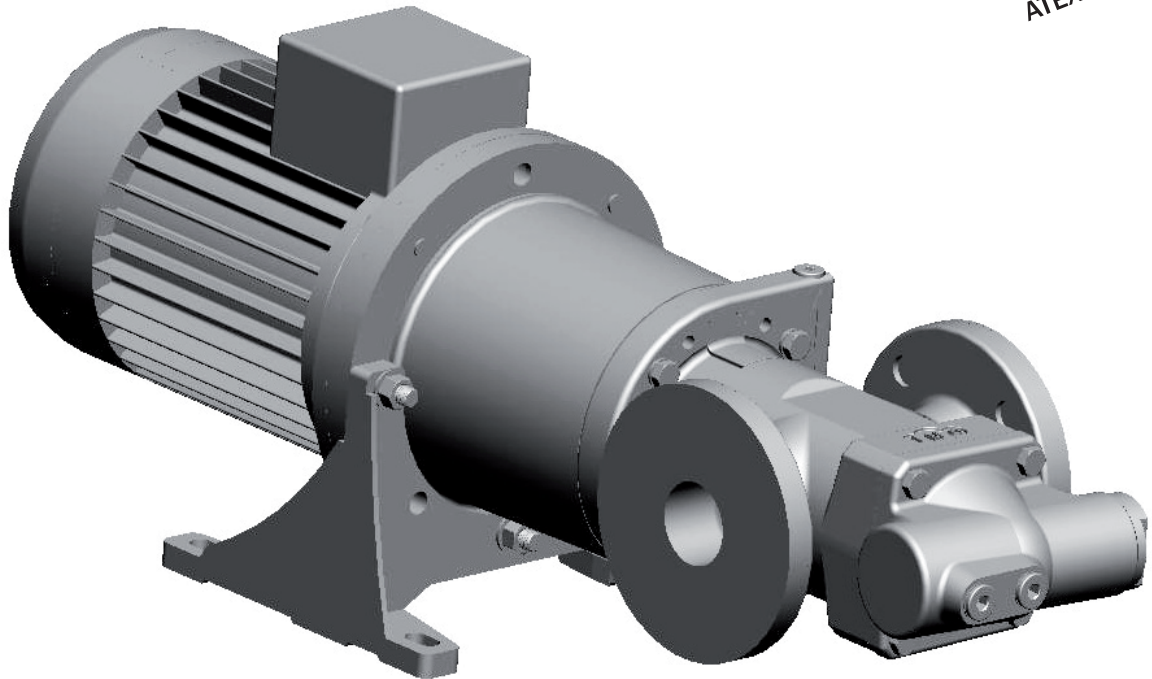


# ACG8 OptiLine



## Product Description



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

# 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 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.

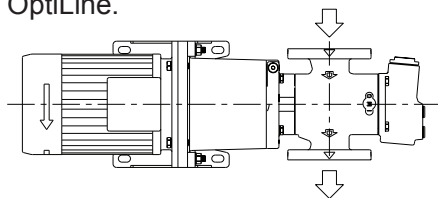
## 1.4 Installation

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

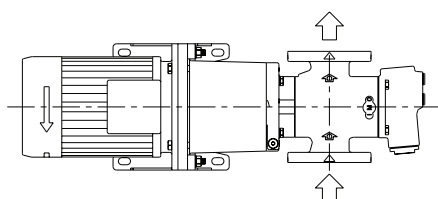
As standard, the pump is supplied without counter flanges (DIN type) but they can be included if requested.

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.

