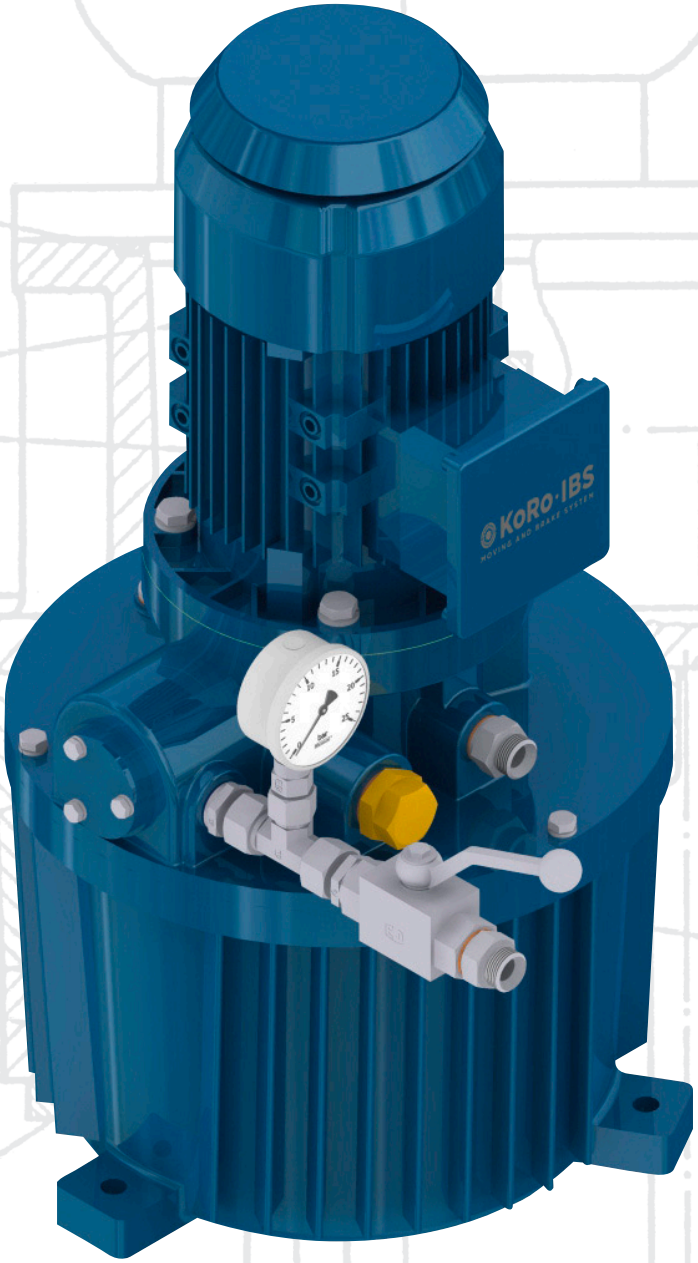
KoRo·IBS

MOVING AND BRAKE SYSTEM




# Pressure oil units

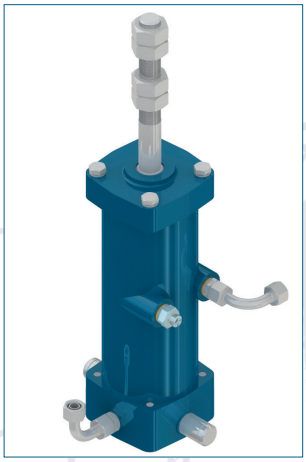
KoRo·IBS
MOVING AND BRAKE SYSTEM

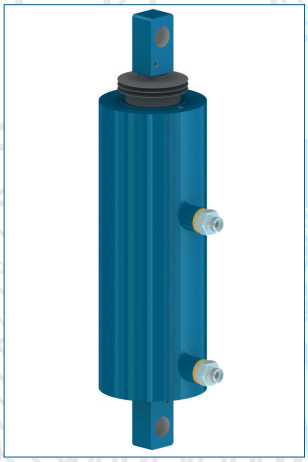
# Pressure oil units

**Industrial Brakes · Thrusters · Pressure Oil Pumps · Couplings · Hydraulic Buffers · Cellular Buffers**
**Rail Pliers · Sheaves · Hook Blocks · Crane Rail Wheels · Rail Clamps · Reparation · Service**

## Advantages

- Highest working reliability owing to the simple and especially heavy construction
- Precision in operation owing to the pressure generating unit being a gear pump (compression principle)
- Shock free operation owing to a hydraulic shock absorber, insignificant wear of brake linings
- Universal range of application owing to the fact that cylinders may be arranged in any required position
- One pump only is capable of driving several cylinders
- The pressure (power) produced by the piston is considerably higher than that of the spring
- Long operation life – pumps and cylinders **of the 50s are still being repaired today** and are used again. Spare parts available after more than 50 years!





## Application of pressure oil units

As brake lifting appliances for the release and setting of brakes of any type, such as crane brakes, brakes for elevators, excavators, roller adjustment, attachments, twisting machinery, conveyor equipment

- For operation of pressing rollers, ratchet device and switches in rolling mill trains
- For shifting mechanically acting clutch coupling
- For closing or opening furnace doors (with long stroke pressure oil cylinders)
- In shearing machines, for holding down the materials to be cut
- As low capacity pressing cylinders
- In slide valve gears of operating instruments, etc.

## Operation

The pressure oil unit is an electro hydraulic drive consisting of pump and cylinder which are connected through a pressure hose and an oil leakage hose. The most important driving element of a pump is a gear pump driven by a standard type three-phase A.C. squirrel cage motor, through an elastic coupling. The pump also comprises an overpressure valve as well as a fully hydraulically-operated control valve. A big oil tank which forms at the same time the bottom of the pump stores and takes the required oil. This oil tank has feet for mounting purpose.

The actual working part is the cylinder. This cylinder contains the piston, the lifting power of which is transmitted by the piston rod. The cylinder normally has a built in pressure spring which is compressed after switching on the pressure oil pump. After switching off the spring power drives the piston back into its initial position. As the pressure oil units are often used as brake lifting units the said pull-back springs serve as brake spring at the same time. For this reason, they are dimensioned accordingly so as to meet the requirements of each special case, thus, the springs are adapted to the various brake disk diameters.

When the pump motor has been switched on, the gear pump immediately generates oil pressure. So the hydraulic control valve is operated and the oil pressure acts upon the piston of the cylinder, moving it into the highest possible position; thus, the PULL-BACK SPRING or BRAKE SPRING is compressed. As long as the pump motor remains in operation, the working piston is held in this highest position; the overpressure valve allows the pressure oil to circulate in the interior of the pump.

After the pump motor has been switched off, the control valve causes the cylinder to be discharged immediately. Driven by the brake spring, the working piston is pushed back into its initial position. In case of a sudden failure of the electric current, the brake will be set automatically, for the braking pressure is always generated by the spring. Consequently, an additional spring or a braking weight is not required.

**KoRo IBS GmbH**
Stockumer Straße 28
58453 Witten (Germany)
Tel. 0049 2302 70 78 7-0
Fax 0049 2302 70 78 7-10
Mail: info@koro-ibs.de
Web: www.koro-ibs.de

## Type

A pump is supplied including motor and oil tank. Hoses and oil filling are not included and have to be purchased separately. If the customer requires a special motor type for a pump, the flange dimensions for the pumps have to be considered. The regulating valve may be supplied as separate unit.

A cylinder is normally supplied with a mounted brake spring. The springs are dimensioned according to customers´ requirements. A longer stroke is only possible with a low pressure spring or without any spring. Cylinders with this longer stroke are also supplied.

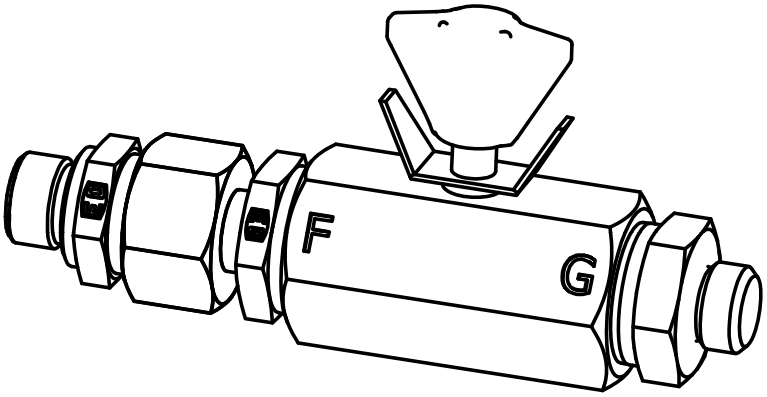
## Special Type

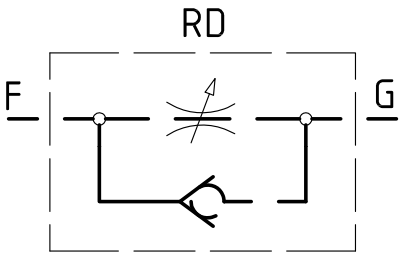
Pumps for higher switching frequency, for abnormal voltage and frequency, with mounted regulating valve, for direct current, with magnetic valve.

Cylinders with extra-long stroke, reverse function (pulling), double effect as a differential cylinder.

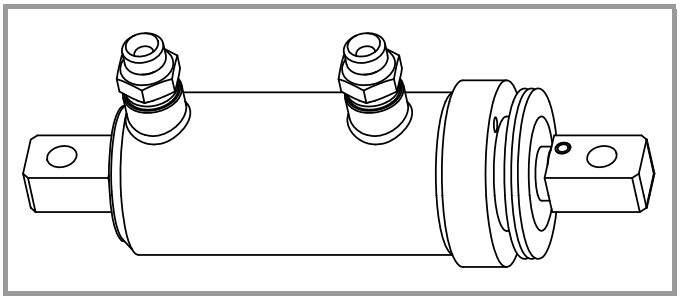
## Regulating valve

Owing to such a regulating valve, the time needed for the back travel (lowering) of the working piston can be continuously adjusted. The regulating valve can be installed in all pumps if required. In the case of brakes provided for stopping heavy constructions (such as brakes in crane traveling), the installation of a regulating valve is indispensable. Using such a regulating valve, the length required for stopping can be determined at choice.

