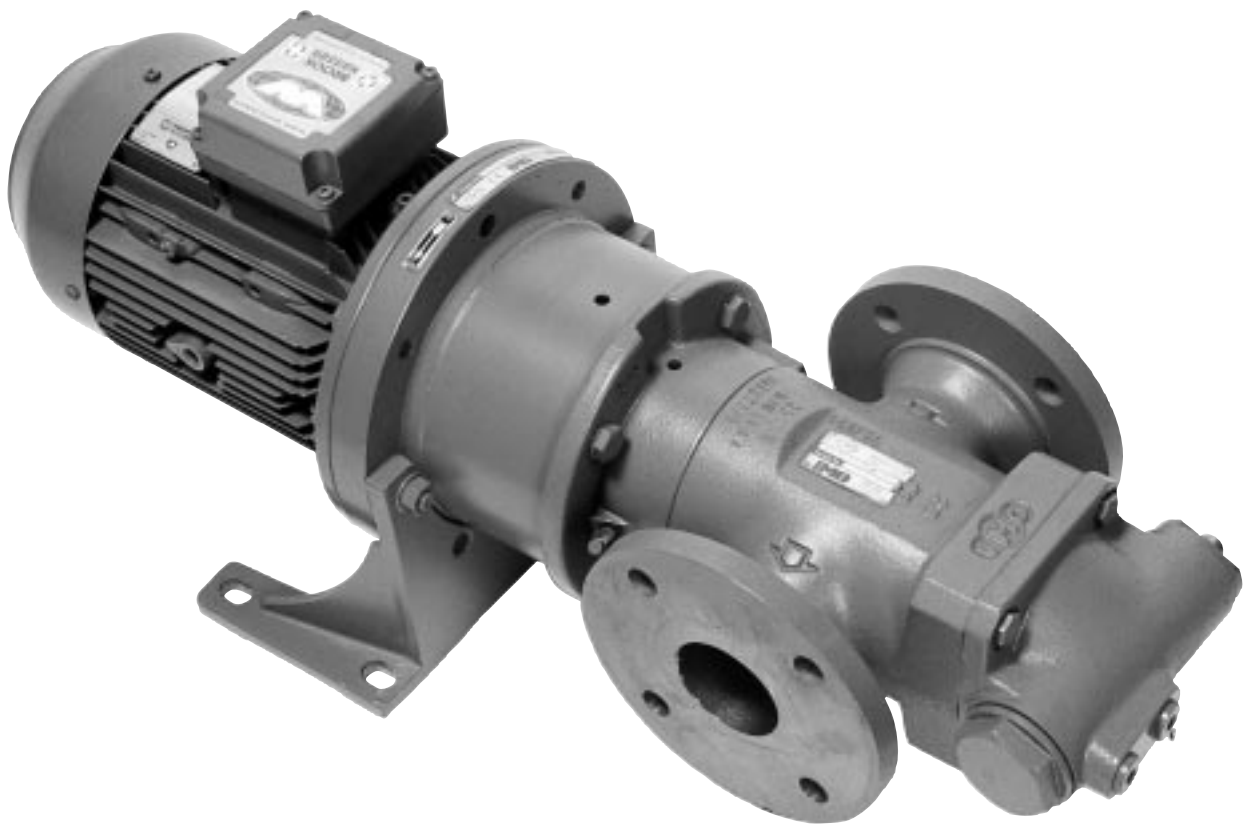




Screw pump Series **ACG**

A Member of the
COLFAX PUMP GROUP

Product description



Flow volume: 65–850 l/min
Max differential pressure: 16 bar
Applications: Circulation, lubrication and
transfer of viscous liquids

Applications

The ACG pump are 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 diesel engines, gears, gas and steam turbines, hydro turbines, paper machines.
- Circulation for cooling and filtration in large machinery and hydraulic system.
- Supply and circulation in fuel oil systems.
- Transfer of oil onboard ships, in power plants, oil factories, refineries, tank farms etc.

Technical data

Discharge pressure

Maximum discharge pressure is 16 bar

Differential pressure

Maximum differential pressure is 16 bar but is reduced at low viscosities as shown in the table below.

Viscosity, mm ² /s (cSt)	2	7	12	20	30	37	≥ 37
Max. diff. pressure (bar)	5	8	10	12	15	16	16

Inlet pressure

Max. inlet pressure is 12 bar.

Min. inlet pressure (suction capability) is dependent on fluid viscosity and rotation speed, see the selection guide. It increases with decreasing viscosity and decreasing speed.

Information about min. inlet pressure for each individual duty case can be obtained from IMO AB.

