



# Screw pump

# Series D4

D4 1113 GB

A Member of the COLFAX PUMP GROUP

Handling of hydraulic oils, seal oils and fuel oils  
 Max. working pressure: 160 bar  
 Flow range: 10 - 850 l/min

## General Description

Positive constant displacement, rotary, three screw pump. Flow rate per revolution 9.8 - 307 cm<sup>3</sup> in 14 steps.

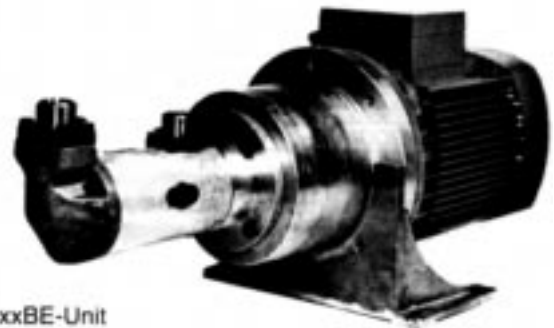
The three screws, the central driven screw – the power rotor – which meshes with the two sealing screws – the idler rotors – are the only rotating components of the pump. The axial pressure and friction loads on the pump rotors are hydraulically balanced. The power rotor is positioned axially by the selfcompensated thrust washer arrangement, being part of the hydraulic balancing system of the power rotor. The pump accommodates mechanical shaft seals complying with the DIN 24960 Standard.

The D4 pump is available in the following models:

- **D4 xxBE** flange mounting pump with radial inlet for horizontal or vertical mounting.
- **D4 xxBP** as **D4 xxBE** with built-in pressure relief valve for pump external or internal return.
- **D4 xxTE** flange mounting pump with built-on inlet strainer for tank-top mounting for shallow tank operation.
- **D4 xxJE** as **D4 xxTE** with extended inlet pipe for deep tank operation.



D4 xxBP



D4 xxBE-Unit

## Model Code

<b>Series</b>	D	4			2					A			
<b>Size</b> (Power rotor outer diameter)													
025-032-038-045-052-060-070													
<b>Rotor lead</b>													
L K = Low lead (L = size 025-032; K = size 038-070)													
N = Normal lead													
<b>Design Modification</b>													
2 = the second version													
<b>Material in pump casing</b>													
L = Aluminium													
I = Cast iron													
<b>Shaft seal design</b>													
V = Carbon/Ni-resist, Elastomers in Viton													
T = Carbide/Carbide, Elastomers in Viton													
<b>Mounting</b>													
B = Flange mounting													
J = For vertical tank mounting; with prolonged inlet pipe. strainer included													
T = For vertical tank mounting; with mounted strainer													
<b>Valves</b>													
E = Without valve													
P = Valve with external return or internal return (max 4 MPa)													
<b>Special design</b>													
A056 = Ball bearing version													
A070 = Hydraulic drive													
A101 = Counter Clockwise rotation													

## Material Specification

**Pump rotors** – hardened alloy steel

**Rotor housing** – aluminium alloy

**'O' rings** – Nitrile rubber (standard) or Viton shaft seal - mechanical seal with nitrile rubber(standard) or viton bellow, carbon seal ring, cast iron seat. Optional choice of materials with seals according to DIN 24960 Standard

For handling of fire resistant hydraulic fluids on phosphate ester base and fluids which may be aggressive to above material – consult IMO AB.

## Design Limits\*

### Max. Discharge Pressure

16 MPa Models D4

4 MPa Models D4 xxBP

Reduced pressure limits apply due to fluid viscosity, rotor lead and pump speed. Consult the Performance Data Sheet for the individual pump size. The Performance Data Sheet or the corresponding information is available from your local IMO AB representative.

### Pressure Relief Valve

The pressure relief valve of the D4 xxBP pump is intended as a pressure limiting valve only. It must not be used for regulation of pump discharge pressure or flow rate. As standard the pump is delivered with the valve adapted for external return of the bypassed flow. From the valve outlet port this flow shall be brought back to the system as far as possible from the pump inlet. The available alternative internal return shall be selected only after careful consideration of fluid temperature rise and effect on pumping viscosity during the bypassing.

### Recommended Speed Limits

Size	Max Speed r/s - rpm		
	Lubricating Oil Hydraulic Oil	Light Fuel Oil	Heavy Fuel Oil
025, 032	80-4800	60-3600	60-3600
038	77-4600	60-3600	30-1800
045, 052	75-4500	60-3600	30-1800
060, 070	70-4200	60 3600	30-1800

Speed to be selected considering pump inlet conditions. Consult the Performance Data Sheet for the individual pump size regarding suction lift capability or positive inlet pressure required. The Performance Data Sheet or the corresponding information is available from your local IMO AB representative.

### Fluid Viscosity:

2 - 400 mm<sup>2</sup>/s. Viscosity up to 5000 mm<sup>2</sup>/s with manufacturer's approval

**Pumping Temperature:** LRxx 0 °C – + 90 °C  
LVxx 0 °C – + 130 °C  
IVxx -10 °C – + 130 °C  
ITxx -10 °C – + 155 °C

### Max Inlet Pressure:

Max 1.0 MPa. The max. inlet pressure is reduced due to fluid viscosity pump speed and discharge pressure. Further information is available from your local IMO AB representative.

