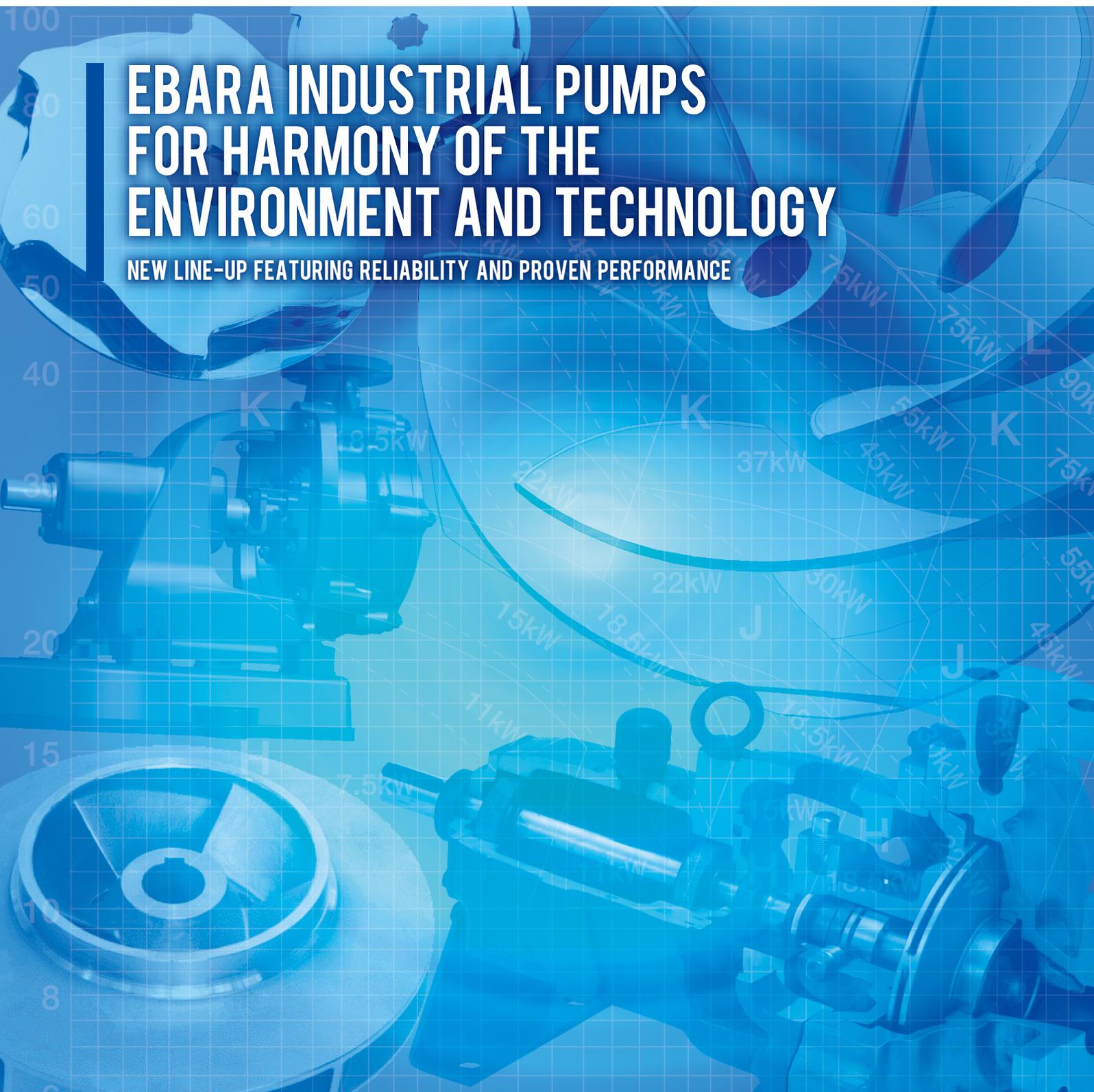


INDUSTRIAL PUMPS GENERAL CATALOGUE

**EBARA INDUSTRIAL PUMPS
FOR HARMONY OF THE
ENVIRONMENT AND TECHNOLOGY**

NEW LINE-UP FEATURING RELIABILITY AND PROVEN PERFORMANCE



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FRESH-WATER PUMPS

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SELF-PRIMING PUMPS

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VACUUM PUMPS

Water Ring Vacuum Pump	Model NVD / NV	P30
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EBARA CONSTANTLY STRIVES TO MEET YOUR NEEDS FOR RELIABILITY AND PERFORMANCE

Throughout the changing times, Ebara has consistently created products for reliability and safety, in pace with the ever-diversifying technologies. Each and every product in the extensive Ebara line-up is imbued with this theme. And once Ebara products start operation, we keep them in perfect condition by using our global service network to maintain close communication with our customer.

At Ebara, our aim is to always do our best, with reliability and customer needs as our guidelines.

Notes for product pages;

1 Regarding "water" in liquid specification

Fresh water is tap water, industrial water, or well water, whose pH is 5.8 to 8.6, chloride ion concentration is 200 mg/L max., and free residual chlorine concentration is 1 mg/L max.

2 In case that location is indoor, installation condition is as follows,

Ambient temperature: 0 to 40°C, relative humidity: 85% max. (without condensation), elevation: 1000 m max., without corrosive gas, explosive gas, and steam.

		Shape	End suction centrifugal				
		Impeller	Closed Impeller				
		Model codes in this line is our model code.	GS	GSS	IFW	SXA	NW
		Features					Sealless/ Stainless Magnet
FOOD INDUSTRY	LOW VISCOSITY (up to 100cP)		●	●	●	●	●
	MIDDLE VISCOSITY (up to 400cst)				●		
	HIGH VISCOSITY (more than 400cst)						
	STARCH, MOLASSES, WORT				●	●	
	FILTRATION PUMP						
	SANITARY PUMP						
	CLEANING IN PLACE PUMP				●	●	
	CONCENTRATION AT LOW TEMPERATURE						
PAPER AND PULP INDUSTRY	MATERIAL PRODUCTION PROCESS	AROUND DIGESTER			●		
		BLEACHING FACILITY				●	
		CHEMICAL RECOVERY			●		
	PREPARATION PROCESS	PULP PUMP					
		CHEMICAL PUMP			●	●	
		FAN PUMP					
	PAPER MAKING PROCESS	PULP PUMP (0.3% and below)		●	●		
		PULP PUMP (more than 0.3%)					
RECYCLED WASTE PAPER	PULPER DRAW PUMP						
PETROCHEMICAL INDUSTRY	CHEMICAL PROCESS			●	●		●
INORGANIC CHEMICAL INDUSTRY	ACID			●	●	●	●
	ALKALI		●	●	●	●	●
SEMICONDUCTOR INDUSTRY	ULTRAPURE WATER PRODUCTION LINE	RO MEMBRENE FEED PUMP					
		PURE WATER PUMP		●	●	●	
		WATER TREATMENT LINE					
MOTOR VEHICLE INDUSTRY	MACHINING LINE	COOLANT INDIVIDUAL					
		COOLANT CENTRALIZATION			●		
	PAINTING LINE	DEGREASING WASHING	●	●	●	●	
		ACID WASHING					
		CHEMICAL CONVERSION TREATMENT.		●	●	●	
	ELECTRODEPOSITION PAINT			●			
STEEL INDUSTRY	ROLLING FACILITY	DESCALING PUMP					
		SCALE PIT PUMP			●		
	PLATING FACILITY			●	●		
METAL GOODS INDUSTRY	PLATING FACILITY	DEGREASING WASHING	●	●	●	●	
		ACID WASHING					
		PLATING SOLUTION					
		RINSE WATER DRAINAGE		●	●	●	
FISHERIES INDUSTRY	AQUACULTURE	SEA WATER			●		

End suction centrifugal									Double suction centrifugal	Multi-Stage	Vertical			Vacuum	
Semi-open Impeller					Open Impeller		Special Impeller		Closed Impeller					Semi Open Impeller	-
SAL	TFS	TFSQ	FPS	FPSQ	TLS	ULP	ULK	IFMZ	CB	CN	MSS/MSSA	EVM/EVMS/EVMR	VY/VZ	VWS	NVK/NVE/NVF
		Self-priming	Plastic	Plastic Self-priming											
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The pump models stated are guideline only, and please look at the specification of each pump for optimum pump selection.

FOOD INDUSTRY

The point of selection	EBARA* Model
Many stainless pumps are used	GSS IFW, TFS SXA NW TFSQ
Filtration pump : Flocculant mixed (Diatomaceous earth) ⇒Select semi-open impeller type (Check concentration of diatomaceous earth)	SAL TFS, TLS
Around final process ⇒ Sanitary pumps are used.	Not available
CIP(Cleaning In Place, Cleaning without disassembling product line and tank.): Caustic soda solution and warm water are used. Pumps for product filling and collection (vacuum drawing operation occurs)	GSS IFW TFS, TFSQ SXA
Starch, molasses, wort etc. ⇒Select knife-edge type mechanical seal	IFW TFS, TLS
Concentration at low temperature ⇒Use vacuum pump	NVK NVE

PAPER AND PULP INDUSTRY

The point of selection	EBARA* Model
Material production process, From wood chip to bleaching Around digester : Need to consider high temp./high press.	ULP IFW
Bleaching process: Chemical pump High corrosion resistance is required as chlorine dioxide or hydrogen peroxide solution is used for bleaching.	ULP FPS
Chemical recovery process: Black liquor, green liquor, white liquor Corrosion and wear are to be considered.	ULP TFS IFW SAL
Preparation process: Refinery →Bleaching→Input Pulp pump	ULP
Chemical pump	TFS IFW SXA
FAN-PUMP (Machine input pump) Countermeasure against pulsation and surface treatment (buff polishing) etc. are specified..	CN
Paper-making process : Pulp and white liquor Pulp: Recovery White liquor: Water came out of dehydrated paper The pump to be used is determined with pulp density. Pulp density 0.3% and below: Water pump Pulp density more than 0.3%: Pulp pump	GSS IFW TFS ULP
Recycled waste paper Around pulper equipment: Non-clogging characteristic is required. Around flotator of DIP line: Bubbles are always generated.	ULK IFMZ TLS

*The code in this line is our model code.

PETROCHEMICAL INDUSTRY

The point of selection	EBARA* Model
As there are many products, various liquids are handled. In many cases, specifications (operating condition, construction, materials) are specified. ⇒To obtain data sheet is necessary.	GSS IFW TFS, TLS TFSQ NW

SEMICONDUCTOR INDUSTRY

The point of selection	EBARA* Model
Ultrapure water production process RO membrane feed water pump: High press. Stainless pump around 2MPa Pure water supply pump: Stainless pump with oil free treatment (Mech. seal: Sic/Carbon)	MSS, MSSA GSS IFW EVM, EVMS, EVMR SXA
Water treatment process Corrosion resistance pump: Including fluoric resin pump. (Mech. seal: Ouside mech. seal + fluorineO-ring + splash prevention cover)	FPS, FPSQ EVM, EVMS, EVMR

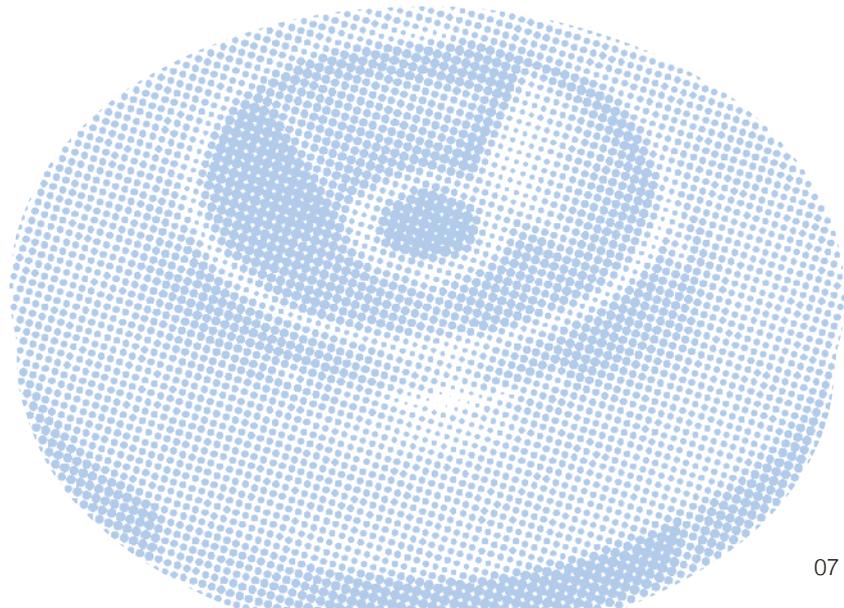
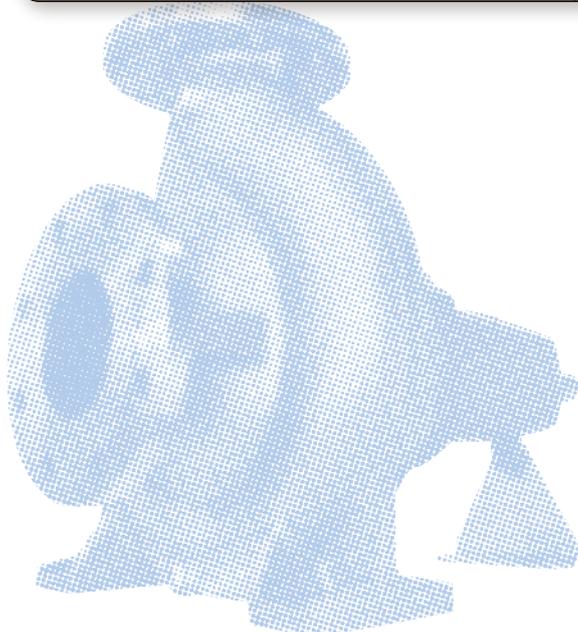
INORGANIC CHEMICAL INDUSTRY

The point of selection	EBARA* Model
Acid, alkali and corrosive liquid are handled. Selection of material is key point. Select pump material referring to material of piping and tank. Acid liquid: Stainless, Special alloy, Engineering plastic	GSS FSS, IFW TFS, TFSQ FPS, FPSQ, SXA NW
Alkaline liquid : All iron, Stainless	GS, GSS IFW TFS SXA TLS

MOTOR VEHICLE INDUSTRY

The point of selection	EBARA* Model
Machining line : Coolant pump Individual line: Coolant pump is attached to machine tool. ⇒Vertical coolant pump specially made for coolant application	EVM, EVMS, EVMR
Centralized processing line: Batch processing in pit.	IFW, SAL TFS, TFSQ VWS
Paint line (Base coat /Electrodeposition coating) Degreasing washing process: All iron or stainless pump	GS, GSS IFW, SXA TFS, TLS
Acid washing : Corrosion resistance pump	FPS, FPSQ
Chemical conversion treatment : Stainless pump	IFW, SXA
Electrodeposition paint: All iron or stainless pump, (Horizontal type + Knife edge double mech. seal)	IFW, TFS SXA

*The code in this line is our model code.



