## Technical Description

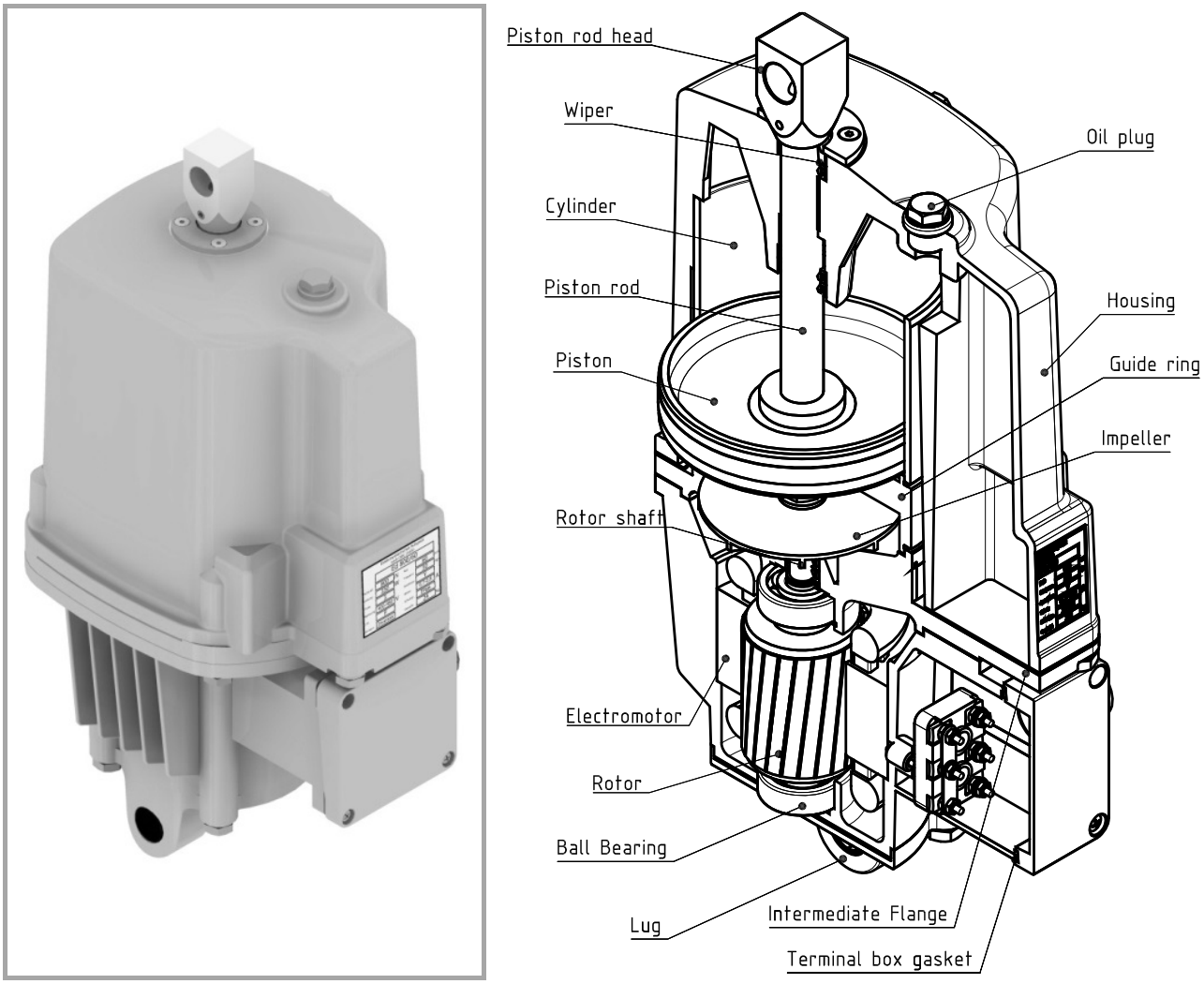


Abb. 1: Thruster acc. to DIN 15 430 (Type Ed 800/60)

Electrohydraulic thrusters are compact closed systems, consisting of an electric motor and a hydraulic unit. In the switched-on state the electric motor in the lower part of the housing drives the impeller of the hydraulic unit above. The produced hydraulic pressure delivers the working fluid under the piston that pushes the piston rod to the stroke end. In the switched-off state or by power cut the pump stops operating, the oil pressure decrease very quickly and the piston rod returns to its start position.


