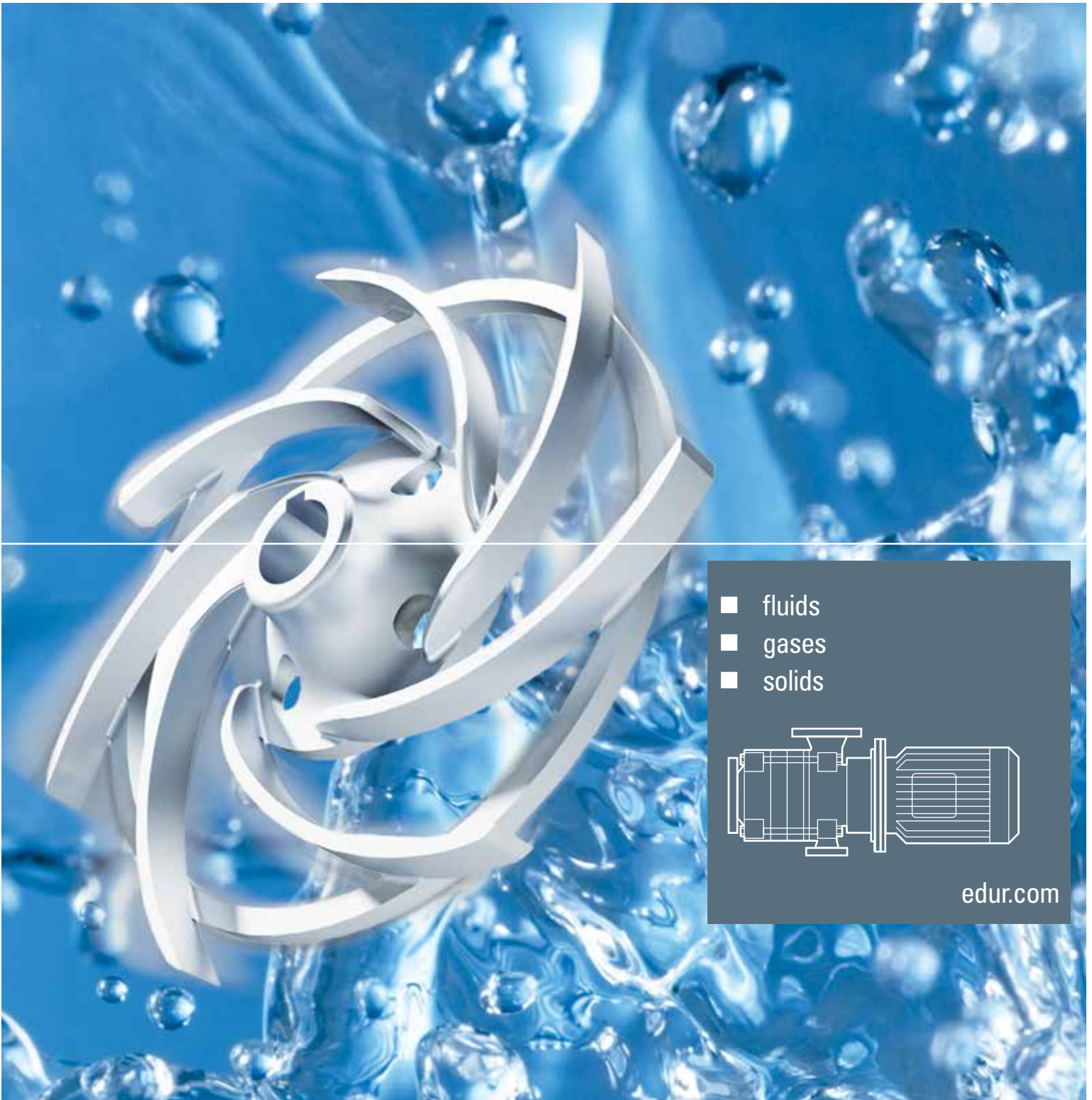


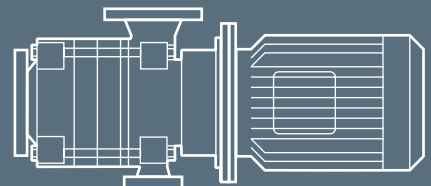


Pump Program

Developed and manufactured
in Germany
... since 1927



- fluids
- gases
- solids



edur.com

Clean water and energy efficiency – both demands are relevant for the future which cannot be managed without energy-efficient pumps.



**Multistage multiphase pump
segmental type**

EDUR does offer a comprehensive range of pumps to meet various system requirements:

- selfpriming and non-selfpriming centrifugal pumps for handling liquids
- multiphase pumps for liquids containing gas and for gas enrichment
- torque-flow pumps for liquids with solids
- special solutions

For example water and wastewater treatment plants are being optimized by EDUR multiphase pumps. They are operated for cleaning industrial and municipal wastewater using dissolved air flotation. Other examples include ozonation of drinking water or process water. The multiphase pumps operate as dynamic mixer and simplify the system design. Consequently this results in reduced investments as well as decreased operating costs.

Even in the case of pure liquid transport, high energy savings are useable. Circulation pumps with large flange diameters reduce the internal losses in the pump system and provide high efficiencies. Changing operating conditions are taken into account by supportive pump control modes.

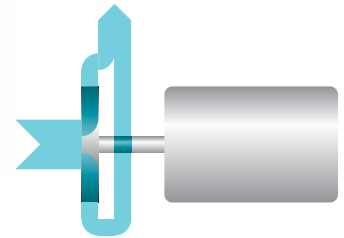
Advantageous also is the use of EDUR pumps for liquefied gas transport. Energy savings up to 50 percent and low investment costs lead to a rapid amortization. Additionally, the pumps are more compact, in particular simplifying mobile systems.

Aside from cooling pumps also refrigerant pumps are well-engineered products for reliable operation. Hermetic sealing combined with good suction capability ensure process safety, even with critical media such as CO₂ or ammonia.

Contact us! We have energy-efficient and reliable pump solutions also for your requirements.



EDUR-Manufacturing Program	Performance Data	Models	Page
Industry-Bloc	max. 600 m ³ /h, 90 m, 16 bar	NUB	4
Inline-Bloc	max. 220 m ³ /h, 55 m, 16 bar	LUB	6
Stainless-Bloc	max. 240 m ³ /h, 95 m, 10 bar	CB BC	8
Stainless-Vertical	max. 84 m ³ /h, 300 m, 30 bar	CV	10
Torque-Flow-Bloc	max. 400 m ³ /h, 55 m, 16 bar	FUB CBF	12
Multistage	max. 350 m ³ /h, 400 m, 40 bar	LBU VBU NH Z	14
Selfpriming	max. 300 m ³ /h, 160 m, 16 bar	S SUB E	16
Multiphase	max. 60 m ³ /h, 250 m, 40 bar	PBU LBU	18
Liquefied Gas	max. 340 m ³ /h, 400 m, 40 bar	NHE LBE	20
Immersed	max. 350 m ³ /h, 50 m, 16 bar	CTOL	22
Shaft Sealing Systems			24
Materials			25
Energy Efficiency			26
Pump Audit			27
About EDUR			32



NUB



Industry-Bloc NUB

Advantages

An all-purpose, single stage, circulation pump in a compact design for use in cooling and refrigeration technology, air-conditioning, filtration, shipbuilding, mechanical engineering, energy technique, plastics processing, surface technology and general machine engineering.

There is a wide range of designs with various types, material modifications and shaft sealing systems for clean or slightly polluted liquids. The demand of special motor executions, inspection by all specification societies and company certificates are possible. As well as explosion-proof executions and customized special solutions. This is a well-established pump type for economical, reliable and long-lasting operation.