Displacement cm³/r

Size and lead

045K	045N	052K	052N	060K	060N	070K	070N
65	82	103	126	159	193	251	307

Pressure relief valve

The pump is equipped with an integral pressure relief valve with internal or external 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 with 2 spring options, 1–6 bar and 2–16 bar (see model code explanation).

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 5 bar. The characteristic of the valve allows the valve to be used as pressure regulating valve when not too high demands on pressure modulation are required.

Drive

The ACG -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.

Values for 8 bar, 1750 rpm and atmospheric inlet are as follows:

Size	045	052	060	070
Max. force (N)	900	1000	1000	1200

For higher pressure or higher radial load requirements, please contact IMO AB.

Speed

The maximum speed is 3600 rpm. Max. operating speed may be reduced depending on inlet conditions. Please consult the selection guide to find a corresponding speed limit in order to avoid cavitation problems.

Rotation

The ACG 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.

Fluid viscosity

2-1500 mm²/s. Viscosity up to 5000 mm²/s with approval from IMO AB. For handling viscosities ≥ 800 cSt, carbide shaft seals are recommended.

Pumping temperature

Type IVxx: -20°C to 90°C.
Type NTxx: -20°C to 155°C.

Material and design

	IVxx	NTxx
Pump body	Grey cast iron	Nodular cast iron
Power rotor	Surface-treated steel	Surface-treated steel
Idler rotors	Surface-treated cast iron	Surface-treated cast iron
Shaft seal	Carbon/Carbide Viton elastomers	Carbide/Carbide Viton elastomers

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

Sound level

Typical pump sound levels referred 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, viscosity 37 mm²/s.

Size	045	052	060	070
Sound level, dB (A)	59	63	66	68

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

Viscosity table

cSt	2	4	8	20	37	75	200	400	800	1500
SSU	33	39	52	99	174	346	927	1850	3700	6940

Selection guide 50 Hz

Size & Lead	Visc. (cSt)	Speed: 1450 rpm							Speed: 2900 rpm						
		Q _{eff} (lit/min)			P _e (kW)			Min. inlet (bar)*	Q _{eff} (lit/min)			P _e (kW)			Min. inlet (bar)*
		Diff. pressure (bar)			Diff. pressure (bar)				Diff. pressure (bar)			Diff. pressure (bar)			
		4	8	12	4	8	12	4	8	12	4	8	12		
045K	20	78	71	65	0.8	1.4	2.0	-0.85	172	165	160	1.7	3.0	4.2	-0.81
	37	82	77	73	0.8	1.5	2.1	-0.85	177	171	168	1.8	3.1	4.4	-0.79
	75	86	82	79	0.9	1.6	2.2	-0.85	180	177	174	2.1	3.4	4.6	-0.75
	400	91	89	88	1.3	1.9	2.6	-0.76	185	184	183	3.2	4.5	5.7	-0.42
045N	20	95	85	78	1.0	1.8	2.6	-0.85	213	203	196	2.1	3.7	5.3	-0.70
	37	101	94	88	1.0	1.8	2.6	-0.85	219	212	207	2.3	3.9	5.5	-0.67
	75	106	101	97	1.2	1.9	2.7	-0.85	225	220	216	2.6	4.2	5.8	-0.63
	400	113	111	109	1.6	2.4	3.2	-0.68	231	229	228	4.0	5.6	7.2	-0.21
052K	20	124	113	105	1.2	2.2	3.2	-0.85	273	263	255	2.7	4.7	6.7	-0.73
	37	131	123	117	1.3	2.3	3.3	-0.85	280	272	266	2.9	4.9	6.9	-0.71
	75	136	131	127	1.5	2.5	3.5	-0.85	286	280	276	3.3	5.3	7.3	-0.67
	400	144	141	140	2.1	3.1	4.1	-0.73	293	291	289	5.0	7.0	9.0	-0.31
052N	20	152	139	129	1.5	2.7	4.0	-0.85	335	322	312	3.3	5.7	8.1	-0.60
	37	160	151	143	1.6	2.8	4.1	-0.85	343	333	326	3.6	6.0	8.4	-0.57
	75	167	160	155	1.8	3.0	4.2	-0.85	350	343	338	4.1	6.5	8.9	-0.52
	400	176	173	171	2.5	3.8	5.0	-0.65	-	-	-	-	-	-	-
060K	20	195	180	169	1.9	3.4	5.0	-0.85	426	411	399	4.1	7.2	10.3	-0.62
	37	204	194	185	2.0	3.6	5.1	-0.85	435	424	416	4.5	7.6	10.7	-0.60
	75	212	205	199	2.3	3.8	5.3	-0.85	443	435	429	5.1	8.2	11.3	-0.55
	400	223	219	217	3.2	4.7	6.3	-0.67	-	-	-	-	-	-	-
060N	20	237	220	206	2.3	4.2	6.1	-0.85	517	499	486	5.0	8.7	12.5	-0.44
	37	249	236	226	2.5	4.3	6.2	-0.85	528	515	505	5.5	9.2	12.9	-0.42
	75	258	249	242	2.7	4.6	6.5	-0.82	538	529	522	6.2	9.9	13.7	-0.36
	400	270	266	263	3.9	5.8	7.6	-0.57	-	-	-	-	-	-	-
070K	20	315	294	279	3.0	5.4	7.9	-0.85	679	658	643	6.5	11.4	16.2	-0.45
	37	328	313	301	3.2	5.7	8.1	-0.85	692	677	665	7.1	12.0	16.8	-0.43
	75	339	328	320	3.6	6.0	8.4	-0.83	703	692	684	8.1	12.9	17.8	-0.39
	400	353	348	345	5.1	7.5	9.9	-0.64	-	-	-	-	-	-	-
070N	20	387	363	345	3.7	6.7	9.6	-0.8	832	809	790	8.0	13.9	19.8	-0.18
	37	403	385	372	3.9	6.9	9.9	-0.78	-	-	-	-	-	-	-
	75	415	403	393	4.4	7.3	10.3	-0.76	-	-	-	-	-	-	-
	400	432	427	423	6.2	9.2	12.1	-0.52	-	-	-	-	-	-	-

