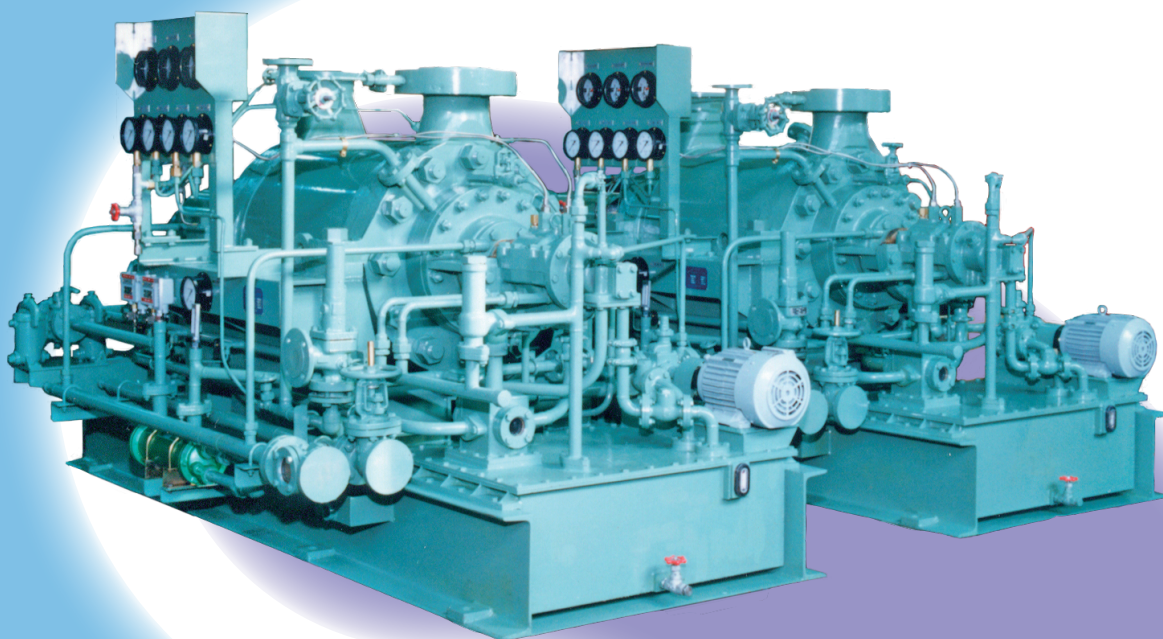


SHINKO

STANDARD CENTRIFUGAL PUMPS



■ PUMP MODELS AVAILABLE:

● PUMPS FOR COOLING, DEAERATOR FEED, CHEMICAL, & OTHER GENERAL USE

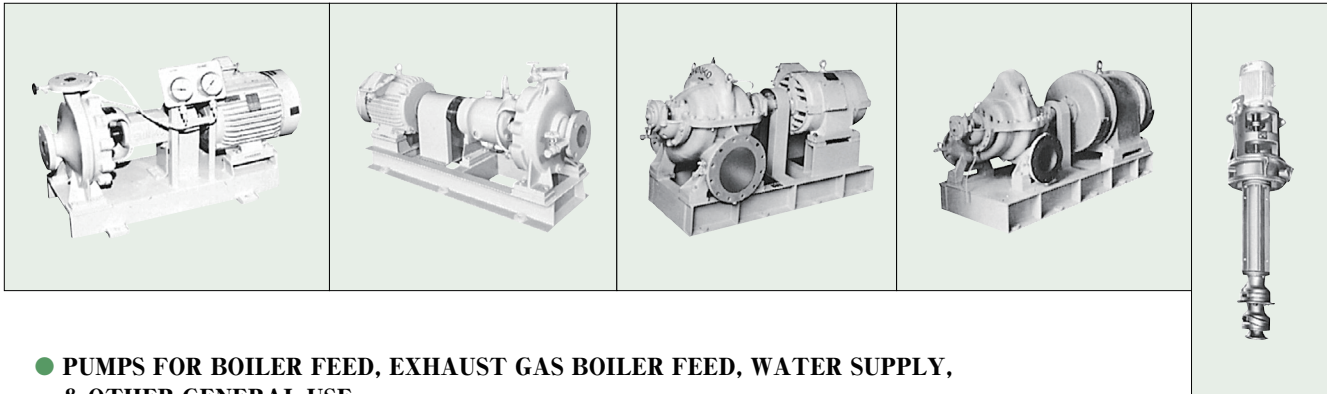
GJ (P.6)

GHJ (P.8)

GHD (P.12)

FHP (P.16)

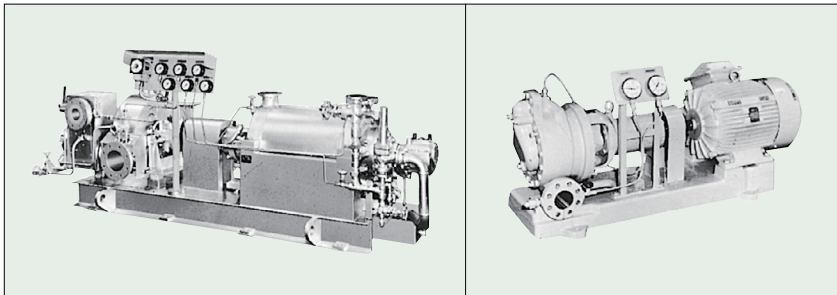
SB (P.18)



● PUMPS FOR BOILER FEED, EXHAUST GAS BOILER FEED, WATER SUPPLY, & OTHER GENERAL USE

DKR (P.20)

SHQ (P.26)



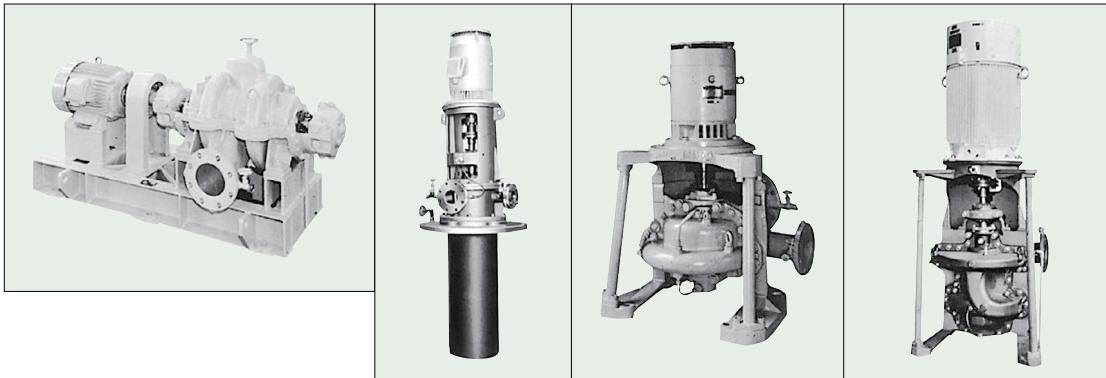
● PUMPS FOR CONDENSATE, HOT WELL, DRAIN TRANSFER, & OTHER GENERAL USE

EH (P.28)

SD (P.32)

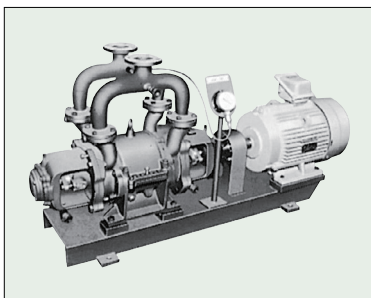
RVE (P.34)

EVZ (P.36)



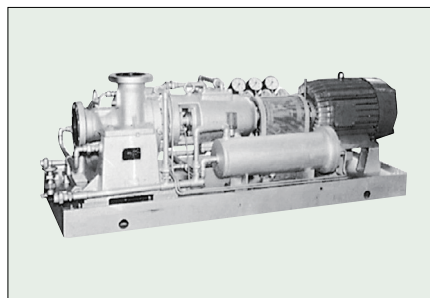
● AIR EXTRACTION PUMPS

EL (P.38)



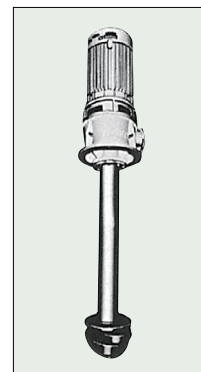
● PUMPS FOR BOILER WATER CIRCULATING, HOT & COLD OIL, LPG, & OTHER GENERAL USE

HLA (P.40)



● LUBRICATING OIL PUMPS

SA (P.42)

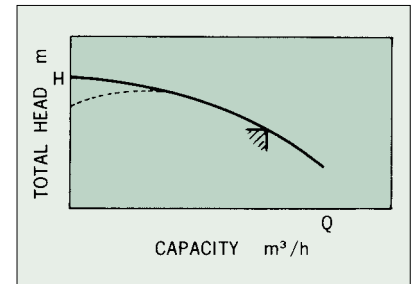


DESIGN & FUNCTIONS

H-Q CURVE

All pumps are designed in such a way that the H-Q curve descends to the right in a continuous line as shown in the figure on the right. At any of the points above the H-Q curve, shaft horsepower does not exceed motor output.

However, some specific pumps such as boiler feed pumps, condensate pumps, and other several pumps are operated within a specific range upon which the motor output is selected. Hence, shaft horsepower beyond this specific range may exceed the motor output.



BALL BEARINGS & LUBRICATION

For grease-lubricated pumps, a grease inlet and a grease outlet have been installed on the bearing housing with a grease nipple and a relief nipple respectively.

For oil-lubricated pumps, an oil bath or oil ring is used for lubrication, and an oil level gauge has been provided on the bearing housing.

MODEL	BALL BEARING TYPE		LUBRICATION
	COUPLING SIDE	OPPOSITE SIDE	
GJ, EL	63	63	Sealed ball bearings
GHJ	63	64 or 73	Oil bath
HLA	73	63	Oil bath
SA	63	-	Oil handled
EH65, 100	63	63	Oil ring
GHD, FHP	63	63	Grease
SD, SB, EVZ50	63	-	Grease
EVZ	73	-	Grease
SHQ, EH50	63	63	Sealed ball bearings

LUBRICANTS

Ball bearings use either grease or oil, depending on the design and function of the pump. NLGI NO.2 (National Lubricating Grease Institute) for grease and ISO VG68 (International Standard Organization) for oil are recommended. Brands equivalent to those lubricants are shown in the following table:

NAME OF COMPANY	GREASE	LUBRICATING OIL	GEAR OIL
IDEMITSU KOSAN	DAPHNE EPONEX SR-2	DAPHNE TURBINE OIL NO.68	DAPHNE SUPER GEAR OIL 680
EXXONMOBIL	MOBILUX EP2 MOBIL GREASE XHP 222	MOBILDTE OIL HEAVY MEDIUM	MOBIL GEAR 600XP680 MOBIL SHC 636
JXTG NIPPON OIL & ENERGY	EPNOC GREASE AP2	FBK TURBINE 68	BONNOC M 680
CALTEX OIL(FAMM)	MULTIFAK EP2	REGAL R&O 68	MEROPA LUBRICANT 680
KYGNUS SEKIYU	MP GREASE 2	KYGNUS TURBINE OIL S68	—
GULF OIL	GULFSEA HYPERBAR CS2	GULFSEA TURBINE OIL 68	GULFSEA GEAR OIL 680
BP OIL	BP ENERGREASE MP-MG2	PERFECTO T68	GR-XP 680
TEXACO OIL(FAMM)	MULTIFAK EP2	REGAL R&O 68	MEROPA LUBRICANT 680
CASTROL	SPHEEROL AP2 or EPL2	PERFECTO T68	CASTROL ALPHA SP 680
COSMO OIL	COSMO GREASE DAINAMAX NO.2	COSMO TURBINE SUPER 68	COSMO GEAR SE 680
SHOWA SHELL OIL SHELL OIL	Gadus S2 V220 2 Gadus S2 V220AD 2	TURBO OIL T68	Omala S2G 680
TOTAL	CERAN XM 220	PRESLIA 68	CARTER EP 680
CHEVRON(FAMM)	MULTIFAK EP2	REGAL R&O 68	MEROPA LUBRICANT 680
AGIP	AGIP GREASE MU EP2	AGIP OTE 68	AGIP BLASIA 680
LUKOIL MARINE	RENOLIT CXI 2	RENOLIN ETERNA 68	RENOLIN CLP 680

● LINE BEARING & LIQUID LUBRICATION

The lower bearing for vertical pumps (SA, SB, SD, RVE, and EVZ) is a line bearing located in the pump casing and is lubricated via the liquid handled.

The PV value of the line bearings has been designed to be less than 2MPa – m/sec.

● STUFFING BOX SEAL

A stuffing box is located on the pump casing where the impeller shaft passes through and the gland packing is installed as a standard feature. However, a mechanical seal can be installed alternatively at customer request.

Gland Packing

Gland packing shown on the table on the right is a standard feature depending on the model and use of the pump.

SERVICE	MODEL	GLAND PACKING
Boiler feed pump	DKR	Semi-metallic + Metallic
Lubricating oil pump	SA	Oil seal
Other pump	Others	Carbonized fiber

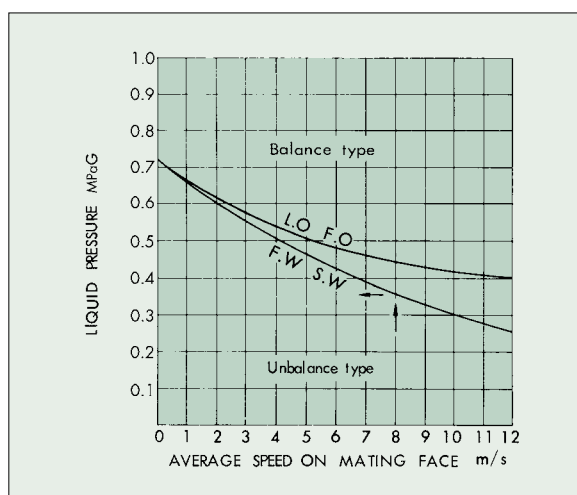
Mechanical Seal

Depending on the liquid pressure in the stuffing box and the peripheral speed on the mating face, there are two types of mechanical seals, balanced and unbalanced. And, the selection can be made using the curve on the chart shown on the right, provided that the temperature of the liquid handled remains within the following limits:

Fresh water pumps : Max. 70°C

Sea water pumps : Max. 40°C

LO and FO pumps : Max. 80°C



Balanced Mechanical Seal

The upward force affecting the mating face of the mechanical seal can be calculated using the following formula:

$$\frac{\pi}{4} (d_2^2 - d_1^2) \times 10P + F$$

d_2 : Outer diameter of the floating seat (cm)

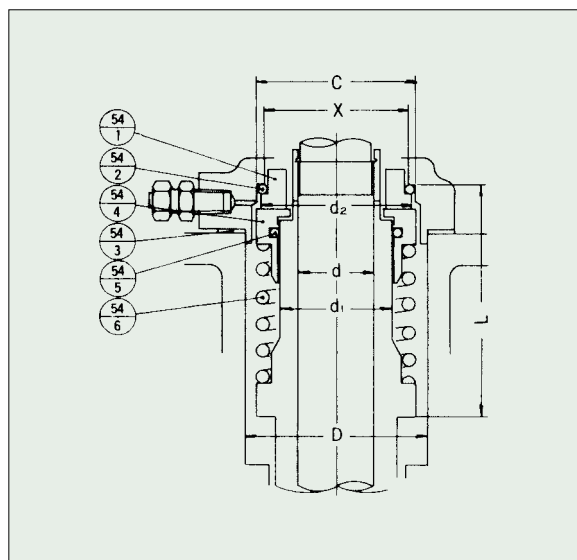
d_1 : Outer diameter of the sleeve (cm)

P : Liquid pressure in the stuffing box (MPaG)

F : Spring tension (kg)

mm

d	D	L	C	X	SEALOL (USA)
50	80	85.5	70.99	66	1501-50
60	94	95	83.31	78.5	1501-60



Unbalanced Mechanical Seal

All pumps employ unbalanced mechanical seals except SB pumps equipped with mono-coil-spring balanced mechanical seals. The seals shown in the figure on the right are fitted if customer requests a mechanical seal.

Upward force affecting the mating face of the mechanical seal can be calculated using the following formula same as that of the balanced mechanical seal.

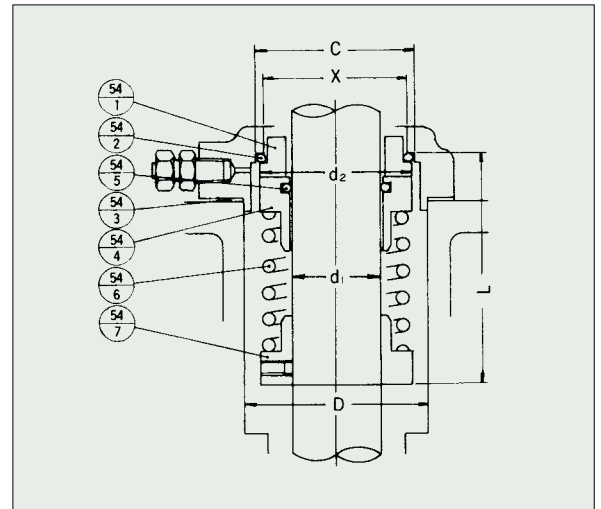
$$\frac{\pi}{4} (d_2^2 - d_1^2) \times 10P + F$$

d_2 : Outer diameter of the floating seat (cm)

d_1 : Outer diameter of the sleeve (cm)

P : Liquid pressure in the stuffing box (MPaG)

F : Spring tension (kg)



d_1	D	L	C	X	JAPANESE	SEALOL (USA)	FLEXIBOX (ENGLAND)
30	53	50.8	44.45	38.61	US-2-30	30-15M5	R-3000M
35	60	57.15	49.2	43.46	US-2-35	35-15M5	R-3500M
40	65	57.15	53.97	48.13	US-2-40	40-15M5	R-4000M
50	80	68.26	65.07	59.33	US-2-50	50-15M5	R-5000M
60	90	73.02	76.2	70.36	US-2-60	60-15M5	R-6000M
75	105	80.96	90.47	84.73	US-2-75	75-15M5	R-7500M

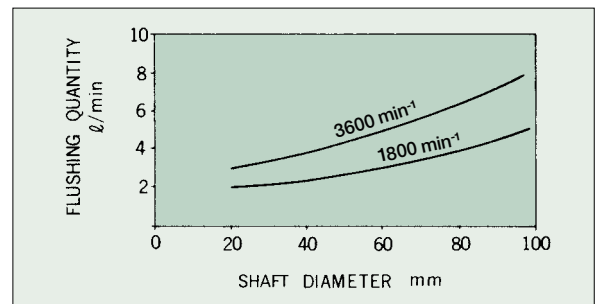
mm

These mechanical seals are interchangeable as complete set.

54-1	FLOATING SEAT	CARBON		1
-2	PACKING RING	RUBBER		1
-3	PACKING RING	GASKET		1
-4	SEAL RING	STAINLESS STEEL	SUS316	1
-5	PACKING RING	RUBBER		1
-6	SPRING	STAINLESS STEEL	SUS316	1
-7	STOPPER RING & SETSCREW	"/	SUS304	1 SET

Flushing

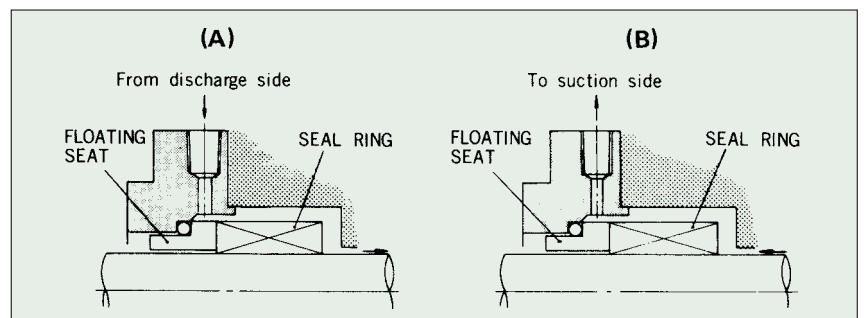
Flushing liquid is supplied to both balanced and unbalanced mechanical seals in order to cool, wash, and lubricate the mating face. The quantity of the flushing liquid is determined by the peripheral speed of the mating face (shaft diameter) of the mechanical seal shown in the table on the right.



There are two methods to supply the flushing liquid to the mating face of the mechanical seal according to the construction of the pump as follows:

Figure (A) is applicable in the case that the liquid pressure in the stuffing box is negative, and the flushing liquid is cycled to the stuffing box from the discharge side of the pump.

Figure (B) is applicable in the case that the liquid pressure in the stuffing box is positive, and the flushing liquid is cycled to the suction side of the pump from the stuffing box.



■ MATERIALS

Standard materials are shown in the “design and standard material” section for each model. However, according to the temperature, pressure, and kind of liquid handled or the customer’s request, the materials can be changed for the parts shown in the following table:

1	VOLUTE CASING		38	MOUTH RING	
2	VOLUTE COVER		39	CASING RING	2 Stage pump only
16	IMPELLER		44	NECK BUSH	
17	IMPELLER	2 Stage pump only	46	LANTERN BUSH	2 Stage pump only
18	IMPELLER SHAFT		47	GLAND	
22	SLEEVE		54	GLAND PACKING	
23	SLEEVE				

■ STANDARD ACCESSORIES

Baseplate

Suction pressure gauge

Discharge pressure gauge

Gauge board or gauge stand

Gauge root valve

Sealing pipe

Air vent valve

Grease nipple (except for pumps with oil-lubricated sealed ball bearings)

Relief nipple (except for pumps with oil-lubricated sealed ball bearings)

Drain plug

Coupling cover (horizontal pumps only)

