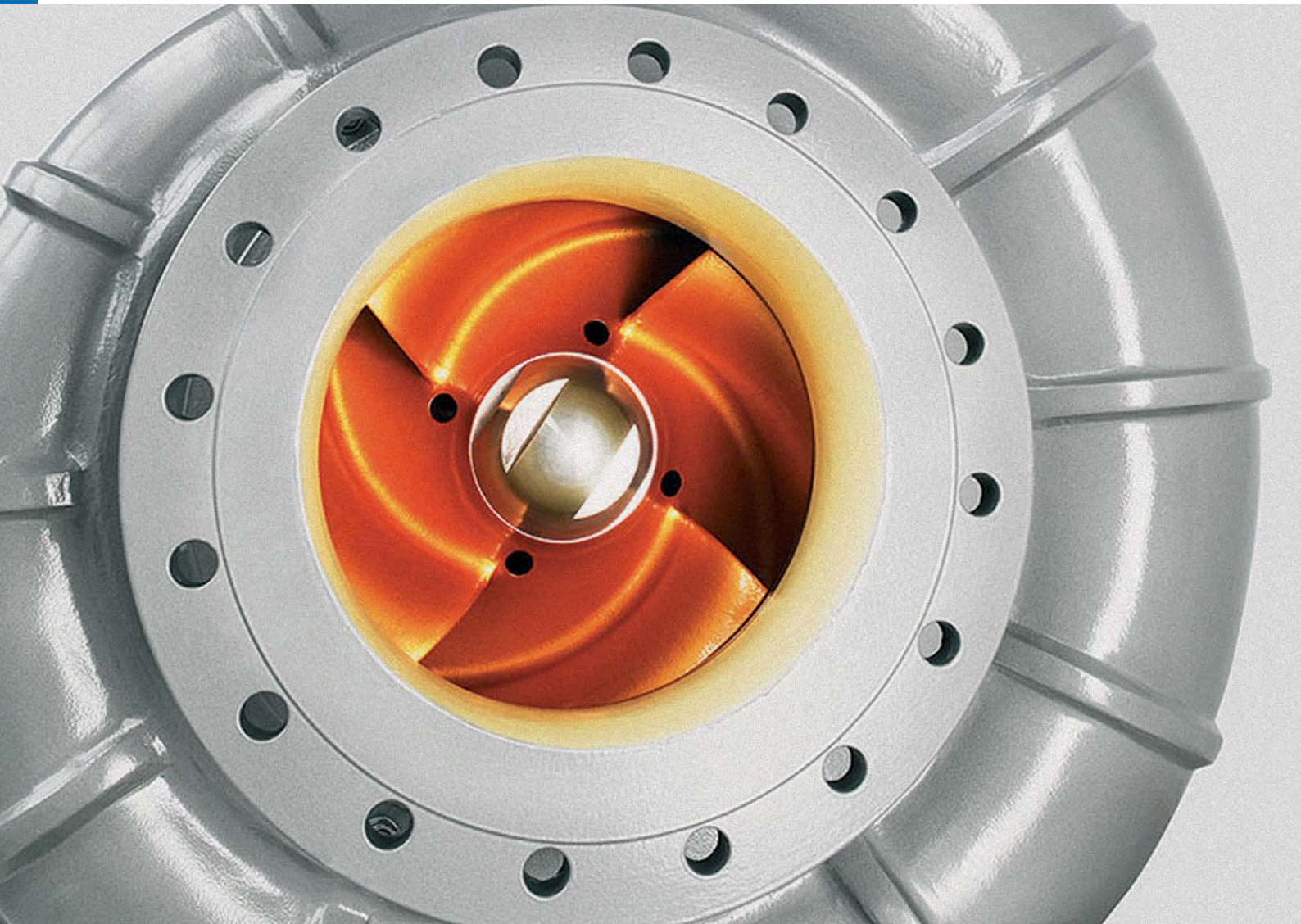


ANDRITZ pumps and motors

Products, systems, applications



Experience and expertise



Decades of experience in hydraulic machine manufacturing and complete process know-how form the basis for our pumps' high performance.

Professional expertise and our understanding of customer requirements make us a valuable partner. We offer innovative and targeted solutions with pumps and complete pumping stations.

From development to model tests, design, manufacturing, project management and installation, to service and training – all from a single source.

Customers around the world trust us. They value our many years of experience throughout the value chain.

Vertical line shaft pumps

e.g. for irrigation pumping stations

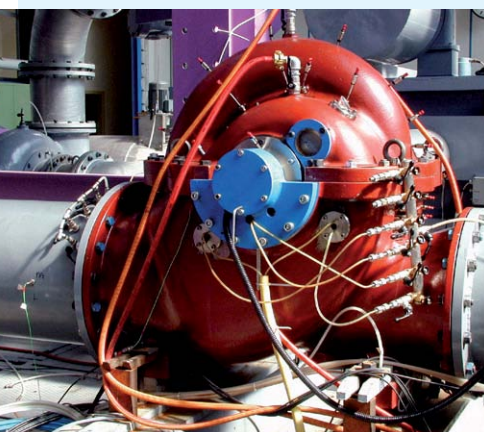
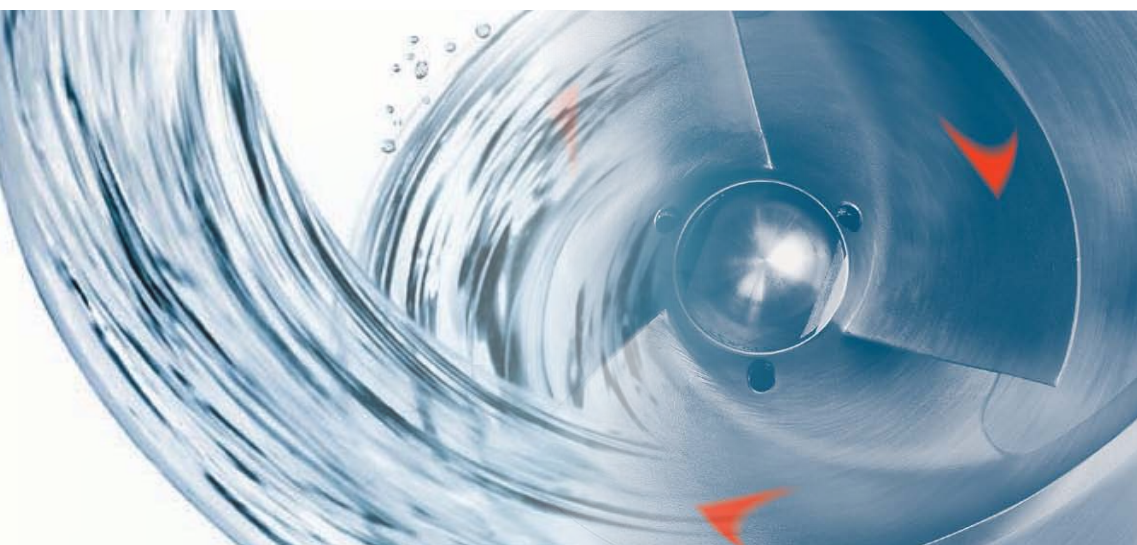
Process pumps

to convey water and suspensions for various industries, such as sugar, pulp and paper, or for water supply

Double-flow axial split case pumps

for pumping water and suspensions

R&D, quality, and service



Intensive research and development

Our commitment to research and development forms the basis for our advances in hydraulic machine manufacturing. We are currently developing and testing our pumps and turbines at five locations in Austria, Germany, Switzerland, and China. By networking these research and development centers, we provide a continuous transfer of know-how within the ANDRITZ GROUP for the benefit of our customers.

Global quality management

We ensure the high technical standard of our pumps with top manufacturing standards, systematic organization, clearly defined processes, and well-trained employees. Quality assurance and process requirements, as well as the quality of the pumps, are defined uniformly and implemented worldwide.

Close to our customers

Service and maintenance is key to our corporate philosophy, and is a traditional strength at ANDRITZ. Our goals are to provide first-class service and to secure sustained customer satisfaction and the reliability of our products. We are supported by the experience and know-how of our service employees as well as our service and production sites around the world.

Products (Part 1)

09

Single-stage centrifugal pumps

EN 733, ISO 2858/5193

DN 32 to 150
Q up to 600 m³/h
H up to 160



10

Single-stage centrifugal pumps

Closed, semi-open, and open impeller

DN 65 to 600
Q up to 6,000 m³/h
H up to 160 m

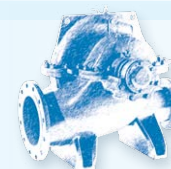


10

Double-flow axial split case pumps

Single-stage, double-flow, closed impeller

DN 150 to 1200
Q up to 20,000 m³/h (customized up to 36,000 m³/h)
H up to 220 m

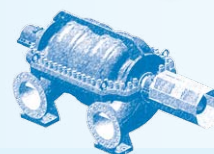


11

Multi-stage axial split case pumps

Various impeller arrangements in single or double flow design

DN 150 to 1600
Q up to 30,000 m³/h
H up to 800 m



11

High-pressure pumps

Multi-stage, closed impellers

DN 25 to 250
Q up to 800 m³/h
H up to 800 m

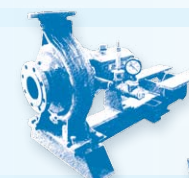


12

Self-priming centrifugal pumps

Single-stage, single-flow open impeller

DN 80 to 250
Q up to 2,000 m³/h
H up to 75 m



12

Vertical submerged pumps

Single-stage, single-flow open impeller

DN 80 to 200
Q up to 800 m³/h
H up to 50 m

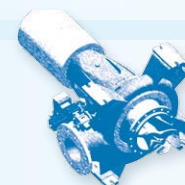


21

Medium-consistency pumps

Single-stage, single-flow semi-open impeller, with fluidizer

DN 80 to 400
Q up to 13,000 adm³/d
H up to 190 m



Products (Part 2)

13

Sewage pumps, dry
Single-stage, vortex impeller
DN 65 to 700
Q up to 10,000 m³/h
H up to 100 m



13

Sewage pumps, wet
Single-stage, submersible
DN 65 to 400
Q up to 2,600 m³/h
H up to 80 m



14

Single-flow submersible motor pumps
Multi-stage
Ø from 6" upwards
Q up to 900 m³/h
H up to 800 m



15

Double-flow submersible motor pumps
Multi-stage
Ø from 20" upwards
Q up to 6,000 m³/h
H up to 1,500 m



16

Submersible motors
Water-filled and water-cooled three-phase asynchronous motor
Ø from 8" upwards
Q up to 5,000 kW
V up to 14,000 V



17

Vertical line shaft pumps
Pull-out or non pull-out
Q up to 70,000 m³/h
H up to 80 m
P up to 10,000 kW



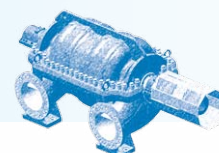
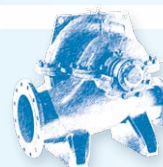
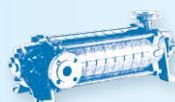
17

Vertical volute pumps
Metal or concrete volute with or without guide vane mechanism
Q up to 180,000 m³/h
H up to 40 m (concrete volute); up to 250 m (metal volute)
P up to 30,000 kW (concrete volute); up to 50,000 kW (metal volute)



43

Pumps as turbines
Q up to 6 m³/s
H up to 300 m
P up to 2 MW



Product portfolio and applications

Products	Water	Waste water	Pulp & paper	Mining	Sugar	Thermal power	Other industries*	Small hydropower
Single-stage centrifugal pumps EN733, ISO 2858/5193	■		■		■	■	■	■
Single-stage centrifugal pumps Closed, semi-open, open impeller	■		■	■	■	■	■	■
Double-flow axial split case pumps	■		■			■	■	■
Multi-stage axial split case pumps	■						■	■
High-pressure pumps	■		■			■	■	■
Self-priming centrifugal pumps	■	■	■		■		■	
Vertical submerged pumps	■	■	■				■	
Medium-consistency pumps			■		■			
Sewage pumps, dry		■						
Sewage pumps, wet		■						
Single-flow submersible motor pumps	■			■			■	
Double-flow submersible motor pumps	■			■			■	
Submersible motors	■			■			■	
Vertical line shaft pumps	■					■	■	
Vertical volute pumps	■					■	■	
Pumps as turbines								■

* e.g. desalination, offshore, bioethanol (second generation), starch, food, chemical, and steel industries



Water & wastewater **09**

Pulp & paper **18**

Mining **22**

Sugar **26**

29 Thermal power


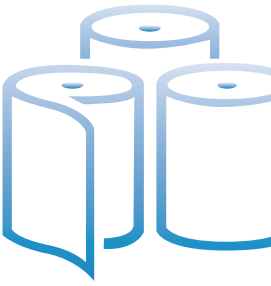
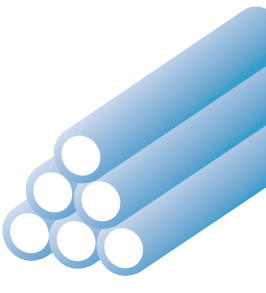
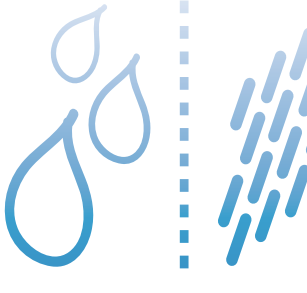
33 Other industries

42 Small hydropower



The ANDRITZ GROUP at a glance

International technology Group ANDRITZ is based in Graz, Austria. It operates more than 200 production, service, and sales sites around the world, and is one of the leading suppliers of systems, equipment and services for:

<p>Hydropower plants</p>	<p>Pulp and paper industry</p>	<p>Metalworking and steel industries</p>	<p>Municipal and industrial solid/liquid separation</p>
<p>ANDRITZ HYDRO</p>	<p>ANDRITZ PULP & PAPER</p>	<p>ANDRITZ METALS</p>	<p>ANDRITZ SEPARATION</p>
			

Water & waste water

Do you manage water supply or waste water facilities, or are you the project manager for a large infrastructure project for irrigation, drinking water and industrial water supply, or for flood control? Here you will find an overview of our product portfolio in the water and waste water sectors.

