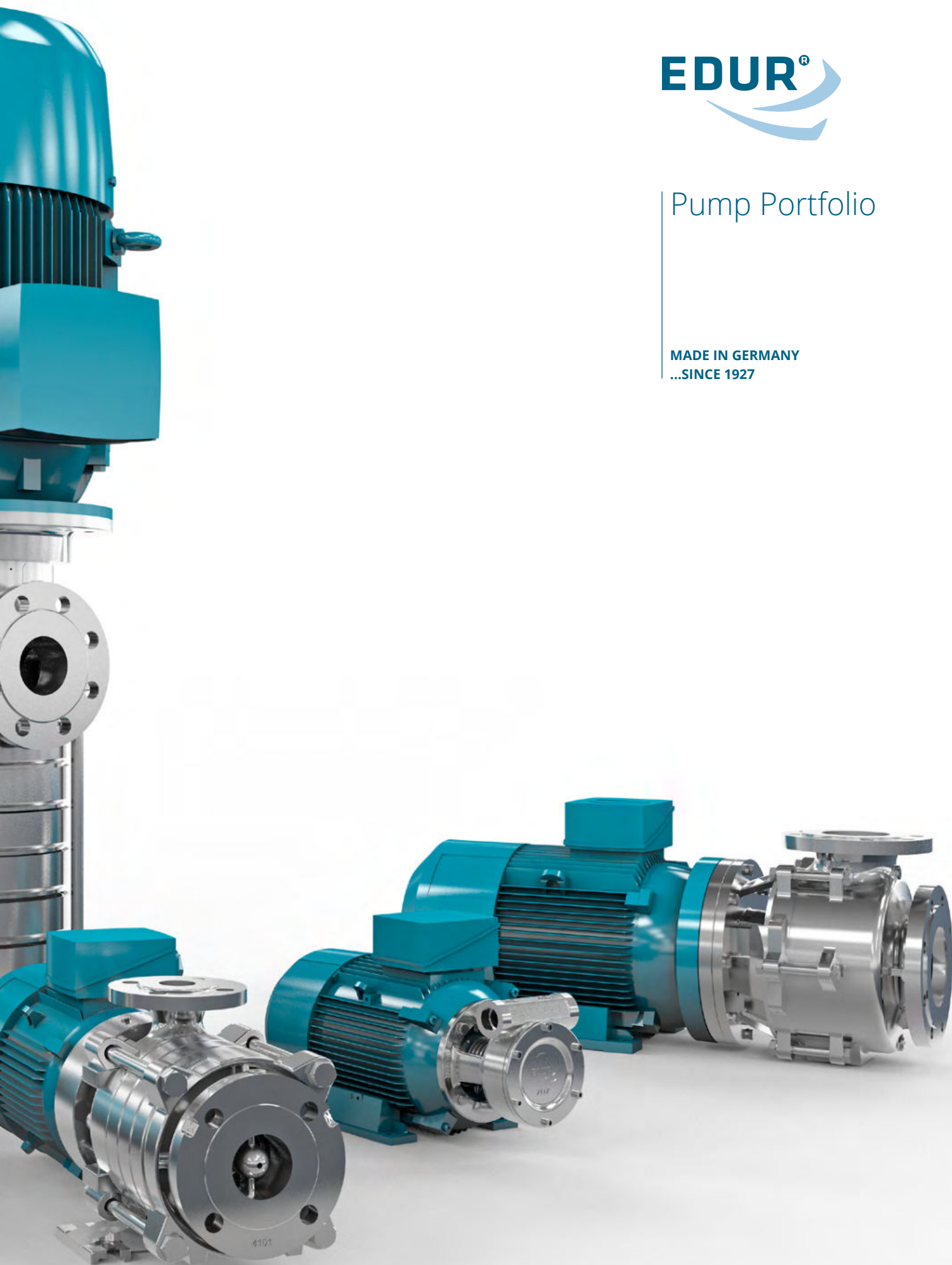




Pump Portfolio

MADE IN GERMANY
...SINCE 1927





MADE IN GERMANY

Individualised Pumping Solutions

EDUR is a specialist for centrifugal pumps, which are produced based on the specific needs of our customers. As a developer and manufacturer, we produce made-to-order centrifugal pumps for applications worldwide. Additionally, as a competent consultant and technology partner we offer our customers a comprehensive service. Being a successful and innovative family run business, based in Kiel, Germany, we pride ourselves with delivering state-of-the-art pumps with high-quality standards since 1927.

EDUR CORE COMPETENCIES

Optimal Design of your Centrifugal Pump based on our Modular System

The customers requirements determine the individual configuration of every EDUR pump. With our flexible modular system, we provide a wide range of pumping solutions. Our program includes various series in different sizes and materials in block and base plate design. We would like to highlight our open impellers for conveying liquid-gas mixtures and for gas enrichment of media. The availability of different seal-

ing systems ensures safe pump operation in every application. The variety of drive solutions completes our portfolio.

Many years of experience in direct cooperation with our customers results in important application know-how as long with the best possible individual pumping solutions.

OUR CORE COMPETENCIES AT A GLANCE:

**TRANSPORT OF LIQUID
AND GAS MIXTURES**

**HANDLING OF MEDIA
CONTAINING SOLIDS**

**SELF-PRIMING
ABILITY**

**APPLICATION
IN VACUUM OPERATION**

**PROTECTION AGAINST
DRY RUNNING**

**CONVEYANCE OF GAP-
PASSING PARTICLES**

**RELIABLE OPERATION
UNDER CRITICAL
INTAKE CONDITIONS**

HIGH EFFICIENCIES

**ATEX-COMPLIANT
DESIGN AVAILABLE**

Single Stage Close-Coupled Pumps

Series NUB, CB, BC

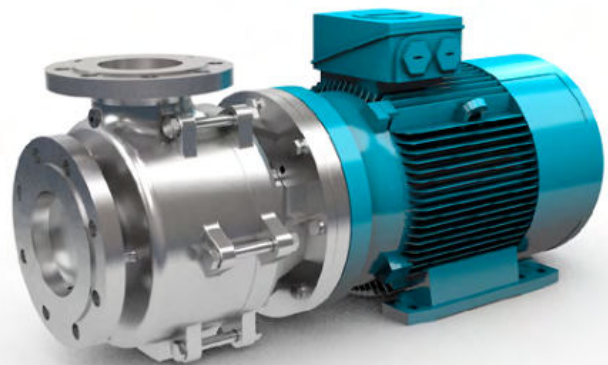
- Energy Technology
- Liquefied Gas
- Cooling Technology
- Industrial Cleaning Technology
- Water and Wastewater Technology
- General Industry Technology

GENERAL INFORMATION

Single-stage close-coupled pumps are robust, reliable and economical pumps with a long service life. They are characterized by their compact design and are used for the transport of pure or slightly contaminated liquids.

ADVANTAGES

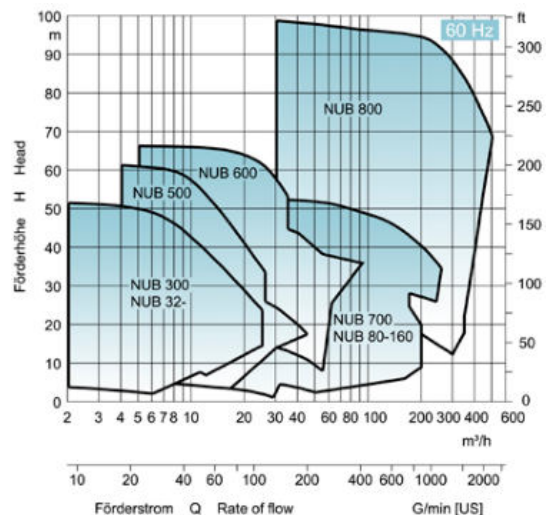
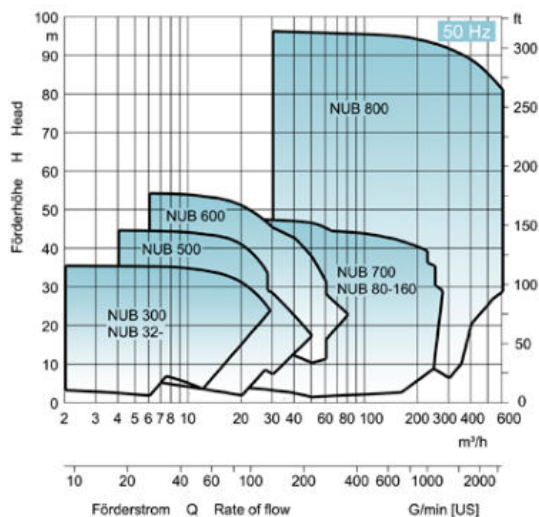
- Axial thrust-free, open or load-relieved, closed impellers
- Compensation of radial forces due to diffuser elements in the ring housing
- Low NPSH values
- Possibility to convey gas-loaded liquids
- Excellent control behavior
- Robustness against certain amounts of solid contents
- Optimized size of pressure nozzle for low pipe friction losses and velocity head difference
- Protection against dry running
- Application in vacuum operation
- Low-pulsation transport of media
- Optional sensor-based operation monitoring
- Low noise emissions
- Various installation positions
- Easy installation