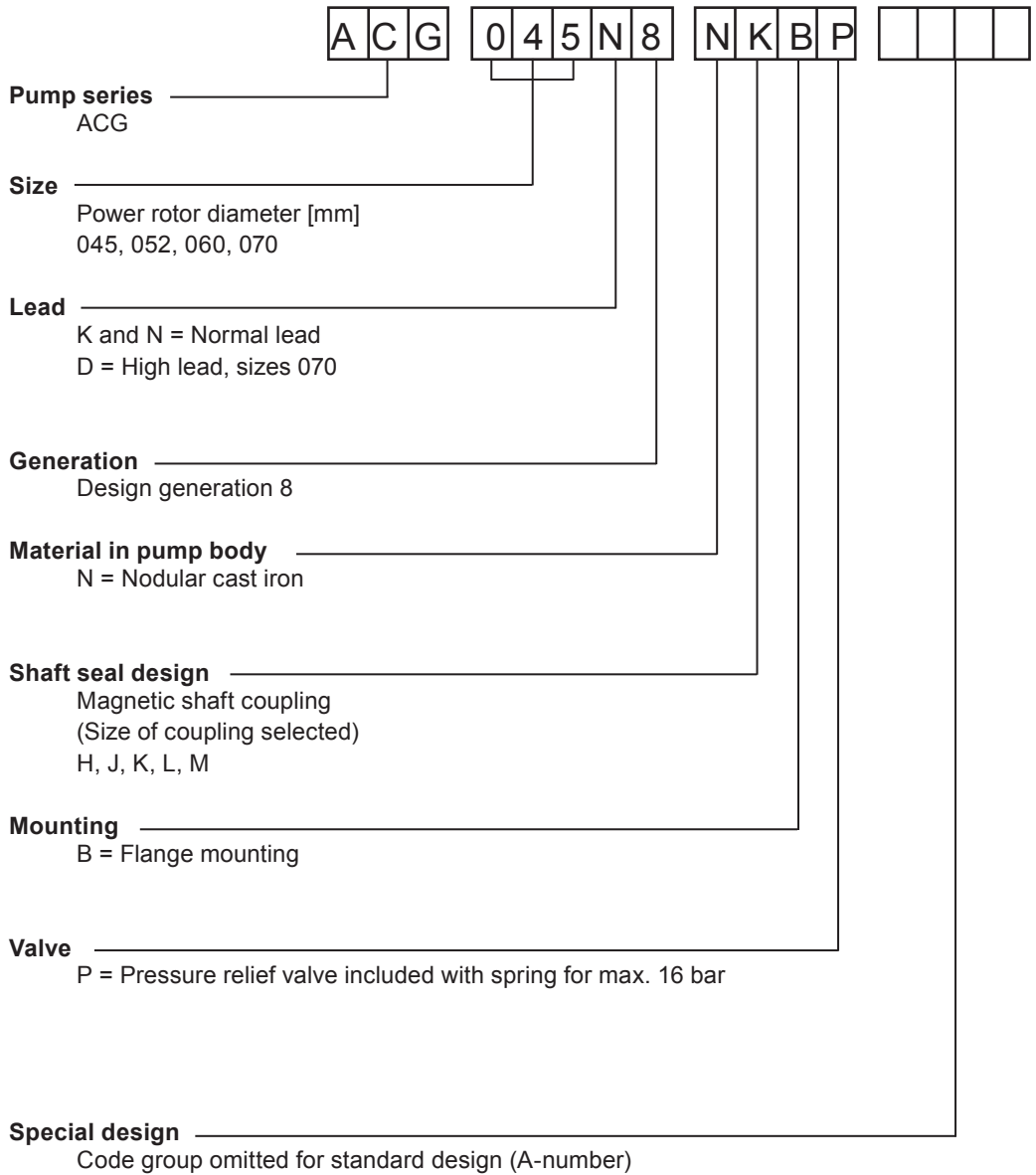


Mounting standard picture M93-0.



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 [ $10^{-3}$  kgm<sup>2</sup>]

	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.

