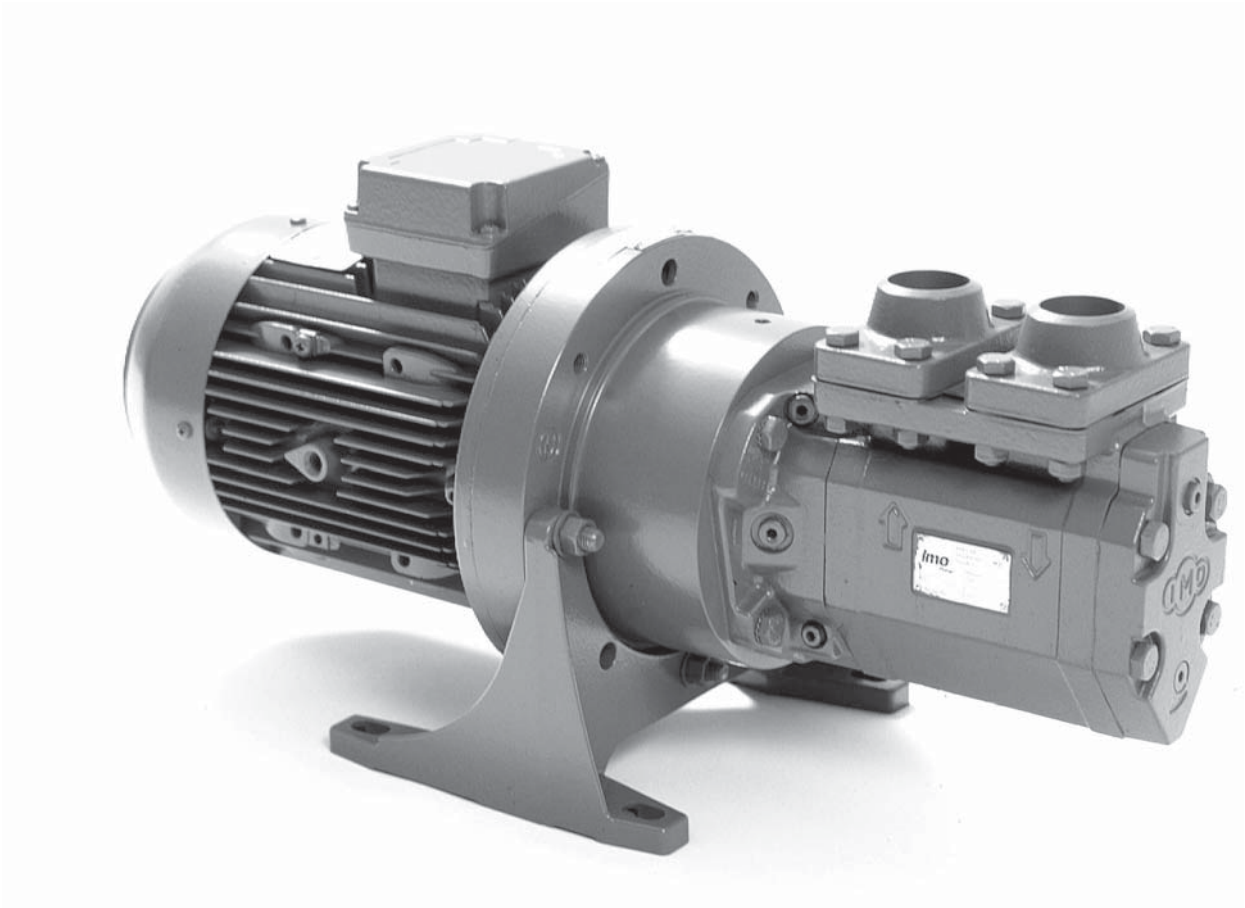
A Member of the
COLFAX PUMP GROUP

Std Line ACE3

Screwpump Series

Product description



Flow volume: 15-180 l/min
Max differential pressure: 16 bar
Applications: Lubrication, circulation and transfer

ACE3 1121.02 GB

Application

The Std Line (standard) ACE pumps come in two executions; Lube Line and Fuel Line. The main differens is the shaft seal design, optimized for light duty and heavy duty respectivly. The pumps are used for handling non-aggressive fluid with sufficient lubricating properties.
When so required the Std Line ACE pump may be certified according to any of following classification societies: DnV, BV, LRS, ABS, RS, GL, RINA, KR, NK or CCS.

