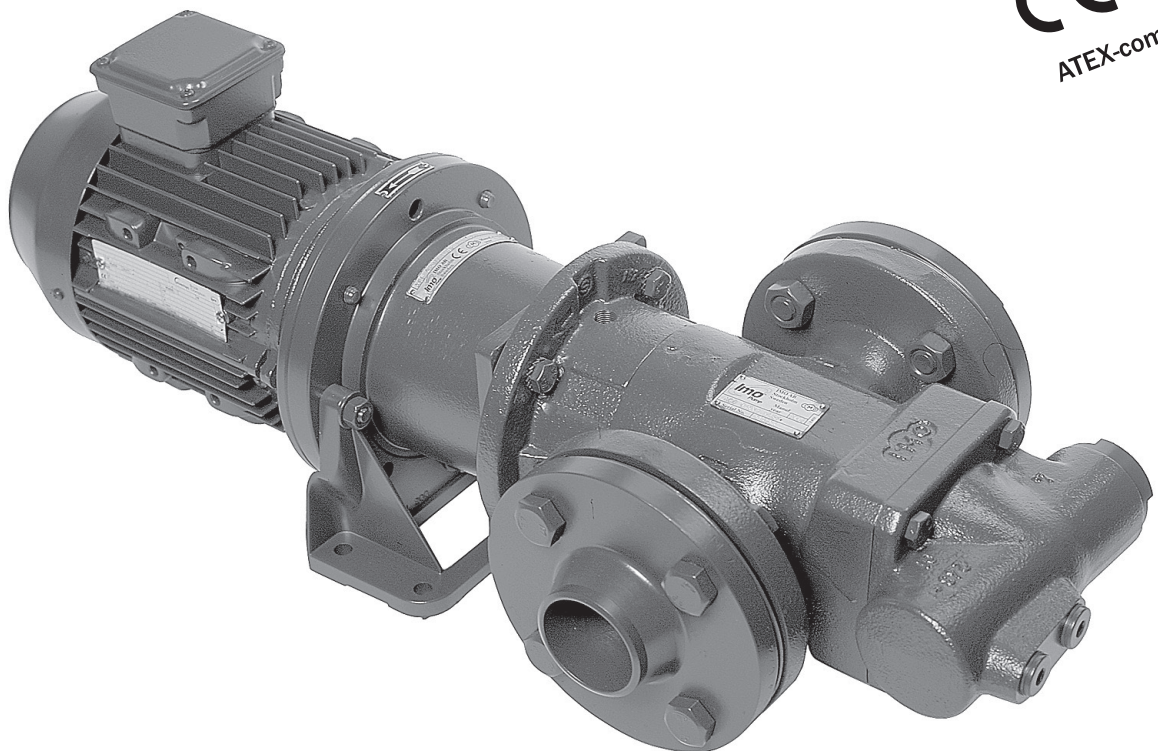


ACG7 Std Line



Product Description



Flow volume:	80 - 1200 l/min
Max differential pressure:	16 bar
Applications:	Circulation, lubrication and transfer

1. Applications

1.1 Functionality

The Std Line (standard) ACG pumps come in two executions; Lube Line and Fuel Line. The main difference is the shaft seal design, optimized for light duty and heavy duty respectively.

The ACG pumps are 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 ACG 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
- For supply and circulation systems

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.

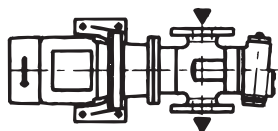
1.4 Installation

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 might be mounted horizontally or vertically.

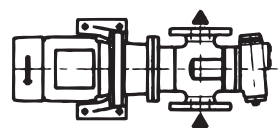
As standard, the pump is supplied without counter flanges (DIN type) but they can be included if requested.

As standard the pump is delivered with the discharge side to the right when seen from the pump shaft side (see below).

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



Mounting standard picture M93-0.



On request the pump can be delivered in the opposite direction, M39-0.

