

# Shinko Marine Standard Centrifugal Pumps



**SHINKO IND. LTD.**

Hiroshima Japan

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# ENGINEERING DATA

SHINKO marine centrifugal pumps have been designed and manufactured in accordance with the Japanese Marine Equipment Association's standards for high performance under the following operating conditions:

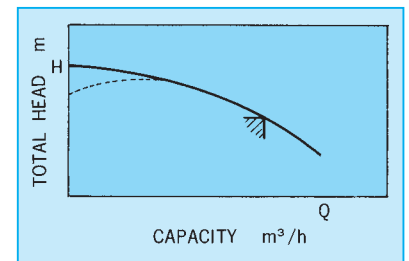
- Temperature : Maximum ambient temperature : 50°C  
 : Maximum cooling sea water temperature : 32°C
- List and rolling of the ship : 15 degrees horizontally, 10 degrees longitudinally, and 22.5 degrees for one side rolling.
- Installation direction : The shafts for the horizontal pumps are to be installed parallel to the keel. The shafts for the vertical pumps are to be installed vertically to the keel.

## 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 drinking water pumps or sanitary pumps for hydrophore units, 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

The vertical models SA, SB, CVF, EVZ, and all horizontal pumps except the model HJ are equipped with heavy duty deep groove (63 type) ball bearings or angular contact (73 type) ball bearings with a life of more than 60,000 hours.

Sealed ball bearings are applied to small pumps. Whereas, all other pumps use grease lubrication or oil lubrication. For oil lubrication, either an oil bath or an oil ring is employed to lubricate. And, an oil level gauge is located on the bearing housing.

Service	Model	Lubrication
Horizontal small size pump	AHJ, SHQ, GJ	Sealed ball bearing
BW circulating pump	BT	Oil bath
Lubricating oil pump	SA	Oil handled
Other pumps	Other models	Grease

During the shop test, attention has been paid to the bearing temperature of electric-motor-driven pumps to ensure that they do not exceed the ambient temperature by 40°C or liquid temperature by 20°C whichever is higher, and do not exceed 75°C in summer.

● **LINE BEARING & LIQUID LUBRICATION**

We have experienced many troubles to do with the lower side bearings such as water leakage from the stuffing box causing the ball bearings to get rusty in the vertical pumps. And, with our standard pumps, the lower bearings are equipped with a line bearing where water lubrication is applied utilizing a pump discharge liquid.

The line bearing is also applied to the casing and intermediate shaft bearings of the tank mounting pumps (the models SA and SB). The PV value of the line bearing has been designed to be less than 2 MPa-cm/sec.

● **VIBRATION**

Consideration has been given to the design of the pump construction and the impellers to reduce vibration as much as possible.

The maximum tolerance for pump vibration during shop test is shown on the table on the right.

Horizontal	Below 500m³/h	4.0mm/s
	Over 500m³/h	4.0mm/s
Vertical	Below 500m³/h	3.3mm/s
	Over 500m³/h	5.3mm/s

● **NOISE**

Consideration has been given to the design of the pump casings and the impellers to reduce as much noise as possible as with vibration.

The permissible value of the noise in the shop to be less than 100 dB (A), when measuring at 1 m distance from the pump operated at rated condition.

● **PRESSURE GAUGE & ROOT VALVE**

To indicate pump suction pressure and discharge pressure, 75 mm diameter gauges are fitted onto a gauge stand for horizontal pumps or onto a gauge board for vertical pumps. Connection to the gauges is made via 6mm outer diameter copper pipes with root gauge valves on the pump side, and gauge joints on the gauge side.

Service	Model	Suc.	Disch.
Boiler water circ. pump	BT	PG	PG
Hot water circ. pump	HJ	PG	PG
Condensate pump	RVZ, RVE	CG	CG
D.trans. LO pump	SB, SA	—	PG
Other pumps	Others	CG	PG

PG:Pressure G. CG:Compound G.

● **COUPLING COVER**

A coupling cover is provided for the pumps for safety.

● **AIR VENT VALVE**

At the highest point of the pump casing, a hole is provided to allow the air to vent, and an air vent valve is installed

## 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	Stuff. box seal
Boiler feed pump	GHQ, SK, DK	Semi-metallic + Metallic
Lubricating oil pump	SA	Oil seal
BW circulating pump	BT	Throttle bush + Carbonized fiber
Other pumps	Others	Carbonized fiber

### MECHANICAL SEAL

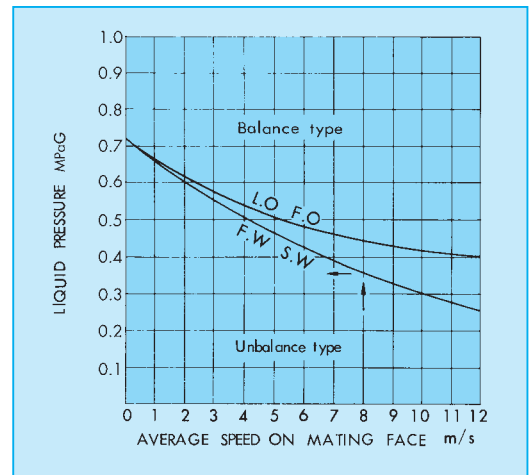
Depending on the liquid pressure in the stuffing box and the peripheral speed on the mating face, there are two types of mechanical seals, balanced and unbalanced. And, the selection can be made using the curve on the chart shown on the right, provided that the temperature of the liquid handled remains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

Fresh water pumps : Max. 70°C

(Max. 80°C if the shaft diameter is below 60mm)

Sea water pumps : Max. 40°C

LO and FO pumps : Max. 80°C



### BALANCED MECHANICAL SEAL

For the model SB tank mounting drain transfer pumps, the stuffing box pressure reaches the discharge pressure during operation owing to its own design, and the standard revolution is either 3000 or 3600 min<sup>-1</sup>. When installing a mechanical seal to this model, a balanced mechanical seal is employed.

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

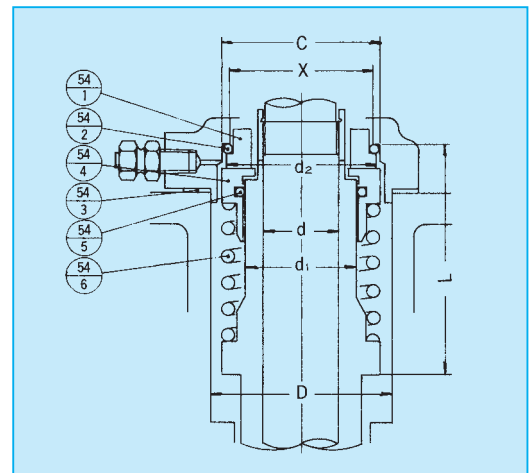
$$\pi / 4 (d_2^2 - d_1^2) \times 10P + F$$

$d_2$  : 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	D	L	C	X	SEALOL (USA)
50	80	85.5	70.99	66	1501-50

54-1	FLOATING SEAT	1	CARBON	
-2	PACKING RING	1	RUBBER	
-3	PACKING	1	GASKET	
-4	SEAL RING	1	STAINLESS STEEL	SUS316
-5	PACKING RING	1	RUBBER	
-6	SPRING	1	STAINLESS STEEL	SUS316

● **UNBALANCED MECHANICAL SEAL**

All pumps employ unbalanced mechanical seals except the following models: SA employs oil seals, BT-4 employs bellow style balanced mechanical seals, and both SB and DK 80-10 employ 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.

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

$d_2$  : 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	43.13	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

These mechanical seals are interchangeable as a complete set.

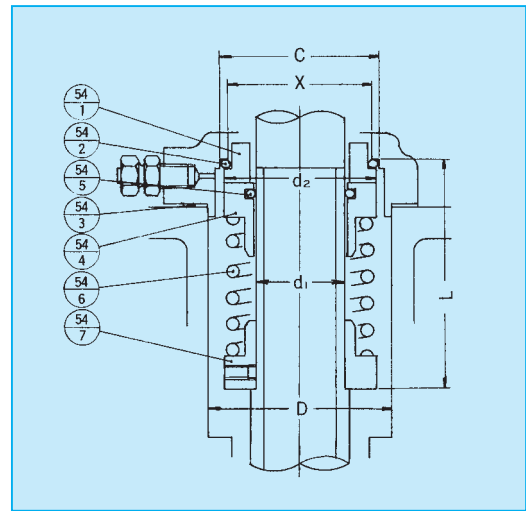
● **FLUSHING**

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.

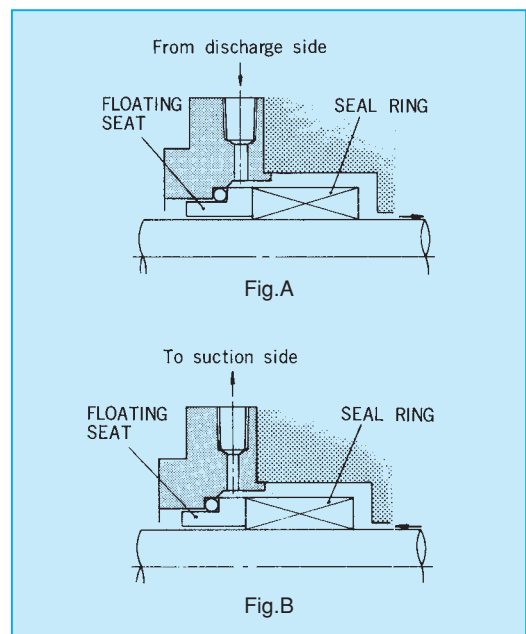
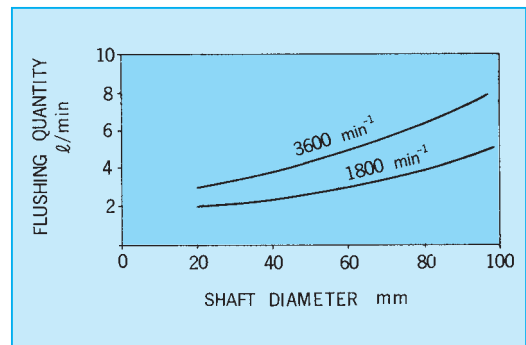
There are two methods to supply the flushing liquid to the mating face of the mechanical seal according to the construction of the pump as follows:

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.



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



## SELF PRIMING DEVICE

Pumps can be equipped with a self priming device upon customer request.

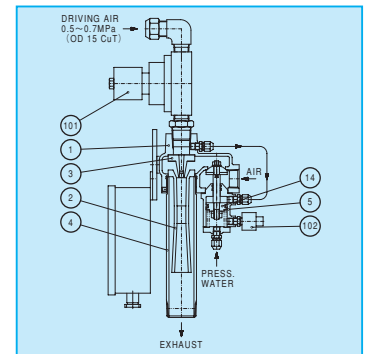
There are two kinds of self priming devices. One is an air ejector which is standard, and the other is a vacuum pump which is equipped in emergency fire pumps which require no pneumatic source.

### 1. AIR EJECTOR

The photo on the right shows a vertical pump with an air ejector, used in self-priming devices. The ejector unit consists of an ejector casing(1), a diffuser(2), a nozzle(3), a cylinder(5), a solenoid valve(101), a pressure switch(102), and other minor parts.

The following two standard models are available for use in vertical and horizontal pumps in accordance with the SM Standards (Japanese Marine Equipment Association's Standards):

Model	Max. Vacuum MPa	Max. amount of extraction m <sup>3</sup> /h	Driving Air MPa × m <sup>3</sup> /min	Application Suc. Dia Mm
AEJ 70	-0.08	0.7	0.6 × 1.34	Below 200
AEJ 110	-0.08	1.1	0.6 × 1.69	Over 250



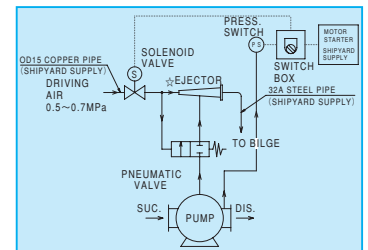
### ● OPERATION

A combination of the diffuser(2) and the nozzle(3) create a vacuum with an ejecting function using driving air between 0.55~0.7 MPa. The piston(14) in the cylinder(5) is pushed downward by the driving air, forcing the port between the pump casing and the ejector casing(1) to open. Eventually, the air inside the pump and pipes is extracted.

While the main pump is in operation, the pump casing is filled with pumping liquid. And, the discharge pressure rises by extracting the air from the pump and pipes. The pressure switch(102) is activated by the pressure rise, making the solenoid valve(101) stop the driving air. The piston(14) in the cylinder(5) is pushed upward by the pump discharge pressure along with spring force to shut the passage between the pump and the ejector casing.

When priming is completed, the pump enters normal operation mode. At this time, the driving air can be stopped by the solenoid valve when discharge pressure is detected by the pressure switch.

PART NO	NAME OF PART	Q'TY
1	EJECTOR CASING	1
2	DIFFUSER	1
3	NOZZLE	1
5	CYLINDER	1
14	PISTON	1
101	SOLENOID VALVE	1
102	PRESSURE SWITCH	1

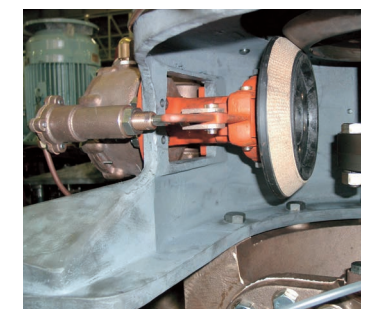


### 2. VACUUM PUMP

The photo on the right shows the vertical pump with an attached vacuum pump to work as a self priming pump.

The self priming device consists of a vacuum pump, a clutch, a hydraulic piston, an auto valve, a separate tank, and piping.

According to the SM Standard (Japanese Marine Equipment Association's standard), the following two standard models are available for vertical and horizontal pumps.



Model	Max. Vacuum MPa	Max. amount of extraction m <sup>3</sup> /h	SHP kW	Application
VND 150	-0.08	20	3.7	All vert.pump
VND 200	-0.08	50	3.7	All vert.pump

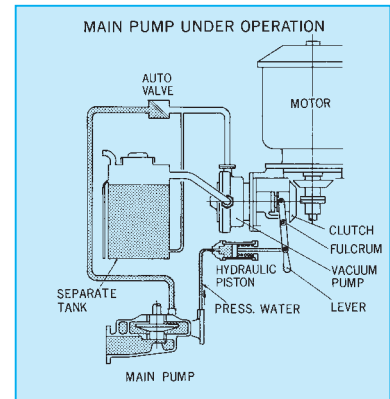
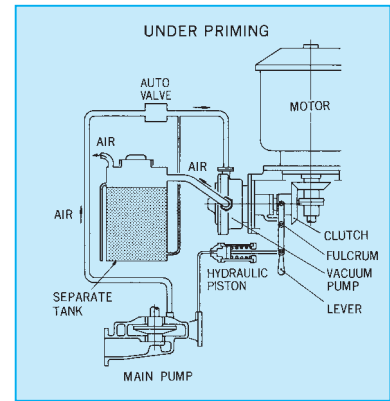
● **OPERATION**

While the main pump is standing still, the clutch is engaged by the spring force of the hydraulic piston. When the main pump is started, the vacuum pump is driven via a clutch and the air in the main pump casing is extracted through the auto valve. The mixture of air and water is discharged to the separate tank and only the air is discharged to the atmosphere.

At the completion of the priming of the main pump, discharge pressure acts on the hydraulic piston and the clutch is disengaged automatically. Then, the main pump begins normal operation.

While the main pump is in operation, the priming pipeline between the main pump and the vacuum pump is completely closed by the auto valve, regardless of whether the suction of the main pump is positive or negative.

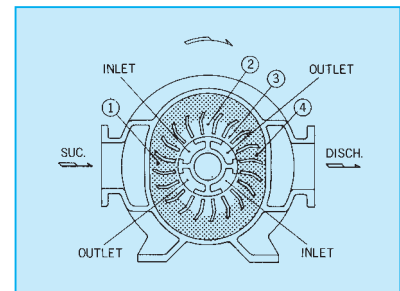
Owing to this process, the handling liquid does not leak from the main pump on the way to the separate tank.



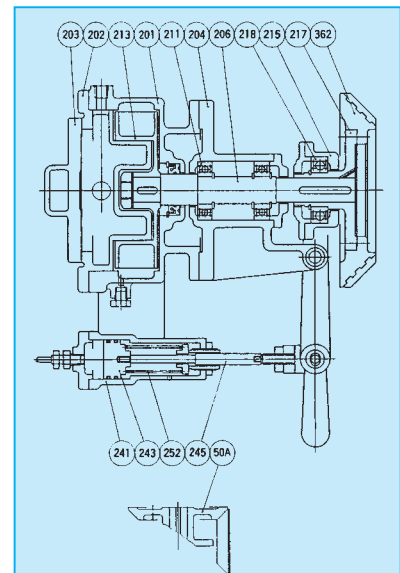
● **DESIGN & FUNCTIONS**

As shown in the figure on the right, the vacuum pump consists of a runner with blades curved in the direction of rotation, and an oval shaped casing which has each two inlet and outlet ports.

It is necessary to fill the water in the casing up to half level prior to starting the pump. When started, the water in the casing forms a water film in an oval shape alongside the interior wall of the casing through centrifugal force. That is to say, chamber ① is filled with water, then when it rotates, the water film moves outward by the centrifugal force alongside the casing wall and sucks the air from the inlet port. In chamber ②, the water film moves outward and it is filled with air. In chamber ③, the water film gradually moves inward then the air is compressed and discharged from the outlet port. In chamber ④, it is filled with water again and repeats the cycle.



50A	COUPLING	1	DUCTILE CAST IRON	FCD400
201	CASING	1	BRONZE	CAC406
202	CASING COVER	1	∕	∕
203	COVER	1	∕	∕
204	BEARING HOUSING	1SET	CAST IRON	FC200
206	RUNNER SHAFT	1	STAINLESS STEEL	SUS304
211	BALL BEARING	2	SPECIAL STEEL	
213	RUNNER	1	PHOSPHOR BRONZE	CAC502A
215	BRG HSG FOR CLUTCH	1	CAST IRON	FC200
217	CLUTCH	1	BRONZE	CAC406
218	BALL BEARING	1	SPECIAL STEEL	
241	HYD PRESS. CASING	1	BRONZE	CAC406
243	PISTON	1	∕	∕
245	PISTON ROD	1	STAINLESS STEEL	SUS304
252	SPRING	1	PHOSPHOR BRONZE	
362	CLUTCH FACING	1	SYNTHETIC RESIN	





● **AUTO VALVE**

One side of the auto valve is connected to the priming port of the main pump and the other side is connected to the inlet of the vacuum pump by piping.

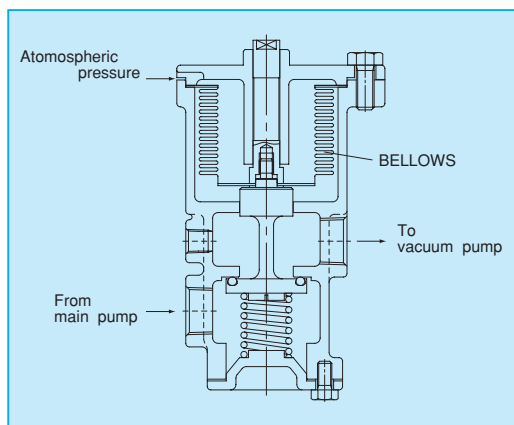
When the vacuum pump is standing still, the auto valve is locked into the closed position from the force of the lower spring.

When the priming starts at the start up of the vacuum pump, the internal pressure of the auto valve falls below the atmospheric pressure, and this pressure pushes the auto valve open via bellows.

When the priming is completed and the vacuum pump

stops running, the internal pressure of the auto valve returns to atmospheric pressure and it balances the pressure in the bellows. Then, the auto valve is closed from the force of the lower spring.

When the suction pressure is positive, the vacuum pump does not start. So, the auto valve closes automatically from the force of the lower spring.



● **LUBRICANTS**

The lubricants for the ball bearings fitted on the pumps are either grease or oil, depending on the pump's design.

NLGI No.2 (National Lubricating Grease Institute) for grease and ISO VG68 (International Standard Organization) for oil are recommended. The brands of grease and oil suitable for 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

## ■ SEA WATER PUMPS (Continuous use)

For continuous-use sea water pumps such as cooling sea water pumps, a zinc anode is better fitted in the casing as an option. A material combination of a stainless steel impeller (SCS14) and a synthetic resin mouth ring are also recommended at extra cost.

When applying polyethylene lining or equivalent for the protection of pipe lines, it is necessary to install either a short pipe (about 200~300mm) with the zinc anode or a sacrificing pipe (bare steel) at the suction side of the pump.

As for pumps except the models SVA, SVB and CVF, it is necessary to apply the aforementioned measures as the zinc anode cannot be fitted on its own due to the design of the pumps.

## ■ MAIN CONDENSATE PUMPS & TURBO-GENERATOR CONDENSATE PUMPS

Since main condensate pumps for LNG carriers and the T/G condensate pumps are operated under very low NPSH conditions, a stainless-steel impeller (SCS14) is recommended at extra cost in order to avoid cavitation erosion.

## ■ BOILER FEED PUMPS FOR DIESEL VESSELS (Model: SHQ, SVQ, GHQ and DK80-4 & 100-4)

In case that the pH value of the handling liquid is above 8.5 for boiler feed pumps in diesel vessels, a material combination of a stainless-steel impeller (SCS13) and a ductile-cast-iron mouth ring (FCD700) should be fitted at extra cost in order to avoid alkaline corrosion.

## ■ CUSTOMER OPTIONS

The SHINKO standard centrifugal pumps have been designed and manufactured in accordance with the Japanese Marine Equipment Association's Standard as well as our specifications. However, the following items are open to be decided by customers during order specification:

1. Pump name (the standard name available based on the SM standard)
2. Quantity
3. Specification (capacity, total head, kind & temperature of handling liquid, electric source, and frequency)
4. With or without self priming device
5. Stuffing box seal (gland packing or mechanical seal)
6. Impeller material for continuous-use sea water pumps (phosphor bronze or stainless steel)
7. Type of spare parts (type 1 or type 3 based on the SM Standard)

# Vertical single-stage single-suction upward-opening COOLING FW & SW PUMPS

**SHINKO**  
**SVA**

## ● APPLICATIONS

- Jacket cooling fresh water pumps
- Sea water service pumps
- Other use

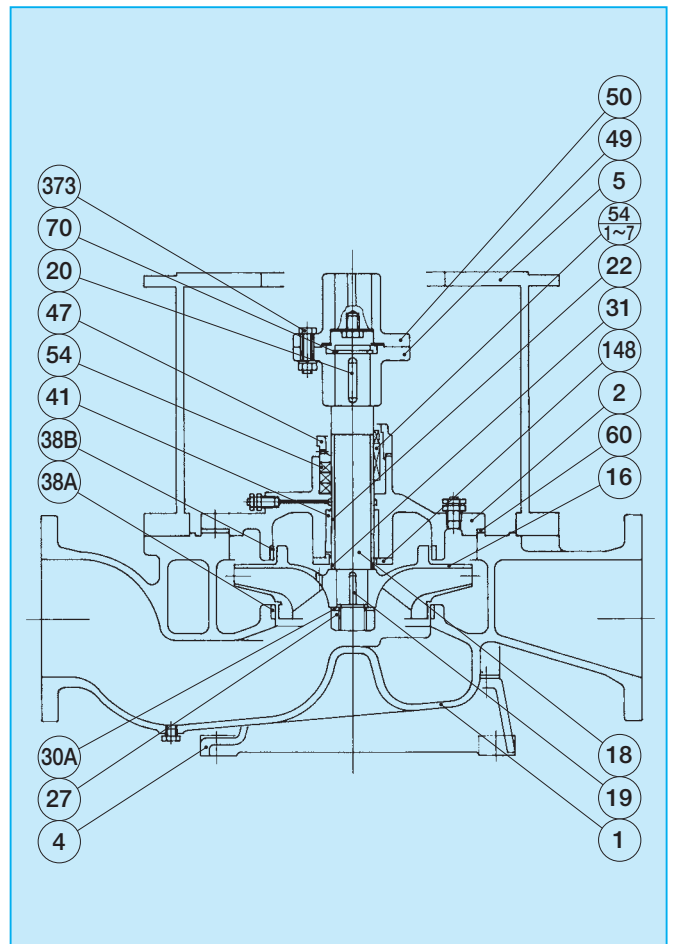
## ● GENERAL CHARACTERISTICS (SINGLE SUCTION)

Item	Model	SVA 100	SVA 125	SVA 125-2	SVA 150	SVA 150-2	SVA 200B
Rotation		Clockwise when viewed from the driver					
Suction bore (mm)		100	125	125	150	150	200
Discharge bore (mm)		100	125	125	150	150	200
Stuffing box seal		Gland packing or Mechanical seal					
Weight : CI(BRZ) (kg)		165(175)	175(195)	250(270)	210(230)	260(280)	215(235)
Water filled in casing (kg)		6	18	26	25	33	37

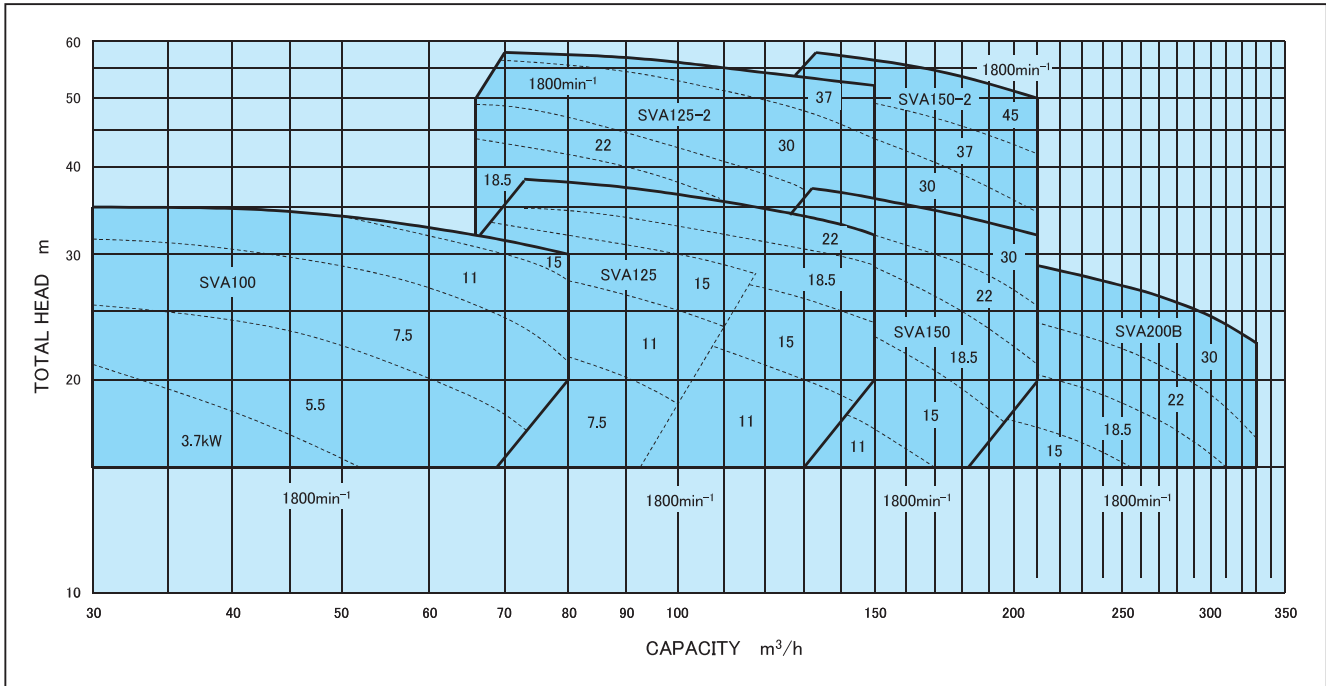


## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
4	PUMP BED	〃	〃	CAST IRON	FC200	1
5	MOTOR BED	〃	〃	〃	〃	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	1
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
30A	WASHER	〃	〃	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
38A	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	1
38B	MOUTH RING	〃	〃	〃	〃	1
41	LINE BEARING	CARBON		CARBON		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
60	PACKING	NON ASBESTOS		NON ASBESTOS		1
70	SNAP RING	CARBON TOOL STEEL	SK85	CARBON TOOL STEEL	SK85	1
148	LINE BEARING COVER	SYNTHETIC RESIN		SYNTHETIC RESIN		1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET



## ● RATING CHARTS



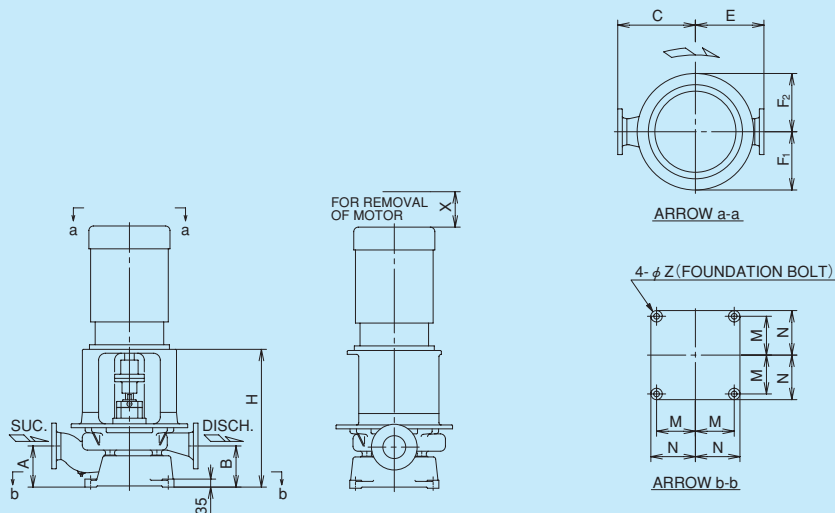
## ● STANDARD ACCESSORIES

- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 2
- Sealing pipe ..... 1set
- Air vent valve..... 1
- Vacuum pump or Air ejector  
(for self priming device) ..... 1set

## ● STANDARD SPARE PARTS

- The number of each spare part is 1 set for all units of the same application and model.
- Gland packing or mechanical seal
  - Coupling bolts & nuts (option)
  - Mouth rings (option)
  - Line bearing
  - Complete set of rotating element (option)

### SVA 100~200B



Dimensions : mm

Model	A	B	C	E	F <sub>1</sub>	F <sub>2</sub>	H	M	N	X	Z	Mecha. seal
SVA 100	180	180	340	300	255	255	609	170	195	170	25	35
SVA 125	190	190	380	320	255	255	629	170	195	170	25	35
SVA 120-2	220	220	420	350	310	310	718	210	240	200	27	45
SVA 150	215	215	420	360	255	270	700	210	240	170	27	45
SVA 150-2	215	215	460	390	310	310	715	210	240	200	27	45
SVA 200B	215	215	410	380	260	290	724	210	240	170	27	45

**SHINKO IND.LTD.**

# Vertical single-stage double-suction upward-opening COOLING FW & SW PUMPS

**SHINKO**  
**SVA**

## ● APPLICATIONS

Cooling sea water pumps	Cooling fresh water pumps
Turbo generator condenser C.S.W. pumps	Vacuum condenser C.S.W. pumps
Inert gas scrubber C.S.W. pumps	Reliquefaction C.F.W. pumps
Central cooling sea water pumps	Central cooling fresh water pumps
Ballast pumps	Others

## ● GENERAL CHARACTERISTICS (DOUBLE SUCTION)

Item	Model	SVA 200	SVA 250B	SVA 250(A)	SVA 300B	SVA 300(A)
Rotation		Clockwise when viewed from the driver				
Suction bore (mm)		200	250	250	300	300
Discharge bore (mm)		200	250	250	300	300
Stuffing box seal		Gland packing or Mechanical seal				
Weight : CI(BRZ)	(kg)	310(360)	260(300)	400(460)	315(350)	510(570)
Water filled in casing	(kg)	51	76	90	101	125

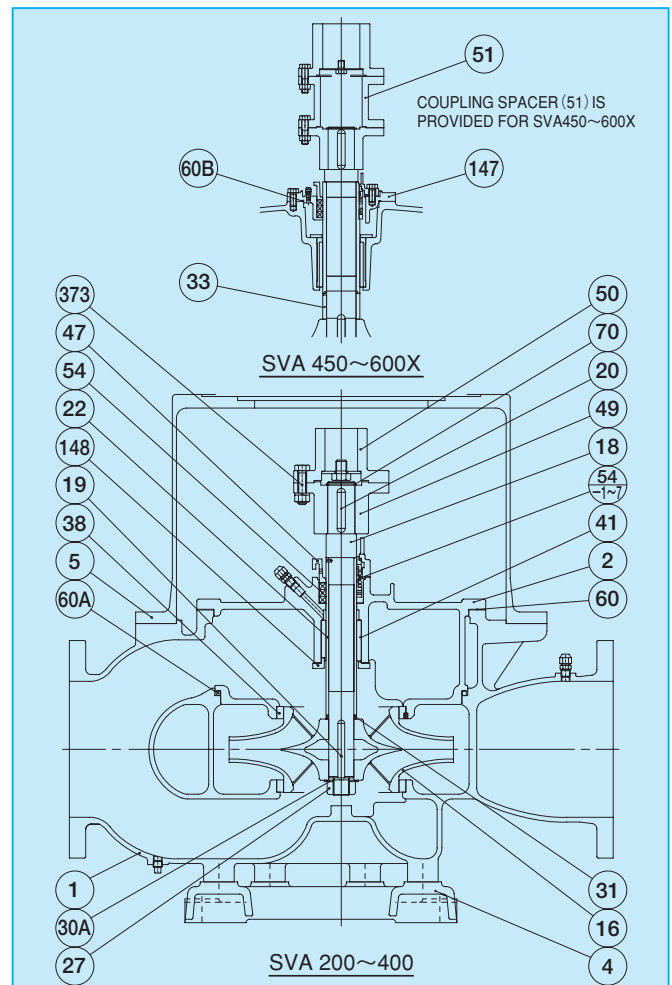
Item	Model	SVA 350B	SVA 350(A)	SVA 400(A)	SVA 450	SVA 500X	SVA 600X
Rotation		Clockwise when viewed from the driver					
Suction bore (mm)		350	350	400	450	500	600
Discharge bore (mm)		350	350	400	450	500	600
Stuffing box seal		Gland packing or Mechanical seal					
Weight : CI(BRZ)	(kg)	380(420)	675(730)	1050(1160)	1450(1600)	1640(1800)	2160(2370)
Water filled in casing	(kg)	126	195	315	438	668	850



