



EBARA

PROCESS PUMP

CS1170EF

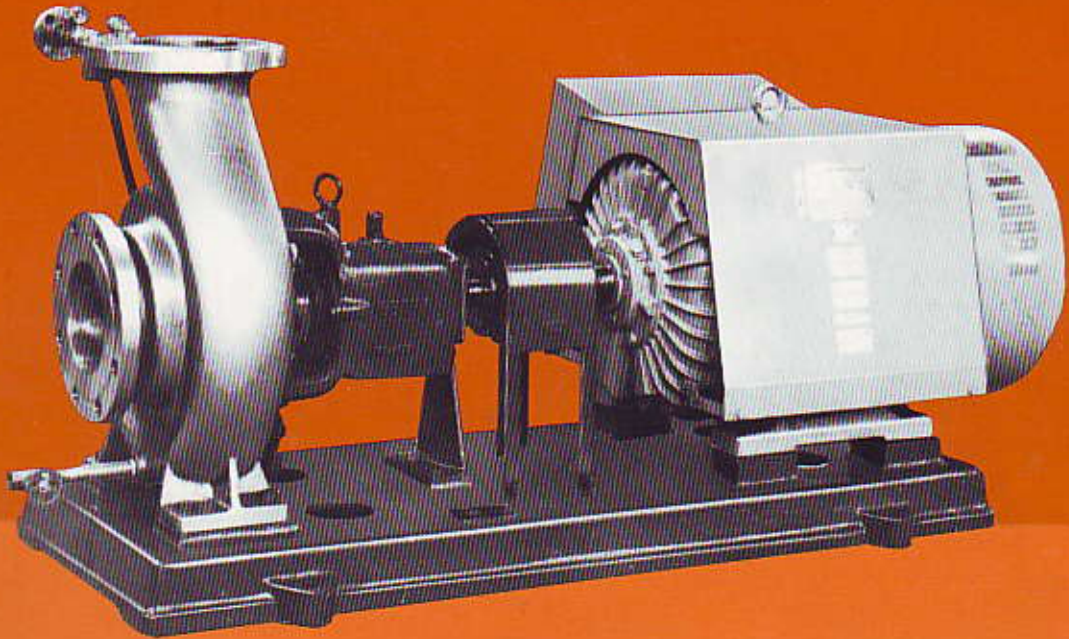
Single Stage, End Suction, Foot Support

Model

IFS

ISO 2858

Beo




PROCESS PUMP

Single Stage, End Suction, Foot Support

Model

IFS

ISO 2858 

EBARA PROCESS PUMP MODEL IFS of single stage, end suction, foot supported, horizontal type have been widely used in chemical industry, petroleum refineries, the petrochemical industry and other various industries for long

years. Many improvements have been recently made on this pump to enhance its performance. "The money saver" Our modern mass production facilities enable us to pass the cost-savings on to you. Unique

design of this high performance pump is provided with stainless steel, cast steel casing or cast iron for superior and extended low-cost operation.

Applications

- Chemical Industry
- Petroleum Refineries
- The Petrochemical Industry
- Other Various Industries

Ratings

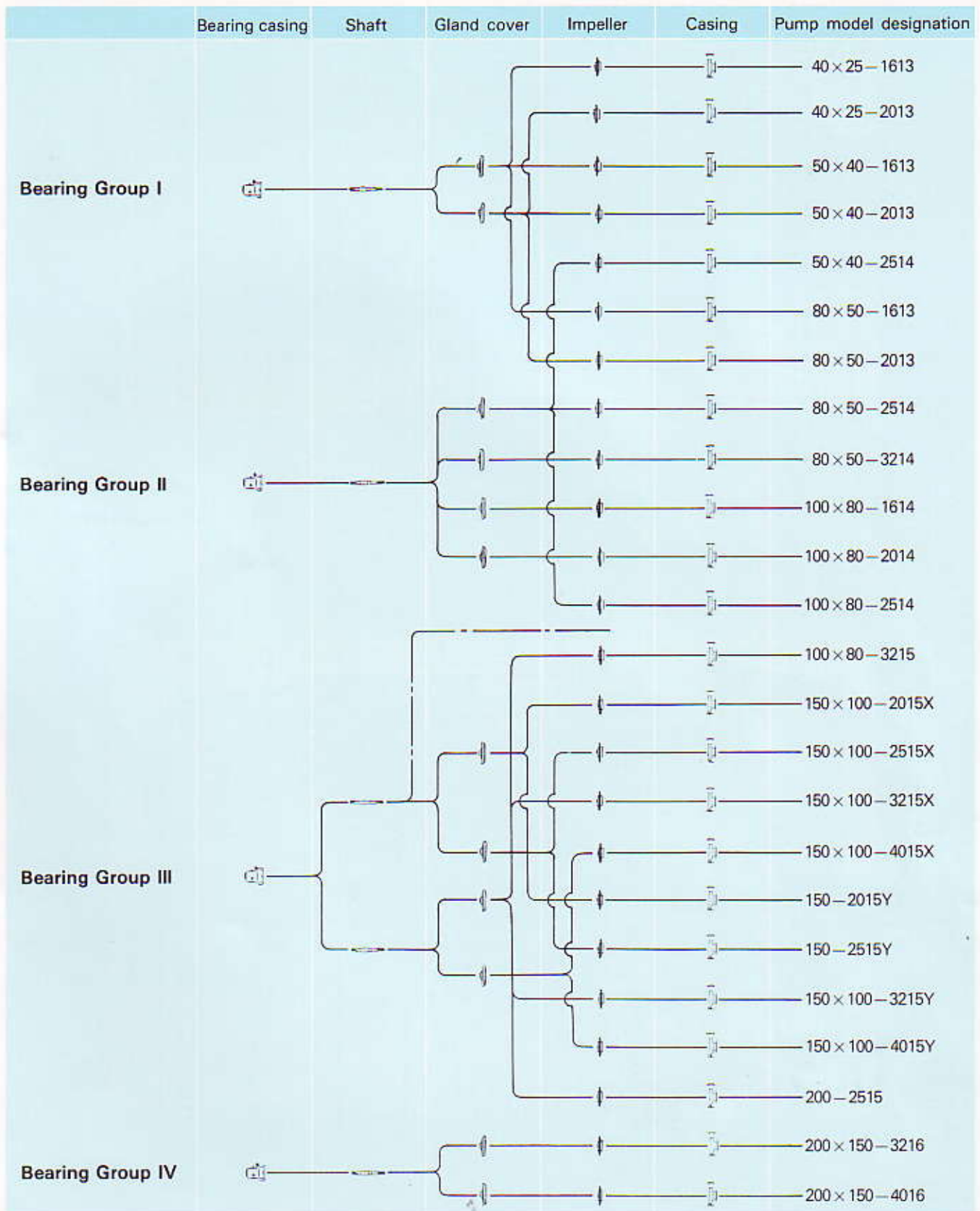
Capacities	To 12 m ³ /min (3200 USGPM)
Heads	To 135 m (450 ft)
Discharge pressures	To 16 kgf/cm ² (230 PSI) {1.57 MPa} Gauge Pressure
Max. allowable suction pressures	To 9 kgf/cm ² (130 PSI) {0.88 MPa} Gauge Pressure
Hydrostatic test pressures	To 24 kgf/cm ² (340 PSI) {2.3 MPa} Gauge Pressure
Speed	50 Hz: 1450 or 2950 min ⁻¹ 60 Hz: 1750 or 3550 min ⁻¹
Max. allowable revolution	To 3600 min ⁻¹
Rotation	Clockwise viewed from inboard side
Impeller type	Open
Temperatures	Stainless steel: -50°C to 260°C (-60°F to 500°F)
	Cast steel: -8°C to 260°C (-23°F to 500°F)
	Cast iron: -20°C to 150°C (-68°F to 300°F)
Flanges	Stainless steel: ANSI 150
	Cast Iron: ANSI 125
Nozzles	End-Top
Stuffing box	Suitable for conventional packing & mechanical seal

Features

- Foot support and heavy duty design.
- Back pull-out casing.
- Full compliance with ISO 2858 specifications.
- All components have been designed for maximum parts interchangeability.
- Flexibility of design handles wide range of liquids.
- All sizes stocked for fast shipment.
- Low NPSH performance.