2. Pump model code

	A	C	G	0	4	5	N	7	N	V	B	P				
--	---	---	---	---	---	---	---	---	---	---	---	---	--	--	--	--

Pump series _____
ACG (, UCG*)

Size _____
Power rotor diameter [mm]
045, 052, 060, 070

Lead _____
K = Low lead
N = Normal lead
D = High lead

Generation _____
Design generation 7

Material in pump body _____
N = Nodular cast iron

Shaft seal design _____
V = Carbon/Carbide, elastomers in Viton (Lube Line)
T = Silicon Carbide/Silicon Carbide, elastomers in Viton (Fuel Line)

Mounting _____
B = Flange mounting
F = Foot mounting*

Valve _____
P = Pressure relief valve with spring for max. 16 bar
E = Without valve

Special design _____
Code group omitted for standard design (A-number)

* For UCG and foot-mounted models, please contact IMO AB.

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 12 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	8,0	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 primarily for direct drive through a flexible shaft coupling.

Under certain conditions other types of drive can be permitted, e.g. gear or pulley drives, which create radial loads onto the shaft end. Permissible radial force varies with pressure, speed and inlet conditions.

For radial load requirements, contact IMO AB.

Speed

The maximum speed is 3600 rpm. Max. operating speed may be reduced depending on inlet conditions. Contact IMO or use the pump selection software WinPump to find a corresponding speed limit in order to avoid cavitation problems.

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 2900 rpm and viscosity 37 cSt.

Size	045	052	060	070
Sound level dB [A]	59	63	66	68

3.4 Moment of Inertia

Moment of inertia [10^{-3} kgm²]

Size	045	052	060	070
Value	0,26	0,51	1,1	2,2

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 external lubricated ball bearing. When delivered from IMO AB, the ball bearing is filled with grease.

For more information, see Maintenance and Service Instructions.

4.2 Material & design

Model	Material pump	Material rotor	Material idler	Material seal	Material Elastomers
ACG NVBP	Nodular cast iron	Steel, surface treated	Cast iron, sur- face treated	Carbon/Silicon Carbide	Viton
ACG NTBP	Nodular cast iron	Steel, surface treated	Cast iron, sur- face treated	Silicon Carbide/ Silicon Carbide	Viton

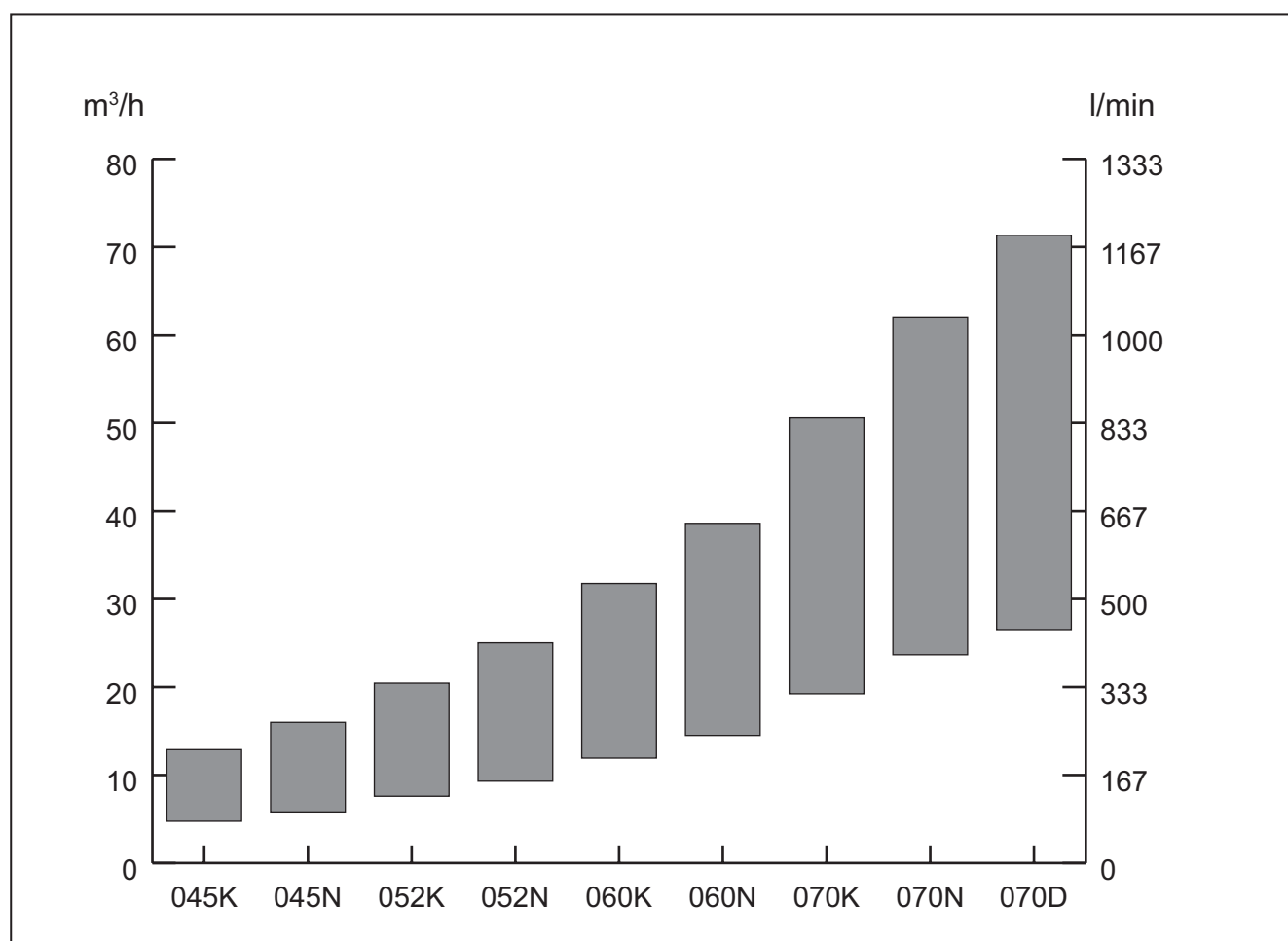
For handling of fluids which may be aggressive to above materials, consult IMO AB.

