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KOSHA18001



 **HYOSUNG GOODSPRINGS INC.**

CFPS

C-series foot support process pump
- semi open impeller

ISO2858 ISO5199



HYOSUNG GOODSPRINGS
**PUMPS
& WATER**

www.hsgoodsprings.com

Springs of Living Water

 **HYOSUNG GOODSPRINGS INC.**

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This brochure does not contain all informations and any warranty or guarantee of any kind.
Also, all informations herein is subject to change without notice.



CFPS



효성굿스프링스 Process Pump Model CFPS는 단단, 편흡입, Foot Support, 수평구조로 설계되어 있으며, 화학공업, 석유화학공업, 석유정제 및 여러 산업 분야에 널리 사용되고 있습니다.

효성굿스프링스의 고효율 Process Pump CFPS는 화학공업, 석유화학공업, 산업용의 분야에 있어 최적의 System구성은 물론, Low-Cost Operation을 약속드립니다.

HYOSUNG GOODSPRINGS Process Pump Model CFPS 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 improvement have been recently made on this pump to enhance its performance. Our modern mass production facilities enable to us to pass the cost-savings on to you.

Designation

CFPS

25

160

모델
Model

토출구경
Nominal
Discharge Dia (mm)

회전차직경
Impeller
Diameter (mm)

Applications

- 화학 공업용 (Chemical Industry)
- 석유정제 공업용 (Petroleum Refineries)
- 석유화학 공업용 (Petrochemical Industry)
- 기타 산업용 (Other Various Industries)

Rating

Capacity	To 12 m ³ /min (3200 USGPM)
Heads	To 135 m (450 ft)
Discharge Pressure	To 16 kgf/cm ² G (230 PSIG) {1.57MPa} Gauge Pressure
Max. allowable Suction Pressure	To 9 kgf/cm ² G (130 PSIG) {0.88MPa} Gauge Pressure
Hydrostatic Test Pressures	To 24 kgf/cm ² G (340 PSIG) {2.3MPa} Gauge Pressure
Speeds	50 Hz 1450 or 2950 min ⁻¹ 60 Hz 1750 or 3550 min ⁻¹
Max.allowable Revolutions	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) Stainless : -8 °C to 260 °C(-60 °F to 500 °F) Stainless : -20 °C to 150 °C(-68 °F to 300 °F)
Flanges	Stainless Steel : ANSI 150lb
Nozzles	End-Top
Stuffing Box	Suitable for conventional packing and mechanical seal

Features

- Foot support and heavy duty design
- Back pull-out casing
- Full compliance with ISO 2858, ISO 5199 specifications
- All components have been designed for maximun parts interchangeability
- Flexibility of design handles wide range of liquids
- Low NPSH performance

Interchangeability

Pump Model 간 부품의 완벽한 호환성을 제공하며, 요구사양에 가장 적합한 펌프를 선정할 수 있습니다.

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

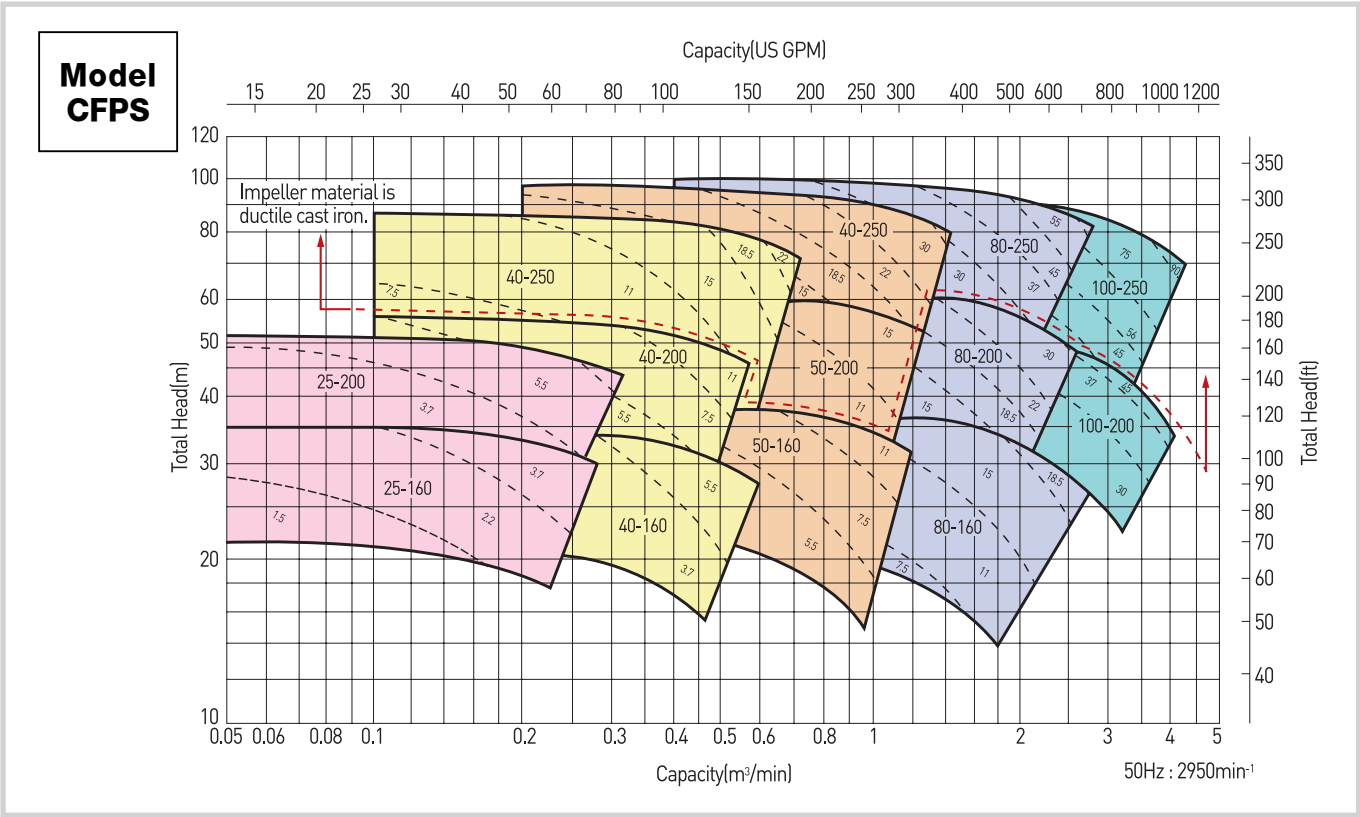
	Bearing Casing	Shaft	Gland Cover	Impeller	Casing	Pump Model Designation
Bearing Group I						25-160
						25-200
						40-160
						40-200
						40-250
						50-160
Bearing Group II						50-200
						50-250
						50-320
						80-160
						80-200
						80-250
Bearing Group III						80-320
						100-200
						100-250
						100-320X
						100-400X
						150-200
Bearing Group IV						150-250
						100-320Y
						100-400Y
						200-250
						150-320
						150-400

For 80-320, the shaft system and gland cover system interchangeable.
The two-dot chain line is retained for the shaft system.