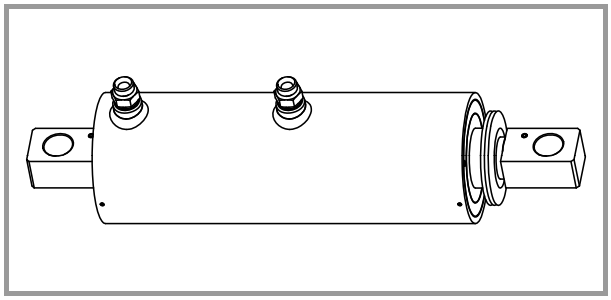


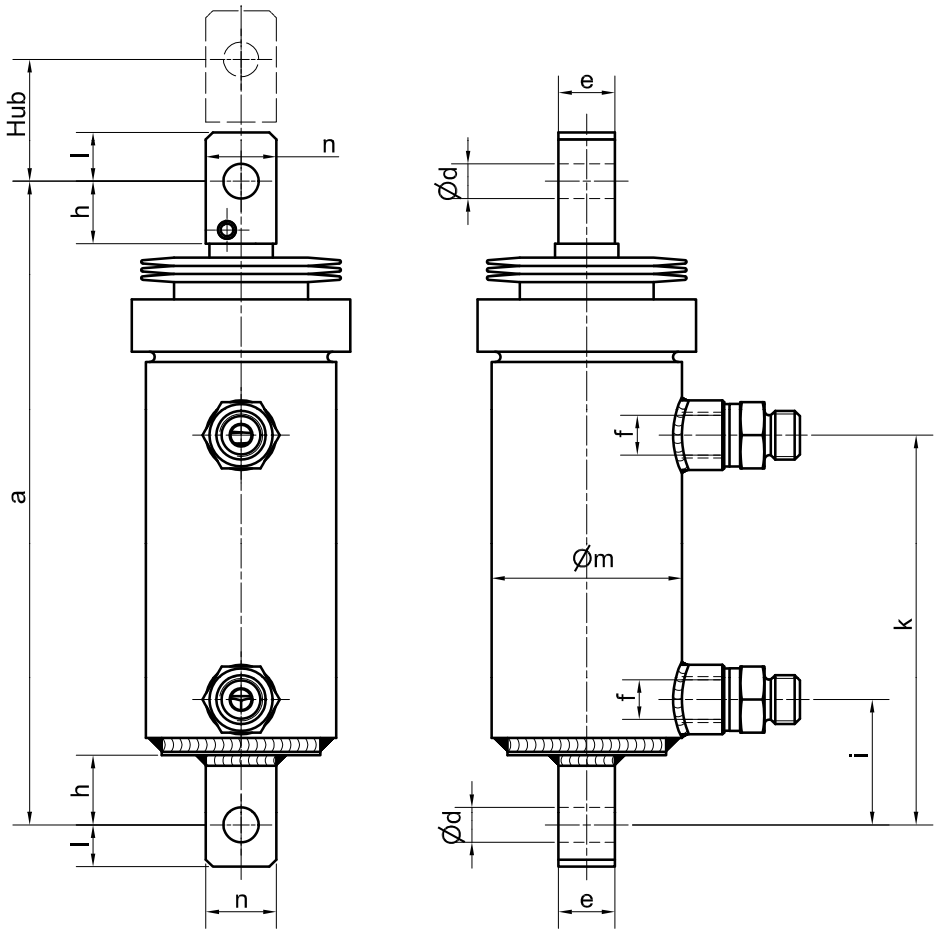
# Pressure Oil Cylinder
## Type T



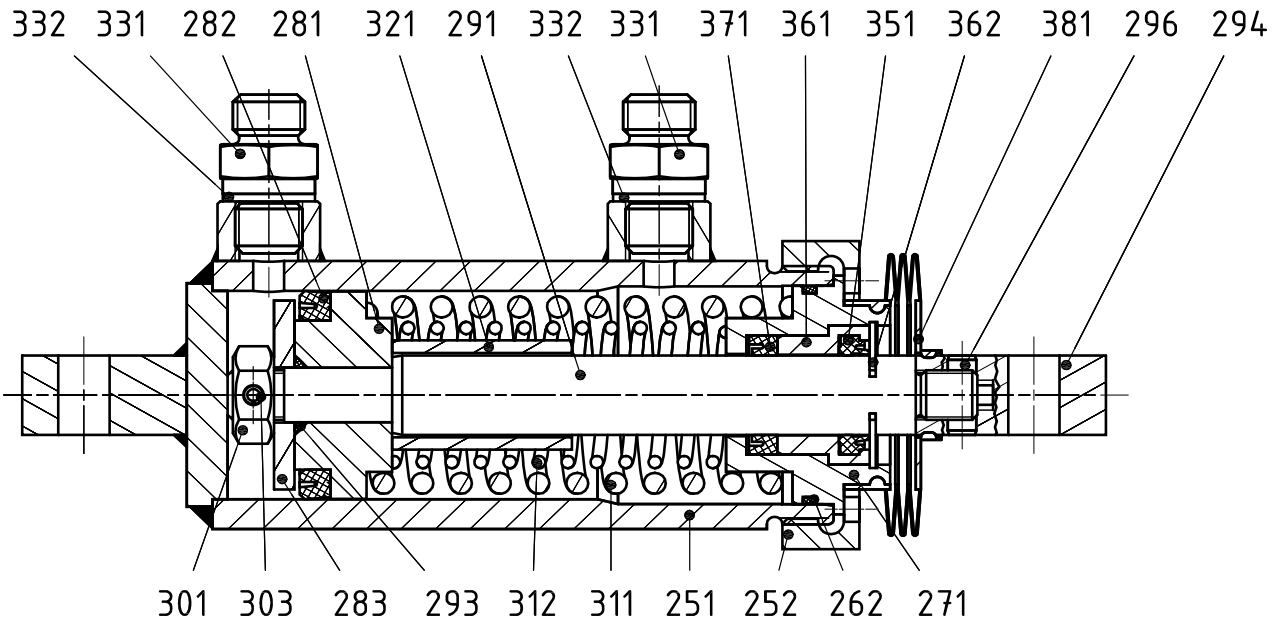
Cylinder Type 70T



Cylinder Type 77T



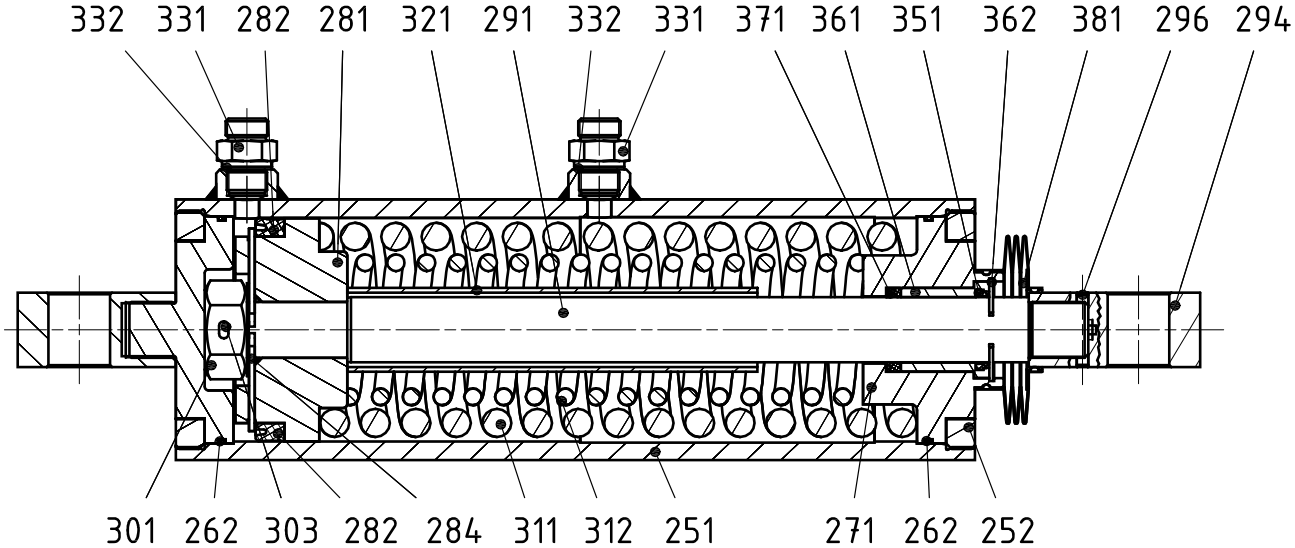

| Size | Stroke mm | Spring Force N | a mm | d H7 mm | e mm | f | h mm | i mm | k mm | l mm | m mm | n mm | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 30 | 550 | 185 | 10 | 16 | R1/4“ | 18 | 38 | 110 | 12 | 64 | 20 | 2.2 |
| 1 | 30 | 750 | 250 | 12 | 16 | R1/4“ | 23 | 42 | 140 | 14 | 74 | 20 | 3.3 |
| 2 | 35 | 1000 | 280 | 14 | 20 | R3/8“ | 26 | 50 | 160 | 15 | 80 | 25 | 5.6 |
| 3 | 40 | 1400 | 340 | 16 | 20 | R3/8“ | 32 | 58 | 190 | 16 | 90 | 30 | 8.8 |
| 4 | 40 | 2000 | 380 | 20 | 25 | R3/8“ | 36 | 65 | 210 | 20 | 104 | 30 | 12.8 |
| 5 | 45 | 2800 | 400 | 25 | 30 | R1/2“ | 40 | 75 | 215 | 25 | 110 | 40 | 14.5 |
| 6 | 50 | 4000 | 485 | 28 | 30 | R1/2“ | 45 | 80 | 240 | 28 | 125 | 40 | 21.3 |
| 7 | 55 | 5500 | 550 | 32 | 40 | R1/2“ | 50 | 85 | 270 | 32 | 145 | 50 | 32.5 |
| 8 | 60 | 7500 | 650 | 35 | 45 | R1/2“ | 52 | 90 | 335 | 35 | 165 | 50 | 52.5 |




Cylinder size 0 till size 2

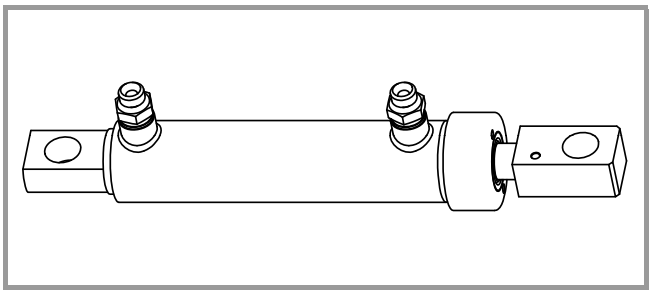
| | | | | | |
|---|---|---|---|---|---|
| 251 | Cylinder housing | 291 | Piston rod with Head | 321 | Tube |
| 252 | Cap nut [1] | 293 | Packing ring | 331 | Nipple |
| 252 | Ring nut [2] | 294 | Head piece | 332 | Packing ring |
| 262 | Packing Ring | 296 | Locking pin/Cotter | 351 | Scraper ring |
| 271 | Bearing cover | 301 | Nut | 361 | Sleeve |
| 281 | Piston | 303 | Locking pin | 362 | Safety ring |
| 282 | Piston gasket | 311 | Brake spring I | 371 | Gasket |
| 283 | Spacer washer | 312 | Brake spring II left | 381 | Cap packing 70T-77T |
| 284 | Safety ring | | | | |

