

# **T.T PUMPS**

**Self-priming Centrifugal Pumps**

***J Range***



# J Self-priming Centrifugal Pumps

J pumps are self-priming centrifugal pumps with open impeller handling large diameter solids and replaceable wear plates. They have easily opened inspection covers and externally lubricated mechanical seals.

- ❑ **Simple construction.** Only one moving part: the impeller
- ❑ **Easy inspection of impeller**
- ❑ **Quick self-priming without foot valves.** The pump self-priming automatically to heights of up to 7.5 m
- ❑ **Large diameter solids handled**
- ❑ **High resistance to abrasive liquids.** The wear plate is easily replaced and can be covered with an abrasion and oil resistant rubber facing.
- ❑ **Externally lubricated mechanical seal.** Lubrication prevents damage during dry running and stops leaks or air or liquid along the shaft.
- ❑ **Easy to install.** Only the suction hose is immersed in the liquid. The pump can be set up high and dry in the most convenient position for inspection and maintenance.
- ❑ **Long life.** The parts subject to wear can be easily replaced one or more times to restore the original performance.

## Applications

J pumps are used when one or more of the following are required:

- self-priming
- solids handling
- resistance to abrasion

J pumps can handle liquids up to a viscosity of about 50 mm<sup>2</sup>/s (cSt).

**Industry:** Transfer of clean or dirty neutral, acid or alkali liquids; liquids containing sand, mud or solids in suspension; clean or dirty low viscosity petroleum products or solvents; milk of lime, caustic soda; washing, cooling, circulation; smoke scrubbing; emergency duty.

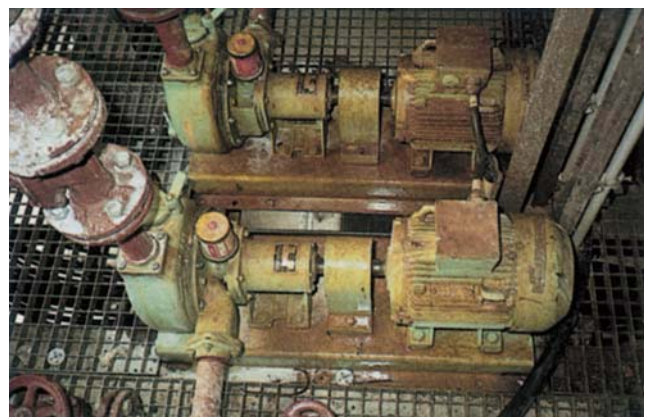
**Civil engineering:** Flood drainage; sewage pumping; fire fighting; recovery of dangerous liquids.

**Naval duty:** Loading and unloading; bilge pumping; washing, fire fighting, stripping, sanitary duty and circulation.

**Waste treatment:** Pumping polluted, hot or corrosive waste water containing sand, mud or solids in suspension; dosing neutralising liquids; pumping out settled sludge.

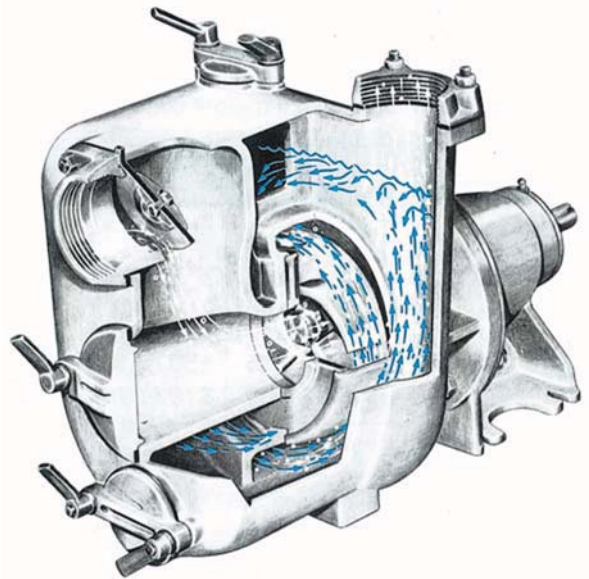
**Construction industry:** Dewatering excavations, canals or ponds; ground water dewatering with wellpoint systems or drains; water supply from wells or canals; hosing down concrete castings.

**Agriculture:** Surface irrigation; liquid manure oxygenation; transfer and spraying liquid manure or fertilisers; distribution of liquid animal feed; transfer of must; washing.