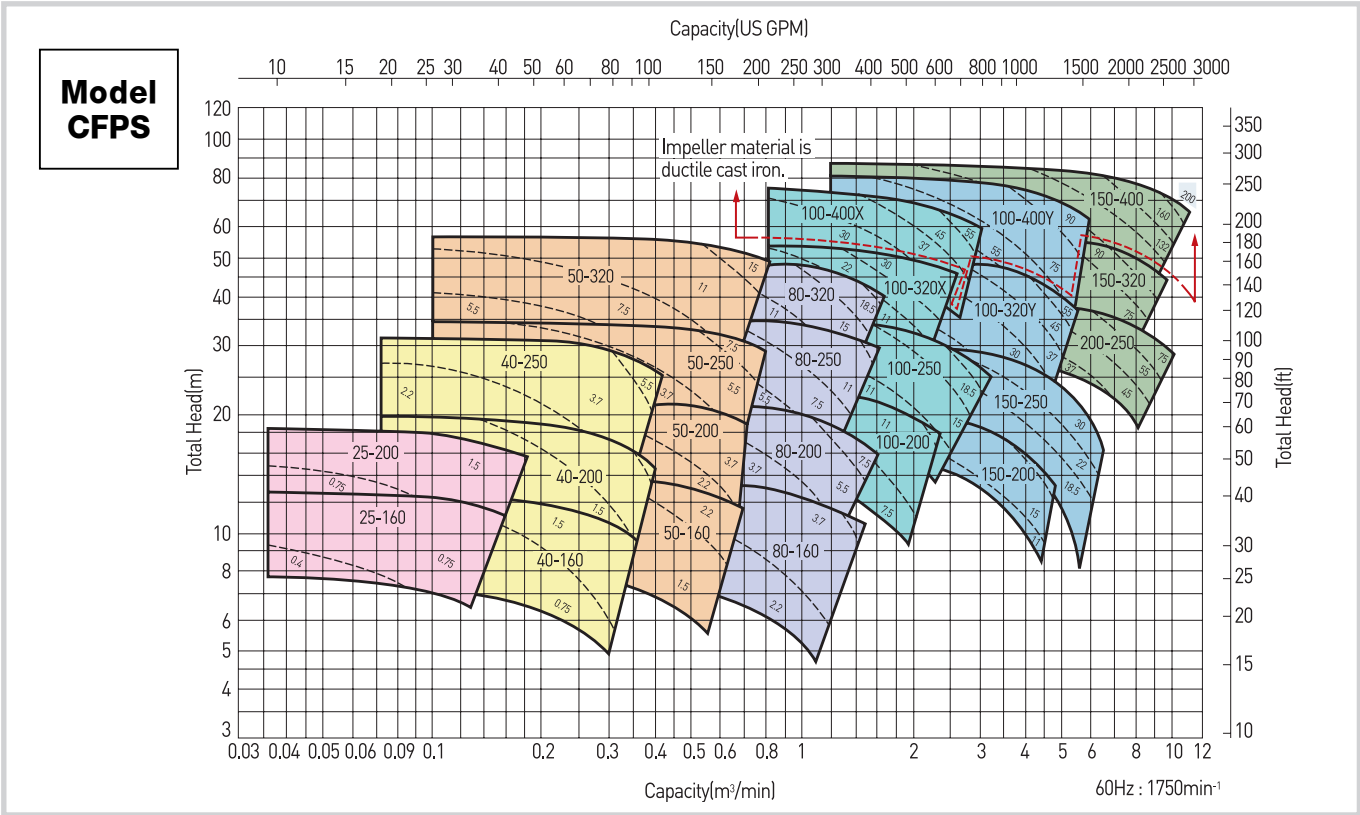
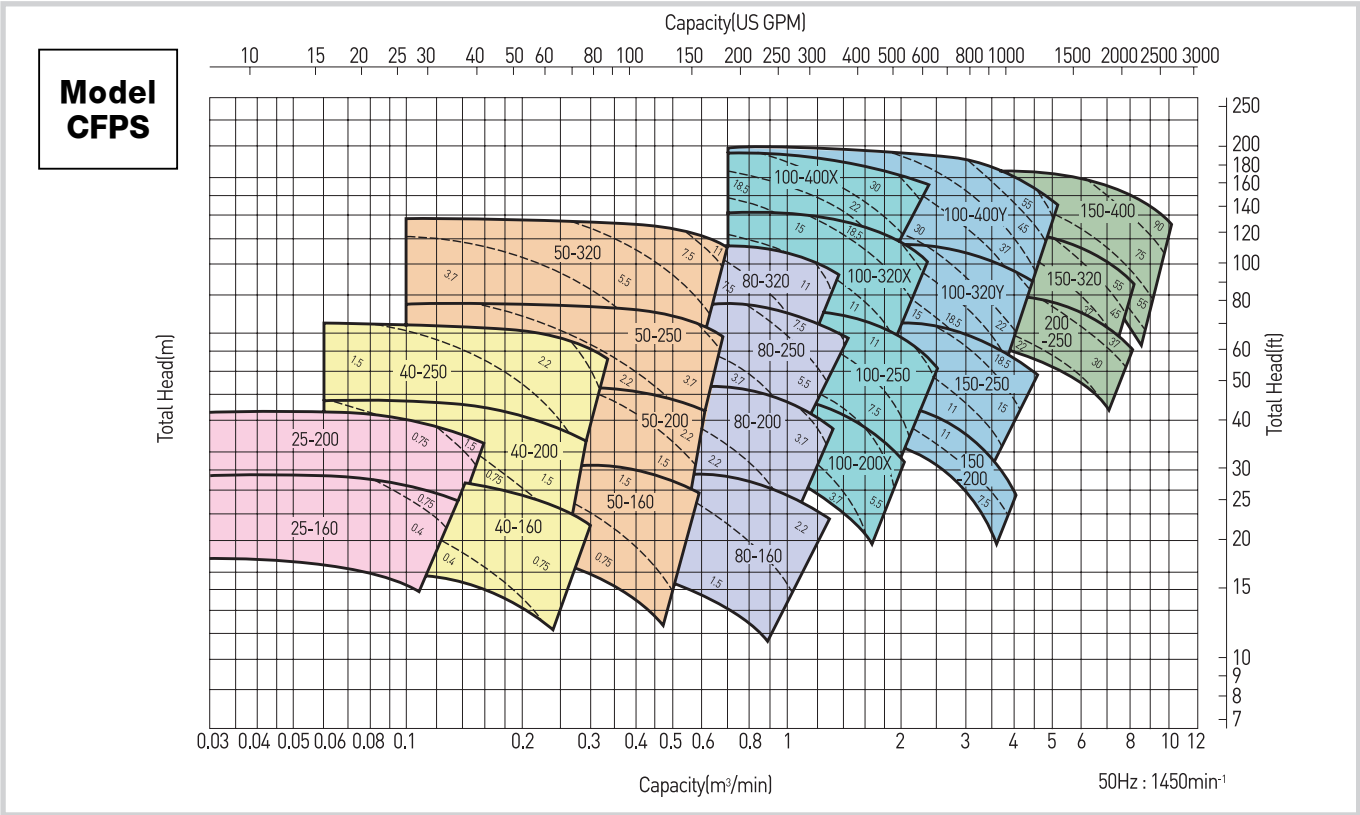
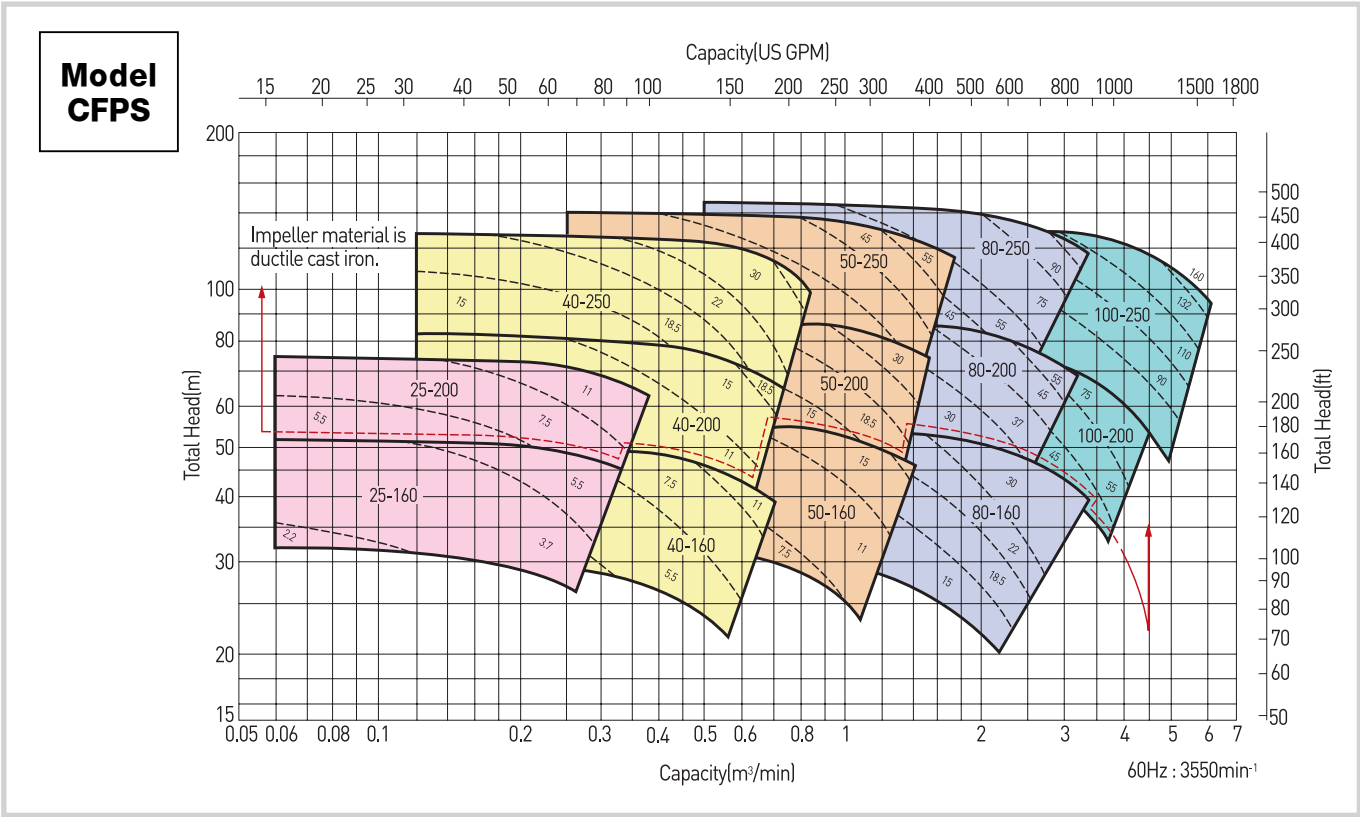
Selection Chart