■ Technical Superiority

- open impellers without axial thrust or balanced closed impellers
- compensation of radial forces by means of diffuser devices in the annular casing
- optional: double-acting mechanical seals or hermetically sealed pump executions with magnetic coupling

■ Process Reliability

- partial gas supply
- wide performance curve characteristics
- flat or steep characteristic curves
- excellent control mode

■ High Energy-Efficiency

- low velocity of flow
- low velocity head differences

■ Easy Installation

- large flange inside diameters
- optional mounting positions
- compact pump design

■ Easy Maintenance

■ Application

- operating pressure up to 16 bar
- temperature -40°C to $+140^{\circ}\text{C}$
- viscosity up to $200\text{ mm}^2/\text{s}$



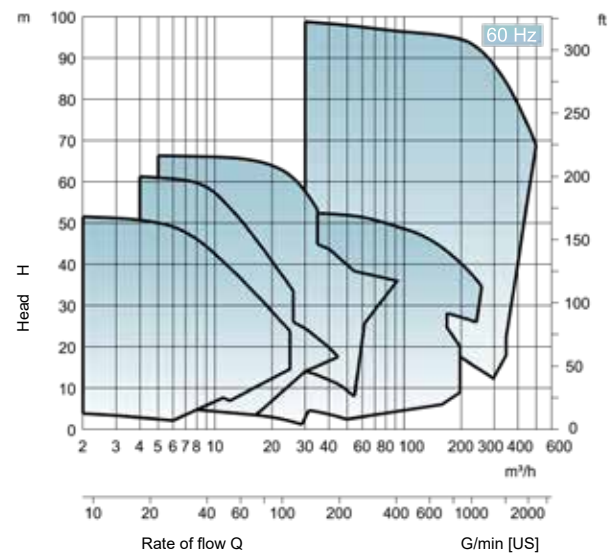
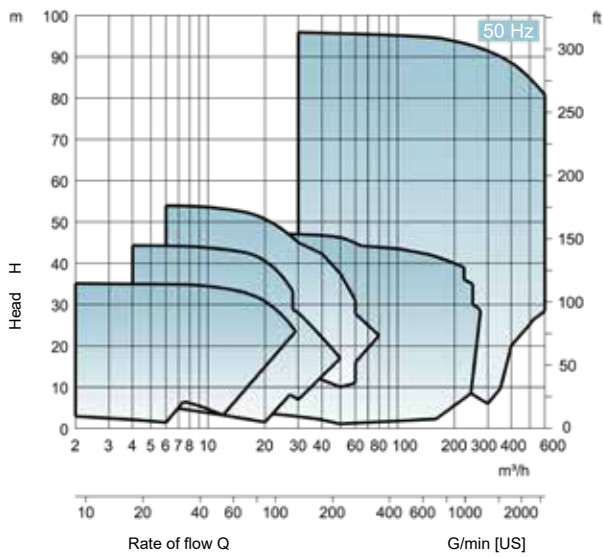


cooling and refrigeration
 process pump
 shipbuilding
 plant engineering
 surface technology
 filtration



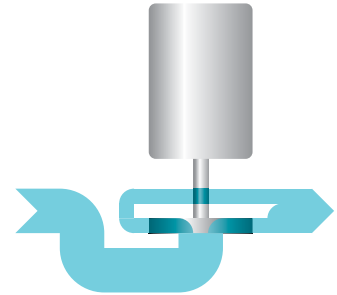
Industry-Bloc
 NUB

Characteristics





LUB



Inline-Bloc LUB

An all-purpose, single-stage, process pump in inline-design for multipurpose use in cooling technology, air-conditioning, filtration, water supply, house and building technique, shipbuilding, mechanical engineering, energy technique, plastics processing, surface technology and general machine engineering.

This is a space-saving alternative to standard bloc-pumps. There is a wide range of designs with various types, material modifications and shaft sealing systems for clean or slightly polluted liquids. The demand of special motor executions, inspection by all specification societies and company certificates are possible. As well as explosion-proof executions and customized special solutions.

This is a well-established pump type for economical, reliable and long-lasting operation.

Advantages

- **Technical Superiority**
 - open impellers without axial thrust or balanced closed impellers
 - compensation of radial forces by means of diffuser devices in the annular casing
 - optional: double-acting mechanical seals or hermetically sealed pump executions with magnetic coupling
- **Process Reliability**
 - partial gas supply
 - wide performance curve characteristics
 - flat or steep characteristic curves
 - excellent control mode
- **High Energy-Efficiency**
 - low velocity of flow
 - low velocity head differences
- **Easy Installation**
 - large flange inside diameters
 - pull-back design
 - compact design
- **Application**
 - operating pressure up to 16 bar
 - temperature -40° C to +140° C
 - viscosity up to 200 mm²/s



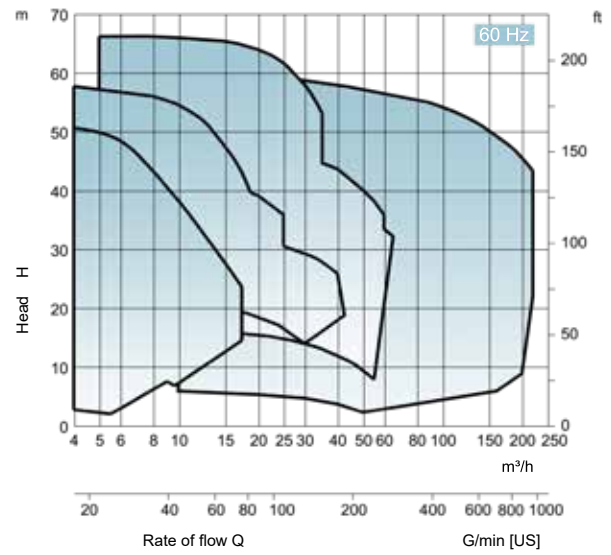
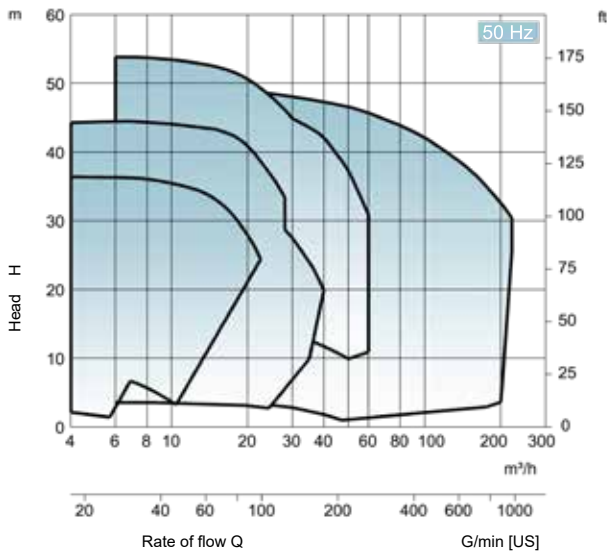


energy industry
 circulation pump
 shipbuilding
 plant engineering
 building services
 cooling water



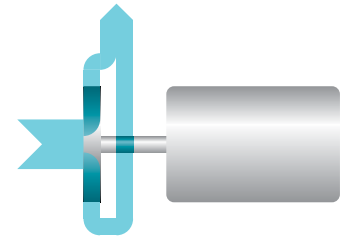
**Inline-Bloc
 LUB**

Characteristics





CB



Stainless-Bloc CB BC

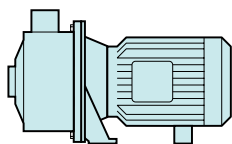
Advantages

An all-purpose, stainless pump in bloc-design for multipurpose usage in food industry, water supply, cooling technology, air-conditioning, filtration, shipbuilding, house and building technique, apparatus engineering, energy technique, process technology and general machine engineering.

There is a wide range of applications with various modifications and sealing systems. The demand of special motor executions, inspection by all specification societies, explosion-proof executions and customized special solutions is possible. This is the stainless steel pump for economical, reliable and long-lasting operation.

- easy maintenance by pull-back design
- closed impellers
- single- or double-acting mechanical seals
- stainless steel material
- operating pressure up to 10 bar
- temperature -25°C to +110°C
- viscosity up to 115 mm²/s
- special execution: stainless steel covering
- flange connections acc. to EN 733

Other types:



BC



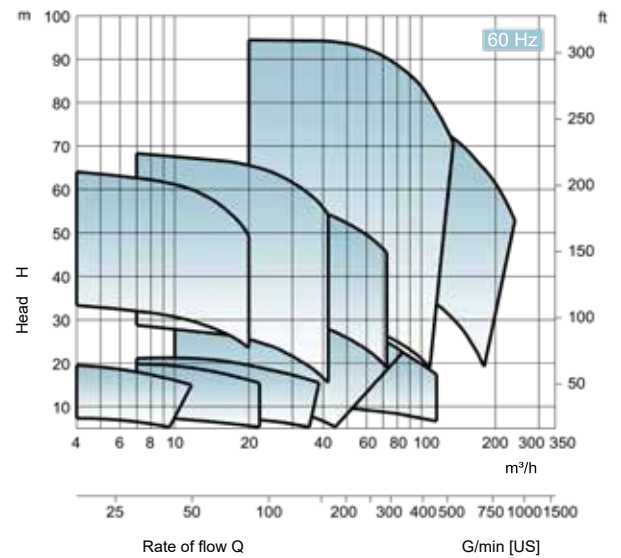
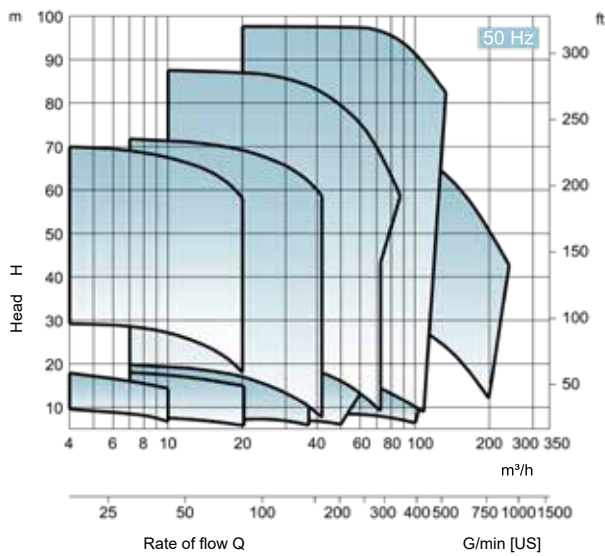