- **Drinking water and industrial water supply**
The water circuit is completed with ANDRITZ. Our proven pump range is used for pumping water from wells and springs, as well as for water treatment, water transport, and water distribution.
- **Irrigation and drainage**
Whether irrigating open and industrial areas, or forming part of huge irrigation projects for agricultural areas, ANDRITZ pumps offer efficient and cost-effective solutions.
- **Wastewater disposal**
ANDRITZ pumps cover the requirements for municipal and for industrial wastewater disposal. We are one of the few pump manufacturers offering sewage pumps for both dry and wet installation.
- **Flood protection (including polder drainage)**
Quick action is important in times of rising water levels and persistent rain causing rivers to burst their banks. ANDRITZ pumps help to dry out areas which are threatened by high water levels, or those that are already flooded.
- **Pumps for desalination plants**
Readily available sea water can be used in order to cover the need for clean drinking water in dry regions and in metropolitan areas. ANDRITZ provides the system components to respond to the challenges in successful desalination systems.

Single-stage centrifugal pumps

EN 733, ISO 2858/5193



Nominal diameter (DN)	32 to 150
Flow rate	up to 600 m³/h
Head	up to 160 m
Pressure	up to 16 bar
Temperature	up to 140° C

Design: Single-stage centrifugal pumps – main dimensions and performance grid also available according to EN 733, ISO 2858 and 5193

Media: Clean, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content

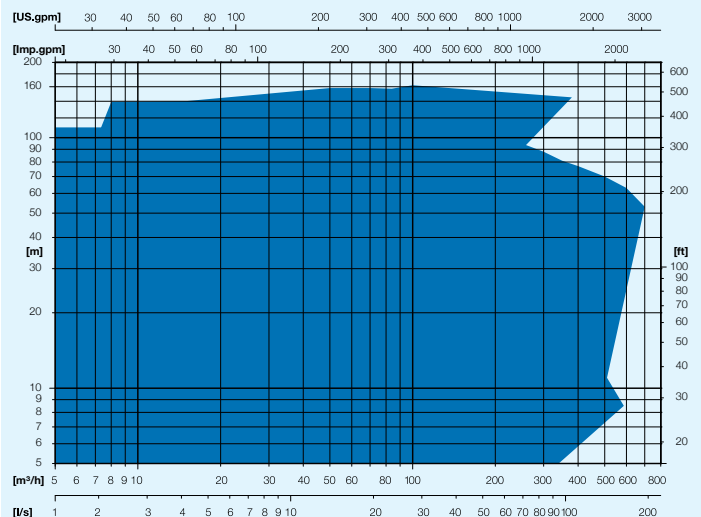
Special benefits: Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing; low energy consumption

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed impeller, radial impeller, vortex impeller, and two-channel impeller available in some cases

Applications: Water, pulp and paper, sugar, thermal power, small hydropower, other industries



Single-stage centrifugal pumps

From closed to open impellers



Nominal diameter (DN) 65 to 600

Flow rate up to 6,000 m³/h
Head up to 160 m
Pressure up to 25 bar
Temperature up to 200° C

Design: Single-stage centrifugal pumps

Media: Depending on the impeller design: water, slightly contaminated, and contaminated media with some solids content; consistencies up to 8%

Special benefits: Easy to maintain; the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock; efficiency up to 90%; can be delivered with a degassing unit if the medium has a high gas content (ARE version)

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed, semi-open, or open impeller, also available in highly wear-resistant design

Applications: Water, pulp and paper, mining, sugar, thermal power, small hydropower, other industries

Double-flow axial split case pumps



Nominal diameter (DN) 150 to 1200

Flow rate up to 20,000 m³/h
Head customized up to 36,000 m³/h
Pressure up to 25 bar
Temperature up to 110° C

Design: Single-stage, double-flow axial split case pumps

Media: Pure, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content; consistency up to 2%

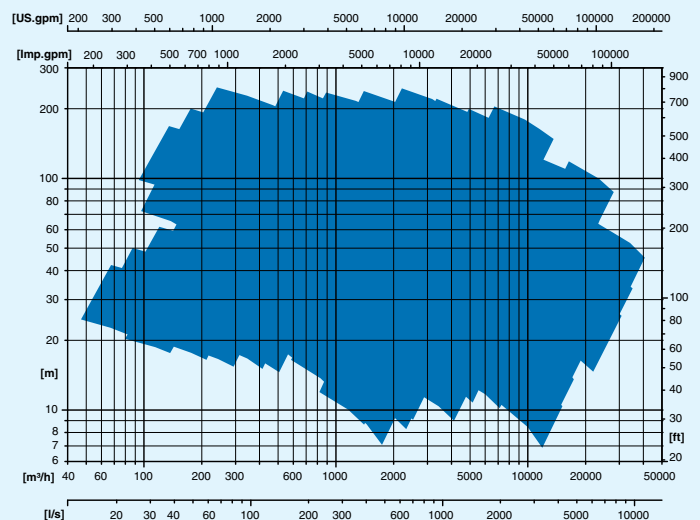
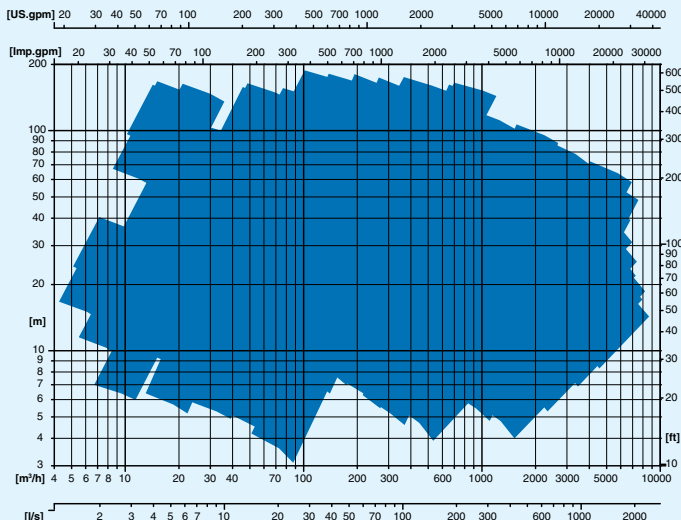
Special benefits: In-line casing design; horizontal or vertical installation; with horizontal installation, the motor can be placed on the left or right; efficiencies over 90%; low pulsation

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Double-flow radial impeller with optimum suction behavior and very good NPSH values

Applications: Water, pulp and paper, thermal power, small hydropower, other industries



Multi-stage axial split case pumps



Nominal diameter (DN) 150 to 1600
Flow rate up to 30,000 m³/h
Head up to 800 m
Power up to 20 MW
Efficiency up to 91%

Design: Multi-stage axial split case pumps with various impeller arrangements in single or double flow design

Media: Pure, slightly contaminated

Special benefits: In-line casing design; horizontal installation, the motor can be placed on the left or right; efficiencies over 90%

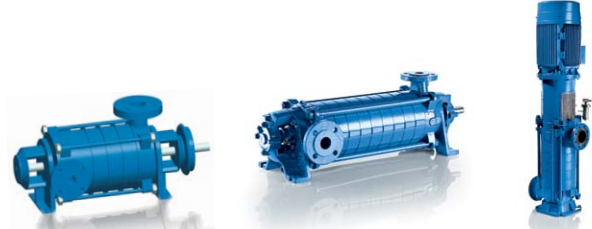
Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Single or double flow closed radial impellers with optimum suction behavior and very good NPSH values

Applications: Water, small hydropower, other industries

High-pressure pumps Multi-stage centrifugal pumps



Nominal diameter (DN) 25 to 250
Flow rate up to 800 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 160° C

Design: Multi-stage high-pressure pumps, vertical and horizontal design

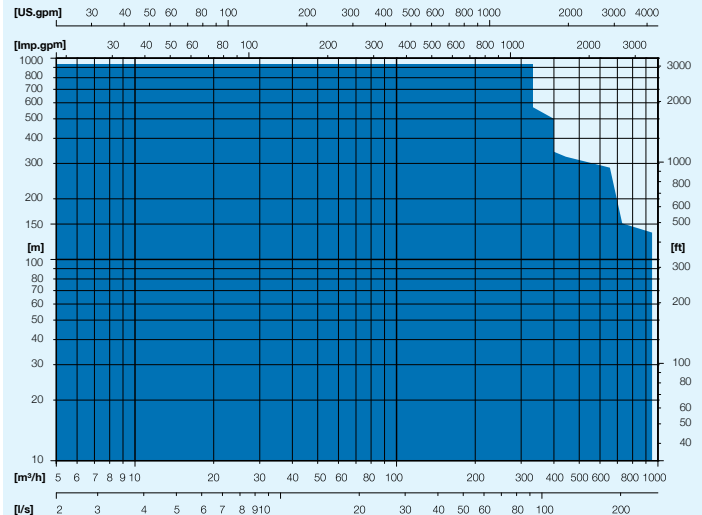
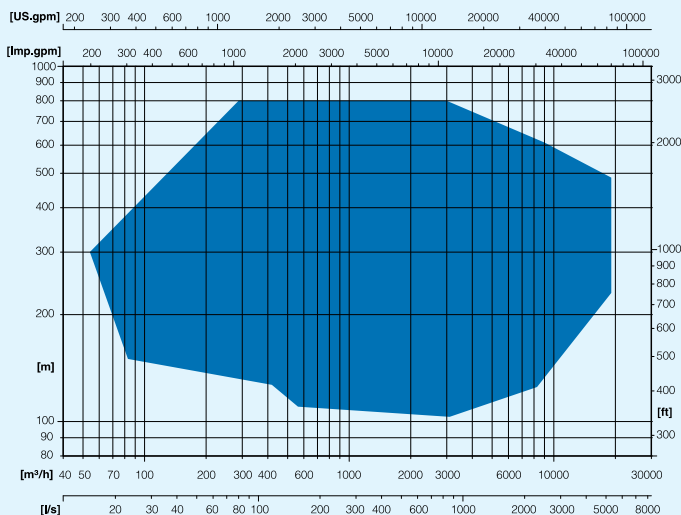
Media: Clean and slightly contaminated liquids up to a viscosity of 150 mm²/s without abrasive and solid content

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Radial impeller

Applications: Water, pulp and paper, sugar, thermal power, other industries



Self-priming centrifugal pumps



Nominal diameter (DN)	80 to 250
Flow rate	up to 2,000 m³/h
Head	up to 75 m
Pressure	up to 16 bar
Temperature	up to 80° C

Design: Single-stage, single-flow centrifugal pumps with integrated water ring vacuum pump

Media: Water, viscous media (e.g. sugar concentration of up to 70%), and media containing solids (e.g. for pulp, paper, or waste water applications)

Special benefits: Self-priming; the integrated vacuum pump prevents air from gathering in front of the impeller and the centrifugal pump can therefore operate well even in the presence of high gas content; high-viscosity media can also be pumped

Materials: Cast iron, stainless steel

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Water and waste water, pulp and paper, sugar, other industries

Vertical submerged pumps



Nominal diameter (DN)	80 to 200
Flow rate	up to 800 m³/h
Head	up to 50 m
Pressure	up to 16 bar
Temperature	up to 60° C

