

Thrusters TH with Impeller

for electrohydraulic brakes



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E09.062e



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for electrohydraulic brakes



Features	Code
Thruster	T
Design	H
Lifting forces of 220 N, 300 N, 600 N, 750 N, 1 200 N, 1 500 N, 2 000 N or 3 000 N are available	022 to 300
Total stroke of 50 mm, 60 mm or 120 mm are available	05 06 12
Installation dimension h1 (see page 3)	286 to 705
Options (see page 4)	...

Example for ordering

Thruster TH, lifting force 2000 N, total stroke 60 mm, installation dimension h1 645 mm, with manual hand release and increased corrosion protection:

TH 200 - 06 - 645 - LS - M

Design and function

The electrohydraulic thruster combines all the basic elements of a hydraulic system in a coaxial unit: an electric motor, a hydraulic pump and a cylinder with a piston. It is designed to exert a constant linear force for a given stroke.

The centrifugal pump impeller coupled to the motor shaft builds up hydraulic pressure under the piston, which causes an upward movement against the external (brake-side) spring. When the motor is switched off, the piston is reset by the external (brake-side) spring.

The hydraulic force is almost independent of the piston position of the cylinder. With a lower load, the stroke movement is faster and the downward movement slower.

Advantages

- The hydraulic force of the thruster is independent of the position of the piston rod.
- The thruster cannot be overloaded, even if an external force acts on the piston rod that is greater than the thrust of the thruster.

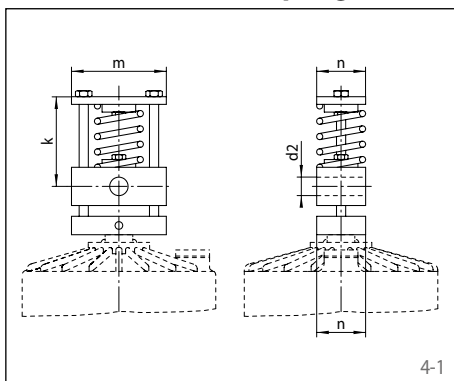
General technical data

Motor	2-pole Three-phase squirrel cage
Insulation level	F
Voltage	230 / 400 VAC 3~
Supply frequency	50 Hz
Duty factor	100%
Max. number of actuation	2 000/h
Insulation	IP56
Oil filling	IP Hydrus Oil 10
Mounting position	vertical with piston rod upwards
Permissible ambient temperature	-20 °C - +45 °C

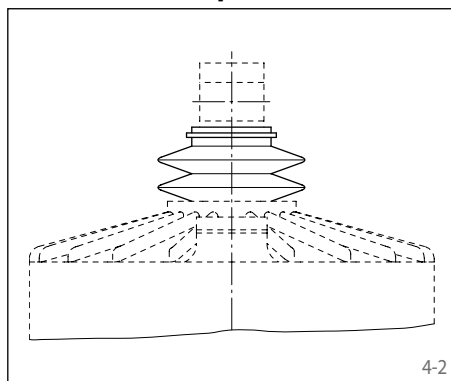
Code and description of possible options

Options	Code
<ul style="list-style-type: none"> • For temperatures down to -30 °C Filling with a special oil 	(A)
<ul style="list-style-type: none"> • For temperatures down to -40 °C With an electric heating rod for 230 VAC 	(AA)
<ul style="list-style-type: none"> • For temperatures up to +70 °C With special seals 	(W)
<ul style="list-style-type: none"> • For temperatures briefly up to +100 °C With special seals, pressure relief valve, special paint and special oil 	(HR)
<ul style="list-style-type: none"> • Lowering valve Slows down the lowering of the piston rod 	(SV)
<ul style="list-style-type: none"> • Non-standard voltage & frequency For use with non-standard voltages or frequencies 	(Vf)
<ul style="list-style-type: none"> • Built-in spring C-spring creates setting force of the thruster (or clamping force when thruster is installed in a brake) 	(C)
<ul style="list-style-type: none"> • External attenuation spring Additional spring on the piston rod for better adjustability 	(R)
<ul style="list-style-type: none"> • Rubber hood To protect the piston rod 	(Cap)
<ul style="list-style-type: none"> • Design in insulation IP65 Additional seal on the terminal box 	(IP65)
<ul style="list-style-type: none"> • With hand release lever To manually drive out the piston rod in a de-energised state (brake release) 	(LS)
<ul style="list-style-type: none"> • Horizontal application For horizontal operation, an additional component is required internally 	(hor)
<ul style="list-style-type: none"> • Terminal box turned 90° 	(T)
<ul style="list-style-type: none"> • Other colour than RAL 9005 	(Col)
<ul style="list-style-type: none"> • Version with increased corrosion protection 	(M)

