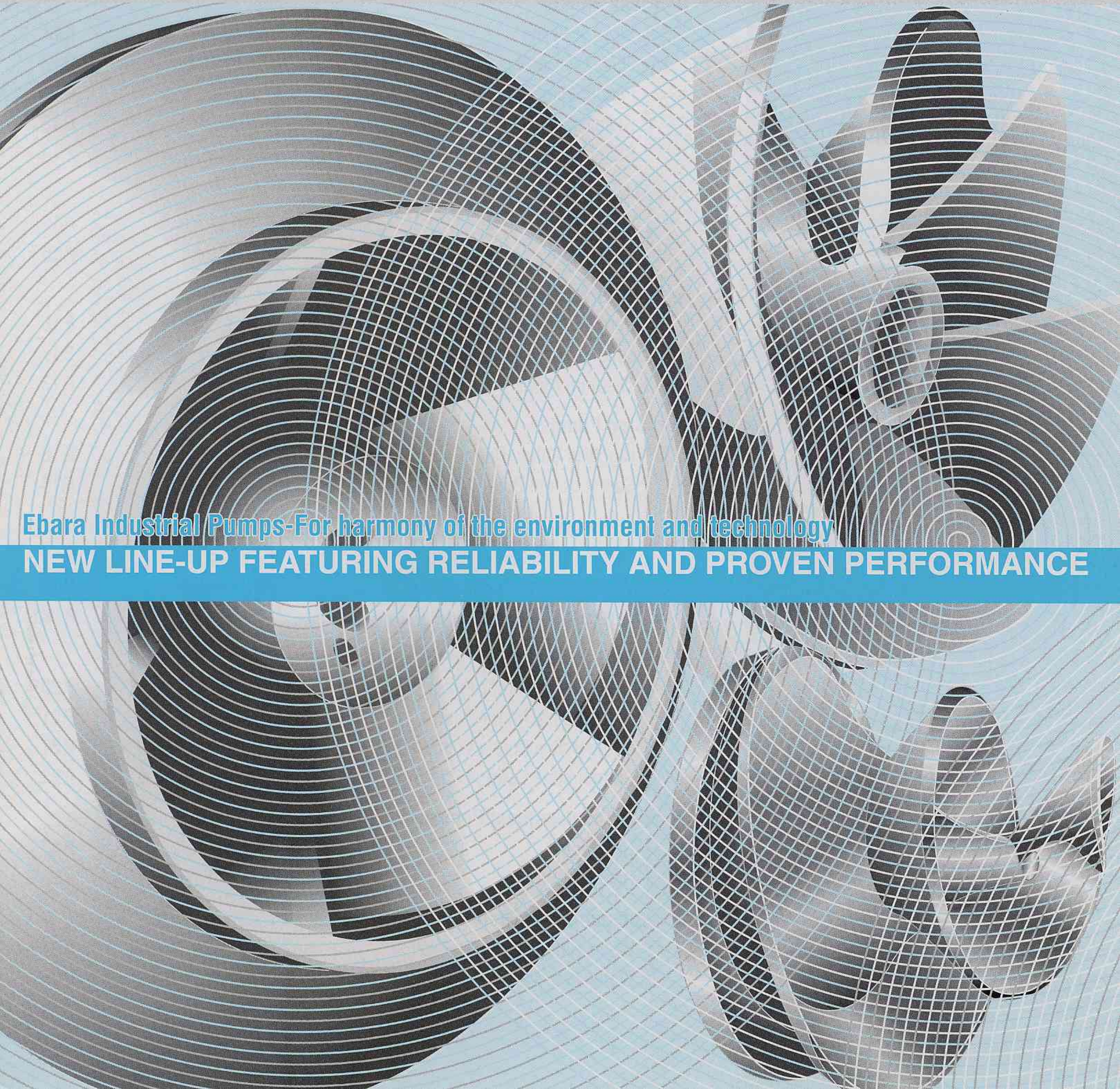
EBARA

CH1030EH

INDUSTRIAL PUMPS



Ebara Industrial Pumps-For harmony of the environment and technology

NEW LINE-UP FEATURING RELIABILITY AND PROVEN PERFORMANCE

Ebara constantly strives to meet your needs for reliability and performance.

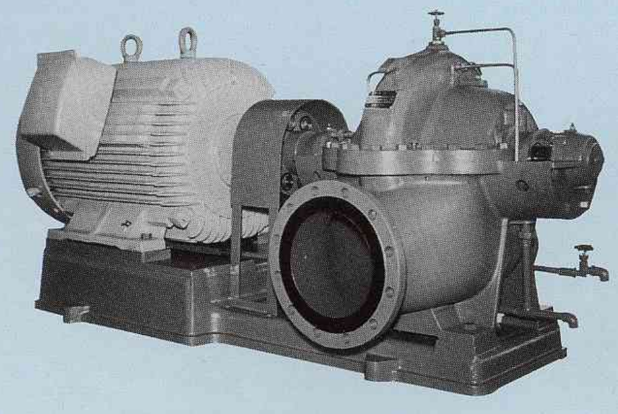
Throughout the changing times, Ebara has consistently created products for reliability and safety, in pace with the ever-diversifying technologies. Each and every product in the extensive Ebara line-up is imbued with this theme. And once Ebara products start operation, we keep them in perfect condition by using our global service network to maintain close communication with our customer 24 hours a day. At Ebara, our aim is to always do our best, with reliability and customer needs as our guidelines.

CONTENTS

C-N MODEL

- General industrial water intake, water supply, and water circulation
- Building water supply and air-conditioning

Double Suction Volute Pump

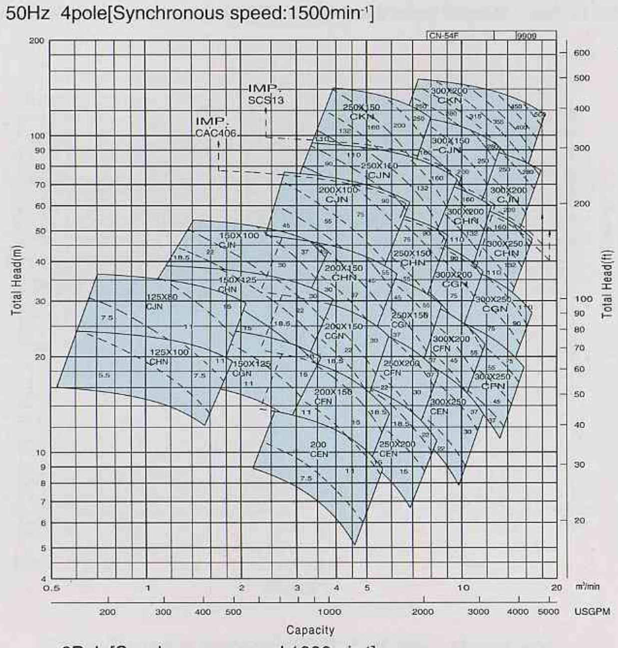


Main features

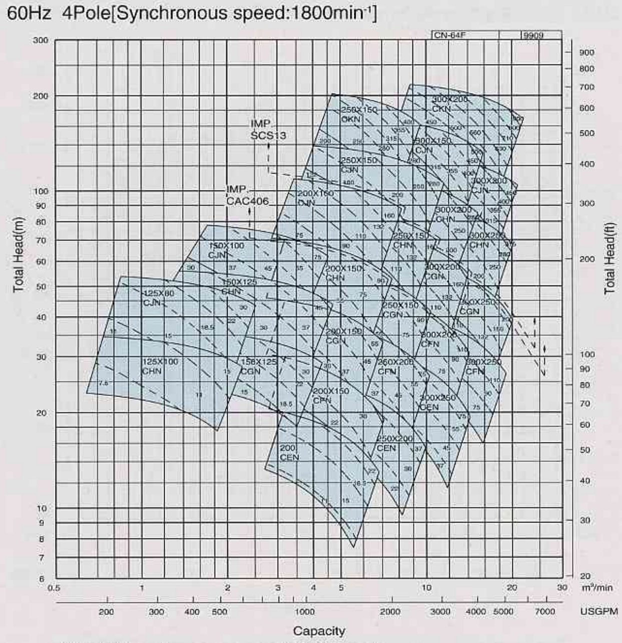
- Low NPSH operation
- Simple structure for easy maintenance
- High-efficiency, low-noise operation
- Full compliance with ISO standard.

Liquid handled		Fresh water, industrial water, river water
Temperature		0～120℃
Max suction pressure		0.2MPa{2kgf/cm²}
Construction	Impeller	Closed
	Shaft sealing	Gland packing
	Bearing	Ball bearings (grease)
Materials	Casing	FC250/FCD400
	Impeller	FC200/CAC406/SCS13
	Shaft	S35C/SCM440
Flange		JIS10K/JIS20K

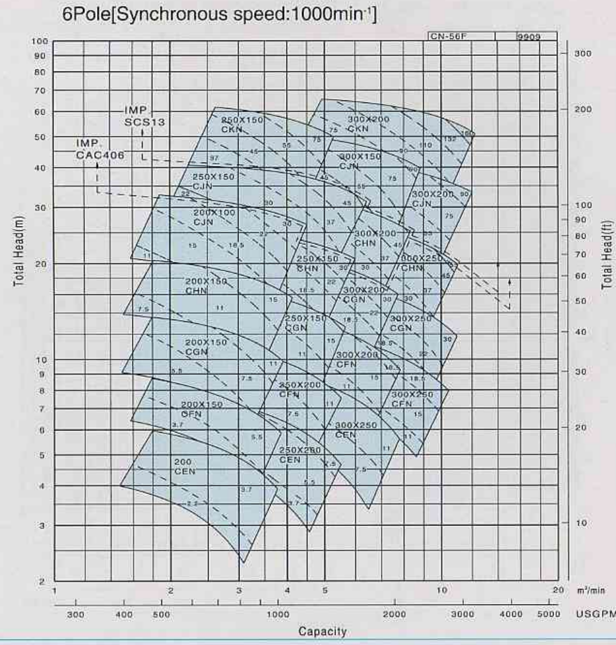
50Hz 4pole[Synchronous speed:1500min⁻¹]



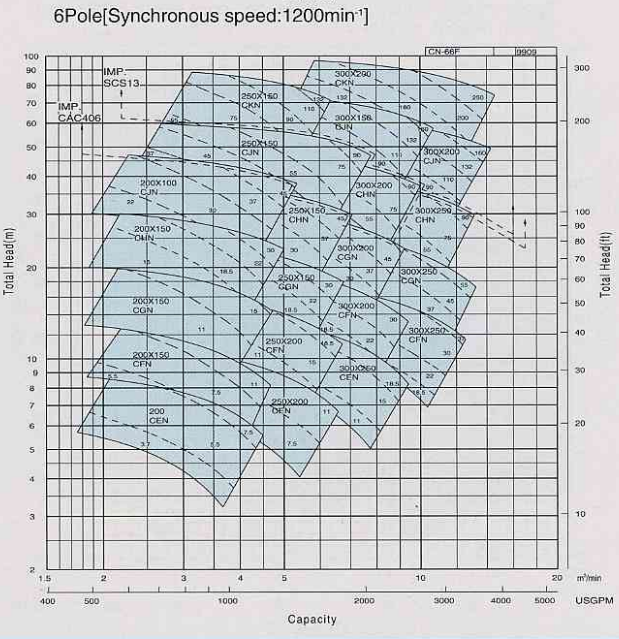
60Hz 4Pole[Synchronous speed:1800min⁻¹]



6Pole[Synchronous speed:1000min⁻¹]



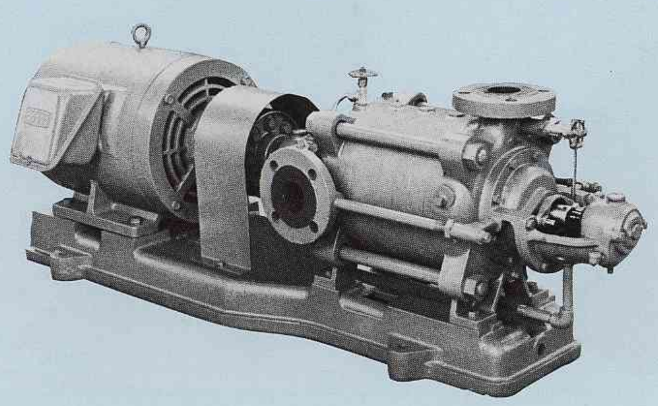
6Pole[Synchronous speed:1200min⁻¹]



MS210·220·230 MODEL

- Boiler feed water
- General industrial water supply
- General water supply

Multistage Volute Pump

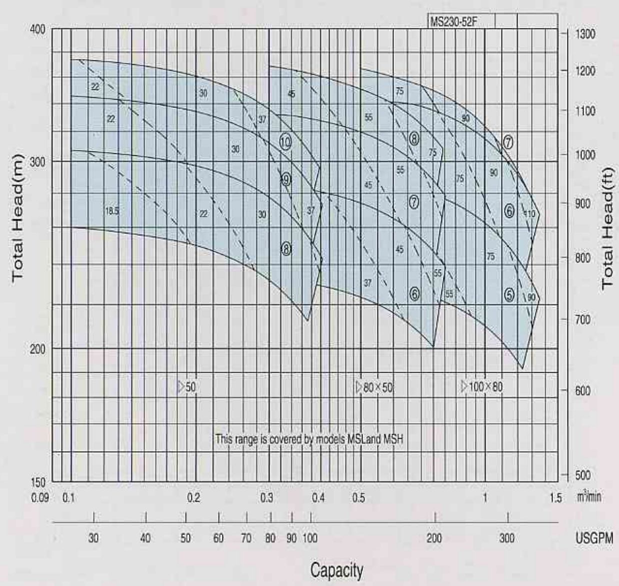


Main features

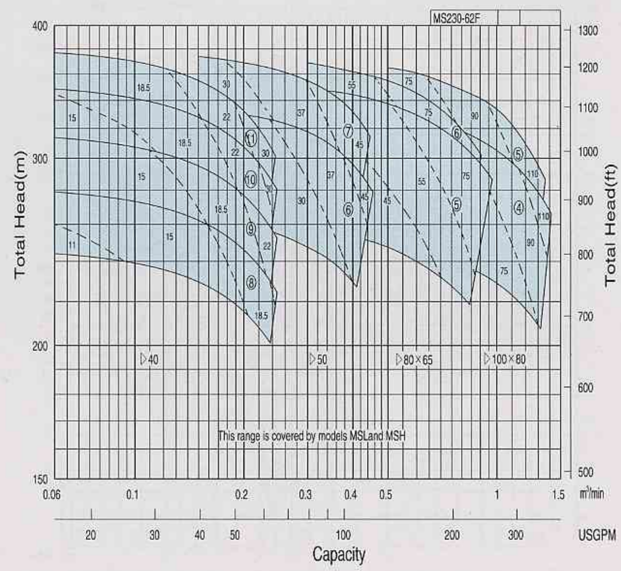
- High efficiency over wide range is possible by double volute design.

Model code		MS210	MS220	MS230
Liquid handled		Fresh water		
Temperature		0～104℃		
Max suction pressure		0.4MPa{4kgf/cm²}		
Construction	Impeller	Closed		
	Shaft sealing	Gland packing		
	Bearing	Sleeve metal		
Materials	Casing	FC200	FC200/FCD400	FC200/FCD400/SC480
	Impeller	SCS13	SCS13	CAC406/SCS13
	Shaft	SUS630	SUS630	SCM440/SUS630
Flange		JIS10K/JIS10K	JIS10K/JIS20K	JIS10K/JIS30K

50Hz 2pole Impeller materials CAC406, FC[Synchronous speed:3000min⁻¹]

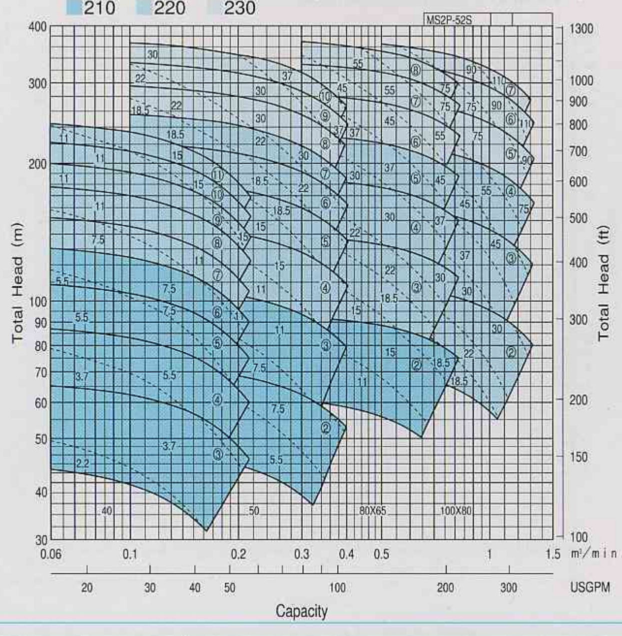


60Hz 2pole Impeller materials CAC406, FC[Synchronous speed:3600min⁻¹]



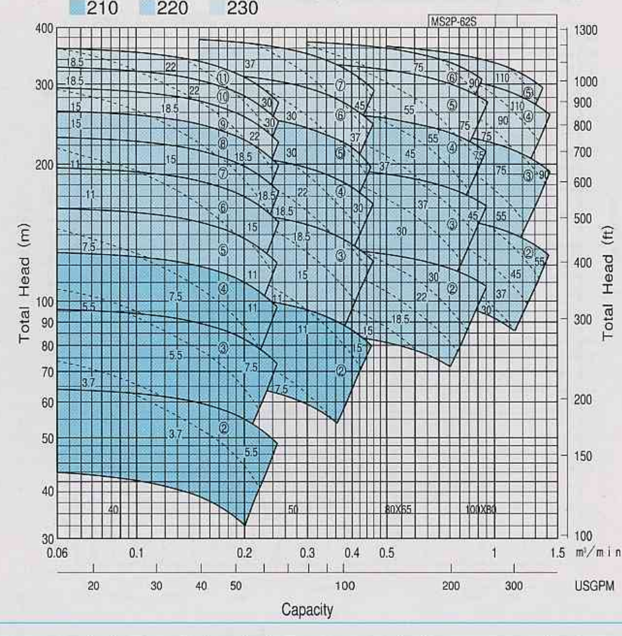
2pole Impeller materials SCS[Synchronous speed:3000min⁻¹]

210 220 230



2pole Impeller materials SCS[Synchronous speed:3600min⁻¹]

210 220 230

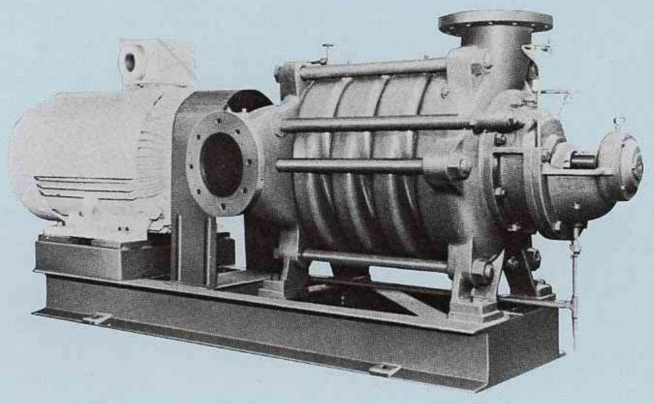


Notes: The encircled numbers in the areas enclosed by unbroken lines indicate the number of stages, and the other numbers in the areas enclosed by broken lines indicate the motor capacity in kW.

MS420 MODEL

- Building water supply
- City water supply
- Industrial water supply
- Fire fighting

Multistage Volute Pump

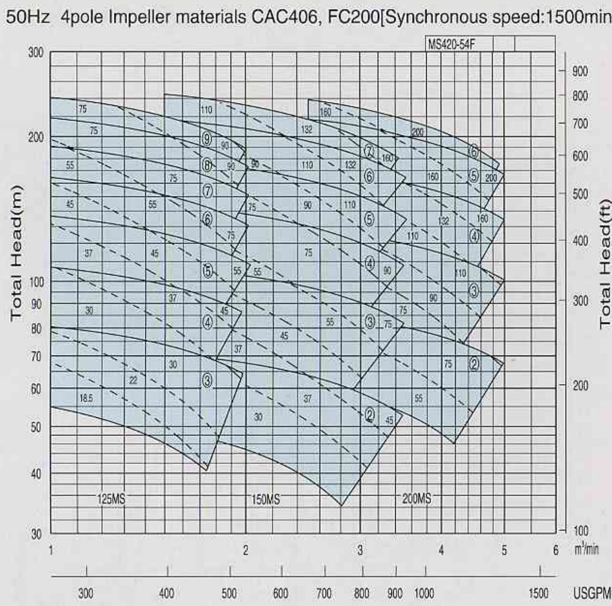


Main features

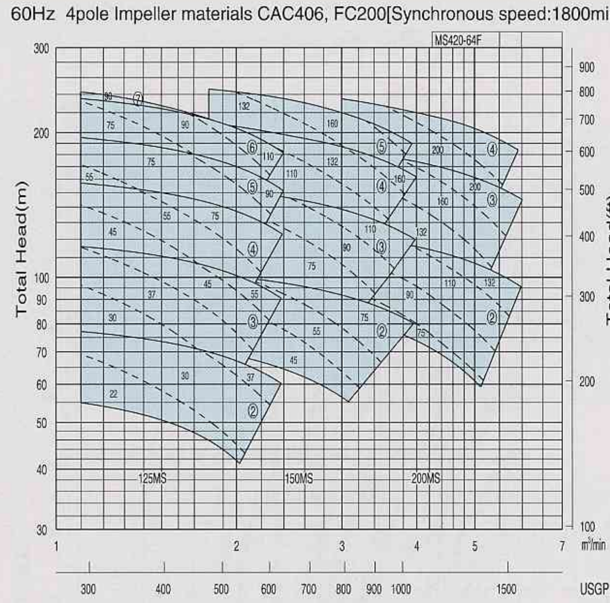
- Low noise operation
- High efficiency over wide range
- Thrust balance structure

Liquid handled		Fresh water
Temperature		0～104℃
Max suction pressure		0.4MPa{4kgf/cm²}
Construction	Impeller	Closed
	Shaft sealing	Gland packing
	Bearing	Ball-and-roller bearings (grease)
Materials	Casing	FC200/FCD400
	Impeller	CAC406/FC200/SCS13
	Shaft	S35C/SUS630
Flange		JIS10K/JIS16K or JIS20K

50Hz 4pole Impeller materials CAC406, FC200[Synchronous speed:1500min⁻¹]

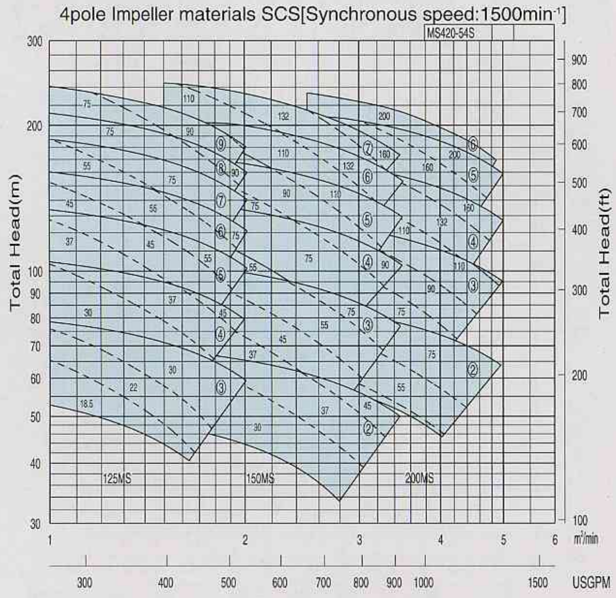


60Hz 4pole Impeller materials CAC406, FC200[Synchronous speed:1800min⁻¹]

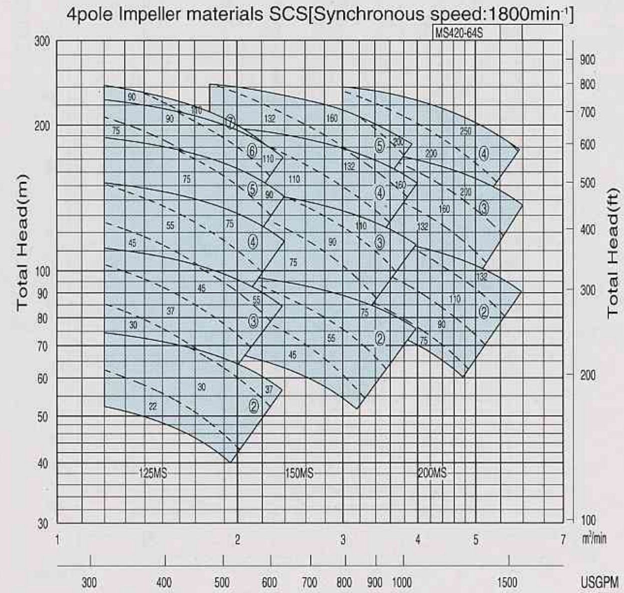


Capacity

4pole Impeller materials SCS[Synchronous speed:1500min⁻¹]



4pole Impeller materials SCS[Synchronous speed:1800min⁻¹]



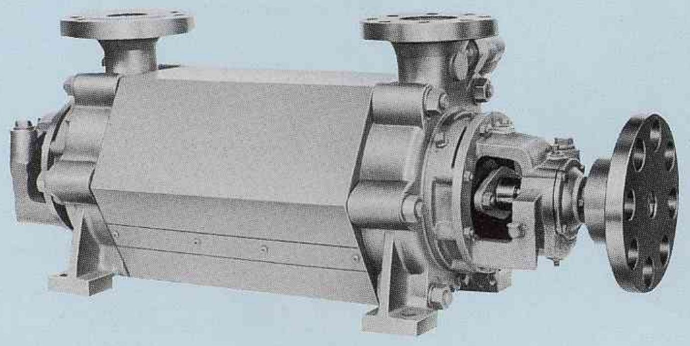
Capacity

Notes: The encircled numbers in the areas enclosed by unbroken lines indicate the number of stages, and the other numbers in the areas enclosed by broken lines indicate the motor capacity in kW.

MSS MODEL

- Boiler feed water
- General high pressure service
- City water

Multistage Turbine Pump

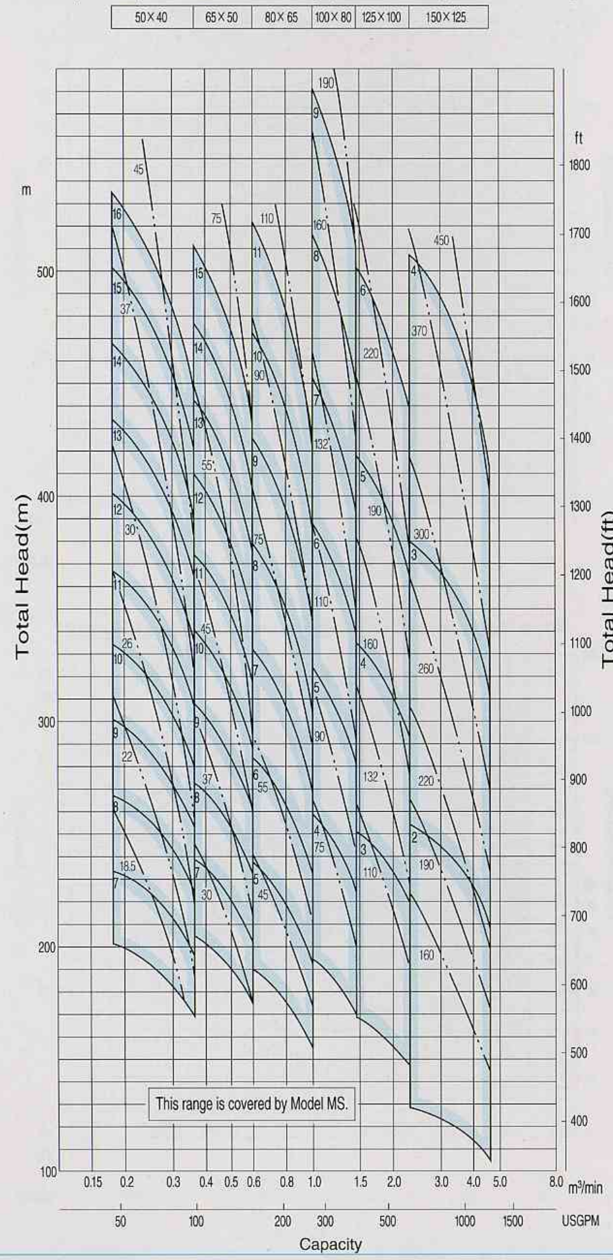


Main features

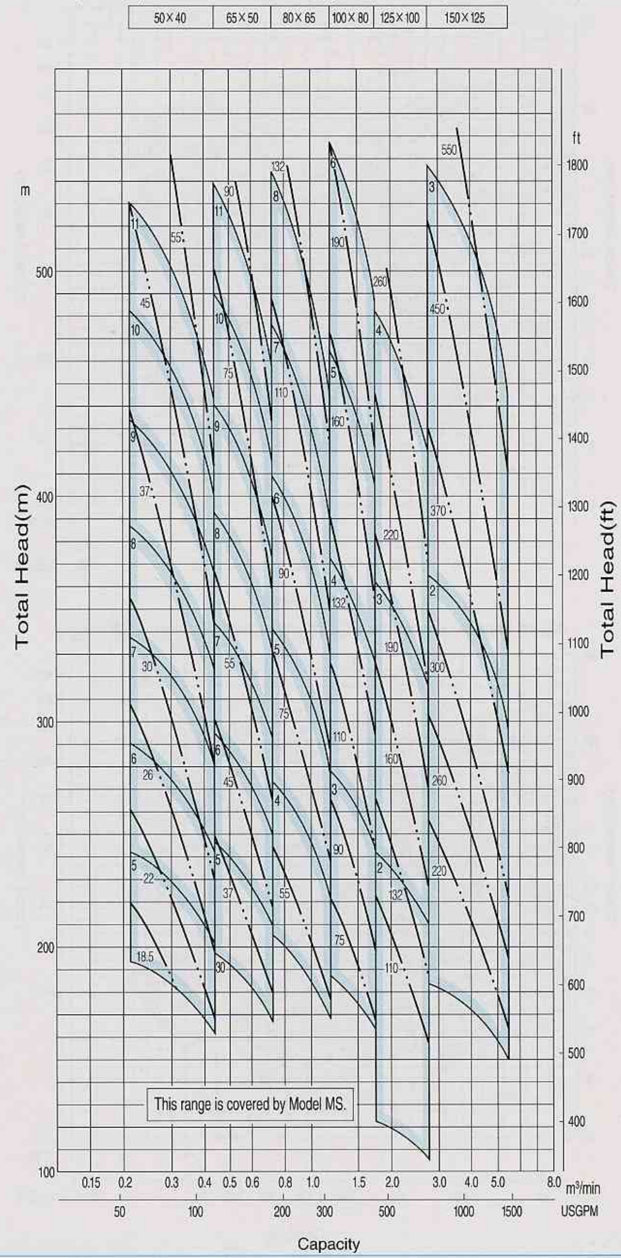
- High efficiency over wide range
- High reliable components
- Simple structure for easy maintenance
- Low NPSH operation

Liquid handled		Fresh water, Hot water
Temperature		0〜165℃
Max suction pressure		0.8MPa{8kgf/cm²}
Construction	Impeller	Closed
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	Suction:FCD540-K Intermediat:FCD540-K/SCPH21 Discharge:SCPH21
	Impeller	FCD540-K
	Shaft	SCM435
Flange		JIS10K/JIS20K, 30K, 40K

50Hz 2pole Impeller materials FCD[Synchronous speed:3000min⁻¹]



60Hz 2pole Impeller materials FCD[Synchronous speed:3600min-1]



Numbers in bold type indicate the number of stages, and numbers in fine type indicate motor capacity in kW.

TFS MODEL

- Chemical industly,Petrochemical industly
- Other industries

Single Suction Process Pump(Chemical・Light Slurry)

Main features

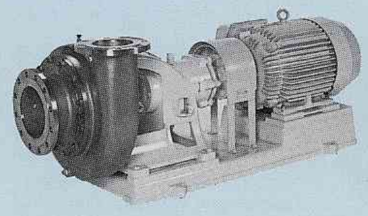
- The semi-open impeller is the best for liquids containing slurry.
- 'Back Pull-Out' construction, permits disassembly and inspection without removing the suction and discharge pipes.

Liquid handled		Process liquid
Temperature		−15〜150℃ (Cast iron) −29〜150℃ (Stainless steel)
Density		700kg/m³and above
Construction	Impeller	Semi-open type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	FC250/SCS14/SCS11
	Impeller	FC200/SCS14/SCS11
	Shaft	S35C/SUS316
Flange		JIS10K

TLS MODEL

- Chemical industly,Petrochemical industly
- Other industries

Single Suction Process Pump(Chemical・Light Slurry)

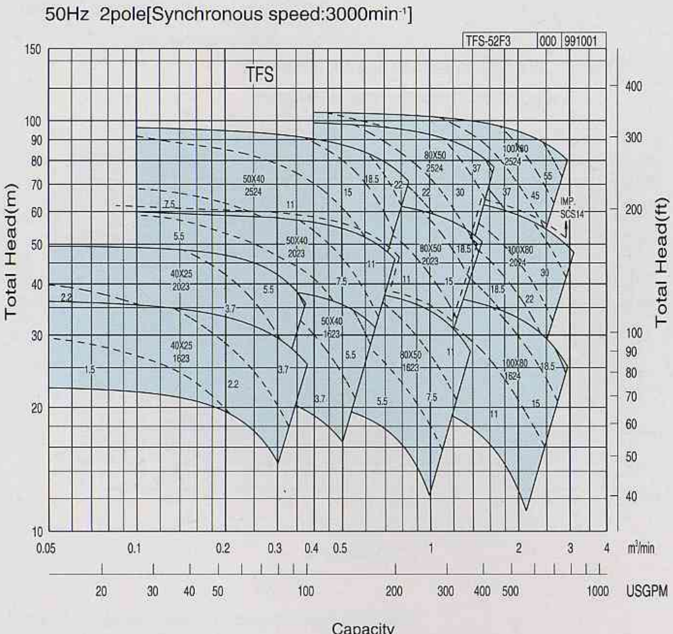


Main features

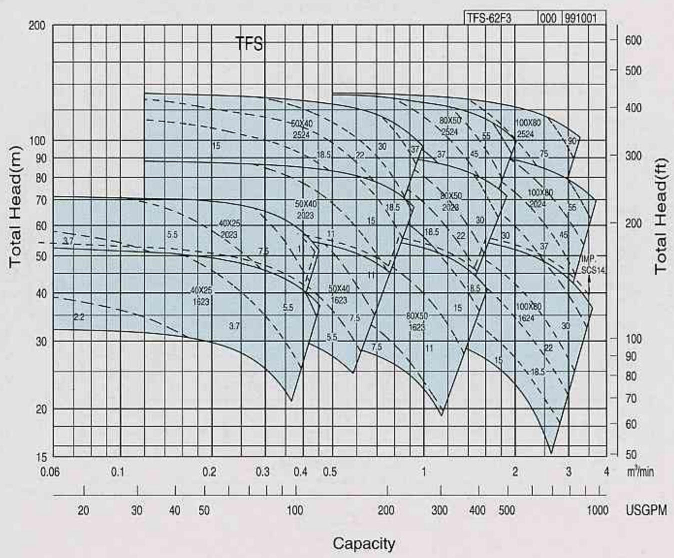
- The open impeller is the best for liquds containing slurry.
- Wear of casing and suction cover is prevented with a side plate.
- Shaft withstands long use by non-contact labyrinth seal.