Wide-Range for Best Choice!!

Availability in modules provides complete interchangeability of components between different types and permits pump selections best suited for the given specifications.



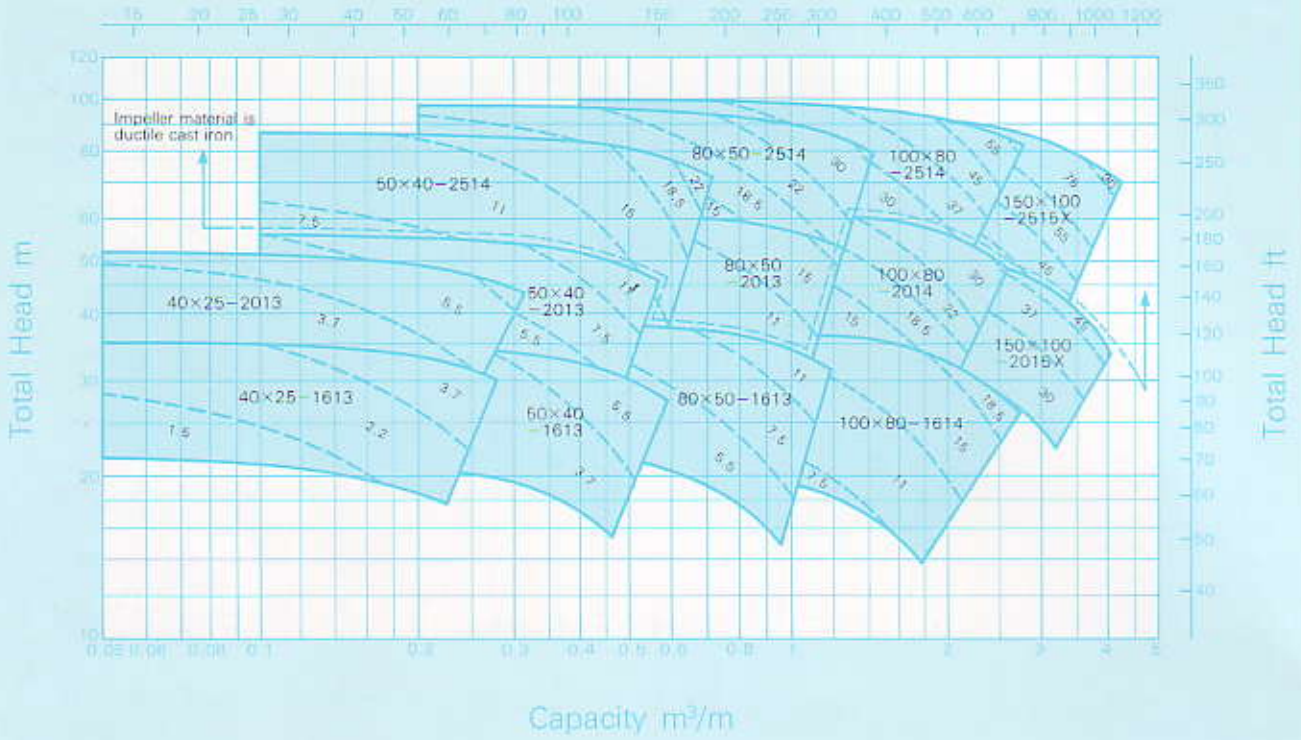
*For 100 × 80 – 3215, the shaft system and gland cover system interchangeable. The two-dot chain line is retained for the shaft system.

