

Optimise performance, reduce carbon emissions and increase operational safety

Intelligent E-pump solutions for industrial
applications that adapt pump speed
according to demand to achieve
significant energy savings



GRUNDFOS 

Possibility in every drop

Intelligent, connected and energy-efficient E-pump solutions are good for industry

Industry applications consume too much energy. If we use intelligent, connected and energy-efficient pump solutions instead, we can make sure systems run only when necessary – and this can help reduce energy consumption by as much as 37%; and perhaps even more, depending on the application. We offer a complete range of intelligent and high-quality E-pump solutions that combine energy-efficient pumps, motors and drives that bring high performance and energy efficiency while reducing carbon emissions across a range of industrial applications.

- Greater energy efficiency and lower carbon emissions
- Integrated STO improves operator safety and protects equipment
- All-in-one solution for easy installation and commissioning
- Increased connectivity improves serviceability

These benefits are available for industrial processes in applications such as:

- Industrial (process) water treatment
- Industrial water supply and transfer
- Industrial wastewater treatment & water reuse
- Machining
- Industrial cleaning process
- Industrial temperature control
- Boiler feed

The intelligent motor driving an E-pump

The key to opening up this world of benefits is the Grundfos MGE motor, which is standard for all E-pump solutions. We have been manufacturing our own motors with integrated frequency converters for decades and today, Grundfos E-pumps use intelligent IE5-rated permanent magnet MGE motors available up to 26 kW designed especially for frequency converter operations. As the frequency drive constantly adapts pump speed according to demand, it is possible to achieve significant pump energy savings.

Optimise processes in your industry with an all-in-one solution

E-pump solutions offering the benefits of greater energy efficiency, lower carbon emissions, improved operator safety, enhanced connectivity, and easy installation, commissioning and serviceability are available for all industries where liquid pumping is required.



Process-optimising benefits for all industrial applications



In addition to the application-specific benefits when using an intelligent pumping solution that combines pumps, motors and drives, Grundfos E-pumps offer across-the-board process-optimising benefits for all industrial applications.

Greater energy efficiency and lower carbon emissions

Grundfos E-pumps use intelligent IE5-rated MGE motors, which are our most energy-efficient motors yet. You get lower electricity consumption with lower carbon emissions, which contribute to meeting your carbon net-zero targets.

- Pump speed adjusted based on demand rather than throttling the system flow with a valve, which results in no system stress caused by excess pressure, and reduced power consumption due to lower pump speed
- Data logging of energy consumption, showing savings
- Easy calculation of carbon emissions reductions contributing to meeting your carbon net-zero targets

Integrated STO improves operator safety and protects equipment

Machines must meet local safety requirements and not pose a risk to the operating personnel. Safe Torque Off (STO) is a safety function integrated in the E-pump motor that immediately stops torque generation from the motor shaft. This minimises the risk of harm to machine operators by overruling any other operating mode. In addition, the integrated STO safety function offers:

- Increased productivity with a shorter time from safe condition to required pressure of pumps
- Simplified risk assessment and CE certification for system builder
- Reduced risk of tool breakage
- Safer servicing of rotating parts

All-in-one solution for easy installation and commissioning

E-pumps with the variable speed drive integrated into the motor together with other functionality make everything easier for you to handle, not least installation, commissioning and operation.

- The motor and frequency converter are perfectly matched for trouble-free operation
- Reduced CAPEX in installed components and wiring costs
- A complete E-pump solution available from one supplier: Grundfos; making support and customer service easier
- Dedicated functionality for specific pump applications
 - no further programming required

Increased connectivity improves serviceability

The connectivity protocols built into E-pump motors make it easy to monitor and control your system remotely, improving pump serviceability:

- Accurately track performance, as any alarms and errors are time-stamped
- Troubleshooting made easier and downtime minimised because product data, error codes and failure analysis are sent automatically to your connected device
- Flexibility for how you choose to monitor and control the pump: manually, near-range via smartphone and the Grundfos GO app, mid-range via integration in your SCADA System, and long-range using Grundfos Cloud solutions



The challenges facing industrial applications

A closer look at how specific industrial processes benefit from an intelligent pumping solution combining motor, pump and drives while also maintaining the highest levels of operator and equipment safety and protection.

Industrial process water treatment

The range of different water treatment applications in industry is as wide as their range of usage. Intelligent Grundfos E-pumps serve all relevant treatment steps from intake to distribution, such as substance removal, disinfection, stabilisation (including chemical dosing), monitoring and control or desalination in general. All pumps in water treatment can be combined in an intelligent way, offering highly accurate and efficient dosing of additives prior to or during the treatment process.