C-series foot support process pump - semi open impeller

50Hz

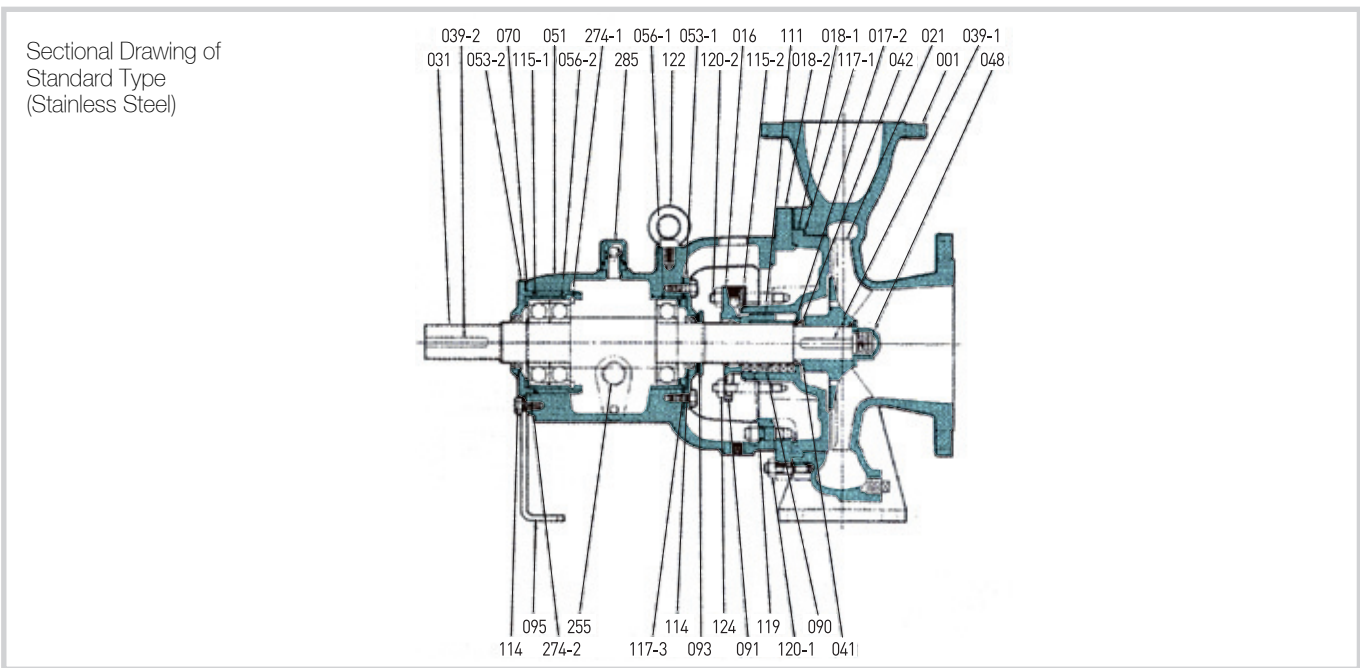
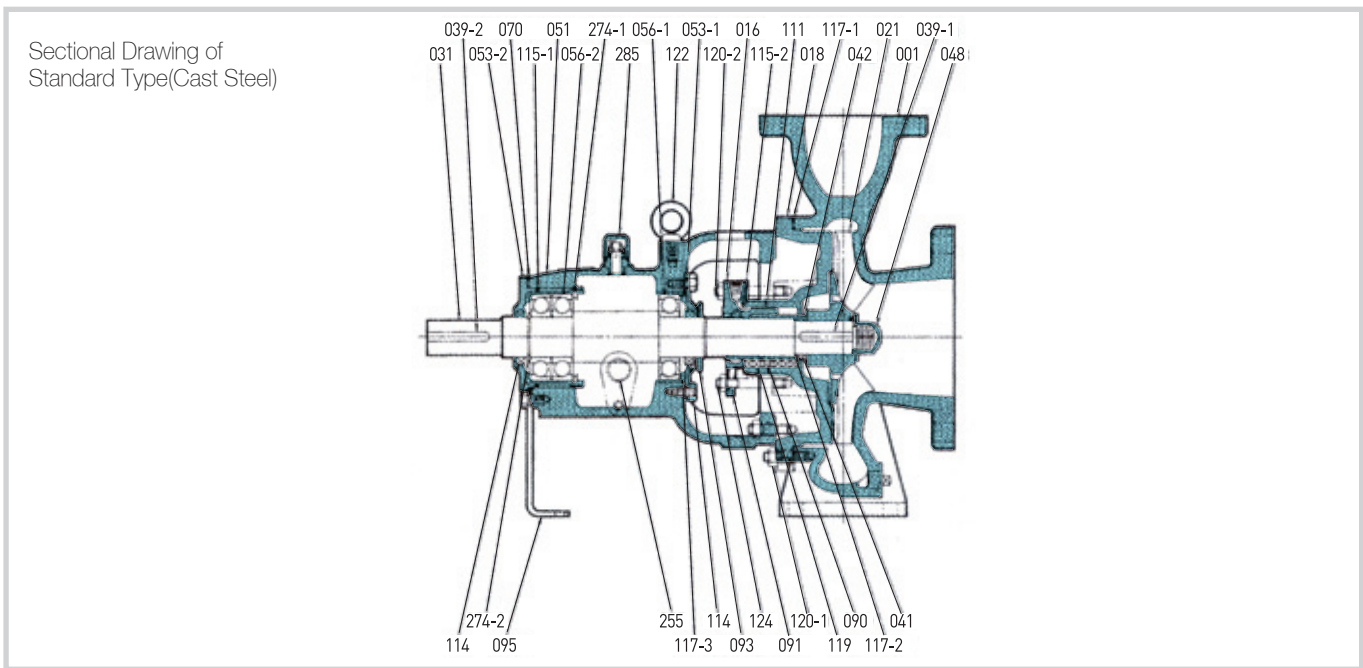