CIP cleaning in place
 food industry
 cleaning systems
 plant engineering
 water treatment
 demineralized water



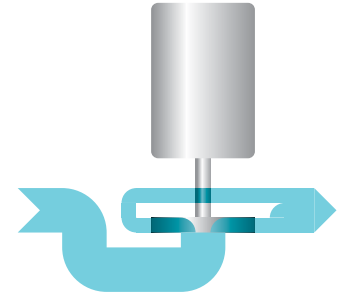
Stainless-Bloc
CB BC

Characteristics





CV



Stainless-Vertical CV

A vertical, multistage, high pressure pump in compact design for use in booster systems, general process technology, water supply, cooling technology, air-conditioning, apparatus engineering, energy technique, plastics processing, filtration, shipbuilding and general machine engineering.

The CV does offer a wide range of applications for clean or slightly polluted liquids.

Advantages

- **Technical Superiority**
 - compensation of radial forces by semi-closed impellers
 - various material combinations
 - various installation options (flange, clamp, etc.)
- **Process Reliability**
 - easy replacement due to standardization
 - drinking water approval on demand
- **Easy Maintenance**
 - mechanical seal replacement without motor lantern dismantling
 - optional: cartridge seals
- **Application**
 - operating pressure up to 30 bar
 - temperature -30° C to +140° C
 - from size 32: -15° C to +120° C
 - viscosity up to 115 mm²/s



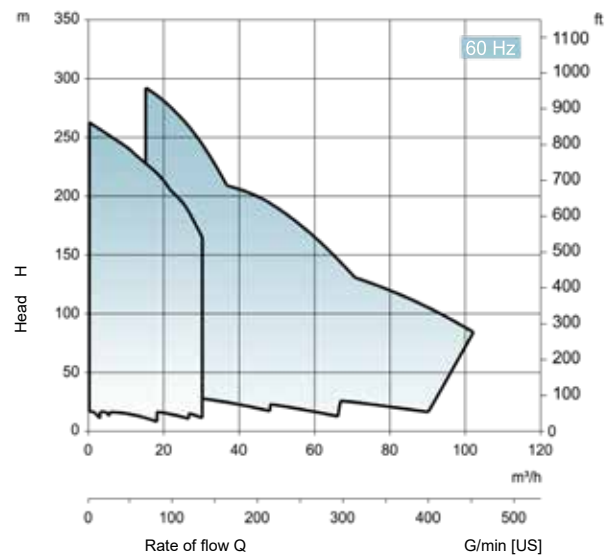
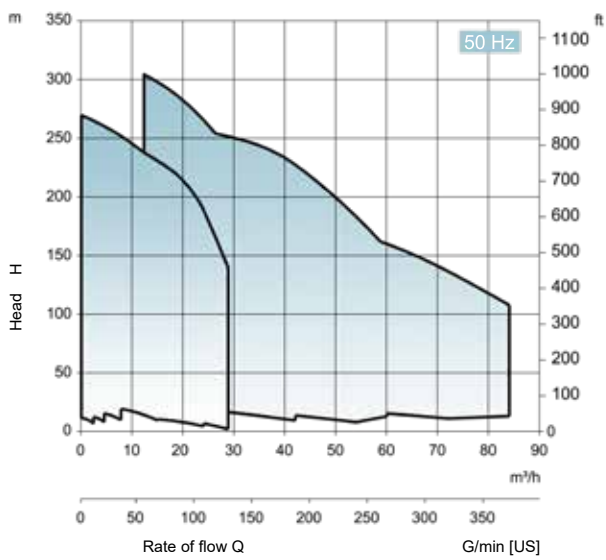


water treatment
 washing cleaning
 washing industry
 building services water supply



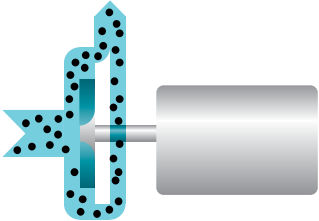
**Stainless-Vertical
 CV**

Characteristics





FUB



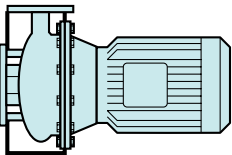
**Torque-Flow-Bloc
FUB CBF**

Advantages

A torque-flow pump in compact bloc-design for the transport of liquids contaminated with solids or suspensions. Typical liquids are: waste water, cooling agents contaminated with metal chips, abrasive oils and lyes, lime milk and products that have to be transported with care.

Main applications include: sewage water plants, treatment systems, recycling processes, washing plants, filters, environmental and operation technique. An all-purpose pump design insensitive to cavitation conditions.

Other types:



CBF

- **Process Reliability**
 - transport of liquids with solids
 - single or double-acting mechanical seals
 - insensitive to cavitation conditions
 - products are transported with care
 - insensitive to plait and clot formation
- **Technical Superiority**
 - momentum transfer by means of recessed torque-flow-impeller
 - free passages up to 80 mm diameter
 - optional wear-resistant coating
- **Easy Installation**
 - optional positions of installation
 - compact design
- **Easy Maintenance**
 - pull-back design
 - sturdy execution
- **Application**
 - operating pressure up to 16 bar
 - temperature -40° C to +180° C
 - viscosity up to 60 mm²/s
 - solids contents up to 15 %



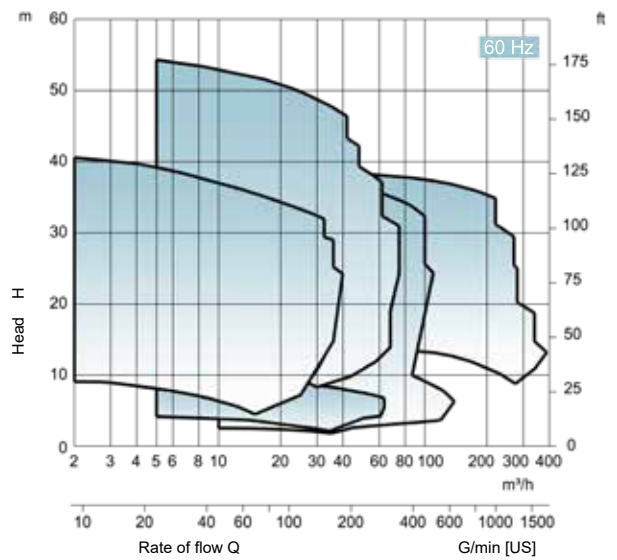
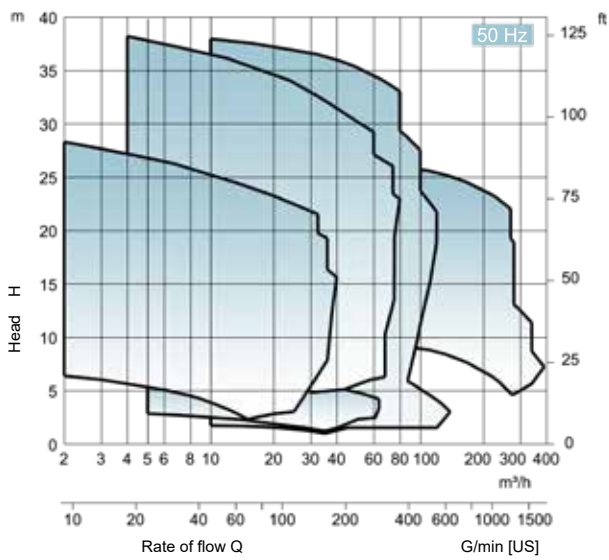


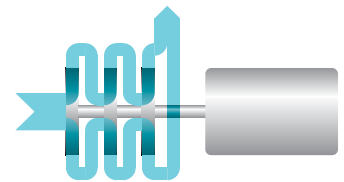
handling entrained solids
 grinding oils
 suds wastewater
 cooling lubricants
 filter systems



Torque-Flow-Bloc
FUB CBF

Characteristics





LBU



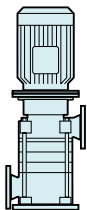
Multistage LBU VBU NH Z

Advantages

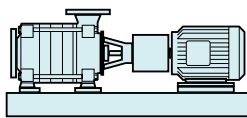
A multistage, horizontal and vertical, segmental type design high pressure pump with various options for clean and slightly polluted liquids.

