

The top half of the slide features a wide-angle, nighttime photograph of the Hong Kong skyline. The city's numerous skyscrapers are brightly lit with various colors, including yellow, blue, and red. The lights reflect on the dark water in the foreground. In the upper right corner, the word "wilo" is written in a bold, teal, lowercase sans-serif font.

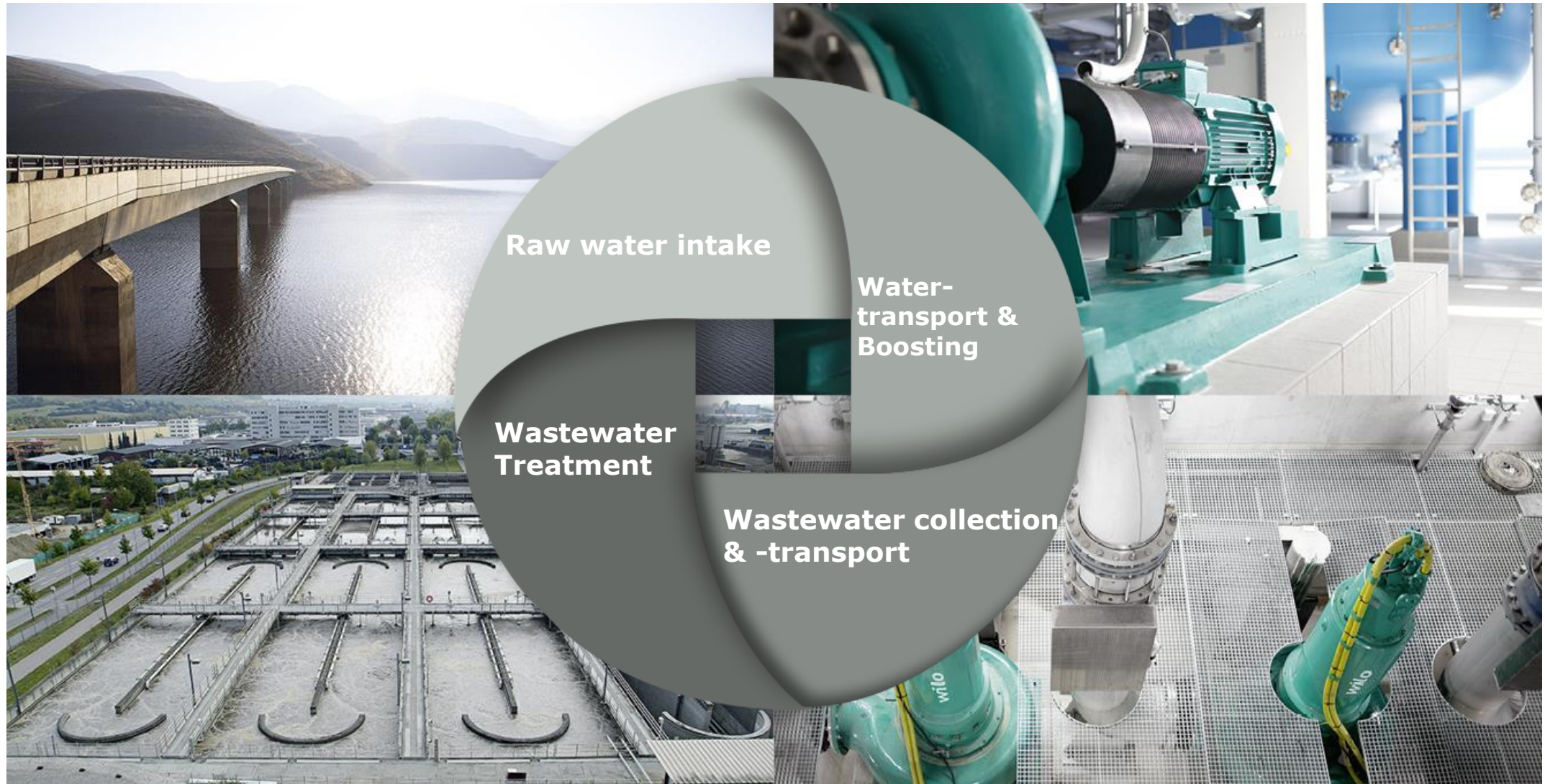
wilo

Wilo is going beyond pumps

Company presentation

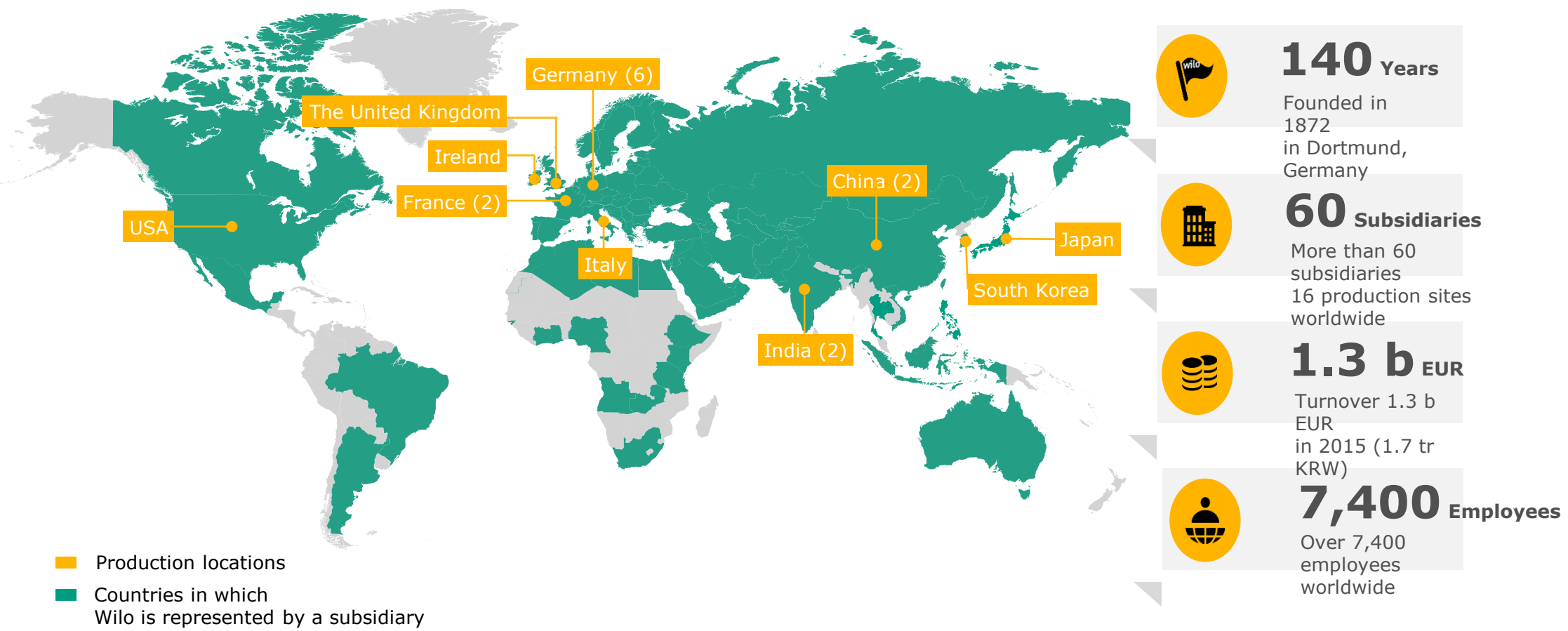
Cheongki Jeong, WILO Pumps Ltd. Korea

Innovative system solutions in all fields of Water Management.



Where we come from

WILO SE, One of the world’s leading manufacturers of pumps and pump systems



The WILO SE Executive Board



Dr. Markus Beukenberg
Chief Technology Officer (CTO)

Oliver Hermes
Chairman of the Executive Board (CEO)

Eric Lachambre
Chief Operating Officer (COO)

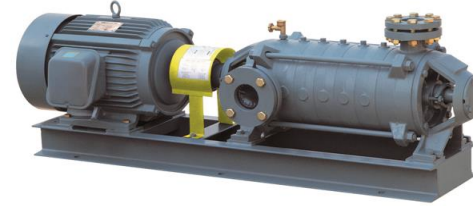
Carsten Krumm
Chief Operating Officer (COO)

WILO Pumps Ltd., Korea.

LG

1969 Produce HH Pumps
 1984 Start to Export
 1986 Produce CM Pumps

 (As WILO subsidiary)
 1989 WILO Korea
 2002 WILO Industries



WILO

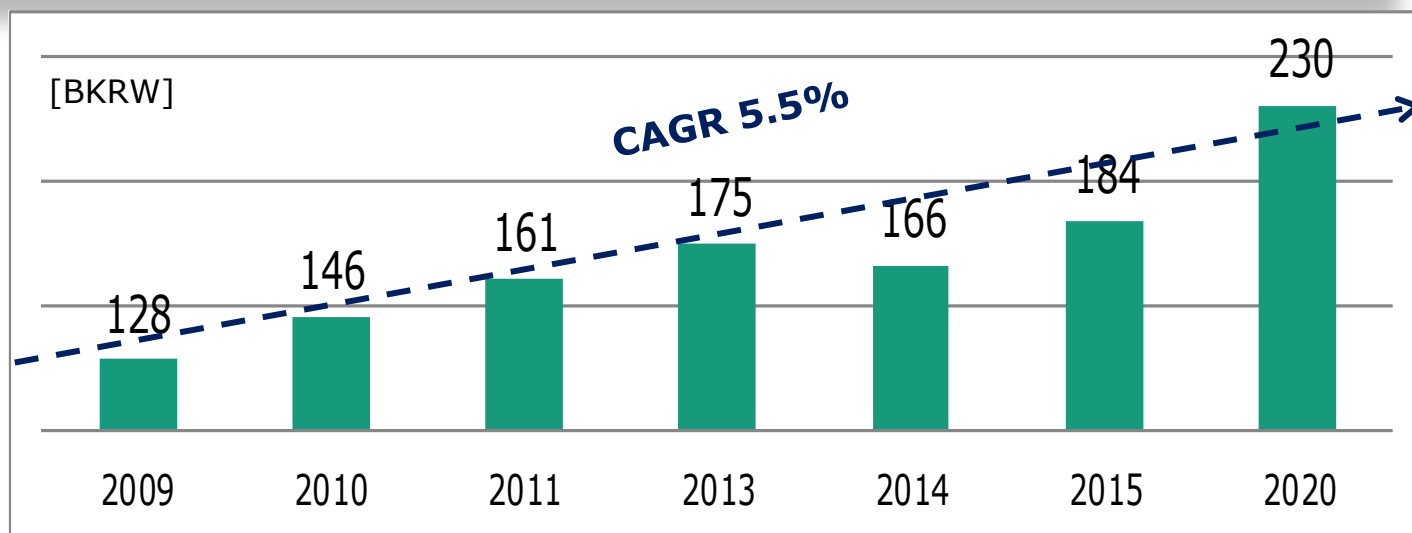
2000 WILO-LG Pumps Ltd.
 2004 WILO Sole brand
 2005 Establish WILO ELEC
 & SVC network
 2009 Big test bed
 2011 100M.EUR Sales
 2013 New factory in Busan



WILO Pumps Ltd., Korea.



- Site: 51,670m²
- Floor: 31,890m² (Factory 24,088m², Office 6,819m², Others 983m²)
- Production capacity:
 - ✓ 1,000,000 sets for HH pump/year
 - ✓ 100,000 sets for CM pump/year
- Test capacity
 - ✓ 25,000m³/h
 - ✓ 1,100kW

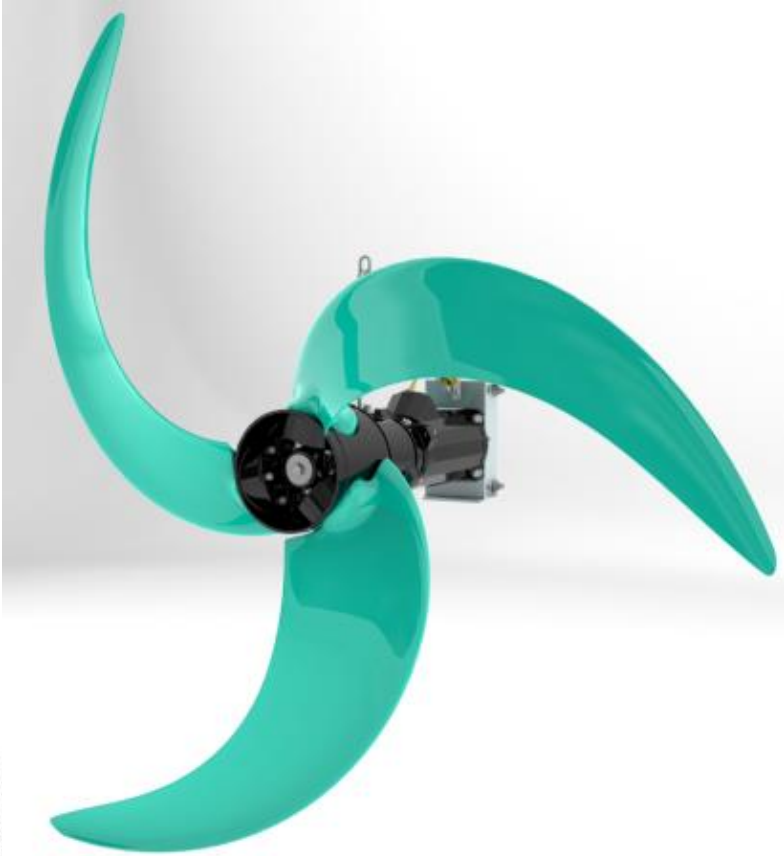


Wilo Trainings



- Wilo Academy Operations
 - Development and extension of trainings in the Water Management segment
 - Training of international trainers
 - Customer trainings
 - More than 2,000 participants per year