Design: Single-stage, single-flow submerged pumps

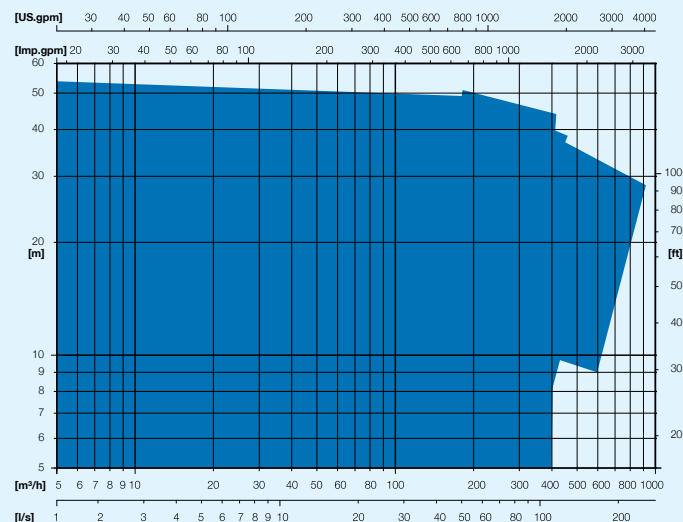
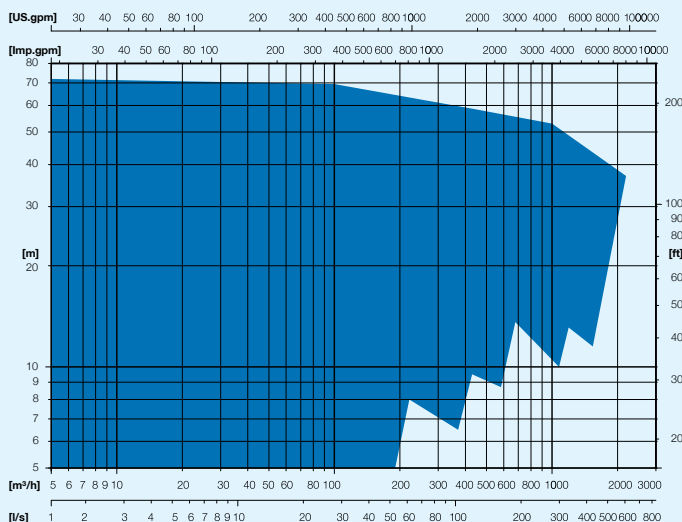
Media: Water, waste water, high-viscosity media, and media containing solids, consistencies up to 6%; slurries containing large particles (up to 140 mm); abrasive media

Special benefits: Modular base frame design; generously sized shafts; standard construction length of 1 to 2 m; flexible coupling – also developed for transporting coarse media

Materials: Cast iron, stainless steel

Impeller design: Open or vortex impeller

Applications: Water and waste water, pulp and paper, other industries

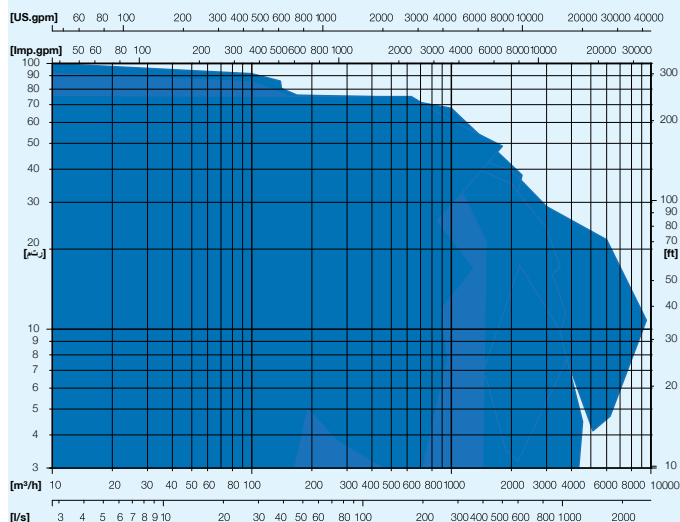


Sewage pumps, dry



Nominal diameter (DN)	65 to 700
Flow rate	up to 10,000 m³/h
Head	up to 100 m
Pressure	up to 16 bar
Temperature	up to 140° C

- Design:** Single-stage waste water pumps
- Media:** Low-viscosity, high-viscosity, and abrasive media, as well as gaseous and non-gaseous slurries
- Special benefits:** Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing
- Materials:** Cast iron, stainless steel
- Shaft seal:** Gland packing, mechanical seal
- Impeller design:** Single-channel, double-channel, vortex, multi-channel, open mixed-flow impeller
- Applications:** Waste water

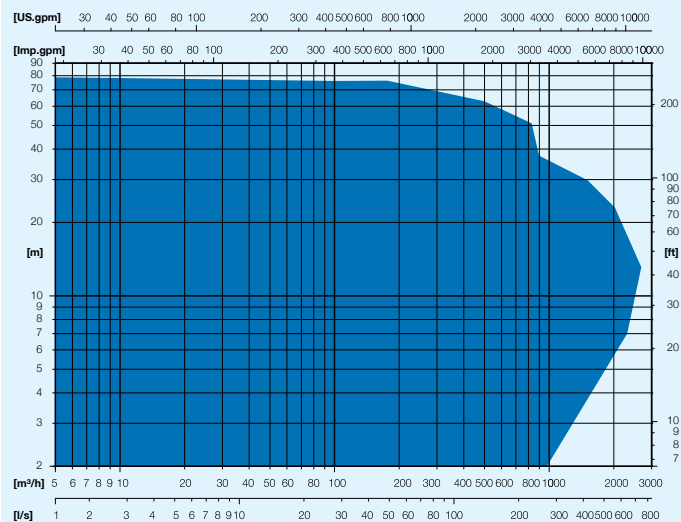


Sewage pumps, wet



Nominal diameter (DN)	65 to 400
Flow rate	up to 2,600 m³/h
Head	up to 80 m
Pressure	up to 10 bar
Temperature	up to 40° C

- Design:** Single-stage submersible pumps in close-coupled design
- Media:** Sewage and waste water, as well as sludges with solid content (10% dry substance max.)
- Special benefits:** Explosion-proof designs can be supplied; available with a float switch
- Materials:** Cast iron, stainless steel
- Shaft seal:** Mechanical seal
- Impeller design:** Single-channel, double-channel, vortex impeller
- Applications:** Waste water



Single-flow submersible motor pumps

MS-T – Modular Shaft Technology



Well Ø from 6" upwards
Flow rate up to 900 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 75° C

Design: Multi-stage, single-flow submersible motor pumps

Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: Maintenance-free; long service life, and high operating reliability; can be supplied optionally with modular shaft technology for flexible extension or reduction of the number of stages

Materials: Cast iron, aluminum-bronze, stainless steel

Impeller design: Radial, semi-axial impeller

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

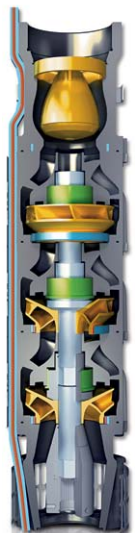
The cost of an application is becoming increasingly important in making investment decisions. This raises the question of whether the continuous shaft concept is still up to date. Installing and removing a pump with a continuous shaft requires numerous individual steps. The logistics and storage of many different individual parts is associated with high costs. Adjustments to changing heads are generally only possible through cost-intensive exchanging of pumps.

MS-T – The solution

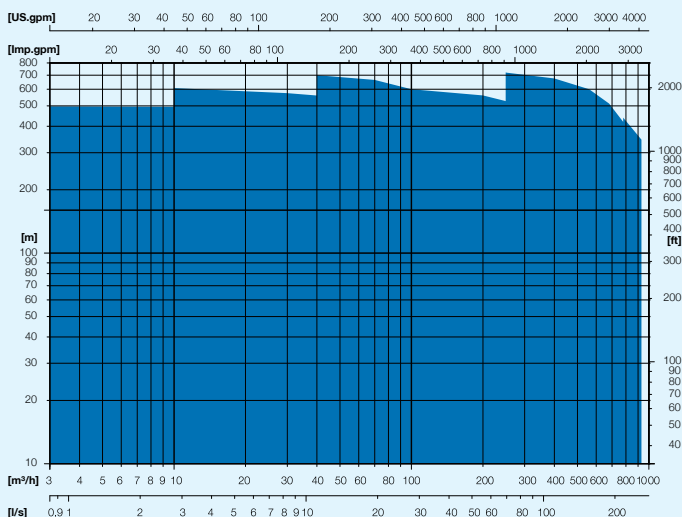
MS-T is not only a technological evolution, from the cost perspective it is a revolution.

MS-T is designed using a modular concept – with all of its technical and economic advantages:

- Flexible adjustment to changing pumping conditions – easy and fast by extending or reducing the number of stages.
- Simple, time-saving, and targeted installation and removal of individual stages, either horizontal or vertical.
- A small number of highly standardized components ensure high availability and short delivery times, as well as low storage costs for the operator.



Thus, pumps with MS-T are the best solution wherever there is a need for operating reliability, freedom from maintenance, long service life, high efficiency, and flexible heads.



Double-suction submersible motor pumps

HDM – Heavy Duty Mining



- Well Ø** from 20" upwards
- Flow rate** up to 6,000 m³/h
- Head** up to 1,500 m
- Pressure** up to 150 bar
- Temperature** up to 75° C

Design: Multi-stage, double-flow submersible motor pumps

Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: No axial thrust, double-flow design for long service life and high reliability; maintenance-free

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Impeller design: Radial impeller

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

The use of submersible motor pumps for large volumes or in great depths is associated with high stresses on the equipment. The higher the pump performance, the greater the axial thrust on the pump, motor, and its thrust bearing. The consequence: overloading and an increased risk of failure.

HDM – The solution

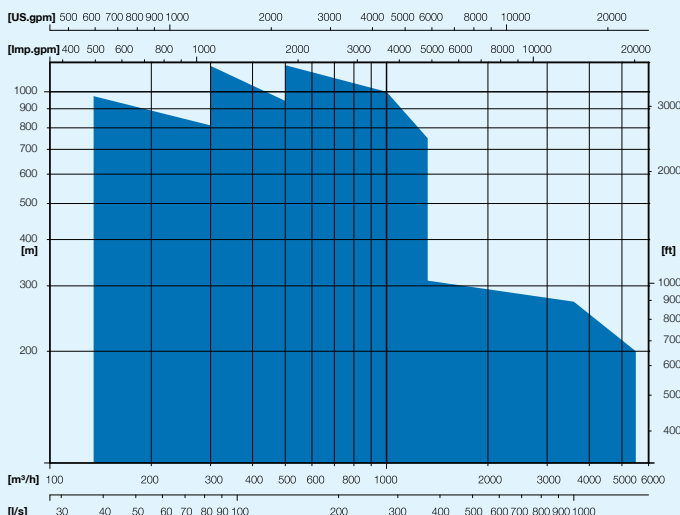
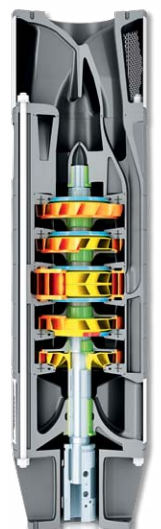
Two pumps are arranged one above the other, running in counter direction and driven by a continuous pump shaft. Splitting the workload between both pumps ensures complete axial thrust balancing and thus contributes towards solving the problems of force effects on the unit and loads on the thrust bearings; at the same time, the flow and suction speed outside the pump is halved. Thus, well walls are protected around the suction areas, and the intake of abrasive particles is minimized.

The result

In addition to technical benefits – HDM offers complete balancing of the axial thrust, flow speeds halved, and smaller impeller cross-sections – there are also economic benefits: maximum operating reliability, minimal wear, and long service life, which can often be more than 20 years. In combination with ANDRITZ high-performance submersible motors, the result is a complete technical solution.

Custom solutions

Each ANDRITZ submersible pump with HDM technology is customized. It is individually configured to meet your requirements.



Submersible motors

MC-T – Modular Cooling Technology



Well Ø from 8" upwards
Power up to 5,000 kW
Voltage up to 14,000 V
Temperature up to 75° C

Design: Water-filled and water-cooled three phase asynchronous motors with squirrel-cage rotors

Special benefit: Rewindable winding

Materials: Cast iron, bronze, stainless steel

Shaft seal: Mechanical seal

Installation: Vertical, some horizontal

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

Efficient and cost-effective cooling of submersible motors is a constant source of discussion by well and mine operators. Derating is a less-than-ideal solution. In addition to high capital and energy costs, the overlarge, downgraded motors usually require a larger well diameter. Oil cooling needs careful consideration as well – any failure can cause ecological damage.