* Valid for liquids free from unresolved air or gas.

Selection guide 60 Hz

Size & Lead	Visc. (cSt)	Speed: 1750 rpm							Speed: 3500 rpm						
		Q _{eff} (lit/min)			P _e (kW)			Min. inlet (bar)*	Q _{eff} (lit/min)			P _e (kW)			Min. inlet (bar)*
		Diff. pressure (bar)			Diff. pressure (bar)				Diff. pressure (bar)			Diff. pressure (bar)			
		4	8	12	4	8	12	4	8	12	4	8	12		
045K	20	97	90	85	1.0	1.7	2.5	-0.85	211	204	199	2.1	3.6	5.1	-0.72
	37	102	96	92	1.0	1.8	2.6	-0.85	216	211	207	2.3	3.8	5.3	-0.70
	75	105	102	99	1.2	1.9	2.7	-0.85	219	216	213	2.6	4.2	5.7	-0.65
	400	110	109	108	1.7	2.4	3.2	-0.70	224	223	222	4.1	5.6	7.1	-0.25
045N	20	119	110	102	1.2	2.2	3.1	-0.85	262	252	245	2.6	4.5	6.4	-0.56
	37	126	118	113	1.3	2.2	3.2	-0.85	268	261	256	2.9	4.8	6.7	-0.53
	75	131	126	122	1.4	2.4	3.3	-0.85	274	268	265	3.3	5.2	7.1	-0.47
	400	138	135	134	2.1	3.0	4.0	-0.60	-	-	-	-	-	-	-
052K	20	155	144	136	1.5	2.7	3.9	-0.85	335	325	316	3.3	5.7	8.1	-0.61
	37	162	154	148	1.6	2.8	4.0	-0.85	342	334	328	3.6	6.0	8.4	-0.58
	75	167	162	158	1.8	3.0	4.2	-0.85	347	342	338	4.2	6.6	9.0	-0.53
	400	175	172	170	2.6	3.8	5.0	-0.65	-	-	-	-	-	-	-
052N	20	190	177	167	1.9	3.3	4.8	-0.85	410	397	388	4.0	7.0	9.9	-0.41
	37	198	188	181	2.0	3.5	4.9	-0.84	418	409	402	4.4	7.4	10.3	-0.39
	75	205	198	193	2.2	3.7	5.2	-0.81	425	418	413	5.1	8.0	11.0	-0.33
	400	214	211	209	3.2	4.7	6.2	-0.55	-	-	-	-	-	-	-
060K	20	243	228	217	2.4	4.2	6.1	-0.85	521	506	495	5.1	8.8	12.5	-0.45
	37	252	241	233	2.5	4.4	6.2	-0.85	530	519	511	5.6	9.3	13.0	-0.42
	75	260	252	246	2.8	4.7	6.5	-0.82	538	531	525	6.4	10.1	13.8	-0.36
	400	270	267	264	4.1	5.9	7.8	-0.57	-	-	-	-	-	-	-
060N	20	295	277	264	2.9	5.1	7.4	-0.80	633	615	602	6.2	10.7	15.2	-0.19
	37	306	293	283	3.1	5.3	7.6	-0.78	644	631	621	6.8	11.3	15.8	-0.16
	75	316	307	300	3.4	5.7	7.9	-0.75	-	-	-	-	-	-	-
	400	328	324	321	4.9	7.2	9.4	-0.44	-	-	-	-	-	-	-
070K	20	390	370	354	3.7	6.6	9.6	-0.80	829	809	793	8.1	13.9	19.8	-0.20
	37	403	388	377	4.0	6.9	9.8	-0.79	842	827	816	8.9	14.7	20.6	-0.18
	75	414	403	395	4.4	7.4	10.3	-0.76	853	843	835	10.1	16.0	21.9	-0.12
	400	428	424	420	6.4	9.3	12.3	-0.53	-	-	-	-	-	-	-
070N	20	479	455	437	4.5	8.1	11.7	-0.70	-	-	-	-	-	-	-
	37	495	477	464	4.9	8.5	12.0	-0.69	-	-	-	-	-	-	-
	75	507	495	486	5.4	9.0	12.6	-0.65	-	-	-	-	-	-	-
	400	524	519	515	7.9	11.4	15.0	-0.37	-	-	-	-	-	-	-