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.

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 (cSt)	2	6	10	20
Max. diff. pressure (bar)	8	12.4	15.2	16

Inlet pressure

Maximum inlet pressure is 7 bar.
Minimum inlet pressure is shown in the Selection guide.

Displacement

Size, lead	025L	025N	032L	032N	038K	038N	038D
Displacement (cm^3/r)	9.8	13.9	20.6	29.1	38.8	49.1	57.3

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 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 & Service instruction for ACE pumps). The maximum pressure ackumulation varies with pump size, speed and viscosity, but will normally not exceed 4 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. The valve has a maximum set pressure of 16 bar.

Drive

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

Max speed limit

The maximum speed is 3600 rpm. For higher speeds contact your IMO-representative.

Rotation

The ACE 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

Min. viscosity, all oil types 1.6 cSt

Lube Line *(Seal version code V)*:

Max. viscosity, lube & hydraulic oils 800 cSt

Max. viscosity, fuel oils 200 cSt

Fuel Line *(Seal version code T)*:

Max. viscosity 3 500 cSt

For higher viscosity contact IMO AB.

Fluid temperature

Lube Line: -20°C to 90°C.

Fuel Line: -20°C to 155°C

Sound level

A typical sound level from a pump with standard driver is 58 dB(A). This value refers to free field conditions at 5 bar, 2940 rpm and 40 cSt, measured according to ISO-3741.

Moment of inertia

For bare shaft pump

Size	025	032	038
10^{-6} kgm^2	20	60	140

Mounting attitude

The ACE is mounted vertically with the shaft pointing upwards or horizontally with pipe connections facing upwards or sideways. On special request a pump for horizontal mounting with pipe connections facing downwards can be delivered.

Material and design

	Lube Line	**Fuel Line**
Pump body	Nodular 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/Silicon Carbide	Silicon Carbide/Silicon Carbide
	Viton elastomers	Viton elastomers

For handling of fluids that may be aggressive to above materials consult your IMO-representative.

Viscosity table

cSt	2	4	8	20	37	75	200	400	800	1500
SSU	32.6	39.2	52.2	99.4	174	346	927	1850	3700	6940

Units

The following units are frequently used for specification of pumps:

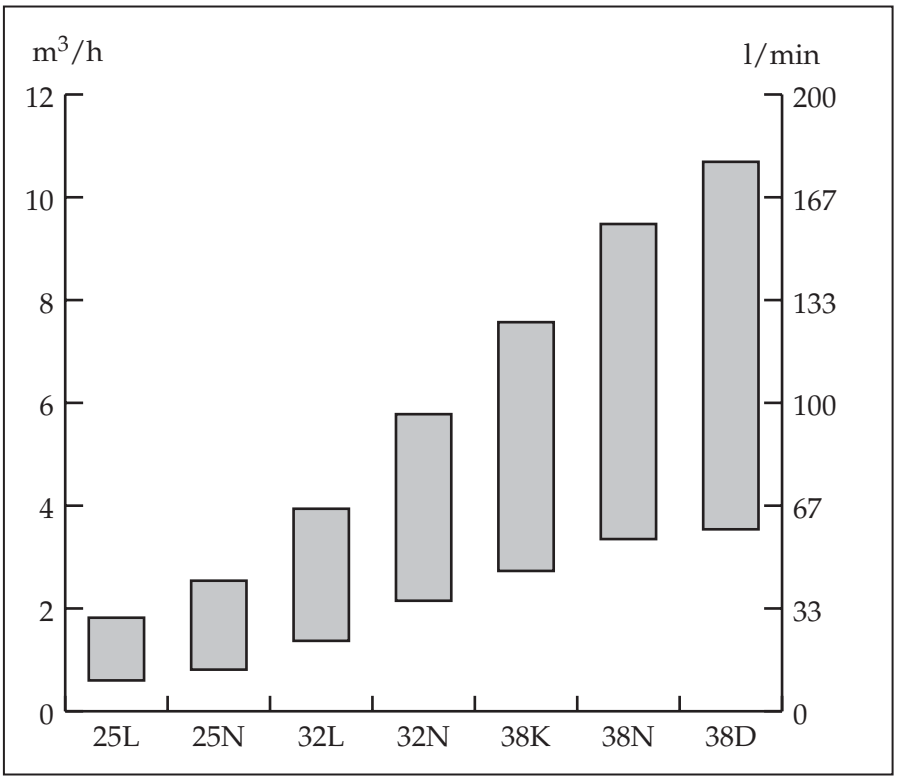
	SI	**IMO**	**USA**	**Conversion**
Pressure	Pa (MPa)	bar	psi	1 bar = 14.5 psi = 0.1 MPa
Speed	r/s	rpm	rpm	1 rpm = 0.016667 r/s
Viscosity	mm^2/s	cSt	SSU	mm^2/s = cSt (see table)
Temperature	°C	°C	°F	°C = (°F-32)/1.8
Length	m	mm	inch	1 mm = 0.0394 inch
Flow rate	m^3/s	lit/min	GPM	1 lit/min = 0.264 GPM