Selection Chart

Beo
Model-IFS

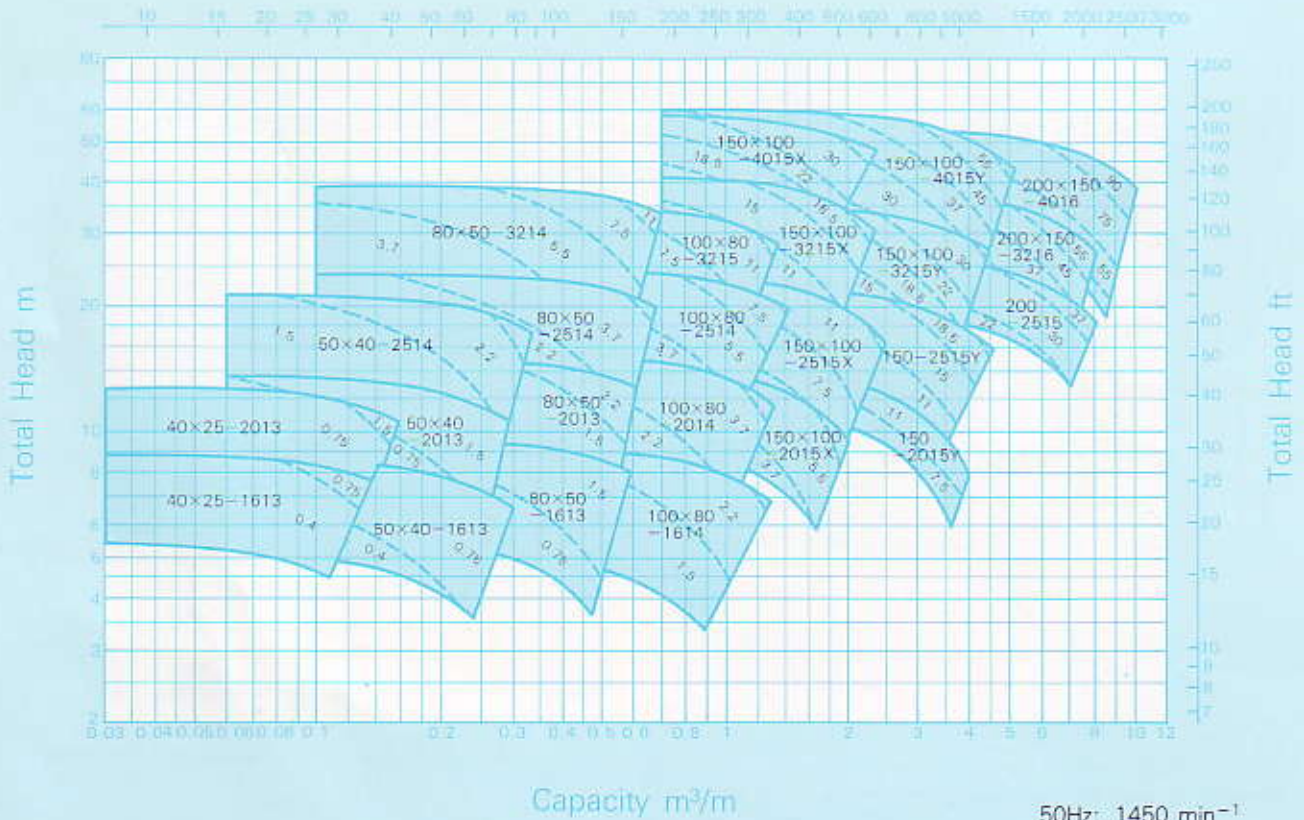
50Hz

Capacity USGPM



50Hz: 2950 min⁻¹

Capacity USGPM



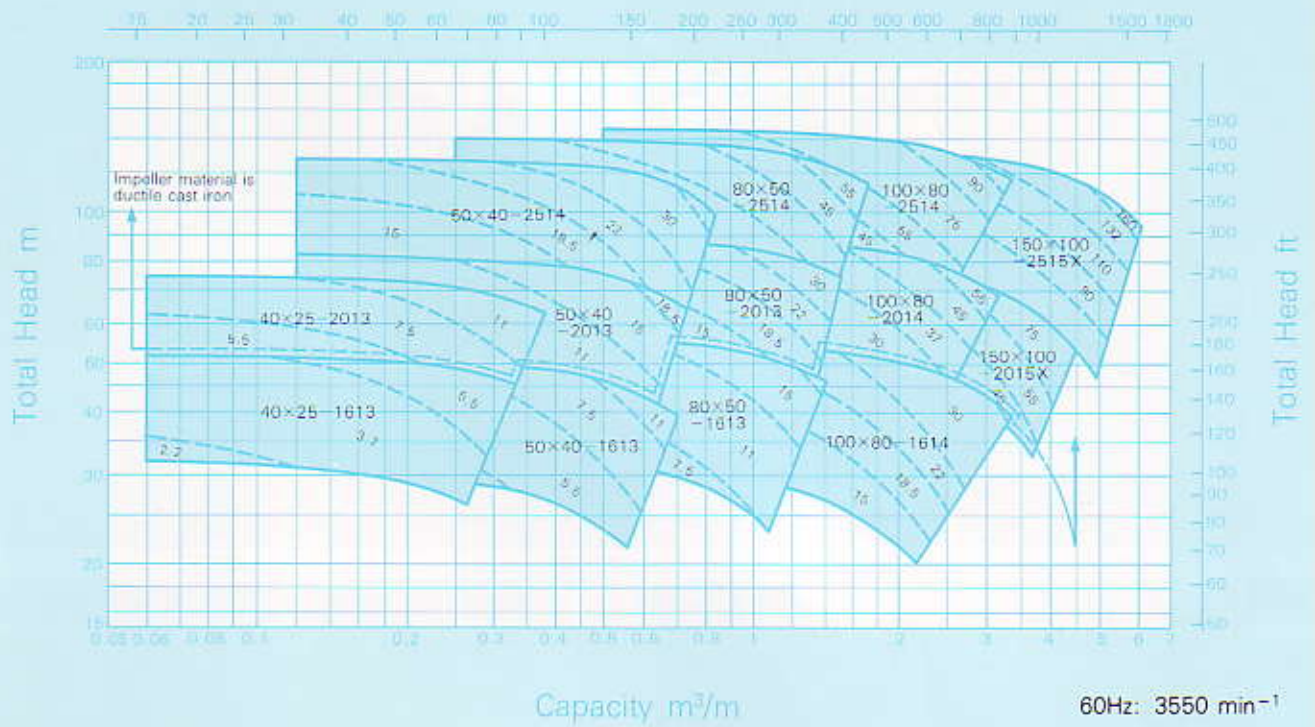
50Hz: 1450 min⁻¹

Selection Chart

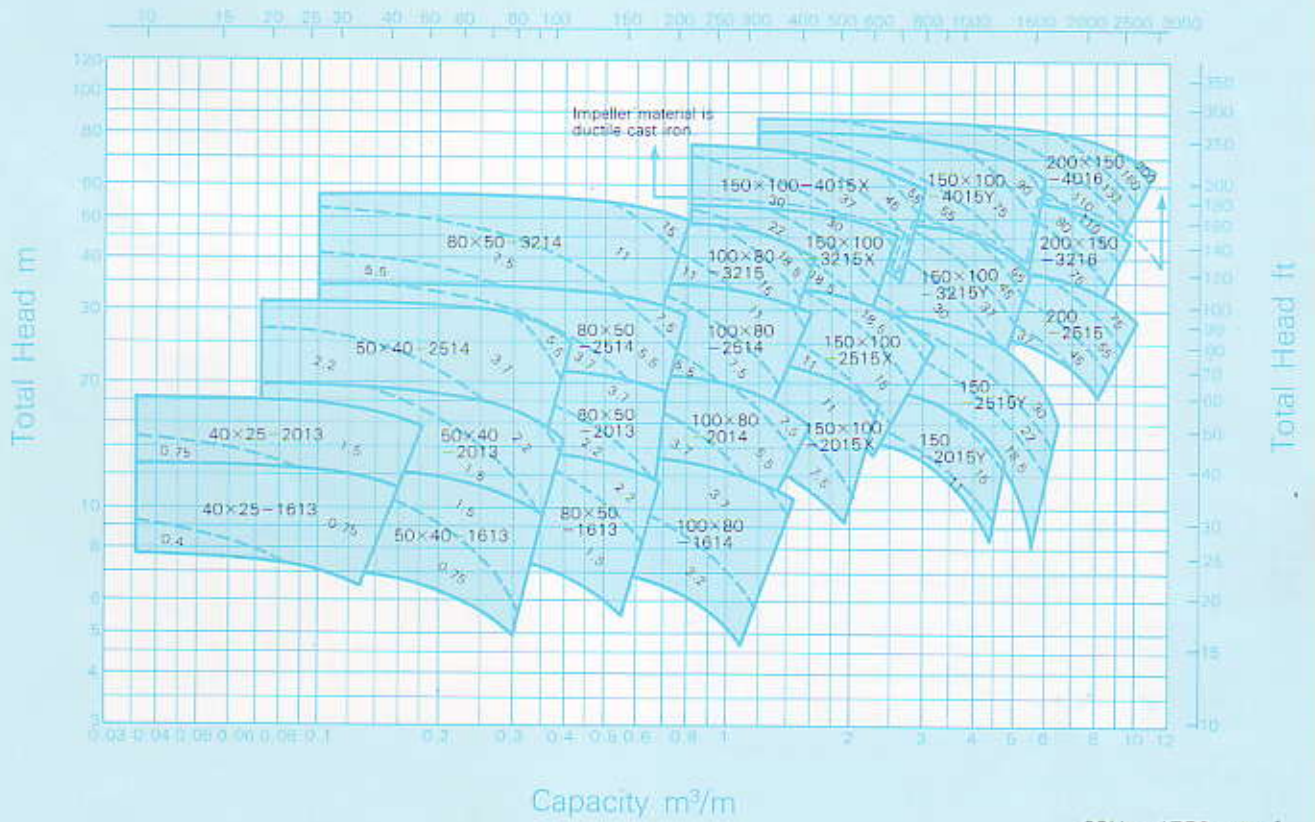
Beo
Model-IFS

60Hz

Capacity USGPM



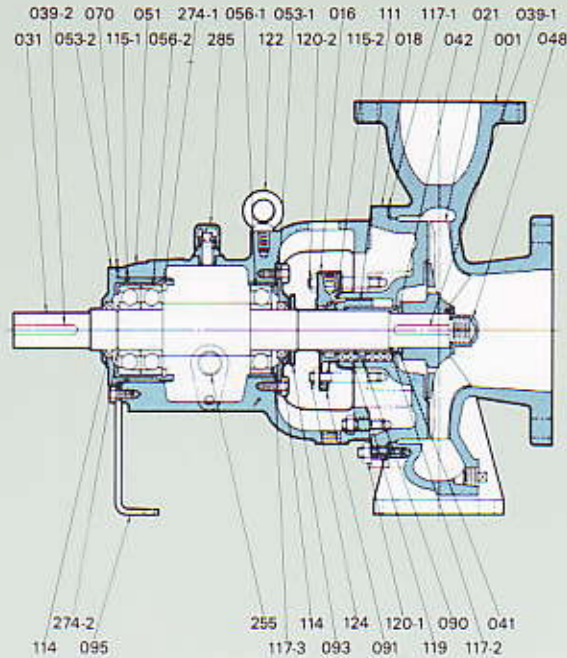
Capacity USGPM



Construction

Bee
Model-IFS

Sectional Drawing of Standard Type (Cast Iron)

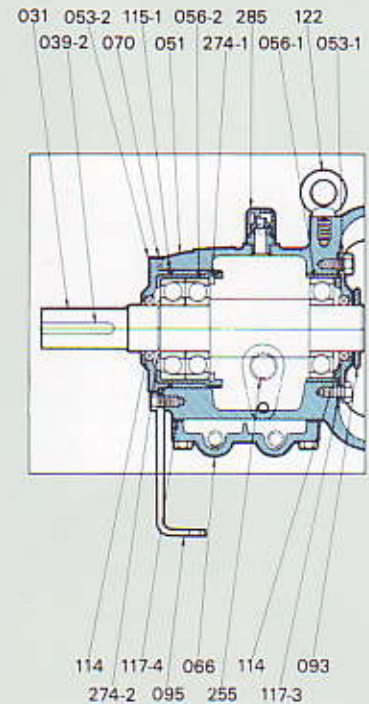


Part List

No.	Name of part	Material		Quantity
		Cast iron	Ductile cast iron	
001	Casing	FC250	FCD-S	1
016	Mechanical seal cover	SUS420J1	SUS420J1	1
018	Gland cover	FC250	FCD-S	1
021	Impeller	FC200	FC200	1
031	Shaft	S35C	S35C	1
039-1	Impeller key	S50C	S50C	1
039-2	Coupling key	S50C	S50C	1
041	Packing sleeve	SUS420J1	SUS420J1	1
042	Mechanical seal sleeve	SUS316	SUS316	1
048	Impeller nut	S30C	S30C	1
051	Bearing casing	FC200	FC200	1
053-1	Bearing cover	FC200	FC200	1
053-2	Bearing adjusting cover	FC200	FC200	1
056-1	Deep-groove ball bearing	-	-	1
056-2	Combined angular-contact ball bearing	-	-	1
070	Shim	C2801P	C2801P	4
090	Lantern ring	SUS304	SUS304	1
091	Packing gland	FC150	FC150	1
093	Flinger	SUS316	SUS316	1
095	Stay	SS400	SS400	1
111	Mechanical seal	-	-	1
114	Oil seal	SPHC/NBR	SPHC/NBR	2