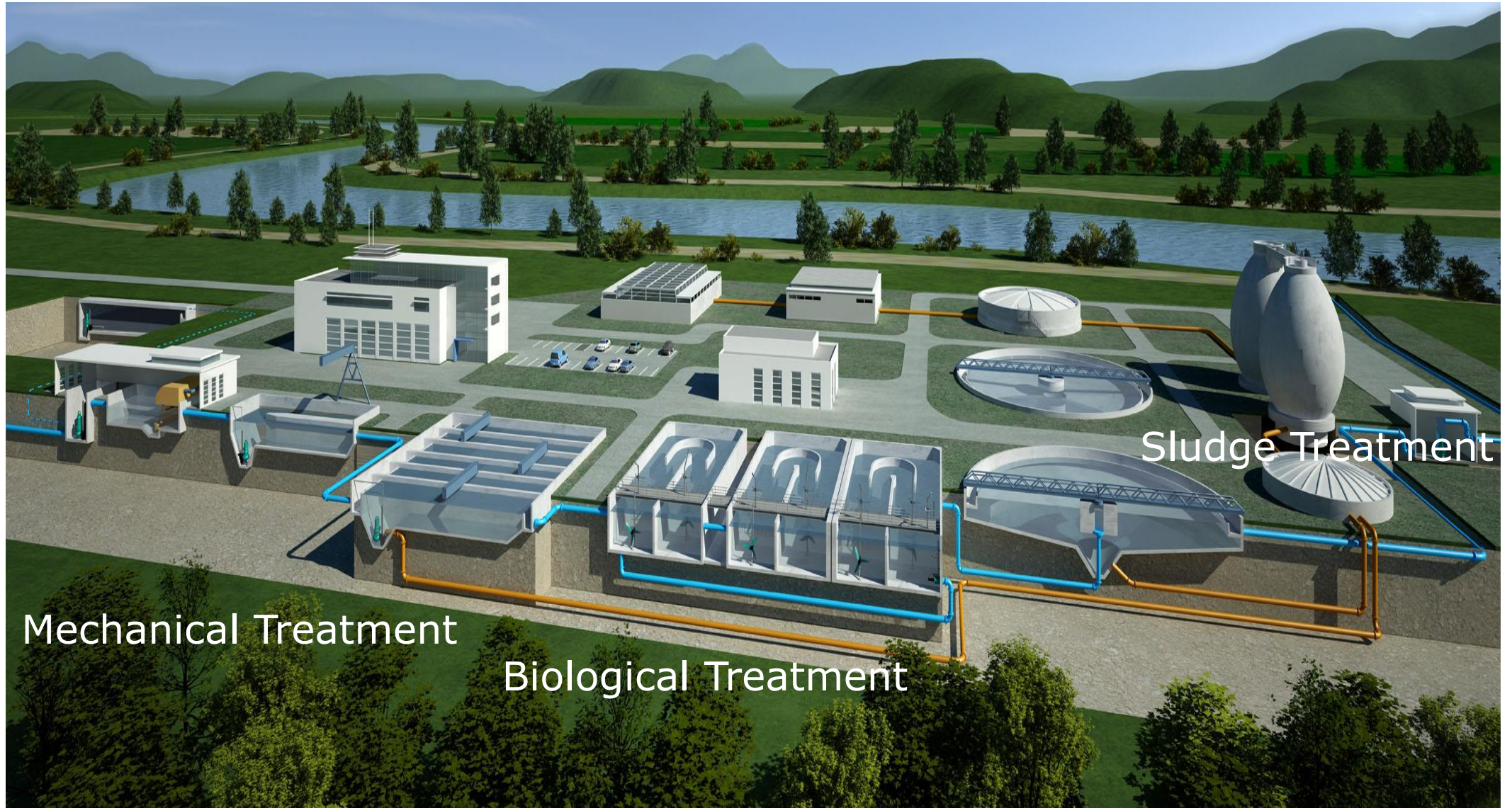
wilo



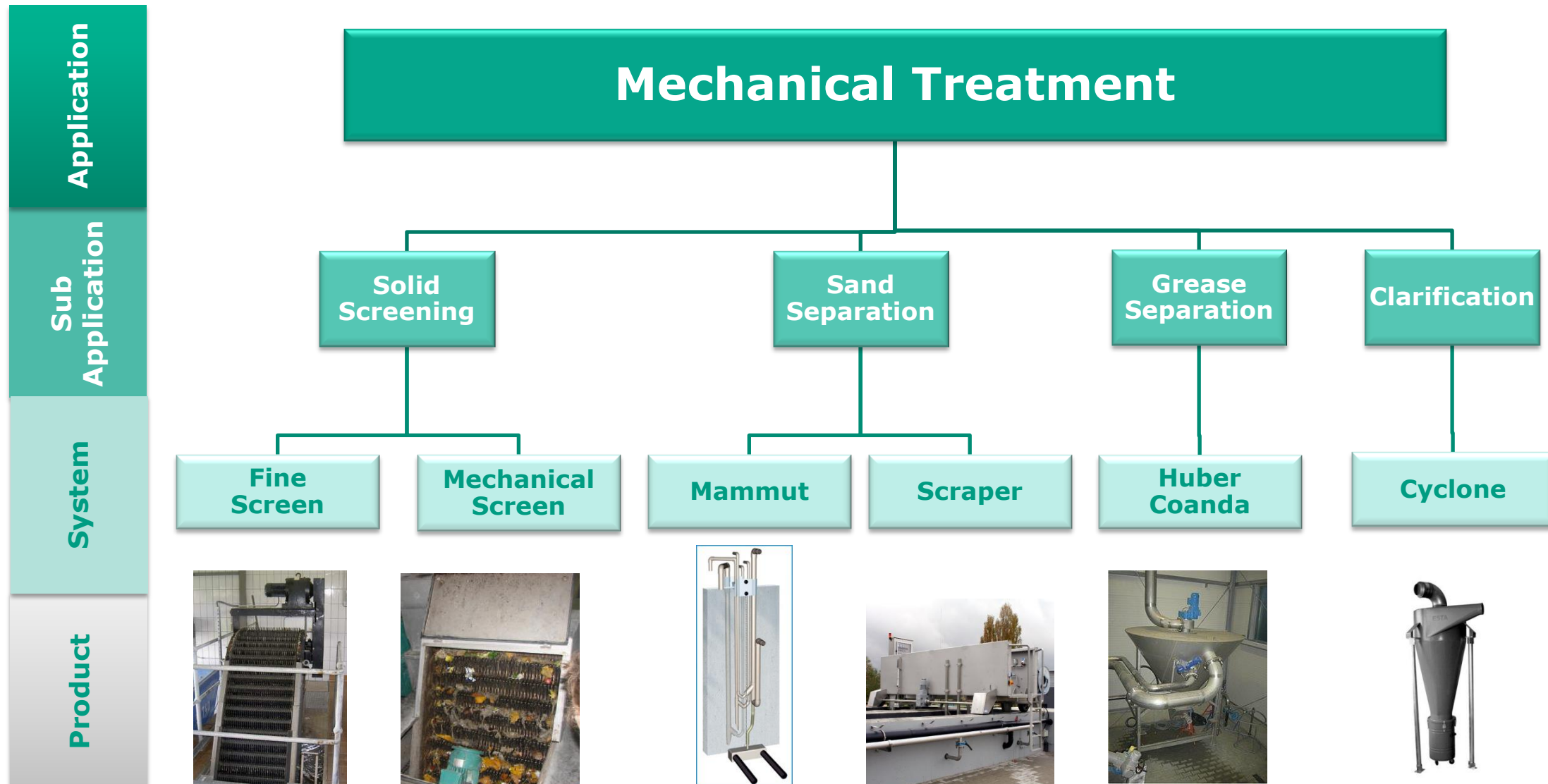
Highly efficient submersible mixers

Wilo

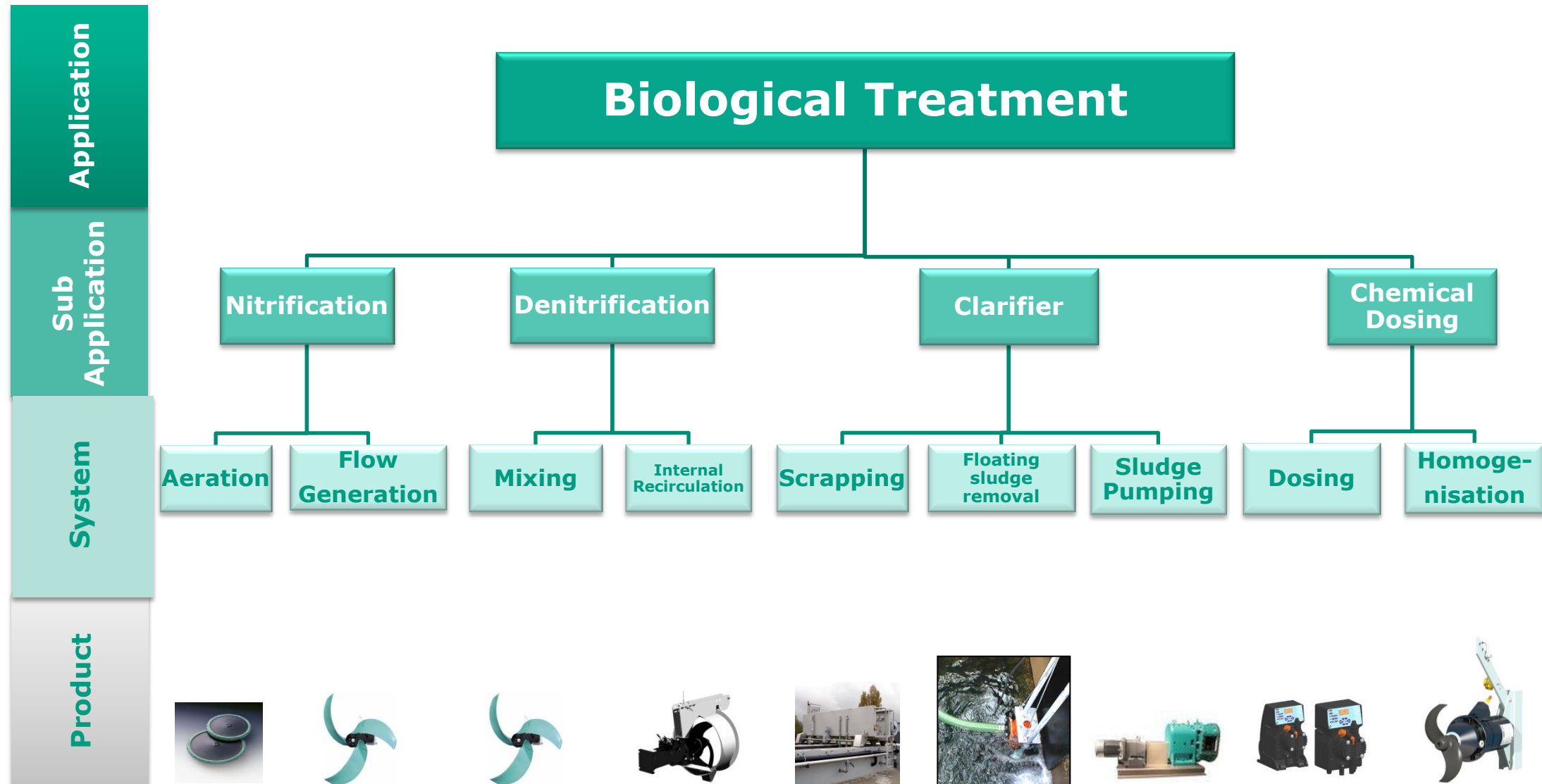
Overview Waste Water Treatment



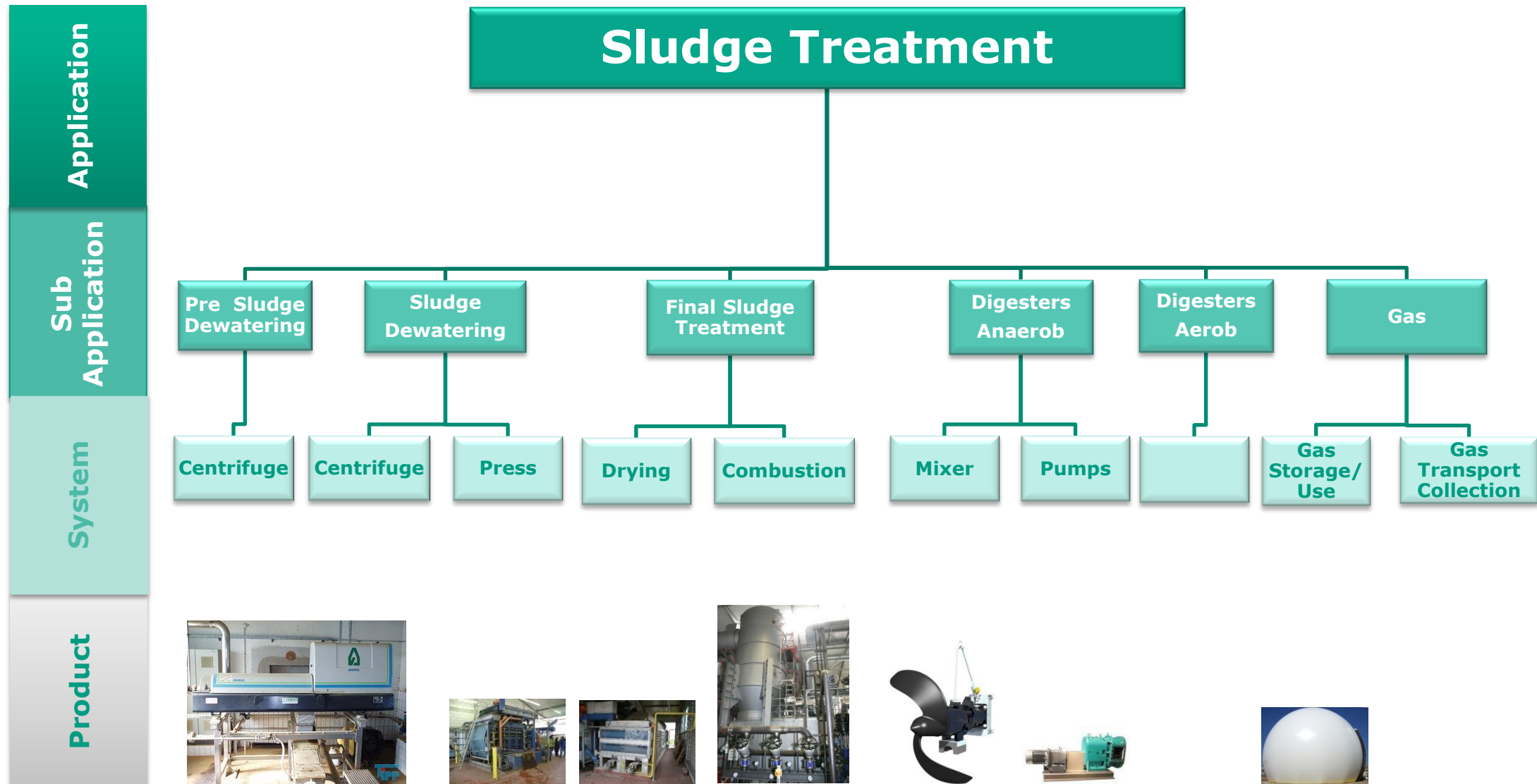
Application: Waste Water Treatment



Application: Waste Water Treatment



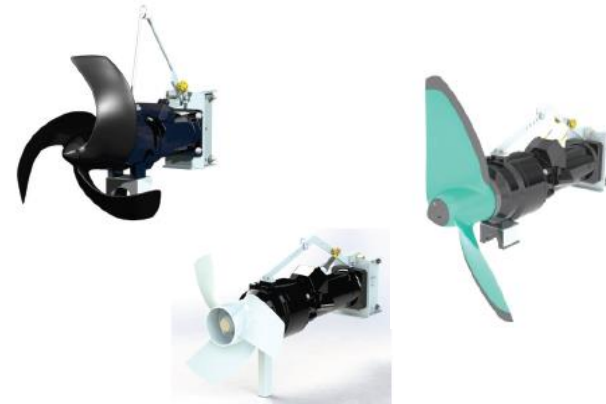
Application: Waste Water Treatment



Application: Special applications

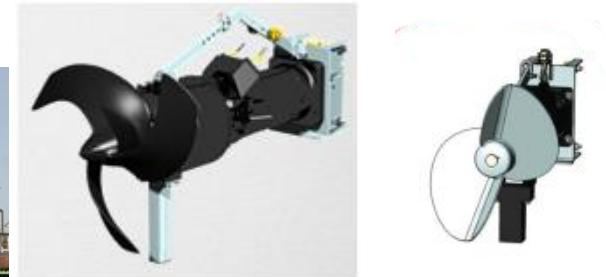
➤ Agricultural applications

- Biogas



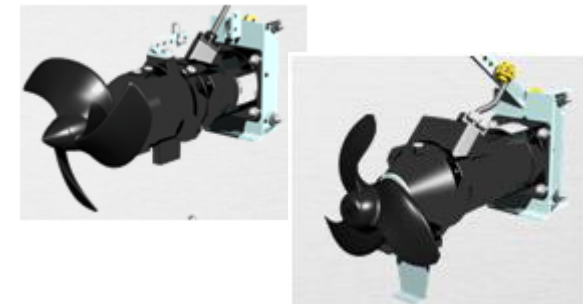
➤ Industrial applications

- Pulp and paper industry
- Palm oil industry
- Neutralization
- mining industry



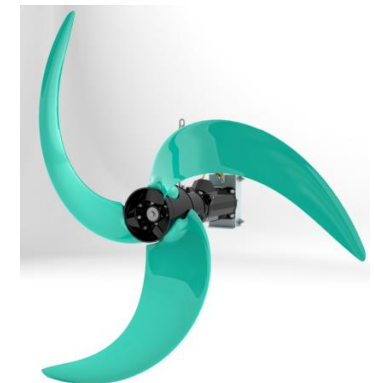
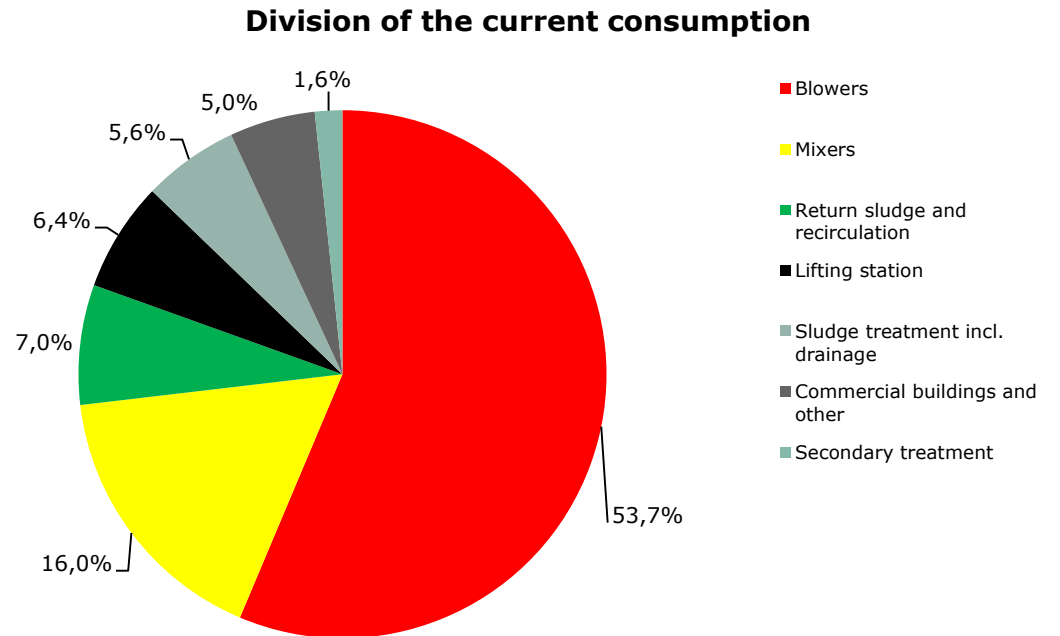
➤ Others

- Pump pits
- cleaning of storm water tanks



Submersible mixers

- Today submersible mixers are indispensable for modern sewage treatment plants because of their universal application.
- At the same time, submersible mixers are the second largest energy consumer in water treatment plants.



Classification of the Submersible Mixers

➤ Slow speed submersible mixers

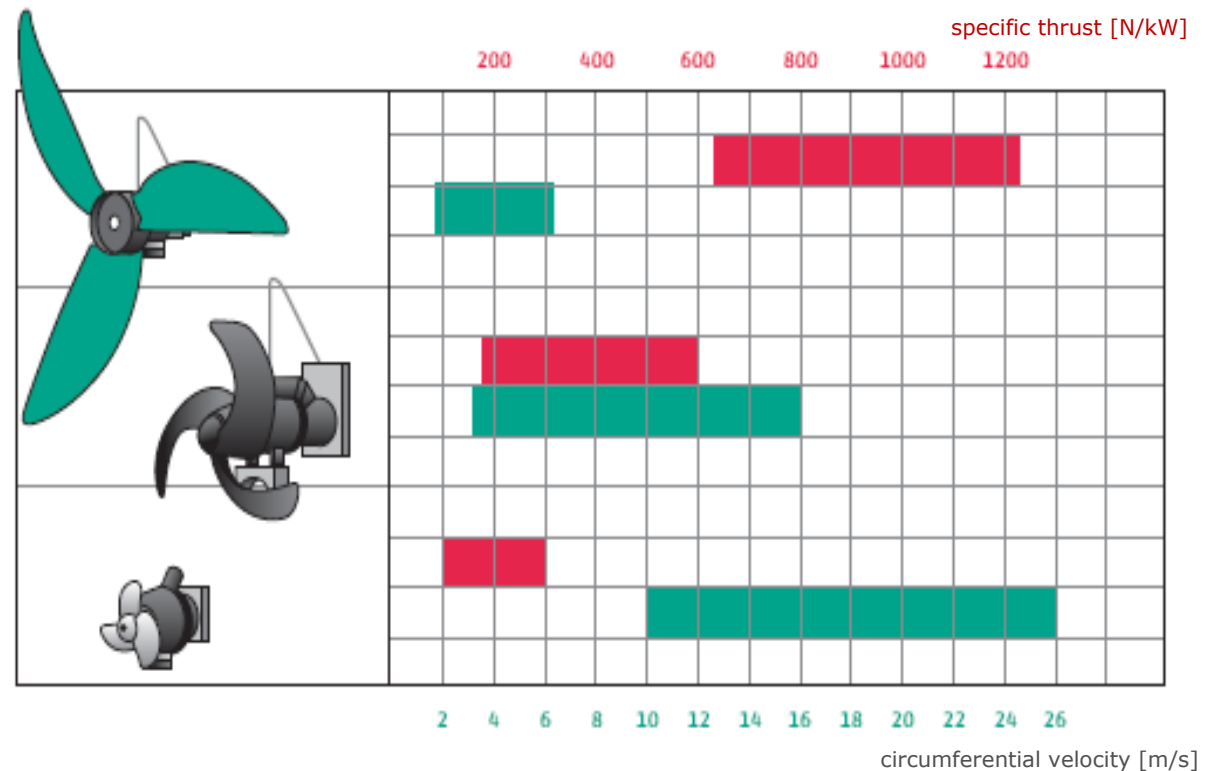
- Propeller speed: 13 - 158 min⁻¹
- Propeller diameter: 1,2 - 2,6 m
- Propeller made of VE