5. Performance Guide

Typical performance values at 5 bar

Flow calculated at 26 cSt, power at 260 cSt.

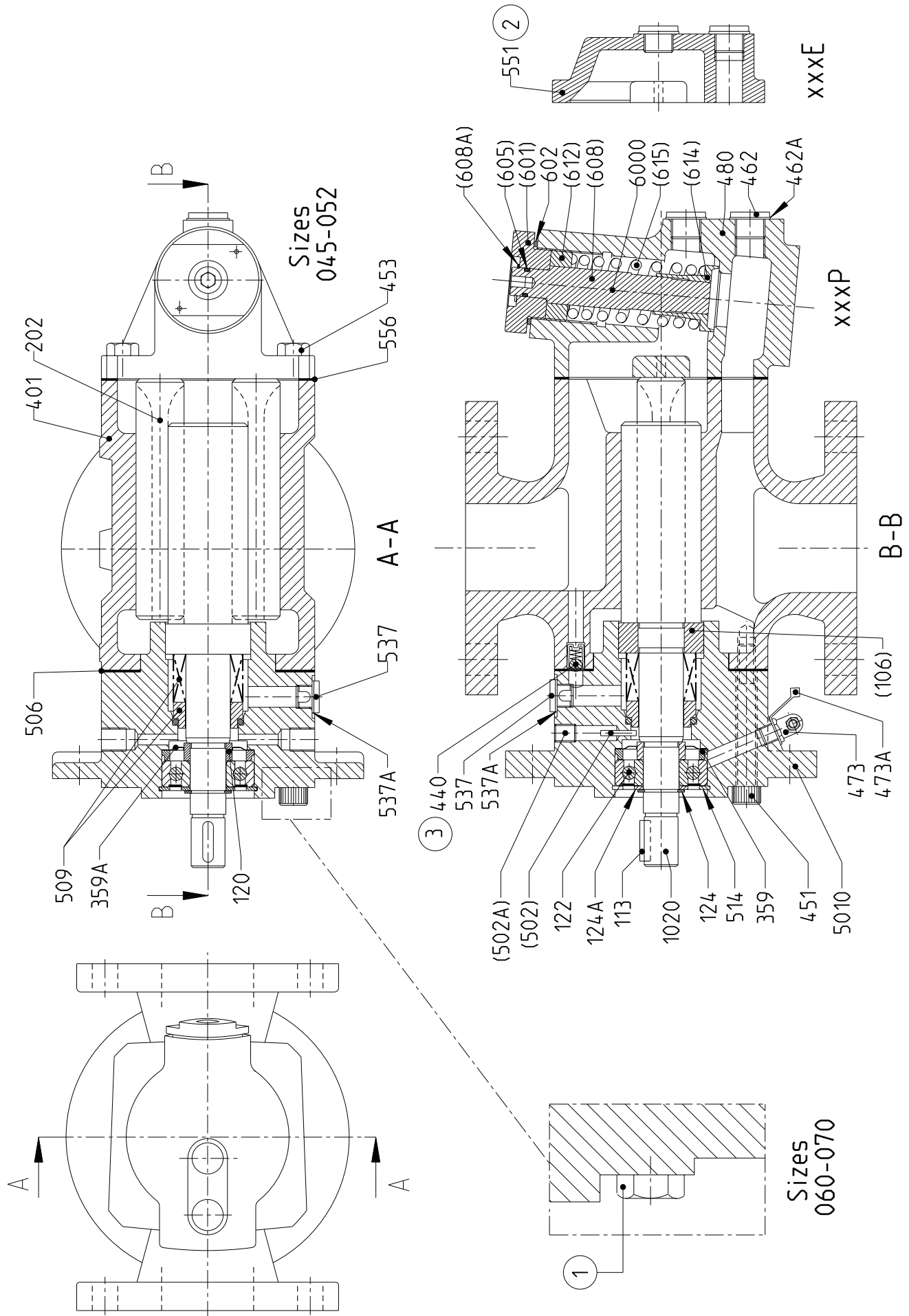
Pump performance established according to EN 14343.



