

# Compact THA

Electro-Hydraulic Actuators for  
high power density applications



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## Introduction, Features and Benefits

### Introducing Compact THA ...

The new Compact THA from THM delivers powerful, reliable linear movement. Compact THA is a fully self-contained electro-hydraulic actuator which combines high power density with light weight, low noise level and a small envelope. Simple "plug 'n play" functionality makes Compact THA the ideal solution for applications where other conventional linear movement technologies lack the power, speed and durability of compact hydraulics.

Available for 12V and 24V DC operation, Compact THA is suitable for a wide range of mobile, light industrial and domestic applications.

### Applications of Compact THA

#### Turf Care/Lawn & Garden

- Deck lifts
- Mower blade lifts
- Golf course sprayer/sweeper



#### Marine

- Jack plates
- Hatches
- Yacht transom actuators

#### Material Handling

- Pallet lifts
- Lift tables
- Scissors tables
- Light aircraft tug



#### Truck & All Terrain/Utility Vehicle

- Tailgate locks
- Utility vehicle attachments
- Cart/trailer bed lifts



#### Military/Security

- Door opening
- Hatch lifting
- Cab lifts
- Armoured vehicle attachments

#### Construction

- Attachment locks
- Skid steer bucket levelling
- Plough/blade positioning

#### Renewable Energy

- Solar panel positioning
- Wind turbine rotor locks

#### Agriculture

- Chute positioners
- Sprayer arm lifts

#### Medical/patient handling

- Stretchers & beds
- Ambulance cots
- Wheelchair access ramps
- Kneeling handicap vans





## Introduction, Features and Benefits

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### Delivering Power with Control

#### 1. Rugged DC Motor

A choice of 12V or 24V DC motors, each available in two power ratings, makes it easy to match your power supply and deliver the force your application demands. All versions are supplied with 1.5m leads fitted with standard ring terminals, to simplify and speed up connection.

#### 2. Reversible Gear Pump

Compact THA's electric motor is mated to a robust gear pump, fully enclosed within the fluid reservoir. The fully sealed hydraulic system ensures that the pump operates under ideal conditions, guaranteeing a long, maintenance-free service life. Four different pump capacities allow Compact THA to be tailored to the precise load and speed demands of your application.

#### 3. Robust One-Piece Housing

All THM Compact THAs feature a tough, lightweight one-piece housing with integrated base mounting, manufactured from cast aluminium and anodized for durability. The absence of jointing faces minimizes potential leakage points, so Compact THA is the ideal choice in environments where cleanliness is critical. Innovative design results in an exceptionally small footprint, so integrating Compact THA into new products, or retro-fitting into existing designs, could not be easier.

#### 4. Double-Acting Hydraulic Cylinder

Exceptional power density distinguishes the THM Compact THA from other linear actuation solutions. The robust hydraulic cylinder, which can be powered in both directions, delivers up to 21kN of force on extension, with 16kN on retraction – and can achieve speeds of up to 84mm per second. The precision machined stainless steel piston rod and micro-finished cylinder bore feature buna-nitrile and polyurethane sealing elements, keeping the hydraulic fluid in and external contaminants out – ensuring smooth control and long service life.

#### 5. Simple Pivot Pin Mountings

Installing a Compact THA could not be quicker – or easier. Both the base and the piston rod are machined to accept standard pivot pin sizes which, for ease of mounting, are the same diameter at both ends. Installation involves securing both ends of the unit with pins, and then connecting the leads to your power supply. In minutes, your Compact THA is ready for service. Custom mountings are available to special order. The piston rod end can be machined or threaded to your specification while, at the base end, different pin sizes and angles, a female flange or a threaded stud are among the options available.

#### 6. Integrated Control Valves

To protect the Compact THA against overload, and to allow loads to be held safely in position, all THM Compact THAs feature a built-in locking circuit, pressure relief, thermal and check valves. These features ensure the safety of the equipment – and of those operating it.

