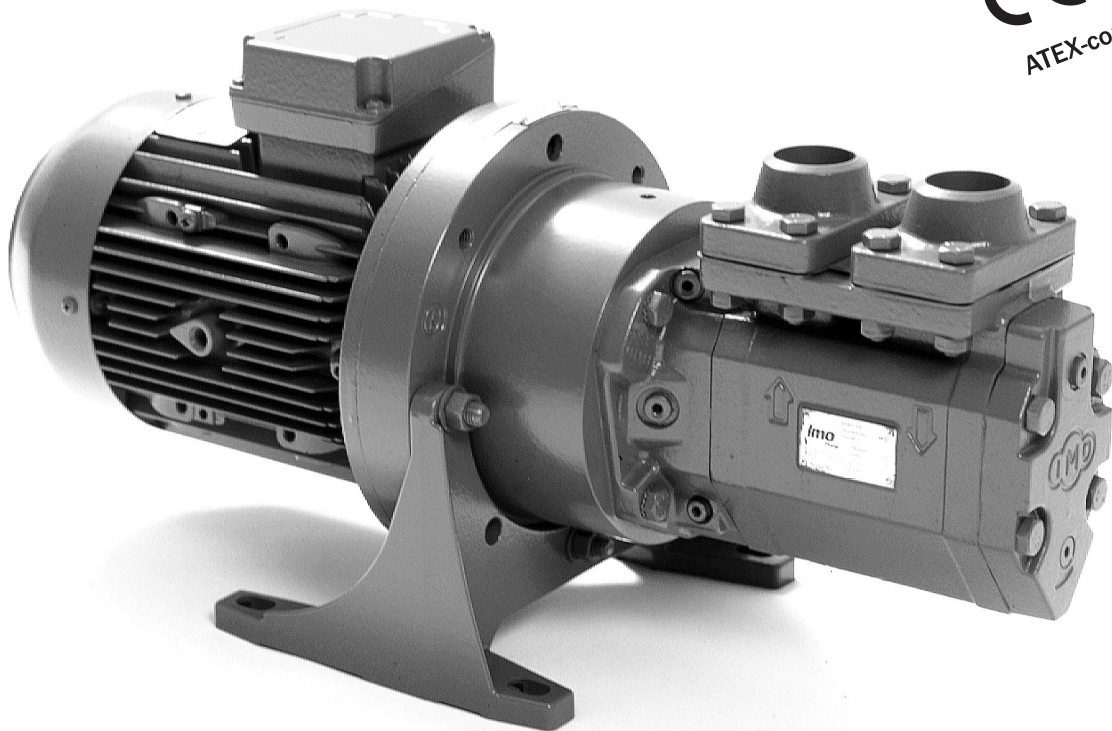


ACE3 Std Line



Product Description



Flow volume:	10 - 180 l/min
Max differential pressure:	16 bar
Applications:	Circulation, lubrication and transfer

1. Applications

1.1 Functionality

The Std Line (standard) ACE pump comes in two executions; Lube Line and Fuel Line. The main difference is the shaft seal design; (V-Seal) - optimized for light duty and (T-Seal) - heavy duty respectively.

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

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

If requested, the ACE pump may be certified according to any of following classification societies: DNV, BV, LRS, ABS, RS, GL, RINA, KR, NK, RMR or CCS.

1.2 Applications

Typical applications are:

- Lubrication of diesel engines, gears, gas and steam turbines, hydro turbines and paper machines
- Circulation for cooling and filtration in large machineries, hydraulic systems and transformer oil for insulation in transformers
- As transfer pumps onboard vessels, in power plants, oil factories, refineries, tank farms etc
- Fuel supply duties for engines
- Supply and circulation of fuel oil-

1.3 Use in potentially explosive areas

The pump fulfils the requirements according to EU explosion-protection directive 2014/34/EU (ATEX 100a) for devices in device class II, category 2G.

Classification into temperature classes according to DIN EN 80079-36 depends on the temperature of the pumped liquid.

Refer to the proposal or order documentation for the maximum permissible liquid temperature for the respective temperature classes.

Note: When operating the pump in category 2, suitable measures must be provided to prevent impermissible warming of the pump surfaces in the event of disturbance.