Horizontal single-stage single-suction CENTRIFUGAL PUMPS

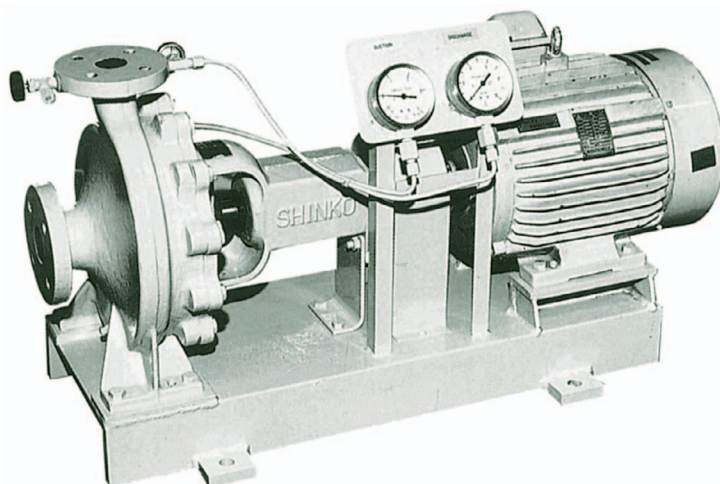
SHINKO GJ

APPLICATIONS

General cooling pumps
Deaerator feed pumps
Fire pumps
Other general use

SPECIFICATIONS

Total head 5 to 150m
Temperatures Below 100°C

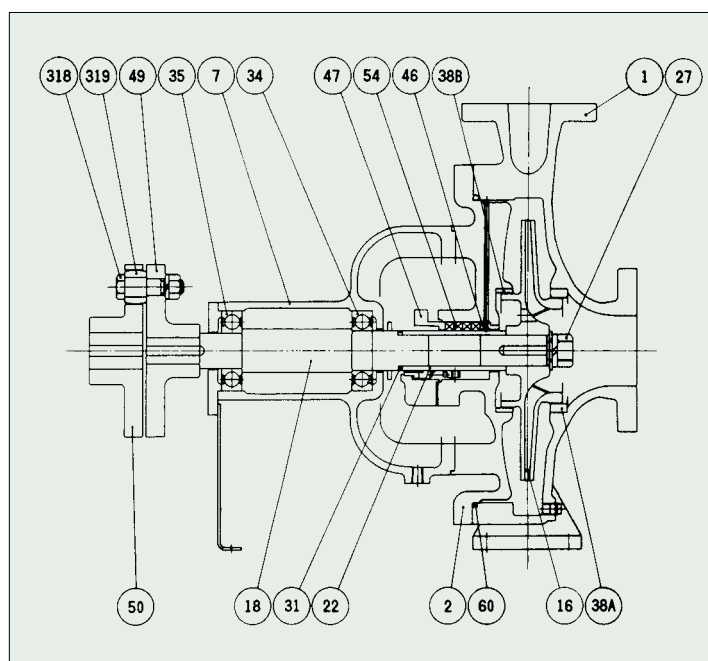


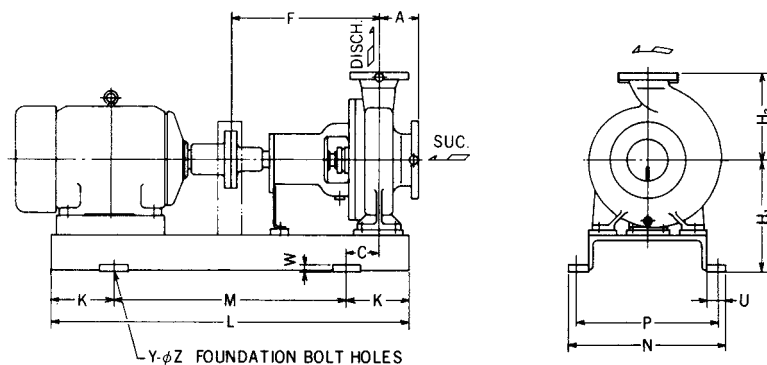
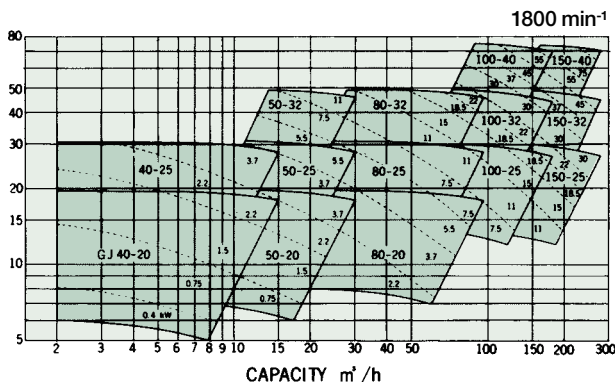
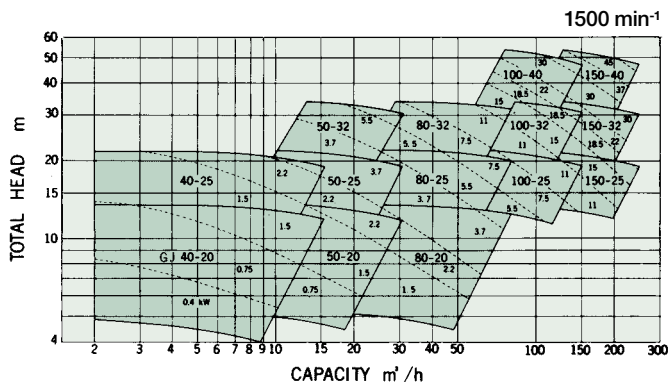
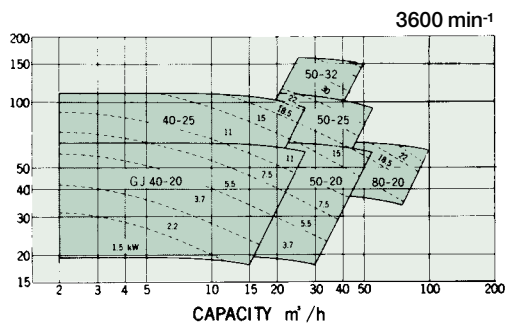
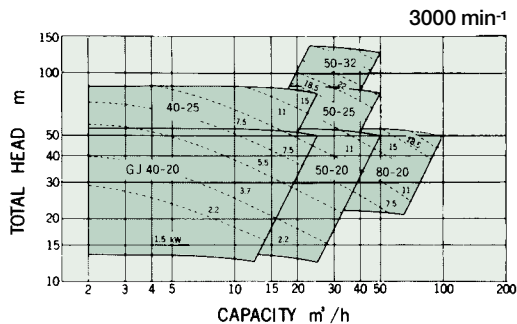
GENERAL CHARACTERISTICS

Item	Model	GJ 40	GJ 50	GJ 80	GJ 100	GJ 150
Rotation		Clockwise when viewed from the driver				
Suction bore	(mm)	50	80	100	150	200
Discharge bore	(mm)	40	50	80	100	150
Ball bearings		Single row deep groove sealed (63 type)				
Stuffing box seal		Gland packing or mechanical seal				
Weight with baseplate	(kg)	90~120	90~180	130~205	195~265	230~305

DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
7	BEARING HOUSING	"	"	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	"	SUS304	1
27	IMPELLER NUT	"	"	1
31	PACKING	RUBBER		1
34, 35	BALL BEARING	SPECIAL STEEL		2
38A, B	MOUTH RING	BRONZE	CAC403	2
46	LANTERN BUSH	"	CAC406	1
47	GLAND	"	"	1
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		1 SET
60	PACKING	RUBBER		1
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET





mm

Model	Bore		Motor frame NO.	A	C	F	H ₁	H ₂	K	L	M	N	P	U	W	Y	Z
	Suc.	Dis.															
GJ 40-20	50	40	90L	100	55	385	265	180	115	700	470	335	295	42.5	20	4	19
			160M	100	90	385	265	180	150	910	610	385	345	42.5	20	4	19
40-25	50	40	90L	100	57.5	390	285	225	130	710	450	385	345	42.5	20	4	19
			160L	100	97.5	390	285	225	170	970	630	385	345	42.5	20	4	19
50-20	80	50	90L	100	55	385	265	200	115	700	470	335	295	42.5	20	4	19
			160L	100	90	385	265	200	150	950	650	385	345	42.5	20	4	19
50-25	80	50	132S	125	77.5	390	285	225	150	810	510	385	345	42.5	20	4	19
			180L	125	117.5	390	285	225	190	1040	660	385	345	42.5	20	4	19
50-32	80	50	132M	125	77.5	434	330	280	150	890	590	385	345	42.5	20	4	19
			225S	125	117.5	434	340	280	190	1130	750	485	440	52.5	20	4	24
80-20	100	80	112M	125	57.5	405	285	250	130	780	520	385	345	42.5	20	4	19
			180L	125	117.5	405	285	250	190	1060	680	385	345	42.5	20	4	19
80-25	100	80	132M	125	60	434	340	280	150	910	610	465	425	42.5	20	4	19
			160L	125	80	434	340	280	170	1040	700	465	425	42.5	20	4	19
80-32	100	80	132M	125	80	434	365	315	170	910	570	465	425	42.5	20	4	19
			180M	125	100	434	365	315	190	1040	690	465	425	42.5	20	4	19
100-25	150	100	132M	140	80	482	340	280	170	960	620	465	425	42.5	20	4	19
			180M	140	100	482	340	280	190	1090	710	465	425	42.5	20	4	19
100-32	150	100	180M	140	100	482	365	315	190	1090	710	465	425	42.5	20	4	19
			200L	140	110	482	365	315	200	1200	800	485	440	52.5	20	4	24
100-40	150	100	180M	140	80	487	410	355	190	1110	730	470	430	50	20	4	19
			250S	140	120	487	430	355	230	1300	840	500	450	65	25	4	28
150-25	200	150	132M	140	80	487	365	355	170	960	620	465	425	42.5	20	4	19
			180L	140	110	487	365	355	200	1200	800	485	440	52.5	20	4	24
150-32	200	150	180M	140	80	487	410	355	190	1110	730	470	430	50	20	4	19
			225S	140	90	487	410	355	200	1220	820	470	430	50	20	4	24
150-40	200	150	180M	140	80	487	445	400	190	1110	730	470	430	50	20	4	19
			250M	140	120	487	465	400	230	1330	870	500	450	65	25	4	28

SHINKO IND.LTD.

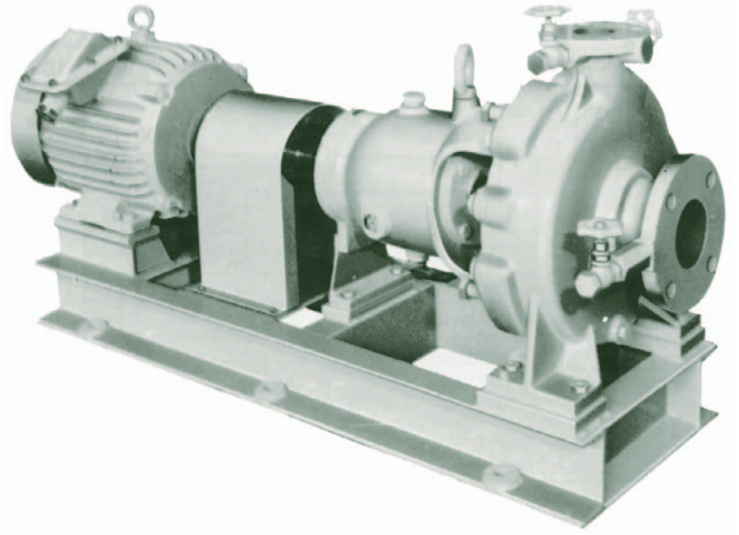
Horizontal single-stage single-suction CENTRIFUGAL PUMPS

SHINKO
GHJ

■ APPLICATIONS

GHJ centrifugal pumps are designed in accordance with ISO standards 2858-1975 and are widely used for general industries.

General cooling pumps
Deaerator feed pumps
Refinery service pumps
Petro-chemical pumps
Pulp pumps
Other general use



■ SPECIFICATIONS

Total head 5 to 150m
Temperatures Below 160°C

■ DESIGN

Impeller

The impeller is either closed or semi-open depending on the kinds of liquids to be handled.

Bearings

63-type ball bearings are used on the pump side. 64-type ball bearings are used on the coupling side with a closed impeller, and 73-type ball bearings with a semi-open impeller.

Stuffing Box Jacket

If the temperature of the handling liquid is over 100 deg C, the pump is cooled by placing a jacket around the stuffing box.

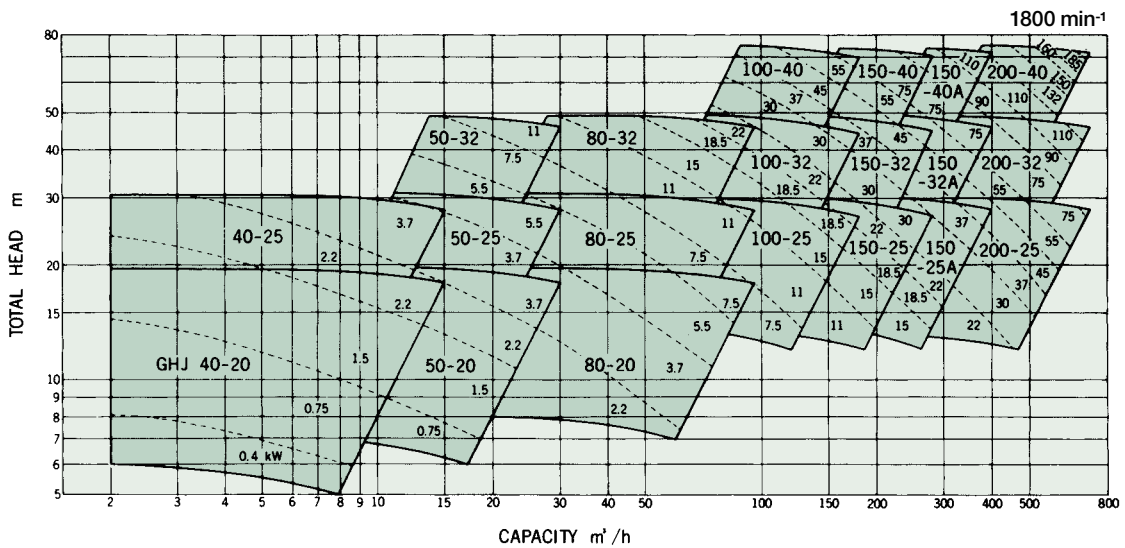
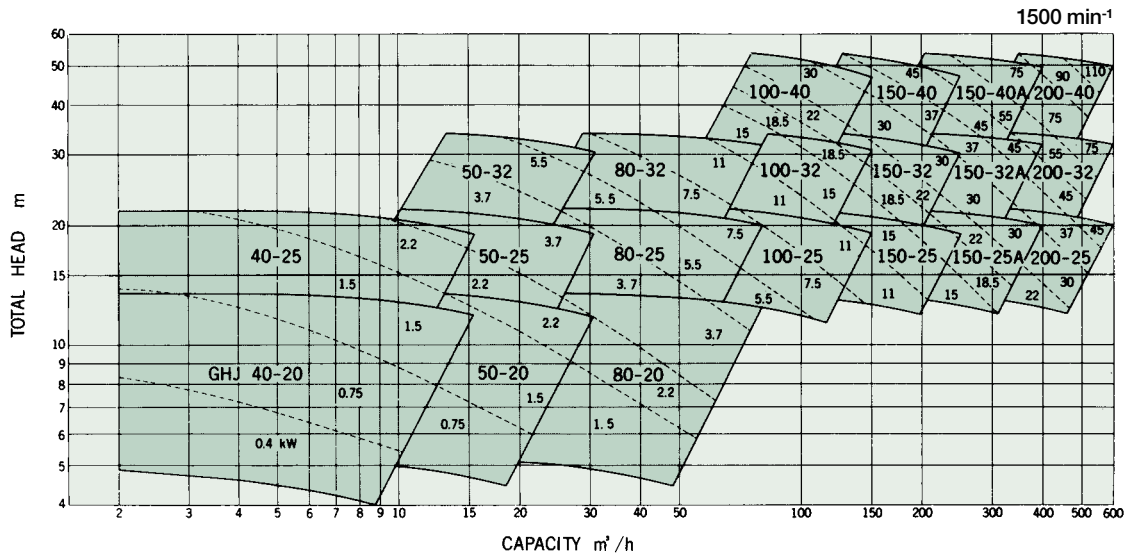
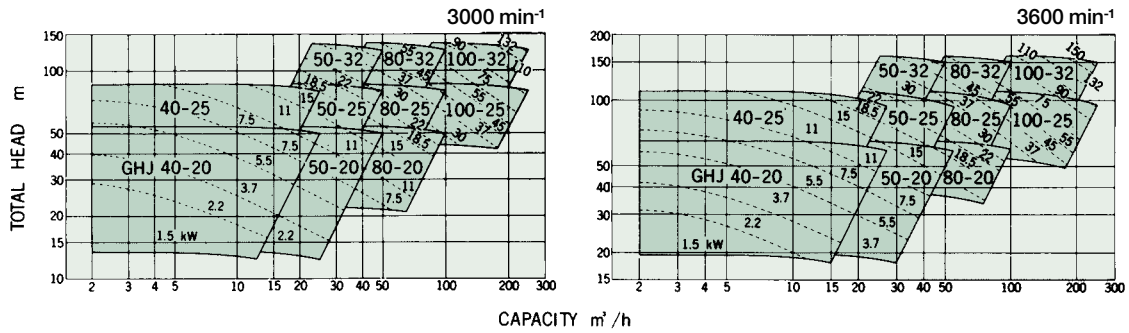
Method of Supporting Pump Body

If the temperature of liquid handled is over 120 deg C, the pump casing should be externally supported on both sides in the center of the pump by installing a leg on the baseplate.

Model	Impeller	Bearing		Cooling device for stuffing box	Method of supporting pump casing
		Pump side	Coupling side		
GHJ	Closed type	63-type	64-type	None	Foot-support
GHJ-C	〃	〃	〃	Provided	Center-support
GHJ-O	Semi-open type	〃	73-type	None	Foot-support
GHJ-OC	〃	〃	〃	Provided	Center-support

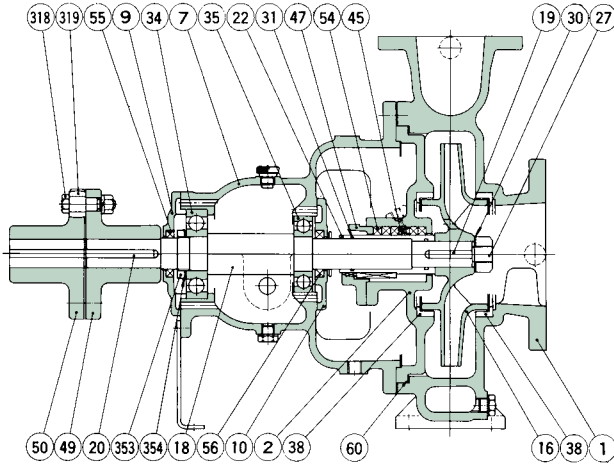
GENERAL CHARACTERISTICS

Item	Model	GHJ 40	GHJ 50	GHJ 80	GHJ 100	GHJ 150	GHJ 150A	GHJ 200
Rotation		Clockwise when viewed from the driver						
Suction bore	(mm)	50	80	100	150	200	200	250
Discharge bore	(mm)	40	50	80	100	150	150	200
Ball bearings at coupling side		Single row deep groove (64 type) or angular contact (73 type)						
Ball bearings at opposite side		Single row deep groove (63 type)						
Lubrication system		Oil bath (turbine oil ISO VG 56~68)						
Stuffing box seal		Gland packing or mechanical seal						
Weight with baseplate	(kg)	107~145	111~215	163~269	237~348	281~394	360~444	522~672

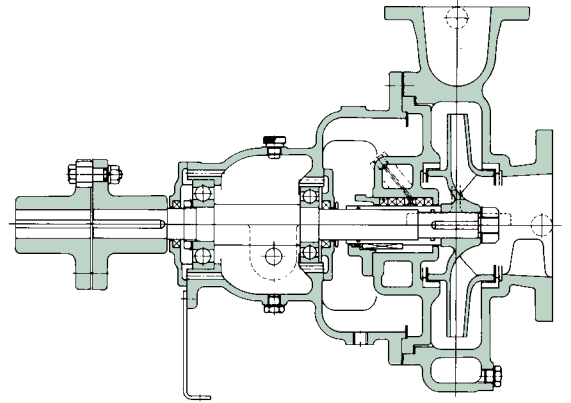


DESIGN & STANDARD MATERIALS

GHJ (Standard)

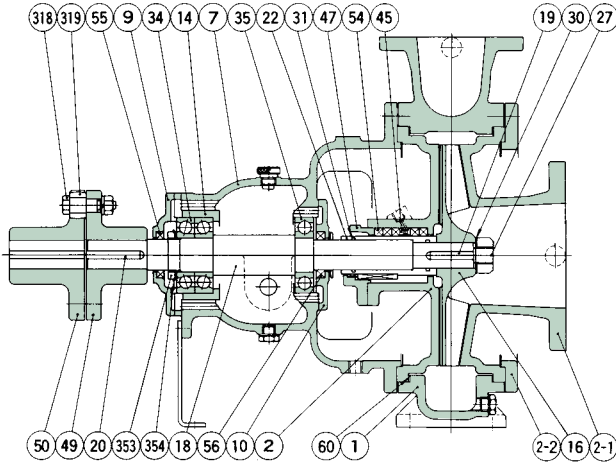


GHJ-C (Center support, stuffing box jacket)

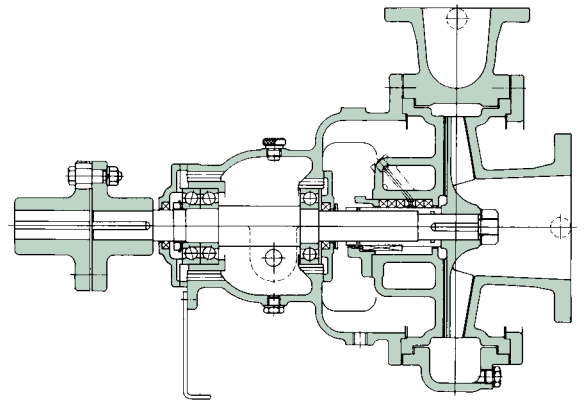


PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1	34, 35	BALL BEARING	SPECIAL STEEL		2
2	VOLUTE COVER	"	"	1	38	MOUTH RING	BRONZE	CAC403	2
7	BEARING HOUSING	"	"	1	45	SEALING RING	SYNTHETIC RESIN		1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1	47	GLAND	BRONZE	CAC406	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
22	SLEEVE	"	"	1	54	GLAND PACKING	CARBONIZED FIBER		1 SET
27	IMPELLER NUT	"	SUS304	1	318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
30	WASHER	"	"	1	319	COUPLING RING	RUBBER		1 SET

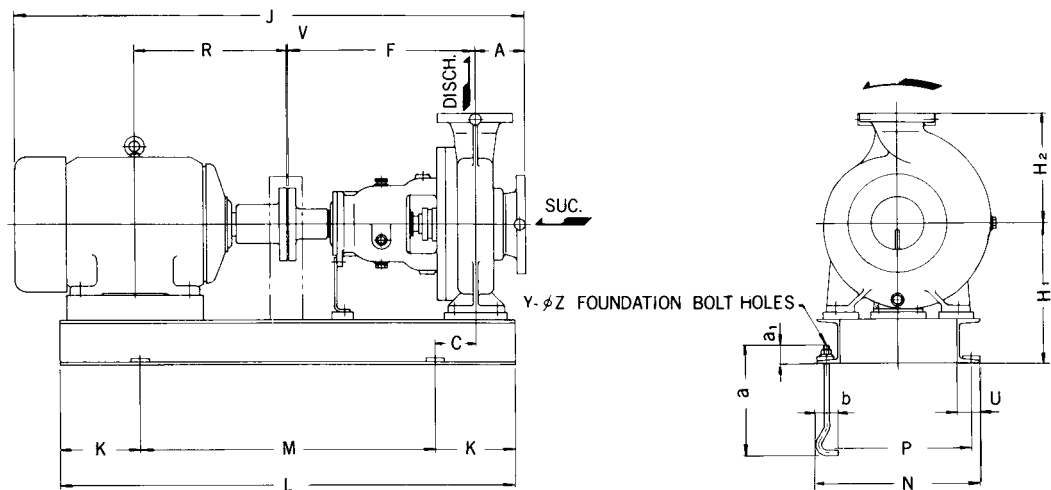
GHJ-O (Semi-open impeller)



GHJ-OC (Semi-open impeller, center support, stuffing box jacket)



PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1	30	WASHER	STAINLESS STEEL	SUS304	1
2	VOLUTE COVER	"	"	1	34, 35	BALL BEARING	SPECIAL STEEL		2
2-1	VOLUTE COVER	"	"	1	45	SEALING RING	SYNTHETIC RESIN		1
2-2	VOLUTE COVER	"	"	1	47	GLAND	BRONZE	CAC406	1
7	BEARING HOUSING	"	"	1	49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1	54	GLAND PACKING	CARBONIZED FIBER		1 SET
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
22	SLEEVE	"	"	1	319	COUPLING RING	RUBBER		1 SET
27	IMPELLER NUT	"	SUS304	1					



mm

Model	Bore		Motor frame NO.	A	C	F	H ₁	H ₂	J	K	L	M	N	P	R	U	V	Y	Z	a	a ₁	b	Weight kg	
	Suc.	Disch.																					Pump	Base plate
GHJ 40-20	50	40	90L	100	55	385	265	180	816	115	700	470	335	295	168.5	42.5	4	4	16	315	40	63	72	35
			160M	100	90	385	265	180	1092	150	910	610	385	345	323	42.5	4	4	16	315	40	63	72	60
40-25	50	40	90L	100	57.5	500	285	225	931	130	820	560	385	345	168.5	42.5	4	4	16	315	40	63	80	55
			160L	100	97.5	500	285	225	1251	170	1080	740	385	345	345	42.5	4	4	16	315	40	63	80	65
50-20	80	50	90L	100	55	385	265	200	816	115	700	470	335	295	168.5	42.5	4	4	16	315	40	63	76	35
			160L	100	90	385	265	200	1136	150	950	650	385	345	345	42.5	4	4	16	315	40	63	76	60
50-25	80	50	132S	125	77.5	500	285	225	1078	150	920	620	385	345	239	42.5	4	4	16	315	40	63	84	60
			180L	125	117.5	500	285	225	1369	190	1150	770	385	345	400.5	42.5	4	4	16	315	40	63	84	70
50-32	80	50	132M	125	77.5	500	330	280	1116	150	950	650	385	345	258	42.5	4	4	16	315	40	63	120	60
			225S	125	117.5	500	340	280	1504.5	190	1190	810	485	440	432	52.5	4	4	20	400	45	80	120	95
80-20	100	80	112M	125	57.5	500	285	250	1012	130	870	610	385	345	200	42.5	4	4	16	315	40	63	108	55
			180L	125	117.5	500	285	250	1369	190	1150	770	385	345	400.5	42.5	4	4	16	315	40	63	108	70
80-25	100	80	132M	125	60	500	340	280	1116	150	970	670	465	425	258	42.5	4	4	16	315	40	63	132	80
			200L	125	110	500	340	280	1431.5	200	1210	810	485	440	425.5	52.5	4	4	20	400	45	80	132	95
80-32	100	80	132M	125	80	530	365	315	1146	170	1000	660	465	425	258	42.5	4	4	16	315	40	63	164	85
			250M	125	140	530	400	315	1634	230	1360	900	500	450	512.5	65	4	4	24	500	55	100	164	105
100-25	150	100	132M	140	80	530	340	280	1161	170	1000	660	465	425	258	42.5	4	4	16	315	40	63	152	85
			250M	140	140	530	400	280	1649	230	1360	900	500	450	512.5	65	4	4	24	500	55	100	152	105
100-32	150	100	180M	140	100	530	365	315	1350.5	190	1130	750	465	425	351.5	42.5	4	4	16	315	40	63	168	90
			315S	140	140	530	495	315	1780	230	1460	1000	650	600	589	75	4	4	24	500	55	100	168	180
100-40	150	100	180M	140	80	530	390	355	1350.5	190	1150	770	585	545	351.5	42.5	4	4	16	315	40	63	208	120
			250S	140	120	530	430	355	1611	230	1340	880	520	470	493.5	65	4	4	24	500	55	100	208	110
150-25	200	150	132M	140	80	530	365	355	1161	170	1000	660	465	425	258	42.5	4	4	16	315	40	63	196	85
			180L	140	110	530	365	355	1414	200	1240	840	485	440	400.5	52.5	4	4	20	400	45	80	196	100
150-32	200	150	180M	140	80	530	390	355	1350.5	190	1150	770	585	545	351.5	42.5	4	4	16	315	40	63	212	120
			225S	140	90	530	390	355	1491	270	1260	860	605	560	432	52.5	4	4	20	400	45	80	212	130
150-40	200	150	180M	140	80	530	425	400	1350.5	190	1150	770	585	545	351.5	42.5	4	4	16	315	40	63	264	120
			250M	140	120	530	465	400	1649	230	1370	910	520	470	512.5	65	4	4	24	500	55	100	264	115
150-25A	200	150	180M	160	80	530	390	375	1370.5	190	1150	770	585	545	351.5	42.5	4	4	16	315	40	63	240	120
			200L	160	90	530	390	375	1496.5	200	1260	860	605	560	425.5	52.5	4	4	20	400	45	80	240	130
150-32A	200	150	180M	160	90	670	425	400	1510.5	200	1290	890	605	560	351.5	52.5	4	4	20	400	45	80	272	130
			250S	160	120	670	465	400	1771	230	1480	1020	570	520	493.5	65	4	4	24	500	55	100	272	130
150-40A	200	150	225S	160	120	670	425	450	1651	230	1400	940	625	575	432	62.5	4	4	24	500	55	100	304	135
			280M	160	160	670	465	450	1899	270	1610	1070	580	530	569.5	65	4	4	24	500	55	100	304	140
200-25	250	200	180M	200	90	670	465	440	1550.5	200	1290	890	605	560	351.5	52.5	4	4	20	400	45	80	392	130
			250M	200	120	670	505	440	1849	230	1520	1060	520	470	512.5	65	4	4	24	500	55	100	392	120
200-32	250	200	225S	200	120	750	505	490	1772	230	1480	1020	570	520	432	65	5	4	24	500	55	100	432	130
			280M	200	160	750	505	490	2020	270	1690	1150	580	530	569.5	65	5	4	24	500	55	100	432	145
200-40	250	200	225S	200	120	750	505	540	1772	230	1480	1020	570	520	432	65	5	4	24	500	55	100	472	145
			315M	200	160	750	530	540	2112	300	1750	1150	650	600	614.5	75	5	4	24	500	55	100	472	200

SHINKO IND.LTD.