Liquid handled		Process liquid
Temperature		−15〜150℃ (Cast iron) −29〜150℃ (Stainless steel)
Density		700kg/m³ and above
Construction	Impeller	Open type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	FC200/SCS13/SCS14/SCS11
	Impeller	SCS13/SCS14/SCS11
	Shaft	SUS304/SUS316
Flange		JIS10K

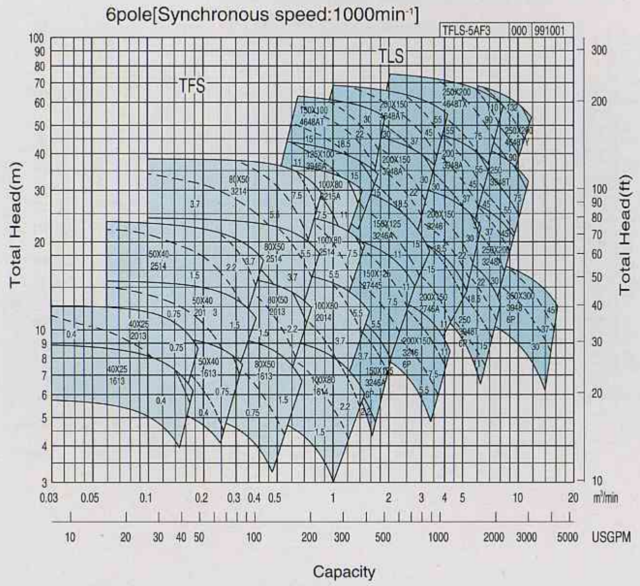
50Hz 2pole[Synchronous speed:3000min⁻¹]



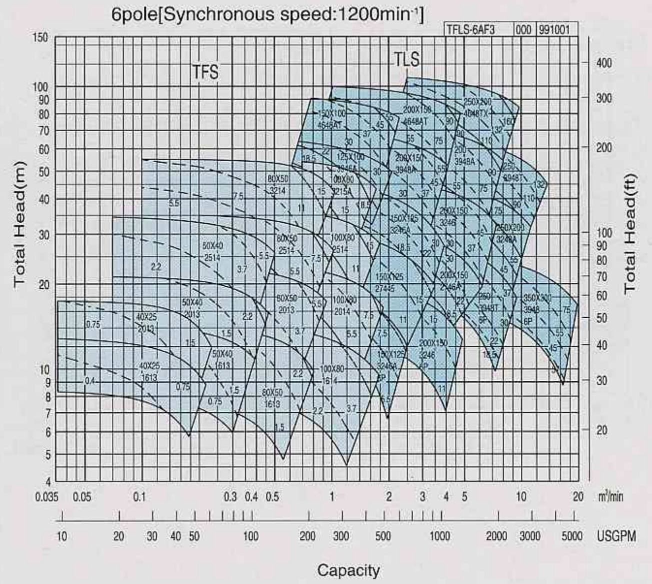
60Hz 2pole[Synchronous speed:3600min⁻¹]



4pole[Synchronous speed:1500min⁻¹]
6pole[Synchronous speed:1000min⁻¹]



4pole[Synchronous speed:1800min⁻¹]
6pole[Synchronous speed:1200min⁻¹]

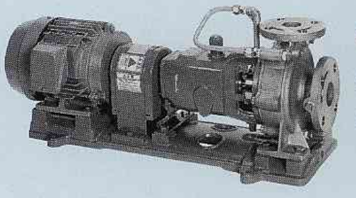


Notes: 1. The numbers in the areas enclosed by broken lines indicate motor capacity in kW for a density of 1000 kg/m³.
2. Viscosity correction is required for liquids having a viscosity of 4.3 mPa·s {4.3 cP} or more.

JFW MODEL

- Chemical industly, Petrochemical industly
- Other industries

Single Suction Process Pump

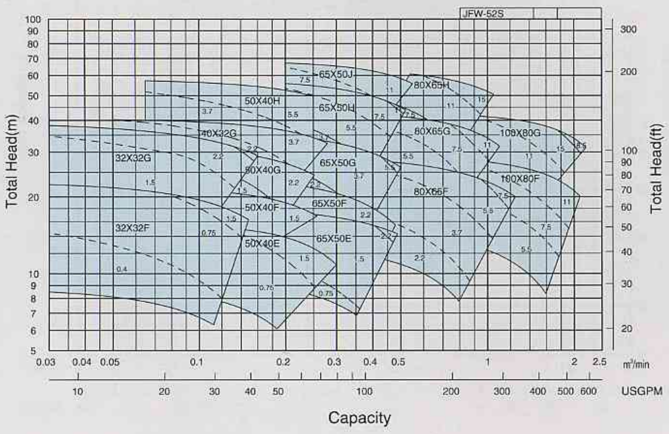


Main features

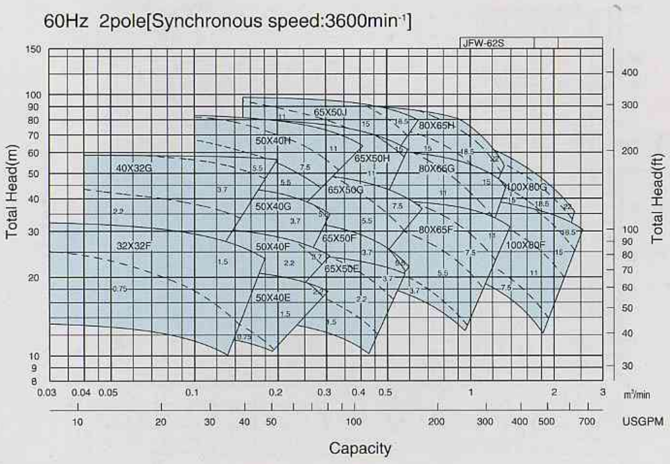
- For setting ends on shaft sleeve, wearing of a mechanical seal is easy.
- Shaft withstands long use by non-contact labyrinth seal.
- For safety, sealed coupling guard is equipped standardly.
- 'Back Pull-Out' construction, permits disassembly and inspection without removing the suction and discharge pipes.

Liquid handled		Water, Oil, Process liquid
Temperature		0～90℃
Max suction pressure		700kg/m³ and above
Construction	Impeller	Closed
	Shaft sealing	Mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	SCS14
	Impeller	SCS14
	Shaft	SUS316
Flange		JIS10K

50Hz 2pole[Synchronous speed:3000min⁻¹]



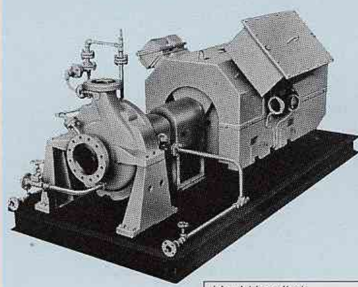
60Hz 2pole[Synchronous speed:3600min⁻¹]



UCW MODEL

- Petroleum refineries
- Petrochemical Industry
- Other chemical industries

Single Suction Process Pump

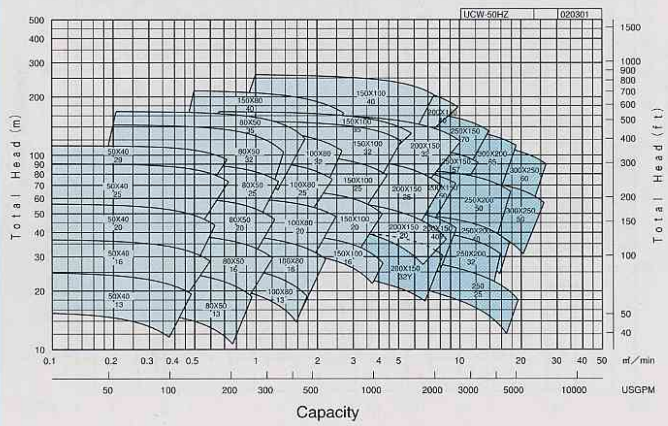


Main features

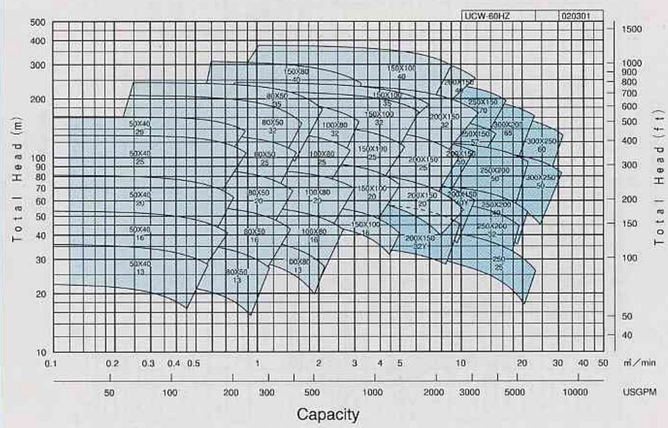
- Centerline supported heavy duty design.
- Full compliance with API 610 specifications.
- Low NPSH operation.

Liquid handled		Other process liquids
Temperature		−100～450℃
Max suction pressure		4.41MPa{45kgf/cm²}
Construction	Impeller	Closed
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	SCPH2/SCPL1/SCS1/SCS13/SCS14
	Impeller	FC200/SCS1/SCS13/SCS14
	Shaft	SCM440/SUS420J₁/SUS304/SUS316
Flange		ANSI300lb

50Hz 2pole[Synchronous speed:3000min⁻¹]
4pole[Synchronous speed:1500min⁻¹]



60Hz 2pole[Synchronous speed:3600min⁻¹]
4pole[Synchronous speed:1800min⁻¹]

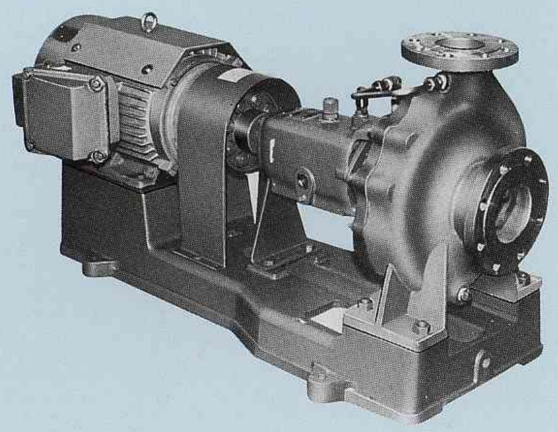


Notes: The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1000kg/m³

IFW MODEL

- Chemical Industly. Petrochemical Industry
- Other industries

Single Suction Process Pump

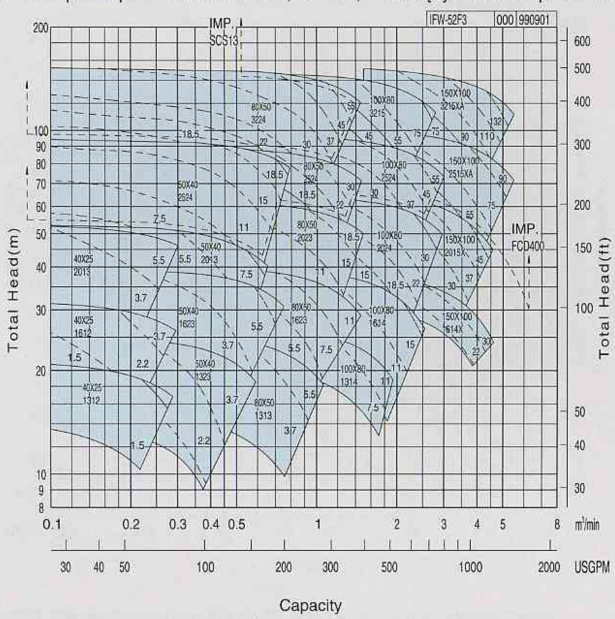


Main features

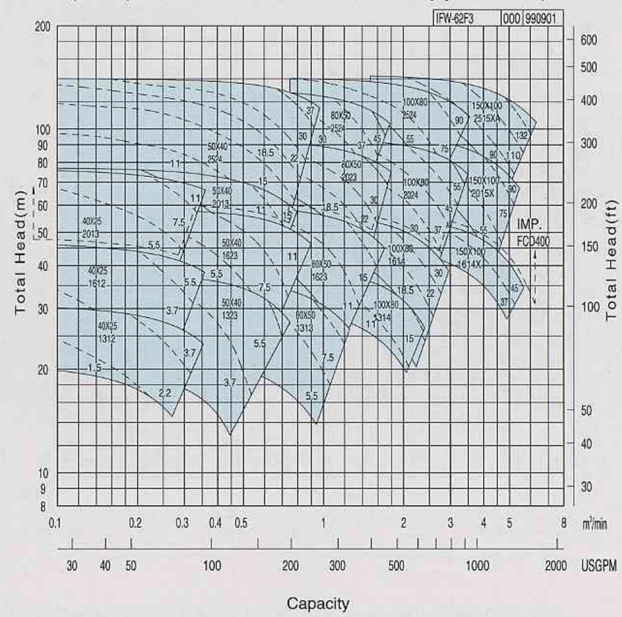
- Low NPSH operation
- 'Back Pull-Out' construction permits disassembly and inspection without removing the suction and discharge pipes.
- Flexibility of desigh handles wide range of liguids.
- Full compliance ISO 2858 specifications.

Liquid handled		Process Liquid, Sea water
Temperature		−50～200℃ (Stainless steel) −5～200℃ (Cast steel) −15～150℃ (Cast Iron)
Density		600kg/m³ and above
Construction	Impeller	Closed
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	FC250/SC480/SCS13/SCS14
	Impeller	FC200/FCD400/CAC406/SCS13/SCS14
	Shaft	S35C/SCM440/SUS420J1/SUS304 SUS316/SUS630
Flange		JIS10K/ANSI125lb (Cast Iron) JIS10K/ANSI150lb (Cast steel, Stainless steel)

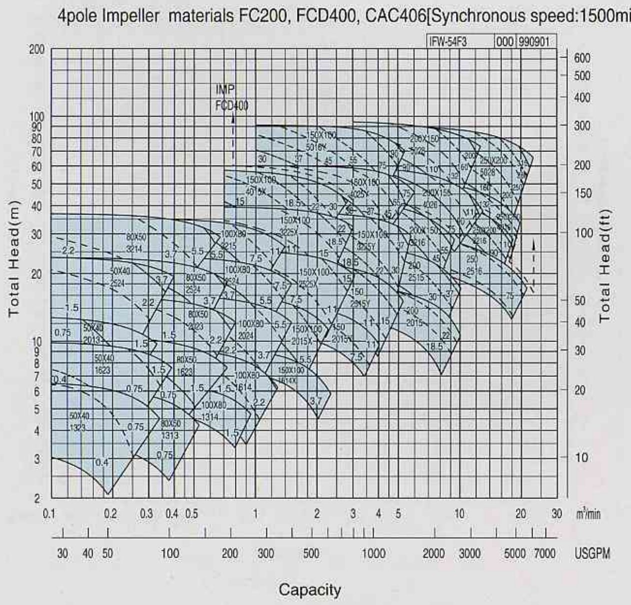
50Hz 2pole Impeller materials FC200, FCD400, CAC406[Synchronous speed:3000min⁻¹]



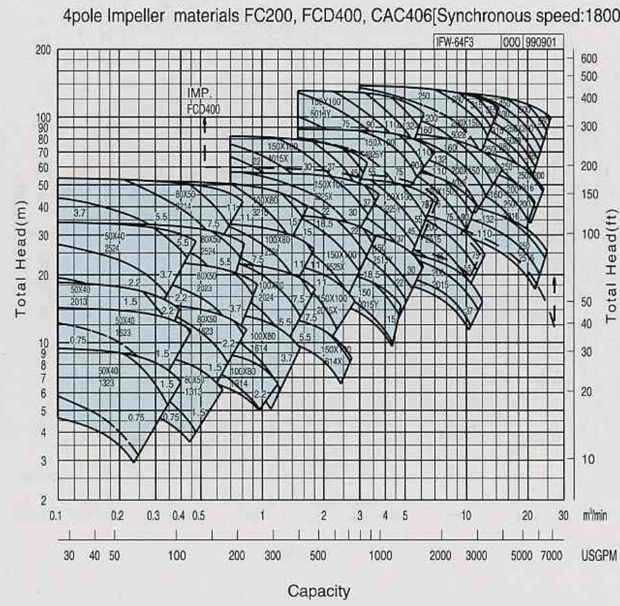
60Hz 2pole Impeller materials FC200, FCD400, CAC406[Synchronous speed:3600min⁻¹]



4pole Impeller materials FC200, FCD400, CAC406[Synchronous speed:1500min⁻¹]

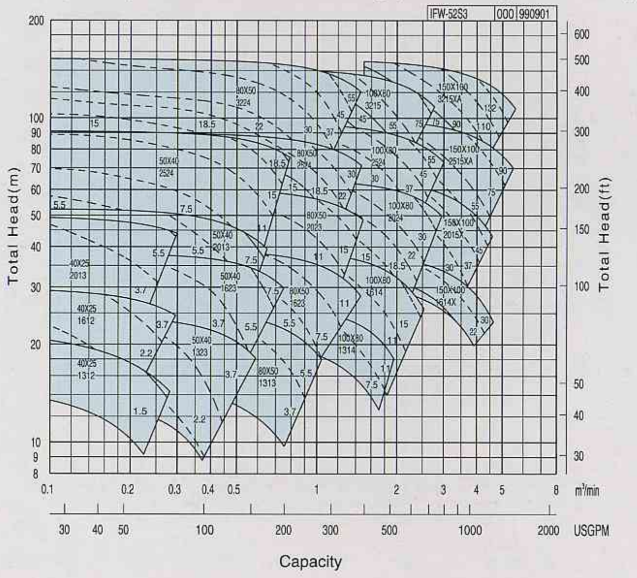


4pole Impeller materials FC200, FCD400, CAC406[Synchronous speed:1800min⁻¹]

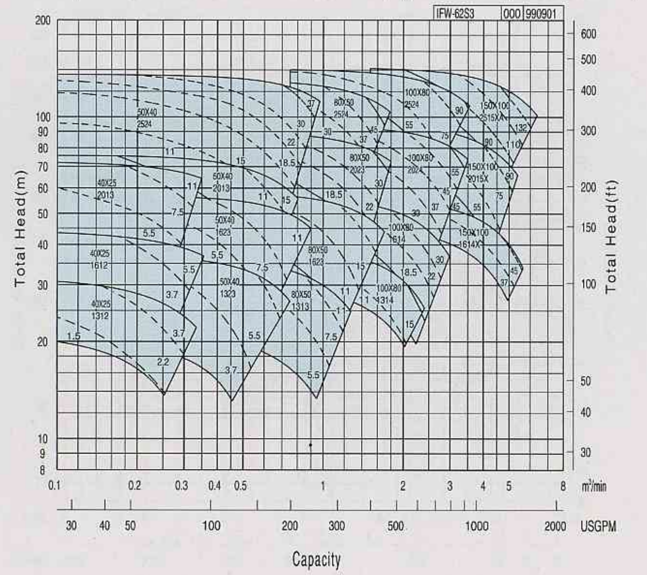


Notes: 1. The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1000kg/m³.
2. Viscosity correction is required for liquids having a viscosity of 4.3 mPa/s {4.3 cP} or more.
3. Motor output given in the above performance curve is applied the pumps equipped with grand packing.