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A fast return of the piston rod can be reached when inserting a re-setting spring (similar to a brake spring) internally or against an external load or using a fast switching when normal piston lowering time is too long.

The hydraulic unit is in a closed housing together with the tank. The oil can be checked and refilled from an external oil filler inlet. The thrusters are supplied ready for assembly with finish coating and filled with oil. They have to be fixed with bolts in the holes of the lug and in piston rod head.

The piston stroke is either determined by a limit stop positioned within the thruster housing or on the outside of the unit.

## Application of KORO RIW thruster

- as brake lifter to release and apply to all types of brakes, for example on cranes, conveyors, excavators, roller adjusting devices, standing machines and transport systems
- to operate pressure rollers, blocking devices and distribution guides on rolling mill trains, etc.
- to connect mechanical couplings
- for valve and flap controls, etc.

## Characteristics of KORO RIW thruster

- lifting forces from 230 to 4500 N
- 50 mm and 60 mm piston strokes on standard units, longer strokes of up to 300 mm on demand
- short piston lifting and lowering times
- robust construction, therefore particularly suitable for heavy duty and rough operation
- optional motor rotation direction because the impeller pump delivers oil in each direction
- designed for continuous operation (100% on-time) and high switching rate
- no excess loading of the electric motor in case of overload and stroke limitation
- not sensitive to voltage fluctuations
- all units can be supplied with protection mode IP 66 and tropicalized
- piston lowering and lifting time variable by mounting a lowering or lifting rate control valve
- additional adjusting or brake springs can be fitted to all units
- with a normal oil filling the thrusters can be operated at ambient temperatures from – 25°C to + 50° C; with a special oil filling down to –30° C
  additional damping springs are necessary on all units used for adjustable brake controls (e.g. when the lifting motor speed is to be reduced to approx. 20% of the rated speed)
- every unit can be installed vertically, in-between or horizontally and is nearly maintenance free

## Electrical Equipment

**Motor:** Two-pole, three-phase, cage motors are fitted in all KORO RIW thrusters. The insulation class of all motors supplied is F - VDE 0530 – the temperature-rise limit of the motor is therefore 150° C.

**Protection mode DIN 40 050:** Delivery will be made with safety class IP66. Standard thrusters are suitable for use in the tropics.

**Voltage/Frequency:** The standard thruster is designed for three-phase current 230/400 Volt, 50 Hz or for 500 Volt, 50 Hz. Units for all other three-phase voltages and frequencies are also available. Nine poles, special design terminal board's can be supplied, too. All motor terminal boxes are fitted with an IPON M25x1.5 watertight cable entry.

**Operating mode:** All thrusters are approved for 100% On-time operation (hydraulic operating mode S1 – VDE 0530) at ambient temperatures of up to 40° C.

**Switching rate:** Under normal conditions, all thrusters are designed for up to 2000 switching operations per hour.

**Rapid lowering circuit:** If the normal piston lowering time is found not to be adequate, it can be reduced by connecting three capacitors in parallel. This shunt connection reduces the deceleration time when the electric motor is switched off. As a result, the oil pressure decreases rapidly. In this case, the thruster must be controlled by a separate relay.

**Limit switch:** All thrusters can be fitted with limit switches on request.

## Technical data:

standard thruster - **230/400V 50Hz, Δ/Y (3~)**

| Type | Force N | Stroke mm | Current A | Power W | Weight kg | other voltages |
|---|---|---|---|---|---|---|
| **Ed 230/ 50** | 230 | 50 | 0,9 / 0,6 | 165 | 10 | |
| **Ed 300/ 50** | 300 | 50 | 1,0 / 0,7 | 200 | 14 | |
| **Ed 500/ 60** | 500 | 60 | 1,0 / 0,7 | 210 | 21 | |
| **Ed 800/ 60** | 800 | 60 | 2,1 / 1,2 | 330 | 24 | |
| **Ed 1250/ 60** | 1250 | 60 | 2,1 / 1,2 | 330 | 39 | also available as a version for **60Hz** |
| **Ed 1250/ 120** | 1250 | 120 | 2,1 / 1,2 | 330 | 39 | |
| **Ed 1850/ 60** | 1850 | 60 | 2,2 / 1,3 | 450 | 39 | |
| **Ed 1850/ 155** | 1850 | 155 | 2,2 / 1,3 | 450 | 40 | and for other voltages (380V, 415V, 440V, 460V, 480V, **500V**, **690V**) |
| **Ed 2000/ 60** | 2000 | 60 | 2,2 / 1,3 | 450 | 39 | |
| **Ed 2000/ 120** | 2000 | 120 | 2,2 / 1,3 | 450 | 39 | |
| **Ed 3000/ 60** | 3000 | 60 | 2,4 / 1,4 | 550 | 40 | technical data on request |
| **Ed 3000/ 120** | 3000 | 120 | 2,4 / 1,4 | 550 | 40 | |
| **Ed 4000/ 60** | 4000 | 60 | 2,5 / 1,5 | 650 | 48 | |
| **Ed 4000/ 120** | 4000 | 120 | 2,5 / 1,5 | 650 | 48 | |
| **Ed 4500/ 60** | 4500 | 60 | 2,6 / 1,7 | 650 | 48 | |
| **Ed 4500/ 120** | 4500 | 120 | 2,6 / 1,7 | 650 | 48 | |