[1] Cylinder size 0 till size 2
[2] Cylinder size 3 till size 8

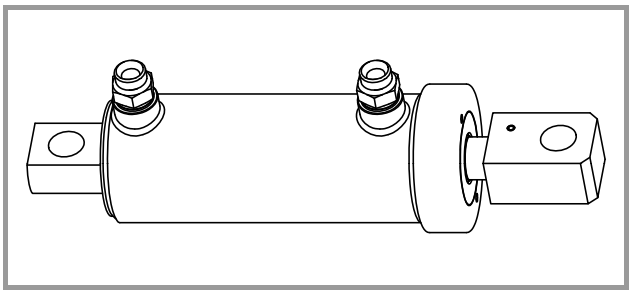



Cylinder size 3 till size 8

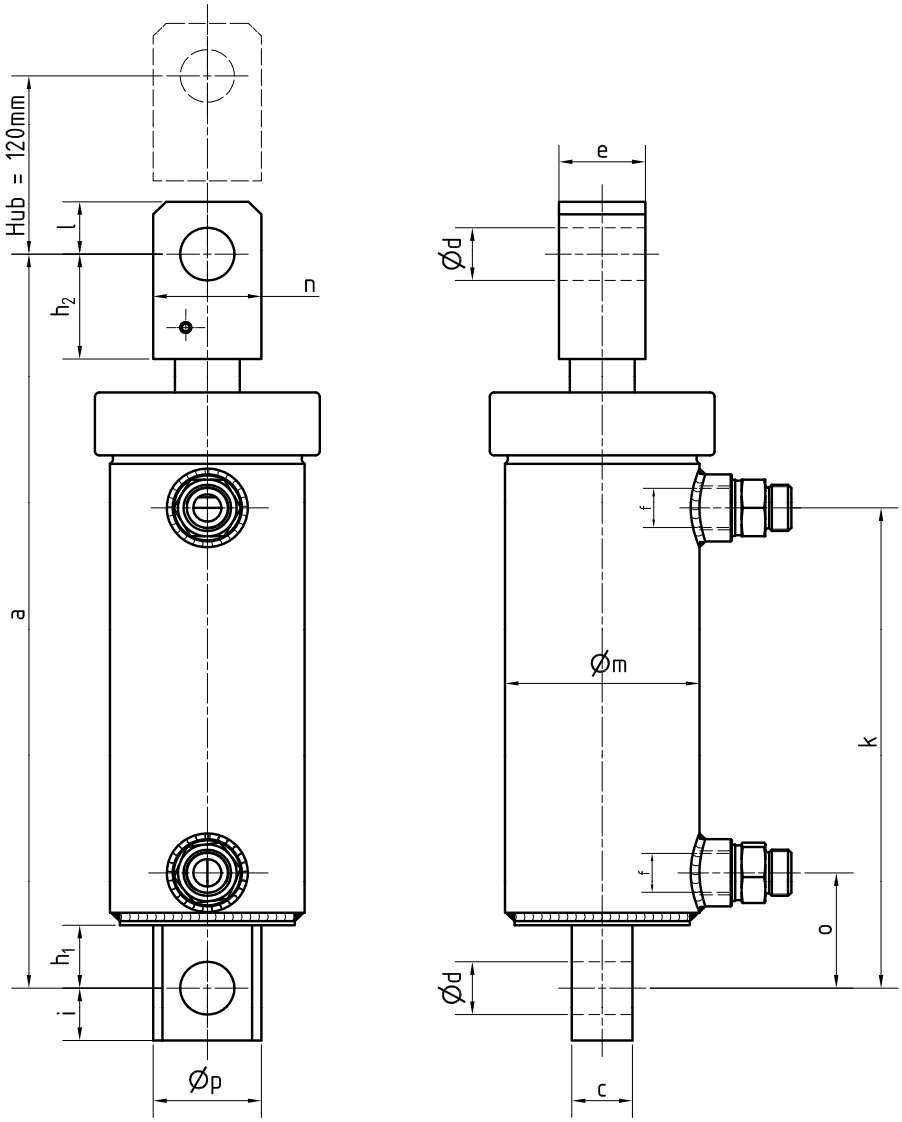
# Pressure Oil Cylinder
## Type TX



Cylinder Type 70TX

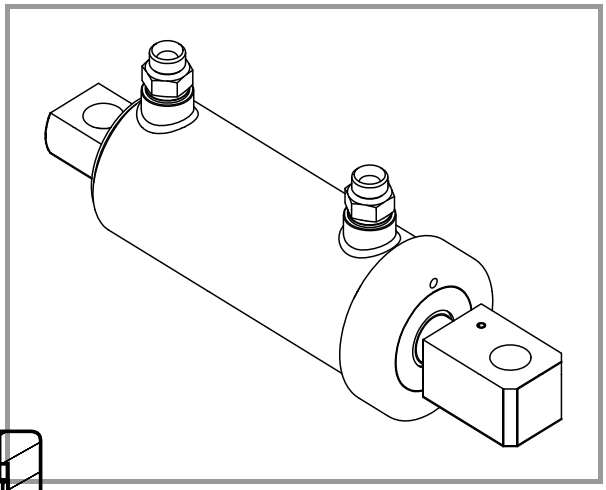


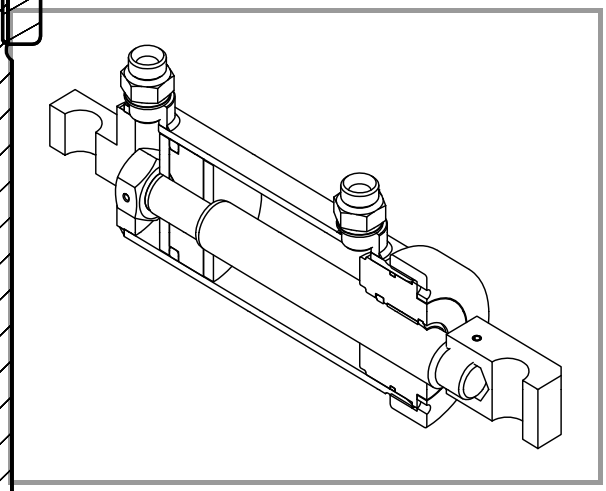
Cylinder Type 74TX

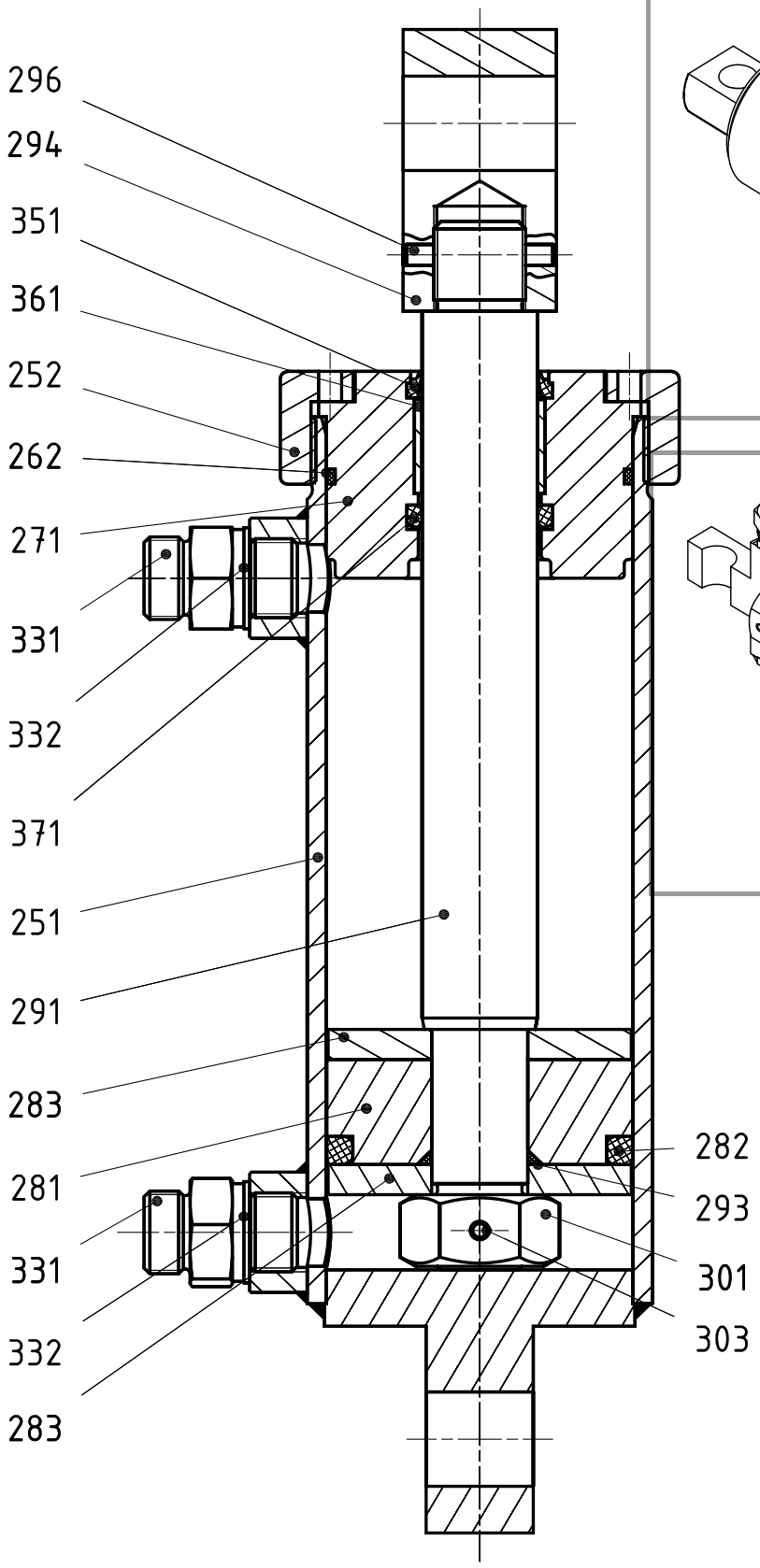



| Type | a mm | d H7 mm | c mm | e mm | f | h1 mm | h2 mm | i mm | k mm | l mm | m mm | n mm | o mm | p h9 mm | Pump | Piston Force N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 700TX | 290 | 20 | 18 | 25 | R1/4“ | 25 | 36 | 20 | 197 | 20 | 45 | 30 | 45 | 35 | Gr. I | 630 |
| 71TX | 290 | 20 | 18 | 25 | R1/4“ | 25 | 36 | 20 | 197 | 20 | 60 | 30 | 40 | 35 | Gr. II | 1400 |
| 73TX | 350 | 25 | 28 | 40 | R1/2“ | 30 | 50 | 25 | 229 | 25 | 80 | 50 | 55 | 50 | Gr. III | 2700 |
| 74TX | 350 | 25 | 28 | 40 | R1/2“ | 30 | 50 | 25 | 229 | 25 | 90 | 50 | 55 | 50 | Gr. III | 3500 |

# Parts Drawing
## Type TX

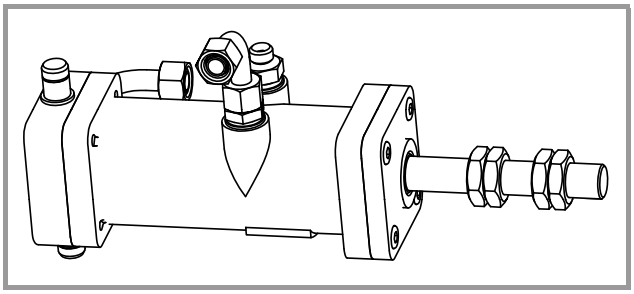




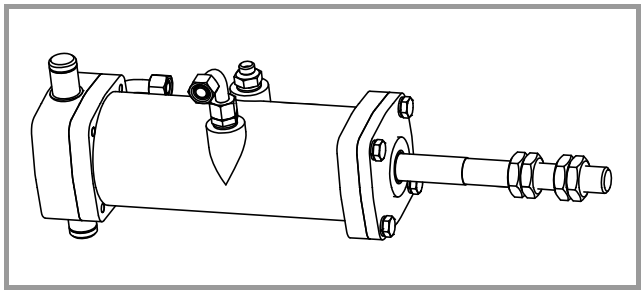



| | |
|---|---|
| 251 | Cylinder housing |
| 252 | Cap nut |
| 262 | Packing ring |
| 271 | Bearing cover |
| 281 | Piston |
| 282 | Piston gasket |
| 283 | Spacer washer |
| 291 | Piston rod with head |
| 293 | Packing ring |
| 294 | Head piece |
| 301 | Nut |
| 303 | Brake spring |
| 331 | Nipple |
| 332 | Iron copper ring |
| 351 | Scraper ring |
| 361 | DU-bushing |
| 371 | Collar |