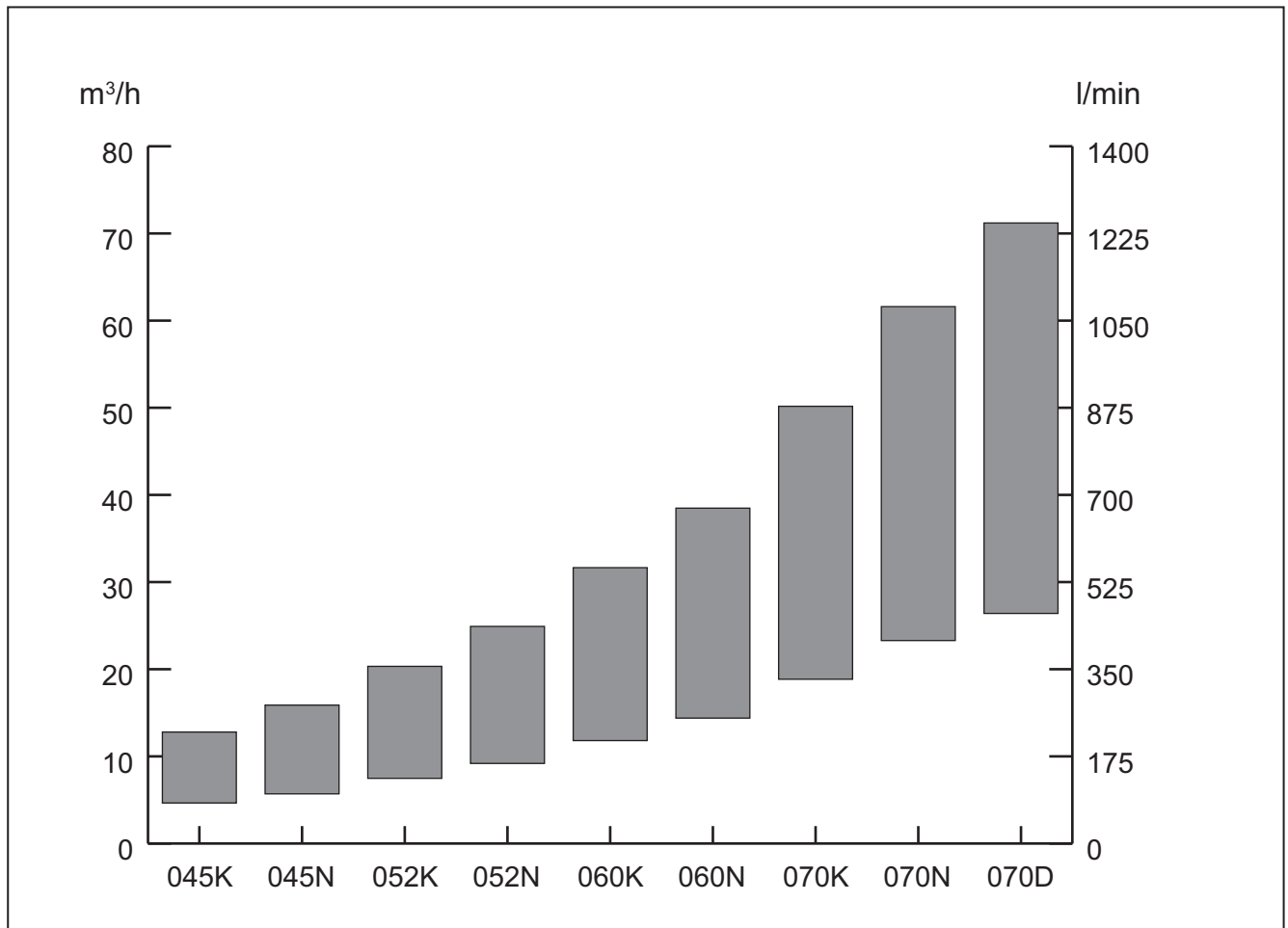
See Pump Unit Dimensions for dimensions of the connections to the steam system.

## 5. Performance Guide

Typical performance values at 5 bar

Flow calculated at 26 cSt, power at 260 cSt.

Pump performance established according to EN 14343.

