

1. APPLICATION

Electro-hydraulic thruster is a kind of drive control system, which is very compact in structure, and integrates electrical motor, centrifugal pump and oil cylinder. It is extensively used as drive mechanism of various drum and disc brakes, and as drive control of various industrial valves, penstock, directional pendulum and steering($<90^\circ$) mechanism and clamping devices.

2. STANDARDS

Ed series comply with DIN15430 standard; it can replace (M) YT1 series old products.

3. OPERATING CONDITIONS

Ambient temperature: $-25\sim+50^\circ\text{C}$. When the temperature is below -20°C , rinse the hydraulic oil with YH-10, and a heater may not be installed; Use D-B-25 hydraulic oil. A heater must be used.

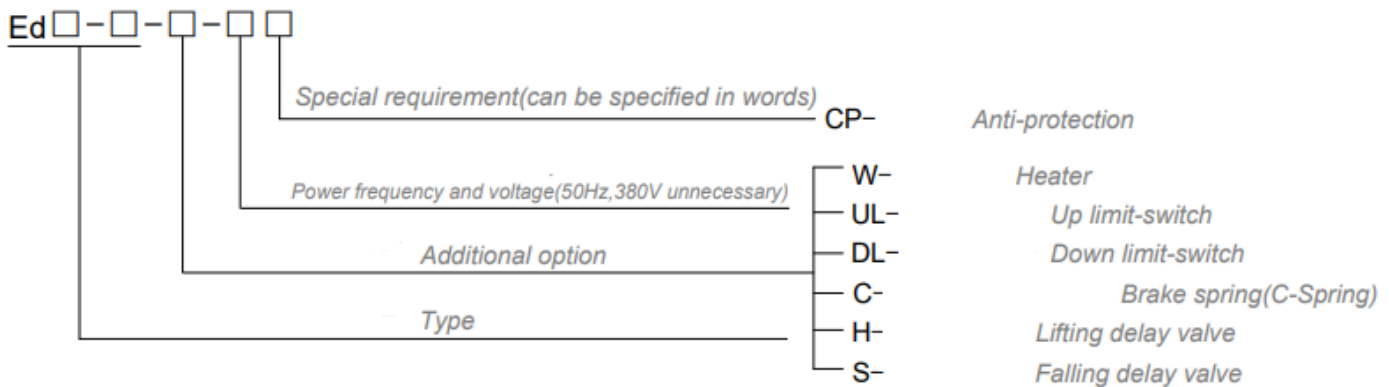
3.1 Relative humidity: generally, $\leq 90\%$; Anti-corrosive thrusters should be selected for damp and hot areas or corrosive environment.

3.2 Operating duty: in remittent(S3-60%) and continuous(S1)

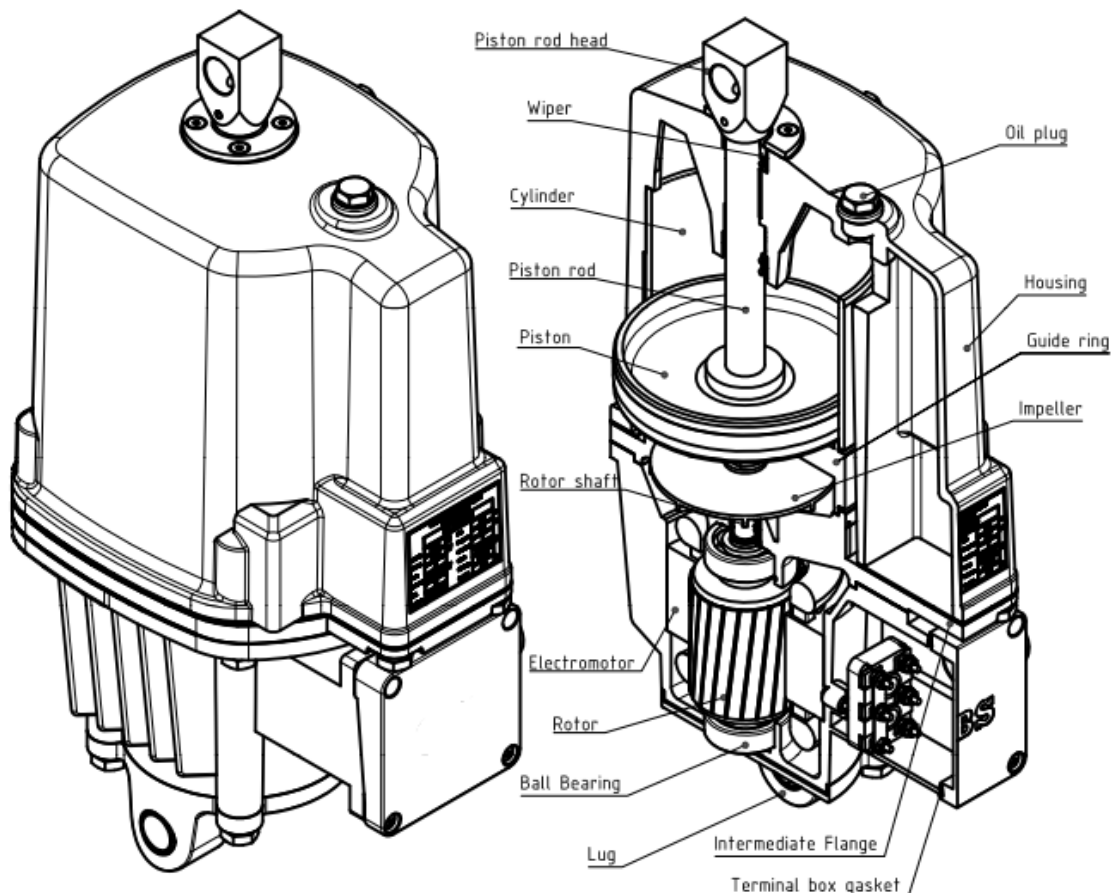
3.3 Voltages: AC 3 phase 380V 50Hz (Other voltage can be made as required)