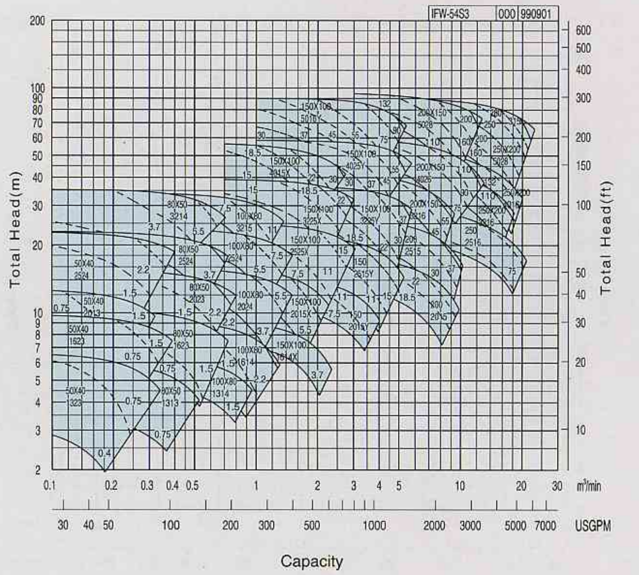
50Hz 2pole Impeller materials SCS13, SCS14[Synchronous speed:3000min^{-1}]



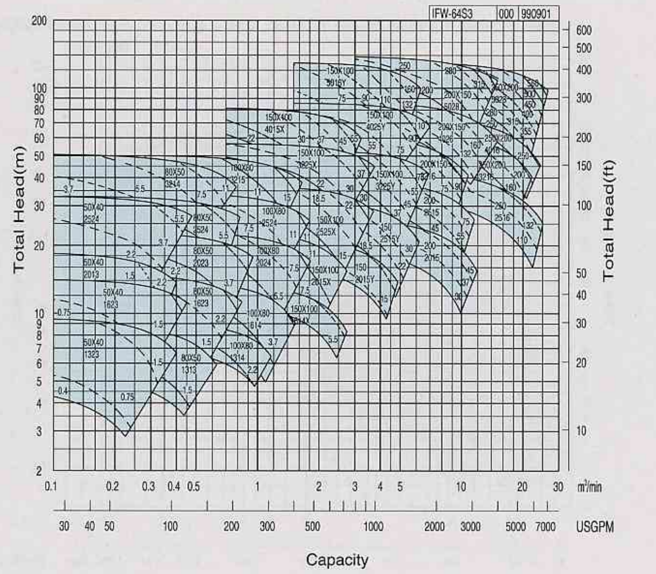
60Hz 2pole Impeller materials SCS13, SCS14[Synchronous speed:3600min^{-1}]



4pole Impeller materials SCS13, SCS14[Synchronous speed:1500min^{-1}]



4pole Impeller materials SCS13, SCS14[Synchronous speed:1800min^{-1}]



Notes: 1. The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1000kg/m³.
2. Viscosity correction is required for liquids having a viscosity of 4.3 mPa.s {4.3 cP} or more.
3. Motor output given in the above performance curve is applied the pumps equipped with grand packing.

SXB MODEL

- Chemical plant
- Other industries

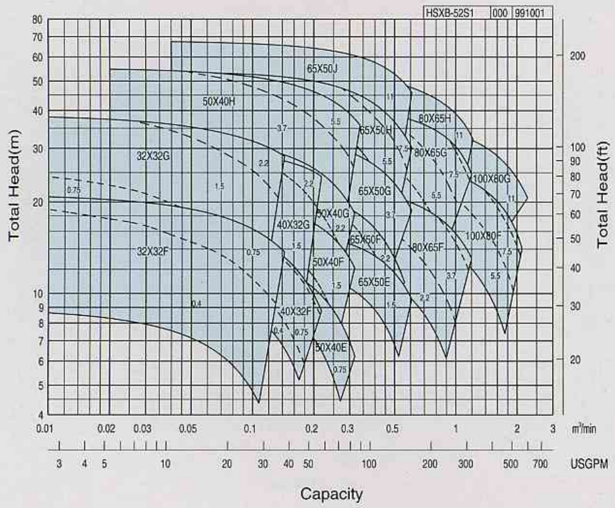
SEAL-X Pump

Main features

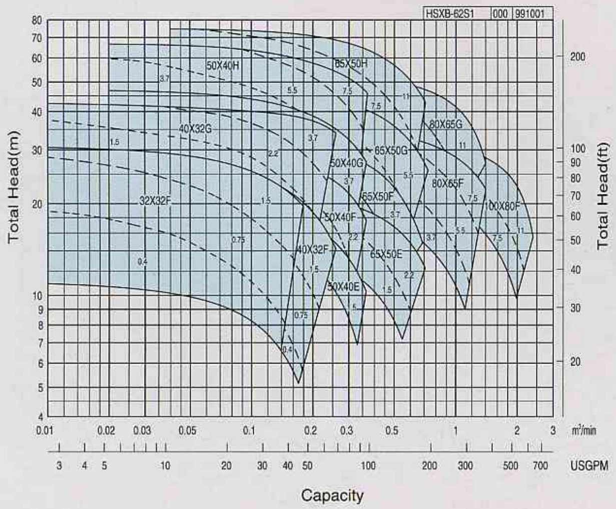
- A non-shaft seal and non-lubricant system simplifies maintenance.
- Electric bearing wear sensor detects wear so that the time for changing bearings can be seen at a glance; even after parts have been changed, the bearing sensor can be used.
- Handled liquid does not leak to outside, so safety and cleanliness can be maintained.
- Integrated pump and motor structure for compactness and light weight, and no need for alignment.
- Sealed motor structure for quiet operation.
- Foot support casing withstands piping loads.

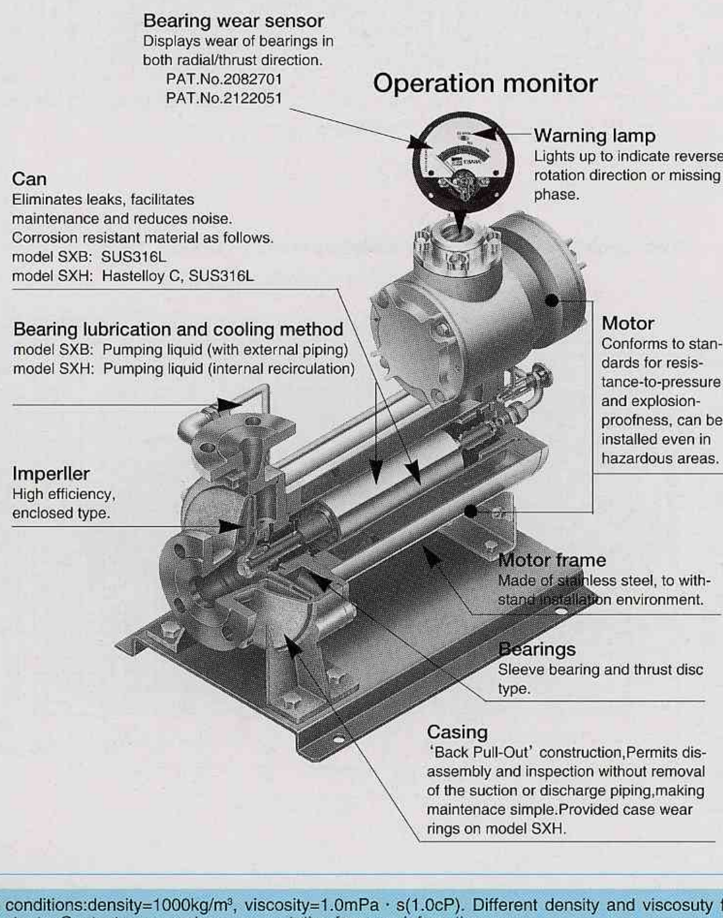
Liquid handled		Water, Process liquid
Temperature		−30〜100℃ (d_2G_3) −30〜80℃ (d_2G_4)
Viscosity		100mPa·s{100cP} and below
Density		700kg/m³ and above
Max. working pressure		1MPa{10.2kgf/cm²}
Construction	Impeller	Closed
	Bearing	Sleeve bearings/thrust disk
Materials	Casing	SCS13, SCS14
	Impeller	SCS13, SCS14
	Shaft	SUS304, SUS316
Flange		JIS10K, ANSI150lb,JPI150lb
Motor	Type	Explosion proof motor (d_2G_3,d_2G_4)
	Pole	2Pole
	Phase·Voltage	3-Phase200/220, 400/440V

50Hz 2pole[Synchronous speed:3000min⁻¹]



60Hz 2pole[Synchronous speed:3600min⁻¹]



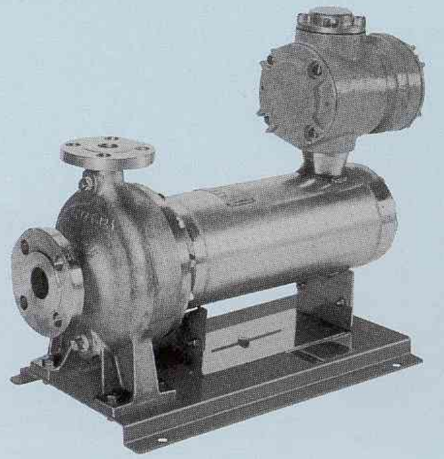


Notes: This selection chart applies to the following conditions:density=1000kg/m³, viscosity=1.0mPa · s(1.0cP). Different density and viscosuty from water may require different model sizes and outputs. Contact your service representative for more infomation.

SXH MODEL

- Chemical Plant
- Other industries

SEAL-X Pump (High temperature and pressure)

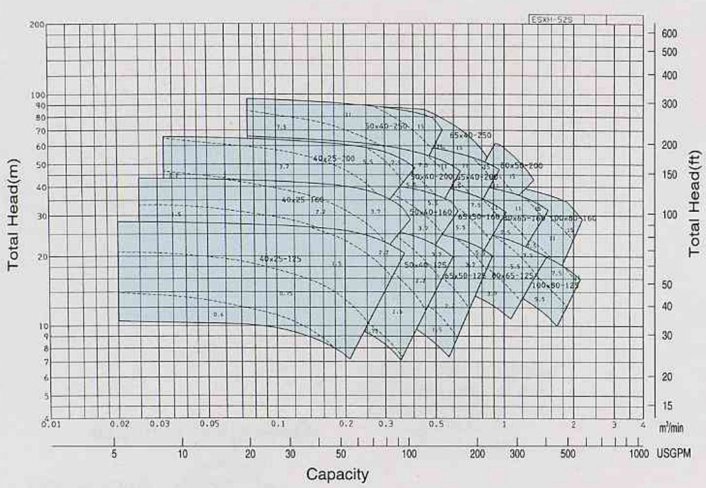


Main features

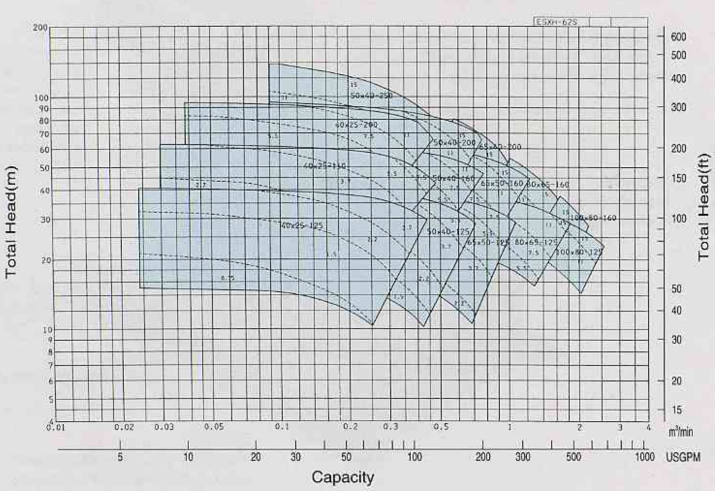
- Cooling not required up to 130° (d_2G_3)
- A non-shaft seal and non-lubricant system simplities maintenance.
- Electric bearing wear sensor detects wear so that the time for changing bearings can be seen at a glance; even after parts have been changed, the bearing sensor can be used.
- Handled liquid does not leak to outside, so safety and cleanliness can be maintained.
- Integrated pump and motor structure for compactness and light weight, and no need for alignment.
- Sealed motor structure for quiet operation.
- Foot support casing withstands piping loads.

Liquid handled		Liquefied gas, Process liquid
Temperature		−50〜155℃ (d_2G_3) −50〜105℃ (d_2G_4)
Viscosity		100mPa·s{100cP} and below
Density		600kg/m³ and above
Max working pressure		2.45MPa{25kgf/cm²}
Construction	Impeller	Closed
	Bearing	Sleeve bearings/thrust disk
Materials	Casing	SCS14, SCS13
	Impeller	SCS14, SCS13
	Shaft	SUS316, SUS304
Flange		JIS20K, ANSI300lb
Motor	Type	Explosion proof motor (d_2G_3,d_2G_4)
	Pole	2Pole
	Phase·Voltage	3-Phase200/220, 400/440V

50Hz 2pole[Synchronous speed:3000min⁻¹]



60Hz 2pole[Synchronous speed:3600min⁻¹]



Notes: This selection chart applies to the following conditions:density=1000kg/m³, viscosity=1.0mPa · s(1.0cP). Different density and viscosuiy from water may require different model sizes and outputs. Contact your service representative for more infomation.

NBF MODEL

●Highly-corrosive liquids Transport and circulate

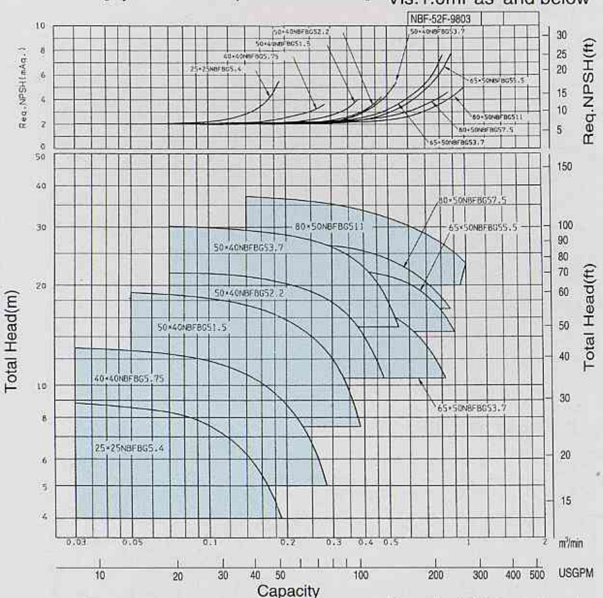
Plastic Magnet-Drive Pump (Double Casing)

Liquid handled		Corrosive liquid
Temperature		0~90℃
Viscosity		100mPa·s(100cP) and below (However, no more than permissible motor power)
Density		1900kg/m³ and below (However, no more than permissible motor power)
Max suction pressure		0.1MPa{1kgf/cm²}
Construction	Impeller	Closed
	Bearing	Sleeve bearings, disc bearings
Materials	Casing	ETFE+ carbon fiber (20%)
	Impeller	ETFE + carbon fiber (20%)
	Shaft	High-purity aluminum ceramic
Flange		Special (JIS 10K FF required.)
Motor	Type	Totally enclosed fan-cooled motor Increased safety motor Explosion proof motor
	Phase	3-Phase
	Voltage	50Hz:200-400V W-Voltage 60Hz:200/220V, 400/440V W-Voltage

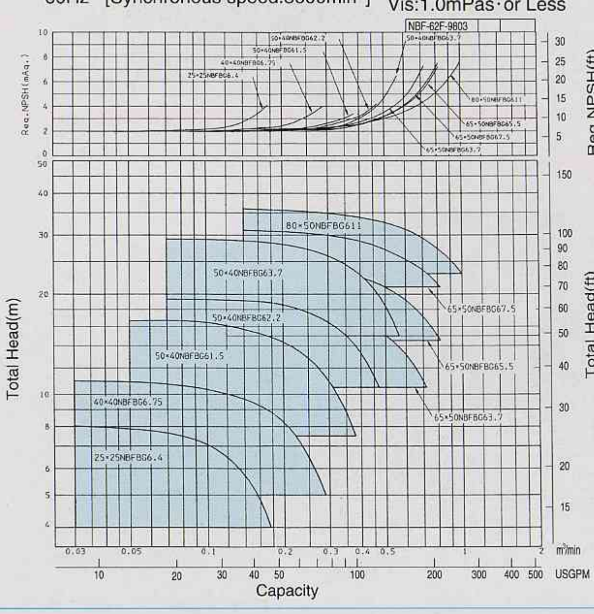
Main features

- ●There is no liquid leak.
- ●Principal material in contact with liquid is carbon fiber and ETFE for transporting highly acid or alkaline liquids.
- ●External casing made from cast iron (FC 200), for resistance to heavy piping load and fire.

50Hz [Synchronous speed:3000min⁻¹] Density:1200kg/m³ and below Vis:1.0mPas·and below



60Hz [Synchronous speed:3600min⁻¹] Density:1200kg/m³ or Less Vis:1.0mPas·or Less



NWP MODEL

●Clean water, beverages and other liquids which dislike rust.

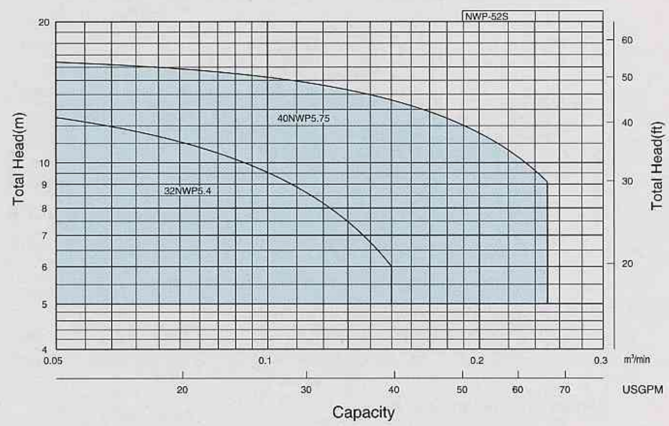
Stainless Steel Magnet-Drive Pump

Liquid handled		The other Liquids whichi dislike rust
Temperature		0~100℃
Density		1000kg/m³ and above
Max suction pressure		0.3MPa{3kgf/cm²}
Construction	Impeller	Closed
	Bearing	Sleeve metal
Materials	Casing	SUS316L
	Impeller	SCS316L
	Shaft	SUS304L
Flange		JIS10K or equivalent
Motor	Type	Totally enclosed fan-cooled motor.
	Pole	2Pole
	Phase·Voltage	3-Phase200/220V

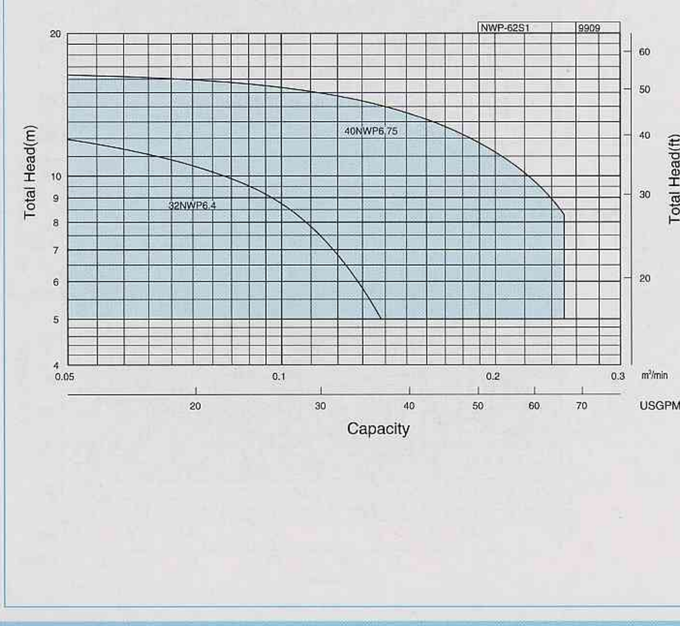
Main features

- ●No shaf seal,There is no liquid leak.
- ●Simple structure for easy maintenance.
- ●Compact and lightweight at adoption of a stainless steel press.

