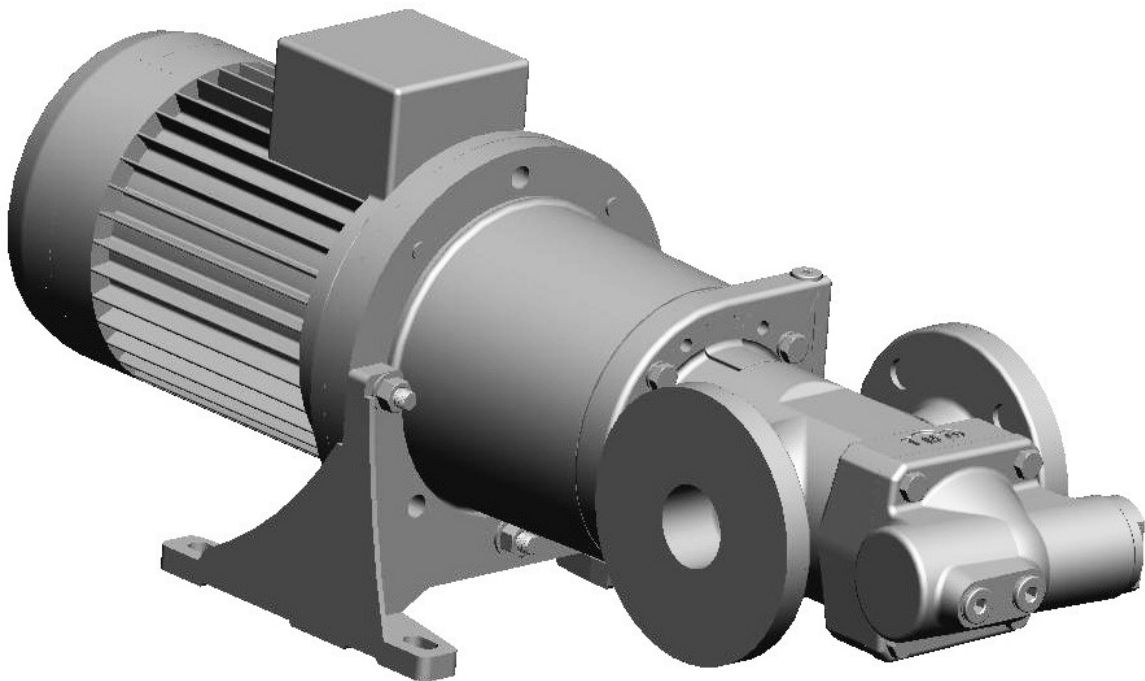


ACG8 OptiLine



Product Description



Flow volume:	75 - 1180 l/min
Max differential pressure:	16 bar
Applications:	Circulation and transfer

1. Applications

1.1 Functionality

The ACG OptiLine pump is used for a number of different fluids:

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
- Transfer onboard ships, in oil factories, refineries, tank farms etc
- Fuel supply duties for diesel engines

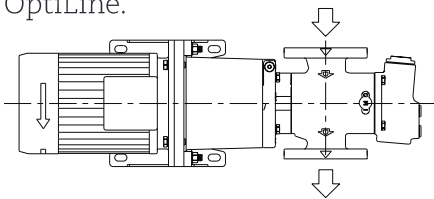
1.3 Installation

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

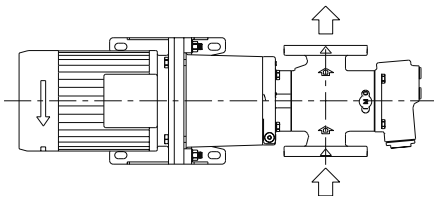
As standard, the pump is supplied without counter flanges (DIN type) but they can be included if requested.

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 Service, Maintenance and Installation for ACG OptiLine.