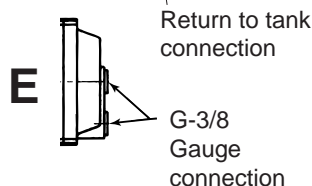
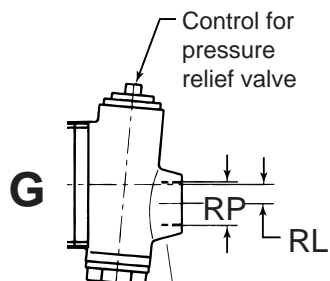
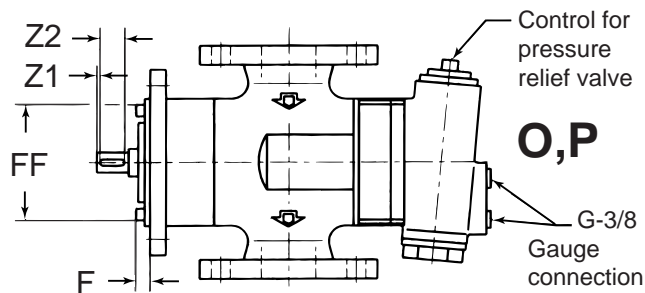
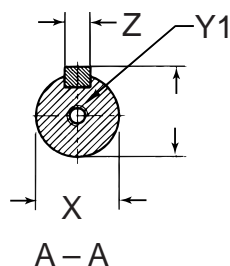
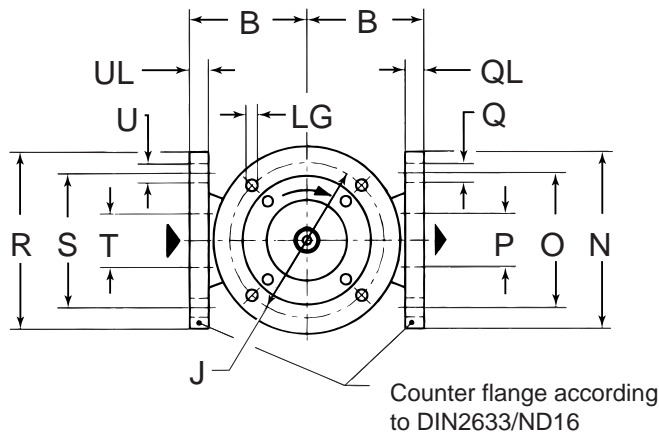
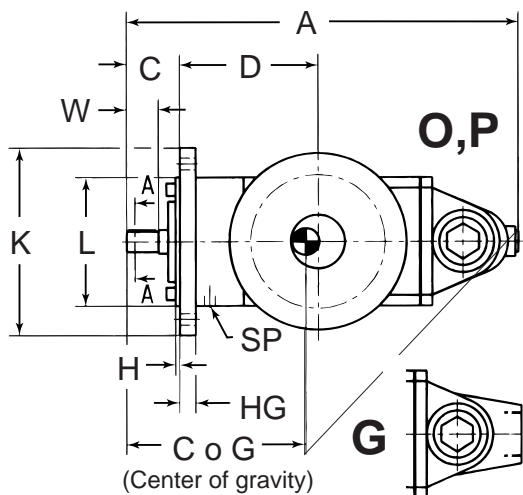
* Valid for liquids free from unresolved air or gas.

Pump dimensions

Pump ACG (Valve design O, P, G, E)

Dimensions in mm

For UCG models, with ANSI-flanges and for foot mounted models, please refer to IMO AB.



