

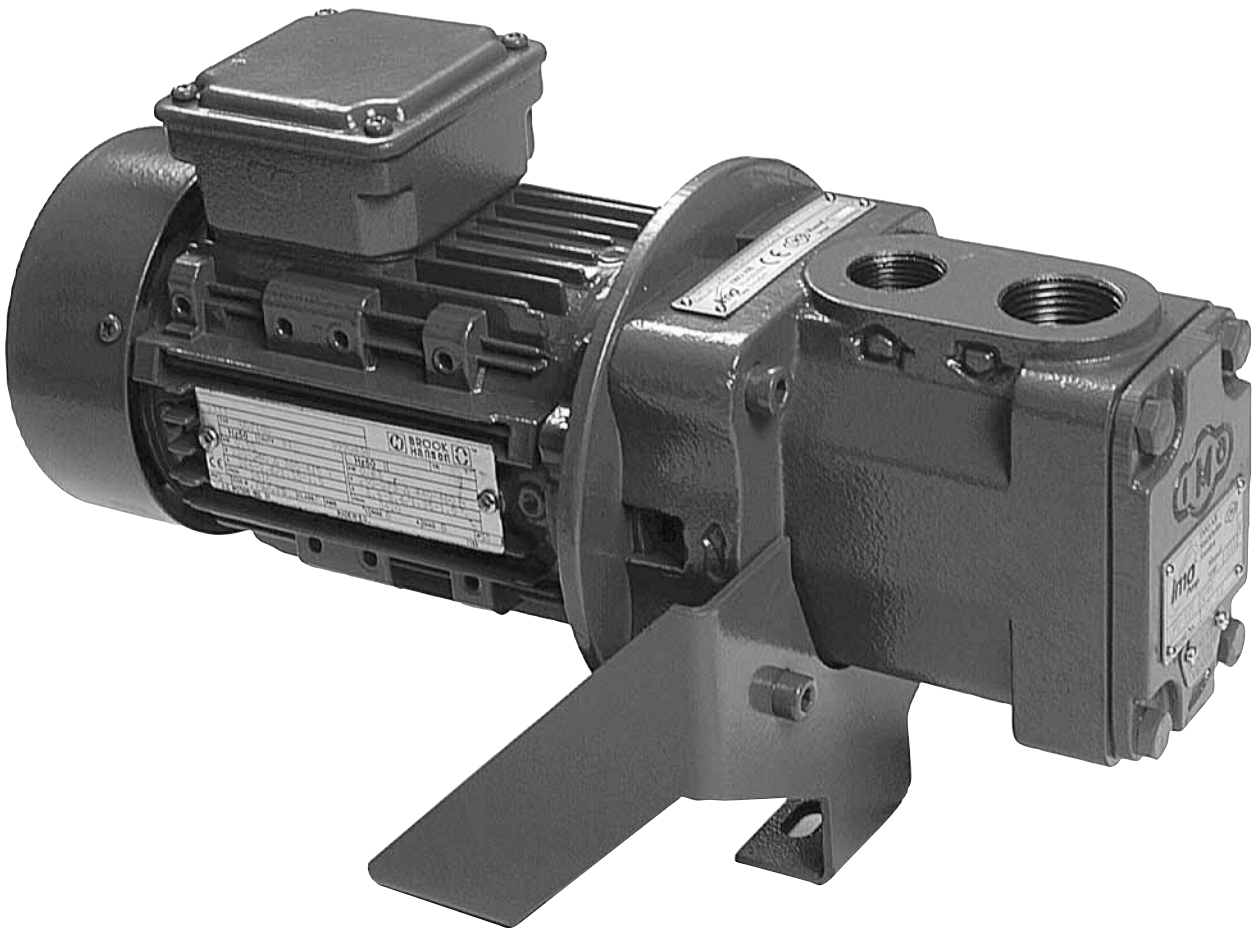


A Member of the
COLFAX PUMP GROUP

LPD

Screw pump series

Product description



Flow volume: 2-24 l/min
Max differential pressure: 10 bar
Applications: Lubrication, circulation and transfer

Applications

The LPD pump is used for a number of different fluids:

Lubrication oil, fuel oil, vegetable oil, hydraulic oil and other hydraulic fluids, glycols, polymers, emulsions, and any non-aggressive fluid with some lubricating properties.