50Hz 2pole[Synchronous speed:3000min⁻¹]



60Hz 2pole[Synchronous speed:3600min⁻¹]

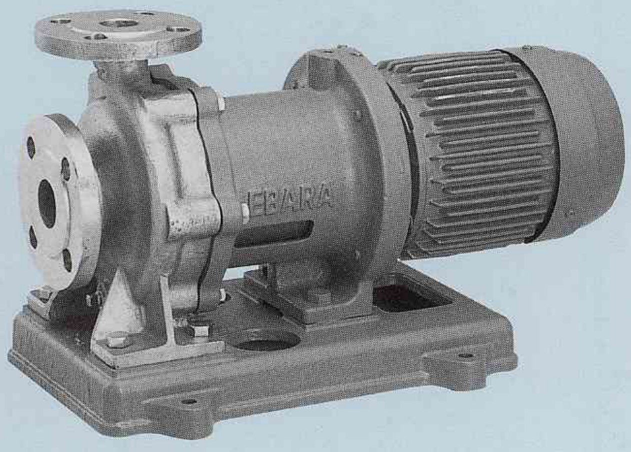


Notes: This selection chart applies to the following conditions:density=1200kg/m³, viscosity=1.0mPa · s(1.0cP). Different density and viscosity from water may require different model sizes and outputs. Contact your service representative for more information.

NW MODEL

- Highly alkaline liquids, such as caustic soda
- Toxic organic solvents transport and circulate

Stainless Steel Magnet-DrivePump



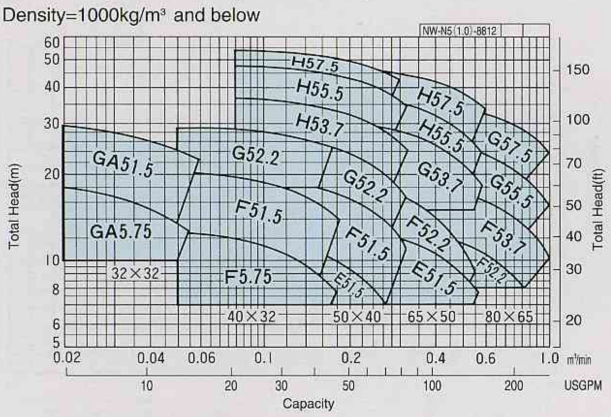
Main features

- No shaft seal, there is no liquid leak.
- 'Back Pull-Out' construction,Permits disassembly and inspection without removing the suction and discharge pipes.

Liquid handled		Liquid solvents,Poisonous Liquid, Expensive Liquid
Temperature		0~100℃
Density		1400kg/m³ and below
Max suction pressure		0.4MPa{4kgf/cm²}
Construction	Impeller	Closed
	Bearing	Sleeve metal
Materials	Casing	SCS13
	Impeller	SCS13
	Shaft	SUS304L
	Bearing	Carbon/SiC, SiC/SiC
Flange		JIS10K
Motor	Type	Totally enclosed fan-cooled motor Increased safety moter(eG3) but 0.75kW, Outdoor use Explosion proof moter(d₂G₄) but 0.75kW, Outdoor use
	Pole	2Pole
	Phase-Voltage	3-Phase200/220V, (400/440V)

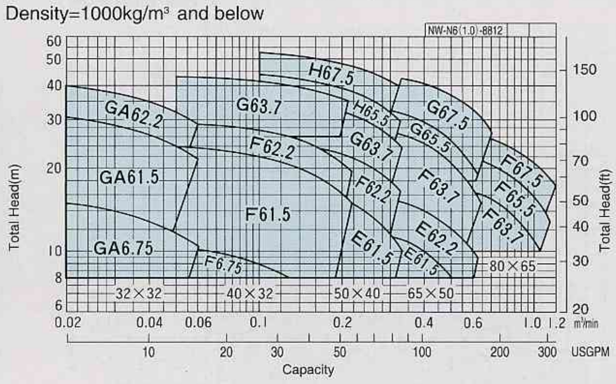
50Hz 2pole[Synchronous speed:3000min⁻¹]

Density=1000kg/m³ and below

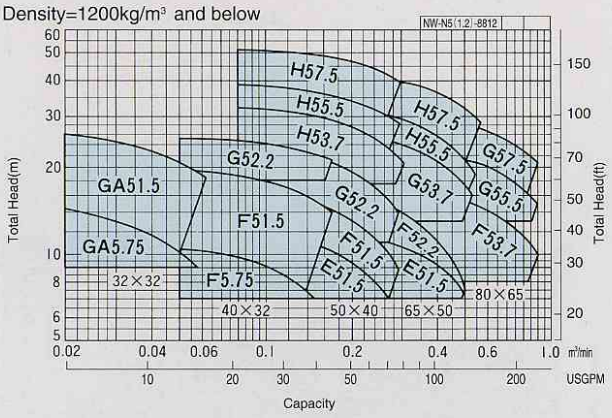


60Hz 2pole[Synchronous speed:3600min⁻¹]

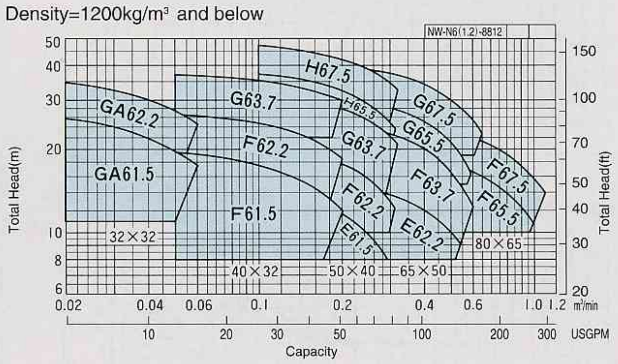
Density=1000kg/m³ and below



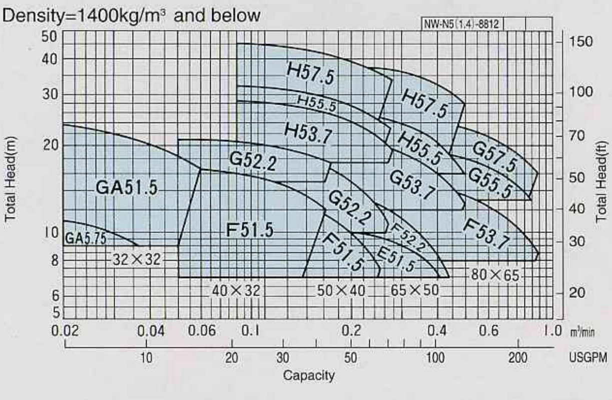
Density=1200kg/m³ and below



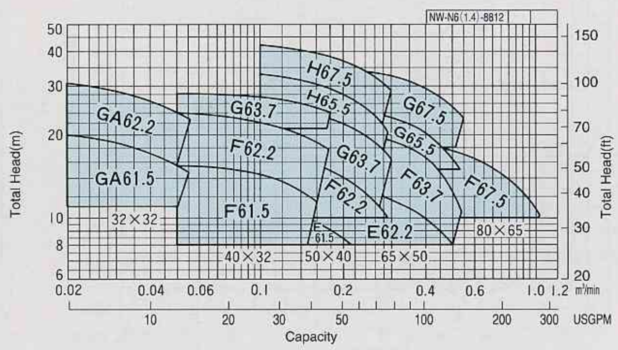
Density=1200kg/m³ and below



Density=1400kg/m³ and below



Density=1400kg/m³ and below

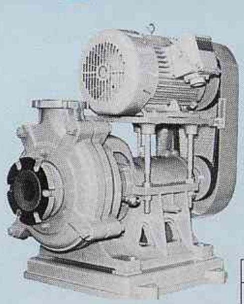


Notes: This selsction chart applies to the following conditions:viscosity=1.0mPa · s(1.0cP).

URSD-L·H MODEL

- Industrial processing waste water
- Sand and topsoil transport
- Scale pit and slag transport

Slurry Pump

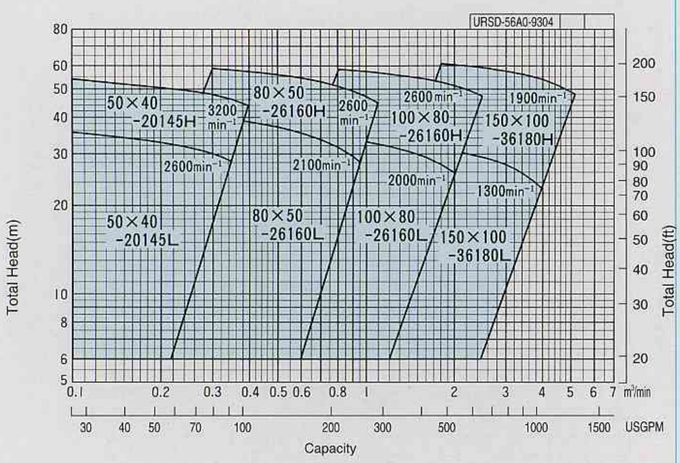


Item		Specification
Liquid handled		Highly concentrated slurry
Temperature		−10〜100℃
Density		1300kg/m³ and below
Max suction pressure		L Model:0.2MPa(2kgf/cm²) H Model:0.3MPa(3kgf/cm²)
Construction	Impeller	Semi-open type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	Exterior:FC250 Interior:HCrFC/NR/EPT/SCS11
	Impeller	HCrFC/NR/EPT/SCS11
	Shaft	S35C/SUS316
Flange		Special Flange

Main features

- Double casing for easy parts replacement.
- Over head motor and V-belt drive for minimum installation space.

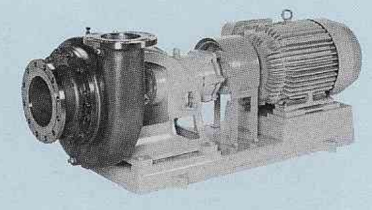
50Hz/60Hz



ULP MODEL

- Pulp liquid transfer

Pulp Pump

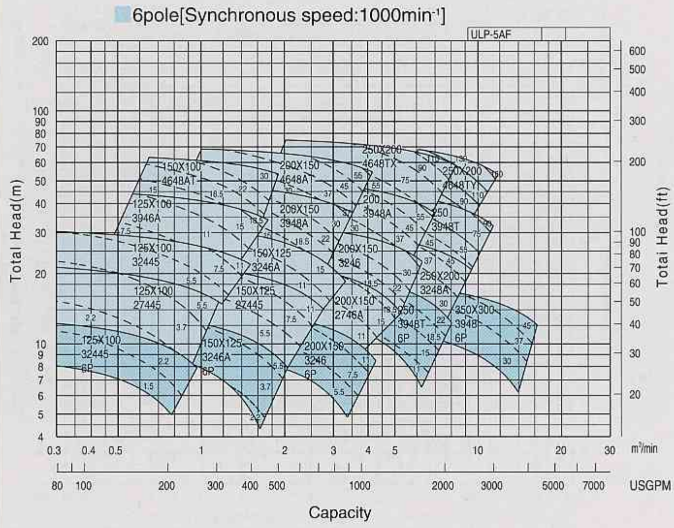


Main features

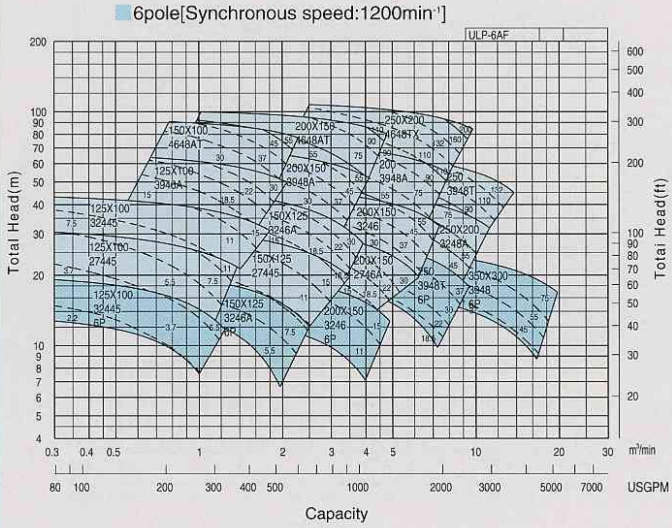
- Simplified adjustment of impeller clearance and triple division of casing has dramatically reduced maintenance time.
- Wear of casing and suction cover is prevent with a side plate.
- Shaf withstands long use by non-contact labyrinth seal.

Item		Specification
Liquid handled		0.3〜6%, Pulp liquid
Temperature		0〜95℃
Density		1000kg/m³
Max suction pressure		0.3MPa(3kg/cm²)
Construction	Impeller	Full open type
	Shaft sealing	Gland packing, mechanical seal (Stationary type)
	Bearing	Ball bearings (oil bath)
Materials	Casing	FC200/SCS13
	Impeller	SCS13
	Shaft	SUS304
Flange		JIS10K

50Hz 4pole[Synchronous speed:1500min⁻¹]
6pole[Synchronous speed:1000min⁻¹]



60Hz 4pole[Synchronous speed:1800min⁻¹]
6pole[Synchronous speed:1200min⁻¹]

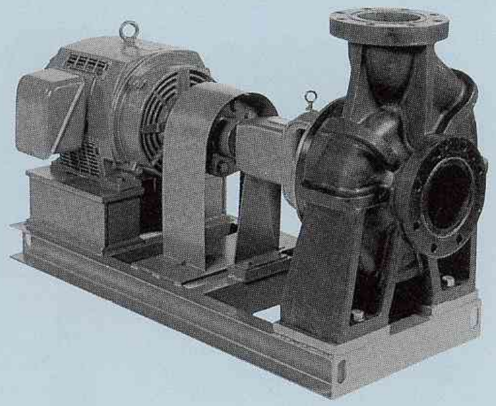


Notes: 1.The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1000kg/m³
2.This chart indicates performance when the pulp density is 4% or less. If the pulp density exceds 4%, a decrease in performance must be considered.In such case,please contact with our office

FPS MODEL

- Seawater intake, supply and circulate
- Corrosive chemical liquids transport and circulate
- Hot spring water transport and circulate

Pentam Plastic Volute Pump

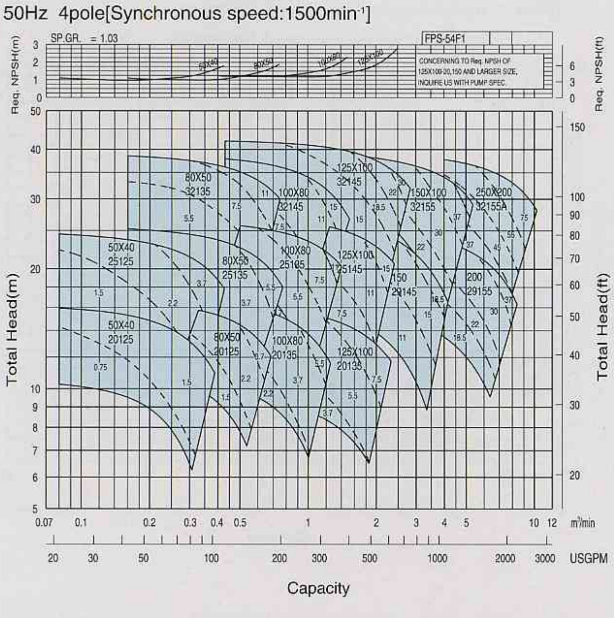


Main features

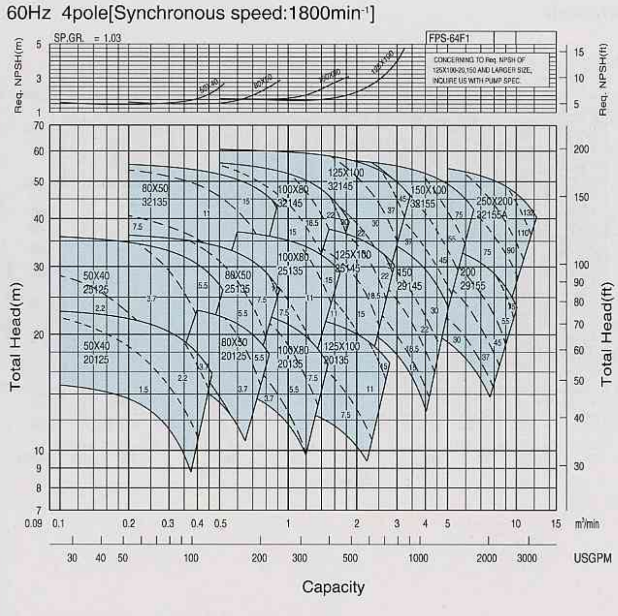
- High efficiency, low NPSH
- High durability, resistance to abrasion.
- EASILY DISPOSABLE
  Absence of fiberglass reinforcement in the plastic-material means the pump can be disposed of by incineration. -An environment-protecting feature.
- EXCELLENT RESISTANCE TO CORROSION
  Highly resistant to acids,sewater and other liquids that corrode stainless steel

Liquid handled		Seawater, Corrosive chemical water, Hot spring water
Temperature		−5~80℃
Max suction pressure		0.2MPa(2kgf/cm²)
Construction	Impeller	Semi-open type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (Oil bath/Sealed grease)
Materials	Casing	PENTAM
	Impeller	PENTAM
	Shaft	SUS316
Flange		JIS10K or equivalent

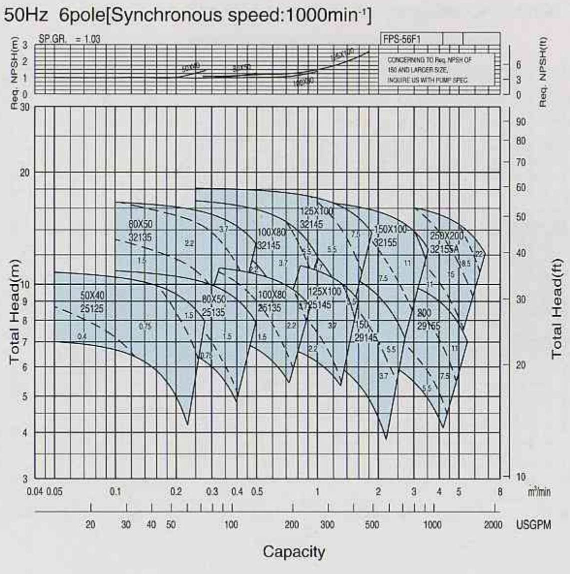
50Hz 4pole[Synchronous speed:1500min⁻¹]



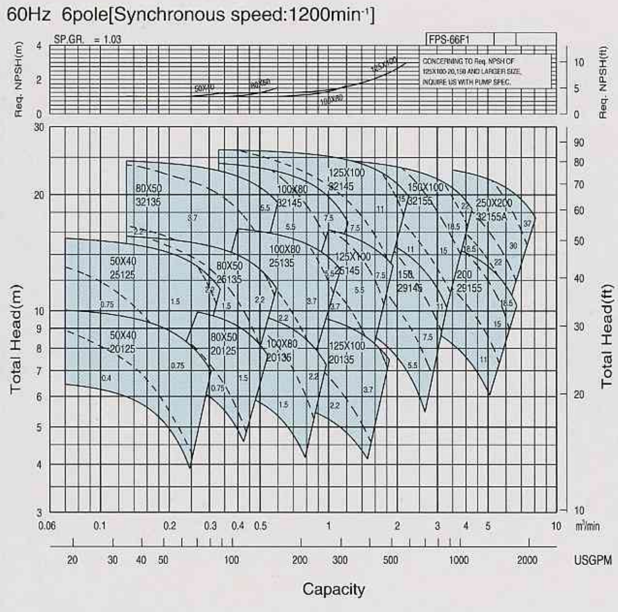
60Hz 4pole[Synchronous speed:1800min⁻¹]



50Hz 6pole[Synchronous speed:1000min⁻¹]



60Hz 6pole[Synchronous speed:1200min⁻¹]

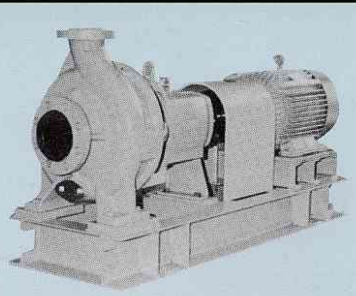


Notes: 1. NPSH varies with pump model. Consult applicable performance curves determine NPSH.
2. The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1030kg/m³

IFL MODEL

- Strong acidic or alkaline liquids transport.
- Chloride chemical liquids transport.