#### 7 Internal Fluid Reservoir

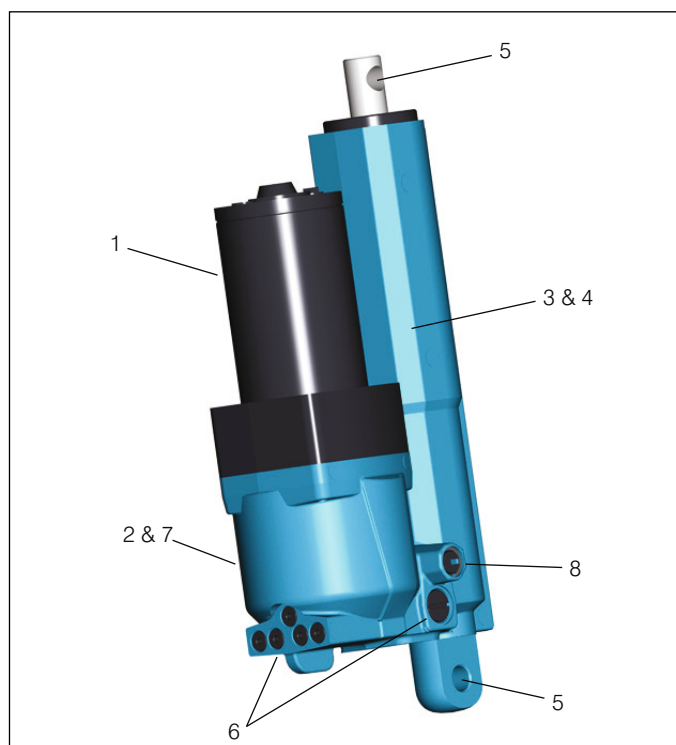
Long working life depends on clean hydraulic fluid. All THM Compact THAs are flushed, filled and sealed for life under controlled conditions during manufacture, to ensure that no contaminants enter the hydraulic system. The fluid is contained in an internal reservoir cast into the one-piece housing, so that it remains as clean as the day it was filled.

#### 8 Manual Release

The optional manual release allows the operator to manually move the rod as needed under emergency conditions.



## Specification



### Easy to Install and Connect

Compact THA is designed to make commissioning as simple as possible. The motor is connected to a suitable power supply and switching circuit, and the rod or base end is secured with a pivot pin. The unit is then actuated to align the opposite pivot pin connection, and the pin inserted to secure. And that's it – your Compact THA is ready for use.

### Maintenance

Because the Compact THA is flushed, filled and sealed for life, there is virtually no maintenance required. This, in combination with the anodized housing, stainless steel rod and rugged seals and components, provides a long service life with reduced warranty costs.

### Complete Compact THA Solutions

Our engineers are expert in the design of complete actuation systems. Where your requirement includes custom actuators, cable harnesses, switchgear and power supplies, please contact us.

### Actuator

Type	hydraulic, double-acting
Bore sizes	25.4mm, 31.8mm, 36.5mm
Standard stroke lengths	25.4mm, 31.8mm, 36.5mm
Piston rod diameters	14.2mm, 15.9mm, 19.1mm
Standard mounting pin diameters	6.4mm, 9.5mm, 12.7mm

### Motor

Motor types	12V DC, 245W (motor A)
	12V DC, 560W (motor B)
	24V DC, 245W (motor C)
	24V DC, 560W (motor D)
Leads – length	1.5m
Leads – cross section	2.5mm <sup>2</sup> (motors A & C)
	4mm <sup>2</sup> (motors B & D)
Connector type	automatic transmission fluid (ATF)

### Pump

Pump type	gear, reversible
Pump capacities	.100 gear = .16cc/rev
	.190 gear = .31cc/rev
	.250 gear = .41cc/rev
	.327 gear = .53cc/rev
Fluid medium	automatic transmission fluid (ATF)



## Specification

### Circuit

Sealed hydraulic circuit with integrated pump, motor, actuator and reservoir, relief, thermal, check and back pressure valves.

### Certification and Testing

Vibration (minimum integrity test)	MIL-STD-810F
Sealing	IP65 and IP67
Salt spray	1000 hours per ASTM B117
CE marked	in conformity with Machinery Directive 2006/42/EC

For other application-specific approvals, please consult factory.

### Performance

Maximum force – extend	21.35kN
Maximum force – retract	16.00kN
Maximum speed	84mm/s
Duty cycle	see page 7