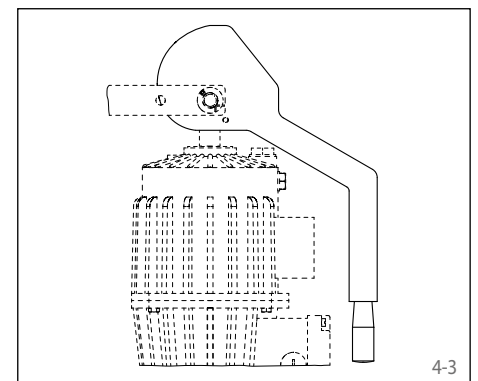
External attenuation spring (R)



Rubber hood (Cap)



With hand release lever (LS)



Please note:

The options can not be combined arbitrarily. If you need more options, please contact RINGSPANN.

Motor connection

- The three ends of the supply cable can be connected to the terminals in any order, since the fan operates independently of the direction of rotation of the motor.
- The thruster should be switched via a separate contractor. The direct parallel connection with e.g. the crane motor can delay the lowering time and thus the braking effect.
- The thrusters are insensitive to voltage fluctuations of up to $\pm 10\%$.
- Mounting points for an earthing cable are provided inside and outside the terminal box.
- The terminal box has a PG gland on each side for cable feedthrough.

Hydraulic oil

The thruster is delivered complete with oil filling IP Hydrus Oil 10.

Oils from other manufacturers with a viscosity of approx. $10 \text{ mm}^2/\text{s}$ at $+40^\circ\text{C}$ can also be used.

Examples:

- ESSO Spinesso 10
- Shell Tellus Oil 10
- CHEVRON Spindel Oil 10
- Aral Vitam GF 10
- etc.

Operating and ambient temperature

All thrusters are designed for continuous operation and for interval operation with up to 2000 operations/hour at ambient temperatures ranging from -20°C to $+45^\circ\text{C}$. At temperatures

of more than $+45^\circ\text{C}$ the oil becomes thinner; the hydraulic losses increase and the hydraulic forces decrease. At temperatures below -20°C the oil becomes denser and the piston move-

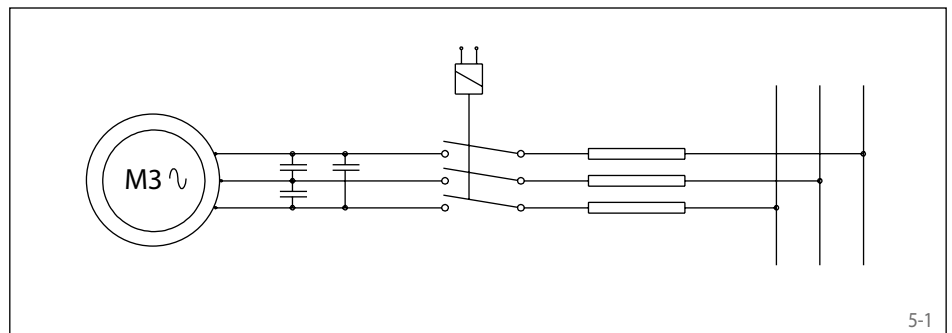
ments become slower. For these reasons, the thrusters must be filled with a suitable type of oil for extreme ambient temperatures.

Capacitor for fast downward movement

The lowering time of the piston rod can be reduced by using three capacitors connected in parallel. Typical applications are brakes for winches with a lifting speed of more than 8 m/min.

Recommended capacity values:

TH 022-05-286 / TH 030-05-380	3x10 μF
TH 060-05-406 / TH 075-05-406 / TH 120-06-450 / TH 120-12-515 / TH 150-06-450	3x20 μF
TH 200-06-645 / TH 300-06-645 / TH 200-12-705 / TH 300-12-705	3x50 μF



5-1

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