Teflon® Lining Pump

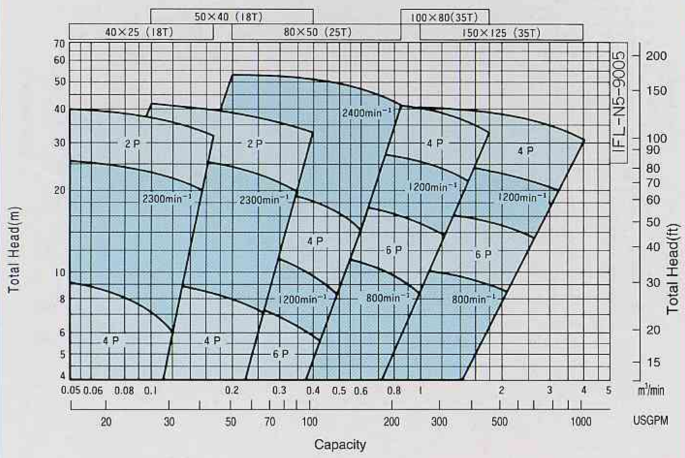


Main features

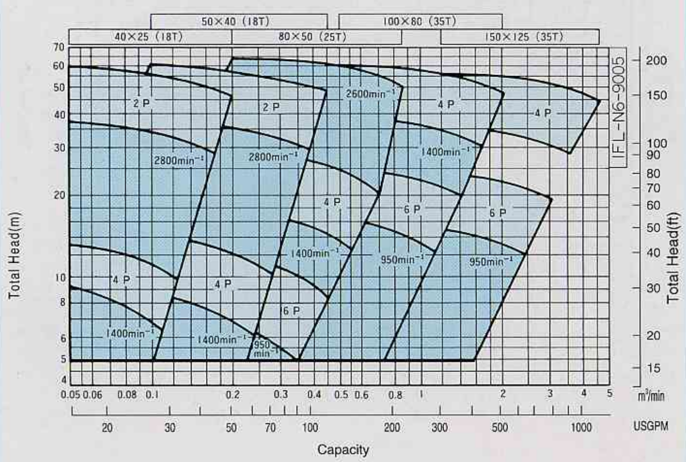
- Excellent resistance to corrosion by Teflon® Lining

Liquid handled		Acidic, alkaline, pharmaceutical, and corrosive liquids
Temperature		0~150℃
Density		400mm²/s{cSt} and below
Max suction pressure		0.45MPa{4.5kgf/cm²}
Construction	Impeller	Semi-open type
	Shaft sealing	Mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	FCD400/Teflon® (PFA)
	Impeller	FCD400/Teflon® (PFA)
	Shaft	SUS304
Flange		JIS10K or equivalent

50Hz Directly coupled motor, 2/4/6-pole — min⁻¹ Belt drive



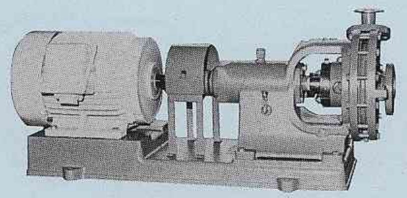
60Hz Directly coupled motor, 2/4/6-pole — min⁻¹ Belt drive



ULTP MODEL

- Strong acidic or alkaline liquids transport.
- Chloride chemical liquids transport.

Titanium Pump

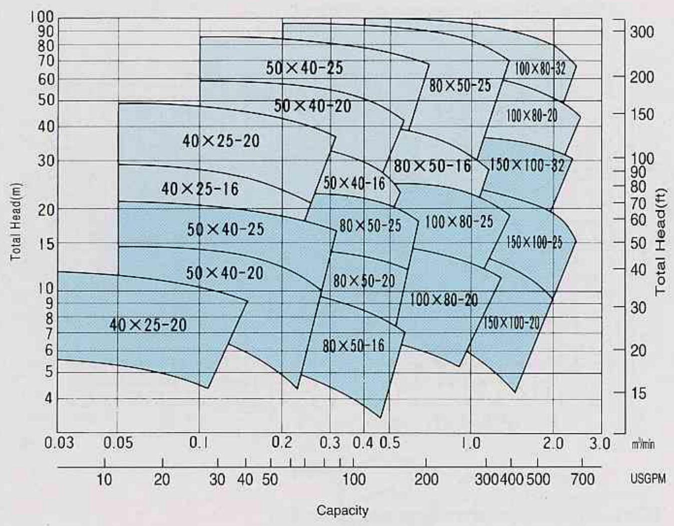


Main features

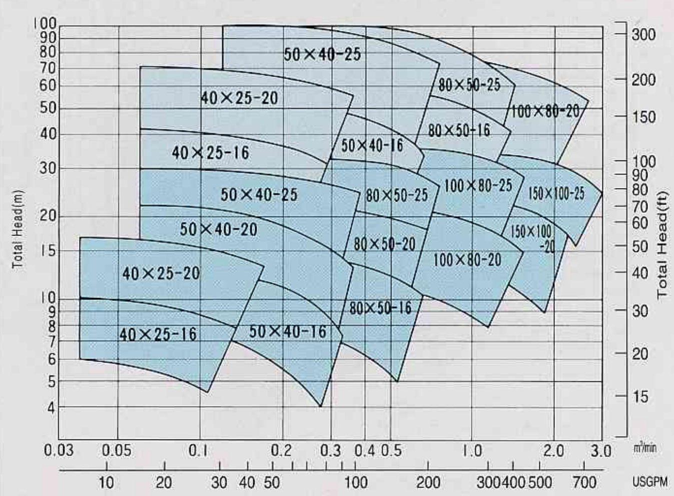
- Material in contact with liquid is titanium, for excellent resistance to corrosion.

Liquid handled		Acidic, alkaline, Brine, and galvanizing waste water spring water
Temperature		0~150℃
Max working pressure		0.98MPa{10kgf/cm²}
Construction	Impeller	Open or Semi-open type
	Shaft sealing	Mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	Titanium
	Impeller	Titanium
	Shaft	Titanium/SCM440
Flange		Loose flange (JIS10K or equivalent)

50Hz 2pole[Synchronous speed:3000min⁻¹]
4pole[Synchronous speed:1500min⁻¹]



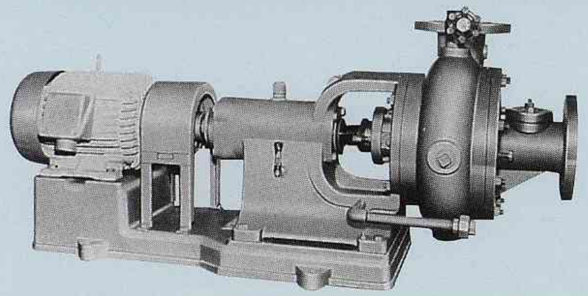
60Hz 2pole[Synchronous speed:3600min⁻¹]
4pole[Synchronous speed:1800min⁻¹]



ULK MODEL

- For draining waste water and filth from raw and sewage plant.
- Sludge transporte
- Solid transporte

Clogless Volute Pump

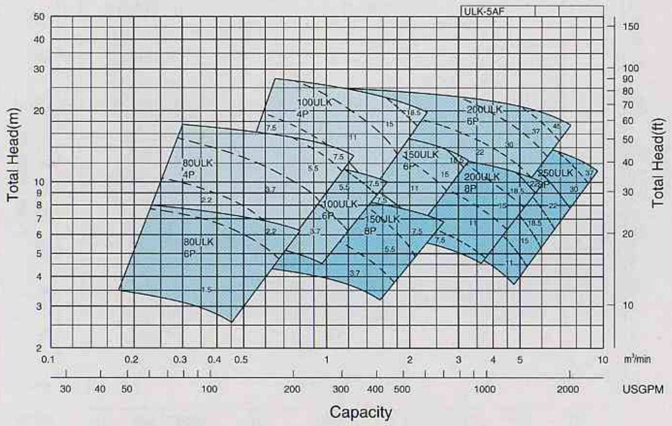


Main features

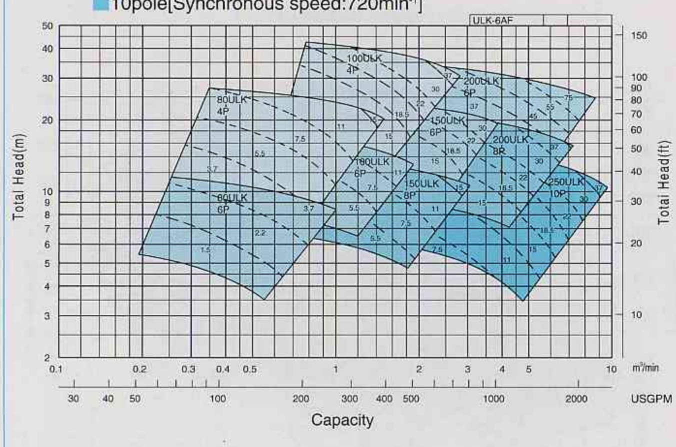
- Discharges solids and long-fiber without clog.

Liquid handled		Waste water, waste solids, sludge, pulp
Temperature		0～80℃
Max suction pressure		0.3MPa{3kgf/cm²}
Construction	Impeller	Non-clog type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (oil bath)
Materials	Casing	FC200/HCRFC
	Impeller	FC200/SCS13/HCrFC
	Shaft	S35C/SUS420J₁/SUS304
Flange		SPECIAL/JIS10K

50Hz
4pole[Synchronous speed:1500min⁻¹]
6pole[Synchronous speed:1000min⁻¹]
8pole[Synchronouspeed:750min⁻¹]



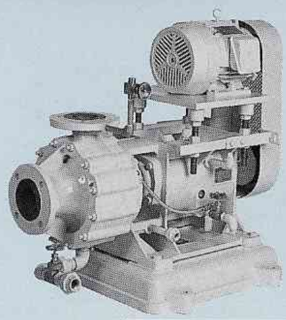
60Hz
4pole[Synchronous speed:1800min⁻¹]
6pole[Synchronous speed:1200min⁻¹]
8pole[Synchronous speed:900min⁻¹]
10pole[Synchronous speed:720min⁻¹]



IFMZ MODEL

- For transporting filth and sludge from sewage plants
- Long-fiber pulp transporting
- General industrial waste water drain

Screw Volute Pump

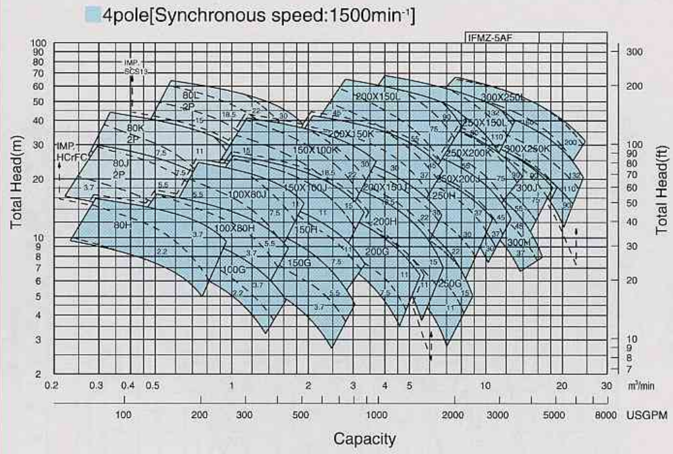


Main features

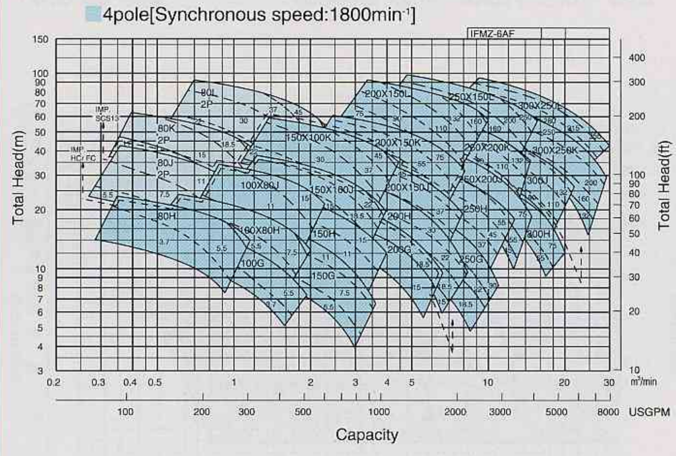
- No-clog type and high efficiency.
- There is little fluctuation in flow and control is easy.
- Compact design.

Liquid handled		Waste water, waste solids, sludge, pulp
Temperature		0～80℃
Max working pressure		0.09～0.2MP{0.9～2kgf/cm²}
Construction	Impeller	Screw type
	Shaft sealing	Gland packing, mechanical seal
	Bearing	Ball bearings (Oil bath)
Materials	Casing	FC250/HCrFC
	Impeller	FC250/SCS13/HCrFC
	Shaft	S35C/SUS304
Flange		SPECIAL/JIS10K

50Hz
2pole[Synchronous speed:3000min⁻¹]
4pole[Synchronous speed:1500min⁻¹]



60Hz
2pole[Synchronous speed:3600min⁻¹]
4pole[Synchronous speed:1800min⁻¹]



Notes: 1. The V-belt drive motor type are given in a separate option chart, please contact with our office.
2. The numbers in the areas enclosed by broken lines indicate motor capacity in kw for a density of 1000kg/m³

VY・VZ MODEL

- River water intake
- Intake and supply for seawater
- City water and industrial water supply and circulate

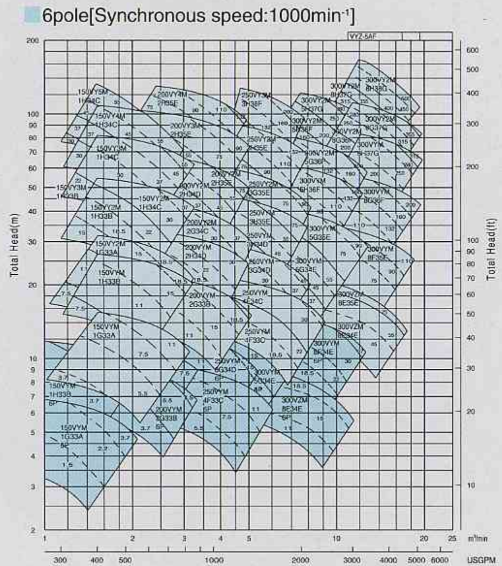
Vertical Mixed Flow Pump

Main features

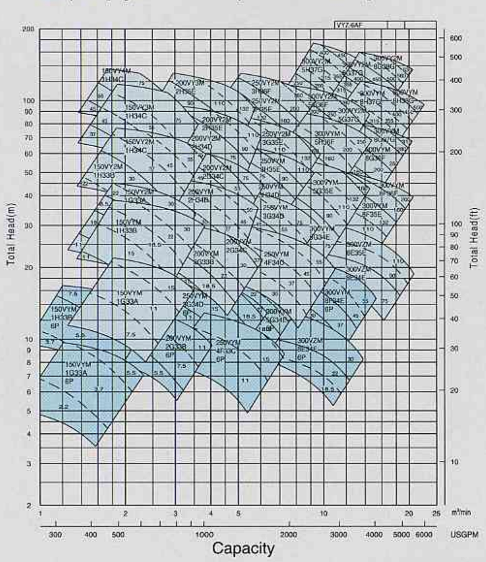
- Smaller installation space than that of horizontal pumps.
- Submerged impeller dispenses with the need for priming and allows pumping up of water from deep sources.

Liquid handled		River water,city water industries,seawater
Temperature		0~90℃
Construction	Impeller	VY Type:closed VZ Type:semi-open
	Shaft sealing	Gland packing
	Bearing	Upper section:Ball bearings (oil bath) Intermediate and lower sections:Bearing metal (graphite,ceramic,teflon rubber)
Materials	Casing	FC200/SCS14
	Impeller	CAC406/SCS14/SCS6
	Shaft	SUS420J1/SUS316
Flange		JIS10K/JIS16K

50Hz 4pole[Synchronous speed:1500min-1]
6pole[Synchronous speed:1000min-1]



60Hz 4pole[Synchronous speed:1800min-1]
6pole[Synchronous speed:1200min-1]



VWS MODEL

- Cutting oil circulate
- Industrial waste water drain

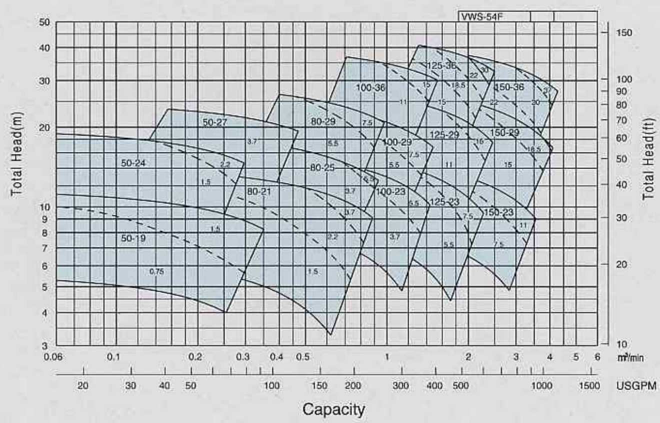
Vertical Volute Pump

Main features

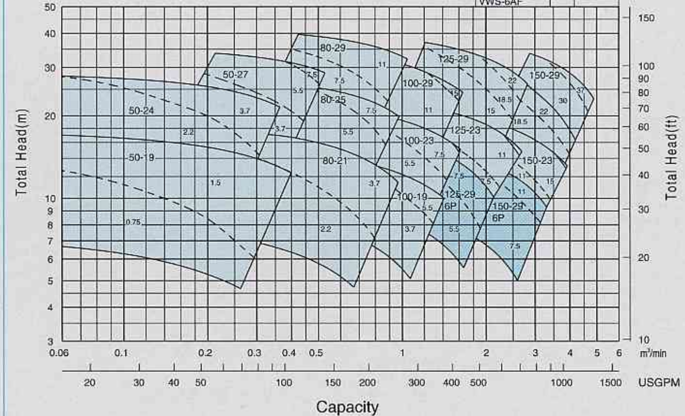
- Semi-open impeller is used, so can also handle liquids containing slurry.

