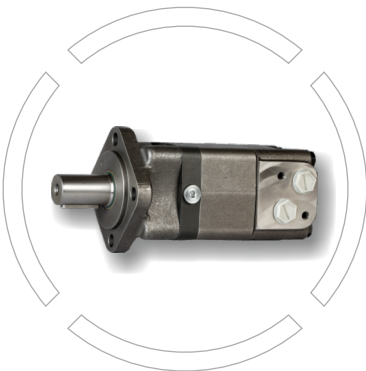


BMSY

Orbital Hydraulic Motor
Sizes: 80 to 475cc/rev
Max. Pressure up 210Bar

Revised as on 16.10.2025



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Introduction

- BMSY new series motor adapt the advanced Geroler gear set designed with disc distribution flow and high pressure. The unit can be supplied the individual variant in operating multifunction in accordance with requirement of applications.
- Characteristic features:
 - Advanced manufacturing devices for the Geroler gear set, which use low pressure of start-up, provide smooth and reliable operation and high efficiency.
 - The output shaft adapts in tapered roller bearings that permit high axial and radial forces. The case can offers capacities of high pressure and high torque in the wide of applications.
 - Advanced design in disc distribution flow, which can automatically compensate in operating with high volume efficiency and long life , provide smooth and reliable operation.
 - The new series motor is suitable for vehicles with greater loads and pressure drop.
- Main Specification:

Type		BMSY BMSYS 80	BMSY BMSYS 100	BMSY BMSYS 125	BMSY BMSYS 160	BMSY BMSYS 200	BMSY BMSYS 250	BMSY BMSYS 315	BMSY BMSYS 400	BMSY BMSYS 475
Geometric displacement (cm ³ /rev.)		80.6	100.8	125	154	194	243	311	394	475
Max. speed (rpm)	cont.	800	748	600	470	375	300	240	185	155
	int.	988	900	720	560	450	360	280	225	185
Max. torque (N•m)	cont.	225	290	365	485	586	708	880	880	910
	int.	305	390	480	590	705	860	1000	980	990
Max. output (kW)	cont.	16	18	18	18.1	18.1	18	17	11	9
	int.	20	22	23	25	24	23.8	20.2	12	11
Max. pressure drop (MPa)	cont.	20.5	20.5	20.5	21	21	20	20	16	14
	int.	27.5	27.5	27.5	26	25	25	24	19	15
	peak	29.5	29.5	29.5	28	27	27	26	21	17.5
Max. flow (L/min)	cont.	65	75	75	75	75	75	75	75	75
	int.	80	90	90	90	90	90	90	90	90
Max. inlet pressure (MPa)	cont.	25	25	25	25	25	25	25	25	25
	int.	30	30	30	30	30	30	30	30	30
Weight (kg)		9.8	10	10.3	10.7	11.1	11.6	12.3	13.2	14.3

- Continuous pressure :Max. value of operating motor continuously.
- Intermittent pressure :Max. value of operating motor in 6 seconds per minute.
- Peak pressure :Max. value of operating motor in 0.6 second per minute.



Performance Data

BMSY80 [80.6cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

3.5	7	10.5	14	17.5	20.5	22.5
-----	---	------	----	------	------	------

Flow (L/min)	15	35	80	120	158	195	228	249
		180	174	168	164	158	151	143
	30	362	352	346	338	330	322	310
	40	487	480	468	457	446	438	425
	50	612	603	592	581	572	558	542
	60	735	726	718	703	687	673	646
Max.cont.	65	794	786	773	760	744	722	706
Max.int.	80	981	968	955	925	893	870	832

BMSY100 [100.8cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

3.5	7	10.5	14	17.5	20.5	22.5
-----	---	------	----	------	------	------

Flow (L/min)	15	48	95	150	200	250	282	310
		146	144	139	135	130	120	105
	30	291	289	278	274	269	258	242
	40	387	384	374	359	350	335	320
	50	486	483	473	462	450	430	420
	60	588	584	574	562	550	538	520
Max.cont.	75	740	735	720	705	696	676	653
Max.int.	90	850	840	810	787	770	750	747

BMSY125 [125cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

3.5	7	10.5	14	17.5	20.5	22.5
-----	---	------	----	------	------	------

Flow (L/min)	15	55	120	176	245	309	345	375
		115	113	110	104	98	90	84
	30	231	228	223	214	202	188	172
	40	312	309	290	289	278	262	235
	50	391	386	378	365	352	339	308
	60	469	461	450	437	425	400	372
Max.cont.	75	588	574	560	544	526	505	481
Max.int.	90	710	696	680	661	646	628	610

TORQUE(N•m) 301
SPEED (r/min) **646**

BMSY160 [154cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

3.5	7	10.5	14	17.5	21	22.5
-----	---	------	----	------	----	------

Flow (L/min)	15	70	142	215	298	372	435	476
		93	91	89	85	80	76	58
	30	189	187	181	176	170	162	153
	40	252	250	246	239	234	228	212
	50	313	310	306	298	293	285	272
	60	378	376	370	362	353	346	332
Max.cont.	75	475	469	461	450	441	432	414
Max.int.	90	567	561	554	543	532	520	509

cont.
int.