## ● DESIGN & STANDARD MATERIALS

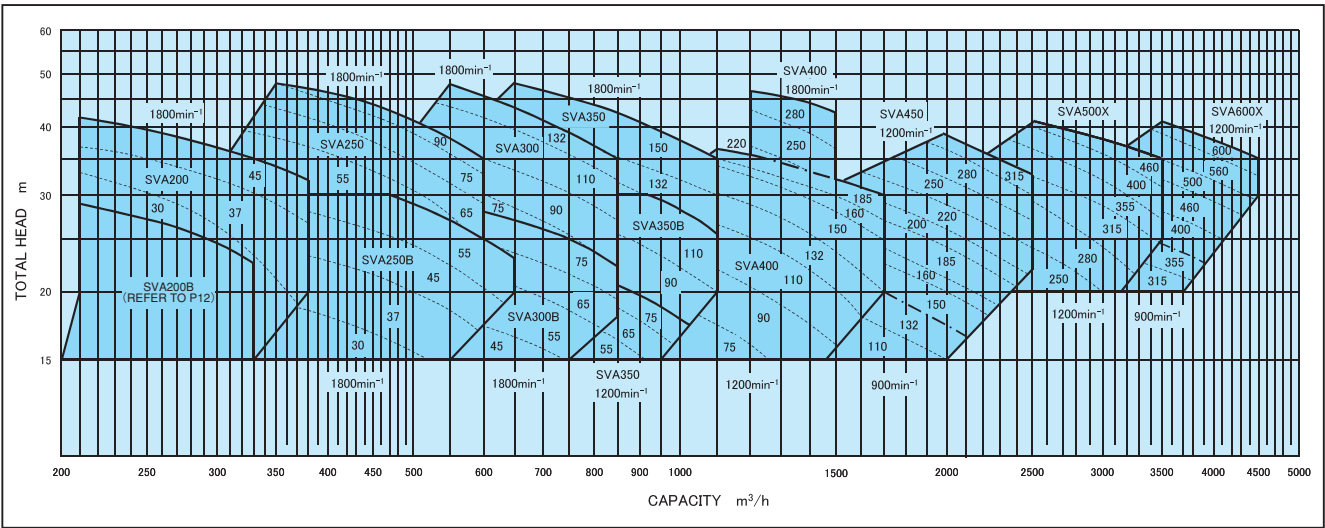
PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	※	※	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
4	PUMP BED	CAST IRON	FC200	CAST IRON	FC200	1
5	MOTOR BED	〃	〃	〃	〃	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	1
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
30A	WASHER	〃	〃	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
33	DISTANCE RING	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
38	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	2
41	LINE BEARING	CARBON		CARBON		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	〃	〃	1
51	COUPLING SPACER	〃	〃	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
60	PACKING	NON ASBESTOS		NON ASBESTOS		1
60A	PACKING	RUBBER		RUBBER		1
60B	PACKING	〃		〃		1
70	SNAP RING	CARBON TOOL STEEL	SK85	CARBON TOOL STEEL	SK85	1
147	STUFFING BOX	DUCTILE CAST IRON	FCD400	BRONZE	CAC402	1
148	LINE BEARING COVER	SYNTHETIC RESIN		SYNTHETIC RESIN		1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET

Note ※ SVA 200, 250 CAST IRON (FC200)  
SVA 300~600X DUCTILE CAST IRON (FCD400)

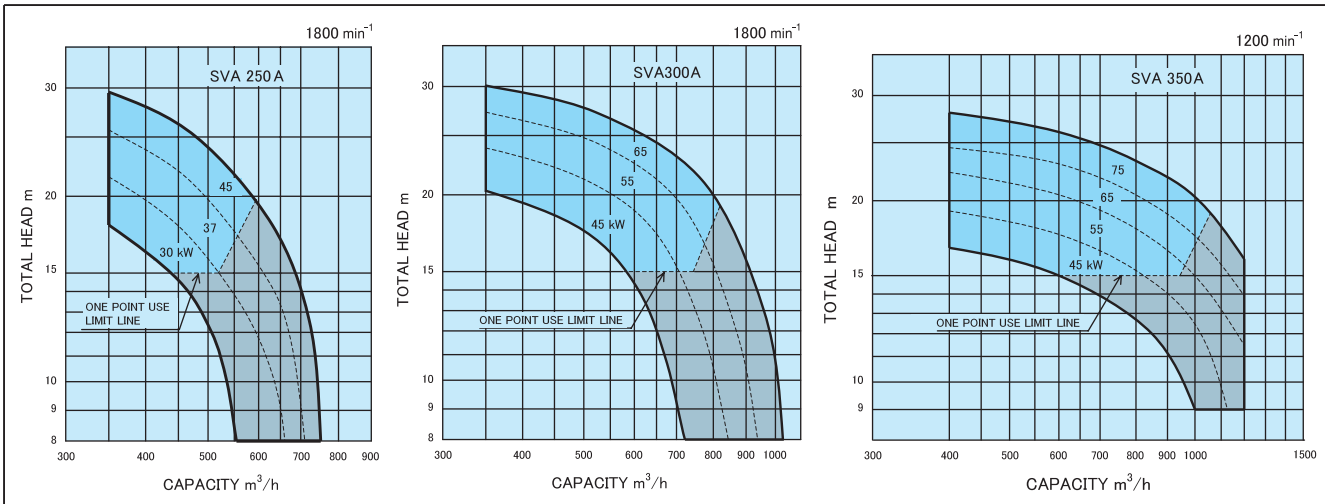


# ● RATING CHARTS

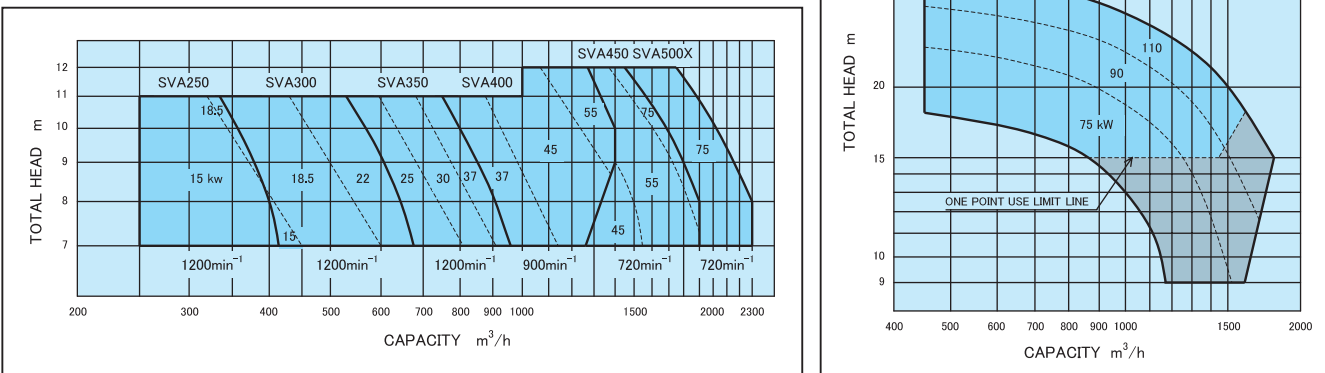
For Cooling Sea Water Pumps and Cooling Fresh Water Pumps (SVA)



For Cooling Sea Water Pumps and COPT Condenser Cooling Pumps with a Double Specification (SVA-A) Pumps should be used intermittently when they are run in the gray-colored zones on the charts below.



For Turbo Generator Condenser Cooling Pumps (SVA)

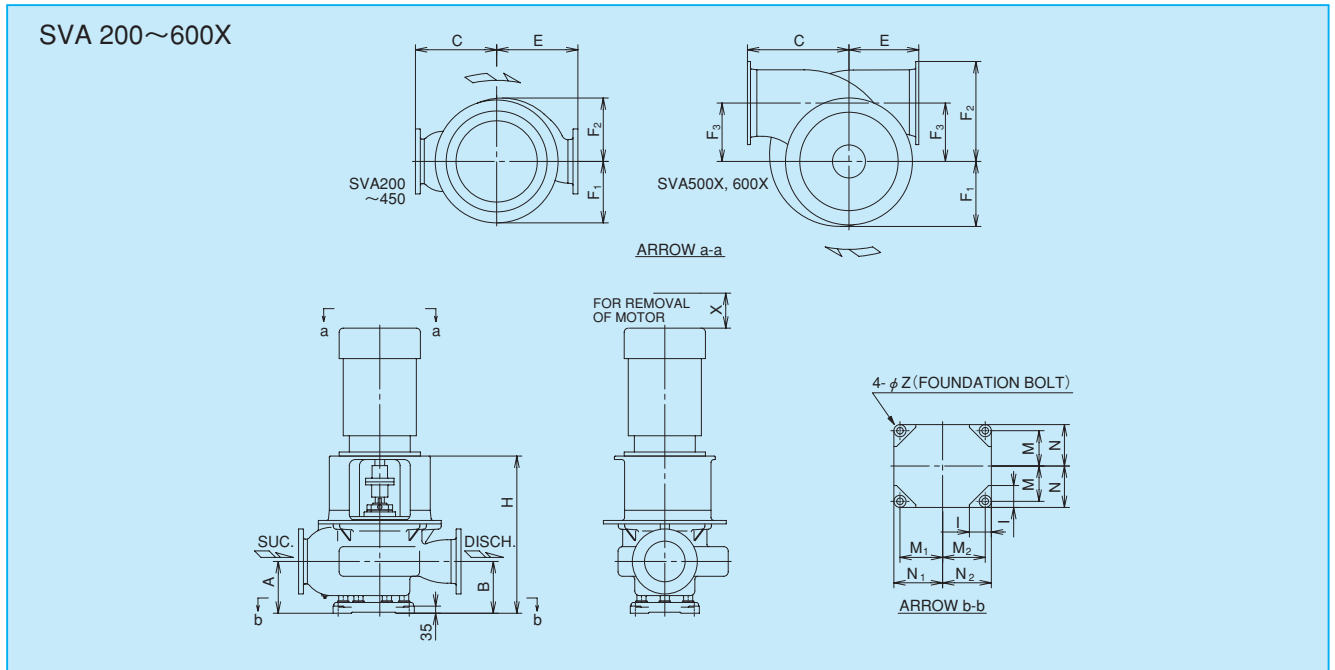


## ● STANDARD ACCESSORIES

Discharge pressure gauge	1
Suction compound gauge	1
Gauge board	1
Gauge root valve	2
Sealing pipe	1 set
Air vent valve	1
Vacuum pump or Air ejector (for self priming device)	1 set

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.  
 Gland packing or mechanical seal  
 Coupling bolts & nuts (option)  
 Mouth rings (option)  
 Line bearing  
 Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	I	M	M <sub>1</sub>	M <sub>2</sub>	N	N <sub>1</sub>	N <sub>2</sub>	X	Z	Mecha. seal
SVA 200	255	255	400	400	305	315	—	810	90	145	205	145	170	230	170	200	27	45
SVA 250B	290	290	400	400	285	310	—	879	—	190	180	180	215	205	205	200	27	45
SVA 250(A)	290	290	430	430	305	350	—	881	90	180	240	180	210	270	210	200	27	55
SVA 300B	300	300	430	430	285	360	—	911	—	215	200	200	245	230	230	200	33	55
SVA 300(A)	325	325	470	470	310	390	—	941	110	200	275	200	230	305	230	200	33	55
SVA 350B	305	305	430	440	330	370	—	976	—	230	200	200	260	230	230	200	33	55
SVA 350(A)	355	355	480	480	365	380	—	1031	110	235	300	235	265	330	265	230	33	60
SVA 400(A)	410	410	600	580	430	495	—	1171	110	275	355	275	305	385	305	230	33	70
SVA 450	500	500	730	710	414	598	—	1454	150	340	440	340	380	480	380	300	39	85
SVA 500X	580	580	800	550	515	790	460	1764	170	425	425	425	470	470	470	300	46	115
SVA 600X	670	670	950	600	542	885	500	1913	190	500	500	500	550	550	550	300	52	115





Vertical single-stage single/double-suction upward-opening

# FIRE & GS PUMPS

**SHINKO**  
**SVB**

## ● APPLICATIONS

- Fire and general service pumps
- Bilge and ballast pumps
- Emergency fire pumps
- Other use

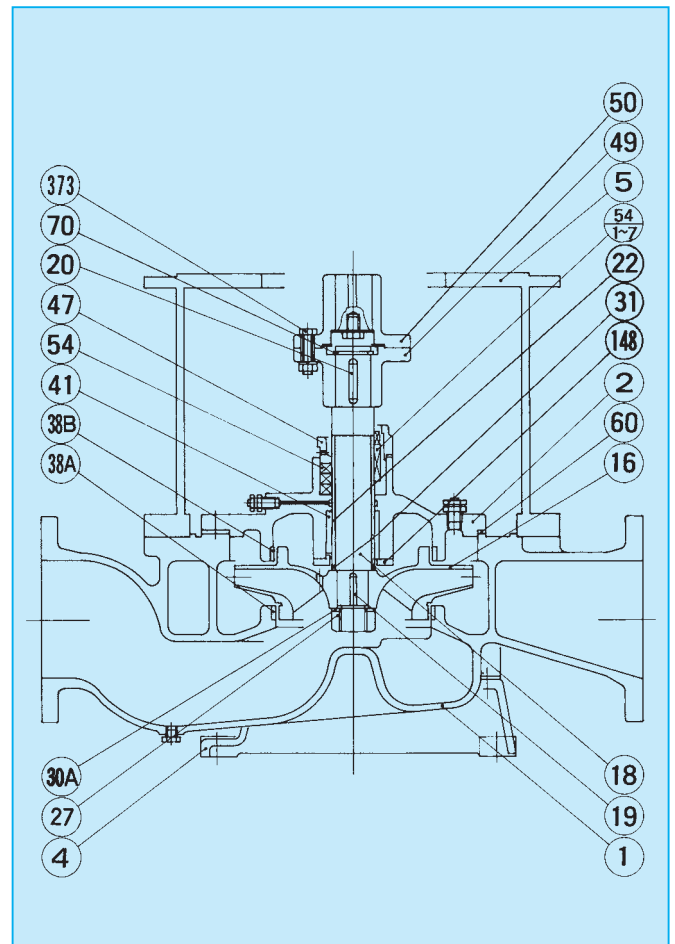
## ● GENERAL CHARACTERISTICS (SINGLE SUCTION)

Item	Model	SVB 65	SVB 100	SVB 125
Rotation		Clockwise when viewed from the driver		
Suction bore (mm)		65	100	125
Discharge bore (mm)		65	100	125
Stuffing box seal		Gland packing or Mechanical seal		
Weight : CI(BRZ) (kg)		150(165)	165(185)	230(255)
Water filled in casing (kg)		4	6	18



## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
4	PUMP BED	〃	〃	CAST IRON	FC200	1
5	MOTOR BED	〃	〃	〃	〃	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	1
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
30A	WASHER	〃	〃	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
38A	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	1
38B	MOUTH RING	〃	〃	〃	〃	1
41	LINE BEARING	CARBON		CARBON		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
60	PACKING	NON ASBESTOS		NON ASBESTOS		1
70	SNAP RING	CARBON TOOL STEEL	SK85	CARBON TOOL STEEL	SK85	1
148	LINE BEARING COVER	SYNTHETIC RESIN		SYNTHETIC RESIN		1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET



## ● APPLICATIONS

- Fire and general service pumps
- Bilge and ballast pumps
- Emergency fire pumps
- Other use

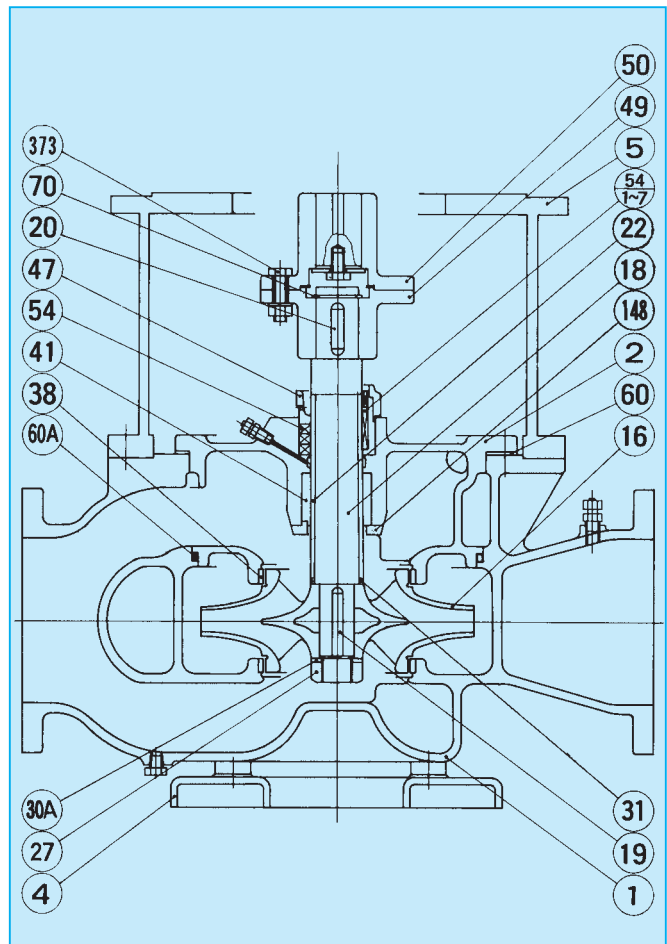


## ● GENERAL CHARACTERISTICS (DOUBLE SUCTION)

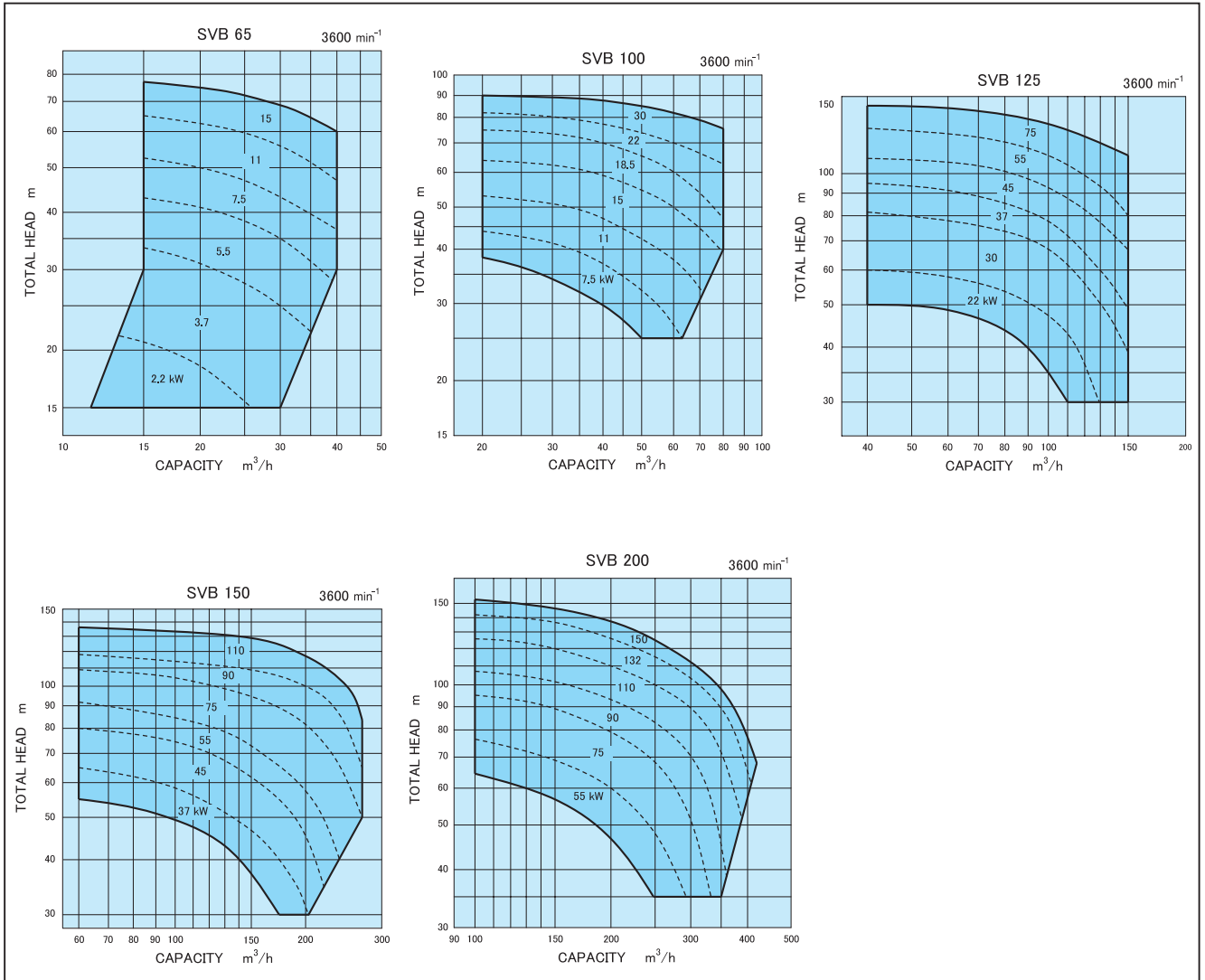
Item	Model	SVB 150	SVB 200
Rotation		Clockwise when viewed from the driver	
Suction bore	(mm)	150	200
Discharge bore	(mm)	150	200
Stuffing box seal		Gland packing or Mechanical seal	
Weight : CI(BRZ)	(kg)	280(320)	360(410)
Water filled in casing	(kg)	42	62

## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
4	PUMP BED	〃	〃	CAST IRON	FC200	1
5	MOTOR BED	〃	〃	〃	〃	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	1
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
30A	WASHER	〃	〃	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
38	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	2
41	LINE BEARING	CARBON		CARBON		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
60	PACKING	NON ASBESTOS		NON ASBESTOS		1
60A	PACKING	RUBBER		RUBBER		1
70	SNAP RING	CARBON TOOL STEEL	SK85	CARBON TOOL STEEL	SK85	1
148	LINE BEARING COVER	SYNTHETIC RESIN		SYNTHETIC RESIN		1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET



## ● PERFORMANCE CHARTS



## ● STANDARD ACCESSORIES

Discharge pressure gauge .....	1
Suction compound gauge .....	1
Gauge board .....	1
Gauge root valve .....	2
Sealing pipe .....	1 set
Air vent valve .....	1
Vacuum pump or Air ejector (for self priming device) .....	1 set

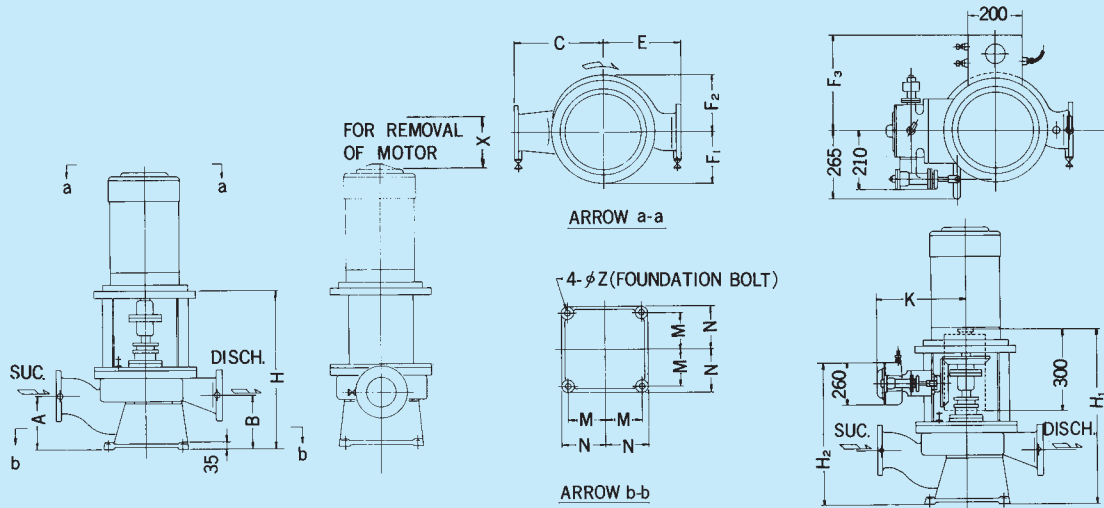
## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts & nuts (option)
- Mouth rings (option)
- Line bearing
- Complete set of rotating element (option)

SVB 65~125

EQUIPPED WITH VACUUM PUMP

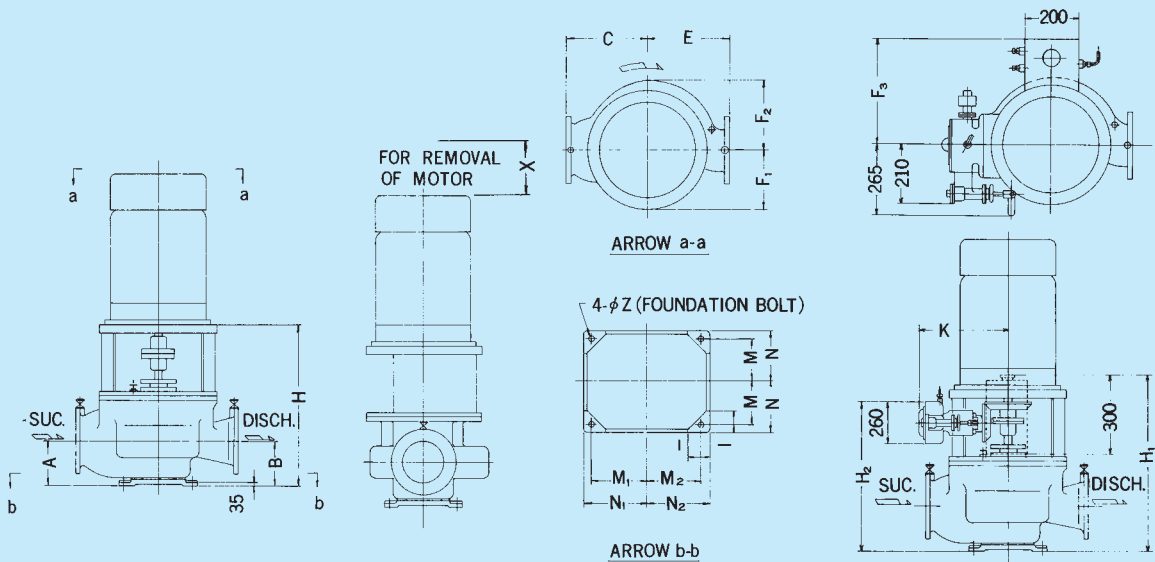


Dimensions : mm

Model	A	B	C	E	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	H <sub>1</sub>	H <sub>2</sub>	K	M	N	X	Z	Mecha. seal
SVB 65	150	150	280	250	133	165	350	554	654	594	420	125	150	170	23	30
SVB 100	180	180	300	270	220	220	350	609	689	629	420	170	195	170	25	35
SVB 125	190	190	380	320	255	255	460	700	800	750	500	170	195	200	25	45

SVB 150~200

EQUIPPED WITH VACUUM PUMP



Dimensions : mm

Model	A	B	C	E	F <sub>1</sub>	F <sub>2</sub>	F <sub>3</sub>	H	H <sub>1</sub>	H <sub>2</sub>	I	K	M	M <sub>1</sub>	M <sub>2</sub>	N	N <sub>1</sub>	N <sub>2</sub>	X	Z	Mecha. seal
SVB 150	240	240	380	380	310	310	555	780	880	820	90	500	180	240	180	210	270	210	200	27	45
SVB 200	300	300	450	450	365	365	600	900	1000	940	110	540	200	275	200	230	305	230	200	33	55

# Vertical two-stage single-suction **FIRE & GS PUMPS**

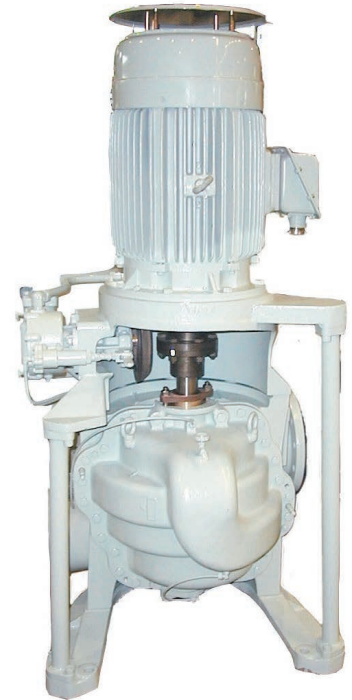
**SHINKO**  
**RVP**

## ● APPLICATIONS

- Fire and general service pumps
- Bilge and ballast pumps
- Emergency fire pumps
- Other use

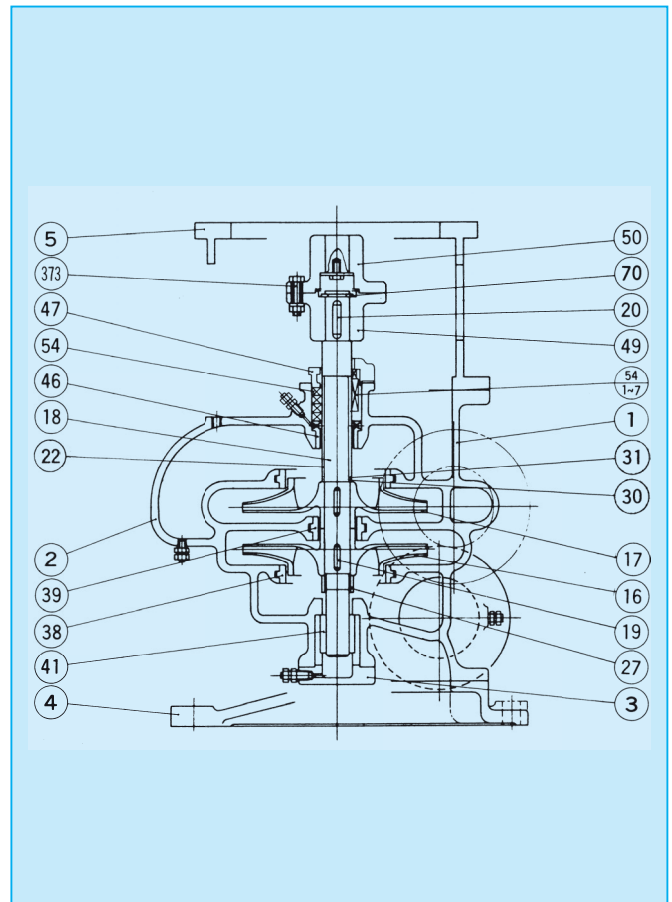
## ● GENERAL CHARACTERISTICS

Item	Model	RVP 100	RVP 130	RVP 160	RVP 160-2	RVP 200	RVP 200-2	RVP 250-1	RVP 250
Rotation		Clockwise when viewed from the driver							
Suction bore (mm)		100	125	150	150	200	200	250	250
Discharge bore (mm)		100	125	150	150	200	200	250	250
Stuffing box seal		Gland packing or Mechanical seal							
Weight : CI(BRZ) (kg)		240(265)	370(412)	510(560)	535(590)	605(670)	630(685)	675(755)	715(800)
Water filled in casing (kg)		10	21	41	51	70	80	105	110



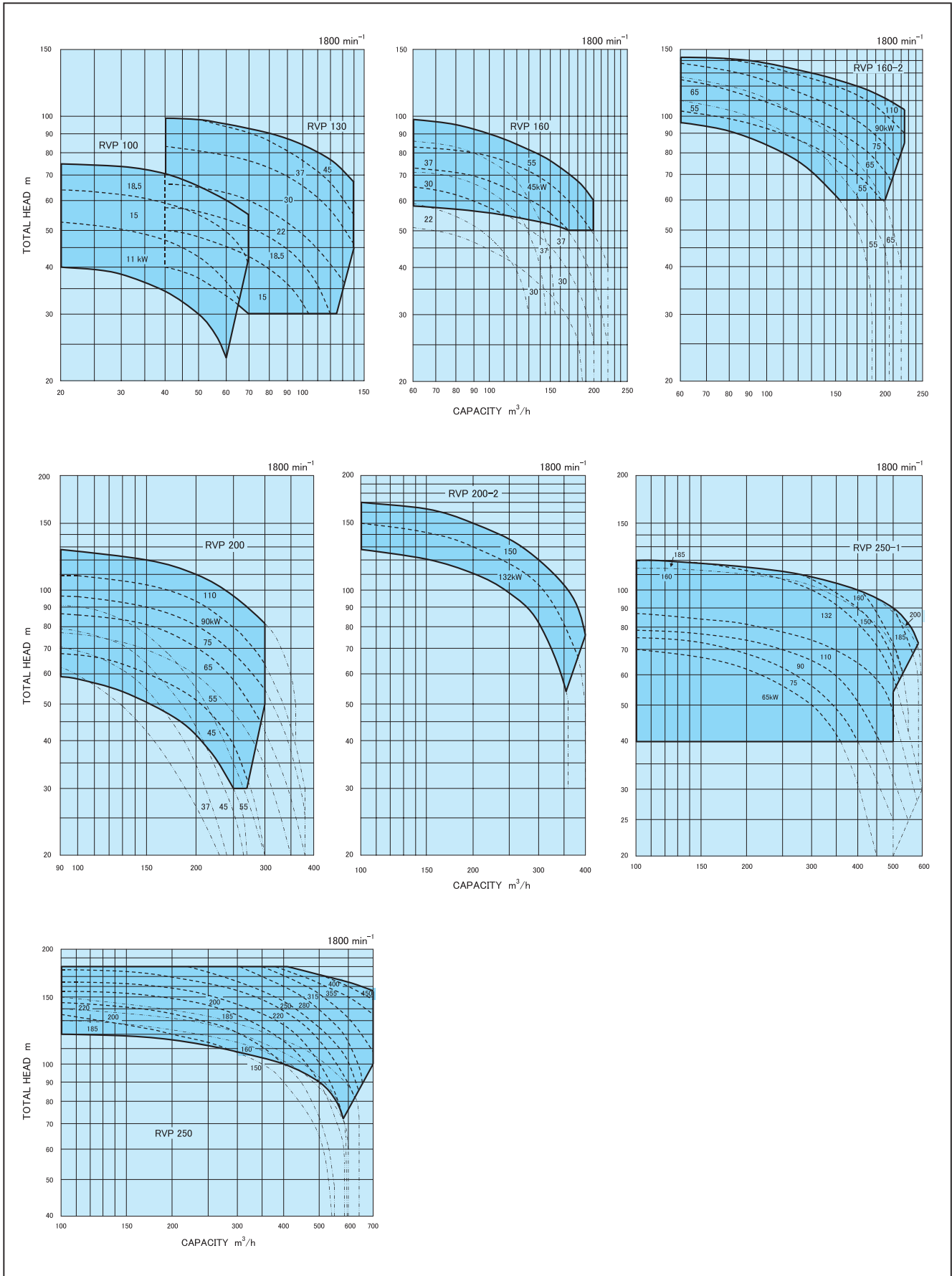
## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
3	VOLUTE END COVER	〃	〃	〃	CAC406	1
4	PUMP BED	〃	〃	CAST IRON	FC200	1
5	MOTOR BED	〃	〃	〃	〃	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
17	IMPELLER	〃	〃	〃	〃	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	2
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	〃	SUS316	〃	SUS316	1
30	WASHER	〃	SUS304	〃	SUS304	1
31	PACKING	RUBBER		RUBBER		1
38	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	2
39	CASING RING	〃	CAC406	〃	CAC406	1
41	LINE BEARING	CARBON		CARBON		1
46	LANTERN BUSH	BRONZE	CAC406	BRONZE	CAC406	1
47	GLAND	〃	〃	〃	〃	1
49	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
70	SNAP RING	CARBON TOOL STEEL	SK85	CARBON TOOL STEEL	SK85	1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET



## PERFORMANCE CHARTS

For fire and general service pumps, a double specification is required. And, for emergency fire pumps, a single specification is required.



The dashed double-dotted lines are used when a pump has a double specification.

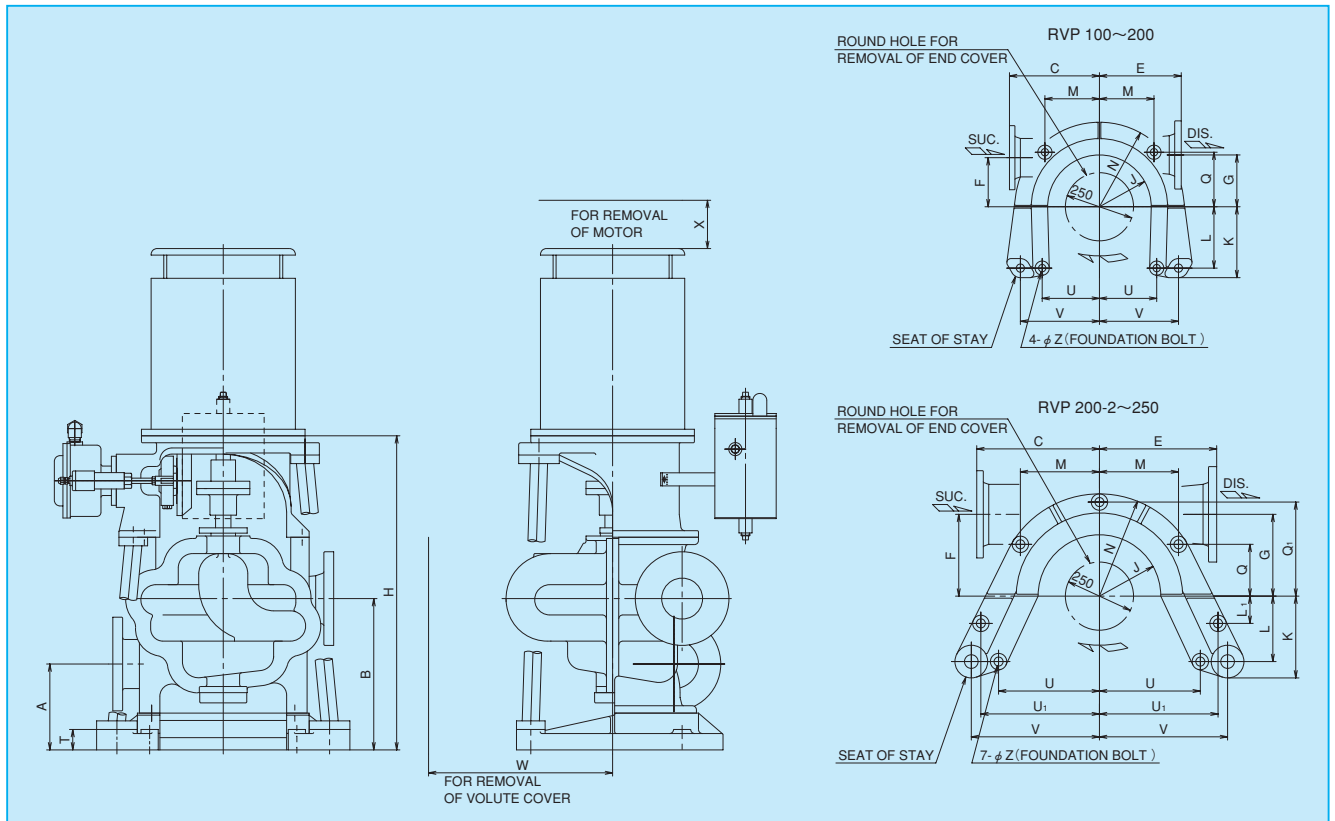
## ● STANDARD ACCESSORIES

Discharge pressure gauge	1
Suction compound gauge	1
Gauge board	1
Gauge root valve	2
Sealing pipe	1 set
Air vent valve	1
Return pipe	1
Vacuum pump or Air ejector (for self priming device)	1 set

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts, nuts & washers (option)
- Mouth rings (option)
- Casing ring (option)
- Line bearing
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	L <sub>1</sub>	M	N	Q	Q <sub>1</sub>	T	U	U <sub>1</sub>	V	W	X	Z	Mecha. seal
RVP 100	210	370	270	270	150	170	768	155	221	200	—	170	270	170	—	50	180	—	—	500	155	23	40
RVP 130	200	380	330	300	180	190	861	190	260	225	—	200	310	200	—	50	210	—	290	500	155	27	50
RVP 160	210	400	370	350	190	210	888	225	300	245	—	240	365	240	—	50	305	—	380	600	170	27	50
RVP 160-2	210	420	370	370	190	270	988	225	300	245	—	240	365	240	—	50	305	—	380	800	200	27	60
RVP 200	240	505	400	380	210	250	1088	225	300	245	—	240	365	240	—	50	305	—	380	700	210	27	60
RVP 200-2	240	505	450	430	300	300	1088	225	300	240	100	290	375	190	345	50	370	435	470	800	210	33	60
RVP 250-1	265	585	415	415	300	350	1258	260	350	290	150	340	420	200	390	50	450	515	550	850	210	33	65
RVP 250	265	585	450	450	300	350	1258	260	350	290	150	340	420	200	390	50	450	515	550	850	210	33	75





Vertical two-stage single-suction self-priming  
**FIRE & GS PUMPS**

**SHINKO**  
**RVX**

● **APPLICATIONS**

- Fire and general service pumps
- Bilge and ballast pumps
- Other use

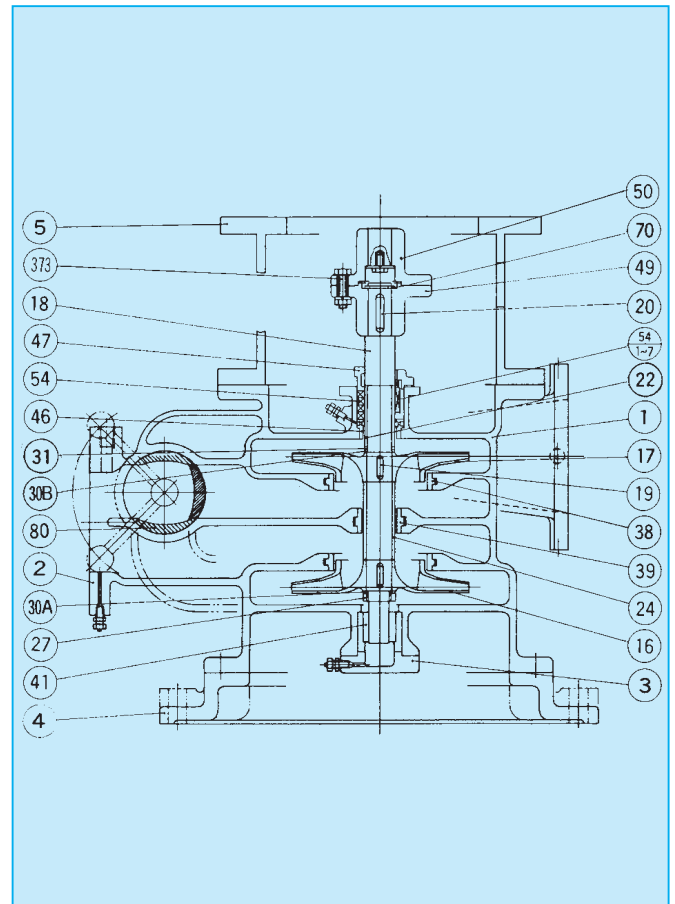
● **GENERAL CHARACTERISTICS**

Item	Model	RVX 160S	RVX 200S	RVX 260S
Rotation		Clockwise when viewed from the driver		
Suction bore (mm)		150	200	250
Discharge bore (mm)		150	200	250
Stuffing box seal		Gland packing or Mechanical seal		
Weight : BRZ (kg)		700	730	885
Water filled in casing (kg)		45	66	105

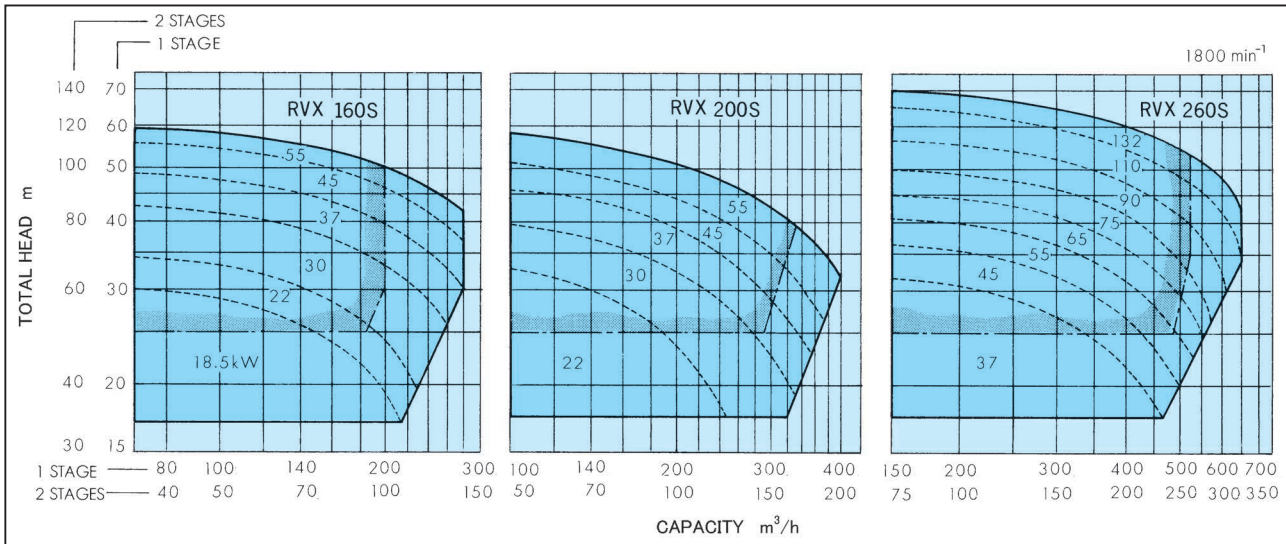


● **DESIGN & STANDARD MATERIALS**

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	BRONZE	CAC402	1
2	VOLUTE COVER	∕	∕	1
3	VOLUTE END COVER	∕	CAC406	1
4	PUMP BED	CAST IRON	FC200	1
5	MOTER BED	∕	∕	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
17	IMPELLER	∕	∕	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	∕	∕	2
20	COUPLING KEY	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS304	1
24	SLEEVE	∕	∕	1
27	IMPELLER NUT	∕	∕	1
30A	WASHER	COPPER	CuP	1
30B	WASHER	STAINLESS STEEL	SUS304	1
31	PACKING	RUBBER		1
38	MOUTH RING	BRONZE	CAC403	2
39	CASING RING	∕	CAC406	1
41	LINE BEARING	CARBON		1
46	LANTERN BUSH	BRONZE	CAC406	1
47	GLAND	∕	∕	1
54	GLAND PACKING	CARBONIZED FIBER		1SET
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET



## ● PERFORMANCE CHARTS



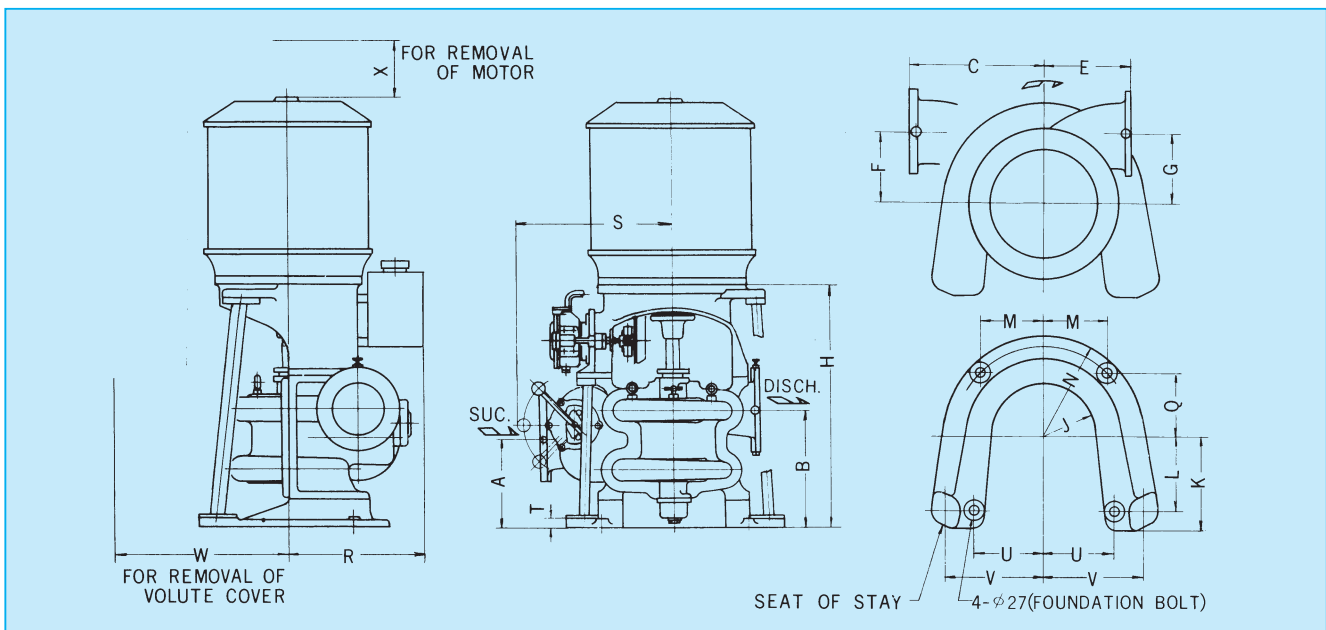
When a model with a double specification is required, one of the specification points must be within the highlighted zone. It is also acceptable to have both points in the highlighted zone.

## ● STANDARD ACCESSORIES

- Discharge pressure gauge .....1
- Suction compound gauge .....1
- Gauge board .....1
- Gauge root valve .....2
- Sealing pipe.....1set
- Air vent valve .....1
- Vacuum pump.....1set

## ● STANDARD SPARE PARTS

- The number of each spare part is 1 set for all units of the same application and model.
- Gland packing or mechanical seal
  - Coupling bolts , nuts & washers (option)
  - Mouth rings (option)
  - Casing ring (option)
  - Line bearing
  - Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	Q	R	S	T	U	V	W	X	Mecha. seal
RVX 160S	310	425	565	390	260	250	859	225	300	245	240	365	240	450	630	50	305	380	500	170	50
RVX 200S	310	425	565	390	260	250	859	225	300	245	240	365	240	450	630	50	305	380	500	170	50
RVX 260S	360	500	610	400	310	280	993	225	300	245	240	365	240	493	675	50	305	380	500	210	60

**SHINKO IND.LTD.**

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

**SHINKO**  
**SA**

## ● APPLICATIONS

Lubricating oil pumps

## ● GENERAL CHARACTERISTICS

Item	Model	SA 150	SA 150-2	SA 200	SA 200-2	SA 250	SA 250-2	SA 300	SA 300H	SA 300-2	SA 350	SA 350H	SA 350-2	SA 400	SA 400-2	
Rotation		Clockwise when viewed from the driver														
Number of stages		1	2	1	2	1	2	1	1	2	1	1	2	1	2	
Discharge bore (mm)		150		200		250		300			350		400			
Ball bearings		6309		6311		6311		6311			6314		6314			
Service life (hr)		Abv. 60000														
Lubrication		Self-lubrication by handling oil														
Required min. LO level (mm)		330		350		430		500			570		700			
Stuffing box seal		Oil seal														
Weight : CI (kg)		510 (40)	580 (40)	770 (50)	900 (50)	1070 (63)	1230 (63)	1170 (80)	1220 (80)	1350 (80)	1530 (108)	1590 (108)	1730 (108)	1650 (120)	2100 (120)	

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

SAD : A single shaft without an intermediate bearing

SAE : Two shafts with sleeve couplings

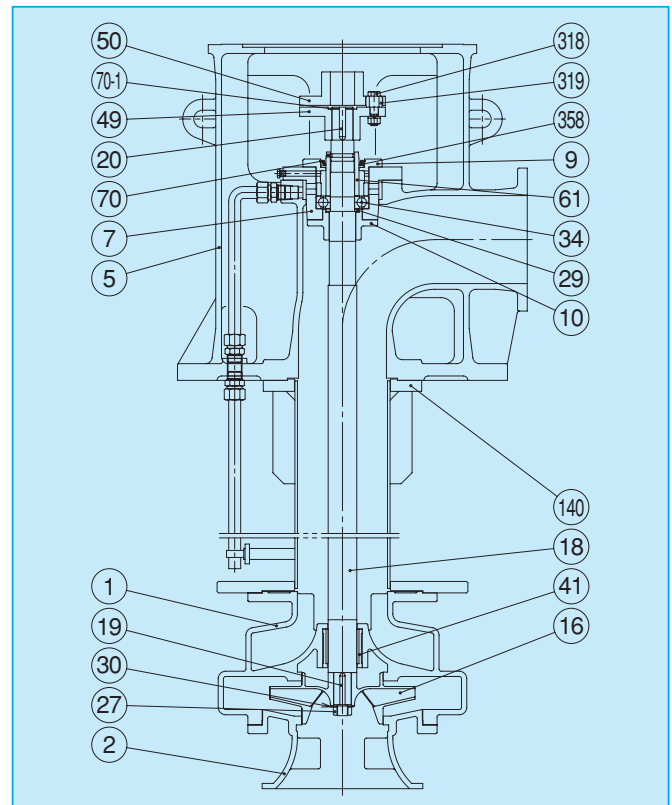
SAF : A single shaft with an intermediate bearing

SAG : Two shafts with sleeve couplings and an intermediate bearing



## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ. NO. FOR 1PUMP
		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	SS400	1
70	SNAP RING	CARBON TOOL STEEL	SK85	1
70-1	SNAP RING	∕	∕	1
140	DISCHARGE PIPE	STEEL	SS400	1
318	COUPLING BOLT NUT & WASHER	∕	SS400B	1SET
319	COUPLING RING	RUBBER		1SET
358	OIL SEAL	∕		1



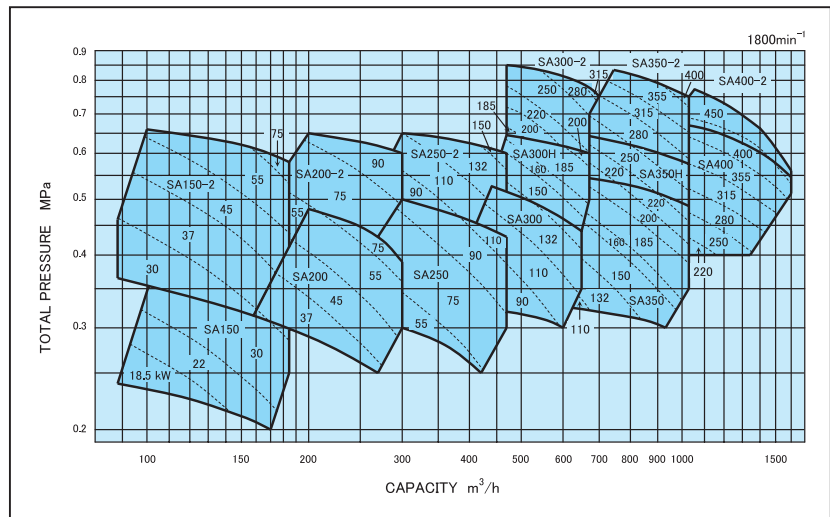
## ● PERFORMANCE CHART

The dotted lines on the chart show the electric motor power under the following conditions:

Handling lube oil with a viscosity of 100 cSt and a specific gravity of 0.9 at 40°C

Capacity guarantee : 25.8 cSt

Power guarantee : 260 cSt



## ● STANDARD ACCESSORIES

- Discharge pressure gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 1
- Return pipe..... 1set

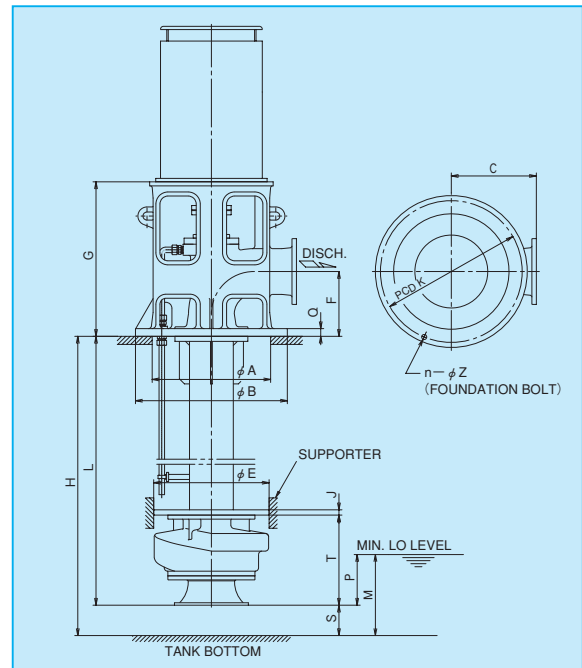
## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Ball bearings
- Coupling bolts, nuts & rings (option)
- Oil seal
- Line bearing
- Complete set of rotating element (option)

In order to standardize the length (L), the dimension (S) is adjusted to the range shown in the table below depending on the tank height (H).

Model	H (reference)	S	L (reference)	P	M (S + P)
SA 150 (-2)	2080~2180	80~180	2000	250	330~430
SA 200 (-2)	2100~2200	100~200		250	350~450
SA 250 (-2)	2120~2220	120~220		310	430~530
SA 300 (-2)	2140~2240	140~240		360	500~600
SA 300H	2140~2240	140~240		360	500~600
SA 350 (-2)	2170~2270	170~270		400	570~670
SA 350H	2120~2270	170~270		400	570~670
SA 400 (-2)	2220~2320	220~320		480	700~800



Dimensions : 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 (-2)	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
SA 400 (-2)	720	940	500	700	370	1040	30	880	35	680	25	12

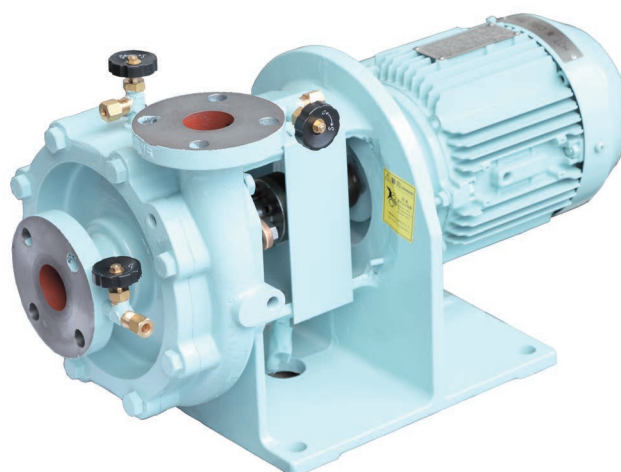
Horizontal single-stage single-suction

# FW & SANITARY PUMPS

**SHINKO**  
**HJ**

## ● APPLICATIONS

- Fresh water pumps
- Sanitary pumps
- Refrigerator cooling water pumps
- Other use

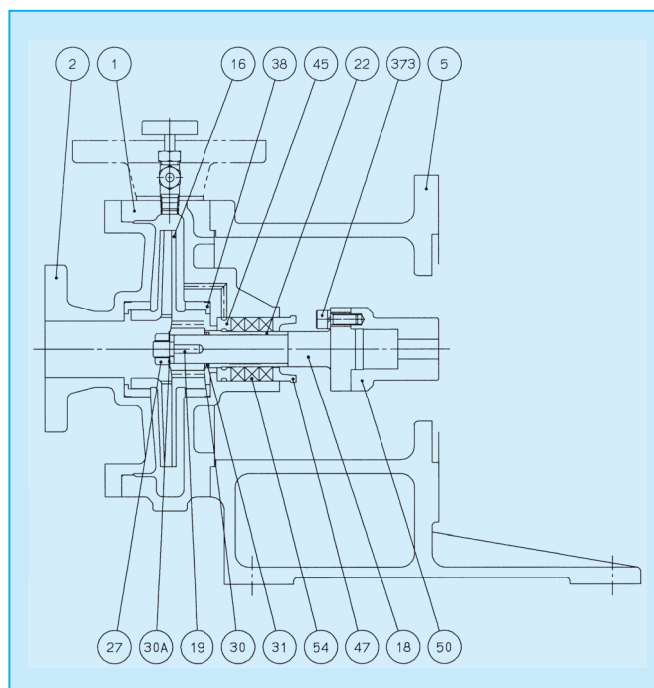


## ● GENERAL CHARACTERISTICS

Item	Model	HJ 40-2
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		40
Discharge bore (mm)		40
Stuffing box seal		Gland packing or Mechanical seal
Weight : CI(BRZ) (kg)		38(41)
Water filled in casing (kg)		0.8

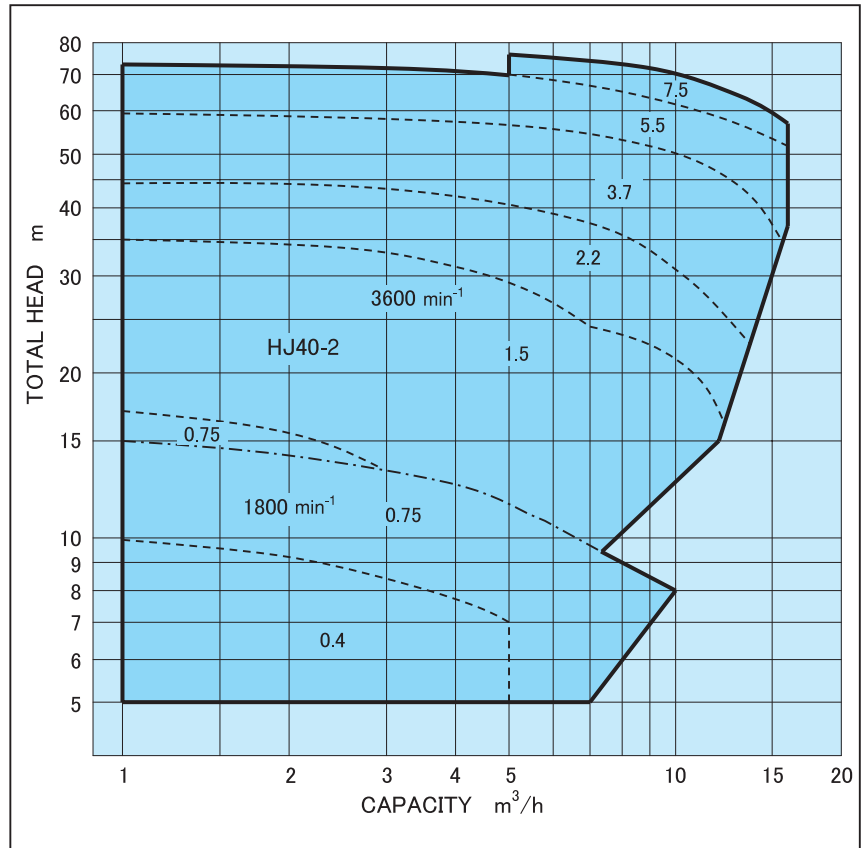
## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
5	BRACKET	〃	〃	CAST IRON	FC200	1
16	IMPELLER	SYNTHETIC RESIN		SYNTHETIC RESIN		1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	〃	SUS304	〃	〃	1
22	SLEEVE	〃	SUS403	〃	〃	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
30	WASHER	〃	〃	〃	〃	1
30A	WASHER	〃	〃	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
38	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	2
45	SEALING RING	SYNTHETIC RESIN		SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
50	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
373	COUPLING BOLT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET



## ● PERFORMANCE CHART

Although fresh water pumps are mainly fitted to hydrophore tanks, refrigerator cooling pumps and other kinds of pumps are attached to the hull foundation separately.



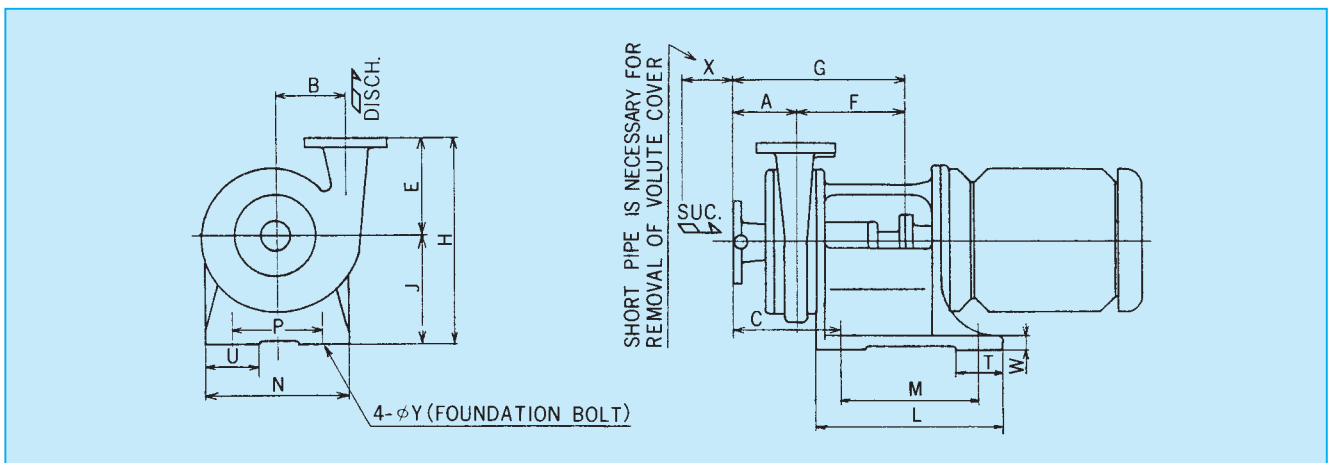
## ● STANDARD ACCESSORIES

Bracket .....	1
Discharge pressure gauge .....	1
Suction pressure gauge .....	1
Gauge board .....	1
Gauge root valve .....	2
Air vent valve.....	1
Air ejector (for self priming device) .....	1set

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts & washers (option)
- Mouth rings (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	L	M	N	P	T	U	W	X	Y	Mecha. seal
HJ 40-2	90	100	150	150	132	222	320	170	300	260	270	230	50	50	13	100	19	25

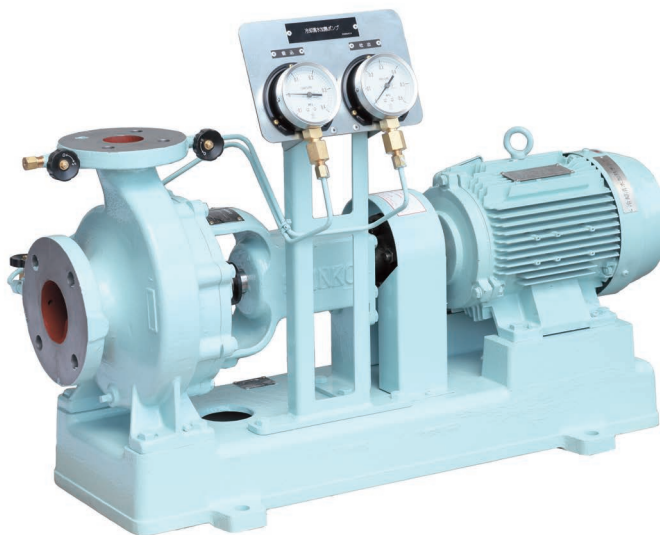
**SHINKO IND.LTD.**

# Horizontal single-stage single-suction MISCELLANEOUS CW PUMPS

**SHINKO**  
**GJ**

## ● APPLICATIONS

- Air conditioning ref. cooling water pumps
- Refrigerator cooling water pumps
- Miscellaneous cooling water pumps
- Fresh water generator ejector pumps
- Other use

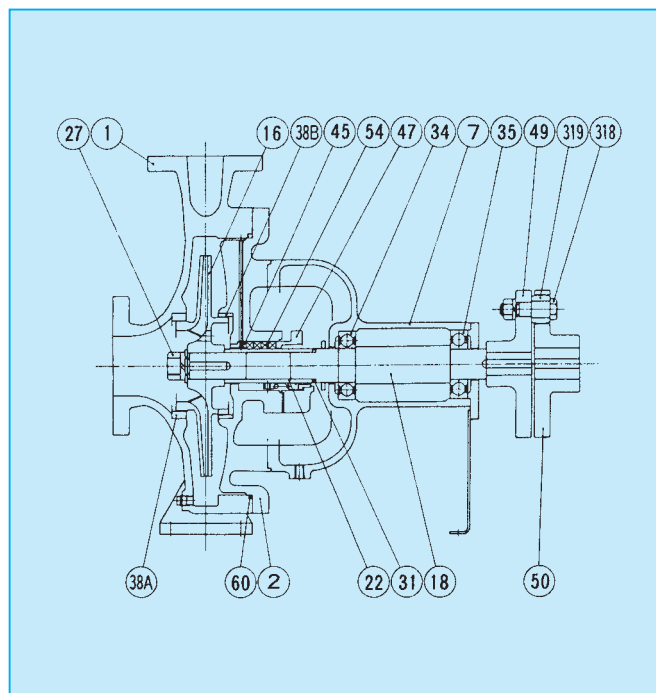


## ● GENERAL CHARACTERISTICS

Item	Model	GJ 40-20	GJ 40-25	GJ 50-20	GJ 50-25	GJ 80-20	GJ 80-25
Rotation		Clockwise when viewed from the driver					
Suction bore (mm)		50	50	80	80	100	100
Discharge bore (mm)		40	40	50	50	80	80
Ball bearings		6306VV	6306VV	6306VV	6306VV	6306VV	6308VV
Service life (hr)		Abv. 20000					
Stuffing box seal		Gland packing or Mechanical seal					
Weight : CI(BRZ) (kg)		132(140)	141(151)	136(145)	150(161)	174(186)	219(232)
Water filled in casing (kg)		1.6	2.1	2.8	3.4	4.8	5.8

## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	〃	〃	〃	〃	1
7	BEARING HOUSING	〃	〃	CAST IRON	FC200	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
22	SLEEVE	〃	〃	〃	〃	1
27	IMPELLER NUT	〃	SUS304	〃	〃	1
31	PACKING	RUBBER		RUBBER		1
34,35	BALL BEARING	SPECIAL STEEL		SPECIAL STEEL		2
38A,B	MOUTH RING	BRONZE	CAC403	BRONZE	CAC403	2
45	LANTERN BUSH	〃	CAC406	〃	CAC406	1
47	GLAND	〃	〃	〃	〃	1
49,50	COUPLING	DUCTILE CAST IRON	FCD400	DUCTILE CAST IRON	FCD400	2
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
60	PACKING	RUBBER		RUBBER		1
318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET
319	COUPLING RING	RUBBER		RUBBER		1SET

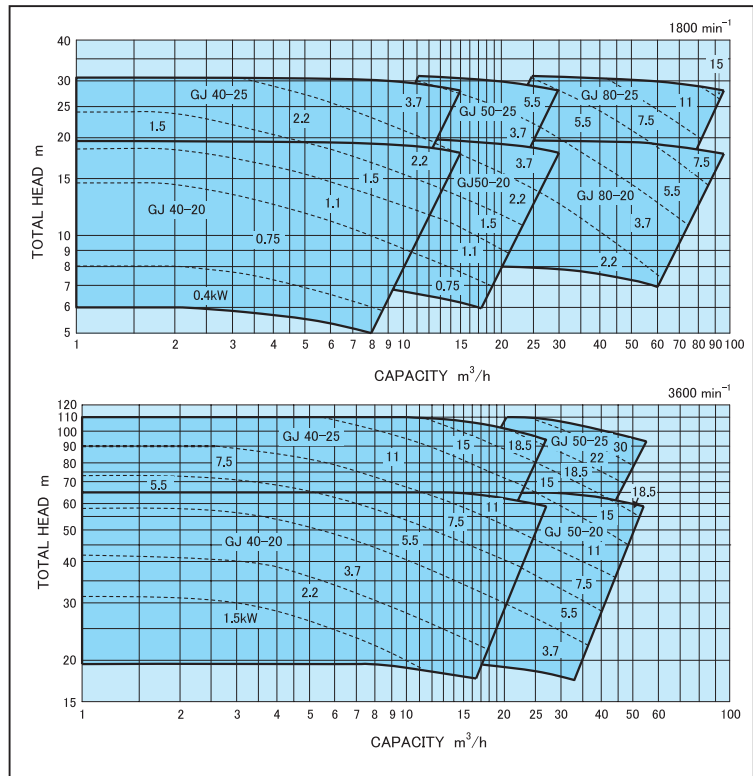


## ● PERFORMANCE CHARTS

When this model is used for pumps with a total head below 30m, such as air conditioning refrigerator cooling pumps, the revolution of the electric motor is 1800 $\text{min}^{-1}$  and the upper chart on the right should be referred to.