Horizontal single-stage double-suction CENTRIFUGAL PUMPS



Shinko GHD centrifugal pumps have been designed on the basis of our many years of experience and service. The casing is horizontally split and the suction and discharge nozzles have been built into the casing. This allows simple removal of the casing cover and the rotating elements without disturbing the suction and discharge piping.

■ APPLICATIONS

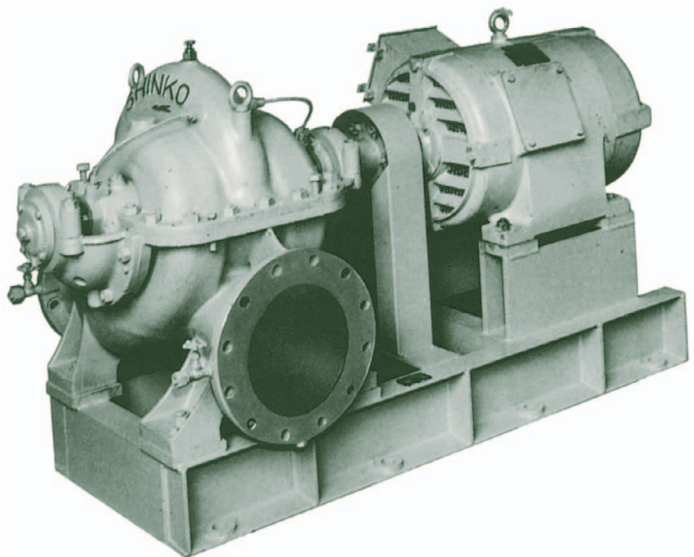
- Water intake, supply, pressurization, or feeding pumps for waterworks
- Water intake or cooling pumps for various processing plants
- Pumping-out, draining, or sprinkler pumps for irrigation
- Water feeding, draining, fire fighting, or air conditioning pumps for buildings
- Cooling water pumps for private power plants

■ HANDLING LIQUIDS

- Fresh water
- Industrial water
- River water
- Sea water

■ SPECIFICATIONS

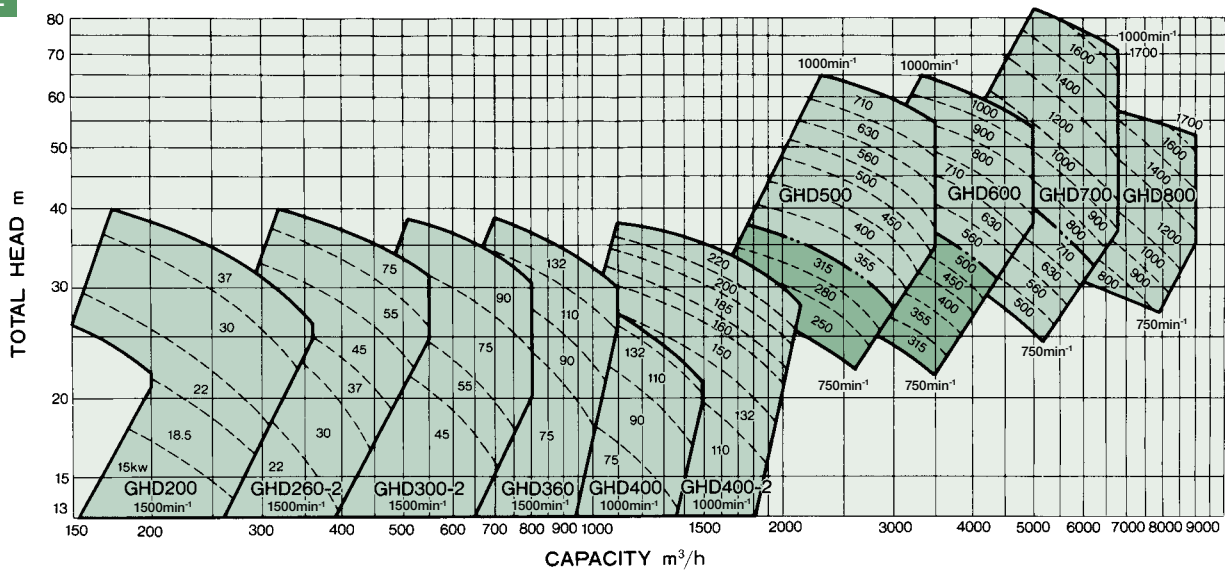
- Total head 13 to 80m
- Capacity 200 to 9000m³/h
- Temperatures Below 100°C



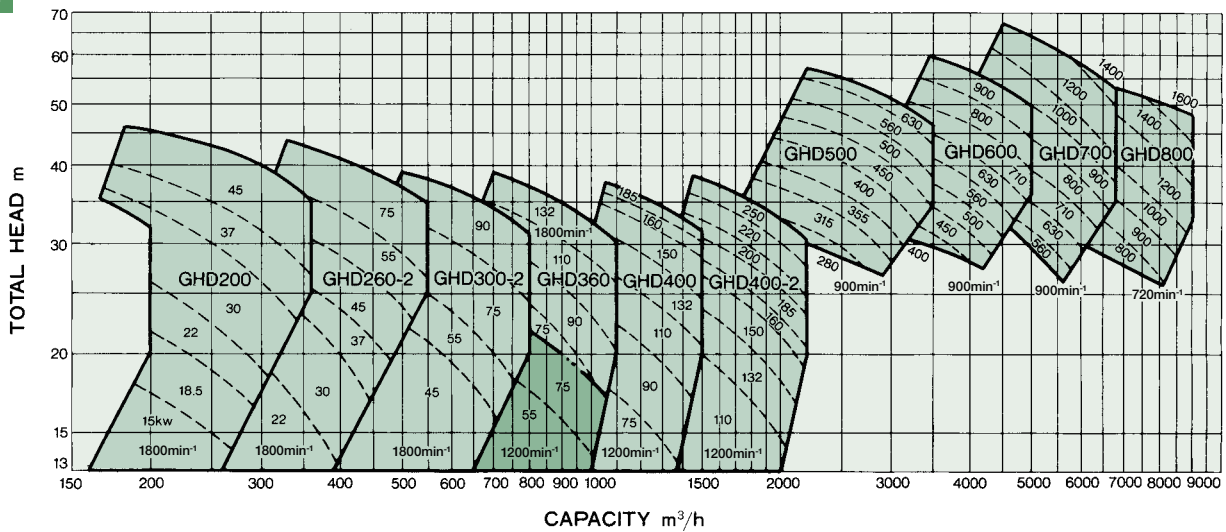
■ GENERAL CHARACTERISTICS

Item \ Model	GHD 200	GHD 260-2	GHD 300-2	GHD 360	GHD 400	GHD 400-2	GHD 500	GHD 600	GHD 700	GHD 800	
Rotation	Clockwise when viewed from the driver										
Suction bore (mm)	200	250	300	350	400	500	600	700	800	900	
Discharge bore (mm)	200	250	300	350	400	400	500	600	700	800	
Ball bearings	6309	6309	6311	6311	6314	6314	6319	6322	6326	6330	
Service life (hr)	Above 60000										
Amount of grease filled (g)	2×20	2×20	2×30	2×30	2×50	2×50	2×110	2×150	2×175	2×200	
Stuffing box seal	Gland packing or mechanical seal										
Weight with baseplate (kg)	390	500	760	800	970	1590	2630	3550	5100	7520	

50Hz



60Hz



DESIGN & STANDARD MATERIALS

Volute Casing

For GHD400 and smaller models with small or medium capacity, a single volute casing is used. But, for GHD400-2 and larger models with large capacity, a double volute casing is used to prevent shaft deflection in all service ranges.

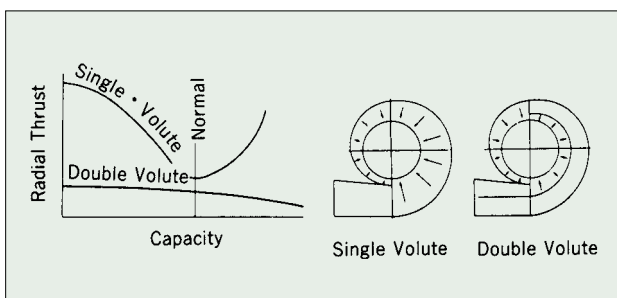
Impeller & Shaft

The impeller is single-stage, double-suction, and hydraulically balanced. To improve pump efficiency and suction performance, a special design has been introduced.

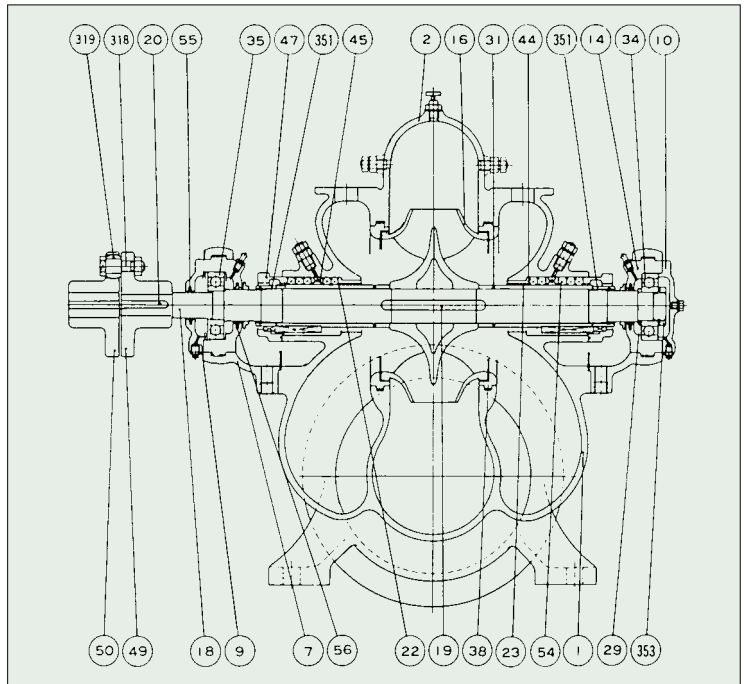
The shaft as well as the impeller and all other rotating elements are statically and dynamically balanced.

Bearings & Lubrication

Both ends of the casing have horizontally-split bearing housings, in which heavy duty deep groove ball bearings are installed. The bearing at the opposite end of the coupling is firmly secured to prevent axial movement and absorb the thrust of the rotating element. The bearing is grease lubricated.



PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
7	BEARING HOUSING	"	"	2 SETS
9, 10	BEARING COVER	"	"	2
14	INNER CASE	"	"	2
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22, 23	SLEEVE	"	"	2
34, 35	BALL BEARING	SPECIAL STEEL		2
38	MOUTH RING	BRONZE	CAC403	2
44	NECK BUSH	"	CAC406	2
45	SEALING RING	SYNTHETIC RESIN		2
47	GLAND	BRONZE	CAC406	2
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		2 SETS
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET
351	SLEEVE NUT	STAINLESS STEEL	SUS316	2



Liquid Handled & Materials

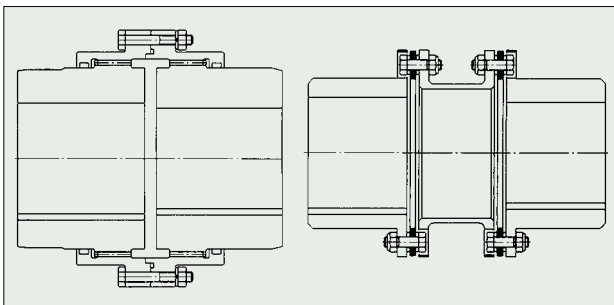
Standard materials used in the pumps are shown on the material list above, but depending on the liquid or customer request, materials can be changed for parts shown on the table below.

1	VOLUTE CASING	22, 23	SLEEVE
2	VOLUTE COVER	38	MOUTH RING
16	IMPELLER	44	NECK BUSH
18	IMPELLER SHAFT	47	GLAND

Coupling

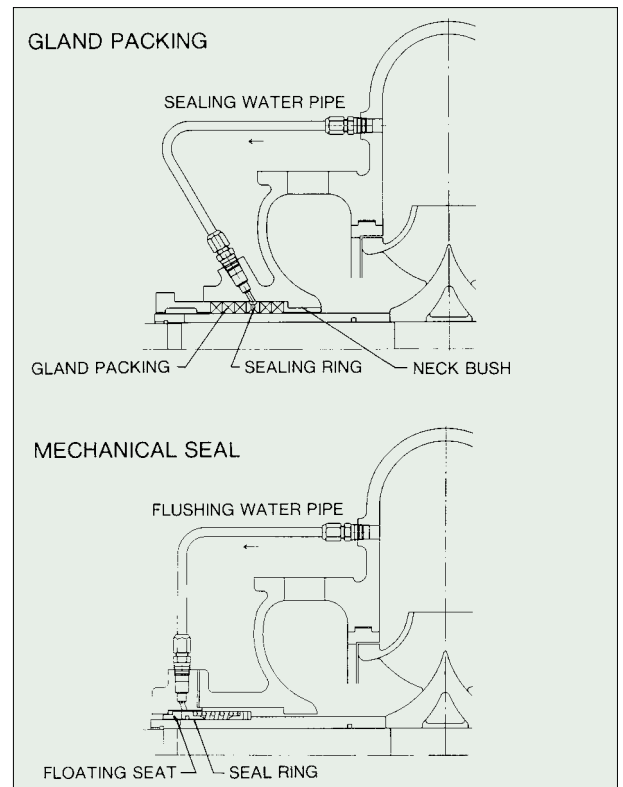
For GHD400 and smaller models with small or medium capacity, a flexible coupling with a rubber ring type is provided.

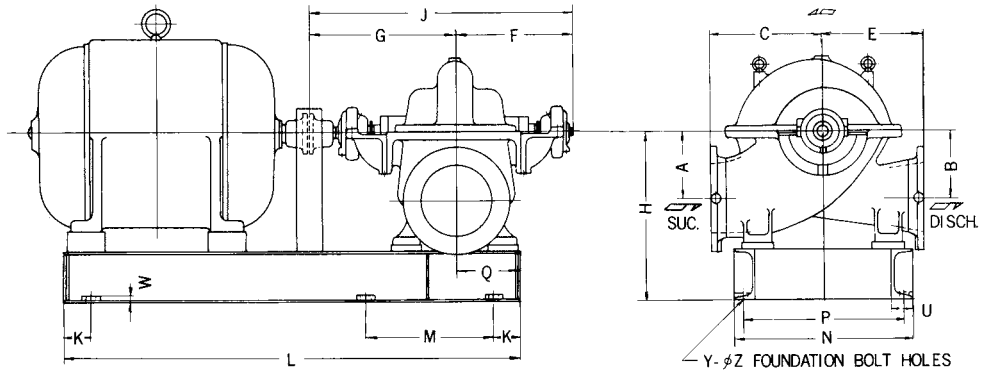
But, for GHD400-2 and larger pumps with large capacity, a gear coupling or Thomas coupling is provided.



Stuffing Box Seal

A stuffing box is located on the pump casing where the impeller shaft passes through and the gland packing is installed as a standard feature. However, a mechanical seal can be installed alternatively at customer request.





mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	U	W	Y	Z
GHD 200	220	220	390	350	420	495	525	915	100	1340	380	500	440	210	75	25	8	28
GHD 260-2	250	250	420	360	420	495	630	915	100	1490	430	580	520	245	75	30	8	35
GHD 300-2	300	300	500	380	465	580	705	1045	100	1700	500	640	580	275	75	30	8	35
GHD 360	310	310	520	400	500	600	775	1100	100	1820	540	680	610	330	90	30	8	35
GHD 400	350	350	580	475	590	740	830	1330	100	2060	620	920	850	380	90	30	8	42
GHD 400-2	420	420	700	620	640	800	1010	1440	100	2150	650	1100	1030	385	90	30	8	42
GHD 500	550	550	850	750	770	940	1245	1710	100	2840	660	1250	1180	520	90	30	10	42
GHD 600	650	650	1000	600	850	1050	1445	1900	100	3600	680	1650	1580	570	90	30	12	42
GHD 700	850	750	1150	700	975	1150	1650	2100	150	3700	680	1950	1870	620	100	50	12	42
GHD 800	850	850	1300	800	1050	1200	1850	2250	150	3750	690	2200	2120	670	100	50	12	42

SHINKO IND.LTD.

Horizontal two-stage single-suction CENTRIFUGAL PUMPS

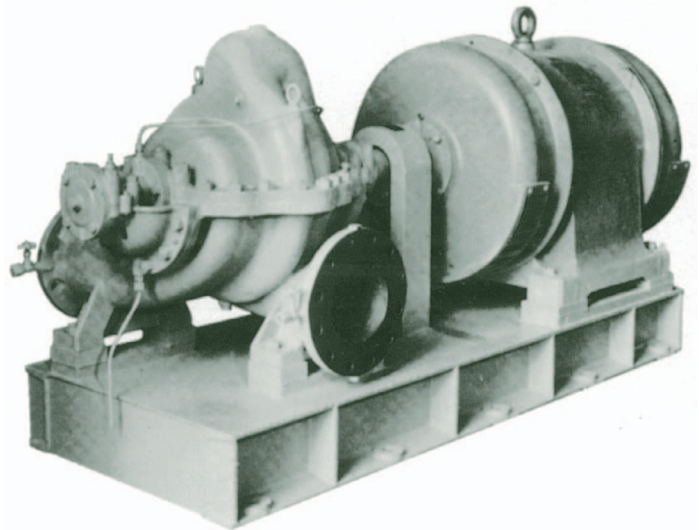


APPLICATIONS

- General cooling pumps
- Deaerator feed pumps
- Fire pumps

SPECIFICATIONS

- Total head 25 to 190m
- Temperatures Below 100°C

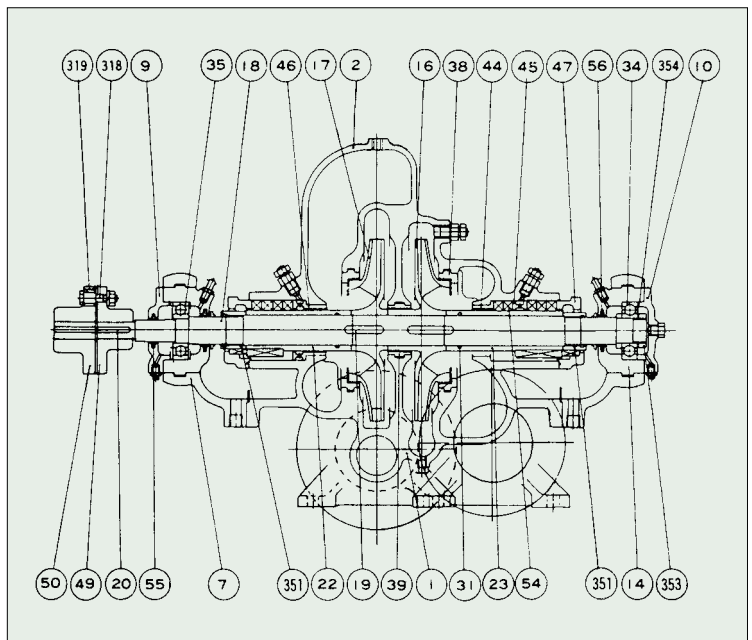


GENERAL CHARACTERISTICS

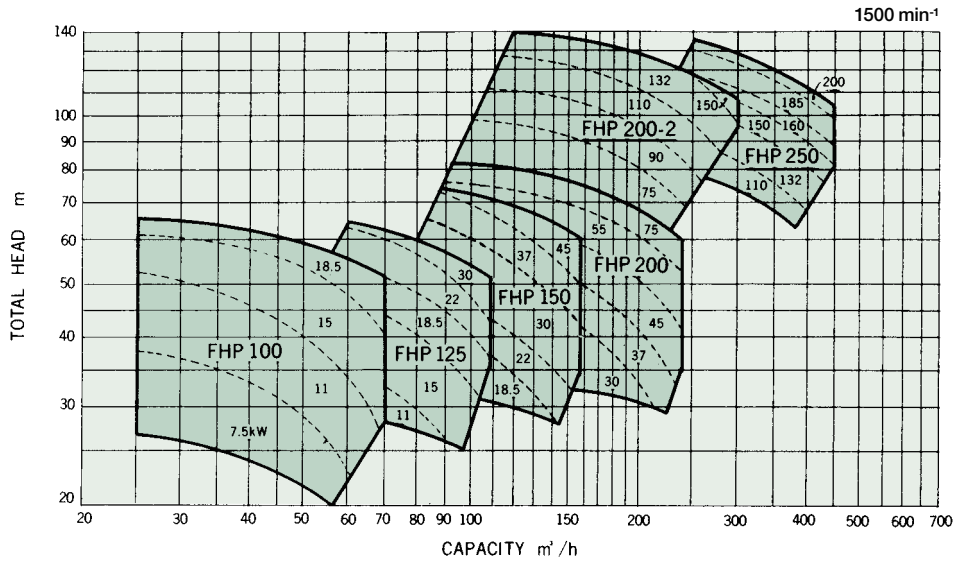
Item	Model	FHP 100	FHP 125	FHP 150	FHP 200	FHP 200-2	FHP 250
Rotation		Clockwise when viewed from the driver					
Suction bore	(mm)	100	125	150	200	200	250
Discharge bore	(mm)	100	125	150	200	200	250
Ball bearings		6307	6307	6309	6309	6311	6314
Service life	(hr)	Above 60000					
Amount of grease filled	(g)	2×10	2×10	2×20	2×20	2×30	2×50
Stuffing box seal		Gland packing or mechanical seal					
Weight with baseplate	(kg)	290	350	500	600	750	1100