3.4 The specification of the power cable is $4\times 1.5\text{mm}^2$, and the conductor cross section can reach $4\times 2.5\text{mm}^2$.

4. ORDER INSTRUCTION



5. THRUSTER SECTION VIEW



Electro hydraulic 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.

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.

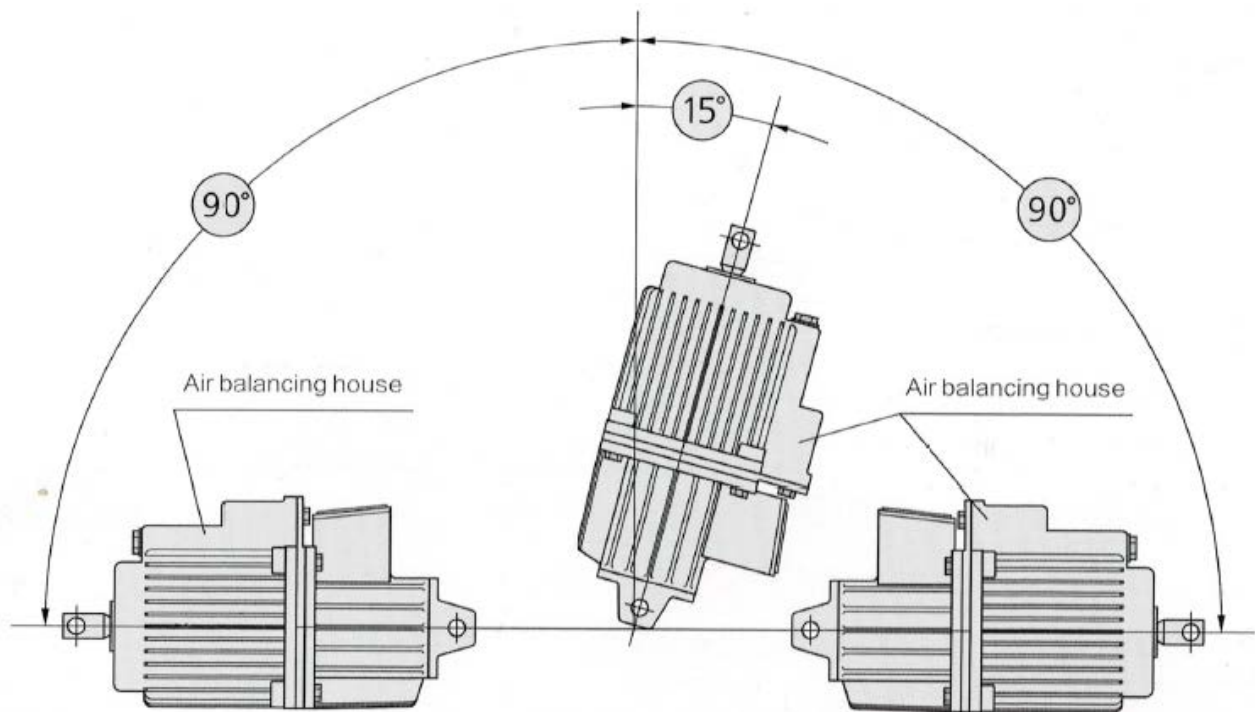
The hydraulic unit is in a closed housing together with the tank. The oil can be checked and refilled from an external oil filler inlet. The thrusters are supplied ready for assembly with finish coating and filled with oil. They have to be fixed with bolts in the holes of the lug and in piston rod head.

