ShinMaywa

Applications of Pumps, Blowers, Aerators, and Related Equipment

ShinMaywa Industries, Ltd.

For a better tomorrow. ShinMaywa makes the world more comfortable and convenient place.

We have a dream. Striving to make society livelier, brighter and harmonious.

Aircraft Business


Training & supporting plane U-36A


US-1A search-and-rescue amphibian

- Aircraft production
- Aircraft upgrading and servicing
- Aircraft-related systems and equipment


US-2 search-and-rescue amphibian

Special Purpose Truck Business

- Construction vehicles
- Environment-related vehicles
- Material-handling vehicles


Dump truck


Detachable container system "ARMROLL"


Refuse compactor "G-PX"


Rotating-plate garbage truck "G-RX"


Tail gate lifter "UNDER VENCLE GATE"


Tanker

Parking Systems Business

- Mechanical parking systems


Box type circulating parking system "TRANSPARK"


Elevator-type car parking system "ELEPARK"


Horizontal circulating parking system "CROSSPARK"

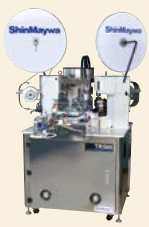
- Airport-related facilities


Aircraft passenger boarding bridge "PAXWAY®"

Industrial Systems Business

- Terminating machine
- DD motors
- Vacuum unit

Pneumatic spindle unit "SPM30C"



Terminating machine "TR500"

Ion plating unit "VCD1300AD"

- Thin film·Surface reforming business

DLC (Diamond-Like Carbon) coating unit

- Environmental systems

Recycling plaza (Koshigaya Recycling Center)

History of ShinMaywa

SINCE1920 Meeting human and society needs in the modern history of Japan

Founding days

1920
Kawanishi Machinery Company was founded. Located in Kobe, its aircraft manufacturing division was set up, which became later Kawanishi Aircraft Company Limited.

1928
Kawanishi Aircraft Company Limited was established. Lots of top-rated planes, such as "Nishiki flying boat" and "Naval fighter plane Shidenkai", were fabricated there.

Postwar recovery

1949
Shin Meiwa Industry Company Limited was established. While it was banned after the war to manufacture aircraft, the company made a clean restart with new business lines, based on the history of Kawanishi Aircraft Company Limited and backed by the accumulated know-how and experiences. Around then, the company came up with the first dump truck model.

Pioneer brand of motorbike "Pointer"

1949
·Motorbike "Pointer" launched.

Joining in civilian sector

1949
·First dump truck model completed.

1950
·Production of aircraft components started.

Focus on aircraft

1920
·Kawanishi Nigata plane (many persons mounted to demonstrate the plane's toughness)

1943
·Naval fighter plane Shidenkai

Supporting urban infrastructure development

1954
·First self-priming pump completed.

Toward an affluent Japan, onto the global arena

1964
·Technical alliance with a Swedish partner for the manufacture of electric submersible pumps; Production started.
·1st Rotary & Vertical type Car Parking System developed.

1965
·Speed Pack (refuse collector) production started.

1966
·Defense Agency (now Ministry of Defense) placed an official order for the first PX-S flying boat prototype. The prototype made its first flight in the following year.

1968
·Technical alliance with an American partner for the manufacture of "Jetway" passenger boarding bridges.

1971
·Technical alliance with a French partner for the manufacture of dumping devices (Tentsuki Dump).

1973
·TOWN PACK (collector for large size refuse) developed.

1974
·First flight of the prototype of PS-1 Kai (renamed to US-1), the first Japanese amphibian, succeeded.

Establishing the ShinMaywa brand

1992
·Production of B777 "Wing-to Body Fairing" started.

1999
·Refuse Transfer Station Systems completed in Jakarta, Indonesia.

2003
·First flight of the prototype of US-1A Kai (renamed to US-2) succeeded.

2005
·First model of new Crushing and Compacting type Refuse Collectors, developed with Fuji Heavy Industries Ltd., "TOWN PACK" G-PX series launched.

2009
·The Submersible Pump "CNW Series" received the Japan Machinery Federation President's Award for its superior energy-saving performance.

·EV(Electric Vehicle) charging system for "Elepark" Elevator Car Parking System launched.

2012
·"CNX" series stationary submersible pumps (NonClog type) developed.
·"SD-N" diagonal-flow submersible pumps, with high-speed rotary impeller, developed.

2014
·Fluid equipment business on its 60th anniversary.

2020
·Celebrated the 100th anniversary of the founding of the business.

Plants

Ono Plant

Takarazuka Plant

Konan Plant

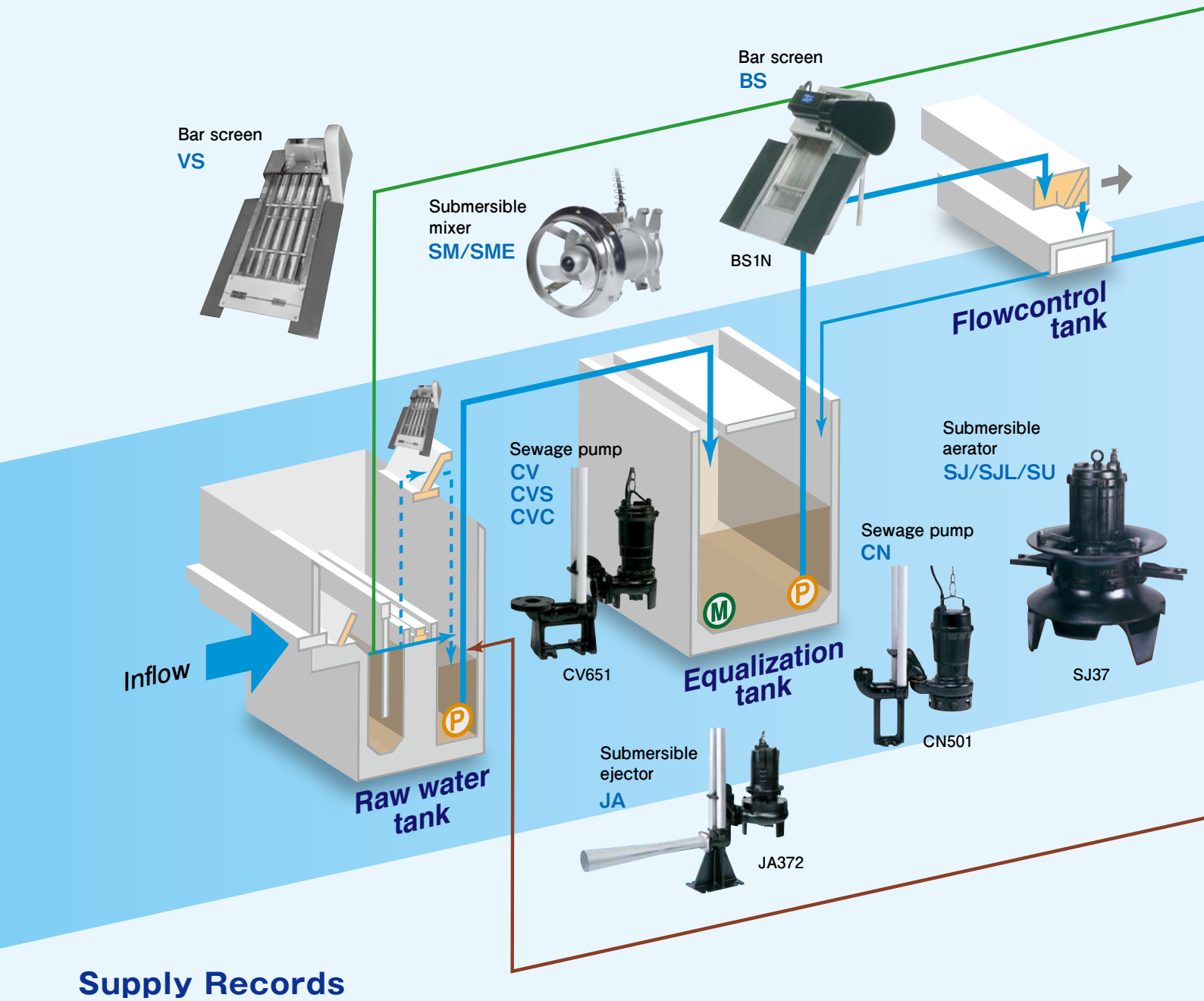
Sano Plant

Samukawa Plant

Hiroshima Plant

Flow Chart of Intermittent Aeration Treatment

With these ShinMaywa equipment, you can enjoy wastewater treatment process effectively. For example,this is one of popular wastewater treatment process.



Supply Records

CNT (Dry Pit Pump)

ARS (Blower)

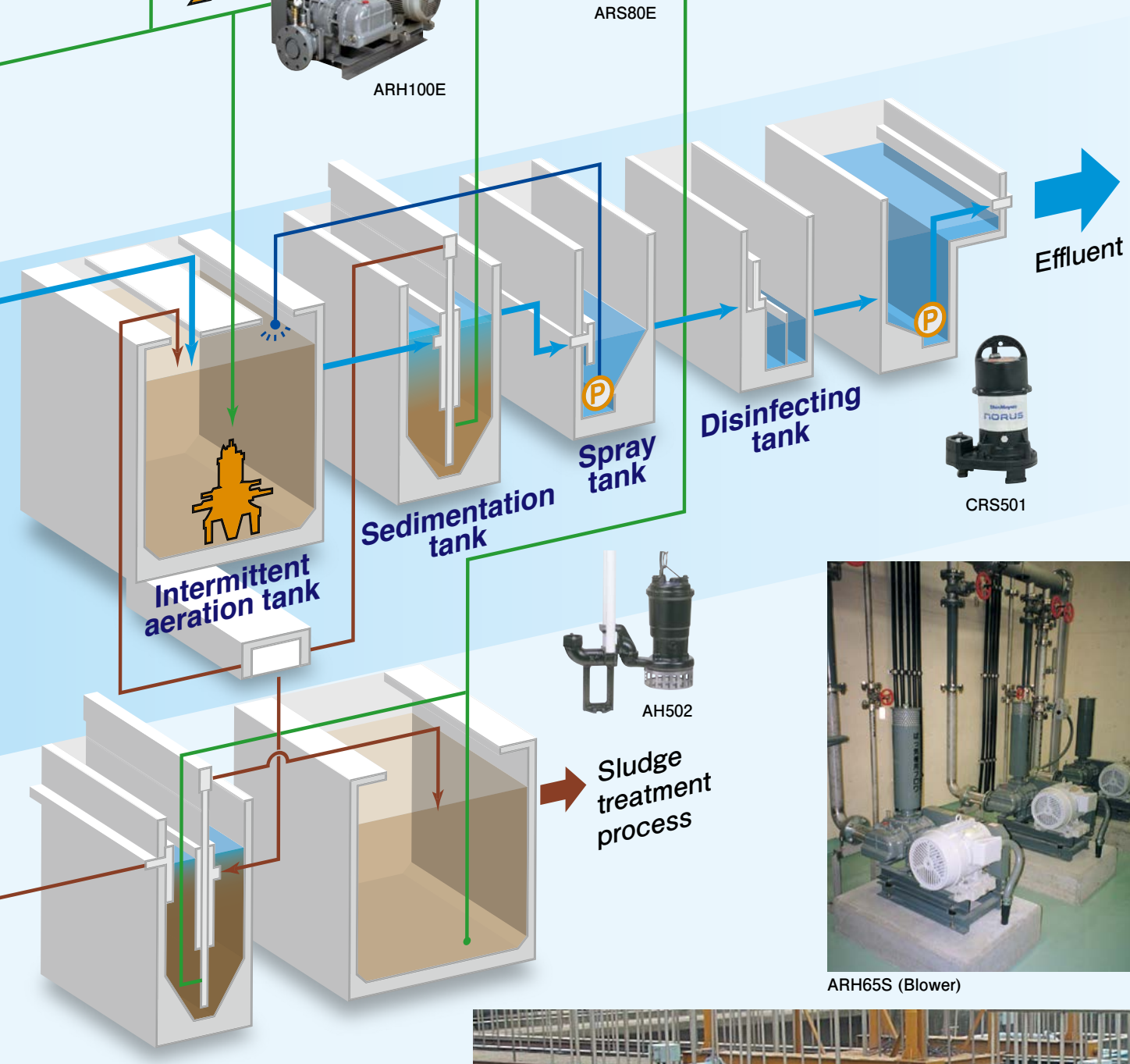
ARS (Blower)

Helical rotor blower
ARH

ARH100E

Spur rotor blower
ARS

ARS80E



CRS501

AH502

Sludge treatment process

ARH65S (Blower)