Liquid handled		Cutting oil circulate, Waste water, process liquid, seawater
Temperature		0~90℃
Viscosity		40cSt and below
Density		1.0
Max working pressure		4.6kgf/cm²G (Frame number "36" is 5.3kgf/cm²G)
Construction	Impeller	Semi-open type
	Shaft sealing	Mechanical seal (FC200 type) Gland packing,
	Bearing	Upper section:Ball bearings(grease sealed) Intermediate and lower sections: Bearing metal
Materials	Casing	FC200/SCS14
	Impeller	FC200/SCS14
	Shaft	S35C/SUS420J1/SUS316
Flange		JIS10K

50Hz 4pole[Synchronous speed:1500min-1]



60Hz 4pole[Synchronous speed:1800min-1]
6pole[Synchronous speed:1200min-1]



Notes: The numbers in the areas enclosed by broken. lines indicate motor capacity in kw for a density of 1000 kg/m³

VWMS MODEL

- Industrial water transport
- City water transport

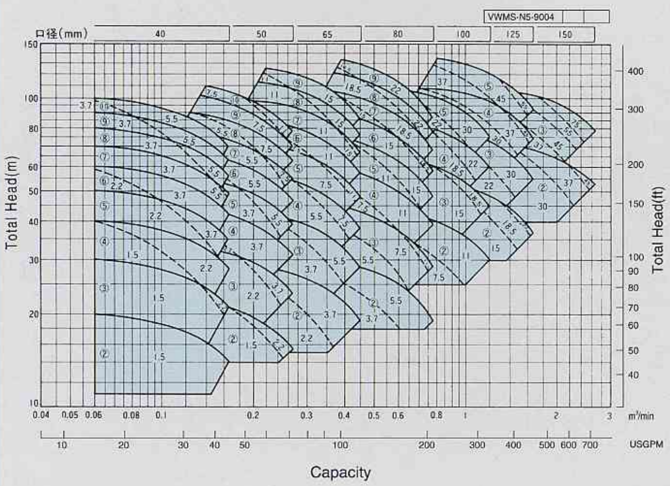
Vertical Multistage Volute Pump

Main features

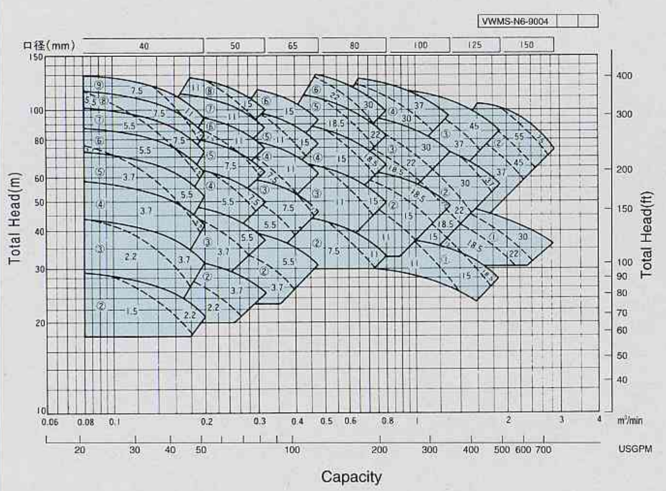
- High efficiency and over wide range is possible by double volute design.
- Axial thrust received by balance piston.
- Intermediate sleeve bearings are self-lubricated by pumping liquid..

Liquid handled		City water, industrial water
Temperature		0~80℃
Density		1000kg/m³
Construction	Impeller	Closed
	Shaft sealing	Gland packing
	Bearing	Upper section:Ball bearings(grease sealed) Intermediate and lower sections: Bearing metal (graphite)
Materials	Casing	FC200
	Impeller	CAC406/FC200/SCS13
	Shaft	SUS420J₁
Flange		JIS10K

50Hz 4pole Impeller materials CAC406, FC200[Synchronous speed:1500min⁻¹]



60Hz 4pole Impeller materials CAC406, FC200[Synchronous speed:1800min⁻¹]



BMS MODEL

- City water intake and supply
- Industrial water, irrigation water

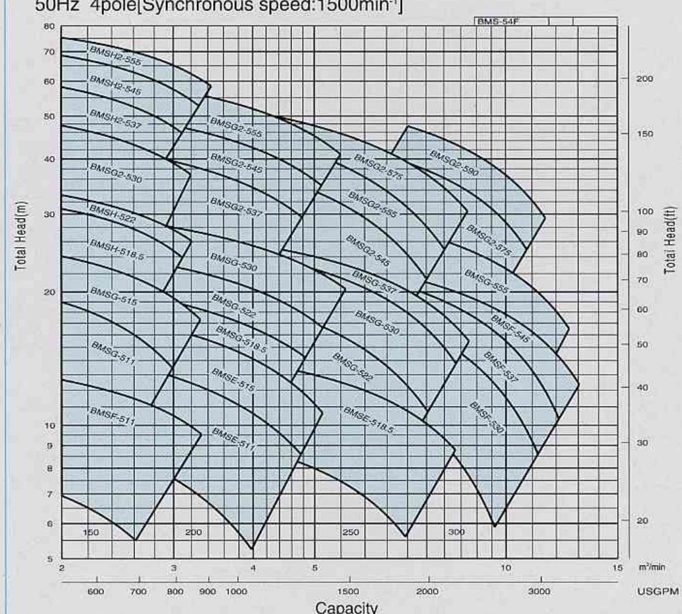
Submersible Motor Pump

Liquid handled		Fresh water, river water
Temperature		0~32℃
Maximum submergence		10m
Construction	Impeller	closed
	Shaft sealing	Oil seal. mechanical seal
Materials	Casing	FC200
	Impeller	CAC402
	Shaft	SUS420J₁
Flange		JIS10K
Moter	Type	Water filled submersible motor
	Pole	4Pole
	Phase-Voltage	3-Phase 50Hz:200V 60Hz:200-220V, (45kW and below) 50Hz:400V 60Hz:400-440V, (55kW and above)
	Bearing	(Thrust)tilting pad bearing (Radial) bushing

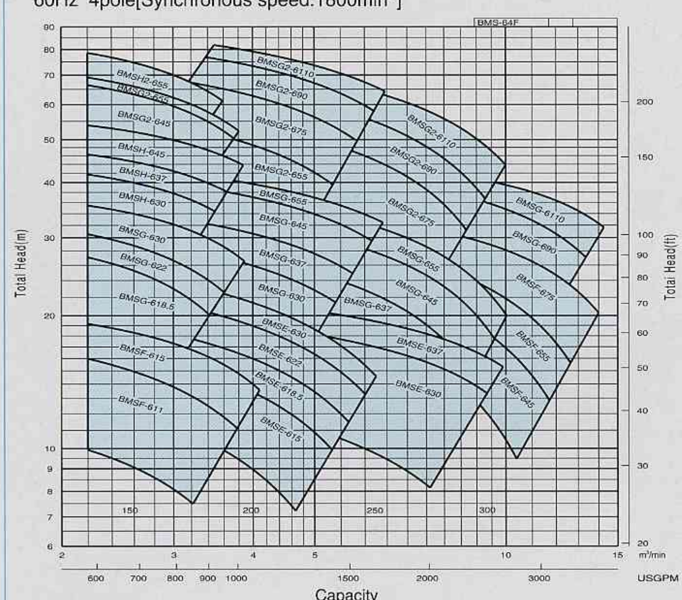
Main features

- Since water is not soiled by adoption of water filled submersible, it is the best for public water.
- As the pump can be operated without priming, automatic operation is easy.
- No floor space required for installation as the pump is submersible type.

50Hz 4pole[Synchronous speed:1500min⁻¹]



60Hz 4pole[Synchronous speed:1800min⁻¹]

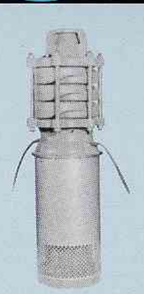


Notes: 1. The selection chart is different for impeller material SCS13; please ask our sales office for information
2. The encircled numbers in the areas enclosed by unbroken lines indicate the numbers of stages, the humbers in the areas enclosed by broken lines indicate motor capacity in kw

BMSS MODEL

- City water intake and supply
- Industrial water, irrigation water

Submersible Motor Pump

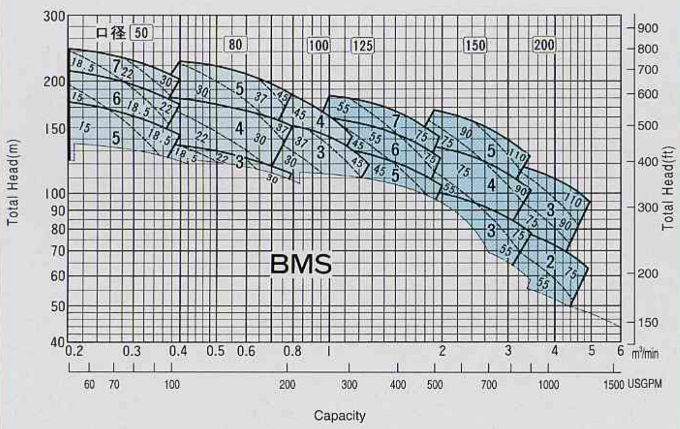


Liquid handled		Fresh water, river water
Temperature		0~32℃
Maximum submergence		10m
Construction	Impeller	Closed
	Shaft seeling	2Pole:W-oil seal 4Pole:Oil seal, mechanical seal
Materials	Casing	FC200/FC250
	Impeller	CAC406
	Shaft	$SUS420J_1$
Flange		JIS10K, JIS20K
Moter	Type	Water filled submersible motor
	Pole	2Pole or 4Pole
	Phase·Voltage	3-Phase 50Hz:200V, 60Hz:200·220V, (45kW and below) 50Hz:400V, 60Hz:400·440V, (55kW and above)
	Bearing	(Thrust)tilting pad bearing (Radial)bushing

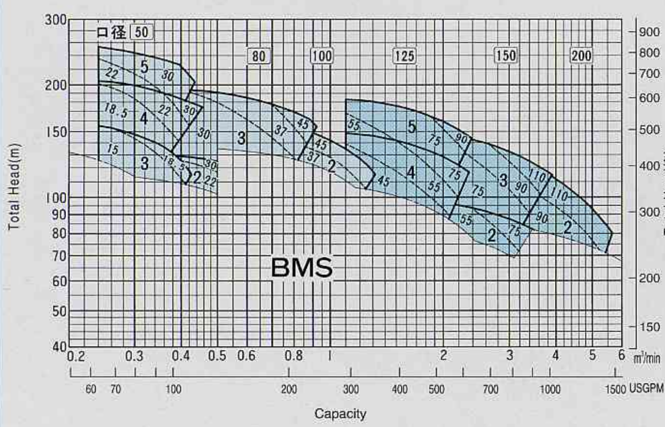
Main features

- Since water is not soiled by adoption of water filled submersible, it is the best for public water.
- As the pump can be operated without priming, automatic operation is easy.
- No floor space required for installation as the pump is submersible type.
- High pressure zone is accep table.

50Hz 2pole[Synchronous speed:3000min^{-1}]
4pole[Synchronous speed:1500min^{-1}]



60Hz 2pole[Synchronous speed:3600min^{-1}]
4pole[Synchronous speed:1800min^{-1}]



DSMZ MODEL

- Water supply for sewage plants and sewage transfer plants
- River water intake
- General industrial waste water drain

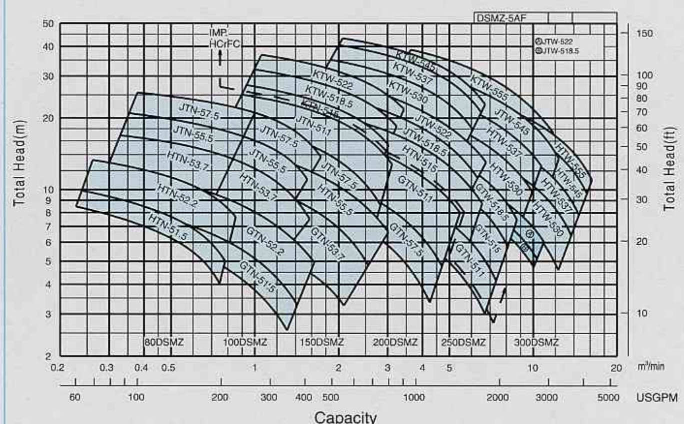
Submersible Screw Volute Pump

Liquid handled		Wasle water, sewage, sludge, rain water
Temperature		0~40℃
Maximum submergence		10m
Construction	Impeller	Screw type
	Shaft sealing	W-mechanical seal(cartridge type)
Materials	Casing	FC250
	Impeller	FC250/SCS13/HCrFC
	Shaft	SUS403
Flange		Special,JIS10K
Moter	Type	Dry submersible motor
	Pole	4Pole or 6Pole
	Phase·Voltage	3-Phase 50Hz:200V, 60Hz:200·220V, (45kW and below) 50Hz:400V, 60Hz:400·440V, (55kW and above)
	Bearing	Ball bearings
	Shaft Sealing	Side in contact with liquid:TW/TW Motor side: Ceramic/carbon
	Protective equipment	Leakage detetor, thermal detector

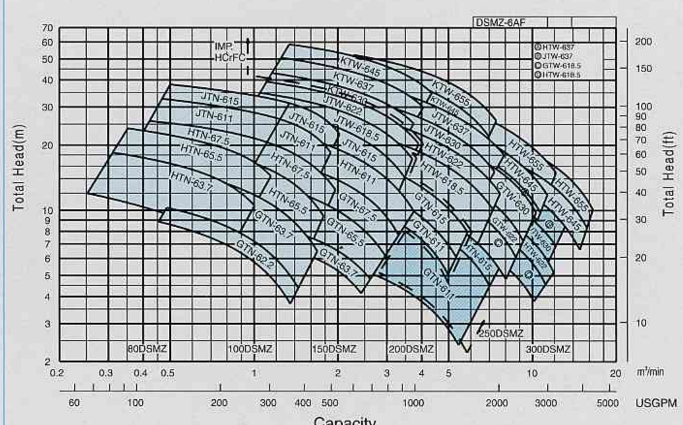
Main features

- Quick discharge column for easy maintenance.
- A built-in leakage detector and thermal detector prevent motor damage.

50Hz 4Pole[Synchronous speed:1500min^{-1}]
6Pole[Synchronous speed:1000min^{-1}]



60Mz 4Pole[Synchronous speed:1800min^{-1}]
6Pole[Synchronous speed:1200min^{-1}]



DSC MODEL

- Water supply for sewage plants and sewage transfer plants
- River water intake
- General industrial waste water drain

Submersible Sewage Pump

Main features

- The closed impeller is designed to pass solids measuring up to 75mm in diameter and high efficiency.
- Quick discharge column for easy maintenance.
- A built-in leakage detector and thermal detector prevent motor damage.

Liquid handled		Waste water, sewage, rain water, river water,general waste water
Temperature		0~40℃
Max. depth for pump immersion		10m
Construction	Impeller	Closed(two or three blade)
	Shaft sealing	W-mechanical seal(cartridge type)
Materials	Casing	FC250
	Impeller	FC250
	Shaft	$SUS420J_1$
Flange		JIS10K,Special
Moter	Type	Dry submersible motor
	Pole	4Pole or 6Pole
	Phase·Voltage	3-Phase 50Hz:200V 60Hz:200·220V, (45kW and below) 50Hz:400V 60Hz:400·440V, (55kW and above)
	Bearing	Ball bearings
	Shaft sealing	Side in contact with liquid:TW/TW Motor side: Ceramic/carbon
	Protective equipment	Leakage detector, thermal detector

DSCF MODEL

- Water supply for sewage plants and sewage transfer plants
- River water intake
- General industrial waste water drain

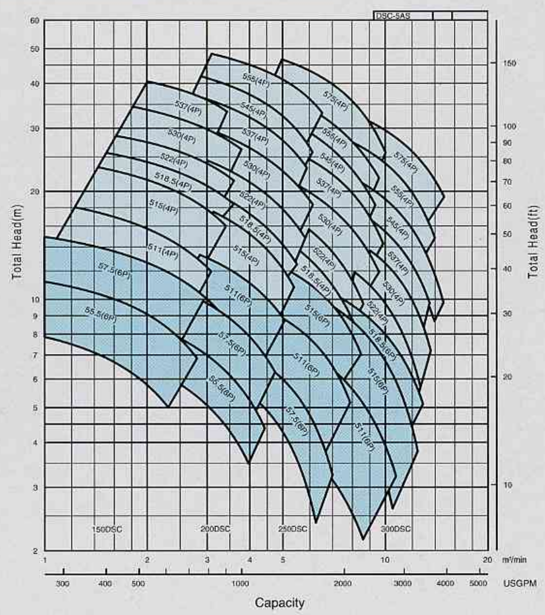
Submersible Sewage Pump

Main features

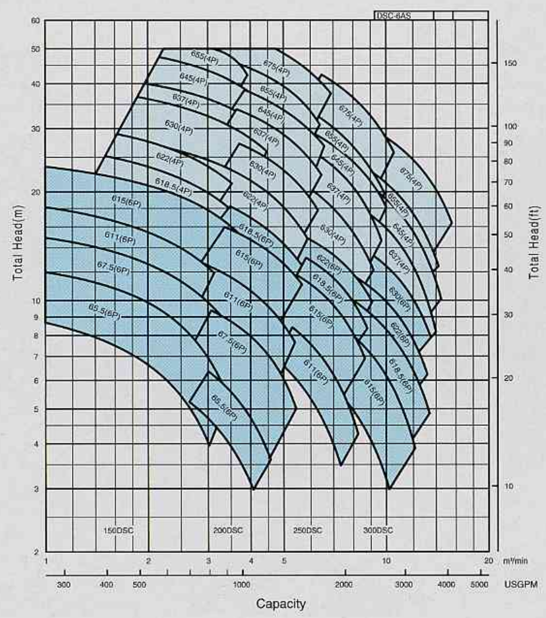
- In addition to special DSC features,the water hammer is prevented by a built-in flywheel equipment.