## Self-priming principle

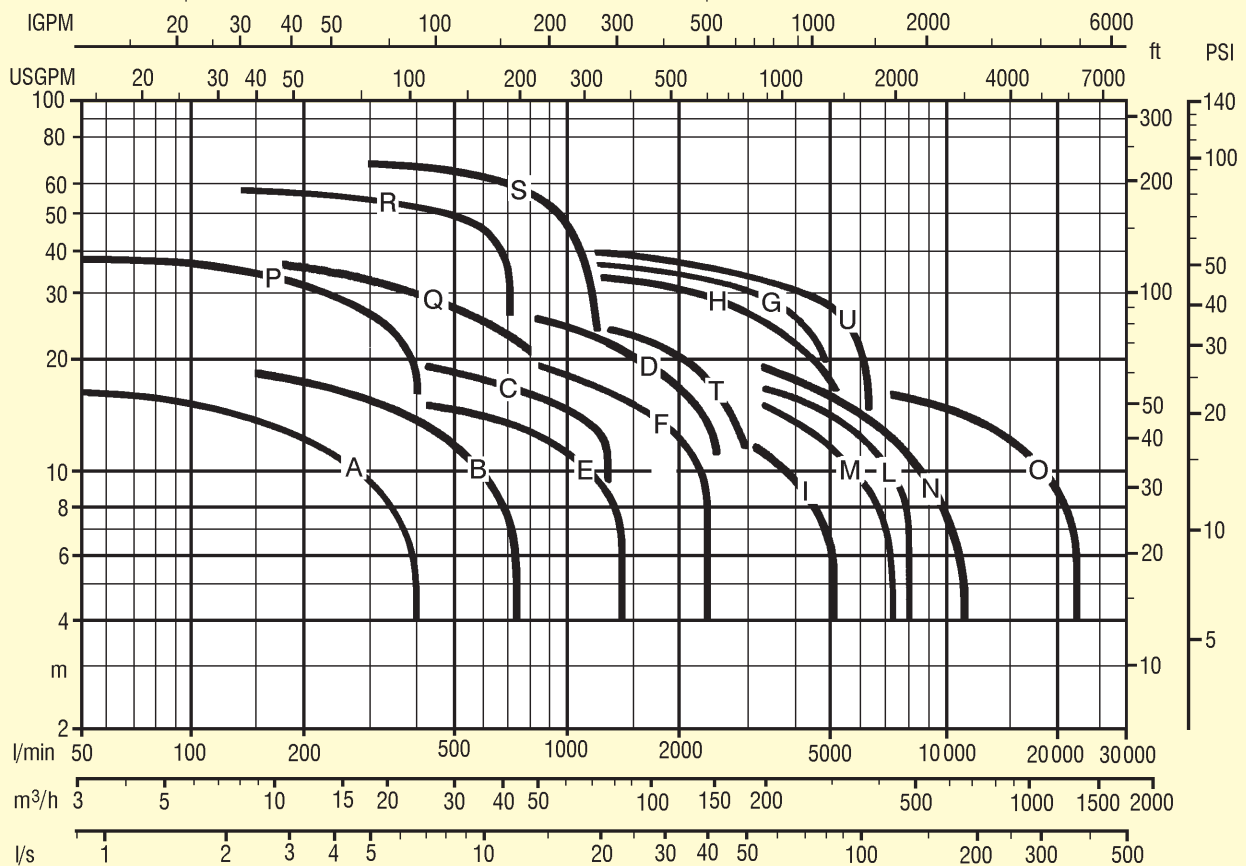
Air (white arrows) is drawn into the pump by the vacuum produced as the impeller rotates and is emulsified with the liquid (blue arrows) contained in the pump casing. The air/liquid mixture is driven into the priming chamber where the air, which is less dense, separates out and vents through the delivery line while the liquid, due to the higher density, falls back and is recirculated. When all the air has been evacuated from the suction line, the pump primes and operated like a normal centrifugal pump. It can also handle a mixture of air and liquid. The check valve mounted in the pump suction port serves two purposes: it prevents the liquid from draining out of the suction line when the pump is not in operation, and if the suction line is drained by accident, enough liquid is retained in the pump casing for the pump to reprime. The delivery line must allow the air drawn from the suction line to vent to atmosphere.



Pumps with electric motor 50 Hz

For more precise performance data reference should be made to the individual performance curves for each pump.

JV		JL		JP	
A	J40 2900 RPM	E	J85 1450 RPM	L	J8-300 1450 RPM
B	J50 2900 RPM	F	J4-250 1450 RPM	M	J8-305 1450 RPM
C	J3-140 2900 RPM	G	J6-350 1450 RPM	N	J10-305 1450 RPM
D	J90-4 2900 RPM	H	J6-355 1450 RPM	O	J300 975 RPM
		I	J6-250 1450 RPM	P	J1-180 2900 RPM
				Q	J2-180 2900 RPM
				R	J60-220 2900 RPM
				S	J70-250 2900 RPM
				T	J4-316 1450 RPM
				U	J6-400 1450 RPM



## JV series

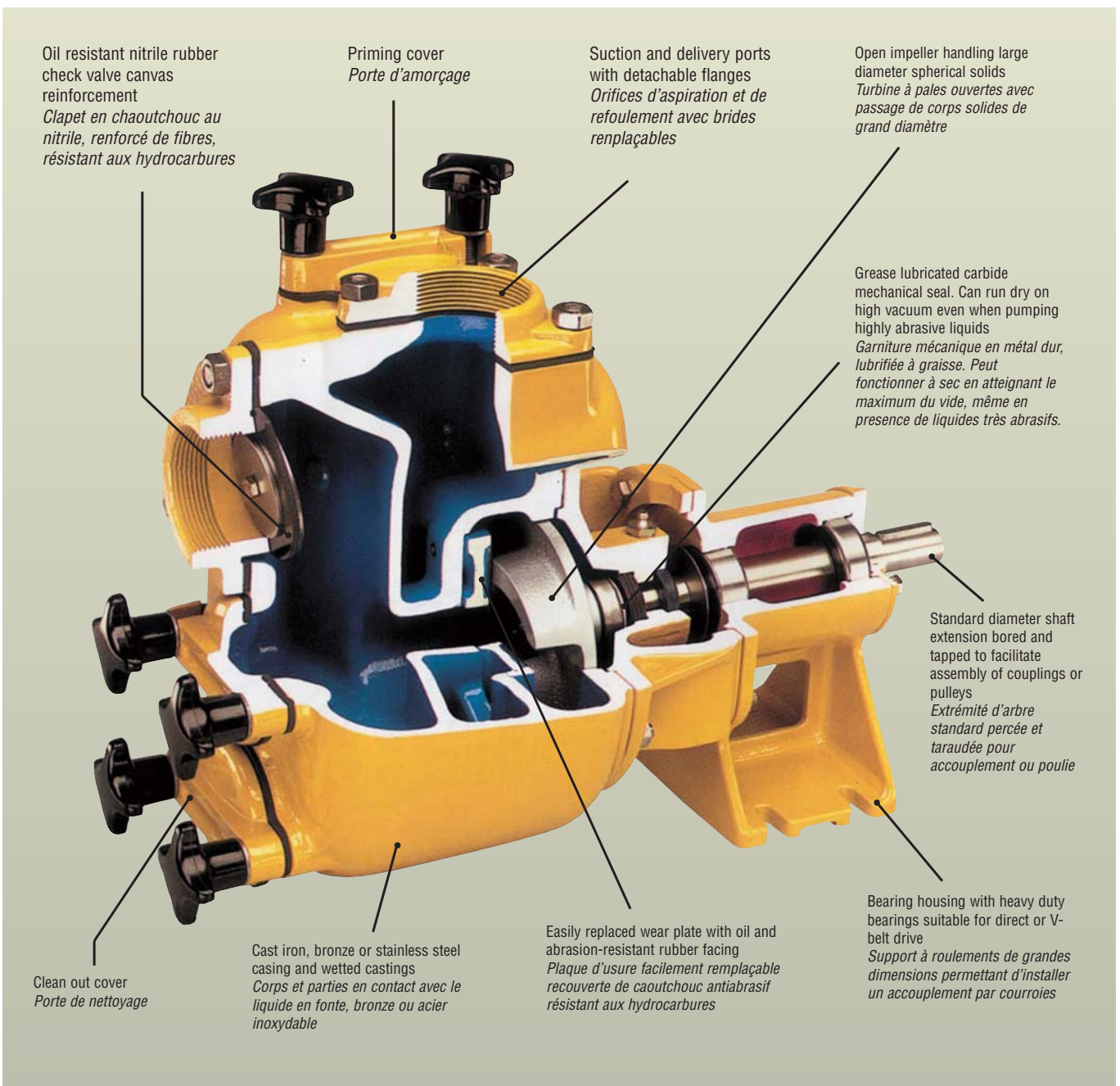
The JV (Fast) series comprises the J 40, J 50, J 3-140 and J 90-4 models which are mainly used in industry, and the J 90-2 and J 120-2 which are used in construction. The ports range from 1 1/2" to 5". Close-coupled versions use 2 pole motors while pedestal versions can be coupled to various types of motors. Cast iron casings (G). Certain models are available with bronze (B) or stainless steel (K) casings.