60Hz



Sectional Drawing

C-series foot support process pump - semi open impeller

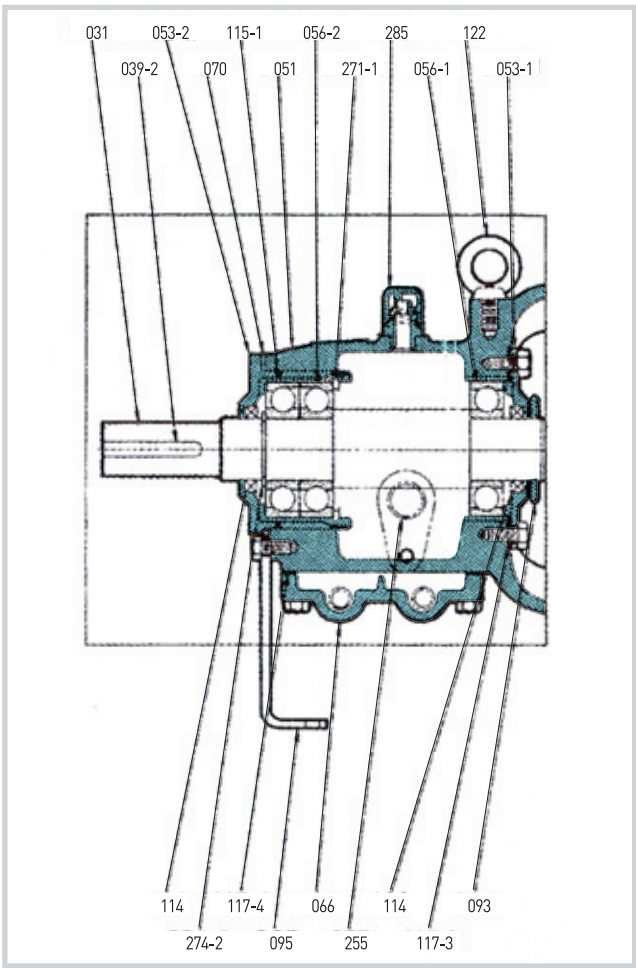


Part List

No.	Name of part	Material Cast Steel	Quantity
001	Casing	SC49	1
016	Mechanical Seal Cover	SUS304	1
018	Gland Cover	SC49	1
021	Impeller	SCS13	1
031	Shaft	S45C	1
039-1	Impeller Key	S50C	1
039-2	Coupling Key	S50C	1
041	Packing Sleeve	SUS304	1
042	Mechanical Seal Sleeve	SUS304	1
048	Impeller Nut	S30C	1
051	Bearing Housing	FC200	1
053-1	Bearing Cover	FC200	1
053-2	Bearing Adjusting Cover	FC200	1
056-1	Deep-Groove Ball Bearing	-	1
056-2	Combined Angular-Contact Ball Bearing	-	1
070	Shim	C2801P	4
090	Lantern Ring	SUS304	1
091	Packing Gland	FC150	1
093	Flinger	SUS316	1
095	Stay	SS400	1
111	Mechanical Seal	-	1
114	Oil Seal	SPHC/NBR	2
115-1	Adjusting Cover Oil Seal O-Ring	NBR	1
115-2	Mechanical Seal Cover O-Ring	Teflon	1
117-1	Casing Gasket	V#1501	1
117-2	Shaft Sleeve Gasket	V#1501/V#1501AC	1
117-3	Bearing Cover Gasket	Oil Sheet	1
119	Gland Packing	P#406	5
120-1	Casing Set Bolt	SS400/SUS406	1Set
120-2	Mechanical Seal Cover Bolt	SUS403	4
122	Eye Bolt	S20C	1
124	Packing Set Bolt	SUS403	2
255	Oil Level Gauge	Synthetic Rubber/Glass	1
274-1	Wedge Ring	SK5	1
274-2	Wedge Ring	SK5	1
285	Air Vent	Polycarbonate	1