DESIGN & STANDARD MATERIALS

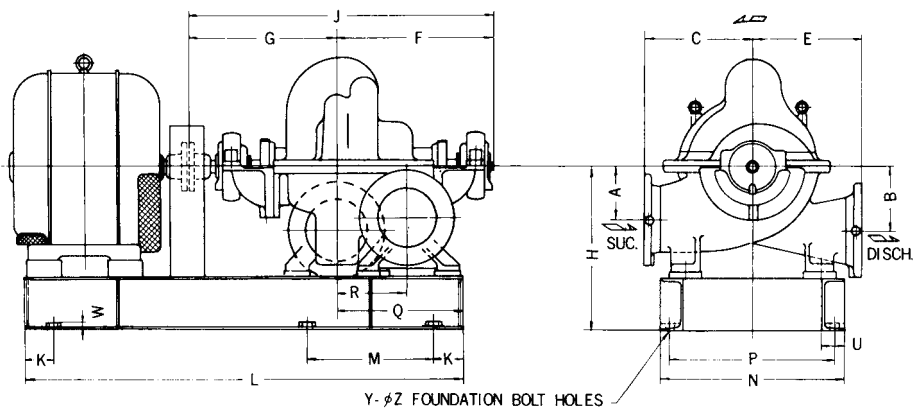
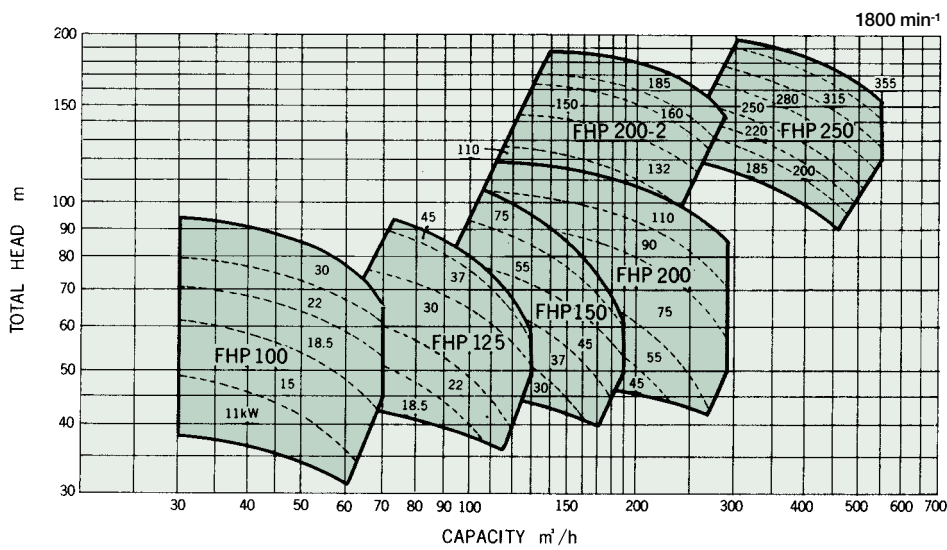
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
7	BEARING HOUSING	"	"	2 SETS
9, 10	BEARING COVER	"	"	2
14	INNER CASE	"	"	2
16, 17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22, 23	SLEEVE	"	"	2
34, 35	BALL BEARING	SPECIAL STEEL		2
38	MOUTH RING	BRONZE	CAC403	2
39	CASING RING	"	CAC406	1
44	NECK BUSH	"	"	1
45	SEALING RING	SYNTHETIC RESIN		1
46	LANTERN BUSH	BRONZE	CAC406	1
47	GLAND	"	"	2
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		2 SETS
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET



50Hz



60Hz



Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	U	W	Y	Z
FHP 100	180	190	330	300	440	400	425	840	100	1190	330	470	420	210	125	65	25	8	25
FHP 125	180	190	330	300	440	400	440	840	100	1370	390	470	420	315	180	65	25	8	25
FHP 150	190	210	370	350	510	473	510	983	100	1610	470	580	520	340	190	75	25	8	27
FHP 200	180	220	370	370	510	473	560	983	100	1700	500	640	580	430	240	75	25	8	27
FHP 200-2	300	300	500	500	580	560	810	1140	100	2160	490	830	760	430	240	80	30	10	33
FHP 250	320	320	520	500	660	690	780	1350	100	2400	550	980	910	500	280	80	30	10	33

SHINKO IND.LTD.

Vertical single-suction axial-flow deep-well CENTRIFUGAL PUMPS



■ APPLICATIONS

- Water intake pumps
- General cooling pumps
- Other general use

■ SPECIFICATIONS

- Total head 15 to 45m
- Temperatures Below 100°C

■ GENERAL CHARACTERISTICS

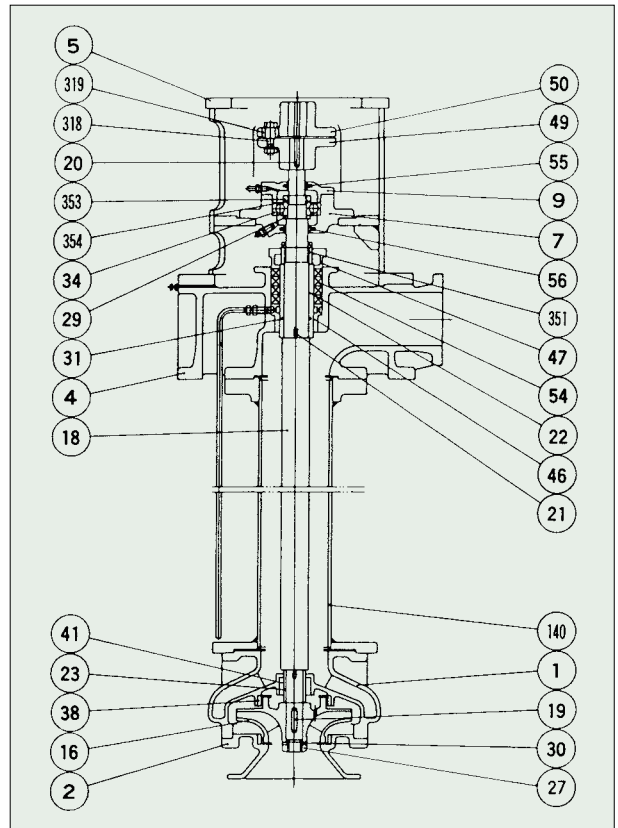
Item	Model	Model				
		SB 150	SB 200	SB 250	SB 300	SB 350
Rotation		Clockwise when viewed from the driver				
Discharge bore (mm)		150	200	250	300	350
Ball bearings		6309	6311	6311	6311	6314
Service life (hr)		Above 60000				
Amount of grease filled (g)		20	30	30	30	50
Tank bottom to bell mouth (mm)		80	100	120	140	170
Required min. water level (mm)		350	350	430	500	570
Stuffing box seal		Gland packing or mechanical seal				
Weight (except motor) (kg)		590 (40)	890 (50)	1240 (63)	1750 (108)	2700 (163)

Ball bearing size varies with length of shaft.
Weight refers to L = 2 m, and increases as shown in bracket with 1 m increase in L.

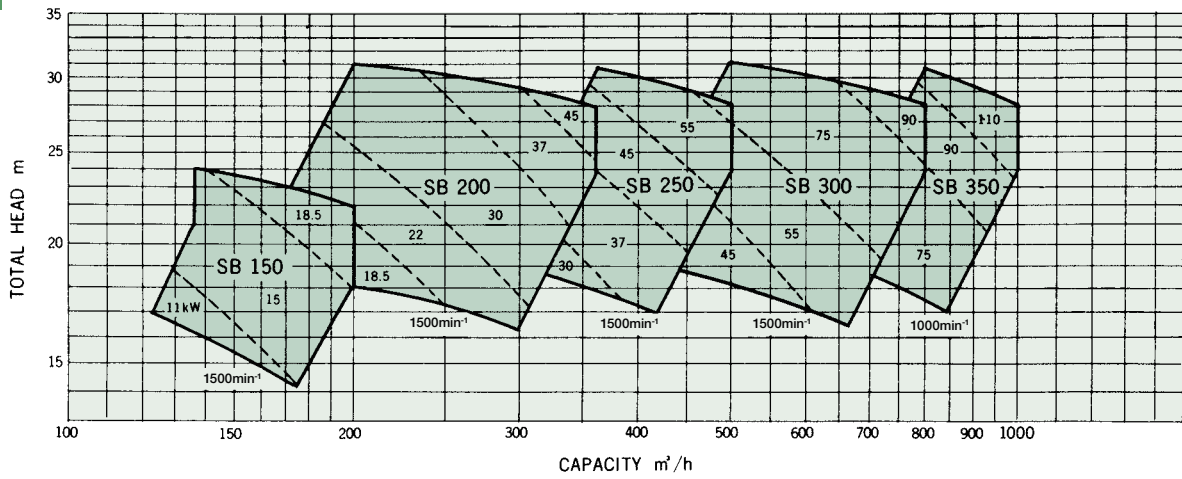


■ DESIGN & STANDARD MATERIALS

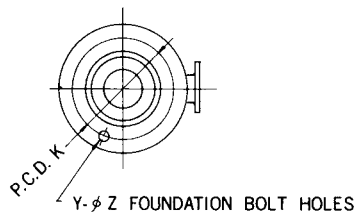
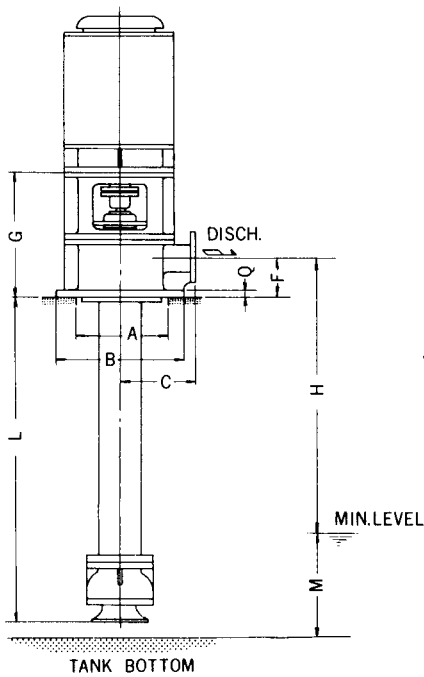
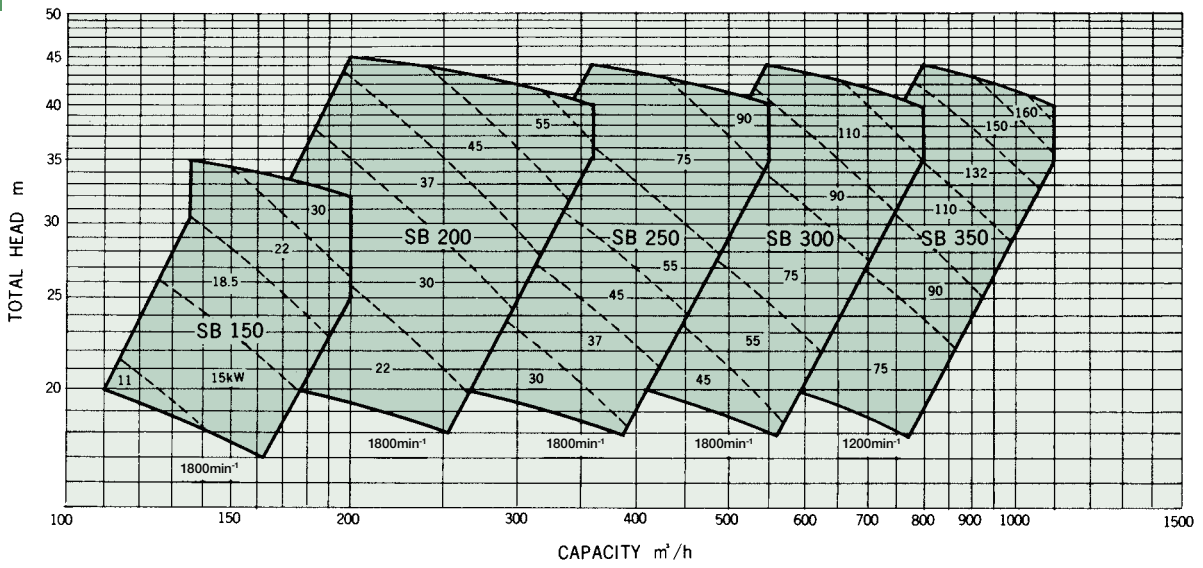
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
4	PUMP BED	"	"	1
5	MOTOR BED	STEEL	SS400	1
7	BEARING HOUSING	CAST IRON	FC200	1
9	BEARING COVER	"	"	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	Cr-Mo STEEL	SCM435	1
22	SLEEVE	STAINLESS STEEL	SUS403	1
23	SLEEVE	"	"	1
27	IMPELLER NUT	"	SUS304	1
34	BALL BEARING	SPECIAL STEEL		1
38	MOUTH RING	BRONZE	CAC403	2
41	LINE BEARING	CARBON		1
46	LANTERN BUSH	BRONZE	CAC406	1
47	GLAND	"	"	1
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		1 SET
140	DISCHARGE PIPE	STEEL	SS400	1
318	COUPLING BOLT & NUT	"	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET



50Hz



60Hz



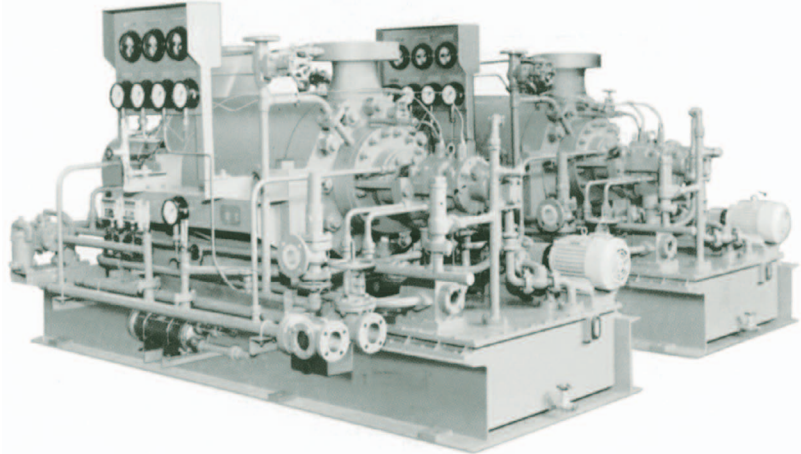
Model	A	B	C	F	G	K	M	Q	Y	Z
SB 150	480	640	385	250	800	590	350	32	8	25
SB 200	585	750	420	320	950	700	350	38	8	25
SB 250	650	850	430	400	1050	790	430	42	12	25
SB 300	730	940	540	475	1175	880	500	42	12	25
SB 350	950	1130	620	550	1355	1070	570	42	12	27

SHINKO IND. LTD.

Horizontal multi-stage ring section BOILER FEED PUMPS

SHINKO
DKR

Shinko DKR pumps have been designed as boiler feed pumps for private power plants for various industries. The pumps are manufactured with attention to strict material selection, quality design, and workmanship based on our many years of experience, and also have many special features that are unsurpassed by any other manufacturers.



High Efficiency in a Wide Range

The impeller is designed to have a smooth and perfect lowering head curve. The water passage in the casing has a smooth finish ensuring safe operation and efficiency in a wide range.

High Reliability & Durability

The thrust bearing is installed to prevent contact between the balance disk and sheet ensuring safe operation even when there are sudden changes in load.

Low NPSH Operation

In order to improve the NPSH of the pump, special attention has been paid to the design and manufacture of first-stage impeller.

Replacement Capability

All components can be replaced easily because they were machined with computer-controlled equipment.

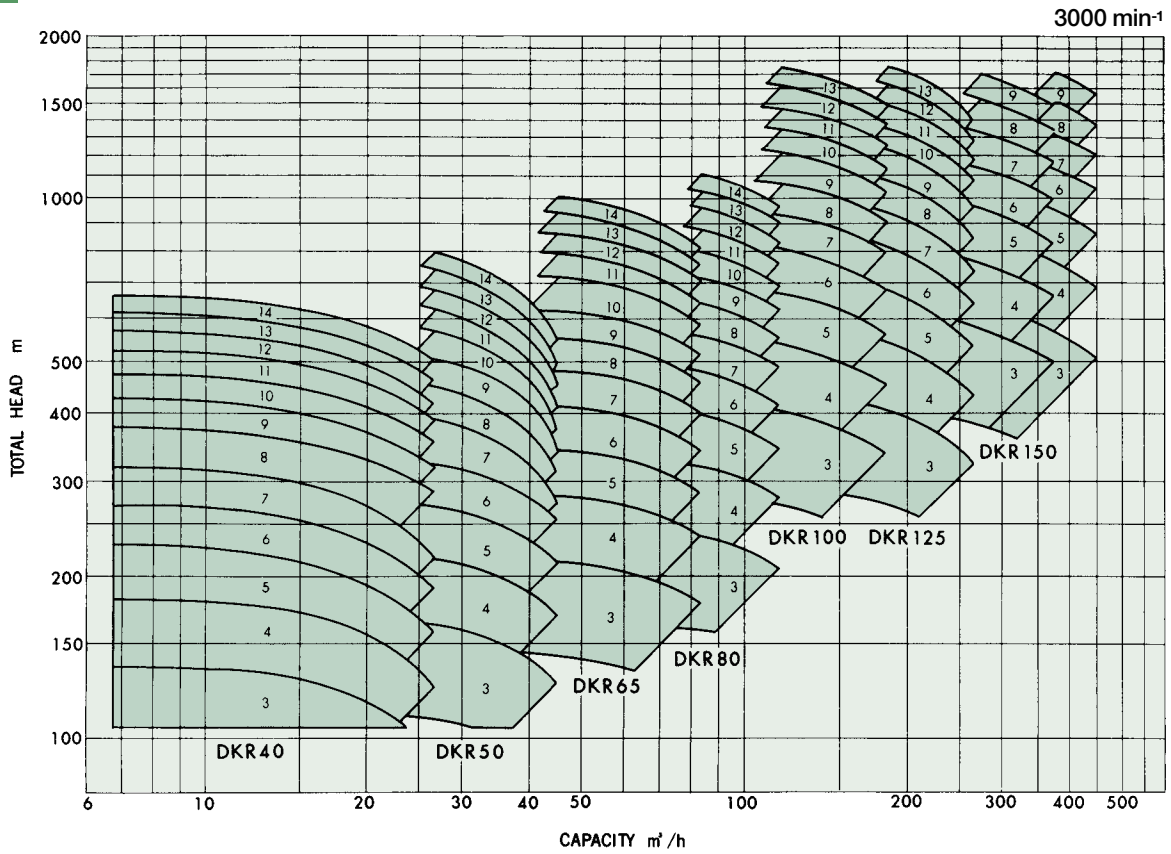
■ GENERAL CHARACTERISTICS

Item	Model	DKR 40	DKR 50	DKR 65	DKR 80	DKR 100	DKR 125	DKR 150
Number of stages		3~14	3~14	3~14	3~14	3~13	3~13	3~9
Max. suction temperature	(°C)	200						
Direction of rotation		Clockwise when viewed from the driver						
Suction bore	(mm)	50	65	80	100	125	150	200
Discharge bore	(mm)	40	50	65	80	100	125	150
Main bearing		Ball bearings or journal type						
Thrust bearing		Ball bearings or Michell type bearing						
Lubrication system		Oil ring or forced lubrication						
Lube oil for bearing housing	(ℓ)	0.6~1.0	0.6~1.3	1.0~1.6	1.2~1.8	1.3~2.0	1.6~2.0	—
※ Main & aux. LO pump	(m ³ /h×MPaG)	—	—	—	2×0.15	2×0.15	2×0.15	2×0.15
※ Oil tank	(ℓ)	—	—	—	120	120	120	120~180
※ Oil cooler	(m ²)	—	—	—	1.1	1.1	1.5	1.5~2.0
※ Cooling water required	(m ³ /h)	1~2	1~2	2~3	3~4	3~4	4~5	5~7
Weight with baseplate	(kg)	400~1000	600~1200	800~1400	1000~1800	1200~2500	1400~3000	1700~3500

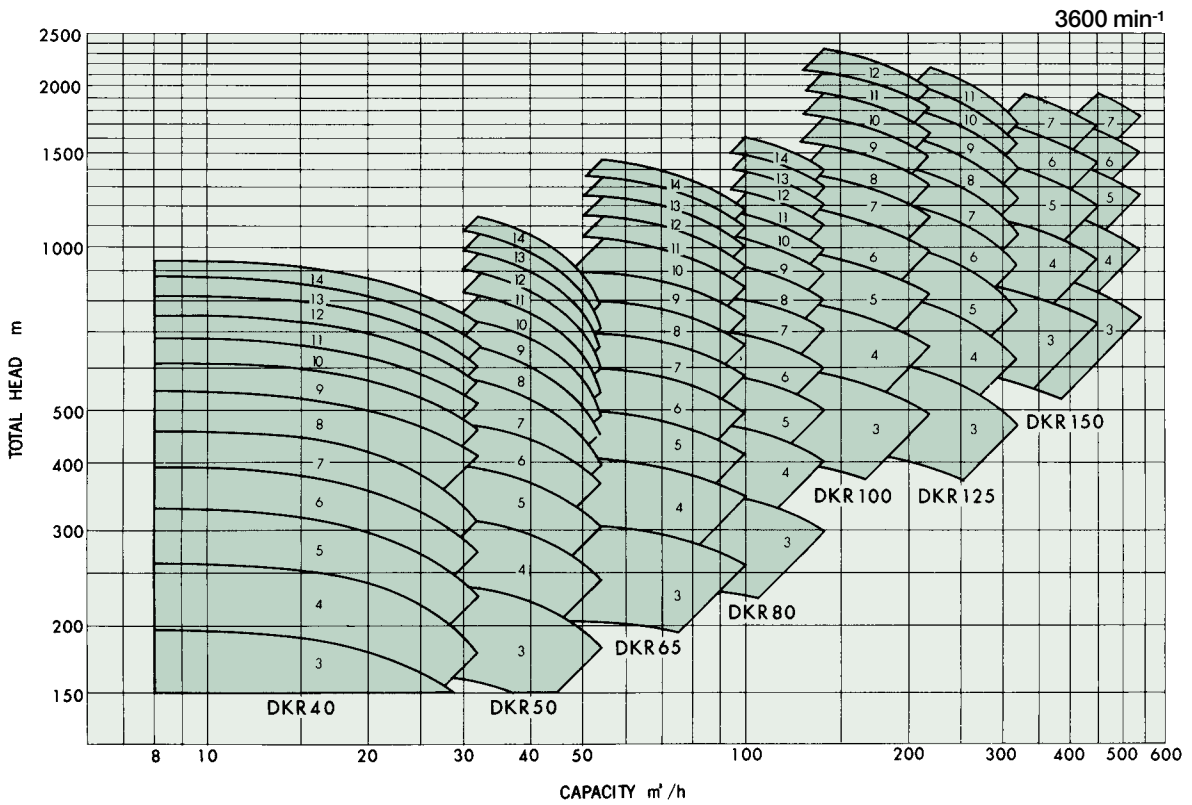
Note : "Lube oil for bearing housing" refers to the required lube oil quantity for oil-ring lubrication systems.