On the other hand, when this model is used for pumps with a total head over 30m, such as fresh water generator ejector pumps, the revolution of the electric motor is 3600 $\text{min}^{-1}$  and lower chart on the right should be referred to.

If the rated point is within the rating chart, even when the total head is between 20~30m, the lower chart on the right for 3600 $\text{min}^{-1}$  can also be used.



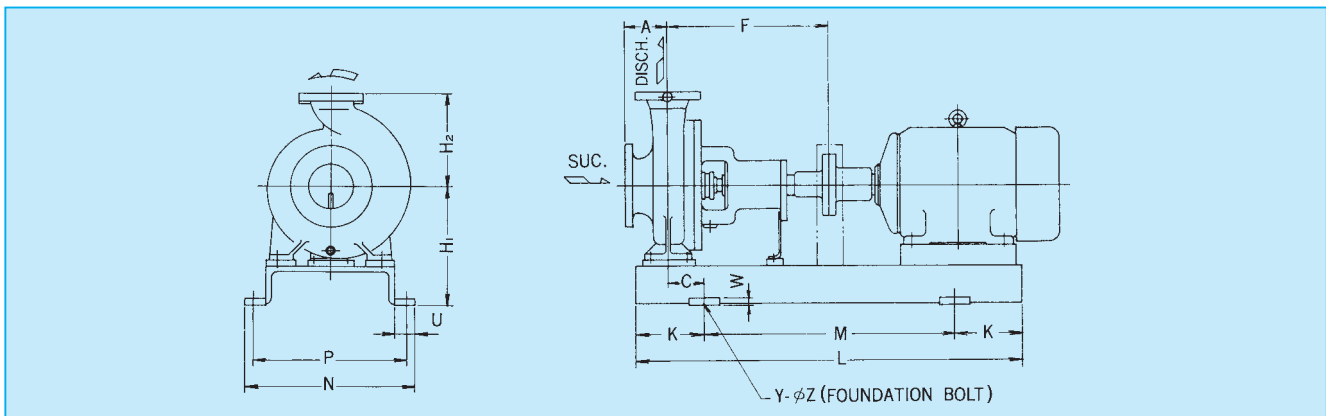
## ● STANDARD ACCESSORIES

- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge stand ..... 1
- Gauge root valve ..... 2
- Air vent valve ..... 1
- Baseplate ..... 1
- Coupling cover ..... 1
- Vacuum pump or Air ejector  
(for self priming device) ..... 1set

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	Bore		Motor frame NO.	A	C	F	H <sub>1</sub>	H <sub>2</sub>	K	L	M	N	P	U	W	Y	Z	Mecha. seal
	Suc.	Disch.																
GJ 40-20	50	40	90L	100	55	385	265	180	115	700	470	335	295	42.5	20	4	19	30
			160M	100	90	385	265	180	150	910	610	385	345	42.5	20	4	19	
GJ 40-25	50	40	90L	100	57.5	390	285	225	130	710	450	385	345	42.5	20	4	19	30
			160L	100	97.5	390	285	225	170	970	630	385	345	42.5	20	4	19	
GJ 50-20	80	50	90L	100	55	385	265	200	115	700	470	335	295	42.5	20	4	19	30
			160L	100	90	385	265	200	150	950	650	385	345	42.5	20	4	19	
GJ 50-25	80	50	132S	125	77.5	390	285	225	150	810	510	385	345	42.5	20	4	19	30
			180L	125	117.5	390	285	225	190	1040	660	385	345	42.5	20	4	19	
GJ 80-20	100	80	112M	125	57.5	405	285	250	130	780	520	385	345	42.5	20	4	19	30
			180L	125	117.5	405	285	250	190	1060	680	385	345	42.5	20	4	19	
GJ 80-25	100	80	132M	125	60	434	340	280	150	910	610	465	425	42.5	20	4	19	40
			160L	125	80	434	340	280	170	1040	700	465	425	42.5	20	4	19	

**SHINKO IND.LTD.**



# Horizontal single-stage self-priming FW & SANITARY PUMPS

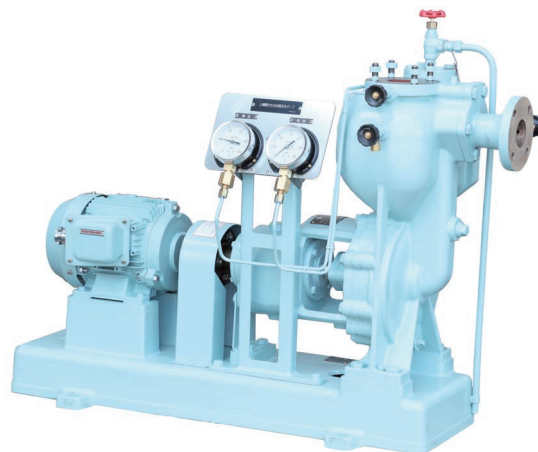
**SHINKO**  
**AHJ**

## ● APPLICATIONS

Fresh water pumps  
Sanitary pumps  
Other use

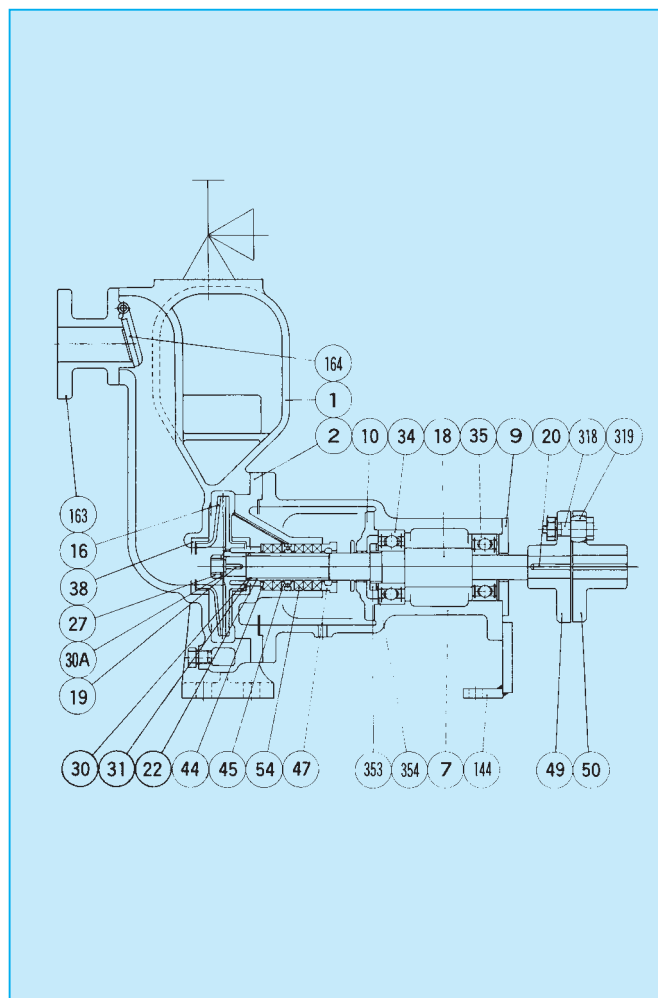
## ● GENERAL CHARACTERISTICS

Item	Model	AHJ 50-2	AHJ 70-2
Rotation		Clockwise when viewed from the driver	
Suction bore (mm)		50	65
Discharge bore (mm)		50	65
Ball bearings		6306VV + 6307VV	6307VV + 6308VV
Service life (hr)		Abv. 20000	
Stuffing box seal		Gland packing or Mechanical seal	
Weight : CI(BRZ) (kg)		115(130)	180(210)
Water filled in casing (kg)		7	12

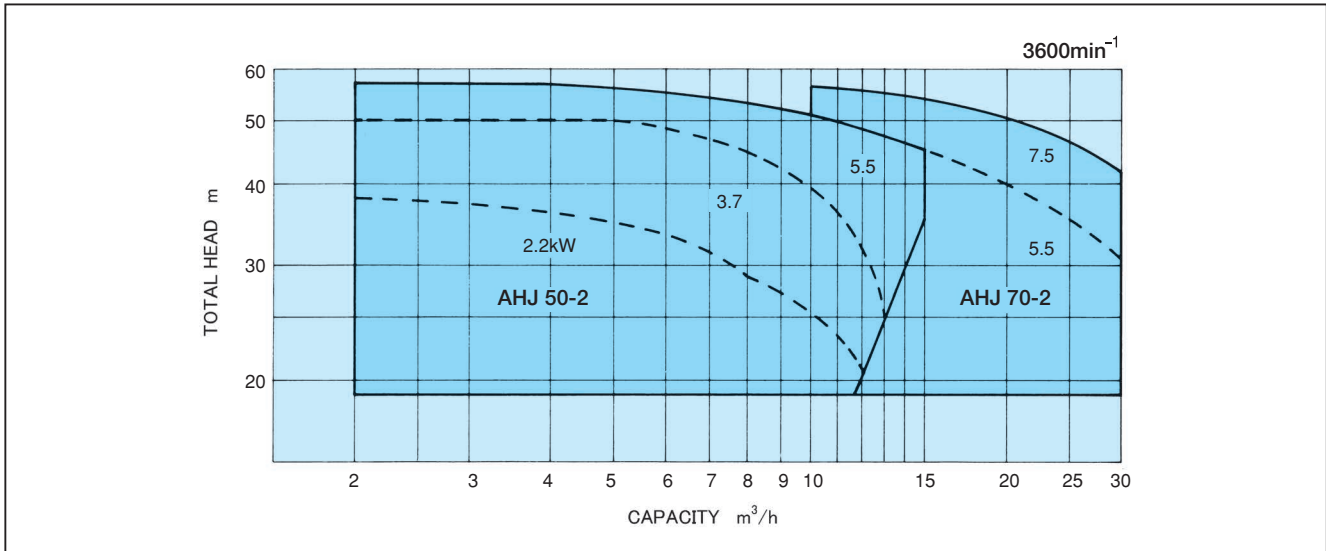


## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	FOR FRESH WATER		FOR SEA WATER		REQ.NO. FOR 1PUMP
		NAME OF MATERIAL	JIS	NAME OF MATERIAL	JIS	
1	VOLUTE CASING	CAST IRON	FC200	BRONZE	CAC402	1
2	VOLUTE COVER	∕	∕	∕	∕	1
7	BEARING HOUSING	∕	∕	CAST IRON	FC200	1
9	BEARING COVER	∕	∕	∕	∕	1
10	BEARING COVER	∕	∕	∕	∕	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
19	IMPELLER KEY	∕	SUS304	∕	∕	1
20	COUPLING KEY	CARBON STEEL	S55C	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	STAINLESS STEEL	SUS304	1
27	IMPELLER NUT	∕	SUS304	∕	∕	1
30	WASHER	∕	∕	∕	∕	1
30A	WASHER	∕	∕	∕	∕	1
31	PACKING	RUBBER		RUBBER		1
34	SEALED BALL BEARING	SPECIAL STEEL		SPECIAL STEEL		1
35	SEALED BALL BEARING	∕		∕		1
38	MOUTH RING	SYNTHETIC RESIN		SYNTHETIC RESIN		2
44	NECK BUSH	BRASS	C3602	BRASS	C3602	1
45	SEALING RING	SYNTHETIC RESIN		SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	BRONZE	CAC406	1
54	GLAND PACKING	CARBONIZED FIBER		CARBONIZED FIBER		1SET
163	SUCTION FLANGE	BRONZE	CAC406	BRONZE	CAC406	1
164	SUCTION VALVE	∕	∕	∕	∕	1
318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	STEEL	SS400B	1SET
319	COUPLING RING	RUBBER		RUBBER		1SET
353	BEARING NUT	STEEL	SS400	STEEL	SS400	1
354	BEARING WASHER	∕	∕	∕	∕	1



## ● PERFORMANCE CHART



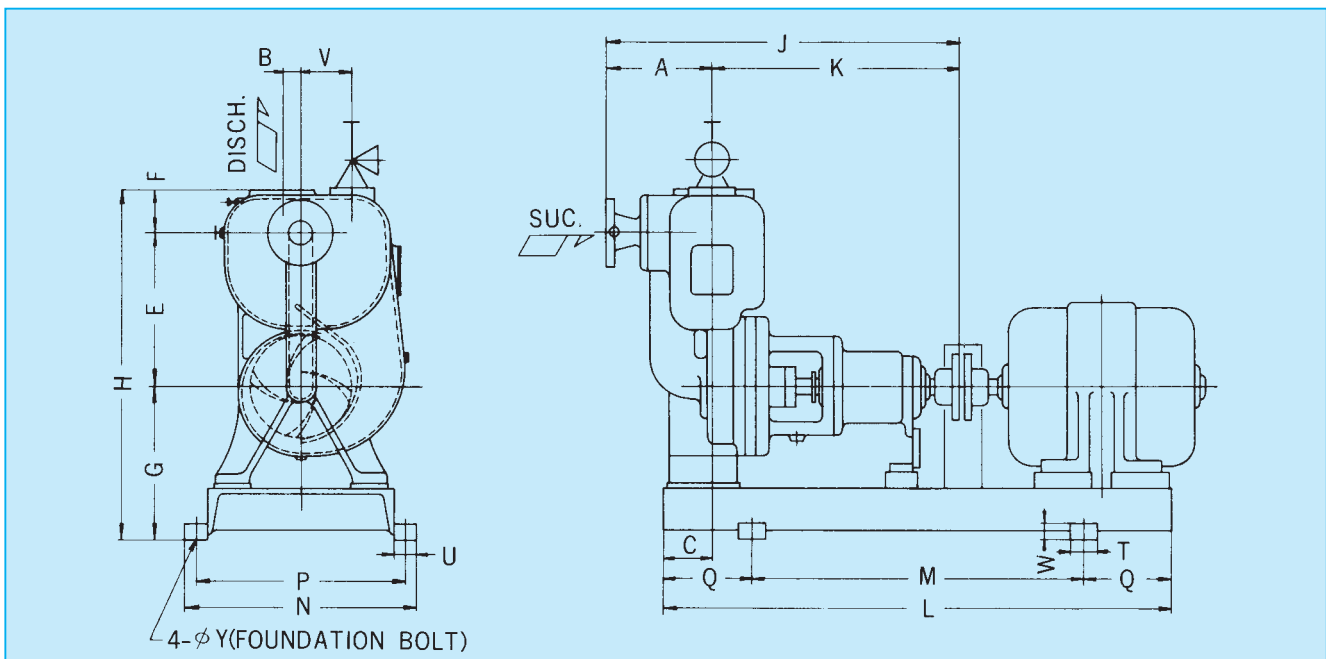
## ● STANDARD ACCESSORIES

Baseplate .....	1
Discharge pressure gauge .....	1
Suction compound gauge .....	1
Gauge stand .....	1
Gauge root valve .....	2
Air pipe & valve.....	1set
Air vent valve.....	1
Coupling cover .....	1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	T	U	V	W	Y	Mecha. seal
AHJ 50-2	205	40	105	280	80	285	645	585	380	850	550	330	295	150	60	40	90	20	19	30
AHJ 70-2	240	50	110	280	85	280	645	695	455	1000	700	400	360	150	75	50	110	20	23	35

**SHINKO IND.LTD.**

# Vertical two-stage single-suction BOILER FEED PUMPS

**SHINKO**  
**SVQ**

## ● APPLICATIONS

Feed pumps for exhaust gas boilers on diesel ships

## ● GENERAL CHARACTERISTICS

Item	Model	SVQ 50 (L)	SVQ 50A
Rotation		CW(CCW) when viewed from the driver	
Suction bore (mm)		50	
Discharge bore (mm)		50	
Stuffing box seal		Gland packing or Mechanical seal	
Weight : CI(DCI) (kg)		110	
Water filled in casing (kg)		6	

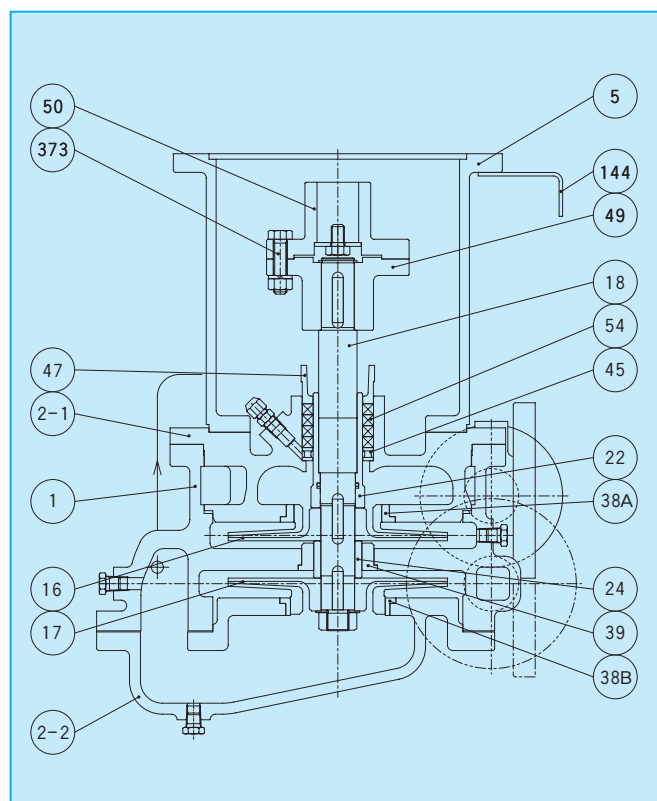
Note. SVQ 50A : horizontal type



## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200(※)	1
2-1	VOLUTE COVER	〃	〃	1
2-2	VOLUTE COVER	〃	〃	1
5	MOTOR BED	〃	FC200	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
17	IMPELLER	〃	〃	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	〃	〃	1
24	INTREMIATE SLEEVE	〃	SUS329J1	1
38A	MOUTH RING	BRONZE	CAC403	1
38B	MOUTH RING	〃	〃	1
39	CASING RING	CARBON		1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		1SET
144	BRACKET	STEEL	SS400	1
373	COUPLING BOLT NUT & WASHER	〃	SS400B	1SET

※If the total head is 130m or higher, the material of the volute casing and cover will be ductile cast iron (FCD400).





# Horizontal two-stage single-suction BOILER FEED PUMPS

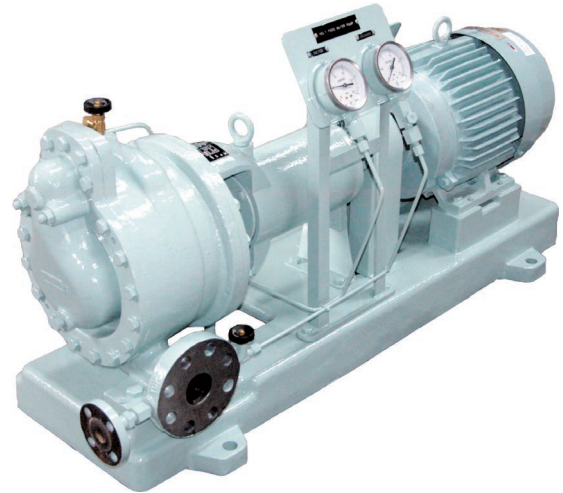
**SHINKO**  
**SHQ**

## ● APPLICATIONS

Feed pumps for exhaust gas boilers on diesel ships

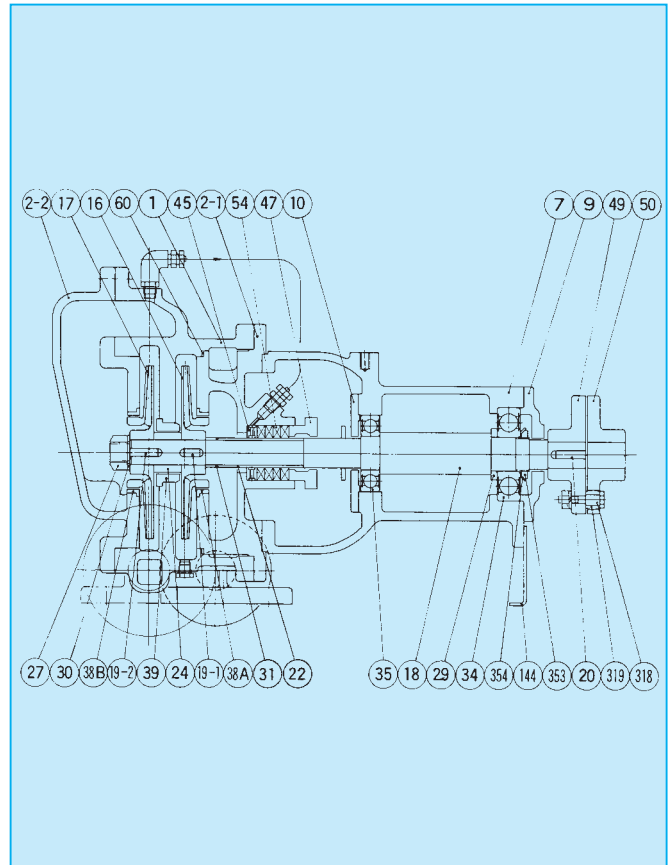
## ● GENERAL CHARACTERISTICS

Item	Model	SHQ 65
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		65
Discharge bore (mm)		65
Ball bearings		6308VV + 6309VV
Service life (hr)		Abv. 20000
Stuffing box seal		Gland packing or Mechanical seal
Weight : CI(DCI) (kg)		180
Water filled in casing (kg)		7



## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200(※)	1
2-1	VOLUTE COVER	〃	〃	1
2-2	VOLUTE COVER	〃	〃	1
7	BEARING HOUSING	〃	FC200	1
9	BEARING COVER	〃	〃	1
10	BEARING COVER	〃	〃	1
16,17	IMPELLER	PHOSPHOR BRONZE	CAC502A	1SET
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	〃	〃	1
24	INTERMEDIATE SLEEVE	〃	SUS329J1	1
34,35	SEALED BALL BEARING	SPECIAL STEEL		1SET
38	MOUTH RING	BRONZE	CAC403	1SET
39	CASING RING	CARBON		1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49,50	COUPLING	DUCTILE CAST IRON	FCD400	1SET
54	GLAND PACKING	CARBONIZED FIBER		1SET
144	BRACKET	STEEL	SS400	1
318	COUPLING BOLT NUT & WASHER	〃	SS400B	1SET
319	COUPLING RING	RUBBER		1SET
353	BEARING NUT	STEEL	SS400	1
354	BEARING WASHER	〃	〃	1



※If the total head is 130m or higher, the material of the volute casing and cover will be ductile cast iron (FCD400).

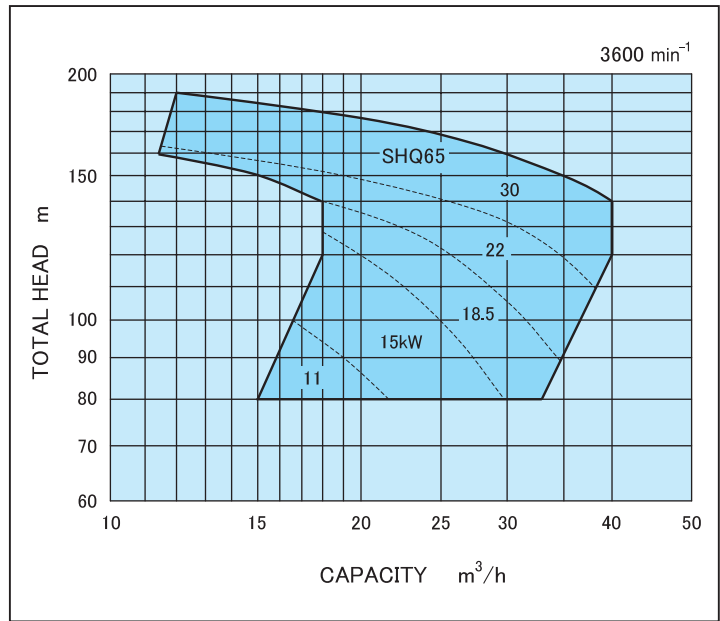
## ● PERFORMANCE CHART

The standard materials are used when the pH of the handling liquid is below 8.5.

When the pH is between 8.6~11, the liquid becomes alkaline and the following materials are used:

Impeller : Stainless steel (SCS13)

Mouth ring : Ductile cast iron (FCD700)



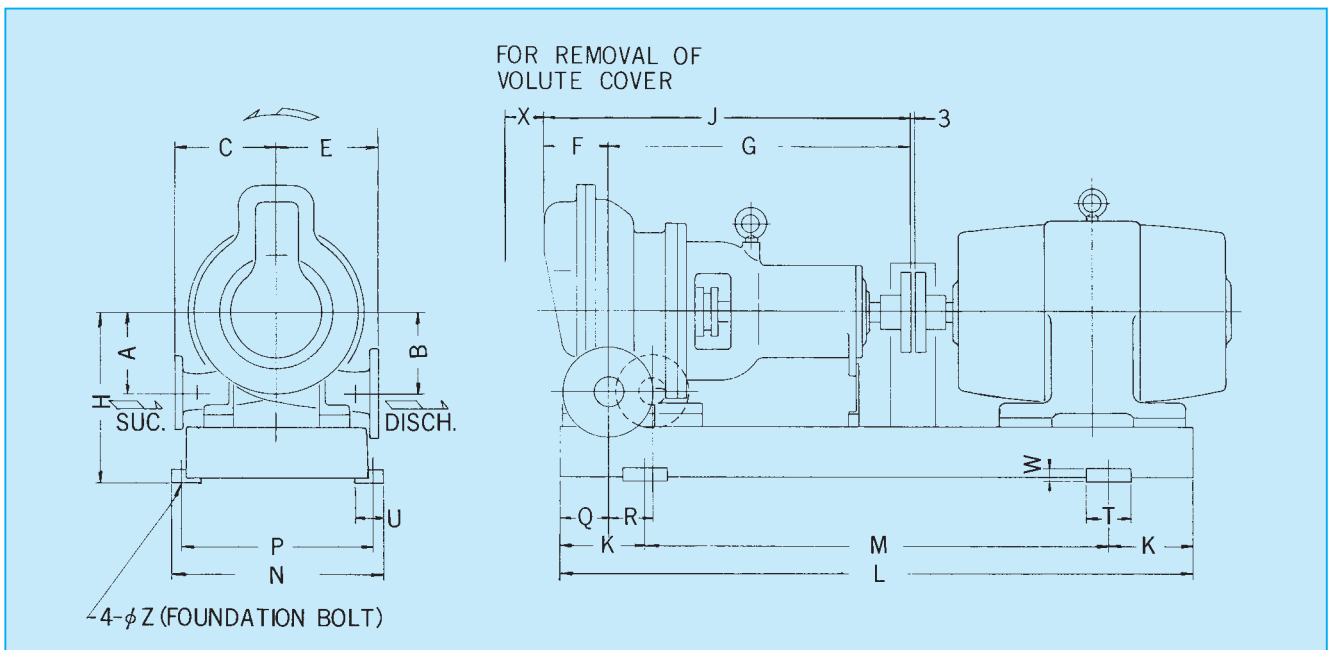
## ● STANDARD ACCESSORIES

Baseplate	.....	1
Discharge pressure gauge	.....	1
Suction compound gauge	.....	1
Gauge stand	.....	1
Gauge root valve	.....	2
Sealing pipe	.....	1set
Air vent valve	.....	1
Coupling cover	.....	1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Casing ring (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	T	U	W	X	Z	Mecha. seal
SHQ 65	150	150	200	200	130	554	335	684	150	1250	950	460	410	110	90	100	65	30	90	25	40

**SHINKO IND.LTD.**

# Horizontal four-stage single-suction BOILER FEED PUMPS

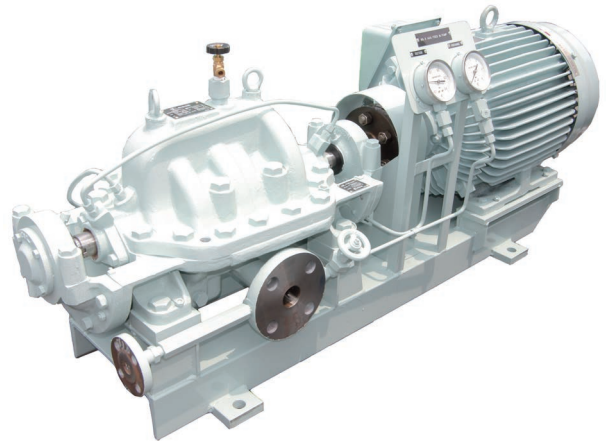
**SHINKO**  
**SK**

## ● APPLICATIONS

Feed pumps for exhaust gas boilers on diesel ships  
Cold start feed pumps for LNG carriers

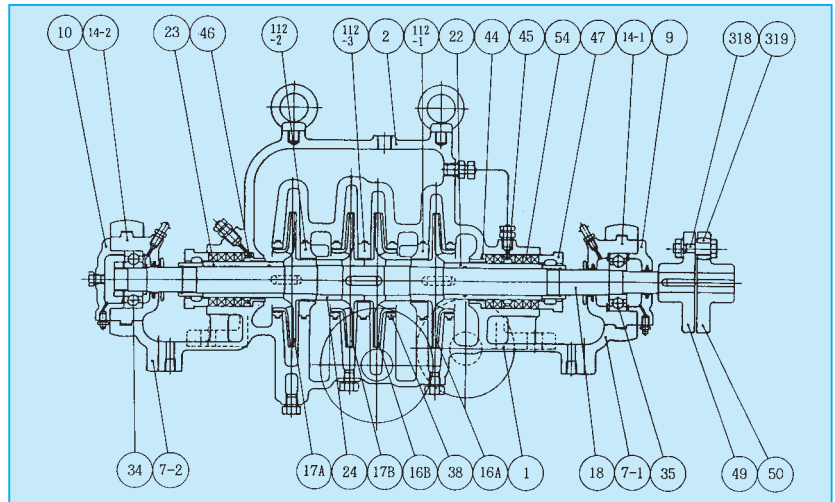
## ● GENERAL CHARACTERISTICS

Item	Model	SK 40
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		40
Discharge bore (mm)		40
Ball bearings		6306
Service life (hr)		Abv. 60000
Amount of grease filled (g)		2 × 8
Stuffing box seal		Gland packing or Mechanical seal
Weight : CI(DCI) (kg)		240
Water filled in casing (kg)		9



## ● DESIGN & STANDARD MATERIALS

The casing is horizontally split. So, the rotating element can be overhauled without removing the suction and discharge piping.



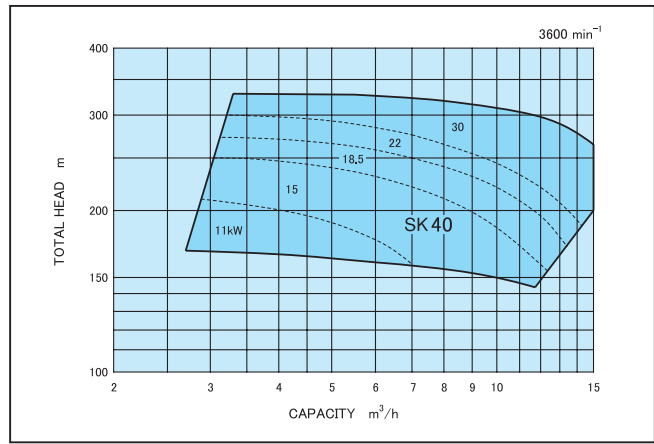
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	DUCTILE CAST IRON	FCD400	1	34,35	BALL BEARING	SPECIAL STEEL		1SET
2	VOLUTE COVER	∕	∕	1	38	MOUTH RING	BRONZE	CAC403	4
7	BEARING HOUSING	CAST IRON	FC200	2SETS	44	NECK BUSH	∕	CAC406	2
9	BEARING COVER	∕	∕	1	45	SEALING RING	SYNTHETIC RESIN		1
10	BEARING COVER	∕	∕	1	46	LANTERN BUSH	BRONZE	CAC406	1
14	BEARING INNER CASE	∕	∕	2	47	GLAND	∕	∕	2
16,17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2SETS	49,50	COUPLING	DUCTILE CAST IRON	FCD400	1SET
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	54	GLAND PACKING	METALLIC SEMIMETALLIC		2SETS
22	SLEEVE	∕	∕	1	112	STAGE PIECE	BRONZE		3
23	SLEEVE	∕	∕	1	318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET
24	INTERMEDIATE SLEEVE	∕	∕	2	319	COUPLING RING	RUBBER		1SET

## ● PERFORMANCE CHART

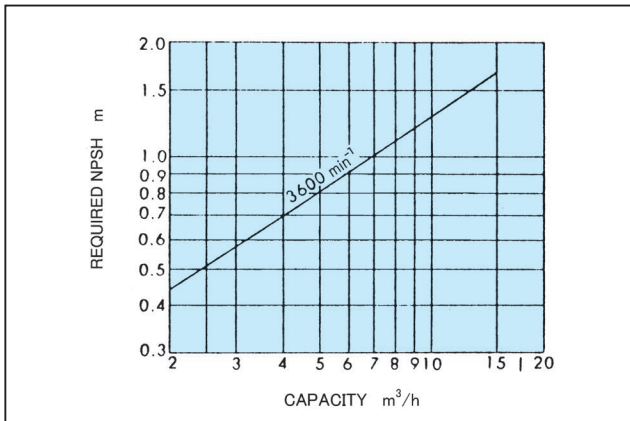
The standard materials are used when the pH of the handling liquid is below 8.5.