rpm	045L			045N			052K			052N		
	l/min	kW		l/min	kW		l/min	kW		l/min	kW	
1470	79	1,6		97	2,0		126	2,5		155	3,0	
1770	99	2,0		121	2,5		157	3,1		193	3,8	
2950	176	3,8		218	4,7		279	5,9		341	7,3	
3550	215	4,8		267	6,0		341	7,6		417	9,2	

rpm	060K			060N			070K			070N			070D	
	l/min	kW		l/min	kW		l/min	kW		l/min	kW		l/min	kW
1470	199	3,8		242	4,6		321	3,8		395	4,6		442	7,5
1770	246	4,8		300	5,8		396	4,8		487	5,8		550	9,4
2950	434	9,2		528	11,1		692	9,2		849	11,1		974	17,6
3550	529	11,7		643	14,2		843	11,7		1033	14,2		1189	22,3

6. Sectional view



7. List of Components

Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
1020	Complete power rotor	453	Screw	537A	Sealing washer
(106)	Balancing piston	462	Plug	551	Rear cover
113	Key	462A	Sealing washer	556	Gasket
120	Distance sleeve	473	Grease nipple	6000	Complete valve element
122	Ball bearing	473A	Grease nipple cover	(601)	Valve top cover
124	Retaining ring	480	Valve housing	(605)	O-ring
124A	Support ring	5010	Complete front cover	(608)	Valve spindle
202	Idler rotor	(502)	Tension pin	(608A)	Retaining ring
359	Distance washer	(502A)	Plug	(612)	Regulating nut
359A	Support ring	506	Gasket	(614)	Valve piston
401	Pump body	509	Shaft seal	(615)	Valve spring
440	Return valve	514	Retaining ring	602	Sealing washer
451	Screw	537	Deaeration plug		