STEEL INDUSTRY

The point of selection	EBARA* Model
Scale pit drainage SS (Iron oxide) concentration. Above 1% : Wear resistance pump ppm level : Water pump + option 50 ppm and below : Standard water pump	IFW CN TFS, TLS TFSQ SAL VWS VY, VZ
Plating equipment for surface treatment steel sheets : Corrosion resistance pump (Plastic, rubber lined, special metal)	FPS, FPSQ IFW
Rolling process equipment : Select coolant pump	IFW, SAL TFS, TLS TFSQ
Lance cooling pump for converter furnaces, and cooling pumps for other equipments	MS420 CN IFW TFSQ

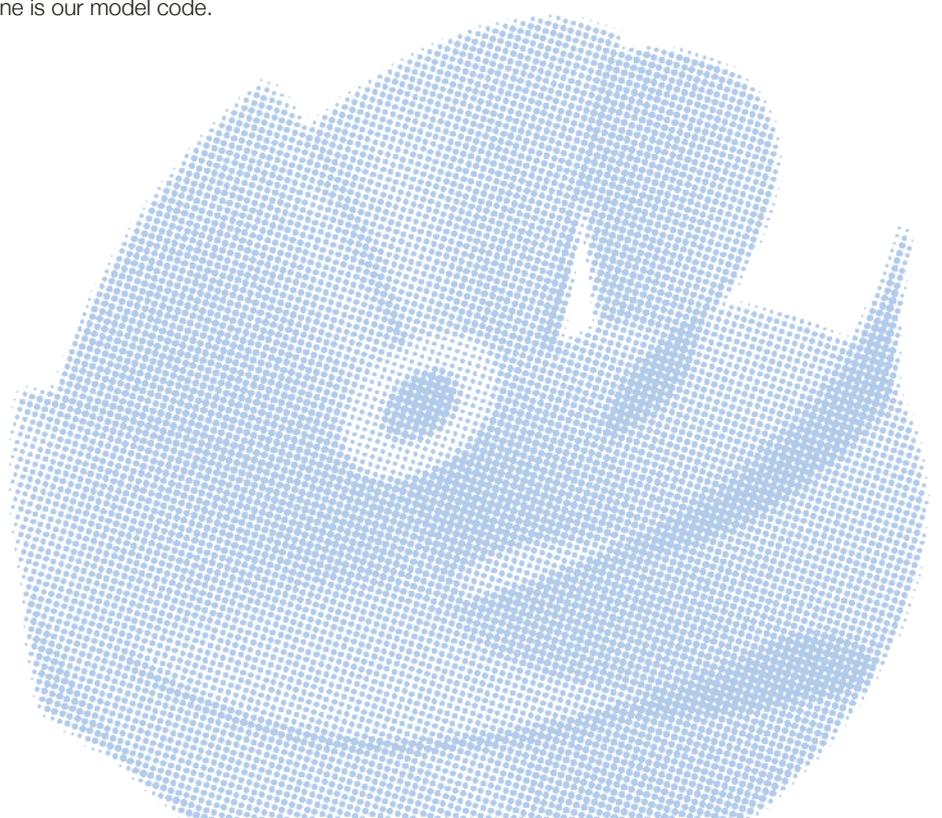
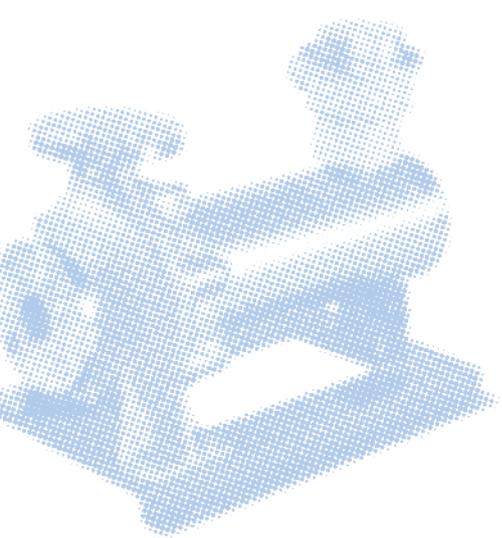
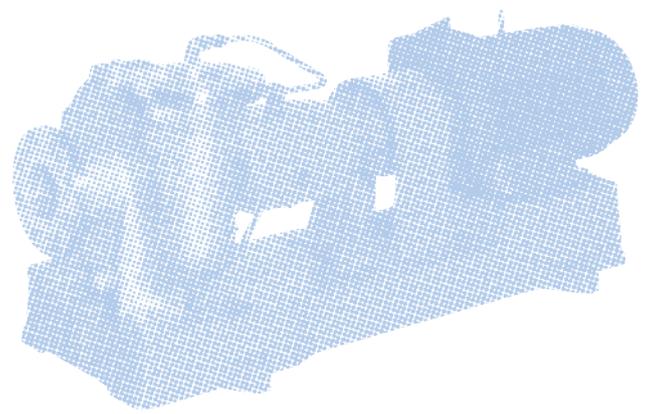
METAL GOODS INDUSTRY

The point of selection	EBARA* Model
The pumps for this industry are mainly for plating equipment.	GS, GSS IFW, SXA
Degreasing washing : Alkaline (mainly caustic soda.): Select all iron or stainless steel pump	SXA FPS
Acid washing process ; Chloride, sulfuric acid etc. Select corrosion resistance pump.	FPSQ FPS, FPSQ (Certain liquid may not be applicable)
Plating solution : Corrosion resistance pump	
Rinse water drainage : Low concentration ⇒Select stainless pump.	GSS, IFW, TFS TFSQ SXA

FISHERIES INDUSTRY

The point of selection	EBARA* Model
Sea water intake Negative suction : Pay attention to long distance suction piping. Transfer sea water to hypochlorous acid generator	FPS, FPSQ CN, IFW
Supply sea water to the fisheries facilities. Filter circulation.	FPS IFW

*The code in this line is our model code.



EBARA Industrial Pumps Representative models

S l u r r y



MODEL SAL
CHROMIUM CAST IRON

M u l t i s t a g e

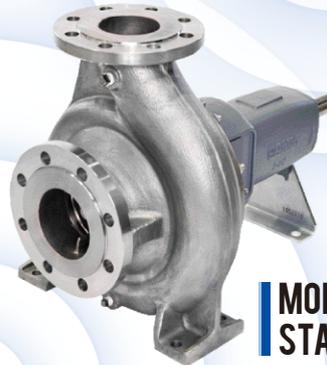


MODEL MSSA
CAST STEEL

MODEL GS
CAST IRON

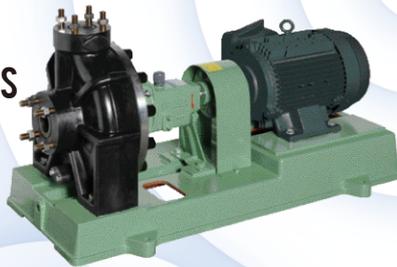


MODEL GSS
STAINLESS

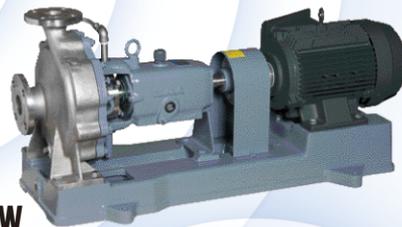


C e n t r i f u g a l

MODEL FPS
PLASTIC



MODEL IFW
CAST IRON, STAINLESS



MODEL SXA
STAINLESS CAST STEEL



S e a l - l e s s

MODEL CB
CAST IRON



D o u b l e s u c t i o n

MODEL IFW (CAST IRON)

Food Industry
Paper and Pulp Industry
Petrochemical Industry

Inorganic Chemical Industry
Semiconductor Industry
Motor Vehicle Industry

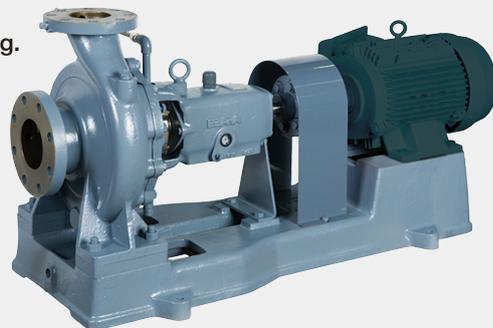
Steel Industry
Metal Goods Industry
Fisheries Industry

END SUCTION PROCESS PUMP

Features

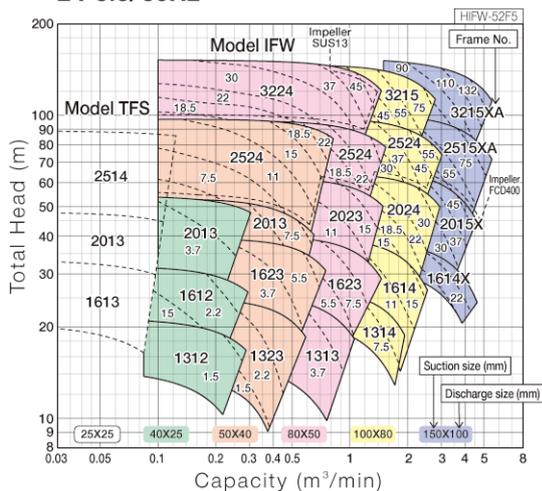
- The main dimensions are compliant with ISO standards (ISO 2858).
- Disassembly and inspection are possible without removal of the main piping.
- Useful for a wide variety of applications.

Liquid	Specification	Water, Chemical water
	Temperature	-15 to 150°C (*1)
Allowable suction pressure		0.9MPa (9.1kgf/cm ²) (*2) (Mechanical seal)
Max. Operating Pressure		1.37MPa (14kgf/cm ²)
Construction	Impeller	Closed
	Gland packing, Mechanical seal (Single, Double):Balance	
	Shaft seal	Knife edge seal (*3) Flexible disk Coupling RUBBFLEX type (*4)(*5)
	Flushing	Plug, Self-flushing, External-flushing, Quenching type
	Bearing	Ball bearings/Oil bath
Flange		JIS10KFF
Materials	Casing	FC250
	Impeller	FC200/FCD400/SCS13/SCS14
	Shaft	S36C, SCM440 (*2), SUS304/SUS316/SUS403/SCM440
	Shaft sleeve	SUS403/SUS304/SUS316
	Gland packing	PTFE
	Casing gasket	PTFE
Mechanical seal		SiC/Carbon, SiC/SiC

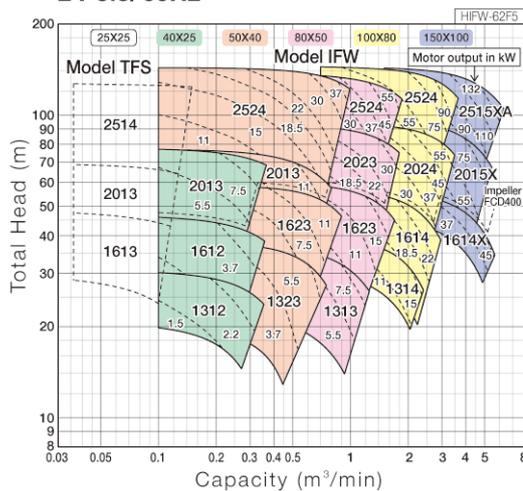


*1. Ethyleneglycol-based brine: At -15 to -11°C, with methanol quench pot.
Calcium-chloride-based brine: At -15 to 0°C, with methanol quench pot. (Select a SCS product.)
If the pump is frequently used, please contact us.
*2. It varies depending on the model. Please contact us.
*3. PILLAR KNIFE EDGE SEAL is made by Nippon Pillar Packing co., Ltd.
*4. There are some restrictions depending on the electric motor output.
*5. Toyo RUBBFLEX Couplings are made by Toyo Tire & Rubber Co., Ltd.

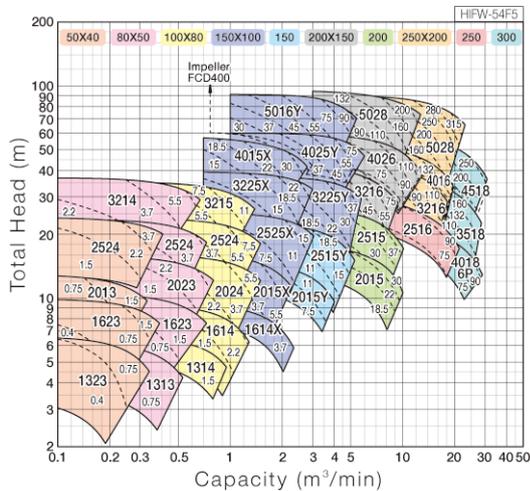
2 Pole/50Hz



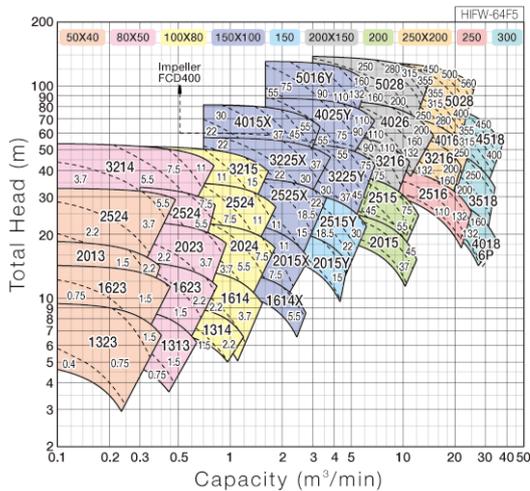
2 Pole/60Hz



4 Pole/50Hz



4 Pole/60Hz



MODEL TFS

Food Industry
Paper and Pulp Industry
Petrochemical Industry
Inorganic Chemical Industry

Motor Vehicle Industry
Steel Industry
Metal Goods Industry

END SUCTION PROCESS PUMP

Features

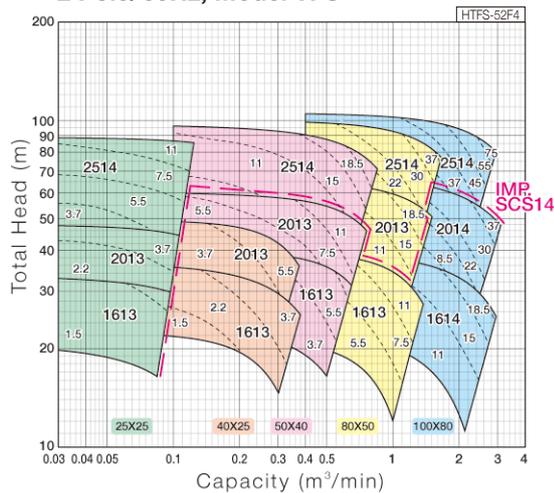
- Disassembly and inspection are possible without removal of the suction and discharge piping.
- For shaft sealing, various mechanical seals are available in addition to gland packing.
- The clearance before the impeller can be adjusted with ease by laminating adjustment sheets and shims.



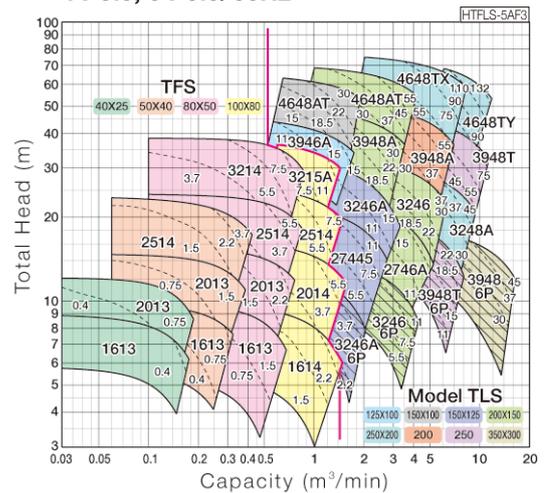
Liquid	Specification	Water/Chemical water	
	Temperature	-29 to 150°C	
	Density	0.7 to 1.0kg/L	
Allowable suction pressure		0.3MPa (3kgf/cm ²)	
Max. working pressure		1.37MPa (14kgf/cm ²)	
Construction	Impeller	Semi-open type	
	Shaft seal	Gland packing, External-flushing, Mechanical seal	
	Bearing	Ball bearings, Oil bath	
Flange		JIS10K FF	
Materials	Casing	Cast iron type	JIS10K RF
	Impeller	FC250	Stainless type
	Shaft	FC200/SCS14	SCS14
	Shaft sleeve	S35C	SCS14 (*1)
	Shaft sleeve	SUS403	SUS316 (*1)
Coupling		Disk type	
Coupling guard		Enclosure type with hinges	

*1. It is available only model which standard casing material is cast iron.

2 Pole/50Hz, Model TFS



4 Pole, 6 Pole/50Hz



MODEL TLS

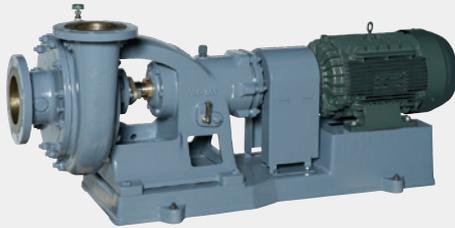
Food Industry
Paper and Pulp Industry
Petrochemical Industry

Inorganic Chemical Industry
Motor Vehicle Industry
Steel Industry

END SUCTION PROCESS PUMP

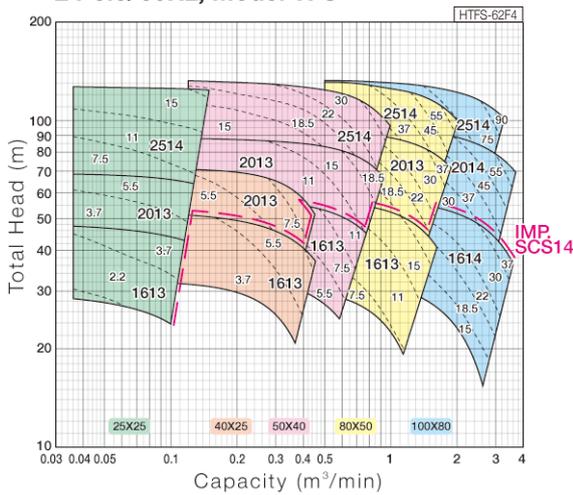
Features

- Since the casing has a structure dividable into three parts, easy assembly and disassembly of the pump is possible without removal of the casing from the discharge piping.
- The clearance between the impeller and the front side plate can be adjusted from the outside without disassembly of the pump. Accordingly, replacement of the impeller is possible in a short time.
- No damage is given to the shaft due to the use of a labyrinth seal.
- For shaft sealing, various mechanical seals are available in addition to gland packing.

