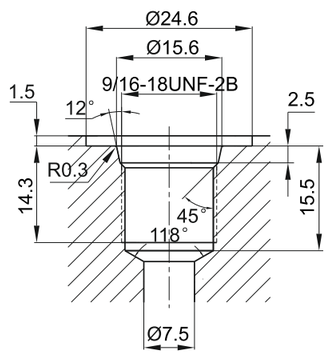
Specifications:

Operating Pressure	207 Bar
Flow	10L/min
Internal Leakage	5drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Pressure Range:
200-1200psi(15-82bar) Preset:300psi(22bar) = 12
200-1200psi(15-82bar) Preset:300psi(22bar) = 30

Features:

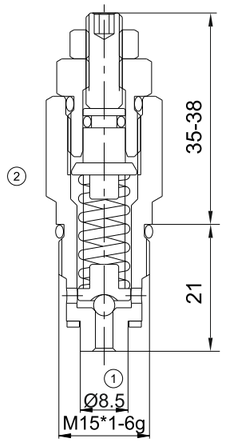
- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges



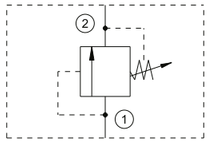
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

TRV-06 - Directly Operated Relief Valve



Hydraulic Symbol:



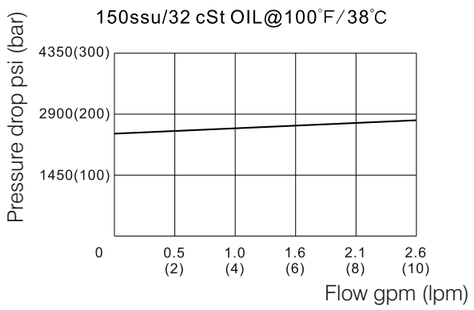
Specifications:

Operating Pressure	300 Bar
Flow	10L/min
Pressure range	10bar-304bar ,Preset:170bar
Internal Leakage	5ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CV-06 see page K-25
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

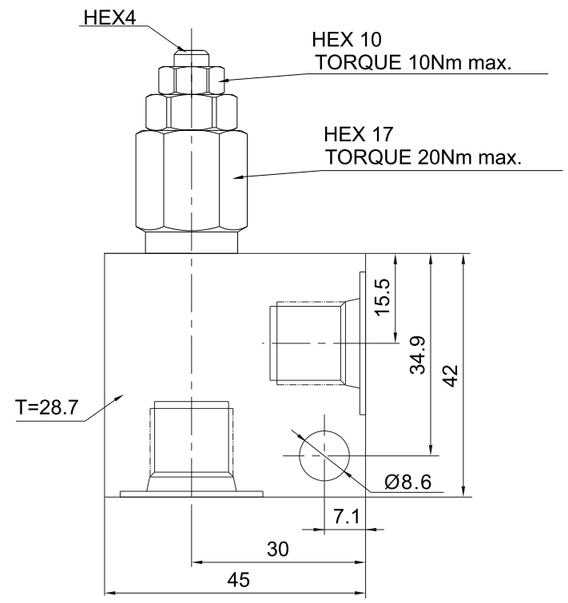
Performance Curve
Pressure Drop vs Flow



Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

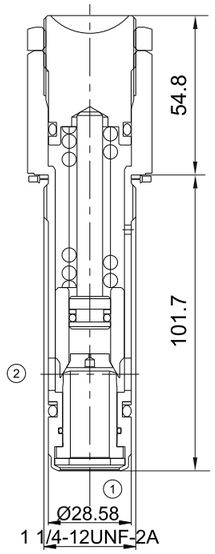
TRV-06			

Seal Kits:
Buna N = N
Viton = V

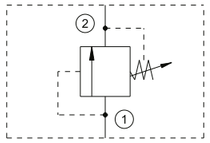
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-SDV70 - Directly Operated Relief Valve



Hydraulic Symbol:



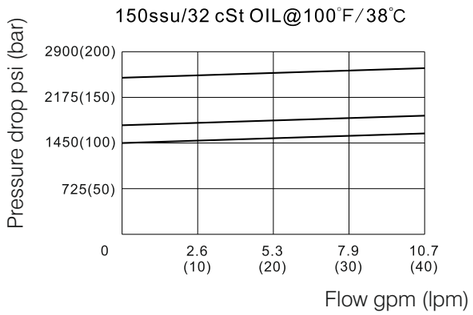
Specifications:

Operating Pressure	250 Bar
Flow	265L/min
Internal Leakage	5ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV-SDV70 see page K-26
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Performance Curve
Pressure Drop vs Flow

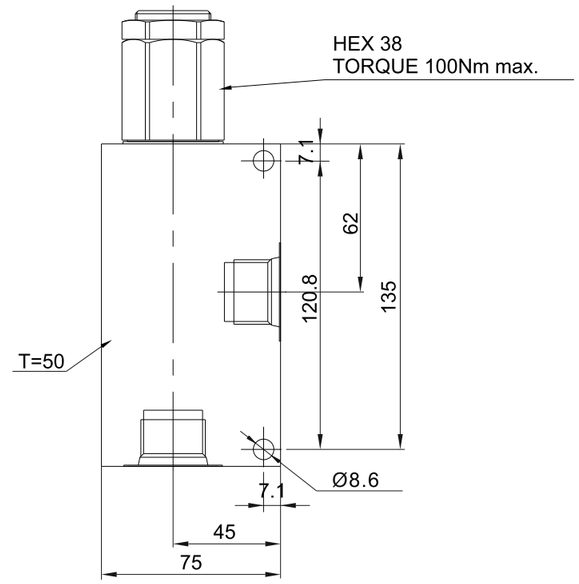


Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TRV-SDV70 | | | | |

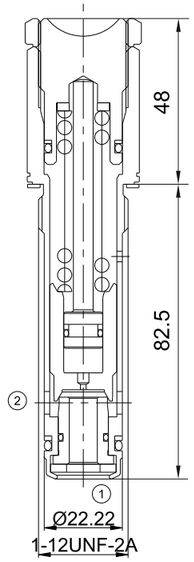
Pressure Range:
800-2000psi(55-138bar) Preset:1500psi(103bar) = 1
2500-3500psi(172-240bar) Preset:3000psi(207bar) = H
2000-2500psi(138-172bar) Preset:2500psi(172bar) = 2
1500-2500psi(103-172bar) Preset:2000psi(138bar) = 1H

Seal Kits:
Buna N = N
Viton = V

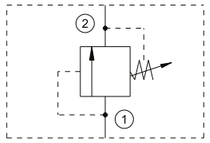
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-SDV40 - Directly Operated Relief Valve



Hydraulic Symbol:



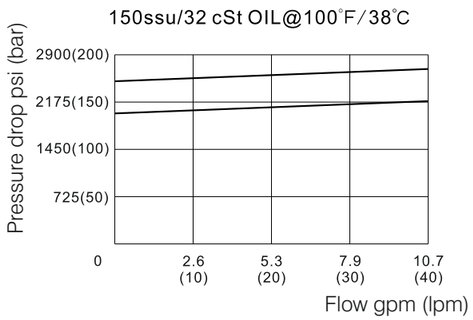
Specifications:

Operating Pressure	240 Bar
Flow	150L/min
Internal Leakage	5ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV-SDV40 see page K-26
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Performance Curve
Pressure Drop vs Flow

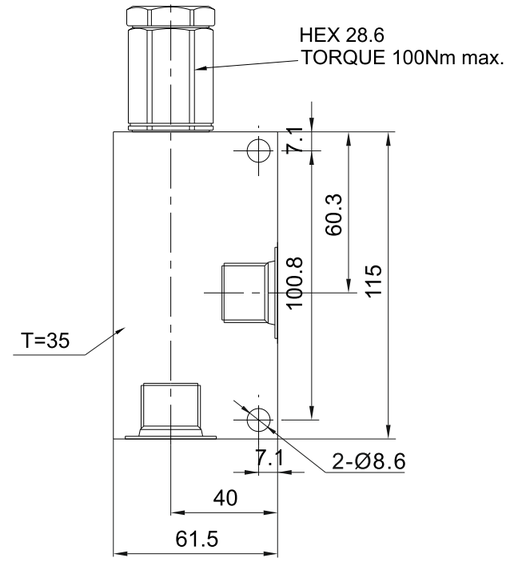


Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TRV-SDV40 | | | | |

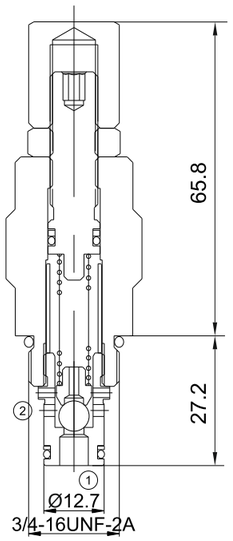
Pressure Range:
2500-3500psi(172-240bar) Preset:3000psi(207bar) = H
800-2500psi(55-172bar) Preset:2000psi(138bar) = 00
2000-2500psi(138-172bar) Preset:2500psi(172bar) = 2500

Seal Kits:
Buna N = N
Viton = V

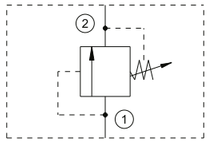
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-1DRX91 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	460 Bar
Flow	30L/min
Pressure Range	0 bar-33bar ,Preset 1.7bar
Internal Leakage	5drops/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

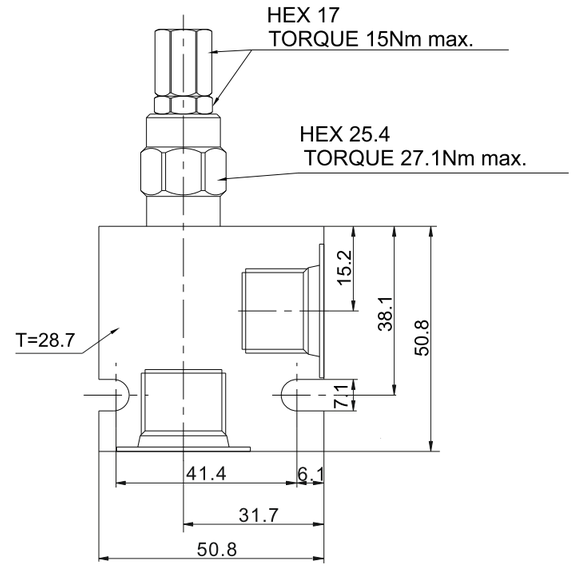
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

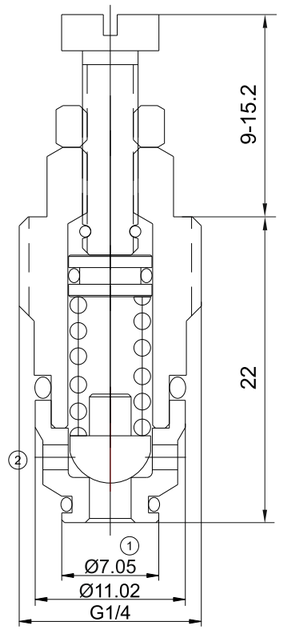
TRV-1DRX91			

Seal Kits:
Buna N = N
Viton = V

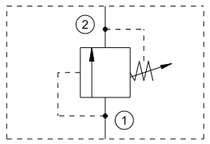
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV-G1/4 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	3L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV-G1/4 see page K-24
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

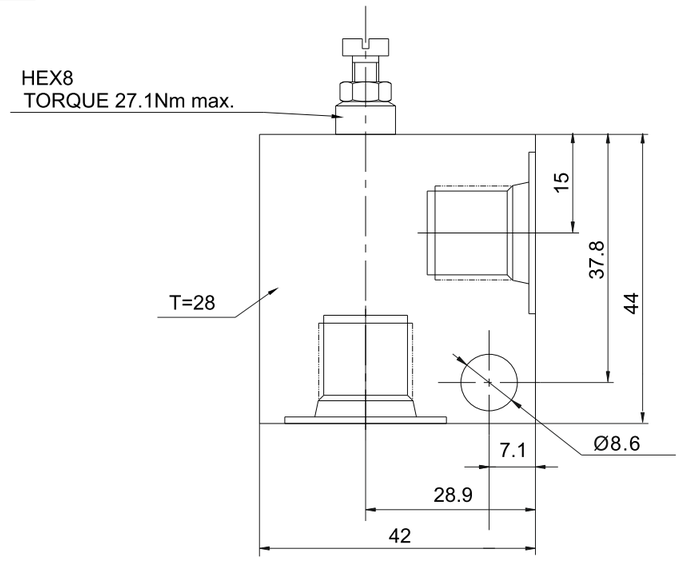
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Installation Dimensions:



Ordering code details:

TRV-G1/4 | | | | |

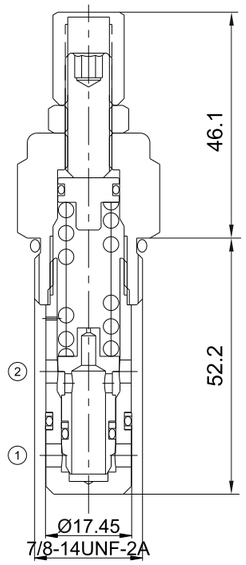
Pressure Range:
0-2610psi(0-180bar) Preset:1160psi(80bar) = 26

Seal Kits:
Buna N = N
Viton = V

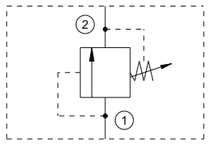
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TDRV-10S - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	114L/min
Pressure Range	25bar-155bar ,Preset:110bar
Internal Leakage	3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	DRV-10S see page K-23
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

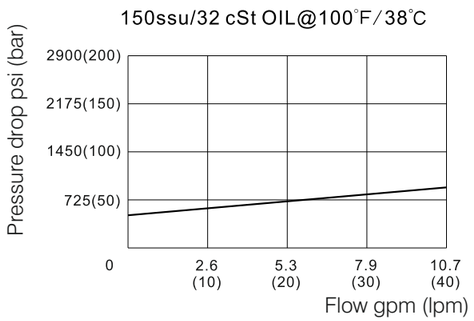
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

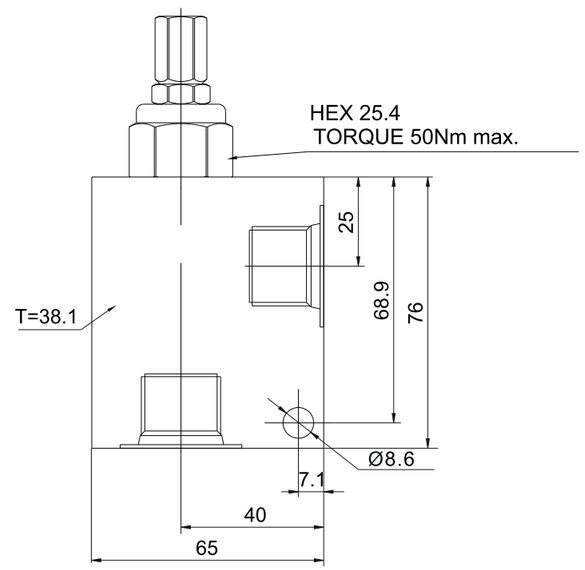
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

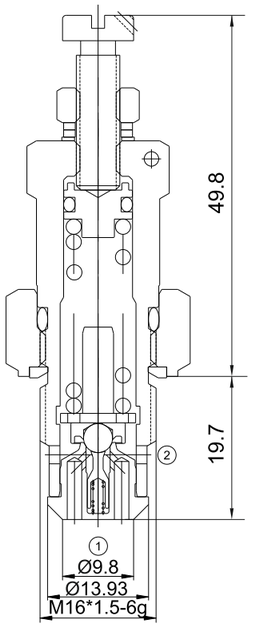
TRV-1DRX91 | | | |

Seal Kits:
Buna N = N
Viton = V

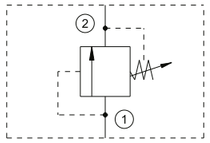
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TCMV1 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	500 Bar
Flow	20L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CMV1 see page K-35
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

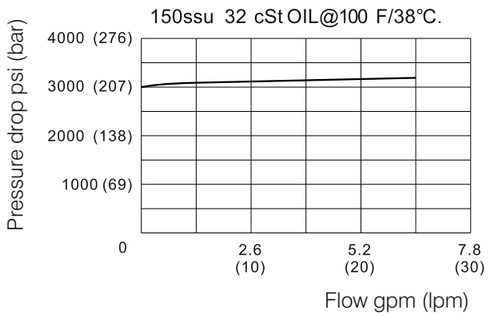
Features:

- Hardened, precision ground parts for durability
- Compact size
- Industry common cavity
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

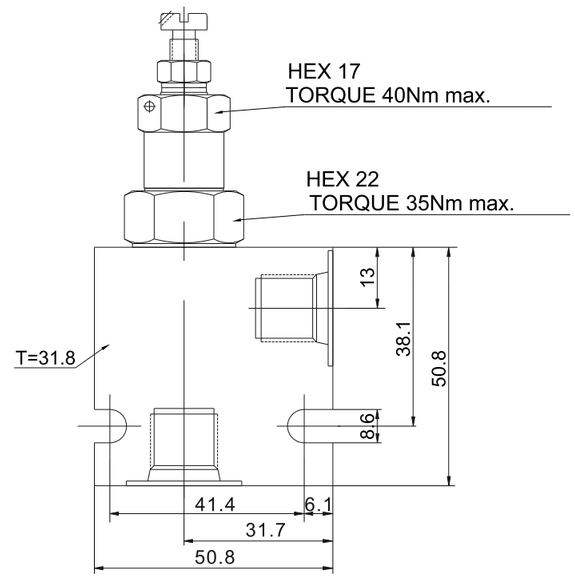
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TCMV1 | | | | |

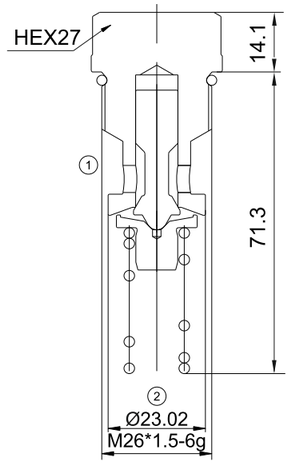
Pressure Range:
1450-7200psi(100-500bar) Preset:6000psi(420bar) = B
900-4500psi(60-315bar) Preset:3800psi(260bar) = C
450-2300psi(30-160bar) Preset:1900psi(130bar) = E
200-1200psi(15-80bar) Preset:900psi(60bar) = F

Seal Kits:
Buna N = N
Viton = V

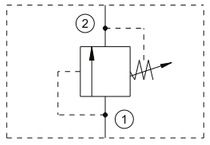
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TBRV-M26 - Directly Operated Relief Valve



Hydraulic Symbol:

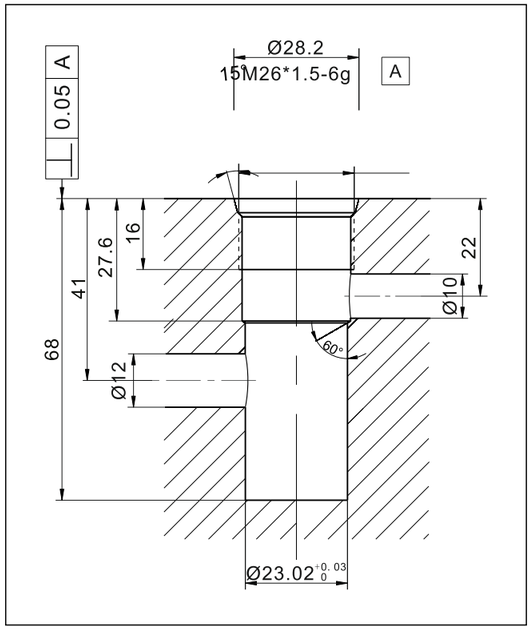


Specifications:

Operating Pressure	350 Bar
Cracking Pressure	17 Bar
Flow	28L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

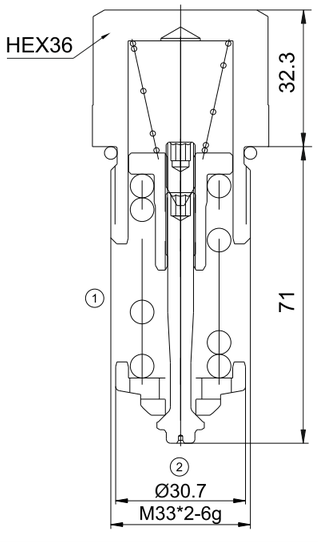


Ordering code details:

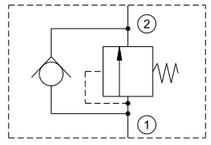
TBRV-M26	

Seal Kits:
Buna N = N
Viton = V

TBRV-M33 - Directly Operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:

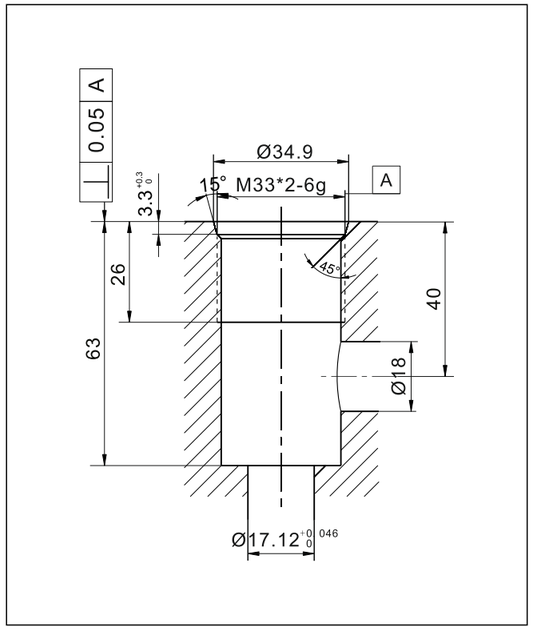


Specifications:

Operating Pressure	420 Bar
Cracking Pressure	400 Bar
Flow	90L/min
Internal Leakage	1ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

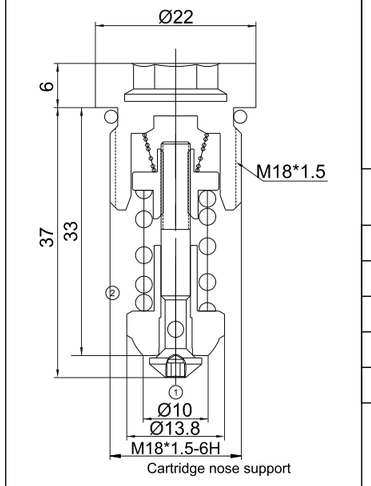


Ordering code details:

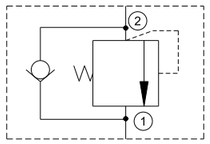
TBRV-M33	

Seal Kits:
Buna N = N
Viton = V

TACR-M18 - A cartridge-style direct-acting poppet-type anti-cavitation relief valve



Hydraulic Symbol:

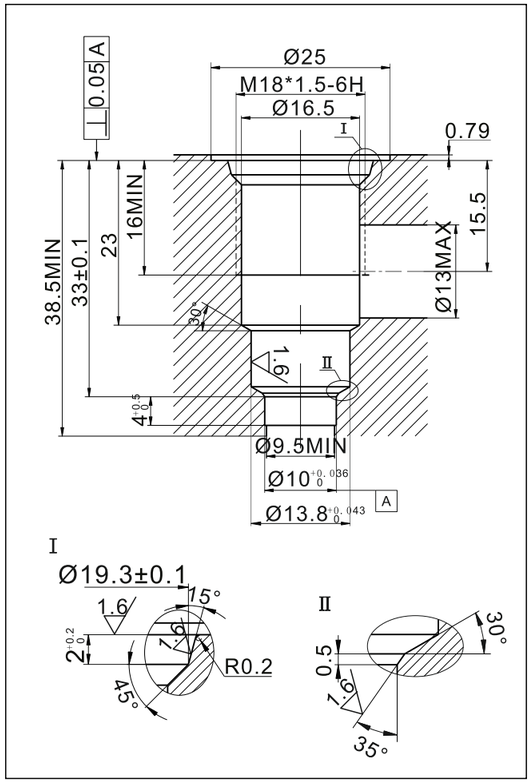


Specifications:

Operating Pressure	380 Bar
Flow	60L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

Flow is free from ① to ② untill pressure increases to meet the selected valve setting, allowing relief flow through port ① to tank. This valve combines the typical function of shock relief valve (direct acting) and anti-cavitation function through the check valve. The direct action and the specific design allow a very fast opening and closing. Note: to obtain a good leak proof performance coin the cavity seat using a loose valve seat as a coning tool. Torque to be applied :4.5 ± 2 Nm.



Ordering code details:

TACR-M18			

Pressure range:

150-1000psi(10-70bar)	= 5
1000-1750psi(70-120bar)	= 10
1750-2900psi(120-200bar)	= 20
2900-3900psi(200-270bar)	= 27
3900-4700psi(270-320bar)	= 32
4700-5500psi(320-380bar)	= 35

Setting in bar:

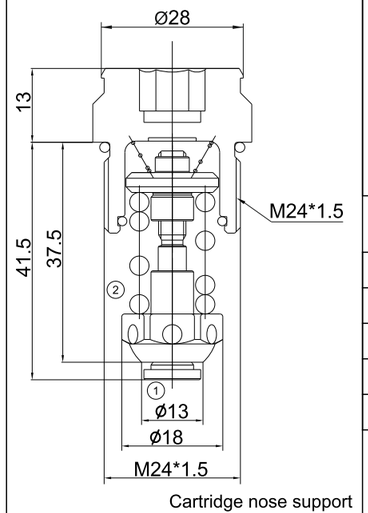
Preset	= No code

EXAMPLE:100=100 Bar

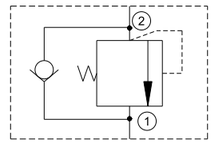
Seals:

Buna N	= N
Viton	= V

TACR-M24 - A cartridge-style direct-acting poppet-type anti-cavitation relief valve



Hydraulic Symbol:

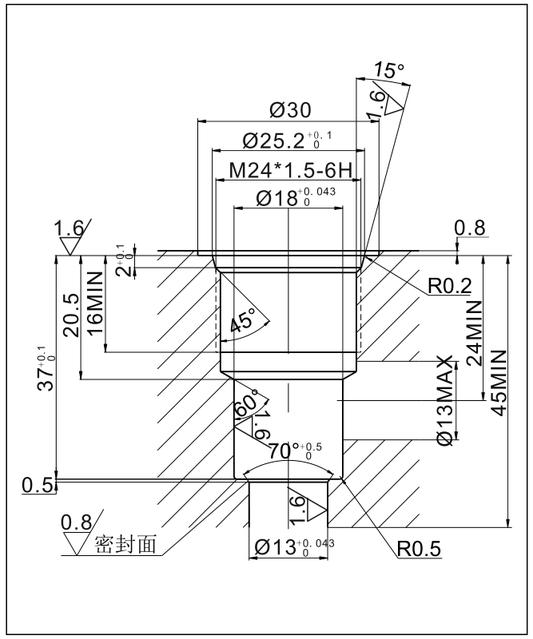


Specifications:

Operating Pressure	400 Bar
Flow	90L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

Flow is free from ① to ② untill pressure increases to meet the selected valve setting, allowing relief flow through port ① to tank. This valve combines the typical function of shock relief valve (direct acting) and anti-cavitation function through the check valve. The direct action and the specific design allow a very fast opening and closing.
Note: to obtain a good leak proof performance coin the cavity seat using a loose valve seat as a coning tool. Torque to be applied :6.5 ± 2 Nm.



Ordering code details:

TACR-M24			

Pressure range:

1300-2000psi(90-140bar)	= 10
2000-3900psi(140-270bar)	= 20
3900-5000psi(270-350bar)	= 35
5000-5800psi(350-400bar)	= 40

Setting in bar:

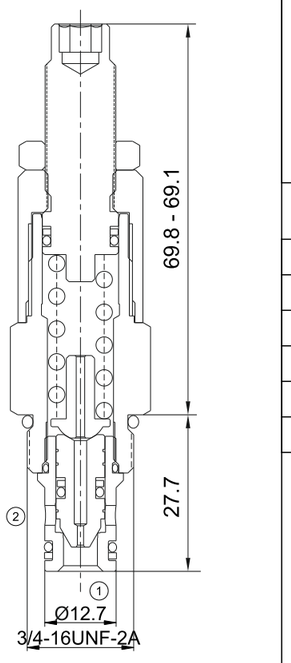
Preset	= No code

EXAMPLE:070=70 Bar

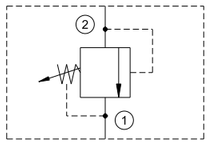
Seals:

Buna N	= N
Viton	= V

TDRV-08 - Differential Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	250 Bar
Flow	30L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

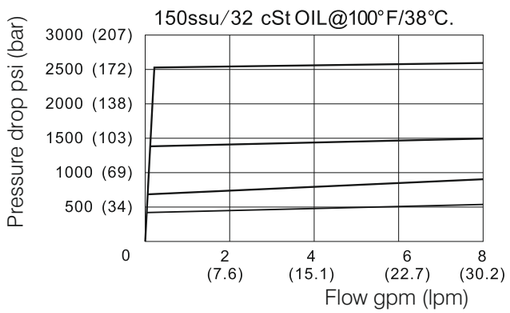
- Hardened, precision ground parts for durability
- Compact size
- Industry common cavity
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

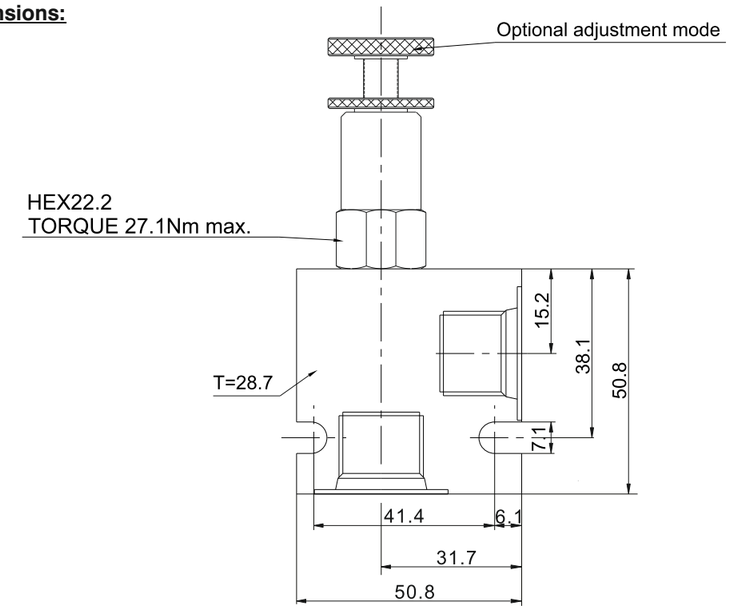
The valve prevents flow from ② to ① until the set crack pressure at ② is achieved. The poppet then unseat allowing flow from ② to ① protecting the circuit from over pressurization.

Performance Curve

Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDRV-08					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

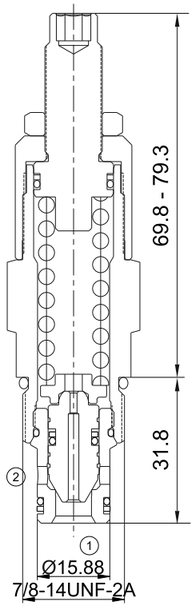
Pressure Range:
50-400psi(3.45-27.59bar) Preset:200psi(13.8bar) = 4
150-700psi(10.3-48.3bar) Preset:350psi(24bar) = 7
250-1300psi(17.24-89.6bar) Preset:650psi(45bar) = 13
250-3300psi(17.24-227.59bar) Preset:1650psi(114bar) = 26

Seal Kits:
Buna N = N
Viton = V

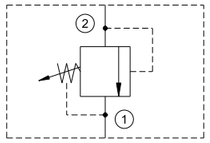
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDRV-10 - Differential Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	250 Bar
Flow	113.6L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

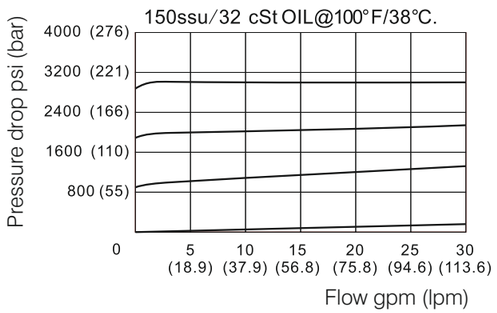
- Hardened, precision ground parts for durability
- Compact size
- Industry common cavity
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

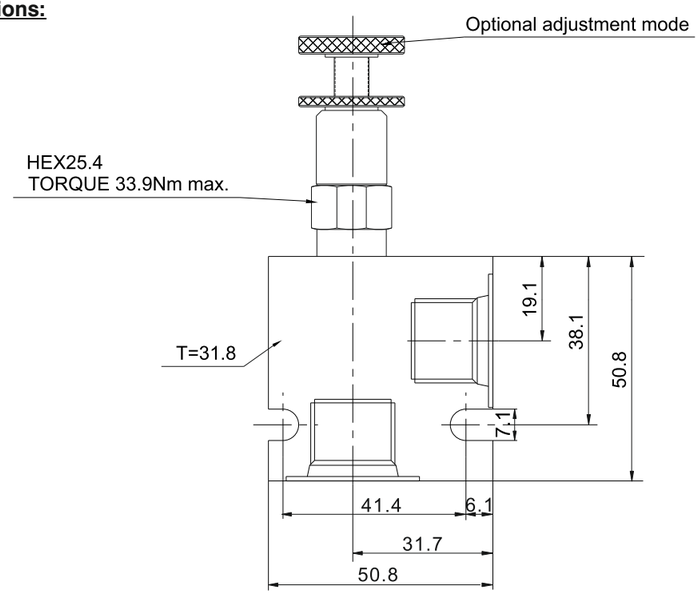
The valve prevents flow from ② to ① untill the set crack pressure at ② is achieved. The poppet then unseat allowing flow from ② to ① protecting the circuit from over pressurization.

Performance Curve

Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDRV-10					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

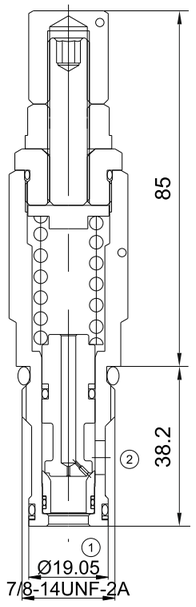
Pressure Range:
150-600psi(10.34-41.38bar) Preset:300psi(21bar) = 6
150-1300psi(10.34-89.66bar) Preset:650psi(45bar) = 13
250-2400psi(17.24-165.52bar) Preset:1200psi(83bar) = 25
250-3500psi(17.24-241.38bar) Preset:1750psi(121bar) = 35

Seal Kits:
Buna N = N
Viton = V

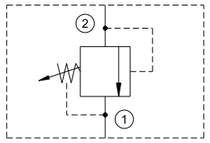
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV-LR - Differential Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	150L/min
Internal Leakage	5ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV-LR see page K-29
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

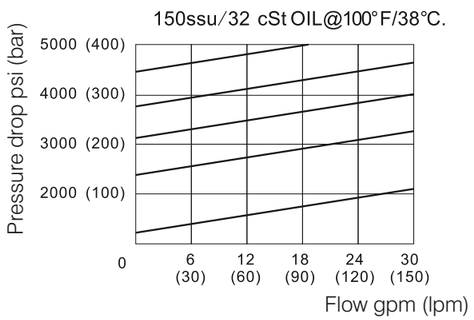
- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

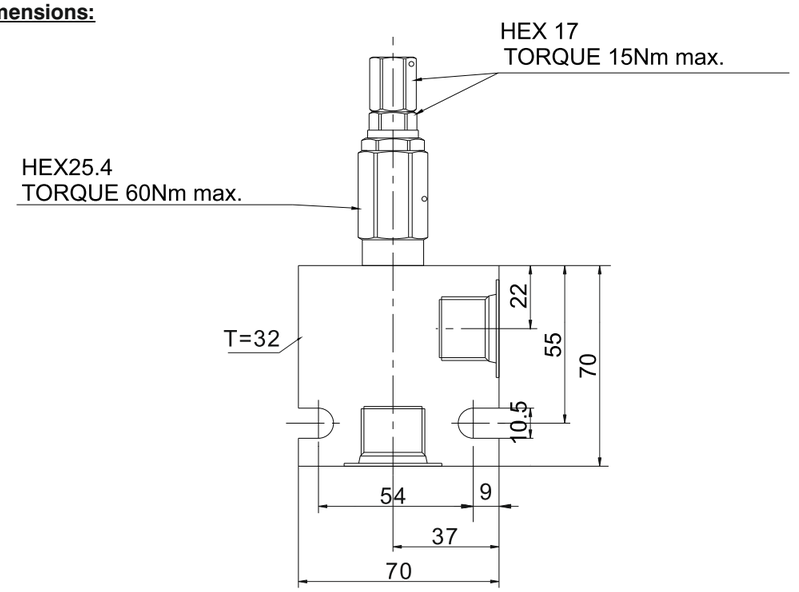
The valve prevents flow from ② to ① untill the set crack pressure at ② is achieved. The poppet then unseat allowing flow from ② to ① protecting the circuit from over pressurization.

Performance Curve

Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRV-LR | | | | |

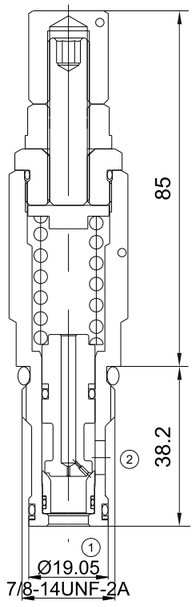
Pressure Range:
500-2500psi(35-175bar) Preset:1500psi(105bar) = 17
1100-4100psi(75-285bar) Preset:2500psi(175bar) = 28
1600-5100psi(114-350bar) Preset:4100psi(280bar) = 35

Seal Kits:
Buna N = N
Viton = V

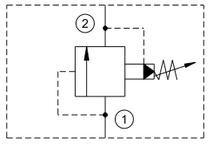
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRPCC - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	45L/min
Response Time - Typical	10 ms
Internal Leakage	30ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

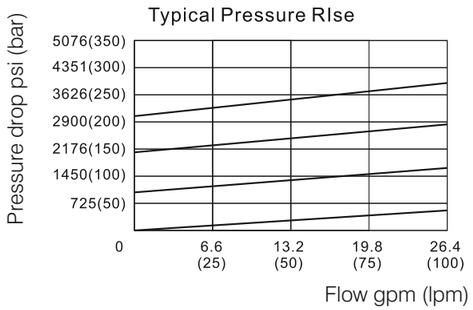
Features:

- Main stage orifice is protected by a stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

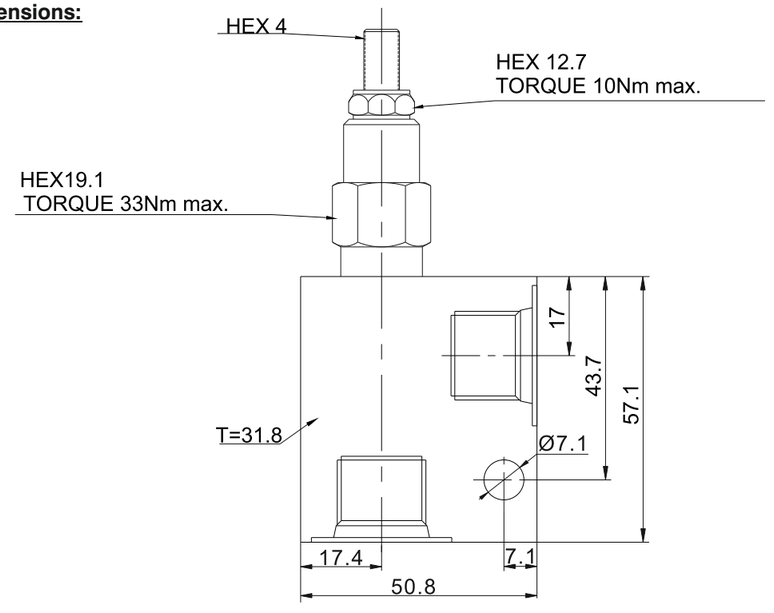
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRPCC					

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

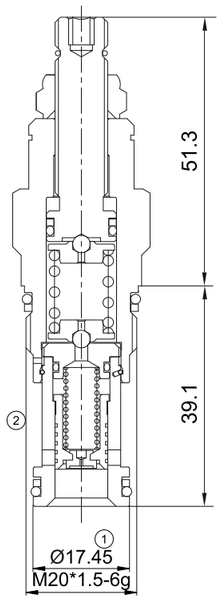
Pressure Range:
75-3000psi(5-210bar) Preset:1000psi(70bar) = A
75-1500psi(5-105bar) Preset:1000psi(70bar) = B
75-6000psi(5-420bar) Preset:1000psi(70bar) = C
75-4500psi(5-315bar) Preset:1000psi(70bar) = W
75-800psi(5-55bar) Preset:400psi(28bar) = N
75-400psi(5-28bar) Preset:200psi(14bar) = Q

Seal Kits:
Buna N = N
Viton = V

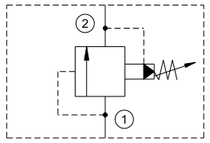
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

TRPEE - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	45L/min
Response Time - Typical	10 ms
Internal Leakage	30ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

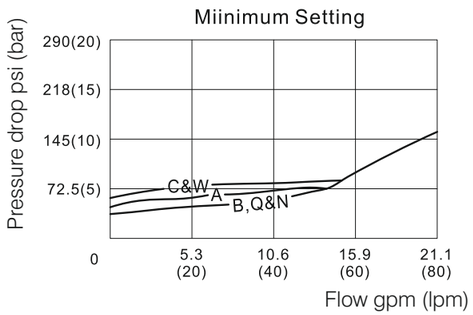
Features:

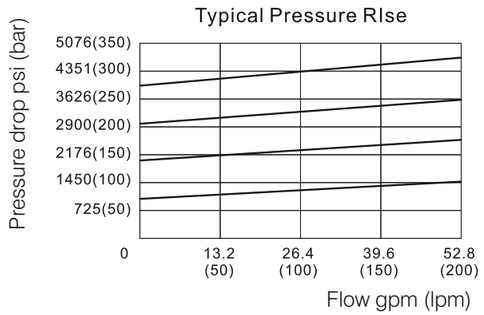
- Main stage orifice is protected by a stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

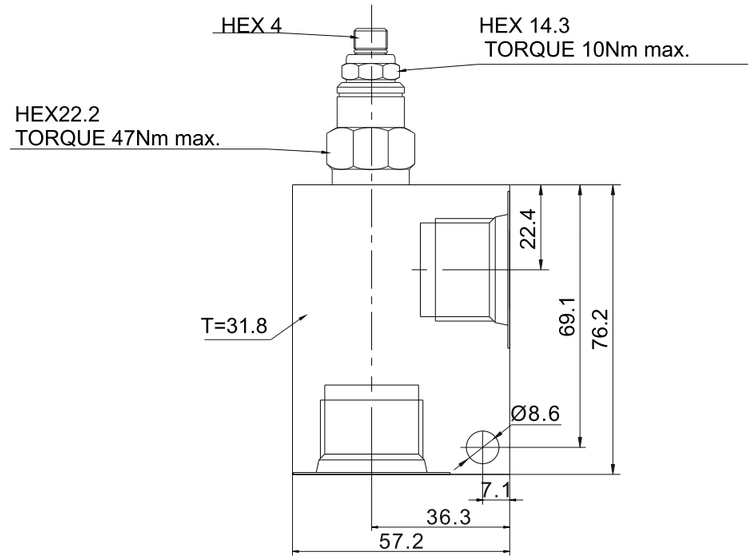
Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves have low pressure rise vs. flow and are very fast.

Performance Curve
Pressure Drop vs Flow





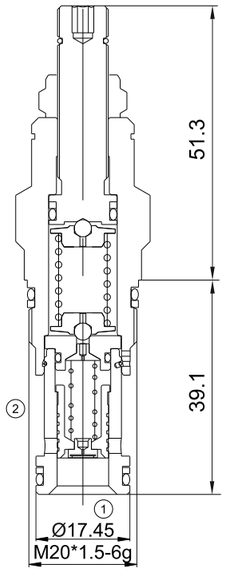
Installation Dimensions:



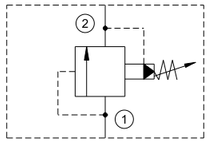
Ordering code details:

TRPCC					
Adjustment:					
Screw Adjust = L					
Handwheel Adjust = K					
Pressure Range:					
100-3000psi(7-210bar) Preset:1000psi(70bar)	= A				
50-1500psi(3.5-105bar) Preset:1000psi(70bar)	= B				
150-6000psi(10.5-420bar) Preset:1000psi(70bar)	= C				
25-800psi(1.7-55bar) Preset:400psi(28bar)	= D				
25-400psi(1.7-28bar) Preset:200psi(14bar)	= E				
150-4500psi(10.5-315bar) Preset:1000psi(70bar)	= W				
30-3000psi(2-210bar) Preset:1000psi(70bar)	= H				
60-800psi(4-55bar) Preset:400psi(28bar)	= N				
60-400psi(4-28bar) Preset:200psi(14bar)	= Q				
Seal Kits:					
Buna N		= N			
Viton		= V			
Body Material:					
6061-T6 aluminum alloy rated at 207 Bar			= A		
steel rated at 350Bar			= S		
Body Porting:					
SAE 10T				= 10T	
SAE 12T				= 12T	
G1/4				= 4G	
NPT1/4				= 4N	
Other porting is available					

TRPEC - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	95L/min
Response Time - Typical	10 ms
Internal Leakage	30ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-10A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

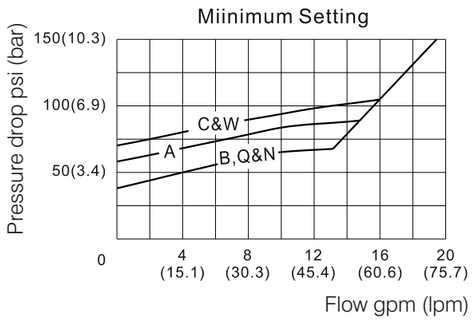
Features:

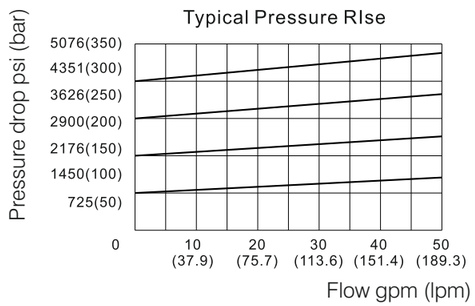
- Main stage orifice is protected by a stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

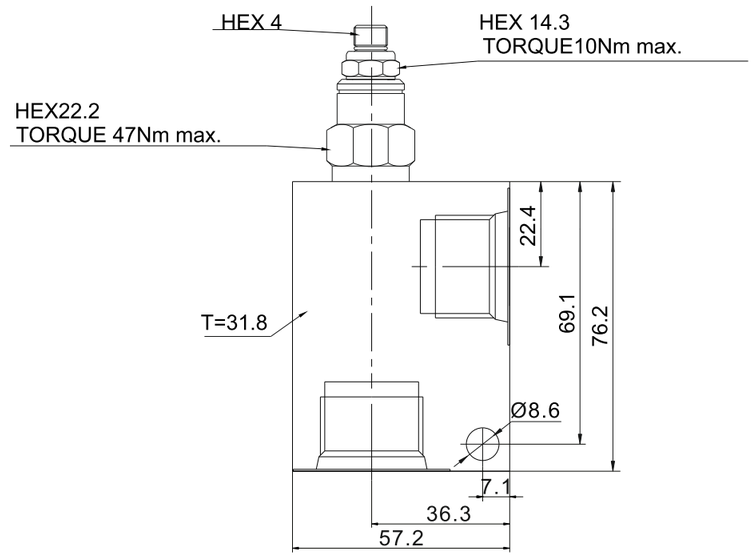
Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TRPCC | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

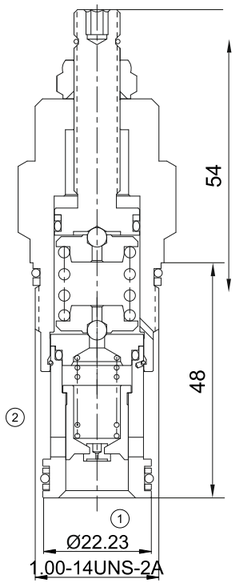
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
60-3000psi(4-210bar) Preset:1000psi(70bar) = G
75-1500psi(5-105bar) Preset:1000psi(70bar) = K
40-400psi(2.8-28bar) Preset:200psi(14bar) = P
150-800psi(10.5-55bar) Preset:400psi(28bar) = V
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
30-3000psi(2-210bar) Preset:1000psi(70bar) = H
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
10T = SAE 10T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

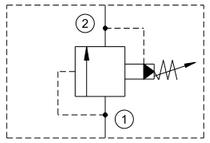
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRPGE - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	200L/min
Response Time - Typical	2 ms
Internal Leakage	50ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

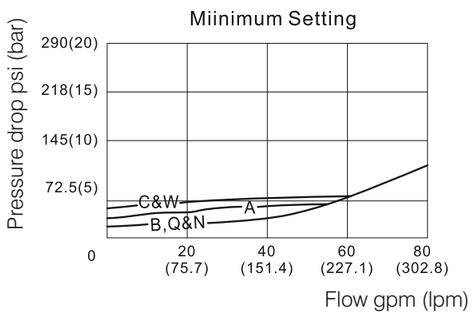
Features:

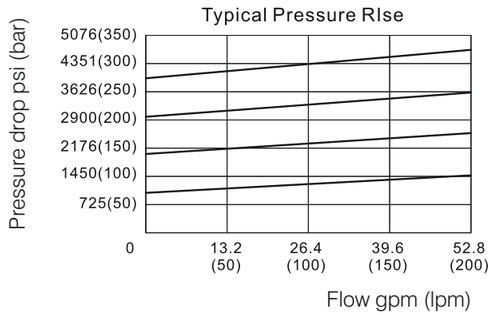
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

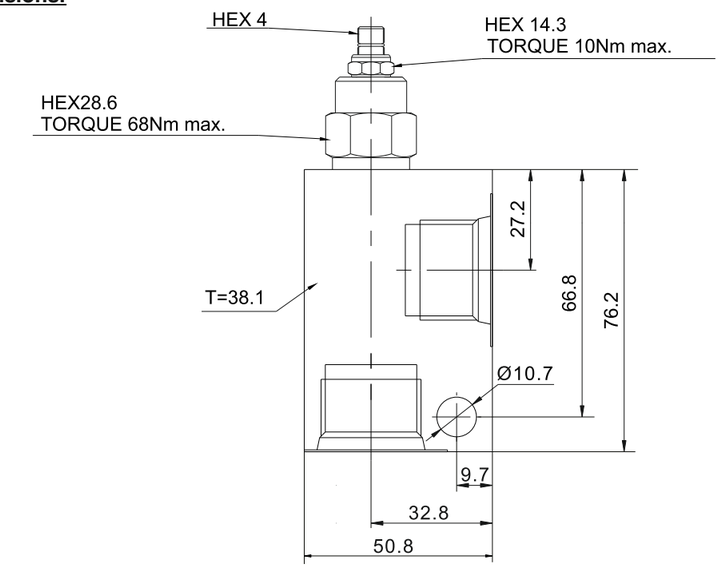
Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves have low pressure rise vs. flow and are very fast.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TRPGE | | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

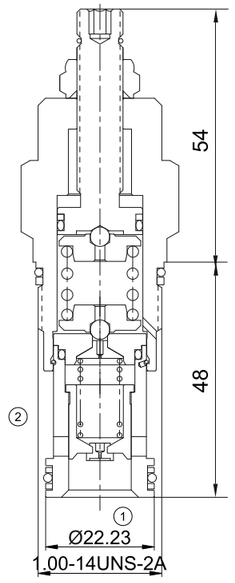
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
60-3000psi(4-210bar) Preset:1000psi(70bar) = G
25-1500psi(1.7-150bar) Preset:1000psi(70bar) = J
75-1500psi(5-105bar) Preset:1000psi(70bar) = K
25-200psi(1.7-14bar) Preset:100psi(7bar) = S
60-200psi(4-14bar) Preset:100psi(7bar) = U
150-800psi(10.5-55bar) Preset:400psi(28bar) = V

Body Porting:
4T = SAE 4T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

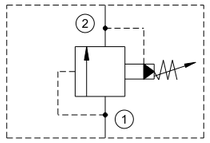
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRPGC - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	200L/min
Response Time - Typical	10 ms
Internal Leakage	50ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

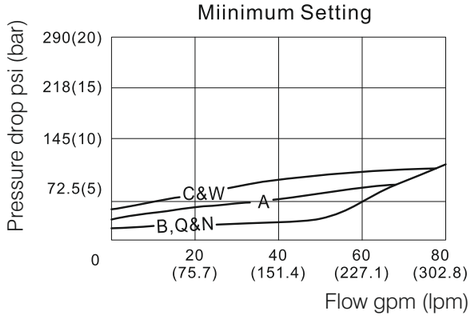
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

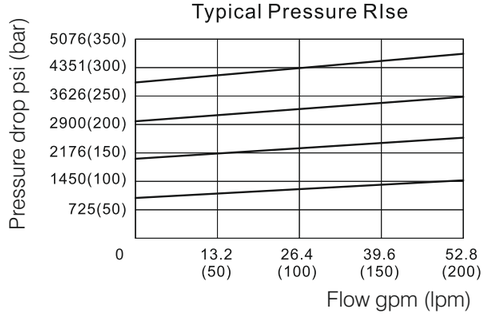
Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves have low pressure rise vs. flow and are very fast.

Performance Curve
Pressure Drop vs Flow

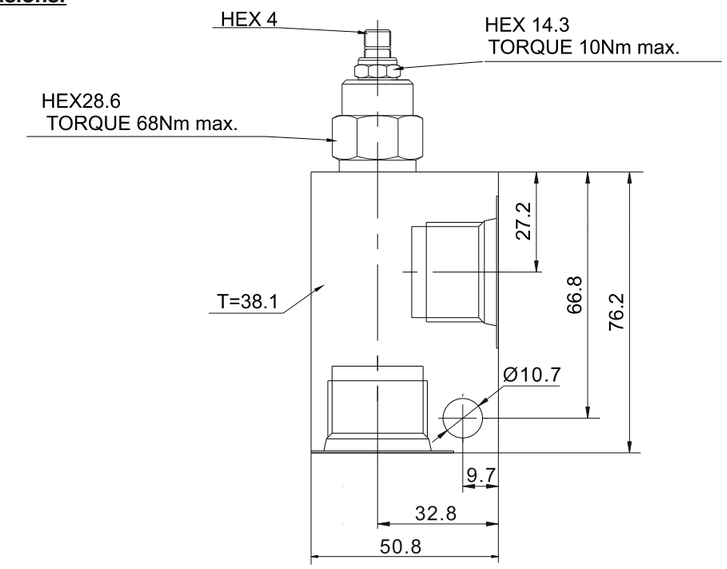
Miinimum Setting



Typical Pressure RIse



Installation Dimensions:



Ordering code details:

TRPGC | | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K
Capped and Lockwired = Q

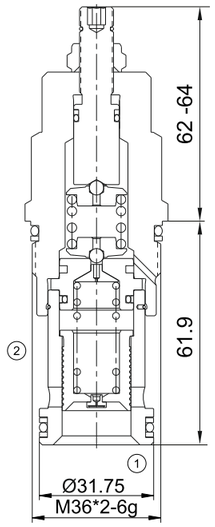
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
60-3000psi(4-210bar) Preset:1000psi(70bar) = G
25-1500psi(1.7-150bar) Preset:1000psi(70bar) = J
75-1500psi(5-105bar) Preset:1000psi(70bar) = K
25-200psi(1.7-14bar) Preset:100psi(7bar) = S
60-200psi(4-14bar) Preset:100psi(7bar) = U
150-800psi(10.5-55bar) Preset:400psi(28bar) = V

Body Porting:
4T = SAE 4T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

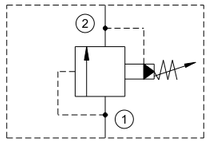
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRPIC - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	380L/min
Response Time - Typical	10 ms
Internal Leakage	65ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-16A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

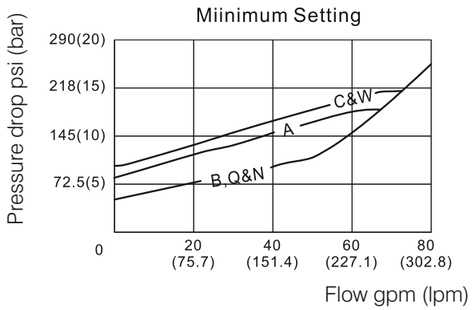
Features:

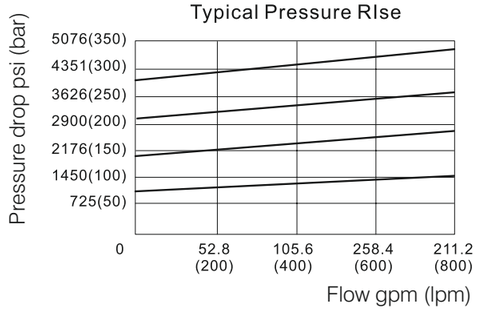
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

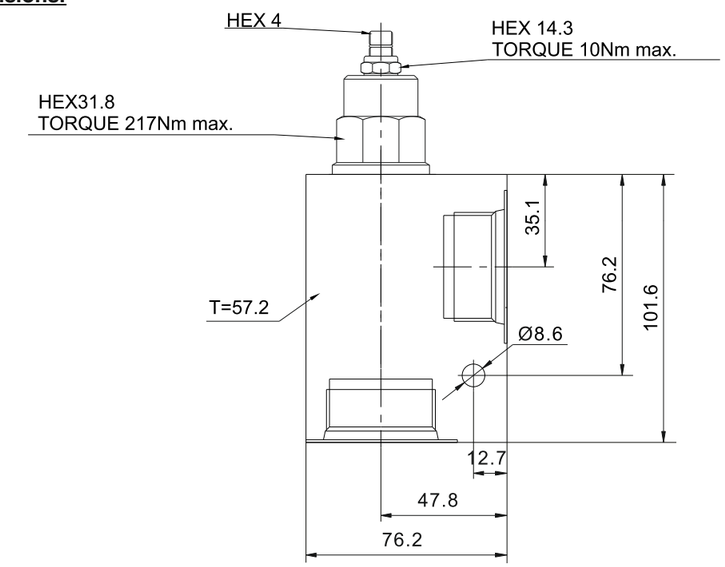
Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TRPIC | | | | | | |

Adjustment:
Screw Adjust = L

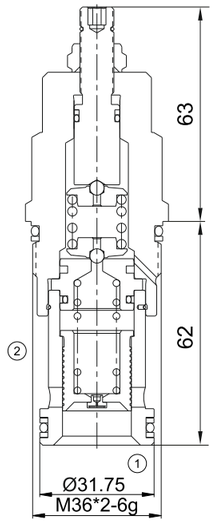
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
40-200psi(2.8-14bar) Preset:100psi(7bar) = T

Body Porting:
12T = SAE 12T
20T = SAE 20T
8G = G1
8N = NPT1
Other porting is available

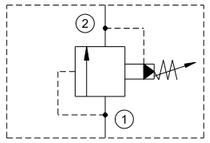
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRPIE - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	380L/min
Response Time - Typical	2 ms
Internal Leakage	65ml/min.max.at 70bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-16A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

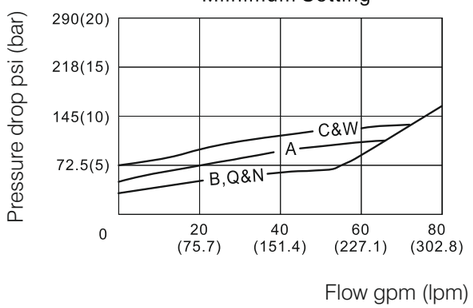
- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

Operation:

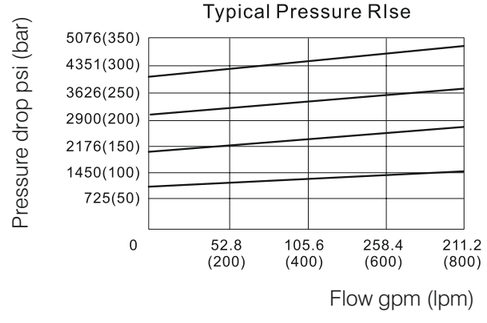
Fast-acting, pilot-operated, balanced piston relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulics components from pressure transients. Fast opening and closing is gained at the expense of smoothness. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves have low pressure rise vs. flow and are very fast.

Performance Curve
Pressure Drop vs Flow

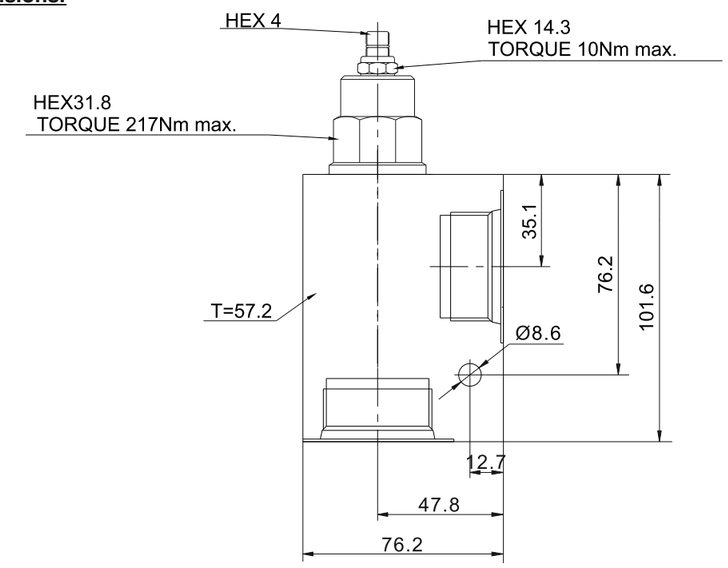
Miinimum Setting



Typical Pressure RIse



Installation Dimensions:



Ordering code details:

TRPIE | | | | | | |

Adjustment:
Screw Adjust = L

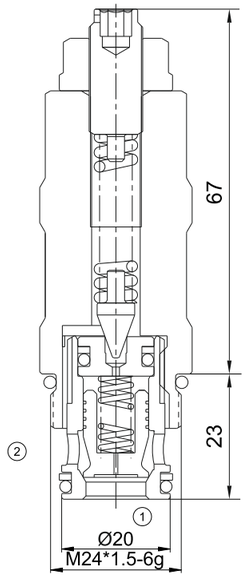
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
12T = SAE 12T
20T = SAE 20T
8G = G1
8N = NPT1
Other porting is available

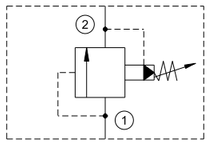
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TYF10-01 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	60L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2301 see page K-17
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

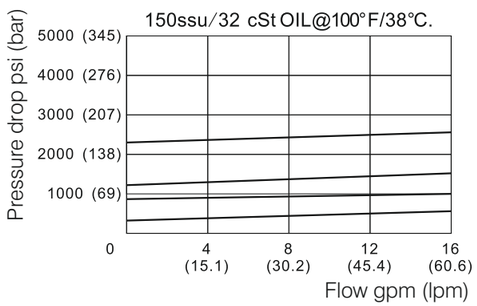
Features:

- Hardened, precision ground parts for durability.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Fast response to pressure surges.
- Adjustment may be locked in place.

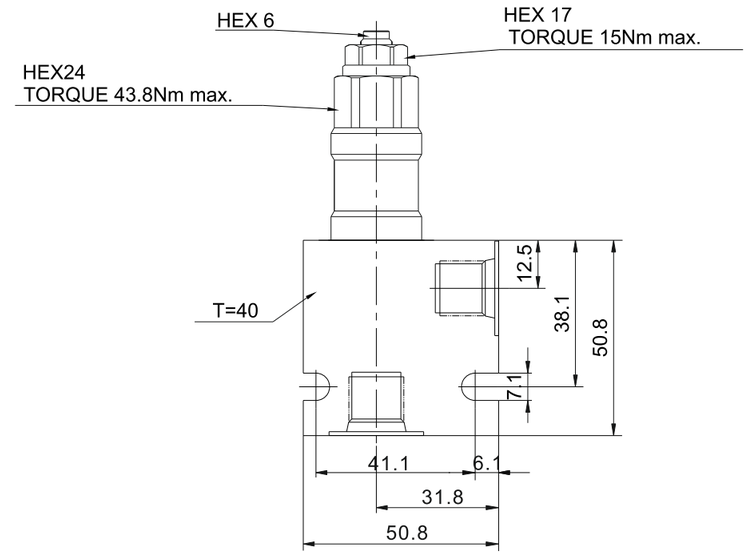
Operation:

The valve prevents flow from ① to ② untill the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TYF10-01				

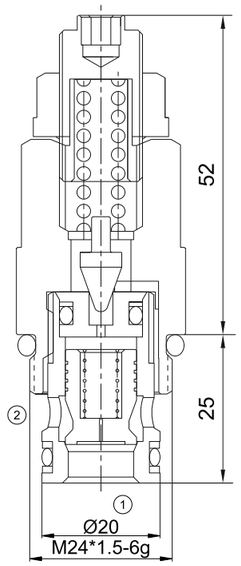
Pressure Range:
15-700psi(1-50bar) Preset:500psi(35bar) = 5
600-1400psi(40-99bar) Preset:1000psi(70bar) = 10
900-2200psi(60-150bar) Preset:1700psi(120bar) = 15
1900-4500psi(130-315bar) Preset:2500psi(175bar) = 20

Seal Kits:
Buna N = N
Viton = V

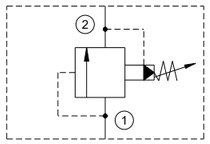
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TYF10-02 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	60L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2301 see page K-17
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

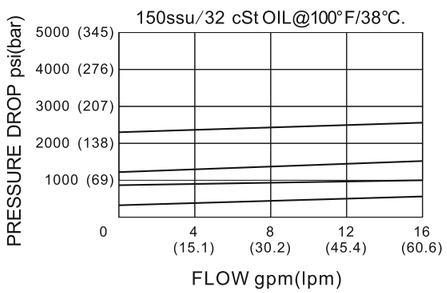
Features:

- Hardened, precision ground parts for durability.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Fast response to pressure surges.
- Adjustment may be locked in place.

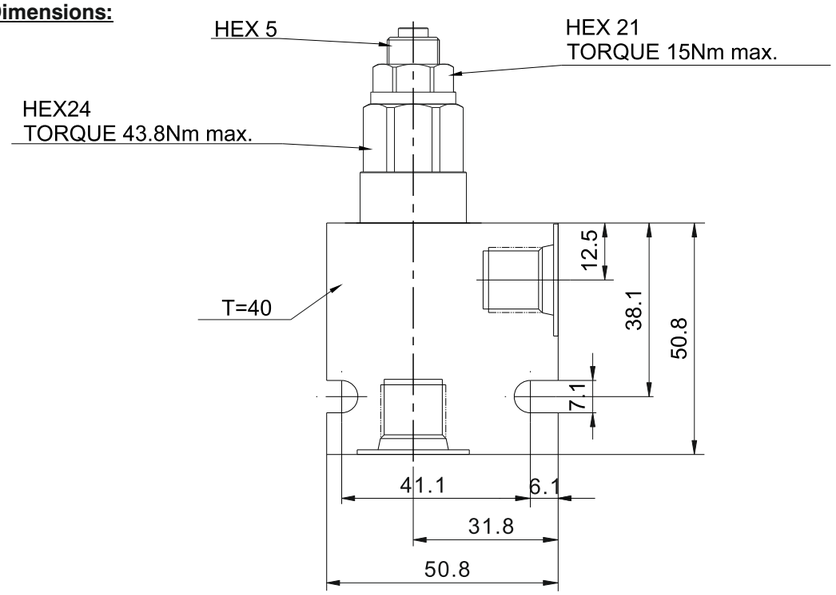
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TYF10-02 | | | | |

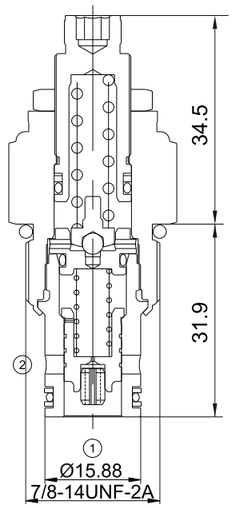
Pressure Range:
15-700psi(1-50bar) Preset:500psi(35bar) = 5
600-1400psi(40-99bar) Preset:1000psi(70bar) = 10
900-2200psi(60-150bar) Preset:1700psi(120bar) = 15
1900-4500psi(130-315bar) Preset:2500psi(175bar) = 20

Seal Kits:
Buna N = N
Viton = V

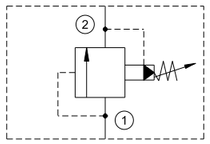
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRAH101-S - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	380 Bar
Flow	113L/min
Internal Leakage	5 cc per 100 PSI(6.8Bar) setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

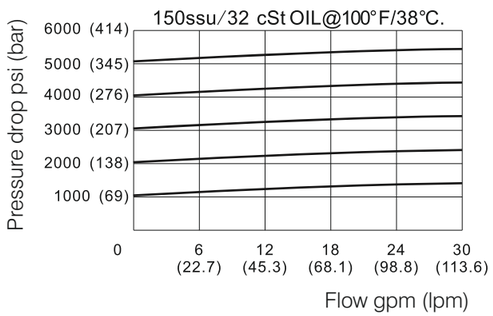
Features:

- Hardened, precision ground parts for durability.
- Not suitable for use in load holding applications due to spool leakage.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Industry common cavity.

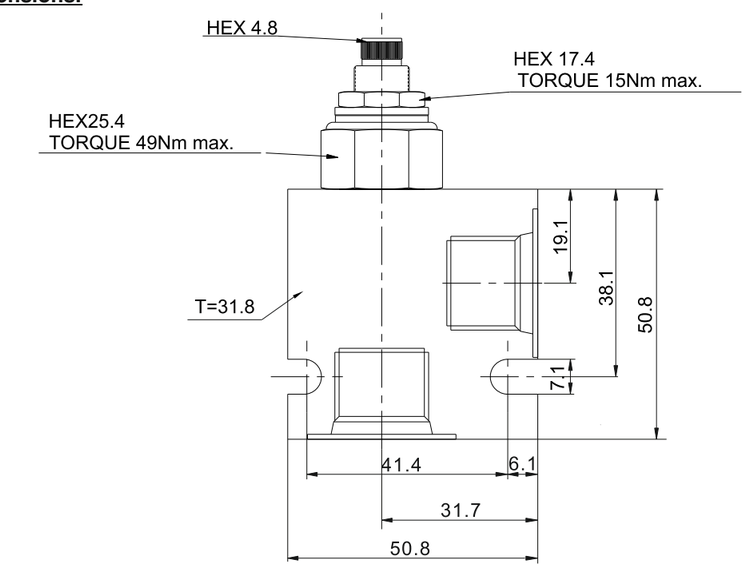
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRAH101-S | | | | |

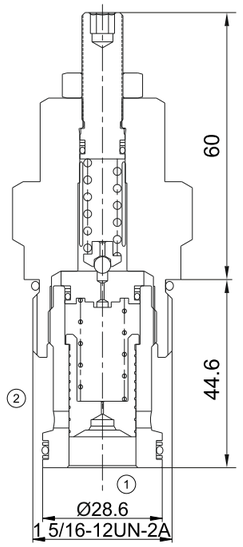
Pressure Range:
100-1000psi(6.9-69bar) Preset:500psi(34.5bar) = 10
100-2000psi(6.9-138bar) Preset:1000psi(69bar) = 20
200-3000psi(13.8-207bar) Preset:1500psi(103.5bar) = 30
200-5000psi(13.8-345bar) Preset:2500psi(172.4bar) = 50

Seal Kits:
Buna N = N
Viton = V

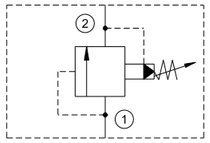
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV5-16 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	380 Bar
Flow	303L/min
Internal Leakage	164ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

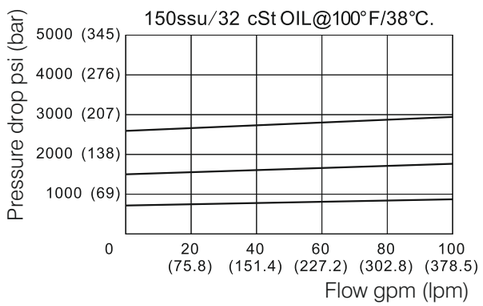
Features:

- Hardened, precision ground parts for durability.
- Not suitable for use in load holding applications due to spool leakage.
- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- Industry common cavity.
- Fast response to pressure surges

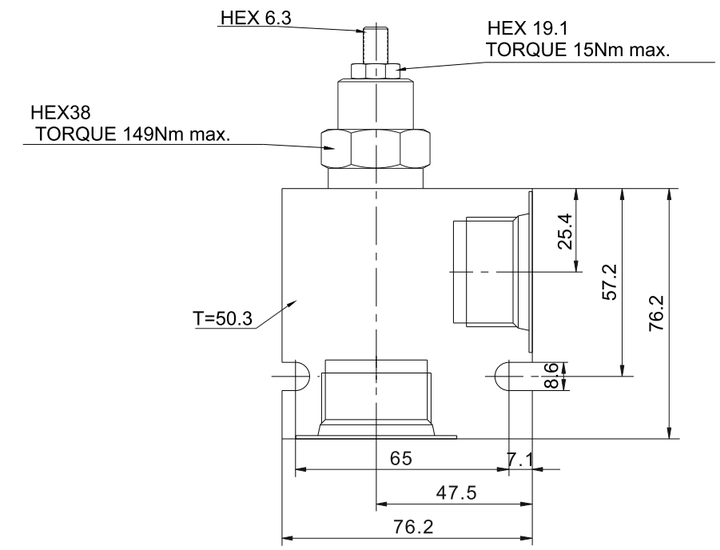
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRV5-16				

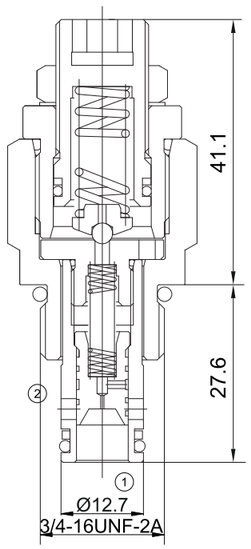
Pressure Range:
500-3000psi(34-210bar) Preset:1500psi(102bar) = 30
1000-6000psi(70-415bar) Preset:3600psi(250bar) = 60

Seal Kits:
Buna N = N
Viton = V

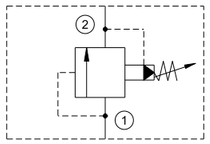
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G3/4 = 6G
G1 = 8G
Other porting is available

TPSRV2-08 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	37.8L/min
Internal Leakage	82ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

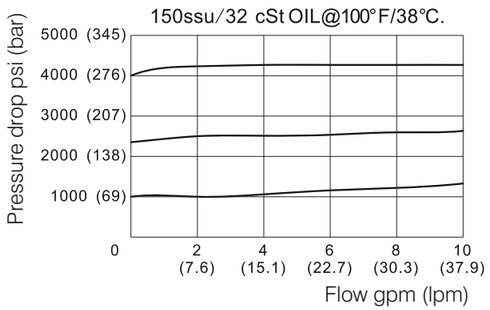
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Industry common cavity
- Compact size
- Adjustment prevents spring from going solid

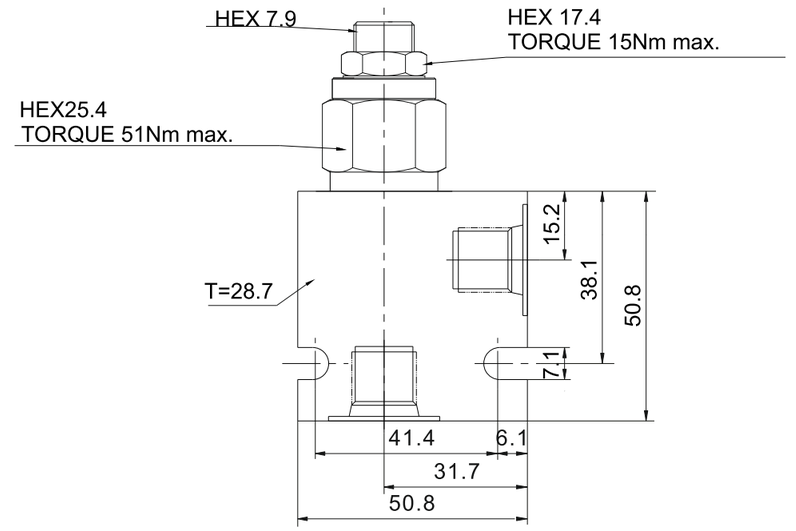
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPSRV2-08 | | | | |

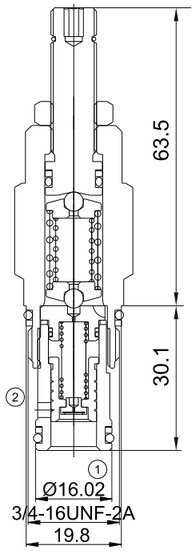
Pressure Range:
50-1500psi(3.45-103.5bar) Preset:450psi(31bar) = 15
50-3000psi(3.45-207bar) Preset:950psi(65.5bar) = 30
50-5000psi(3.45-350bar) Preset:1500psi(103bar) = 50

Seal Kits:
Buna N = N
Viton = V

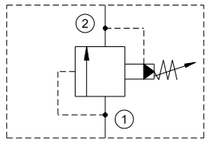
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRV07-20 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	110L/min
Pressure Range	3bar-220bar ,Preset:100bar
Internal Leakage	82ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV07-20 see page K-27
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

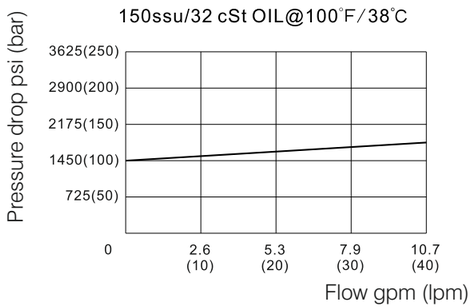
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Compact size

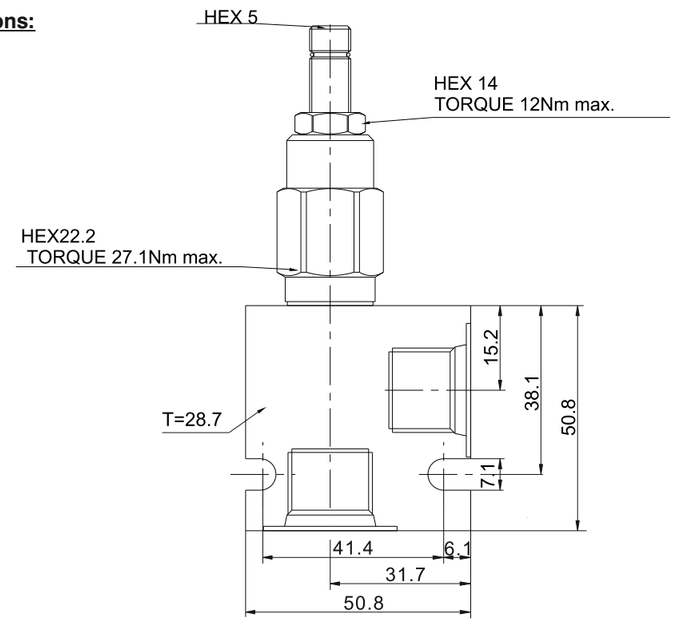
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

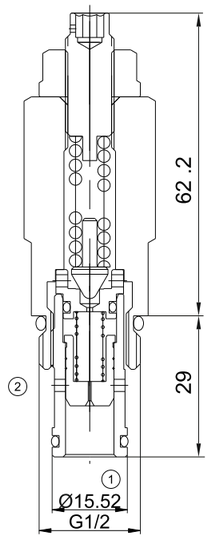
TRV07-20			

Seal Kits:
Buna N = N
Viton = V

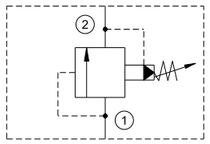
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 4T
SAE 8T = 8T
G1/2 = 3G
NPT1/2 = 3N
Other porting is available

TRV-G1/2 - Pilot-operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	85L/min
Pressure Range	3bar-330bar ,Preset:150bar
Internal Leakage	82ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	RV-G1/2 see page K-27
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

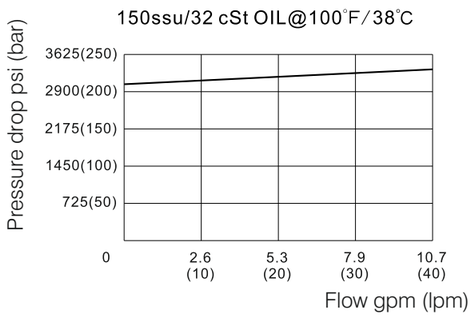
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Compact size
- Industry common cavity
- Adjustment prevents spring from going solid

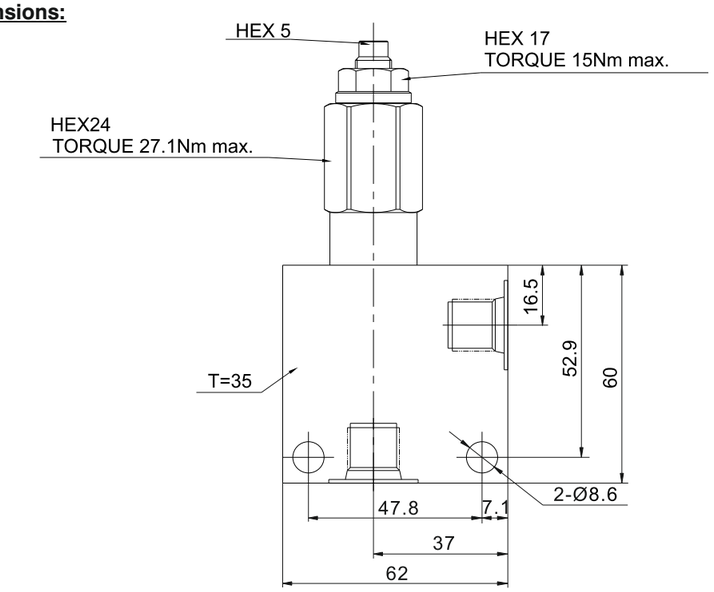
Operation:

Pilot-operated, balanced-piston relief cartridges are normally closed pressure regulating Valve. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to regulate the pressure. These Valves are accurate, have low pressure rise vs. flow, they are smooth and quiet, and are moderately fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

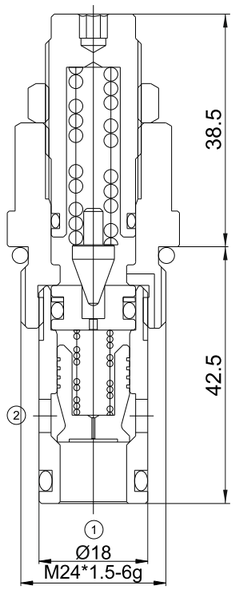
TRV-G1/2			

Seal Kits:
Buna N = N
Viton = V

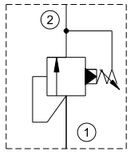
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 3G
NPT1/2 = 3N
Other porting is available

TRV-M24 - Pilot-operated Relief Valve(Poppet-type)



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	60L/min
Pressure Range	60-315Bar
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2306 see page K-43
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

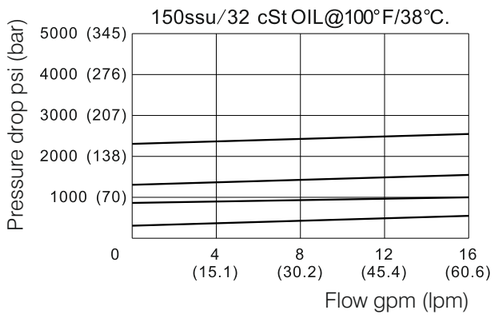
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Compact size
- Industry common cavity
- Adjustment prevents spring from going solid

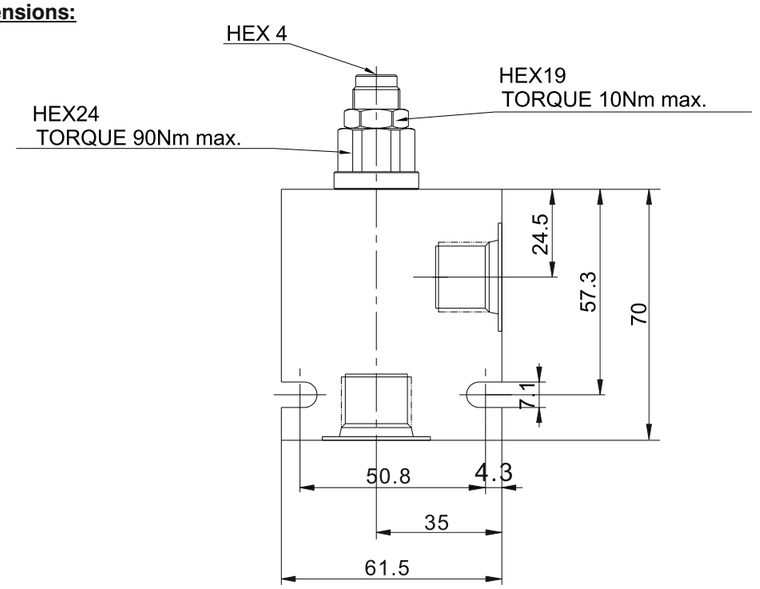
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

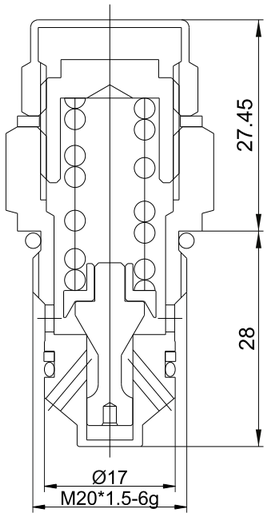
TRV-M24			

Seal Kits:
Buna N = N
Viton = V

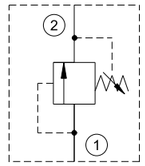
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV-M20 - Directly operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	50L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2306 see page K-43
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

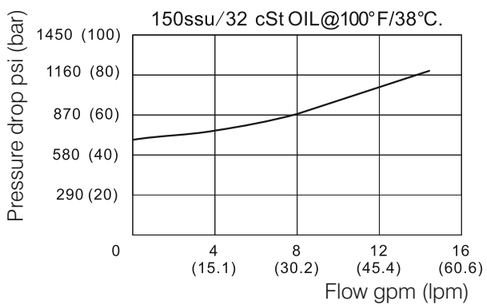
Features:

- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

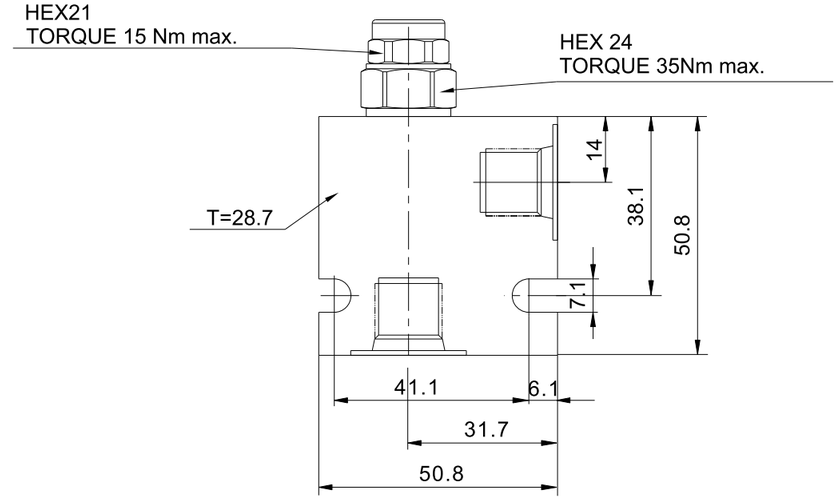
The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TRV-M20 | | | | |

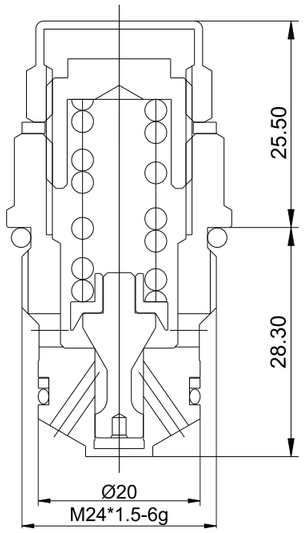
Pressure Range:
870-2320psi(60-160bar) Preset:2030psi(140bar) = A
2320-4568psi(160-315bar) Preset:1000psi(260bar) = B

Seal Kits:
Buna N = N
Viton = V

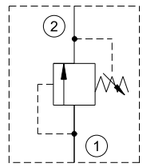
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRV2-M24 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	100L/min
Internal Leakage	5drops/min. max. to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2301 see page K-17
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

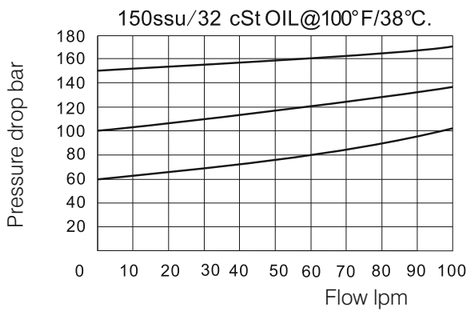
- Hardened poppet and seat for long life
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

Operation:

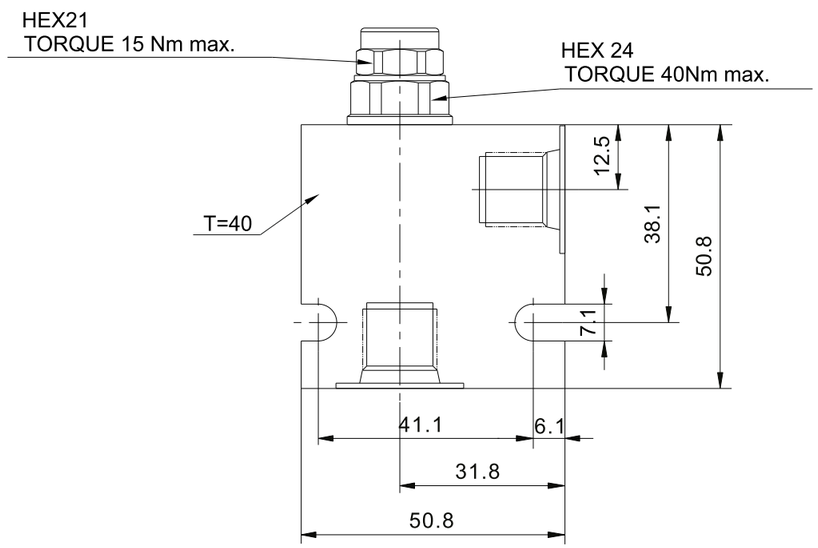
The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve

Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRV2-M24 | | | | |

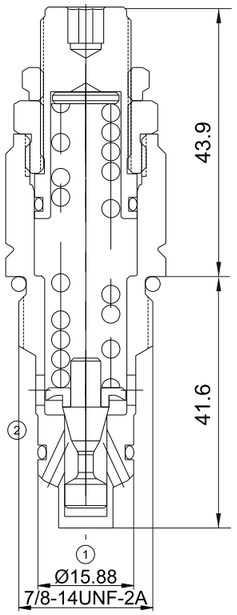
Pressure Range:
870-2320psi(60-160bar) Preset:2030psi(140bar) = A
2320-4568psi(160-315bar) Preset:1000psi(260bar) = B

Seal Kits:
Buna N = N
Viton = V

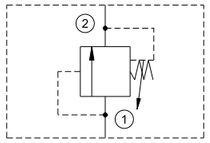
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRVS-10 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	80L/min
Internal Leakage	0.2cm³/min.max.to 80% of norminal setting
Temperature	-30°C to +120°(-22°F to+230°F)
Cavity	10-2L see page K-40
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

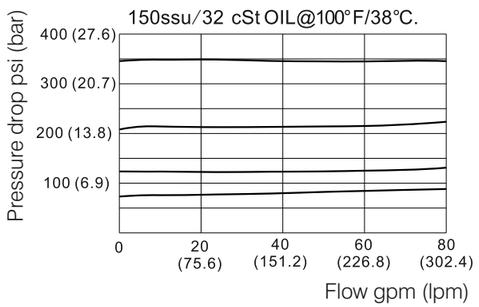
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to pressure surges

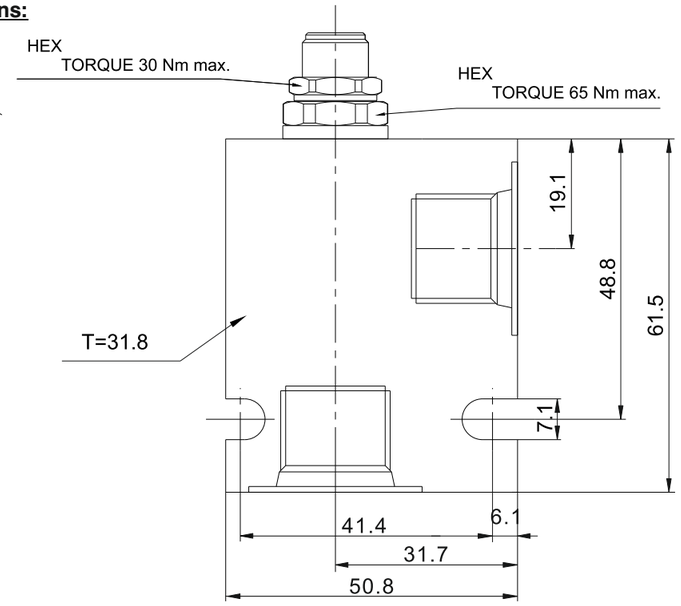
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRVS-10 | | | | | | |

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

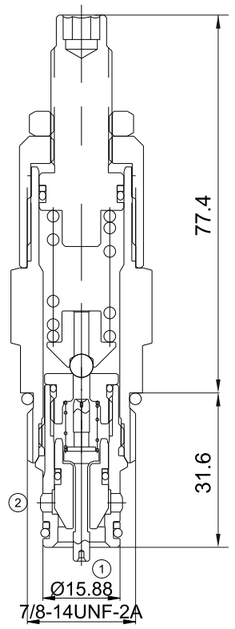
Pressure Range:
70-400psi(5-30bar) Preset:300psi(20bar) = Y
70-1600psi(5-110bar) Preset:1000psi(70bar) = N
140-2600psi(10-180bar) Preset:1400psi(100bar) = B
140-3500psi(10-240bar) Preset:2300psi(160bar) = G
700-5000psi(50-350bar) Preset:3000psi(210bar) = W

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

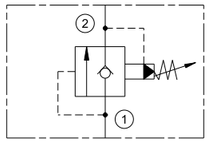
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRV10-28 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240 Bar
Flow	7.6-113.6 L/min
Internal Leakage	0.5ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

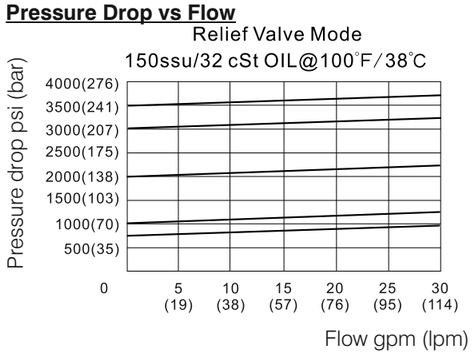
- Fast response to pressure surges
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment prevents spring from going solid

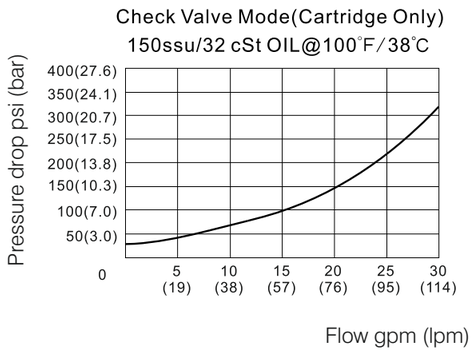
Operation:

The MRV10-28X is a screw-in, cartridge style, pilot operated, relief valve with reverse free flow check valve, intended for use as a pressure limiting device in demanding hydraulic circuits which require fast response, low hysteresis, low leakage, low pressure override and reverse free flow features. The MRV10-28X blocks flow from port 1 to port 2 until sufficient pressure is present at port 1. Relief flow path from port 1 to port 2. Reverse flow from port 2 to port 1 occurs when pressure at port 2 is higher than pressure at port 1.

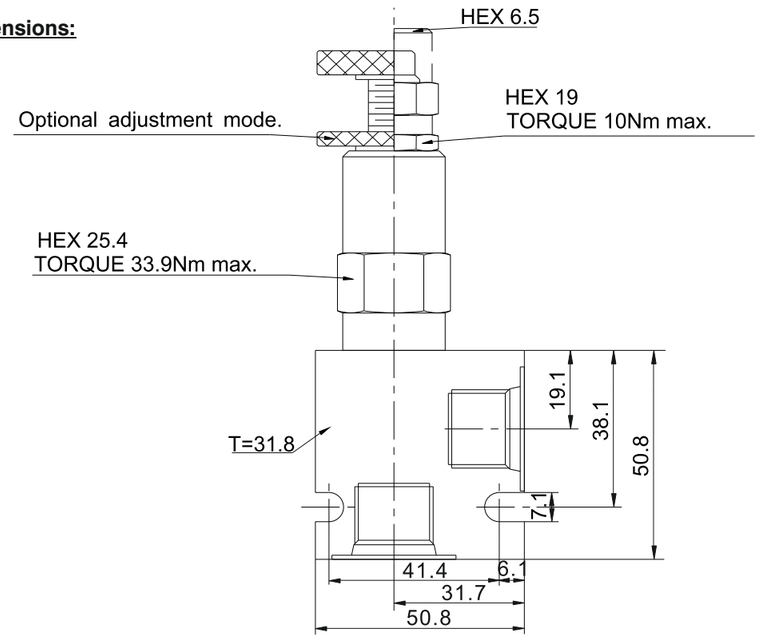
Performance Curve

Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TRVS-10 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K
Hidden Adjustment = S

Pressure Range:
750-3500psi(51.7-240bar) = 35
Preset:1700psi(120bar)
(check:2.1bar)

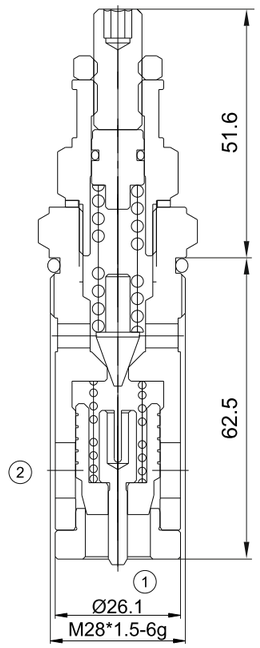
Setting In Bar
Preset = No code
For Example: 52=52bar(MIN) 100=100bar etc.

Body Porting:
6T = SAE 6T
8T = SAE 8T
4G = G1/2
4N = NPT1/2
Other porting is available

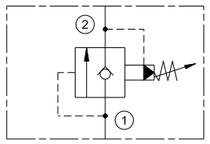
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

THCD6.1 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	110L/min
Pressure Range	3bar-300bar ,Preset:230bar(check:1.5bar)
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	HCD6.1 see page K-32
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

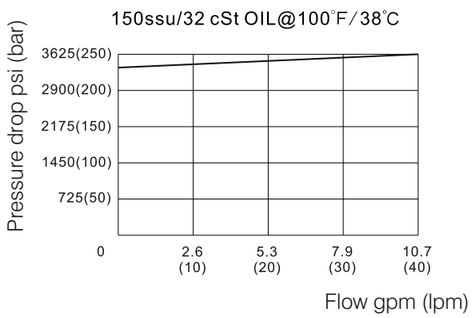
Features:

- Fast response to pressure surges
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment prevents spring from going solid

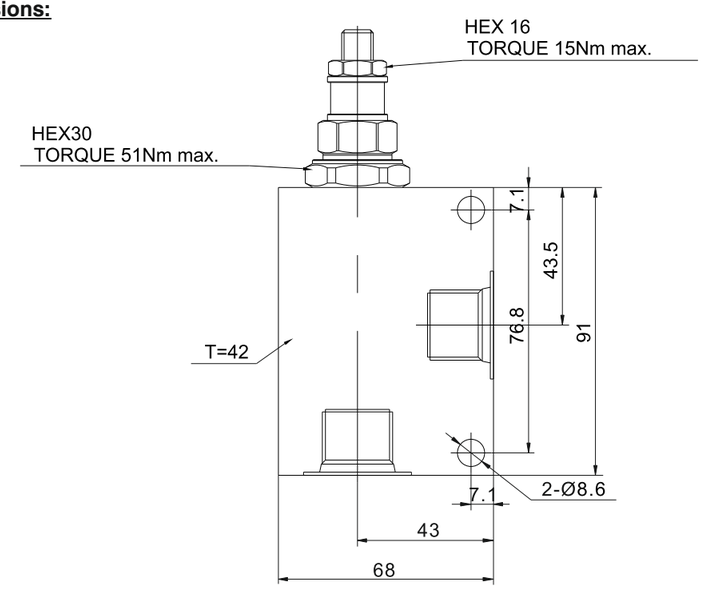
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

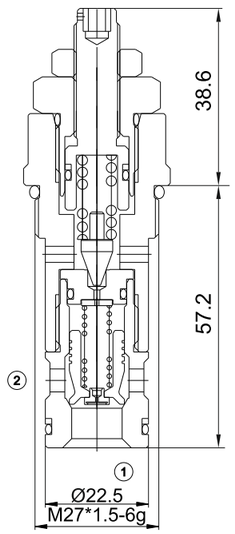
THCD6.1			

Seal Kits:
Buna N = N
Viton = V

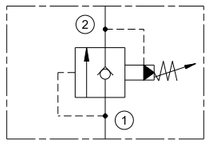
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

THCF-1/OR - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	150L/min
Pressure Range	50bar-290bar ,Preset:150bar(check:1.5bar)
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	HCF-1/OR see page K-30
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

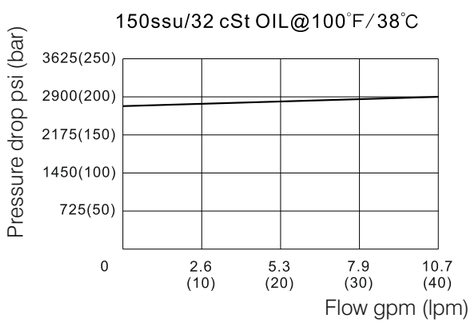
Features:

- Fast response to pressure surges
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment prevents spring from going solid

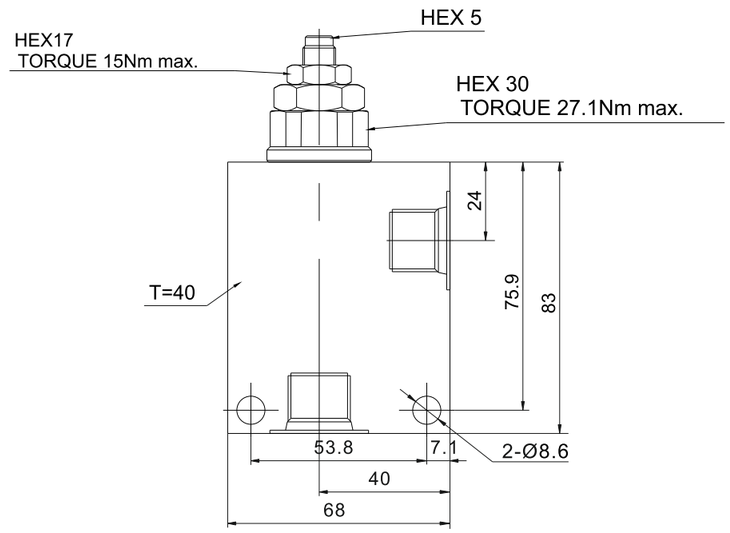
Operation:

The valve prevents flow from ① to ② untill the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

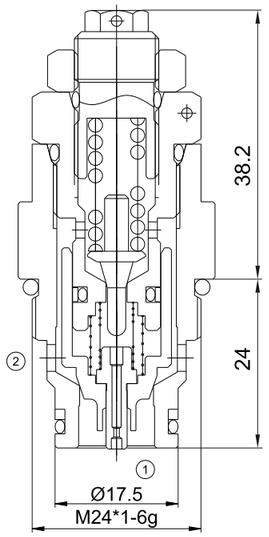
THCF-1/OR			

Seal Kits:
Buna N = N
Viton = V

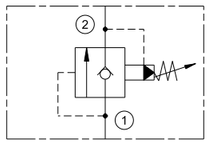
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TGZF-1/OR - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	113L/min
Pressure Range	50bar-290bar ,Preset:150bar(check:1.5bar)
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	GZF-1/OR see page K-29
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

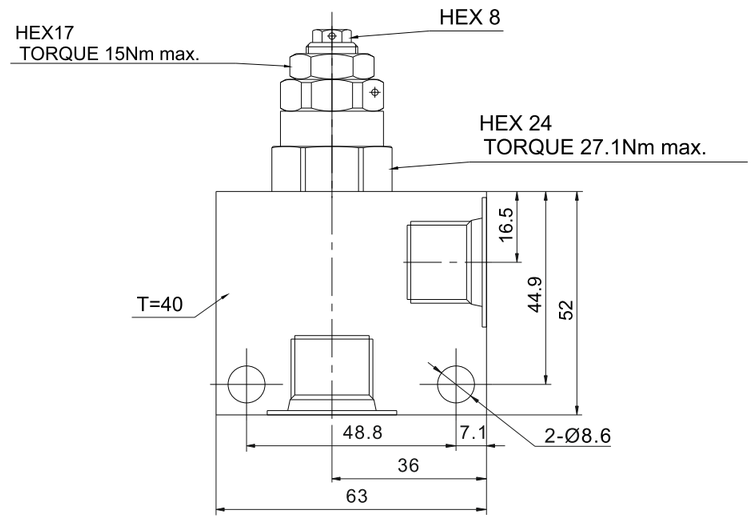
Features:

- Fast response to pressure surges
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment prevents spring from going solid

Operation:

The valve prevents flow from ① to ② untill the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Installation Dimensions:



Ordering code details:

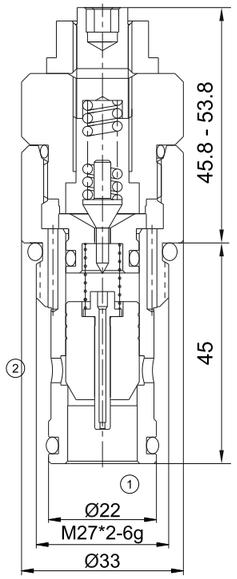
TGZF-1/OR | | | |

Seal Kits:
Buna N = N
Viton = V

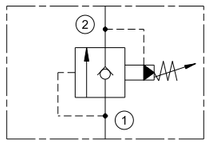
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TDYF25-02 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	150 L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2407 see page K-19
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

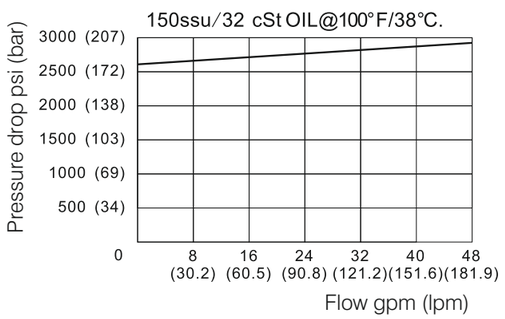
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges
- Low leakage design

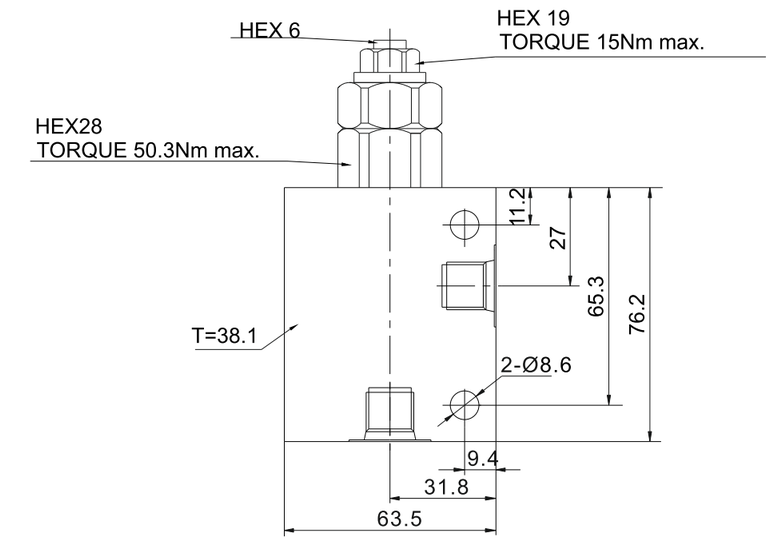
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDYF25-02				

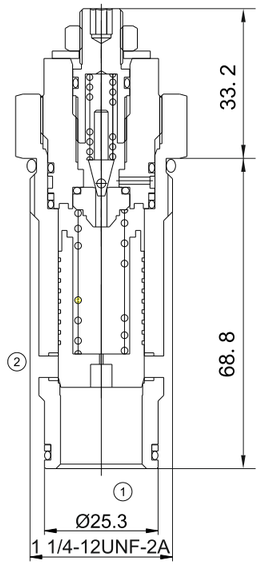
Pressure Range:
150-900psi(10-64bar) Preset:850psi(60bar)(check:1.5bar) = 5
800-1900psi(55-130bar) Preset:1700psi(120bar)(check:1.5bar) = 10
1600-3000psi(110-210bar) Preset:2300psi(160bar) (check:1.5bar) = 15
2300-4500psi(160-315bar) Preset:2900psi(200bar)(check:1.5bar) = 20

Seal Kits:
Buna N = N
Viton = V

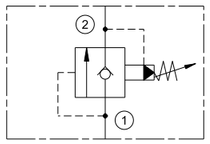
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TPRVC60-A - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	225 L/min
Internal Leakage	20ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	PRVC60-A see page K-23
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

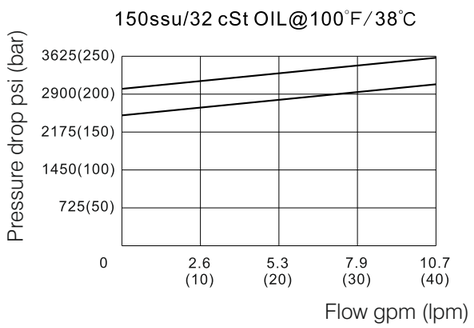
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges
- Low leakage design

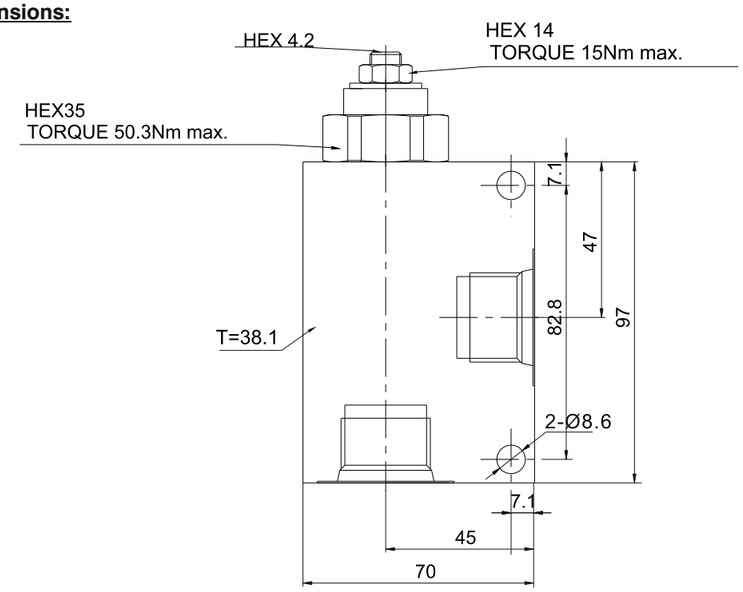
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPRVC60-A				

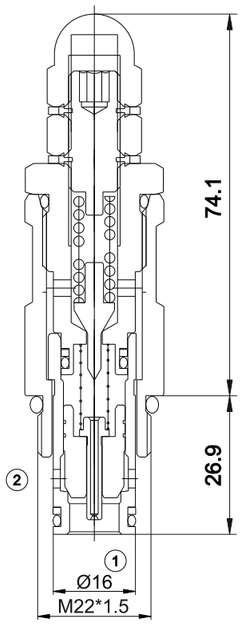
Pressure Range:
500-5000psi(35-350bar) Preset:2500psi(172bar) (check:1.5bar) = 2500
500-5000psi(35-350bar) Preset:3000psi(207bar) (check:1.5bar) = 3000

Seal Kits:
Buna N = N
Viton = V

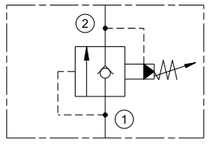
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TDF15 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	225 L/min
Internal Leakage	20ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	PRVC60-A see page K-23
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

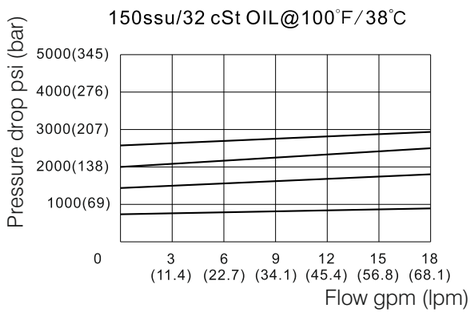
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges
- Low leakage design

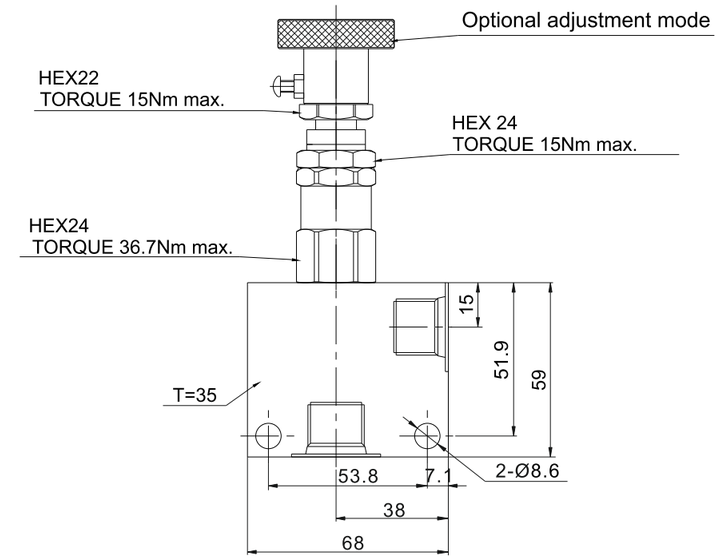
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDF-15 | | | | | | |

Adjustment:
Screw Adjust = No code
Handwheel Adjust = TS

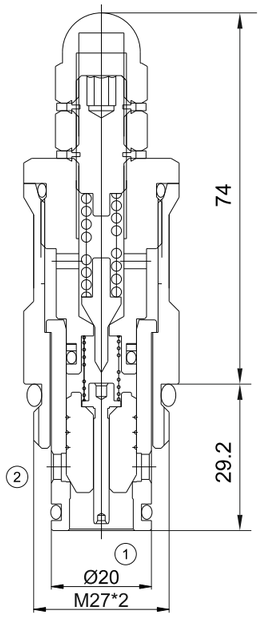
Pressure Range:
150-900psi(10-64bar) = 5
Preset:850psi(60bar)(check:1.5bar)
800-1900psi(55-130bar) = 10
Preset:1700psi(120bar)(check:1.5bar)
1600-3000psi(110-210bar) = 15
Preset:2300psi(160bar)(check:1.5bar)
2300-4500psi(160-315bar) = 20
Preset:2900psi(200bar)(check:1.5bar)

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

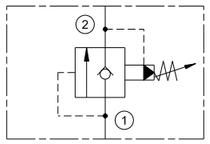
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TDF20 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	113 L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2402 see page K-18
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

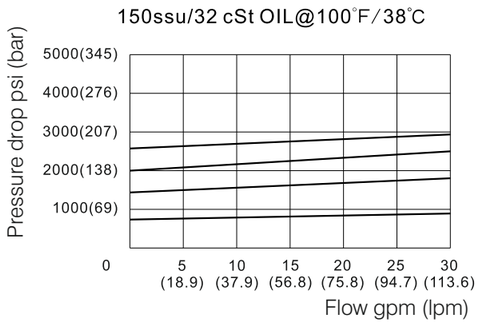
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Industry common cavity
- Compact size
- Adjustment prevents spring from going solid

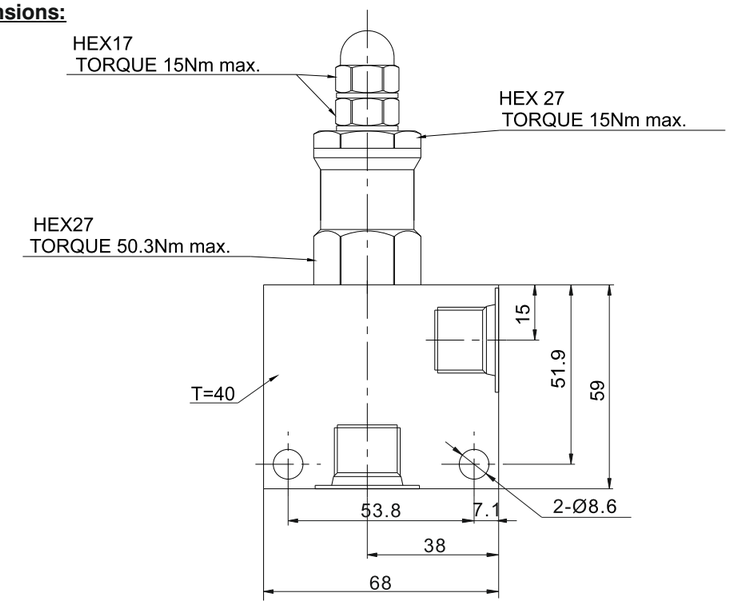
Operation:

The valve prevents flow from ① to ② until the set crack pressure at ① is achieved.The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDF20				

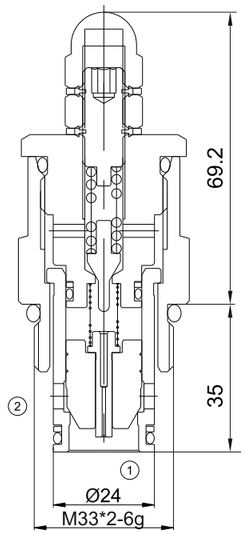
Pressure Range:
150-900psi(10-64bar) Preset:850psi(60bar)(check:1.5bar) = 5
800-1900psi(55-130bar) Preset:1700psi(120bar)(check:1.5bar) = 10
1600-3000psi(110-210bar) Preset:2300psi(160bar)(check:1.5bar) = 15
2300-4500psi(160-315bar) Preset:2900psi(200bar)(check:1.5bar) = 20

Seal Kits:
Buna N = N
Viton = V

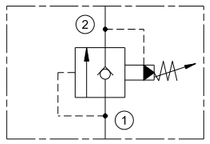
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TDF25 - Pilot-operated Relief Valve (Reverse one-way type)



Hydraulic Symbol:



Specifications:

Operating Pressure	315 Bar
Flow	180 L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2413 see page K-19
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

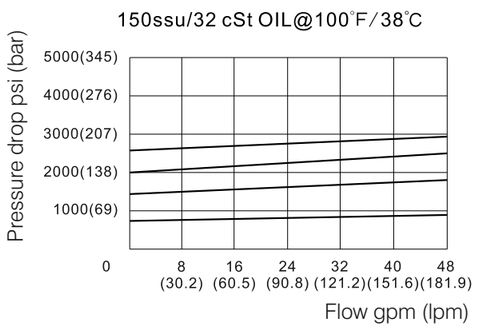
Features:

- Fast response to pressure surges
- Hardened poppet and seat for long life
- Adjustment may be locked in place
- Industry common cavity
- Compact size
- Adjustment prevents spring from going solid

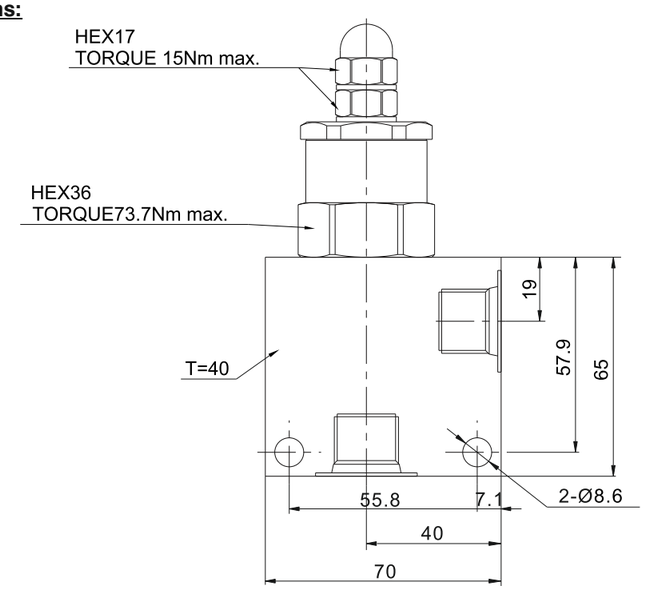
Operation:

The valve prevents flow from ① to ② untill the set crack pressure at ① is achieved. The poppet then unseat allowing flow from ① to ② protecting the circuit from over pressurization.When pressure at ② rises above the springs bias pressure,the poppet is lifted and flow allowed from ② to ① .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDF25				

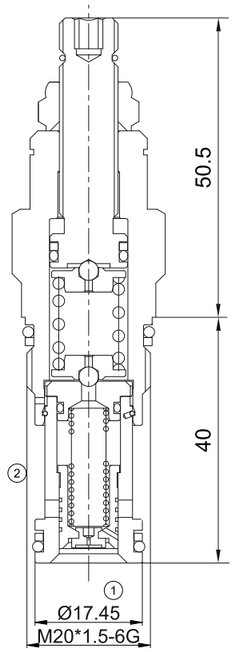
Pressure Range:
150-900psi(10-64bar) Preset:850psi(60bar)(check:1.5bar) = 5
800-1900psi(55-130bar) Preset:1700psi(120bar)(check:1.5bar) = 10
1600-3000psi(110-210bar) Preset:2300psi(160bar)(check:1.5bar) = 15
2300-4500psi(160-315bar) Preset:2900psi(200bar)(check:1.5bar) = 20

Seal Kits:
Buna N = N
Viton = V

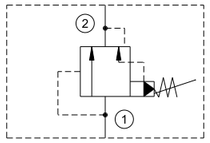
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRQEB - Pilot-operated Relief Valve (Kick down)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	95 L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-10A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

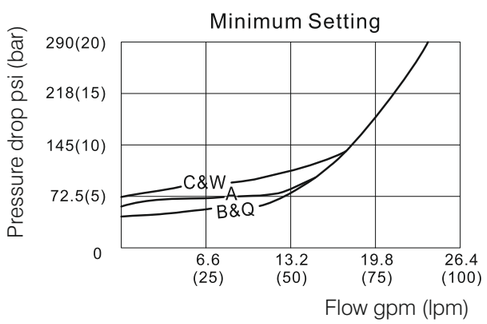
Features:

- Main stage orifice is protected by a 150-micron stainless steel screen.
- Back pressure on the tank port (port 2) is directly additive to the valve setting at a 1:1 ratio.
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.

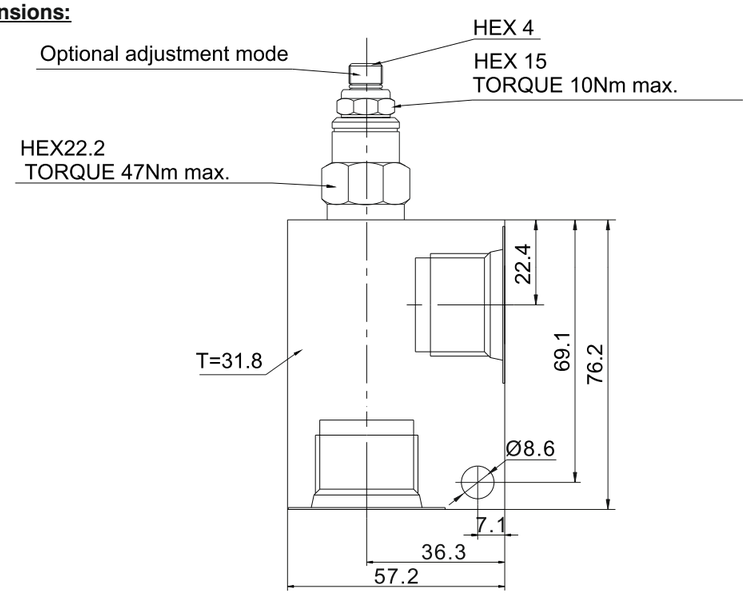
Operation:

VKick-down relief cartridges act similar to a circuit breaker in an electrical system. The Valve will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve settting, creating an unrestricted flow path from port 1 to tank (port 2). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, flow from port 1 to port 2 must cease and pressure at port 2 must be equal to or greater than the pressure at port 1.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRQEB | | | | | |

Adjustment:
Screw Adjust = L
Hex Head Screw Adjust = F

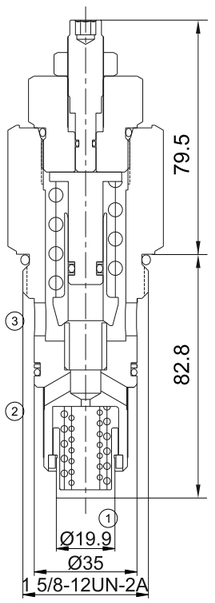
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) = W
60-800psi(4-55bar) Preset:400psi(28bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
10T = SAE 10T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

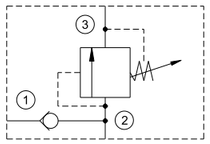
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TZYF25-01 - Combined Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	280 Bar
Flow	150 L/min
Internal Leakage	3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2502 see page K-20
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

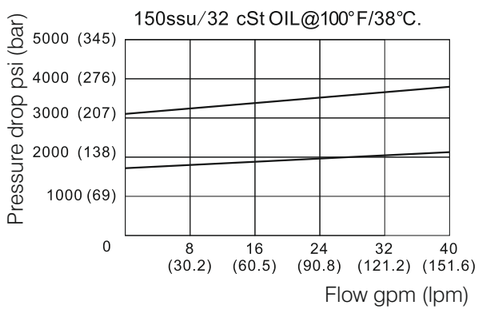
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to Pressure surges

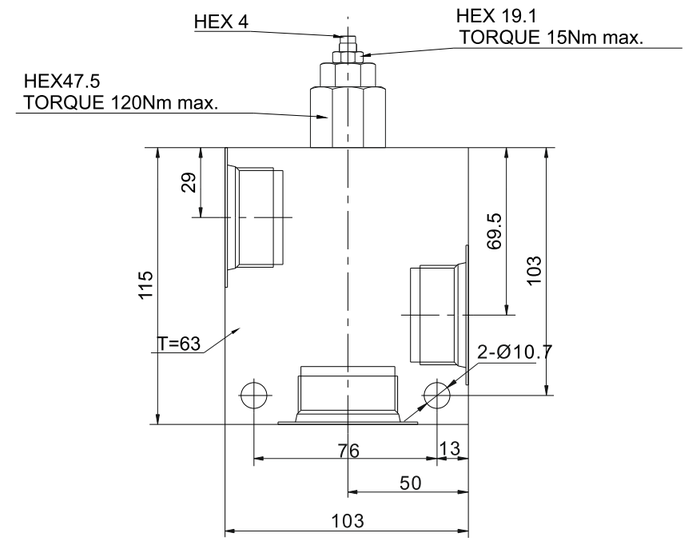
Operation:

The valve prevents flow from ② to ③ until the set crack pressure at ② is achieved.The poppet then unseat allowing flow from ② to ③ protecting the circuit from over pressurization.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TZYF25-01 | | | | |

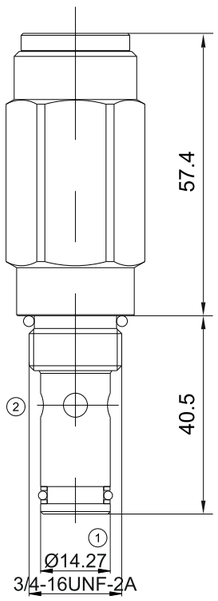
Pressure Range:
1000-2800psi(70-195bar) Preset:1800psi(127bar) = 5
2100-4000psi(145-280bar) Preset:3000psi(210bar) = 10

Seal Kits:
Buna N = N
Viton = V

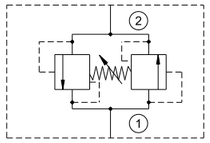
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TBRV-08-3R - Bi-directional Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	BRV see page K-33
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

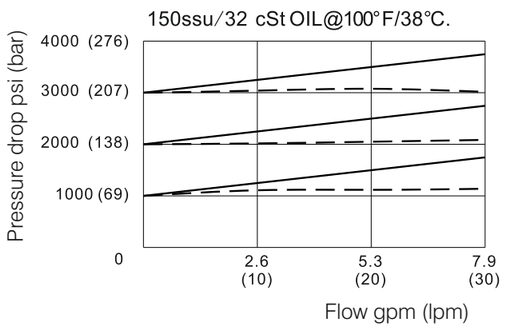
Features:

- Hardened, precision ground parts for durability
- Compact size
- Industry common cavity
- Fast response to pressure surges
- Low leakage design

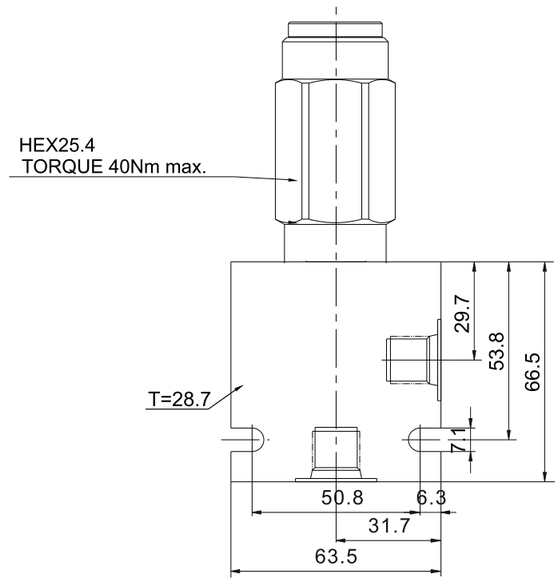
Operation:

The valve is a direct-acting,dual cross-over relief valve in a single cartridge format, When pressure at either port exceeds the nominal setting value, flow will be transmitted to the opposite port. Back pressure at either port will affect the nominal setting of the opposite port on a 1 :1 basis.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TBRV-08-3R				

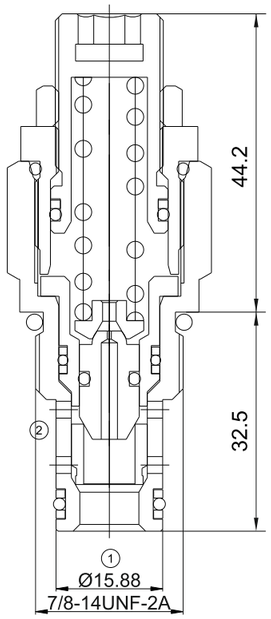
Pressure Range:
0-1700psi(0-119bar) Preset:1000psi(69bar) = 10
0-2700psi(0-185bar) Preset:2000psi(138bar) = 20
0-3600psi(0-250bar) Preset:3000psi(207bar) = 30

Seal Kits:
Buna N = N
Viton = V

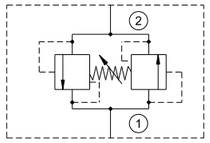
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TRVBD-10 - Bi-directional Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	75 L/min
Internal Leakage	85 cc/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

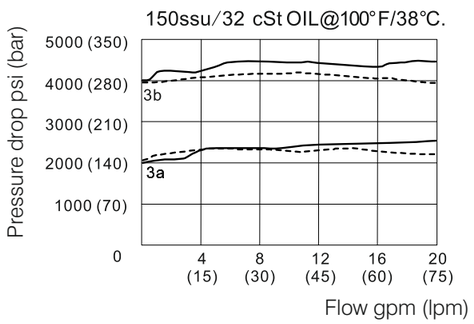
Features:

- Hardened, precision ground parts for durability
- Compact size
- Industry common cavity
- Fast response to pressure surges
- Adjustment prevents spring from going solid

Operation:

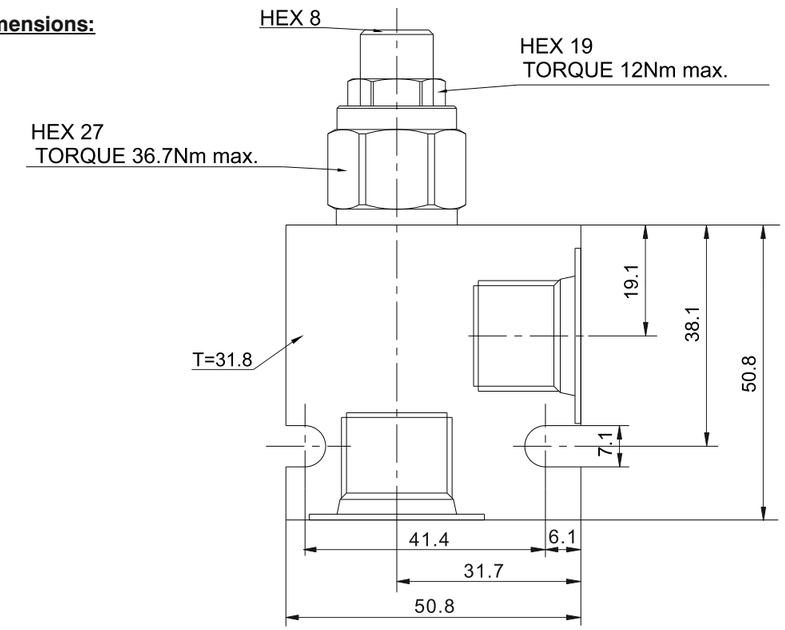
The valve is a direct-acting,dual cross-over relief valve in a single cartridge format, When pressure at either port exceeds the nominal setting value, flow will be transmitted to the opposite port. Back pressure at either port will affect the nominal setting of the opposite port on a 1 :1 basis.

Performance Curve
Pressure Drop vs Flow



3a=5000psi-P_N2000psi(137bar) — ① to ② - -② to ①
3b=5000psi-P_N4000psi(275bar) — ① to ② - -② to ①

Installation Dimensions:



Ordering code details:

TRVBD-10 | | | | |

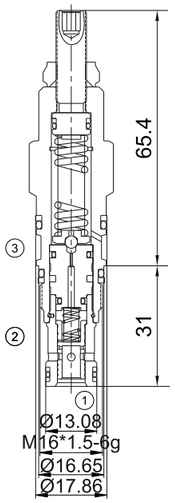
Pressure Range:
1500-4500psi(105-315bar) Preset: 3000 psi (207 bar) = 50

Seal Kits:
Buna N = N
Viton = V

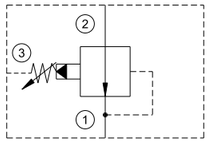
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TPBBB - Pressure Reducing Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	20 L/min
Control Pilot Flow	0.11 - 0.16L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-163A see page K-8
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

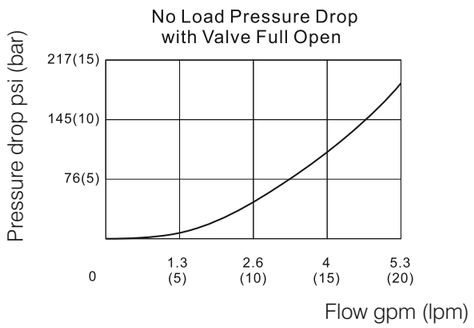
Features:

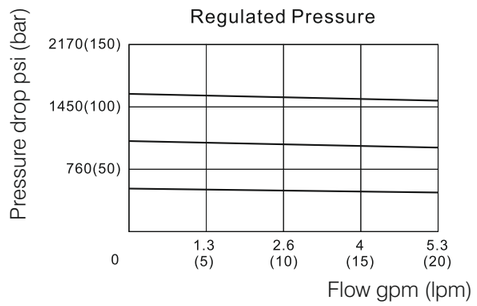
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

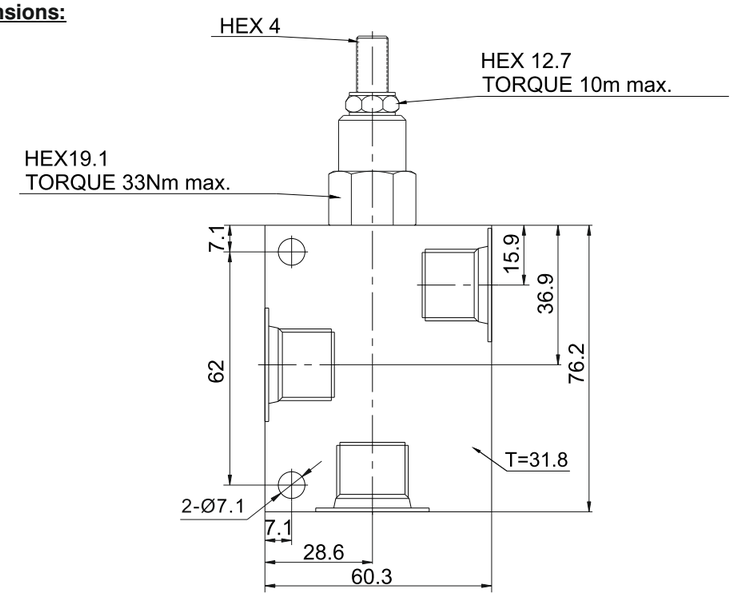
Pilot-operated, pressure reducing Valve reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, allowing circuits with multiple pressure requirements to be operated using a single pump.

