

Voith Turbo

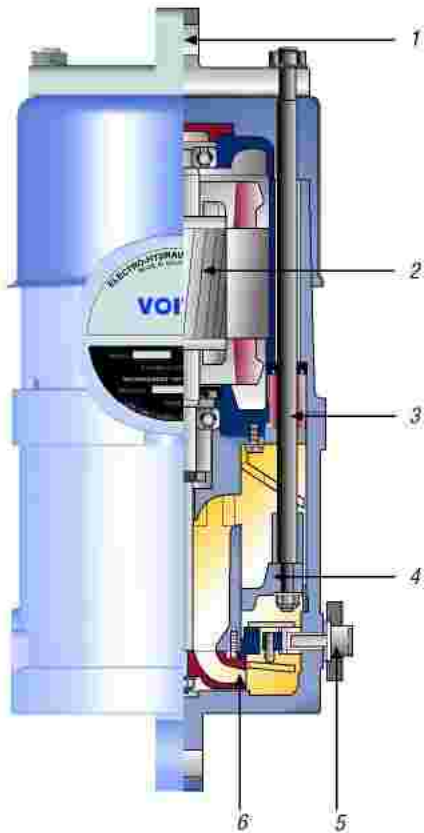
VOITH

Voith Electro-Hydraulic Thruster



Reliable smooth thrusting

Rated thrusts from 20 kg up to 300kg



The diagram of a Electro-hydraulic thruster cross section shows the working parts.

Product description

The Voith Electro-hydraulic thruster is self-contained and designed to exert a smooth, straight, upward thrust. These electro-hydraulic thrusters combine all the basic parts of a hydraulic system - electric motor, pump, piston etc, assembled into a single, sealed enclosure complete with the hydraulic oil (filled after installation). A range of sizes are available with rated thrusts of 20kg to 300kg and strokes varying between 50mm and 125mm. Normal voltage 220V, 380V, 500V or 960V AC (three-phase). Flameproof enclosures are also available.

The thruster can easily be fitted to most new or existing machines since the top and bottom connections are

made by clevises to the thruster lugs, these also allow the thruster to tilt 10° in either direction to the vertical.

When the thruster is energised, the pump exerts a hydraulic pressure under the piston, which is then forced upwards at full thrust capacity from start to finish and stays at the top of its stroke until switched off, when it will return under gravity and/or the reaction of the application, to its closed position.

Overload and underload in the thruster cannot cause damage to the motor since if the load is greater than what the thruster can lift, the piston remains at the bottom of the cylinder and the impeller spins harmlessly in oil. If all load is removed, the piston stops at the top of its stroke and the impeller again spins harmlessly in oil. Practically

all working surfaces are immersed in oil so little maintenance is required.

Key benefits

- Constant thrust throughout full stroke.
- Cannot be overloaded.
- Low power consumption.
- Dynamically balanced motor rotor.
- Zinc dichromate passivated plated cowl fitted over the motor housing provides added protection against ingress of dust, moisture and inclement weather.
- Terminal boxes are sealed and have four alternative positions for 20mm conduit entry.

Operation

The totally enclosed electro-hydraulic thruster motors (2) -the larger sizes are fan cooled- are fitted with special extended motor shafts to drive the centrifugal Impeller (6) which pumps oil from the upper to the lower chamber so forcing the piston (4) up. The piston is attached to the top clevis lug (1) by two push rods (3) that pass through the bushed glands and the electro-hydraulic thruster remains extended with the piston (4) at the top of its stroke, as long as the motor (2) is energised. When it is switched off the oil flows back through the stationary impeller (6) up through the centre tube into the top chamber allowing the piston to return to its original position under gravity and possible assistance from the application. The rate at which the thruster opens and closes can be controlled by fitting time lags (5). These control the flow of oil during start up and shutdown and are externally adjustable.