Performance guide

Typical performance values at 5 bar

Flow calculated at 26 cSt, power at 500 cSt

For values under other operating conditions, please refer to the IMO AB pump selection software WinPump (download it from www.imo.se and apply for licence).



	025L		025N	
rpm	**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

	032L		032N	
rpm	**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

	038K		038N		038D	
rpm	**l/min**	**kW**	**l/min**	**kW**	**l/min**	**kW**
1470	45.5	1.0	55.8	1.3	59.1	1.4
1770	57.1	1.3	70.5	1.7	76.2	1.8
2950	102.9	2.5	128.4	3.2	143.9	3.4
3550	126.2	3.2	157.9	4.1	178.2	4.3

Pump model code

Pump series
ACE

Size
(Power rotor diameter, mm)
025, 032, 038

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

Generation
Design generation 3

Material in pump body
N = Nodular cast iron

Shaft seal design
V = Carbon/Stainless steel, elastomers in Viton (Lube Line)
T = Carbide/Carbide, elastomers in Viton (Fuel Line)
Q = Carbide/Carbide with SealGuard, elastomers in Viton (Fuel Line with Sealguard)

Mounting
B = Flange mounting

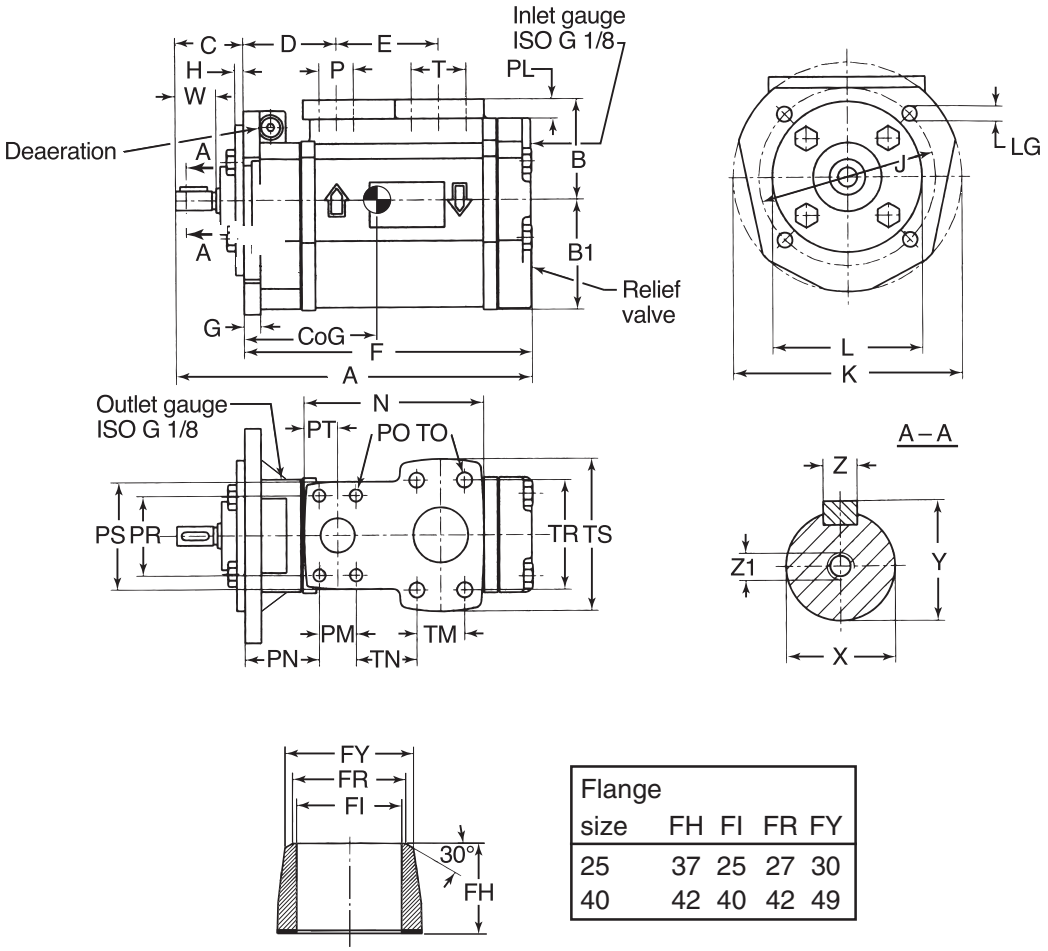
Valve
P = Pressure relief valve included