Performance Data

BMSY200 [194cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

	3.5	7	10.5	14	17.5	21	22.5
15	87	179	273	371	471	562	610
	74	73	71	68	64	60	48
30	91	190	288	386	489	572	618
	150	148	143	140	134	128	119
40	94	193	296	394	498	584	645
	198	195	192	188	183	178	167
50	90	191	292	389	493	580	634
	248	246	241	236	230	223	212
60	85	185	279	382	483	575	622
	300	295	288	281	273	263	251
Max.cont. 75	78	176	271	370	472	561	610
	374	370	364	360	352	340	331
Max.int. 90	68	163	265	361	456	545	599
	443	440	435	428	424	413	400

BMSY250 [243cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

	3.5	7	10.5	14	17.5	20	22.5
15	110	231	351	462	585	681	778
	59	58	56	53	50	46	35
30	116	236	359	475	597	700	790
	119	117	114	108	102	92	80
40	118	241	363	480	599	706	796
	162	159	156	150	143	134	121
50	111	234	352	472	591	693	788
	203	201	197	191	182	173	158
60	106	224	345	462	582	685	772
	244	242	237	230	220	208	194
Max.cont. 75	101	214	340	454	570	670	760
	303	299	294	285	272	260	244
Max.int. 90	93	209	335	447	559	657	749
	363	359	354	348	340	328	303

BMSY315 [311cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

	3.5	7	10.5	14	17.5	20	22.5
15	148	304	456	613	762	879	978
	48	47	45	43	41	39	27
30	155	314	465	635	778	884	988
	95	93	91	89	86	82	67
40	160	321	479	650	796	906	997
	127	125	121	117	115	109	91
50	155	314	465	638	780	886	988
	159	157	153	149	145	142	128
60	151	306	453	620	765	886	976
	187	185	181	176	169	157	143
Max.cont. 75	146	300	445	613	755	875	966
	238	236	232	227	224	220	196
Max.int. 90	135	284	436	601	740	863	952
	286	283	278	272	265	257	232

BMSY400 [394cm³/rev.]

Pressure (MPa)

Max.cont. Max.int.

	3.5	7	10.5	14	16	17.5
15	186	379	578	779	896	986
	37	36	35	33	31	29
30	190	388	590	791	905	991
	75	73	71	68	65	61
40	195	394	596	797	912	998
	99	97	95	93	90	85
50	191	388	587	785	904	983
	125	123	118	114	109	102
60	186	388	587	785	904	983
	149	146	142	137	131	122
Max.cont. 75	181	372	576	770	891	973
	187	183	177	171	164	153
Max.int. 90	176	367	571	766	883	965
	226	221	214	208	199	183

TORQUE (N•m) 766
SPEED (rpm) 208

BMSY475 [475cm³/rev.]

Pressure (MPa)

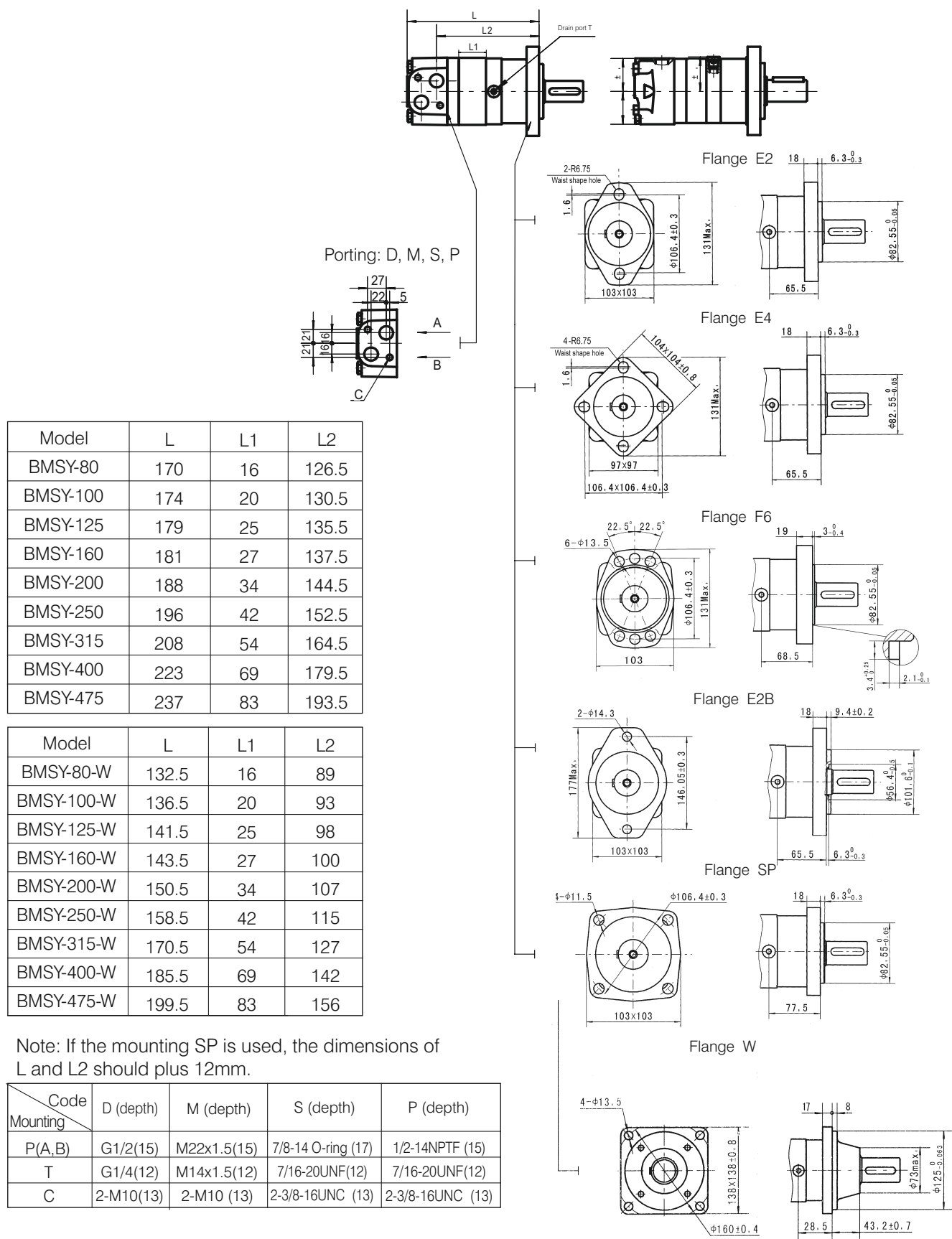
Max.cont. Max.int.