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

Bearing Housing with Cooling Jacket



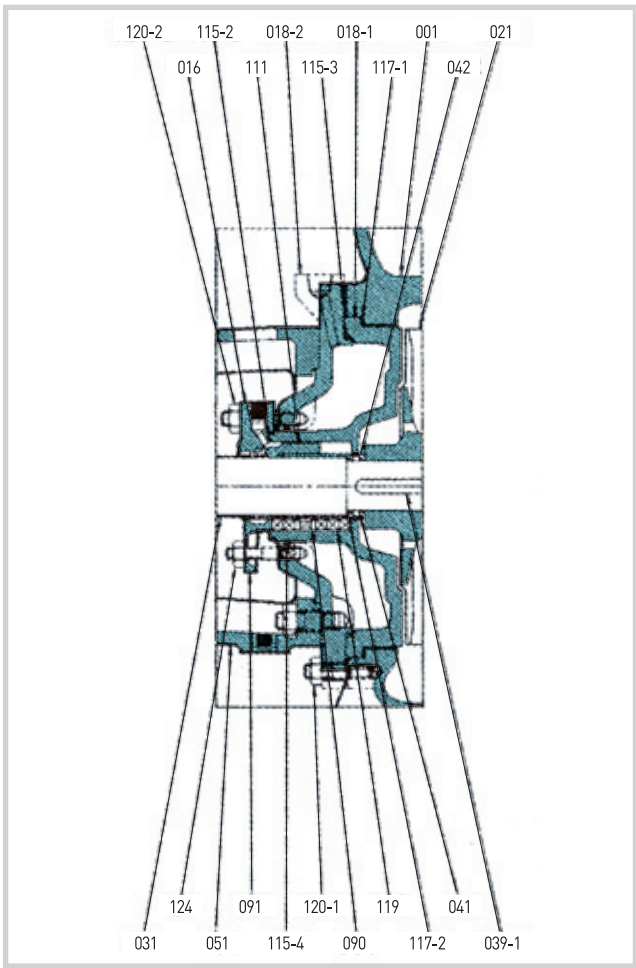
notes : Bearing casing with colling jacket is available for any stainless steel and cast
steel pump. Sectional drawing of standard. Type(Stainless steel, Cast steel)

Part List

No.	Name of part	Material		Quantity
		Stainless Steel		
001	Casing	SCS13	SCS14	1
016	Mechanical Seal Cover	SUS304	SUS316	1
018-1	Gland Cover(I)	SUS13	SUS14	1
018-2	Gland Cover(II)	FOD400	FOD400	1
021	Impeller	SCS13	SCS14	1
031	Shaft	SUS304	SUS316	1
039-1	Impeller Key	SUS316	SUS316	1
039-2	Coupling Key	S50C	S50C	1
041	Packing Sleeve	SUS304	SUS316	1
042	Mechanical Seal Sleeve	SUS304	SUS316	1
048	Impeller Nut	SUS304	SUS316	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
066	Water-Cooling Cover	FC200	FC200	1
070	Shim	C2801P	C2801P	4
090	Lantern Ring	SUS304	SUS316	1
091	Packing Gland	SCS13	SCS14	1
093	Flinger	SUS304	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
115-3	Gland Cover O-Ring	NBR	NBR	1
115-4	Gland Cover O-Ring	NBR	NBR	1
117-1	Casing Gasket	V#1501AC	V#1501AC	1
117-2	Shaft Sleeve Gasket	V#1501AC	V#1501AC	1
117-3	Bearing Cover Gasket	Oil Sheet	Oil Sheet	1
117-4	Water-Cooling Cover Gasket	NBR	NBR	1
119	Gland Packing	P#406	P#406	5
120-1	Casing Set Bolt	SUS403	SUS403	1Set
120-2	Mechanical Seal Cover Bolt	SUS304	SUS316	4
122	Eye Bolt	S20C	S20C	1
124	Packing Set Bolt	SUS403	SUS316	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

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

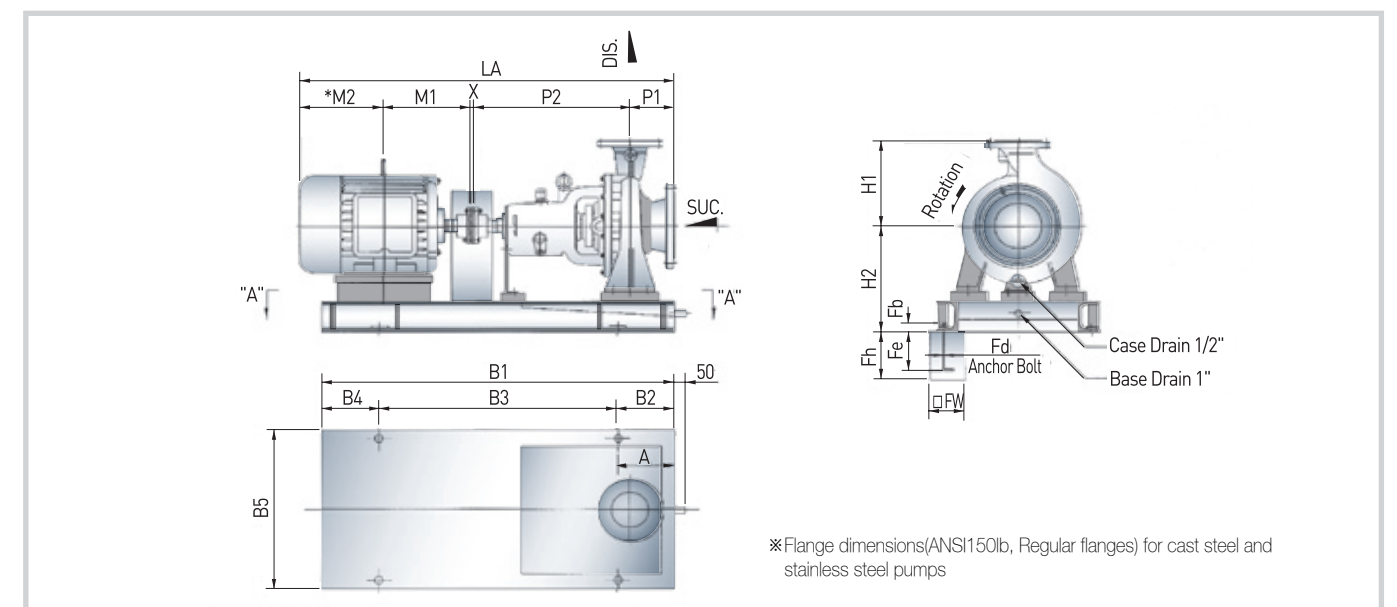
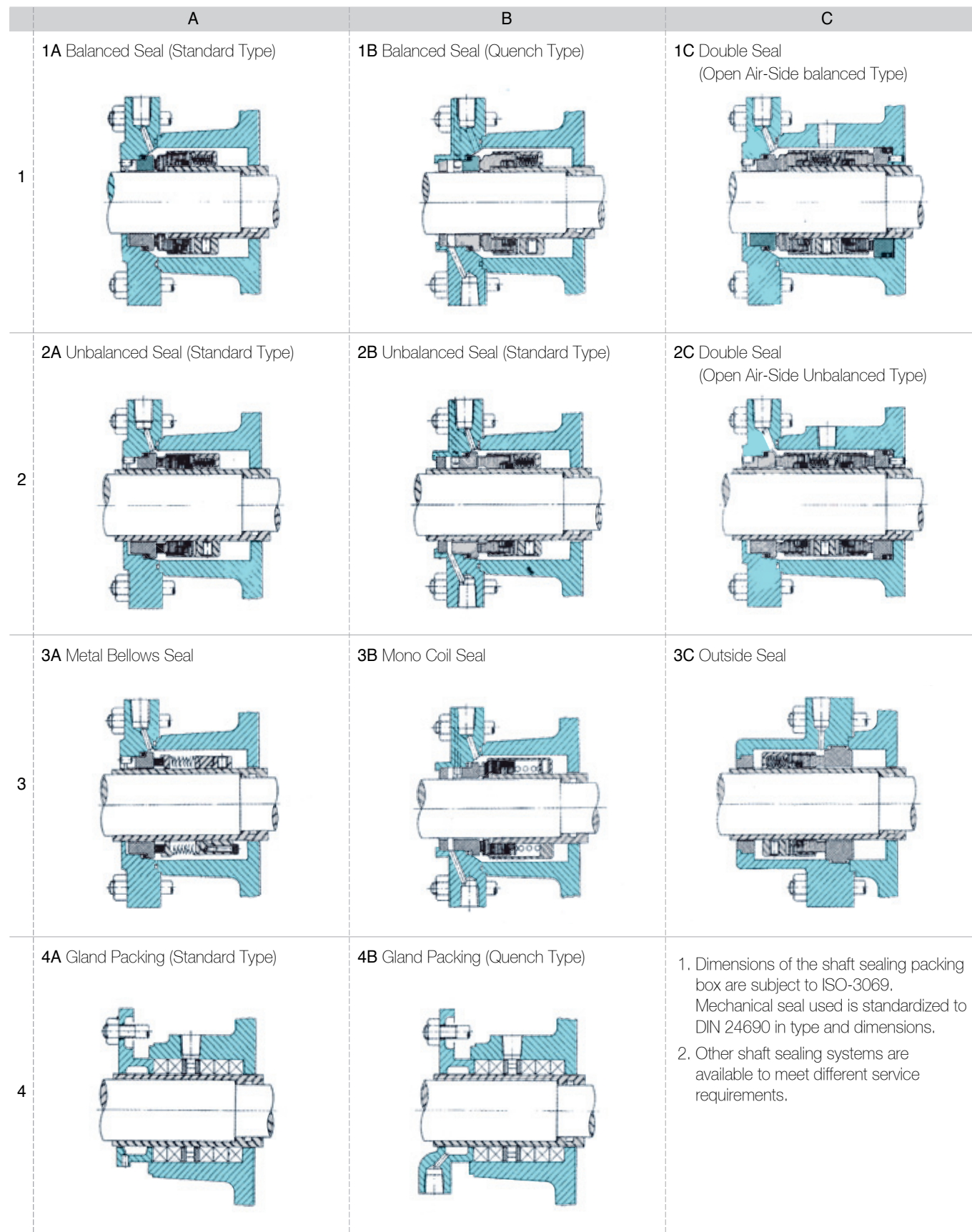
Bearing Casing with Cooling Jacket