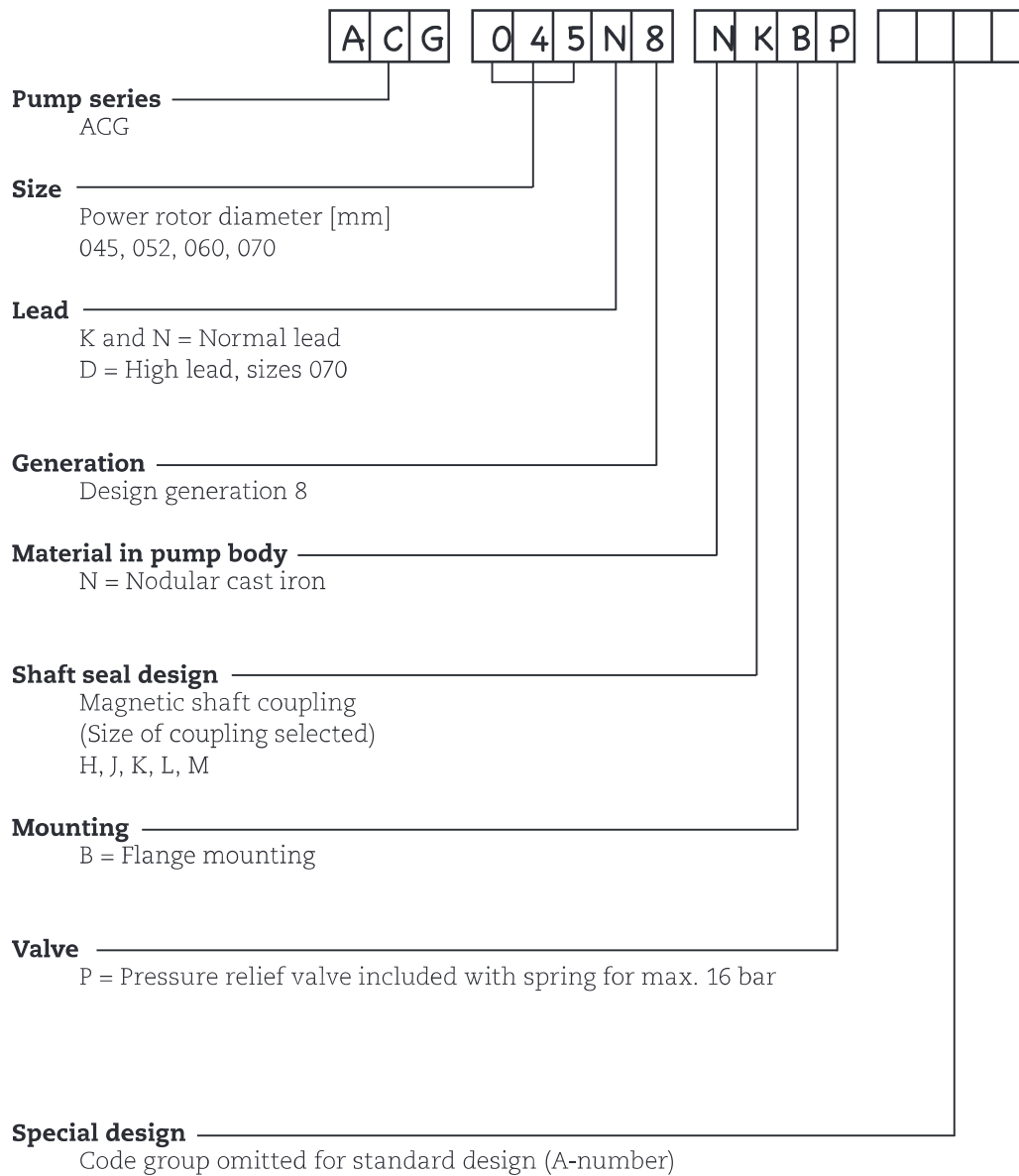


Mounting standard picture M93-0.



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

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 Service, Maintenance and Installation for ACG OptiLine).

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 15 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 power from motor to the OptiLine ACG pump is transmitted without mechanical contact over a magnetic coupling. A coupling hub with a set of permanent magnets is mounted on the pump shaft. This hub is totally enclosed by a stainless steel can. The motor hub with another set of permanent magnets rotates on the outside of this can.

Thus the pumped liquid is totally confined within the pump without the use of a conventional shaft seal.