Performance Curve
Pressure Drop vs Flow

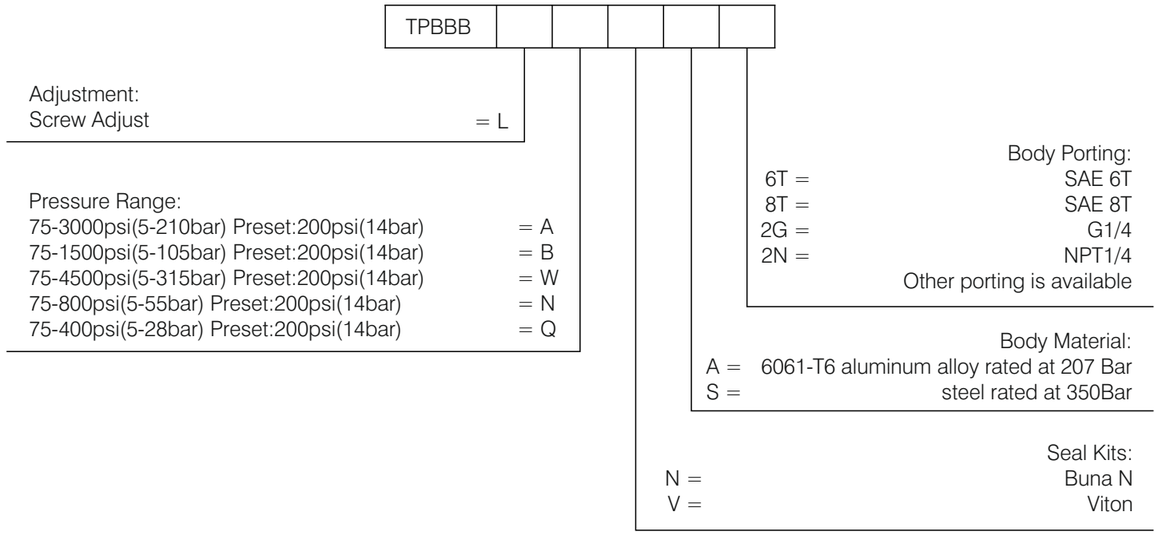




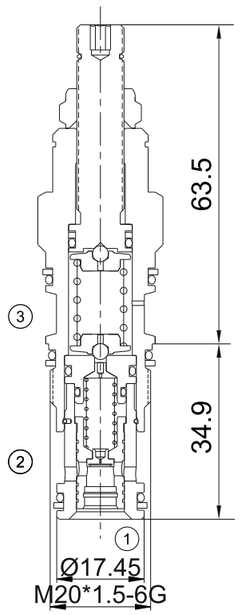
Installation Dimensions:



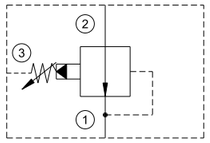
Ordering code details:



TPBDB - Pressure Reducing Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Control Pilot Flow	0.11 - 0.16L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

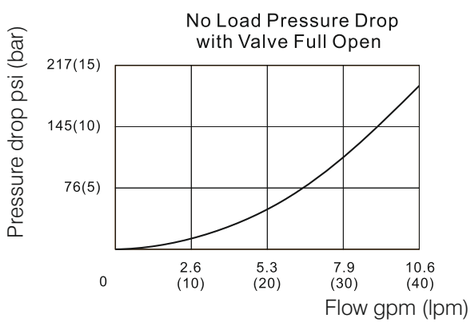
Features:

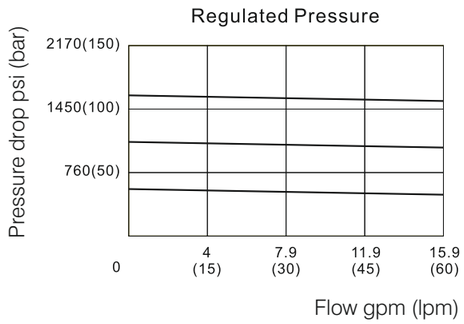
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

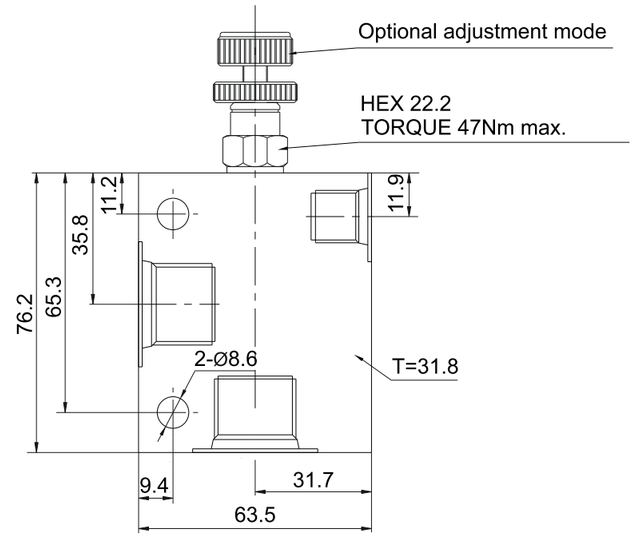
Pilot-operated, pressure reducing Valve reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, allowing circuits with multiple pressure requirements to be operated using a single pump.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TPBDB | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K
Non-adjustable = S

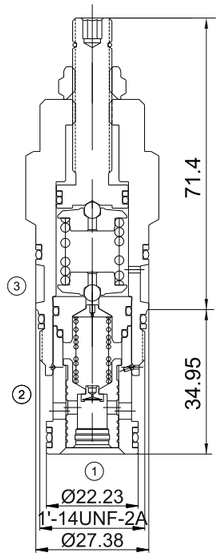
Pressure Range:
100-3000psi(7-210bar) Preset:200psi(14bar) = A
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
150-4500psi(10.5-315bar) Preset:200psi(14bar) = W
60-800psi(4-55bar) Preset:200psi(14bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
150-6000psi(10.5-420bar) Preset:200psi(14bar) = C
25-800psi(1.7-55bar) Preset:200psi(14bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
60-3000psi(4-210bar) Preset:200psi(14bar) = G
75-1500psi(5-105bar) Preset:200psi(14bar) = K
40-400psi(2.8-28bar) Preset:200psi(14bar) = P

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

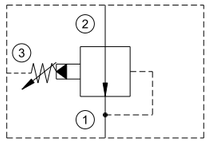
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TPBFB - Pressure Reducing Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	80 L/min
Control Pilot Flow	0.16 - 0.25L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

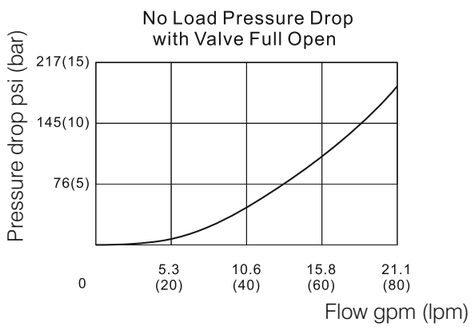
Features:

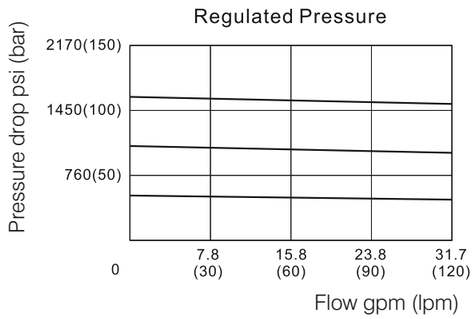
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

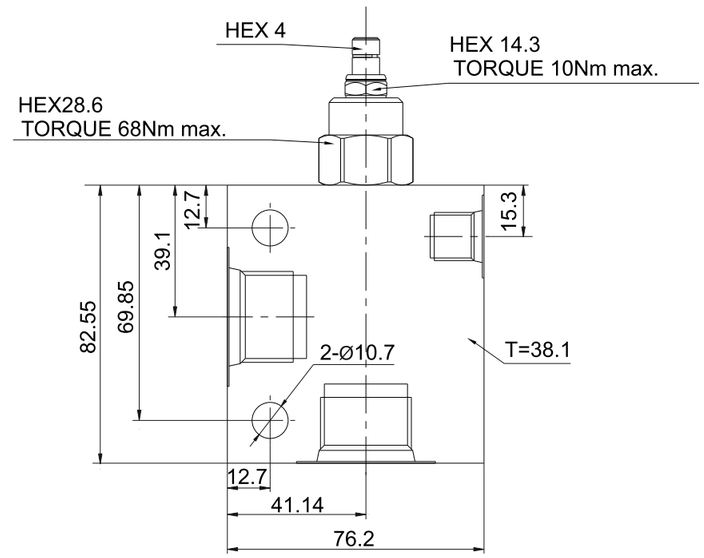
Pilot-operated, pressure reducing Valve reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, allowing circuits with multiple pressure requirements to be operated using a single pump.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TPBFB | | | | | |

Adjustment:
Screw Adjust = L

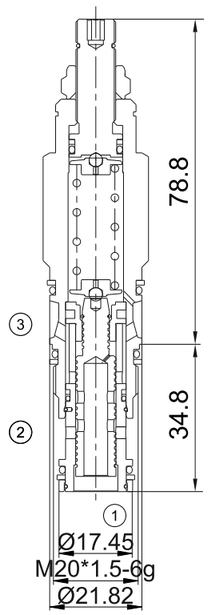
Pressure Range:
100-3000psi(7-210bar) Preset:200psi(14bar) = A
150-4500psi(10.5-315bar) Preset:200psi(14bar) = W
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
60-800psi(4-55bar) Preset:200psi(14bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

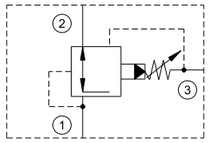
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TPRDB - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

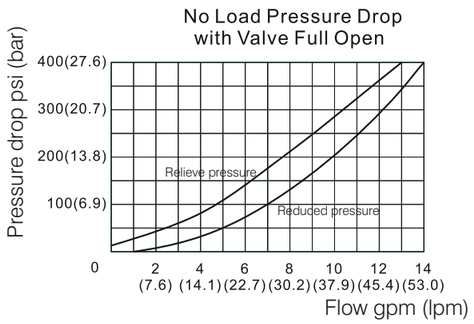
Features:

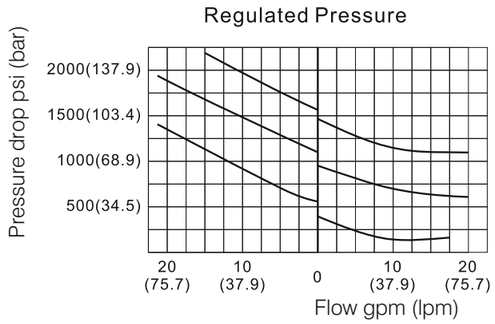
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

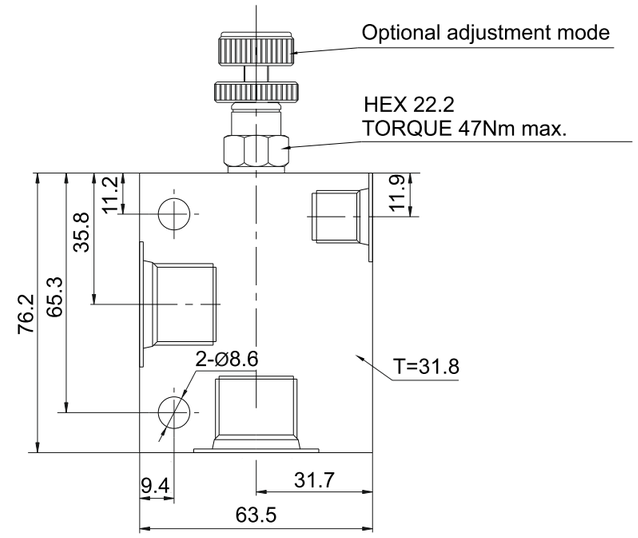
Pilot-operated, pressure reducing Valve reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, allowing circuits with multiple pressure requirements to be operated using a single pump.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TPRDB | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

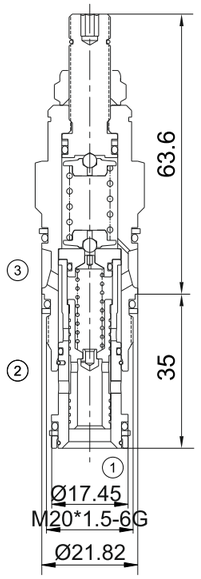
Pressure Range:
500-3000psi(35-210bar) Preset:700psi(50bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
25-200psi(1.7-14bar) Preset:100psi(7bar) = S
750-4500psi(50-315bar) Preset:1000psi(70bar) = W

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

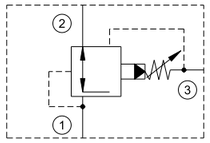
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TPPDB - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Control Pilot Flow	0.11 - 0.16L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

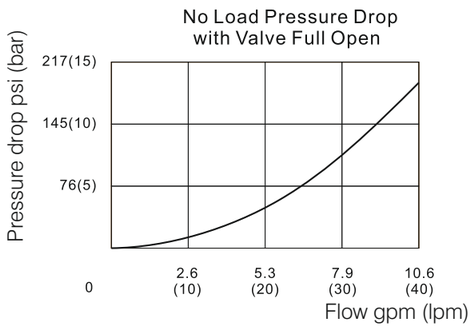
Features:

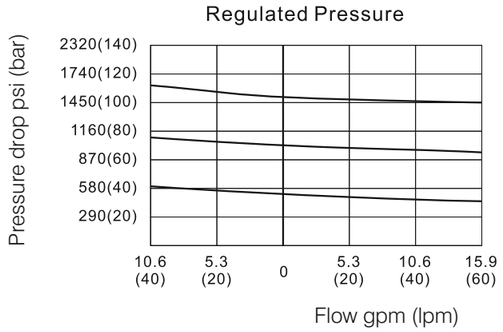
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

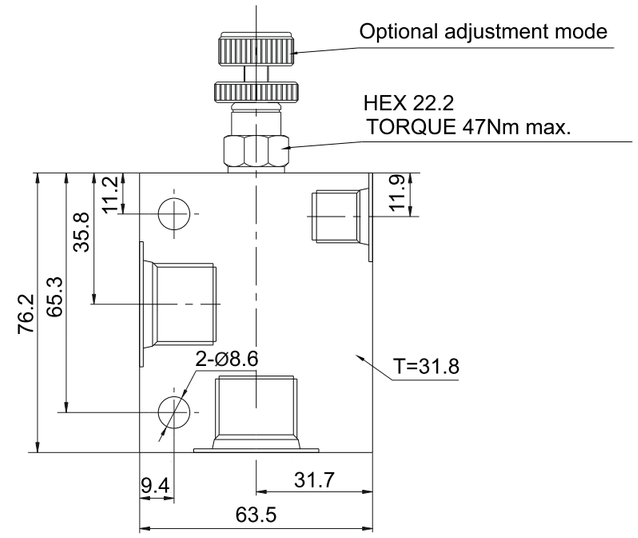
Pilot-operated, pressure reducing/relieving valves reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, with a full-flow relief function from port 1 to tank (port 3).

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TPPDB | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K
Nonadjustable = S

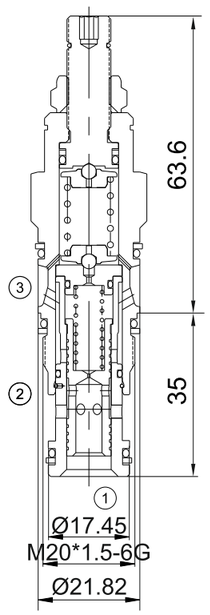
Pressure Range:
100-3000psi(7-210bar) Preset:200psi(14bar) = A
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
150-4500psi(10.5-315bar) Preset:200psi(14bar) = W
60-800psi(4-55bar) Preset:200psi(14bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
150-6000psi(10.5-420bar) Preset:200psi(14bar) = C
25-800psi(1.7-55bar) Preset:200psi(14bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
30-3000psi(2-210bar) Preset:200psi(14bar) = H
25-1500psi(1.7-210bar) Preset:200psi(14bar) = J
75-1500psi(5-105bar) Preset:200psi(14bar) = K
15-400psi(1-28bar) Preset:200psi(14bar) = O
40-400psi(2.8-28bar) Preset:200psi(14bar) =P

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

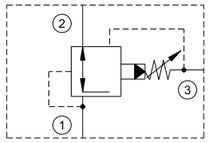
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TPPDF - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Control Pilot Flow	0.11 - 0.16L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

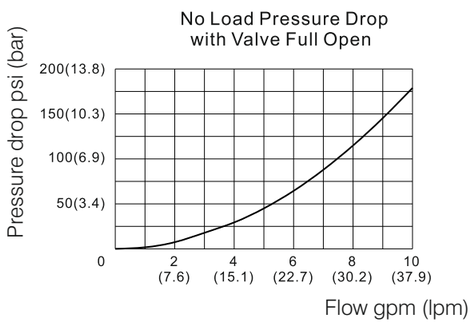
Features:

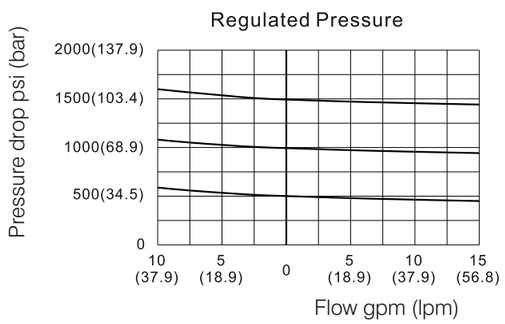
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated Valve exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

Operation:

Pilot-operated, pressure reducing/relieving valves reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, with a full-flow relief function from port 1 to tank (port 3).

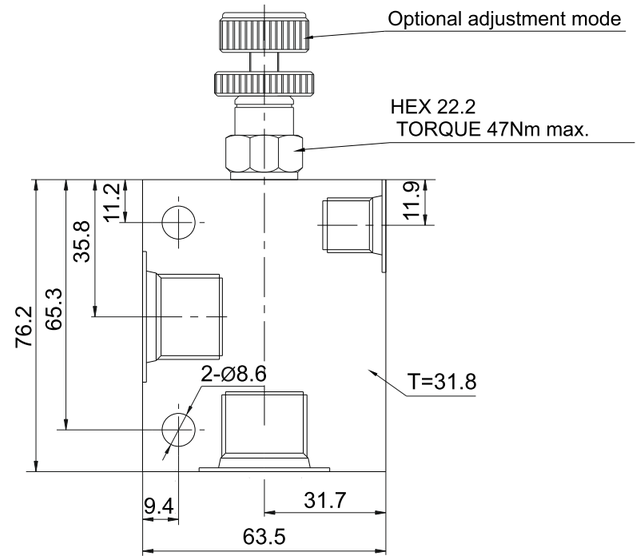
Performance Curve
Pressure Drop vs Flow





THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TPPDF | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

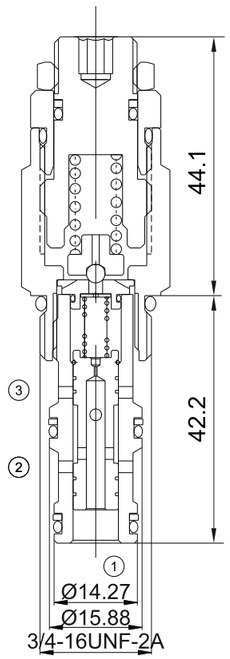
Pressure Range:
100-3000psi(7-210bar) Preset:200psi(14bar) = A
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
150-4500psi(10.5-315bar) Preset:200psi(14bar) = W
60-800psi(4-55bar) Preset:200psi(14bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q
150-6000psi(10.5-420bar) Preset:200psi(14bar) = C
25-800psi(1.7-55bar) Preset:200psi(14bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
30-3000psi(2-210bar) Preset:200psi(14bar) = H
25-1500psi(1.7-210bar) Preset:200psi(14bar) = J
75-1500psi(5-105bar) Preset:200psi(14bar) = K
150-400psi(10-28bar) Preset:200psi(14bar) = O
40-400psi(2.8-28bar) Preset:200psi(14bar) = P

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

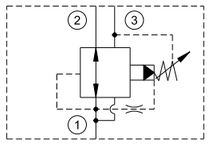
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TDPRR-08 - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	23 L/min
Internal leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

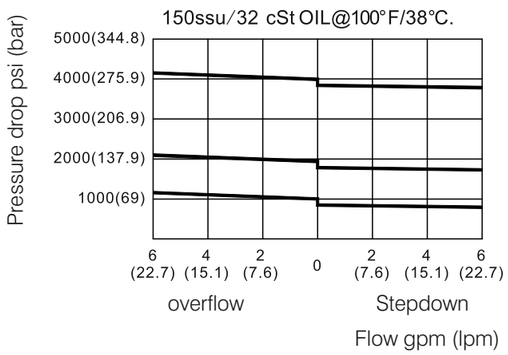
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

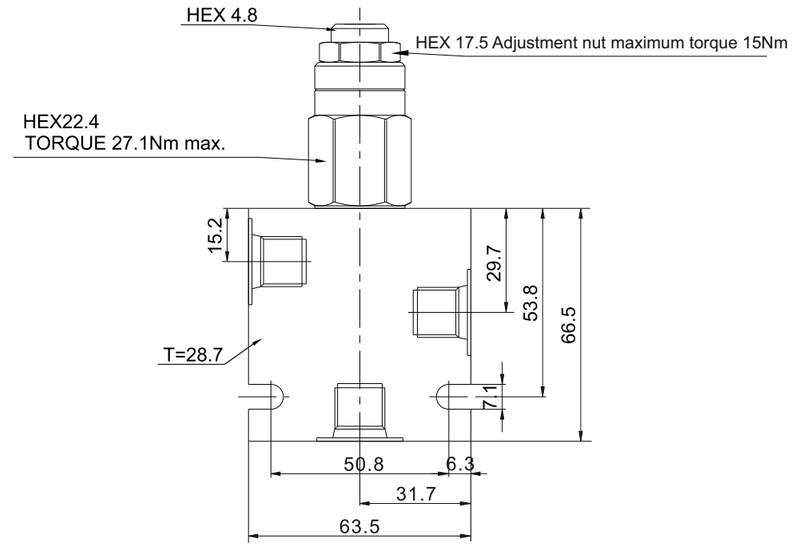
Operation:

The TDPRR-08 in steady state will allow bi-directional flow between ①and ② with spring chamber ③ vented. When the preset pressure at ①is achieved, the spool throttles to regulate pressure at ① by restricting flow at ②.The valve will relieve ① to ③.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDPRR-08 [ ] [ ] [ ] [ ]

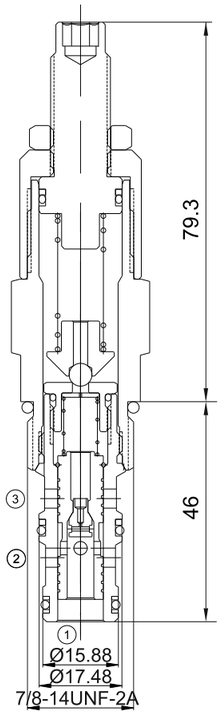
Pressure Range:
2000-5000psi(138-350bar) Preset:4000psi(276bar) = 50

Seal Kits:
Buna N = N
Viton = V

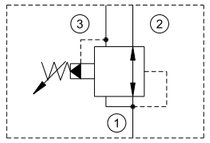
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TPR10-36 - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	1: 240 Bar; 2: 240 Bar; 3: 69 Bar (Maximum)
Flow	56.8 L/min
Maximum Pilot Flow	0.17 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

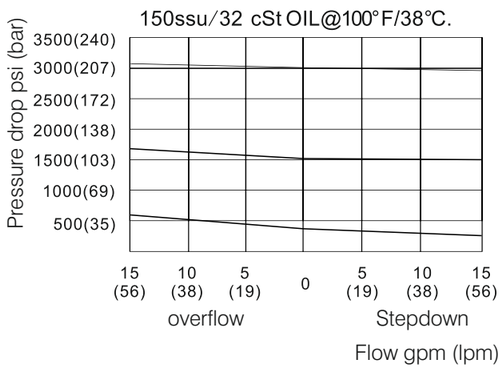
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

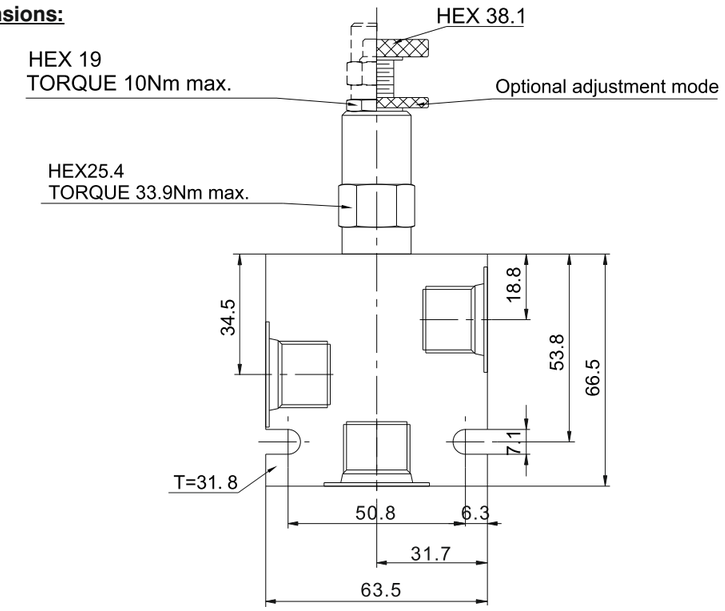
Operation:

In its steady state, the pr10-36xx allows flow to pass bidirectionally from port 2 to port 1, with the spring chamber constantly drained at port 3. Upon attainment of a predetermined pressure at port 1, the spool shifts to restrict inlet flow from port 2, thereby regulating pressure at port 1. In this mode the valve will also relieve port 1 to port 3.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPR10-36 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K
Hidden Adjustment = S

Pressure Range:
100-400psi(6.9-27.6bar) Preset:200psi(14bar) = 04
150-1500psi(10.3-103bar) Preset:750psi(52bar) = 15
400-3000psi(27.6-207bar) Preset:1500psi(104bar) = 30

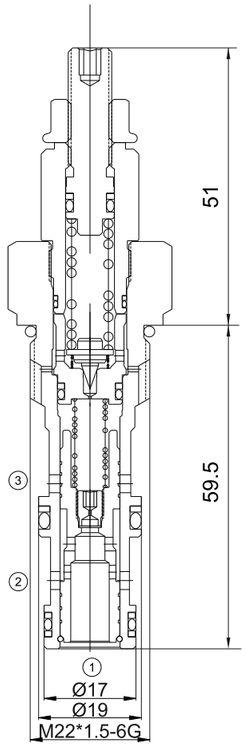
Setting In Bar
Preset = No code
For Example: 25=25bar; 100=100bar etc.

Seal Kits:
N = Buna N
V = Viton

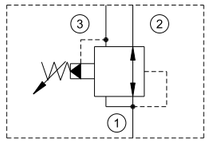
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TDRM10130P-01 - Pressure Reducing/Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Pilot Flow	<500cm³/min at 350BAR
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10130 see page K-38
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

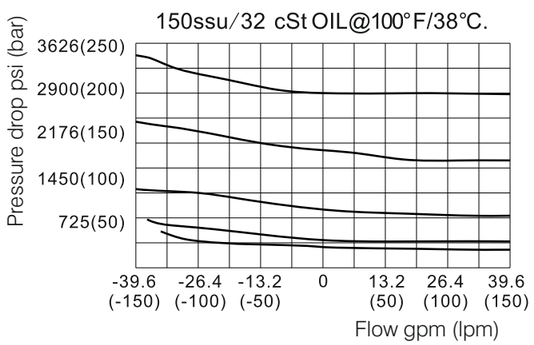
Features:

- Excellent stability throughout the entire flow range
- Adjustable throughout flow range
- Screen protected metering orifice enhances safety
- Exposed surfaces zinc-nickel plated for increased corrosion protection (1000 h Salt spray test)

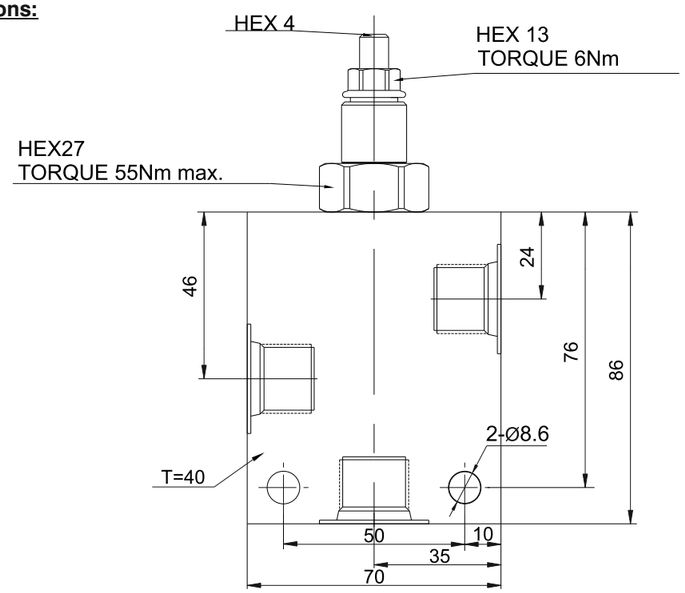
Operation:

In its steady state, the TDRM10130P-01 allows flow to pass bidirectionally from port 2 to port 1, with the spring chamber constantly drained at port 3. Upon attainment of a predetermined pressure at port 1, the spool shifts to restrict inlet flow from port 2, thereby regulating pressure at port 1. In this mode the valve will also relieve port 1 to port 3.note: tank pressure is additive to regulated pressure.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDRM10130P-01				

Pressure Range:

120-500psi(8-35 bar) Preset:200psi(14bar)	= 35
120-870psi(8-60 bar) Preset:200psi(14bar)	= 60
120-1800psi(8-125 bar) Preset:200psi(14bar)	= 125
120-3300psi(8-230 bar) Preset:200psi(14bar)	= 230
170-5000psi(12-350 bar) Preset:400psi(28bar)	= 350

Seal Kits:

Buna N	= N
Viton	= V

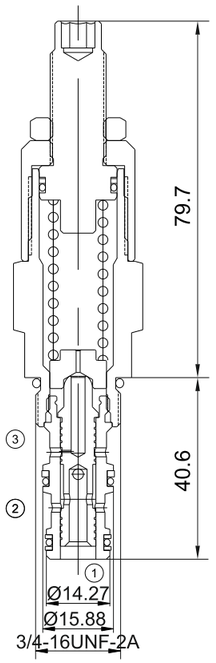
Body Material:

6061-T6 aluminum alloy rated at 207 Bar	= A
steel rated at 350Bar	= S

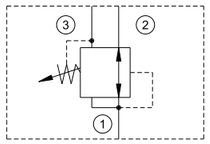
Body Porting:

SAE 6T	= 6T
SAE 12T	= 12T
G1/4	= 2G
NPT1/4	= 2N
Other porting is available	

TDPR-08 - Pressure Reducing/Relieving Valve (Directly-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	207 Bar
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

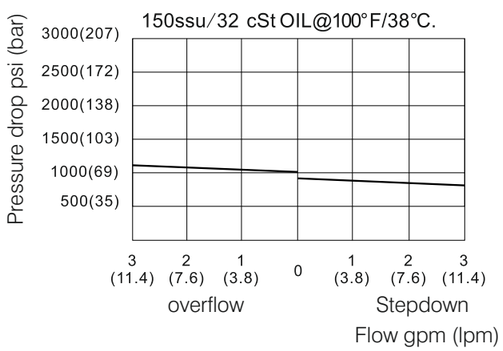
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

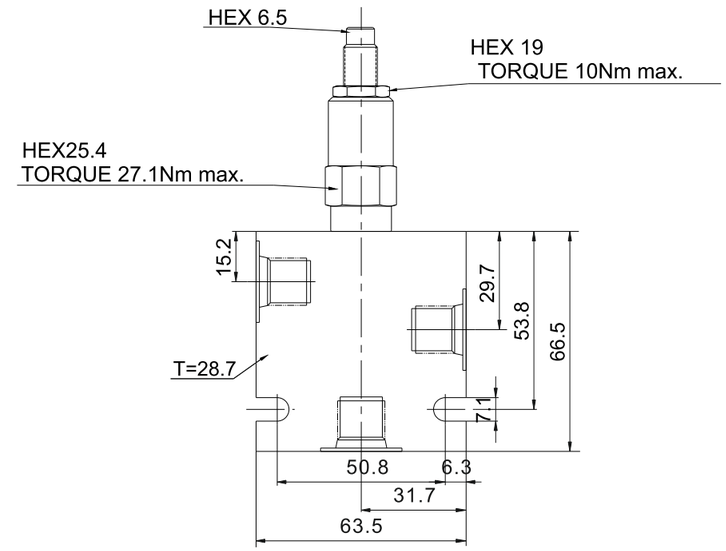
Operation:

In its steady state, the TDPR-08 allows flow bidirectionally from port ② to port ①, with the spring chamber constantly drained at port ③. On attainment of a pre-determined pressure at port ①, the cartridge shifts to block flow at port② , thereby regulating pressure at port ①. In this mode, the valve will also relieve port 1 to port ③ at a variable value over the set reducing pressure.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDPR-08				

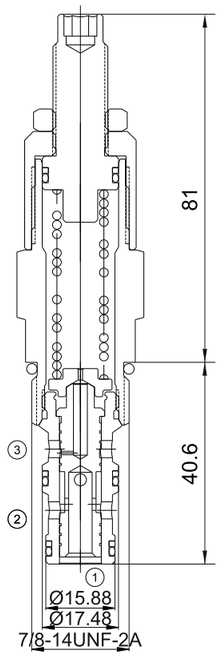
Pressure Range:
40-300psi(3.4-20.7bar) Preset:150psi(10.3bar) = 3
100-600psi(6.9-41.4bar) Preset:300psi(20.7bar) = 6
300-1200psi(20.7-82.8bar) Preset:600psi(41.4bar) = 12
500-2200psi(34.5-152bar) Preset:1100psi(76bar) = 22

Seal Kits:
Buna N = N
Viton = V

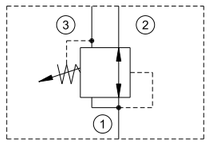
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDPR-10 - Pressure Reducing/Relieving Valve (Directly-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	207 Bar
Flow	30 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

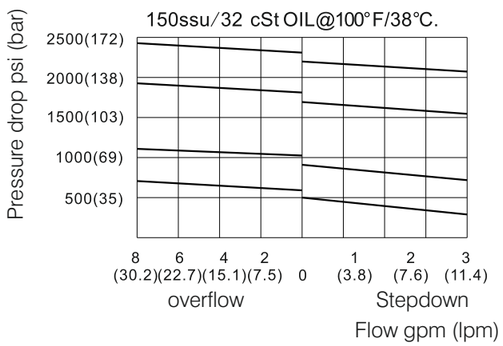
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Fast response to pressure surges

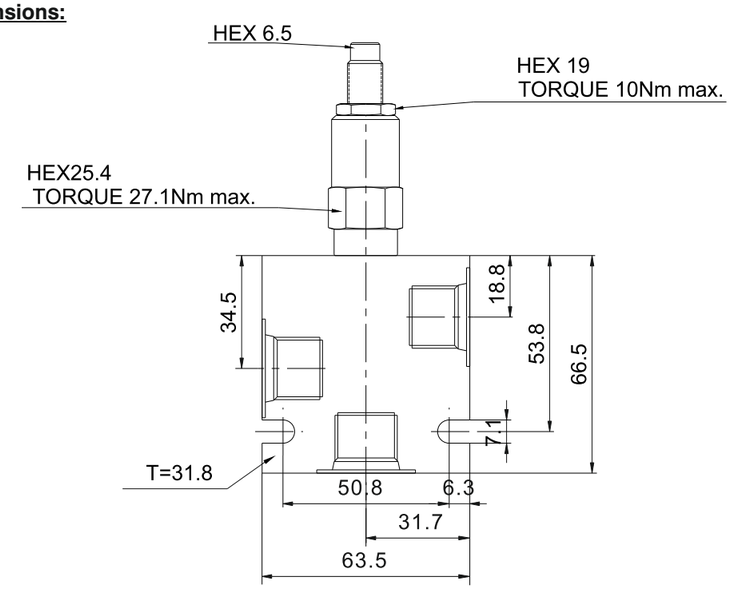
Operation:

In its steady state, the TDPR-08 allows flow bidirectionally from port ② to port ①, with the spring chamber constantly drained at port ③. On attainment of a pre-determined pressure at port ①, the cartridge shifts to block flow at port② , thereby regulating pressure at port ①. In this mode, the valve will also relieve port 1 to port ③ at a variable value over the set reducing pressure.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TDPR-10				

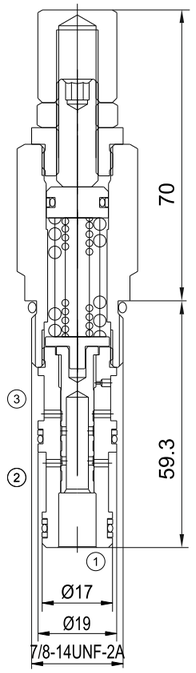
Pressure Range:
80-400psi(5.5-27.6bar) Preset:200psi(13.8bar) = 4
200-800psi(13.8-55.2bar) Preset:400psi(27.6bar) = 8
300-1500psi(20.7-103bar) Preset:600psi(51.5bar) = 15
400-2100psi(27.6-145bar) Preset:1100psi(72.5bar) = 21

Seal Kits:
Buna N = N
Viton = V

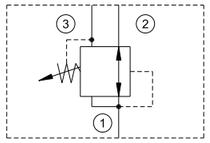
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDPR-1PD20 - Pressure Reducing/Relieving Valve (Directly-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A5572 see page K-28
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

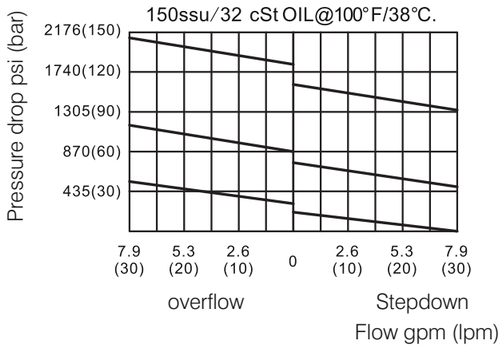
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place

Operation:

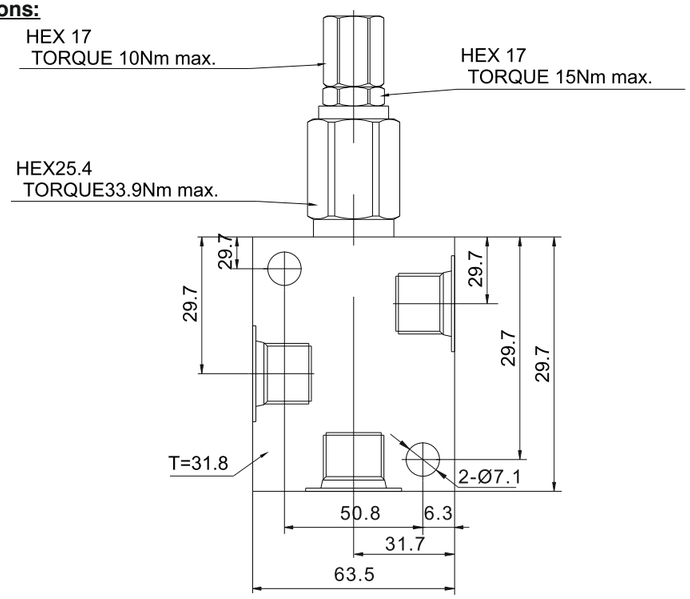
In its steady state,the valve allows flow to pass bi-directionally from ② to ①, with the spring chamber constantly drained at ③. On attinment of a pre-determined pressure to ①,the cartridge shift to restrict input flow to ②, thereby regulating pressure to ②.In this mode,the valve will also relivf ① at ③ at approximately 10 bar over the reducing setting.

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TDPR-1PD20				

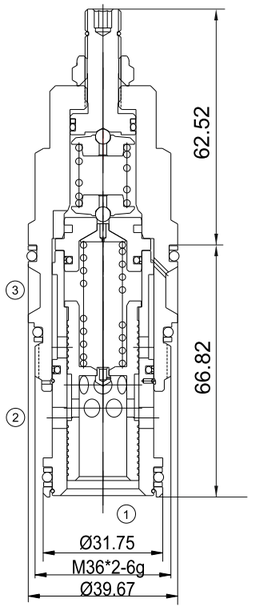
Pressure Range:
70-350psi(5-25bar) Preset:200psi(15bar) = 2
300-1100psi(20-75bar) Preset:400psi(30bar) = 6
400-1500psi(30-140bar) Preset:850psi(60bar) = 12

Seal Kits:
Buna N = N
Viton = V

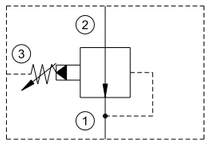
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TPBHB - Pilot-operated, pressure reducing valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	160 L/min
Control Pilot Flow	0.25 - 0.33 L/min
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-17A see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

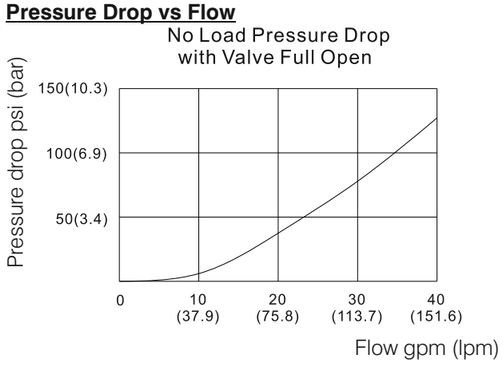
- Full reverse flow from reduced pressure (port 1) to inlet (port 2) may cause the main spool to close. If reverse free flow is required in the circuit, consider adding a separate check valve to the circuit.
- Pilot operated valves exhibit exceptionally flat pressure/flow characteristics, are very stable and have low hysteresis.

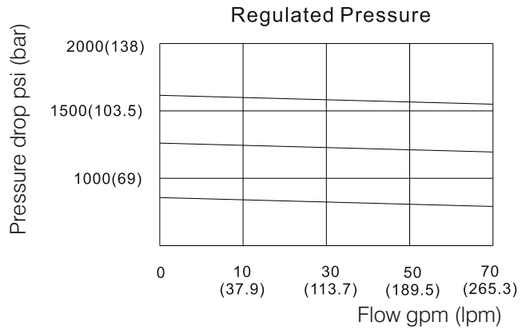
Operation:

Pilot-operated, pressure reducing valves reduce a high primary pressure at the inlet (port 2) to a constant reduced pressure at port 1, allowing circuits with multiple pressure requirements to be operated using a single pump.

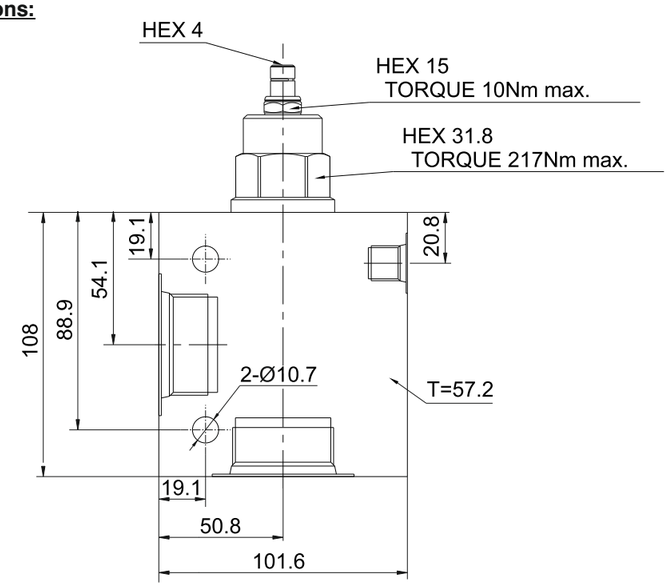
Performance Curve

Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TPBHB | | | | | |

Adjustment:
Screw Adjust = L
Handwheel Adjust = K

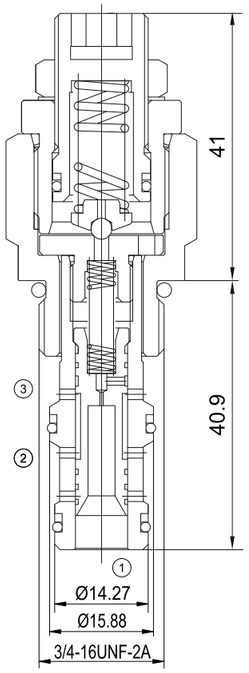
Pressure Range:
100-3000psi(7-210bar) Preset:200psi(14bar) = A
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
150-4500psi(10.5-315bar) Preset:200psi(14bar) = W
60-800psi(4-55bar) Preset:200psi(14bar) = N
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
6N = NPT3/4
10N = NPT1 1/4
12T = SAE12T
20T = SAE20T
6G = G3/4
10G = G1 1/4
Other porting is available

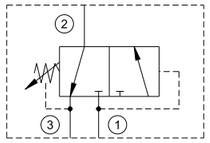
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TPSCS-08 - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	22.7 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

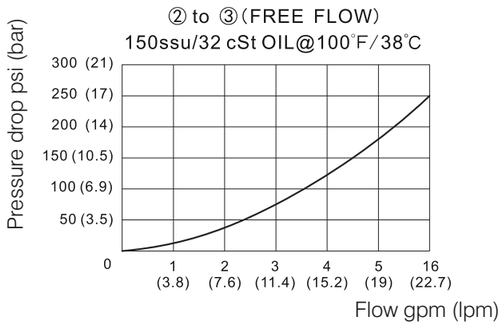
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment will not screw out of the valve body

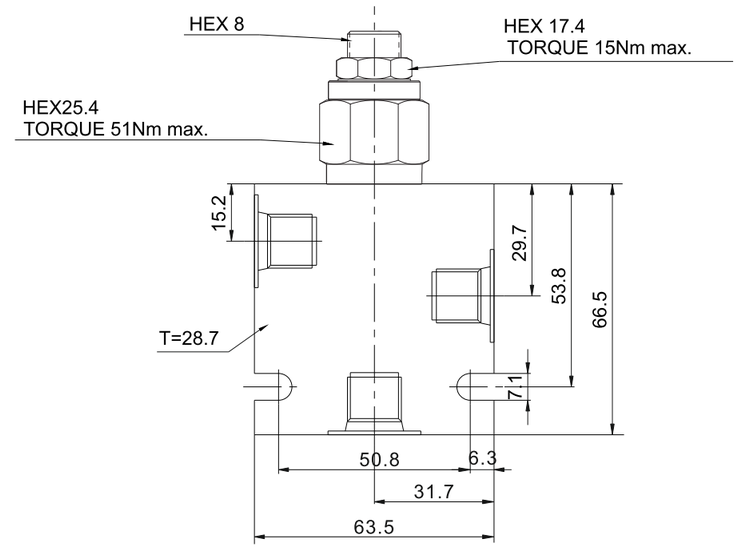
Operation:

This Valve is a normally closed sequence valve,blocking flow from port ① to port ②.When pressure in port ① exceeds bias spring setting the spool will shift allowing flow from port ① to port ② and blocking flow from port ① to port ② to port ③ .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPSCS-08				

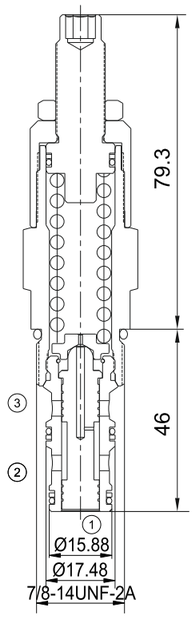
Pressure Range:
50-1500psi(3.5-103.5bar) Preset:450psi(31bar) = 15
50-3000psi(3.5-207bar) Preset:950psi(65.5bar) = 30
50-5000psi(3.5-350bar) Preset:1500psi(103bar) = 50

Seal Kits:
Buna N = N
Viton = V

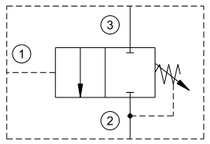
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TPS2-10 - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	207 Bar
Flow	37.9 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

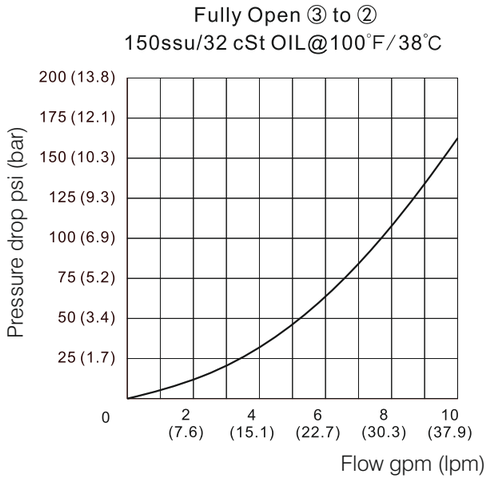
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment will not screw out of the valve body

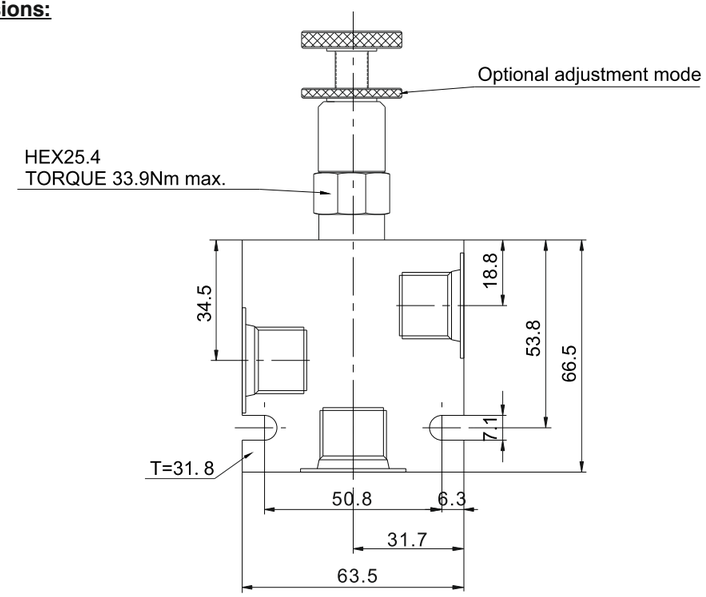
Operation:

In its steady state,the valve blocks flow ③ to ② .
On attainment of a pre-determined pressure at ①,the cartridge shifts to open ③ to ②.Since the spring chamber is vented at ②,back pressure at ② will directly (1:1) affect the valve's setting.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPS2-10 [ ] [ ] [ ] [ ] [ ] [ ]

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

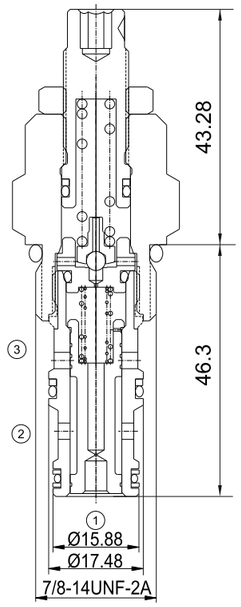
Pressure Range:
80-400psi(5.5-27.6bar) Preset:200psi(13.8bar) = 4
200-800psi(13.8-55.2bar) Preset:400psi(27.6bar) = 8
300-1500psi(20.7-103bar) Preset:750psi(51.5bar) = 15
400-2100psi(28-145bar) Preset:1000psi(72.5bar) = 21

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

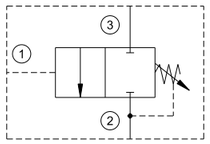
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSF10-00 - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	345 Bar
Flow	60 L/min
Internal Leakage	80ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

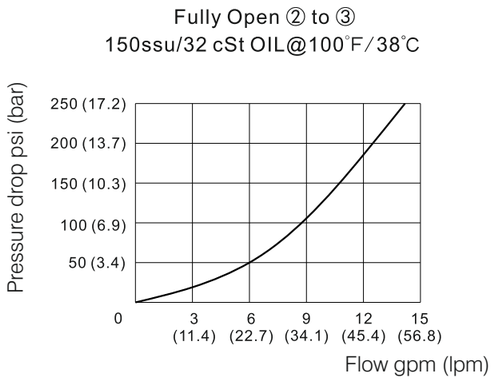
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Adjustment will not screw out of the valve body

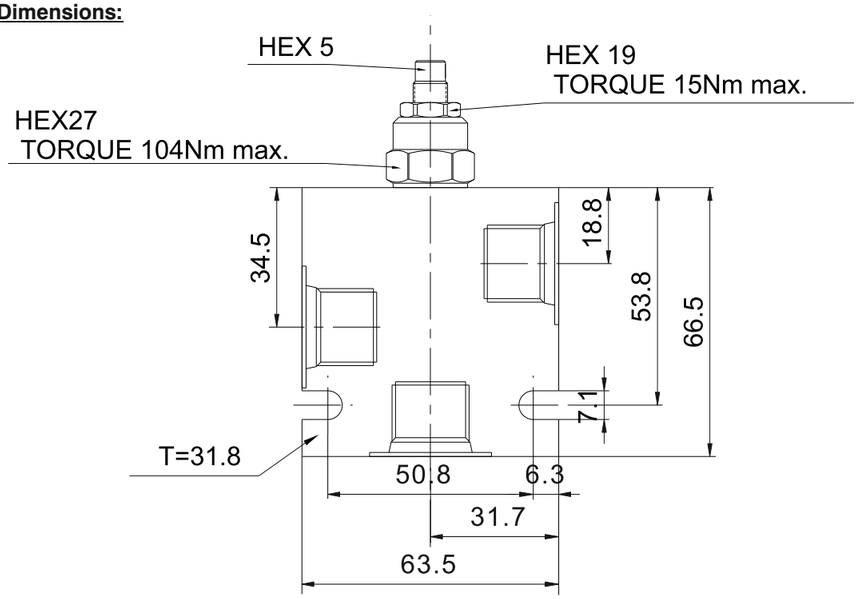
Operation:

When the valve in working, the pilot pressure of port 1 is obtained from an extemal source. When the ① port pressure exceeds the valve setting, the flow allows from ② to ③ . Any pressure at port ③ is additive to the pressure setting. It is most common for port ③ to be connected to tank.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TSF10-00				

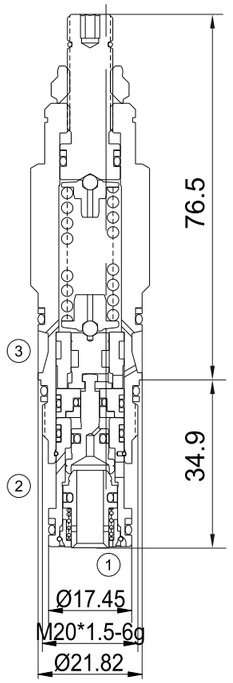
Pressure Range:
100-1200psi(7-83bar) Preset:1100psi(80bar) = 05
600-2400psi(45-165bar) Preset:2300psi(160bar) = 10
4300-5000psi(128-345bar) Preset:2600psi(180bar) = 15

Seal Kits:
Buna N = N
Viton = V

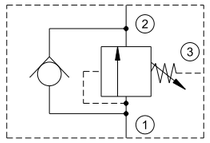
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TSCCA - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Response Time - Typical	2 ms
Internal Leakage	0.7ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

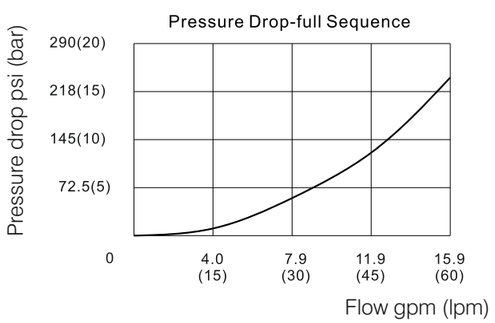
Features:

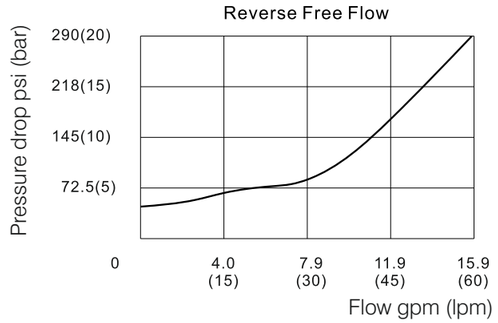
- Although this is a zero pilot flow valve, port 3 (drain) must be connected to maintain a pressure reference in the control chamber. If port 3 is blocked, reciprocating seal weepage will cause the valve to malfunction.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar)

Operation:

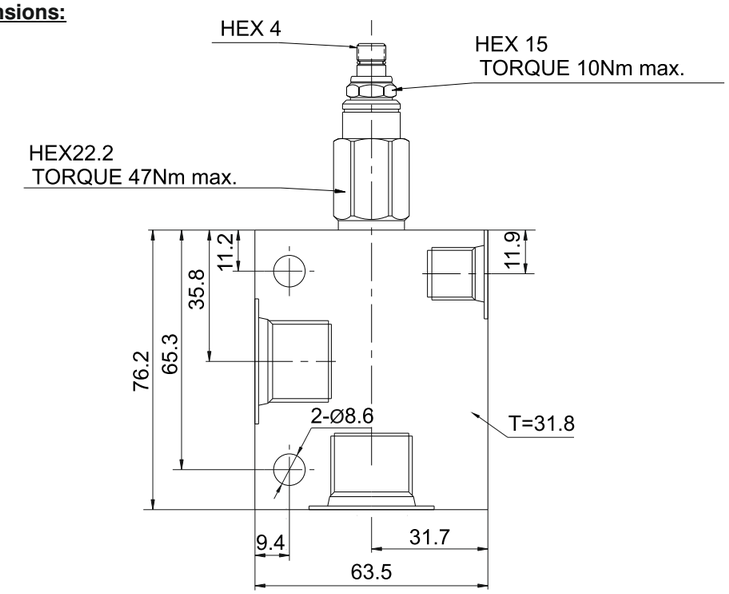
Direct-acting sequence Valve with reverse-flow check will supply a secondary circuit with flow once the pressure at the inlet (port 1) has exceeded the valve setting. Additionally, these Valve incorporate an integral check valve to provide reverse flow from port 2 (sequence) to port 1 (inlet). The pressure setting of a sequence valve controls the pressure at port 1 relative to the pressure at the drain (port 3).

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TSCCA | | | | | |

Adjustment:
Screw Adjust = L

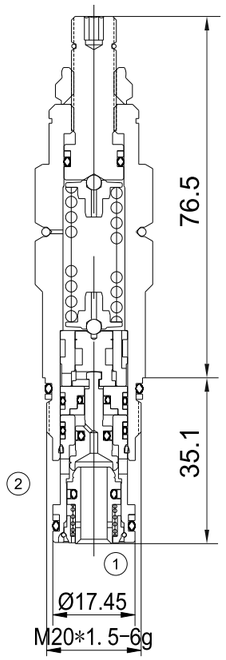
Pressure Range:
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
2000-6000psi(140-420bar) Preset:2000psi(140bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
800-4500psi(55-315bar) Preset:1000psi(70bar) =W

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

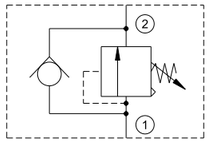
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSCCB - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Response Time - Typical	2 ms
Internal Leakage	10drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

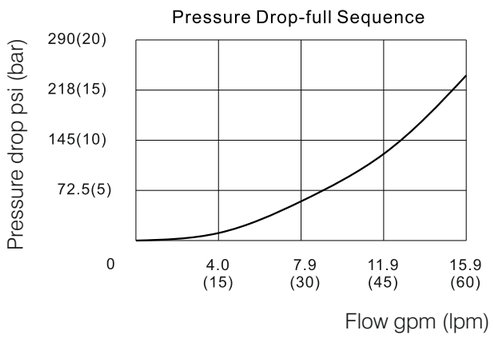
Features:

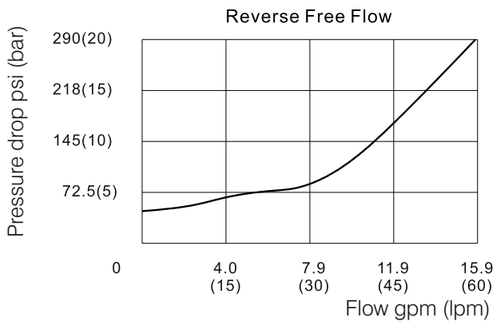
- Approximately 1 drop (0,07 cc) of fluid will pass into the vented spring chamber every 4000 cycles.
- Atmospherically referenced Valve should only be used where it is impossible have a drain connection. Over time, the atmospherically referenced Valve may leak externally or allow moisture into the spring chamber.

Operation:

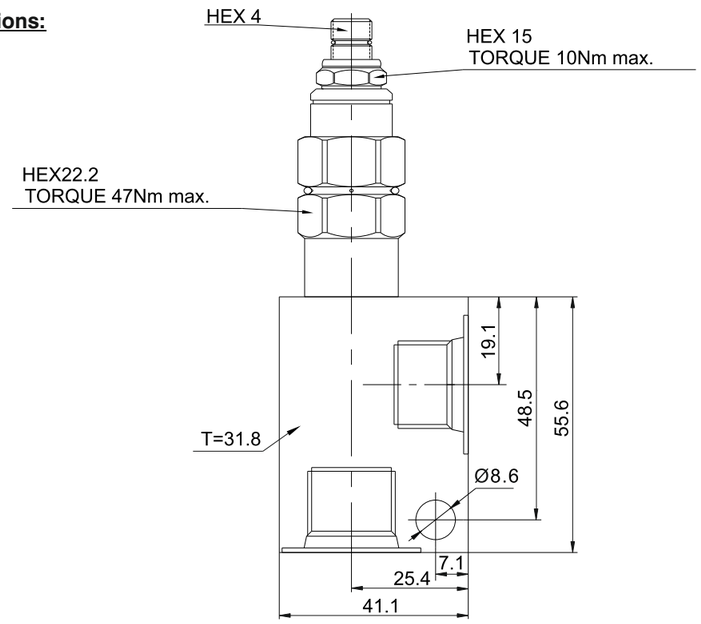
Atmospherically referenced, direct-acting sequence Valve with reverse flow check will supply a secondary circuit with flow once the pressure at the inlet (port 1) has exceeded the valve setting. Additionally, these Valve incorporate an integral check valve to provide reverse flow from port 2 (sequence) to port 1 (inlet). The pressure setting of this sequence valve controls the pressure at port 1 relative to the atmospheric vent.

Performance Curve
Pressure Drop vs Flow





Installation Dimensions:



Ordering code details:

TSCCB | | | | | | |

Adjustment:
Screw Adjust = L

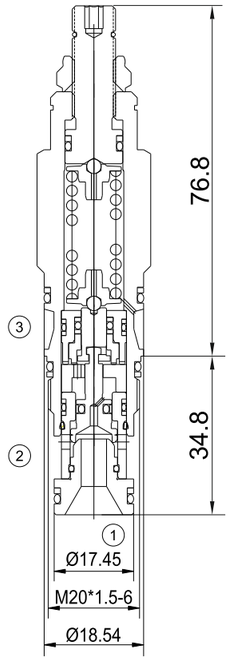
Pressure Range:
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
2000-6000psi(140-420bar) Preset:2000psi(140bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
800-4500psi(55-315bar) Preset:1000psi(70bar) =W

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

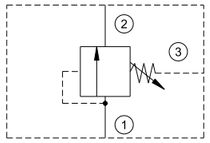
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSXCA - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Response Time - Typical	2 ms
Internal Leakage	0.7ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

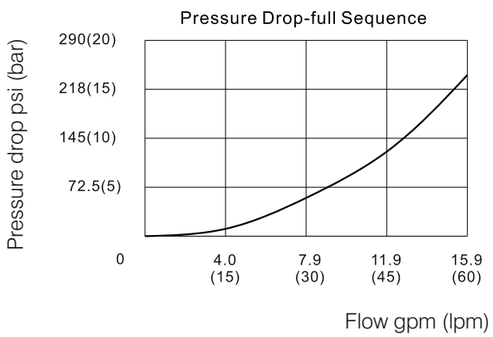
Features:

- Although this is a zero pilot flow valve, port 3 (drain) must be connected to maintain a pressure reference in the control chamber. If port 3 is blocked, reciprocating seal weepage will cause the valve to malfunction
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar)

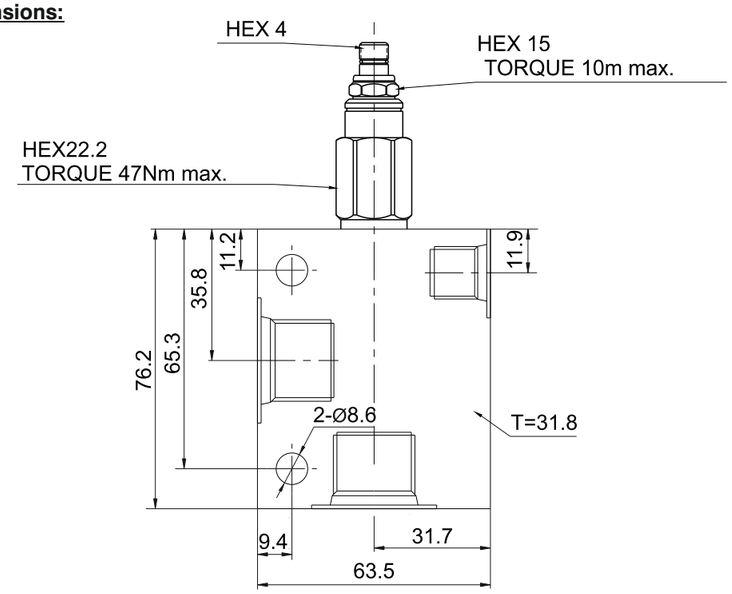
Operation:

Direct-acting sequence Valve will supply a secondary circuit with flow once the pressure at the inlet (port 1) has exceeded the valve setting. The pressure setting of a sequence valve controls the pressure at port 1 relative to the pressure at the drain (port 3).

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TSXCA | | | | | | |

Adjustment:
Screw Adjust = L

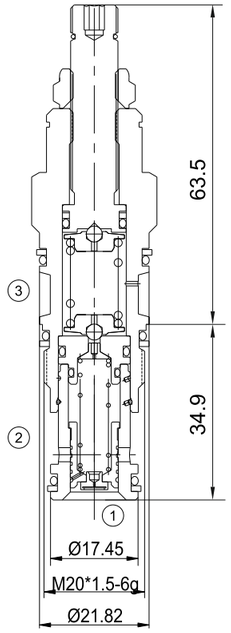
Pressure Range:
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
2000-6000psi(140-420bar) Preset:2000psi(140bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
800-4500psi(55-315bar) Preset:1000psi(70bar) =W

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

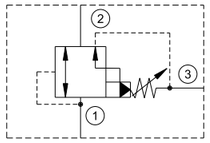
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSQDB - Sequence Valve (Kick-down)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Internal Leakage	30ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

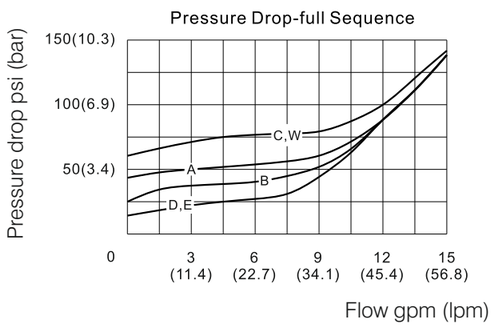
Features:

- The main stage orifice is protected by a 150 micron stainless steel screen.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar)
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.

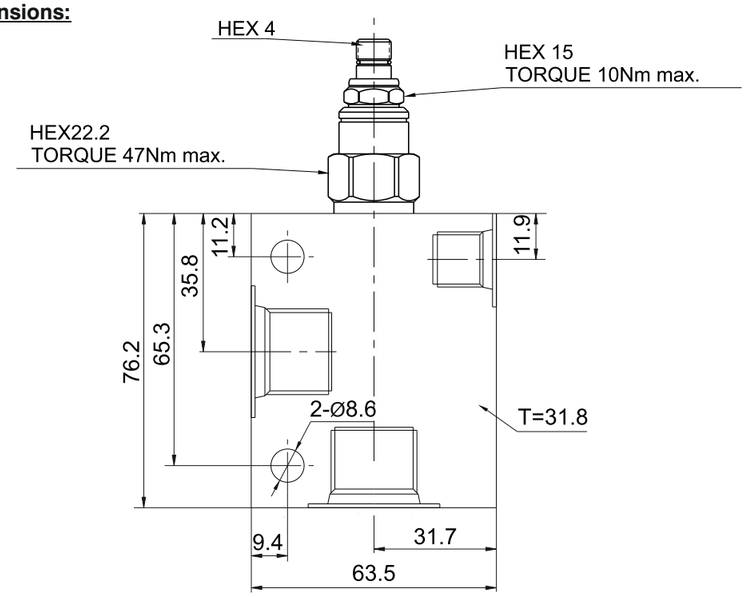
Operation:

Kick-down sequence Valve will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve setting, creating an unrestricted flow path from port 1 to port 2 (sequence). The pressure setting at port 1 is relative to the drain (port 3). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, pressure at port 1 must fall below the setting of the valve, flow from port 1 to port 2 must cease, and pressure at port 2 must be equal to or greater than the pressure at port 1.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TSQDB | | | | | | |

Adjustment:
Screw Adjust = L

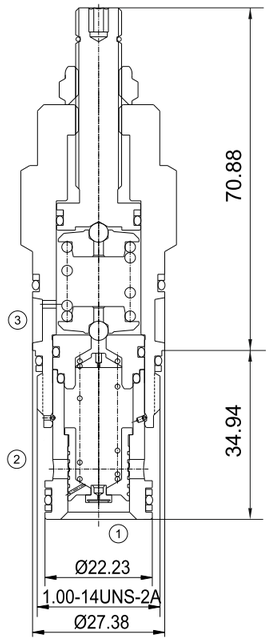
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) =W
60-400psi(4-28bar) Preset:200psi(14bar) = Q

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

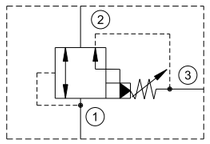
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSQFB - Sequence Valve (Kick-down)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	120 L/min
Response Time - Typical	25 ms
Internal Leakage	50ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

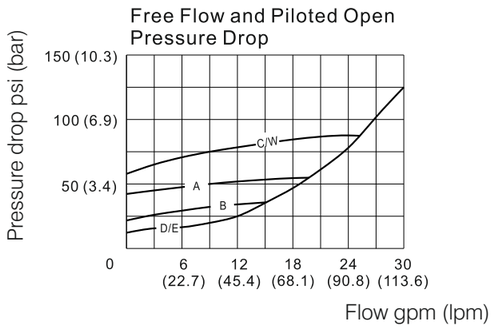
Features:

- The main stage orifice is protected by a 150 micron stainless steel screen.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar)
- Intended for use on the actuator side of the system as flow through the valve must cease for the valve to reset. If used on the pump side of a system, pump flow must be shut off for the valve to reset.

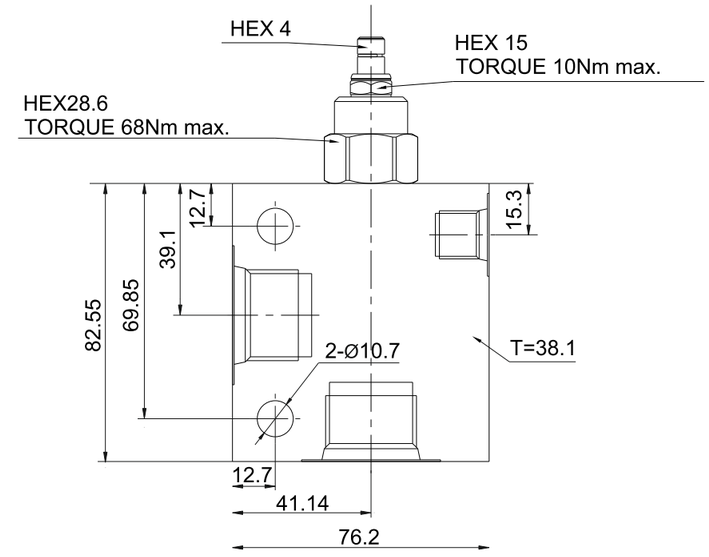
Operation:

Kick-down sequence Valve will kick completely open and remain open once the pressure at the inlet (port 1) exceeds the valve setting, creating an unrestricted flow path from port 1 to port 2 (sequence). The pressure setting at port 1 is relative to the drain (port 3). The valve remains open as long as the pressure at port 1 exceeds the pressure at port 2. To reset the valve, pressure at port 1 must fall below the setting of the valve, flow from port 1 to port 2 must cease, and pressure at port 2 must be equal to or greater than the pressure at port 1.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TSQFB | | | | | | |

Adjustment:
Screw Adjust = L

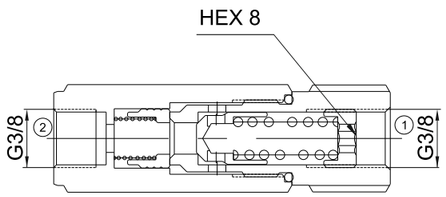
Pressure Range:
100-3000psi(7-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:1000psi(70bar) = B
150-6000psi(10.5-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
150-4500psi(10.5-315bar) Preset:1000psi(70bar) =W
60-800psi(4-55bar) Preset:400psi(28bar) = N

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

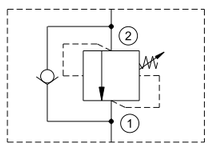
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TSVL-G3/8 - In-line Sequence Valve



Hydraulic Symbol:



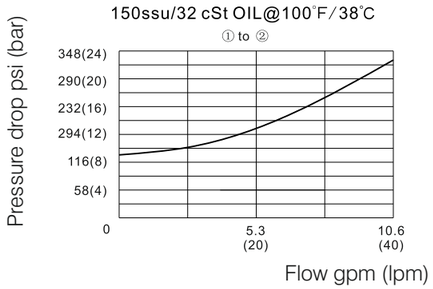
Specifications:

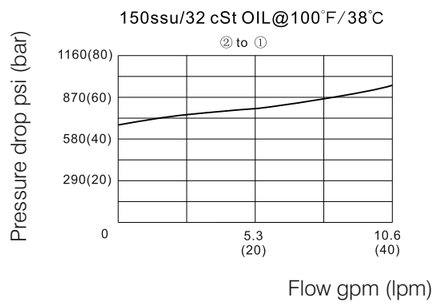
Operating Pressure	350 Bar
Flow	40 L/min
Std. Spring Ranges	0-350 BAR
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

Pressure at ① overcomes the spring-bias pressure 9 bar and allows free flow to ②, ② pressure increases to meet the valve setting, allow flow from ② to ① .

Performance Curve
Pressure Drop vs Flow



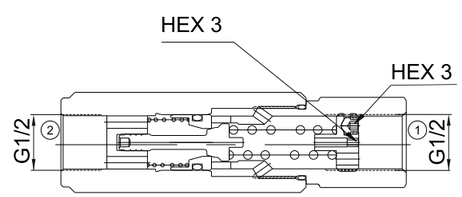


Ordering code details:

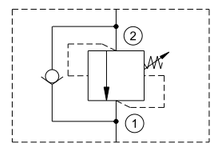
TSVL-G3/8	

Seal Kits:
Buna N = N
Viton = V

TSVL-G1/2 - In-line Sequence Valve



Hydraulic Symbol:



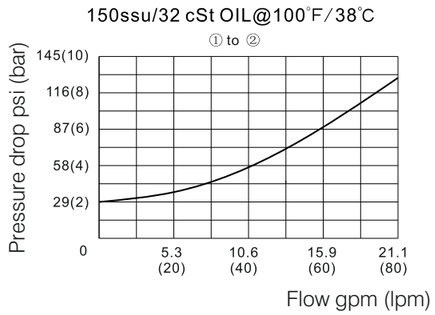
Specifications:

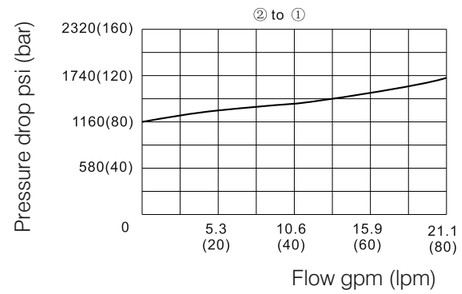
Operating Pressure	350 Bar
Flow	80 L/min
Internal Leakage	5drop/min.max.to 80% of norminal setting
Std. Spring Ranges	0-350 BAR
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operation:

Pressure at ① overcomes the spring-bias pressure 9 bar and allows free flow to ②, ② pressure increases to meet the valve setting, allow flow from ② to ① .

Performance Curve
Pressure Drop vs Flow



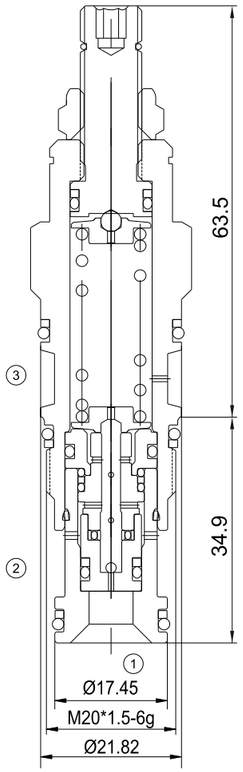


Ordering code details:

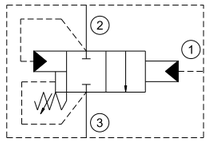
TSVL-G1/2	

Seal Kits:
Buna N = N
Viton = V

TQPAB - 20%, accumulator sense, pump unload valve - pilot capacity



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Capacity	0.75 L/min
Pilot Flow Capacity	0.75 L/min
Adjustment - No. of CW Turns from Min. to Max. setting : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

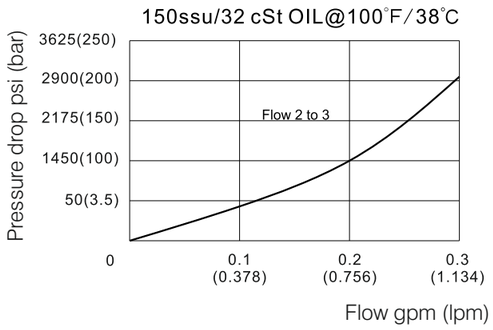
Features:

- The accumulator sensing area is positively sealed.
- The spool design of this valve allows it to maintain a fixed differential ratio because the areas are created by diameters on the spool that will not wear or change with use.
- Minimum clearances between the spool and sleeve and a seal on the pilot piston diameter significantly reduce the potential for silting.
- When applying this cartridge, a separate drain line is required to prevent erratic operation caused by tank line pressure fluctuations.

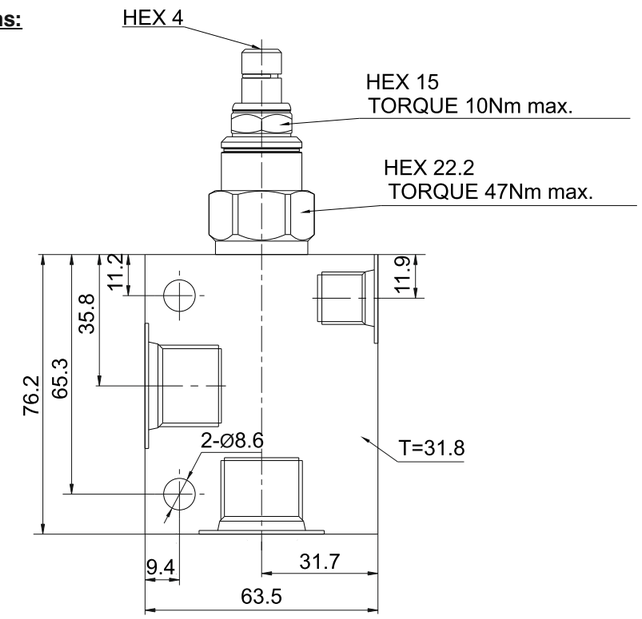
Operation:

The accumulator sense, pump unload pilot valve is used to sense pressure in an accumulator at port 1 of the valve and when the pressure at port 1 reaches the valve setting, port 2 connects to port 3 to vent a relief valve and unload the pump. This valve has a 20% ratio between unload setting and reset; when pressure at port 1 falls below 80% of the valve setting, port 2 is blocked from port 3 and the pump will come back online to recharge the accumulator.This valve requires a separate check valve between port 1 and the pump.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TQPAB | | | | | |

Adjustment:
Screw Adjust = L

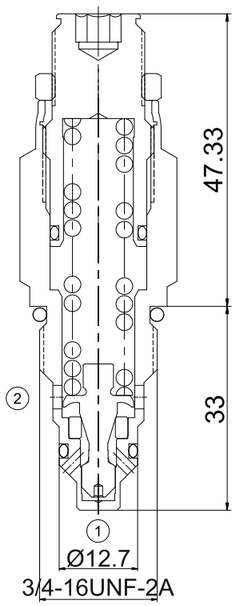
Pressure Range:
1000-3000psi(70-210bar) Preset:1000psi(70bar) = A
500-1500psi(35-105bar) Preset:500psi(35bar) = B
2000-5000psi(140-350bar) Preset:2000psi(140bar) = C
250-800psi(18-55bar) Preset:250psi(18bar) = D

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

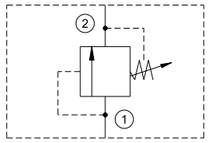
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRVD58-20 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	37.9 L/min
Internal Leakage	0.25ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

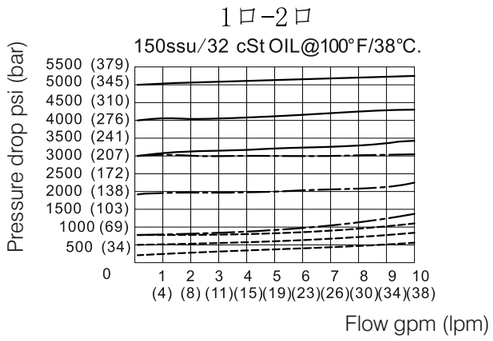
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact and economical
- Dynamic response to pressure surges
- Hardened poppet and cage for long life
- Fast response to pressure surges

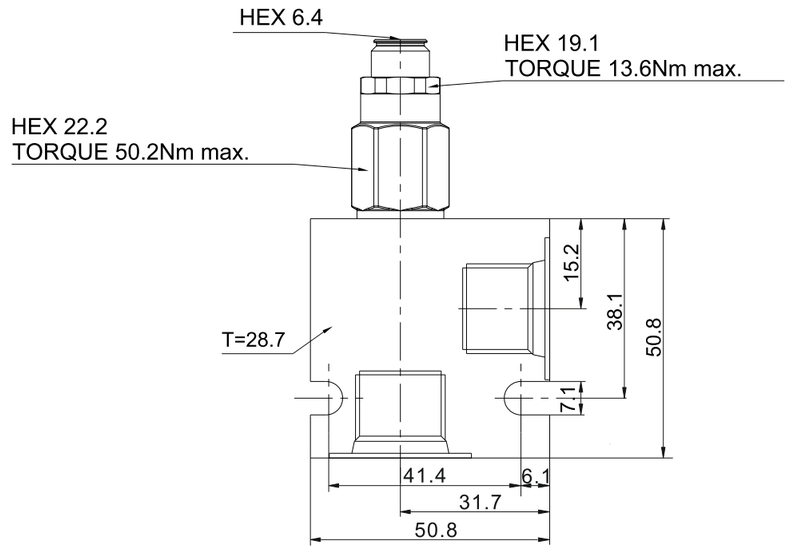
Operation:

The TRVD58-20 blocks flow from port 1 to port 2 until sufficient pressure is present at port 1 to force the poppet off its seat. the cartridge offers fast response to load changes in circuits requiring low hysteresis, low pressure rise, and low internal leakage.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRVD58-20				

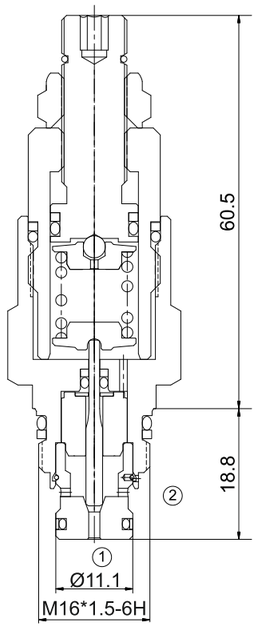
Pressure Range:
200-800psi(14-55bar) = 08
800-3000psi(55-207bar) = 30
3000-5076psi(207-350bar) = 50

Seal Kits:
Buna N = N
Viton = V

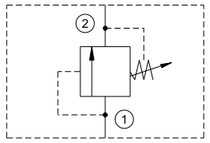
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TRBAE - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	10 L/min
Internal Leakage	1cc/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-8A see page K-44
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

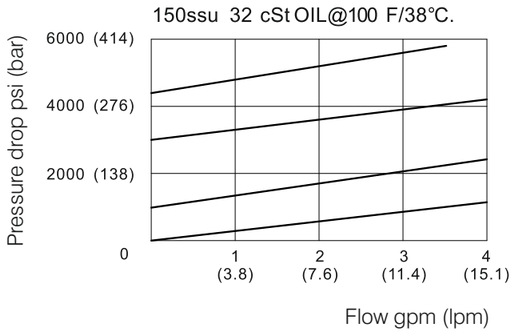
Features:

- Ports 1 and 2 can be pressurized to 350 bar
- Industry common cavity
- The back pressure at Port 2 is directly applied to the pressure setting at Port 1
- Hardened poppet and seat provide consistent operation, low leakage rates and superior wear characteristics.
- Fast response to pressure surges

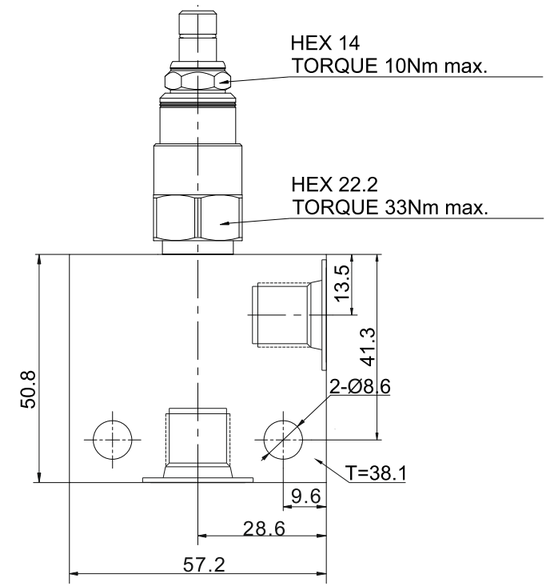
Operation:

Two-port, pilot-stage, direct-acting relief cartridges are fully adjustable, normally closed pressure regulating valves.When the pressure at port 1 (inlet) is sufficient to overcome the spring force (valve setting), a flow path is opened from port1 to port 2 (tank).

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRBAE | | | | | |

Adjustment:
Screw Adjust = L

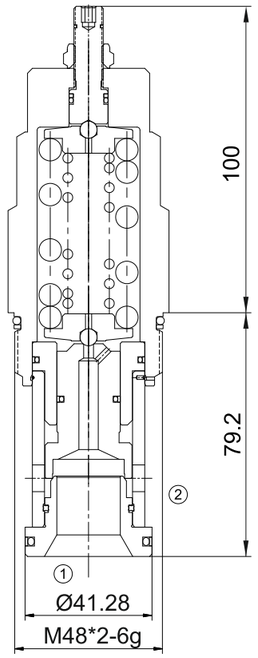
Pressure Range:
25-3000psi(1.7-210bar) Preset:1000psi(70bar) = A
25-1500psi(1.7-105bar) Preset:1000psi(70bar) = B
25-6000psi(1.7-420bar) Preset:1000psi(70bar) = C
25-800psi(1.7-55bar) Preset:400psi(28bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
25-4500psi(1.7-315bar) Preset:1000psi(70bar) = W

Body Porting:
6T = SAE 6T
8T = SAE 8T
4G = G1/2
4N = NPT1/2
Other porting is available

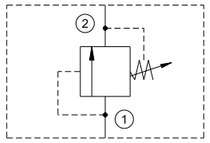
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TRDJA - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	760 L/min
Internal Leakage	0.7ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-18A see page K-6
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

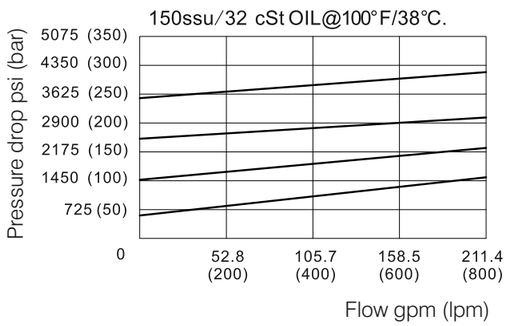
Features:

- Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.
- The seals on the adjust screw are exposed to system pressure which means this valve can only be adjusted when the pressure is removed. The setting procedure is; check the setting, remove the pressure, adjust the valve, check the new setting.
- Valve is relatively insensitive to varying oil temperatures and oil contamination.

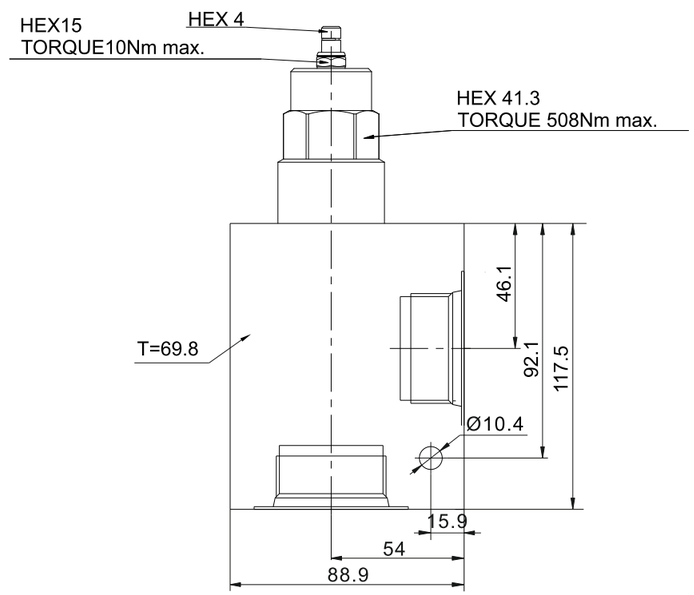
Operation:

Direct-acting relief cartridges are normally closed, pressure-limiting Valve used to protect hydraulic components from pressure transients. When the pressure at the inlet (port 1) reaches the valve setting, the valve starts to open to tank (port 2), throttling flow to limit the pressure rise. These Valves are smooth and quiet, essentially zero leak, dirt tolerant, immune to silting and are very fast.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TRDJA | | | | | | |

Adjustment:
Screw Adjust = L

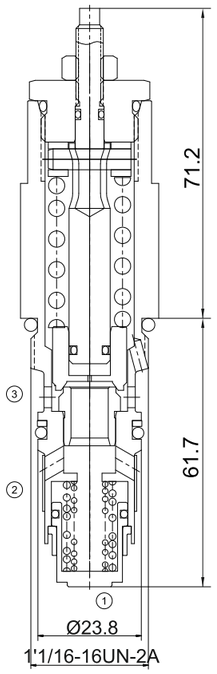
Pressure Range:
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
800-4500psi(55-315bar) Preset:1000psi(70bar) = W
300-1500psi(20-105bar) Preset:1000psi(70bar) = B
1000-6000psi(70-420bar) Preset:1000psi(70bar) = C
200-800psi(14-55bar) Preset:400psi(28bar) = D
100-400psi(7-28bar) Preset:200psi(14bar) = E
50-200psi(3.5-14bar) Preset:100psi(7bar) = S

Body Porting:
12T = SAE 12T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

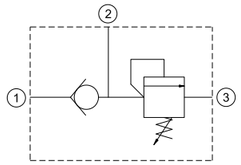
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TZYF15-01 - Combined Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	280 Bar
Flow	100 L/min
Internal Leakage	30ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2501 see page K-48
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

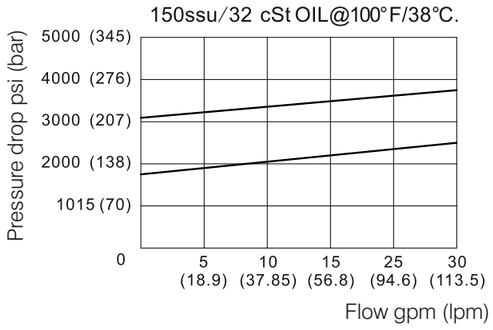
Features:

- Hardened, precision ground parts for durability
- Compact size
- Adjustment may be locked in place
- Fast response to Pressure surges

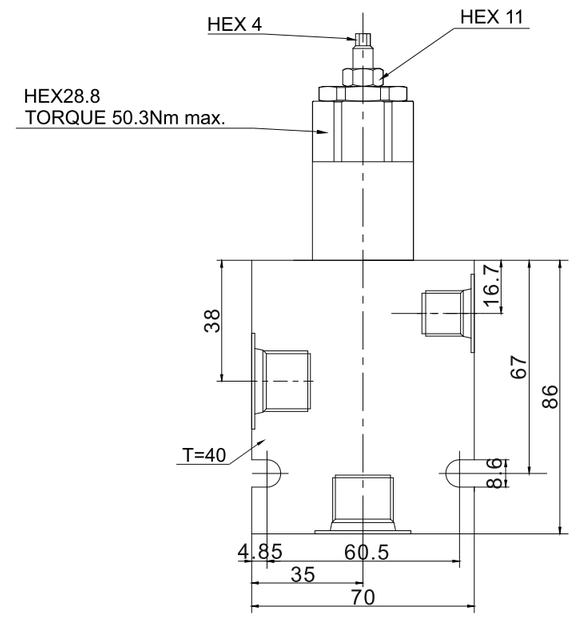
Operation:

The valve blocks flow from ② to ③ until 85% pressure is present at ②.With the continued increase pressure on ②,②P to ③ began to overflow,until to the spring's moximum pressure.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TZYF15-01				

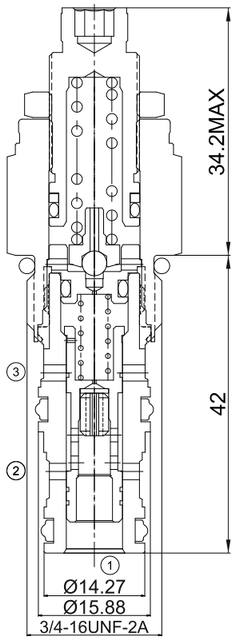
Pressure Range:
1015-2929psi(70-202bar) Preset:2320psi(160bar) = 5
2030-4060psi(140-280bar) Preset:3625psi(250bar) = 10

Seal Kits:
Buna N = N
Viton = V

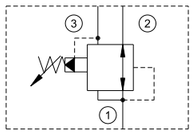
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TPRH081 - Pressure Reducing /Relieving Valve (Pilot-operated)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Pilot Flow	0.56L/min MAX
Internal Leakage	120cc/min to 260bar.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-6
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

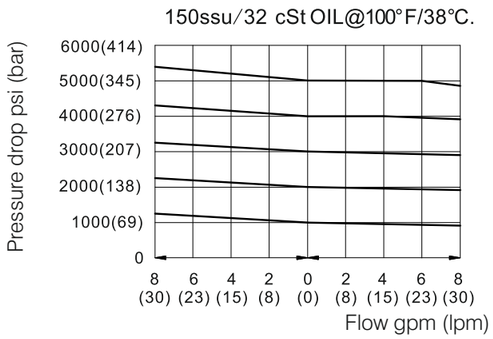
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low profile adapter for minimal space requirements
- Fast response to Pressure surges

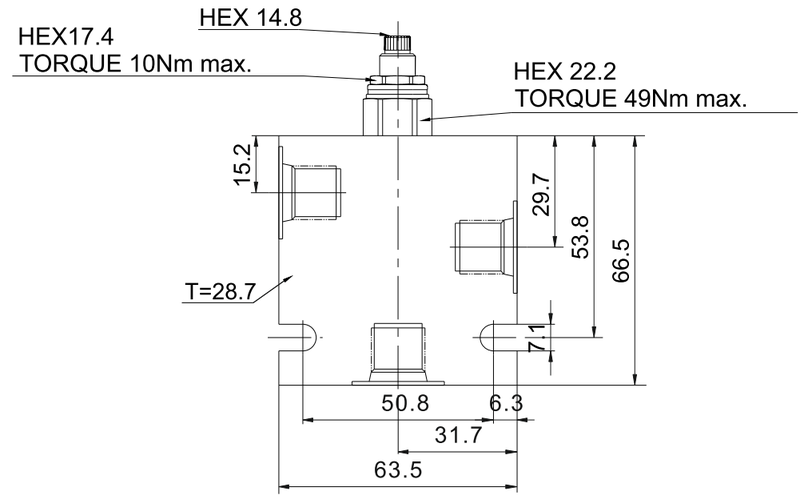
Operation:

In its steady state, the TPRH081 allows flow bidirectionally from port ② to port ①, with the spring chamber constantly drained at port ③. On attainment of a pre-determined pressure at port ①, the cartridge shifts to block flow at port② , thereby regulating pressure at port ①. In this mode, the valve will also relieve port 1 to port ③ at a variable value over the set reducing pressure.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPRH081 | | | | | |

Adjustment:
Screw Adjust = L

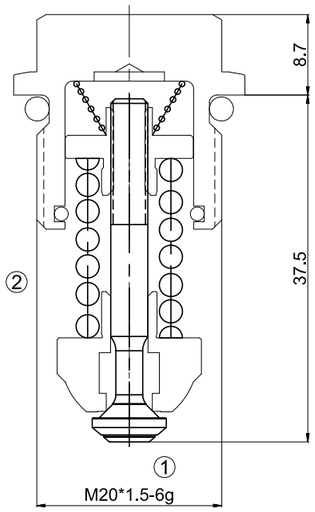
Pressure Range:
100-1000psi(6.9-69bar) Preset:500psi(34.5bar) = 10
100-2000psi(6.9-138bar) Preset:1000psi(69bar) = 20
200-3000psi(13.8-207bar) Preset:1500psi(103.5bar) = 30
200-5000psi(13.8-345bar) Preset:2500psi(172.4bar) = 50

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

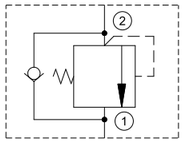
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TACR75-M20 - Directly Operated Relief Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	420 Bar
Flow	75 L/min
Internal Leakage	15drop/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

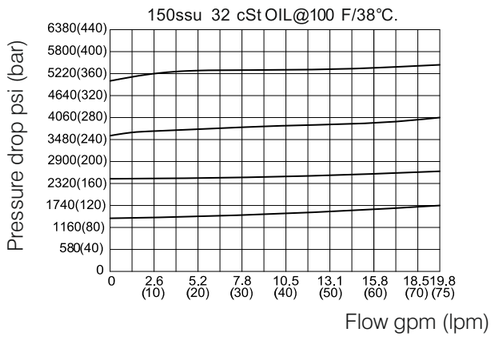
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place
- Low leakage design
- Fast response to Pressure surges

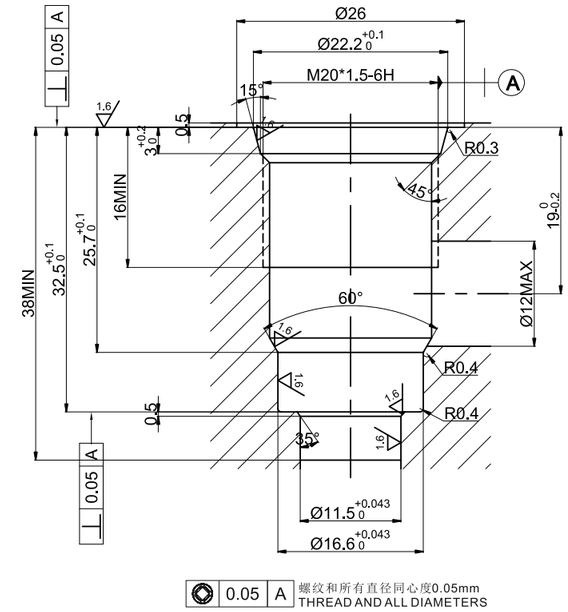
Operation:

Flow is free from ① to ② until pressure increases to meet the selected valve setting, allowing relief flow through port ① to tank. This valve combines the typical function of shock relief valve (direct acting) and anti-cavitation function through the check valve. The direct action and the specific design allow a very fast opening and closing.Note: to obtain a good leak proof performance coin the cavity seat using a loose valve seat as a coning tool. Torque to be applied : 4.5 ± 2 Nm.

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS



Ordering code details:

TACR75-M20		

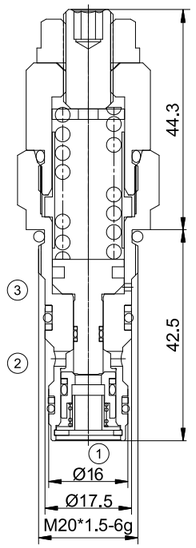
Pressure Range

290-1450psi(20-100bar) Preset:1015psi(70bar)	= 10
1465-2465psi(101-170bar) Preset:2030psi(140bar)	= 17
2480-3625psi(171-250bar) Preset:3045psi(210bar)	= 25
3640-5075psi(251-350bar) Preset:4060psi(280bar)	= 35

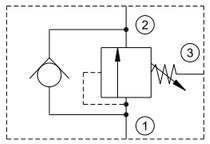
Seal Kits:

Buna N	= N
Viton	= V

T1PSC30 - Directly Operated Sequence Valve (With reverse check)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Internal Leakage	0.3ml/min.max.to 80% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A6610 see page K-49
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

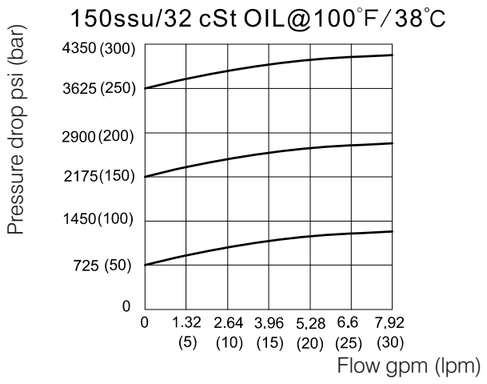
Features:

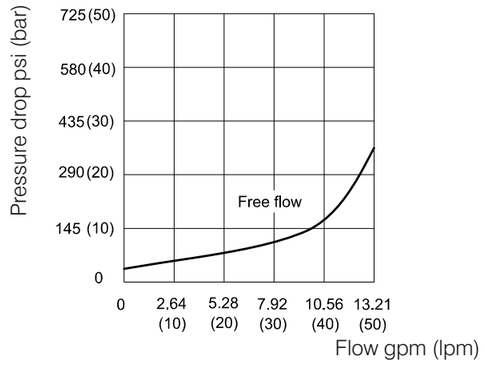
- Although this is a zero pilot flow valve, port 3 (drain) must be connected to maintain a pressure reference in the control chamber. If port 3 is blocked, reciprocating seal weepage will cause the valve to malfunction.
- Pressure at port 3 is directly additive to the valve setting at a 1:1 ratio and should not exceed 5000 psi (350 bar)

Operation:

Direct-acting sequence Valve with reverse-flow check will supply a secondary circuit with flow once the pressure at the inlet (port 1) has exceeded the valve setting. Additionally, these Valve incorporate an integral check valve to provide reverse flow from port 2 (sequence) to port 1 (inlet). The pressure setting of a sequence valve controls the pressure at port 1 relative to the pressure at the drain (port 3).

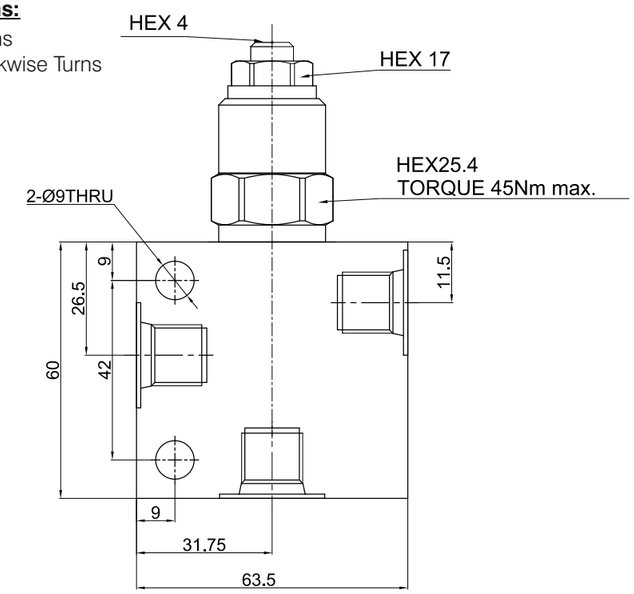
Performance Curve
Pressure Drop vs Flow





Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

T1PSC30				

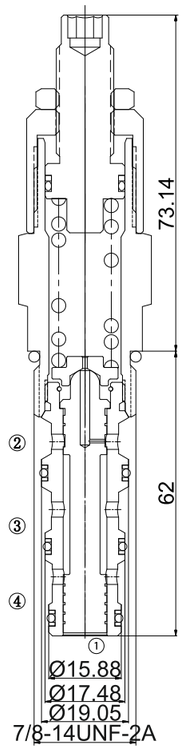
Pressure Range:
145-1450psi(10-100bar) Preset:1015psi(70bar) = 10
870-3045psi(60-210bar) Preset:1450psi(100bar) = 20
1015-5075psi(70-350bar) Preset:1450psi(210bar) = 35

Seal Kits:
Buna N = N
Viton = V

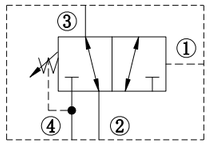
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
Other porting is available

TPS10-43 - Sequence Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	240 Bar
Flow	38 L/min
Internal Leakage	80ml/min.max.at 85%operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

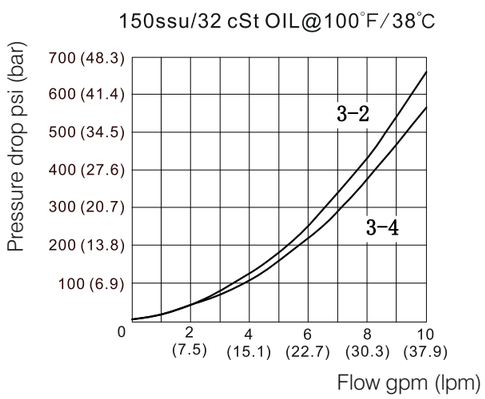
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

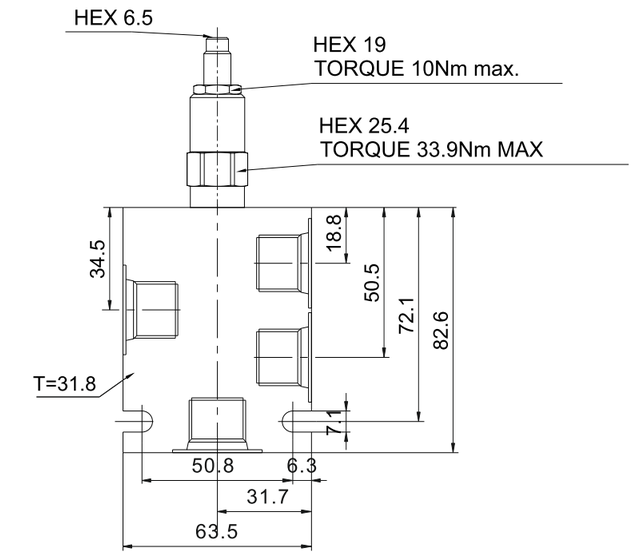
Operation:

TPS10-43 allows two-way flow of oil between Port 3 and Port 4 in the original primary position (without hydraulic control) . Simultaneously isolated from 4, the spring chamber is kept in the oil mouth 4 to drain the oil. When the pressure at the preset value of the valve, spool movement,from 3 flow to 2 closed, while 3 flow to 4 connected, note the hydraulic pressure of 4 back pressure plus the preset pressure of the valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TPS10-43 [ ] [ ] [ ] [ ] [ ] [ ]

Adjustment:
1/4 Inch hexagon head = A
1-1/2 Inch diameter, aluminum alloy handle = B

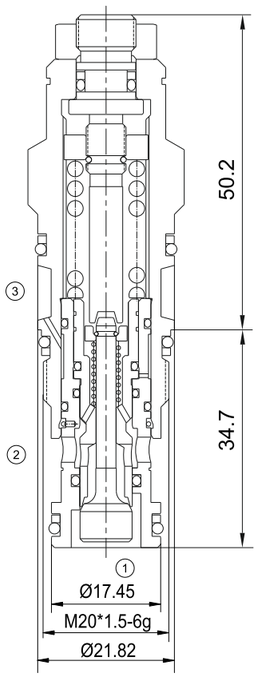
Pressure Range:
40-400psi(2.8-27.6bar) Preset:203psi(14bar) = 4
220-2200psi(15.2-151.7bar) Preset:1450psi(100bar) = 22

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

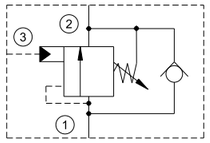
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBBA - Counterbalance Valve (Restrictive)



Hydraulic Symbol:



Specifications:

Operating Pressure	280 Bar
Flow	20 L/min
Pilot Ratio	3:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

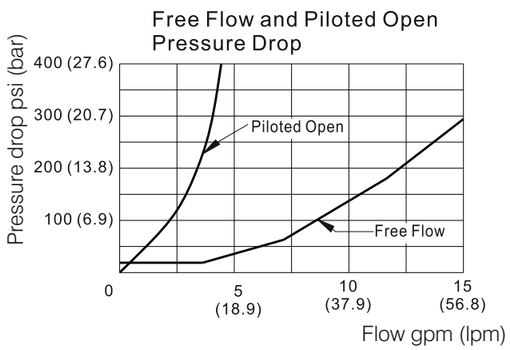
Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

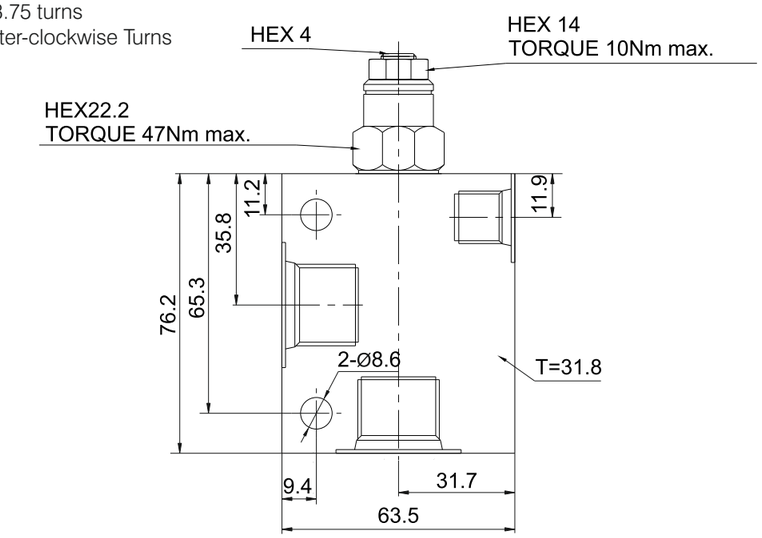
Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBBA | | | | | | |

Adjustment:
Screw Adjust = L

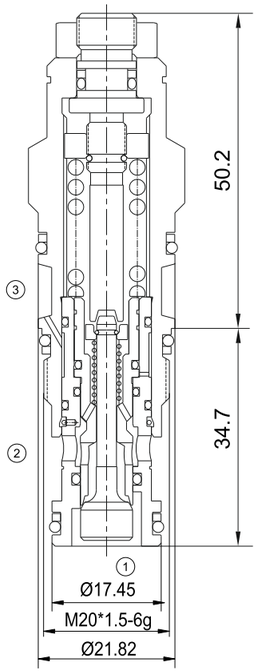
Pressure Range:
1000-4000psi(70-280bar) = H
Preset:3000psi(210bar)(Check:1.7bar)
400-1500psi(28-105bar) = I
Preset:1000psi(70bar)(Check:1.7bar)
1000-4000psi(70-280bar) = A
Preset:3000psi(210bar)(Check:0.3bar)
400-1500psi(28-105bar) = B
Preset:1000psi(70bar)(Check:0.3bar)

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

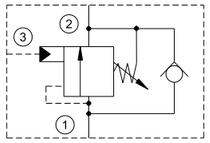
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBBD - Counterbalance Valve (Semi-Restrictive)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Pilot Ratio	4.5:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

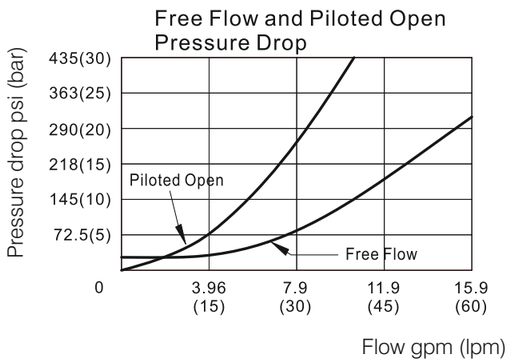
Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

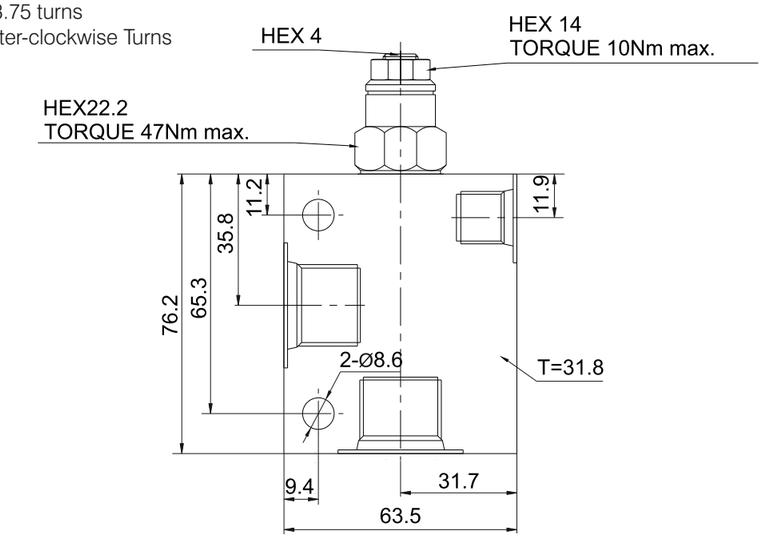
Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBBD | | | | | | |

Adjustment:
Screw Adjust = L

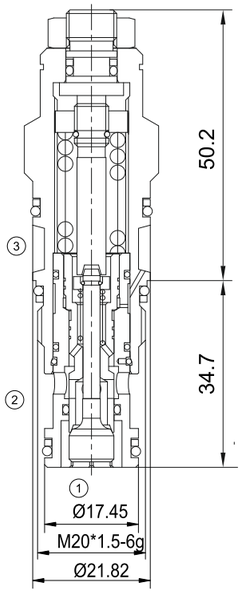
Pressure Range:
2000-5000psi(140-350bar) = J
Preset:3000psi(210bar)(Check:1.7bar)
1000-2500psi(70-175bar) = K
Preset:2000psi(140bar)(Check:1.7bar)
2000-5000psi(140-350bar) = C
Preset:3000psi(210bar)(Check:0.3bar)
1000-2500psi(70-175bar) = D
Preset:3000psi(140bar)(Check:0.3bar)

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

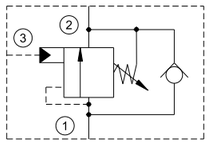
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBCA/TCBCG/TCBCH - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	280 BAR(TCBCA), 350BAR(TCBCG/TCBCH)
Flow	60 L/min
Pilot Ratio	3:1(TCBCA)/4.5:1(TCBCG)/10:1(TCBCH)
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

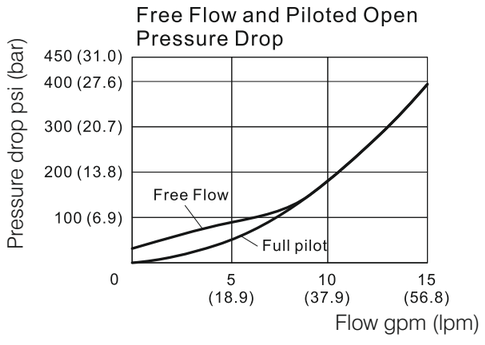
Features:

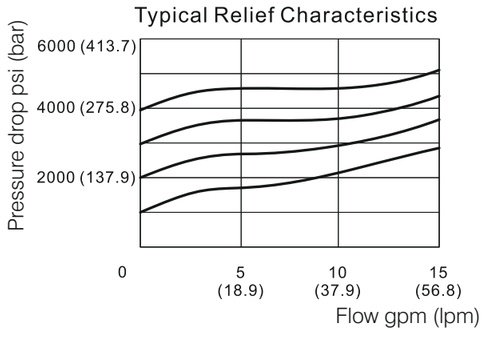
- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Other names for this valve include motion control valve and over-center valve.

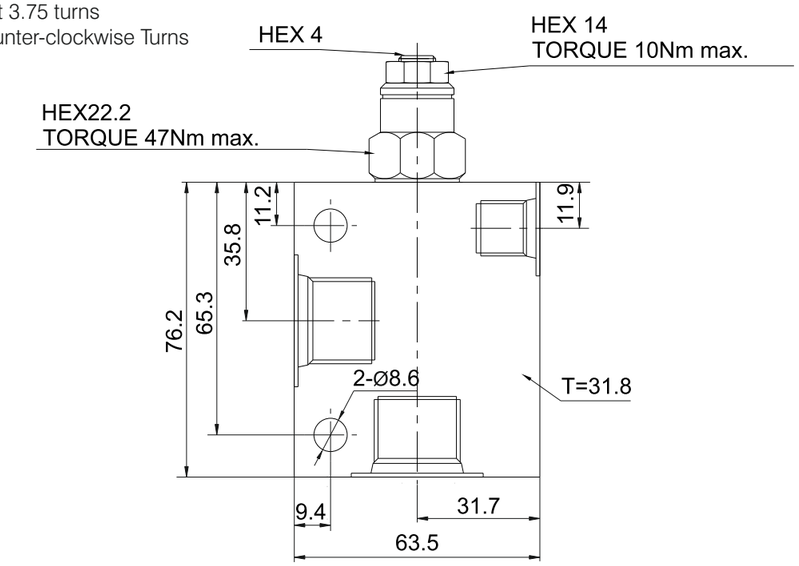
Performance Curve
Pressure Drop vs Flow





Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBC | | | | | | | |

Pilot Ratio:
3:1 = A
4.5:1 = G
10.:1 = H

Adjustment:
Screw Adjust = L

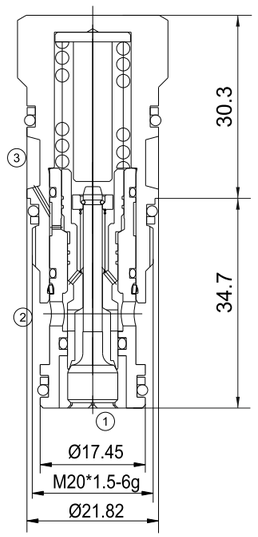
Pressure Range:
TCBCA:
1000-4000psi(70-280bar) = H
Preset:3000psi(210bar)(Check:1.7bar)
400-1500psi(28-105bar) = I
Preset:1000psi(70bar)(Check:1.7bar)
1000-4000psi(70-280bar) = A
Preset:3000psi(210bar)(Check:0.3bar)
400-1500psi(28-105bar) = B
Preset:1000psi(70bar)(Check:0.3bar)
TCBCG/TCBCH:
2000-5000psi(140-350bar) = J
Preset:3000psi(210bar)(Check:1.7bar)
1000-2500psi(70-175bar) = K
Preset:2000psi(140bar)(Check:1.7bar)
2000-5000psi(140-350bar) = C
Preset:3000psi(210bar)(Check:0.3bar)
1000-2500psi(70-175bar) = D
Preset:2000psi(140bar)(Check:0.3bar)

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

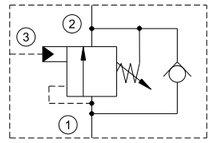
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBCA-X, TCBCG-X - Counterbalance Valve (Standard) Fixed setting



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	60 L/min
Pilot Ratio	3:1(TCBCA-X)/4.5:1(TCBCG-X)
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

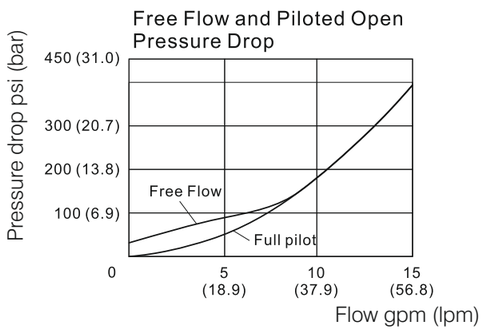
Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Fixed-setting counterbalance valves offer a shorter cartridge extension than the adjustable version.

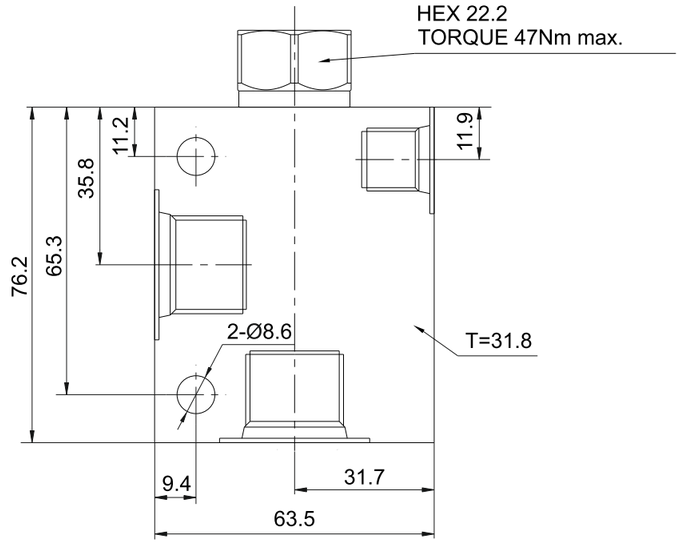
Operation:

Fixed-setting, 3-port counterbalance valves with pilot-assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TCBC | | X | | | | | |

Pilot Ratio:
3:1 = A
4.5:1 = G

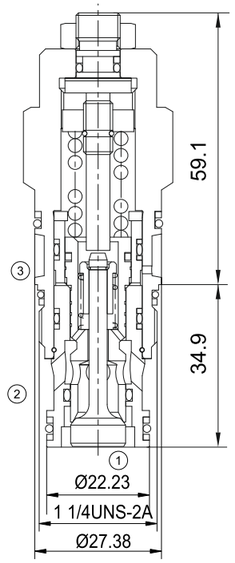
Fixed Pressure Range:
TCBCA-X:
2900-3500psi(200-245bar) Check:1.7bar = N
2250-2680psi(155-185bar) Check:1.7bar =P
TCBCG-X:
4700-5600psi(325-390bar) Check:1.7bar = M
3200-3800psi(220-260bar) Check:1.7bar = V
3500-4200psi(245-290bar) Check:1.7bar = X
4125-4900psi(285-340bar) Check:1.7bar = Z

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

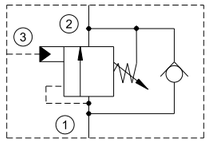
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBEA/TCBEG/TCBEH - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	280BAR(TCBEA), 350BAR(TCBEG/TCBEH)
Flow	120 L/min
Pilot Ratio	3:1(TCBEA)/4.5:1(TCBEG)/10:1(TCBEH)
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

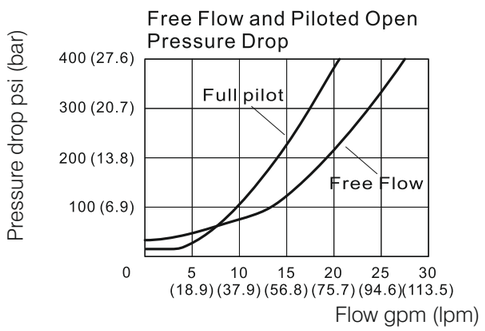
Features:

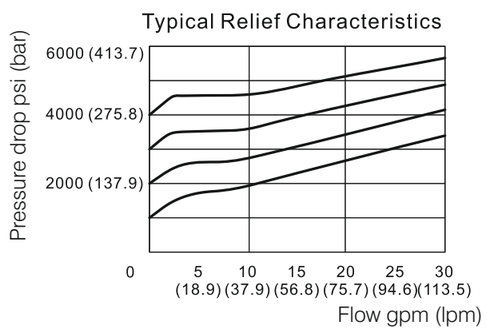
- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

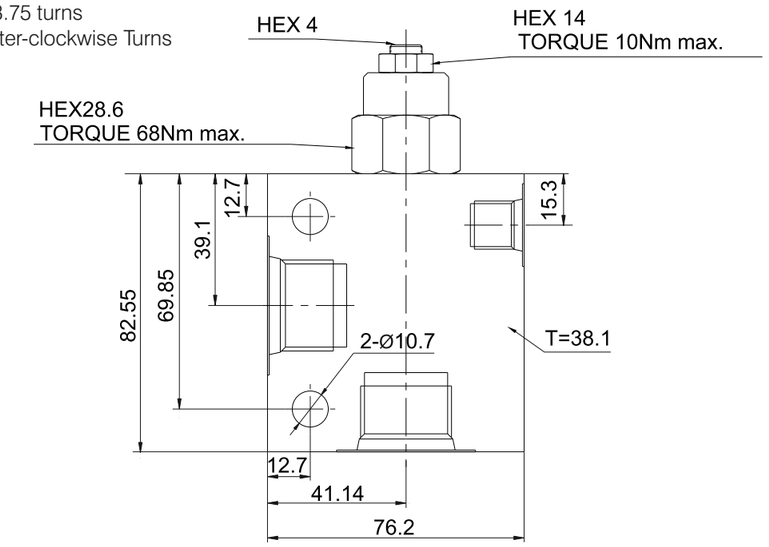
Performance Curve
Pressure Drop vs Flow





Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBE | | | | | | | |

Pilot Ratio:
3:1 = A
4.5:1 = G
10.:1 = H

Adjustment:
Screw Adjust = L

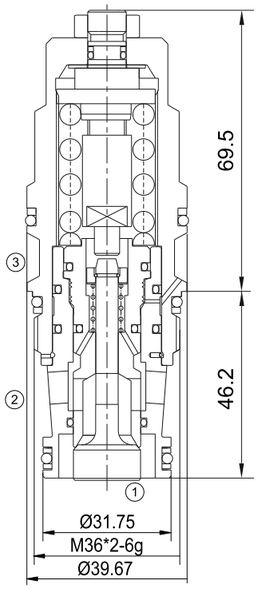
Pressure Range:
TCBEA:
1000-4000psi(70-280bar) = H
Preset:3000psi(210bar)(Check:1.7bar)
400-1500psi(28-105bar) = I
Preset:1000psi(70bar)(Check:1.7bar)
1000-4000psi(70-280bar) = A
Preset:3000psi(210bar)(Check:0.3bar)
400-1500psi(28-105bar) = B
Preset:1000psi(70bar)(Check:0.3bar)
TCBEG/TCBEH:
2000-5000psi(140-350bar) = J
Preset:3000psi(210bar)(Check:1.7bar)
1000-2500psi(70-175bar) = K
Preset:2000psi(140bar)(Check:1.7bar)
2000-5000psi(140-350bar) = C
Preset:3000psi(210bar)(Check:0.3bar)
1000-2500psi(70-175bar) = D
Preset:2000psi(140bar)(Check:0.3bar)

Seal Kits:
N = Buna N
V = Viton

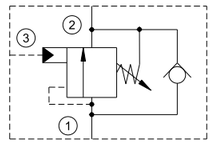
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

TCBGA/TCBGG/TCBGH - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	280BAR(TCBGA), 350BAR(TCBGG/TCBGH)
Flow	240 L/min
Pilot Ratio	3:1(TCBGA)/4.5:1(TCBGG)/10:1(TCBGH)
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-17A see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

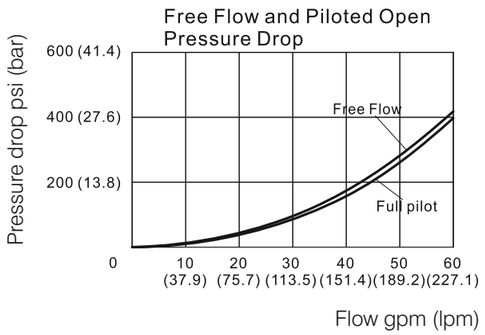
Features:

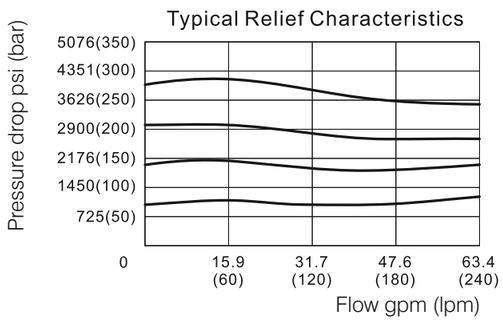
- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow

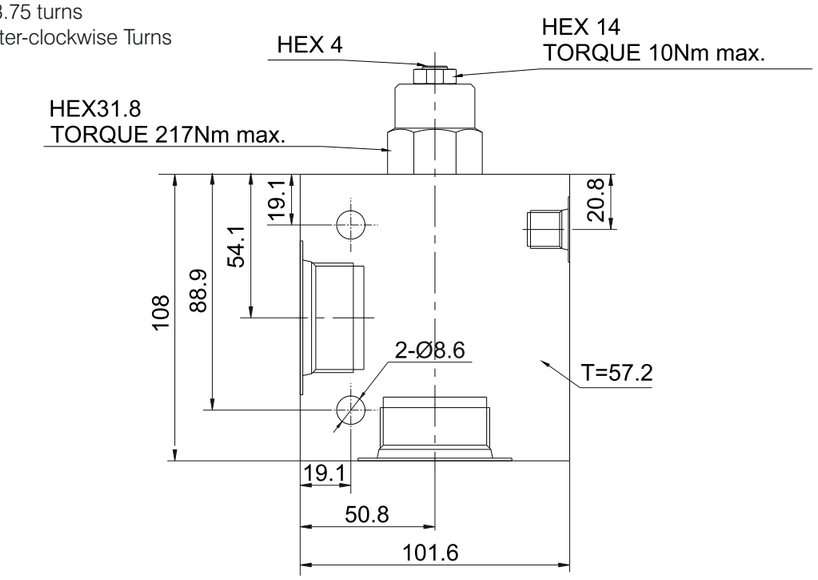




THM HYDRAULICS

Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBG | | | | | | | |

Pilot Ratio:
3:1 = A
4.5:1 = G
10.:1 = H

Adjustment:
Screw Adjust = L

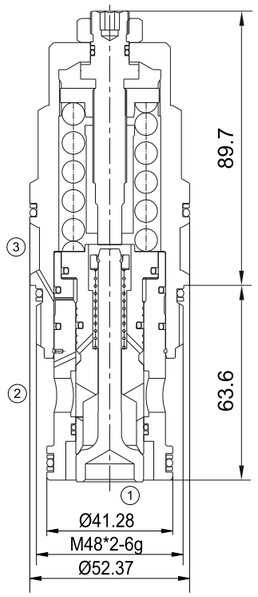
Pressure Range:
TCBGA:
1000-4000psi(70-280bar) = H
Preset:3000psi(210bar)(Check:1.7bar)
400-1500psi(28-105bar) = I
Preset:1000psi(70bar)(Check:1.7bar)
1000-4000psi(70-280bar) = A
Preset:3000psi(210bar)(Check:0.3bar)
400-1500psi(28-105bar) = B
Preset:1000psi(70bar)(Check:0.3bar)
TCBGG/TCBGH:
2000-5000psi(140-350bar) = J
Preset:3000psi(210bar)(Check:1.7bar)
1000-2500psi(70-175bar) = K
Preset:2000psi(140bar)(Check:1.7bar)
2000-5000psi(140-350bar) = C
Preset:3000psi(210bar)(Check:0.3bar)
1000-2500psi(70-175bar) = D
Preset:2000psi(140bar)(Check:0.3bar)

Body Porting:
12T = SAE 12T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

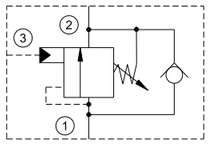
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCBIA/TCBIG/TCBIH - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR(TCBIA/TCBIG/TCBIH)
Flow	480 L/min
Pilot Ratio	3:1(TCBIA)/4.5:1(TCBIG)/10:1(TCBIH)
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-19A see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

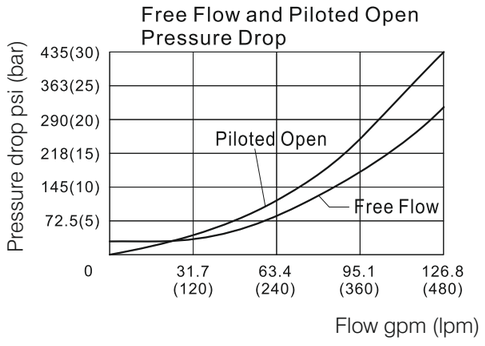
Features:

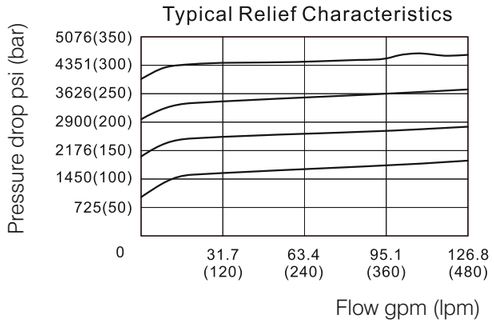
- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

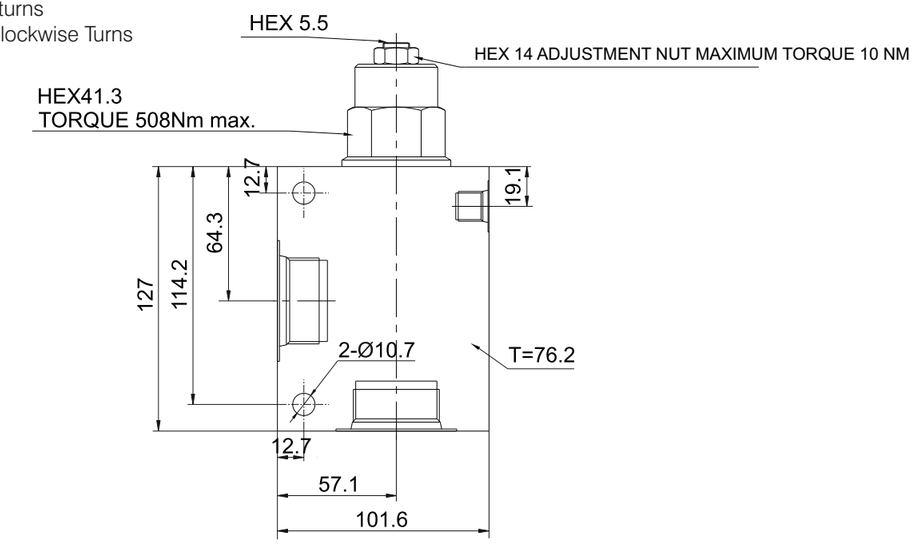
Performance Curve
Pressure Drop vs Flow





Installation Dimensions:

Full adjustment 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

TCBI | | | | | | | |

Pilot Ratio:
3:1 = A
4.5:1 = G
10.:1 = H

Adjustment:
Screw Adjust = L

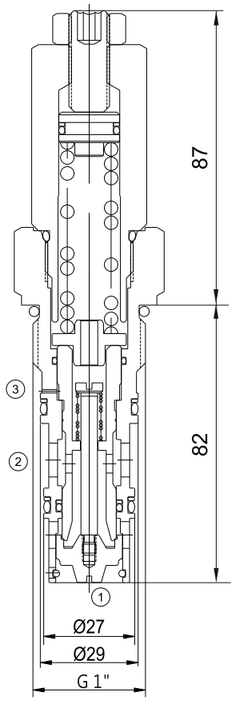
Pressure Range:
2000-5000psi(140-350bar)
Preset:3000psi(210bar)(Check:1.7bar) = J
1000-2500psi(70-175bar)
Preset:2000psi(140bar)(Check:1.7bar) = K
2000-5000psi(140-350bar)
Preset:3000psi(210bar)(Check:0.3bar) = C
1000-2500psi(70-175bar)
Preset:2000psi(140bar)(Check:0.3bar) = D

Body Porting:
16T = SAE 16T
20T = SAE 20T
10G = G1 1/4
8N = NPT1
Other porting is available

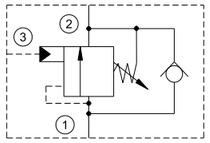
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TBVE-R1 - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	100 L/min
Pilot Ratio	4.8:1
Internal Leakage	5 drops/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16021 see page K-37
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

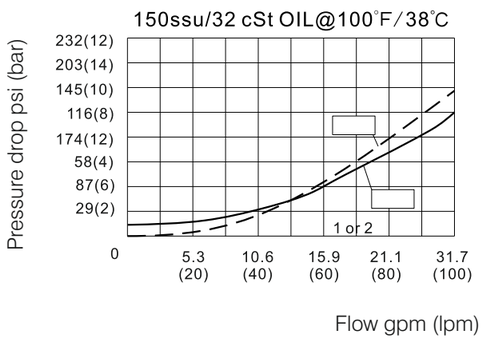
Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

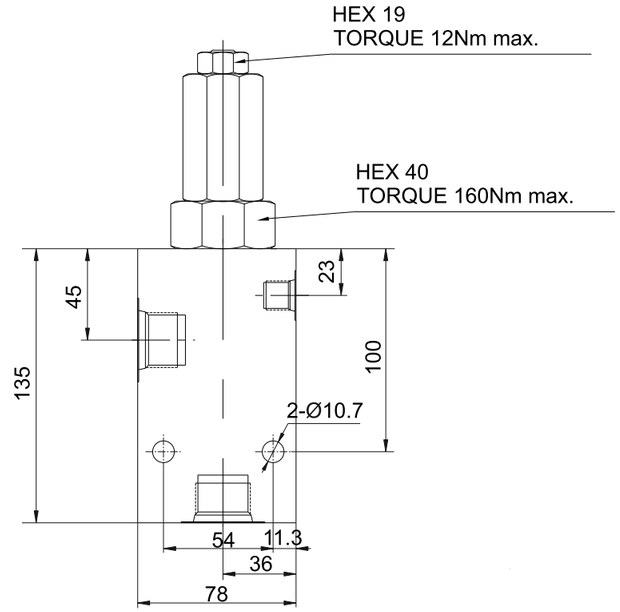
Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

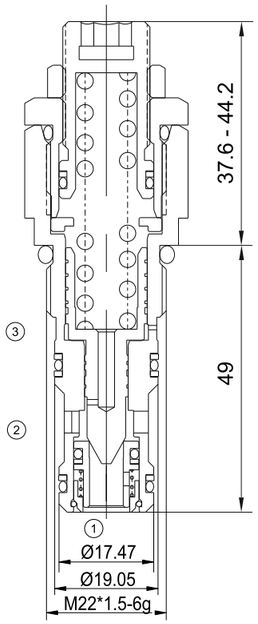
TBVE-R1			

Seal Kits:
Buna N = N
Viton = V

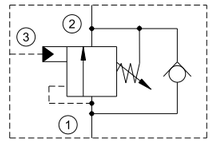
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

TCBPA10 - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	60 L/min
Pilot Ratio	4:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3304S see page K-20
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

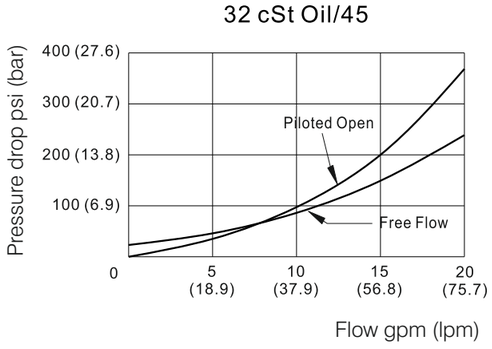
Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Port ② can not be set full pressure, otherwise it will affect the set pressure

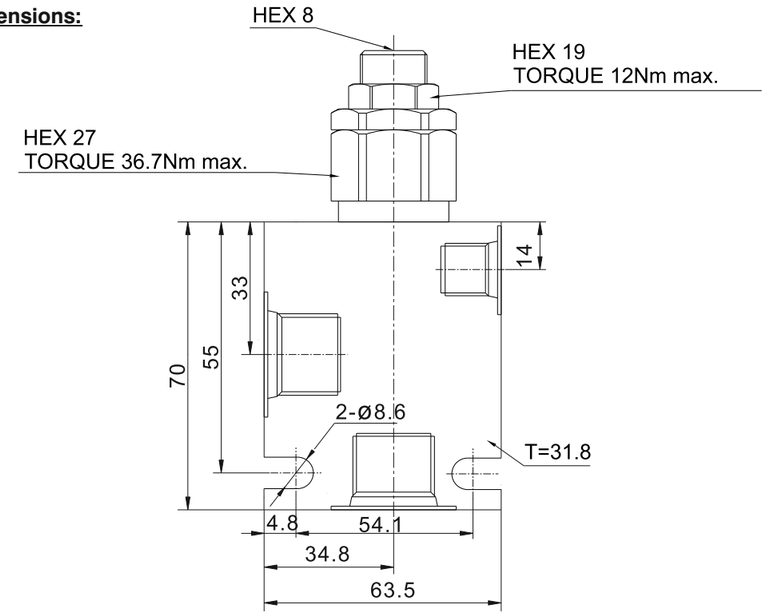
Operation:

The valve controls moving load and preventing it from running ahead of the pump,locking the load in any position,it also provides static overload and the mal enpansion protection.The valve allows free flow from ② to ① and blocks reverse flow unit a pilot pressure proportional to the load pressure is sensed at ③ modulating flow from ① to ② .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TCBPA10				

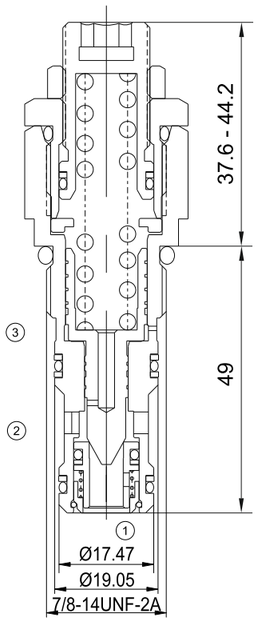
Pressure Range:
150-1500psi(10-105bar) Preset:1200psi(80bar) = 5
500-3000psi(34-210bar) Preset:2300psi(160bar) = 10
950-5000psi(65-350bar) Preset:3600psi(250bar) = 15

Seal Kits:
Buna N = N
Viton = V

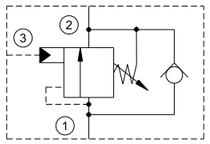
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
NPT 3/8 = 3N
Other porting is available

TCBPA10A - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	60 L/min
Pilot Ratio	4:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3304 see page K-20
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

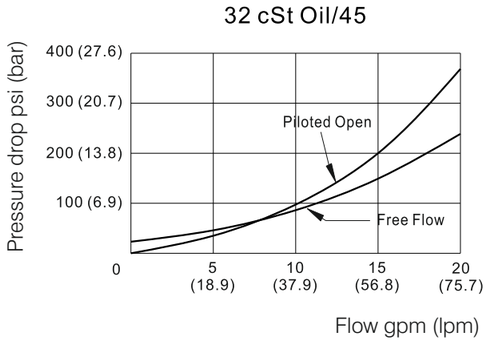
Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Port ② can not be set full pressure, otherwise it will affect the set pressure

Operation:

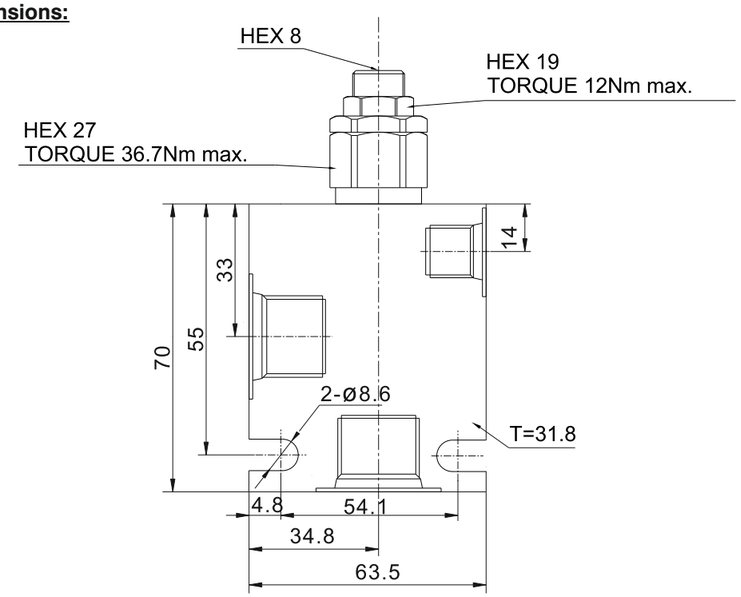
The valve controls moving load and preventing it from running ahead of the pump,locking the load in any position,it also provides static overload and the mal enpansion protection.The valve allows free flow from ② to ① and blocks reverse flow unit a pilot pressure proportional to the load pressure is sensed at ③ modulating flow from ① to ② .