Pump	Size		*	Capacity						Head m.w.c.	RPM	Motor			
	mm	in		m <sup>3</sup> /h	l/min			HP	kW						
J40	40	1 1/2"	20	24	15	5	400	250	83	4	11	15	2900	1,5	1,1
J50	50	2"	25	44	30	10	730	500	165	5	12	18	2900	3	2,2
J3-140	80	3"	28	70	40	20	1160	665	330	13	18	20	2900	5,5	4
J90-2	100	4"	45	150	105	54	2500	1700	900	4	17	19	2500**	15	11
J90-4	100	4"	45	150	100	40	2500	1665	665	12	22	25	2900	15	11
J120-2	125	5"	60	210	144	72	3500	2400	1200	4	15	18	2300**	25	18,5

\* Solids handling (mm)

\*\* Coupled by belt and pulley

For more precise performance data reference should be made to the individual performance curves for each pump.



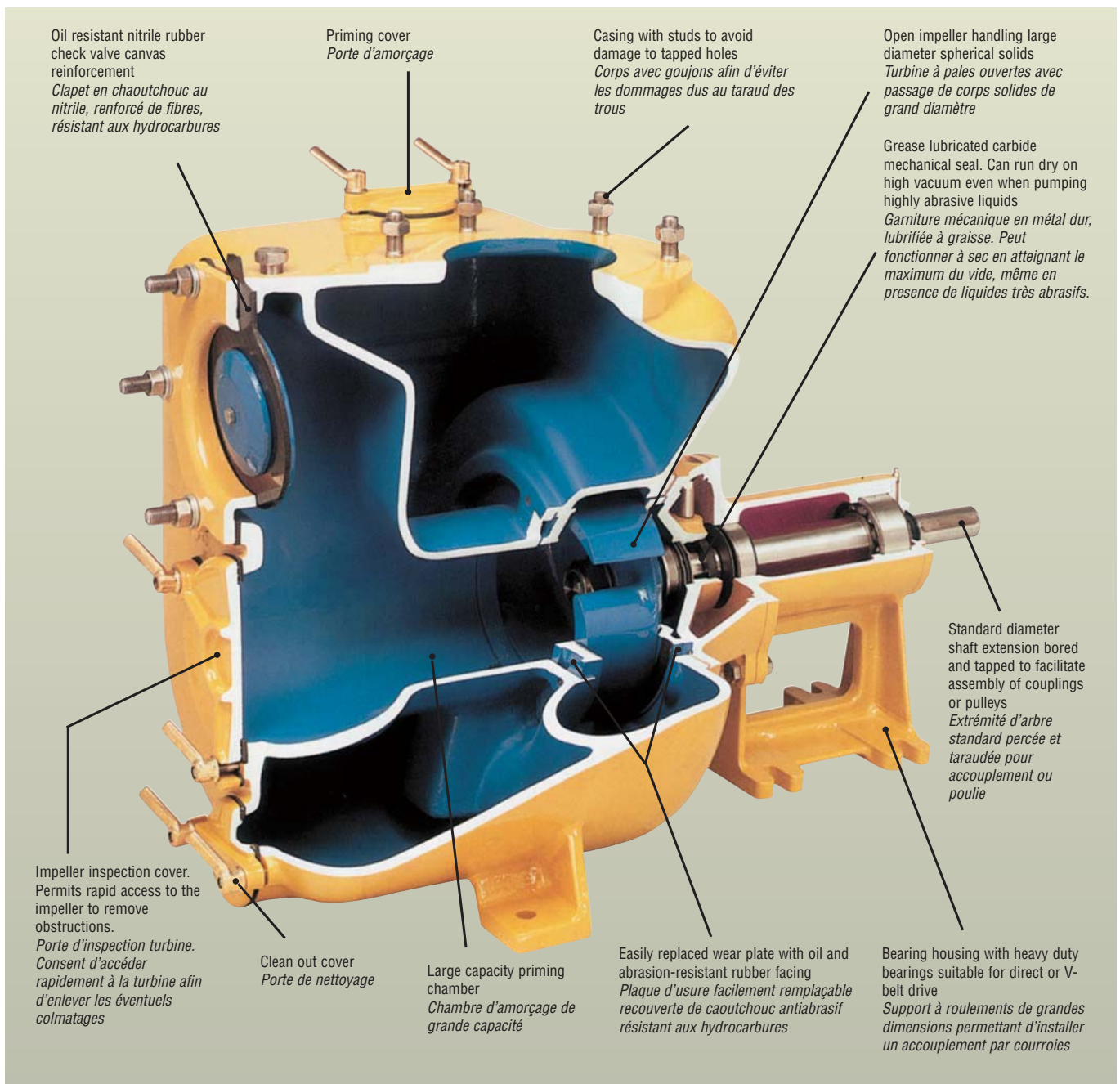
## JL series

JL (Slow) series are used for heavy duty applications in industry, construction and agriculture and have a robust construction with thick walls. The ports range from 3" to 12". Close-coupled versions use 4 pole motors while pedestal versions can be coupled to various types of motors. Cast iron casings (G). Certain models are available with bronze (B) or stainless steel (K) casings.

Pump	Size		*	Capacity						Head m.w.c			RPM	Motor	
	mm	in		m <sup>3</sup> /h				l/mn				HP		kW	
J85	80	3"	40	80	45	25	1330	750	415	8	13	15	1450	5,5	4
J4-250	100	4"	50	150	95	45	2500	1600	750	6	14	18	1450	10	7,5
J6-250	150	6"	76	260	200	90	4330	3300	1500	6	10	15	1450	15	11
J6-350	150	6"	37	300	180	90	5000	3000	1500	19	30	35	1450	40	30
J6-355	150	6"	47	330	220	96	5150	3650	1600	16	25	32	1450	40	30
J8-300	200	8"	60	480	320	120	8000	5330	2000	8	15	20	1450	30	22
J8-305	200	8"	76	400	200	100	6665	3330	1665	6	13	17	1450	25	18,5
J10-305	250	10"	76	600	500	200	10000	8333	3333	6	12	18,5	1450	40	30
J300	300	12"	70	1200	800	300	20000	13300	5000	9	13	17	975	75	55

\* Solids handling (mm)

For more precise performance data reference should be made to the individual performance curves for each pump.

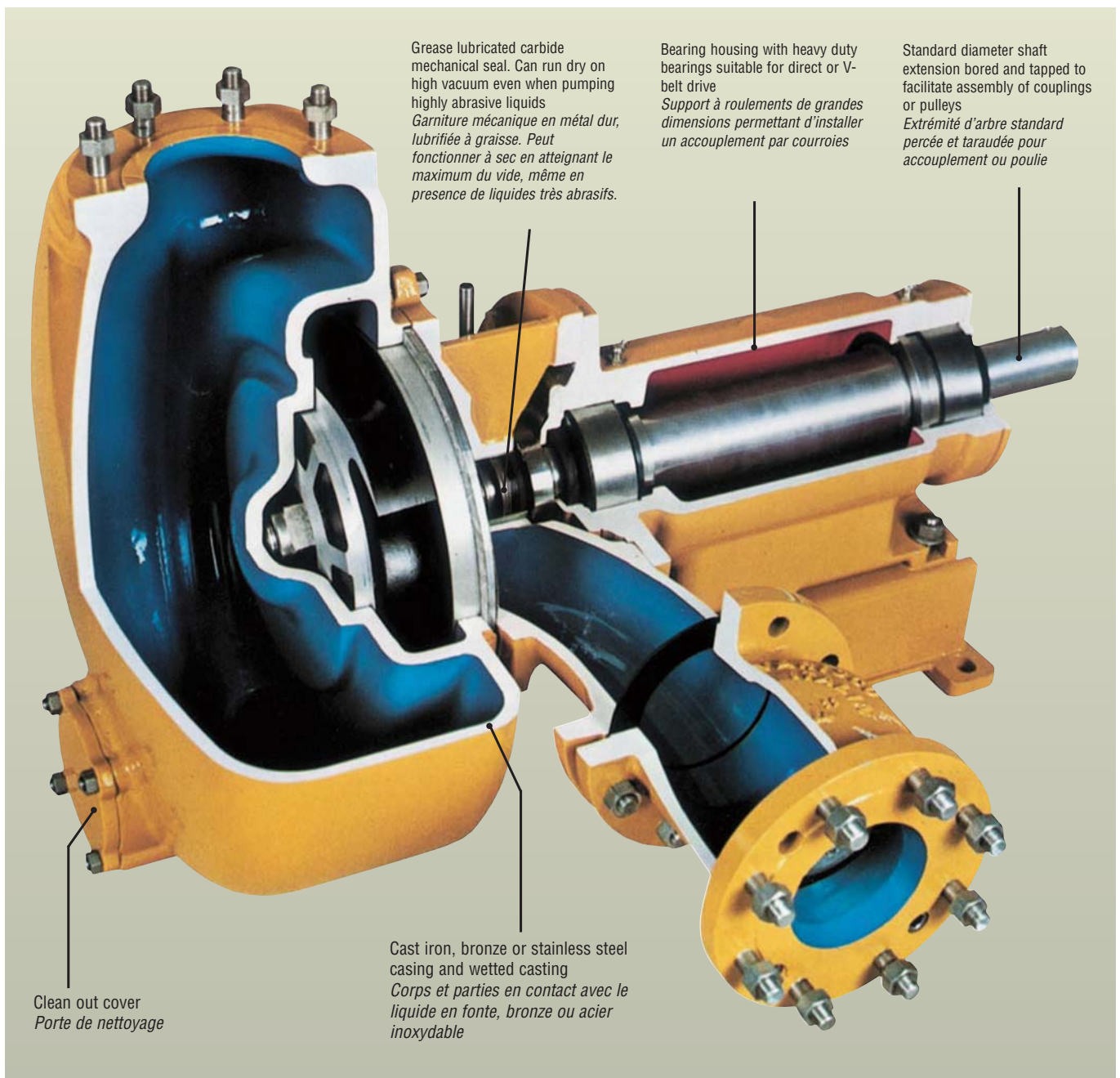


## JP series

The JP (High Head) series comprises models with port sizes from 1½" to 6". They are mainly used in industry for applications where, in addition to high heads, solids handling is required.  
Cast iron casings (G). Certain models are available with bronze (B) or stainless steel (K) casings.