The main applications are boiler feeding, condensate systems, booster, irrigation systems, washing plants, filter technique, water treatment, hardening systems, cooling technology, ship building and general machine engineering. By means of auxiliary NPSH-stages, NPSH-values down to 0,5 m are being achieved.

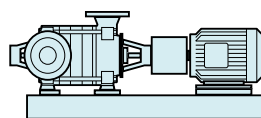
Other types:



VBU



NH



Z

■ High Energy-Efficiency

- low velocity of flow
- low velocity head differences

■ Technical Superiority

- single- or double-acting mechanical seals or magnetic coupling optional
- open impellers without axial thrust or balanced closed impellers
- compensation of radial forces by means of diffuser devices in the annular casing

■ Process Reliability

- partial gas supply
- wide performance curve characteristics
- flat or steep characteristic curves
- excellent control mode

■ Easy Installation

- large flange inside diameters

■ Easy Maintenance

■ Application

- operating pressure up to 40 bar
- temperature -40° C to +220° C
- viscosity up to 115 mm²/s



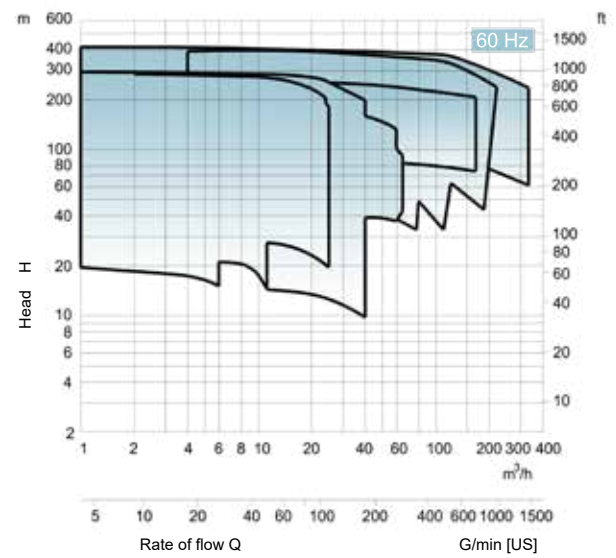
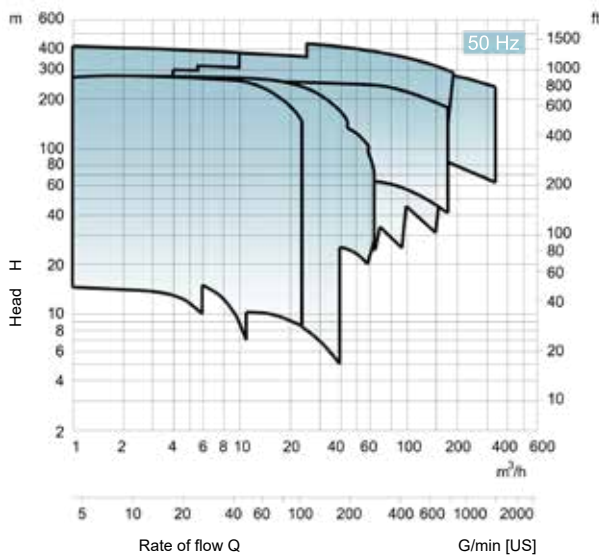


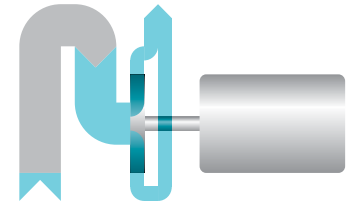
cooling and refrigeration
boiler feed water
water treatment
plant engineering
marine engineering
filter technology



Multistage
LBU VBU NH Z

Characteristics





S



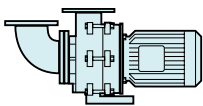
Selfpriming S SUB E

Advantages

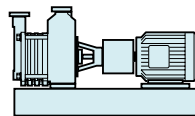
Compared to non-selfpriming pumps, selfpriming pumps are in a position to evacuate the suction pipe line and consequently prime deep level liquids. Defective foot valves and gas entrained liquids will be controlled reliably. Short evacuation times and high efficiencies show trouble-free operation and low life-cycle costs.

Selfpriming pumps are suitable for handling cooling water, river water, emulsions and fuels like kerosene, gasoline or diesel etc. Typical applications are in the range of industrial and municipal water supply, irrigation and booster systems, shipbuilding, fueling systems, process technology and general machine engineering.

Other types:



SUB



E

■ High Energy-Efficiency

- integrated jet pump or mixture formation
- low velocity of flow
- optimized impeller approach flow
- low internal friction losses

■ Technical Superiority

- open impellers without axial thrust or balanced closed impellers
- compensation of radial forces by means of diffuser devices in the annular casing

■ Process Reliability

- selfpriming capability
- partial gas supply
- wide performance curve characteristics
- flat or steep characteristic curves

■ Easy Installation

- customized solutions
- horizontal design
- bloc- or bedplate design

■ Application

- operating pressure up to 16 bar
- temperature -40° C to +90° C
- viscosity up to 115 mm²/s



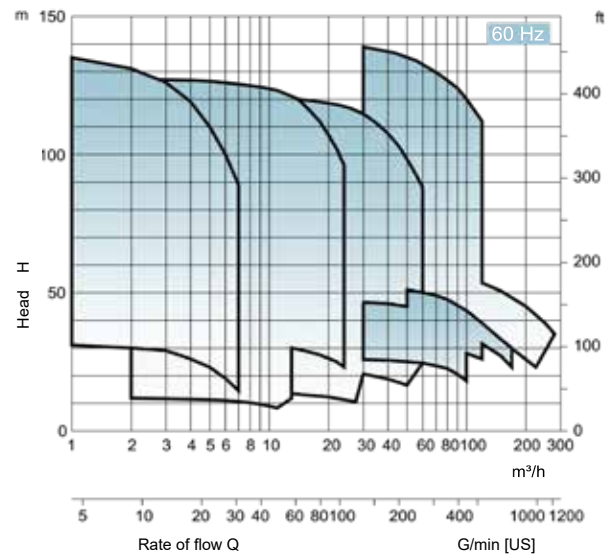
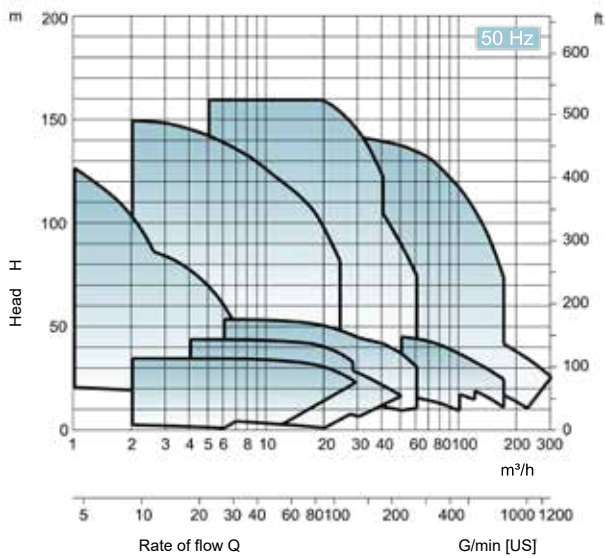


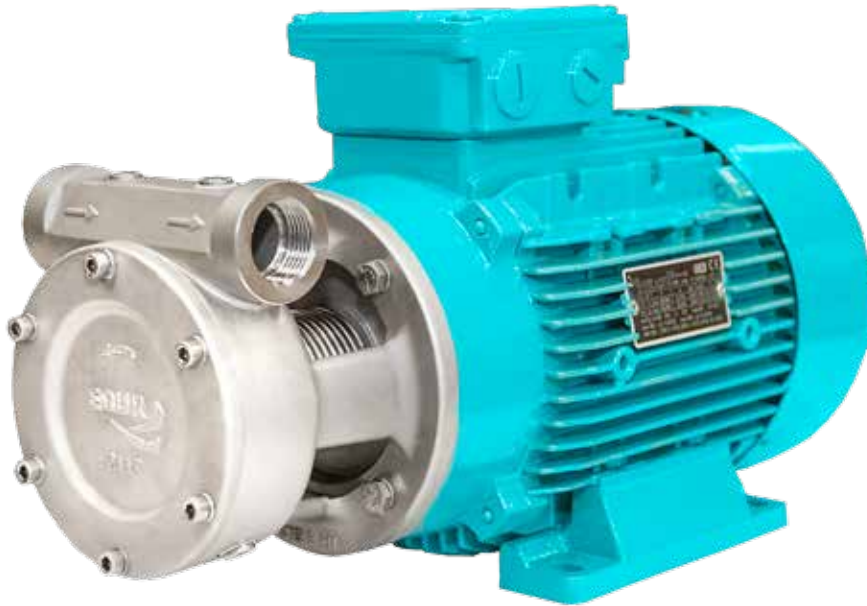
process engineering
 green technology
 shipbuilding
 refueling
 water supply
 cooling



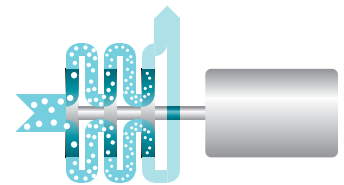
**Selfpriming
 S SUB E**

Characteristics





PBU



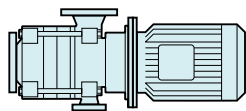
Multiphase PBU LBU

Advantages

Horizontal centrifugal pumps for the transport of liquid-gas mixtures and for the enrichment of liquids with gases. A dispersion with very fine bubbles is being achieved. Therefore the multiphase pumps are also acting as dynamic mixer with high shearing forces.