	3.5	7	10.5	14	15
15	218	439	661	892	995
	30	29	28	27	25
30	223	450	676	910	1002
	61	60	58	56	53
40	228	461	689	927	1017
	82	80	77	74	68
50	224	456	682	920	1008
	103	101	97	92	86
60	220	451	677	913	998
	123	121	118	112	105
Max.cont. 75	212	443	664	901	980
	155	153	147	140	132
Max.int. 90	196	421	643	877	959
	186	184	178	170	157

cont.
int.

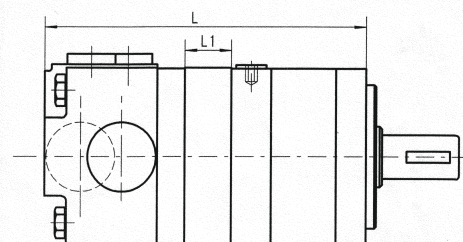
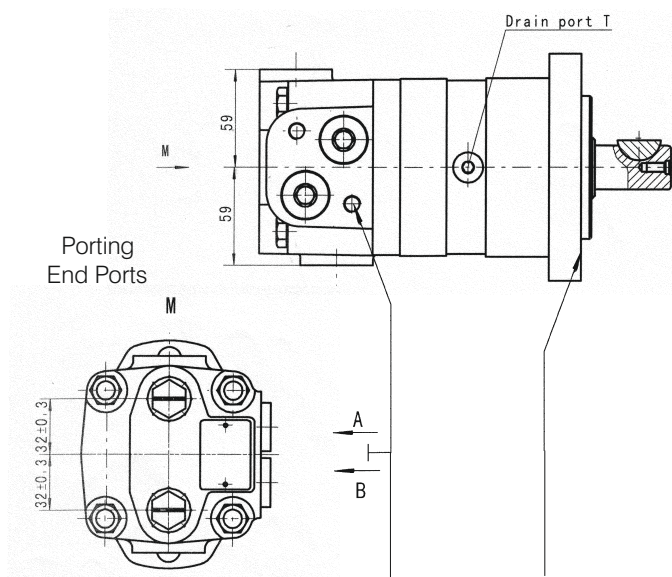


BMSY Dimensions and Mounting Data





BMSY Dimensions and Mounting Data



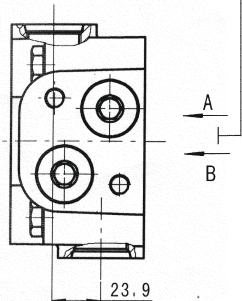
End Ports P(A\B)

Model	L	L1
BMSY-80	176	16
BMSY-100	180	20
BMSY-125	185	25
BMSY-160	187	27
BMSY-200	194	34
BMSY-250	202	42
BMSY-315	214	54
BMSY-400	229	69
BMSY-475	243	83

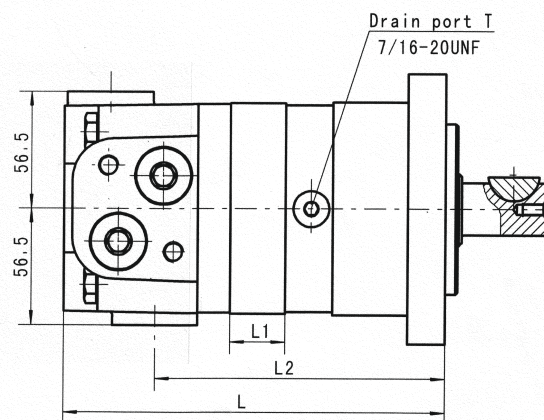
Model	L	L1
BMSY-80-WE	148	16
BMSY-100-WE	152	20
BMSY-125-WE	157	25
BMSY-160-WE	159	27
BMSY-200-WE	166	34
BMSY-250-WE	174	42
BMSY-315-WE	186	54
BMSY-400-WE	201	69
BMSY-475-WE	215	83

Code	EE-D (depth)	EE-M2 (depth)	EE-S2 (depth)
P(A,B)	G1/2 (15)	M22 x 1.5 (15)	7/8-14 O-ring (17)
T	G1/4 (12)	M14 x 1.5 (12)	7/16-20UNF(12)

Porting
ED 1-1/16-12UN O-ring
180° Apart ports



Code	ED (depth)
P(A,B)	1-1/16-12UN (18)
T	7/16-20UNF (12)