Pump	Size		*	Capacity						Head m.w.c.			RPM	Motor	
	mm	in		m <sup>3</sup> /h	l/mn						HP	kW			
J1-180	40	1½"	11	25	15	5	420	250	83	22	32	34	2900	5,5	4
J2-180	50	2"	15	50	30	10	835	500	165	19	30	34	2900	7,5	5,5
J60-220	50	2"	12	42	26	10	700	430	165	42	51	57	2900	15	11
J70-250	80	3"	12	65	40	15	1085	665	250	45	60	68	2900	25	18,5
J4-316	100	4"	38	160	110	60	2665	1830	1000	21	26	29	1450	25	18,5 <sup>x</sup>
J6-400	150	6"	45	360	200	80	6000	3330	1330	22	34	37	1450	60	45

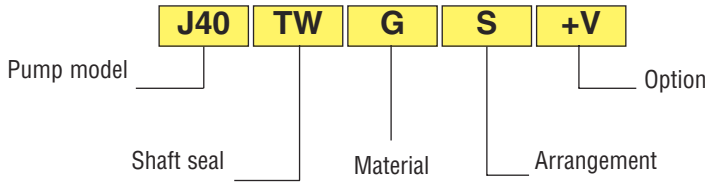
\* Solids handling (mm) For more precise performance data reference should be made to the individual performance curves for each pump. <sup>x</sup> 22 kW for close coupled version



## Versions

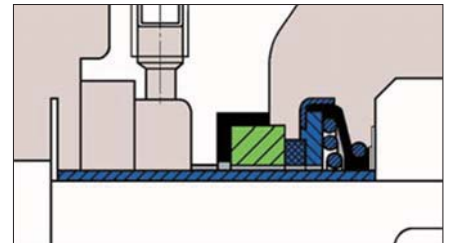
JV, JL, JP	Construction	Typical application
TWGS TWGMC	Cast iron pump with nitrile rubber gaskets	Liquids containing sand, mud or solids in suspension with pH from 5-13; smoke scrubbing; water emulsion circulation for machine tools or grinders; cutting or quenching fluid circulation; cooling water circulation in steel mills or drawing mills; neutralising liquid dosage; pumping out settled sludge; sump pumping; liquid manure transfer and circulation
TCWGS	Cast iron pump with nitrile rubber gaskets. Cartridge seal.	
TC8WGS	Cast iron pump with nitrile rubber gaskets. Double back to back cartridge seal.	
TWGS+V	Cast iron pump with Viton gaskets	Water circulation in paint spray booths; stripping fuel tanks
T4WGS	Cast iron pump with PTFE and Centellen gaskets	Recovery of dirty solvents
TPS	Cast iron pump with Viton and Centellen gaskets	Transfer of light petroleum products such as diesel fuel, paraffin, kerosene and petrol (gasoline)
TWFS	Stainless steel fitted cast iron pump with PTFE and Centellen gaskets	Liquid fertiliser transfer, circulation and spraying; brackish or sea water containing sand
TWQS	Bronze fitted cast iron pump with zinc anode nitrile and rubber gaskets	Brackish or sea water; washing, cooling or fire fighting in ports; auxiliary duties on board
TWBS	Bronze pump with nitrile rubber gaskets	Marine duty; brine; sea intake and circulation of sea water in swimming pools
TWKS	Stainless steel pump with Viton and Centellen gaskets	Pumping out acid waste water; transfer of dilute acids; fruit juice or fluid food products
TCWKS	Stainless steel pump with Viton and Centellen gaskets. Cartridge seal.	
TC8WKS	Stainless steel pump with Viton and Centellen gaskets. Double back to back cartridge seal.	
T4WKS	Stainless steel pump with PTFE and Centellen gaskets	Recovery of spills from chemical plants; transfer or circulation of caustic soda or potash

# Key to symbols

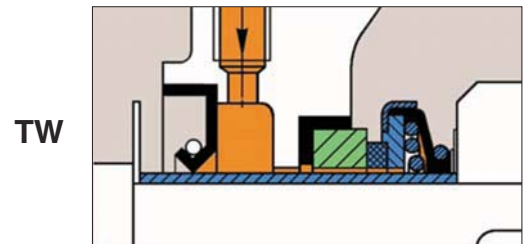


## Shaft seal

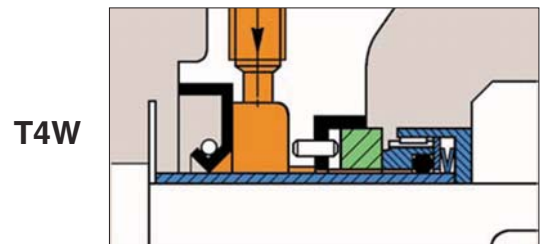
**T**  
 Mechanical seal mounted on stainless steel shaft sleeve. **Graphite** rotating seat, **silicon carbide** stationary seat. **No lubrication**. Only for “P” version.



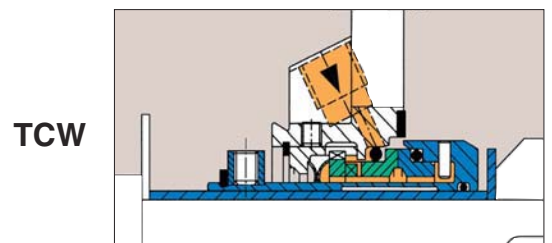
**TW**  
 Mechanical seal mounted on stainless steel shaft sleeve. **Tungsten or silicon carbide** rotating seat and **tungsten or silicon carbide** stationary seat. Nitrile rubber gaskets unless indicated otherwise. Nitrile rubber back up lip seal. **Grease** lubrication.