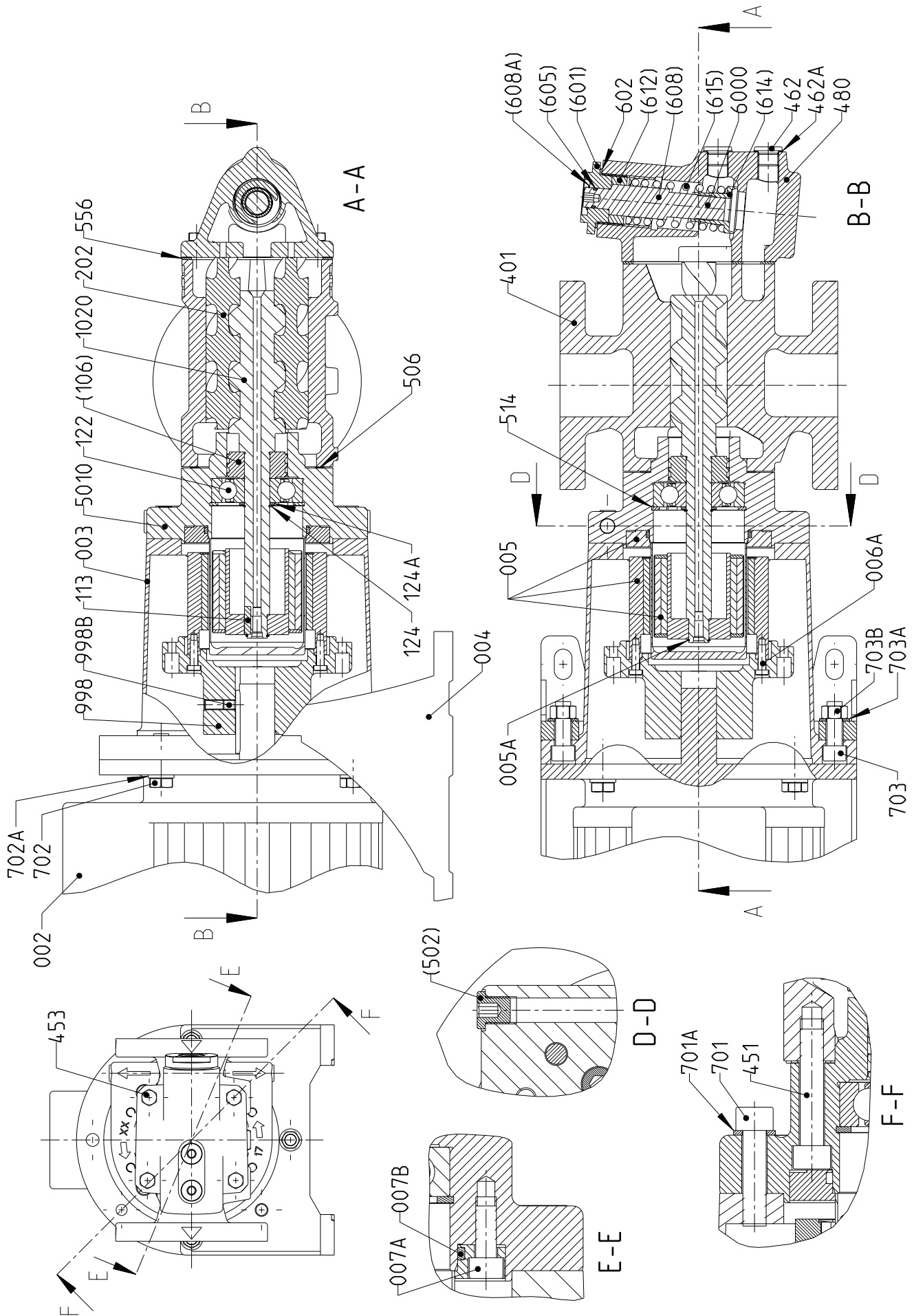


<b>045K</b>				<b>045N</b>				<b>052K</b>				<b>052N</b>			
<u>rpm</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>
1470	77	1,5	NJBP	95	1,8	NJBP	125	2,2	NJBP	153	2,7	NKBP	177	3,4	NKBP
1770	97	1,8	NJBP	119	2,2	NJBP	156	2,8	NJBP	191	3,4	NKBP	225	4,2	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			

<b>060K</b>				<b>060N</b>				<b>070K</b>				<b>070N</b>			
<u>rpm</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>
1470	197	3,7	NLBP	240	4,3	NLBP	314	6,8	NKBP	388	7,8	NKBP	470	9,9	NLBP
1770	245	4,6	NLBP	298	5,5	NLBP	389	8,5	NKBP	480	9,9	NLBP	580	12,4	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			

<b>070D</b>			
<u>rpm</u>	<u>l/min</u>	<u>kW</u>	<u>form</u>
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