Typical applications are:

- Lubrication of machines such as diesel engines, gears etc.
- Supply and circulation of fuel oil for die-sel engines, separators and burners.
- Transfer, loading and unloading of lubrication oil, fuel oil and bunker oil.

Technical data

Discharge pressure

LPD 015N: 11 bar

LPD 020N: 15 bar

Differential pressure

Maximum differential pressure is 10 bar, but is reduced at low viscosities as shown in the table below.

Max differential pressure (bar):

Speed (rpm)	Viscosity, mm ² /s (cSt)							
	2	6	10	20	40	100	400	600
1450	4	6.5	7.5	8	10	10	10	10
1750	4	6.5	8.3	10	10	10	10	10
2900	4	6.5	8.3	10	10	10	10	10
3500	4	6.5	8.3	10	10	10	10	10

For LPD 020N there is currently no standard IEC electric motor available for the shaded combinations in the table above.

Inlet pressure

LPD 015N: Max 1 bar

LPD 020N: Max 5 bar

For higher inlet pressure, contact IMO AB.

Minimum inlet pressure is shown in the Selection guide.

Displacement

Size and lead	015N	020N
Displacement dm ³ /r	0.003	0.0072

Pressure relief valve

The pump is equipped with an integral pressure relief valve with internal return, limiting the differential pressure across the pump and protecting the pump should the discharge line be blocked. The valve is adjustable for different opening pressures. The valve has a pressure accumulation of approximately 3 bar and a maximum set pressure of 10 bar.

Drive

The pump is designed to be short-coupled to an electric motor with dimensions according to IEC size 71. The motor bearing will have to carry a slight axial load from the rotor set. With motors delivered from IMO AB, this load will not significantly impair the bearing life expectancy.

Max speed limit

The maximum speed is 3600 rpm. For higher speeds, contact IMO AB.

Rotation

The LPD pump is designed to operate in counter clockwise rotation when facing the shaft end.

Fluid viscosity

2-600 mm²/s. For higher viscosity, contact IMO AB.

Fluid temperature

-20°C to 90°C for all types of LPD.

Sound level

A typical sound level from a LPD pump with standard driver is:

Size	015	020
Sound pressure level dB (A)	50	52

These values refer to free field conditions at 5 bar, 2940 rpm and 40 cSt, measured according to ISO-3741.

Mounting Attitude

The LPD can be mounted in any attitude except for:

- Horizontally with connections downwards.
- Pump being above motor.

Moment of inertia

For bare shaft pump

Size	015	020
Moment of Inertia 10 ⁻⁶ kgm ³	5	10

Material and design

Pump body	Cast iron
Power rotor	Steel
Idler rotors	Cast iron
Shaft seal	Carbon/Silicon Carbide Viton elastomers

For handling of fluids that may be aggressive to above materials, consult IMO AB.

Viscosity table

cSt	2	4	8	20	37	75	200	400	800	1500
SSU	32.6	39.2	52.2	99.4	174	346	927	1850	3700	6940

Units

The following units are frequently used for specification of pumps:

	SI-unit	IMO units	USA units	conversion
Pressure	Pa (MPa)	bar	psi	1 bar = 14.5 psi = 0.1 MPa
Speed	r/s	rpm	rpm	1 rpm = 0.016667 r/s
Viscosity	mm ² /s	cSt	SSU	see table
Temperature	°C	°C	°F	°C = (°F-32)/1.8
Length	m	mm	inch	1 mm = 0.0394 inch
Flow rate	m ³ /s	lit/min	GPM	1 lit/min = 0.264 GPM

