

# Grundfos TPE, NBE, NKE, NBGE, NKGE All sizes available with IE5 motors



Single-stage solutions for  
applications in commercial  
buildings and industry

**GRUNDFOS** 

Possibility in every drop

# Ultra-premium efficiency with intelligent pumping solutions

Commercial buildings and industrial solutions cover a large range of applications – each with their own individual characteristics. Whether you are specifying a heating system for an office building or an industrial cooling system for a factory, our pumping solutions bring you a new level of energy efficiency, intelligence and reliability, and are designed to be a perfect fit for the entire system.

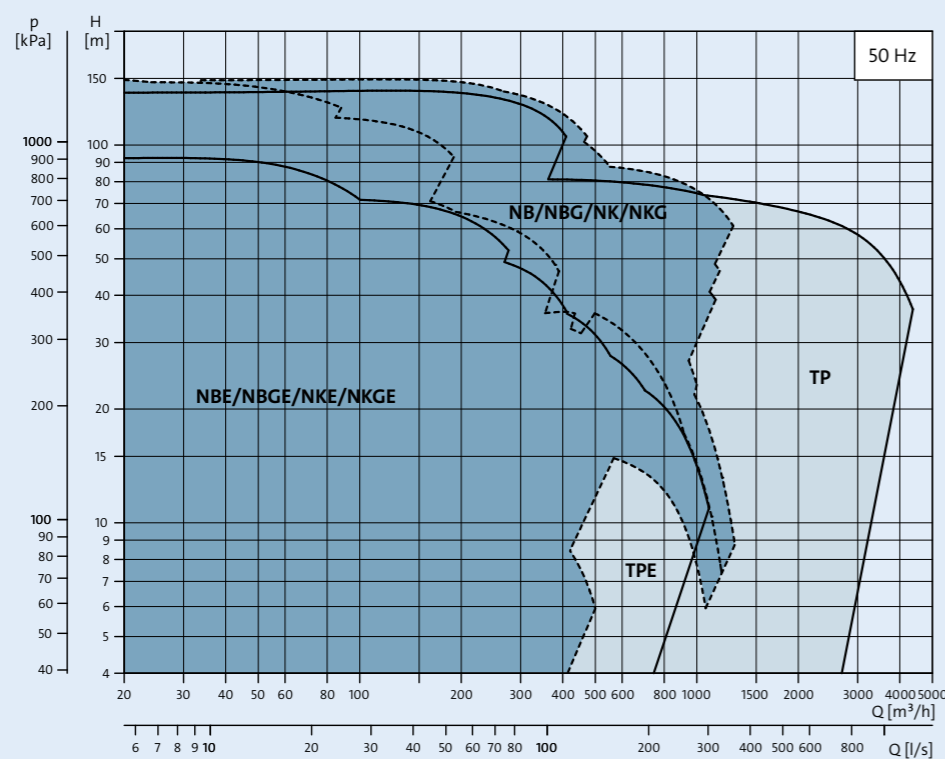
## TPE, NBE, NKE: Flagships in intelligent solutions

TPE, NBE, and NKE are pumps, motor, and frequency drive in one product. Together with various sensors, these products allow for dynamic and intelligent solutions to many industrial and commercial buildings applications.



### Application areas:

- District heating
- Heating systems
- District cooling
- Cooling and air conditioning
- Hot Water Circulation
- Cooling systems
- Washing and cleaning systems
- Other industrial systems



## The perfect motor is half the solution

Meet your energy and carbon emission reduction targets with our IE5-classified MGE with integrated CUE motors. We've pioneered these intelligent, ultra-premium efficiency IE5 motors with integrated VFD and rolled them out across our ranges to optimise your whole system, allowing for maximum energy savings and reduced carbon footprint.



### Ultimate flexibility and efficiency

The MGE motors can be operated to meet any individual needs for a specific solution. This makes them an excellent choice for a number of applications within heating, cooling, ventilation and industrial processes – each of which are characterized by varying demands, different control needs, and varying number of operating hours.

### Engineered for engineers

Grundfos Engineer Hub is our knowledge hub packed with news about the latest developments in the pumping industry and inspiration for fully integrated pump systems.

Visit Grundfos Engineer Hub to get access to the best we have to offer whether you are an engineer working within commercial building services, process industry applications or in hot water supply/treatment industries.

Find technical white papers, training, engineering tools, and webinars at [www.grundfos.com/solutions/support/select-and-configure](http://www.grundfos.com/solutions/support/select-and-configure)

## New functionalities for advanced solutions

### Real time clock

Allows for calendar function for e.g. automatic system stop during weekends.