Desalination

Desalination processes require great amounts of power and chemical products. Grundfos supplies highly efficient and corrosion-resistant E-pumps for all relevant treatment steps feeding desalination processes.



Industrial water supply and transfer

Requirements for industrial water supply can be very different – some applications require frequent use of water in smaller amounts while others need to fill several large tanks in no time – without it affecting the water supply in different parts of the building. Grundfos E-pumps are developed to always ensure constant pressure and even flow in water supply applications, and always with a focus on energy efficiency and water quality. Whether your needs are in pressure boosting, level control, liquid transport or filtration, intelligent pumps from Grundfos can help you build a fully integrated and optimised water supply system.



Industrial wastewater treatment & water reuse

Handling wastewater is a crucial part of industrial manufacturing. Often, wastewater in industrial applications can vary, and an industrial wastewater solution must be flexible enough to deal with the changing qualities of the wastewater. You need to be certain that the water leaving the system is of the right quality, safe and compliant before it enters the sewer or the environment.

As our water resources become scarcer and demand rises, it becomes increasingly important for industries to use water more sustainably. One way is to treat wastewater to purity levels that enables it to be reused in different utility processes for production and in the facility.





Machining

Machining processes such as grinding, turning, milling, boring, sawing, wire cutting and spark erosion lie at the heart of industrial manufacturing. Our range of immersible machine tool coolant pumps and high-pressure pumps for machining processes offer unsurpassed accuracy and stability to make sure that nothing interferes with these delicate processes. And the built-in STO functionality ensures safety for personnel and of equipment.



Industrial cleaning process

Precise and fast temperature control is vital for many industrial processes – but to always ensure optimal temperature control while saving energy, you need both efficient and smart temperature control.

Our innovative controllers, integrated frequency converters and silent-running E-pumps help increase the reliability, comfort and energy efficiency of your heating, cooling and refrigeration systems – while reducing complexity and saving operational costs. In fact, you can reduce energy use by as much as 40% in key applications like cooling. By combining E-pumps, cloud connectivity and digital services, you get plug-and-play solutions that connect to almost any monitoring system and deliver actionable data insights.



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Boiler feed

As much as 70% of all boiler systems run inefficiently. Very often this can be traced back to the feeding valves resulting in pressure drop in the system. Pressure drops require larger pumps which of course leads to higher investment cost (CAPEX). And also to increased maintenance cost and higher life-cycle costs.

When using a compact designed Grundfos E-pump, you not only reduce investment cost (no control valve needed) and save energy; you also reduce the risk for water hammering and cavitation.

E-pumps for industrial applications

Grundfos E-pumps use intelligent IE5-rated MGE motors up to 26 kW, which are our most energy-efficient motors yet:

- Permanent magnet synchronous motors (PMSM) are designed especially for frequency converter operations.
- Optimised for pump applications and high part-load efficiency, resulting in lower energy and lifecycle costs

- IE5-rated according to IEC 60034-30-2; IE5 motors typically will achieve 10% energy savings and 25% reduction in payback time compared to IE3 motors

The following intelligent E-pump solutions offer the process-optimising benefits for the specific industrial processes discussed above.

CRE

Powerful high efficiency inline multistage pumps

The CRE is a multi-purpose inline multistage pump with a built-in variable-speed drive available in a wide variety of flow and pressure sizes. Built from AISI 304 grade stainless steel/cast iron, the advanced control features make the CRE an attractive choice for numerous applications.



Key benefits

- **Energy efficiency** significantly increased compared to fixed-speed pumps
- **Optimised performance** under changing flow and pressure conditions
- **Compact footprint** from the vertical multistage design for installations with limited space
- **Ease of installation and maintenance** with a modular design and no need for external panels
- **Advanced control features** with connectivity options and customisable settings
- **Preloaded application-specific algorithms** ensure optimised operation
- **Lower overall operational costs** over the pump lifetime
- **Sustainability initiatives** supported by energy-efficient operation by reducing the pump installation's carbon footprint and ensuring better resource utilisation

Application areas

Water treatment:

- Filtration and Reverse Osmosis (RO) systems: Ensure consistent pressure and flow rates.
- Chemical dosing: Precise control of chemical addition for water quality management.

Boiler feed:

- Boiler feed systems: Provide required pressure and flow for feeding boilers and manufacturing processes.

Cooling and heating systems:

- HVAC systems: Efficient circulation of water in heating, ventilation and air conditioning systems in industrial facilities.
- Cooling towers: Maintain optimal temperature and flow for industrial cooling systems.