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 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			
Coupling sing	045	052	060	070
H	15	-	-	-
J	16	17	-	-
K	17	17	28	67
L	17	17	28	72
M	19	19	34	78

3.5 Magnetic shaft coupling

< Torque values (greater than, at least) [Nm]

	Size			
Coupling	045	052	060	070
H	10	-	-	-
J	20	20	-	-
K	30	30	25	85
L	40	40	50	140
M	60	40	80	180

3.6 Fluid viscosity

OptiLine:
1.4 – 1500 cSt

3.7 Fluid temperature

-20 – +180 °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 Material & design

Model	Material pump	Material rotot	Material idler	Material seal	Material elastomers
ACG OL	Nodular cast iron	Structural steel, surface treated	Cast iron, surface treated		Special rubber

4.3 Steam tracing

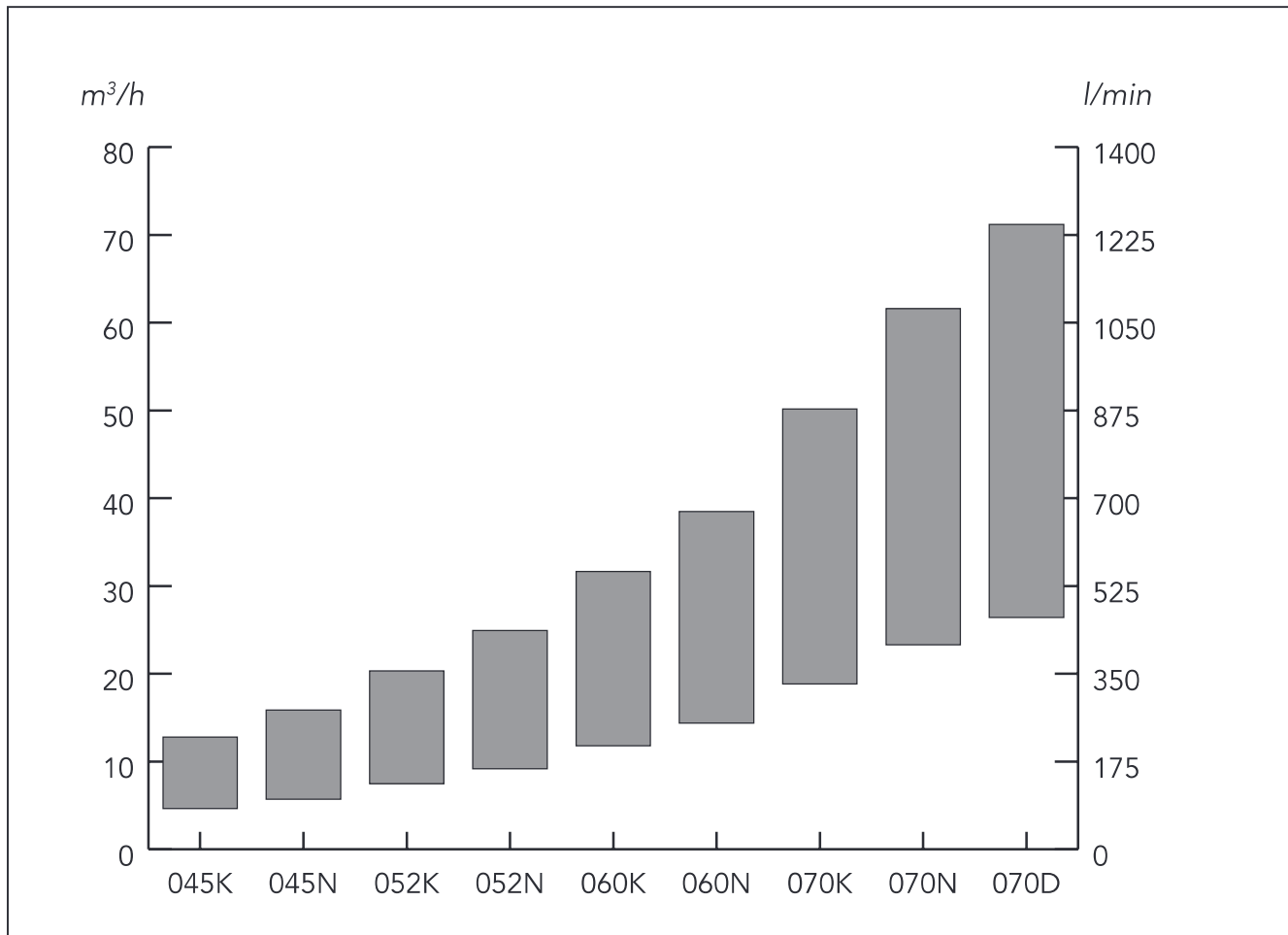
During cold start-up conditions, high viscosity could cause the rated torque for the coupling to be exceeded.