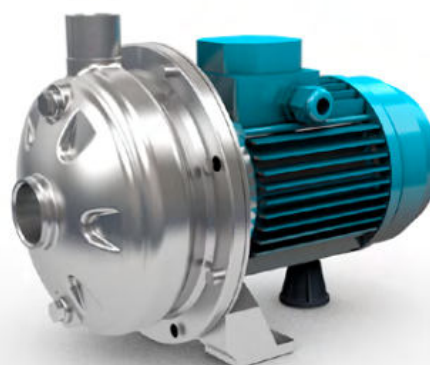
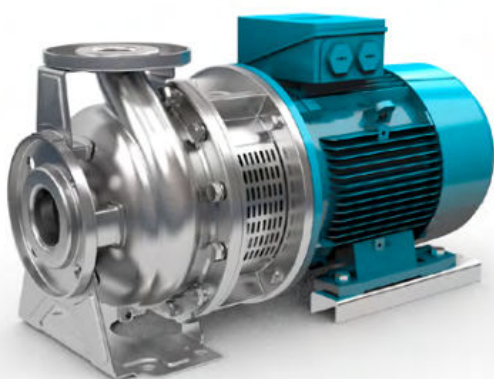


TECHNICAL DATA ▶ NUB

Flow rate	max. 600 m³/h
Head	max. 98 m
Operating pressure	max. 16 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm²/s

CHARACTERISTIC CURVES ▶ NUB





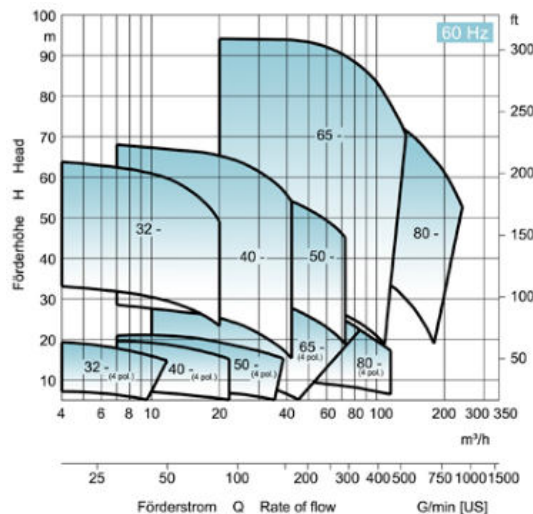
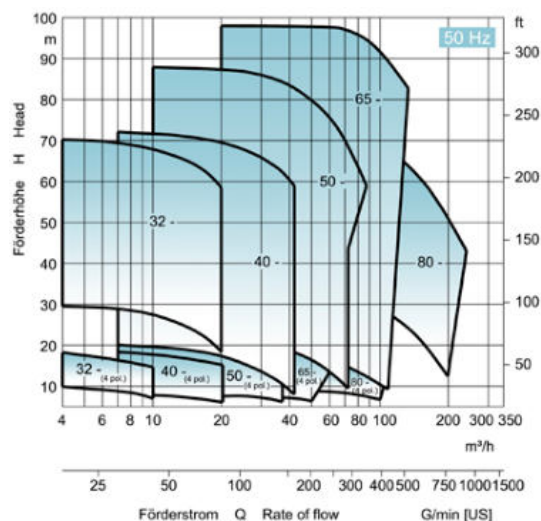
TECHNICAL DATA ▶ CB

Flow rate	max. 240 m³/h
Head	max. 98 m
Operating pressure	max. 10 bar
Temperature	-25 °C to 110 °C
Viscosity	up to 115 mm²/s

TECHNICAL DATA ▶ BC

Flow rate	max. 15 m³/h
Head	max. 78 m
Operating pressure	max. 8 bar
Temperature	-20 °C to 110 °C
Viscosity	up to 115 mm²/s

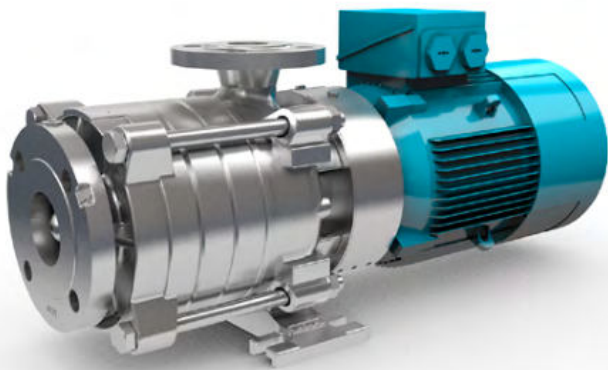
CHARACTERISTIC CURVES ▶ CB UND BC



Multistage Centrifugal Pumps

Series LB, VB, NH, Z

- Energy Technology
- Liquefied Gas
- Cooling Technology
- Industrial Cleaning Technology
- Water and Wastewater Technology
- General Industrial Technology



TECHNICAL DATA ▶ LB

Flow rate	max. 65 m³/h
Head	max. 300 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 160 °C
Viscosity	up to 115 mm²/s



TECHNICAL DATA ▶ VB

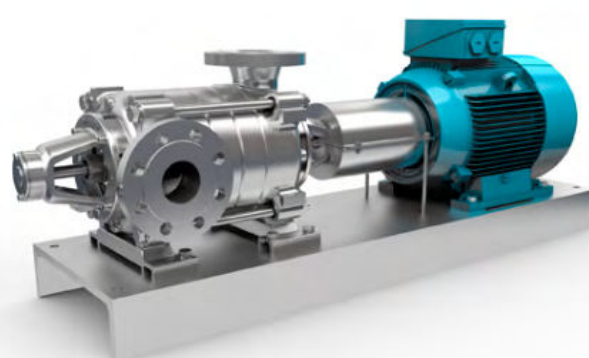
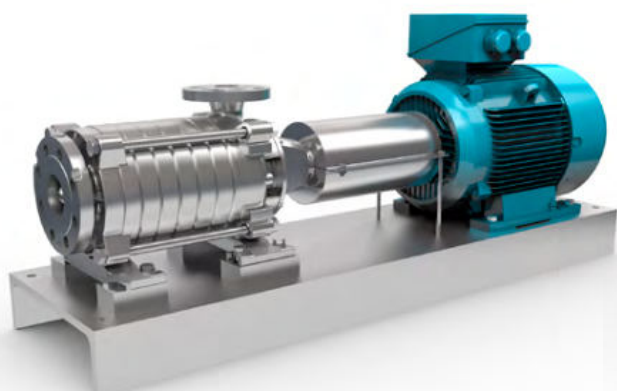
Flow rate	max. 65 m³/h
Head	max. 300 m
Operating pressure	max. 30 bar
Temperature	-40 °C to 140 °C
Viscosity	up to 115 mm²/s

GENERAL INFORMATION

Multistage centrifugal pumps are used in applications requiring high delivery pressures. The compact sectional construction and horizontal layout result in their efficient and reliable design. Multistage centrifugal pumps are able to convey pure or slightly contaminated liquids.