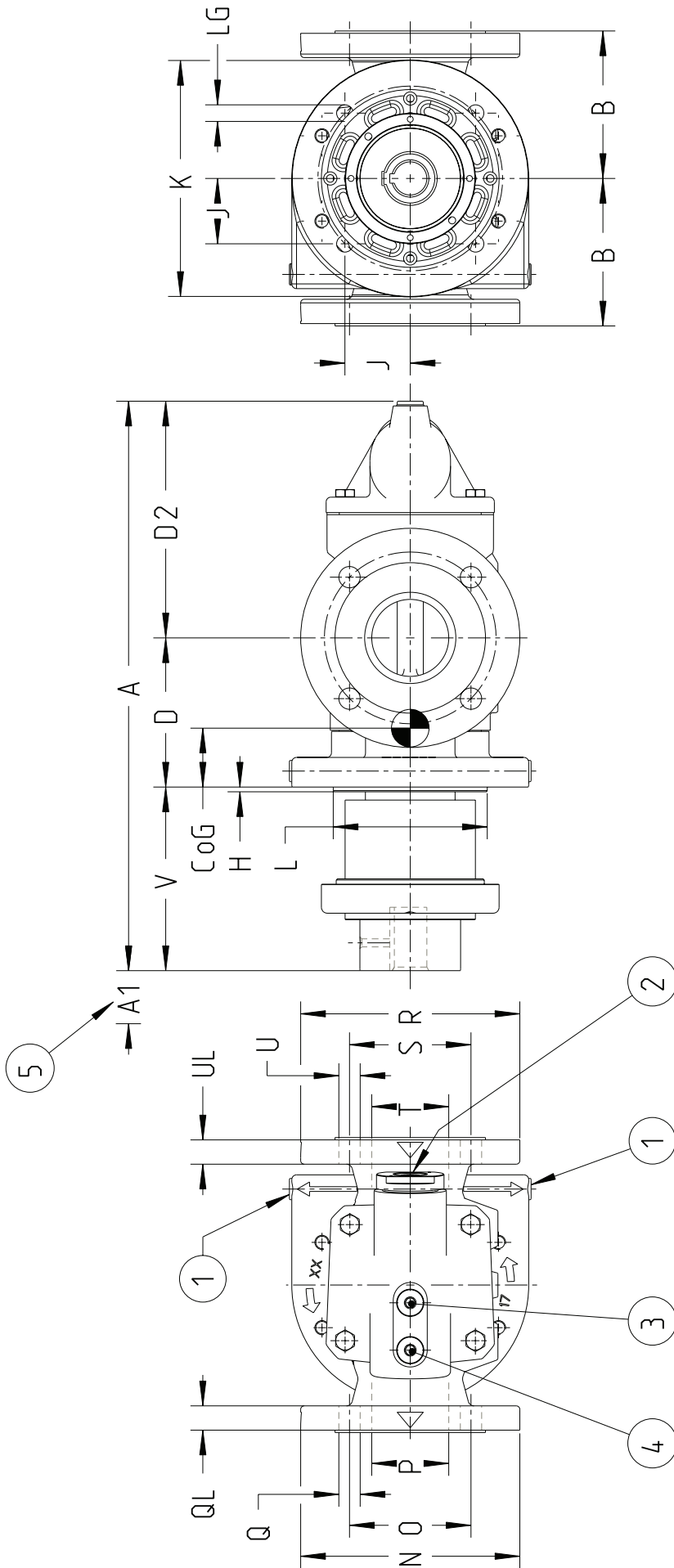


Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
002	Motor	401	Pump body	(608A)	Retaining ring
003	Connecting frame	451	Screw	(612)	Regulating nut
004	Angle bracket	453	Screw	(614)	Valve piston
005	Magnetic coupling	462	Plug	(615)	Valve spring
005A	Retaining ring	462A	Sealing washer	602	Sealing 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 <sup>1)</sup>	LG	N	O	P	Q	QL	R	S	T	U	UL	CoG	kg																																						
045	100	28	F215	468	488	20	0	110	125	188	175	4	51,3	175	120	11	165	125	50	4x ∅18	20	165	125	50	4x ∅18	20	165	125	50	4x ∅18	20	165	125	50	20	66	67	36																													
	112	41	21			155	4																																4	4	185	145	65	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	79	43		
	132	73	53			196	4																																4	4	196	126	160	160	76	200	130	14	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	79	80	79	44
	160	21	53			196	4																																4	4	211.5	168	200	200	76	180	18	18	200	160	80	4x ∅18	20	200	160	80	4x ∅18	20	200	160	80	8x ∅18	20	107	108	58	109
052	100	28	F215	477	497	20	0	122.5	126	196	175	4	55,15	200	130	14	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	79	43																															
	112	41	21			155	4																														4	4	196	126	160	76	200	130	14	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	185	145	65	4x ∅18	20	107	108	58				