1.4 Installation

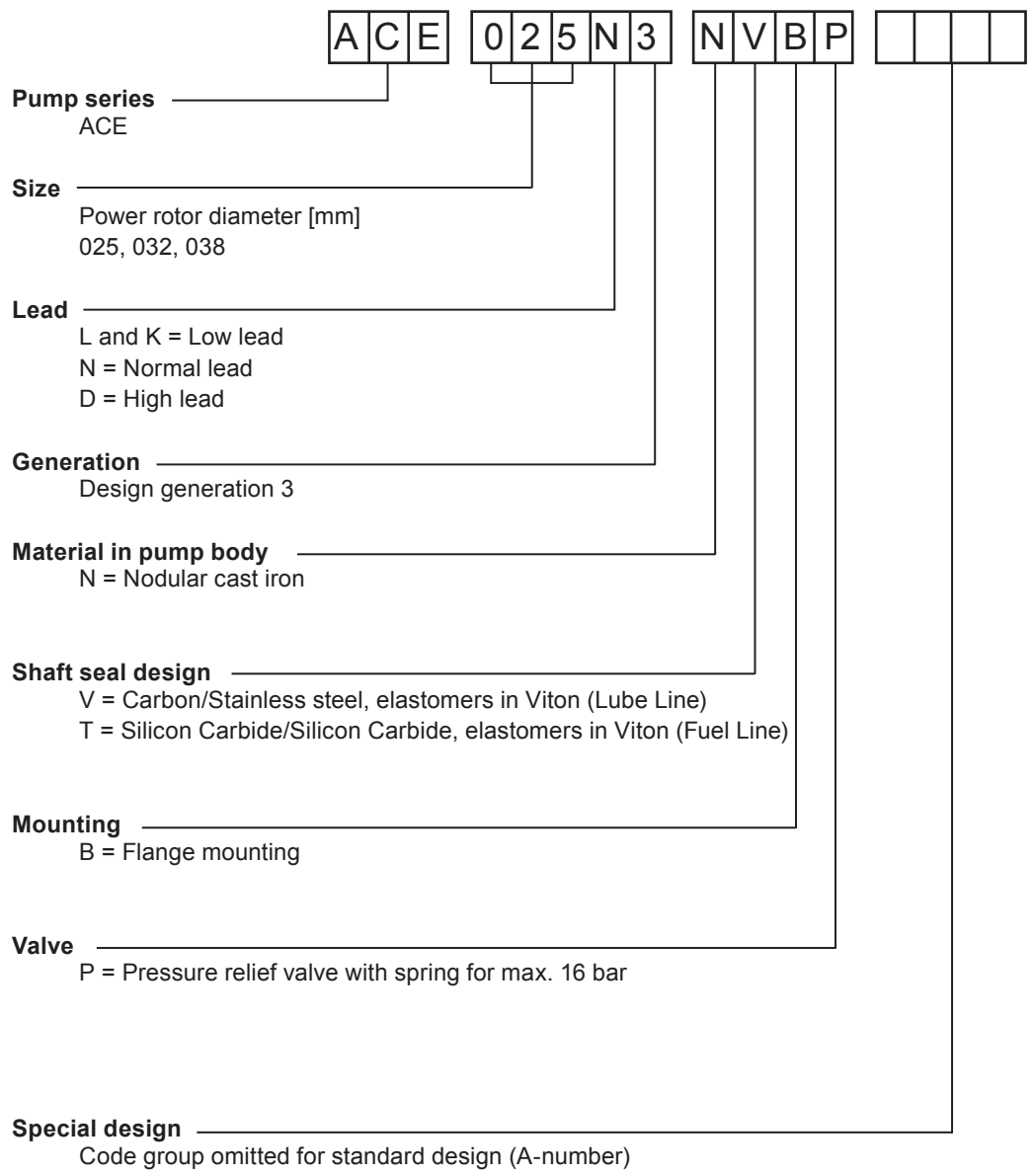
The pump is designed to be flange-mounted to its electric motor via a connecting frame and a flexible shaft coupling. By the angle bracket, the pump may be mounted horizontally or vertically.

The ACE pump can also be mounted on valve blocks called T4.

As standard, the pump is delivered including counter flanges (IMO AB design).

For more information about installation, see Installation and Start-up instruction for low pressure pumps.

2. Pump model code



3. Technical Data

3.1 Pressure Information

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 relief valve will open by the pressure.

The valve is adjustable for different opening pressures. The value of the pressure limit can be set at the factory and should be adjusted at installation (see Installation & Start-up instruction for low-pressure pumps).

The maximum pressure accumulation varies with pump size, speed and viscosity, but will normally not exceed 4 bar.

The valve has a maximum set pressure of 16 bar.

Inlet pressure

Minimum inlet pressure (suction capability) is dependent on fluid viscosity and rotation speed. It increases with decreasing viscosity and decreasing speed. Information about minimum inlet pressure for each individual duty case can be obtained from IMO AB or pump selection software WinPump.

Maximum inlet pressure is 7 bar.

Discharge pressure

Maximum discharge pressure is 16 bar.

Differential pressure

Maximum differential pressure is 16 bar but reduced at low viscosities according to table below

Viscosity [cSt]	1,4	2	6	10	>12
Max. diff. pressure [bar]	6,9	8	12,4	15	16

Refer to your IMO representative or use the pump selection software WinPump to determine the exact operating limits.