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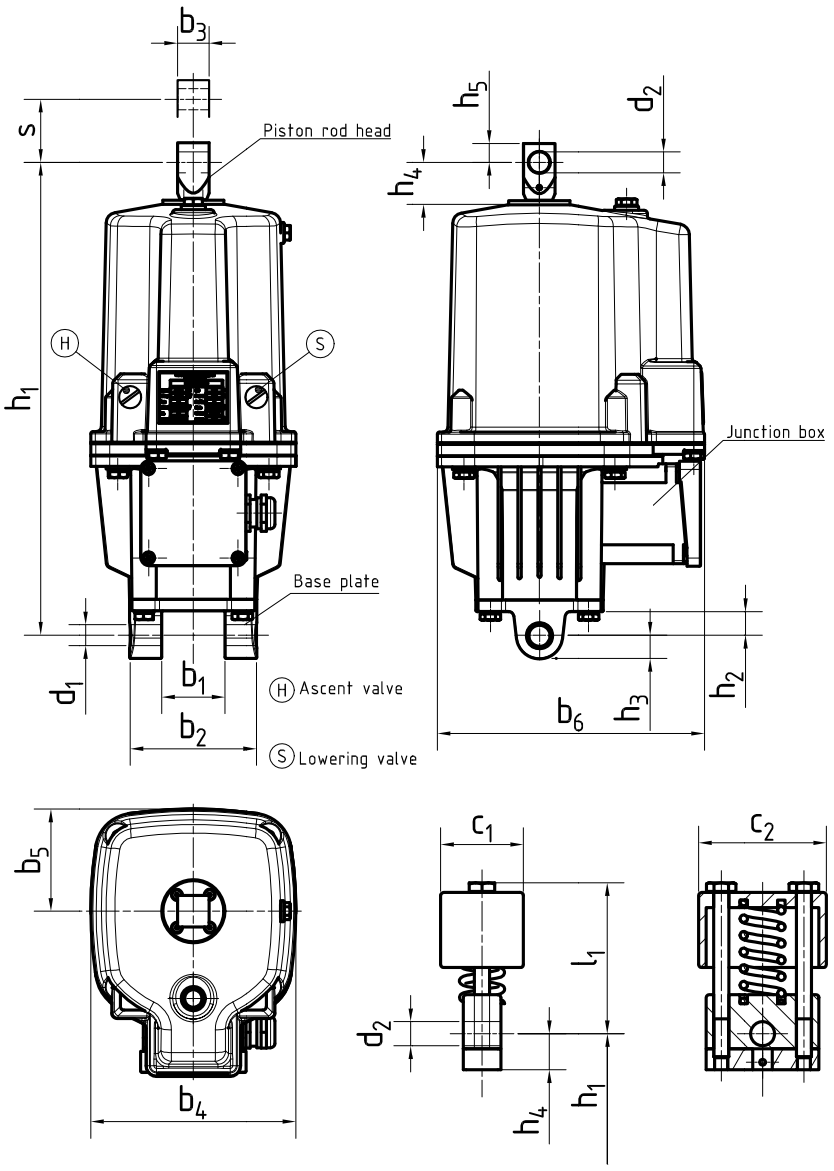