ADVANTAGES

- Axial thrust-free, open or load-relieved, closed impellers
- Compensation of radial forces due to diffuser elements in the ring housing
- Low NPSH values
- Possibility to convey gas-loaded liquids
- Excellent control behavior
- Optimized size of pressure nozzle for low pipe friction losses and velocity head difference
- Different nozzle positions possible
- Protection against dry running
- Application in vacuum operation
- Low-pulsation transport of media
- Optional sensor-based operation monitoring
- Block or base plate design
- Easy installation



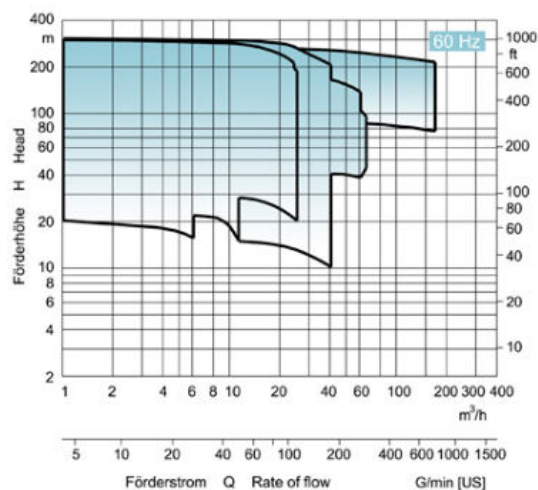
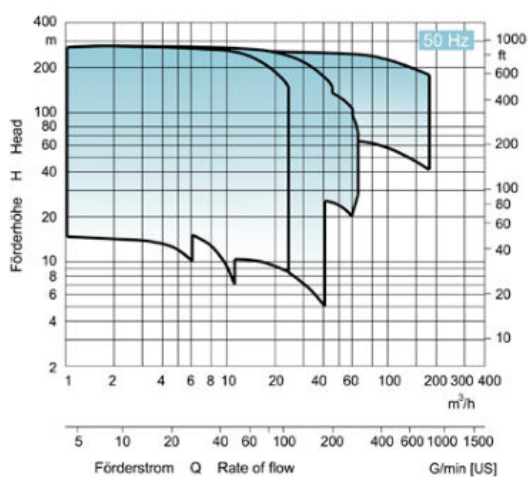
TECHNICAL DATA ▶ NH

Flow rate	max. 170 m³/h
Head	max. 300 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm²/s

TECHNICAL DATA ▶ Z

Flow rate	max. 65 m³/h
Head	max. 299 m
Operating pressure	max. 30 bar
Temperature	-40 °C to 160 °C
Viscosity	up to 115 mm²/s

CHARACTERISTIC CURVES



Inline Pumps

Series LUB, CV

- Energy Technology
- Cooling Technology
- Industrial Cleaning Technology
- Water and Wastewater Technology
- General Industrial Technology

GENERAL INFORMATION

Inline pumps are compact, robust and efficient. Due to their reliability, they are successfully used in many industries to convey pure or slightly contaminated media.

ADVANTAGES

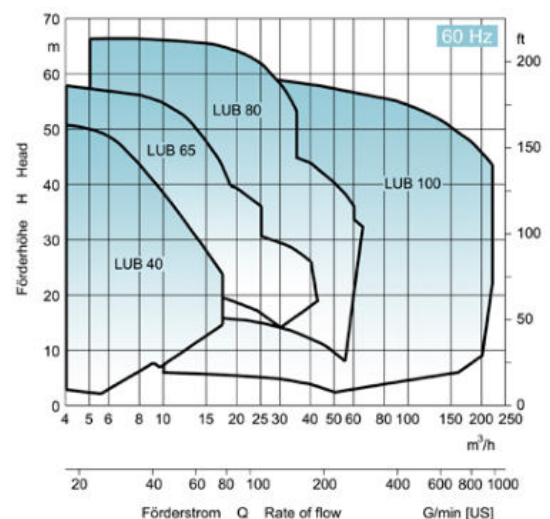
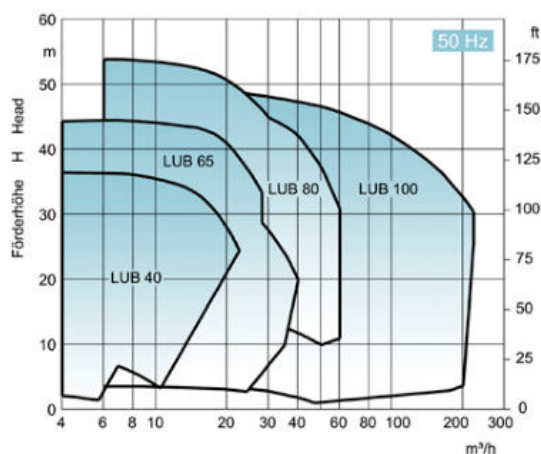
- Axial thrust-free, open or load-relieved, closed impellers
- Compensation of radial forces due to diffuser elements in the ring housing
- Low NPSH values
- Excellent control behavior
- Optimized size of pressure nozzle for low pipe friction losses and velocity head difference
- Protection against dry running
- Application in vacuum operation
- Wide range of connections (flange, clamp, and others)
- Optional sensor-based operation monitoring
- Easy installation
- Easy maintenance



TECHNICAL DATA ▶ LUB

Flow rate	max. 220 m³/h
Head	max. 66 m
Operating pressure	max. 10 bar
Temperature	-40 °C to 140 °C
Viscosity	up to 200 mm²/s

CHARACTERISTIC CURVES ▶ LUB

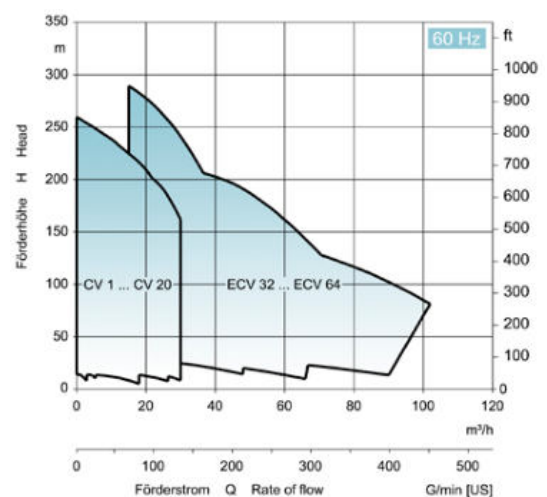
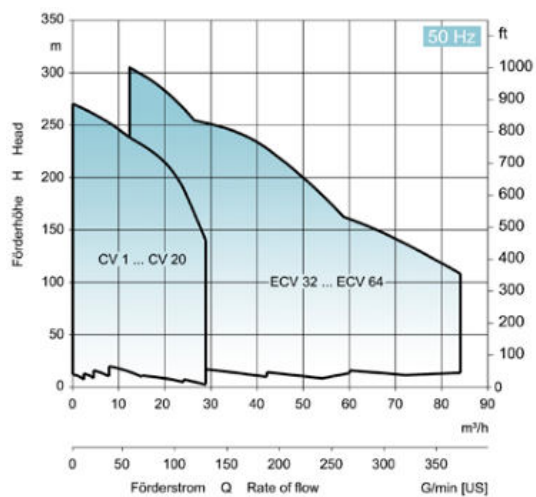




TECHNICAL DATA ▶ CV

Flow rate	max. 120 m³/h
Head	max. 342 m
Operating pressure	max. 35 bar
Temperature	-30 °C to 140 °C

CHARACTERISTIC CURVES ▶ CV



Torque Flow Pumps

Series FUB, CBF

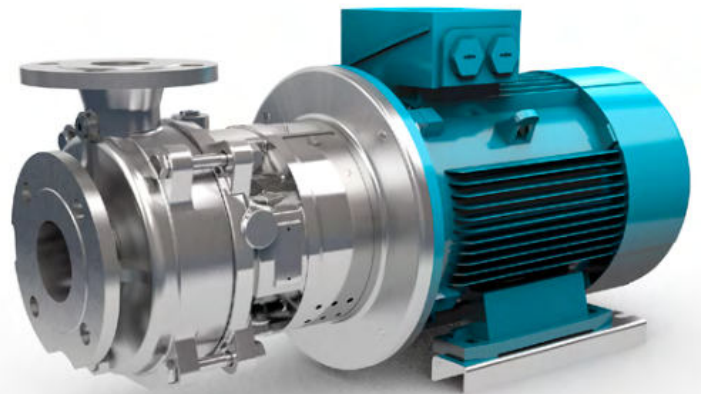
- Industrial Cleaning Technology
- Water and Wastewater Technology

GENERAL INFORMATION

Torque flow pumps have a compact design, which is robust against cavitation. They ensure smooth transport of solid-containing fluids and suspensions. Examples of conveyed fluids include wastewater, cooling lubricants with suspended chips, grinding oils or suds, lime milk or media, which despite contaminating solids require careful handling.