The IMO OptiLine pump series have a way to warm up the pump by leading steam into small channels at the front cover. This is recommended if cold upstart can be assumed.

See Pump Unit Dimensions for dimensions of the connections to the steam system.

5. Performance Guide

Typical performance values at 5 bar
Flow calculated at 26 cSt, power at 260 cSt.

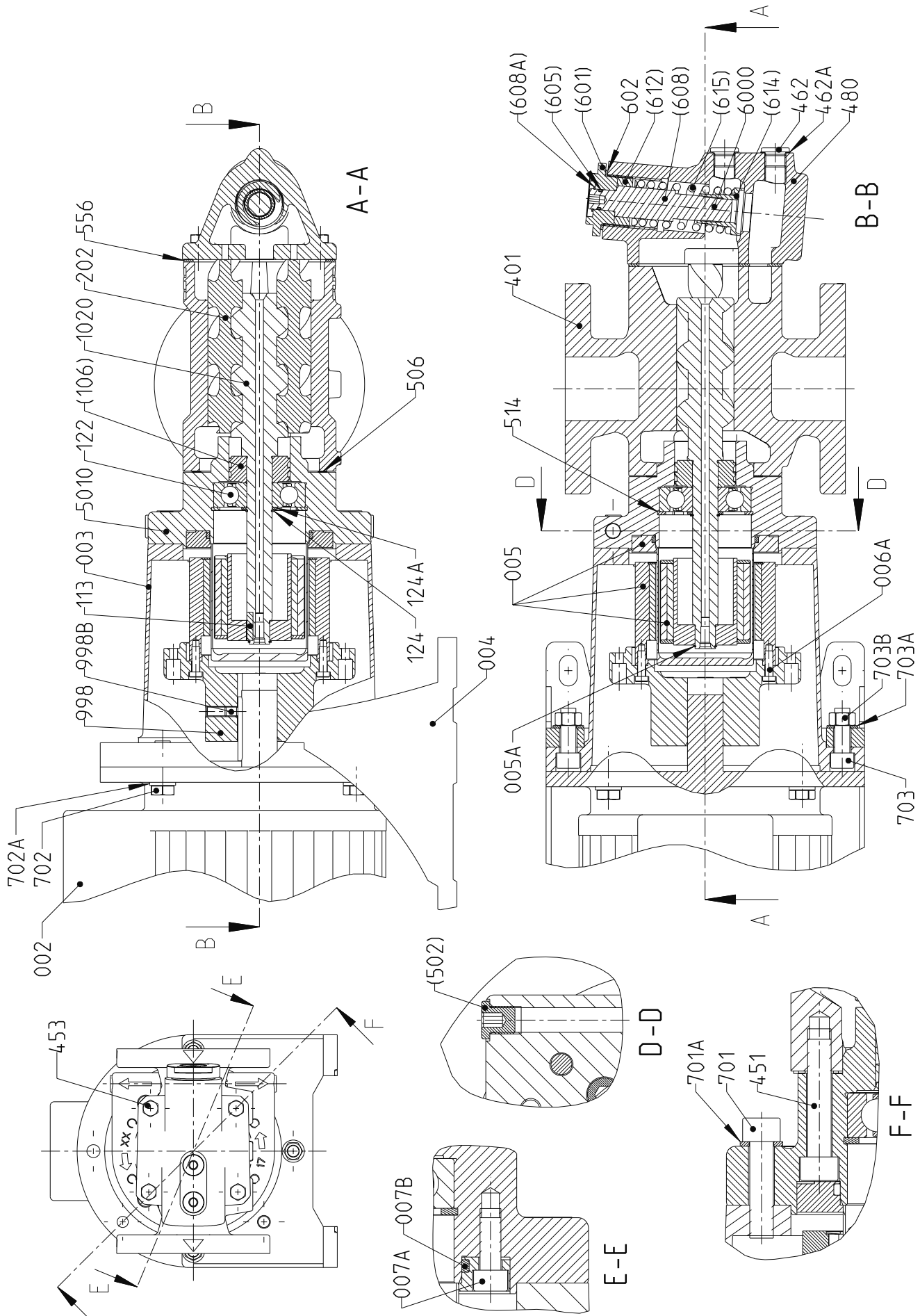


045K				045N				052K				052N			
rpm	l/min	kW	form	l/min	kW	form	l/min	kW	form	l/min	kW	form	l/min	kW	form
1470	77	1,5	NJBP	95	1,8	NJBP	125	2,2	NJBP	153	2,7	NKBP	191	3,4	NKBP
1770	97	1,8	NJBP	119	2,2	NJBP	156	2,8	NJBP	191	3,4	NKBP	240	6,4	NKBP
2950	174	3,5	NJBP	216	4,2	NJBP	277	5,3	NKBP	340	6,4	NKBP	415	8,0	NKBP
3550	213	4,4	NKBP	265	5,4	NJBP	229	6,9	NLBP	415	8,0	NKBP			

060K				060N				070K				070N			
rpm	l/min	kW	form	l/min	kW	form	l/min	kW	form	l/min	kW	form	l/min	kW	form
1470	197	3,7	NLBP	240	4,3	NLBP	314	6,8	NKBP	388	7,8	NKBP	480	9,9	NLBP
1770	245	4,6	NLBP	298	5,5	NLBP	389	8,5	NKBP	480	9,9	NLBP	686	16,8	NLBP
2950	432	8,9	NLBP	525	10,5	NLBP	686	16,8	NLBP	843	21,0	NLBP	1027	27,2	NLBP
3550	528	11,3	NLBP	641	13,3	NLBP	836	21,8	NLBP	1027	27,2	NLBP			

070D			
rpm	l/min	kW	form
1470	440	9,7	NLBP
1770	548	12,4	NLBP
2950	971,3	24,7	NLBP
3550	1187,6	32,0	NLBP