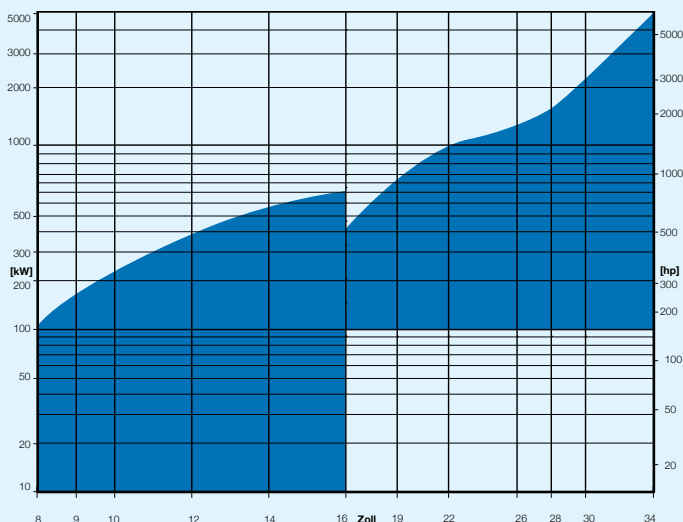
MC-T – The solution

MC-T, an intelligent and compact cooling system, is the best solution here. A pump impeller brings flow into the cooling circuit and thus provides flow in the right direction. Our own-development cooling channels ensure heat absorption at all thermal sources and heat evacuation, as well as providing optimal heat conduction through the outside of the motor to the flow medium. The additional use of heat exchanger modules allows precise dimensioning of the cooling capacity.

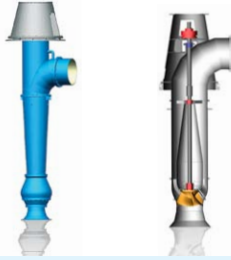


Technical details and economic benefits

- Media temperature up to 75° C
- High efficiency across the entire performance range
- Uses drinking water as the coolant
- Low investment required
- Reduced energy costs
- Maximum reliability
- Long service life



Vertical line shaft pumps



Flow rate	up to 70,000 m³/h
Head	up to 80 m
Power	up to 10,000 kW

Design: Pull-out or non pull-out

Special benefits: Option with hydraulically adjustable impeller blades: The hydraulic impeller blade adjustment mechanism allows the impeller angle to be varied continuously during operation. Thus, the operator can react promptly to changes in flow rate and head.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

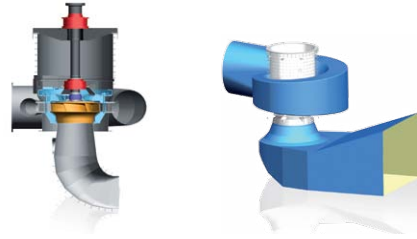
Shaft seal: Gland packing, mechanical seal

Impeller design: Radial, axial, and semi-axial impeller, optionally adjustable angle impeller blades or hydraulically adjustable impeller blades

Applications: Water, thermal power, other industries



Vertical volute pumps



Flow rate	up to 180,000 m³/h
Head	up to 40 m (concrete volute) up to 250 m (metal volute)
Power	up to 30,000 kW (concrete volute) up to 50,000 kW (metal volute)

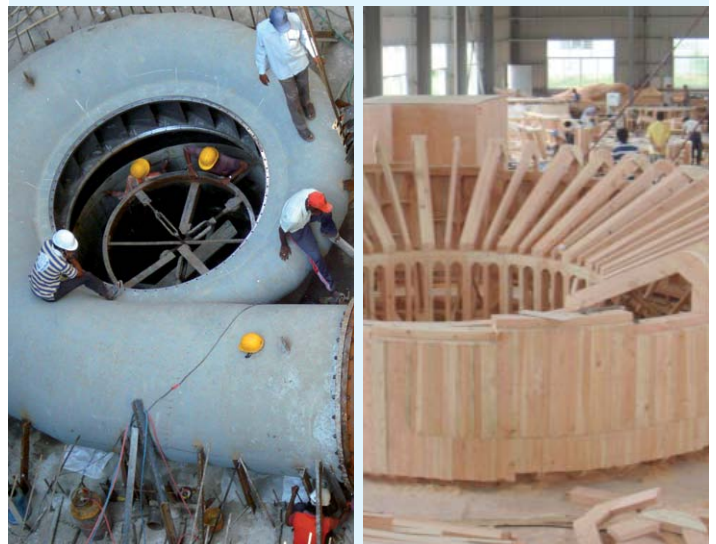
Design: Metal or concrete volute with or without guide vane mechanism

Special benefits: The hydraulic dimensioning and design of the volute casing depends on the specific output characteristics. Optimum flow is achieved in the volute thanks to its individual shaping, thus also achieving a high level of efficiency.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

Impeller design: Radial, semi-axial

Applications: Water, thermal power, other industries



Pulp & paper

Are you responsible for the operation or maintenance of a pulp or paper production facility, or are you project manager for the construction of a greenfield pulp or paper mill? We can provide you with a series of high-performance, reliable pumps.

- **Centrifugal pumps** are used as process pumps in many different areas in pulp and paper mills. They pump suspensions with consistencies up to 8% b.d., offer high efficiencies up to 90%, and are easy to maintain with a modular design. These pumps are also available with additional degassing units for media with high gas content.
- **Double-flow axial split case pumps** are optimized for use in the pulp and paper industry, above all as headbox or cleaner pumps (fan pumps). They feature efficiencies of over 90% and have been developed specially for the pulp and paper industry with a particularly low-pulsation impeller with staggered blades.
- **Medium-consistency pumps** convey the following media: chemical, mechanical, and wastepaper pulp suspensions with consistencies of up to 16% b.d. and efficiencies of up to 74%. They can be operated in most applications without internal or external vacuum pump.
- **Self-priming centrifugal pumps** convey media with high gas content. They are also highly suitable for transporting viscous and solids-containing media due to their open impellers.
- **Sump pumps** convey fresh and white water or waste water, pulp, slurries with large particles, and abrasive media.

Single-stage centrifugal pumps

EN 733, ISO 2858/5193



Nominal diameter (DN)	32 to 150
Flow rate	up to 600 m³/h
Head	up to 160 m
Pressure	up to 16 bar
Temperature	up to 140° C

Design: Single-stage centrifugal pumps – main dimensions and performance grid also available according to EN 733, ISO 2858 and 5193

Media: Clean, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content

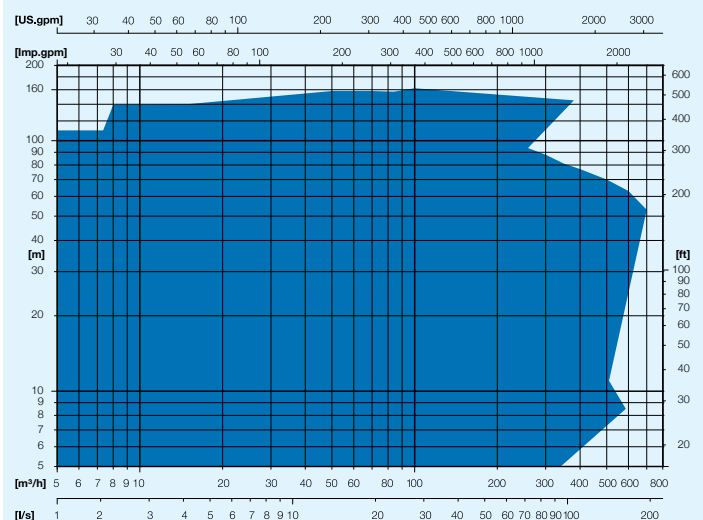
Special benefits: Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing; low energy consumption

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed impeller, radial impeller, vortex impeller, and two-channel impeller available in some cases

Applications: Water, pulp and paper, sugar, thermal power, other industries, small hydropower



Single-stage centrifugal pumps

From closed to open impellers



Nominal diameter (DN) 65 to 600

Flow rate up to 6,000 m³/h
Head up to 160 m
Pressure up to 25 bar
Temperature up to 200° C

Design: Single-stage centrifugal pumps

Media: Depending on the impeller design: water, slightly contaminated, and contaminated media with some solids content; consistencies up to 8%

Special benefits: Easy to maintain; the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock; efficiency up to 90%; can be delivered with a degassing unit if the medium has a high gas content (ARE version)

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed, semi-open, or open impeller, also available in highly wear-resistant design

Applications: Water, pulp and paper, mining, sugar, thermal power, small hydropower, other industries

Double-flow axial split case pumps



Nominal diameter (DN) 150 to 1200

Flow rate up to 20,000 m³/h
Head customized up to 36,000 m³/h
Pressure up to 25 bar
Temperature up to 110° C

Design: Single-stage, double-flow axial split case pumps

Media: Pure, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content; consistency up to 2%

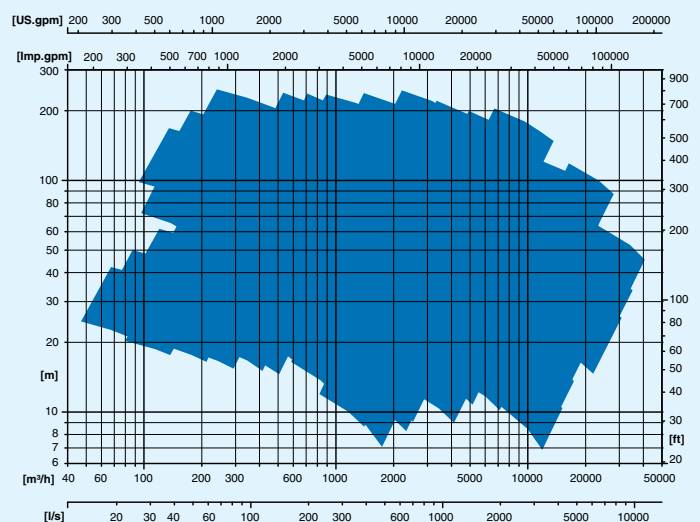
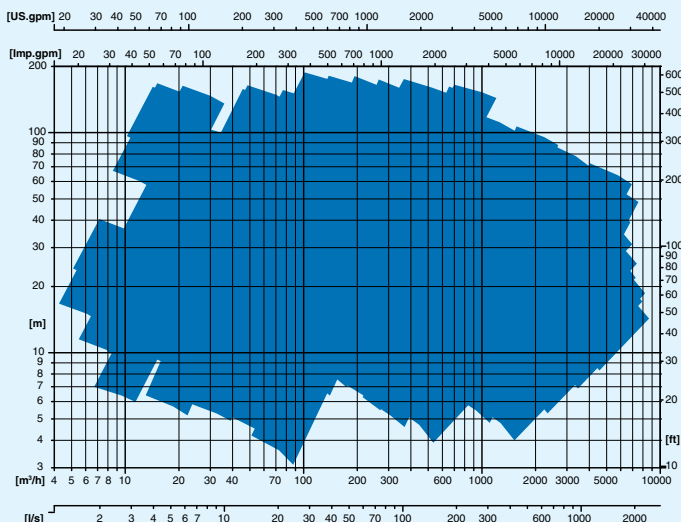
Special benefits: In-line casing design; horizontal or vertical installation; with horizontal installation, the motor can be placed on the left or right; efficiencies over 90%; low pulsation

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

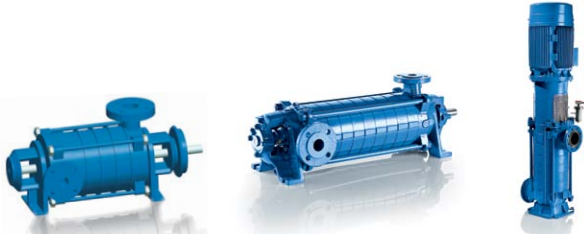
Impeller design: Double-flow radial impeller with optimum suction behavior and very good NPSH values

Applications: Water, pulp and paper, thermal power, small hydropower, other industries



High-pressure pumps

Multi-stage centrifugal pumps



Nominal diameter (DN) 25 to 250
Flow rate up to 800 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 160° C

Design: Multi-stage high-pressure pumps, vertical and horizontal design

Media: Clean and slightly contaminated liquids up to a viscosity of 150 mm²/s without abrasive and solid content

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Radial impeller

Applications: Water, pulp and paper, thermal power, other industries

Self-priming centrifugal pumps



Nominal diameter (DN) 80 to 250
Flow rate up to 2,000 m³/h
Head up to 75 m
Pressure up to 16 bar
Temperature up to 80° C

Design: Single-stage, single-flow centrifugal pumps with integrated water ring vacuum pump

Media: Water, viscous media (e.g. sugar concentration of up to 70%), and media containing solids (e.g. for pulp, paper, or waste water applications)

