NOW WITH
FASTER DELIVERY
GRUNDFOS

GRUNDFOS END SUCTION PUMPS

ACCORDING TO DIN EN 733 AND EN ISO 2858

be
think
innovate

GRUNDFOS

PROVEN PUMPS FROM A **COMPANY YOU CAN DEPEND ON**

A global leader in the pump industry, Grundfos has been supplying reliable, innovative end suction pumps for over 35 years, introducing many improvements in both product and application expertise.

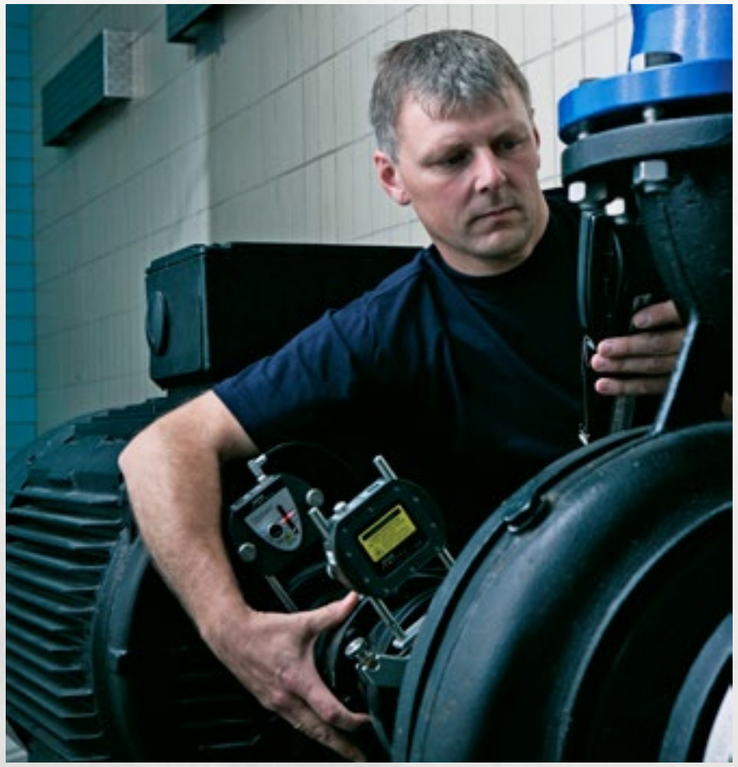
Designed to dependably and efficiently deliver high flow rates at low to medium pressures, Grundfos end-suction pumps are suitable for a variety of applications including:

- water supply
- industrial pressure boosting
- industrial liquid transfer
- heating / district heating
- air-conditioning
- irrigation

Manufactured in ISO 9001 certified facilities, today's range comprises a complete series of close-coupled (NB family) and long-coupled (NK family) pumps compliant with DIN EN733 or ISO2858.

All are non-self priming single stage, centrifugal pumps with axial suction port, radial discharge port and horizontal shaft.

Each has a back pull out design to facilitate removal of the motor, coupling, bearing bracket (NK / NKG) and impeller without disturbing the pump housing or pipework. This simplifies maintenance and enables servicing of even the largest pumps by a single person with a crane.



In most cases a standard Grundfos end-suction pump will more than meet the requirements and many are now available via Fast Track and even with express option.

However, for more challenging installations Grundfos has extensive experience in configuring innovative, bespoke solutions. Tailored configuration from the wide variety of proven Grundfos "modules", as opposed to blank page custom design, ensures that risk is reduced and even the toughest applications benefit from Grundfos' reliability and energy efficiency.

For more information on either express shipment of standard models or assistance with specialised configurations please contact Grundfos.

BENEFITS **IN BRIEF**

ENERGY EFFICIENCY

All Grundfos end suction pumps are equipped with IE3 high efficiency standard motors or IE5 motors with integrated frequency controller representing the very best from Grundfos within energy-efficient motor technology. However, motors from other manufacturers are also available upon request.