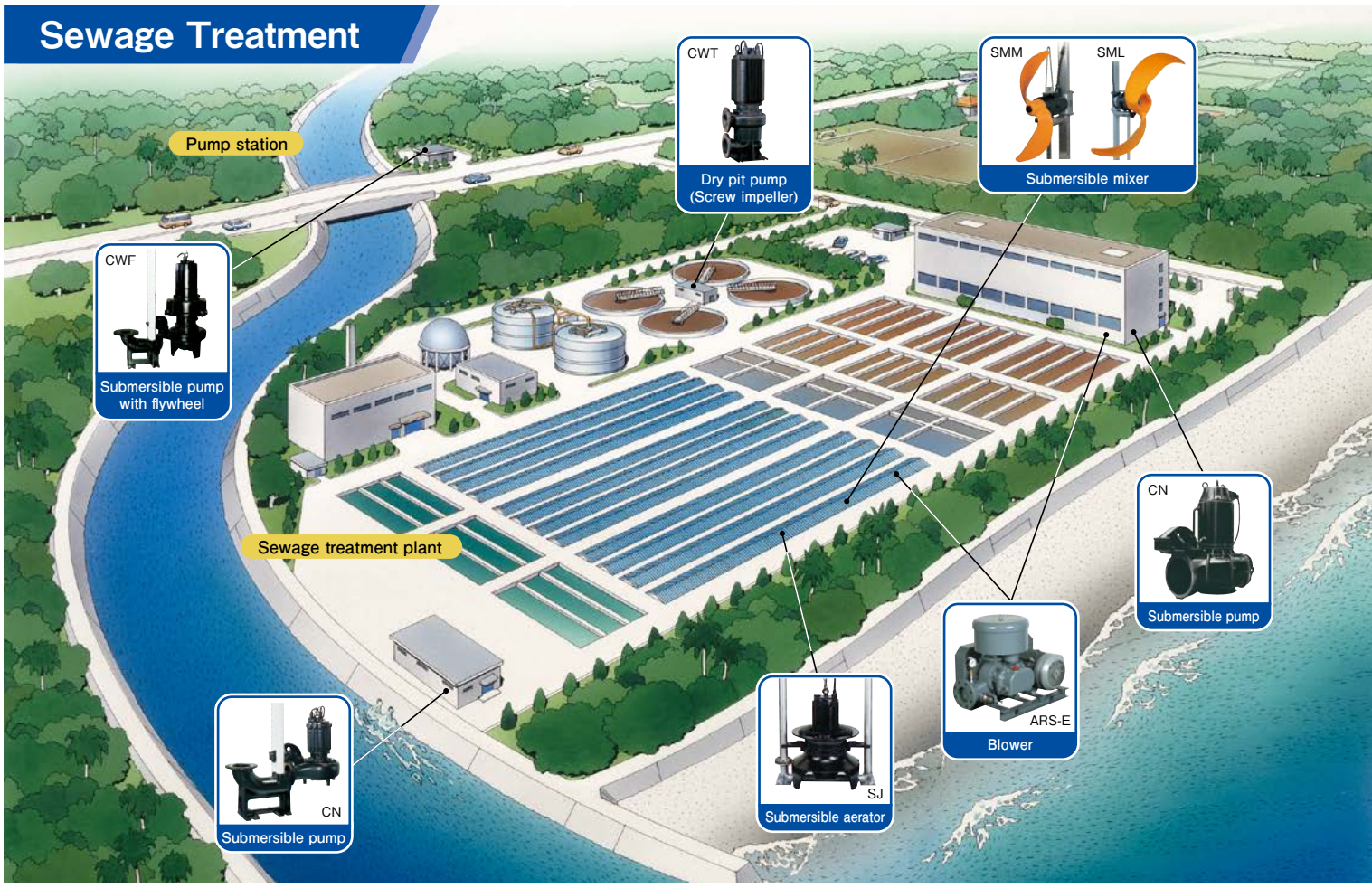
Sludge transfer pump
CNT
CWT

CNT1001

Dry pit type

Submersible aerator “SJ” is now in operation

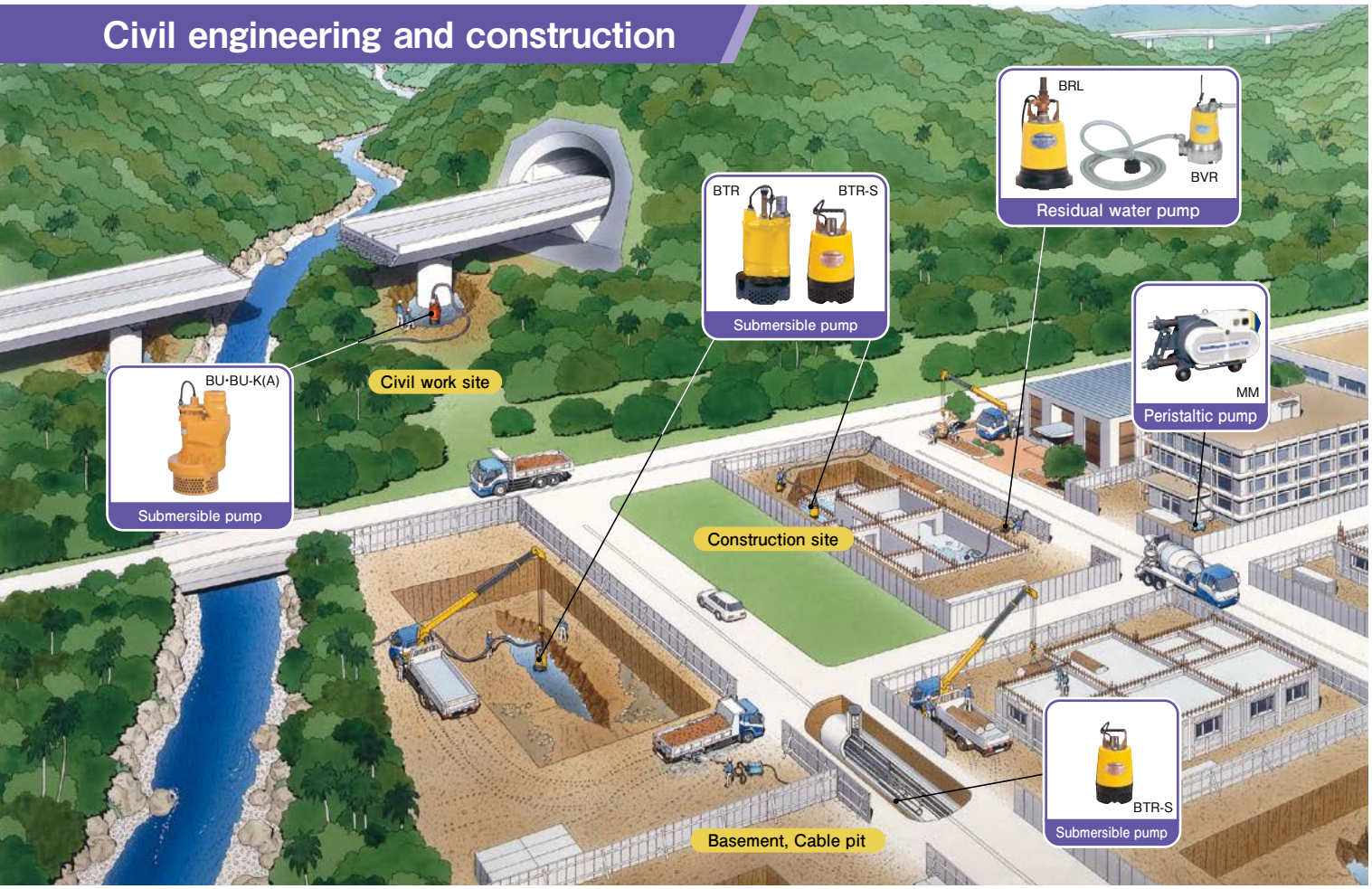
ShinMaywa offers optimum equipment



in various scenes.

Industrial wastewater, Water intake

Civil engineering and construction



Product-Application classification

(Use this as a guide for equipment selection)

Product: Classification		Models	Page	Commercial building, Public building: Mixing (odor prevention)	Commercial building, Public building: Effluent, Transfer	Industrial: Aeration	Industrial: Mixing	Industrial: Effluent, Transfer	Industrial: Pneumatic conveying	Industrial: Separation, Removal, Recovery	
Submersible pump for wastewater treatment											
A series C series	Multi-vane semi-open impeller	A, AH	10・21		●			●			
	Channel impeller	CN・CNH, CN1, CNT, CNL			●			●			
	Vortex impeller	CV・CVH, CVS, CVC, CVM			●			●			
	Screw impeller	CW・CWH, CWT			●			●			
	Chopper / Cutter / Grinder	CJ, CK, CKM			●			●			
	Stainless steel submersible pump	S3A			●			●			
		S3N, S3V			●			●			
High eff. and high solid pass capable	Non-clog scroll impeller	CNWX	12		●			●			
Brand-new chopper mechanism and high solid pass capable		CNMJ	14		●			●			
Lightweight submersible pump “NORUS”		CR, CRS	16		●			●			
		CRC						●			
Submersible pump with flywheel		CNF, CVF, CWF	18								
Float pump		FP	21					●			
C series - large discharge size		CNX, CN, CW	19					●			
Submersible mixed and axial flow pump		SD, SA	20								
Horizontal submersible axial flow pump		SAH, SAH-L									
Pump-related products											
Liquid level control equipment		LC, MS, FV	11		●			●			
Submersible dewatering pump for construction work and general purpose											
2-pole motor	Lightweight, Compact	BTR, BUCF, BHV	22・23								
	Residual water	BRL			●						
4- or 6-pole motor	High flow rate	BU・BU-K									
	Sand pump	SN									
Self-priming residue dewatering pump		BVR			●						
Blower (Roots-type)											
Spur rotor blower		ARS/ARS-E	24			●	●		●		
Helical rotor blower		ARH-S/SP・ARH-E/EP	25	●		●	●		●		
Submersible helical rotor blower		RB-H	26	●		●	●				
Submersible mixer											
High speed submersible mixer		SM/SME, SM-W/SME-W, SME-D	28・29	●			●				
Medium speed - Low speed submersible mixer		SMM, SML									
Aeration mixer		SME-R		●			●				
Aeration and mixing											
For wastewater treatment	Self-aspirating aerator	JSA	30	●		●	●				
	Submersible aerator	SJ, SJL, SU	31			●	●				
	Submersible ejector	J・JF・JA・JAF		●		●	●				
Submersible ejector for shallow tank		JB・JBF	31	●		●	●				
Aeration fountain pump		SAF	30								
Screen											
Automatic bar screen		BS, VS	27							●	
Wedge wire screen		S・SB・DSA								●	

	Sewage treatment plant, Rural site wastewater treatment system					Pump station		Onsite wastewater treatment system				Civil works, Construction site	Underpass, Side groove	River	Clear water	Park, Moat, Golf course, etc.		House, Restaurant, Hospital, Laboratory, Agricultural use, etc.	
	Effluent, Transfer	Aeration	Mixing	Separation, Removal, Recovery	Transfer	Mixing	Effluent, Transfer, Returning	Aeration	Separation, Removal, Recovery	Defoaming, Back wash, Filtration	Water supply, Dewatering	Dewatering	Effluent, Transfer, Irrigation	Water intake, Transfer	Aeration, Mixing (Anti-corruption, Landscape)	Water supply, Effluent, Water intake	Aeration	Mixing	Separation, Removal, Recovery
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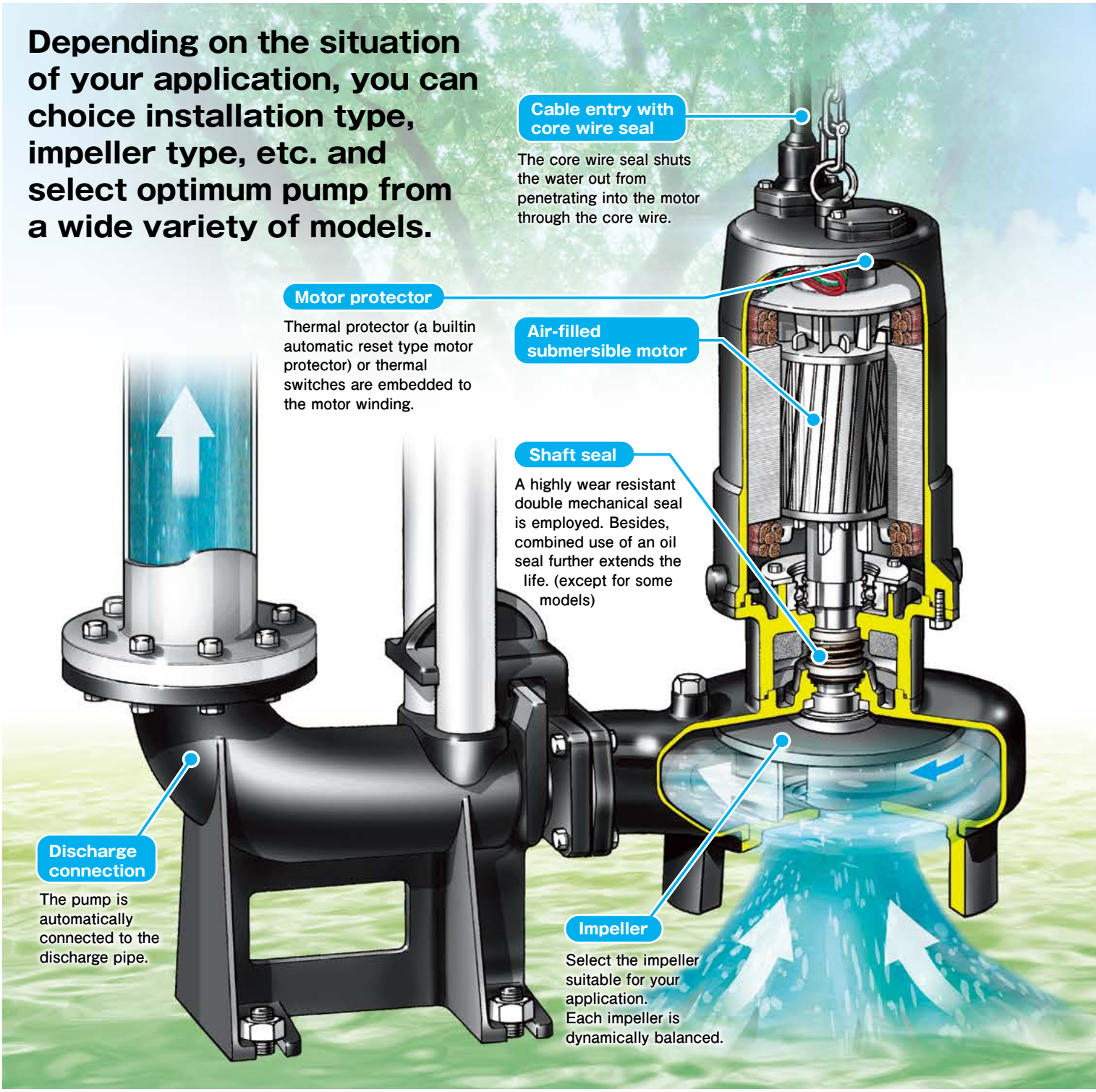
A / C series

Depending on the situation of your application, you can choice installation type, impeller type, etc. and select optimum pump from a wide variety of models.



Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.

Motor protector

Thermal protector (a builtin automatic reset type motor protector) or thermal switches are embedded to the motor winding.

Air-filled submersible motor

Shaft seal

A highly wear resistant double mechanical seal is employed. Besides, combined use of an oil seal further extends the life. (except for some models)

Discharge connection

The pump is automatically connected to the discharge pipe.

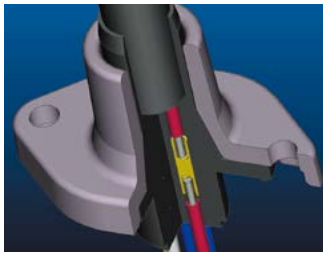
Impeller

Select the impeller suitable for your application.
Each impeller is dynamically balanced.

Features

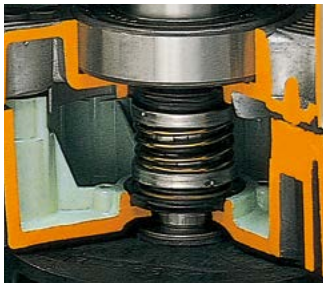
Cable entry with core wire seal

As the cable core wire consists of multi stranded conductor, water may penetrate into the motor by the capillary phenomenon when cable sheath or insulation is damaged or when the end of the cable is submerged. Therefore, a certain part of insulation of each core wire is peeled, and sealed with rubber to prevent water penetration.



Mechanical Seal

Employing double mechanical seal with high wear resistance material to prevent water penetration into motor housing.
Also, in combination with employing the oil seal, life time of mechanical seal shall be extended.



Meet the wide range of needs from various variations.

Non-clog scroll impeller

CNWX

Channel impeller

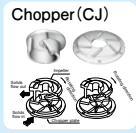
Semi-open type

Closed type

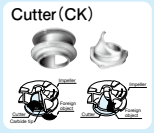
*This figure is Semi-open type

CN·CNH **CN1** **CNT** **CNL**

Chopper / Cutter / Grinder pump

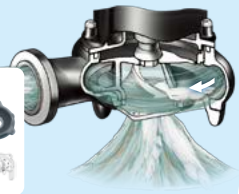


Chopper (CJ)



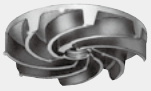
Cutter (CK)

Grinder (CKM)

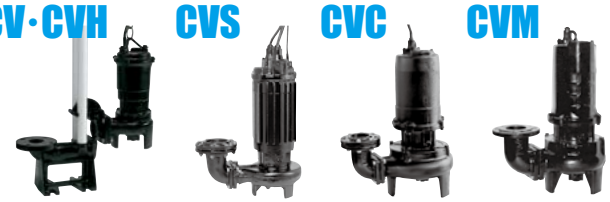


CNMJ **CJ** **CK** **CKM**

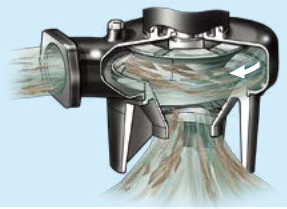
Vortex impeller



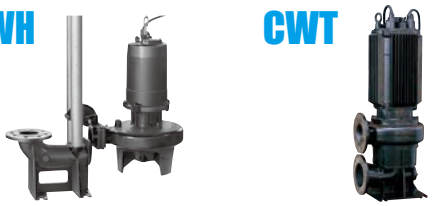
CV·CVH **CVS** **CVC** **CVM**



Screw impeller



CW·CWH **CWT**



Multi-vane semi-open impeller

A **AH**

Stainless steel submersible pump

All wetted parts for this series are made of stainless steel.
We offer three types of impeller for discharging wastewater and sewage from food plants, hospitals, etc.

Multi-vane semi-open impeller
S3A

Channel impeller
S3N

Vortex impeller
S3V

Liquid level control equipment - All models are non-mercury structure for earth environment.

LC Level regulator

Features

Useful for potable water, wastewater and sewage containing the suspended solids. Hardly affected by corrosion or rust even if it is immersed in a corrosive liquid for a long time.

MS Mini switch

Features

Useful for wastewater and sewage containing a few suspended solids.
The MS is available in two types, MS11 (single float) and MS21 (double floats).

FV Oval float

Features

Useful for the fresh water as well as wastewater not containing suspended solids.
A single FV is able to control both the upper and lower liquid levels.

High Efficiency and High Solid Passage Capability

CNWX Event Website

Non-clog Scroll Submersible Pumps

The CNWX series of non-clog submersible pumps have a high pass-through capability that exceeds that of current submersible pumps.

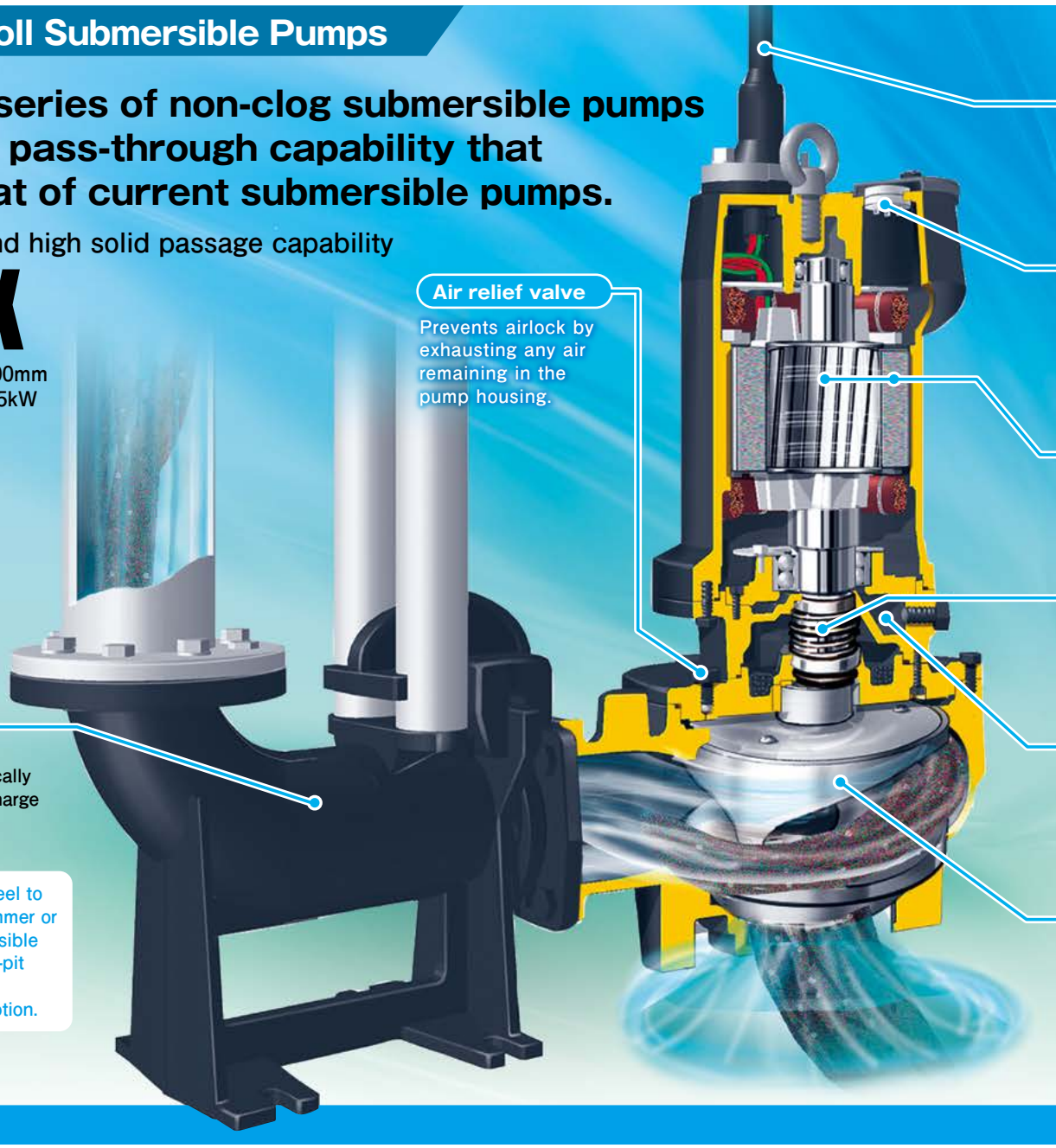
High efficiency and high solid passage capability

CNWX

Discharge size: 50 - 100mm
Rated output: 0.75 - 7.5kW

Solid size
100%* of discharge size

*Excluding some explosion-proof models.



Air relief valve
Prevents airlock by exhausting any air remaining in the pump housing.

Discharge connection
The pump is automatically connected to the discharge pipe.

CNWX with flywheel to prevent water hammer or air-cooled submersible motor type for dry-pit operation are also available as an option.

Case study

Apartment pump station

Barton Court, UT

Reduce clogging problem and electricity consumption

Competitor's cutter pump

Cutter pump (4-pole, 4.3HP, 1-phase)	
Problem	Clogging **every month**
Solids	Feminine sanitary products, etc.

CNWX (4-pole, 3" solid, 3HP, 3-phase with VFD)

CNWX Non-clog scroll

Clogging problem solved, no clogging for over 1 year, reduced maintenance cost and electricity cost.

Apartment pump station

El Monte, CA

Reduce clogging problem

Solid handling pump (2HP)	
Problem	Clogging **every month**
Solids	Feminine sanitary products, Rags, etc.

Grinder pump (2HP)

Grinder pump installation did not reduce clogging.

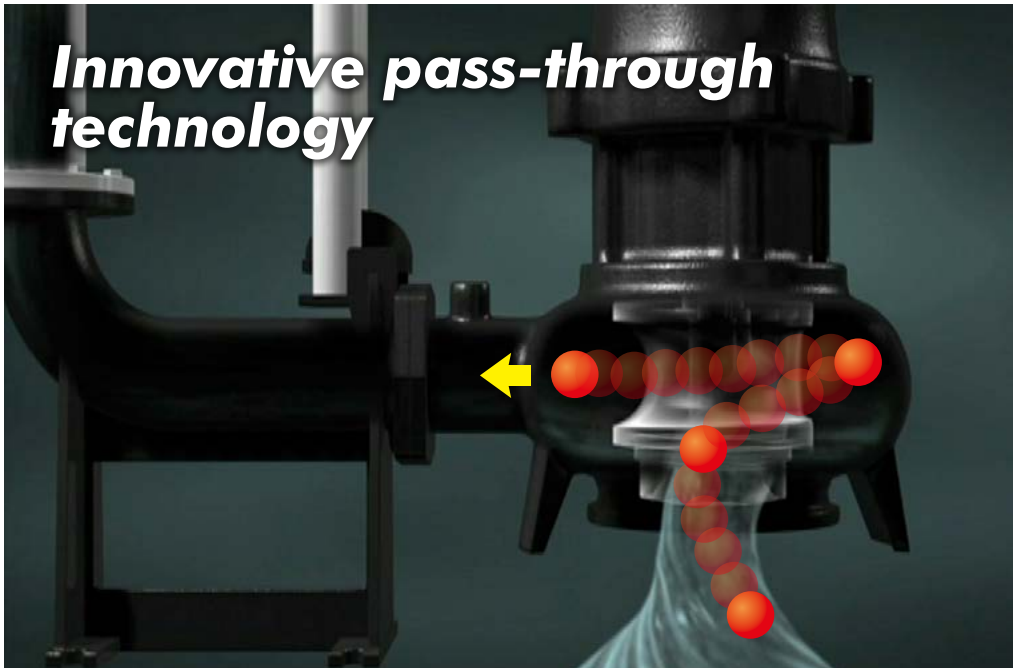
Grinder pump clogging with rags

CNWX (3" solid, 2HP)

No clogging for over 6 months.

CNWX

Innovative pass-through technology



Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.

Motor protector

Thermal protector (a builtin automatic reset type motor protector) or thermal switches are embedded to the motor winding.

Air-filled submersible motor

Shaft seal

A highly wear resistant silicon carbide double mechanical seal is employed.

Seal fail chamber & Leakage detector

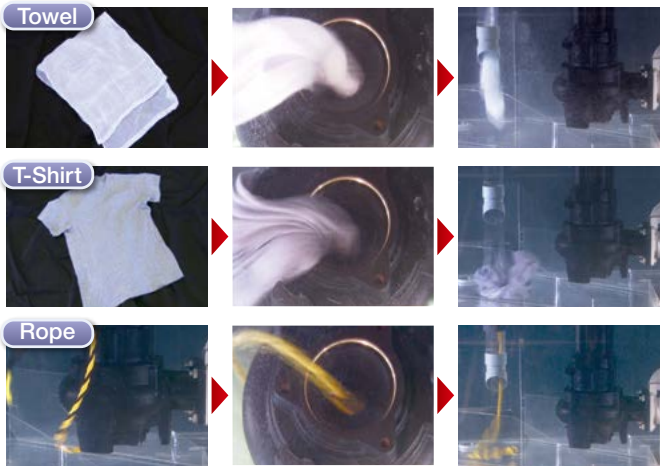
Protects the motor and bearings from damage in the event of mechanical seal failure.

Impeller

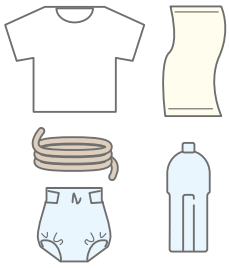
Non-clog scroll impeller, which has high efficiency and high solid passage capability, is employed.

Highly effective passing

Pass-through tests



Significantly reduces the clogging, plugging and entangling of fibrous matters allowing for less downtime and lower maintenance costs.



Quick, easy maintenance

The pull out design allows for easier and more efficient inspection and part replacement. The pump unit can be detached without removing the impeller from the motor.

Retirement home pump station

Burlingame, CA

Reduce clogging problem

Solid handing pump (3" solid, 2HP)	
Problem	Clogging **multiple times per week**
Solids	Diaper, Feminine sanitary products, Rags, etc.

CNWX (3" solid, 2HP)

No clogging for over 3 months.

CNWX

Applications

The CNWX series are the pumps of choice for the following applications

- Pump stations for sewage and wastewater collection systems.
- Raw water transfer at pump stations.
- Drainage from buildings.
- Handling of raw water in wastewater treatment plants.
- In the process for industrial wastewater treatment systems.
- Drainage of wastewater containing debris such as solids and fibrous materials.

3-inch Passage and Self-cleaning with Chopper

CNMJ Event Website

New Advanced Technology!

Improved pass-through capability, solids passage up to 3-inch (80mm) in diameter. Semi-open channel impeller has helix shaped channel, and brand-new chopper mechanism.

3-inch passage and self-cleaning with chopper

CNMJ

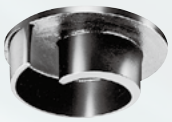
Discharge size: 80, 100mm
Rated output: 1.5 – 7.5kW

CNMJ Technology

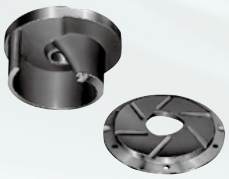
Conventional pumps

CNWX
(High passing with helix)

CN
(Simple design with semi-open impeller)



CJ
(Chopper)



Combine those **Merit**

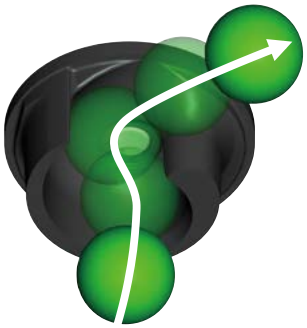
CNMJ Brand new pumps

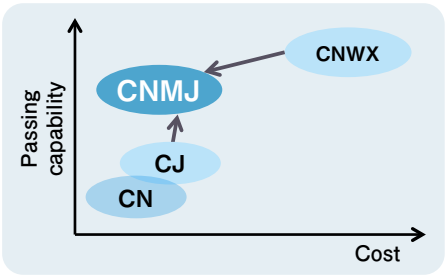
Improved pass-through capability
Impeller has a helix formed passage based on CNWX.

Solid passage up to 3-inch (80mm) in diameter
Impeller is much better in solid passage diameter than ever before.

Simple design
Impeller is single vane semi-open impeller like CN.

Brand new chopper mechanism
CNMJ is equipped with brand new chopper mechanism, that advanced than CJ.





Pass-through test

	Tennis ball 66mm dia.	Sanitary items	Plastic bag	Steel can OD53mm×L105mm	Plastic bottle 500ml
					
CNWX	★★★★	★★★★	★★★★	★★★★	★★★★
CNMJ	★★★★	★★★★	★★★	★★★★	★★★★
CN/CJ	★	★★	★★	★	★

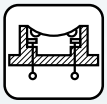
★★★★ = Excellent
★★★ = Very good
★★ = Good
★ = Poor/Normal

Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.

Motor protector

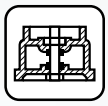
Thermal protector (a builtin automatic reset type motor protector) or thermal switches are embedded to the motor winding.



Air-filled submersible motor

Shaft seal

A highly wear resistant silicon carbide double mechanical seal is employed.



Impeller

Single-vane, semi-open channel impeller with helix formed passage realizes excellent pass-through capability. All impellers are subject to the dynamic and static balance adjustment at factory.

Discharge connection

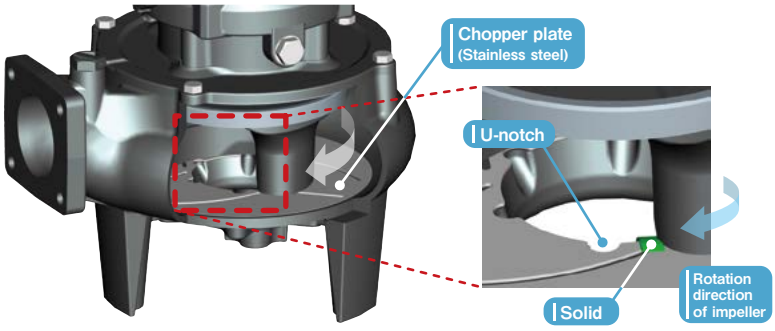
The pump is automatically connected to the discharge pipe.

Quick, easy maintenance

The pull out design allows for easier and more efficient inspection and part replacement. The pump unit can be detached without removing the impeller from the motor shaft.

Chopper mechanism

Brand new chopper mechanism using chopper plate.



Pump model	Pass-through test	Remarks
CNMJ	★★★	·Brand new chopper mechanism ·Improved wear resistance
CJ	★★	Chopper mechanism
CN	★	Standard type

CNMJ overcome weakness about pass-through capability of semi-open impeller by the brand new chopper mechanism.

Lightweight Submersible Pump NORUS

New Generation of Pump NORUS!

NORUS series

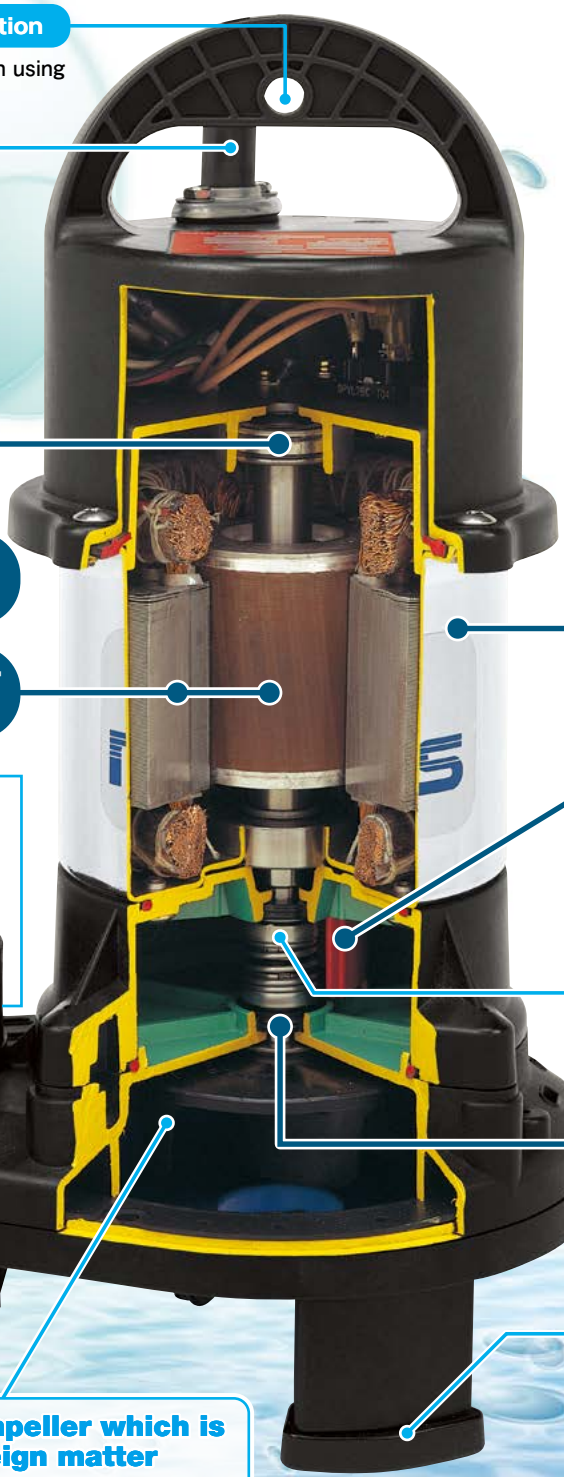
The combination of “high-functional resin” and “stainless steel” makes the pumps lighter in weight and greater in toughness.

One-point lifting for easy installation

The pump can be easily hung up and down using a single hole in the handle.

Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.



High pumping capability with guide rail installation

Lineup of guide rail installation type for easy installation and maintenance. Anti-floating mechanism is provided for connection. Also, in combination with special gasket to prevent water leakage so that pumping loss is prevented.

Auti-creep (AC) bearing for intermittent operation

Air-filled submersible motor dedicated for NORUS

Seamless stator housing structure

TORNADO FIN

Air relief valve

Prevents airlock by exhausting any air remaining in the pump housing. (excluding 0.1 and 0.15kW models)

Shaft seal

A highly wear resistant double mechanical seal is employed.

Shaft material: 316 stainless steel as standard

(Applicable: CR&CRS 0.25 - 0.75 kW)

Rubber protector

A rubber protector is provided to prevent damage to the FRP tank and so on.

Wear resistant vortex impeller which is hardly clogged with foreign matter

Model CR and CRS employ a vortex type impeller, since the vortex impeller reduces the tangling of fibrous matter. The CR series is comparable or superior in pumping performance to conventional vortex pumps. The impeller is made of high-functional resin having excellent wear resistance. It is more than 100 times as strong as impellers made of ABS resin. Therefore, the "NORUS" can be used in raw water containing considerable amounts of solids.

Impeller made of high-functional resin
After 200 hours of operation
Loss of weight: 3.3%

Impeller made of ABS resin
After 24 hours of operation
Loss of weight: 46%

*Test condition: Pump was operated in 600 liters of water containing 120kg of sand.

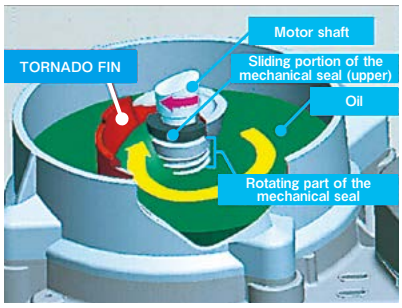
Features

Tornado fin

Extend service life of the mechanical seal.

(Applicable : CR & CRS 0.25 - 0.75kW)

Tornado fin is provided in the mechanical seal chamber to significantly reduce the temperature rise and degradation of the mechanical seal. Therefore, more long life can be achieved.



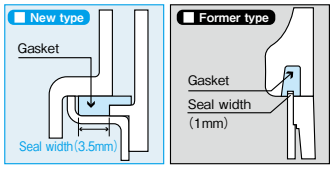
Seamless stator housing structure

Eliminating weld joint and enlarging seal width significantly improved corrosion resistance.

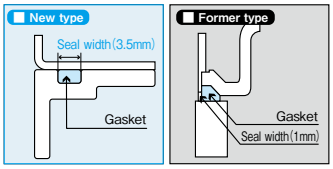
(Applicable : CR & CRS 0.1 - 0.75 kW)

Seamless stator housing, achieved by an integrated pressing process, has eliminated weld joint to prevent rusting. Furthermore, a larger gasket seal width prevents the crevice corrosion.

Upper motor seal



Lower motor seal



Durable motor for operation in the air at low water level

Adopting a motor with lowering temperature rise allows continuous operation in the air for 30 minutes. With this feature of lowering temperature rise, "NORUS" can keep the bearing at a low temperature and extend its service life.

Excellent corrosion resistance

304 stainless steel and high-functional resin are also used for the stator housing and wetted part, offering better corrosion resistance. As a result, the "NORUS" pumps achieves good corrosion resistance even under severer working conditions. In addition, the "NORUS" is hardly rusted, so that ordinary maintenance is enough with simple washing.

3 types to choose according to the application

High pass-through capability

High solid pass-through model materialized as a result of giving priority to the smooth passing of solids.

CR

Discharge size: 50 - 80mm
Rated output: 0.15 - 2.2kW

Applications

- For handling raw water at onsite wastewater treatment systems, etc.
- For draining domestic wastewater.
- For returning sludge.

Universal type

Universal model with improved pass-through capability and pump performance available.

CRS

Discharge size: 32 - 80mm
Rated output: 0.1 - 2.2kW

High head with closed impeller

High pump head with closed impeller.

CRC

Discharge size: 40 - 80mm
Rated output: 0.4 - 2.2kW

Applications

- For deforming and discharging treated water at wastewater treatment plants.
- For draining stormwater from roads or underpasses.
- For draining wastewater from commercial buildings, factories, garages or basements.

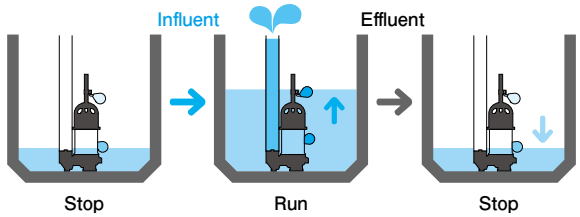
Auto-operation

CR CRS CRC -D

With the two float switches, pump runs and stops automatically repeated according to the water level. Because the operation radius of the float switch is short, it can be installed even in a narrow tank.

CR / Discharge size: 50mm Rated output: 0.15 – 0.75kW
CRS/ Discharge size: 32 – 80mm Rated output: 0.1 – 2.2kW
CRC/ Discharge size: 40 – 80mm Rated output: 0.4 – 2.2kW

●Operating sequence



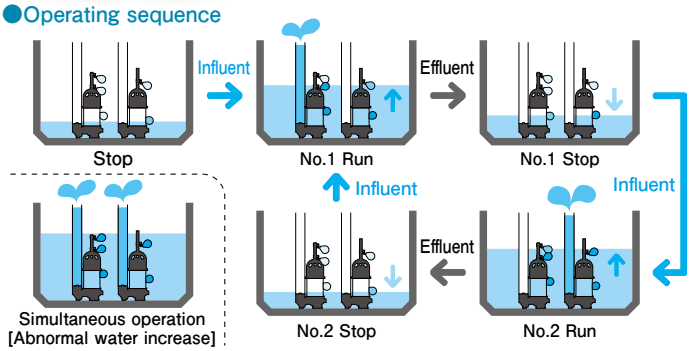
Auto-alternate operation

CR CRS CRC -DW

In accordance with the water level, two pumps automatically repeat run / stop alternately. Also, when water level abnormally rising, two pumps automatically run simultaneously. No need for level sensor, realize simple package including control panel.

CR / Discharge size: 50mm Rated output: 0.15 – 0.4kW
CRS/ Discharge size: 32 – 80mm Rated output: 0.1 – 2.2kW
CRC/ Discharge size: 50 – 80mm Rated output: 1.5 – 2.2kW

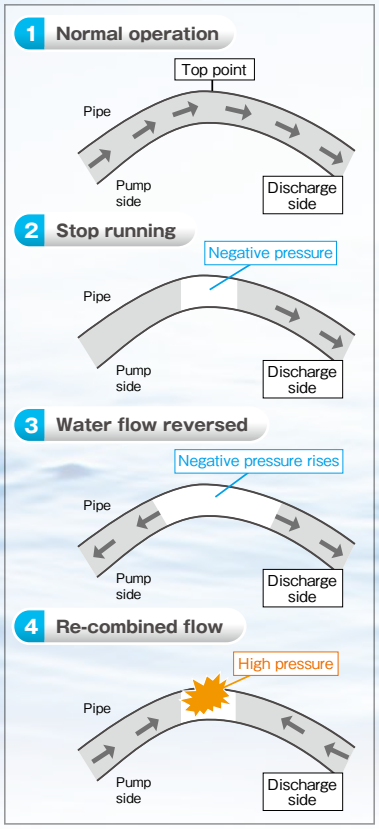
●Operating sequence



Submersible Pump with Flywheel

The pump incorporates a flywheel which increases the inertia force, and absorbs drastic decline in flow rate at pump stop which causes water hammer.

●Mechanism of water hammer



Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.

Motor protector

Thermal protector (a built-in automatic reset type motor protector) or thermal switches are embedded to the motor winding.

Shaft seal

A highly wear resistant double mechanical seal is employed.

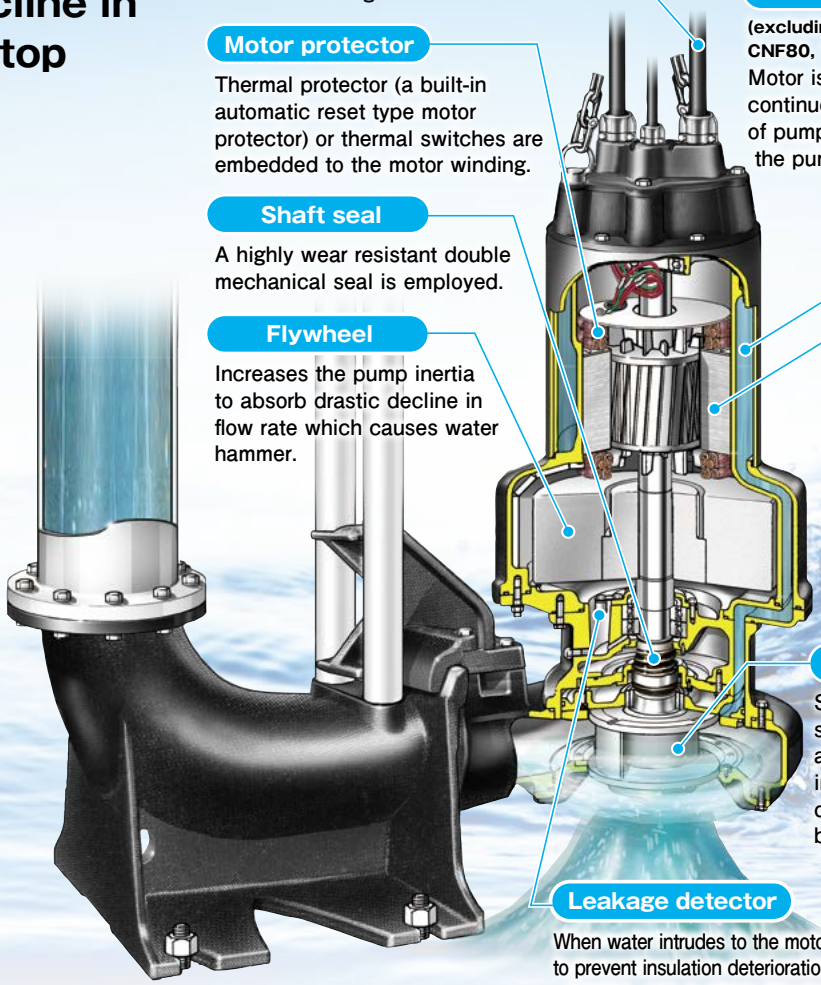
Flywheel

Increases the pump inertia to absorb drastic decline in flow rate which causes water hammer.

Air-filled submersible motor

Forced-cooling system

(excluding model CNF80, 100 & 1502)
Motor is cooled continuously by a part of pumped liquid while the pump in operation.



Impeller

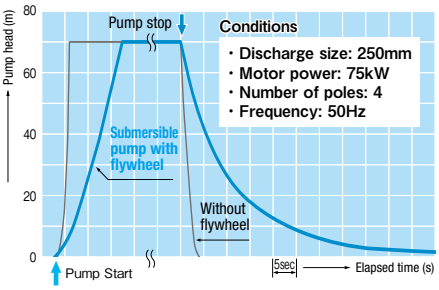
Select the impeller suitable for your application. Each impeller is dynamically balanced.

Leakage detector

When water intrudes to the motor housing, it alerts to prevent insulation deterioration of the motor.
- CNF80, 100 & 1502: Electrode
- Other models: Float switch

*This figure is Channel impeller closed.

●Comparison of the pressure (pump head) changes for submersible pumps with flywheel and without flywheel



Application

- For pump station in the sewerage systems.
- Intake of agricultural water, flooding protection, and irrigation.
- For industrial water intake. When water hammer occurs or may occur for the above applications.

Channel impeller

CNF

Discharge size: 80 - 500mm
Rated output: 5.5 - 75kW

CNF250-P

Vortex impeller

CVF

Discharge size: 80 - 150mm
Rated output: 5.5 - 22kW

CVF100-P

Screw impeller

CWF

Discharge size: 80 - 150mm
Rated output: 5.5 - 22kW

CWF100-P

C-series Large Discharge Size

Large-sized Forced-cooling and Natural-cooling

Motor protector

The built-in thermal switches are embedded to the motor winding.

* 5.5/7.5 kW models incorporate the automatic reset type thermal protector.

Cable entry with core wire seal

The core wire seal shuts the water out from penetrating into the motor through the core wire.

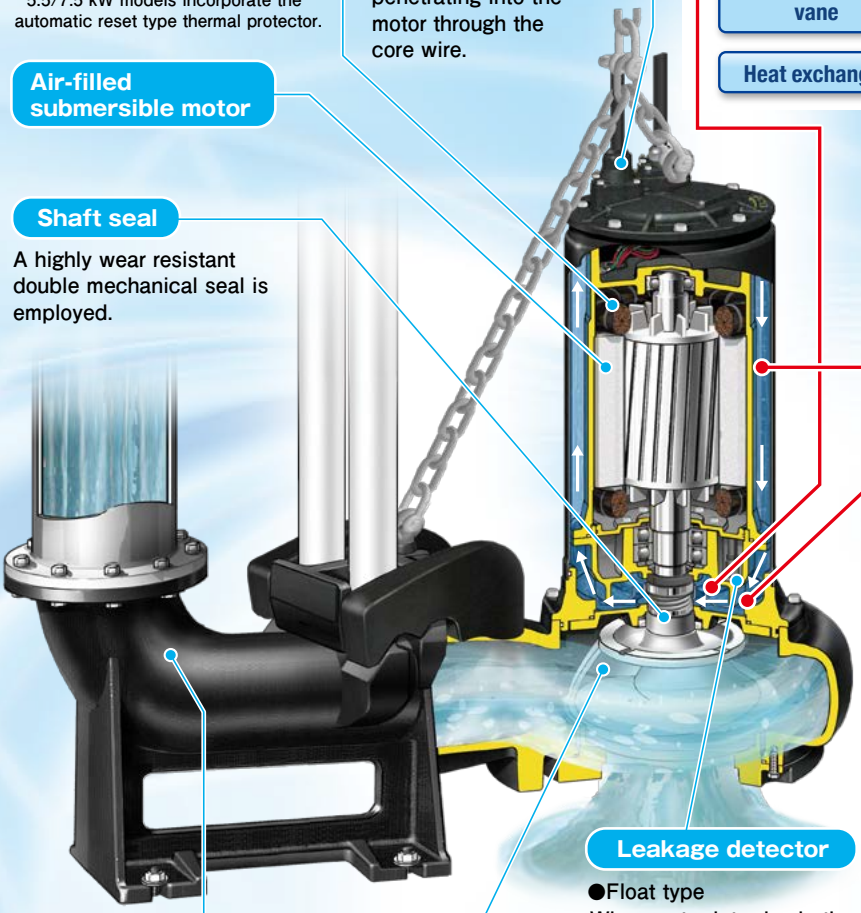
Closed-loop cooling system

- Coolant circulation
- Coolant circulating vane
- Heat exchanger

Air-filled submersible motor

Shaft seal

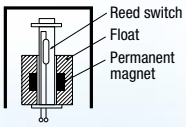
A highly wear resistant double mechanical seal is employed.



Leakage detector

●Float type

When water intrudes in the motor housing, the magnet float moves to the reed switch side to detect and alert water moisture.



Discharge connection

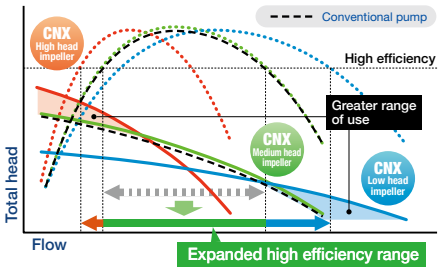
The pump is automatically connected to the discharge pipe.

Impeller

Select the impeller suitable for your application. Each impeller is dynamically balanced.

Development of 3 types (High, Medium and Low head) of impellers for each output.

Expanded high efficiency range



- High efficiency over a wide range
- 3-inch solid passage diameter
- Compact design achieved with 4-pole motor

Channel impeller

Closed loop cooling type

CNX-N

Discharge size: 150 - 300mm
Rated output: 11 - 37kW

Natural cooling type

CNX

Discharge size: 150 - 300mm
Rated output: 5.5 - 37kW

Application

- For pump stations in the sewage / wastewater and stormwater collection systems.
- For wastewater transportation and other process at sewage / wastewater treatment plant.
- For storm surge and flood control.
- For agricultural water intake and irrigation.
- For effluent control at factories and large commercial complexes.
- For industrial water intake.

Channel impeller

Large-sized forced-cooling

CN

Discharge size: 200 - 800mm
Rated output: 7.5 - 250kW

Large-sized natural-cooling

CN

Discharge size: 200 - 400mm
Rated output: 7.5 - 45kW

*Please contact us for over 500mm, 75kW.

Screw impeller

Large-sized forced-cooling

CW

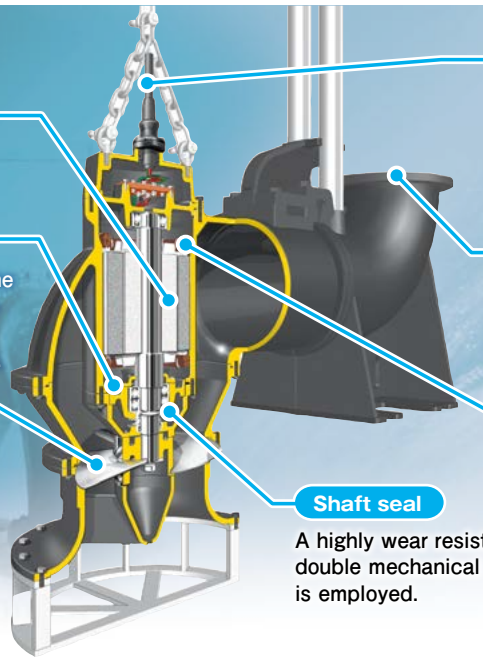
Discharge size: 200 - 300mm
Rated output: 11 - 55kW

Submersible Mixed and Axial Flow Pump

Easy installation, no building, realize economical high volume pumping and drainage station.

Submersible mixed flow pump
SD
Submersible axial flow pump
SA

Discharge size: 300 - 1,000mm
Rated output: 11 - 150kW



Air-filled submersible motor

Leakage detector
When water intrudes to the motor housing, it alerts to prevent insulation deterioration of the motor.

Impeller
High efficient mixed or axial flow impeller is employed.

Cable entry with core wire seal
The core wire seal shuts the water out from penetrating into the motor through the core wire.

Discharge connection
The pump is automatically connected to the discharge pipe.

Motor protector
Thermal switches are embedded to the motor winding.

Shaft seal
A highly wear resistant double mechanical seal is employed.

Guide rail installation (P-type)

Possible to remove the pump from the tank without pumping out the water.

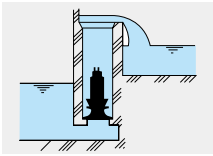
Flange connection (F-type)

Install at the bottom of tank and connect to piping with flange.

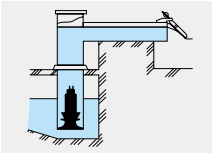
Column installation (C-type)

Just by placing the pump inside the column (pipe), it is automatically aligned and fixed to the base.

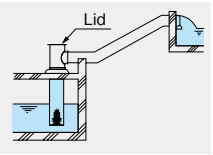
〈Installation example〉



●Over flow type



●Anti-backflow type

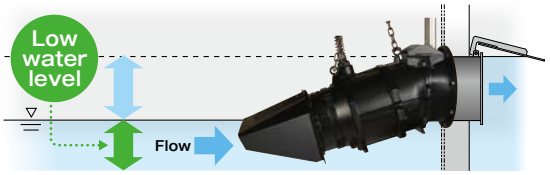


●Pressure flow type

Horizontal submersible axial flow pump

For gate use
SAH
Discharge size: 300 - 800mm
Rated output: 7.5 - 75kW

For low water level
SAH-L
Discharge size: 400 - 1,200mm
Rated output: 7.5 - 250kW

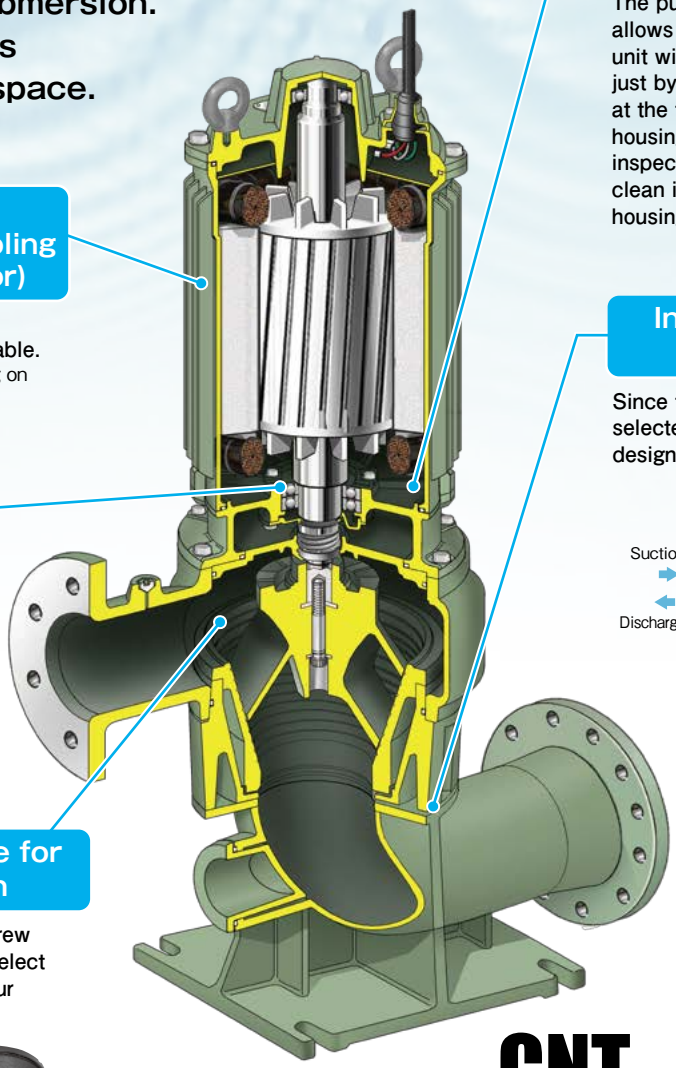


Applications

- Low water level operation
- Lightweight design
- Adopt the guide rail installation

Dry Pit Pump (Amphibian type)

Ideal for waterproofing of pump stations! Continuous operation is possible even in case of submersion. In addition, it saves maintenance and space.