Industrial washing and cleaning:

- Reliable and efficient pumping for industrial cleaning applications such as parts washing and surface preparation.
- Machine tool cooling: Provide cooling water for machine tools in manufacturing processes.

CME

Compact and customisable supply and transfer pumps for industry

Grundfos CME are horizontal multistage pumps. Designed to fit seamlessly with other components, the reliable, modular and flexible CME multistage pump offers exceptionally easy installation, operation and service for pumping water and other liquid media. Interchangeable modules, reliability and compact design characterise the CME, making them ideal for use in OEM solutions.

Key benefits

- **Energy efficiency** significantly increased compared to fixed-speed pumps
- **Compact design** for installations with limited space
- **Easy installation** and integration from a plug-and-pump approach and no need for external panels
- **Operational flexibility** with precision control of the pump's performance according to varying process conditions
- **Lower overall operational costs** over the pump lifetime
- **Reliability and durability** from a robust construction using high-quality materials
- **Low noise operation**, suitable for environments where noise levels need to be minimised
- **Advanced control features** with connectivity options and customisable settings

Application areas

Water Supply

- Ensure a sufficient and reliable water pressure throughout an industrial facility or building.

Industrial processes:

- Cooling and heating.
- Water treatment and filtration systems.

Boiler feed:

- Water supply to boilers.

Washing and cleaning systems:

- High-pressure washing systems.



MTE/MTRE/MTSE/MTHE

Reliable and efficient pumping for industrial liquid transfer

Grundfos MTSE/MTRE/MTHE are vertical centrifugal pumps that offer high energy efficiency and durability for factory processes. Designed for tank-top mounting with the pump unit immersed in the liquid to be pumped, immersible pumps are ideal for industrial liquid transfer applications such as machining, cleaning and cooling.

Key benefits

- **Operator safety** in machine tool applications, where STO functionality improves operator safety and protects equipment
- **Energy efficiency** significantly increased compared to fixed-speed pumps
- **Optimised performance** under changing flow and pressure conditions
- **Lower overall operational costs** over the pump lifetime
- **Ease of installation and maintenance** with a modular design, minimising downtime
- **Advanced control features** with connectivity options and customisable settings
- **Low noise operation**, suitable for environments where noise levels need to be minimised
- **Leakage free** as drainage runs back to the tank and is not spilled
- **Global coverage** with global approvals for all countries, meaning no need for local variants

- MTSE – High pressure pumps
- MTRE – Medium pressure pumps
- MTHE – Low pressure pumps

Application areas

Machine tool:

- Delivers the pressure and flow of coolant for the precise cooling and lubrication required for a good finish and tolerances for machined parts.

Temperature control:

- Exact temperature control for precision applications where temperature variations must be kept to within a margin of 0.01 °C

Parts washers:

- Ideal for all industrial washing where compact installation is required, as well where alkaline media is used.

Boiler feed:

- Pump condensate back to the boiler.



TPE

Single-stage in-line energy efficient pumps

Grundfos TPE pumps are a robust and reliable range of single-stage, in-line centrifugal pumps with a mechanical shaft seal. One of the most characteristic features is the close-coupled design, which means the pump and motor are separate units. With ultra-premium IE5 efficiency motors, the TPE in-line pump saves energy, reduces lifecycle costs and raises the standard in intelligent pumping solutions.

Key benefits

- **Energy efficiency** significantly increased compared to fixed-speed pumps
- **Optimised performance** under changing flow and pressure conditions
- **Easy installation and integration** with an in-line design that fits with existing piping
- **Advanced control features** with connectivity options and customisable settings
- **Compact design** for installations with limited space
- **Low noise operation**, suitable for environments where noise levels need to be minimised
- **Improved system efficiency** by adjusting to real-time demands and conditions

Application areas

Industrial Processes:

- Process cooling and heating: Maintain temperature control in various industrial processes.
- Water treatment: Applications in filtration, chemical dosing, and other water treatment processes.

Water supply and distribution:

- Pressure boosting: Ensure consistent water pressure in municipal and commercial water supply systems.



NBE/NKE

High-efficiency end-suction power for demanding applications

The Grundfos range of close coupled (NBE) and long-coupled (NKE) end-suction pumps are ideal for use in virtually all applications where power, robustness and an ability to be configured and optimised for seamless operation are required. Backed by comprehensive pump know-how and carefully selected materials, the Grundfos end-suction range is renowned for its outstanding reliability.