When the pH is between 8.6~11, the liquid becomes alkaline and the following materials are used:

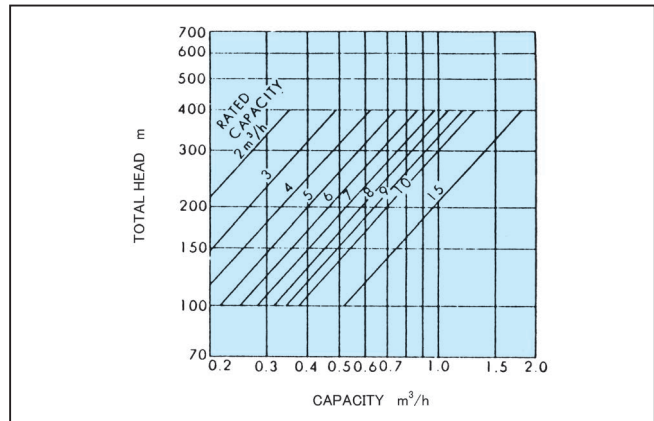
- Impeller : Stainless steel (SCS13)
- Mouth ring : Ductile cast iron (FCD700)
- Stage piece : Ductile cast iron (FCD700)



## ● REQUIRED NPSH



## ● ANTI-OVER HEAT. CAPACITY



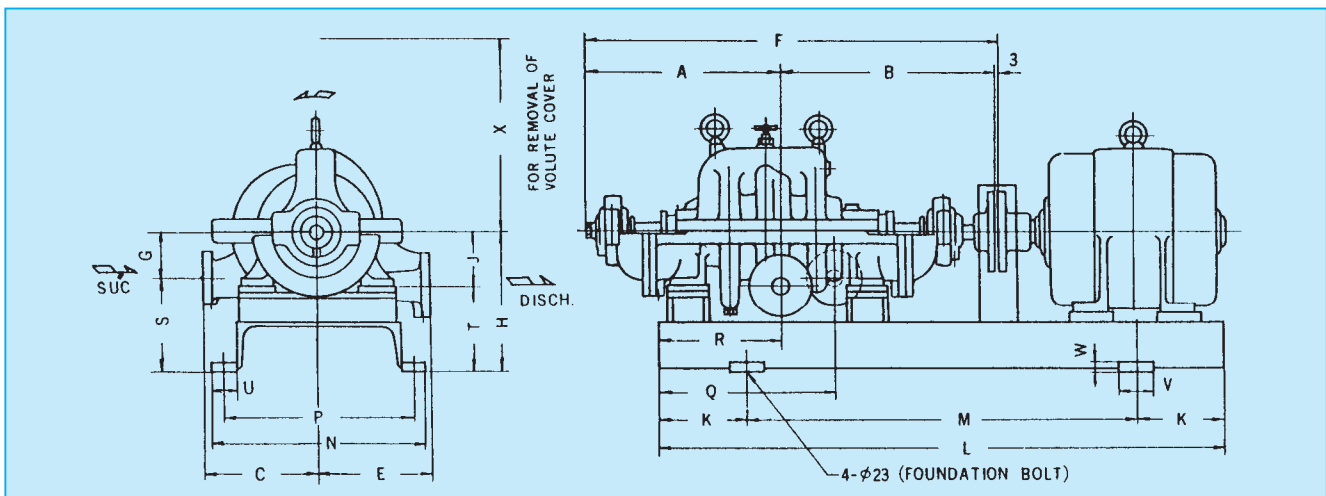
## ● STANDARD ACCESSORIES

- Baseplate ..... 1
- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge stand ..... 1
- Gauge root valve ..... 2
- Air vent valve..... 1
- Coupling cover ..... 1
- Minimum flow orifice ..... 1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Stage piece (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Mecha. seal
SK 40	390	415	200	200	805	100	325	115	150	1150	850	400	360	365	250	225	210	50	75	20	1000	40



# Horizontal two-stage single-suction BOILER FEED PUMPS

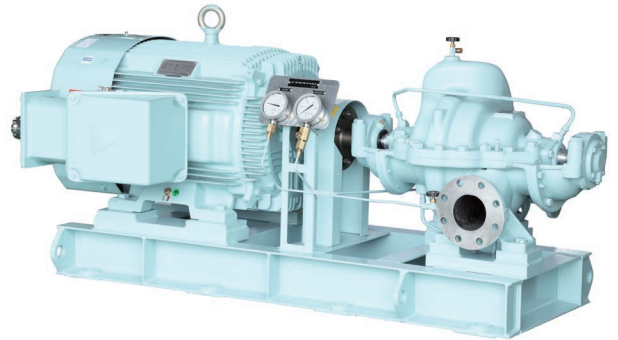
**SHINKO**  
**GHQ**

## ● APPLICATIONS

Feed pumps for cargo boilers on diesel ships

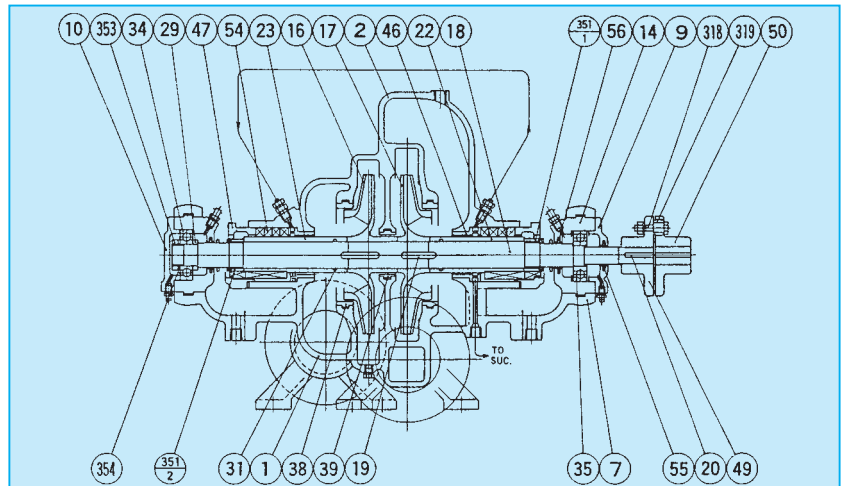
## ● GENERAL CHARACTERISTICS

Item	Model	GHQ 100-2
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		100
Discharge bore (mm)		100
Ball bearings		6307
Service life (hr)		Abv. 60000
Amount of grease filled (g)		2×10
Stuffing box seal		Gland packing or Mechanical seal
Weight : DCI (kg)		300
Water filled in casing (kg)		10



## ● DESIGN & STANDARD MATERIALS

The casing is horizontally split. So, the rotating element can be overhauled without removing the suction and discharge piping.



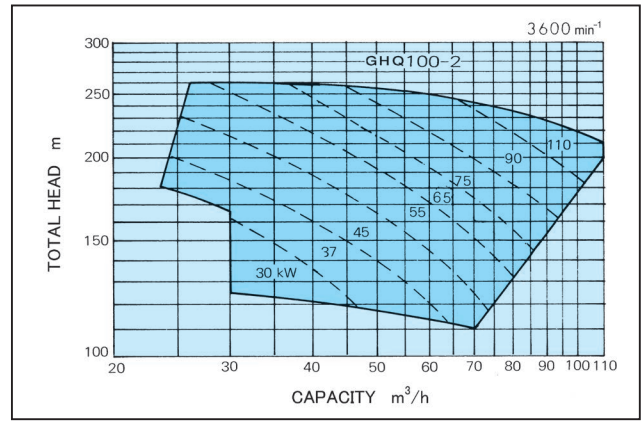
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	DUCTILE CAST IRON	FCD400	1	35	BALL BEARING	SPECIAL STEEL		1
2	VOLUTE COVER	∕	∕	1	38	MOUTH RING	BRONZE	CAC403	2
7	BEARING HOUSING	CAST IRON	FC200	2SETS	39	CASING RING	∕	CAC406	1
9	BEARING COVER	∕	∕	1	47	GLAND	∕	∕	2
10	BEARING COVER	∕	∕	1	49	COUPLING	DUCTILE CAST IRON	FCD400	1
14	BEARING INNER CASE	∕	∕	2	50	COUPLING	∕	∕	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1	54	GLAND PACKING	CARBONIZED FIBER		2SETS
17	IMPELLER	∕	∕	1	55	PACKING RING	FELT		1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	56	PACKING RING	∕		2
19	IMPELLER KEY	∕	SUS304	2	318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET
20	COUPLING KEY	CARBON STEEL	S55C	1	319	COUPLING RING	RUBBER		1SET
22	SLEEVE	STAINLESS STEEL	SUS403	1	351-1	SLEEVE NUT	STAINLESS STEEL	SUS316	1
23	SLEEVE	∕	∕	1	351-2	SLEEVE NUT	∕	∕	1
29	WASHER	STEEL	SS400B	2	353	BEARING NUT	STEEL	SS400	1
31	PACKING	RUBBER		2	354	BEARING WASHER	∕	∕	1
34	BALL BEARING	SPECIAL STEEL		1					

## ● PERFORMANCE CHART

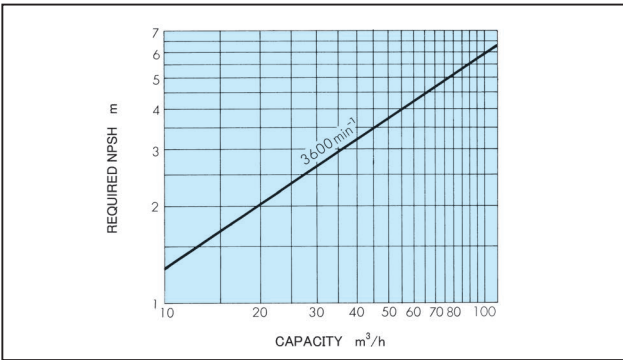
The standard materials are used when the pH of the handling liquid is below 8.5.

When the pH is between 8.6~11, the liquid becomes alkaline and the following materials are used:

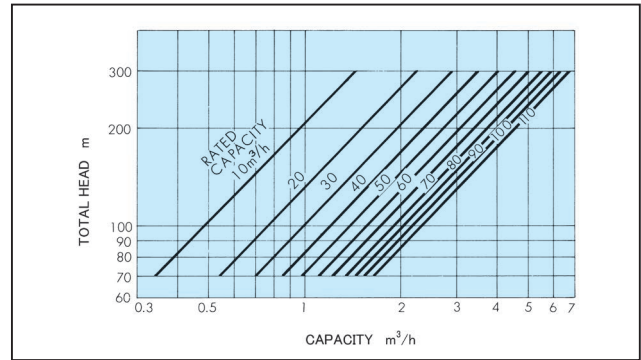
- Impeller : Stainless steel (SCS13)
- Mouth ring : Ductile cast iron (FCD700)
- Casing ring : Ductile cast iron (FCD700)



## ● REQUIRED NPSH



## ● ANTI-OVER HEAT. CAPACITY



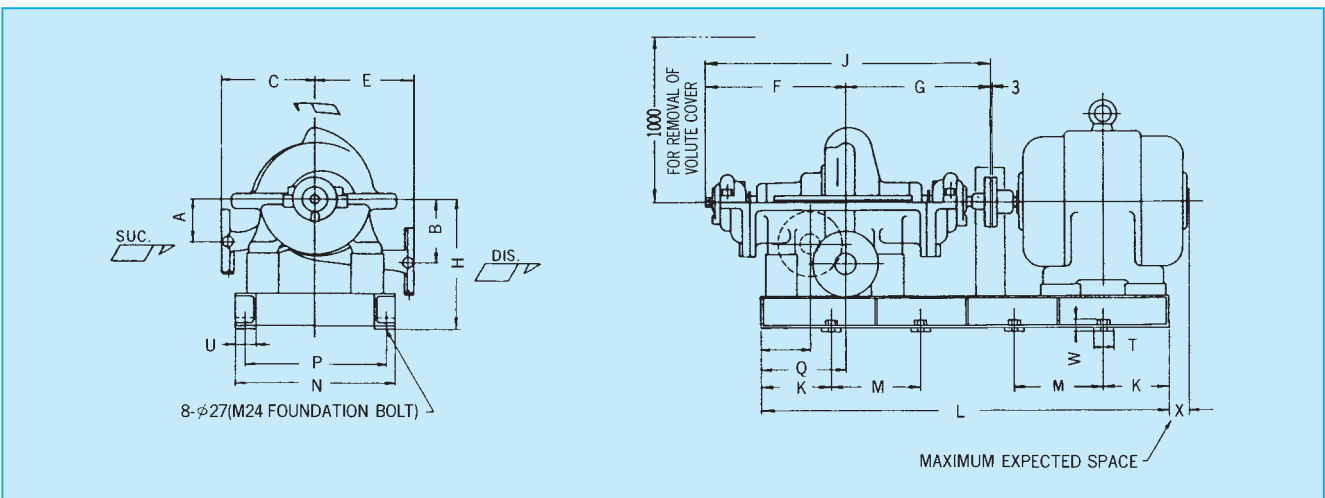
## ● STANDARD ACCESSORIES

- Baseplate ..... 1
- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge stand ..... 1
- Gauge root valve ..... 2
- Air vent valve..... 1
- Coupling cover ..... 1
- Minimum flow orifice ..... 1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Casing ring (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	Motor(kW)	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	T	U	W	X	Mecha. seal
GHQ 100-2	45 $\geq$	135	160	250	250	440	400	460	840	100	1340	380	430	370	290	140	110	75	25	133	50
	55~80										1430	410	560	500						133	
	90~110										1505	435	580	520						270	

# Horizontal multi-stage single-suction BOILER FEED PUMPS

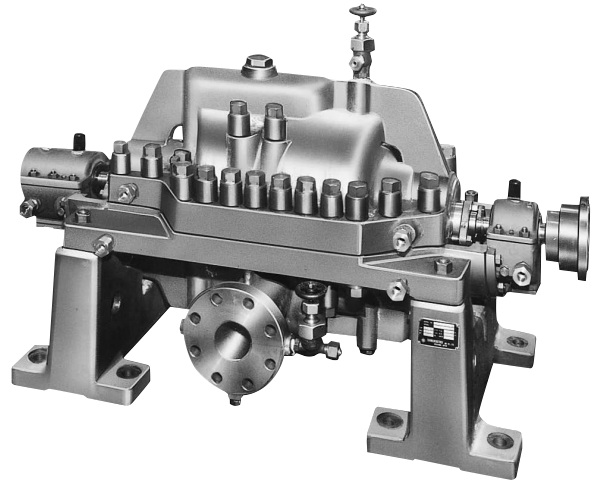
**SHINKO**  
**DK**

## ● APPLICATIONS

Feed pumps for cargo boilers on diesel ships

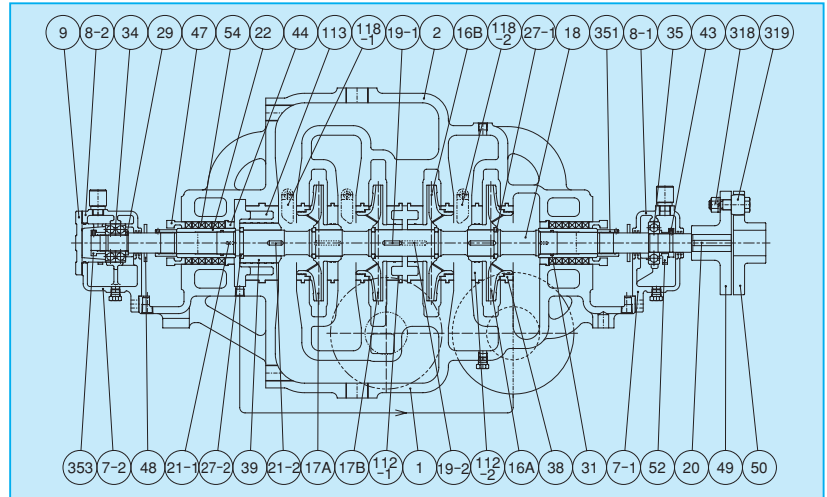
## ● GENERAL CHARACTERISTICS

Item	Model	DK 80-4	DK 100-4
Rotation		Clockwise when viewed from the driver	
Suction bore (mm)		100	125
Discharge bore (mm)		80	100
Ball bearings		7306 DB + 6307	
Service life (hr)		Abv. 60000	
Lubrication system		Oil ring	
LO required (ℓ)		0.7	
Stuffing box seal		Gland packing or Mechanical seal	
Weight : DCI (kg)		910	1100
Water filled in casing (kg)		38	48



## ● DESIGN & STANDARD MATERIALS

The casing is horizontally split. So, the rotating element can be overhauled without removing the suction and discharge piping.



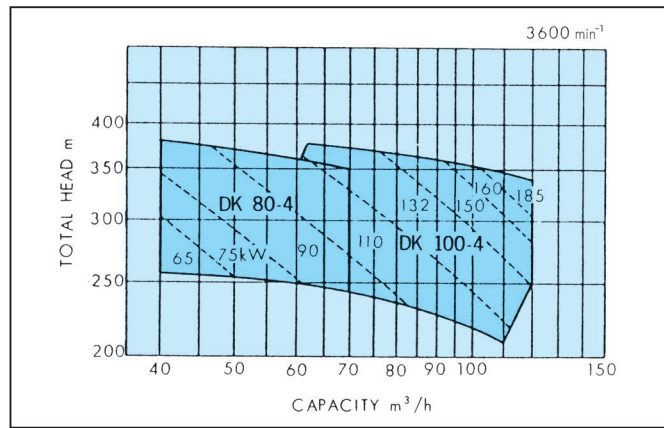
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	DUCTILE CAST IRON	FCD400	1	43	STOPPER RING	STEEL	SS400B	1
2	VOLUTE COVER	∕	∕	1	44	NECK BUSH	BRONZE	CAC406	2
7	BEARING HOUSING	CAST IRON	FC200	2	47	GLAND	∕	∕	2
8	BEARING CAP	∕	∕	2	48	FLINGER	RUBBER		2
9	BEARING COVER	∕	∕	1	49,50	COUPLING	DUCTILE CAST IRON	FCD400	1SET
16,17	IMPELLER	PHOSPHOR BRONZE	CAC502A	2SETS	52	OIL RING	BRONZE	CAC406	2
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1	54	GLAND PACKING	METALLIC SEMIMETALLIC		2SETS
22	SLEEVE	∕	∕	2	112	STAGE PIECE	BRONZE	CAC403	4
27	SPLIT RING	∕	∕	5	113	BALANCE BUSH	∕	∕	1
29	WASHER	STEEL	SS400	1	118	SUCTION BAFFLE	STAINLESS STEEL	SUS403	3
34,35	BALL BEARING	SPECIAL STEEL		1SET	318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET
38	MOUTH RING	BRONZE	CAC403	4	319	COUPLING RING	RUBBER		1SET
39	BALANCE SLEEVE	STAINLESS STEEL	SUS403	1	351	SLEEVE NUT	STAINLESS STEEL	SUS316	2

## ● PERFORMANCE CHART

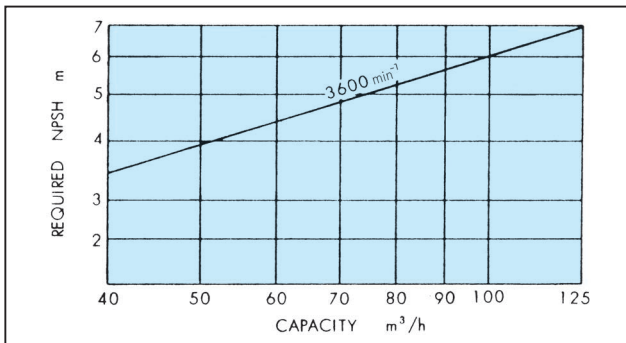
The standard materials are used when the pH of the handling liquid is below 8.5.

When the pH is between 8.6~11, the liquid becomes alkaline and the following materials are used:

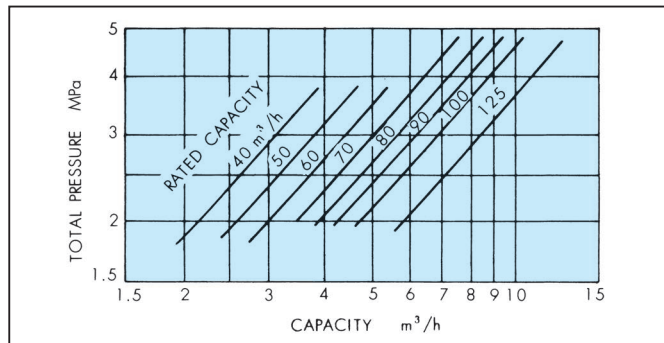
- Impeller : Stainless steel (SCS13)
- Mouth ring : Ductile cast iron (FCD700)
- Stage piece : Ductile cast iron (FCD700)



## ● REQUIRED NPSH



## ● ANTI-OVER HEAT. CAPACITY



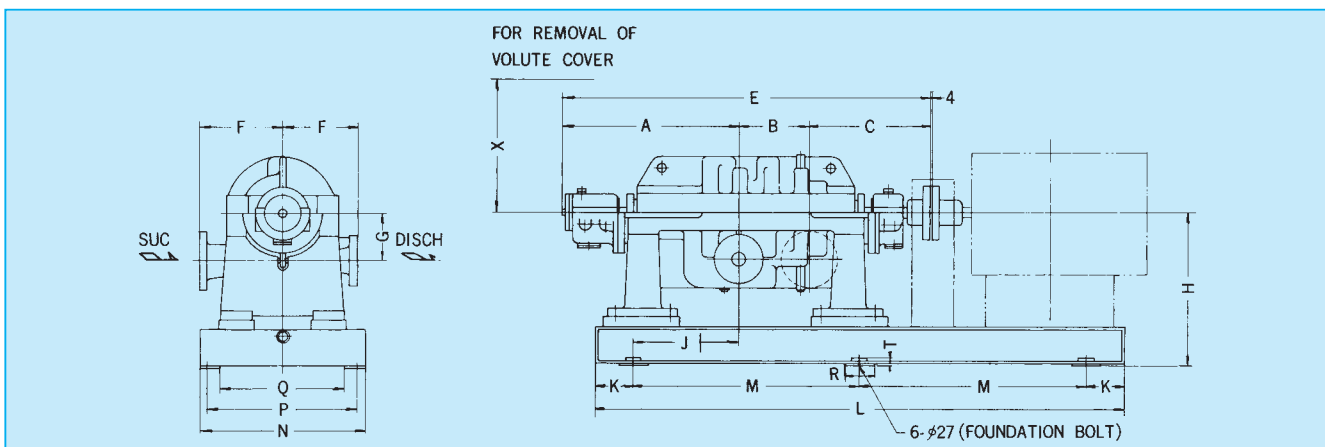
## ● STANDARD ACCESSORIES

- Baseplate ..... 1
- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge stand ..... 1
- Gauge root valve ..... 2
- Air vent valve..... 1
- Return pipe..... 1 set
- Coupling cover ..... 1
- Minimum flow orifice ..... 1
- Oil level gauge ..... 4

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Stage piece (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	T	Mecha. seal
DK 80-4	600	239	411	1250	320	170	550	450	150	2100	900	600	540	450	110	25	50
DK 100-4	590	255	400	1245	320	175	590	450	150	2150	925	650	590	500	110	25	50

# Horizontal multi-stage single-suction BOILER FEED PUMPS

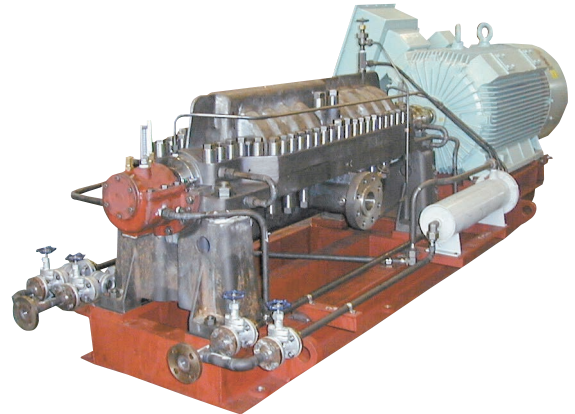
**SHINKO**  
**DK80-10**

## ● APPLICATIONS

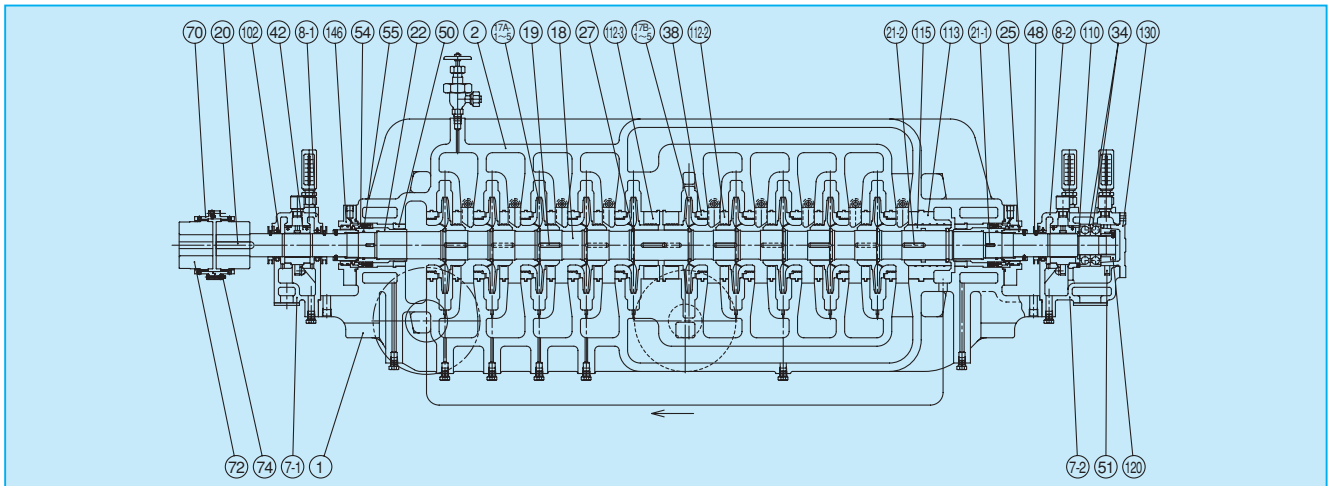
Feed pumps for main or auxiliary boilers on LNG carriers

## ● GENERAL CHARACTERISTICS

Item	Model	DK 80-10
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		100
Discharge bore (mm)		80
Bearings		Radial : BRG metal , Thrust : Ball
Service life (hr)		Abv. 60000
Lubrication system		Oil ring
LO required (ℓ)		1.3
Cooling f.water required (m <sup>3</sup> /h)		4 (Below 36°C)
Stuffing box seal		Gland packing or Mechanical seal
Weight : ST.STL (kg)		2350
Water filled in casing (kg)		68



## ● DESIGN & STANDARD MATERIALS



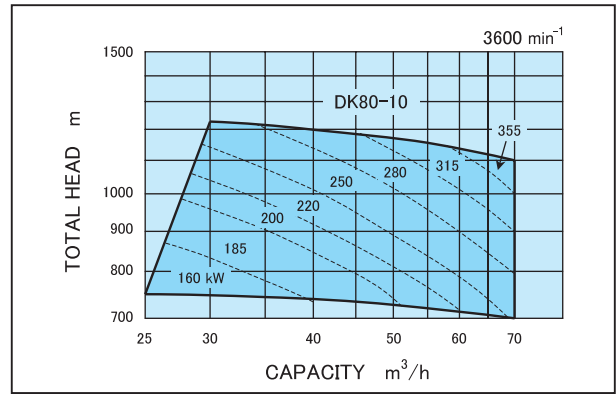
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	STAINLESS STEEL	SCS1	1	50	NECK BUSH	STAINLESS STEEL	SUS403	2
2	VOLUTE COVER	〃	〃	1	51	OIL RING	BRONZE	CAC407	3
7	BEARING HOUSING	CAST IRON	FC200	2	54	MECHANICAL SEAL			2SETS
8	BEARING CAP	〃	〃	2	55	SLEEVE PACKING	RUBBER		2
17A-1~5	IMPELLER	STAINLESS STEEL	SCS1	5	70	COUPLING CASE	CARBON STEEL	S48C	2
17B-1~5	IMPELLER	〃	〃	5	72	GEAR HUB	〃	〃	2
18	IMPELLER SHAFT	〃	SUS403	1	74	REAMER BOLT & NUT	〃	S45C	8SETS
19	IMPELLER KEY	〃	SUS304	10	102	OIL GUARD	COPPER ALLOY	C3602BE	3
22	SLEEVE	〃	SUS420J2	2	112	STAGE PIECE	STAINLESS STEEL	SUS403	10
34	BALL BEARING	SPECIAL STEEL		1SET	113	BALANCE BUSH	〃	〃	1
38	MOUTH RING	STAINLESS STEEL	SUS403	10	115	BALANCE SLEEVE	〃	SUS420J2	1
42	BEARING METAL	WHITE METAL CARBON STEEL	WJ2 S25C	2SETS	130	BEARING COVER	CAST IRON	FC200	1
48	FLINGER	STEEL	SS400	3	146	MECHA. SEAL COVER	STAINLESS STEEL	SCS1	2

## ● PERFORMANCE CHART

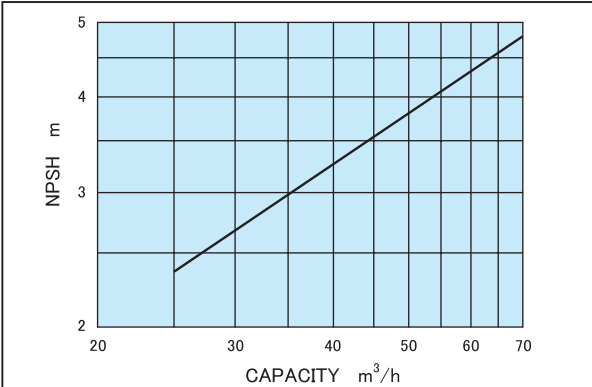
DK80-10 pumps are driven by electric motors, and designed as boiler feed pumps on LNG carriers, and are selected according to ship size:

LNG carriers below 20000m<sup>3</sup> : Main feed pumps

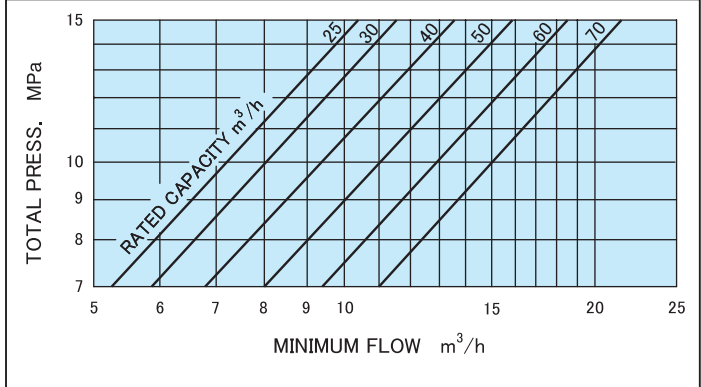
LNG carriers over 80000m<sup>3</sup> : Auxiliary Feed pumps



## ● REQUIRED NPSH



## ● MINIMUM FLOW



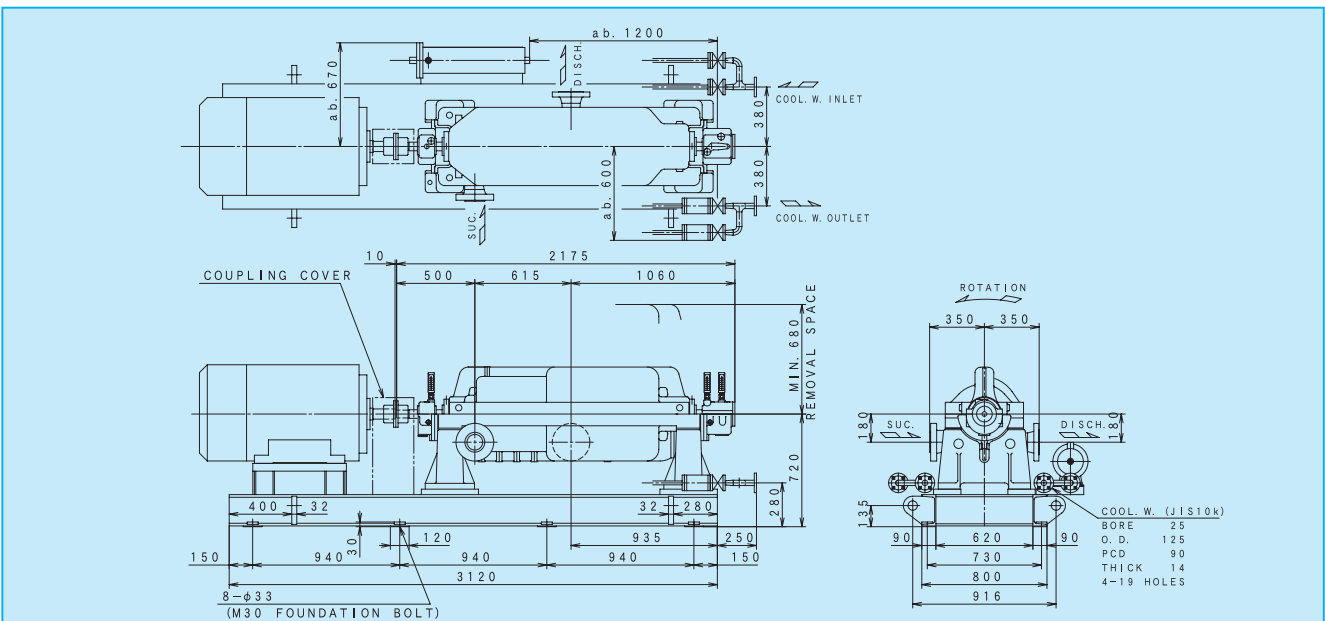
## ● STANDARD ACCESSORIES

Baseplate .....	1
Discharge pressure gauge .....	1
Suction compound gauge .....	1
Gauge stand .....	1
Gauge root valve .....	2
Air vent valve.....	1
Return pipe.....	1set
Coupling cover .....	1
Minimum flow orifice .....	1
Oil level gauge .....	4

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Reamer bolts & nuts (option)
- Mouth rings (option)
- Stage piece (option)
- Complete set of rotating element (option)



**SHINKO IND. LTD.**

# Horizontal multi-stage single-suction BOILER FEED PUMPS

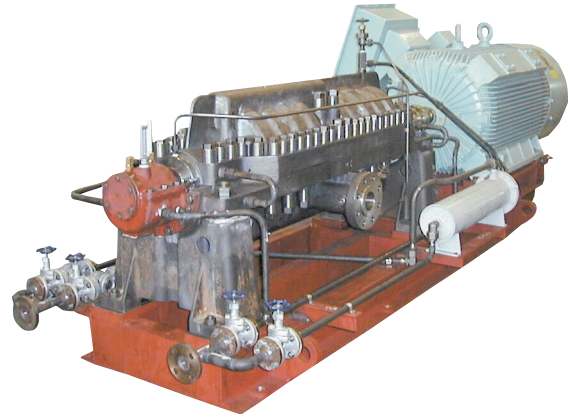
**SHINKO**  
**DK100-8**

## ● APPLICATIONS

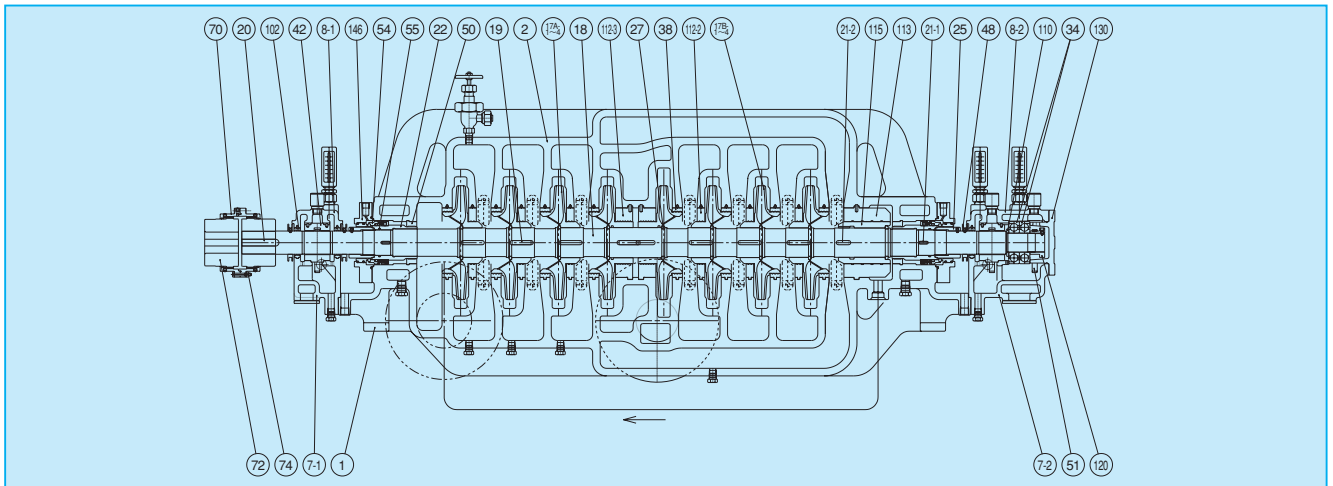
Feed pumps for main or auxiliary boilers on LNG carriers