RELIABILITY

Backed by comprehensive pump know-how and carefully selected materials, the Grundfos end-suction range is renowned for its outstanding reliability.

COMPLETE RANGE

The range comprises a full series of close-coupled and long-coupled end-suction pumps in both cast iron and stainless steel.

FLEXIBILITY

Grundfos end-suction pumps can be configured and optimised for seamless operation in any application.

DEMANDING ENVIRONMENTS

Grundfos end-suction pumps can reliably and efficiently handle even the most demanding liquids and environments.

GLOBAL REACH

As a truly global supplier Grundfos can deliver local expertise in sales, service and commissioning - wherever you are.

UNSURPASSED PERFORMANCE **IN ANY APPLICATION**

Grundfos offers an almost limitless range of close-coupled (NB/NBG) and long-coupled (NK/NKG) end-suction pumps, whose robustness and reliability make them ideal for use in even the most demanding environments.

COMBINING TRADITION AND FORWARD THINKING

Externally solid and sturdy, internally Grundfos end-suction pumps feature many innovations and design features. These include field proven, high efficiency motors and options for advanced electronic control and communications.

SURVIVAL OF THE FITTEST

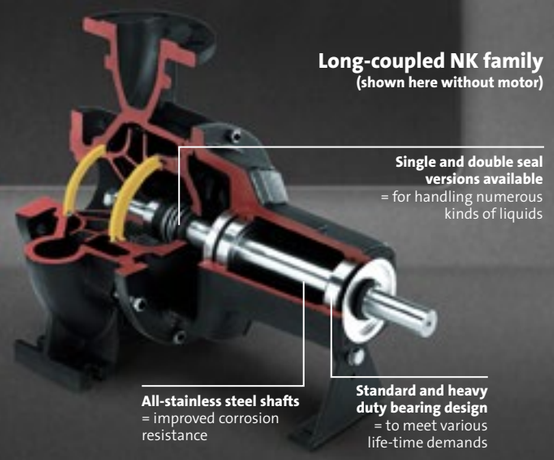
Designed to deliver high integrity performance and exceptionally long service life, Grundfos cast iron end-suction pumps feature one piece volutes with an advanced cataphoretic coating. For high corrosion risk applications a range of stainless steel variants is also available.

FUNCTIONAL FEATURES

Close-coupled and long-coupled pump families both feature:

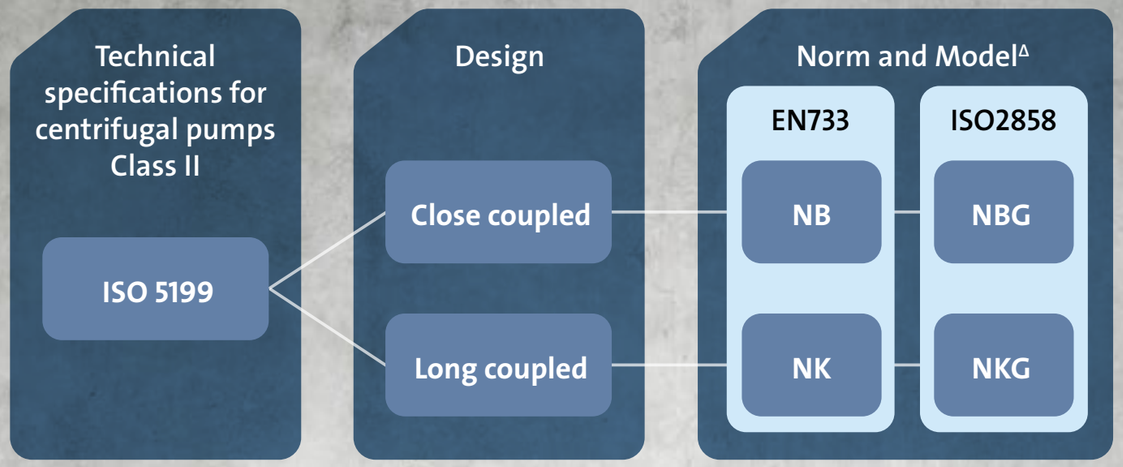
- 10, 16, 25 and 40 bar flange availability, for EN733 and ISO2858 designated applications
- O-ring seal between pump housing and cover, no risk of leakage
- Optimised pump hydraulics, EuP Directive 2009/125/EC (MEI)
- All stainless steel shaft design, improved corrosion resistance
- ATEX certification (Zone 1, 2, 21, 22) available to enable use in areas at risk from explosive atmospheres (except "E" models)

Long-coupled NK family
(shown here without motor)



Close-coupled NB family

PRODUCT OVERVIEW – MODEL GUIDE



[Δ]Models with integrated electronic variable speed control have suffix 'E' eg NBE or NBGE

ATEX certification - NB, NK, NBG and NKG models are available with ATEX Zone 1 or 2 (gas) or Zone 21 or 22 (dust) certification. (ATEX certification does not apply to "E" models.)

CLOSE COUPLED PUMP OPTIONS

PUMP

Impeller: Cast iron, bronze, stainless steel*

Pump housing: Cast iron, stainless steel*

Wear rings: Cast iron, low-lead bronze, stainless steel*

MOTOR

Fixed speed, variable speed (external frequency converter) or variable speed (integrated frequency converter)

High or premium efficiency

Anti-condensation heater Multiplug

Thermal protection

Undersize and oversize

Special voltages

Enclosure class IP55, IP56 or IP65

SEAL

Types: Standard (rubber bellows), balanced O-ring, unbalanced O-ring

Elastomers: EPDM, Viton®, Fluoraz®, Kalrez®, HNBR

Faces: Silicon carbide, carbon (resin or metal impregnated)

*Choice of DIN 1.4408 (AISI 316) or DIN 1.4517 (DUPLEX) stainless steel

LONG COUPLED PUMP OPTIONS

PUMP

Impeller: Cast iron, bronze, stainless steel*

Pump housing: Cast iron, stainless steel*

Wear rings: Cast iron, low-lead bronze, stainless steel*

Heavy duty greased or oil lubricated bearings (NKG only)

Vibration and temperature monitoring on bearing (NKG only)

MOTOR

Fixed speed, variable speed (external frequency converter) or variable speed (integrated frequency converter)

High or premium efficiency

Anti-condensation heater Multiplug

Thermal protection

Undersize and oversize

Special voltages

Enclosure class IP55, IP56 or IP65

SEAL

As close-coupled options plus also:

Double tandem shaft seal (NKG only)

Double back-to-back shaft seal (NKG only)

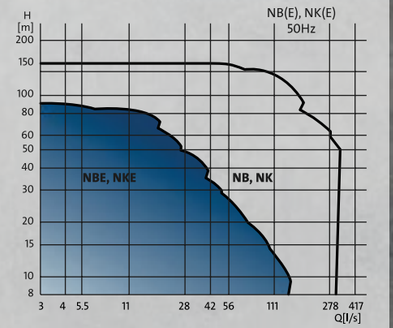
Cartridge seal (NKG only)

TECHNICAL DATA

Refer to data book for individual pumps

NB(G)/NK(G) pump families	
Max. Flow, Q	20-1200m³/hr 5.5-334 l/s
Max. Head, H	2-160m
Liquid temperature	-40°C to +160°C
Operating pressure	25 bar max.

PERFORMANCE AREA FOR NB/NK



CERAMIC COATINGS PROTECT INTERNAL AT-RISK AREAS

To ensure reliable operation and long product life, Grundfos offers the NB/NBG and NK/NKG range of multi-purpose end-suction pumps with dedicated coatings. The highly advanced ceramic coatings are strong alternatives to meet the challenges faced by common metal surfaces.