Technical Data

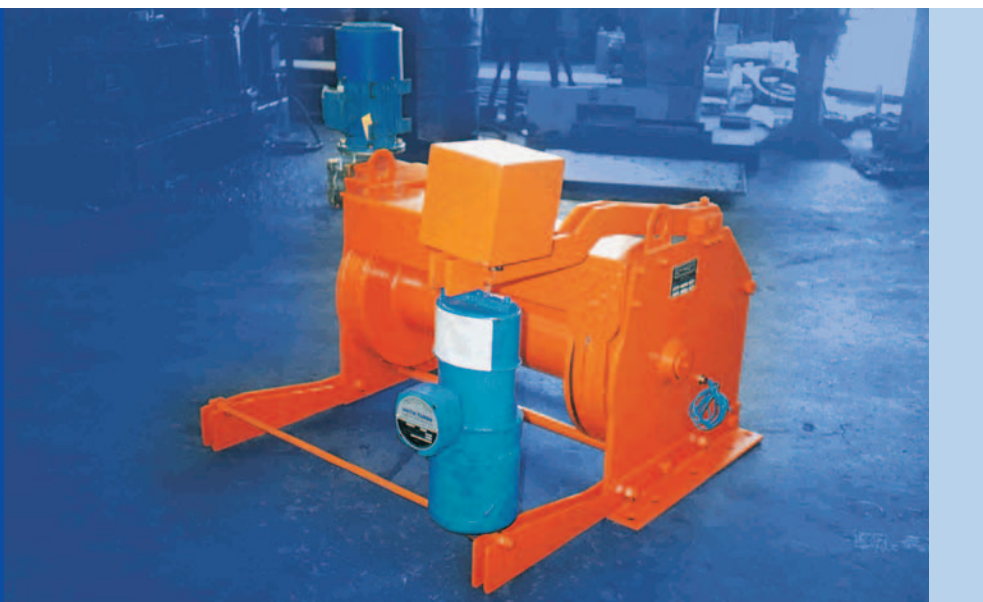
Characteristics

Hydractor Size	Rated Thrust (kg)	Maximum Stroke (mm)	No. of Strokes per min	† Time variations per stroke when time-lags are fitted	
				Down Stroke (seconds)	Up Stroke (seconds)
H 20	20	50	45	1.5 - 8	1.5 - 8
H 35	35	50	50	0.6 - 8	0.6 - 8
H 45	45	50	45	0.6 - 8	0.6 - 8
H 70	70	75	35	0.7 - 15	1.0 - 15
H115	115	75	30	0.7 - 15	1.2 - 15
H225	225	125	15	0.8 - 15	1.5 - 15
H300	300	125	7	0.9 - 15	1.8 - 15

* These figures refer to three-phase thrusters operating under load.