### Rotation:

Clockwise facing pump shaft.

### Drive:

Direct drive over flexible shaft coupling which must allow an axial pump shaft movement of min 0.3 mm. Axial or transverse loads on pump shaft not allowed.

\* In this leaflet following units are used:

Quantity	SI-Unit	Other unit	Conversion
Pressure	MPa, kPa	-	MPa = 10 bar
Speed	r/ s	<i>rpm</i>	-
Viscosity	mm <sup>2</sup> /s	-	1 mm <sup>2</sup> / s = 1 cSt
Temperature	°C	-	-
Length	m, mm, µm	-	-
Flow rate	dm <sup>3</sup> / s	<i>l/mm</i>	-

## Filtration

In order to protect the D4 pump from foreign matter such as weld slag, weld beads, pipe scale and rust, nuts, bolts, rags etc. a strainer should be installed in the pump inlet pipe near the pump. Recommended strainer-open- meshwidth for the D4 pump is:

400 - 800 µm at flow rates below 5 dm<sup>3</sup>/ s (300 l/min)

600 - 1000 µm at flow rates above 5 dm<sup>3</sup>/ s (300 l/min)

Max. pressure difference over clean strainer: 10 kPa at full flow rate.

The built-on strainer of pumps D4 xxTxxxxJx has an open meshwidth of 500 µm (40 mesh straining cloth).

When the D4 pump as used in power hydraulic systems or is used as lube oil or seal oil pump, no extra filtering precautions are required other than those prescribed for the remaining components in the system. If no other filtration is prescribed it is recommended that the hydraulic fluid of a power hydraulic system is pumped through a filter – in the return line to the fluid reservoir or in a separate fluid conditioning circuit – with an open-meshwidth as follows:

100 µm at system pressure below 10 MPa

50 µm at system pressure above 10 MPa

Max. pressure difference over clean filter: 0.1 MPa at full flow rate.

## Displacement

Flow per revolution cm <sup>3</sup>							
Size	025	032	038	045	052	060	070
L/K Lead	9,8	20,6	38,8	65,2	103	159	251
N Lead	13,9	29,1	49,1	81,6	126	193	307

## Sound Level

Typical D4 xxBE pump sound levels referred to free field conditions at a distance of 1 m from the pump. Noise of driver excluded in quoted figures.

Sound pressure level dB(A) at 2940 rpm, 20 mm <sup>2</sup> /s, 50 °C									
Size		025	032	038	045	052	060	070	
L/K	Discharge pressure	2 MPa	52	54	56	60	63	67	70
Lead		10 MPa	54	55	59	63	66	69	74
N		2 MPa	55	56	60	63	67	70	72
Lead		10 MPa	57	59	62	66	69	72	75

## Moment of Inertia

For bare shaft pump.

Size	kgm <sup>2</sup>
025	0.00002
032	0.00007
038	0.00017
045	0.00040
052	0.00080
060	0.0017
070	0.0036

## Accessories

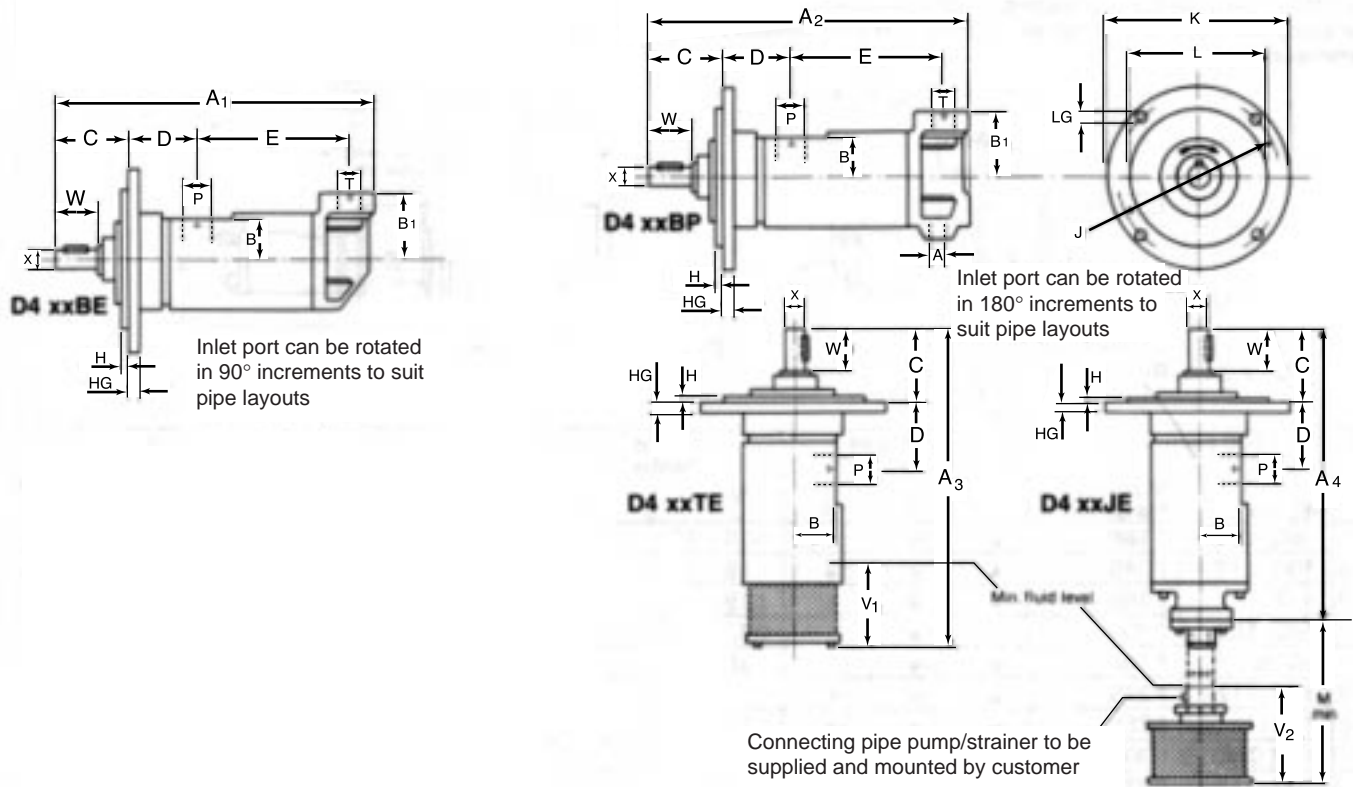
For the D4 xxBE, xxBP, xxJE and xxTE pumps following standard accessories are available:

- Circular frame for connecting the pump to flange/foot mount IM 2001 and flange mount IM 3011 IEC Standard electric motors.
- Circular frame with angle foot for connecting the pump to IM 3001 IEC Standard electric motor.
- Flexible shaft coupling.
- Inlet/ outlet counter flange set for pipe weld connection or pipe thread connection.
- Steam or heat transfer fluid heating element
- Totally enclosed fan cooled squirrel-cage electric motors according to IEC mounting form IM 2001 IM 3001 and IM 3011.

# Dimensions

## Pump Series D4 xxBE, xxBP, xxJE and xxTE

Dimensions in mm.



Size		025	032	038	045	052	060	070
Main dimensions	A1	342	409	455	526	576	667	736
	A2	388	439	501	596	636	765	814
	A3	360	411	462	518	574	658	748
	A4	359	410	449	523	550	622	682
	B	44	48	58	59	77	86	97
	B1	70	75	85	85	100	125	125
	C	85	85	100	117	117	145	145
	D	90	90	107	115	128	142	142
	E	138	197	206	244	276	314	373
Mmin	150	157	173	205	252	297	323	
V1	105	105	125	125	140	160	200	
V2	100	100	125	160	190	225	240	
Mounting Flange	H	4	4	5	5	5	5	5
	HG	15	15	20	20	20	30	30
	J Dia.	145	145	165	240	240	265	265
	K Dia.	175	175	200	275	275	300	300
	L* Dia.	120	120	130	205	205	230	230
LG No.off		4	4	4	4	4	4	4
	Dia.	11	11	14	18	18	18	18
Outlet/Inlet Ports	P Dia.	25	25	32	38	48	60	60
	T Dia.	25	30	38	48	58	73	98
	R Dia.	19	19	25	32	38	48	48
Outlet/Inlet Counter Flanges Size	P	1"	1"	1 1/4"	1 1/2"	2"	2 1/2"	2 1/2"
	T	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"
	R	3/4"	3/4"	1"	1 1/4"	1 1/2"	2"	2"
Shaft	W	36	36	42	58	58	82	82
	X** Dia.	19	19	24	32	32	42	42
	Key***	6x6	6x6	8x7	10x8	10x8	12x8	12x8
Appr. Weight kg	D4F/B/T/V	10-11	12-13	14-15	24-25	33-35	48-51	66-68

\* Tolerance ISO h7 D4 Lxxx

\*\* Tolerance ISO j6

\*\*\* Key/keyway ISO/R773 - 1969.

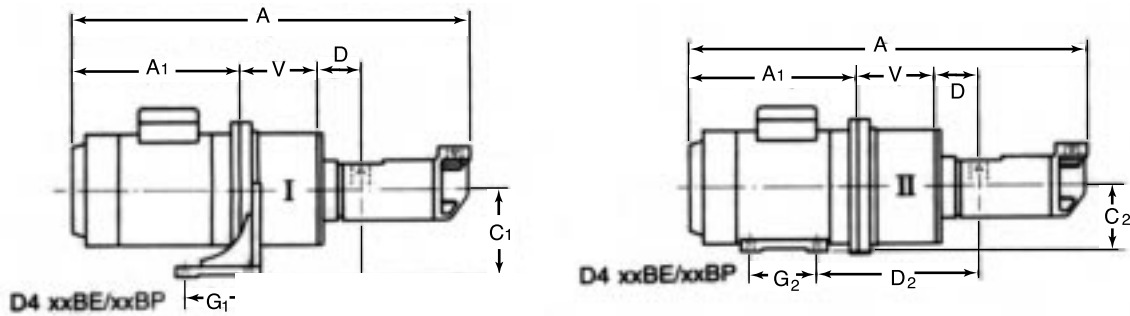
Outlet/Inlet flange bolt pattern according to SAE Standard J518 for 3.000 PSI (max.) working pressure and dimensions of from IMO AB for the D4 pump available counterflanges, see back cover page.