Notes : Stuffing box with cooling jacket is available for stainless steel and steel
pumps only.

Mechanical Seal

Outline Dimensions



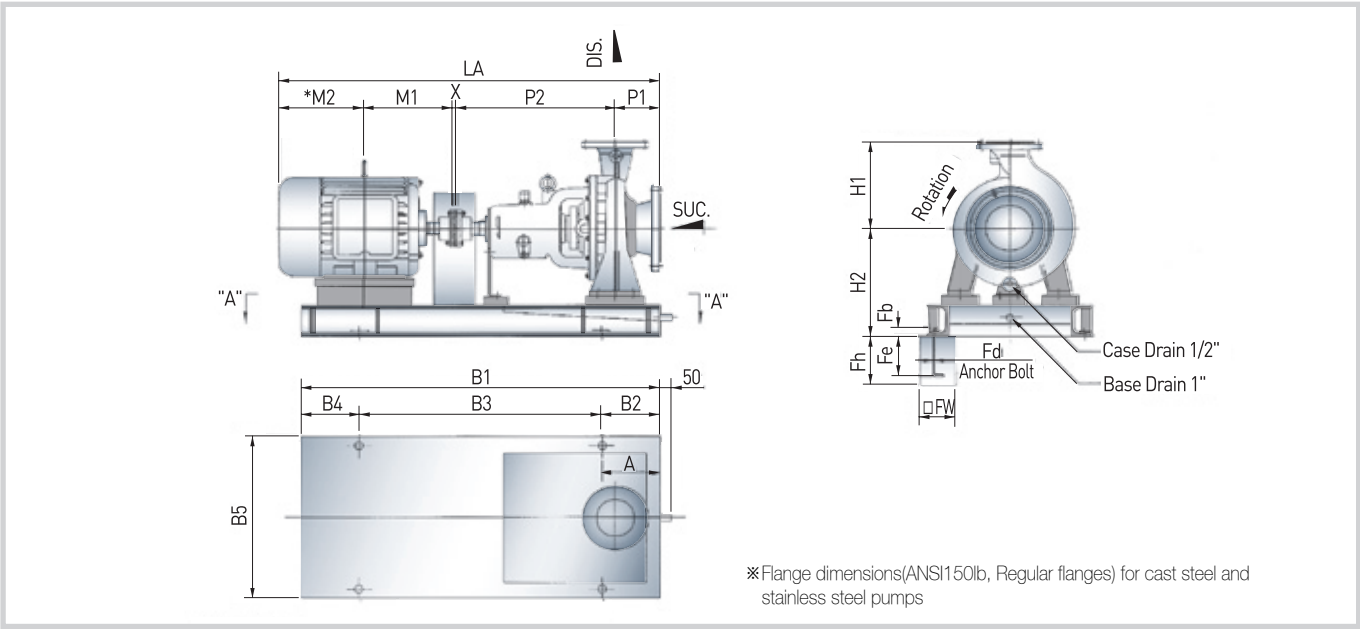
Unit (mm)																										
Pump Model	Motor Frame	Pump					Common base							Motor		*LA	X	Anchor Bolt					Fw	Wt. (Mass) kg	Coupling	
		*kW	P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	B ₅	M ₁	*M ₂	Fd			Fb	Fe	Fh	CLA	CLAB				
CFPS 25-160	71	0.4	80	385	160	207	60	725	115	480	130	290	120	121	709	3	M12	55	195	250	110	67	112	4-10		
	80	0.75	80	385	160	207	60	725	115	480	130	290	140	133	741	3	M12	55	195	250	110	66	112	4-10		
	90L	$\frac{23}{2}$	80	385	160	217	60	725	115	480	130	290	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	200	183	851	3	M12	55	195	250	110	72	112MB	4-10		
	132S	$\frac{5.5}{2}$	80	385	160	235	60	805	130	540	135	350	239	210	917	3	M12	55	195	250	110	76	140MB	6-14		
CFPS 25-200	71	0.4	100	385	180	235	60	725	115	480	130	320	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	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	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	200	183	871	3	M12	55	195	250	110	82	112MB	4-10		
	132S	$\frac{5.5}{2}$	100	385	180	235	60	805	130	540	135	350	239	210	937	3	M12	55	195	250	110	82	140MB	6-14		
CFPS 40-160	160M	$\frac{11}{15}$	100	385	180	250	60	970	170	660	140	400	323	280	1091	3	M12	55	195	250	110	99	140MB	6-14		
	71	0.4	80	385	160	207	60	725	115	480	130	290	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	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	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	200	183	851	3	M12	55	195	250	110	74	112MB	4-10		
CFPS 40-200	132S	$\frac{5.5}{2}$	80	385	160	235	60	805	130	540	135	350	239	210	917	3	M12	55	195	250	110	76	140MB	6-14		
	160M	$\frac{11}{15}$	80	385	160	250	60	970	170	660	140	400	323	280	1071	3	M12	55	195	250	110	95	140MB	6-14		
	80	0.75	100	385	180	235	60	725	115	480	130	320	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	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	193	173	854	3	M12	55	195	250	110	85	112MB	4-10		
CFPS 40-250	112M	3.7	100	385	180	235	60	765	130	540	95	320	200	183	871	3	M12	55	195	250	110	85	125	4-14		
	132S	$\frac{5.5}{2}$	100	385	180	235	60	805	130	540	135	350	239	210	937	3	M12	55	195	250	110	86	140MB	6-14		
	160M	$\frac{11}{15}$	100	385	180	250	60	970	170	660	140	400	323	280	1091	3	M12	55	195	250	110	103	140MB	6-14		
	160L	18.5	100	385	180	250	60	970	170	660	140	400	345	302	1135	3	M12	55	195	250	110	108	160	8-14		
	90L	1.5	100	500	225	270	75	900	150	600	150	400	183	158.5	930	3	M12	55	195	250	110	115	140	6-14		
CFPS 50-160	100L	2.2	100	500	225	270	75	900	150	600	150	400	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	200	183	986	3	M12	55	195	250	110	115	140	6-14		
	132S	$\frac{5.5}{2}$	100	500	225	270	75	995	170	660	165	400	239	210	1052	3	M12	55	195	250	110	123	140MB	6-14		
	160M	$\frac{11}{15}$	100	500	225	270	75	1120	190	740	190	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	345	302	1250	3	M12	55	195	250	110	136	160	8-14		
CFPS 50-200	180M	22	100	500	225	270	75	1120	190	740	190	440	351.5	325	1279.5	3	M12	55	195	250	110	133	160MB	8-14		
	180L	30	100	500	225	270	75	1260	205	840	215	490	370.5	344	1317.5	3	M12	55	195	250	110	153	180MB	8-14		
	200L	$\frac{37}{25}$	100	500	225	290	75	1245	205	840	200	400	395.5	377	1375.5	3	M12	55	195	250	110	150	180MB	8-14		
	80	0.75	100	385	180	235	60	725	115	480	130	320	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	168.5	158.5	815	3	M12	55	195	250	110	78	112	4-10		
CFPS 50-160	100L	2.2	100	385	180	235	60	765	130	540	95	320	193	173	854	3	M12	55	195	250	110	80	112MB	4-10		
	132S	$\frac{5.5}{2}$	100	385	180	235	60	805	130	540	135	350	239	210	937	3	M12	55	195	250	110	81	140MB	6-14		
	160M	$\frac{11}{15}$	100	385	180	250	60	970	170	660	140	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	345	302	1135	3	M12	55	195	250	110	103	160	8-14		