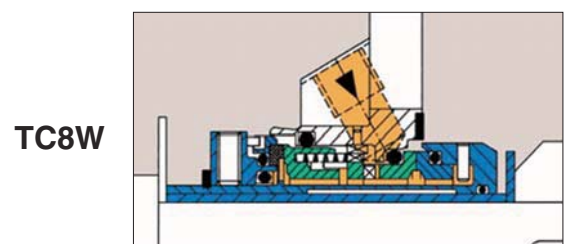
**T4W**  
 Mechanical seal mounted on stainless steel shaft sleeve. **Silicon (or tungsten) carbide** rotating and stationary seats and **PTFE** gaskets. Nitrile rubber back up lip seal. **Grease** lubrication. When these seals are fitted all elastomer components are replaced by PTFE or fibre gaskets.



**TCW \***  
 Cartridge mechanical seal mounted on stainless steel shaft sleeve. Main seal with silicon carbide faces and Viton gaskets. Grease lubrication.



**TC8W \***  
 Double back to back cartridge mechanical seal mounted on stainless steel shaft sleeve. Front seal with silicon carbide faces and Viton gaskets. Rear seal with silicon carbide/graphite faces and Viton gaskets. Grease lubrication.



\* Available for models J1-180, J2-180 and J 4-316.



## Materials

### B

**Bronze** or marine alloy wetted parts; stainless steel shaft and internal and external hardware; wear plate without rubber facing; nitrile rubber gaskets.

### F

**All iron** construction; **stainless steel** impeller, shaft and internal and external hardware; wear plate without rubber facing; **Viton** gaskets.

### G

All iron construction; rubber faced wear plate (J 40, J 70-250, J 6-350, J 300 have wear plate without rubber facing); stainless steel internal hardware; nitrile rubber gaskets.

### HC

Hastelloy wetted parts and internal hardware; AISI 316 stainless steel external hardware; duplex alloy shaft; Hastelloy wear plate; Centellen gaskets.

### K

AISI 316 **stainless steel** wetted parts including internal and external hardware; **Viton** gaskets; wear plate without rubber facing.

### P

All iron construction; wear plate without rubber facing; **Viton** gaskets (canvas reinforced nitrile rubber check valve for pumps over 4").

### Q

**Cast iron** construction; aluminium **bronze** impeller and wear plate (without rubber facing); stainless steel shaft and internal and external hardware; covers with zinc anodes; marine brass suction and delivery flanges (if tapped); nitrile rubber gaskets.

## Arrangements

**S** Pedestal bearing housing with free shaft

**MC** Pump close coupled to a **three phase** TEFC electric motor

**MM** Pump close coupled to a **single phase** TEFC electric motor

**M...** Pump close coupled to a **petrol (gasoline)** or **diesel engine**

e.g.: MLD: LOMBARDINI diesel engine

MJD: LISTER diesel engine

MVM: VM diesel engine

MZD: DEUTZ diesel engine

**S/...** Pump **coupled with flexible coupling** to various types of motors or engines.

e.g.: S/MC: three phase TEFC electric motor

S/MD: three phase explosion proof motor

S/LD: LOMBARDINI diesel engine

S/VM: VM diesel engine

S/ZD: DEUTZ diesel engine

**SM/..** Pump with **SM close-coupling bearing housing** and **SAE** flange.

**TRM** Magnetic drive pump. Complete liquid containment without the risk of leaks and consequent environmental pollution.

The construction materials of the magnetic drive are AISI 316 stainless steel or Hastelloy C depending on the liquid to be pumped.

## Options

**+ EC** Electromagnetic clutch (12V or 24V) with 6" 2A pulley suitable for J 1-180, J 2-180, J 3-140 B, F, K or Q.

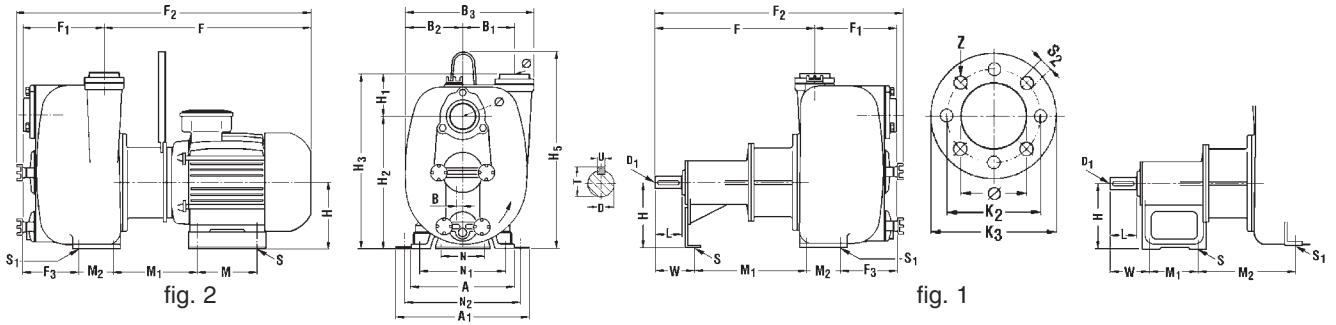
**+F** DIN 2533 ND 16 flanged suction and discharge ports.

**+FA** ANSI #125/150 RF flanged suction and discharge ports.

**+P** Automatic grease lubricator (to be used with grease lubricated seals).

**+V** Viton elastomers.

# Overall dimensions



Pedestal bearing housing (fig. 1)