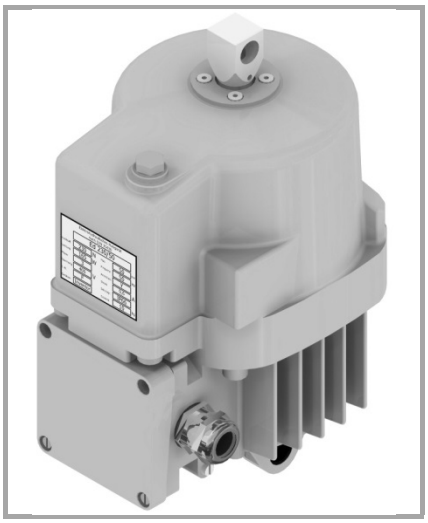

Ed 230/50

Ed 800/60

Abb. 2: Electrohydraulic Thruster size Ed 230-50 till Ed 800-120

all dimensions in [mm]

| Type | s | $b_1$ | $b_2$ | $b_3$ | $b_4$ | $b_5$ | $b_6$ | $c_1$ | $c_2$ | $d_1$ [2] | $d_2$ [1] | $h_1$ | $h_2$ | $h_3$ | $h_4$ | $h_5$ | $l_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ed 23050** | 50 | 40 | 80 | 20 | 160 | 80 | 200 | 55 | 85 | 16 | 16 | 286 | 20 | 16 | 26 | 12 | 100 |
| **Ed 30050** | 50 | 40 | 80 | 25 | 160 | 80 | 197 | 55 | 85 | 16 | 16 | 370 | 18 | 16 | 34 | 15 | 100 |
| **Ed 50060** | 60 | 60 | 120 | 30 | 195 | 97 | 254 | 55 | 85 | 20 | 20 | 435 | 23 | 22 | 36 | 18 | 100 |
| **Ed 80060** | 60 | 60 | 120 | 30 | 195 | 97 | 254 | 55 | 85 | 20 | 20 | 450 | 23 | 22 | 36 | 18 | 100 |

[1] Tolerance: +0.1
[2] Tolerance: +0.15 / +0.25


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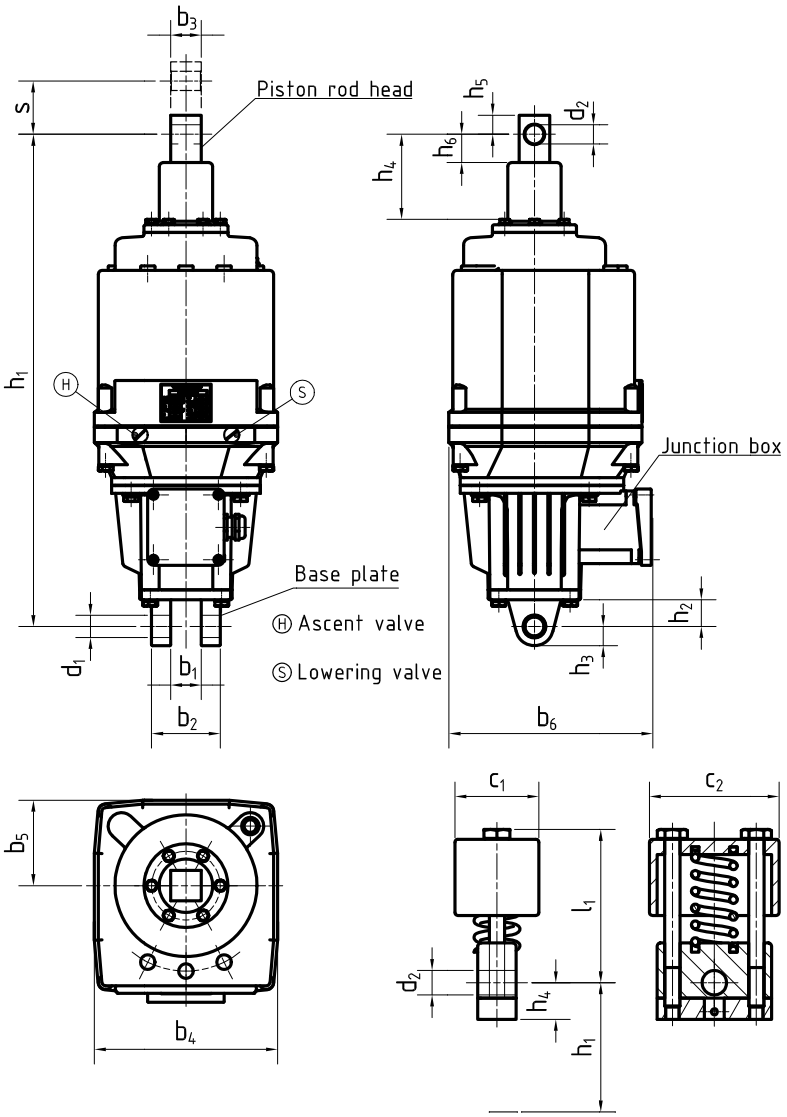
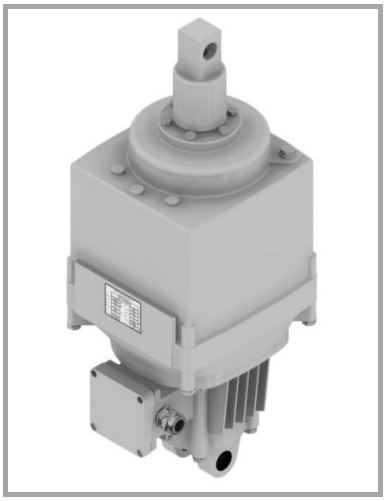
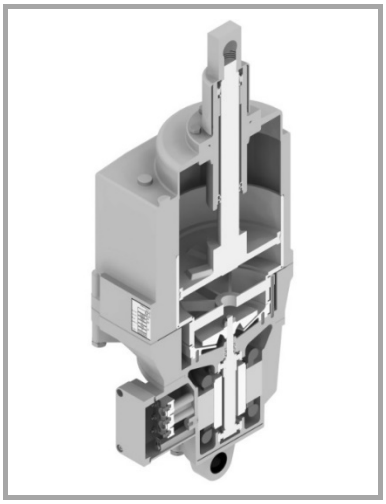