3.2 Driver information

Driver type

The pump is designed to be connected to an electrical motor via a flexible shaft coupling.

Speed

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

Rotation

The pump is designed to operate in one rotational direction only, as standard clockwise when facing the shaft end. Pumps for CCW operation can be delivered on special request.

For shorter periods of time, a few minutes for emptying a discharge line, the pump may be operated in reverse direction, provided the back pressure is limited to 3 bar.

3. Technical Data

3.3 Sound level

Typical pump sound levels refer to free field conditions at a distance of 1 m from the pump. Noise of driver excluded in the quoted figures. The sound levels are measured at a discharge pressure of 5 bar, speed 2940 rpm and viscosity 40 cSt, according to ISO-3741.

Size	025	032	038
Sound level dB [A]	58	58	58

3.4 Moment of Inertia

Moment of inertia [10^{-6} kgm²]

Size	025	032	038
Value	49	72	194

3.5 Fluid viscosity

Lube Line seal (Seal version code V):
1,4 – 800 cSt for Lube and hydraulic oil

Fuel Line seal (Seal version code T):
1,4 – 3500 cSt for Fuel oil

For higher viscosity, contact IMO AB.

3.6 Fluid temperature

Lube Line (Seal version code V): -20 – +90 °C
Fuel Line (Seal version code T): -20 – +155 °C

4. Design

4.1 Ball bearing

The pump is fitted with an internal ball bearing which continuously is being greased by the handling media.

4.2 Design material

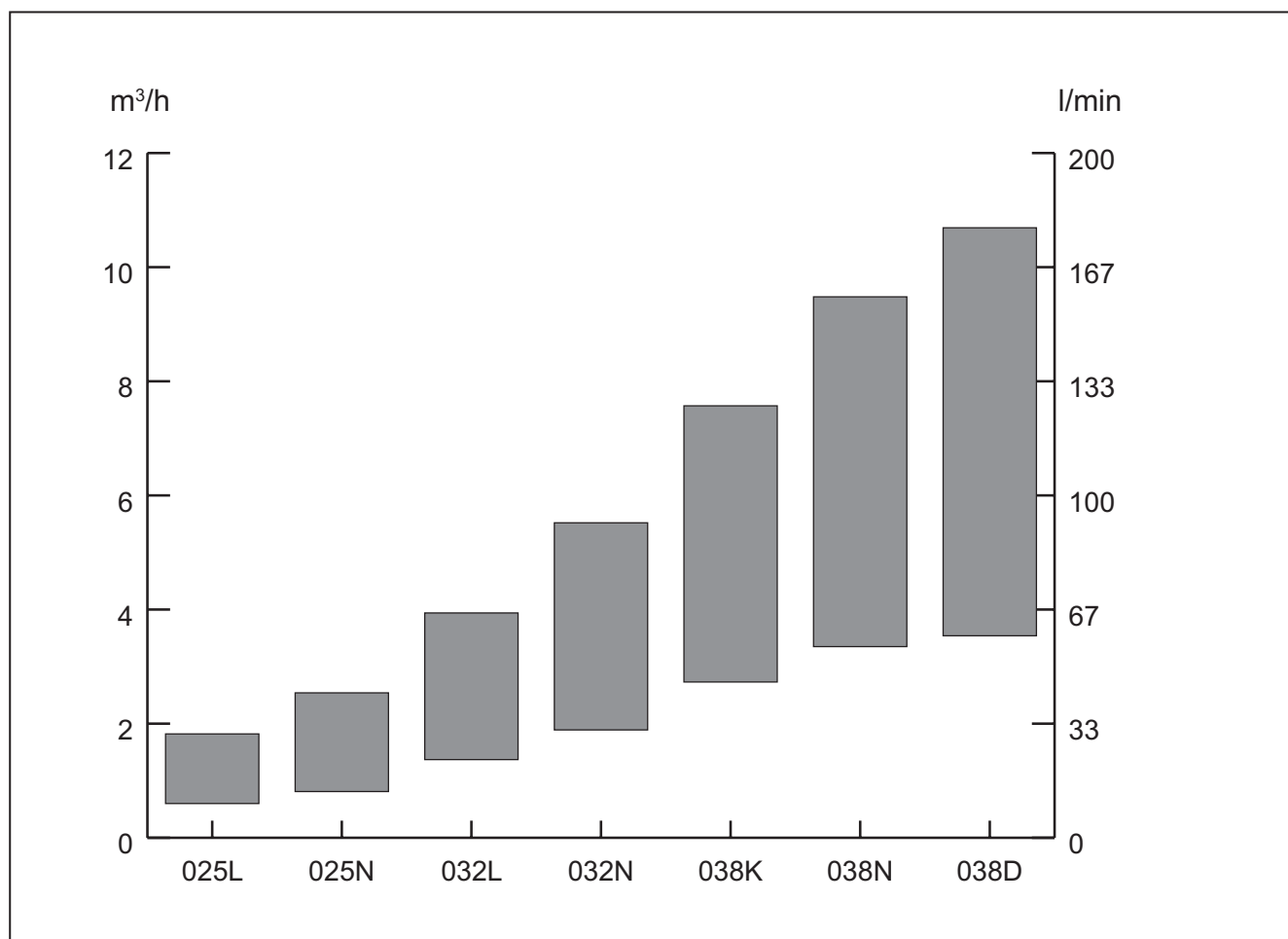
Model	Material pump	Material rotor	Material idler	Material seal	Material Elastomers
ACE NV	Nodular cast iron	Steel, surface treated	Cast iron, surface treated	Carbon/Silicon carbide	Viton
ACE NT	Nodular cast iron	Steel, surface treated	Cast iron, surface treated	Silicon carbide / Silicon carbide	Viton