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TCBPA10A				

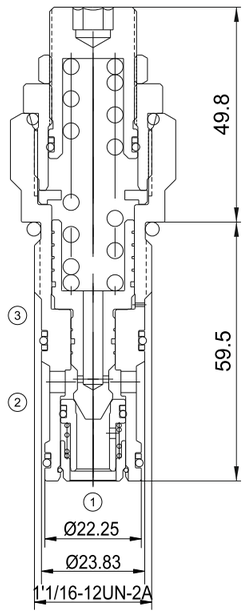
Pressure Range:
150-1500psi(10-105bar) Preset:1200psi(80bar) = 5
500-3000psi(34-210bar) Preset:2300psi(160bar) = 10
950-5000psi(65-350bar) Preset:3600psi(250bar) = 15

Seal Kits:
Buna N = N
Viton = V

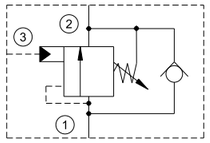
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
NPT 3/8 = 3N
Other porting is available

TCBPA12 - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	132 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	C1225 see page K-39
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

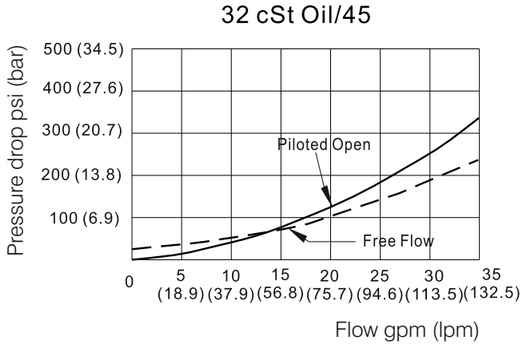
Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Port ② can not be set full pressure, otherwise it will affect the set pressure

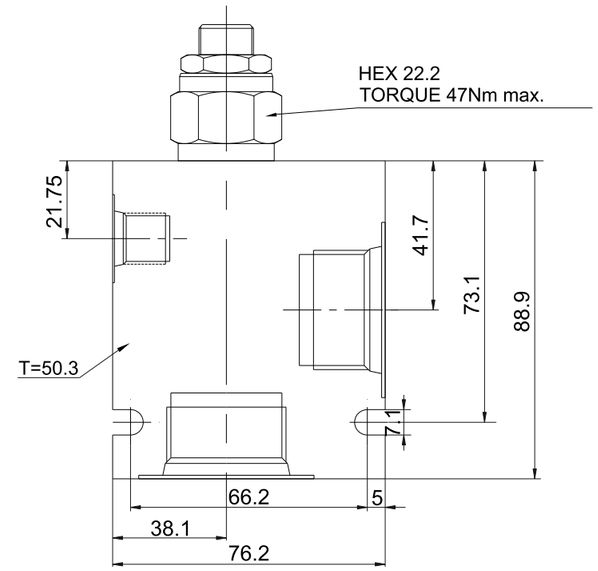
Operation:

The valve controls moving load and preventing it from running ahead of the pump,locking the load in any position,it also provides static overload and the mal enpansion protection.The valve allows free flow from ② to ① and blocks reverse flow unit a pilot pressure proportional to the load pressure is sensed at ③ modulating flow from ① to ② .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TCBPA12				

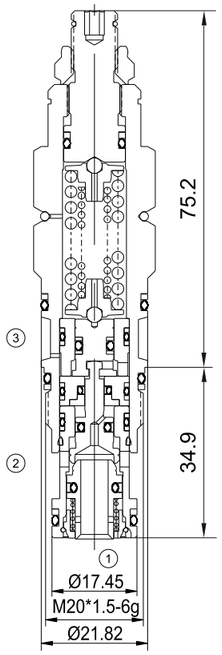
Pressure Range:
100-1500psi(6.9-103bar) Preset:750psi(51bar) = 15
300-3000psi(20.7-207bar) Preset:1500psi(103bar) = 30
600-4000psi(42-276bar) Preset:2000psi(138bar) = 40
1450-6000psi(100-420bar) Preset:3000psi(210bar) = 60

Seal Kits:
Buna N = N
Viton = V

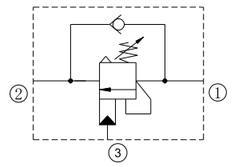
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
NPT 1/2 = 4N
G1 = 8G
Other porting is available

TCACA/TCACG - Counterbalance Valve (Standard)



Hydraulic Symbol:



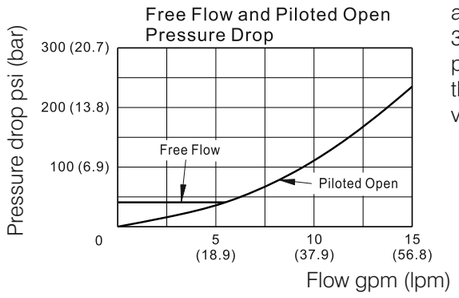
Specifications:

Operating Pressure	280BAR(TCACA), 420BAR(TCACG)
Flow	60 L/min
One-way open pressure	2.8 BAR
Pilot Ratio	3:1(TCACA)/5:1(TCACG)
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	C1225 see page K-39
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Three-port vented Valve is atmospherically referenced and considered problem solvers for existing circuits using non-vented Valve. Over time, the vented Valve may leak externally or allow moisture into the spring chamber. Four-port vented counterbalance Valve are recommended for new applications
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow

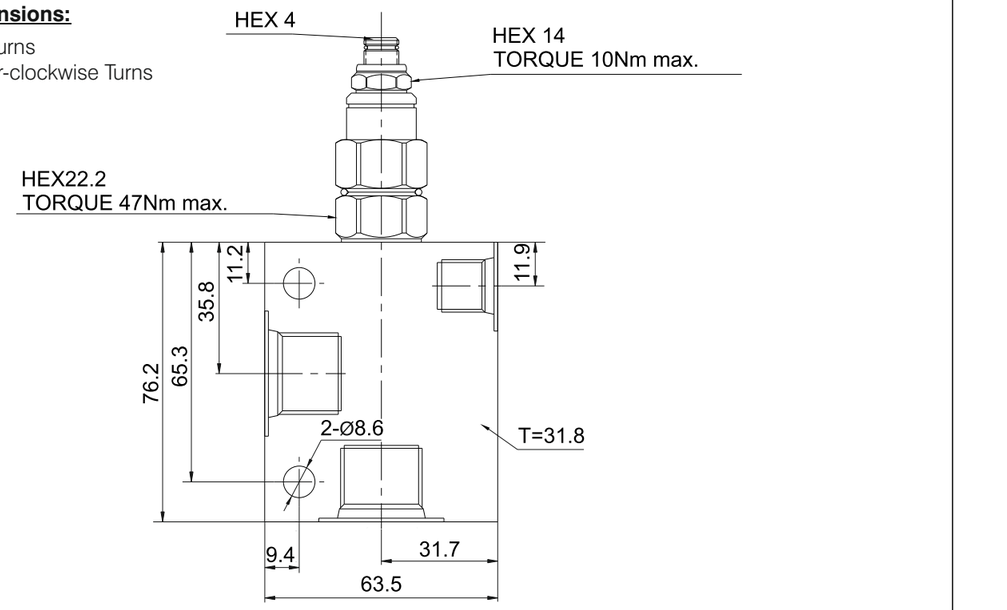


Operation:

Atmospherically vented counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Backpressure at port 2 does not affect the valve setting because the spring chamber is atmospherically referenced.Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:

Full adjustment 5 turns
Number of Counter-clockwise Turns



Ordering code details:

TCAC | | | | | | | |

Pilot Ratio:
3:1 = A
5:1 = G

Adjustment:
Screw Adjust = L

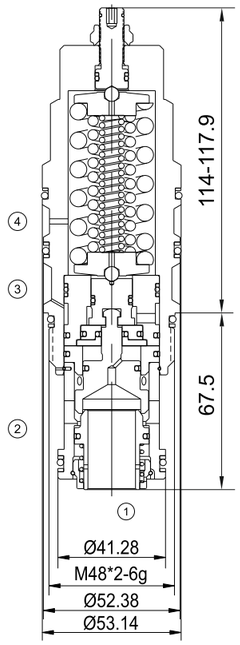
Pressure Range:
TCACA:
1000-4000psi(70-280bar) Preset:3000psi(210bar) = H
400-1500psi(28-105bar) Preset:1000psi(70bar) = I
TCACG:
1000-2500psi(70-175bar) Preset:2000psi(140bar) = F
2000-6000psi(140-420bar) Preset:4000psi(280bar) = G

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

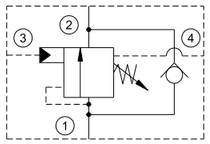
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCWIA - Counterbalance Valve (Vented)



Hydraulic Symbol:



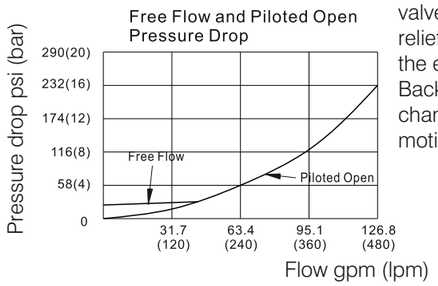
Specifications:

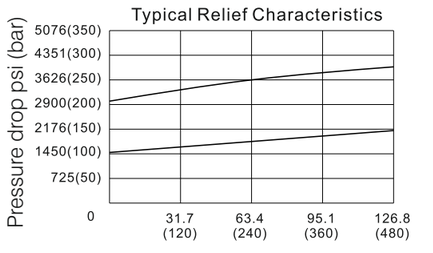
Operating Pressure	280BAR
Flow	480 L/min
Pilot Ratio	3:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-24A see page K-6
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 4 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure.
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow



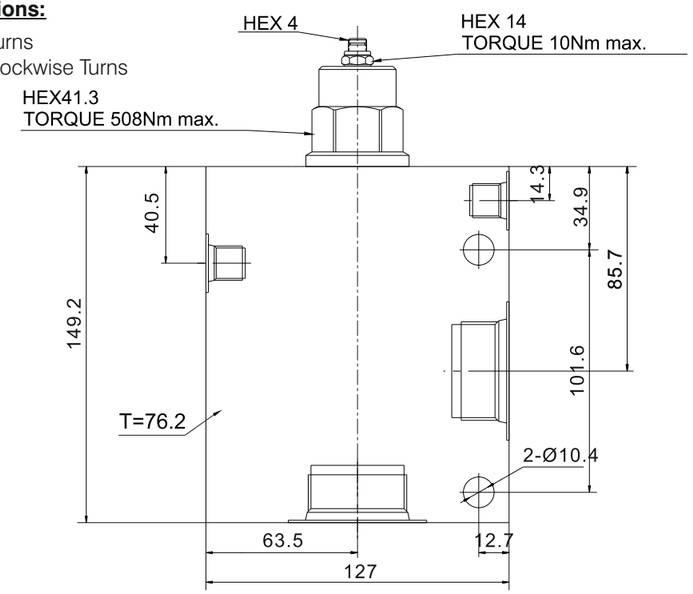


Operation:

Vented counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Backpressure at port 2 does not affect the valve setting because the spring chamber references the vent (port 4).Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:

Full adjustment: 4.2 turns
Number of Counter-clockwise Turns



Ordering code details:

TCWIA | | | | | | |

Adjustment:
Screw Adjust = L

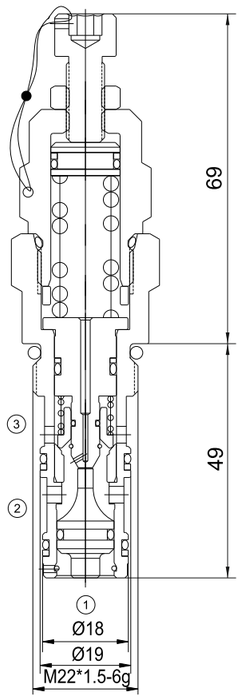
Pressure Range:
1000-4000psi(70-280bar) = H
Preset:3000psi(210bar)(Check:1.5bar)
400-1500psi(28-105bar) = I
Preset:1000psi(70bar)(Check:1.5bar)

Body Porting:
12T = SAE 12T
20T = SAE 20T
12G = G1 1/2
10N = NPT1 1/4
Other porting is available

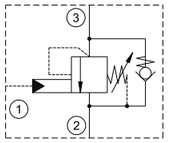
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TVCB06-EN - Counterbalance Valve



Hydraulic Symbol:



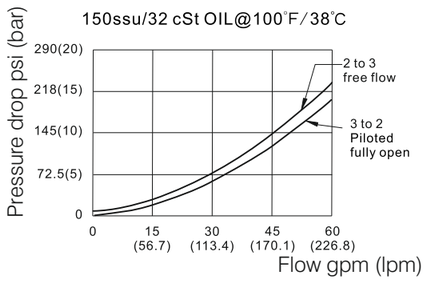
Specifications:

Operating Pressure	350BAR
Flow	60 L/min
Pilot Ratio	4.1:1
Internal Leakage	10drops/min@ at 70% of crack pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	NCS06/3 see page K-?
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Single counterbalance valves are normally used when the load is unidirectional, such as aerial lifts, cranes, or winches. In load holding
- applications, they can be used as hose-break valves when installed near or within an actuator. Dual cartridges can be used for controlling loads bi-directionally in motor applications, or for cylinders going over center. Since this valve is piloted at port 1, no cross port drilling is required when dual cartridges are mounted nose to nose in an HIC.

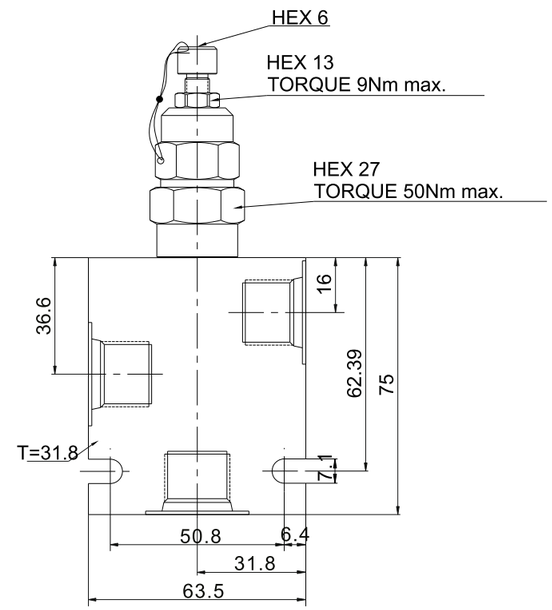
Performance Curve
Pressure Drop vs Flow



Operation:

The TVCB06-EN is a cartridge style, 6-size metric counterbalance valve with hydraulic vent. This valve is 3- ported, externally piloted and low leakage. The check section allows free flow from the directional valve (port 2) to the load (port 3). Reverse flow is blocked until pilot pressure is applied at port 1. When the load pressure at port 3 rises above the pressure setting, the integral relief valve is activated and pressure is relieved from port 3 to port 2.

Installation Dimensions:



Ordering code details:

TVCB06-EN				

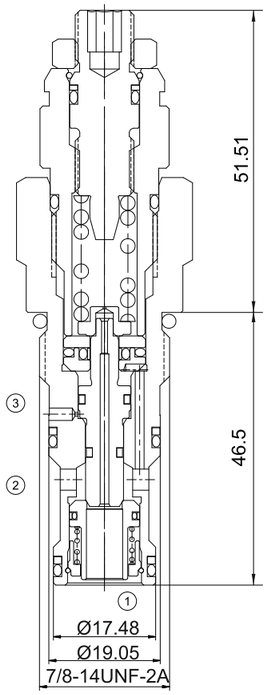
Pressure Range:
250-140bar(363-2030psi) = 1
70-210bar(1015-3045psi) = 2
105-350bar(1523-5075psi) = 3

Seal Kits:
Buna N = N
Viton = V

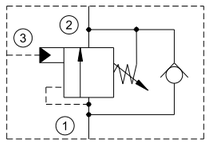
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
NPT 3/8 = 3N
G3/8 = 3G
Other porting is available

TVBSN-10A - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	60 L/min
Pilot Ratio	3:1
Internal Leakage	15drops/min.max
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	VC10-S3 see page K-17
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

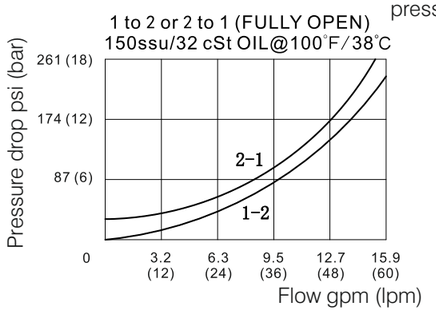
Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Port ② can not be set full pressure, otherwise it will affect the set pressure

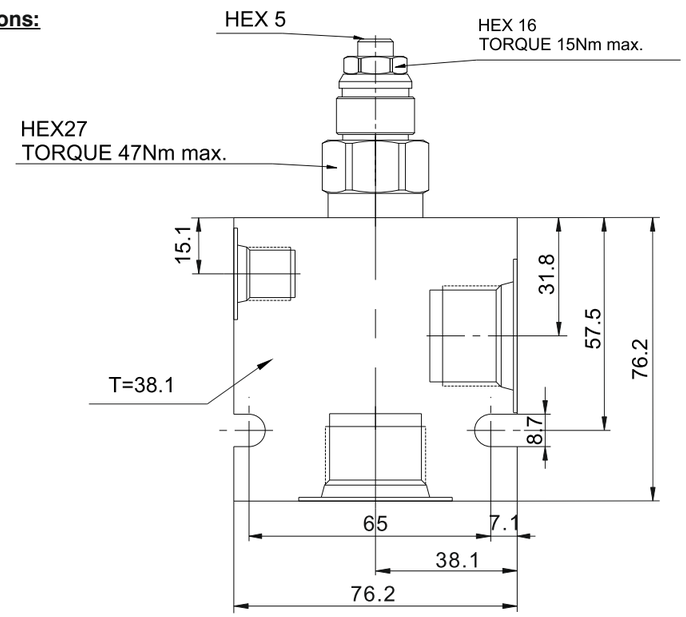
Operation:

The valve controls moving load and preventing it from running ahead of the pump,locking the load in any position,it also provides static overload and the mal enpansion protection.The valve allows free flow from ② to ① and blocks reverse flow unit a pilot pressure proportional to the load pressure is sensed at ③ modulating flow from ① to ② .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TVBSN-10A | | | | |

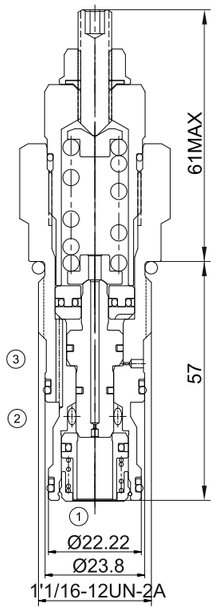
Pressure Range:
1000-3000psi(70-210bar) Preset:2900psi(200bar) = 20
2000-5000psi(140-350bar) Preset:5000psi(350bar) = 35

Seal Kits:
Buna N = N
Viton = V

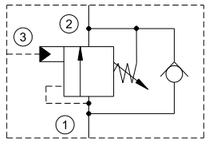
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
NPT 3/4 = 6N
G3/4 = 6G
Other porting is available

TVBSN-12 - Counterbalance Valve (Standard)



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	120 L/min
Pilot Ratio	4:1
Internal Leakage	15drops/min.max
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CA-12A-3Csee page K-45
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

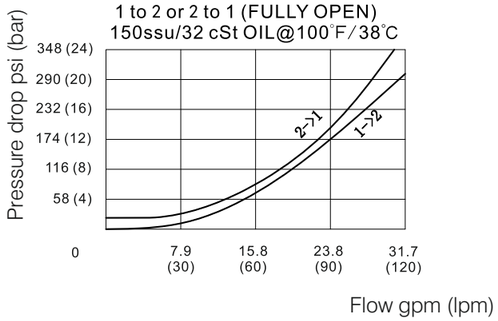
Features:

- Counterbalance Valve should be set at least 1.3 times the maximum load pressure
- Port ② can not be set full pressure, otherwise it will affect the set pressure

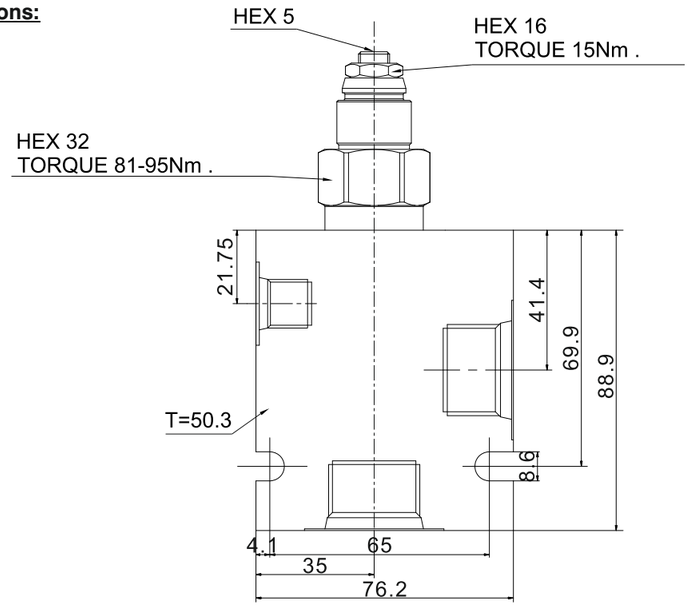
Operation:

The valve controls moving load and preventing it from running ahead of the pump,locking the load in any position,it also provides static overload and the mal enpansion protection.The valve allows free flow from ② to ① and blocks reverse flow unit a pilot pressure proportional to the load pressure is sensed at ③ modulating flow from ① to ② .

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:



Ordering code details:

TVBSN-12 | | | | |

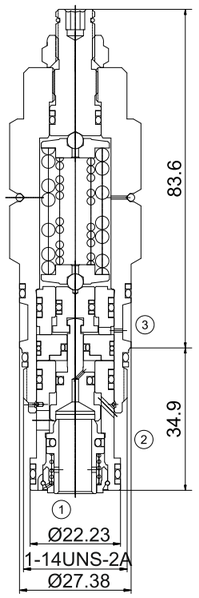
Pressure Range:
1000-3000psi(70-210bar) Preset:2900psi(200bar) = 20
2000-5000psi(140-350bar) Preset:5000psi(350bar) = 35

Seal Kits:
Buna N = N
Viton = V

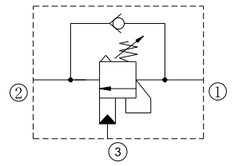
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
NPT 1/2 = 4N
G1 = 8G
Other porting is available

TCAEG - Counterbalance Valve (Standard)



Hydraulic Symbol:



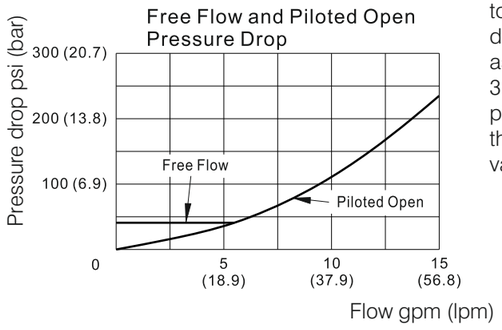
Specifications:

Operating Pressure	420BAR
Flow	120 L/min
One-way open pressure	1.7 BAR
Internal Leakage	0.3cc/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Three-port vented Valve is atmospherically referenced and considered problem solvers for existing circuits using non-vented Valve. Over time, the vented Valve may leak externally or allow moisture into the spring chamber. Four-port vented counterbalance Valve are recommended for new applications
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow

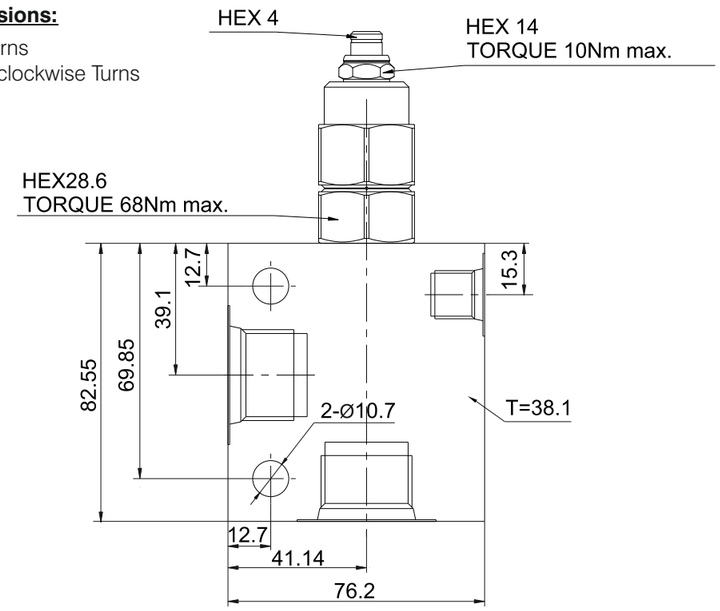


Operation:

Atmospherically vented counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Backpressure at port 2 does not affect the valve setting because the spring chamber is atmospherically referenced.Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:

Full adjustment: 5 turns
Number of Counter-clockwise Turns



Ordering code details:

TCAEG | | | | | |

Adjustment:
Screw Adjust = L

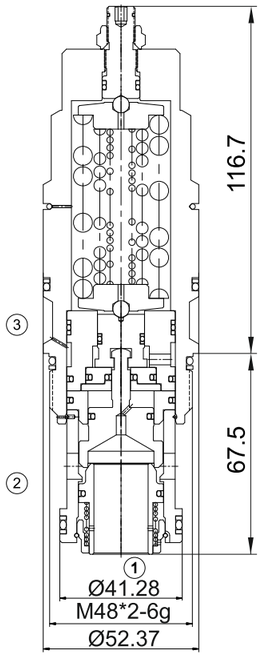
Pressure Range:
1000-4000psi(70-280bar) Preset:3000psi(210bar) = H
400-1500psi(28-105bar) Preset:1000psi(70bar) = I

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

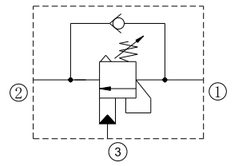
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCAIG - Counterbalance Valve (Standard)



Hydraulic Symbol:



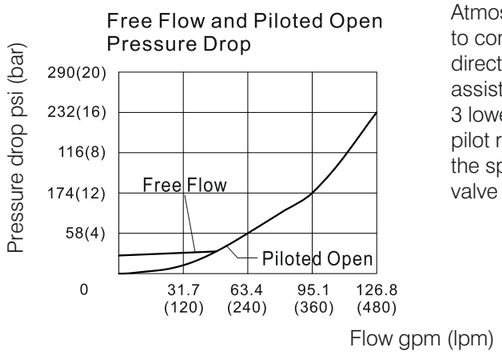
Specifications:

Operating Pressure	420BAR
Flow	480 L/min
Pilot ratio	5:1
Internal Leakage	0.3cc/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-19A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Three-port vented Valve is atmospherically referenced and considered problem solvers for existing circuits using non-vented Valve. Over time, the vented Valve may leak externally or allow moisture into the spring chamber. Four-port vented counterbalance Valve are recommended for new applications
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow

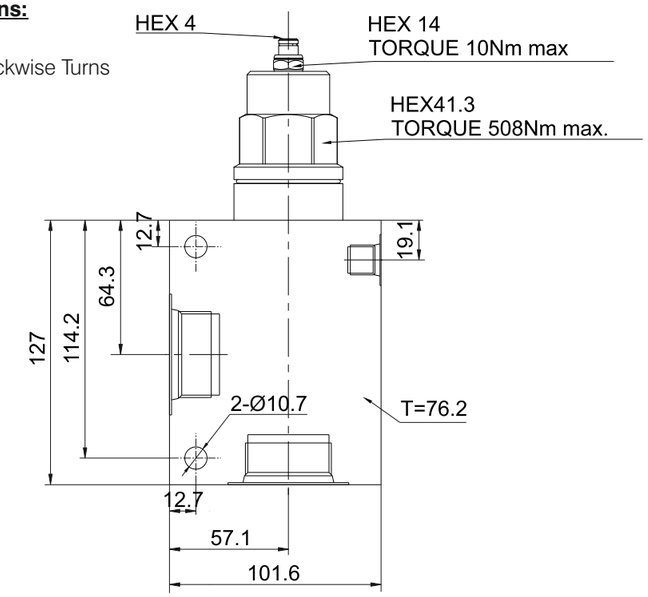


Operation:

Atmospherically vented counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Backpressure at port 2 does not affect the valve setting because the spring chamber is atmospherically referenced.Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:

Full adjustment: 5 turns
Number of Counter-clockwise Turns



Ordering code details:

TCAIG | | | | | | |

Adjustment:
Screw Adjust = L

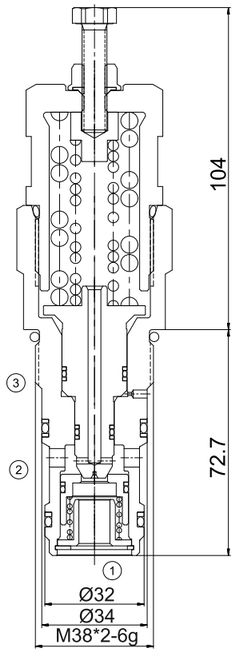
Pressure Range:
2000-6000psi(140-420bar) Preset:4000psi(280bar) = G
1000-2500psi(70-175bar) Preset:2000psi(140bar) = F

Body Porting:
16T = SAE 16T
20T = SAE 20T
10G = G1 1/4
8N = NPT1
Other porting is available

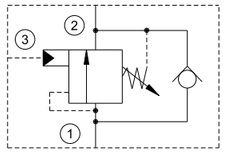
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

T1500150400 - Counterbalance Valve



Hydraulic Symbol:



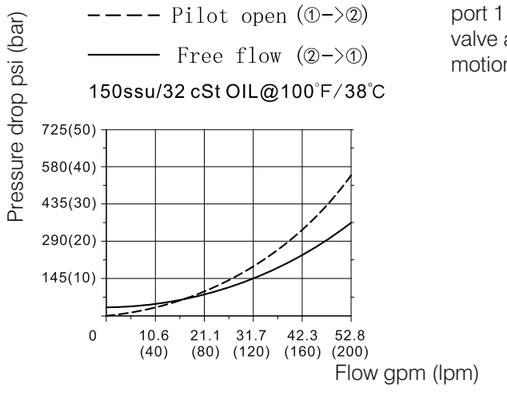
Specifications:

Operating Pressure	380BAR
Flow	140 L/min
Pilot ratio	4:1
Internal Leakage	0.3ml/min@210bar
Pressure Range	220-380bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A20081 see page K-45
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Backpressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the backpressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

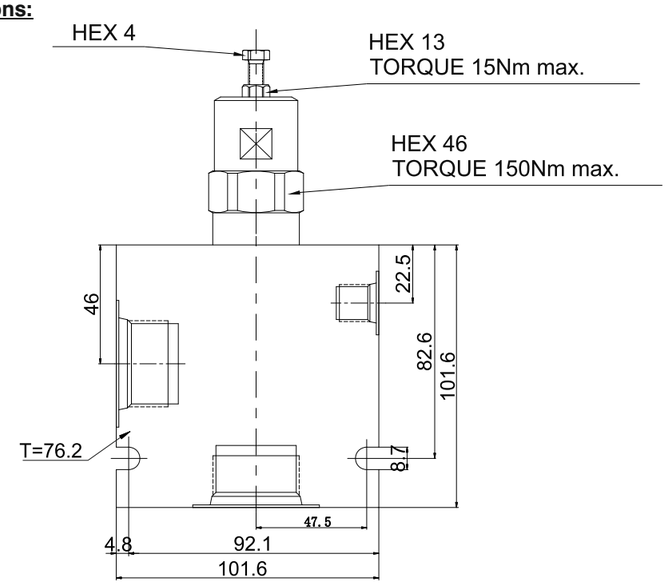
Performance Curve
Pressure Drop vs Flow



Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:



Ordering code details:

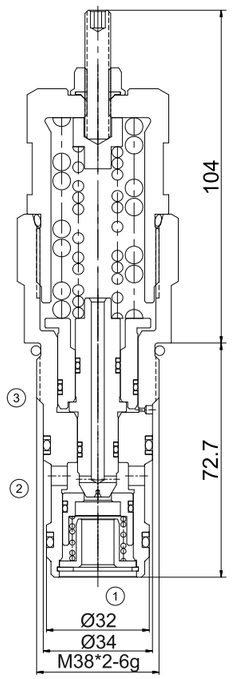
T1500150400			

Seal Kits:
Buna N = N
Viton = V

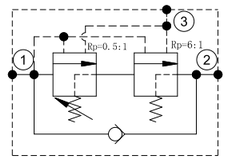
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

T1500150405 - Counterbalance Valve



Hydraulic Symbol:



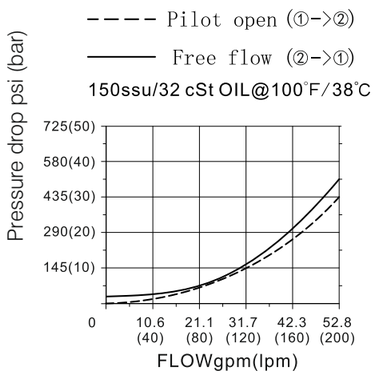
Specifications:

Operating Pressure	380BAR
Flow	140 L/min
Pilot ratio	Primary 6:1 Secondary 0.5:1
Internal Leakage	0.3ml/min@210bar
Pressure Range	220-380bar
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A20081 see page K-46
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Backpressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the backpressure
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow

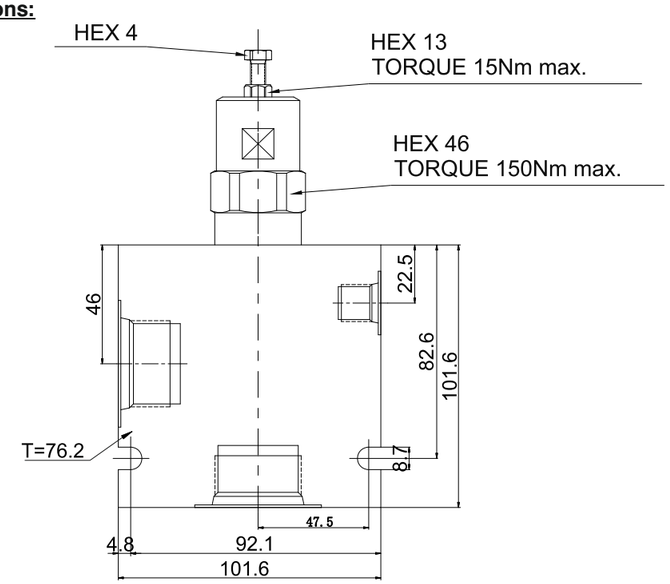


Flow gpm (lpm)

Operation:

Counterbalance Valve with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Installation Dimensions:



Ordering code details:

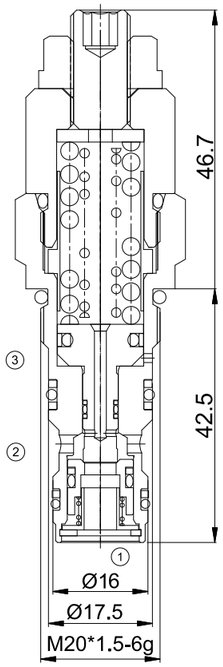
T1500150405			

Seal Kits:
Buna N = N
Viton = V

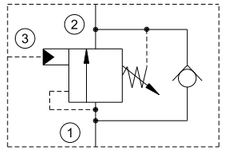
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

T1CE30 - Counterbalance Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350BAR
Flow	30 L/min
Pilot ratio	5:1
Internal Leakage	0.3ml/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A6610 see page K-49
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

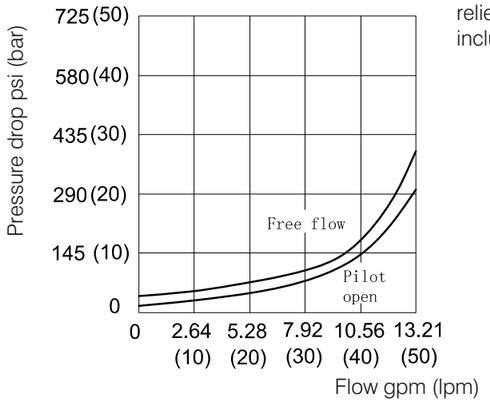
Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Back pressure at port 2 adds to the effective relief setting at a ratio of 1 plus the pilot ratio times the back pressure

Operation:

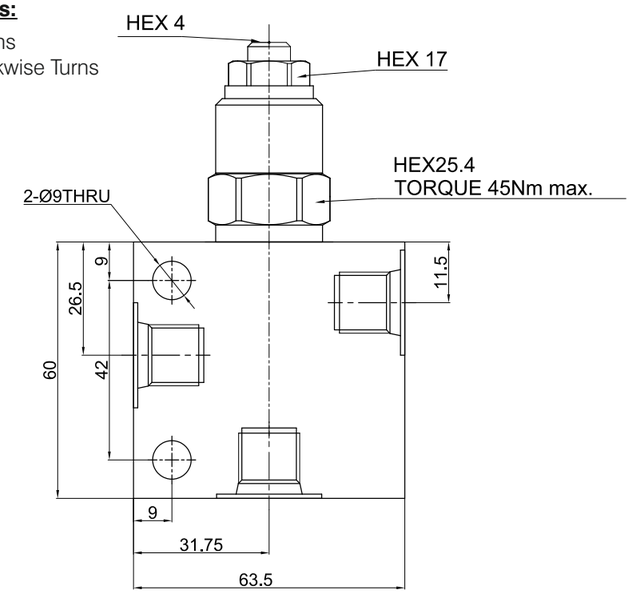
Fixed-setting, 3-port counterbalance valves with pilot-assist function similarly to the adjustable versions except the fixed setting is pre-set to a nominal value. These fixed-setting valves are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio.Other names for this valve include motion control valve and over-center valve.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

Full adjustment: 3.75 turns
Number of Counter-clockwise Turns



Ordering code details:

T1CE30				

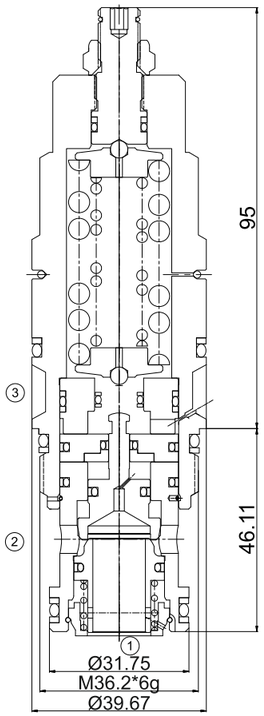
Pressure Range:
1015-3045psi(70-210bar) Preset:1450psi(100bar) = 20
1450-5075psi(100-350bar) Preset:3045psi(210bar) = 35

Seal Kits:
Buna N = N
Viton = V

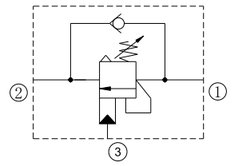
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
Other porting is available

TCAGG - Counterbalance Valve (Standard)



Hydraulic Symbol:



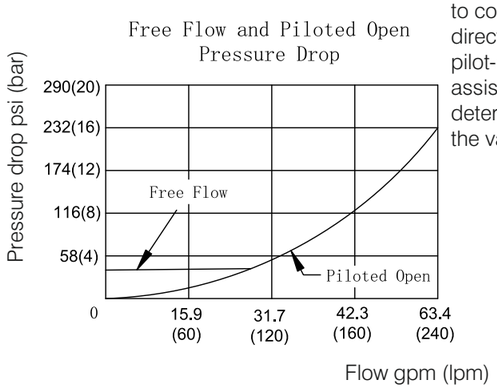
Specifications:

Operating Pressure	420BAR
Flow	240 L/min
Pilot ratio	5:1
Internal Leakage	0.3cc/min.max.to 85% of norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-17A see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- The setting value of the balance valve should be at least 1.3 times of the load pressure value.
- Turn adjustment Counterclockwise to decrease setting and release load.
- Reseat exceeds 85% of set pressure when the valve is standard set. Settings lower than the standard set pressure may result in lower reseat percentages

Performance Curve
Pressure Drop vs Flow

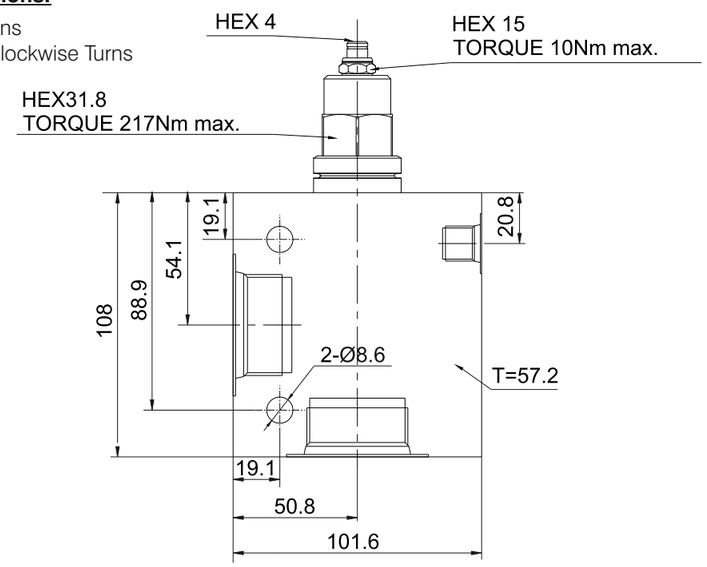


Operation:

Atmospherically vented counterbalance valves with pilot assist are meant to control an overrunning load. The check valve allows free flow from the directional valve (port 2) to the load (port 1) while a direct-acting, pilot-assisted relief valve controls flow from port 1 to port 2. Pilot assist at port 3 lowers the effective setting of the relief valve at a rate determined by the pilot ratio. Back pressure at port 2 does not affect the valve setting because the spring chamber is atmospherically referenced.

Installation Dimensions:

Full adjustment: 5 turns
Number of Counter-clockwise Turns



Ordering code details:

TCAGG | | | | | | |

Adjustment:
Screw Adjust = L

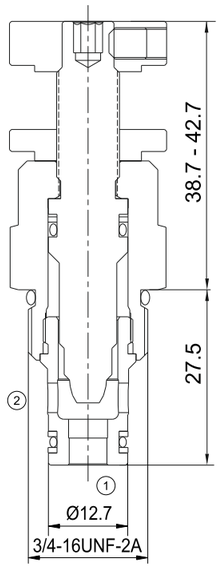
Pressure Range:
1000-2500psi(70-175bar) Preset:2000psi(140bar) = F
2000-6000psi(140-420bar) Preset:4000psi(280bar) = G

Body Porting:
12T = SAE 12T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

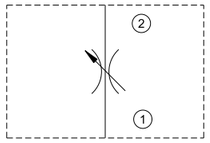
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNV2-08 - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

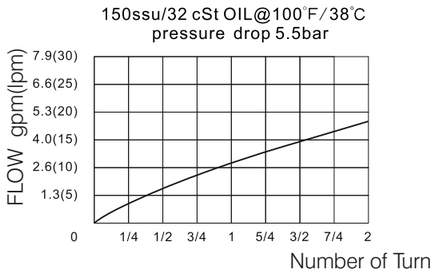
Operating Pressure	250BAR
Flow	30 L/min
Internal Leakage	0.3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

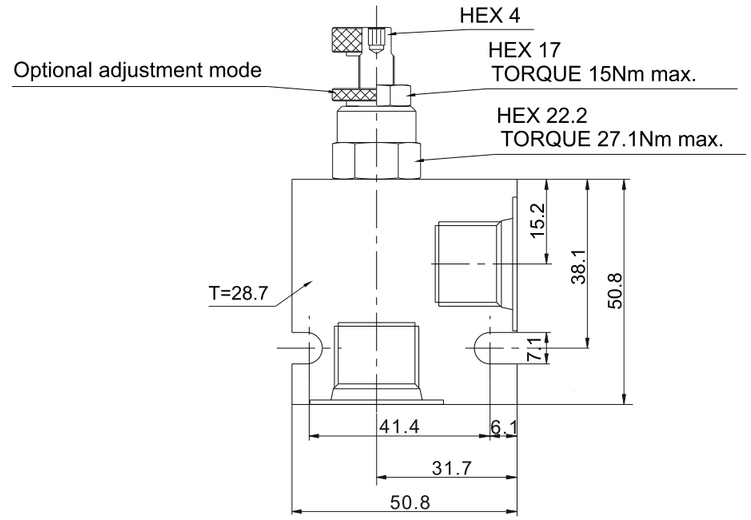
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

Operation:

The valve varies flow restriction by adjusting needle in or out and will shut off when fully closed. These Valves will meter flow in either direction.



Installation Dimensions:



Ordering code details:

TNV2-08 | | | | |

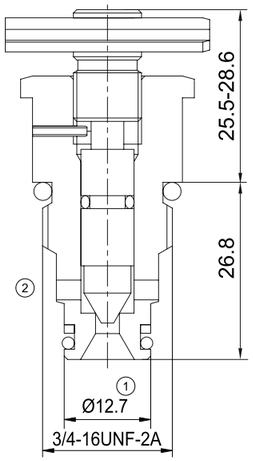
Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

Seal Kits:
Buna N = N
Viton = V

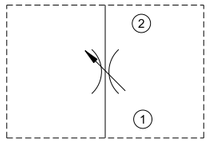
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TS-08 - A cartridge-style manually adjustable needle valve



Hydraulic Symbol:



Specifications:

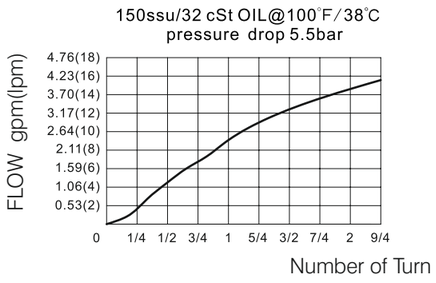
Operating Pressure	250BAR
Flow	18 L/min
Internal Leakage	0.3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

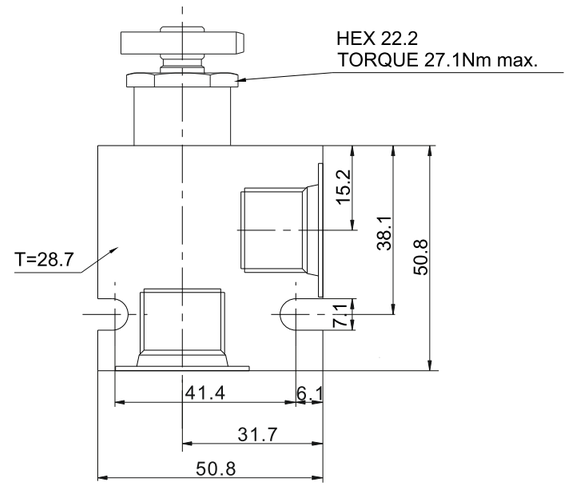
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Positive shut-off
- Adjustment will not screw out of the valve body

Operation:

The valve varies flow restriction by adjusting needle in or out and will shut off when fully closed. These Valves will meter flow in either direction.



Installation Dimensions:



Ordering code details:

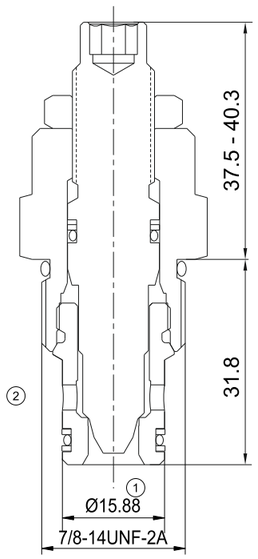
TS-08			

Seal Kits:
Buna N = N
Viton = V

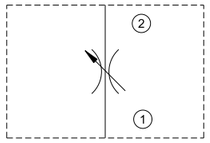
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNV2-10 - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

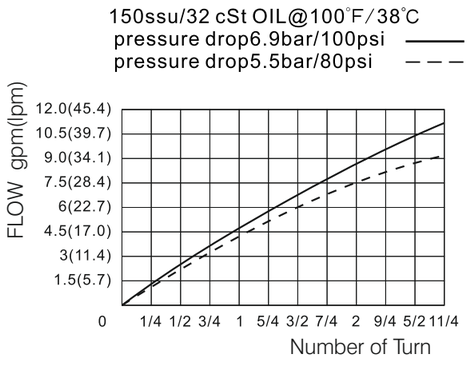
Operating Pressure	250BAR
Flow	45 L/min
Internal Leakage	3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

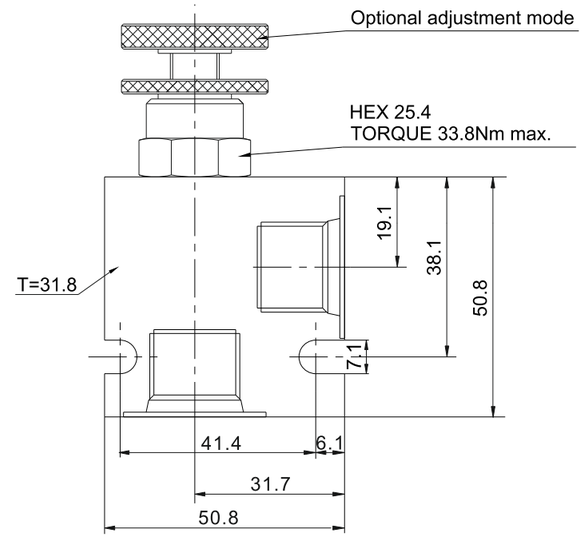
Operation:

The valve varies flow restriction by adjusting needle in or out and will shut off when fully closed. These Valves will meter flow in either direction.



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TNV2-10				

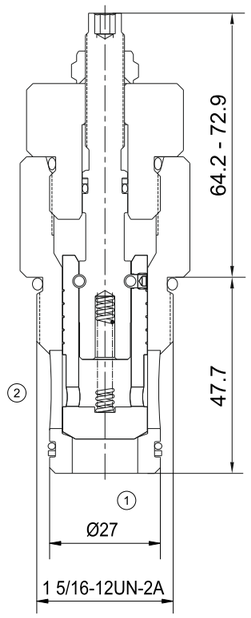
Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

Seal Kits:
Buna N = N
Viton = V

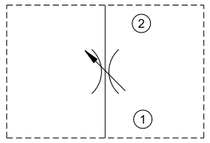
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNV-16 - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

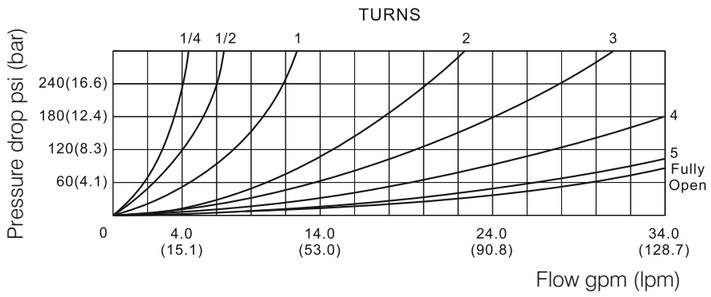
Operating Pressure	240BAR
Flow	200 L/min
Internal Leakage	3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-S2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

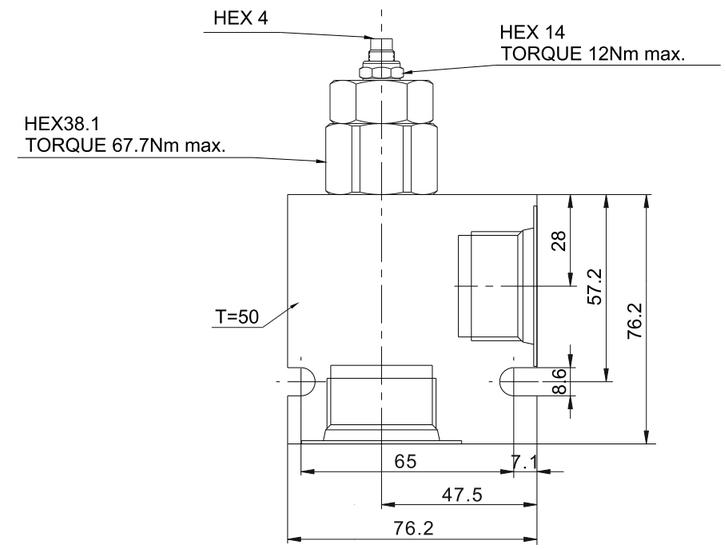
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

Operation:

The valve varies flow restriction by adjusting needle in or out and will shut off when fully closed. These Valves will meter flow in either direction.



Installation Dimensions:



Ordering code details:

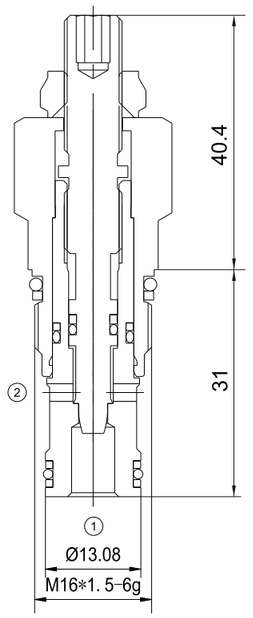
TNV-16			

Seal Kits:
Buna N = N
Viton = V

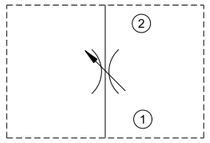
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNFBC - Fully Adjustable Needle Valve



Hydraulic Symbol:

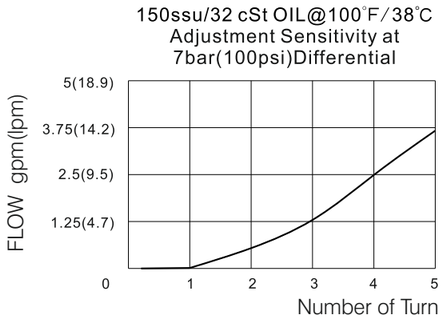


Specifications:

Operating Pressure	350BAR
Flow	20 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.

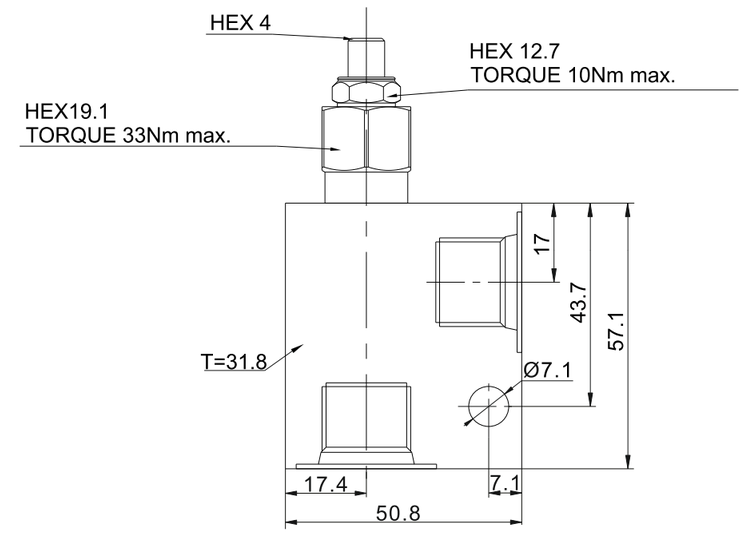


Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TNFBC | | | | | |

Adjustment:
Screw Adjust = L

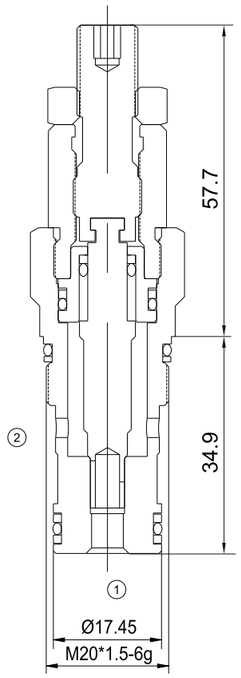
Maximum Orifice Diameter
4mm(20L/min) = C

Body Porting:
6T = SAE 6T
8T = SAE 8T
2G = G1/4
2N = NPT1/4
Other porting is available

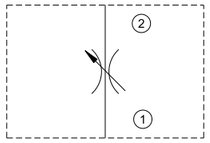
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFCC - Fully Adjustable Needle Valve



Hydraulic Symbol:

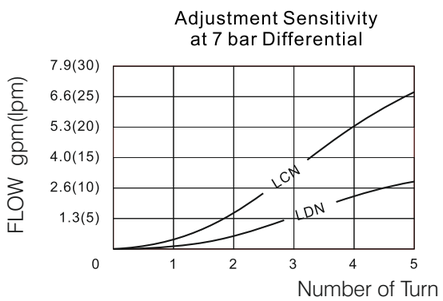


Specifications:

Operating Pressure	350BAR
Flow	28 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

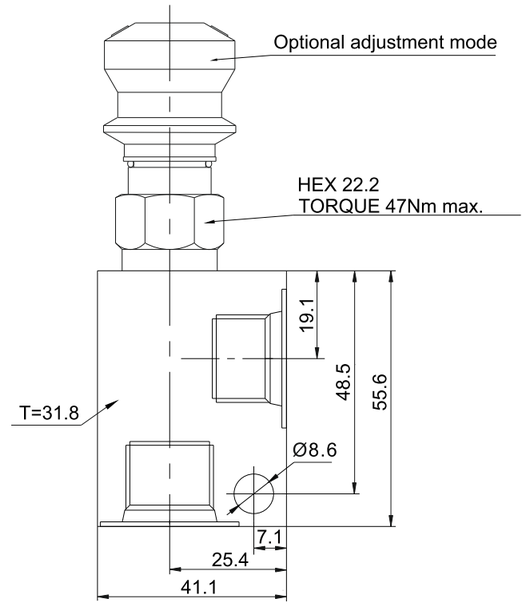
- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.



Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

Installation Dimensions:



Ordering code details:

TNFCC | | | | | | |

Adjustment:
Screw Adjust = L
Calibrated Handknob with Detenk Lock = H

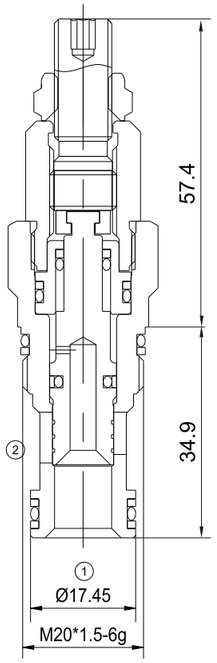
Maximum Orifice Diameter
0.19in.(4.8mm) = C
0.09in.(2.3mm) = D
0.06in.(1.5mm) = I

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

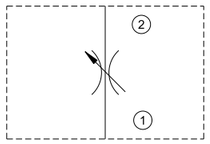
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFCD - Fully Adjustable Needle Valve



Hydraulic Symbol:

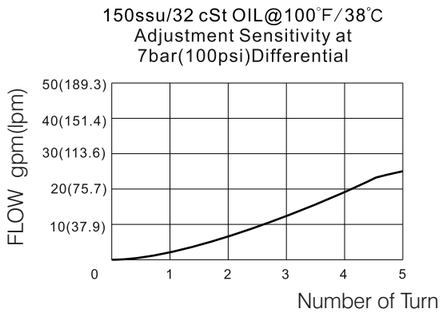


Specifications:

Operating Pressure	350BAR
Flow	80 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

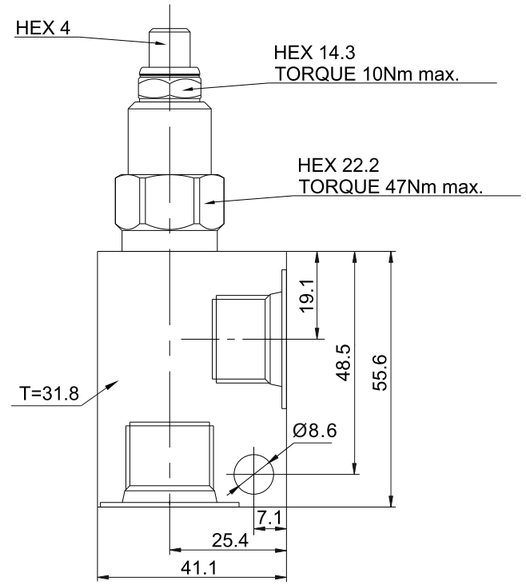
- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.



Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

Installation Dimensions:



Ordering code details:

TNFCD | | | | | |

Adjustment:
Screw Adjust = L

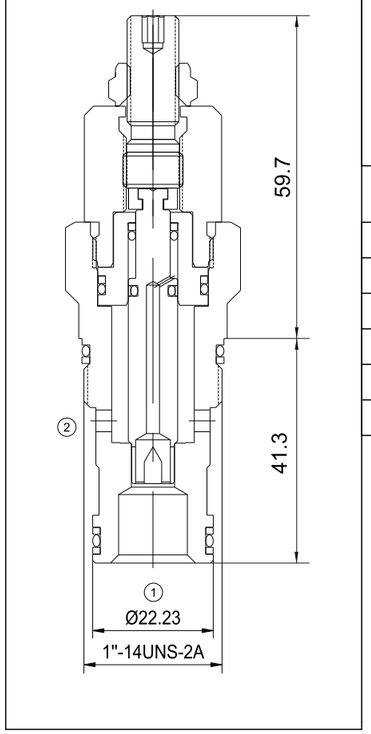
Maximum Orifice Diameter
8.4mm(80L/min) = F

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

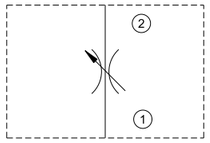
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFDC - Fully Adjustable Needle Valve



Hydraulic Symbol:

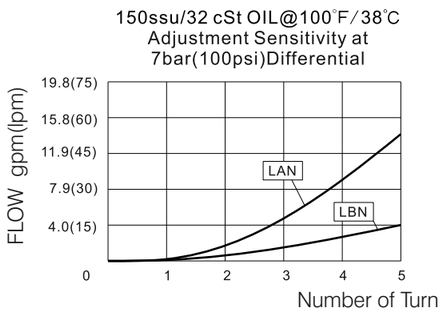


Specifications:

Operating Pressure	350BAR
Flow	45 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-5A see page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.

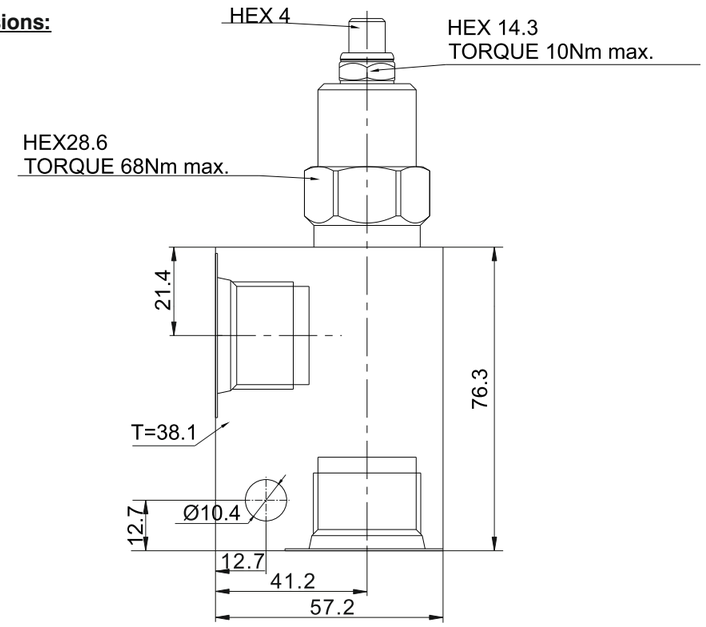


Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TNFDC | | | | | | |

Adjustment:
Screw Adjust = L

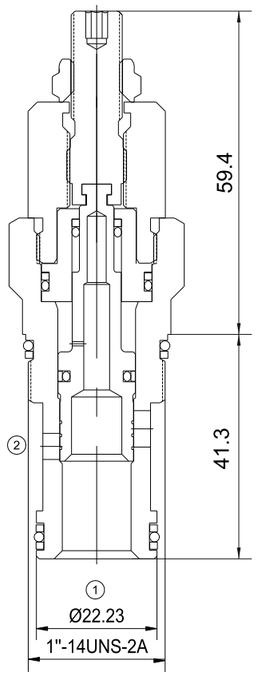
Maximum Orifice Diameter
6.4mm(45L/min) = A
3.0mm(15L/min) = B

Body Porting:
6T = SAE 6T
12T = SAE 12T
2G = G1/4
2N = NPT1/4
Other porting is available

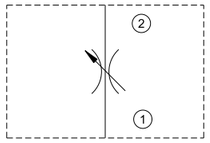
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFDD - Fully Adjustable Needle Valve



Hydraulic Symbol:

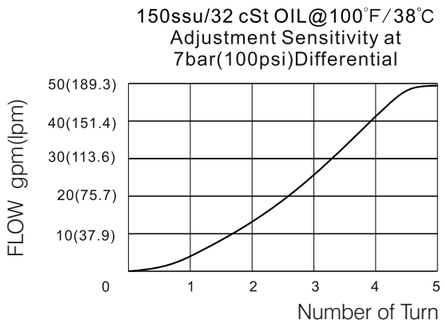


Specifications:

Operating Pressure	350BAR
Flow	200 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-5A see page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

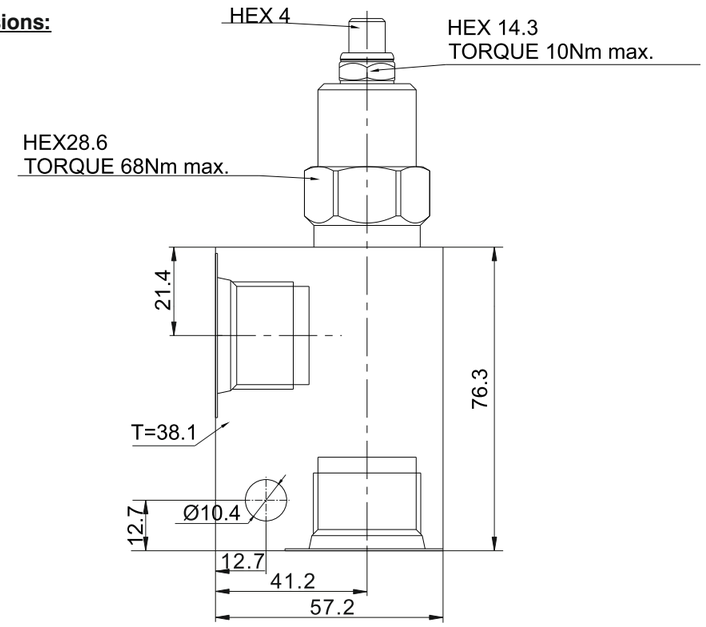
- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.



Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

Installation Dimensions:



Ordering code details:

TNFDD | | | | | |

Adjustment:
Screw Adjust = L

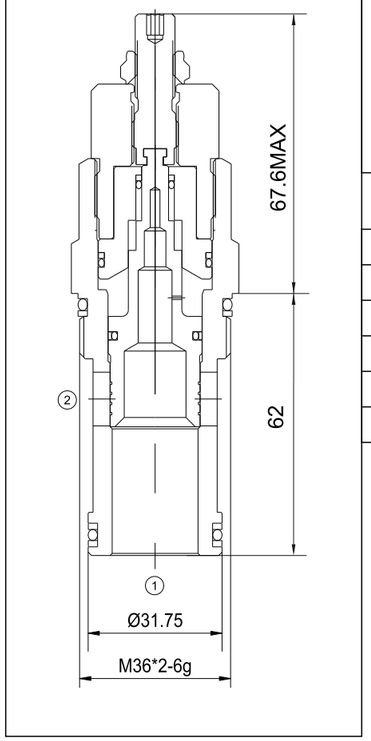
Maximum Orifice Diameter
12.7mm(200L/min) = G

Body Porting:
6T = SAE 6T
12T = SAE 12T
2G = G1/4
2N = NPT1/4
Other porting is available

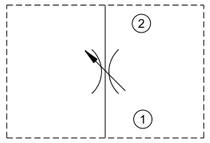
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFED - Fully Adjustable Needle Valve



Hydraulic Symbol:

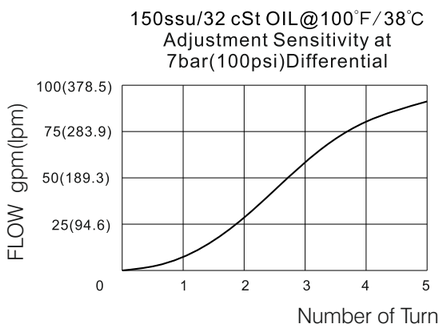


Specifications:

Operating Pressure	350BAR
Flow	340 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-16A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

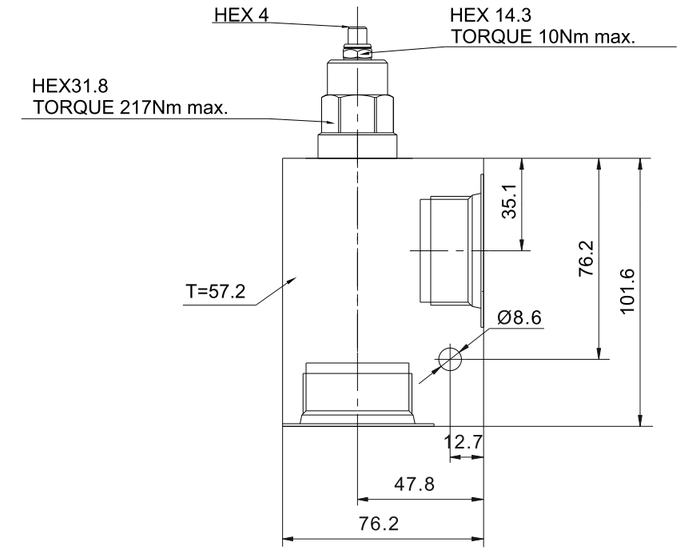
- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.



Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shut-off Valves.

Installation Dimensions:



Ordering code details:

TNFED | | | | | |

Adjustment:
Screw Adjust = L

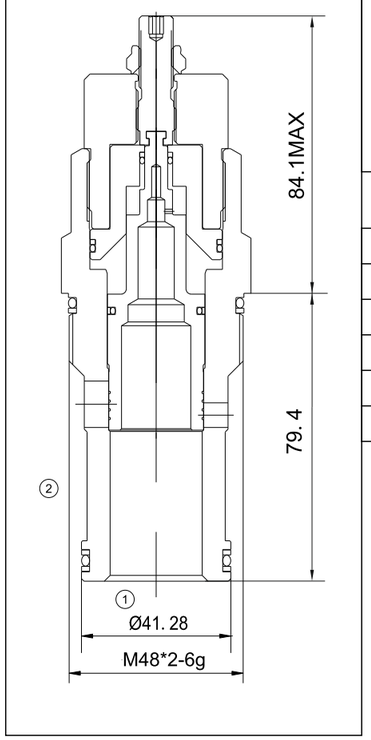
Maximum Orifice Diameter
17.5mm(340L/min) = H

Body Porting:
12T = SAE 12T
20T = SAE 20T
8G = G1
8N = NPT1
Other porting is available

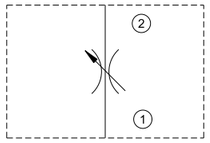
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNFFD - Fully Adjustable Needle Valve



Hydraulic Symbol:

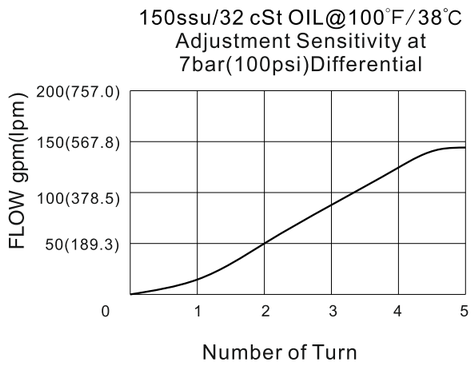


Specifications:

Operating Pressure	350BAR
Flow	530 L/min
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5	
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-18A see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

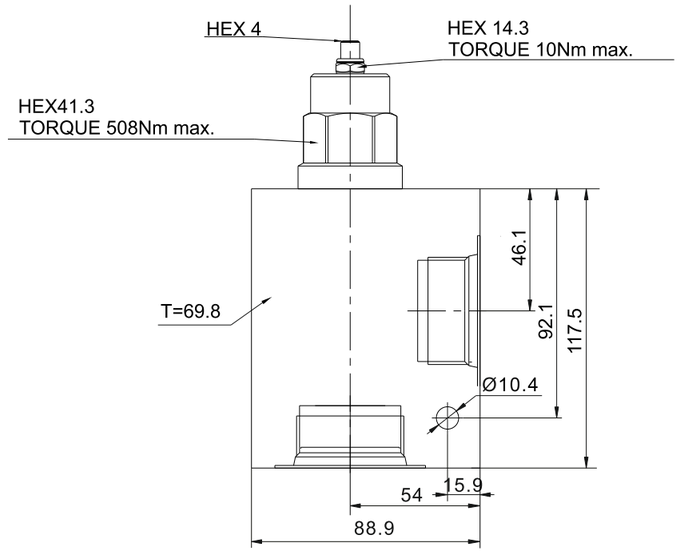
- Industry common cavity
- Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures
- The sharp-edged orifice design minimizes flow variations due to viscosity changes
- The flow path through this valve is bi-directional.
- There is no leakage when the adjustment mechanism is turned to the shut-off position.



Operation:

Needle Valve are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. They are not pressure compensated and may be used as flow controls or as shutoff Valves.

Installation Dimensions:



Ordering code details:

TNFFD | | | | | |

Adjustment:
Screw Adjust = L

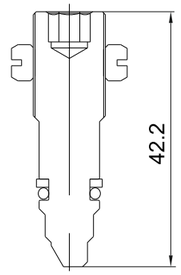
Maximum Orifice Diameter
21.6mm(530L/min) = I

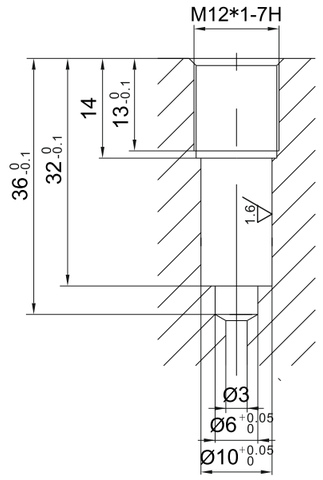
Body Porting:
12T = SAE 12T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

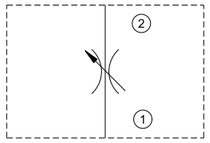
Seal Kits:
N = Buna N
V = Viton

TNV-M12 - Cartridge Needle Valve





Hydraulic Symbol:



Specifications:

Operating Pressure	207BAR
Flow	10 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

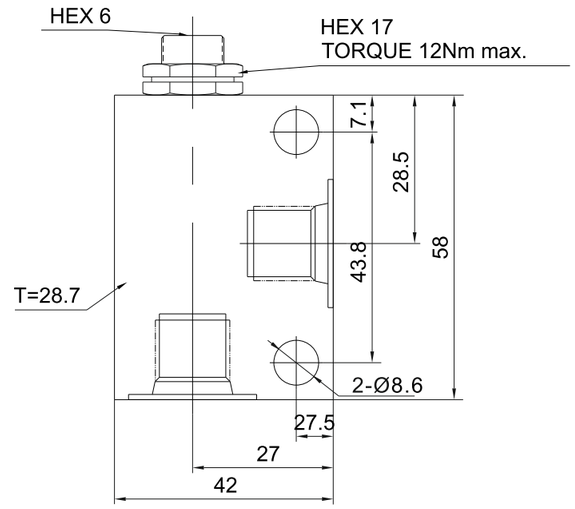
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

Operation:

The valve varies flow restriction by adjusting needle in or out and will shut off when fully closed. These Valves will meter flow in either direction.

Installation Dimensions:



Ordering code details:

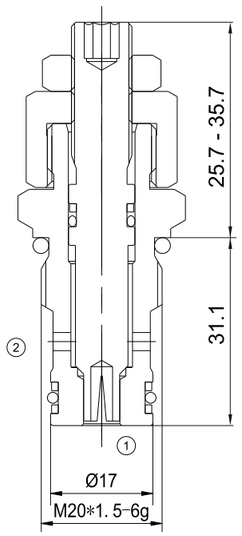
TNV-M12			

Seal Kits:
Buna N = N
Viton = V

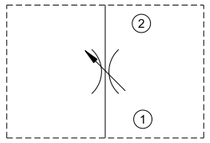
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNV-M201.5 - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	250BAR
Flow	50 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	NV-M201.5 see page K-32
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

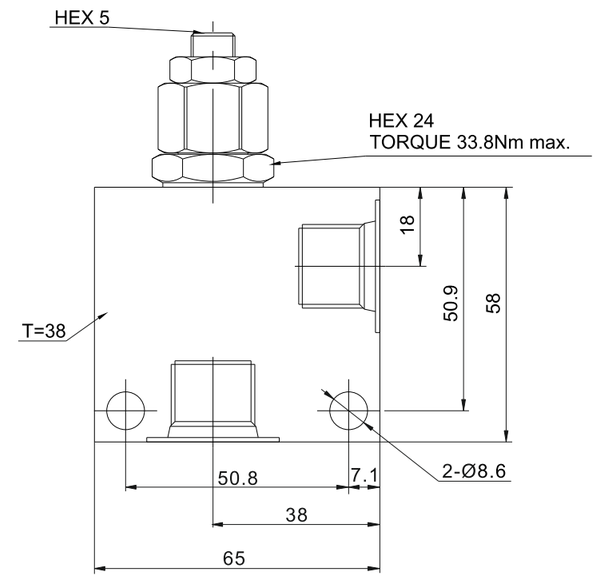
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

Operation:

The flow rate of the throttle valve can be adjusted by adjusting the screw.
② to ① is throttling, ① to ② is opening.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

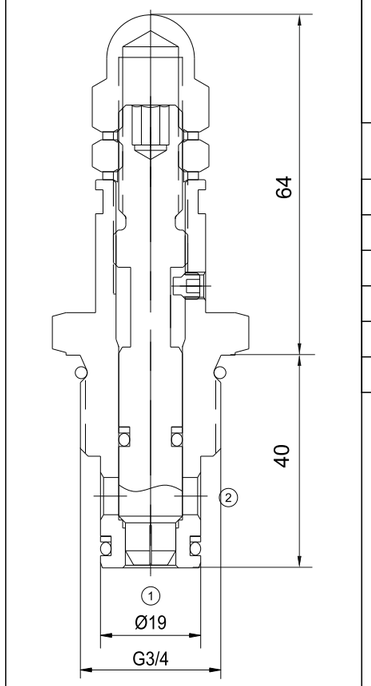
TNV-M201.5			

Seal Kits:
Buna N = N
Viton = V

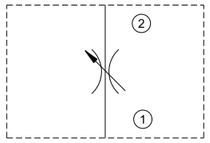
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDVE-12 - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

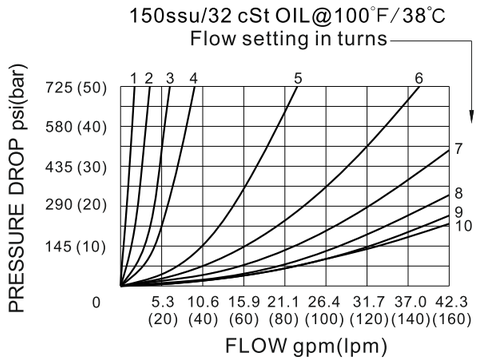
Operating Pressure	350BAR
Flow	160 L/min
Internal Leakage	0.3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	DVE-12 see page K-25
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

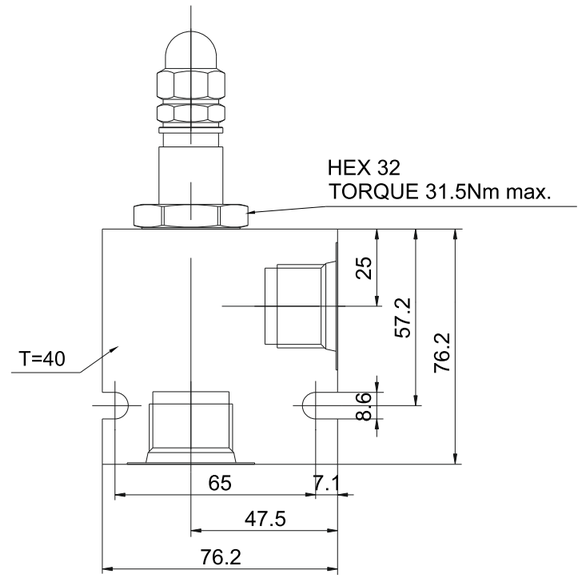
- For regulating the speed of loads
- For fine adjustment and shut-off of the flow
- For system-related damping in hydraulic circuits
- A set-screw locks the setting

Operation:

This valve is a flow control valve which controls the flow rate by adjusting the cross section. The flow rate is dependent on the pressure differential and the viscosity. Starting with the throttle spindle in the fully closed position, the flow rate increases in accordance with the appropriate curve as the control knob is turned. The flow is controlled in both directions.



Installation Dimensions:



Ordering code details:

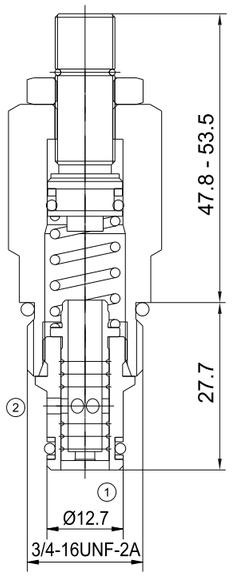
TDVE-12			

Seal Kits:
Buna N = N
Viton = V

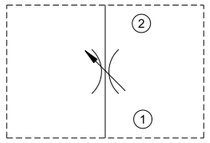
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A

Body Porting:
SAE6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFRA-08 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240BAR
Flow Setting	2-20 L/min
Flow Maintenance Accuracy	±10%
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

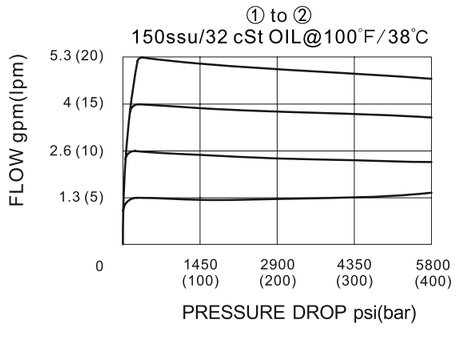
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

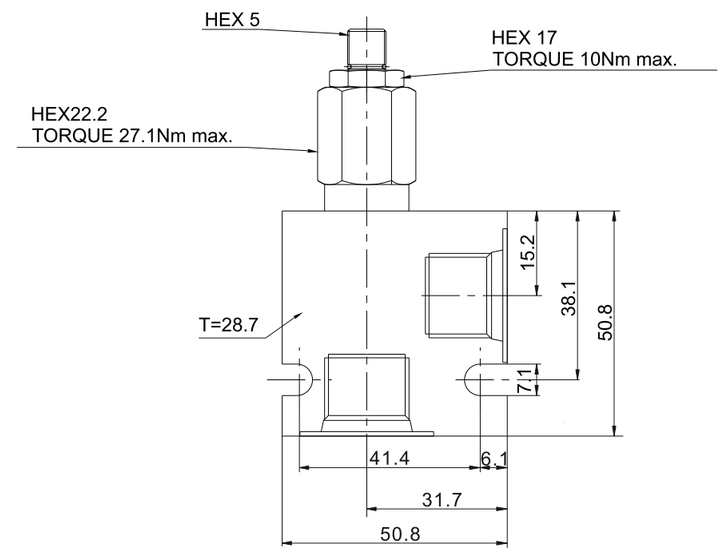
Operation:

The valve maintains a constant flow within specified accuracies from ① to ② regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. Reverse flow is not regulated.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TFRA-08				

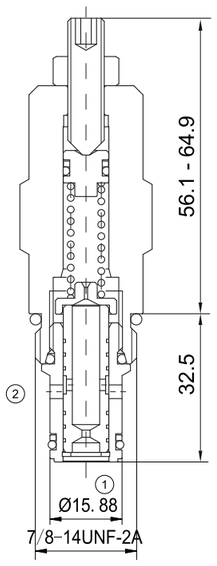
Flow Setting :
Standard setting (10L/min) = No code

Seal Kits:
Buna N = N
Viton = V

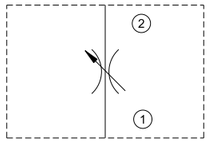
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFRA-10 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240BAR
Flow Setting	3-26 L/min
Flow Maintenance Accuracy	±15%
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

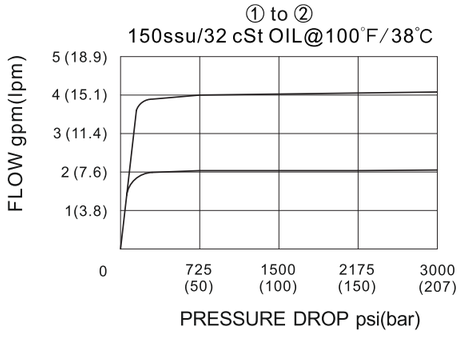
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

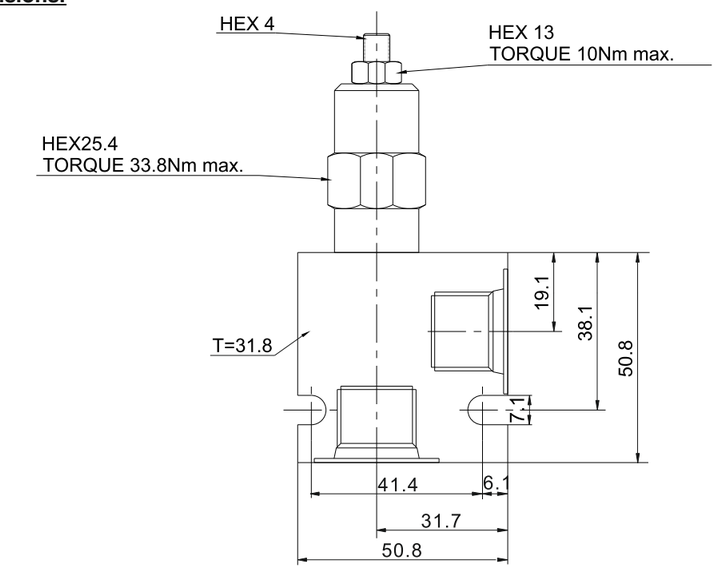
Operation:

The valve maintains a constant flow within specified accuracies from ① to ② regardless of downstream load pressure. When flow produces a minimum predetermined pressure differential across the compensator spool control orifice, the spool shifts against the spring force to throttle the flow and maintain the flow setting. Reverse flow is not regulated.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TFRA-10				

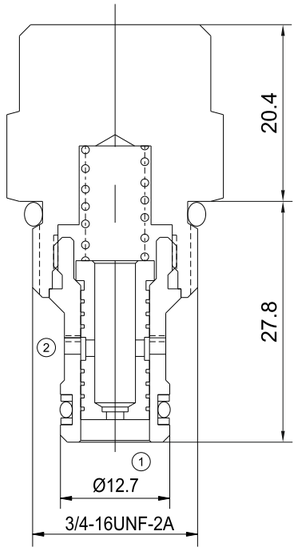
Flow Setting :
3-10L/min = M4.6
11-26L/min = M16
15-30L/min = M30

Seal Kits:
Buna N = N
Viton = V

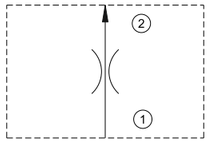
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFR-08 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	250 BAR
Flow Setting	0.4- 13.2 L/min
Flow Maintenance Accuracy	0.2 to 1.8lpm.settings±15%, 1.9 to 7.5lpm.settings±10%
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

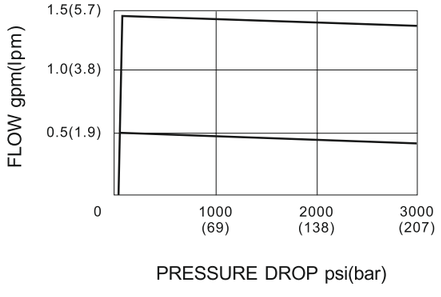
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Modulated response

Operation:

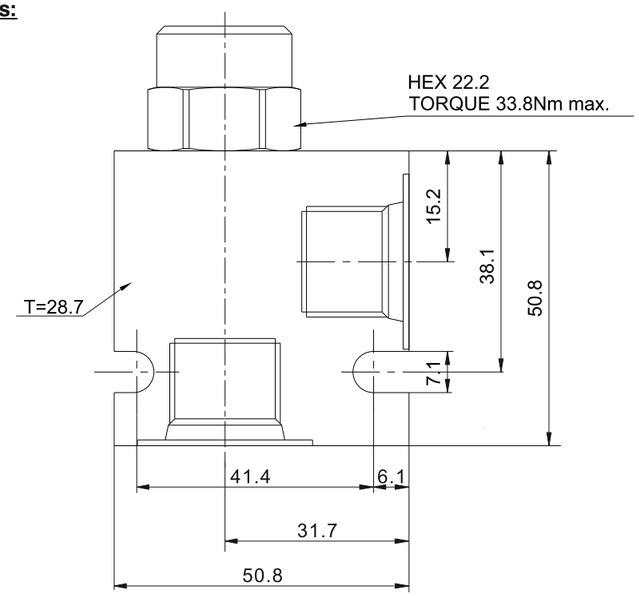
The valve maintains a constant flow rate out of ② regardless of load pressure changes in the circuit downstream of ②. The fixed control orifice is factory preset to customer flow specification.The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar, with accurate flow maintenance from 7.6 to 240 bar. Reverse flow(② to ①) returns through the control orifice and is non-compensated.

Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Installation Dimensions:



Ordering code details:

TFR-08				

Flow Setting :
(Setting in L/min)Range:0.4-13.2L/min
Specify,for example;
M2.0=2.0L/min
M3.0=3.0L/min

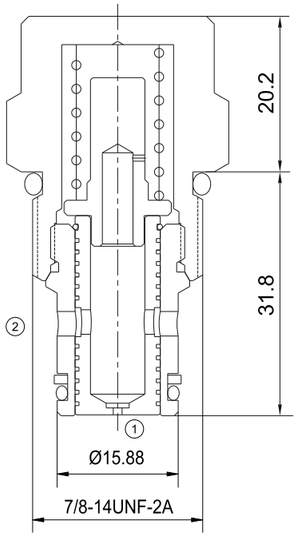
(Setting in gpm) Range:0.1-3.5gpm
Specify,for example;
1.0=1.0gpm
2.0=2.0gpm etc.

Seal Kits:
Buna N = N
Viton = V

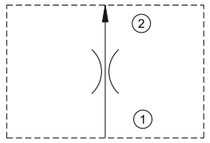
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFR-10 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	250 BAR
Flow Setting	0.4-22.7L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.
Flow Maintenance Accuracy	0.37 to 1.85lpm.settings±20%, 1.89 to 5.63lpm.settings±15% 5.68 to 22.7lpm.settings±10%

Features:

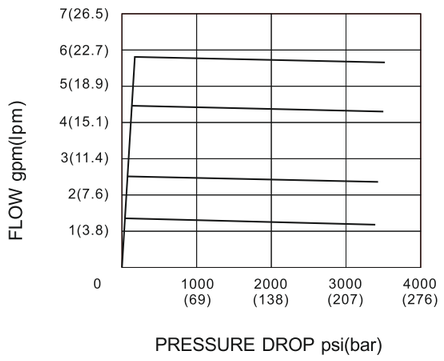
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Modulated response

Operation:

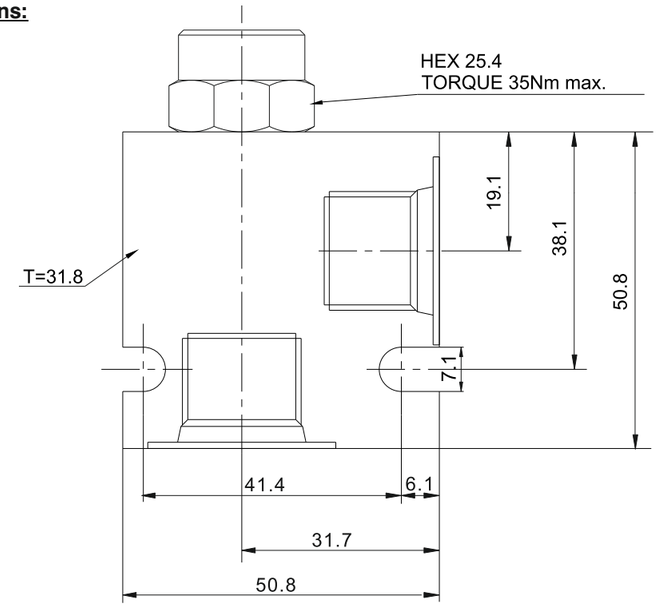
The valve maintains a constant flow rate out of ② regardless of load pressure changes in the circuit downstream of ②. The fixed control orifice is factory preset to customer flow specification.The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar, with accurate flow maintenance from 7.6 to 240 bar. Reverse flow(② to ①) returns through the control orifice and is non-compensated.

Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Installation Dimensions:



Ordering code details:

TFR-10				

Flow Setting :
(Setting in L/min)Range:0.4-22.7L/min
Specify,for example;
M2.0=2.0L/min
M3.0=3.0L/min

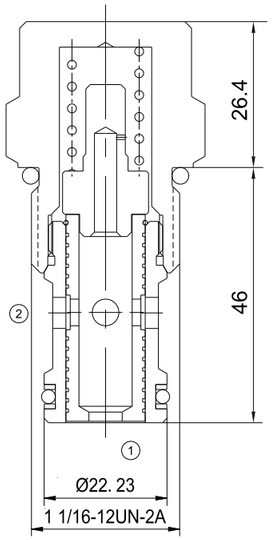
(Setting in gpm) Range:0.1-6.0gpm
Specify,for example;
1.0=1.0gpm
2.0=2.0gpm etc.

Seal Kits:
Buna N = N
Viton = V

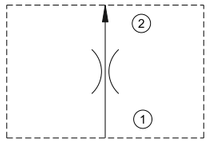
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFR12-20F - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow Setting	4-55L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

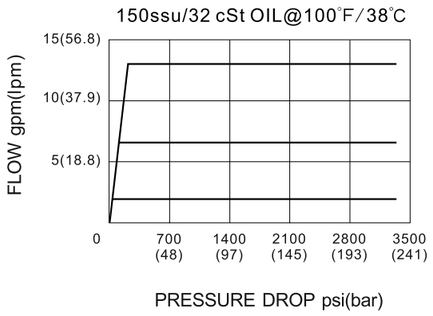
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Modulated response

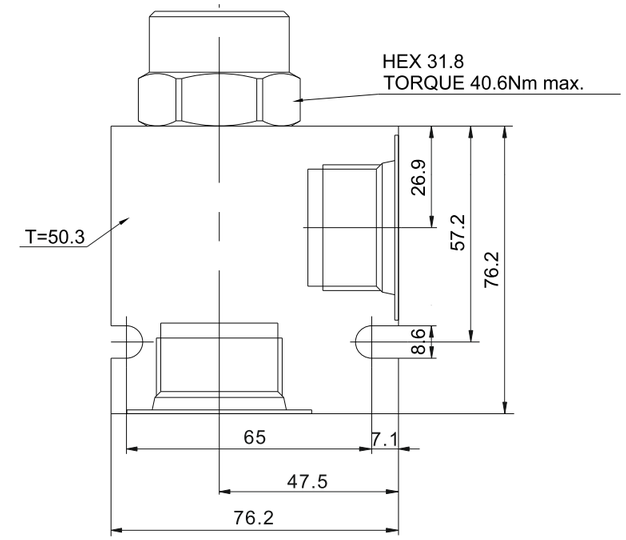
Operation:

The valve maintains a constant flow rate out of ② regardless of load pressure changes in the circuit downstream of ②. The fixed control orifice is factory preset to customer flow specification.The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar, with accurate flow maintenance from 7.6 to 240 bar. Reverse flow(② to ①) returns through the control orifice and is non-compensated.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TFR12-20F				

Flow Setting :
(Setting in L/min)Range:4-55L/min
Specify,for example;
M4.0=4.0L/min
M12.0=12.0L/min

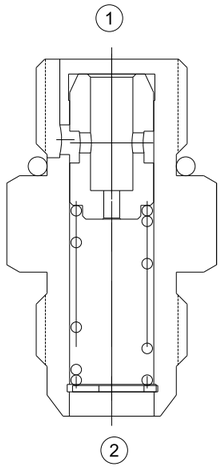
(Setting in gpm) Range:1-14.5gpm
Specify,for example;
5.0=5.0gpm
13.0=13.0gpm etc.

Seal Kits:
Buna N = N
Viton = V

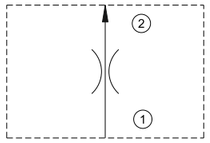
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G1 = 8G
NPT1/2 = 4N
Other porting is available

TBH-6T/8T - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow Setting	4-55L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

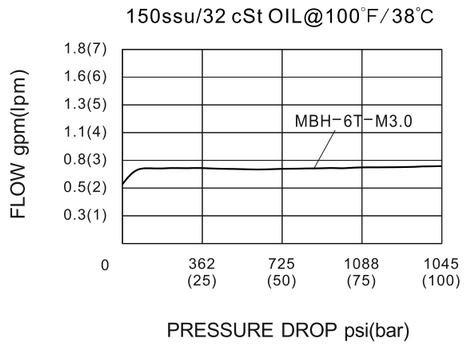
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Modulated response

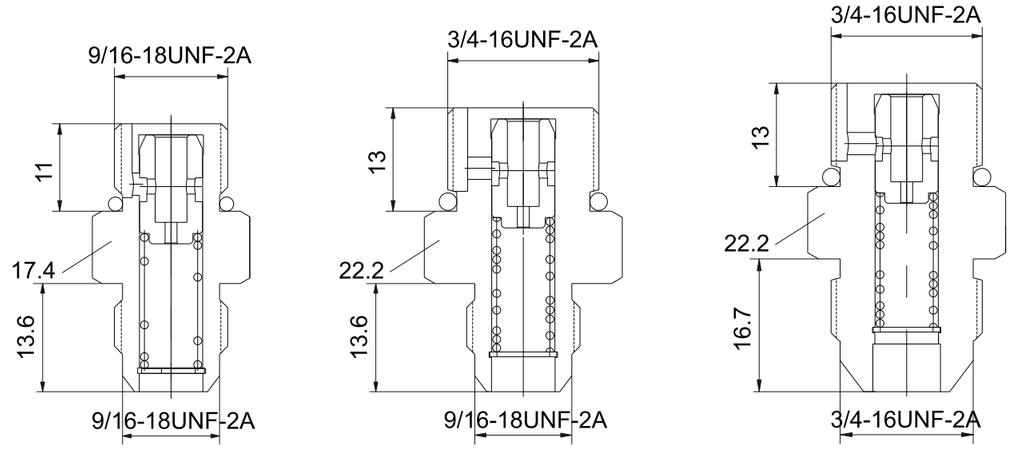
Operation:

The valve maintains a constant flow rate out of ② regardless of load pressure changes in the circuit downstream of ②. The fixed control orifice is factory preset to customer flow specification.The valve begins to respond to load changes when the flow through the valve creates a pressure differential across the control orifice greater than 5.5 bar, with accurate flow maintenance from 7.6 to 240 bar. Reverse flow(② to ①) returns through the control orifice and is non-compensated.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TBH	-M	

Interface:

SAE 6T	= 6T
SAE 6T/SAE 8T	= 6T/8T
SAE 8T	=8T

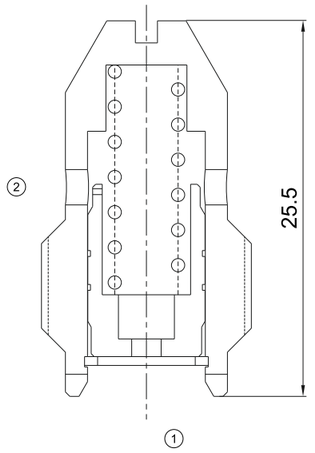
Flow Range:

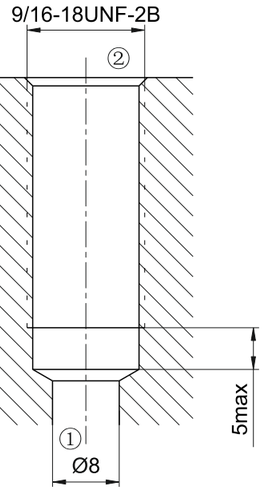
1.0=1L/min	1.5=1.5L/min
2.0=2L/min	2.5=2.5L/min
3.0=3L/min	3.5=3.5L/min
5.0=5L/min	6.0=6L/min
7.5=7.5L/min	11.5=11.5L/min

Seal Kits:

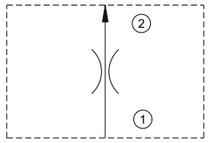
Buna N	= N
Viton	= V

TIFC-6T - Flow Control Valve (Pressure-compensated type)





Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	10L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

TIFC-6T-M*
* = Flow Range
1.0=1L/min 4.0=4L/min 7.0=7L/min 10.0=10L/min
2.0=2L/min 5.0=5L/min 8.0=8L/min 12.0=12L/min
3.0=3L/min 6.0=6L/min 9.0=9L/min

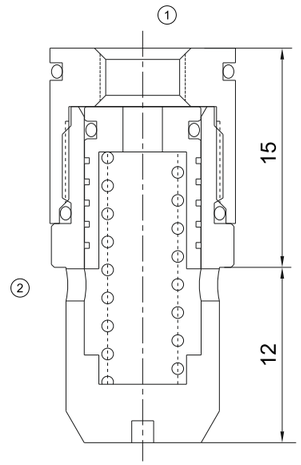
Features:

- Hardened, precision ground parts for durability
- Compact size
- Modulated response

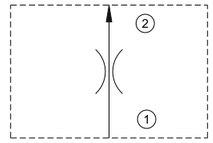
Operation:

The valve maintains a contant flow rate out of ② regardless of load pressure changes in the circuit downstrean of ① ;The fixed control orifice is factory preset to customer flow specification.
Reverse flow ② to ① returns through the control orifice and is non-compensated.

TIFC-04 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	12L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

TIFC-04-M*
* = Flow Range
9.0= 9L/min 12.0=12L/min 15.0=15L/min
10.0=10L/min 13.0=13L/min 16.0=16L/min
11.0=11L/min 14.0=14L/min

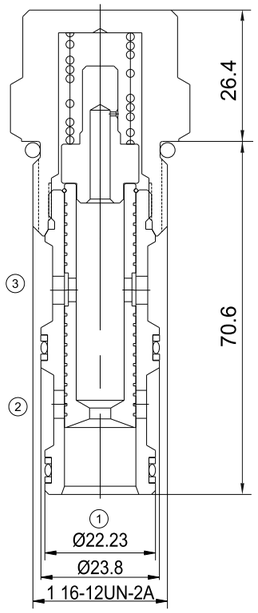
Features:

- Hardened, precision ground parts for durability
- Compact size
- Modulated response

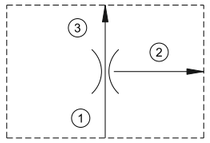
Operation:

The valve maintains a condtant flow rate out of ② regardless of load pressure changes in the circuit downstrean of ① ;The fixed control orifice is factory preset to customer flow specification.
Reverse flow ② to ① returns through the control orifice and is non-compensated.

TFR12-30F - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Max.Input Flow Rate	94.6L/min
Flow Setting	3.8-45.4L/min
Flow Maintenance Accuracy	3.8 to 11.4lpm.settings±15%, 11.4 to 45.4lpm.settings±10%
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-3 see page K-35
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

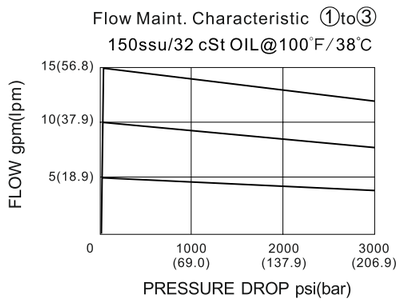
Features:

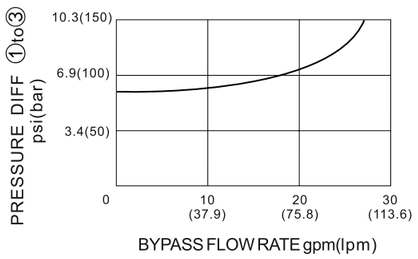
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Quiet, modulated response.

Operation:

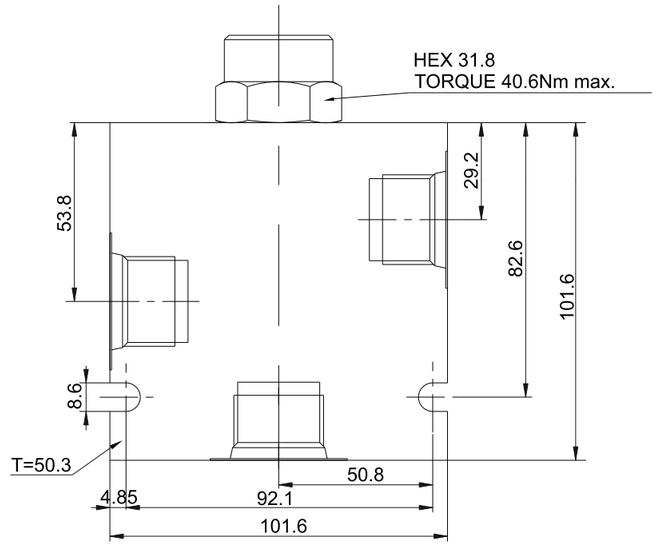
The valve maintains a constant flow rate from regardless of load pressure changes in the system downstream of or in the bypass leg at ③ ②. The valve will pressure compensate once a minimum pressure drop (determined by the fixed spring setting) is achieved from ① to ③ Bypass port ② may be fully pressurized. Flow out of priority port may vary ③ based on input flow amount, particularly with lower temperatures and increased fluid viscosities.

Performance Curve Pressure Drop vs.Flow





Installation Dimensions:



Ordering code details:

TFR12-30F				

Flow Setting :
(Setting in L/min)Range:3.8-45.4L/min Specify,for example;
M4.0=4.0L/min
M8.0=8.0L/min

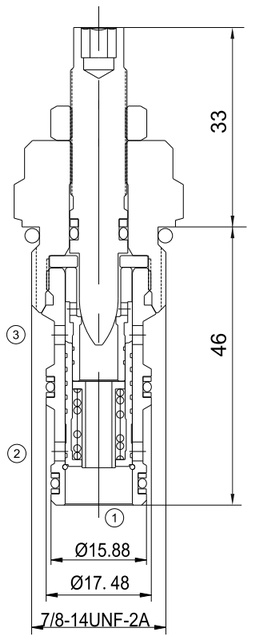
(Setting in gpm) Range:1-12gpm Specify,for example;
1.5=1.5gpm
7.5=7.5gpm etc.

Seal Kits:
Buna N = N
Viton = V

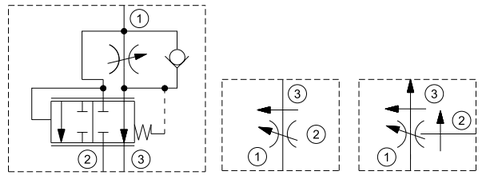
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TFR10-39 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	240BAR
Flow	See PRESSURE DROP VS.FLOW graph.
Flow Rating	Regulated, 2-ported: 0-34L/min Regulated, 3-ported: 0-38L/min
Inlet flow rating	Note: Nominal, 3-ported: 38L/min Note: Maximum, 3-ported: 57L/min
Internal Leakage	33cc/min.max.
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Bypass port 2 may be fully pressurized
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Modulated response

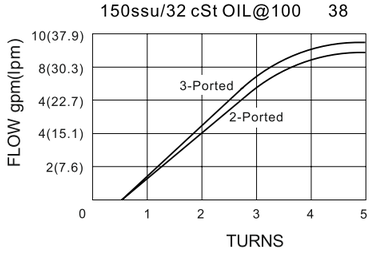
Operation:

The valve provides set regulated flow regardless of pressure variations at regulated or bypass port. Regulated flow increases from closed to fully open with clockwise rotation of the adjusting screw.

Performance Curve Pressure Drop vs.Flow

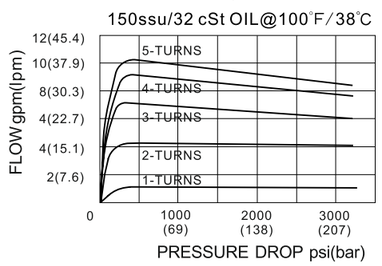
Adjust flow and number of turns
Port ③ 103 bar/1500 psi input pressure
Two oil ports: 123 bar/1800 psi oil inlet pressure
Three oil ports: oil flow 38lpm/10 gpm

150ssu/32 cSt OIL@100 38



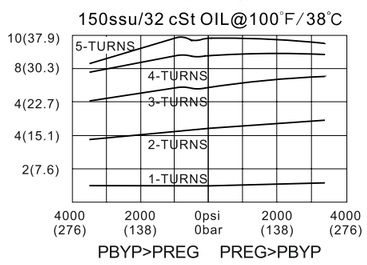
Two oil ports
Regulated Flow vs Pressure at 240 bar/3500 psi Inlet Oil

150ssu/32 cSt OIL@100°F/38°C

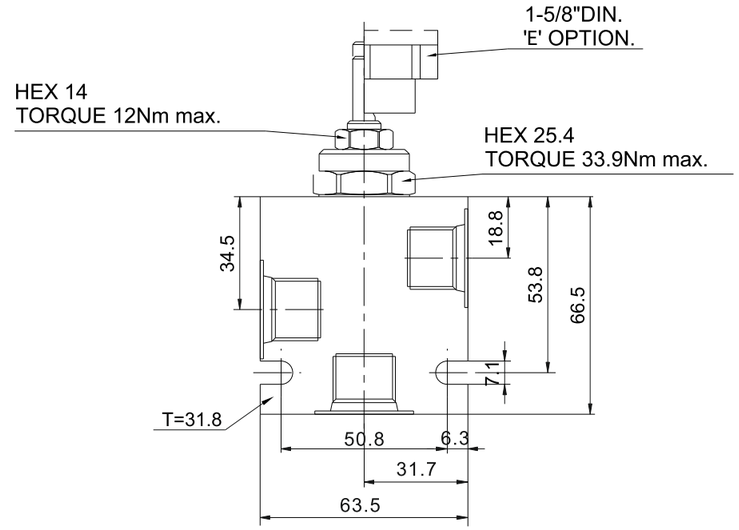


Three ports to adjust flow and load (inlet 38 lpm/10 gpm)

150ssu/32 cSt OIL@100°F/38°C



Installation Dimensions:



Ordering code details:

TFR10-39				

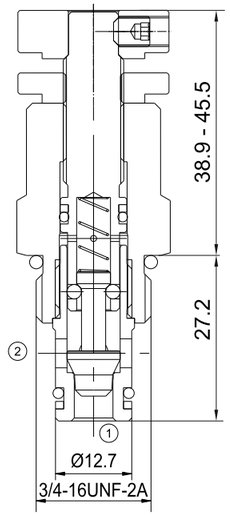
Adjustment:
Screw Adjust = No code
Handwheel Adjust = E

Seal Kits:
Buna N = N
Viton = V

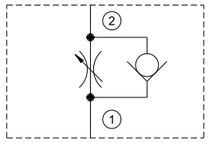
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
G3/4 = 6G
NPT1/2 = 4N
Other porting is available

TFC-08 - Flow Control Orifice Check Valve



Hydraulic Symbol:



Specifications:

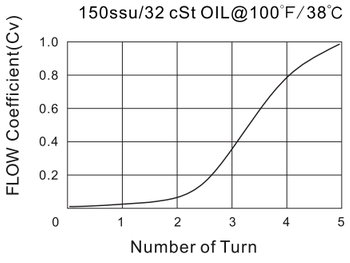
Operating Pressure	250 BAR
Flow	18 L/min
Internal Leakage	0.3drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Positive shut-off

Operation:

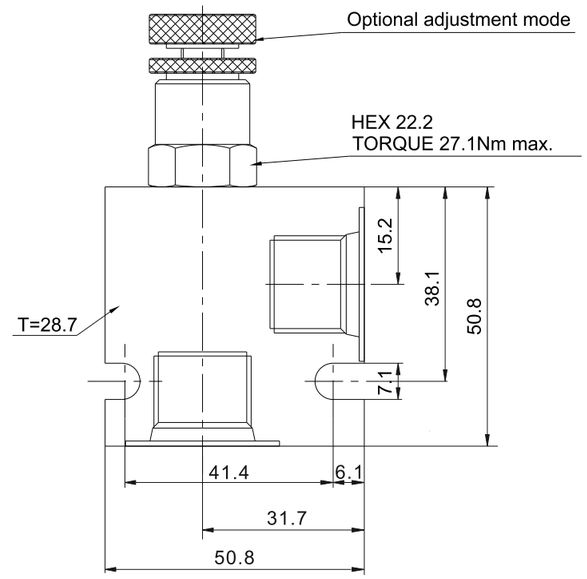
The valve varies flow restriction by adjusting needle in or out.Flow is metered from ② to ① .Free reverse flow is from ① to ② .



$$FlOW(gpm) = \frac{Cv\sqrt{P1\text{-}P2}}{\sqrt{Gf}}$$

Cv=Flow Coefficient
P1=Inlet Pressure(psi)
P2=Oulet Pressure(psi)
Gf=specifuc gravity of medium at opening temperature (°F)

Installation Dimensions:



Ordering code details:

TFC-08				

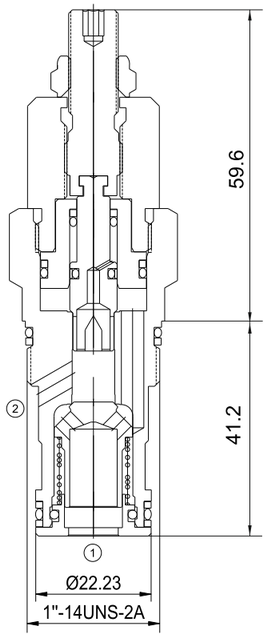
Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

Seal Kits:
Buna N = N
Viton = V

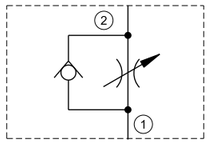
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TNCEB - Fully Adjustable Needle Valve (With reverse flow check)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	45 L/min
Internal Leakage	0.7cc/min.max.
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-5A see page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

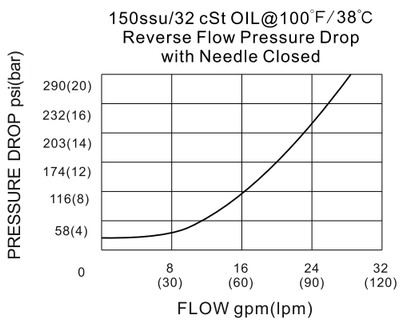
Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5

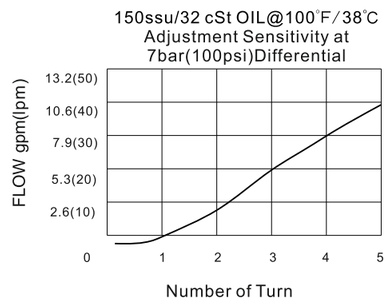
Features:

- Industry common cavity
- A balanced adjustment mechanism allows for easy adjustment even at high pressures.
- The sharp-edged orifice design minimizes flow variations due to viscosity changes.
- Because needle valves are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.

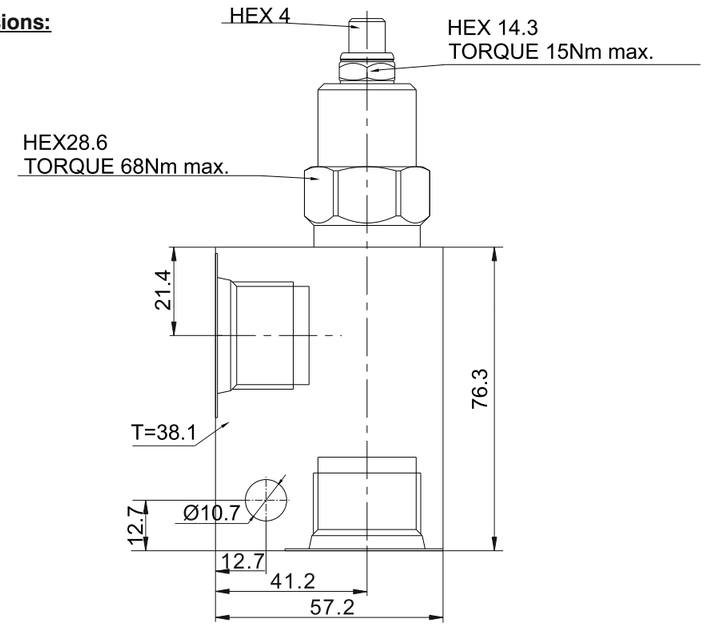
Operation:

Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.





Installation Dimensions:



Ordering code details:

TNCEB | | | | | |

Adjustment:
Screw Adjust = L

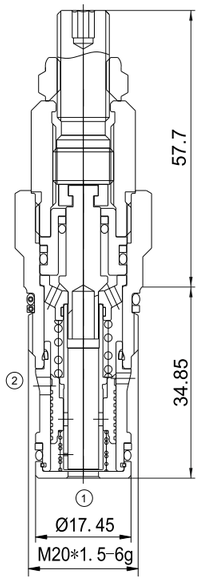
Reverse Flow Check
30psi(2bar) = C
4psi(0.3bar) = A
75psi(5bar) = E

Body Porting:
6T = SAE 6T
12T = SAE 12T
2G = G1/4
2N = NPT1/4
Other porting is available

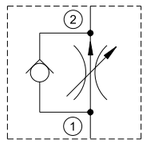
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TFDBA - Fully adjustable pressure compensated flow control valve with reverse flow check



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	23 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Adjustment - No. of CCW Turns from Fully Closed to Fully Open : 5

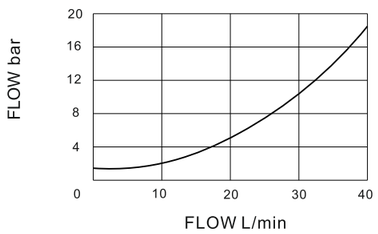
Features:

- All 2-port flow control cartridges are physically and functionally interchangeable (i.e. same flow path, same cavity for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- A balanced adjustment mechanism allows for easy adjustment even at high pressures.
  The sharp-edged orifice design minimizes flow variations due to viscosity changes.
- Minimum leakage is0 .1 gpm (0.4 L/min) when the adjustment mechanism is turned to the shut-off position.

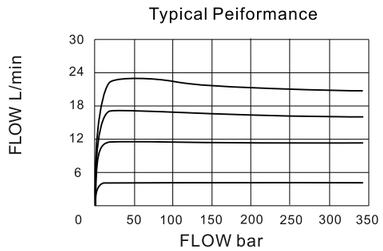
Operation:

Fully adjustable, pressure-compensated flow controls with reverse-flow check provide precise flow regulation for meter-in or meter-out applications where there may be wide pressure fluctuations. They are infinitely adjustable from nearly closed up to the maximum flow. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1.

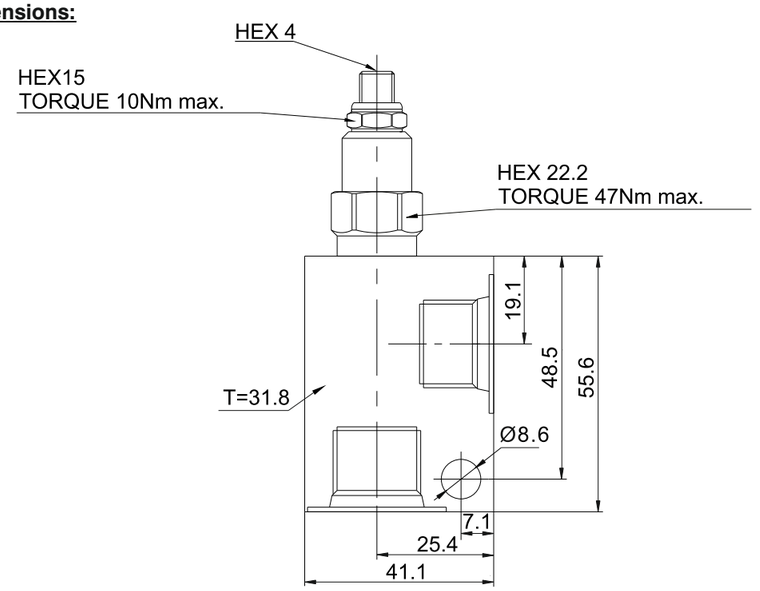
Reverse Free Flow
With Needle Closed



Typical Peiformance



Installation Dimensions:



Ordering code details:

TFDBA | | | | | |

Adjustment:
Screw Adjust = L

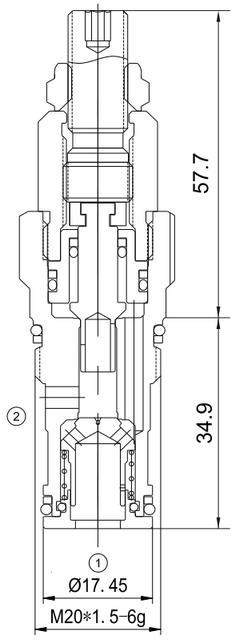
ADJUSTMENT RANGE
0.1-6gpm(0.4-23L/min) = A
0.1-2gpm(0.4-8L/min) = B
0.1-1gpm(0.4-4L/min) = C

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

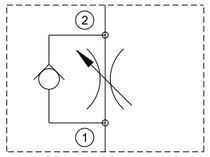
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNCCB - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	28 L/min
Internal Leakage	0.7ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

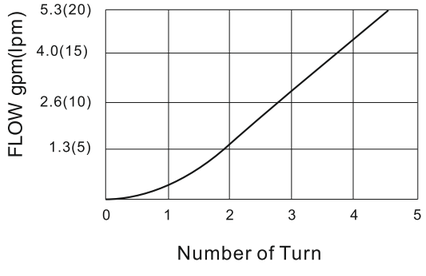
Features:

- Industry common cavity
  Because needle Valve are non-compensating devices, the fixed orifice size will regulate flow through the valve in proportion to the square root of the pressure differential across ports 1 and 2.
- All 2-port flow control cartridges are physically and functionally interchangeable (i.e. same flow path, same cavity for a given frame size). However, cartridge extension dimensions from the mounting surface may vary.
- The sharp-edged orifice design minimizes flow variations due to viscosity changes.

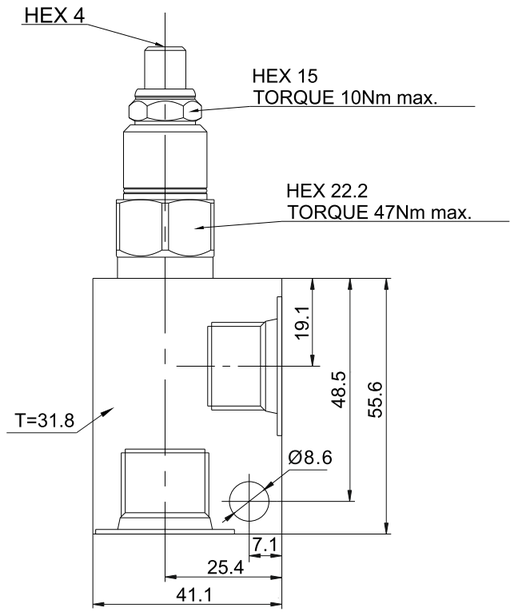
Operation:

Needle valves with reverse-flow check are fully adjustable orifices used to regulate flow. They are infinitely adjustable from fully closed up to the maximum orifice diameter. An integral high-capacity check valve provides unrestricted flow from port 2 to port 1. They are not pressure compensated.

Adjustment Sensitivity
at 7 bar Differential



Installation Dimensions:



Ordering code details:

TNCCB | | | | | |

Adjustment:
Screw Adjust = L

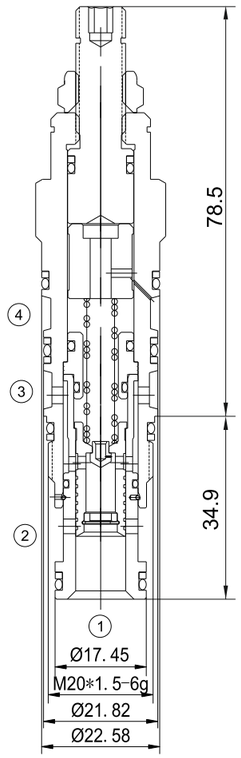
Cracking Pressure
30psi(2.0bar) = C
4psi(0.3bar) = A
75psi(5bar) = E

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

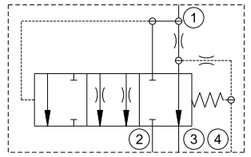
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TFVCA - Cartridge Needle Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	23 L/min
Nominal Vent Flow	0.75L/min.
Maximum Input Flow	0.75L/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-21A see page K-6
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

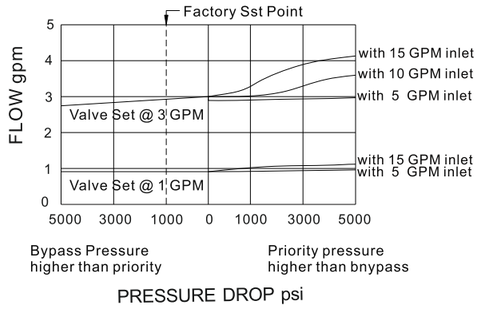
- Using a pressure control on port 4 will limit the pressure at the priority port (port 3). If pressure on the bypass port (port 2) exceeds the setting of the pressure control, priority flow will be shut off and all the flow will go out the bypass port.
- Maximum pressure at port 3 should be limited to 3000 psi (210 bar).
- Bypass flow is not available until priority flow requirements are satisfied, except when the valve is vented. When port 4 (vent) is open,all flow diverts to port 2 if pressure at port 1 (inlet) is 150 psi (10,5 bar) or higher.

Operation:

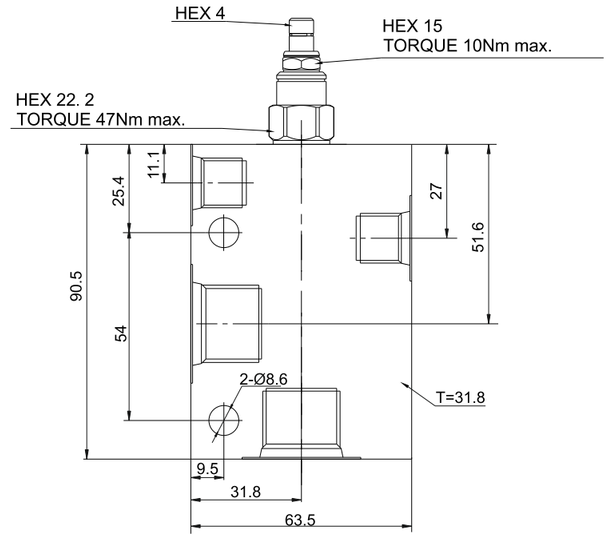
Ventable, bypass/restrictive, fixed-orifice, priority flow controlstake an input flow at port 1 and use it to satisfy the priority flow at port 3. If the input flow exceeds the priority flow requirement, the excess is bypassed out port 2. The bypass flow may be used in a secondary circuit. A vent port (port 4) allows these valves to be controlled remotely.

Performance Curve Pressure Drop vs.Flow

Typical Performance



Installation Dimensions:



Ordering code details:

TFVCA | | | | | |

Adjustment:
Screw Adjust = L

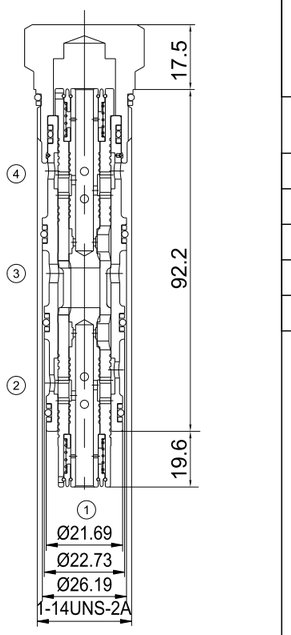
Setting Range:
Interchangeable orifice 1-6gpm (0,4-23L/min) = A
Permanent orifice 1-6gpm (0,4-23L/min) = B

Body Porting:
6T = SAE 6T
10T = SAE 10T
3G = G3/8
3N = NPT3/8
Other porting is available

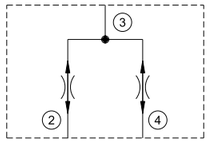
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TFSDA - Flow Dividers/Combiners



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	12-60 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-32A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- In combining mode, compensating characteristics will cause the the circuit with the lowest load to receive the higher percentage of flow. If a synchronization feature is not included, an additive accuracy error will be experienced with each full stroke of the actuator.
- In motor circuits, rigid frames or mechanisms that tie motors together, and/or complete mechanical synchronized motion of the output shaft of the motors, either by wheels to the pavement or sprockets to conveyors, will contribute to cavitation, lock-up and/or pressure intensification.

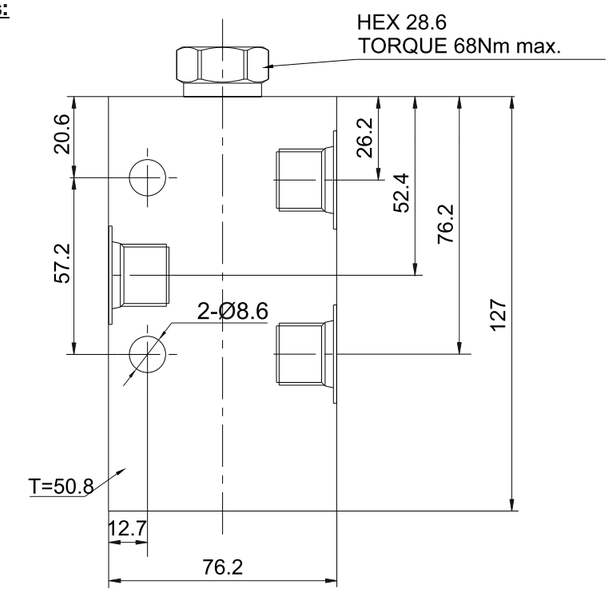
Operation:

Closed-center flow divider/combiners are sliding-spool, pressure compensated devices used to split flow in one direction and combine flow in the opposite direction. These valves may be used to accurately control two or more cylinders or hydraulic motors where bidirectional operation is required.

Performance

Split	50:50	
Input Flow	Max Rated	Min Rated
	15 gpm (60 lpm)	3 gpm (12 lpm)
Input Flow	±2. 5%	±4. 5%
Maximum possuble Flow Variation	7. 1–7. 9gpm (28.5-31.5lpm)	1.36-1.64gpm (5.5-6.5lpm)

Installation Dimensions:



Ordering code details:

TFSDA | | | | | |

Adjustment:
Non-adjustable = L

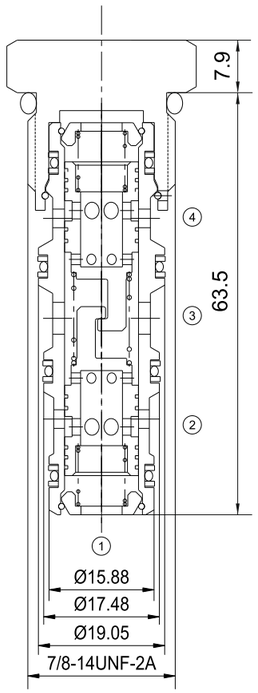
Flow Split:
50:50 = A

Body Porting:
8T = SAE 8T
12T = SAE 12T
3G = G3/8
3N = NPT3/8
Other porting is available

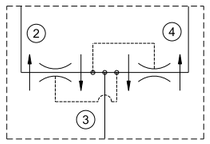
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TFD50-45 - Flow Dividers/Combiners



Hydraulic Symbol:



Specifications:

Operating Pressure	345 BAR
Flow Accuracy	10% from 25 -100% of maximum rated flow
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

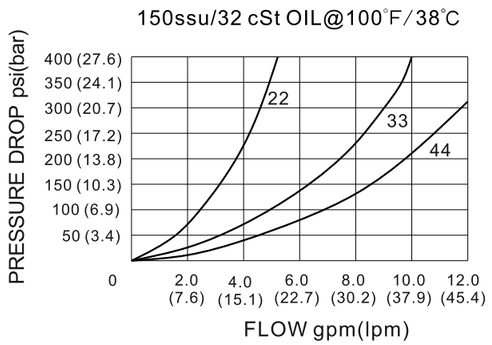
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Quiet, modulated response
- Wide operating flow range
- Synchronizing in dividing and combining modes

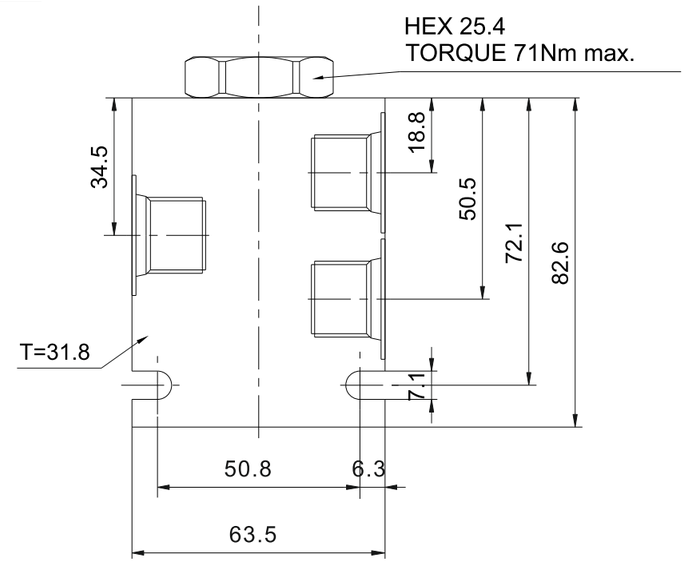
Operation:

In the dividing mode, the valve will divert input flow from port ③ to port ② and ④ ,based on the ratio specified, regardless of operating pressure.The valve will combine input flow from ② and ④.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TFD50 -45				

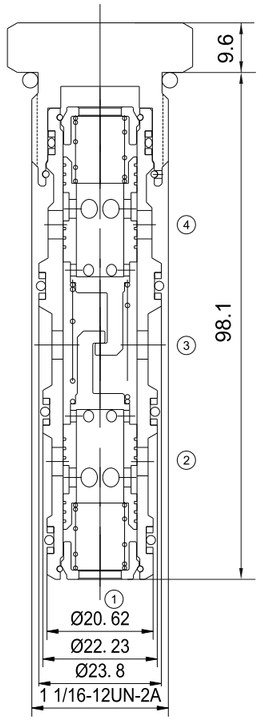
Flow Options
Input Flow:15.1Lpm (4gpm) Ratio :50:50 = 22
Input Flow:22.7Lpm (6gpm) Ratio :50:50 = 33
Input Flow:34.1Lpm (9gpm) Ratio :50:50 = 44
Input Flow:45.4Lpm (12gpm) Ratio :50:50 = 66

Seal Kits:
Buna N = N
Viton = V

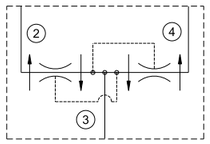
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TFD52-45 - Flow Dividers/Combiners



Hydraulic Symbol:



Specifications:

Operating Pressure	345 BAR
Flow Accuracy	10% from 25 -100% of maximum rated flow
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-4 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

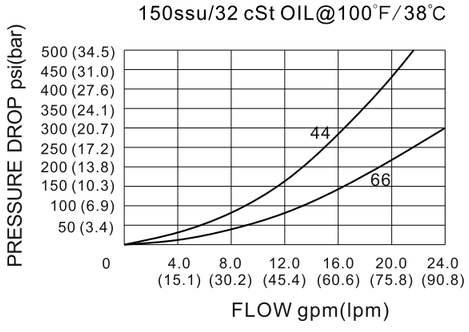
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Quiet, modulated response
- Wide operating flow range
- Synchronizing in dividing and combining modes

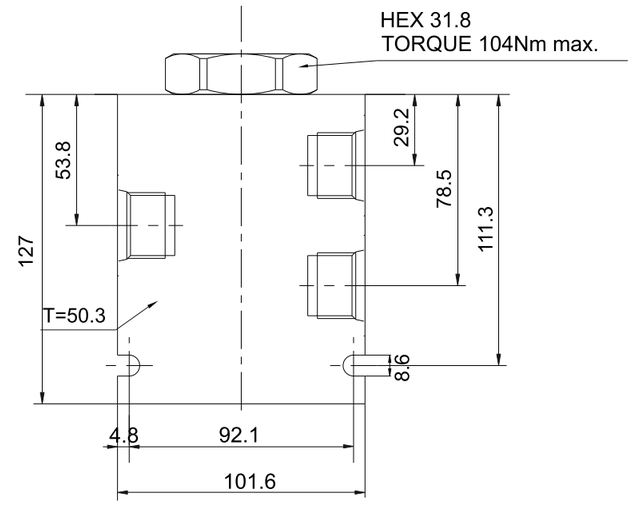
Operation:

In the dividing mode, the valve will divert input flow from port ③ to port ② and ④ ,based on the ratio specified, regardless of operating pressure.The valve will combine input flow from ② and ④.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TFD52 -45				

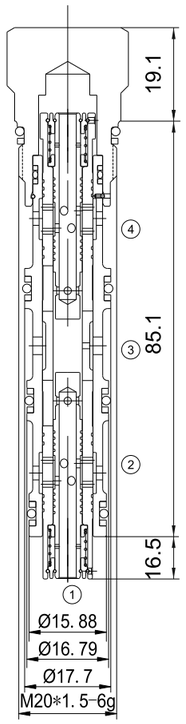
Flow Options
Input Flow:60.6Lpm (16gpm) Ratio :50:50 = 44
Input Flow:90.8Lpm (24gpm) Ratio :50:50 = 66

Seal Kits:
Buna N = N
Viton = V

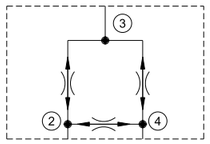
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
G1/2 = 4G
NPT1/2 = 4N
Other porting is available

TFSCS - Synchronizing Flow Divider-Combiner valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	6-30 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-31A see page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- All flow divider and divider/combiner cartridges are physically interchangeable (i.e. same flow path, same cavity for a given frame size).
- In motor circuits, rigid frames or mechanisms that tie motors together, and/or complete mechanical synchronized motion of the output shaft of the motors, either by wheels to the pavement or sprockets to conveyors, will contribute to cavitation, lock-up and/or pressure intensification.
- In combining mode, compensating characteristics will cause the leg of the circuit with the lowest load to receive the higher percentage of flow. If a synchronization feature is not included, an additive accuracy error will be experienced with each full stroke of the actuator.

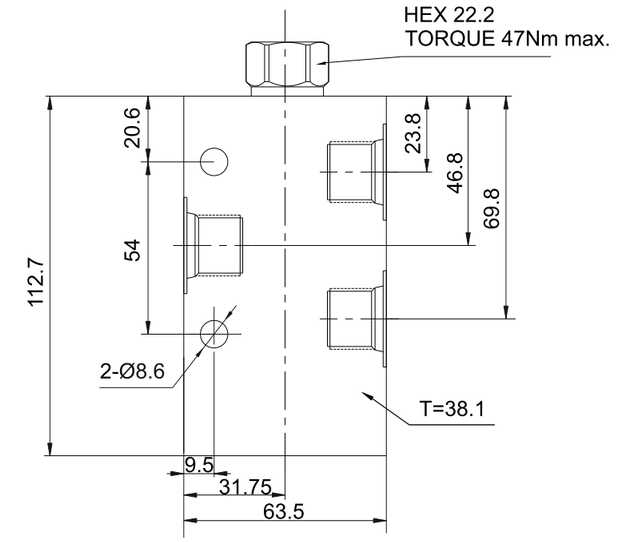
Operation:

Synchronizing flow divider/combiners are sliding-spool, pressure-compensated devices used to split flow in one direction and combine flow in the opposite direction. With a sychronizing feature, these valves can be used to allow two hydraulic cylinders to fully stroke and synchronize at the end of the stroke. When the first cylinder has reached the end of its stroke, a pressure-compensated, reduced flow is metered to or from the second cylinder until it also reaches the end of its stroke.

Performance

Split	50:50		
Input Flow	Max Rated	Min Rated	Synchronizing Flow
	8 gpm (30 lpm)	1.5 gpm (6 lpm)	
Input Flow	±2. 5%	±4. 5%	
Maximum possuble Flow Variation	3.8-4.2gpm (14.3-15.8lpm)	0.25-0.65gpm (2.73-3.27lpm)	0.25-0.65gpm (0.94-2.46lpm)

Installation Dimensions:



Ordering code details:

TFSCS | | | | | | |

Adjustment:
Non-adjustable = L

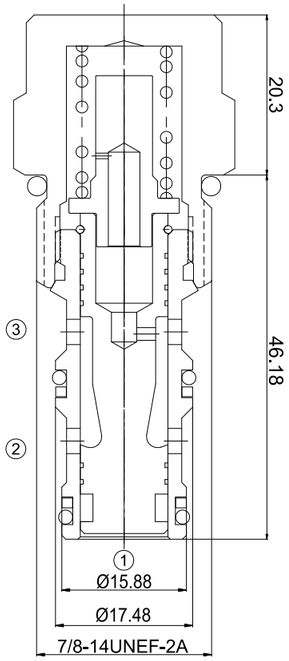
Flow Split:
50:50 = A

Body Porting:
6T = SAE 6T
10T = SAE 10T
2G = G1/4
2N = NPT1/4
Other porting is available

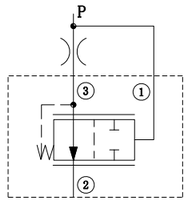
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TEC10-30 - Flow Control Valve (Pressure-compensated type)



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR MAX
Flow	30.3 L/min MAX
Standard Compensator Reset Spring	5.5 Bar
Accuracy of flow maintenance range	When the pressure is 5.5-207bar (80-3000psi)0.38-38L/min±10%
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

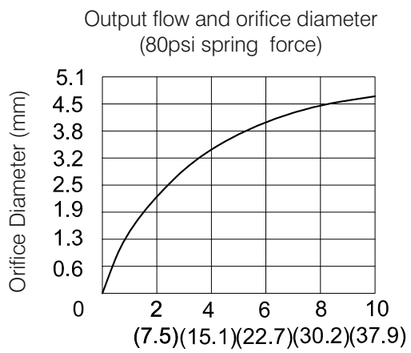
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- modulated response

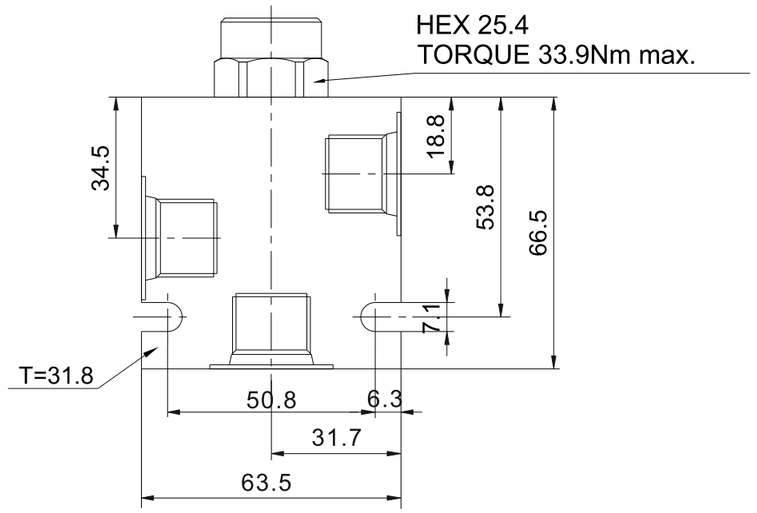
Operation:

Nozzle 2 maintains a fixed flow rate and is not affected by the change of load pressure in the downstream loop of nozzle 2.
The valve maintains a constant pressure difference from, loop point P to oil port 3(reference function symbol) to regulate hydraulic flow between these two points in the loop.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TEC10-30				

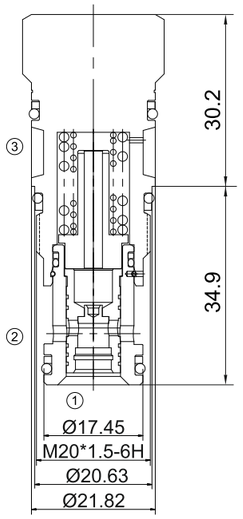
Pressure Range
40psi(2.8bar) = 40
80psi(5.5bar) standard = 80
160psi(11bar) = 160

Seal Kits:
Buna N = N
Viton = V

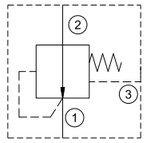
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
G3/4 = 6G
NPT1/2 = 4N
Other porting is available

TLPDC - Normally Open, Modulating Element



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	60 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

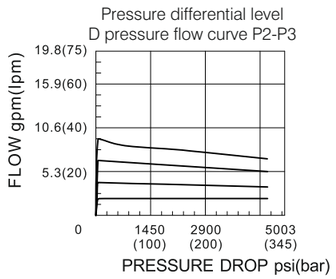
- All ports will accept 5000 psi (350 bar).
- Cartridges configured with EPDM seals are for use in systems with phosphate ester fluids. Exposure to petroleum based fluids,greases and lubricants will damage the seals.

Operation:

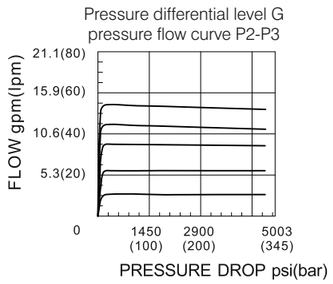
Normally open modulating elements without an internal orifice act as a restrictive compensator to maintain a constant pressure drop across an orifice, regardless of variations in upstream or downstream pressure.

Performance Curve Pressure Drop vs.Flow

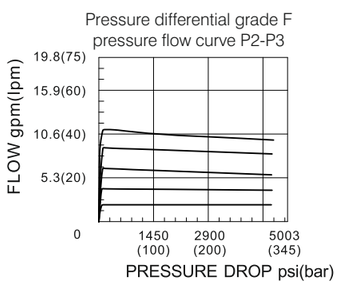
Pressure differential level D pressure flow curve P2-P3



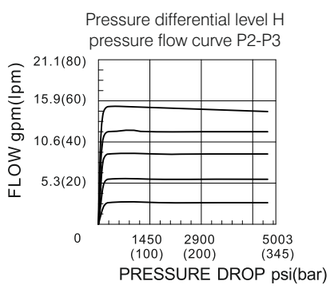
Pressure differential level G pressure flow curve P2-P3



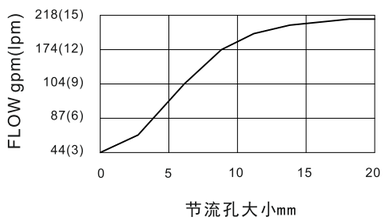
Pressure differential grade F pressure flow curve P2-P3



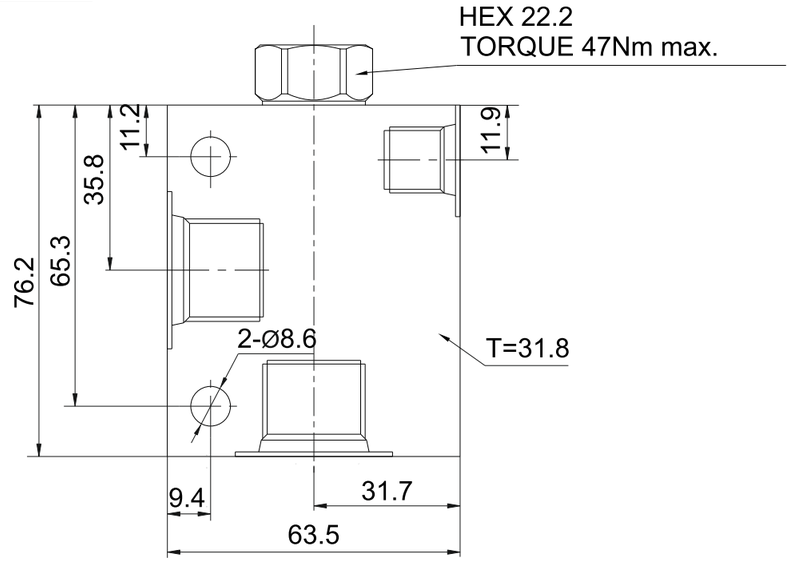
Pressure differential level H pressure flow curve P2-P3



Capacity as a Restrictive Compensator



Installation Dimensions:



Ordering code details:

TLPDC | | | | | |

Adjustment:
Non-adjustable = L

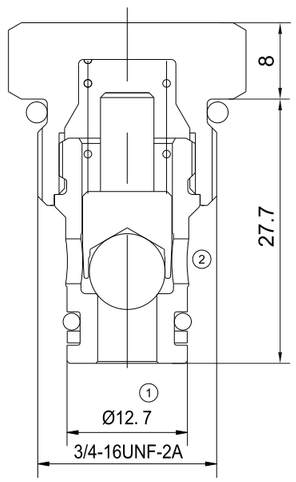
Cracking Pressure
200psi(14bar) = H
50psi(3.5bar) = D
100psi(7bar) = F
150psi(10.5bar) = G

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

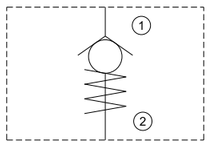
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TCV2 -08-B (Check Valve)



Hydraulic Symbol:



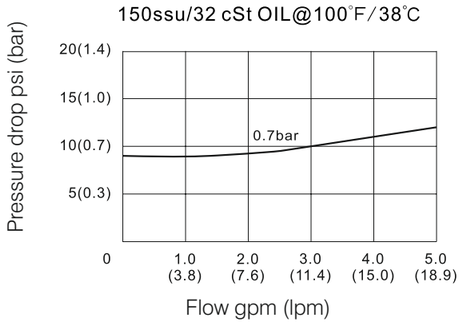
Specifications:

Operating Pressure	350 Bar
Flow	19 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

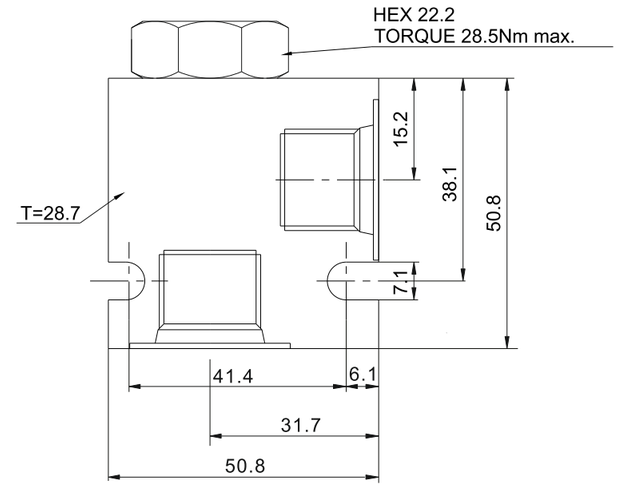
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction,from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV2-08-B				

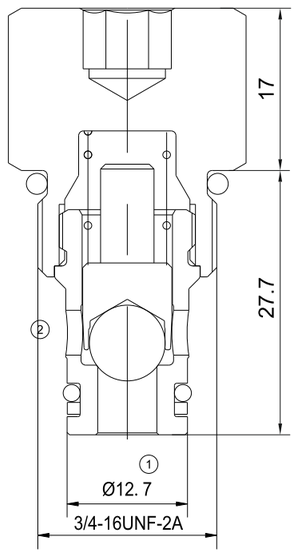
Cracking Pressure
4psi(0.3bar) = 0.3
10psi(0.7bar) = 0.7
30psi(2.1bar) = 2.1
100psi(6.9bar) = 6.9

Seal Kits:
Buna N = N
Viton = V

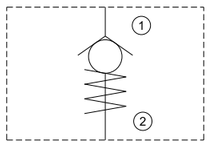
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV-08-B-HIEX (Check Valve)



Hydraulic Symbol:



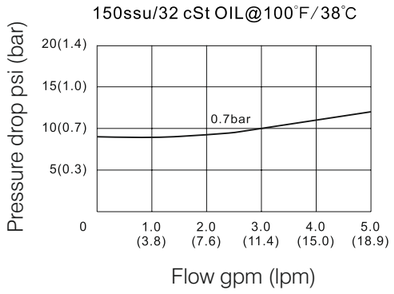
Specifications:

Operating Pressure	350 Bar
Flow	19 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

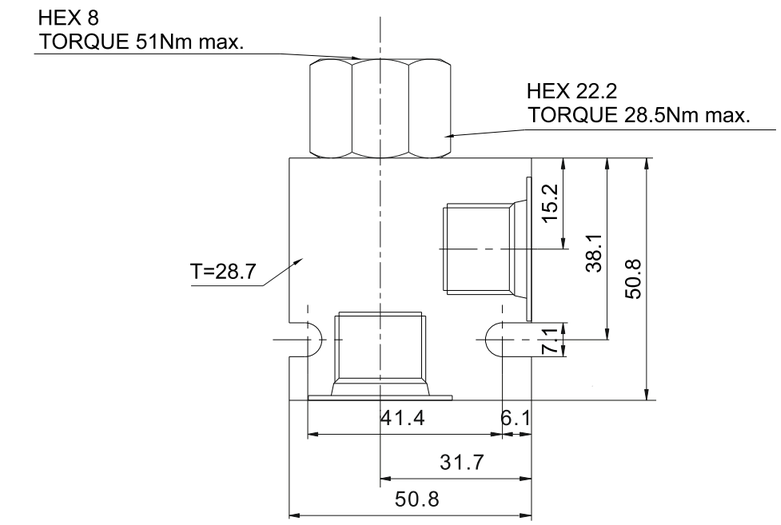
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction,from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV-08-B-HIEX [ ] [ ] [ ] [ ]

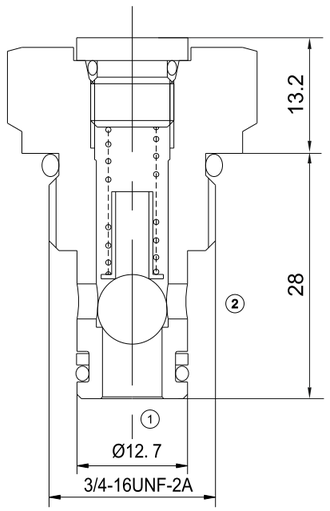
Cracking Pressure
4psi(0.3bar) = 0.3
10psi(0.7bar) = 0.7
30psi(2.1bar) = 2.1
100psi(6.9bar) = 6.9

Seal Kits:
Buna N = N
Viton = V

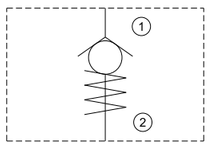
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCVFB-08 (Check Valve)



Hydraulic Symbol:



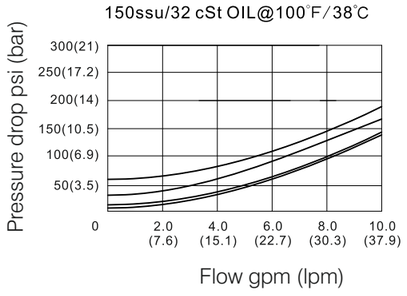
Specifications:

Operating Pressure	350 Bar
Flow	38L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

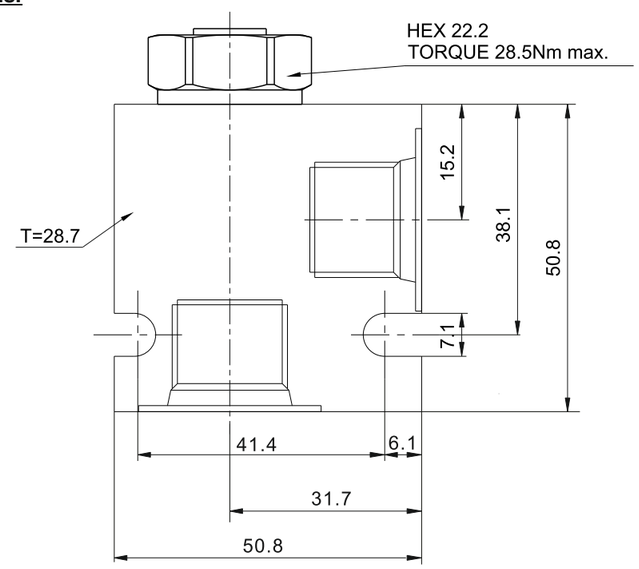
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCVFB-08				

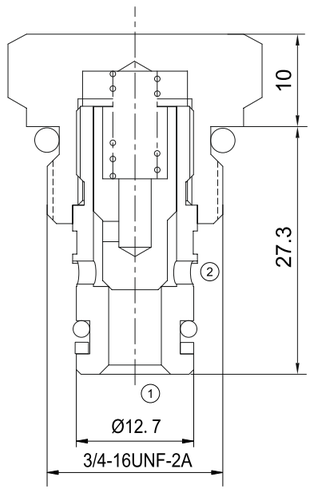
Cracking Pressure
5psi(0.34bar) = 0.34
10psi(0.7bar) = 0.7
25psi(1.7bar) = 1.7
50psi(3.4bar) = 3.4

Seal Kits:
Buna N = N
Viton = V

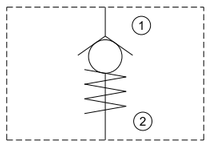
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV-08-P (Check Valve)



Hydraulic Symbol:



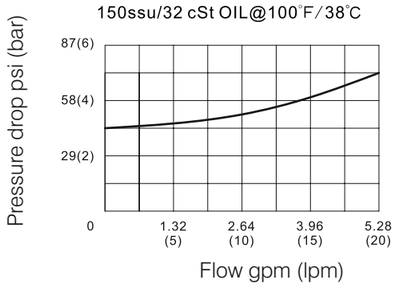
Specifications:

Operating Pressure	350 Bar
Flow	20L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

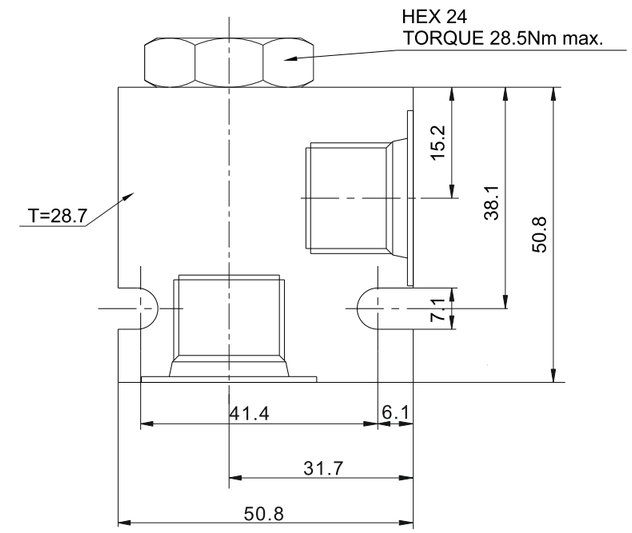
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV-08-P				

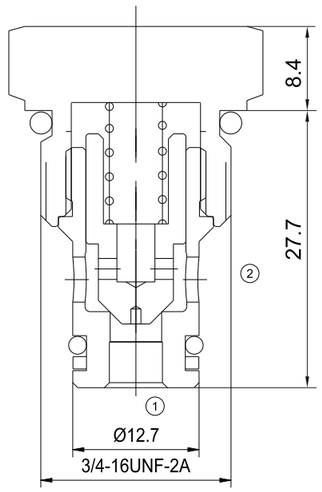
Cracking Pressure
4psi(0.3bar) = 0.3
10psi(0.7bar) = 0.7
30psi(2.1bar) = 2.1
44psi(3.0bar) = 3.0
60psi(4.1bar) = 4.1
100psi(6.9bar) = 6.9

Seal Kits:
Buna N = N
Viton = V

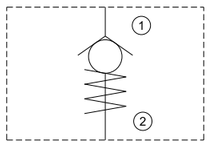
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV2-08-P (Check Valve)



Hydraulic Symbol:



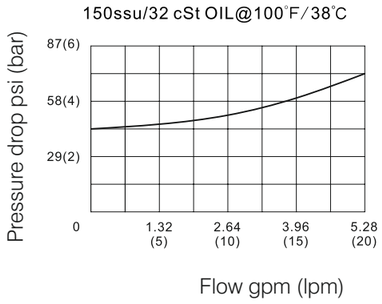
Specifications:

Operating Pressure	350 Bar
Flow	20L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

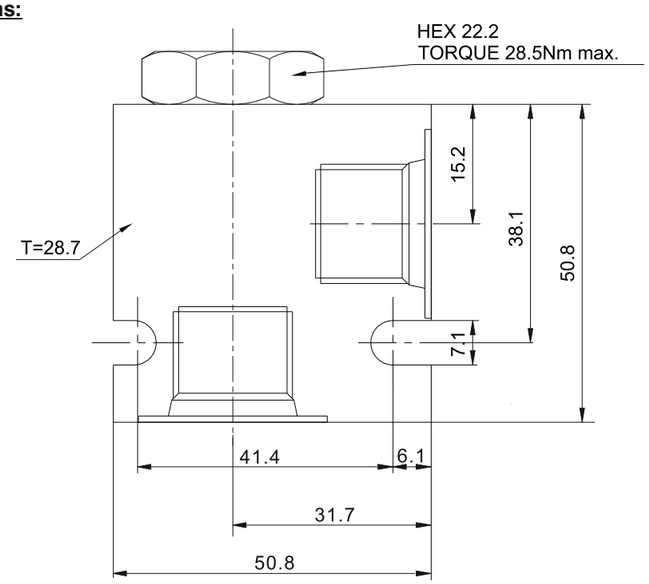
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV2-08-P | | | | |

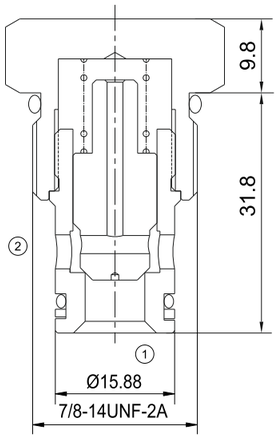
Cracking Pressure
14psi(1bar) = 1

Seal Kits:
Buna N = N
Viton = V

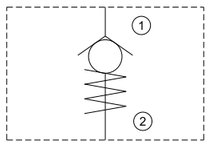
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV-10-P (Check Valve)



Hydraulic Symbol:



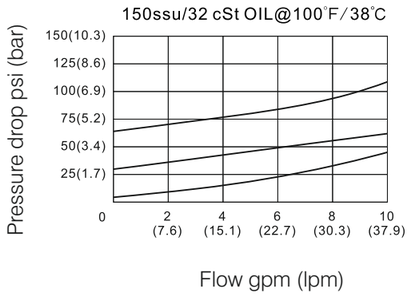
Specifications:

Operating Pressure	350 Bar
Flow	38L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

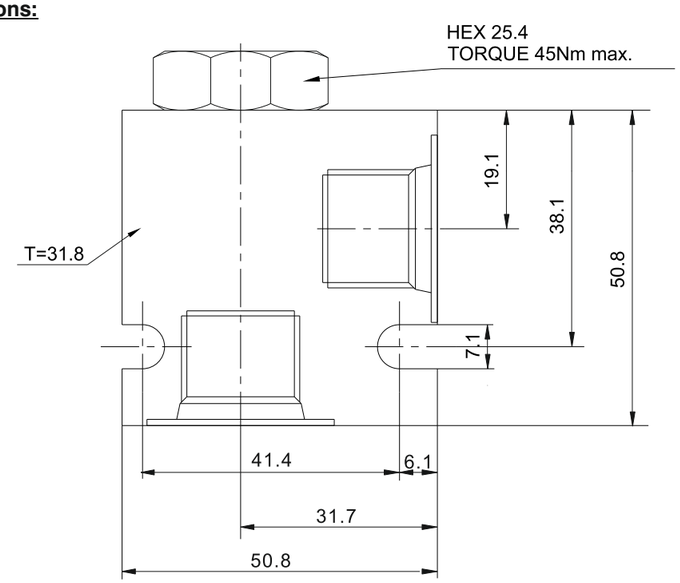
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

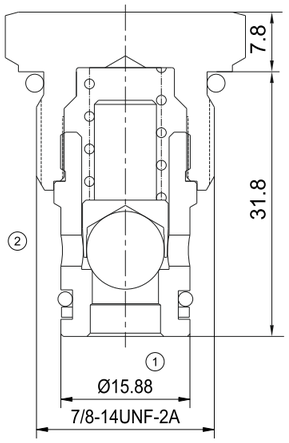
Installation Dimensions:



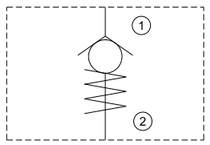
Ordering code details:

TCV-10-P				
Cracking Pressure 4psi(0.3bar) = 0.3 10psi(0.7bar) = 0.7 30psi(2.1bar) = 2.1 65psi(4.5bar) = 4.5 100psi(6.9bar) = 6.9				
	Seal Kits: Buna N = N Viton = V			
		Body Material: 6061-T6 aluminum alloy rated at 207 Bar = A steel rated at 350 Bar = S		
			Body Porting: SAE 4T = 4T SAE 8T = 8T G3/8 = 3G NPT3/8 = 3N Other porting is available	

TCV-10-20 (Check Valve)



Hydraulic Symbol:



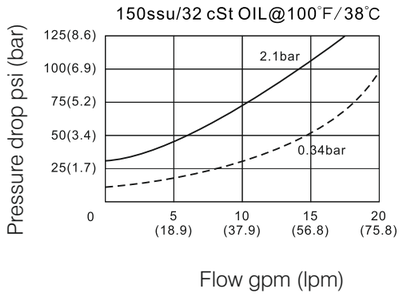
Specifications:

Operating Pressure	240BAR
Flow	76L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

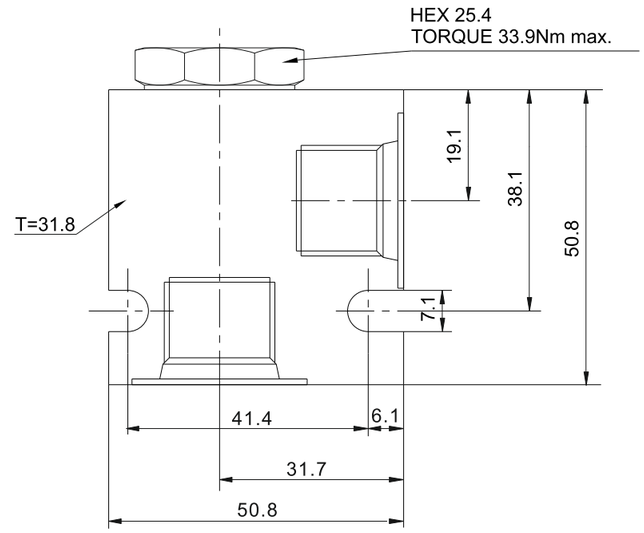
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV-10-20				

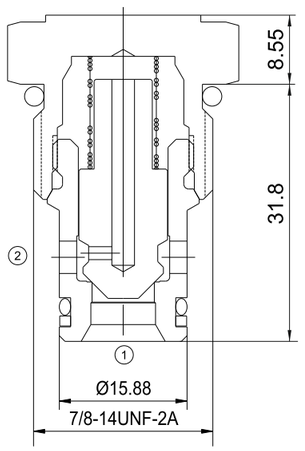
Cracking Pressure
5psi(0.34bar) = 5
15psi(1.0bar) = 15
30psi(2.1bar) = 30
40psi(2.8bar) = 40
70psi(4.8bar) = 100
100psi(6.9bar) = 100
200psi(13.6bar) = 200

Seal Kits:
Buna N = N
Viton = V

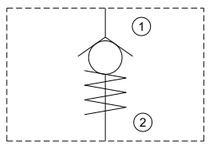
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV50-20 (Check Valve)



Hydraulic Symbol:



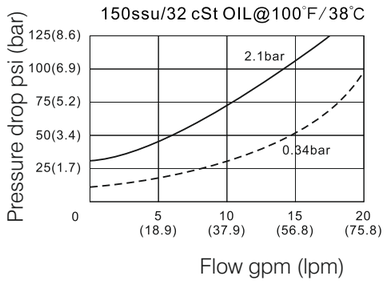
Specifications:

Operating Pressure	345 Bar
Flow	76L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

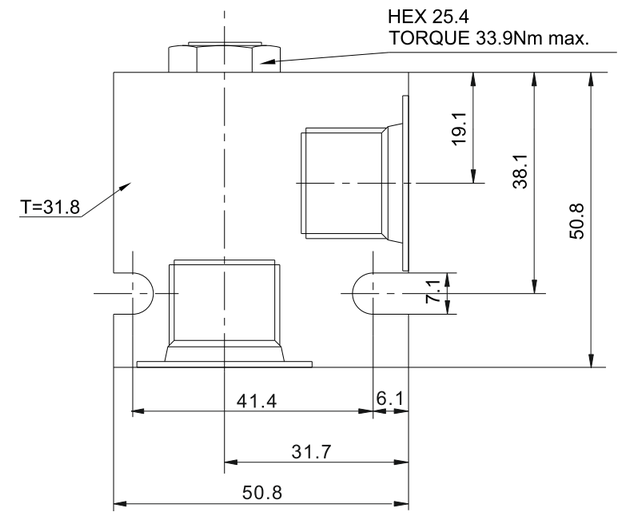
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV50-20				

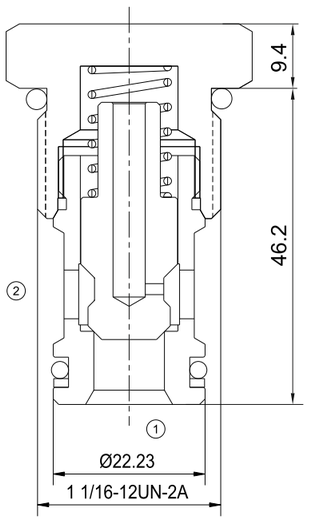
Cracking Pressure
5psi(0.34bar) = 5
15psi(1.0bar) = 15
30psi(2.1bar) = 30
70psi(4.8bar) = 70
100psi(6.9bar) = 100

Seal Kits:
Buna N = N
Viton = V

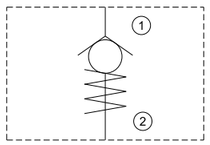
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV12-20 (Check Valve)



Hydraulic Symbol:



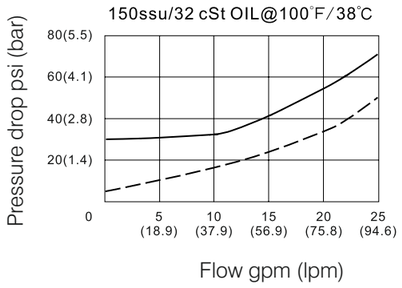
Specifications:

Operating Pressure	240 Bar
Flow	95L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

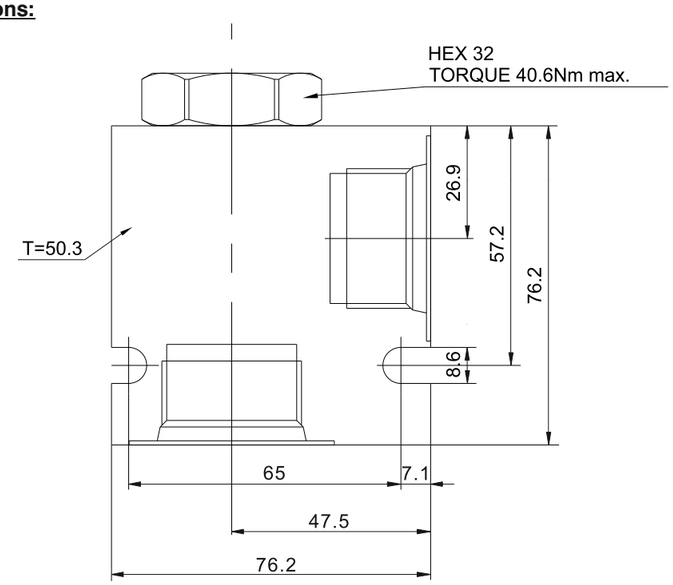
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV12-20				

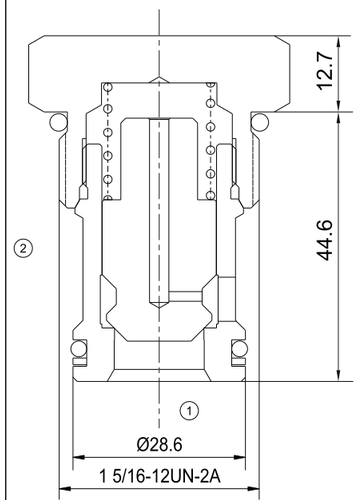
Cracking Pressure
5psi(0.34bar) = 05
25psi(1.7bar) = 25
30psi(2.1bar) = 30
40psi(2.8bar) = 40
50psi(3.4bar) = 50
60psi(4.1bar) = 60
80psi(5.5bar) = 80

Seal Kits:
Buna N = N
Viton = V

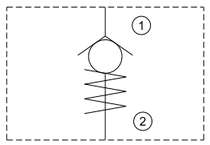
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G1 = 8G
NPT 1/2 = 4N
Other porting is available

TCV16-20 (Check Valve)



Hydraulic Symbol:



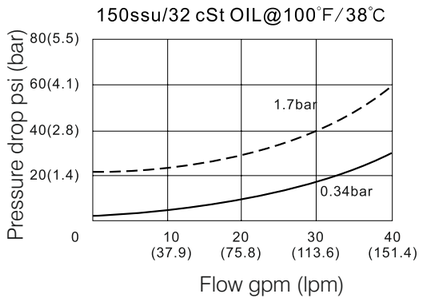
Specifications:

Operating Pressure	240 Bar
Flow	151L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

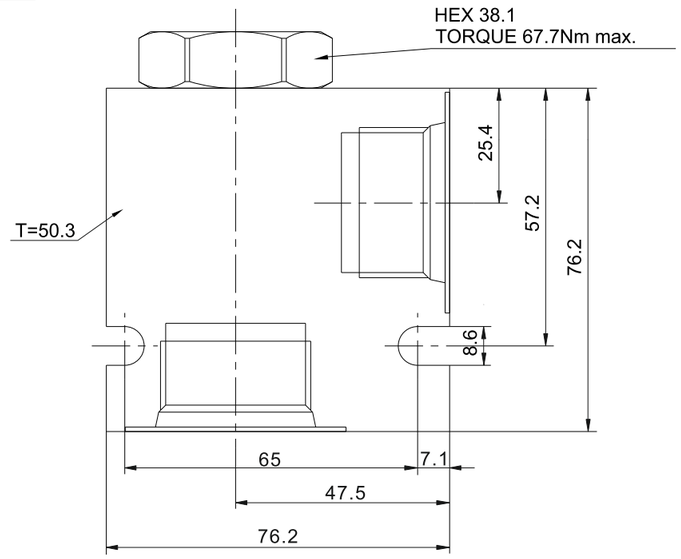
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV16-20				

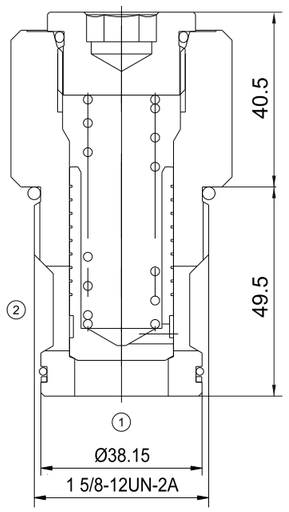
Cracking Pressure
5psi(0.34bar) = 0.34
25psi(1.7bar) = 1.7
60psi(4.1bar) = 4.1

Seal Kits:
Buna N = N
Viton = V

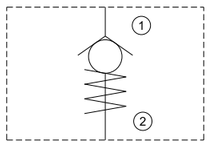
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G3/4 = 6G
G1 = 8G
Other porting is available

TCV-20-P (Check Valve)



Hydraulic Symbol:



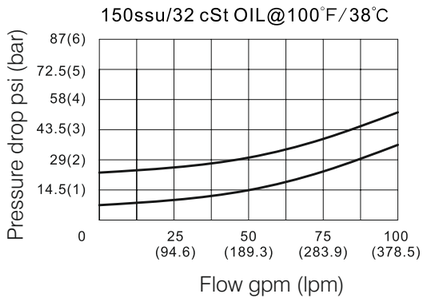
Specifications:

Operating Pressure	240 Bar
Flow	380L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	20-2S see page K-16
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

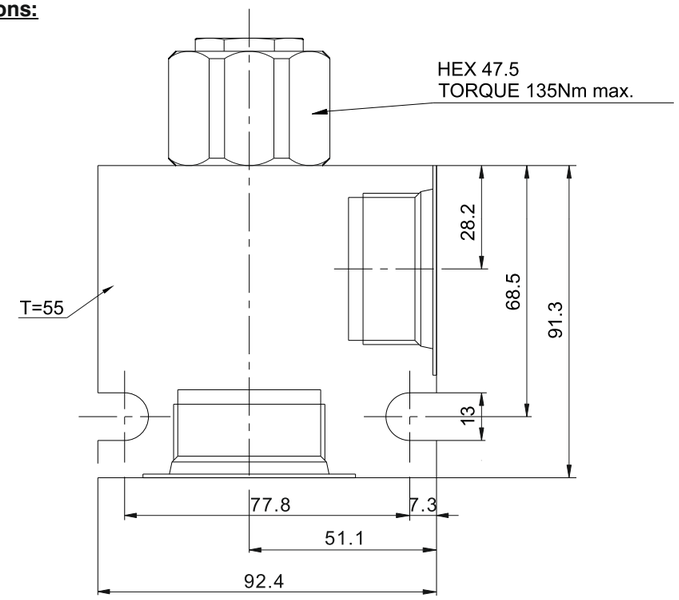
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TCV-20-P				

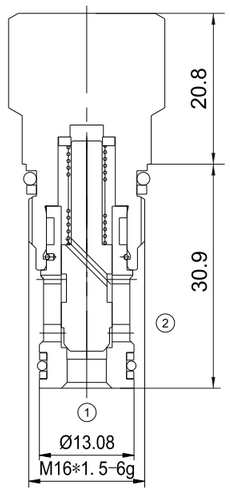
Cracking Pressure
7psi(0.5bar) = 0.5
15psi(1.0bar) = 1.0
23psi(1.6bar) = 1.6
30psi(2.0bar) = 2.0

Seal Kits:
Buna N = N
Viton = V

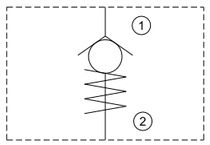
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 16T = 16T
SAE 20T = 20
Other porting is available

TCXBA (Check Valve)



Hydraulic Symbol:



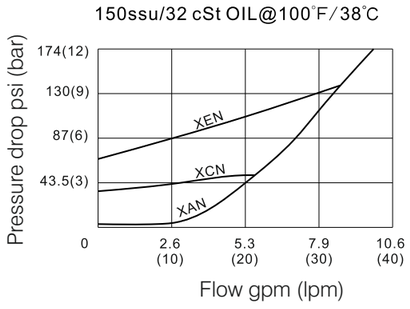
Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Internal Leakage	1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Check valves offer extremely low leakage rates with a maximum leakage of less than 1 drop per minute (0,07 cc/min).
- Will accept 5000 psi (350 bar) at ports 1 and 2

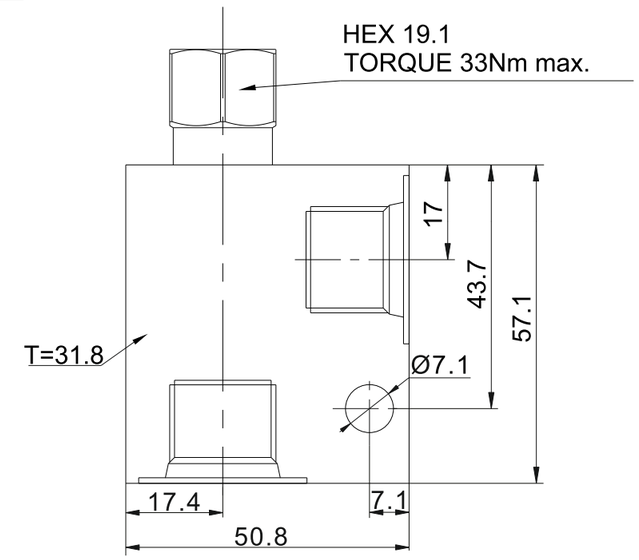
Performance Curve
Pressure Drop vs Flow



Operation:

Free-flow, nose-to-side check Valve are on/off circuit components that allow free flow from the inlet (port 1) to the outlet (port 2) and block flow in the opposite direction.

Installation Dimensions:



Ordering code details:

TCXBA					

Adjustment:
Non adjustable = X

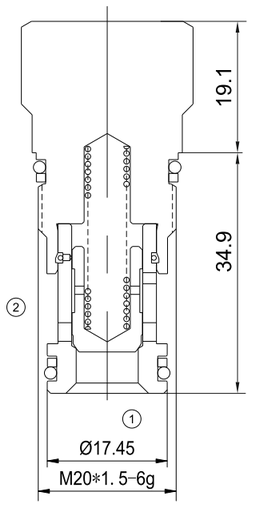
Cracking Pressure
4psi(0.3bar) = A
15psi(1.0bar) = B
30psi(2.0bar) = C
50psi(3.5bar) = D
75psi(5.0bar) = E
100psi(7.0bar) = F
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

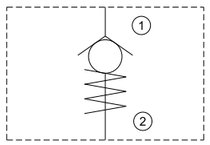
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

TCXDA (Check Valve)



Hydraulic Symbol:



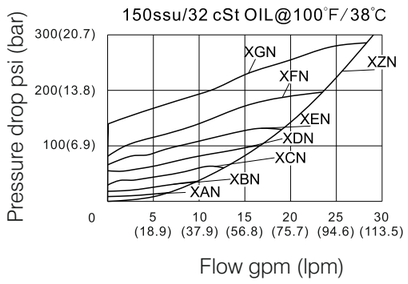
Specifications:

Operating Pressure	350 Bar
Flow	80L/min
Internal Leakage	1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Check valves offer extremely low leakage rates with a maximum leakage of less than 1 drop per minute (0,07 cc/min).
- Will accept 5000 psi (350 bar) at ports 1 and 2

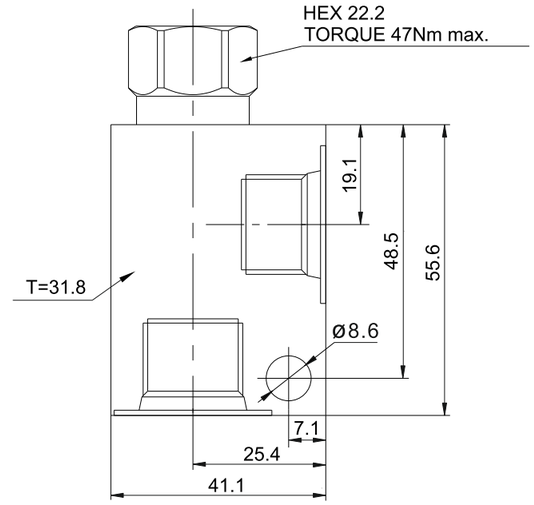
Performance Curve
Pressure Drop vs Flow



Operation:

Free-flow, nose-to-side check Valve are on/off circuit components that allow free flow from the inlet (port 1) to the outlet (port 2) and block flow in the opposite direction.

Installation Dimensions:



Ordering code details:

TCXDA					

Adjustment:
Non adjustable = X

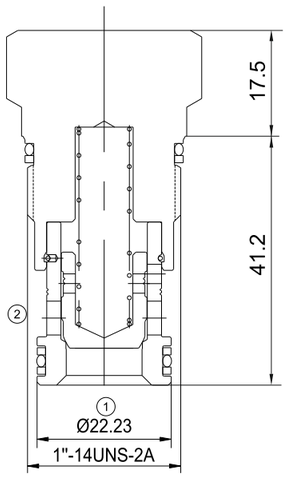
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
150psi(10.5bar) = G
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

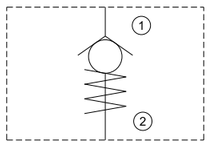
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCXFA (Check Valve)



Hydraulic Symbol:



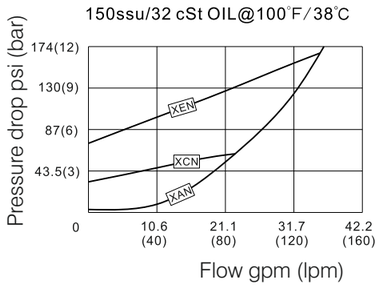
Specifications:

Operating Pressure	350 Bar
Flow	160L/min
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-5Asee page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Check valves offer extremely low leakage rates with a maximum leakage of less than 1 drop per minute (0,07 cc/min).
- Will accept 5000 psi (350 bar) at ports 1 and 2

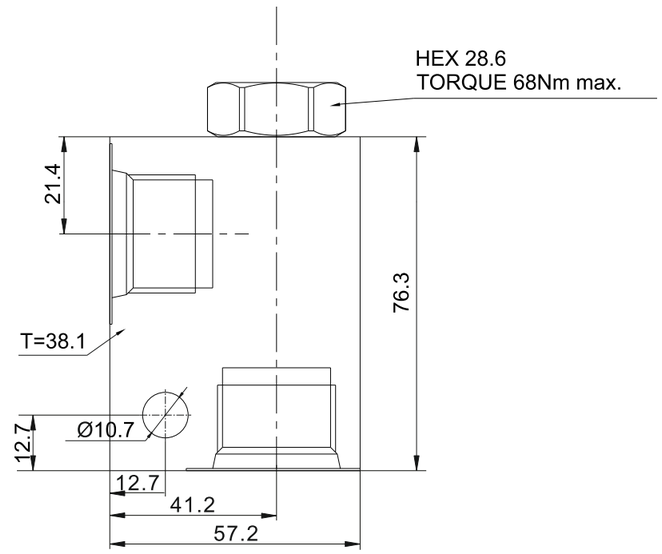
Performance Curve
Pressure Drop vs Flow



Operation:

Free-flow, nose-to-side check Valve are on/off circuit components that allow free flow from the inlet (port 1) to the outlet (port 2) and block flow in the opposite direction.

Installation Dimensions:



Ordering code details:

TCXFA					

Adjustment:
Non adjustable = X

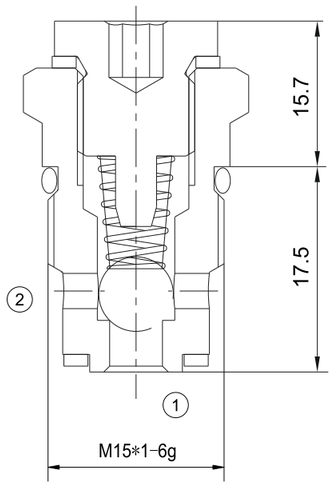
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

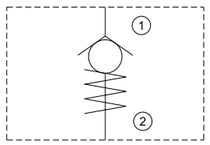
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G1/4 = 2G
NPT 1/4 = 2N
Other porting is available

TCV-06 (Check Valve)



Hydraulic Symbol:



Specifications:

Operating Pressure	210 Bar
Cracking Pressure	0.9 Bar
Flow	20L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CV-06 see page K-25
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

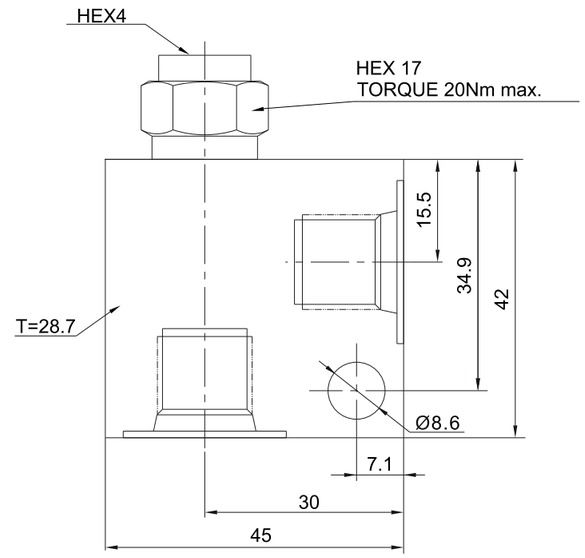
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

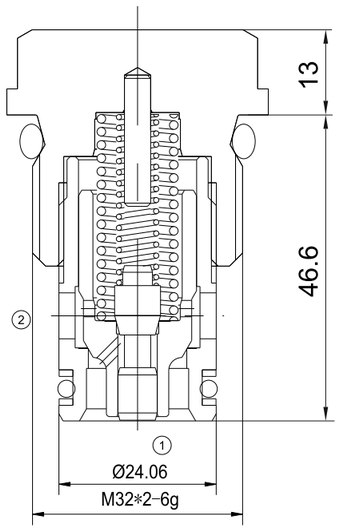
TCV-06			

Seal Kits:
Buna N = N
Viton = V

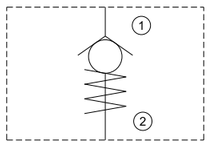
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV-2H (Check Valve)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	150L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CV-2H see page K-30
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

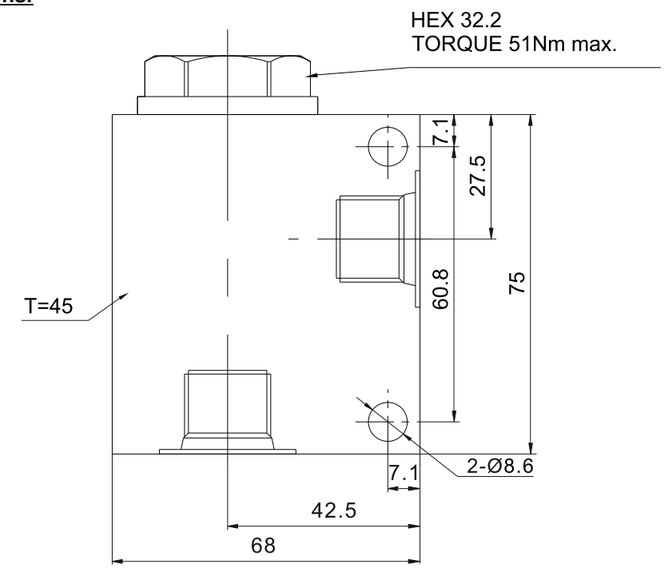
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

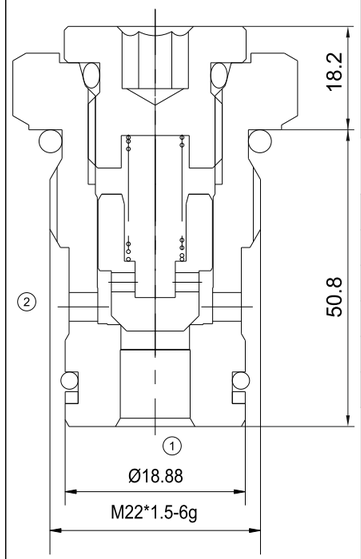
TCV-2H			

Seal Kits:
Buna N = N
Viton = V

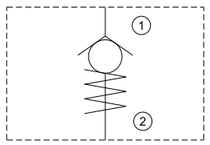
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV-M221.5 (Check Valve)



Hydraulic Symbol:



Specifications:

Operating Pressure	207 Bar
Flow	50L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	CV-M221.5 see page K-31
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

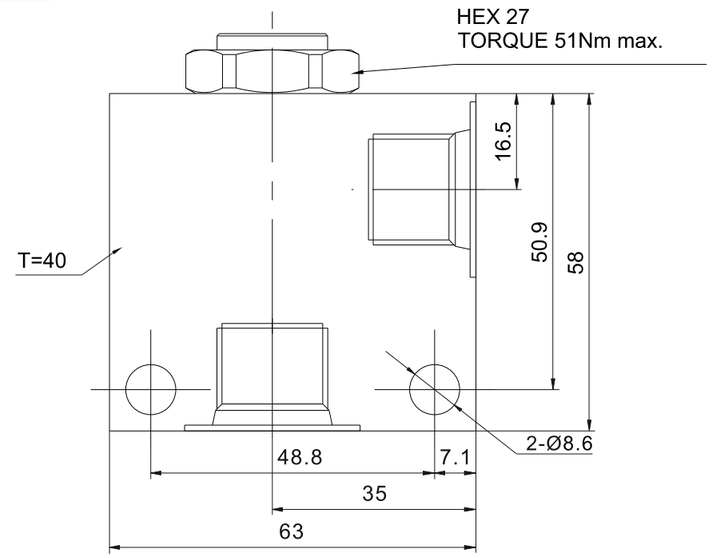
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Check valves offer extremely low leakage rates with a maximum leakage of less than 1 drop per minute (0,07 cc/min).
- Will accept 5000 psi (350 bar) at ports 1 and 2

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

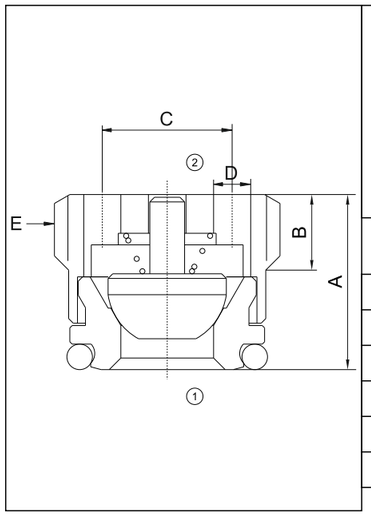
TCV-M221.5			

Seal Kits:
Buna N = N
Viton = V

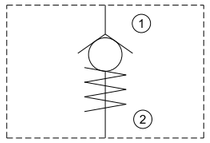
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCV (Check Valve)

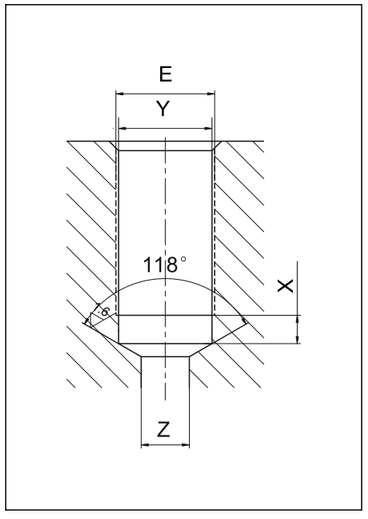


Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	See picture
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



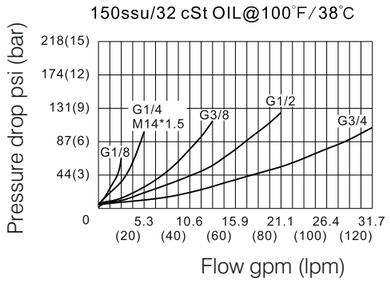
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

Valve Details								Cavity Details		
E	A	B	C	D	MAX Flow	Install Torque	Cavity code	X	Y	Z
size	mm	mm	mm	mm	L/min	Nm	code	mm	mm	mm
G1/8	7.5	3.5	ϕ5.6	ϕ1.6	10	8	BS01	3.0	ϕ8.7	ϕ5
G1/4	8.5	4.4	ϕ8.4	ϕ2.2	20	15	BS02	3.0	ϕ11.6	ϕ7
G3/8	11.3	6.0	ϕ11.1	ϕ3.0	50	20	BS03	3.0	ϕ15.1	ϕ9
G1/2	12.7	6.5	ϕ13.5	ϕ3.8	80	40	BS04	3.0	ϕ18.8	ϕ12
G3/4	14.8	7.6	ϕ16.5	ϕ5.0	120	80	BS05	3.0	ϕ24.3	ϕ18
M14*1.5	8.5	4.4	ϕ8.4	ϕ2.2	20	15	BS06	3.0	ϕ12.8	ϕ7

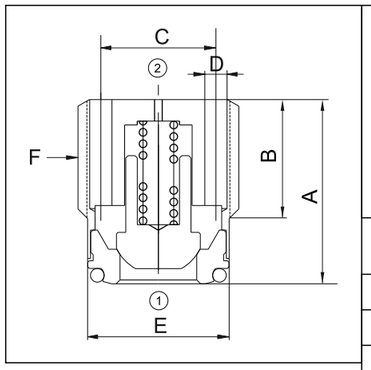
Ordering code details:

TCV		

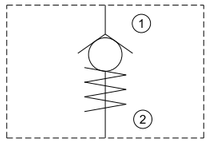
Thread Size
G1/8 = G1/8
G1/4 = G1/4
G3/8 = G3/8
G1/2 = G1/2
G3/4 = G3/4
M141.5 = M14*1.5

Seal Kits:
Buna N = N
Viton = V

TRK3 (Check Valve)

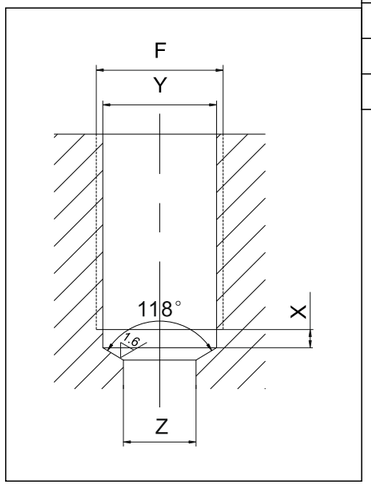


Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	80L/min
Internal Leakage	2drop/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



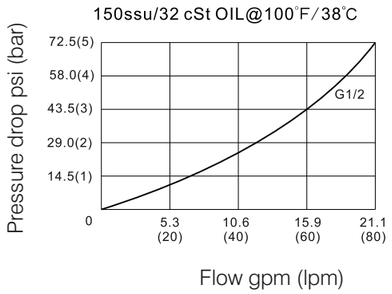
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

Valve Details								Cavity Details		
F	A	B	C	D	E	MAX Flow	Install Torque	X	Y	Z
size	mm	mm	mm	mm	mm	L/min	Nm	mm	mm	mm
G1/2	24	15.5	ϕ15	ϕ2.9	ϕ18.7	80	40	3.0	ϕ18.8	ϕ12

Ordering code details:

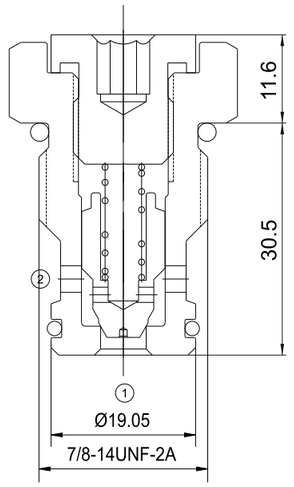
TRK3			

Thread Size
G1/2 = G1/2

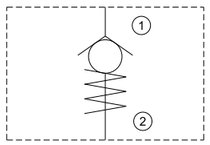
Cracking Pressure
14.5psi(1bar) = 1
29.0psi(2bar) = 2
43.5psi(3bar) = 3
58.0psi(4bar) = 4
72.5psi(5bar) = 5

Seal Kits:
Buna N = N
Viton = V

TCVS4-S10 (Check Valve)



Hydraulic Symbol:



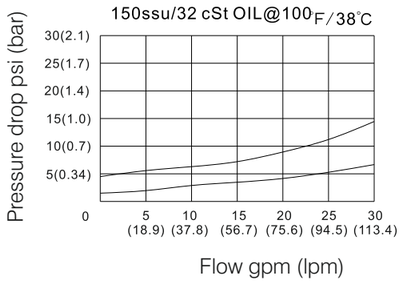
Specifications:

Operating Pressure	350 Bar
Flow	30L/min
Internal Leakage	0.1ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	Vh011 see page K-39
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Compact size
- Low leakage design

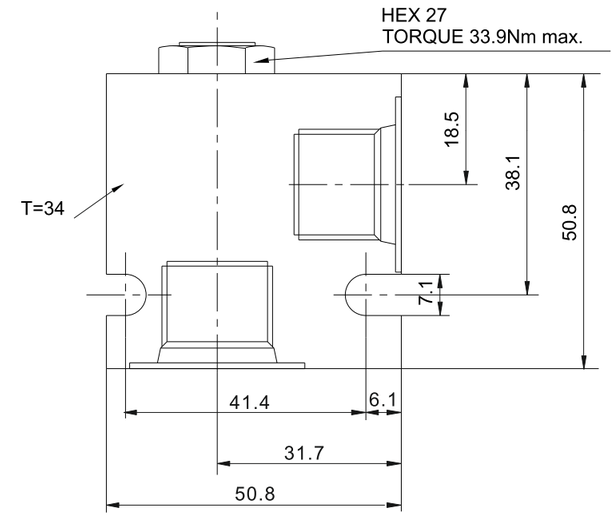
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

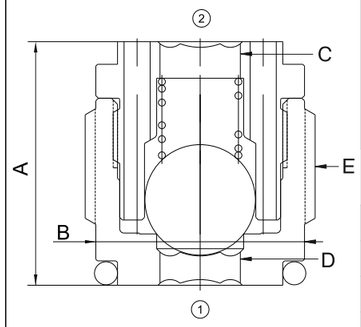
Installation Dimensions:



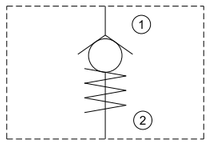
Ordering code details:

TCVS4-S10				
Cracking Pressure 22psi(1.5bar) 65psi(4.5bar)	= ON = OB			
Seal Kits: Buna N Viton		= N = V		
Body Material: 6061-T6 aluminum alloy rated at 207 Bar steel rated at 350 Bar			= A = S	
Body Porting: SAE 6T SAE 8T G3/8 NPT3/8 ~~Other porting is available~~				= 6T = 8T = 3G = 3N

MCVB (Check Valve)

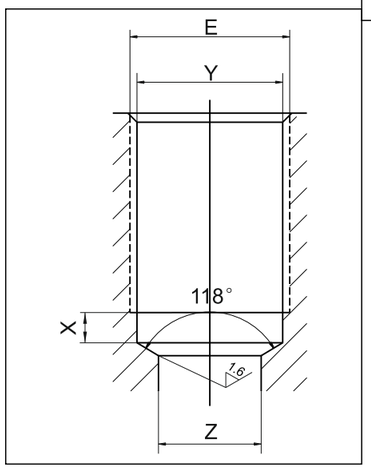


Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	See picture
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



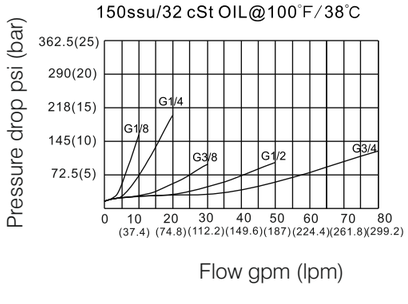
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Performance Curve
Pressure Drop vs Flow



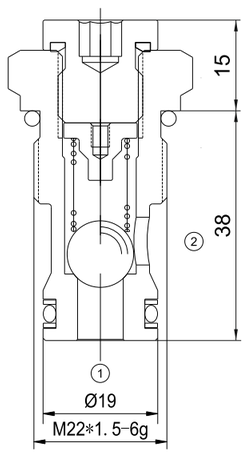
Installation Dimensions:

Valve Details							Cavity Details		
E	A	B	C	D	MAX Flow	Install Torque	X	Y	Z
size	mm	mm	mm	mm	L/min	Nm	mm	mm	mm
G1/8	12.5	Φ8.4	2	-	10	3	2.5	Φ8.5	Φ5
G1/4	17	Φ11.3	2.5	S3	20	4	3.0	Φ11.4	Φ7
G3/8	18.5	Φ14.8	3	S4	30	6	3.0	Φ14.9	Φ9
G1/2	22.5	Φ18.5	5	S6	50	10	4.0	Φ18.6	Φ12
G3/4	28	Φ24	8	S8	80	20	5.0	Φ24.1	Φ17

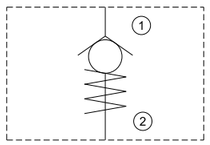
Ordering code details:

MCVB			
Thread Size			
G1/8	=G1/8		
G1/4	=G1/4		
G3/8	=G3/8		
G1/2	=G1/2		
G3/4	=G3/4		
Cracking Pressure			
4psi(0.3bar)		= 0.3	
10psi(0.7bar)		= 0.7	
30psi(2.1bar)		= 2.1	
65psi(4.5bar)		= 4.5	
100psi(6.9bar)		= 6.9	
Seal Kits:			
Buna N			= N
Viton			= V

TRVM10120 (Check Valve)



Hydraulic Symbol:



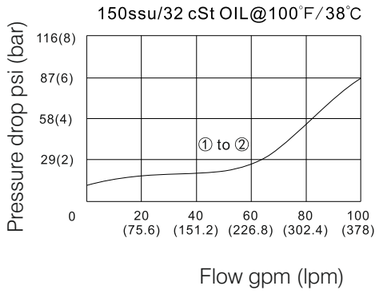
Specifications:

Operating Pressure	350 Bar
Flow	30L/min
Internal Leakage	100L/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	TRVM10120 see page K-42
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Compact size
- Low leakage design

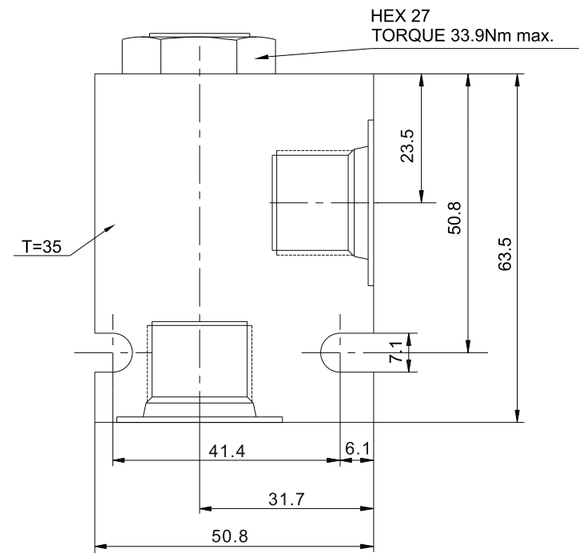
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

TRVM10120				

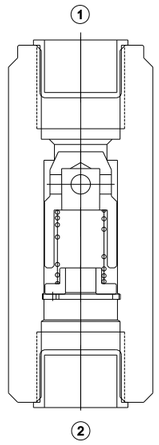
Cracking Pressure
3psi(0.2bar) = 0.2
7psi(0.5bar) = 0.5

Seal Kits:
Buna N = N
Viton = V

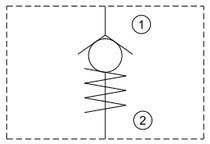
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TVU (Check Valve)

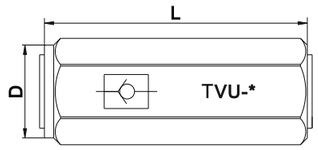


Hydraulic Symbol:



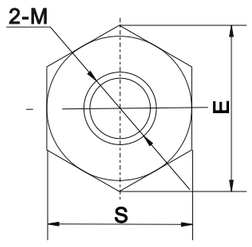
Specifications:

Operating Pressure	500 Bar
Flow	See picture
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design



Operation:

Pressure at ① overcomes the spring-bias poppet and allows free flow ① to ②.Flow in the opposite direction, from ② to ①, is blocked by the poppet.

Installation Dimensions:

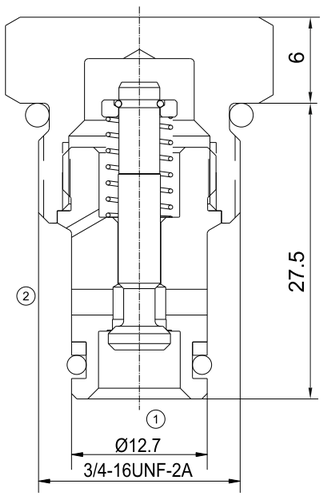
Diameter	Model	Maximum flow (L/Min)	Cracking Pressure (Bar)	PN	Size(mm)				
					L	E	S	D	M
08	MVU-G1/4	30	1.1	500	62	21.5	19	19	G1/4
10	MVU-G3/8	45	1.1	500	68	27.5	24	24	G3/8
12	MVU-G1/2	70	0.5	500	77	34.5	30	30	G1/2
16	MVU-G3/4	110	0.5	400	88	41.5	36	36	G3/4
20	MVU-G1	160	0.5	350	105	47	41	41	G1
25	MVU-G1'1/4	210	0.5	350	130	63	55	55	G1'1/4
30	MVU-G1'1/2	320	0.5	350	138	75	65	65	G1'1/2
40	MVU-G2	460	0.5	250	160	92	80	80	G2

Ordering code details:

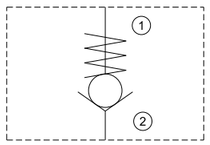
TVU	

Join Thread	
G1/4	= G1/4
G3/8	= G3/8
G1/2	= G1/2
G3/4	= G3/4
G1	= G1
G1"1/4	= G1"1/4
G1"1/2	= G1"1/2
G2	= G2

TCVR-08-P (Check Valve)



Hydraulic Symbol:



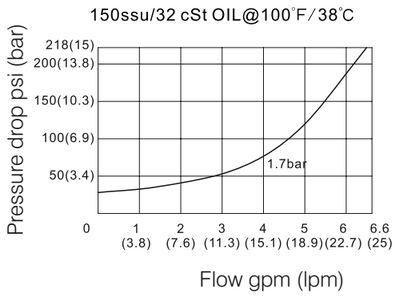
Specifications:

Operating Pressure	350 Bar
Flow	25L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

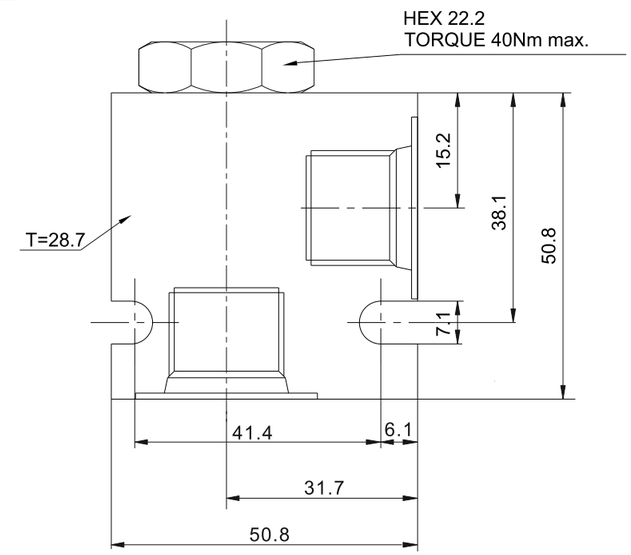
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ② overcomes the spring-bias poppet and allows free flow ② to ①.Flow in the opposite direction, from ① to ②, is blocked by the poppet.

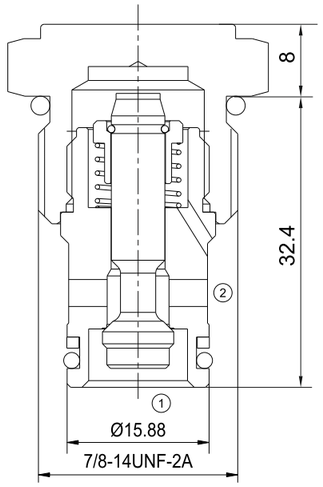
Installation Dimensions:



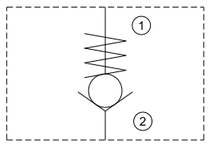
Ordering code details:

TCVR-08-P				
Cracking Pressure				
10psi(0.7bar)	= 0.7			
20psi(1.4bar)	= 1.4			
60psi(4.1bar)	= 4.1			
80psi(5.5bar)	= 5.5			
110psi(7.6bar)	= 7.6			
	Seal Kits:			
	Buna N	= N		
	Viton	= V		
		Body Material:		
		6061-T6 aluminum alloy rated at 207 Bar	= A	
		Steel rated at 350 Bar	= S	
			Body Porting:	
			SAE 4T	= 4T
			SAE 8T	= 8T
			G3/8	= 3G
			NPT3/8	= 3N
			Other porting is available	

TCVR-10-P (Check Valve)



Hydraulic Symbol:



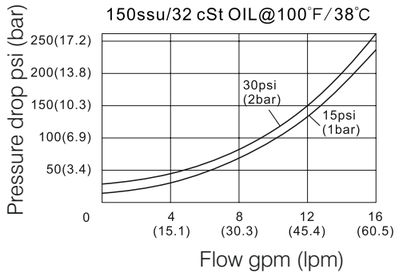
Specifications:

Operating Pressure	350 Bar
Flow	60L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

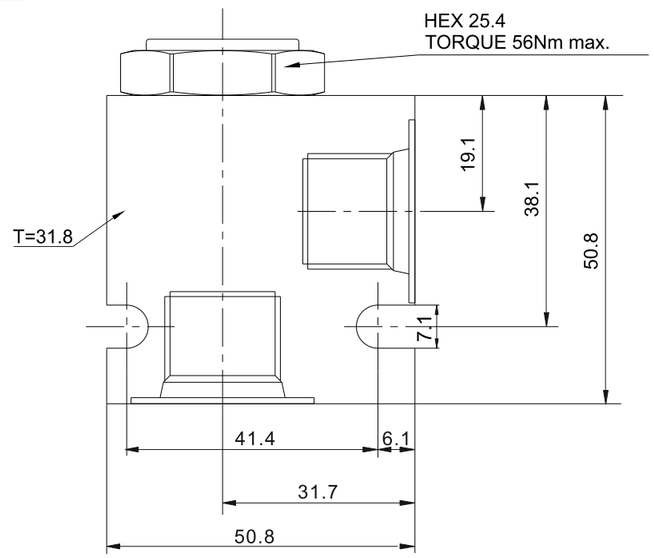
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ② overcomes the spring-bias poppet and allows free flow ② to ①.Flow in the opposite direction, from ① to ②, is blocked by the poppet.

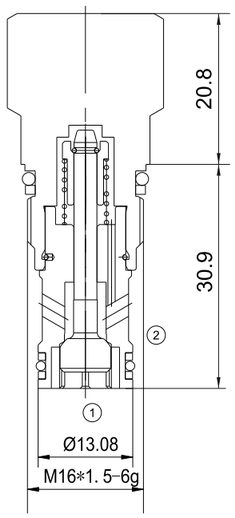
Installation Dimensions:



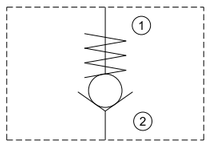
Ordering code details:

TCVR-10-P				
Cracking Pressure				
4psi(0.3bar) = 0.3				
10psi(1.0bar) = 1.0				
30psi(2.0bar) = 2.0				
45psi(3.0bar) = 3.0				
	Seal Kits:			
	Buna N = N			
	Viton = V			
		Body Material:		
		6061-T6 aluminum alloy rated at 207 Bar = A		
		steel rated at 350 Bar = S		
			Body Porting:	
			SAE 6T = 6T	
			SAE 8T = 8T	
			G3/8 = 3G	
			NPT3/8 = 3N	
			Other porting is available	

TCXAD (Check Valve)



Hydraulic Symbol:



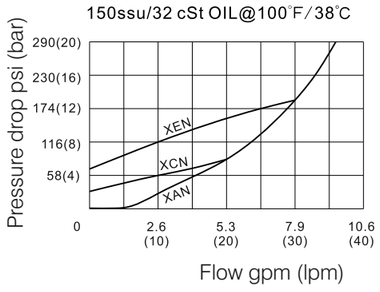
Specifications:

Operating Pressure	350 Bar
Flow	30L/min
Internal Leakage	1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Will accept 5000 psi (350 bar) at ports 1 and 2
- Hardened, precision ground parts for durability
- Industry common cavity
- Low leakage design

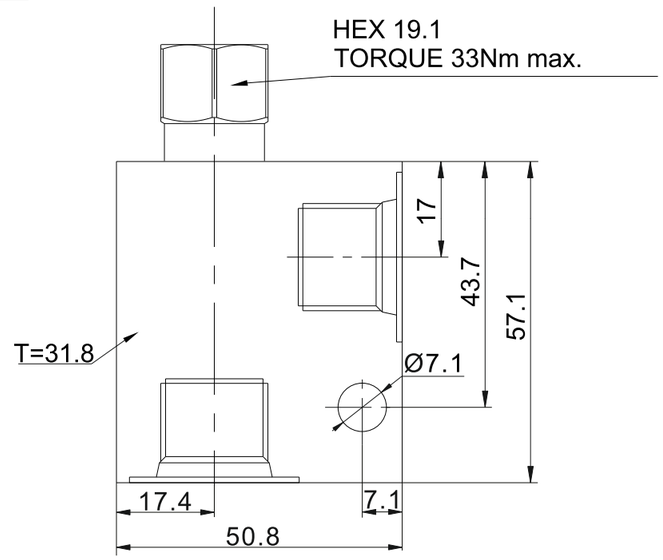
Performance Curve
Pressure Drop vs Flow



Operation:

Free-flow, nose-to-side check Valve are on/off circuit components that allow free flow from the inlet (port 1) to the outlet (port 2) and block flow in the opposite direction.

Installation Dimensions:



Ordering code details:

TCXAD | | | | | |

Adjustment:
Non adjustablet = X

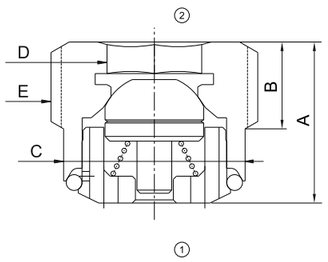
Cracking Pressure
4psi(0.3bar) = A
30psi(2.0bar) = C
50psi(3.5bar) = D
75psi(5.0bar) = E
1psi(0.07bar) = Z

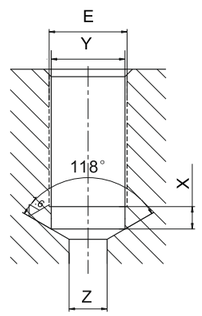
Seal Kits:
Buna N = N
Viton = V

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

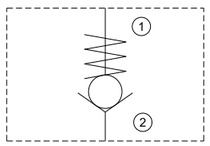
Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G1/4 = 2G
NPT1/4 = 2N
Other porting is available

TCVR (Check Valve)





Hydraulic Symbol:



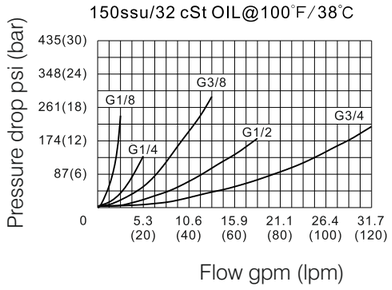
Specifications:

Operating Pressure	350 Bar
Flow	See picther
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ② overcomes the spring-bias poppet and allows free flow ② to ①.Flow in the opposite direction, from ① to ②, is blocked by the poppet.

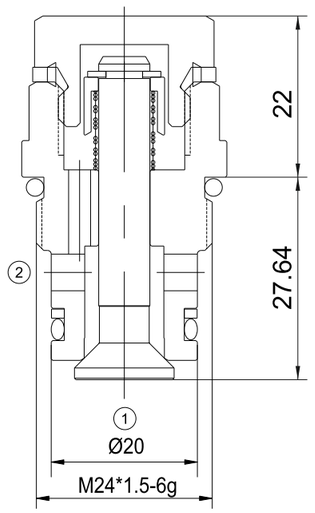
Installation Dimensions:

Valve Details							Cavity Details		
E	A	B	C	D	MAX Flow	Install Torque	X	Y	Z
size	mm	mm	mm	mm	L/min	Nm	mm	mm	mm
G1/8	8.0	3.9	Φ8.5	S4	10	8	3.0	Φ8.7	Φ5
G1/4	10.2	5.5	Φ11.5	S6	20	15	3.0	Φ11.6	Φ7
G3/8	11.7	7.0	Φ14.9	S8	50	20	3.0	Φ15.1	Φ9
G1/2	13.5	7.9	Φ18.7	S10	80	40	3.0	Φ18.8	Φ12
G3/4	17.1	11.5	Φ24.0	S10	120	80	3.0	Φ24.3	Φ18

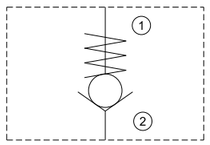
Ordering code details:

TCVR		
Thread Size		
G1/8		= G1/8
G1/4		= G1/4
G3/8		= G3/8
G1/2		= G1/2
G3/4		= G3/4
Seal Kits:		
Buna N		= N
Viton		= V

TCV-M241.5 (Check Valve)



Hydraulic Symbol:



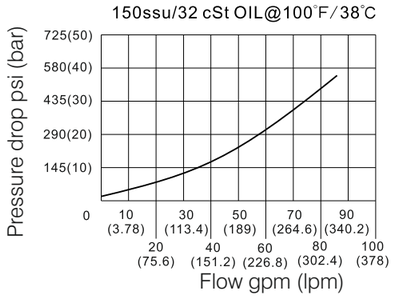
Specifications:

Operating Pressure	350 Bar
Cracking Pressure	1 Bar
Flow	60L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2301 see page K-17
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

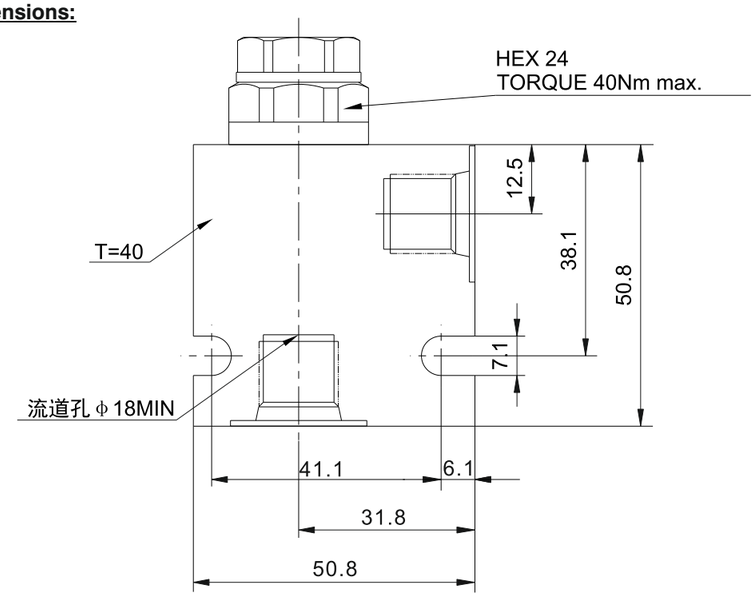
Performance Curve
Pressure Drop vs Flow



Operation:

Pressure at ② overcomes the spring-bias poppet and allows free flow ② to ①.Flow in the opposite direction, from ① to ②, is blocked by the poppet.

Installation Dimensions:



Ordering code details:

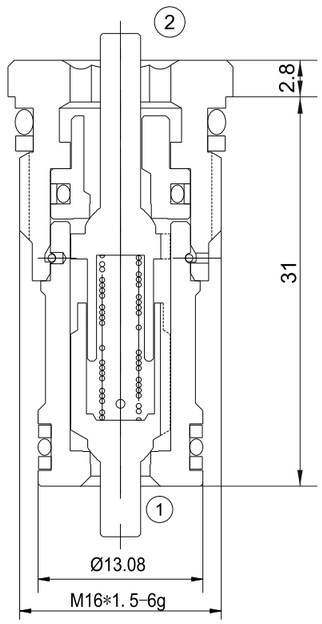
TCV-M241.5			

Seal Kits:
Buna N = N
Viton = V

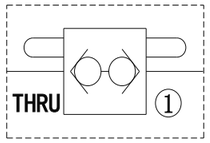
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCDAQ (Phaser Check Valve)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	4.7L/min
Internal Leakage	1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162DP see page K-41
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt
Torque	33 Nm max.

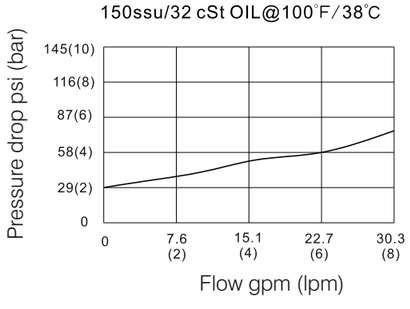
Features:

- This valve is not designed to handle side forces. Actuating direction must be axial, and contact surface must be perpendicular to valve axis to within 5°.
- This valve is NOT meant to be cam operated.
- This valve is NOT to be used in place of a mechanical stop.
- Maximum stroke of the poppet must be limited to .047 in. (1,2 mm) by a mechanical stop other than the valve itself

Note: Port 2 of the T-162A cavity is not used with this valve.

- Check valves offer extremely low leakage rates with a maximum leakage of less than 1 drop per minute (0,07 cc/min).
- Will accept 5000 psi (350 bar) at ports 1 and 2

Performance Curve
Pressure Drop vs Flow



Operation:

The phaser check is a pair of checks, back-to-back, with both poppets mechanically actuated. The valve is meant to be installed into the piston or rod of a cylinder. When the cylinder reaches the end of its stroke the poppet in the phaser check is shoved off its seat allowing flow through the piston. This allows two cylinders to get back into phase.

Ordering code details:

TCDAQ					

Control:
Mechanical Driv = M

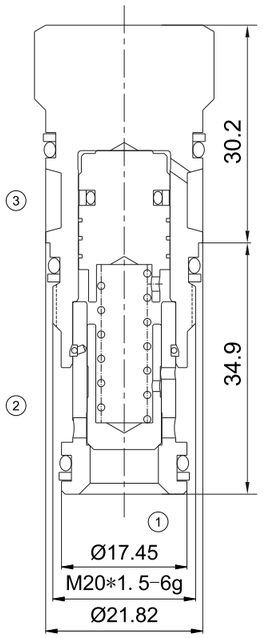
Cracking Pressure
30psi(2.0bar) = C

Seal Kits:
Buna N = N
Viton = V

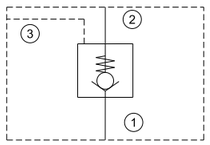
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCODA (Pilot Check Valve)



Hydraulic Symbol:



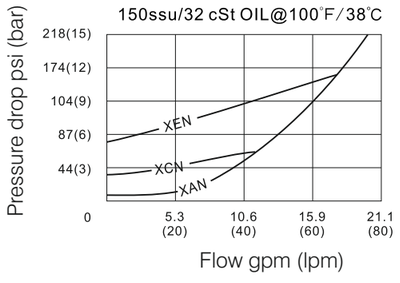
Specifications:

Operating Pressure	350 Bar
Flow	80L/min
Pilot Ratio	1.8:1
Internal Leakage	T-11A see page K-2
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Nominal pilot ratio is 1.8:1. This means that a pressure of 1000 psi (70 bar) at the pilot port will close a valve against a pressure of 1800 psi (125 bar) at port 1. Any decay or loss of pilot pressure could allow the valve to open, even if it is a momentary decay or loss.
- Pressure at the port 2 area directly opposes pilot pressure.
- Reverse flow through the valve from port 2 to port 1 is not possible under any condition.

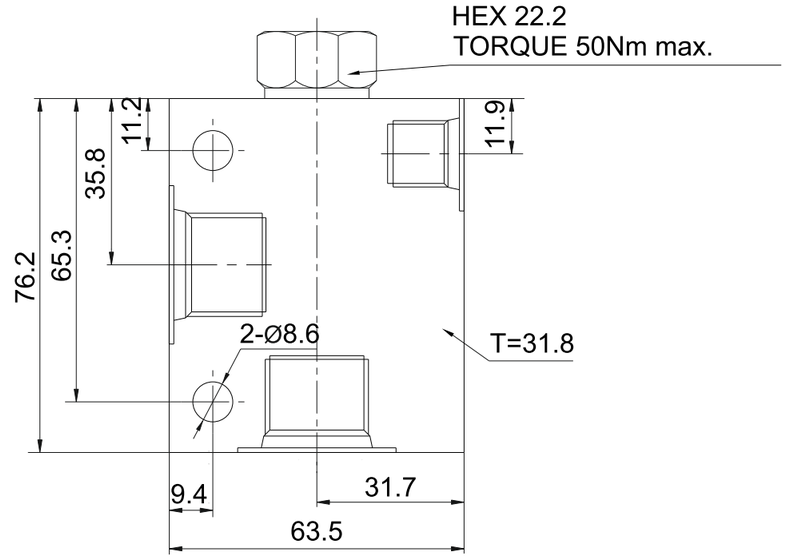
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a spring biased closed, pilot-to-close check cartridge that has a 1.8:1 pilot ratio. The valve allows flow from port 1 to port 2 and blocks reverse flow. Pressure at the pilot port opposes pressure at port 1 at a ratio of 1.8:1. This valve is most often used in regeneration circuits.

Installation Dimensions:



Ordering code details:

TCODA					

Adjustment:
Non adjustablet = X

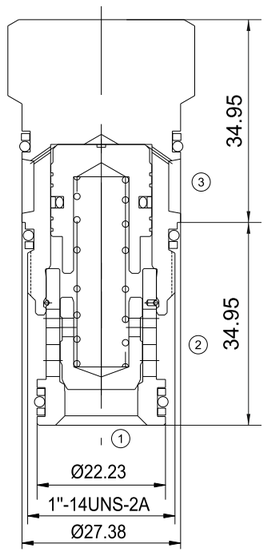
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
150psi(10.5bar) = G
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

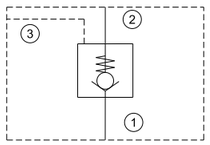
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCOFA (Pilot Check Valve)



Hydraulic Symbol:



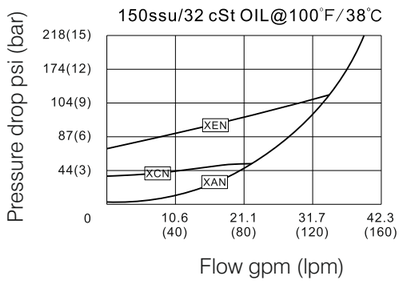
Specifications:

Operating Pressure	350 Bar
Flow	160L/min
Pilot Ratio	1.8:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Nominal pilot ratio is 1.8:1. This means that a pressure of 1000 psi (70 bar) at the pilot port will close a valve against a pressure of 1800 psi (125 bar) at port 1. Any decay or loss of pilot pressure could allow the valve to open, even if it is a momentary decay or loss.
- Pressure at the port 2 area directly opposes pilot pressure.
- Reverse flow through the valve from port 2 to port 1 is not possible under any condition.

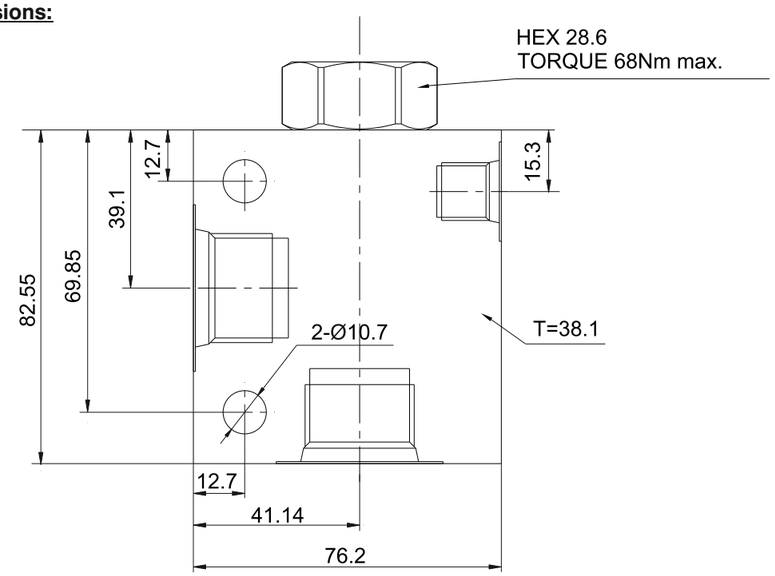
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a spring biased closed, pilot-to-close check cartridge that has a 1.8:1 pilot ratio. The valve allows flow from port 1 to port 2 and blocks reverse flow. Pressure at the pilot port opposes pressure at port 1 at a ratio of 1.8:1. This valve is most often used in regeneration circuits.

Installation Dimensions:



Ordering code details:

TCOFA					

Adjustment:
Non adjustablet = X

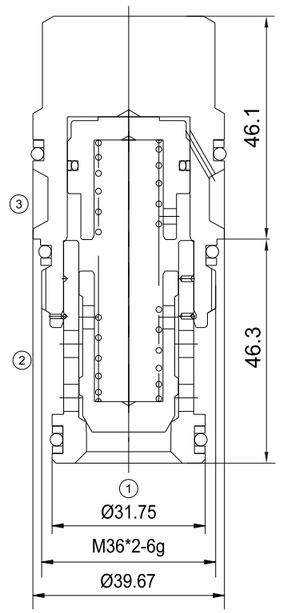
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
1350psi(9.5bar) = J

Seal Kits:
Buna N = N
Viton = V

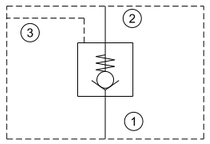
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TCOHA (Pilot Check Valve)



Hydraulic Symbol:



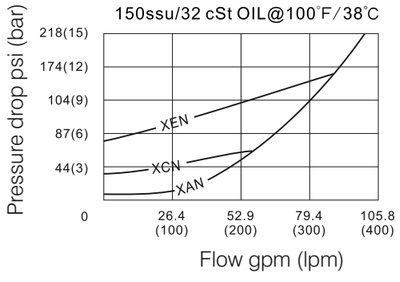
Specifications:

Operating Pressure	350 Bar
Flow	320L/min
Pilot Ratio	1.8:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Nominal pilot ratio is 1.8:1. This means that a pressure of 1000 psi (70 bar) at the pilot port will close a valve against a pressure of 1800 psi (125 bar) at port 1. Any decay or loss of pilot pressure could allow the valve to open, even if it is a momentary decay or loss.
- Pressure at the port 2 area directly opposes pilot pressure.
- Reverse flow through the valve from port 2 to port 1 is not possible under any condition.

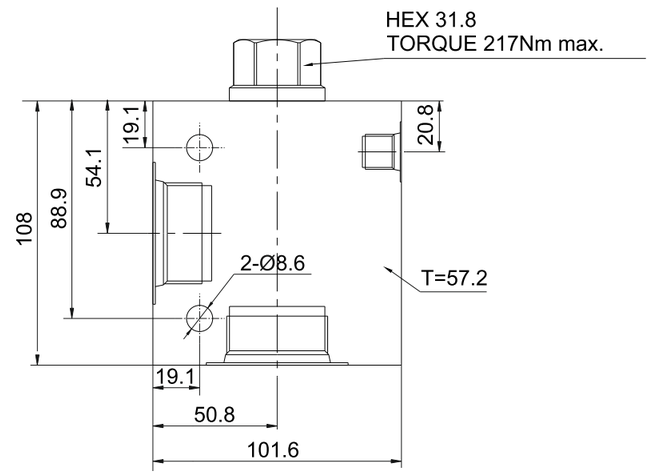
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a spring biased closed, pilot-to-close check cartridge that has a 1.8:1 pilot ratio. The valve allows flow from port 1 to port 2 and blocks reverse flow. Pressure at the pilot port opposes pressure at port 1 at a ratio of 1.8:1. This valve is most often used in regeneration circuits.

Installation Dimensions:



Ordering code details:

TCOHA					

Adjustment:
Non adjustablet = X

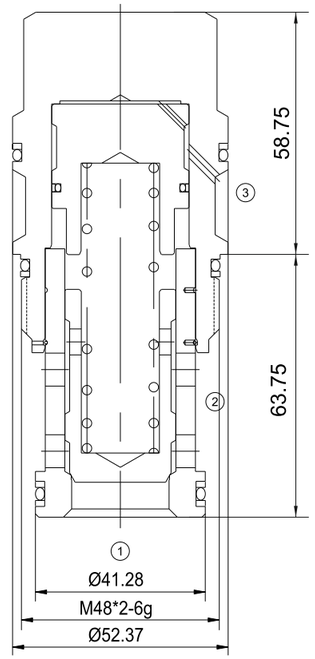
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
150psi(10.5bar) = G
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

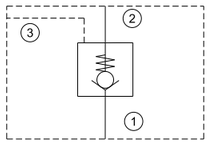
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 12T = 12T
SAE 20T = 20T
G1 1/4 = 10G
NPT1 1/4 = 10N
Other porting is available

TCOJA (Pilot Check Valve)



Hydraulic Symbol:



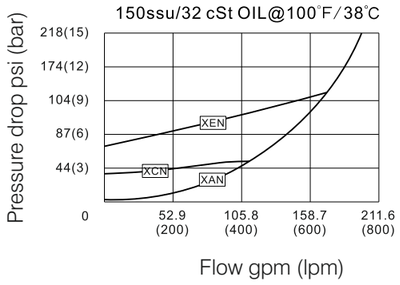
Specifications:

Operating Pressure	350 Bar
Flow	610L/min
Pilot Ratio	1.8:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-19A see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Nominal pilot ratio is 1.8:1. This means that a pressure of 1000 psi (70 bar) at the pilot port will close a valve against a pressure of 1800 psi (125 bar) at port 1. Any decay or loss of pilot pressure could allow the valve to open, even if it is a momentary decay or loss.
- Pressure at the port 2 area directly opposes pilot pressure.
- Reverse flow through the valve from port 2 to port 1 is not possible under any condition.

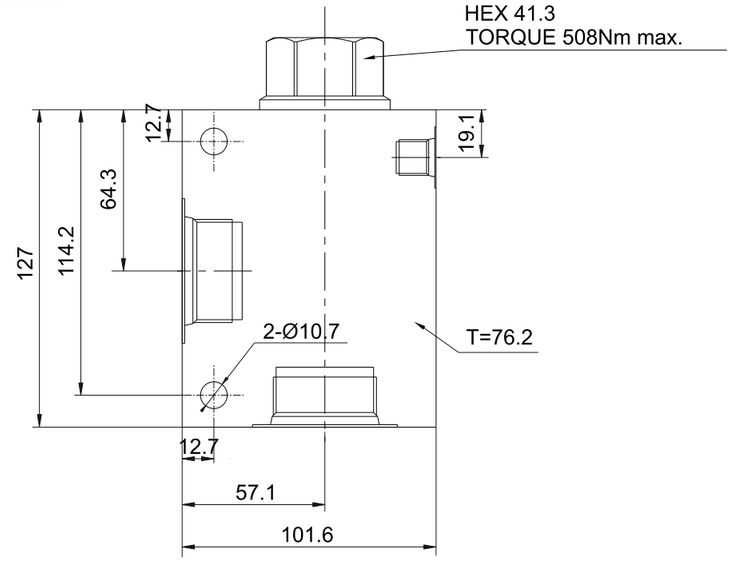
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a spring biased closed, pilot-to-close check cartridge that has a 1.8:1 pilot ratio. The valve allows flow from port 1 to port 2 and blocks reverse flow. Pressure at the pilot port opposes pressure at port 1 at a ratio of 1.8:1. This valve is most often used in regeneration circuits.

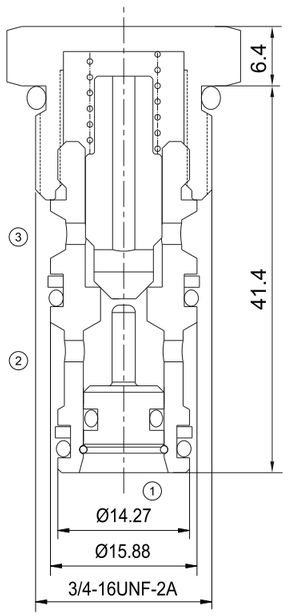
Installation Dimensions:



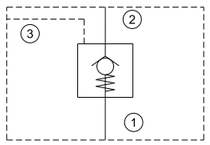
Ordering code details:

TCOJA					
Adjustment:					
Non adjustablet = X					
Cracking Pressure					
4psi(0.3bar) = A					
15psi(1bar) = B					
30psi(2bar) = C					
50psi(3.5bar) = D					
75psi(5bar) = E					
100psi(7bar) = F					
150psi(10.5bar) = G					
1psi(0.07bar) = Z					
	Seal Kits:				
	Buna N = N				
	Viton = V				
		Body Material:			
		6061-T6 aluminum alloy rated at 207 Bar = A			
		steel rated at 350 Bar = S			
			Body Porting:		
			SAE 12T = 16T		
			SAE 20T = 20T		
			G1 1/4 = 10G		
			NPT1 1/4 = 10N		
			Other porting is available		

TDPC-08-P (Pilot Check Valve)



Hydraulic Symbol:



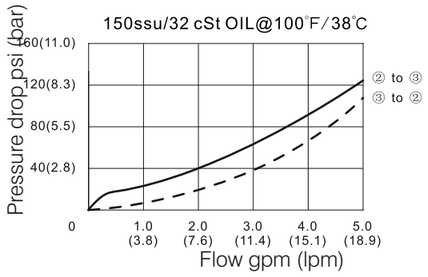
Specifications:

Operating Pressure	350 Bar
Flow	19 L/min
Pilot Ratio	3:1
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

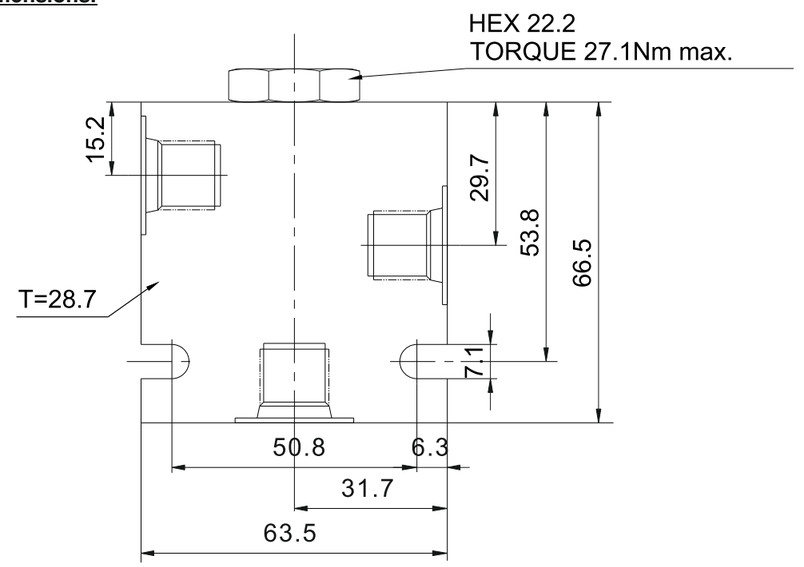
Performance Curve
Pressure Drop vs Flow



Operation:

The valve allows flow from ② to ③ , while normally blocking flow from ③ to ② .Flow will be allowed from ③ to ② when sufficient pressure is applied at ①. The cartridge has a 3:1 pilot ratio, meaning that at least one-third of the load pressure held at ③ is required at ① to open the valve.

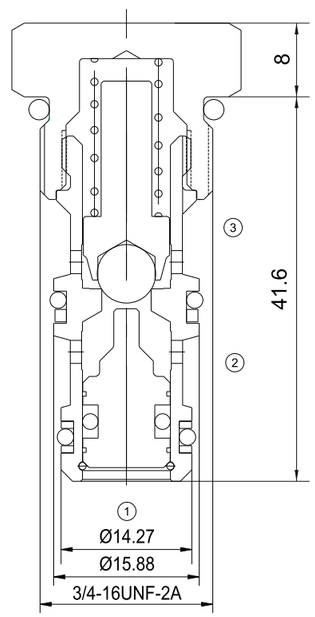
Installation Dimensions:



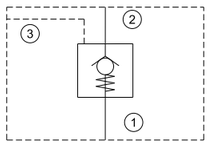
Ordering code details:

TDPC-08-P				
Cracking Pressure				
25psi(1.7bar)	= 1.7			
50psi(3.4bar)	= 3.4			
100psi(6.9bar)	= 6.9			
Seal Kits:				
Buna N		= N		
Viton		= V		
Body Material:				
6061-T6 aluminum alloy rated at 207 Bar			= A	
steel rated at 350 Bar			= S	
Body Porting:				
SAE 6T				= 4T
SAE 8T				= 8T
G3/8				= 3G
NPT3/8				= 3N
Other porting is available				

TPC08-30 (Pilot Check Valve)



Hydraulic Symbol:



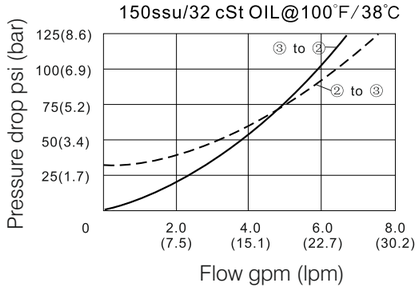
Specifications:

Operating Pressure	350 Bar
Flow	22.7L/min
Pilot Ratio	3:1
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

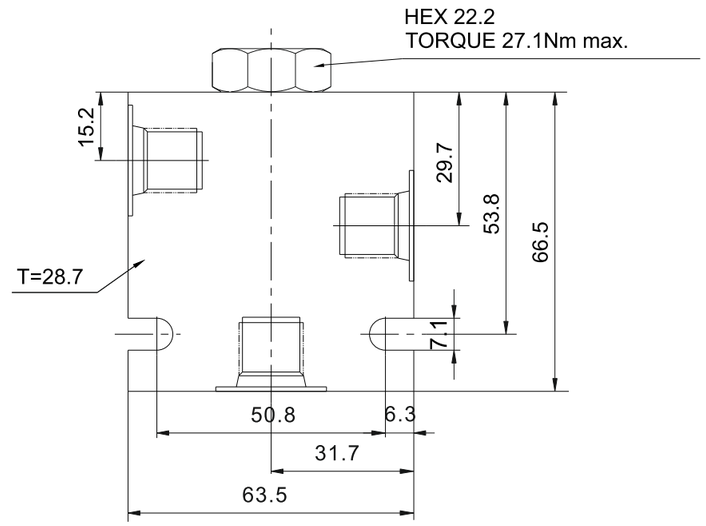
Performance Curve
Pressure Drop vs Flow



Operation:

The valve allows flow from ② to ③ , while normally blocking flow from ③ to ② .Flow will be allowed from ③ to ② when sufficient pressure is applied at ①. The cartridge has a 3:1 pilot ratio, meaning that at least one-third of the load pressure held at ③ is required at ① to open the valve.

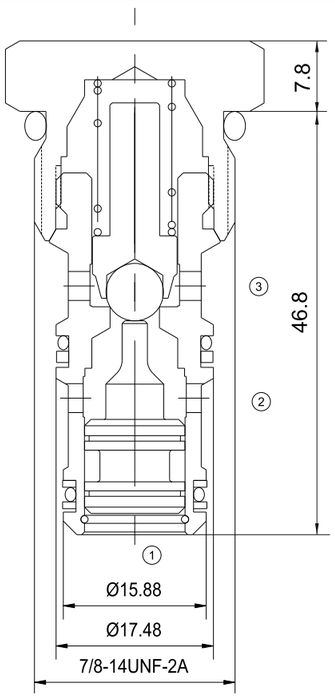
Installation Dimensions:



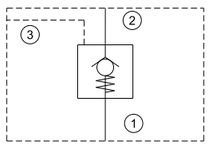
Ordering code details:

TPC08-30				
Cracking Pressure				
25psi(1.72bar)(std.)*	= No code			
70psi(4.8bar)	= 70			
90psi(6.2bar)	= 90			
120psi(8.2bar)	= 180			
270psi(18.3bar)	= 270			
Seal Kits:				
Buna N		= N		
Viton		= V		
Body Material:				
6061-T6 aluminum alloy rated at 207 Bar			= A	
steel rated at 350 Bar			= S	
Body Porting:				
SAE 6T				= 6T
SAE 8T				= 8T
G3/8				= 3G
NPT3/8				= 3N
Other porting is available				

TPC10-30 (Pilot Check Valve)



Hydraulic Symbol:



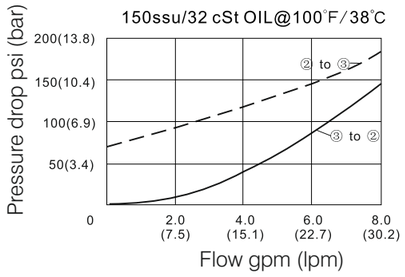
Specifications:

Operating Pressure	350 Bar
Flow	30.2L/min
Pilot Ratio	4:1
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

Performance Curve
Pressure Drop vs Flow

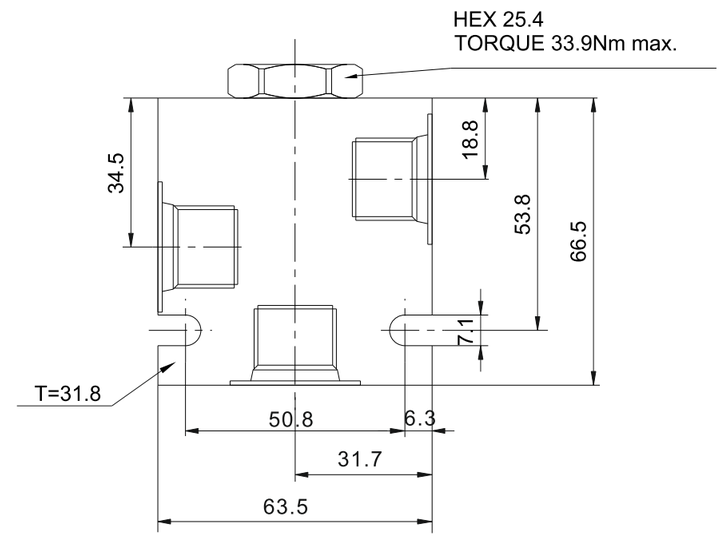


Operation:

The valve allows flow from ② to ③ , while normally blocking flow from ③ to ② .Flow will be allowed from ③ to ② when sufficient pressure is applied at ①. The cartridge has a 3:1 pilot ratio, meaning that at least one-third of the load pressure held at ③ is required at ① to open the valve.

THM HYDRAULICS

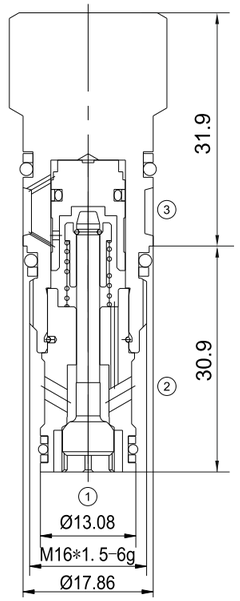
Installation Dimensions:



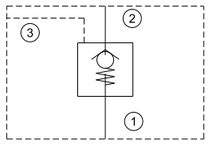
Ordering code details:

TPC10-30				
Cracking Pressure				
30psi(2.1bar)(std.)*	= No code			
70psi(4.8bar)	= 70			
90psi(6.2bar)	= 90			
120psi(8.2bar)	= 120			
270psi(18.3bar)	= 270			
Seal Kits:				
Buna N		= N		
Viton		= V		
Body Material:				
6061-T6 aluminum alloy rated at 207 Bar			= A	
steel rated at 350 Bar			= S	
Body Porting:				
SAE 6T				= 6T
SAE 8T				= 8T
G3/8				= 3G
NPT3/8				= 3N
Other porting is available				

TCKBB (Pilot Check Valve)



Hydraulic Symbol:



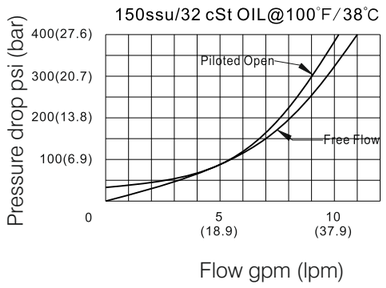
Specifications:

Operating Pressure	350 Bar
Flow	30L/min
Pilot Ratio	3:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-163A see page K-8
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.

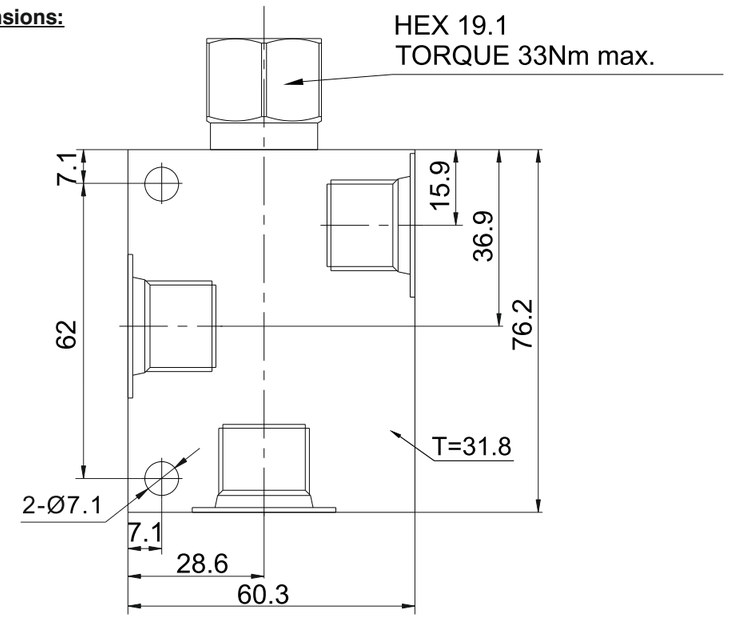
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

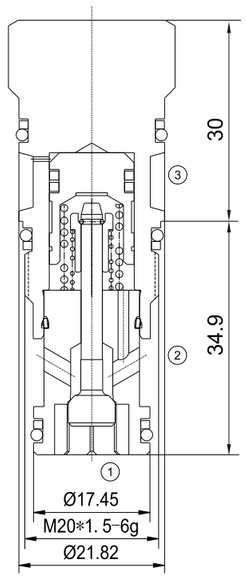
Installation Dimensions:



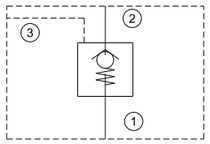
Ordering code details:

TCKBB					
Adjustment:					
Non adjustablet = X					
Cracking Pressure					
30psi(2bar) = C					
75psi(5bar) = E					
Seal Kits:					
Buna N = N					
Viton = V					
Body Material:					
6061-T6 aluminum alloy rated at 207 Bar = A					
steel rated at 350 Bar = S					
Body Porting:					
SAE 6T = 6T					
SAE 8T = 8T					
G1/4 = 2G					
NPT1/4 = 2N					
Other porting is available					

TCKCB (Pilot Check Valve)



Hydraulic Symbol:



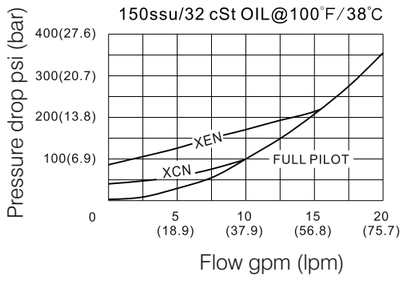
Specifications:

Operating Pressure	350 Bar
Flow	60L/min
Pilot Ratio	3:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.

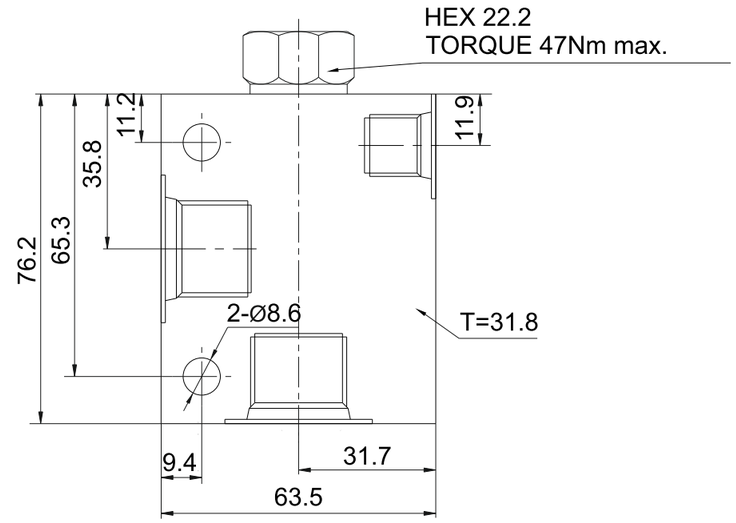
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

Installation Dimensions:



Ordering code details:

TCKCB					

Adjustment:
Non adjustablet = X

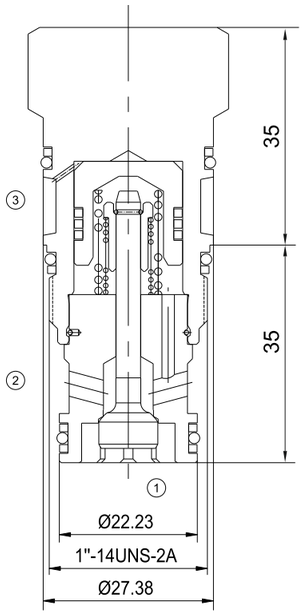
Cracking Pressure
4psi(0.3bar) = A
15psi(1bar) = B
30psi(2bar) = C
50psi(3.5bar) = D
75psi(5bar) = E
100psi(7bar) = F
1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

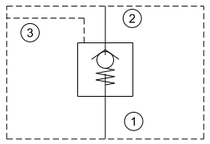
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCKEB (Pilot Check Valve)



Hydraulic Symbol:



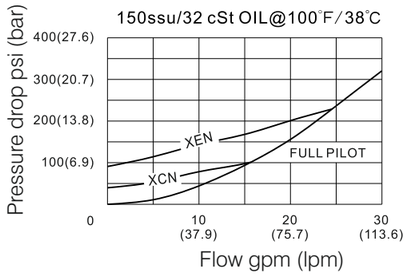
Specifications:

Operating Pressure	350 Bar
Flow	120L/min
Pilot Ratio	3:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Provides hose break protection, prevents loads from drifting and positively locks pressurized loads.
- Extremely low leakage. The seat and poppet are heat treated for long life. If the load drifts due to the valve, the seat has probably been damaged by contamination and the valve should be replaced.
- Standard unsealed pilot allows air trapped in the pilot line to be purged from the circuit.

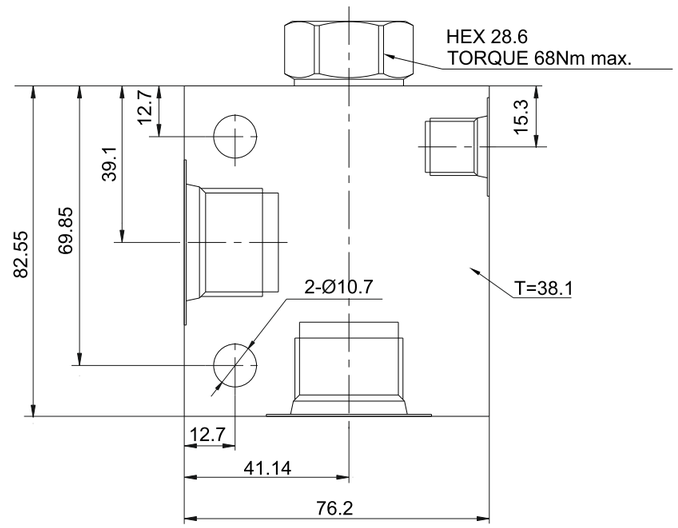
Performance Curve
Pressure Drop vs Flow



Operation:

This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

Installation Dimensions:



Ordering code details:

TCKEB					

Adjustment:
Non adjustablet = X

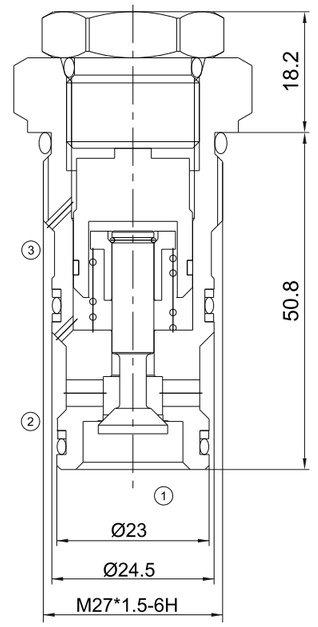
Cracking Pressure
A=4psi(0.3bar) = A
B=15psi(1bar) = B
C=30psi(2bar) = C
D=50psi(3.5bar) = D
E=75psi(5bar) = E
F=100psi(7bar) = F
Z =1psi(0.07bar) = Z

Seal Kits:
Buna N = N
Viton = V

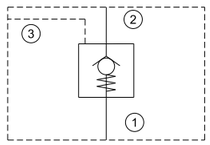
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 12T = 12T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TSC5H (Pilot Check Valve)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	90L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	A12336 see page K-31
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

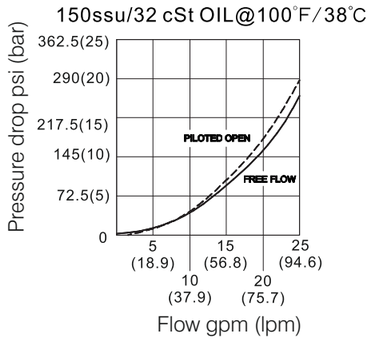
Features:

- Load-holding without leakage
- Low pressure drop
- Optional pilot seal
- Fits the same cavity as the R3 overcentre valve

Operation:

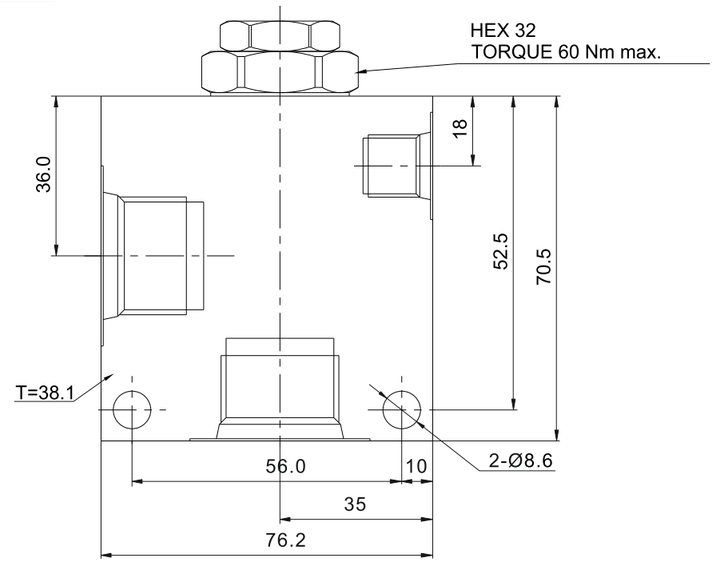
This valve is a pilot to open check valve. It has a non-sealed pilot, a steel seat, and is non-vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed at port 3 to open the valve is directly proportional to the load pressure at port 1. Pressure at port 2 directly opposes pilot pressure.

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

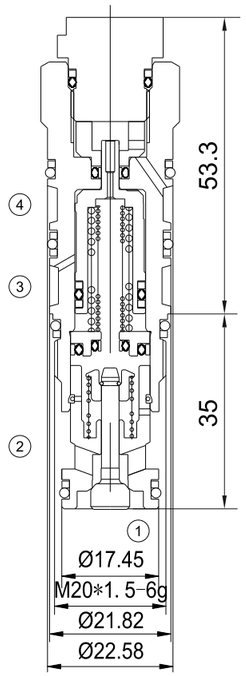
TSC5H				

Seal Kits:
Buna N = N
Viton = V

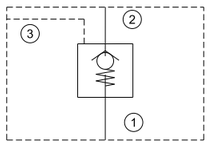
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TCVCV (Pilot Check Valve)



Hydraulic Symbol:



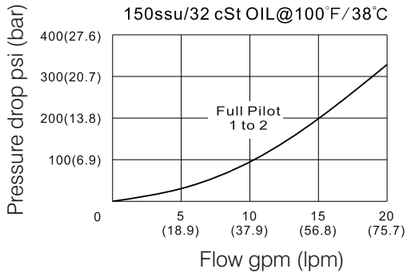
Specifications:

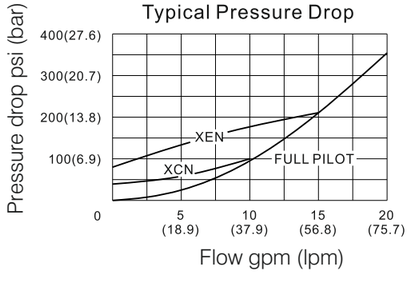
Operating Pressure	350 Bar
Flow	30L/min
Pilot Ratio	3:1
Internal Leakage	0.07ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-163A see page K-8
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Pilot pressure as low as 75 psi (5 bar) higher than the pressure at the vent can open the valve.
- Will accept pressure at port 4 (vent) but can not exceed 5000 psi (350 bar).
- Pilot-to-open check cartridges are locking valve, not motion control valve. For motion control applications, use counterbalance valve.

Performance Curve
Pressure Drop vs Flow

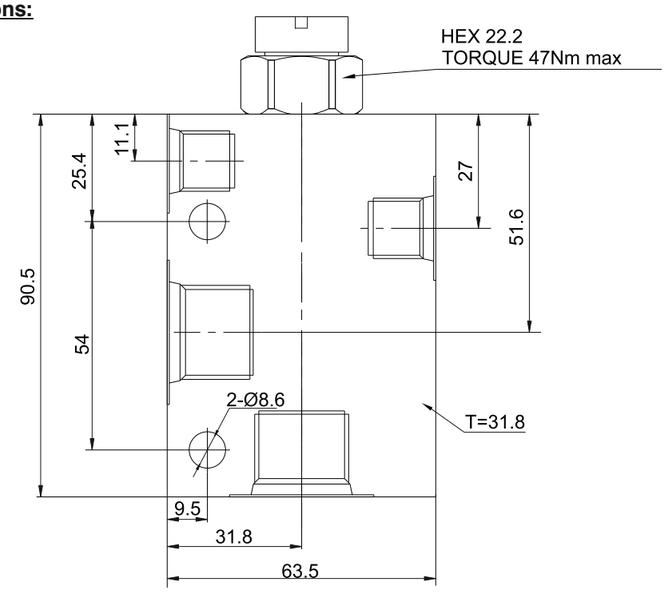




Operation:

This valve is a pilot to open check valve. It has a sealed pilot, a steel seat,and is vented. It allows free flow from the valve (port 2) to the load (port 1) and blocks flow in the opposite direction. Pressure at the pilot (port 3) will open the valve from port 1 to port 2. Pilot pressure needed to open the valve is directly proportional to the load pressure at port 1. The valve is insensitive to pressure at port 2 because the spring chamber is referenced to the vent (port 4).

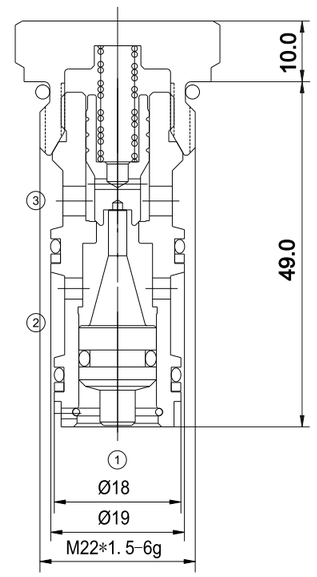
Installation Dimensions:



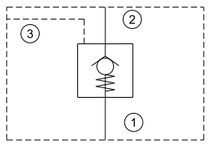
Ordering code details:

TCVCV					
Adjustment:					
Non adjustablet = X					
Cracking Pressure					
4psi(0.3bar) = A					
15psi(1bar) = B					
30psi(2bar) = C					
50psi(3.5bar) = D					
75psi(5bar) = E					
100psi(7bar) = F					
	Seal Kits:				
	Buna N = N				
	Viton = V				
		Body Material:			
		6061-T6 aluminum alloy rated at 207 Bar = A			
		steel rated at 350 Bar = S			
			Body Porting:		
			SAE 6T = 6T		
			SAE 10T = 10T		
			G3/8 = 3G		
			NPT3/8 = 3N		
			Other porting is available		

TRPC06 (Pilot Check Valve)



Hydraulic Symbol:



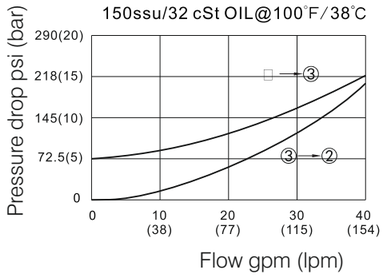
Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Hydraulic Control Ratio	3.4:1
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	NCS06/3 see page K-41
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low leakage design

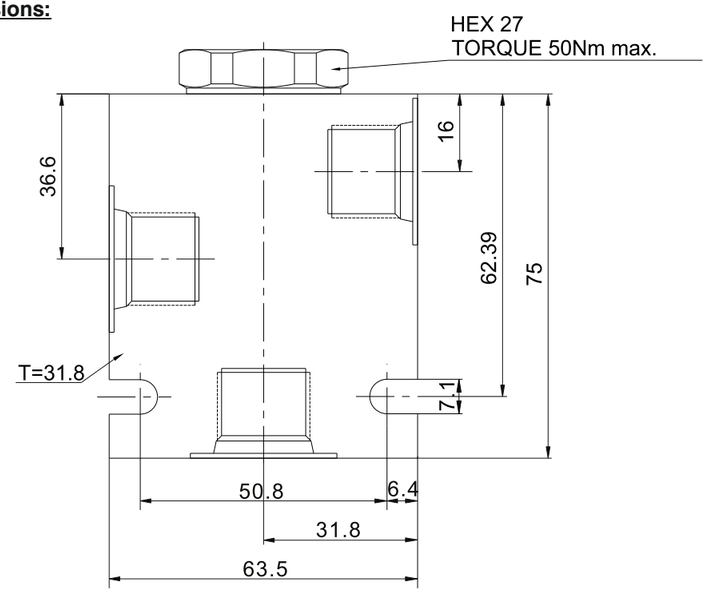
Performance Curve
Pressure Drop vs Flow



Operation:

The valve allows flow from ② to ③ , while normally blocking flow from ③ to ② .Flow will be allowed from ③ to ② when sufficient pressure is applied at ①. The cartridge has a 3.4:1 pilot ratio, meaning that at least one-third of the load pressure held at ③ is required at ① to open the valve.

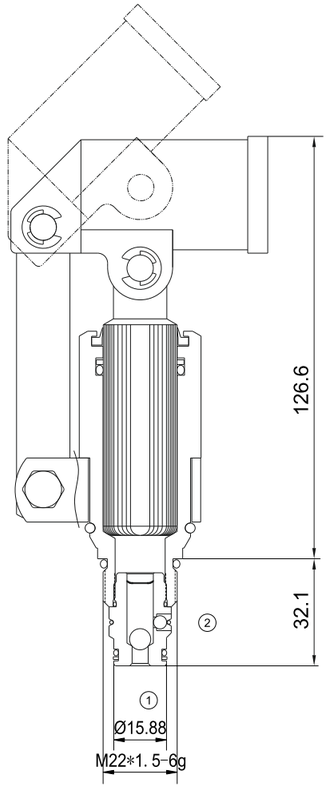
Installation Dimensions:



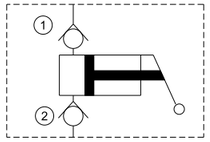
Ordering code details:

TRPC06				
Cracking Pressure 7psi(0.5bar) 73psi(5bar)	= 0.5 = 5			
Seal Kits: Buna N Viton		= N = V		
Body Material: 6061-T6 aluminum alloy rated at 207 Bar steel rated at 350 Bar			= A = S	
Body Porting: SAE 6T SAE 8T G3/8 NPT3/8 Other porting is available				= 6T = 8T = 3G = 3N

THP-100 (MANUAL PUMP)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

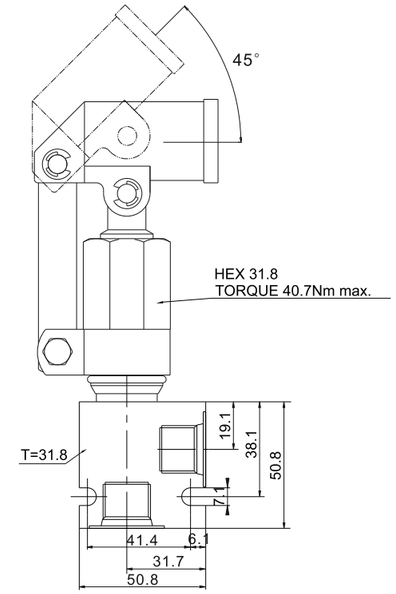
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Cast Beam for heavy\
- Checks are integral to the cartridge

Operation:

When the operator is pushed, the THP-100 delivers nominal flow of 0.5 cu.in.to the ② port. When the operator is pulled,THP-100 draws fluid from the ① port

Installation Dimensions:



Ordering code details:

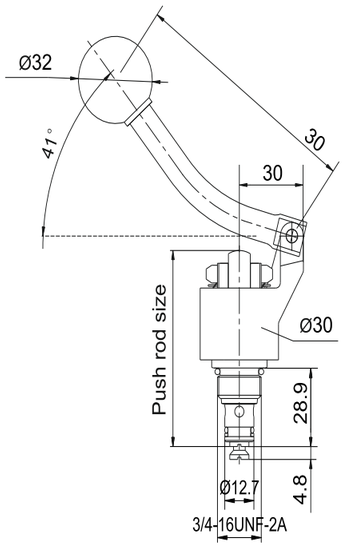
THP-100			

Seal Kits:
Buna N = N
Viton = V

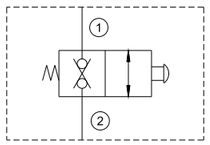
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TMRV-08B(MANUAL VALVE)



Hydraulic Symbol:



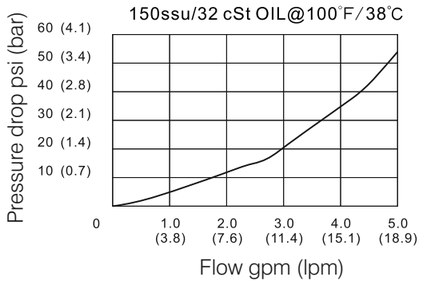
Specifications:

Operating Pressure	250 Bar
Flow	18L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2K see page K-33
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Filter screen standard

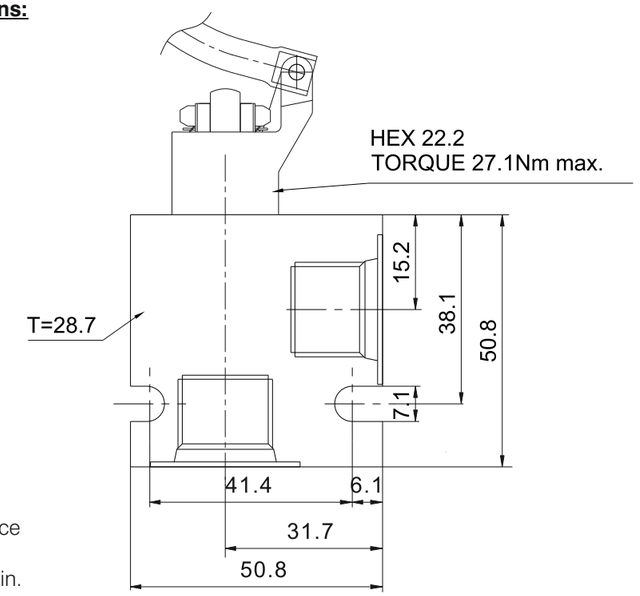
Performance Curve
Pressure Drop vs Flow



Operation:

The valve blocks flow in both directions. When the plunger is actuated, the poppet opens, allowing flow in either direction.

Installation Dimensions:

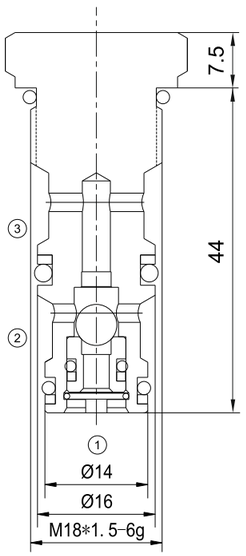


Special poppet clearance
requirement-cavity
must have 10.31 dia.min.
33.3 deep.min.for proper operation

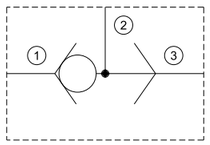
Ordering code details:

TMRV-08B				
Control Method Control Mode Without Control Handle With Control Handle	= No code = k			
Seal Kits: Buna N Viton		= N = V		
Body Material: 6061-T6 aluminum alloy rated at 207 Bar steel rated at 350 Bar			= A = S	
Body Porting: SAE 6T SAE 8T G3/8 NPT3/8 Other porting is available				= 6T = 8T = 3G = 3N

TSLV-06 (Shuttle Valve)



Hydraulic Symbol:



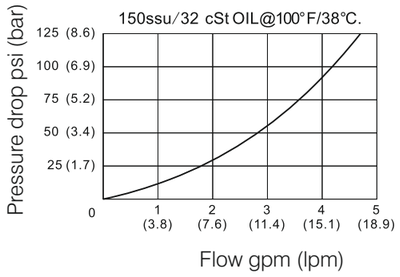
Specifications:

Operating Pressure	240 Bar
Flow	15L/min
Internal Leakage	5drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T4-S2 see page K-21
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

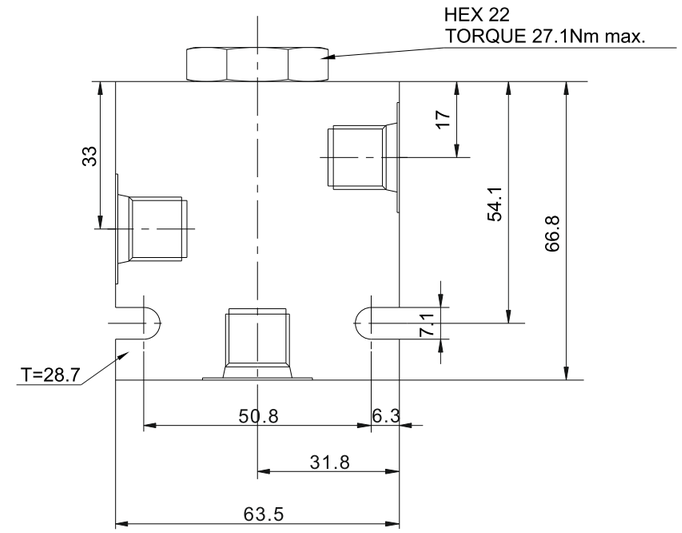
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

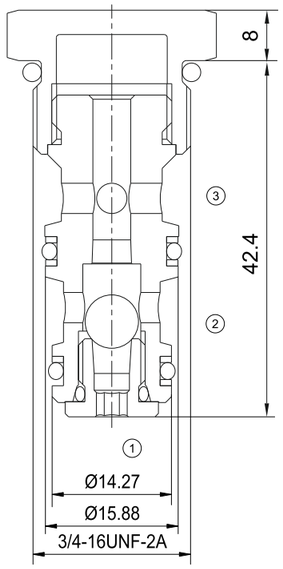
Installation Dimensions:



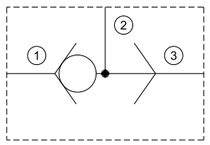
Ordering code details:

TSLV-06			
Seal Kits:			
Buna N	= N		
Viton	= V		
Body Material:			
6061-T6 aluminum alloy rated at 207 Bar		= A	
steel rated at 350 Bar		= S	
Body Porting:			
SAE 6T			= 6T
SAE 8T			= 8T
G3/8			= 3G
NPT3/8			= 3N
Other porting is available			

TSLV-08 (Shuttle Valve)



Hydraulic Symbol:



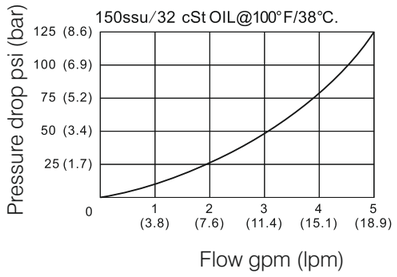
Specifications:

Operating Pressure	240 Bar
Flow	15L/min
Internal Leakage	5drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

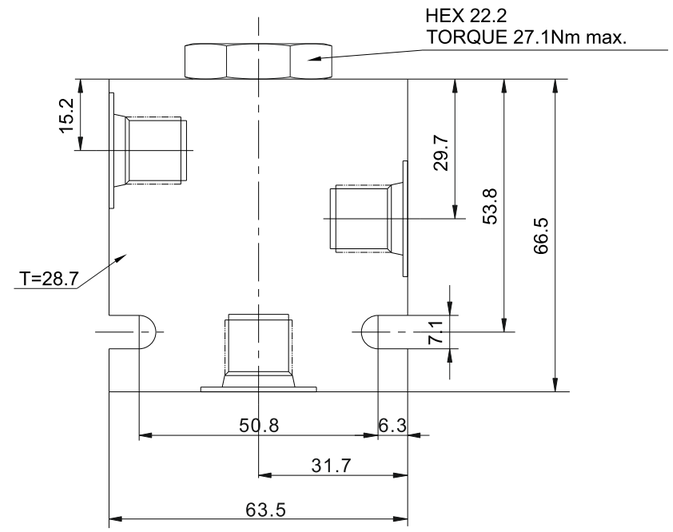
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

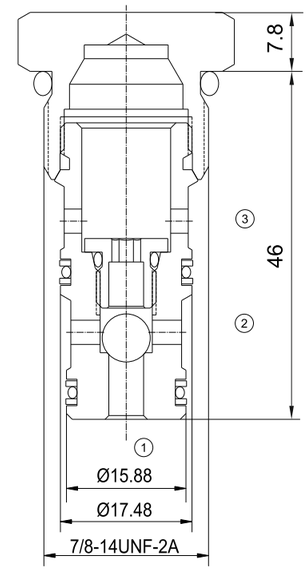
Installation Dimensions:



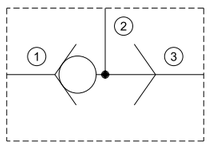
Ordering code details:

TSLV-08			
Seal Kits:			
Buna N	= N		
Viton	= V		
Body Material:			
6061-T6 aluminum alloy rated at 207 Bar		= A	
steel rated at 350 Bar		= S	
Body Porting:			
SAE 6T			= 6T
SAE 8T			= 8T
G3/8			= 3G
NPT3/8			= 3N
Other porting is available			

TLS10-30 (Shuttle Valve)



Hydraulic Symbol:



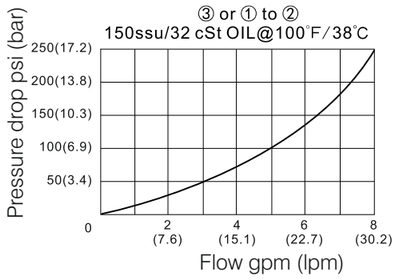
Specifications:

Operating Pressure	240 Bar
Flow	30 L/min
Internal Leakage	0.25ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

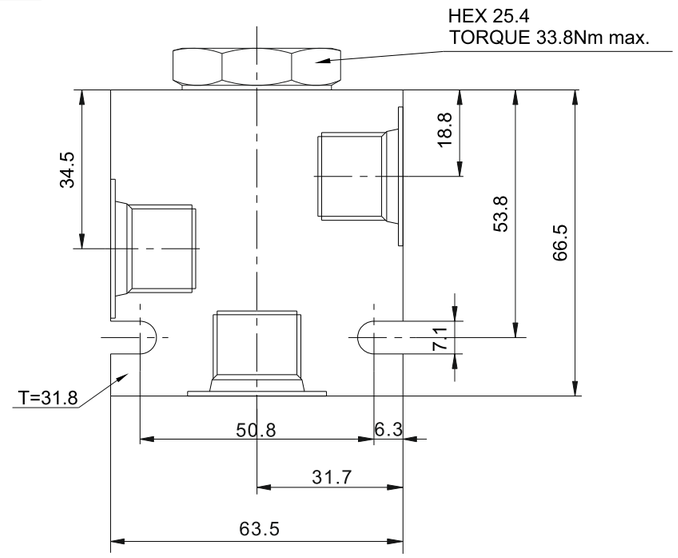
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

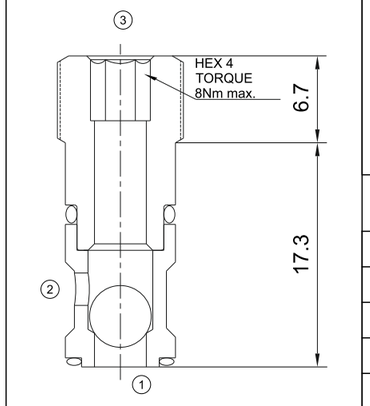
Installation Dimensions:



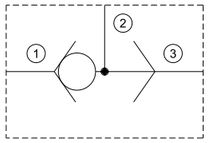
Ordering code details:

TLS10-30			
Seal Kits:			
Buna N	= N		
Viton	= V		
Body Material:			
6061-T6 aluminum alloy rated at 207 Bar		= A	
steel rated at 350 Bar		= S	
Body Porting:			
SAE 6T			= 6T
SAE 8T			= 8T
G3/8			= 3G
NPT3/8			= 3N
Other porting is available			

TSLV-G18 (Shuttle Valve)

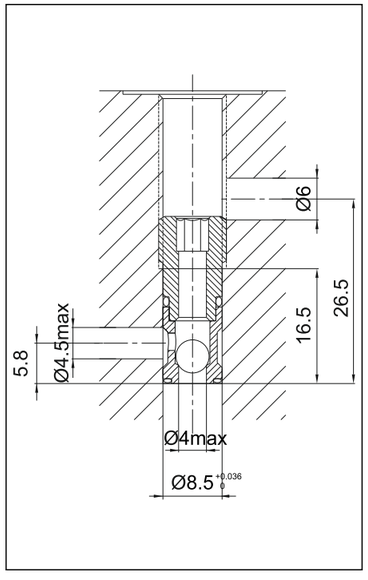


Hydraulic Symbol:



Specifications:

Operating Pressure	250 Bar
Flow	10 L/min
Internal Leakage	5drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



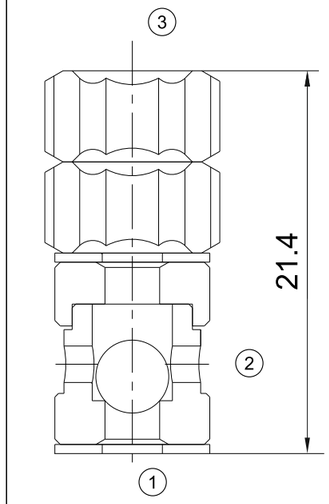
Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

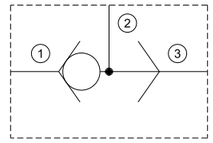
Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

TSLV2-01 (Shuttle Valve)

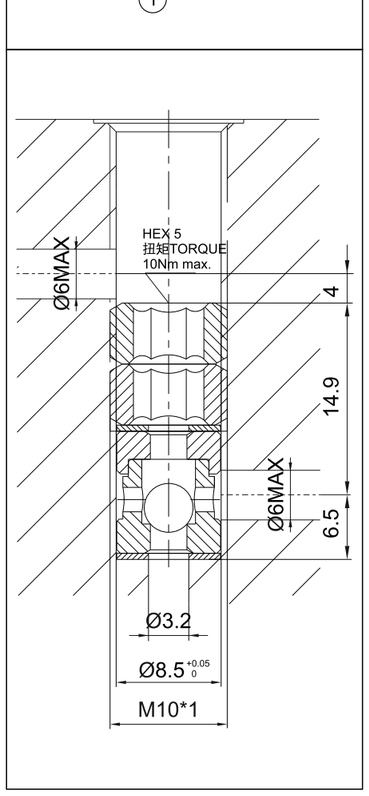


Hydraulic Symbol:



Specifications:

Operating Pressure	250 Bar
Flow	10 L/min
Internal Leakage	5drops/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt



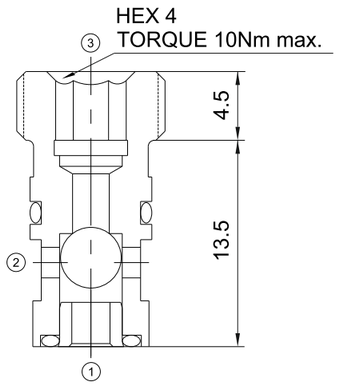
Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

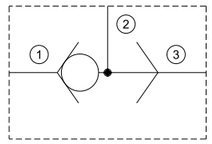
Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

TSLV2-G18 (Shuttle Valve)



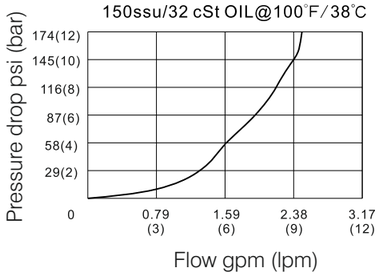
Hydraulic Symbol:



Specifications:

Operating Pressure	240 Bar
Flow	30 L/min
Internal Leakage	0.25ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Performance Curve
Pressure Drop vs Flow

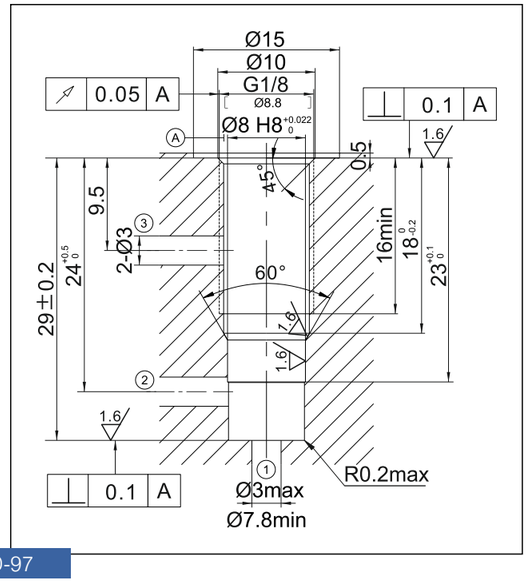


Features:

- Hardened, precision ground parts for durability
- Compact size
- Rapid response to load direction changes.

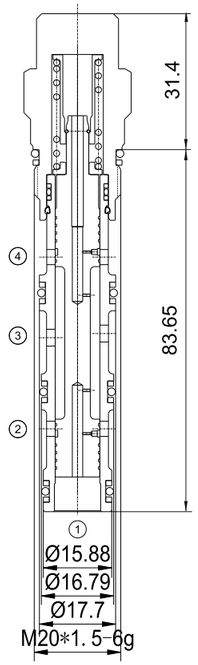
Operation:

The valve will allow flow from the higer pressure of ① or ③ port to the ② port. The valve is commonly used to direct oil from the pressure side of a bidirectional hydraulic motor to a pressure-released hydraulic brake

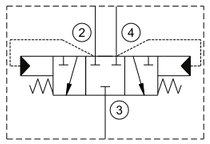


THM HYDRAULICS

TDSCH Low-side (hot oil) Shuttle Valve



Hydraulic Symbol:



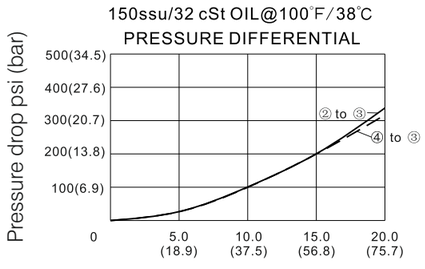
Specifications:

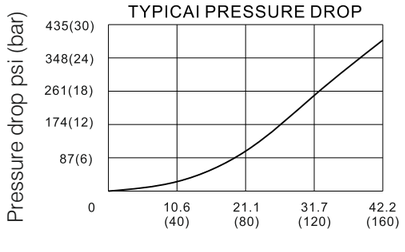
Operating Pressure	350 Bar
Flow	30L/min
Pilot Ratio	3:1
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-163A see page K-8
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- The spool incorporates a hydraulic stop that eliminates mechanical impact and therefore the potential for internal damage.
- The hydraulic stop results in a small pilot flow from the high side work port (port 2 or 4) to the common port (port 3).
- A unique feature due to the hydraulic stop is that the hot oil relief setting can be confirmed with the transmission in neutral.

Performance Curve
Pressure Drop vs Flow

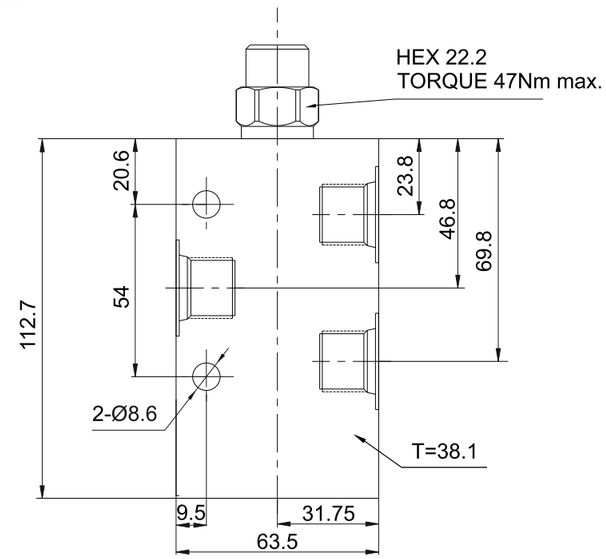




Operation:

Low-side (hot oil) shuttle cartridges allow hot oil to be diverted from the low pressure side of a closed loop system. When both work ports (ports ② and ④)are at equal pressures the valve is spring-centered to an all-ports-blocked position. When one of the work ports (port ② or ④) sees a higher pressure the opposite work port is connected to the common port (port ③).

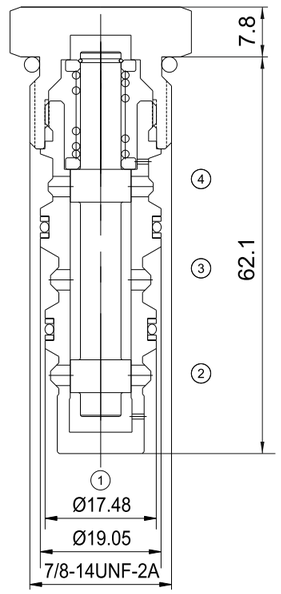
Installation Dimensions:



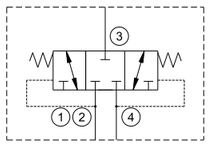
Ordering code details:

TDSCH				
Cracking Pressure				
150psi(10.5bar) = G				
200psi(14bar) = H				
75psi(5bar) = E				
Seal Kits:				
	Buna N = N			
	Viton = V			
Body Material:				
		6061-T6 aluminum alloy rated at 207 Bar = A		
		steel rated at 350 Bar = S		
Body Porting:				
			SAE 6T = 6T	
			SAE 10T = 10T	
			G1/4 = 2G	
			NPT1/4 = 2N	
			Other porting is available	

THS50-43 Low-side (hot oil) Shuttle Valve



Hydraulic Symbol:



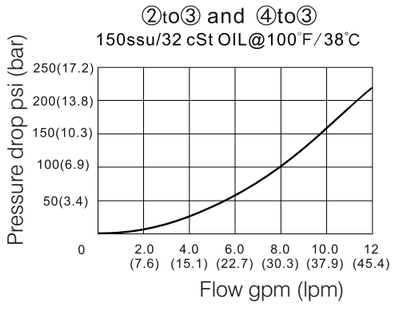
Specifications:

Operating Pressure	345 Bar
Flow	45.4 L/min
Internal Leakage	541ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity

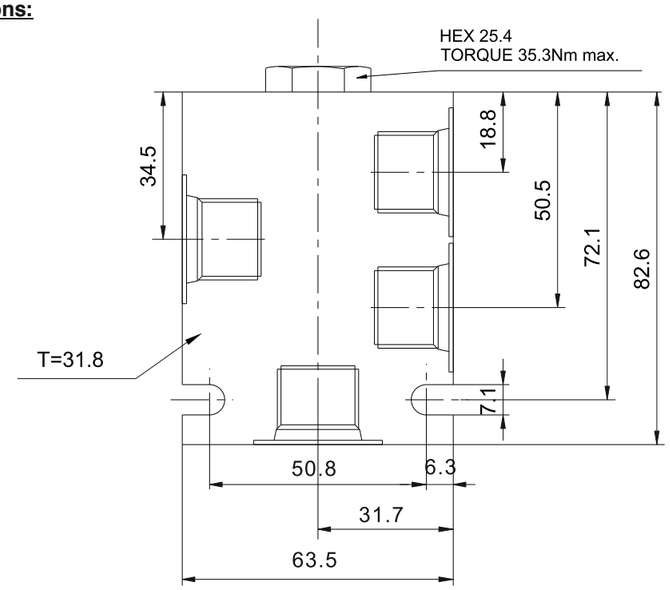
Performance Curve
Pressure Drop vs Flow



Operation:

The MHS50-43 is a screw-in, cartridge style, spring centered spool, closed center, 3-position, 3-way hot oil shuttle valve for use with general purpose hydraulic fluids. The valve CAN be used for hydrostatic transmissions to direct charge pump oil to a heat exchanger or to tank.

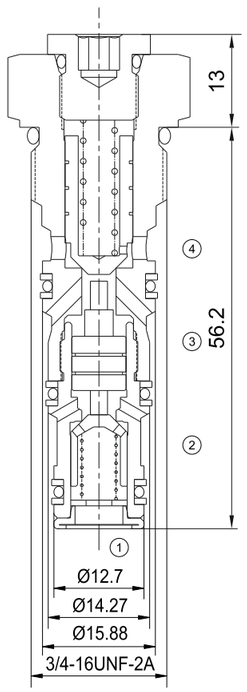
Installation Dimensions:



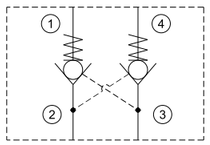
Ordering code details:

THS50-43			
Seal Kits:			
Buna N	= N		
Viton	= V		
Body Material:			
6061-T6 aluminum alloy rated at 207 Bar		= A	
steel rated at 350 Bar		= S	
Body Porting:			
SAE 6T			= 6T
SAE 8T			= 8T
G3/8			= 3G
NPT3/8			= 3N
Other porting is available			

TDPC2-08 Dual Pilot-operated Check Valve



Hydraulic Symbol:



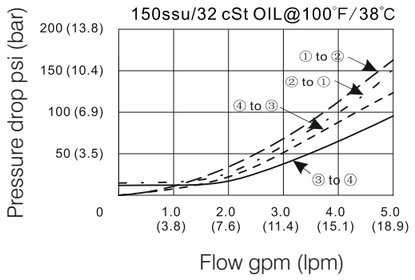
Specifications:

Operating Pressure	207 Bar
Flow	19L/min
Pilot Ratio	2.5:1
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened ,precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure loss

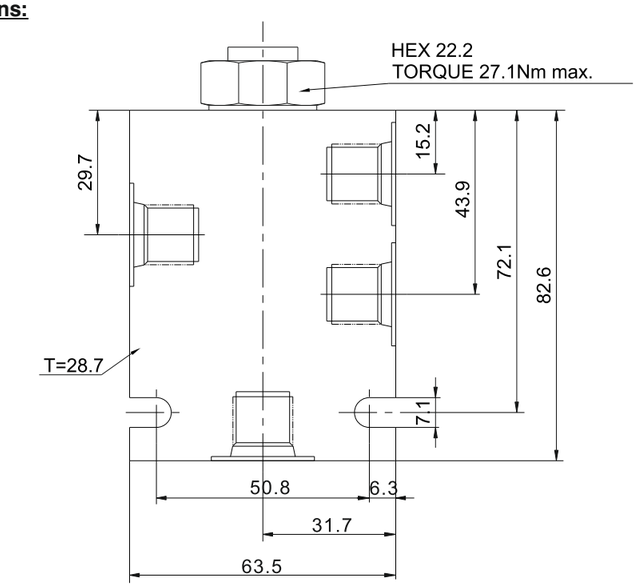
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will block flow from ① to ② ,and from ④ to ③.
Flow is allowed in the opposite direction when pressure is applied to port ② and /or ③ port. The valve has a 2.5:1 pliot ratio, so at least 1/2.5 of the load pressure at port ① or ④ is required at the pliot line (port ② or ③)to open the flow passage to allow flow from ports ① to ④.

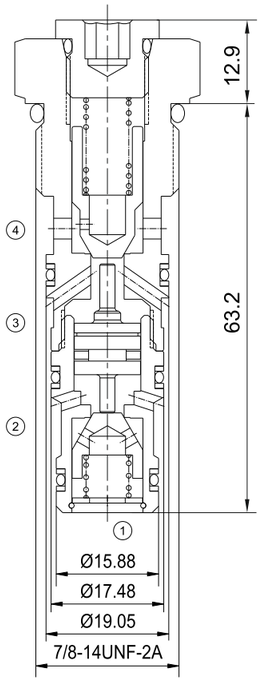
Installation Dimensions:



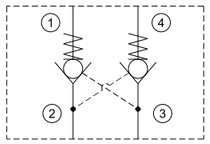
Ordering code details:

TDPC2-08				
Opening Pressure 6psi(0.4bar) = 0.4 50psi(3.4bar) = 3.4				
	Seal Kits: Buna N = N Viton = V			
		Body Material: 6061-T6 aluminum alloy rated at 207 Bar = A steel rated at 350 Bar = S		
			Body Porting: SAE 4T = 4T SAE 8T = 8T G3/8 = 3G NPT3/8 = 3N Other porting is available	

TDPC-10 Dual Pilot-operated Check Valve



Hydraulic Symbol:



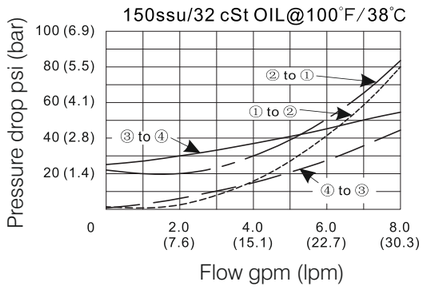
Specifications:

Operating Pressure	240 Bar
Flow	30L/min
Pilot Ratio	4:1
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened ,precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure loss

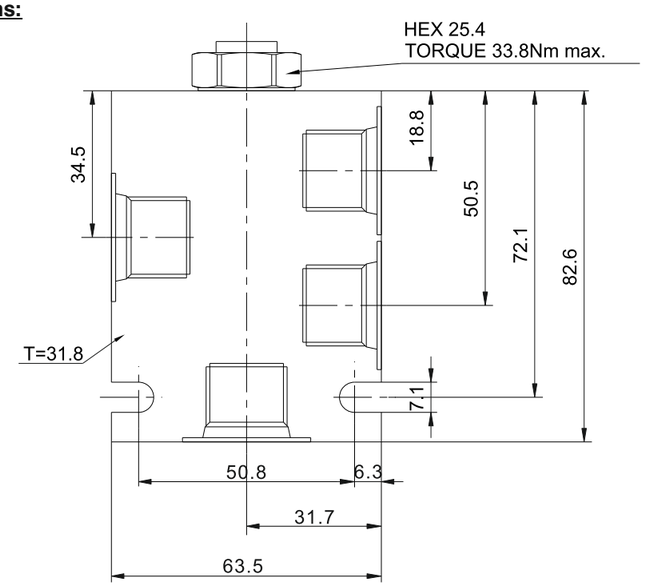
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will block flow from ① to ② ,and from ④ to ③.
Flow is allowed in the opposite direction when pressure is applied to port ② and /or ③ port. The valve has a 2.5:1 pliot ratio, so at least 1/2.5 of the load pressure at port ① or ④ is required at the pliot line (port ② or ③)to open the flow passage to allow flow from ports ① to ④.

Installation Dimensions:



Ordering code details:

TDPC-10				

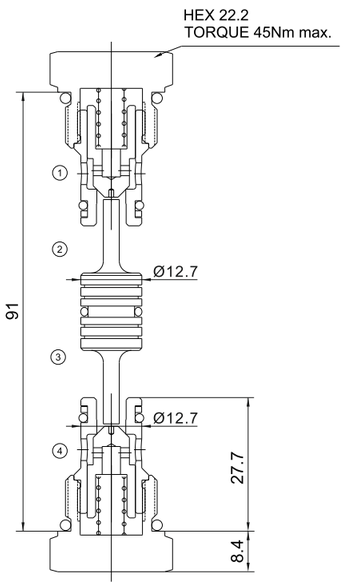
Opening Pressure
25psi(1.7bar) = 1.7

Seal Kits:
Buna N = N
Viton = V

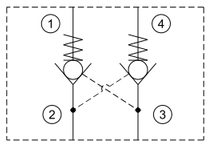
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDPC0S08 Dual Pilot-operated Check Valve



Hydraulic Symbol:



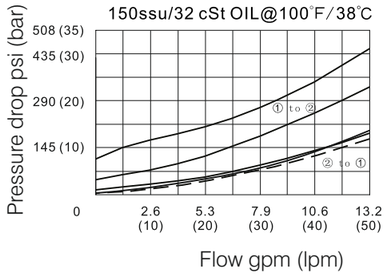
Specifications:

Operating Pressure	420 Bar
Flow	50L/min
Pilot Ratio	4.5:1
Internal Leakage	≤3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	See Picture
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened ,precision ground parts for durability
- Compact size
- Low pressure loss

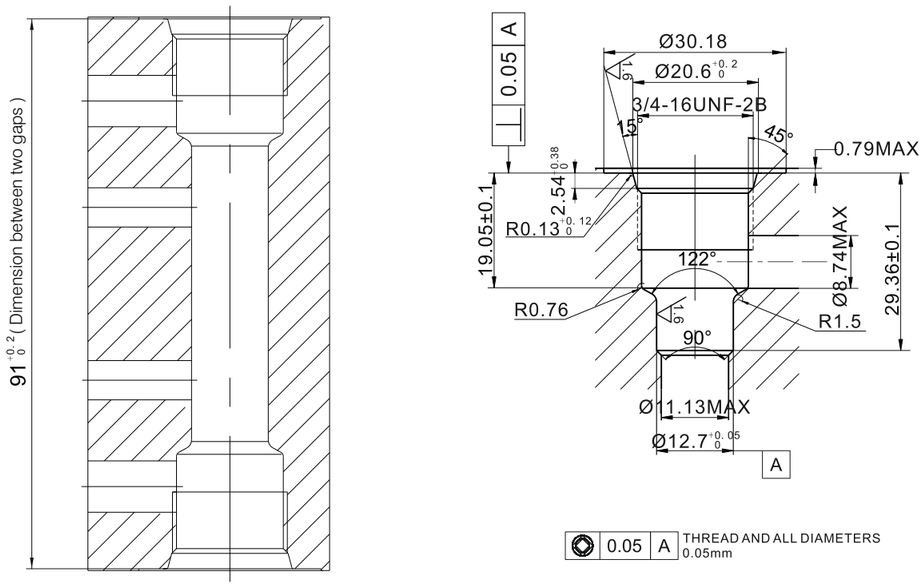
Performance Curve
Pressure Drop vs Flow



Operation:

The valve will block flow from ① to ② ,and from ④ to ③.
Flow is allowed in the opposite direction when pressure is applied to port ② and /or ③ port. The valve has a 2.5:1 pliot ratio, so at least 1/2.5 of the load pressure at port ① or ④ is required at the pliot line (port ② or ③)to open the flow passage to allow flow from ports ① to ④.

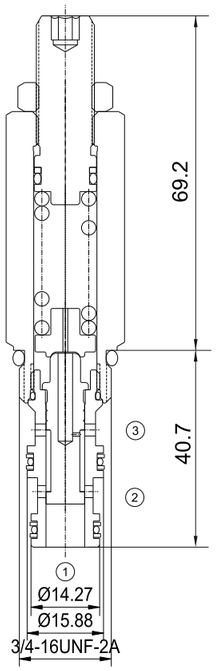
Installation Dimensions:



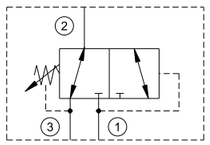
Ordering code details:

TDPC0S08		
Cracking Pressure 7psi(0.5bar)	= 0.5	
Seal Kits: Buna N		= N
Viton		= V

TSQV08-3 Directional Valve



Hydraulic Symbol:



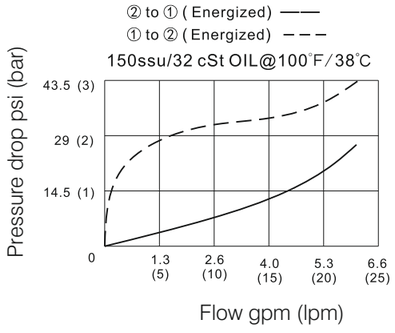
Specifications:

Operating Pressure	240 Bar
Flow	22.7 L/min
Internal Leakage	20ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

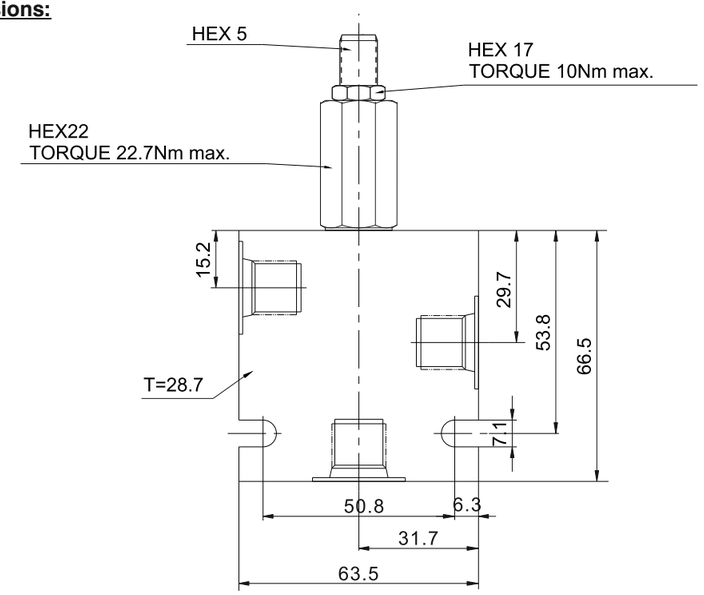
Performance Curve
Pressure Drop vs Flow



Operation:

In its steady state, the valve blocks flow at ① , while allowing flow to pass from ② to ③ .On attainment of a pre-determined pressure at ① ,the cartridge shifts to open ① to ② .

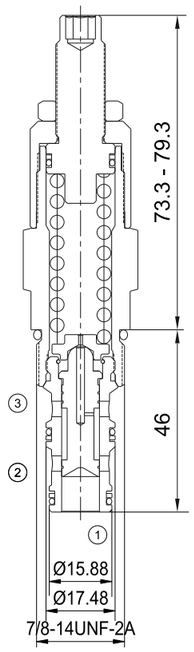
Installation Dimensions:



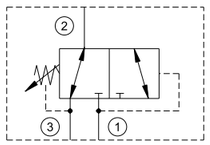
Ordering code details:

TSQV08-3			
Seal Kits:			
Buna N	= N		
Viton	= V		
Body Material:			
6061-T6 aluminum alloy rated at 207 Bar		= A	
steel rated at 350 Bar		= S	
Body Porting:			
SAE 4T			= 4T
SAE 8T			= 8T
G3/8			= 3G
NPT3/8			= 3N
Other porting is available			

TPS-10 Directional Valve



Hydraulic Symbol:



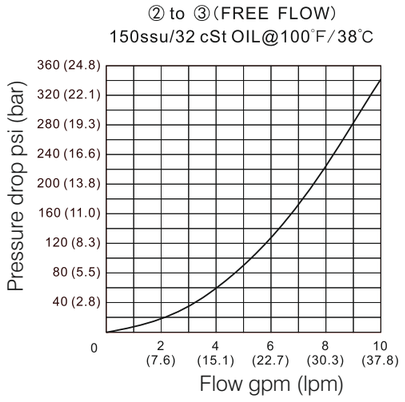
Specifications:

Operating Pressure	207 Bar
Flow	34 L/min
Internal Leakage	82 ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Adjustment may be locked in place.
- Adjustment will not screw out of the valve body

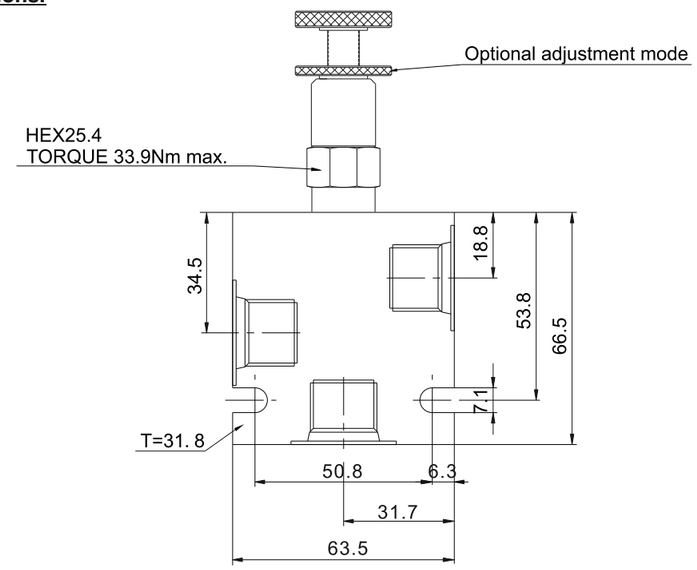
Performance Curve
Pressure Drop vs Flow



Operation:

In its steady state, the valve blocks flow at ① , while allowing flow to pass from ② to ③ .On attainment of a pre-determined pressure at ① ,the cartridge shifts to open ① to ② .

Installation Dimensions:



Ordering code details:

TPS-10					

Adjustment:
Screw Adjust = No code
Handwheel Adjust = K

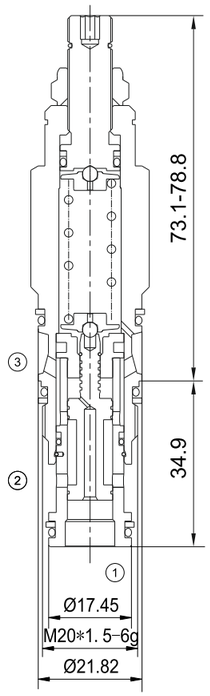
Pressure Range
40-400psi(2.8-28bar) Preset:200psi(13bar) = 4
200-800psi(14-56bar) Preset:400psi(28bar) = 8
300-1500psi(21-104bar) Preset:750psi(52bar) = 15
210-2100psi(14.5-145bar) Preset:740psi(51bar) = 21

Seal Kits:
Buna N = N
Viton = V

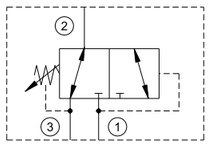
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDRBC Directional Valve



Hydraulic Symbol:



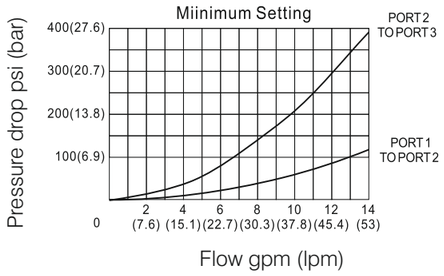
Specifications:

Operating Pressure	350 Bar
Flow	28 L/min
Internal Leakage	30ml/min.max.at norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Pressure at port 3 is directly additive to the setting of the valve. Because of this, port 3 may not be usable as a work port in circuit. If this is a consideration, the 4 port version of this valve may be a solution
- Because using direct-acting design, these valve hare low internal leakage and low pilot flow loss features.

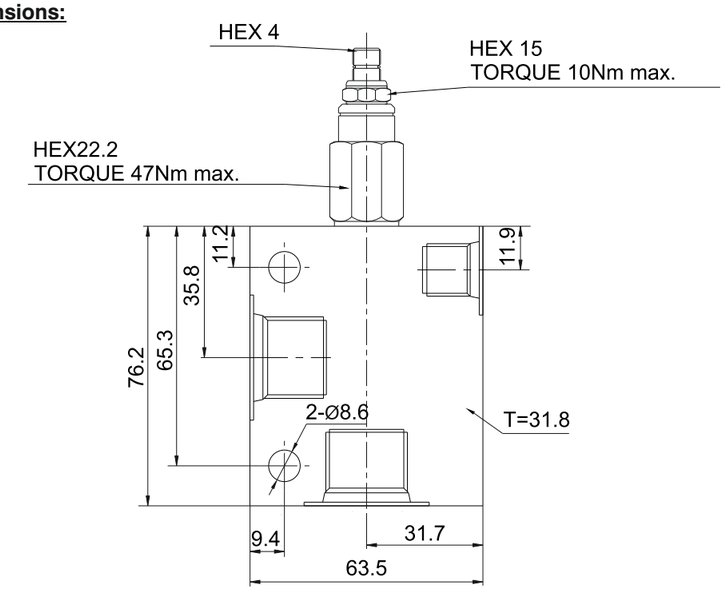
Performance Curve
Pressure Drop vs Flow



Operation:

Direct-acting, 3-way directional cartridges (1 blocked, 2 to 3 open) are switching devices typically used in moderate flow circuits. They can be used by themselves or to actuate larger pilot-operated directional cartridges or logic cartridges. The valve shifts when the pressure differential between port 1 and port 3 exceeds the setting.

Installation Dimensions:



Ordering code details:

TDRBC					

Adjustment:
Screw Adjust = L

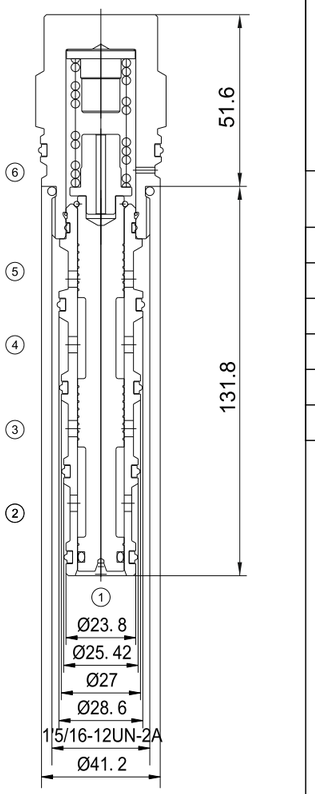
Pressure Range
500-3000psi(35-210bar) Preset:1000psi(70bar) = A
50-1500psi(3.5-105bar) Preset:200psi(14bar) = B
25-800psi(1.7-55bar) Preset:200psi(14bar) = D
25-400psi(1.7-28bar) Preset:200psi(14bar) = E
25-200psi(1.7-14bar) Preset:100psi(7bar) = S
750-4500psi(50-315bar) Preset:1000psi(70bar) = W

Seal Kits:
Buna N = N
Viton = V

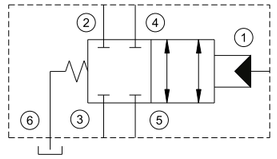
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

THPD16-S63 Piloted Directional Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	151 L/min
Internal Leakage	164ml/min.max.at norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	HVC16-S6 see page K-38
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

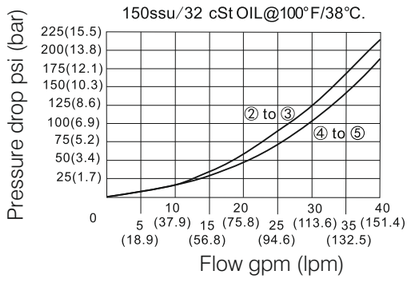
Features:

- Hardened, precision ground parts for durability
- The MHPD16-S63 is a screw-in, cartridge style, pilot operated, spool-type, hydraulic directional valve.
- Optional sealed spool between ports 1 and 2.

Operation:

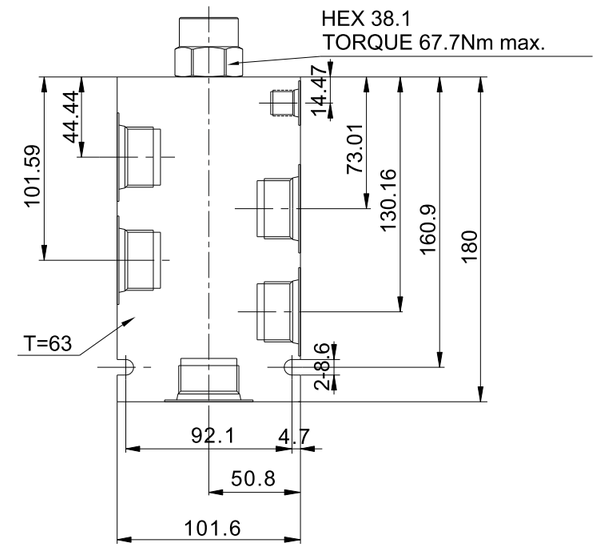
In the neutral position all ports are blocked. On remote pilot signal at port 1 the valve's spool shifts to allow flow between ports 2 and 3, and 4 and 5. The spring chamber is vented to the tank through port 6. The vented spring chamber allows the valve to be fully pressurized at ports 1, 2, 3, 4, and 5 without affecting required pilot pressure. Pressure at port 6 will affect required pilot pressure.

Performance Curve
Pressure Drop vs Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

THPD16-S63				

Pressure Range
60psi(4.1bar) = 60
80psi(5.5bar) = 80
110psi(7.6bar) = 110
170psi(11.7bar) = 170

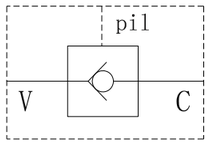
Seal Kits:
Buna N = N
Viton = V

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350 Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TVBPSL Pilot Check Valve

Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	See Picture
Hydraulic Control Ratio	See Picture
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

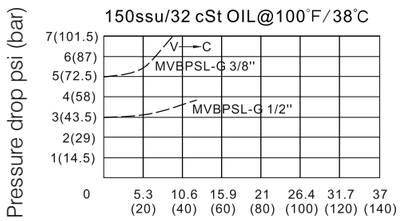
Features:

- Hardened,precision ground parts for durability
- Compact size
- Low leakage design

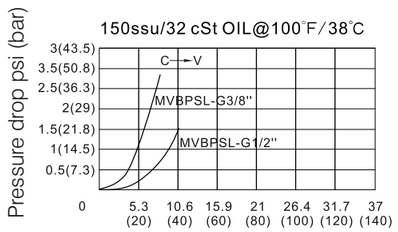
Operation:

These valves are used to block the cylinder in one di- rection.The flow is free in one direction and blocked in the reverse direction until pilot pressure is applied. They are designed for in-line mounting.

Performance Curve
Pressure Drop vs Flow

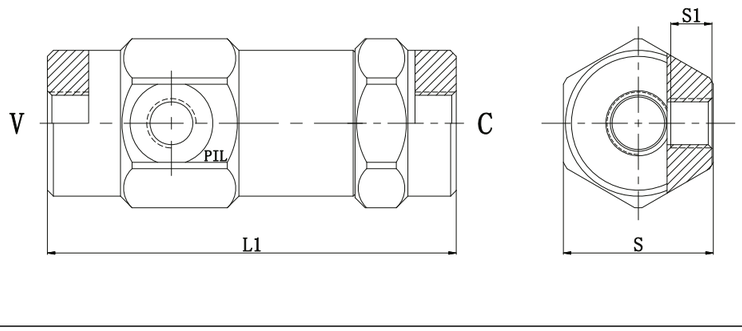


Performance Curve
Pressure Drop vs Flow



Installation Dimensions:

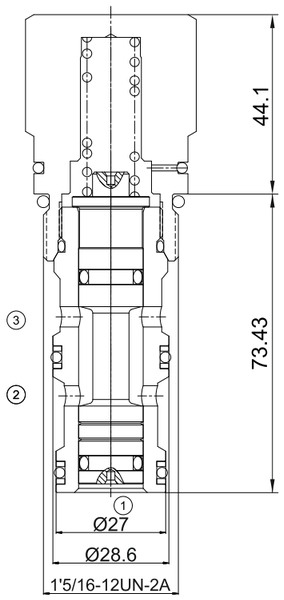
Model	Maximum flow (L/Min)	Cracking Pressure (Bar)	Hydraulic Control Ratio	V-C GAS	PIL GAS	L1 mm	S mm	S1 mm	PESO WEIGHT kg
MVBPSL-G3/8	30	5	1:6.5	G3/8"	G1/4"	109	40	11.5	0.900
MVBPSL-G1/2	45	3	1:4.6	G1/2"	G1/4"	120	42	11	1.040



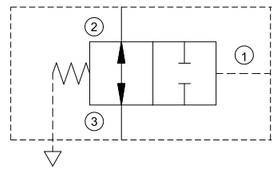
Ordering code details:

	TVBPSL		
Thread Size			
G3/8	= G3/8		
G1/2	= G1/2		
Seal Kits:			
Buna N		= N	
Viton		= V	

TVDSD-16A Piloted Directional Valve



Hydraulic Symbol:



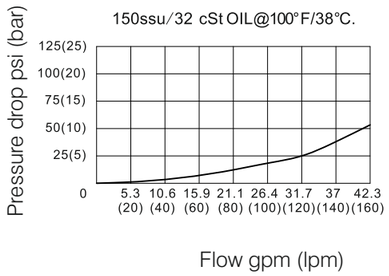
Specifications:

Operating Pressure	350 Bar
Flow	160 L/min
Internal Leakage	200ml/min.max.at norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-3 see page K-46
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

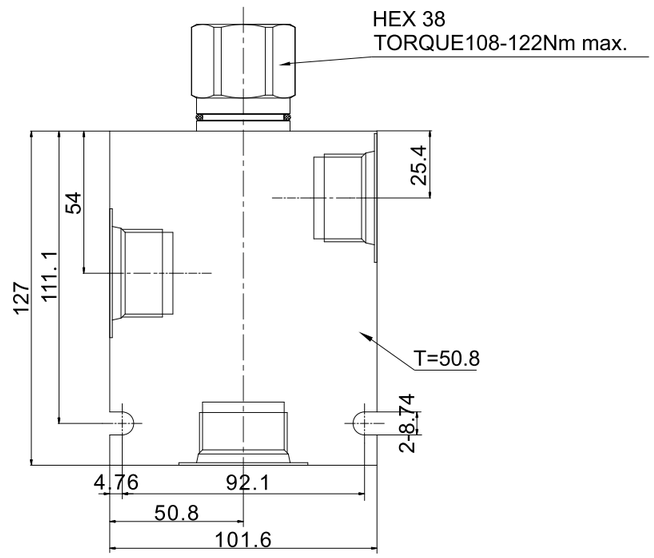


Operation:

Before the pressure at Port 1 increases enough to overcome the spring-open pressure between the spool, the fluid flows bidirectionally between Port 2 and Port 3 and stops at Port 4. Beyond this opening pressure, the spool moves, and fluid flows bidirectionally between Port 3 and Port 4 and stops at Port 2. The chamber is sealed and leaked to the environment, and the constant movement can be realized only by the spring opening pressure, and is not affected by the conditions at the oil port 2 or 3.

THM HYDRAULICS

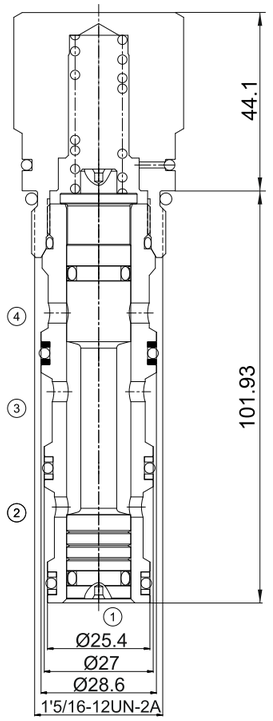
Installation Dimensions:



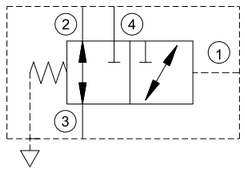
Ordering code details:

T VDSD-16A				
Pressure Range				
73psi(5bar) = 05				
160psi(11bar) = 11				
Seal Kits:				
Buna N	= N			
Viton	= V			
Body Material:				
6061-T6 aluminum alloy rated at 207 Bar		= A		
steel rated at 350 Bar		= S		
Body Porting:				
SAE 12T			= 12T	
SAE 16T			= 16T	
NPT3/4			= 6N	
NPT1			= 8N	
G3/4			= 6G	
G1			= 8G	
Other porting is available				

TVDSJ-16A Piloted Directional Valve



Hydraulic Symbol:



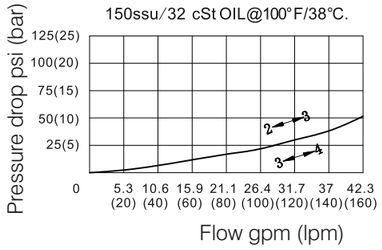
Specifications:

Operating Pressure	350 Bar
Flow	160 L/min
Internal Leakage	80ml/min.max.at norminal setting
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-4 see page K-46
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

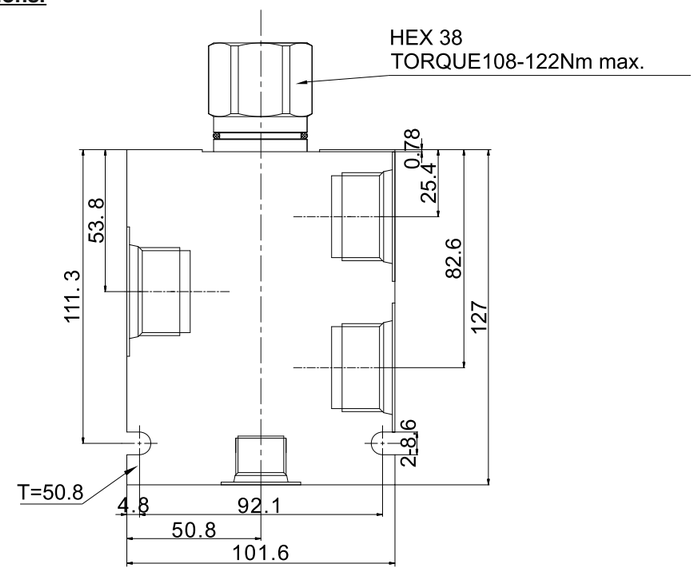
Performance Curve
Pressure Drop vs Flow



Operation:

The fluid flows in both directions between oil port 2 and oil port 3 until the pressure at oil port 1 is raised to overcome the spring opening pressure between the oil port and the spool. Beyond this opening pressure, the spool moves and fluid stops at ports 2 and 3. Spring Chamber Seal and leak to the environment, can only rely on the spring opening pressure to achieve constant movement, and not affected by oil mouth 2 or 3 conditions.

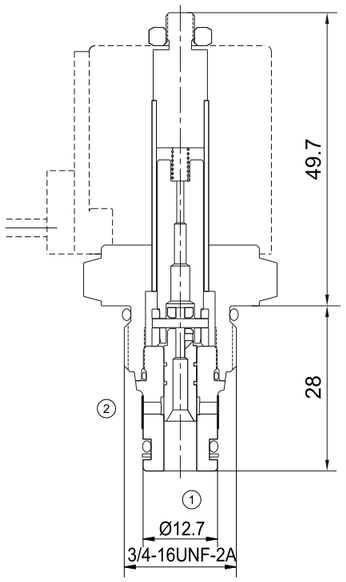
Installation Dimensions:



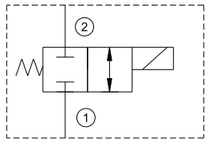
Ordering code details:

TVDSJ-16A				
Pressure Range				
73psi(5bar) = 05				
160psi(11bar) = 11				
Seal Kits:				
Buna N	= N			
Viton	= V			
Body Material:				
6061-T6 aluminum alloy rated at 207 Bar		= A		
steel rated at 350 Bar		= S		
Body Porting:				
SAE 12T			= 12T	
SAE 16T			= 16T	
NPT3/4			= 6N	
NPT1			= 8N	
G3/4			= 6G	
G1			= 8G	
Other porting is available				

TSV3-08-2NCS 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



Specifications:

Operating Pressure	207 Bar
Flow	9.5 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

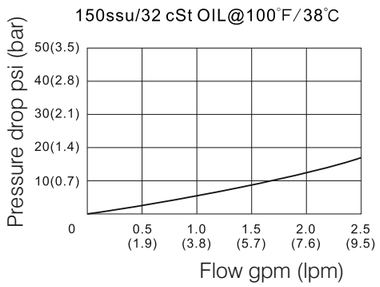
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

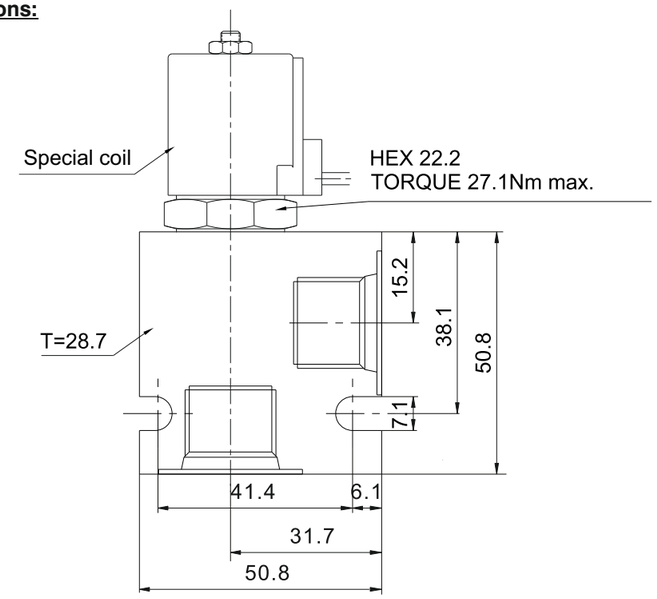
Operation:

When de-energized , the valve blocks flow in both directions.
When energized, the valve's spool shifts moves to allow bi-directional flow

Performance Curve
Pressure Drop vs Flow



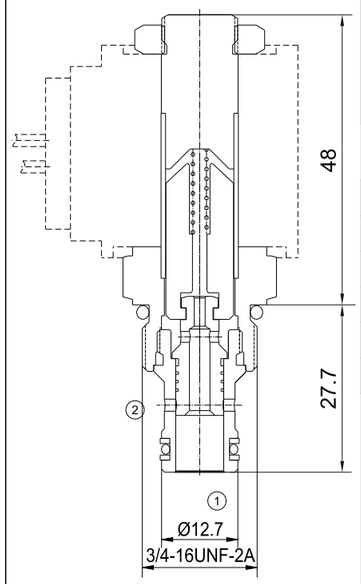
Installation Dimensions:



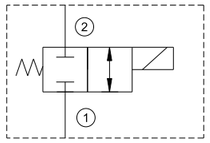
Ordering code details:

TSV3-08-2NCS						
Seal Kits:						
Buna N	= N					
Viton	= V					
Voltage						
12V		=12V				
24V		=24V				
110V		=110V				
220V		=220V				
Coil Connection						
Amp Plug			= A			
Double Spade			= B			
Double Lead			= D			
Single Lead			= S			
DIN43650			= H			
Current Type						
Direct current				= D		
Alternating current				= A		
Body Material:						
6061-T6 aluminum alloy rated at 207 Bar					= A	
steel rated at 350 Bar					= S	
BODY PORTING						
SAE 4T						= 4T
SAE 8T						= 8T
G3/8						= 3G
NPT3/8						= 3N
Other porting is available						

TSV-08-24 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



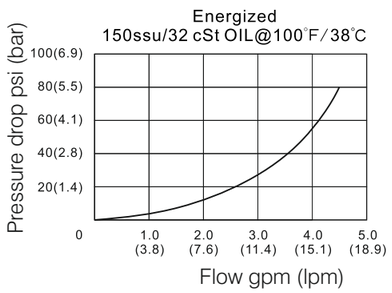
Specifications:

Operating Pressure	207 Bar
Flow	17 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

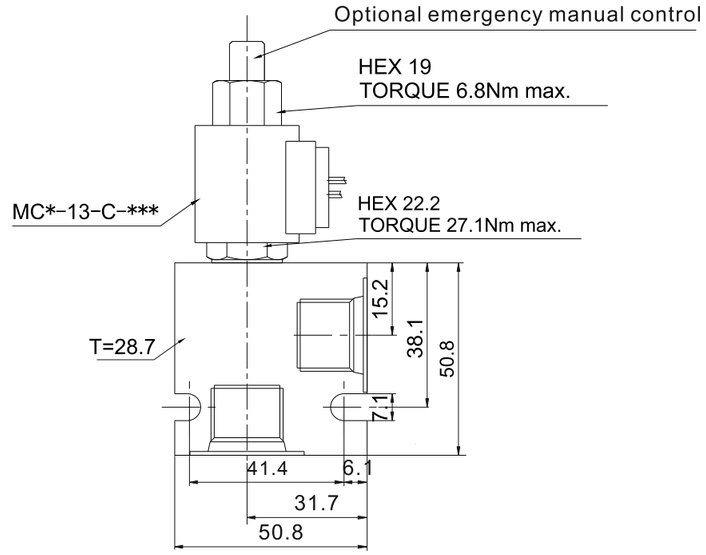
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions. When energized, the valve's spool shifts moves to allow bi-directional flow.

Installation Dimensions:



Ordering code details:

TSV-08-24 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

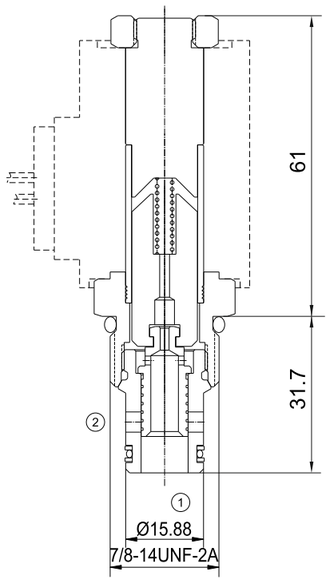
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

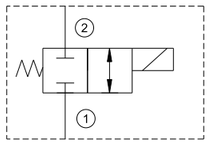
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3G
Other porting is available

TSV10-24 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



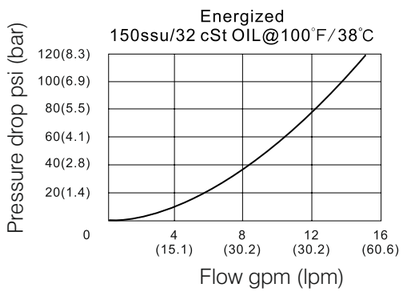
Specifications:

Operating Pressure	207 Bar
Flow	17 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

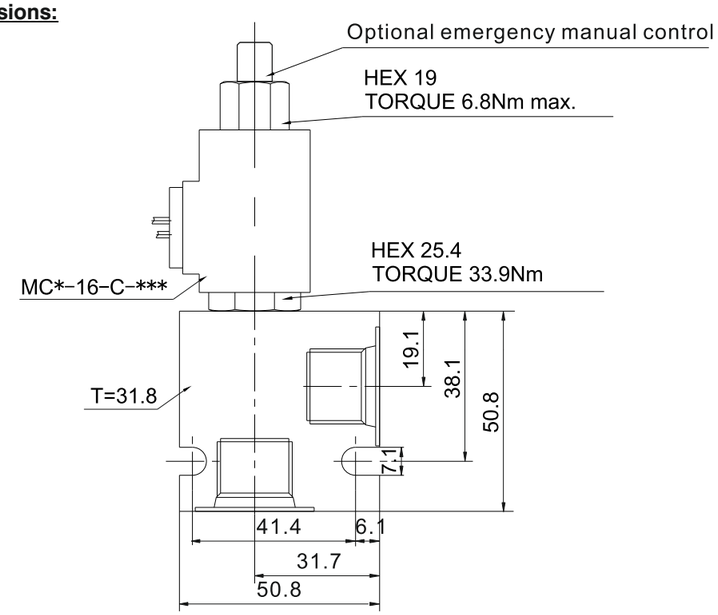
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions. When energized, the valve's spool shifts moves to allow bi-directional flow.

Installation Dimensions:



Ordering code details:

TSV10-24 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

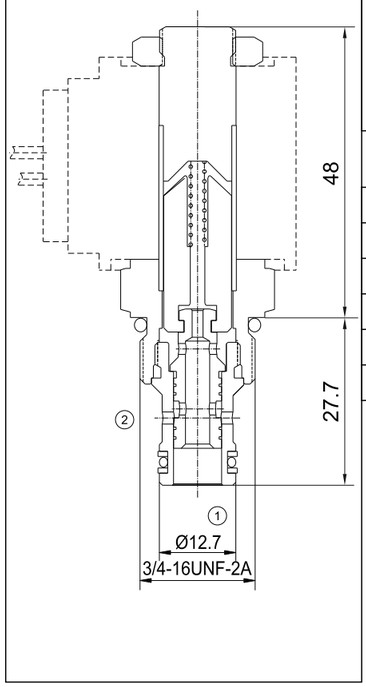
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

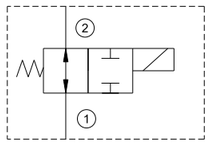
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-25 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



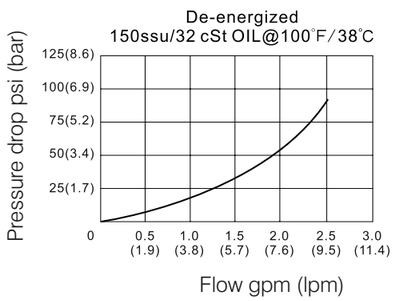
Specifications:

Operating Pressure	207 Bar
Flow	9.5 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

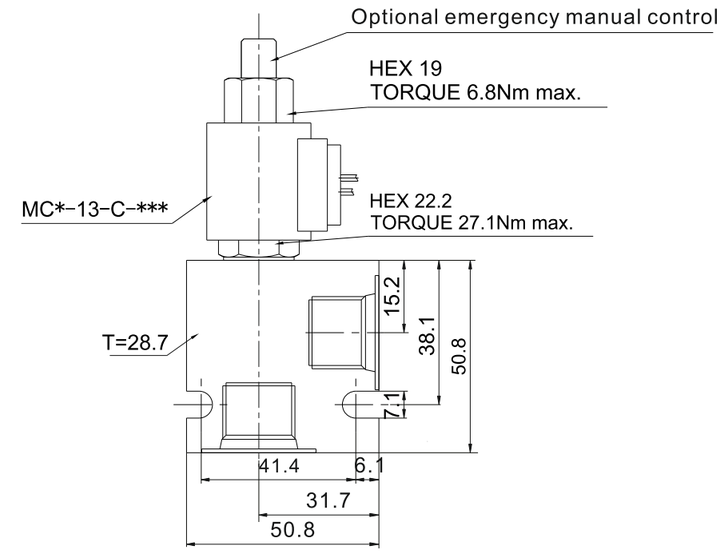
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , oil fluid allow bi-directional flow.
When energized, the valve's spool shifts moves to blocks flow in both directions.

Installation Dimensions:



Ordering code details:

TSV-08-25 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

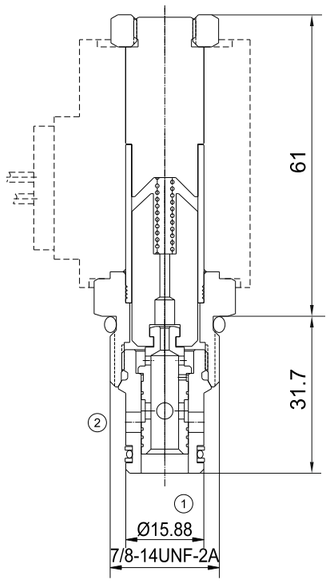
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

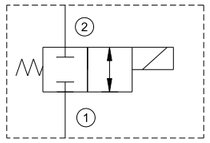
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV10-25 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



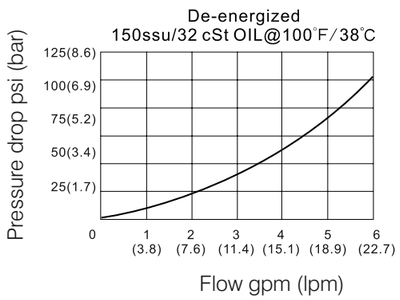
Specifications:

Operating Pressure	207 Bar
Flow	22.7 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

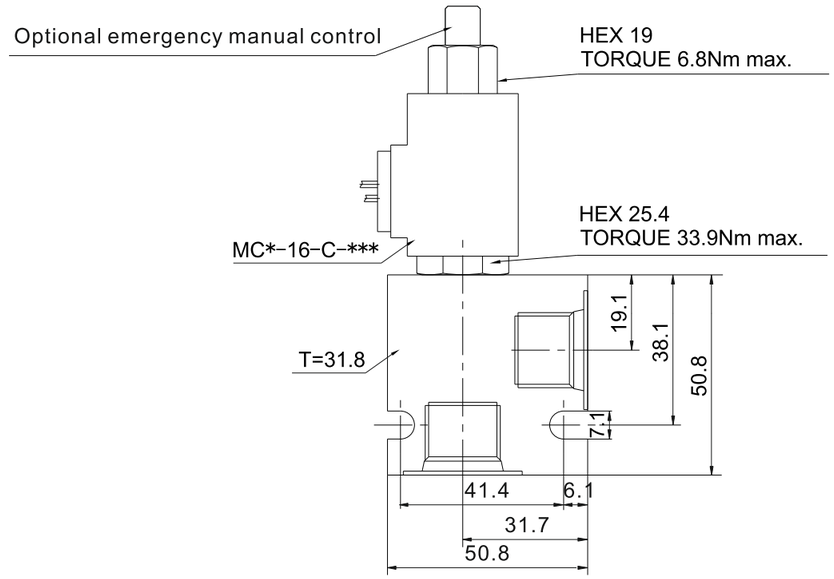
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , oil fluid allow bi-directional flow.
When energized, the valve's spool shifts moves to blocks flow in both directions.

Installation Dimensions:



Ordering code details:

TSV10-25 | | | | | | | |

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

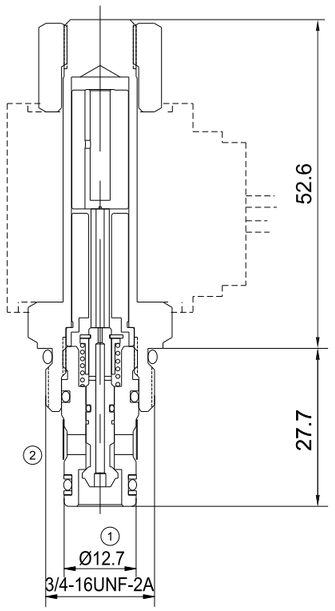
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

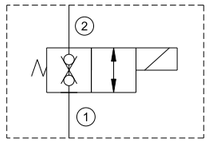
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-28 2-Way,2-Position (Bi-directionally Check Type)



Hydraulic Symbol:



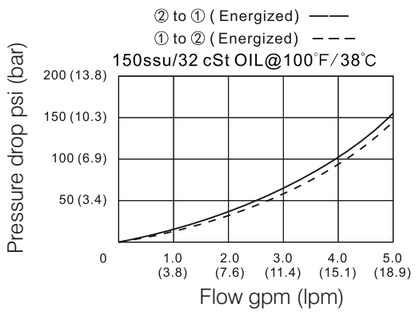
Specifications:

Operating Pressure	207 Bar
Flow	19 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

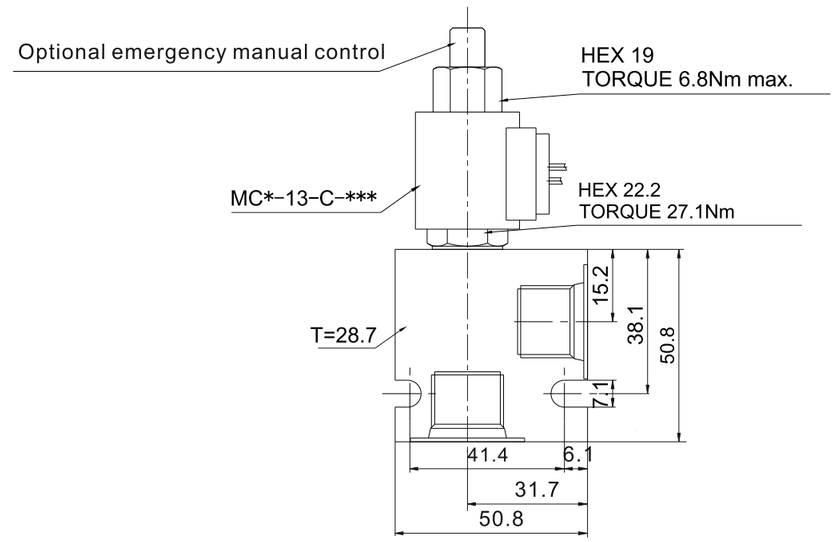
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ②to port ① or from port ① to port ② .

Installation Dimensions:



Ordering code details:

TSV-08-28 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

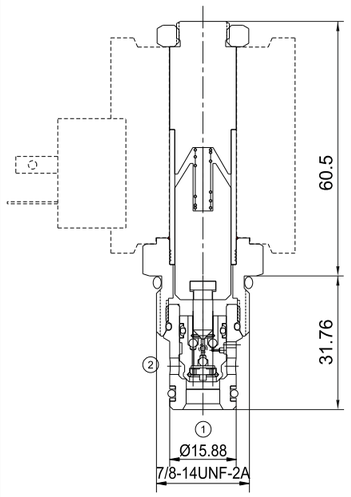
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

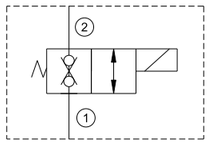
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV10-28 2-Way,2-Position (Bi-directionally Check Type)



Hydraulic Symbol:



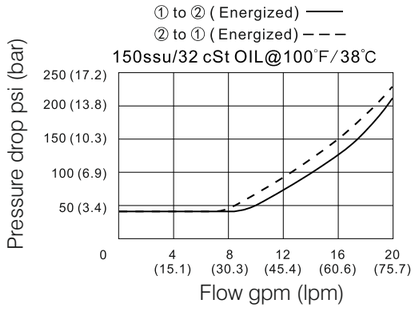
Specifications:

Operating Pressure	240 Bar
Flow	75.7L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions. When energized, the spool opens to allow oil fluid flow from port ②to port ① or from port ① to port ② .

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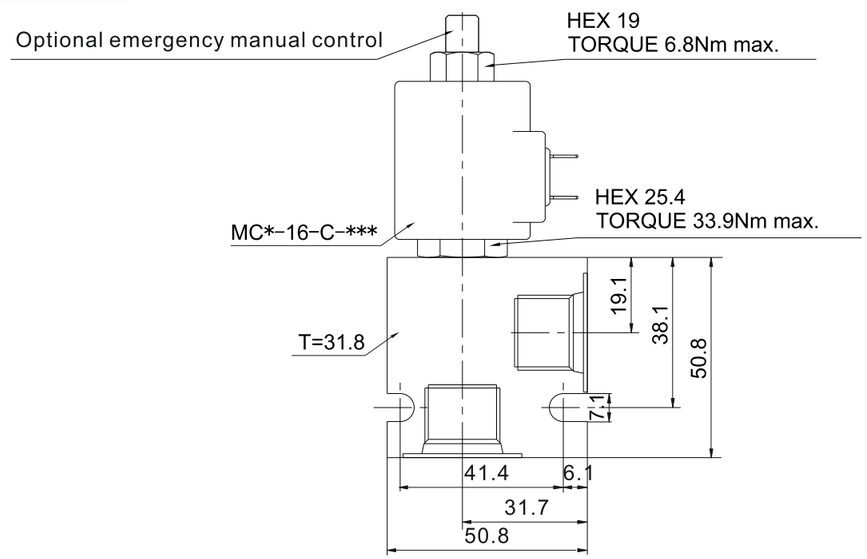
Installation Dimensions:



Ordering code details:

TSV10-28 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

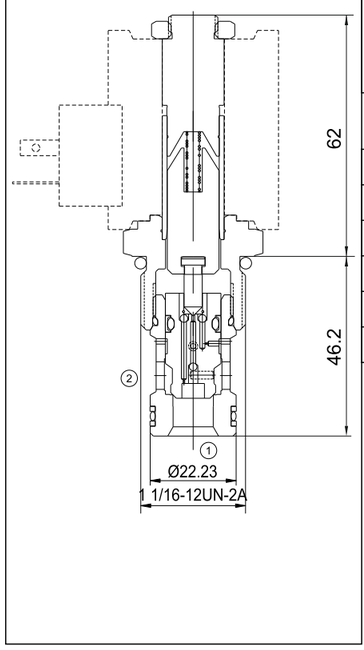
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

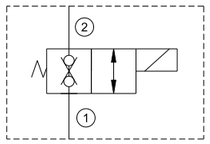
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV12-28 2-Way,2-Position (Bi-directionally Check Type)



Hydraulic Symbol:



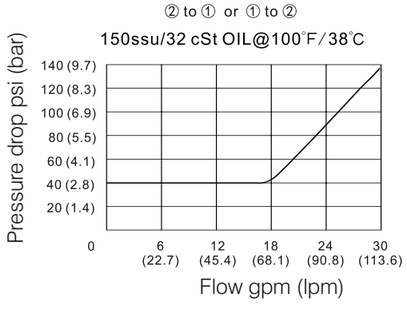
Specifications:

Operating Pressure	240 Bar
Flow	113.6L/min
Internal Leakage	7drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

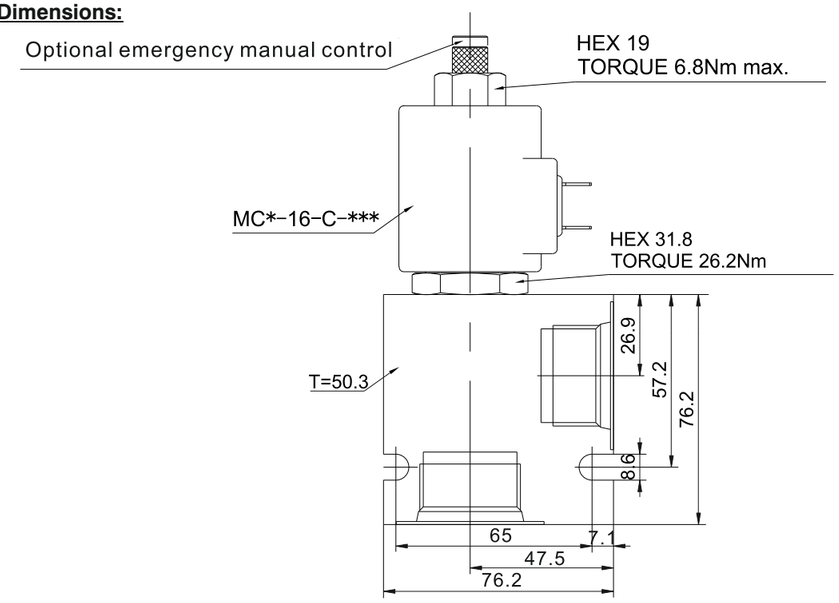
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ②to port ① or from port ① to port ② .

Installation Dimensions:



Ordering code details:

TSV12-28 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

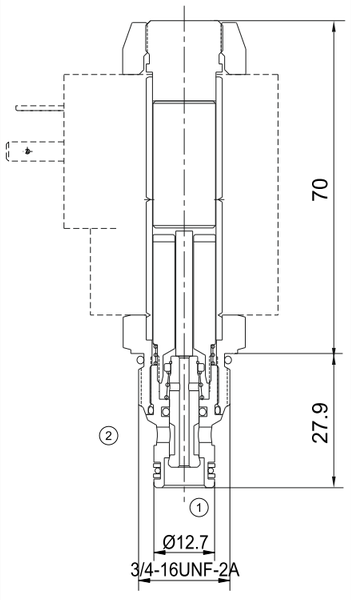
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

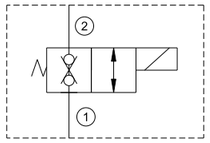
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G1 =8G
NPT1/2 =4N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-2NCSPL 2-Way,2-Position (Bi-directionally Check Type)



Hydraulic Symbol:



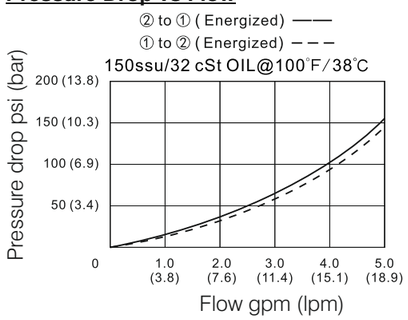
Specifications:

Operating Pressure	250 Bar
Flow	18.9L/min
Internal Leakage	1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

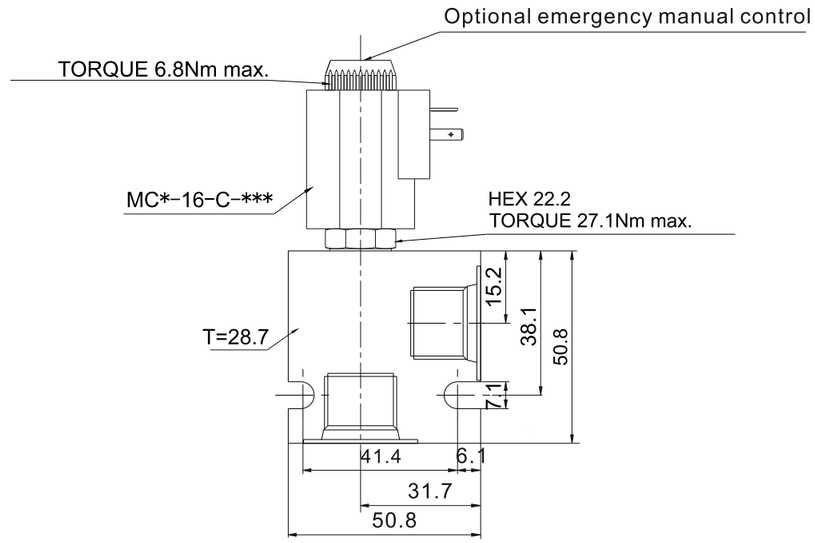
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ②to port① or from port① to port② .

Installation Dimensions:



Ordering code details:

MSV-08-2NCSPL [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

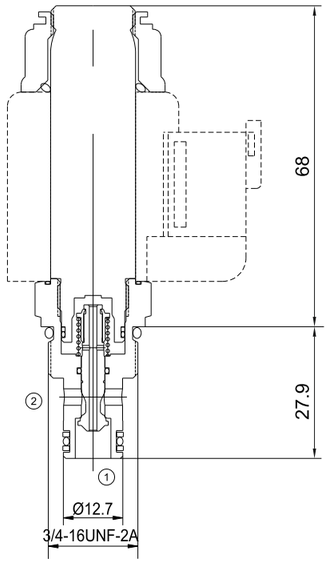
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

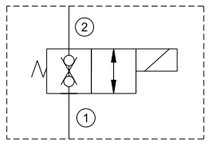
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TWS08W-01 2-Way,2-Position (Bi-directionally Check Type)



Hydraulic Symbol:



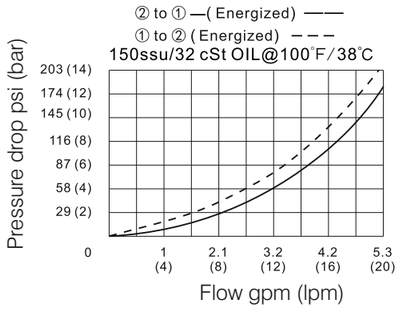
Specifications:

Operating Pressure	250 Bar
Flow	19 L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

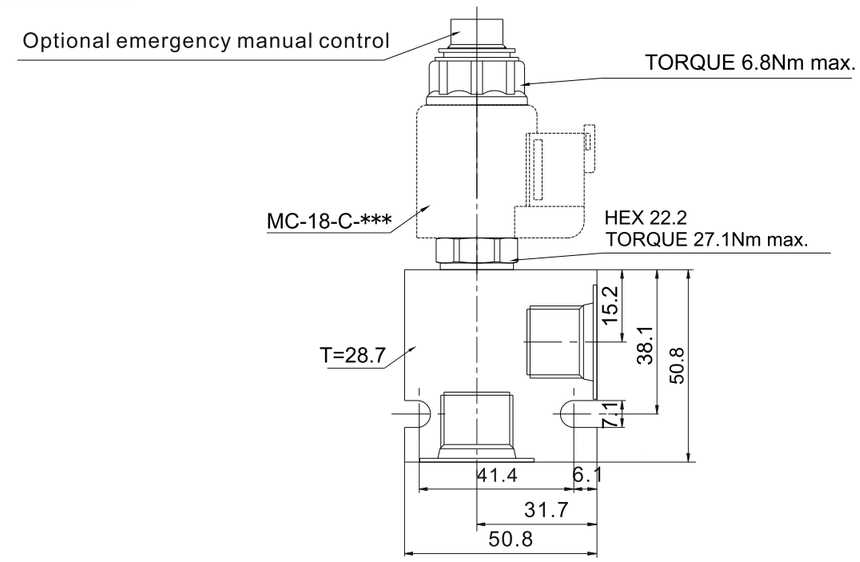
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions. When energized, the spool opens to allow oil fluid flow from port ②to port① or from port① to port② .

Installation Dimensions:



Ordering code details:

TWS08W-01 | | | | | | | |

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V

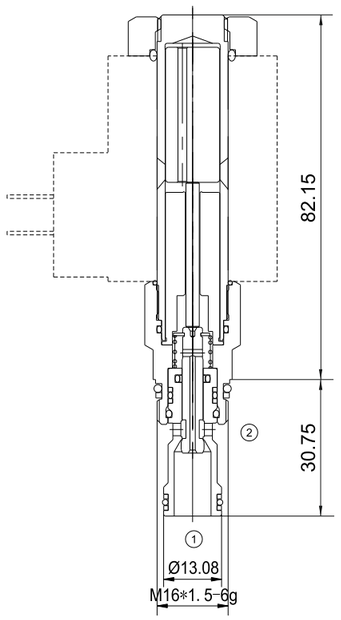
Coil Connection
Deutsch DT04-2P = F

Current Type
Direct current = D

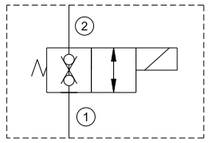
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

BODY PORTING
SAE 4T = 4T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TDTBF - * C * 2-Way,2-Position (Bi-directionally CheckNormally Closed Type)



Hydraulic Symbol:



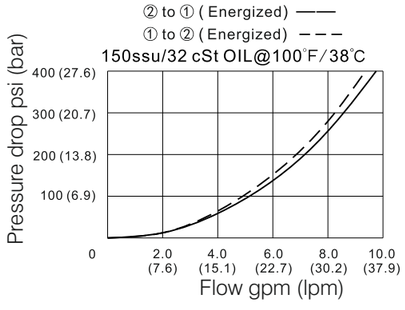
Specifications:

Operating Pressure	350 Bar
Flow	34L/min
Response Time - Typical	50ms
Internal Leakage	0.07 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation
- Higher flow rates than competing valves of similar size

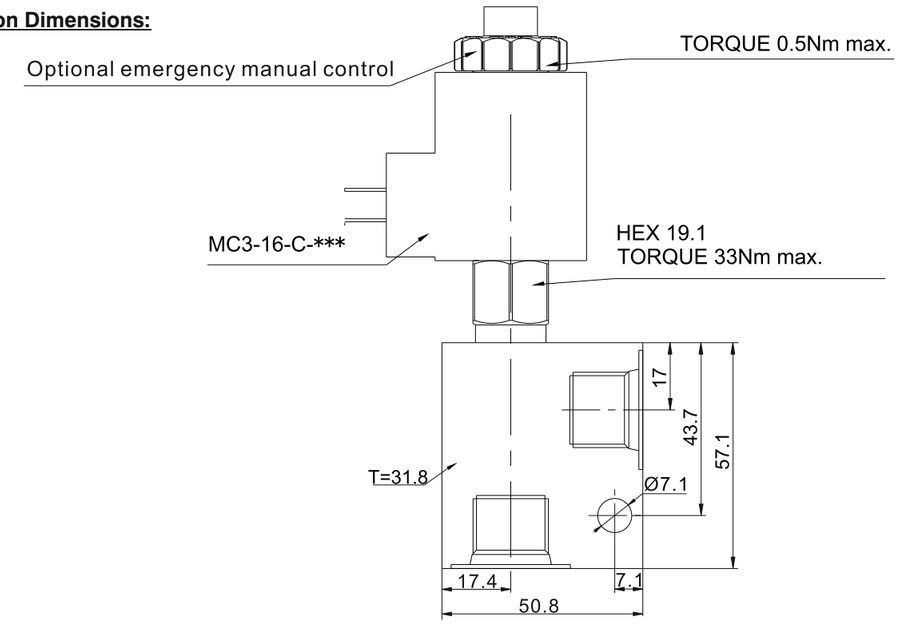
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized , the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ② to port ① or from port① to port② . This valve is suitable for load holding applications when using the Normally Closed option. In the event of power failure, the valve will spring closed.

Installation Dimensions:



Ordering code details:

TDTBF - * C * | | | | | | | | |

Manual Emergency
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

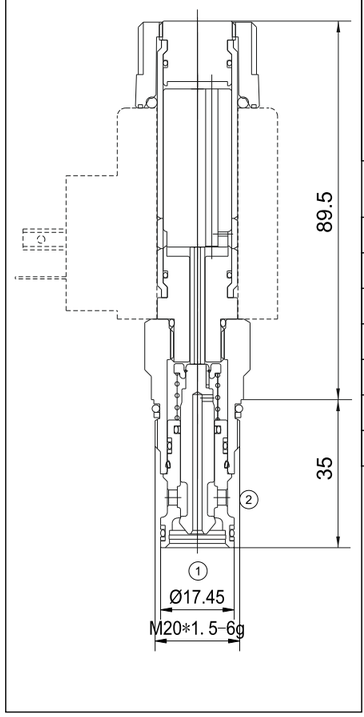
Coil Connection
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

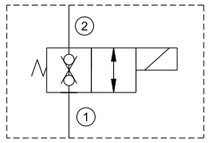
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

TDTDA - * C * 2-Way,2-Position (Bi-directionally CheckNormally Closed Type)



Hydraulic Symbol:



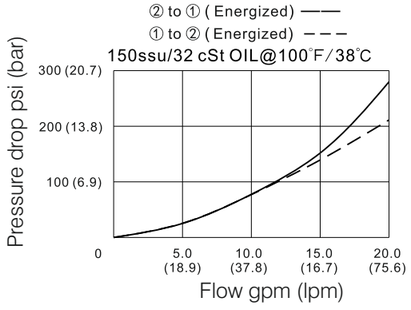
Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation

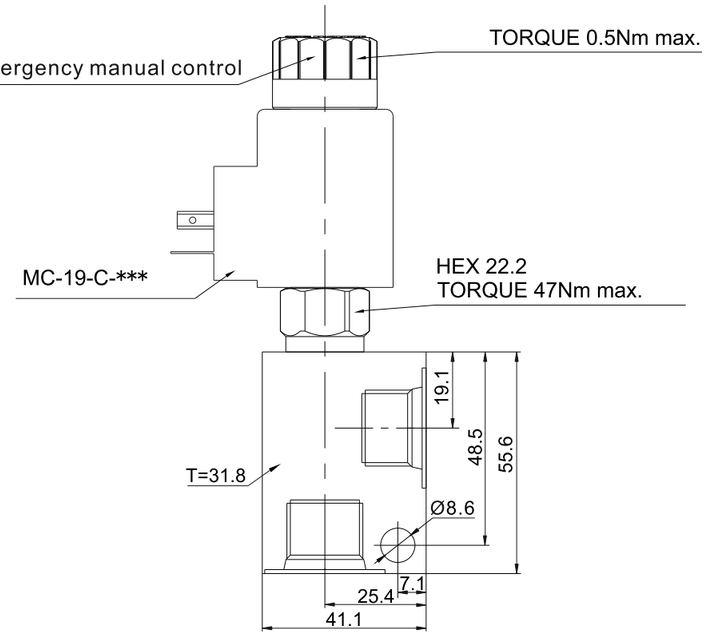
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized ,the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ② to port ① or from port① to port② . This valve is suitable for load holding applications when using the Normally Closed option. In the event of power failure, the valve will spring closed.

Installation Dimensions:



Ordering code details:

TDTDA - * C * | | | | | | | | |

Manual Emergency
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

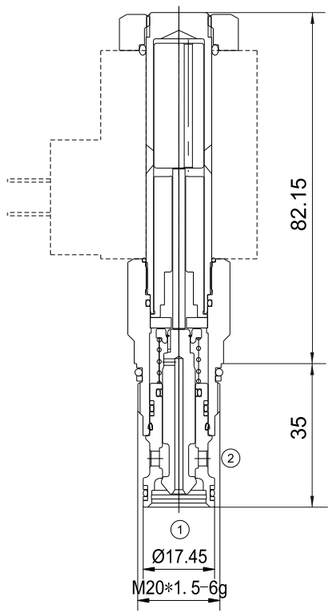
Coil Connection
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

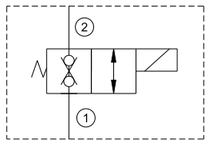
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDTDF - * C * 2-Way,2-Position (Bi-directionally Check Normally Closed Type)



Hydraulic Symbol:



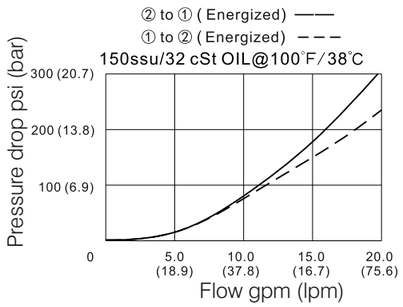
Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation

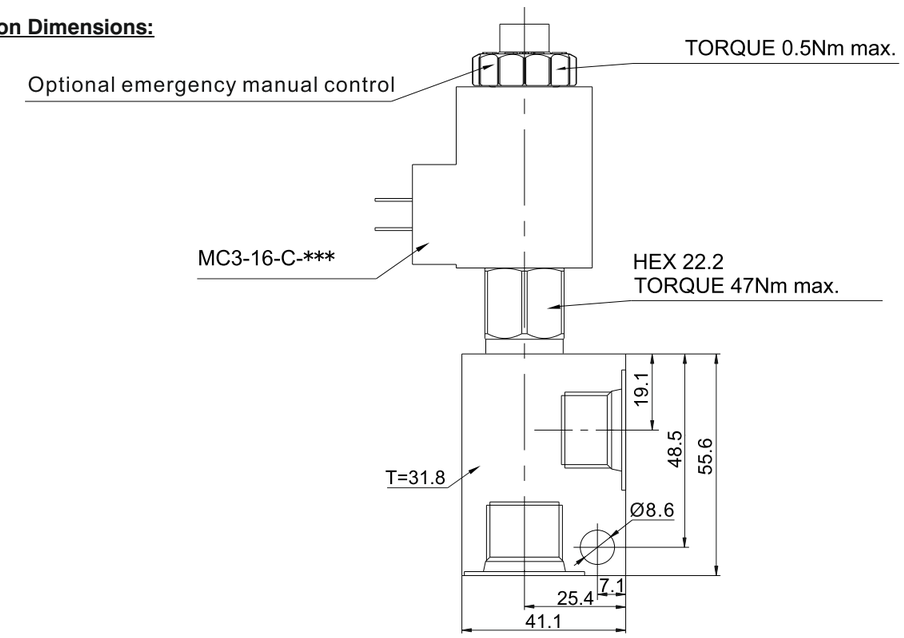
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized ,the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ② to port ① or from port① to port② . This valve is suitable for load holding applications when using the Normally Closed option. In the event of power failure, the valve will spring closed.

Installation Dimensions:



Ordering code details:

TDTDF - * C * | | | | | | | | |

Manual Emergency
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

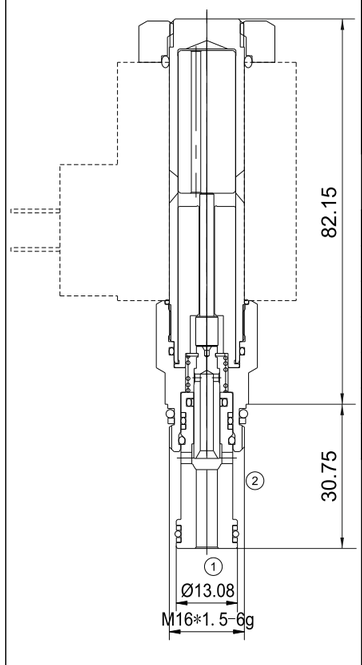
Coil Connection
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

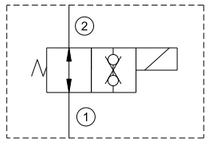
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDTBF - * H * 2-Way,2-Position (Bi-directionally Check Normally Open Type)



Hydraulic Symbol:



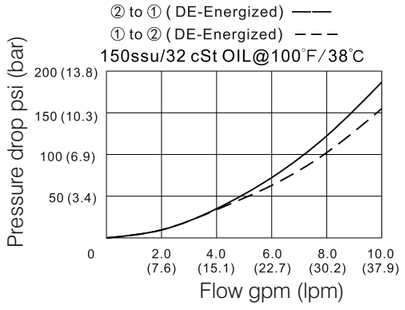
Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-162A see page K-7
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation

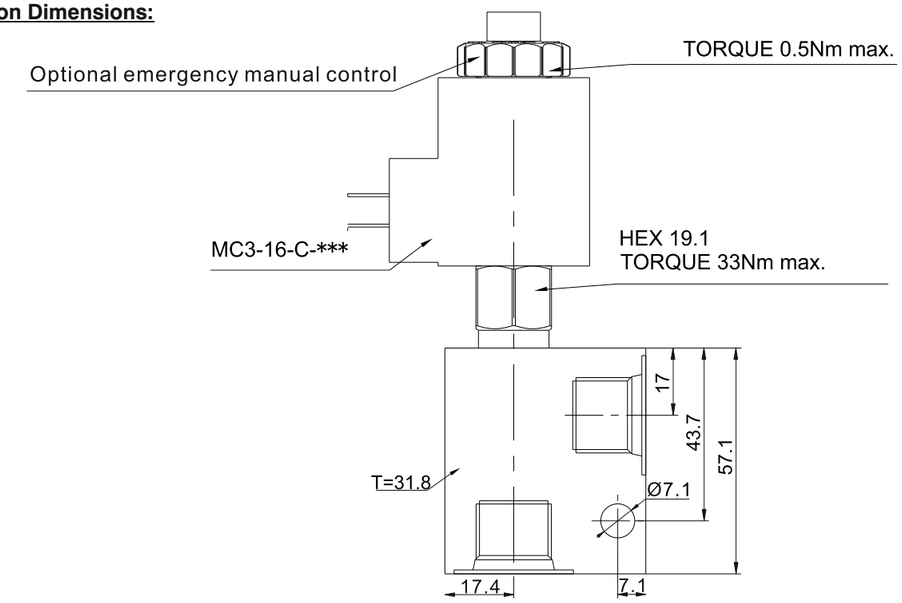
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized ,the valve blocks flow in both directions.
When energized, the spool opens to allow oil fluid flow from port ② to port ① or from port① to port② . This valve is suitable for load holding applications when using the Normally Closed option. In the event of power failure, the valve will spring closed.

Installation Dimensions:



Ordering code details:

TDTBF - * H * | | | | | | | | |

Manual Emergency
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

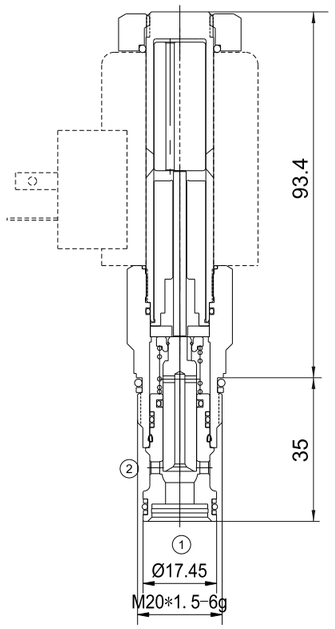
Coil Connection
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

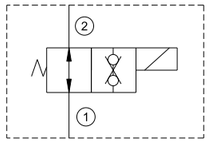
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G1/4 =2G
NPT1/4 =2N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDTDF - * H * 2-Way,2-Position (Bi-directionally Check Normally Open Type)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	40L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

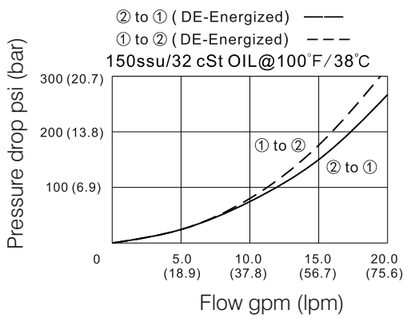
Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation

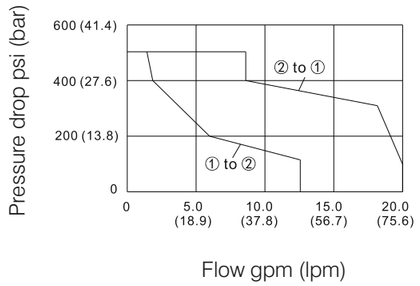
Operation:

When energized , the valve blocks flow in both directions.
When de-energized, the spool opens to allow oil fluid flow from port ②to port ① or from port ① to port ② .
This valve is suitable for load holding applications when using the Normally Closed option.

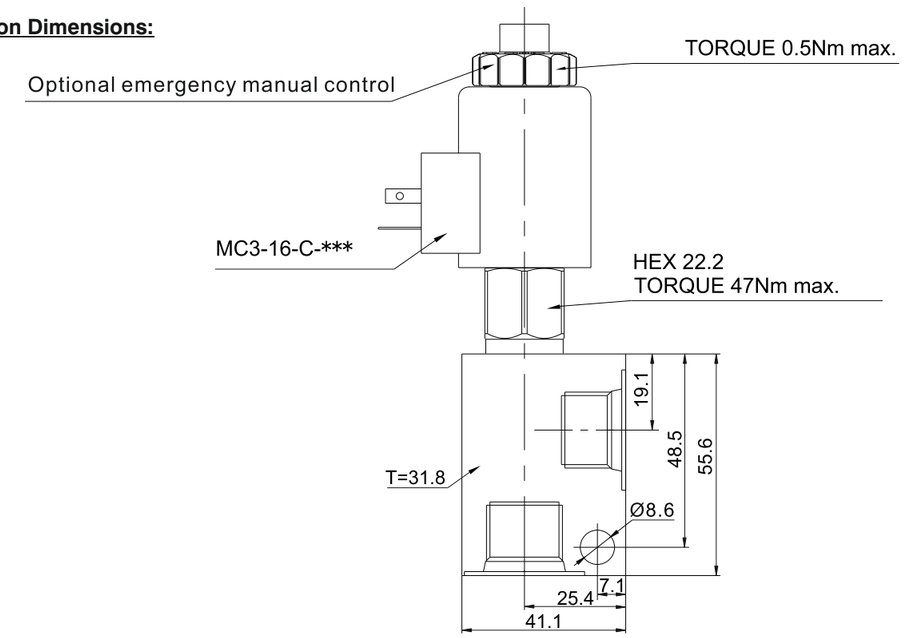
Performance Curve
Pressure Drop vs Flow



Performance Limits @10%
Undervoltage&Stabilized Coli Temperature



Installation Dimensions:



Ordering code details:

TDTDF - * H * [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

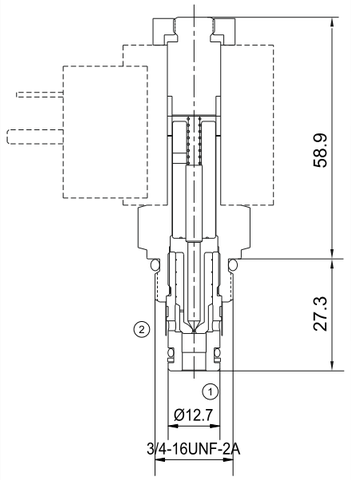
Coil Connection
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

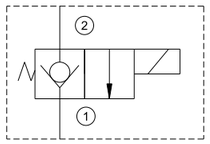
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-2NCP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



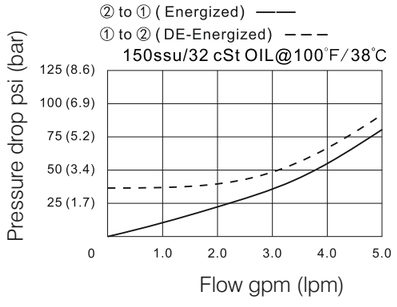
Specifications:

Operating Pressure	207 Bar
Flow	18.9 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

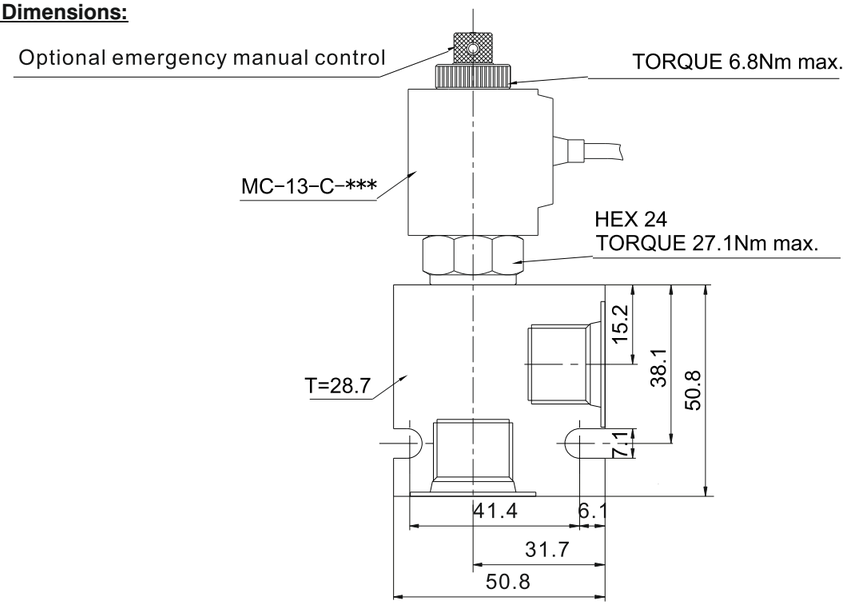


Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV-08-2NCP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

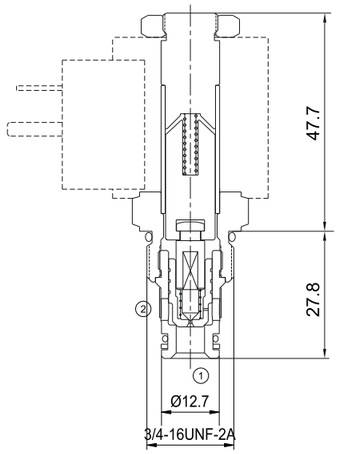
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

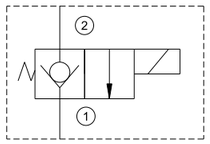
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-08-2NCP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



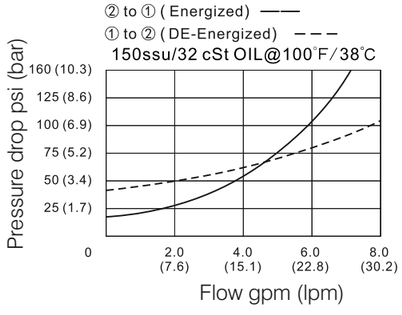
Specifications:

Operating Pressure	207 Bar
Flow	23 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

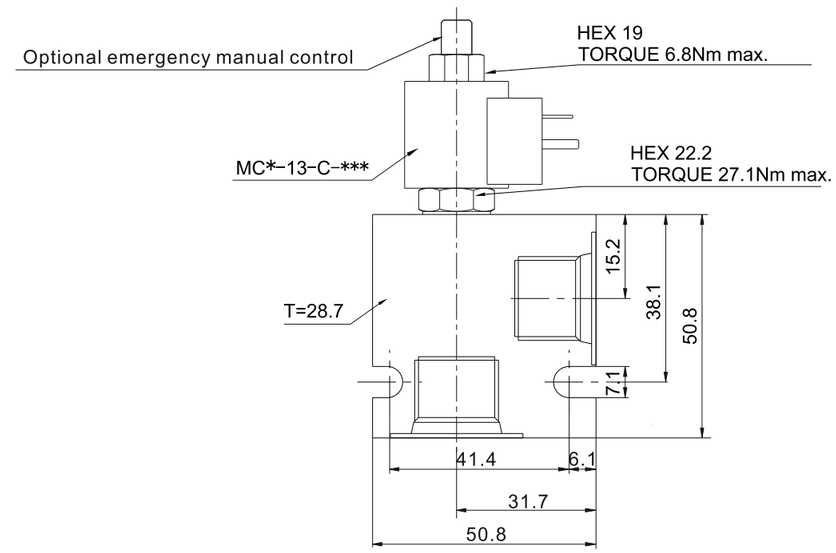


Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV2-08-2NCP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

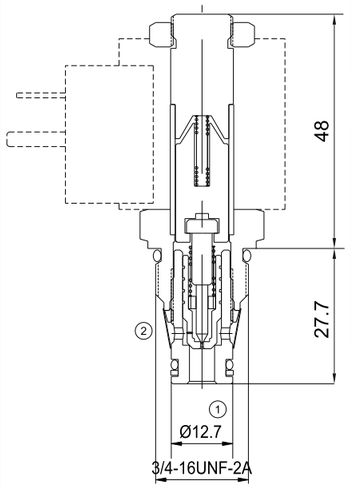
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

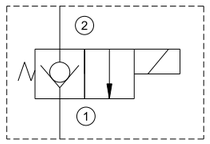
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDSV-08-2NCP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



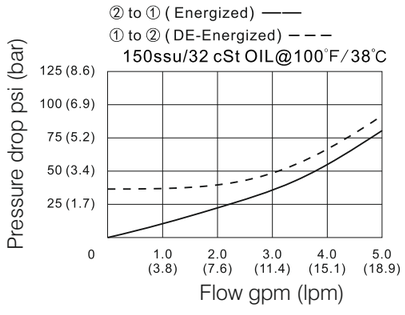
Specifications:

Operating Pressure	207 Bar
Flow	18.9 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

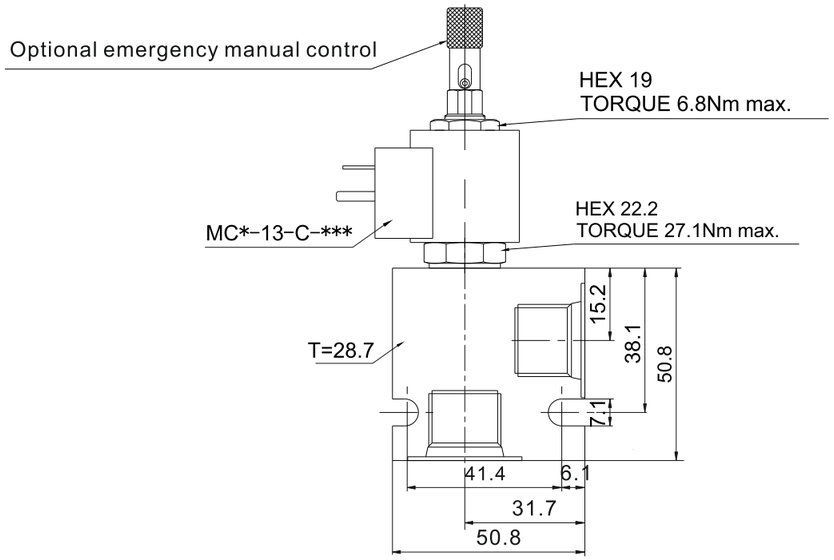
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

Installation Dimensions:



Ordering code details:

TDSV-08-2NCP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

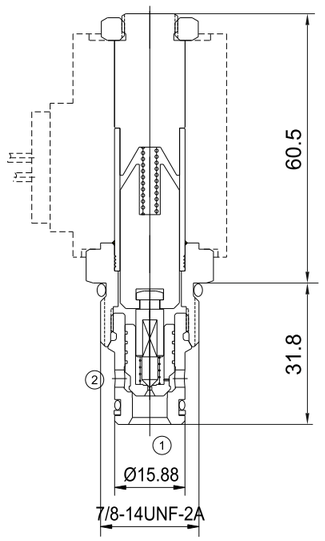
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

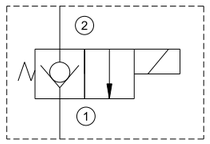
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-10-2NCP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



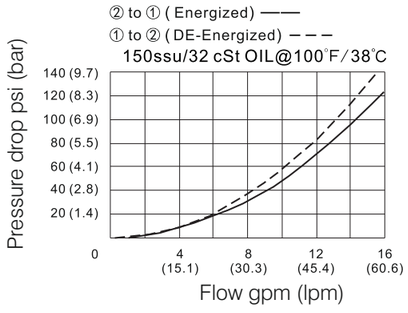
Specifications:

Operating Pressure	207 Bar
Flow	57 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

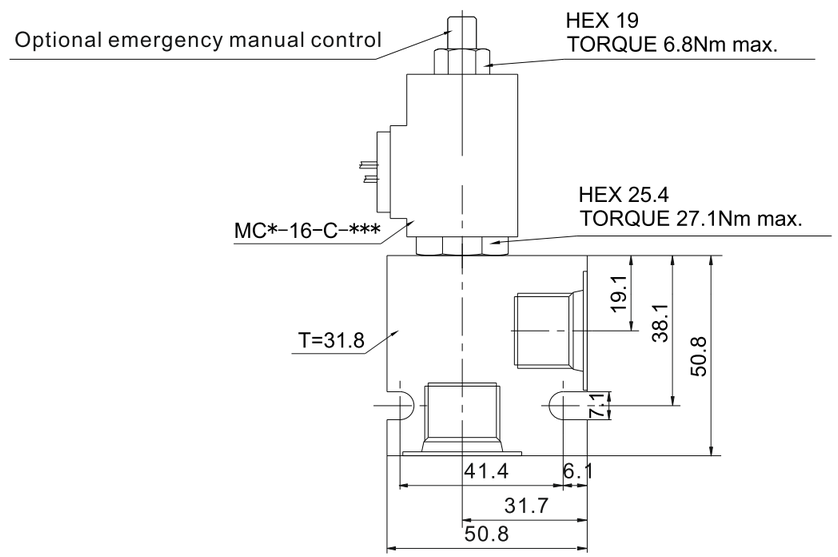
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

Installation Dimensions:



Ordering code details:

TSV2-10-2NCP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

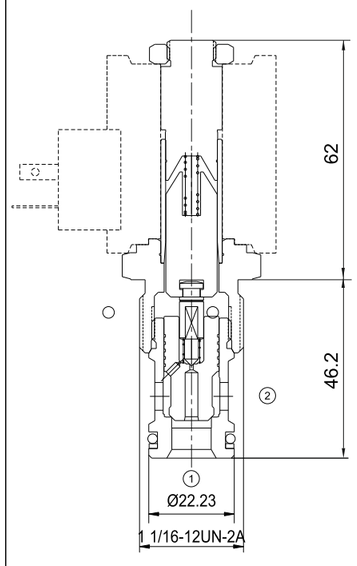
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

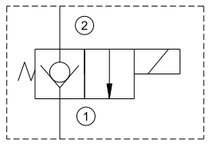
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV12-20 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



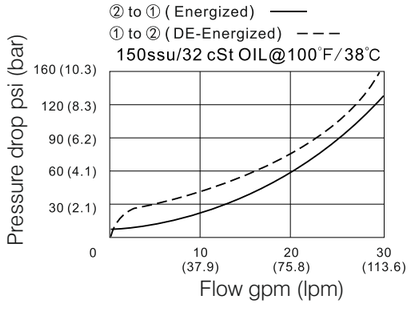
Specifications:

Operating Pressure	240 Bar
Flow	113.6 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

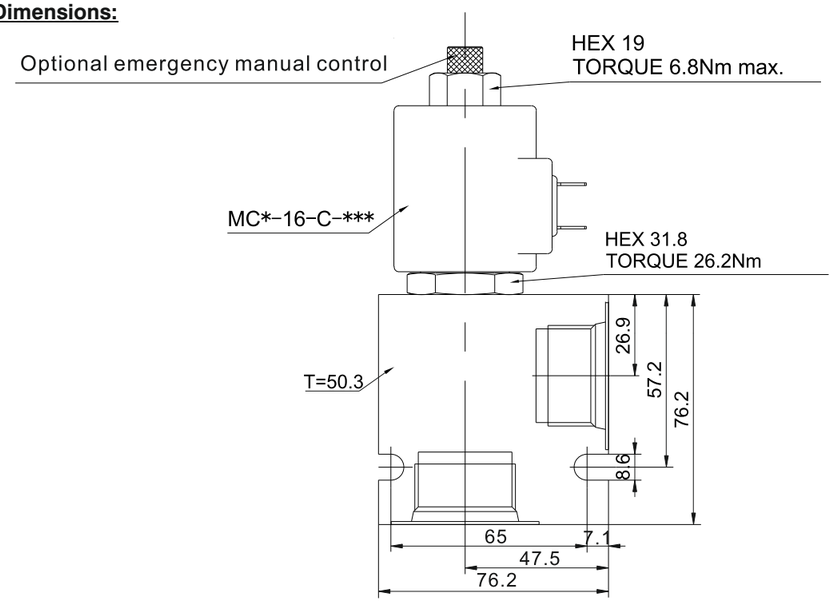
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

Installation Dimensions:



Ordering code details:

TSV12-20							

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

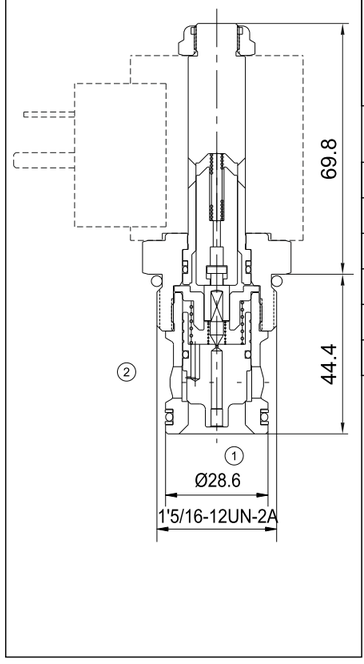
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

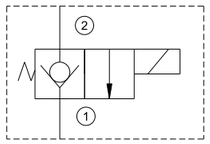
BODY PORTING
SAE 4T =4T0T
SAE 6T =6T6T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDSH161C 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



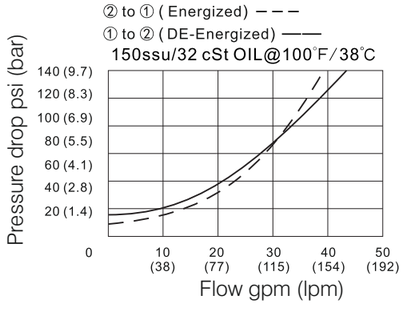
Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-15
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

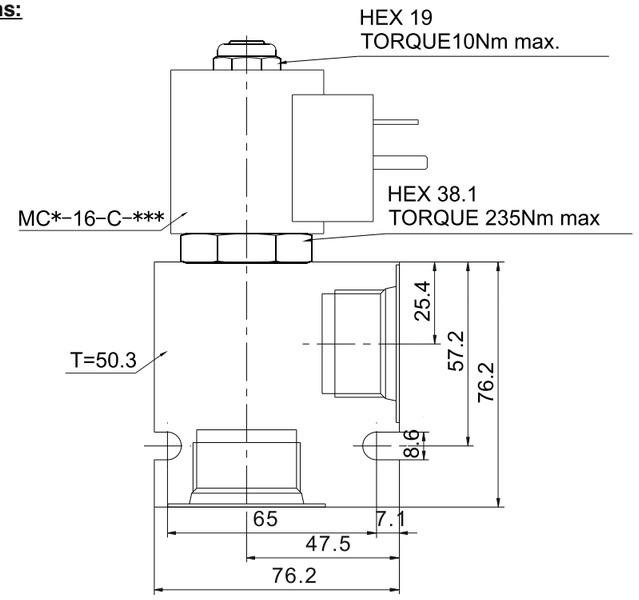


Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②, while blocking flow from ② to ① .
When energized, the poppet lifts to open the ② to ① flow path.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TDSH161C | | | | | | |

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

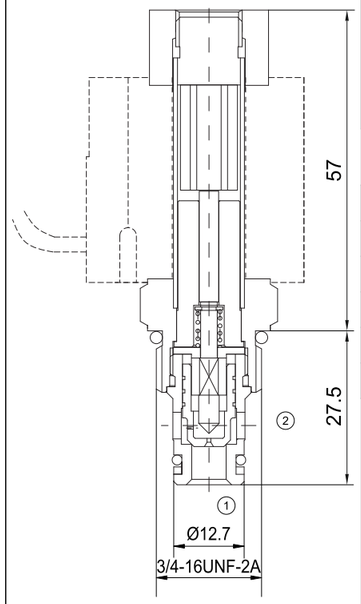
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

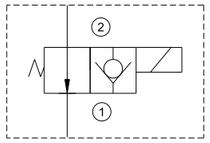
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

BODY PORTING
SAE 10T =10T
SAE 16T =16T
G3/4 =6G
G1 =8G
Other porting is available

TSV2-08-2NOP 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



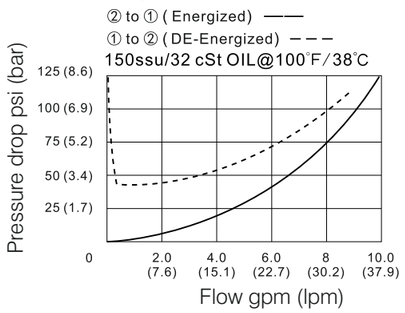
Specifications:

Operating Pressure	207 Bar
Flow	30 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

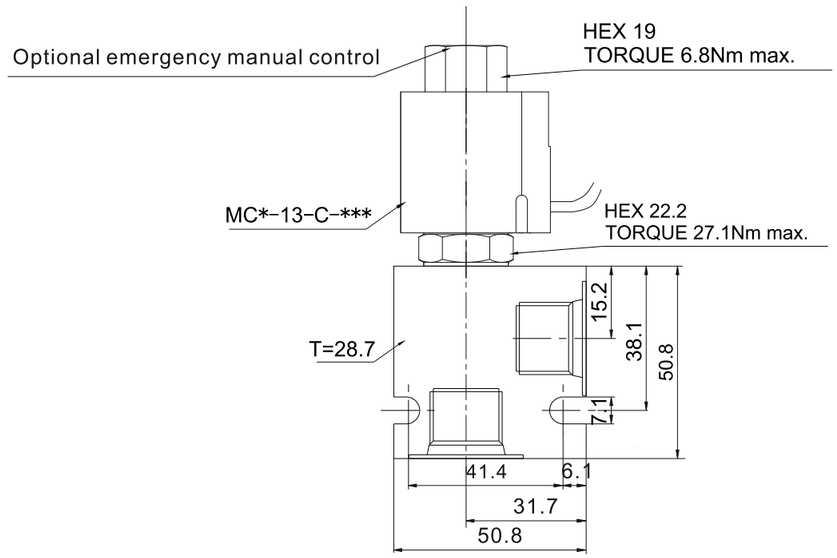
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from ② to ① . Flow from ① to ② is severely restricted in this mode.
When energized the valve's poppet closes on its seat, blocking flow from ② to ① .The cartridge will allow ① to ② flow after overcoming the solenoid force.

Installation Dimensions:



Ordering code details:

TSV12-20 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

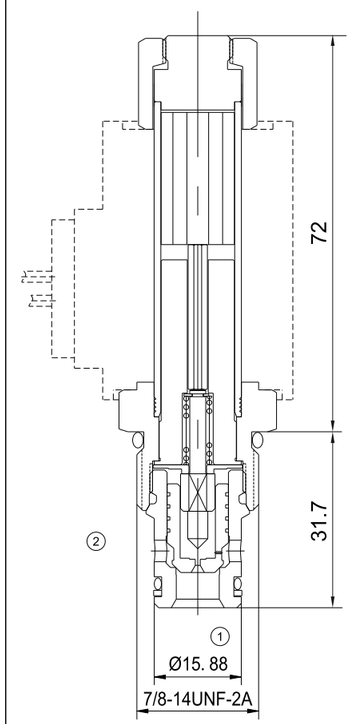
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

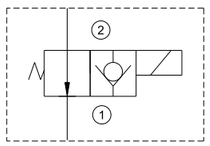
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-10-2NOP 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



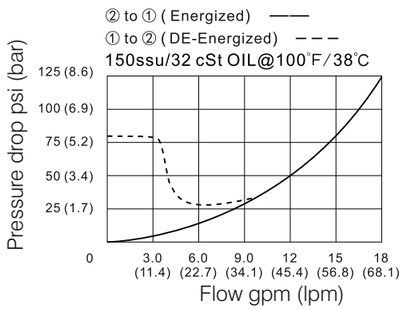
Specifications:

Operating Pressure	207 Bar
Flow	68 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

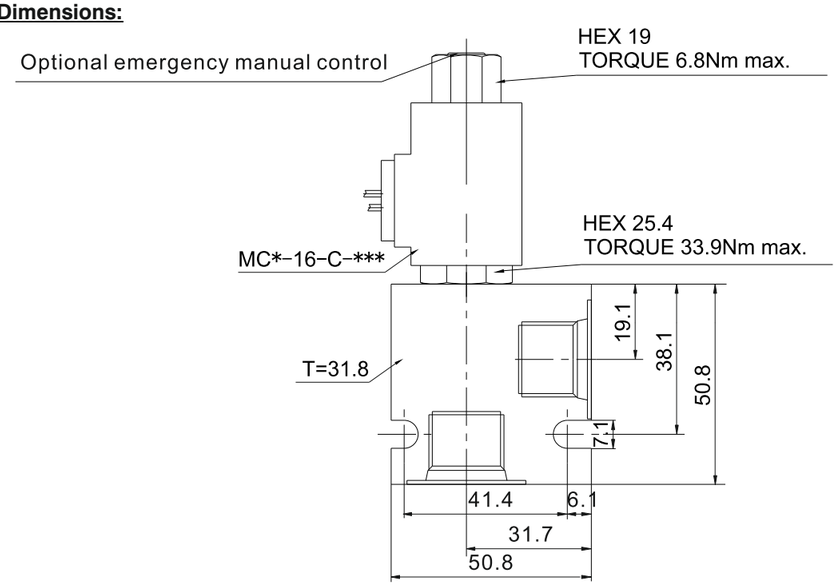


Operation:

When de-energized, the valve allows flow from ② to ① . Flow from ① to ② is severely restricted in this mode.
When energized the valve's poppet closes on its seat, blocking flow from ② to ① .The cartridge will allow ① to ② flow after overcoming the solenoid force.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV2-10-2NOP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

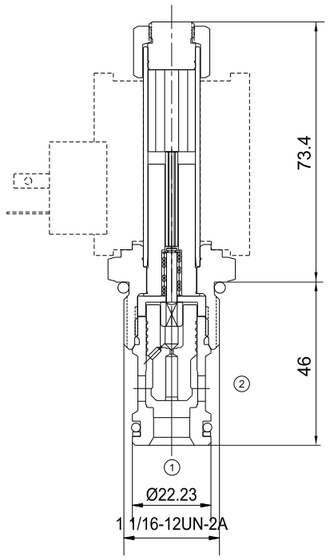
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

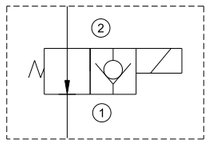
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV12-21 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



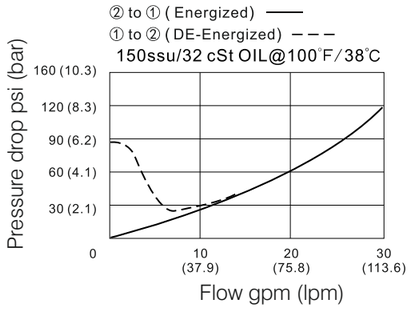
Specifications:

Operating Pressure	240 Bar
Flow	113.6 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

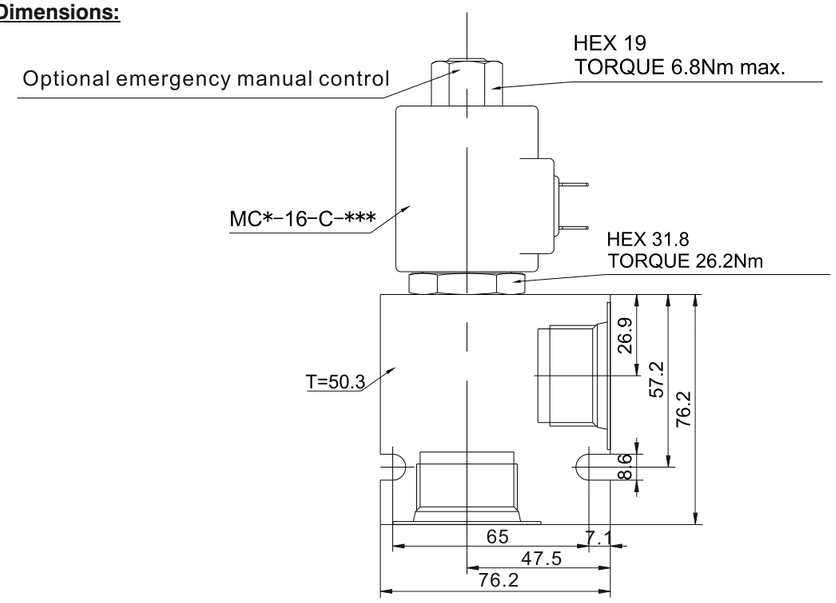
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from ② to ① . Flow from ① to ② is severely restricted in this mode.
When energized the valve's poppet closes on its seat, blocking flow from ② to ① .The cartridge will allow ① to ② flow after overcoming the solenoid force.

Installation Dimensions:



Ordering code details:

TSV12-21 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

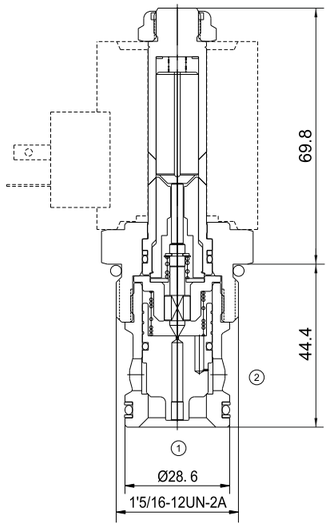
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

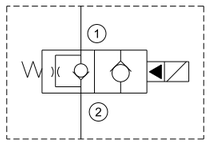
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G1 =8G
NPT1/2 =4N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDSH161N 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



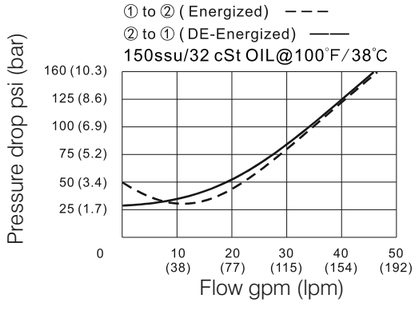
Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Internal Leakage	5drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

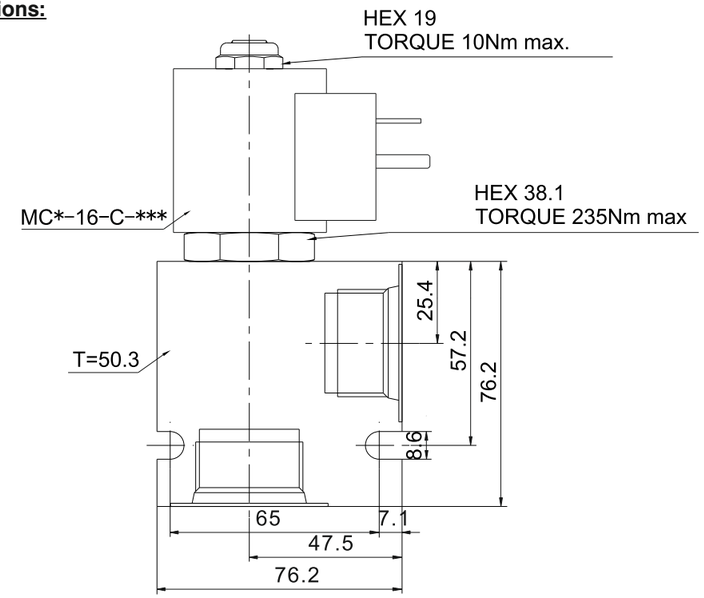
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from ② to ① . Flow from ① to ② is severely restricted in this mode.
When energized the valve's poppet closes on its seat, blocking flow from ② to ① .The cartridge will allow ① to ② flow after overcoming the solenoid force.

Installation Dimensions:



Ordering code details:

TDSH161N [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

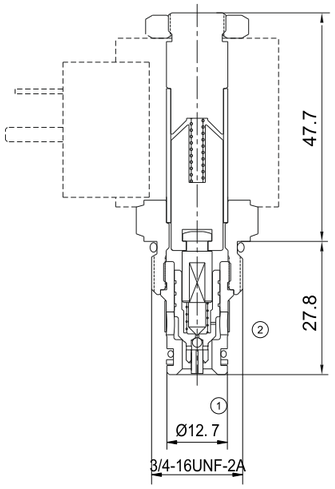
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

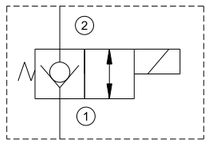
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G3/4 =6G
G1 =8G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-08-2NCRP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



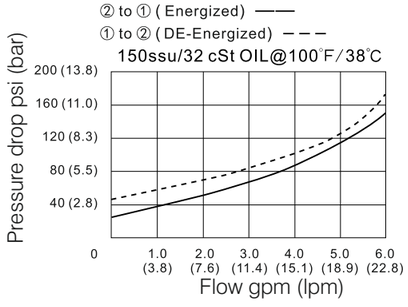
Specifications:

Operating Pressure	250 Bar
Flow	23 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

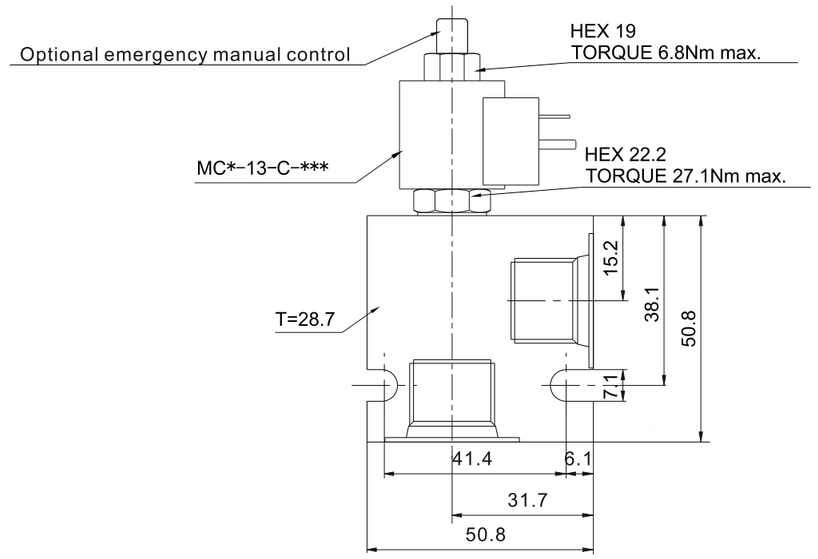
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②,while blocking flow from ② to ① .
When energized , the poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②

Installation Dimensions:



Ordering code details:

TSV2-08-2NCRP | | | | | | | | |

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

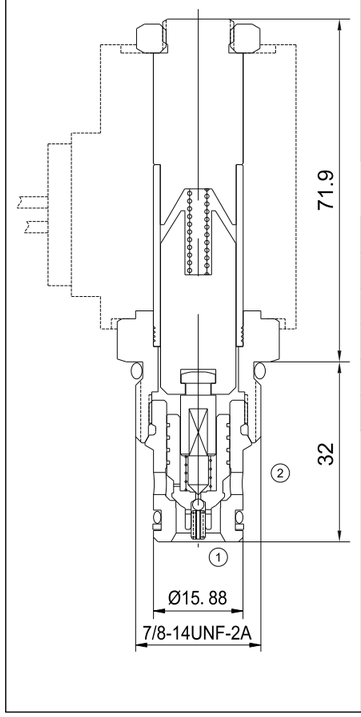
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

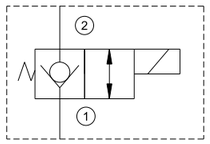
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-10-2NCRP 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



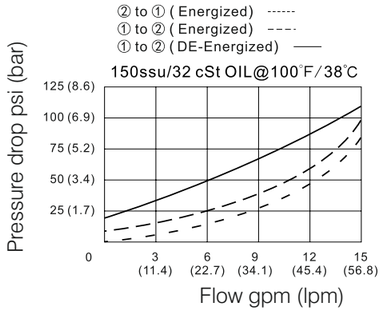
Specifications:

Operating Pressure	207 Bar
Flow	56.8 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C (-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

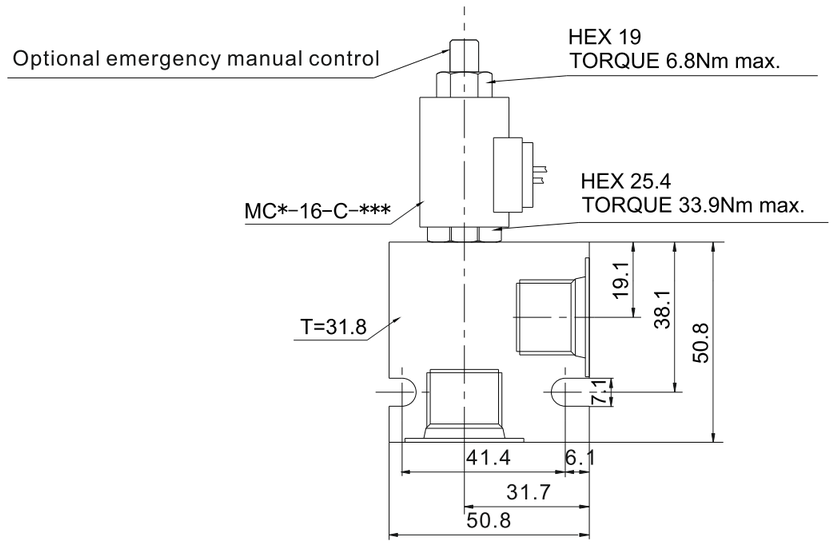


Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②,while blocking flow from ② to ① .
When energized , the poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV2-10-2NCRP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

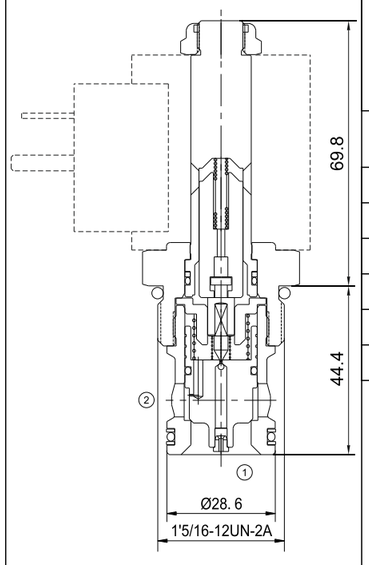
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

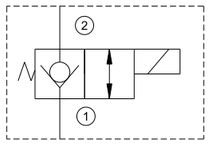
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDSH161CR 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



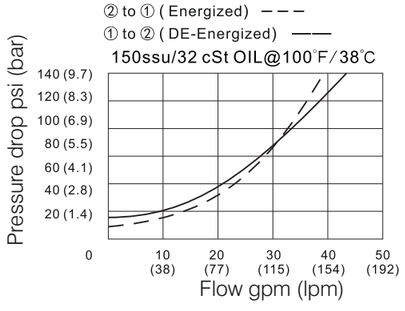
Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Internal Leakage	2drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

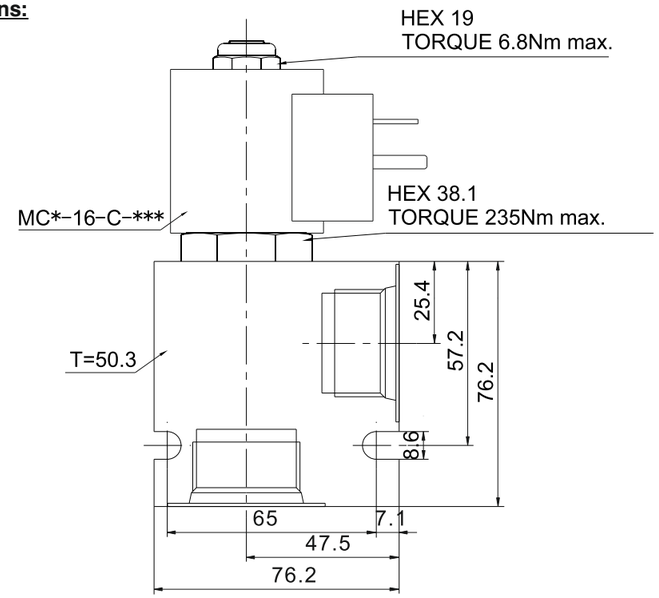


Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②,while blocking flow from ② to ① .
When energized , the poppet lifts to open the ② to ① flow path. In this mode, flow is also allowed from ① to ②

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TDSH161CR | | | | | | | |

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

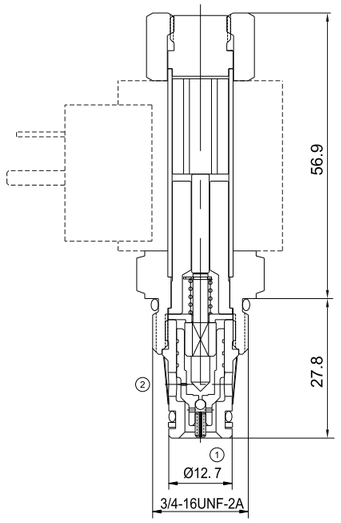
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

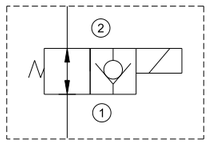
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G3/4 =6G
G1 =8G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-08-2NORP 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



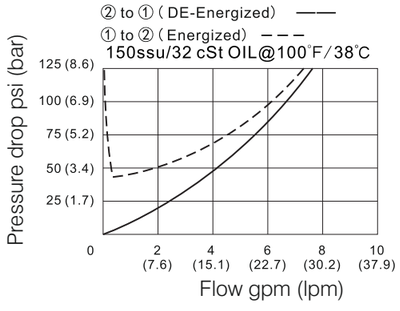
Specifications:

Operating Pressure	207 Bar
Flow	30 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

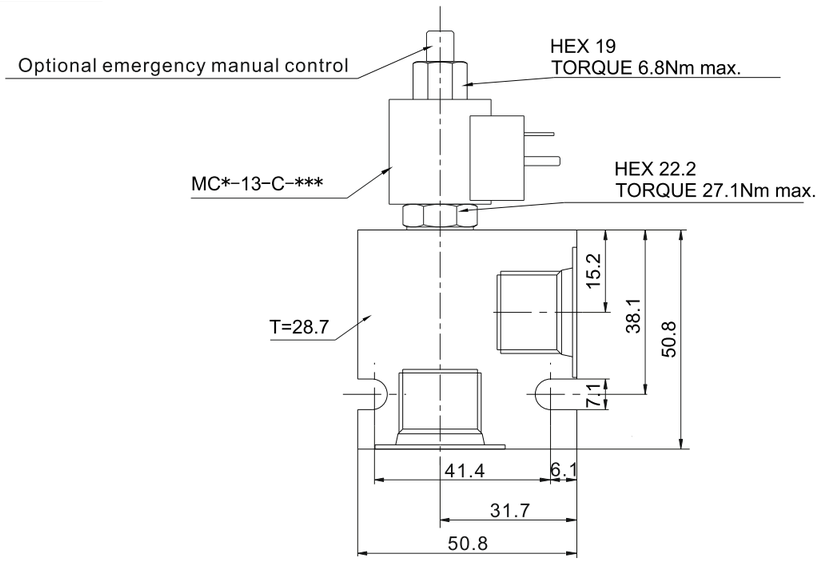


Operation:

When de-energized, the poppet lifts to open flow from ② to ① . Flow is also open from ① to ② .
When energized ,the cartridge acts as a check valve, allowing flow from ① to ②while blocking flow from ② to ① , after overcoming the solenoid force (requires 3.4 to 10.3bar [50 to 150 psi).

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV2-08-2NORP [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

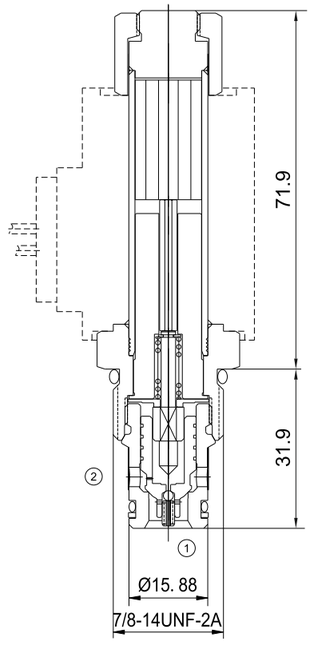
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

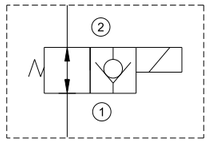
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV2-10-2NORP 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



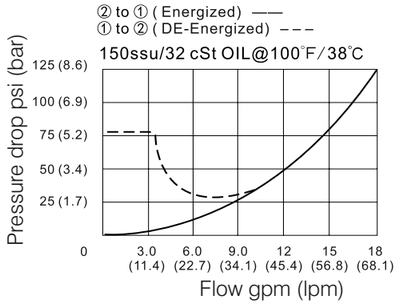
Specifications:

Operating Pressure	207 Bar
Flow	68 L/min
Internal Leakage	3drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

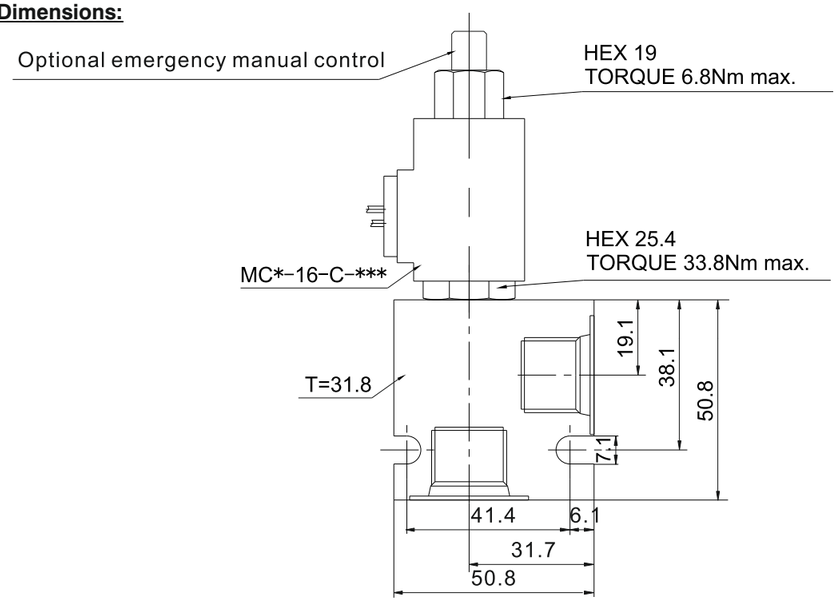
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the poppet lifts to open flow from ② to ① . Flow is also open from ① to ② .
When energized ,the cartridge acts as a check valve, allowing flow from ① to ②while blocking flow from ② to ① , after overcoming the solenoid force (requires 3.4 to 10.3bar [50 to 150 psi).

Installation Dimensions:



Ordering code details:

TSV2-10-2NORP [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

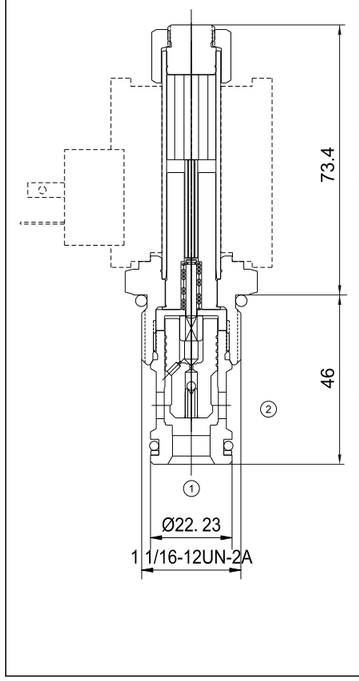
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

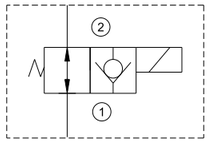
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV12-23 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



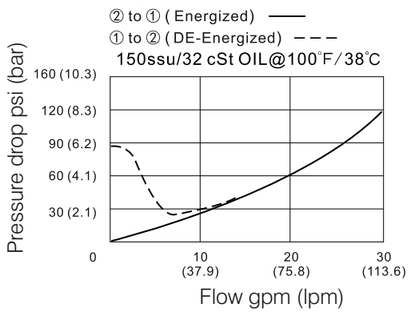
Specifications:

Operating Pressure	240 Bar
Flow	113.6 L/min
Internal Leakage	3 drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-2 see page K-13
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

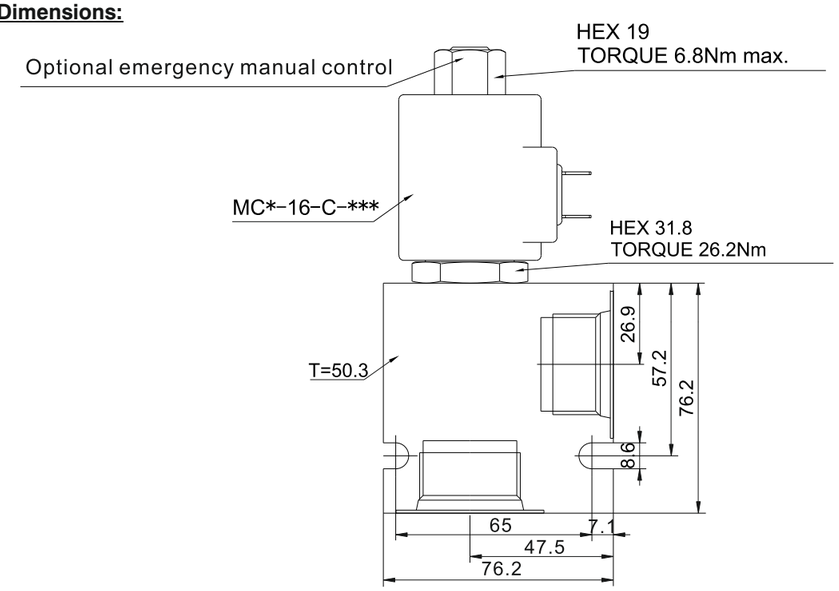
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the poppet lifts to open flow from ② to ① . Flow is also open from ① to ② .
When energized ,the cartridge acts as a check valve, allowing flow from ① to ②while blocking flow from ② to ① , after overcoming the solenoid force (requires 3.4 to 10.3bar [50 to 150 psi).

Installation Dimensions:



Ordering code details:

TSV12-23 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

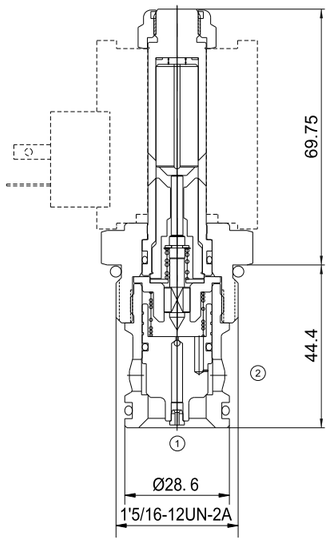
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

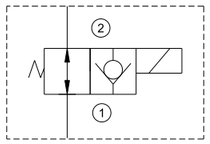
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G1 =8G
NPT1/2 =6G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TDSH161NR Solenoid-Operated 2-Way,2-Position (Normally Open)



Hydraulic Symbol:



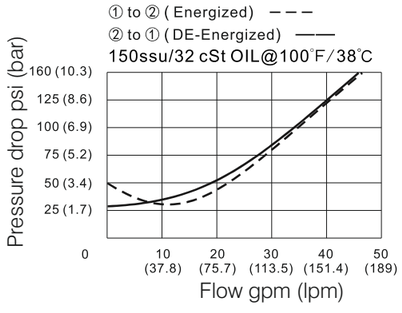
Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Internal Leakage	5 drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

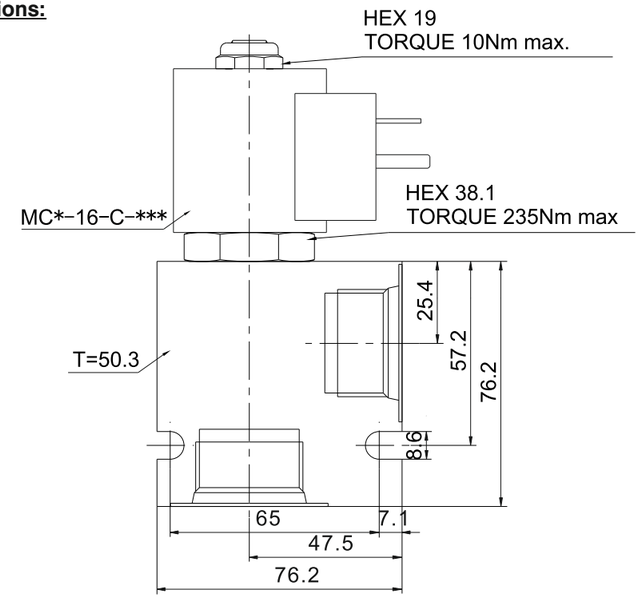
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the poppet lifts to open flow from ② to ① . Flow is also open from ① to ② .
When energized ,the cartridge acts as a check valve, allowing flow from ① to ②while blocking flow from ② to ① , after overcoming the solenoid force (requires 3.4 to 10.3bar [50 to 150 psi).

Installation Dimensions:



Ordering code details:

TDSH161NR							

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

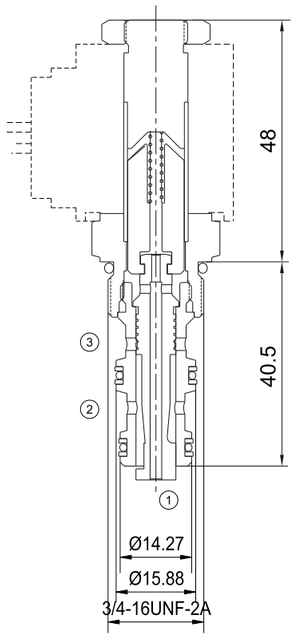
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

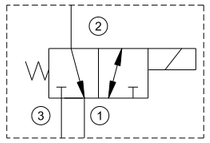
BODY PORTING
SAE 10T =10T
SAE 16T =16T
G3/4 =6G
G1 =8G
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-30 3-Way,2-Position



Hydraulic Symbol:



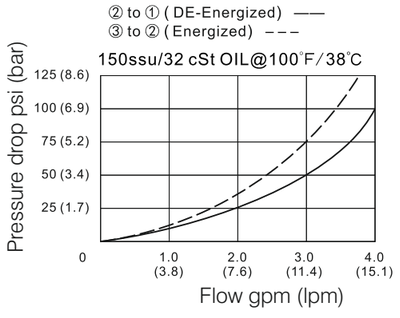
Specifications:

Operating Pressure	207 Bar
Flow	15.1 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

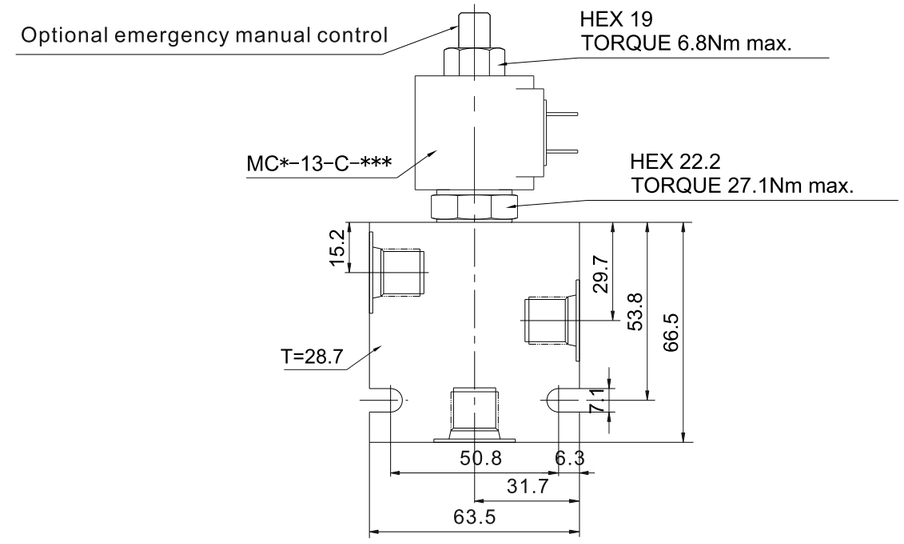
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized,the valve allows flow from port ② to port ① while blocking flow at port ③;
When energized, the cartridges spool shifts to open from port ③ to port ②, or from port ② to port ③ while blocking flow out port ①.

Installation Dimensions:



Ordering code details:

TSV-08-30 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

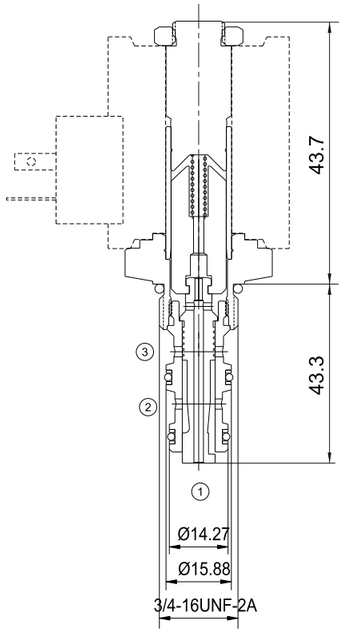
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

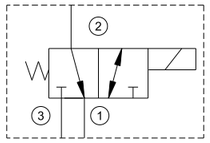
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV58-30 3-Way,2-Position



Hydraulic Symbol:



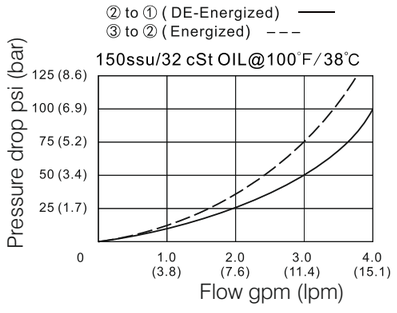
Specifications:

Operating Pressure	276 Bar
Flow	15.1 L/min
Internal Leakage	131ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

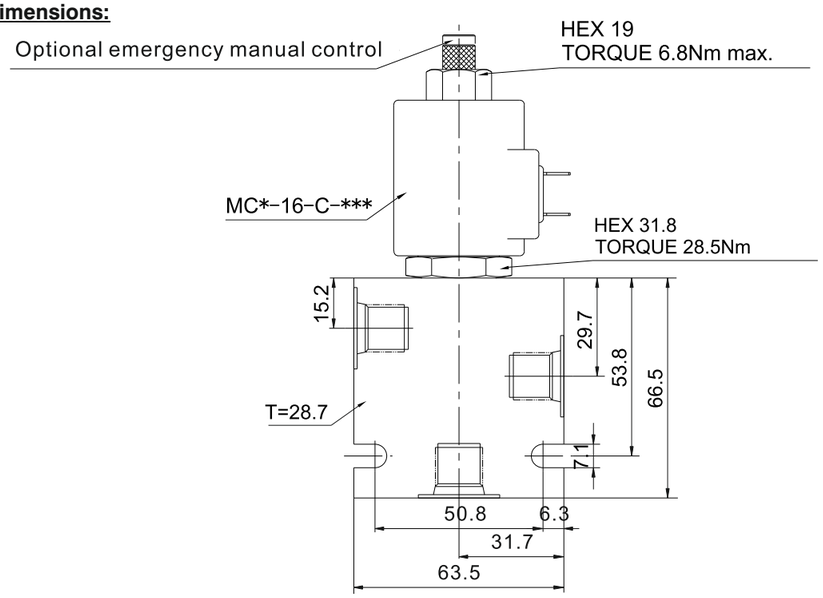
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized,the valve allows flow from port ② to port ① while blocking flow at port ③;
When energized, the cartridges spool shifts to open from port ③ to port ②, or from port ② to port ③ while blocking flow out port ①.