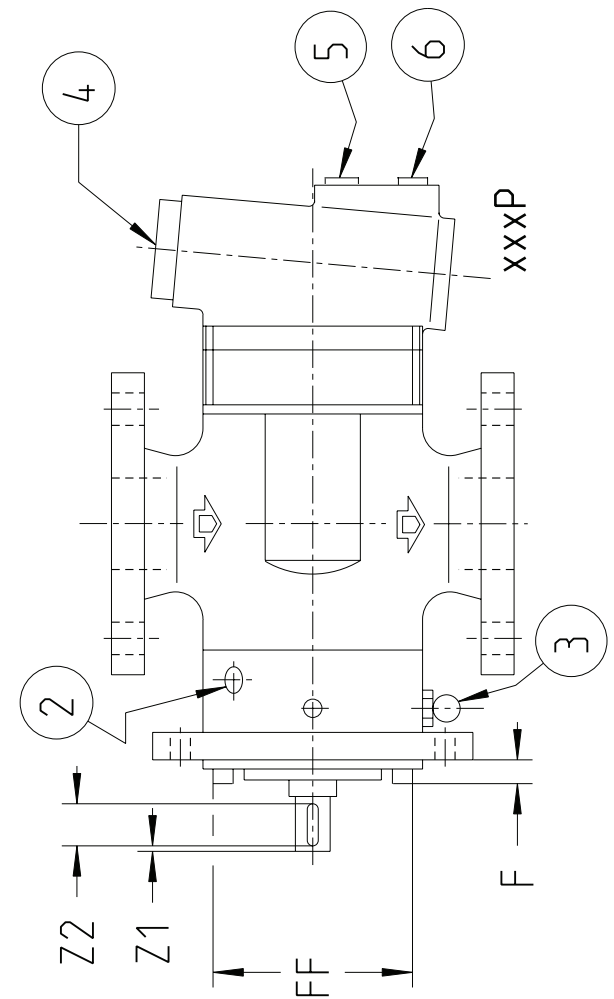
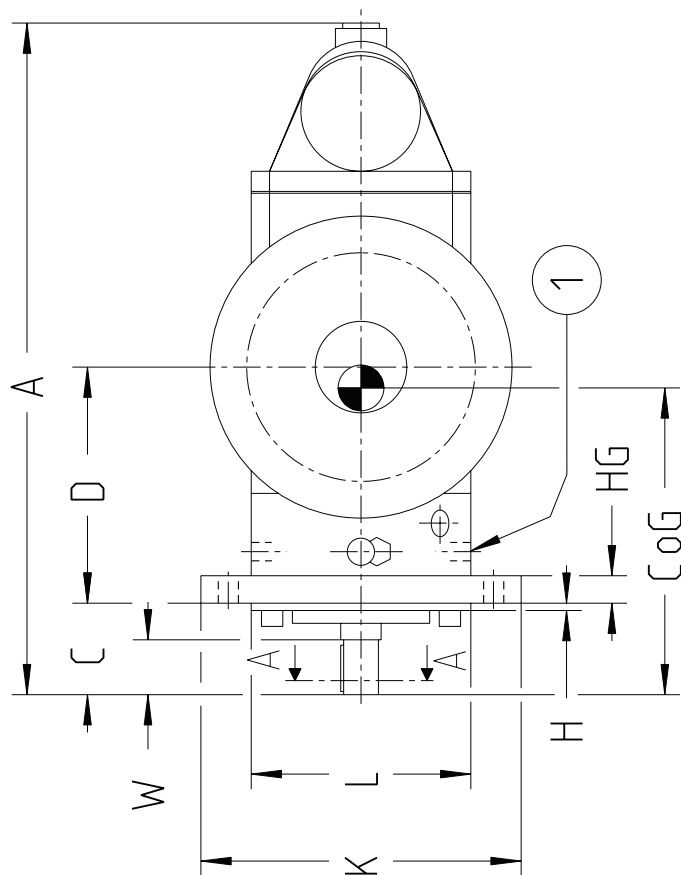
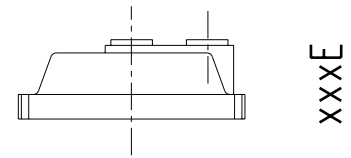