Selection guide 50 Hz

Size & Lead	Visc. (cSt)	Flow (lit/min) (kW)	Speed: 1450 rpm			Min. inlet Max. Diff. (bar)*	Speed: 2900 rpm			Min. inlet Max. Diff. (bar)*
			Diff. pressure (bar)				Diff. pressure (bar)			
			2	5	8		2	5	8	
015N	10	Q _{eff} P _e	2.77 0.04	1.85 0.06		-0.85 7.5	7.12 0.10	6.20 0.14	5.54 0.19	-0.85 8.3
	20	Q _{eff} P _e	2.77 0.04	1.85 0.06	1.19 0.08	-0.85 8	7.12 0.10	6.20 0.14	5.54 0.19	-0.85 10
	37	Q _{eff} P _e	3.19 0.05	2.51 0.07	2.03 0.09	-0.85 10	7.54 0.12	6.86 0.17	6.38 0.21	-0.85 10
	75	Q _{eff} P _e	3.85 0.09	3.56 0.11	3.35 0.14	-0.85 10	8.20 0.25	7.91 0.29	7.70 0.34	-0.85 10
	400	Q _{eff} P _e	4.00 0.12	3.79 0.15	3.64 0.17	-0.85 10	8.35 0.34	8.14 0.38	7.99 0.43	-0.77 10
020N	10	Q _{eff} P _e	6.65 0.06	4.44 0.11		-0.85 7.5	17.09 0.13	14.88 0.23	13.29 0.34	-0.85 8.3
	20	Q _{eff} P _e	6.65 0.06	4.44 0.12	2.85 0.17	-0.85 8	17.09 0.15	14.88 0.26	13.29 0.36	-0.85 10
	37	Q _{eff} P _e	7.65 0.08	6.03 0.13	4.86 0.18	-0.85 10	18.09 0.18	16.47 0.29	15.30 0.39	-0.85 10
	75	Q _{eff} P _e	9.24 0.13	8.54 0.18	8.04 0.23	-0.85 10	19.68 0.33	18.98 0.44	18.48 0.54	-0.85 10
	400	Q _{eff} P _e	9.59 0.17	9.10 0.22	8.74 0.27	-0.84 10	20.03 0.44	19.54 0.55	19.18 0.65	-0.69 10

Selection guide 60 Hz

Size & Lead	Visc. (cSt)	Flow (lit/min) (kW)	Speed: 1750 rpm			Min. inlet Max. Diff. (bar)*	Speed: 3500 rpm			Min. inlet Max. Diff. (bar)*
			Diff. pressure (bar)				Diff. pressure (bar)			
			2	5	8		2	5	8	
015N	10	Q _{eff} P _e	3.67 0.05	2.75 0.08	2.09 0.10	-0.85 8.3	8.92 0.13	8.00 0.18	7.34 0.23	-0.85 8.3
	20	Q _{eff} P _e	3.67 0.05	2.75 0.08	2.09 0.10	-0.85 10	8.92 0.13	8.00 0.18	7.34 0.23	-0.85 10
	37	Q _{eff} P _e	4.09 0.06	3.41 0.09	2.93 0.11	-0.85 10	9.34 0.16	8.66 0.21	8.18 0.27	-0.85 10
	75	Q _{eff} P _e	4.75 0.12	4.46 0.15	4.25 0.17	-0.85 10	10.00 0.33	9.71 0.38	9.50 0.43	-0.85 10
	400	Q _{eff} P _e	4.90 0.16	4.69 0.19	4.54 0.22	-0.85 10	10.15 0.45	9.94 0.50	9.79 0.55	-0.77 10
020N	10	Q _{eff} P _e	8.81 0.08	6.60 0.14	5.01 0.21	-0.85 8.3	21.41 0.20	19.20 0.32	17.61 0.45	-0.85 8.3
	20	Q _{eff} P _e	8.81 0.08	6.60 0.14	5.01 0.21	-0.85 10	21.41 0.20	19.20 0.32	17.61 0.45	-0.85 10
	37	Q _{eff} P _e	9.81 0.10	8.19 0.16	7.02 0.22	-0.85 10	22.41 0.24	20.79 0.36	19.62 0.49	-0.85 10
	75	Q _{eff} P _e	11.40 0.17	10.70 0.23	10.20 0.29	-0.85 10	24.00 0.44	23.30 0.56	22.80 0.69	-0.85 10
	400	Q _{eff} P _e	11.75 0.22	11.26 0.28	10.90 0.34	-0.84 10	24.35 0.58	23.86 0.71		-0.69 10

* Valid for liquids free from undissolved air or gas.