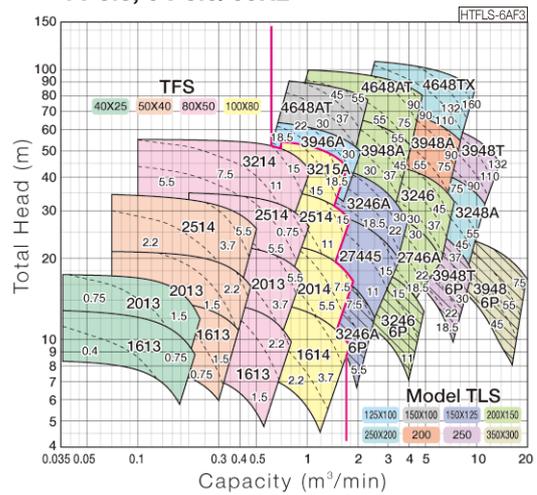


Liquid	Specification	Water/Chemical water	
	Temperature	-29 to 150°C	
	Density	0.7 to 1.0kg/L	
Allowable suction pressure		0.3MPa (3kgf/cm ²)	
Max. working pressure		0.68 to 1.27MPa (7 to 13kgf/cm ²)	
Construction	Impeller	Full-open type	
	Shaft seal	Gland packing, External-flushing, Mechanical seal	
	Bearing	Ball bearings (Oil bath)	
Flange		JIS10K RF	
Materials		Main stainless type	Stainless type
	Casing	FC200	SCS13
	Impeller	SCS13	SCS13
	Shaft	SUS304	SUS304
	Shaft sleeve	SUS304	SUS304
		SUS304 coating processed SUS316 coating processed	
Coupling		Disk type	
Coupling guard		Enclosure type with hinges	

2 Pole/60Hz, Model TFS



4 Pole, 6 Pole/60Hz



MODEL GSS

Building
Food Industry
Paper and Pulp Industry
Inorganic Chemical Industry

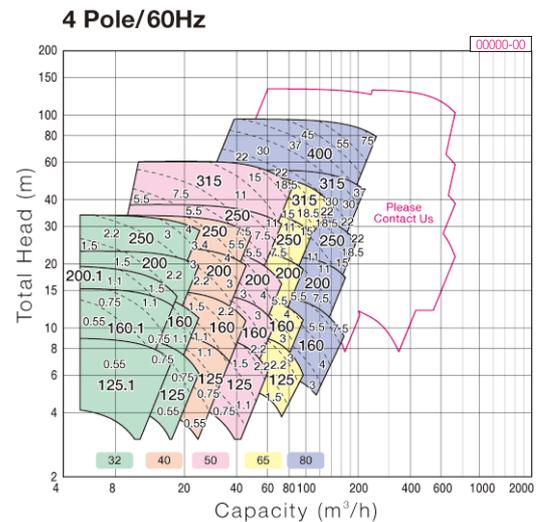
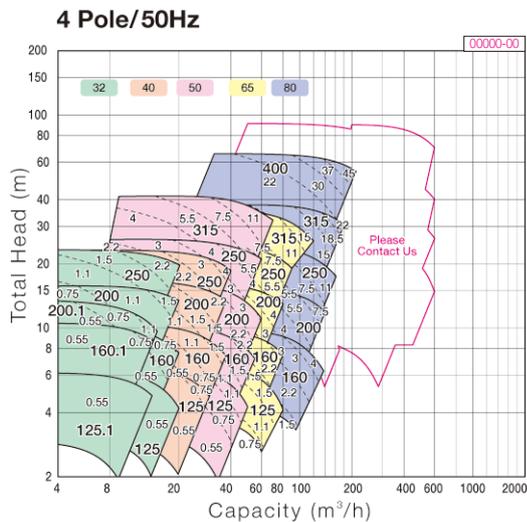
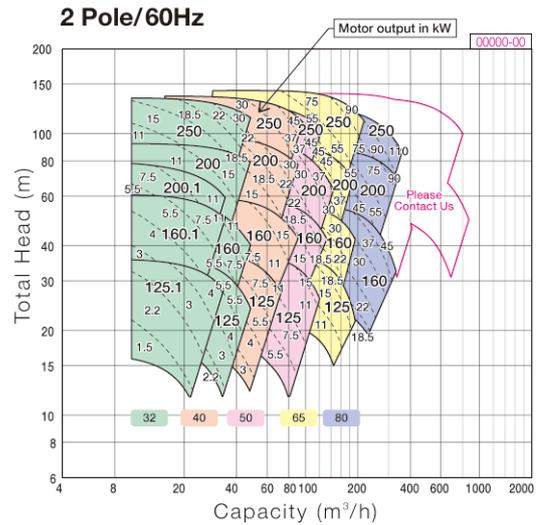
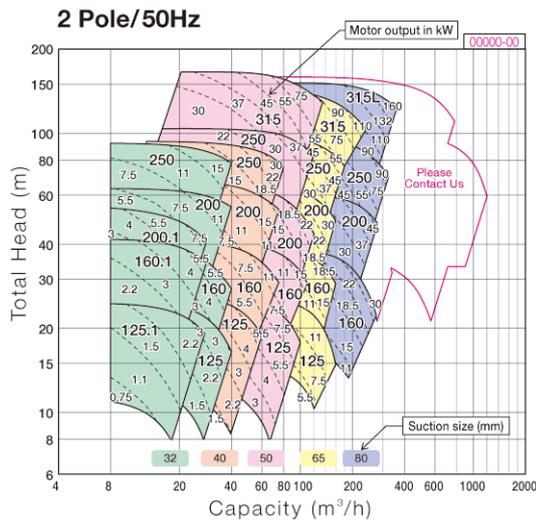
END SUCTION PROCESS PUMP

Features

- World top class pump efficiency achieved ($MEI \geq 0.4$)
- Simple maintenance
- Pump specifications
- Pump dimensions adopt EN733

Liquid	Temperature	-25 to 140°C
Max. Operating Pressure		Up to 16bar(1.6MPa)for standard flange DIN-PN16 Up to 14bar(1.4Mpa)for standard flange JIS 10K
Flange		EN1092-1, JIS B 2220
Construction	Impeller	Closed
	Shaft seal	Mechanical Seal, Gland Packing
	Flushing	N/A, Self, External
	Ball bearing	Shield ball bearing (grease lubrication)
Material	Casing	SCS13, SCS14A
	Impeller	SCS13, SCS14A
	Shaft	SUS329J3/S35C (*1)
	Case wear ring	SUS316
	Shaft sleeve	N/A, SUS304/SUS316 (in case of Gland packing or some mechanical seal)
	O-ring	FKM, EPDM

*1. Wetted part only



MODEL GS

Building
Food Industry

END SUCTION VOLUTE PUMP

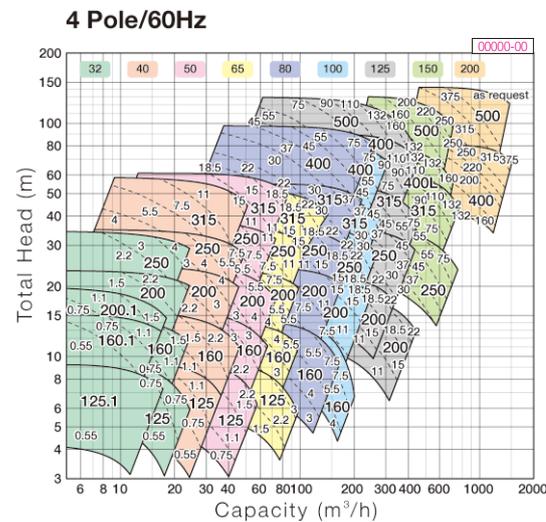
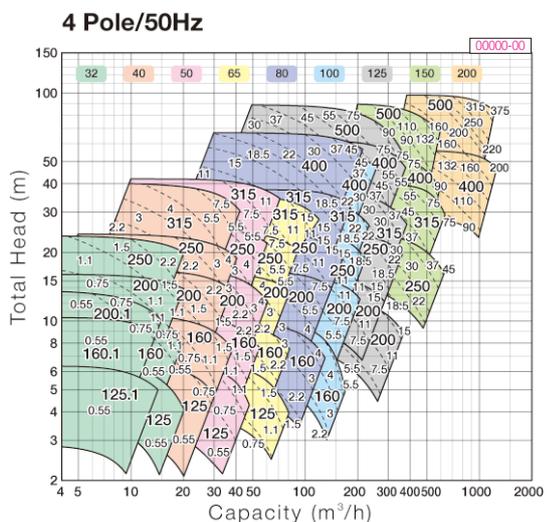
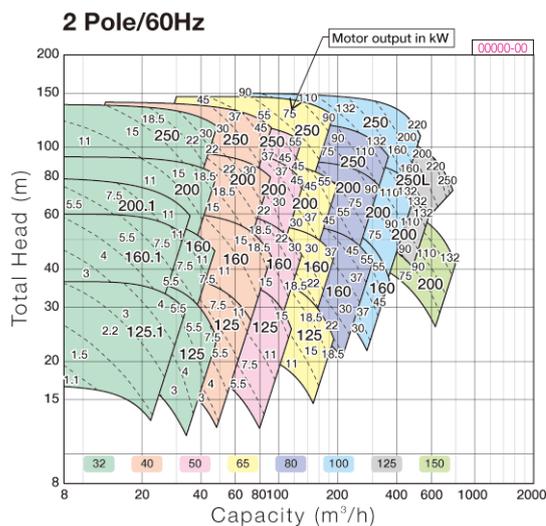
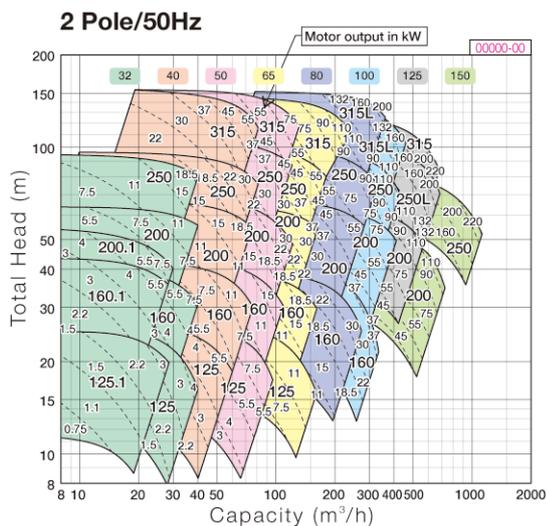
Features

- World top class pump efficiency achieved ($MEI \geq 0.4$)
- Simple maintenance
- Pump specifications
- Pump dimensions adopt EN733



Casing Material	Cast Iron	Ductile Cast Irons (Larger than pump model 100X80)
Liquid	-10 to 140°C	-10 to 140°C
Max. Operating Pressure	Up to 16bar (1.6MPa)/for standard flange DIN-PN16 Up to 14bar (1.4MPa)/for standard flange JIS 10K	Up to 25bar (2.5MPa)/for standard flange DIN-PN25 Up to 25bar (2.5MPa)/for standard flange JIS 20K
Flange Standard	EN1092-2, JIS B 2239	EN1092-2, JIS B 2239
Construction	Impeller	Closed
	Shaft seal	Mechanical Seal, Gland Packing
	Flushing	N/A, Self, External
	Ball bearing	Shield ball bearing (grease lubrication)
Material	Casing	FC250
	Impeller	FC250 or FCD400 (*1), CAC406, SCS13
	Shaft	SUS431 eq. or SUS420J2, SUS329J3/S35C (*2)
	Case wear ring	CAC406, FC150
	Shaft sleeve	N/A, SUS304 (Gland packing or some mechanical seal)
	O-ring	NBR, FKM, EPDM

*1. Impellers made of ductile cast iron are applied only the pumps model GS100-400, 125-400, 125-500, 150-400, 150-500, 200-400 and 200-500.
*2. Wetted part only



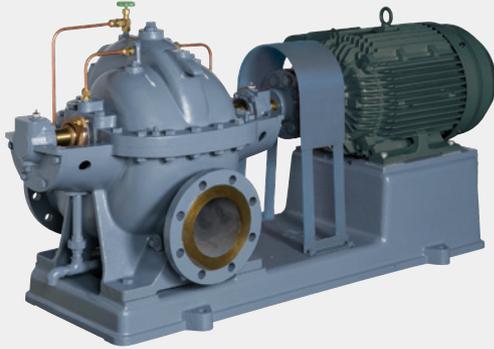
MODEL C-N

Paper and Pulp Industry
Steel Industry
Fisheries Industry

DOUBLE SUCTION VOLUTE PUMP

Features

- Split case design permits easy disassembly and maintenance.
- Double suction with advanced design of suction performance ensures high suction lifts even with large capacities.



Liquid	Specification	Water, Industrial water
	Temperature	0 to 120°C (*1)
Allowable Suction Pressure		Up to 0.49 (Up to 5 kgf/cm ²) (*2)
Max. Operating Pressure		0.98, 1.37, 1.96, 2.15MPa (*3) (10, 14, 20, 22kgf/cm ²)
Construction	Impeller	Close
	Shaft seal	Gland packing, Mechanical seal Water-cooled shaft seal
	Flushing	Self, External
	Bearing	Ball bearings (grease lubrication), Oil bath
Flange	Suction side	JIS 10K RF
	Discharge side	JIS 10K RF (*3), JIS 20K RF (*3)
Materials	Casing	FC250 or FCD400 (*3)
	Impeller	FC200 or CAC406 (*4) or SCS13 (*5)(*3)
	Shaft	S35C or SCM440 (*4) or SUS403
	Shaft sleeve	CAC406 or SUS403 or SUS304
Other		All stainless, Main section stainless, Epoxy paint (Wetted part)

*1. Extra-flushing and water-cooled shaft seal above 80°C.

*2. In case of below Max. Operating Pressure.

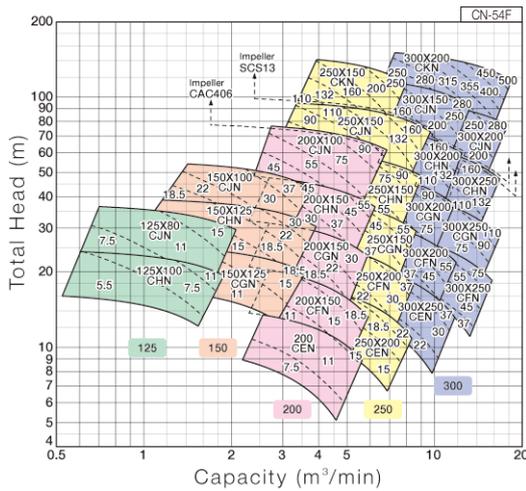
*3. In case from 0.245 to 0.49MPa, materials of shaft sleeve and gland packing will be changed.

*4. It varies depending on the model. Please contact us.

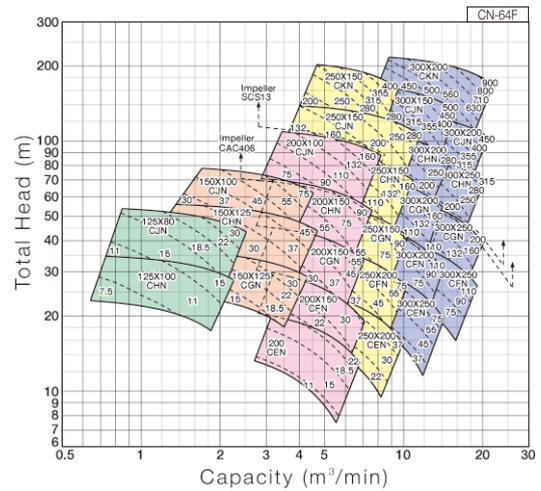
*5. It is available only model which standard impeller material is FC200.