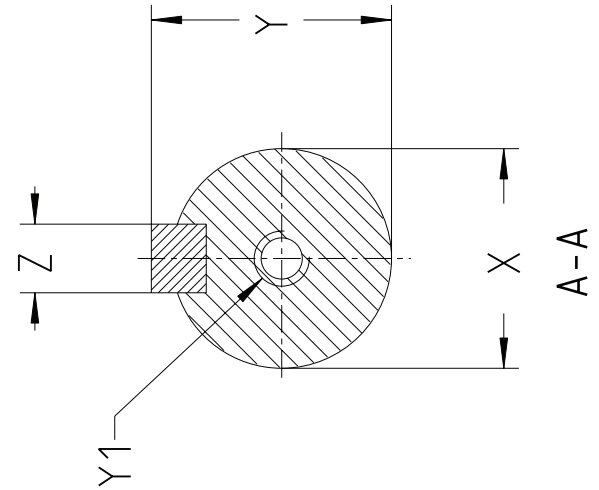
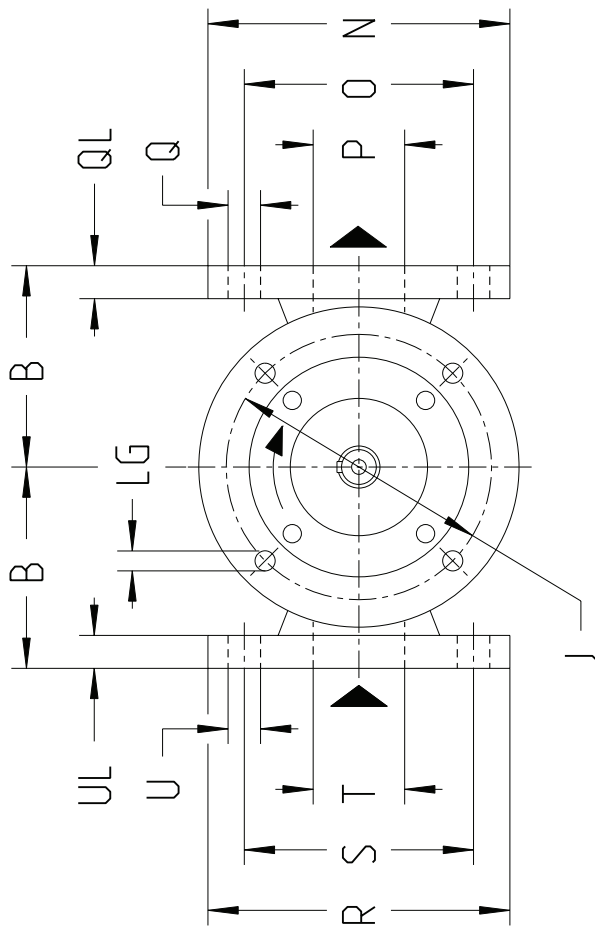
Drawing remarks:

- (1) Hexagon bolts valid for sizes 060-070
- (2) Rear cover. Execution code xxxE
- (3) 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	A	B	C	D	F	FF	H	HG	J	K	L ¹⁾	LG	N	O	P	Q	QL	R	S	T	U	UL	W	X ²⁾	Y	Y ^{1x} depth	Z	Z1	Z2	CoG	CoG	kg	kg
045	367	319	110	50	129	16	113	15	145	175	120	11	165	125	50	4x	Ø18	20	165	125	50	4x	Ø18	30	19	21.5	M8x16	6	3	22	185	175	25	22
	396	350	122.5	60	140	18	127			165	200	130	14	185	145				65	Ø18	185			145	65	35		24		27	28	200	190	33
060	460	397	140	70	178.5		153	4	20	215	250	180	18	200	160	80	8x	Ø18	200	160	80	8x	Ø18	45	28	31	36	285	275	47	43			
	490	427	150		196	13	173							220	180	100				Ø18	22								220	180	100	22	300	290
Exe- cution code	xxxP	xxxE																												xxxP	xxxE	xxxP	xxxE	

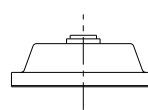
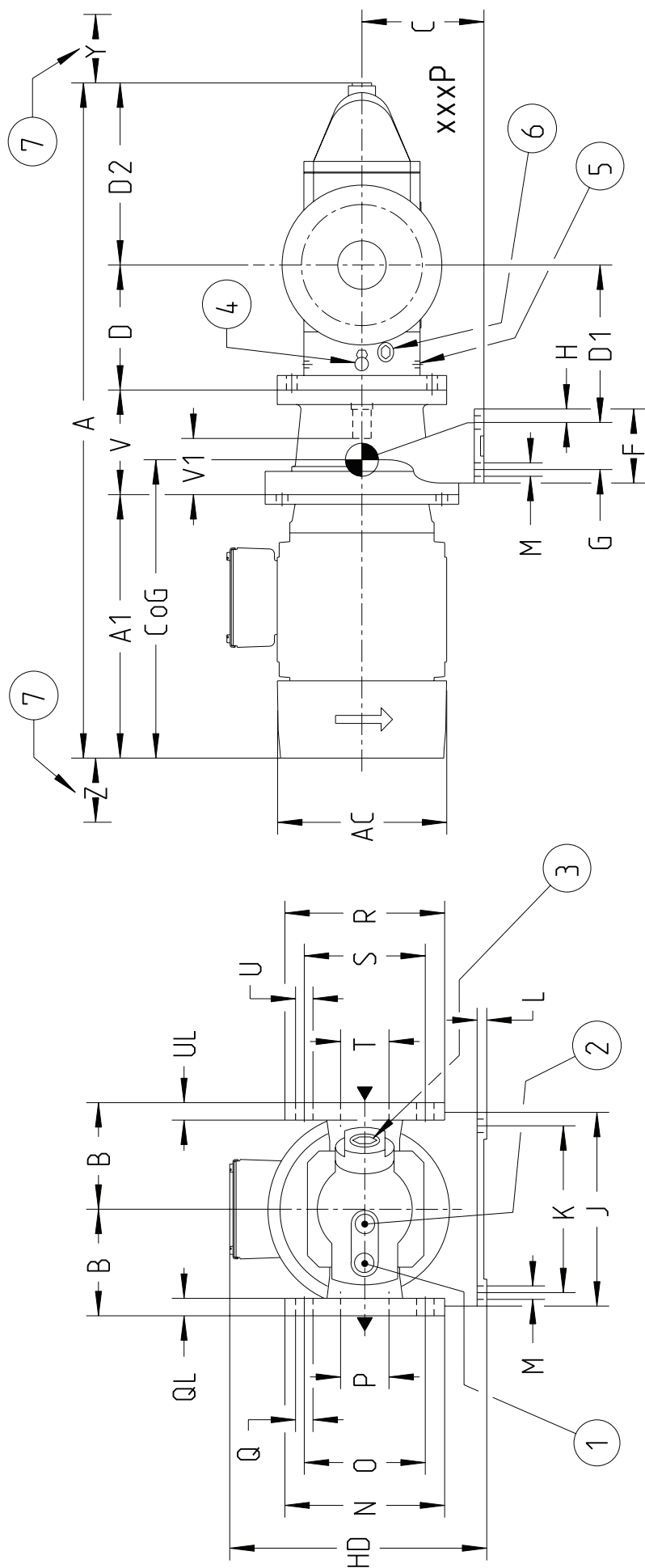
Drawing remarks:
 (1) Drain. ISO G1/4
 (2) Deaeration
 (3) Grease nipple

(4) Relief valve. Turn clockwise to increase opening pressure
 (5) Inlet gauge. ISO G3/8
 (6) Outlet gauge. ISO G3/8

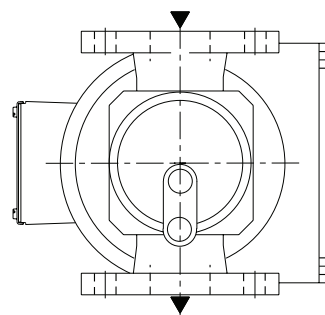
Notes:
 - Dimensions in mm
 - Counter flanges according to DIN2633/ND16
 - Weight is an approximate value

