DÜCHTING PUMPEN

Product PORTFOLIO

www.DUECHTING.com

MAX. FLOW	MAX. PRESSURE	MAX. DENSITY	PH - VALUE	MAX. PARTICLE SIZE	MATERIAL	TYPE
1500 m³/h (6600 gpm)	16 bar (230 PSI)	1,700 g/l	0 - 13	5 mm (0,2 inch)	SICast	MC
20000 m³/h (88000 gpm)	6 bar (90 PSI)	1,700 g/l	0 - 13	5 mm (0,2 inch)	SICast	MCC
320 m³/h (1400 gpm)	10 bar (150 PSI)	1,700 g/l	0 - 13	5 mm (0,2 inch)	SICast	MCS
12500 m³/h (55000 gpm)	8 bar (120 PSI)	1,700 g/l	0 - 13	5 mm (0,2 inch)	SICast	MCV
12000 m³/h (52800 gpm)	16 bar (230 PSI)	1,700 g/l	0 - 14	100 mm (4 inch)	Various metals	WR
9000 m³/h (40000 gpm)	16 bar (230 PSI)	2,500 g/l	0 - 14	240 mm (9 inch)	Various metals	WRX
1200 m³/h (5250 gpm)	10 bar (150 PSI)	1,700 g/l	0 - 14	10 mm (0,04 inch)	Various metals	WRS
4000 m³/h (17600 gpm)	16 bar (230 PSI)	1,700 g/l	0 - 14	50 mm (2 inch)	Various metals	WRV / WRXV
4200 m³/h (18500 gpm)	100/ 15 bar 1450/ 220 PSI	1,250 g/l	0 - 14	1 mm (0,04 inch)	Various metals	IP
3500 m³/h (15400 gpm)	100 bar (1450 PSI)	1,250 g/l	0 - 14	1 mm (0,04 inch)	Various metals	HPH
3500 m³/h (15400 gpm)	250 bar (3600 PSI)	1,250 g/l	0 - 14	1 mm (0,04 inch)	Various metals	HPE
2500 m³/h (11000 gpm)	40 bar (580 PSI)	1,400 g/l	0 - 14	4 mm (0,16 inch)	Various metals	HPXL / HPXLV
3250 m³/h (15000 gpm)	160 bar (2300 PSI)	1,400 g/l	0 - 14	4 mm (0,16 inch)	Various metals	HPXU / HPXM

Index

Company Profile

1 Quality through experience

Pump Type **MC**

2 **MC** Design

Pump Type **MCC**

6 **MCC** Design

Pump Type **MCS**

10 **MCS** Design

Pump Type **MCV**

14 **MCV** Design

SICcast

18 The unique Material

Pump Type **WR**

22 **WR** Design

Pump Type **WRX**

26 **WRX** Design

Pump Type **WRS**

30 **WRS** Design

Pump Type **WRV / WRXV**

34 **WRV / WRXV** Design

Pump Type **IP**

38 **IP** Design

Pump Type **HPH**

42 **HPH** Design

Pump Type **HPE**

46 **HPE** Design

Pump Type **HPXL / HPXLV**

50 **HPXL / HPXLV** Design

Pump Types **HPXU / HPXM**

54 **HPXU / HPXM** Design

58 Tailormade Solutions
59 Retrofit
60 Life-Cycle-Costs
61 Quality Assurance // Try & Buy
62 Service
63 DP International

New Productline: **Suction Dredgers**

64 Habermann Suction Dredger by DÜCHTING

FLUE GAS DESULFURIZATION

The flue gas cleaning in Germany started with the adoption of the „Großfeuerungsverordnung“ - a regulation for open fire - in 1982. From the very beginning DÜCHTING PUMPEN took part in this business and today has one of the largest populations in European power stations. With the development of the material **SICcast** now almost every FGD pump is built completely in **SICcast**. Through this unique and innovative technology our products are increasingly favored beyond the borders of Europe.

WATER TREATMENT

DÜCHTING PUMPEN has worked in desalination with high-pressure centrifugal pumps in reverse osmosis now since the early 90s. While the demand for higher quantities and pressures has risen over the past years DP has kept up with the development and can now offer high-pressure pumps, including energy recovery units. The materials used for these pumps have been proven in numerous applications and the performance data has been adjusted to market demands by means of CFX programs.

MINING

Since the early 50s DÜCHTING has supplied pumps to the mining industry, especially German hard coal mining - at first only as maintenance and primarily with respect to underground mining. In the following years new pumps and wear-resistant centrifugal pumps for the processing of coal were added. Today DÜCHTING PUMPEN covers the entire market for centrifugal pumps in mining including high-pressure cooling centrifugal pumps.

INDUSTRY / OIL & GAS

The chemical industry profits from the **SICcast** - material of DÜCHTING PUMPEN.
As far as this field of application is concerned the high chemical resistance of **SICcast** is of primary importance: its corrosion resistance with respect to acids will even exceed that of Ni-alloys.
These pumps are entirely metal free in all wetted areas - even the single- or double-acting mechanical seals.

Quality through experience

DÜCHTING PUMPEN is a privately owned German company with experience in the field of advanced centrifugal pumps for use in many different industries since 1938.

Our motto “Quality Through Experience” forms the basis of our sophisticated product range. The capabilities of our company in the construction, manufacturing, testing and commissioning of our products is highly respected in the industries we serve.
Our reputation is based on a sustainable company policy, focusing on efficiency, reliability, innovation and thorough customer after-sales service which is provided by partners in the countries where our products are installed.
In order to meet the current demand for highly efficient and reliable products in seawater desalination, DÜCHTING PUMPEN offers optimized high-pressure pumps and energy recovery turbine units. To minimize total energy costs in high pressure seawater desalination plants, we are at your service during both design and operation.

For a digital overview visit www.DUECHTING.com

Mineral cast pump

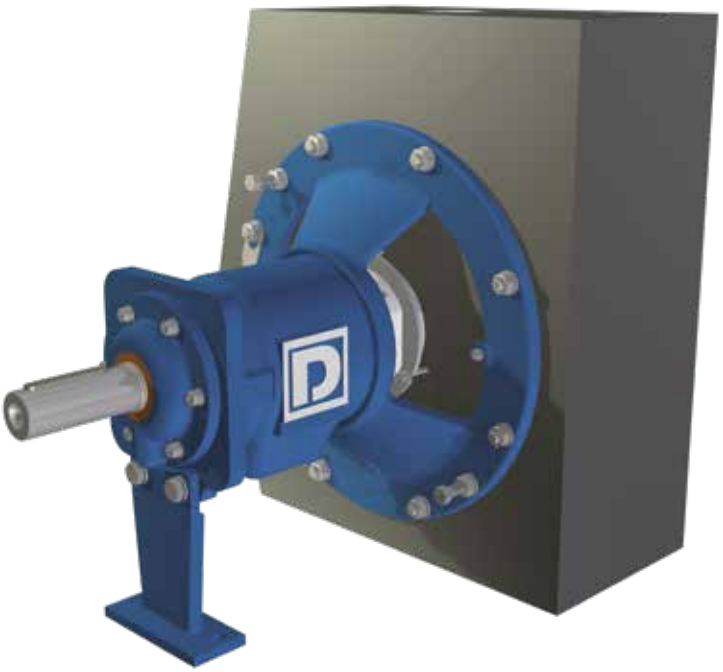
TYPE MC

Extremely high abrasion and corrosion resistant.

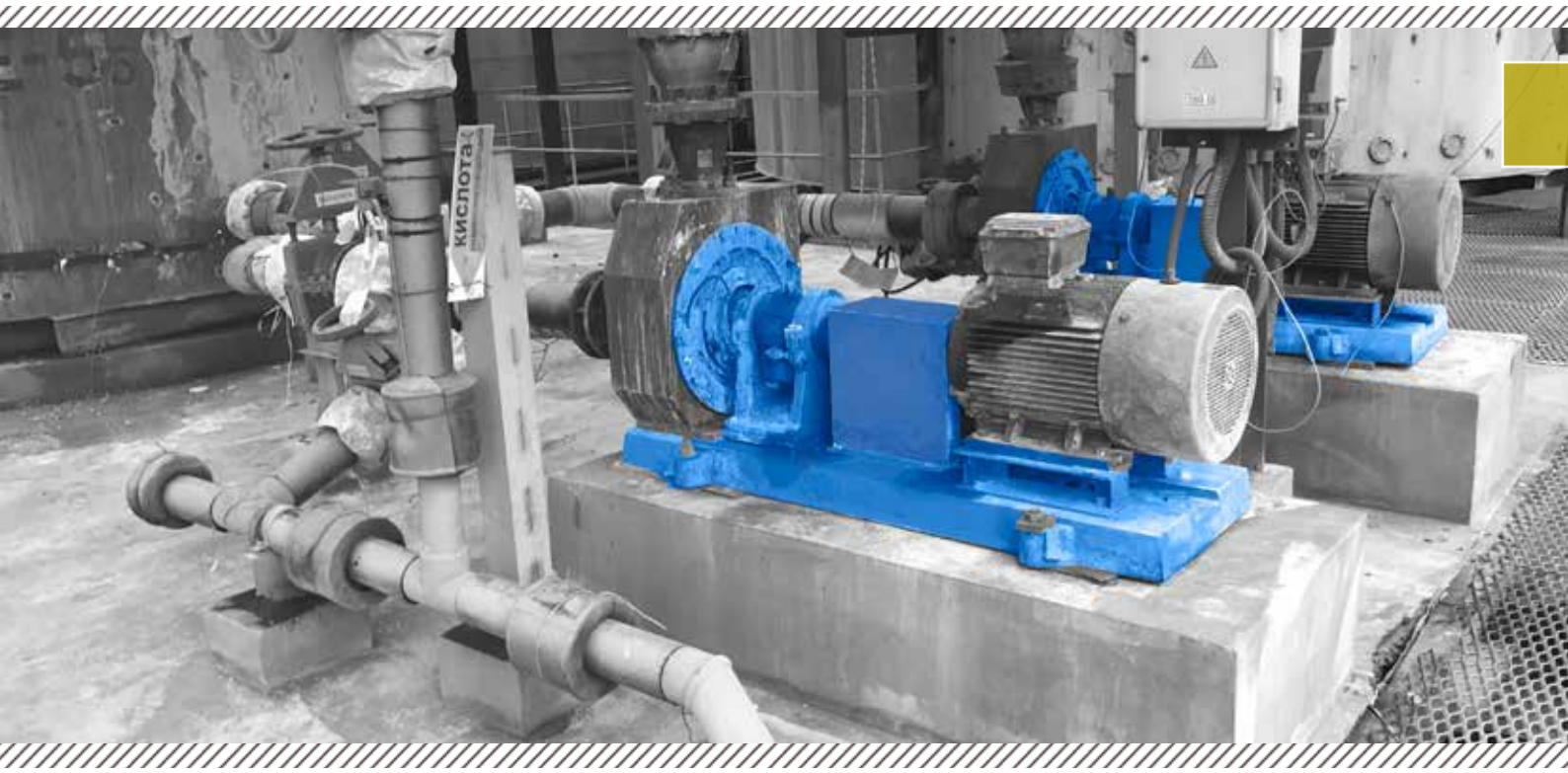
MC Design

Horizontal single-stage centrifugal pump in back pullout design.

- Pumping of abrasive and corrosive liquids
- All components which are in contact with the liquid are made of **SICcast**
- Suction flange: Axial
- Discharge flange: Top (Vertical)



- Open or closed impeller with spatially curved vanes
- Impeller fastening by feather key; reverse rotation (e.g. back-flushing) is possible
- Re-adjustable inclined gap between impeller and volute casing to optimize the efficiency and differential pressure after longer operation
- Single acting, metal free mechanical seal **DÜTEC®** with springs located outside of the liquid (other seal types available)
- Oil-lubricated antifriction bearings
- Back pullout design (the complete rotating assembly can be removed while the casing remains on its position)
- In many applications the wear life of **SICcast** greatly exceeds convential materials
- Available with heavy-duty bearing units for extreme applications
- Optimized design ensures easy maintenance and long service life even under difficult conditions



Fields of Application

Pumping of abrasive and corrosive liquids.

- Flue gas desulfurization
- Incinerators
- Pigment industry
- Chemical industry
- Water treatment
- Seawater desalination
- Fertilizer industry / Potash industry

Materials

Volute casing:	**SICcast**
Impeller:	**SICcast**
Shaft:	1.4462
Mechanical seal:	Silicon carbide (SIC)

ATEX

Technical Data

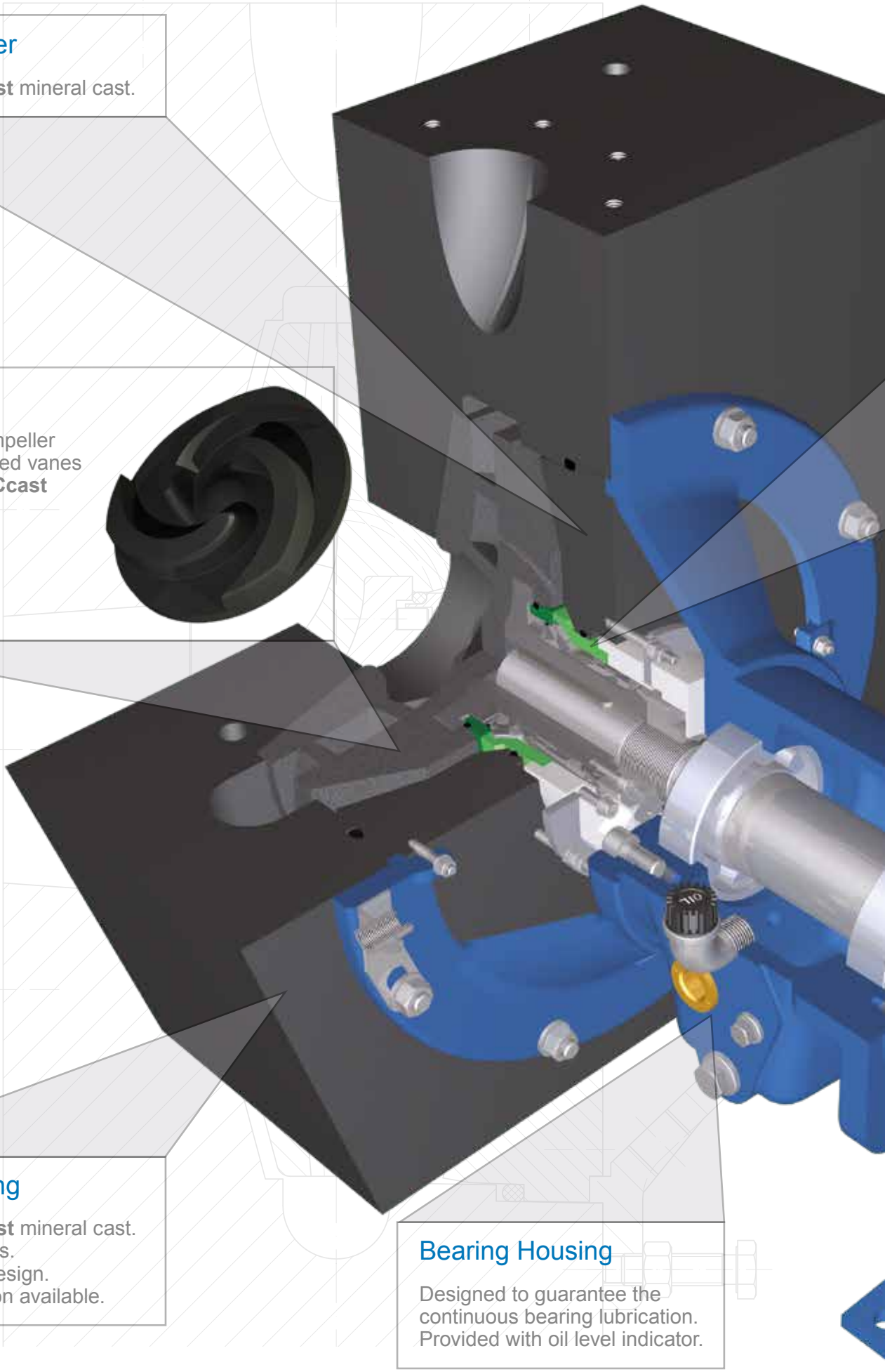
Pump Size:	**DN 32 to DN 300** (1 1/4“ to 12“)
max. Pressure:	**16 bar** (230 PSI)
max. Flow:	**1500 m³/h** (6600 gpm)
Total head:	**up to 90 m** (300 ft)
Rotating Speed:	**up to 3600 rpm**

Casing Cover

Made of **SICcast** mineral cast.

Impeller

Open or closed impeller with spatially curved vanes constructed in **SICcast** mineral cast.



Volute Casing

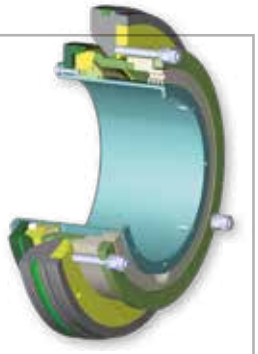
Made of **SICcast** mineral cast.
Flat face flanges.
Unique block design.
Drain connection available.

Bearing Housing

Designed to guarantee the continuous bearing lubrication.
Provided with oil level indicator.

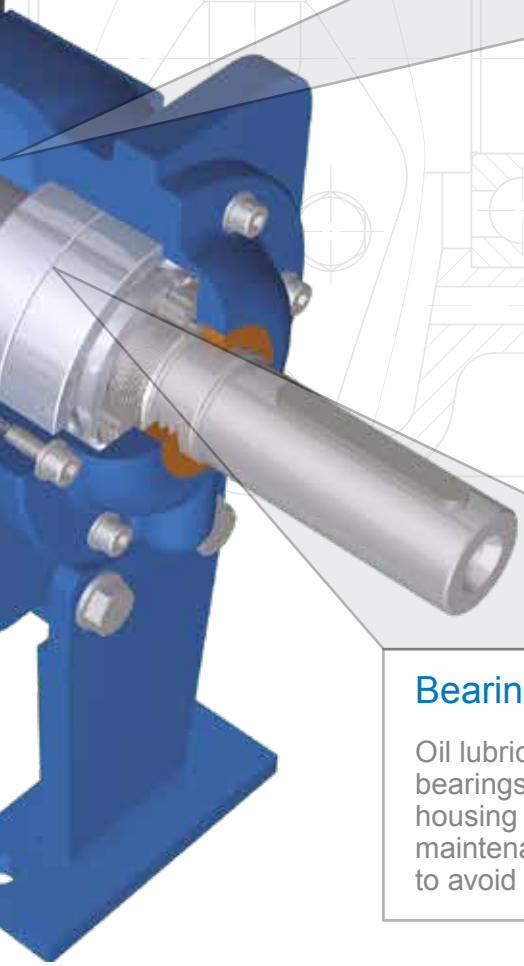
DÜTEC®

Proprietary single acting mechanical seal **DÜTEC®**. The pressure springs arranged outside the space exposed to the liquid.



Rotor

Back pullout design to expedite the maintanance work.



Bearings

Oil lubricated antifriction bearings. Cast iron bearing housing provided with maintenance free labyrinth seals to avoid oil leakages.

Mineral cast pump

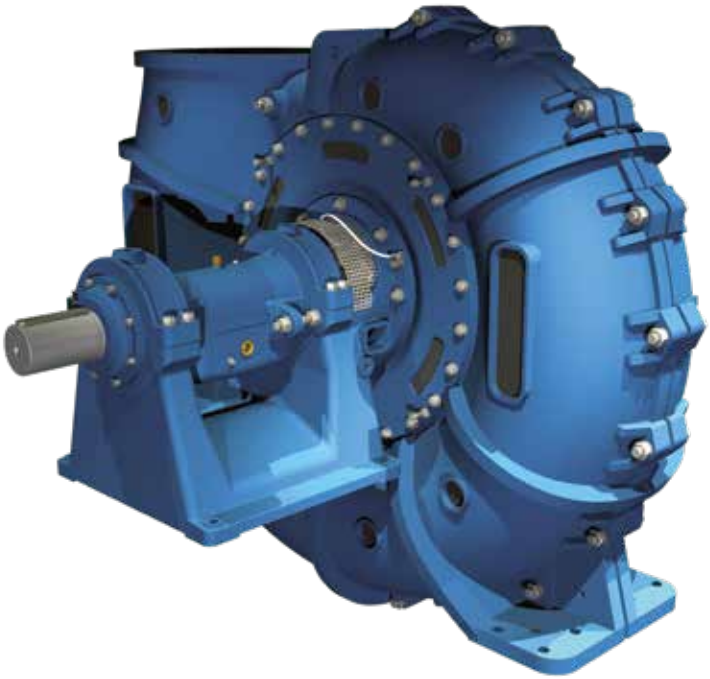
TYPE MCC

Extremely high abrasion and corrosion resistant.

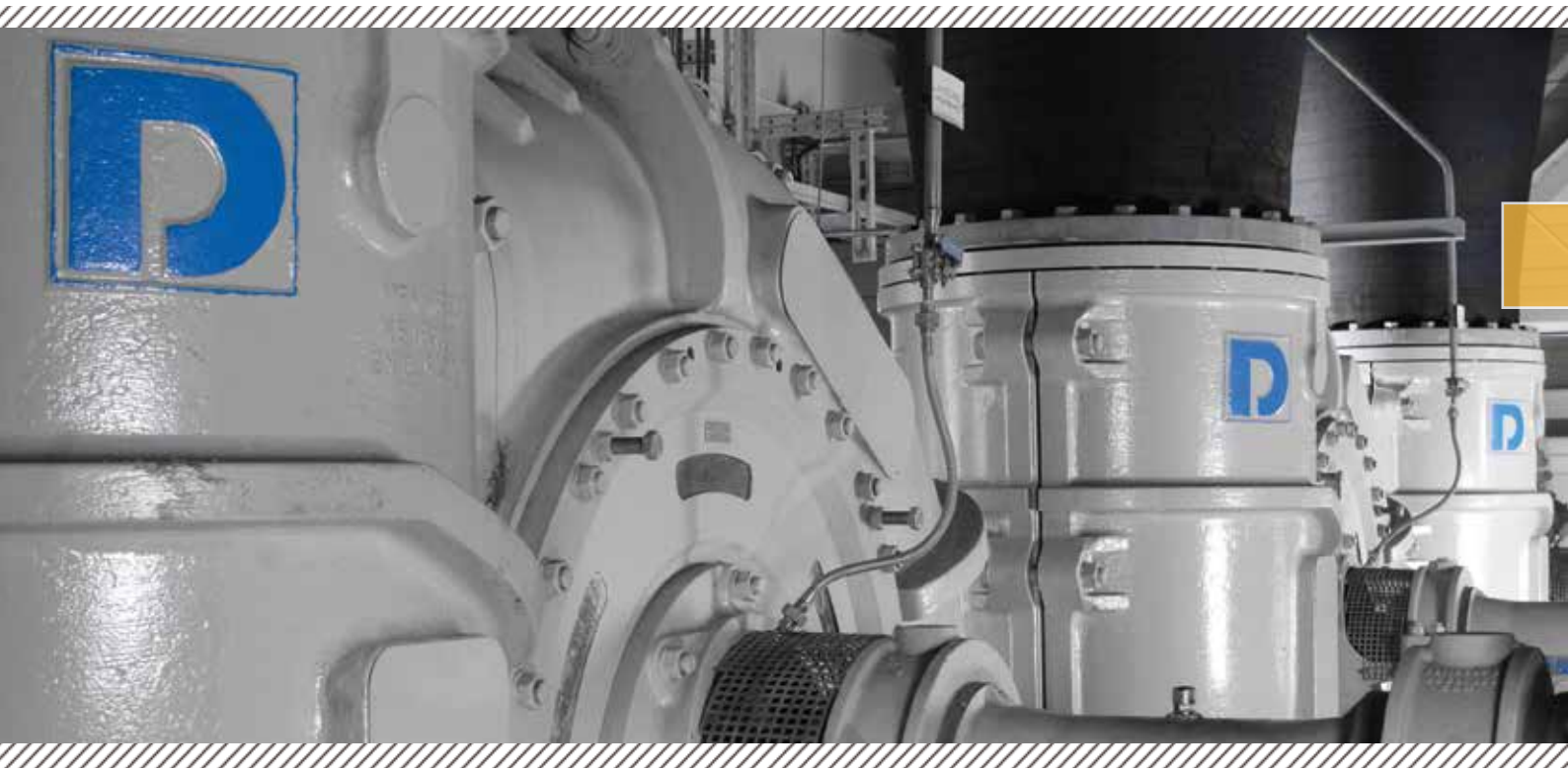
MCC Design

Horizontal single-stage centrifugal pump in back pullout design.

- Pumping of abrasive and corrosive liquids
- All components which are in contact with the liquid are made of **SICcast**
- Suction flange: Axial
- Discharge flange: Top (Tangential)



- Closed impeller with spatially curved vanes
- Impeller fastening by feather key; reverse rotation (e.g. back-flushing) is possible
- Re-adjustable inclined gap between impeller and wear plate to optimize the efficiency and differential pressure after longer operation
- Single acting, metal free cartridge mechanical seal **DÜTEC**®-C with springs located outside of the liquid
- Durable, oil-lubricated roller bearings
- Back pullout design (the complete rotating assembly can be removed while the casing remains on its position)
- In many applications the wear life of **SICcast** greetly exceeds conventional materials
- The patented design allows the production of extremely large pumps at low costs
- Currently, the most advanced and most durable technology for FGD absorber recirculation pumps



Fields of Application

Pumping abrasive and / or corrosive liquids.