Installation Dimensions:



Ordering code details:

TSV58-30 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

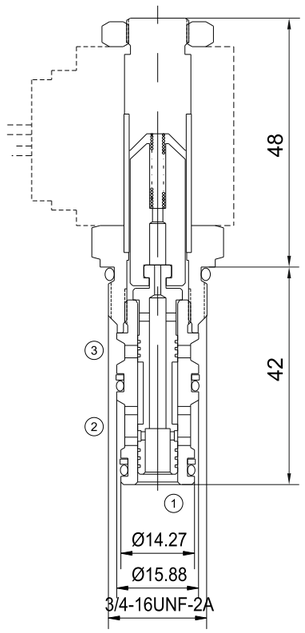
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

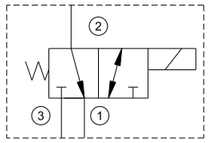
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-3B 3-Way,2-Position



Hydraulic Symbol:



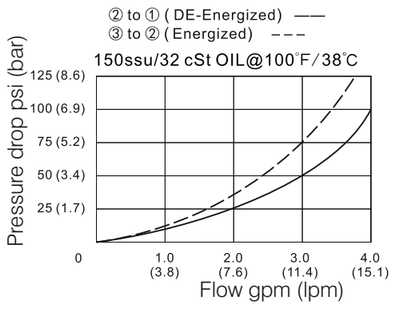
Specifications:

Operating Pressure	207 Bar
Flow	22.7 L/min
Internal Leakage	115ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

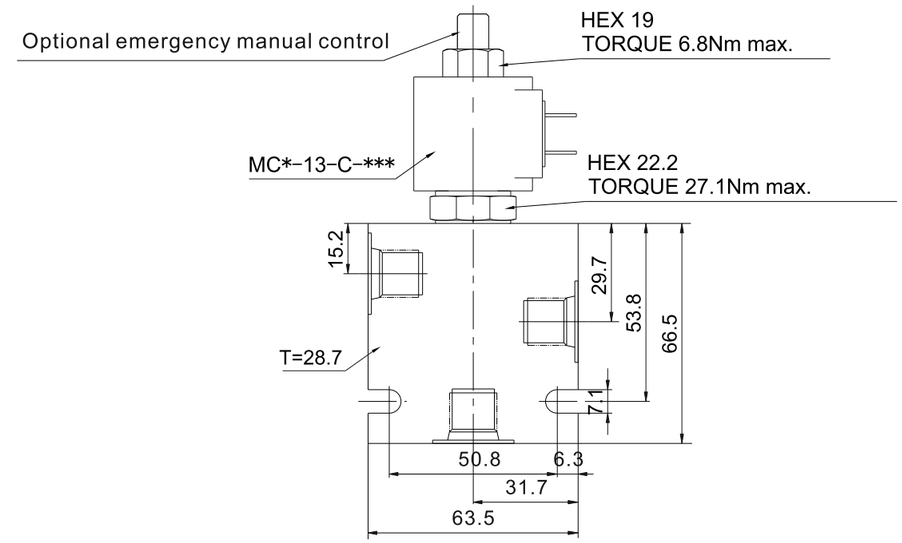
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ② or from port ② to port ③ , while blocking flow at port ①.

Installation Dimensions:



Ordering code details:

TSV-08-3B [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

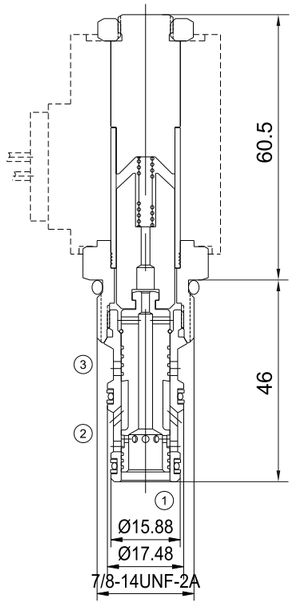
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

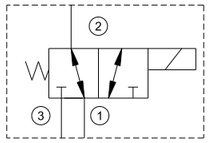
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV10-34 3-Way,2-Position



Hydraulic Symbol:



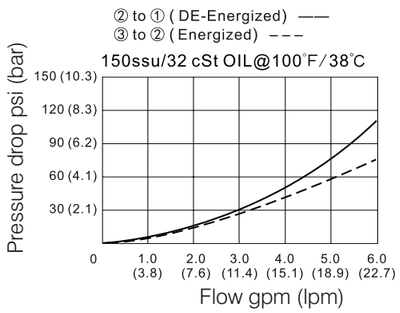
Specifications:

Operating Pressure	207 Bar
Flow	22.7 L/min
Internal Leakage	115ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

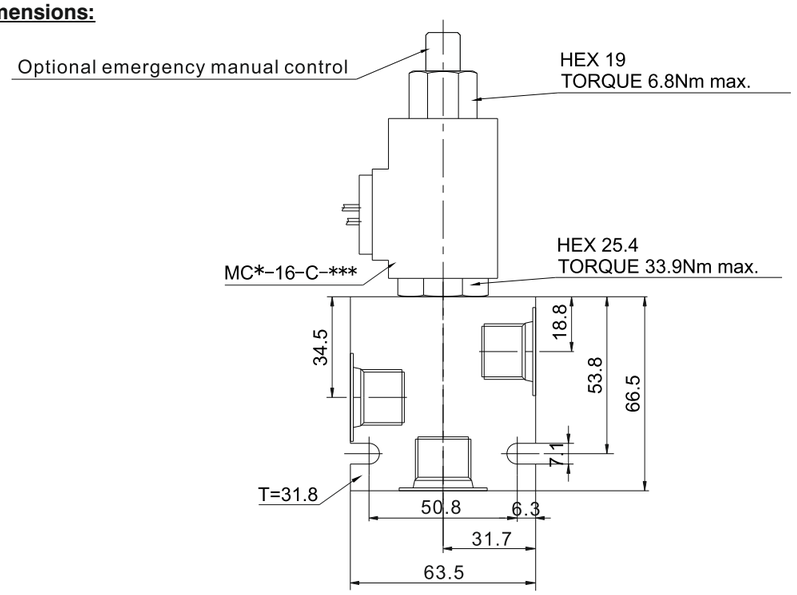
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ② or from port ② to port ③ , while blocking flow at port ①.

Installation Dimensions:



Ordering code details:

TSV10-34 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

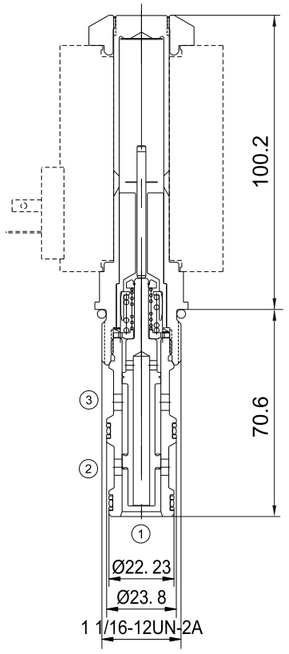
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

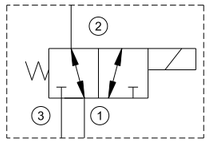
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV12-34 3-Way,2-Position



Hydraulic Symbol:



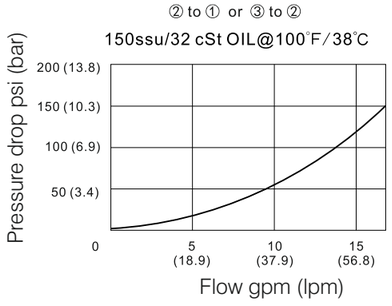
Specifications:

Operating Pressure	240 Bar
Flow	63.5 L/min
Internal Leakage	410ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-3 see page K-36
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

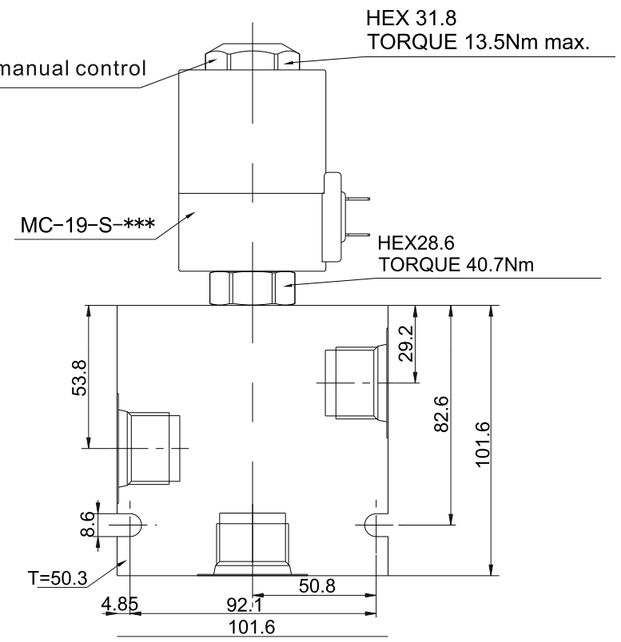
Performance Curve
Pressure Drop vs Flow



Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ② or from port ② to port ③ , while blocking flow at port ①.

Installation Dimensions:



Ordering code details:

TSV12-34 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

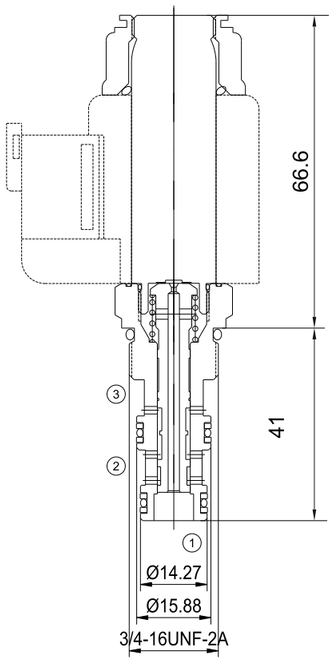
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

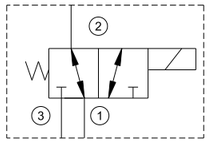
BODY PORTING
SAE 8T =8T
SAE 12T =12T
G1/2 =4G
NPT1/2 =4N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TWK08D-01 3-Way,2-Position



Hydraulic Symbol:



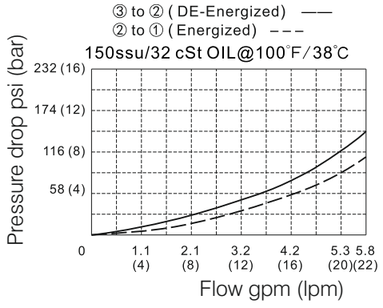
Specifications:

Operating Pressure	350 Bar
Flow	19 L/min
Internal Leakage	90ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

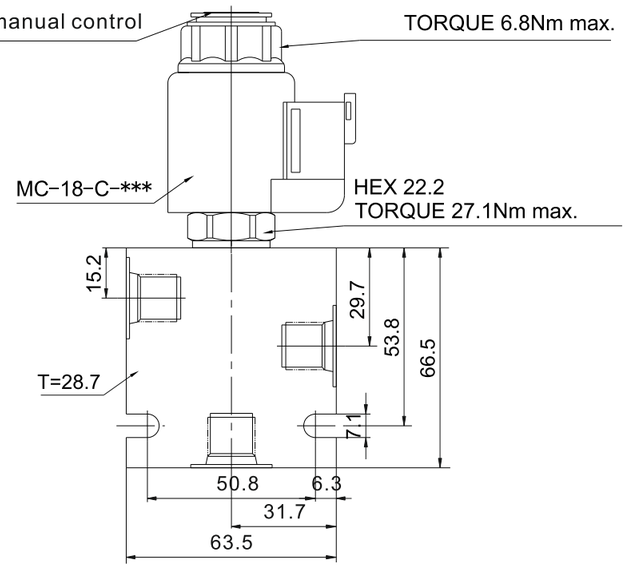


Operation:

When de-energized, the valve allows flow from port ② to port ③ or from port ③ to port ② free mobility , while blocking flow at port ①; When energized, the valve's spool shifts open from port ① to port ② or from port ② to port ① , while blocking flow at port ③.

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TWK08D-01 | | | | | | | |

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

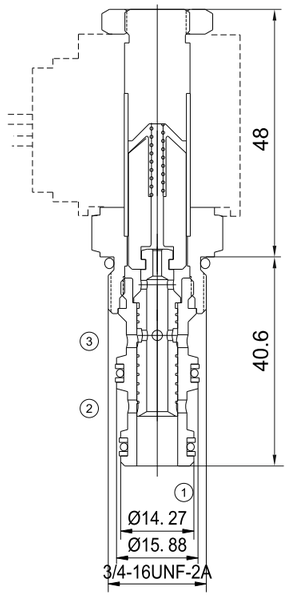
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

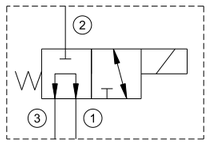
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV-08-33 3-Way,2-Position



Hydraulic Symbol:



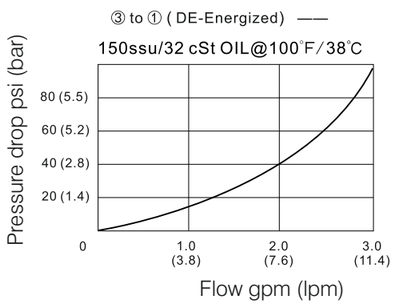
Specifications:

Operating Pressure	207 Bar
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

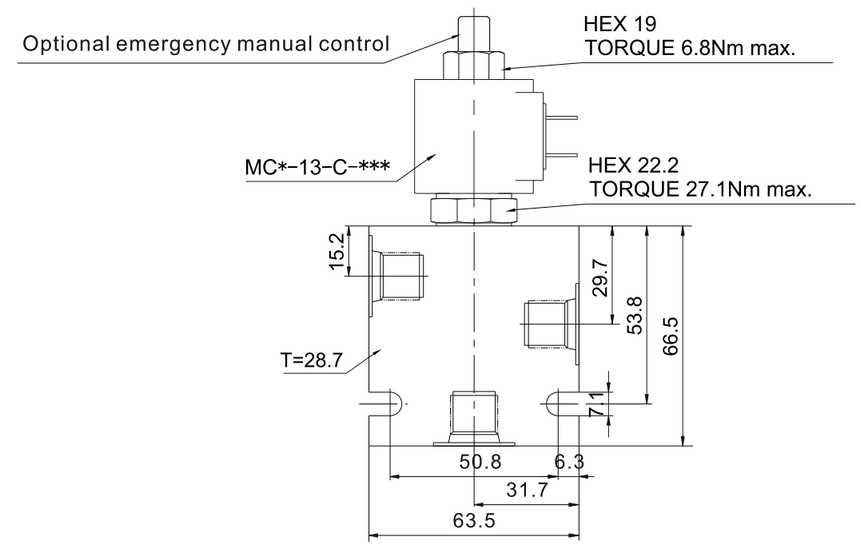
Performance Curve
Pressure Drop vs Flow



Operation:

When energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③;
When de-energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ② .

Installation Dimensions:



Ordering code details:

TSV-08-33 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

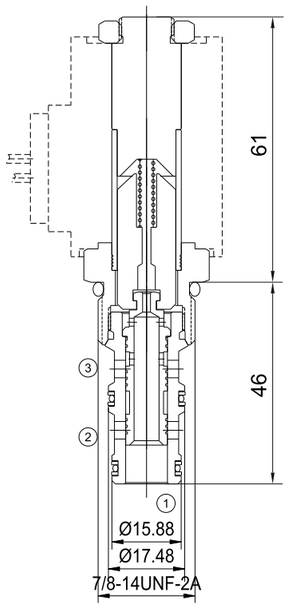
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

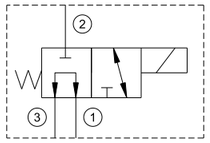
BODY PORTING
SAE 4T =4T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TSV10-33 3-Way,2-Position



Hydraulic Symbol:



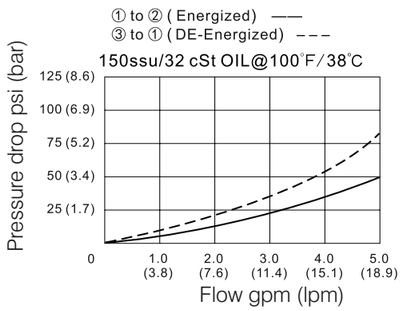
Specifications:

Operating Pressure	207 Bar
Flow	18.9 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve
Pressure Drop vs Flow

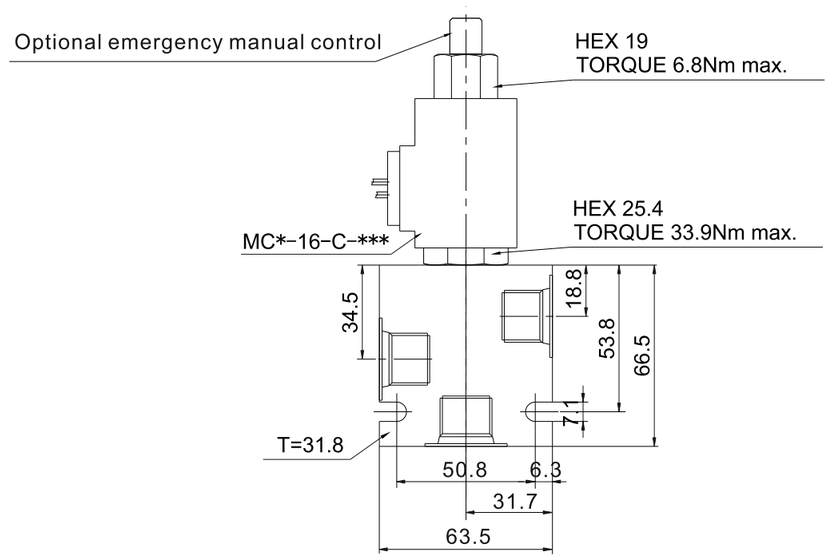


Operation:

When energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③;
When de-energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ② .

THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV-10-33 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V =12V
24V =24V
110V =110V
220V =220V

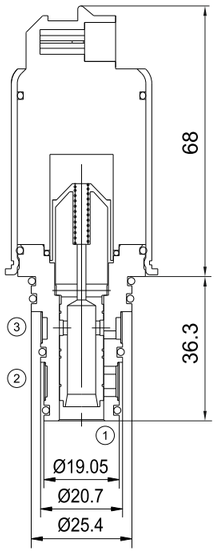
Coil Connection
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current Type
Direct current = D
Alternating current = A

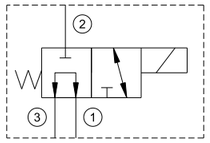
BODY PORTING
SAE 6T =6T
SAE 8T =8T
G3/8 =3G
NPT3/8 =3N
Other porting is available

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
Steel rated at 350 Bar = S

TTS-01 - 3-Way,2-Position



Hydraulic Symbol:



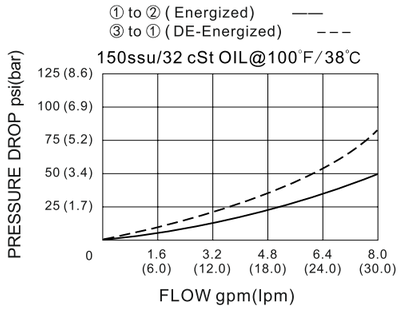
Specifications:

Operating Pressure	45 BAR
Flow	30 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	TS-01 see page K-24
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

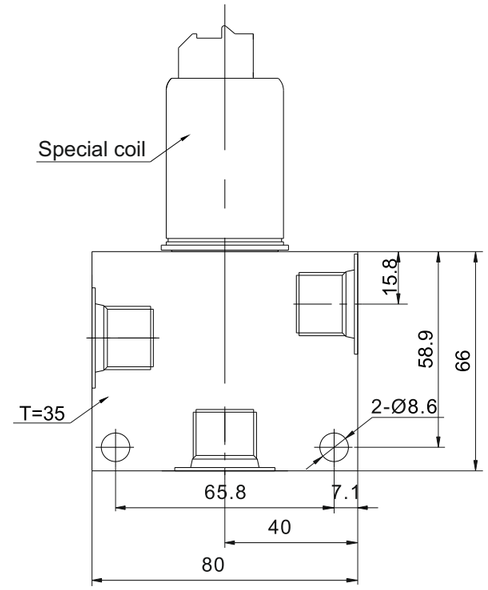
Performance Curve Pressure Drop vs.Flow



Operation:

When energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③;
When de-energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ② .

Installation Dimensions:



Ordering code details:

TTS-01 | | | | |

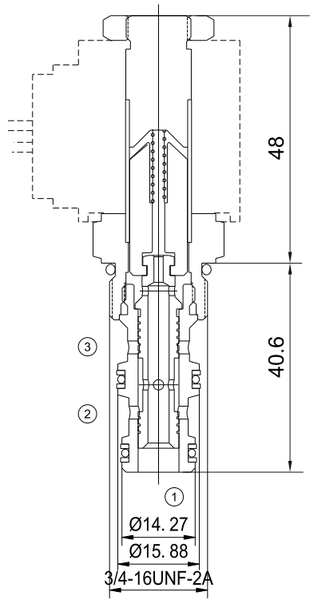
Seal Kits:
Buna N = N
Viton = V

Coil Connection
Special coil

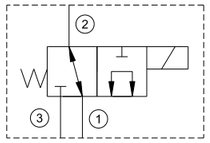
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TSV-08-31 - 3-Way, 2-Position



Hydraulic Symbol:



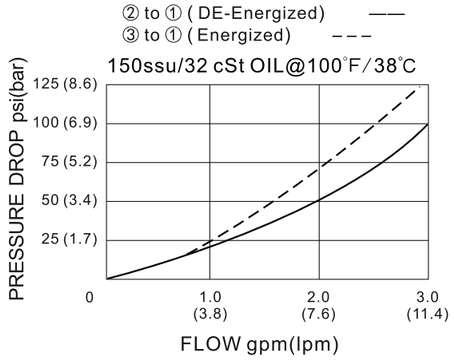
Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

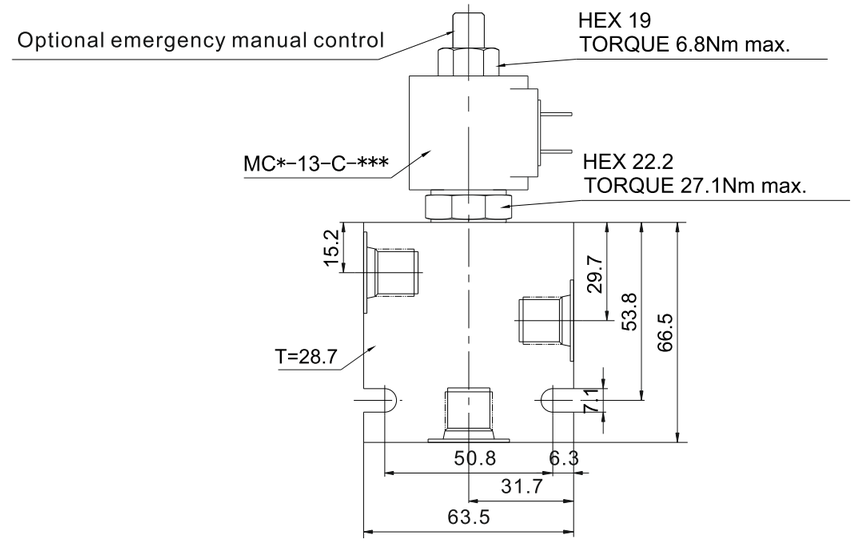
Performance Curve Pressure Drop vs.Flow



Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ②.

Installation Dimensions:



Ordering code details:

TSV-08-31 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

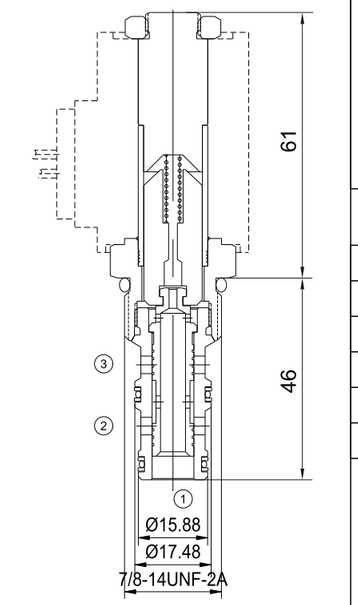
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

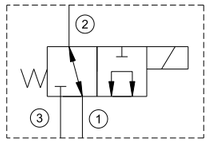
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV-10-31 - 3-Way, 2-Position



Hydraulic Symbol:



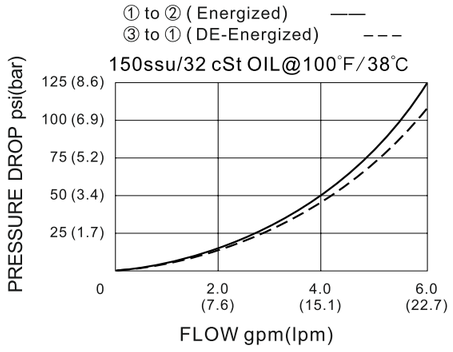
Specifications:

Operating Pressure	207 BAR
Flow	22.7 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

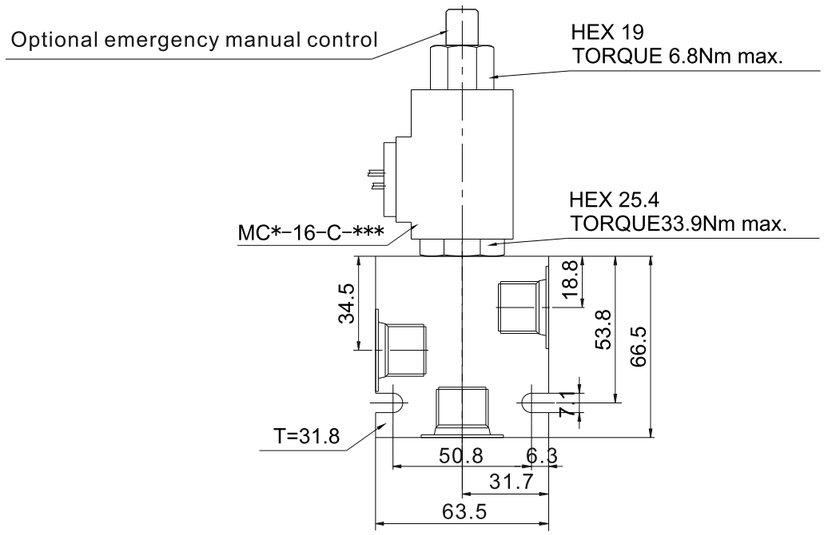
Performance Curve Pressure Drop vs.Flow



Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ②.

Installation Dimensions:



Ordering code details:

TSV-10-31 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

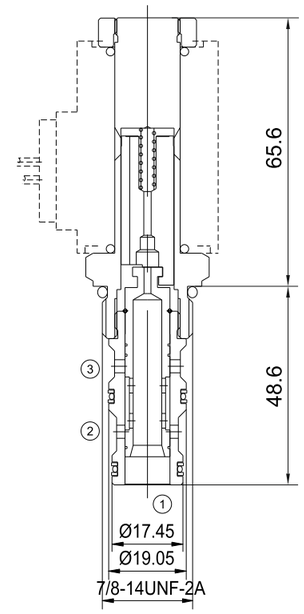
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

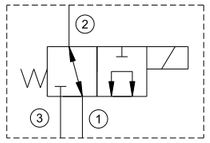
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TSV-10-30D - 3-Way, 2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	40 L/min
Internal Leakage	120ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3D see page K-28
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

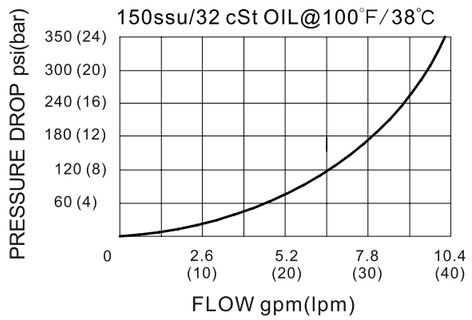
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

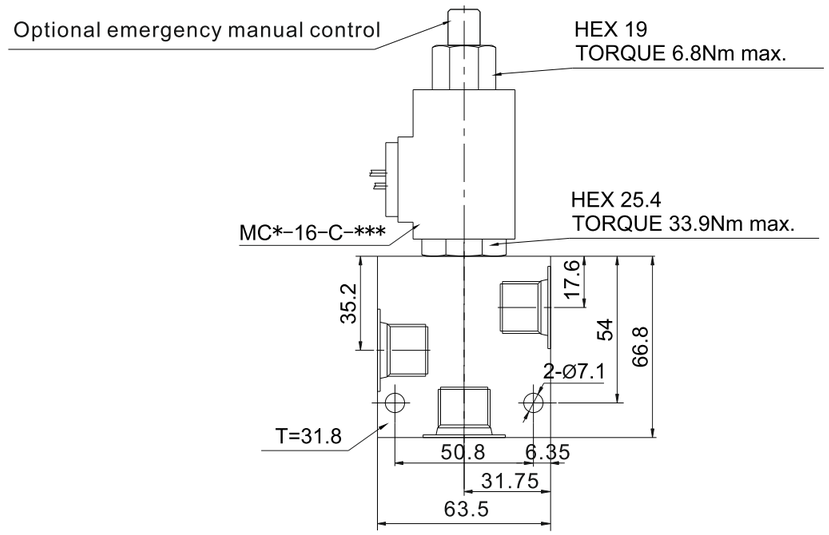
When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility , while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ① or from port ① to port ③ , while blocking flow at port ②.

Performance Curve Pressure Drop vs.Flow



THM HYDRAULICS

Installation Dimensions:



Ordering code details:

TSV-10-30D [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

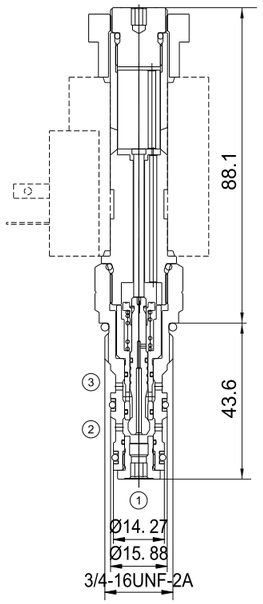
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

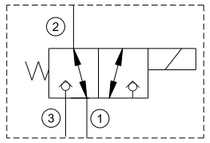
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV-08-3-L - Solenoid-Operated 3-Way,2-Posotion (Poppet Valve)



Hydraulic Symbol:



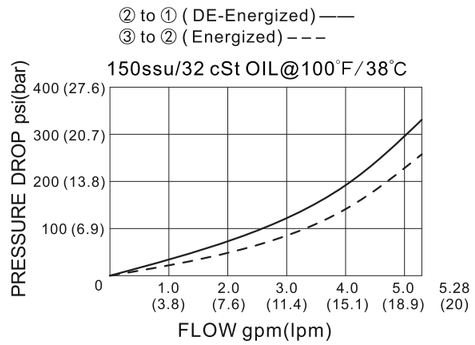
Specifications:

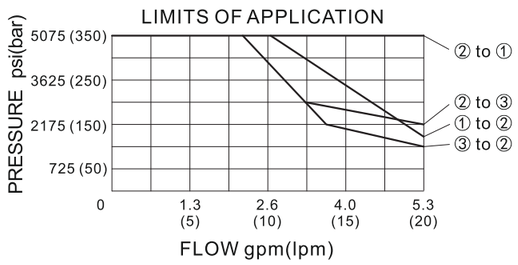
Operating Pressure	350 BAR
Flow	18.9 L/min
Internal Leakage	≤1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve Pressure Drop vs.Flow



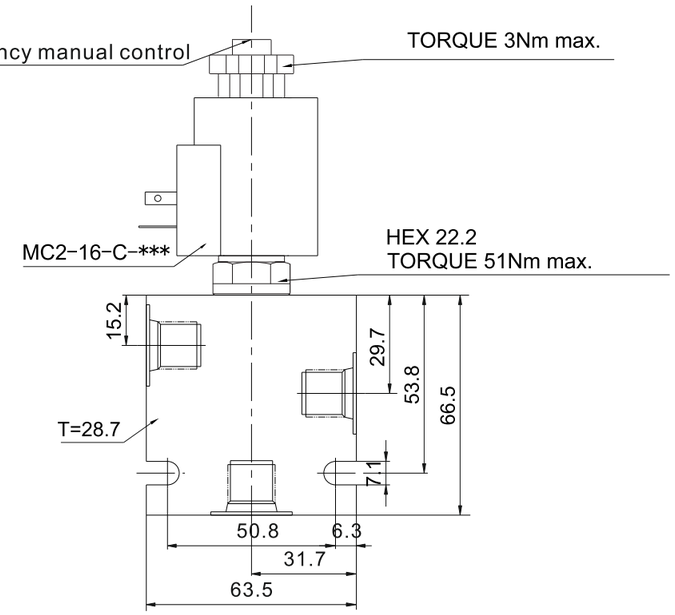


Operation:

When de-energized,the valve allows flow from port ② to port ① ,while blocking flow at port ③;

When energized, the valve allows flow from port ② to port ③ ,while blocking flow at port ①;

Installation Dimensions:



Ordering code details:

TSV-08-3-L [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

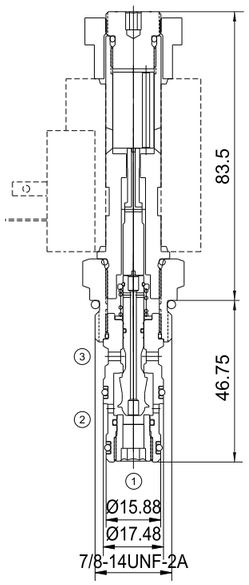
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

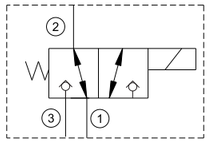
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV-10-3-L - Solenoid-Operated 3-Way,2-Posotion (Poppet Valve)



Hydraulic Symbol:



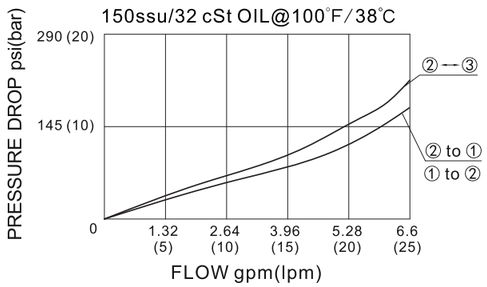
Specifications:

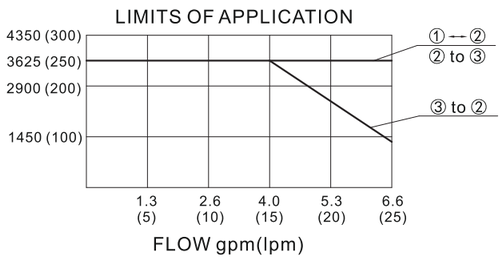
Operating Pressure	250 BAR
Flow	25 L/min
Internal Leakage	≤1drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Performance Curve Pressure Drop vs.Flow



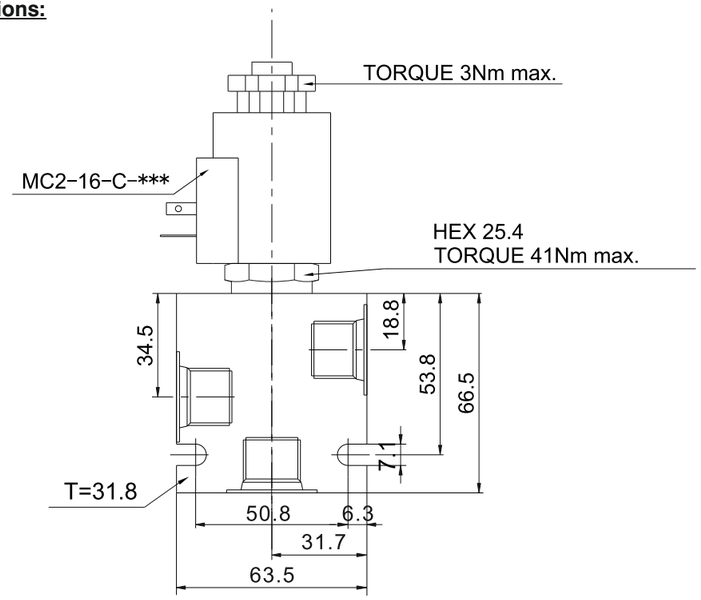


Operation:

When de-energized,the valve allows flow from port ② to port ① ,while blocking flow at port ③;

When energized, the valve allows flow from port ② to port ③ ,while blocking flow at port ①;

Installation Dimensions:



Ordering code details:

TSV-10-3-L [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

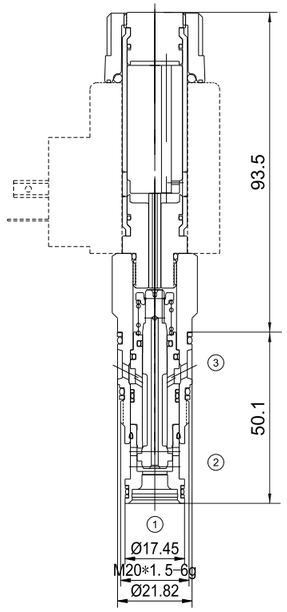
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

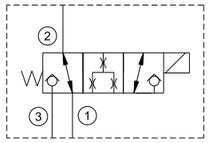
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TDWDA - * A * - 3-Way,2-Position



Hydraulic Symbol:



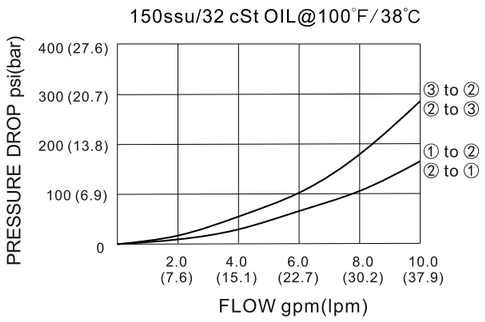
Specifications:

Operating Pressure	350 BAR
Flow	30 L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation.
- This valve is suitable for load holding applications on port 3 only. In the event of power failure, the valve would spring closed.

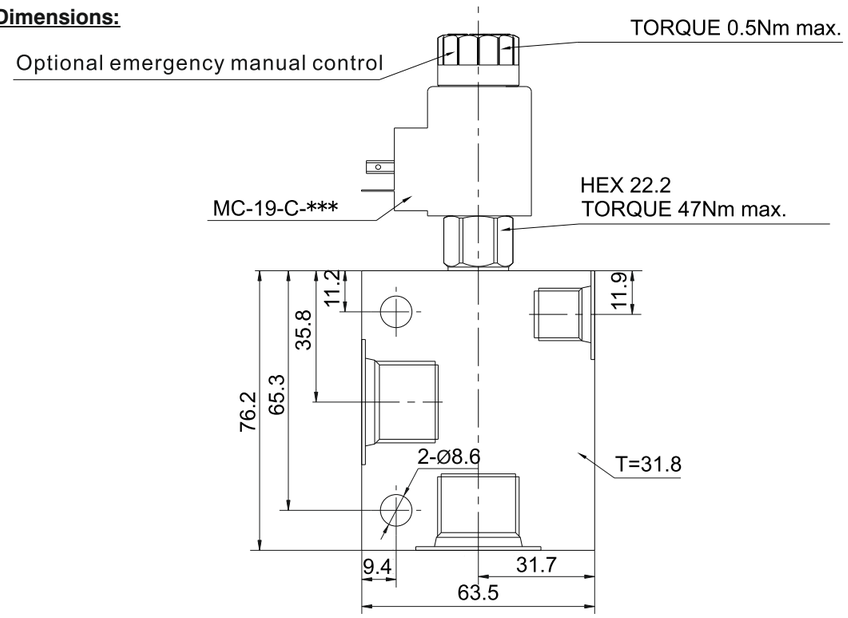
Performance Curve Pressure Drop vs.Flow



Operation:

This solenoid-operated 3-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is normally open between port 1 and port 2 with port 3 blocked. Energizing the valve connects port 2 to 3 and blocks port 1. All flow paths are bidirectional and blocked paths are blocked in both directions. Due to the poppet style construction, this valve has extremely low leakage.

Installation Dimensions:



Ordering code details:

TDWDA | A | | | | | |

Manual Emergency:
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

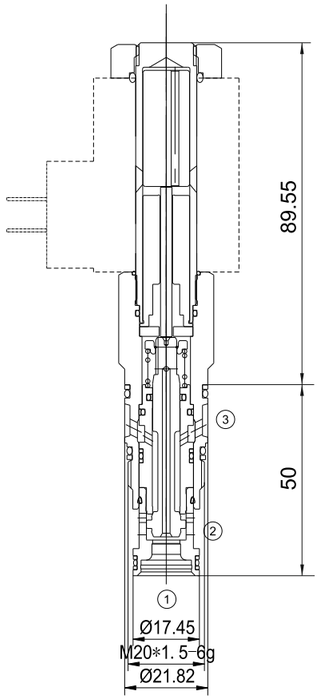
Coil Connection:
DIN43650 = H

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

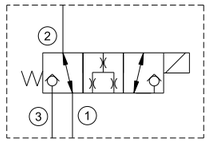
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TDWDF - * A * - 3-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	30 L/min
Response Time - Typical	50ms
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

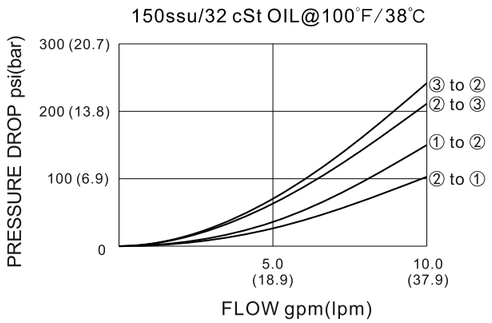
Features:

- Valves exhibit extremely low leakage rates
- This valve utilizes a wet armature design
- This valve is direct actuated and requires no minimum hydraulic pressure for operation.
- This valve is suitable for load holding applications on port 3 only. In the event of power failure, the valve would spring closed.

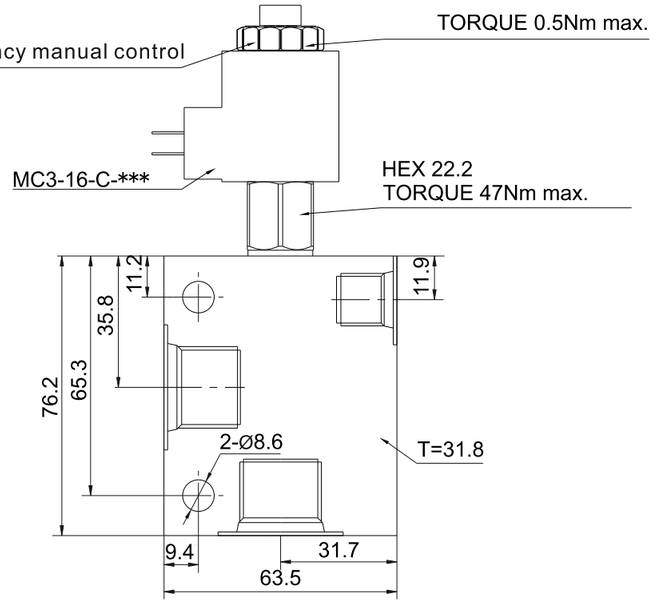
Operation:

This solenoid-operated 3-way, 2-position cartridge is a direct-acting, poppet-style directional valve. The valve is normally open between port 1 and port 2 with port 3 blocked. Energizing the valve connects port 2 to 3 and blocks port 1. All flow paths are bidirectional and blocked paths are blocked in both directions. Due to the poppet style construction, this valve has extremely low leakage.

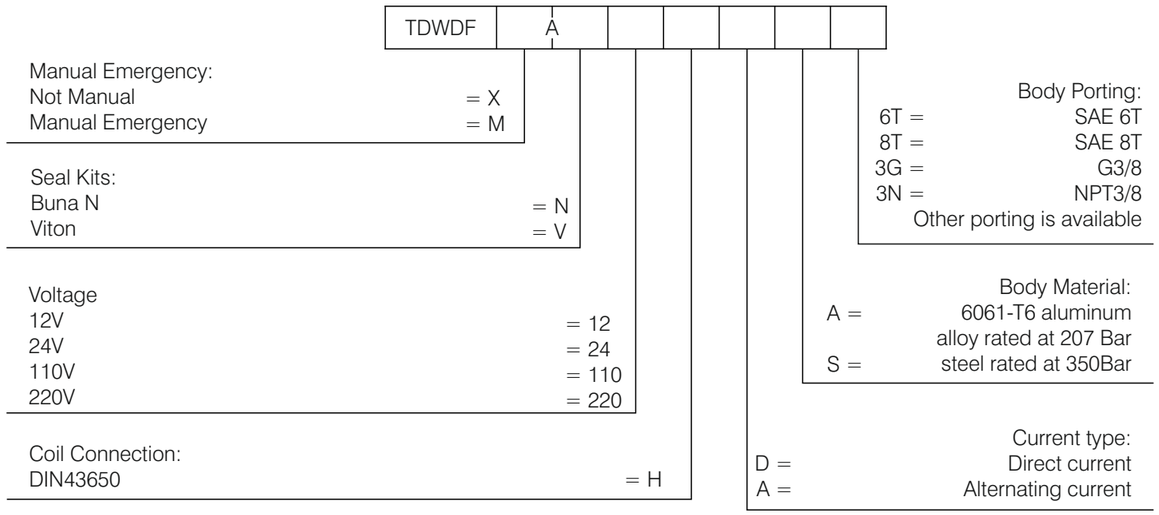
Performance Curve Pressure Drop vs.Flow



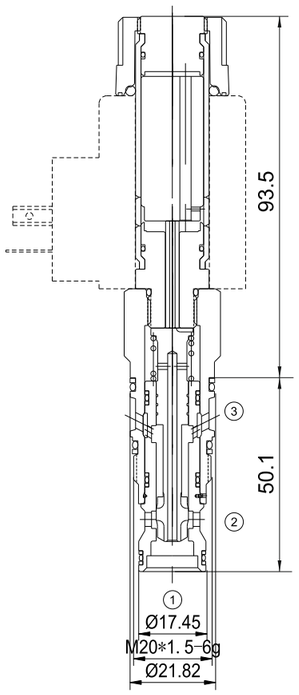
Installation Dimensions:



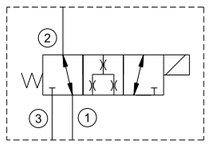
Ordering code details:



TDMDA - * A * - 3-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	45 L/min
Response Time - Typical	50ms
Internal Leakage	80ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-11A see page K-2
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

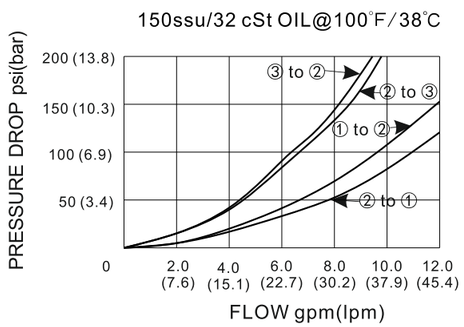
Features:

- The solenoid tube assembly is fatigue rated for 5000 psi (350 bar) service
- This valve is direct actuated and requires no minimum hydraulic pressure for operation
- This valve utilizes a wet armature design

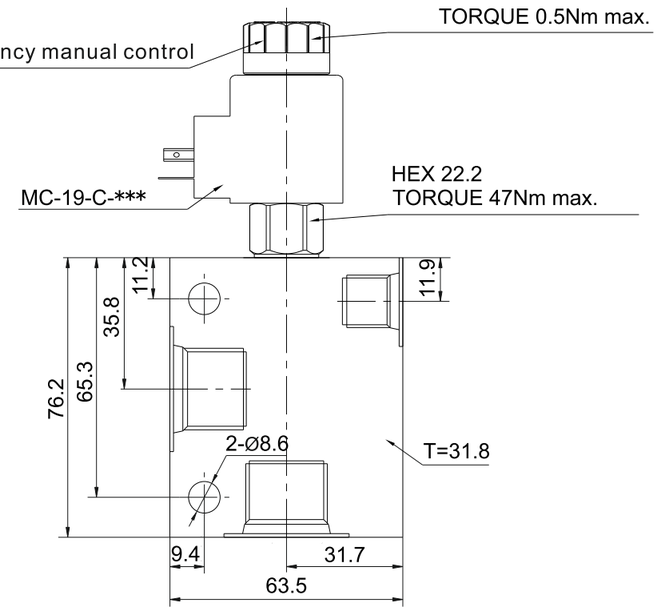
Operation:

When de-energized, the valve allows flow from port ② to port ① or from port ① to port ② free mobility, while blocking flow at port ③; When energized, the valve's spool shifts open from port ③ to port ② or from port ② to port ③, while blocking flow at port ①.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TDMDA | A | | | | | |

Manual Emergency:
Not Manual = X
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

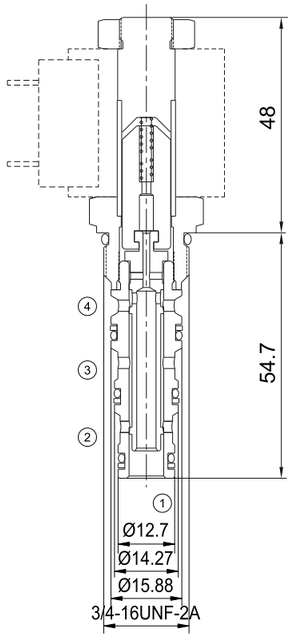
Coil Connection:
DIN43650 = H

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

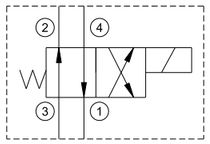
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TSV2-08-4CO - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

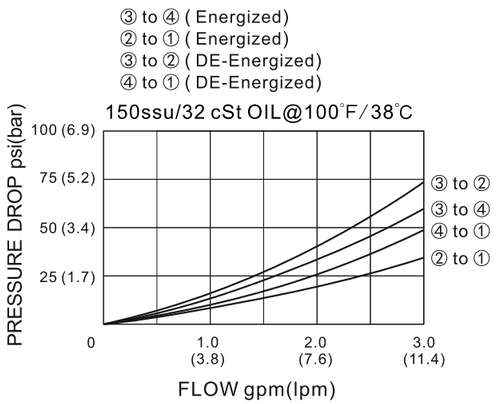
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

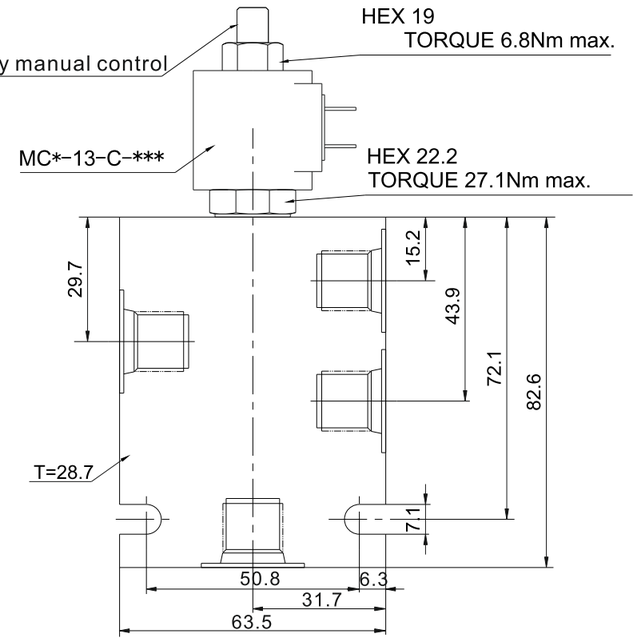
When de-energized, the valve flow paths are port ③ to port ②, and port ④ to port ①;

When energized, the valve's spool shifts to open port ③ to port ④, and port ① to port ② .

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV2-08-4CO [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

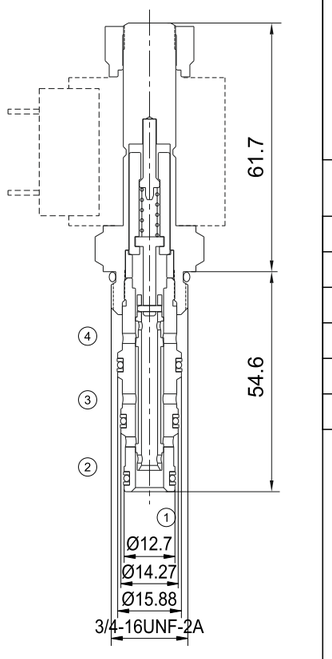
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

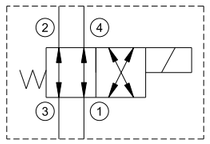
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSEV-S08-560 - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	250 BAR
Flow	19 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

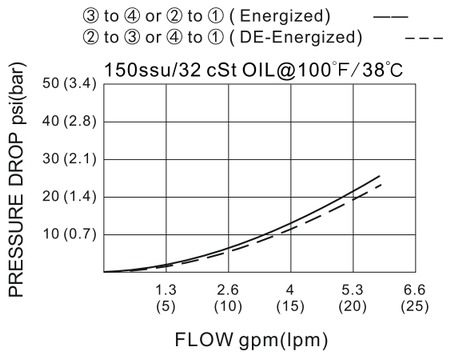
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

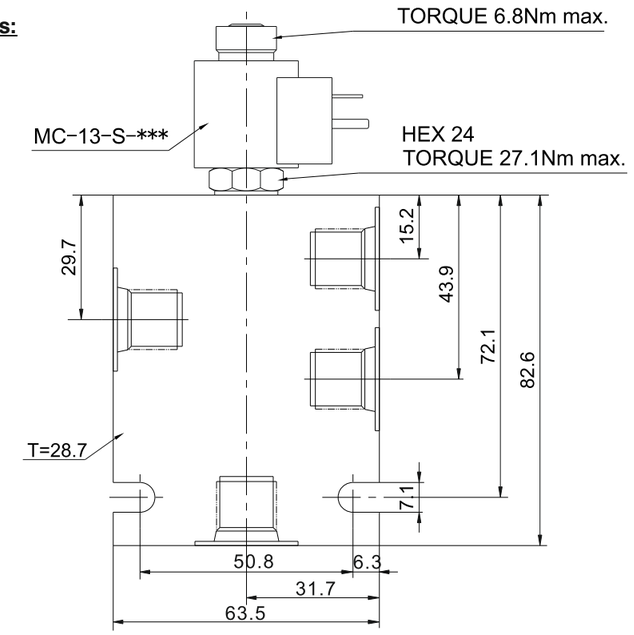
When de-energized, the valve flow paths are port ③ to port ②, and port ④ to port ①;

When energized, the valve's spool shifts to open port ③ to port ④, and port ① to port ② .

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSEV-S08-560 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

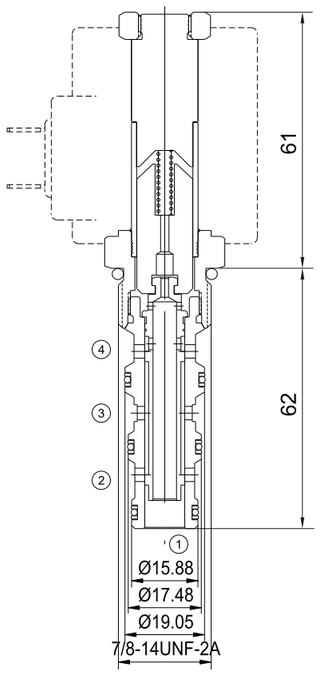
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

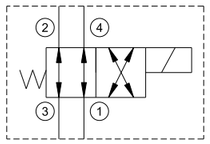
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV-10-40 - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	23 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

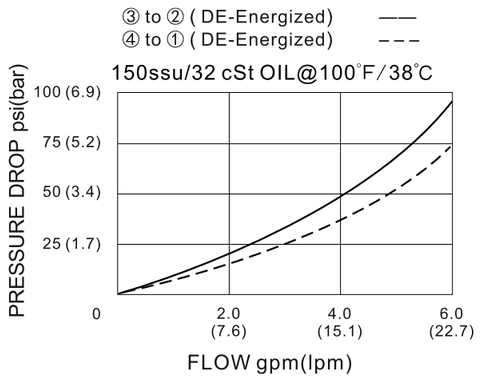
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

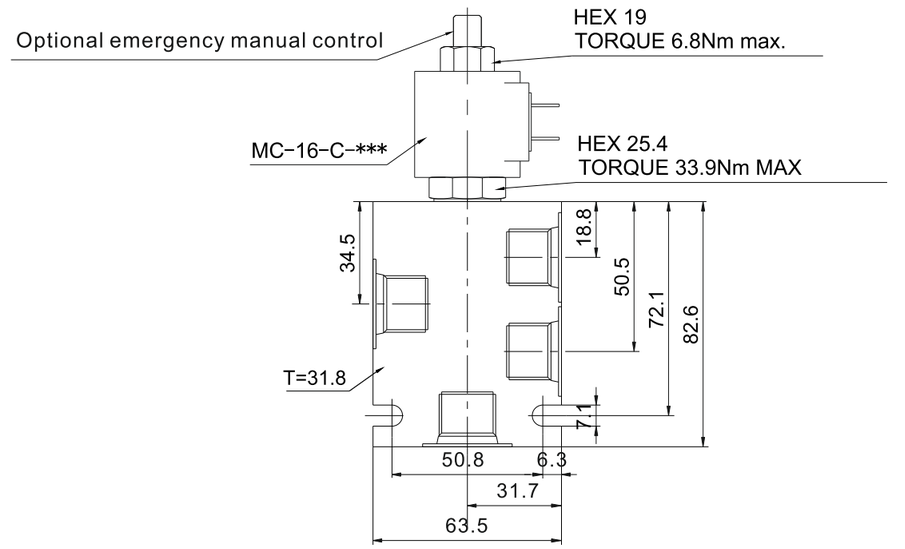
When de-energized, the valve flow paths are port ③ to port ②, and port ④ to port ①;

When energized, the valve's spool shifts to open port ③ to port ④, and port ① to port ② .

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV-10-40 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

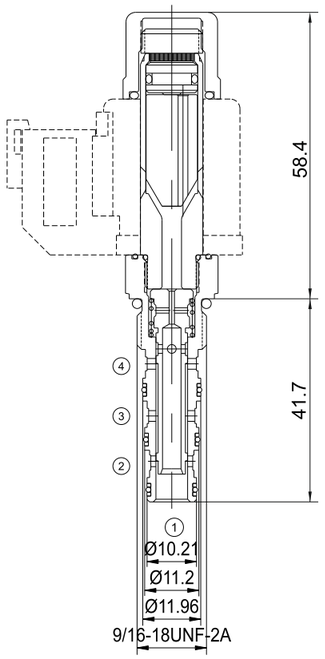
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

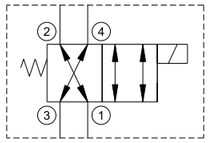
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TWK06Y-01 - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	350 BAR
Flow	10 L/min
Internal Leakage	＜ max. 100 cm/min at 207 bar and 28 mm2/s
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	FC06-4 see page K-42
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

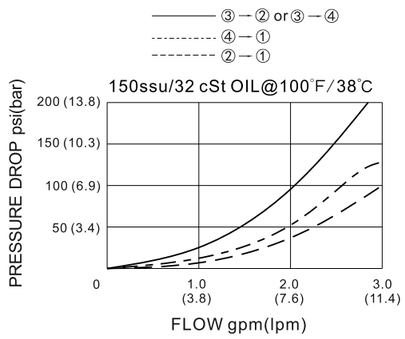
Features:

- Hardened, precision ground parts for durability
- All exposed surfaces corrosion-proof
- All valve parts made of high-strength steel with hardened and ground component to ensure minimal wear and extended service life
- Coil seals protect the solenoid system
- Coil easy to exchange and pivotable

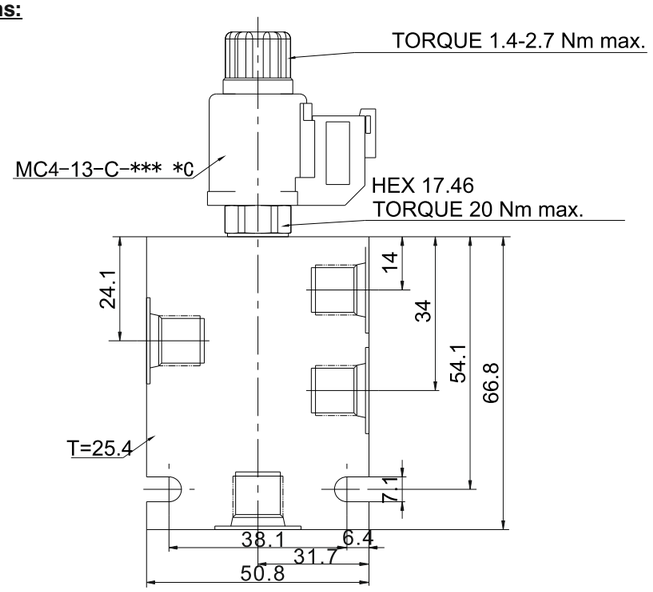
Operation:

In de-energized mode, the valve allows flow from port ① to ② and from ③ to ④ and also in the opposite direction. If energized, the valve allows flow from port ① to ④ and from ③ to ② and also in the opposite direction.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TWK06Y-01 [ ] [ ] [ ] [ ] [ ] [ ]

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

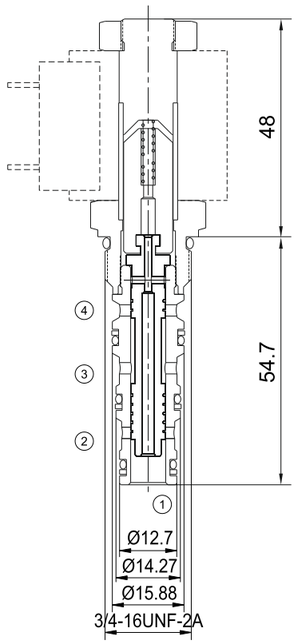
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H
Deutsch DT04-2P = F

Current type:
D = Direct current
A = Alternating current

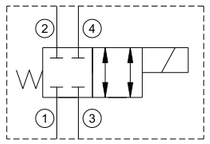
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV2-08-4NC - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

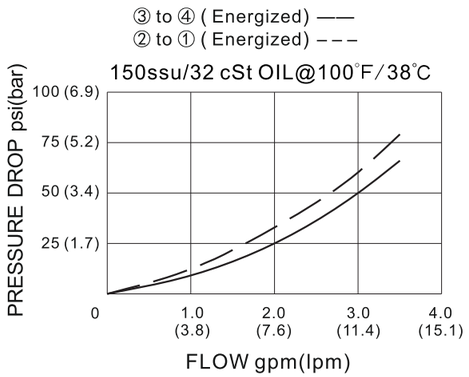
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

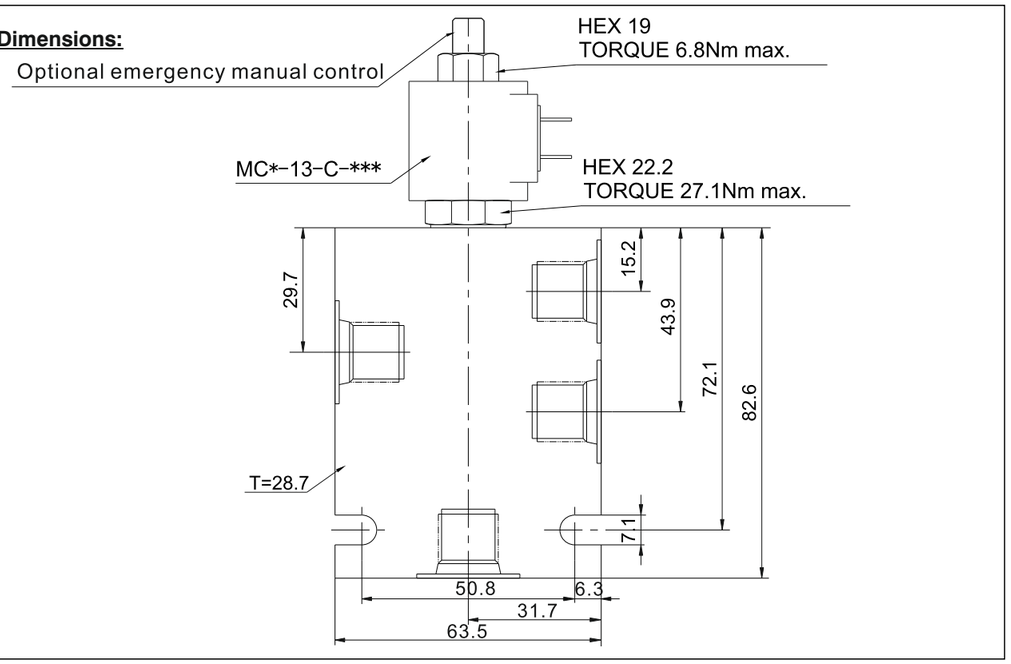
Operation:

When de-energized, the valve blocks all oil port flow;
When energized, the valve's spool shifts to open port ③ to port ④, and port ① to port ② .

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV2-08-4NC [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

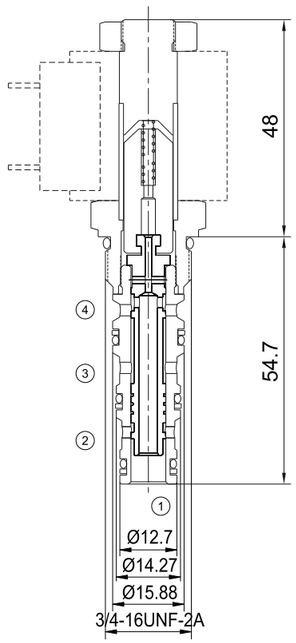
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

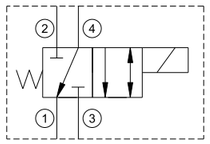
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TSV2-08-4TC - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

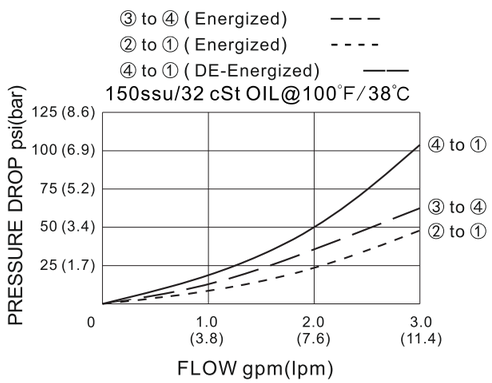
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

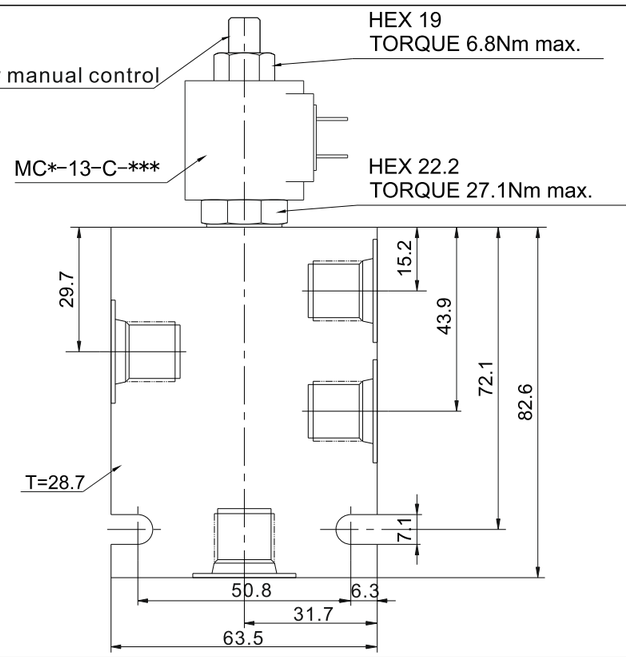
Operation:

When de-energized, the valve allows flow from port ④ to port ① while blocking flow at port ② to port ③ ;
When energized , the valve allows flow from port ③ to port ④ , and port ② to port ①

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV2-08-4TC [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

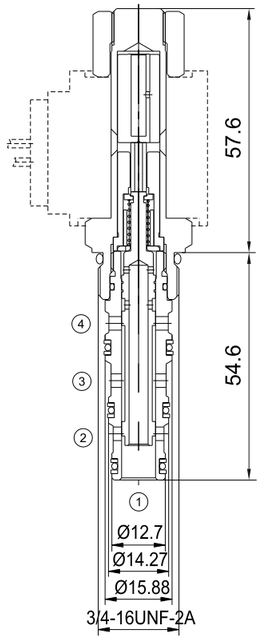
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

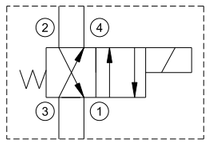
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

THF08-242 - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	11.4 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

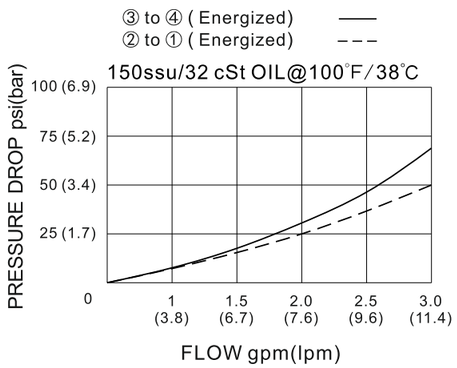
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

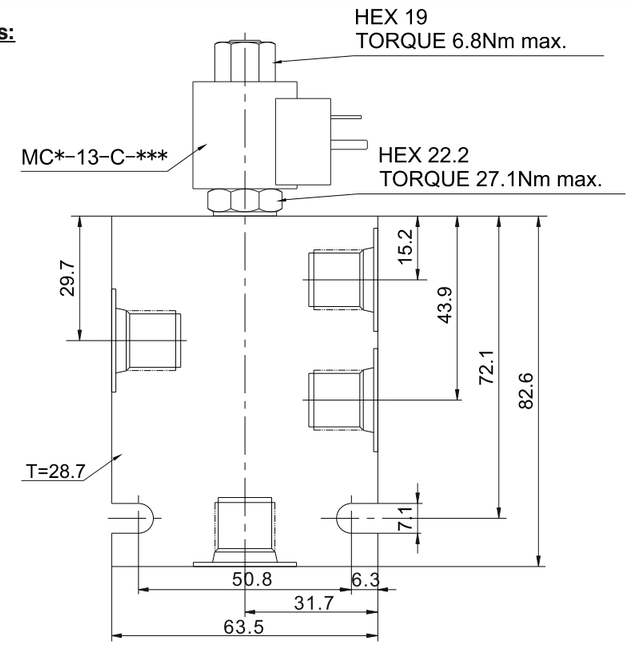
When de-energized, the valve flow paths are port ② to port ①, and port ③ to port ④;

When energized, the valve's spool shifts to open port 3 to port ②, and port ④ to port ①.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

THF08-242 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

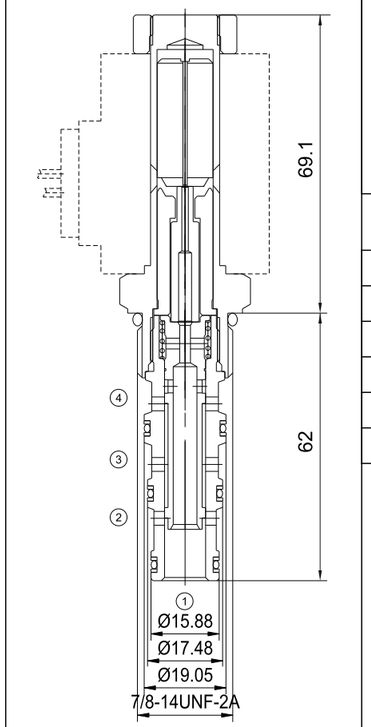
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

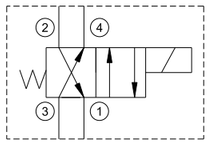
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

THF10-242 - 4-Way,2-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	22.4 L/min
Internal Leakage	120ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

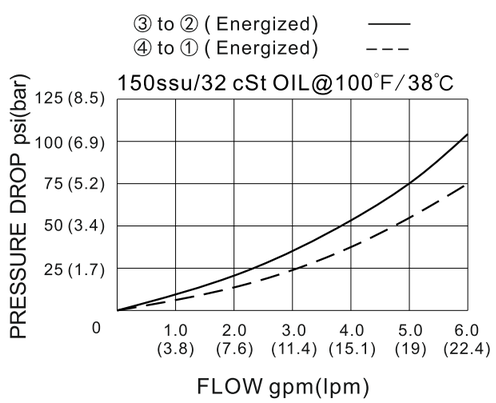
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

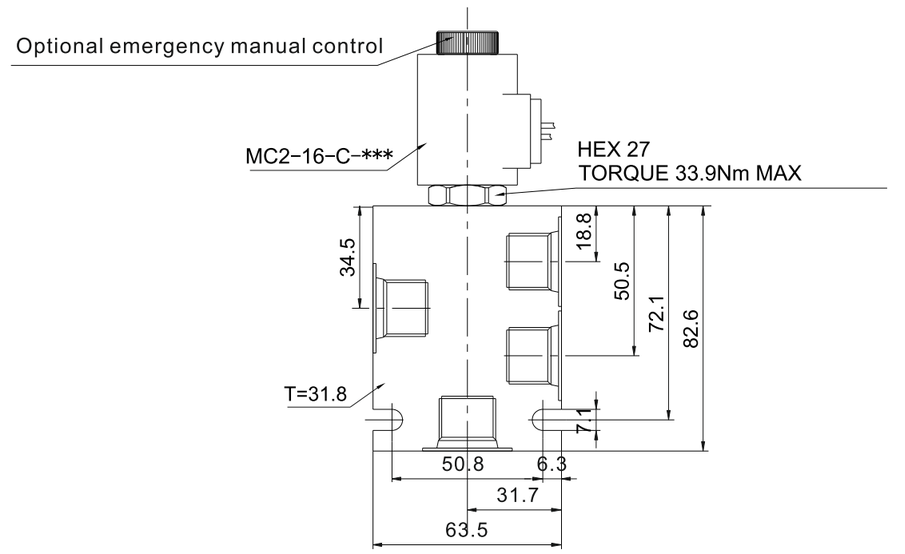
When de-energized, the valve flow paths are port ② to port ①, and port ③ to port ④;

When energized, the valve's spool shifts to open port 3 to port ②, and port ④ to port ①.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

THF10-242 | | | | | | | | |

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

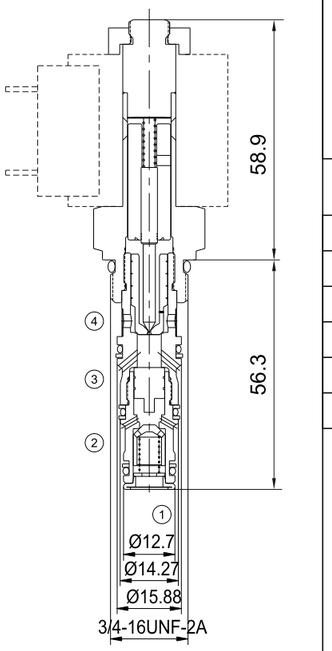
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

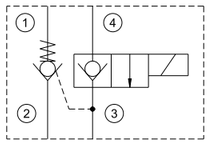
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSPC-08-04 - Electronically Controlled Hydraulic Lock



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	19 L/min
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

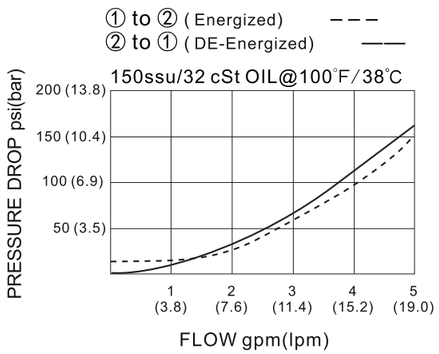
Operation:

The valve will block from ① to ②,④ to ③.

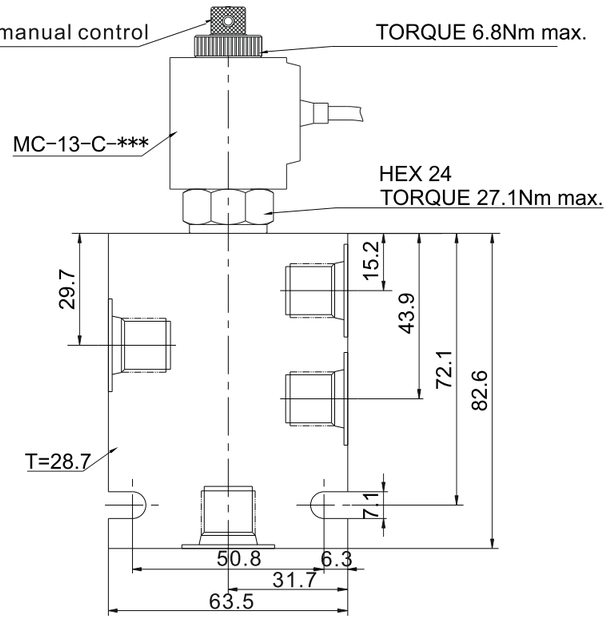
Flow is allowed in the direction,when pressure is applied to port ① and or ③port.

The valve has a 2.5:1 pliot ratio,so at least 1/2.5 of the load pressure at ① is required at port ③ or ④ (when energized,allows flow ④ to ③),to open the flow passage to allow from ① to ②.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSPC-08-04 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

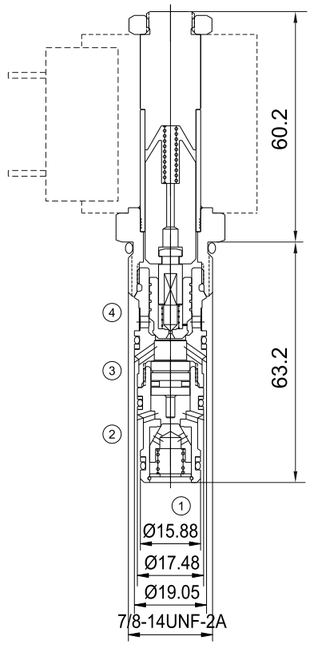
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

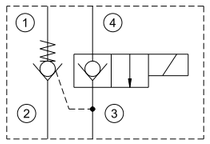
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSPC-10-4 - Electronically Controlled Hydraulic Lock



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	30 L/min
Crack Pressures	1.7 Bar
Pilot Ratio	3:1
Internal Leakage	82ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

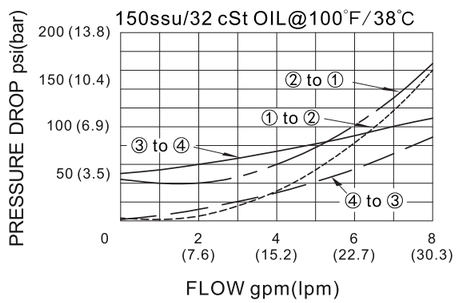
Operation:

The valve will block from ① to ②,④ to ③.

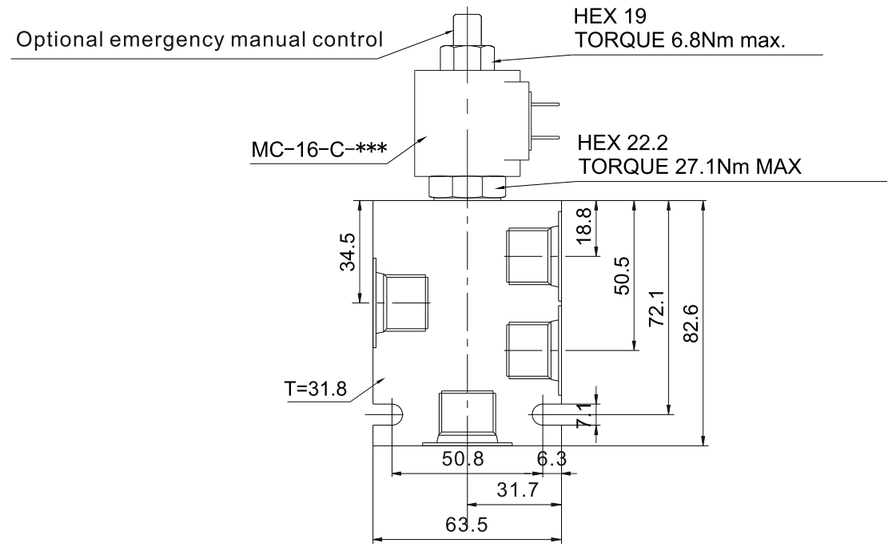
Flow is allowed in the direction,when pressure is applied to port ① and or ③port.

The valve has a 2.5:1 pliot ratio,so at least 1/2.5 of the load pressure at ① is required at port ③ or ④ (when energized,allows flow ④ to ③),to open the flow passage to allow from ① to ②.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSPC-10-4 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

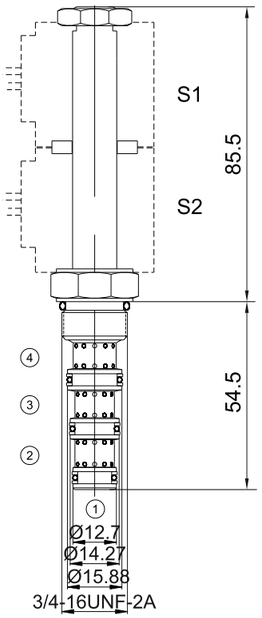
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

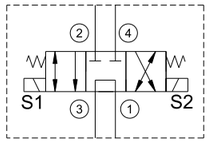
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV08-47A - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	11.4 L/min
Internal Leakage	278ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

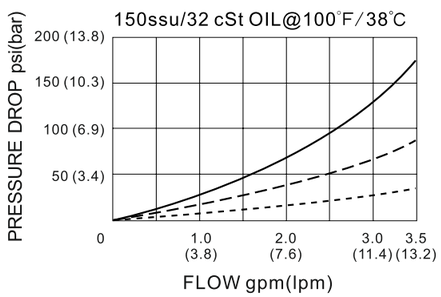
When de-energized, the valve blocks cylinder ports, while allowing flow from ③ to ①.

When coil S1 is energized, flow is allowed from ③ to ②, and from ④ to ①.

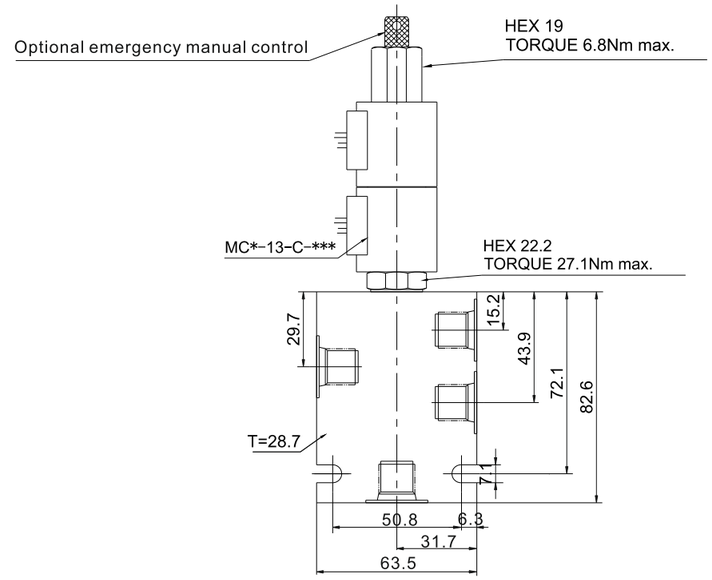
When coil S2 is energized, flow is allowed from ③ to ④, and from ② to ①.

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ ——
② to ① or ④ to ① – – –
③ to ① - - - -



Installation Dimensions:



Ordering code details:

TSV08-47A [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

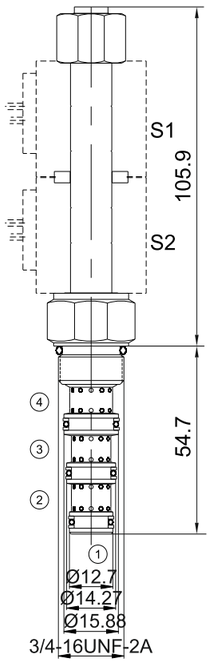
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

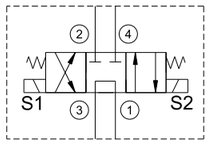
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

THF08S-34M - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	11.4 L/min
Internal Leakage	160cc/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

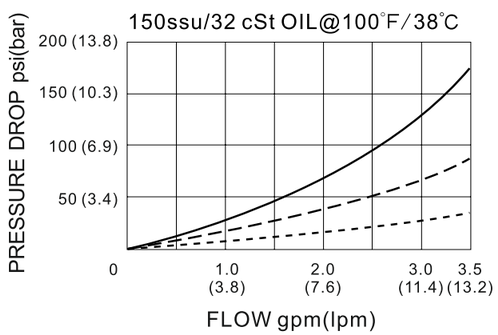
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

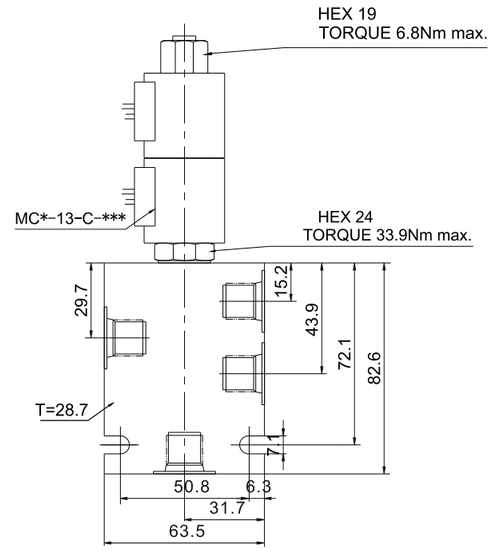
When de-energized,the valve blocks flow from ② to ④ ,while allows flow from ③ to ① When S1 is energized, the valve allows flow between ③to④,as wel as ②to①When S2 is energized,the valve allowsflow between③to②,as well as④ to① .

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ ——
② to ① or ④ to ① – – –
③ to ① - - - -



Installation Dimensions:



Ordering code details:

THF08S-34M [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

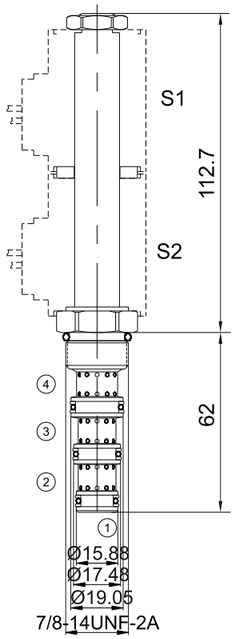
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

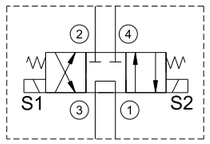
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV10-47A - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	19 L/min
Internal Leakage	300ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

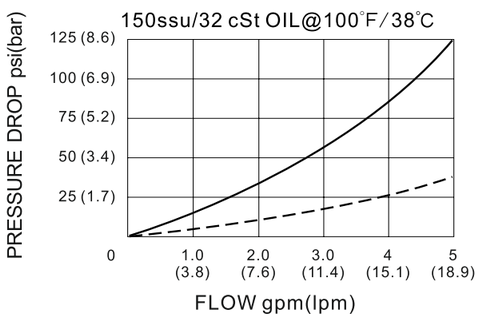
When de-energized, the valve blocks cylinder ports, while allowing flow from ③ to ①.

When coil S1 is energized, flow is allowed from ③ to ②, and from ④ to ①.

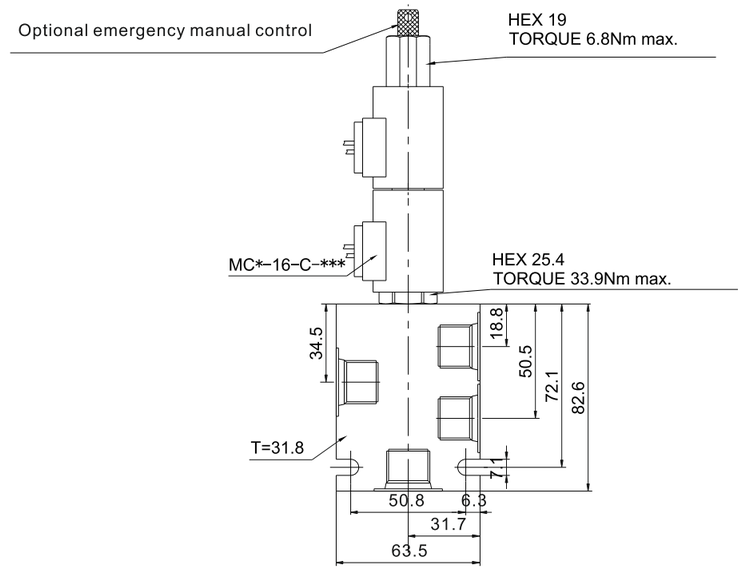
When coil S2 is energized, flow is allowed from ③ to ④, and from ② to ①.

Performance Curve Pressure Drop vs.Flow

③ to ② or ④ to ① ——
③ to ① - - - -



Installation Dimensions:



Ordering code details:

TSV10-47A [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

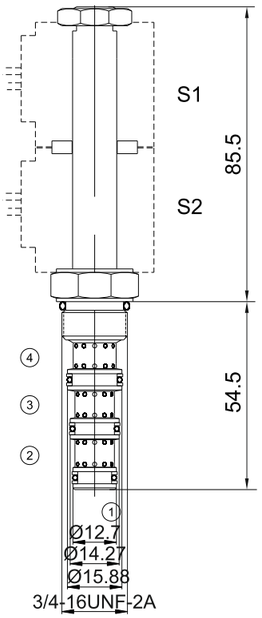
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

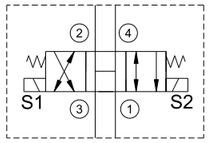
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV08-47B - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	11.4 L/min
Internal Leakage	328ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

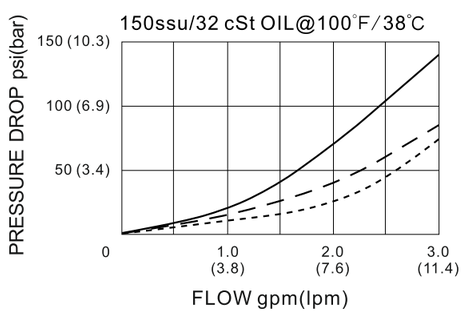
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

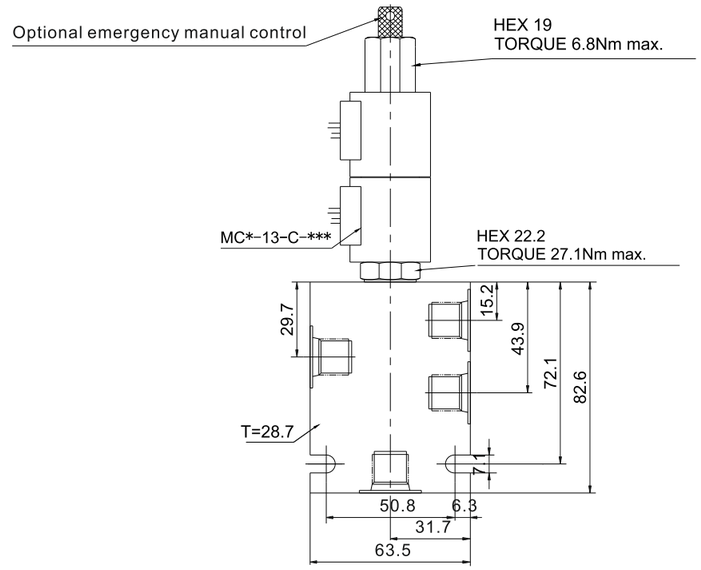
When de-energized, the valve has all ports connected.
When coil S1 is energized, flow is allowed from ③ to ④, and from ② to ①.
When coil S2 is energized, flow is allowed from ③ to ②, and from ④ to ①

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ or ④ to ① ——
② to ① – – –
③ to ① - - - -



Installation Dimensions:



Ordering code details:

TSV08-47B [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

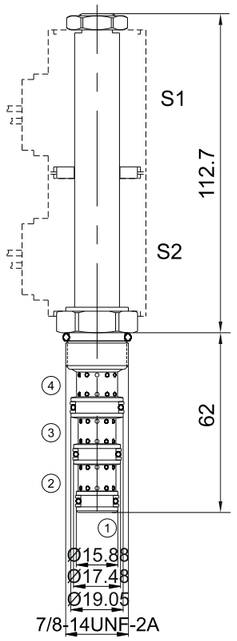
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

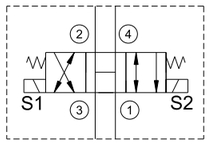
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV10-47B - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	22.7 L/min
Internal Leakage	328ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

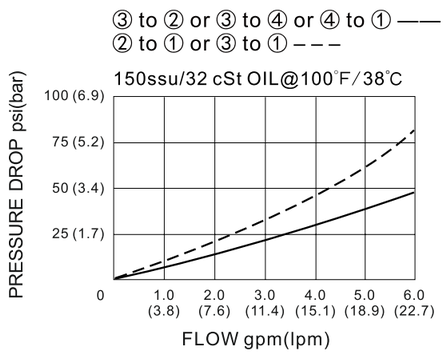
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

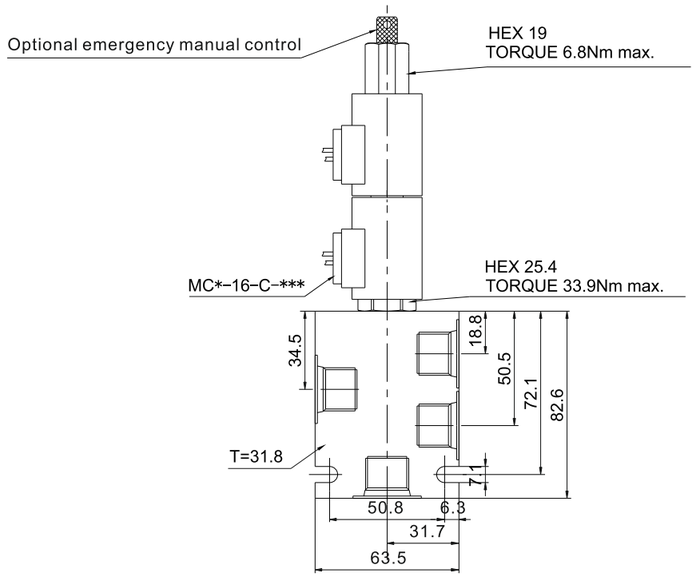
Operation:

When de-energized, the valve has all ports connected.
When coil S1 is energized, flow is allowed from ③ to ④, and from ② to ①.
When coil S2 is energized, flow is allowed from ③ to ②, and from ④ to ①

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV10-47B [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

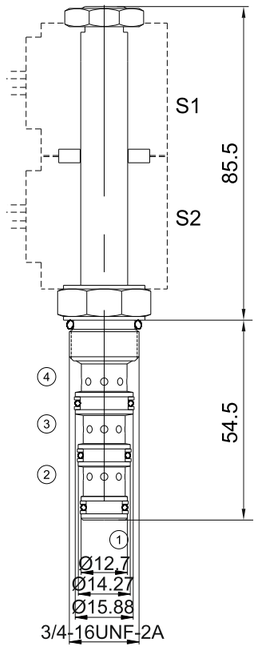
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

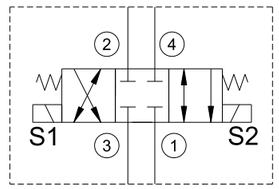
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV08-47C - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	22.7 L/min
Internal Leakage	328ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

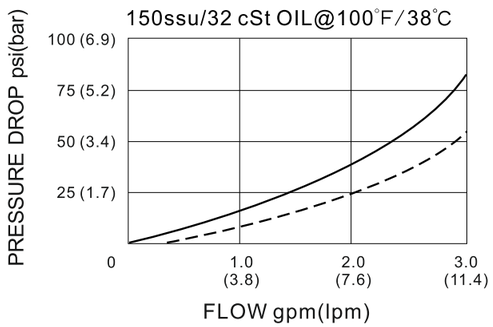
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

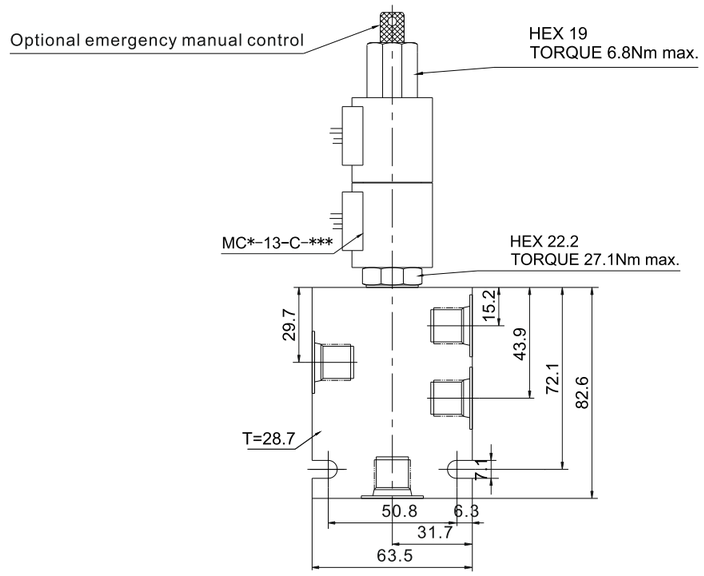
When de-energized, the valve has all ports connected.
When coil S1 is energized, flow is allowed from ③ to ④, and from ② to ①.
When coil S2 is energized, flow is allowed from ③ to ②, and from ④ to ①

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ ——
② to ① or ④ to ① – – –



Installation Dimensions:



Ordering code details:

TSV08-47C [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

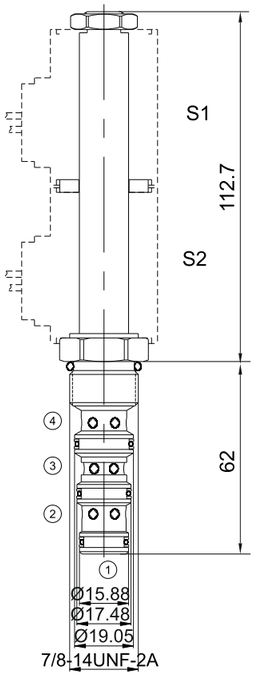
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

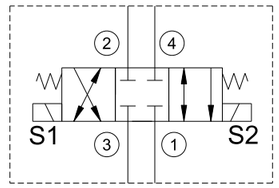
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TSV08-47C - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	23 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

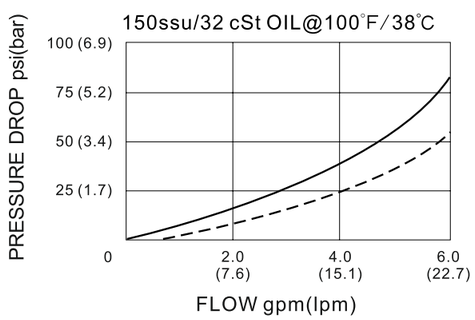
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

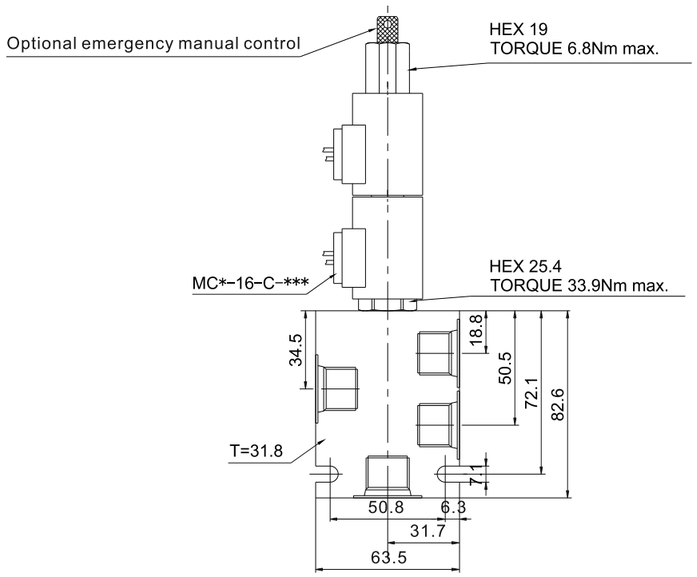
When de-energized, the valve has all ports connected.
When coil S1 is energized, flow is allowed from ③ to ④, and from ② to ①.
When coil S2 is energized, flow is allowed from ③ to ②, and from ④ to ①

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ ——
② to ① or ④ to ① – – –



Installation Dimensions:



Ordering code details:

TSV10-47C [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

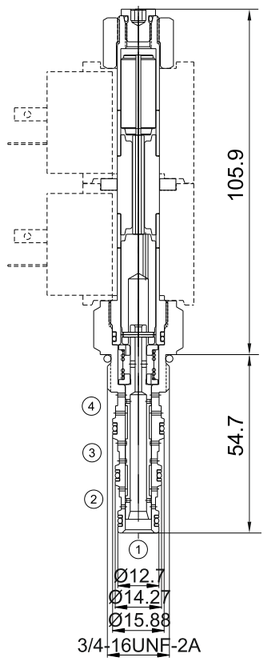
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

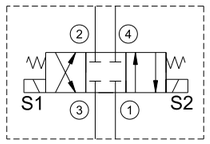
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

THF08S-340 - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	11.4 L/min
Internal Leakage	160cc/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

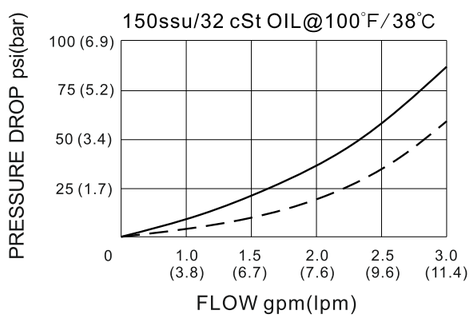
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

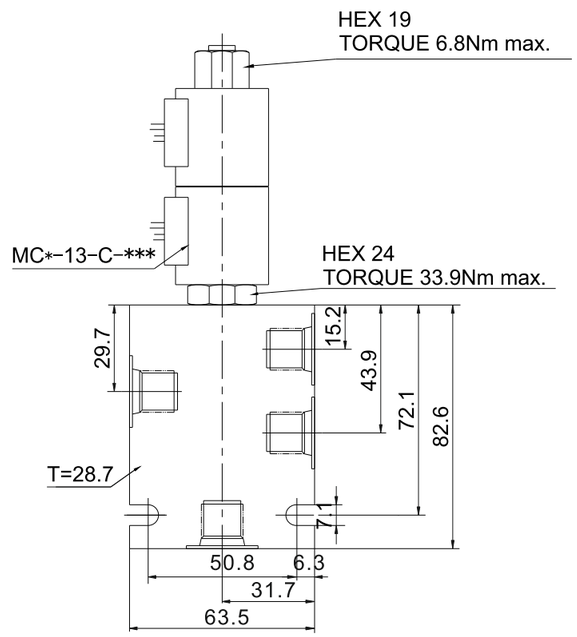
When de-energized, the valve blocks cylinder ports.
When coil S1 is energized, flow is allowed from ③ to ④, and from ② to ①.
When coil S2 is energized, flow is allowed from ③ to ②, and from ④ to ①.

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ ——
② to ① or ④ to ① – – –



Installation Dimensions:



Ordering code details:

THF08S-340 | | | | | | | |

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

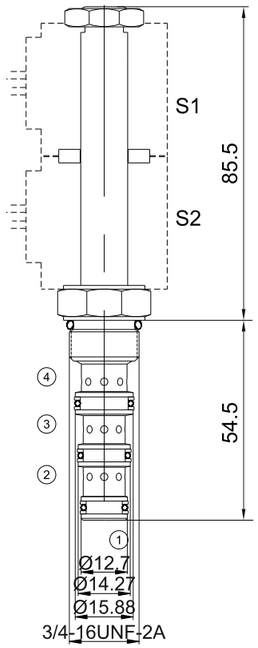
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

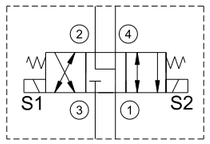
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV08-47D - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	11.4 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

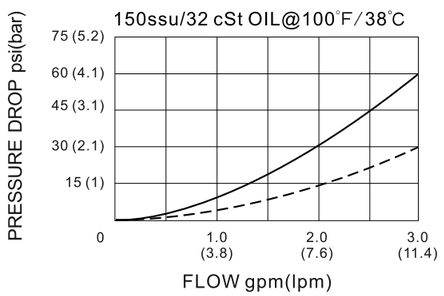
When de-energized, the valve blocks inlet port , while allowing ③ flow from ② and to ④ ①

When coil S1 is energized, flow is allowed from to , and from ③ ④ ② to ①.

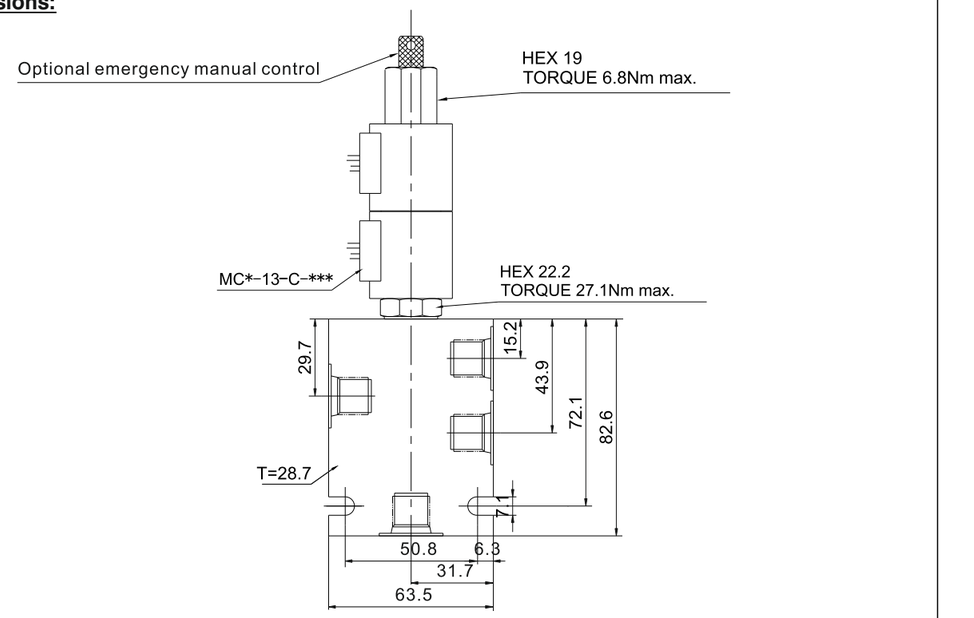
When coil S2 is energized, flow is allowed from to ②, and from ③ ④ ① to .

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ or ④ to ① ——
② to ① – – –



Installation Dimensions:



Ordering code details:

TSV08-47D [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

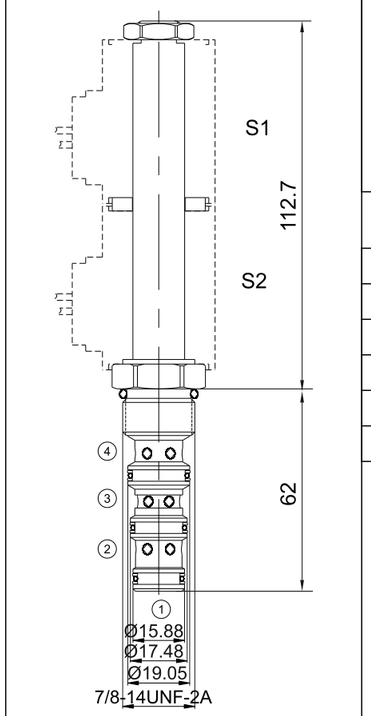
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

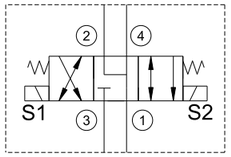
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV10-47D - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	240 BAR
Flow	23 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-4 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

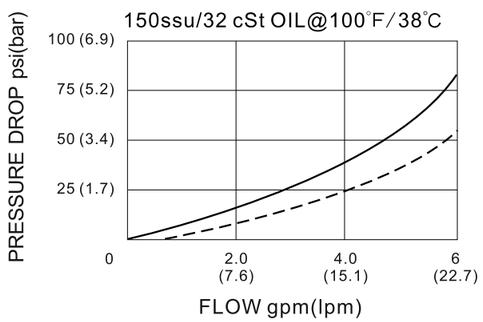
When de-energized, the valve blocks inlet port , while allowing ③ flow from ② and to ④ ①

When coil S1 is energized, flow is allowed from to , and from ③ ④ ② to ①.

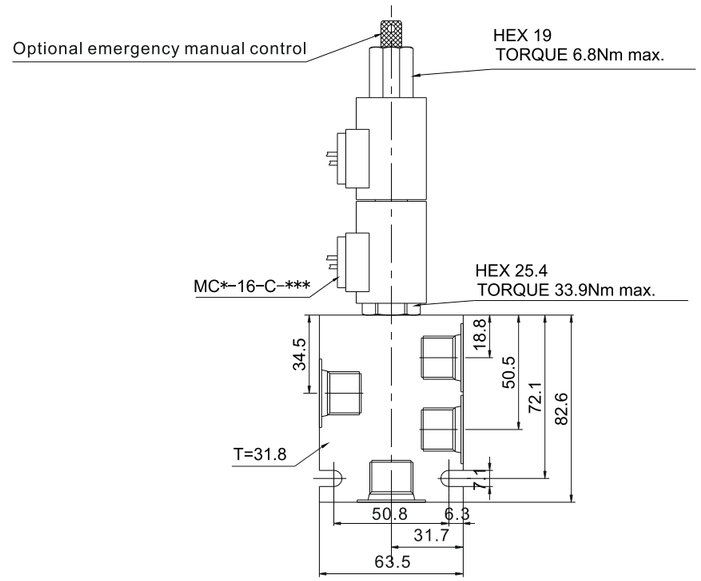
When coil S2 is energized, flow is allowed from to ②, and from ③ ④ ① to .

Performance Curve Pressure Drop vs.Flow

③ to ② or ③ to ④ or ④ to ① ——
② to ① or ② to ④ – – –



Installation Dimensions:



Ordering code details:

TSV10-47D [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

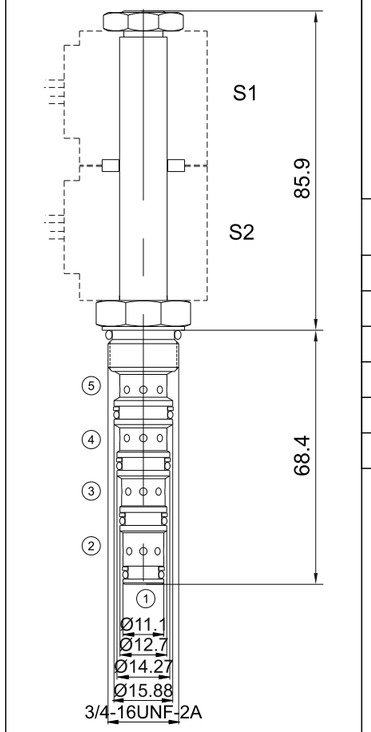
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

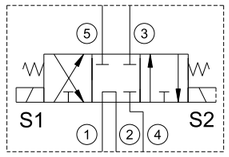
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TSV-08-35P - 5-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	13.3 L/min
Internal Leakage	197ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-5 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

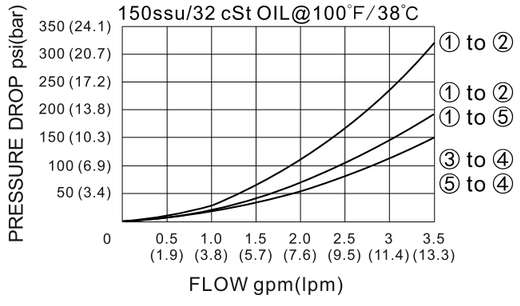
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

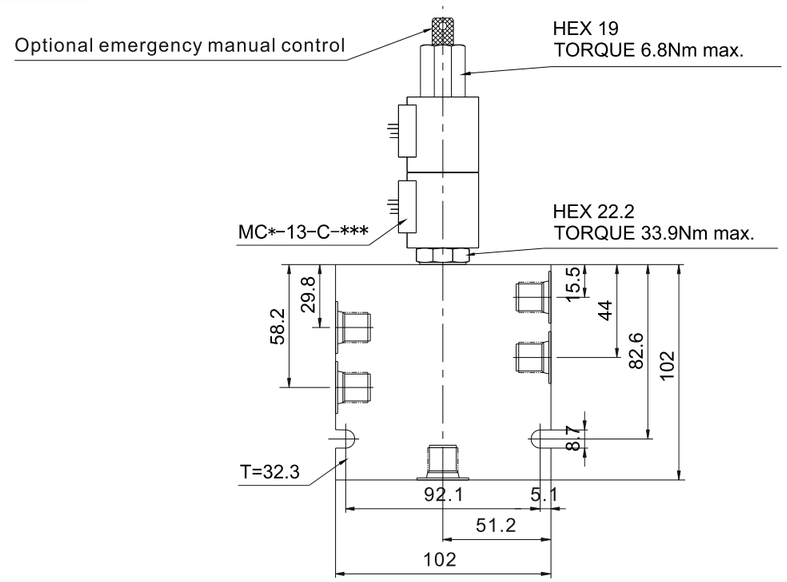
Operation:

When de-energized, the valve blocks the remaining oil port , except allowing flow from port ① to port ②.
When coil S1 is energized, flow is allowed from ① to ③, and from ⑤ to ④,while blocking flow at port ②.
When coil S2 is energized, flow is allowed from ① to ⑤, and from ③ to ④, while blocking flow at port ②.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV-08-35P [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

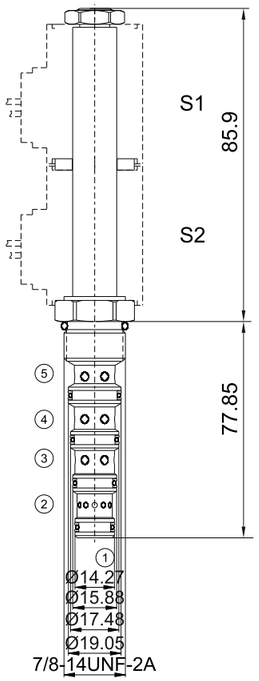
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

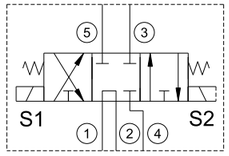
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
2G = G1/4
2N = NPT1/4
Other porting is available

TSV10-5907C - 5-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	250 BAR
Flow	15.1 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-5 see page K-12
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

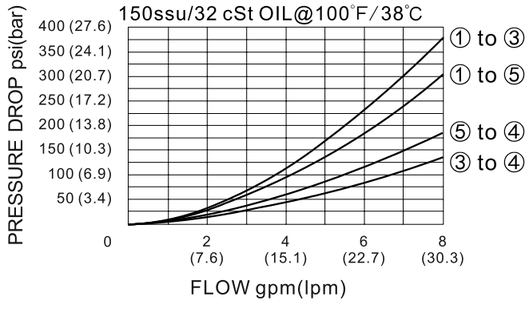
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

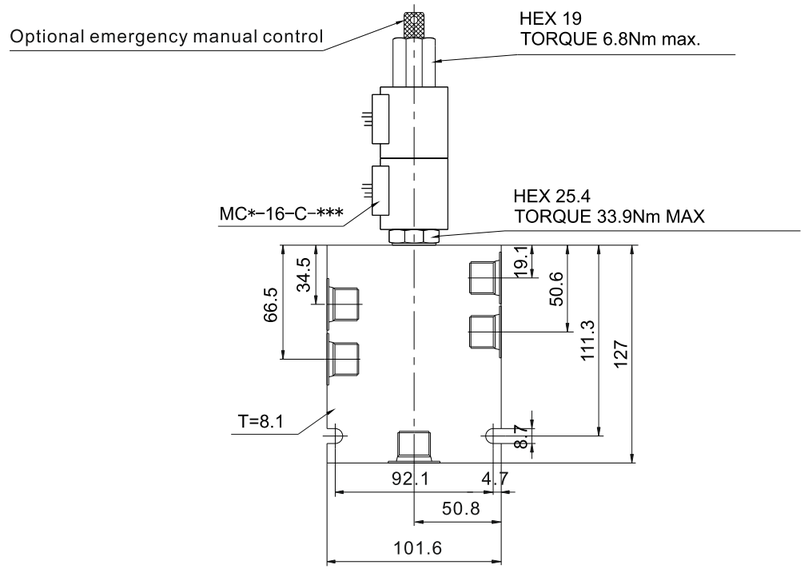
Operation:

When de-energized, the valve blocks the remaining oil port , except allowing flow from port ① to port ②.
When coil S1 is energized, flow is allowed from ① to ③, and from ⑤ to ④,while blocking flow at port ②.
When coil S2 is energized, flow is allowed from ① to ⑤, and from ③ to ④, while blocking flow at port ②.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV10-5907C [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

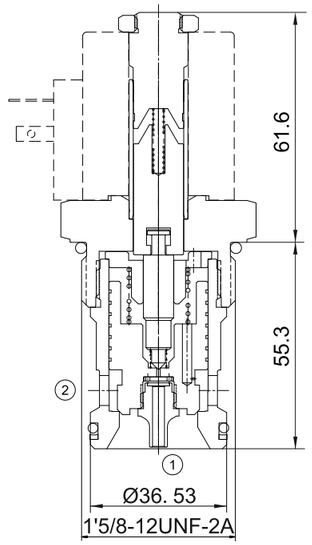
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

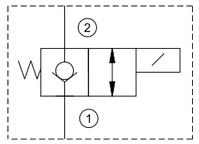
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TDS201CR - 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



Specifications:

Operating Pressure	210 BAR
Flow	260 L/min
Internal Leakage	20drop/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	VC20-2 see page K-44
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

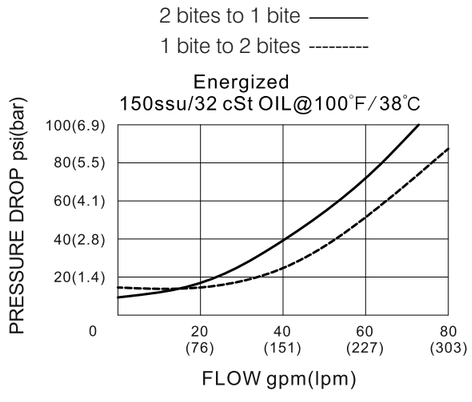
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

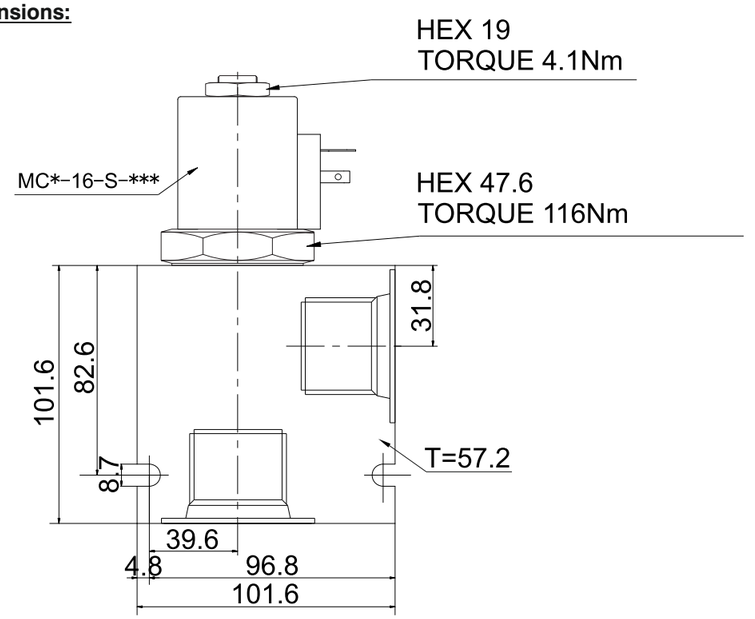
Operation:

When de-energized, the valve acts as a check valve, allowing flow from ① to ②,while blocking flow from ② to ① ;
When energized， the poppet lifts to open the ② to ① flow path. In this mode,flow is also allowed from ① to ②.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TDS201CR | | | | | | | |

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

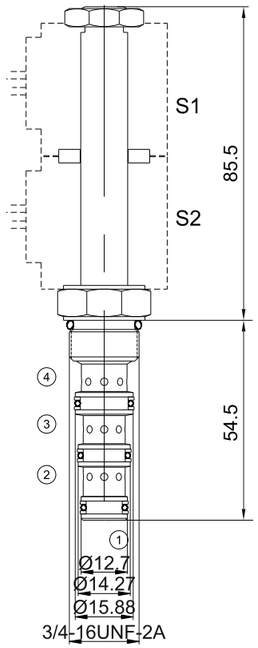
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

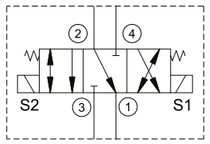
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
10T = SAE 10T
16T = SAE 16T
6G = G3/4
6N = NPT3/4
Other porting is available

TSV08-47E - 4-Way,3-Position



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-4 see page K-10
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

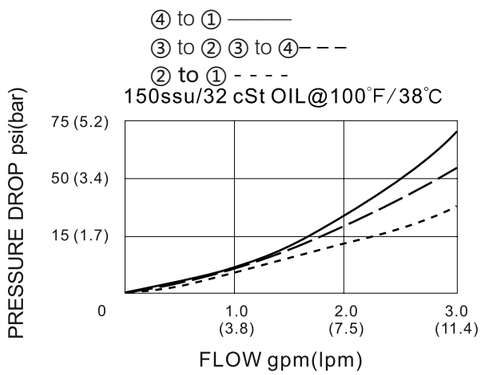
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

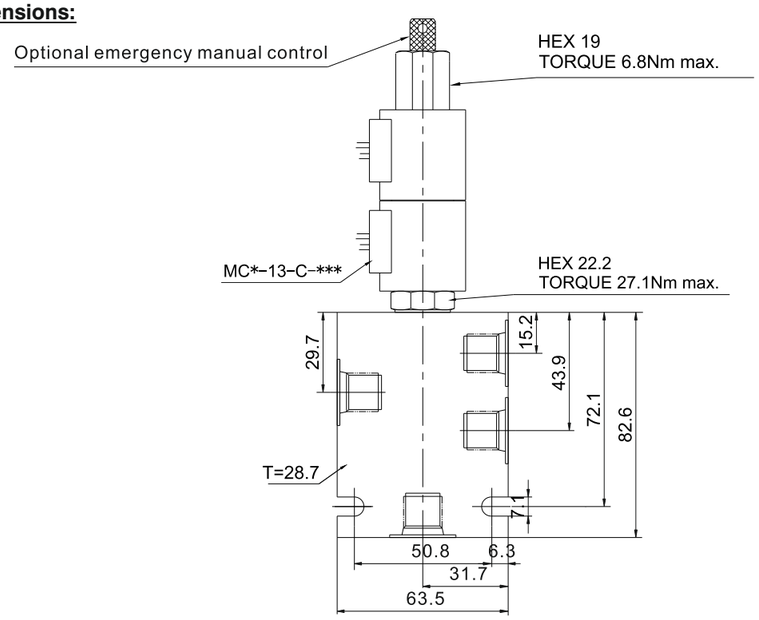
Operation:

When de-energized, the valve blocks flow at port ③ and port ④ while allowing flow from port ② to port ①. When coil S1 is energized, flow is allowed from port ③ to port ④, and from port ② to port ①. When coil S2 is energized,flow is allowed from port ③ to port ②, and from port ④ to port ①.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV08-47E [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

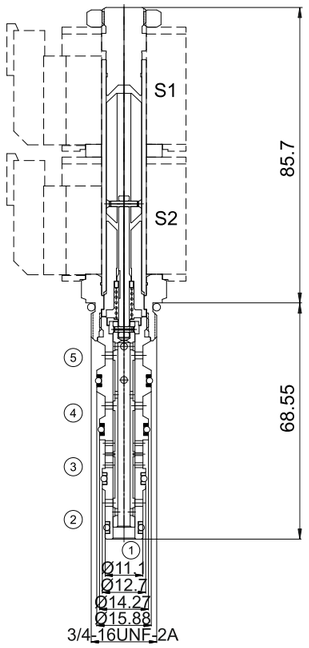
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

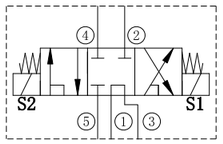
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TSV08-58C - 5-Way,3-Position Solenoid Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	207 BAR
Flow	11.4 L/min
Internal Leakage	197ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-5 see page K-4
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

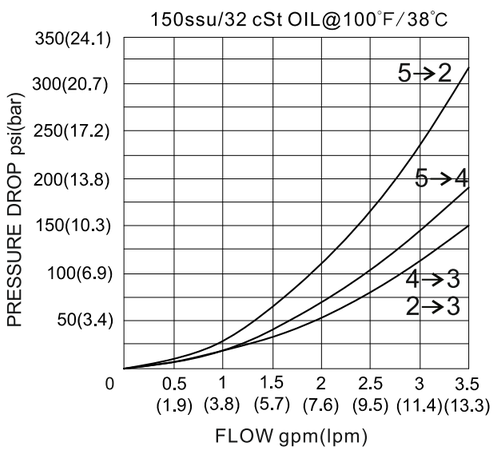
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

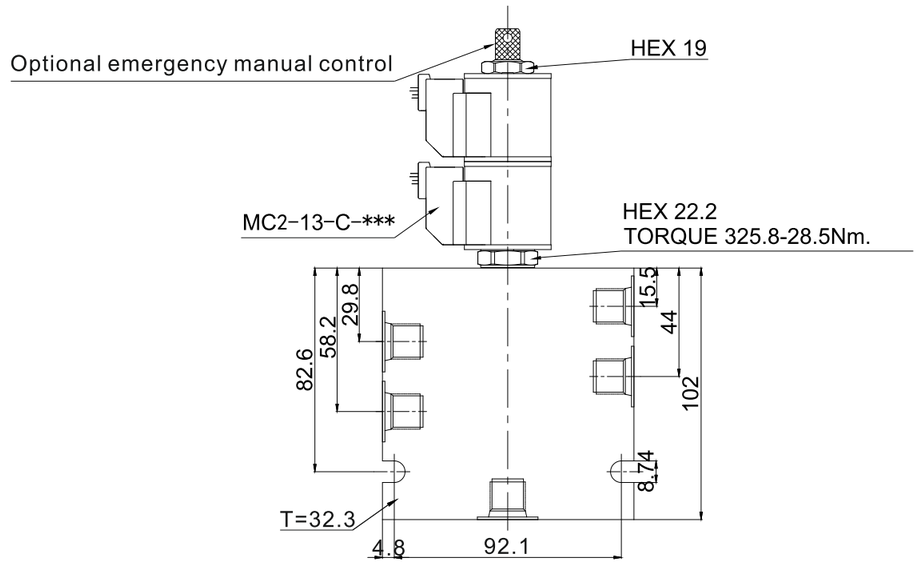
Operation:

When de-energized, flow between work ports are blocked and load sense at port 1 is vented to port 3.When coil s1 is energized, flow is allowed from port 5 to port 2 and from port 4 to port 3. When coil s2 is energized, flow is allowed from port 5 to port 4 and from port 2 to port 3.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSV08-58C [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Override = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

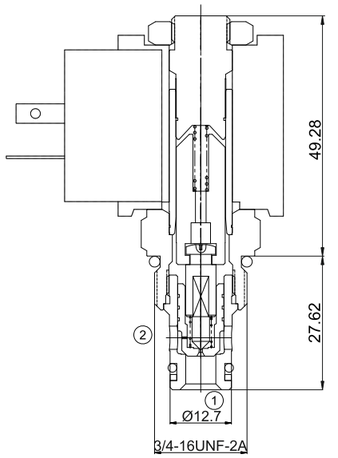
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

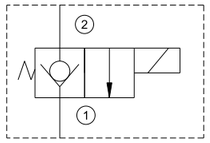
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
2G = G1/4
2N = NPT1/4
Other porting is available

TSF08-20 - 2-Way,2-Position (Normally Closed)



Hydraulic Symbol:



Specifications:

Operating Pressure	345 BAR
Flow	19 L/min
Internal Leakage	0.15ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-2 see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

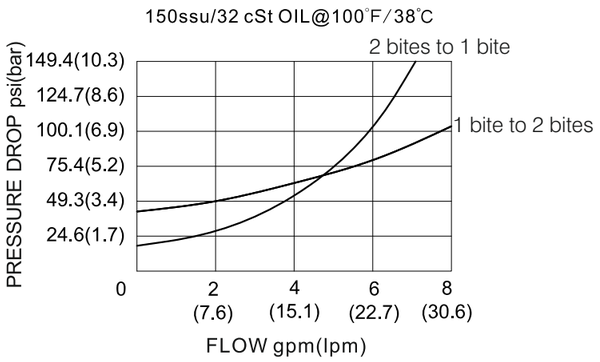
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

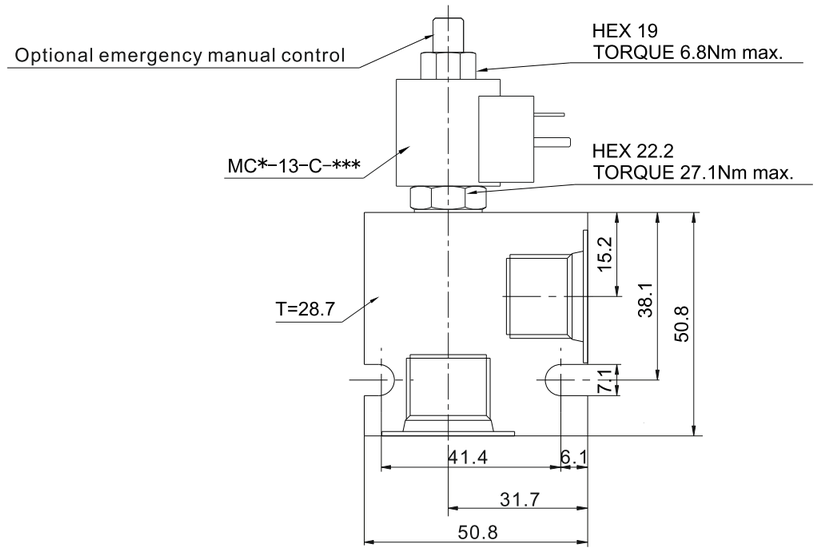
Operation:

When power is off, TSF08-20 acts as a one-way valve, allowing the flow of oil from ① to ②, while stopping the flow of oil from ② to ①; when power is turned on, the plug's spool is lifted, thus opening an oil channel of ② to ①.

Performance Curve Pressure Drop vs.Flow



Installation Dimensions:



Ordering code details:

TSF08-20 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kits:
Buna N = N
Viton = V

Voltage
12V = 12
24V = 24
110V = 110
220V = 220

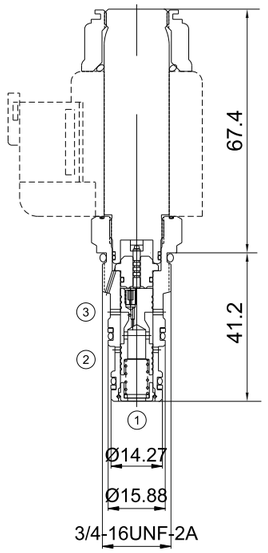
Coil Connection:
Amp Plug = A
Double Spade = B
Double Lead = D
Single Lead = S
DIN43650 = H

Current type:
D = Direct current
A = Alternating current

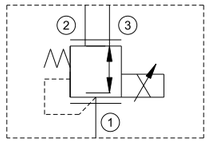
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

TPDR08-01 - Electro-proportional Reducing Cartridge Valve



Hydraulic Symbol:



Specifications:

Max. Input Pressure	350 Bar
Operating Pressure	75 Bar
Flow	12 L/min
Control Current	1050 mA, 8.8 Ohm (24 Volt)
	2100 mA, 2.2 Ohm (12 Volt)
Dither Frequency	approx. 140 Hz - 250 Hz
Internal Leakage	50ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	08-3 see page K-9
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

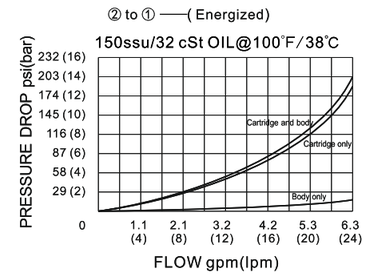
Features:

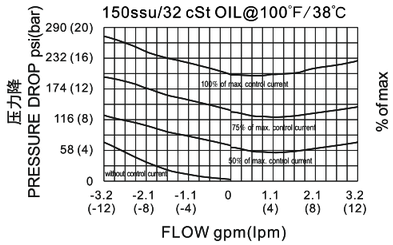
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

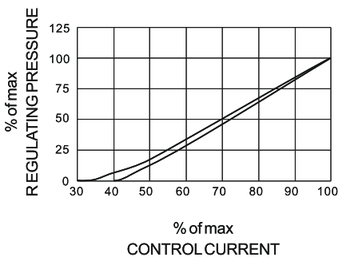
Operation:

The proportional pressure reducing valve PDR08-01 is a direct-acting 3-way spool-type valve, with relief included. Its function is to maintain a constant pressure at the consumer. When power off, port 2 is closed and port 1 (consumer) is connected to port 3 (tank).When the control current increases, the solenoid coil exerts a force on the control spool which is proportional to the control current and thereby defnes the regulated pressure at port 2. This setting is proportional to the control current.If the pressure across consumer port 1 rises above the control pressure due to external force, the control piston is pushed further against the spring and relieves the consumer to tank port 3.

Performance Curve Pressure Drop vs.Flow







Ordering code details:

TPDR08-01 | | | | | | |

Seal-Kits:
Buna N = N
Viton = V

Voltage:
12V = 12
24V = 24

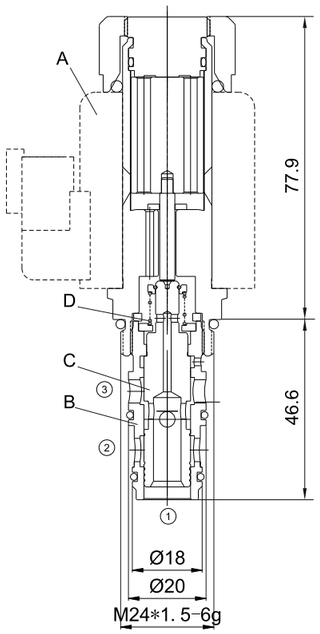
Coil Connection:
Deutsch DT04-2P = D

Body Porting:
4T = SAE 4T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

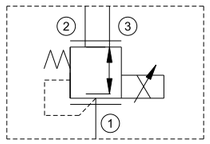
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current

TPVRM3-10 - Electro-proportional Reducing Cartridge Valve



Hydraulic Symbol:



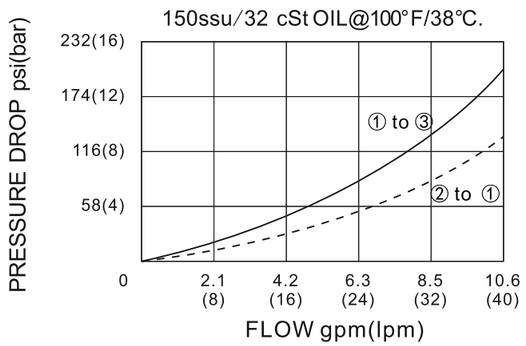
Specifications:

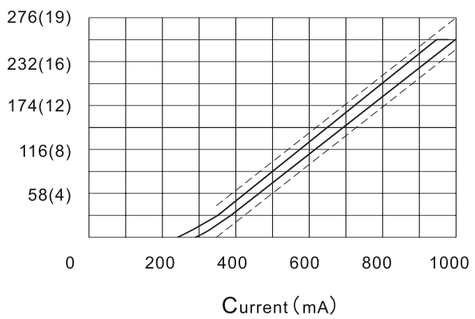
Max. Input Pressure	50 Bar
Operating Pressure	18.5 Bar
Flow	40 L/min
Rated Current	1.5A
Rated resistance at 20 °C (68 °F)	5 ±0.25Ω
Control	PWM-signal 150Hz
Internal Leakage	35ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	M241.5T see page K-22
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size

Performance Curve Pressure Drop vs.Flow





Operation:

The TPVRM3 valve directly controls 3 directions, and reduces the control of the valve through the proportional solenoid valve. In the basic position (the coil current is 0), 1 is connected to 3, and vice versa. In this state, the pressure in the channel drops to 0. As the coil current increases, the electromagnetic force gradually increases (A) and the displacement changes. Under the force of the spring (D), the position of the valve core gradually reduces the channel 1-3, directly opening 2-1 to increase the pressure at 1, and reducing the pressure to make the valve core drill into the drive system (referring to the valve core with smaller effect). As the pressure increases, the pressure in channel 1 decreases, and the force generated acts in the direction of the electromagnetic force, and helps overcome the flow force on the valve core. For each value of coil current, there is a state of equilibrium between the electromagnetic force, the spring force acting on the valve core area and the water dynamics. The determination of the reduced pressure is determined by the coil current or the static pressure characteristics. In part of the basic variables, the valve is affected by the ambient air and the galvanizing of the coil.

Ordering code details:

TPVRM3-10				

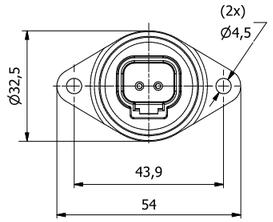
Seal-Kits:
Buna N = N
Viton = V

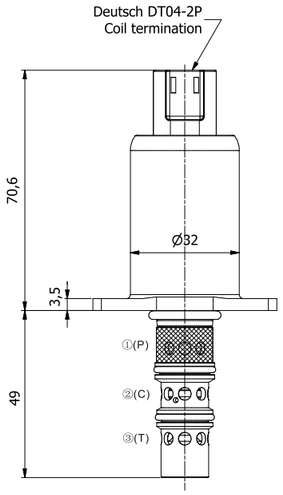
Coil Connection
Special coil

Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

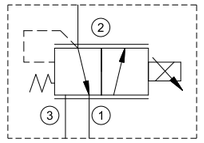
Body Porting:
SAE 6T = 6T
SAE 8T = 8T
G3/8 = 3G
NPT3/8 = 3N
Other porting is available

TIP-RDS-27 - Electromagnetic Proportional Pressure Reducing Valve





Hydraulic Symbol:



Specifications:

Max. Input Pressure	60 Bar
Operating Pressure	27 Bar
Flow	30 L/min
Control Current	300-1200 (12 V coil);150-600 (24 V coil)
Dither Frequency	100-150 Hz
Internal Leakage	25cc/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T222see page K-47
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

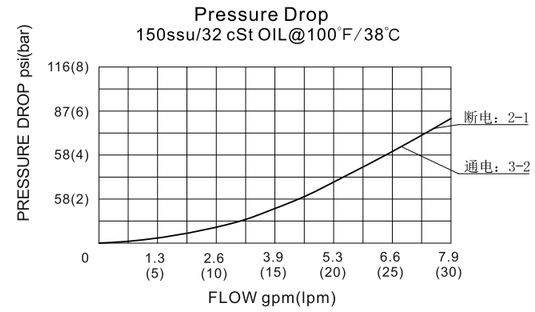
Features:

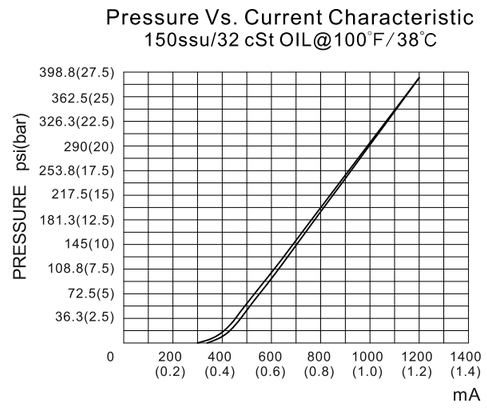
- Hardened, precision ground parts for durability
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

The TIP-RDS-27 generates a variable pressure in response to a PWM (Pulse Width Modulated) current signal. With no current applied to the proportional solenoid, the inlet port 1 (P) is blocked and the regulated port 2 (C) is vented to port 3 (T). As current is increased, fluid pressure is proportionally controlled at the regulated port 2 (C). On attainment of proportionally determined pressure at 2 (C), the cartridge shifts to block flow at 1 (P), thereby regulating pressure at 2 (C). In this mode,the valve also will relieve 2 (C) to 3 (T) at a variable value over the set reducing pressure.

Performance Curve Pressure Drop vs.Flow





Ordering code details:

TIP-RDS-27 [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Seal-Kits:
Buna N = N
Viton = V

Voltage:
12V = 12
24V = 24

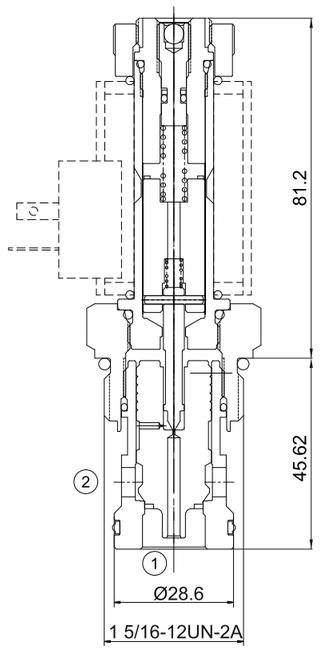
Coil Connection:
Amp Plug = A
Deutsch DT04-2P = F

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

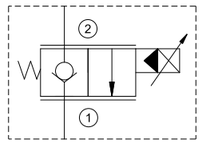
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current

TEC16T/AO - Electro-proportional Directional Cartridge Valves



Hydraulic Symbol:



Specifications:

Max. Input Pressure	350 Bar
Nominal flow	Flow rate 70L/min at 5bar; Flow rate 97L/min at 10bar
Flow	150 L/min max
Control Current	12 V -> 1.70 A /24 V -> 0.85 A
Dither Frequency	from 100 Hz to 120 Hz
Internal Leakage	0.35ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-2 see page K-14
Fluids	mineral based oil

Features:

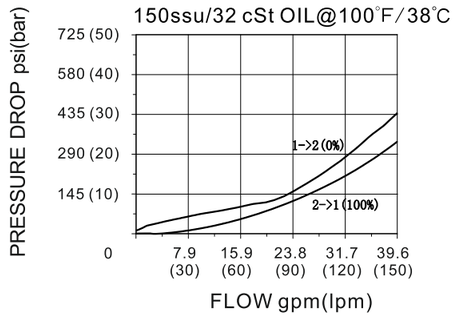
- Hardened, precision ground parts for durability
- Industry common cavity
- Solenoid proportional type
- To be combined with an external compensator

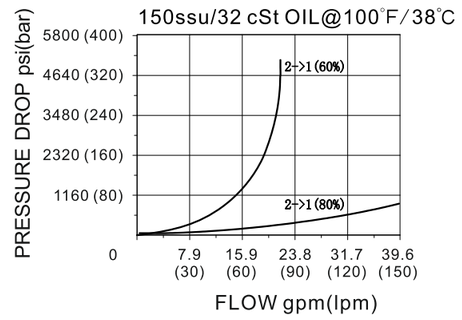
Operation:

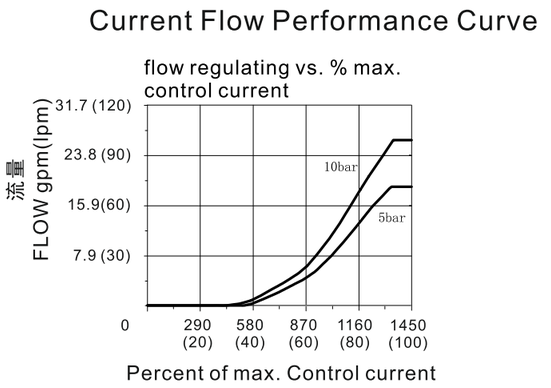
Coil outage: 1 to 2 one-way open ;
Coil electrification: 2 mouth flow to 1 mouth, flow according to the current increase in proportion to rise, see the details of the curve diagram.