*6. It is available only model which standard impeller material is FC200 and CAC406 (It is not available below 150A suction size.)

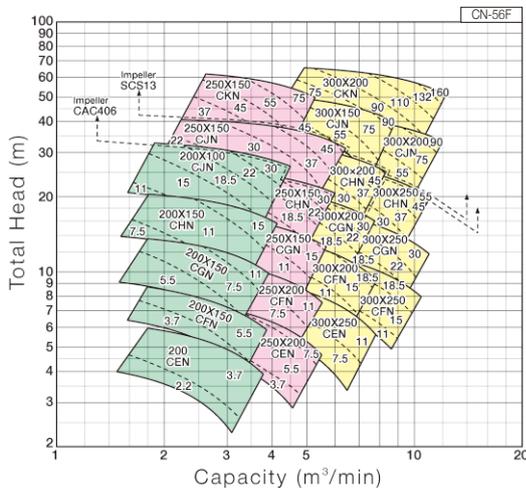
4 Pole/50Hz



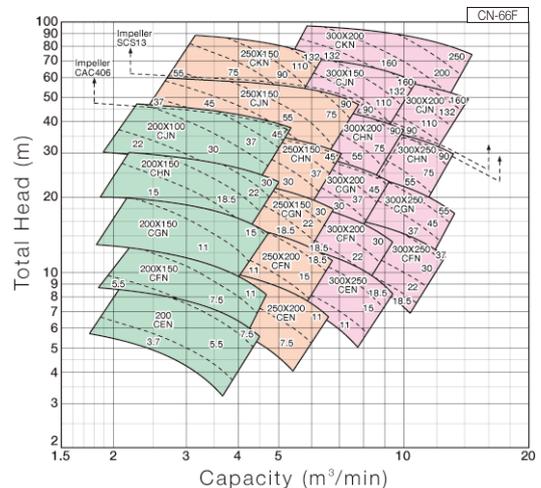
4 Pole/60Hz



6 Pole/50Hz



6 Pole/60Hz



MODEL SZ

Building
Agriculture
Pool

HORIZONTAL MIXED FLOW VOLUTE PUMP

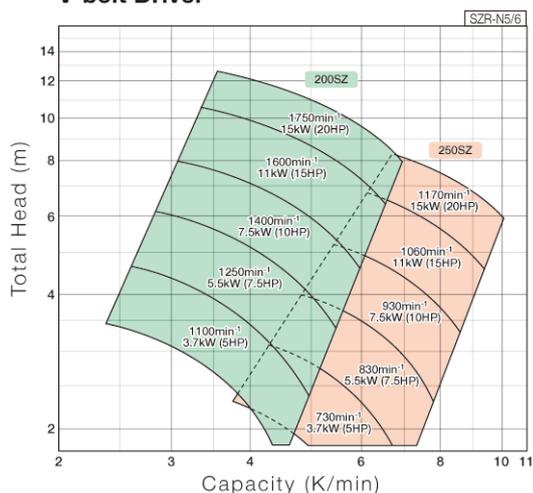
Features

- Centrifugal mixed-flow which suitable for low-head and large capacity.
- Power consumption is constant over all capacity range and driver will not be overload at larger capacity points.

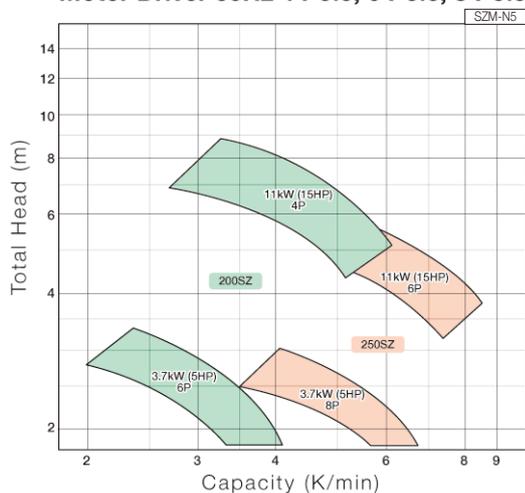
Liquid	Specification	Fresh water, Rain water, River water
	Temperature	0 to 80°C
Allowable suction pressure (In case of below Max. working pressure)		Funnnel
Max. working pressure		0.13MPa(1.4kgf/cm ²)
Structure	Impeller	Semi-open
	Shaft seal	Gland packing, Grease packed in gland parts
	Flushing	Self
	Bearing	Ball bearings
	Base	Common base (V-belt driven)
Flange		JIS 10K RF
Materials	Casing	FC200
	Impeller	FC200
	Shaft	S35C



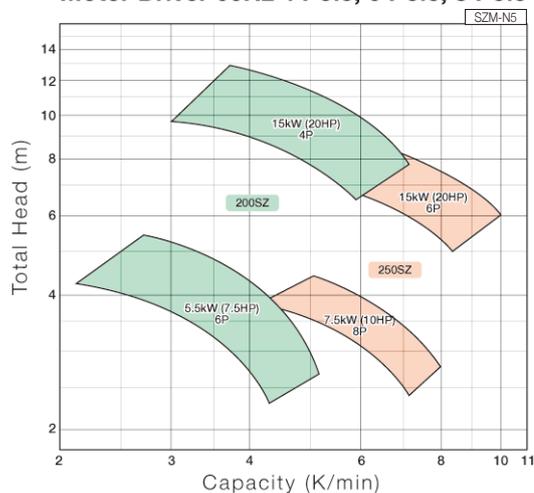
V-belt Driver



Motor Driver 50Hz 4 Pole, 6 Pole, 8 Pole



Motor Driver 60Hz 4 Pole, 6 Pole, 8 Pole



MODEL MS230

Building
General Industry

MULTISTAGE VOLUTE PUMP

Features

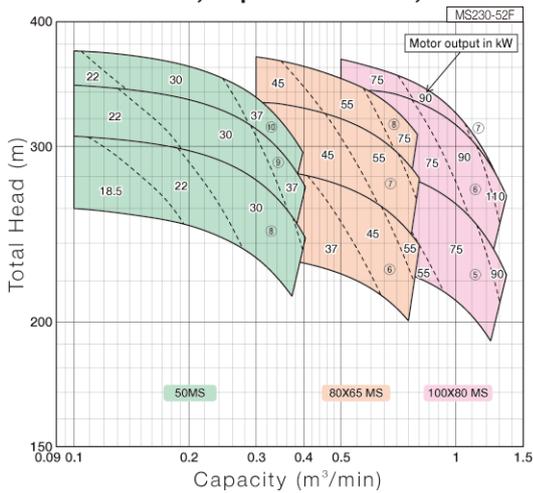
- Compact and lightweight.
- A revolutionary double volute system is used.
- Compatible with pumping discharge in a wide range.
- A thrust balancing method using a balance disk is adopted.



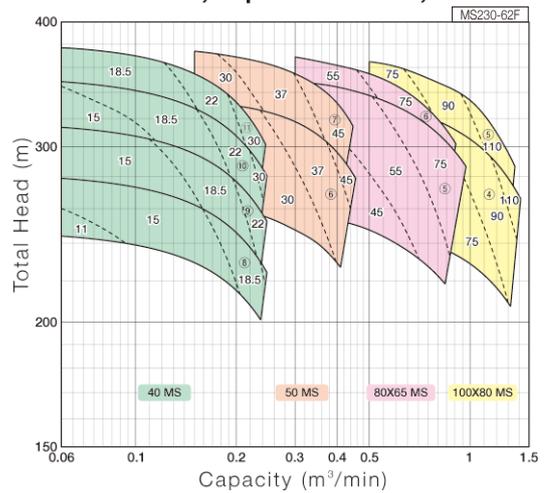
Liquid	Specification	Water			
	Temperature	0 to 110°C (*1)			
	Allowable suction pressure	0.4MPa (4kgf/cm ²) (*2)			
	Max. working pressure	3.92MPa (40kgf/cm ²)			
Construction	Impeller	Closed			
	Shaft seal	Gland packing			
	Flushing	Self, External			
	Bearing	Sleeve metal (Oil ring)			
Flange	Suction side	JIS10K RF			
	Discharge side	JIS30K RF			
Materials (*3)		Standard type	Stainless type	All iron	Main parts stainless
	Suction casing	FC200	SCS13	FC200	FC200
	Intermediate casing	FCD400	SCS13	FCD400	FCD400
	Discharge casing	SC480	SCS13	SC480	SC480
	Impeller	CAC406	SCS13	FC200	SCS13
	Shaft	SCM440	SUS630	SCM440	SUS630
	Shaft sleeve	CAC406	SUS316	SUS403	SUS316
Location		Outdoors			

*1. Boiler feed is below 104°C.
In case of above, it is needed to change casing materials.
*2. In case of below Max. Operating Pressure.
*3. FC200/FCD400/SCS13/FCD540K is applicable for casing.

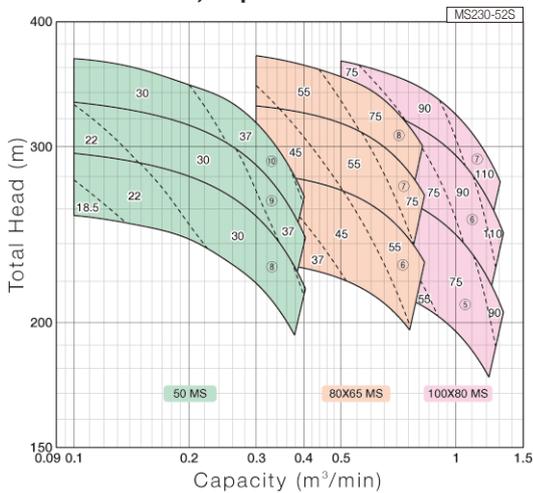
2 Pole/50Hz, Impeller: CAC406, FC200



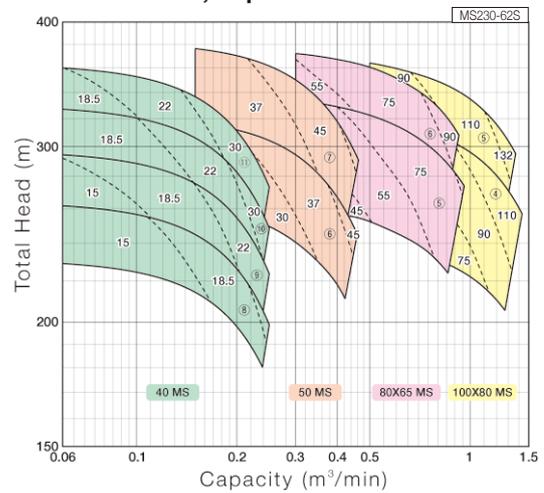
2 Pole/60Hz, Impeller: CAC406, FC200



2 Pole/50Hz, Impeller: SCS13



2 Pole/60Hz, Impeller: SCS13



* No. in circle means No. of stage.

MODEL MS420

Building
General Industry

MULTISTAGE VOLUTE PUMP

Features

- Thanks to a double volute system without guide vanes, high efficiency can be maintained in a wide range of the pump discharge.
- A simple structure provides long-term durability and prevents unpleasant noise.

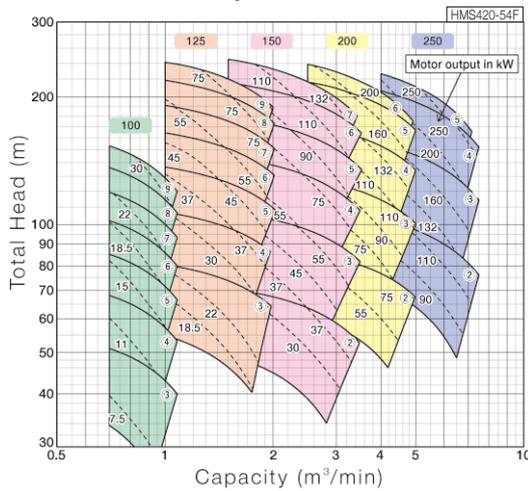
Liquid	Specification	Water		
	Temperature	0 to 104°C (*1)		
Total suction head		-6m (20°C), Bore size 200:-5m		
Allowable suction pressure		0.4 to 0.7MPa (4 to 7.1kgf/cm ²) (*2)		
Max. working pressure		2.15 or 2.74MPa (22 or 28kgf/cm ²)		
Construction	Impeller	Closed		
	Shaft seal	Gland packing		
	Flushing	Self, External		
	Bearing	Roller bearing (gease lubrication)		
Flange	Suction side	JIS10K (normal type) RF		
	Discharge side	JIS16K RF or 20K RF		
Materials		Standard type	All iron	Main parts stainless
	Casing	FC200 (FOD400)	FC200 (FOD400)	FC200(FOD400)
	Impeller	CAC406	FC200	SCS13
	Shaft	S35C	S35C	SUS630
	Shaft sleeve	CAC406	SUS403	SUS316

*1. Bearing and gland are water-cooled type.

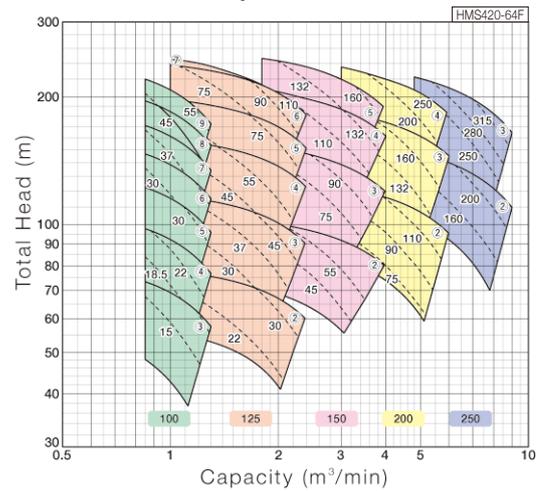
*2. Materials of shaft sleeve and gland packing will be changed.



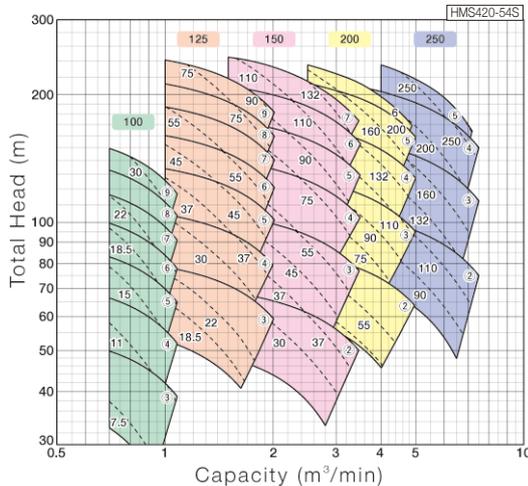
4 Pole/50Hz Impeller



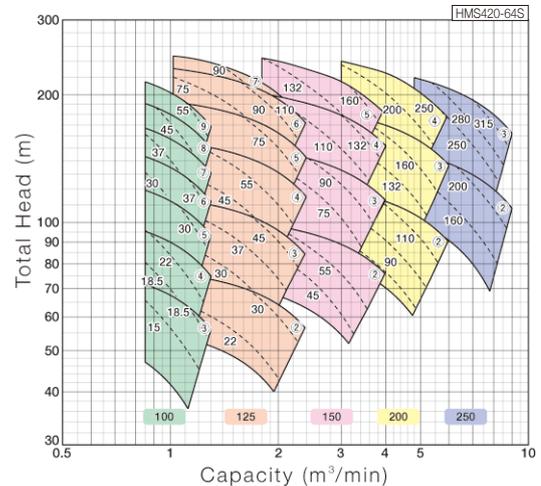
4 Pole/60Hz Impeller



4 Pole/50Hz Impeller



4 Pole/60Hz Impeller



* No. in circle means No. of stage.