※If the lube oil is supplied to the motor, these values will change. (Forced lubrication)

50Hz

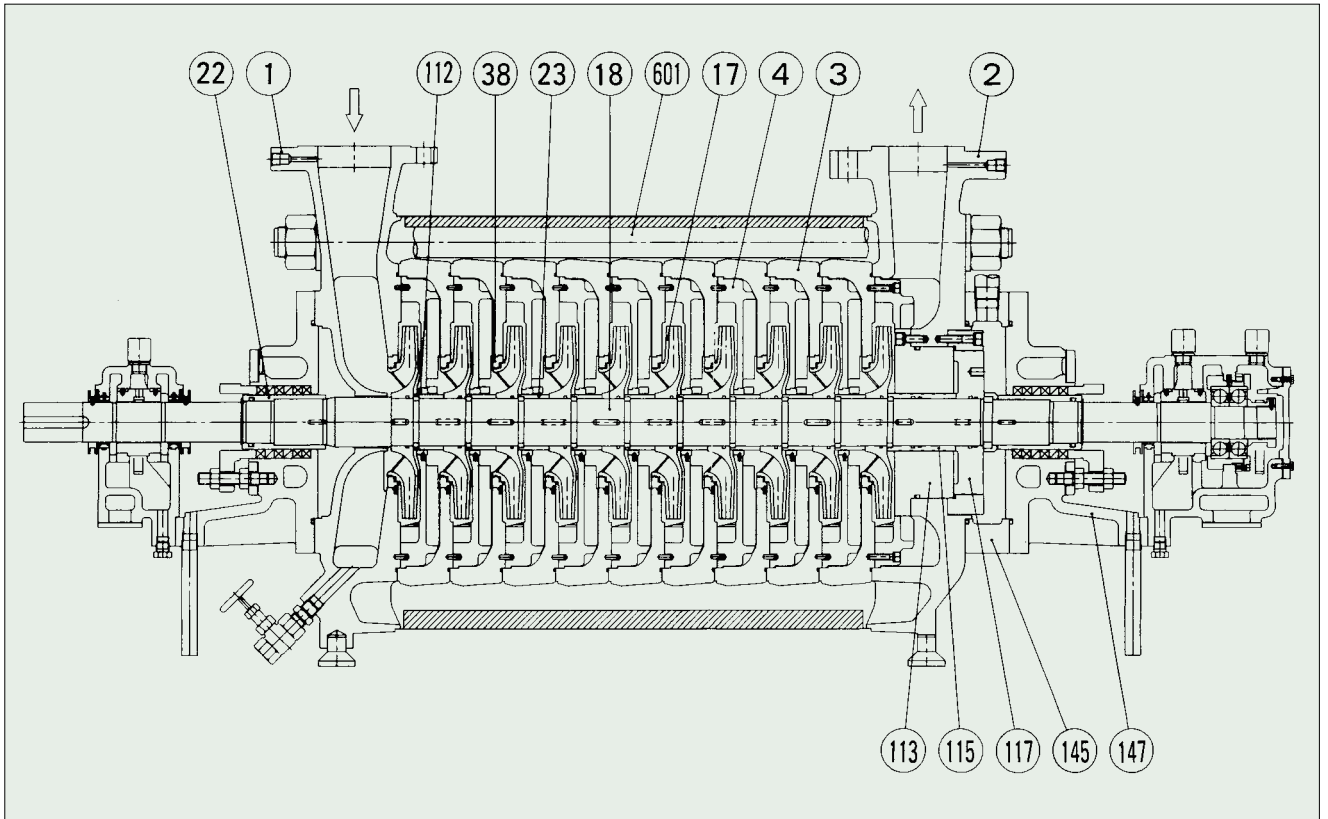


60Hz



Note : The numbers in the charts refers to the number of pump stage.

■ DESIGN & STANDARD MATERIALS



The material of the parts can be changed in accordance with the operating conditions.

PART NO.	NAME OF PART	MATERIAL		
		NAME	JIS	ASTM
* 1	SUCTION CASING	DUCTILE CAST IRON	FCD700	A536-77 100-70-03
* 2	DISCHARGE CASING	"	"	"
* 3	STAGE CASING	CARBON STEEL	S45C	AISI 1045
* 4	VOLUTE	DUCTILE CAST IRON	FCD700	A536-77 100-70-03
17	IMPELLER	STAINLESS STEEL	SCS1	A743 CA15
18	IMPELLER SHAFT	"	SUS403	AISI 403
22	SLEEVE	"	"	"
23	STAGE SLEEVE	"	"	"
38	MOUTH RING	"	SCS1	A743 CA15
112	STAGE PIECE	"	"	"
113	BALANCE BUSH	"	SUS403	AISI 403
115	BALANCE SLEEVE	"	"	"
117	BALANCE DISK	"	"	"
145	BALANCE CHAMBER	CAST IRON	FC200	A48-75 36
147	STUFFING BOX	"	"	"
* 601	STAY BOLT	CARBON STEEL	S45C	AISI 1045

The materials for the main parts shown on the left are used under the following conditions:

Discharge pressure : Below 5MPaG
 Water Temperatures : Below 175°C
 pH of water handled : 7~9.5

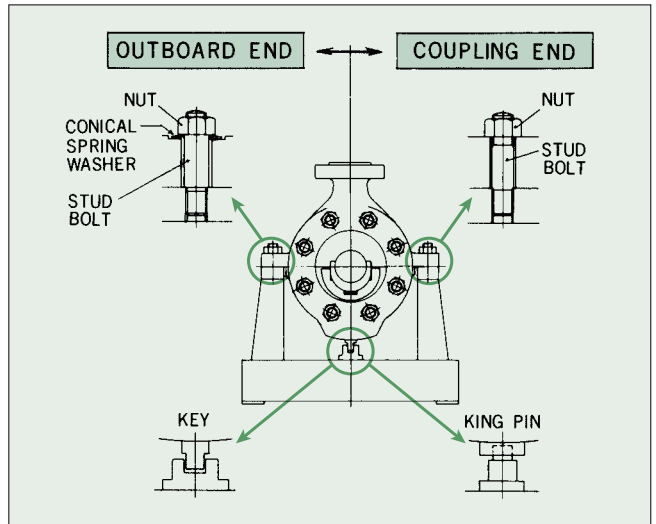
However, when exceeding these values, the most suitable materials for the parts marked with an * are selected in relation to the operating conditions.

Casing

The stage casings are positioned between the suction and discharge casings and tightened using strong stay bolts to form a single unit to prevent water leakage in the connection faces of the casing.

Since the casing is externally supported on both sides in the center of the pump, high water temperatures do not affect the alignment thanks to the thermal expansion. Also, the suction casing is firmly secured to the pedestal with a king pin and bolts so that axial movement is possible on the discharge side.

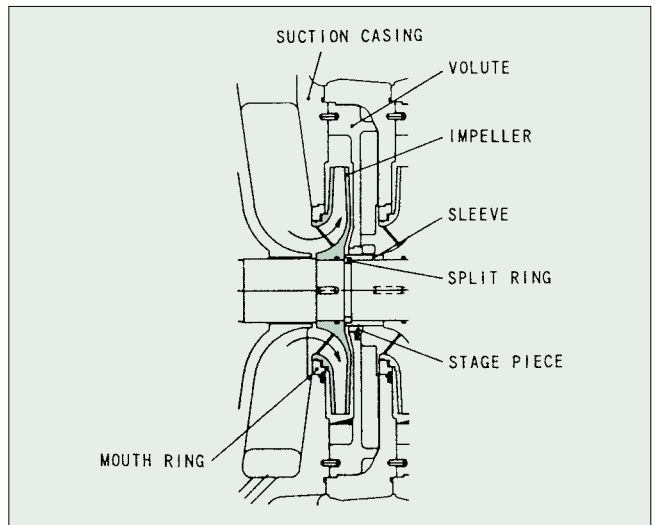
Therefore, casing expansion from high water temperatures can be absorbed.



Impeller

The impeller is designed and finished to maintain stability and high efficiency throughout the capacity range, and it is perfectly balanced both dynamically and statically.

Since the impeller is located on the shaft and firmly secured with a key and split ring, the shaft does not bend and can expand freely in the axial direction with even high water temperatures.



Main Bearing

On both side of the casing, there are bearing housings split upper and lower parts.

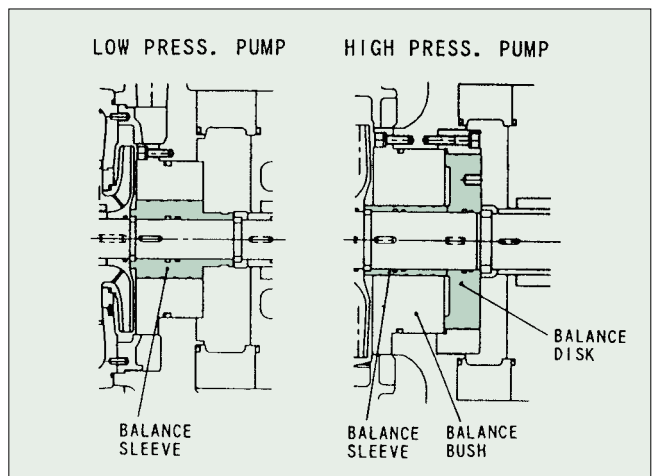
In order to support the radial load, ball bearings or a horizontally split journal bearing is used. On the opposite side from the coupling, ball bearings are equipped as thrust bearings to protect against unexpected axial thrust.



Thrust Balance

In order to offset axial thrust caused by changes in the discharge pressure, high pressure pumps are equipped with a balance sleeve and a disk. Whereas, low pressure pumps are only equipped with a balance sleeve.

A thrust bearing has been installed in the bearing housing on the outboard end to prevent metallic contact between the balance disk and balance bush.

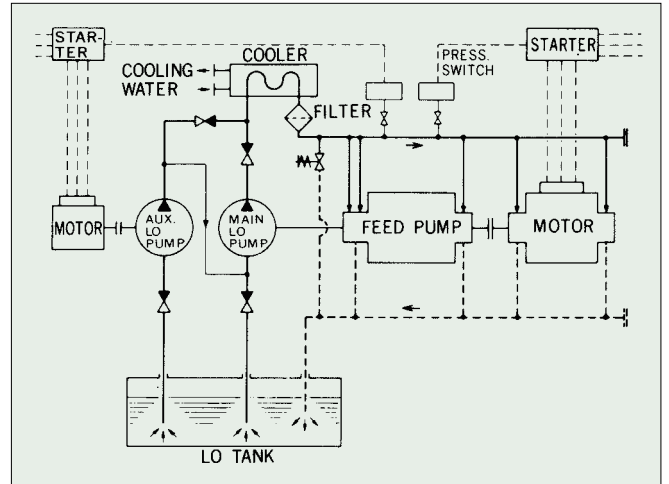
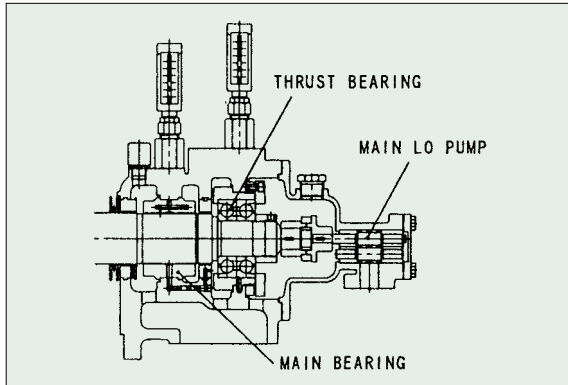
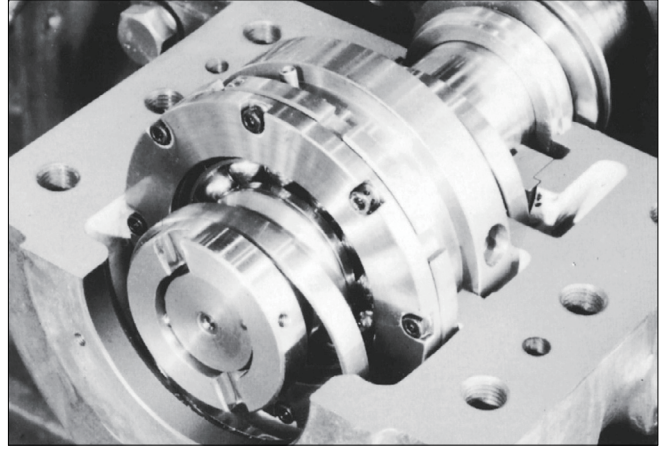


Lubrication

Either an oil ring or forced lubrication system is used for the bearings.

A water jacket has been installed on the bearing housing to supply the cooling water for oil ring systems.

For forced lubrication systems, lube oil is supplied either by a steam turbine (when the driver is a steam turbine) or by a main lube oil pump located at the outboard shaft end of the pump (when the driver is a motor). In the case of the latter, a motor driven auxiliary lube oil pump is used to supply oil at startup and shutdown or when there is trouble with the main lube oil pump.

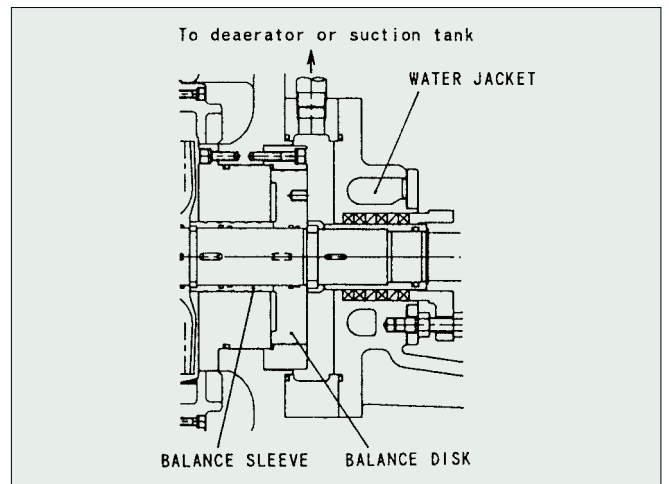


Stuffing Box

Both ends of the pump casing, which the impeller shaft passes through, are equipped with stuffing boxes with gland packing inside.

The stuffing box is provided with a water jacket for cooling water.

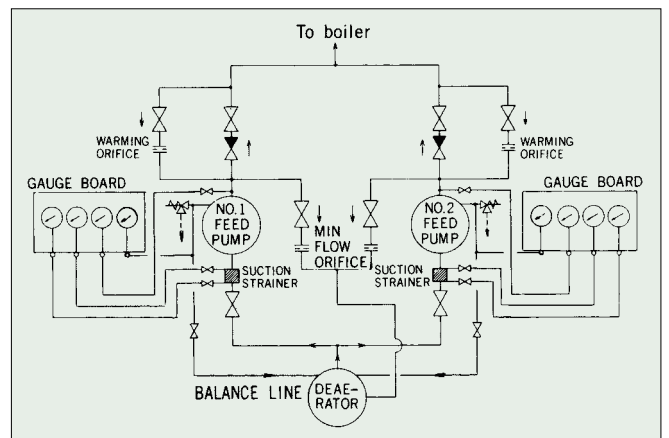
The water leaked from the balance disk is led to the deaerator or pump suction side to balance the axial thrust force, and at the same time, to reduce the pressure acting on the gland packing to improve the service life.

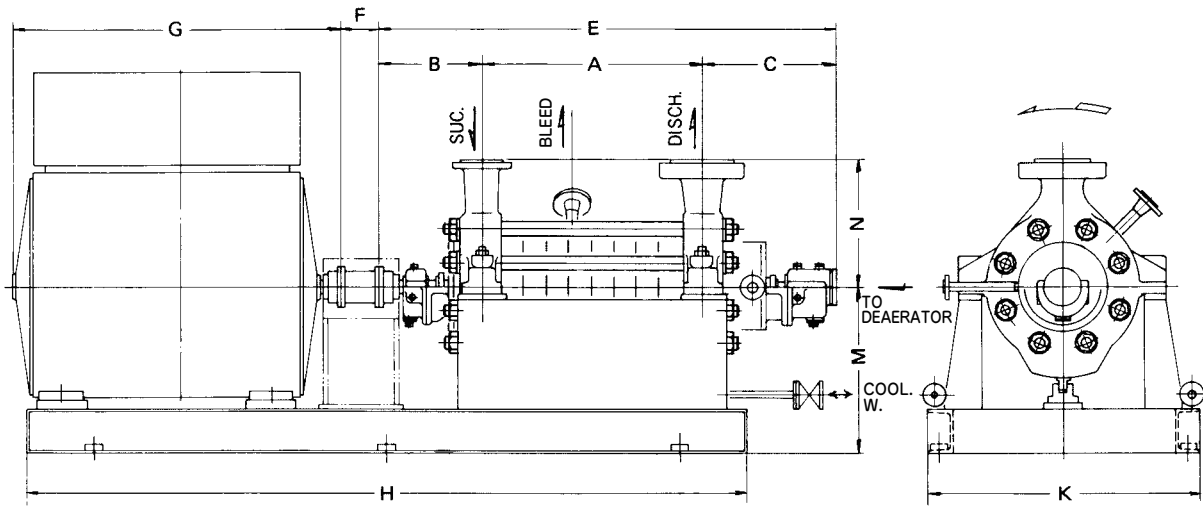


Sleeve & Gland Packing

The sleeve is made of stainless steel and the surface is hardened and ground so that it can stand severe usage.

Gland packing is either metallic or semi-metallic, which have a long service life.





mm

Model	Bore		Stage	A	B	C	E	F	G	H	K	M	N
	Suc.	Disch.											
DKR 40	50	40	5	290	385	400	1075	127	800	1400	580	420	300
			8	455	430	488	1373	127	800	1600	630	440	300
			11	620	430	488	1538	127	1000	1800	630	440	300
			14	785	430	488	1703	127	1000	2000	630	440	300
DKR 50	65	50	5	325	395	490	1210	127	1000	1500	660	500	300
			8	505	395	490	1390	127	1100	1800	660	500	300
			11	685	433	490	1608	127	1200	2200	740	500	300
			14	865	433	490	1788	127	1300	2700	740	500	300
DKR 65	80	65	5	375	455	500	1330	127	1200	2400	730	600	350
			8	570	455	500	1525	127	1400	2600	730	600	350
			11	765	455	510	1730	127	1600	2800	860	600	350
			14	960	455	510	1925	127	2000	3000	860	600	350
DKR 80	100	80	6	483	450	510	1443	127	1600	2600	870	600	380
			8	627	450	510	1587	127	1600	2700	870	600	380
			10	771	510	560	1841	127	1600	2900	870	600	380
			12	915	510	560	1985	127	1900	3000	870	600	380
			14	1059	510	560	2129	127	1900	3200	870	600	380
DKR 100	125	100	4	395	510	711	1616	140	1600	4200	1100	800	450
			6	565	510	711	1786	140	2200	4400	1100	800	450
			8	735	510	711	1956	140	2400	4600	1100	800	450
			10	905	520	755	2180	140	2600	4800	1100	800	450
			12	1075	520	755	2350	140	2700	5000	1100	800	450
DKR 125	150	125	4	430	580	800	1810	140	2600	4400	1100	850	580
			6	610	580	837	2027	140	2800	4600	1100	850	580
			8	790	580	837	2207	140	3000	4800	1100	850	580
			10	970	580	837	2387	140	3100	5000	1100	850	580
DKR 150	200	150	3	355	650	850	1855	200	2500	4200	1200	1000	700
			4	450	650	850	1950	200	2700	4300	1200	1000	700
			5	545	650	850	2045	200	2900	4500	1200	1000	700
			6	640	650	850	2145	200	3100	4700	1200	1000	700
			7	735	650	850	2235	200	3300	4900	1200	1000	700

Note : The table above shows approximate dimensions.
 Motor dimensions are in accordance with IEC frames.

SHINKO IND. LTD.

Horizontal two-stage single-suction EXHAUST GAS BOILER FEED PUMPS

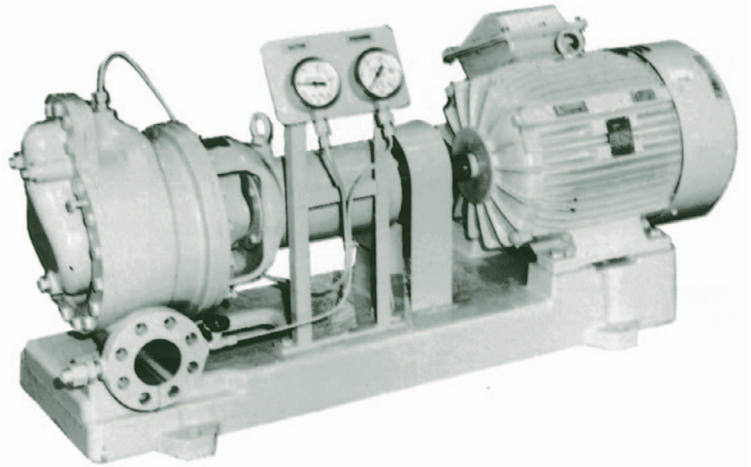


APPLICATIONS

- Exhaust gas boiler feed pumps
- Water supply pumps
- Other general use

SPECIFICATIONS

- Total head 50 to 200m
- Temperatures Below 100°C

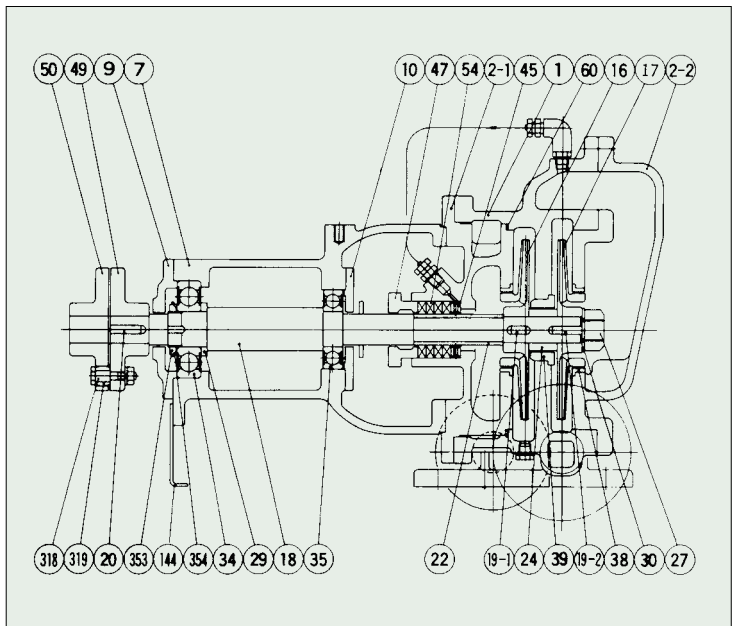


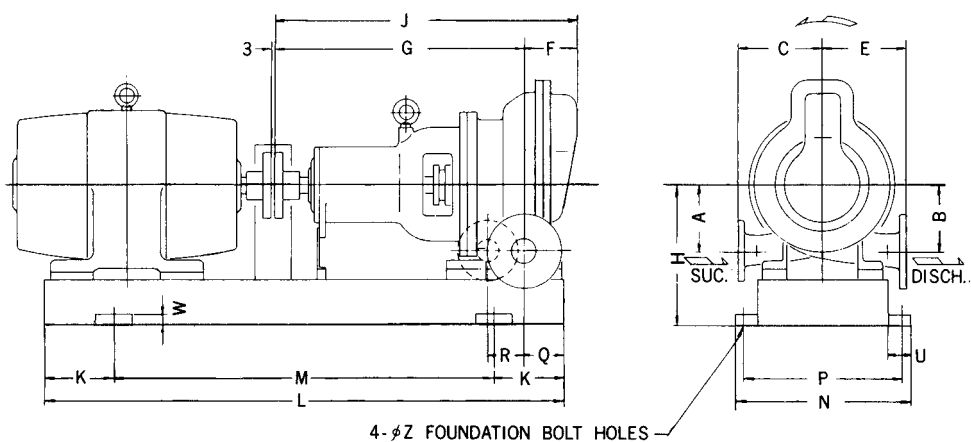
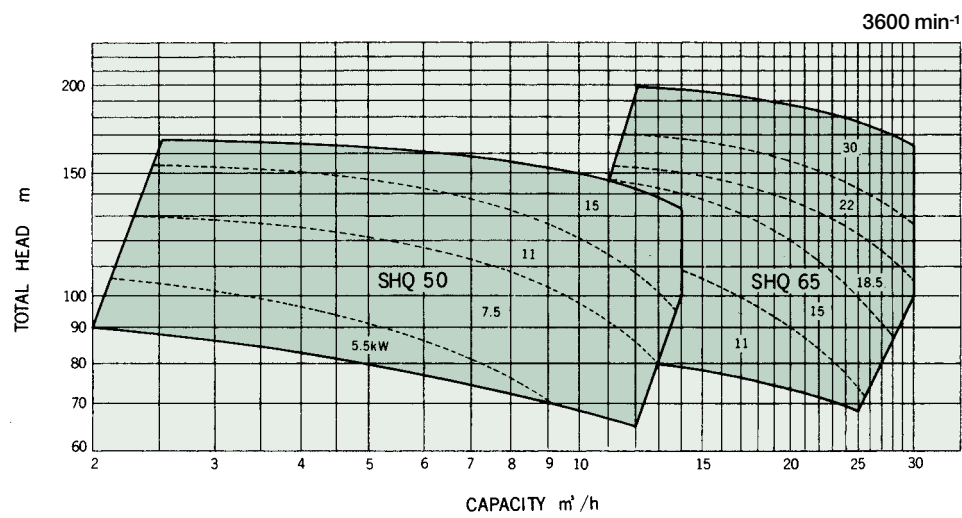
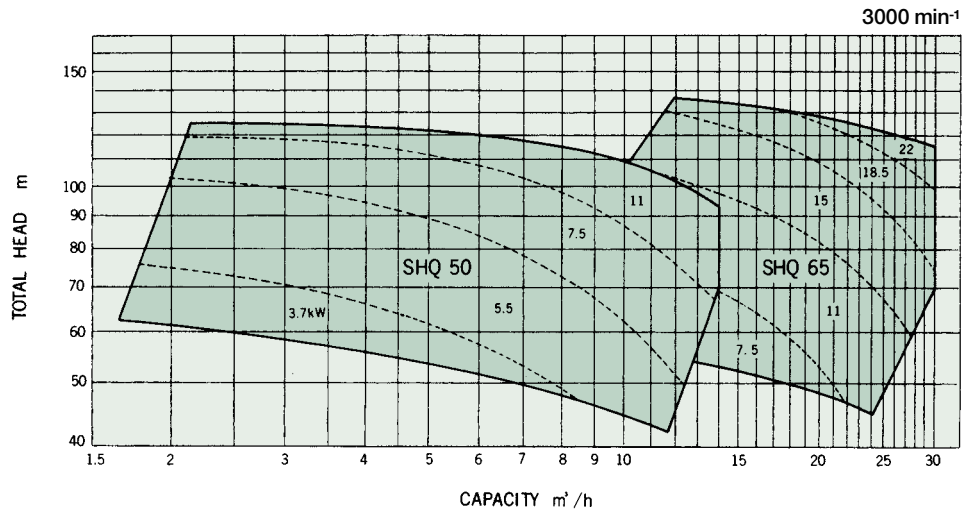
GENERAL CHARACTERISTICS