6. Sectional view

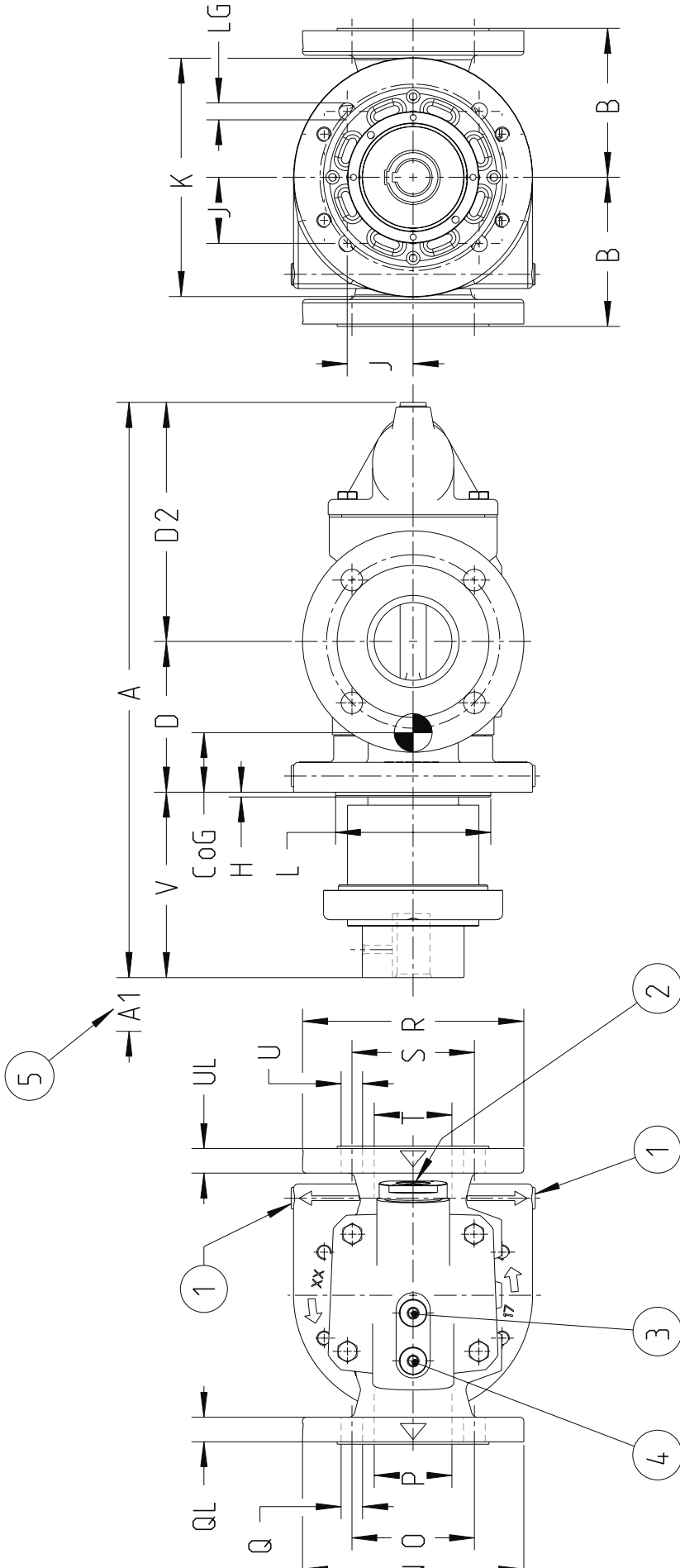


Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
002	Motor	401	Pump body	(608A)	Retaining ring
003	Connecting frame	451	Screw	(612)	Regulating nut
004	Angle bracket	453	Screw	(614)	Valve piston
005	Magnetic coupling	462	Plug	(615)	Valve spring
005A	Retaining ring	462A	Sealing washer	602	Sealing washer
006A	Screw	480	Valve housing	701	Screw
007A	Screw	5010	Complete front cover	701A	Washer
007B	O-ring	(502)	Plug	702	Screw
1020	Complete power rotor	506	Gasket	702A	Washer
(106)	Balancing piston	514	Retaining ring	703	Screw
113	Key	556	Gasket	703A	Washer
122	Ball bearing	6000	Complete valve element	703B	Nut
124	Retaining ring	(601)	Valve top cover	998	Drive hub
124A	Support ring	(605)	O-ring	998B	Screw
202	Idler rotor	(608)	Valve spindle		

Notes:

- Components with Pos No within parenthesis are parts of subassembly

8. Pump Dimensions



8. Pump Dimensions

Pump size	IEC No	Motor shaft \varnothing	Frame size	Main dimensions										Flange dimensions								Outlet						Inlet				Weight					
				A	A	A1	A1	B	D	D2	V	V	H	J	K	L ¹⁾	LG	N	O	P	Q	QL	R	S	T	U	UL	CoG	kg								
045	100	28	F215	468	488	20	0	110	125	188					4	51,3	175	120	11	165	125	50	4x \varnothing 18	20	165	125	50	4x \varnothing 18	20	165	125	50	4x \varnothing 18	20	66	36	
	112																																				
	132	38	F265	477	497	41	21	122,5	126	196					4	55,15	200	130	14	185	145	65	4x \varnothing 18	20	185	145	65	4x \varnothing 18	20	185	145	65	4x \varnothing 18	20	79	43	
	160	42	F300			73	53																														
052	100	28	F215	477	497	20	0	122,5	126	196					4	55,15	200	130	14	185	145	65	4x \varnothing 18	20	185	145	65	4x \varnothing 18	20	185	145	65	4x \varnothing 18	20	79	43	
	112																																				
	132	38	F265	554,5		41	21	140	168	211,5					4	76		180	18	200	160	80	8x \varnothing 18	20	200	160	80	8x \varnothing 18	20	200	160	80	8x \varnothing 18	20	107	58	
	160	42	F300			73	53																														
060	132	38	F265	615		21																															
	160	42	F300			46																															
	180	48	F350			0																															
	200	55	F400			29																															
070	225	60	F400	661		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															
070	225	60	F400	615		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															
070	225	60	F400	615		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															
070	225	60	F400	615		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															
070	225	60	F400	615		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															
070	225	60	F400	615		75																															
				615		xHxx																															
				xJxx		xJxx																															
				xKxx		xKxx																															