### General

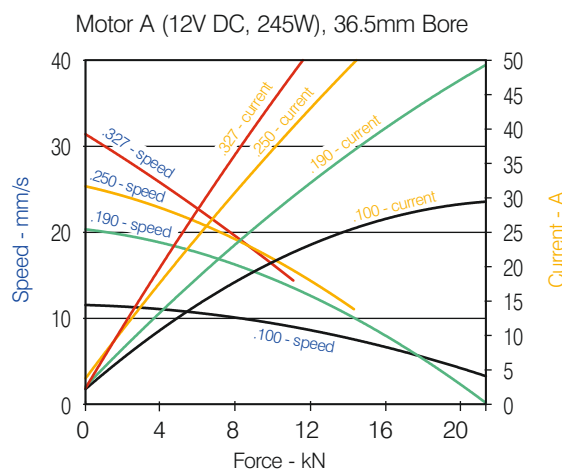
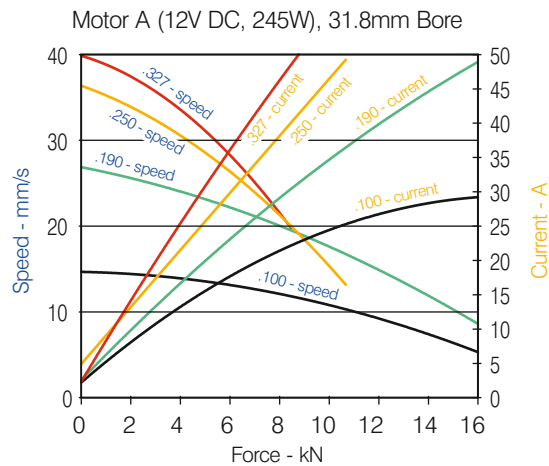
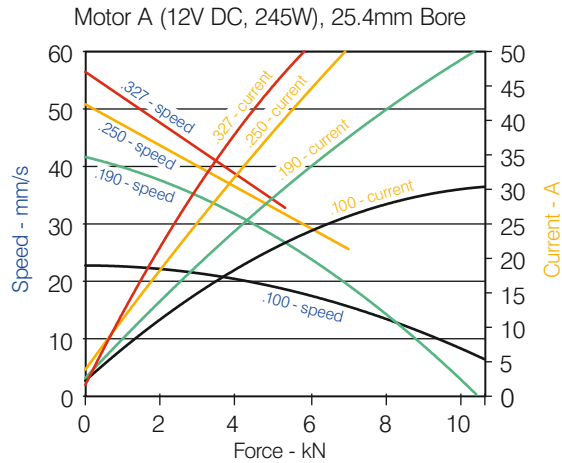
Construction – body	anodized cast aluminium, one-piece
– piston rod	stainless steel
Orientation	universal
Manual release option	retained, for emergency use only
Operating temperature range	-34°C to +65°C
Noise level	< 70dBA
Noise level	see page 8



## Performance Data

### Actuator Forces and Speeds

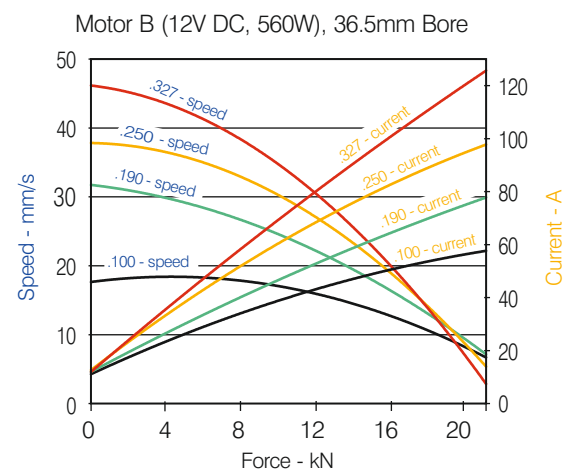
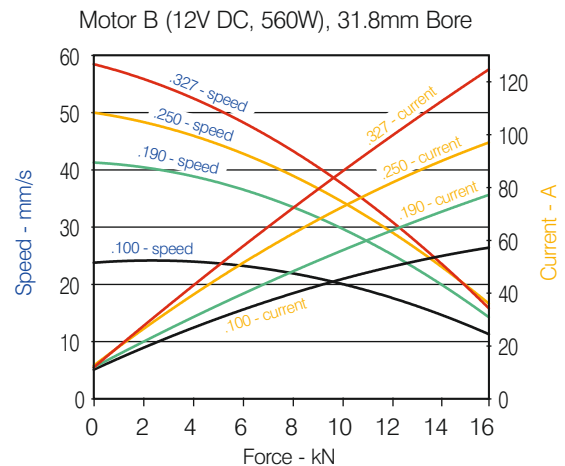
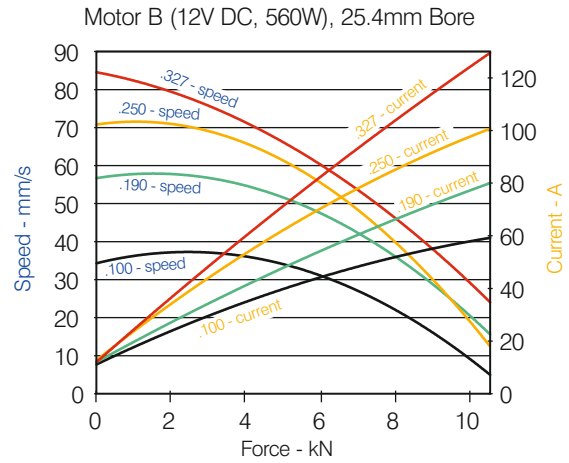
The maximum forces and speeds available on rod extension, with corresponding current draw, are shown below for different combinations of motor, pump and cylinder bore. The curves relate to the different pump sizes available – see page 4.