	132	73	53			196	4																														4	4	211.5	168	200	200	76	180	18	18	200	160	80	4x ∅18	20	200	160	80	4x ∅18	20	200	160	80	8x ∅18	20	98	99	77	100		
	160	21	53			196	4																														4	4	211.5	168	200	200	76	180	18	18	200	160	80	4x ∅18	20	200	160	80	4x ∅18	20	200	160	80	8x ∅18	20	98	99	77	100		
060	132	38	F265	554.5	-	0	-	140	168	211.5	175	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77																															
	160	46	-			150	181																														210	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77					
	180	29	75			224	181																														210	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77					
	200	661	615			224	181																														210	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77					
070	225	55	F400	615	-	29	-	150	181	224	210	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77																															
	225	60	75			224	181																														210	4	73,9	180	18	18	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	8x ∅18	22	220	180	100	98	77					
Exe-cution code				xHxx xJxx xKxx xLxx	xMxx	xHxx xJxx xKxx xLxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx	xMxx																												

### 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

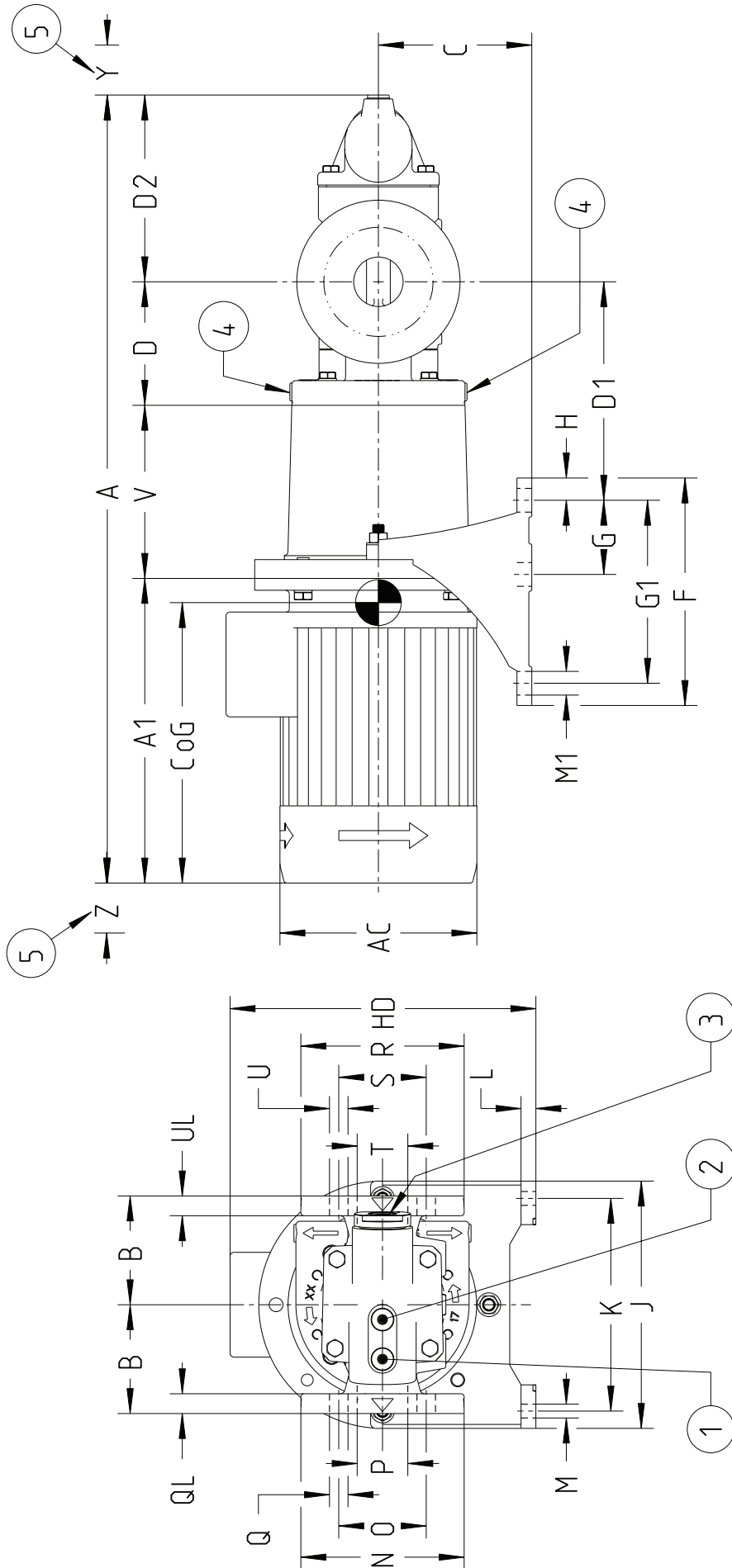
### (5) Mounting distance to motor flange