Item	Model	SHQ 50	SHQ 65
Rotation		Clockwise when viewed from the driver	
Suction bore	(mm)	50	65
Discharge bore	(mm)	50	65
Ball bearings		6308VV + 6309VV	
Service life	(hr)	Above 20000	
Stuffing box seal		Gland packing or mechanical seal	
Weight with baseplate	(kg)	160	180

DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2-1	VOLUTE COVER	"	"	1
2-2	VOLUTE COVER	"	"	1
7	BEARING HOUSING	"	"	1
9, 10	BEARING COVER	"	"	2
16, 17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	"	"	1
24	INTERMEDIATE SLEEVE	"	"	1
27	IMPELLER NUT	"	SUS304	1
30	WASHER	"	"	1
34, 35	SEALED BALL BEARING	SPECIAL STEEL		2
38	MOUTH RING	BRONZE	CAC403	2
39	CASING RING	"	CAC406	1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		1 SET
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET





Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	U	W	Z
SHQ 50	140	140	190	190	120	540	300	660	150	1100	800	430	390	100	80	50	30	23
SHQ 65	150	150	200	200	130	554	335	684	150	1250	950	460	410	110	90	65	30	25

Horizontal single/two-stage single-suction CONDENSATE PUMPS

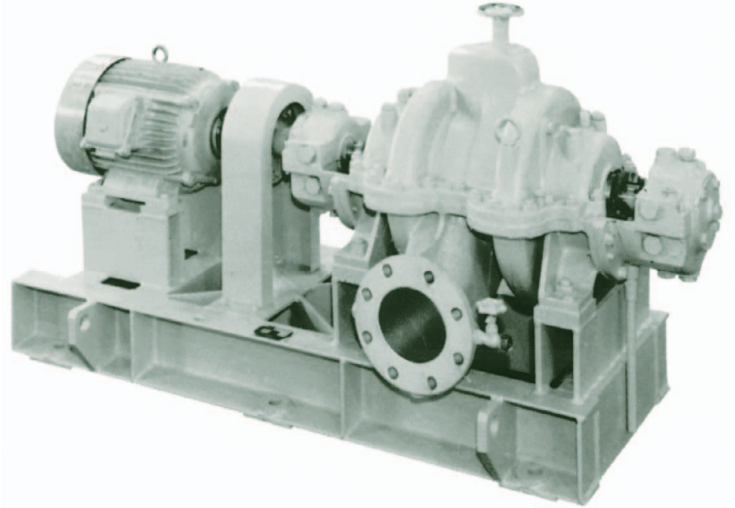
SHINKO
EH

■ APPLICATIONS

Condensate pumps
Hot well pumps
Drain transfer pumps

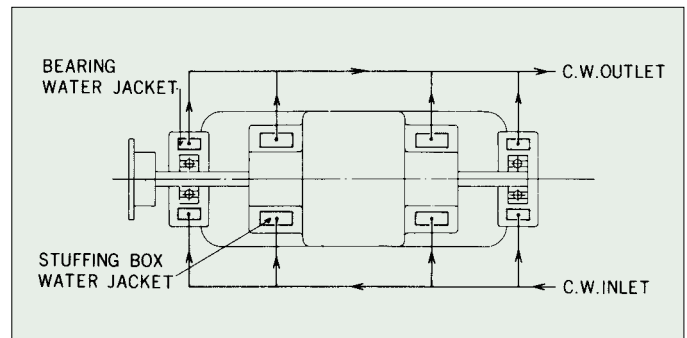
■ SPECIFICATIONS

Total head 15 to 110m
Temperatures Below 100°C



Simple Maintenance

Exception for the single-stage pumps with small capacity and low head, all other pumps have a horizontally-split casing and the suction and discharge nozzles are cast as a single integrated unit along with the lower casing. So, interior inspection can be done without removing the piping and maintenance can be carried out easily.

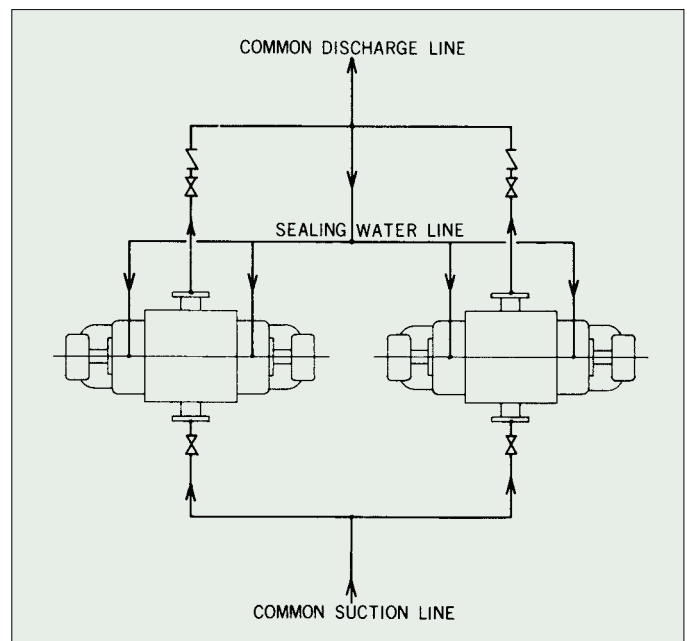


Handling High Temperature Water

The pumps are designed to handle high temperature water above 100°C. They have a jacket around the stuffing box and bearing housing to extend the service life of the gland packing and ball bearings.

Sealing Water

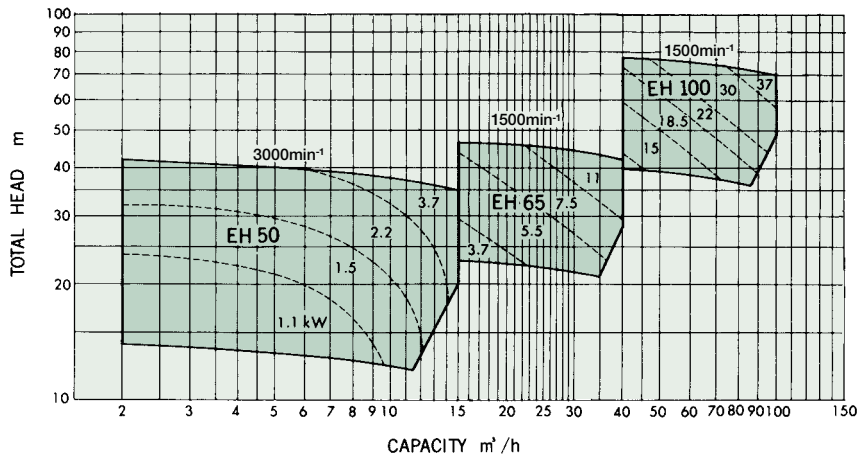
When 2 pumps are installed, and one is used as a working pump and the other as a stand-by pump, air will enter the stand-by pump through the stuffing box, impairing the performance of the working pump. In order to prevent this, sealing water pressure is fed from the common discharge line to the pump's stuffing box.



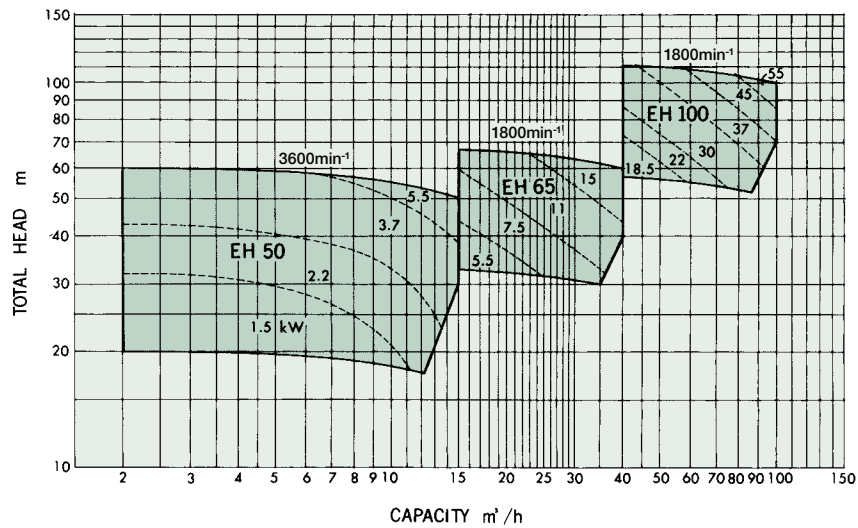
GENERAL CHARACTERISTICS

Item	Model	EH 50	EH 65	EH 100
Number of stages		1	2	2
Rotation		Clockwise when viewed from the driver		
Suction bore (mm)		65	125	200
Discharge bore (mm)		50	65	100
Ball bearings		6306VV + 6307VV	6307	6309
Service life (hr)		20000	60000	60000
Amount of LO filled (ℓ)		Not necessary	0.6	1.0
Cooling water required (m ³ /h)		Not required	1.0	1.4
Stuffing box seal		Gland packing or mechanical seal		
Weight with baseplate (kg)		90	380	690

50Hz

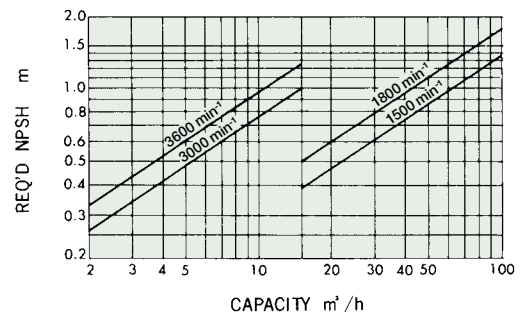


60Hz

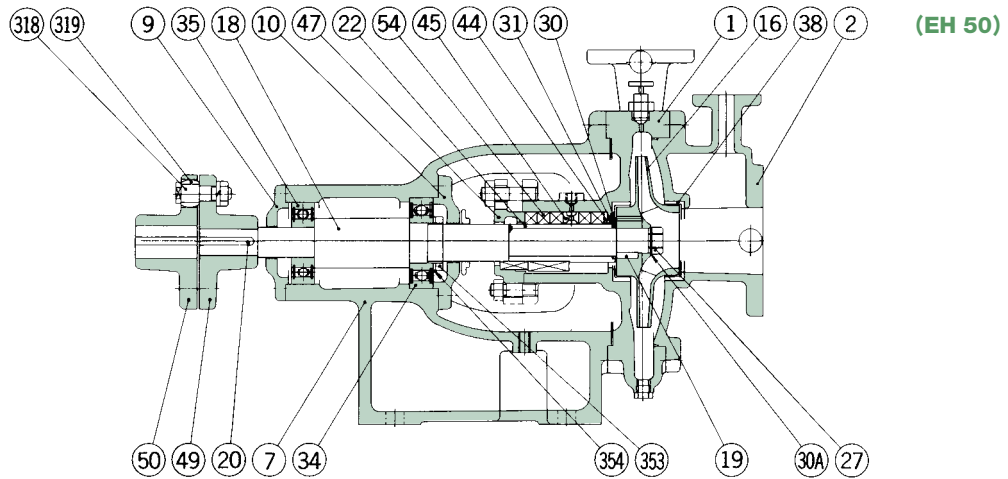


NPSH

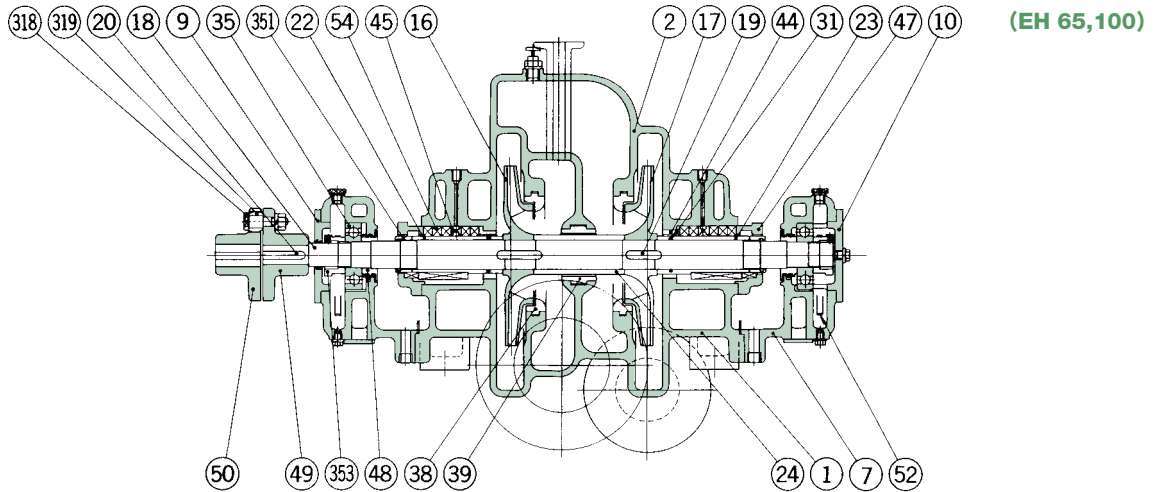
In order for the pump to be operated safely without causing cavitation, the available NPSH must be greater than the required NPSH of the pump. The required NPSH at the design point is shown on the right chart. The available NPSH must be set giving a sufficient margin for the required NPSH.



■ DESIGN & STANDARD MATERIALS

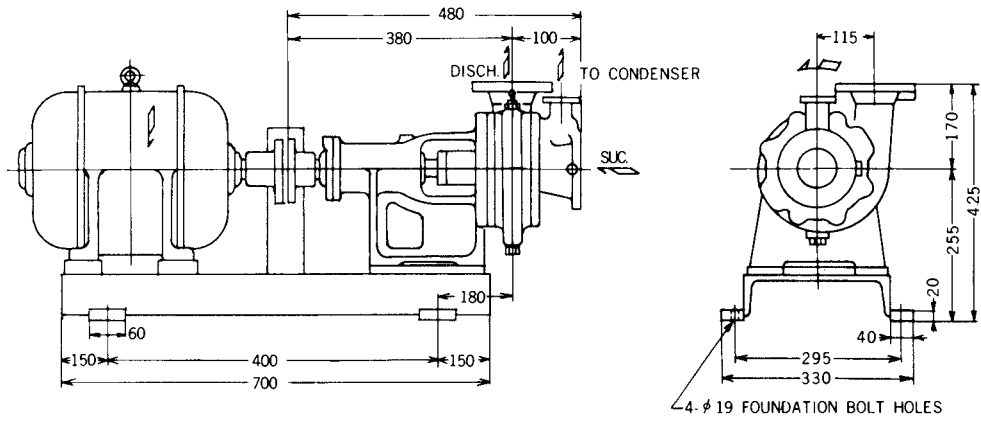


PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1	34, 35	BALL BEARING	SPECIAL STEEL		1
2	VOLUTE COVER	"	"	1	38	MOUTH RING	BRONZE	CAC403	2
7	BEARING HOUSING	"	"	1	44	NECK BUSH	"	CAC406	1
9, 10	BEARING COVER	"	"	2	45	SEALING RING	SYNTHETIC RESIN		1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1	47	GLAND	BRONZE	CAC406	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
22	SLEEVE	"	"	1	54	GLAND PACKING	CARBONIZED FIBER		1 SET
27	IMPELLER NUT	"	SUS304	1	318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
30	WASHER	"	"	1	319	COUPLING RING	RUBBER		1 SET

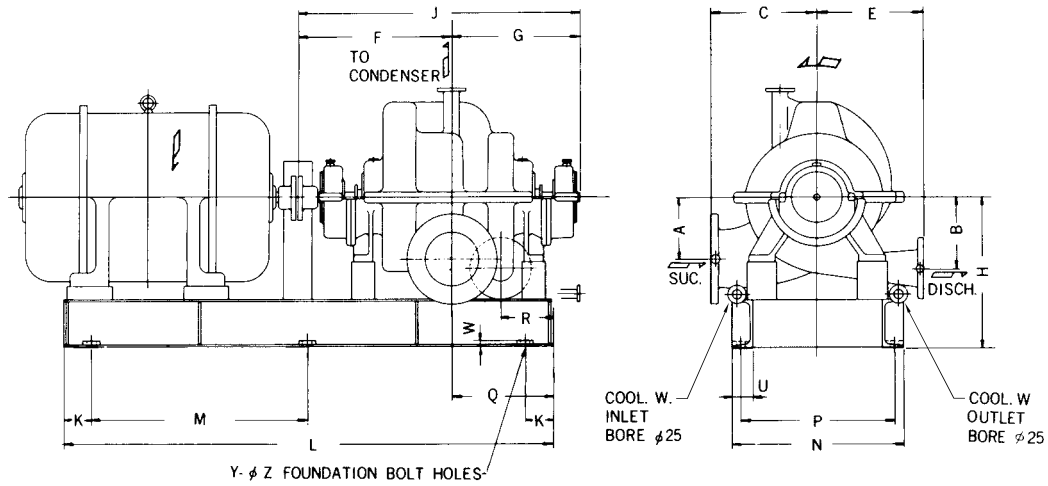


PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1	39	CASING RING	BRONZE	CAC406	1
2	VOLUTE COVER	"	"	1	44	NECK BUSH	"	"	2
7	BEARING HOUSING	"	"	2 SETS	45	SEALING RING	SYNTHETIC RESIN		2
9, 10	BEARING COVER	"	"	2	47	GLAND	BRONZE	CAC406	2
16, 17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2	49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	52	OIL RING	BRONZE	CAC406	2
22, 23	SLEEVE	"	"	2	54	GLAND PACKING	CARBONIZED FIBER		2 SETS
24	SLEEVE	"	"	1	318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
35	BALL BEARING	SPECIAL STEEL		2	319	COUPLING RING	RUBBER		1 SET
38	MOUTH RING	BRONZE	CAC403	2					

EH 50



EH 65,100



	mm																			
Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	U	W	Y	Z	
EH 65	180	180	300	300	500	450	450	950	110	1320	550	480	420	300	165	75	25	6	27	
EH 100	200	230	330	330	615	505	510	1120	150	1750	725	580	520	380	235	75	25	6	27	

Vertical single/multi-stage single-suction axial-flow-caisson CONDENSATE PUMPS



APPLICATIONS

- Condensate pumps
- Hot well pumps
- Drain transfer pumps

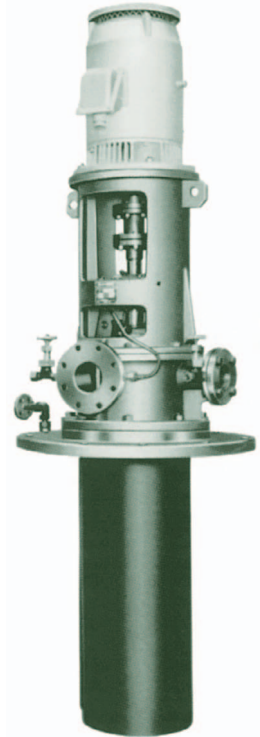
SPECIFICATIONS

- Total head 15 to 200m
- Temperatures Below 100°C

GENERAL CHARACTERISTICS

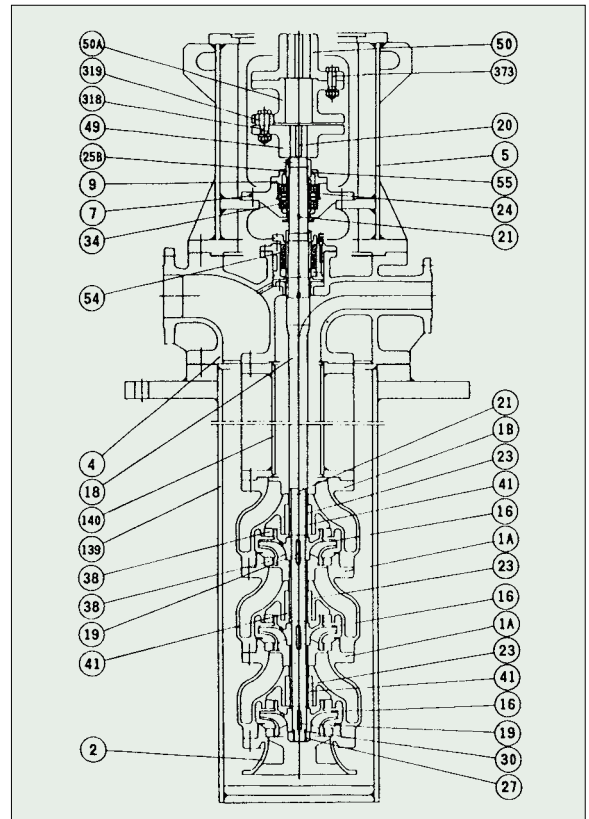
Item	Model	SD 50	SD 65	SD 100	SD 125	SD 150	SD 200	SD 250	SD 300	SD 350
Number of stages		One to 6								
Rotation		Clockwise when viewed from the driver								
Suction bore (mm)		100	125	200	200	250	350	400	500	600
Discharge bore (mm)		50	65	100	125	150	200	250	300	350
Ball bearings		6308	6310	6310	6310	6314	6314	6316	6322	6326
Service life (hr)		Above 60000								
Amount of grease filled (g)		15	25	25	25	50	50	70	150	270
Stuffing box seal		Gland packing or mechanical seal								
Weight (except motor) (kg)		340	430	570	660	860	1150	1420	1500	1950

Ball bearing size varies with number of stages.
Weight refers to the case where barrel length is 2 m and number of stages is one.