THM HYDRAULICS

Performance Curve Pressure Drop vs.Flow







Ordering code details:

TEC16T/AO [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Emergency:
Without emergency = N
Screw type emergency = T

Seal Kit:
Buna = B

Voltage:
12V = 12
24V = 24

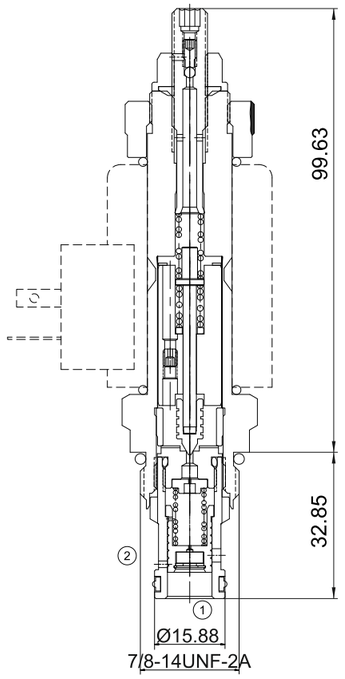
Coil connection:
DIN43650 = H
Deutsch DT04-2P = F

Body Porting:
10T = SAE 10T
16T = SAE 16T
6G = G3/4
8G = G1
Other porting is available

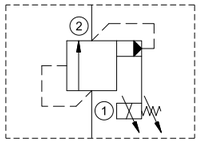
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current

TMP10T - Solenoid proportional type valves



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min max
Control Current	12 V -> 1.70 A /24 V -> 0.85 A
Dither Frequency	200 Hz
Internal Leakage	< 150cm³/min.max.at 80% operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-2 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

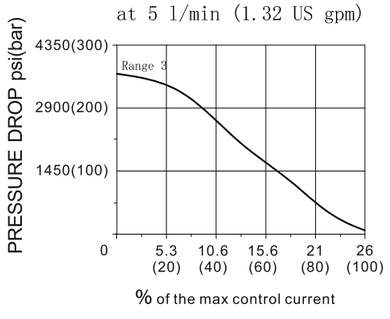
- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

Operation:

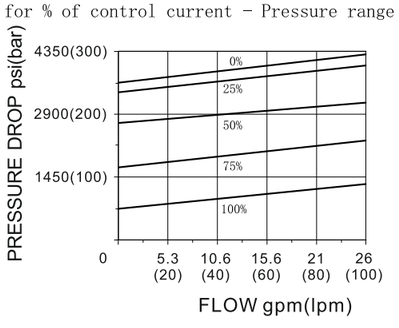
When de-energized , the valve blocks flow in both directions. When energized, the valve's spool shifts moves to allow bi-directional flow.

Performance Curve Pressure Drop vs.Flow

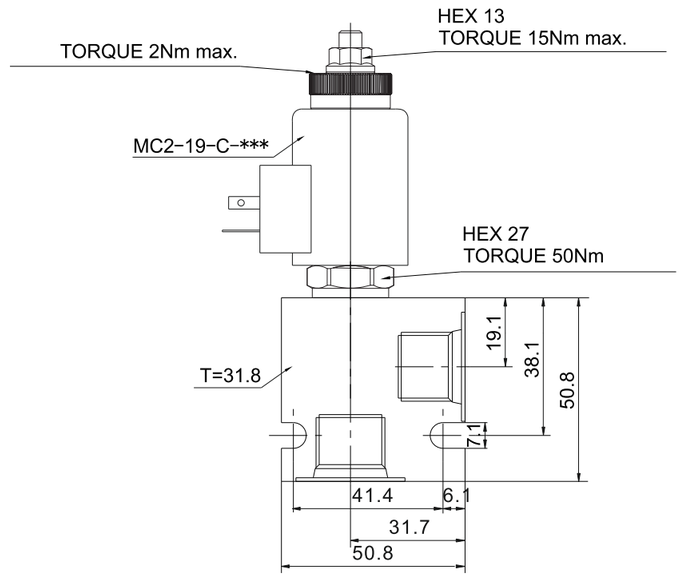
MP10T pressure setting vs. % max. control current at 5 l/min (1.32 US gpm)



MP10T pressure vs. flow 1->2 for % of control current - Pressure range 3 -



INSTALLATION DIMENSIONS



Ordering code details:

TMP10T | | | | | | | |

Pressure Range
116-3480psi(8-240bar) = 3

Seal Kit:
Buna N = N
Viton = V

Voltage:
12V = 12
24V = 24

Coil connection:
DIN43650 = H
Deutsch DT04-2P = F

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

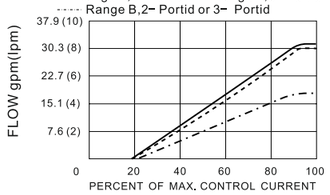
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current

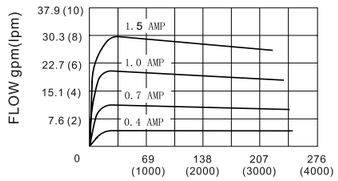
TPV70-30 - Electro-proportional Flow Cartridge Valves

Performance Curve Pressure Drop vs.Flow

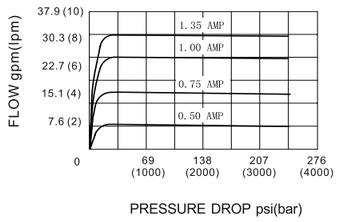
Flow vs.Current
207bar/3000psi; 12V Coil;110Hz PWM
150ssu/32 cSt OIL@100°F/38°C
----Range A,2- Portid —— Range A,3- Portid
----- Range B,2- Portid or 3- Portid



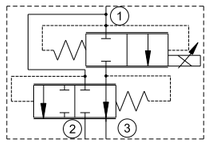
Flow vs.Pressure Drop
2- Portid;Flow Range A
240bar/3500psi Inlet at Port 1
12V Coil;110Hz PWM
150ssu/32 cSt OIL@100°F/38°C



Flow vs.Pressure Drop
2- Portid;Flow Range B
240bar/3500psi Inlet at Port 1
12V Coil;110Hz PWM
150ssu/32 cSt OIL@100°F/38°C



Hydraulic Symbol:



Specifications:

Operating Pressure	Port 1: 240BAR, Port 2 to Port 3: 207BAR
Regulated Flow	When port 2 is closed, range A: port 1 to port 3: 26L/min When port 2 is closed, range B: port 1 to port 3: 17L/min When port 2 is opened, range A: port 1 to port 3: 30L/min When port 2 is opened, range B: port 1 to port 3: 17L/min
Maximum Current	Range A: When port 2 is open, port 1: 50L/min Range B: When port 2 is open, port 1: 26L/min
Control Current	1500 mA with 12 VDC Coil 750 mA with 24 VDC Coil
Dither Frequency	200 Hz
Internal Leakage	197ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	10-3 see page K-11
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

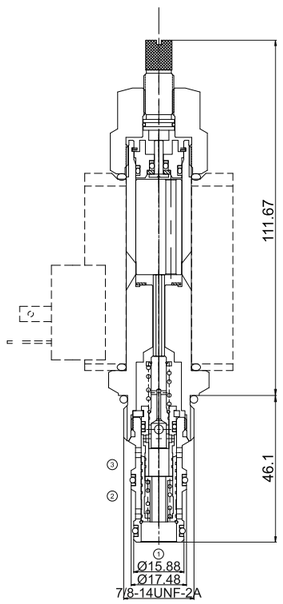
Features:

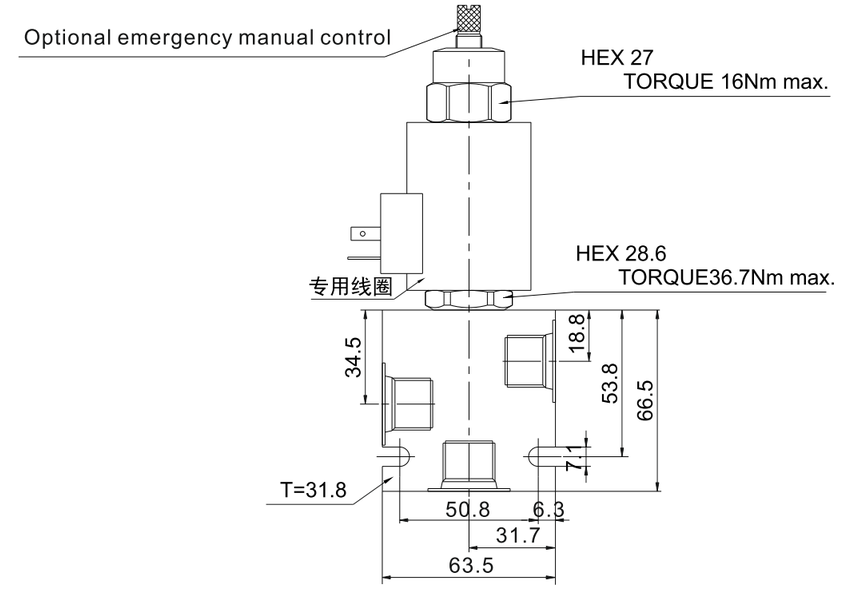
- Excellent linearity and hysteresis characteristics
- Hardened spool and cage for long life
- Optional coil voltages and terminations
- Efficient wet-armature construction

Operation:

With inlet flow at port 1 the valve will regulate priority flow out of port 3 regardless of system working pressure with flow rate proportional to current applied to the solenoid. The excessive flow will bypass out of port 2. The bypass flow CAN be used for auxiliary function control.
Note: avoid dead heading of priority line by external valving to prevent blocking of bypass line. In restrictive mode applications bypass port 2 has to be blocked, flow rate out of port 3 remains proportional to current applied to the solenoid regardless of load (pressure) applied to port 3.

INSTALLATION DIMENSIONS





Ordering code details:

TPV70-30 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Flow Range
A
B
(Required.See Performance Curves)

Manual Emergency:
Not Manual = No code
Manual Emergency = M

Seal Kit:
Buna N = N
Viton = V

Voltage:
12V = 12
24V = 24

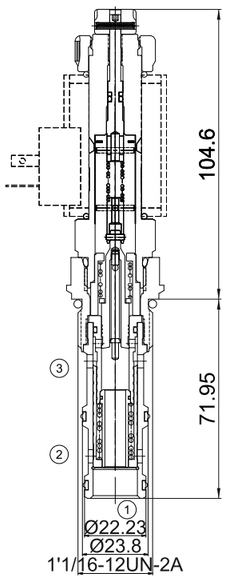
Coil connection:
DIN43650 = H
Deutsch DT04-2P = F

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

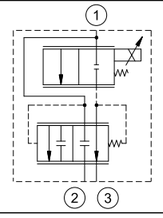
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current
A = Alternating current

TFE12PC-32S - Electro-proportional Flow Cartridge Valves



Hydraulic Symbol:



Specifications:

Operating Pressure	300 Bar
Inlet flow	90 L/min
Regulate flow	55 L/min
Control Current	12 V -1800mA max;- 24 V - 900mA max
Dither Frequency	120 Hz
Internal Leakage	200cc/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	12-3 see page K-35
Fluids	mineral based oil

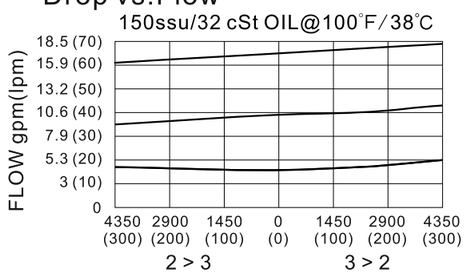
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Efficient wet-armature construction
- Continuous-duty solenoid
- Compact size

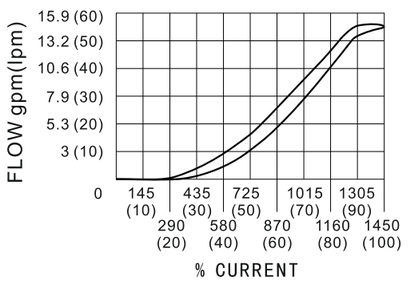
Operation:

The valve keeps a constant flow rate out of port 3 indipendently from pressure changes in the line 3, or in the line 2.The valve will maintain the set flow regardless of pressure variations, with increasing current applied to the solenoid, it will increase output flow.In case of use as a 2 way bypass flow regulator in applications where the line 3 port will be blocked, bypass pressure drop will increase unless a small leakage is provided in the line 3.

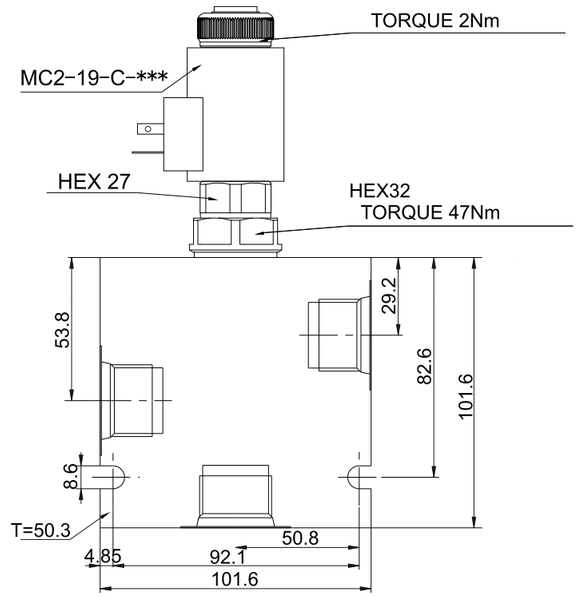
Performance Curve Pressure Drop vs.Flow



Regulated Flow vs. Current



INSTALLATION DIMENSIONS



Ordering code details:

TFE12PC-32S [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Seal Kit:
Buna N = N
Viton = V

Voltage:
12V = 12
24V = 24

Coil connection:
DIN43650 = H
Deutsch DT04-2P = F

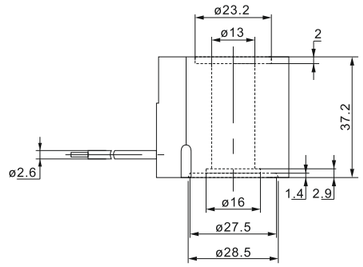
Body Porting:
6T = SAE 8T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

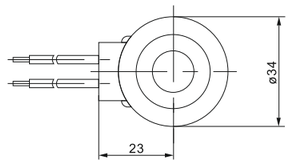
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Current type:
D = Direct current

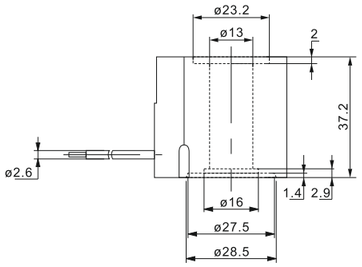
Solenoid Coil Data

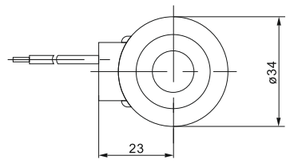
13 Series



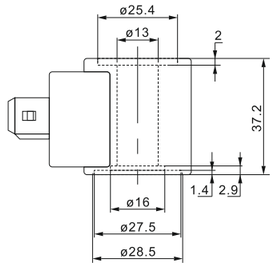


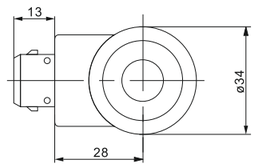
D double lead



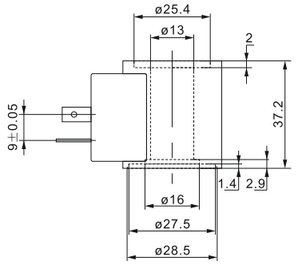


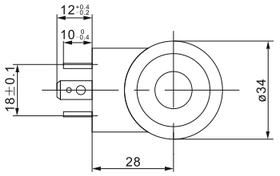
S Single lead



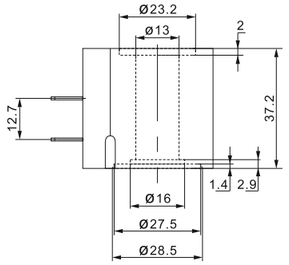


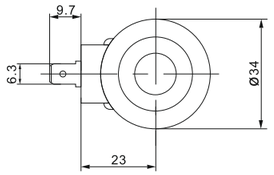
A Amp connector





H DIN 43650





B insert

Ordering code details:

TC						C

Valve Coil

Series 13

Cylindrical = C

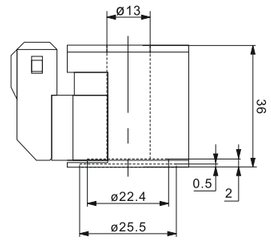
Voltage:
10V = 10 Only for DIN43650
12V = 12 110V = 110
24V = 24 220V = 220

Current Type
D = Direct current
A = Alternating current

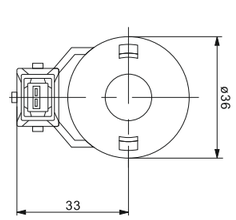
Coil Connection
A = Amp Plug
B = Double Spade
D = Double Lead
S = Single Lead
H = DIN43650

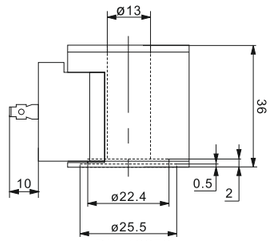
Solenoid Coil Data

Coil must be installed with letter up

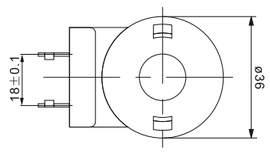


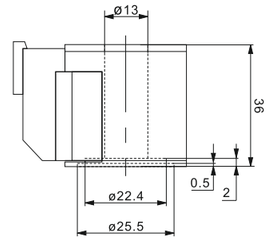
A Amp connector



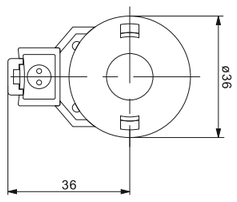


H DIN 43650





F German standard plug



Ordering code details:

TC2						C

Valve Coil

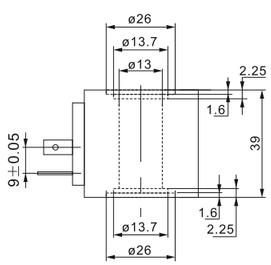
Series 13

Cylindrical = C

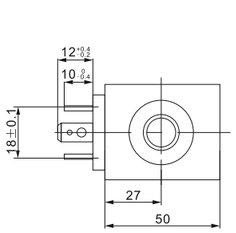
Voltage:
10V = 10
12V = 12
24V = 24

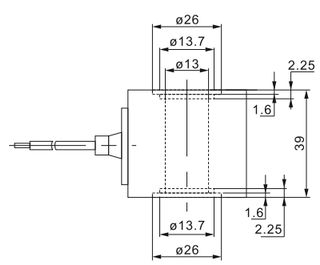
Current Type
D = Direct current
A = Alternating current

Coil Connection
A = Amp Plug
H = DIN43650
F = Deutsch DT04-2P

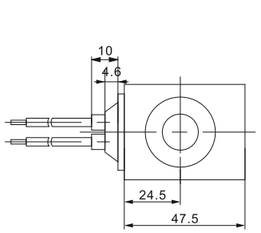


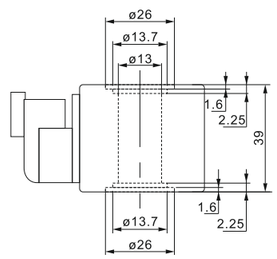
H DIN 43650



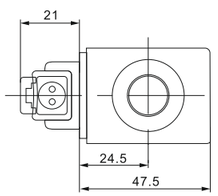


D Double lead





F German standard plug



Ordering code details:

TC	13					C

Valve Coil

Series 13

Square = S

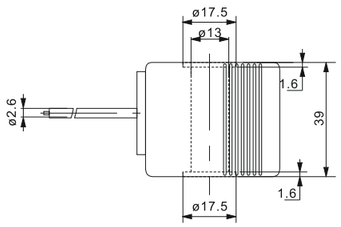
Voltage:
10V = 10
12V = 12
24V = 24

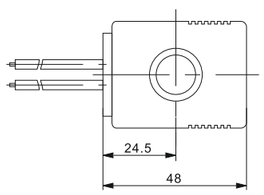
Current Type
D = Direct current
A = Alternating current

Coil Connection
D = Double lead
H = DIN43650
F = Deutsch DT04-2P

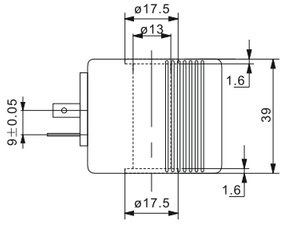
Solenoid Coil Data

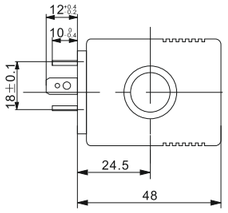
13 Series





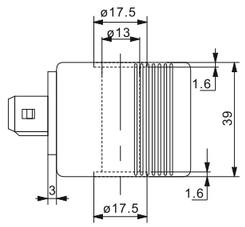
D Double lead

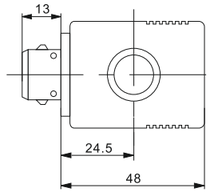




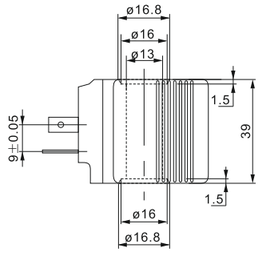
H DIN 43650

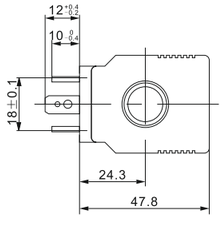
Coil must be installed with letter up





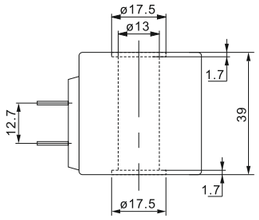
A Amp plug



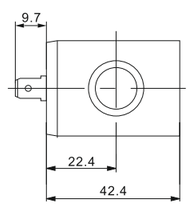


H2 ISO4400

Ordering code details:



B Double spade



Tc2 | 13 | | | | | C

Valve Coil

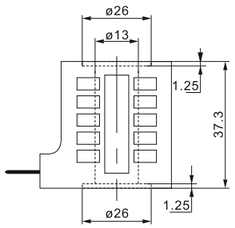
Series 13

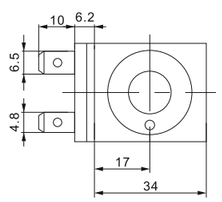
Square = S

Voltage:
10V = 10
12V = 12
24V = 24
Only for DIN43650
110V = 110
220V = 220

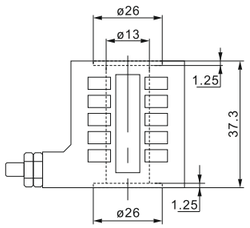
Current Type
D = Direct current
A = Alternating current

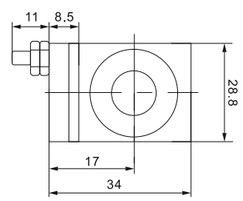
Coil Connection
A = Amp plug
B = Double Spade
D = Double lead
H = DIN43650
H2 = ISO4400





B Double Spade





K Threaded terminal

Ordering code details:

Tc3 | 13 | | | | | | C

Valve Coil

Series 13

Square = S

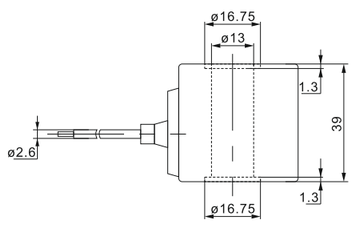
Voltage:
10V = 10
12V = 12
24V = 24

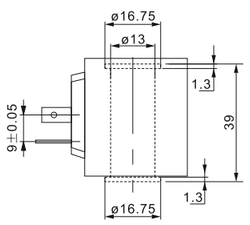
Current Type
D = Direct current
A = Alternating current

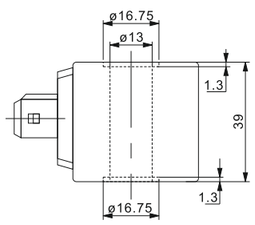
Coil Connection
B = Double Spade
K = Threaded terminal

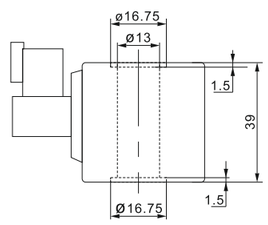
Solenoid Coil Data

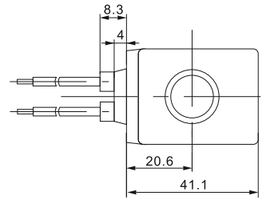
Coil must be installed with letter up



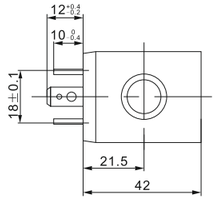




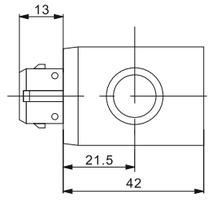




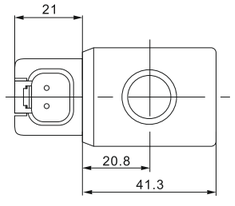
D Double lead



H DIN 43650



A Amp plug



F Deutsch plug DT-04

Ordering code details:

TC5 | 13 | | | | | C

Valve Coil

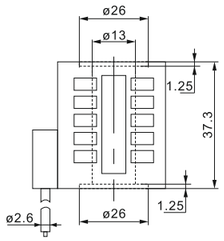
Series 13

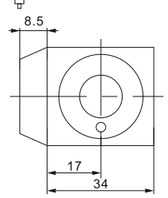
Square = S

Voltage:
10V = 10
12V = 12
24V = 24
Only for DIN43650
110V = 110
220V = 220

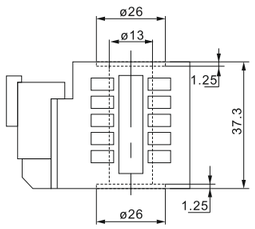
Current Type
D = Direct current
A = Alternating current

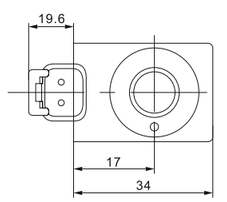
Coil Connection
A = Amp Plug
D = Double Lead
H = DIN43650
F = Deutsch DT04-2P





D Double Lead





F Deutsch DT04-2P

Ordering code details:

TC6 | 13 | | | | | | C

Valve Coil

Series 13

Square = S

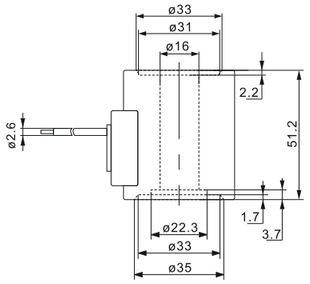
Voltage:
10V = 10
12V = 12
24V = 24

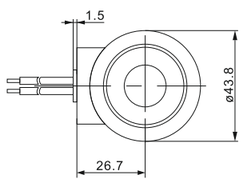
Current Type
D = Direct current
A = Alternating current

Coil Connection
D = Double Lead
F = Deutsch Dt04-2P

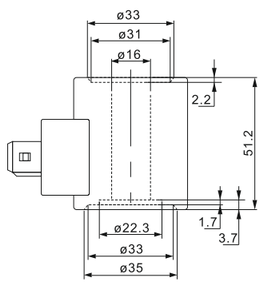
Solenoid Coil Data

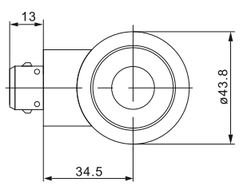
16 Series





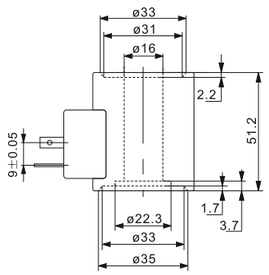
D Double lead

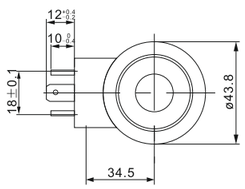




A Amp plug

Coil must be installed with letter up





H DIN43650

Ordering code details:

TC	16					C

Valve Coil

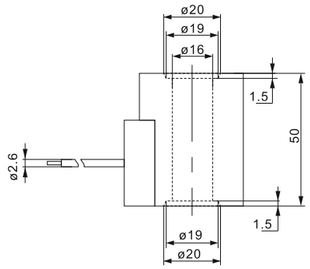
Series 16

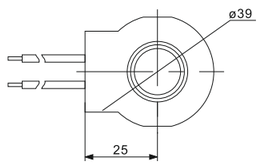
Cylindrical = C

Voltage:
10V = 10
12V = 12
24V = 24
Only for DIN43650
110V = 110
220V = 220

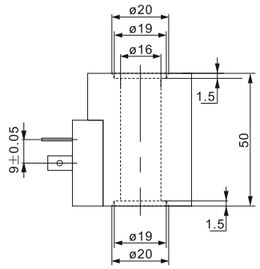
Current Type
D = Direct current
A = Alternating current

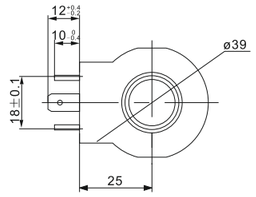
Coil Connection
A = Amp plug
D = Double lead
H = DIN43650



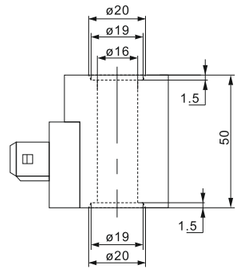


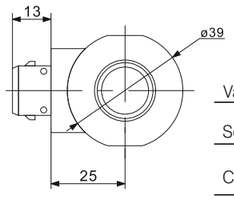
D Double lead





H DIN 43650





A Amp plug

Ordering code details:

Tc2	16					C

Valve Coil

Series 16

Cylindrical = C

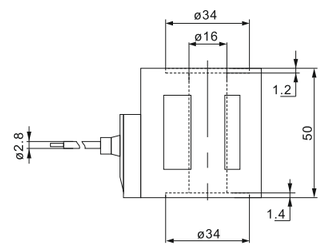
Voltage:
10V = 10
12V = 12
24V = 24
Only for DIN43650
110V = 110
220V = 220

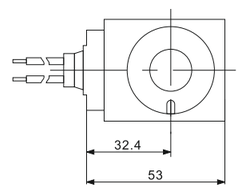
Current Type
D = Direct current
A = Alternating current

Coil Connection
A = Amp plug
D = Double lead
H = DIN43650

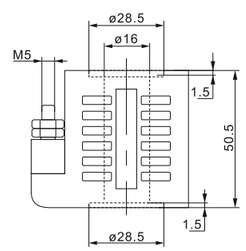
Solenoid Coil Data

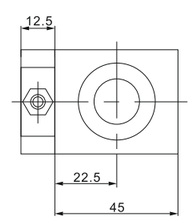
Coil must be installed with letter up





D Double lead





K Threaded terminal

Ordering code details:

TC	16					C

Valve Coil

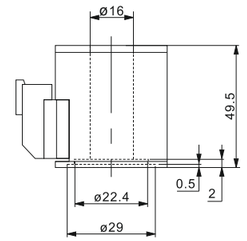
Series 16

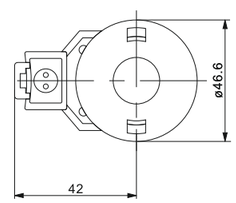
Square = S

Voltage:
10V = 10
12V = 12
24V = 24

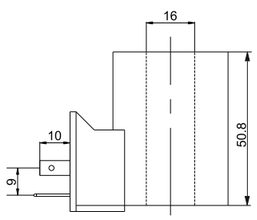
Current Type
D = Direct current
A = Alternating current

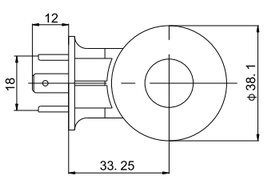
Coil Connection
D = Double lead
K = Threaded terminal





F Deutsch plug DT-04-2P





H DIN43650

Ordering code details:

Tc3	16					C

Valve Coil

Series 16

Cylindrical = C

Voltage:
10V = 10
12V = 12
24V = 24

Current Type
D = Direct current
A = Alternating current

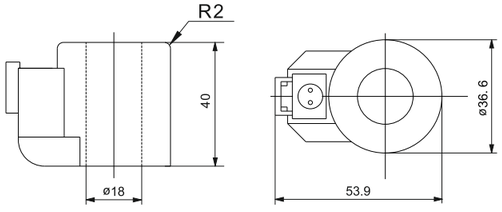
Coil Connection
F = Deutsch plug DT-04-2P
H = DIN43650

THM HYDRAULICS

Solenoid Coil Data

18 Series

Coil must be installed with letter up



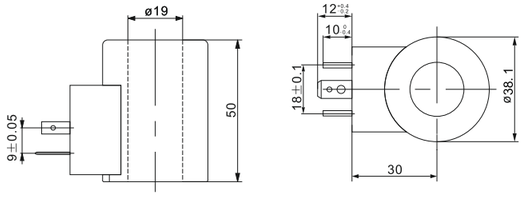
F Deutsch DT-04-2P

Ordering code details:

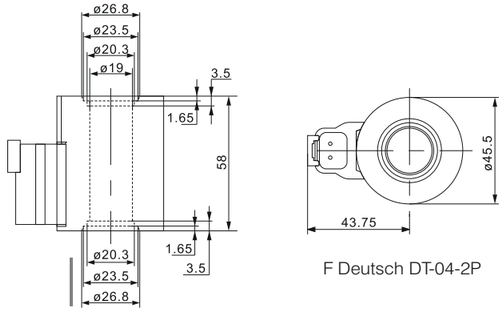
TC	18					C

- Valve Coil
- Series 18
- Cylindrical = C
- Voltage:
  12V = 12
  24V = 24
- F = Coil Connection Deutsch DT-04-2P
- D = Current Type Direct current

19 Series



H DIN43650



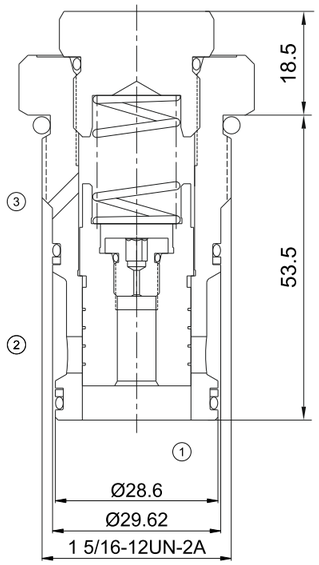
F Deutsch DT-04-2P

Ordering code details:

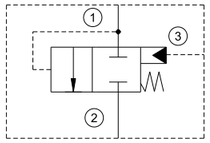
TC	19					C

- Valve Coil
- Series 19
- Cylindrical = C
- Voltage:
  10V = 10 Only for DIN43650
  12V = 12 110V = 110
  24V = 24 220V = 220
- H = Coil Connection DIN 43650
  F = Deutsch DT-04-2P
- D = Current Type Direct current
  A = Alternating current

TEP-16S - Hydraulic control logic Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	240 Bar
Flow	189 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	16-S3 see page K-34
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

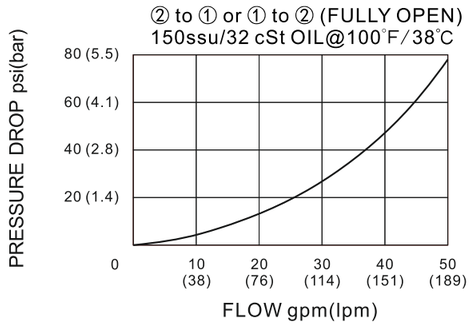
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure loss

Operation:

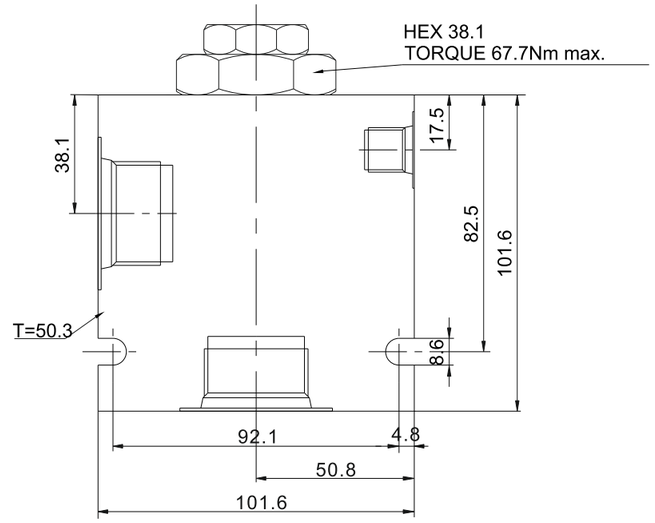
The valve is a spring-biased blocking valve which will shift to allow full flow from ① to ② only when pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value.

When no pressure at ③,flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ① .

Performance Curve Pressure Drop vs.Flow



INSTALLATION DIMENSIONS



Ordering code details:

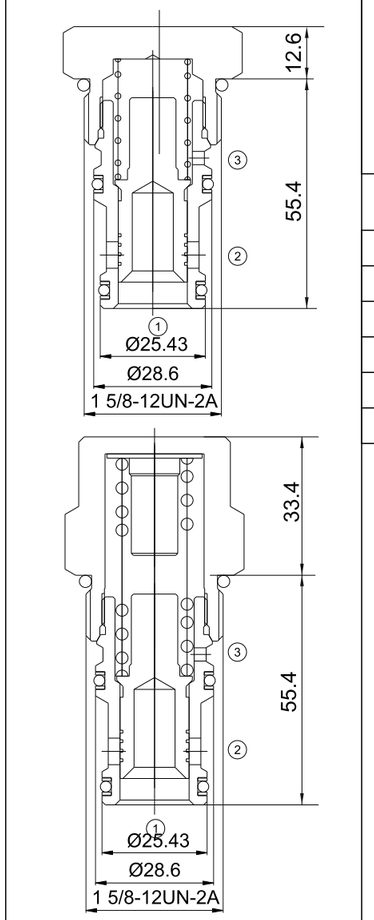
TEP-16S | | | |

Seal Kits:
Buna N = N
Viton = V

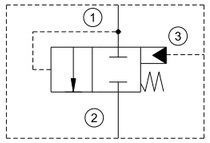
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TEP-16-S35 - Hydraulic control logic Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	240 Bar
Flow	190 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	VC16-S3 see page K-15
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

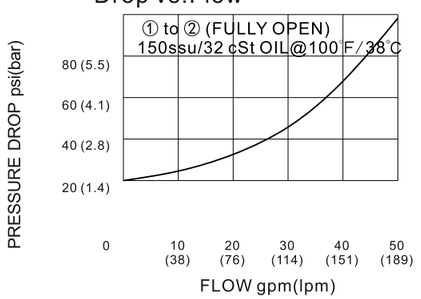
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure loss

Operation:

The valve is a spring-biased blocking valve which will shift to allow full flow from ① to ② only when pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value.

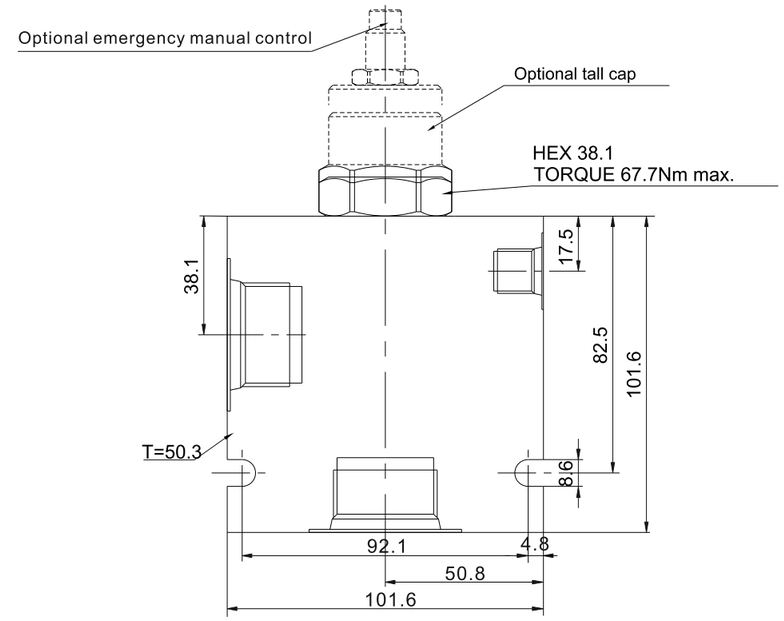
When no pressure at ③,flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ① .

Performance Curve Pressure Drop vs.Flow



THM HYDRAULICS

INSTALLATION DIMENSIONS



Ordering code details:

TEP16-S35 [ ] [ ] [ ] [ ] [ ]

Adjustment:
Tall Cap = T
Manual Emergency = M
("M " Manual Override Available With90. 110.160 AND 240psi Springs Only)

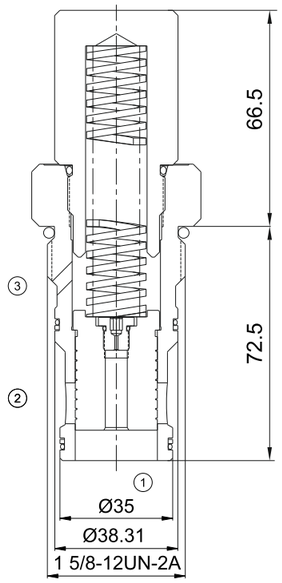
Cracking Pressure:
10psi(0.7bar) = 10
20psi(1.4bar) = 20
40psi(2.8bar) = 40
70psi(4.8bar) = 70
90psi(6.2bar) = *90
110psi(7.6bar) = *110
160psi(11.0bar) = *160
240psi(16.5bar) = *240
*T adjustment mode required

Body Porting:
10T = SAE 10T
16T = SAE 16T
6G = G3/4
6N = NPT3/4
Other porting is available

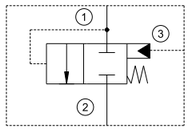
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TEP-20S - Hydraulic control logic Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	345 Bar
Flow	380 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	20-S3 see page K-34
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

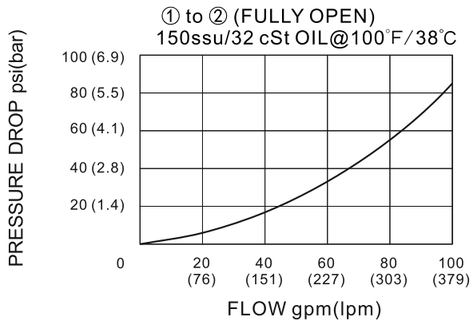
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure drop

Operation:

The valve is a spring-biased blocking valve which will shift to allow full flow from ① to ② only when pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value.

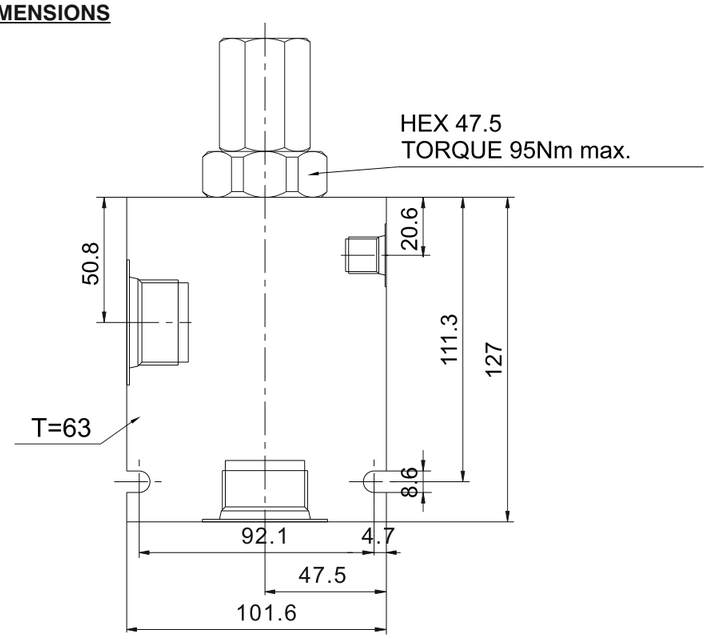
When no pressure at ③,flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ① .

Performance Curve Pressure Drop vs.Flow



THM HYDRAULICS

INSTALLATION DIMENSIONS



Ordering code details:

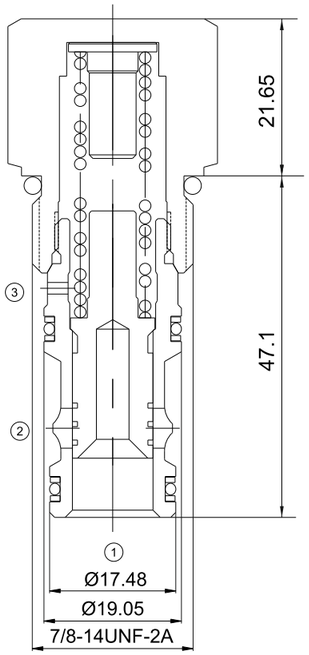
TEP-20S			

Seal Kits:
Buna N = N
Viton = V

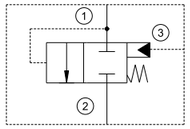
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TEP-10-S35 - Hydraulic control logic Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	345 Bar
Flow	75.8 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	VC10-S3 see page K-39
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

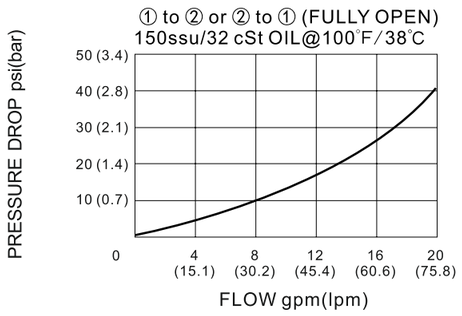
Features:

- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure drop

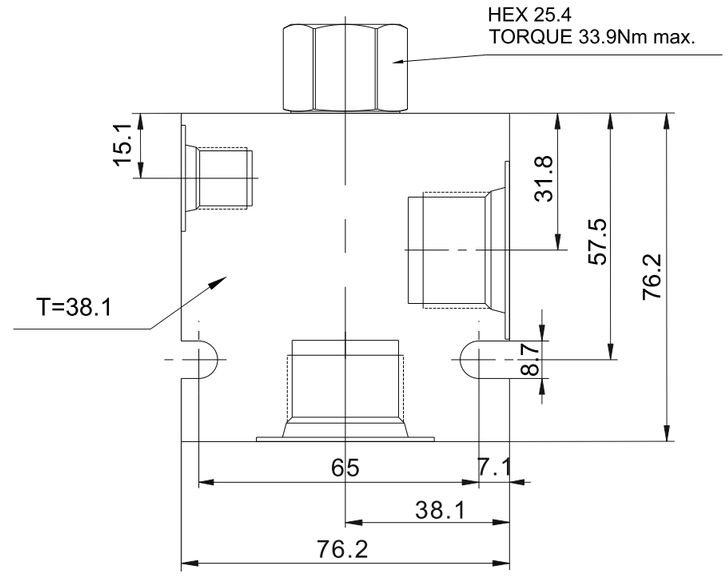
Operation:

The valve is a spring-biased blocking valve which will shift to allow full flow from port ① to ② only when the pressure at port ① exceeds the cumulative pressure of port ③,plus the bias spring pressure value.

Performance Curve Pressure Drop vs.Flow



INSTALLATION DIMENSIONS



Ordering code details:

TEP10-S35				

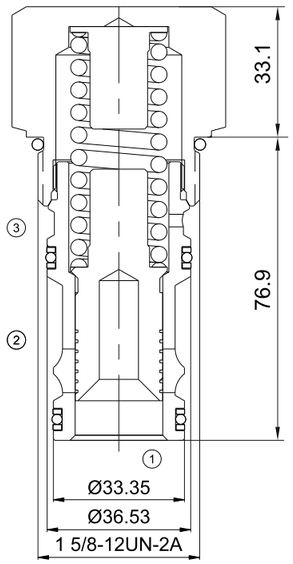
Cracking Pressure
10psi(0.7bar) = 10
40psi(2.8bar) = 40
80psi(5.52bar) = 80
110psi(7.6bar) = 110

Seal Kits:
Buna N = N
Viton = V

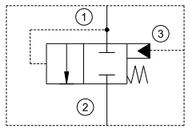
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 8T = 8T
SAE 12T = 12T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TEP-20-S35 - Hydraulic control logic Valve



Hydraulic Symbol:



Specifications:

Operating Pressure	345 Bar
Flow	380 L/min
Internal Leakage	164ml/min.max.at operating pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	VC20-S3 see page K-15
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

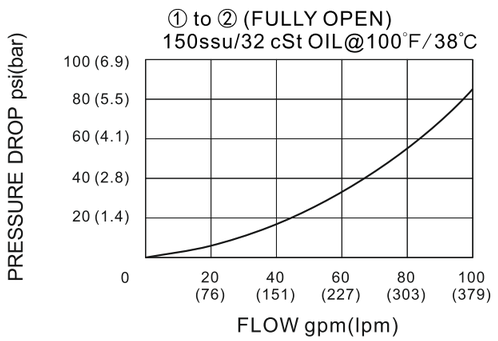
- Hardened, precision ground parts for durability
- Industry common cavity
- Compact size
- Low pressure drop

Operation:

The valve is a spring-biased blocking valve which will shift to allow full flow from ① to ② only when pressure at ① exceeds the cumulative pressure of ③, plus the bias spring pressure value.

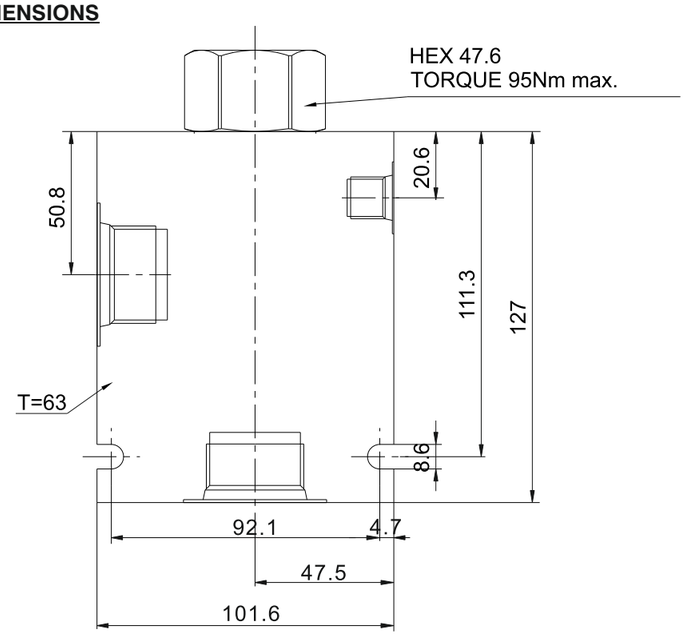
When no pressure at ③,flow will be allowed from ① to ② once the bias spring force is overcome with pressure at ① .

Performance Curve Pressure Drop vs.Flow



THM HYDRAULICS

INSTALLATION DIMENSIONS



Ordering code details:

TEP20-S35				

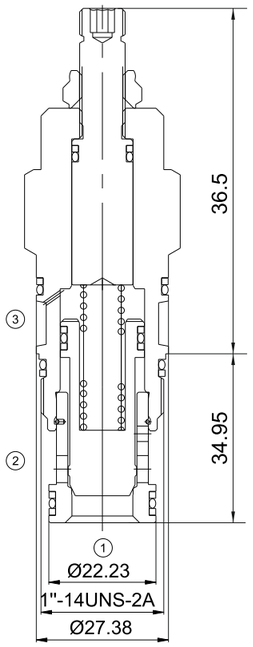
Cracking Pressure
20psi(1.4bar) = 20
80psi(5.52bar) = 80
160psi(11.0bar) = 160

Seal Kits:
Buna N = N
Viton = V

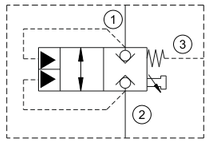
Body Material:
6061-T6 aluminum alloy rated at 207 Bar = A
steel rated at 350Bar = S

Body Porting:
SAE 10T = 10T
SAE 16T = 16T
G3/4 = 6G
NPT3/4 = 6N
Other porting is available

TLOFC - Hydraulic control logic Valve (Vent-to-close)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	200 L/min
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Area Ratio	Port 3 to Port 1: 1.8:1 ; Port 3 to Port 2: 2.25:1
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

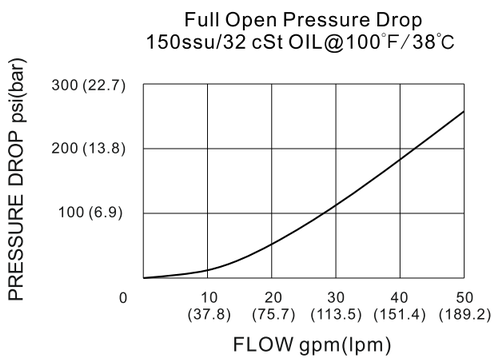
Features:

- These valves have positive seals between port 2 and the pilot area.
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- All ports will accept 5000 psi (350 bar)

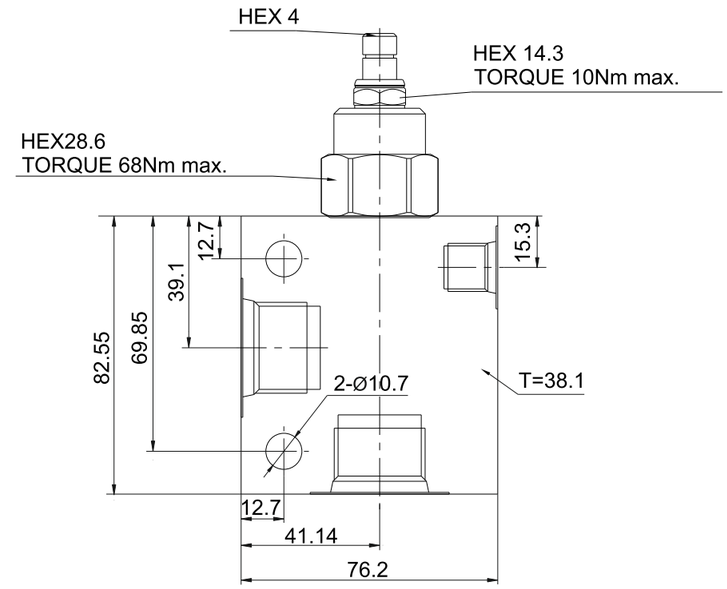
Operation:

These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

Performance Curve Pressure Drop vs.Flow



INSTALLATION DIMENSIONS



Ordering code details:

TLOFC | | | | | |

Adjustment:
Stroke Adjustment = L

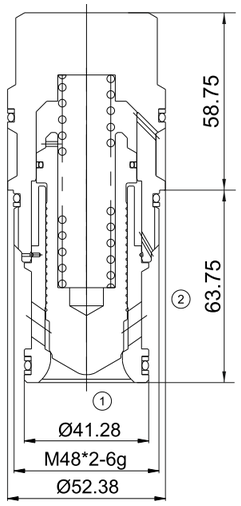
Cracking Pressure:
50psi(3.5bar) = D

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

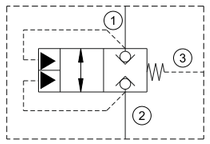
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TLOKC - Hydraulic control logic Valve (Vent-to-close)



Hydraulic Symbol:

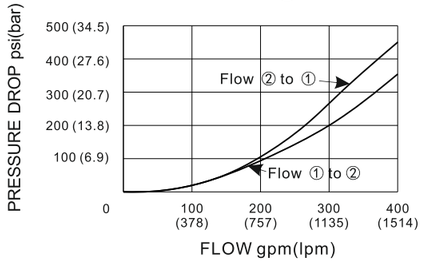


Specifications:

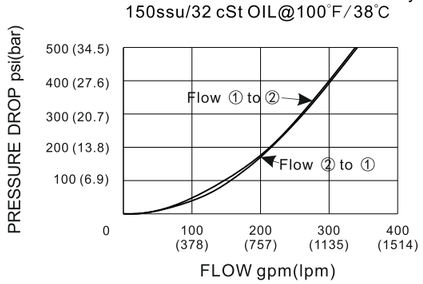
Operating Pressure	350 Bar
Flow	1100 L/min
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Area Ratio	Port 3 to Port 1: 1.8:1 ; Port 3 to Port 2: 2.25:1
Cavity	T-19AU see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Performance Curve Pressure Drop vs.Flow

Model MOKC installed in T-19AU Cavity
150ssu/32 cSt OIL@100°F/38°C



Model MOKC installed in T-19A Cavity
150ssu/32 cSt OIL@100°F/38°C



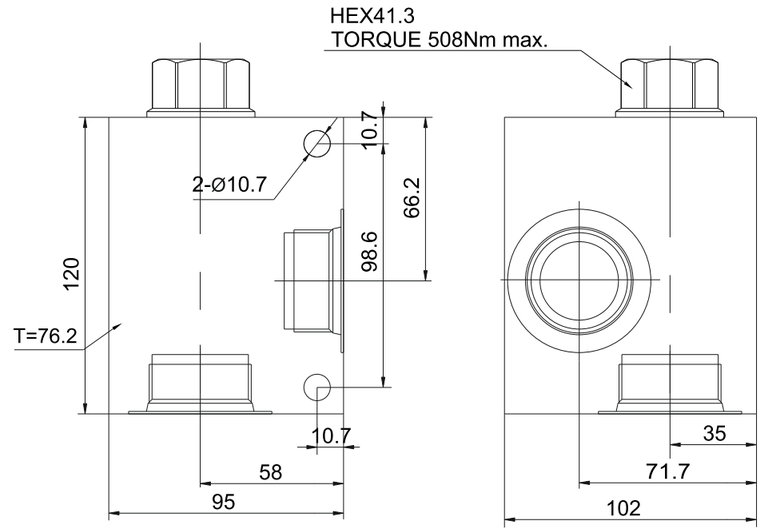
Features:

- These valves will work in standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- All ports will accept 5000 psi (350 bar)

Operation:

These unbalanced, pilot-to-close logic valves are 2-way switching elements that are spring biased closed. Pressure at either work port 1 or 2 will oppose the spring and tend to open the valve while pressure at port 3 will tend to close it. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed.
NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

INSTALLATION DIMENSIONS



Ordering code details:

TLOKC | | | | | | |

Adjustment:
Non-Adjustment = X

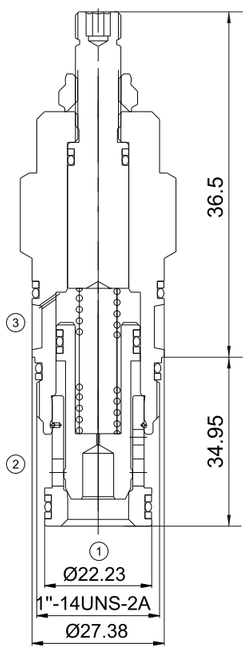
Cracking Pressure:
50psi(3.5bar) = D

Body Porting:
16T = SAE 16T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

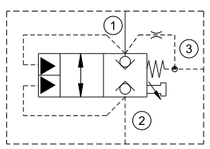
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TLOFA - Hydraulic control logic Valve (Vent-to-open)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	200 L/min
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Area Ratio	Port 3 to Port 1: 1.8:1 ; Port 3 to Port 2: 2.25:1
Cavity	T-2A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

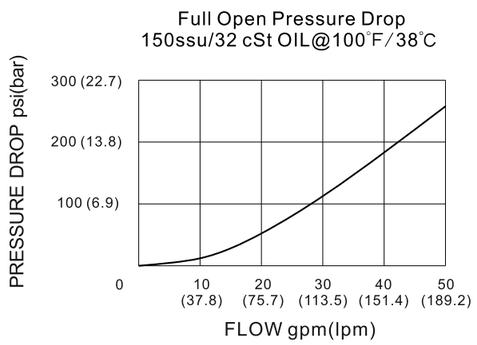
Features:

- These valves have positive seals between port 2 and the pilot area
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- All ports will accept 5000 psi (350 bar)

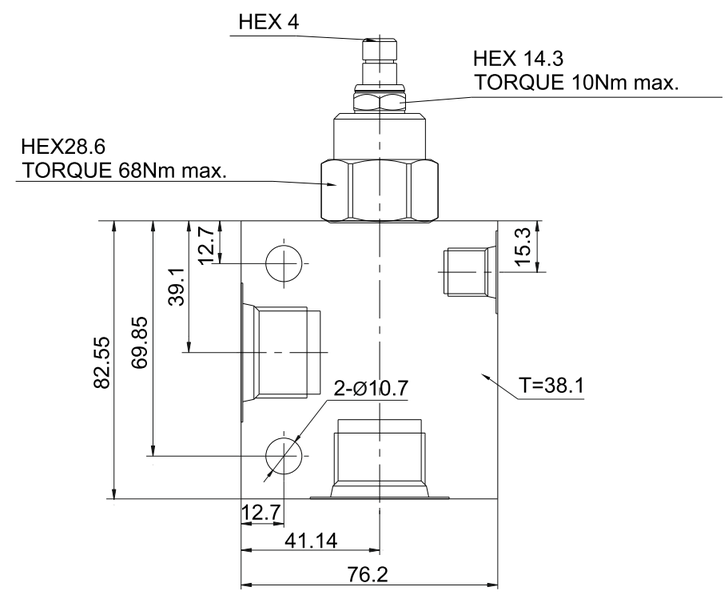
Operation:

These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed.
NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

Performance Curve Pressure Drop vs.Flow



INSTALLATION DIMENSIONS



Ordering code details:

TLOFA | | | | | |

Adjustment:
Stroke-Adjustment = L

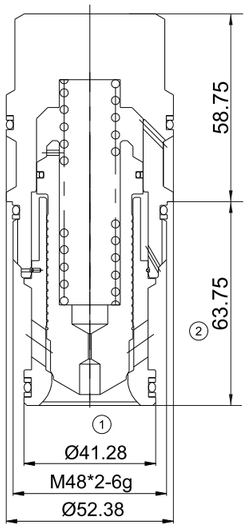
Cracking Pressure:
50psi(3.5bar) = D

Body Porting:
6T = SAE 6T
12T = SAE 12T
6G = G3/4
6N = NPT3/4
Other porting is available

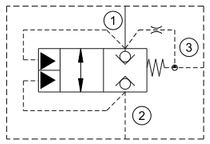
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TLOKA - Hydraulic control logic Valve (Vent-to-open)



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	1100 L/min
Internal Leakage	0.7 ml/min.max.at 24cst
Temperature	-30°C to +120°C(-22°F to+250°F)
Area Ratio	Port 3 to Port 1: 1.8:1 ; Port 3 to Port 2: 2.25:1
Cavity	T-19AU see page K-5
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

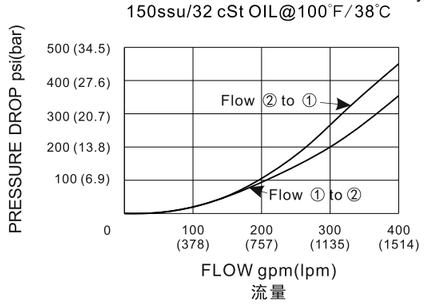
- These valves will work in standard T-19A cavity at lower capacity. To realize the full stated capacity, the T-19AU cavity should be used.
- These valves have positive seals between port 2 and the pilot area
- Because these valves are unbalanced, operation is pressure dependent. Opening and closing of the poppet are functions of the force balances on three areas: Port 1 = 100%, Port 2 = 80%, and the Pilot Area = 180%.
- All ports will accept 5000 psi (350 bar)

Operation:

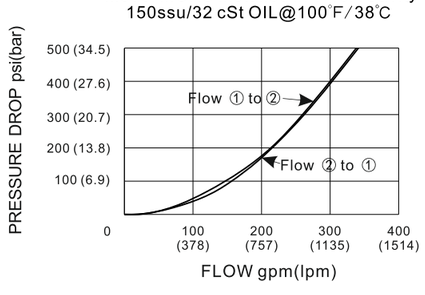
These unbalanced, vent-to-open logic valves are 2-way switching elements that are spring-biased closed and have port 1 as a pilot source. With port 3 blocked, the valve will remain in the closed position in the 1 to 2 direction and will function as a check valve from 2 to 1. With port 3 vented, the valve will open provided there is sufficient pressure to overcome the spring force. The force generated at port 3, plus the spring force, must be greater than the sum of the forces acting at port 1 and port 2 for the valve to remain closed. NOTE: The pilot area (port 3) is 1.8 times the area at port 1 and 2.25 times the area at port 2.

Performance Curve Pressure Drop vs.Flow

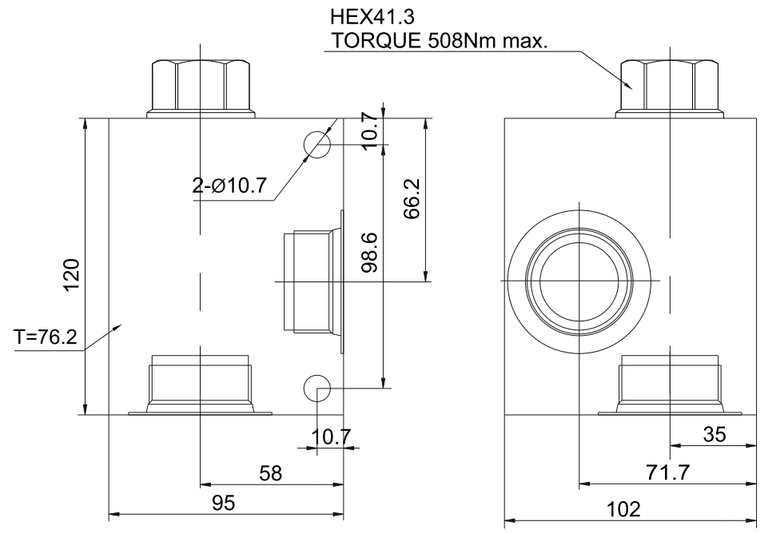
Model MOKC installed in T-19AU Cavity
150ssu/32 cSt OIL@100°F/38°C



Model MOKC installed in T-19A Cavity
150ssu/32 cSt OIL@100°F/38°C



INSTALLATION DIMENSIONS



Ordering code details:

TLOKA | | | | | | |

Adjustment:
Nonadjustable = X

Cracking Pressure:
50psi(3.5bar) = D

Body Porting:
16T = SAE 16T
20T = SAE 20T
10G = G1 1/4
10N = NPT1 1/4
Other porting is available

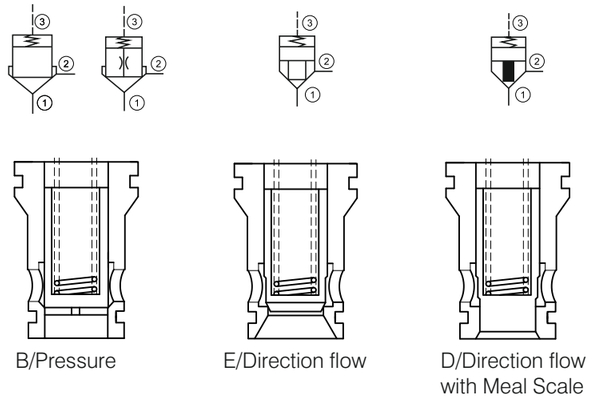
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

Logic valve

TGV-16*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer

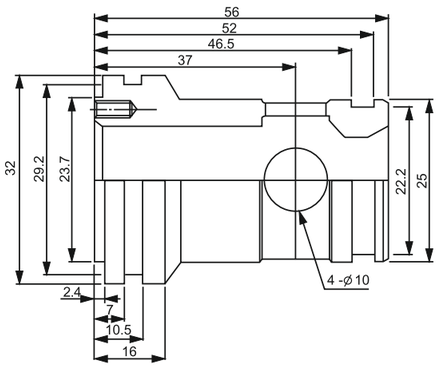


B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

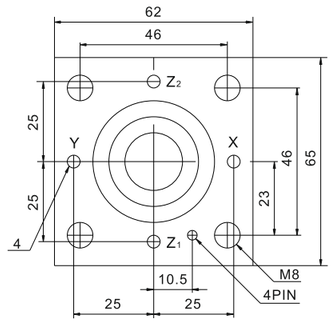
Specifications:

Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-16	315 (4500)	130(34.3)	200(50.3)	1-2: 0.5 2-1 : 2

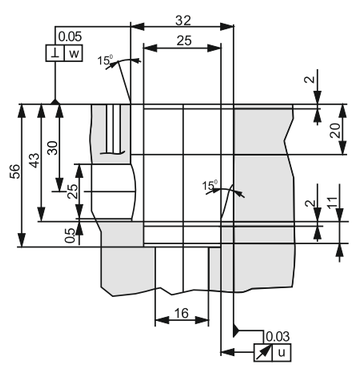
DIMENSIONS



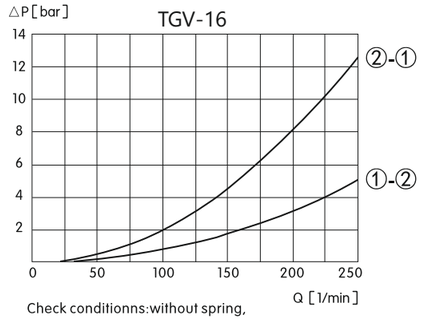
DIMENSIONS



TGV-16



Performance (Cartridge Only)

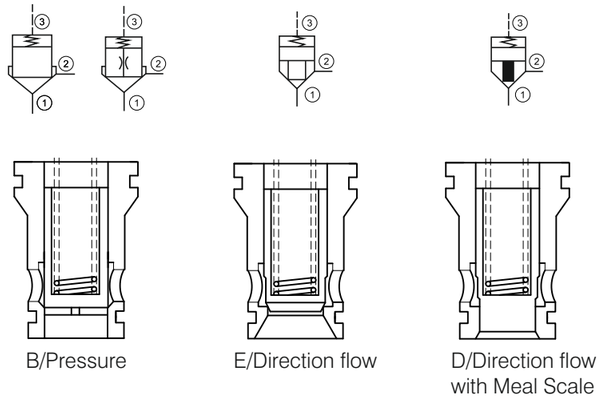


Check conditionns:without spring,
oil temperature 50°C/122°F,viscosity 35 cSt

Logic valve

TGV-25*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer

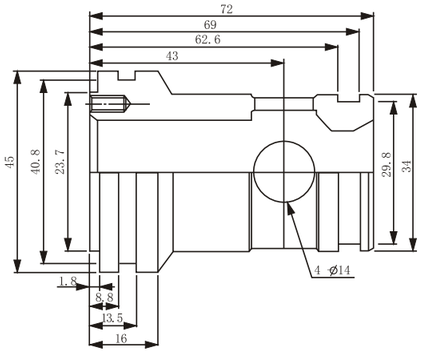


B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

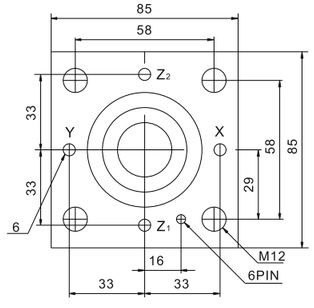
Specifications:

Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-25	315 (4500)	350(92.5)	450(120.0)	1-2: 0.5 2-1 : 2

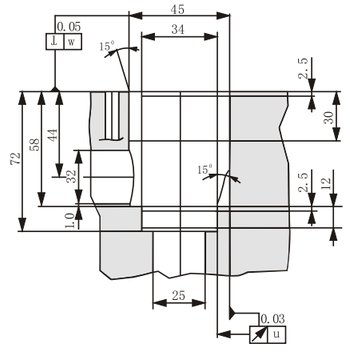
DIMENSIONS



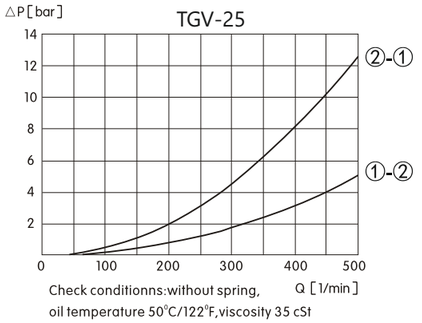
DIMENSIONS



TGV-25



Performance (Cartridge Only)

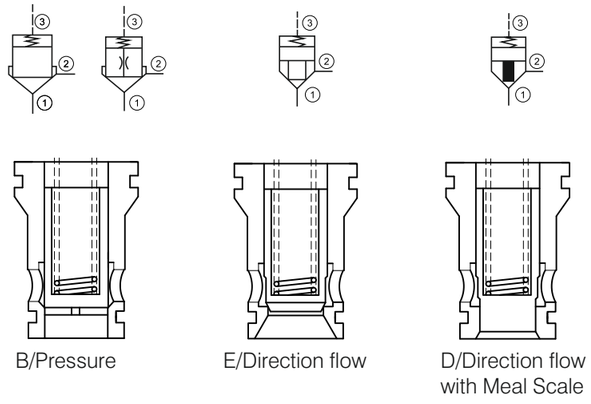


Check conditionns:without spring,
oil temperature 50°C/122°F,viscosity 35 cSt

Logic valve

TGV-32*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer



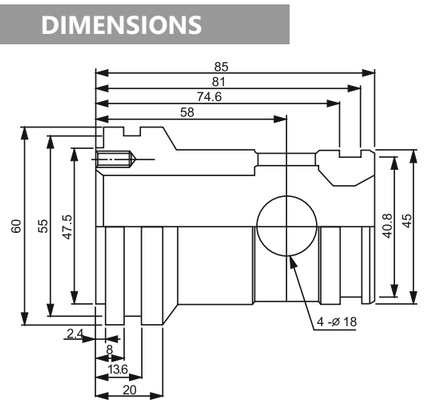
B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

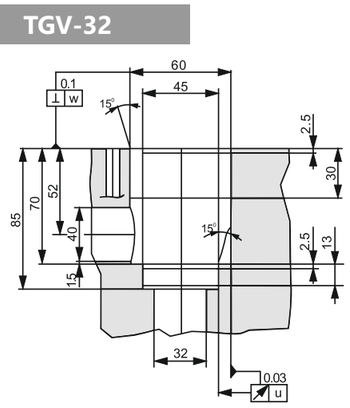
Specifications:

Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-16	315 (4500)	500(132.1)	700(185.0)	1-2: 0.5 2-1 : 2

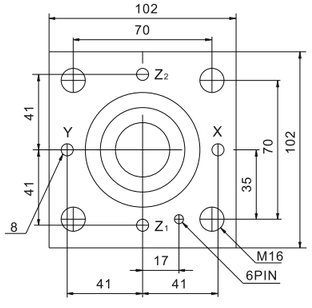
DIMENSIONS

TGV-32

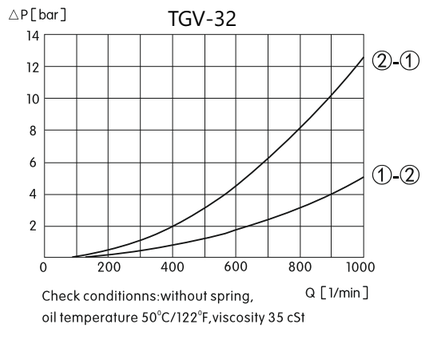




DIMENSIONS



Performance (Cartridge Only)

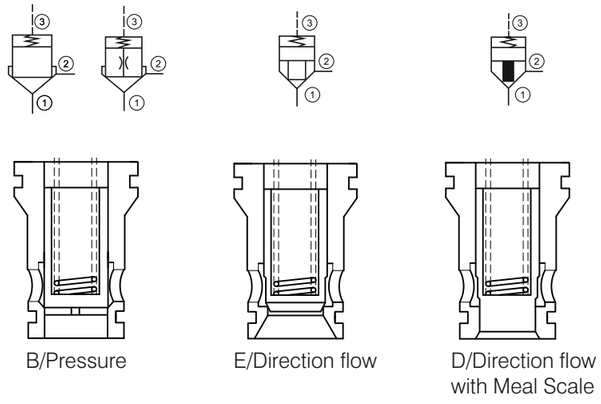


Check conditionns:without spring,
oil temperature 50°C/122°F,viscosity 35 cSt

Logic valve

TGV-40*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer



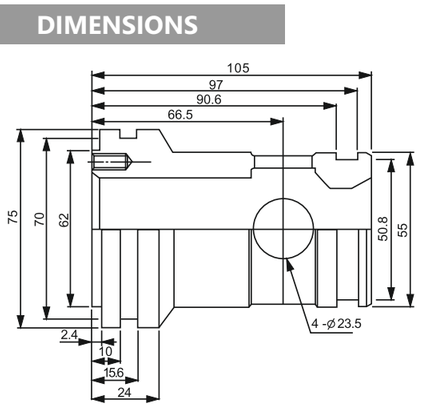
B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

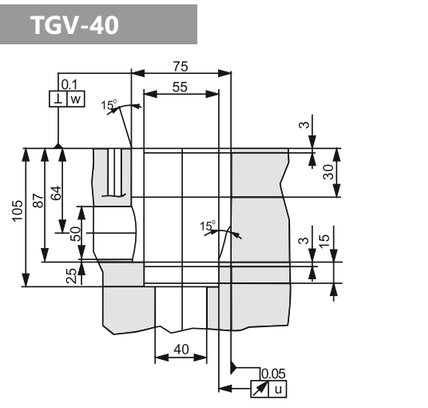
Specifications:

Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-40	315 (4500)	850(225.0)	1100(290.0)	1-2: 0.5 2-1 : 2

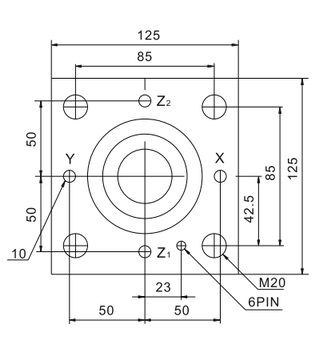
DIMENSIONS

TGV-40

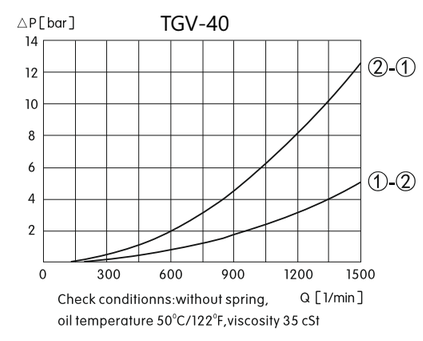




DIMENSIONS



Performance (Cartridge Only)

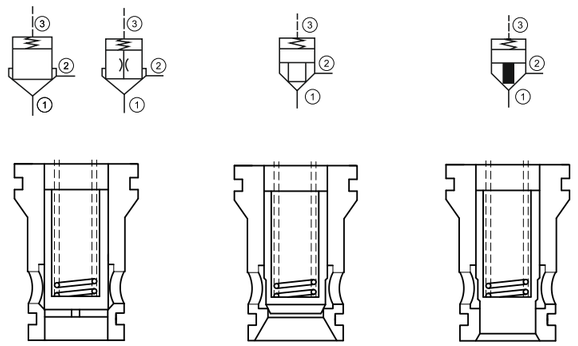


Check conditionns:without spring,
oil temperature 50°C/122°F,viscosity 35 cSt

Logic valve

TGV-50*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer

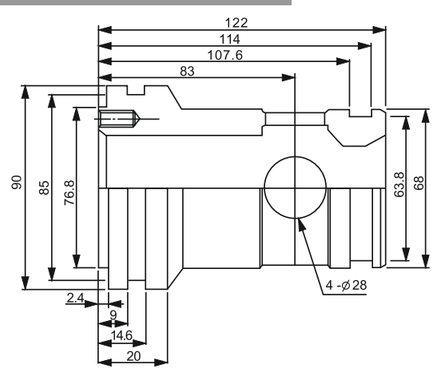


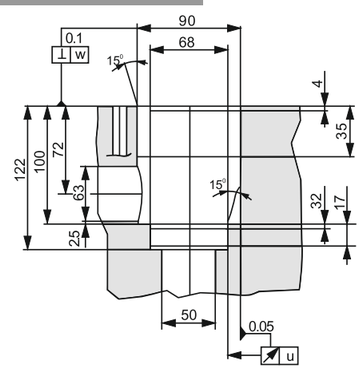
B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

Specifications:

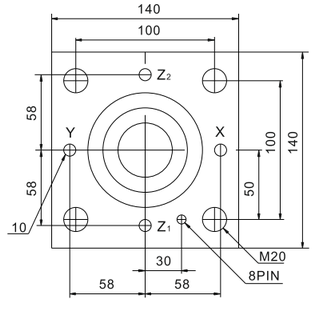
Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-16	315 (4500)	1400(370.0)	1700(450.0)	1-2: 0.5 2-1 : 2

DIMENSIONS　　**TGV-50**

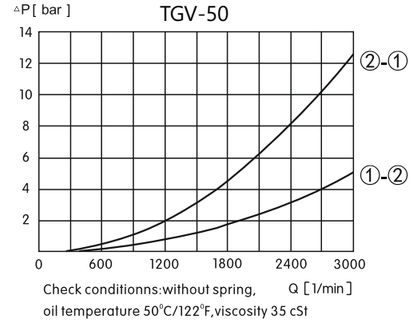




DIMENSIONS



Performance (Cartridge Only)

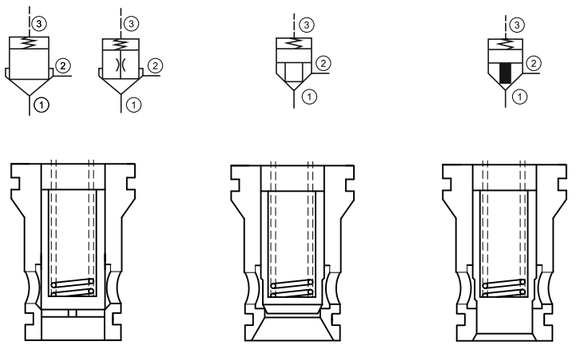


Check conditionns:without spring,　Q [1/min]
oil temperature 50°C/122°F,viscosity 35 cSt

Logic valve

TGV-63*

* : Logic valve selectionB/
Pressure E/
direction flowD/
direction flow with buffer

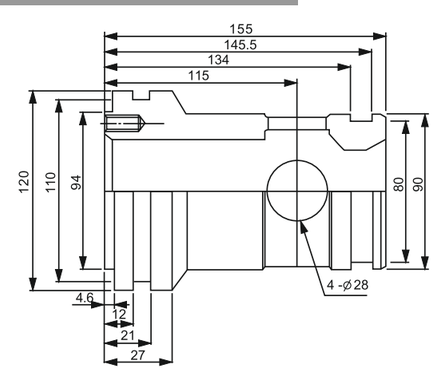


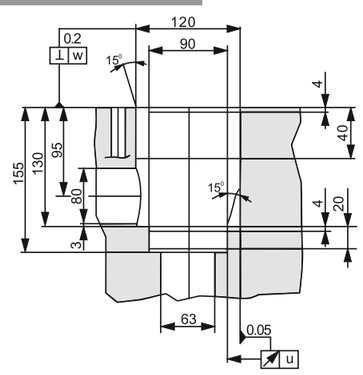
B/Pressure　E/Direction flow　D/Direction flow with Meal Scale

Specifications:

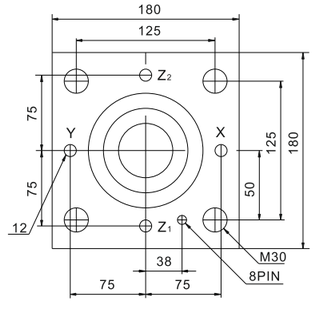
Model Number	Max. Operating pressure kgf/cm² (SVL)	Rated flow rate L/min (GPM) When P= 3kgf/cm² (43Psi)	Rated flow rate L/min (GPM) When P= 5kgf/cm² (70Psi)	Threshold pressure Bar
TGV-40	315 (4500)	2100(555.0)	2800(740.0)	1-2: 0.5 2-1 : 2

DIMENSIONS　　**TGV-63**

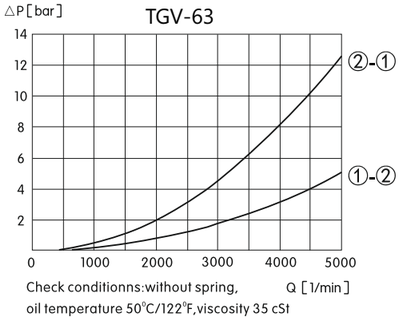




DIMENSIONS

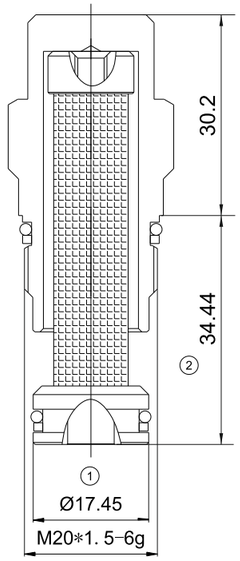


Performance (Cartridge Only)

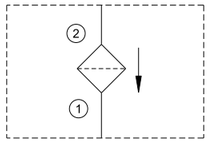


Check conditionns:without spring,　Q [1/min]
oil temperature 50°C/122°F,viscosity 35 cSt

TFLDA - Filter



Hydraulic Symbol:



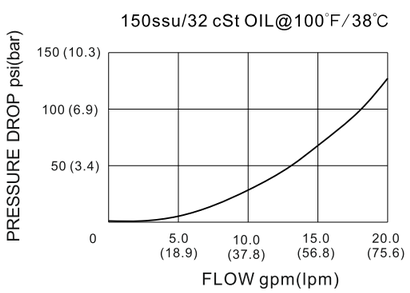
Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Filter Rating(Surface Type)	40 Micron Nominal
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-13A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Installation directly above the subplate will protect the entire valve stack from particles.
- Differential crush pressure is 3000 psid (210 bar)
- Surface Type elements are designed to capture errant particles that may not be trapped in the main system filter or particles resulting from a component failure.
- With a correctly assembled system, Surface Type elements will be unnoticed during regular operation, but will provide protection from sudden component failure.

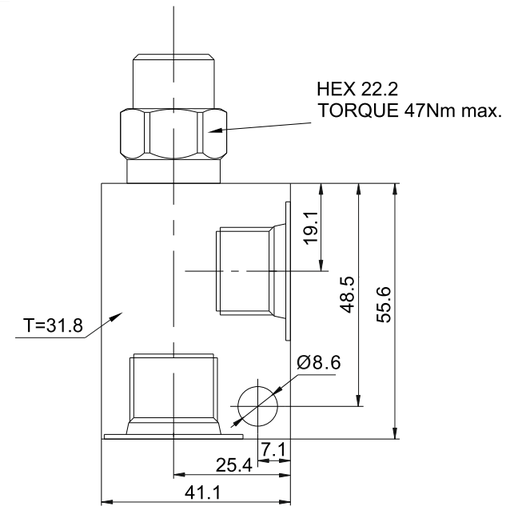
Performance Curve Pressure Drop vs.Flow



Operation:

Filter elements are available as Surface Type (Last Chance) and Depth Style elements. The flow path is Port 2 to Port 1 and should not be used in reverse, even with a reverse free flow check valve installed. The elements have a high collapse pressure and are intended to be used in line with the system. Filter life will depend on initial system cleanliness and the amount of dirt ingression to the system when operating.

INSTALLATION DIMENSIONS



Ordering code details:

TFLDA | | | | | |

Adjustment:
Nonadjustable = X

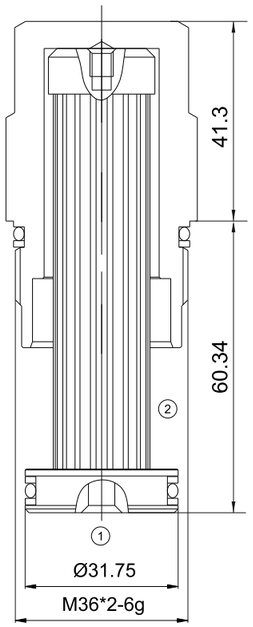
Filter Rating
40 Micron Nominal(Surface type) = D

Body Porting:
6T = SAE 6T
8T = SAE 8T
3G = G3/8
3N = NPT3/8
Other porting is available

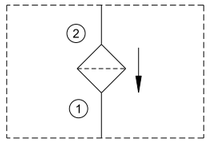
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TFLHA - Filter



Hydraulic Symbol:



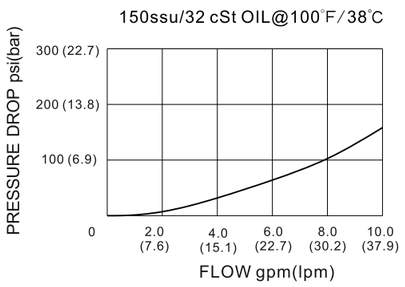
Specifications:

Operating Pressure	350 Bar
Flow	160 L/min
Filter Rating(Surface Type)	40 Micron Nominal
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-16A see page K-3
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Features:

- Installation directly above the subplate will protect the entire valve stack from particles.
- Differential crush pressure is 3000 psid (210 bar)
- Surface Type elements are designed to capture errant particles that may not be trapped in the main system filter or particles resulting from a component failure.
- With a correctly assembled system, Surface Type elements will be unnoticed during regular operation, but will provide protection from sudden component failure.

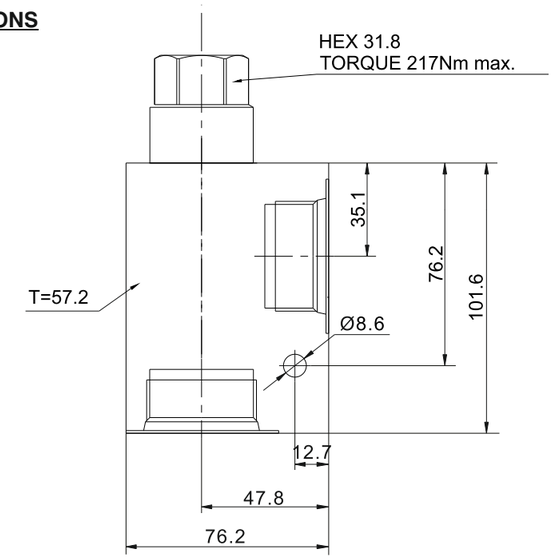
Performance Curve Pressure Drop vs.Flow



Operation:

Filter elements are available as Surface Type (Last Chance) and Depth Style elements. The flow path is Port 2 to Port 1 and should not be used in reverse, even with a reverse free flow check valve installed. The elements have a high collapse pressure and are intended to be used in line with the system. Filter life will depend on initial system cleanliness and the amount of dirt ingression to the system when operating.

INSTALLATION DIMENSIONS



Ordering code details:

TFLHA | | | | | |

Adjustment:
Nonadjustable = X

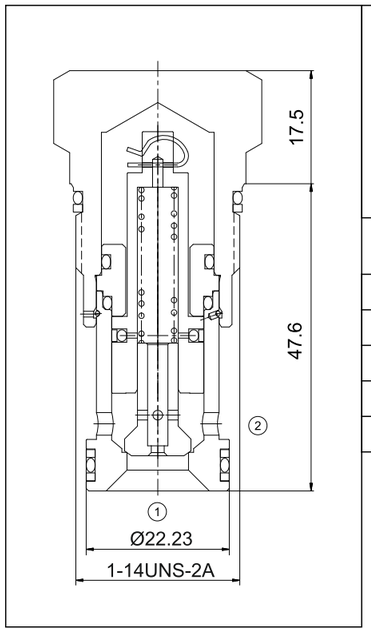
Filter Rating
10 Micron Nominal(Depth type) = B

Body Porting:
12T = SAE 12T
20T = SAE 20T
8G = G1
8N = NPT1
Other porting is available

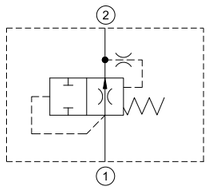
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

Seal Kits:
N = Buna N
V = Viton

TNQEB - Air bleed and start-up valve



Hydraulic Symbol:



Specifications:

Operating Pressure	350 Bar
Flow	15-200 L/min
Temperature	-30°C to +120°C(-22°F to+250°F)
Cavity	T-3A see page K-1
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

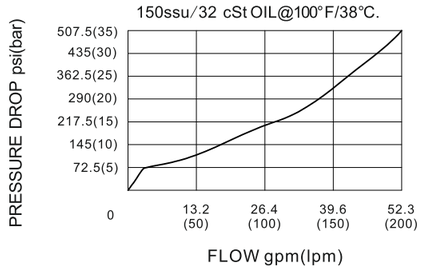
Features:

- Air-bleed and start-up valves require a minimum of 4 gpm (15 L/min.) flow rate and 80 psi (5,5 bar) system pressure.
- The valve will re-open when system pressure falls below 25 psi (1,7 bar).
- After air has been purged, closing times vary from approximately 12 seconds at 4 gpm (15 L/min). to 0.5 seconds at 50 gpm (200 L/min).
- Incorporates the valve floating style construction to minimize the possibility of internal parts binding due to excessive installation torque and/or cavity/cartridge machining variations.

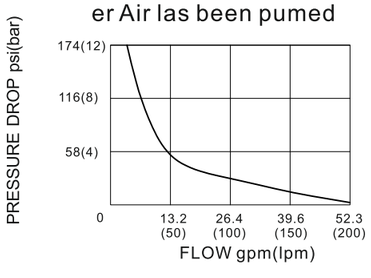
Operation:

Air-bleed and start-up cartridges are used to purge air trapped in the system to help reduce power requirements and facilitate pump priming during the start-up of blocked center circuits.

Performance Curve Pressure Drop vs.Flow

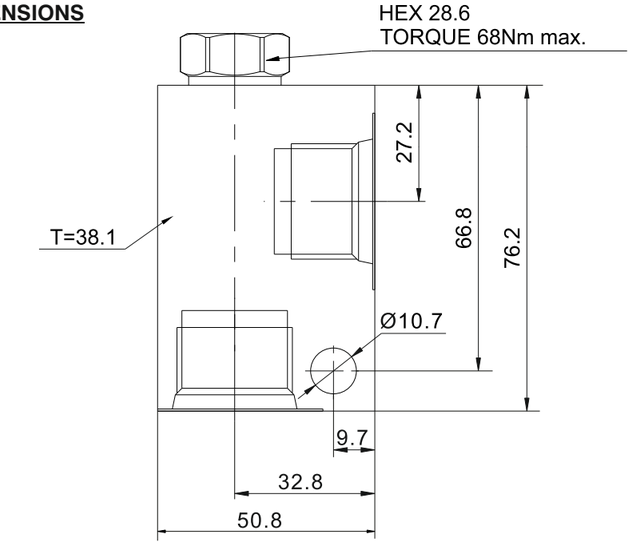


Approximate Clsing Timeafter Air las been pumed



THM HYDRAULICS

INSTALLATION DIMENSIONS



Ordering code details:

TNQEB | | | | | |

Adjustment:
Nonadjustable = X

Adjustment Range:
4-50gpm(15-200L/min) = A

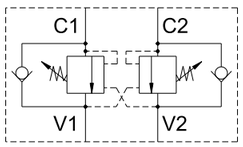
Body Porting:
4T = SAE 4T
12T = SAE 12T
4G = G1/2
4N = NPT1/2
Other porting is available

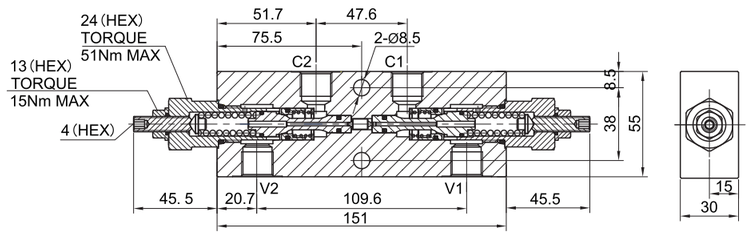
Body Material:
A = 6061-T6 aluminum alloy rated at 207 Bar
S = steel rated at 350Bar

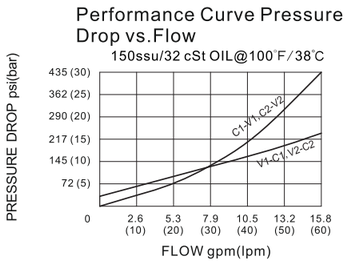
Seal Kits:
N = Buna N
V = Viton

LTB-DCB60-3G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

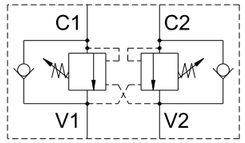
LTB-DCB60		

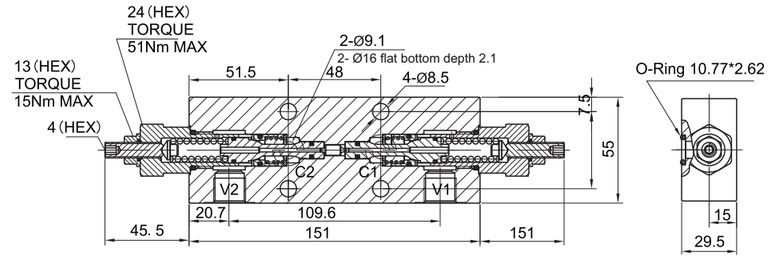
BODY PORTING
G3/8 = 3G
Other porting is available

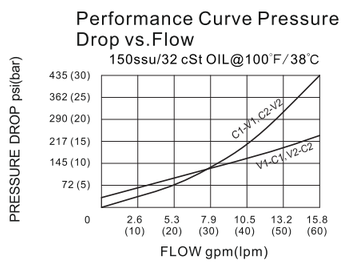
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB2-DCB60-3G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

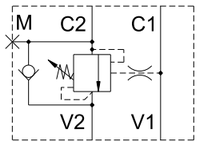
TMB2-DCB60		

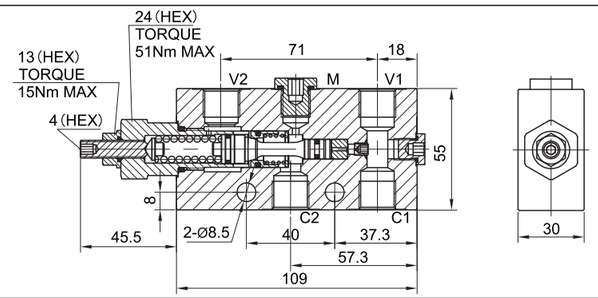
BODY PORTING
G3/8 = 3G
Other porting is available

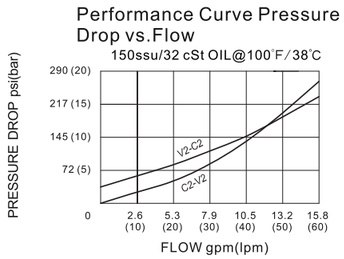
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB2-SCB60-3G - Single counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

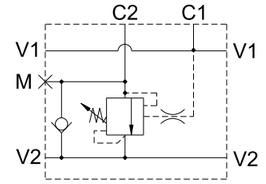
LTB2-SCB60 | | |

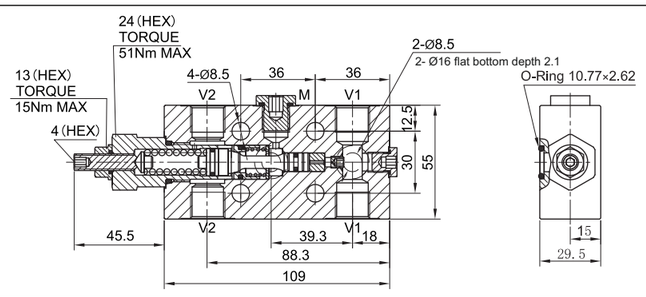
BODY PORTING
G3/8 = 3G
Other porting is available

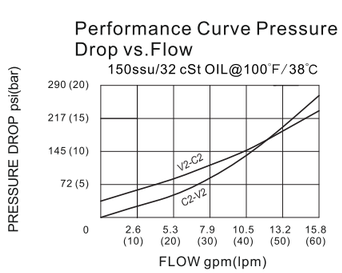
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB2-SCB60-3G - Single counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

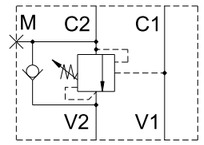
TMB2-SCB60 | | |

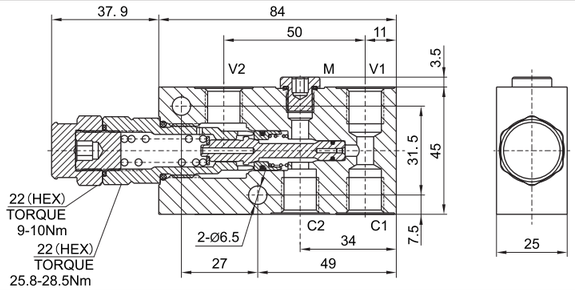
BODY PORTING
G3/8 = 3G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-SCB40-2G - Single counterbalance manifolds

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

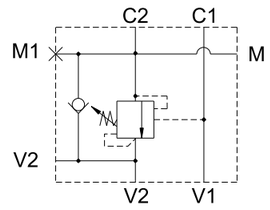
LTB-SCB40		

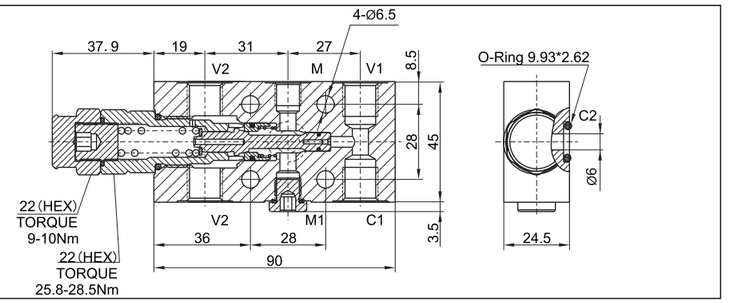
BODY PORTING
G1/4 = 2G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-SCB40-2G - Single counterbalance manifolds

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

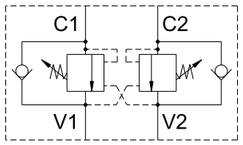
TMB-SCB40		

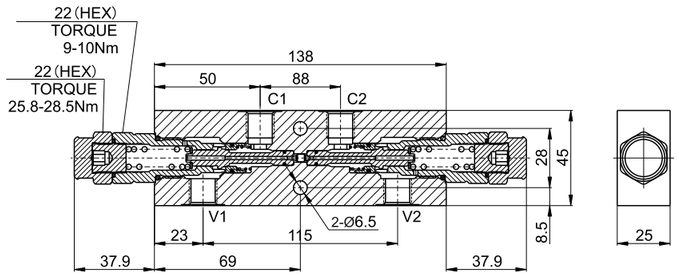
BODY PORTING
G1/4 = 2G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-DCB40-2G - Dual counterbalance manifolds

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100˚F/38˚C

Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

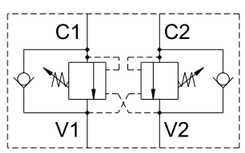
LTB-DCB40		

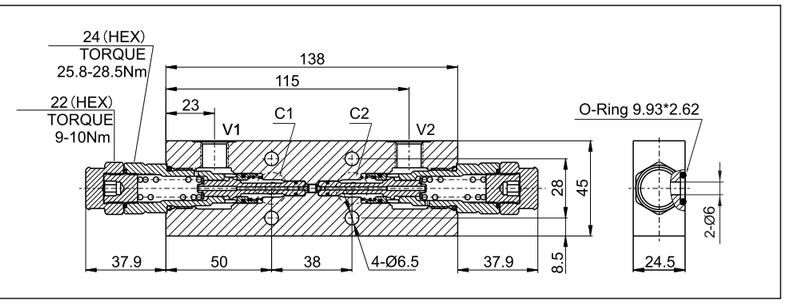
BODY PORTING
G1/4 = 2G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-DCB40-2G - Dual counterbalance manifolds

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100˚F/38˚C

Specifications:

Operating Pressure	350 Bar
Flow	40 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

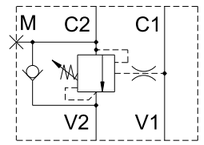
TMB-DCB40		

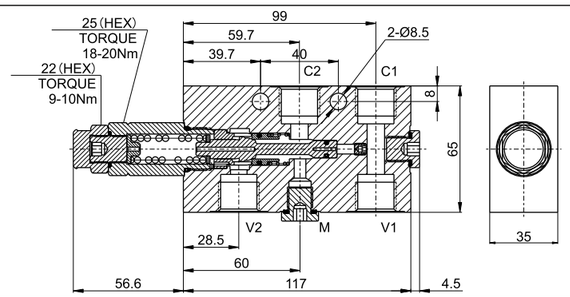
BODY PORTING
G1/4 = 2G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-SCB110-4G - Single counterbalance manifolds

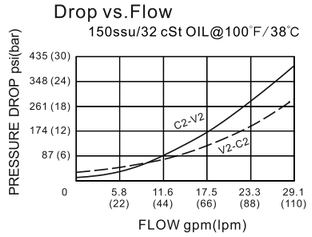
Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Specifications:

Operating Pressure	350 Bar
Flow	110 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

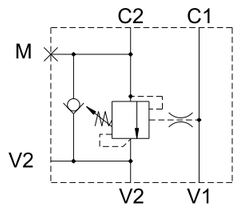
LTB-SCB110 [ ] [ ]

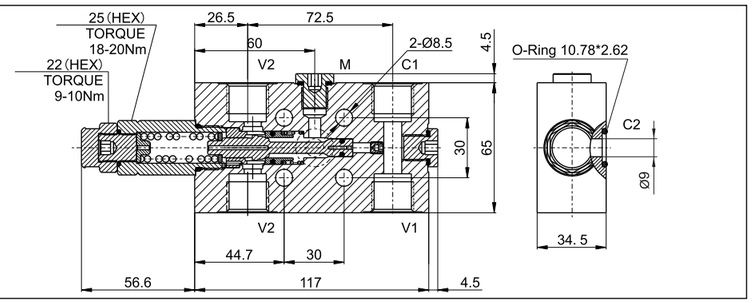
BODY PORTING
G1/2 = 4G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-SCB110-4G - Single counterbalance manifolds

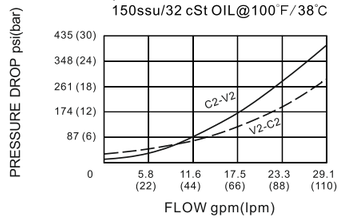
Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Specifications:

Operating Pressure	350 Bar
Flow	110 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

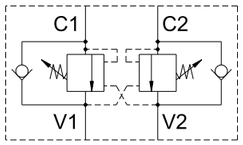
TMB-SCB110 [ ] [ ]

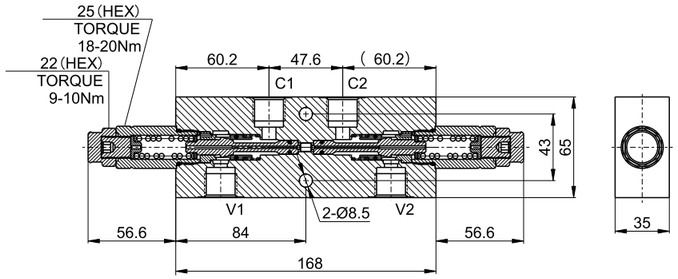
BODY PORTING
G1/2 = 4G
Other porting is available

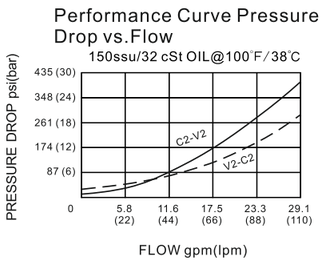
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-DCB110-4G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	110 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions

Ordering code details:

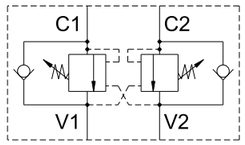
LTB-DCB110 [ ] [ ]

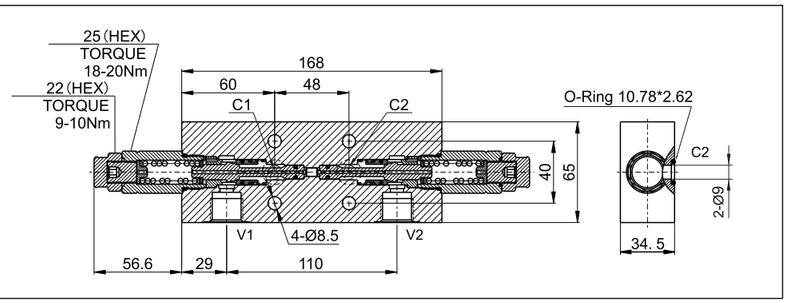
BODY PORTING
G1/2 = 4G
Other porting is available

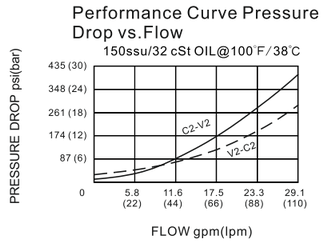
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-DCB110-4G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	110 L/min
Pilot Ratio	4.2:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

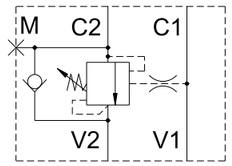
TMB-DCB110 [ ] [ ]

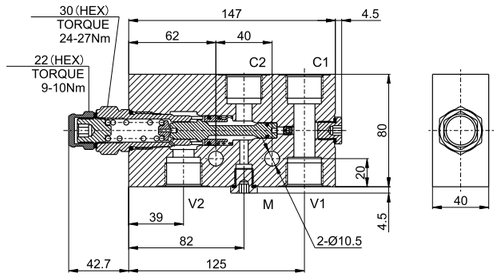
BODY PORTING
G1/2 = 4G
Other porting is available

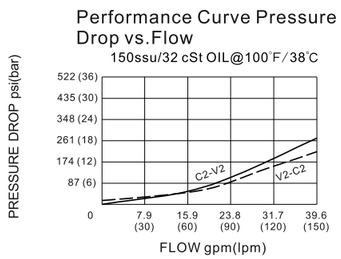
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-SCB150-6G - Single counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

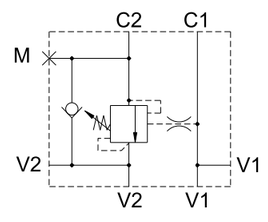
LTB-SCB150 [ ] [ ]

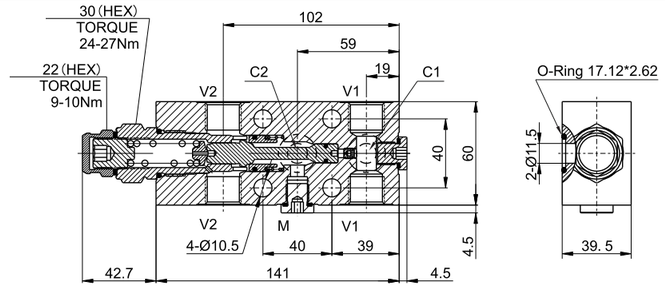
BODY PORTING
G3/4 = 6G
Other porting is available

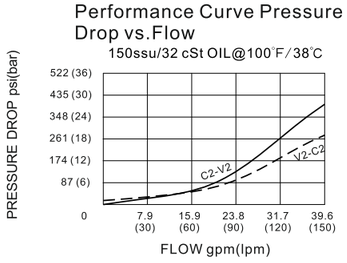
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-SCB150-4G - Single counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

When pressure at V2 rise above the spring bias pressure, the check seat is pushed away from the piston and flow is allowed from V2 to C2.When load pressure at C2 rise above the pressure setting,the direct-acting,differental area relief function is activated and flow is relieved from C2 to V2.With pilot pressure setting is reduced in proportion to the stared ratio of the valve, until fully open with free-flow from C2 to V2. The spring chamber is drained to V2,and any back-pressure at V2 is additive to the pressure setting in all function.

Ordering code details:

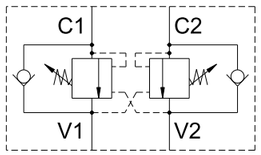
TMB-SCB150 [ ] [ ]

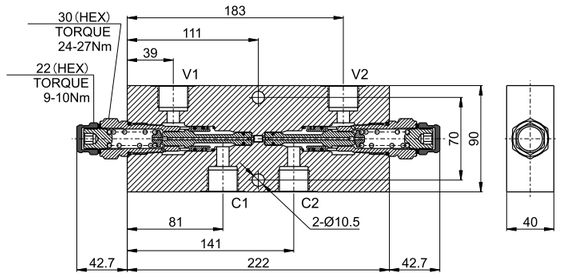
BODY PORTING
G1/2 = 4G
Other porting is available

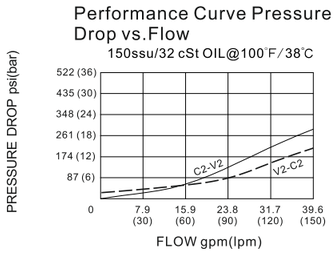
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

LTB-DCB150-6G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

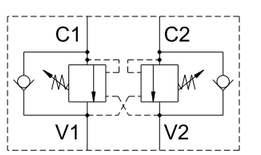
LTB-SCB150 [ ] [ ]

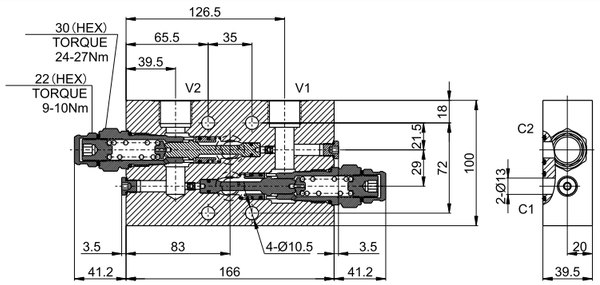
BODY PORTING
G3/4 = 6G
Other porting is available

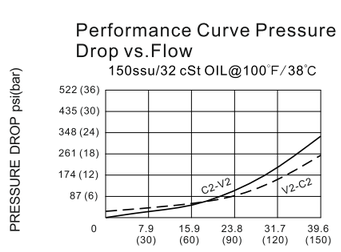
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

TMB-DCB150-6G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	150 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions

Ordering code details:

TMB-DCB150 [ ] [ ]

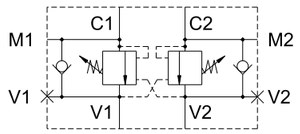
BODY PORTING
G3/4 = 6G
Other porting is available

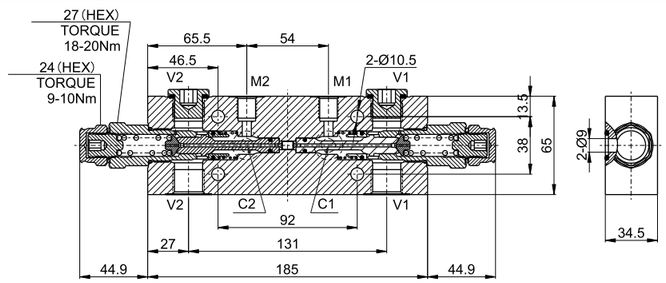
Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

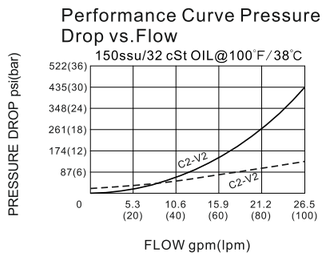
THM HYDRAULICS

TMB-DCB90-4G - Dual counterbalance manifolds

Hydraulic Symbol:







Specifications:

Operating Pressure	350 Bar
Flow	90 L/min
Pilot Ratio	4:1
Internal Leakage	5drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

It provides static and dynamic control of load by regulating the flow IN and OUT of the actuator,thought ports C1 and C2.This valve module includes 2 sections,each one composed by a check and a relief valve pilot assisted by pressure in the opposite line: the check section allows free flow into actuator, then locks the load against reverse movement; with pilot pressure applied at line across, the pressure setting of the relief is reduced in proportion to the stated ratio until openingand allowing controlled reverse flow. Back-pressure at V1 or V2 is additive to pressure settings in all functions.

Ordering code details:

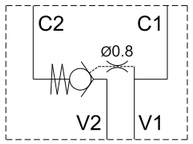
TMB-DCB90		

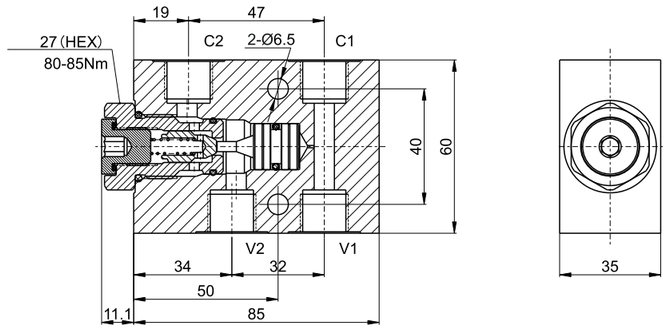
BODY PORTING
G1/2 = 4G
Other porting is available

Pressure Range
1450-5000psi(100-350bar) Preset:5000psi(350) = 35
870-3000psi(60-210bar) Preset:3000psi(210bar) = 21

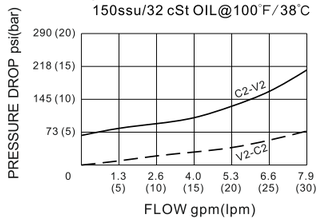
LTB-SPC30-3G - Single pilot-operated check valve inlined

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Pilot Ratio	7:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V2”.The valve has a 7:1 pliot ratio, so at least 1/7 of the laod pressure at port “C2” is required at the pilot lines (port “C1” or “V1”) to open the flow passage to allow flow from ports“C2”.

Ordering code details:

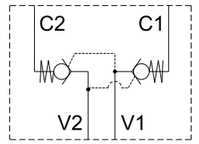
LTB-SPC30 [ ] [ ]

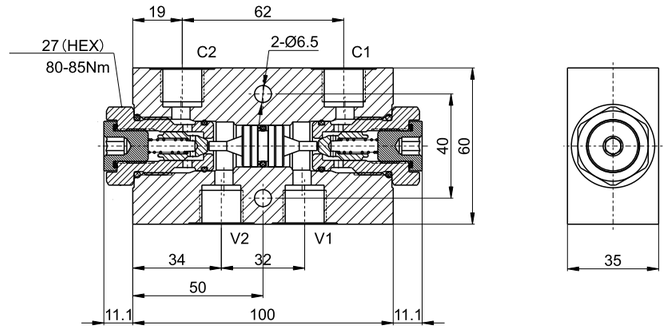
BODY PORTING
G3/8 = 3G
Other porting is available

Crack Pressure:
65psi(4.5bar) = 4.5

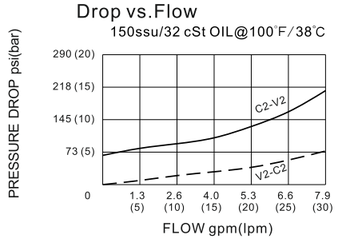
LTB-DPC30-3G - Dual pilot-operated check valve inlined

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Pilot Ratio	7:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C1” to “V1” and from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V1” or “V2”.The valve has a 7:1 pliot ratio, so at least 1/7 of the laod pressure at port “C1” or “C2” is required at the pilot lines (port “V1” or “V2”) to open the flow passage to allow flow from ports “C1” or “C2”.

Ordering code details:

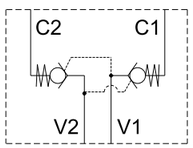
LTB-DPC30 [ ] [ ]

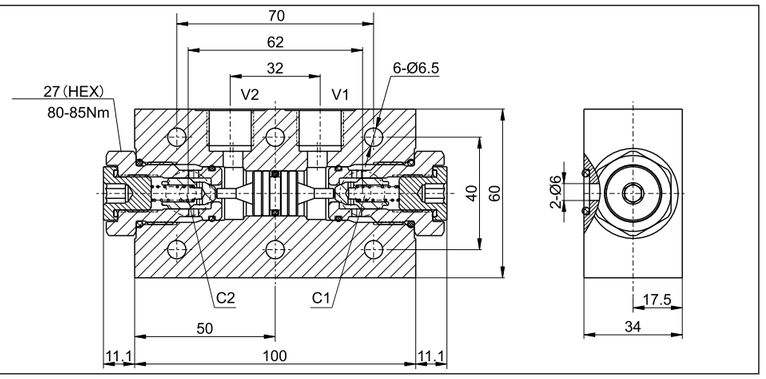
BODY PORTING
G3/8 = 3G
Other porting is available

Crack Pressure:
65psi(4.5bar) = 4.5

TMB-DPC30-3G - Dual pilot-operated check valve inlined

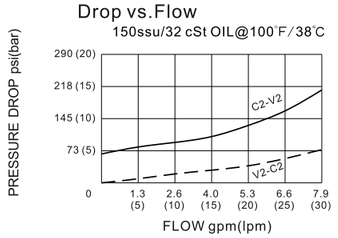
Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Specifications:

Operating Pressure	350 Bar
Flow	30 L/min
Pilot Ratio	7:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C1” to “V1” and from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V1” or “V2”.The valve has a 7:1 pliot ratio, so at least 1/7 of the laod pressure at port “C1” or “C2” is required at the pilot lines (port “V1” or “V2”) to open the flow passage to allow flow from ports “C1” or “C2”.

Ordering code details:

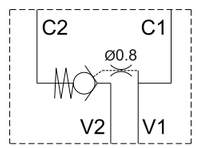
TMB-DPC30 | | |

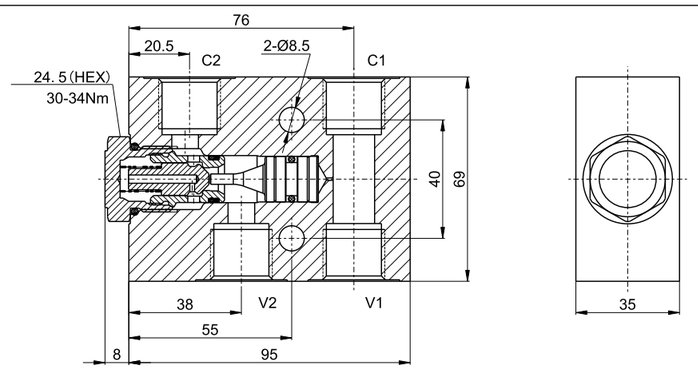
BODY PORTING
G3/8 = 3G
Other porting is available

Crack Pressure:
65psi(4.5bar) = 4.5

LTB-SPC60-4G - Single pilot-operated check valve inlined

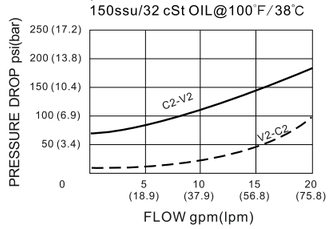
Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow

150ssu/32 cSt OIL@100°F/38°C



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V2”.The valve has a 7:1 pliot ratio, so at least 1/4 of the laod pressure at port “C2” is required at the pilot lines (port “C1” or “V1”) to open the flow passage to allow flow from ports“C2”

Ordering code details:

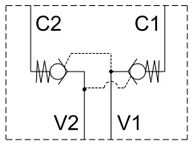
LTB-SPC60 | | |

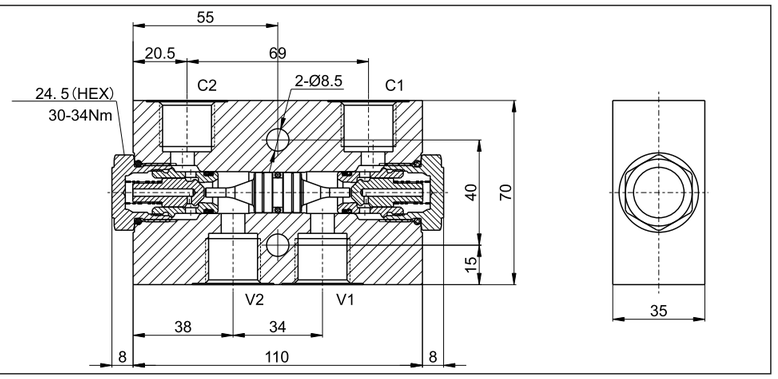
BODY PORTING
G1/2 = 4G
Other porting is available

Crack Pressure:
70psi(4.8bar) = 70
100psi(6.9bar) = 100
300psi(20.4bar) = 300

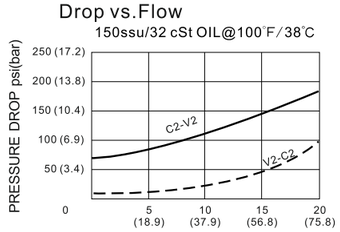
LTB-DPC60-4G - Dual pilot-operated check valve inlined

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C1” to “V1” and from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V1” or “V2”.The valve has a 7:1 pliot ratio, so at least 1/4 of the laod pressure at port “C1” or “C2” is required at the pilot lines (port “V1” or “V2”) to open the flow passage to allow flow from ports “C1” or “C2”.

Ordering code details:

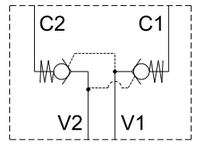
LTB-DPC60		

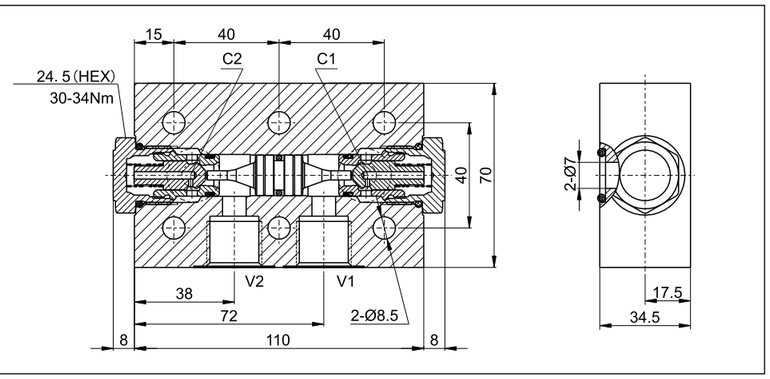
BODY PORTING
G1/2 = 4G
Other porting is available

Crack Pressure:
70psi(4.8bar) = 70
100psi(6.9bar) = 100
300psi(20.4bar) = 300

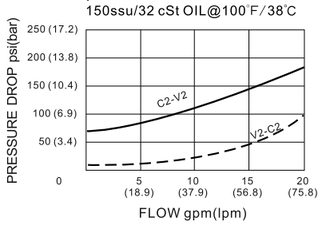
TMB-DPC60-4G - Double pilot-operated check valve inlined

Hydraulic Symbol:





Performance Curve Pressure Drop vs.Flow



Specifications:

Operating Pressure	350 Bar
Flow	60 L/min
Pilot Ratio	4:1
Internal Leakage	2drop/min.max.at nominal pressure
Temperature	-30°C to +120°C(-22°F to+250°F)
Fluids	Mineral-based fluids with viscosities of 7.4 to 420 cSt.

Operations:

The valve will block from “C1” to “V1” and from “C2” to “V2”.Flow is allowed in the opposite direction when pressure is applied to port “V1” or “V2”.The valve has a 7:1 pliot ratio, so at least 1/4 of the laod pressure at port “C1” or “C2” is required at the pilot lines (port “V1” or “V2”) to open the flow passage to allow flow from ports “C1” or “C2”.