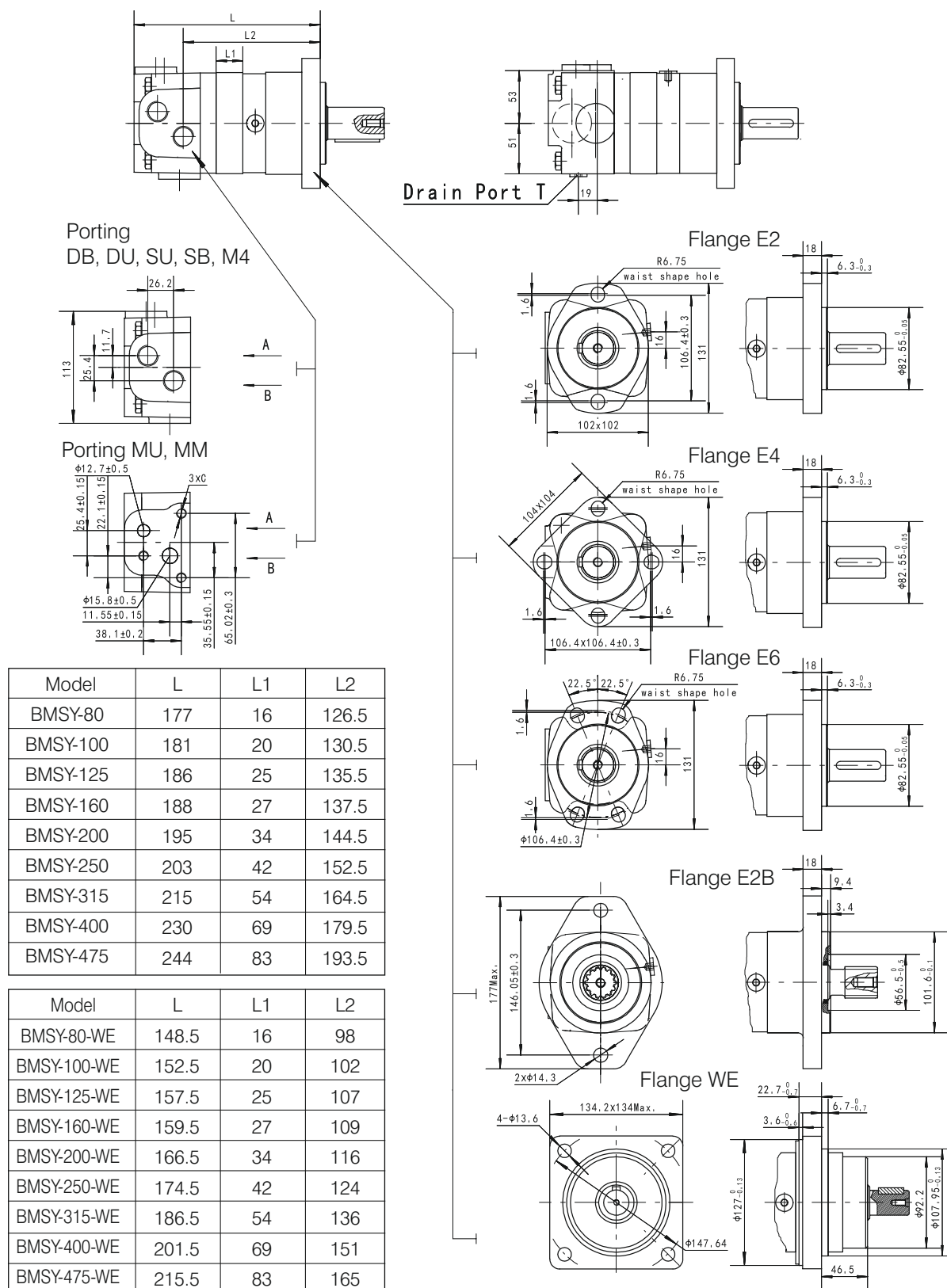


Model	L	L1	L2
BMSY-80	176	16	130
BMSY-100	180	20	134
BMSY-125	185	25	139
BMSY-160	187	27	141
BMSY-200	194	34	148
BMSY-250	202	42	156
BMSY-315	214	54	168
BMSY-400	229	69	183
BMSY-475	243	83	197

Model	L	L1	L2
BMSY-80-WE	148	16	102
BMSY-100-WE	152	20	106
BMSY-125-WE	157	25	111
BMSY-160-WE	159	27	113
BMSY-200-WE	166	34	119
BMSY-250-WE	178	42	127
BMSY-315-WE	190	54	139
BMSY-400-WE	205	69	154
BMSY-475-WE	219	83	168



BMSY Dimensions and Mounting Data

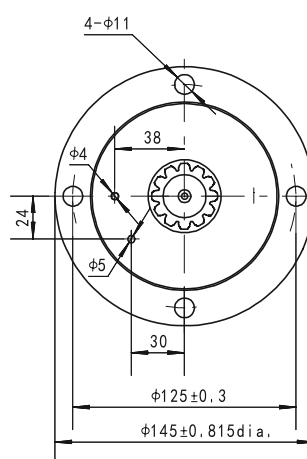
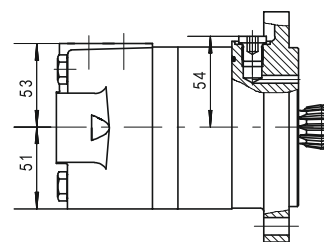
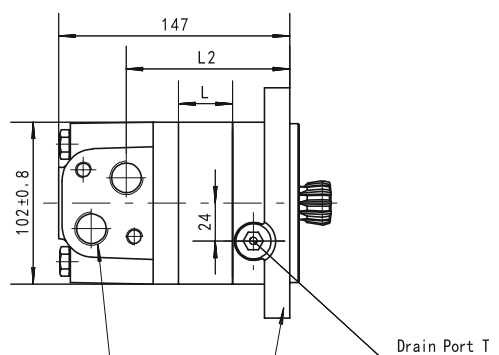
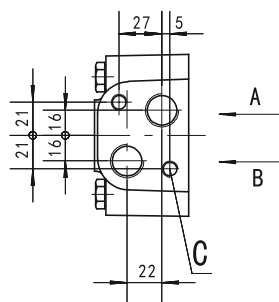