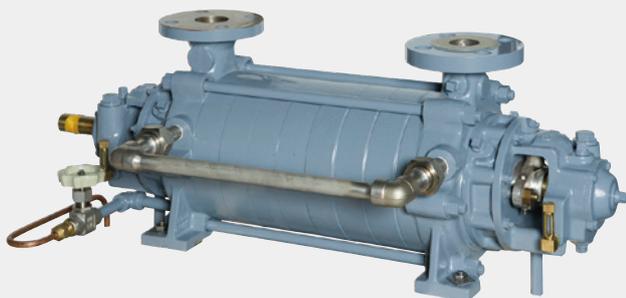
MODEL MSS

Semiconductor Industry
Steel Industry

MULTISTAGE TURBINE PUMP

Features

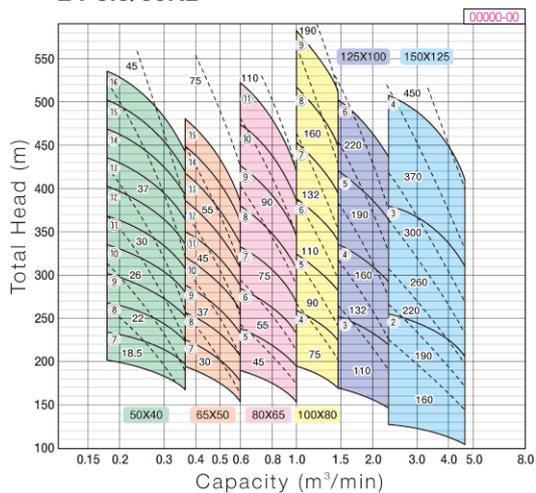
- The specially designed impeller of the first stage achieves low NPSHR to prevent cavitation.
- The thrust of all shafts is completely balanced by the balance disk.



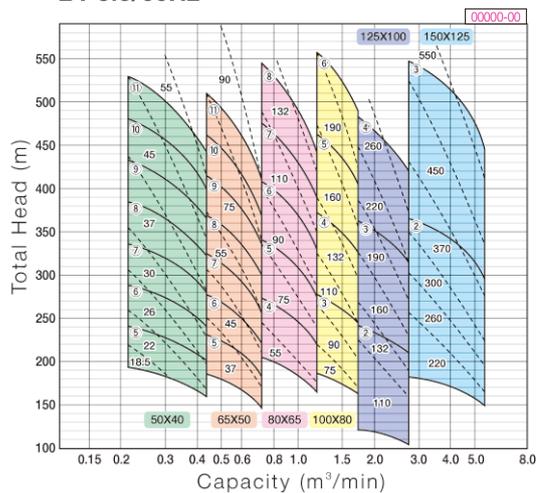
Liquid	Water (*1)/Boiler feed water (0 to 165°C)	
Suction requirement	Positive suction pressure or boost	
Allowable suction pressure	0.8MPa	
Construction	Impeller	Closed
	Shaft seal	Gland packing, Mechanical seal
	Bearing	Coupling side : Roller bearing Opposite coupling side : Ball bearing
Flange	Suction side	JIS10K (normal type) FF
	Discharge side	JIS20K RF, 30K RF, 40K RF
Materials		Stainless type
	Suction casing	FCD540-3K
	Intermediate casing	FCD540-3K/SCPH21
	Discharge casing	SCPH21
	Impeller	FCD540-3K
	Shaft	SCM435
	Shaft sleeve	SUS420J2
Nozzle direction	Bore size	50X40 to 100X80
	Suction	TOP
	Discharge	TOP

*1. Cannot be used with seawater and special liquid.

2 Pole/50Hz



2 Pole/60Hz



* No. in circle means No. of stage.

MODEL MSSA

Semiconductor Industry
Steel Industry

MULTISTAGE TURBINE PUMP

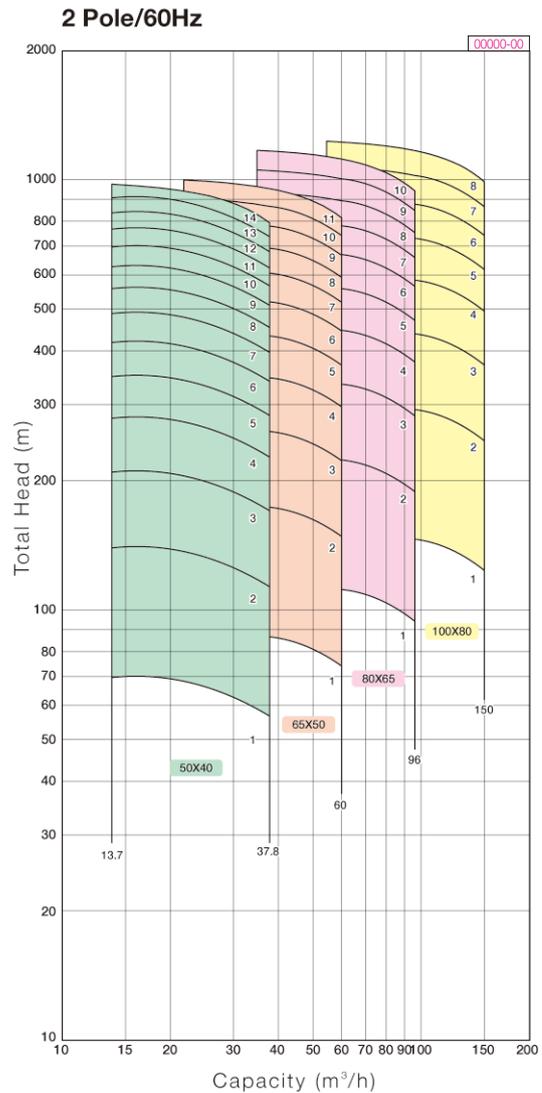
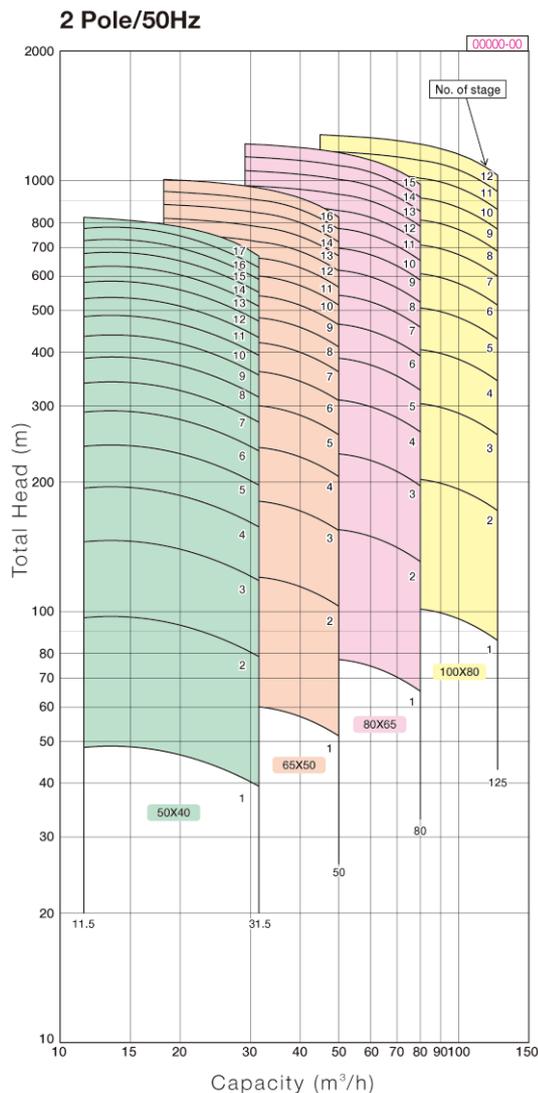
Features

- Low power consumption due to the higher efficiency.
- The specially designed impeller of the first stage achieves low NPSHR to prevent cavitation.
- The pump structure has the degree of freedom in nozzle arrangement, which allows the suction and discharge directions to be changed freely.

Liquid	Water (*1), Boiler feed water (0 to 165°C)	
Suction requirement	Positive suction pressure or boost	
Allowable suction pressure	0.8MPa	
Construction	Impeller	Closed
	Shaft seal	Non-flushing mechanical seal
	Bearing	Coupling side : Roller bearing Opposite coupling side : Ball bearing
Flange	Suction side	JIS10K (normal type) RF
	Discharge side	40K RF/63K RF
Materials	Suction casing	SCPH21
	Intermediate casing	SCPH21
	Discharge casing	SCPH21
	Impeller	CA6NM (*2)
	Shaft	SCM440
	Shaft sleeve	SUS304

*1. Cannot be used with seawater and special liquid.

*2. Compliant with ASTM Standards (set by ASTM International) and equivalent to SCS6.



MODEL FPS

Paper and Pulp Industry
Inorganic Chemical Industry
Semiconductor Industry
Motor Vehicle Industry

Steel Industry
Metal Goods Industry
Fisheries Industry

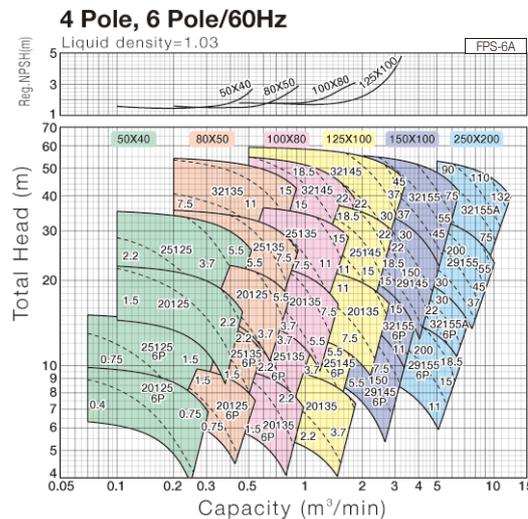
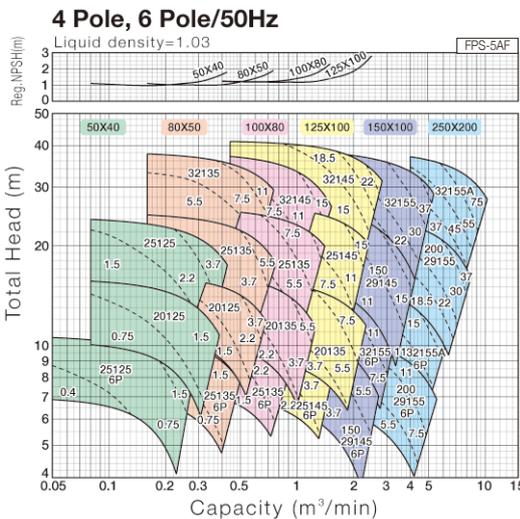
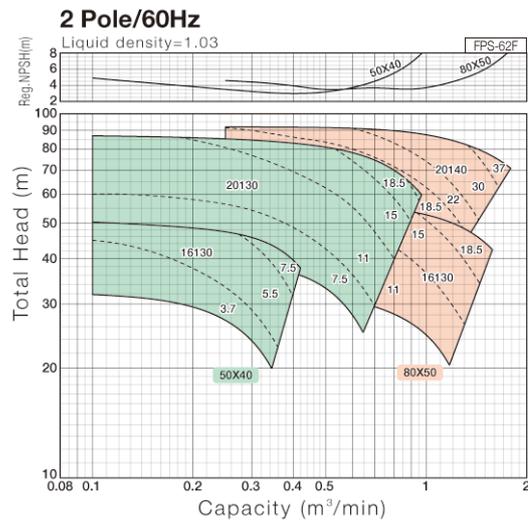
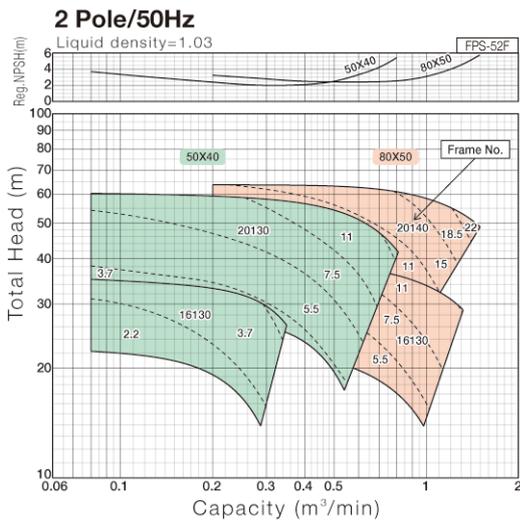
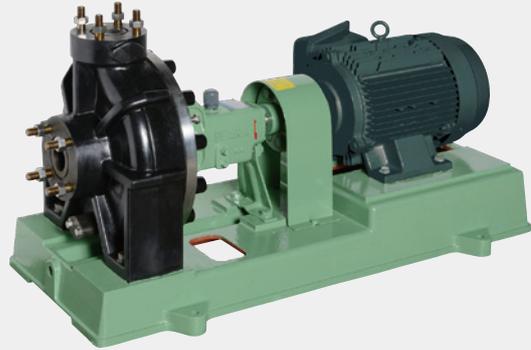
PLASTIC PUMP

Features

- Features high efficiency and low NPSHR due to its ideal flow path that is made of a thermosetting resin and by casting RIM molding.
- Excellent corrosion resistance against corrosive liquid like acid and seawater, in which stainless steel is immersed.
- Can be subjected to incineration disposal because no glass fiber reinforced materials are used.
- Low-noise pump thanks to its silence design.
- Light weight and Back Pull Out (BPO) design for easy maintenance.

Liquid	Specification	Seawater/Hotspring water/Chemical liquid
	Temperature	-5 to 80°C
	Density	1.0 to 1.6kg/L
Allowable suction pressure	0.2MPa (2.0kgf/cm ²)	
Construction	Impeller	Semi-open type
	Shaft seal	Gland packing, Self-flushing, Mechanical seal
	Bearing	Ball bearings/Oil bath, Grease packed
Flange	JIS10K or equivalent (*1)	
Materials	Casing	PDCPD (*2)
	Impeller	PDCPD/SUS316
	Shaft	SUS316
	Shaft sleeve	SUS316, Titanium, PDCPD, SUS329J4L
Location	Indoor/Outdoor	

*1. The mating dimensions are the same as those of JIS standards products, but there are some differences in appearance and dimension.
*2. Polydicyclopentadiene



1) NPSH varies with pump model. Consult applicable performance curves to determine NPSH.
2) Figures inside the broken lines are motor output with liquid density of 1.03kg/l(sea water).
3) Req.NPSH for 125X100-20, 150-29, 200-29 depends on pump specifications. Please contact us.

MODEL ULK

Paper and Pulp Industry

CLOGLESS VOLUTE PUMP

Features

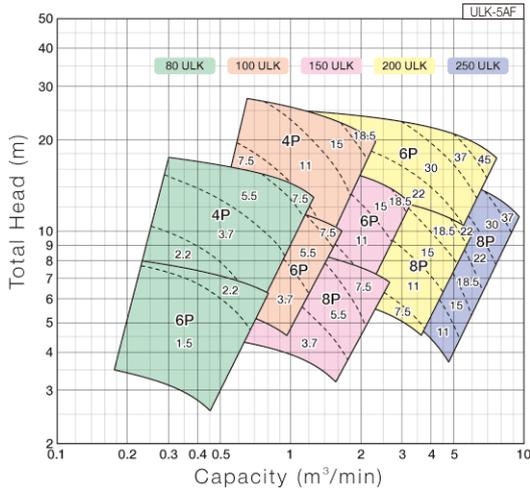
- Equipped with a specially designed clogless impeller that prevents the pump from being clogged even if the flowing liquid contains foreign matter such as sewage and excretion.



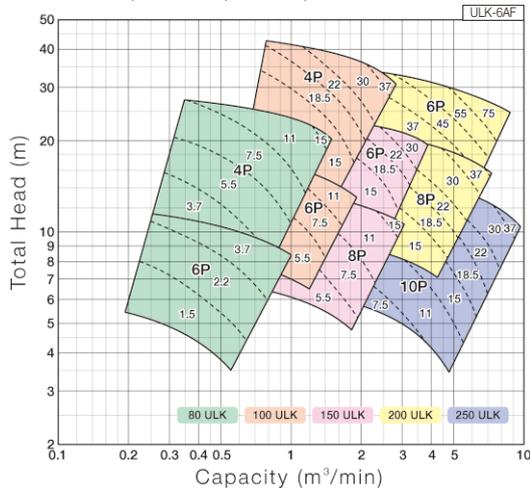
Liquid	Specification	Waste water/Waste solids/Sludge/Pulp
	Temperature	0 to 80°C
Allowable suction pressure		0.3MPa {3kgf/cm ² }
Max. working pressure		0.64MPa (6.6kgf/cm ²) Bore 250: 0.32MPa {3.3kgf/cm ² }
Construction	Impeller	Non-clog type
	Shaft seal	Gland packing, Non-flushing seal/Flushing seal
	Flushing	External flushing
	Bearing	Ball bearings/Oil bath
Flange		Special
	Casing	FC200
Materials (*1)	Suction cover	FC200, HCrFC
	Impeller	FC200, SCS13/HCrFC
	Shaft	S35C, SUS304/SUS403
	Shaft sleeve	SUS403, SUS316/SUS403 coating processed
Drive system (Option)		V belt-driven
Others (Option)		Epoxy paint in wetted parts, New base

*1. All iron material combination is applicable.

