Innovative solutions coupled with expertise in pumping technology

TORISHIMA is a leading pump manufacturer, founded in 1919 in Osaka, Japan. Our primary objective is to contribute to society as a quality provider of pumping equipment and services. We continue to strive to be the market leader in our field. Our on-going investment in research and development highlights our commitment to provide the best technology for our customers. Our mission is always to listen to our customers, understand their needs and their expectations.

General specification ranges for 50Hz and 60Hz types are shown below.

**TORISHIMA MAIN PUMPS SELECTION TABLE**

**Pumps for Fresh Water**

**Chemical Process Pumps**

**Hot Water Circulating Pumps**

**Non-Clogging Pumps**

**Vertical Pumps for Chemical Industries**

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2
Energy Industry

- Condensate pump for combined cycle power plant (MMTV)
- Vaporizing pumps for LNG plant (SPV)
- Barrel type super critical boiler feed pump for coal fired power plant (MHB)
- Super critical pressure boiler circulating pump for thermal power plant (HLV)
- Ring section boiler feed pump for combined cycle power plant (MHG)
- Circulating water pump for coal fired thermal power plant (SPV)

Chart for Selecting Pumps by Application
**Chart for Selecting Pumps by Application**

- **Main Application**
  - Municipal Water Works
  - Industrial Water Works
  - Small Capacity Water Works
  - Desalination Plant

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### Chart Data

- **Applications**: Intake, Supply, Distribution, Brine Blow Down, Seawater Feed, Product Water, Feed, Filtered Water, Back Wash, Product Water
- **Products**: End-Suction, Double-Stage, Multi-Stage, Mixed-Flow, Submersible
- **Sizes**: mm
- **Max. Capacities**: m³/h
- **Max. Total Heads**: m
- **Max. Operating Pressure**: MPa
- **Max. Operating Temperature**: °C

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### Notes

- The chart provides a selection guide for pumps based on their application and specific requirements.
- It includes information on sizes, max. capacities, max. total heads, max. operating pressure, and max. operating temperature for different types of waterworks and desalination plants.
- Each product category offers a range of specifications to help in choosing the appropriate pump for specific needs.
## Chart for Selecting Pumps by Application

### Applications

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Regional Development
Urban Development

1. Pumps for air conditioning system for building facility (CAL)
2. Cooling water pumps for district heating and cooling system (CDM)
3. Boiler feed pumps for district heating and cooling system (MML)
4. Cooling water pumps for district heating and cooling system (CDM)
5. Cooling water pumps for air conditioning facility (CE)
6. Boiler feed pumps for district heating and cooling system (MMO)

Chart for Selecting Pumps by Application

- **Main Application**
- **Secondary Application**
- **Horizontal**
- **Vertical**
- **Horizontal/Vertical**

### Applications
- Air Conditioning
- Water Supply and Drainage, Sanitation
- Fire-Fighting
- Cooling Water
- Cold Water
- Hot Water
- Boiler Feed
- Water Supply
- Sewage
- Water Supply
- Drainage
- Sewage
- Treatment
- Fountains

### Products
1. **End-Suction Pumps**
   - CAL
   - CAR
   - CAM
   - CAS
   - CE
   - CEB
   - CNA
   - CPC
   - CPCN
   - CDM, CDMV
   - MMK
   - MML
   - MMO, MMOV
   - T/B, T/C, T/N
   - F/TB
   - F/P, F/PD, F/SP
   - K/LP
   - NWR
   - TE/O
   - S/T

### Characteristics
- **Sizes (mm)**
- **Max. Capacities (m³/h)**
- **Max. Total Heads (m)**
- **Max. Operating Pressure (MPa)**
- **Max. Operating Temperature (°C)**
Chemical Industry

- Process pumps for chemical plant (CPC)
- Process pumps for DMT plant (CPC)
- Cooling water pumps for petrochemical plant (CDM)
- Boiler feed pump for petrochemical plant (MHD)
- Lifting pump for chemical plant (CDKS)
- Cooling water pumps for oil refinery plant (CPC)

Chart for Selecting Pumps by Application

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End-Suction Pumps

**CAL (Cast Iron), CAR (Stainless Steel)**
10 bar end-suction volute pump

Taking advantage of our existing pump designs, CAL and CAR are totally optimized design pumps which adopt the efficient impeller design. The components focus on interchangeability.

- **Applications**
  - Feed / Drainage water for general industries
  - Feed / Drainage water for various processes for chemical / food industries
  - Cold / Hot water circulation in district heating / cooling plants
  - Water pumping, Fire-fighting, Water intake / Distribution / Supply for water works, Industrial water, and others

**CAM (Cast Iron), CAS (Stainless Steel)**
16 bar end-suction volute pump

In common with CAL and CAR as CA series, CAM and CAS are totally optimized design pumps which adopt the efficient impeller design.

- **Applications**
  - Feed / Drainage water for general industries
  - Feed / Drainage water for various processes for chemical / food industries
  - Cold / Hot water circulation in district heating / cooling plants
  - Water pumping, Fire-fighting, Water intake / Distribution / Supply for water works, Industrial water, and others

**CE**
End-suction volute pump

A single- or two-stage end-suction volute pump. Various materials and structural designs employed to meet specification requirements for a variety of applications from fresh water, chemicals and heat transfer.

- **Applications**
  - Water intake / Distribution / Supply / Boosting / Clarification for water works
  - Various processes for chemical industries
  - Water pumping / Drainage for agriculture, Boiler feed pump, Heat medium circulation, Heat drain, and others

**CEBS**
Pressing stainless end-suction volute pump

A motor block pump made by pressing stainless steel. The liquid contact areas are all made of stainless steel so as to be highly resistant to corrosion. The pump motor unit design allows to be compact and light-weight and easy to handle.

- **Applications**
  - Hot water supply / Hot water circulation in building facilities
  - Various processes in food industries
  - Water and hot water supply for general industries
  - To prevent breakage from freezing for pump facilities in cold areas, and others

**CERS**
End-suction volute pump for heat transfer oil

Specialized for heat transfer oil. Effective air-cooled design leads to no requirement for cooling at shaft sealing or bearing to 340°C heat transfer oil.

- **Applications**
  - Dry / Agitator / Heating systems for chemical industries
  - Oven / Dry / Heating systems for food industries
  - Dry / Heating systems for general industries, and others

**CFV, CFV-SM**
Vertical mixed-flow volute pump

Vertical mixed-flow volute pump with motor

Applicable for wide range from low head to high head. CFV-SM are a design of water resistant motor and pump. The design enables it to operate when a pump room is flooded. In addition, CFV-SM doesn’t require intermediate shaft and thus reduces construction cost.

- **Applications**
  - Sewage transfer, Rain water drainage, Water intake / Distribution / Boosting for water works
  - Water pumping / Drainage for agriculture, and others

**CHR**
End-suction volute pump for hot water circulation

Applicable mainly for hot water circulation of forced-circulation boilers. The forced cooling system is applied to the bearing bracket, stuffing box and base plate.

- **Applications**
  - Hot water circulation in forced-circulation boilers in thermal power plants
  - Petrochemical industries
  - Coal gasification plants, Oil refinery, and others
CNA
Non-clogging end-suction volute pump

The discharge opening of the non-clogging impeller is produced specially wide to permit free\npassing of any solids measuring 50 to 70% of the\npump nozzle size.

- Applications
  Sewage transfer,\n  Transfer / Drainage of liquids containing sludge\n  for general industries,\n  Transfer of grain and water mixtures,\n  Transfer / Drainage of liquids containing sludge\n  Sewage transfer, “pump nozzle size.

- End-suction volute pump for process
- Condensate / Drain in energy industries, Water\n  Cooling systems / Water feed for deaerator /
  Condensate / Drain in energy industries, Water
  feed / Drainage for general industries

- End-suction volute pump with screw\n  impeller

- Five kinds of standardized impellers available\n  according to liquid. Applicable in various\n  industries. The back pull-out structure and high\n  interchangeability of this pump providing ease of\n  maintenance.

- End-suction volute pump for process
- Condensate / Drain in energy industries, Water
  Cooling systems / Water feed for deaerator /
  Condensate / Drain in energy industries, Water
  feed / Drainage for general industries

CNP
Non-clogging End-suction volute pump

- End-suction volute pump with screw\n  impeller

Specially designed to handle crude sewage\ncontaining heavily contaminated solid and\nlong-fibre admixtures liable to twist or bunch.\nHigh efficiency and high energy saving.

- End-suction volute pump for process
- Condensate / Drain in energy industries, Water
  Cooling systems / Water feed for deaerator /
  Condensate / Drain in energy industries, Water
  feed / Drainage for general industries

CNS, CNSV (Vertical)
End-suction volute pump with screw\nimpeller

Processes in petrochemical / chemical industries,
Condensate / Drain in energy industries, Water
cooling and heating, Water pumping, Fire-fighting,
Cooling systems / Water feed for deaerator /
Condensate / Drain in energy industries, Water
feed / Drainage for general industries

CPC
End-suction volute pump for process

Conforms to ISO2858. A wide range of structural\ndesigns of material and seals meet various\nspecification requirements as process pump for\nchemical and general industries.

- Applications
  Cooling systems / Water feed for deaerator /
  Condensate / Drain in energy industries, Processes\nin petrochemical / chemical industries, Water
  feed / Drainage for general industries

- End-suction volute pump with screw\n  impeller

- End-suction volute pump for process
- Condensate / Drain in energy industries, Water
  Cooling systems / Water feed for deaerator /
  Condensate / Drain in energy industries, Water
  feed / Drainage for general industries

CPR
End-suction volute pump for process

Simple and durable design providing high\nreliability. Widely used for oil refinery, petro-
chemical, and general industries. Series with\ninducer for low NPSH req. also available.

- Applications
  Processes in oil refinery / petrochemical / general
  industries

CPW
End-suction volute pump for hot water\ncirculation

Centerline pump foot mounted. Mainly used as\nfeed pump of circulation pump of hot water in\nlarge-size heating systems.

- Applications
  Feed water / Circulation in high pressure hot\n  water generating plants

CSV
Vertical centrifugal volute pump

Standardized vertical pump, making full use of\nthe features of various horizontal volute pumps\ncovering a wide range of specifications.

- Applications
  Pumping / Drainage of pit water in construction\n  facilities / chemical / steel / power generating /\n  pulp / food industries, and others
Double-Suction Pumps

**CDM, CDKS**
**Axially split double-suction pump**

The world’s most advanced high-efficiency pump achieved by design to match the double suction and three-dimensional impeller with the latest hydraulics. Simple disassembly of upper half casing without disassembling impeller enables ease of maintenance and inspection.

**Applications**

**CDKTV**
**Vertical double-suction pump with canister**

The hydraulic design of the double-suction impeller offering low-shut off head, low NPSH and high speed. Mainly applicable for brine recirculation in seawater desalination plants and condensate in geothermal power plants when severe suction condition with large capacity and high head required.

**Applications**
Brine recirculation / Brine blow down in seawater desalination plants, Hot well / Large volume condensate in geothermal power plants

---

Multi-Stage Pumps

**MHB**
**Radially split barrel casing pump**

The barrel casing is fully welded to the pipe work and supported at its centerline on a fabricated steel base plate. The inner cartridge, which contains all pump components except the barrel and main stud bolts, is removable from the barrel as a complete unit for ease of maintenance.

**Applications**
Boiler feed in thermal power plants, High pressure feed water in various industries, and others

---

**MHG**
**Horizontal multistage ring section pump**

Radially split ring-section high-pressure multistage diffuser type pump. No warming through required enabling rapid start-up.

**Applications**
Boiler feed in power plants, High pressure feed water in various industries, and others

---

**MHD**
**Horizontal multistage ring section pump**

Radially split ring-section high-pressure multistage diffuser type pump achieving high efficiency and low NPSH. No warming through required enabling rapid start-up.

**Applications**
Boiler feed in power plants, High pressure feed water in RO desalination / various industries, and others
**Multi-Stage**

21 22

**Horizontal multistage ring section pump**

**MMK, MML**

The axially split design offers ease of maintenance of rotating equipment without removing the lower casing. MMK-T covering high head range is twin-suction structure to satisfy high suction capability.

**Applications**

- High pressure seawater feed in RO desalination plants
- Distribution for water works
- Water pumping for agriculture, and others

**Specialized Pumps**

**MMO, MMOV (Vertical)**

**Multistage ring section pump**

Compact and light-weight. Pump feet integrally cast onto bearing housings, allowing free orientation of both suction and discharge nozzles. No cooling of shaft seals required up to 140°C liquid.

**Applications**

- Boiler feed / Condensate / Distribution for general industries
- Water intake / Distribution / Water supply / Boosting for water works
- Feed water / Drainage in building facilities
- Cooling water / Hot and Cold water circulation
- Water pumping / Drainage for agriculture, and others

**MHHA**

Axially split multistage pump

The axially split design offers ease of maintenance of rotating equipment without removing the lower casing. Applicable for high to low head duty by changing the number of stages.

**Applications**

- High pressure seawater feed in RO desalination plants
- Distribution for water works, and others

**MHH**

Axially split multistage pump

The axially split design offers ease of maintenance of rotating equipment without removing the lower casing. Applicable for high to low head duty by changing the number of stages.

**Applications**

- High pressure seawater feed in RO desalination plants
- Distribution for water works, and others

**MHA**

Horizontal end-suction multistage ring section pump

The diffuser guides flow from impeller discharge to next impeller suction eye. The axial force is compensated by a hydraulic balancing device. The integrated design accumulated by high pressure and high speed pumps results in excellent cost performance and high efficiency.

**Applications**

- High pressure seawater feed in RO desalination plants

**MMK, MML**

Axial thrust of MMK is balanced by the impeller balance holes, and by way of MML, the balance disc, so that MMK and MML can operate with high reliability at high speed.

**Applications**

- Boiler feed in power plants
- High pressure feed water in various industries
- Condensate in seawater desalination
- Distribution / Boosting for water works, Irrigation for agriculture, and others

**HLV, HLAV**

Glandless (sealless) pump motor unit

(Portable circulation pump)

Pump and motor are integrated in a pressure-tight casing. The glandless design (no shaft seal) makes this pump best suited for pumping of high temperature and high pressure liquids without any leakage. Volute, annular or spherical casing designs optionally available.

**Applications**

- Boiler circulation in super / sub critical power plants

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**Applications**

- High pressure seawater feed in RO desalination plants
- Distribution for water works, and others

**MMTV**

Vertical multistage pump with canister

The high pressure vertical canister pump offers significant advantage in those cases where limited suction head is available. Applicable especially for condensers in power plants, desalination plants and other pipeline pumping applications.

**Applications**

- Hot water / Condensate / High and low pressure drain in thermal power plants

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Compact and light-weight. Pump feet integrally cast onto bearing housings, allowing free orientation of both suction and discharge nozzles. No cooling of shaft seals required up to 140°C liquid.

**Applications**

- Boiler feed / Condensate / Distribution for general industries
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- Feed water / Drainage in building facilities
- Cooling water / Hot and Cold water circulation
- Water pumping / Drainage for agriculture, and others

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**Applications**

- Boiler circulation in super / sub critical power plants
Mixed-Flow Pumps

**SP**
Horizontal mixed-flow pump
Offering the highest efficiency in low head and large capacity range. The axially split design offering ease of maintenance of rotating equipment without removing the lower casing.

- **Applications**
  - Water pumping / Drainage for agriculture
  - Sewage transfer
  - Rain water drainage
  - Storm surge drainage, and others

---

**SPS**
Mixed-flow volute pump
Mainly used for water pumping and drainage for agriculture. Simple back pull-out structure allowing ease of overhaul.

- **Applications**
  - Water pumping / Drainage for agriculture
  - Drainage for civil engineering work
  - Flood control, and others

---

**SPV**
Vertical mixed-flow pump
Diffuser type, single or multistage design, mixed-flow impeller suspended within wet pit. Offering various hydraulic models, materials, and installation arrangement (above or below floor discharge) to suit the plant specific design.

- **Applications**
  - Rain water drainage / Water intake for water works / sewage
  - Circulation / Cooling water in petrochemical industries
  - Cooling water / Water intake / Dock drainage for general industries

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**IS**
Axial-flow propeller pump
Diffuser type, axial flow propeller suspended within wet pit. Offering various hydraulic models suitable for large capacity with low pump head of water. Axially split design offering easy maintenance without removing the lower casing.

- **Applications**
  - Water pumping / Drainage for agriculture
  - River water drainage
  - Cooling water in power plants

---

**ISV**
Vertical axial-flow propeller pump
Diffuser type, axial flow propeller suspended within wet pit. Especially used for large capacity with low head of water. The various hydraulic models applied to the change of the capacity and head.

- **Applications**
  - Water pumping / Drainage for agriculture
  - River water drainage
  - Cooling water in power plants
Submersible Pumps

**SMS (Axial-Flow), SMI (Mixed-Flow)**

Tubular pump

Horizontal tubular pump units combining an axial-flow or mixed-flow pump and a dry-type electric motor in a single tube. Little noise and compact owing to the small water flow loss and the combined motor. Either connected directly to an electric motor or used with a reduction gear for slower rotation.

**Applications**

- Water intake / Distribution / Drainage for water works, Water pumping / Drainage for agriculture, Industrial water / cooling water / drainage, Drainage for civil engineering works, and others

**SMIV (Axial-flow), SMSV (Mixed-flow)**

Dry-type submersible pump

Large capacity submersible propeller pumps with low head capabilities, possessing high efficiency and superior performance with compact design and easy operation. Designed to meet the requirements for efficient handling of water, especially for installation, maintenance and inspection in pits. "Auto In-Pipe Column Installation type" adopted because of the high reliability and rapid discharge connections.

**Applications**

- Water pumping for agriculture, Water intake / Distribution / Water supply for water works, Waste water / Sludge drainage for civil engineering works, and others

**SMV, SMRV**

Large-size submersible motor pump

SMV is vertical tubular casing pump with submersible motor. Water-filled or oil-filled type is provided. SMRV uses an oil-filled type submersible motor whose suction entry is located between motor and pump.

**Applications**

- Water intake / Distribution / Drainage for water works, Water pumping / Drainage for agriculture, Industrial water / cooling water / drainage, Drainage for civil engineering works, and others

**S/M**

Dry-type submersible motor pump

Small light-weight and easy to handle. Best suited for discharging waste water at construction sites and draining water in buildings and factories. The motor is equipped with an auto-cut device, submersion detection device and protection device. The impeller is made of wear resistant materials.

**Applications**

- Waste water / Sludge drainage for civil engineering works, Drainage in factories, and others

**T/B, T/C, T/N**

Submersible motor pump

Wide ranges of impellers suited for all types of sewage and effluent, especially untreated sewage containing fibers, solid admixtures, sewage sludge, circulating sludge. Removable device for ease of maintenance and inspection also available.

**Applications**

- Waste water / material drainage for sewage, Waste water / material drainage for construction facilities, Rain water drainage, and others

**F/TB**

Submersible motor pump for deep well

Vertical or horizontal submersible motor pumps with radial or mixed flow impellers, multi-stage. Water sealed three-phase induction motor is highly reliable electrically and mechanically as submersible motor, and enables less trouble and safe operation.

**Applications**

- Water intake / Distribution / Water supply for water works, Water feed / Distribution for general industries, Water pumping for agriculture

**F/VC, F/VD, F/UW, F/SF**

Submersible motor pump for shallow well

Water sealed three-phase induction motor is adopted for submersible motor. Suction entry of F/VC and F/UW is located at the bottom and that of F/VD and F/SF is between pump and motor.

**Applications**

- Water intake / Distribution / Water supply for water works, Water feed / Distribution for general industries, Water pumping for agriculture
Miscellaneous Pumps

**K/LP, K/SLP2 (Stainless steel)**

Line pump

- Pump and 2-pole motor close coupled with common shaft. Line construction of suction entry and discharge fits in any position into a pipeline.

**Applications**
- Water and hot water circulation in building facilities,
- Processes for various industries,
- General water feed,
- Boosting for water works, and others

![Diagram of K/LP, K/SLP2](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Negative Pressure</th>
<th>Air Capacity</th>
<th>Total Head</th>
<th>Temperature</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>up to 80 m / 262 ft</td>
<td>up to 72 m³/h / 310 USgpm</td>
<td>up to 80 m / 262 ft</td>
<td>up to 100°C / 212°F</td>
<td>25 to 120 mm</td>
</tr>
</tbody>
</table>

**N/WR**

Wesco pump

- Specially-shaped impeller revolves at high speed in casing, makes the flow and absorbs up. Extremely small impeller clearance due to the use of a special method of fixing and special materials to assure high stability. Best suited for applications with small capacity and high head.

**Applications**
- Water feed / pumping for general industries,
- Chemical liquid transfer,
- Various fuel oil transfer,
- High pressure boiler feed,
- High pressure washing, and others

![Diagram of N/WR](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>up to 72 m³/h / 310 USgpm</td>
<td>up to 120°C / 248°F</td>
<td>up to 72 m³/h / 310 USgpm</td>
<td>15 to 80 mm</td>
</tr>
</tbody>
</table>

**NV**

Vacuum pump

- The rotating, water-sealed pump sucks and exhausts gas using the centrifugal force of the liquid. Continuous gas exhaustion is made without vibration and in complete safety even when water enters in the pump interior during operation.

**Applications**
- Pump water priming,
- Gas exhaustion / Vacuum generation / Pressure-feeding for chemical industries

![Diagram of NV](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>up to 72 m³/h</td>
<td>up to 120°C</td>
<td>up to 72 m³/h</td>
<td>20 to 150 mm</td>
</tr>
</tbody>
</table>

**TE/O, TE/CO (Stainless steel)**

Self priming pump

- No need for priming. Offering outstanding self priming performance and durability. Direct-connected motor is standard.

**Applications**
- For industrial facilities, construction facilities, agriculture, waste water treatment, and others

![Diagram of TE/O, TE/CO](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>up to 320 m³/h / 1,220 USgpm</td>
<td>up to 40 °C / 94°F</td>
<td>up to 40 m / 131 ft</td>
<td>25 to 200 mm</td>
</tr>
</tbody>
</table>

**O/PS**

Pulp pump

- Suitable for pumping slurry and pulp stocks up to 5% consistency. The Impeller is Mixed flow type allowing the pump to be used for a wide range of applications.

**Applications**
- Pulp liquid transfer for paper / pulp industries,
- Solid transfer / drainage for general industries,
- Fruit or cereal and water mixture transfer for food industries, and others

![Diagram of O/PS](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>up to 780 m³/h / 2,710 USgpm</td>
<td>up to 50 °C / 122°F</td>
<td>up to 70 m / 229 ft</td>
<td>40 to 150 mm</td>
</tr>
</tbody>
</table>

**SNK**

Screw Pump

- Suitable for pumping liquids containing small stones, other suspended solids or rags, pieces of wood or ropes, digested or activated sludge etc.
- The simple, rugged construction and the open screw trough facilitate maintenance and inspection.

**Applications**
- Water pumping for treatment plants,
- Waste water transfer, and others

![Diagram of SNK](image)

<table>
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<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
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<tbody>
<tr>
<td></td>
<td>up to 100 m³/h / 360 USgpm</td>
<td>up to 40 °C / 104°F</td>
<td>up to 40 m / 131 ft</td>
<td>40 to 150 mm</td>
</tr>
</tbody>
</table>

**S/T**

Vertical Volute Pump

- Easy-installation close-coupled construction. Size 40 to 100mm back pull-out structure facilitates ease of maintenance.

**Applications**
- Boosting / Water feed / Water pumping for general industries, and others

![Diagram of S/T](image)

<table>
<thead>
<tr>
<th>Size</th>
<th>Capacity</th>
<th>Temperature</th>
<th>Total Head</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>up to 600 m³/h / 2,640 USgpm</td>
<td>up to 80 °C / 176°F</td>
<td>up to 600 m³/h / 2,640 USgpm</td>
<td>40 to 150 mm</td>
</tr>
</tbody>
</table>
Mechanical seals - the shaft seals used in rotating machinery such as pumps, hydraulic turbines, agitators and centrifuges - play an important role in maintaining the safety and economic efficiency of machinery. As a comprehensive manufacturer of pumps, Torishima has never lost sight of the importance of mechanical seals. We are the fastest in the country at moving products from the research and development phase to manufacturing and commercialization.

Today, we provide a wide range of mechanical seals for applications requiring high levels of safety and quality, such as mechanical seals for sealing high-temperature and high-pressure fluids in power plant pumps (including boiler feed pumps and boiler circulating pumps). We also manufacture mechanical seals for pumps used in sewage plants, chemical plants, and desalination plants handling slurry-rich liquid, special highly corrosive liquids, and seawater. Moreover, we have utilized our years of experience in pump manufacturing to provide eco-friendly non-flushing seals, easy-maintenance cartridge seals, and a variety of other optimal mechanical seals for a diverse range of applications.

**Mechanical Seal Applications**

<table>
<thead>
<tr>
<th>Model of Mechanical Seal</th>
<th>Field and Application</th>
<th>Carrier seal</th>
<th>Casing seal</th>
<th>Split seal</th>
<th>Stationary balanced type</th>
<th>Dry running application</th>
<th>Balanced type</th>
<th>Unbalanced type</th>
<th>Dry running application</th>
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**Solution Provider**

To improve your plant’s productivity, Torishima offers longer reliable and high-efficiency pumps. In addition to servicing our own units, we restore, repair, improve and upgrade even for pumps of other manufacturers. Using the most advanced technologies, we offer products that provide you with the highest efficiency and highest possible performance.

**Installation & Field Test**

Torishima provides field engineering service wherever needed to supervise pump installation work and equipment commissioning, ensuring the pumping equipment can meet customer expectations.

**Maintenance, Overhaul, Operator Training**

Torishima offers targeted advice after performing a full maintenance inspection of the entire pump installation, performing necessary maintenance, and diagnosing whether the facility is being operated under the optimal conditions. When pumping equipment breaks down, our experienced engineers determine the basic cause through a full analysis and replace broken parts to ensure rapid restoration. In addition, we provide hands-on guidance and training to plant operators.

**Service Solutions**

As a premier engineered equipment supplier, Torishima is committed to providing the highest quality aftermarket service. Our innovative solutions can enhance performance and increase the life span of pumps, other equipment and plants. This allows operators to maximize efficiency, reduce maintenance costs and conserve energy.