# Dimensions Pump Unit Type D4 xxBE, xxBP, xxJE and xxTE

with flange mounted IEC electric motors.

For complete pump unit dimensions, consult the Dimension Prints for the individual unit mount.

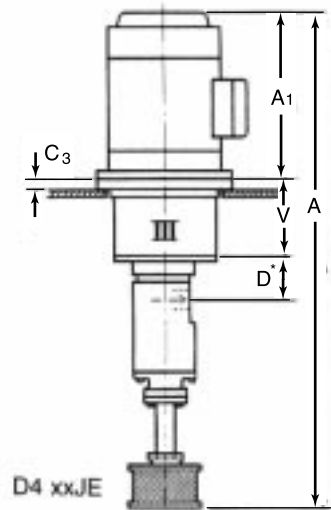
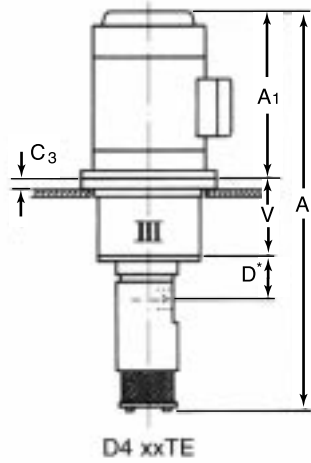
Dimensions in mm.



Pump Size	TEFC Electric Motor		Unit Mount			Approx. weight without electric motor kg		Overall Length A			
	IEC No.	Mounting Flange	I	II	III	I	II/III	xxBE	xxBP	xxTE	xxJE
025	80, 90	F165	•	•		14 - 15	13 - 14	745	800		
	100,112	F215	•	•	•	16 - 17	15 - 16	800	855	818	967
	132	F265	•	•	•	19 - 20	17 - 18	862	917	880	1029
	160, 180	F300	•	•	•	23 - 26	20 - 22	1054	1109	1072	1221
032	80/90	F165	•	•		16 - 17	15 - 16	812	861	*	*
	100,112	F215	•	•	•	18 - 19	17 - 18	867	916	869	1029
	132	F265	•	•	•	21 - 22	19 - 20	929	978	931	1087
	160,180	F300	•	•	•	25 - 28	22 - 24	1121	1170	1123	1279
038	100,112	F215	•	•		23 - 24	21 - 22	915	963	*	*
	132	F265	•	•	•	24 - 25	21 - 22	980	1028	987	1147
	160,180	F300	•	•	•	28 - 30	24 - 26	1166	1216	1175	1335
	200	F350	•	•	•	36 - 37	31 - 32	1270	1318	1277	1437
045	100,112	F215	•	•		33 - 34	32 - 33	984	1055	*	*
	132	F265	•	•		36 - 37	34 - 35	1044	1115	*	*
	160,180	F300	•	•	•	40 - 42	36 - 39	1241	1312	1123	1443
	200	F350	•	•	•	47 - 48	42 - 43	1339	1410	1331	1541
	225	F400		•	•		43 - 44	1489	1560	1481	1691
	225	F400 - 140		•	•		50 - 51	1524	1595	1516	1726
052	250, 280	F500		•	•		47 - 54	1674	1745	1666	1876
	132	F265	•	•		45 - 47	43 - 45	1094	1155	*	*
	160,180	F300	•	•	•	49 - 52	45 - 49	1291	1352	1289	1517
	200	F350	•	•	•	56 - 58	51 - 53	1389	1450	1387	1615
	225	F400		•	•		52 - 54	1539	1600	1537	1765
	225	F400 - 140		•	•		59 - 61	1574	1635	1572	1800
	250, 280	F500		•	•		56 - 64	1724	1785	1722	1950
060	315	F600		•	•		69 - 71	1749	1810	1747	1975
	160, 180	F300	•	•	•	65 - 70	62 - 66	1380	1483	*	*
	200	F350	•	•	•	72 - 75	67 - 70	1492	1595	1483	1744
	225	F400		•	•		69 - 72	1637	1740	1628	1889
	225	F400 - 140		•	•		72 - 75	1672	1775	1663	1924
	250, 280	F500		•	•		78 - 87	1822	1925	1813	2074
	315	F600		•	•		86 - 89	1847	1950	1838	2099
070	315	F600 - 170		•	•		98 - 101	1887	1990	1878	2139
	160, 180	F300	•	•		83 - 87	80 - 83	1449	1533	*	*
	200	F350	•	•	•	90 - 92	85 - 87	1561	1645	1573	1830
	225	F400		•	•		87 - 89	1706	1790	1718	1948
	225	F400 - 140		•	•		90 - 92	1741	1825	1753	2010
	250, 280	F500		•	•		96 - 104	1891	1975	1903	2160
	315	F600		•	•		104 - 106	1916	2000	1928	2185
315	F600 - 170		•	•		116 - 118	1956	2040	1968	2225	

## Remarks

- TEFC = totally enclosed (IP 54) Fan Cooled (IC 41). For other motor types compare mounting flange size with column "Mounting Flange".
  - Denomination of electric motor mounting flange (= connecting frame size) refers to pitch diameter of holes for mounting bolts and length of the longer motor shaft (if more than one shaft length per IEC No.).
- \* Can not be mounted as a complete pump aggregate through the hole in the tanktop