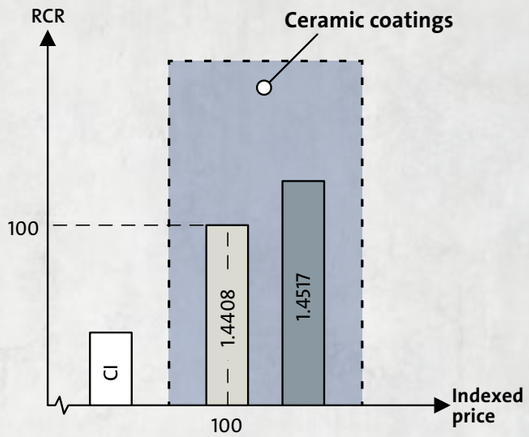
The Grundfos range of ceramic coatings provides superior performance against erosion, corrosion, chemical attack and abrasion, where metal surfaces would normally be degraded. This offers protection in industrial applications, where components and structures are often under attack, which can result in compromised plant reliability and safety, and lost profits.

A Grundfos coating solution protects the internal, wetted parts of your pump in your industrial environment. The ceramic coatings can be applied to all material versions of NB, NBG, NK and NKG pumps, such as cast iron and 1.4408 and 1.4517 stainless steel types. If a pump is worn out, it may also be possible to rebuild the pump internals.

In addition to the internal coating on wetted parts, all coated pumps have two layers of external paint, providing a corrosion category of C4-M.

Coating extends the area of liquid resistance and is price-attractive

Ceramic coatings add to the already very extensive NB/NK product range and fill a gap between cast iron and stainless steel when comparing price and resistance against the pumped liquid/media. Ceramic coatings provide resistance where even the highest stainless steel grade must give up.



***RCR** = Relative corrosion resistance*

***CI** = Cast Iron*
***1.4408** = Standard stainless steel*
***1.4517** = Duplex stainless steel*

COATING PROPERTIES

- 100 % surface preparation before coating
- Special advanced coating polymers
- Smoothness inside pump during pump lifetime
- Reinforcement with silicon carbide and aluminium oxide
- Very low permeability through coating film
- High temperature resistance towards liquid/media
- High wear resistance towards liquid/media
- High chemical resistance towards liquid/media
- Extensive Quality Control during coating process
- Long-term references from the industry
- Experienced and skilled coating applicator

=>

YOUR BENEFITS

- Application resistance to the pumped liquid/media
- Long lasting reliable solution
- No corrosion or erosion inside pump
- Better efficiency and performance of the pump
- No downtime in application
- Lower service costs for pump application
- Resistant to pitting corrosion
- No flange corrosion
- No corrosion products in pumped liquid/media

WHAT YOU GET WHEN YOU BUY A COATED PUMP

When you invest in a coated pump, you get a pump surface that is matched to withstand the pumped liquid/media in combination with the operating conditions.

Correctly matched, you get a coating that can:

- Eliminate the cause of the normal corrosion/erosion cycle
- Extend the lifetime of your pump
- Reduce downtime compared to a non-coated pump
- Minimise the need for having inventories of spare parts

This will provide you with better overall economics for your operation, and ensure a better return on investment (ROI).

Note: There is no 'one-size-fits-all' coating, as each solution needs to match the pumped liquid/media and its operating conditions.

Coating's effect on performance

For coated pumps with the impeller in stainless steel or bronze, the coating layer has an insignificant positive effect on the pump performance. Flow and pressure is the same as for the similar uncoated pump. This also means that you can select and size a coated pump using Grundfos Product centre (GPC), which is based on non-coated pumps.

For fully coated pumps where the impeller is coated, - especially smaller pump sizes with narrow impeller geometries, a drop in head and flow can be expected when compared to the performance in GPC.

Coating's effect on efficiency

As for pump performance, flow and head, the effect on the efficiency is insignificant. What makes a real difference is that original efficiency is generally maintained throughout the pump lifetime. Dirt and bio-film can change the efficiency. A non-coated pump will additionally experience a drop on efficiency over time due to lost material and larger internal passages between the pressure side and inlet side of pump.