- Flue gas desulfurization
- Incinerators
- Water treatment
- Seawater desalination

Materials

Volute casing:	**SICcast** / EN-GJS-400-15 (GGG40)
Impeller:	**SICcast**
Wear plate:	**SICcast**
Shaft:	1.0503 (C45)
Shaft sleeve:	1.4301 (1.4462)
Mechanical seal:	Silicon carbide (SIC)

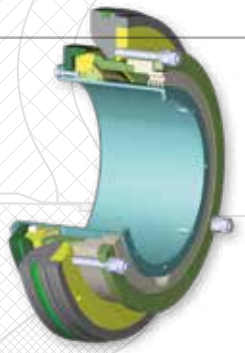
Technical Data

Pump Size:	**DN 400 to DN 1000** (16“ to 40“)
max. Pressure:	**6 bar** (90 PSI)
max. Flow:	**20000 m³/h** (88000 gpm)
Total head:	**up to 40 m** (130 ft)
Rotating Speed:	**up to 1200 rpm**

DÜTEC® - C

The cartridge mechanical seal **DÜTEC®**-C consists of a rotating and a stationary unit which are assembled separately.

This derivative of the established **DÜTEC®** mechanical seal was especially geared towards this pump series and for the conveyance of corrosive and abrasive liquids.

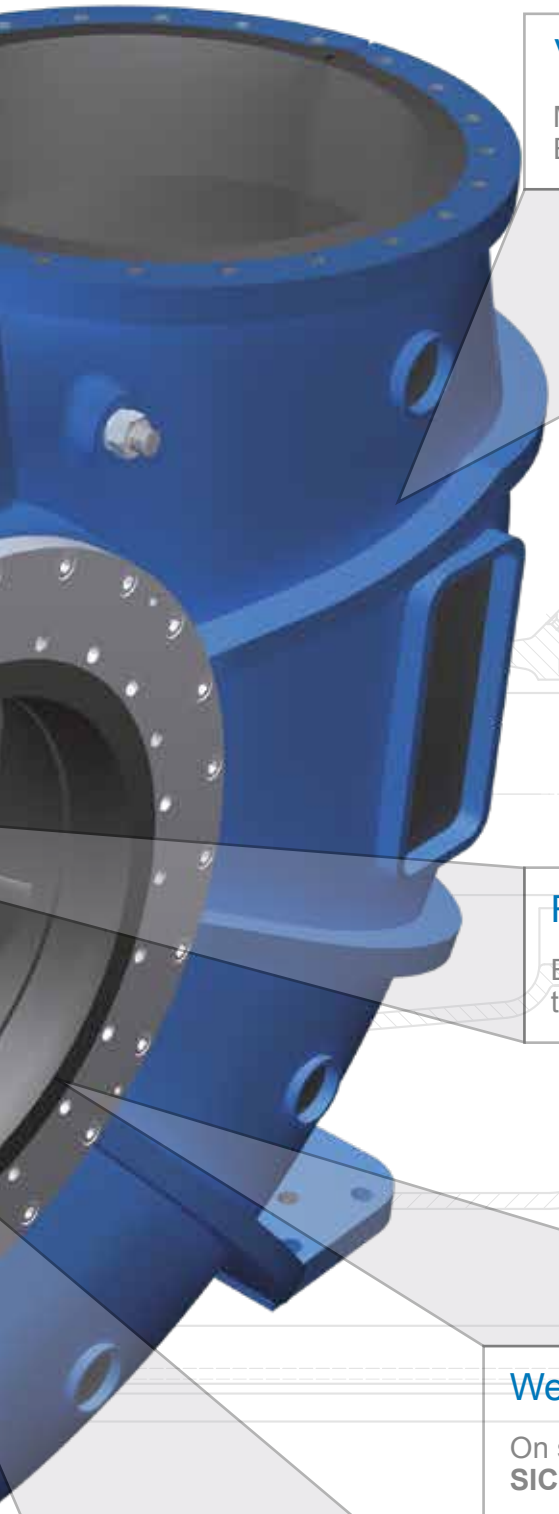


Bearings

Oil lubricated antifriction bearings. Cast iron bearing housing provided with maintenance free labyrinth seals to avoid oil leakages.

Casing Cover

Made of **SICcast** mineral cast/ EN-GJS-400-15 (GGG40).



Volute Casing

Made of **SICcast** mineral cast/ EN-GJS-400-15 (GGG40).

Rotor

Back pullout design to expedite the maintanance work.

Wear Plate

On suction side made of **SICcast** mineral cast.

Impeller

Closed impeller with spatially curved vanes constructed in **SICcast** mineral cast.

Submersible mineral cast pump

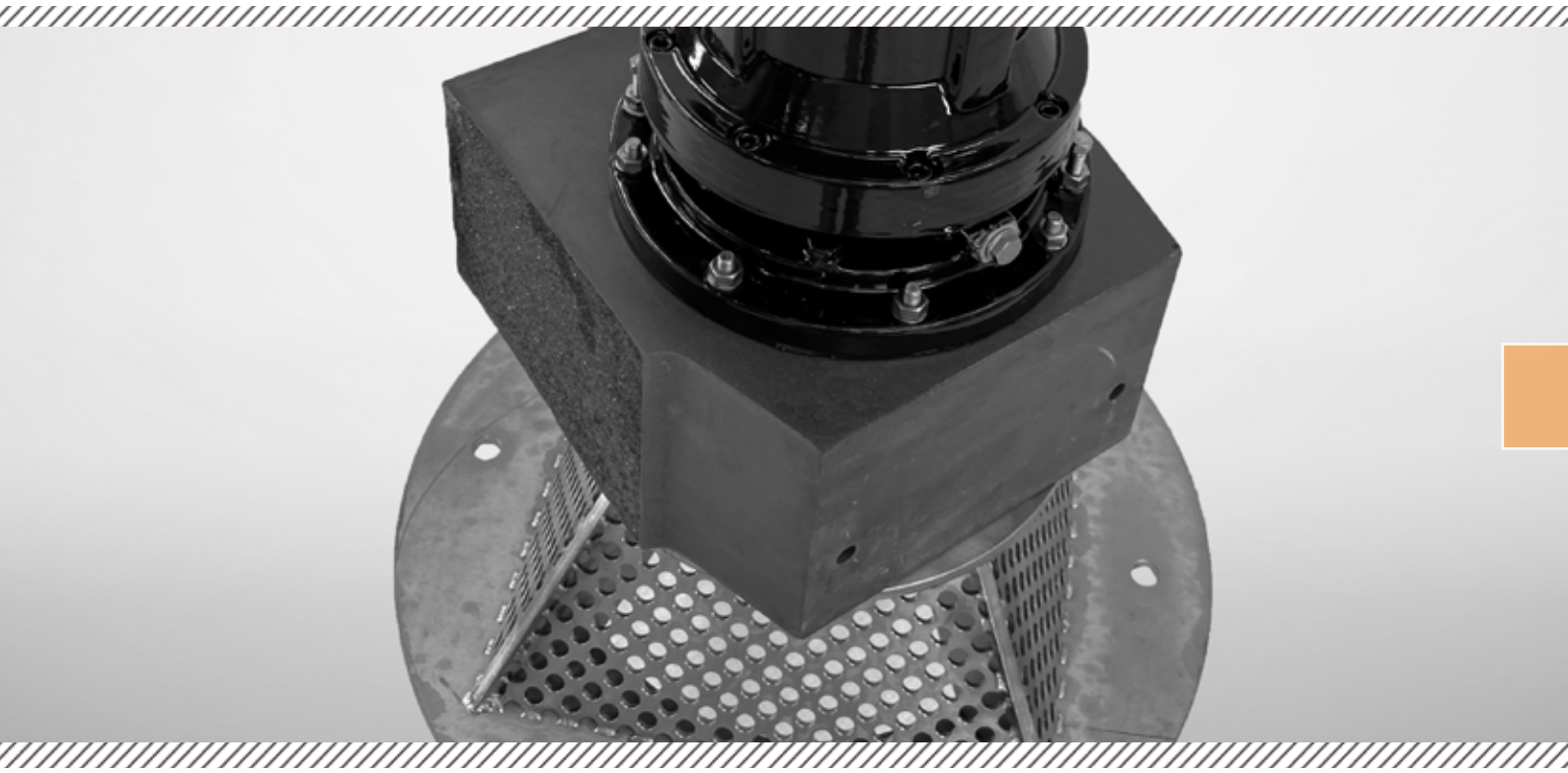
TYPE MCS

Extremely high abrasion and corrosion resistant.

MCS Design

Submersible single-stage centrifugal pump.

- Pumping of abrasive and corrosive liquids
- Main hydraulic components are made of **SICcast**
- Suction flange: Vertical (including suction strainer)
- Discharge flange: Radial
- Open or closed impeller with spatially curved vanes
- Moisture sensor in an oil reservoir between pump and motor
- IP68 submersible motor
- Optimized design ensures easy maintenance and long service life even under difficult conditions



Fields of Application

Handling of abrasive and corrosive liquids.

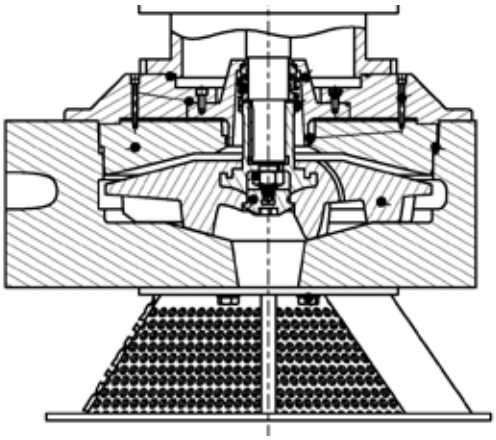
- Flue gas desulfurization
- Chemical industry
- Water treatment
- Seawater desalination
- Fertilizer industry / potash industry

Materials

Volute casing:	**SICcast**
Impeller:	**SICcast**
Shaft:	1.4462
Mechanical seal:	Silicon carbide (SIC)

Technical Data

Pump Size:	**DN 32 to DN 150** (1 ¼" to 6")
max. Pressure:	**10 bar** (150 PSI)
max. Flow:	**320 m³/h** (1400 gpm)
Total head:	**up to 90 m** (295 ft)
Rotating Speed:	**up to 3600 rpm**



Motor

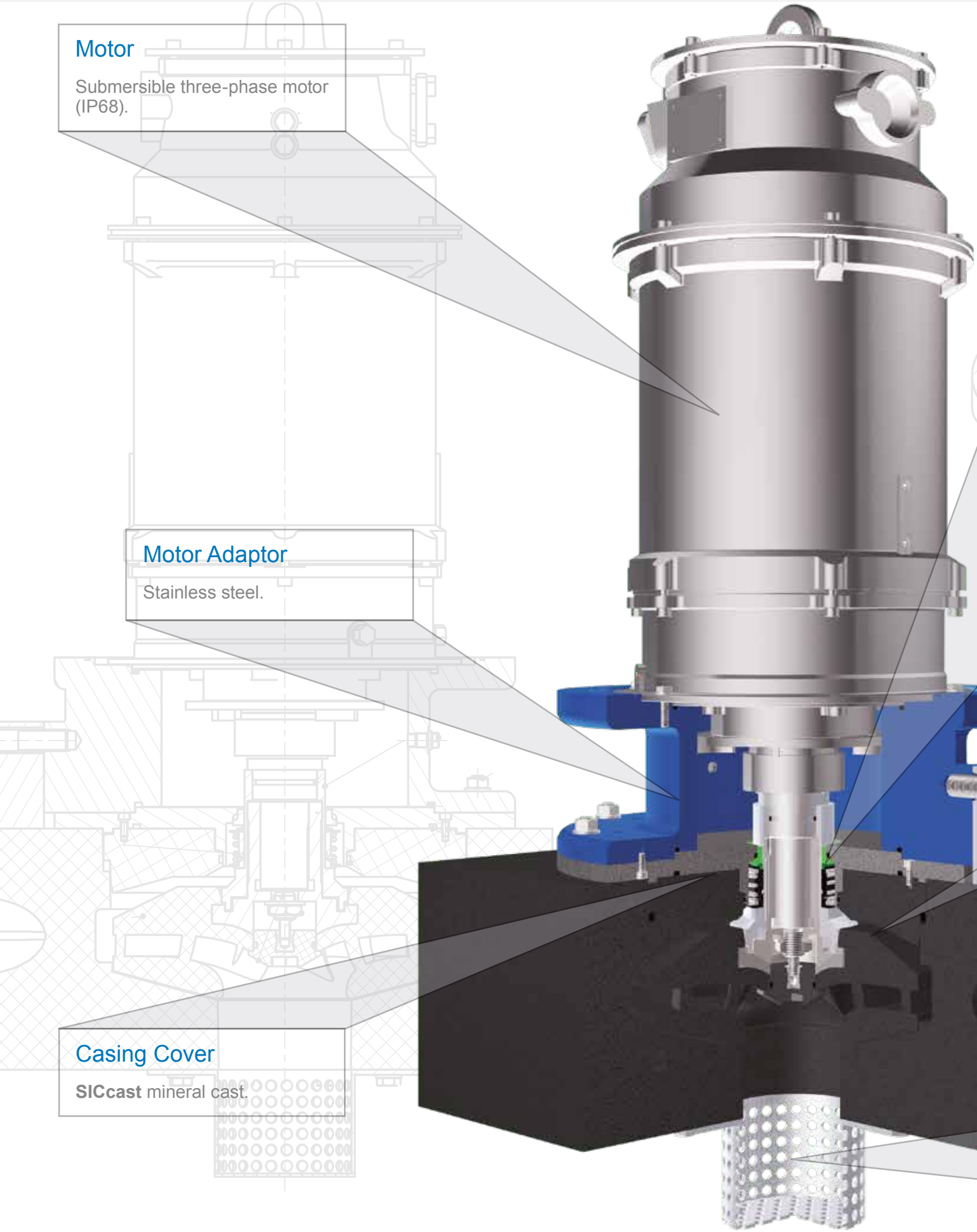
Submersible three-phase motor (IP68).

Motor Adaptor

Stainless steel.

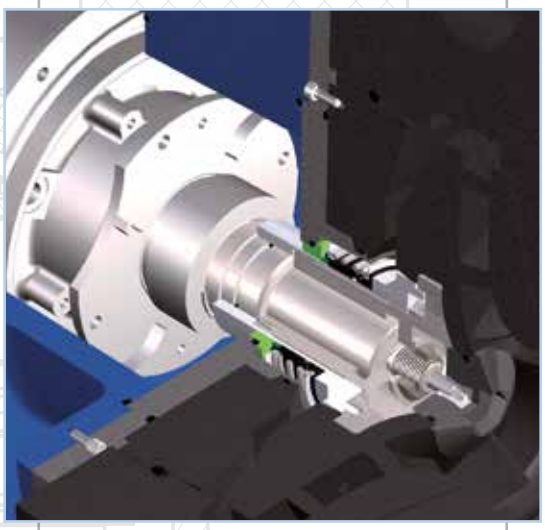
Casing Cover

SICcast mineral cast.



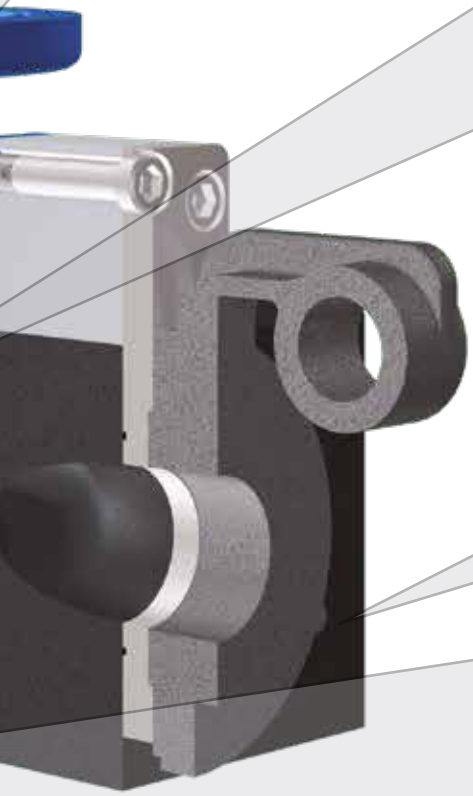
Impeller

Open or closed impeller with spatially curved vanes made of **SICcast** mineral cast.



Double acting mechanical seal

Single acting mechanical seal arrangement.



Volute Casing

SICcast mineral cast.

Strainer

Suction side strainer protect the pump from entry of large particles.

Vertical turbine pump

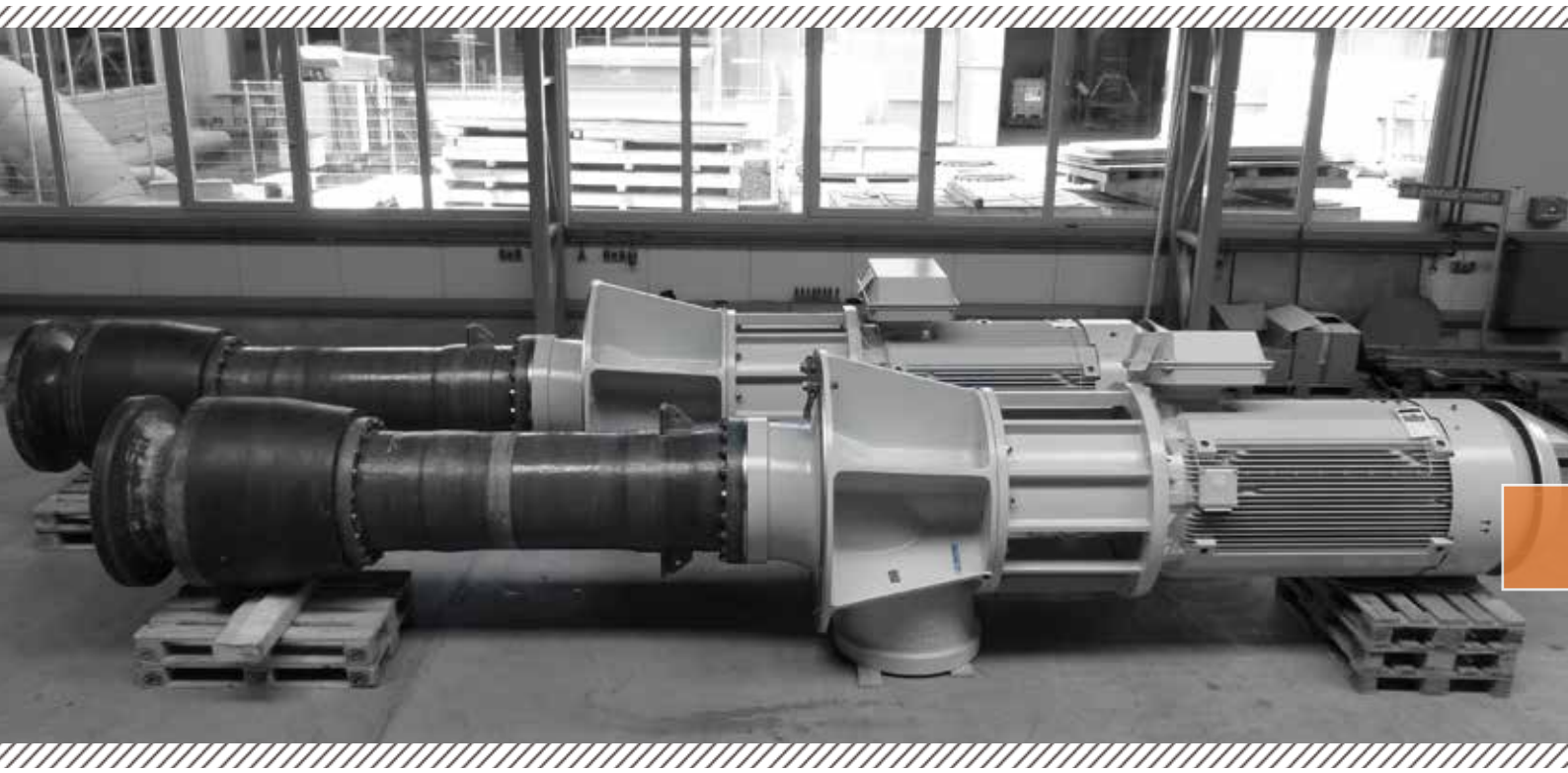
TYPE MCV

Made of corrosion resistant materials.

MCV Design

Single-stage vertical centrifugal sleeve-bearing pump.

- Handling of abrasive and corrosive liquids
- Vertical mixed flow pump designed for desalination plants to work as intake pump
- Suitable for a wide flow range
- Suction flange: vertical
- Discharge flange: radial
- **SICcast** - inlet housing and diffusor withstand hard particles
- Shaft sealing by a single acting mechanical seal
- Polygon sleeve bearings support long shafts and protect against vibration. Radial bearings made of SiC on SiC
- The modular design makes it possible to produce extremely large pumps at low costs



Fields of Application

Handling of abrasive and corrosive liquids.

- Seawater intake
- Water treatment plants
- Cooling in power plants
- Salt water applications

Materials

All wetted parts (except shaft) are made of metal free materials to avoid corrosion totally.

Different shaft materials available according to the application requirements.

All hydraulic parts and the discharge bend are manufactured in **SICcast**. Anti-corrosion lifetime guarantee for all **SICcast** parts in seawater applications.

Technical Data

Pump Size:	**DN 150 to DN 1000** (6” to 40”)
max. Pressure:	**8 bar** (120 PSI)
max. Flow:	**12500 m³/h** (55000 gpm)
Total head:	**up to 60 m** (180 ft)
Rotating Speed:	**up to 1800 rpm**

Inlay

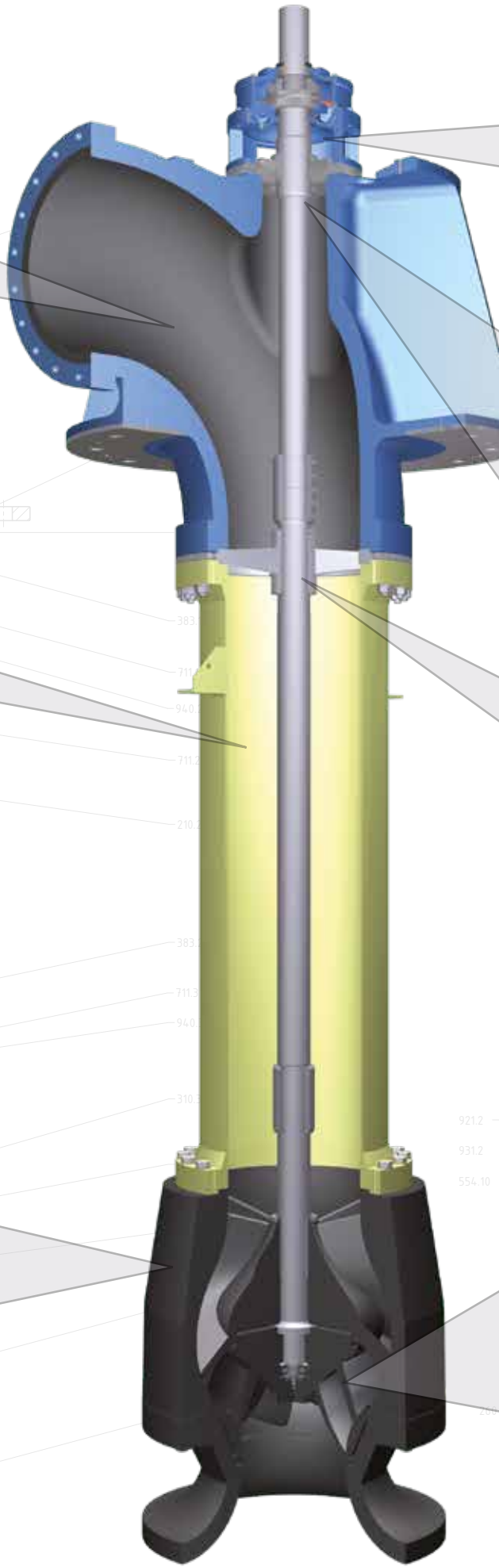
Discharge bend fully lined with **SICcast** - minimises abrasion and maximises corrosion resistance.

Intermediate / Riser Pipe

Modular design of shaft and rising main provides flexibility in length.

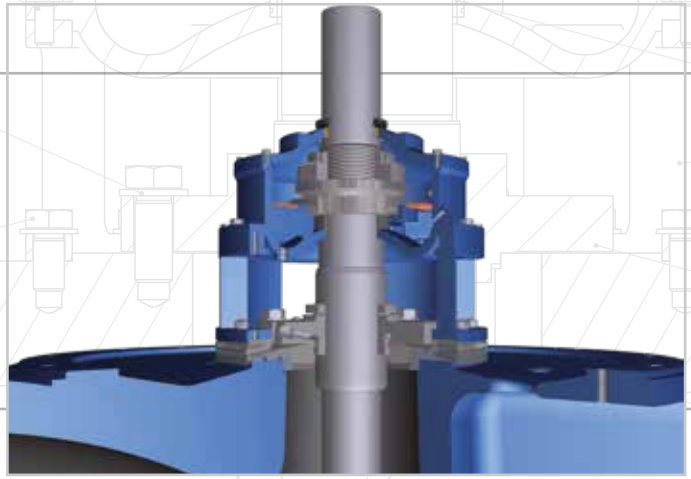
Bowl with Guide Vanes

made of **SICcast** - resistant to hard particles.