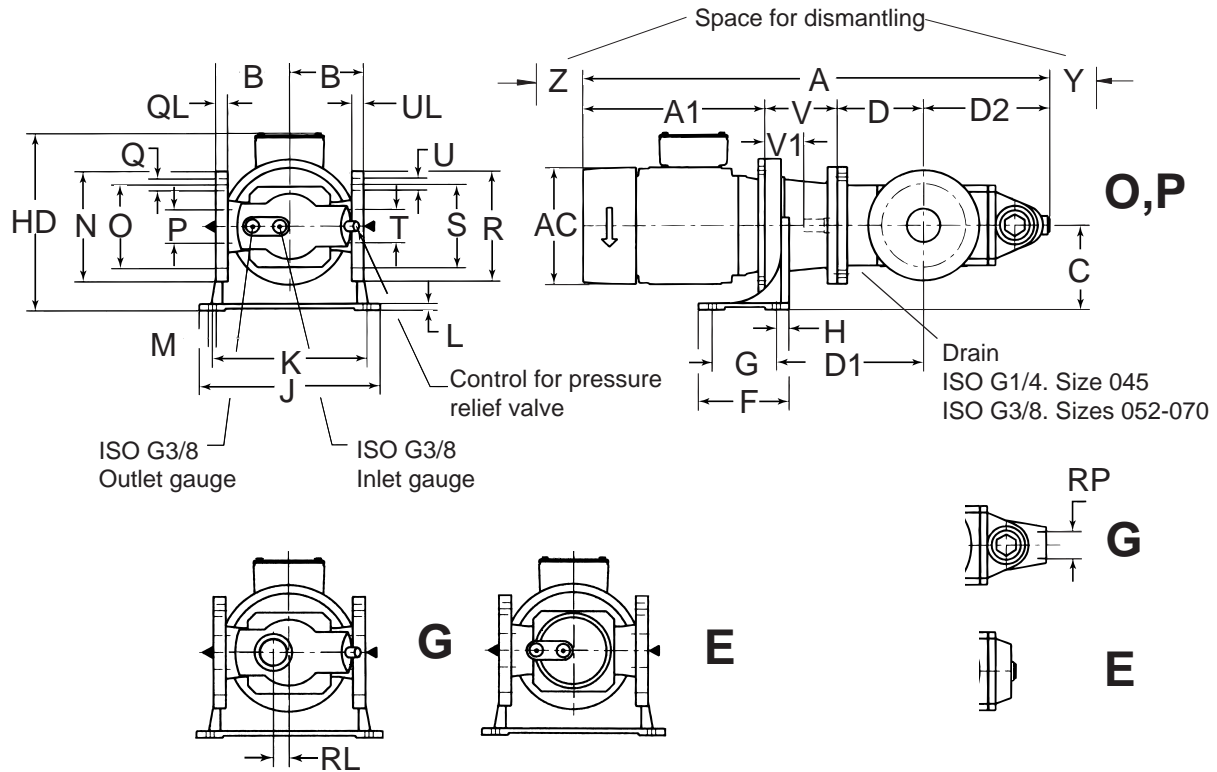
Pump size	045	052	060	070		
Main Dim.	A	367	396	460	490	xxxP, O
	A	378	411	474	508	xxxG
	A	319	350	397	427	xxxE
	B	110	122,5	140	150	
	C	50	60	70	70	
	D	129	140	178,5	196	
	F	18	24	23	18	
	FF	113	127	153	173	
	CoG	185	200	285	300	xxxO, P, G
	CoG	175	190	275	290	xxxE
Flange dim.	H	4	4	4	4	
	HG	15	15	20	20	
	J	145	165	215	215	
	K	175	200	250	250	
	L	120	130	180	180	Tol. ISO h7
	LG	11	15	18	18	
Outlet	N	165	191	210	220	
	O	125	145	160	180	
	P	50	65	80	100	
	Q	4xØ18	4xØ18	8xØ18	8xØ18	Q-ty x diam
Inlet	QL	18	20	20	20	
	R	165	185	200	229	
	S	125	145	160	180	
	T	50	65	80	100	
	U	4xØ18	4xØ18	8xØ18	8xØ18	Q-ty x diam
Return	UL	18	20	20	20	
	RL	18	1	26	30	xxx G
Drain Shaft	RP	G-1 1/4	G-1 1/4	G-1 1/2	G-1 1/2	xxx G
	SP	G-1/4	G-3/8	G-3/8	G-3/8	
	W	30	35	45	45	
	X	19	24	28	28	Tol. ISO j6
	Y	2 1,5	27	31	31	
	Y1	M8* 16	M8* 16	M8* 16	M8* 16	Y1 *depth
	Z	6	8	8	8	
	Z1	3	3	3	3	
	Z2	22	28	36	36	
Weight (kg)		25	33	47	61	xxxO, P, G
Weight (kg)		22	30	43	57	xxxE

Fig. 1

Pump dimensions

Pump unit ACG (Valve design O, P, G, E)

Dimensions in mm (With standard electric motor)