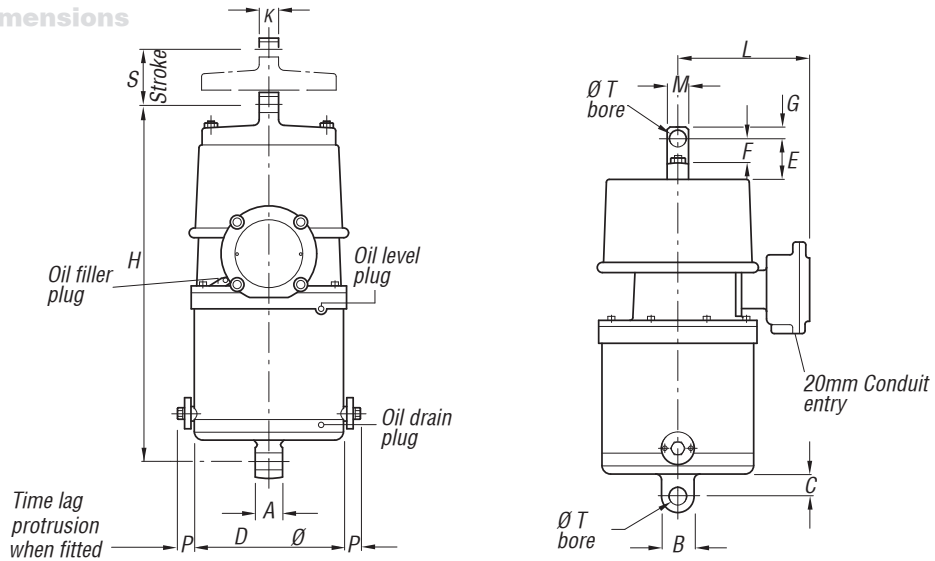
Ratings

Hydractor Size	Rated Input (Watts)	Running Current Amps at 15°C		Recommended Trip Setting at 15°C (Amps)	
		380V	500V	380V	500V
H 20	110	0.290	0.220	0.900	0.700
H 35	150	0.394	0.300	1.200	0.920
H 45	170	0.446	0.330	1.350	1.010
H 70	180	0.476	0.360	1.440	1.100
H115	200	0.526	0.400	1.600	1.210
H225	400	0.75	0.57	2.25	2.710
H300	500	1.00	0.76	3.00	3.280



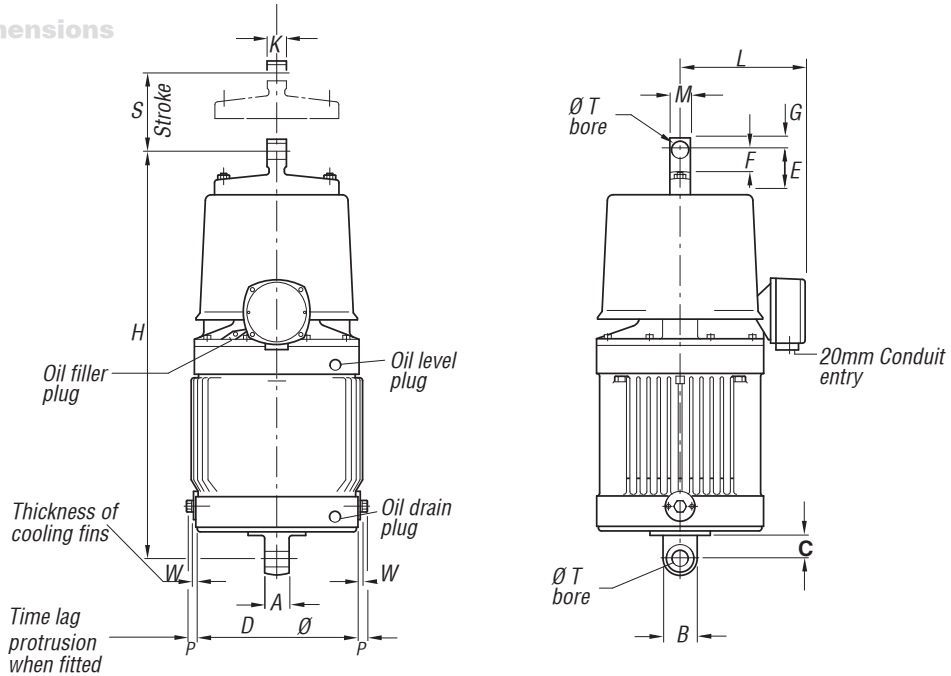
Roller winch with gravity assisted safety brake and thruster release.

Flameproof dimensions



Size	Stroke	H	D	W	P	A	B	C	K	M	E	F	G	Bore Ø T F9	L	Mass kg	Oil Capacity
	S	H	D	W	P	A	B	C	K	M	E	F	G				
H20	50	349	169		212	19	32	17	19	25	36,5	16,5	13	12,7	139	23	2 l
H35 H45	50	445	169		212	25	42	27	22	29	44,5	21,5	14	19	139	30	3 l
H70 H115	75	508	210		254	32	48	28	25	32	58	30,5	16	22,2	161	42	5 l
H225 H300	125	660	260	8,75	292	38	52	38	32	40	72	37,5	20	25,4	203	70	10 l