Liquid handled		Waste water, sewage, rain water, river water
Temperature		0~40℃
Max. depth for pump immersion		10m
Construction	Shaft	Closed(two or three blade)
	Bearing	W-mechanical seal(cartridge type)
	Flywheel	Housed in top section of motor
Materials	Casing	FC250
	Impeller	FC250
	Shaft	$SUS420J_1$
Flange		JIS10K,Special
Moter	Type	Dry submersible motor with flywheel
	Pole	4Pole or 6Pole
	Phase·Voltage	3-Phase 50Hz:200V 60Hz:200·220V, (45kW and below) 50Hz:400V 60Hz:400·440V, (55kW and above)
	Bearing	Ball bearings
	Shaft Sealing	Side in contact with liquid:TW/TW Motor side: Ceramic/carbon
	Protective equipment	Leakage detector, thermal detector

50Hz 4Pole[Synchronous speed:1500min^{-1}]
6Pole[Synchronous speed:1000min^{-1}]



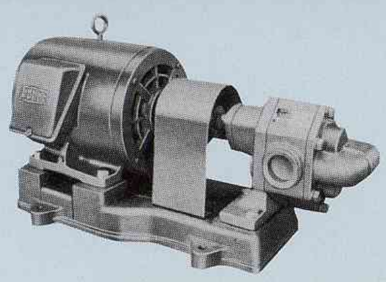
60Hz 4Pole[Synchronous speed:1800min^{-1}]
6Pole[Synchronous speed:1200min^{-1}]



GPF MODEL

- Oil supply of various machines
- Various fuel transport
- Oil pressure operation
- Oil burner injection

Gear Pump



Main features

- Needle bearings adopted for increased durability.
- Oil supply is not needed for inner metal construction and maintenance is easy.

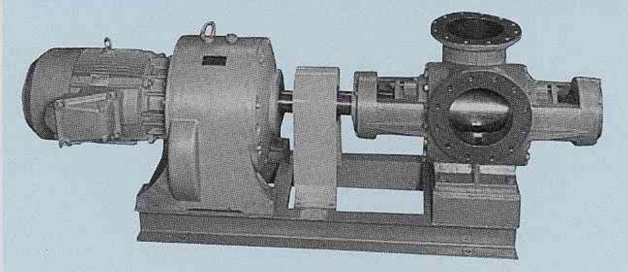
Liquid handled		Heavy oil, lubricating oil
Temperature		0~80℃
Viscosity		5~500mm²/S (cSt)
Max suction pressure		−0.05~0.1MPa[−0.5~1kgf/cm²]
Construction	Shaft sealing	Mechanical seal
	Bearing	Radial: Needle bearings Thrust: Ball bearings
Materials	Casing	FC200
	Gear	S45C
	Shaft	S35C
Connection joining		JIS10K

Viscosity mm²/s (cSt)	MODEL	50Hz				60Hz			
		Capacity (m³/min)	Pressure MPa (kgf/cm2)	speed (min⁻¹)	Motor output (kW)	Capacity (m³/min)	Pressure MPa (kgf/cm2)	speed (min⁻¹)	Motor output (kW)
7~80	50GPFM	0.16	0.64(6.5)	965	3.7	0.205	0.39(4)	1160	3.7
		0.15	0.98(10)	965	5.5	0.19	0.78(8)	1160	5.5
						0.185	0.98(10)	1160	7.5
	65GPFM	0.275	0.29(3)	965	3.7	0.32	0.49(5)	1160	5.5
		0.24	0.69(7)	965	5.5	0.29	0.83(8.5)	1160	7.5
		0.215	0.98(10)	965	7.5	0.27	0.98(10)	1160	11
	80GPFM	0.41	0.39(4)	965	5.5	0.53	0.20(2)	1160	5.5
		0.37	0.69(7)	965	7.5	0.5	0.44(4.5)	1160	7.5
						0.46	0.69(7)	1170	11
		0.33	0.98(10)	975	11	0.425	0.98(10)	1170	15
	100GPFM	0.65	0.54(5.5)	975	11	0.85	0.20(2)	1170	11
		0.6	0.88(9)	975	15	0.82	0.39(4)	1170	15
						0.76	0.74(7.5)	1170	18.5
		0.58	0.98(10)	975	18.5	0.73	0.98(10)	1170	22
81~250	50GPFM	0.175	0.49(5)	965	3.7	0.21	0.34(3.5)	1160	3.7
		0.165	0.98(10)	965	5.5	0.205	0.69(7)	1160	5.5
						0.2	0.98(10)	1160	7.5
	65GPFM	0.29	0.25(2.5)	965	3.7	0.34	0.29(3)	1160	5.5
		0.275	0.59(6)	965	5.5	0.33	0.59(6)	1160	7.5
		0.255	0.98(10)	965	7.5	0.315	0.98(10)	1170	11
	80GPFM	0.44	0.29(3)	965	5.5	0.53	0.29(3)	1160	7.5
		0.42	0.59(6)	965	7.5	0.51	0.59(6)	1170	11
		0.39	0.98(10)	975	11	0.48	0.98(10)	1170	15
	100GPFM	0.71	0.20(2)	965	7.5	0.85	0.39(4)	1170	15
		0.7	0.39(4)	975	11	0.83	0.59(6)	1170	18.5
		0.68	0.69(7)		15	0.81	0.78(8)	1170	22
		0.66	0.98(10)	975	18.5	0.8	0.98(10)	1170	30
251~500	50GPFM	0.18	0.34(3.5)	965	3.7	0.21	0.25(2.5)	1160	3.7
		0.18	0.83(8.5)	965	5.5	0.205	0.59(6)	1160	5.5
		0.18	0.98(10)	965	7.5	0.205	0.98(10)	1160	7.5
	65GPFM	0.29	0.39(4)	965	5.5	0.35	0.49(5)	1160	7.5
		0.28	0.74(7.5)	965	7.5	0.34	0.59(6)	1160	11
		0.28	0.98(10)	975	11	0.34	0.98(10)	1170	15
	80GPFM	0.44	0.49(5)	965	7.5	0.54	0.25(2.5)	1160	7.5
		0.425	0.88(9)	975	11	0.54	0.49(5)	1160	11
		0.425	0.98(10)	975	15	0.52	0.78(8)	1170	15
	100GPFM	0.7	0.29(3)	975	11	0.85	0.29(3)	1170	15
		0.7	0.59(6)	975	15	0.85	0.49(5)	1170	18.5
		0.68	0.83(8.5)	975	18.5	0.83	0.69(7)	1170	22
		0.68	0.98(10)	975	22	0.8	0.98(10)	1170	30

ERL·ERT MODEL

- Highly viscous fluids transport
- Solids transport
- Materials and the product food trarsport.

Rock Hill Pump



Main features

- A transfer of highly viscous fluids up tp 1 million mPa·s(cP) is possible.
- A transfer of liquids containing solids, blocks and fiber is possible,without destroying.

Liquid handled		Highly viscous liquids and liquids containing solids
Temperature		0~250℃
Viscosity		100mPa·s (cP) and below
Construction	Scraper	Plate
	Shaft sealing	GlandPacking, mechanical Seal
	Bearing	Ball bearing packed
Materials	Casing	FC250/SCS13
	Scraper	S45C/SUS304/plastic
	Shaft	S45C/SUS304
Connection joining		JIS10K

ERL Model (industrial) Selection chart

Model Name	Model Code	Capacity(ℓ/min)／Synchronous speed(min⁻¹)		
		2,000mPa·s(cP)	5,000mPa·s(cP)	10,000mPa·s(cP)
50ERL	50LWO	126/250	100/200	75/150
80ERL	130LWO	273/210	210/165	160/125
100ERL	200LWO	360/182	290/145	220/110
120ERL	300LWO	509/182	406/145	308/110
150ERL	500LWO	800/162	650/130	500/100

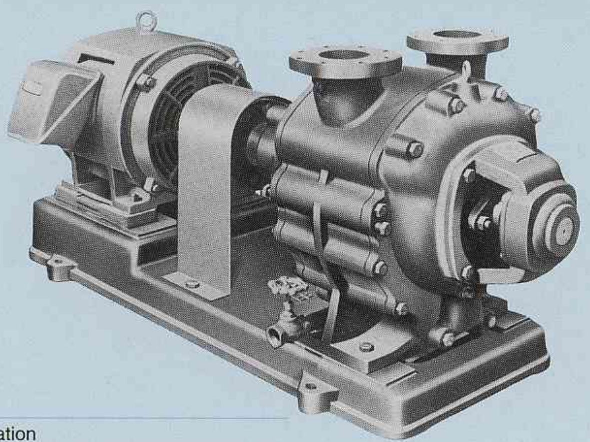
ERT Model (For foodstuff) Selection chart

Model Name	Model Code	Capacity(ℓ/min)／Synchronous speed(min⁻¹)		
		2,000mPa·s(cP)	5,000mPa·s(cP)	10,000mPa·s(cP)
80ERT	50THI	75/150	60/120	45/90
100ERT	120THI	180/150	144/120	108/90
125ERT	200THI	286/130	220/100	165/75
125ERT	300THI	420/120	350/100	280/80
150ERT	500THI	588/120	490/100	392/80
200ERT	1000THI	800/80	700/70	600/60

NVEL· NVEH MODEL

● Vacuum equipment

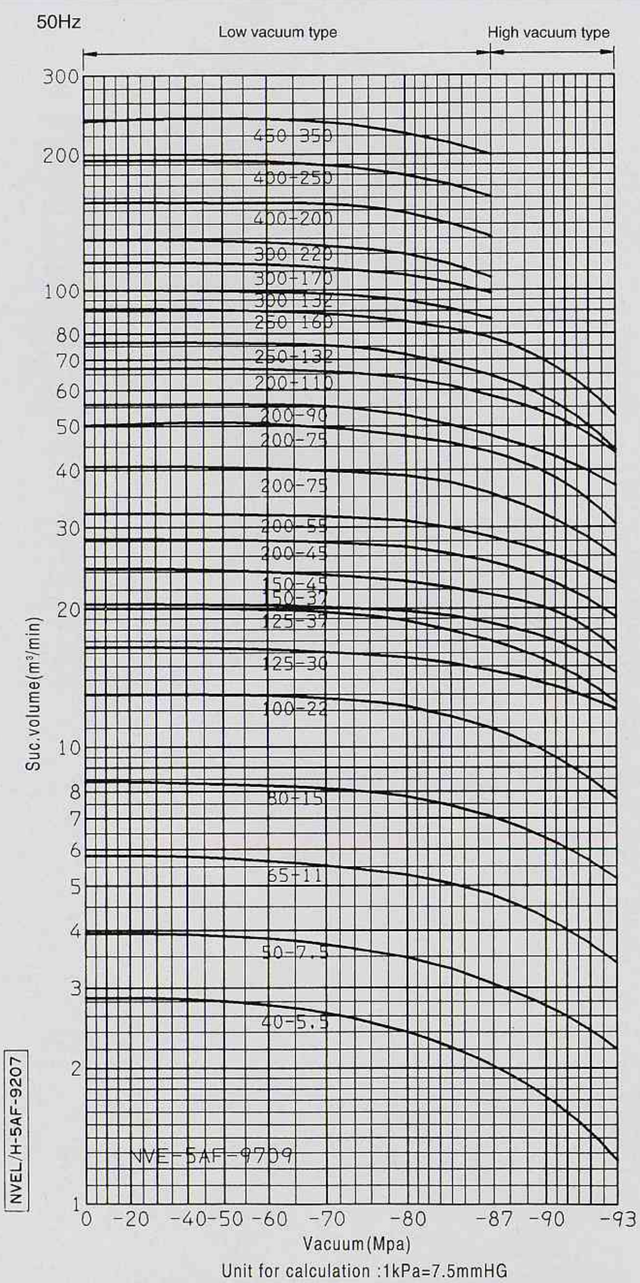
Water Ring Vacuum Pump

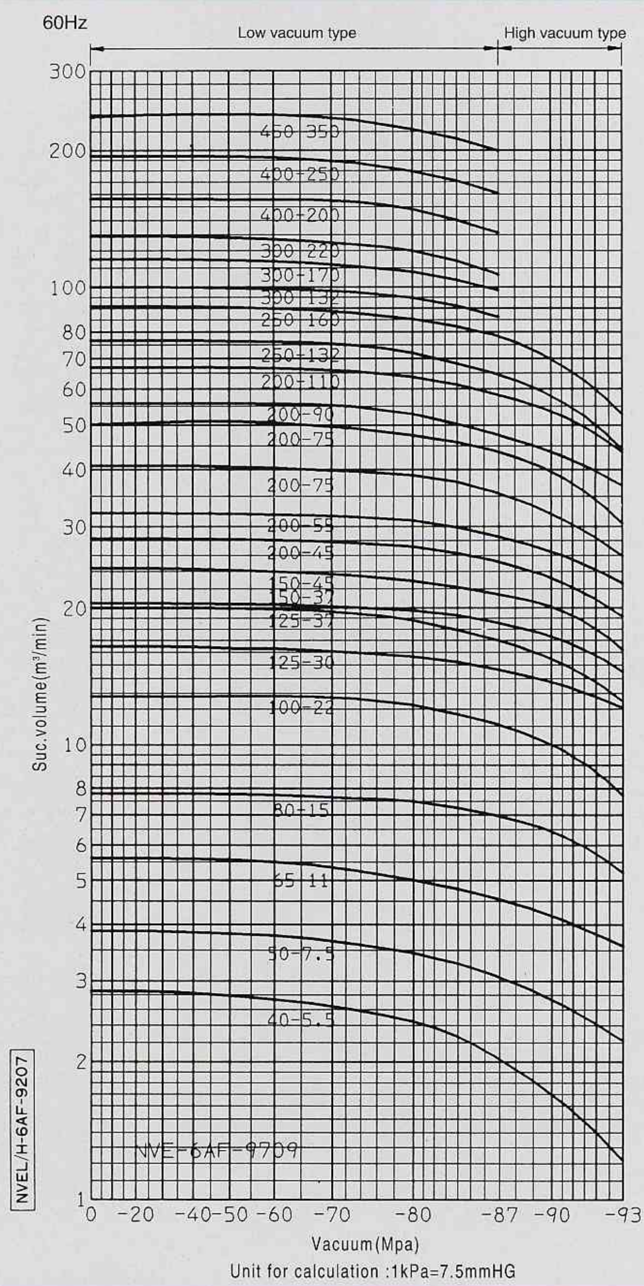


Main features

- ● Low noise operation
- ● High-vacuum performance with high efficiency by a one-turn-one-action.

Liquid handled		Air and various gas
Temperature		−15〜50℃
Max.operatinng vacuum		NVEL : 87kPa (−650mmHg) NVEH: 93kPa (−700mmHg)
Ultimate vacuum		NVEL : 96kPa (−720mmHg) NVEH: 98kPa (−740mmHg)
Construction	Type	Water ring
	Shaft sealing	Gland packing
	Bearing	Ball bearing or auto matic alignment roller bearing
Materials	Casing	FC200
	Rota	FCD450/CAC406/SCS13/SCS14
	Shaft	S45C/SUS304/SUS316
Flange		JIS10K

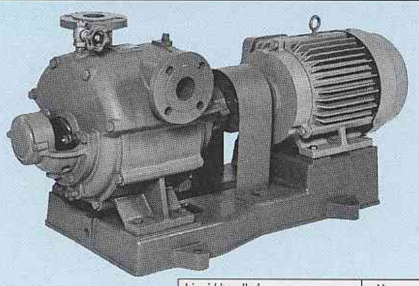




NVK MODEL

● Vacuum equipment

Water Ring Vacuum Pump

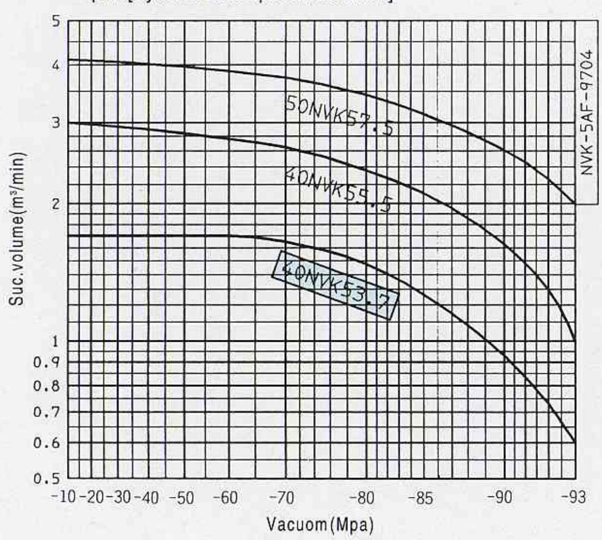


Liquid handled		Air
Temperature		−15~50℃
Max.operating vacuum		−93kPa (−700mmHg)
Ultimate vacuum		−97kPa (−730mmHg)
Construction	Type	Water ring type
	Shaft sealing	Mechanical seal, Gland packing
	Bearing	Ball bearings
Materials	Casing	FC200
	Rota	CAC406
	Shaft	SUS403
Flange		Special flange/JIS10K

Main features

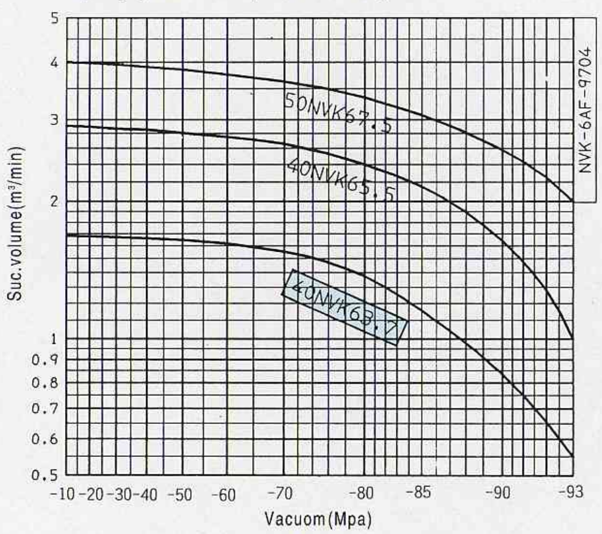
- Low noise operation
- High-vacuum performance with high efficiency by a one-turn-one-action.

50Hz 2pole[Synchronous speed:3000min-1]
4pole[Synchronous speed:1500min-1]



Unit for calculation :1kPa=7.5mmHG

60Hz 2pole[Synchronous speed:3600min-1]
4pole[Synchronous speed:1800min-1]



Unit for calculation :1kPa=7.5mmHG

M E M O

MEMO

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