Product compatibility

- **Multistage**: CRE, CRIE, CRNE, MTRE, MTSE, MTHE, SPKE, CME
- **Singlestage**: TPE2, TPE3, TPE, TPED, NKE, NBE
- **Systems**: Hydro MPC-E, Hydro Multi-E, Hydro Solo-E, CMBE home booster.

MGE is a dedicated motor-drive system for pumps. Pumps equipped with MGE motors overcome application challenges and save energy in a variety of pump installations to reach the lowest Life Cycle Cost (LCC) possible.

Integrated drives

Integrated drives are beneficial and are installed on non-controlled pumps at no extra cost. Once the mains are connected and the pump is fitted into the pipe system, they are ready to operate at the desired setpoint.

Operating pumps with MGE also reduces the CAPEX (capital expense) of additional cabinets, components and facility space by having the entire pump system in line with the pipe system.

MGE is the result of the effective motor technology of Grundfos and it is an efficient IE5 motor, that minimises OPEX (operating expense).

Robustness throughout the system

The Grundfos full line supply of components, from mains connections to pipe fittings, provides the most robust solutions:

- Built-in protection against mains supply disturbances, environment and motor load
- No cooling fans in drive (wear part).
- MGE is designed to mitigate bearing currents.

Grundfos iSOLUTIONS

Grundfos iSOLUTIONS delivers the optimal combination of pumps, drives and auxiliary components for the specific application, incorporating special features and functions and building on application knowledge and experience.

Grundfos iSOLUTIONS allows easy integration of pumps, drives, measurements, controls, protections and communication, saving you valuable engineering, installation and commissioning time.

To learn more, visit the Grundfos iSOLUTIONS website: *http://www.grundfos.com/solutions/learn/grundfos-isolutions*

MGE product range

Supply voltage [V]	Power P2 [kW]
1 × 200-240 [1)]	0.25 - 1.5
3 × 200-240	1.1 - 11
3 × 380-500	0.25 - 26
3 x 380-480	15 - 26

1) Available with different specifications.

Features and benefits

Feature	Benefit
Application control	
Control modes	Easy commissioning to match system design criteria.
Multipump function including alternating, backup, or cascade	Removes the need for external controllers and continuous operation by redundant pump and sensor if either component fails.
Differential pressure or temperature with 2 sensors	Lower CAPEX by common inexpensive sensor types.
Pump curve adjustments, power control and running at power limit	Stabilises unstable pump curves and extends operating range.
Setpoint influence	Adapts the setpoint and speed according to the external controller.
STO - Safe Torque Off	Conformity to PLe and SIL3. [2)]
Energy saving for lower OPEX	
AUTOADAPT or FLOWLIMIT	Continuously adapts to the most efficient curve and reduces pressure loss in the system.
Low-flow stop function	Improved energy optimisation and comfort.
Permanent-magnet synchronous motor with IE5 (in accordance with IEC 60034-30-2)	IE5 motor loss is more than 30 % lower than IE3. This alone reduces energy consumption by 10 % with a typical pump load profile.
Condition monitoring	
Limit exceed function	Any value can be supervised to protect the system.
Loss of prime and dry running	Protects the shaft seal.
Cavitation protection	Protects the impellers.
Flow estimate and heat energy monitor	Monitoring of the heating system's performance.
Overload and temperature	Protects the frequency converter and motor.
Stop at minimum speed	Protects the pump and saves energy.
Motor bearings monitor	Ensures uptime by preventive maintenance.
Robustness	
Operating temperature between 20 °C and 60 °C	Allows installation almost anywhere and high margins in control rooms, resulting in longer product service life.
Impulse transient resistance (VDE0160 compliant)	Resistance against lightning, ESD, switching impulses and utility fault clearing.
Interruptions and voltage sags (SEMIF47 compliant)	Keeps process running and derates the pump to the available power.
Line harmonics resistance (EN 61000-4-13, class 3)	Built-in compensation of disturbance to avoid overheating of motor windings and maintaining a steady pump operation.
Built-in RFI filters	Neglects the need for external components.
IP55 / IP66 enclosures	Installed in-line of pipe system at no added cost.