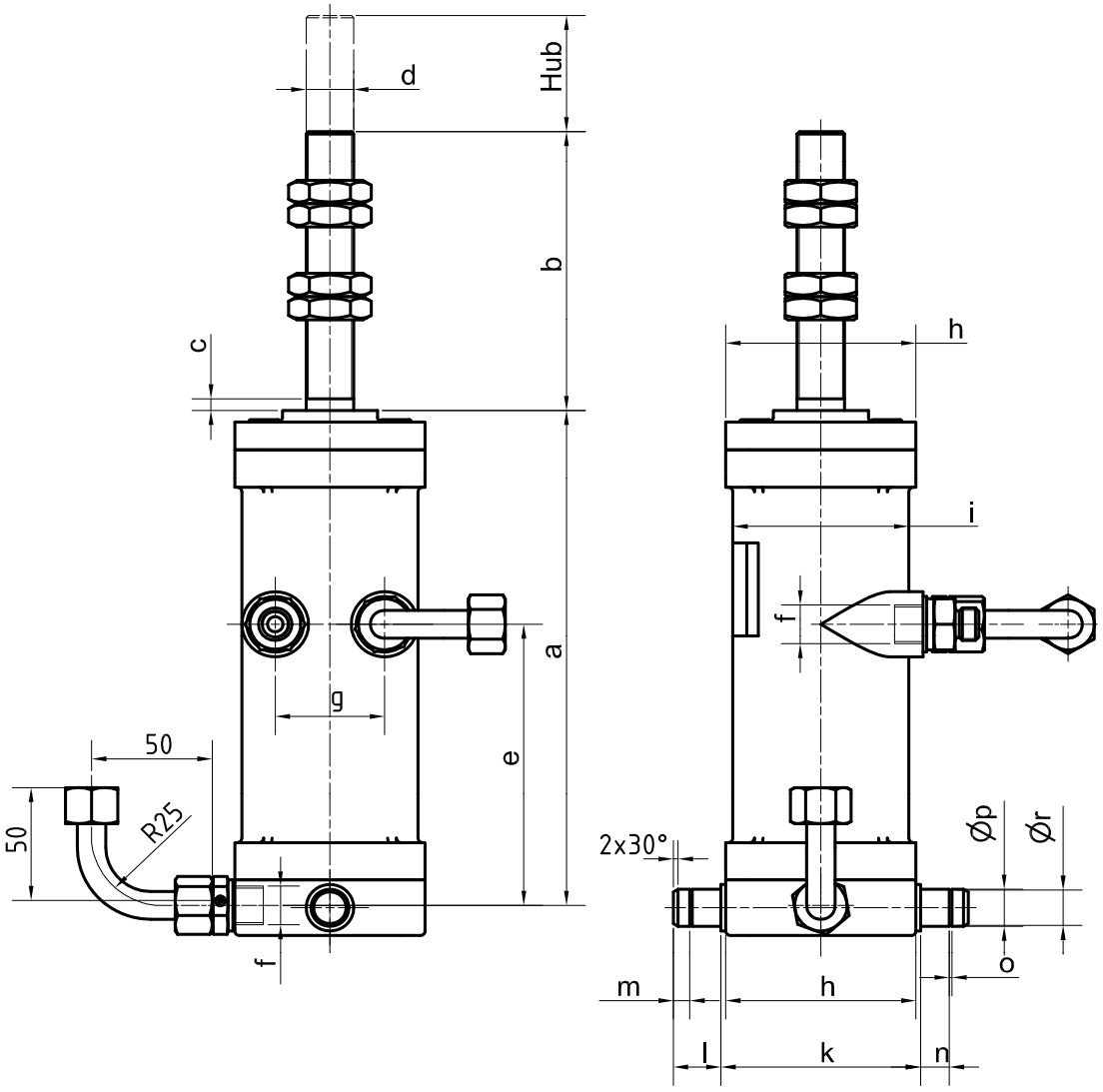
# Pressure Oil Cylinder
## Type Q



Cylinder Type Q72

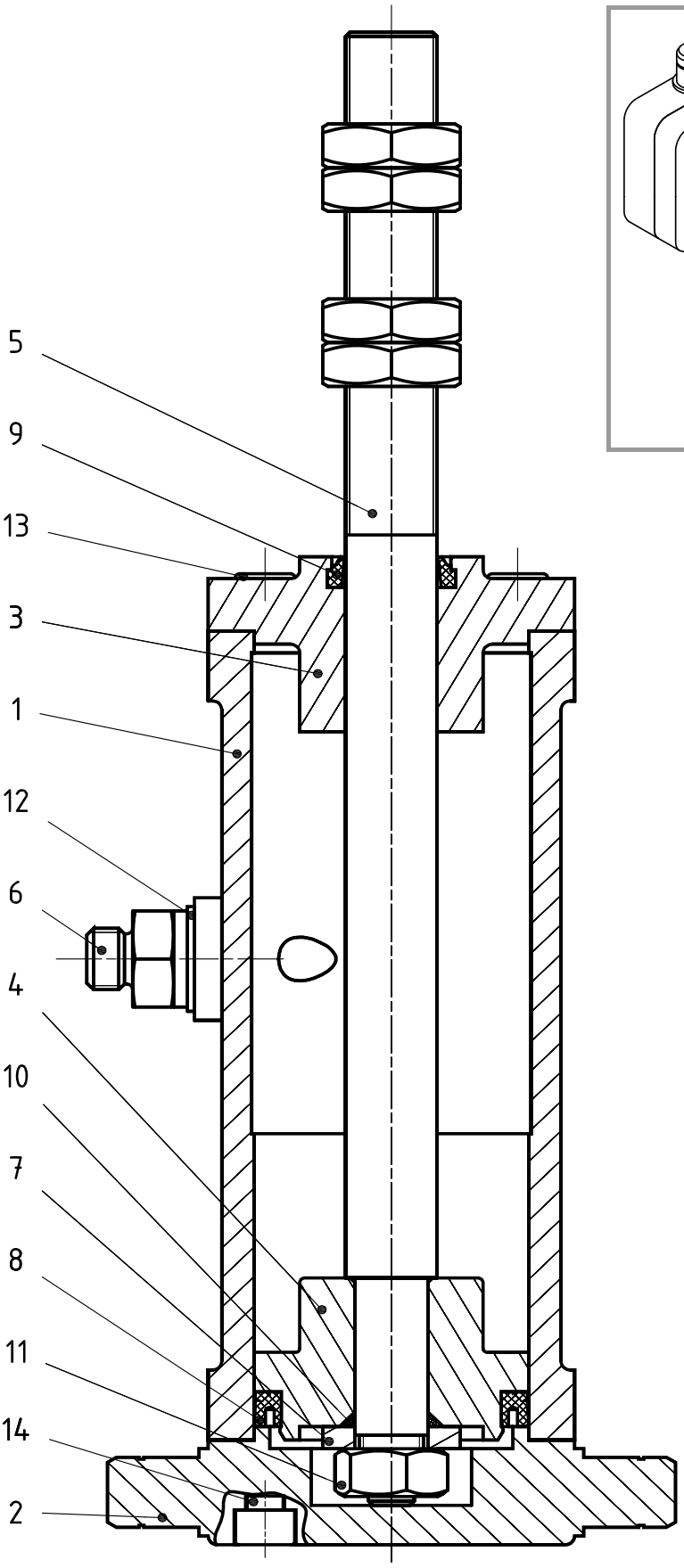


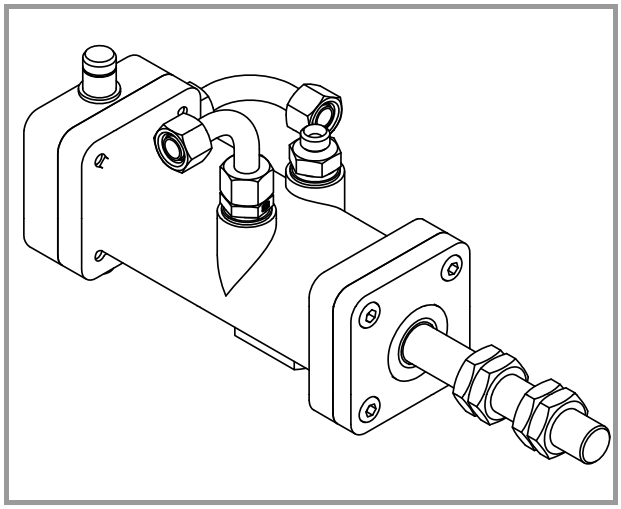
Cylinder Type Q75

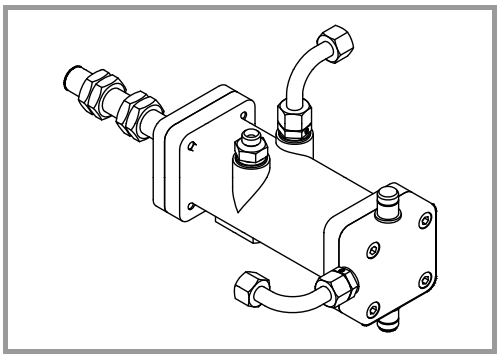



| Type | Stroke | a | b | c | d | e | f | g | h | i | k | l | m | n | o | p h9 | r |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm | mm |
| 70Q | 30 | 145 | 80 | 5 | M12x1.5 | 75 | R1/4“ | 32 | 60 | 54 | 64 | 16 | 2.5 | 11 | 1.1 | 16 | 15.2 |
| 72Q | 25 | 214 | 120 | 5 | M20x1.5 | 121 | R3/8“ | 46 | 80 | 76 | 84 | 20 | 2.5 | 12 | 1.1 | 16 | 15.2 |
| 73Q | 30 | 260 | 105 | 5 | M20x1.5 | 113 | R3/8“ | 55 | 90 | 86 | 80 | 28 | 3 | 23 | 1.3 | 20 | 19 |
| 75Q | 30 | 312 | 145 | 10 | M24x1.5 | 160 | R3/8“ | 70 | 114 | 108 | 114 | 35 | 4 | 27 | 1.3 | 25 | 23.9 |
| 76Q | 50 | 381 | 155 | 10 | M24x1.5 | 190 | R1/2“ | 84 | 132 | 125 | 135 | 51 | 5 | 42 | 1.6 | 35 | 33 |

# Parts Drawing
## Type Q

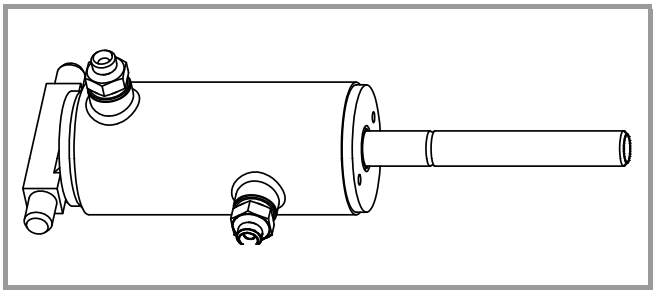


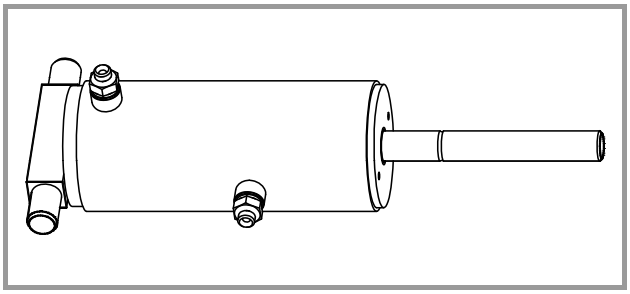


1 Cylinder housing
2 Cap, rear
3 Cap, front
4 Piston
5 Piston rod with head
6 Nipple
7 Disk
8 Lipped ring
9 Scraper ring
10 O-Ring
11 Nut
12 Packing ring
13 Socket head cap screw
14 Socket head cap screw