Mounting Code	DB(depth)	DU (depth)	SU (depth)	SB (depth)	M4 (depth)	MU	MM
P(A,B)	G1/2(15)	G1/2(15)	7/8-140-ring(17)	7/8-140-ring(17)	M22x1.5(15)	Ø12.7,Ø15.8	Ø12.7,Ø15.8
T	G1/4(12)	7/16-20UNF(12)	7/16-20UNF(12)	G1/4(12)	M14x1.5(12)	7/16-20UNF(12)	G1/4(12)
C	-					3/8-16UNC	M10

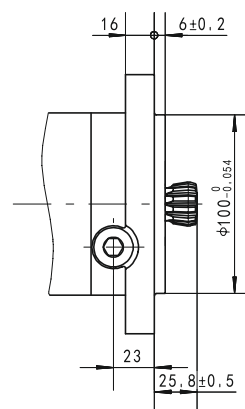


BMSYS Dimensions and Mounting Data

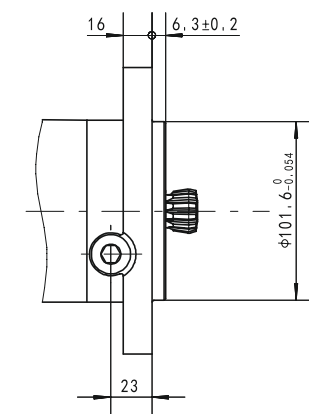
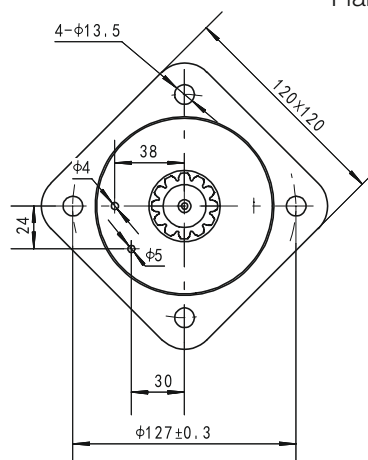
Porting D, M, S, P



Flange D



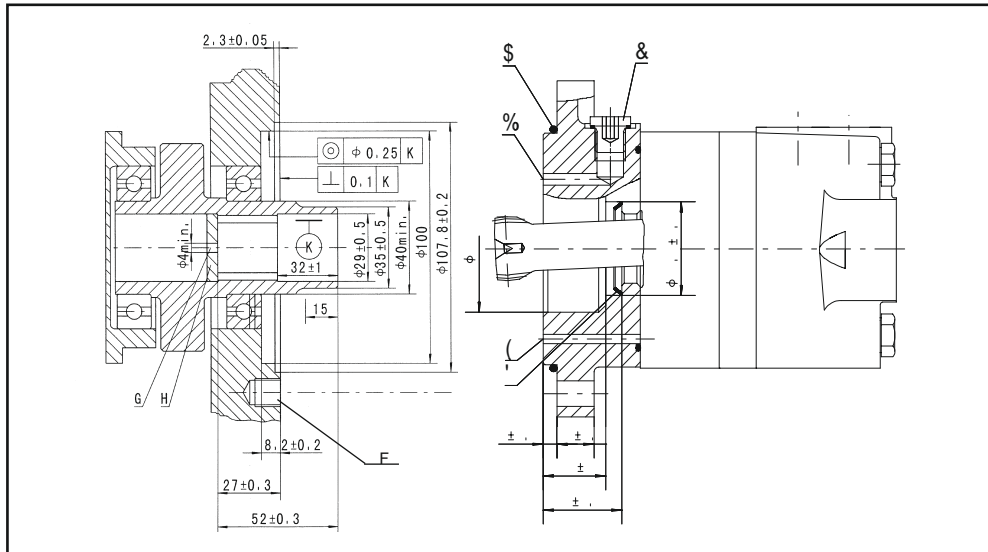
Flange E



Model	L	L1	L2
BMSYS-80	129	16	85
BMSYS-100	133	20	89
BMSYS-125	138	25	94
BMSYS-160	140	27	96
BMSYS-200	147	34	103
BMSYS-250	155	42	111
BMSYS-315	167	54	123
BMSYS-400	182	69	138
BMSYS-475	196	83	152

Code Mounting	D (depth)	M (depth)	S (depth)	P (depth)
P(A,B)	G1/2(15)	M22x1.5(15)	7/8-14O-ring(17)	1/2-14NPTF(15)
T	G1/4(12)	M14x1.5(12)	7/16-20UNF(12)	7/16-20UNF(12)
C	2-M10(13)	2-M10(13)	2-3/8-16UNC(13)	2-3/8-16UNC(13)

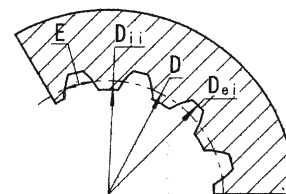
BMSYS Dimensions and Mounting Data



- A: O-ring:100x3
B: External drain channel
C: Drain connection G 1/4;12 mm deep
D: Conical seal ring
E: Internal drain channel
F: M10;min. 15mm deep
G: Oil circulation hole
H: Hardened stop plate

Internal Spline Data for the Attached Component

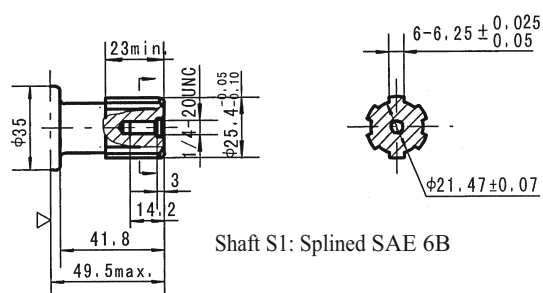
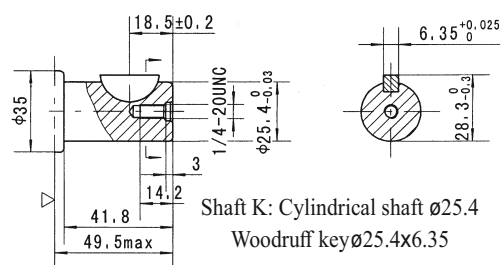
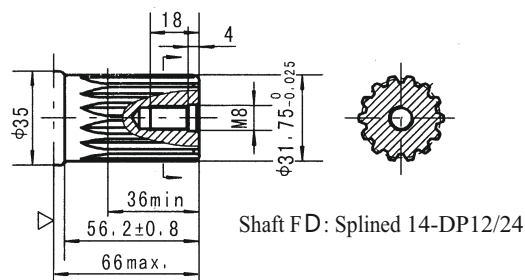
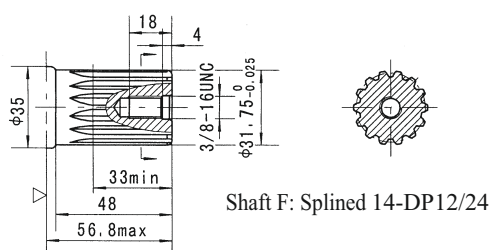
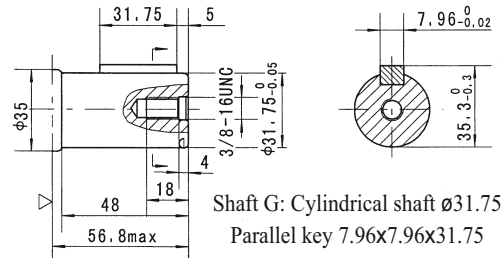
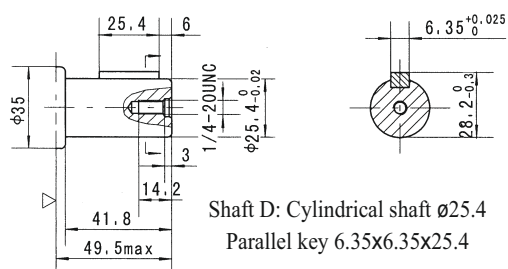
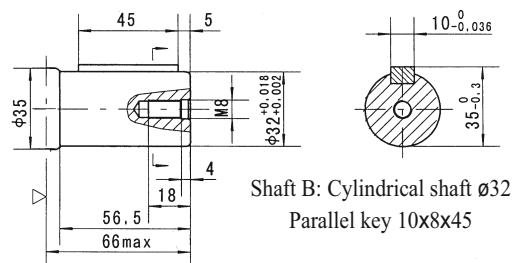
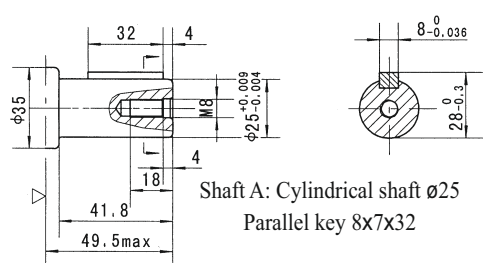
Fillet Root Side Fit		mm
Number of Teeth	Z	12
Diametral Pitch	DP	12/24
Pressure Angle	α_D	30°
Pitch Dia.	D	ø25.4
Major Dia.	D _{ei}	ø28 ^{+0.1} ₋₀
Minor Dia.	D _{ij}	ø23 ^{+0.033} ₀
Space Width(Circular)	E	4.308±0.02