Standard dimensions



Size	Stroke	H	D	W	P	A	B	C	K	M	E	F	G	Bore Ø T F9	L	Mass kg	Oil Capacity
	S	H	D	W	P	A	B	C	K	M	E	F	G				
H20	50	349	169		212	19	32	17	19	25	36,5	16,5	13	12,7	164	23	2 l
H35 H45	50	445	169		212	25	42	27	22	29	44,5	21,5	14	19	164	30	3 l
H70 H115	75	508	210		254	32	48	28	25	32	58	30,5	16	22,2	174	42	5 l
H225 H300	125	660	260	8,75	292	38	52	38	32	40	72	37,5	20	25,4	205	70	10 l

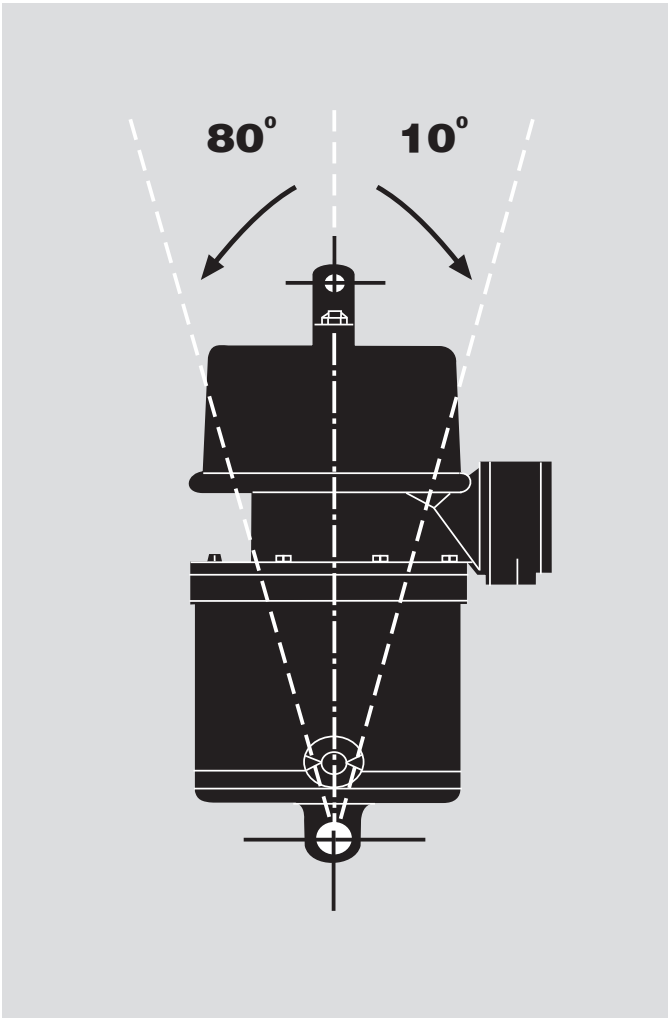
Voith electro-hydraulic thruster installation procedure

The thruster should be mounted within 10° of the vertical or 80° with the terminal box facing up and connected to the mechanism by fitted pins of the correct size. The final electrical connection to the terminal box **MUST BE FLEXIBLE**. Fill with oil through the filler plug in the motor housing with the oil level plug in the tank housing removed. At first signs of oil

through the oil level hole, refit plug and switch on the thruster and allow to operate for a short period to expel all the remaining air. Remove plug and top up. Refit all plugs and the thruster is now ready to operate.

OPERATING OIL

The thruster must be filled with Shell Tellus 32 or equivalent once it has been installed. Filler, level and drain plugs are provided on all thrusters.



The Voith Electro-hydraulic thruster may be installed up to 10° from the vertical.

Voith Turbo (Pty) Ltd
P O Box 13171, Witfield,
1467, Gauteng, South Africa
Tel: +27 11 418-4000
Fax: +27 11 418-4080
info@voith.co.za

VOITH
Engineered reliability.®