### 3 Analogue inputs

Get  $\Delta p$  and  $\Delta T$ -control with two sensors.

### Manual speed operation mode

Even while under external signal control, you can switch to manual speed operation mode to test the pump's operation.

### Timer functions on digital inputs

For each digital input you can activate and set a delay time and a duration time.

### Adjustable proportional pressure control curve

You can select the shape and steepness of the control curve – choose between a linear or quadratic curve.

### 1 Analogue output

Get relevant parameter information in real time.

### PT100/1000 input

Get temperature and differential temperature control at a low cost.

### Predefined set-point

Get dynamic response to different operation profiles.

### Integrated Safe Torque Off

Promotes safety and improves uptime across the workplace.

### Bluetooth connectivity

The Grundfos GO app enables easy monitoring and control, and reduced installation & commissioning time.

### Built-in Modbus RTU and Ethernet

Seamless communication with compatible systems keeps you connected with your pump systems, simplifying data management and analysis through cloud-based services and data, and ultimately saving time and effort for improved monitoring and maintenance.

## The in-line range

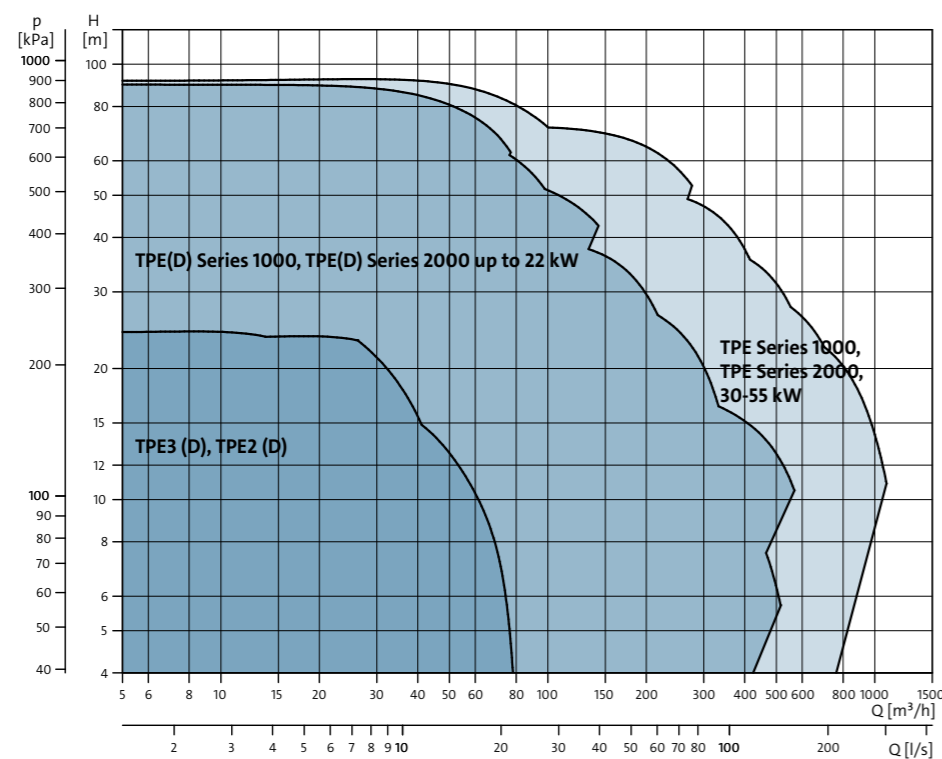
The TPE single-stage in-line pump saves energy, reduces lifecycle costs and raises the standard in intelligent pumping solutions. Ultra-premium IE5 efficiency is standard across the  $\leq 22\text{kW}$  range, maximising energy savings and reducing lifecycle carbon footprint. The intelligent range includes enhanced connectivity and flexibility with Modbus RTU and Bluetooth as standard, seamlessly connecting to any Building Monitoring System, the Grundfos GO app, or cloud solutions.

With in-built frequency drive, mechanical shaft seal and Safe Torque Off, the pump is a robust and reliable solution for many industrial and commercial building applications.