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

6. MOUNTING

6.1 Vertical, Horizontal or In-between possible.

Except for type $\leq 300\text{N}$, the foot lugs can be installed around 90° (please indicate at order), head of thruster can turn freely around 360° , all thrusters can be installed perpendicularly or horizontally, angularly ($<15^\circ$ or $>15^\circ$), The balancing air house should be set upward (refer to figure)



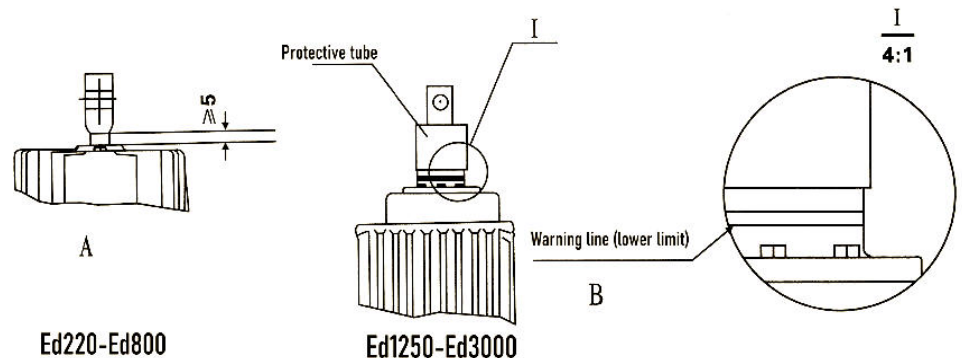
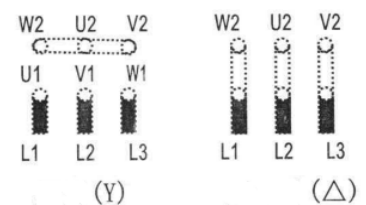
6.2 When wiring, the cable should enter the junction box through the inlet hole, remove the pusher junction box cover (wiring diagram), and connect the three-phase AC power supply and internal and external wires according to the requirements according to the nameplate parameters. (The cable size should not exceed $4 \times 2.5\text{mm}$), check if the cable is reliably connected to the motor output without any looseness, then cover the junction box cover and tighten the screws.

6.3 Before powering on, the three-phase balance of the power supply voltage and the range of voltage fluctuations should be checked to ensure compliance with regulations.

6.4 When the thruster is in operation, there should be a certain distance between the connecting rod of Ed220-Ed800 and the upper edge of the cylinder body, generally not less than 5mm.

Ed1250-Ed3000 protective tubes should be above the warning line.

To avoid a layer of dust thicker than 5mm from accumulating on the device, clean it on a regular basis.



6.5 Draw the paint:

Pushing the machine installs after host is ascended, if need to draw the paint afresh, keep piston pole from ascending paint, will break otherwise its seal completely the function.

7. MAINTENANCE

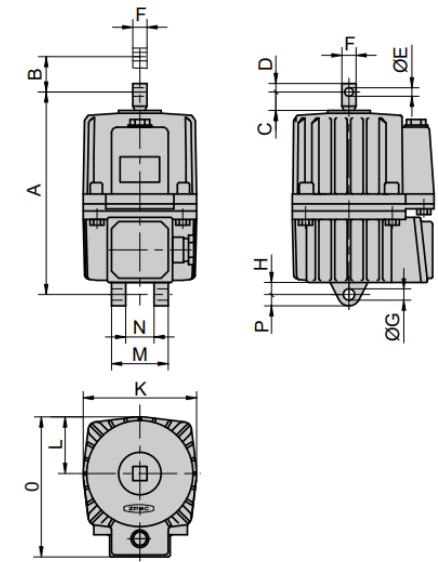
Attention: Before maintenance of the thruster, confirm that the power is cut off and set a warning mark at the power switch.