Some main applications are water and wastewater treatment, dissolved air flotation, neutralization, biofuel plants, bio-reactors, ozonation, crude oil water separation on oil fields and oil rigs as well as general process technology.

Other types:



LBU

■ High Energy-Efficiency

- optimal enrichment and mixing of liquids with gases
- high degree of dispersion
- low velocity of flow
- optimized impeller approach flow
- low internal friction losses

■ Technical Superiority

- open impellers without axial thrust
- compensation of radial forces by means of diffuser
- direct gas input acc. to VDMA 24430

■ Process Reliability

- gas contents up to 30 %
- stable creation of micro bubbles

■ Easy Installation

- modular construction for customized solutions
- bloc-design

■ Application

- operating pressure up to 40 bar
- temperature -40° C to +140°C
- viscosity up to 115 mm²/s



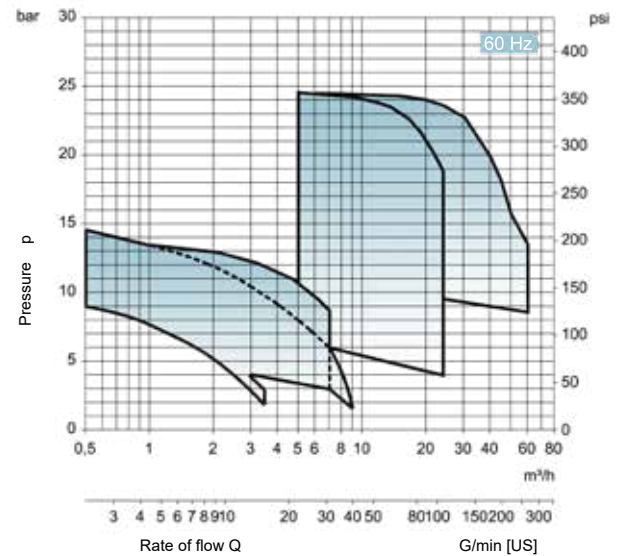
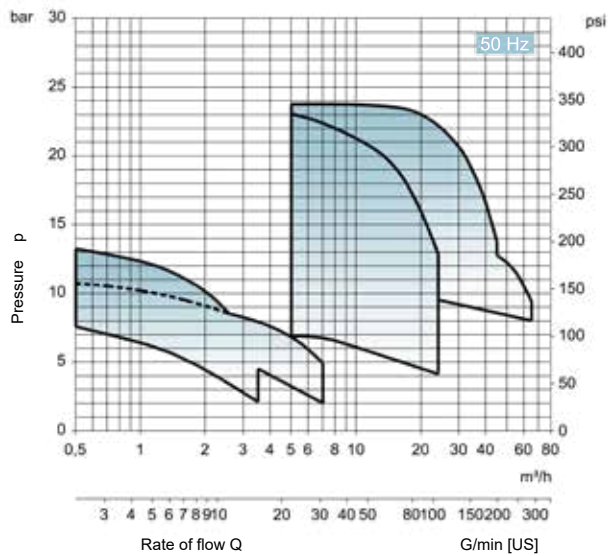


wastewater treatment
flotation
micro bubbles
biological sewage works
DAF dispersion ozonation



Multiphase
PBU LBU

Characteristics





NHE



Liquefied Gas NHE LBE

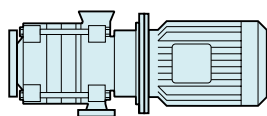
Advantages

Liquefied gas pumps are required for unloading, fuel transfer, filling and fueling processes. There are high requirements: low NPSH values, low level of pulsations transport, mixture transport, high pressure differences, low noise emissions and ATEX conformity.

The user, besides the reliable transport of liquid-gas mixtures, also expects the control of outgassing and variations of the steam pressure and more and more popular higher pump efficiencies.

The high pump efficiencies lead to low energy consumption, smaller drive assembly and to relatively compact pumps units.

Other types:



LBE

■ High Energy-Efficiency

- very high efficiencies
- optimized impeller approach flow

■ Technical Superiority

- open impellers without axial thrust or balanced closed impellers
- compensation of radial forces by means of diffuser devices in the annular casing
- single- or double acting mechanical seals and magnetic coupling optional
- NPSH inducer stages
- ATEX conformity

■ Process Reliability

- partial gas supply
- wide performance curve characteristics
- low NPSH-values

■ Easy Installation

- modular construction for customized solutions
- compact bloc- or bedplate design

■ Application

- operating pressure up to 40 bar
- temperature -40°C to $+110^{\circ}\text{C}$
- viscosity up to $115\text{ mm}^2/\text{s}$



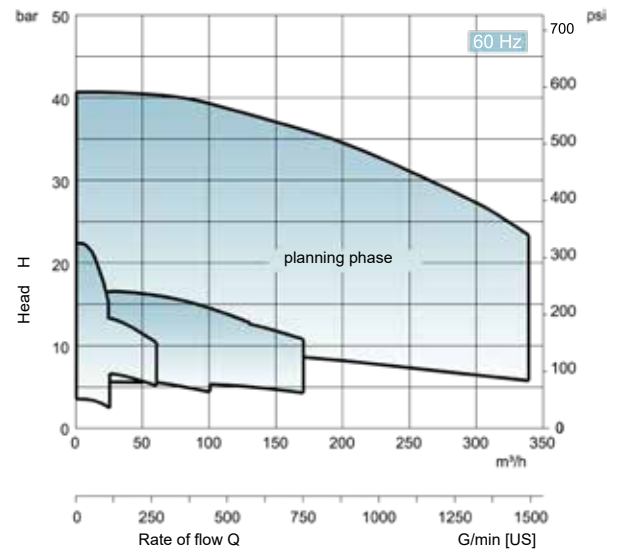
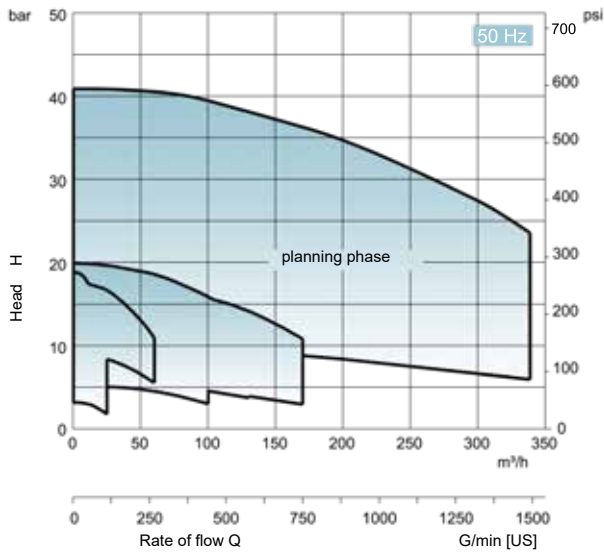


liquefied petroleum gas
 special solutions
 tank vehicles
 cooling plants
 liquefied gas systems
 filling stations



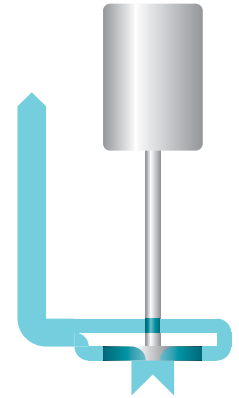
Liquefied Gas
 NHE LBE

Characteristics





CTOL



Immersed CTOL

Immersed pumps are all-purpose pumps. They are used at lack of space, poor inflow conditions, critical liquids and where dry installed pumps are disallowed. Immersed pumps have a modular design for different impeller types and pressure ranges.