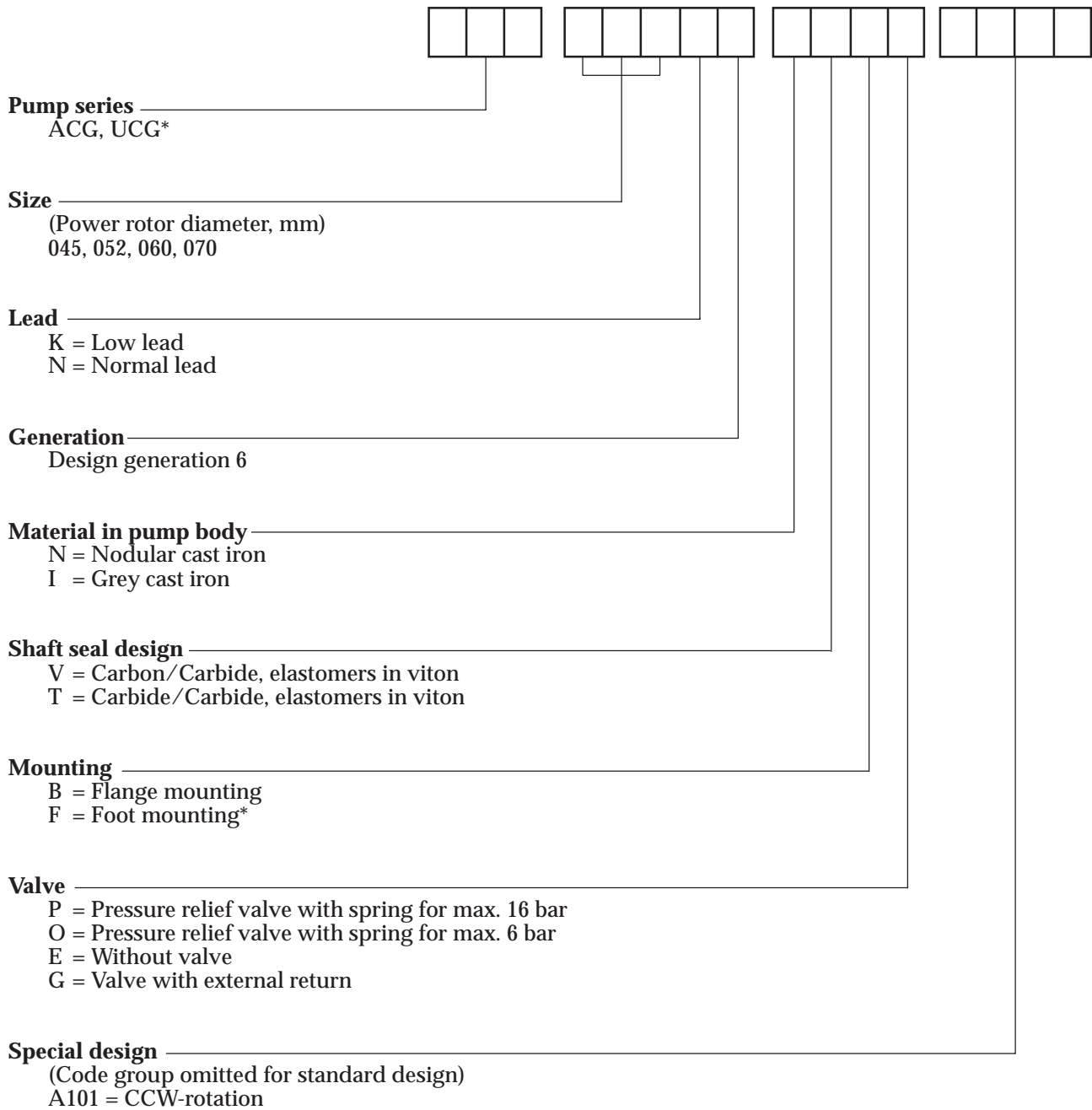
Motor size	Frame	Dimensions (mm)										
		A1	AC	C	F	G	H	HD	J	K	L	M
80	F165	238	160	126	135	95	19	253	270	230	10	12
90S	F165	272	178	126	135	95	19	261	270	230	10	12
90L	F165	272	178	126	135	95	19	261	270	230	10	12
100L	F215	308	199	152	155	115	19	306	325	285	12	14
112M	F215	321	215	152	155	115	19	319	325	285	12	14
132S	F265	371	255	183	183	140	22	371	378	335	14	14
132M	F265	371	255	183	183	140	22	371	378	335	14	14
160M	F300	495	314	210	220	170	25	450	435	390	16	18
160L	F300	495	314	210	220	170	25	450	435	390	16	18
180M	F300	557	358	210	220	170	25	470	435	390	16	18
180L	F300	557	358	210	220	170	25	470	435	390	16	18