Motor Connection

Flexible connection for different motor sizes.



Bearing

Reliable thrust bearing.
The lubrication system ensures a long bearing life time. Single acting mechanical seal by standard, gland packing also available.

Radial Bearing

Optimized shaft guidance for minimized vibrations.

Impeller

SICcast mineral cast mixed flow impeller with spatially curved vanes, optimized to efficiency. Keyed to the shaft and bolted from the bottom. Additional radial bearing close to the impeller.

The Company

SICcast designs, produces and coats parts effected by strong erosion, abrasion and/or corrosion in liquid media based on patented silicon carbide materials.

Additionally, SICcast offers the service of coating or repairing parts already effected by erosion, abrasion and/or corrosion with the SICcast-technology.

The benefits of the SICcast-technology are higher service lines and lower costs compared to new parts.

The Components

SiC:

- Synthetic mineral
- Hardness 9.7 Mohs (diamond: 10 Mohs)
- Sized to varying grades
- High density (min. 80%) fill of varying mesh sizes

Epoxy resin:

- Epoxy resin: hot or cold curing
- Low shrinkage
- High strength
- High chemical resistance

The Results

- A metal-free, anti-magnetic, noise and vibration reducing material with diamond-like hardness.
- Due to the chemical binding of the epoxy resin, this material is ductile, temperature shock and impact resilient.
- Precise castings due to low shrinkage of resin.

Advantages of SICcast

- High wear resistance due to the high proportion of silicon carbide (more than 80%)
- High chemical resistance pH 0-14 (depending on process conditions)
- High abrasion resistance
- Anti-magnetic, noise-reducing and vibration-damping
- Large parts (up to 8,000 kg)
- Low carbon foot print

Metals are designed to withstand corrosive environments (e.g. Duplex SS) or abrasive environments (e.g. White Irons).

SICcast handles both corrosion and abrasion at the same time.

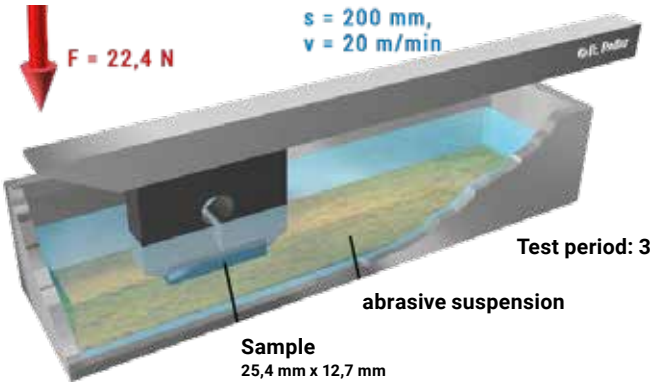
SICcast materials are best suited if you have solids in combination with a corrosive medium (pH value 0-14; depending on process conditions).

Miller Wear Test

The purpose of this test method is either to rank the abrasivity of slurries in terms of the wear of a standard reference material or to rank the wear resistance of different materials in relation to a reference slurry.

The wear rate is determined by volume loss.

	Loss in volume [mm³]
SICcast EP 135	22,66
SIConit	33,10
1.4404	192,22
Alloy 625	152,66
1.4462	140,15
St52	130,38



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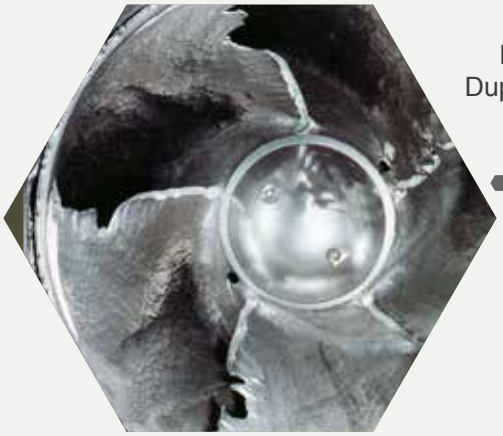
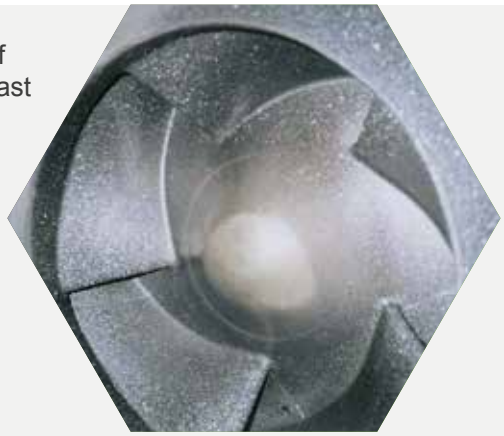


Impeller made of Duplex Stainless Steel

- Heavy wear after 11,000 h of operation

Impeller made of SICcast Mineral Cast

- No wear after 24,000 h of operation



Full casted SiSiC Impeller Ø 440 mm

SICcast PLUS

SICcast PLUS is a silicon carbide ceramic.

Silicon carbide ceramics are used where high wear is expected and can be recommended, where difficult operating conditions - for example, chemical attack or high temperatures - are expected. The innovation in the patented **SICcast**PLUS method, is the combination of **SICcast** casting with the production process of silicon infiltrated silicon carbide (SiSiC).

So it is possible to manufacture SiSiC-ceramic components that are subject to shrink by only one percent more than the production chain and therefore not technically difficult to construct than metal castings. In contrast to the conventional production methods can be produced economically from **SICcast**PLUS very large and complex components.

Since ceramics have different material properties than steel, for each desired component a feasibility study and a development process are required.

SIConit / For Repair & Protection

SICcast offers the matching SIConit wear protection for any kind of application.

SIConit is a silicon carbide composite material for repair and protection of surfaces exposed to erosion, abrasion and/or corrosion (pH Value 0-14). SIConit can be used under chemically varying operating conditions.

The SIConit composite material consists of a very high share of silicon carbide and cold-curing epoxy resin. SIConit can be used for restoring damaged metal surfaces or as a protective coating.

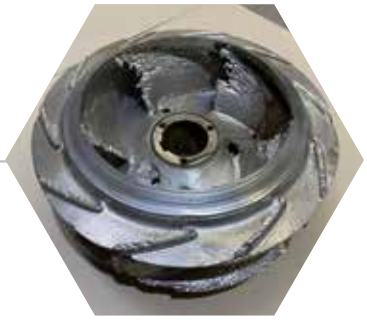
Reengineering

Your part as an improved version in SICcast material.

Maintenance

Repairs adapt to the customer needs.

worn-out component



SIConit Coating

machining

refurbished component ready-to-use

For detailed information visit www.SICcast.com

Wear resistant pump

TYPE WR

Designed to handle slurries.

WR Design

Horizontal single-stage centrifugal pump in back pullout design.

- Pumping of abrasive and/or corrosive liquids
- Suction flange: axial
- Discharge flange: Top (DN 32 to DN 250 vertical, from DN 300 tangential)

- Closed and open impeller available
- Impeller is keyed to the shaft; reverse rotation (e.g. back-flushing) is possible
- Re-adjustable inclined gap between the impeller and volute casing to optimize the efficiency and differential pressure for long time operation
- Shaft sealing by means of **DÜTEC®** single acting mechanical seal with external springs (gland packing and other mechanical seals available)
- Durable, oil-lubricated roller bearings
- Back pullout design (the complete rotating assembly can be removed while the casing remains on its position)
- Optimized design ensures easy maintenance and long service life even under difficult conditions
- Direct or belt driven
- Different arrangements available

Fields of Application

Handling of high-temperature slurries and abrasive/corrosive liquids.

- Flue gas desulfurization (lime / gypsum slurries)
- Cleaning equipment for heat exchangers
- Construction industry (cement-water mixture)
- Potash industry (caustic potash solution, mixed salts/brine)
- Fertilizer Industry
- Mineral processing and refining

Materials

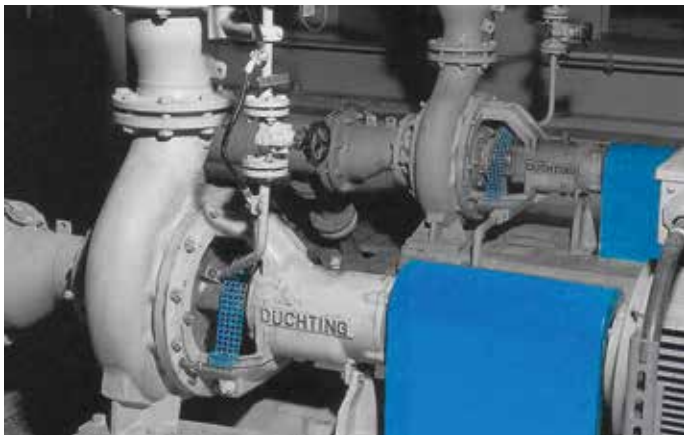
Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

ATEX

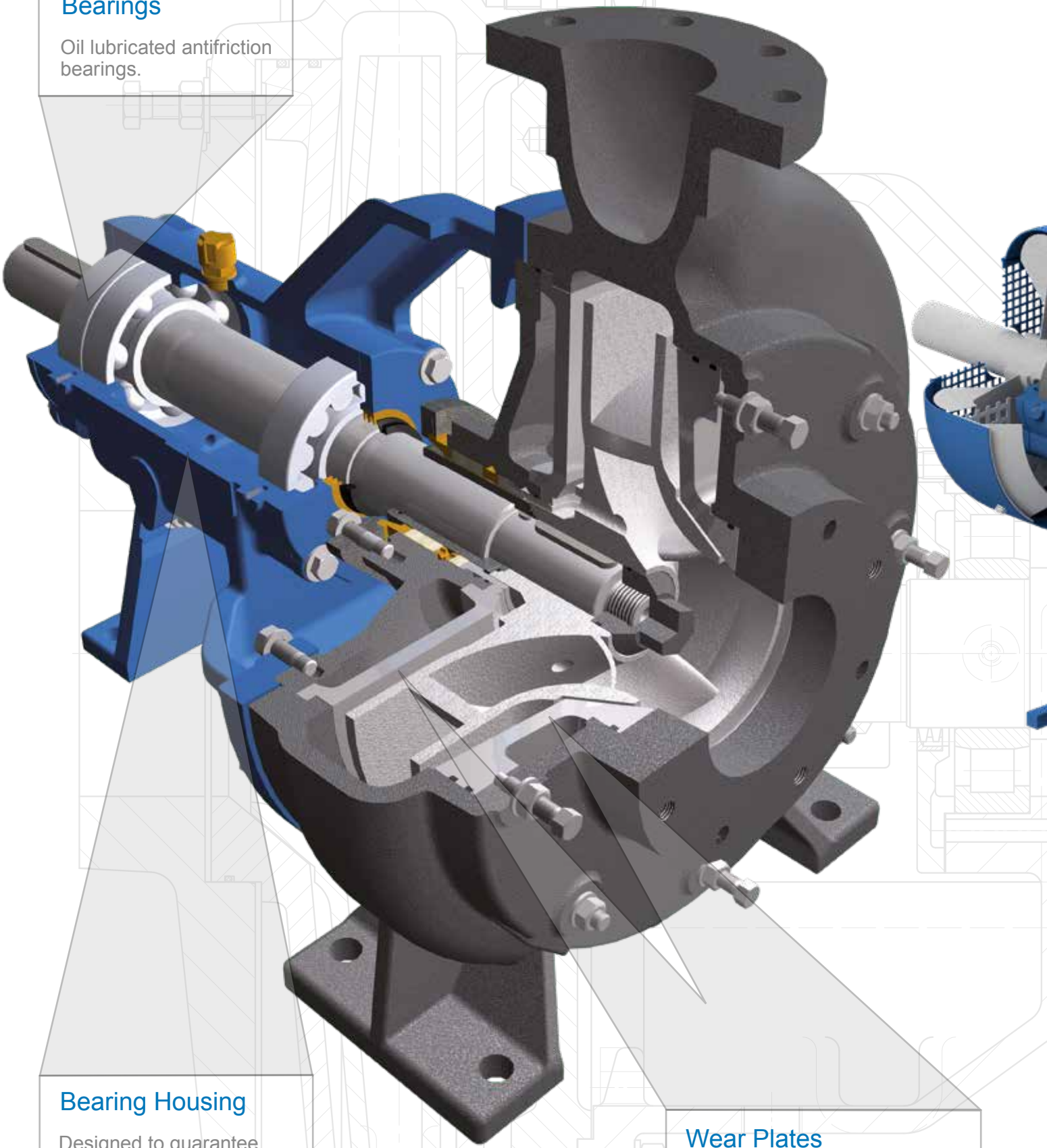
Technical Data

Pump Size:	**DN 32 to DN 800** (1 1/4“ to 32“)
max. Pressure:	**16 bar** (230 PSI)
max. Flow:	**12000 m³/h** (52800 gpm)
Total head:	**up to 120 m** (395 ft)
Rotating Speed:	**up to 3600 rpm**



Bearings

Oil lubricated antifriction bearings.



Bearing Housing

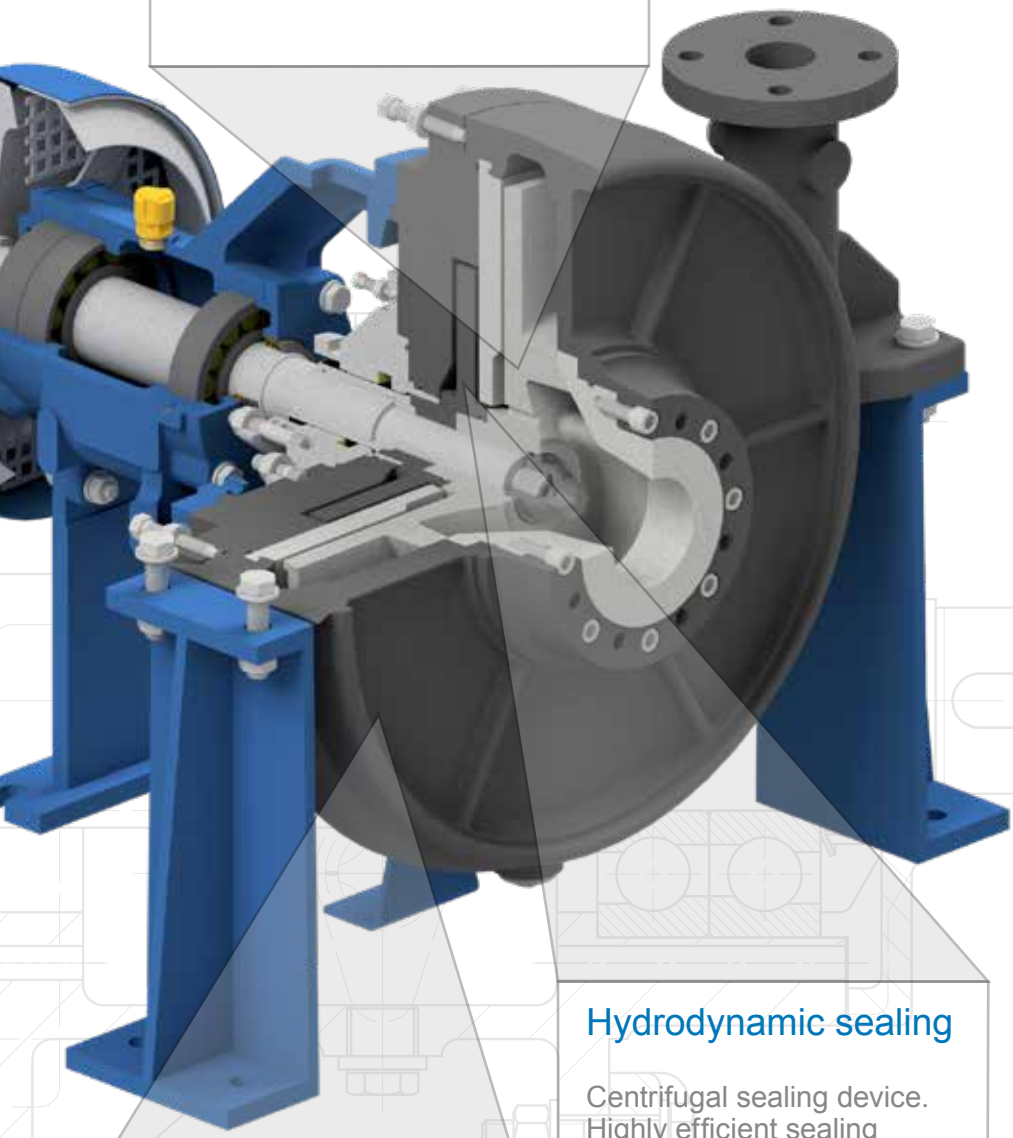
Designed to guarantee continuous bearing lubrication. Provided with oil sight glass.

Wear Plates

Wear plates on suction and discharge side.
Readjustable suction wear plate to optimize duty parameters.

Impeller

Optimized vane design for highest efficiency and lowest wear. Cast in ceramic moulds for highest surface quality. Different impeller sets available for every pump size.



Hydrodynamic sealing

Centrifugal sealing device. Highly efficient sealing without leakage through gland packing.

Volute Casing

Available in almost any metal from cast iron to SUPER DUPLEX stainless steel. Optimized by numerical calculations for optimized outflow and efficiency.

Heavy duty pump

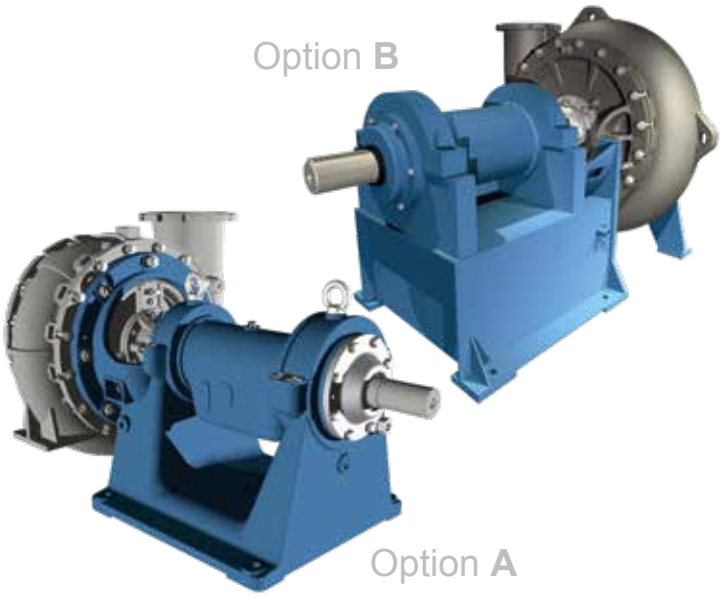
TYPE WRX

Suitable for abrasive medium with very high solid content.

WRX Design

Highly wear-resistant pump with closed impeller and wear plates on suction and bearing side.

- Pumping of slurry liquids with high sliding wear as well as on mechanical impact by high levels of coarse grain (grain size up to 200 mm)



- The design allows the use of very hard materials
  - ► **min. 550 HB**
- Suction: axial
- Discharge: tangential
- Axially adjustable impeller
- Shaft sealing by stuffing box or mechanical seal
- Various impeller shapes are possible (e.g. 2- or 3-vaned)
- Different arrangements available (e.g. vertical)
- Back pullout design (the complete rotating assembly can be removed while the casing remains in its position)
- Durable, oil or grease lubricated bearings
- Direct or belt driven
- Usage as underwater pump through special assemblies possible
- Counterclockwise rotation design possible

Fields of Application

Particularly suitable for pumping highly abrasive & corrosive liquids with fine to very coarse solids.

- Special foundation
- Mechanised tunneling
- Gravel and Sand Industry
- Mining and Ash Handling
- Furnaces
- Offshore applications
- Traffic & Supply tunneling
- Zinc oxide production
- Sugar industry

Technical Data

Pump Size:	**DN 65 to DN 700** 2 1/2“ to 28“
max. Pressure:	**10 bar / 16 bar** (150 PSI / 230 PSI)
max. Flow:	**9000 m³/h** (40000 gpm)
Total head:	**up to 90 m** (300 ft)
Rotating Speed:	**up to 1200 rpm**

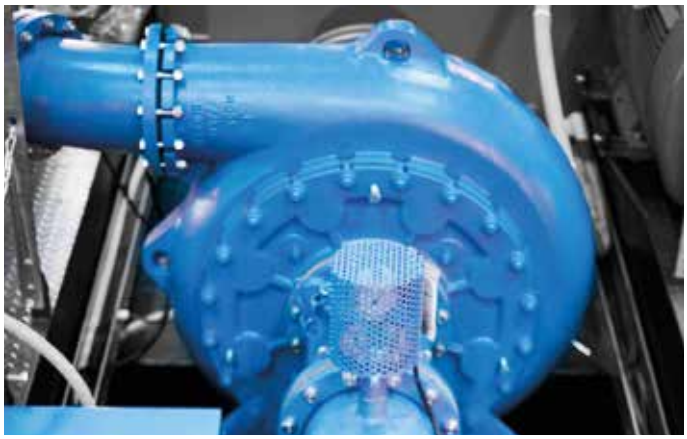
Materials

Volute casing:	0.9650 (quenched and tempered)
Impeller:	0.9650 (quenched and tempered)
Wear plates:	0.9650 (quenched and tempered)
Shaft:	1.0503 (C45)

Optional available in many other metal materials (e.g. duplex or super stainless steel).

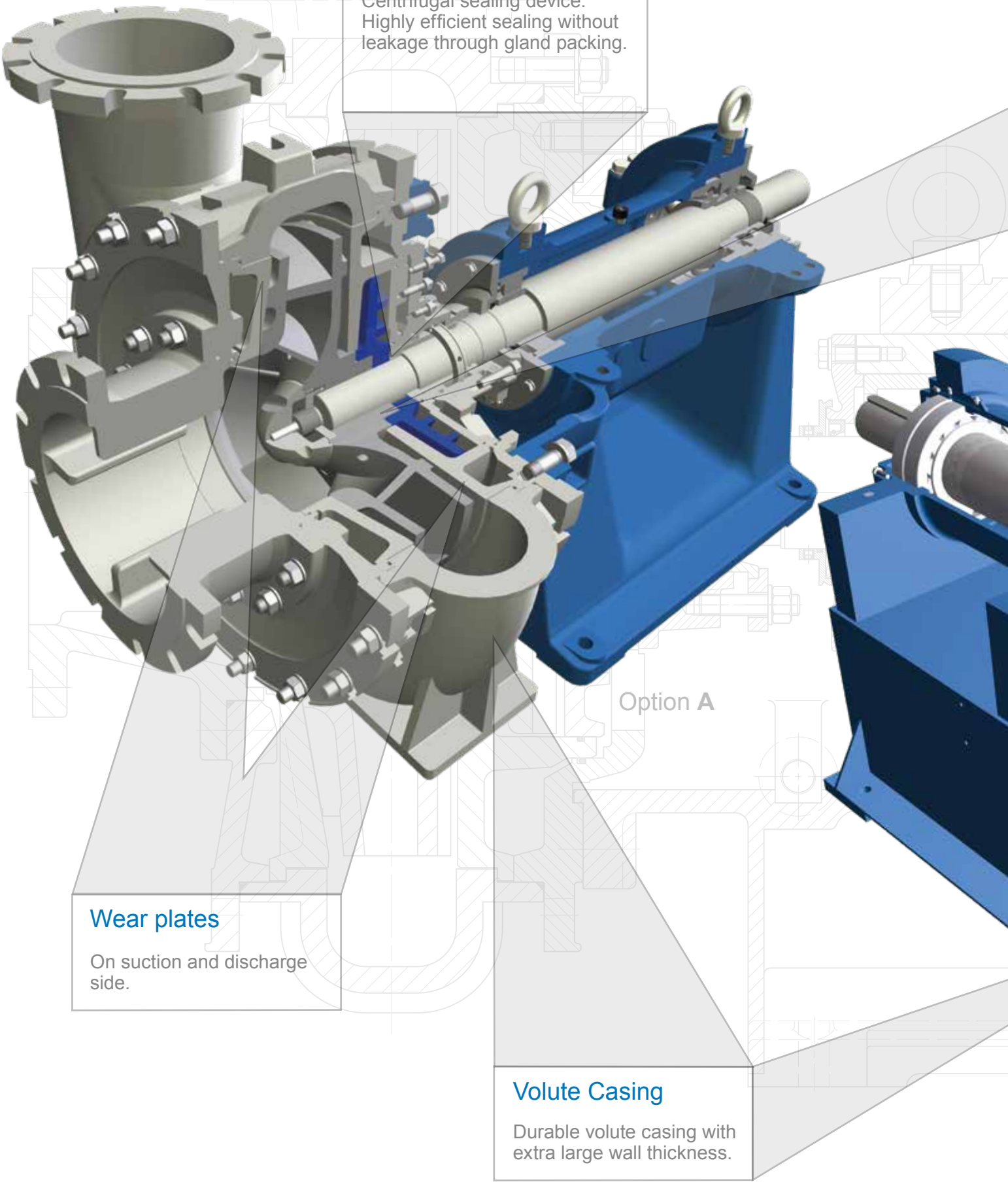
The WRX - Also known as „suction dredger pump“

For more information please visit
www.duechting-suction-dredger.com



Hydrodynamic sealing

Centrifugal sealing device. Highly efficient sealing without leakage through gland packing.