- a) After long-term operation, the hydraulic oil will become turbid, and new hydraulic oil needs to be replaced (usually once a year or twice, depending on the actual situation)
- b) According to S3, with a 60% intermittent working system, the thruster needs to be overhauled or replaced after working 5000000 times or accumulating 10000 hours.
- c) If the thruster has been stored for a long time (more than 6 months), the screw plug should be unscrewed before use to check if the oil level is normal. If the oil level does not reach the specified position, hydraulic oil should be added to the specified level, otherwise the thruster cannot work properly.

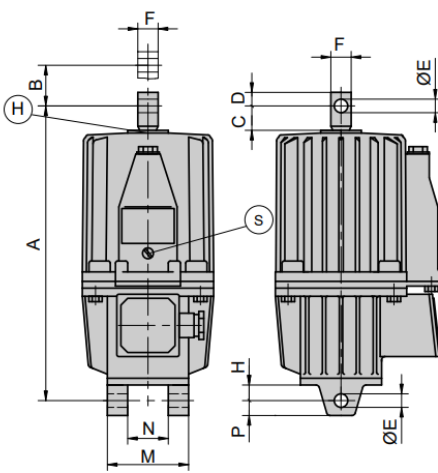
The hydraulic oil grades can be found in the table (Mobil, Shell or other hydraulic oils), and the added hydraulic oil must not have impurities or dirt. When adding hydraulic oil, the push rod should be slowly pulled up and down several times to remove the air from the hydraulic cylinder and ensure that the oil is added to the full capacity.

| Ambient Temperature | Hydraulic Oil |
|---------------------|-------------------------------|
| -20 °C~50 °C | DB-25 (DTE-21 (Mobil); HL-10) |
| -45 °C—50 °C | YH-10 (DB-45) |