Typical applications are pretreatment plants for surface treatment in which hot aggressive liquids are circulating.

Advantages

- **High Process Reliability**
 - no shaft sealing
 - no leakage outwards
 - torque-flow impeller optional
- **Easy Installation**
 - space saving design
 - modular construction for customized solutions
- **Application**
 - operating pressure up to 16 bar
 - temperature -25 °C to + 90 °C
 - viscosity up to 200 mm²/s
 - special executions for other operating conditions

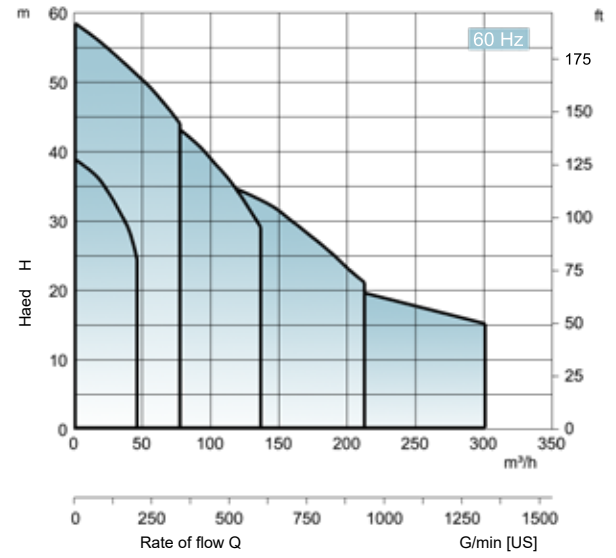
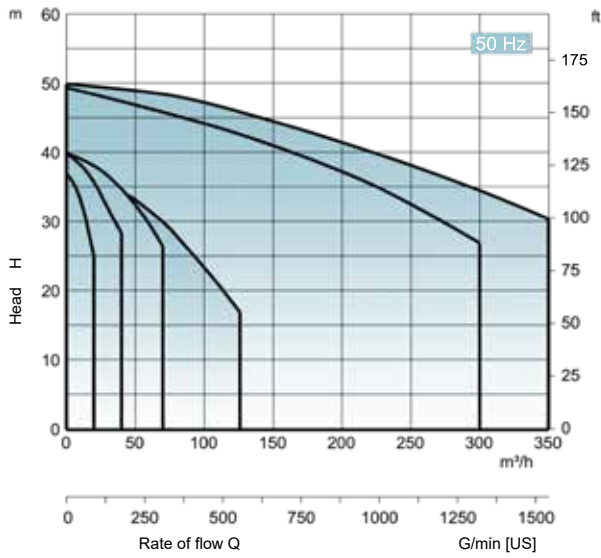


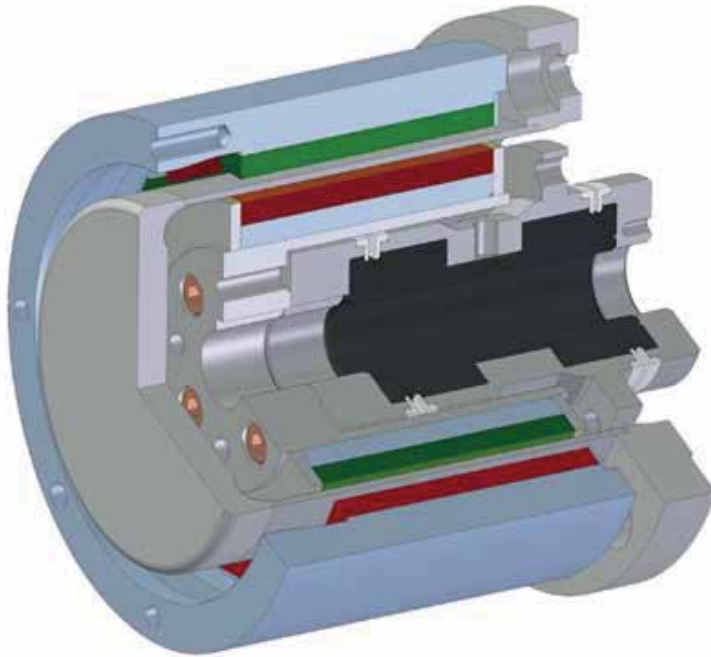


cleaning systems
 surface technology
 industry process pump
 special solutions
 plant engineering
 filtration


**Immersed
CTOL**

Characteristics





magnetic coupling



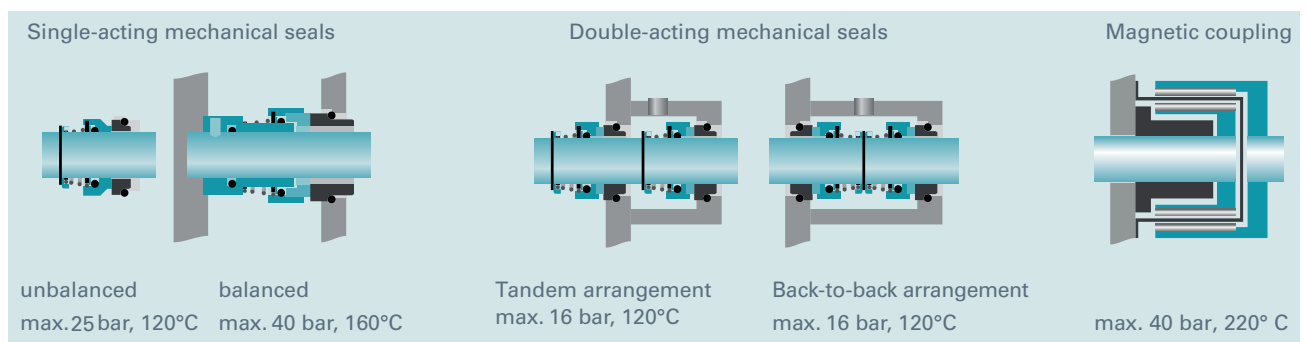
Shaft Sealing Systems

Advantages

Approx. 95% of all pump failures are caused by an incorrect or defective shaft seal. In order to avoid premature failures and to increase the service life, a careful selection of sealings based on customer requirements is essential. For standard applications various types of mechanical seals are used, meeting the operating conditions.

For executions free from leakage, on demand magnetic couplings are available with low eddy current losses. For early malfunction detection suitable sensors optionally can be used.

- **High Process Reliability**
 - maintenance free
 - use of quality brands exclusively
- **Energy-Efficiency**
 - low power losses





Materials

Casings

0.6025	EN-GJL-250	grey cast iron
0.7040	EN-GJS-400-15	nodular cast iron
2.1050.01	G-CUSn 10	bronze
1.4301	X 5 CrNi18 10	stainless steel
1.4581	G X 5 CrNiMoNb 19 11 2	stainless steel
1.4517.01	G X 3 CrNiMoN 25 6 3	super duplex

Impellers

0.6025	EN-GJL-250	grey cast iron
0.7050	EN-GJS-500-7	nodular cast iron
2.1052.01	G-CUSn 12	bronze
1.4301	X 5 CrNi18 10	stainless steel
1.4517.01	G X 3 CrNiMoCuN 25 6 3 3	super duplex

Shafts

1.4057	X 22 CrNi 16 2	stainless steel
1.4301	X 5 CrNi 18 10	stainless steel
1.4460	X 4 CrNiMoN 27 5 2	stainless steel
1.4462	X 2 CrNiMoN 22 5 3	stainless steel
1.4501	X 2 CrNiMoCuWN 25 7 4	super duplex

Additional material executions and coatings on request

Certificates

- **Certification reports according to**
 - EN 10204 - 2.2
 - EN 10204 - 3.1
- **Test certificates according to**
 - EN 9906 II
- **Inspection and approval acc. to classification society specifications**
- **Special tests according to customer requirements**

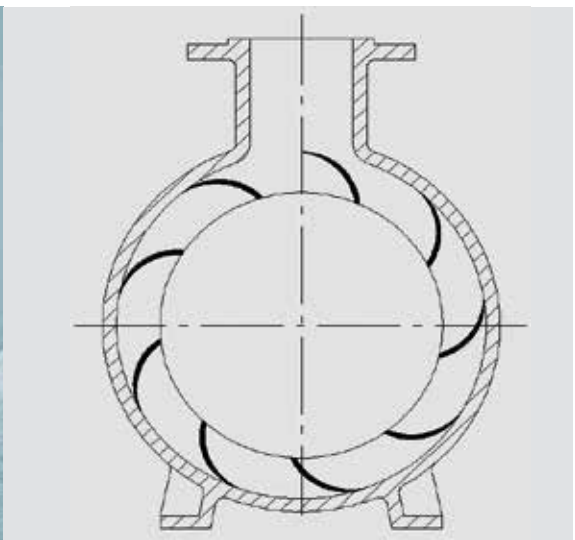
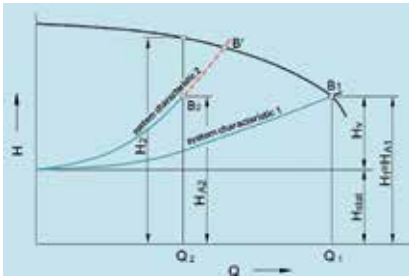