➤ Medium speed submersible mixers

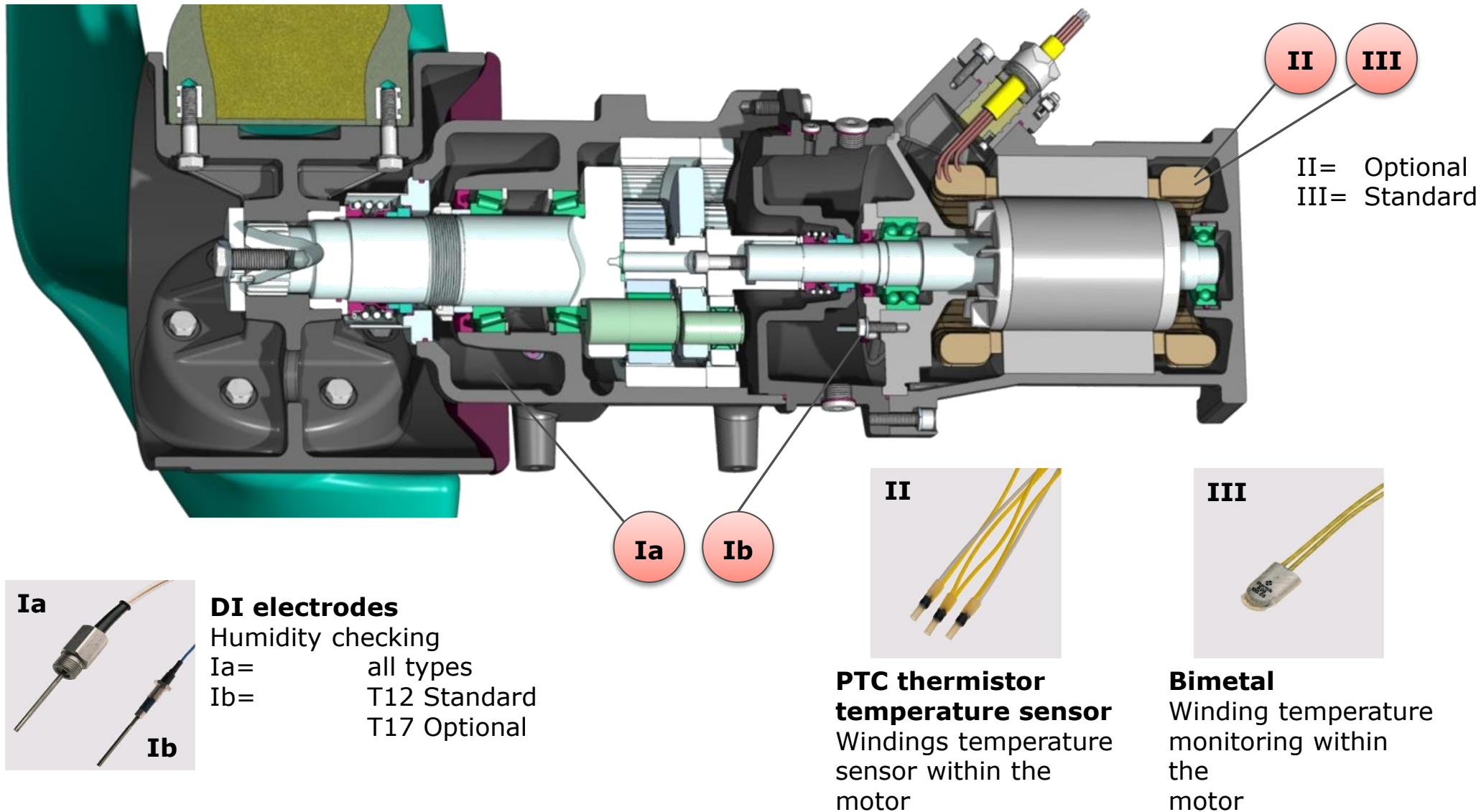
- Propeller speed: 150 - 500 min⁻¹
- Propeller diameter: 0,5 - 1,2 m
- Propeller made of PUR or AISI 316 Ti

➤ Direct driven submersible mixers

- Propeller speed: 700 - 1450 min⁻¹
- Propeller diameter: 0,14 - 0,4 m
- Propeller made of PUR or AISI 316 Ti

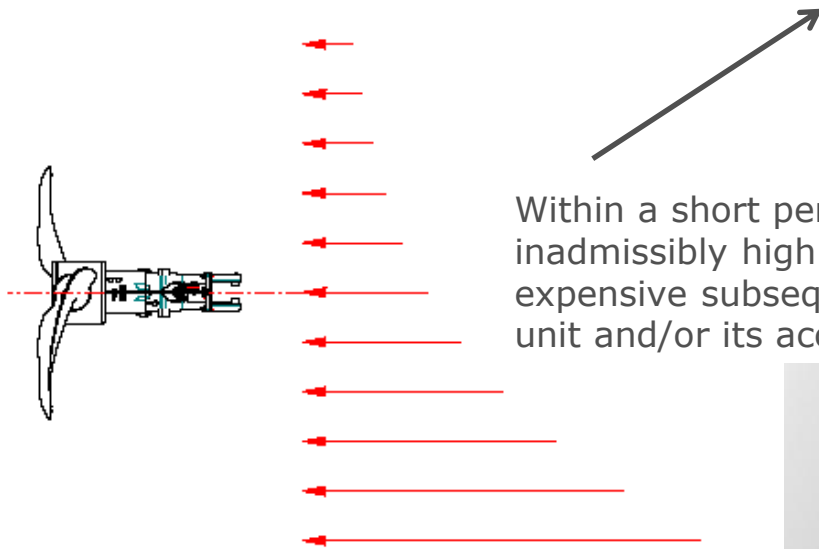


Monitoring systems for motors

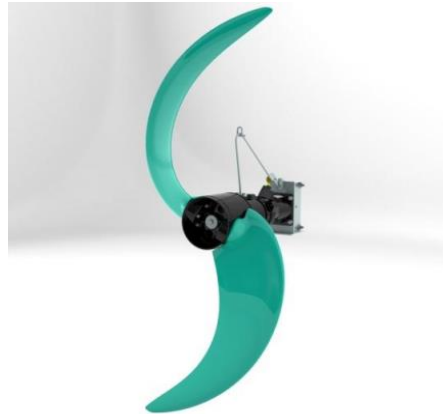


3-blade technology - Approach velocity

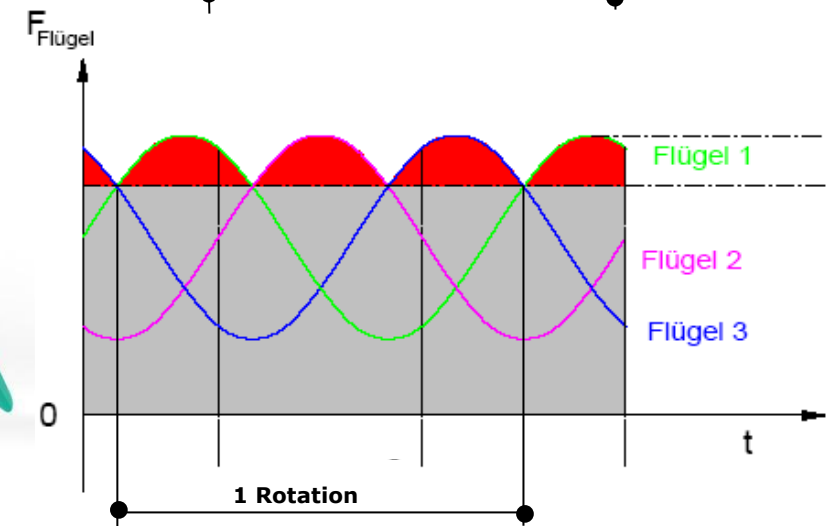
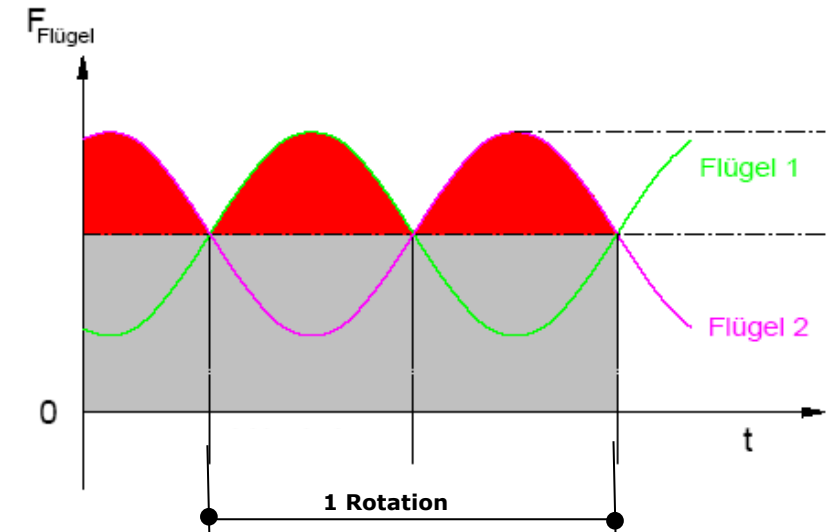
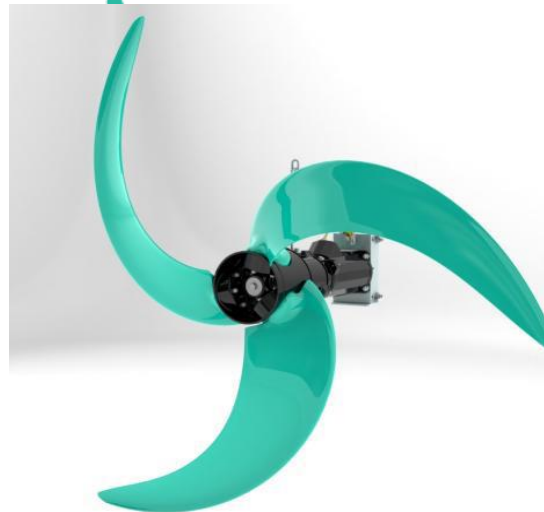
An asymmetric approaching flow (e.g. after a bend..) as well as density differences of the liquid (e.g. caused by aeration...) always cause a more or less distinctive alternating load



Within a short period of time inadmissibly high torque changes cause expensive subsequent damages at the unit and/or its accessories.



With an additional blade alternating loads caused by external influences are reduced.

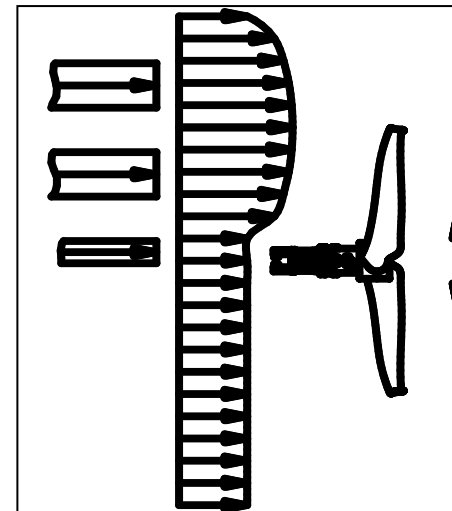


3-blade technology – reasons for the development

Comparison of 2-blades and 3-blades in case of unfavourable flow conditions

Bad flow conditions lead to:

- Uneven running (noise nuisance)
- Oscillating movements in the rubber buffer
- Erosion of the frame and the lowering device
- Increased alternating loads at the propeller
- Increased movement of the guide pipe (oscillation)



Advantages

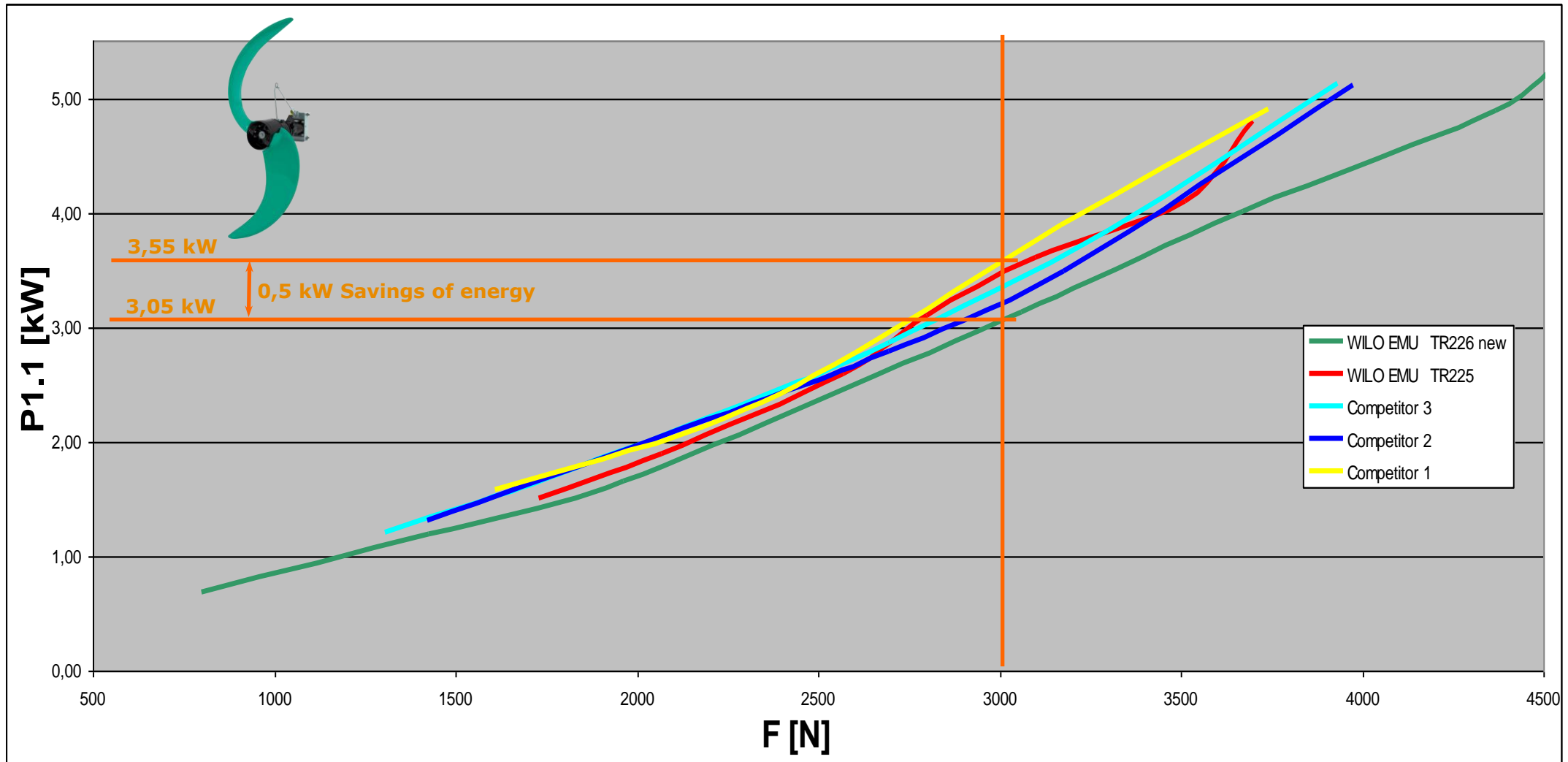
- Due to their favourable blade arrangement the 3 blades mixers are more suitable in case of unfavourable flow conditions

New TR 226

$$\text{Specific thrust} = F / P_{1.1} \quad [\text{N/kW}]$$

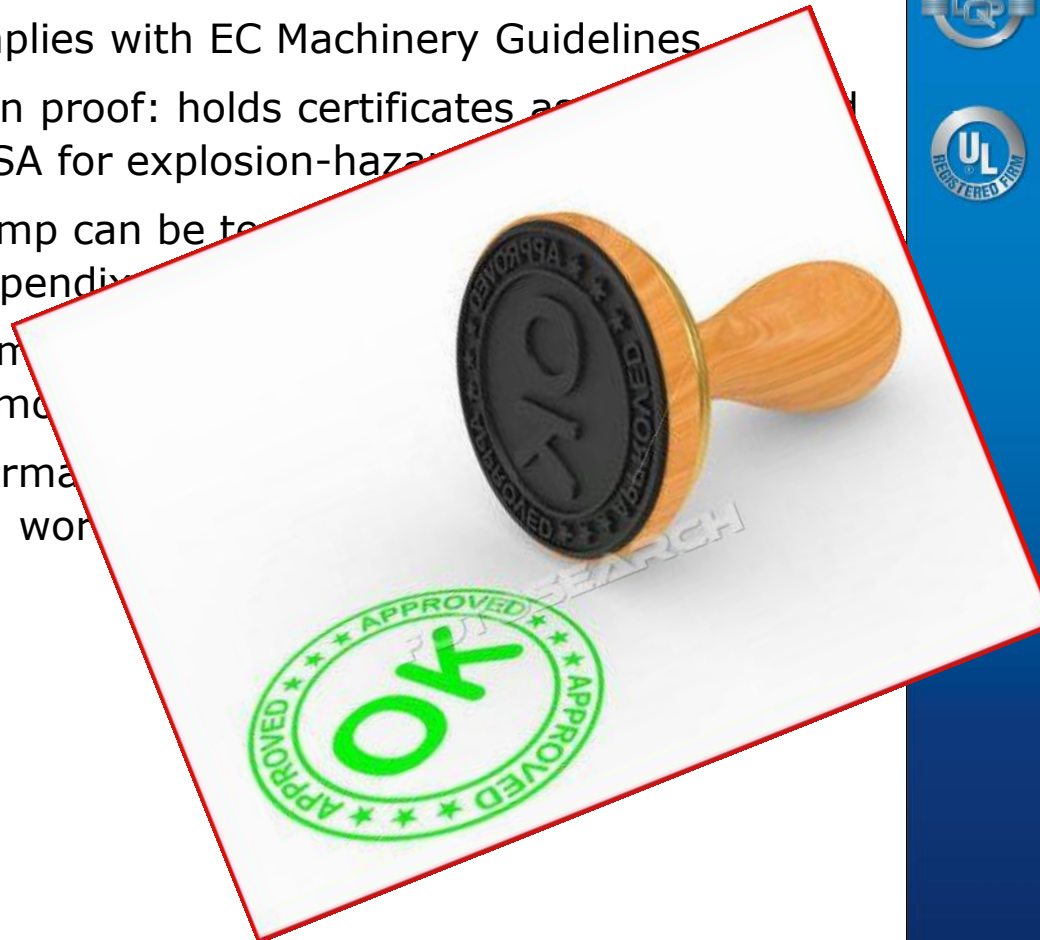
$P_{1.1}$: Power input for each mixer at duty point

F : Mixer thrust



Quality - System

- DIN ISO 9001 certified company
- CE- complies with EC Machinery Guidelines
- Explosion proof: holds certificates as FM or CSA for explosion-hazardous areas
- Each pump can be tested according to EN 9906 appendix A
- VDE- conforms to standards for electric machines
- DS – German standard for qualified work
- ...