4 Pole, 6 Pole, 8 Pole/50Hz



4 Pole, 6 Pole, 8 Pole, 10 Pole/60Hz



MODEL IFMZ

Paper and Pulp Industry

SCREW VOLUTE PUMP

Features

- Non-clogging.
- Easy flow control with little flow fluctuation.
- Less reduction in pump head when highly concentrated liquid is used.
- Compact design.
- Excellent resistance against a piping load.



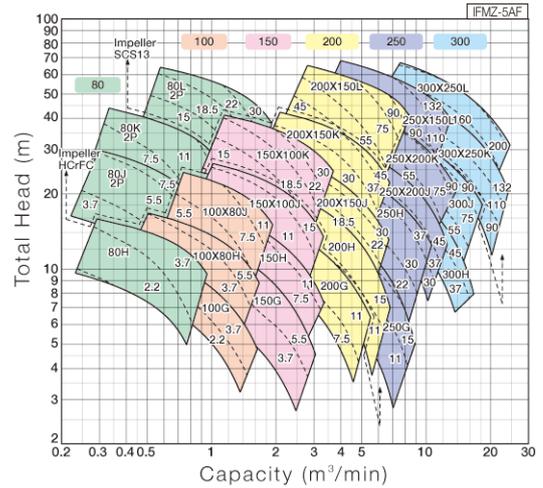
Liquid	Specification	Waste water/Waste solids/Sludge/Pulp
	Temperature	0 to 80°C
	Particle size	Max. passage particle size 33 to 200mm (*1)
Allowable suction pressure		0.088 to 0.196MPa(G) (*1)
Max. working pressure		0.52 to 1.37MPa(G) (*1)
Location		Indoor/Outdoor
Construction	Impeller	Screw spiral
	Shaft seal	Gland packing/ Half-split seal (Flushing type/Non-flushing type)
	Flushing	External/Non
	Lubrication	Oil bath
	Casing support type	Bracket support (80H,100G,100X80H,150G) Foot support (besides of above models)
Flange		Special
	Casing	FC250 (*2)
Materials	Suction cover	high-chrome cast iron
	Impeller	high-chrome cast iron (*3)
	Shaft	S35C
	Shaft sleeve	SUS403

*1. It varies depending on the model.

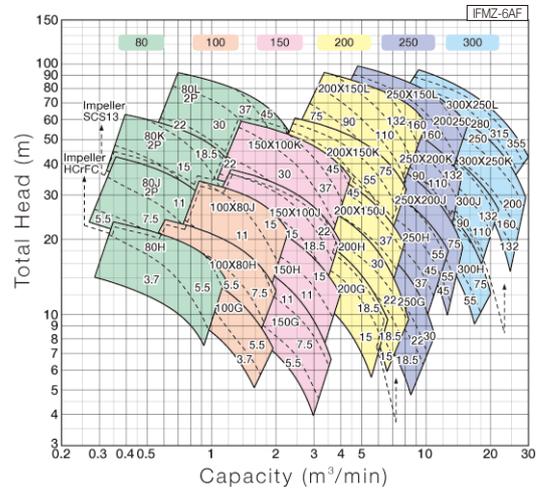
*2. High-chrome cast iron is applicable.

*3. Model 200X150IFMZL, 250X150IFMZL is SCS13.

50Hz 2 Pole, 4 Pole



60Hz 2 Pole, 4 Pole



MODEL SXA

Food Industry
Paper and Pulp Industry
Inorganic Chemical Industry
Semiconductor Industry

Motor Vehicle Industry
Steel Industry
Metal Goods Industry

SEAL-LESS PUMP

Features

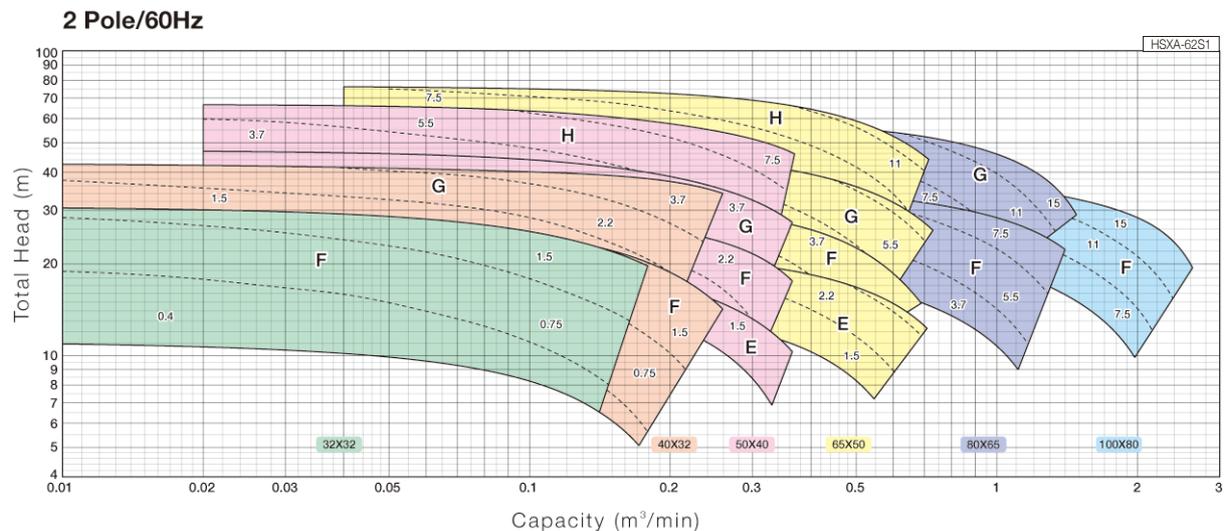
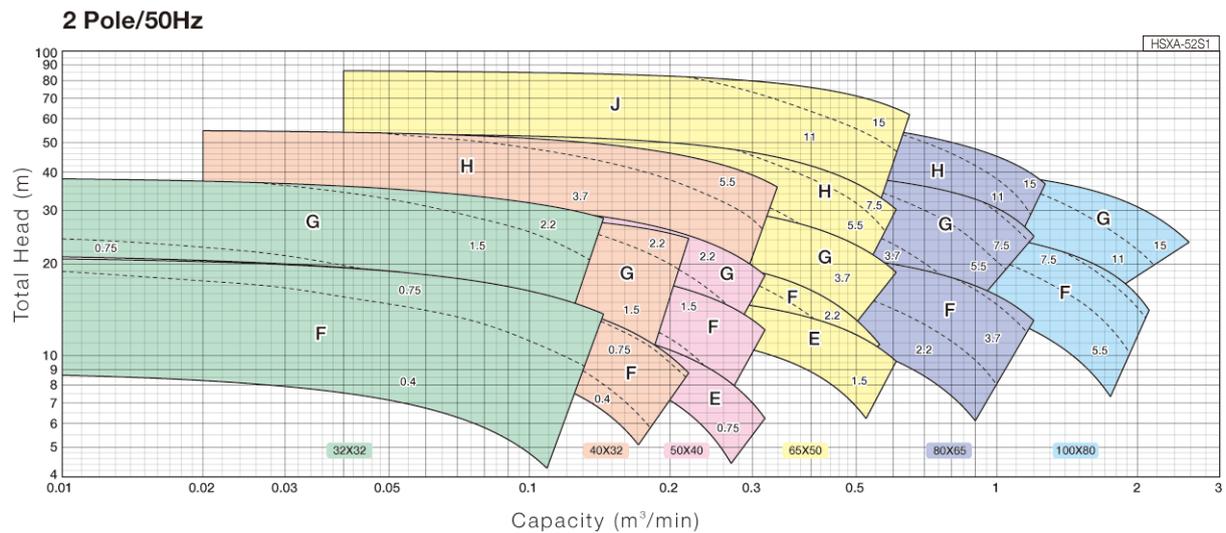
- Absence of shaft seal allows for handling hazardous, dangerous, costly fluids or other such applications. Peace of mind as there will be no environment contamination or fluid loss from leaks. Risk-free.
- No need adopt anti-freeze prevention measures for the shaft seal due to quench piping, even for low-temperature fluids.
- These are BPO (back pull-out) type pumps that allow easy disassembly and inspection without requiring the removal of suction/discharge pipes and heat/cold insulation materials.
- Maintenance is easy as it is oil-less and has no shaft seal
- This product is made for use in environments without explosive atmosphere.



Liquid	Specification	Water, Brine, Caustic soda, Chemical water
	Temperature	-30 to 100°C(0.4 to 11kW) -30 to 80°C(15kW)
	Density	0.7 to 1.5kg/L
	Viscosity	1.0mPa · s (1.0cP) , up to 100mPa · s (up to 100cP)
	Max. working pressure	1MPa (10.2kgf/cm ²)
Construction	Impeller	Closed
	Shaft seal	Non
Flange	Bearing	Sleeve bearing/Thrust plate
		JIS10K RF

Materials	Casing	SCS13
	Impeller	SCS13
	Shaft	SUS304
	Bearing	Carbon/SUS304+Hard chrome plating (*1)
	Can	SUS316L
Location		Indoor/Outdoor

*1. In case of over 90°C or density 1.1kg/L, bearing material will be changed to carbon/SUS316+Self-fluxing alloy surface hardening.



MODEL NW

Food Industry
Petrochemical Industry
Inorganic Chemical Industry

STAINLESS STEEL MAGNET PUMP

Features

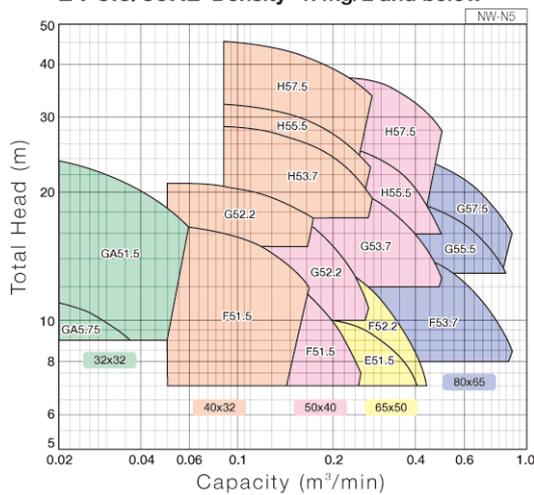
- Peace of mind as there is no shaft seal unit; eliminates risk of fluids leaks.
- These are BPO (back pull-out) type pumps that allow easy disassembly and inspection without requiring the removal of suction/discharge pipes and heat/cold insulation materials.
- As it is metal casting materials, it is heat-resistant, highly strength and resistant to corrosion.



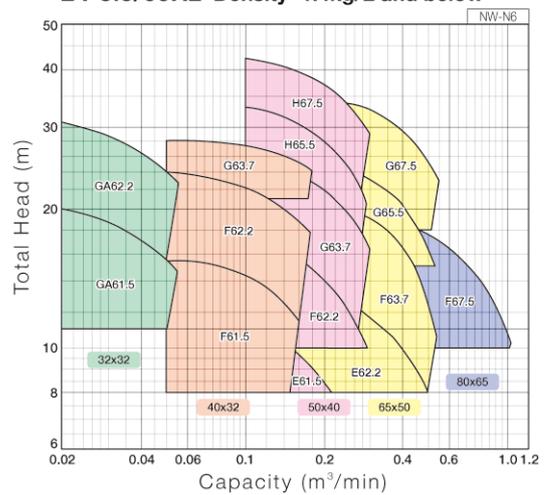
Liquid	Specification	Chemical water, Pure water, Oil
	Temperature	0 to 100°C
	Viscosity	below 100mPa · S (cP) , please contact us.
	Density	less than 1.0 kg/L, 1.2 kg/L, 1.4 kg/L Over 1.0kg/L (Please check a motor output) Over 1.3kg/L (Bearing:Special fine ceramic)
	Slurry	Not available
Suction total head		-6m (20°C)
Standard allowable suction pressure (In case of below Max. working pressure)		0.4MPa (4kgf/cm ²)
Max. working pressure		0.98MPa (10kgf/cm ²)
Construction	Impeller	Closed
	Shaft seal	Non
Flange		JIS 10K RF
Materials	Casing	SCS13
	Casing cover	SUS304
	Impeller	SCS13
	Magnet can	SUS316L
	Shaft	SUS304L
	Bearing (Fixed side)	Special carbon (*1), Special fine ceramic
Bearing (Rolling side)		Special fine ceramic
O-ring		Tetrafluoride resin
Location		Indoor, Outdoor

*1 Model 32x32 and motor output 7.5kW is special fine ceramic

2 Pole/50Hz Density=1.4kg/L and below



2 Pole/60Hz Density=1.4kg/L and below



1) In case that density is less than 1.0kg/L and 1.2kg/L, please contact us.

MODEL EVM

Semiconductor Industry

VERTICAL MULTISTAGE PUMP

Features

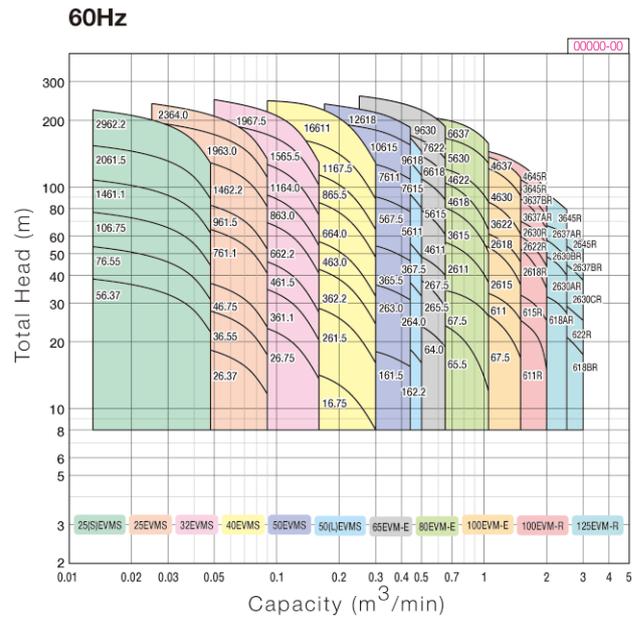
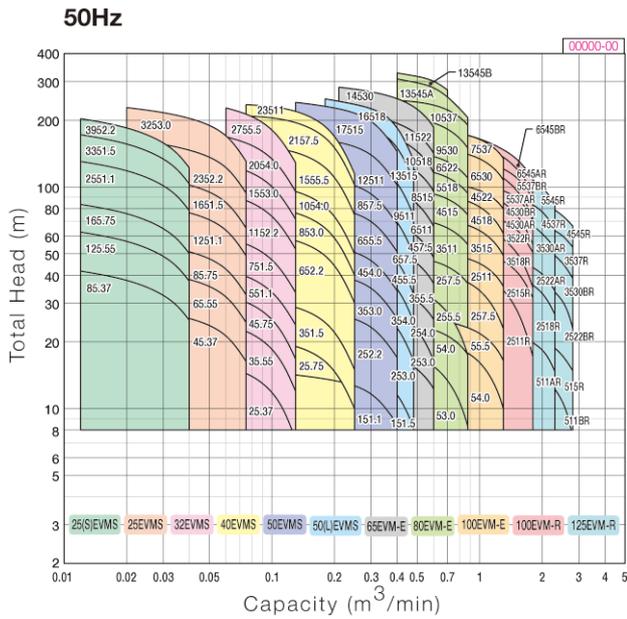
- High efficiency IE3 motor starting from 0.75 kW complied with the EuP 2005/32/EC and ErP 2009/125/EC directives.
- The VFD (Variable frequency drive) and the commercial sensor can be directly mounted on Model EVMS to maintain physical constant operations such as pumping pressure depending on the conditions of use.
- Various pipe connections are available depending on the application requirements Oval flange/Round flange/Loose flange.
- The external dimensions can be adjusted to the replacement of the existing pump in the wide majority.
- Easy maintenance
 - The cartridge mechanical seal enables the plug in replacement of the shaft seal without disassembling the motor bracket.
 - The spacer coupling allows easy maintenance without having to remove heavy motors over 5.5kW.
- Smart plug solutions
 - Air ventilation plug/Water filling & sensor plug/Commercial sensor fitting/Measurements for suction and discharge pressure/drain.