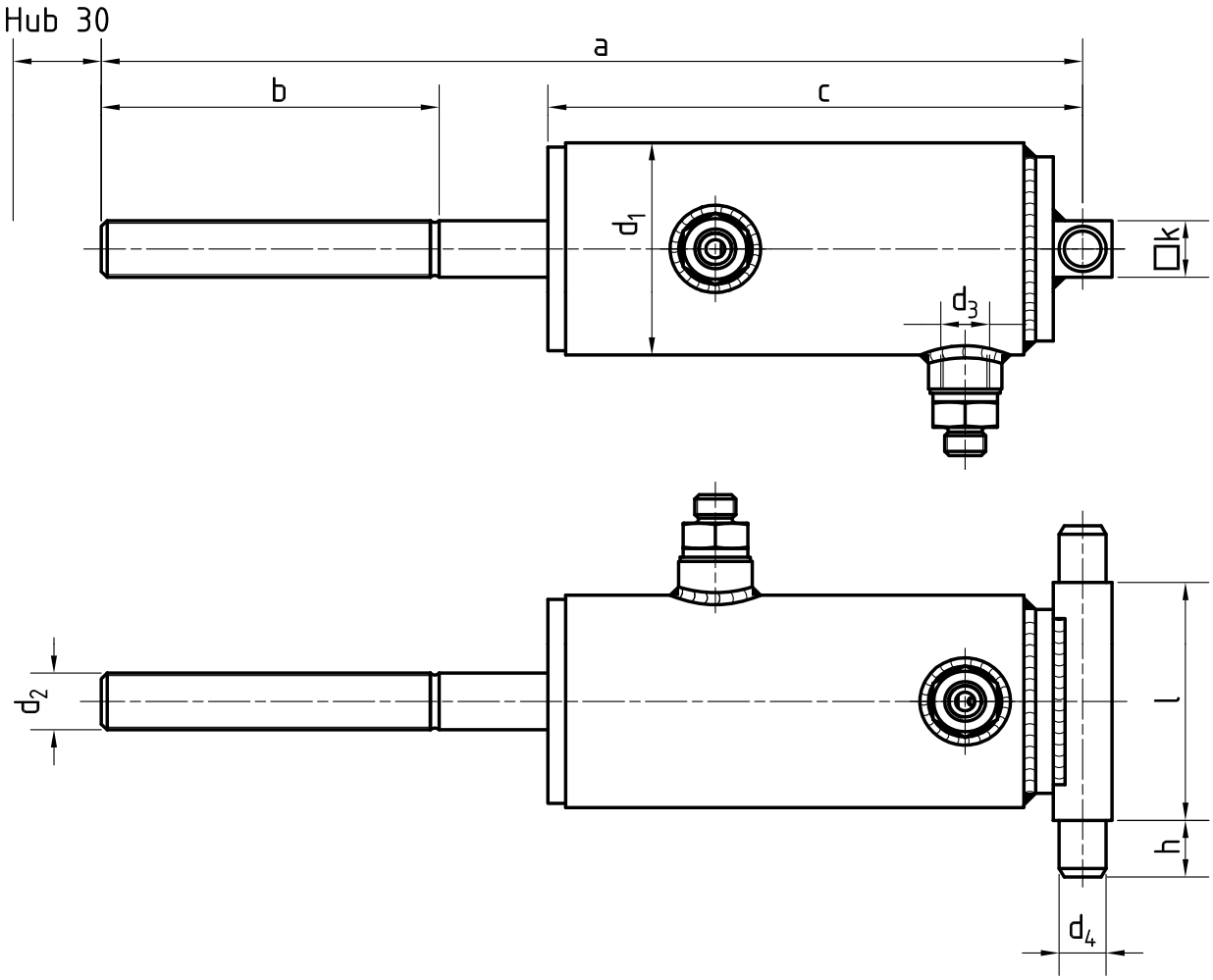
# Hydro-Cylinder



Cylinder Type Q60-20-25-182



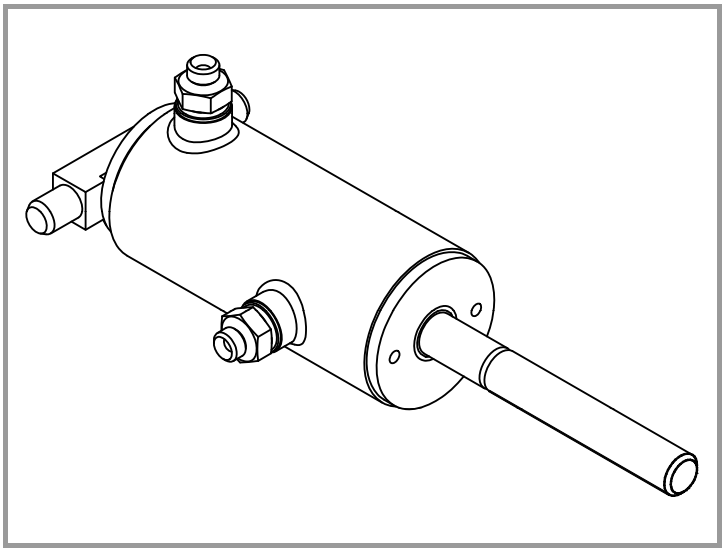
Cylinder Type Q90-25-30-179

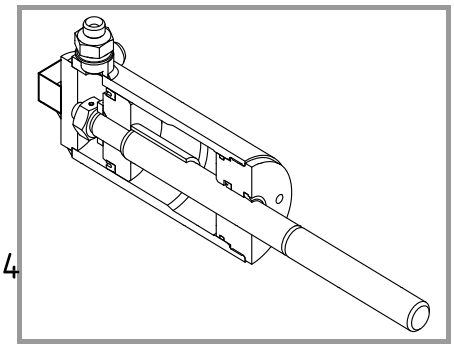


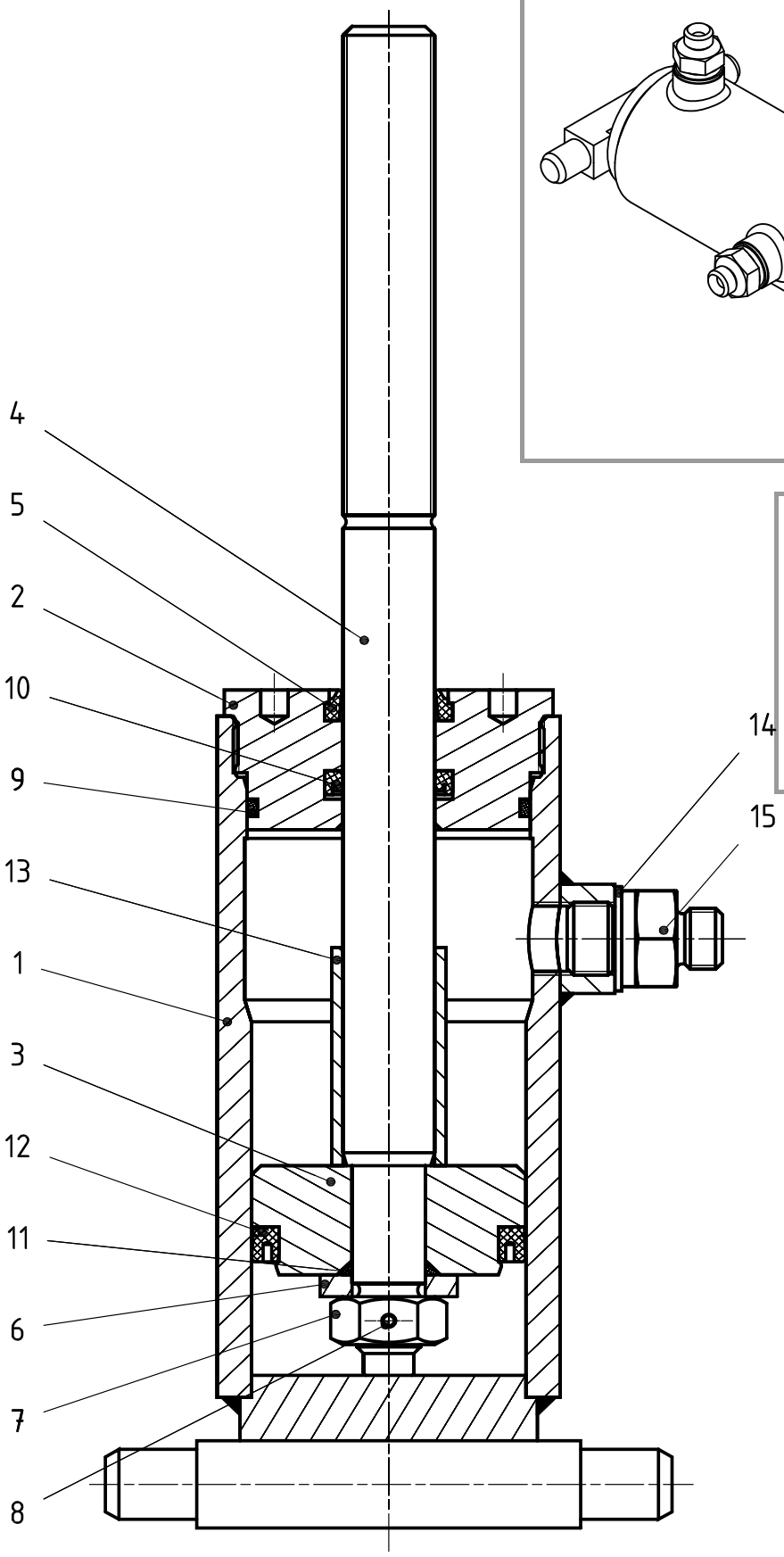

| Size | Piston Force max N [1] | a mm | b mm | c mm | $d_1$ mm | $d_2$ mm | $d_3$ mm | $d_4$ h9 mm | h mm | k mm | l mm | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42/16x30 | 1400 | 233 | 100 | 125 | 57 | M12x1.5 | R1/4“ | 16 | 16 | 20 | 74 | 2.5 |
| 60/20x30 | 2800 | 330 | 135 | 182 | 75 | M20x1.5 | R1/4“ | 16 | 16 | 25 | 94 | 5.0 |
| 70/20x30 | 3800 | 370 | 135 | 222 | 86 | M20x1.5 | R1/4“ | 20 | 19 | 25 | 117 | 7.0 |
| 90/25x30 | 6400 | 465 | 175 | 275 | 102 | M24x1.5 | R1/4“ | 25 | 23 | 30 | 149 | 10.0 |
| 105/30x30 | 8700 | 545 | 175 | 355 | 121 | M24x1.5 | R1/2“ | 35 | 30 | 40 | 189 | 20.0 |

[1] Nominal pressure: 10 bar

# Parts Drawing
## Hydro-Cylinder



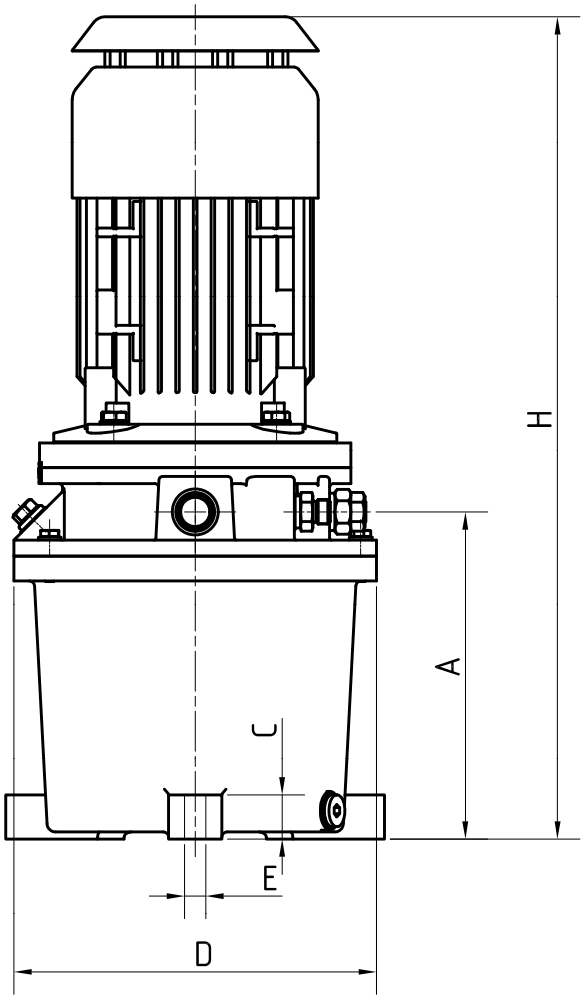


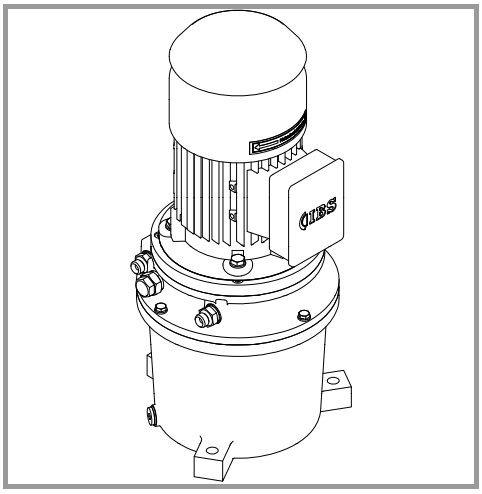



1 Cylinder housing
2 Bearing cover
3 Piston
4 Piston rod with head
5 Scraper ring
6 Disk
7 Nut
8 Cotter
9 O-Ring
10 Collar
11 O-Ring
12 Lipped ring
13 Tube
14 Gasket
15 Nipple

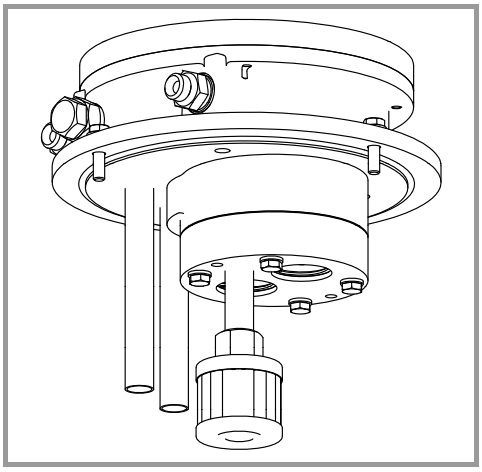
# Pressure Oil Pump

**Size I, Type 551B/61**

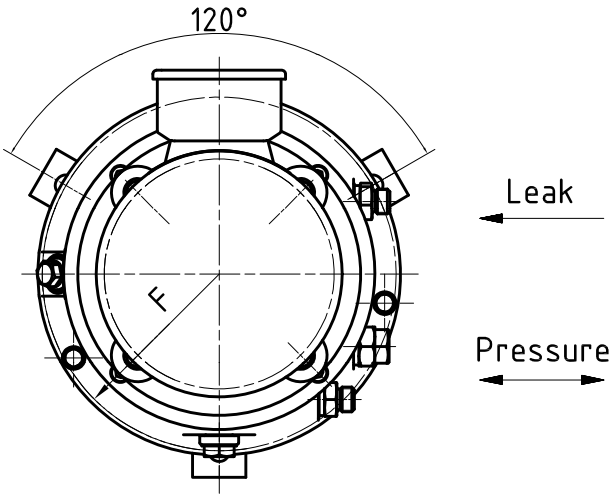


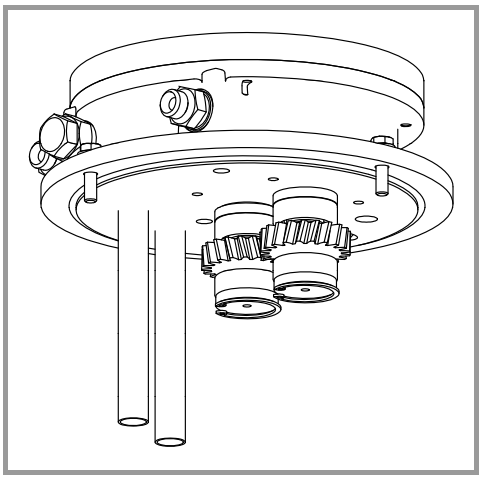



Pump size I, Type 551 B



Gear pump with filter



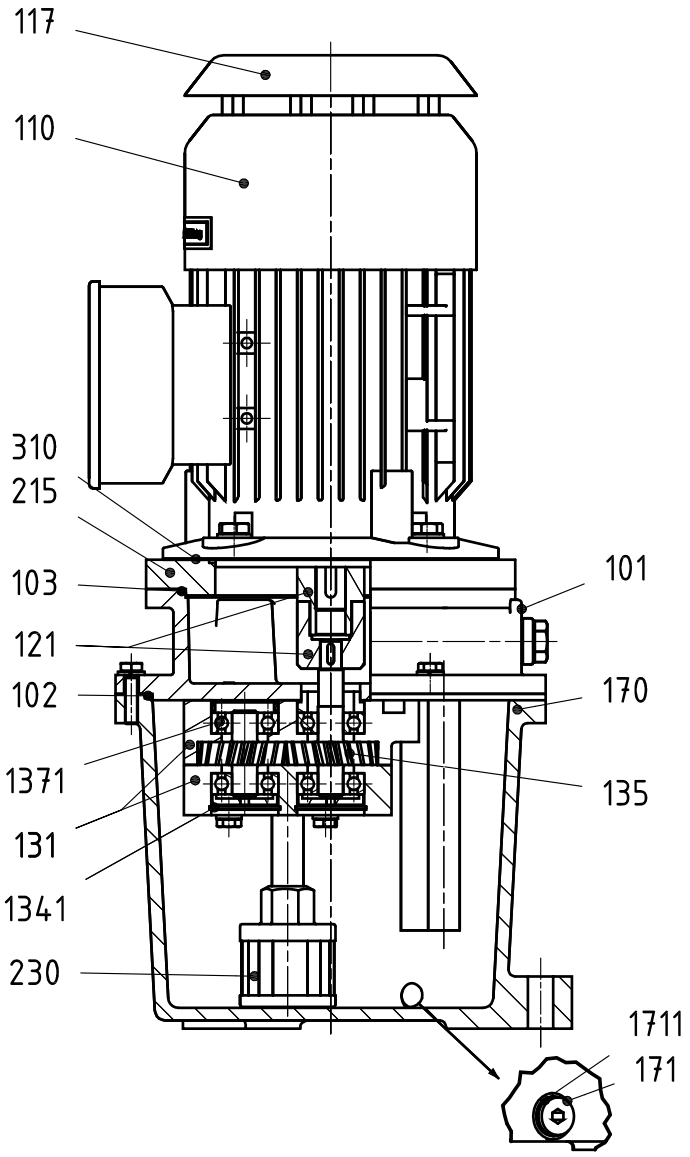



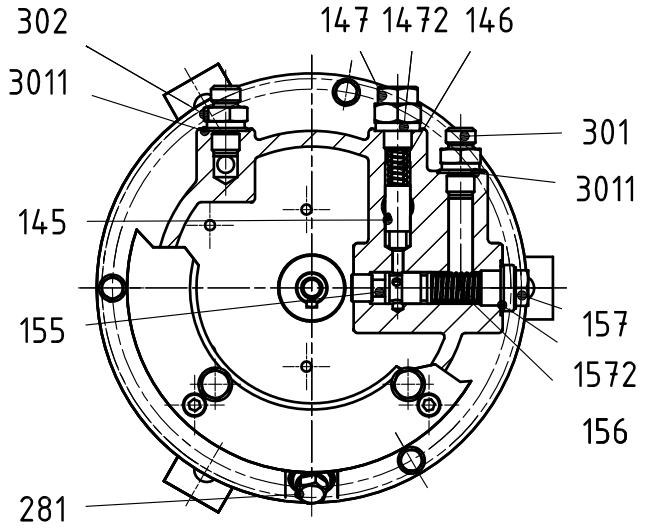
Gear drive

| A mm | C mm | D mm | E Mm | F mm | H mm | Weight kg |
|---|---|---|---|---|---|---|
| 185 | 25 | 210 | 12 | R100 | 420 | 25 |

# Parts Drawing

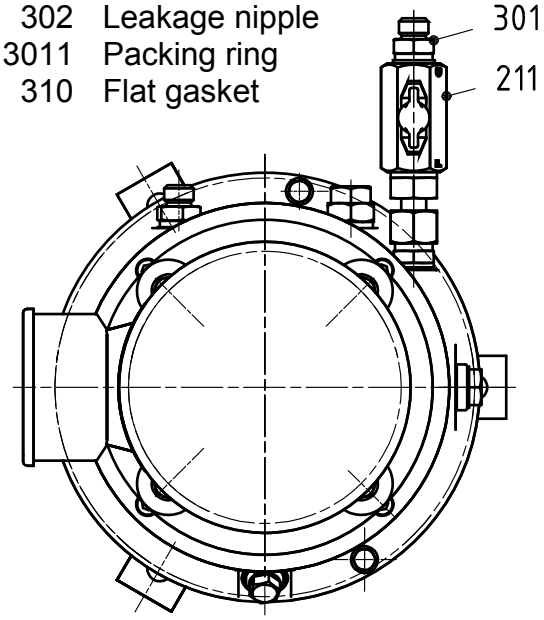
**Pressure Oil Pump Size I, Type 551B/61**




View without motor

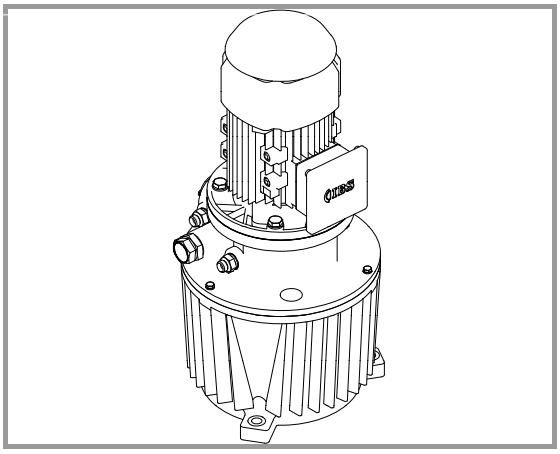
| | |
|---|---|
| 101 | Cover of the pump |
| 102 | Packing ring |
| 110 | Motor |
| 117 | Rain cover |
| 121 | Coupling |
| 131 | Housing with end plate |
| 1341 | Lock ring |
| 135 | Gear drive |
| 1371 | Ball bearing |
| 145 | Piston |
| 146 | Spring |
| 147 | Setting screw with locknut |
| 1472 | Packing ring |
| 155 | Control piston |
| 156 | Spring |
| 157 | Stopper |
| 1572 | Packing ring |
| 170 | Oil tank |
| 171 | Oil drain screw |
| 1711 | Packing ring |
| 211 | Control valve |
| 215 | Connection flange |
| 230 | Air strainer |
| 281 | Oil filler screw plug with dipstick and gasket |
| 301 | Pressure nipple |
| 302 | Leakage nipple |
| 3011 | Packing ring |
| 310 | Flat gasket |




Design with control valve

# Pressure Oil Pump

## Size II, Type 252B/62 and Size III, 253B/63

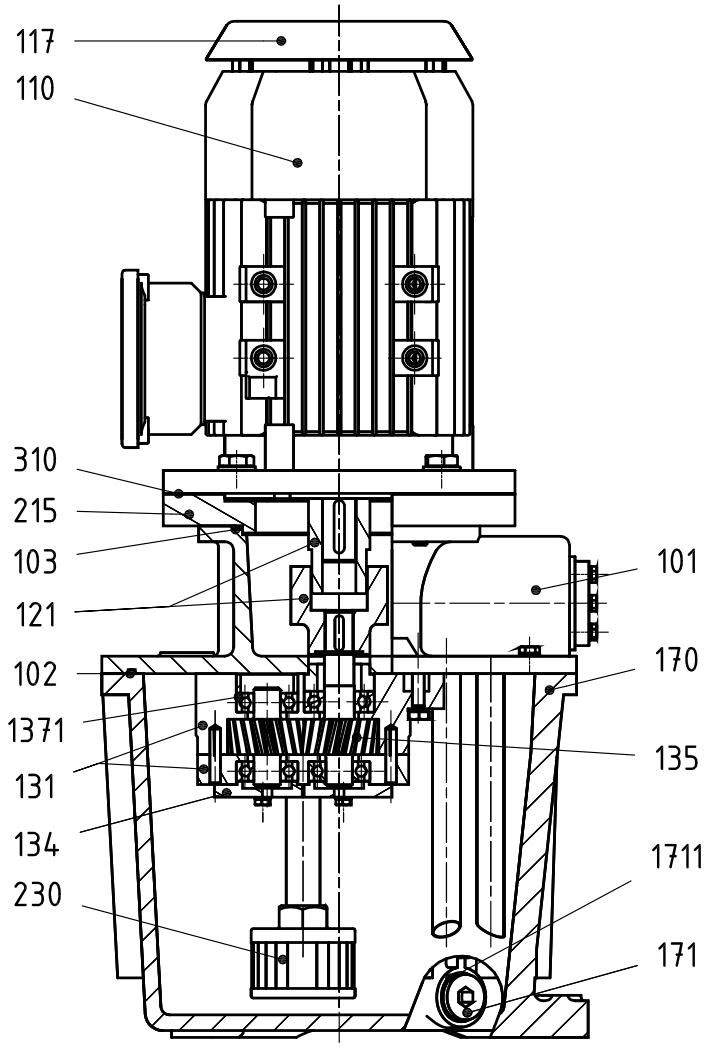


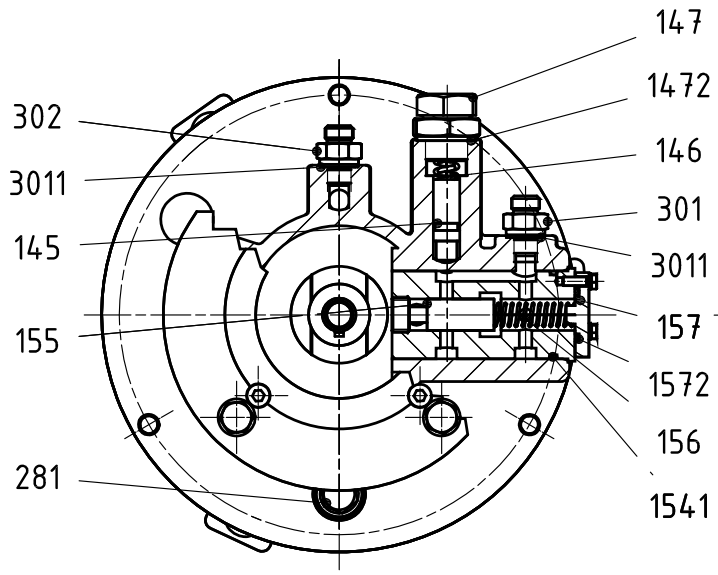



| Type | A mm | a1 mm | b1 mm | C mm | D mm | d mm | E mm | e2 mm | F mm | H mm | $i_2$ mm | I mm | $s_2$ mm | Weight kg |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 252B | 240 | 160 | 110 | 22 | 275 | 18 | 14 | 130 | R126 | 560 | 45 | 40 | 10 | 35 |
| 253B | 275 | 200 | 130 | 22 | 345 | 18 | 14 | 165 | R161 | 600 | 45 | 40 | 12 | 56 |

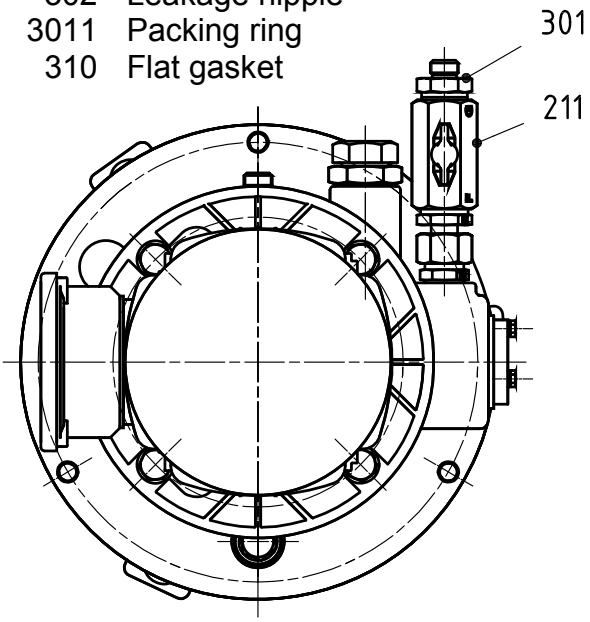
# Parts Drawing

**Pressure Oil Pump**
**Size II, Type 252B/62 and Size III, 253B/63**




View without motor

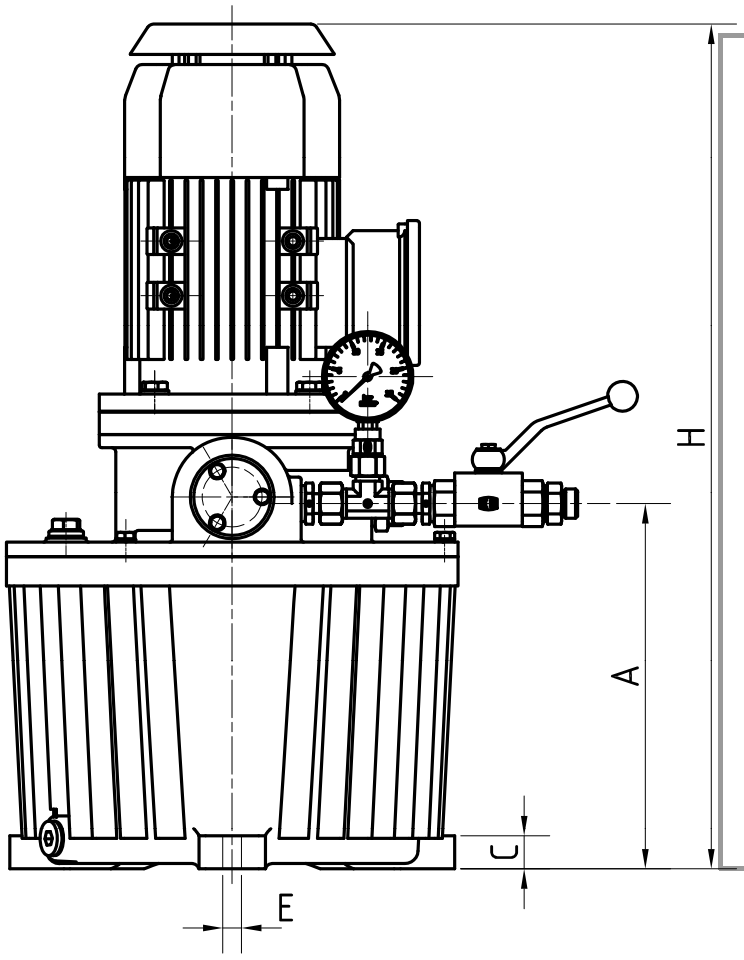


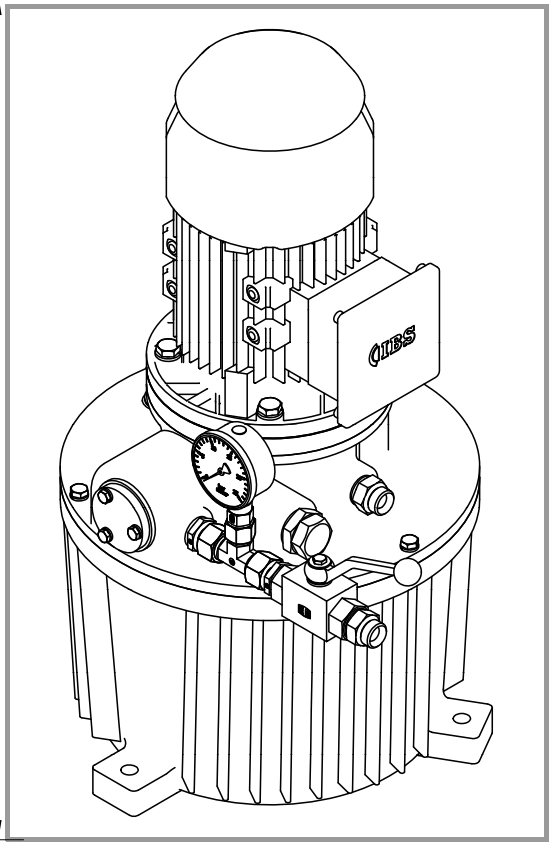

Design with control valve

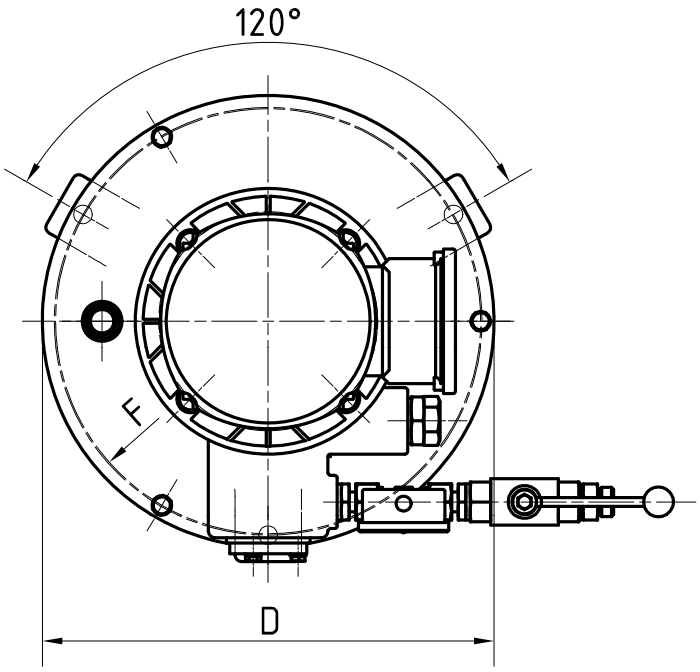
| | |
|---|---|
| 101 | Cover of the pump |
| 102 | Packing ring |
| 110 | Motor |
| 117 | Rain cover |
| 121 | Coupling |
| 131 | Housing with end plate |
| 134 | Bearing cover |
| 135 | Gear drive |
| 1371 | Ball bearing |
| 145 | Piston |
| 146 | Spring |
| 147 | Setting screw |
| 1472 | Packing ring |
| 1541 | Packing ring |
| 155 | Control piston |
| 156 | Spring |
| 157 | Stopper |
| 1572 | Packing ring |
| 170 | Oil tank |
| 171 | Oil drain screw |
| 1711 | Packing ring |
| 211 | Control valve |
| 215 | Connection flange |
| 230 | Air strainer |
| 281 | Oil filler screw plug with dipstick and gasket |
| 301 | Pressure nipple |
| 302 | Leakage nipple |
| 3011 | Packing ring |
| 310 | Flat gasket |

# Pressure Oil Unit

**Size III, Type 253/110-1**






**Motor:**
Standard motor size 90, 1400 1/min
1,1 kW, 500 V, 50 Hz
With rain cover

**Oil tank:**
Size III (131 25301), oil charge 10,5 L
Type of oil: HLP10

**Pump:**
Gear pump Type 253
With right- and left-handed rotation
With 2 air strainers
Delivery pressure 8 bar

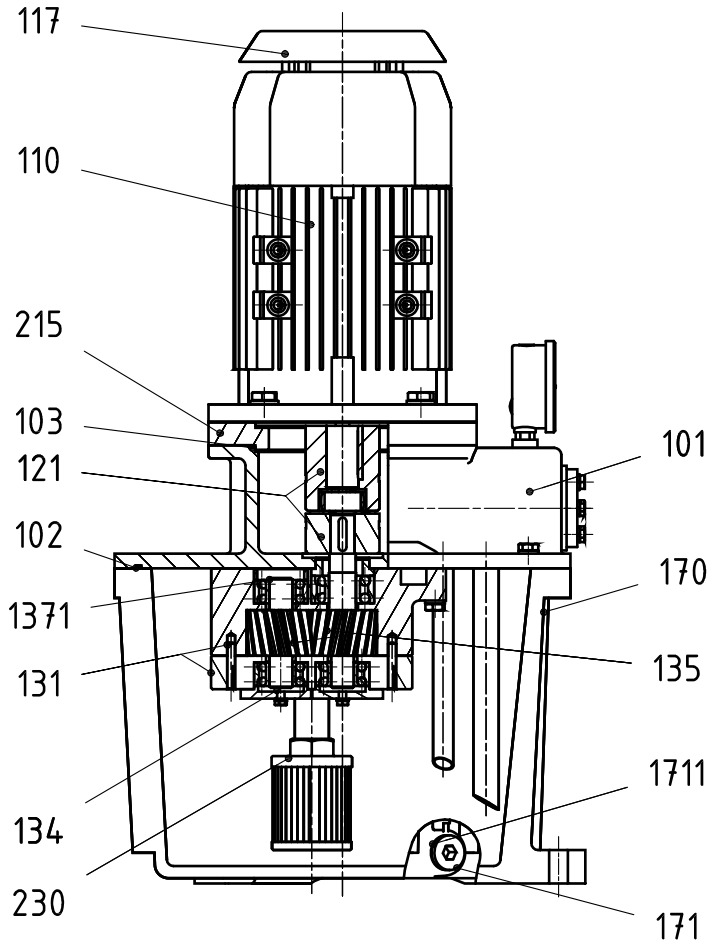
Housing and end plate made of steel
Gear drive case-hardened
In quality 6e – grounded

Suitable for 60% ED
And max. 600 circuits per hour

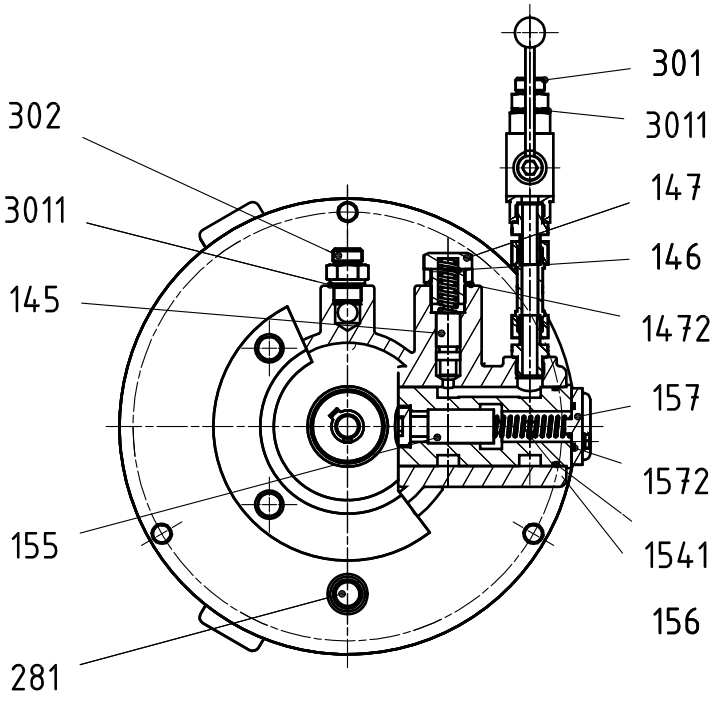
| Type | A mm | C mm | D mm | E mm | F mm | H mm | Weight kg |
|---|---|---|---|---|---|---|---|
| 253/110-1 | 275 | 22 | 345 | 14 | 161 | 600 | 56 |

# Parts Drawing

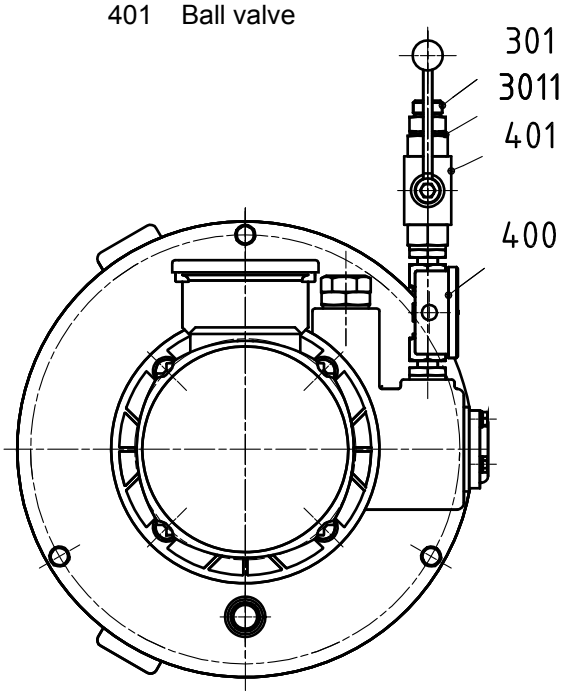
## Pressure Oil Pump Size III, Type 253/110-1



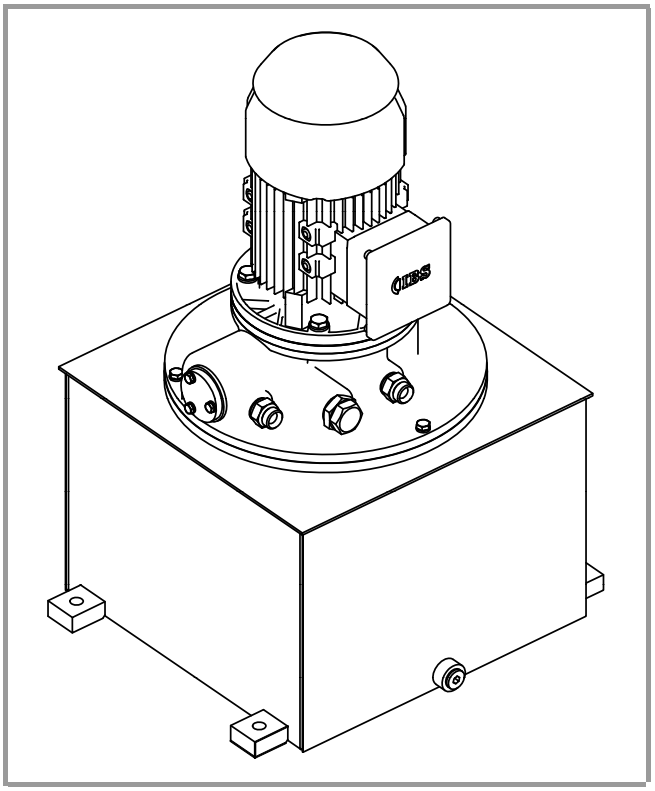

| | |
|---|---|
| 101 | Cover of the pump |
| 103 | Gasket ring |
| 110 | Motor |
| 117 | Rain cover |
| 121 | Elastic coupling |
| 131 | Housing with end plate |
| 134 | Bearing cover |
| 135 | Gear drive |
| 1371 | Ball bearing |
| 145 | Piston |
| 146 | Spring |
| 147 | Setting screw |
| 1472 | Packing ring |
| 1541 | Packing ring |
| 155 | Control piston |
| 156 | Spring |
| 157 | Stopper |
| 1572 | Packing ring |
| 170 | Oil tank |
| 171 | Oil draining screw |
| 1711 | Packing ring |
| 215 | Connection flange |
| 230 | Air strainer |
| 281 | Oil filler screw plug with dipstick and gasket |
| 301 | Pressure nipple |
| 302 | Leakage nipple |
| 3011 | Packing ring |
| 400 | Manometer |
| 401 | Ball valve |