Pump dimensions

Pump LPD

Dimensions in mm

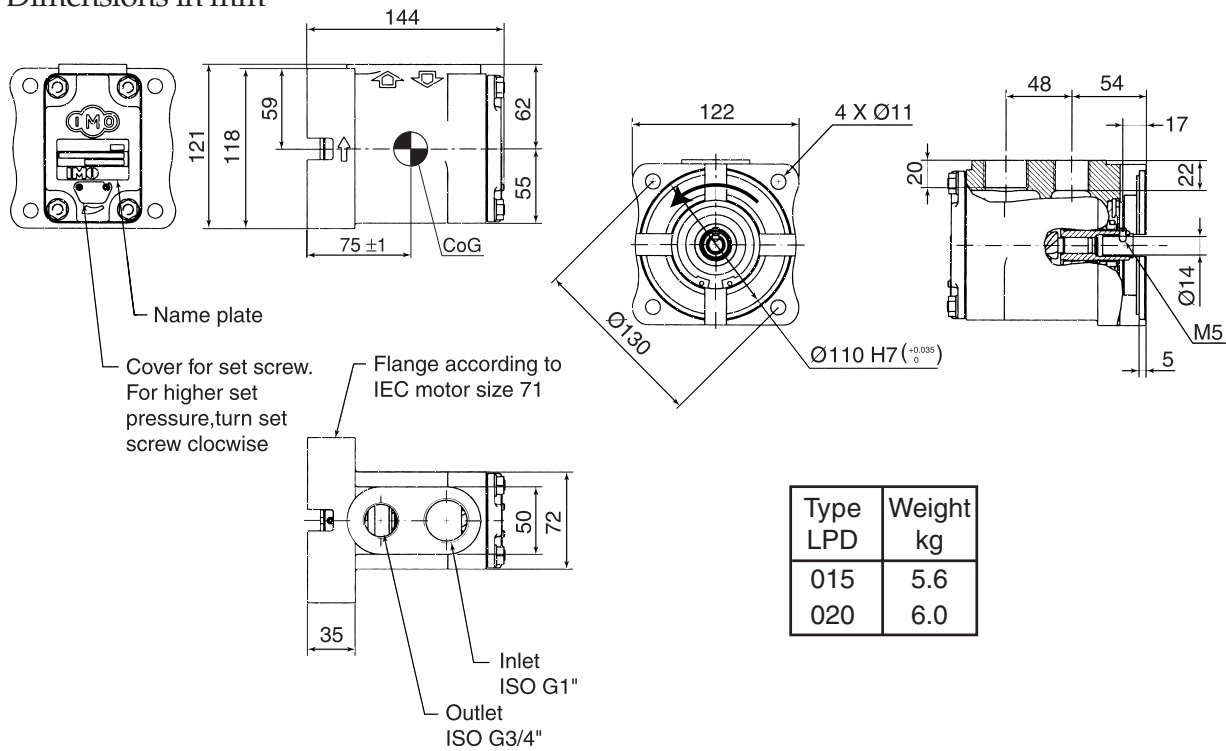


Fig. 1

Pump unit LPD

Dimensions in mm (With standard IEC 71 electric motor)