ADVANTAGES

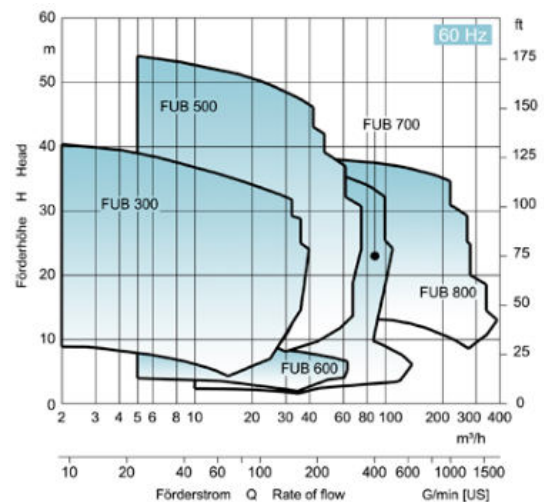
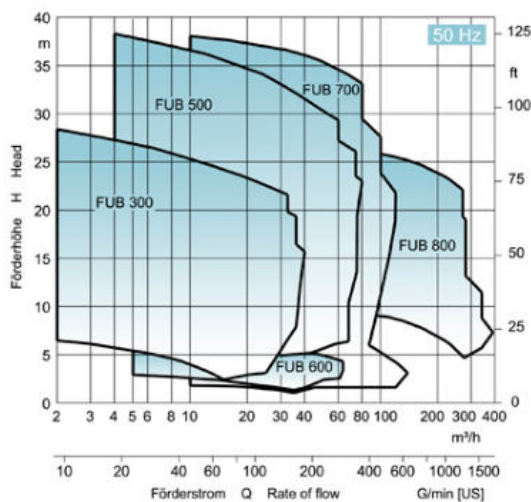
- Transport of media containing solids
- Free ball passage up to 80 mm diameter
- Pulse transmission by reseeded free-flow impeller design
- Handling of foam components
- Unsusceptible to cavitation
- Careful product transport
- Unsusceptible to fibrous waste and clump formation
- Protection against dry running
- Application in vacuum operation
- Low-pulsation transport of media
- Optional sensor-based operation monitoring
- Optional: Anti-abrasion coating
- Various installation positions
- Pullback design



TECHNICAL DATA ▶ FUB

Flow rate	max. 390 m³/h
Head	max. 55 m
Operating pressure	max. 16 bar
Temperature	-50 °C to 180 °C
Ball passage	up to 80 mm
Viscosity	up to 60 mm²/s

CHARACTERISTIC CURVES ▶ FUB

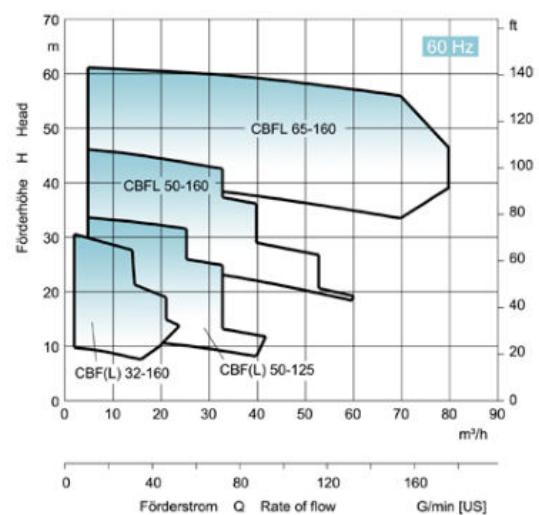
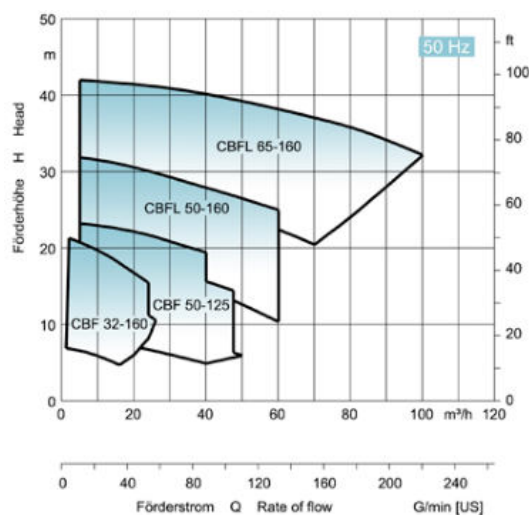




TECHNICAL DATA ▶ CBF

Flow rate	max. 100 m ³ /h
Head	max. 61 m
Operating pressure	max. 10 bar
Temperature	-25 °C to 110 °C
Ball passage	up to 40 mm
Viscosity	up to 60 mm ² /s

CHARACTERISTIC CURVES ▶ CBF



Self-Priming Centrifugal Pumps

Series S, SUB, E

- Liquefied Gas
- Water and Wastewater Technology
- General Industrial Technology



TECHNICAL DATA ▶ S

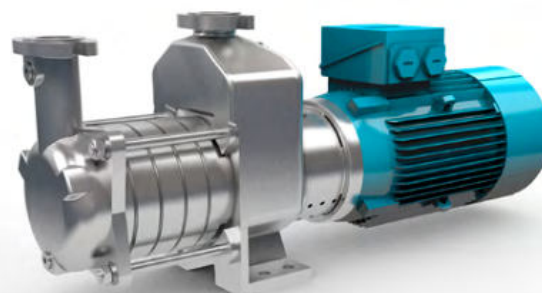
Flow rate	max. 300 m³/h
Head	max. 165 m
Operating pressure	max. 16 bar
Temperature	-40 °C to 110 °C
Viscosity	up to 115 mm²/s

GENERAL INFORMATION

Self-priming centrifugal pumps are suitable for slightly contaminated as well as gas-emitting liquids. Due to their characteristic design, they can draw up and convey liquids from lower levels. They ensure smooth and reliable operation with low suction times and high efficiency grades.

ADVANTAGES

- Self-priming through integrated jet pump or mixture formation
- High efficiency
- Axial thrust-free, open or load-relieved, closed impellers
- Compensation of radial forces due to diffuser elements in the ring housing
- Low NPSH values
- Possibility to convey gas-loaded liquids
- Optimized size of pressure nozzle for low pipe friction losses and velocity head difference
- Optional sensor-based operation monitoring
- Block or base plate design



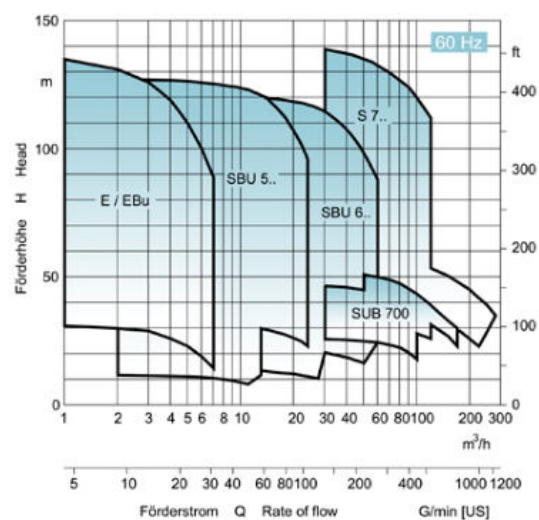
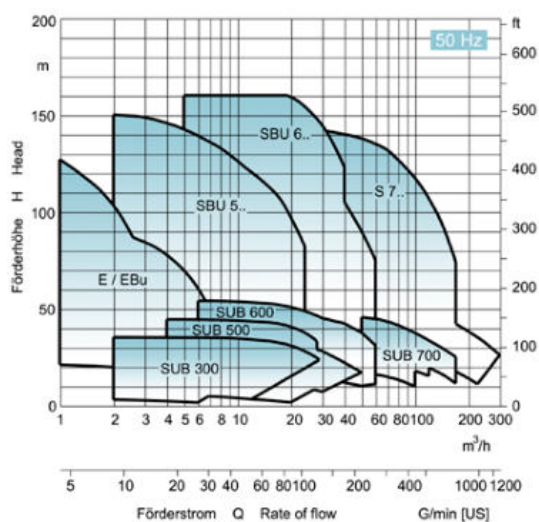
TECHNICAL DATA ▶ SUB

Flow rate	max. 170 m³/h
Head	max. 66 m
Operating pressure	max. 16 bar
Temperature	-25 °C to 110 °C
Viscosity	up to 200 mm²/s

TECHNICAL DATA ▶ E

Flow rate	max. 7 m³/h
Head	max. 139 m
Operating pressure	max. 15 bar
Temperature	-40 °C to 110 °C
Viscosity	up to 115 mm²/s