Motors with several types of cooling (Submersible motor)

Air cooling, forced cooling and internal cooling types are available.
* The cooling type differs depending on discharge size, rated output, etc.

Impeller and motor shaft are directly connected

No intermediate bearing saves maintenance and space.

Select impeller type for your application

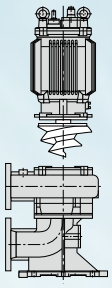
Channel impeller (CNT) and screw impeller (CWT) are available. Select according to the situation of your application.

Channel impeller (CNT)

Screw Impeller (CWT)

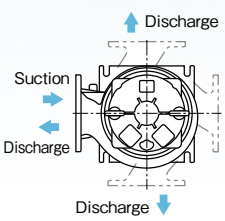
Easy maintenance

The pull out structure allows to detach motor unit with impeller attached, just by removing the nuts at the top of the pump housing. So it is easy to inspect the impeller and clean inside the pump housing.



Increasing freedom of facility design

Since the discharge direction can be selected every 90°, piping layout can be designed freely.



* For 45° discharge angle, please contact us.

CNT
CWT

Discharge size: 65 - 150mm
Rated output: 1.5 - 22kW

Others

Float pump

Powerfully collecting flotage and scum on the water.

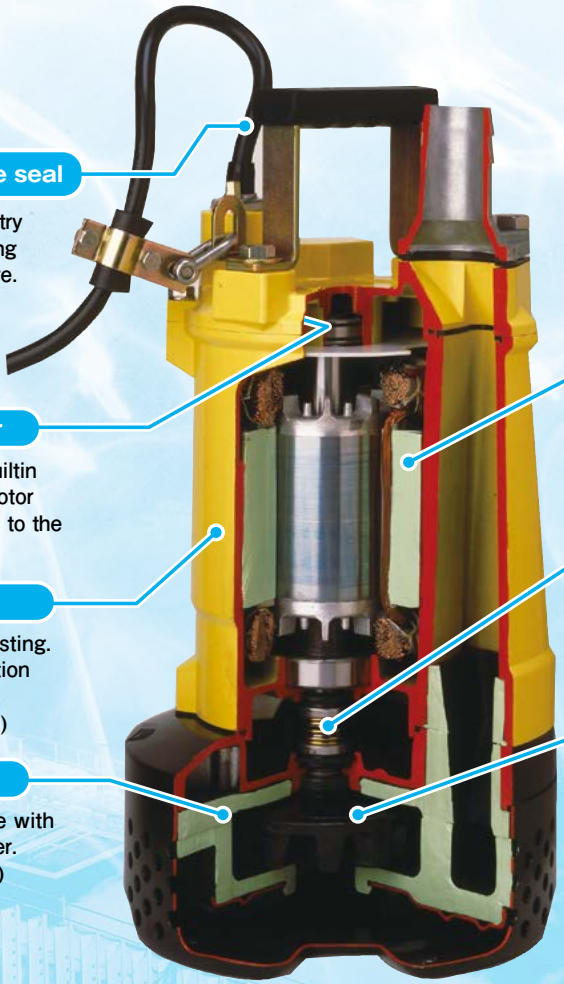
FP Discharge size: 50, 80mm
Rated output: 0.75, 1.5kW

Applications

- Returning scum
- Collecting skimming water
- Collecting and returning other flotage on the water surface

Dewatering Pump, Sand Pump

Light and Compact, yet Tough.



Cable entry with core wire seal
The core wire seal at the cable entry shuts the water out from penetrating into the motor through the core wire.

Motor protector
Thermal protector (a builtin automatic reset type motor protector) is embedded to the motor winding.

Stator housing
Aluminium alloy die-casting. Considering heat radiation and saving weight. (BTR/BRL/BVR series)

Pump housing
Ensure wear registance with special synthetic rubber. (BTR/BRL/BVR series)

Air-filled submersible motor
Shaft: Stainless steel

Mechanical seal
A highly wear resistant double mechanical seal is employed.

Impeller
Ensure wear resistance with high grade material.

2-pole dewatering pump

BTR

BTR-S/T
Discharge size: 40, 50mm
Rated output: 0.25 - 0.75kW

BTR
Discharge size: 50 - 100mm
Rated output: 1.5 - 5.5kW

Applications

- Dewatering spring water at construction sites.
- Water intake or drainage for agricultural purpose.
- Dewatering from basements or cable pits.
- Household, gardening, etc.

Impeller

BTR-S/T:
0.25 - 0.75kW

BTR:
1.5 - 5.5kW

Submersible pump for residual water

Drainage powerfully even at the extremely low water level, sufficient flow with residual water pump.

BRL

Discharge size: 25, 50mm
Rated output: 0.4kW

Applications

- Dewatering residual water in tanks, swimming pools, etc.
- Dewatering spring water or sump from construction sites, underpass, etc.

2-pole dewartarig pump

High-durability and ease of operation in narrow places and with low water levels. Suitable for harsh construction site.

BUCF

Discharge size: 80 - 200mm
Rated output: 3.7 - 22kW

Applications

- Dewatering spring water at construction site.
- Water intake or drainage for agricultural purpose.
- Drainage at basement, underpass or cable pit and etc.

Hose coupling　　Flange connection

2-pole trash pump

High durability against sand lock.
Handy trash pump with vortex impeller.

BHV

Discharge size: 50mm
Rated output: 0.4kW

Applications

- Dewatering spring water at construction sites.
- Water intake or drainage for agricultural purposes.
- Drainage from basements cable pit.
- Temporary water supply and drainage at home, etc.

4- or 6-pole dewatering pump

Energy efficient type with reduced power consumption, using motor with enough margin against the load.

BU

Discharge size: 200 - 350mm
Rated output: 15 - 55kW

BU-K (equipped with an agitator)

Discharge size: 150, 200mm
Rated output: 5.5 - 22kW

Applications

- Dewatering spring water at construction sites of dams, sewer systems, tunnels, rivers, etc.
- Water intake or drainage for agricultural purpose, etc.

4- or 6-pole sand pump

Powerful for drainage of mud containing a lot of sands.

SN

Discharge size :
80 - 200mm
Rated output :
3.7 - 37kW

Applications

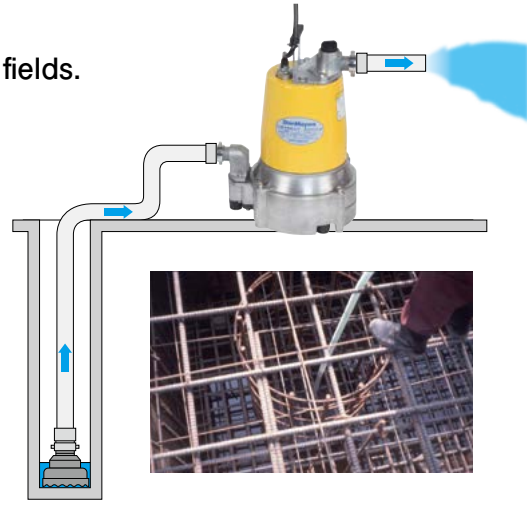
- Drainage of sand basin and sewage tank containing sand at sewage treatment plants.
- Dewatering muddy water at dredging work, civil engineering work, etc.
- Removing mill scales and other sandy sediments at iron works or cement plants.

Self-priming residue dewatering pump

Powerful suction and discharge of the pooled water in various fields.
Continuous operation is possible while suctioning water with air.

BVR

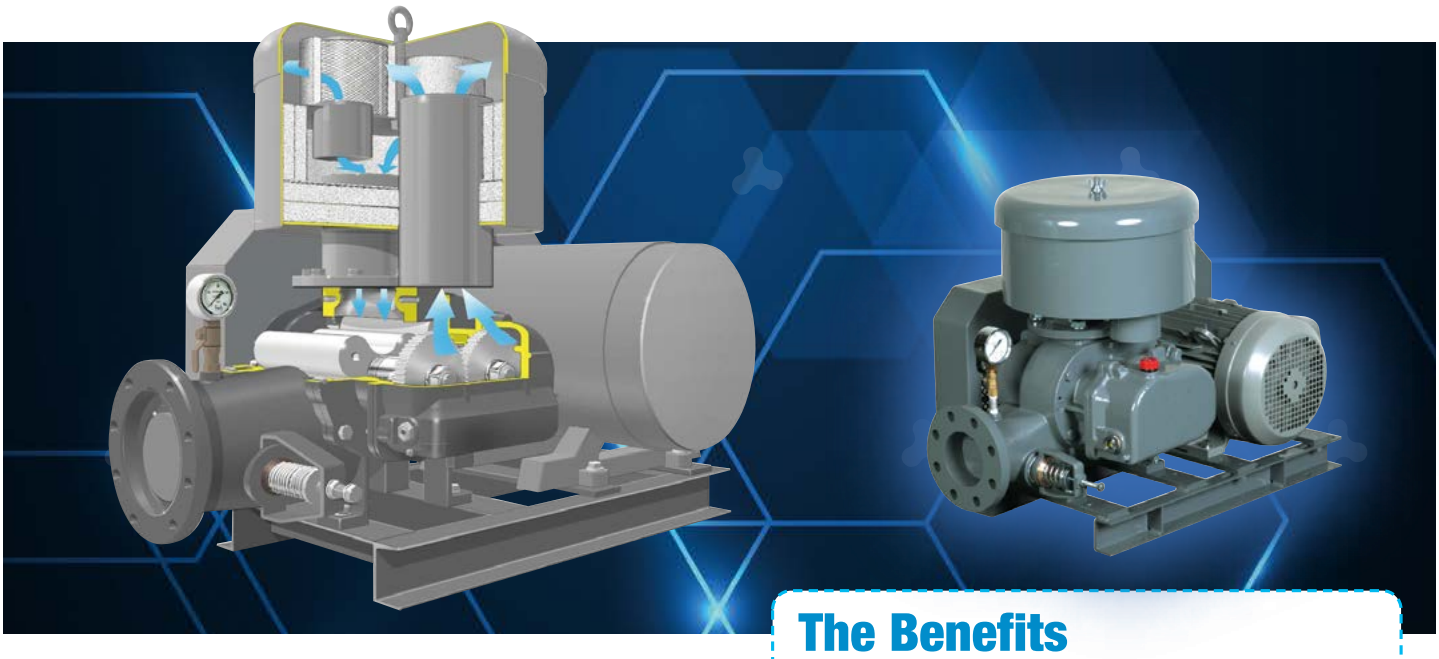
Discharge size: 25mm
Rated output: 0.4kW



Applications

- Dewatering residual water at construction sites, pits, ditches and manholes.
- Removing sediments in ponds for aquarium fish.
- Dewatering rinse water in factories, large tanks, special purpose vehicles, etc.

Blower (Roots type)



Spur rotor blower (Roots type)

By adopting a cooling silencer, energy and maintenance cost saving are realized.

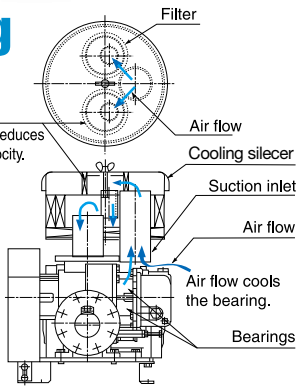
ARS/ARS-E

Discharge size: 50 - 250mm
Rated output: 1.5 - 132kW

The Benefits of the Cooling Silencer

With a significant bearing-cooling effect

Higher-speed operation



Features

Greatly improved isentropic efficiency

Estimated annual energy savings:

	Conventional model	ARS
Air flow rate (m³/min)	5.74	
Discharge pressure (kPa)	50	
Power requirement (kW)	8.5	7.1
Isentropic efficiency (%)	48.5	58.1
Motor output (kW)	11	7.5
Energy cost (¥)	1,266,000	1,057,000

[Operating period: 24 hrs/day (8,760 hrs/year) ¥17/kWh]

The energy savings are estimated as follows:
Difference in electricity cost:
1,266,000−1,057,000 =¥209,000/year

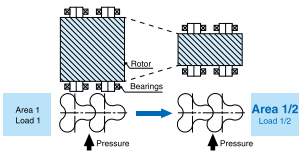
What's more,

You can reduce your annual power consumption even more by selecting the next size smaller motor for your application.

Standard models develop pressure up to 80 kPa

This blower requires no cooling water or air cooling fan.

Compact rotors



Count on extended bearing life through improved durability.

Extended maintenance interval

Double the grease and oil maintenance intervals to six months.

Applications

Wastewater treatment

- Aeration at sewage treatment plants
- Aeration at onsite wastewater treatment systems
- Gas mixing
- Aeration of wastewater from food factory
- Aeration of wastewater from livestock farm

Pneumatic conveying

- Pneumatic conveying of cement powder
- Pneumatic conveying of wheat, soybeans
- Pneumatic conveying of garbage
- Dust collection

Others

- Oxygen supply at fish farms, aquariums, etc.
- Foaming of water at baths and swimming pools

Helical rotor blower (Roots type)

Comprehensive low-noise design.

The design suppresses vibration in the low-frequency range where blower noise is generated.

ARH-S/SP • ARH-E/EP

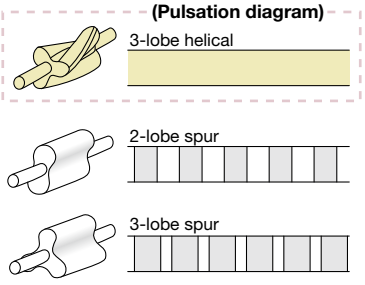
Discharge size: 20 - 200mm
Rated output: 0.4 - 55kW

Discharge size: 20 - 200mm
Rated output: 0.4 - 55kW

The reason why ShinMaywa blower noise suppression is successful is as follows. The main sources of blower noise include sources such as "**pulsating noise of rotor**", followed by "**gear meshing**", and then "**bearings**". Of particular note is the pulsating noise (roots noise) generated by the air which is displaced by the rotors. At ShinMaywa we have successfully used "**3-lobe helical rotor**" to greatly reduce the amount of this pulsating noise. Furthermore, ShinMaywa technology for suppressing sound is not limited to just the rotors. We have also devised a torsional shape for the teeth gears which drive the rotors.

Q What is the difference between helical-type rotors and spur-type rotors?

A ShinMaywa helical rotors have three lobes twisted in a spiral shape, so that they displace the air continuously to prevent pulsating noise from occurring.



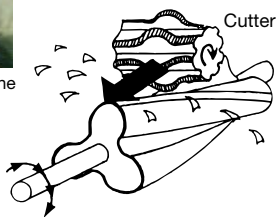
Q Because there is only a small gap between the twisted rotors and the rotor housing, is high-precision machining required?