Abrasion resistance

All coating solutions have an improved resistance to wear/abrasion compared to cast iron, yet real abrasive resistant coatings are quite different from some of the coating solutions we supply as standard. Refer to the coating solutions table on page 4 as to abrasion resistance properties.

Inspection of your coating's condition

Your coated pump also requires inspection, just as for any other equipment. For non-abrasive types, we recommend that you do this with an interval of 1 to 2 years. The coatings are applied in several layers in different colours, and if you find the top coat has been partially worn away, it is time to consider an onsite refurbishment. If the wear is severe and metal is exposed to corrosion, consider a complete recoat of the pump.

The abrasion-resistant types may need inspection every half to one year, until you learn how your pumped liquid/media impacts your coating.

THE **NBE/NKE 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.

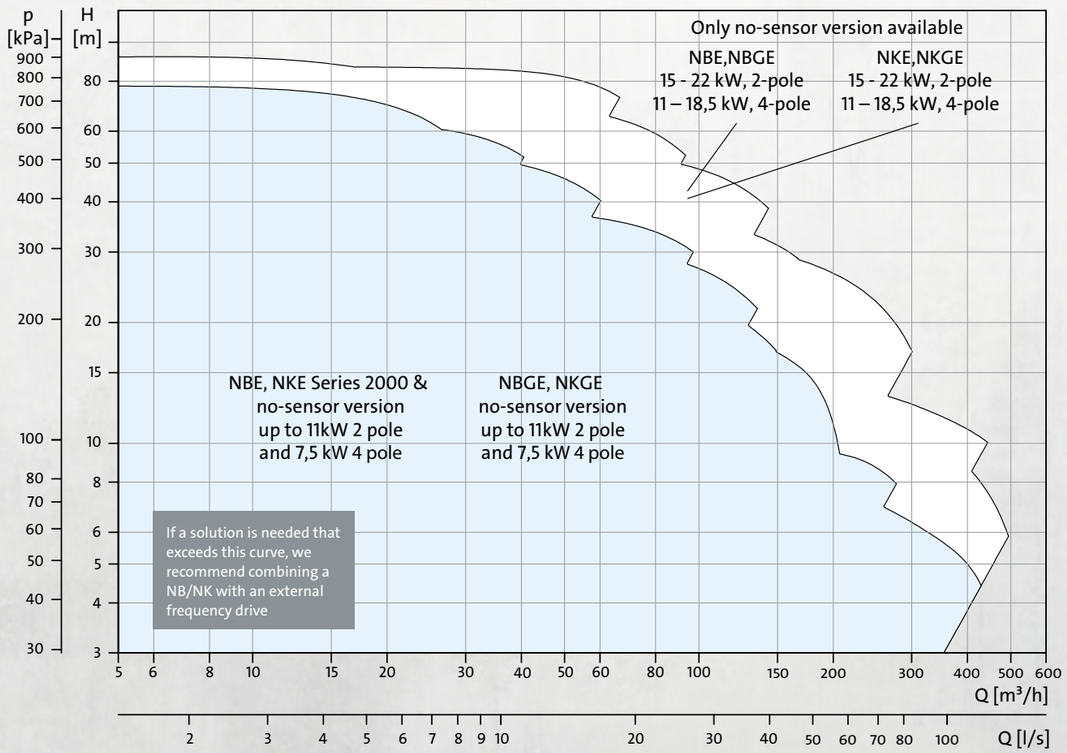
NBE/NBGE/NKE/NKGE FACTS

- 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 horisontal position

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.

PERFORMANCE CURVE: NBE, NBGE, NKG, NKGE



NBE, NKE Series 2000 & no-sensor version

2-POLE: 1,1 - 11 KW
4-POLE: 0,25 - 7,5 KW

TECHNICAL DETAILS

Flow rate	max. 210 m³/h
Head	max. 85 m
Liquid temperature	-45 to 140 °C
Operating pressure	max. 16 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. Including display. See more functionality and feature details on page 10-11.