115-1	Adjusting cover oil seal O-ring	NBR	NBR	1
115-2	Mechanical seal cover O-ring	Teflon	Teflon	1
117-1	Casing gasket	V#1501	V#1501	1
117-2	Shaft sleeve gasket	V#1501/V#1501AC	V#1501/V#1501AC	1
117-3	Bearing cover gasket	Oil sheet	Oil sheet	1
119	Gland packing	P#406	P#406	5
120-1	Casing set bolt	SS400/SUS403	SS400/SUS403	1SET
120-2	Mechanical seal cover bolt	SUS403	SUS403	4
122	Eye bolt	S20C	S20C	1
124	Packing set bolt	SUS403	SUS403	2
255	Oil level gauge	Synthetic rubber/Glass	Synthetic rubber/Glass	1
274-1	Wedge ring	SK5	SK5	1
274-2	Wedge ring	SK5	SK5	1
285	Air vent	Polycarbonate	Polycarbonate	1

Note: Combinations of parts in materials other than listed above are also available upon request.

Bearing Casing with Cooling Jacket

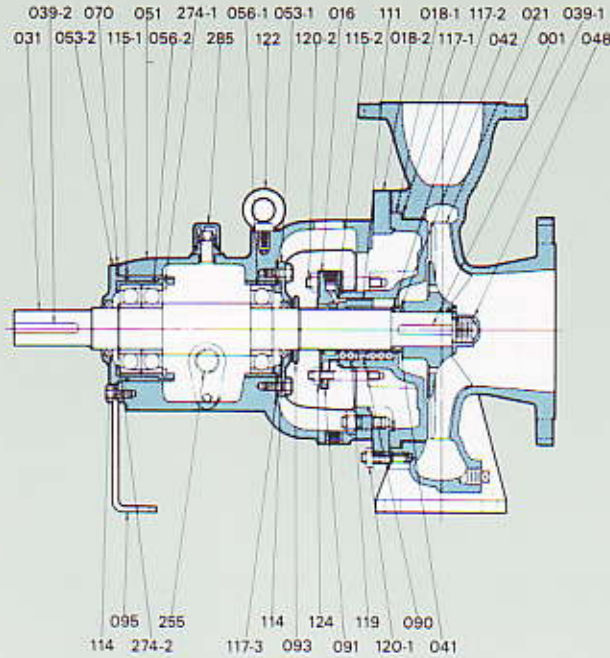


Note: Bearing Casing with Cooling Jacket is available for any cast iron, stainless steel and cast steel pump. Sectional Drawing of Standard Type (Stainless steel, Cast steel).

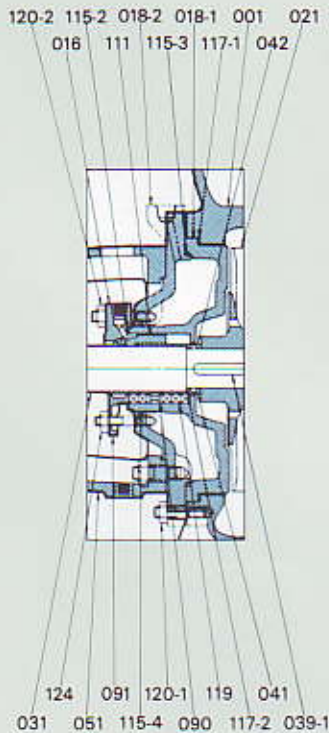
Construction

Beo
Model-IFS

Sectional Drawing
of Standard Type
(Stainless steel, Cast steel)



Stuffing Box with Cooling Jacket



Note: Stuffing Box with Cooling Jacket is available for stainless steel and cast steel pumps only.