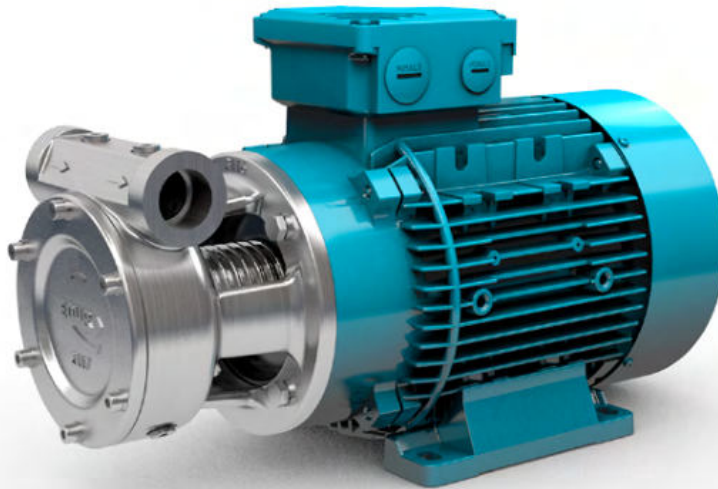
CHARACTERISTIC CURVES



Multiphase Pumps

Series PBU, LBU

- Flotation Plants acc. to VDMA Specification 24430
- Ozonization
- Water Treatment
- Crude Oil Water Separation
- Fuel Production
- General Process Technology



TECHNICAL DATA ► PBU

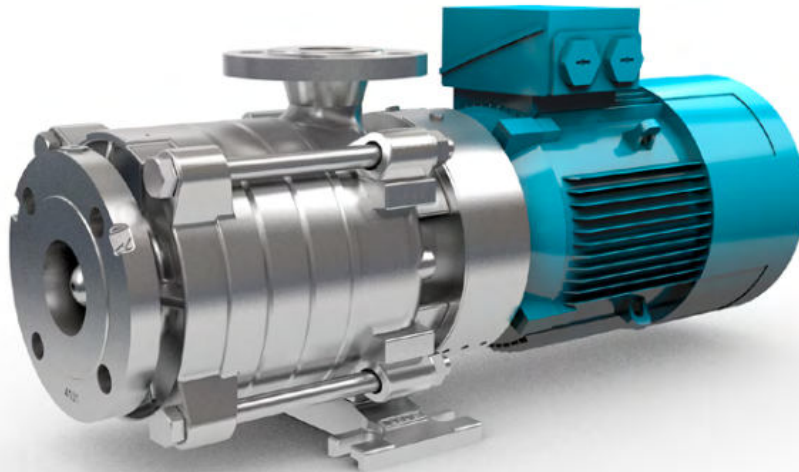
Flow rate	max. 14,5 m³/h
Head	max. 145 m
Operating pressure	max. 16 bar
Temperature	-40 °C to 140 °C
Gas contents	up to 15 %
Viscosity	up to 115 mm²/s

GENERAL INFORMATION

Multiphase pumps are designed to convey liquid-gas mixtures and to enrich liquids with gases, such as air, oxygen or ozone. They enable the transport of gas contents of up to 30 percent. Additionally, the pumps ensure a dynamic mixing and an excellent gas saturation.

ADVANTAGES

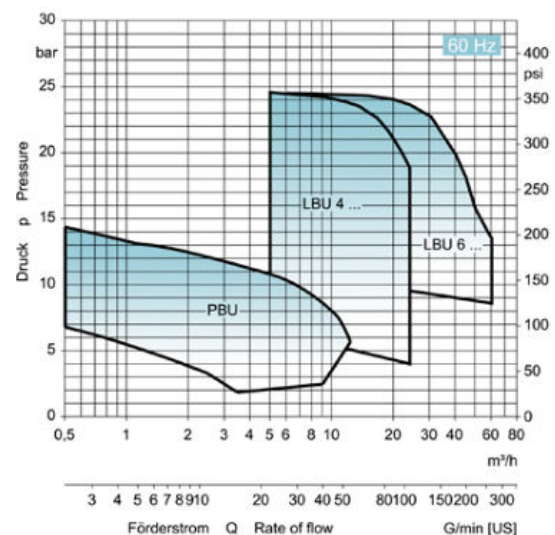
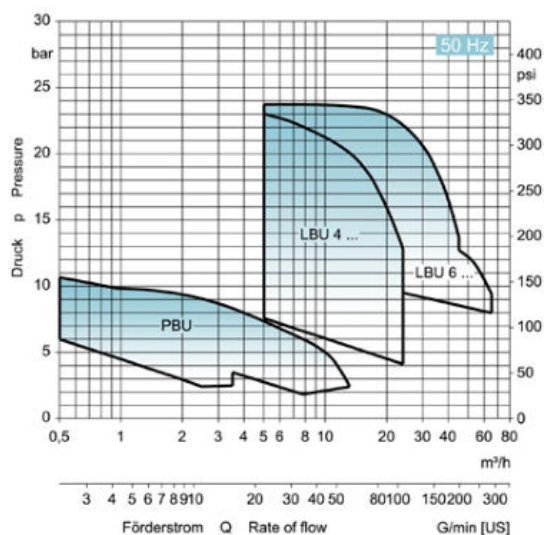
- Gas enrichment of liquids and conveyance of gas-loaded liquids e.g. with air or ozone
- Direct gas entry into the suction line
- Dynamic mixing
- Excellent gas saturation
- Perfect dispersion with bubble sizes between 30 and 50 µm after expansion
- Optimized size of pressure nozzle for low pipe friction losses and velocity head difference
- Significant reduction of plant components
- Cost- and energy-efficient operation in flotation plants
- Optional sensor-based operation monitoring
- Low noise emissions
- Easy maintenance



TECHNICAL DATA ► LBU

Flow rate	max. 60 m³/h
Head	max. 250 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 140 °C
Gas contents	up to 30 %
Viscosity	up to 115 mm²/s

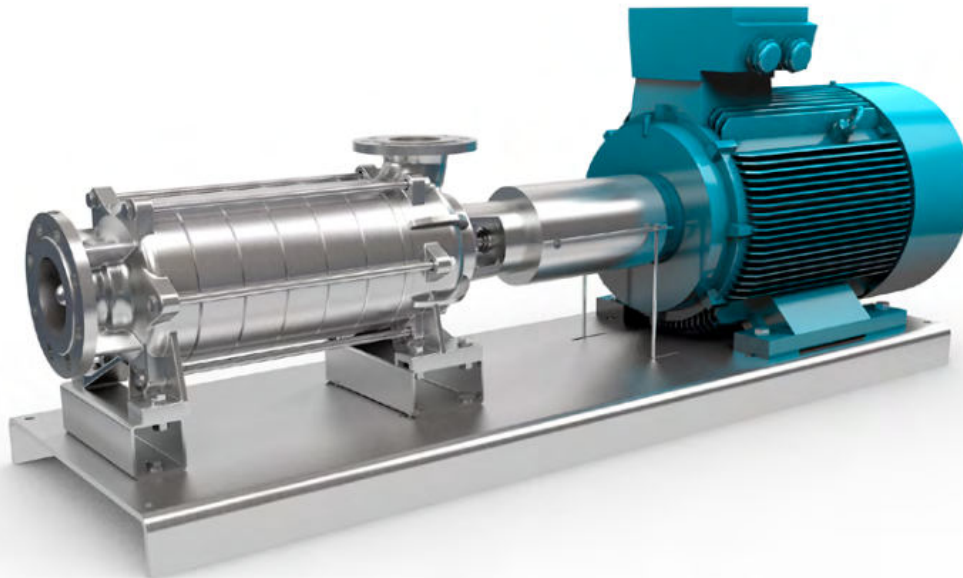
CHARACTERISTIC CURVES



Liquefied Gas Pumps

Series NH, LB

- Transport of Liquefied Gases
- Storage of Liquefied Gases
- Bottling Processes of Liquefied Gases



TECHNICAL DATA ► NH

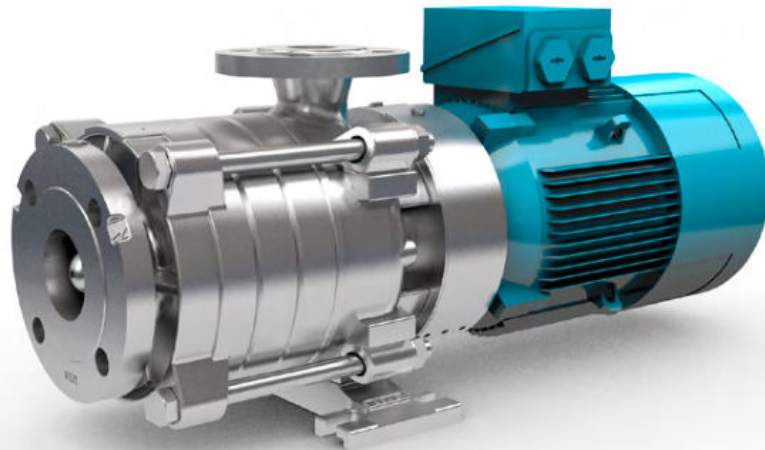
Flow rate	max. 170 m ³ /h
Discharge pressure (LPG – $\rho = 0,56 \text{ kg/dm}^3$)	max. 21,6 bar
Operating pressure	max. 40 bar
Temperature	-50 °C to 110 °C
Viscosity	up to 200 mm ² /s

GENERAL INFORMATION

Liquefied gas pumps are high-performance pumps for the supply of liquefied gases in applications with significant differential pressures. They ensure the safe handling of liquid-gas mixtures by controlling outgassing and fluctuations of the vapour pressure while maintaining high pump efficiencies.