NBGE, NKGE no-sensor version

2-POLE: 1,1 - 11 KW
4-POLE: 0,25 - 7,5 KW

TECHNICAL DETAILS

Flow rate	max. 210 m³/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.

**IEC 60034-30-2*

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

2-POLE: 15 - 22 KW
4-POLE: 11 - 18,5 KW

TECHNICAL DETAILS

Flow rate	max. 290 m³/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

MOTOR DETAILS

NBE, NBGE, NKE, NKGE in the above mentioned power sizes are all fitted with IE3 motors with integrated frequency converters. Only exemption is the 18,5 kW 4 pole, which exceeds the IE2 demands. See more functionality and feature details on page 10-11.

STAY IN **CONTROL** WITH DIGITAL SOLUTIONS

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.

SOLUTIONS FOR STAND-ALONE PUMP

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. 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.

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	●	●	●

GRUNDFOS END SUCTION DELIVERY **JUST GOT QUICKER**

With over 70 years of experience supplying pumps, we know how important it is for you to maintain stability in your production processes and allow you to deliver to your customers on time. You need to know that when you require a pump, it will be swiftly on its way.

Quick delivery adds value to your business, and at Grundfos we have worked hard to update and optimize our supply chain and component stock to ensure faster delivery of our NB/NBG/NK/NKG end suction pumps.

That is why Grundfos now also offers a Fast Track scheme covering the most popular required duty points of the end-suction range.

That means you can concentrate on what you do best – growing your business.

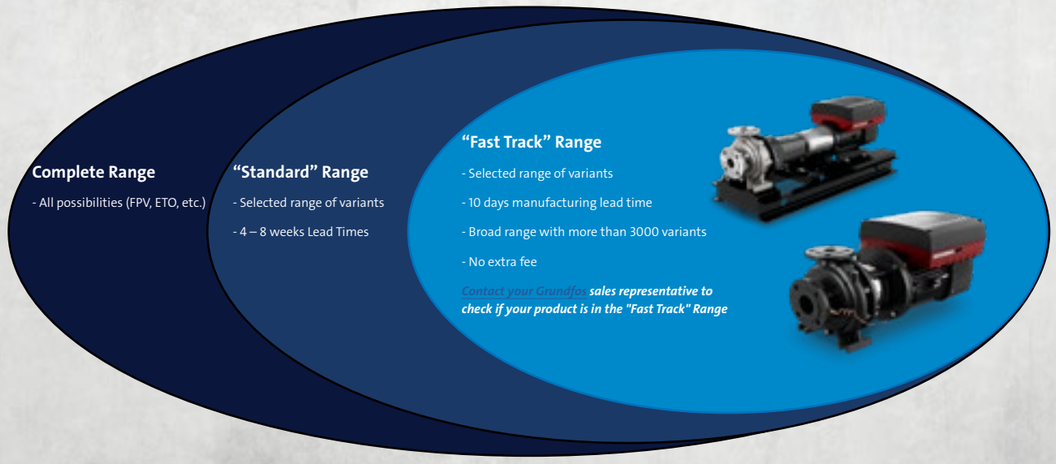
For more information about Fast Track programme and selecting your pump, contact your local Grundfos sales representative.

NOMENCLATURE

DISCHARGE PORT NOMINAL DIA (MM			IMPELLER NOMINAL DIA (MM)		REDUCED PERFORMANCE*		IMPELLER ACTUAL DIA (MM)
eg.	32	-	200	·	1(ie. 90%)	/	207

* If applicable

NB/NK DELIVERY OPTIONS



"Express service" available on request for a fee on a range of selected variants, 72 hours manufacturing lead time. We also offer over 700 complete pumps from our Central European stock, available on same day despatch.