5. Performance

Typical performance values at 5 bar

Flow calculated at 26 cSt, power at 260 cSt.

Pump performance established according to EN 14343.

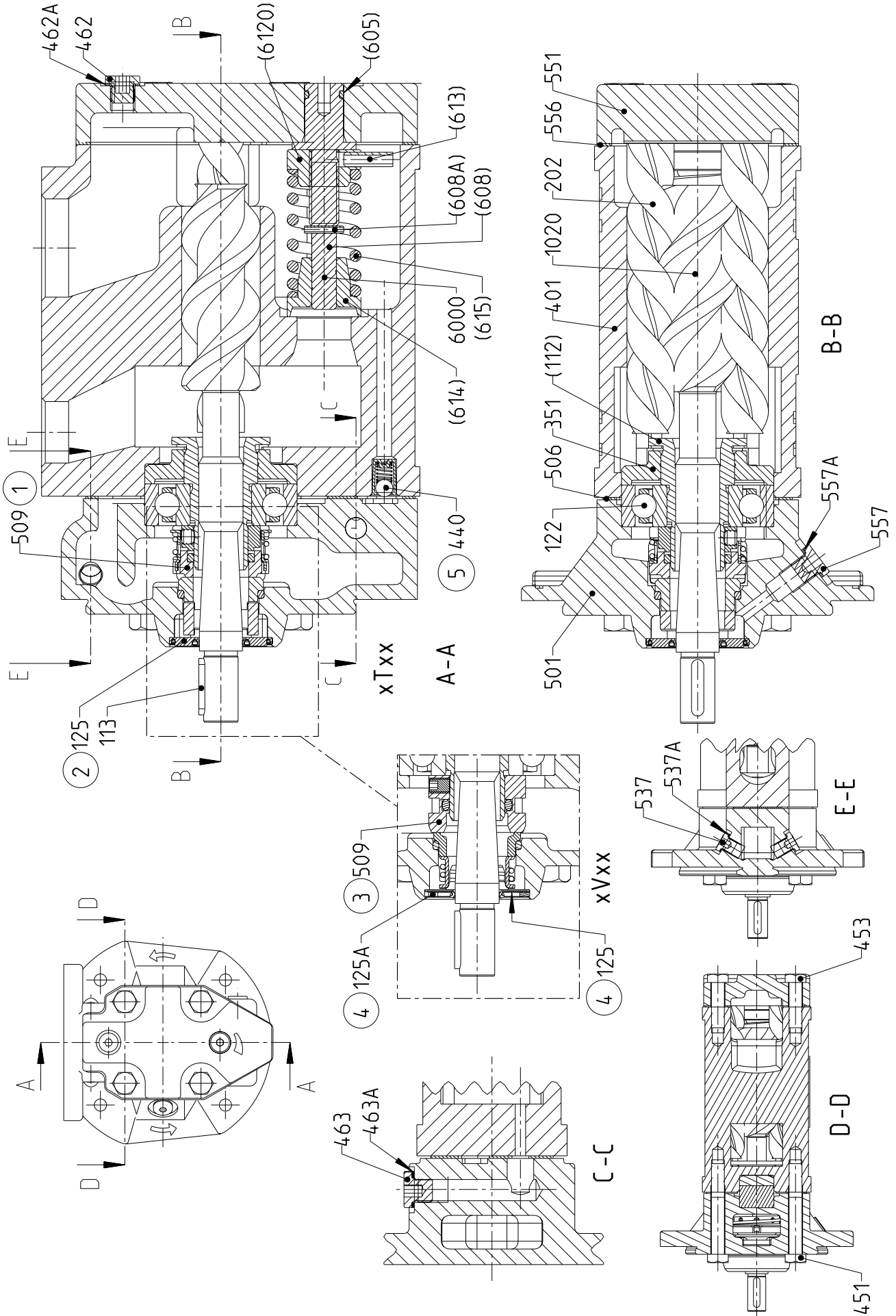


rpm	025L		025N	
	l/min	kW	l/min	kW
1470	10,0	0,3	13,5	0,4
1770	12,9	0,4	17,7	0,5
2950	24,5	0,9	34,1	1,0
3550	30,4	1,1	42,5	1,3