### Motors C and D

Current draw for Motor C (24V DC, 245 W) and Motor D (24V DC, 560 W) will be approximately half of the current draws shown for motors A and B respectively.

**Note:** Performance data is based on rod extension, not retraction, and is supplied for guidance only.



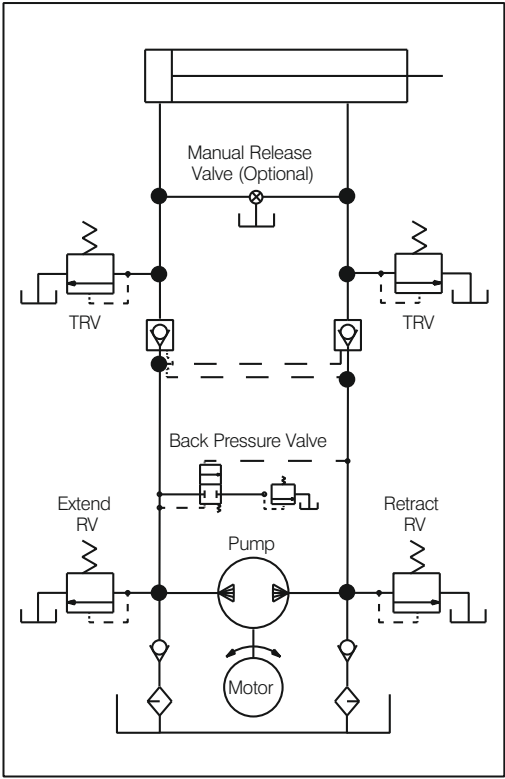
### Retraction Forces

The maximum force available on rod retraction is lower than the extension force due to the presence of the piston rod, which reduces the effective surface area of the piston. When the force required to retract the piston rod approaches that required for extension, please contact the factory.