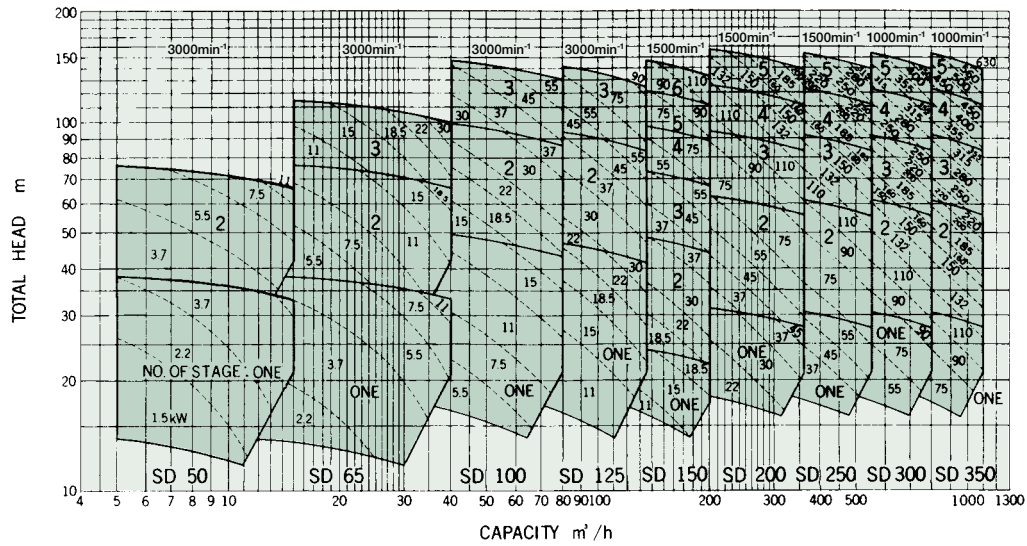


DESIGN & STANDARD MATERIALS

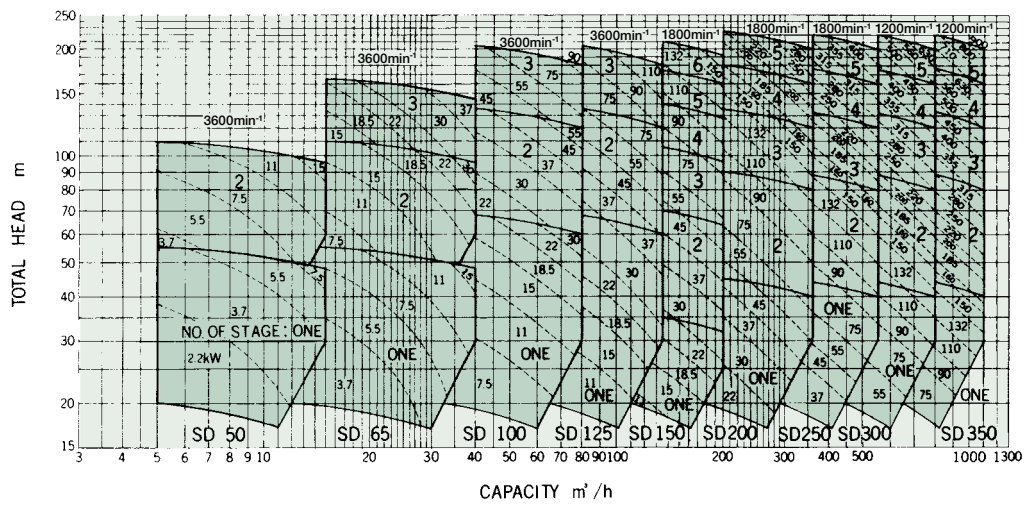
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1A	VOLUTE CASING	CAST IRON	FC200	
1B	VOLUTE CASING	"	"	1
2	VOLUTE COVER	"	"	1
4	PUMP BED	"	"	1
5	MOTOR BED	STEEL	SS400	1
7	BEARING HOUSING	CAST IRON	FC200	1
9	BEARING COVER	"	"	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
23	SLEEVE	"	"	
24	SLEEVE	"	"	1
27	IMPELLER NUT	"	SUS304	1
34	BALL BEARING	SPECIAL STEEL		2
38	MOUTH RING	BRONZE	CAC403	
41	LINE BEARING	CARBON		
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
50A	COUPLING SPACER	"	"	1
54	GLAND PACKING	CARBONIZED FIBER		1 SET
139	BARREL	CARBON STEEL	STPG370	1
140	DISCHARGE PIPE	"	"	1
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET



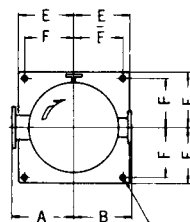
50Hz



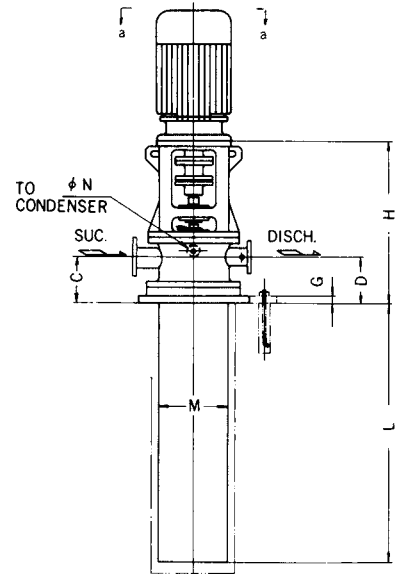
60Hz



ARROW a-a



4-φ J FOUNDATION BOLT HOLES



	mm										
Model	A	B	C	D	E	F	G	H	J	M	N
SD 50	300	300	240	240	250	210	35	860	25	318	25
SD 65	350	300	240	240	300	260	35	895	25	356	25
SD 100	350	330	310	310	350	300	40	1010	33	406	25
SD 125	350	330	310	310	350	300	40	1010	33	457	25
SD 150	450	385	330	330	400	350	40	1078	33	610	25
SD 200	550	420	400	400	450	400	40	1200	33	711	32
SD 250	600	430	440	440	500	450	40	1250	33	762	32
SD 300	650	500	515	515	500	450	40	1300	33	813	32
SD 350	700	540	590	590	550	500	40	1500	33	914	32

SHINKO IND.LTD.

Vertical single-stage single-suction CONDENSATE PUMPS

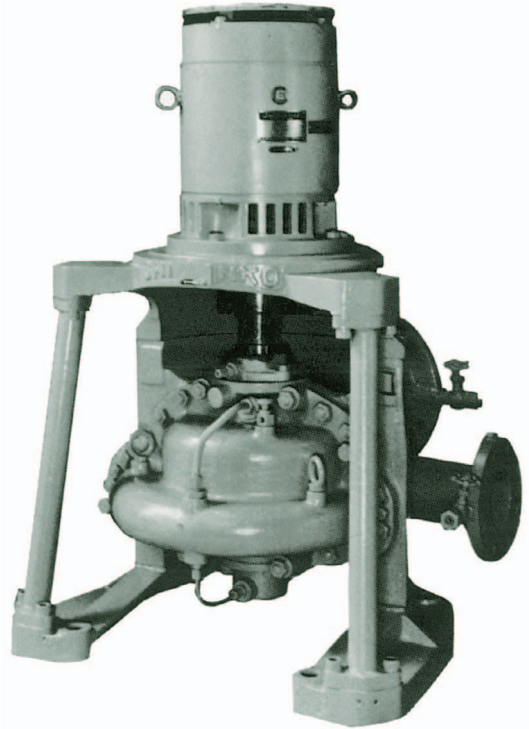


■ APPLICATIONS

- Condensate pumps
- Drain transfer pumps
- Other general use

■ SPECIFICATIONS

- Total head 18 to 45m
- Temperatures Below 100°C

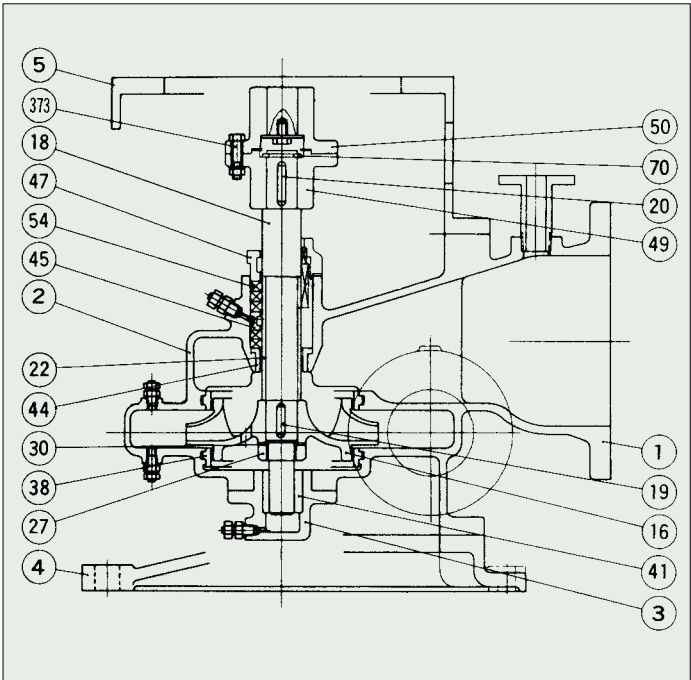


■ GENERAL CHARACTERISTICS

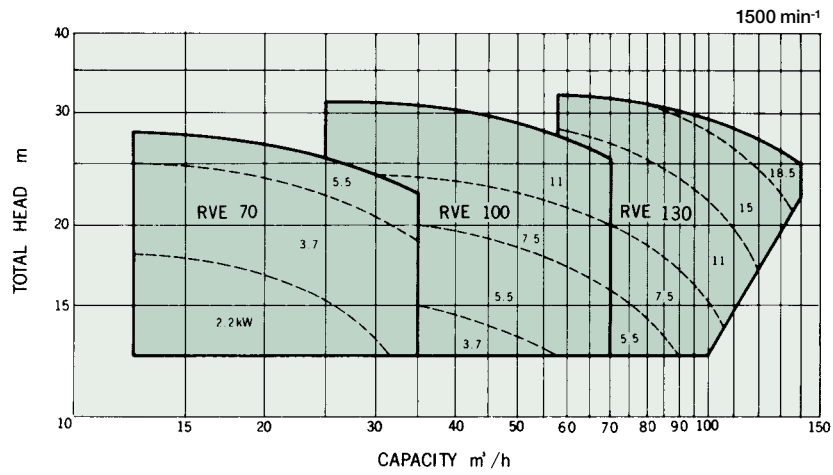
Item	Model	RVE 70	RVE 100	RVE 130
Rotation		Clockwise when viewed from the driver		
Suction bore	(mm)	125	200	250
Discharge bore	(mm)	65	100	125
Balance pipe	(mm)	25		
Stuffing box seal		Gland packing or mechanical seal		
Weight (except motor)	(kg)	175	288	358

■ DESIGN & STANDARD MATERIALS

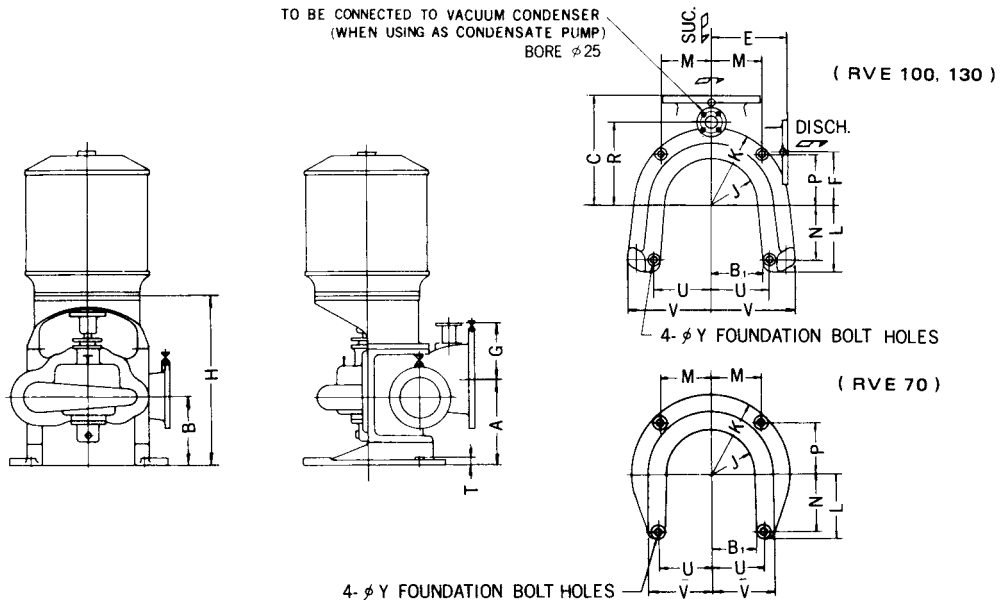
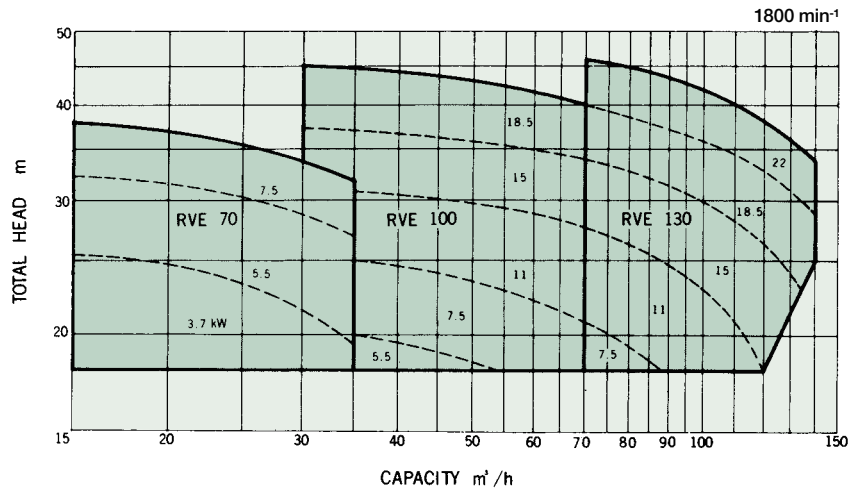
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
3	VOLUTE END COVER	"	"	1
4	PUMP BED	"	"	1
5	MOTOR BED	"	"	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	"	"	1
27	IMPELLER NUT	"	"	1
30	WASHER	COPPER	CuP	1
38	MOUTH RING	BRONZE	CAC403	2
41	LINE BEARING	CARBON		1
44	NECK BUSH	BRONZE	CAC406	1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		1 SET
70	SNAP RING	CARBON TOOL STEEL	SK5	1
373	COUPLING BOLT & NUT	STEEL	SS400	1 SET



50Hz



60Hz



Model	A	B	C	E	F	G	H	J	K	L	M	N	P	R	T	U	V	Y	B ₁
RVE 70	285	190	330	250	170	185	564	155	270	225	170	200	170	265	50	180	201	23	159
RVE 100	360	230	380	330	200	250	693	190	310	260	200	225	200	300	50	210	335	27	184
RVE 130	360	230	380	330	200	250	693	190	310	260	200	225	200	300	50	210	335	27	184

SHINKO IND.LTD.

Vertical two-stage single/double-suction CONDENSATE PUMPS



■ APPLICATIONS

- Condensate pumps
- Drain transfer pumps
- Other general use

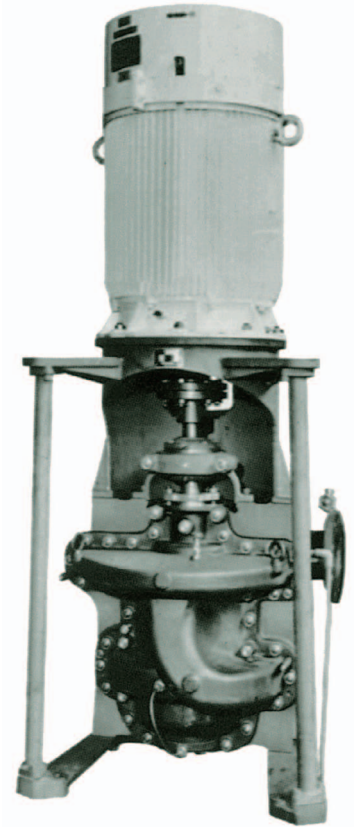
■ SPECIFICATIONS

- Total head 18 to 140m
- Temperatures Below 100°C

■ GENERAL CHARACTERISTICS

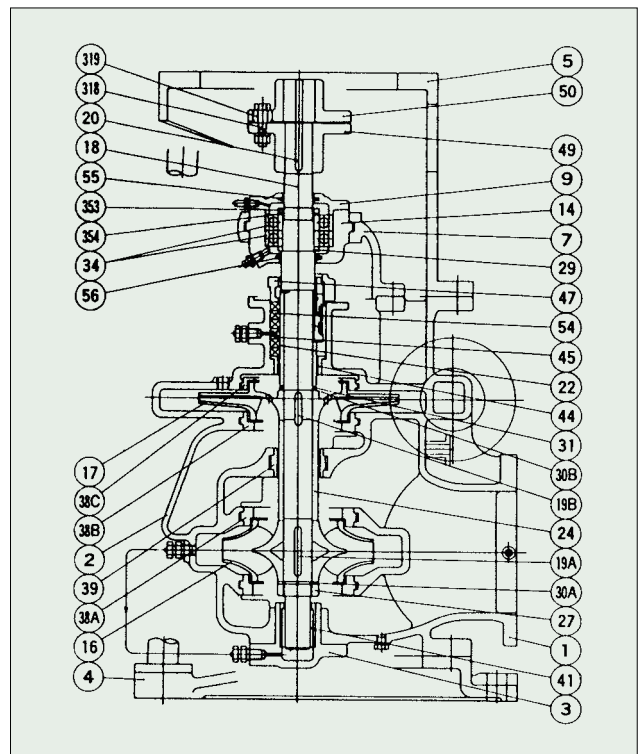
Item	Model	EVZ 50	EVZ 70	EVZ 100	EVZ 130	EVZ 130-2	EVZ 150
Rotation		Clockwise when viewed from the driver					
Suction bore (mm)		100	125	200	250	250	300
Discharge bore (mm)		50	65	100	125	125	150
Ball bearings		6306	7309DF	7311DF	7311DF	7311DF	7311DF
Service life (hr)		Above 60000					
Amount of grease filled (g)		8	35	55	55	55	55
Stuffing box seal		Gland packing or mechanical seal					
Weight (except motor) (kg)		185	470	530	590	640	760

1st stage impeller: Single suction for EVZ 50 · 70 · 100
 Double suction for EVZ 130 · 130-2 · 150

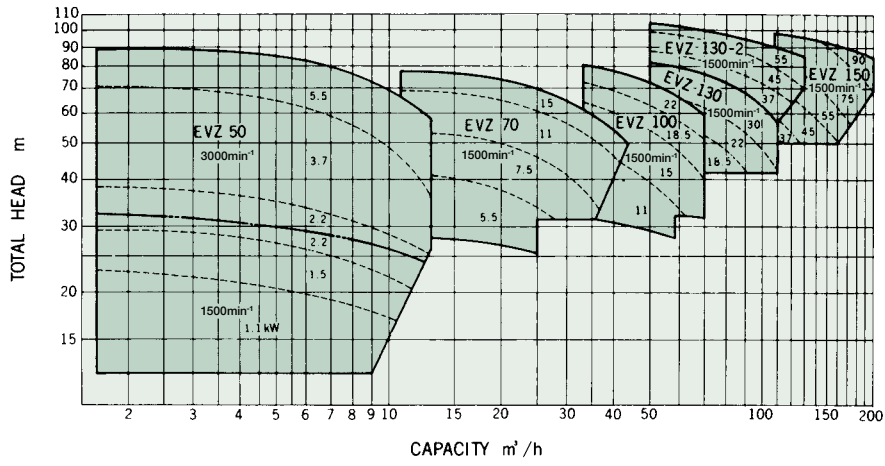


■ DESIGN & STANDARD MATERIALS

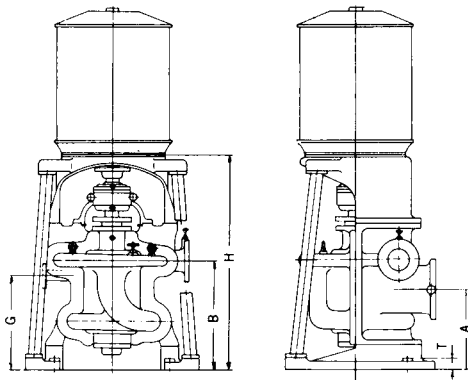
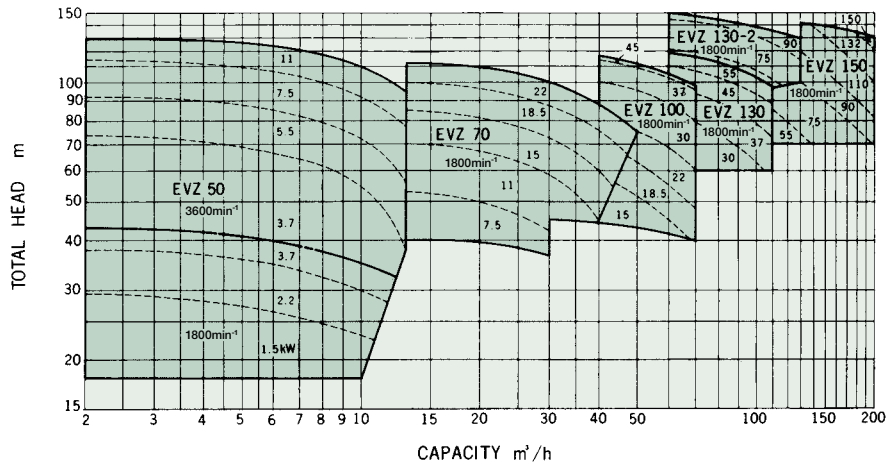
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"	"	1
4	PUMP BED	"	"	1
5	MOTOR BED	STEEL	SS400	1
7	BEARING HOUSING	CAST IRON	FC200	1 SET
16, 17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	"	"	1
24	SLEEVE	"	"	1
34	BALL BEARING	SPECIAL STEEL		1 SET
38	MOUTH RING	BRONZE	CAC403	4
39	CASING RING	"	CAC406	1
41	LINE BEARING	CARBON		1
44	NECK BUSH	BRONZE	CAC406	1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		1 SET
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET



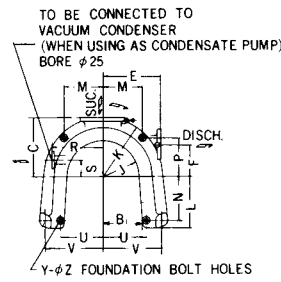
50Hz



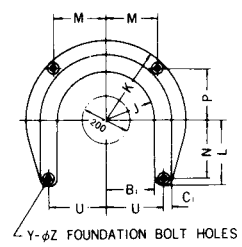
60Hz



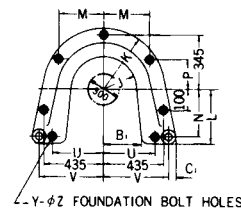
(EVZ 70, 100, 130, 130-2)



(EVZ 50)



(EVZ 150)



mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	Y	Z	B ₁	C ₁
EVZ 50	210	310	260	260	120	270	712	155	270	225	170	200	170	150	150	50	180	-	4	23	159	21
EVZ 70	330	460	350	330	210	395	973	225	365	300	240	245	240	320	105	50	305	380	4	27	279	40
EVZ 100	350	490	350	330	210	440	1122	225	365	300	240	245	240	320	100	50	305	380	4	27	279	40
EVZ 130	300	590	410	350	270	530	1222	225	365	300	240	245	240	345	120	50	305	380	4	27	279	40
EVZ 130-2	300	590	440	380	320	530	1222	225	365	300	240	245	240	345	120	50	305	380	4	27	279	40
EVZ 150	325	670	460	380	345	585	1166	225	375	300	290	240	190	400	140	50	370	470	7	33	340	60

SHINKO IND.LTD.