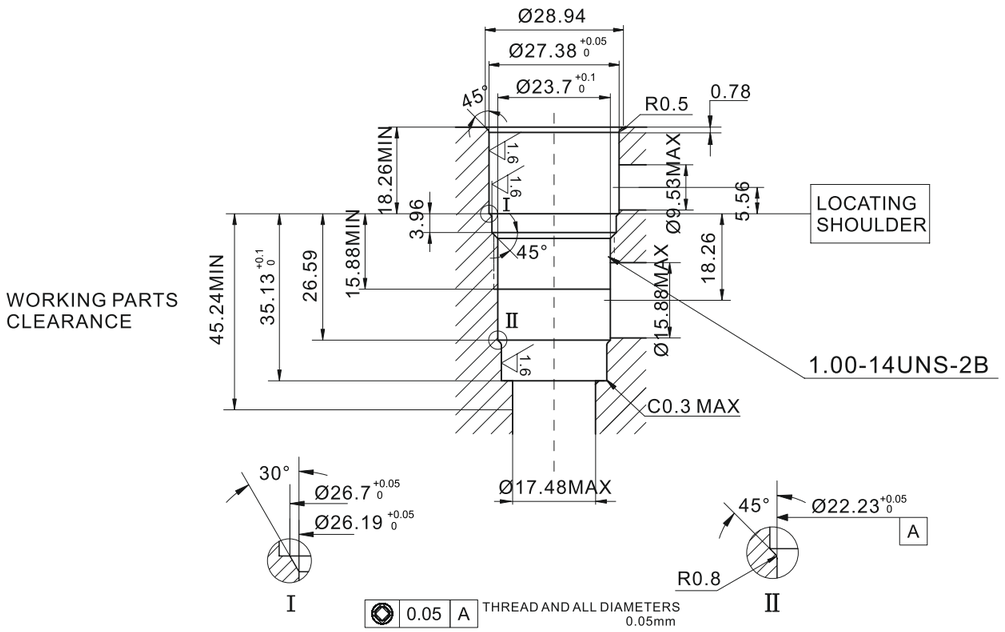
Ordering code details:

TMB-DPC60		

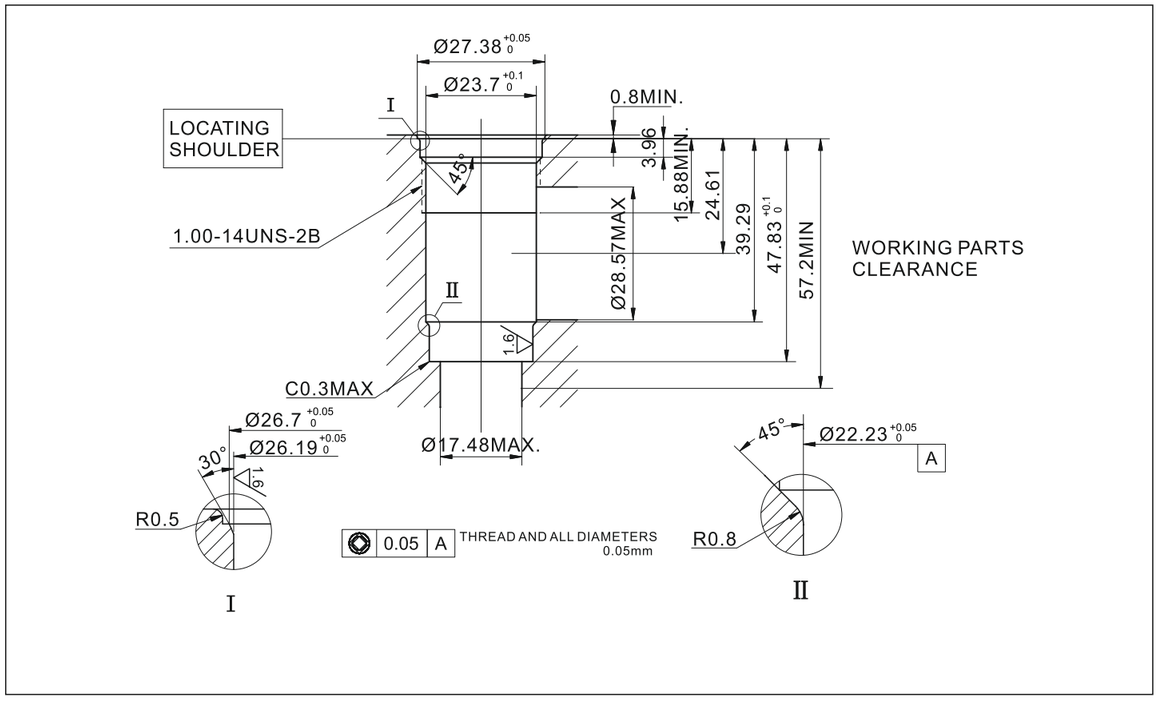
BODY PORTING
G1/2 = 4G
Other porting is available

Crack Pressure:
70psi(4.8bar) = 70
100psi(6.9bar) = 100
300psi(20.4bar) = 300

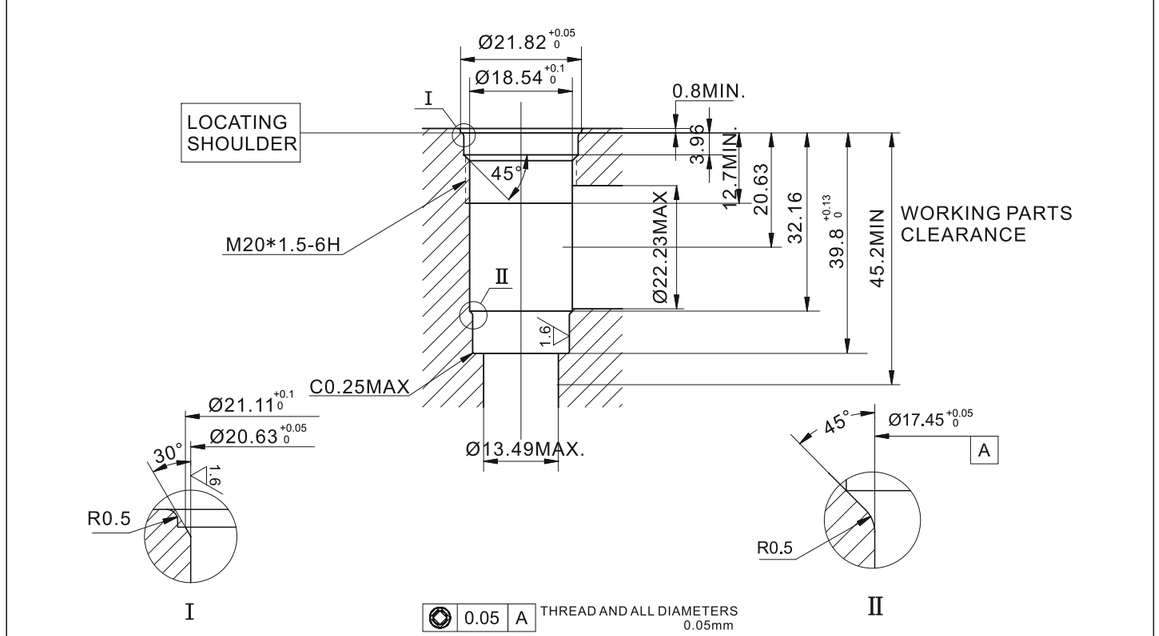
CAVITY:SUNT-2A



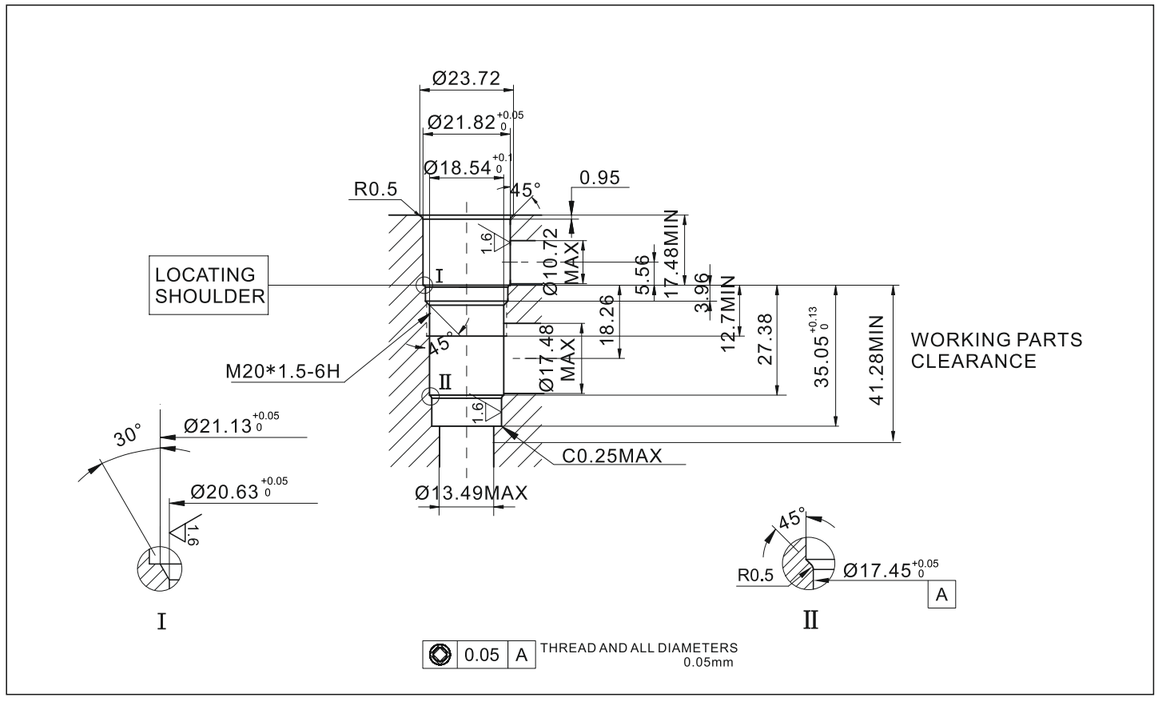
CAVITY:SUNT-3A



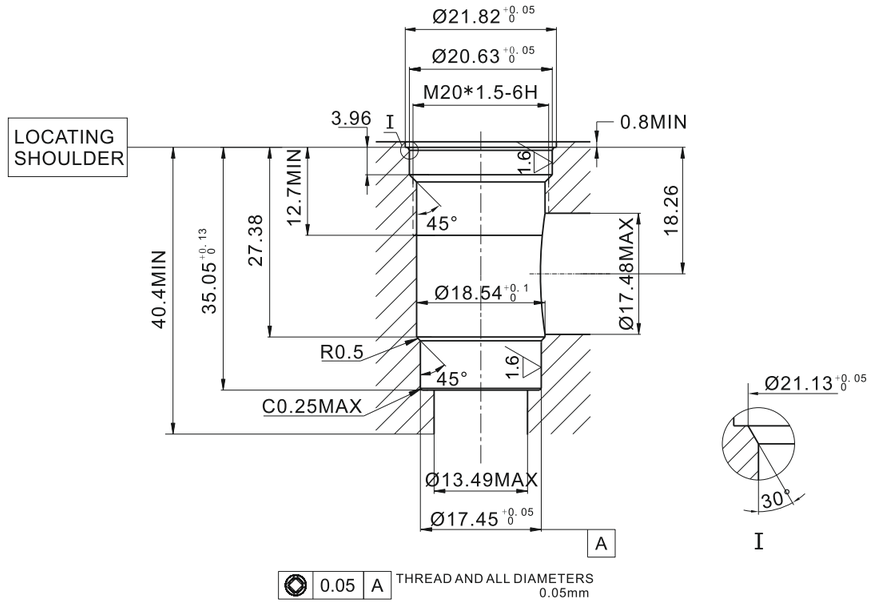
CAVITY:SUNT-10A



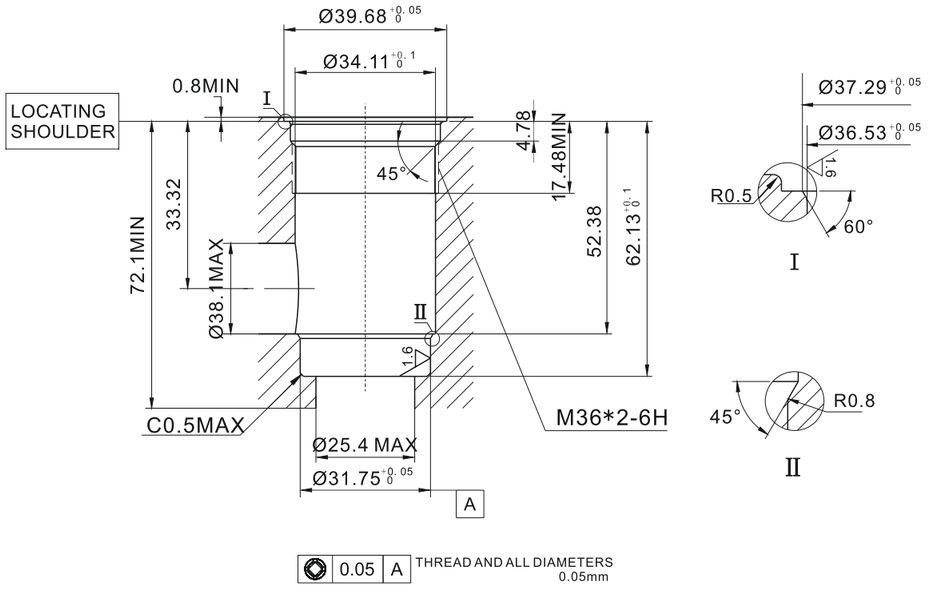
CAVITY:SUNT-11A



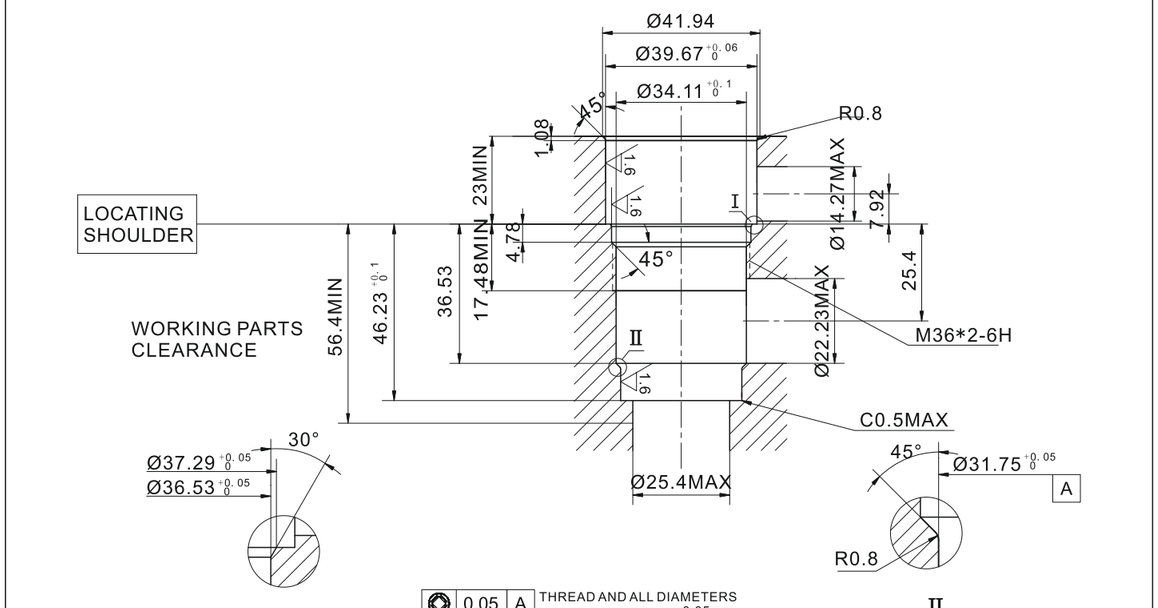
CAVITY:SUNT-13A



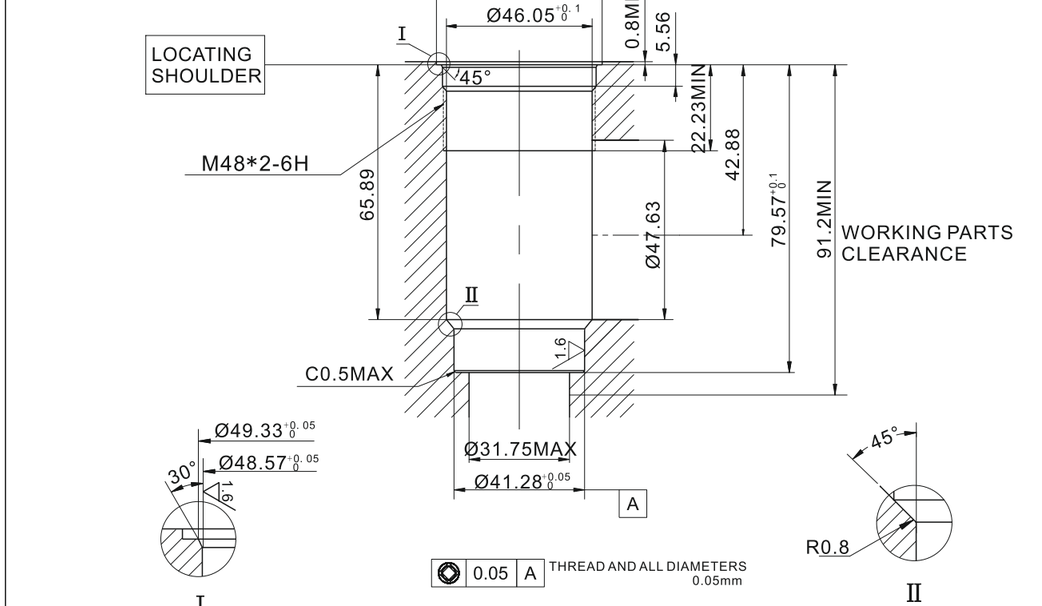
CAVITY:SUNT-16A



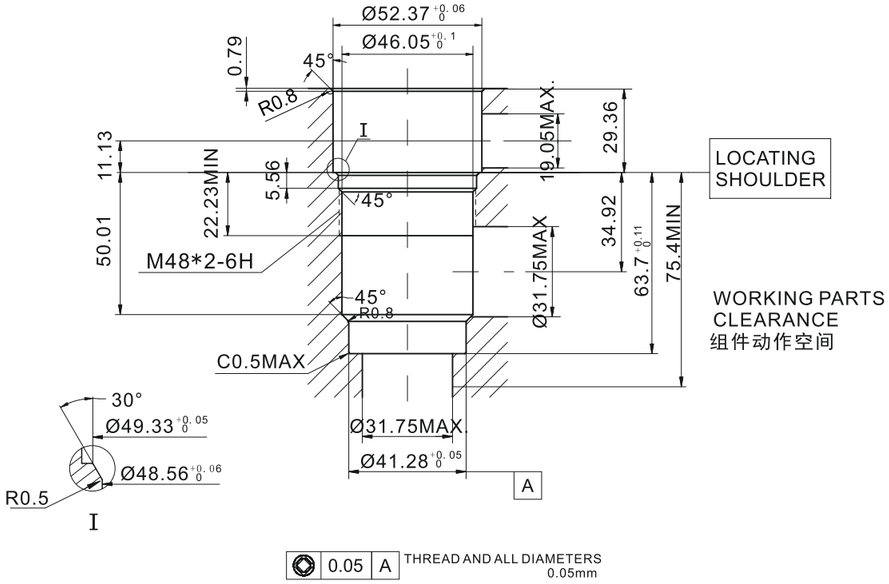
CAVITY:SUNT-17A



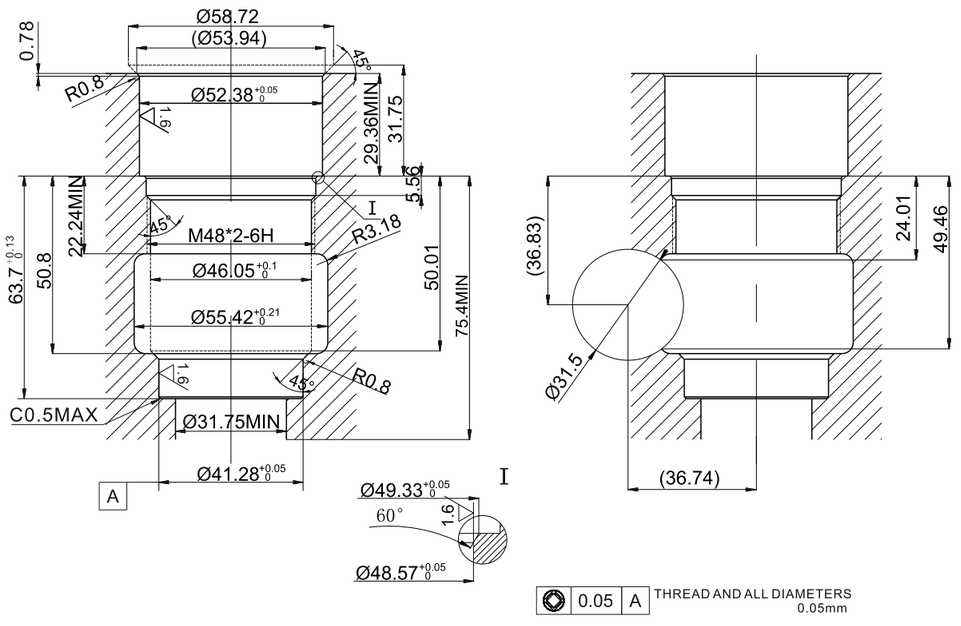
CAVITY:SUNT-18A



CAVITY:SUNT-19A



CAVITY:SUNT-19AU



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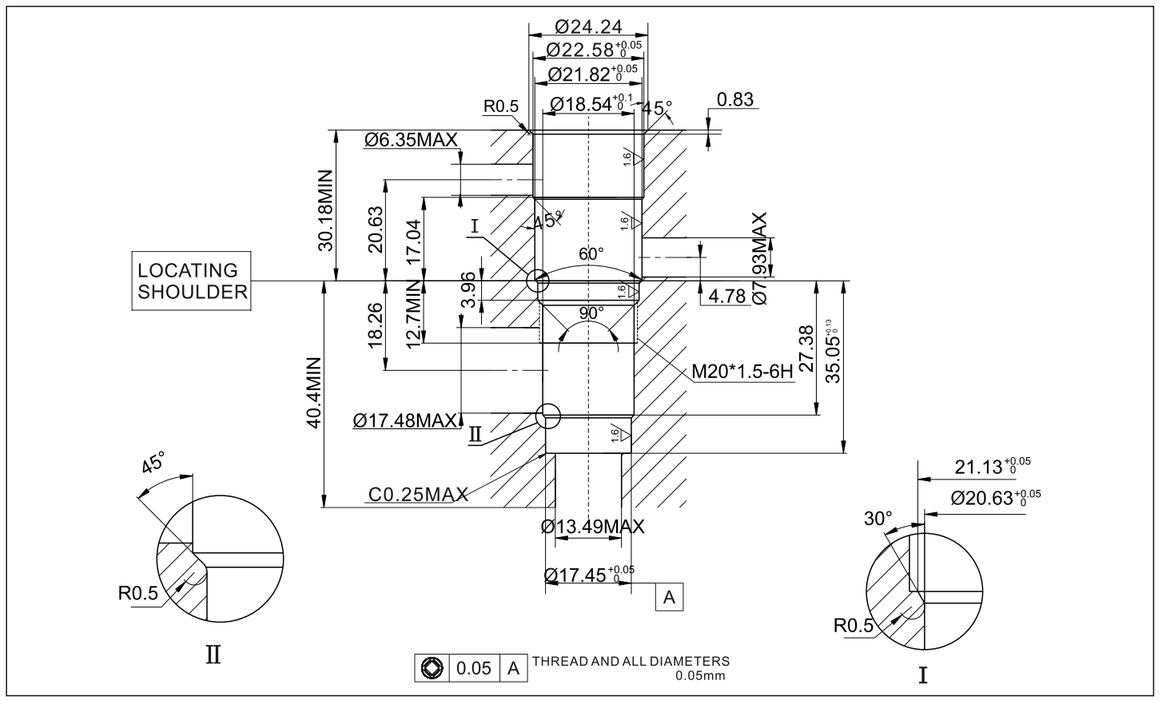

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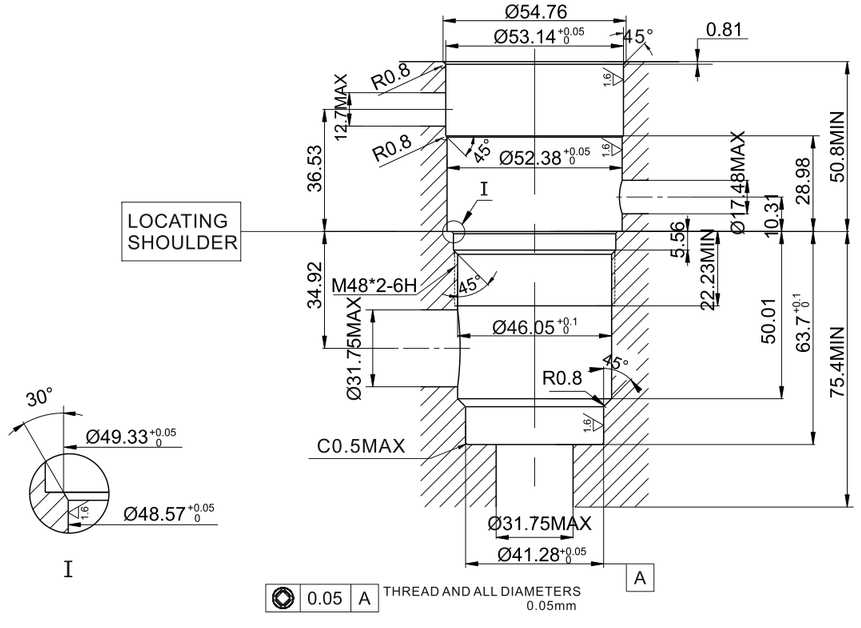

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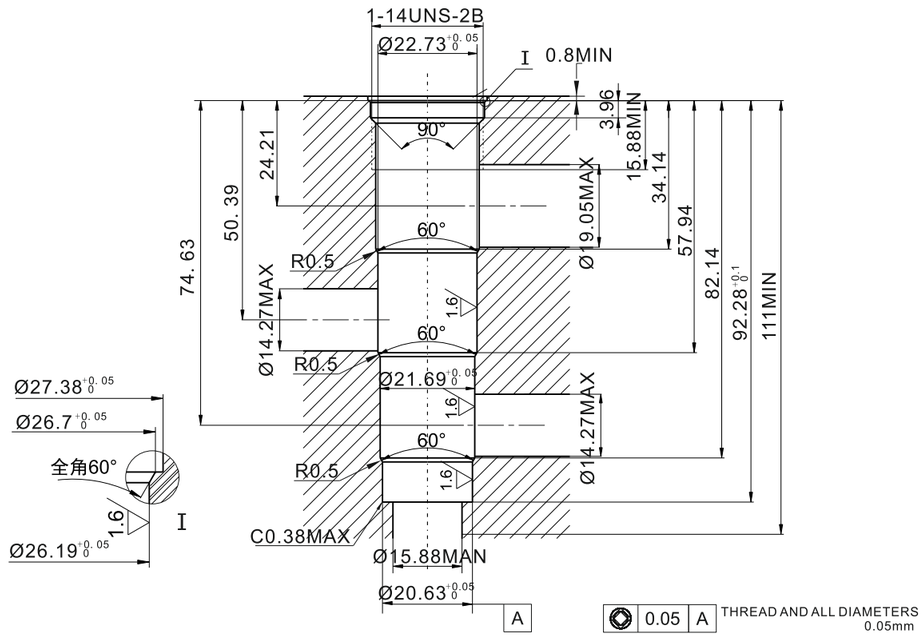

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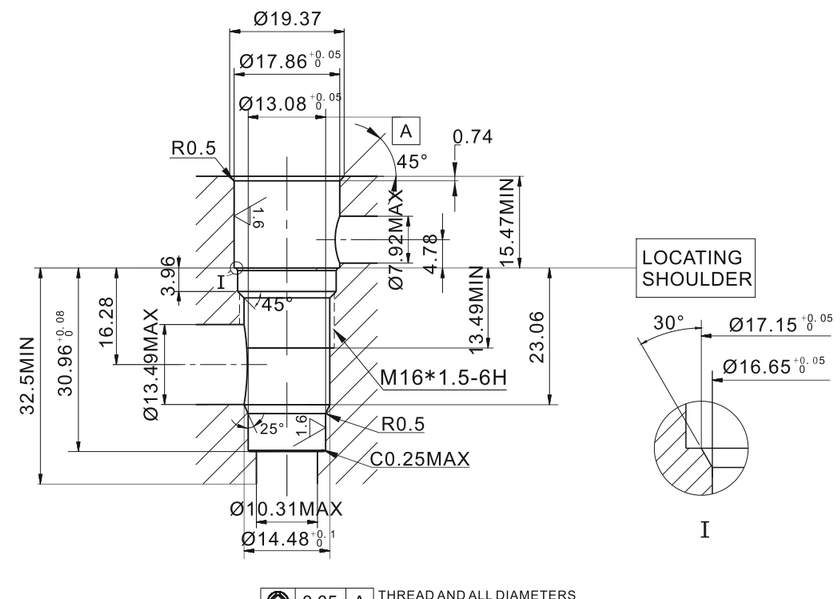

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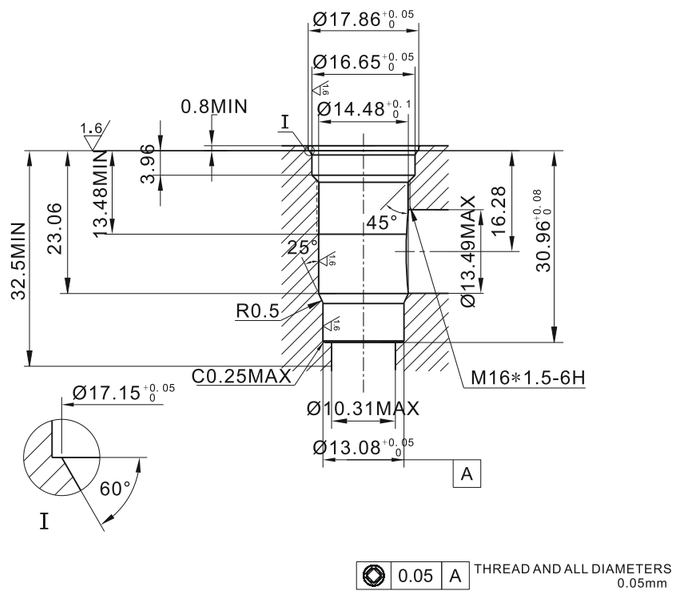
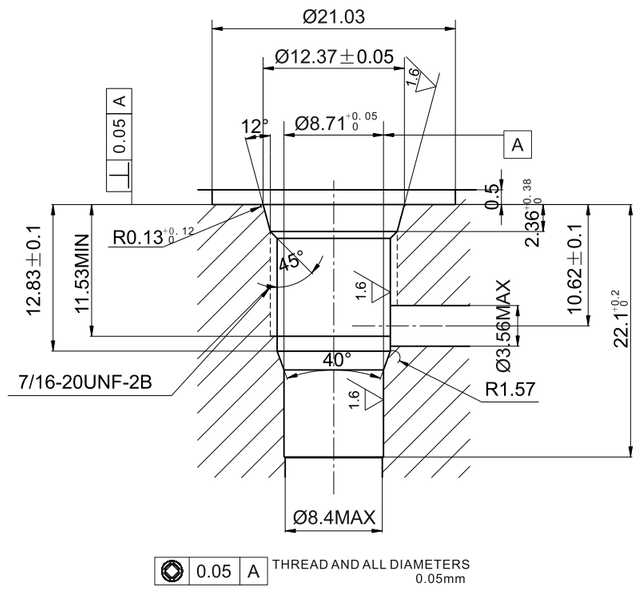
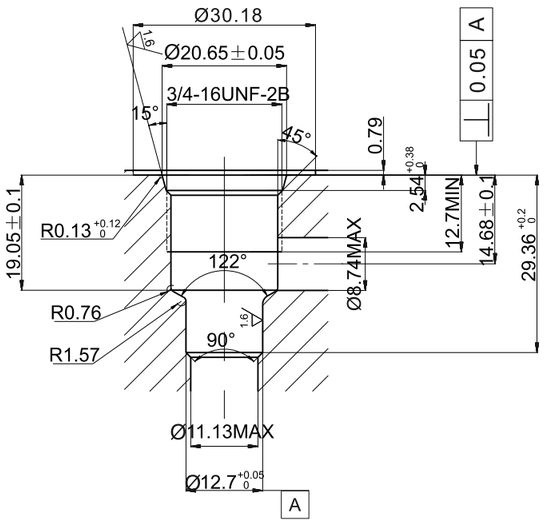


CAVITY:04-2

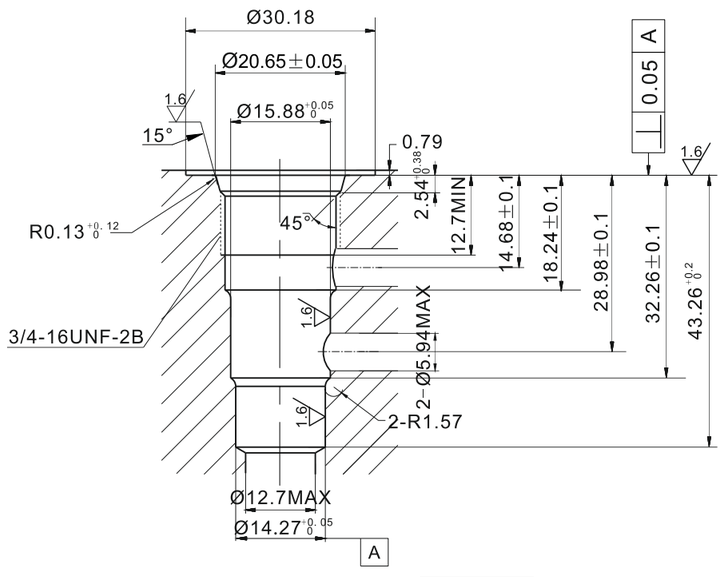


CAVITY:08-2



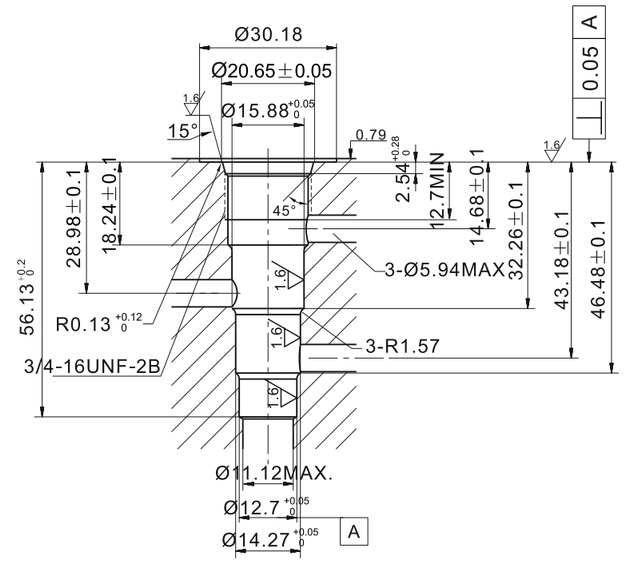
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:08-3



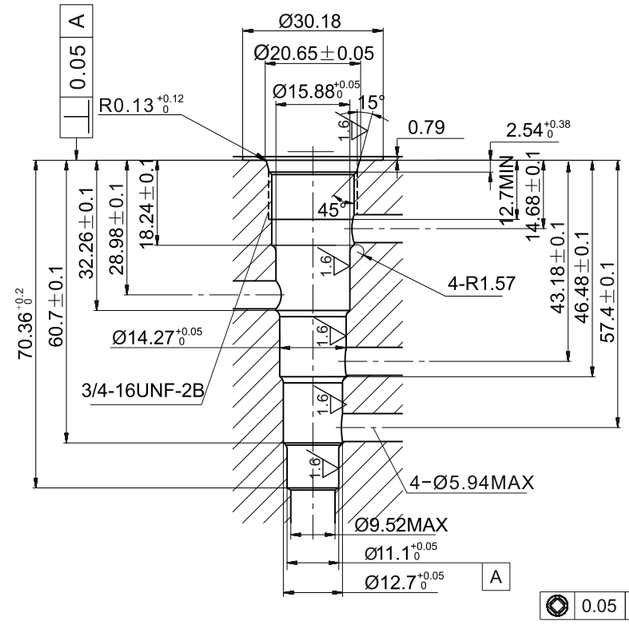
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:08-4



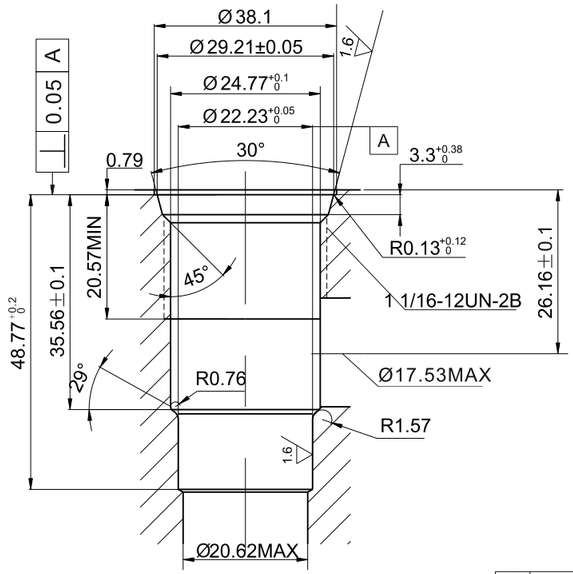
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:08-5



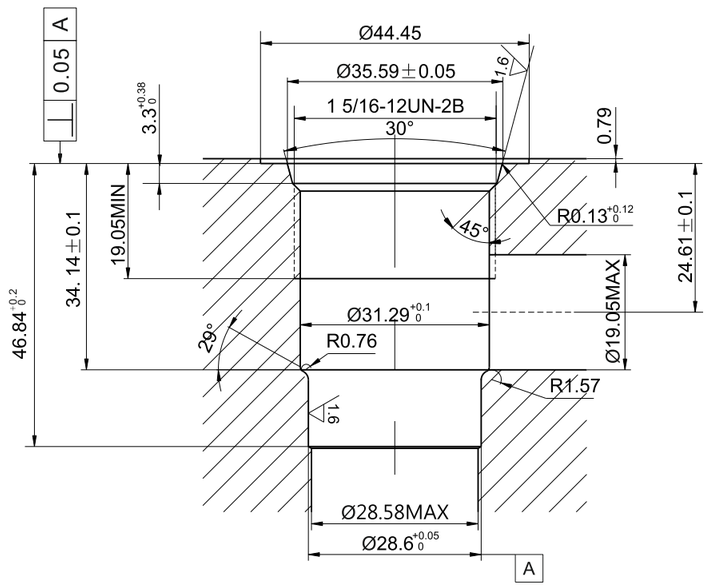
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:12-2



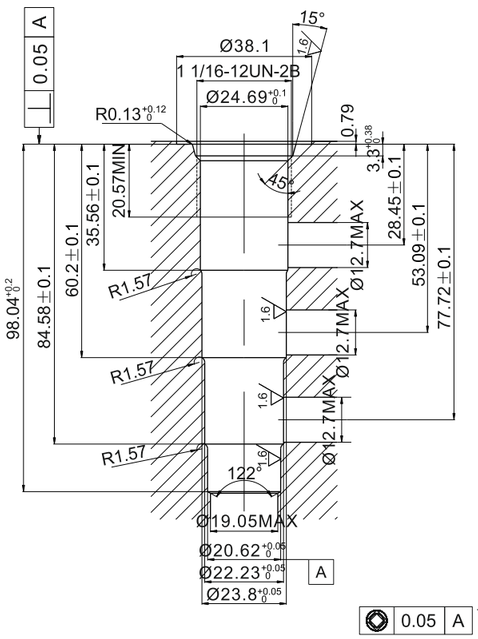
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:16-2



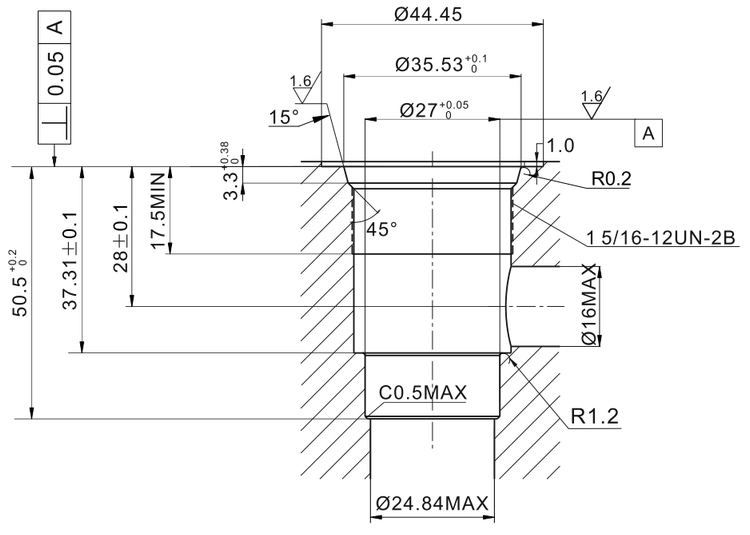
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:12-4



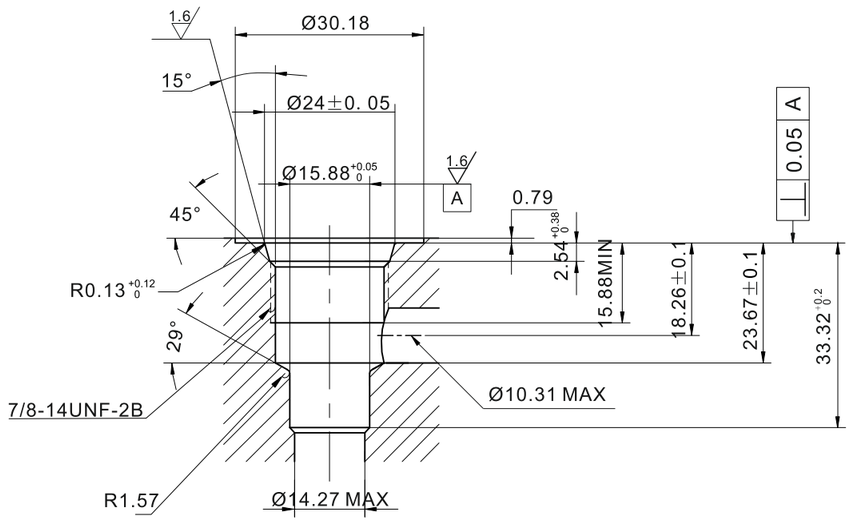
0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:16-S2



0.05 A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:10-2



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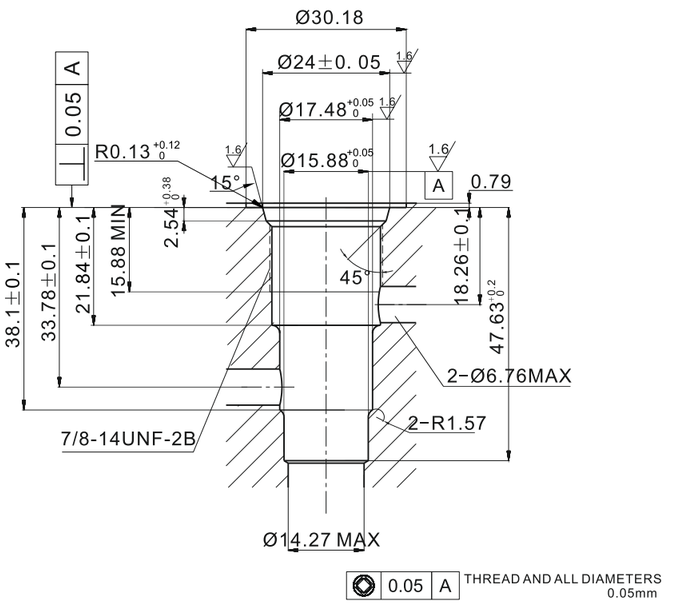

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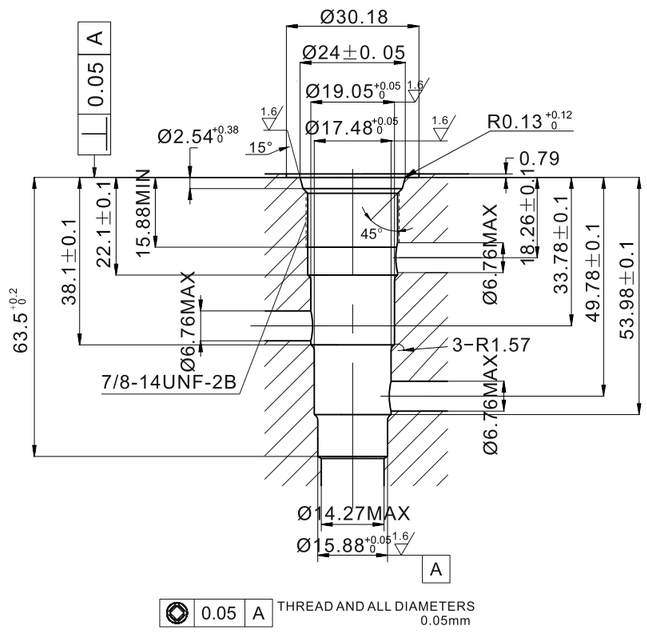

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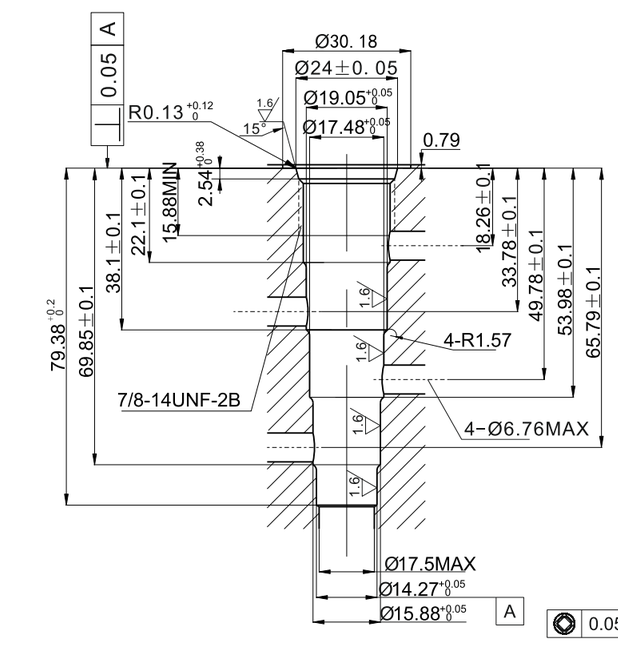
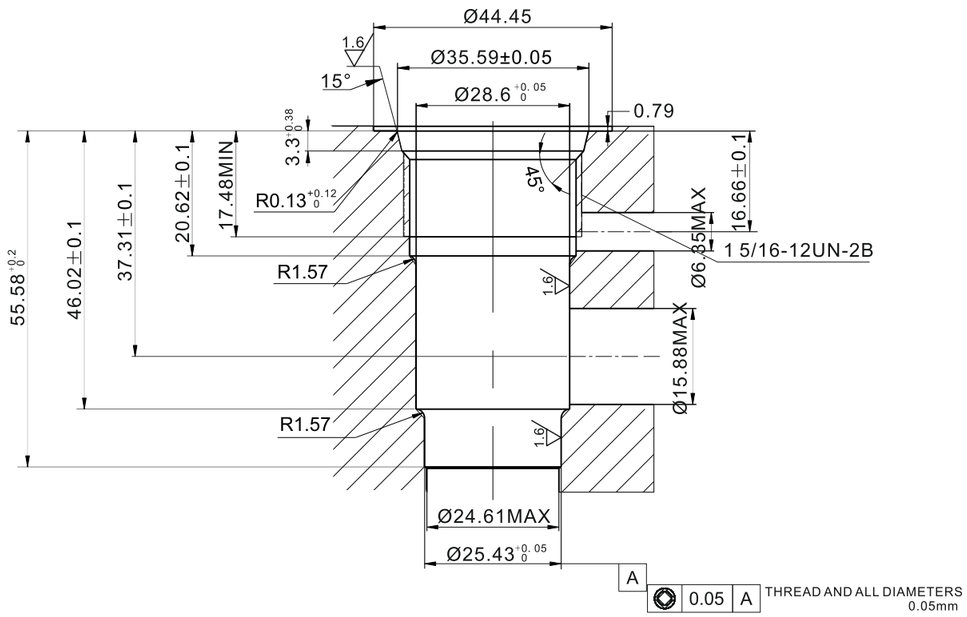


CAVITY:VC16S3



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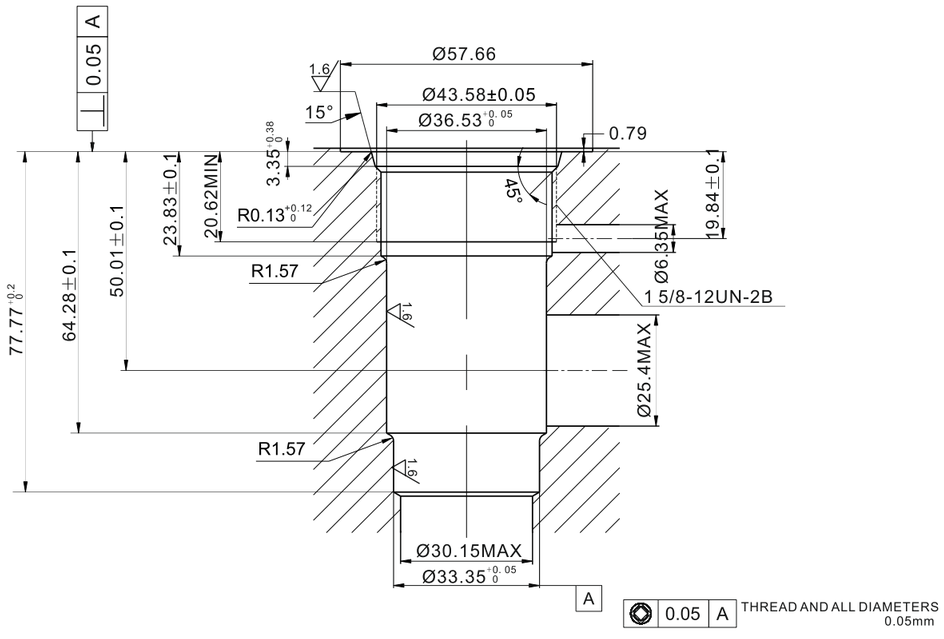
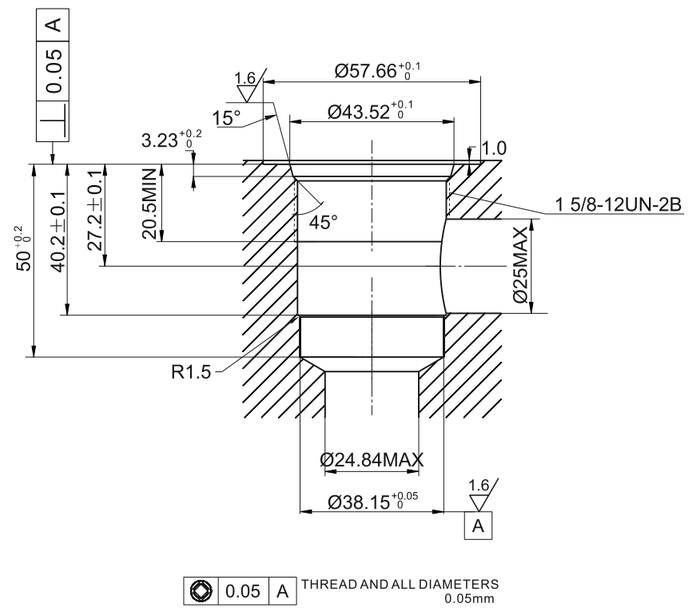
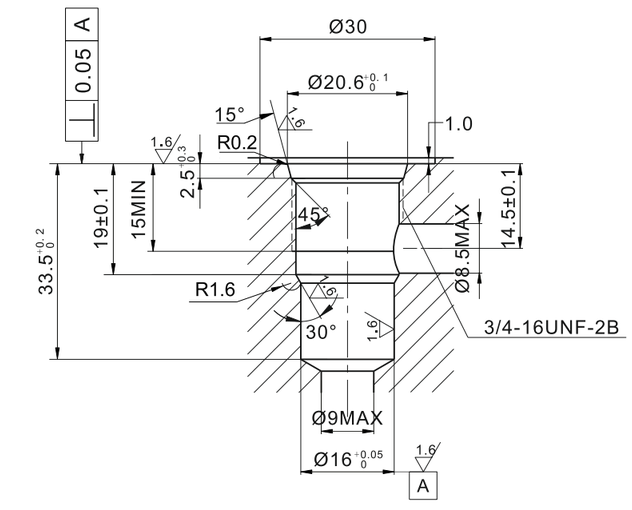


CAVITY:20-2S



CAVITY:T-2106



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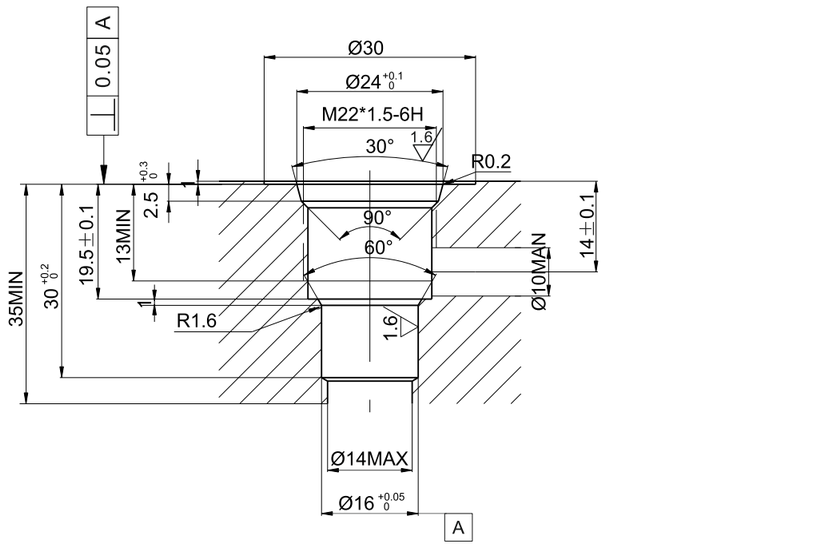
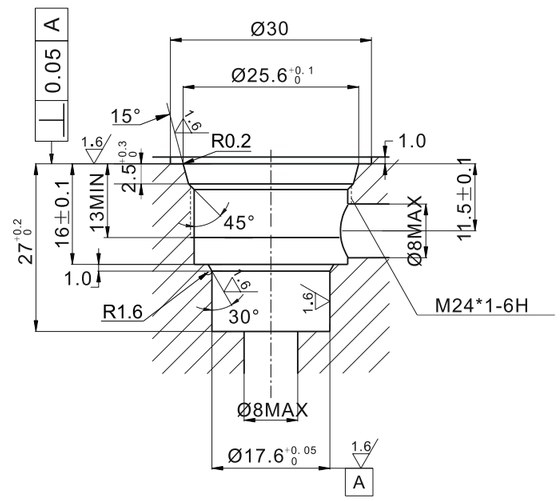
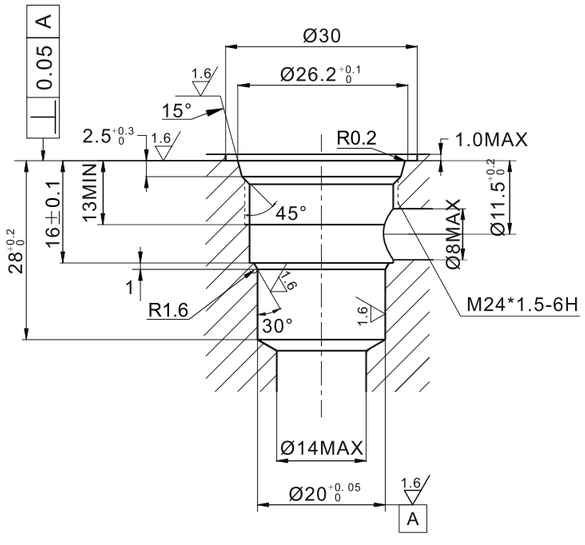


CAVITY:T-2303



CAVITY:T-2301



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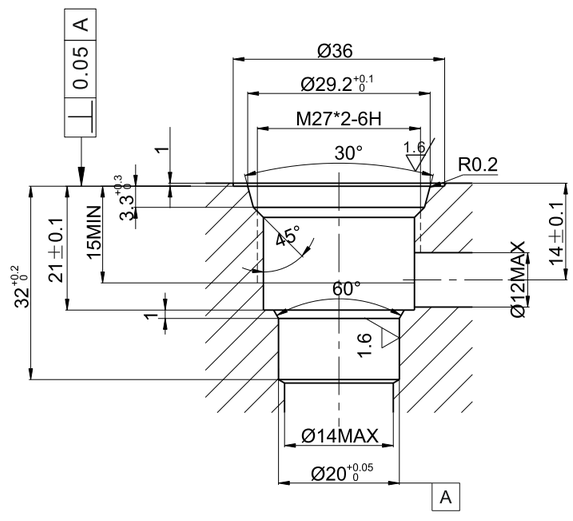

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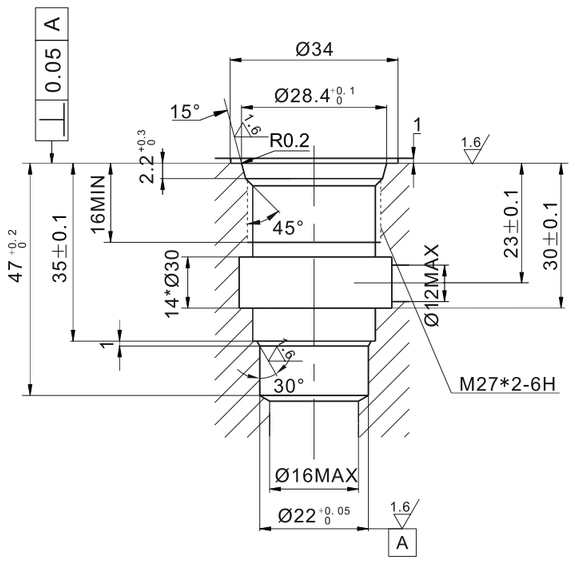

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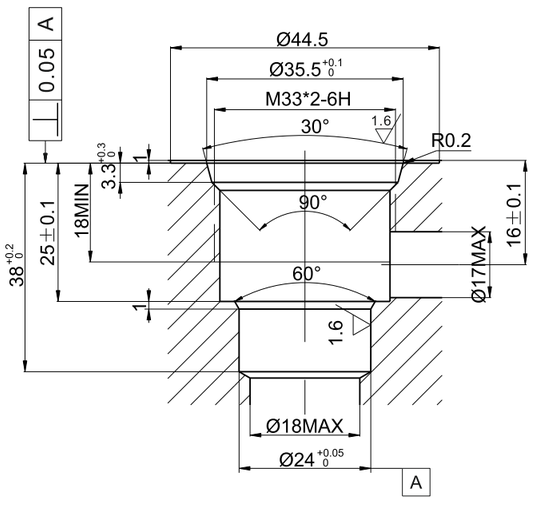

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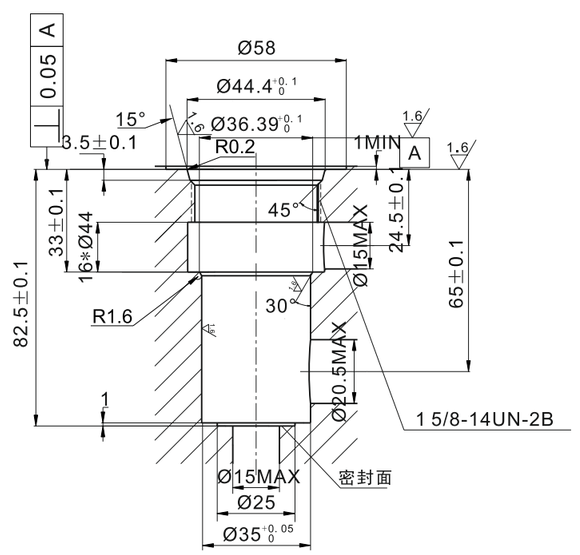
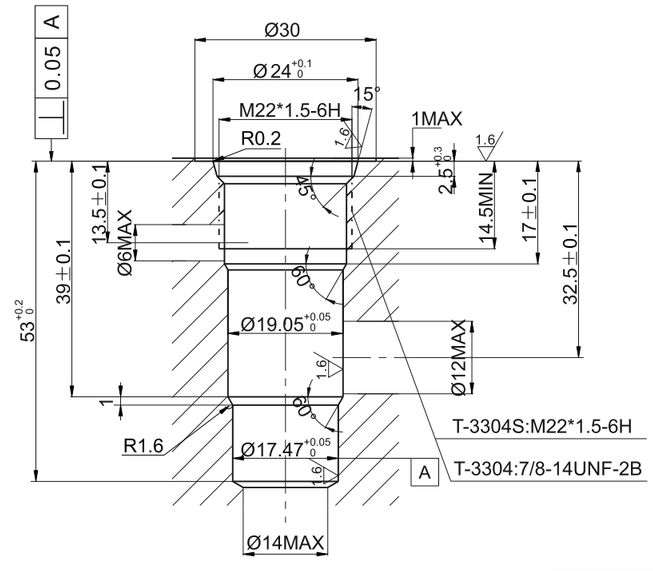
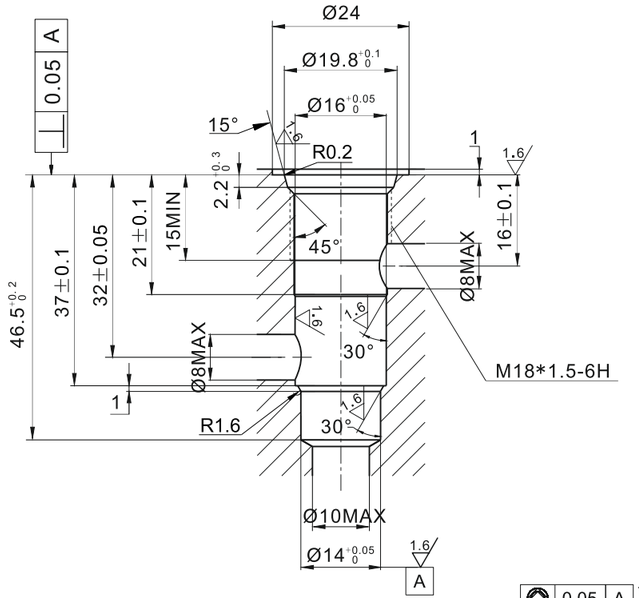


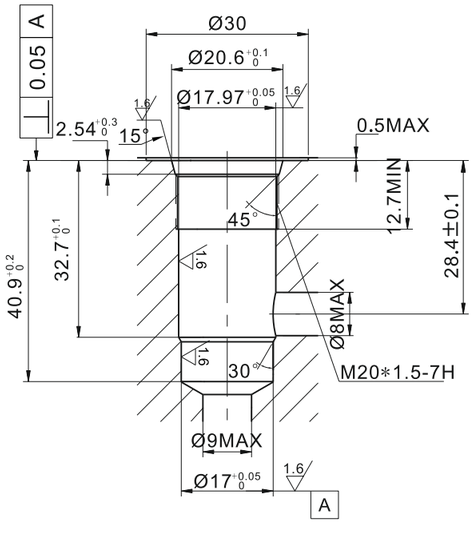
CAVITY:T-3304S/T3304



CAVITY:T4-S2



CAVITY:M201.5T



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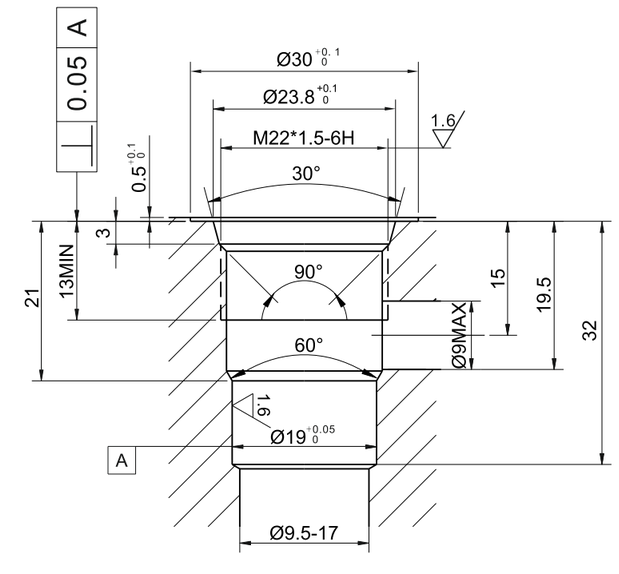

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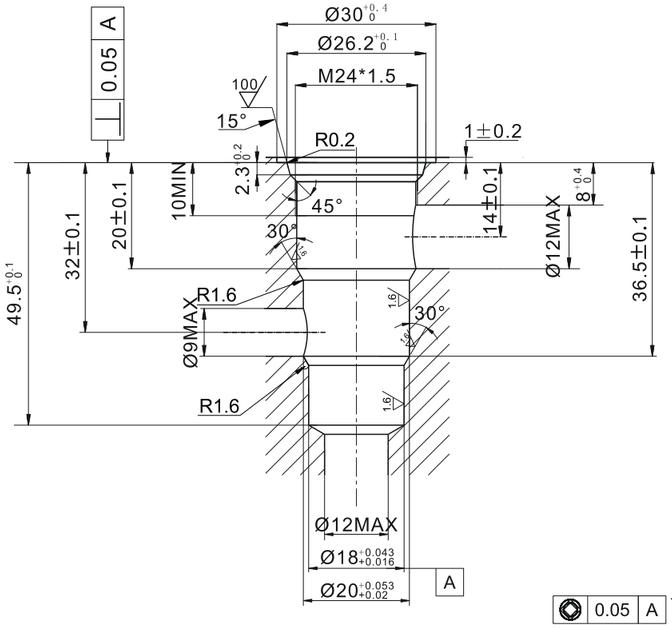
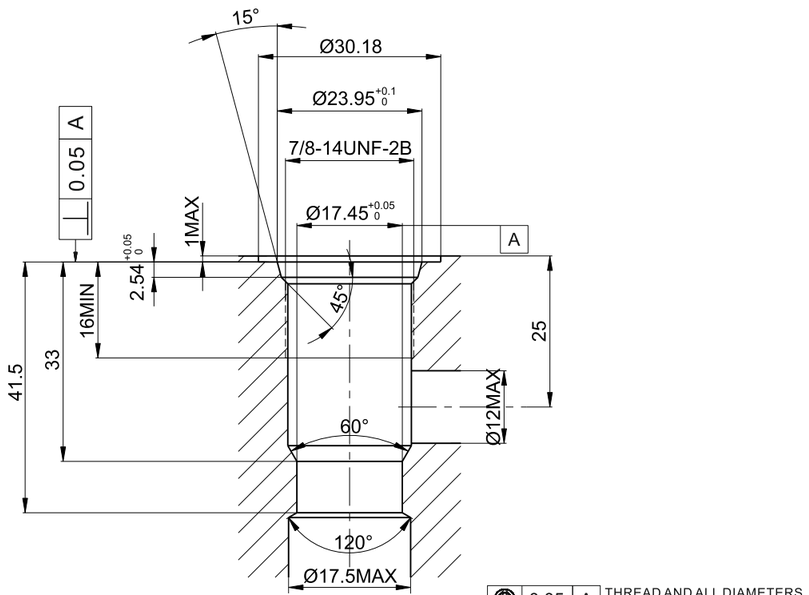


CAVITY:DRV-10S



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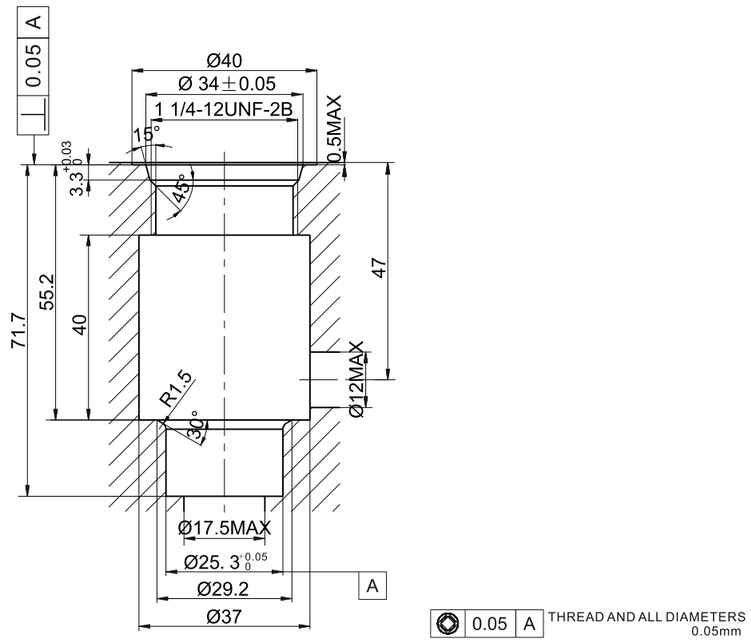
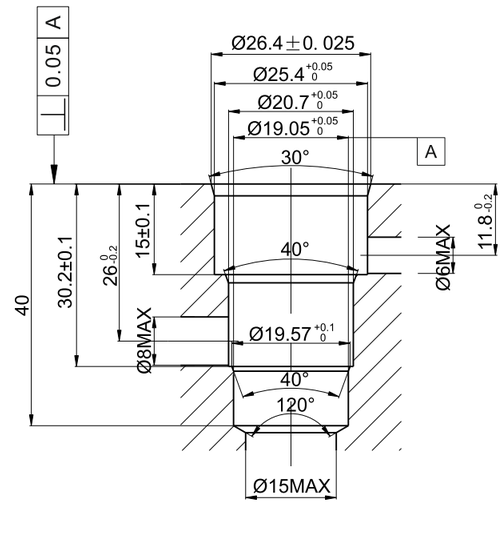
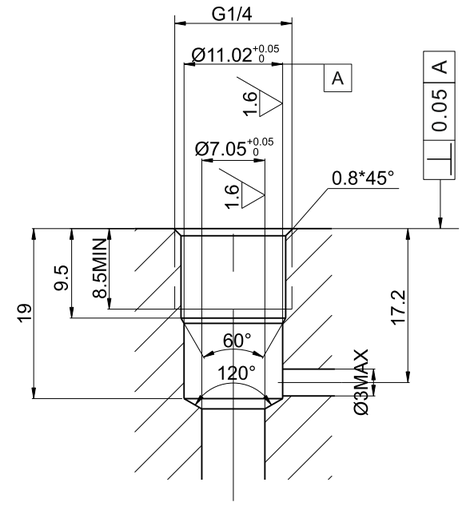


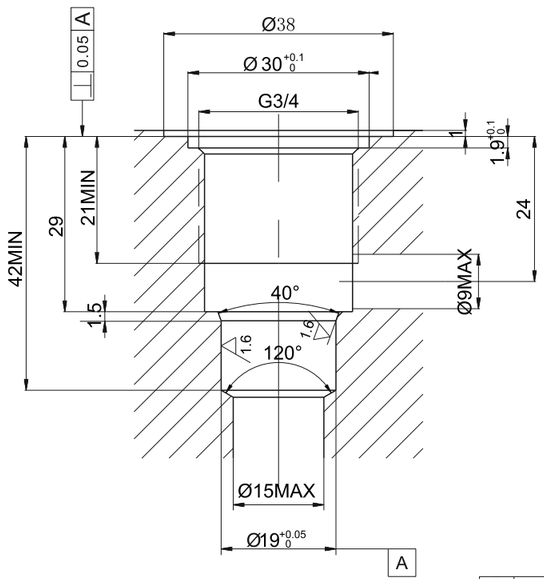
CAVITY:TS-01



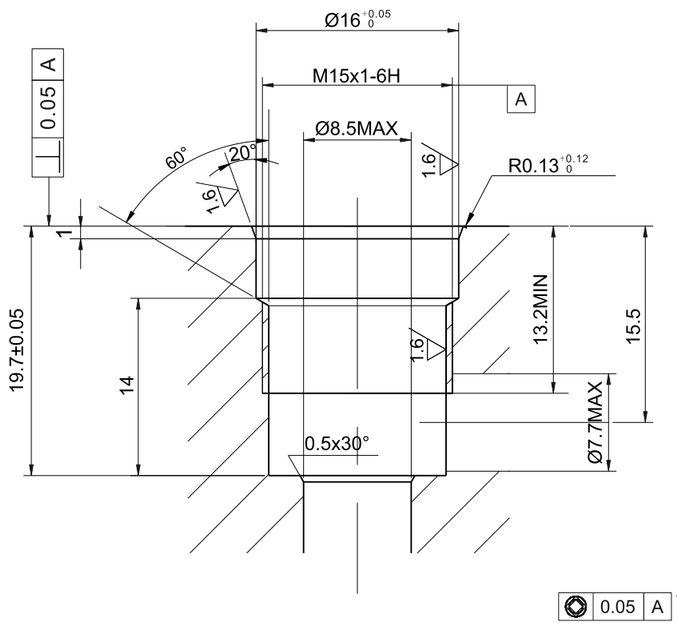
CAVITY:RV-G1/4



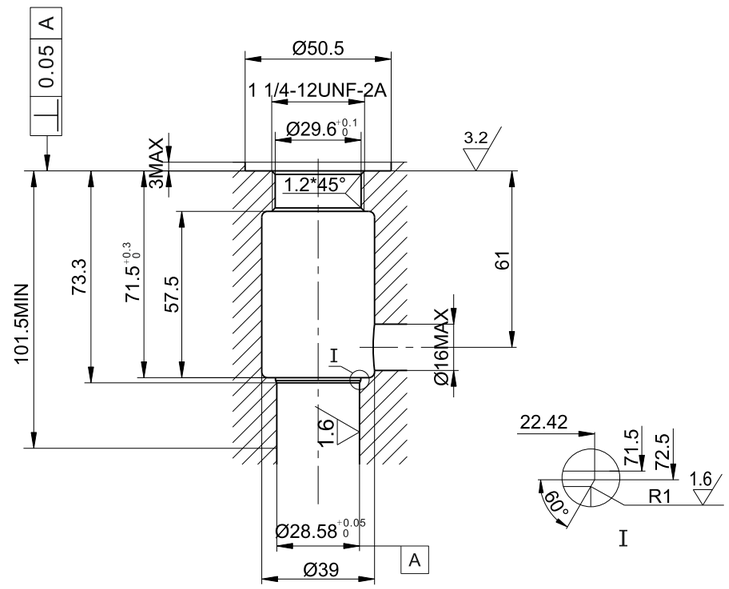
CAVITY:DVE-12



CAVITY:CV-06



CAVITY:RV-SDV70



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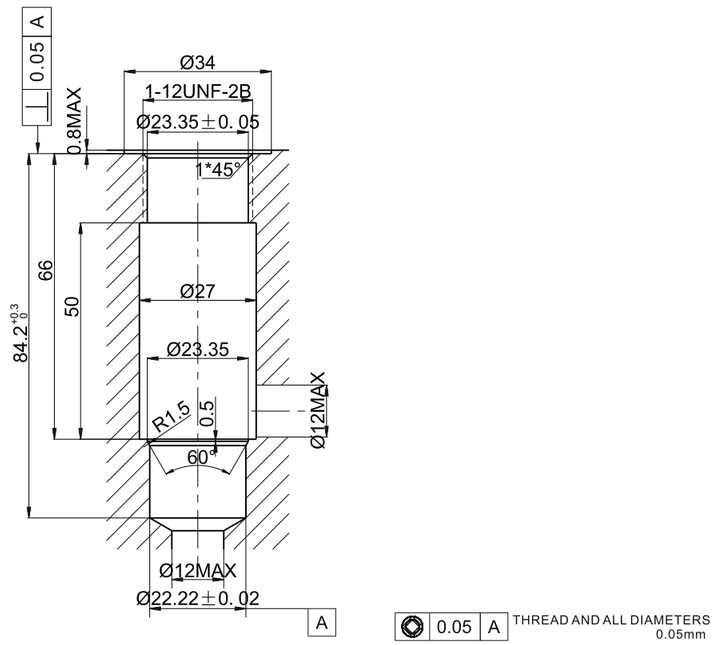
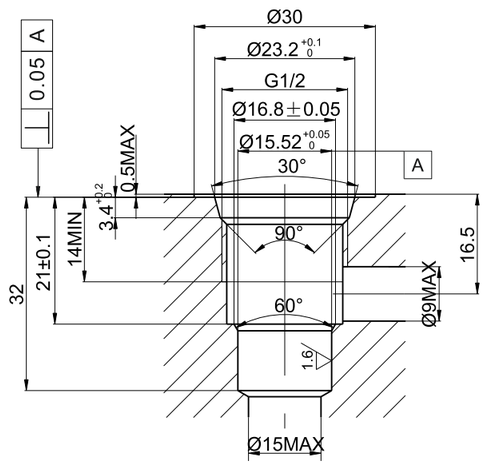


CAVITY:RV-G1/2



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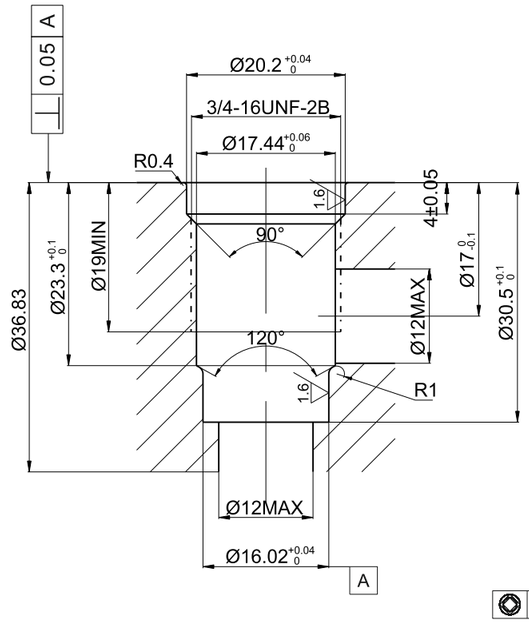
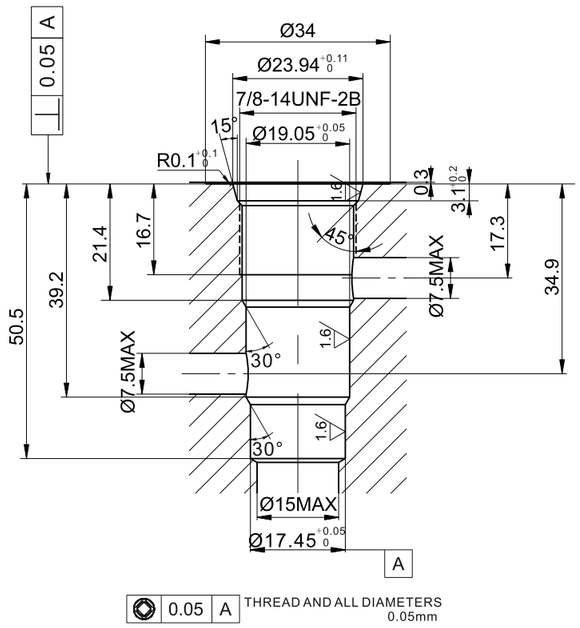
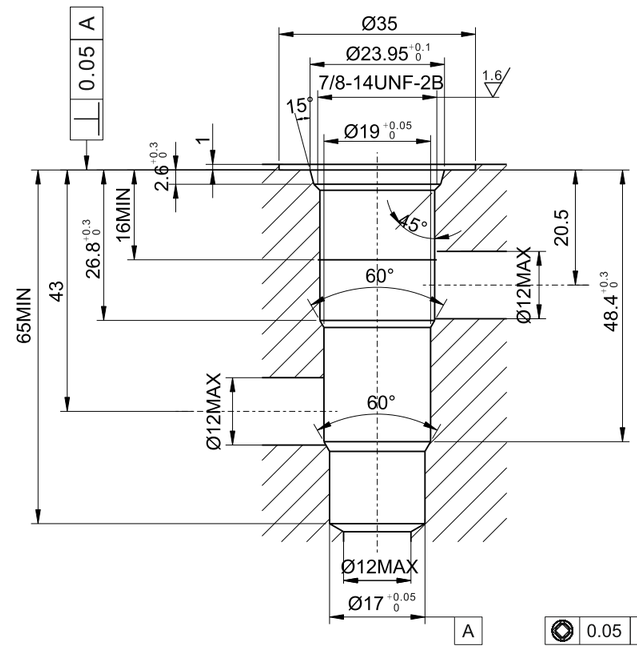


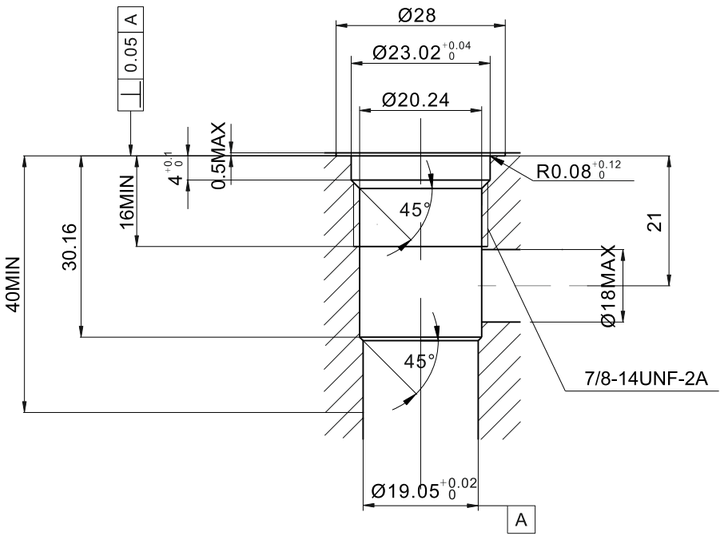
CAVITY:10-3D



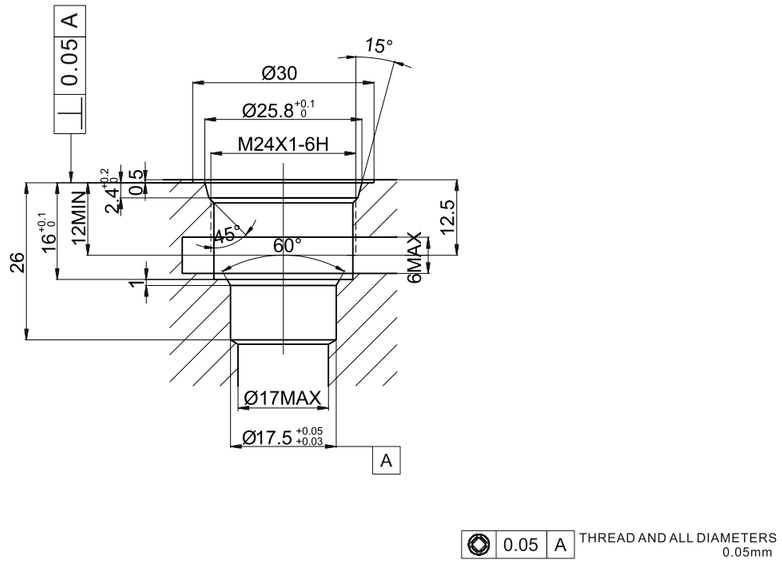
CAVITY:A5572



CAVITY:RV-LR



CAVITY:GZF-1/OR



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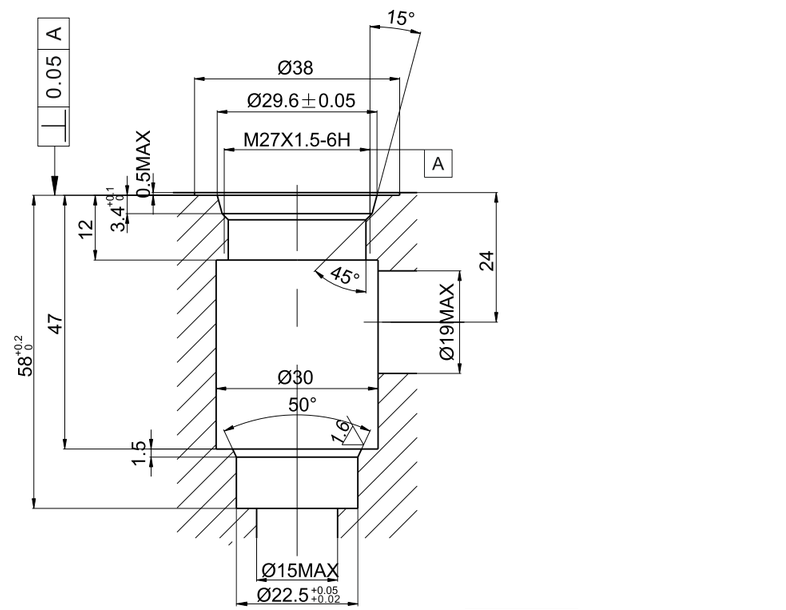

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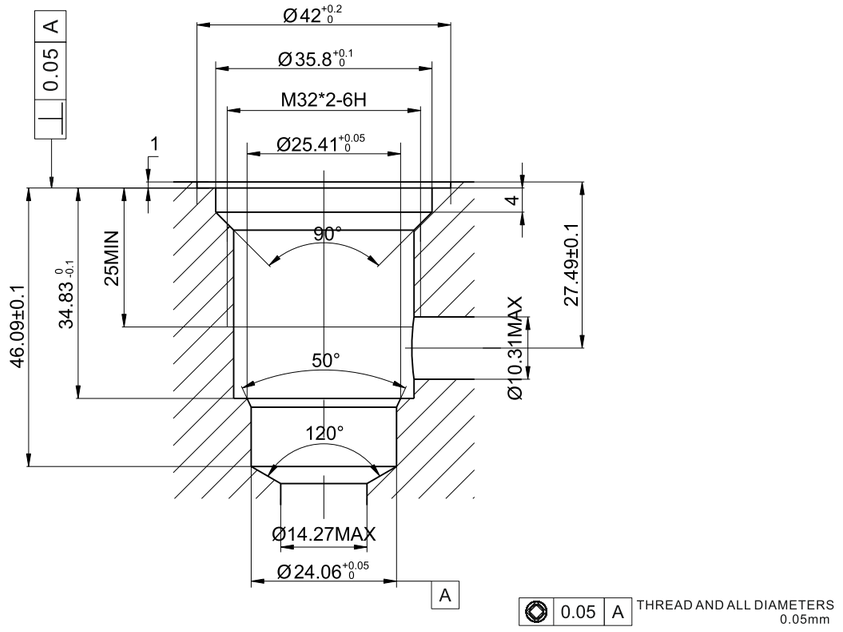

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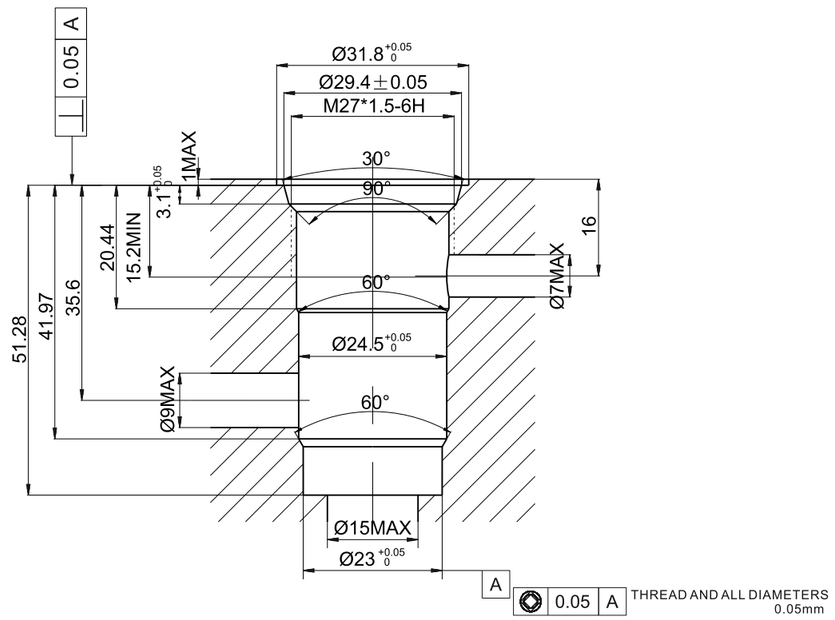

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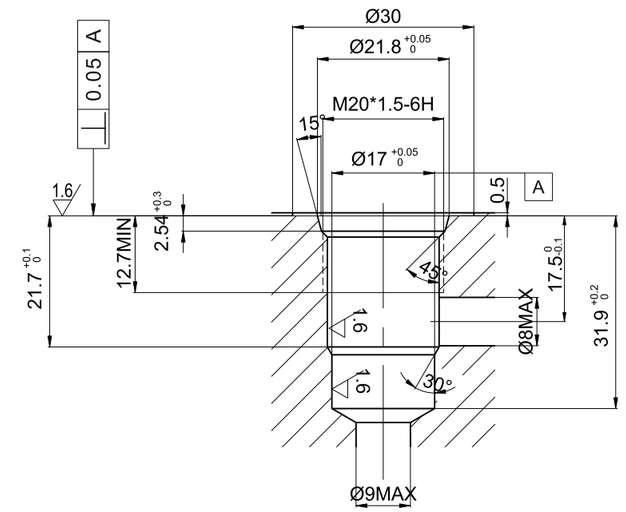

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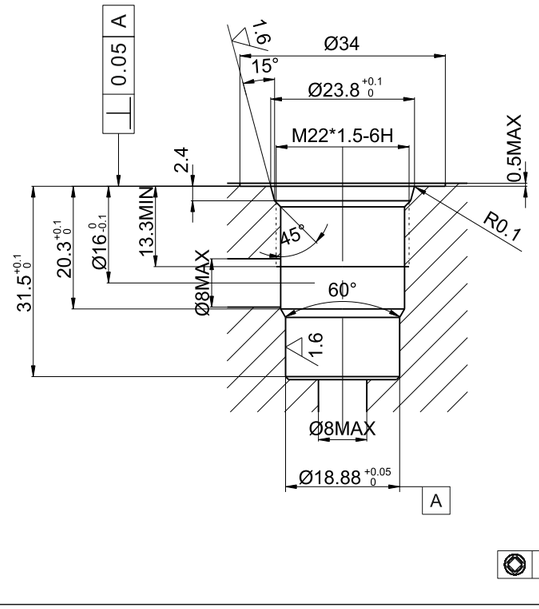

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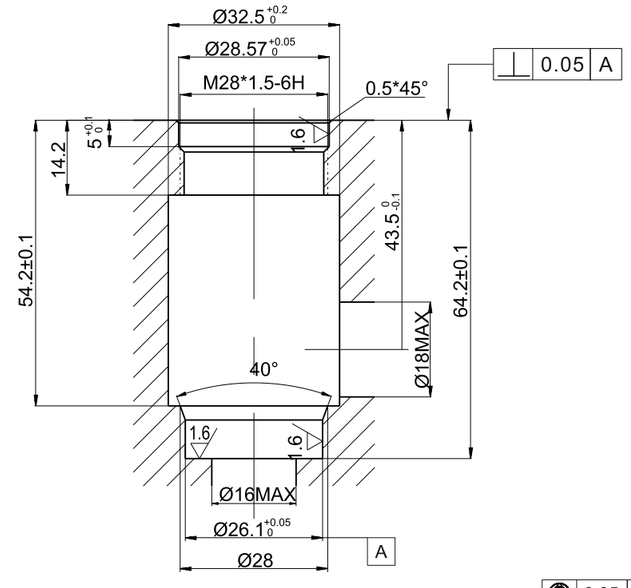

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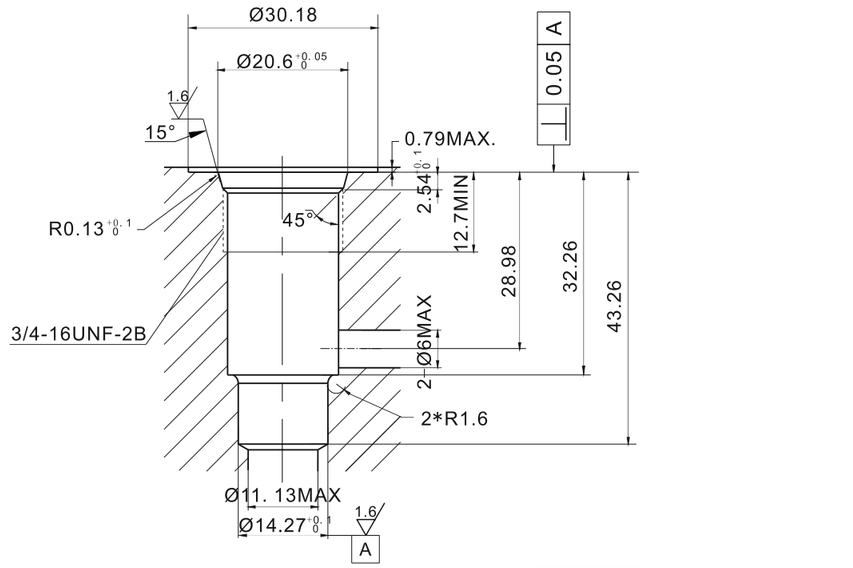

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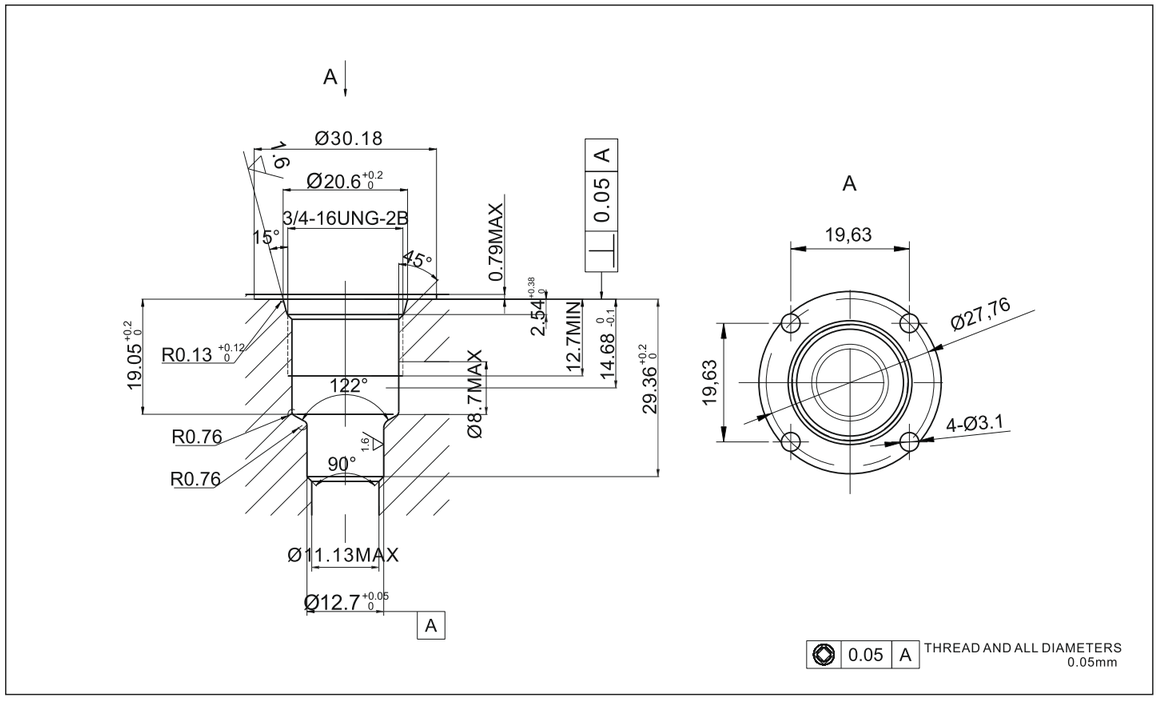

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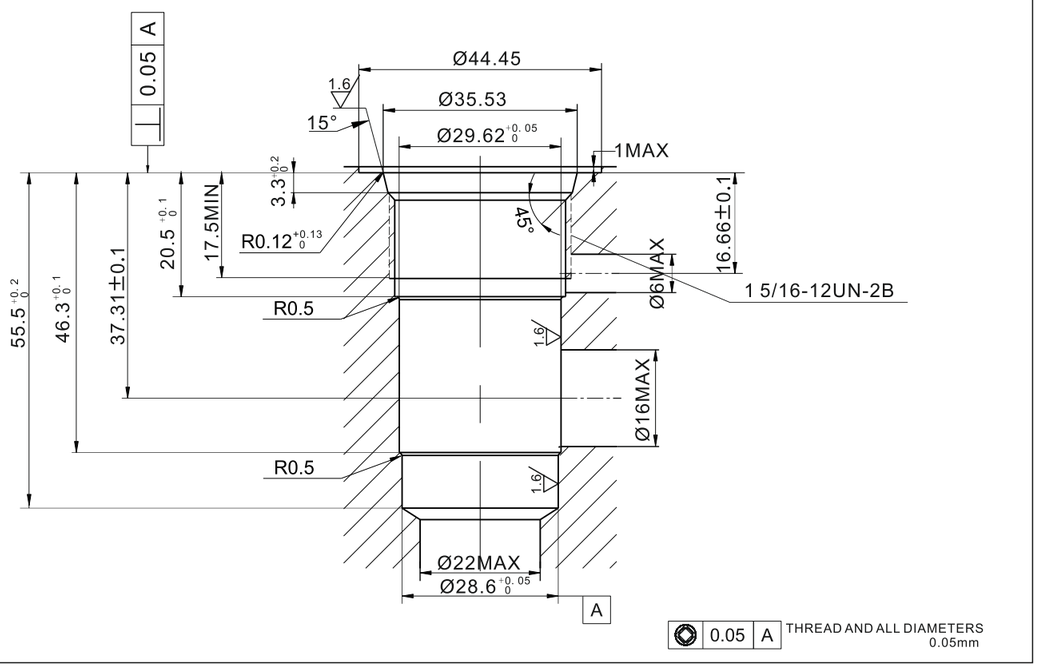

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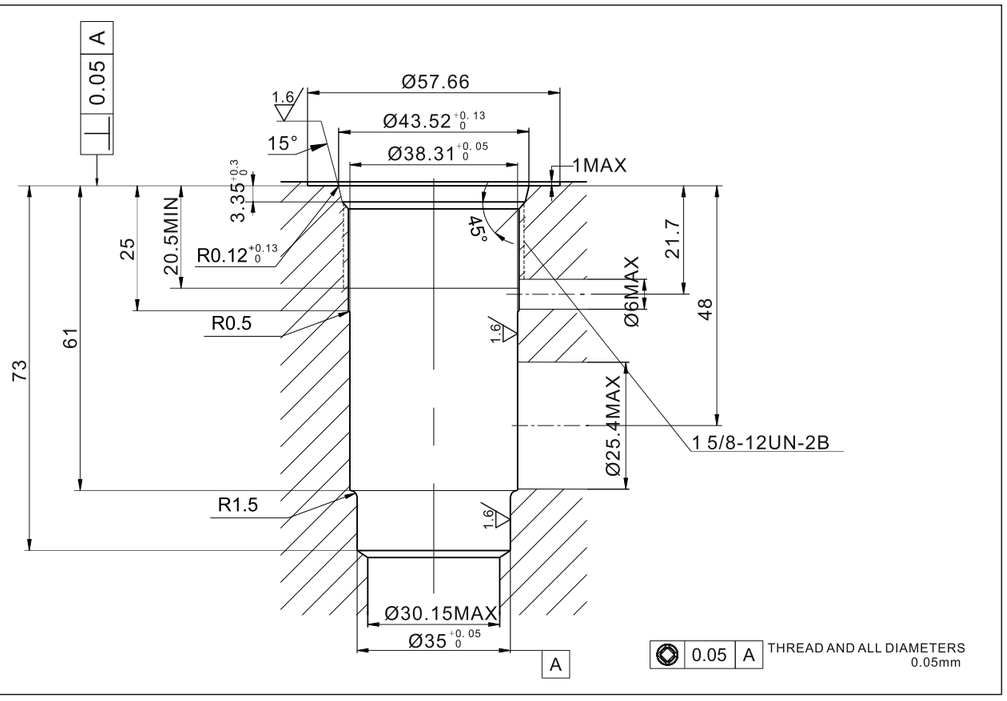

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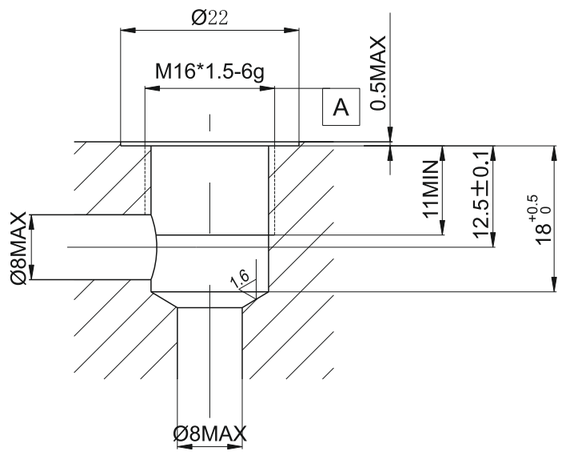

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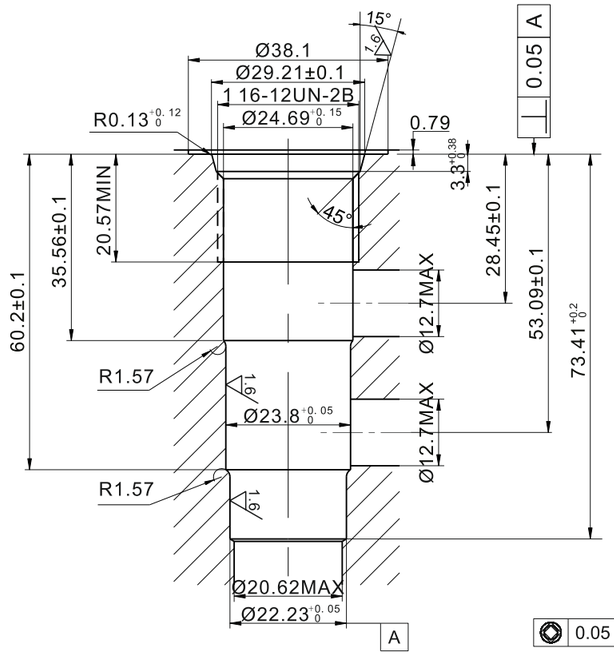

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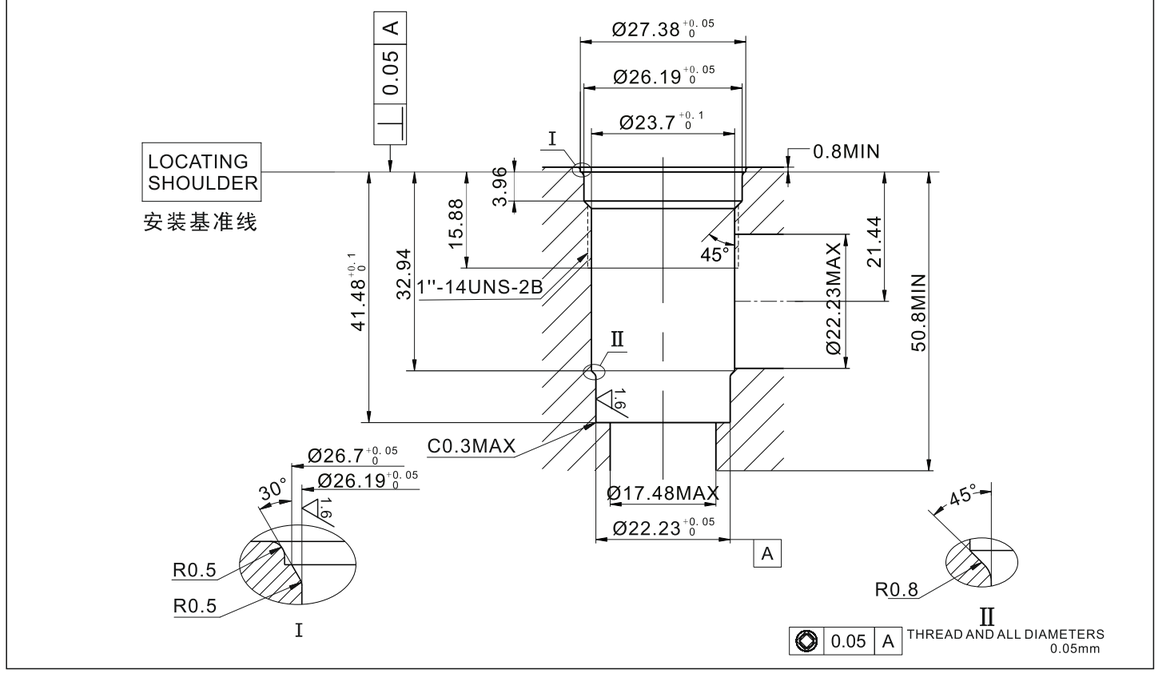

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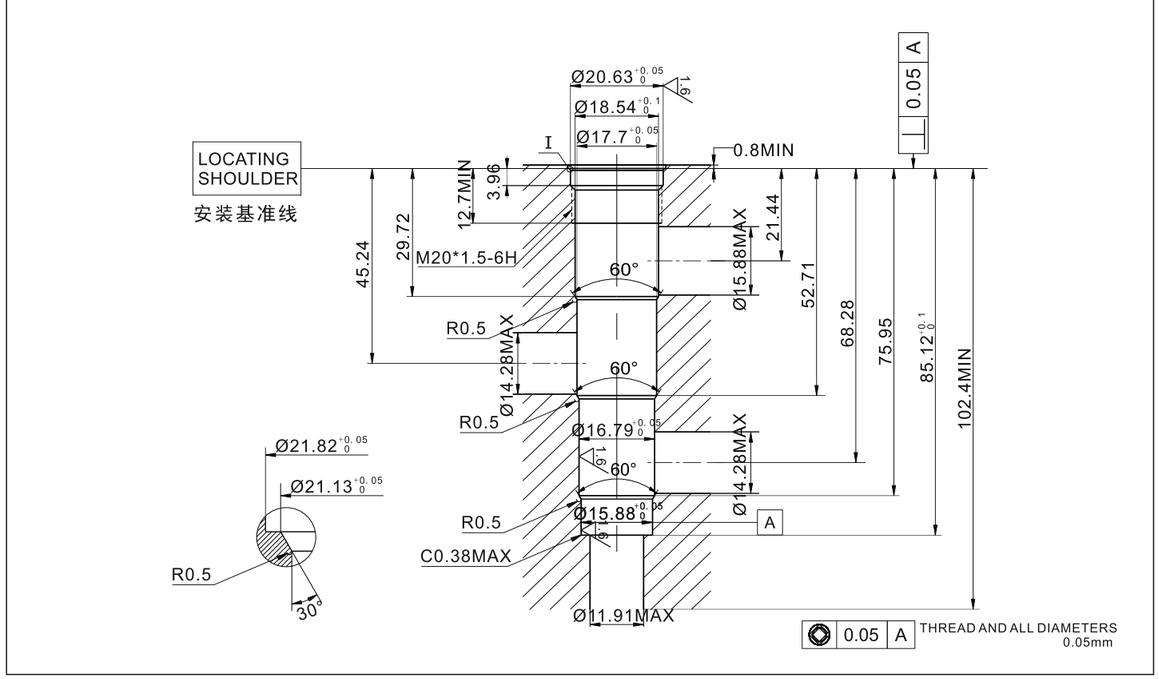

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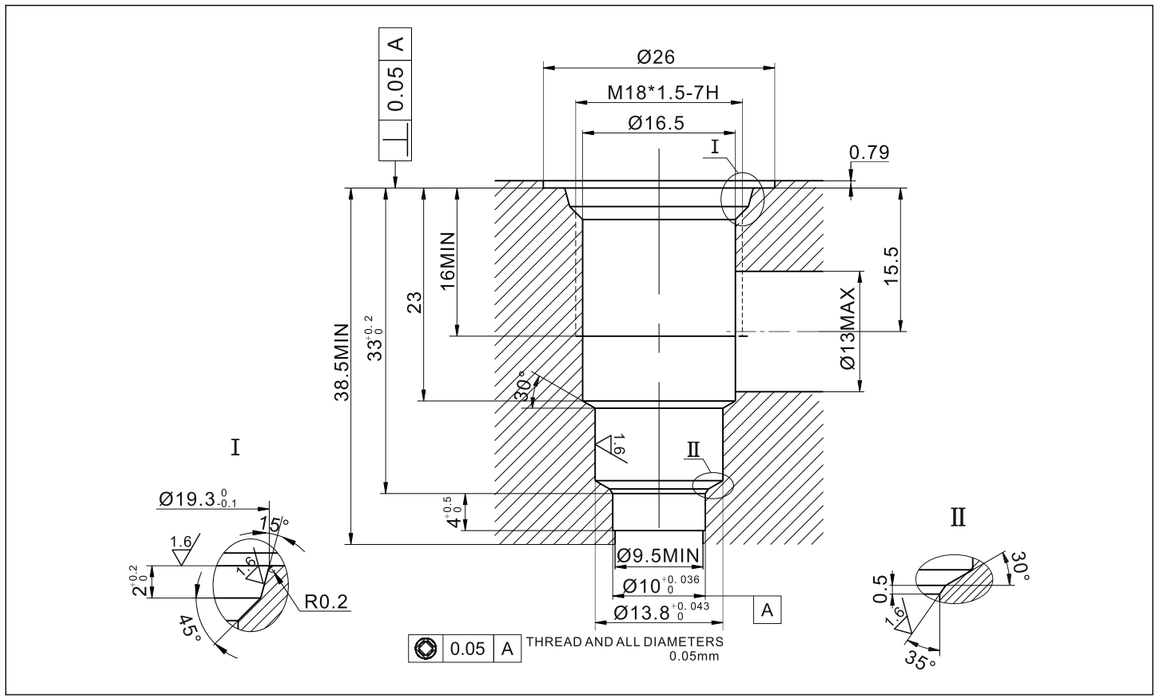

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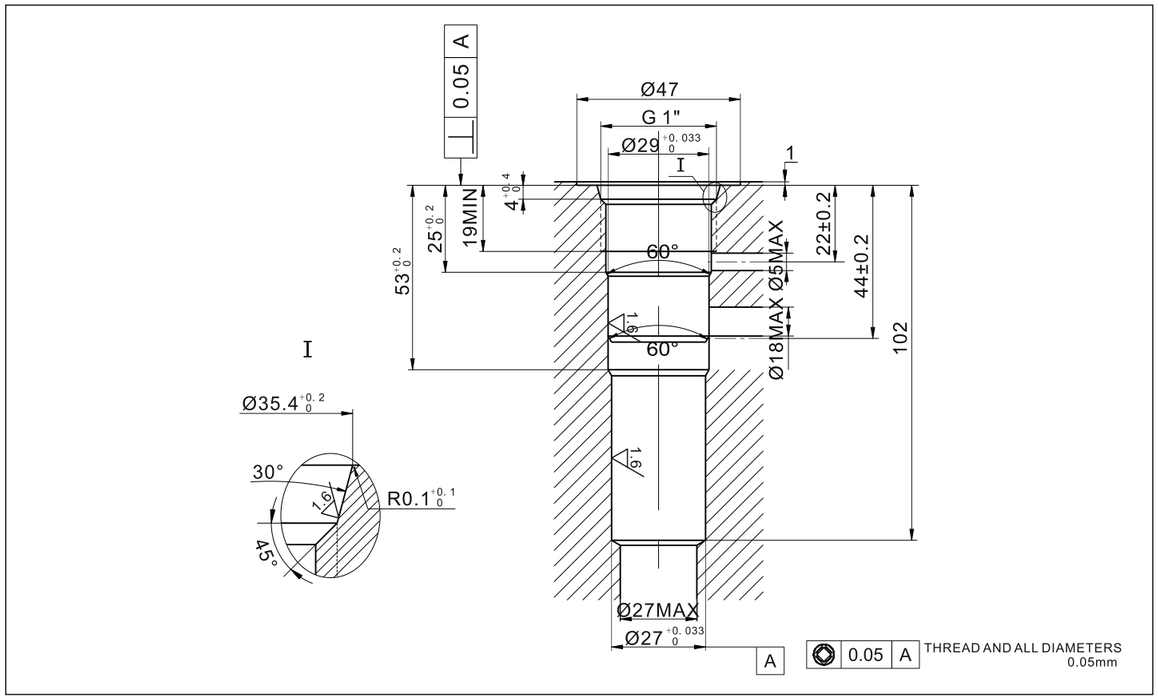

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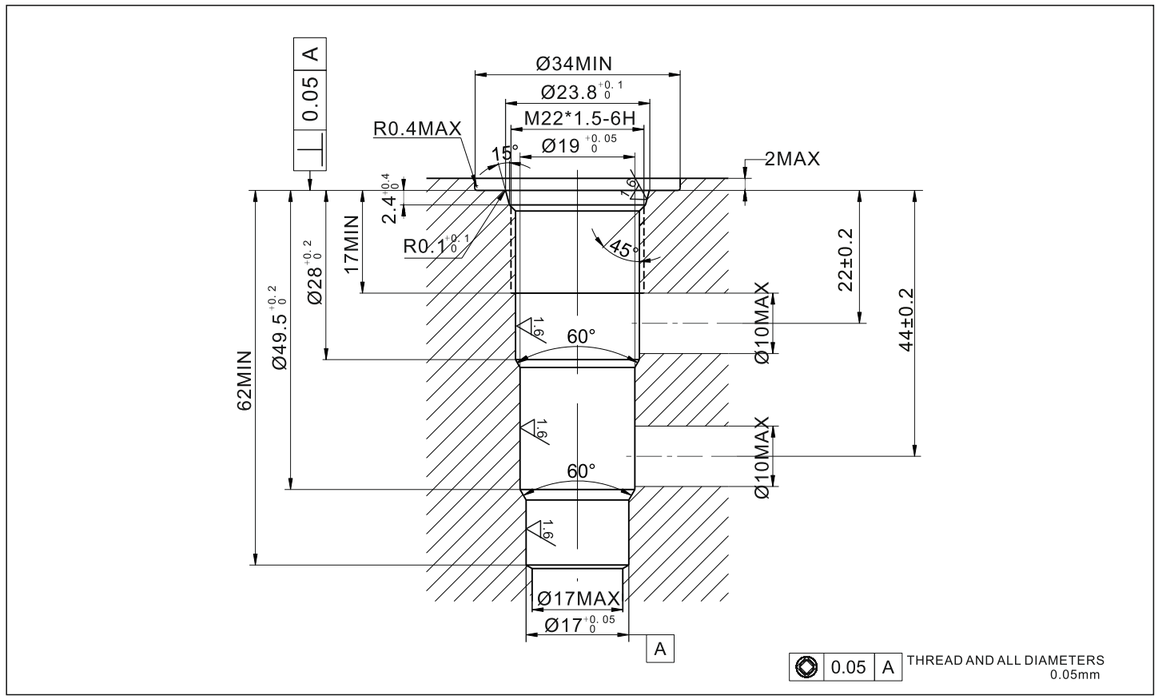

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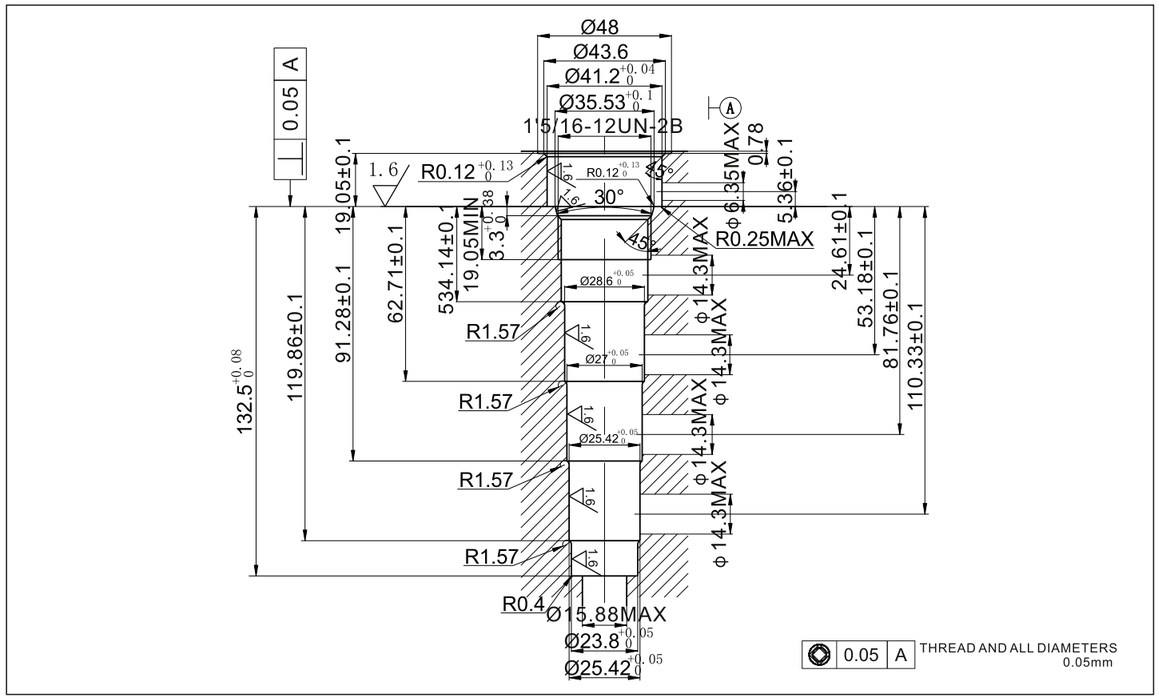

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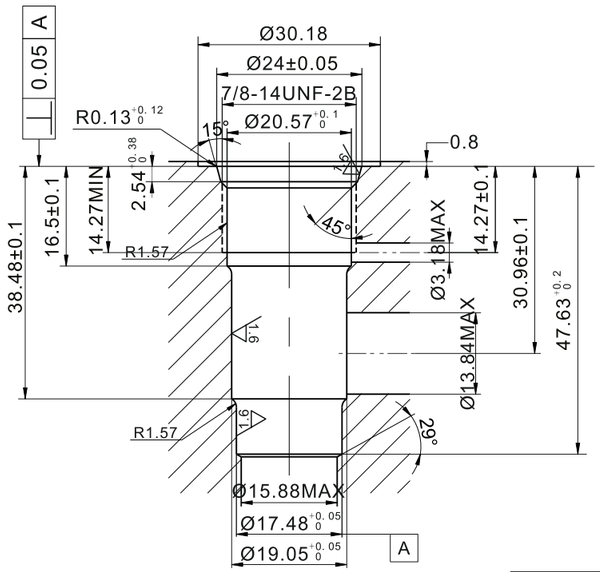

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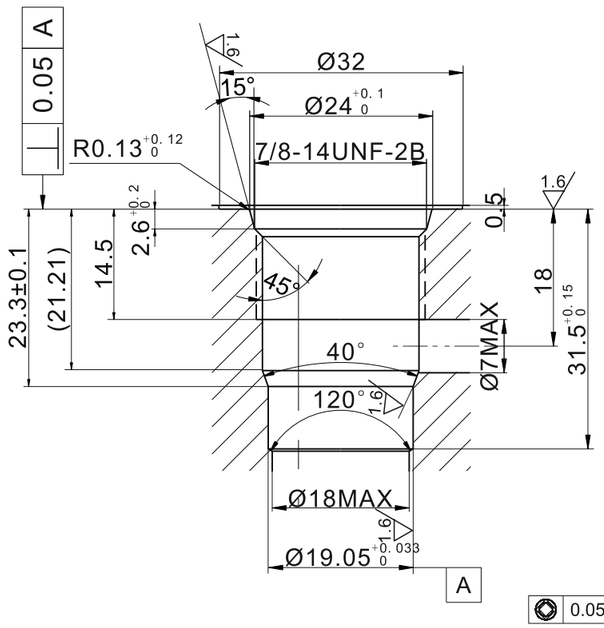

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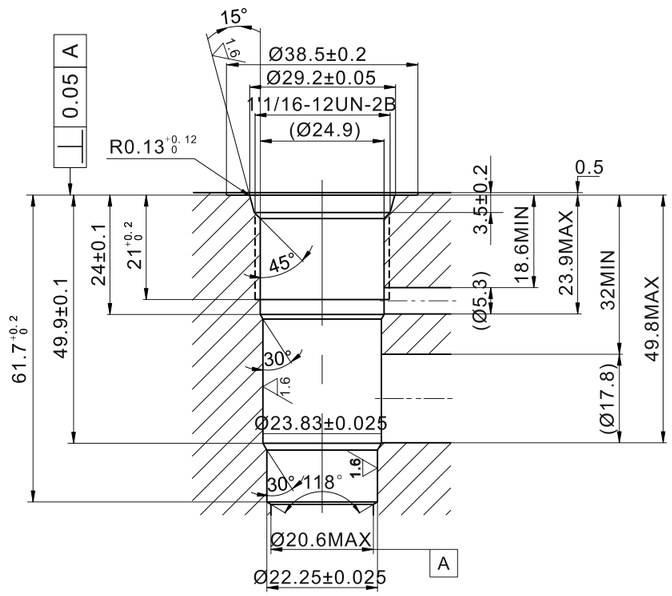

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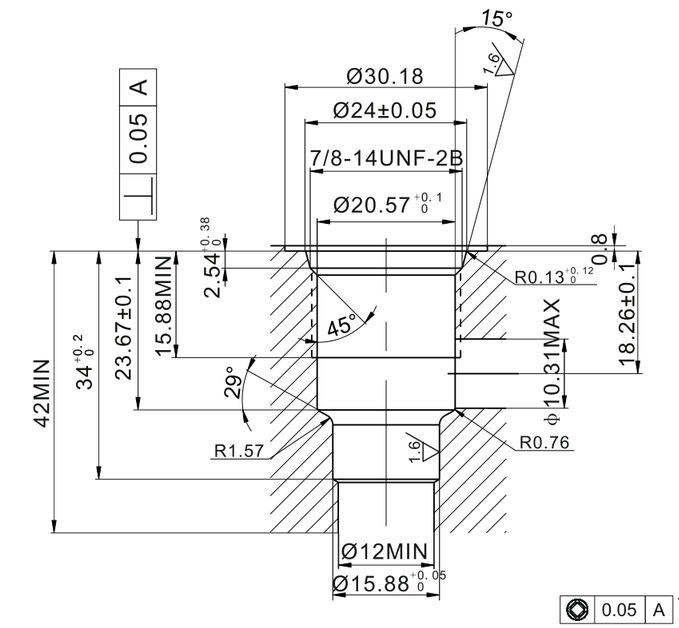

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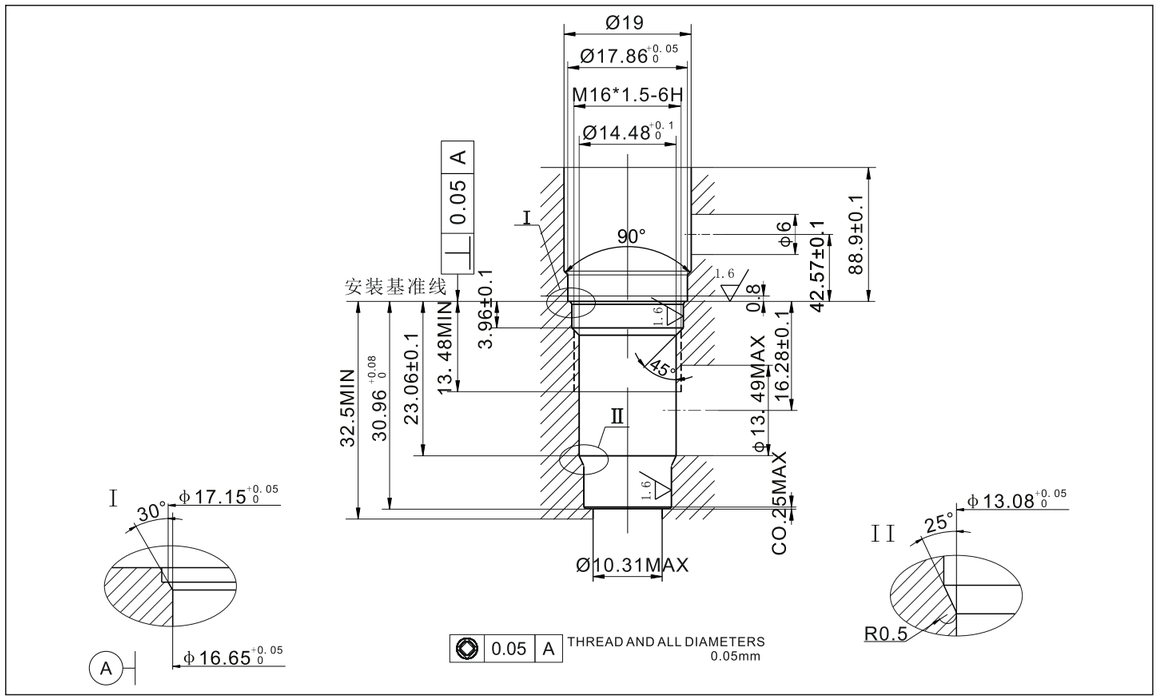

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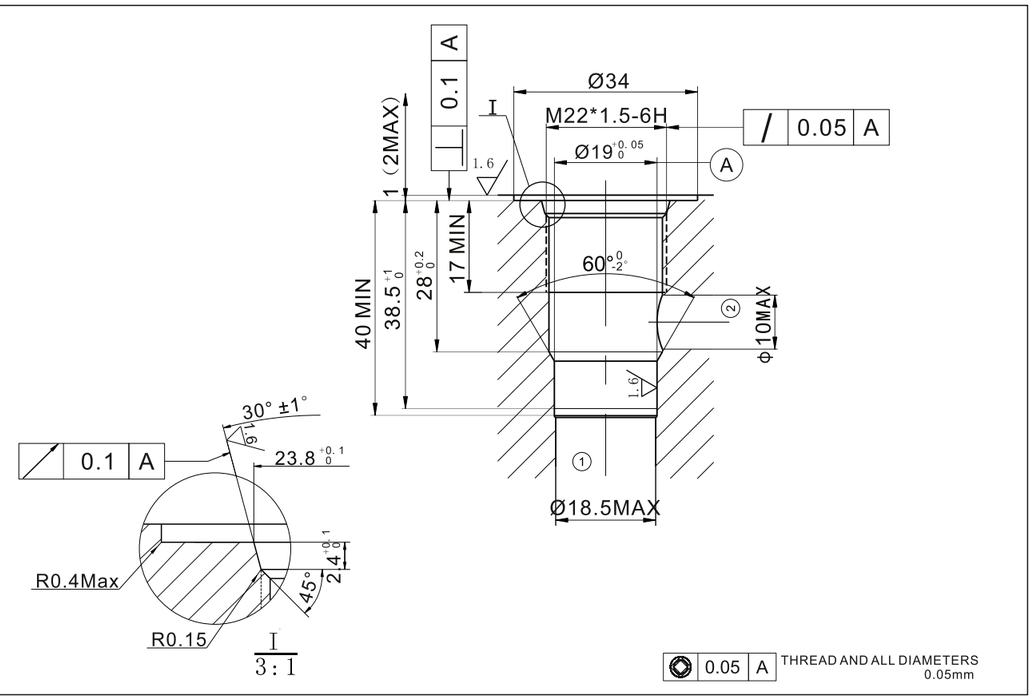

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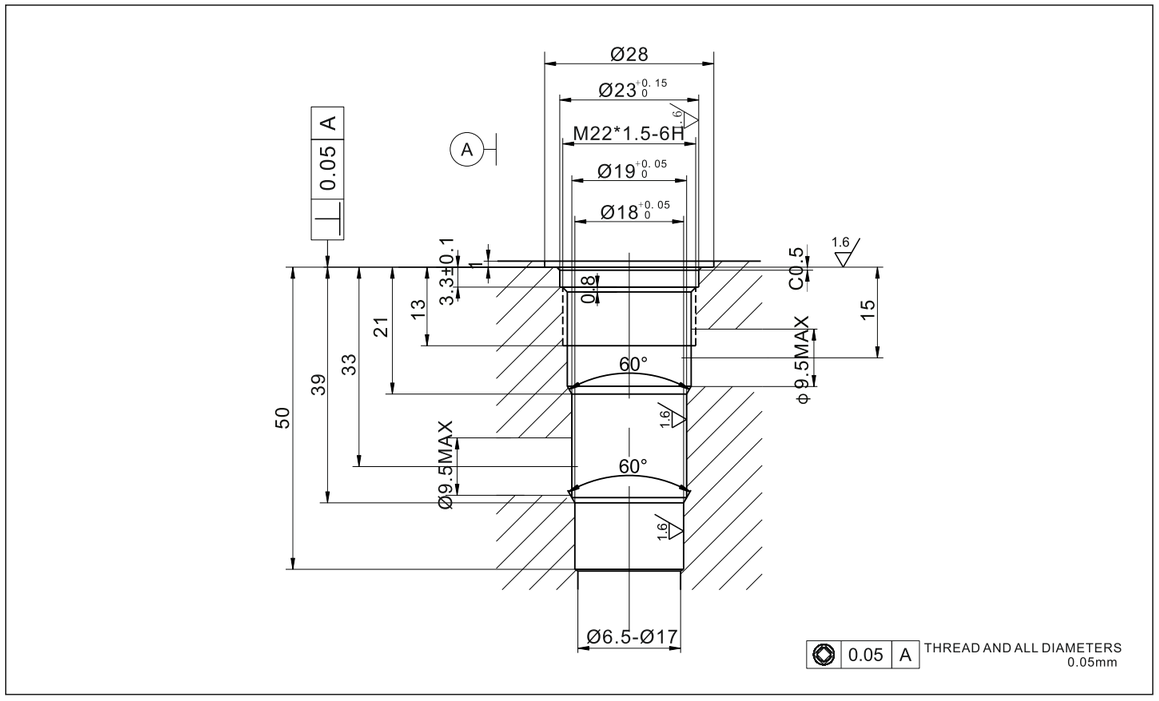

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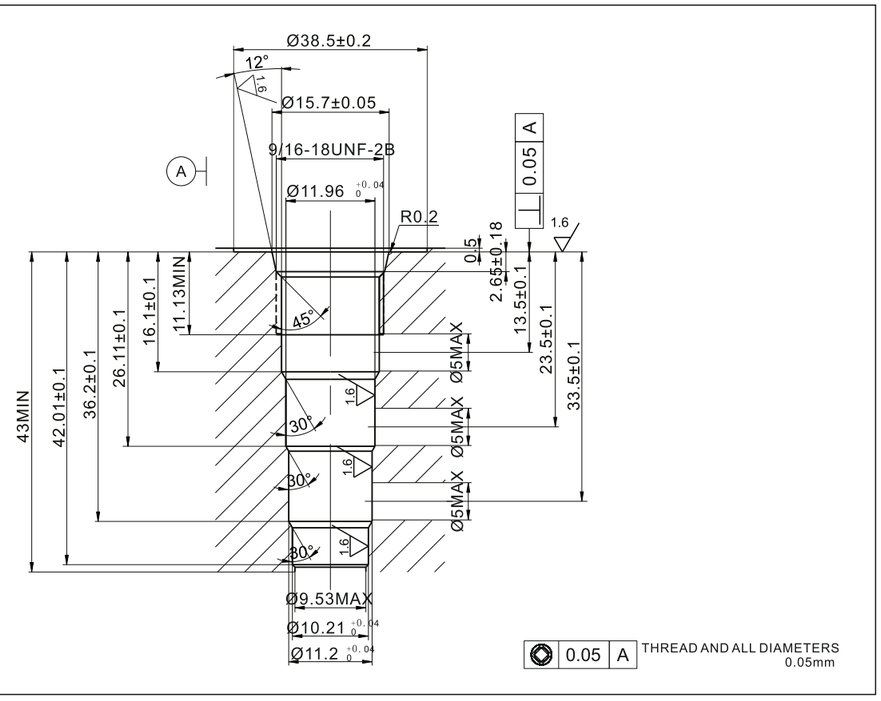

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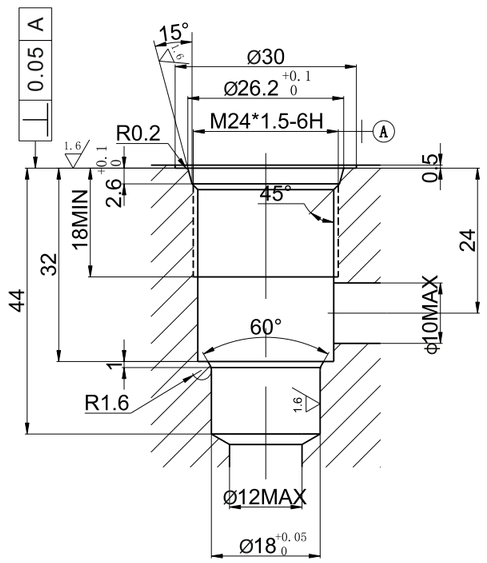
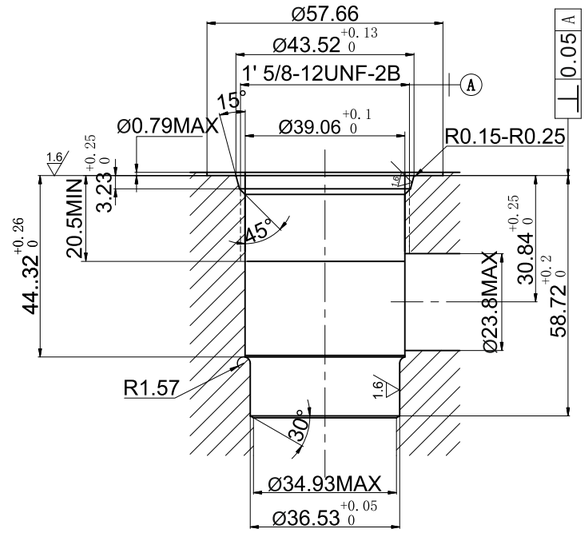


0.05 | A THREAD AND ALL DIAMETERS 0.05mm

CAVITY:VC20-2



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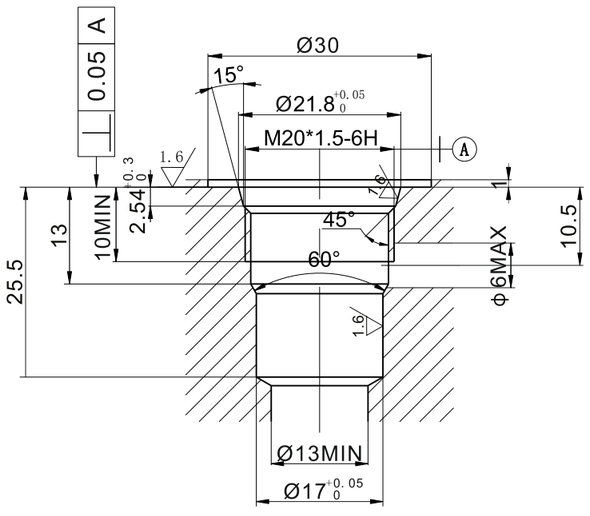

0.05 | A THREAD AND ALL DIAMETERS 0.05mm

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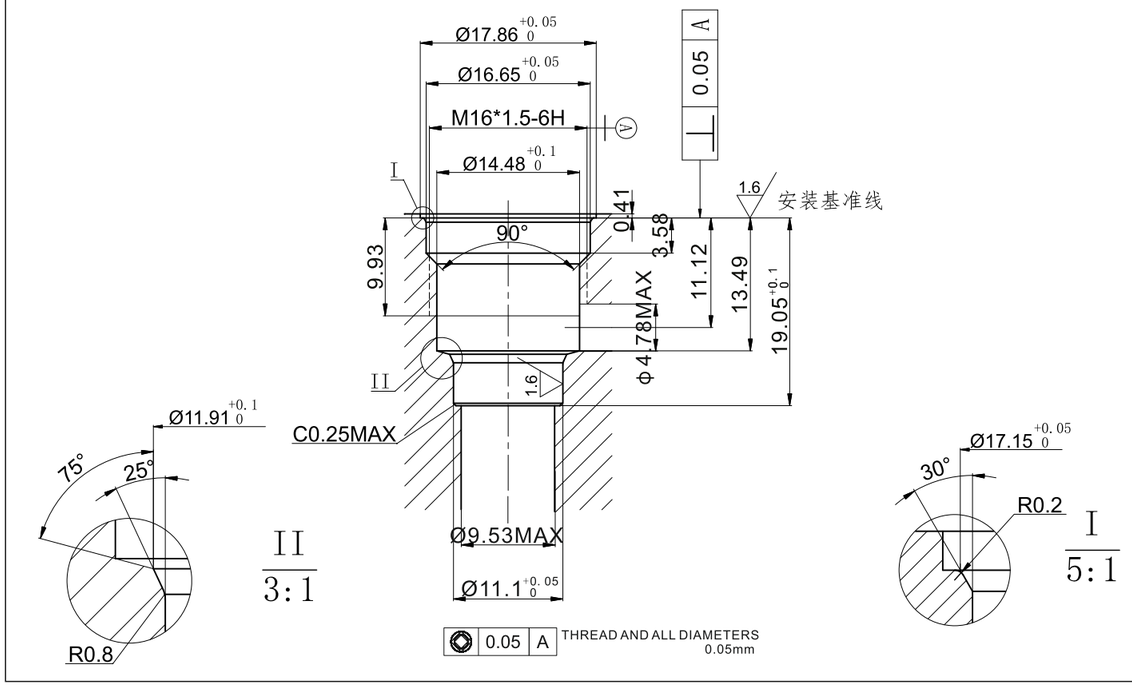

0.05 | A THREAD AND ALL DIAMETERS 0.05mm

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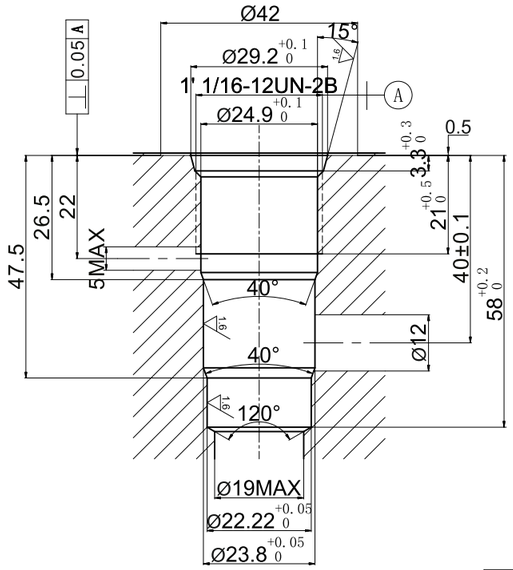

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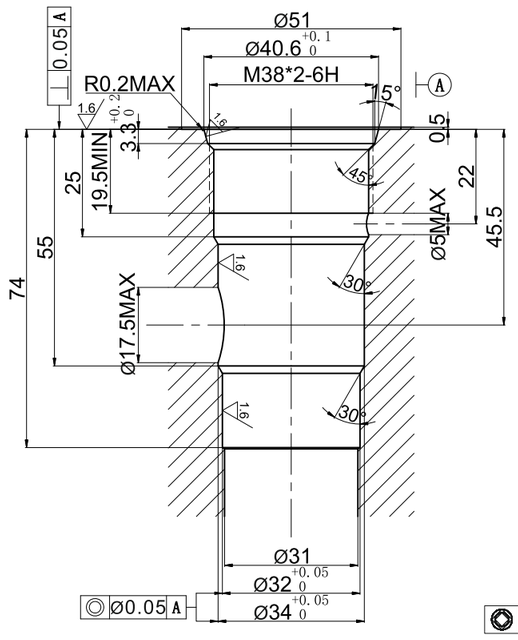

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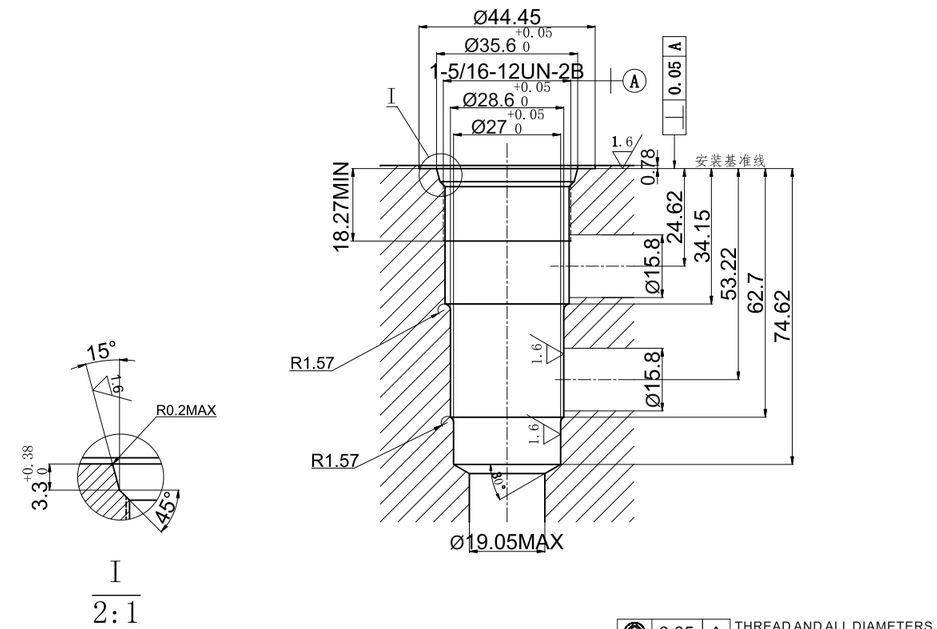

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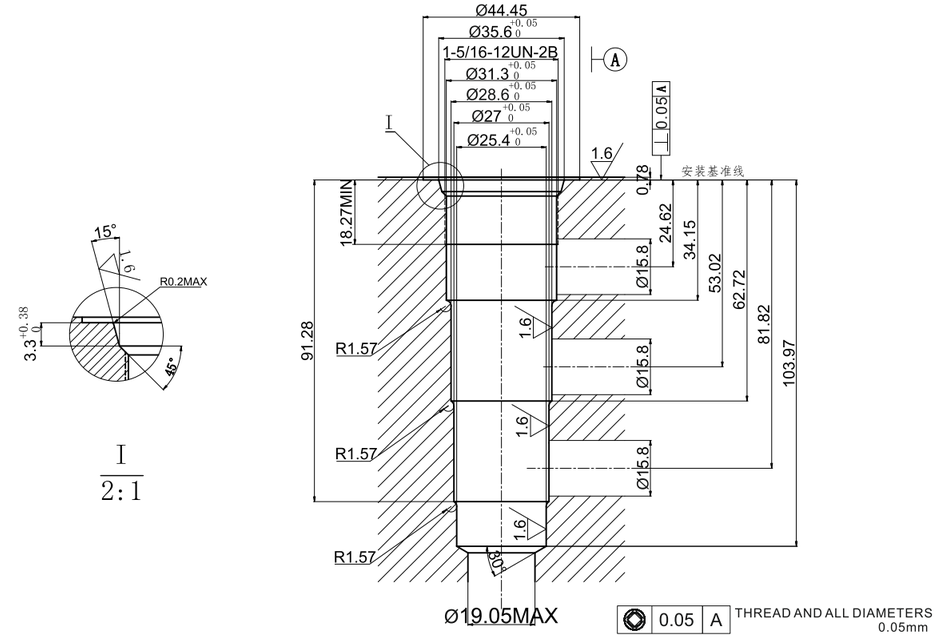

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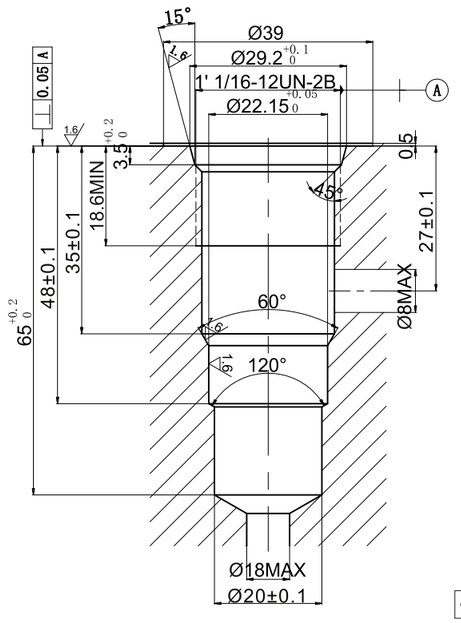

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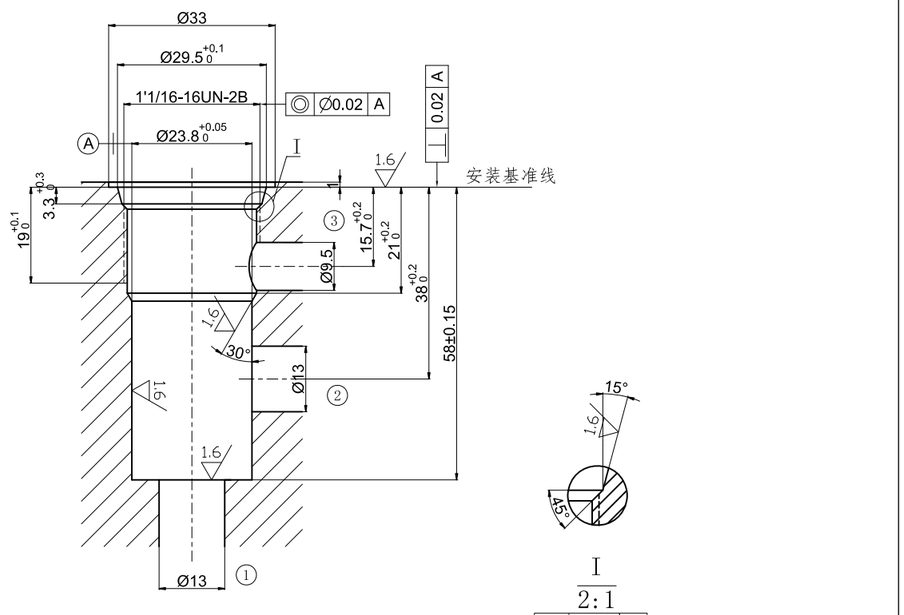

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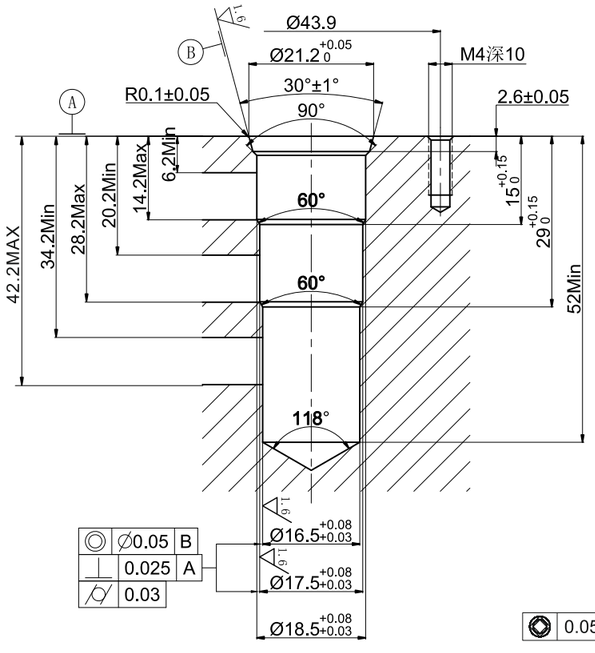

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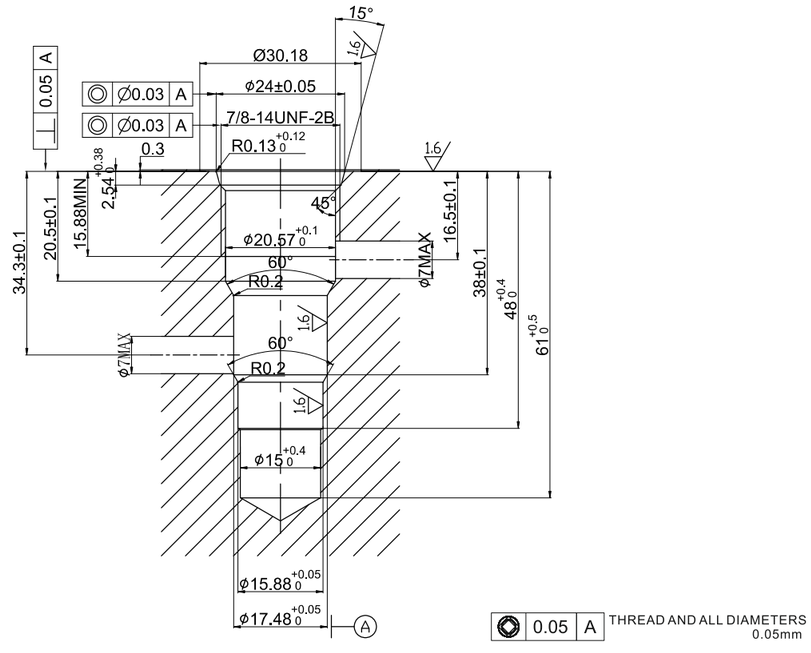

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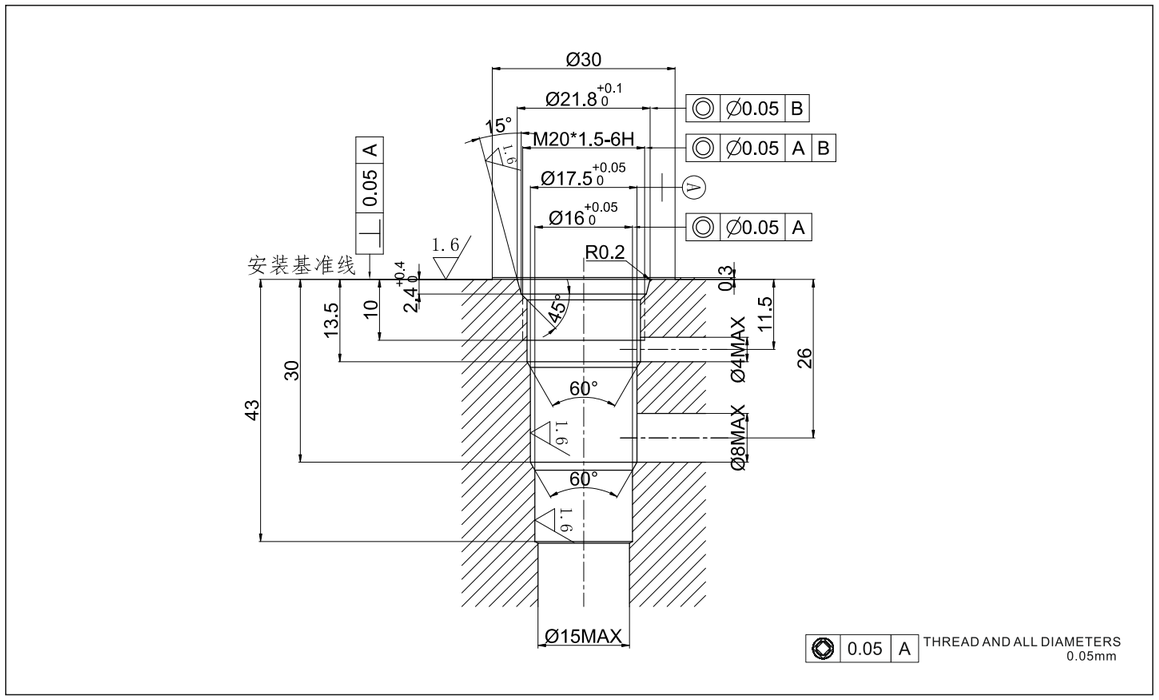

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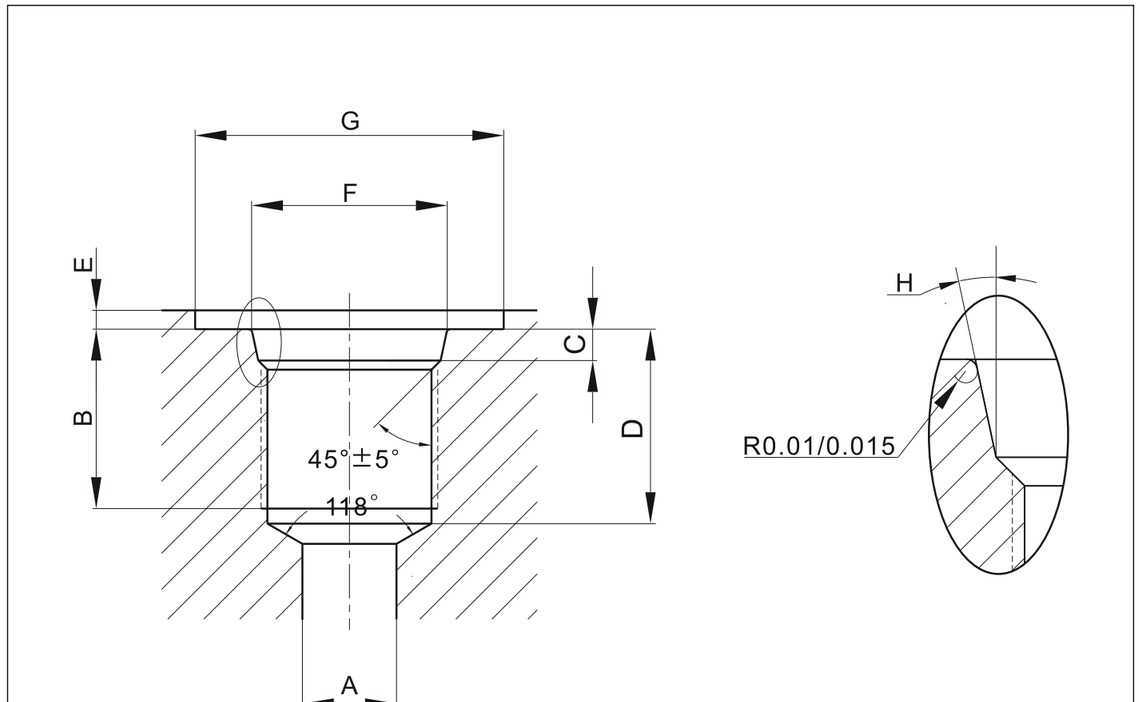

SAE	Nominal	Thread	A	B	C	D	E	F	G	H
Code name	Pipe Dia.	Specifications	(min)	(min)	(+. 015/−. 00)	(min)	(max)	(+. 005/−. 00)	(min)	(+/−1)
2T	1/8	5/16-24	0. 062	0. 390	0. 074	0. 468	0. 061	0. 358	0.672	12
3T	3/16	3/8-24	0. 125	0. 390	0. 074	0. 468	0. 062	0. 421	0.750	12
4T	1/4	7/16-20	0. 172	0. 454	0. 093	0. 547	0. 062	0. 487	0.828	12
5T	5/16	1/2-20	0. 234	0. 454	0. 093	0. 547	0. 062	0. 550	0.906	12
6T	3/8	9/16-18	0. 297	0. 500	0. 097	0. 609	0. 062	0. 616	0.969	12
8T	1/2	3/4-16	0. 391	0. 562	0. 100	0. 688	0. 094	0. 811	1.188	15
10T	5/8	7/8-14	0. 484	0. 656	0. 100	0. 781	0. 094	0. 942	1.344	15
12T	3/4	1 1/16-12	0. 609	0. 750	0. 130	0. 906	0. 094	1. 148	1.625	15
16T	1	1-5/16-12	0. 826	0. 750	0. 130	0. 906	0. 126	1. 400	1.929	15
20T	1 1/4	1-5/8-12	1. 063	0. 750	0. 130	0. 906	0. 126	1. 715	2.283	15

Note: Product technical information is subject to modification without prior notice.

Quality Assurance Statement

Introduction

THM company mainly produces various specifications of threaded cartridge valves such as check valves, throttle valves,balance valves, relief valves and other direction/pressure/flow control valves ,products are widely used in engineering machinery , hydraulic power units, nuTHMally controlled machine tools and other types of hydraulic systems.

Warranty

1. THM warrants to the original purchaser of its products that products are free from defects in workmanship and material,when operated under normal conditions. This warranty shall be in effect for a period of 12 months after the first installation of the Product, but not exceeding 20 months from the date of manufacture as indicated by the date code stamping on the valve.
2. This warranty extends only to the original purchaser of the product and is not transferable. The warranty period of the repaired or replaced products shall decrease of the period that original products have already enjoyed.
3. Seals and O-rings are expressly excluded from this warranty statement.
4. This warranty excludes products not of THM manufacture which may be included as adjunctive products in manifold or systems. These products specifically include, but are not limited to, other manufacturers'cartridge valves, subbase-type valves, electronic connectors, sensors, controls, fittings and filters. If these products carry original manufacturers' warranties, the warranty pass through THM to the original user as provided within the original manufacturers' warranty.
5. This warranty will not apply to products that have been subject to conditions of contamination in the customer's hydraulic circuit, or to products which have been incorrectly handled, fitted, used or modified/disassembled without THM's supervision or authorization.

Declaration:

1. This document and other information from THM's website and catalogs are intended to operate in conjunction with further investigation by trained users having appropriate technical and mechanical expertise to facilitate the safe handling and use of THM products. THM products are not intended to be used or handled by anyone other than trained users having appropriate technical and mechanical expertise. The information contained in our catalog and website, provided for technical illustration purpose only, and may not be used or relied upon as a statement of suitability for use in any particular application. Users, through their own analysis and testing, are solely responsible for following items.
   1 .1 Final selection of THM products
   1.2 Assuring that THM products are used in a safe and intended manner with all performance, endurance, maintenance, safety, and warning requirement necessary for safe application being met;
   1.3 Determining that THM products data and specifications are suitable and sufficient for all intended application and reasonable foreseeable uses
2. All THM products are subject to the necessary checks/tests in various production phases in order to guarantee compliance with the specifications and settings shown in the catalog, drawings, and/or technical data sheets. Since products are in continuous improvement, information and specification are subject to change without further notice.
3. wide range of variants and operation conditions of the equipment manufactured by the customers, THM does not assume any liability for the results of tests performed by third party. The customer is therefore responsible for the final choice of the valve and for the adoption of all the measures required to achieve the functional and safety specifications of the system in which the products is to be installed, in addition to the compliance with any specific regulation or standard applicable to the system in question.
4. In spite of THM's continuous concern to provide top quality products, the production of valves at competitive market prices cannot ensure the total absence of defects. If the valve supplied is to be fitted in assembly plants potentially capable of causing damages to third parties of magnitude significantly greater than the cost of the valve itself, it is the customer's responsibility to adopt all the possible safety measures in order to avoid any such damages.
5. Since the use of the information contained in THM product documentation (including this document), and the conditions under which THM products are used are beyond the control of THM company, it is the obligation of each user of THM products to carefully read and understand this document and all other THM product documentation, and to determine the correct and safe methods of installation, inspection, testing, operation, and maintenance of THM products.

THM HYDRAULICS

Application Limitations

Application Limitation

1 Without obtaining written approval from General Manager of THM Company, the customer is expressly prohibited from using THM products in the following applications (include but not limited to):
1.1 On-highway or railway vehicles carrying passengers or goods, such as (without limitation) steering or brake system;
1.2 Aircraft or space vehicles;
1.3 Ordnance Equipment, or nuclear facility equipment;
1.4 Medical and health products, including life support equipment or vehicles;
1.5 Amusement rides;
1.6 Non-oil-based hydraulic fluids;
1.7 Explosive or hazardous environment;
2 Under any circumstance, THM shall not be held responsible for following items,
2.1 Loss of profit, or any other contingent, consequential, or special damages;
2.2 Costs of disassembly and reassembly of the products, nor for any damages connected with such operation;
2.3 Costs related to the fitting of the repaired or replaced valves, including losses of earnings related to machine being temporarily out of service