DELIVERY OPTIONS: FAST TRACK **PROGRAMME**

MORE THAN 3000 MODELS AVAILABLE FOR YOU IN 10 DAYS *

Range of products included in the Fast Track programme

- All sizes up to and including NB/NK 125-315 (NBG/NKG 150-125-315)
- Grundfos MGE motor (IE5 - inc. frequency converter)
- Grundfos MG motor (IE3) 2 pole ≤ 22kW, 4 pole ≤ 15 kW
- Siemens motor (IE3) 2 pole 33-55 kW, 4 pole 18.5-55 kW
- Grundfos MMG-H motor (IE3) 2/4 pole 0,75-110 kW
- All motors: Low voltage < 4 kW, High voltage ≥ 4 kW
- BQQE/V shaft seals (1.4517 pumps with BAQE are excluded)
- DIN flanges
- Std bearing brackets (NK/NKG)
- Heavy duty bearing brackets (NKG only)
- ISO & C-channel base plates (NK/NKG)
- Standard & spacer couplings (NK/NKG only)

To check if your product is available in the fast track programme or for a faster delivery times, please contact Grundfos sales representatives.

***10 DAYS MANUFACTURING LEAD TIME**

STANDARD 4 WEEKS - 8 WEEKS **DELIVERY PROGRAMME**

In addition to the Fast Track scheme, Grundfos is able to offer accelerated end suction pump delivery for a range of EN 733 and ISO 2858 end suction pumps, with a delivery within 4 or 8 weeks as per chart below.

EN733	ISO2858	NB/NK EN733		NBG/NKG ISO2858	
		Cast iron & 1.4408 SS	1.4517 SS	Cast iron & 1.4408 SS	1.4517 SS
32-125.1	50-32-125.1	**4 WEEKS DELIVERED**			**8 WEEKS DELIVERED**
32-125	50-32-125				
32-160.1	50-32-160.1				
32-160	50-32-160				
32-200.1	50-32-200.1				
32-200	50-32-200				
32-250	50-32-250				
40-125	65-50-125				
40-160	65-50-160				
40-200	65-40-200				
40-250	65-40-250				
40-315	65-40-315				
50-125	80-65-125				
50-160	80-65-160				
50-200	80-50-200				
50-250	80-50-250				
50-315	80-50-315				
65-125	100-80-125				
65-160	100-80-160				
65-200	100-65-200				
65-250	100-65-250				
65-315	100-65-315				
80-160	125-80-160				
80-200	125-80-200				
80-250	125-80-250				
80-315	125-80-315				
80-400	125-80-400				
N/A	125-80-400.1				
100-160	125-100-160				
100-200	125-100-200				
100-250	125-100-250				
100-315	125-100-315				
100-400	125-100-400				
125-200	150-125-200				
125-250	150-125-250				
125-315	150-125-315				
125-400	150-125-400	**ON REQUEST**			
125-500	150-125-500				
150-200	200-150-200				
150-250	200-150-250				
150-315	200-150-315				
150-315.2	200-150-315.2				
150-400	200-150-400				
150-500	200-150-500				

GRUNDFOS **PRODUCT CENTER**
THE ONLINE PRODUCT SELECTION TOOL

The Grundfos Product Center is an online search and sizing tool that helps you choose the right pump for a new or existing installation.