## ● GENERAL CHARACTERISTICS

Item	Model	DK 100-8
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		125
Discharge bore (mm)		100
Bearings		Radial : BRG metal , Thrust : Ball
Service life (hr)		Abv. 60000
Lubrication system		Oil ring
LO required (ℓ)		1.3
Cooling f.water required (m <sup>3</sup> /h)		4 (Below 36°C)
Stuffing box seal		Gland packing or Mechanical seal
Weight : ST.STL (kg)		2400
Water filled in casing (kg)		70



## ● DESIGN & STANDARD MATERIALS



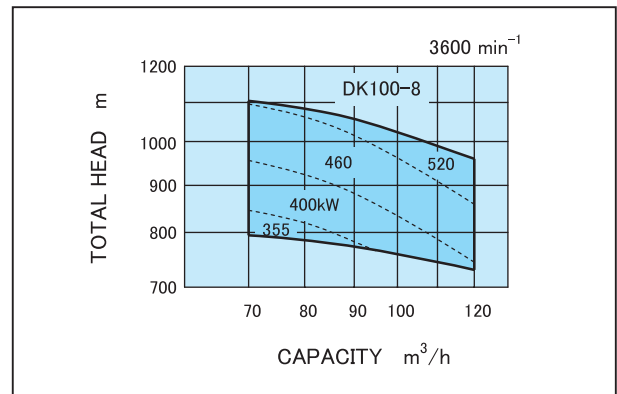
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS				NAME	JIS	
1	VOLUTE CASING	STAINLESS STEEL	SCS1	1	50	NECK BUSH	STAINLESS STEEL	SUS403	2
2	VOLUTE COVER	〃	〃	1	51	OIL RING	BRONZE	CAC407	3
7	BEARING HOUSING	CAST IRON	FC200	2	54	MECHANICAL SEAL			2SETS
8	BEARING CAP	〃	〃	2	55	SLEEVE PACKING	RUBBER		2
17A-1~4	IMPELLER	STAINLESS STEEL	SCS1	4	70	COUPLING CASE	CARBON STEEL	S48C	2
17B-1~4	IMPELLER	〃	〃	4	72	GEAR HUB	〃	〃	2
18	IMPELLER SHAFT	〃	SUS403	1	74	REAMER BOLT & NUT	〃	S45C	8SETS
19	IMPELLER KEY	〃	SUS304	8	102	OIL GUARD	COPPER ALLOY	C3602BE	3
22	SLEEVE	〃	SUS420J2	2	112	STAGE PIECE	STAINLESS STEEL	SUS403	8
34	BALL BEARING	SPECIAL STEEL		1SET	113	BALANCE BUSH	〃	〃	1
38	MOUTH RING	STAINLESS STEEL	SUS403	8	115	BALANCE SLEEVE	〃	SUS420J2	1
42	BEARING METAL	WHITE METAL CARBON STEEL	WJ2 S25C	2SETS	130	BEARING COVER	CAST IRON	FC200	1
48	FLINGER	STEEL	SS400	3	146	MECHA. SEAL COVER	STAINLESS STEEL	SCS1	2

## ● PERFORMANCE CHART

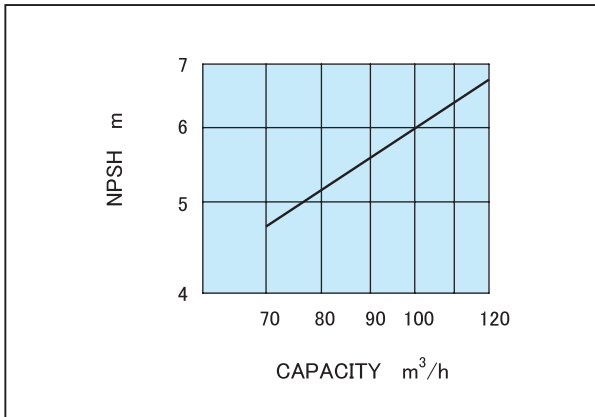
DK100-8 pumps are driven by electric motors, and designed as boiler feed pumps on LNG carriers, and are selected according to ship size:

LNG carriers below 20000m<sup>3</sup> : Main feed pumps

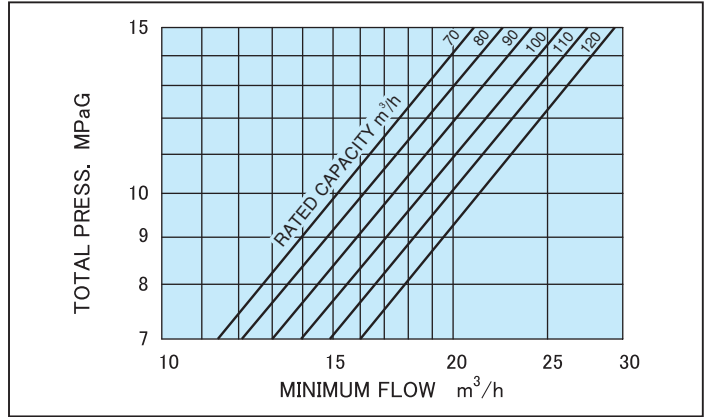
LNG carriers over 80000m<sup>3</sup> : Auxiliary feed pumps



## ● REQUIRED NPSH



## ● MINIMUM FLOW



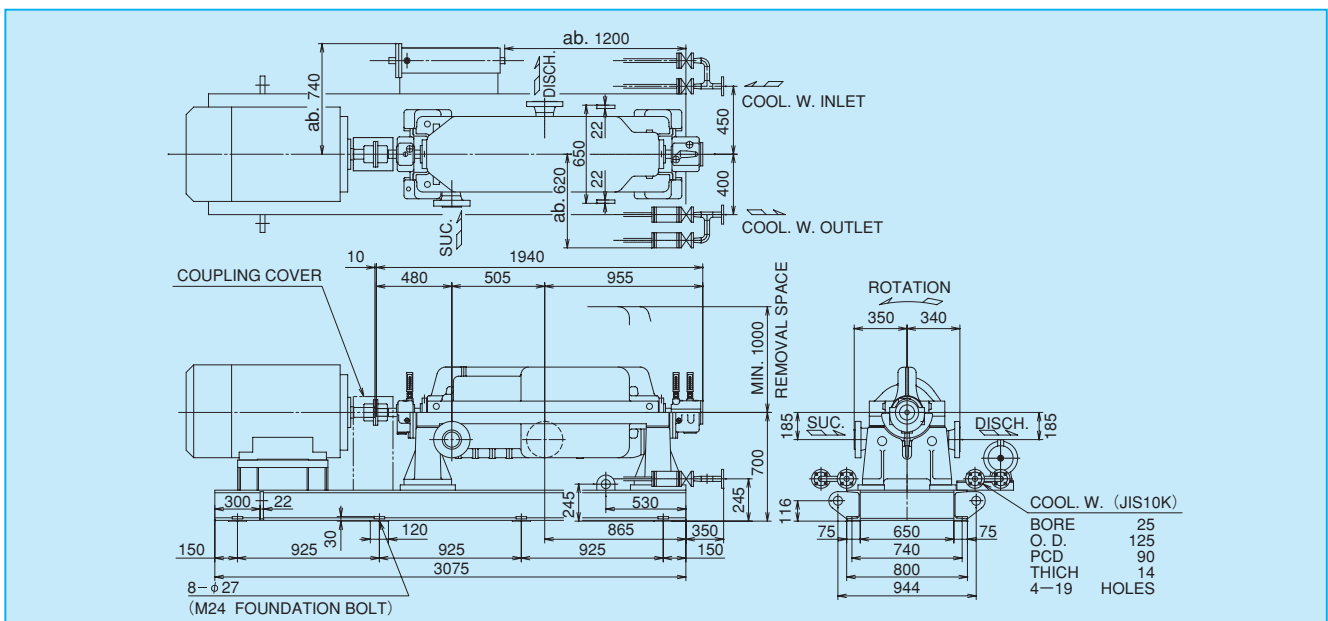
## ● STANDARD ACCESSORIES

Baseplate .....	1
Discharge pressure gauge .....	1
Suction compound gauge .....	1
Gauge stand .....	1
Gauge root valve .....	2
Air vent valve.....	1
Return pipe.....	1set
Coupling cover .....	1
Minimum flow orifice .....	1
Oil level gauge .....	4

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Reamer bolts & nuts (option)
- Mouth rings (option)
- Stage piece (option)
- Complete set of rotating element (option)



**SHINKO IND.LTD.**



Horizontal single-stage single-suction with mechanical seal

# BW CIRCULATING PUMPS

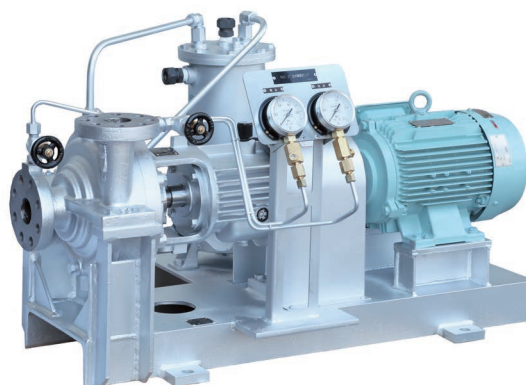
**SHINKO**  
**BT-4**

## ● APPLICATIONS

Boiler water circulating pumps for exhaust gas boilers

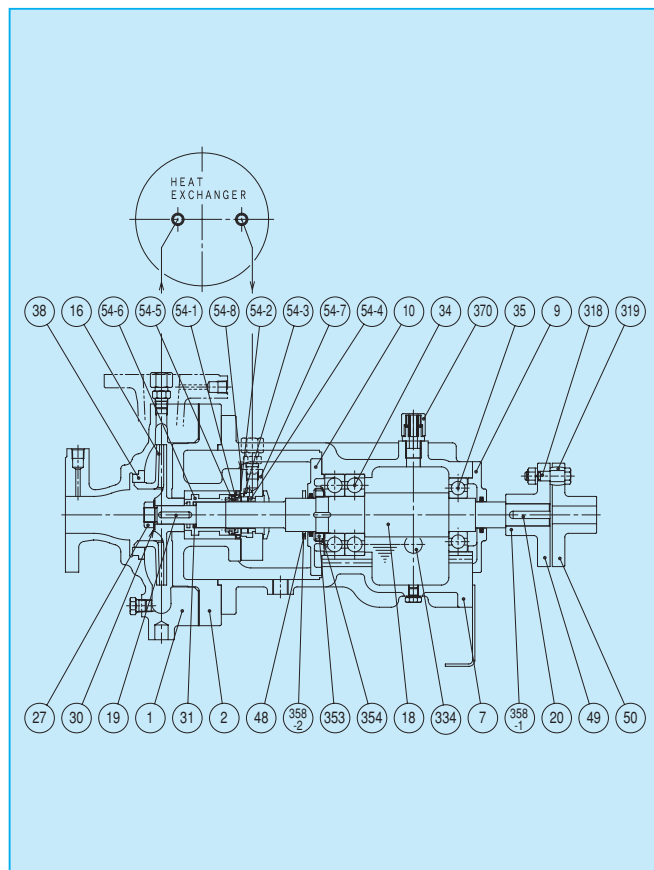
## ● GENERAL CHARACTERISTICS

Item	Model	BT 50-4	BT 70-4	BT 100-4	BT 100-4A	BT 125-4
Rotation		Clockwise when viewed from the driver				
Suction bore (mm)		50	65	100	125	150
Discharge bore (mm)		50	65	100	100	125
Ball bearings		7310DB + 6309				
Service life (hr)		Abv. 60000				
Amount of LO filled (ℓ)		0.67 (turbine oil ISO VG-68)				
Stuffing box seal		Mechanical seal				
Weight : DCI (kg)		155	192	245	255	550
Water filled in casing (kg)		2	3	3	4.5	20

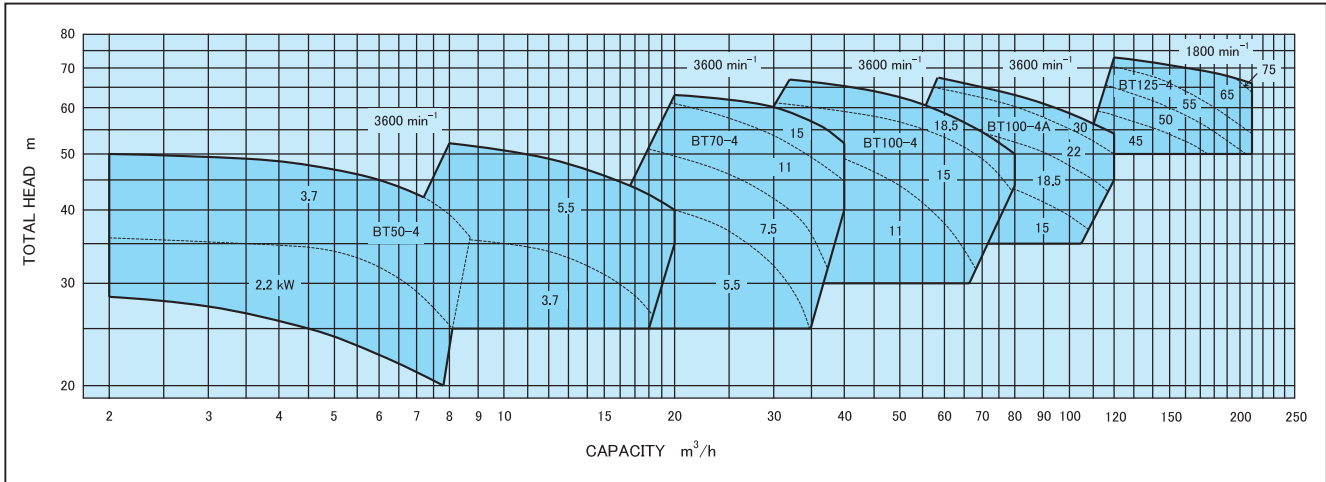


## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	DUCTILE CAST IRON	FCD400	1
2	VOLUTE COVER	〃	〃	1
7	BEARING HOUSING	CAST IRON	FC200	1
9	BEARING COVER	〃	〃	1
10	BEARING COVER	〃	〃	1
16	IMPELLER	STAINLESS STEEL	SCS13	1
18	IMPELLER SHAFT	〃	SUS403	1
34	BALL BEARING	SPECIAL STEEL		1SET
35	BALL BEARING	〃		1
38	MOUTH RING	CAST IRON	FC200	1
48	FLINGER	RUBBER		1
49	COUPLING	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	1
54	MECHANICAL SEAL			1SET
318	COUPLINE BOLT NUT & WASHER	STEEL	SS400B	1SET
319	COUPLING RING	RUBBER		1SET
334	OIL LEVEL GAUGE	RUBBER WITH GLASS		2
353	BEARING NUT	STEEL	SS400	1
354	BEARING WASHER	〃	〃	1
358-1	PACKING RING	RUBBER		1
358-2	PACKING RING	〃		1
370	GAS VENT PLUG	PLASTIC		1



## PERFORMANCE CHART



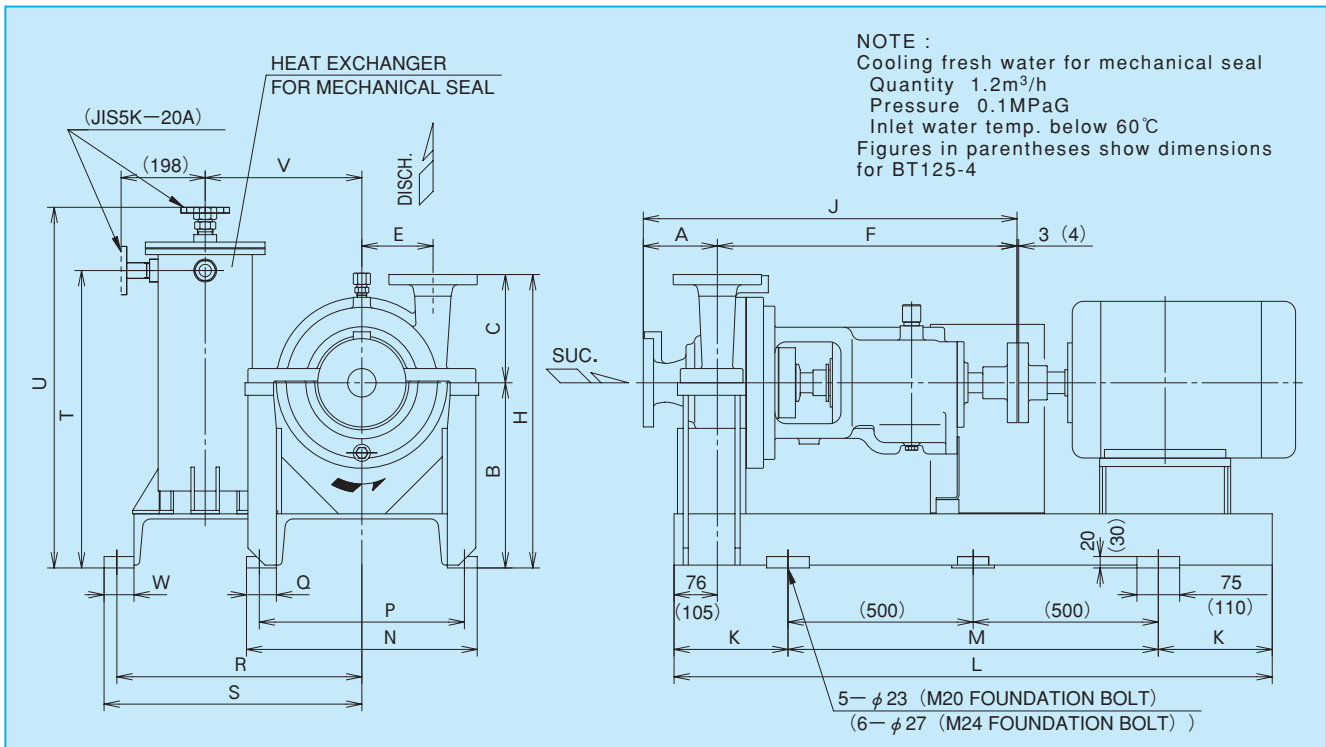
## STANDARD ACCESSORIES

Baseplate .....	1
Discharge pressure gauge .....	1
Suction pressure gauge .....	1
Gauge stand .....	1
Gauge root valve .....	2
Coupling cover .....	1

## STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Ball bearings
- Mouth rings (option)
- Mechanical seal
- Coupling bolts, nuts & rings (option)
- Packing ring (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	Mecha. seal
BT 50-4	130	325	190	125	526	515	656	200	1050	650	405	360	52.5	430	452.5	522	615	275	52.5	35
BT 70-4	130	325	210	125	526	535	656	200	1150	750	405	360	52.5	430	452.5	522	615	275	52.5	35
BT 100-4	150	350	210	135	526	560	676	200	1200	800	530	485	75	495	517.5	532	615	315	77.5	35
BT 100-4A	160	350	210	135	535	560	695	200	1200	800	530	485	75	495	517.5	532	633	315	77.5	35
BT 125-4	160	520	400	0	500	920	660	200	1400	1000	850	790	75	-	-	594	757	290	-	45

# Horizontal single-stage single-suction with throttle bush BW CIRCULATING PUMPS

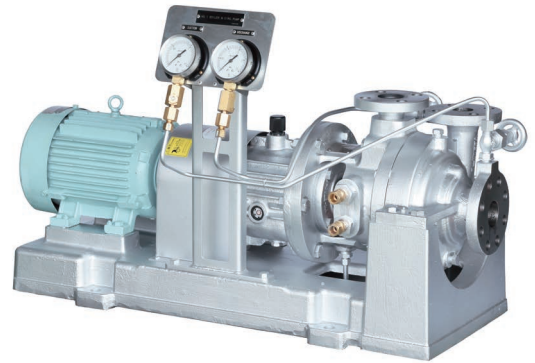
**SHINKO**  
**BT-5**

## ● APPLICATIONS

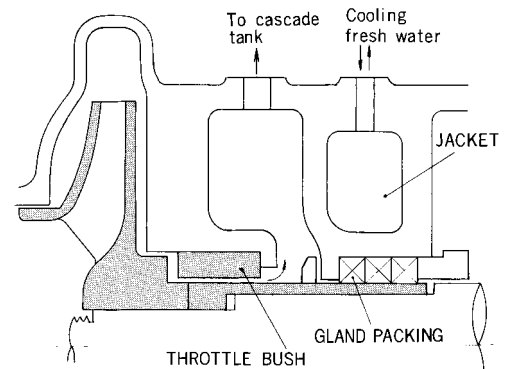
Boiler water circulating pumps for exhaust gas boilers

## ● GENERAL CHARACTERISTICS

Item	Model	BT 40-5	BT 70-5	BT 100-5	BT 100-5A
Rotation		Clockwise when viewed from the driver			
Suction bore (mm)		50	65	100	125
Discharge bore (mm)		40	65	100	100
Ball bearings		7308DB + 6307	7310DB + 6309		
Service life (hr)		Abv. 60000			
Amount of LO filled (ℓ)		0.67 (turbine oil ISO VG-68)			
Stuffing box seal		Throttle bush			
Weight : DCI (kg)		155	192	245	265
Water filled in casing (kg)		2	3	3	4.5



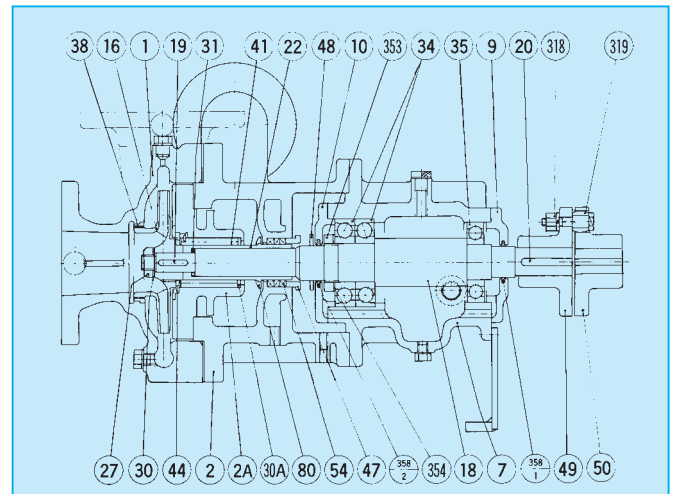
## ● STUFFING BOX SEALS



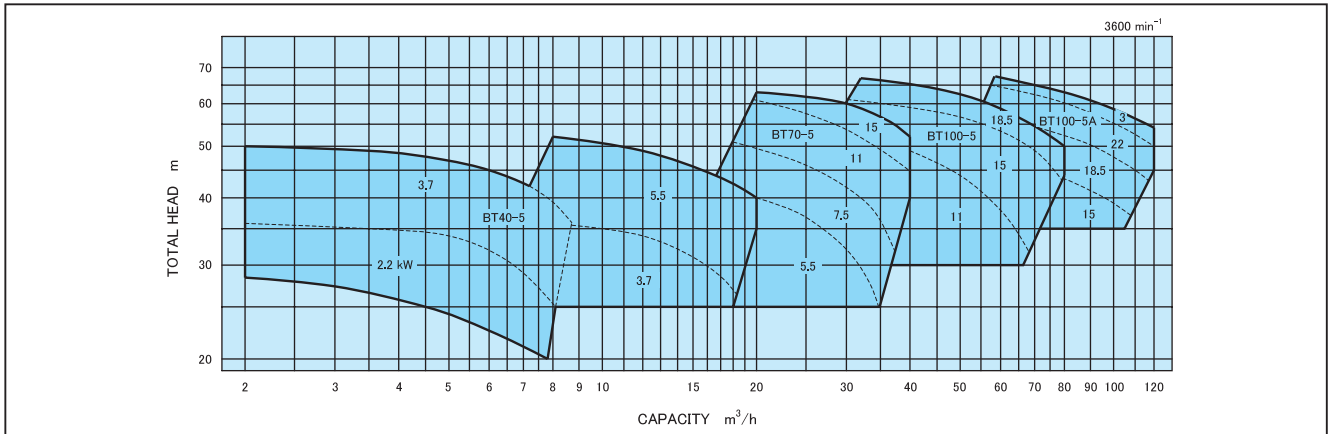
A throttle bush has been equipped where the shaft passes through the casing. High temperatures and high water pressure are reduced when passing through the narrow clearance between the throttle bush and the shaft sleeve, and then they are led to the cascade tank. Additionally, a ring-shaped gland packing has been equipped on the outer side to prevent leakage.

## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	DUCTILE CAST IRON	FCD400	1
2	VOLUTE COVER	〃	〃	1
2A	THROTTLE BUSH CASE	〃	〃	1
7	BEARING HOUSING	CAST IRON	FC200	1
9	BEARING COVER	〃	〃	1
10	BEARING COVER	〃	〃	1
16	IMPELLER	STAINLESS STEEL	SCS13	1
18	IMPELLER SHAFT	〃	SUS403	1
22	SLEEVE	〃	〃	1
30A	BACK-UP RING	〃	〃	1
34	BALL BEARING	SPECIAL STEEL		2
35	BALL BEARING	〃		1
38	MOUTH RING	CAST IRON	FC200	1
41	THROTTLE BUSH	CARBON		1
44	NECK BUSH	CAST IRON	FC200	1
47	GLAND	BRONZE	CAC406	1
48	FLINGER	RUBBER		1
49	COUPLING	DUCTILE CAST IRON	FCD400	1
50	COUPLING	〃	〃	1
54	GLAND PACKING	CARBONIZED FIBER		1SET
80	DEFLECTOR	STEEL	SS400B	1
318	COUPLING BOLT NUT & WASHER	〃	〃	1SET
319	COUPLING RING	RUBBER		1SET
353	BEARING NUT	STEEL	SS400	1
354	BEARING WASHER	〃	〃	1
358-1	PACKING RING	RUBBER		1
358-2	PACKING RING	〃		1



## PERFORMANCE CHART



## STANDARD ACCESSORIES

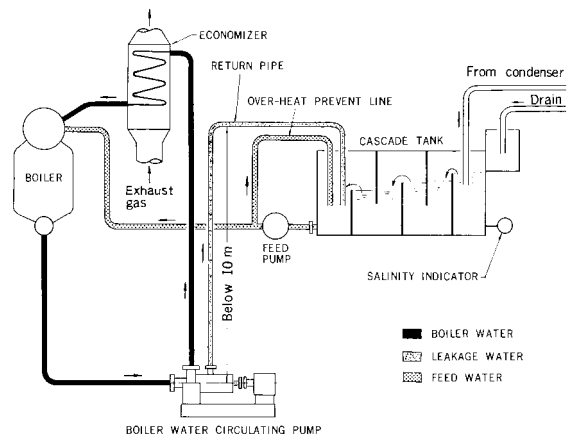
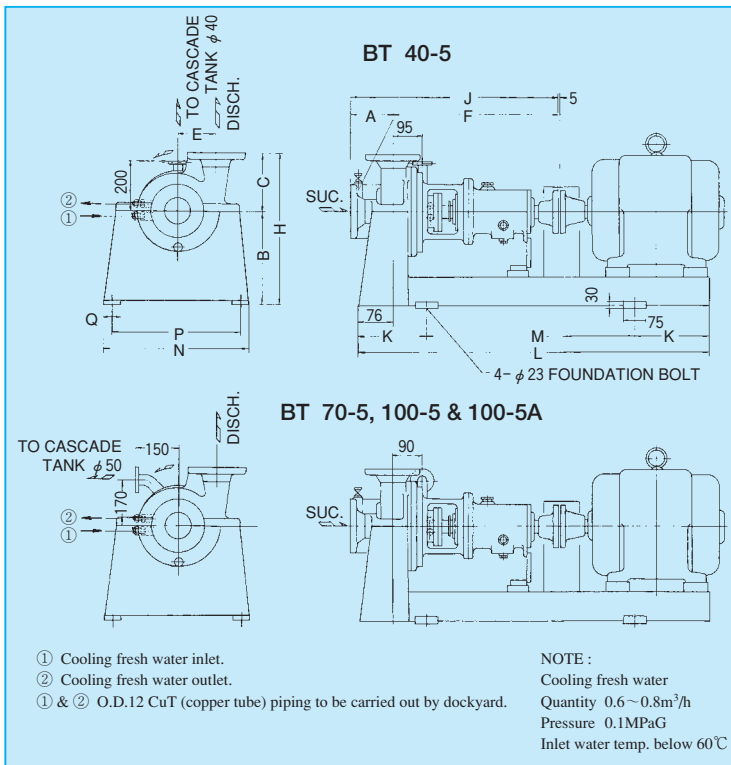
Baseplate	.....	1
Discharge pressure gauge	.....	1
Suction pressure gauge	.....	1
Gauge stand	.....	1
Gauge root valve	.....	2
Coupling cover	.....	1

## STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Throttle bush (option)
- Ball bearings
- Mouth rings (option)
- Gland packing
- Neck bush (option)
- Coupling bolts, nuts & rings (option)
- Packing rings (option)
- Complete set of rotating element (option)

## WARNINGS FOR INSTALLATION



In order to maintain the pressure in the stuffing box under 0.1MPaG, the height difference between the pump and the cascade tank must be limited to 10m or less.

Dimensions : mm

Model	A	B	C	E	F	H	J	K	L	M	N	P	Q
BT 40-5	110	245	170	115	515	415	625	200	920	520	380	340	60
BT 70-5	130	325	210	125	525	535	655	200	1070	670	440	400	60
BT 100-5	150	350	210	135	525	560	675	200	1200	800	525	485	50
BT 100-5A	160	350	210	135	535	560	695	200	1200	800	530	485	75

# HYDROPHORE UNITS

**SHINKO**  
**UH**

## ● APPLICATIONS

Hydrophore units for drinking water

Hydrophore units for fresh water

Hydrophore units for sanitary water

## ● DESIGN & STANDARD MATERIALS FOR HYDROPHORE UNIT

NO.	NAME OF COMPONENT	1PUMP SUPPLIED	2PUMP SUPPLIED	MATERIAL	
				NAME	JIS
1	TANK	1	1	STEEL	SS400
2	TANK COVER	1	1	∕	∕
3	CONNECTION PIECE	1	2	∕	SGP
4	DRAIN VALVE	1	1	BRONZE	CAC406
5	AIR CHARGE VALVE	1	1	∕	∕
6	PUMP	1	2	※	※
7	DISCHARGE VALVE	1	2	CAST IRON	FC200
8	WATER LEVEL GAUGE	1	1	BRASS	C3602
9	PRESSURE SWITCH	1	2		
10	SAFETY VALVE	1	1	BRONZE	CAC406

※If fresh water is handled, cast iron is used. Whereas, if sea water is handled, bronze is used.



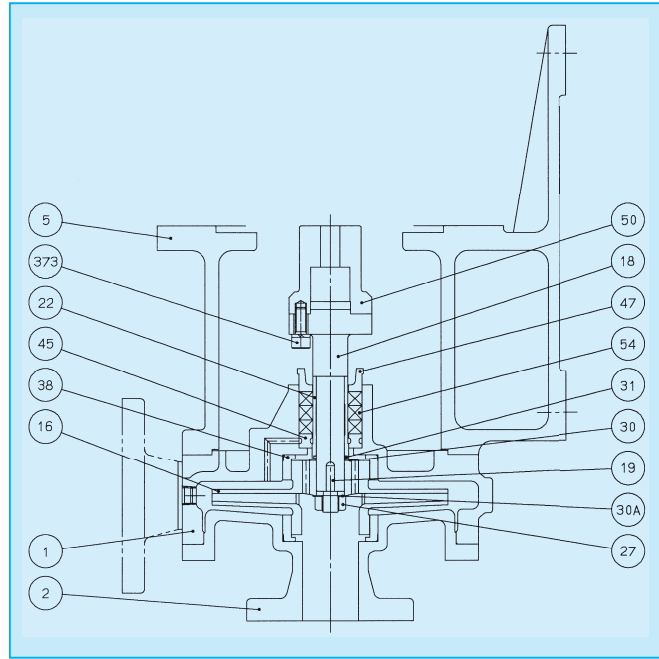
## ● GENERAL CHARACTERISTICS FOR A SINGLE-TANK UNIT

Item		Model	UH 051	UH 101	UH 102	UH 152	UH 202
Tank volume		(m <sup>3</sup> )	0.5	1.0	1.0	1.5	2.0
Number of pumps supplied			1	1	2	2	2
Pump type			Vertical single stage centrifugal				
Capacity × head			5~15m <sup>3</sup> /h × 40~60m				
Pump suction bore		(mm)	40				
Tank outlet bore		(mm)	50				
Operating pressure range		(MPaG)	0.3~0.55				
Effective water quantity in pressure tank (m <sup>3</sup> )	0.3(on)~0.45(off)(MPaG)		0.050	0.188	0.188	0.208	0.429
	0.3 ∕ ~0.5 ∕		0.062	0.230	0.230	0.345	0.518
	0.3 ∕ ~0.55 ∕		0.070	0.258	0.258	0.397	0.584
	0.35∕ ~0.45 ∕		0.033	0.125	0.125	0.183	0.254
	0.35∕ ~0.5 ∕		0.046	0.171	0.171	0.255	0.340
	0.35∕ ~0.55 ∕		0.054	0.212	0.212	0.316	0.434
Weight		(kg)	400	490	560	630	700
Weight at service condition 0.5MPaG (kg)			750	1190	1260	1680	2100

On : pump starts, Off : pump stops

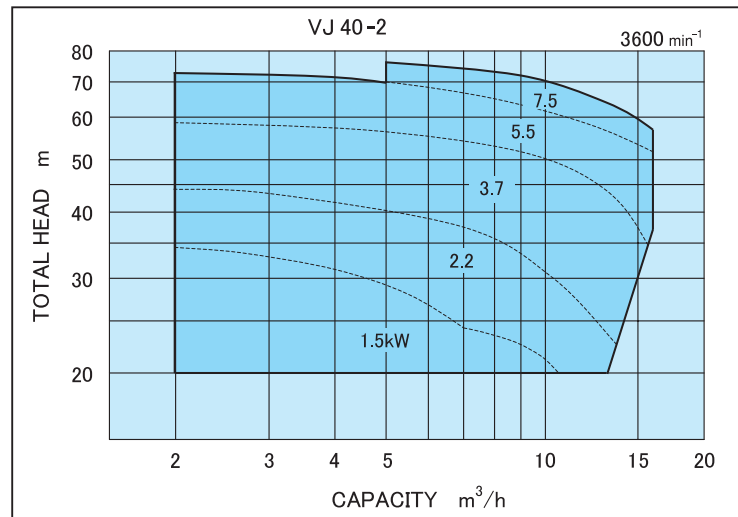
## ● DESIGN & STANDARD MATERIALS FOR PUMP

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	∕	∕	1
5	MOTOR BED	∕	∕	1
16	IMPELLER	SYNTHETIC RESIN		1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
19	IMPELLER KEY	∕	SUS304	1
22	SLEEVE	∕	SUS403	1
27	IMPELLER NUT	∕	SUS304	1
30	WASHER	∕	∕	1
30A	WASHER	∕	∕	1
31	PACKING	RUBBER		1
38	MOUTH RING	BRONZE	CAC403	2
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
50	COUPLING	DUCTILE CAST IRON	FCD400	1
54	GLAND PACKING	CARBON FIBER		1SET
373	COUPLING BOLT & WASHER	STEEL	SS400B	1SET



The materials shown are for fresh water pumps. For sea water pumps, the materials for the volute casing and cover (CAC402) and the impeller shaft (SUS304) are different from those shown above.