 	
<h1>CERTIFICATE</h1>	
<p>This is to certify that</p>	
<p>WILO SE Werk Hof Heimgartenstraße 1-3 95030 Hof</p>	
<p>has implemented and maintains a Quality Management System.</p>	
<p>Scope: Development, manufacture, sales and service of: - pumps and electrical motors for water supply, lowering of water level and booster plants - pumps and electrical motors for sewage disposal and treatment - pumps and electrical motors for drainage of pits, sumps, building sites and so on - submersible mixers and electrical motors for flow generation or for mixing of liquids for communal or industrial applications - technical equipment for sewage treatment plants, digester gas plants, waterworks and pumping stations</p>	
<p>Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:</p>	
<p>ISO 9001 : 2008</p>	
<p>Certificate registration no.</p>	<p>283115 QM08</p>
<p>Excerpt from Certificate Registration No.</p>	<p>060313 QM08</p>
<p>Date of certification</p>	<p>2011-05-04</p>
<p>Valid until</p>	<p>2014-05-03</p>
	
<p>DQS GmbH</p>	
	
<p>Michael Drechsel Managing Director</p>	<p>Jan Böge Managing Director</p>
<p>Accredited Body: DQS GmbH, August-Schanz-Straße 21, 60433 Frankfurt am Main</p>	
	

References for optimized wastewater treatment plants



Jinan wastewater treatment Plant, China

- 32 Wilo submersible mixer (Maxiprop/Megaprop)



Extension of the wastewater treatment plant Debrecen, Hungary

- 36 Wilo submersible mixer
- 1 Aux. lifting device
- 1 Gripping device



Wastewater treatment plant Wadi Shallalah Greater Irbid, Jordan

- 20 Wilo submersible sewage pumps
- 2 Wilo pressure boosting system
- 14 Wilo submersible mixer with Ceram



Wastewater treatment plant St. Veit an der Glan, St. Veit, Austria

- 6 Wilo submersible sewage pumps
- 6 Wilo recirculation pumps
- 14 Wilo submersible mixer



wilo

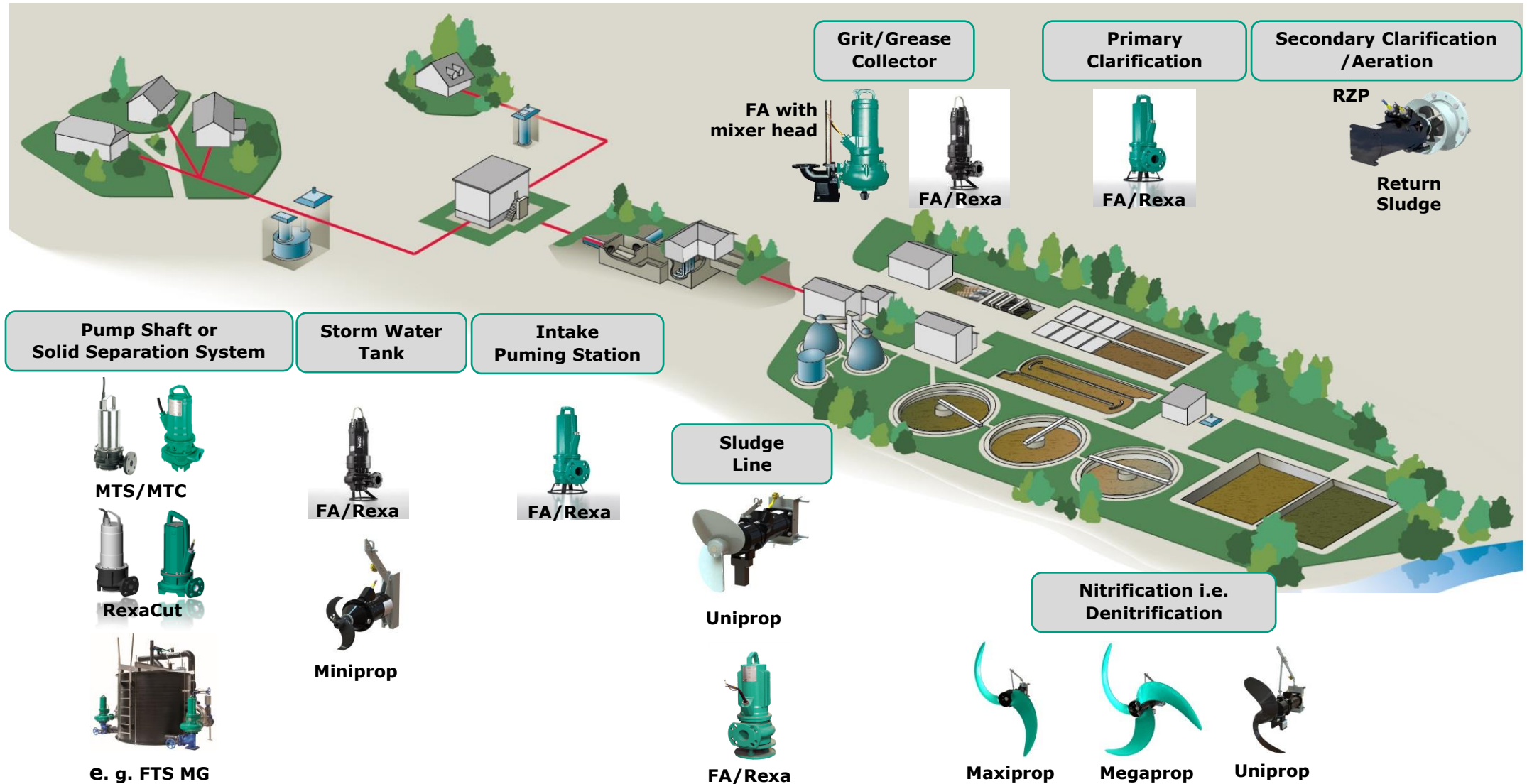


Drainage and Sewage Pumps

Wilo



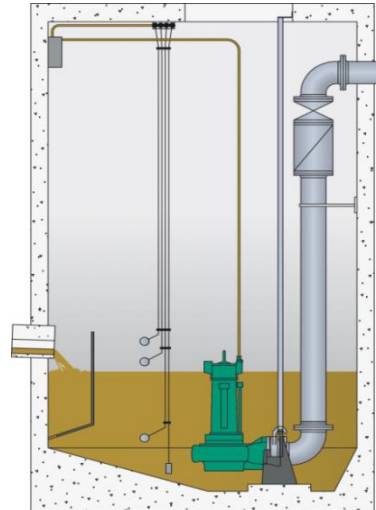
Field of Application – Applications/Sewage Processes



Wet sump installation (BA)

Advantages:

- Low investment costs for building and assembly
- Little space required for the pumps
- Installation and removal by suspension device
- Use of T-motors



Dry sump installation (TA)

Advantages:

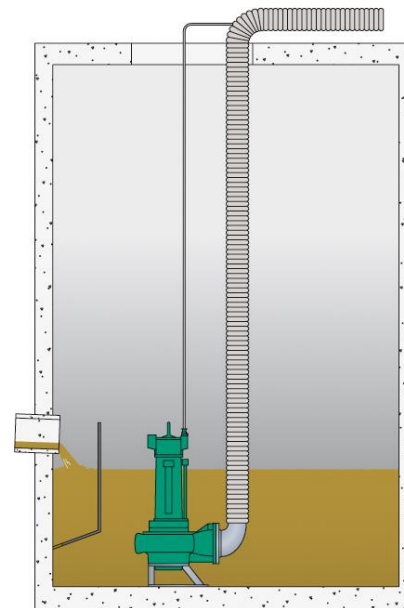
- Internal cooling system
- Flood-proof pump
- Pump can be controlled during operation
- Maintenance-friendly due to accessible pump chamber
- Use of F; FK, HC and FKT-motors



Portable installation (T)

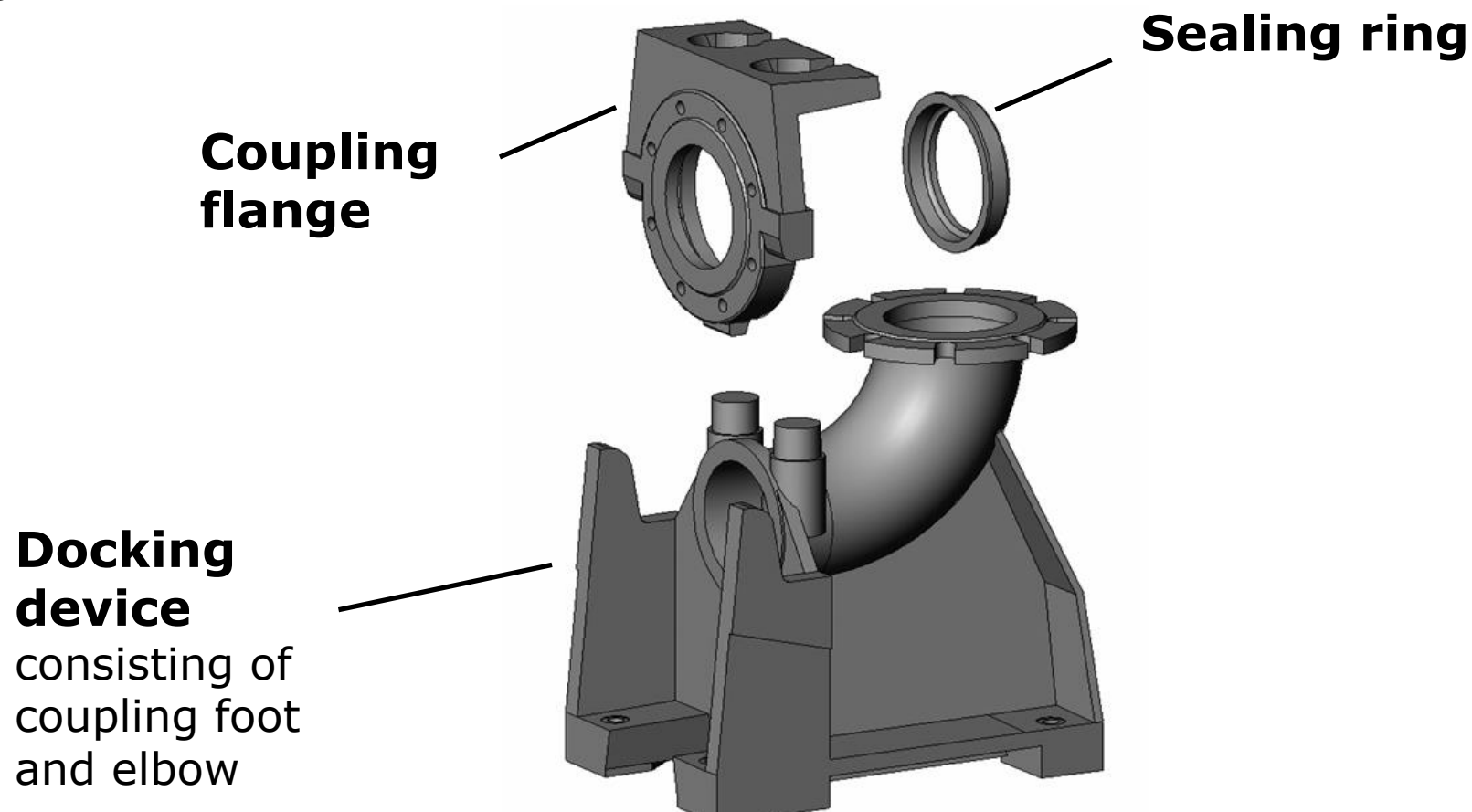
Advantages:

- Application in deep, narrow sumps and flat tanks
- Dewatering on construction sites and with sewer rehabilitations



Installation Types - **Suspension** Device

- Example: DN 150 2RK



Closed Single-Channel Impeller

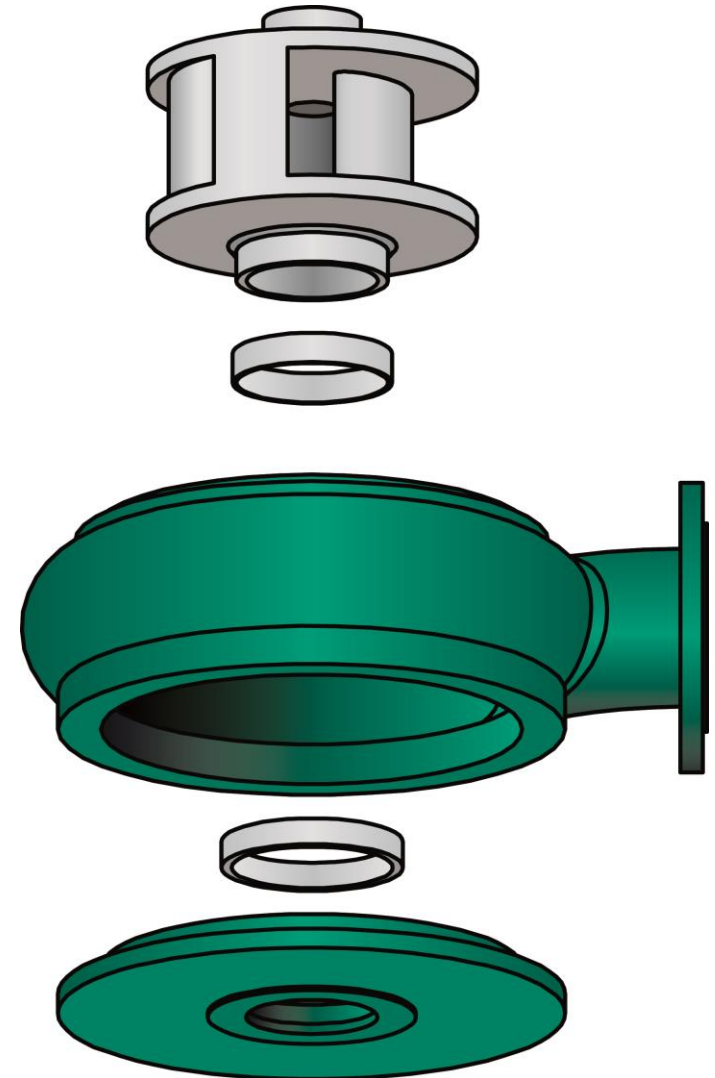
E = Single channel impeller (e.g. Wilo-EMU FA 10.82E/Wilo-Drain TP 80E)

Characteristics:

- almost insensitive to clogging
- bigger ball passage
- low susceptibility to wear
- high efficiency
- for solids concentration of up to **8% dry** substance (TS)
- hydraulic axial thrust balancing

Applications:

- Raw sewage
- Circulating and heating sludge
- Mixed water
- Raw and digested sludge
- Activated sludge



Closed multi-channel impeller

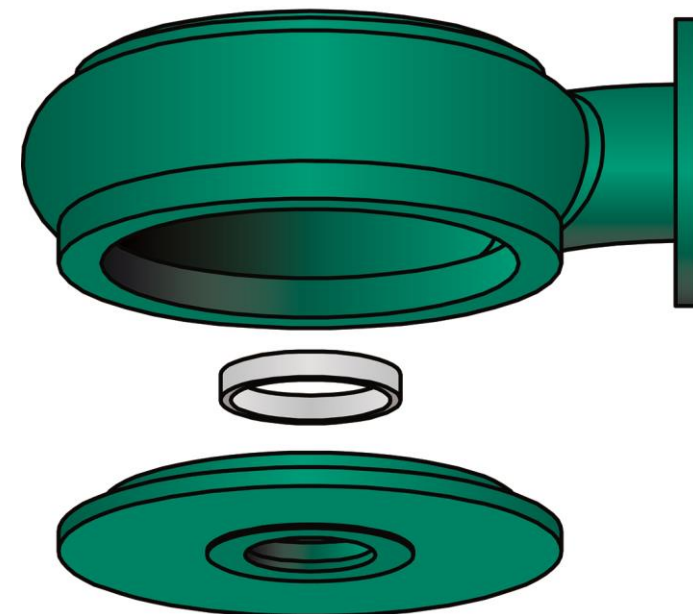
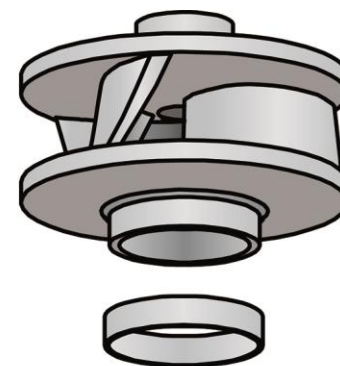
Z = two-channel (e.g. Wilo-EMU FA 25.82Z)

D = three-channel impeller (z.B. Wilo-EMU FA 20.73D)

V = four-channel impeller (z.B. Wilo-EMU FA 60.83V)

Characteristics:

- smooth operation
- almost insensitive to clogging
- big ball passage
- low susceptibility to wear
- gentle pumping
- high efficiency
- for solids concentration of up to **5%** dry substance (TS)
- hydraulic axial thrust balancing by back vanes