ADVANTAGES

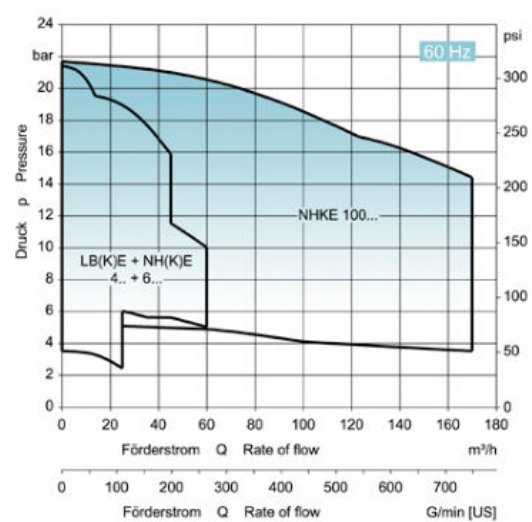
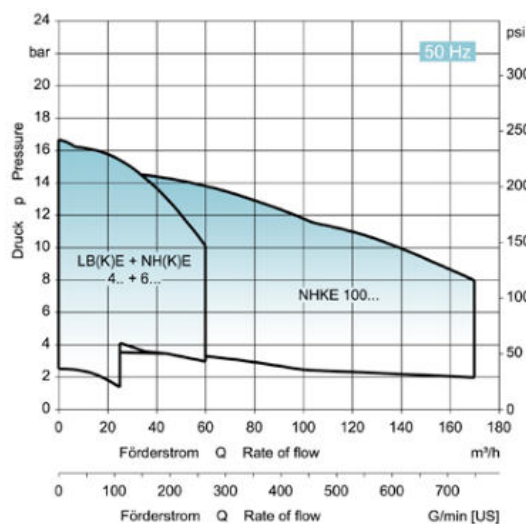
- High efficiencies
- Axial thrust-free, open or load-relieved, closed impellers
- Compensation of radial forces due to diffuser elements in the ring housing
- Low NPSH values
- Possibility to convey gas-loaded liquids
- Large operating range
- Suction and flooded supply possible
- High nominal pressures
- Low-pulsation transport of media
- Optional sensor-based operation monitoring
- Low noise emissions
- ATEX-compliant design available
- Explosion-protected motors to customer specifications
- Alternative drive forms available



TECHNICAL DATA ▶ LB

Flow rate	max. 60 m³/h
Discharge pressure (LPG – $\rho = 0,56 \text{ kg/dm}^3$)	max. 21,4 bar
Operating pressure	max. 40 bar
Temperature	-50 °C to 110 °C
Viscosity	up to 115 mm²/s

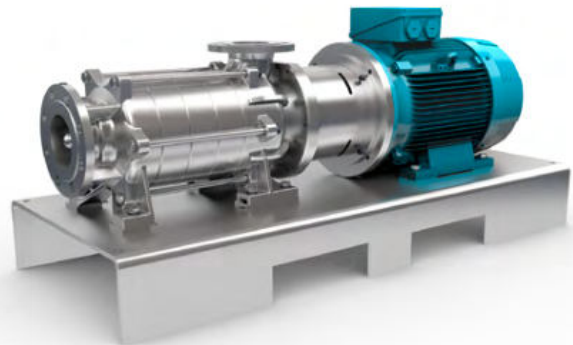
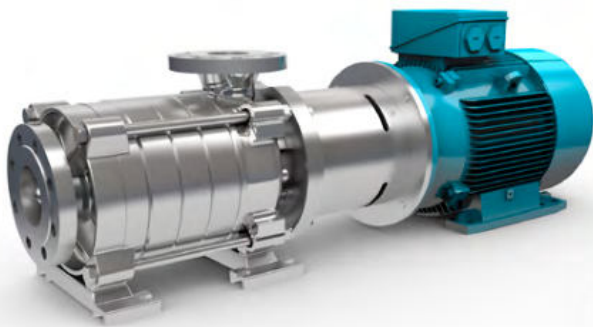
CHARACTERISTIC CURVES



Magnetically Coupled Pumps

Series LBM, NHM, NMB, PBM

- Energy Technology
- Liquefied Gas
- Cooling Technology
- General Industry Technology



TECHNICAL DATA ▶ LBM

Flow rate	max. 65 m³/h
Head	max. 300 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 220 °C
Viscosity	up to 115 mm²/s

TECHNICAL DATA ▶ NHM

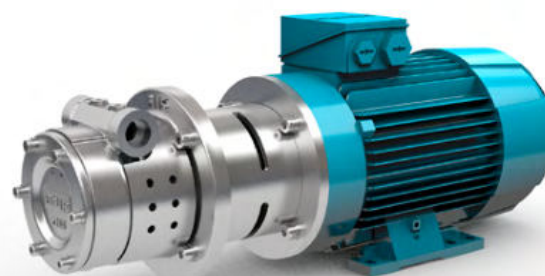
Flow rate	max. 170 m³/h
Head	max. 290 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm²/s

GENERAL INFORMATION

Magnetically coupled pumps are used for the transport of pure or slightly contaminated liquids. They are well suited for handling toxic, environmentally hazardous and explosive fluids as well as for high-temperature applications. Leakage is prevented through the hermetic seal created by the magnetic coupling.

ADVANTAGES

- High energy efficiency due to low-loss / lossless magnetic couplings
- Hermetic sealing
- Test of entire pump unit
- Low wear
- High operational safety
- Long service life
- Optional sensor-based operation monitoring
- ATEX-compliant design available
- Optional can temperature monitoring



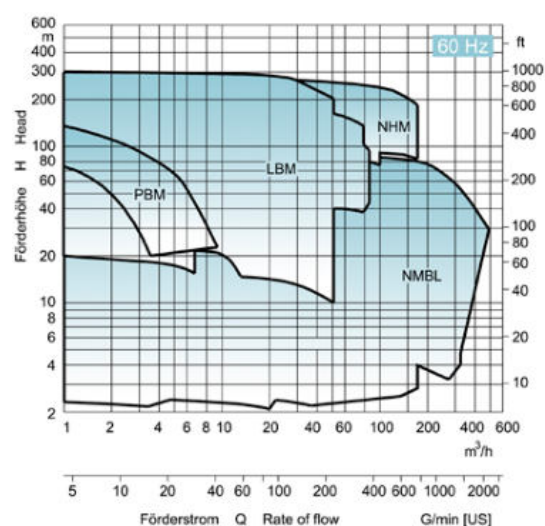
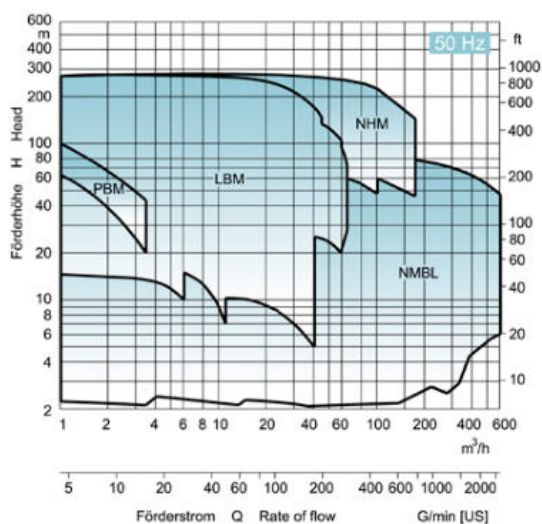
TECHNICAL DATA ▶ NMB

Flow rate	max. 600 m³/h
Head	max. 98 m
Operating pressure	max. 16 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm²/s