Pump Size	TEFC Electric Motor											
	IEC No.	Mounting Flange	A <sub>1</sub>	V	C <sub>1</sub>	D <sub>1</sub>	G <sub>1</sub>	C <sub>2</sub>	D <sub>2</sub>	G <sub>2</sub>	C <sub>3</sub>	
025	80, 90	F165	350	138	126	204	95	80/90	278/284	100/125		
	100,112	F215	395	148	152	217	115	100/112	301/308	140	26	
	132	F265	435	170	183	231	140	132	349	140/178	35	
	160, 180	F300	597	200	210	260	170	160	398/411	210-279	37	
032	80/90	F165	350	138	126	204	95	80/90	278/284	100/125		
	100,112	F215	395	148	152	217	115	100/112	301/308	140	26	
	132	F265	435	170	183	231	140	132	349	140/178	35	
	160,180	F300	597	200	210	260	170	160/180	398/411	210-279	37	
038	100,112	F215	395	165	152	251	115	100/112	335/342	140		
	132	F265	435	190	183	268	140	132	386	140/178	35	
	160,180	F300	597	216	210	297	170	160/180	431-444	210-279	33	
	200	F350	700	215	240	295	200	200	455	305	34	
045	100,112	F215	395	180	152	128	115	100/112	128	115		
	132	F265	435	200	183	301	140	132	404	140/178		
	160,180	F300	597	235	210	310	170	160/180	458/471	210-279		
	200	F350	700	230	240	328	200	200	478	305	24	
	225	F400	850	230					225	494	286/311	35
	225	F400 - 140		265					529			
250, 280	F500	1000	260					250/280	548/570	349-419	26	
052	132	F265	435	200	183	314	140	132	417	140/ 178		
	160,180	F300	597	235	210	323	170	160/180	471-484	210-279		
	200	F350	700	230	240	341	200	200	491	305	24	
	225	F400	850	230					225	507	286/311	35
	225	F400 - 140		265					542			
	250, 280	F500	1000	260					250/280	561-583	349-419	26
	315	F600	1030	260					315	604	406/457	35
060	160, 180	F300	597	261	210	377	170	160/180	511-524	210-279		
	200	F350	700	270	240	395	200	200	545	305	24	
	225	F400	850	265					225	556	286 /311	35
	225	F400 - 140		300					591			
	250, 280	F500	1000	300					250/280	610-632	349-419	21
	315	F600	1030	295					315	653	406 /457	30
	315	F600 - 170		335					693			
070	160, 180	F300	597	261	210	377	170	160/180	511-524	210-279		
	200	F350	700	270	240	395	200	200	545	305	24	
	225	F400	850	265					225	556	286/311	35
	225	F400 - 140		300					591			
	250, 280	F500	1000	300					250/280	610-632	349-419	21
	315	F600	1030	295					315	653	406/457	30
	315	F600 - 170		335					693			

3. Dimensions A and A<sub>1</sub> may vary with make of electric motor.

4. D4 xxJE: Overall length A corresponds to min length of pump inlet pipe.

5. For certain motor sizes the motor mounting flange projects (max 25 mm) below the motor foot.

6. Size 045 with F215 in Unit Mount I: Frame angle bracket mounted with the floor fastening bolts under the connecting frame (reversed position compared to that shown in Unit Mount I).

\* Identical to dimension D of pump dimension table of page 3.

## Selection Guide

### Flow Rate and Power Consumption

D4 Pump at 50 Hz and 60 Hz with 2-pole and 4-pole electric motors at 37 mm<sup>2</sup>/s viscosity and for pumping temperatures up to 60 °C. Consult the Performance Data Sheet for the individual pump size for performance data at other speeds, viscosities and pumping temperatures. The Performance Data Sheet or the corresponding information is available from your local IMO AB representative. Electric motor power to be selected considering viscosity and discharge pressure at start-up conditions. Pump performance established according to VDMA 24284.

#### Flow rate and power consumption at 50 Hz

Flow rate (*Q<sub>eff</sub>*) dm<sup>3</sup>/s, (*O<sub>eff</sub>*) l/min and Power Consumption (*P<sub>e</sub>*) kW at 37 mm<sup>2</sup>/s, ≤ 60°C