2) PL= Performance Level
SIL= Safety Integration Level

Sensors

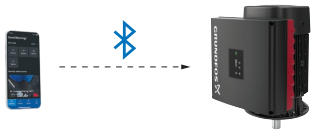
MGE is sensor-independent and controls the pump to any measured feedback. Grundfos offers several sensors to be used in pump solutions:

- Pressure sensors
- Temperature sensors
- Differential pressure sensors
- Differential temperature sensors
- Flowmeters
- Grundfos Direct Sensor

Grundfos GO and GO Link

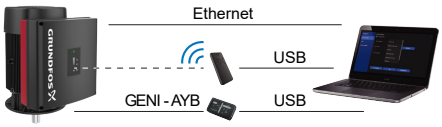
Grundfos GO

Grundfos GO for iOS and Android ensures easy and quick commissioning, monitoring and servicing of pumps with MGE motors.



Grundfos GO Link

Grundfos GO Link for Windows ensures easy and quick commissioning, monitoring and servicing of pumps with MGE motors.



Technical specifications

Motor data			
Speed range	**Operating range (rpm)**	**Constant power (rpm)**	**Constant torque (rpm)**
LS = Low speed	180-2000/2200	1450-2000/2200	900-1450
MS = Medium speed	360-4000	2900-4000	1750-2900
	360-4000	3400-4000 [3]	2000-3400
HS = High speed	500-5900	4000-5900	-

Voltage tolerances: ± 10 %	Frequency: 50/60 Hz ± 5 %
Network:	TN/TT (optional: IT [4]) according to IEC 60364

Environmental limits
Degree of protection: IP55 or IP66 according to EN 60529.
Operating temp.: -20 °C to +60 °C, derating above +50 °C
Storage temp.: -30 °C to +60 °C
Altitude: 0-1000 m without derating / 0-3500 m with derating
Humidity: 0-95 %, non-condensing

3) 3 x 200-240 V

4) For limited power sizes

Operating panels		
HMI 100/101 [5] (Basic)	HMI 200/201 [5] (Standard)	HMI 300/301 [5] (Display)
Inputs/outputs		
Functional module	FM110	FM310, FM311 [6]
Digital inputs	1	2
Digital inputs/outputs	1	2
Relay outputs	1	2
Analog inputs	2	3
Pt100/Pt1000 inputs	-	2
Analog outputs	-	1
+5 V supply	2	2
+24 V supply	2	2
Grundfos Direct Sensor input	Y	Y
LiqTec sensor input	-	Y
STO - Safe Torque Off	Y	Y
Ethernet	-	Y
Analog input: 0-20 mA / 4-20 mA / 0.5 - 3.5 V / 0-5 V / 0-10 V		
Relay output: 1 x LIVE/SELV 250 VAC/30 VDC, 2A and 1 x SELV 30 VDC, 2A max. continuous current 2 A rms		

5) Without radio.

6) Without Bluetooth.

Connectivity
Wireless comm.: GENIair and Bluetooth (BLE)
RS-485/AYB: GENI and Modbus RTU
Ethernet: GDP (Grundfos Digital Protocol) and GENI-TCP
Communication options: • LONWorks (CIM 100) • PROFIBUS DP (CIM 150) • Modbus RTU (CIM 200) • 3G/4G cellular (CIM 260) • Grundfos Connect (CIM 290/550) • BACnet MS/TP (CIM 300) • PROFINET IO (CIM 500) • Modbus TCP (CIM 500) • BACnet IP (CIM 500) • Ethernet IP (CIM 500)

Compliance	
Conformity to standards	CE, UKCA, SEPRO, RCM, CCC, CEL and cURus (UL)
Harmonics [7]	IEC/EN 61000-3-2, IEC/EN 61000-3-12

EMC			
Power P2 [kW]	**Speed range**		
	LS	**MS**	**HS**
2.2 - 4	C1	C1	C1
5.5	C3/C2 [8]	C1	C1
7.5	C3/C2 [8]	C3/C2 [8], C2/C3 [9] [3]	C3/C2 [8]
11	C2/C3 [9]	C3/C2 [8], C2/C3 [9] [3]	C3/C2 [8]
15 - 26	C2/C3 [9]	C2/C3 [9]	-

7) External active THD filter available on request

8) C2, if equipped with an external Grundfos EMC filter.

9) Depending on the product hardware configuration.

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GRUNDFOS Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

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