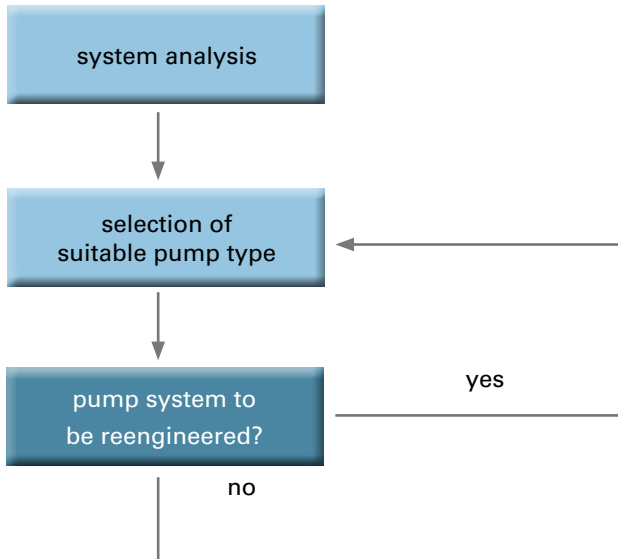


Energy Efficiency

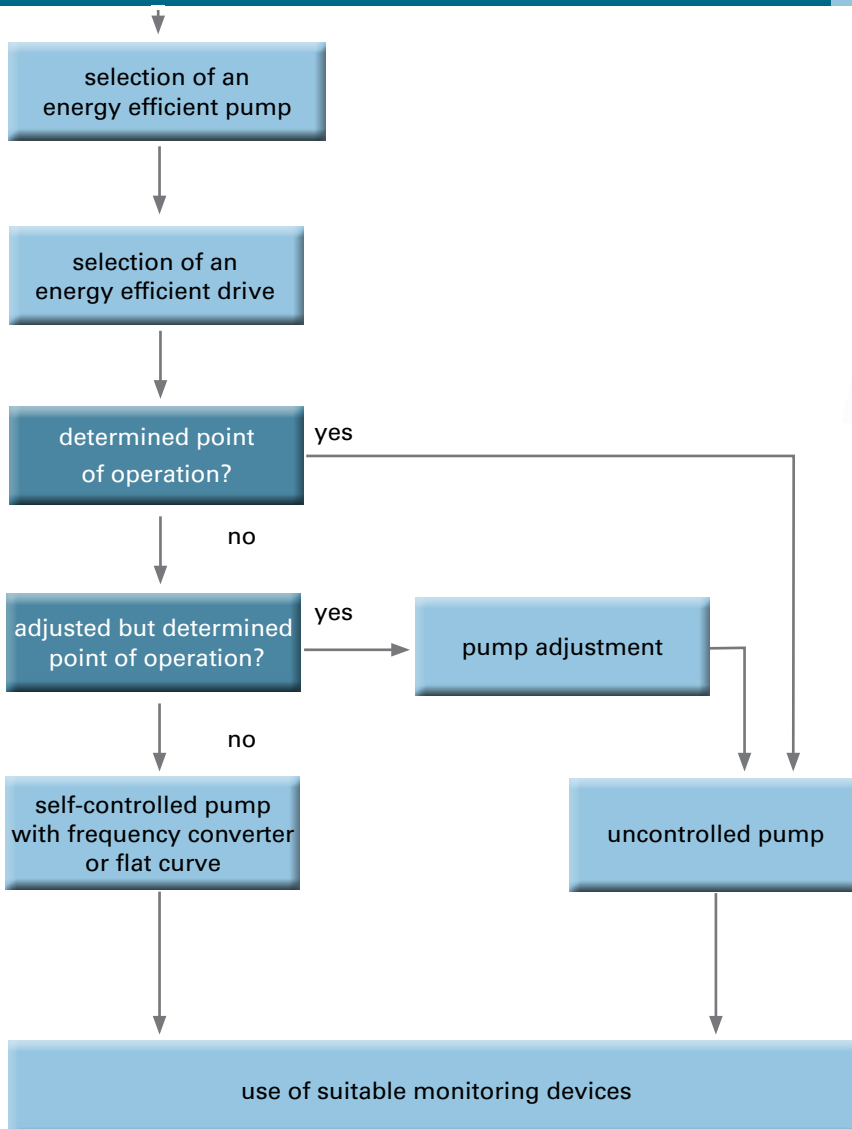
A precondition for high energy-efficiency is the analysis of the entire pump system and the pump periphery as well. Usually highly energy-efficient pumps, drives and control conceptions are the only focus for optimizing.

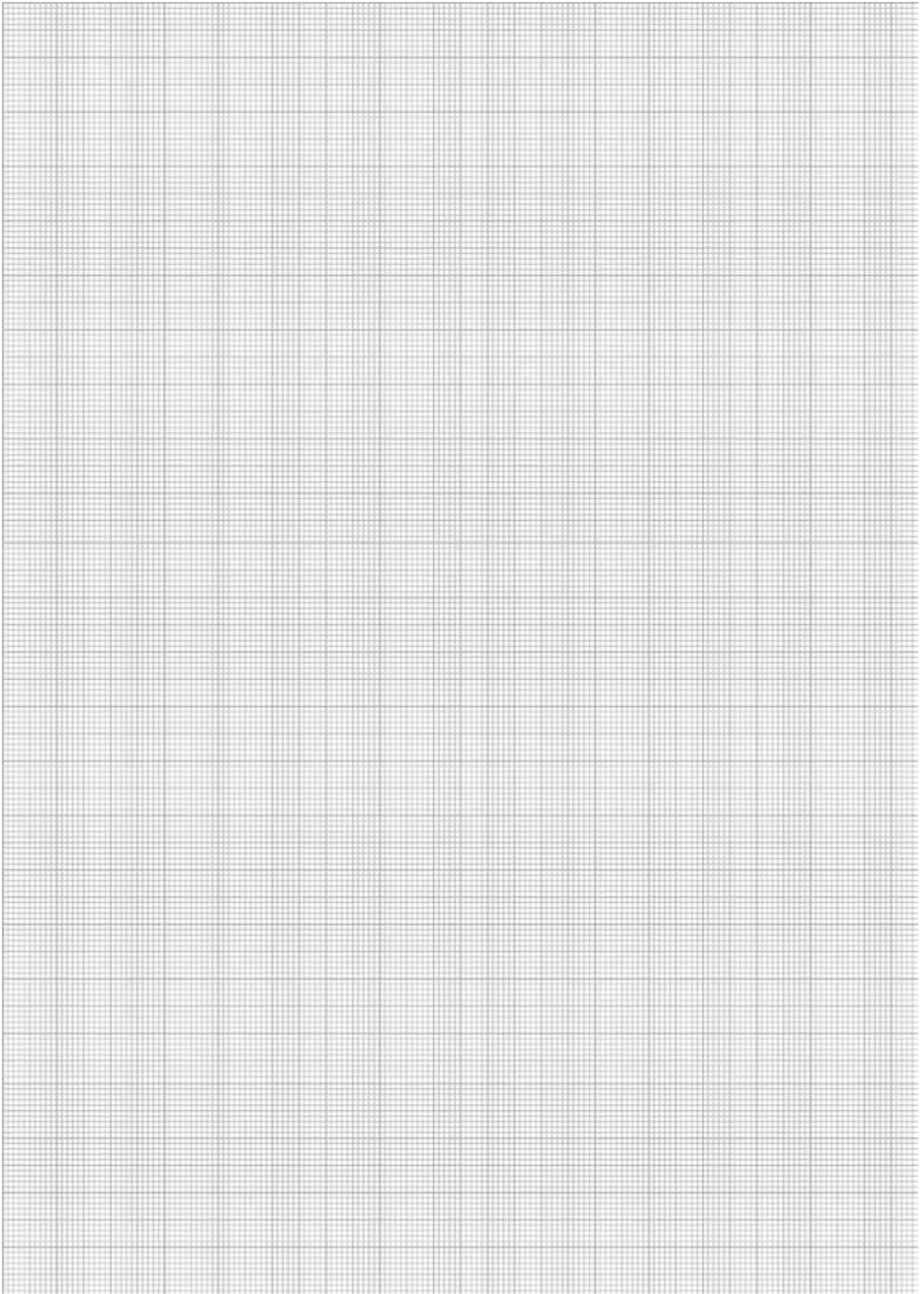
In this process substantial savings already occur during the revision of the pump environment. At the same time, the process reliability must not be neglected for all system optimization measures.