Part List

No.	Name of part	Material			Quantity
		Stainless steel	Cast steel		
001	Casing	SCS13	SCS14	SC49	1
016	Mechanical seal cover	SUS304	SUS316	SUS420J1	1
018-1	Gland cover (I)	SCS13	SCS14	SC49	1
018-2	Gland cover (III)	FCD400	FCD400	FCD400	1
021	Impeller	SCS13	SCS14	FC200	1
031	Shaft	SUS304	SUS316	S35C	1
039-1	Impeller key	SUS316	SUS316	S50C	1
039-2	Coupling key	S50C	S50C	S50C	1
041	Packing sleeve	SUS304	SUS316	SUS420J1	1
042	Mechanical seal sleeve	SUS304	SUS316	SUS304	1
048	Impeller nut	SUS304	SUS316	S30C	1
051	Bearing casing	FC200	FC200	FC200	1
053-1	Bearing cover	FC200	FC200	FC200	1
053-2	Bearing adjusting cover	FC200	FC200	FC200	1
056-1	Deep-groove ball bearing	-	-	-	1
056-2	Combined angular contact ball bearing	-	-	-	1
066	Water-cooling cover	FC200	FC200	FC200	1
070	Shim	C2801P	C2801P	C2801P	4
090	Lantern ring	SUS304	SUS316	SUS304	1
091	Packing gland	SCS13	SCS14	FC150	1
093	Flinger	SUS304	SUS316	SUS304	1
096	Stay	SS400	SS400	SS400	1
111	Mechanical seal	-	-	-	1
114	Oil seal	SPHC/NBR	SPHC/NBR	SPHC/NBR	2
115-1	Adjusting cover oil seal O-ring	NBR	NBR	NBR	1
115-2	Mechanical seal cover O-ring	Teflon	Teflon	Teflon	1
115-3	Gland cover O-ring	NBR	NBR	NBR	1
115-4	Gland cover O-ring	NBR	NBR	NBR	1
117-1	Casing gasket	V#1501AC	V#1501AC	V#1501	1
117-2	Shaft sleeve gasket	V#1501AC	V#1501AC	V#1501AC	1
117-3	Bearing cover gasket	Oil sheet	Oil sheet	Oil sheet	1
117-4	Water-cooling cover gasket	NBR	NBR	NBR	1
119	Gland packing	P#406	P#406	P#406	5
120-1	Casing set bolt	SUS403	SUS403	SUS403	1SET
120-2	Mechanical seal cover bolt	SUS304	SUS316	SUS403	4
122	Eye bolt	S20C	S20C	S20C	1
124	Packing set bolt	SUS304	SUS316	SUS403	2
255	Oil level gauge	Systemic Rubber/Glass	Systemic Rubber/Glass	Systemic Rubber/Glass	1
274-1	Wedge ring	SK5	SK5	SK5	1
274-2	Wedge ring	SK5	SK5	SK5	1
285	Air vent	Polycarbonate	Polycarbonate	Polycarbonate	1

Note: Combinations of parts in materials other than listed above are also available upon request.

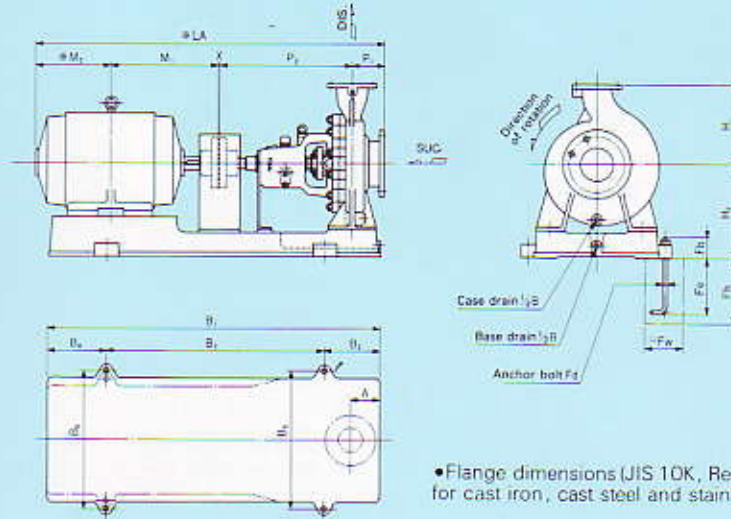
Shaft Sealing System



	A	B	C
1	1A Balanced seal (Standard type) 	1B Balanced seal (Quench type) 	1C Double seal (Open air-side balanced type)
2	2A Unbalanced seal (Standard type) 	2B Unbalanced seal (Quench type) 	2C Double seal (Open air-side unbalanced type)
3	3A Metal bellows seal 	3B Monocoil seal 	3C Outside seal
4	4A Gland packing (Standard type) 	4B Gland packing (Quench type) 	<p>1: Dimensions of the shaft sealing packing box are subject to ISO-3069. Mechanical seal used is standardized to DIN 24690 in type and dimensions.</p> <p>2: Other shaft sealing systems are available to meet different service requirements.</p>