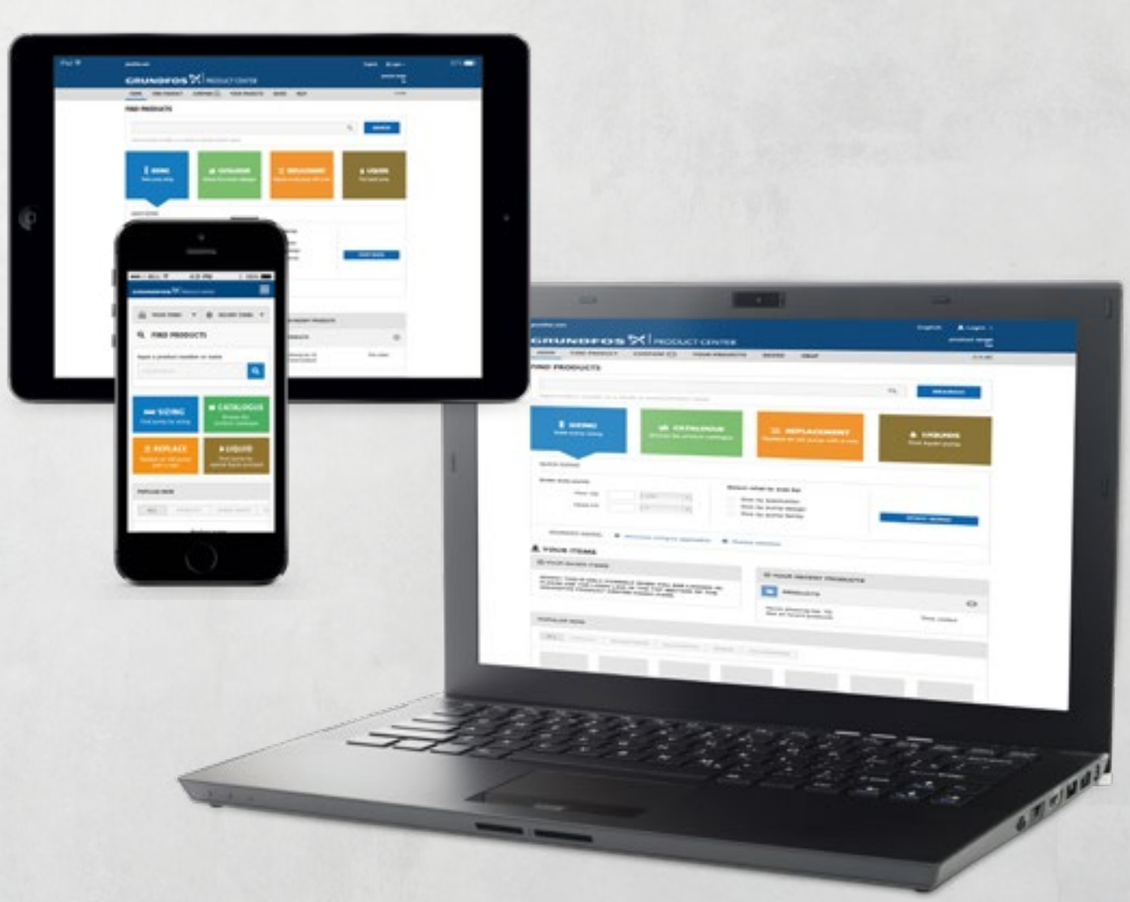
Sizing Enter your system requirements for pump recommendations, including life cycle cost calculations.

Catalogue For each pump in our product catalogue the Grundfos Product Center gives you all the information you need – including pump curves, technical specs, CAD drawings, available spare parts, installer guides, videos and other support materials

– all in one place on the pump's product page.

Replacement Instant replacement recommendations by just entering the make and model of your old pump.

Liquids A drop-down box makes it easy to select the liquid/medium that you wish to pump.



Being responsible is our foundation
Thinking ahead makes it possible
Innovation is the essence

ADVICE AND ASSISTANCE

Whether specifying a new project or investigating upgrades or replacement of existing pumps, Grundfos specialists are on hand to help. As specialists in pumps and pump systems we consider it our business to know all there is to know about pumping. We also consider it essential to be able to support our partners and customers wherever they are located and no matter how complex the chain of supply.

Grundfos operate directly in over 46 countries and work in close cooperation with more than 530 service partners, supported by regional and global product and application specialists.

MYGRUNDFOS

24/7 SELF-SERVICE

The answers you need, when you need them!

The 24/7 self-service tool allows you to access answers to a wide range of questions,

such as pricing, availability, order status, track & trace and more.

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- Export information
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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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