Ed 1250/60



Ed 1250/120

Abb. 3: Electrohydraulic Thruster size Ed 1250-60 till Ed 4500-120

all dimensions in [mm]

| Type | s | $b_1$ | $b_2$ | $b_3$ | $b_4$ | $b_5$ | $b_6$ | $c_1$ | $c_2$ | $d_1$ [2] | $d_2$ [1] | $h_1$ | $h_2$ | $h_3$ | $h_4$ | $h_5$ | $h_6$ | $l_1$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Ed 1250/ 60** | 60 | 40 | 90 | 40 | 240 | 112 | 260 | 80 | 130 | 25 | 25 | 645 | 35 | 25 | 117 | 25 | 38 | 147 |
| **Ed 1250/ 120** | 120 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 705 | 35 | 25 | 177 | 25 | 38 | – |
| **Ed 1850/ 60** | 60 | 80 | 160 | 40 | 240 | 112 | 260 | 80 | 130 | 27 | 25 | 600 | 44 | 25 | 76 | 25 | 42 | 147 |
| **Ed 1850/ 160** | 155 | 80 | 160 | 40 | 240 | 112 | 260 | – | – | 27 | 25 | 700 | 44 | 25 | 176 | 25 | 42 | – |
| **Ed 2000/ 60** | 60 | 40 | 90 | 40 | 240 | 112 | 260 | 80 | 130 | 25 | 25 | 645 | 35 | 25 | 117 | 25 | 38 | 147 |
| **Ed 2000/ 120** | 120 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 705 | 35 | 25 | 177 | 25 | 38 | – |
| **Ed 3000/ 60** | 60 | 40 | 90 | 40 | 240 | 112 | 260 | 80 | 130 | 25 | 25 | 645 | 35 | 25 | 117 | 25 | 38 | 147 |
| **Ed 3000/ 120** | 120 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 705 | 35 | 25 | 177 | 25 | 38 | – |
| **Ed 4000/ 60** | 60 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 645 | 35 | 25 | 117 | 25 | 38 | – |
| **Ed 4000/ 120** | 120 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 705 | 35 | 25 | 177 | 25 | 38 | – |
| **Ed 4500/ 60** | 60 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 645 | 35 | 25 | 117 | 25 | 38 | – |
| **Ed 4500/ 120** | 120 | 40 | 90 | 40 | 240 | 112 | 260 | – | – | 25 | 25 | 705 | 35 | 25 | 177 | 25 | 38 | – |