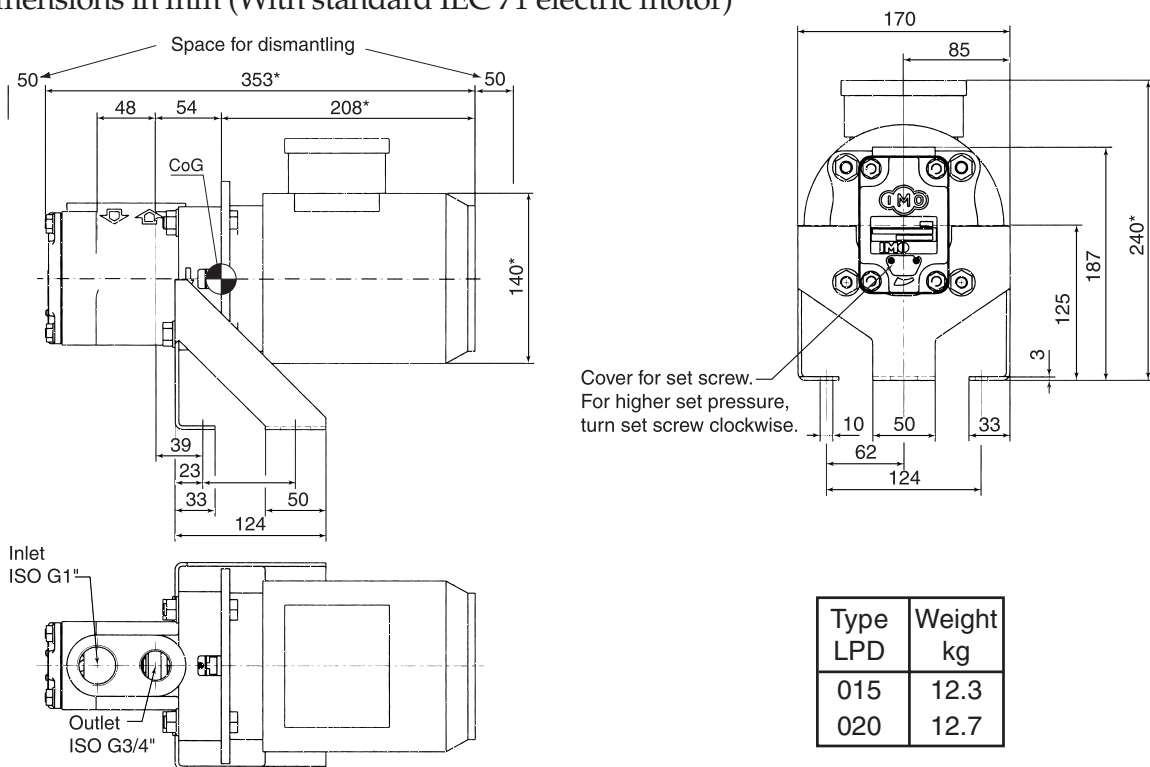