주 : 1. 표시된 전동기는 F중 절연, 전폐형, 팬냉각, 저압 3상, 농형, 유도전동기입니다.
2. *표시의 M₂와 LA의 치수는 전동기 제작사에 따라 다소의 차이가 있습니다.
3. 치수는 사전 통보없이 제품의 개선에 의해 변경될 수 있습니다.
4. Base Plate 치수는 참고치수이므로 Foundation을 위한 상세치수는 사양서를 참조바랍니다.

1. The motor output classification numbers shown are those for ordinary F class totally-enclosed, fan-cooled low-voltage 3-phase squirrel cage induction motors.
2. Asterisked M₂ and LA dimension vary to a certain extent, depending on motor manufacturers.
3. The dimensions and all specifications are subject to change without notice.
4. Base plate dimensions are only reference. For accurate dimension, please submit a inquiry.

Outline Dimensions

C-series foot support process pump - semi open impeller



Unit (mm)																								
Pump Model	Motor Frame	*KW	Pump				Common base						Motor		*LA	X	Anchor Bolt					Wt (Mass) kg	Coupling	
			P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	M ₁	*M ₂	Fd			Fb	Fe	Fh	Fw	CLA		CLAB	
CFPS 50-200	90L	1.5	100	385	200	245	60	725	115	480	130	320	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	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	200	183	871	3	M12	55	195	250	110	90	125	4-14
	160M	11.5	100	385	200	250	60	970	170	660	140	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	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	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	370.5	344	1202.5	3	M12	55	195	250	110	111	180MB	8-14
CFPS 50-250	100L	2.2	125	500	225	270	75	900	150	600	150	400	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	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	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	258	229	1115	3	M12	55	195	250	110	132	160	8-14
	160M	11.5	125	500	225	270	75	1120	190	740	190	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	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	351.5	325	1304.5	3	M12	55	195	250	110	141	160MB	8-14
CFPS 50-320	180L	30	125	500	225	270	75	1260	205	840	215	490	370.5	344	1342.5	3	M12	55	195	250	110	161	180MB	8-14
	200L	37.5	125	500	225	290	75	1245	205	840	200	400	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	402	388	1419	4	M16	70	245	315	130	177	200	8-20
	112M	3.7	125	500	280	327	75	905	150	600	155	400	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	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	258	229	1115	3	M12	55	195	250	110	162	160	8-14
	160M	11	125	500	280	315	75	1120	190	740	190	440	323	280	1231	3	M12	55	195	250	110	175	160	8-14
CFPS 80-160	160L	15	125	500	280	315	75	1120	190	740	190	440	345	302	1275	3	M12	55	195	250	110	175	160	8-14
	90L	1.5	100	500	200	235	75	880	150	600	130	350	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	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	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	239	210	1052	3	M12	55	195	250	110	116	140MB	6-14
	160M	11.5	100	500	200	250	75	1120	190	740	190	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	345	302	1206	3	M12	55	195	250	110	121	160	8-14
CFPS 80-200	180M	22	100	500	200	270	75	1120	190	740	190	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	370.5	344	1317.5	3	M12	55	195	250	110	143	180MB	8-14
	200L	37.5	100	500	200	290	75	1245	205	840	200	400	395.5	377	1375.5	3	M12	55	195	250	110	143	180MB	8-14
	100L	2.2	100	500	225	270	75	900	150	600	150	400	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	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	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	258	229	1090	3	M12	55	195	250	110	131	160	8-14
CFPS 80-250	160M	11.5	100	500	225	270	75	1120	190	740	190	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	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	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	370.5	344	1317.5	3	M12	55	195	250	110	161	180MB	8-14
	200L	37.5	100	500	225	290	75	1245	205	840	200	400	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	402	388	1394	4	M16	70	245	315	130	177	200	8-20
	112M	3.7	125	500	250	302	90	915	150	600	165	440	200	183	1011	3	M12	195	250	250	110	146	140	6-14
CFPS 80-250	132S	7.5	125	500	250	315	90	990	170	660	160	440	239	210	1077	3	M12	195	250	250	110	151	140MB	6-14
	132M	7.5	125	500	250	315	90	990	170	660	160	440	258	229	1115	3	M12	195	250	250	110	151	160	8-14
	160M	11	125	500	250	315	90	1120	190	740	190	440	323	280	1231	3	M12	195	250	250	110	163	160	8-14
	160L	15	125	500	250	315	90	1120	190	740	190	440	345	302	1275	3	M12	195	250	250	110	163	160	8-14