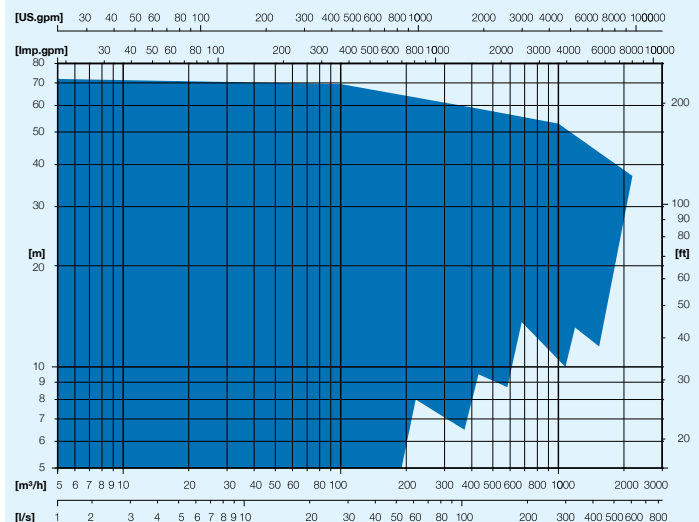
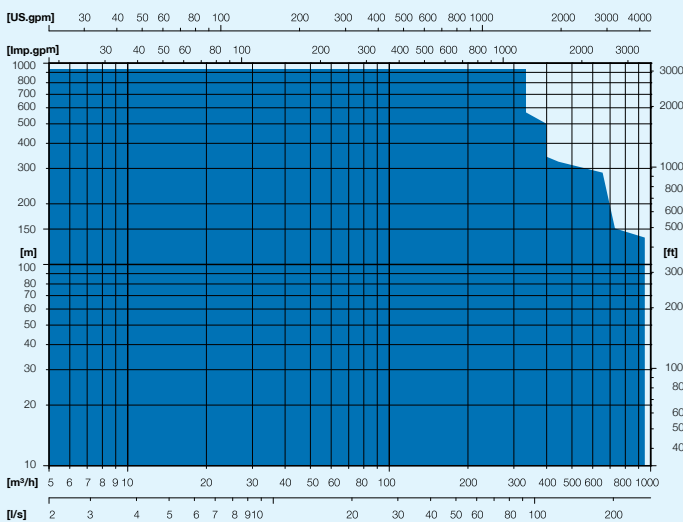
Special benefits: Self-priming; the integrated vacuum pump prevents air from gathering in front of the impeller and the centrifugal pump can therefore operate well even in the presence of high gas content; high-viscosity media can also be pumped

Materials: Cast iron, stainless steel

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Water and waste water, pulp and paper, sugar, other industries



Vertical submerged pumps



Nominal diameter (DN)	80 to 200
Flow rate	up to 800 m³/h
Head	up to 50 m
Pressure	up to 16 bar
Temperature	up to 60° C

Design: Single-stage, single-flow submerged pumps

Media: Water, waste water, high-viscosity media, and media containing solids, consistencies up to 6%; slurries containing large particles (up to 140 mm); abrasive media

Special benefits: Modular base frame design; generously sized shafts; standard construction length of 1 to 2 m; flexible coupling – also developed for transporting coarse media

Materials: Cast iron, stainless steel

Impeller design: Open or vortex impeller

Applications: Water and waste water, pulp and paper, other industries

Medium-consistency pumps



Nominal diameter (DN)	80 to 400
Flow rate	up to 13,000 admt/d
Head	up to 190 m
Pressure	up to 25 bar
Temperature	up to 140° C
Consistencies	up to 16% b.d.

Design: Single-flow, single-stage, medium-consistency pump with fluidizer

Media: Pulp suspensions up to a consistency of 16% b.d. and all types of viscous media

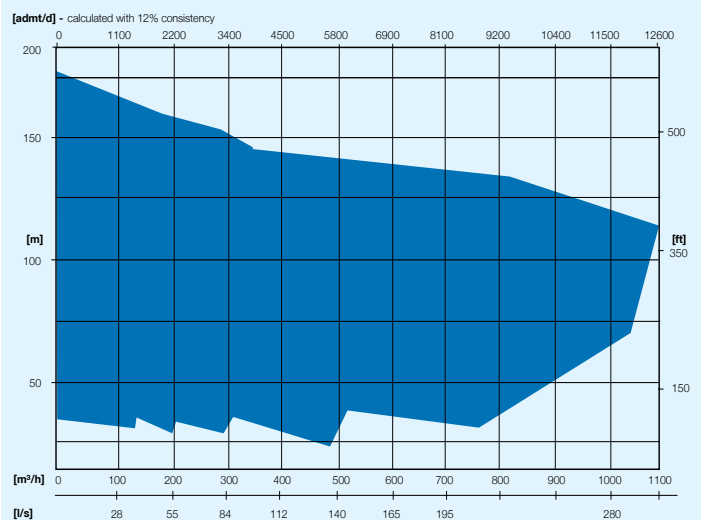
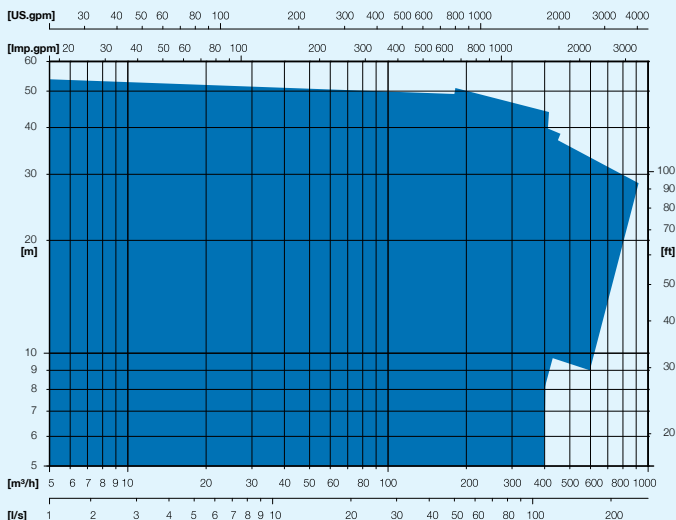
Special benefits: No need to monitor the pressure in the degasser line and no loss of fibers thanks to the newly developed SMARTSEP degassing system

Materials: Cast iron, stainless steel, acid-resistant individual components if needed

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Pulp and paper, sugar





Mining

Are you looking for safe and effective solutions in mining water management? ANDRITZ is one of the leading manufacturers of pumps for water management and emergency drainage in surface and underground mining.

- **Deployment under extreme conditions**
- **Highest operating reliability**
- **Long service life**
- **Maintenance-free operation**
- **High-grade materials**

Safety and reliability are the greatest necessities in surface and underground mining in order to ensure that there are no disruptions in extraction. Mine operators around the world trust the single-flow and double-suction submersible motor pumps from ANDRITZ in order to remove mine water reliably from operating areas. If rescue pumps are needed to drain water from mines reliably and quickly in emergencies, the patented HDM technology is the best possible solution to keep people and the environment safe.

Double-suction submersible motor pumps



Well Ø	from 20" upwards
Flow rate	up to 6,000 m³/h
Head	up to 1,500 m
Pressure	up to 150 bar
Temperature	up to 75° C

Design: Multi-stage, double-flow submersible motor pumps

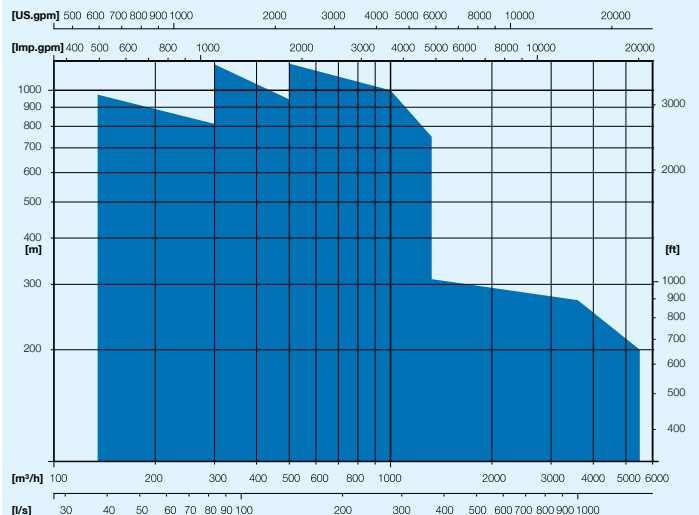
Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: No axial thrust, double-flow design for long service life and high operating reliability; maintenance-free

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Impeller design: Radial impeller

Applications: Mining, water, other industries (e.g. offshore)



HDM – Heavy Duty Mining



The challenge

The use of submersible motor pumps for large volumes or in great depths is associated with high stresses on the equipment. The higher the pump performance, the greater the axial thrust on the pump, motor, and its thrust bearing. The consequence: overloading and an increased risk of failure.

HDM – The solution

Two pumps are arranged one above the other, running in counter direction and driven by a continuous pump shaft. Splitting the workload between both pumps ensures complete axial thrust balancing and thus contributes towards solving the problems of force effects on the unit and loads on the thrust bearings; at the same time, the flow and suction speed outside the pump is halved. Thus, well walls are protected around the suction areas, and the intake of abrasive particles is minimized.

The result

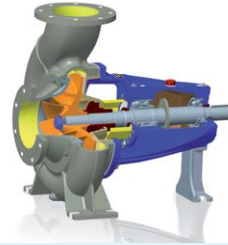
In addition to technical benefits – HDM offers complete balancing of the axial thrust, flow speeds halved, and smaller impeller cross-sections – there are also economic benefits: maximum operating reliability, minimal wear, and long service life, which can often be more than 20 years. In combination with ANDRITZ high-performance submersible motors, the result is a complete technical solution.

Custom solutions

Each ANDRITZ submersible pump with HDM technology is customized. It is individually configured to meet your requirements.



Single-stage pumps Highly abrasion-resistant



Nominal diameter (DN)	65 to 600
Flow rate	up to 6,000 m³/h
Head	up to 160 m
Pressure	up to 25 bar
Temperature	up to 200° C

Design: Single-stage, abrasion-resistant volute casing pumps

Media: Slightly contaminated and contaminated media with solids content

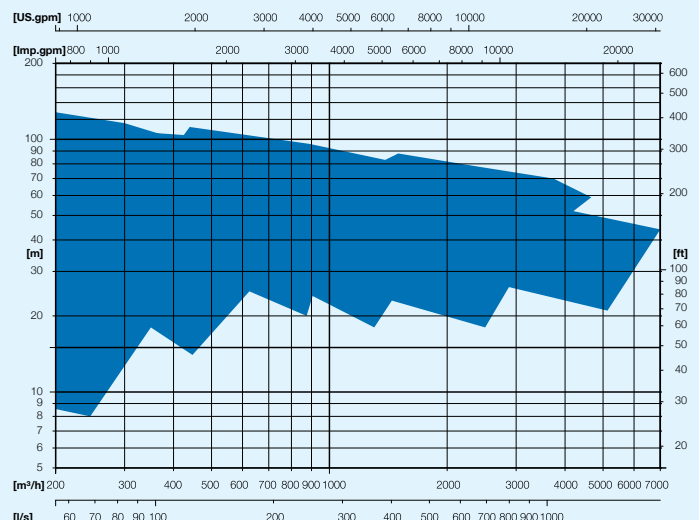
Special benefits: Easy to maintain, the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock, efficiency up to 90%

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Semi-open, or open impeller, also available in highly wear-resistant design

Applications: Mining, sugar



Single-flow submersible motor pumps

MS-T – Modular Shaft Technology



Well Ø from 6" upwards
Flow rate up to 900 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 75° C

Design: Multi-stage, single-flow submersible motor pumps

Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: Maintenance-free; long service life, and high operating reliability; can be supplied optionally with modular shaft technology for flexible extension or reduction of the number of stages

Materials: Cast iron, aluminum-bronze, stainless steel

Impeller design: Radial, semi-axial impeller

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

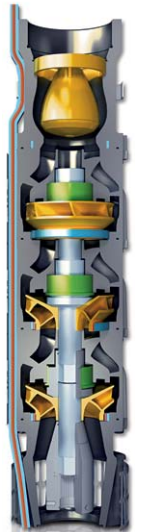
The cost of an application is becoming increasingly important in making investment decisions. This raises the question of whether the continuous shaft concept is still up to date. Installing and removing a pump with a continuous shaft requires numerous individual steps. The logistics and storage of many different individual parts is associated with high costs. Adjustments to changing heads are generally only possible through cost-intensive exchanging of pumps.

MS-T – The solution

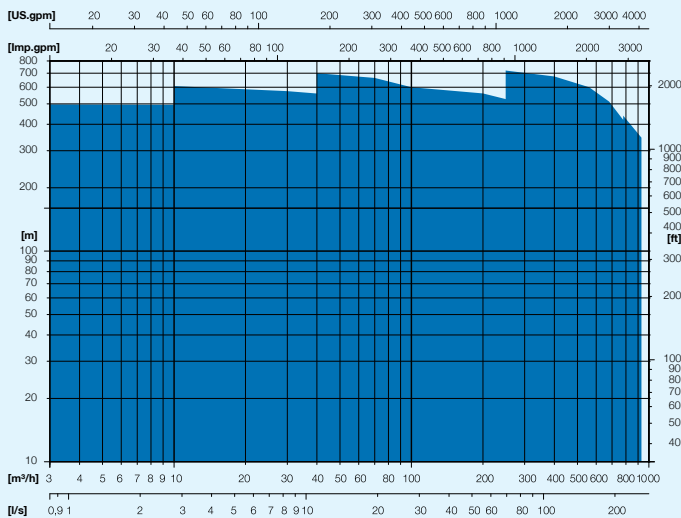
MS-T is not only a technological evolution, from the cost perspective it is a revolution.