### TPE facts

- Liquid temperature up to +140 °C
- Ambient temperature up to +50 °C
- Operating pressure up to 16 bar (Bigger TPE pump sizes up to 25 bar)
- In-line construction
- Pump housing in cast iron or ductile cast iron
- Installation into vertical or horizontal pipework
- Universal BQQE shaft seal for both water and glycol based media
- Top pull-out design – easy to dismantle in case of service
- Low energy consumption
- Plug and pump solution
- Compact design with small footprint
- Low noise levels
- Single and twin pump designs available
- IE5 motor with variable speed: payback is 25% faster than with IE3 motors
- Bluetooth connection to the Grundfos GO app saves time and money on installation and commissioning
- Seamless connection to standard monitoring systems with Modbus RTU and Ethernet



### TPE2, TPE3 0.25-2.2 kW (IE5)

#### Technical details

Flow rate	max. 78 m³/h
Head	max. 25 m

#### Motor details

TPE2 and TPE3 are fitted with IE5\* permanent-magnet motors. See more functionality and feature details on page 10-11.



### TPE Series 1000, TPE Series 2000 0.12-22 kW (IE5)

#### Technical details

Flow rate	max. 560 m³/h
Head	max. 90 m

#### Motor details

TPE Series 1000 and 2000 are fitted with IE5\* permanent-magnet motors. See more functionality and feature details on page 10-11.



### TPE Series 1000, TPE Series 2000 30-55 kW (IE3/IE4/IE5)

#### Technical details

Flow rate	max. 1,100 m³/h
Head	max. 92 m

#### Motor details

TPE Series 1000 and 2000 are fitted with IE3, IE4 or IE5 motors with integrated CUE frequency converter. See more functionality and feature details on page 10-11.

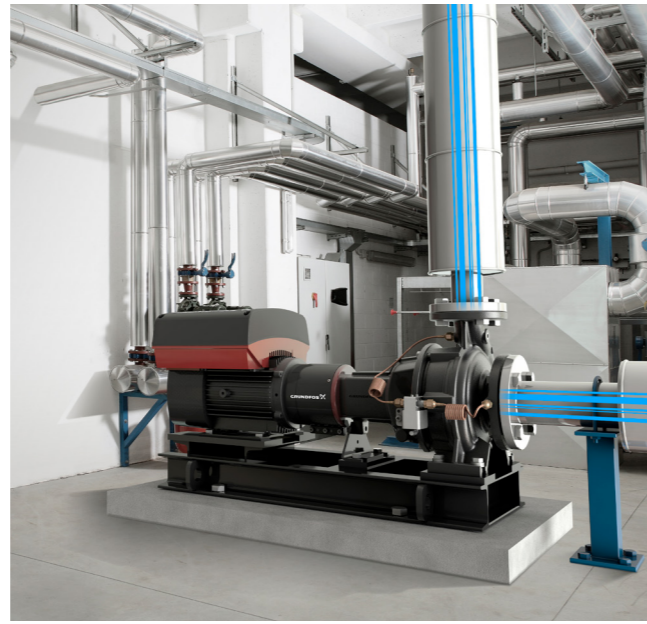
\*IEC 60034-30-2

## The NBE/NKE/NBGE/NKGE range

Close-coupled (NBE, NBGE) and long-coupled (NKE, NKGE) pumps are the perfect choices when you need an end-suction pump with integrated frequency converter for your application. The pumps are all non-self-priming, single-stage, centrifugal volute pumps with axial suction port, radial discharge port and horizontal shaft. Known for their sturdiness and reliability, they are ideal for use in even the most demanding applications. Application areas include water supply, industrial pressure boosting, industrial liquid transfer, HVAC and irrigation.