Key benefits

- **Energy efficiency** significantly increased compared to fixed-speed pumps
- **Optimised performance** under changing flow and pressure conditions
- **Designed for high efficiency**, reducing energy consumption and operating costs
- **Easy installation and maintenance** with an end-suction design that reduces downtime and labour costs
- **Compact design** of the short-coupled NBE for installations with limited space
- **Advanced control features** with connectivity options and customisable settings
- **Lower overall operational costs** over the pump lifetime
- **Enhanced system integration** due to a variety of connectivity options

Application areas

Water Supply and Distribution:

- Ensuring consistent and reliable water pressure for water supply in municipal and industrial systems.



HYDRO MPC

The application- optimised Hydro MPC pressure booster range

The Hydro MPC range is the premium offering in the Grundfos portfolio of Hydro pressure-boosting solutions. Hydro MPC booster sets offer superb pressure control, optimal energy efficiency, and are the premium choice for any job where constant pressure is a must. A booster set from the Hydro MPC range is able to handle the operational challenges of any boosting application, and its easy set-up and connectivity makes it the preferred choice for complex systems in buildings, industrial processes and water utility installations.

Key benefits

- **Reliability and redundancy** with multi-pump configuration
- **Advanced control features** with connectivity options and customisable settings
- **Consistent pressure** with pump operation adjusted automatically, regardless of fluctuations in demand
- **Ease of installation and maintenance** requiring minimal on-site assembly
- **Compact design** for installations with limited space
- **Enhanced system integration** due to a variety of connectivity options

Application areas

Water Supply and Distribution:

- Ensure consistent water pressure in industrial, municipal and commercial water supply systems.

Boiler feed:

- Supply water to boilers in industrial and commercial settings, ensuring consistent pressure and flow.

Cooling systems:

- Circulate water for cooling in various industrial and commercial applications, including data centers and power plants.

Pressure boosting:

- Ensure consistent water pressure in high-rise buildings, commercial complexes, and industrial facilities.

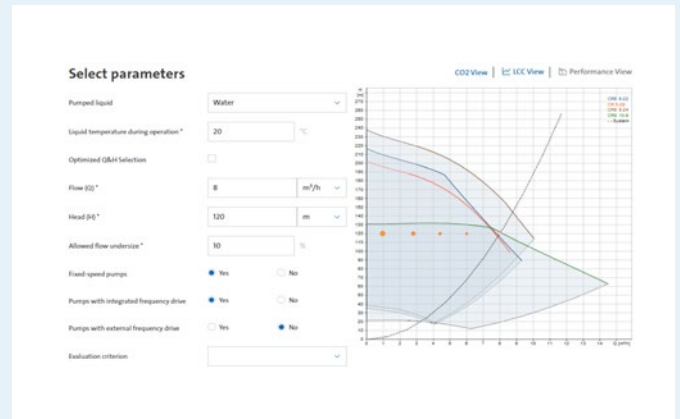


Find your optimal intelligent E-pump solution

Grundfos Product Center

Use the Grundfos Product Center online tool to size pumps, browse the Grundfos product catalogue, and find pumps for handling specific liquids. The 'Optimised pump comparison' functionality lets you compare an E-pump solution against standard pumps to find your optimal energy efficient E-pump solution with estimated carbon emissions reduction.

Go to [product.selection.com](https://product-selection.com)



Grundfos GO — mobile pump control

The Grundfos GO app allows clear guided setup and firmware upgrades for your Grundfos E-pump. The GO app combines a suite of professional tools and information that makes the daily work of installing, commissioning, controlling and maintaining your pump systems hassle-free and more efficient from your smart device. Download Grundfos GO from Google Play Store or Apple App Store.

Find Grundfos GO on product-selection.grundfos.com



Grundfos CUE — external variable frequency drive

External speed control available for pumps with motors up to 560 kW for use where the motor power output is greater than 30 kW. There are many situations where using external pump speed control is necessary; for example, if the environment is unsuitable for standard motors (ATEX or outdoor unprotected use), or to upgrade system efficiency while keeping existing pumps and motors.

Find Grundfos CUE on product-selection.grundfos.com



Grundfos GO Link — Mobile pump control from your laptop

Grundfos GO Link is a high-quality digital PC tool for the professional user that works with Grundfos pumps. It has been tested and tried in the field to ensure that we provide the needed support and guidance to you as a customer. An advantage is that GO Link, once downloaded from Grundfos Product Center, can be used in environments where wireless devices in general are prohibited.

Find Grundfos GO Link on product-selection.grundfos.com