TECHNICAL DATA ▶ PBM

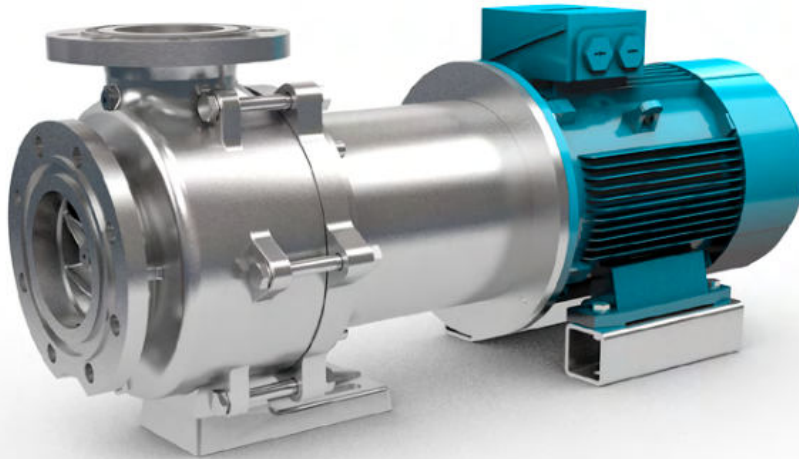
Flow rate	max. 3,5 m³/h
Head	max. 130 m
Operating pressure	max. 16 bar
Temperature	-40 °C to 220 °C
Viscosity	up to 115 mm²/s

CHARACTERISTIC CURVES



Series NMB, LBM, NHM

- Cooling Technology



TECHNICAL DATA ► NMB

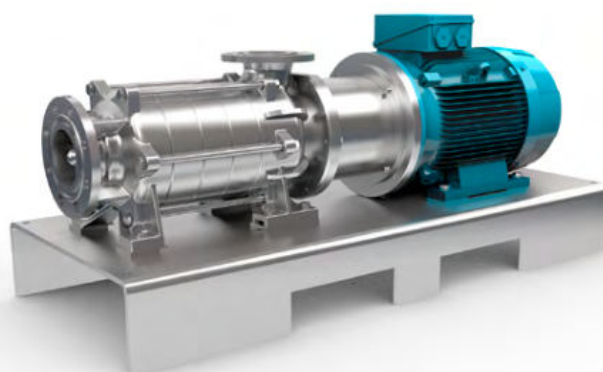
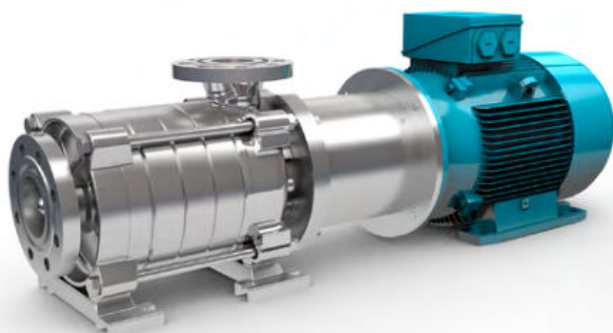
Flow rate	max. 600 m³/h
Head	max. 98 m
Operating pressure	max. 16 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm²/s

GENERAL INFORMATION

Refrigerant pumps are designed for the high loads and extreme temperature ranges during the cooling process. They are used for the reliable transport of natural and synthetic refrigerants. Leakage is reliably prevented through the hermetic seal created by the magnetic coupling.

ADVANTAGES

- High efficiencies
- Hermetic sealing
- Low NPSH values
- Possibility to convey gas-loaded liquids
- Low heat transfer into the medium
- Low-pulsation transport of media
- Low maintenance
- High operational safety
- Long service life
- Icing protection
- High efficiency due to eddy current loss free cans
- Q_{min} pipe not necessarily
- Optional sensor-based operation monitoring
- Low noise emissions
- Motors with anticondensation heating



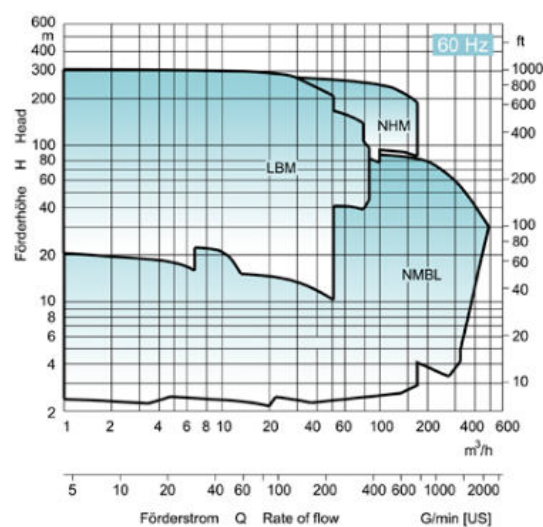
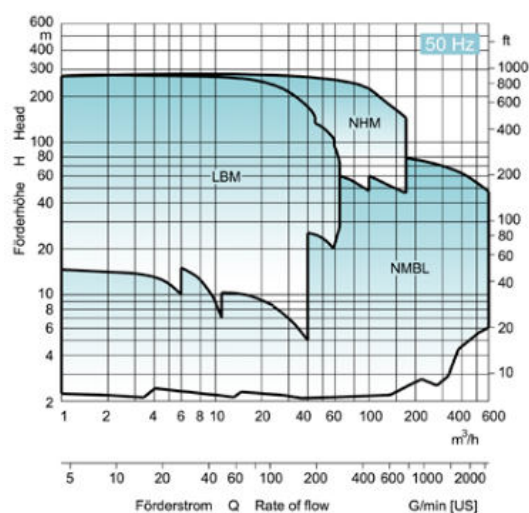
TECHNICAL DATA ▶ LBM

Flow rate	max. 65 m ³ /h
Head	max. 300 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 220 °C
Viscosity	up to 115 mm ² /s

TECHNICAL DATA ▶ NHM

Flow rate	max. 170 m ³ /h
Head	max. 290 m
Operating pressure	max. 40 bar
Temperature	-50 °C to 140 °C
Viscosity	up to 200 mm ² /s

CHARACTERISTIC CURVES



TYPICAL EDUR APPLICATIONS

Our Centrifugal Pumps for many Applications!

EDUR pumps can be used in a wide range of applications and improve the operation of different industrial processes. Over time, we have gained valuable knowledge about

many applications and have become a reliable partner for our customers by designing our pumps to their individual needs.

ENERGY TECHNOLOGY



- Power to Gas
- Power to Liquid
- Power to Heat
- Alkaline electrolysis
- PEM electrolysis
- Methanisation
- Biodiesel / biogas

LIQUEFIED GAS



- Transport: Loading and unloading vehicles like tankers, bobtail trucks and tank wagons
- Storage in tanks (over- and underground)
- Bottling processes for trading

COOLING TECHNOLOGY



- Chemical industry
- Deep-freeze warehouses, e.g. food processing and -packing, slaughterhouses, dairies, beverage industry, pharma industry and cold storage houses
- Ground freezing systems
- Ice rinks, bob- and toboggan runs as well as ski jumps

INDUSTRIAL CLEANING TECHNOLOGY



- Component cleaning
- Surface treatment
- Box and pallet cleaning
- Bottle cleaning
- Washer for medical devices
- Washer for wafer and microelectronics
- Aerospace component cleaning

WATER AND WASTEWATER TECHNOLOGY



- Water supply and treatment: Drinking water supply, cooling water, filtration and reverse osmosis
- Wastewater treatment: Flotation plants acc. to VDMA specification 24430, lime traps, ventilation of bioreactors, ozonization
- Further applications: Fuel production, ammonia stripping plants, crude oil water separation

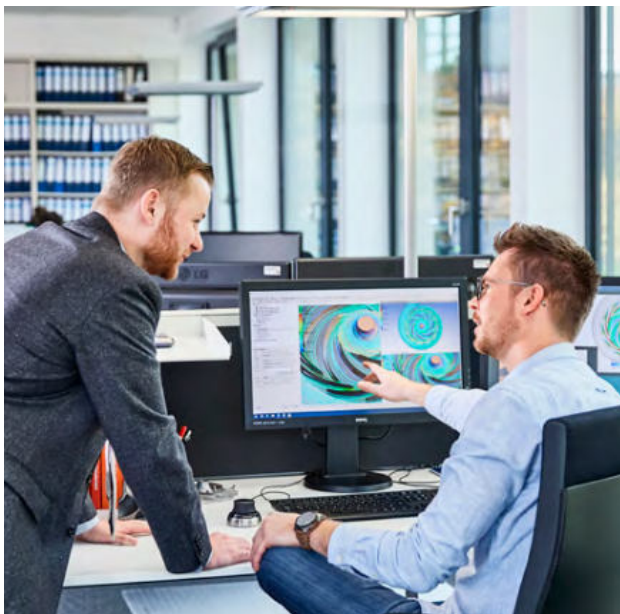


For further information,
please check out our
application flyers.