		Model EVMS	Model EVMR	Model EVM
Bore size		25,32,40,50mm	100, 125mm	65,80,100mm
Liquid	Specification	Water, Cutting fluid, Cleaning solution (*1)		
	Temperature	-30 to 140°C	-15 to 120°C	
Suction total head (*2)	50Hz	depend on the model		-5m (20°C)
	60Hz	depend on the model		-4m (20°C)
Construction	Impeller	Closed, Single liner ring		
	Casing	Lower	In-line	
		Stage	Return vane	Diffuser, Return vane
	Shaft seal	Cartridge mechanical seal		
	Bearing	Upper	Sealed ball bearing (in motor)	
Lower		Submerged sleeve		
Flange		JIS/DIN/ANSI	JIS/DIN	JIS/DIN/ANSI
	Casing	Lower	Cast iron, SUS304, SUS316	
		Stage	SUS304, SUS316	
Materials	Impeller	SUS304, SUS316		
	Shaft	SUS304,SUS316,SUS329	SUS316, SUS431	SUS316
	Liner ring	SUS304 + PPS	Carbon fiber + PPS + PTFE (bore size:100)	SUS304 + PTFE
		SUS316 + PPS	PTFE (bore size:125)	SUS316 + PTFE
Location	Indoor, Outdoor (depend on motor)			

*1. Liquid which not-including slurry and solid.

*2. This is shown at 20°C. At another temperature, please contact us.



MODEL VY, VZ

Steel Industry

VERTICAL MIXED FLOW PUMP

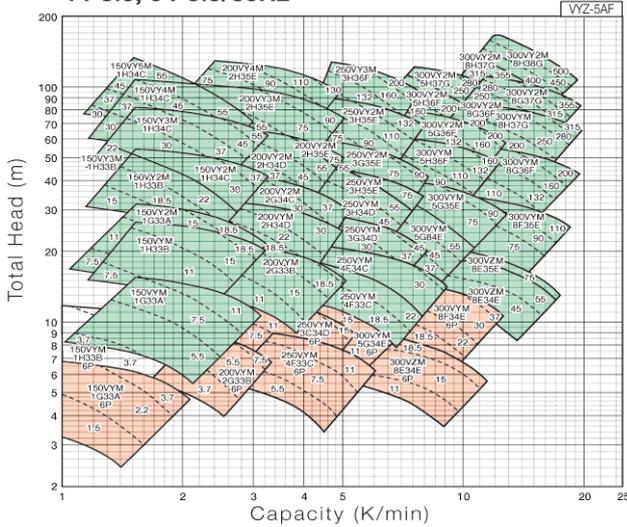


Features

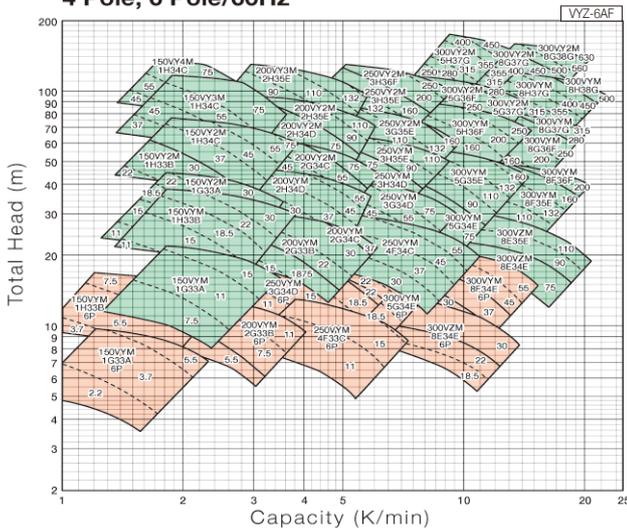
- Able to lift fluid over a wide range of lift fluctuations.
- Submerged impeller dispenses with the need for priming and easy to start.

Liquid Temperature	Cast iron 0 to 80°C		Stainless steel	
Construction	Impeller	Model VZ	Semi-open type	
		Model VY	Closed	
	Shaft seal	Gland packing		
	Bearing	Upper	Ball bearing	
		Center	Sleeve bearing	
Lubrication	Upper	Oilbath		
	Center	Self-flushing		
Protection tube	No			
Flange	JIS10K (Standard) FF			
	JIS16K FF (Model 300VY2-5H, 8G)			
Materials	Casing	FC200	SCS14	
	Impeller	CAC406	SCS14	
	Shaft seal	SUS403	SUS316	
	Shaft sleeve	SUS403	SUS316	
	Column pipe	FC200	SUS316	
	Intermediate bearing	Carbon	Carbon	

4 Pole, 6 Pole/50Hz



4 Pole, 6 Pole/60Hz



MODEL VWS

Motor Vehicle Industry
Steel Industry

VERTICAL VOLUTE PUMP

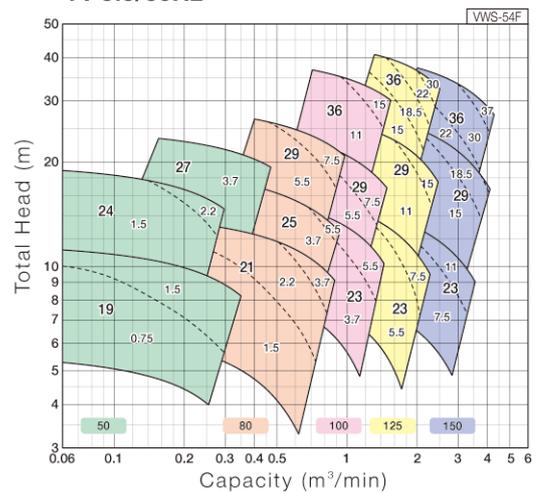


Features

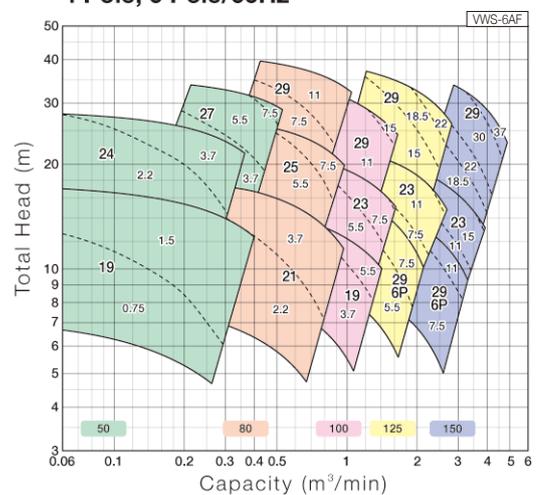
- Vertical model dispenses with the need for priming.
- Adopted a semi-open impeller, stands up to certain amounts of slurry

Liquid	Cast iron Waste water, light slurry Temperature 0 to 90°C (water lubrication, external flushing)		Stainless	
Construction	Impeller	Semi-open type		
	Shaft seal	Upper	-	Gland packing
		Lower	ES mechanical seal	Bush
	Bearing	Upper	Ball bearing seal	
		Lower	Bearing metal	
Lubrication	Lower	Water, Oil		
Flushing	External (up to 90°C)		Water	
	Self (up to 80°C)		External Self (up to 80°C)	
Flange	JIS10K (light) RF			
Materials	Casing	FC200	SCS14	
	Impeller	FC200	SCS14	
	Shaft	S35C	SUS316	
	Discharge tube	SGP	SUS316	
	Column pipe	SGP	SUS316	
	Bearing metal	CAC406	Carbon	

4 Pole/50Hz



4 Pole, 6 Pole/60Hz



MODEL SAL

Food Industry
Paper and Pulp Industry
Motor Vehicle Industry
Steel Industry

SLURRY PUMP



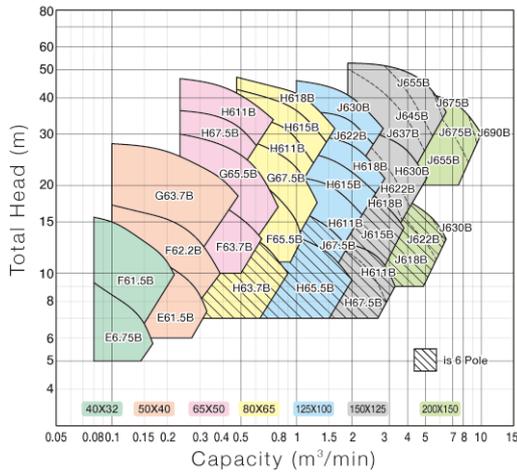
Features

- The limit load characteristics of the specially-designed pumps control horsepower regardless of the pump flow.
- The direct coupled type pumps that ensure stable operation are available as standard specifications.
- Special cast iron is used for the casing and impeller to offer high wear resistance.
- The effect of the rear impeller vanes reduces leakage from the gland packing.

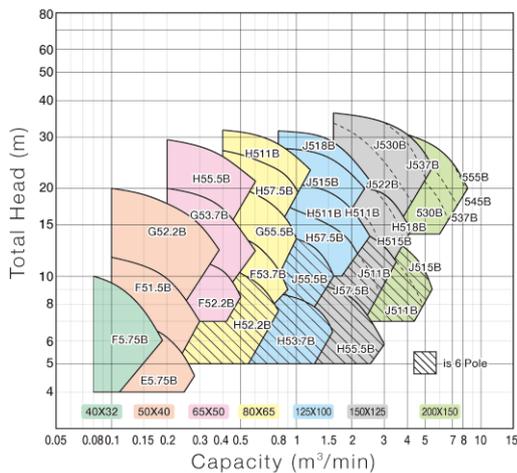
Liquid	Slurry liquid including particle 0 to 80°C	
Total suction head	-5m : Model 125X100SAL and below -3m : Model 150X125SAL and above	
Allowable suction pressure	0.1MPa (1kgf/cm ²)	
Construction	Impeller	Semi open with rear vane
	Shaft seal	Gland packing
	Flushing (*1)	External flushing
	Bearing	Model SALE,F,G: 2 to 3L/minX0.1MPa(1kgf/cm ²) Model SAL,H,J: 3 to 5L/minX0.2MPa(2kgf/cm ²) Sealed ball bearing : SALE, F, G Oil bath ball bearing : SALH,J (Lubricant oil)
Flange	Equivalent to JIS 10K normal type (notch bolt hole type)	
	Casing	Chromium cast iron
Materials	Impeller	High-chromium cast iron
	Shaft	SUS403 : Model SALE,F,G S35C : Model SALH,J
	Shaft sleeve	SUS403
	Motor (*2)(*3)	Three phase, 4 pole or 6 pole (For the available voltage, please refer attachment Voltage list) TEFC, IP44, indoor type

*1. External flushing is necessary to protect gland packing and shaft sleeve. Please provide Fresh water.
*2. Inverter drive : Please contact Ebara for the guidance.
*3. Allowable range : Voltage fluctuation : Within +/-5%, Frequency fluctuation : Within +/-2%, Simultaneous fluctuation of power and frequency : Sum of both absolute value shall be 5% or less. In any of the case, the motor characteristic and temperature rise do not correspond to the rated value.

4 Pole, 6 Pole/60Hz



4 Pole, 6 Pole/50Hz



MODEL ULP

Paper and Pulp Industry

PULP PUMP

Features

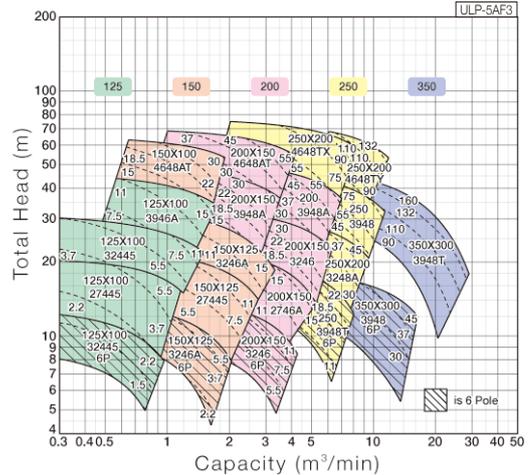
- Prevents clogging by and entanglement of fibers.
- Since a booster impeller (special specifications) is used, the pump can be used for up to 6% pulp liquid.



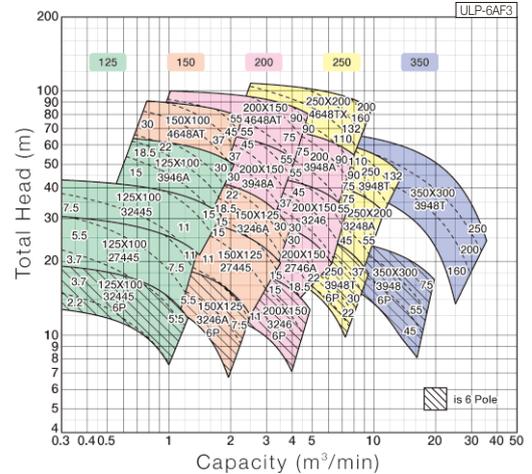
Liquid	5% below pulp liquid/0 to 95°C (Option) Pulp density between 5.1% and 6% with booster impeller		
Allowable suction pressure	0.3MPa (3kgf/cm ²)		
Max. working pressure	0.68 to 1.27MPa (7 to 13kgf/cm ²)		
Construction	Impeller	Full-open type	
	Shaft seal	Gland packing, Mechanical seal	
	Flushing	External flushing	
	Bearing	Ball bearing/Oil bath	
Flange	JIS10K RF		
	Casing	Main stainless type	Stainless type
Materials	Impeller	FC200	SCS13
	Shaft	SCS13	SCS13
	Shaft sleeve	SUS304	SUS304
	Shaft seal	SUS304 (*1)	SUS304 (*1)
	Shaft seal	Carbonised fiber/PTFE, Mechanical seal	Carbonised fiber/PTFE, Mechanical seal

*1. SUS304 coating processed is applicable.

4 Pole, 6 Pole/50Hz



4 Pole, 6 Pole/60Hz



MODEL TFSQ

Food Industry
Paper and Pulp Industry
Petrochemical Industry
Inorganic Chemical Industry
Motor Vehicle Industry
Steel Industry
Metal Goods Industry

SELF-PRIMING VOLUTE PUMP

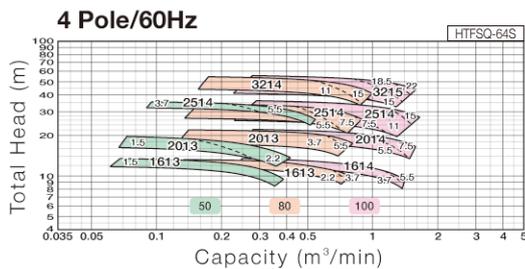
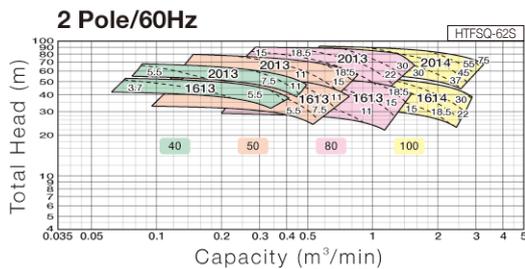
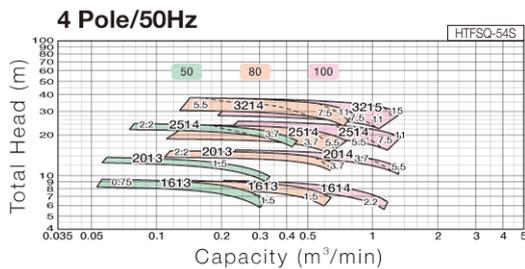
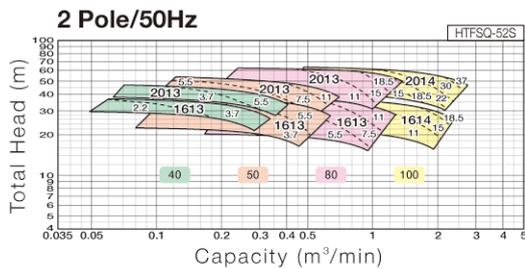
Features

- This pump has a simple structure without a check valve and provides good self-priming performance, using a cyclone vortex.
- This self-priming pump is suitable for draining slurry to a drainage pit.
- Disassembly and inspection are possible without removal of the suction and discharge piping.



