GRUNDFOS TPE, NBE, NKE

SINGLE-STAGE SOLUTIONS FOR APPLICATIONS IN COMMERCIAL BUILDINGS AND INDUSTRY
TRUE SYSTEM ADVANTAGES 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, the best results are created with intelligent, robust, and energy efficient pumping solutions 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**
- **Cooling and air conditioning**
- **Hot Water Circulation**
- **Cooling systems**
- **Washing and cleaning systems**
- **Other industrial systems**

PERFORMANCE CURVE: TPE, NK/NB, NKE/NBE, TP

THE PERFECT MOTOR IS HALF THE SOLUTION

For an intelligent pumping solution, the motor is half the story. Our E-motors (MGE/MLE) are frequency converter controlled motors that have been designed specifically for use with Grundfos pumps, and they feature unique functionalities that allow for complete system optimisation.

ULTIMATE FLEXIBILITY AND EFFICIENCY

The MGE/MLE 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.

NEW FUNCTIONALITIES FOR ADVANCED SOLUTIONS

**REAL TIME CLOCK**

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

**2 ANALOGUE INPUTS**

Get ∆p and ∆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.

**PT100/1000 INPUT**

Get temperature and differential temperature control at a low cost.

**1 ANALOGUE OUTPUT**

Get relevant parameter information in real time.

**PREDEFINED SET-POINT**

Get dynamic response to different operation profiles.

* Advanced functional module FM300 is required for these functionalities

ENGINEERED FOR ENGINEERS

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

Visit Grundfos for Engineers 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/engineers
THE IN-LINE RANGE

A TPE is the perfect choice when you need a single-stage, in-line solution with a state-of-the-art motor and mechanical shaft seal. TPEs are close-coupled and thus less sensitive to impurities in the pumped liquid compared to wet runner circulators. That makes the solution they are part of extra robust and reliable.

**TPE FACTS**
- Liquid temperature range up to +140°C
- Ambient temperature up to +50°C
- Operating pressure up to 16 bar
- In-line construction
- Installation into vertical or horizontal pipework
- Universal BQOE 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

**TPE SERIES 1000, TPE SERIES 2000**
- Medium speed motor (comparable to 2 poled speed)
- Low speed motor (comparable to 4 poled speed)

**TECHNICAL DETAILS**
- Flow rate: max. 520 m³/h
- Head: max. 90 m
- Liquid temperature: -25 to 140 deg. °C
- Operating pressure: max. 16 bar
- Ambient temperature: -20 to 50 deg. °C
- Pump housing: Cast iron or stainless steel

**MOTOR DETAILS**
- TPE2 and TPE3 are fitted with permanent-magnet motors with an efficiency that exceeds the IE4* demands - including the energy consumption of the integrated frequency converter. See more functionality and feature details on page 10-11.

*IEC 60034-30-1 Ed

If a solution is needed that exceeds this curve, we recommend considering a TP with an external frequency drive.
THE NBE/NKE RANGE

Close-coupled (NBE, NBGE) and long-coupled (NKE, NKGE) end-suction pumps from Grundfos 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.

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
- 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

SENSOR DETAILS

NBE, NBGE, NKE, NKGE pumps are all without factory fitted sensor, no matter the power size. Via an external signal (from a sensor or a controller), the pumps allow for any configuration and control method required, i.e. constant pressure, temperature, flow or level.

PERFORMANCE CURVE: NBE, NBGE, NKG, NKGE

NBE, NBGE, NKG, NKGE MEDIUM SPEED MOTOR (COMPARABLE TO 2 POLED SPEED)

Low SPEED MOTOR (COMPARABLE TO 4 POLED SPEED)

TECHNICAL DETAILS

Flow rate
Head
Liquid temperature
Operating pressure
Ambient temperature
Pump housing

MOTOR DETAILS

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

Medium speed motors up to 11 kW and low speed motors up to 1,1 kW have an efficiency that exceeds the IE4* demands – including the energy consumption of the integrated frequency converter.

Low speed motors from 1,5 kW up to 7,5 kW have an efficiency that exceeds the IE2 demands.

NBE, NBGE, NKE, NKGE MEDIUM SPEED MOTOR (COMPARABLE TO 2 POLED SPEED)

LOW SPEED MOTOR (COMPARABLE TO 4 POLED SPEED)

TECHNICAL DETAILS

Flow rate
Head
Liquid temperature
Operating pressure
Ambient temperature
Pump housing

MOTOR DETAILS

NBE, NBGE, NKE, NKGE in the above mentioned power sizes are fitted with motors with integrated frequency converters that have an efficiency that exceeds the IE3 demands. Only exemption is the 18,5 low speed motor, which exceeds the IE2 demands.

*IEC 60034-30-1 Ed

If a solution is needed that exceeds this curve, we recommend combining a NBE/NKE with an external frequency drive

REVIEW AND OPTIMISE YOUR SYSTEM

Reviewing your pumps and installations can lead to massive energy savings. Let us help you conduct an assessment of your system and start saving right away.

We offer two types of energy assessments: An Energy Check based on system

information provided by you, and the more extensive Pump Audit based on measurements conducted by our expert team.

Please contact us or go to www.grundfos.com/service-support.html for further information.
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 preemptive maintenance.

SOLUTIONS FOR STAND-ALONE PUMPS
Grundfos E-pumps enable you to read data straight from pump HMI or through Grundfos GO remote control solution.

SOLUTIONS FOR BUILDING AUTOMATION SYSTEMS
Monitor and control your pumps and pump systems from anywhere in the world with Grundfos GO connect box. 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.

DATA POINTS AVAILABILITY

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

<table>
<thead>
<tr>
<th>DATA POINTS</th>
<th>GO APP / PUMP HMI</th>
<th>REMOTE MONITORING</th>
<th>BMS INTEGRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating mode</td>
<td>●</td>
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<td>●</td>
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<tr>
<td>Setpoint</td>
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<tr>
<td>Control mode</td>
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<td>Relay control</td>
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<td>Alarm/warning information</td>
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<td>Bearing Service information</td>
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<td>Motor voltage</td>
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<td>Motor temperature</td>
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<td>Digital I/O</td>
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<td>Sensor feedback (P/d P, T, d T, feedback or monitoring)</td>
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# TPE, NBE, NKE Portfolio Overview

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<tr>
<th>Description</th>
<th>TPE3</th>
<th>TPE2</th>
<th>TPE Series 2000</th>
<th>TPE Series 1000</th>
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<td>New MGE motor 0.37 - 2.2 kW</td>
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Visit product-selection.grundfos.com and find what you need.