¹⁾ Tolerances ISO h7
²⁾ Tolerances ISO j6

9. Pump Unit dimensions



xxxE



9. Pump Unit dimensions

Pump size	IEC No	Frame size	Main dimensions										Foot dimensions										Outlet					Inlet					Dism.		Weight									
			A	A	A1	AC	B	C	D	D1	D2	D2	V	V1	F	G	H	HD	J	K	L	M	N	O	P	Q	QL	R	S	T	U	UL	Y	Z	CoG	CoG	kg	kg						
045	80	F165	679	631	238	160											244	210	180	12	11														75	75	395	372	36	34				
	90		713	665	272	178						124	74	90		15	252																		380	369	43	39						
	100	F215	760	712	308	199	110	132	129	165	188	140	135	85	110	29	286	250	220	15	14	165	125	50	4x Ø18	20	165	125	50	4x Ø18	20	75	85	385	363	52	49							
	112		773	725	321	215										60	299																	360	354	58	54							
	132	F265	843	795	371	255		160		164				155	105	116	80	16	348	290	260	18										80	105	360	339	80	77							
052	80	F165	698	652	238	160											244	210	180	12	11															85	65	410	390	50	46			
	90		732	686	272	178						124	64	90		15	252																		80	70	405	390	55	52				
	100	F215	779	733	308	199	122.5	132	140	174	196	150	135	75	110	29	286	250	220	15	14	185	145	65	4x Ø18	20	185	145	65	4x Ø18	20	85	80	410	394	60	57							
	112		792	746	321	215		160		188			168	108	116	80	16	348	290	260	18														400	386	65	62						
	132	F265	875	829	371	255		180		189				204	144	150	110	20	420	340	300	22	18										90	110	390	375	88	85						
060	160	F300	1035	989	495	314											286	250	220	15	14															100	140	435	405	135	132			
	100	F215	846	783	308	199		132		227.5			148	78	110	60	29	286	250	220	15	14																95	85	490	474	80	75	
	112		859	796	321	215											299																			485	466	85	80					
	132	F265	957	894	371	255	140	160	178.5	254.5	211.5	148.5	196	126	116	80	16	348	290	260	18				8x Ø18	20	200	160	80	8x Ø18	20	95	130	460	460	105	102							
	160	F300	1089	1026	495	314		180		227.5			204	134	150	110	20	420	340	300	22	18														100	140	500	466	150	145			
070	180		1175	1112	557	358				251.5			228	158			440																					105	160	500	486	185	181	
	100	F215	876	813	308	199		132		245			148	78	110	60	29	286	250	220	15	14																	95	85	530	514	95	89
	112		889	826	321	215											299																				520	506	100	94				
	132	F265	987	924	371	255	150	160	196	272	224	161	196	126	116	80	16	348	290	260	18				8x Ø18	22	220	180	100	8x Ø18	22	95	130	530	505	120	116							
	160	F300	1119	1056	495	314		180		245			204	134	150	110	20	420	340	300	22	18																100	140	540	510	165	159	
Exe-cution code	180		1205	1142	557	358				269			228	158			440																					105	160	545	526	200	195	
			xxxP	xxxP	xxxP						xxxP	xxxP																											xxxP	xxxP	xxxP	xxxP	xxxP	

Drawing remarks:

- (1) Outlet gauge. ISO G3/8
- (2) Inlet gauge. ISO G3/8
- (3) Control for relief valve
- (4) Grease nipple

- (5) Drain. ISO G1/4
- (6) Deaeration
- (7) Space for dismantling

Notes:

- Dimensions in mm
- Dimensions A, A1 and AC are valid for Brook Crompton motors type WU-DA
- Weight is an approximate value
- Foot VDMA 24 561 PTFL

10. Accessories

A bare shaft pump (Fig. 1) can be ordered with the accessories in fig. 2-7.



Fig. 1 Bare shaft pump



Fig. 2 Set of counter flanges



Fig. 3 Connecting frame

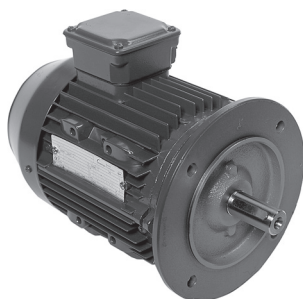


Fig. 4 Electric motor



Fig. 5 Shaft coupling



Fig. 6. Angle bracket



Fig 7. Gauge panel

11. Maintenance and Service

Spare parts for these pumps are easily available from stock. For detailed information and know-how about service, see the Maintenance & Service Instruction for ACG7 pumps or contact IMO AB.

Adress:

IMO AB
PO Box 42090, 126 14 Stockholm
Sweden