Option **A**

Wear plates

On suction and discharge side.

Volute Casing

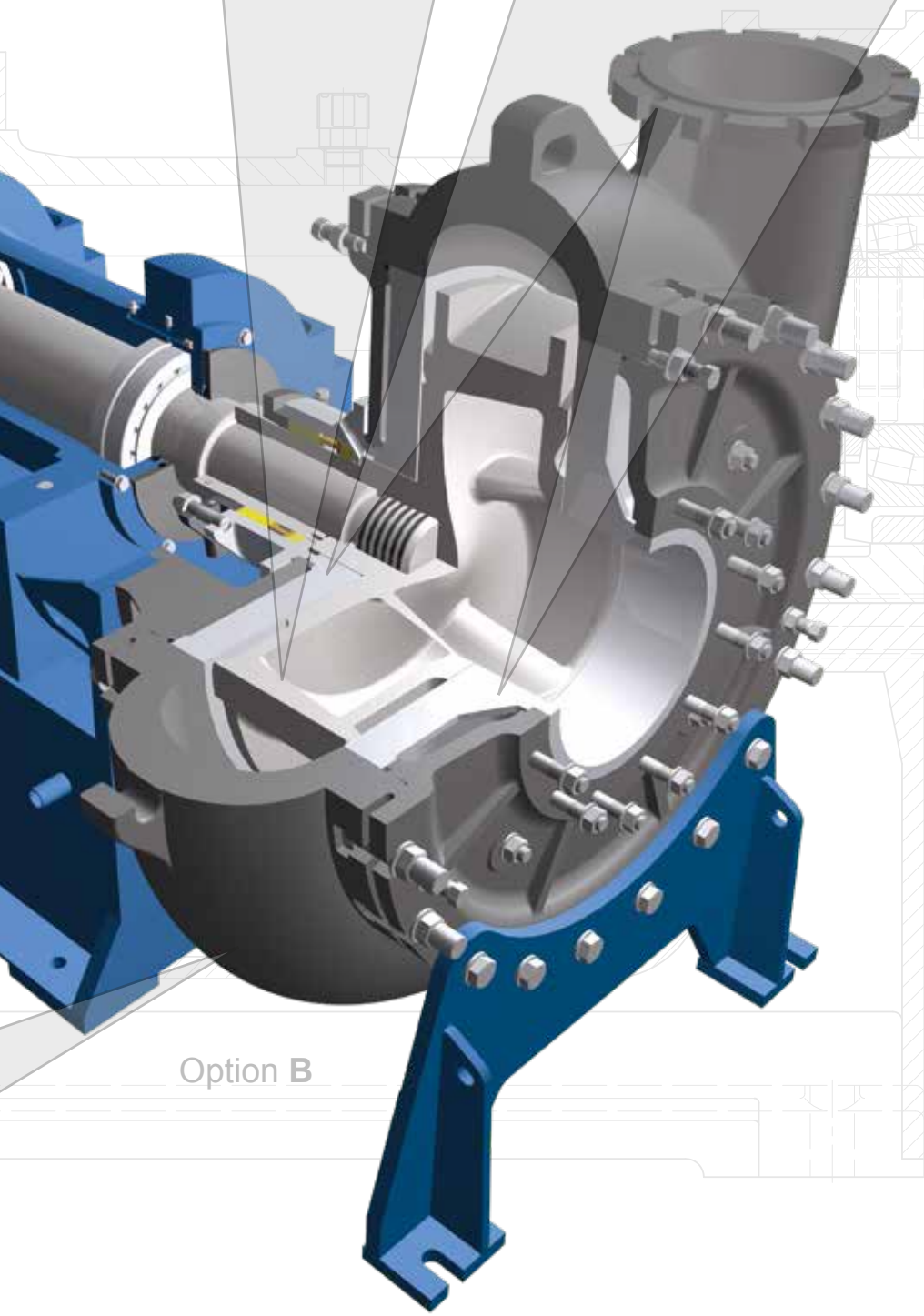
Durable volute casing with extra large wall thickness.

Impeller

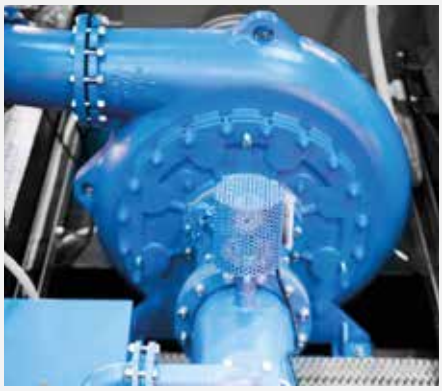
2- or 3-vaned impeller with large diameter for low, wear-reducing speeds.

Wear plates

On suction and discharge side.



Option **B**



Submersible pump

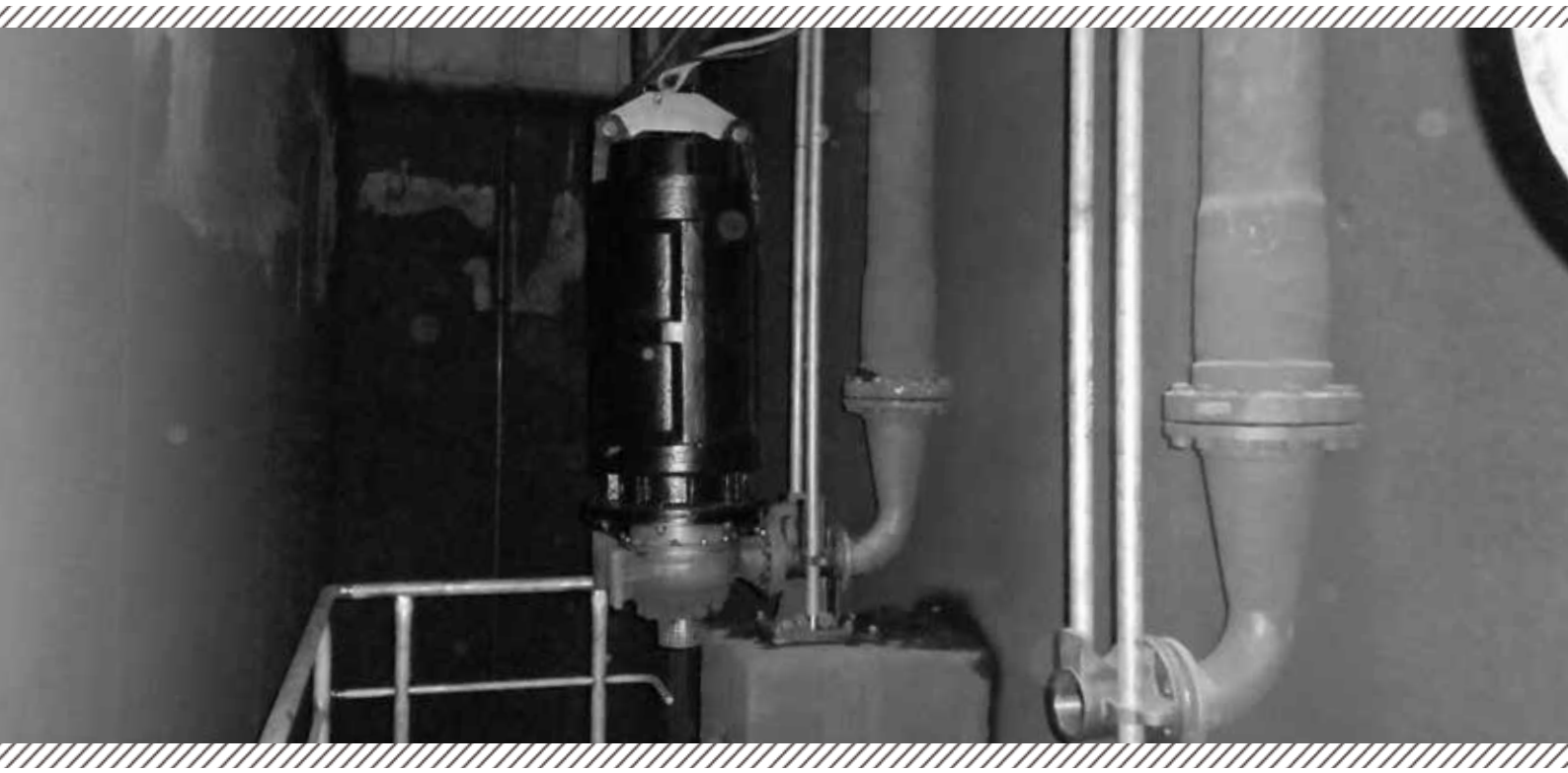
TYPE WRS

Designed to handle slurries.

WRS Design

Single-stage vertical centrifugal submersible pump.

- Pumping of abrasive and corrosive liquids
- Suction flange: Vertical (including suction strainer)
- Discharge flange: Radial
- Closed impeller with spatially curved vanes
- Re-adjustable inclined gap between impeller and wear plate to optimize the efficiency and the differential pressure after longer operation
- Single acting mechanical seal
- Moisture sensor located in an oil chamber between pump and motor
- Submersible IEC three-phase motor (IP68)
- Optimized design ensures easy maintenance and long service life even under difficult conditions



Fields of Application

Handling of abrasive and corrosive liquids.

- Flue gas desulfurization
- Chemical industry
- Water treatment
- Seawater desalination plants
- Fertilizer industry / potash industry

Materials

Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

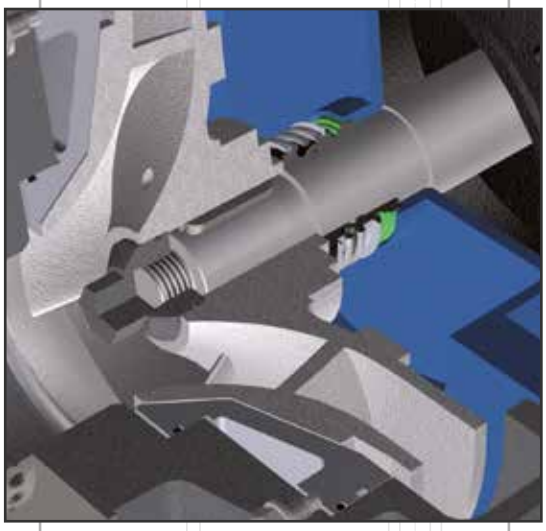
ATEX

Technical Data

Pump Size:	**DN 32 to DN 250** (1 ¼" to 10")
max. Pressure:	**10 bar** (150 PSI)
max. Flow:	**1200 m³/h** (5250 gpm)
Total head:	**up to 90 m** (300 ft)
Rotating Speed:	**up to 3600 rpm**

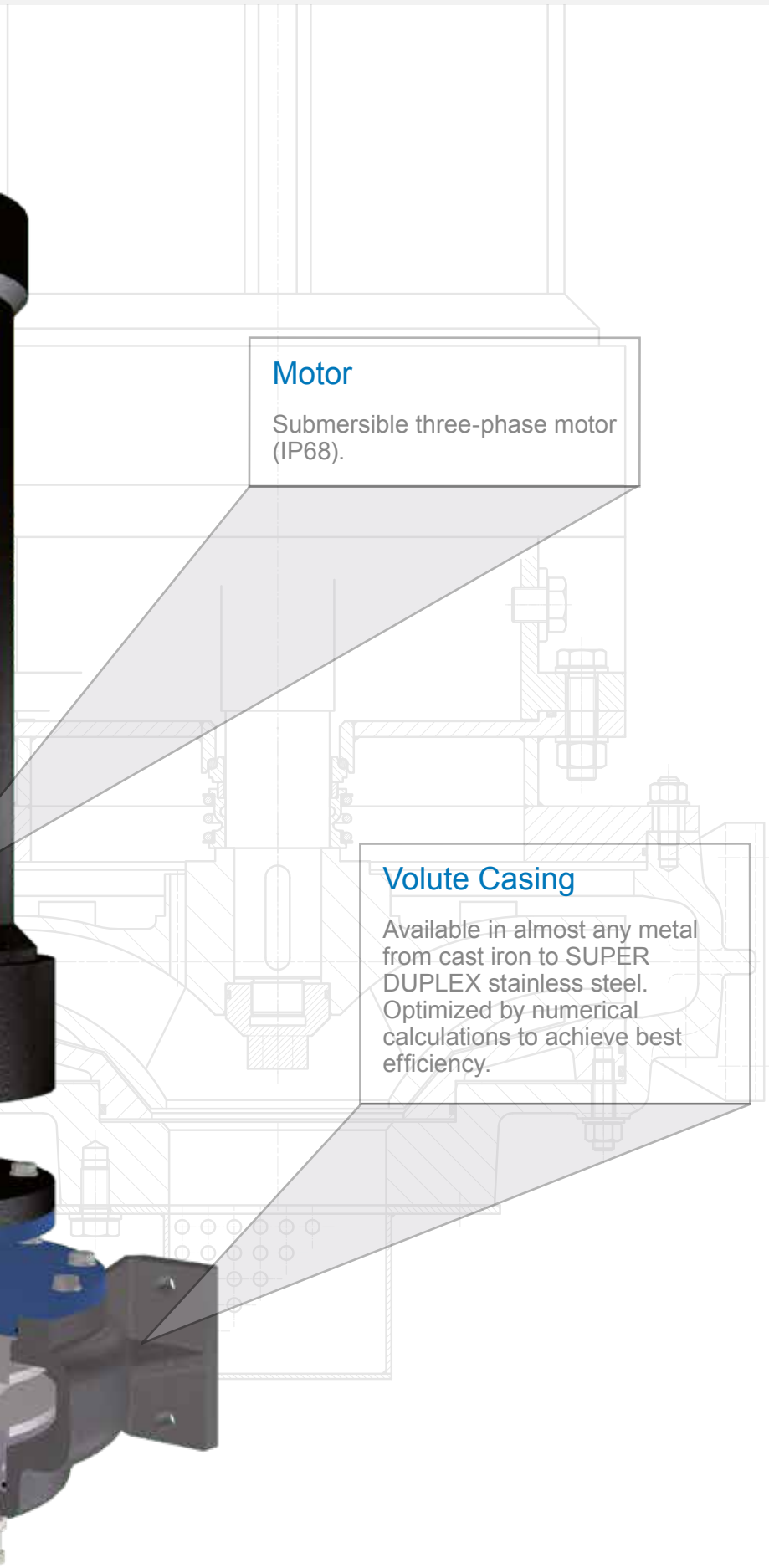
Impeller

Designed for optimized specific speed. Cast in ceramic moulds for highest surface quality. Different impeller sets available for every pump size.



Wear Plate

One or two wear plates are possible.



Motor

Submersible three-phase motor (IP68).

Volute Casing

Available in almost any metal from cast iron to SUPER DUPLEX stainless steel. Optimized by numerical calculations to achieve best efficiency.

Vertical centrifugal pump

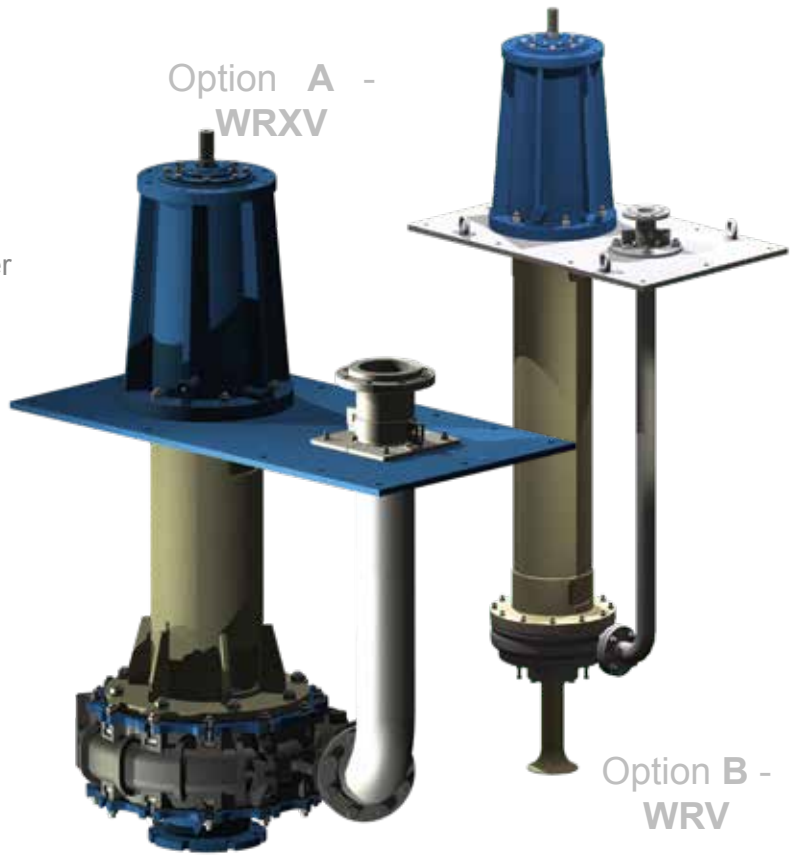
TYPE WRV / WRXV

Designed to handle slurries.

WRV / WRXV Design

Vertical single-stage centrifugal pump in semi-submerged design.

- End-suction type slurry pump
- Pumping of abrasive and corrosive liquids
- Closed and open impeller available
- Impeller is fixed by fitting key; reverse rotation (e.g. back-flushing) is possible
- Re-adjustable inclined gap between the impeller and volute to optimize the efficiency and differential pressure after prolonged operation
- Grease-lubricated, maintenance-free bearings
- Customized immersion depth possible
- Optimized design ensures easy maintenance and long service life even under difficult conditions
- Direct or belt driven design



Fields of Application

Handling of abrasive and corrosive liquids.

- Flue gas desulfurization (lime / gypsum slurries)
- Cleaning equipment for heat exchanger
- Construction industry (cement-water mixture)
- Potash industry (caustic potash solution, mixed salts/brine)
- Fertilizer Industry
- Mineral processing and refining

Materials

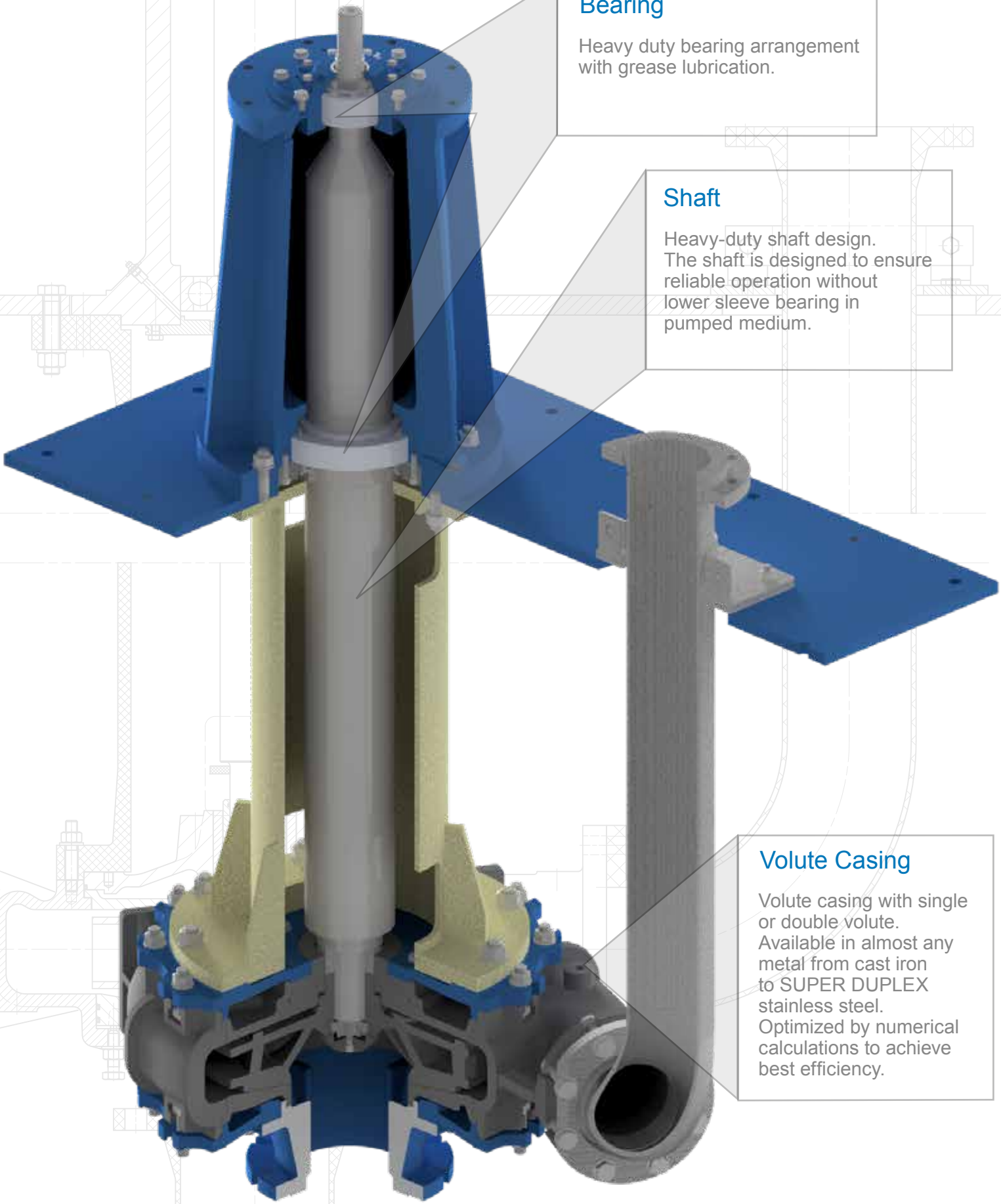
Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquids and the combinations of materials adapted to the respective conditions of use.

ATEX

Technical Data

Pump Size:	**DN 32 to DN 400** (1 1/4“ to 16“)
max. Pressure:	**16 bar** (230 PSI)
max. Flow:	**4000 m³/h** (17600 gpm)
Total head:	**up to 120 m** (395 ft)
Rotating Speed:	**up to 3600 rpm**



Bearing

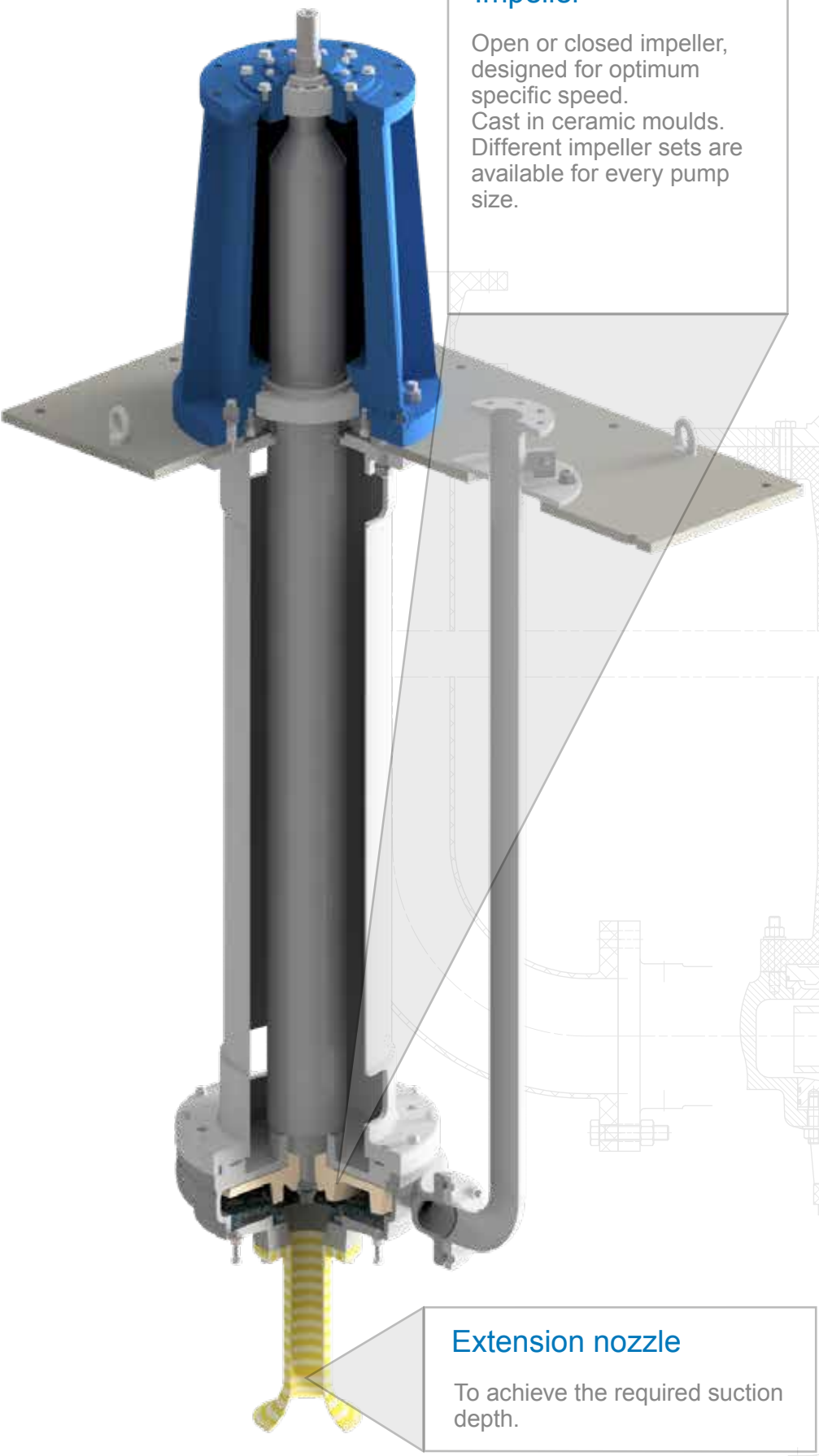
Heavy duty bearing arrangement with grease lubrication.

Shaft

Heavy-duty shaft design.
The shaft is designed to ensure reliable operation without lower sleeve bearing in pumped medium.

Volute Casing

Volute casing with single or double volute.
Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.
Optimized by numerical calculations to achieve best efficiency.

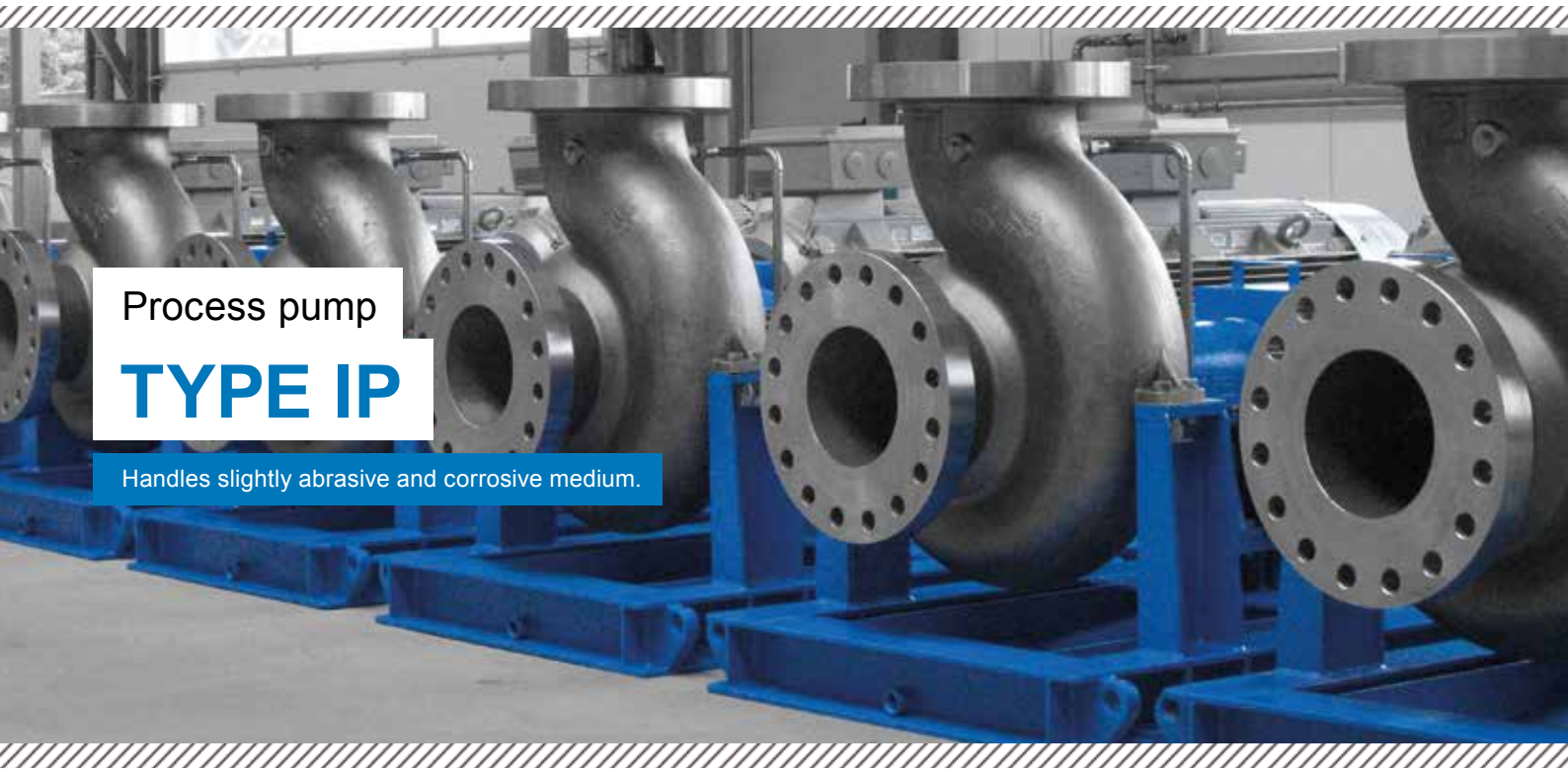


Impeller

Open or closed impeller, designed for optimum specific speed.
Cast in ceramic moulds.
Different impeller sets are available for every pump size.

Extension nozzle

To achieve the required suction depth.



Process pump

TYPE IP

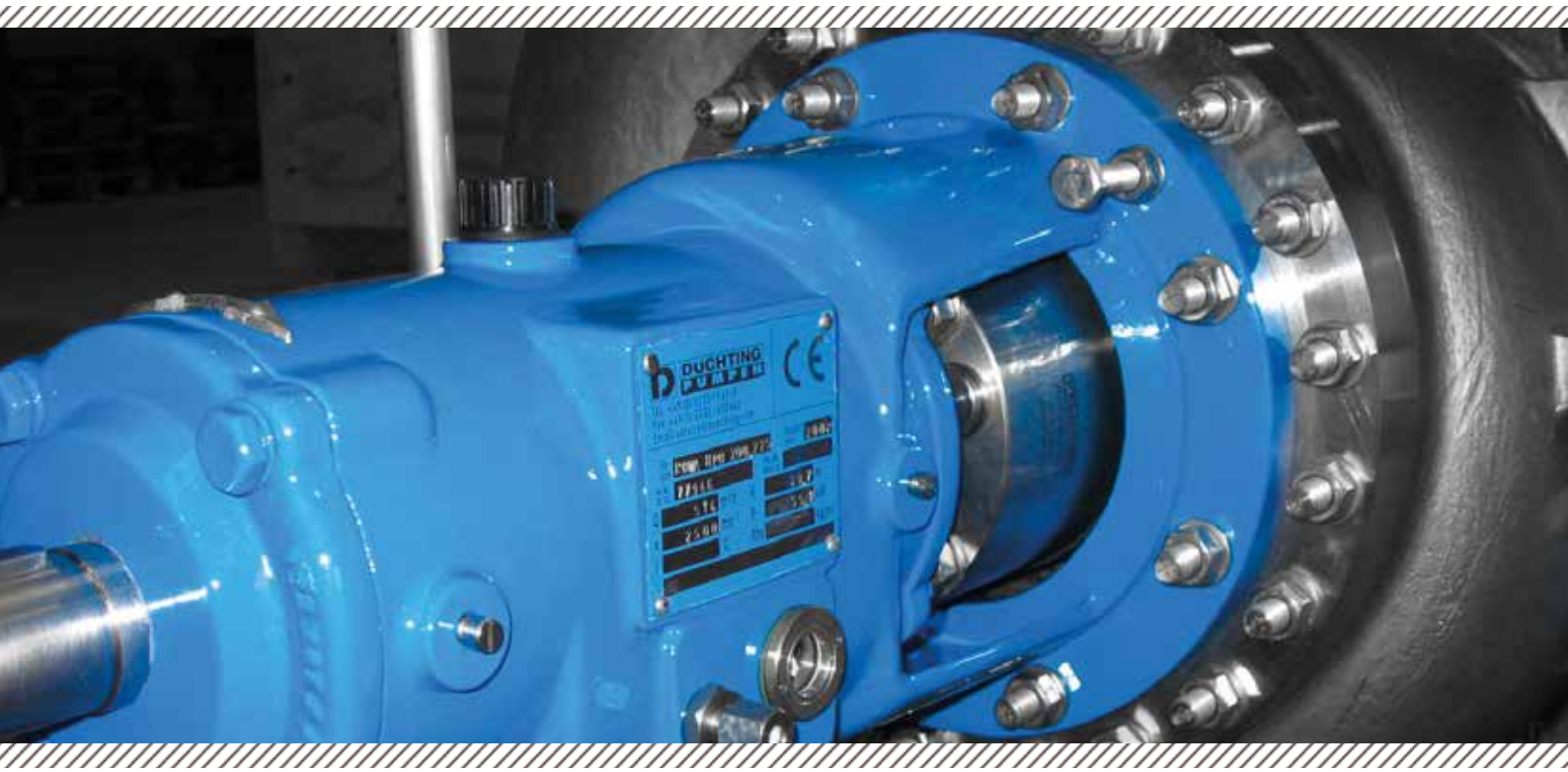
Handles slightly abrasive and corrosive medium.

IP Design

Single stage end-suction, centrifugal pump.

- Horizontal centerline mounted
- Back pullout design (the complete rotating assembly can be removed while the casing remains on its position)

- Continuous operation in industrial processes for pumping clean and corrosive liquids
- Double volute casing for extended bearing and seal life time
- Wear rings in composite material to maintain best efficiency and reliability
- Pump casing design up to 100 bar
- Suction pressure up to 80 bar
- Available for hot liquid applications
- Oil or grease lubricated bearings
- Cartridge mechanical seal, seal plan as per API
- Vertical installation optional available
- Design in accordance with API 610 / ISO 13709 if specified



Fields of Application

Suitable for handling of slightly abrasive and corrosive liquids.

- Pressure boosting systems in industrial processes
- Water supply, and water treatment
- Seawater desalination
- Hot water applications
- Oil & Gas - Applications
- Feed water circulation

Materials

Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

ATEX

Technical Data

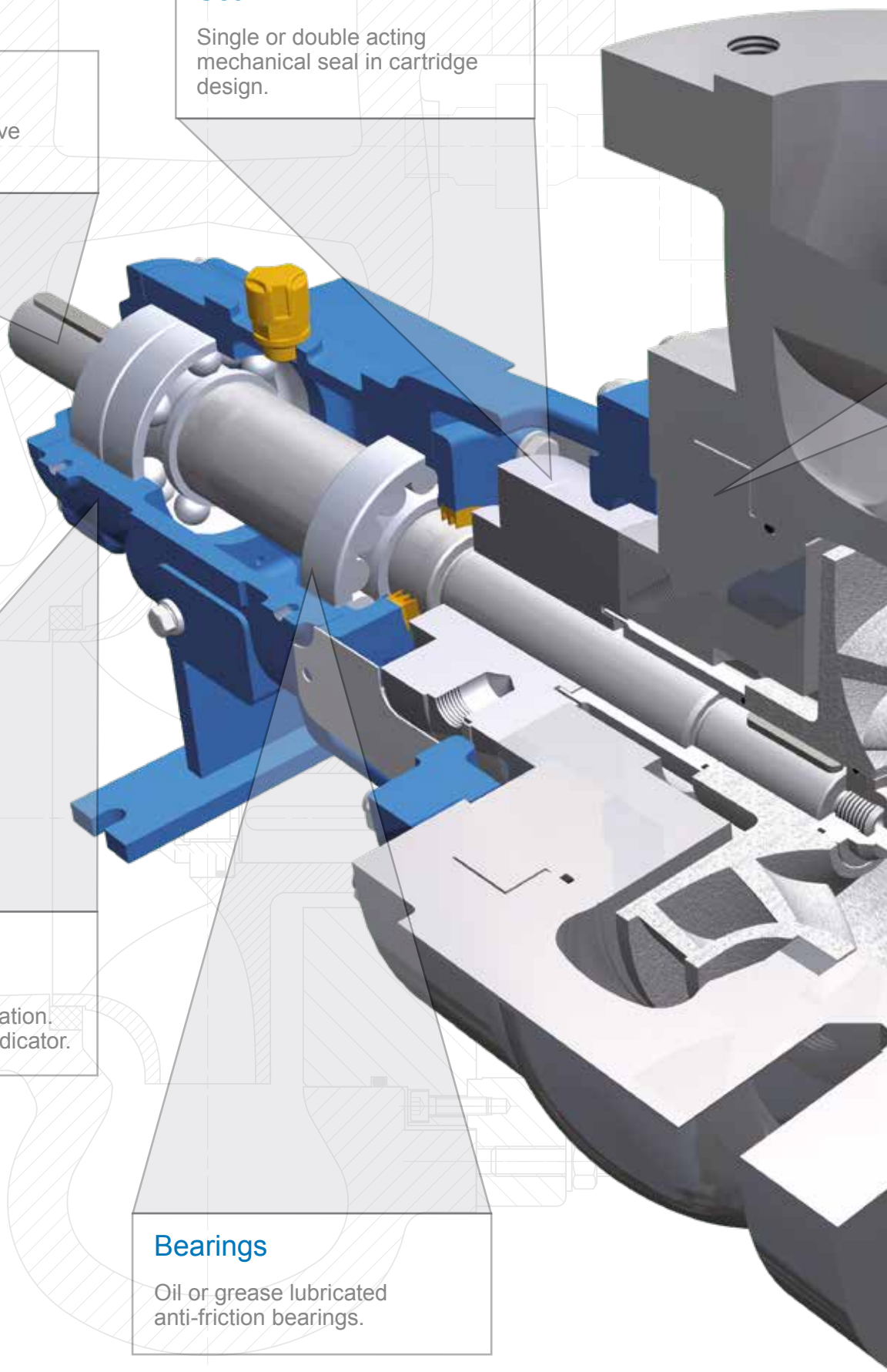
Pump Size:	**DN 50 to DN 450** (2 1/2“ to 18“)
max. Pressure:	**100 bar / 15 bar** (1450 PSI / 220 PSI)
max. Flow:	**4200 m³/h** (18500 gpm)
Total head:	**up to 220 m** (720 ft)
Rotating Speed:	**up to 3600 rpm**

Seal

Single or double acting mechanical seal in cartridge design.

Shaft

Critical shaft speed above operating speed.

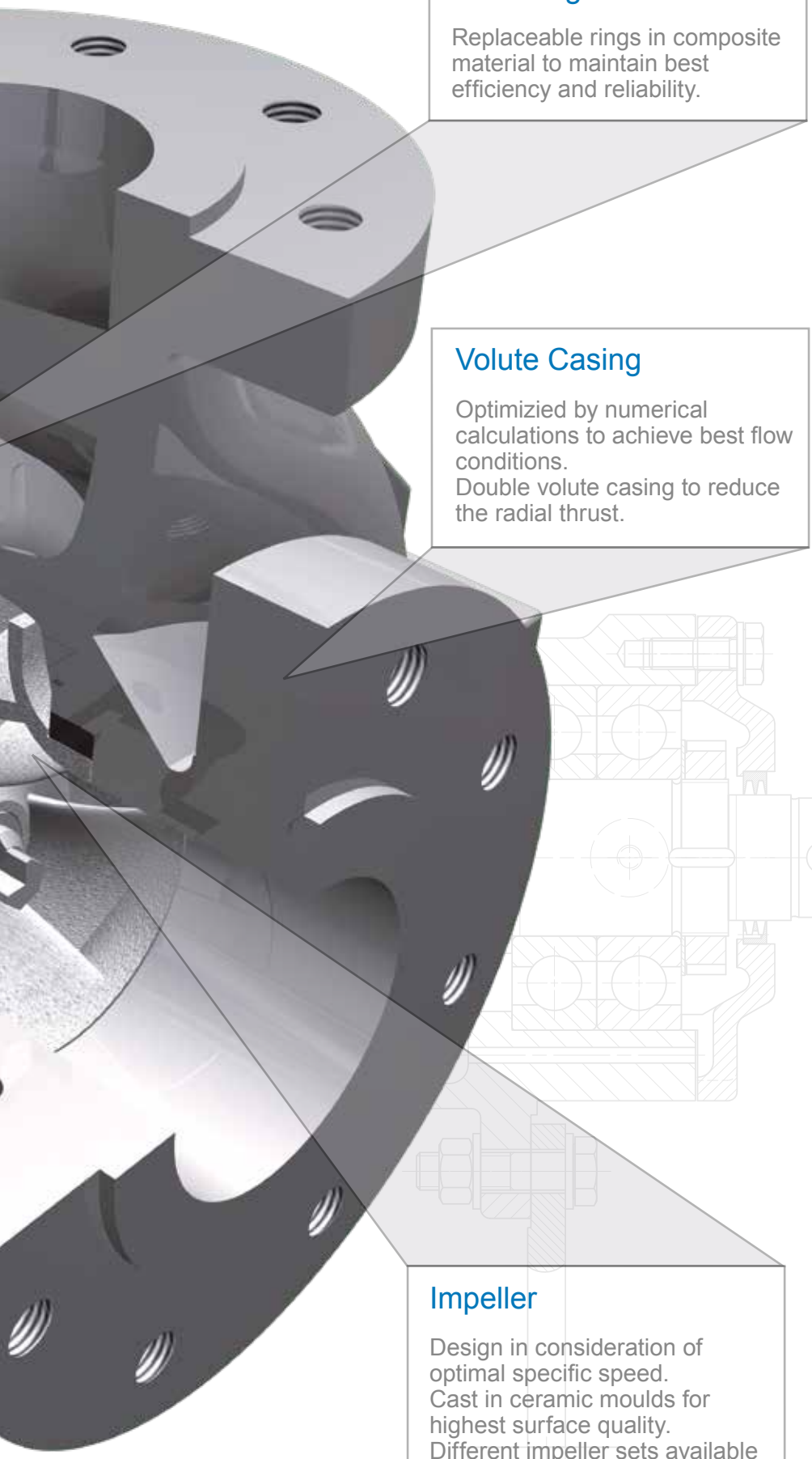


Bearing Housing

Designed to guarantee continuos bearing lubrication. Provided with oil level indicator.

Bearings

Oil or grease lubricated anti-friction bearings.



Wear rings

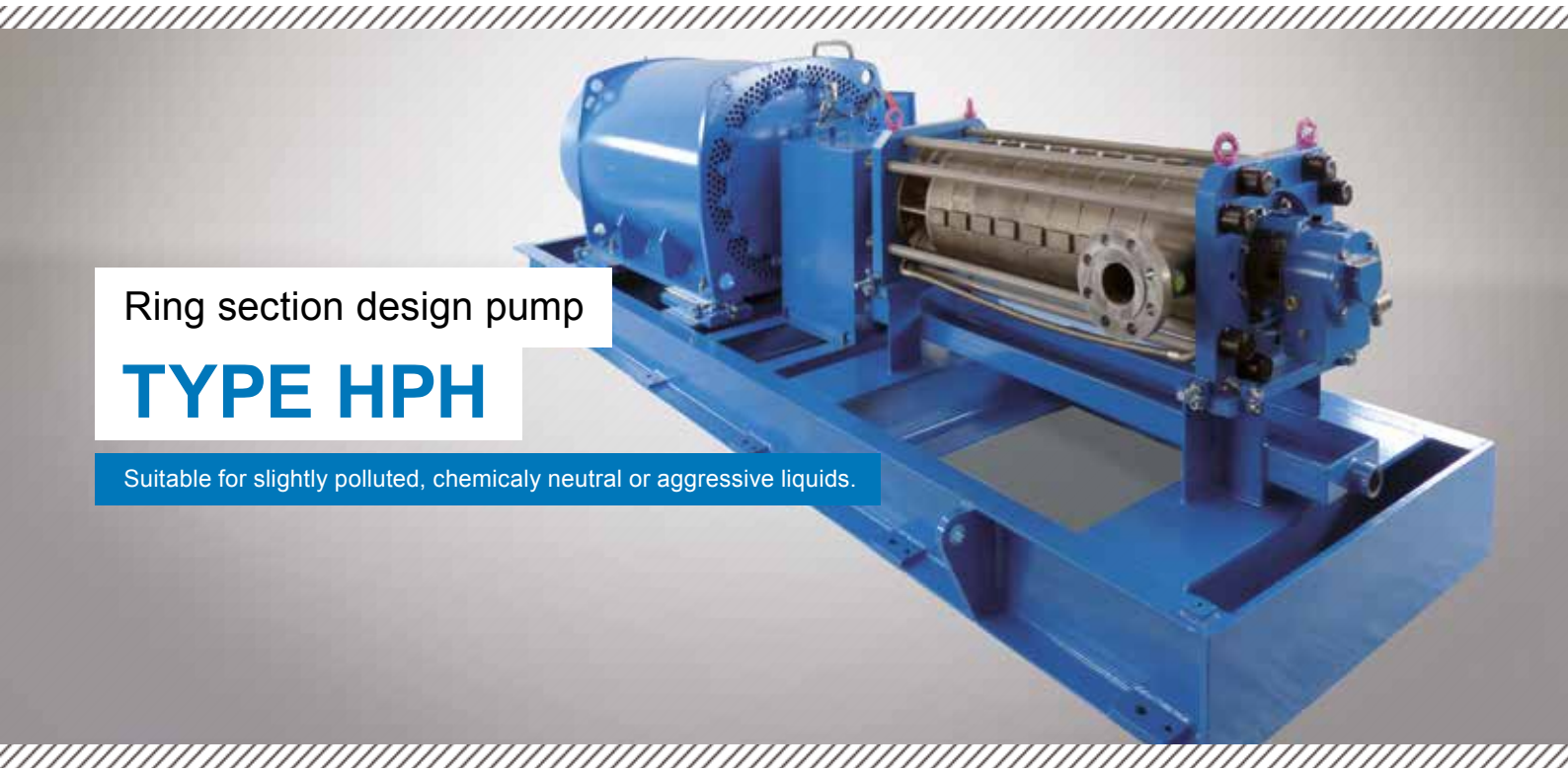
Replaceable rings in composite material to maintain best efficiency and reliability.

Volute Casing

Optimizied by numerical calculations to achieve best flow conditions.
Double volute casing to reduce the radial thrust.

Impeller

Design in consideration of optimal specific speed.
Cast in ceramic moulds for highest surface quality.
Different impeller sets available for every pump size.



Ring section design pump

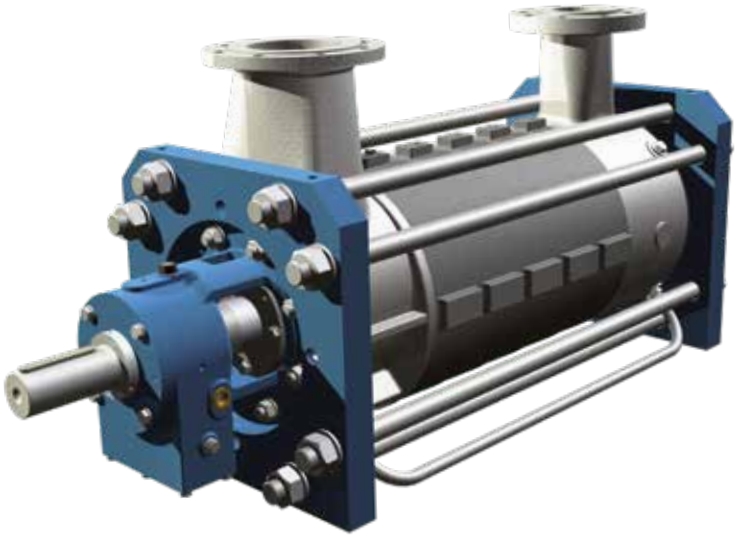
TYPE HPH

Suitable for slightly polluted, chemicaly neutral or aggressive liquids.

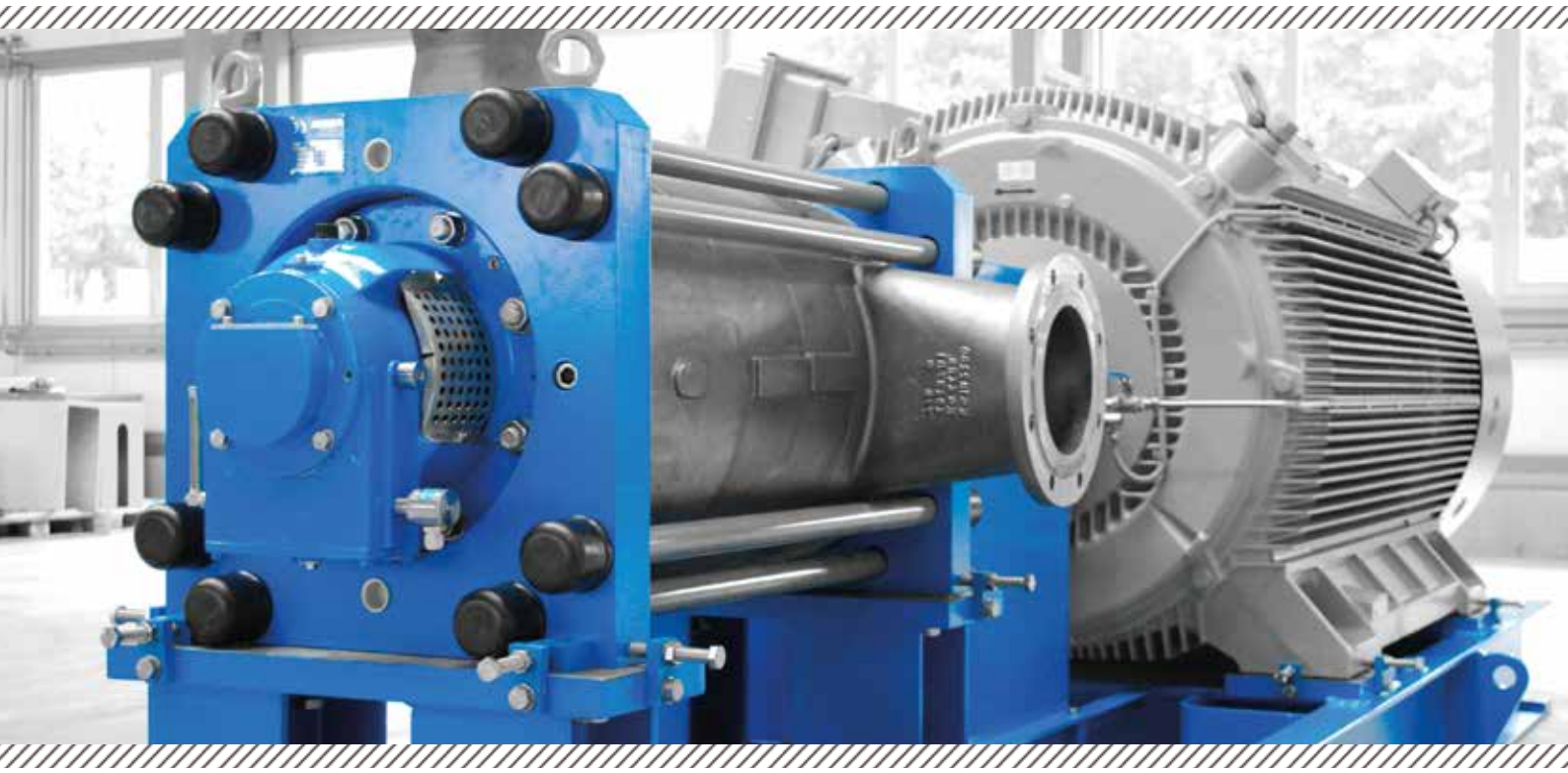
HPH Design

Multistage centrifugal pump in ring-section design.

- Pump inlet: axial or radial with flanges positioned at 90° increments
- Discharge flange: radial positioned at 90° increments



- Replaceable rings in composite material to maintain best efficiency and reliability
- Shaft sealing by stuffing box or mechanical seal
- Axial thrust compensation by balancing discs, piston or combination of both
- Easy replacement of all wearing parts
- Tailormade solutions available:
  - ► **Pump dimensions can be adapted to customer requirements**
- Impellers are fixed by fitting key (e.g. backflushing) possible
- Replaceable Impeller wear rings available
- Pump with one or two connective shaft ends
- Impellers and diffusors are cast by using ceramic moulds to get highest surface quality for outstanding hydraulic performance



Fields of Application

Handling of clean or slightly polluted, chemically neutral or aggressive liquids.

- Pressure boosting systems in industrial process
- Water supply, and water treatment
- Seawater desalination
- Condensate production
- Boiler feed systems
- Hot water applications
- Petrochemical applications
- Water Injection

Materials

Carefully selected depending on the application and adapted to the respective conditions.

DÜCHTING PUMPEN offers improved corrosion resistant materials like SUPER DUPLEX stainless steel with Pitting Resistance Equivalent numbers above 40.

ATEX

Technical Data

Pump Size:	**DN 80 to DN 300** (3“ to 12“)
max. Pressure:	**100 bar** (1450 PSI)
max. Flow:	**3500 m³/h** (15400 gpm)
Total head:	**up to 1100 m** (3600 ft)
Rotating Speed:	**up to 3600 rpm**

Diffusor

With reduced impact losses due to CFD optimized flow channels.

Impeller

Design in consideration of optimal specific speed.
Cast in ceramic moulds for best surface quality.
Different impeller sets available for every pump size.

Wear Rings

Replaceable wear rings in composite material to maintain best efficiency and reliability.

Axial suction Branch available

In horizontal orientation for constant inlet velocities and reducing suction pressure requirements.

Liquid lubricated plain bearing

Plain bearing eliminates second mechanical seal (for axial inlet).

Bearings

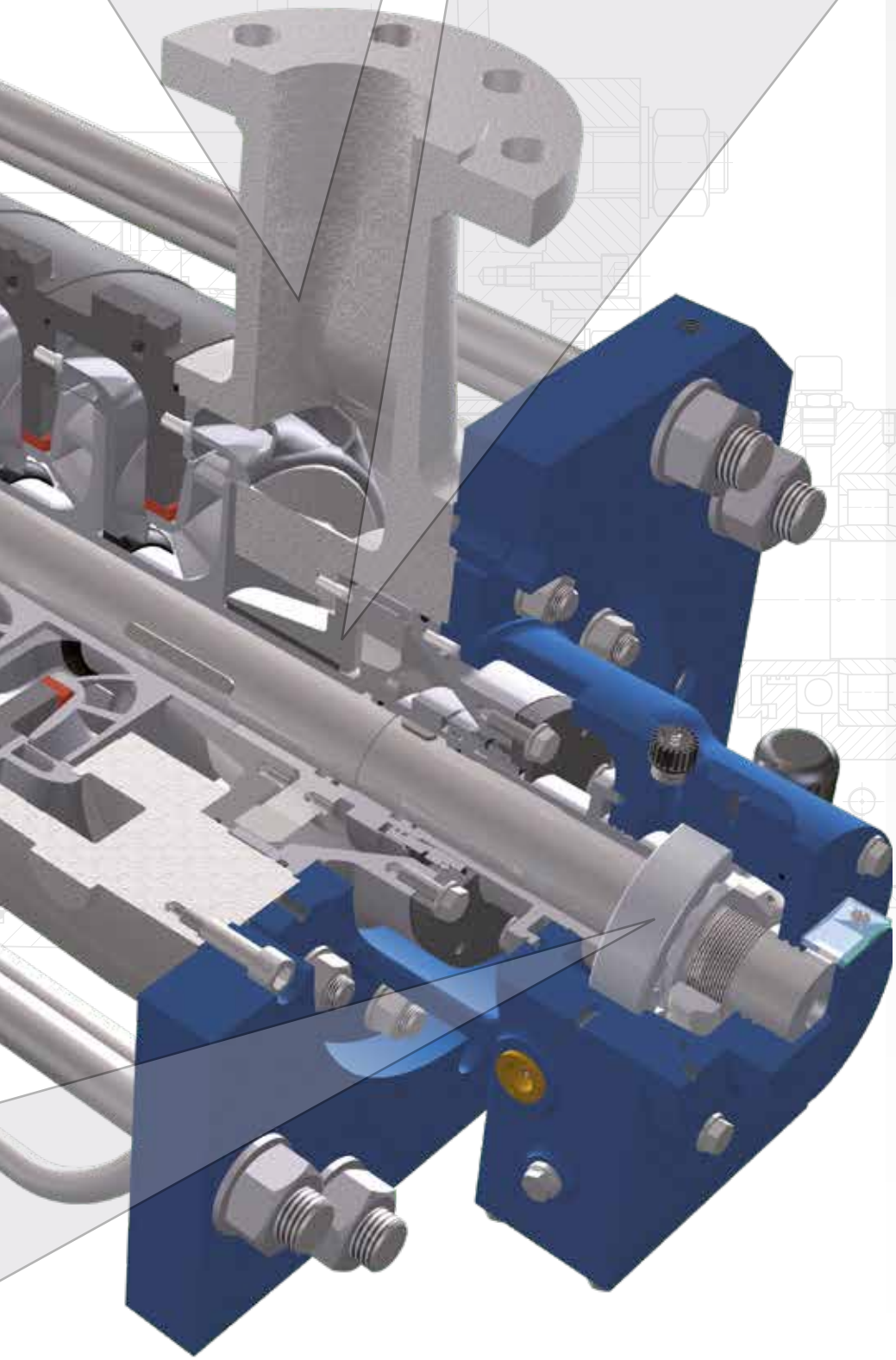
Supplied with oil-lubricated anti-friction bearings or plain bearings for long-life performance.

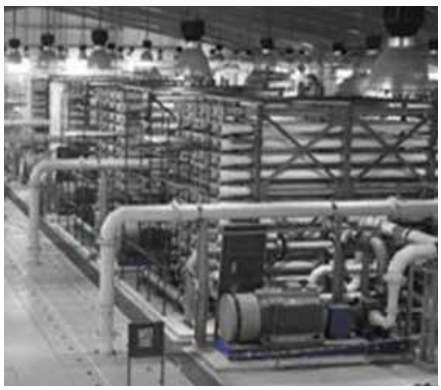
Discharge Casing

Optimized by numerical calculations to achieve best outflow conditions.

Balancing Device

Axial thrust compensation by balancing discs, piston or combination of both.





Multistage pump

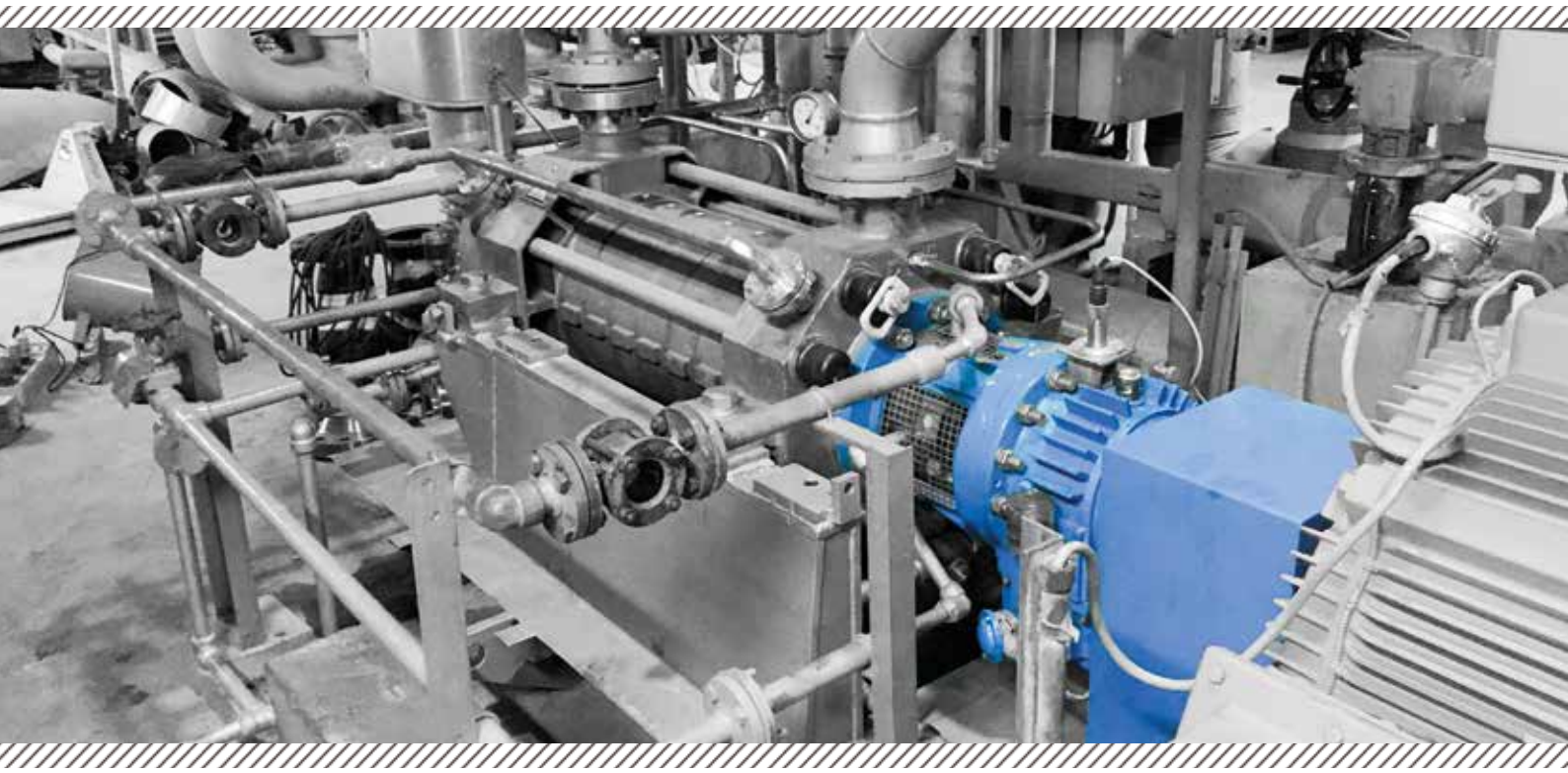
TYPE HPE

Suitable for slightly polluted, chemically neutral or aggressive liquids.

HPE Design

Multistage centrifugal pump in ring-section design.

- Center-line or foot-mounted casings available
- Wear rings in composite material (carbon fiber filled PEEK) for smaller clearances while maintaining the same reliability and best efficiency
- Intermediate discharge flange available
- Available with anti-friction or plain bearings, forced lubrication possible
- Jacket or shaft seal cooling possible
- Tailormade solutions available:
  - ► **Pump dimensions can be adapted to customer requirements**
- Shaft sealing by stuffing box or mechanical seal
- Axial thrust handled by balance disk or piston
- Easy replacement of all wear parts



Fields of Application

Handling of clean or slightly polluted, chemically neutral or aggressive liquids.

- Pressure boosting systems in industrial process
- Water supply or water injection
- Condensate production
- Boiler feed systems
- Hot water applications
- Descaling in steel plants
- Oil & Gas - Applications (handling formation water)

Materials

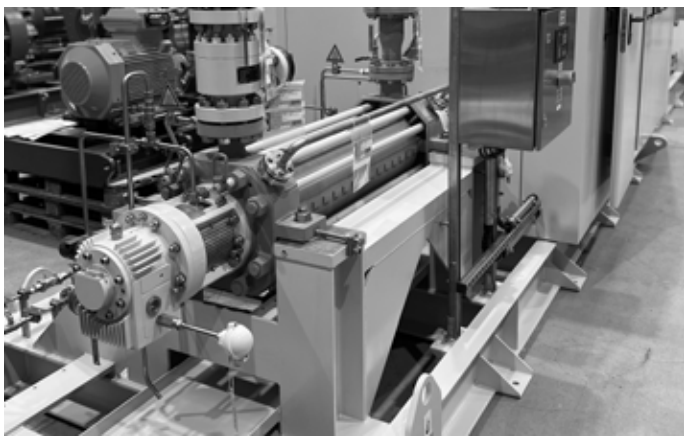
Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

ATEX

Technical Data

Pump Size:	**DN 50 to DN 300** (2“ to 12“)
max. Pressure:	**250 bar** (3600 PSI)
max. Flow:	**3500 m³/h** (15400 gpm)
Total head:	**up to 2200 m** (7218 ft)
Rotating Speed:	**up to 3600 rpm**

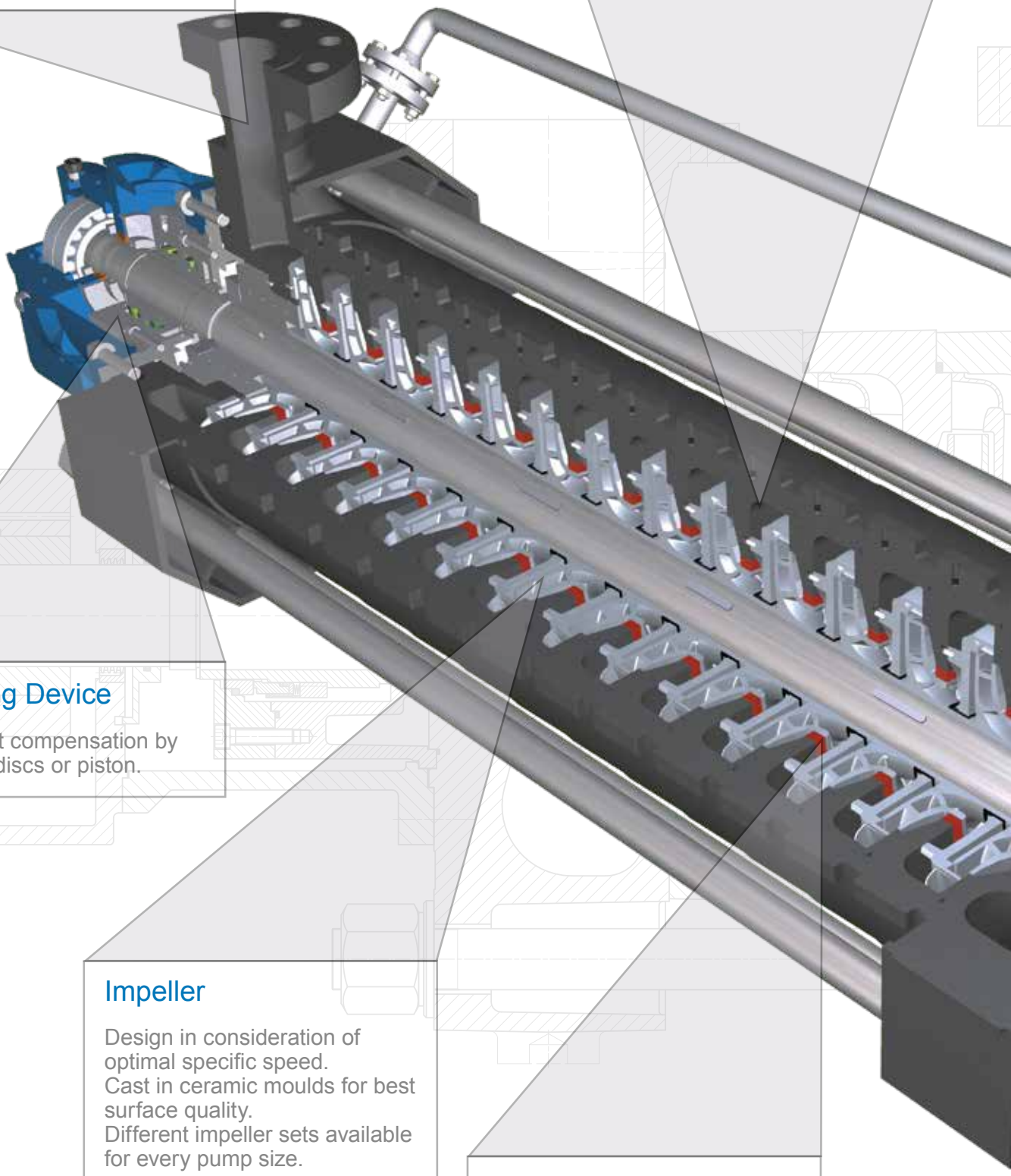


Discharge Casing

Optimized by numerical calculations to achieve best outflow conditions.

Diffusor

With reduced impact losses due to CFD optimized flow channels.



Balancing Device

Axial thrust compensation by balancing discs or piston.

Impeller

Design in consideration of optimal specific speed.
Cast in ceramic moulds for best surface quality.
Different impeller sets available for every pump size.

Wear Rings

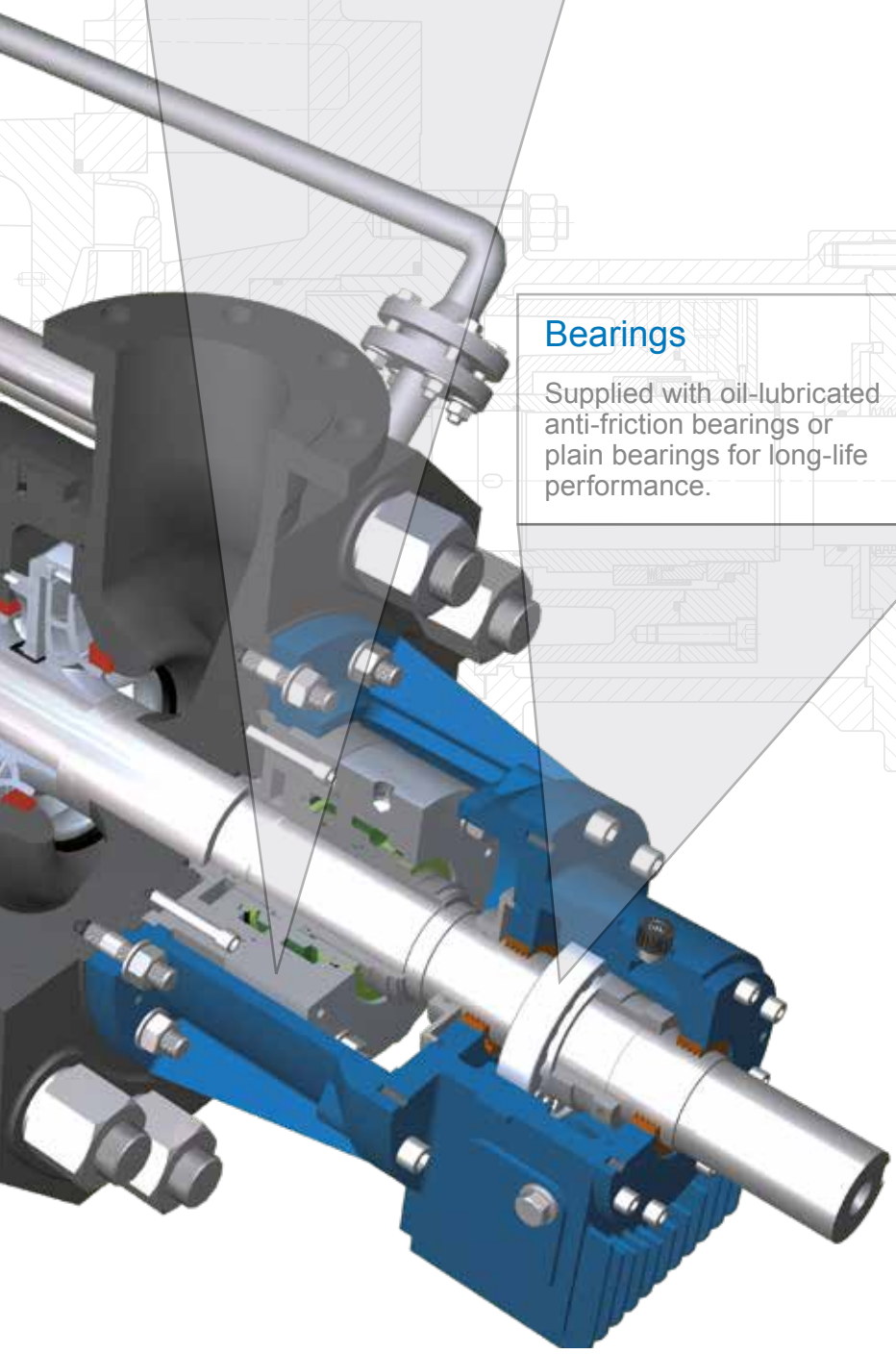
Replaceable rings in composite material to maintain best efficiency and reliability.

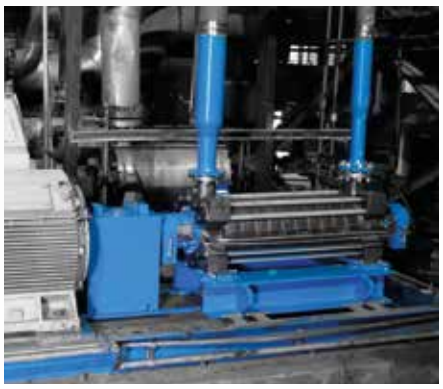
Shaft Sealing

Different seal plans available.
Jacket cooling possible.

Bearings

Supplied with oil-lubricated anti-friction bearings or plain bearings for long-life performance.

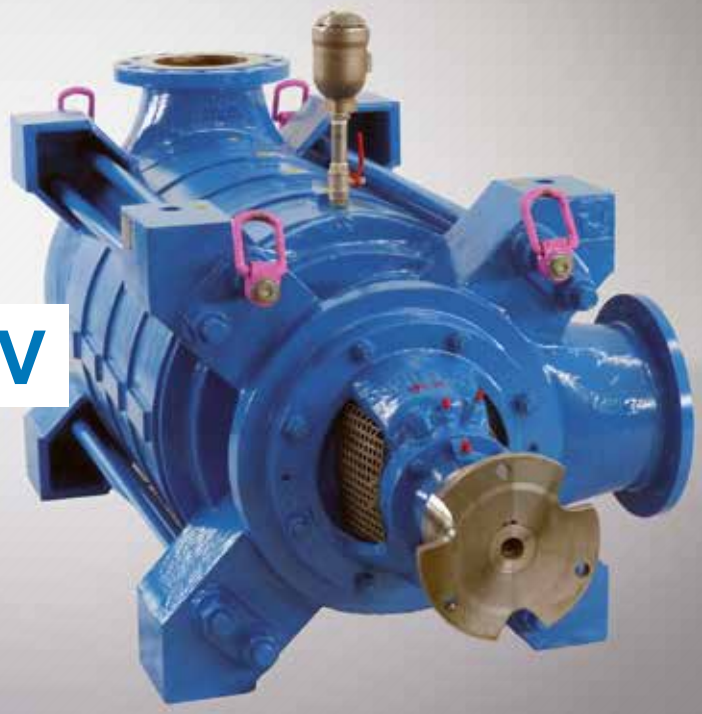




Multistage pump

TYPE HPXL / HPXLV

Handles liquids with up to 10% solids.