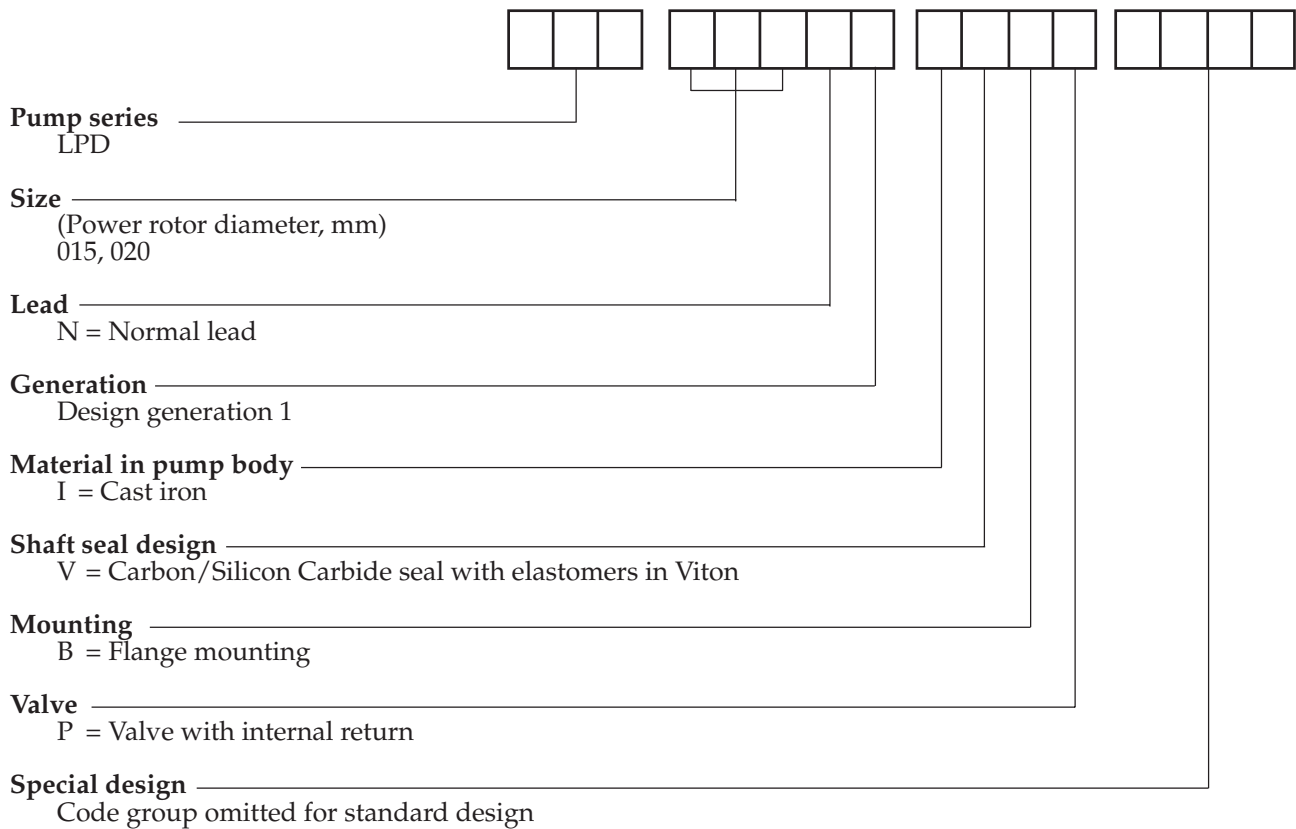


Fig. 2

Pump model code



Accessories

A bare shaft pump (Fig. 3) and recommended accessories in fig. 4-5.



Fig. 3 Bare shaft pump



Fig. 4 Angle bracket

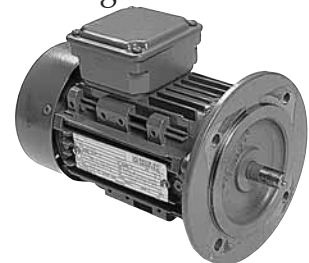


Fig. 5 Electric motor

Installation

The LPD-pump is mounted directly to an IEC 71 electric flange motor and has an angle bracket for mounting horizontally, vertically or any other attitude. The pump unit is designed to work in an air temperature between +2 °C and +40 °C. This with a maximum humidity of 80%. For

other environmental conditions, please contact IMO AB. The pump body, however, can be heated to maximum fluid temperature. For more information about installation, read the Installation and Start-up instruction for low pressure pumps.

Maintenance and Service

Spare parts for these pumps are easily available from stock. For detailed information and know-how about service read the

maintenance and service instruction for LPD-pumps or contact IMO AB.

Sectional view

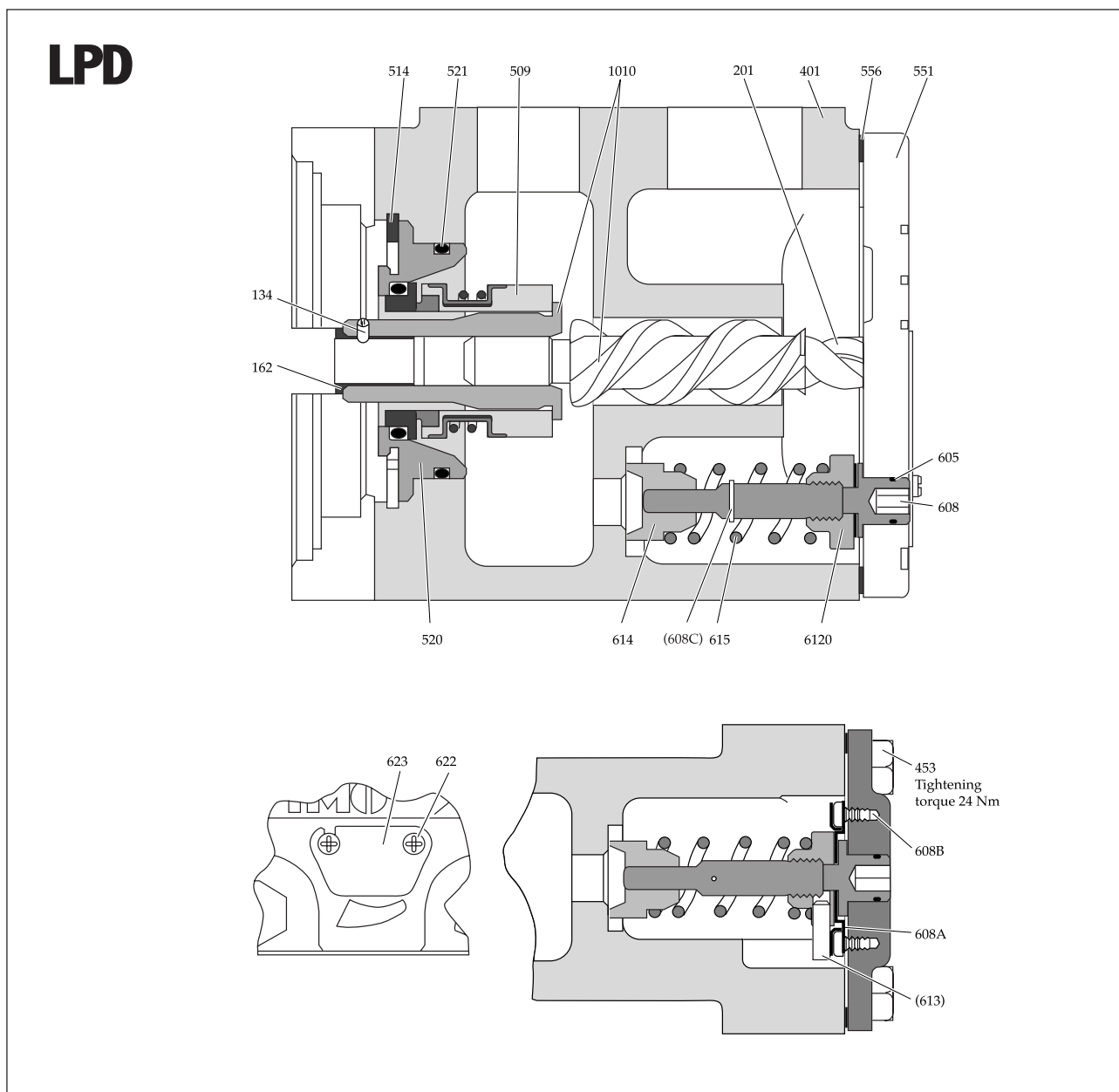


Fig. 6

List of components

Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
11010	Power rotor	514	Retaining ring	608B	Screw
134	Locking screw	520	Front cover	(608C)	Pin
162	Shaft sleeve	521	O-ring	6120	Regulating nut
201	Idler rotor	551	Rear cover	(613)	Tension pin
401	Pump body	556	Gasket	614	Valve piston
453	Screw	605	O-ring	615	Spring
509	Mechanical shaft seal	608	Valve set screw	622	Screw
		608	A Locking clamp	623	Plate



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