A A high-precision machine called a "milling machine" is used for machining the screws and the gears, so that the rotors are manufactured with high precision and high reliability.

●Rotor processing using a milling machine

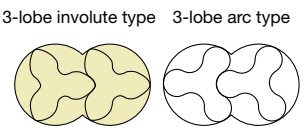
[Processing method]

The rotor turns slowly to match the rotation of the cutter.
The cutter moves forward in the direction of the arrow while rotating.



Q When the rotors are twisted, does the amount of blown air drop for each rotation?

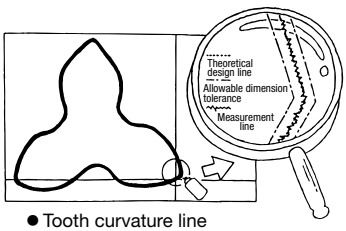
A The tips of the rotor teeth used by ShinMaywa are slim. Therefore, even though the rotors are twisted, the amount of air blown per rotation is more than spur type blowers.



Q How do you inspect the twisting of the precision rotors and the curve of the teeth?

A The shape of the rotor teeth is inspected using 3-dimensional measuring equipment. Measurement results are output to a plotter. Thorough quality control is carried out to ensure that the curvature of the teeth is within the allowable tolerances.

Results are output



● Tooth curvature line

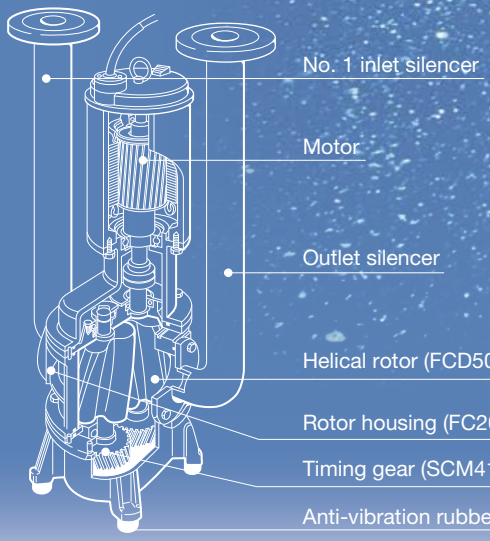
Submersible Helical Rotor Blower (Roots type)

Low Noise

Submersible blower with helical rotor can significantly reduce the noise level.

RB-H

Discharge size: 25 - 125mm
Rated output: 0.4 - 15kW



Features

- Installation space reduced to one-half that of the surface type.
- Three-lobe helical rotor.
- Proven reliability.
- Simple installation reduces installation time.
- Easy maintenance.

Applications

Aeration at wastewater treatment process such as;

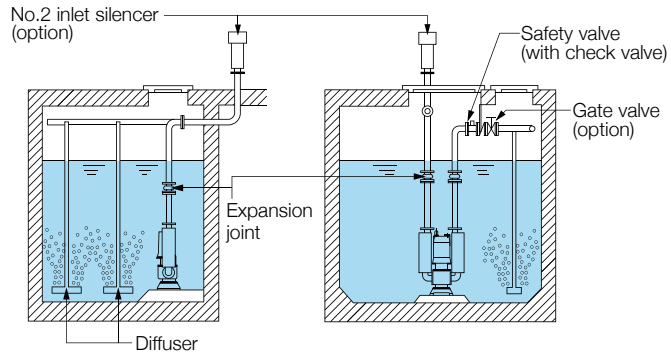
- Sewage treatment plants
- Onsite wastewater treatment systems
- Industrial wastewater treatment systems
- Livestock wastewater treatment systems

Others

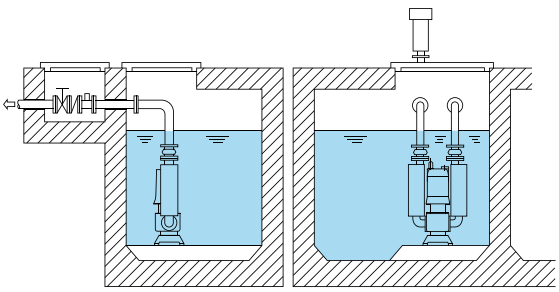
- Oxygen supply in aquariums, aquaculture ponds, etc.
- Foaming of water in baths and swimming pools.

Installation Examples

For aeration tank



For effluent tank, defoaming tank and blower tank



Bar Screen / Wedge Wire Screen

Screen Event Website

Automatic bar screen (fine spacing)

BS

BS series is an automatic bar screen that applies to mainly onsite wastewater treatment systems. It has high durability for hard usage conditions such as 24-hour continuous operation, submergence, etc. and also available for industrial wastewater treatment.

Applications

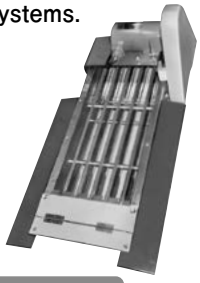
- Removing suspended solid in onsite wastewater treatment systems.
- Removing suspended solid in industrial wastewater treatment facilities.

BS1S

BS1H

Automatic bar screen (coarse spacing, rotating belt type)

Automatic rotating belt type bar screen VS series is designed as inflow screen for onsite wastewater treatment systems. The feature of this product is not only scrape-up solids, but also can separate a variety of solids mechanically. It is available to install not only for new systems, but also for existing systems.



VS

*Full-surface cover for deodorization is available as an option.

Applications

- Removing suspended solid in onsite wastewater treatment systems.
- Removing suspended solid in industrial wastewater treatment facilities.

DSA

Compact and large processing capacity.
Prevent clogging with cleaning nozzles.

Wedge wire screen

SB, S and DSA series are wedge wire screen for removing a solids contained in sewage and wastewater. SB series: Anti-clogging operation by built-in rotation brush.
S series: Easy and economical operation by simple structure.
DSA series :Rotaing screen suitable for high concentration and big volume.

S

Less breakdown with a simple structure that does not use power, maintenance cost that hardly takes.

SB

(with a built-in backwash brush)

Maintaining clean screen condition and less clogging.

Applications

- Removing suspended solid in sewage treatment plants and onsite wastewater treatment systems.
- Material recovery and wastewater treatment process in paper factory.
- Industrial wastewater treatment process in the food, fiber, and chemical industries.
- Separation and selection in mining water treatment facilities.

Supply records

BS1S

Site:
Onsite wastewater treatment system

BS1H

Site:
Rural site wastewater treatment plant

BS5N

Site:
Confectionery plant

SB Screen

Site:
Dairy products plant

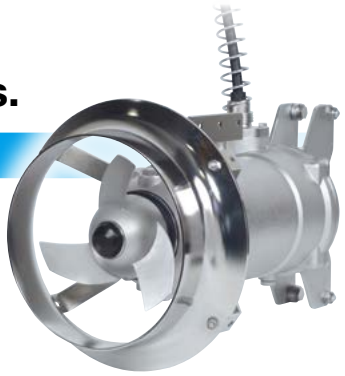
SB Screen

Site:
Fish processing plant

S Screen

Site:
Pump station
(River water intake)

Powerful swirl flow for a wide range of applications.



Features

High efficiency propeller

Adopt 3-D wing propeller

- Up to 40% reduction in power consumption compared with conventional models.
- Optimum design of propeller using CAE/CFD.
- Achieving the high performance airfoil.
- Improving wear resistance.

High efficiency motor

Optimum design of winding specifications and silicon steel sheet realize energy saving. Temperature rise characteristic is decreased and moter lifetime is improved.

Improved reliability

Core wire seal, cable support coil and 316 stainless steel motor shaft are employed so that high durability and reliability are achieved.

Superb durability

Employed newly developed submersible motor, double mechanical seal with 4-face silicon carbide (SiC) is employed. Also, durability is improved by using large size bearing.

Improved maintainability

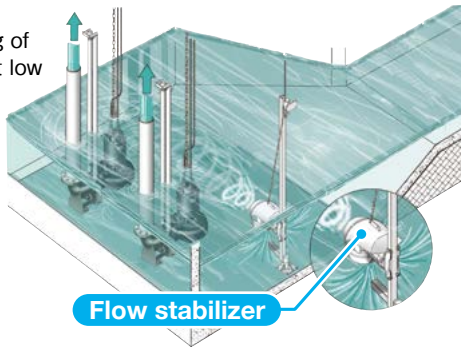
Lightweight, compact in size and simple structure make easy handling. Intruded water into the motor can be easily checked through inspection plug.

Efficient mixing by simple adjustment

As position and angle can be easily adjusted to the most efficient location, efficient mixing can be realized in accordance with shape, size and depth of tank, liquid characters and mixing purpose.

Flow stabilizer for low water level (option)

A flow stabilizer precludes sucking of swirl generated at low water level. Installation of a flow stabilizer allows operation with a lower water level than usual.



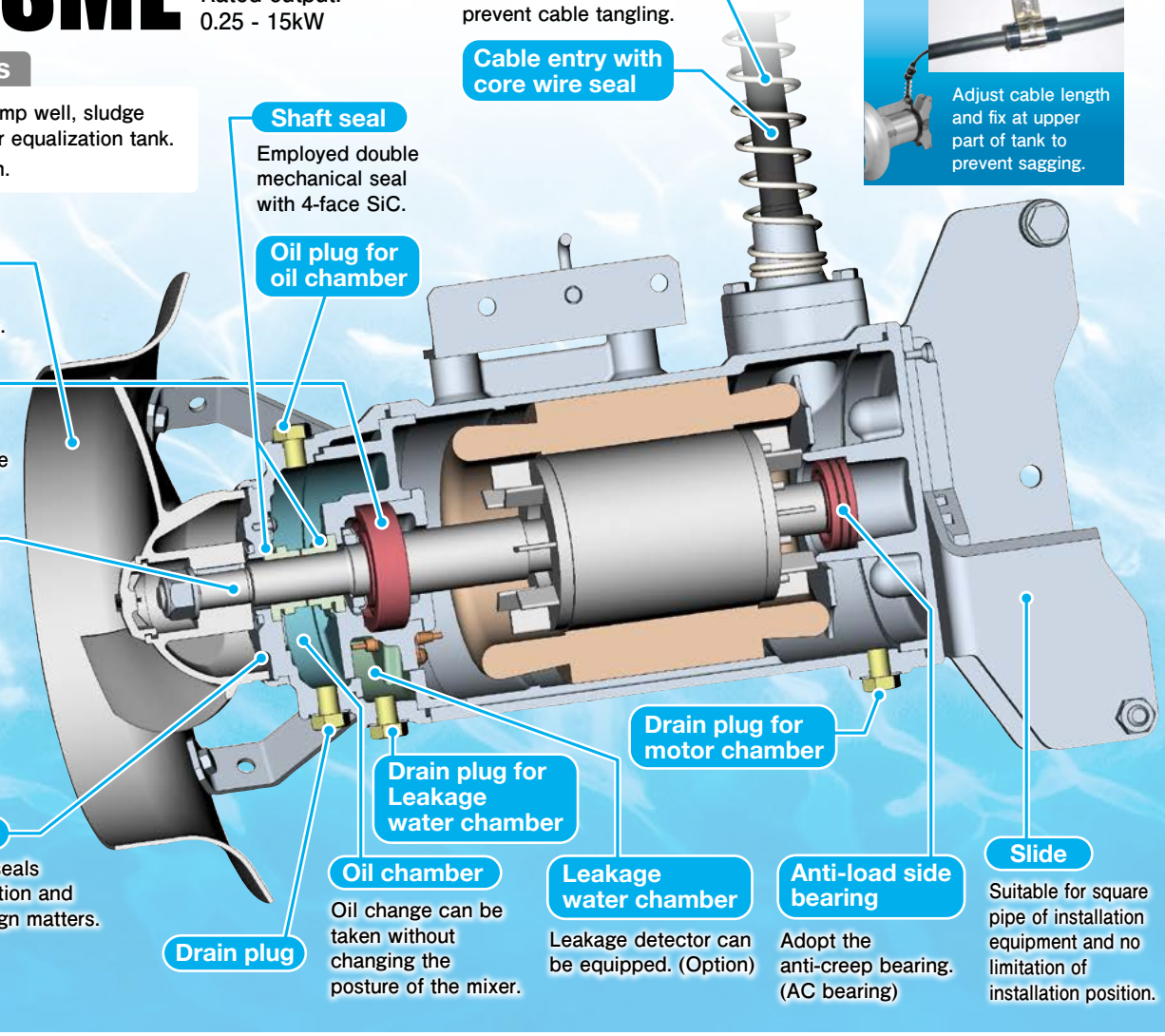
High speed submersible mixer

SM/SME

Rated output: 0.25 - 15kW

Applications

- Mixing in a pump well, sludge storage tank or equalization tank.
- Crushing scum.



Adopting tungsten carbide spraying propeller

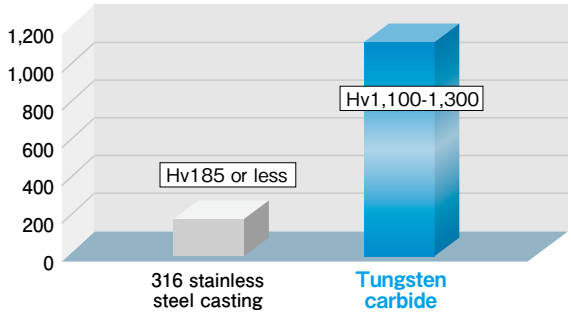
Coating the 316 stainless steel casting propeller by spraying the tungsten carbide. While having excellent corrosion resistance of stainless steel, it greatly enhances abrasion resistance.

Propeller wear is less than half that of stainless steel casting. "Tungsten carbide spraying" of the propeller's vane part is adopted for the first time by ShinMaywa in the industry. The Vickers hardness of tungsten carbide is more than 5 times that of stainless steel, and wear resistance is greatly improved.

SM-W/SME-W

Rated output:
0.9 - 7.5kW

Comparison of hardness (Vickers hardness)

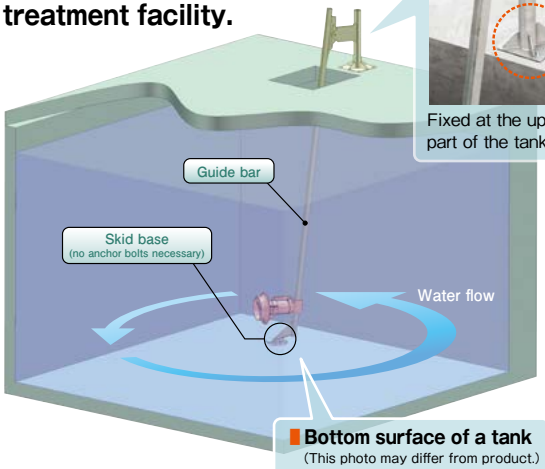


Installation equipment requiring no water drainage

When water cannot be drained from an existing tank, a submersible mixer that saves energy by powerful mixing can be installed without shutting down the wastewater treatment facility.