Pump Model	Motor		Pump				Common base										Motor		*LA	X	Anchor Bolt					Wt (Mass) kg	Coupling	
	Frame	*kW	P ₁	P ₂	H ₁	H ₂	A	B ₁	B ₂	B ₃	B ₄	B ₅	M ₁	*M ₂	Fd	Fb	Fe	Fh			Fw	CLA	CLAB					
CFPS 80-250	180L	30	125	500	250	290	90	1260	205	840	215	490	370.5	344	1342.5	3	M12	195	250	250	110	184	180MB	8-14				
	200L	37.5	125	500	250	290	90	1260	205	840	215	490	395.5	377	1400.5	3	M12	195	250	250	110	174	180MB	8-14				
	225S	55	125	500	250	335	90	1265	205	840	220	550	402	388	1419	4	M16	70	245	315	130	200	200	8-20				
	250S	75	125	500	250	360	90	1260	205	840	215	440	433.5	521	1583.5	4	M16	70	245	315	130	216	200	8-20				
	250M	90	125	500	250	360	90	1420	230	940	250	440	452.5	540	1621.5	4	M16	70	245	315	130	214	224	8-20				
	280S	110	125	500	250	390	90	1420	230	940	250	440	484	599.5	1712.5	4	M16	70	245	315	130	233	224	8-20				
CFPS 80-320	132M	7.5	125	530	280	315	90	1020	170	660	190	490	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	323	280	1261	3	M12	55	195	250	110	208	160	8-14				
	160L	15	125	530	280	315	90	1255	205	840	210	490	345	302	1305	3	M12	55	195	250	110	214	160	8-14				
	180M	18.5	125	530	280	315	900	1265	205	840	220	490	351.5	325	1334.5	3	M12	55	195	250	110	226	180	8-14				
CFPS 100-200	112M	3.7	140	530	280	315	90	1020	170	660	190	490	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	239	210	1122	3	M12	55	195	250	110	183	160	8-14				
	132M	7.5	140	530	280	315	90	1020	170	660	190	490	258	229	1160	3	M12	55	195	250	110	183	160	8-14				
	160M	11	140	530	280	343	90	1115	190	740	185	490	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	345	302	1320	3	M12	55	195	250	110	199	160	8-14				
	180M	18.5	140	530	280	315	90	1265	205	840	220	490	351.5	325	1349.5	3	M12	55	195	250	110	211	180	8-14				
CFPS 100-250	180L	30	140	530	280	315	90	1265	205	840	220	490	370.5	344	1387.5	3	M12	55	195	250	110	211	180MB	8-14				
	200L	37.5	140	530	280	315	90	1265	205	840	220	490	395.5	377	1445.5	3	M12	55	195	250	110	211	180MB	8-14				
CFPS 100-250	225S	55	140	530	280	335	90	1265	205	840	220	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	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	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	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	230	490	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	529	734.5	1937.5	4	M20	85	315	400	150	318	250	8-25				
CFPS 100-320X	160M	11	140	530	315	368	90	1120	190	740	190	490	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	345	302	1320	3	M12	55	195	250	110	240	160	8-14				
	180M	18.5	140	530	315	360	90	1240	205	840	195	490	351.5	325	1349.5	3	M12	55	195	250	110	243	180	8-14				
	200L	30	140	530	315	360	90	1240	205	840	195	490	370.5	344	1388.5	4	M12	55	195	250	110	251	200	8-20				
	200L	37.5	140	530	315	340	90	1265	205	840	220	490	425.5	377	1476.5	4	M12	55	195	250	110	260	224	8-20				
	160L	15	140	530	355	390	110	1265	205	840	220	600	345	302	1320	3	M16	70	245	315	130	282	160	8-14				
CFPS 100-400X	180M	18.5	140	530	355	390	110	1265	205	840	220	600	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	370.5	344	1388.5	4	M16	70	245	315	130	293	200	8-20				
	200L	37.5	140	530	355	410	110	1265	205	840	220	600	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	432	388	1494	4	M16	70	245	315	130	335	224MB	8-20				
CFPS 150-200	132M	7.5	140	530	355	340	90	1025	170	660	195	490	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	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	345	302	1320	3	M12	55	195	250	110	220	160	8-14				
CFPS 150-250	180M	18.5	140	530	355	360	90	1240	205	840	195	490	351.5	325	1349.5	3	M12	55	195	250	110	223	180	8-14				
	180L	30	140	530	355	360	90	1240	205	840	195	490	370.5	344	1388.5	4	M12	55	195	250	110	231	200	8-20				
	160L	15	140	530	355	390	110	1265	205	840	220	600	345	302	1320	3	M16	70	245	315	130	277	160	8-14				
CFPS 100-320Y	180M	18.5	140	530	355	390	110	1265	205	840	220	600	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	370.5	344	1388.5	4	M16	70	245	315	130	291	200	8-20				
	200L	37.5	140	530	355	410	110	1265	205	840	220	600	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	432	388	1494	4	M16	70	245	315	130	320	224MB	8-20				
	180M	18.5	140	530	400	425	110	1275	205	840	230	600	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	370.5	344	1388.5	4	M16	70	245	315	130	325	200	8-20				
CFPS 100-400Y	200L	37.5	140	530	400	445	110	1275	205	840	230	600	425.5	377	1476.5	4	M16	70	245	315	130	330	224	8-20				
	225S	55	140	530	400	425	110	1440	230	940	270	600	432	388	1494	4	M16	70	245	315	130	361	224MB	8-20				
	250S	75	140	530	400	425	110	1440	230	940	270	600	463.5	501	1638.5	4	M16	70	245	315	130	352	250MB	8-25				
	250M	90	140	530	400	425	110	1440	230	940	270	600	482.5	520	1676.5	4	M16	70	245	315	130	352	250MB	8-25				
	280S	110	140	530	400	425	110	1450	230	940	280	670	544	579	1797	4	M16	70	245	315	130	356	280MB	8-28				
	180M	18.5	160	565	450	425	85	1275	205	840	230	600	351.5	325	1404.5	3	M16	70	245	315	130	347	180	8-14				
CFPS 200-250	180L	30	160	565	450	425	85	1275	205	840	230	600	370.5	344	1443.5	4	M16	70	245	315	130	352	200	8-20				
	200L	37.5	160	565	450	425	85	1275	205	840	230	600	425.5	377	1531.5	4	M16	70	245	315	130	360	224	8-20				
	225S	55	160	565	450	425	85	1440	230	840	270	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	463.5	501	1693.5	4	M16	70	245	315	130	399	250MB	8-25				
	180L	30	160	670	450	425	110	1405	230	940	235	670	370.5	344	1548.5	4	M16	70	245	315	130	460	200	8-20				
	200L	37.5	160	670	450	425	110	1405	230	940	235	670	425.5	377	1636.5	4	M16	70	245	315	130	468	224	8-20				
CFPS 150-320	225S	55	160	670	450	425	110	1635	270	1060	305	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	463.5	501	1798.5	4	M16	70	245	315	130	517						