	Ø	A	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	D	D <sub>1</sub>	F	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	K <sub>2</sub>	K <sub>3</sub>	L	M <sub>1</sub>	M <sub>2</sub>	N	N <sub>1</sub>	S	S <sub>1</sub>	S <sub>2</sub>	T	U	W	Z	kg
J40	1 1/2"	-	6	30	87	171	19	M8	267.3	80	364	-	90	73	166	227	-	-	40	50	-	80	-	10	-	-	21.5	6	35	-	15
J40K	1 1/2"	-	6	30	89.5	179	19	M8	267.3	80	349	-	90	71	166	227	-	-	40	50	-	80	-	10	-	-	21.5	6	35	-	15
J1-180	1 1/2"	230	-	110	120	268.5	28	M8	342.5	135.5	494.5	95.5	135	78	260	338	-	-	60	229.5	45	90	200	14	14	-	31	8	108	-	45
J50	2"	-	9	36	94	188	19	M8	298.5	112.5	428.5	-	110	92	215	328	-	-	41	50	-	102.5	-	12	-	-	21.5	6	35	-	24
J50K	2"	-	-	75	98	219	19	M8	257	147	406.5	-	110	99	204	286	-	-	41	50	-	102.5	-	12	-	-	21.5	6	35	-	27
J2-180	2"	240	-	120	133	298	28	M8	350	187.5	554	127.5	150	96	303	399	-	-	60	222	80	90	200	14	14	-	31	8	108	-	60
J3-140G	3"	240	10	37	131	264	28	M8	386.5	152	548.5	128.5	135	94	290	384	-	-	60	222	80	90	200	14	14	-	31	8	108	-	42
J3-140B/K	3"	240	15	40	139	278	28	M8	385.5	136	531.5	111.5	135	161	235	396	-	-	60	222	80	90	200	14	14	-	31	8	108	-	43
J85	3"	-	16	70	158	316	28	M8	458.5	155	624	-	160	94	310	419	-	-	60	125	-	150	-	14	-	-	31	8	50	-	72
J90-2/4	4"	-	12	37	149.5	299	28	M8	442.5	180	626.5	-	160	119	346	474	-	-	60	125	-	150	-	14	-	-	31	8	49	-	71
J4-250	4"	340	-	160	180	421	32	M12	468.5	276	740.5	176	200	131	359	490	-	-	78	355.5	100	110	295	15	14	-	35	10	129	-	124
J4-316G	4"	450	-	220	230	531	42	M16	621.5	266.5	896	154.5	280	127	430	557	-	-	110	423.5	150	260	400	18	14	-	45	12	168	-	193
J4-316K	4"	450	-	220	234	535	42	M16	621.5	312	933.5	192	280	129	528	657	-	-	110	423.5	150	150	400	18	14	-	45	12	168	-	218
J120-2	5"	-	-	45	182	357	32	M12	497.5	233	732.5	-	200	253	280	539	-	-	80	150	-	150	-	14	-	-	35	10	55	-	116
J6-250	150	410	20	90	237.5	475	32	M12	581.5	271	872	-	225	145	445	619	240	276	78	330.5	170	110	350	15	18	18	35	10	129	6	203
J6-350	150	540	18.5	90	289	578	40	M12	630	243	895	-	290	145	510	684	240	276	95	369	200	150	460	15	22	18	43	12	161	6	220
J6-355	150	410	18.5	90	289	578	40	M12	630	243	895	-	290	145	510	684	240	276	95	369	200	150	460	15	22	18	43	12	165	6	220
J6-400	150	510	20	280	307.5	730	55	M16	698.5	374	1095	214	350	150	645	821	240	276	110	477.5	200	150	450	17	18	19	59	16	181	6	420
J8-300/5	200	510	-	80	295.5	591	42	M16	783.5	289.5	1088.5	209.5	310	172	530	702	280	310	110	495.5	200	150	450	18	18	18	45	12	168	8	305
J10-305	250	530	-	255	298	758	55	M16	718.5	478.5	1291.5	278.5	350	231	687	946	350	400	110	487.5	250	150	450	17	18	22	59	16	181	8	550
J300	300	630	-	319	374	920	60	M20	537.5	605.5	1169.5	-	450	267	800	1200	395	440	100	-	464	300	500	26	26	22	64	18	81	12	706

G = Cast iron

K = Stainless steel

B= Bronze

Close coupled to electric motor (fig. 2)

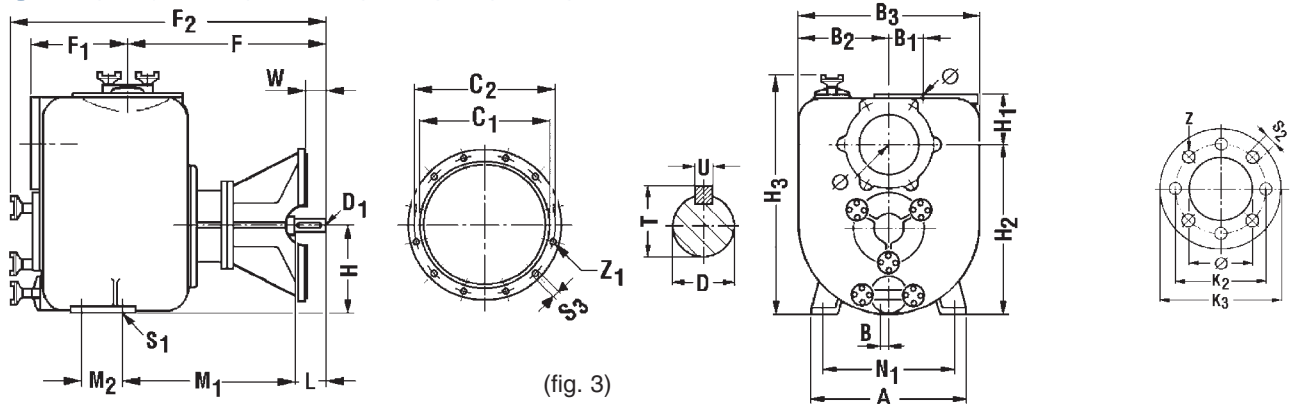
	Ø	A	A <sub>1</sub>	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	F	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	H <sub>5</sub>	K <sub>2</sub>	K <sub>3</sub>	M	M <sub>1</sub>	M <sub>2</sub>	N <sub>1</sub>	N <sub>2</sub>	S	S <sub>1</sub>	S <sub>2</sub>	Z	kg	
J40G	1 1/2"	-	-	6	30	87.5	208	360	80	460	256	80	73	156	234	-	-	-	100	-	-	-	125	10	-	-	-	-	21
J40K	1 1/2"	-	-	6	30	89.5	208	360	80	460	256	80	71	156	234	-	-	-	100	-	-	-	125	10	-	-	-	-	21
J1-180	1 1/2"	230	280	-	110	120	268.5	477.5	135.5	615	95	135	78	260	338	-	-	-	140	195.5	45	200	240	12	14	-	-	-	60
J50	2"	-	-	9	36	94	190	420	112.5	560	314	90	92	197	307	-	-	-	100	-	-	-	140	10	-	-	-	-	24
J2-180	2"	240	310	-	120	133	298	479	187.5	669	127.5	150	96	303	399	-	-	-	140	195	80	200	270	12	14	-	-	-	106
J3-140G	3"	240	280	10	37	131	264	519.5	152	671.5	128.5	135	94	290	384	-	-	-	140	188	80	200	240	12	14	-	-	-	65
J3-140B/K	3"	240	280	15	40	139	278	520.5	136	651.5	111	135	161	235	396	-	-	-	140	188	80	200	240	12	14	-	-	-	63
J85	3"	-	-	16	70	158	316	514	155	694	-	160	94	310	435	500	-	-	140	-	-	-	270	12	-	-	-	-	94
J90-4	4"	-	-	12	37	149.5	299	587.5	180	770.5	375.5	157	119	343	471	-	-	-	330	-	-	-	206	12	-	-	-	-	95
J4-250	4"	340	-	-	160	180	421	591.5	276	940.5	176	200	131	359	490	580	-	-	220	258.5	100	305	340	15	14	-	-	-	184
J4-316G	4"	450	450	-	220	230	531	829.5	266.5	1099	154.5	260	127	430	557	640	-	-	279	307.5	150	400	405	15	14	-	-	-	349
J4-316K	4"	450	450	-	220	234	535	829.5	312	1129.5	192	280	129	528	657	695	-	-	279	307.5	150	400	405	15	14	-	-	-	347
J6-250	150	410	-	20	90	237.5	475	730.5	271	1051.5	-	225	145	445	619	625	240	276	220	279.5	170	305	340	15	18	18	6	6	237
J6-350/5	150	540	-	18.5	90	289	578	829.5	243	1122.5	-	290	145	510	684	776	240	276	254	293.5	200	375	420	15	22	18	6	6	275
J8-300/5	200	510	450	-	80	295.5	591	991.5	289.5	1296.5	209.5	310	172	530	702	777.5	280	310	280	379.5	200	450	405	15	18	18	8	8	427
J10-305	250	530	550	-	255	298	758	900	478.5	1467	278.5	350	231	687	946	-	350	400	305	327.5	250	450	480	19	22	22	8	8	780