Liquid	Specification	Water/Chemical water
	Temperature	0 to 60°C
	Density	0.7 to 1.2kg/L
Max. suction performance		-7m
Max. working pressure		1.37MPa
Construction	Impeller	Semi-open type
	Shaft seal	Mechanical seal, Static type/Double type
	Bearing	Ball bearings (Oil bath)
Flange		JIS10K RF
Materials	Casing	SCS14
	Impeller	SCS14
	Shaft	SUS316
	Shaft sleeve	SUS316 (*1)
Coupling		Disk type
Coupling guard		Enclosure type with hinges

*1. SUS329J4L and SUS316 coating processed is applicable.



MODEL FPSQ

Inorganic Chemical Industry
Semiconductor Industry
Motor Vehicle Industry
Steel Industry
Metal Goods Industry
Fisheries Industry

PLASTIC SELF-PRIMING PUMP

Features

- This self-priming pump has good self-priming capability and no built-in check valve, suitable for draining light slurry to a drainage pit.
- Excellent corrosion resistance against corrosive liquid like acid and seawater, in which stainless steel is immersed.
- Excellent wear resistance against sand and slurry because highly elastic materials are used, and fiber reinforcement is not applied.
- Light weight and Back Pull Out (BPO) design for easy maintenance.



Liquid		Chemical liquid (*1), Seawater, Hot spring water
Temperature		-5 to 50°C
Density		1.0 to 1.6kg/L
Max. suction performance		-5m (*2)
Construction	Impeller	Semi-open type
	Shaft seal	Gland packing, Mechanical seal
	Flushing	External-flushing
	Bearing	Ball bearing (Oil bath), Grease packed
Flange		JIS10K or equivalent (*3)
Materials	Casing	PDCPD (*4)
	Impeller	PDCPD/SUS316
	Shaft	SUS316
	Shaft sleeve	SUS316 (*5)
	Gland packing	P#6502L

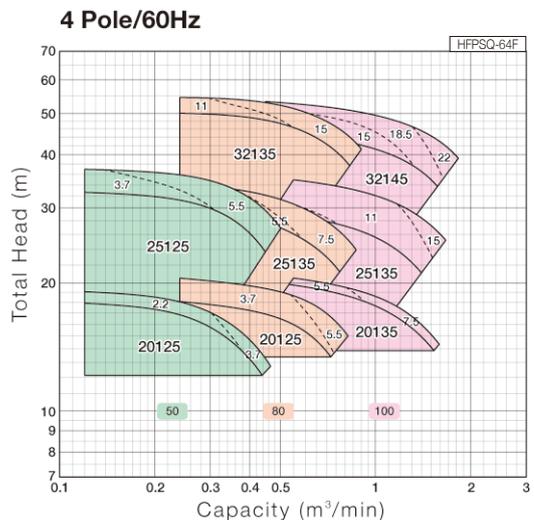
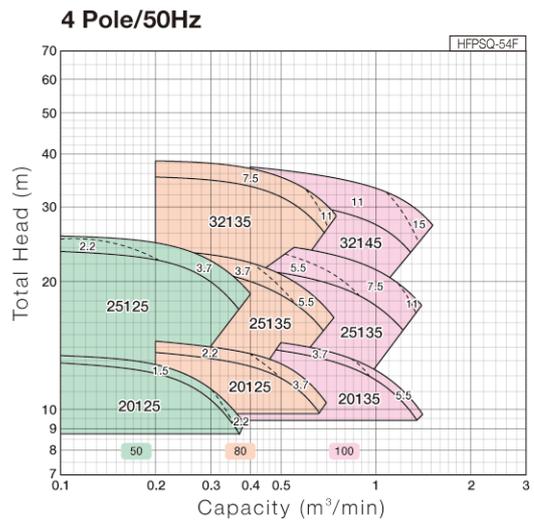
*1. Cannot be used with solvents, gasoline, kerosene, etc.

*2. Varies depending on the liquid temperature, piping shape, or model.

*3. The mating dimensions are the same as those of JIS standards products, but there are some differences in appearance and dimension.

*4. Polydiacyclopentadiene

*5. Titanium/PDCPD/SUS329J4L is applicable.



MODEL NVD, NV

Building
General Industry

WATER RING VACUUM PUMP

Features

- These water ring type vacuum pumps can run even when steam or water drops are mixed in suction air.
- There are no mechanical contacts other than the bearings and the shaft seal, which allows easy maintenance and inspection.
- The pumps are light and compact with a small footprint.
- Model NV can be connected to a dedicated feed water tank to automatically supply water to the vacuum pump, reducing unpleasant noise.



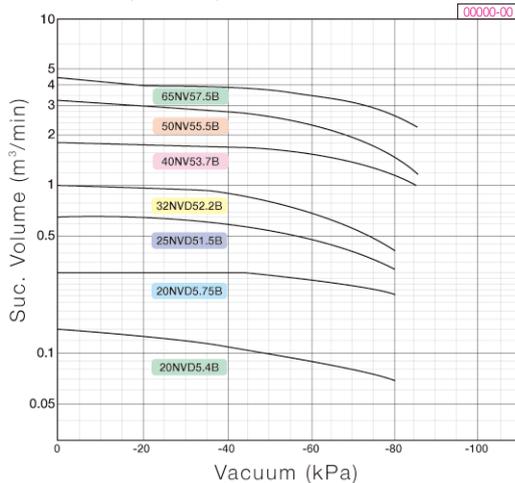
Model NVD



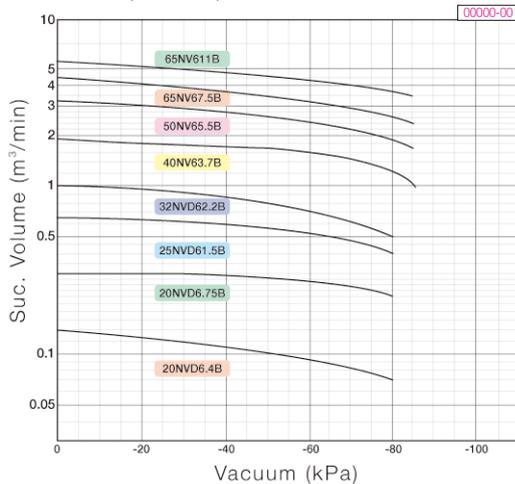
Model NV

		Model NVD	Model NV
Air temperature		Air: -10 to 50°C	Air: -10 to 50°C
Max. negative pressure		-93.3kPa (-700mmHg) Feed water at 15°C	Air: -10 to 50°C
Construction	Type	Water sealing type	Water sealing type
	Shaft seal	Mechanical seal	Gland packing
	Bearing	Sealed ball bearing (inside of motor)	Sealed ball bearing
Flange		Special flange	JIS 10K thin type
	Casing	FC200	FC200
Materials	Rotor	CAC406	CAC406
	Shaft	SUS304 (contact with liquid)	SUS403
	Motor	Three phase, 2 pole TEFC, IP44, outdoor type	Three phase, 4 pole, 6 pole TEFC, IP44, indoor type
Location		Indoor or Outdoor	Indoor

2 Pole, 4 Pole, 6 Pole/50Hz



2 Pole, 4 Pole, 6 Pole/60Hz



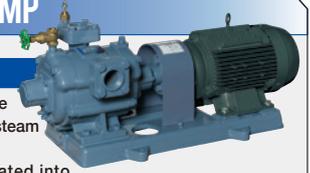
MODEL NVK

Food Industry

WATER RING VACUUM PUMP

Features

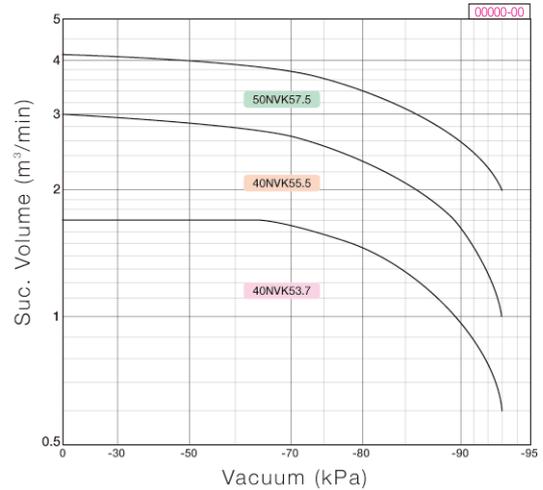
- Since this pump is a water seal type, there are no problems if the intake air contains steam or water droplets.
- Compactly designed for being incorporated into vacuum equipment.
- Good durability with both-end support bearings.
- The rotor and port plate are made of CAC406, which prevents binding because of rust.



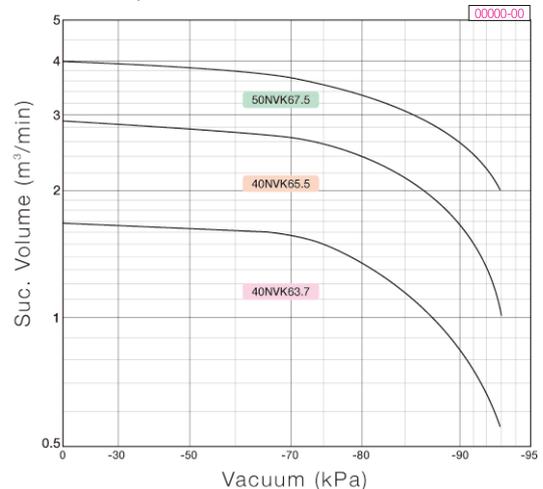
Model		40NVK63.7	40NVK65.5, 50NVK67.5
Liquid		Air: -15°C to 50°C	Air: -15°C to 50°C
Max. Negative pressure		-97.3kPa (-730mmHg) (*1) (Feed water at 15°C)	
Construction	Type	Water sealing type	
	Shaft seal	Mechanical seal	Gland packing
	Bearing	Sealed ball bearing	
Flange		Special flange	JIS10K (normal type)
	Casing	FC200	FC200
Materials (*2)	Rotor	CAC406	CAC406
	Shaft	SUS403	SUS403
	Location (*3)	Indoor	

*1. Continuous operation at the maximum negative pressure is not possible.
*2. Rotor, shaft and shaft sleeve made of stainless is applicable.
*3. Inverter drive is not allowed. If the inverter drives the vacuum pump, the pump performance will become unstable.

2 Pole, 4 Pole/50Hz



2 Pole, 4 Pole/60Hz



MODEL NVE

Food Industry

WATER RING VACUUM PUMP

Features

- Since this pump is a water seal type, there are no problems if the intake air contains steam or water droplets.
- Good durability with both-end support bearings.
- Easy operation and maintenance are possible because there are no mechanical contact parts other than the bearings and gland.
- Low-noise pump
- For low and high negative pressure types, a fixed port type and check ball type are used respectively so that the shaft power becomes smaller within the operating range.



Model		Low Negative pressure type	High Negative pressure type
Liquid		Air and Various gas	Air and Various gas
Temperature		-15 to 50°C	-15 to 50°C
MAX. Negative pressure		-96kPa (-720mmHg) (Feed water at 15°C)	-98.7kPa (-740mmHg) (Feed water at 15°C) (*1)
Construction	Type	Water sealing	Water sealing
	Shaft seal	Gland packing	Gland packing
Bearing		Ball bearing/Roller bearing (*2)	Ball bearing/Roller bearing (*2)
Flange		JIS10K FF	JIS10K FF
Materials (*3)(*4)(*5)	Casing	FC200	FC200
	Rotor	FCD450-10	FCD450-10
	Shaft	S45C	S45C
	Shaft sleeve	SUS403	SUS403
Drive system		Motor-coupled or belt-driven	Motor-coupled or belt-driven

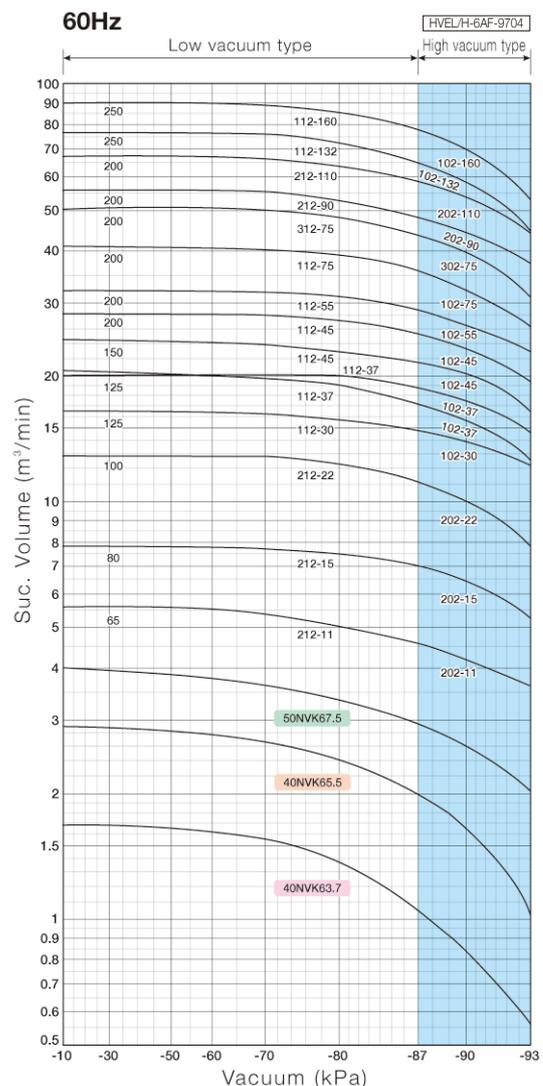
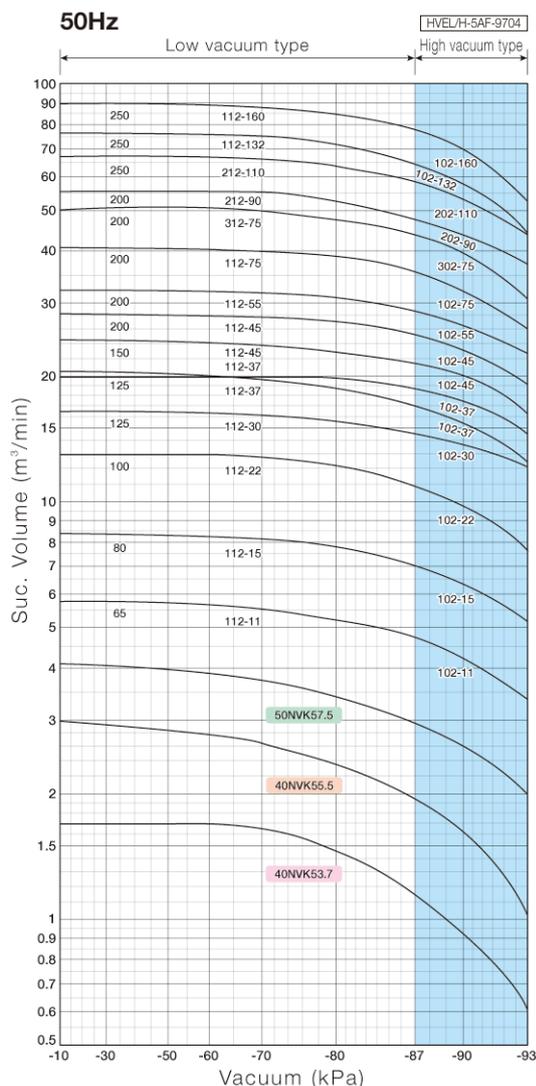
*1. The maximum negative pressure of a vacuum pump with a bore of 65 is -96 kPa [-720 mmHg] (when the make-up water temperature is 15°C).

*2. Target models: 200NVE (312/302) or higher.

*3. Casing, rotor, shaft and shaft sleeve made of iron is applicable.

*4. Rotor made of CAC is applicable.

*5. Casing, rotor, shaft and shaft sleeve made of stainless(SUS304/SUS316) is applicable.



Before use this product and technology, the contents should be confirmed, complied and revised in accordance with the laws and regulations of the country.
(i.e. export control laws and regulations etc.)

※1 "Model ○○○" in this catalog is our model code ※2 All specifications subject to change without notice.



EBARA Corporation

11-1, Haneda Asahi-cho, Ohta-ku, Tokyo, 144-8510, Japan

HP:<http://www.ebara.co.jp/en/>



Contact to