**YOUR APPLICATION IS NOT LISTED?
PLEASE CONTACT US!**

BEST SOLUTIONS

Professional customization of each centrifugal pump



Each EDUR pump is individually configured and manufactured for its specific application. This is how we ensure reliable and safe plant operation for our customers.

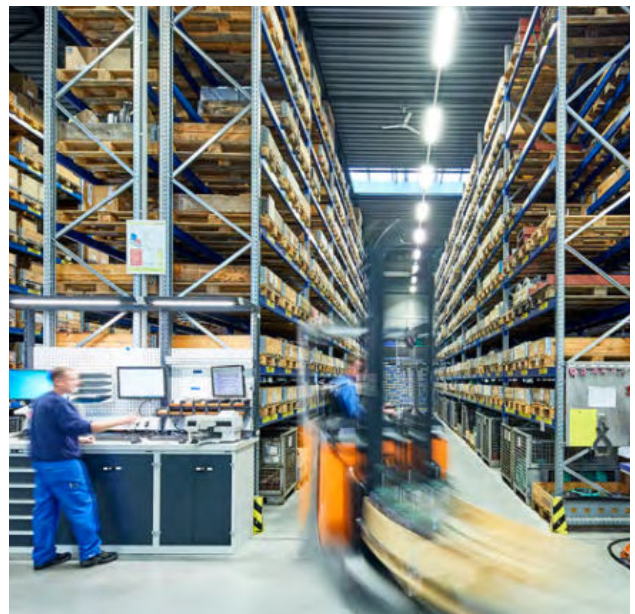
EDUR's sales engineers are available to give advice from the planning stage of the plant. We will support the individual selection and design of each centrifugal pump with our extensive technical and application-specific expertise – whether by phone, by mail or on site.

After an initial analysis, we identify suitable pump types that can be considered for the desired application. Based on the required pumping characteristics and the existing requirements, the pumps can be modified.

We are happy to accommodate individual requests and pumps for special applications. Working closely together with the construction department and our technical support, we develop new pump solutions to enable our customers projects.

EDUR SERVICE

Long-term and reliable operation of EDUR pumps



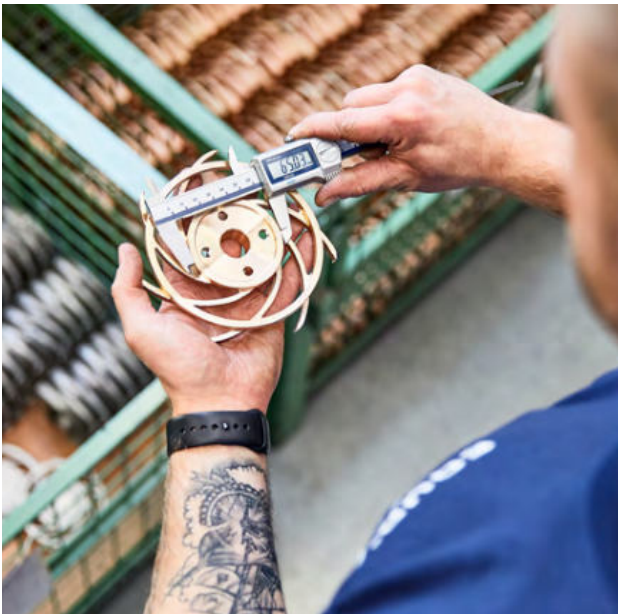
We ensure a smooth operation of each pump over its entire life-time, including both efficient pump repairs and the fast delivery of spare parts to minimize downtimes. In accordance with the custom-fit configuration of our pumps, our focus is on quality, speed and application know-how.

In case of a repair, we choose the most cost-effective way to restore the pump according to up-to-date pump standards.

All our standard spare parts are available on short notice. In addition, we supply suitable spare parts for at least 10 years after the sale of a pump.

PROVEN EDUR QUALITY

Quality assurance
at its highest level



The quality of each component of our pumps is of great importance to us. Therefore, each of our components is subjected to a strict quality control.

In addition to test reports, special tests are also available according to customer requirements. Please do not hesitate to contact us!

- Test reports acc. to European Standard EN 10204
- Acceptance tests acc. to DIN EN ISO 9906
- Inspection and approval acc. to classification society specifications
- Special tests acc. to customer requirements

EDUR PARTNER

Global support through
a competent network



Being a global company based in Germany, we are represented in numerous countries worldwide with the help of our joint ventures in China and Malaysia as well as more than 60 partners. This way we can ensure professional advice and excellent service on site.

From the selection of pumps to their installation, maintenance or service, our partners are trained and happy to help.

For more information and specific contacts, visit our website at www.edur.com/worldwide or contact us directly. We will be glad to help you.

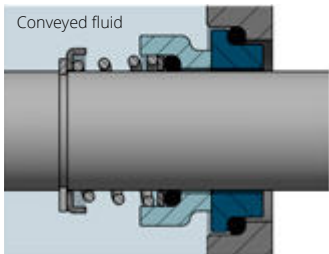
SEALING SYSTEMS AND MATERIALS

The selection of the right sealing system

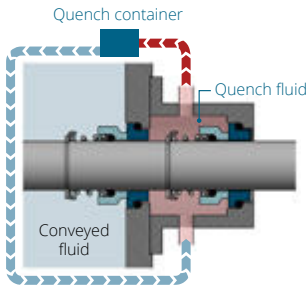
About 95 percent of all pump failures are due to incorrect or faulty shaft sealings. In order to prevent premature failures and to increase the service life, a careful and appropriate seal selection is necessary. The use of mechanical seals is standard practice

today. For leakage-free designs, magnetic couplings are used, if desired with low eddy-current losses. Suitable sensors for early fault detection are used on request.

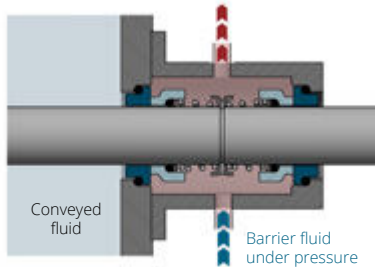
SINGLE-ACTING MECHANICAL SEAL



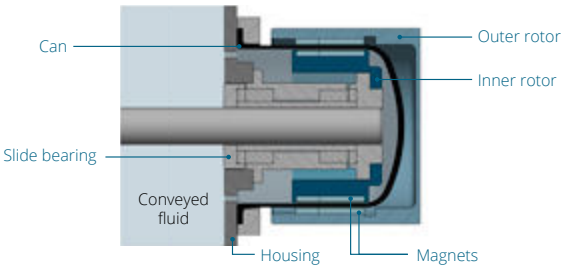
DOUBLE-ACTING MECHANICAL SEAL (TANDEM)



DOUBLE-ACTING MECHANICAL SEAL (BACK TO BACK)



MAGNETIC COUPLING



The right materials for every application!

CASINGS

Grey cast iron	0.6025	EN-GJL-250
Nodular cast iron	0.7040	EN-GJS-400-15
	0.7043	EN-GJS-400-18-LT
Bronze	2.1050.01	G-CUSn 10
Stainless steel	1.4301	X5CrNi18-10
	1.4401	X5CrNiMo17-12-2
	1.4404	X2CrNiMo17-12-2
	1.4581	G-X5CrNiMoNb19-11-2
Duplex	1.4517.01	G-X3CrNiMoN25-6-3

SHAFTS

Stainless steel	1.4057	X22CrNi16-2
Stainless steel	1.4301	X5CrNi18-10
Stainless steel	1.4404	X2CrNiMo17-12-2
Duplex	1.4462	X2CrNiMoN22-5-3
Super Duplex	1.4501	X2CrNiMoCuWN25-7-4

IMPELLERS

Grey cast iron	0.6025	EN-GJL-250
Nodular cast iron	0.7040	EN-GJS-400-15
	0.7050	EN-GJS-500-7
Bronze	2.1052.01	G-CUSn 12
Stainless steel	1.4301	X5CrNi18-10
	1.4401	X5CrNiMo17-12-2
	1.4404	X2CrNiMo17-12-2
Duplex	1.4517	G-X3CrNiMoCuN25-6-3-3

OTHER MATERIALS AND COATINGS
ARE AVAILABLE ON REQUEST.

For the selection of suitable sealing systems and materials,
we will be happy to advise you!



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Eduard Redlien GmbH & Co. KG

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D-24145 Kiel

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www.edur.com



We are a member of the VDMA and
support the Blue Competence initiative