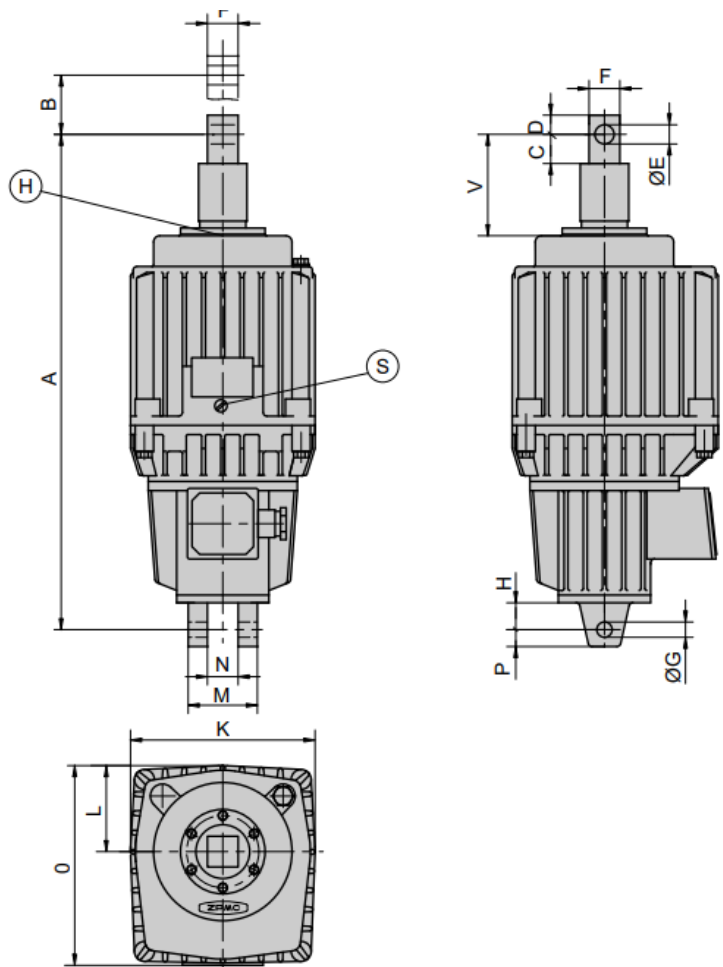
8. TECHNICAL PARAMETER



Type Ed220



Type Ed300.500.800



Type Ed1250.2000.3000.4500

8.1 Dimension

| Thruster type | A | B | C | D | E | F | G | H | K | L | M | N | O | P | V |
|---------------|-----|-----|----|----|----|----|----|----|-----|-----|-----|----|-----|----|-----|
| Ed220-50 | 286 | 50 | 23 | 14 | 12 | 20 | 16 | 20 | 160 | 80 | 80 | 40 | 197 | 16 | |
| Ed300-50 | 370 | 50 | 33 | 17 | 16 | 25 | 16 | 20 | 160 | 80 | 80 | 40 | 197 | 16 | |
| Ed500-60 | 435 | 60 | 35 | 22 | 20 | 30 | 20 | 23 | 194 | 97 | 120 | 60 | 254 | 22 | |
| Ed800-60 | 450 | 60 | 35 | 22 | 20 | 30 | 20 | 23 | 194 | 97 | 120 | 60 | 254 | 22 | |
| Ed1250-60 | 645 | 60 | 37 | 25 | 25 | 40 | 25 | 33 | 240 | 120 | 90 | 40 | 254 | 25 | 130 |
| Ed2000-60 | 645 | 60 | 37 | 25 | 25 | 40 | 25 | 33 | 240 | 120 | 90 | 40 | 254 | 25 | 130 |
| Ed3000-60 | 645 | 60 | 37 | 25 | 25 | 40 | 25 | 33 | 240 | 120 | 90 | 40 | 254 | 25 | 130 |
| Ed500-120 | 515 | 120 | 35 | 20 | 20 | 30 | 20 | 47 | 194 | 97 | 120 | 60 | 254 | 22 | |
| Ed800-120 | 530 | 120 | 35 | 20 | 20 | 30 | 20 | 47 | 194 | 97 | 120 | 60 | 254 | 22 | |
| Ed1250-120 | 705 | 120 | 37 | 25 | 25 | 40 | 25 | 43 | 240 | 120 | 90 | 40 | 268 | 25 | 190 |
| Ed2000-120 | 705 | 120 | 37 | 25 | 25 | 40 | 25 | 43 | 240 | 120 | 90 | 40 | 268 | 25 | 190 |
| Ed3000-120 | 705 | 120 | 37 | 25 | 25 | 40 | 25 | 43 | 240 | 120 | 90 | 40 | 268 | 25 | 190 |
| Ed6300-120 | 865 | 120 | 38 | 25 | 25 | 40 | 25 | 40 | 270 | 110 | 110 | 60 | 327 | 25 | 190 |
| Ed1250-80 | 665 | 80 | 37 | 25 | 25 | 40 | 25 | 35 | 240 | 120 | 90 | 40 | 268 | 25 | 150 |
| Ed2000-80 | 665 | 80 | 37 | 25 | 25 | 40 | 25 | 35 | 240 | 120 | 90 | 40 | 268 | 25 | 150 |
| Ed3000-80 | 665 | 80 | 37 | 25 | 25 | 40 | 25 | 35 | 240 | 120 | 90 | 40 | 268 | 25 | 150 |

8.2 Parameter

| Thruster type | Lifting thrust (N) | Stroke (mm) | Braking spring force (N) | Power (W) | Rated current (A) | Rated voltage (V) | Max.Operating frequency (1/h) | Weight (kg) |
|---------------|--------------------|-------------|--------------------------|-----------|-------------------|-------------------|-------------------------------|-------------|
| Ed220-50 | 220 | 50 | 180 | 165 | 0.52 | 380~400V | 2000 | 10 |
| Ed300-50 | 300 | 50 | 270 | 200 | 0.46 | 380~400V | 2000 | 14 |
| Ed500-60 | 500 | 60 | 460 | 210 | 0.48 | 380~400V | 2000 | 23 |
| Ed800-60 | 800 | 60 | 750 | 330 | 1.42 | 380~400V | 2000 | 24 |
| Ed1250-60 | 1250 | 60 | 1200 | 330 | 1.44 | 380~400V | 2000 | 39 |
| Ed2000-60 | 2000 | 60 | 1900 | 450 | 1.45 | 380~400V | 2000 | 39 |
| Ed3000-60 | 3000 | 60 | 2700 | 550 | 1.46 | 380~400V | 1500 | 40 |
| Ed500-120 | 500 | 120 | | 210 | 0.48 | 380~400V | 1200 | 26 |
| Ed800-120 | 800 | 120 | | 330 | 1.42 | 380~400V | 1200 | 27 |
| Ed1250-120 | 1250 | 120 | | 330 | 1.42 | 380~400V | 1200 | 39 |
| Ed2000-120 | 2000 | 120 | | 450 | 1.45 | 380~400V | 1200 | 39 |
| Ed3000-120 | 3000 | 120 | | 550 | 1.46 | 380~400V | 900 | 40 |
| Ed6300-120 | 6300 | 120 | | 1100 | 2.40 | 380~400V | 630 | 45 |