Closed multi-channel impeller

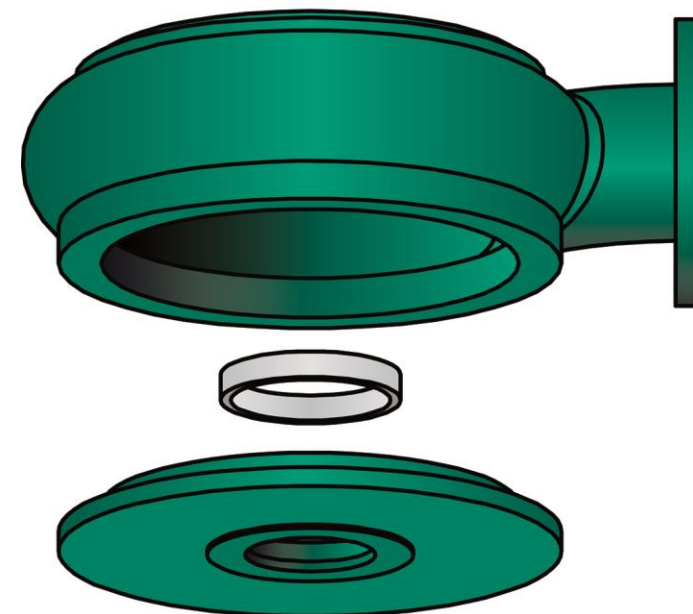
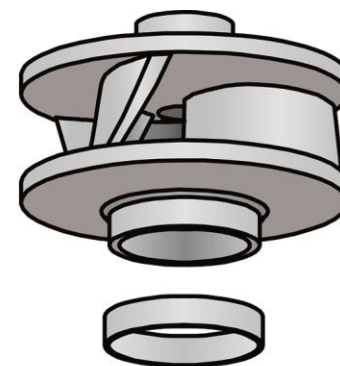
Z = two-channel impeller (z.B. Wilo-EMU FA 25.82Z)

D = three-channel impeller (z.B. Wilo-EMU FA 20.73D)

V = four-channel impeller (z.B. Wilo-EMU FA 60.83V)

Applications:

- sewage cleaned by screen
- mechanically treated sewage
- industrial sewage
- landfill water
- activated sludge
- industrial sewage



Hydraulics with Macerator MTC 32 / MTS 40

Characteristics:

- almost insensitive to clogging
- small ball passage
- sensitive in case of pumped liquids causing wear, e.g. sand

Applications:

- domestic sewage
- waste water
- fecal matter
- suitable for low pressure drainage

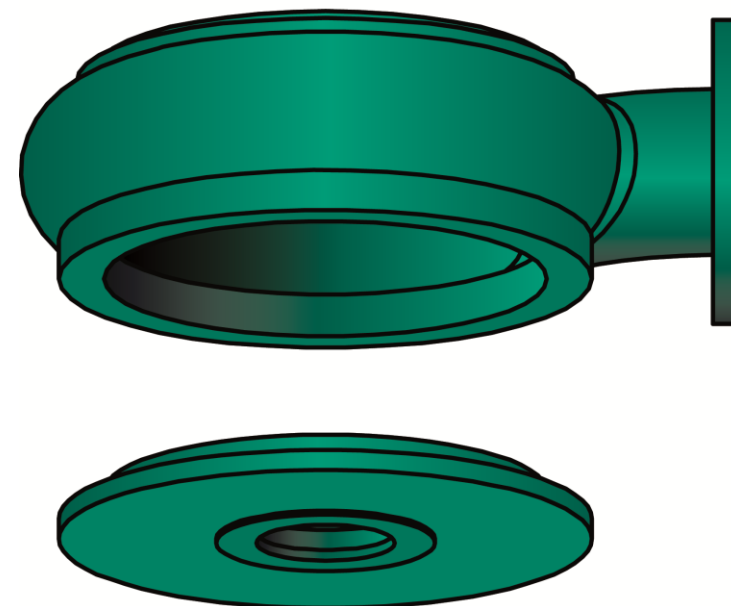
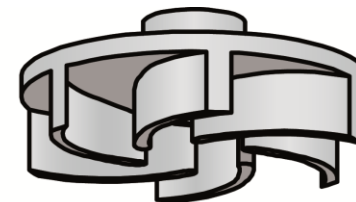


Vortex Impeller

W = Vortex impeller (e.g. Wilo-Emu FA 15.21W)

Characteristics:

- very insensitive to clogging
- partly suitable for gaseous liquids
- smaller efficiency compared with channel impeller
- for solids concentration of up to **8%** dry substance (TS)
- insensitive in case of sewage containing fibers and fabrics
- hydraulic axial thrust balancing by back vanes
- low-wear

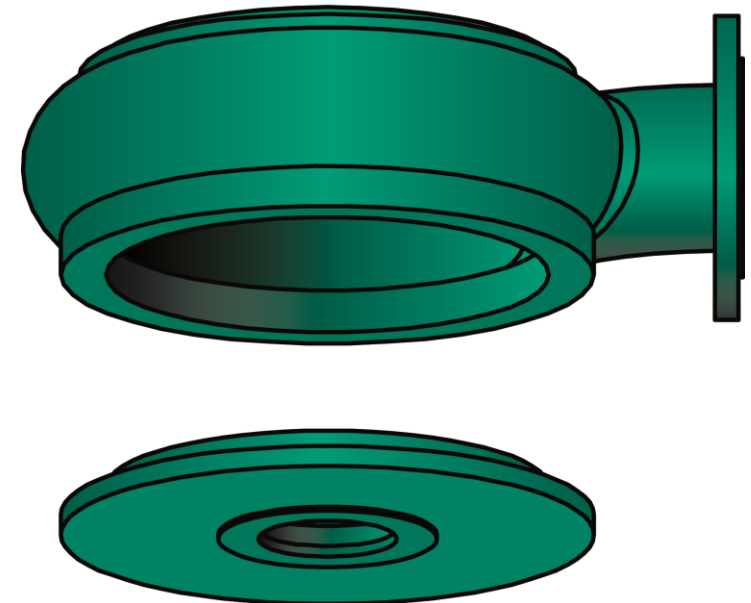
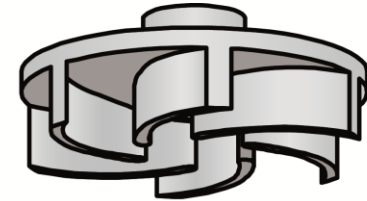


Vortex Impeller

W = Vortex impeller (e.g. Wilo-Emu FA 15.21W)

Applications:

- raw sewage
- activated sludge
- raw and digested sludge
- mixed water
- pumped liquids with problematic components
- pumped liquids with components causing wear



Vortex Impeller with Mixer Head

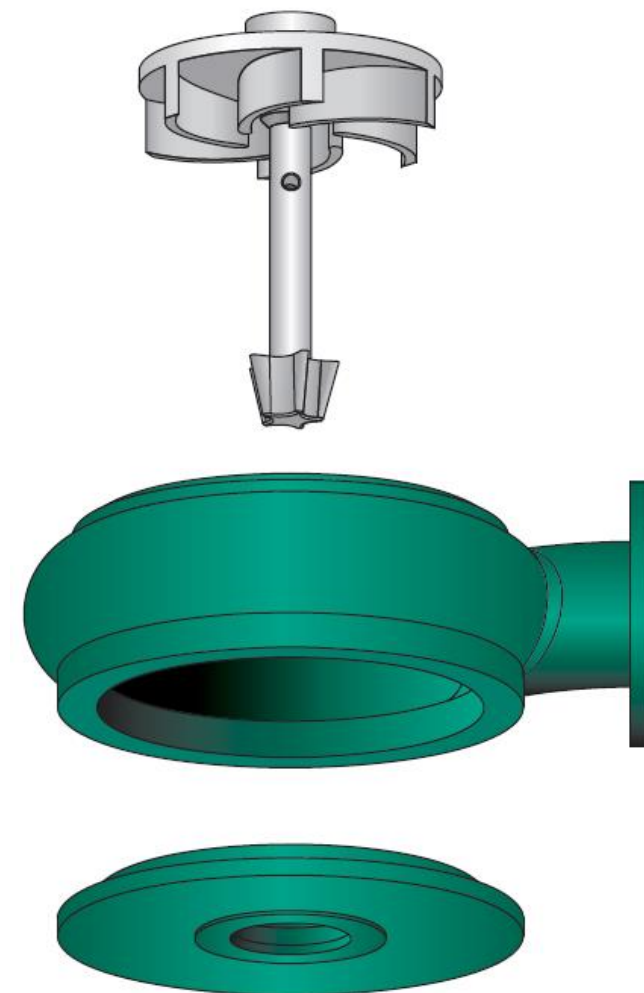
WR = Vortex impeller with mixer head (e.g. FA 08.52WR)

Characteristics:

- see vortex impeller
- loosening up of hardened sand deposits
- high wear resistance
- self-cleaning mixer head (Abrasil)

Applications:

- in grit collector
- grit and gravel industry
- sludge settling ponds
- settling ponds
- everywhere, where deposits can form



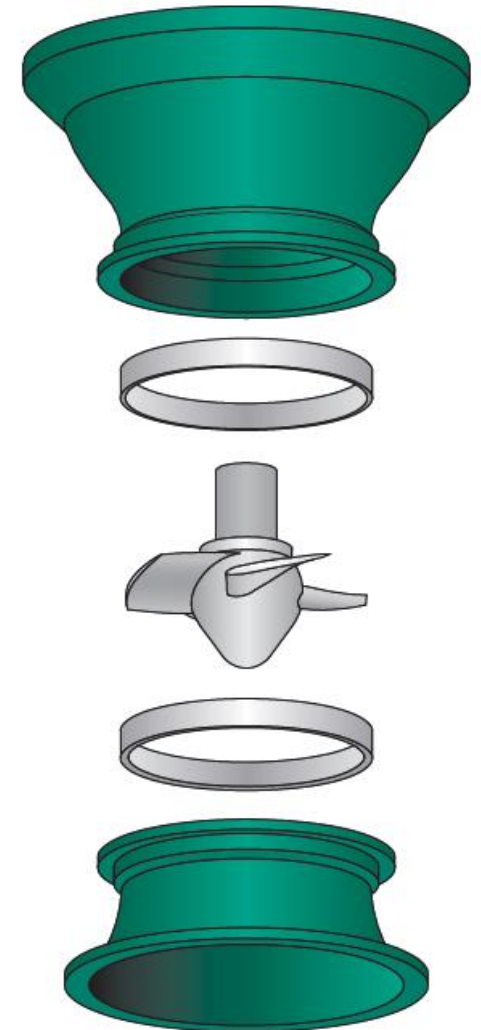
Propeller impeller (Axial Impeller) e. g. Wilo-EMU KPR 760

Characteristics:

- for very large flow rates with very low head
- high efficiency
- decreasing power input with increasing flow rate
- must not be operated against closed valve

Applications:

- Pumped liquids with slight pollution
- Rain water
- Return sludge
- Circulation of activated sludge
- Pumping stations etc.



Closed Multi-Channel Impeller

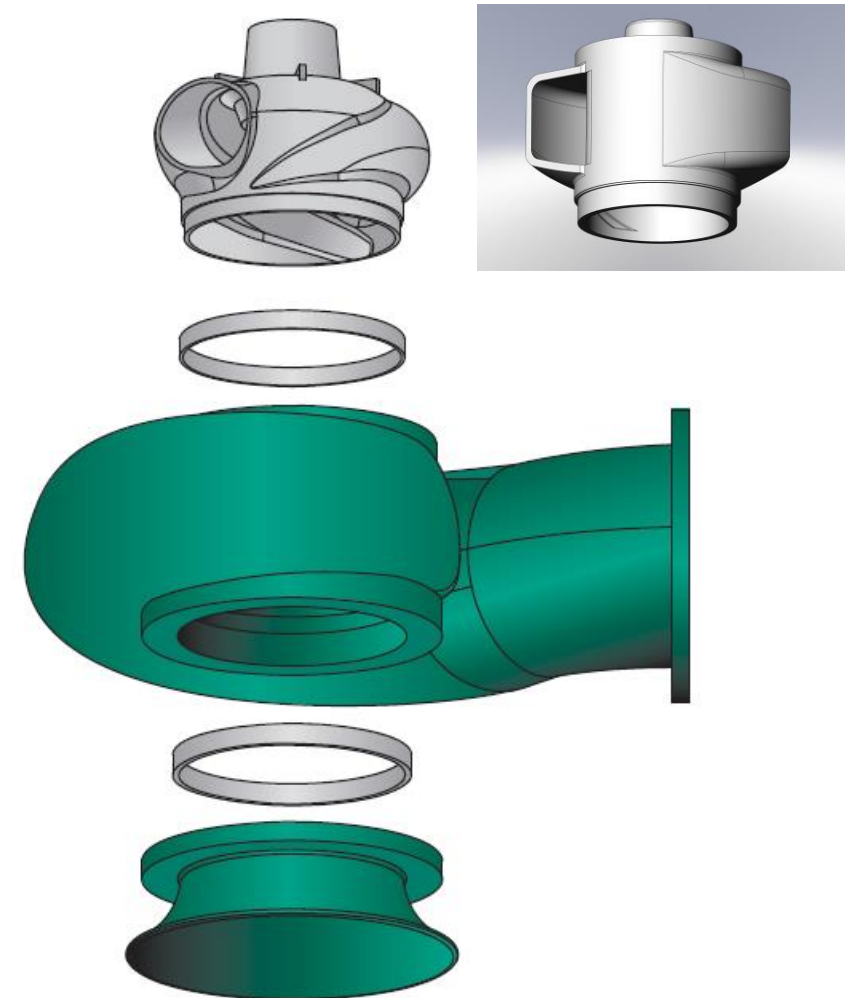
T=pot impeller; **T** = **SOLID**-impeller (e.g Wilo-EMU FA 15.77T)

Characteristics:

- almost insensitive to clogging
- big ball passage, although **multi-channel** impeller
- little susceptibility to wear
- high efficiency
- for solids concentration of up to **8%** dry substance
- hydraulic axial thrust balancing

Applications:

- Raw sewage
- Circulating and heating sludge
- Mixed water
- Raw and digested sludge
- Activated sludge



Motor Generation T 50.1G (air-filled without cooling shroud)

Cable trumpet

longitudinally water tight

Terminal board

easy exchange of the cable

Full motor protection

by PTC-thermistors, bimetallic temperature switches as an option

Two single-row inclined ball bearings in O-arrangement

- long service life
- operation with few vibrations only

Possibility for subsequent lubrication

of the locating bearing

Sealing chamber

with environmentally-friendly medical white oil

- control of the sealing chamber

Cable support

for a defined cable guide

Humidity sensor in the motor chamber

as additional protection

3 radial seals

Internal pencil electrode as a standard

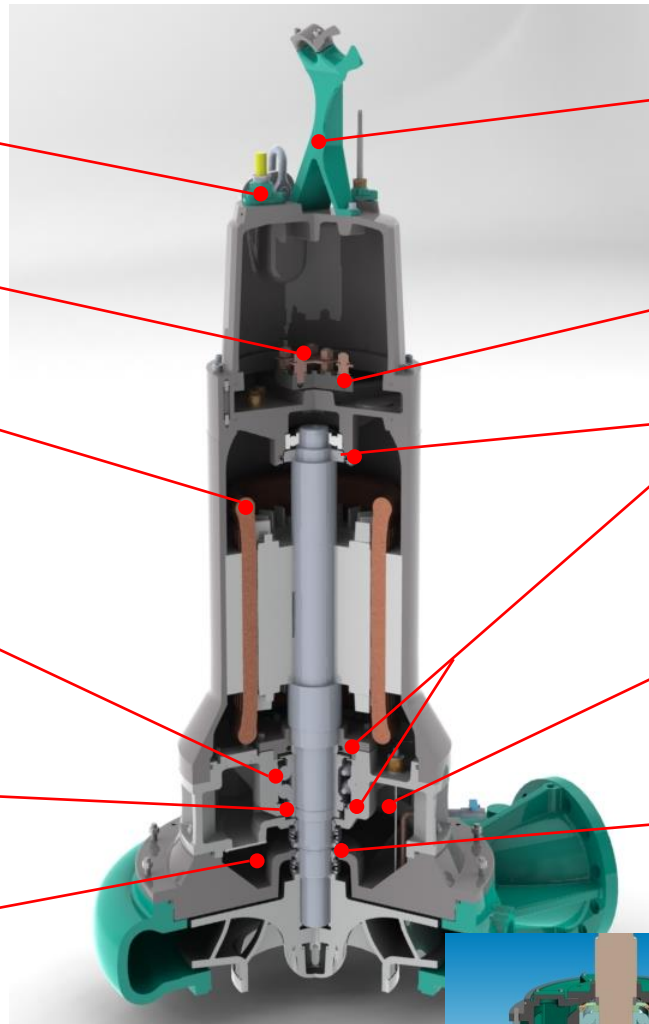
- intrinsically safe
- ATEX

Two separate mechanical shaft seals

- pair of SiC/SiC slide surfaces
- operation with few vibrations only

Leakage chamber with internal float switch

- additional control
- high process reliability



Motor Generation FKT 27.1/FKT 27.2 (air-filled with cooling shroud)

Cable trumpet
longitudinally water tight

Terminal chamber
sealed

Motor chamber control
by **electrode**

Cooling system
with water/glycol filling

Mechanical shaft seal
SiC/SiC

Drive of the cooling cycle
by direct-coupled impeller

Bearing technology
ball bearing

Leakage chamber
with internal float switch
(inclination 45°, suitable for horizontal and vertical motor installation)

Line-up terminals
easily exchangeable

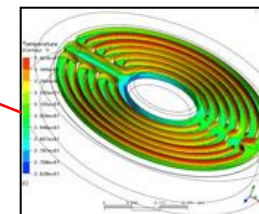
Full motor protection
by PTC-thermistors

Radial seal

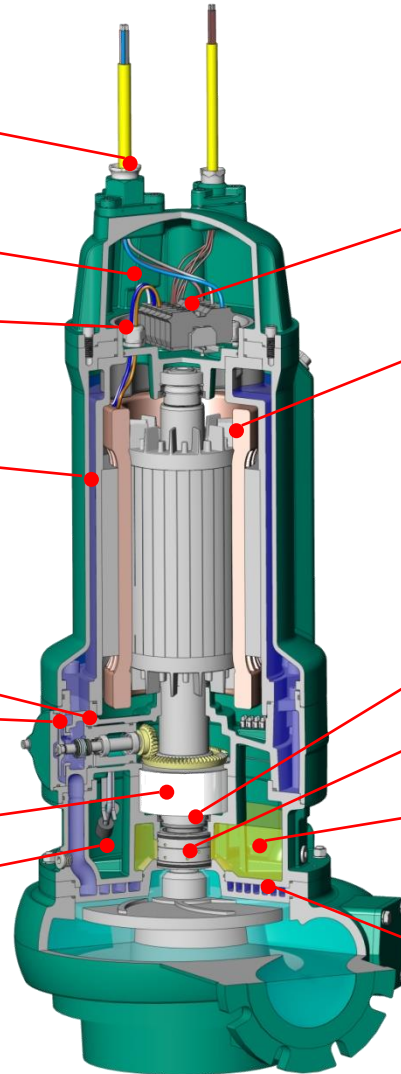


Block Seal
with **2 mechanical** shaft seals
SiC/SiC, short design

Sealing chamber
filled with medical white oil
control by external
pencil electrode(optional)