Opening

Fixed at the upper part of the tank.



Bottom surface of a tank
(This photo may differ from product.)

A skid base is used to stabilize at the tank bottom.

SME-D

Rated output:
1.5, 2.8kW

Aeration mixer

Suppresses odor generation at a low water level.

SME-R

Rated output:
0.75kW

Applications

- Mixing of the pump station for wastewater collection system. Load reduction in post-process (sewage treatment plant) and prevention of hydrogen sulfide generation.
- Mixing of temporary wastewater storage tank for public and commercial facilities. Preventing sludge deposit and scum generation.

Medium speed submersible mixer

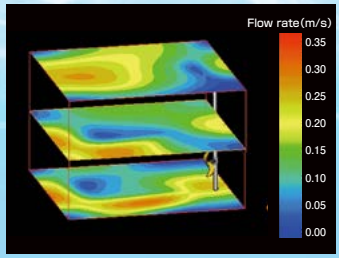
When used in a reaction tank, the mixing power can be reduced to 1/2 - 1/3 of the high speed submersible mixer.

SMM

Rated output:
0.75 - 2.2kW

Applications

- Mixing of denitrification tank, reaction tank
- Mixing the carriers in wastewater treatment

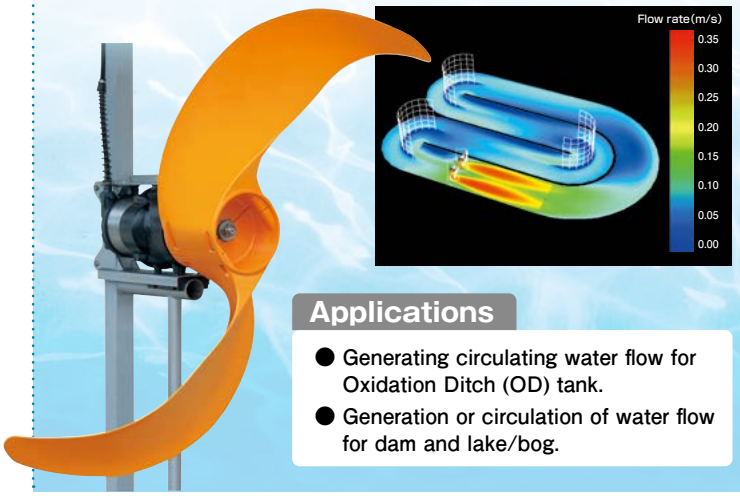


Low speed submersible mixer

Generate a huge water flow using minimal energy.

SML

Rated output:
1.5 - 3.7kW



Applications

- Generating circulating water flow for Oxidation Ditch (OD) tank.
- Generation or circulation of water flow for dam and lake/bog.

Self-aspirating type

JSA Video

JSA

Rated output: 1.5 - 5.5kW

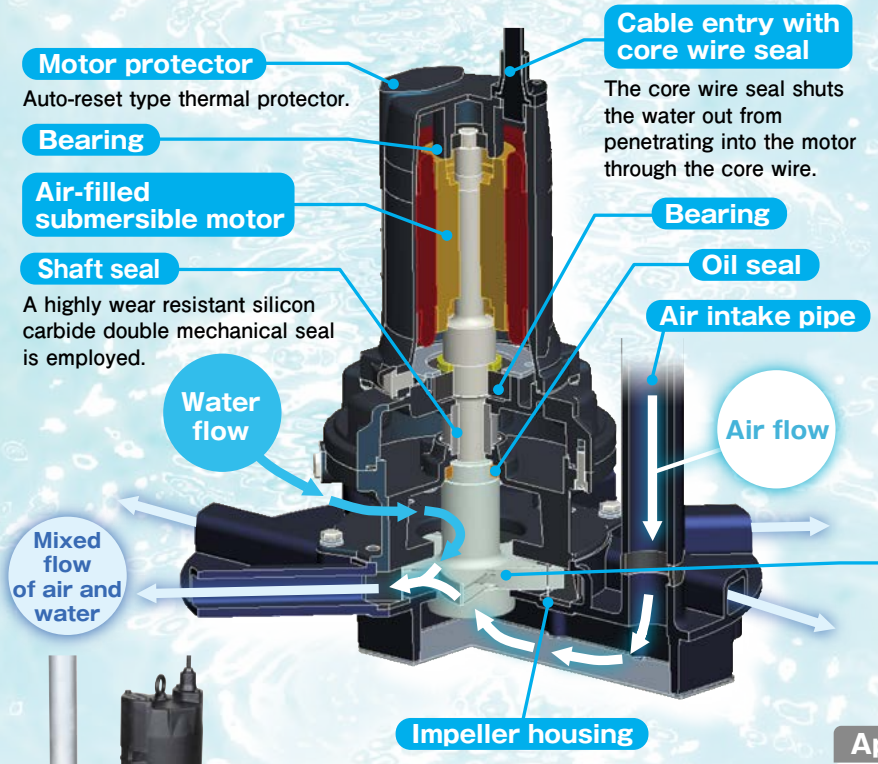
Save space
No need blower room.

Free from noise
No need blower and sound proof box.

Easy installation
Just only install at the center of tank.No need anchor bolt.

Strong agitating
Prevent sedimentation due to under ward discharge flow.

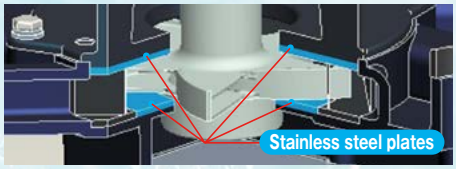
Easy maintenance
Durable structure same as submersible pumps.



Outstanding features

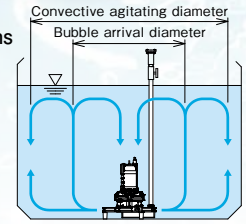
Long service life

The top and bottom faces inside the housing are lined with stainless steel plates. It improves abrasion resistance and controls a reduction in air flow performance due to aging degradation.



Impeller
The specially designed star-shaped hollow impeller. This special impeller makes foreign matter pass through smoothly.

■Flow patterns



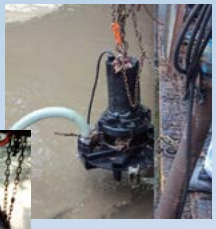
Applications

- Sewage and Industrial wastewater treatment facilities.
  - Aeration and mixing processes
  - Sequential batch reactor (SBR) processes

Supply records

Onsite wastewater treatment system at condominium (underground)
〈Bangkok, Thailand.〉

Wastewater treatment facility at food processing plant
〈Samut Prakan, Thailand.〉



Aeration fountain pump

Contribute water quality purification and improvement of landscape.

SAF

Rated output: 1.5 - 3.7kW

- Eject a large amount of water with an extremely low head, demonstrate excellent aeration effect.
- Easy installation with a float type.
- One- or two-stage type can be selected.
- Available from water depth 1m.

Applications

- Preventing decay of water at park pond, moat etc.

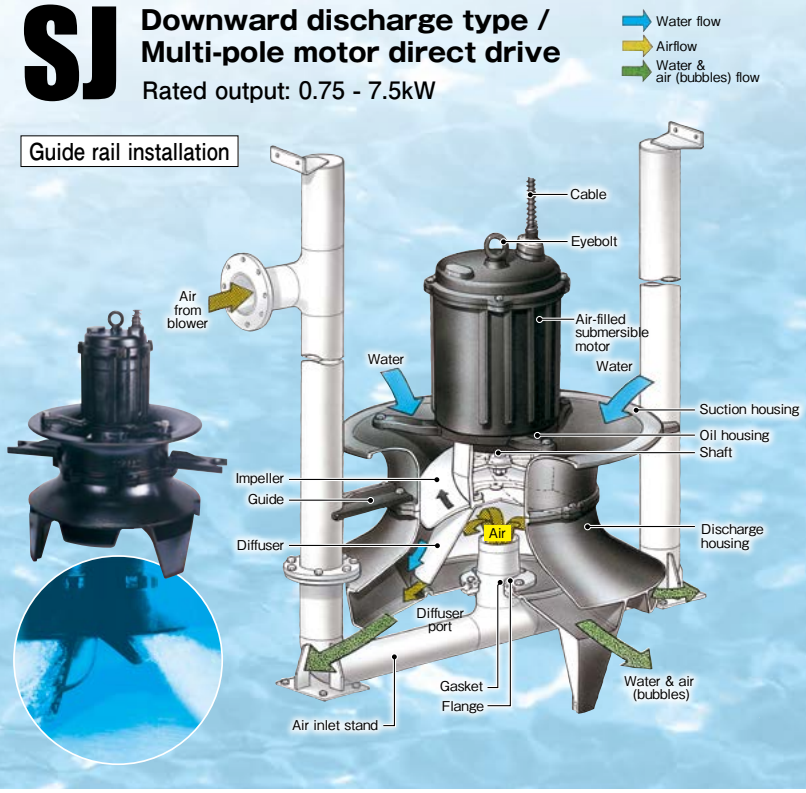
For Wastewater Treatment

Submersible aerator

The SJ & SJL series offer powerful downward water flow to ensure mixing and high oxygen transfer efficiency. The compact, lightweight body allows for easy installation and maintenance.

SJ **Downward discharge type / Multi-pole motor direct drive**

Rated output: 0.75 - 7.5kW



With dedicated reduction gear Suitable for large-scale facilities.

SJL **Downward discharge type / Submersible motor with reduction gear**

Rated output: 2.2 - 30kW

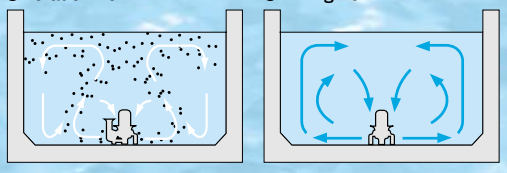
The SU series has a compact, lightweight body with powerful upward flow. It is ideal for aeration and mixing in a deep tank to create an efficient uniform flow.

SU **Upward discharge type/ Multi-pole motor direct drive**

Rated output: 1.5 - 15kW

■Flow patterns in tank

●Aeration flow ●Mixing flow



Applications

- Sewage treatment: Aeration and mixing.
- Rural site wastewater treatment: Aeration and mixing.
- Industrial wastewater treatment: Aeration and mixing.
- Anoxic tank, anaerobic tank: Mixing.
- Equalization tank: Aeration and mixing.

For Wastewater Treatment and General Purpose

Submersible ejector

Submersible ejector forces sucked air into the tank through an ejector action with a jet of water, thereby stirring the liquid in the tank simultaneously.

J•JA **Guide rail installation**

JF•JAF **Free-standing**

Rated output: 0.75 - 5.5kW

Applications

- For preliminary aeration of purifying tanks.
- For preliminary aeration of industrial wastewater treatment plants, etc.

Submersible ejector for shallow tank

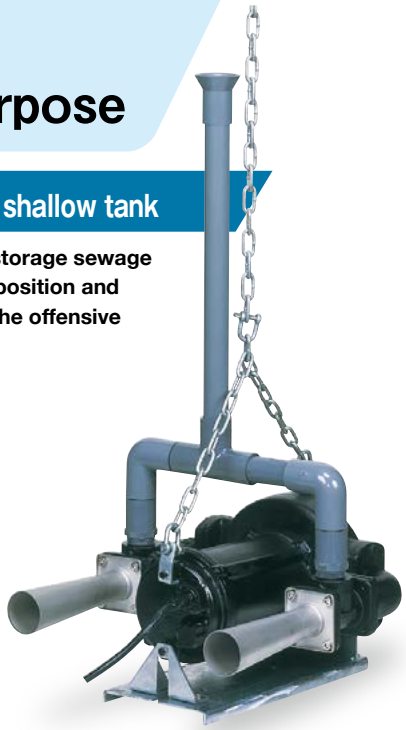
Maintain aerobic to the temporary storage sewage of the building, suppress sludge deposition and scum generation, cut the cause of the offensive odor from the beginning.

JB **Guide rail installation**

JBF **Free-standing**

Rated output: 0.4 - 1.5kW

- Can be installed from existing building manhole.
- Extensive aeration and stirring with twin diffuser.
- Available in a wide range of water depth.



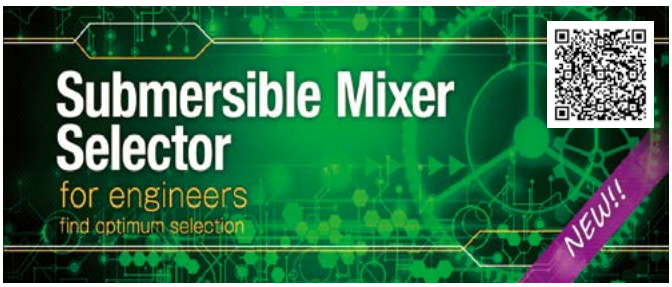
Applications

- For preventing malodor from sewage holding tanks in the building.
- Suitable for shopping malls, hotels, public facilities, buildings where many people gather.

ShinMaywa Pump and Mixer Selector

ShinMaywa Pump Selector provides you to make easy selection from variety of ShinMaywa pump products to meet your application.
You can get pump selection and datasheet (specifications and performance curve) easily.
In addition to datasheet, you can also get technical information for selected pump including catalogue, drawings, CAD data, etc. through ShinMaywa Product Data Download system seamlessly.
Using ShinMaywa Pump Selector, you can make your decision quickly and make smooth communication with our sales representatives.

The Mixer selector programs from ShinMaywa allow you to search varieties of our Submersible Mixer that mostly meet your requirements.
You can easily access to Submersible Mixer selection without registration.
Using ShinMaywa Submersible Mixer Selector, you can make your decision quickly and make it smooth to communicate with our sales representatives. Please contact us to get selection sheet or any additional documents.



ShinMaywa Product

Specifications and dimensions are subject to change without notice.

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https://www.shinmaywa.co.jp/pump/english/index.html

Website

ShinMaywa ONO PLANT
ISO 9001-0066539/ISO 14001-0066652

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