Hardening Specification: HRC 62 ± 2
Effective case depth 0.7 ± 0.2



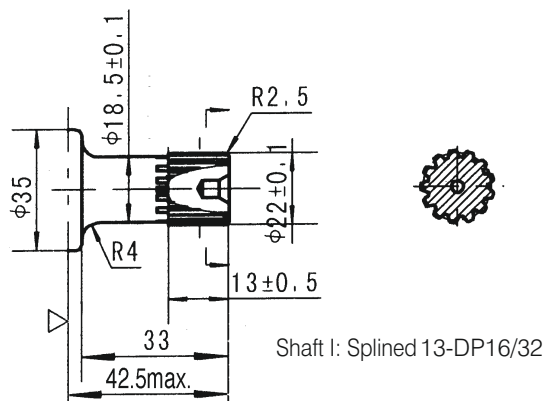
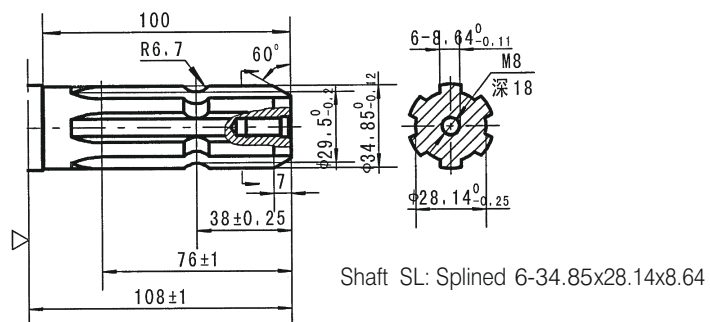
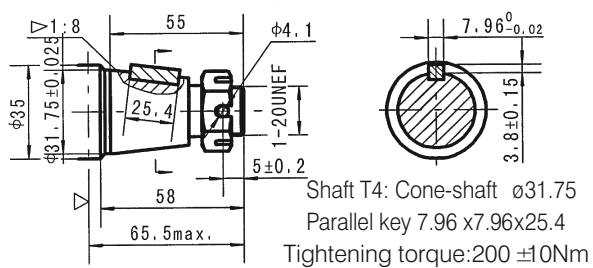
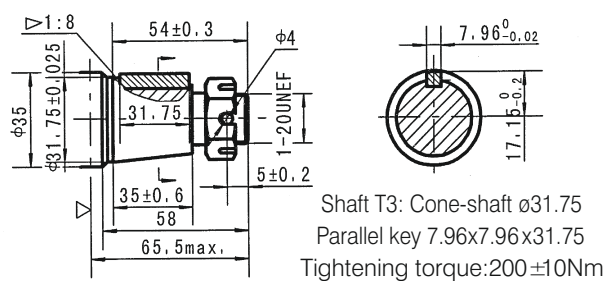
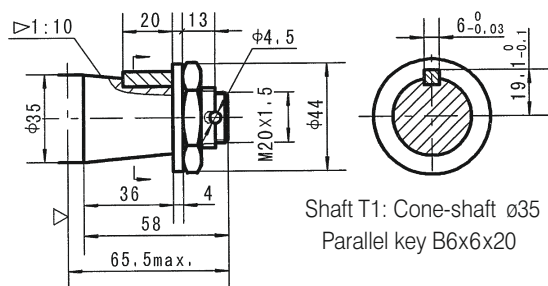
Shaft Extensions for BMSY Motors



Motor Mounting Surface(Dimension corresponding mounting E2, by analogy with others)



Shaft Extensions for BMSY Motors



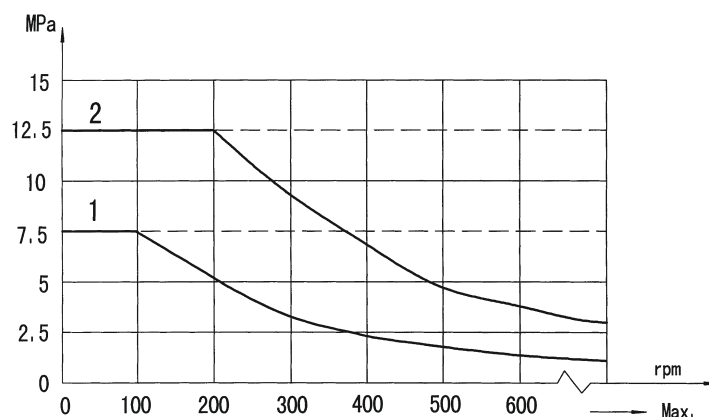
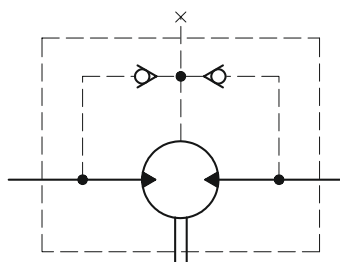
▷ Motor Mounting Surface(Dimension corresponding mounting E2, by analogy with others)

Note:Mounting SP is the same with shaft modle T1, D, B, F and G.



BMSY Series Hydraulic Motor

- Permissible shaft seal pressure



Note: 1. Chart for standard shaft seal;

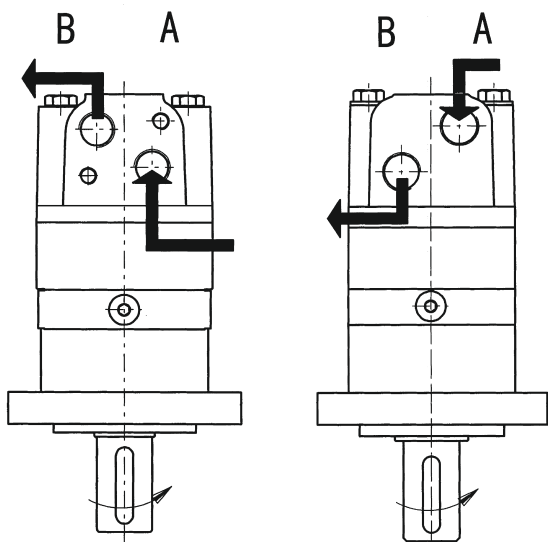
2. Chart for high pressure shaft seal.

Standard direction of shaft rotation: Standard

When facing shaft end of motor, shaft to rotate:

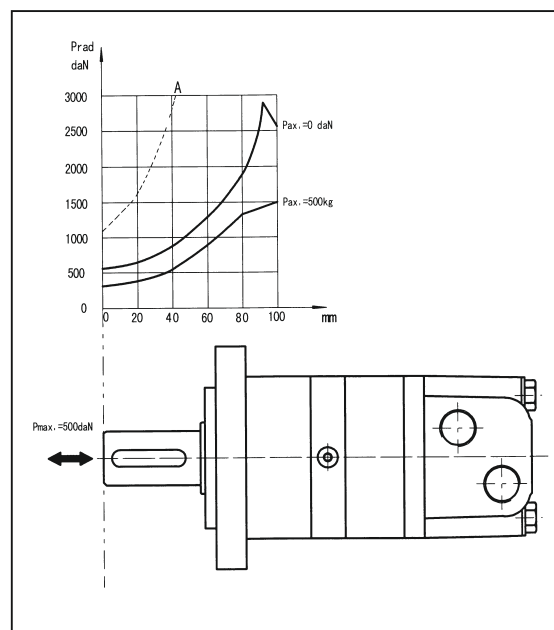
Clockwise when port "A" is pressurized.