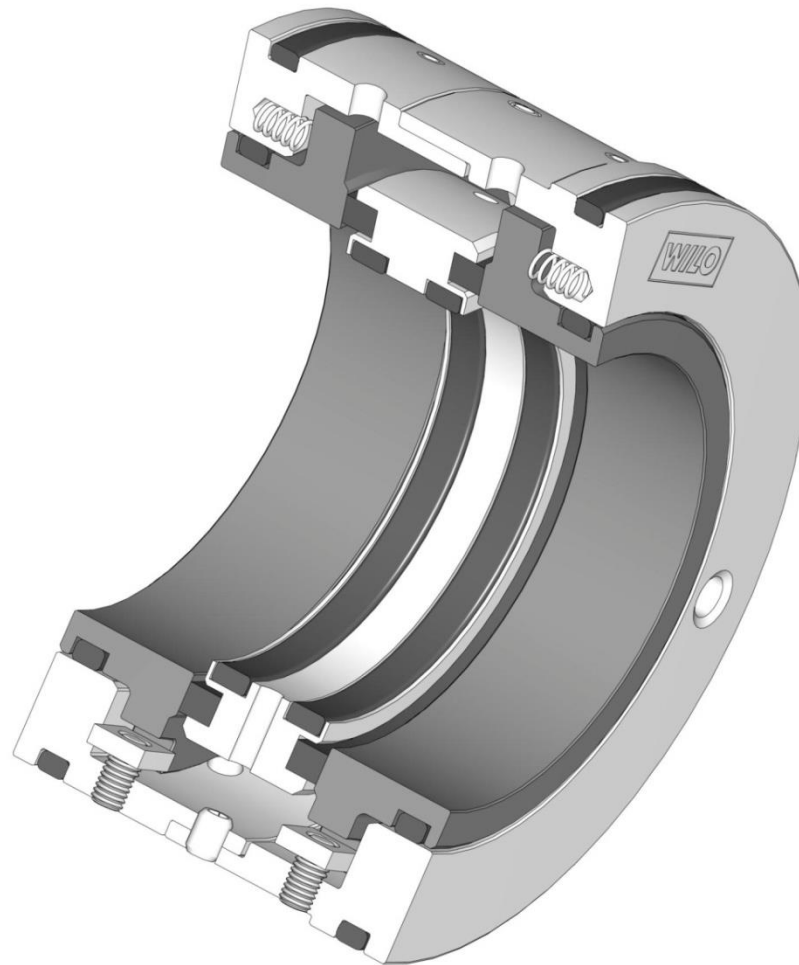


Temperature-entropy diagram
Heat exchanger
optimized with
numeric methods



Motor – Sealing Variants “Wilo Block Seals”

- Design of the Wilo Block Seals Series
H 35/2, H 50/2 and H 75/2



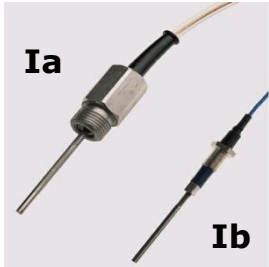
Motor – Sealing Variants “Wilo Block Seals”

Features:

- High operation safety
- Long service life
- Extremely short construction
- Easy dismantling or assembly
- Very calm and almost non-oscillating operation due to the small distance between locating bearing and impeller
- Highly wear- and corrosion-resistant due to block seal material of stainless steel and slide rings of solid silicon-carbide
- Steady contact pressure by stationary group springing



Monitoring Devices Motors



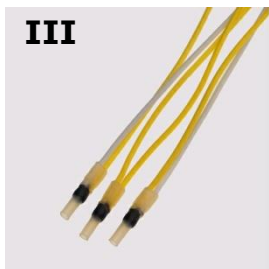
Moisture probe

Humidity control in terminal chamber (b), motor chamber (b) and sealing chamber (a+b)



Bimetallic temperature switch

Winding temperature control in the motor chamber



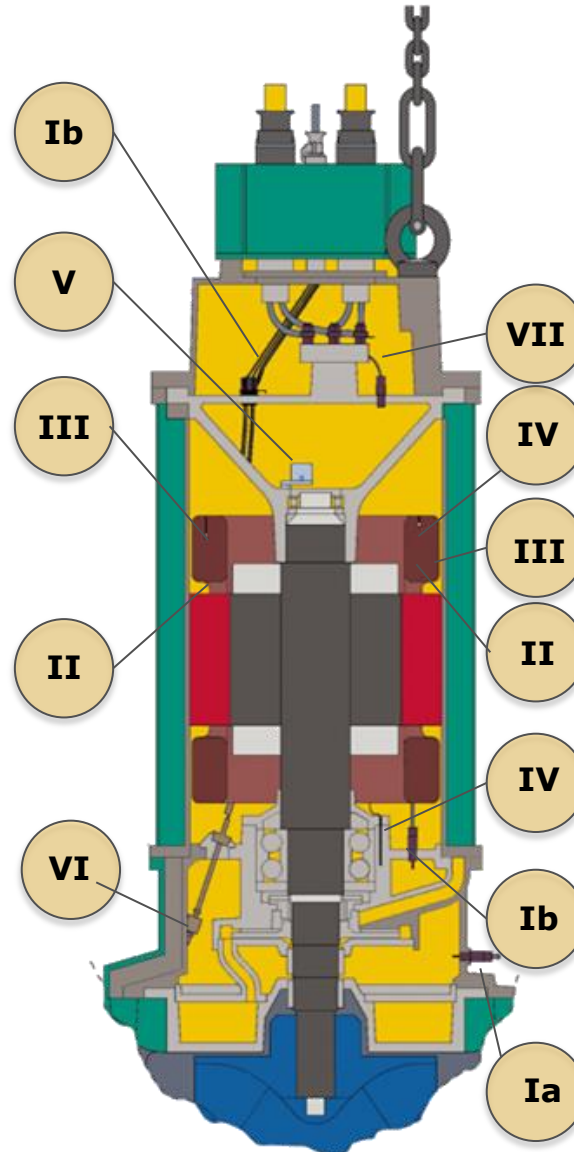
PTC-thermistors

Winding temperature sensor in the motor chamber



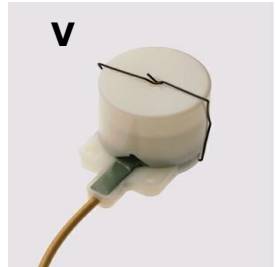
Pt 100

Winding temperature and bearing temperature control



Thermal float switch

Control of the oil level and oil temperature in the motor chamber (FO/FK-motors)



Float switch

Leakage control in the control chamber

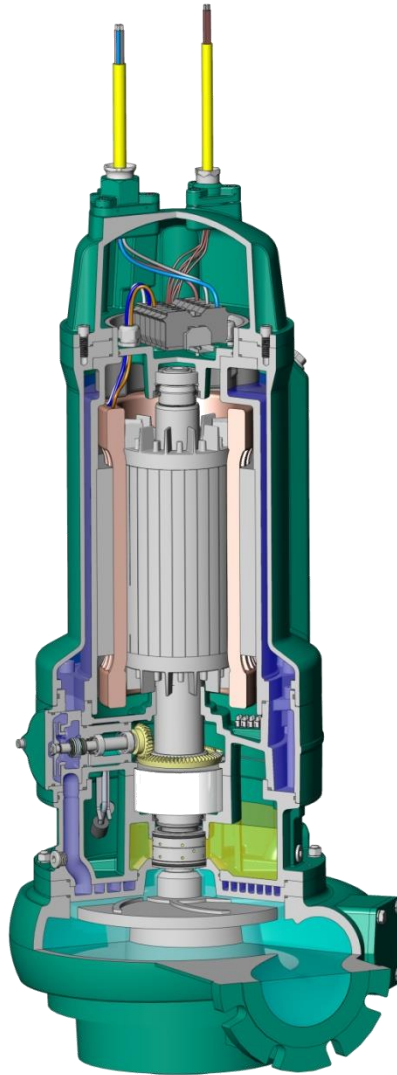
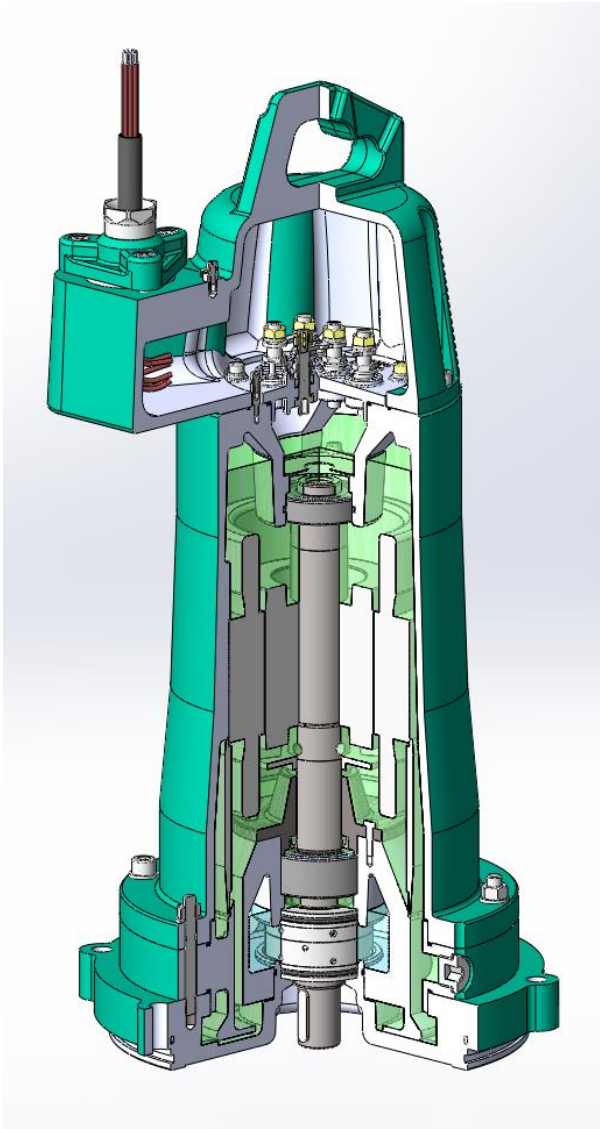


Pressure switch

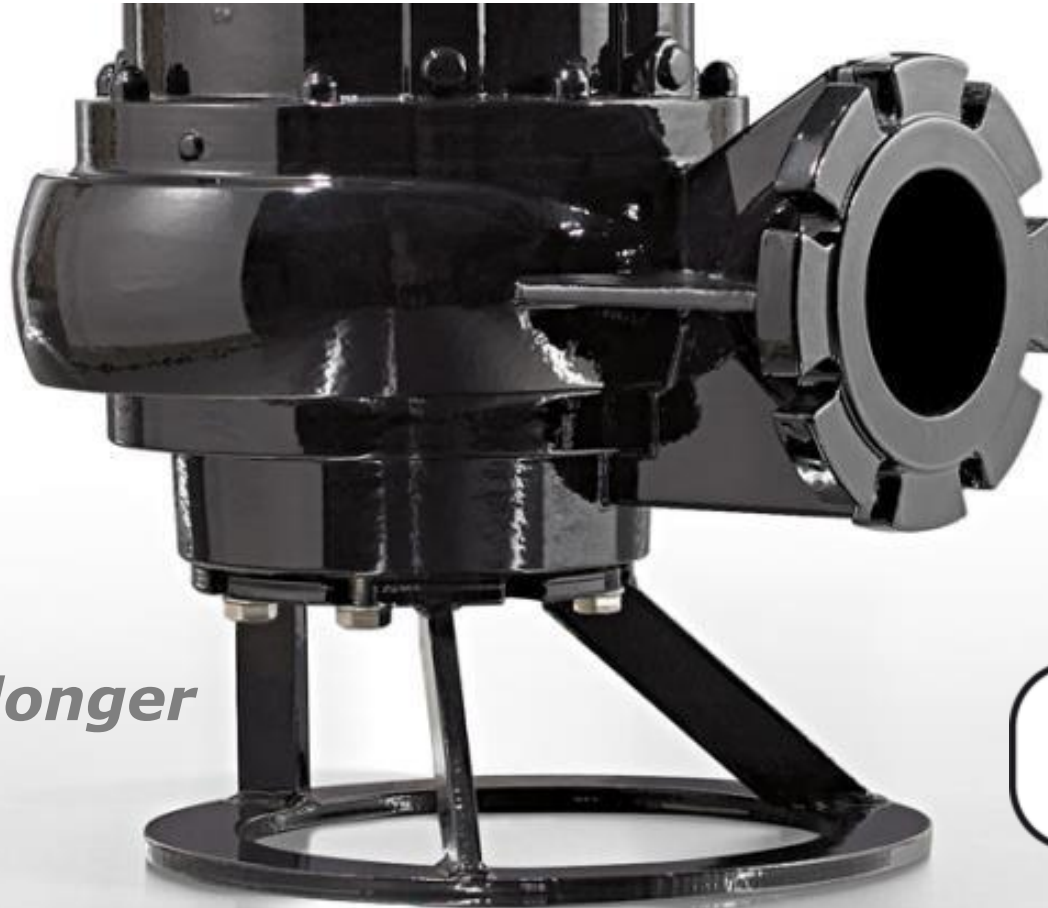
Pressure control in the motor chamber



Ex-Proof Motor



Extended Pump Service Lifetime: CERAM Coating



Up to 4 times longer



Abrasive influences

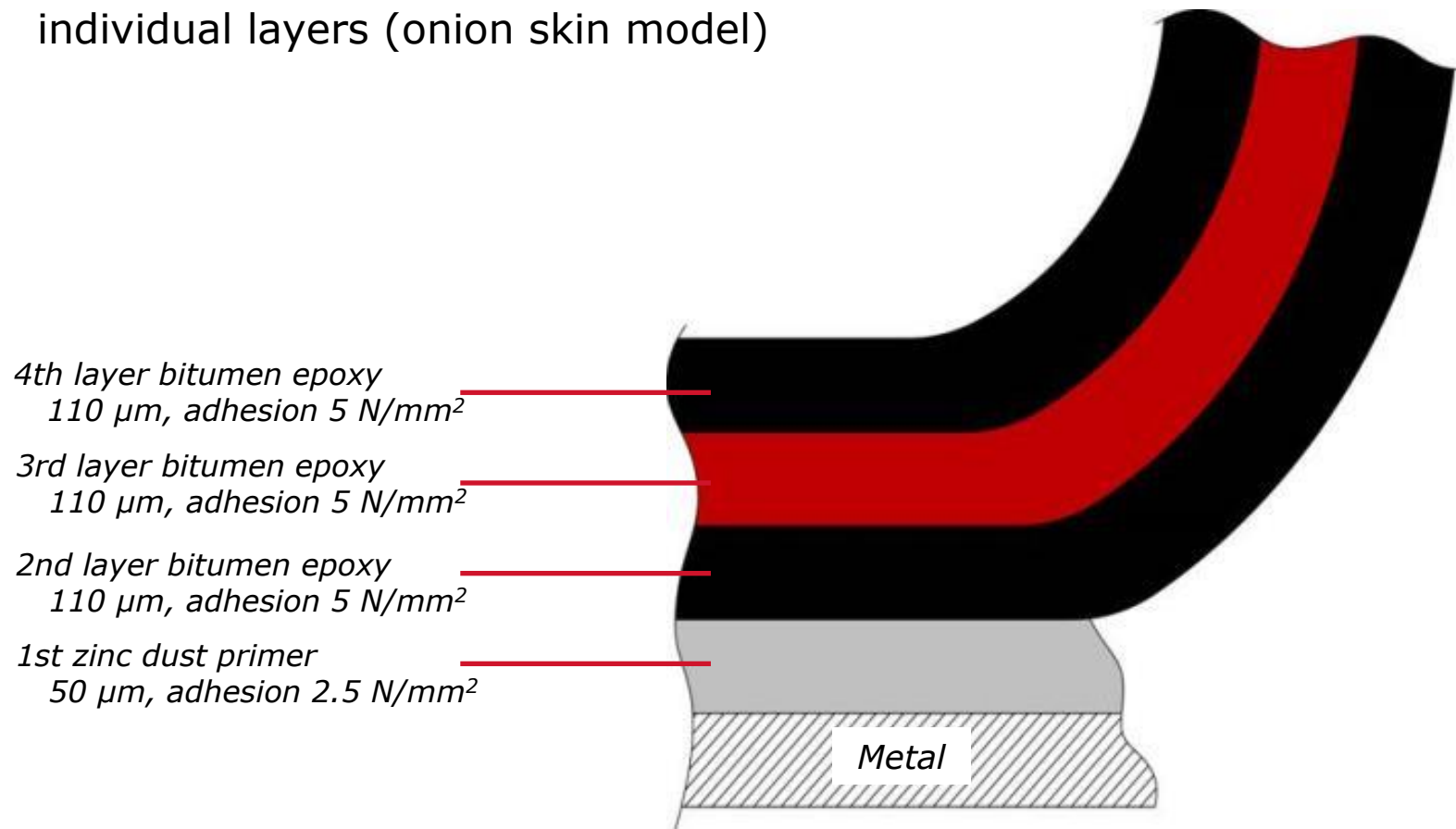
- Strong fluid-load causes heavy stress for material.
 - The consequence:
Strong wear of important pump components



Pump after a six-week-running time in grit chamber

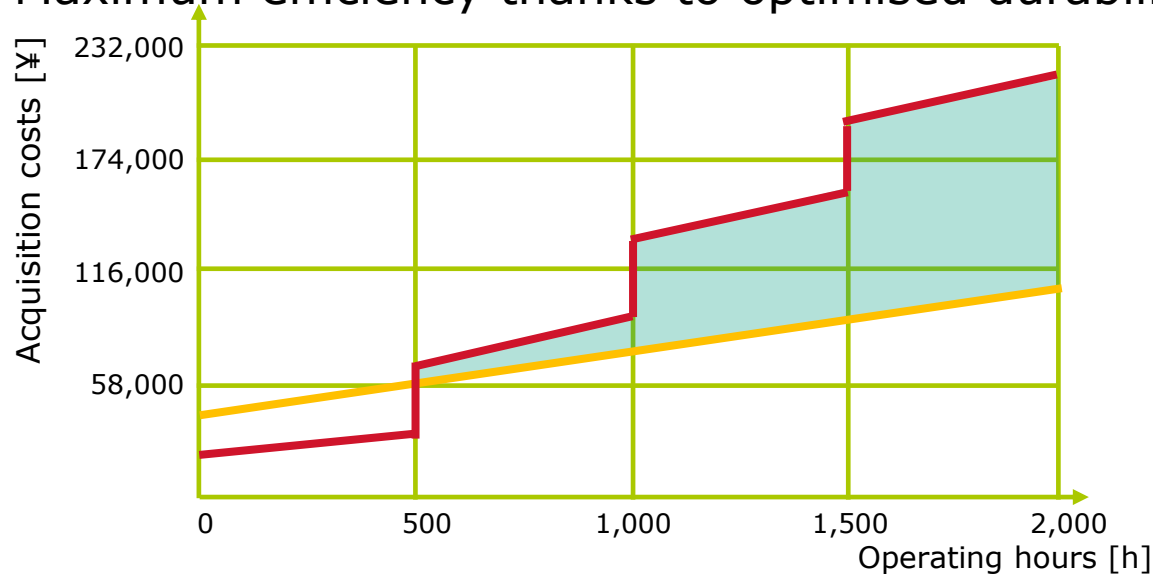
Extended Pump Service Lifetime: Difference with other coatings?