Special design
Code group omitted for standard design

Pump dimensions

Pump ACE

Dimensions in mm (The counter flanges are accessories)



Flange size	FH	FI	FR	FY
25	37	25	27	30
40	42	40	42	49

Pump size	Main dim.								Flange dim.					
	A	B	B1	C	D	E	F	N	G	H	J	K	L[1)]	LG
025	225	73	81	50	60	60	175	110	12	6	130	160	110	9
032	261	73	81	50	68	75	211	133	12	6	130	160	110	9
038	273	83	83	50	75	85	223	151	15	6	145	170	120	11

Pump size	Outlet								Inlet						Shaft					Weight
	P	PL	PM	PN	PO	PR	PS	PT	T	TM	TN	TO	TR	TS	W	X[2)]	Y	Z	Z1	CoG kg
025	25	14	28	46	9	62	82	25	25	28	32	9	62	82	29	14	16	5	M5	75 10
032	25	14	28	54	9	62	82	25	40	40	41	11	90	115	29	14	16	5	M5	92 12
038	40	15	40	55	11	90	115	33	40	40	45	11	90	115	34	19	21,5	6	M5	100 15

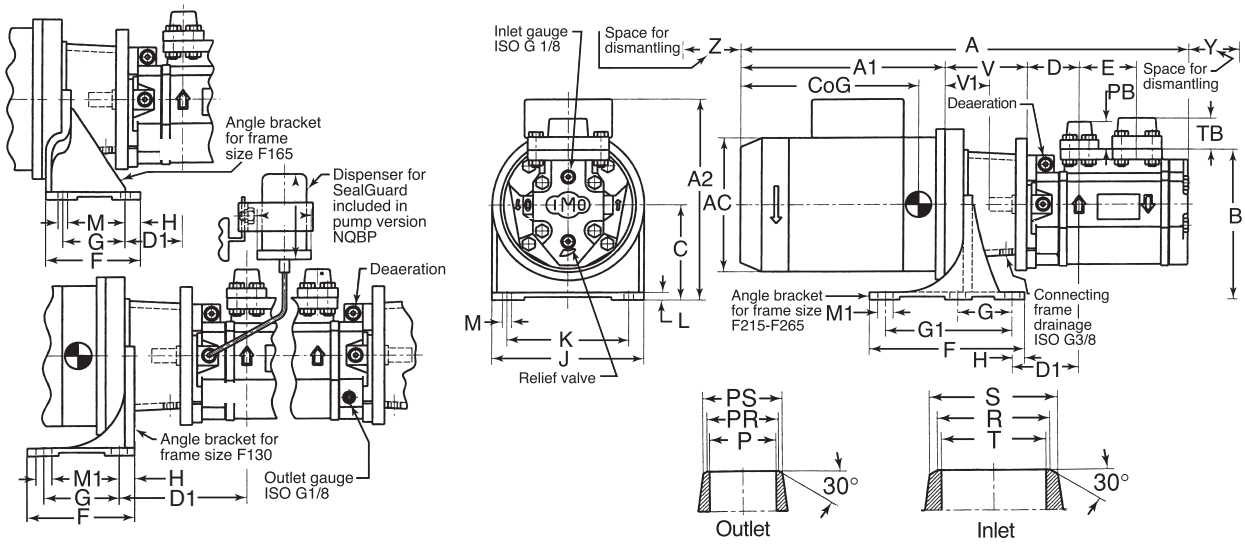
1) Tolerances ISO H7
2) Tolerances ISO j6