rpm	032L		032N	
	l/min	kW	l/min	kW
1470	22,8	0,5	35,9	0,8
1770	29,0	0,7	44,6	1,0
2950	53,3	1,3	79,0	1,9
3550	65,6	1,7	96,4	2,4

rpm	038K		038N		038D	
	l/min	kW	l/min	kW	l/min	kW
1470	45,5	1,0	55,8	1,3	59,1	1,2
1770	57,1	1,3	70,5	1,7	76,2	1,5
2950	102,9	2,5	128,4	3,2	143,9	2,9
3550	126,2	3,2	157,9	4,1	178,2	3,6

6. Sectional view



7. List of components

Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
1020	Complete power rotor	453	Screw	556	Gasket
(112)	Balancing piston	462	Plug	557	Plug
113	Key	462A	Sealing washer	557A	Sealing washer
122	Ball bearing	463	Plug	6000	Complete valve element
125	Secondary seal	463A	Sealing washer	(605)	O-ring
125A	Retaining ring	501	Front cover	(608)	Valve spindle
202	Idler rotor	506	Gasket	(608A)	Tension pin
351	Balancing bush	509	Shaft seal	(6120)	Complete regulating nut
401	Pump body	537	Deaeration plug	(613)	Pin
440	Return valve	537A	Sealing washer	(614)	Valve piston
451	Screw	551	Rear cover	(615)	Valve spring

Drawing remarks:

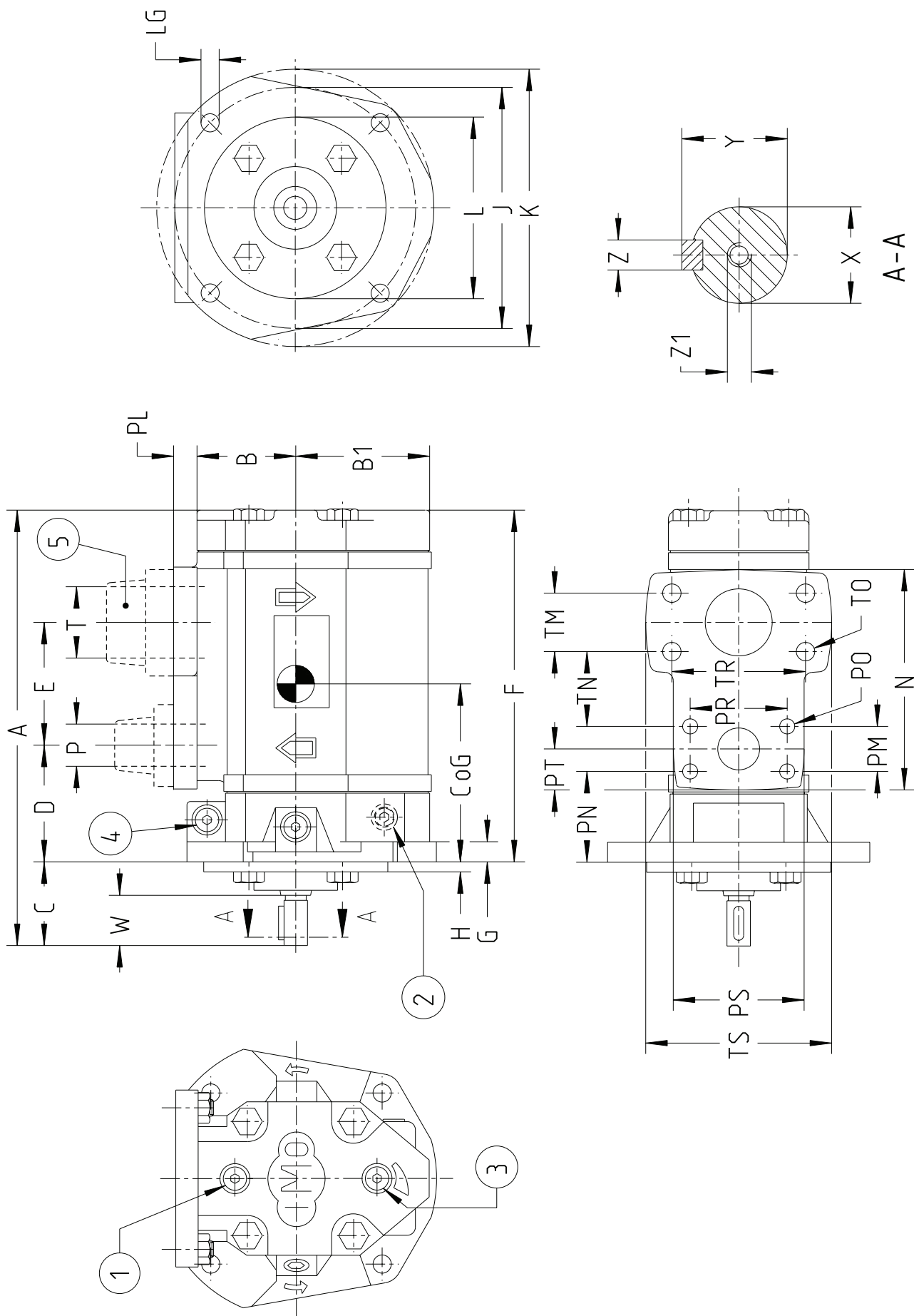
- (1) Shaft seal. Execution code xTxx
- (2) Applicable for shaft seal execution code xTxx
- (3) Shaft seal. Execution code xVxx
- (4) Applicable for shaft seal execution code xVxx