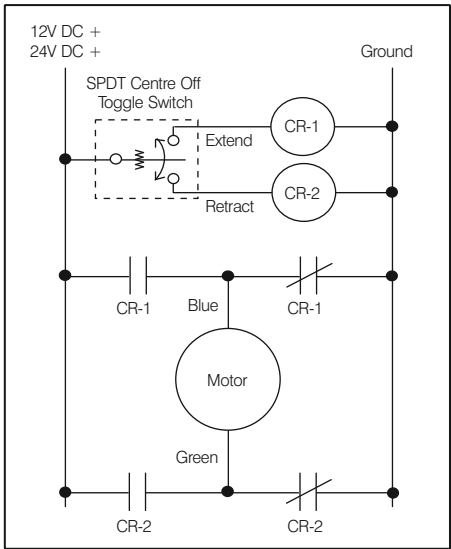


Performance data

Hydraulic Schematic



Suggested Diagram for Wiring

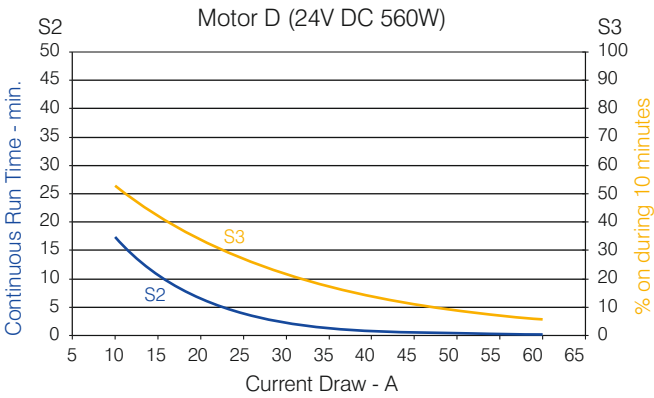
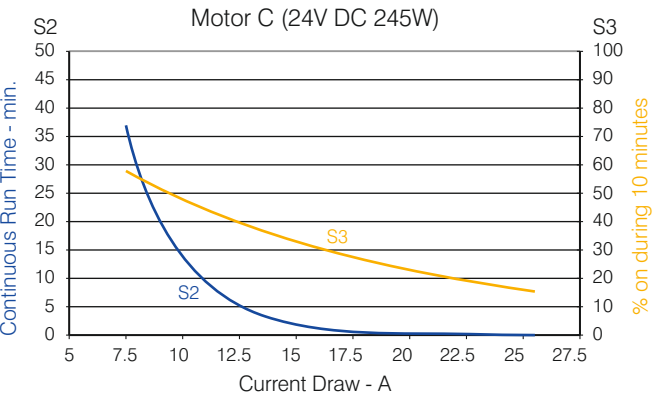
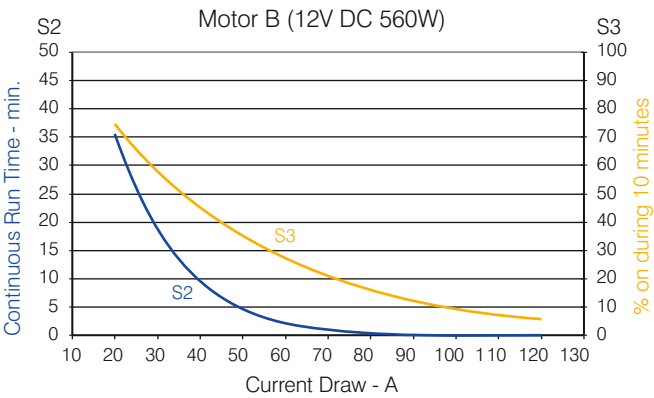
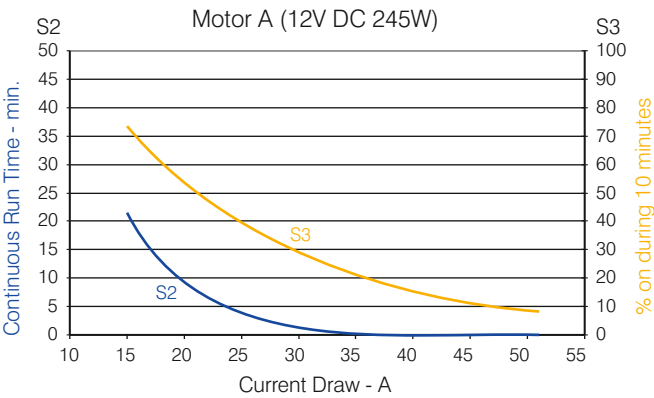