Pump size	Frame	Dimensions (mm)	
		Y	Z
45	F165	70	80
	F215	70	85
	F265	70	105
52	F165	80	80
	F215	80	90
	F265	80	105
	F300	80	140
60	F215	90	85
	F265	90	105
	F300	90	145
70	F215	90	85
	F265	90	105
	F300	90	145

Pump size	xxxO, P			xxxG	xxxE			Dimensions (mm)											xxxG		xxxG			
	Frame	A max	A max	A max	B	D	D1	D2	D2	D2	N	O	P	Q	QL	R	S	T	U	UL	RL	RP	V	V1
45	F165	697	708	649	110	129	220	188	199	140	165	125	50	4 x Ø18	18	165	125	50	4 x Ø18	18	18	G-1 1/4	108	58
	F215	753	764	705	110	129	216	188	199	140	165	125	50	4 x Ø18	18	165	125	50	4 x Ø18	18	18	G-1 1/4	115	65
	F265	823	834	775	110	129	250	188	199	140	165	125	50	4 x Ø18	18	165	125	50	4 x Ø18	18	18	G-1 1/4	135	85
52	F165	728	743	682	123	140	241	196	211	150	191	145	65	4 x Ø18	20	185	145	65	4 x Ø18	20	18	G-1 1/4	120	60
	F215	785	800	739	123	140	247	196	211	150	191	145	65	4 x Ø18	20	185	145	65	4 x Ø18	20	18	G-1 1/4	128	68
	F265	850	865	804	123	140	261	196	211	150	191	145	65	4 x Ø18	20	185	145	65	4 x Ø18	20	18	G-1 1/4	143	83
	F300	1073	1088	1027	123	140	294	196	211	150	191	145	65	4 x Ø18	20	185	145	65	4 x Ø18	20	18	G-1 1/4	180	120
60	F215	846	860	783	140	179	285	212	226	149	210	160	80	8 x Ø18	20	200	160	80	8 x Ø18	20	26	G-1 1/2	135	65
	F265	916	930	853	140	179	319	212	226	149	210	160	80	8 x Ø18	20	200	160	80	8 x Ø18	20	26	G-1 1/2	155	85
	F300	1141	1155	1078	140	179	332	212	226	149	210	160	80	8 x Ø18	20	200	160	80	8 x Ø18	20	26	G-1 1/2	194	124
70	F215	876	894	813	150	196	303	224	242	161	220	180	100	8 x Ø18	20	229	180	100	8 x Ø18	20	30	G-1 1/2	135	65
	F265	946	964	883	150	196	337	224	242	161	220	180	100	8 x Ø18	20	229	180	100	8 x Ø18	20	30	G-1 1/2	155	85
	F300	1171	1189	1108	150	196	350	224	242	161	220	180	100	8 x Ø18	20	229	180	100	8 x Ø18	20	30	G-1 1/2	194	124

Fig. 2

Pump model code



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

Accessories

A bare shaft pump (Fig. 3) can be ordered with the accessories in fig. 4-8.



Fig. 3 Bare shaft pump



Fig. 4 Two sets of counter flanges



Fig. 5 Connecting frame

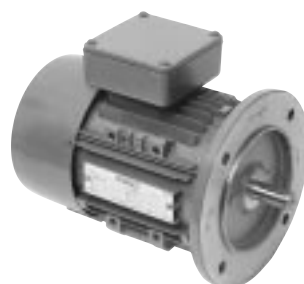


Fig. 6 Electric motor



Fig. 7 Shaft coupling



Fig. 8 Angle bracket

Installation

The ACG-pump is designed to be flange-mounted to its electric motor via a connecting frame and a flexible shaft coupling and has an angle bracket for mounting horizontally, vertically or any other attitude to fit the pipe connections. As standard the pump is delivered with the discharge to the left

when seen from the pump rear end (see fig. 9).

At request the pump can be delivered in the opposite direction (see fig.10).

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

Mounting: M93-0
Standard

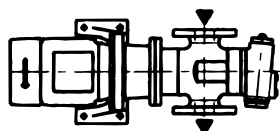


Fig. 9

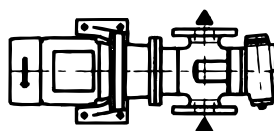


Fig. 10

Mounting: M39-0

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 ACG-pumps or contact IMO AB.