(5) Removed from August 2011

Notes:

- Components with Pos No within parenthesis are parts of subassembly

8. Pump dimensions



8. Pump dimensions

Pump size	Main dimensions							Flange dimensions					Outlet							Inlet					Shaft				Weight					
	A	B	B1	C	D	E	F	N	G	H	J	K	L ¹⁾	LG	P	PL	PM	PN	PO	PR	PS	PT	T	TM	TN	TO	TR	TS	W	X ²⁾	Y	Z	Z1	CoG
025	225	73	81		60	60	175	110	12	130	160	110	9	25	14	28	46	9	62	82	25	25	28	32	9	62	82	29	14	16	5		75	10
032	261			50	68	75	211	133	6							54						40	40	41	11	90	115					M5	92	12
038	273	83	83		75	85	223	151	15	145	170	120	11	40	15	40	55	11	90	115	33	40		45				34	19	21.5	6		100	15

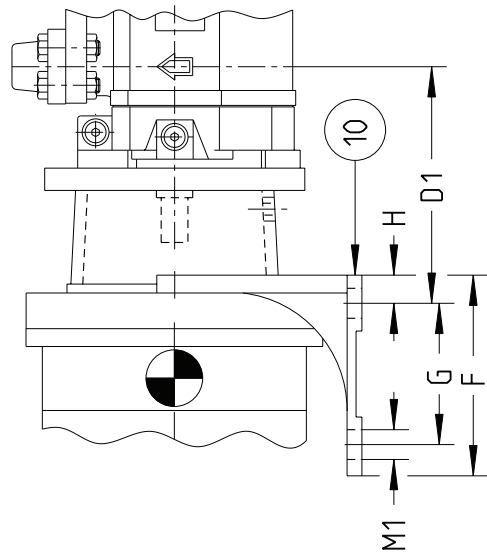
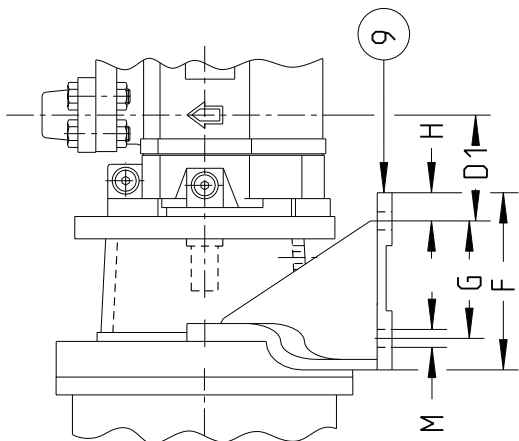
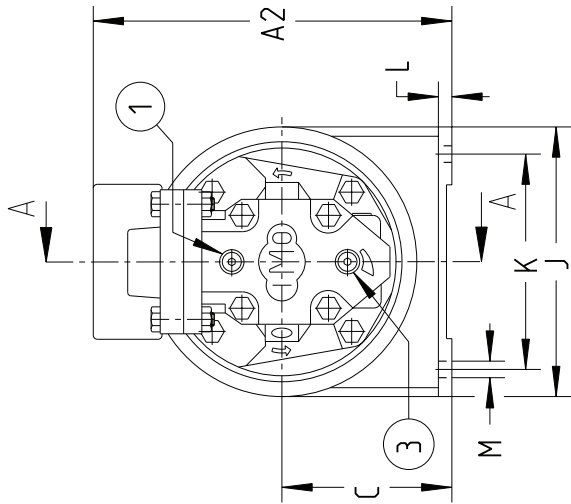
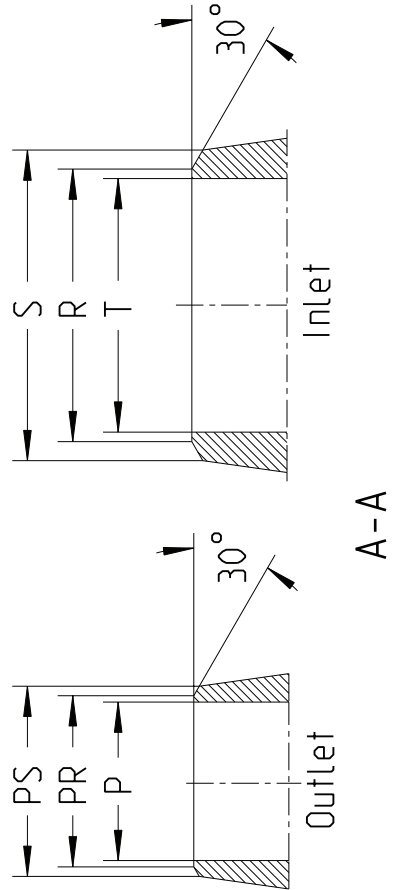
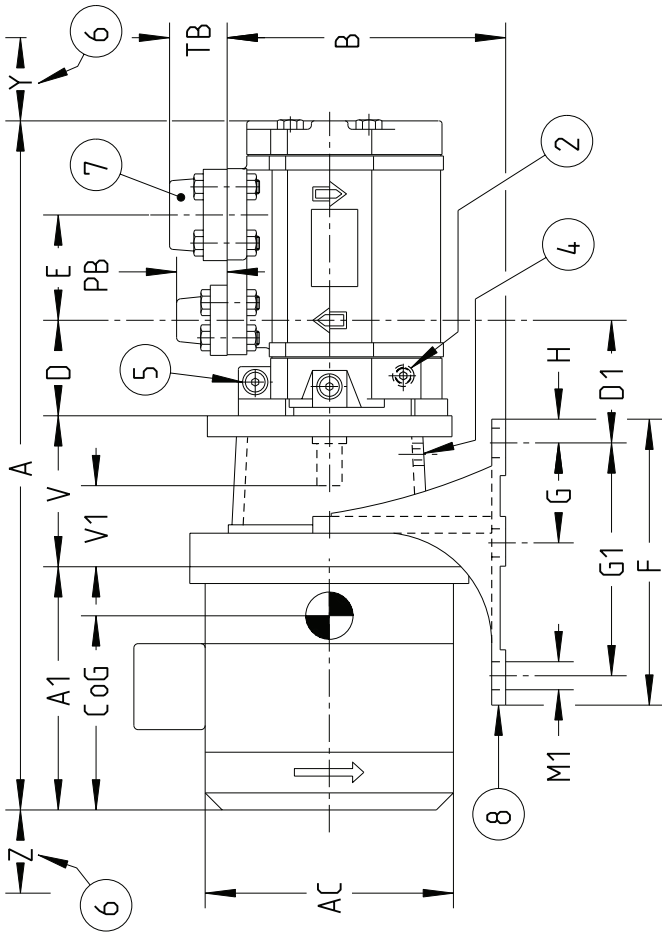
Notes:

- Dimensions in mm
- 1) Tolerances ISO h7
- 2) Tolerances ISO j6

Drawing remarks:

- (1) Inlet gauge. ISO G1/8
- (2) Other side: Outlet gauge. ISO G1/8
- (3) Relief valve. Turn clockwise to increase opening pressure
- (4) Deaeration (2x)
- (5) For counter flanges dimensions see Pump unit dimensions page 12