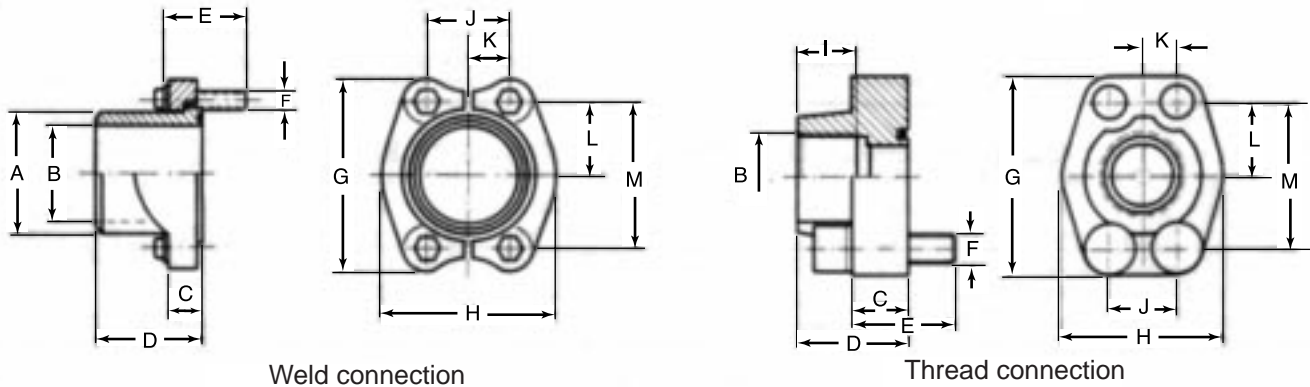
Speed		24 r/s (1450 rpm)						48 r/s (2900 rpm)							
Size	Discharge pressure	2 Mpa	4 Mpa	6Mpa	8 Mpa	10 Mpa	12 Mpa	2 Mpa	4 Mpa	6 Mpa	8 Mpa	10 Mpa	12 Mpa	14 Mpa	16 MPa
025L	<i>Q<sub>eff</sub></i>	0.19	0.16	0.13	-	-	-	0.42	0.40	0.37	0.35	0.32	0.29	0.27	0.24
	<i>Q<sub>eff</sub></i>	11	10	8	-	-	-	25	24	22	21	19	17	16	14
	<i>P<sub>e</sub></i>	0.5	1.0	1.5	-	-	-	1.1	2.1	3.1	4.1	5.1	6.0	7.0	8.0
025N	<i>Q<sub>eff</sub></i>	0.25	0.21	0.17	-	-	-	0.59	0.55	0.50	0.46	0.42	0.38	0.34	-
	<i>Q<sub>eff</sub></i>	15	13	10	-	-	-	35	33	30	28	25	23	20	-
	<i>P<sub>e</sub></i>	0.8	1.4	2.1	-	-	-	1.6	3.0	4.4	5.8	7.2	8.8	10.0	-
032L	<i>Q<sub>eff</sub></i>	0.42	0.39	0.35	0.31	0.28	-	0.92	0.88	0.85	0.81	0.77	0.73	0.70	0.66
	<i>Q<sub>eff</sub></i>	25	23	21	19	17	-	55	53	51	49	46	44	42	40
	<i>P<sub>e</sub></i>	1.1	2.1	3.2	4.2	5.2	-	2.3	4.4	6.5	8.6	10.6	12.7	14.8	16.9
032N	<i>Q<sub>eff</sub></i>	0.59	0.53	0.48	0.42	-	-	1.29	1.23	1.18	1.12	1.06	1.01	0.95	-
	<i>Q<sub>eff</sub></i>	35	32	30	25	-	-	77	74	71	67	64	61	57	-
	<i>P<sub>e</sub></i>	1.6	3.0	4.5	5.9	-	-	3.3	6.2	9.2	12.1	15.0	17.9	20.9	-
038K	<i>Q<sub>eff</sub></i>	0.83	0.78	0.73	0.68	0.63	0.57	1.77	1.72	1.66	1.61	1.56	1.51	1.46	1.40
	<i>Q<sub>eff</sub></i>	50	47	44	41	38	34	106	103	100	97	94	91	88	84
	<i>P<sub>e</sub></i>	2.1	4.0	6.0	7.9	9.8	11.8	4.4	8.3	12.2	16.1	20.0	23.9	27.8	31.7
038N	<i>Q<sub>eff</sub></i>	1.05	0.99	0.92	0.85	-	-	2.24	2.17	2.10	2.03	1.97	1.90	1.83	-
	<i>Q<sub>eff</sub></i>	63	59	55	51	-	-	134	130	126	122	118	114	110	-
	<i>P<sub>e</sub></i>	2.7	5.1	7.6	10.0	-	-	5.6	10.5	15.5	20.4	25.3	30.3	35.2	-
045K	<i>Q<sub>eff</sub></i>	1.45	1.38	1.31	1.25	1.18	1.11	3.02	2.95	2.88	2.82	2.75	2.69	2.62	2.55
	<i>Q<sub>eff</sub></i>	87	83	79	75	71	67	181	177	173	169	165	161	157	153