Dimensions

Bee
Model-IFS

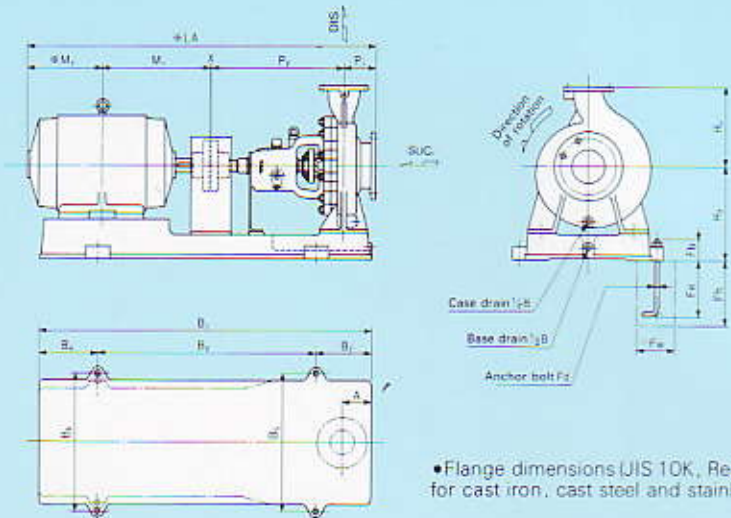


Unit: mm

Pump Model	Motor		Pump				Common base						Motor		#	Anchor bolt							Vw (Max)	Coupling	
	Frame	kW	P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	M ₁		M ₂	LA	X	Fd	Fb	Fc	Fh		Fw	CLA
40 x 25 IFSM 1613	71	0.4	80	385	160	207	60	725	115	480	130	290	250	120	121	709	3	M12	55	195	250	110	67	112	4-10
	80	0.75	80	385	160	207	60	725	115	480	130	290	250	140	133	741	3	M12	55	195	250	110	66	112	4-10
	90L	1.5	80	385	160	217	60	725	115	480	130	290	250	168.5	158.5	795	3	M12	55	195	250	110	66	112	4-10
	112M	3.7	80	385	160	207	60	765	130	540	95	320	320	200	183	851	3	M12	55	195	250	110	72	112MB	4-10
132S	5.5	80	385	160	235	60	805	130	540	135	350	350	239	210	917	3	M12	55	195	250	110	75	140MB	6-14	
40 x 25 IFSM 2013	71	0.4	100	385	180	235	60	725	115	480	130	320	250	120	121	729	3	M12	55	195	250	110	78	112	4-10
	80	0.75	100	385	180	235	60	725	115	480	130	320	250	140	133	761	3	M12	55	195	250	110	78	112	4-10
	90L	1.5	100	385	180	245	60	725	115	480	130	320	250	168.5	158.5	815	3	M12	55	195	250	110	79	112	4-10
	112M	3.7	100	385	180	235	60	765	130	540	95	320	320	200	183	871	3	M12	55	195	250	110	82	112MB	4-10
	132S	5.5	100	385	180	235	60	805	130	540	135	350	350	239	210	937	3	M12	55	195	250	110	82	140MB	6-14
	160M	11	100	385	180	250	60	970	170	660	140	400	400	323	280	1091	3	M12	55	195	250	110	99	140MB	6-14
50 x 40 IFSM 1613	71	0.4	80	385	160	207	60	725	115	480	130	290	250	120	121	709	3	M12	55	195	250	110	70	112	4-10
	80	0.75	80	385	160	207	60	725	115	480	130	290	250	140	133	741	3	M12	55	195	250	110	69	112	4-10
	90L	1.5	80	385	160	217	60	725	115	480	130	290	250	168.5	158.5	795	3	M12	55	195	250	110	69	112	4-10
	112M	3.7	80	385	160	207	60	765	130	540	95	320	320	200	183	851	3	M12	55	195	250	110	74	112MB	4-10
	132S	5.5	80	385	160	235	60	805	130	540	135	350	350	239	210	917	3	M12	55	195	250	110	76	140MB	6-14
	160M	11	80	385	160	250	60	970	170	660	140	400	400	323	280	1071	3	M12	55	195	250	110	95	140MB	6-14
50 x 40 IFSM 2013	80	0.75	100	385	180	235	60	725	115	480	130	320	250	140	133	761	3	M12	55	195	250	110	82	112	4-10
	90L	1.5	100	385	180	245	60	725	115	480	130	320	250	168.5	158.5	815	3	M12	55	195	250	110	83	112	4-10
	100L	2.2	100	385	180	235	60	765	130	540	95	320	320	193	173	854	3	M12	55	195	250	110	85	112MB	4-10
	112M	3.7	100	385	180	235	60	765	130	540	95	320	320	200	183	871	3	M12	55	195	250	110	85	125	4-14
	132S	5.5	100	385	180	235	60	805	130	540	135	350	350	239	210	937	3	M12	55	195	250	110	86	140MB	6-14
	160M	11	100	385	180	250	60	970	170	660	140	400	400	323	280	1091	3	M12	55	195	250	110	103	140MB	6-14
	180L	18.5	100	385	180	250	60	970	170	660	140	400	400	345	302	1135	3	M12	55	195	250	110	108	160	8-14
	200L	37	100	385	180	250	60	970	170	660	140	400	400	345	302	1135	3	M12	55	195	250	110	108	160	8-14
50 x 40 IFSM 2514	90L	1.5	100	500	225	270	75	900	150	600	150	400	320	168.5	158.5	930	3	M12	55	195	250	110	115	140	6-14
	100L	2.2	100	500	225	270	75	900	150	600	150	400	320	193	173	969	3	M12	55	195	250	110	114	140	6-14
	112M	3.7	100	500	225	282	75	900	150	600	150	400	320	200	183	986	3	M12	55	195	250	110	115	140	6-14
	132S	5.5/7.5	100	500	225	270	75	995	170	660	165	400	400	239	210	1062	3	M12	55	195	250	110	123	140MB	6-14
	160M	11	100	500	225	270	75	1120	190	740	190	440	440	323	280	1206	3	M12	55	195	250	110	136	140MB	6-14
	160L	18.5	100	500	225	270	75	1120	190	740	190	440	440	345	302	1250	3	M12	55	195	250	110	136	160	8-14
	180M	22	100	500	225	270	75	1120	190	740	190	440	440	351.5	325	1279.5	3	M12	55	195	250	110	133	160MB	8-14
	200L	37	100	500	225	270	75	1260	205	840	215	490	490	370.5	344	1317.5	3	M12	55	195	250	110	153	180MB	8-14
80 x 50 IFSM 1613	80	0.75	100	385	180	235	60	725	115	480	130	320	250	140	133	761	3	M12	55	195	250	110	77	112	4-10
	90L	1.5	100	385	180	245	60	725	115	480	130	320	250	168.5	158.5	815	3	M12	55	195	250	110	78	112	4-10
	100L	2.2	100	385	180	235	60	765	130	540	95	320	320	193	173	854	3	M12	55	195	250	110	80	112MB	4-10
	132S	7.5	100	385	180	235	60	805	130	540	135	350	350	239	210	937	3	M12	55	195	250	110	81	140MB	6-14
	160M	11	100	385	180	250	60	970	170	660	140	400	400	323	280	1091	3	M12	55	195	250	110	98	140MB	6-14
	160L	18.5	100	385	180	250	60	970	170	660	140	400	400	345	302	1135	3	M12	55	195	250	110	103	160	8-14

- Note: 1. Motor output classification numbers shown are those for ordinary E class totally-enclosed, fan-cooled low-voltage 3-phase squirrel-cage induction motors under JEM-1180-1967.
 2. Asterisked M2 and LA dimensions vary to a certain extent, depending on motor manufacturers.
 3. Dimensions are subject to change without notice.