### Notes:

- Dimensions in mm
- Weight is an approximate value and valid for respective pump size with it's 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				Dism.		Weight	
			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	Y	Z	CoG	kg	
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		125	188					322								165	125	50	4x Ø18	20	165	125	50	4x Ø18	20	132	205	392	68		
	132	F265	880	371	255	185		226	196	270	95	225	23	373	300	265	18	14	24		185	145	65	4x Ø18	20	185	145	65	4x Ø18	20	205	401	84			
	160	F300	1036	495	314	235		238	228	305	115	265	20	475	350	300	18	18	30		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	237	441	127			
052	100	F215	805	308	199	155		222	175	230	75	185	22	309	250	215	15	14	24													184	421	70		
	112		819	322	215		126	196					322								185	145	65	4x Ø18	20	185	145	65	4x Ø18	20	132	415	75			
	132	F265	889	371	255	185		227	196	270	95	225	23	373	300	265	18	14	24		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	205	425	91			
	160	F300	1045	495	314	235		239	228	305	115	265	20	475	350	300	18	18	30		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	237	466	135			
060	132	F265	947	371	255	185		269	196	270	95	225	23	373	300	265	18	14	24		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	204	471	108			
	160		1103	495	314	235	168	211,5	228	305	115	265	20	475	350	300	18	18	30		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	236	507	148			
	180	F300	1165	557	358	235		281	228	305	115	265	20	495	350	300	18	18	30		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	236	509	182			
	132	F265	986	371	255	185		296	210	270	95	225	23	373	300	265	18	14	24		200	160	80	8x Ø18	20	200	160	80	8x Ø18	20	220	505	128			
070	160		1156	495	314	235	181	322	305	115	265	20	475	350	300	18	18	30		220	180	100	8x Ø18	22	220	180	100	8x Ø18	22	266	554	168				
	180	F300	1218	557	358	260		312	350	-	300	25	561	400	350	20	18	30		220	180	100	8x Ø18	22	220	180	100	8x Ø18	22	266	554	202				
	200	F350	1338	677	381	295		331	285	385	-	335	25	640	450	400	20	18	30		220	180	100	8x Ø18	22	220	180	100	8x Ø18	22	266	544	339			
	225	F400	1465	775	448	295		331	285	385	-	335	25	640	450	400	20	18	30		220	180	100	8x Ø18	22	220	180	100	8x Ø18	22	295	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.

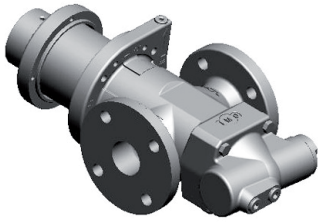


Fig. 1 Bare shaft pump



Fig. 2 Set of counter flanges



Fig. 3 Connecting frame

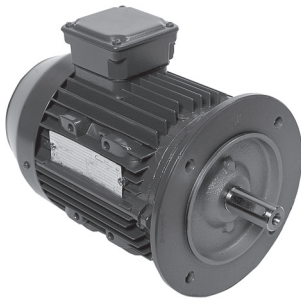


Fig. 4 Electric motor



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 Installaton for ACG OptiLine or contact IMO AB.



Adress:

IMO AB  
PO Box 42090, 126 14 Stockholm  
Sweden