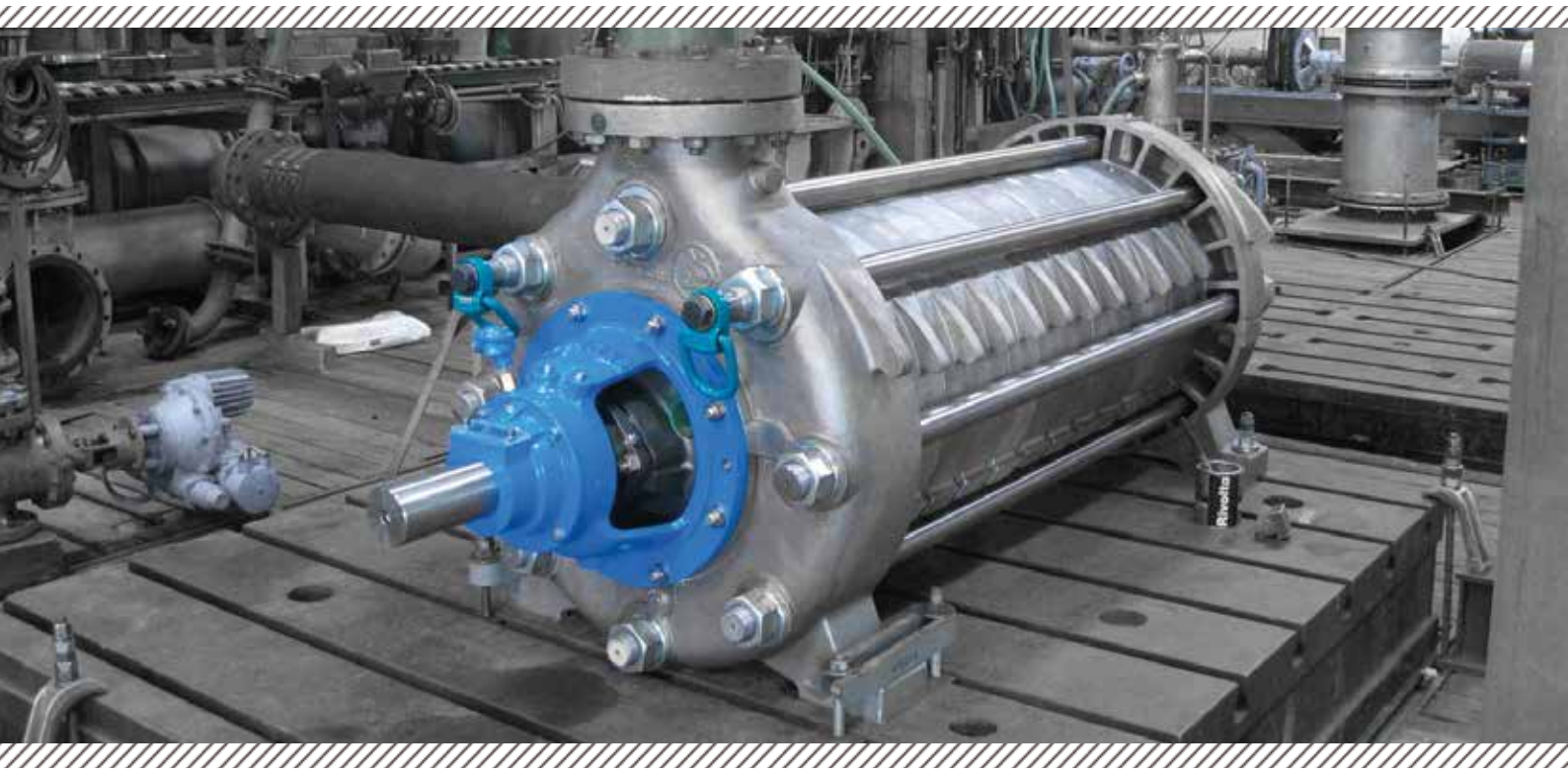


HPXL / HPXLV Design

Multistage centrifugal pump in ring-section design.

- Flanges positioned at 90 ° increments
- Shaft sealing by stuffing box or mechanical seal
- Horizontal and vertical design available
  - ► **Horizontal similiar to BB4**
  - ► **Vertical similiar to VS3**

- Axial thrust compensation by individually balanced impellers
- Designed for 4-pole speed
- Reduced life-cycle costs
- Grease or oil-lubrication anti-friction bearings available
- Tailormade solutions available:
  - ► **Pump dimensions can be adapted to customer requirements**
  - ► **Single or double inlet suction casing available**
  - ► **Discharge flanges available on intermediate stage casings**
  - ► **Drive from one or both shaft ends possible**
- Closed impellers with spatially curved vanes
- Impeller fixed with fitting key



Fields of Application

Handling of contaminated, chemically neutral or aggressive liquids with up to 10% solids.

- Main water drainage in mining
- In addition to drainage and mine weather cooling in mining
- Pressure boosting systems in industrial processes
- Water supply and water treatment plants
- Condensate production
- Mineral industry
- Oil & Gas Applications

Materials

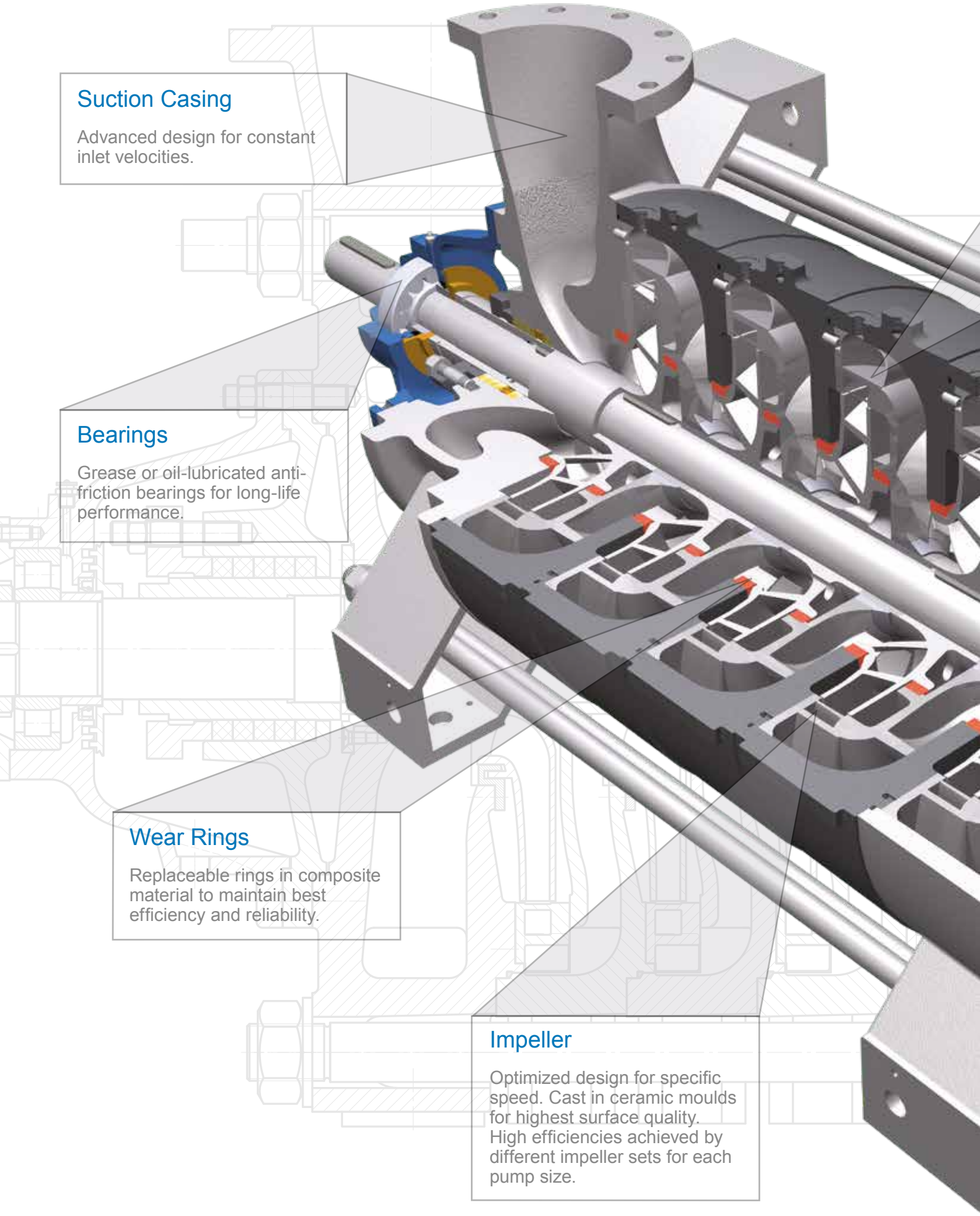
Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

ATEX

Technical Data

Pump Size:	**DN 32 to DN 300** (1 1/4“ to 12“)
max. Pressure:	**40 bar** (580 PSI)
max. Flow:	**2500 m³/h** (11000 gpm)
Total head:	**up to 400 m (1300 ft)**
Rotating Speed:	**up to 3600 rpm**



Suction Casing

Advanced design for constant inlet velocities.

Bearings

Grease or oil-lubricated anti-friction bearings for long-life performance.

Wear Rings

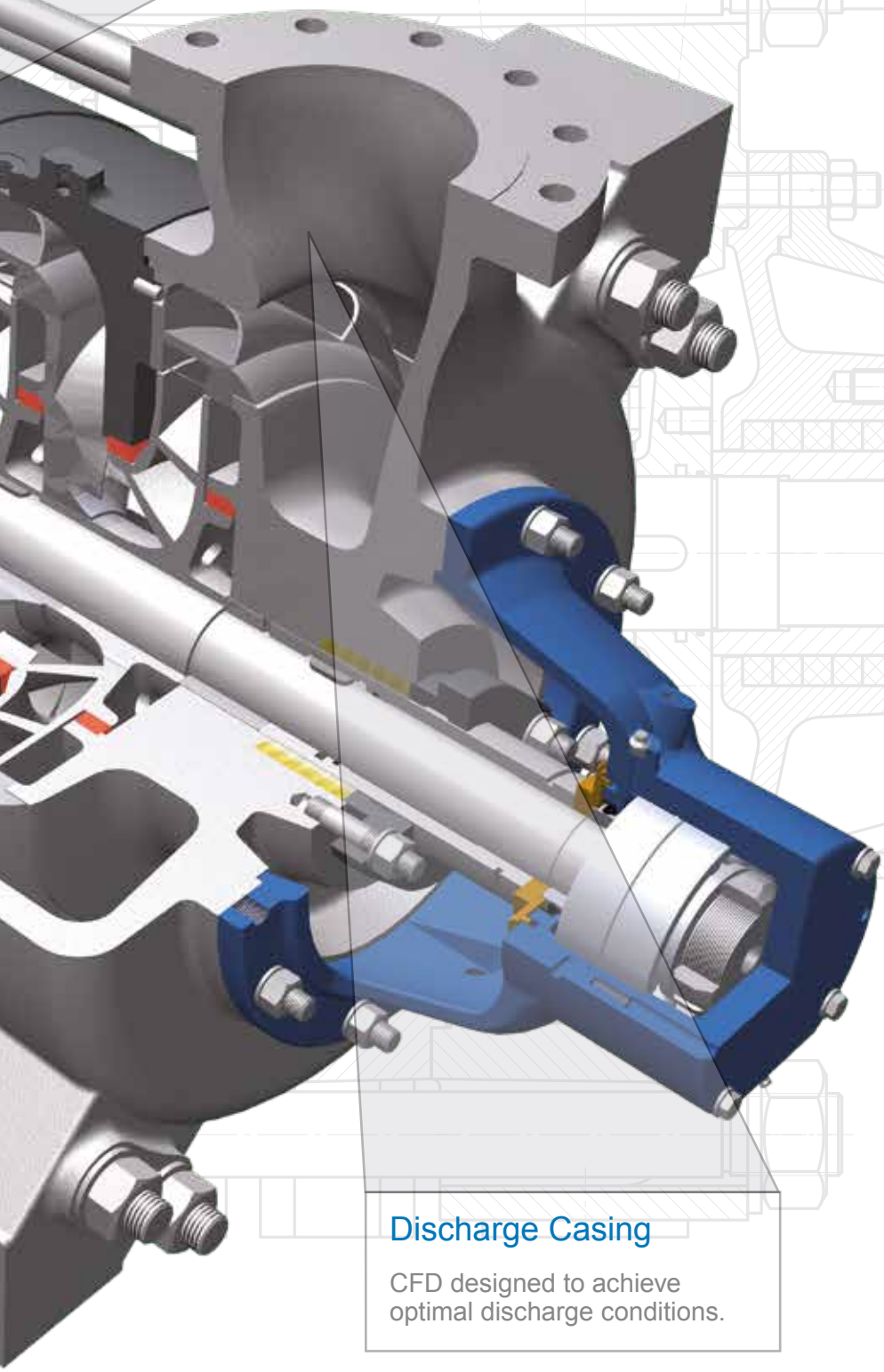
Replaceable rings in composite material to maintain best efficiency and reliability.

Impeller

Optimized design for specific speed. Cast in ceramic moulds for highest surface quality. High efficiencies achieved by different impeller sets for each pump size.

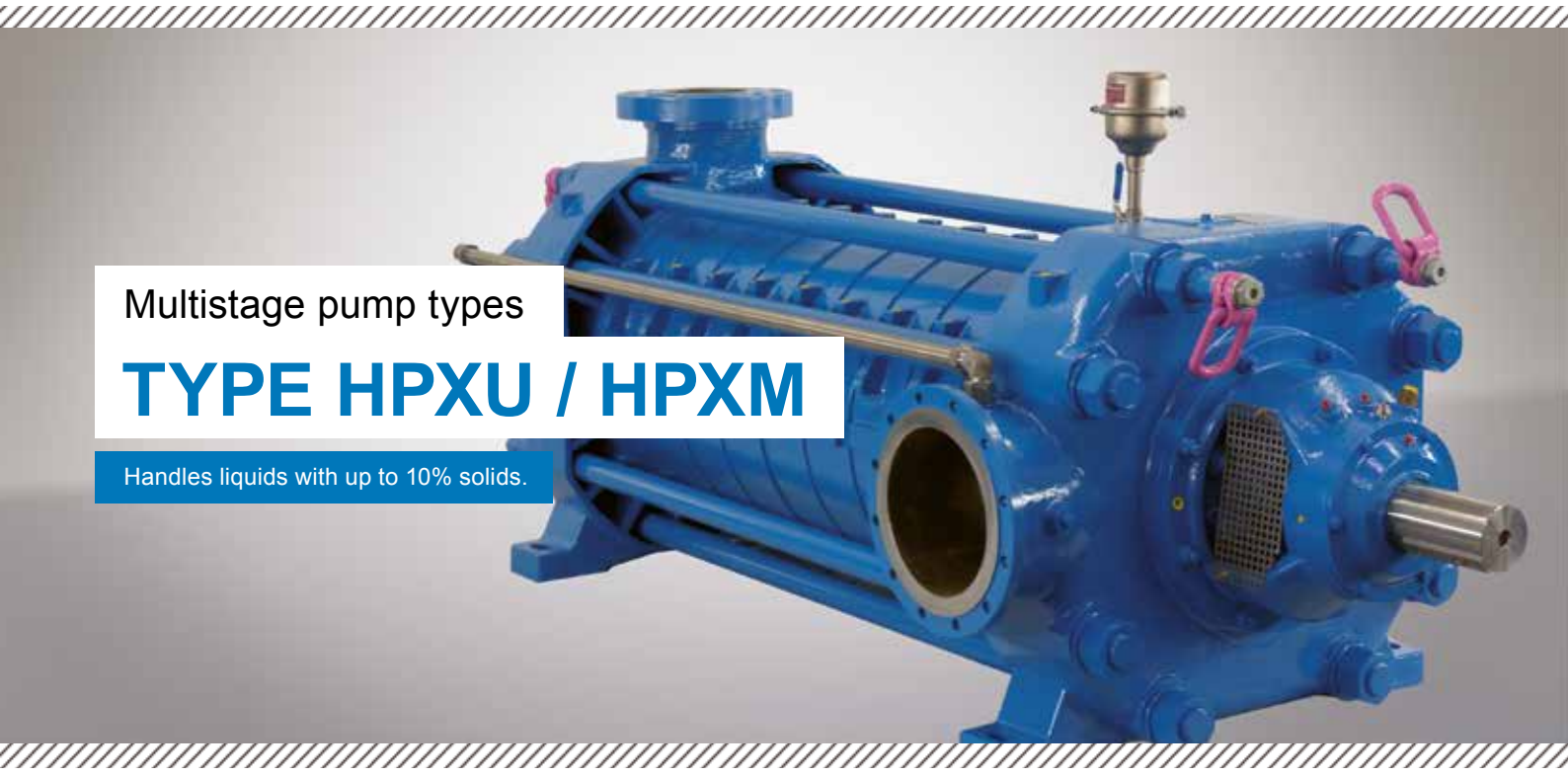
Diffusor

CFD optimized flow channels resulting in reduced impact losses.



Discharge Casing

CFD designed to achieve optimal discharge conditions.



Multistage pump types

TYPE HPXU / HPXM

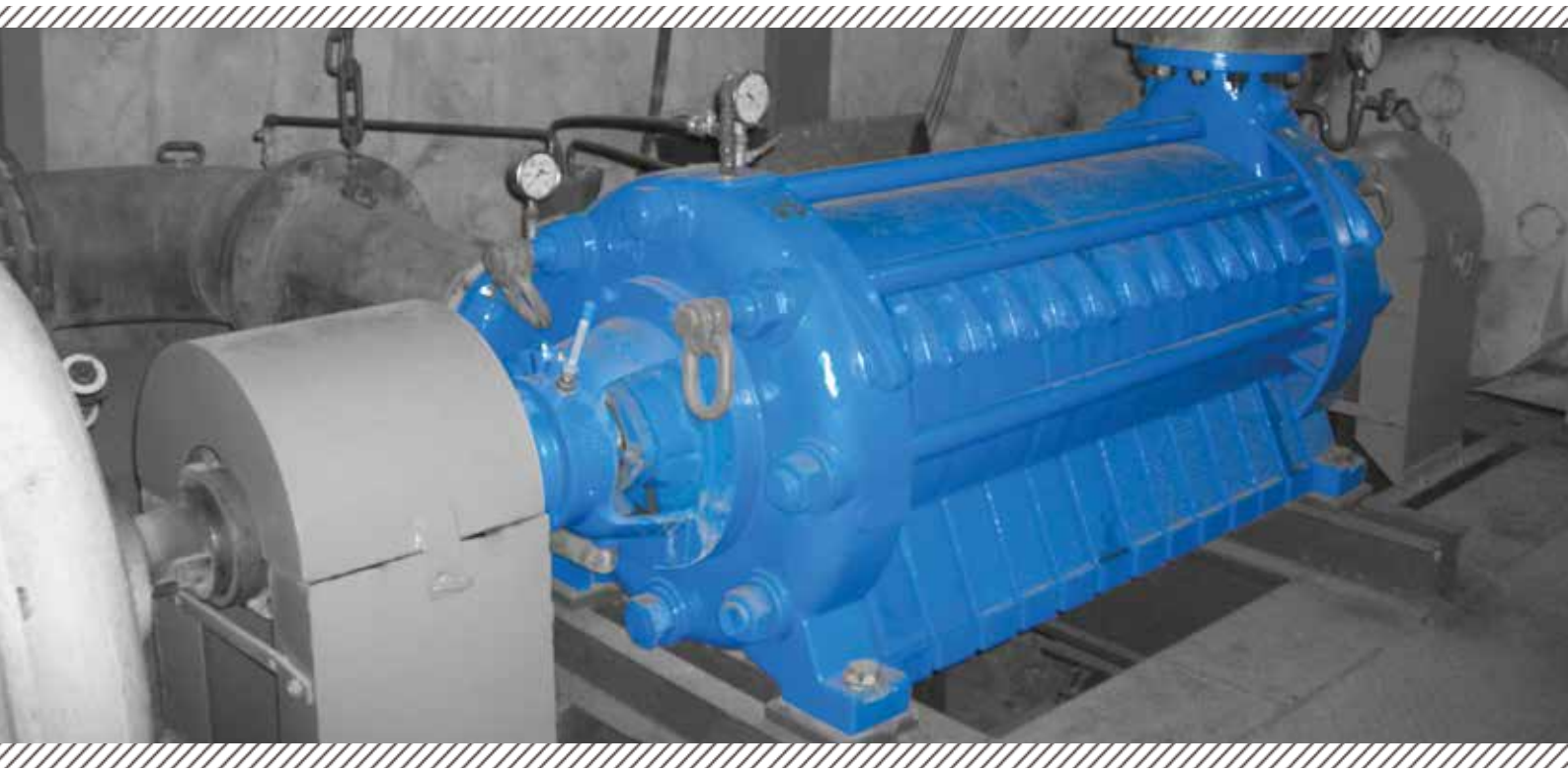
Handles liquids with up to 10% solids.

HPXU / HPXM Design

Multistage centrifugal pump in ring-section design.

- Flanges positioned at 90° increments
- Shaft sealing by stuffing box or mechanical seal

- Axial thrust compensation by balancing device with optical or digital wear indicator for optimized maintenance control
- Designed for 4-pole speed
- Reduced life-cycle costs
- Grease or oil lubrication anti-friction bearings available
- Tailormade solutions available:
  - ► **Pump dimensions can be adapted to customer requirements**
  - ► **Single or double inlet suction casing available**
  - ► **Discharge flanges available on intermediate stage casings**
  - ► **Drive from one or both shaft ends possible**
- Closed impeller with spatially curved vanes
- Impeller fixed with fitting key



Fields of Application

Handling of contaminated, chemically neutral or aggressive liquids with up to 10% solids.

- Main water drainage in mining
- Drainage and mine weather cooling in mining
- Pressure boosting systems in industrial processes
- Water supply and water treatment plants
- Condensate production
- Mineral industry
- Oil & Gas - Applications (handling formation water)

Materials

Available in almost any metal from cast iron to SUPER DUPLEX stainless steel.

The materials are carefully selected depending on the application, the pumped liquid and the combinations of materials adapted to the respective conditions of use.

ATEX

Technical Data

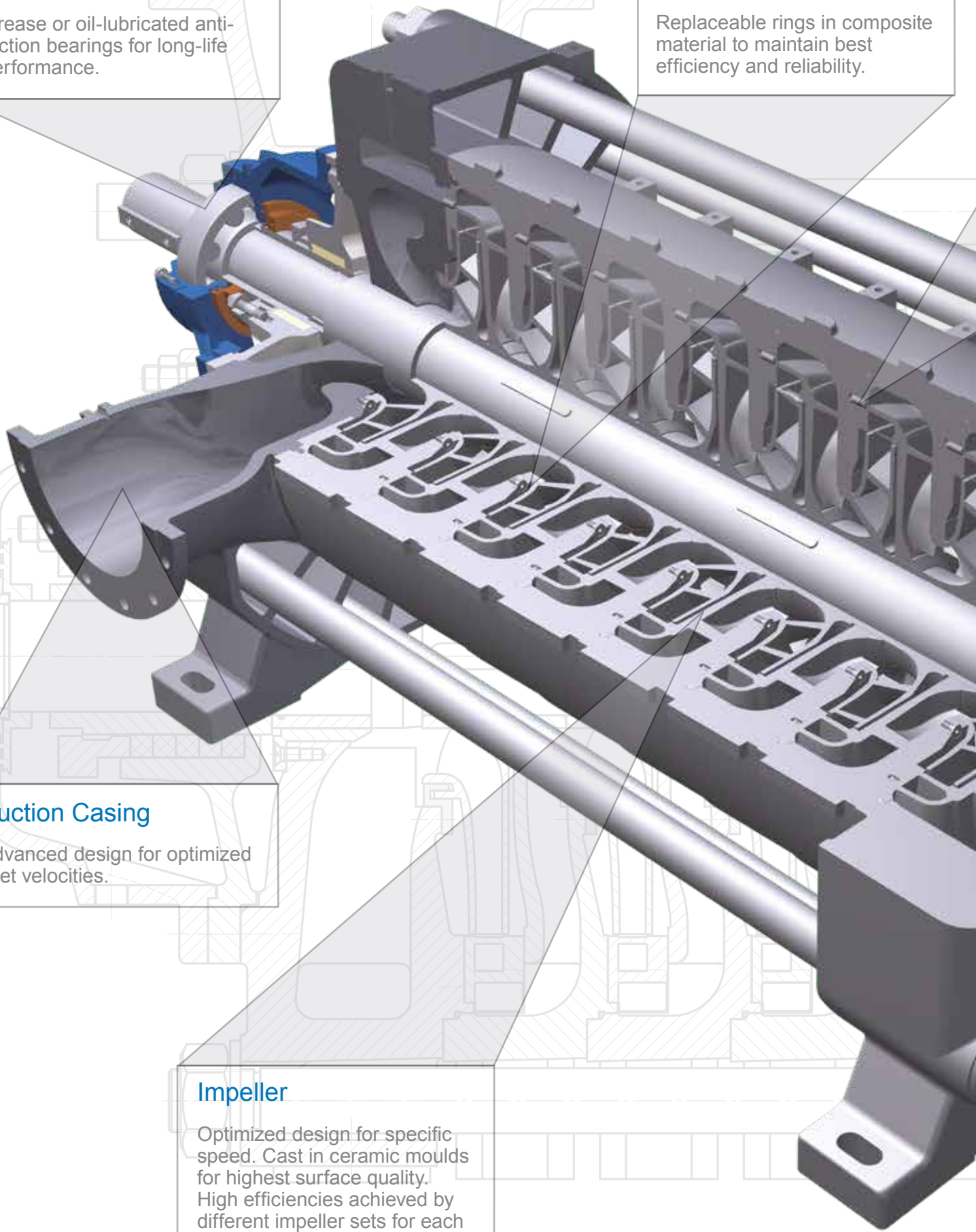
Pump Size:	**DN 40 to DN 250** (1 1/2“ to 10“)
max. Pressure:	**160 bar** (2300 PSI)
max. Flow:	**3250 m³/h** (15000 gpm)
Total head:	**up to 1500 m** (4920 ft)
Rotating Speed:	**up to 3600 rpm**

Bearings

Grease or oil-lubricated anti-friction bearings for long-life performance.