9. Pump Unit dimensions



9. Pump Unit Dimensions

Pump size	IEC No	Frame size	Main dimensions										Foot dimensions										Outlet				Inlet			Dism.		Weight	
			A	A1	A2	AC	B	C	D	D1	E	V	V1	F	G	G1	H	J	K	L	M	M1	P	PB	PR	PS	T	TB	R	S	Y	Z	CoG
025	71	F130	481	208	213	140	171	98	156		98	48	105	70		19	205		8	9	16										48	283	20
	80	F165	521	238	239	160	185	112	88		108	58	90	60	-	15	210	180	12	Ø11	-					25	37	27	30	58	291	24	
	90		565	272	247	178		60	98	60	118	68																	68	287	30		
	100	F215	611	308	309	199	228	155	109		128	78	230	75	185	22	250	215	15	14	24								78	285	40		
	112		624	321	322	215																25	37	27	30					48	302	22	
032	71	F130	517	208	213	140	171	98	164		98	48	105	70		19	205		8	9	16									48	302	22	
	80	F165	557	238	239	160	185	112	96		108	58	90	60	-	15	210	180	12	Ø11	-									58	310	26	
	90		601	272	247	178		68	106	75	118	68																68	305	32			
	100	F215	647	308	309	199	228	155	117		128	78	230	75	185	22	250	215	15	14	24								78	300	42		
	112		660	321	322	215																40	42	42	49					58	327	29	
038	80	F165	569	238	239	160	195	112	103		108	58	90	60	-	15	210	180	12	Ø11	-									58	327	29	
	90		613	272	247	178			113		118	68																	68	323	35		
	100	F215	659	308	309	199	238	155	124	85	128	78	230	75	185	22	250	215	15	14	24								78	317	45		
	112		672	321	322	215		75														40	42	42	49					68	312	50	
	132	F265	744	371	373	255	268	185	130		150	100	270	95	225	23	300	265	18										70	100	309	75	

Drawing remarks:

- (1) Inlet gauge. ISO G1/8
- (2) Other side: Outlet gauge. ISO G1/8
- (3) Relief valve. Turn clockwise to increase opening pressure
- (4) Connecting frame drainage. ISO design necessary

G3/8

- (5) Deaeration (2x)
- (6) Space for dismantling
- (7) Butt weld counter flanges of IMO design necessary

(8) Angle bracket for frame size F215-F265

- (9) Angle bracket for frame size F165
- (10) Angle bracket for frame size F130

Notes:

- Dimensions in mm
- Dimensions A, A1, AC, A2 and weight are approximate values for Brook
- Crompton motors type WU-DA

10. Accessories

A bare shaft pump (Fig. 1) can be ordered with the accessories in fig. 2-8.

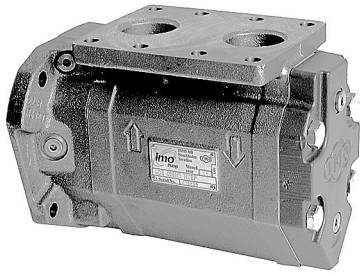


Fig. 1 Bare shaft pump

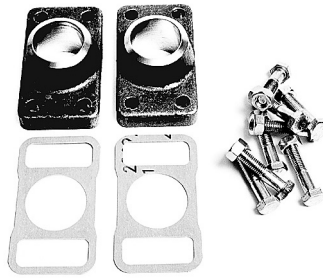


Fig. 2 Set of counter flanges

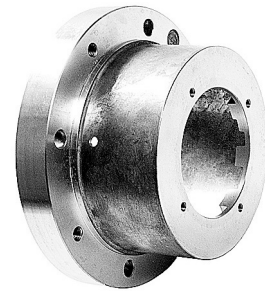


Fig. 3 Connecting frame

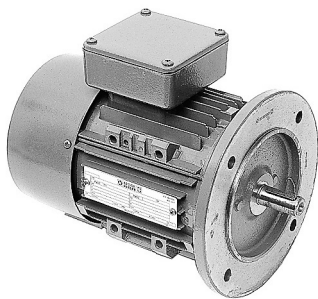


Fig. 4 Electric motor

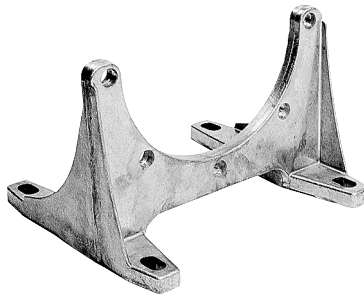


Fig. 5 Angle bracket

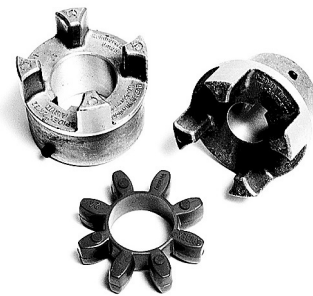


Fig. 6. Shaft coupling

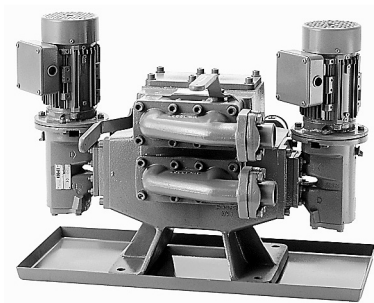


Fig 7. Valve block



Fig 8. Gauge panel

11. Maintenance

Spare parts for these pumps are easily available from stock. For detailed information and know-how about service, see the Maintenance & Service Instruction for ACE3 pumps or contact IMO AB.

Adress:

IMO AB
PO Box 42090, 126 14 Stockholm
Sweden