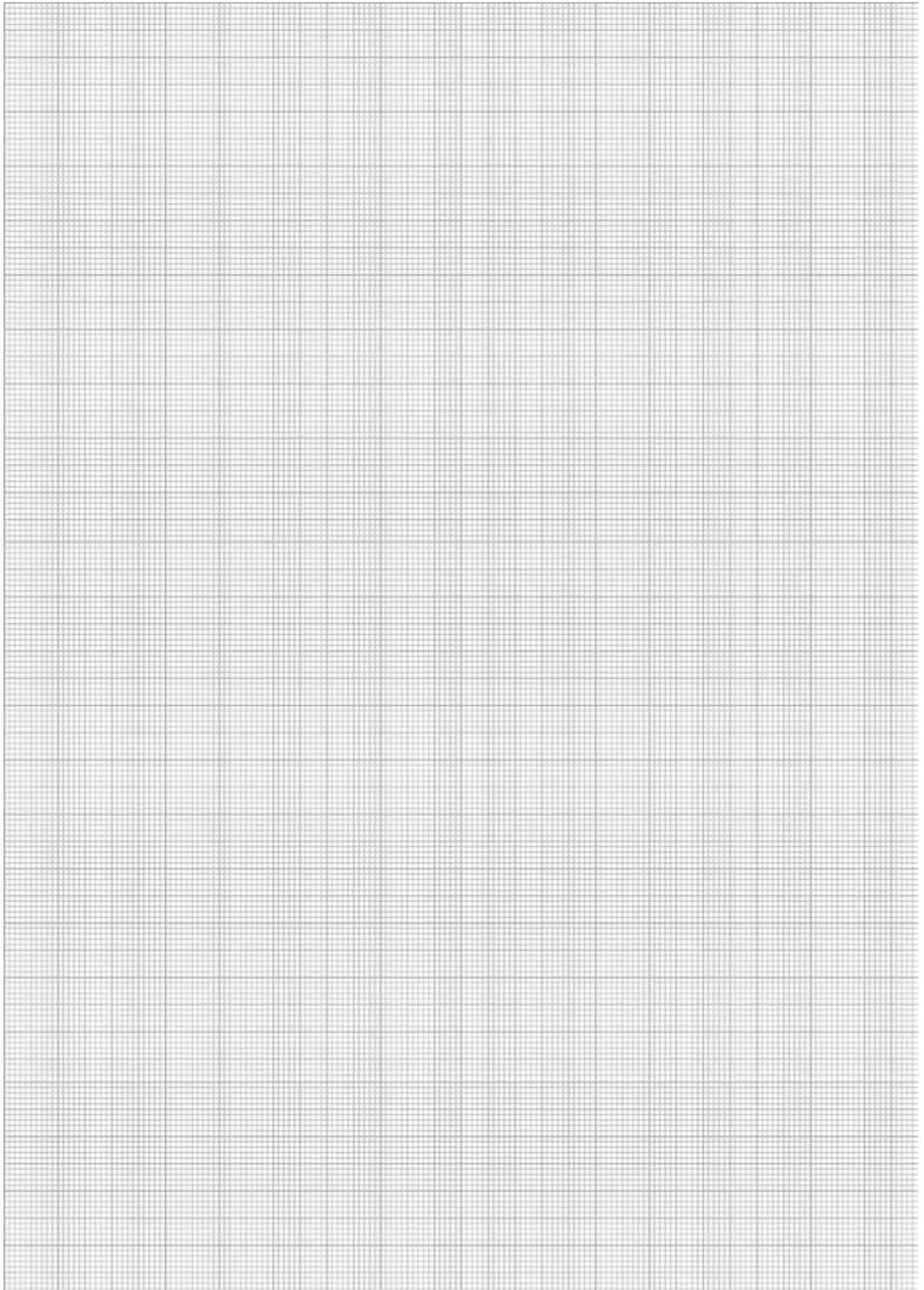


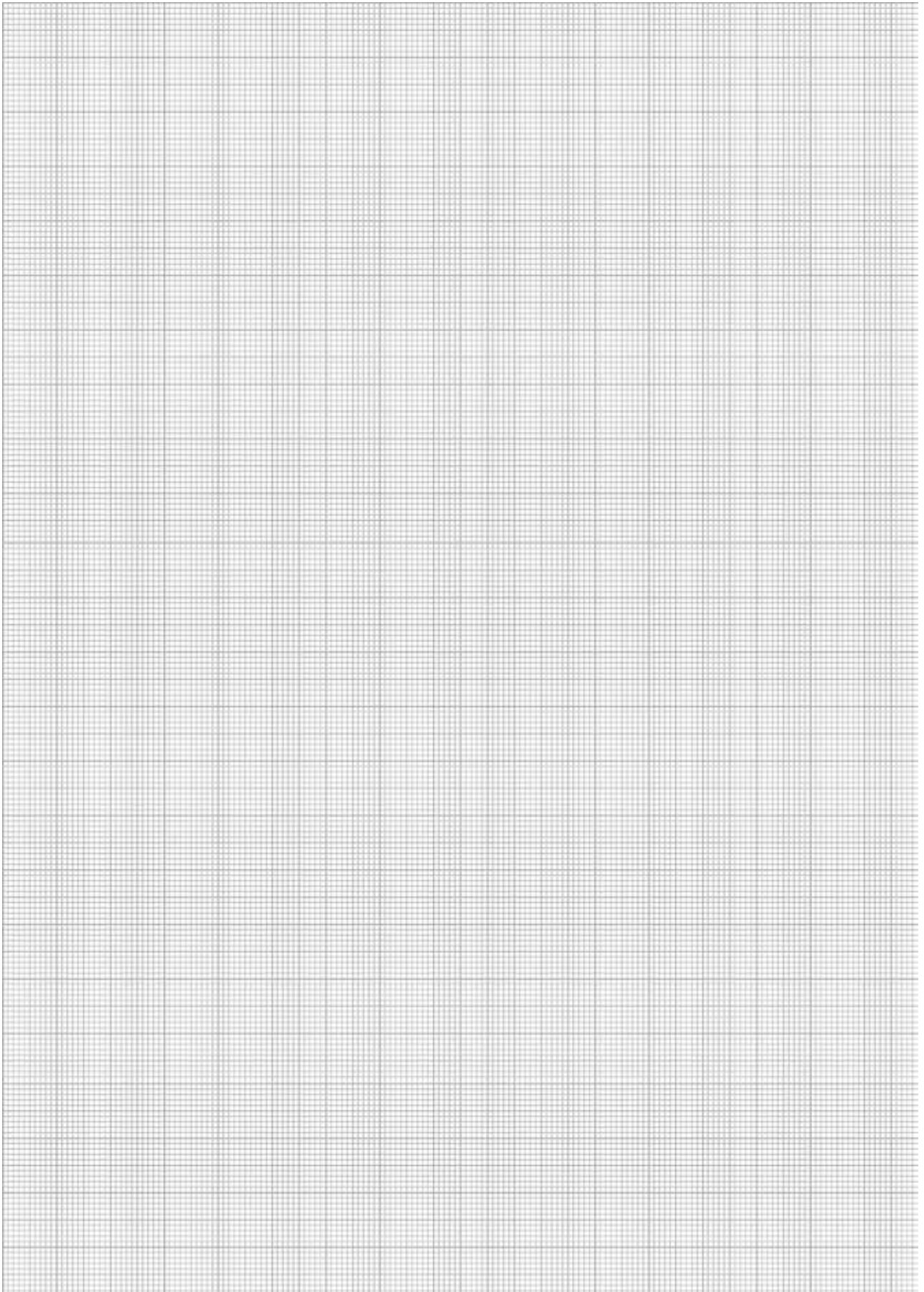


▶ Pump Audit









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Since 1927 the most modern pumps are produced in the highly specialized EDUR-Pumpenfabrik. With high demand on quality and latest technology, EDUR centrifugal pumps are setting standards.



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Apart from process-attendant quality assurance proceedings every EDUR pump is subjected to a computer controlled final inspection. During this pressure, tightness, true characteristic curves and power input are tested and documented. Made by EDUR - 100% tested according to EN 9906.

The success in the world market is the result of excellent engineering, innovative production technology and a forward-looking company philosophy, where owner, management and employees feel obliged to. As a partner we are available to our customers, to realize the promise to work for them at the highest quality level, with the best production tools and latest information.

That's **EDUR**



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