[1] Tolerance: +0.1
[2] Tolerance: +0.15 / +0.25



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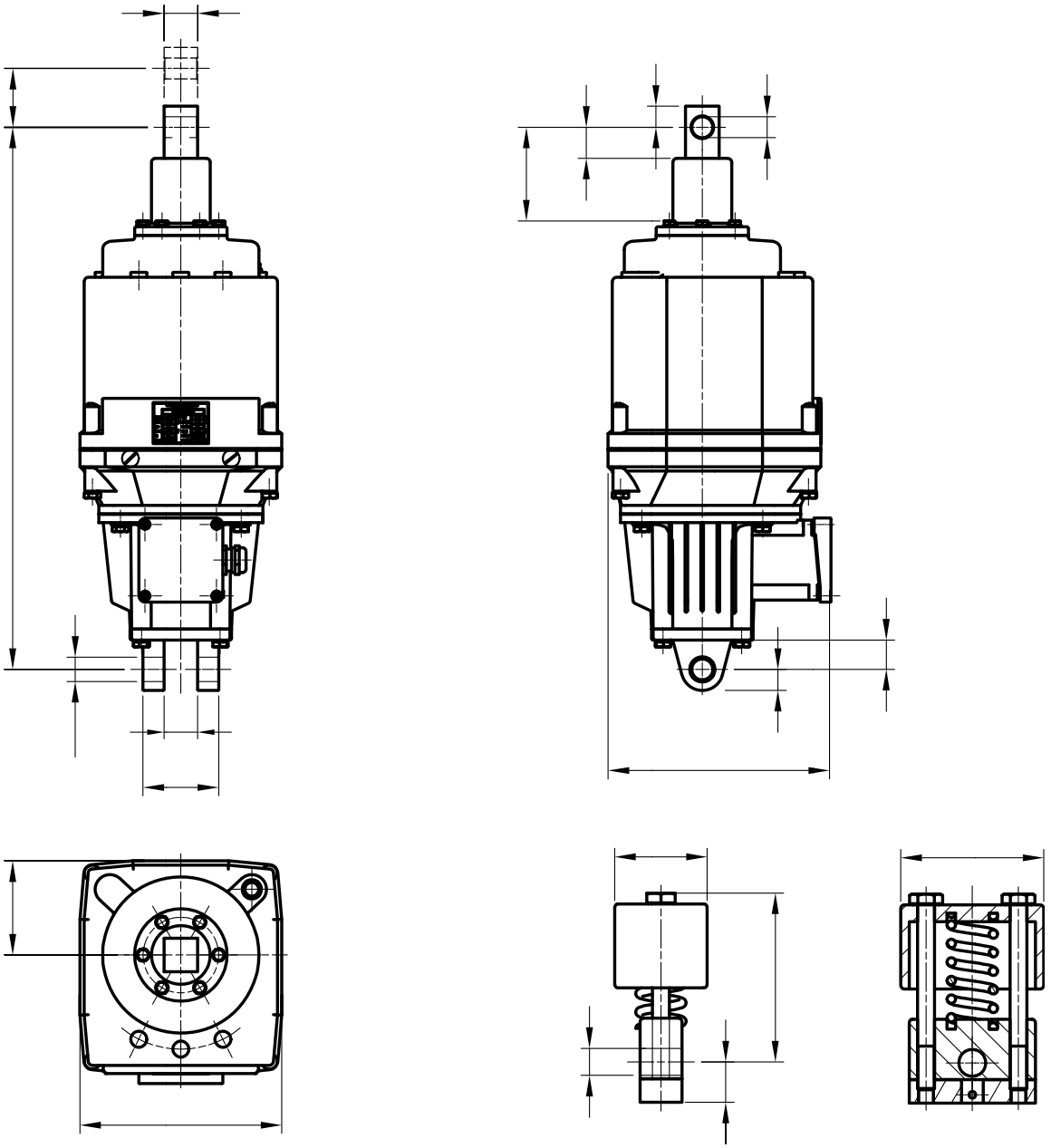
# Application Thruster
## with special dimensions



Please indicate your desired dimensions based on above drawing:

| Type: | | other requirements: |
|---|---|---|
| Force: | N | |
| Stroke: | mm | |
| Voltage: | V | |
| Frequency: | Hz | |
| c-spring (Braking spring): | ☐ yes ☐ no | |
| d-spring (Damping spring): | ☐ yes ☐ no | |
| H-valve (Lifting valve): | ☐ yes ☐ no | |
| S-valve (Lowering valve): | ☐ yes ☐ no | |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