	<i>P<sub>e</sub></i>	3.5	6.8	10.0	13.3	16.5	19.8	7.4	14.0	20.5	27.1	33.6	40.2	46.8	53.3
045N	<i>Q<sub>eff</sub></i>	1.80	1.72	1.63	1.54	-	-	3.77	3.68	3.60	3.51	3.43	3.34	3.25	-
	<i>Q<sub>eff</sub></i>	108	103	98	92	-	-	226	221	216	211	206	200	195	-
	<i>P<sub>e</sub></i>	4.4	8.5	12.6	16.6	-	-	9.2	17.5	25.7	33.9	42.1	50.3	58.5	-
052K	<i>Q<sub>eff</sub></i>	2.33	2.24	2.16	2.07	1.99	1.91	4.81	4.72	4.64	4.56	4.47	4.39	4.31	4.22
	<i>Q<sub>eff</sub></i>	140	134	130	124	119	115	289	283	278	274	268	263	259	253
	<i>P<sub>e</sub></i>	5.6	10.7	15.9	21.0	26.1	31.3	11.7	22.0	32.4	42.8	53.2	63.5	73.9	84.3
052N	<i>Q<sub>eff</sub></i>	2.84	2.74	2.63	2.53	-	-	5.88	5.77	5.67	5.56	5.46	5.35	5.25	-
	<i>Q<sub>eff</sub></i>	170	164	158	152	-	-	353	346	340	334	328	321	315	-
	<i>P<sub>e</sub></i>	6.8	13.1	19.4	26.7	-	-	14.3	27.0	39.7	52.3	65.0	77.7	90.4	-
060K	<i>Q<sub>eff</sub></i>	3.61	3.49	3.36	3.24	3.12	3.00	7.44	7.32	7.20	7.08	6.95	6.83	6.71	6.59
	<i>Q<sub>eff</sub></i>	217	209	202	194	187	180	446	439	432	425	417	410	403	395
	<i>P<sub>e</sub></i>	8.6	16.6	24.5	32.4	40.3	48.3	18.0	34.0	50.0	66.0	82.1	98.1	114	130
060N	<i>Q<sub>eff</sub></i>	4.37	4.22	4.07	3.91	-	-	9.02	8.87	8.72	8.57	8.42	8.26	8.11	-
	<i>Q<sub>eff</sub></i>	262	263	244	235	-	-	541	532	523	514	505	496	487	-
	<i>P<sub>e</sub></i>	10.5	20.1	29.7	39.3	-	-	21.9	41.3	60.7	80.2	99.6	119	138	-
070K	<i>Q<sub>eff</sub></i>	5.72	5.55	5.37	5.20	5.02	4.85	11.8	11.6	11.4	11.2	11.1	10.9	10.7	10.5
	<i>Q<sub>eff</sub></i>	343	333	322	312	301	291	708	696	684	672	666	654	642	630
	<i>P<sub>e</sub></i>	13.6	26.2	38.7	51.2	63.7	76.2	28.4	53.7	79.0	104	130	155	180	205
070N	<i>Q<sub>eff</sub></i>	6.99	6.77	6.55	6.33	-	-	14.4	14.2	13.9	13.7	13.5	13.3	13.1	-
	<i>Q<sub>eff</sub></i>	419	406	393	380	-	-	864	852	834	822	810	798	786	-
	<i>P<sub>e</sub></i>	16.7	32.0	47.3	62.6	-	-	34.8	65.7	96.6	128	158	189	220	-

