TSURUMI PUMP

Submersible Sewage Pumps

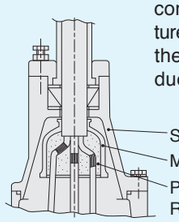
Channel Impeller

B

Tsurumi B-series, the basic sewage pumps with channel impeller that minimize clogging, winding, and other foreign matter-related trouble. Years of know-how are built into very part of the pumps for highly reliable operation.

Cable Entry

Every cabtyre cable has an anti-wicking block at the cable entry section on the pump. This mechanism is such that a part of each conductor is stripped back and the part is sealed by molded rubber or epoxy potting which has flowed in between each strand of the conductor. This unique feature prevents wicking along the strand of the conductor itself.



Motor

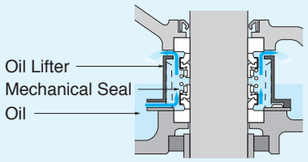
The motor is a dry-type, squirrel-cage induction motor, housed in a watertight casing, and conforms to insulation classes B, E or F. In each of these insulation classes, all standard pumps can be used in ambient temperatures up to 40°C.

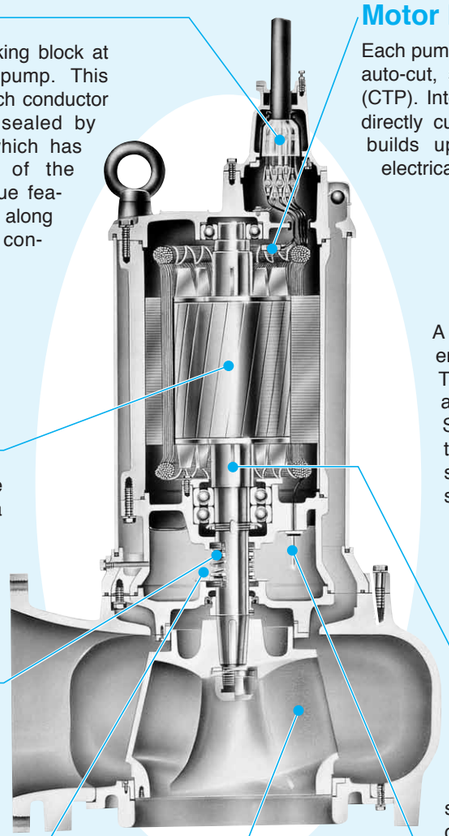
Mechanical Seal

The mechanical seal with two seal faces containing silicon carbide (SiC) is equipped with the oil chamber. The advantages of the seal are two-fold, it eliminates spring failure caused by corrosion, abrasion or fouling which prevents the seal faces from closing properly, and prevents loss of cooling to the lower seal faces during run-dry conditions which causes the lower seal faces to fail.

Oil Lifter (Patented)

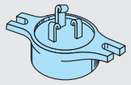
The Oil Lifter was developed as a lubricating device for the mechanical seal. Utilizing the centrifugal force of the shaft seal, the Oil Lifter forcibly supplies lubricating oil to the mechanical seal and continues to supply the oil to the upper seal faces even if lubricant falls below the rated volume. This amazingly simple device is not only reliably lubricates and cools down, but also retains the stable shaft seal effect and extends the inspection term.





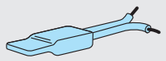
Motor Protector

Each pump up to 7.5kW as standard has a built in auto-cut, self-resetting Circle Thermal Protector (CTP). Integrated in the motor housing, the CTP directly cuts the motor circuit if excessive heat builds up or an overcurrent caused by an electrical or mechanical failure occurs.



Circle Thermal Protector

A Miniature Thermal Protector (MTP) is embedded in each winding of the motor. These MTPs are connected in series, and their wires are led out of the motor. Should the winding temperature rise to the actuating temperature, the bimetal strip opens to cause the control panel to shut the power supply.



Miniature Thermal Protector

Shaft

The high-tensile stainless steel shaft used on all pumps is designed to have adequate strength for the transmission of the full load. It is supported by C3 type, high-quality, deep-groove ball bearings.

Impeller

The impeller is semi-open or shrouded type with one or two vanes. It has a wide channel extending from inlet to exit, which allows the pump to pass the solid matters from inflow to discharge with minimal blockage.

Leakage Sensor

A stainless steel, electrode type leakage sensor is standardized for large pumps of 22kW or over (excluding some models). It senses water incursion into the oil chamber and brings the pump to a halt with the help of a control panel.

MODEL NUMBER DESIGNATION

100 B A 6 3.7 S H

- 100 — Discharge bore in mm
- B — Name of the series
- A — Operation sub code
  - None : None automatic operation
  - A : Automatic operation
  - W : Auto-alternation operation
- 6 — Number of poles of the motor
- 3.7 — Rated motor output in kW
- S — Phase
  - None : Three-phase
  - S : Single-phase
- H — Sub code for pumping head
  - H : High head
  - L : Low head

GUIDE RAIL FITTING SYSTEM

TOS and TO

The TOS/TO is the Tsurumi standard guide rail fitting system. This system connects the pump to and from the piping easily just by lowering and hoisting the pump, allowing easy maintenance and inspection without the need to enter the sump.

DRY PIT MODEL

The advantage of dry pit model is that it will not be damaged by flooding, as it is constructed with a submersible pump.

Tsurumi can provide the dry pit model as option for the whole range of B-series pumps.

The water jacket covers whole part of the motor. It efficiently cools the motor for continuous operations.

AUTOMATIC MODEL

The Tsurumi automatic model has an integral control circuit and two float switches that operate at a low voltage. It operates automatically in response to the change in water levels. As the pump has a Circle Thermal Protector (CTP) integrated into the motor to protect the motor from overload or overheating, it is not required to provide an extra motor protection circuit in the starter panel.

This model can be identified by the suffix “A”. Refer to model selection for availability and model numbers.

AUTO-ALTERNATION MODEL

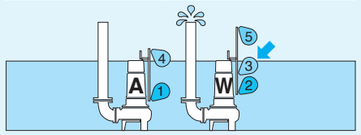
The auto-alternation model is used along with an automatic model. The combinational use of these two pumps enables each pump to operate alternately without control panel.

The auto-alternation model has three floats and can be identified by the suffix “W”. Refer to model selection for availability and model numbers. It is available in the same output range of the automatic pumps.

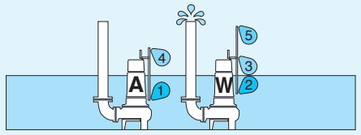
How the Auto-alternation Model Works

●Operation is enabled by merely connecting the power supply.

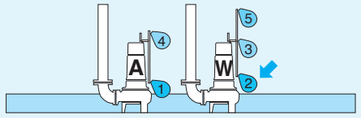
Primary Operation



1 Float 3 operates, and pump W starts to discharge water.

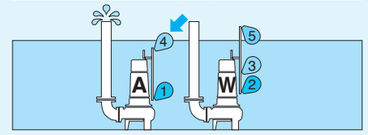


2 Water is discharged (water level falls).

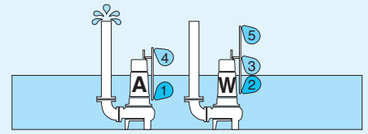


3 Stop float 2 of pump W operates to end water discharge. At this time, alternation start float 3 of pump W rests for one discharge operation.

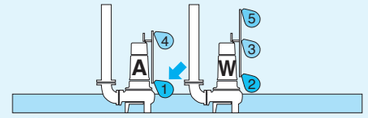
Secondary Operation



1 Start float 4 of pump A operates to start water discharge.



2 Water is discharged (water level falls).

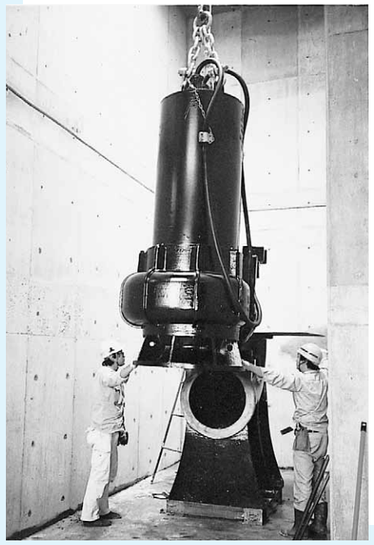


3 Stop float 1 of pump A operates to end water discharge. At the same time, start float 3 of pump W becomes ready for operation.

✻ Primary and secondary operation are repeated alternately.

✻ Both primary and secondary operations are performed simultaneously when water has risen to an abnormal level.

B-series is the Basic of Submersible Sewage Pumps using for all the society fundamentals. Durable and High Quality Products can be used for various kinds of field.



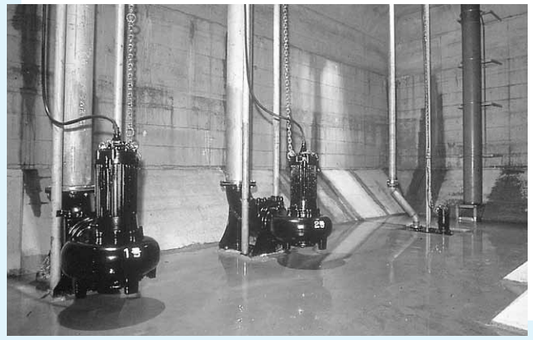
B-series pumps are working in many sewage treatment plants throughout Japan because of their excellent reputations. As durable motor is tough enough against frequent ON/OFF, automatic unattended operation by central control is available.

As it is silent during operation owing to it's underwater operation, B-series pumps are often used at the basement of buildings in the city area.

Even if the condition is very severe, sewage pumps are required to have high and steady performance. Tsurumi B-series pumps can give a solution for this problem.

While in overseas, Tsurumi has a lot of sales records with B-series pumps, too. Several inventions adopted by the idea seeking better handling produces ease of maintenance and repair for users comparing to other manufacturers. Because of this, Tsurumi pumps have good reputation as the most intimate pump in the world.

In the shipyard, B-series pumps, which are operated by fully-automatic control, work for level control and dry up. For sea water, sacrificial anodes are applied.



Enough absorption can not be expected in the city center where the ground is covered by concrete. Occasional flood occurs often when a local heavy rain comes. In such case, large capacity B-series pumps play an active role.

B-series pumps being used for a temporary installation during rainy season. It is used to pump up water of branch river to the main stream when the water level of main stream becomes higher than that of the branch river.

Because of its robust construction, B-series pumps are sometimes used for dewatering in construction site. Compact shape allows high portability comparing against the horizontal pump which requires a firm installation foundation work. In such case, some pump parts are changed its material into harder materials.