Function	Positive	Ground
Extend	Blue	Green
Retract	Green	Blue

Standard Motor Duty Cycle Characteristics

**S2** Time at constant load followed by 'off' time to allow the motor to cool to ambient temperature.

**S3** Percentage of 'on' time in a repetitive 10 minute cycle.

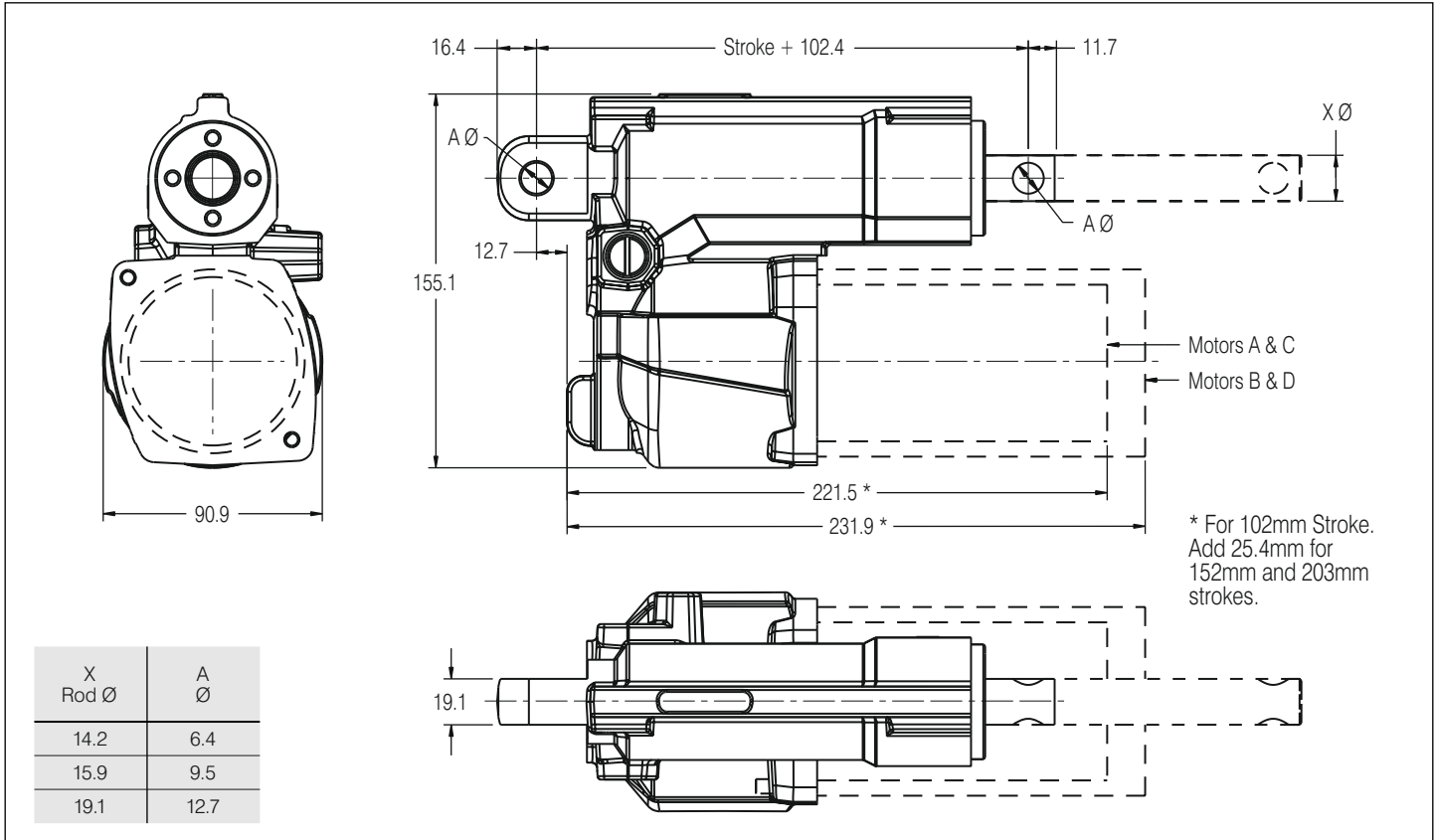






Unit Dimensions

(Dimensions in mm)



Weights

To calculate the weight of a standard Compact THA, identify the weight of the basic unit from the left hand columns, then add the corresponding weight for the motor required. For other bore/rod combinations, where weight is critical, please contact the factory

THA - basic unit without motor		Weight (kg)	Add for motor (kg)	
Stroke Length	With Rod Ø		A or C	B or D
102	14.2	2.1	1.5	2.0
152	15.9	2.8		
203	19.1	3.5		

Warning

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from THM, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise. The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from THM or its subsidiaries or authorized distributors. To the extent that THM or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

Offer of Sale

Please contact your local THM representative for a detailed offer of sale.





## How to order

### About your Application

What is your application?

What is the specific task to be performed by the Compact THA?

### Force

see page 6

What is the force needed – on extension

kN

– on retraction

kN

What is the maximum anticipated force on the unit?

kN

### Distance

see page 4

What is the distance to be moved – 102mm (standard)

– 152mm (standard)

– 203mm (standard)

– other stroke length

mm

### Speed

see page 6

What is the speed required – on extension

mm/s

– on retraction

mm/s

### Mounting

see page 8

Distance between standard pin centres (fully retracted)

mm

Other mounting types – base end

– rod end

### Environment

see page 4

What is the operating temperature range?

°C

Hostile operating conditions – side loading

– vibration

– shock loading

– other

### Duty Cycle

see page 7

Is the duty cycle continuous or intermittent? (Continuous duty not available)

What is the – duration of cycles?

– time between cycles?

– number of cycles per day?

What is the product life requirement?

### About your Power Supply

see pages 4-5-6

12V or 24V DC?

V

What is the maximum allowable current draw?

A

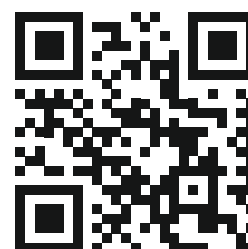
Connector type? (standard leads – ring terminals)

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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