Counter-clockwise port "B" is pressurized.



In applications without drain line, output shaft seal exceeds a bit of the pressure in the return line. When applications use the drain line, the pressure of output shaft seal equals the pressure in drain line.

Axial and Radial forces



The output shaft runs in tapered bearings that permit high axial and radial forces, Curve "A" shows max radial shaft load, Any shaft loads exceeding the values quoted in the curve will involve a risk of breakage, The two other curves apply to a B10 bearing life of 3000 hours at 200 RPM.

Oil flow in drain line

The table shows the Max. oil flow in the drain line at a return pressure less than 0.5-1MPa.

Pressure drop (Mpa)	Viscosity (mm ² /s)	Oil flow in the drain line (L/min.)
14	20	1.5
	35	1
21	20	3
	35	2



Ordering Code

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8

BMSY

Pos.1	2	3	4	5	6	7	8
Code	Disp	Flange	Output Shaft	Port and Drain Port	Rotation Direction	Paint	Unusually Function
Omit	80	E2	B Shaft Ø32 , parallel key 10×8×45	D G1/2 Manifold Mount	Omit	00	Omit
	100	E4	D Shaft Ø25.4 , parallel key 6.35×6.35×25.4	2-M10, G1/4	Omit	No paint	S standard
	125	F6	G Shaft Ø31.75 , parallel key 7.96×7.96×31.75	M22×1.5 Manifold Mount	Omit	Blue	F Free Running
	160	W	F Shaft Ø31.75 , splined key 14-DP12/24	2-M10, M14×1.5	R	Black	LS Low Speed
	200	E2	FD Long Shaft Ø31.75 , splined key 14-DP12/24	7/8-14UNF O-ring manifold	Omit	Silver gray	
	250	E2	SL shaft Ø34.85 Splined key 6-34.85×28.14×8.64	2-3/8-16, 7/16-20UNF			
	315	E2	T1 Cone-shaft Ø35 , parallel key B6×6×20	1/2-14NPTF manifold			
	400	B 2	T3 Cone-shaft Ø31.75 , parallel key 7.96×7.96×31.7	2-3/8-16UNC, 7/16-20UNF			
	475	SP	S1 Shaft Ø25.4 , splined key SAE 6B				
			I Sub-shaft Ø22 , splined key 13-DP16/32				
S		D	Omit				
		E	Short shaft 12-DP12/24				

Pos.1	2	3	4	5	6	7	8
Code	Disp.	Flange	Output Shaft	Port and Drain Port	Rotation Direction	Paint	Unusually Function
Omit	80	E2	A Shaft Ø25 , parallel key 8×7×32	EE-D G1/2ØG1/4	Omit	00	Omit
	100	E4	B Shaft Ø32 , parallel key 10×8×45	EE-M 2M22×1.5ØM14×1.5	Omit	No paint	S standard
	125	E6	K Shaft Ø25.4 , Woodruff key Ø25.4×6.35	EE-S2 7/8-14UNF O-ringØ7/16-20 UNF	Omit	Blue	F Free Running
	160	E4	G Shaft Ø31.75 , parallel key 7.96×7.96×31.75	ED 1-1/16-12UN O-ringØ7/16-20 UNF	Omit	Black	LS Low Speed
	200	E6	F Shaft Ø31.75 , splined key 14-DP12/24	DB G1/2ØG1/4		Silver gray	
	250	E2	FE shaft Ø31.75 , splined key 14-DP12/24	D U G1/2Ø7/16-20 UNF			
	315	E2	s Cone-shaftØ 31.75 , parallel key 7.96×7.96×25.4	SB 7/8-14UNF O-ringØG1/4			
	400	B 2	T4 Shaft Ø25.4 , splined key SAE 6B	SU 7/8-14UNF O-ringØ7/16-20 UNF			
	475	WE	I Sub-shaft Ø21.74 , splined key 13-DP16/32	M4 M22×1.5ØM14×1.5			
				MU 1/2" 5/8"Crosshole Manifold 3×3/8-16UNC, 7/16-20UNF			
				MM 1/2"Ø5/8"Crosshole Manifold 3×M10 G1/4			
				G G1/2ØG1/4			
				M2 M22×1.5ØM14×1.5			
				S2 7/8-14UNF O-ring Ø7/16-20 UNF			

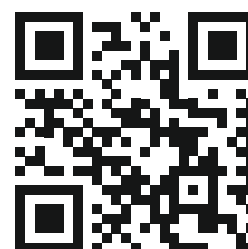
Note: When the table is used, please fill the code of left rows in the table and give us, which the code information is consists of construction, displacement, mounting flange, output shaft and ports. The information of mounting flange, output shaft and ports are the same as BMS series. The SP flange afflies to shafts of T1, D1, B1, F1, if the specification is not in the table or you have to specific requirement please contact us.

The specified data is for product description purposes only and may not be deemed to be guaranteed unless expressly confirmed in the contract.



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