## ● PERFORMANCE CHART



## ● PAINTING

The inside of the tank is coated with pure epoxy after being thoroughly cleaned with a sandblasting process. Also, the exterior of the tank is coated in accordance with Munsell Notation 7.5BG 7/2.

## ● STANDARD ACCESSORIES

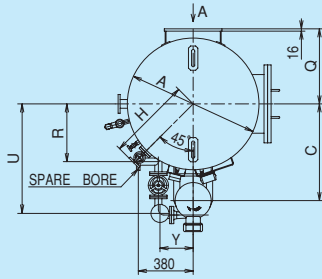
Discharge pressure gauge	1
Gauge board	1
Gauge root valve	1
Pressure switch root valve	1
Drain pipe for safety valve	1set
Piping for pressure switch	1set
Support for electric wire	1set

## ● STANDARD SPARE PARTS

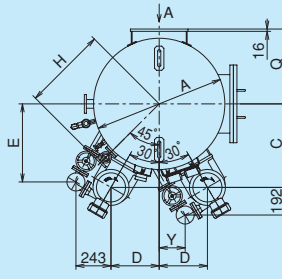
The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts & washers (option)
- Mouth rings (option)
- Complete set of rotating element (option)
- Water sight glass (option)
- Packing for water sight glass (option)
- Spring for safety valve (option)

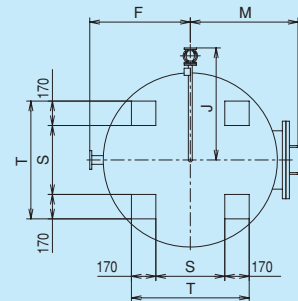
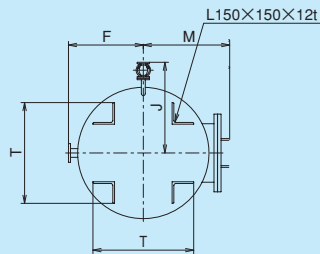
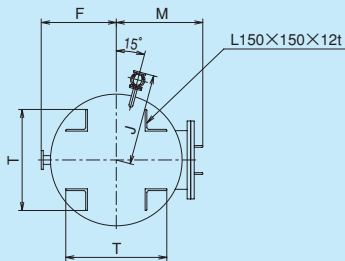
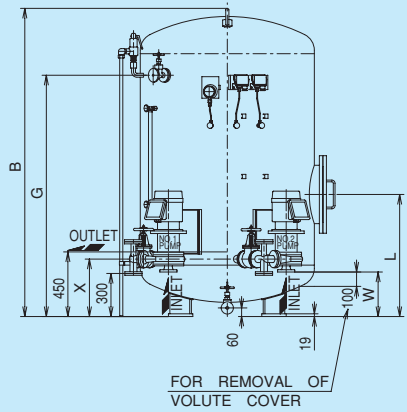
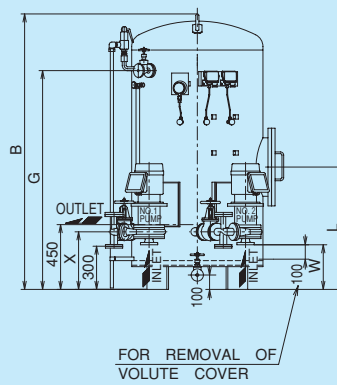
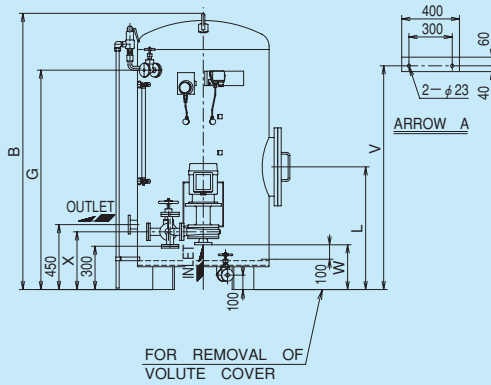
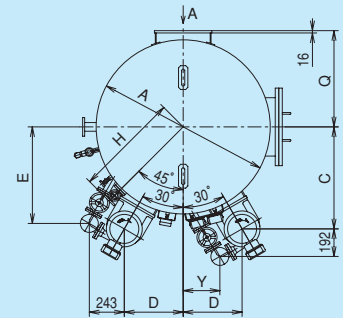
UH 051, 101



UH 102, 152



UH 202



Dimensions : mm

Model	A	B	C	D	E	F	G	H	J	L	M	Q	R	S	T	U	V	W	X	Y	Mecha. seal
UH 051	862	1235	650	—	—	495	830	555	605	600	575	—	390	—	700	739	—	310	400	230	25
UH 101	912	1920	670	—	—	520	1520	580	630	850	600	520	400	—	700	759	1550	310	400	230	25
UH 102	912	1920	580	335	542	520	1520	580	630	850	600	520	—	—	700	—	1550	310	400	180	25
UH 152	1112	1930	667	385	629	650	1520	680	730	850	700	620	—	—	800	—	1550	310	400	230	25
UH 202	1212	2166	710	410	672	700	1700	730	780	850	750	670	—	480	820	—	1700	310	400	255	25

# HYDROPHORE UNITS

[ PATENT REGISTERED ]

**SHINKO**  
**UH153L**

## ● APPLICATIONS

Hydrophore units for drinking water and fresh water

## ● GENERAL CHARACTERISTICS FOR A COMBINED-TANK UNIT

Item		Model	UH 153L	
Kind of liquid			Fresh water	Drinking water
Tank volume (m <sup>3</sup> )			1.0	0.5
Number of pumps supplied			2	1
Pump type			Vertical single stage centrifugal	
Capacity × head			5~15m <sup>3</sup> /h × 40~60m	
Pump suction bore (mm)			40	
Tank outlet bore (mm)			50	
Operating pressure range (MPaG)			0.3~0.55	
Effective water quantity in pressure tank (m <sup>3</sup> )	0.3(on)~0.45(off)(MPaG)		0.050	0.188
	0.3 ∕ ~0.5 ∕		0.062	0.230
	0.3 ∕ ~0.55 ∕		0.070	0.258
	0.35 ∕ ~0.45 ∕		0.033	0.125
	0.35 ∕ ~0.5 ∕		0.046	0.171
	0.35 ∕ ~0.55 ∕		0.054	0.212
Weight (kg)			1000	
Weight at service condition 0.5MPaG(kg)			2050	

On : pump starts, Off : pump stops



## ● DESIGN & STANDARD MATERIALS FOR HYDROPHORE UNIT

NO.	NAME OF COMPONENT	F.W. PUMP	D.W. PUMP	MATERIAL	
				NAME	JIS
1	TANK		1	STEEL	SS400
2	TANK COVER	1	1	∕	∕
3	CONNECTION PIECE	1	1	∕	SGP
4	DRAIN VALVE	1	1	BRONZE	CAC406
5	AIR CHARGE VALVE	1	1	∕	∕
6	PUMP	1	1	※	※
7	DISCHARGE VALVE	1	1	CAST IRON	FC200
8	WATER LEVEL GAUGE	1SET	1SET	BRASS	C3602
9	PRESSURE SWITCH	1SET	1SET		
10	SAFETY VALVE	1SET	1SET	BRONZE	CAC406

Note 1. One set of spare pump will be supplied.  
2. ※If fresh water is handled, cast iron is used. Whereas, if sea water is handled, bronze is used.

In order to conserve space in the engine room, this combined hydrophore tank is designed to integrate two tanks into one. The tank is separated horizontally by a dished-end plate. The lower side can hold 1m<sup>3</sup> of fresh water and the upper can hold 0.5m<sup>3</sup> of drinking water.

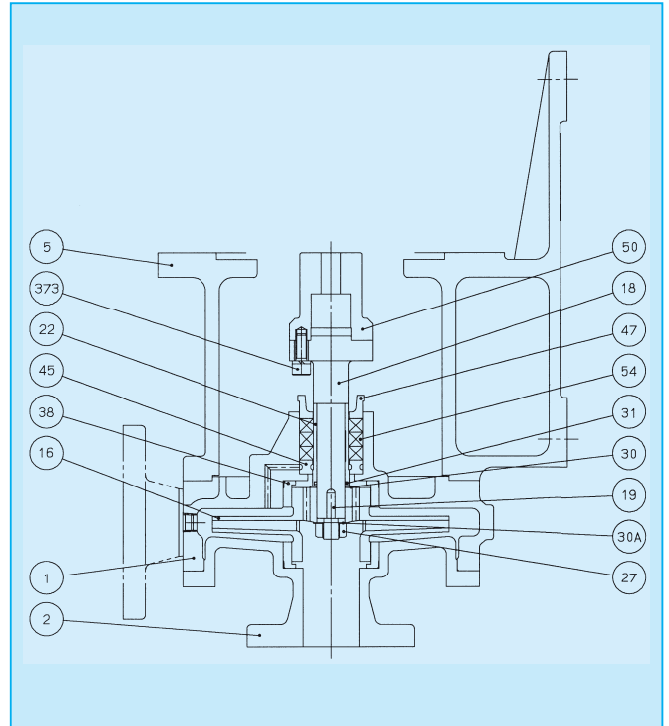
One fresh water pump and one drinking water pump have been simply installed on the combined tank. They are connected with the tank via a screw-down-check valve to supply the water.

Additionally, one spare pump with an electric motor has been installed on the tank simply. If either of the pumps malfunction, they can be replaced with this pump.



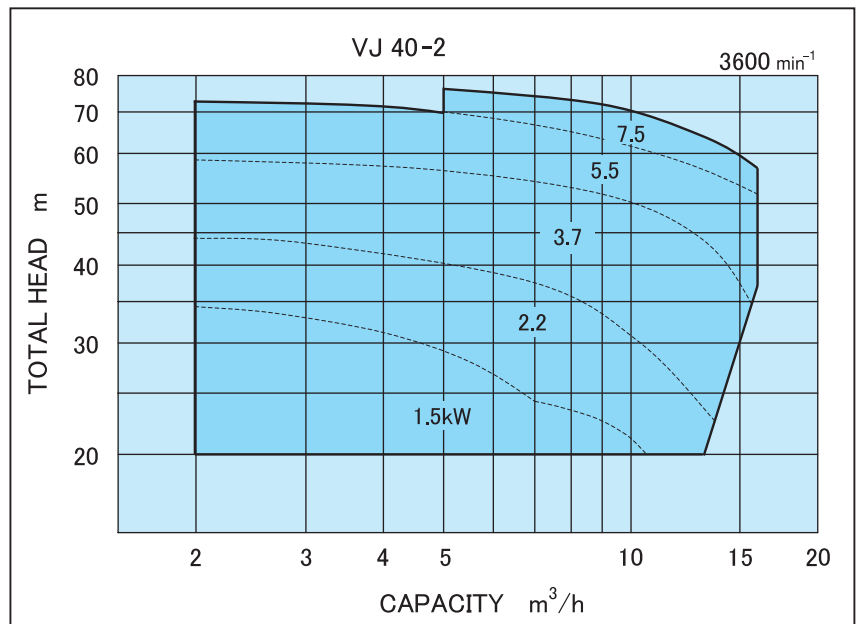
## ● DESIGN & STANDARD MATERIALS FOR PUMP

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	CAST IRON	FC200	1
2	VOLUTE COVER	〃	〃	1
5	MOTOR BED	〃	〃	1
16	IMPELLER	SYNTHETIC RESIN		1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
19	IMPELLER KEY	〃	SUS304	1
22	SLEEVE	〃	SUS403	1
27	IMPELLER NUT	〃	SUS304	1
30	WASHER	〃	〃	1
30A	WASHER	〃	〃	1
31	PACKING	RUBBER		1
38	MOUTH RING	BRONZE	CAC403	2
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
50	COUPLING	DUCTILE CAST IRON	FCD400	1
54	GLAND PACKING	CARBON FIBER		1SET
373	COUPLING BOLT & WASHER	STEEL	SS400B	1SET



The materials shown are for fresh water pumps. For sea water pumps, the materials for the volute casing and cover (CAC402) and the impeller shaft (SUS304) are different from those shown above.

## ● PERFORMANCE CHART



**PAINTING**

The inside of the tank is coated with pure epoxy after being thoroughly cleaned with a sandblasting process. Also, the exterior of the tank is coated in accordance with Munsell Notation 7.5BG 7/2.

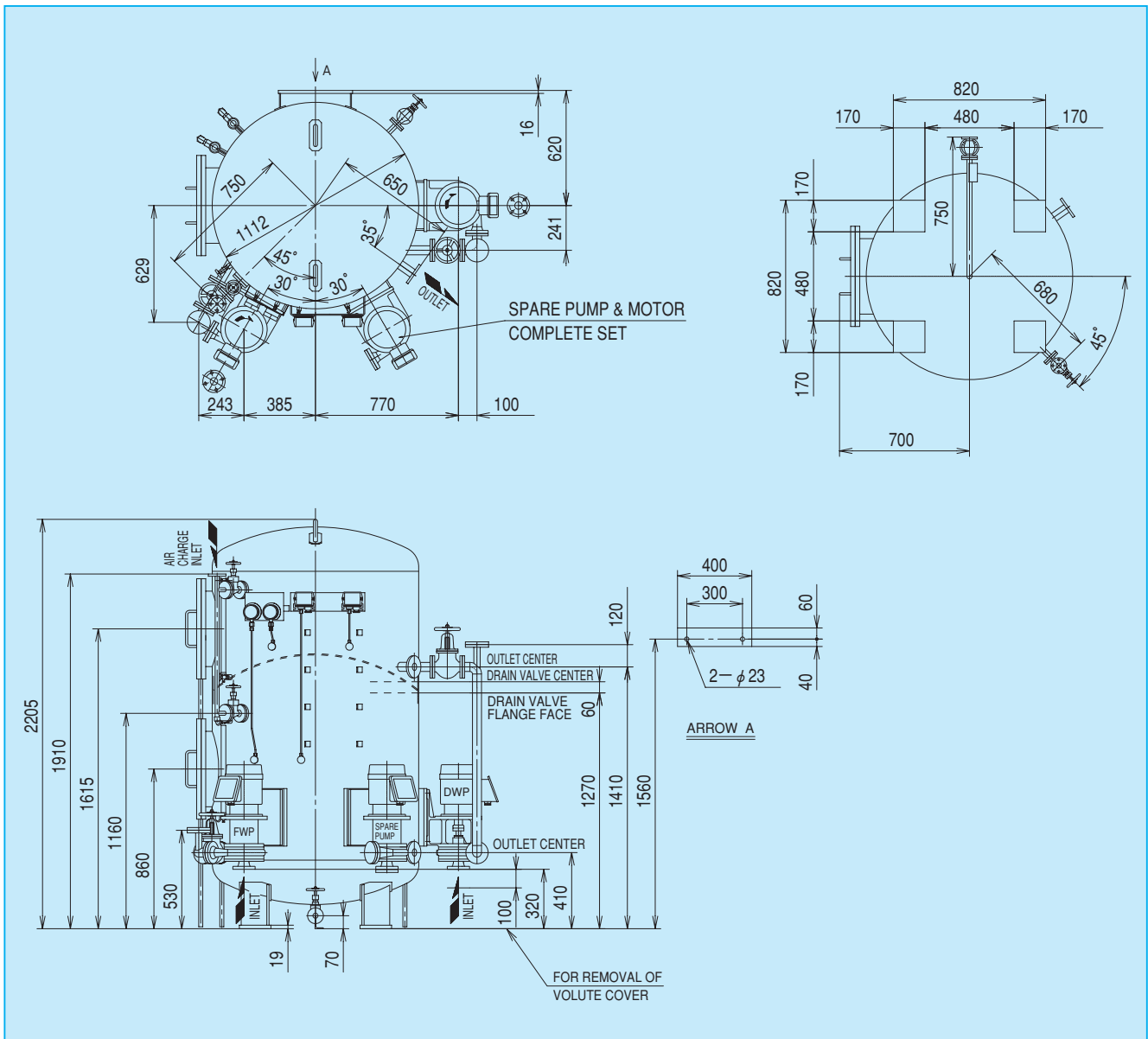
**STANDARD ACCESSORIES**

- Discharge pressure gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 1
- Pressure switch root valve ..... 1
- Drain pipe for safety valve..... 1 set
- Piping for pressure switch ..... 1 set
- Support for electric wire ..... 1 set

**STANDARD SPARE PARTS**

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts & washers (option)
- Mouth rings (option)
- Complete set of rotating element (option)
- Water sight glass (option)
- Packing for water sight glass (option)
- Spring for safety valve (option)



# Vertical single-stage double-suction CONDENSER CIRCULATING PUMPS

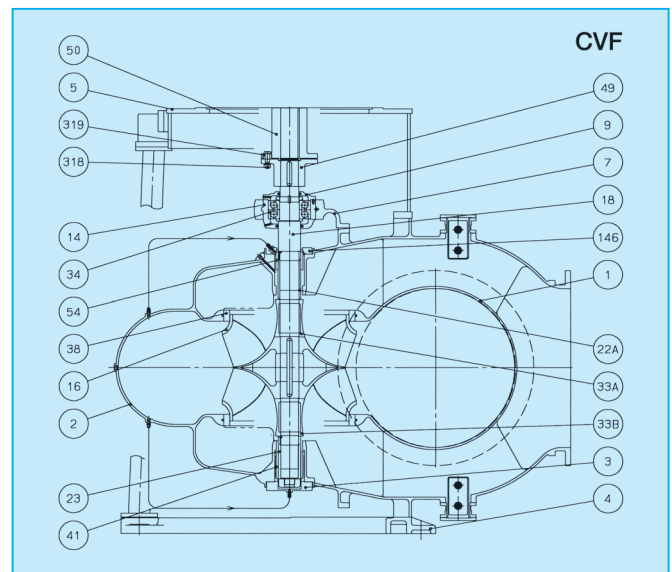
**SHINKO**  
**CVF.CVN**

## ● APPLICATIONS

Main condenser circulating pumps for LNG ships  
T/G condenser circulating pumps

## ● DESIGN & STANDARD MATERIALS

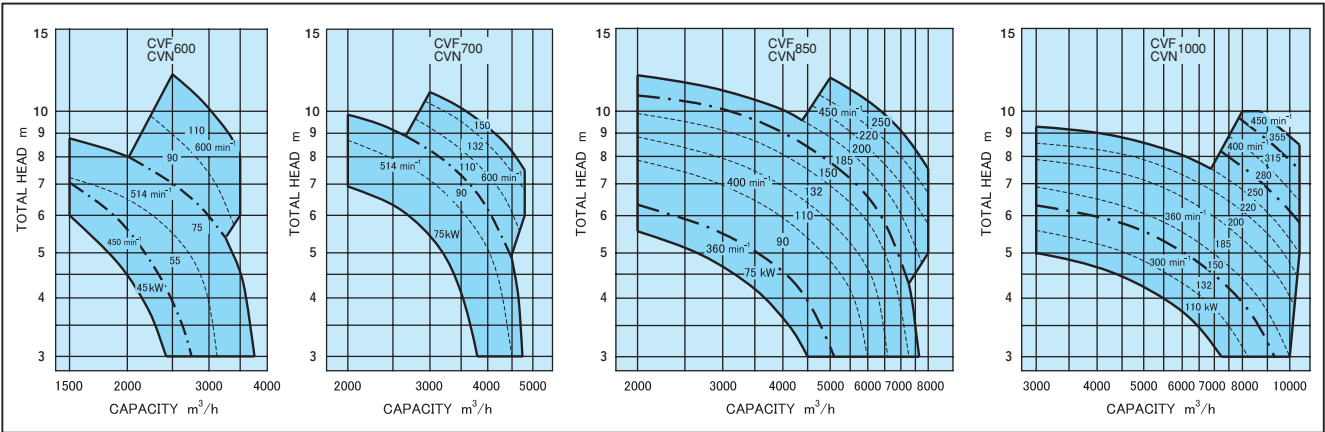
PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	BRONZE	CAC402	1
2	VOLUTE COVER	∕	∕	1
3	VOLUTE END COVER	∕	∕	1
4	PUMP BED	CAST IRON	FC200	1
5	MOTOR BED	STEEL	SS400	1
7	BEARING HOUSING	CAST IRON	FC200	1SET
9	BEARING COVER	∕	∕	1
14	BEARING INNER CASE	∕	∕	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS304	1
22A	SLEEVE	∕	∕	1
23	SLEEVE	∕	∕	1
33A	DISTANCE RING	PHOSPHOR BRONZE	CAC502A	1
33B	DISTANCE RING	∕	∕	1
34	BALL BEARING	SPECIAL STEEL		1SET
38	MOUTH RING	BRONZE	CAC403	2
41	LINE BEARING	CARBON		1
49,50	COUPLING	DUCTILE CAST IRON	FCD400	1SET
54	MECHANICAL SEAL			1SET
146	COVER	BRONZE	CAC406	1
318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET
319	COUPLING RING	RUBBER		1SET



## ● GENERAL CHARACTERISTICS

Item	Model	CVF 600	CVN 600	CVF 700	CVN 700	CVF 850	CVN 850	CVF 1000	CVN 1000
Rotation		Clockwise when viewed from the driver							
Suction bore	(mm)	600		700		850		1000	
Discharge bore	(mm)	600		700		850		1000	
Ball bearings		7318ADB		7319ADB		7321ADB			
Service life	(hr)	Abv. 60000							
Flow direction		90°	180°	90°	180°	90°	180°	90°	180°
Stuffing box seal		Gland packing or mechanical seal							
Weight : BRZ	(kg)	2930	2830	3830	3730	5200	5150	8500	8500
Water filled in casing	(kg)	920	870	1210	1165	1695	1620	3300	3300

## PERFORMANCE CHARTS



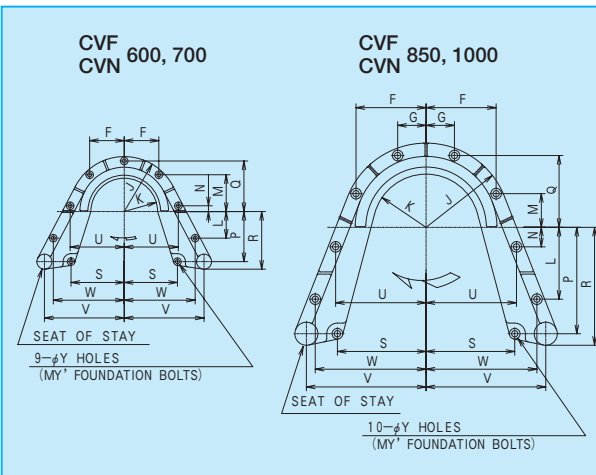
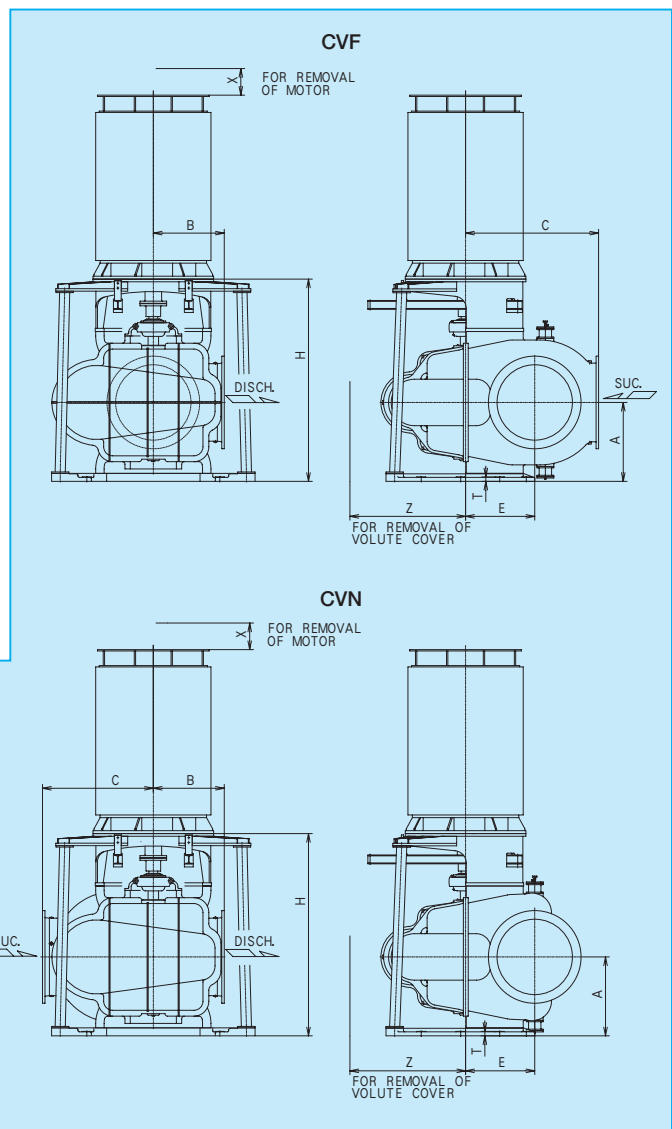
## STANDARD ACCESSORIES

- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 2
- Sealing pipe ..... 1 set
- Air vent valve ..... 1
- Zinc plate ..... 2
- Geared trolley with chain block ..... 2 sets

## STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Ball bearings
- Coupling bolts, nuts & rings (option)
- Mouth rings (option)
- Line bearing
- Packing ring (option)
- Complete set of rotating element (option)



Dimensions : mm

Model	Bore		A	B	C	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	W	X	Y	Y'	Z	Mecha. seal
	suc.	disc.																									
C/FV C/VN 600	600	600	615	800	1100 960	580	390	—	1751	620	376	300	415	65	565	570	650	600	50	610	900	800	240	46	42	1400	100
C/FV C/VN 700	700	700	690	800	1250 1000	650	390	—	1930	620	376	300	415	65	565	570	650	600	50	610	900	800	240	46	42	1400	110
C/FV C/VN 850	850	850	890	800	1500 1250	780	610	235	2281	780	515	500	385	55	800	685	900	750	50	800	1050	975	300	52	48	1800	120
C/FV C/VN 1000	1000	1000	1100	950 1050	1850 1550	950	790	320	2631	950	600	810	380	220	1200	810	1330	1000	80	1020	1350	1250	300	70	64	2500	130

SHINKO IND.LTD.

# Vertical two-stage single / double-suction CONDENSATE PUMPS

**SHINKO**  
**EVZ**

## ● APPLICATIONS

- Main condensate pumps
- Drain transfer pumps
- Other use

## ● 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)		Abv. 60000					
Amount of grease filled (g)		8	35	55	55	55	55
Stuffing box seal		Gland packing or Mechanical seal					
Weight : CI(DCI) (kg)		200	470	530	590	640	760
Water filled in casing (kg)		7	24	27	48	58	68

1st stage impeller : Single suction for EVZ 50, 70, and 100

Double suction for EVZ 130, 130-2, and 150

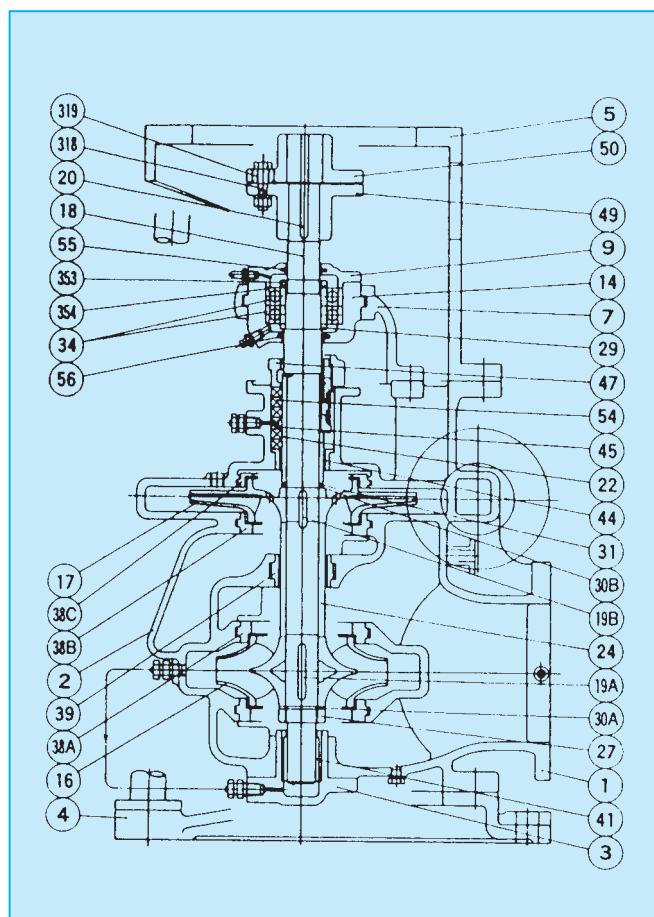
Ball bearings : 1 piece of the 63 type for EVZ50, 2 pieces of the 73 type for EVZ70 ~ 150



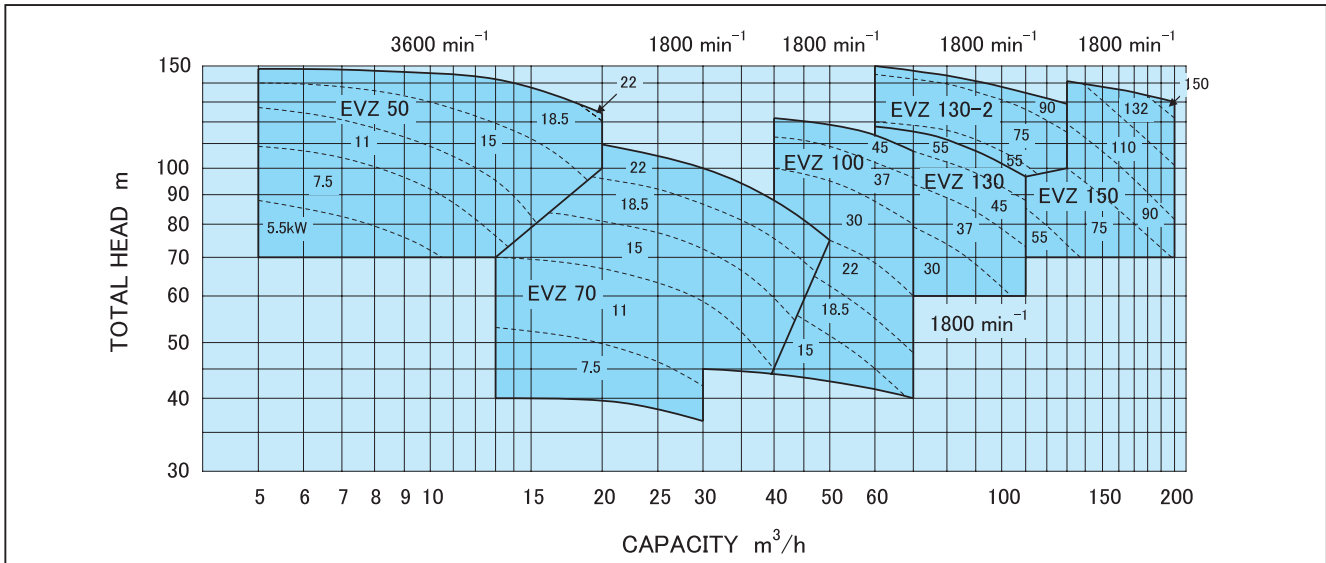
## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	※	※	1
2	VOLUTE COVER	∕	∕	1
4	PUMP BED	CAST IRON	FC200	1
5	MOTOR BED	STEEL	SS400	1
7	BEARING HOUSING	CAST IRON	FC200	1SET
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		1SET
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		1SET
318	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET
319	COUPLING RING	RUBBER		1SET
353	BEARING NUT	STEEL	SS400	1
354	BEARING WASHER	∕	∕	1

Note ※ EVZ 70 CAST IRON (FC200)  
EVZ 50,100~150 DUCTILE CAST IRON (FCD400)



## ● PERFORMANCE CHART



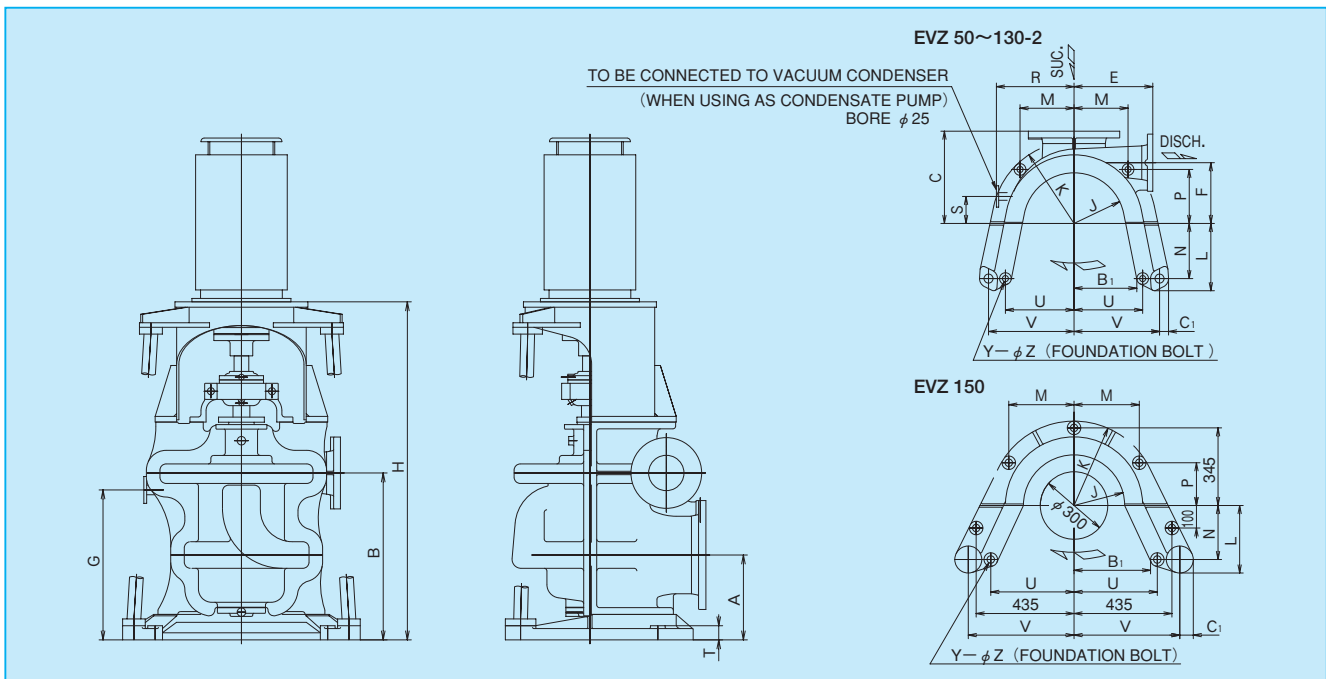
## ● STANDARD ACCESSORIES

- Discharge compound gauge ..... 1
- Suction compound gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 2
- Air vent valve..... 1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts, nuts & rings (option)
- Mouth rings (option), Casing ring (option)
- Complete set of rotating element (option)
- Ball bearings, Line bearing