Sectional view

ACG/UCG

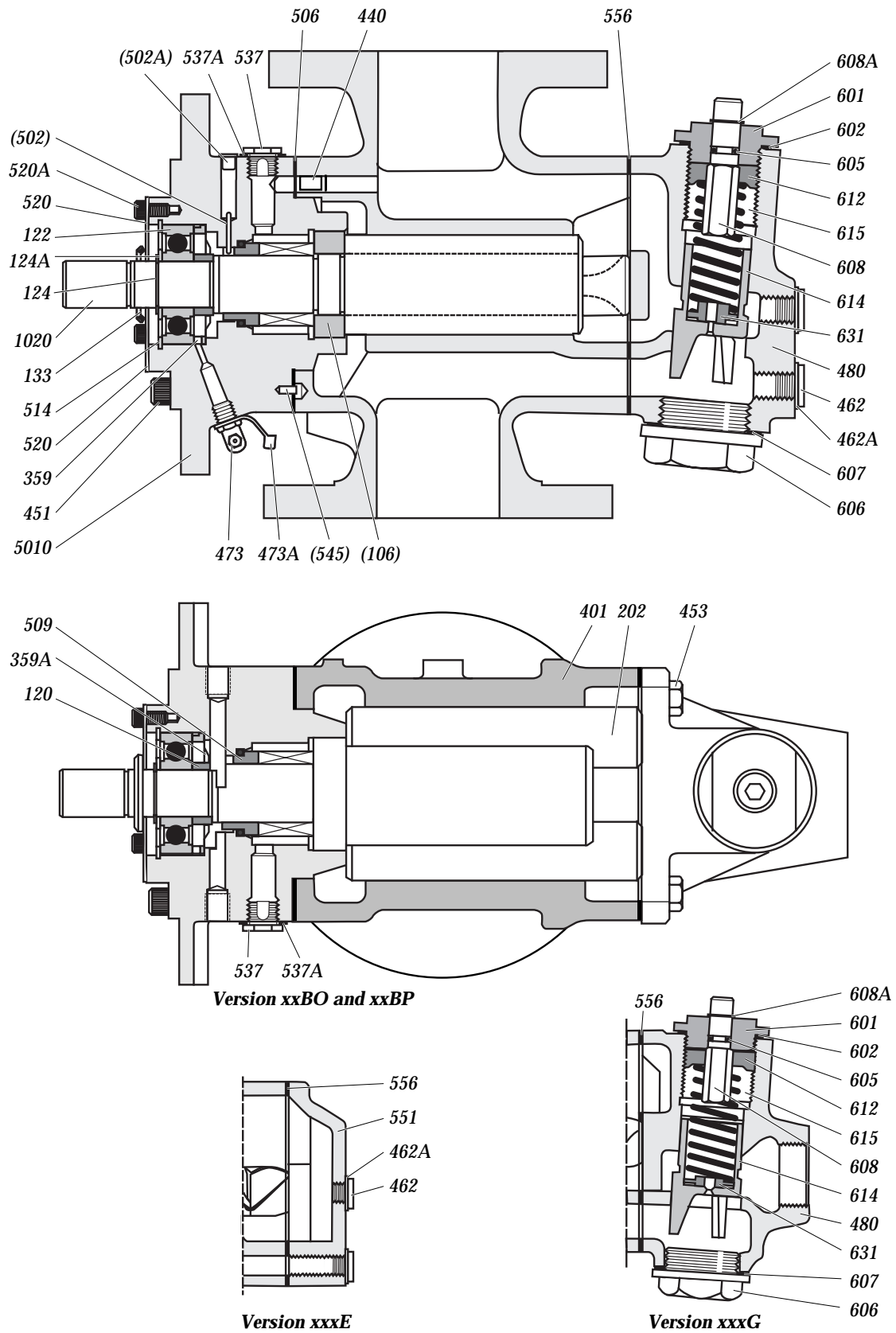


Fig. 11

List of components

Pos No	Denomination	Pos No	Denomination	Pos No	Denomination
1020	Power rotor	440	Return valve	537	Plug
106	Balancing piston	451	Screw	537A	Sealing washer
113	Shaft key	453	Screw	545	Tension pin
120	Distance sleeve	462	Plug	551	Rear cover
122	Ball bearing	462A	Sealing washer	556	Gasket
124	Retaining ring	473	Grease nipple	601	Valve cover
124A	Support ring	473A	Grease nipple cover	602	Sealing washer
133	Dust protection ring	480	Valve housing	605	O-ring
202	Idler rotor	5010	Front cover	606	Valve housing plug
359	Distance washer	502	Tension pin	607	Sealing washer
359A	Support ring	502A	Plug	608	Valve spindle
401	Pump body	506	Gasket	608A	Retaining ring
424	Sleeve	509	Shaft seal	612	Set screw
424A	Washer	514	Retaining ring	614	Valve piston
429	Spindle	520	Cover	615	Valve spring
437	O-ring	520A	Screw	631	Dog washer



*Fig. 12
Pump handling additives
for lube oil production.*



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