### Flow rate and power consumption at 60 Hz

Flow rate (Q<sub>eff</sub>) dm<sup>3</sup>/s, (O<sub>eff</sub>) l/min and Power Consumption (Pe) kW at 37 mm<sup>2</sup>/s, ≤ 60°C

Speed		29 r/s (1750 rpm)							58 r/s (3500 rpm)						
Size	Discharge pressure	2 Mpa	4 Mpa	6 Mpa	8 Mpa	10 Mpa	12 Mpa	2 Mpa	4 Mpa	6 Mpa	8 Mpa	10 Mpa	12 Mpa	14 Mpa	16 MPa
025L	Q <sub>eff</sub>	0.24	0.21	0.18	0.16	-	-	0.52	0.49	0.47	0.44	0.42	0.39	0.37	0.34
	Q <sub>eff</sub>	14	13	11	10	-	-	31	29	28	26	25	23	22	20
	Pe	0.6	1.2	1.8	2.4	-	-	1.4	2.6	3.6	4.9	6.1	7.3	8.5	9.7
025N	Q <sub>eff</sub>	0.32	0.28	0.24	-	-	-	0.73	0.68	0.64	0.60	0.56	0.52	0.48	-
	Q <sub>eff</sub>	19	17	14	-	-	-	44	41	38	36	34	31	29	-
	Pe	0.9	1.8	2.6	-	-	-	1.9	3.6	5.3	7.0	8.7	10.4	12.1	-
032L	Q <sub>eff</sub>	0.53	0.49	0.45	0.42	0.38	0.34	1.13	1.09	1.05	1.01	0.98	0.94	0.90	0.87
	Q <sub>eff</sub>	32	28	27	25	23	20	68	65	63	61	59	56	54	52
	Pe	1.4	2.6	3.9	5.1	6.3	7.6	2.9	5.4	7.9	10.4	12.9	15.4	17.9	20.5
032N	Q <sub>eff</sub>	0.74	0.68	0.62	0.56	-	-	1.58	1.53	1.47	1.41	1.35	1.30	1.24	-
	Q <sub>eff</sub>	44	41	37	34	-	-	95	92	88	88	81	78	74	-
	Pe	1.9	3.7	5.4	7.2	-	-	4.0	7.6	11.1	14.7	18.2	21.8	25.3	-
038K	Q <sub>eff</sub>	1.03	0.98	0.92	0.87	0.82	0.77	2.16	2.11	2.05	2.00	1.95	1.90	1.84	1.79
	Q <sub>eff</sub>	62	59	55	52	49	46	130	127	123	120	117	114	110	107
	Pe	2.6	4.9	7.3	9.6	11.9	14.3	5.4	10.1	14.9	19.6	24.3	29.1	33.8	38.5
038N	Q <sub>eff</sub>	1.30	1.23	1.16	1.10	-	-	2.73	2.66	2.59	2.53	2.46	2.39	2.32	-
	Q <sub>eff</sub>	78	74	70	66	-	-	164	160	155	152	148	143	139	-
	Pe	3.3	6.2	9.2	12.1	-	-	6.8	12.8	18.8	24.8	30.8	36.8	42.8	-
045K	Q <sub>eff</sub>	1.77	1.71	1.64	1.57	1.51	1.44	3.67	3.60	3.54	3.47	3.40	3.34	3.27	3.20
	Q <sub>eff</sub>	106	103	98	94	91	86	220	216	212	208	204	200	196	192
	Pe	4.3	8.3	12.2	16.1	20.1	24.0	9.0	17.0	25.0	32.9	40.9	48.8	56.8	64.7
045N	Q <sub>eff</sub>	2.21	2.12	2.04	1.95	-	-	4.59	4.50	4.41	4.33	4.24	4.16	4.07	-
	Q <sub>eff</sub>	133	127	122	117	-	-	275	270	265	260	254	250	244	-
	Pe	5.4	10.3	15.3	20.2	-	-	11.3	21.3	31.2	41.2	51.2	61.1	71.1	-
052K	Q <sub>eff</sub>	2.84	2.76	2.67	2.59	2.51	2.42	5.84	5.75	5.67	5.59	5.50	5.42	5.34	5.25
	Q <sub>eff</sub>	170	166	160	155	151	145	350	345	340	335	330	325	320	315
	Pe	6.8	13.0	19.3	25.5	31.7	37.9	14.3	26.9	39.4	52.0	64.6	77.1	89.7	102
052N	Q <sub>eff</sub>	3.47	3.37	3.26	3.16	-	-	7.14	7.03	6.93	6.82	6.72	6.61	6.51	-
	Q <sub>eff</sub>	208	202	196	190	-	-	428	422	416	409	403	397	391	-
	Pe	8.4	16.0	23.6	31.2	-	-	17.5	32.9	48.2	63.6	79.0	94.4	110	-
060K	Q <sub>eff</sub>	4.40	4.28	4.16	4.04	3.92	3.80	9.03	8.91	8.79	8.67	8.54	8.42	8.30	8.18
	Q <sub>eff</sub>	264	257	250	242	235	228	542	535	527	520	512	505	498	491
	Pe	10.5	20.1	29.7	39.3	48.9	58.5	22.1	41.5	60.9	80.3	99.7	119	138	158
060N	Q <sub>eff</sub>	5.33	5.18	5.03	4.88	-	-	10.9	10.8	10.6	10.5	10.3	10.2	10.0	-
	Q <sub>eff</sub>	320	311	302	293	-	-	654	648	636	630	618	612	600	-
	Pe	12.8	24.4	36.1	47.7	-	-	26.8	50.3	73.9	97.4	121	145	168	-
070K	Q <sub>eff</sub>	6.98	6.81	6.63	6.45	6.28	6.10	14.3	14.1	13.9	13.8	13.6	13.4	13.2	13.1
	Q <sub>eff</sub>	419	408	398	387	377	366	858	846	834	828	816	804	792	786
	Pe	16.6	31.8	46.9	62.1	77.2	92.3	34.6	65.5	96.1	127	157	188	219	249
070N	Q <sub>eff</sub>	8.52	8.30	8.08	7.80	-	-	17.5	17.2	17.0	16.8	16.6	16.4	16.1	-
	Q <sub>eff</sub>	511	418	485	472	-	-	1050	1032	1020	1008	996	984	966	-
	Pe	20.3	38.9	57.4	75.9	-	-	42.6	80.1	118	155	192	230	267	-

## Dimensions Counter Flange Set



*Pipe Weld connection set comprising pipe weld 'O' ring SAE JS 18 split flange and bolts – bolts in steel property Class ISO 8.8 and with min. length E.*

*Pipe thread connection set comprising pipe threaded SAE J5 18 4-bolt flange, 'O' ring and bolts – bolts in steel property Class ISO 8.8 and with min. length E.*

Flange Size	Weld Connection Dimensions							Thread Connection Dimensions							Common Dimensions				
	A	B	C	D	E	G	H	B	C	D	E	G	H	I	F	J	K	L	M
3/4"	27	20	14	40	30	66	52	BSP 3/4"	18	36	33	65	48	19	M10	22.4	11.2	23.9	47.8
1"	38	25	16	45	35*	70	59	BSP 1"	18	38	33	70	52	19	M10**	26.2	13.1	26.2	52.4
1 1/4"	43	32	14	50	35*	80	73	BSP 1 1/4"	21	41	38	79	68	22	M10	30.2	15.1	29.4	58.7
1 1/2"	50	40	16	50	40*	94	84	BSP 1 1/2"	25	44	43	93	76	24	M12	35.8	17.9	34.9	69.8
2"	62	50	17	55	40*	101.5	97	BSP 2"	25	45	43	102	88	26	M12	43	21.5	39	78
2 1/2"	72	60	19	75	45	114	109								M12	51	25.5	44.5	89
3"	90	75	22	85	55	135	131								M16	62	31	53	106
4"	114	100	26	90	55	162	152								M16	78	39	65	130

\* Pipe weld connection set size 1", 1 1/4", 1 1/2" and 2" for the D4 xxBP valve discharge port has dimension E 5 mm shorter than stated value.

\*\* M8 for use on original designs N1 and L1.

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