Horizontal double-suction HIGH VACUUM PUMPS

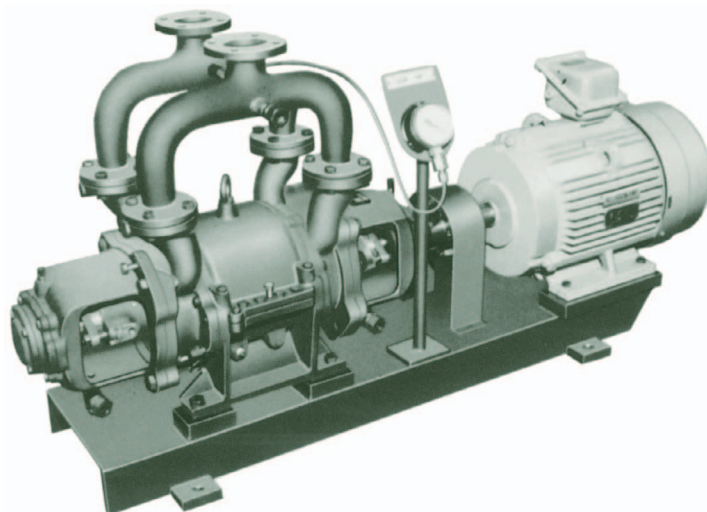
SHINKO EL

APPLICATIONS

Condenser extraction pumps

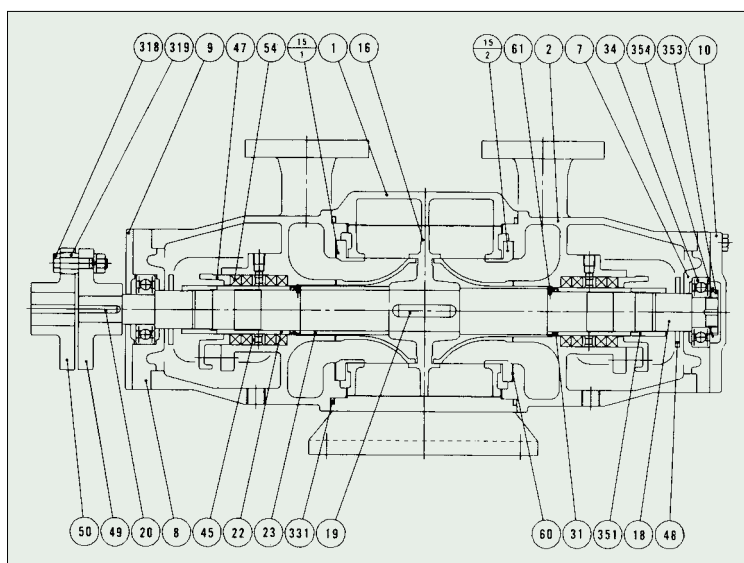
SPECIFICATIONS

Maximum vacuum 700 mmHg



DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	PUMP CASING	CAST IRON	FC200	1
2	PUMP COVER	"	"	2
7, 8	BEARING CASE	"	"	2
9	BEARING COVER	STEEL	SS400	1
10	BEARING COVER	CAST IRON	FC200	1
15	PORT CYLINDER	PHOSPHOR BRONZE	CAC502A	1
16	RUNNER	STAINLESS STEEL	SCS13	1
18	RUNNER SHAFT	"	SUS403	1
19	RUNNER KEY	"	SUS304	1
20	COUPLING KEY	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	2
31	PACKING	RUBBER		2
34	BALL BEARING	SPECIAL STEEL		2
45	SEALING RING	SYNTHETIC RESIN		2
47	GLAND	BRONZE	CAC406	2
48	FLINGER	RUBBER		2
49, 50	COUPLING	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		2 SETS
61	PIN	PHOSPHOR BRONZE	C5191W	2
318	COUPLING BOLT & NUT	STEEL	SS400	1 SET
319	COUPLING RING	RUBBER		1 SET
331	PACKING	RUBBER		2
351	SLEEVE NUT	STAINLESS STEEL	SUS304	2
353	BEARING NUT	STEEL	SS400	1
354	BEARING WASHER	"	SS400	1

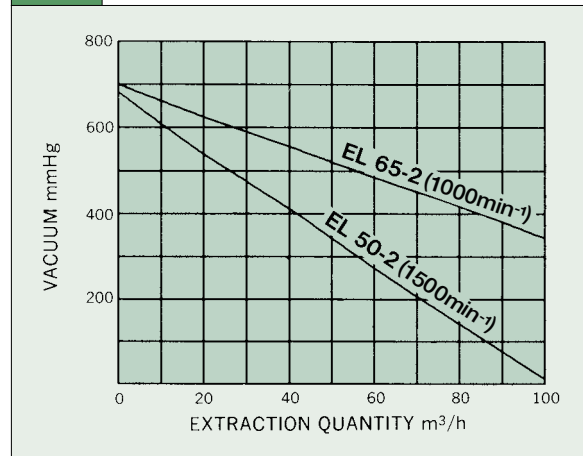


GENERAL CHARACTERISTICS

Item	Model	EL 50-2	EL 65 EL 65-2
Type		Double suction	
Rotation		Clockwise when viewed from the driver	
Extraction quantity (m ³ /h)		8(4)	11(11)
Vacuum at inlet (mmHg)		650	650
Motor (kW)		7.5	11
Inlet bore (mm)		50	65
Outlet bore (mm)		50	65
Sealing water required (ℓ/min)		17	21
Weight with baseplate (kg)		250	500

() shows under operation with 50Hz

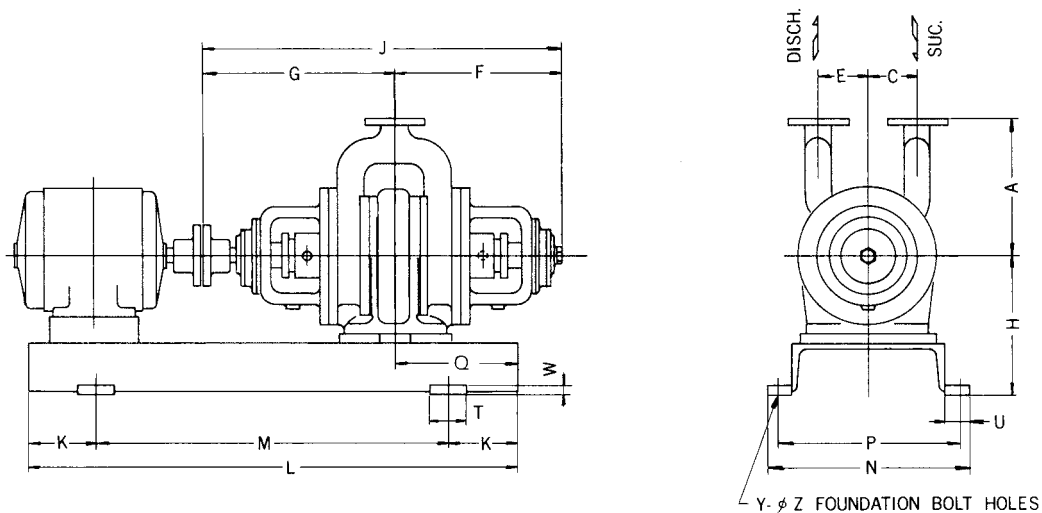
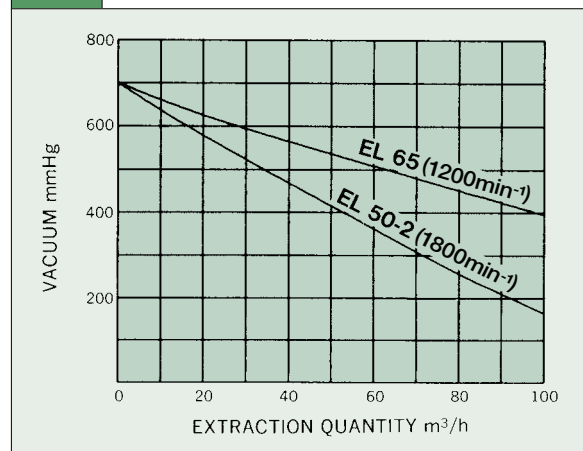
50Hz



The extraction quantity depends on the steam flow and vacuum. This relation is shown on the table below:

Vacuum	Model	EL 50-2	EL 65 EL 65-2
650 mmHg		32000 kg/h	45000 kg/h
600 "		46000 "	65000 "
550 "		61000 "	85000 "
500 "		75000 "	105000 "
450 "		90000 "	126000 "
400 "		105000 "	145000 "
350 "		120000 "	168000 "

60Hz



Model	A	C	E	F	G	H	J	K	L	M	N	P	Q	T	U	W	Y	Z
EL 50-2	460	100	100	345	393	290	738	150	950	650	400	360	150	75	50	20	4	19
EL 65	535	120	120	412	485	380	897	150	1200	900	410	370	240	100	65	25	4	19
EL 65-2	535	120	120	425	485	380	910	150	1200	900	410	370	240	100	65	25	4	19

SHINKO IND. LTD.

Horizontal single-stage single-suction radial-split GENERAL PROCESS PUMPS

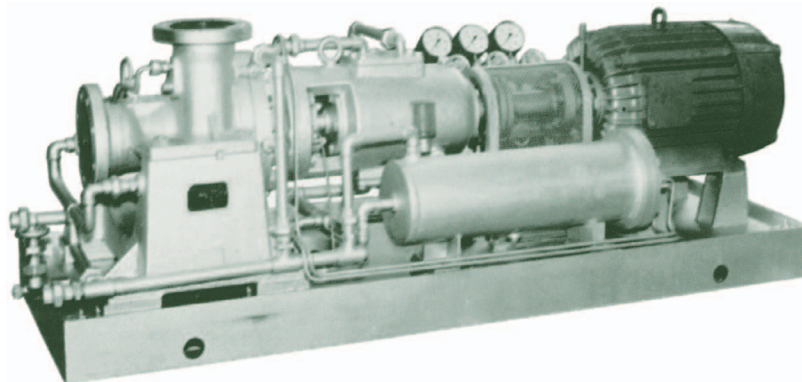
SHINKO HLA

APPLICATIONS

Hot and cold oil pumps
LPG pumps
Boiler water circulating pumps
Other general use

SPECIFICATIONS

Total head 10 to 320m
Temperatures -100 to 450°C

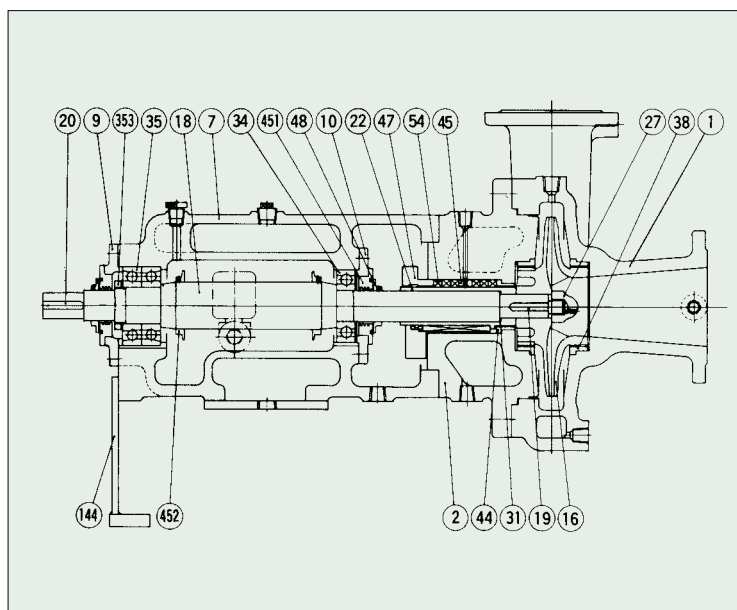


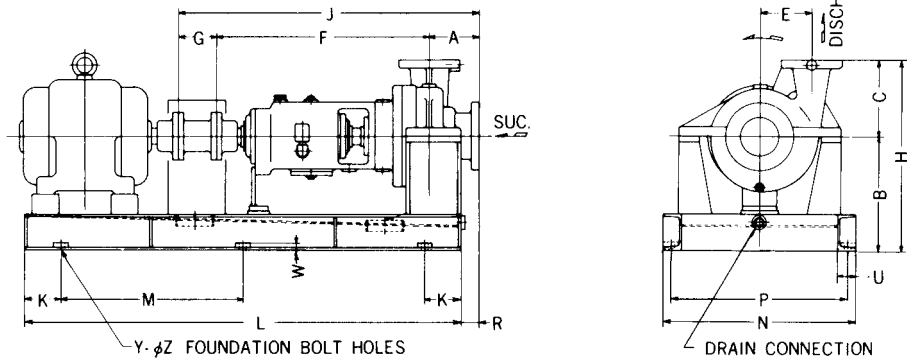
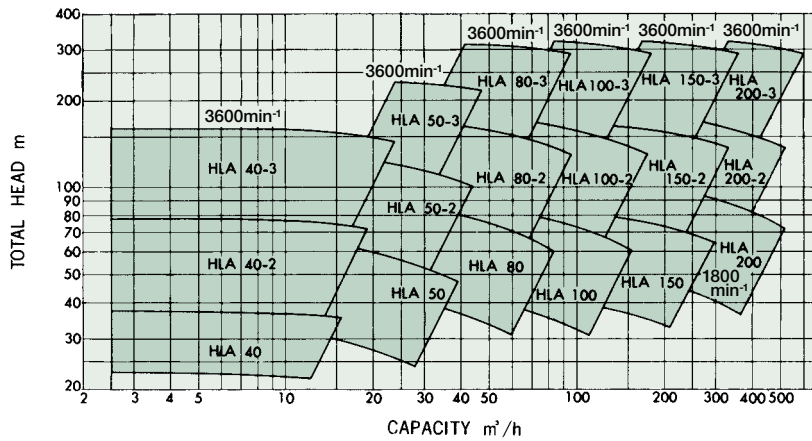
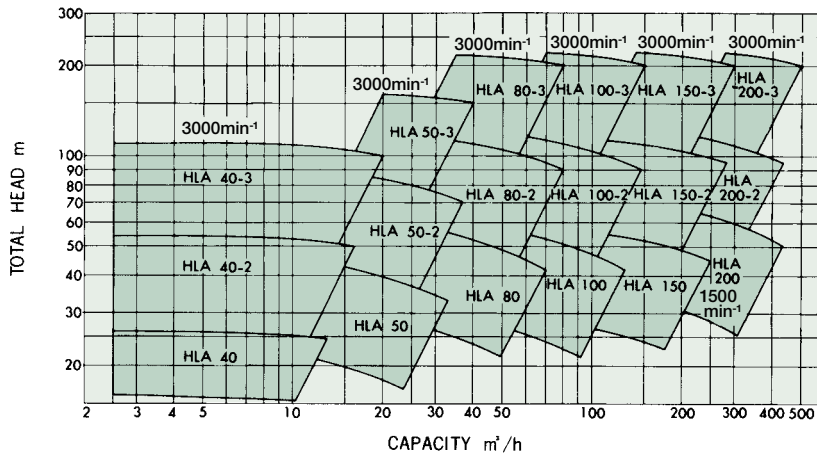
GENERAL CHARACTERISTICS

Item	Model	HLA 40	HLA 50	HLA 80	HLA 100	HLA 150	HLA 200
Rotation		Clockwise when viewed from the driver					
Suction bore	(mm)	50	80	100	150	200	250
Discharge bore	(mm)	40	50	80	100	150	200
Ball bearings at coupling side		2 single row angular contact (73 type)					
Ball bearings at opposite side		1 single row deep groove (63 type)					
Lubrication		Oil bath (turbine oil ISO VG 56 ~68)					
Stuffing box seal		Gland packing or mechanical seal					
Weight with baseplate	(kg)	360~420	390~480	460~550	500~600	570~700	750~980

DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	STAINLESS STEEL	SCS	1
2	VOLUTE COVER	"	"	1
7	BEARING HOUSING	CAST IRON	FC200	1
16	IMPELLER	STAINLESS STEEL	SCS	1
18	IMPELLER SHAFT	"	SUS	1
22	SLEEVE	"	"	1
27	IMPELLER NUT	"	SUS403	1
34	BALL BEARING	SPECIAL STEEL		1
35	BALL BEARING	"		2
38	MOUTH RING			2
44	NECK BUSH			1
45	SEALING RING			1
47	GLAND			1
54	GLAND PACKING			1 SET
451	LABYRINTH			2





Model	A	B	C	E	F	G	H	J	K	L	M	N	P	R	U	W	Y	Z
HLA 40	125	260	190	100	678	100	450	905	100	1200	500	350	310	40	50	25	6	19
HLA 40-2	125	310	220	130	678	100	530	905	100	1400	600	400	360	40	50	25	6	19
HLA 40-3	125	400	300	170	678	100	700	905	100	1500	650	490	450	40	50	25	6	19
HLA 50	150	290	200	120	678	100	490	928	100	1400	600	400	360	40	50	25	6	19
HLA 50-2	150	350	240	150	678	100	590	928	100	1500	650	460	420	40	50	25	6	19
HLA 50-3	150	480	350	210	678	100	830	928	100	1700	750	630	580	40	65	25	6	23
HLA 80	175	325	220	140	678	100	545	953	150	1500	600	450	400	50	65	25	6	23
HLA 80-2	175	410	280	190	678	100	690	953	150	1700	700	580	530	50	65	25	6	23
HLA 80-3	175	565	400	250	790	150	965	1115	150	2000	850	710	650	50	75	30	6	27
HLA 100	200	375	260	160	678	100	635	978	150	1600	650	560	510	75	65	25	6	23
HLA 100-2	200	450	310	210	790	150	760	1140	150	2000	850	660	600	75	75	30	6	27
HLA 100-3	200	565	420	260	790	150	985	1140	150	2200	950	760	700	75	75	30	6	27
HLA 150	250	450	250	180	790	150	700	1190	150	1900	800	670	610	100	75	30	6	27
HLA 150-2	250	490	350	230	790	150	840	1190	150	2000	850	730	670	100	75	30	6	27
HLA 150-3	250	610	470	280	880	180	1080	1310	150	2500	1100	830	760	100	90	30	6	33
HLA 200	300	650	480	320	880	180	1130	1360	150	2200	950	980	910	150	90	30	6	33
HLA 200-2	300	590	400	240	880	180	990	1360	150	2400	1050	800	730	150	90	30	6	33
HLA 200-3	300	670	500	300	980	180	1170	1460	150	3000	900	910	840	150	90	30	8	33

Vertical single-suction axial-flow tank-mounting LUBRICATING OIL PUMPS



■ APPLICATIONS

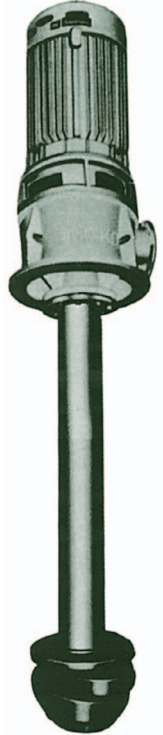
Lubricating pumps for diesel engines

■ SPECIFICATIONS

Total pressure 0.2 to 0.9MPa
 Temperatures Below 100°C

■ GENERAL CHARACTERISTICS

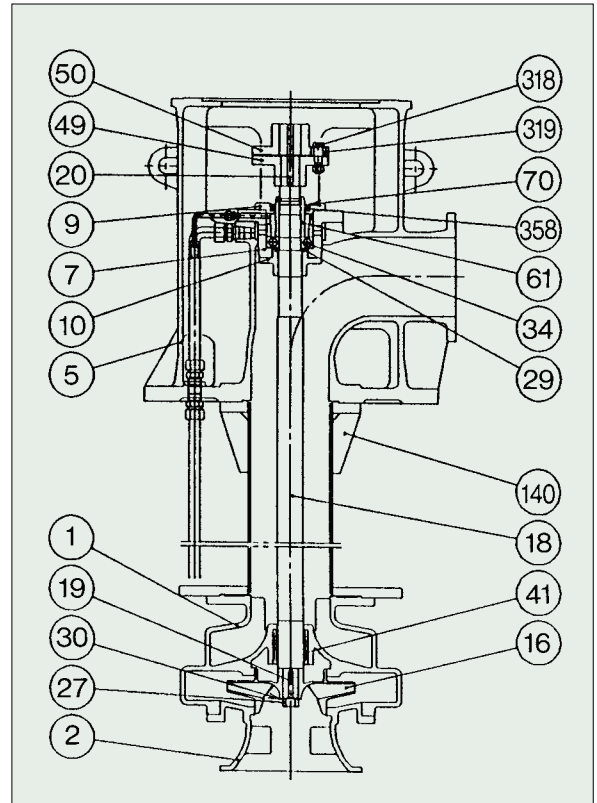
Item	Model	Model										
		SA150	SA150-2	SA200	SA200-2	SA250	SA250-2	SA300	SA300H	SA350	SA350H	SA350-2
Rotation		Clockwise when viewed from the driver										
Number of stages		1	2	1	2	1	2	1	1	1	1	2
Discharge bore (mm)		150		200		250		300		350		
Ball bearings		6309		6311		6311		6311		6314		
Service life (hr)		Above 60000										
Lubrication		Self-lubrication by handling oil										
Required min. LO level (mm)		330		350		430		500		570		
Stuffing box seal		Oil seal										
Weight : FC (kg)		510 (40)	580 (40)	770 (50)	900 (50)	1070 (63)	1230 (63)	1170 (80)	1220 (80)	1530 (108)	1590 (108)	1730 (108)



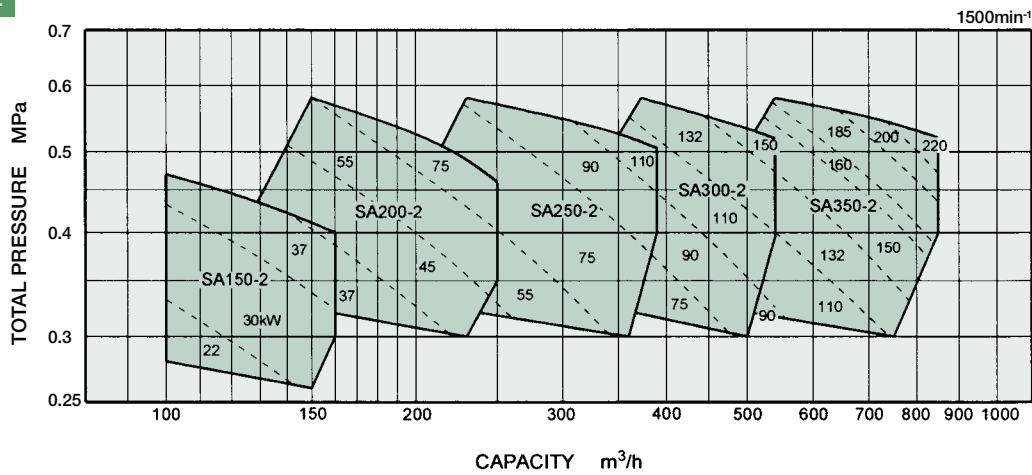
Weight refers to L = 2m. and increases as shown in bracket with 1m increases in L.

■ DESIGN & STANDARD MATERIALS

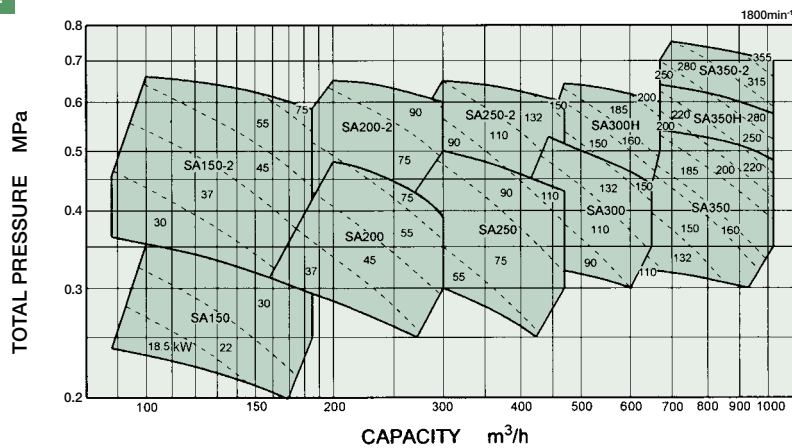
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1 PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	"/	"/	1
5	MOTOR BED	"/	"/	1
7	BEARING CASE	"/	"/	1
9	BEARING COVER	"/	"/	1
10	THROTTLE PIECE	BRONZE	CAC604	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	Cr-Mo STEEL	SCM435	1
19	IMPELLER KEY	CARBON STEEL	S55C	1
20	COUPLING KEY	"/	"/	1
27	IMPELLER NUT	STEEL	SS400	1
29	WASHER	"/	"/	1
30	WASHER	STAINLESS STEEL	SUS304	1
34	BALL BEARING	SPECIAL STEEL		1
41	LINE BEARING	CARBON		1
49	COUPLING	DUCTILE CAST IRON	FCD400	1
50	COUPLING	"/	"/	1
61	BEARING NUT	STEEL	SS400B	1
70	SNAP RING	CARBON TOOL STEEL	SK5	1
140	DISCHARGE PIPE	STEEL	SS400	1
318	COUPLING BOLT & NUT	"/	SS400B	1 SET
319	COUPLING RING	RUBBER		1 SET
358	OIL SEAL	"/		1



50Hz

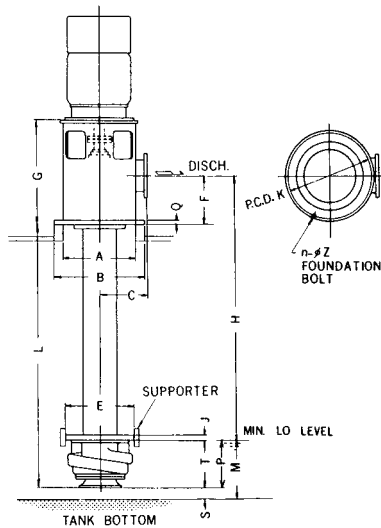


60Hz



The dotted lines in these charts show electric motor power under the following conditions:

1. Handling lube oil with a viscosity of 100cSt and a specific gravity of 0.9 at 40°C .
2. Capacity guarantee: 25.8 cSt
Power guarantee: 260 cSt



“S” & “M” in the following table shows standard dimensions. When L.O. tank height is selected by the customer, there is a possibility that one shaft length will be below 2500mm. In that case, the “S” and “M” will be changed with in a range of 1mm to 100mm.

mm				
Model	M	P	S	※L (reference)
SA 150(-2)	P + S	250	80	2217
SA 200(-2)		250	100	2045
SA 250(-2)		310	120	1951
SA 300		360	140	1946
SA 300H		360	140	1946
SA 350(-2)		400	170	1875
SA 350H		400	170	1875

※ L shows dimensions when the shaft length is 2500 mm.

mm												
Model	A	B	C	E	F	G	J	K	Q	T	Z	n
SA 150(-2)	480	640	330	470	200	578	25	590	30	375	25	8
SA 200(-2)	585	750	380	570	320	764	25	700	32	445	25	8
SA 250(-2)	650	850	430	620	320	790	25	790	35	407	25	12
SA 300	680	870	450	650	320	840	26	820	35	422	25	12
SA 300H	690	870	450	680	320	840	26	820	35	422	25	12
SA 350(-2)	730	940	480	700	350	955	30	880	35	580	25	12
SA 350H	740	940	480	730	350	955	30	880	35	580	25	12

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