- Multiple layer – Onion skin model – $L \sim d^3$
 - When there are multiple layers, the service life depends on the adhesion of the individual layers (onion skin model)



Extended Pump Service Lifetime: Netherlands Reference (1)

- Maximum efficiency thanks to optimised durability.



- Acquisition costs and energy – Impeller with Ceram coating (1 life cycle)
- Acquisition costs, energy and replacement – Impeller without Ceram coating (4 life cycles)
- Profit zone

* Energy costs calculated at a constant rate of 14¥/kWh over 10 years.



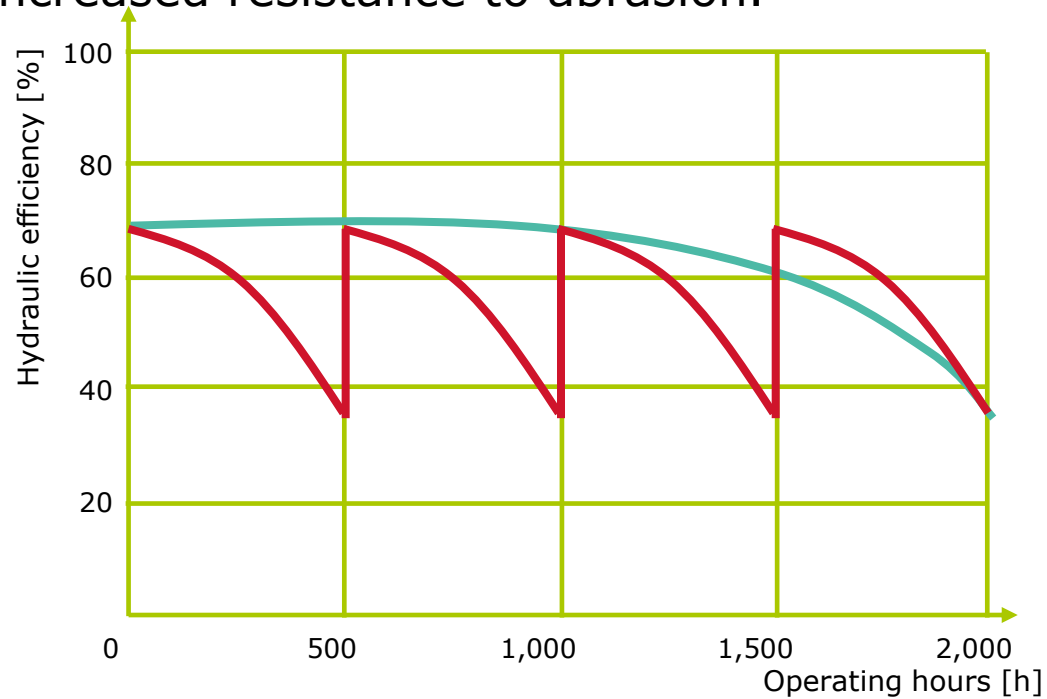
Save up to
39 百万円
on operating costs.



Ceram
protected

Extended Pump Service Lifetime: Netherlands Reference (2)

- Higher hydraulic efficiency and
- increased resistance to abrasion.



The Ceram coated impeller is replaced after 2,000 hours with a relatively constant level of efficiency.

The cast iron impeller must be replaced after 500 hours.



Amortization
after just
500
operating hours.



Extended Pump Service Lifetime: Split-Case Pumps

Comparison: Wilo-SCP 200-360HA	Without CT Ceram Coating	With CT Ceram Coating
Delivery head	31 m	31 m
Volume flow	184 l/s	184 l/s
Pump efficiency	86.9%	89.2%
Motor efficiency	95.6%	95.6%
Overall efficiency	83.1%	85.3%

Calculation: Energy savings due to Ceram CT coating		
Differences in power input consumption	67.4 kW - 65.7 kW	1.7 kW
Annual operating time	365 days x 20 hrs	7300 hrs
Energy costs	14¥/kWh	
Total energy cost saving per year	7300h x 14¥/kWh x 1.7 kW	¥173,740
Costs for the coating	¥ 80,000	
Payback period	2 months	
Total saving of energy cost	¥173,740x 10 yrs	¥1,737,400



Energy costs savings thanks to exclusive Wilo Ceram CT coating

* Energy costs calculated at a constant rate of 14¥/kWh.

Extended Pump Service Lifetime: Product Portfolio



Wilo-EMUport solids separation system – premium solution in wastewater transport

Prefabricated pumping stations with Solid Separation System

Application

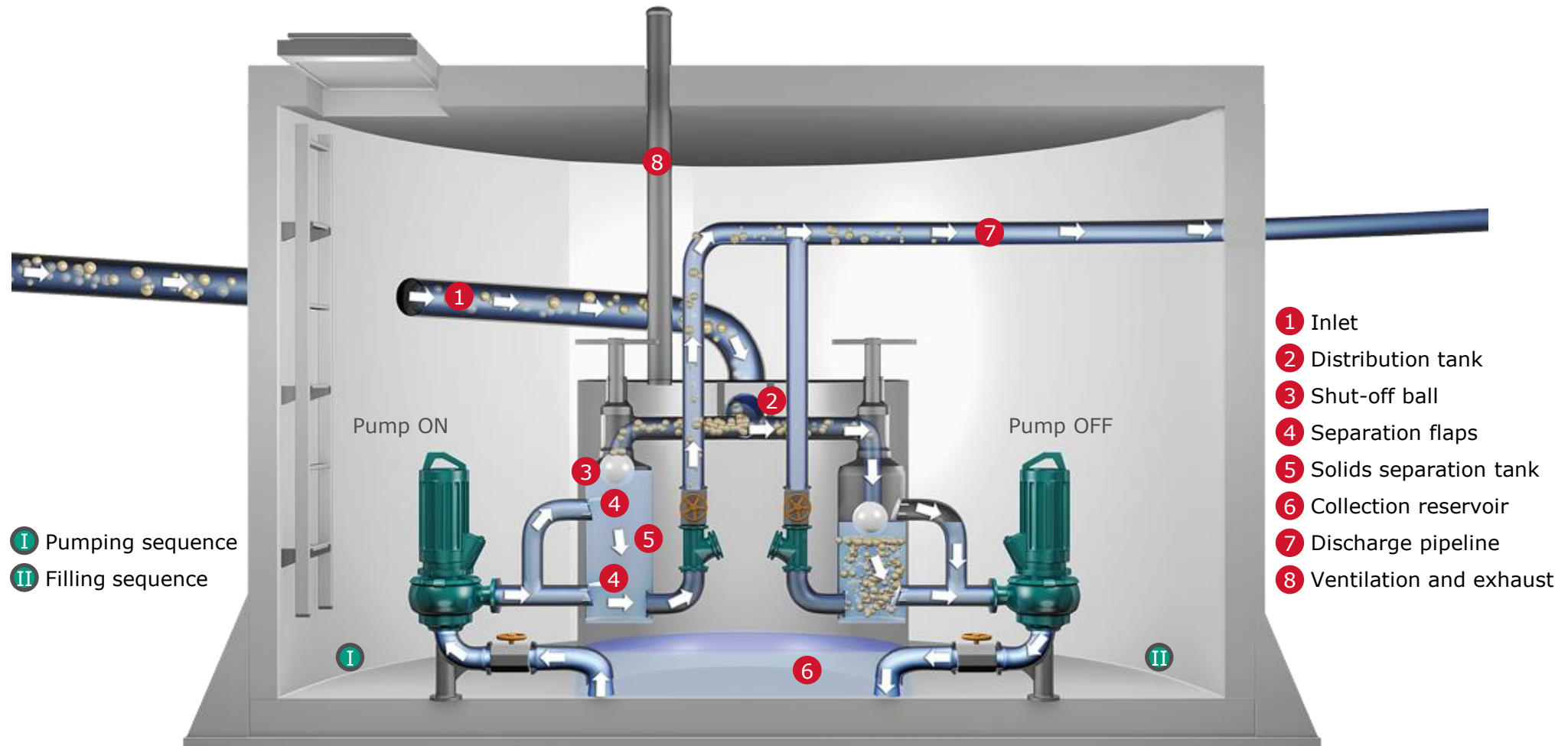
Dewatering entire localities or large industrial and commercial complexes using conventional gravity-flow drainage systems

Advantages to you

- Max. operation reliability by separating the solids from the pretreated sewage before the pumping process
- High reliability with low operating costs
- Efficient thanks to smaller ball passage compared to the conventional wet sump installation without solids separation
- Retrofit system for the economical renovation of old pumping stations
- Long service life by use of corrosion-resistant PE-HD components



WILO-EMUport Solids separation system – Scheme



Ref: WIEN Hauptbahnhof



18 solids separation system

are in the underground parking lot of the Central Station





Water Supply



WILO SCP – Extended Range



Size ¹	Up to DN 800 mm
Flow ²	Up to 17 000 m ³ /hr
Head	Up to 235 m
Operating pressure	16 bar and 24 bar
Temp. (°C)	Up to 150°C for special application and after application checking
Materials	Special materials on request (ex: duplex stainless steel)

Largest Vertical Turbine Pump: The Order

2000 VMF Vertical Turbine Pump



Capacity	Head	Motor	Qty	Customer	Application
35600 cum/hr	28 m	3400 kW	5 sets	Lanco Infrastructure	Circulating water (2X600 MW)

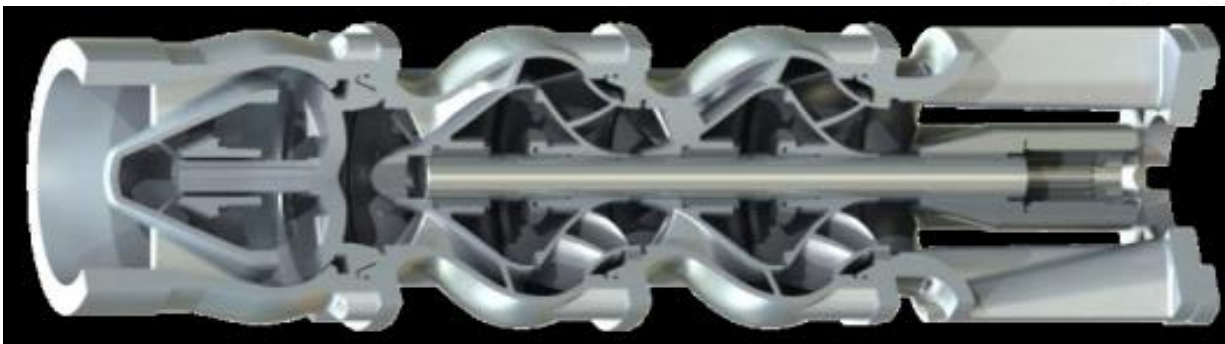
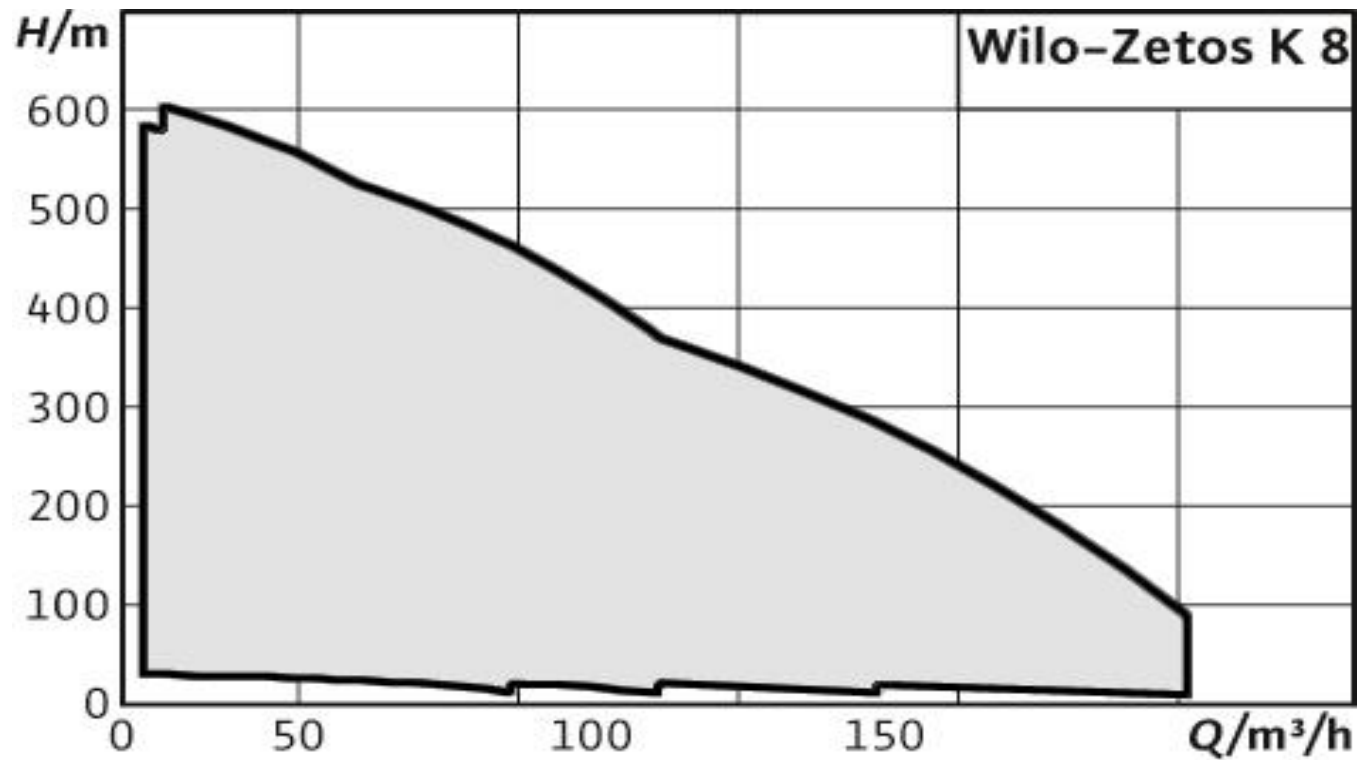


High Efficiency Borehole: Zetos Range

1. Efficiency "Best in class" : **> 84%**
2. **Precision cast technology** (SS 316)
3. Maximum sand content: **150 mg/L**
4. Maximum head: **630 m**
5. **High resistance** to corrosion & abrasion
6. **Broad** performance **range** & **application**
7. **Easy** maintenance & repair



High Efficiency Borehole: Zetos Range



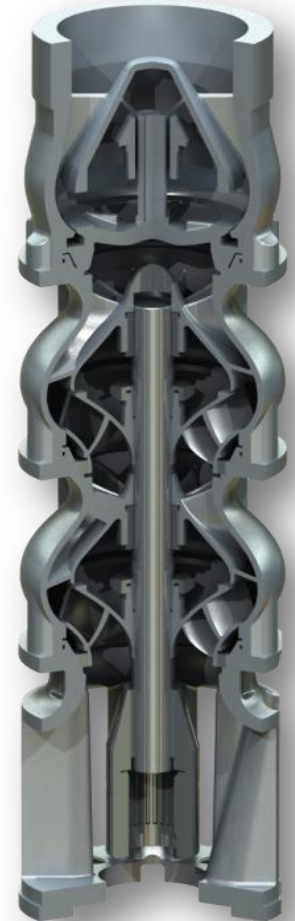
High Efficiency Borehole: Zetos Range

➤ Application

- Raw water and water supply in municipal and industrial applications
- Drinking water with ACS-approval
- Sprinkling and irrigation
- Fire-fighting systems
- Pressure boosting
- Offshore-range/sea water
- Geothermal and thermal applications
- Light Drainage/applications in mines
- Lowering of ground water level

➤ Advantages

- Energy-efficient thanks to adjustment of the duty point
- Long service life thanks to precision cast of stainless steel.
- Service-friendly motors with hermetically encapsulated or re-windable stators
- Easy installation for horizontal and vertical applications



High Efficiency Borehole: Zetos Range

wilo

LOWARA

Zetos-K 8

Z8

BEST
IN
CLASS



General Comparison	WILO	Lowara	WILO	Lowara	WILO	Lowara	WILO	Lowara
Best efficiency point	50m³/h		70m³/h		100m³/h		130m³/h	
Series	Zetos K8	Z8	Zetos K8	Z 8	Zetos K8	Z 8	Zetos K8	Z 8
Design size	K8.50	Z8-55	K8.70	Z8-75	K8.100	Z8-95	K8.130	Z8-125
Efficiency	~83%	79%*	~84%	81,5%*	~84%	80,4%*	>84%	84,3% 81,1%**
Material	1.4408 AISI316	1.4308 A744-CF 8	1.4408 AISI316	1.4308 A744-CF 8	1.4408 AISI316	1.4308 A744-CF 8	1.4408 AISI316	1.4308 A744-CF 8
Max. sand content	150 mg/l	100 mg/l	150 mg/l	100 mg/l	150 mg/l	100 mg/l	150 mg/l	100 mg/l
Max. (shut-off) head	630 m	550 m	630 m	550 m	540 m	520 m	400 m (600 m) ***	500 m
Drinking water approval	ACS		ACS		ACS		ACS	
Net price	Same		Same		Same		Same	

High Efficiency Borehole: Bottom Intake Pump (Polder)

**Polder
Pump**



vs.