Fig. 1

Pump dimensions

Pump unit ACE

Dimensions in mm (With standard electric motor)



Pump size	IEC No	Frame size	Main dim.									Foot dim.							
			A	A1	A2	AC	B	C	D	D1	E	F	G	G1	H	J	K	L	M
025	71	F130	481	208	213	140	171	98	60	156	60	105	70		19	205	180	8	9x16
025	80	F165	521	238	239	160	185	112	60	88	60	90	60		15	210	180	12	Ø11
025	90	F165	565	272	247	178	185	112	60	98	60	90	60		15	210	180	12	Ø11
025	100	F215	611	308	309	199	228	155	60	109	60	230	75	185	22	250	215	15	14x24
025	112	F215	624	321	322	215	228	155	60	109	60	230	75	185	22	250	215	15	14x24
032	71	F130	517	208	213	140	171	98	68	164	75	105	70		19	205	180	8	9x16
032	80	F165	557	238	239	160	185	112	68	96	75	90	60		15	210	180	12	Ø11
032	90	F165	601	272	247	178	185	112	68	106	75	90	60		15	210	180	12	Ø11
032	100	F215	647	308	309	199	228	155	68	117	75	230	75	185	22	250	215	15	14x24
032	112	F215	660	321	322	215	228	155	68	117	75	230	75	185	22	250	215	15	14x24
038	80	F165	569	238	239	160	195	112	75	103	85	90	60		15	210	180	12	Ø11
038	90	F165	613	272	247	178	195	112	75	113	85	90	60		15	210	180	12	Ø11
038	100	F215	659	308	309	199	238	155	75	124	85	230	75	185	22	250	215	15	14x24
038	112	F215	672	321	322	215	238	155	75	124	85	230	75	185	22	250	215	15	14x24
038	132	F265	744	371	373	255	268	185	75	130	85	270	95	225	23	300	265	18	14x24

Pump size/ IEC No/ Frame size	Outlet				Inlet				Dismantling				Weight	
	P	PB	PR	PS	T	TB	R	S	V	V1	Y	Z	CoG	kg
025/71/F130	25	37	27	30	25	37	27	30	98	48	68	48	283	20
025/80/F165	25	37	27	30	25	37	27	30	108	58	68	58	291	24
025/90/F165	25	37	27	30	25	37	27	30	118	68	68	68	287	30
025/100/F215	25	37	27	30	25	37	27	30	128	78	68	78	285	40
025/112/F215	25	37	27	30	25	37	27	30	128	78	68	78	281	45
032/71/F130	25	37	27	30	40	42	42	49	98	48	68	48	302	22
032/80/F165	25	37	27	30	40	42	42	49	108	58	68	58	310	26
032/90/F165	25	37	27	30	40	42	42	49	118	68	68	68	305	32
032/100/F215	25	37	27	30	40	42	42	49	128	78	68	78	300	42
032/112/F215	25	37	27	30	40	42	42	49	128	78	68	78	295	47
038/80/F165	40	42	42	49	40	42	42	49	108	58	68	58	327	29
038/90/F165	40	42	42	49	40	42	42	49	118	68	68	68	323	35
038/100/F215	40	42	42	49	40	42	42	49	128	78	68	78	317	45
038/112/F215	40	42	42	49	40	42	42	49	128	78	68	78	312	50
038/132/F265	40	42	42	49	40	42	42	49	150	100	70	100	309	75