Dimensions



Unit: mm

Pump Model	Motor		Pump				Common base						Motor		* LA	X	Anchor bolt						Wt. (kg)	Coupling	
	Frame	kw	P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	M ₁			*M ₂	Fd	Fb	Fe	Fh	Fw		CLA	CLAB
80 × 50 IFSM 2013	90L	1.5	100	385	200	245	60	725	115	480	130	320	250	168.5	158.5	815	3	M12	55	195	250	110	88	112	4-10
	100L	2.2	100	385	200	235	60	765	130	540	95	320	320	193	173	854	3	M12	55	195	250	110	90	112MB	4-10
	112M	3.7	100	385	200	235	60	765	130	540	95	320	320	200	183	871	3	M12	55	195	250	110	90	125	4-14
	150M	15	100	385	200	250	60	970	170	660	140	400	400	323	280	1091	3	M12	55	195	250	110	108	140MB	6-14
	160L	18.5	100	385	200	250	60	970	170	660	140	400	400	345	302	1135	3	M12	55	195	250	110	113	160	8-14
	180M	22	100	385	200	270	60	1015	170	660	185	320	440	351.5	325	1164.5	3	M12	55	195	250	110	111	160MB	8-14
180L	30	100	385	200	270	60	1015	170	660	185	320	440	370.5	344	1202.5	3	M12	55	195	250	110	111	180MB	8-14	
80 × 50 IFSM 2514	100L	2.2	125	500	225	270	75	900	150	600	150	400	320	193	173	994	3	M12	55	195	250	110	122	140	6-14
	112M	3.7	125	500	225	282	75	900	150	600	150	400	320	200	183	1011	3	M12	55	195	250	110	122	140	6-14
	132S	5.5	125	500	225	270	75	995	170	660	165	400	400	239	210	1077	3	M12	55	195	250	110	131	140MB	6-14
	132M	7.5	125	500	225	270	75	995	170	660	165	400	400	258	229	1115	3	M12	55	195	250	110	132	160	8-14
	160M	15	125	500	225	270	75	1120	190	740	190	440	440	323	280	1231	3	M12	55	195	250	110	146	140MB	6-14
	160L	18.5	125	500	225	270	75	1120	190	740	190	440	440	345	302	1275	3	M12	55	195	250	110	144	160	8-14
	180M	22	125	500	225	270	75	1120	190	740	190	440	440	351.5	325	1304.5	3	M12	55	195	250	110	141	160MB	8-14
	180L	30	125	500	225	270	75	1260	205	840	215	490	490	370.5	344	1342.5	3	M12	55	195	250	110	161	180MB	8-14
	200L	37	125	500	225	290	75	1245	205	840	200	400	490	395.5	377	1400.5	3	M12	55	195	250	110	158	180MB	8-14
	225S	55	125	500	225	335	75	1220	205	840	175	400	550	402	388	1419	4	M16	70	245	315	130	177	200	8-20
80 × 50 IFSM 3214	112M	3.7	125	500	280	327	75	905	150	600	155	400	320	200	183	1011	3	M12	55	195	250	110	161	140	6-14
	132S	5.5	125	500	280	315	75	990	170	660	160	440	350	239	210	1077	3	M12	55	195	250	110	162	140MB	6-14
	132M	7.5	125	500	280	315	75	990	170	660	160	440	350	258	229	1115	3	M12	55	195	250	110	162	160	8-14
	160M	15	125	500	280	315	75	1120	190	740	190	440	440	323	280	1231	3	M12	55	195	250	110	175	160	8-14
	160L	18.5	125	500	280	315	75	1120	190	740	190	440	440	345	302	1275	3	M12	55	195	250	110	175	160	8-14
	180L	30	125	500	280	315	75	1260	205	840	215	490	490	370.5	344	1342.5	3	M12	55	195	250	110	175	160	8-14
100 × 80 IFSM 1614	90L	1.5	100	500	200	235	75	880	150	600	130	350	290	168.5	158.5	930	3	M12	55	195	250	110	100	140	6-14
	100L	2.2	100	500	200	235	75	880	150	600	130	350	290	193	173	969	3	M12	55	195	250	110	99	140	6-14
	112M	3.7	100	500	200	235	75	900	150	600	150	350	350	200	183	986	3	M12	55	195	250	110	103	140	6-14
	132S	5.5/7.5	100	500	200	250	75	970	170	660	140	400	400	239	210	1052	3	M12	55	195	250	110	116	140MB	6-14
	160M	15	100	500	200	250	75	1120	190	740	190	440	440	323	280	1206	3	M12	55	195	250	110	121	140MB	6-14
	160L	18.5	100	500	200	250	75	1120	190	740	190	440	440	345	302	1250	3	M12	55	195	250	110	121	160	8-14
	180M	22	100	500	200	270	75	1120	190	740	190	440	440	351.5	325	1279.5	3	M12	55	195	250	110	125	160MB	8-14
	180L	30	100	500	200	270	75	1245	205	840	200	400	490	370.5	344	1317.5	3	M12	55	195	250	110	143	180MB	8-14
	200L	37	100	500	200	290	75	1245	205	840	200	400	490	395.5	377	1375.5	3	M12	55	195	250	110	143	180MB	8-14
100 × 80 IFSM 2014	100L	2.2	100	500	225	270	75	900	150	600	150	400	320	193	173	969	3	M12	55	195	250	110	122	140	6-14
	112M	3.7	100	500	225	282	75	900	150	600	150	400	320	200	183	986	3	M12	55	195	250	110	123	140	6-14
	132S	5.5	100	500	225	270	75	995	170	660	165	400	400	239	210	1052	3	M12	55	195	250	110	131	140MB	6-14
	132M	7.5	100	500	225	270	75	995	170	660	165	400	400	258	229	1090	3	M12	55	195	250	110	131	160	8-14
	160M	15	100	500	225	270	75	1120	190	740	190	440	440	323	280	1206	3	M12	55	195	250	110	146	140MB	6-14
	160L	18.5	100	500	225	270	75	1120	190	740	190	440	440	345	302	1250	3	M12	55	195	250	110	146	160	8-14
	180M	22	100	500	225	270	75	1120	190	740	190	440	440	351.5	325	1279.5	3	M12	55	195	250	110	141	160MB	8-14
	180L	30	100	500	225	270	75	1260	205	840	215	490	490	370.5	344	1317.5	3	M12	55	195	250	110	161	180MB	8-14
	200L	37	100	500	225	290	75	1245	205	840	200	400	490	395.5	377	1375.5	3	M12	55	195	250	110	158	180MB	8-14
	225S	55	100	500	225	335	75	1220	205	840	175	400	550	402	388	1394	4	M16	70	245	315	130	177	200	8-20
100 × 80 IFSM 2514	112M	3.7	125	500	250	302	90	915	150	600	165	440	320	200	183	1011	3	M12	55	195	250	110	146	140	6-14
	132S	5.5	125	500	250	315	90	990	170	660	160	440	350	239	210	1077	3	M12	55	195	250	110	151	140MB	6-14
	132M	7.5	125	500	250	315	90	990	170	660	160	440	350	258	229	1115	3	M12	55	195	250	110	151	160	8-14
	160M	15	125	500	250	315	90	1120	190	740	190	440	440	323	280	1231	3	M12	55	195	250	110	163	160	8-14
	160L	18.5	125	500	250	315	90	1120	190	740	190	440	440	345	302	1275	3	M12	55	195	250	110	163	160	8-14
	180L	30	125	500	250	290	90	1260	205	840	215	490	490	370.5	344	1342.5	3	M12	55	195	250	110	184	180MB	8-14
	200L	37	125	500	250	290	90	1260	205	840	215	490	490	395.5	377	1400.5	3	M12	55	195	250	110	174	180MB	8-14
	225S	55	125	500	250	335	90	1265	205	840	220	550</													