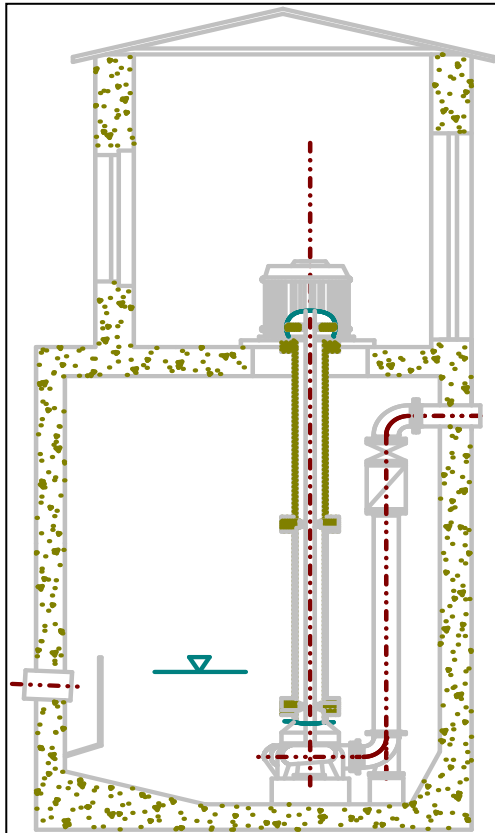
**Vertical
Turbine**



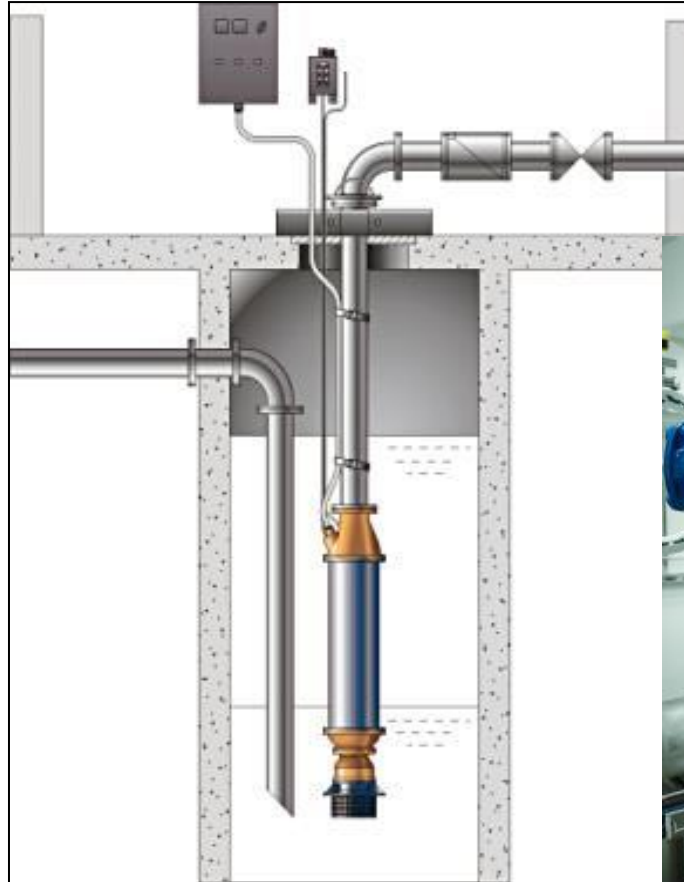
Polder Pump Advantages:

- **Significant savings CAPEX investment** (no pump house construction required)
- **High efficiency**
- **Competitive price**
- Motor is fluid cooled
- **Maintenance free**
- **Easy installation** into well
- Directly coupled hydraulics
- **Low water level** / deep drawdown possible
- High voltage possible
- Can be **installed at any depth**

High Efficiency Borehole: Bottom Intake Pump Installation



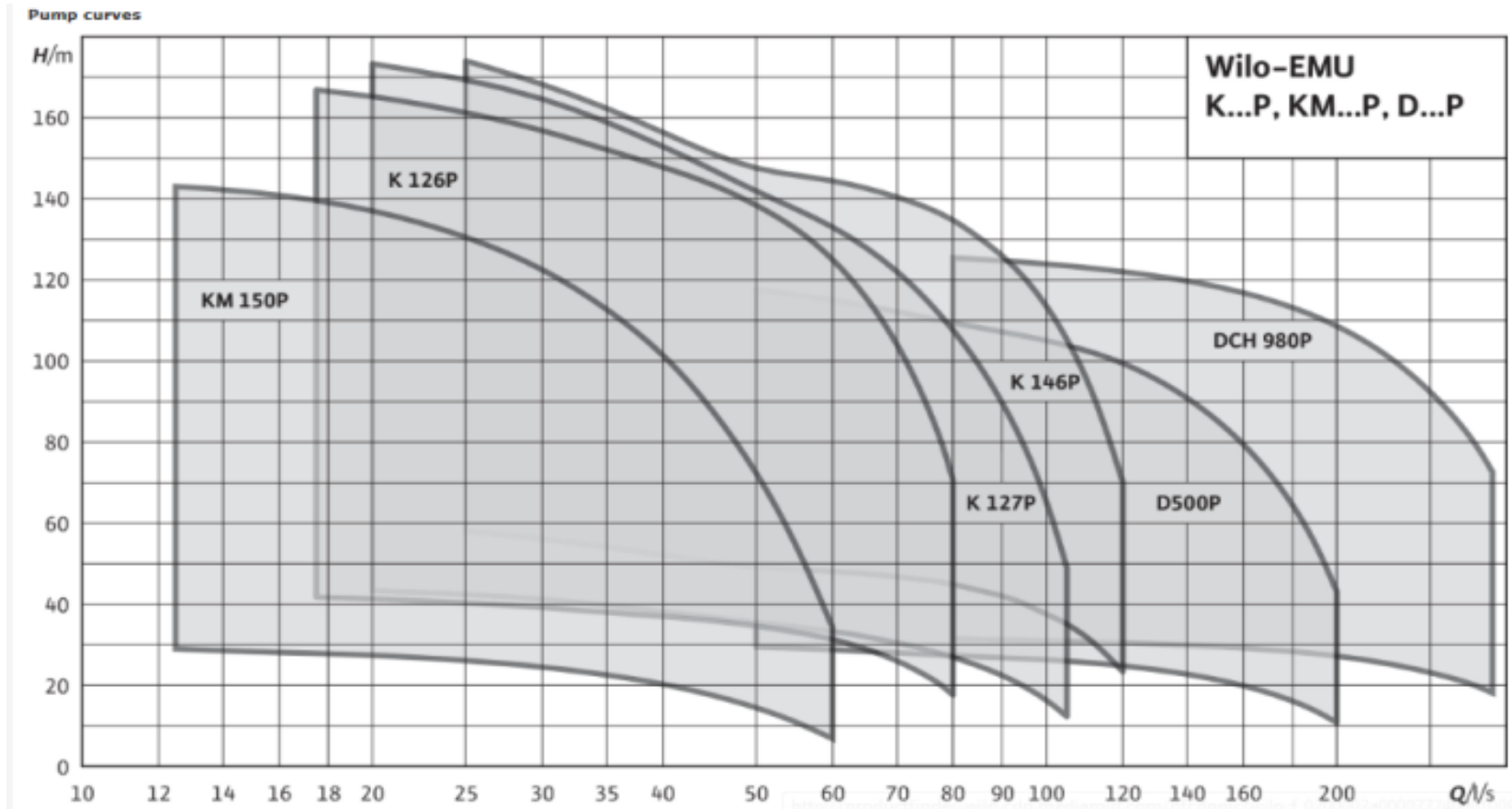
Old installation



Modern installation:
with polder pump



High Efficiency Borehole: Bottom Intake Pump (Polder)

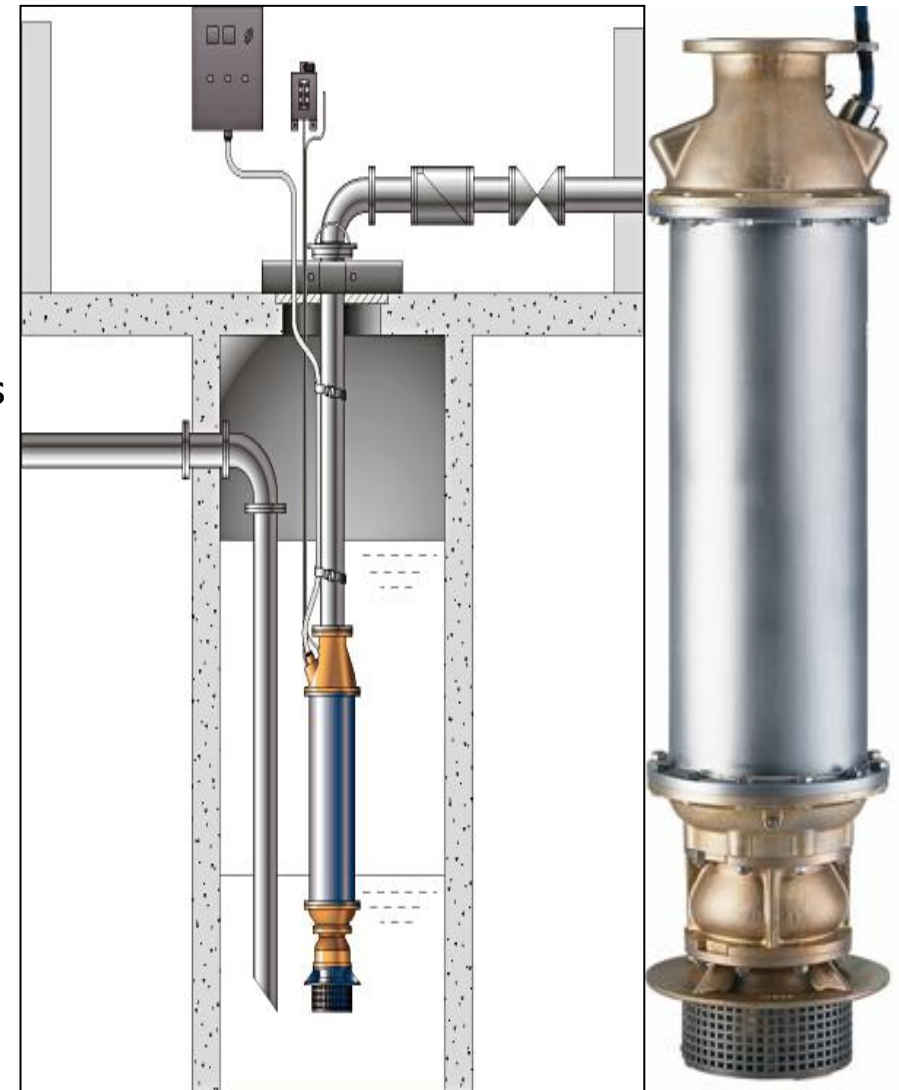
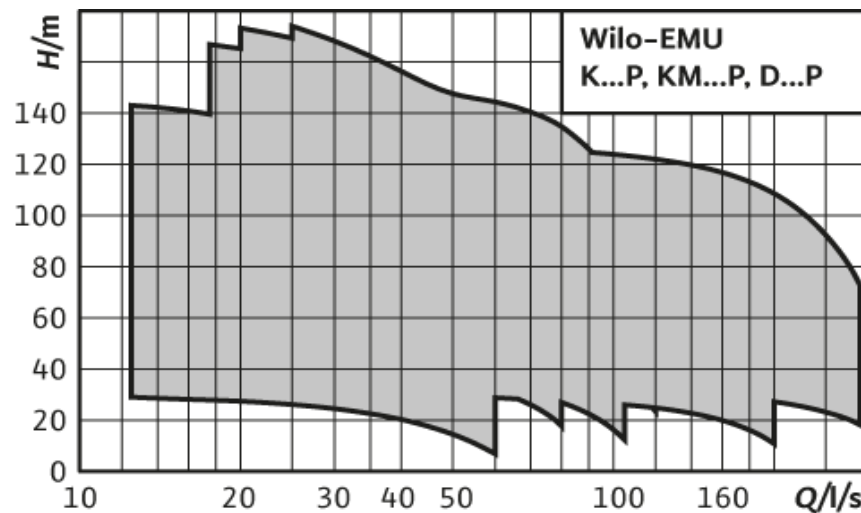


- Max head: over 160 m
- Max flow: 800 m³/h

High Efficiency Borehole: Bottom Intake Pump

Advantages

- Application in very low operating water level
- Simple installation at the rising mains
- Individual adjustment to the duty point
- Two mechanical seals as a standard for high operation reliability
- Wear-resistant design thanks to different material designs
- Ceram CT coating for efficiency increase as an option



High Efficiency Borehole: Bottom Intake Pump Reference



Location: Kota Malang is a district in East Java province, located in 400-600 meter above sea level

Reference Name: WTP Wendit has used Wilo polder pumps since 2010 as replacement of submersible pump from Grundfos

Pump type: K-146

High Efficiency Borehole: Seawater Application

Our seawater design C



For highly corrosive water

suction port,
discharge
piece, guide or
stage casing

→ Zincfree bronze

impeller/diffuser

→ zincfree bronze

pump shaft

→ Duplex stainless

screws, etc.

→ CrNiMo-316 steel

motor shroud

→ Zincfree bronze or
CrNiMo-316 steel

High Efficiency Borehole: Seawater Application

Seawater resistant material avaluation:		
	<u>Advantages</u>	<u>Disadvantages</u>
Cast iron with ceram coatings	Economic solution	only temp. Applications Lower resitance
Zinc free bronze:	Good chemical corrosion resitance	Non resitance against sufuric acid and clorides
Ni Alu Bronze:	Very good abrasion resistance	Non resitance against sufuric acid and clorides
316 Stainless steel:	Chemical resitance	Only medium abrasion resitance, weldings problem
Duplex :	Good chemical and abrasion resitance	Expensive and long lead times



High Efficiency Borehole: Entire Wilo Range



Stainless Steel Borehole Pumps 3"-10" Dia



EMU Borehole Pumps 10-24"



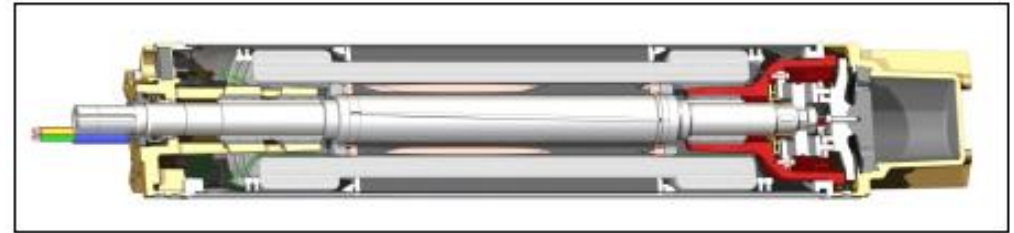
Polder Pump

High Efficiency Borehole: Accessories



- Special motor design

- Power increase of up to 25 %
- Active internal cooling
- Direct cooling of windings
- Higher duty
- No need for external cooling shroud



Control Boxes

- Standard
- Deluxe
- Deluxe CSCR
- Deluxe (6")



Variable Frequency Drives

- Max Amb Temp: 104°F (40°C)
- Max Altitude: 3300' (1000m)
- Protection Class: IP55 (NEMA 4)
- 4 Digital input, N.O. or N.C (settable) , for motor run and motor stop
- RS485 serial communication



Wilo Pump Panel

- NEMA type 3R steel enclosure with powder coating finish
- Full gasket hinged door with provision for padlocks
- UL listed and suitable for use as service equipment
- Heavy duty flange Fusible disconnect switch.
- NEMA Full voltage magnetic motor starter.

Smart Solution for Pressure Boosting

Wilo-SiBoost Smart Helix EXCEL™

- Highly efficient pressure boosting system
- 2 ~ 4 stainless steel, nonself-priming, high-pressure multistage centrifugal pumps
- High-efficiency pump hydraulics
- IE2 standard motors (IE3 and IE4 / option), systems with Helix EXCEL with high efficiency EC motor (efficiencies > IE4 acc. to IEC TS 60034-31 Ed.1)
- Hydraulics of entire system are pressure-loss optimised
- Integrated dry-running detection and low water cut-out switch
- SC control device



Wilo-SiBoost Smart Helix EXCEL

Wilo-Zeox FIRST – the new one in the field of boosting

Ring section pump in vertical and horizontal design

Application

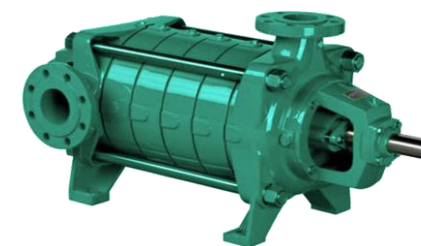
- Water supply
- Professional irrigation
- Fire fighting systems

Advantages

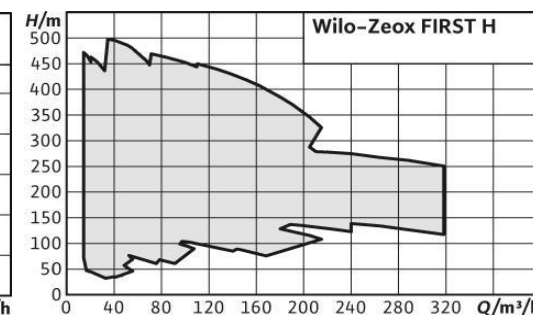
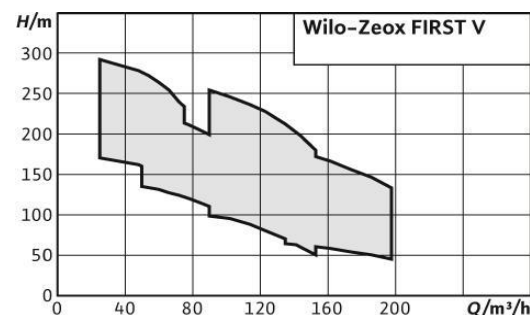
- High efficiency IE3 motor (standard IEC)
- Complies with ErP Directive with $MEI \geq 0.4$
- High quality materials
- Modular and robust design
- Safe operation with mechanical seal flushing device as standard
- Dynamically and hydraulically balanced impellers



Wilo-Zeox First V
Vertical design



Wilo-Zeox First H
Horizontal design



Flooding – All over the world



Wilo-FlowAx KPC



Q&A