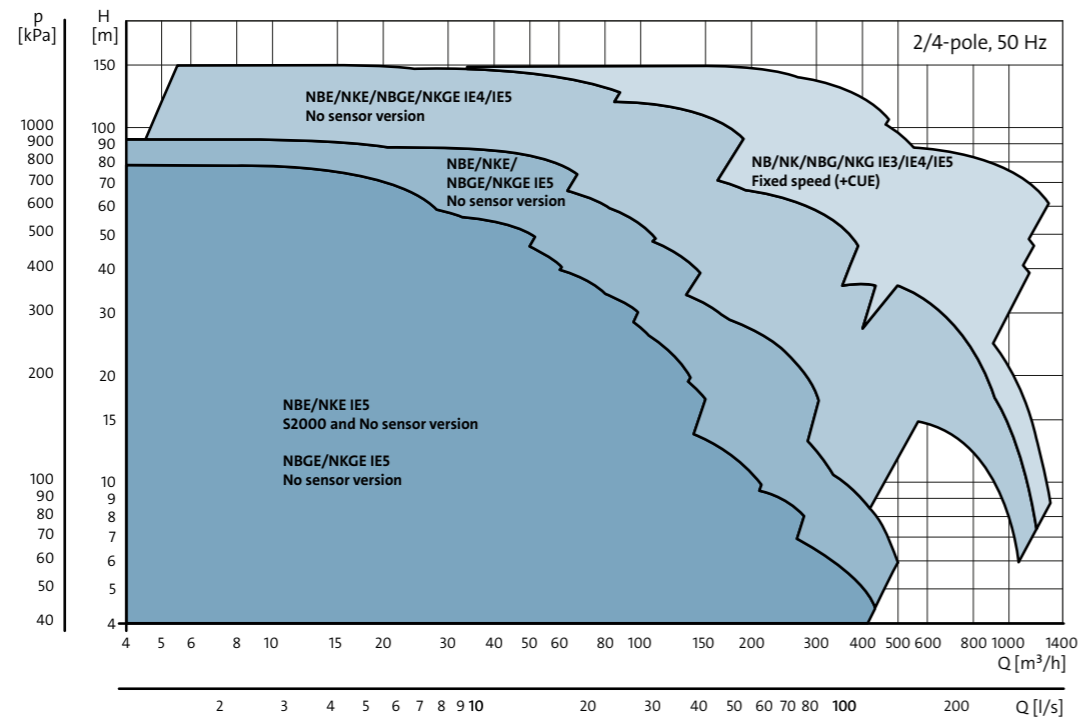
### Sensor details

NBE, NKE pumps are available as 2-channel sensor version in the Series 2000 execution, and also in the no-sensor version with integrated IE5 E-motor, whereas the NBGE/NKGE range is only available in the no-sensor version for all E-motor versions.



### NBE/NBGE/NKE/NKGE facts

- End suction construction
- PN 10, 16 and 25 bar
- For temperatures up to 220 °C.
- Low NPSH values means great suction ability
- Plug and pump solution
- Low energy consumption
- Low noise levels
- Back pull-out design
- Compact design – small footprint
- Highly customizable (your choice of i.e. bearing design, material, shaft seal, impeller trimming, motor size, and much more)
- Robust design
- Universal BQQE shaft seal for both water and glycol based media
- Installation into vertical or horizontal position



## NBE, NKE Series 2000

Medium speed: 1.1-11 kW (IE5) | Low speed: 0.25-7.5 kW (IE5)

### Technical details

Flow rate	max. 210 m <sup>3</sup> /h
Head	max. 85 m
Liquid temperature	-25 to 140 °C
Operating pressure	max. 16 bar
Ambient temperature	-20 to 50 °C
Pump housing	Cast iron

### Motor details

NBE and NKE in the above mentioned power sizes are all fitted with IE5\* permanentmagnet motors. Including display. See more functionality and feature details on page 10-11.



## NBE, NKE, NBGE, NKGE no-sensor version

Medium speed: 1.1-22 kW (IE5) | Low speed: 0.75-22 kW (IE5)

### Technical details

Flow rate	max. 400 m <sup>3</sup> /h
Head	max. 85 m
Liquid temperature	-45 to 220 °C
Operating pressure	max. 25 bar
Ambient temperature	-20 to 50 °C
Pump housing	Cast iron, Stainless steel 1.4408, Duplex 1.4517

### Motor details

NBE, NBGE, NKE, NKGE in the above mentioned power sizes are all fitted with IE5\* permanent-magnet motors.



## NBE, NBGE, NKE, NKGE-no-sensor version

2-pole: 30-55 kW (IE4 and IE5) | 4-pole: 30-55 kW (IE4 and IE5)

### Technical details

Flow rate	max. 1,100 m <sup>3</sup> /h
Head	max. 95 m
Liquid temperature	-45 to 220 °C
Operating pressure	max. 25 bar
Ambient temperature	-20 to 40 °C
Pump housing	Cast iron, Stainless steel 1.4408, Duplex 1.4517



# Stay in control

## Monitoring and system integration for tomorrow's buildings

Modern buildings depend highly on interconnected systems to transport water efficiently and precisely. Grundfos offers completely integrated solutions for both building automation and building management systems. The long-term benefit is obvious: optimised energy efficiency and pre-emptive maintenance.

### Smart accessories

Accessories like Grundfos GO and CIM/CIU create a unique user experience with an endless number of communication possibilities.



### Grundfos GO

- Easy pump control from your smart phone
- Full access to on-line replacement and sizing tools



### Fieldbus concept

The Communication Interface Module (CIM) and the Communication Interface Unit (CIU) enable data communication via open and interoperable networks. Available for the following fieldbus standards: LON, Profibus, Modbus, SMS/GSM/GPRS, GENIBus and BACnet.