MS-T is designed using a modular concept – with all of its technical and economic advantages:

- Flexible adjustment to changing pumping conditions – easy and fast by extending or reducing the number of stages.
- Simple, time-saving, and targeted installation and removal of individual stages, either horizontal or vertical.
- A small number of highly standardized components ensure high availability and short delivery times, as well as low storage costs for the operator.



Thus, pumps with MS-T are the best solution wherever there is a need for operating reliability, freedom from maintenance, long service life, high efficiency, and flexible heads.



Submersible motors

MC-T – Modular Cooling Technology



Well Ø from 8" upwards
Power up to 5,000 kW
Voltage up to 14,000 V
Temperature up to 75° C

Design: Water-filled and water-cooled three phase asynchronous motors with squirrel-cage rotors

Special benefit: Rewindable winding

Materials: Cast iron, bronze, stainless steel

Shaft seal: Mechanical seal

Installation: Vertical, some horizontal

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

Efficient and cost-effective cooling of submersible motors is a constant source of discussion by well and mine operators. Derating is a less-than-ideal solution. In addition to high capital and energy costs, the overlarge, downgraded motors usually require a larger well diameter. Oil cooling needs careful consideration as well – any failure can cause ecological damage.

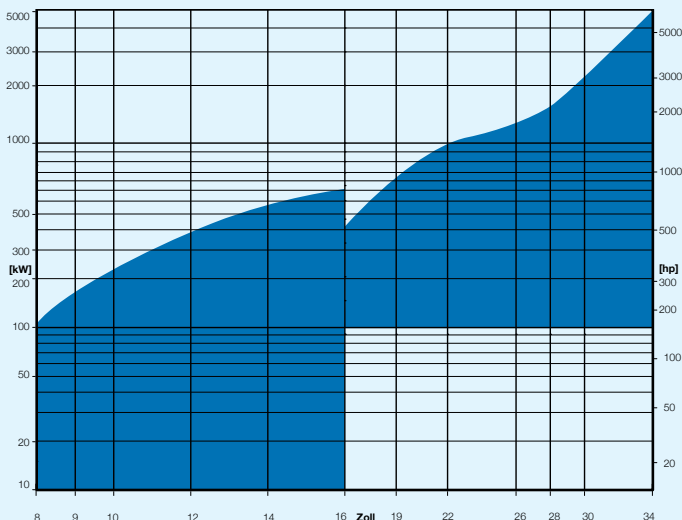
MC-T – The solution

MC-T, an intelligent and compact cooling system, is the best solution here. A pump impeller brings flow into the cooling circuit and thus provides flow in the right direction. Our own-development cooling channels ensure heat absorption at all thermal sources and heat evacuation, as well as providing optimal heat conduction through the outside of the motor to the flow medium. The additional use of heat exchanger modules allows precise dimensioning of the cooling capacity.



Technical details and economic benefits

- Media temperature up to 75° C
- High efficiency across the entire performance range
- Uses drinking water as the coolant
- Low investment required
- Reduced energy costs
- Maximum reliability
- Long service life





Sugar

Are you responsible for the operation or maintenance of a sugar processing facility? ANDRITZ develops and manufactures centrifugal pumps that can be used in the entire sugar production process.

Depending upon where they are installed, our pumps have either closed or open impellers. In self-priming centrifugal pumps, an open impeller with an integrated water ring vacuum pump is used. When choosing pumps, the pump type selected depends on the characteristics of the media in each stage of the production process – such as viscosity, solids content, size of the solids, and abrasion characteristics.

- **For example, self-priming centrifugal pumps:**

The combination of a single-stage centrifugal pump with an integrated vacuum pump prevents gas from gathering at the inflow opening. This guarantees smooth operation, even with suboptimal suction pipe configurations. The pump unit can also be used without any difficulties up to a sugar content of 70% thanks to its semi-open impeller.

- **For example, medium-consistency pumps:**

ANDRITZ offers a practically tested pump to transport molasses, green juice, white juice, lime water, or sludge.



Single-stage centrifugal pumps

From closed to open impellers



Nominal diameter (DN) 65 to 600

Flow rate up to 6,000 m³/h
Head up to 160 m
Pressure up to 25 bar
Temperature up to 200° C

Design: Single-stage centrifugal pumps

Media: Depending on the impeller design: water, slightly contaminated, and contaminated media with some solids content; consistencies up to 8%

Special benefits: Easy to maintain; the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock; efficiency up to 90%; can be delivered with a degassing unit if the medium has a high gas content (ARE version)

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed, semi-open, or open impeller, also available in highly wear-resistant design

Applications: Water, pulp and paper, mining, sugar, thermal power, small hydropower, other industries

Single-stage centrifugal pumps

EN 733, ISO 2858/5193



Nominal diameter (DN) 32 to 150

Flow rate up to 600 m³/h
Head up to 160 m
Pressure up to 16 bar
Temperature up to 140° C

Design: Single-stage centrifugal pumps – main dimensions and performance grid also available according to EN 733, ISO 2858 and 5193

Media: Clean, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content

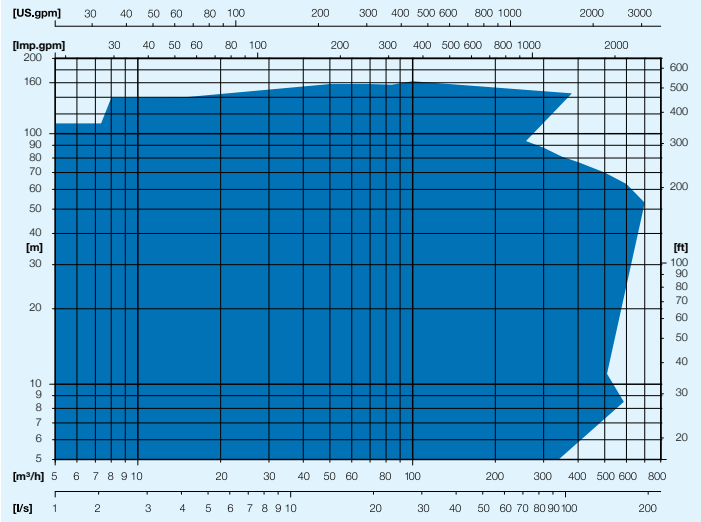
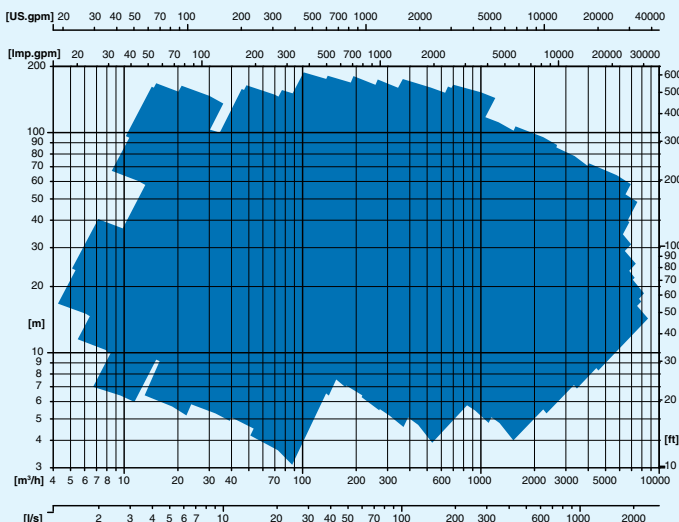
Special benefits: Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing; low energy consumption

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed impeller, radial impeller, vortex impeller, and two-channel impeller available in some cases

Applications: Water, pulp and paper, sugar, thermal power, small hydropower, other industries



Self-priming centrifugal pumps



Nominal diameter (DN)	80 to 250
Flow rate	up to 2,000 m³/h
Head	up to 75 m
Pressure	up to 16 bar
Temperature	up to 80° C

Design: Single-stage, single-flow centrifugal pumps with integrated water ring vacuum pump

Media: Water, viscous media (e.g. sugar concentration of up to 70%), and media containing solids (e.g. for pulp, paper, or waste water applications)

Special benefits: Self-priming; the integrated vacuum pump prevents air from gathering in front of the impeller and the centrifugal pump can therefore operate well even in the presence of high gas content; high-viscosity media can also be pumped

Materials: Cast iron, stainless steel

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Water and waste water, pulp and paper, sugar, other industries

Medium-consistency pumps



Nominal diameter (DN)	80 to 400
Flow rate	up to 13,000 admt/d
Head	up to 190 m
Pressure	up to 25 bar
Temperature	up to 140° C
Consistencies	up to 16% b.d.

Design: Single-flow, single-stage, medium-consistency pump with fluidizer

Media: Pulp suspensions up to a consistency of 16% b.d. and all types of viscous media

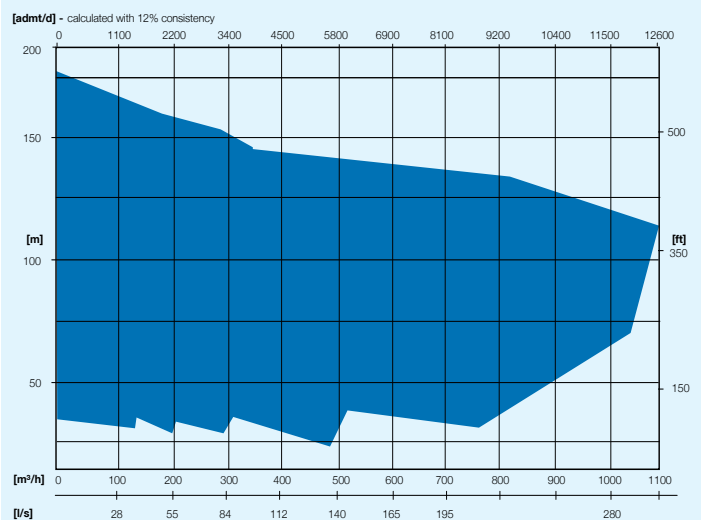
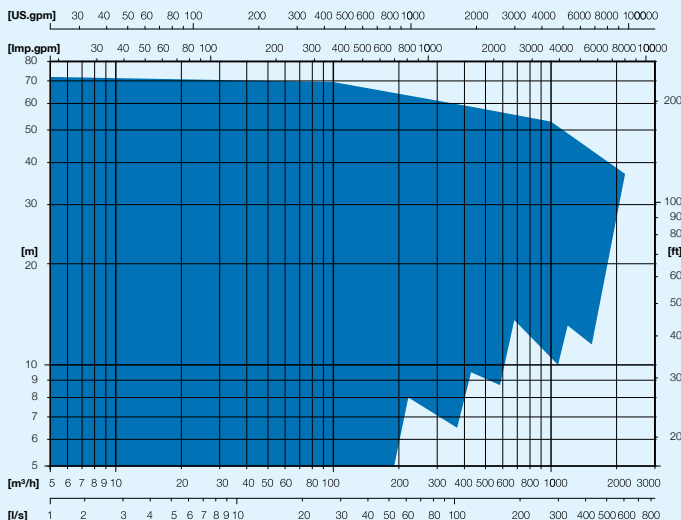
Special benefits: No need to monitor the pressure in the degasser line and no loss of fibers thanks to the newly developed SMARTSEP degassing system

Materials: Cast iron, stainless steel, acid-resistant individual components if needed

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Pulp and paper, sugar



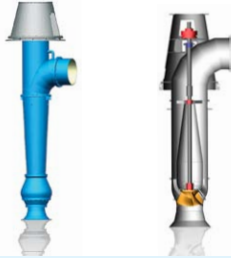
Thermal power

Are you planning or do you operate a thermal power plant? ANDRITZ offers energy utility pumps worldwide. We develop and produce:

- **Cooling water pumps** such as vertical line shaft and vertical volute pumps for thermal power plants.
- **Standard centrifugal pumps** such as double-flow split case pumps for district heating facilities.

Experience and know-how in hydraulic machinery and pump engineering guarantee the high standard of ANDRITZ pumps, providing consistent high quality and the effective use of energy. Our in-house laboratory for fluid dynamics, ASTRÖ, develops pumps according to customer requirements with very high efficiency, thus significantly lower energy costs, and excellent cavitation properties. In addition, many years of experience in turbine design and manufacturing enable ANDRITZ to make optimum use of the advantages of hydraulic impeller blade adjustment for cooling water pumps.