Drawing remarks:

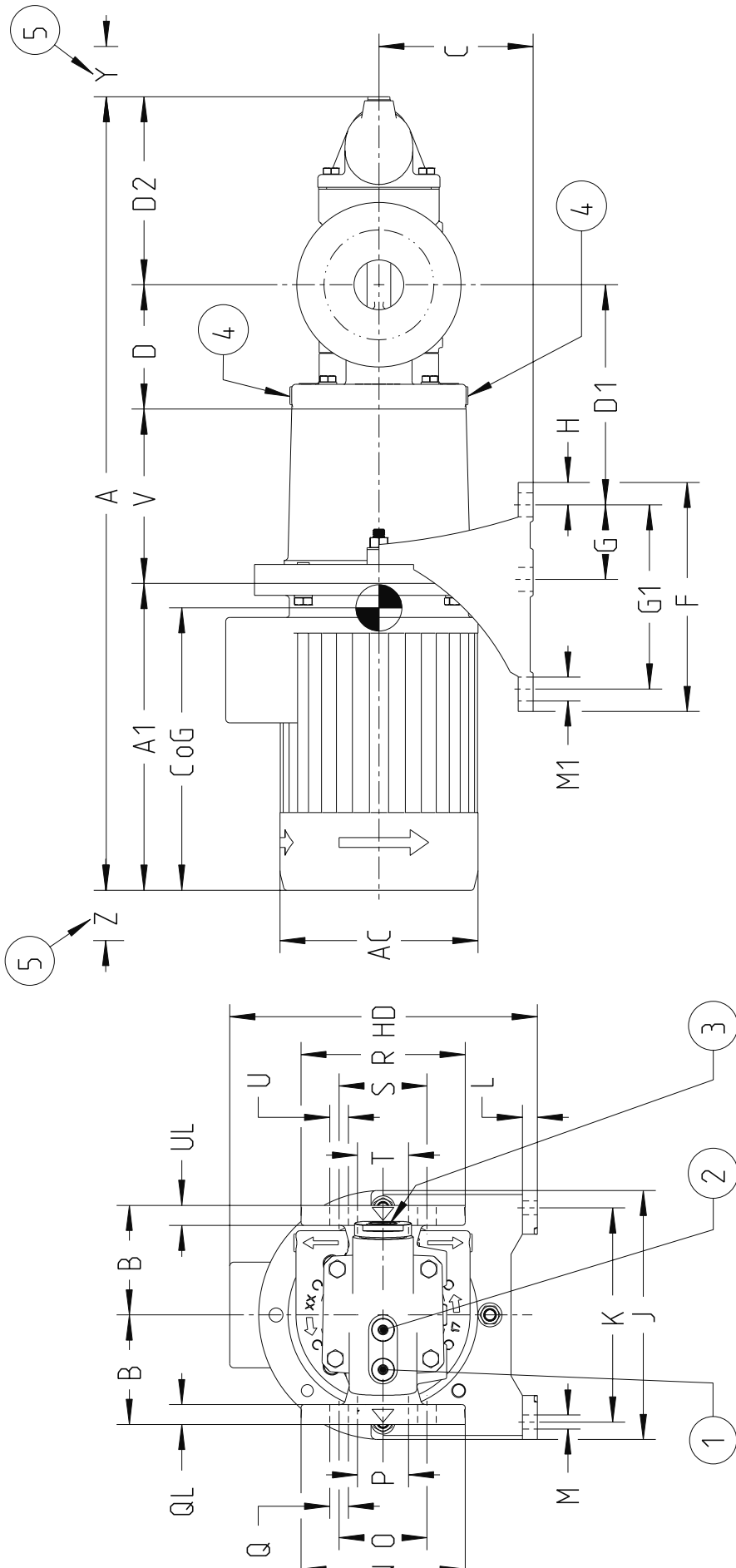
- (1) Connection for heating. ISO G1/4
- (2) Control for relief valve
- (3) Inlet gauge. ISO G3/8
- (4) Outlet gauge. ISO G3/8