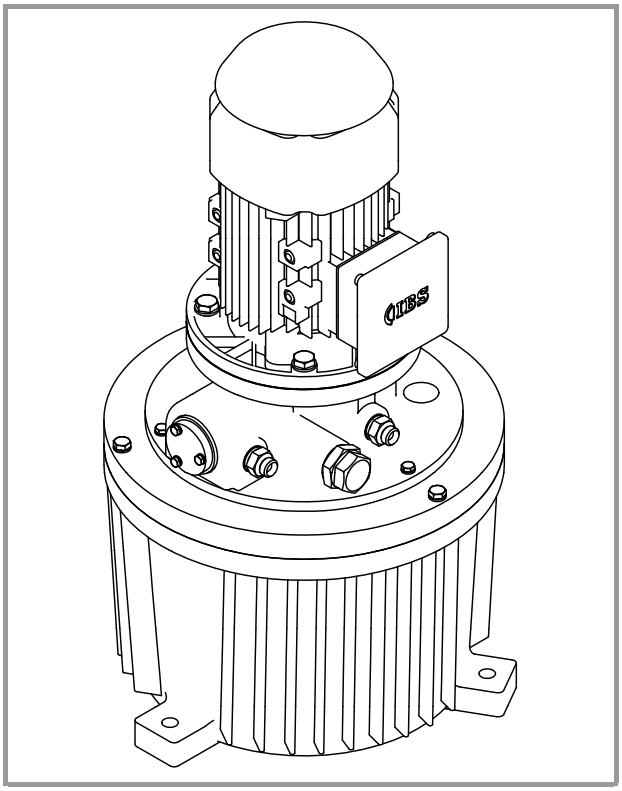

View without motor



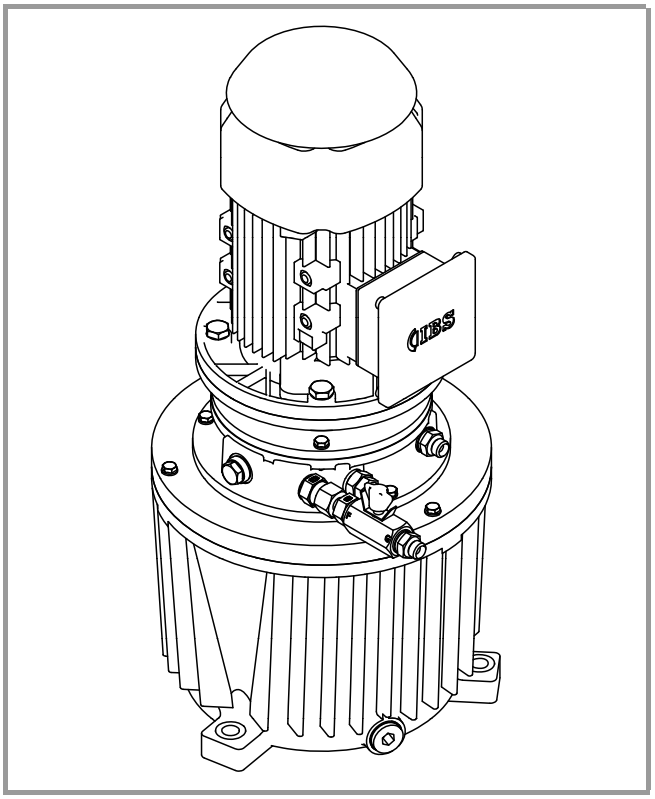

Design with manometer



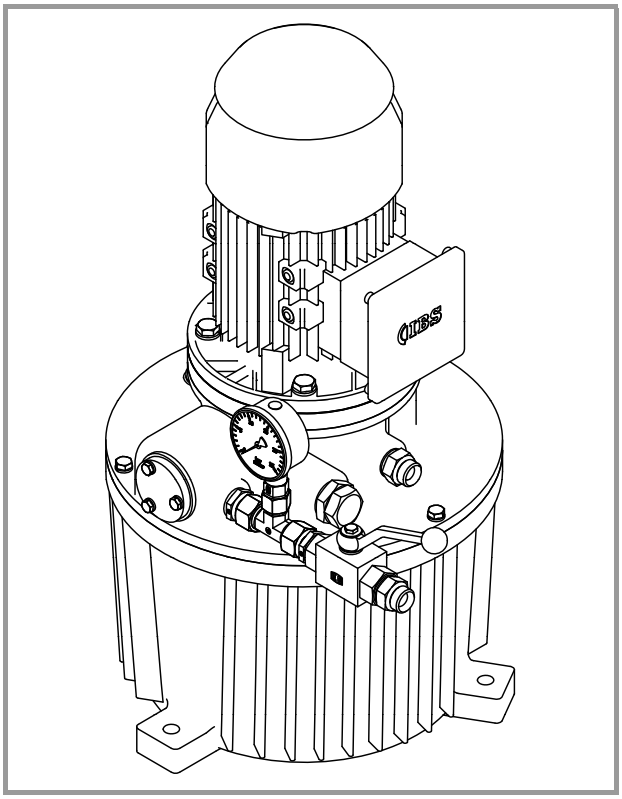
Pump size III – Type 253B/52
with oil tank 40l for 100% ED



Pump size II – Type 252B/147
with oil tank size III for 100% ED



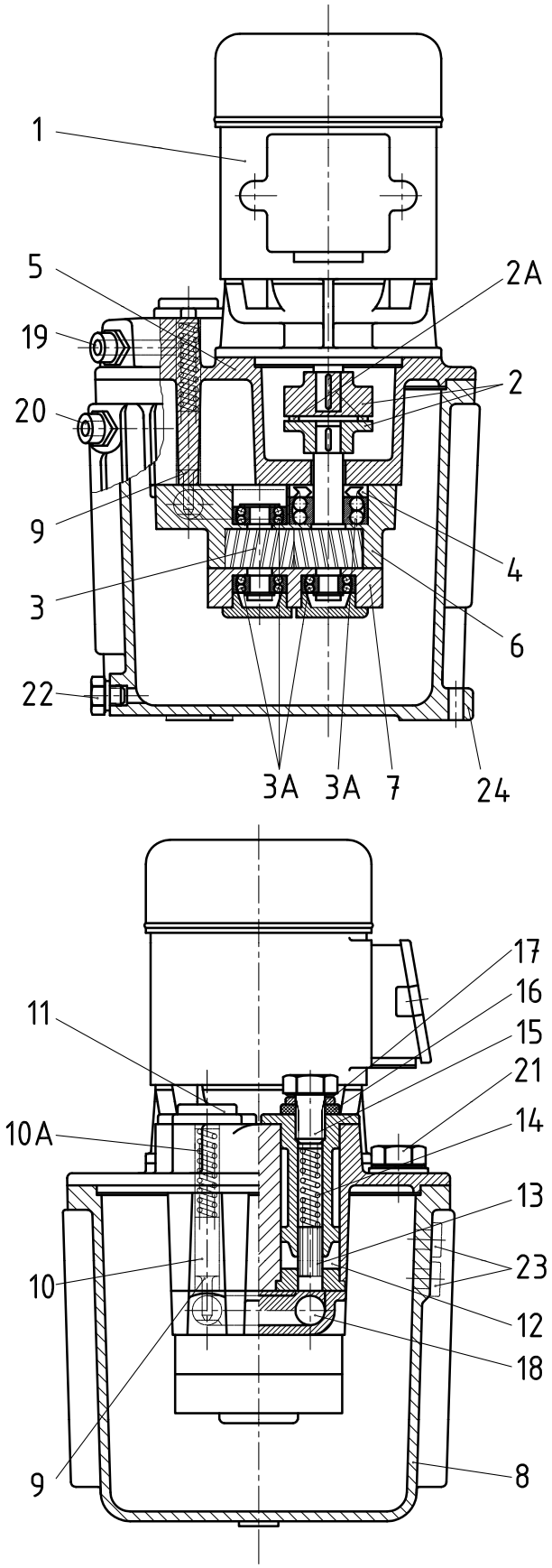
Pump size I – Type 551B/30
with oil tank size II for 100% ED



Pump size III – Type 253/110-1
with right- and left-handed rotation,
with manometer

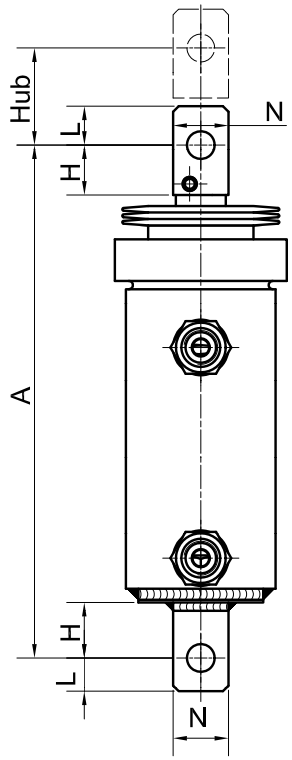
# Parts Drawing

**Pressure Oil Pump Size II, Type 52 and Size III, Type 53**




| | |
|---|---|
| 1 | Motor |
| 2 | Elastic coupling |
| 2A | Coupling package |
| 3 | Gear drive |
| 3A | Roller bearing |
| 4 | Shaft sealing |
| 5 | Cover of pump |
| 6 | Housing |
| 7 | End plate |
| 8 | Oil tank |
| 9 | Control valve |
| 10 | Control piston |
| 10A | Spring |
| 11 | Stopper |
| 12 | Maximal pressure valve |
| 13 | Piston |
| 14 | Spring |
| 15 | Setting screw |
| 16 | Gasket |
| 17 | Counter nut |
| 18 | Pressure channel |
| 19 | Pressure nipple |
| 20 | Leakage nipple |
| 21 | Oil filler screw |
| 22 | Oil drain screw |
| 23 | Oil level window |
| 24 | Mounting feet |

# Enquiry Sheet
## Cylinder and Pumps




Dimensions:

A:_____ [mm]

H:_____ [mm]

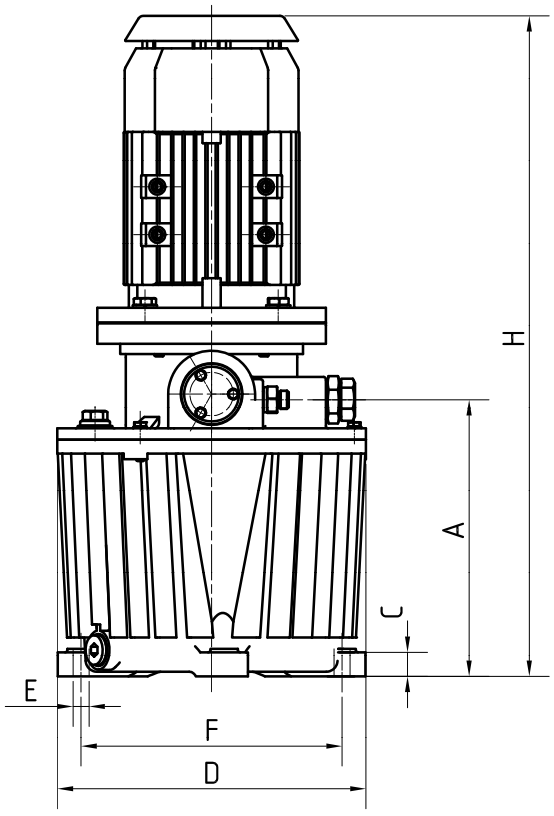
L:_____ [mm]

N:_____ [mm]

Stroke:__ [mm]

Piston force: ____ [N]

Spring: □ yes □ no
_____ [N]




Dimensions:

A:_____[mm]

C:_____[mm]

D:_____[mm]

E:_____[mm]

H:_____ [mm]

F:_____[mm]

Operating pressure:___ [bar]

Feed rate:_____ [l/min]

Content of tank:_____ [L]

Motor: _____ [kW]

Control valve: □ yes □ no

Only right-handed rotation □

Right- and left-handed rotation □

Notes

_____

_____