Fig. 2

Sectional view

ACE all models

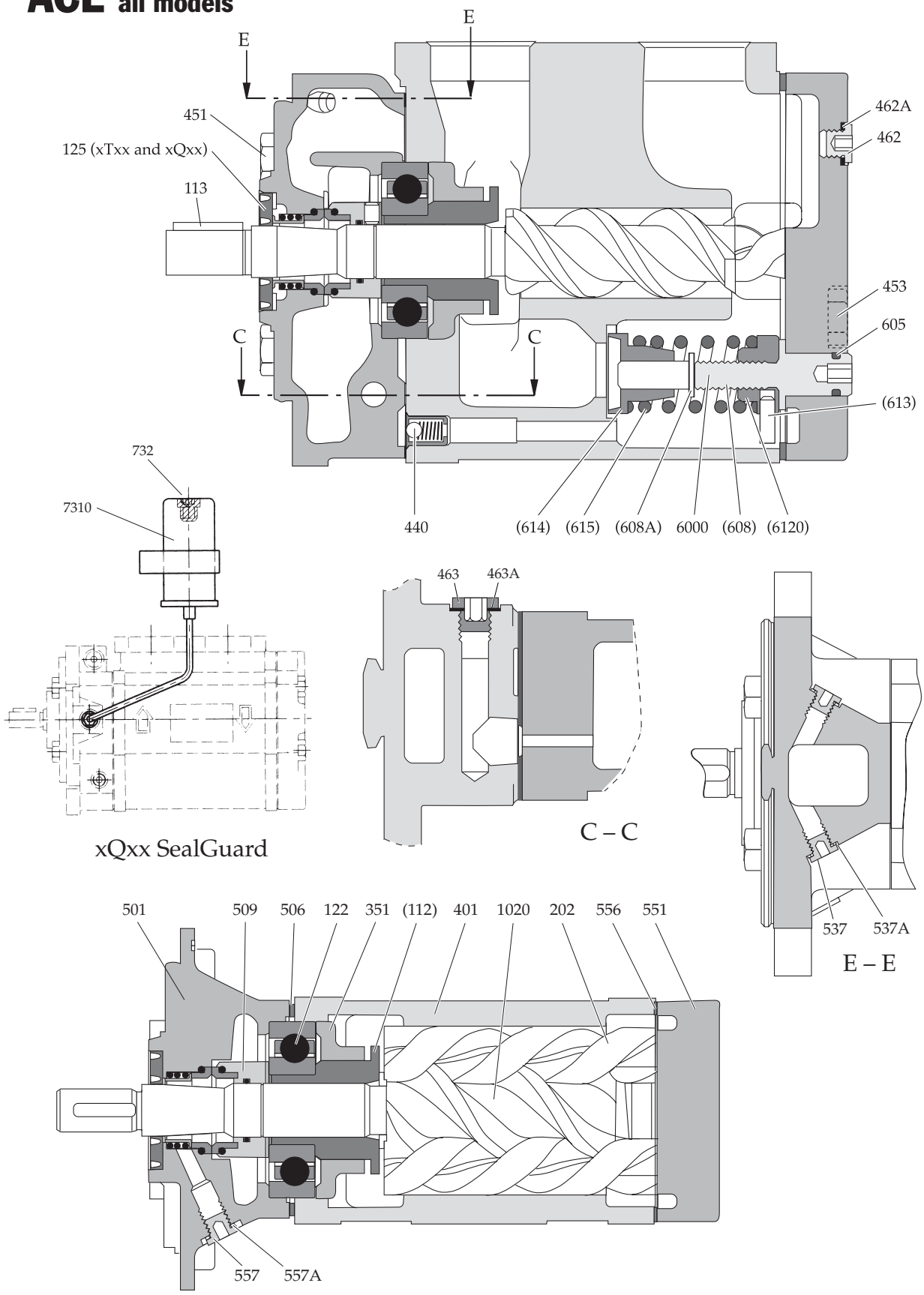


Fig. 11

List of components

Pos No	Denomination
1020	Power rotor
113	Key
122	Ball bearing
125	Secondary seal
202	Idler rotor
351	Balancing bush
401	Pump body
440	Return valve
451	Screw
453	Screw
462	Plug
462A	Sealing washer
463	Plug
463A	Sealing washer
501	Front cover
506	Gasket
509	Shaft seal