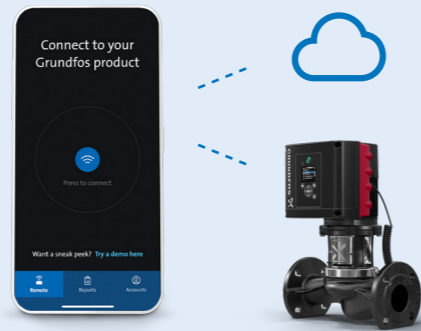


### Solutions for stand-alone pumps

Grundfos E-pumps enable you to read data straight from pump HMI or via Bluetooth with the Grundfos GO control solution.

### Solutions for building automation systems

Monitor and control your pumps and pump systems from anywhere in the world. Access your systems directly from your laptop, tablet or smartphone and see trend graphs, or stay updated on system performance.



### Solutions for building management systems

A strong fieldbus solution is the cornerstone of any building management system. It guarantees flexible and cost-effective integration of pump data into management systems, and severely reduces the time spent on reporting and collecting data. The number of maintenance visits and emergency situations are also reduced because of the high level of information. Grundfos offers open and interoperable protocols for all our data bus networks: for example, the 11-22 kW 4-pole and 15-22 kW 2-pole MGE motor has built-in Modbus RTU, Ethernet and Bluetooth connectivity.



# Data points availability

Below is an overview of selected data points accessible through Standalone solutions, Remote monitoring, and integrated Building Management System solutions.

Data points	GO app/pump HMI	Remote monitoring	BMS integration
Operating mode	•	•	•
Setpoint	•		•
Control mode	•	•	•
Relay control	•		•
Alarm/warning information	•	•	•
Bearing Service information	•		•
Power/energy consumption	•	•	•
Current consumption	•		•
Speed and frequency	•	•	•
Motor Current	•	•	•
Motor voltage			•
Motor temperature		•	•
Digital I/O	•		•
Sensor feedback (P/d P, T, d T, feedback or monitoring)	•	•	•
Operation time	•	•	•
Total on time		•	•
Number of starts	•	•	•

# TPE, NBE, NKE, NBGE, NKGE portfolio overview

Description		TPE3 (D) 0.25-2.2 kW IE5 MGE motor	TPE(D) SERIES 2000 0.75-22 kW IE5 MGE motor  NBE/NBGE/NKE/NKGE series 2000 up to 11 kW IE5 MGE motor	TPE serie 2000 30-55 kW IE3/IE4/IE5 motor	TPE2 (D) 0.25-2.2 kW IE5 MGE motor	TPE (D) Series 1000 0.12-22 kW IE5 MGE motor  NBE/NBGE/NKE/NKGE no sensor up to 22 kW IE5 MGE motor	TPE Series 1000 IE3/IE4/IE5 motor 30-55 kW  NBE/NBGE/NKE/NKGE no sensor 30-55 kW IE4/IE5 motor
System Intelligence	Heat Energy Monitor	•					
	AUTOADAPT	•					
	FLOWLIMIT & FLOWADAPT	•					
	ΔT control with 2 sensors	•	•		•	•	
	ΔP control with 2 sensors	•	•	(MCB 114 sensor module must be added)	•	•	(MCB 114 sensor module must be added)
	Constant flow - no sensor	•					
Control modes	Proportional pressure	•	•	•			
	Constant pressure	•	•	•	•	•	•
	Constant differential pressure	•	•	•	•	•	•
	Constant temperature	•	•	•	•	•	•
	Constant level	•	•	•	•	•	•
	Constant curve	•	•	•	•	•	•
Other	Multipump	•	•	(MCO 101 module must be added)	•	•	(MCO 101 module must be added)
	Standstill heating	•	•	•	•	•	•
	Setpoint influence	•	•	•	•	•	•
	Limit exceed	•	•	•	•	•	•
	Operating log	•	•	•	•	•	•
	Display	•	•	•			•
	Grundfos Go communication	•	•		•	•	
	2 signal relays	•	•	•	•	•	•
	STO function		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	•		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	•
	Bluetooth communication		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)			(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	
	Modbus RTU		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	•		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	•
	Ethernet IP		(Only 11-22 kW 4-pole and 15-22 kW 2-pole)			(Only 11-22 kW 4-pole and 15-22 kW 2-pole)	

**Grundfos is committed to pioneering a sustainable world through energy optimisation and efficiency.**

When you replace existing solutions with highly efficient, energy-optimised systems, you'll not only enjoy the energy and cost savings that come with greener buildings, but also the improved reliability and increased indoor comfort.

Pave the way for a greener future. Scan the QR code to find out how energy optimisation means the world to us:

