

IMMERSIBLE PUMPS FOR INDUSTRY

COMPACT TANK TOP
SOLUTIONS
FOR DEMANDING
APPLICATIONS



be
think
innovate

GRUNDFOS 

RENOWNED FOR THEIR **RELIABILITY** AND **PRECISION**



MTD

MTA

MTC

MTR

MTRE

MTS

MTR

When you choose a Grundfos immersible pump, you get a pump that has proven its worth throughout decades of use in the metal processing industry.

In addition, the Grundfos range of MTR, MTA, MTC, MTD and MTS immersible pumps include sizes and material variants that fit general industry applications, so an even wider number of applications can benefit from their reliability and precision.

All pumps are available for 50 Hz or 60 Hz operation and global voltages. A Grundfos immersible pumping solution will optimize your processes, increase your efficiency, and lower your energy consumption.



COMPACT **TANK TOP SOLUTIONS** FOR DEMANDING APPLICATIONS

The MTR, MTH, MTC, MTD and MTA vertical multistage centrifugal pumps and the MTS screw pumps are designed for mounting on top of tanks with the pump unit immersed in the liquid to be pumped. The pumps consist of two main components: The motor and the pump unit. Depending on the solution required, the length of the immersed pump unit can vary.

With a range capable of delivering from 2 gpm to 450 gpm at pressures of up to 1,450 psi (150 bar) when required, there is a Grundfos immersible pump for every process. Applications where Grundfos immersible pumps are used include:

- **Machine tool**
Delivers the pressure and flow of coolant for the precise cooling and lubrication required to obtain a good finish and tolerances for machined parts
- **Temperature control**
Exact temperature control, for precision applications with temperature fine-tuned within a margin of 0.02°F
- **Wash & clean**
Ideal for all industrial washing where compact installation is required, as well as applications that include alkaline media
- **Filtration**
Pumps for low pressure with allowance for particles up to 0.4 inches and pumps for general low and high pressure filtration systems
- **Water treatment**
Ideal as a washdown pump for filter cleansing in disc and drum filters for municipal wastewater treatment and industrial water treatment.

Type of Pump	Model	Flows	Pressure
Centrifugal	MTC	Up to 111 gpm	Up to 140 psi
Centrifugal	MTR	Up to 450 gpm	Up to 355 psi
Positive displacement	MTS	Up to 283 gpm	Up to 1450 psi
Centrifugal	MTA	Up to 110 gpm	Up to 21 psi
Centrifugal	MTD	Up to 110 gpm	Up to 84 psi



SEE WHAT GRUNDFOS IMMERSIBLE PUMPS HAVE TO OFFER:

- Compact, tank-top design
- Easy installation
- Flexible immersible length
- Broad product and performance range
- 50 Hz and 60 Hz operation
- Stainless steel parts, tailored to the application
- Variable speed applications with Grundfos iSolutions
- High efficiency
- Reliability
- Service-friendly

The **MTR RANGE**

– where power is required

The MTR range offers a broad range of high-efficiency pumps of different immersible lengths for varying flow and pressure requirements of up to 450 gpm (1700 l/min) and pressures up to 508psi (35 Bar). MTR pumps are available as a customized solution in cast iron or stainless steel in number of variants.

In addition to machine tool, wash and clean applications, and the circulation of cooling liquids, MTR pumps are also used as condensate or filter pumps. They are well suited for water treatment applications as well.

The MTR range is also available:

- With drainage back to the tank
- Completely enclosed for temperatures up to 248 °F
- For horizontal installation in the side of the tank
- With explosion-proof motors, ATEX-approved pump/motors or Class 1 Div II applications

MOTOR

The MTR features a standard IE3 motor and the MTR-E adds an integrated frequency converter for IE5 motors available for global voltage with single and three-phase motors. Klixon, PTC and PT100 or the frequency converter provide motor protection, and the enclosure class IP55 is standard. The motor is available in a tropicalize variant for condensing environments.

PIPE CONNECTIONS

Internal thread: Rp, G, NPT
Flange connection: Grundfos square flange, EN/DIN, JIS and ANSI
“M” rectangular or “G” ANSI

VARIABLE LENGTH

To reach the exact depth of tank, the immersible length can be extended up to 59 inches, depending on pump size.



APPROVALS

The MTR range meets the current motor and pump efficiency requirements such as the global MEPS (Minimum Energy Performance Standards) for the motor and the Ecodesign requirements for rotodynamic water pumps defined by the Minimum Efficiency Index (MEI).



MATERIALS

Available in three material variants – cast iron and two different stainless steel grades – to cover everything from clean water, and coolant to chemical applications.

MTR:

Flow rate: Up to 450 gpm

Head: Up to 820 ft

Motor: Up to 60 hp

Liquid temp.: Up to 248 °F

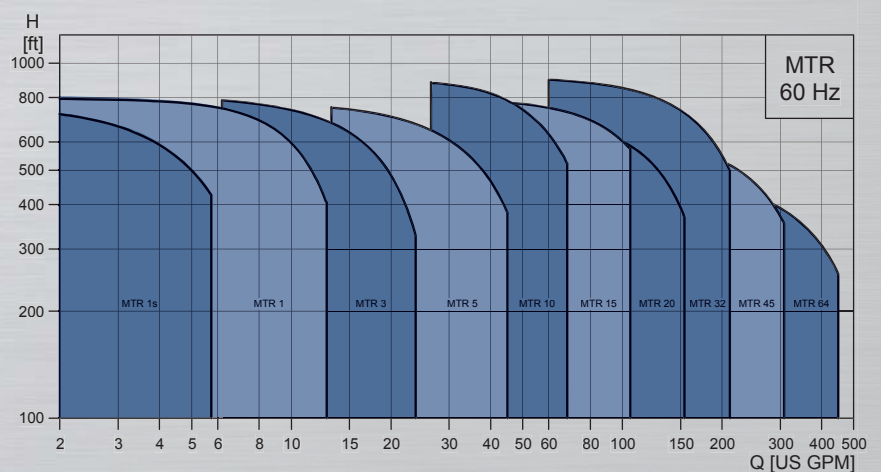
Pump sizes: 11

SEAL SOLUTION

Grundfos offers a wide range of balanced cartridge shaft seals with different seal faces such as Silicon Carbide, Carbon and Tungsten Carbide to handle almost any industrial liquid. Drainage back to tank solution (see page 5).

INLET

Fitted with a suction strainer that prevents large solid particles from entering and damaging the pump. The size of the passage in the strainer and the impeller depends on the pump size. The special priming screw allows for liquid levels down to 1 inch.



The **MTR RANGE**

– available in the following variants

The MTR range offers a high degree of modularity using standard motors and a range of variants for specific applications.

MTR – DRAINAGE BACK TO TANK

Leak-free pumps are a top priority in any industrial process, because leaking pumps may lead to costly downtime and affect part costs. The MTR DBT (Drainage Back to Tank) pump effectively eliminates that risk, because the liquid remains in the tank where it is supposed to be – even if the shaft seal is worn out and starts to leak. In addition to being leak-free, the MTR DBT pump features an innovative frequency drive motor that reduces energy consumption to further reduce part costs.

Key benefits of the MTR DBT:

- Downtime risk due to leakage is eliminated
- No risk of contamination
- Longer service intervals
- Reduction of part costs
- Non-sticking solution for the shaft seal on startup



MTRE - INTEGRATED FREQUENCY CONVERTER

This all-in-one solution with pump, motor and integrated frequency converter is packed with intelligent features that makes installation, operation, and service exceptionally easy and performance much more efficient and reliable. The compact, integrated design comes with one drive for use worldwide and complies with all international standards.

MTRE solutions feature:

- Sensors
- BUS communication
- Pump monitoring and protection
- Electronic control and energy savings

MTRE:

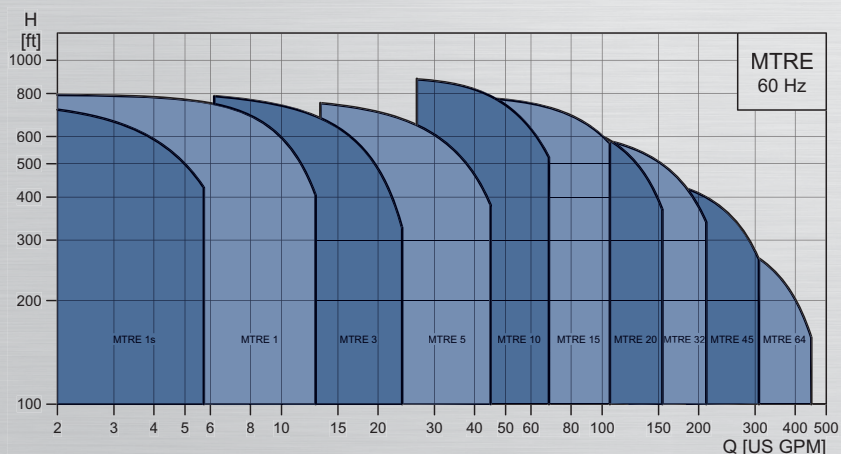
Flow rate: Up to 450 gpm

Head: Up to 835 ft

Motor: Up to 30 hp

Liquid temp.: Up to 194 °F

Pump sizes: 10



MTRE – RUN AT POWER LIMIT

In certain applications on-demand pressure increases are essential to meeting situational demands. Customized software allows the pump's RPM to be increased, and the increased speed – referred to as over-synchronous operation – translates into greatly increased pressure, so you get the high pressure you need from a significantly smaller pump. This can be achieved because the pump does not need to perform across the full pump curve. Instead, the software lets the pump operate only within the necessary band with perfect precision.

Run at power limit

- Makes it possible to boost the pressure at lower flows by increasing the frequency
- Makes it possible to use the motor 100% over the full pump curve
- Smaller and more compact pump

MTRE:

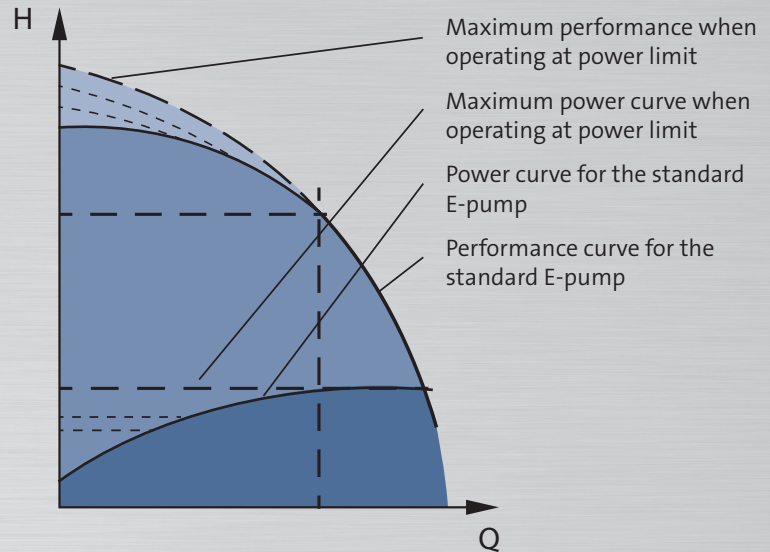
Flow rate: Up to 450gpm

Head: Up to 835 ft

Motor: Up to 30 HP

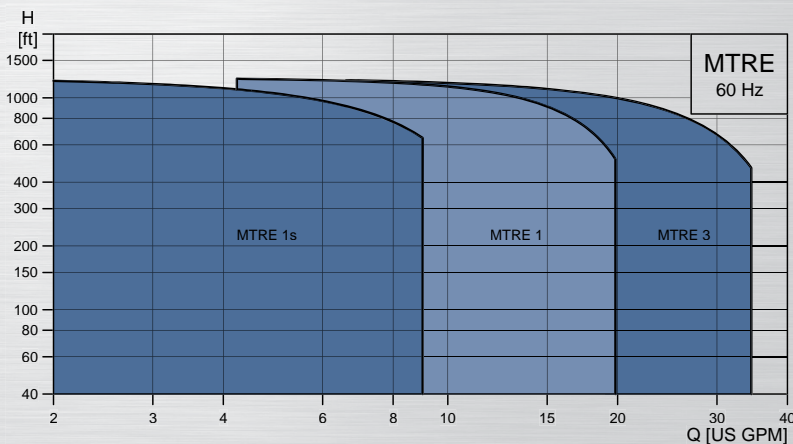
Liquid temp.: Up to 194 °F

Pump sizes: 11



MTRE HIGH PRESSURE

This variant of the MTRE pump with integrated frequency converter is especially designed for applications that require high pressure. This is obtained by high-speed operation of the motor and reinforced components in the pump.



MTRE-HS:

Flow rate: Up to 35 gpm

Head: Up to 1250 ft

Motor: Up to 10 hp

Liquid temp.: Up to 194 °F

Pump sizes: 3



The **MTC RANGE**

– with integrated motor

The MTC range of immersible pumps features a very compact design with the motor and pump in one unit, which increases the ease of installation. Available in cast iron or stainless steel, the MTC range can be supplied in different immersible lengths for varying flow and pressure requirements. The MTC pump comes with dual frequency 50/60 Hz as standard.

The MTC range is ideal for machine tool, wash and clean, and chiller applications.

Pump capabilities:

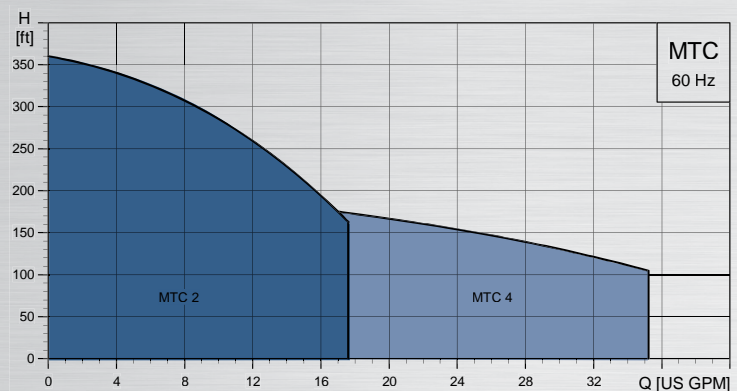
Flow rate: Up to 35 gpm

Head: Up to 175 ft

Motor: Up to 2.1 hp

Liquid temp.: Up 194 °F

Pump sizes: 2



- **Motor**
Standard IE3 motor available for global voltage with single and three-phase motors. Motor protection directly from Klixon or PTC
- **Seal solution**
Grundfos offers a wide range of mechanical shaft seals with different seal faces such as Silicon Carbide, Carbon and Tungsten Carbide to handle almost any industrial liquid. Drainage back to solution is standard for the MTC range (see page 5)
- **Materials**
Available in cast iron or stainless steel, depending on the application
- **Variable length**
To reach the exact depth of tank, the immersible length can be extended up to 13 inches, depending on pump size
- **Inlet**
Fitted with a suction strainer that prevents large solid particles from entering and damaging the pump. The size of the passage in the strainer and the impeller depends on the pump size. The special priming screw allows for liquid levels down to 1 inch.
- **Pipe connections**
Internal thread: NPT



APPROVALS

The MTC range meets current motor and pump efficiency requirements such as the global MEPS (Minimum Energy Performance Standards) for the motor and the Ecodesign requirements for rotodynamic water pumps defined by the Minimum Efficiency Index (MEI)

The **MTA RANGE**

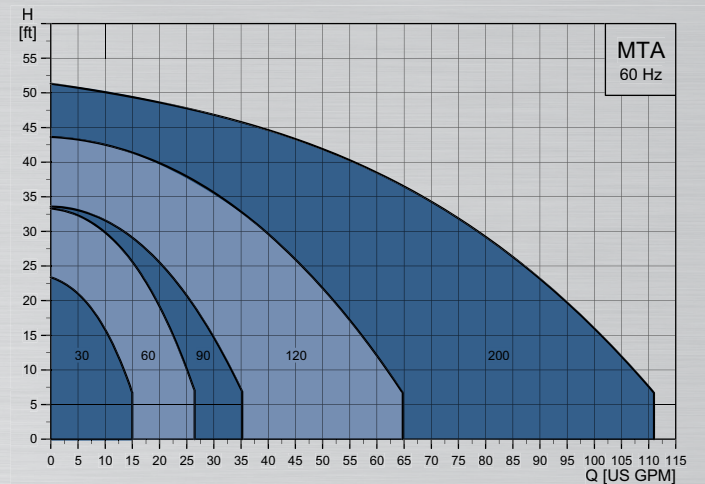
– for filtering systems

The MTA range of single-stage immersible pumps has been designed for filtering systems in the machine tool industry. The semi-open impellers allow the passing of chips up to 0.4 inches, which makes the pumps ideal for removing liquid from any machining process – from boring and milling to grinding. The compact MTA pumps efficiently transport liquid containing chips, fibers and abrasive particles to the filtering unit.

The low-pressure pumps are available in many different flow variants and come with a choice of bottom suction or suction from the top of the volute. The pump is designed to be maintenance-free, and therefore does not contain shaft seals or other wear parts. MTA pumps can also be used for simple cooling applications.

Materials

Carefully chosen materials ensure trouble-free operation and long life. The top of the pump is made of cast iron, while the impeller is available in composite or bronze. Composite is used in MTA pumps with flow up to 80 gpm. In the bigger pumps with higher flow, the impellers are made of bronze to ensure resistance to particles and metal chips. There is no corrosion risk since the pumped liquid will always contain oil.



Pump capabilities:

Flow rate: Up to 110 gpm

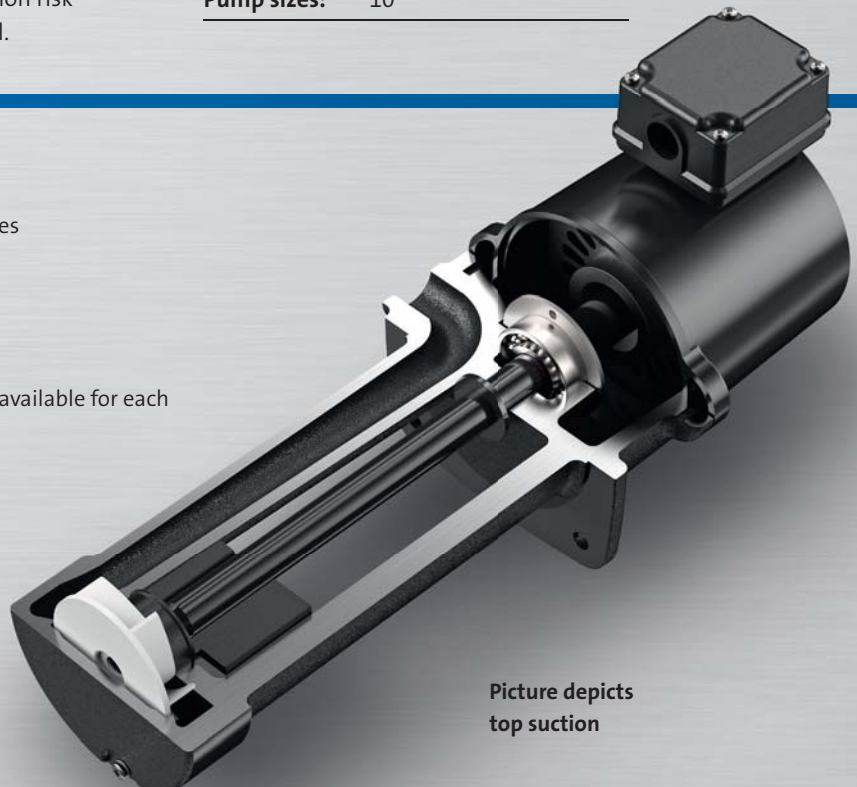
Head: Up to 49 ft

Motor: 0.13 hp to 1 hp

Liquid temp.: Up to 140 °F

Pump sizes: 10

- **Motor**
Three-phase motor, available for global voltages
- **High-efficiency motor and hydraulics**
Low operational costs
- **Variable length**
A number of different immersible lengths are available for each pump size to cover various tank designs
- **Long bearing lifetime**
Maintenance-free
- **No shaft seal**
Prevents leakages
- **Bottom or top suction**
Suction options for different demands
- **Semi-open impeller**
Ensures free passage of solids and chips



Picture depicts top suction

HIGH-EFFICIENCY MOTORS

In addition to our standard motors, Grundfos can supply motors that meet special supply voltages, extreme operating conditions, special motor protection, specific approvals and special motor design.

- **ATEX approved**

A full range of special explosion-proof and dust ignition-proof motors is available with ATEX-approved pumps

- **Standard MLE motors**

The Grundfos MLE motor with integrated frequency converter can operate at different speeds to optimize pump performance for applications ranging from low speed to over-synchronous speed. Standard build includes motor protection, pump monitoring, and onboard regulator and sensor supply for control of primary process. To meet specific demands, customized software and add-on hardware can be supplied.

- **Heating units**

Anti-condensation heating can be supplied by a built-in heating unit

- **Thermal protection**

Motors with a built-in bimetallic thermal protector (PTO) or a temperature dependent resistor (PTC) are available. Motors from 3 kW and over have PTC as standard

- **Certificates**

Certificates for noise, vibration, performance and efficiency levels are available

- **Global approvals**

Meets current global Minimum Efficiency Performance Standards (MEPS) and approvals applicable in your market, including cURus in the US

- **Over or undersize motors**

For use where the viscosity or density is different from that of water, installations where the altitude exceeds 3280 ft or where the ambient temperature is very high

- **Terminal box position**

The motor can be mounted on the pump head in steps of 194 °F

- **Special voltage**

A wide range of supply voltages within single and three-phase as well as dual voltage can be supplied.

- **Enclosure class**

Enclosure class IP 55 is standard on Grundfos motors. Enclosure class IP 65, IP 54 and IP 44 are also available as options



EXPERIENCE THE **QUALITY** **DIFFERENCE**

Choosing Grundfos as your pump solution partner means you get the benefit of our expertise, cutting-edge technology and highly efficient solutions tailored to your application. Installed on top of the tank, this impressive range of high-quality, compact pumps can be customized to your needs. Choose from a wide range of motors, speed-controls and monitors, and materials.

Stainless steel variants

Grundfos offers a comprehensive range of stainless steel pumps that offer many benefits, including superior corrosion resistance and an easy-to-clean surface. The chromium oxide film offers surface protection, and the addition of other elements such as nickel, molybdenum and nitrogen give the steel special properties. All Grundfos stainless steel products meet 316 and 304 stainless steel grades.



GLOBAL REACH AND **LOCAL SUPPORT**

As a truly global company, Grundfos has built a network of international expertise paired with local support and service. Our unique global set-up provides you with:

- Technical assistance to configure solutions for your pumping system
- Expert know-how and local support
- Web-based tools
- Fast spare parts delivery on every continent

Grundfos Product Center

Use the Grundfos Product Center online tool to size pumps, browse the Grundfos product catalog, and find appropriate replacement pumps and pumps for handling specific liquids. As a registered user, you will have access to saved preferences, products and projects as well as recent browsing history. Visit grundfos.us/gpc

GRUNDFOS INDUSTRIAL SOLUTIONS

Grundfos has developed and produced high-quality industrial pumps for more than half a century. Throughout our long history, our focus has always been on product performance and reliability. We strive to provide our customers with the best possible solution, regardless of the application. This dedication to customer needs makes us a preferred pump partner for industries all over the world.

Visit grundfos.us/pei to learn more about Department of Energy (DOE) pump energy index (PEI) requirements and PEI ratings on specific Grundfos models.