Pos No	Denomination
537	Deaeration plug
537A	Washer
551	Rear cover
556	Gasket
557	Plug
557A	Washer
6000	Compl. valve element
605	O-ring
608	Valve spindle
608A	Tension pin
6120	Set screw
613	Pin
614	Valve piston
615	Valve spring
7310	Compl. SealGuard
732	Gas generator

Installation

The ACE-pump is designed to be flange-mounted to an electric motor via a connecting frame and a flexible shaft coupling and has an angle bracket for mounting horizontally and vertically, see mounting instructions. Two pump units can also be mounted to a double assembly on a common frame with inlet and outlet pipe connections. The double assembly saves space and facilitates installation, maintenance, service and supervision. See Product description for T4.

The pump unit, pump with connecting frame and motor, is designed to work in an air temperature between +2 °C and +40 °C. This with a maximum humidity of 80 %. For other environmental conditions, please contact your IMO-representative. The pump body, however, can be heated to maximum fluid temperature.
For more information about installation, see the Installation and Service instruction for ACE pumps.

Accessories

A bare shaft pump (Fig. 3) can be ordered with the accessories in fig. 4-10.

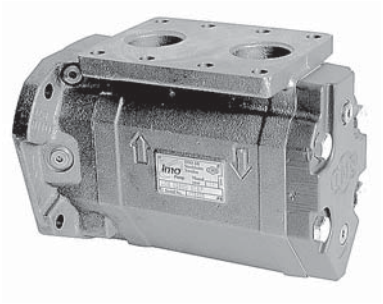


Fig. 3 Bare shaft pump

Fig. 4 Set of counter flanges

Fig. 5 Connecting frame

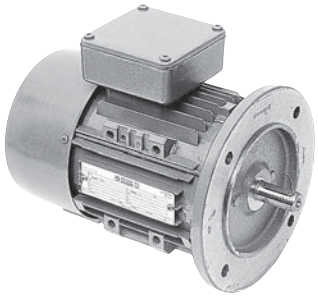


Fig. 6 Electric motor

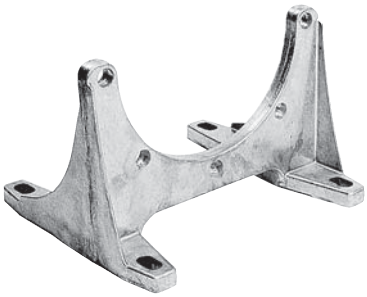


Fig. 7 Angle bracket

Fig. 8 Shaft coupling

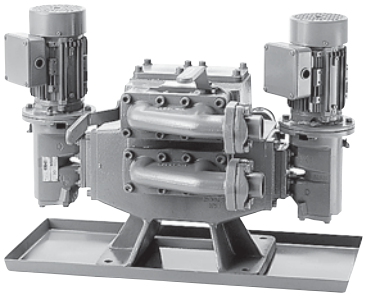


Fig. 9 Double assembly unit

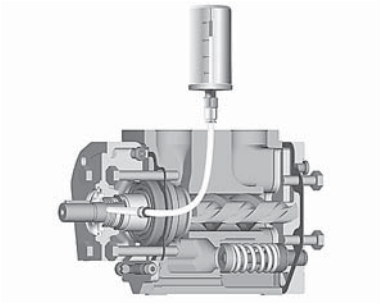


Fig. 10 SealGuard

SealGuard enhances shaft seal life when handling Heavy Fuels, having a tendency to form hard deposits impairing the shaft seal performance.

Maintenance and Service

Spare parts for these pumps are easily available from stock. For detailed information and know-how about service see the Installation and Service instruction for ACE pumps or contact your IMO-representative.

A Member of the
COLFAX PUMP GROUP

www.imo.se

IMO AB: P. O. Box 42090, SE 126 14 Stockholm, Sweden
Telephone: +46 8 50 622 800, Telefax: +46 8 645 1509