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	Y	Z	B <sub>1</sub>	C <sub>1</sub>	Mecha. seal
EVZ 50	210	310	260	260	120	270	739	155	270	235	170	200	170	200	150	50	180	260	4	23	159	50	35
EVZ 70	330	460	350	330	210	395	973	225	365	300	240	245	240	320	105	50	305	380	4	27	279	40	50
EVZ 100	350	490	350	330	210	440	1122	225	365	300	240	245	240	320	100	50	305	380	4	27	279	40	60
EVZ 130	300	590	410	350	270	530	1222	225	365	300	240	245	240	345	120	50	305	380	4	27	279	40	60
EVZ 130-2	300	590	440	380	320	525	1222	225	365	300	240	245	240	370	120	50	305	380	4	27	279	40	60
EVZ 150	325	670	460	380	345	585	1166	225	375	300	290	240	190	400	140	50	370	470	7	33	340	60	60

# Vertical two-stage single-suction CONDENSATE PUMPS

**SHINKO**  
**RVZ**

## ● APPLICATIONS

Low-NPSH condensate pumps for turbo generators

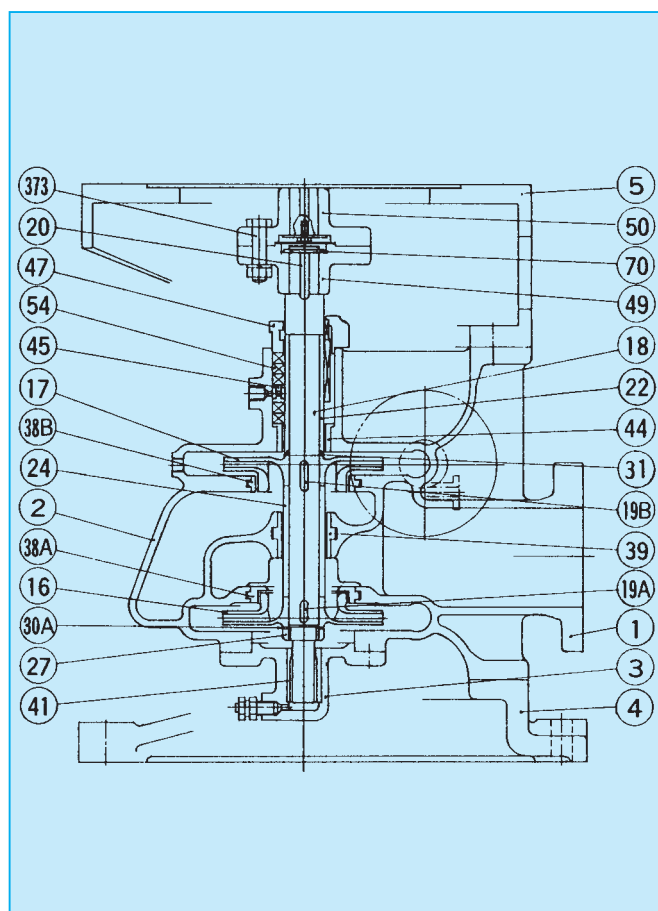
## ● GENERAL CHARACTERISTICS

Item	Model	RVZ 50
Rotation		Clockwise when viewed from the driver
Suction bore (mm)		100
Discharge bore (mm)		50
Stuffing box seal		Gland packing or Mechanical seal
Weight : CI (kg)		175
Water filled in casing (kg)		7



## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		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	STEEL	SS400	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502	1
17	IMPELLER	∕	∕	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
19A	IMPELLER KEY	∕	SUS304	1
19B	IMPELLER KEY	∕	∕	1
20	COUPLING KEY	CARBON STEEL	S55C	1
22	SLEEVE	STAINLESS STEEL	SUS403	1
24	SLEEVE	∕	∕	1
27	IMPELLER NUT	∕	SUS304	1
30A	WASHER	COPPER	CuP	1
31	PACKING	RUBBER		1
38A	MOUTH RING	BRONZE	CAC403	1
38B	MOUTH RING	∕	∕	1
41	LINE BEARING	CARBON		1
44	NECK BUSH	BRONZE	CAC406	1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49	COUPLING	DICTILE CAST IRON	FCD400	1
50	COUPLING	∕	∕	1
54	GLAND PACKING	CARBONIZED FIBER		1SET
70	SNUP RING	CARBON TOOL STEEL	SK85	1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET

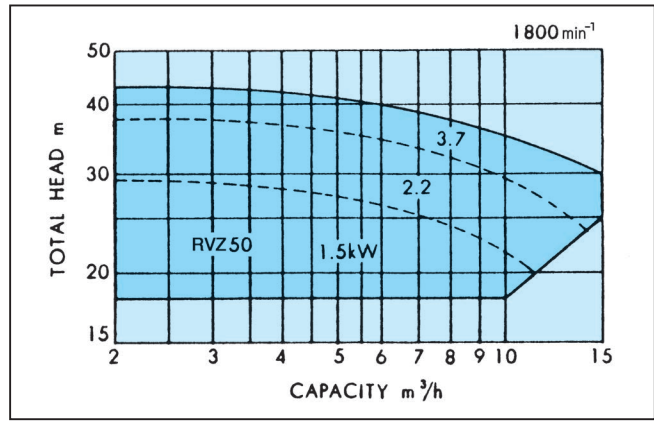


## ● PERFORMANCE CHART

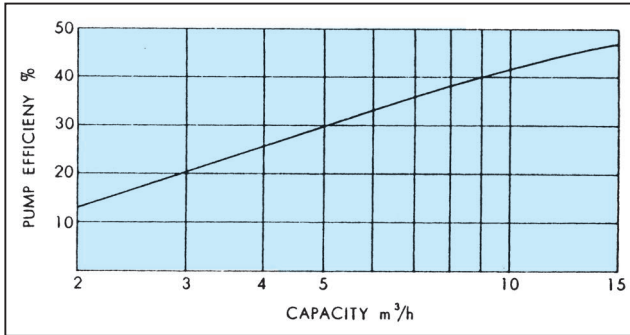
The model RVZ50 is designed as a condensate pump for the generator turbine utilizing the exhaust gas of main diesel engine.

Since the casing can be split vertically, the rotating element can be overhauled without removing the suction and discharge piping.

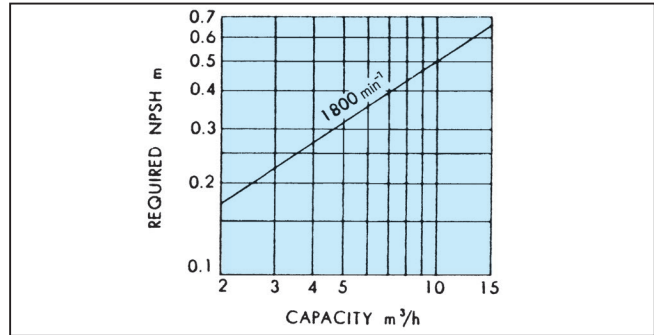
Moreover, this pump has a characteristic of low required NPSH.



## ● PUMP EFFICIENCY



## ● REQUIRED NPSH



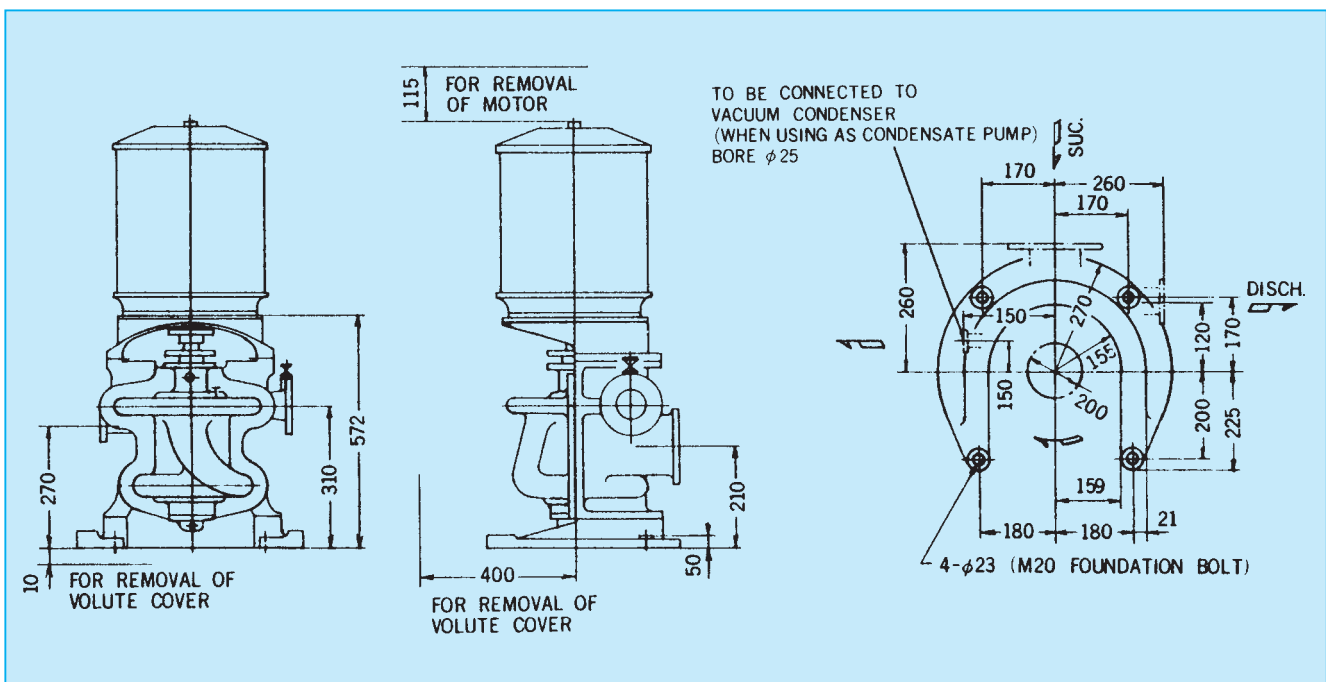
## ● STANDARD ACCESSORIES

Discharge compound gauge .....	1
Suction compound gauge .....	1
Gauge board .....	1
Gauge root valve .....	2
Air vent valve.....	1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts, nuts & washers (option)
- Mouth rings (option), Casing ring (option)
- Complete set of rotating element (option)
- Line bearing





# Vertical single-stage single-suction CONDENSATE PUMPS

**SHINKO**  
**RVE**

## ● APPLICATIONS

Condensate pumps  
Drain transfer pumps  
Other use

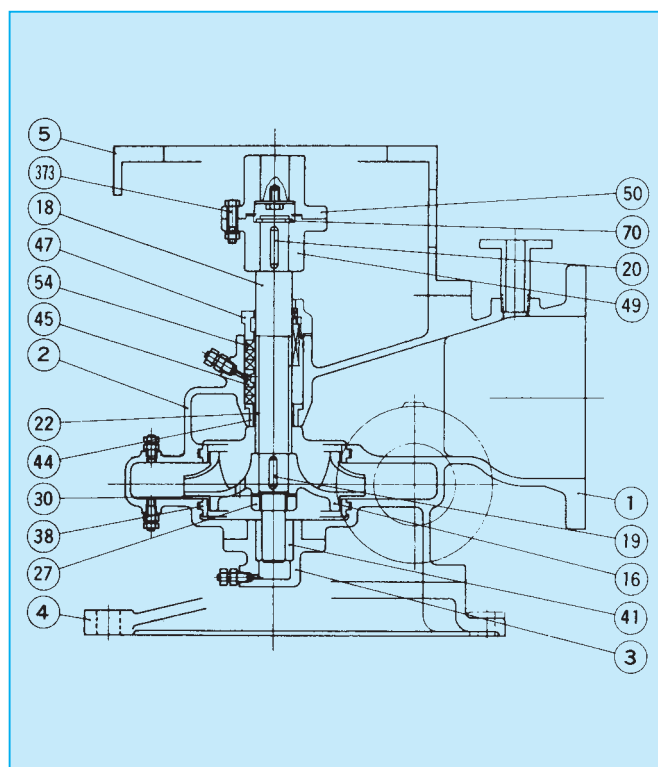
## ● GENERAL CHARACTERISTICS

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 : CI	(kg)	175	288	358
Water filled in casing	(kg)	10	28	29

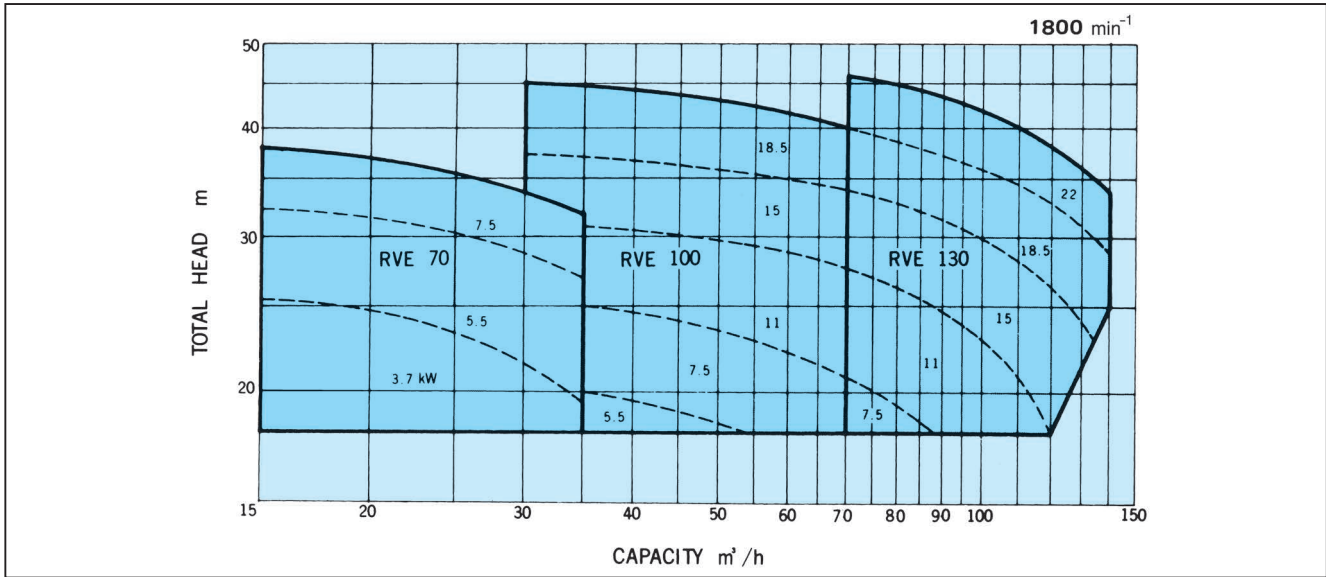


## ● DESIGN & STANDARD MATERIALS

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		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	Cu P	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		1SET
70	SNAP RING	CARBON TOOL STEEL	SK 5	1
373	COUPLING BOLT NUT & WASHER	STEEL	SS400B	1SET



## ● PERFORMANCE CHART



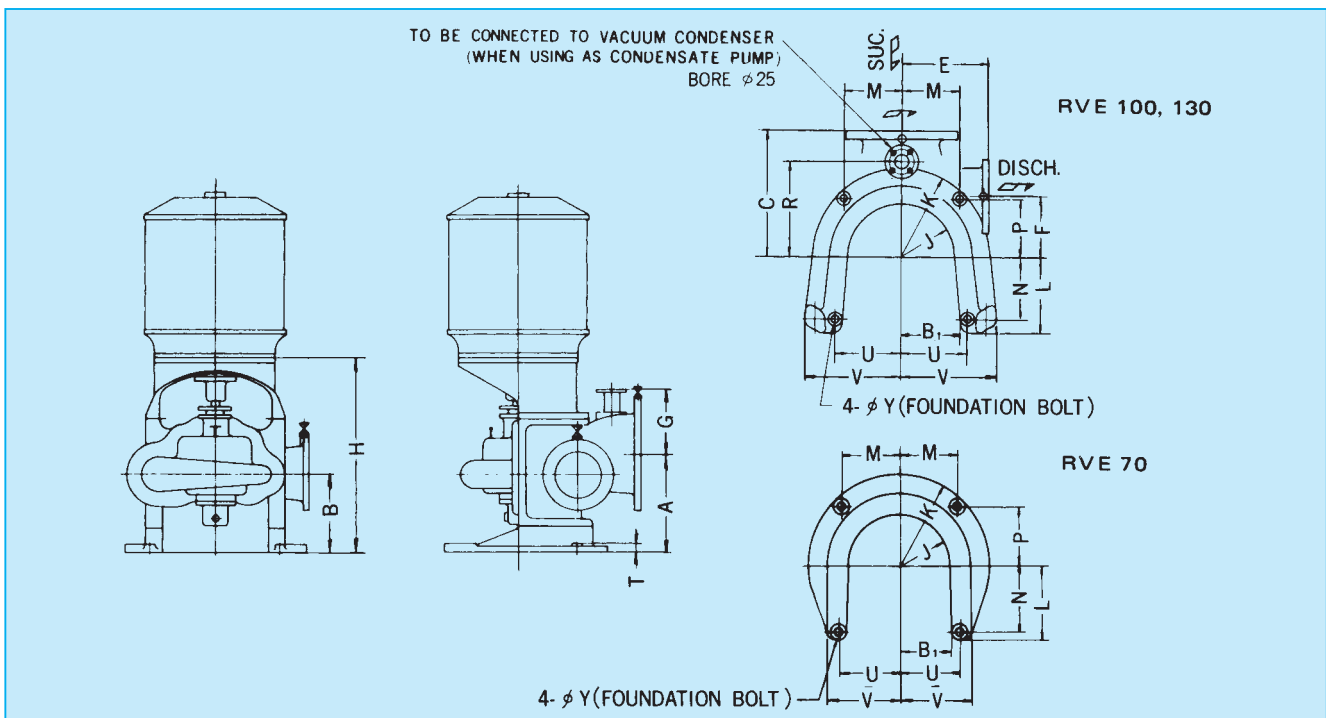
## ● STANDARD ACCESSORIES

Discharge pressure gauge .....	1
Suction compound gauge .....	1
Gauge board .....	1
Gauge root valve .....	2
Sealing pipe .....	1 set
Air vent valve.....	1

## ● STANDARD SPARE PARTS

The number of each spare part is 1 set for all units of the same application and model.

- Gland packing or mechanical seal
- Coupling bolts, nuts & washers (option)
- Mouth rings (option)
- Line bearing
- Complete set of rotating element (option)



Dimensions : mm

Model	A	B	C	E	F	G	H	J	K	L	M	N	P	R	T	U	V	Y	B <sub>1</sub>	Mecha. seal
RVE 70	285	190	330	250	170	185	564	155	270	225	170	200	170	265	50	180	201	23	159	35
RVE 100	360	230	380	330	200	250	693	190	310	260	200	225	200	300	50	210	335	27	184	50
RVE 130	360	230	380	330	200	250	693	190	310	260	200	225	200	300	50	210	335	27	184	50

**SHINKO IND.LTD.**

# CASCADE TANK UNITS

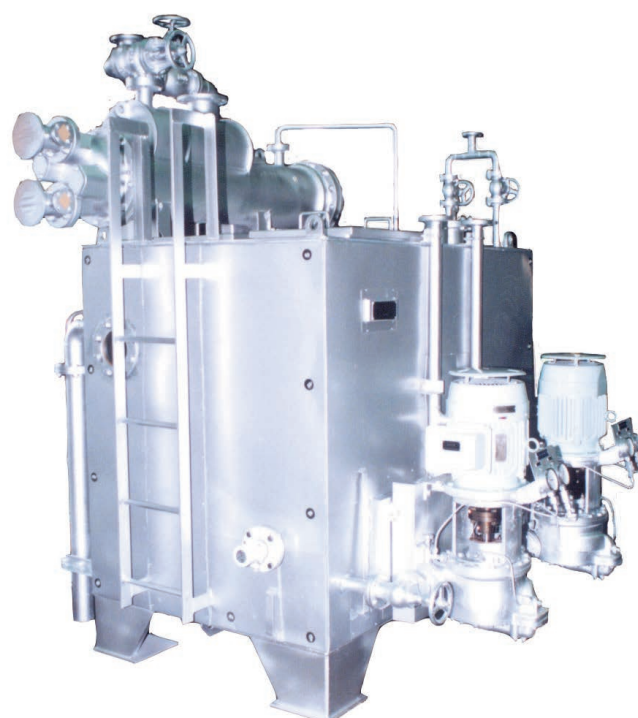
[ PATENT REGISTERED ]

**SHINKO**  
**UC**

## ● APPLICATIONS

An atmospheric condenser and feed pumps are combined with the cascade tank as a single unit, which helps to minimize the installation space required.

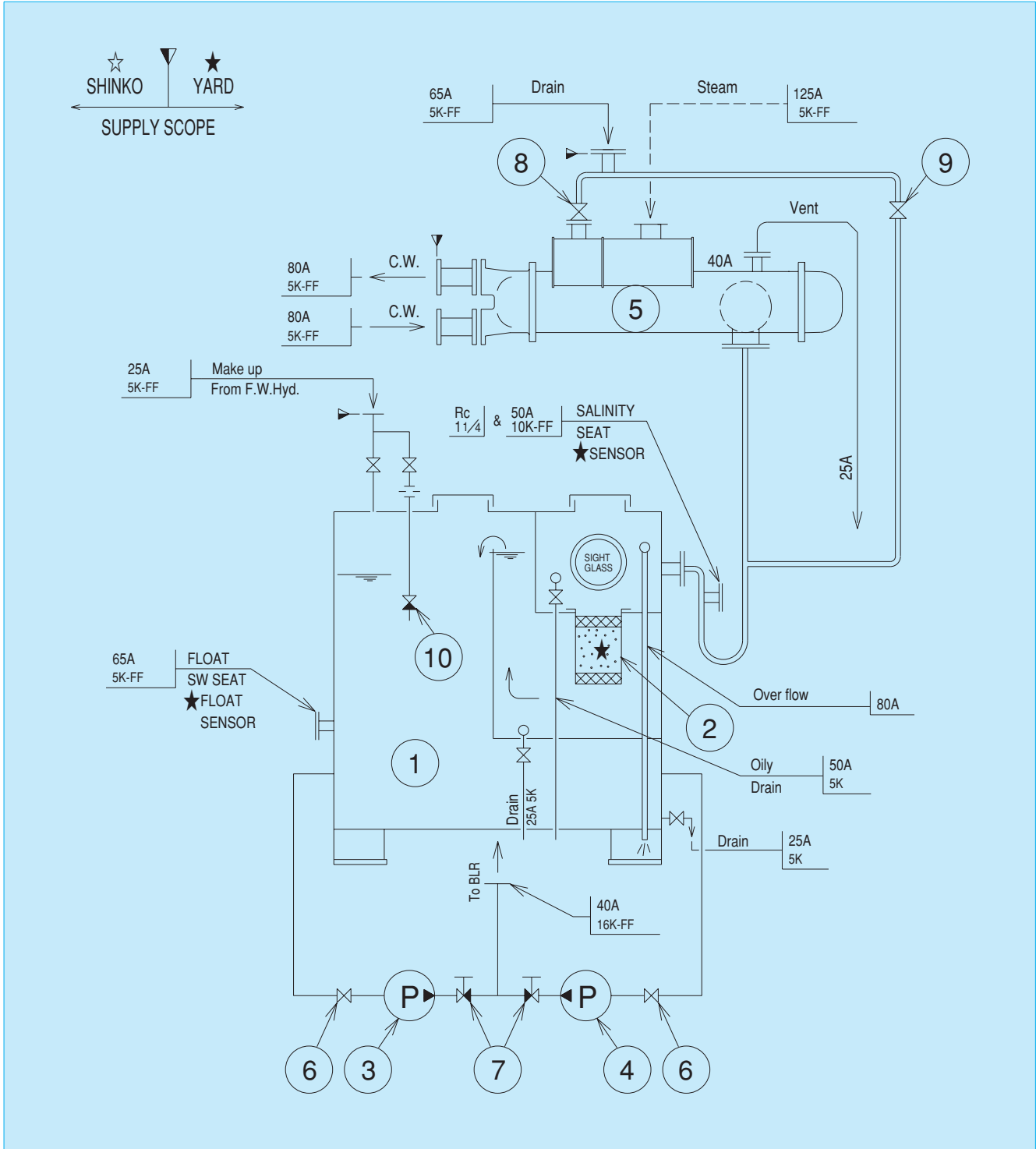
Wasted condensation water, which has heated up fuel oil for the main engine or other components, is led to the atmospheric condenser to be cooled. Then, the oil mixed in with the condensation water is removed with sponges in the buckets installed in the cascade tank. The clean water is fed to the auxiliary boiler via the feed pump.



## ● GENERAL CHARACTERISTICS

Item		Model	UC 102	UC 152	UC 202
Cascade tank	Overflow capacity (m <sup>3</sup> )		2.0	2.6	2.9
	Effective water quantity (m <sup>3</sup> )		1.0	1.5	2.0
Feed pump	Number of pumps supplied		CW : 1, CCW : 1		
	Pump type		Centrifugal		
	Capacity (m <sup>3</sup> /h)		2.5	2~6	2~10
	Total head (m)		110	100~140	100~140
Atmos. condenser	Type of condenser		Shell & tube		
	Cooling surface (m <sup>2</sup> )		8~10	8~10	8~14
	Steam drain quantity (kg/h)		1000	1200~1800	1200~2500
	Cooling S.W. required (m <sup>3</sup> /h)		25	35~55	45~70
Weight	Dry (kg)		2000	2550	3300
	Operating (kg)		3850	4950	6550

● SYSTEM DESIGN & STANDARD MATERIALS (in the case of UC 152)

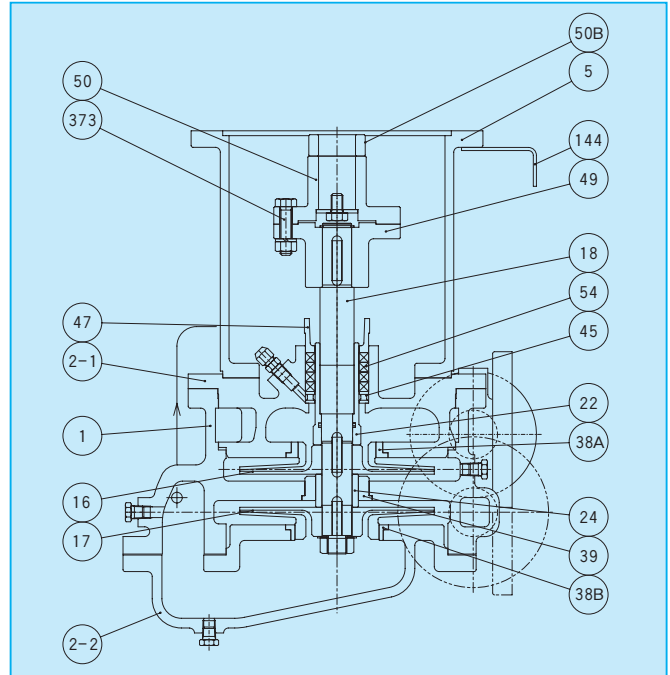


PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1UNIT	PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1UNIT
		NAME	JIS				NAME	JIS	
1	CASCADE TANK	STEEL	SS400	1	6	SUCTION VALVE	BRONZE	CAC402	2
2	BUCKET	STEEL SPONGE	SS400	3SETS	7	DISCHARGE SCREW DOWN CHECK VALVE	〃	〃	2
3	No.1 FEED PUMP	CAST IRON	FC200	1	8	DRAIN INLET VALVE	〃	〃	1
4	No.2 FEED PUMP	〃	〃	1	9	DRAIN BY-PASS VALVE	〃	〃	1
5	ATMOS. CONDENSER	STEEL AL BRASS	STPG370 C6870T	1	10	LEVEL CONTROL VALVE	CAST IRON	FC200	1

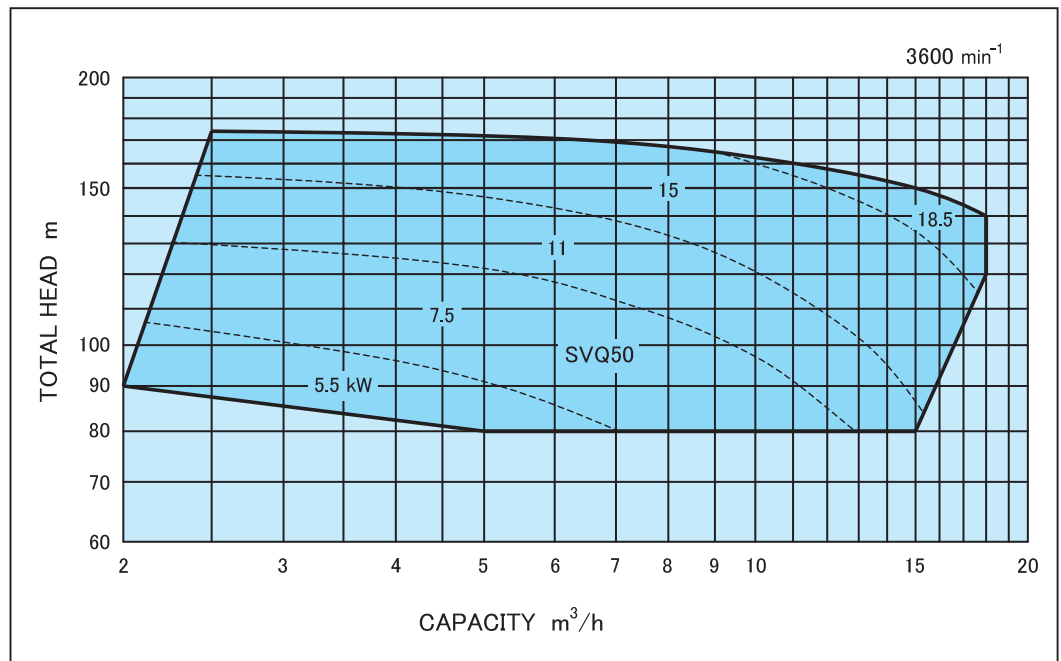
## ● DESIGN & STANDARD MATERIALS FOR PUMP

PART NO.	NAME OF PART	MATERIAL		REQ.NO. FOR 1PUMP
		NAME	JIS	
1	VOLUTE CASING	※	※	1
2-1	VOLUTE COVER	∕	∕	1
2-2	VOLUTE COVER	∕	∕	1
5	MOTOR BED	CAST IRON	FC200	1
16	IMPELLER	PHOSPHOR BRONZE	CAC502A	1
17	IMPELLER	∕	∕	1
18	IMPELLER SHAFT	STAINLESS STEEL	SUS403	1
22	SLEEVE	∕	∕	1
24	INTREMEDATE SLEEVE	∕	SUS329J1	1
38A	MOUTH RING	BRONZE	CAC403	1
38B	MOUTH RING	∕	∕	1
39	CASING RING	CARBON		1
45	SEALING RING	SYNTHETIC RESIN		1
47	GLAND	BRONZE	CAC406	1
49	COUPLING	DUCTILE CAST IRON	FCD400	1
50	COUPLING	∕	∕	1
50B	SPACER	STEEL	SS400	1
54	GLAND PACKING	CARBONIZED FIBER		1SET
144	BRACKET	STEEL	SS400	1
373	COUPLING BOLT NUT & WASHER	∕	SS400B	1SET

Note ※ : DUCTILE CAST IRON (FCD400) for GLR rule  
CAST IRON (FC200) for other rules



## ● PERFORMANCE CHART



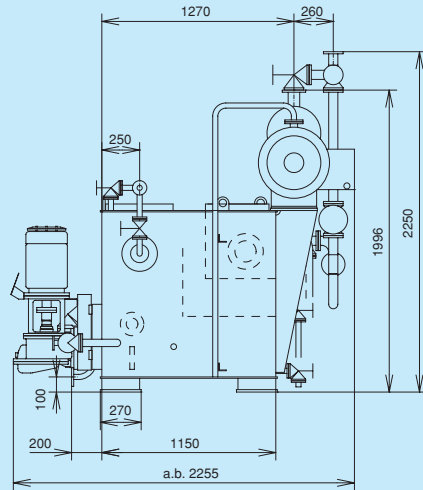
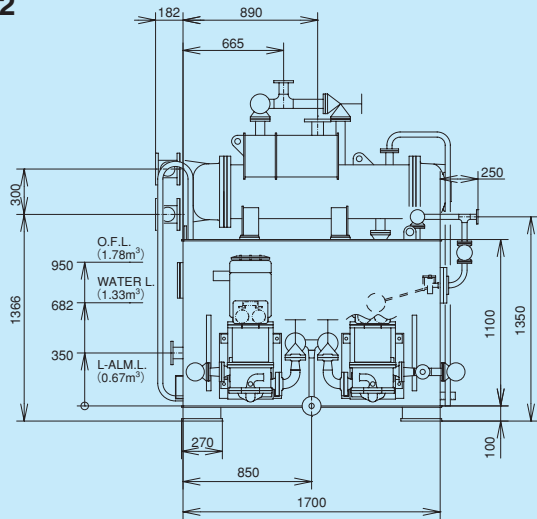
## ● STANDARD ACCESSORIES

- Discharge pressure gauge ..... 1
- Suction compound gauge ..... 1
- Gauge board ..... 1
- Gauge root valve ..... 2

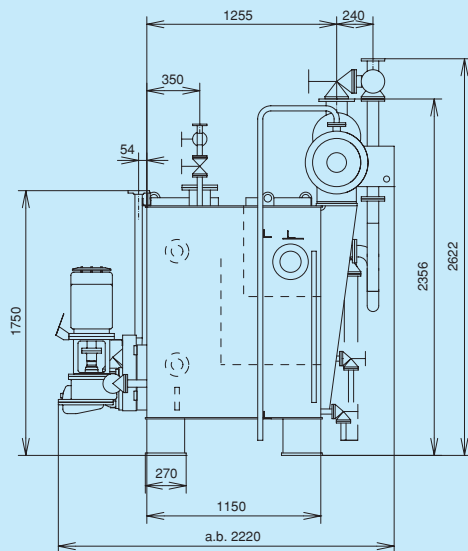
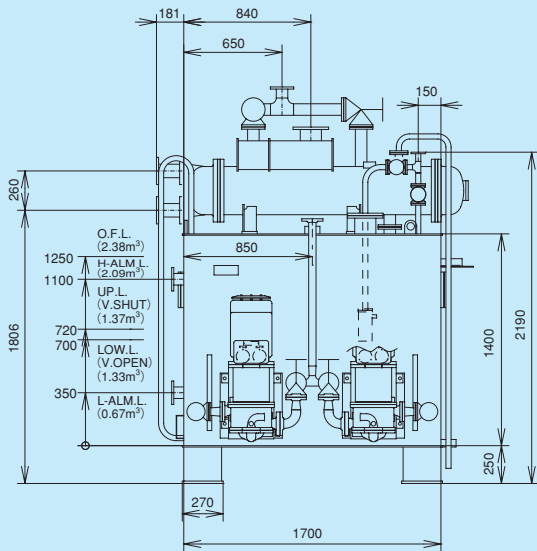
## ● STANDARD SPARE PARTS

- The number of each spare part is 1 set for all units of the same application and model.
- Gland packing or mechanical seal
  - Coupling bolts & nuts (option)
  - Mouth rings (option)
  - Casing ring (option)
  - Complete set of rotating element (option)

### UC 102



### UC 152



### UC 202