Dimensions

Pump Model	Motor		Pump				Common base								Motor		Anchor bolt								Wt (kg)	Coupling	
	Frame	*kW	P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	B ₅	B ₆	M ₁	*M ₂	LA	X	Fd	Fb	Fe	Fh	Fw	CLA	CLAB			
100 × 80 IFSM 3215	132M	7.5	125	530	280	315	90	1020	170	660	190	490	350	258	229	1145	3	M12	55	195	250	110	197	160	8-14		
	160M	11	125	530	280	343	90	1115	190	740	185	490	400	323	280	1261	3	M12	55	195	250	110	208	160	8-14		
	160L	15	125	530	280	315	90	1265	205	840	210	490	400	345	302	1305	3	M12	55	195	250	110	214	160	8-14		
	180M	17.5	125	530	280	315	90	1265	205	840	220	490	490	351.5	325	1334.5	3	M12	55	195	250	110	226	180	8-14		
150 × 100 IFSM 2015X	112M	3.7	140	530	280	315	90	1020	170	660	190	490	350	200	183	1056	3	M12	55	195	250	110	185	160	8-14		
	132S	5.5	140	530	280	315	90	1020	170	660	190	490	350	239	210	1122	3	M12	55	195	250	110	183	160	8-14		
150 × 100 IFSM 2515X	132M	7.5	140	530	280	315	90	1020	170	660	190	490	350	258	229	1150	3	M12	55	195	250	110	183	160	8-14		
	160M	11	140	530	280	343	90	1115	190	740	185	490	400	323	280	1276	3	M12	55	195	250	110	193	160	8-14		
	160L	15	140	530	280	315	90	1255	205	840	210	490	400	345	302	1320	3	M12	55	195	250	110	199	160	8-14		
	180M	17.5	140	530	280	315	90	1265	205	840	220	490	490	351.5	325	1349.5	3	M12	55	195	250	110	211	180	8-14		
	180L	30	140	530	280	315	90	1265	205	840	220	490	490	370.5	344	1387.5	3	M12	55	195	250	110	211	180MB	8-14		
	200L	37	140	530	280	315	90	1265	205	840	220	490	490	395.5	377	1445.5	3	M12	55	195	250	110	211	180MB	8-14		
	225S	55	140	530	280	335	90	1265	205	840	220	550	550	402	388	1464	4	M16	70	245	315	130	222	200	8-20		
	250S	75	140	530	280	360	90	1375	230	940	205	490	600	433.5	521	1628.5	4	M16	70	245	315	130	245	200	8-20		
	250M	90	140	530	280	360	90	1375	230	940	205	490	600	452.5	540	1666.5	4	M16	70	245	315	130	245	224	8-20		
	280S	110	140	530	280	390	90	1420	230	940	250	490	670	484	599.5	1757.5	4	M16	70	245	315	130	257	224	8-20		
	280M	132	140	530	280	390	90	1560	270	1060	280	490	670	509.5	625	1808.5	4	M16	70	245	315	130	273	250	8-25		
	315S	160	140	530	280	425	90	1590	270	1060	260	490	750	529	734.5	1937.5	4	M20	85	315	400	150	318	250	8-25		
150 × 100 IFSM 3215X	160M	11	140	530	315	368	90	1120	190	740	190	490	400	323	280	1276	3	M12	55	195	250	110	230	160	8-14		
	160L	15	140	530	315	340	90	1240	205	840	195	490	490	345	302	1320	3	M12	55	195	250	110	240	160	8-14		
	180M	17.5	140	530	315	360	90	1240	205	840	195	490	490	351.5	325	1349.5	3	M12	55	195	250	110	243	180	8-14		
	180L	30	140	530	315	360	90	1240	205	840	195	490	490	370.5	344	1388.5	4	M12	55	195	250	110	251	200	8-20		
	200L	37	140	530	315	340	90	1265	205	840	220	490	490	395.5	377	1476.5	4	M12	55	195	250	110	260	224	8-20		
150 × 100 IFSM 4015X	160L	15	140	530	355	390	110	1265	205	840	220	600	400	345	302	1320	3	M16	70	245	315	130	282	160	8-14		
	180M	17.5	140	530	355	390	110	1265	205	840	220	600	490	351.5	325	1349.5	3	M16	70	245	315	130	288	180	8-14		
	180L	30	140	530	355	390	110	1265	205	840	220	600	490	370.5	344	1388.5	4	M16	70	245	315	130	293	200	8-20		
	200L	37	140	530	355	410	110	1265	205	840	220	600	490	425.5	377	1476.5	4	M16	70	245	315	130	303	224	8-20		
	225S	55	140	530	355	390	110	1425	230	940	255	600	600	432	388	1494	4	M16	70	245	315	130	335	224MB	8-20		
150 IFSM 2015Y	132M	7.5	140	530	355	340	90	1025	170	660	195	490	350	258	229	1160	3	M12	55	195	250	110	199	160	8-14		
	160M	11	140	530	355	368	90	1120	190	740	190	490	400	323	280	1276	3	M12	55	195	250	110	210	160	8-14		
	160L	15	140	530	355	340	90	1240	205	840	195	490	490	345	302	1320	3	M12	55	195	250	110	220	160	8-14		
	180M	17.5	140	530	355	360	90	1240	205	840	195	490	490	351.5	325	1349.5	3	M12	55	195	250	110	223	180	8-14		
150 IFSM 2515Y	180L	30	140	530	355	360	90	1240	205	840	195	490	490	370.5	344	1388.5	4	M12	55	195	250	110	231	200	8-20		
	150 × 100 IFSM 3215Y	160L	15	140	530	355	390	110	1265	205	840	220	600	400	345	302	1320	3	M16	70	245	315	130	277	160	8-14	
	180M	17.5	140	530	355	390	110	1265	205	840	220	600	490	351.5	325	1349.5	3	M16	70	245	315	130	286	180	8-14		
	180L	30	140	530	355	390	110	1265	205	840	220	600	490	370.5	344	1388.5	4	M16	70	245	315	130	291	200	8-20		
150 × 100 IFSM 4015Y	200L	37	140	530	355	410	110	1265	205	840	220	600	490	425.5	377	1476.5	4	M16	70	245	315	130	298	224	8-20		
	225S	55	140	530	355	390	110	1425	230	940	255	600	600	432	388	1494	4	M16	70	245	315	130	320	224MB	8-20		
	150 × 100 IFSM 4015Y	180M	17.5	140	530	400	110	1275	205	840	230	600	490	351.5	325	1349.5	3	M16	70	245	315	130	320	180	8-14		
	180L	30	140	530	400	425	110	1275	205	840	230	600	490	370.5	344	1388.5	4	M16	70	245	315	130	325	200	8-20		
200 IFSM 2515	200L	37	160	565	450	425	85	1275	205	840	230	600	490	425.5	377	1531.5	4	M16	70	245	315	130	360	224	8-20		
	225S	55	160	565	450	425	85	1440	230	940	270	600	600	432	388	1549	4	M16	70	245	315	130	391	224MB	8-20		
	250S	75	160	565	450	425	85	1440	230	940	270	600	600	463.5	501	1693.5	4	M16	70	245	315	130	399	250MB	8-25		
	200 × 150 IFSM 3216	180L	30	160	670	450	110	1405	230	940	235	670	490	370.5	344	1548.5	4	M16	70	245	315	130	460	200	8-20		
	200L	37	160	670	450	425	110	1405	230	940	235	670	490	425.5	377	1636.5	4	M16	70	245	315	130	468	224	8-20		
	200 × 150 IFSM 4016	225S	55	160	670	450	110	1635	270	1060	305	670	670	432	388	1654	4	M16	70	245	315	130	520	224MB	8-20		
	250S	75	160	670	450	425	110	1640	270	1060	310	670	670	463.5	501	1798.5	4	M16	70	245	315	130	517	250MB	8-25		
200 × 150 IFSM 4016	250M	90	160	670	450	425	110	1640	270	1060	310	670	670	482.5	520	1836.5	4	M16	70	245	315	130	517	250MB	8-25		
	280S	110	160	670	450	425	110	1640	270	1060	310	670	670	544	579	1957	4	M16	70	245	315	130	512	280MB	8-28		
	280M	132	160	670	450	425	110	1640	270	1060	310	670	670	569.5	604.5	2008	4	M16	70	245	315	130	512				



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