(5) Mounting distance to motor flange

Notes:

- Dimensions in mm
- Weight is an approximate value and valid for respective pump size with its largest magnetic coupling
- Counter flanges according to DIN2633/ND16
- 1) Tolerances ISO h7

9. Pump Unit dimensions



9. Pump Unit dimensions

Pump size	IEC No	Frame size	Main dimensions						Foot dimensions										Outlet						Inlet				Dis. Y	Dis. Z	Weight CoG kg						
			A	A1	AC	B	C	D	D1	D2	V	F	G	G1	H	HD	J	K	L	M	M1	N	O	P	Q	QL	R	S				T	U	UL			
045	100	F215	796	308	199		155	221		175	230	75	185	22	309	250	215	15	14	24														184		397	63
	112		810	322	215										322																				392	68	
	132	F265	880	371	255	110	125	226	188	196	270	95	225	23	373	300	265	18	14	24																401	84
	160	F300	1036	495	314		235	238		228	305	115	265	20	475	350	300	18	18	30																441	127
052	100	F215	805	308	199		155	222		175	230	75	185	22	309	250	215	15	14	24																421	70
	112		819	322	215										322																					415	75
	132	F265	889	371	255	122.5	126	227	196	196	270	95	225	23	373	300	265	18	14	24																425	91
	160	F300	1045	495	314		235	239		228	305	115	265	20	475	350	300	18	18	30																466	135
060	132	F265	947	371	255		185	269		196	270	95	225	23	373	300	265	18	14	24																471	108
	160		1103	495	314	140	168	281	211.5	228	305	115	265	20	475	350	300	18	18	30																507	148
	180	F300	1165	557	358		235	281		228	305	115	265	20	495																					509	182
	132	F265	986	371	255		185	296		210	270	95	225	23	373	300	265	18	14	24																505	128
070	160		1156	495	314		235	322						475																						554	168
	180	F300	1218	557	358	150	181		224	256	305	115	265	20	495	350	300	18	18	30																554	202
	200	F350	1338	677	381		260	312		350	-	300	25	561	400	350	20	18	30																	544	339
	225	F400	1465	775	448		295	331		285	385	-	335	25	640	450	400	20	18	30																593	461

Drawing remarks:

- (1) Outlet gauge. ISO G3/8
- (2) Inlet gauge. ISO G3/8
- (3) Control for relief valve
- (4) Connection for heating. ISO G1/4

(5) Space for dismantling

Notes:

- Dimensions in mm
- Dimensions A, A1, AC and Weight are valid for Brook Crompton motors
- Dimensions Z and Weight are valid for respective pump size with it's largest magnetic coupling
- Weight is an approximate value

10. Accessories

A bare shaft pump (Fig. 1) can be ordered with the accessories in fig. 2-6.



Fig. 1 Bare shaft pump



Fig. 2 Set of counter flanges



Fig. 3 Connecting frame



Fig. 4 Electric motor



Fig. 5 Angle bracket

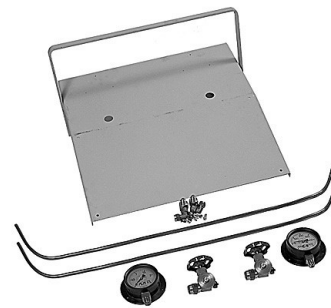


Fig. 6. Gauge panel

11. Maintenance and Service

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

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