G = Cast iron

K = Stainless steel

B= Bronze

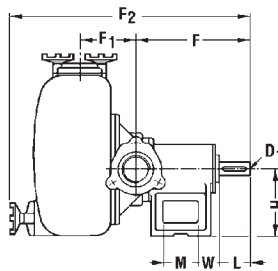
# Overall dimensions



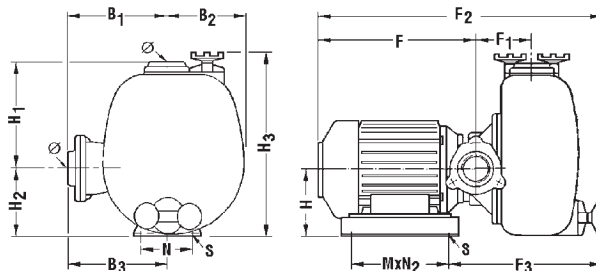
(fig. 3)

### Arrangement with SM type bearing housing and SAE flange (fig. 3)

Model	Ø	A	B	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	C <sub>1</sub>	C <sub>2</sub>	D	D <sub>1</sub>	F	F <sub>1</sub>	F <sub>2</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	K <sub>2</sub>	K <sub>3</sub>	L	M <sub>1</sub>	M <sub>2</sub>	N <sub>1</sub>	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	T	U	W	Z	Z <sub>1</sub>	kg
J4-250 SAE4	4"	340	-	160	180	421	361.95	381	32	M8	433.5	276	723.5	200	131	359	497	-	-	80	448.5	-	295	14	-	11	35	10	56	-	12	131
J4-250 SAE5	4"	340	-	160	180	421	314.30	333.5	32	M8	433.5	276	723.5	200	131	359	497	-	-	80	448.5	-	295	14	-	11	35	10	26	-	8	137
J6-250 SAE4	150	410	20	90	237.5	475	361.95	381	32	M12	546.5	271	837	225	145	445	619	240	276	80	514.5	-	350	18	19	11	35	10	56	6	12	210
J6-250 SAE5	150	410	20	90	237.5	475	314.30	333.5	32	M12	546.5	271	837	225	145	445	619	240	276	80	514.5	-	350	18	19	11	35	10	26	6	8	216
J6-400 SAE4"	150	510	-	280	307.5	730	361.95	381	55	M16	578.5	374	975	350	150	645	821	240	276	110	538.5	200	450	18	19	11	59	16	69	6	12	430
J10-305 SAE4"	250	530	-	255	298	758	361.95	381	55	M16	529.5	478.5	1171	350	231	687	946	350	400	110	438.5	250	450	18	22	11	59	16	69	8	12	560



(fig. 4)



(fig. 5)

### Pedestal bearing housing (fig. 4)

Model	Ø	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	D	D <sub>1</sub>	F	F <sub>1</sub>	F <sub>2</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	K <sub>2</sub>	K <sub>3</sub>	L	M	N	S	S <sub>2</sub>	T	U	W	Z	kg
J60-220	2"	227,5	174	227,5	28	M8	303	117	556	160	224	160	405	-	-	60	125	150	14	-	31	8	50	-	55
J70-250	3"	342	197,5	342	32	M12	369	153,5	677,5	200	149	320	485	-	-	80	150	150	14	-	35	10	55	-	91

### Close coupled to electric motor (fig. 5)

Model	Ø	B <sub>1</sub>	B <sub>2</sub>	B <sub>3</sub>	F	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	H <sub>1</sub>	H <sub>2</sub>	H <sub>3</sub>	M	N <sub>2</sub>	S	S <sub>2</sub>	Z	kg
J60-220	2"	228	200	228	485	117	720	375	155	225	155	425	330	210	12	-	-	105



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