Wear Rings

Replaceable rings in composite material to maintain best efficiency and reliability.



Suction Casing

Advanced design for optimized inlet velocities.

Impeller

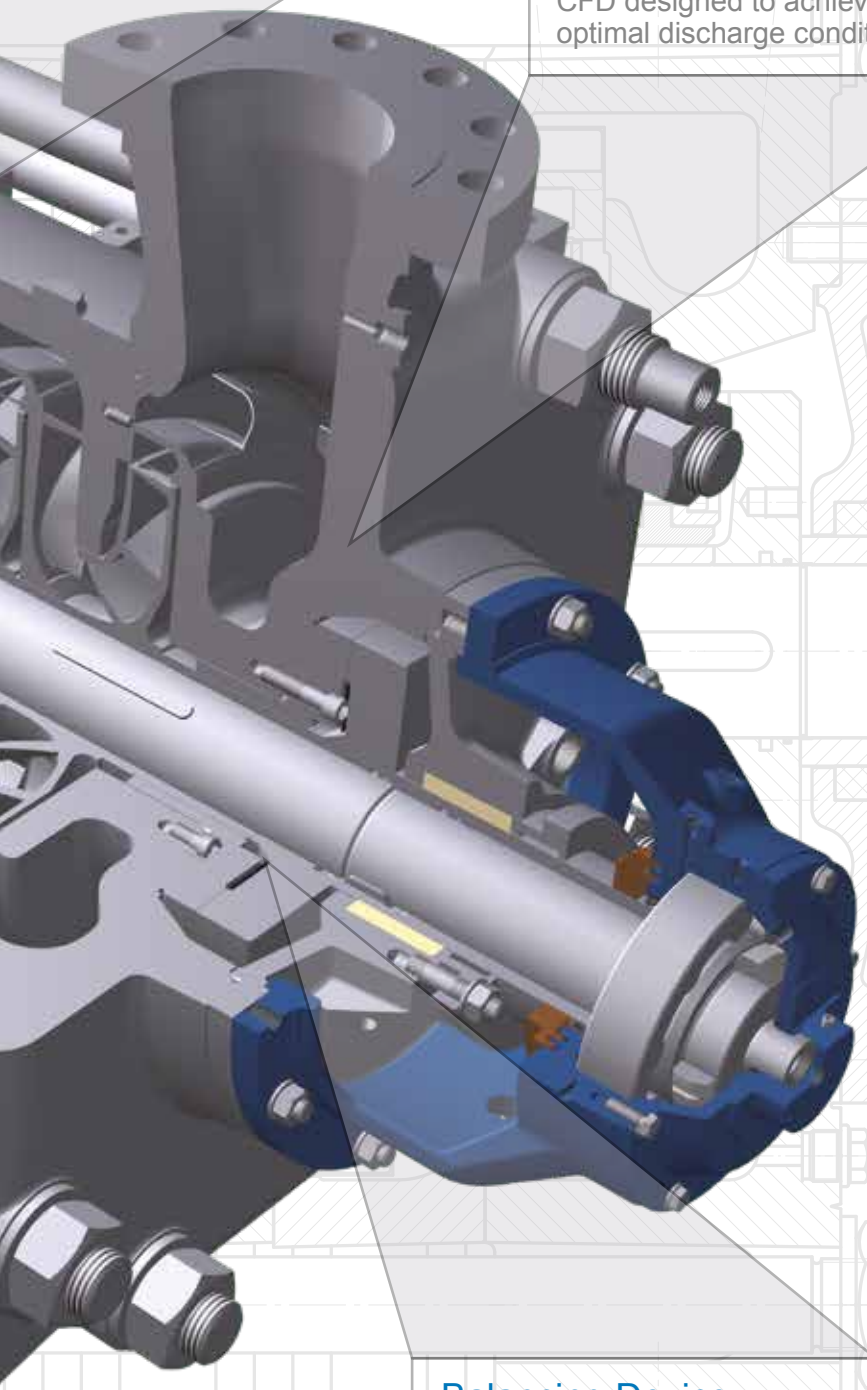
Optimized design for specific speed. Cast in ceramic moulds for highest surface quality. High efficiencies achieved by different impeller sets for each pump size.

Diffusor

CFD optimized flow channels resulting in reduced impact losses.

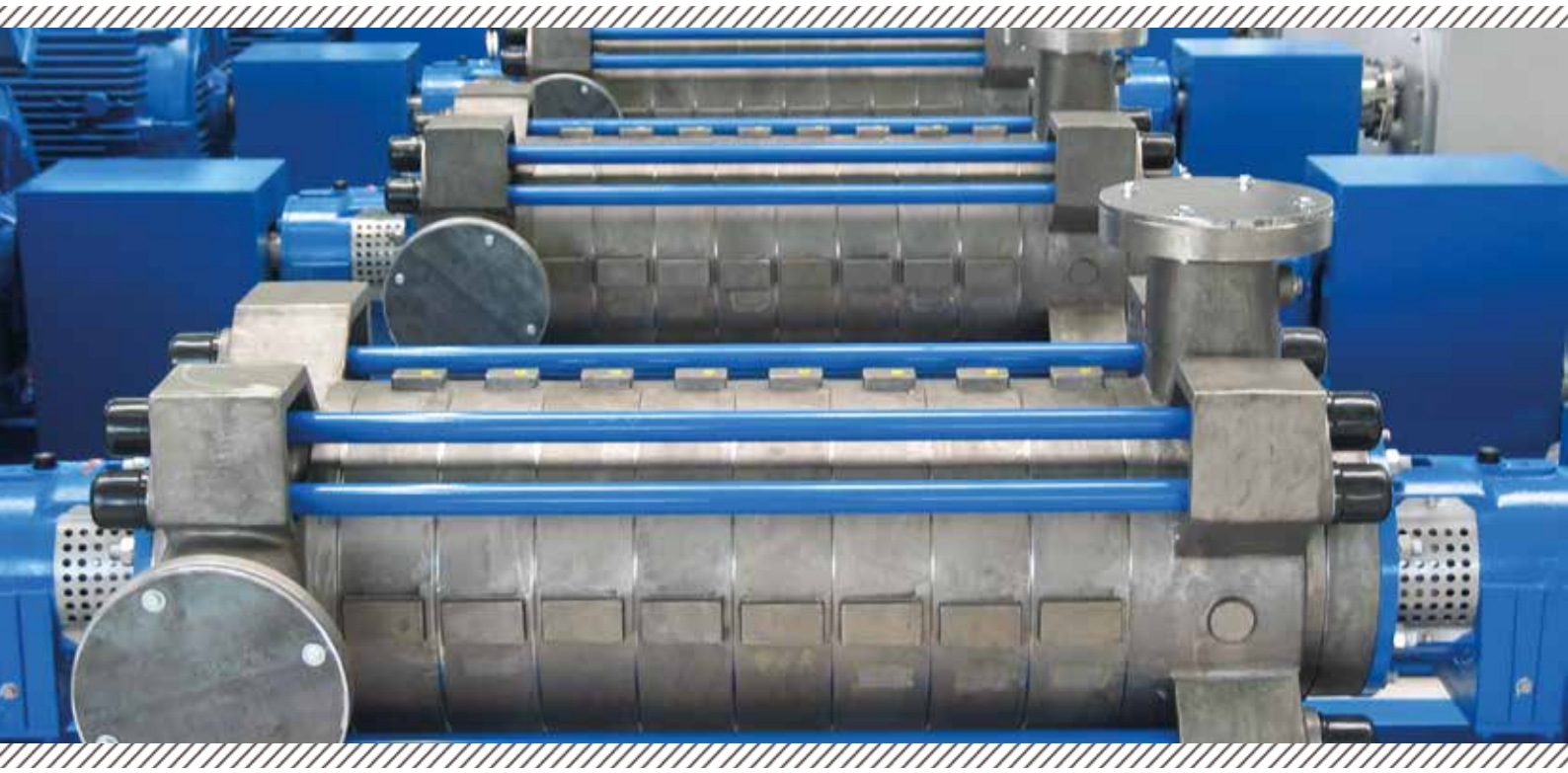
Discharge Casing

CFD designed to achieve optimal discharge conditions.



Balancing Device

Axial thrust compensation by balancing discs or piston.



Tailormade Solutions

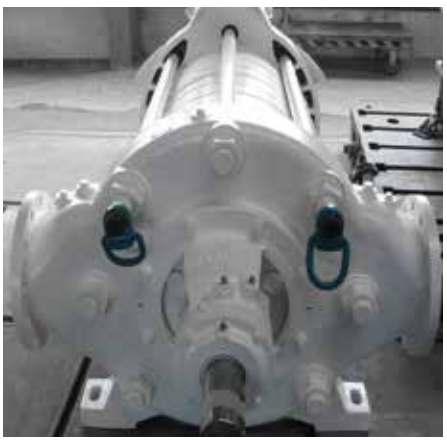
The pump solutions of DÜCHTING PUMPEN are adapted in their design and construction to meet the demanding needs of the market.

Besides the standard products DÜCHTING PUMPEN can offer a wide variety of different tailormade solutions.

Intermediate flange at stage casing

Some examples are shown here, but there are many more possibilities.

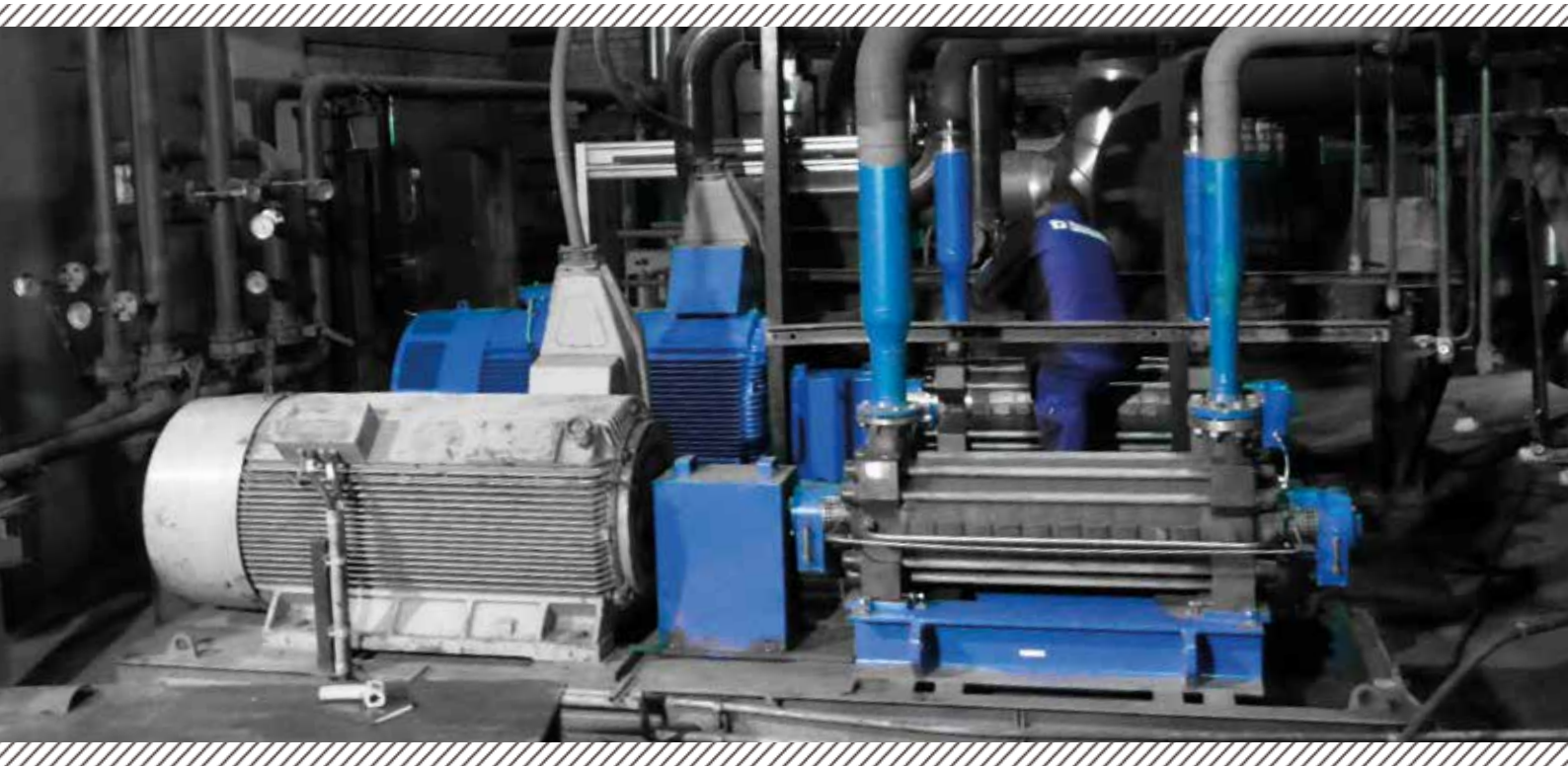
Just let us know how we can help you!



Two flanges in one suction casing

Together with the pumps DÜCHTING PUMPEN can supply a wide range of accessories – from electrical motors to gear boxes, turbines, frequency converters up to complex instrumentation.

Two shaft ends



Plug & Play

Beside tailormade solutions DÜCHTING PUMPEN offers retrofit designs.

These Plug & Play solutions can help the customers to find a solution for problematic or critical pumps in their plants.

With a retrofit pump DÜCHTING PUMPEN delivers a product which can be installed in the existing footprint and can be put into operation easily.

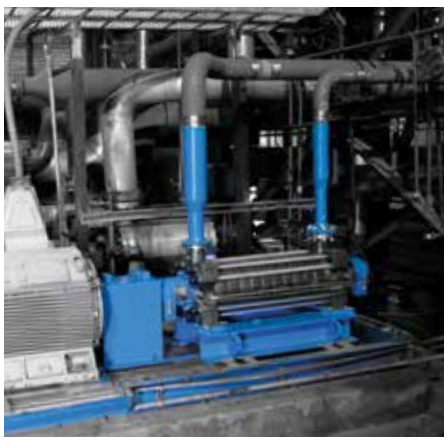
DÜCHTING PUMPEN has designed a new retrofit pump series (MCCR) especially to replace absorber pumps in the FGD process.

Adjustment feet

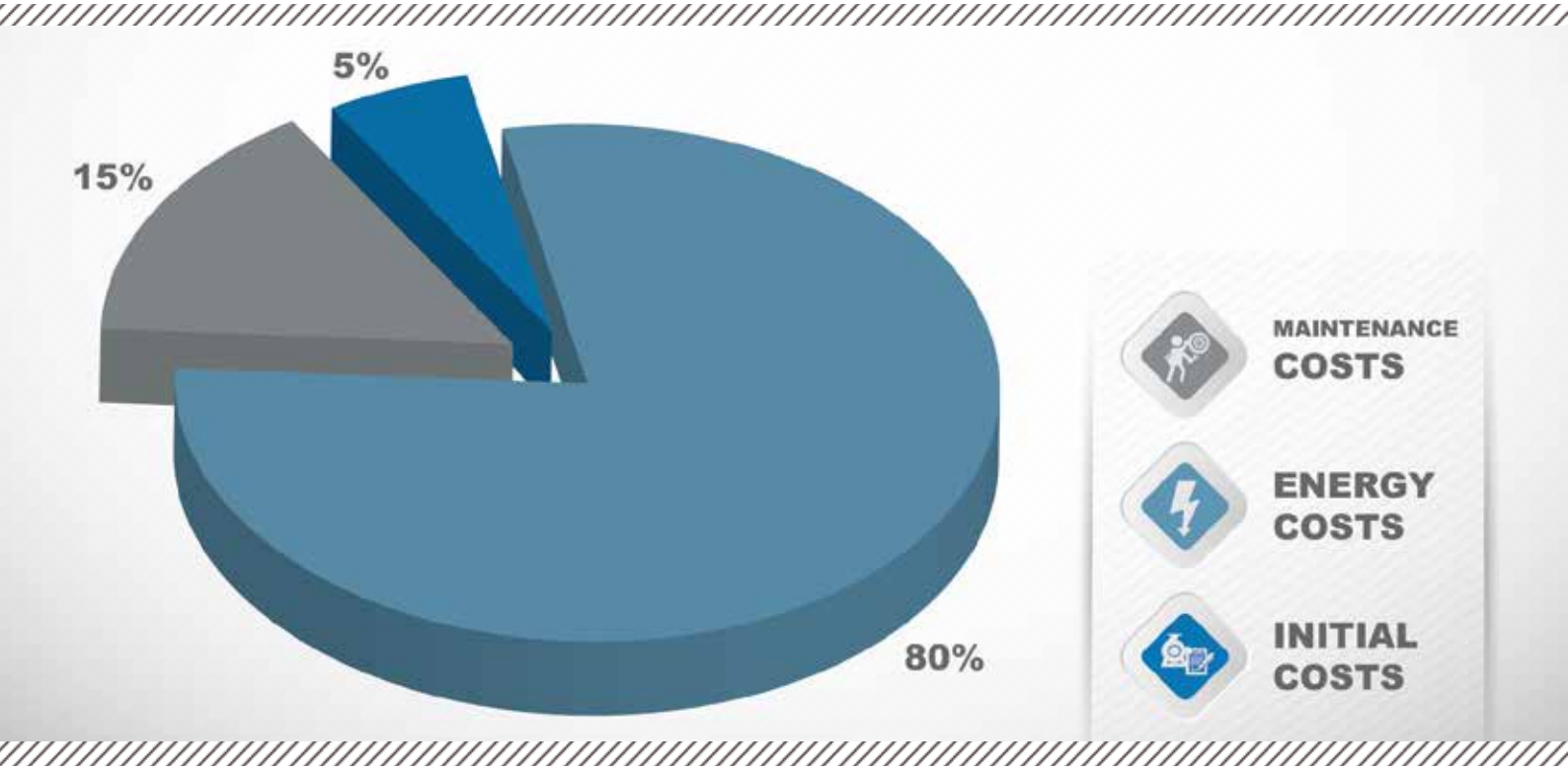
Customer´s installation dimensions (MCCR)

To reach the interchangeability DÜCHTING PUMPEN

- **designs special/new hydraulics to reach the original duty point conditions**
- **adjusts the pumps to existing dimensions**



Adjustment reducers & retrofit base frame



Life-Cycle-Costs

Average life cycle costs for industrial pumps.

Evaluating the Life-Cycle-Costs will identify the most financially attractive alternative. The initial purchase price is a very small part of the life cycle cost for high usage pumps. Minimizing energy consumption and plant downtime have a big influence on the total Life-Cycle-Costs.

Energy costs

DÜCHTING PUMPEN offers a wide range of impeller sets for high efficiencies.

- ► **high efficiency leads to low energy costs**

Maintenance costs

Robust design leads to long lifetime of the pump parts.

- ► **low wear leads to low maintenance work and costs**

Easy accessable and changeable wear parts lead to short downtime for overhauls.

- ► **short downtime leads to low maintenance costs**

Quality Assurance

To ensure highest quality, every pump is tested and certified on our test bed according to international standards.

DÜCHTING PUMPEN is able to provide extensive testing beside the standard performance tests. This includes tests like sound pressure, hydrostatic and vibration tests as well as string test of complete pump units.

LRQA

Current issue date: 1 February 2022
Expiry date: 31 January 2025
Certificate identity number: 10026707

Original approval(s):
ISO 9001 - 3 February 1999

Certificate of Approval

This is to certify that the Management System of:

DÜCHTING PUMPEN
Maschinenfabrik GmbH & Co KG

Wilhelm-Düchting-Str. 22, 59453 Wiltten, Germany

has been approved by LRQA to the following standards:

ISO 9001:2015

Approval number(s): ISO 9001 – 0018246

The scope of this approval is applicable to:

Design and manufacture of single- and multistage centrifugal pumps of metallic and non-metallic materials.

Paul Graaf

Area Operations Manager, Europe
Issued by: Lloyd's Register Deutschland GmbH
for and on behalf of: LRQA Limited

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Issued by: Lloyd's Register Deutschland GmbH, Ruhrschnellweg 3, 59063 Hoisk, Germany for and on behalf of: LRQA Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

Page 1 of 1

Try & Buy

To ensure that the pumps will work properly under the given conditions in the plant and to convince the customer, „Try & Buy pumps“ can be supplied.

Discuss with us if you are interested.

In-house Test Bed

Continuously high quality of each single pump due to performance tests according to

- ISO 9906 standard
- Modern computer-aided test bed
- Capacity: up to 25,000 m³/h [110,000 gpm]
- Delivery Head: up to 2,200 m [7,200 ft]
- Electrical Power: up to 5,000 kW [6,700 hp]
- Witnessed inspection tests
- ISO 9001 certified since 1994

LRQA
CERTIFIED
ISO 9001-2015

Service & Spare Parts

With its service and spare parts departement DÜCHTING PUMPEN offers the full range of after-sales-service.

With its own service technicians and several service partners worldwide DÜCHTING Service is everywhere and always available.

Inhouse - Service

- Maintenance
- rebuild & repair
- damage analysis
- performance tests with vibration analysis
- site staff training
- and much more

Site - Service

- Supervision
- Commissioning Assistance
- Laser Alignment
- Start-ups
- Revisions
- Troubleshooting
- Vibration & Condition Analysis
- Flow Rate Measuring
- Repairs
- Mechanical Seal Exchange
- whole pump rebuild and repair
- Training at site
- and much more

Please contact us at:
+49 23 02 / 969 - 0
or send a message to service@duechting.com

DPNA - DÜCHTING PUMPS North America LP

DPNA was founded in 2010 as DÜCHTING's first satellite sales office to focus on the US and Canadian FGD, mining, sea water desalination, and industrial markets. DPNA has been very successful in these markets and as a result has added an additional sales office, a service partner and manufacturers' representatives in key geographic locations.

DPNA works closely with the factory but these capabilities, combined with DPNA's Sales Engineers' education and extensive industry and hands-on experience, allow us to offer responsive sales support as well as technical and field service support.

DÜCHTING PUMPS North America exists to give our customers DÜCHTING's world-class technology with the best US-based customer support available. Please contact us to find out how we can support you.

DPSA - DÜCHTING PUMPS South América

DPSA, our office for the South American market was established in response to customer needs for appropriate technical and commercial on-site-support for consumers, retailers, designers and consultancies in the region. In response to the growing demands for technical information, new technologies and highly reliable products in the field of desalination of sea water - mining and civil water pipes for power plants (FGD).

We see that the available technologies and a wide range of references, are an optimal starting point for DPSA.

We provide the best deals on very suitable and efficient solutions for your projects. We share the best technical and economic information and find the optimal solution.
Contact us and we will find out how we can support you.

DPCIS - DÜCHTING насосы CIS

DPCIS is a direct sales channel started in 2013, for the „on-site assistance" and direct customer contact in the CIS. The sales team is focused on the areas of FGD, mining, desalination and industrial applications. Many years of market-experience in the areas of sales, marketing and customer acquisition draw our employees in the cross-market and business.

DPCIS exists in order to provide its world-class technology combined with the best customer support DÜCHTING can provide.

Please contact us to find out how we can support you.

Representatives

Service points - whether by partners or on their own - are and will continue to be set up.

Find a list of our partner online.

HABERMANN Suction Dredger by DÜCHTING

We develop and manufacture suction dredgers in different sizes as well as the necessary accessories. Numerous services complete the suction dredger offer. In addition to the classic types of suction dredgers, we also develop and sell special designs.

The concept behind the new products

Habermann has been committed to the development and production of suction dredgers at a high technical level for decades.

DÜCHTING will not only keep the proven product quality under the new name, but our engineering expertise will further more advance the suction dredger technology.

Better service through international network

Current and future customers benefit from the international DÜCHTING network.

Partners in over 50 countries are now successively trained in the Suction Dredger Technologie to ensure future installation- and maintenance-service, and simplified communication with the engineering specialists at the German headquarters.

Complete data transmission

Particular emphasis was placed on the transfer of knowledge.

It is always possible to fall back on the entire know-how of Habermann Mineral Systems, including all manufacturing drawings, spare parts lists and circuit diagrams, and therefore guarantees our customers smooth support.

Detailed Information

Learn more about our newest products under **habermann-sucton-dredgers.com**

DÜCHTING PUMPEN Maschinenfabrik GmbH & Co. KG

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Auflage: 5/2023