Vertical line shaft pumps



Flow rate	up to 70,000 m³/h
Head	up to 80 m
Power	up to 10,000 kW

Design: Pull-out or non pull-out

Special benefits: Option with hydraulically adjustable impeller blades: The hydraulic impeller blade adjustment mechanism allows the impeller angle to be varied continuously during operation. Thus, the operator can react promptly to changes in flow rate and head.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

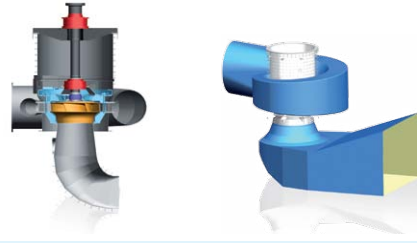
Shaft seal: Gland packing, mechanical seal

Impeller design: Radial, axial, and semi-axial impeller, optionally adjustable angle impeller blades or hydraulically adjustable impeller blades

Applications: Water, thermal power, other industries



Vertical volute pumps



Flow rate	up to 180,000 m³/h
Head	up to 40 m (concrete volute) up to 250 m (metal volute)
Power	up to 30,000 kW (concrete volute) up to 50,000 kW (metal volute)

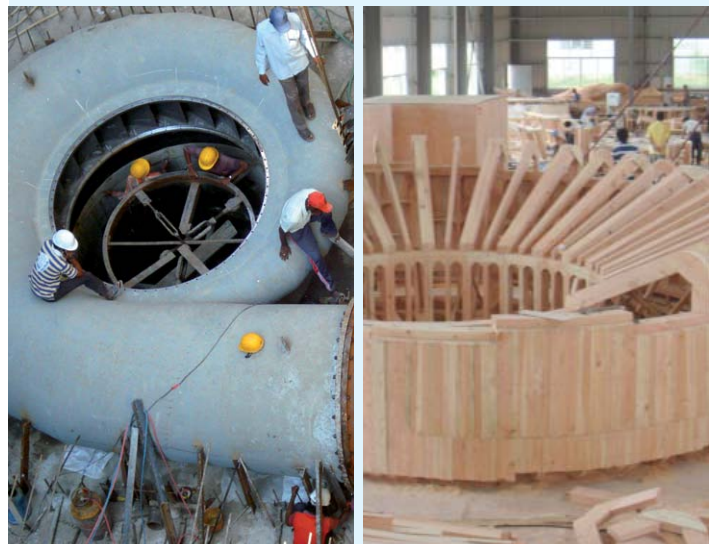
Design: Metal or concrete volute with or without guide vane mechanism

Special benefits: The hydraulic dimensioning and design of the volute casing depends on the specific output characteristics. Optimum flow is achieved in the volute thanks to its individual shaping, thus also achieving a high level of efficiency.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

Impeller design: Radial, semi-axial

Applications: Water, thermal power, other industries



Double-flow axial split case pumps



Nominal diameter (DN)	150 to 1200
Flow rate	up to 20,000 m³/h customized up to 36,000 m³/h
Head	up to 220 m
Pressure	up to 25 bar
Temperature	up to 110° C

Design: Single-stage, double-flow axial split case pumps

Media: Pure, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content; consistency up to 2%

Special benefits: In-line casing design; horizontal or vertical installation; with horizontal installation, the motor can be placed on the left or right; efficiencies over 90%; low pulsation

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Double-flow radial impeller with optimum suction behavior and very good NPSH values

Applications: Water, pulp and paper, sugar, thermal power, small hydropower, other industries

Single-stage centrifugal pumps

EN 733, ISO 2858/5193



Nominal diameter (DN)	32 to 150
Flow rate	up to 600 m³/h
Head	up to 160 m
Pressure	up to 16 bar
Temperature	up to 140° C

Design: Single-stage centrifugal pumps – main dimensions and performance grid also available according to EN 733, ISO 2858 and 5193

Media: Clean, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content

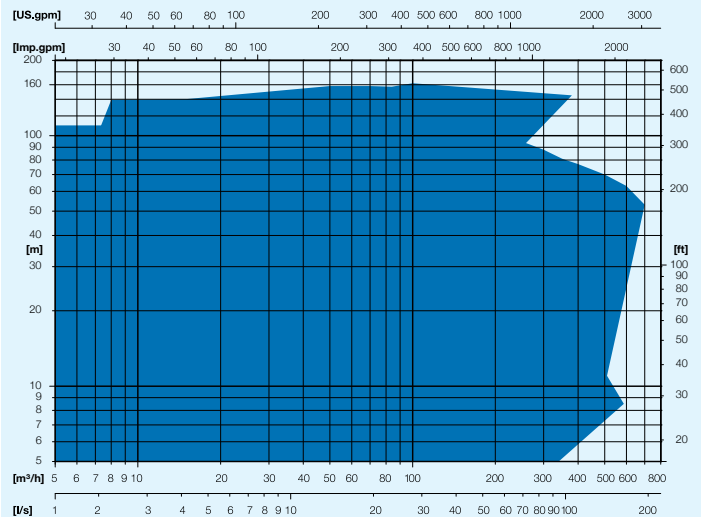
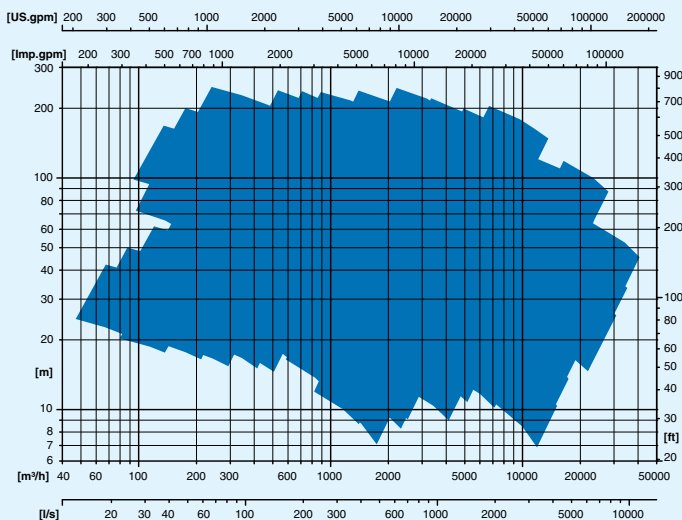
Special benefits: Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing; low energy consumption

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed impeller, radial impeller, vortex impeller, and two-channel impeller available in some cases

Applications: Water, pulp and paper, sugar, thermal power, small hydropower, other industries



Single-stage centrifugal pumps

From closed to open impellers



Nominal diameter (DN) 65 to 600

Flow rate up to 6,000 m³/h
Head up to 160 m
Pressure up to 25 bar
Temperature up to 200° C

Design: Single-stage centrifugal pumps

Media: Depending on the impeller design: water, slightly contaminated, and contaminated media with some solids content; consistencies up to 8%

Special benefits: Easy to maintain; the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock; efficiency up to 90%; can be delivered with a degassing unit if the medium has a high gas content (ARE version)

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed, semi-open, or open impeller, also available in highly wear-resistant design

Applications: Water, pulp and paper, mining, sugar, thermal power, small hydropower, other industries

High-pressure pumps

Multi-stage centrifugal pumps



Nominal diameter (DN) 25 to 250

Flow rate up to 800 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 160° C

Design: Multi-stage high-pressure pumps, vertical and horizontal design

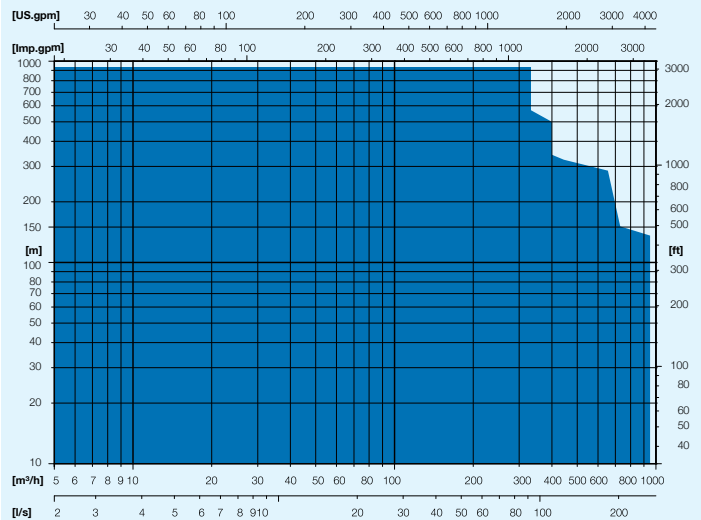
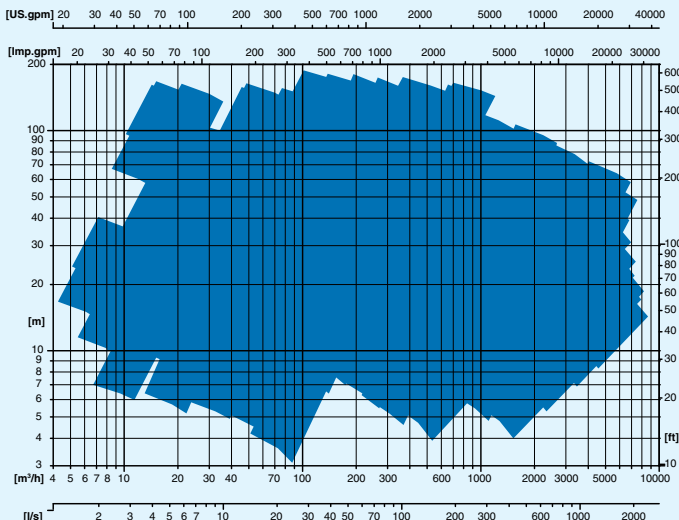
Media: Clean and slightly contaminated liquids up to a viscosity of 150 mm²/s without abrasive and solid content

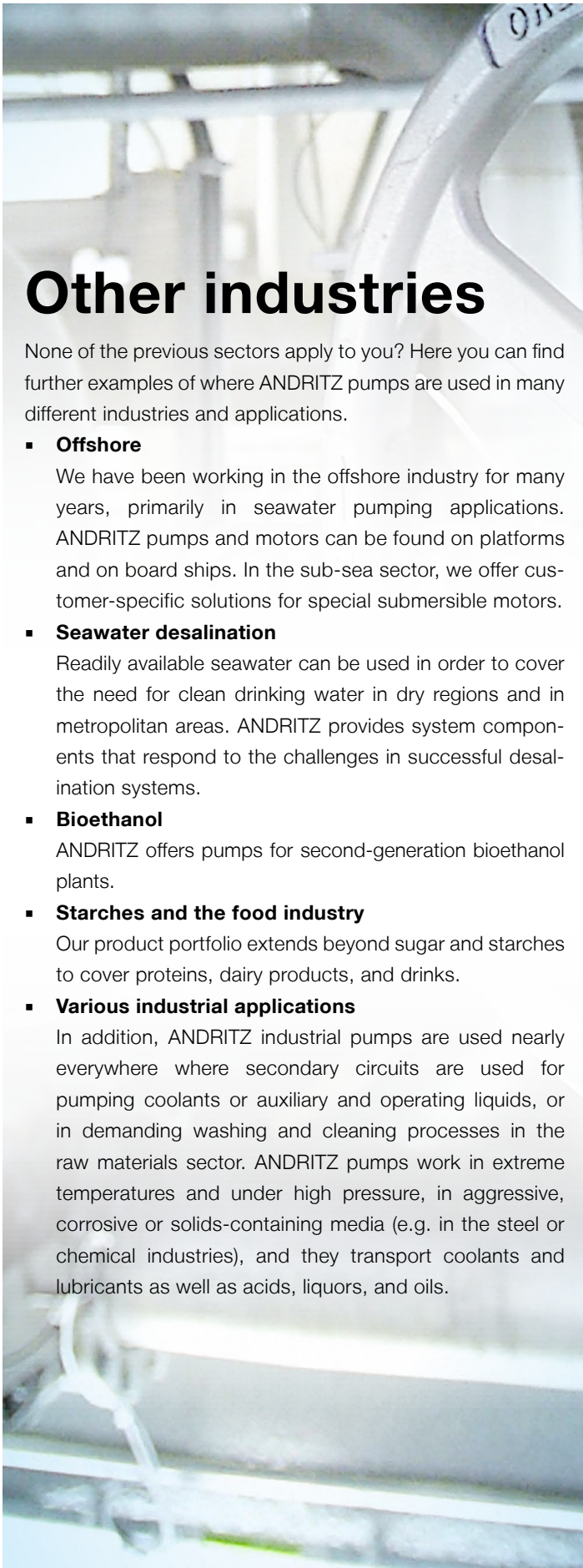
Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Radial impeller

Applications: Water, pulp and paper, thermal power, other industries





Other industries

None of the previous sectors apply to you? Here you can find further examples of where ANDRITZ pumps are used in many different industries and applications.

- **Offshore**

We have been working in the offshore industry for many years, primarily in seawater pumping applications. ANDRITZ pumps and motors can be found on platforms and on board ships. In the sub-sea sector, we offer customer-specific solutions for special submersible motors.
- **Seawater desalination**

Readily available seawater can be used in order to cover the need for clean drinking water in dry regions and in metropolitan areas. ANDRITZ provides system components that respond to the challenges in successful desalination systems.
- **Bioethanol**

ANDRITZ offers pumps for second-generation bioethanol plants.
- **Starches and the food industry**

Our product portfolio extends beyond sugar and starches to cover proteins, dairy products, and drinks.
- **Various industrial applications**

In addition, ANDRITZ industrial pumps are used nearly everywhere where secondary circuits are used for pumping coolants or auxiliary and operating liquids, or in demanding washing and cleaning processes in the raw materials sector. ANDRITZ pumps work in extreme temperatures and under high pressure, in aggressive, corrosive or solids-containing media (e.g. in the steel or chemical industries), and they transport coolants and lubricants as well as acids, liquors, and oils.

Single-stage centrifugal pumps

EN 733, ISO 2858/5193



Nominal diameter (DN)	32 to 150
Flow rate	up to 600 m³/h
Head	up to 160 m
Pressure	up to 16 bar
Temperature	up to 140° C

Design: Single-stage centrifugal pumps – main dimensions and performance grid also available according to EN 733, ISO 2858 and 5193

Media: Clean, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content

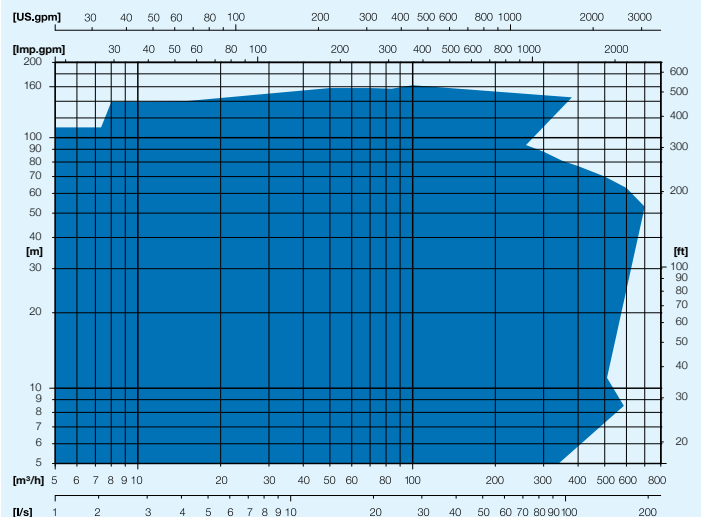
Special benefits: Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing; low energy consumption

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed impeller, radial impeller, vortex impeller, and two-channel impeller available in some cases

Applications: Water, pulp and paper, sugar, thermal power, small hydropower, other industries



Single-stage centrifugal pumps

From closed to open impellers



Nominal diameter (DN) 65 to 600

Flow rate up to 6,000 m³/h
Head up to 160 m
Pressure up to 25 bar
Temperature up to 200° C

Design: Single-stage centrifugal pumps

Media: Depending on the impeller design: water, slightly contaminated, and contaminated media with some solids content; consistencies up to 8%

Special benefits: Easy to maintain; the modular system is easy to access, uses tested components, and reduces the number of spare parts to be kept on stock; efficiency up to 90%; can be delivered with a degassing unit if the medium has a high gas content (ARE version)

Materials: Cast iron; stainless steel; highly wear-resistant, hardened stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Closed, semi-open, or open impeller, also available in highly wear-resistant design

Applications: Water, pulp and paper, mining, sugar, thermal power, small hydropower, other industries

Double-flow axial split case pumps



Nominal diameter (DN) 150 to 1200

Flow rate up to 20,000 m³/h
Head customized up to 36,000 m³/h
Pressure up to 25 bar
Temperature up to 110° C

Design: Single-stage, double-flow axial split case pumps

Media: Pure, slightly contaminated, and aggressive liquids up to a viscosity of 150 mm²/s without abrasive and solids content; consistency up to 2%

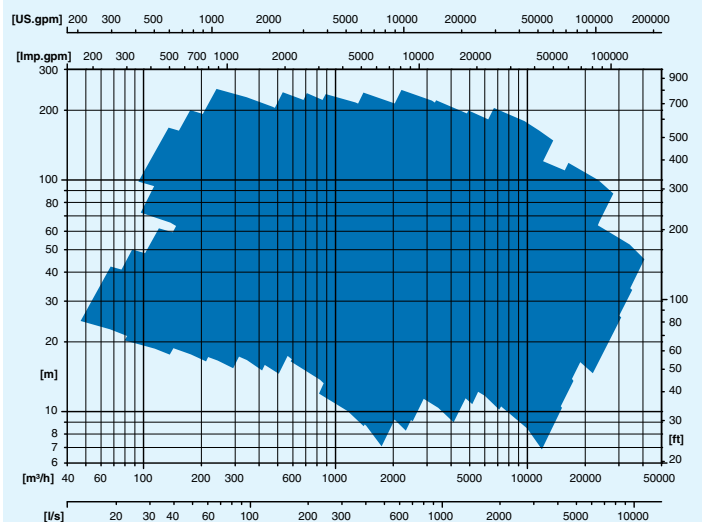
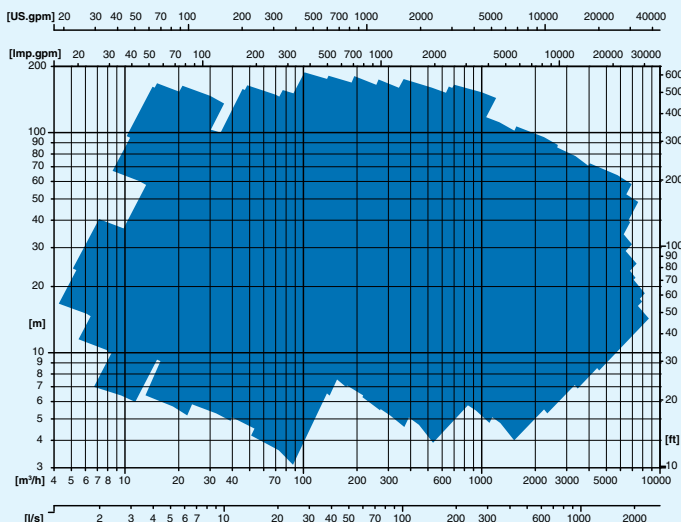
Special benefits: In-line casing design; horizontal or vertical installation; with horizontal installation, the motor can be placed on the left or right; efficiencies over 90%; low pulsation

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Double-flow radial impeller with optimum suction behavior and very good NPSH values

Applications: Water, pulp and paper, thermal power, small hydropower, other industries



Multi-stage axial split case pumps



Nominal diameter (DN) 150 to 1600
Flow rate up to 30,000 m³/h
Head up to 800 m
Power up to 20 MW
Efficiency up to 91%

Design: Multi-stage axial split case pumps with various impeller arrangements in single or double flow design

Media: Pure, slightly contaminated

Special benefits: In-line casing design; horizontal installation, the motor can be placed on the left or right; efficiencies over 90%

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Single or double flow closed radial impellers with optimum suction behavior and very good NPSH values

Applications: Water, small hydropower, other industries

High-pressure pumps Multi-stage centrifugal pumps



Nominal diameter (DN) 25 to 250
Flow rate up to 800 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 160° C

Design: Multi-stage high-pressure pumps, vertical and horizontal design

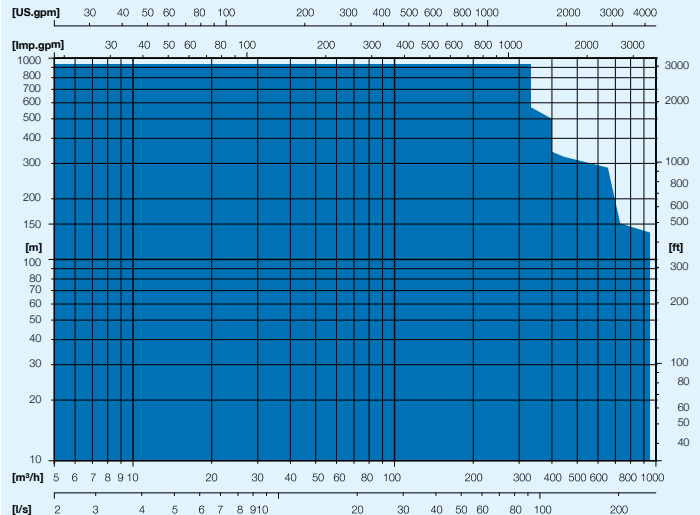
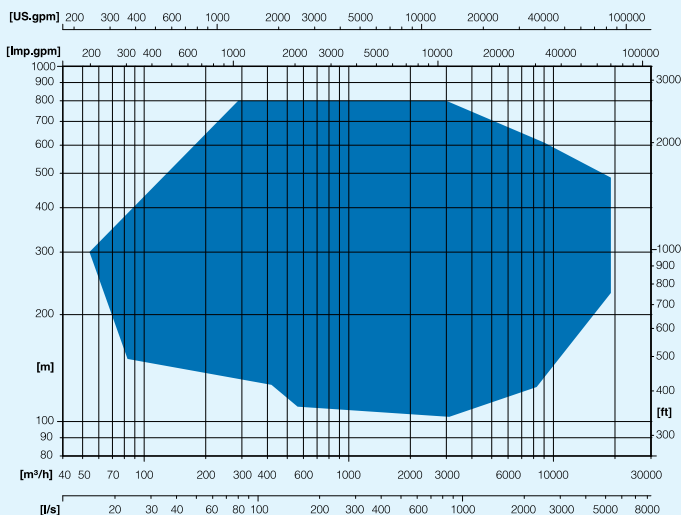
Media: Clean and slightly contaminated liquids up to a viscosity of 150 mm²/s without abrasive and solid content

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Radial impeller

Applications: Water, pulp and paper, thermal power, other industries



Self-priming centrifugal pumps



Nominal diameter (DN)	80 to 250
Flow rate	up to 2,000 m³/h
Head	up to 75 m
Pressure	up to 16 bar
Temperature	up to 80° C

Design: Single-stage, single-flow centrifugal pumps with integrated water ring vacuum pump

Media: Water, viscous media (e.g. sugar concentration of up to 70%), and media containing solids (e.g. for pulp, paper, or waste water applications)

Special benefits: Self-priming; the integrated vacuum pump prevents air from gathering in front of the impeller and the centrifugal pump can therefore operate well even in the presence of high gas content; high-viscosity media can also be pumped

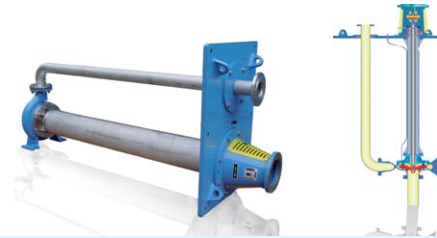
Materials: Cast iron, stainless steel

Shaft seal: Mechanical seal

Impeller design: Semi-open impeller

Applications: Water and waste water, pulp and paper, sugar, other industries

Vertical submerged pumps



Nominal diameter (DN)	80 to 200
Flow rate	up to 800 m³/h
Head	up to 50 m
Pressure	up to 16 bar
Temperature	up to 60° C

Design: Single-stage, single-flow submerged pumps

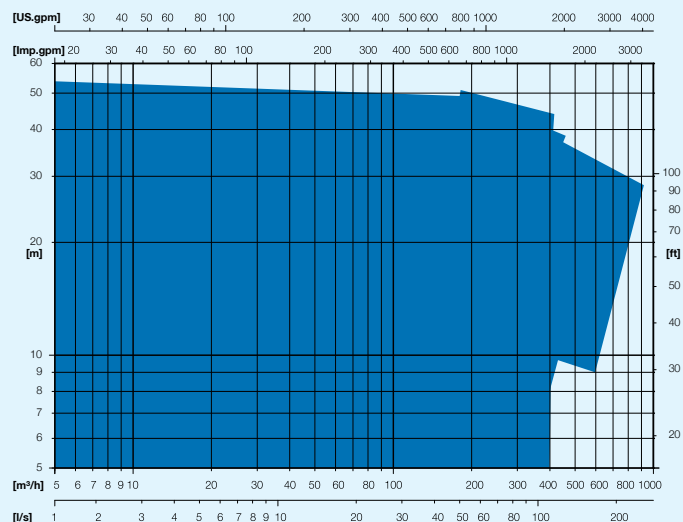
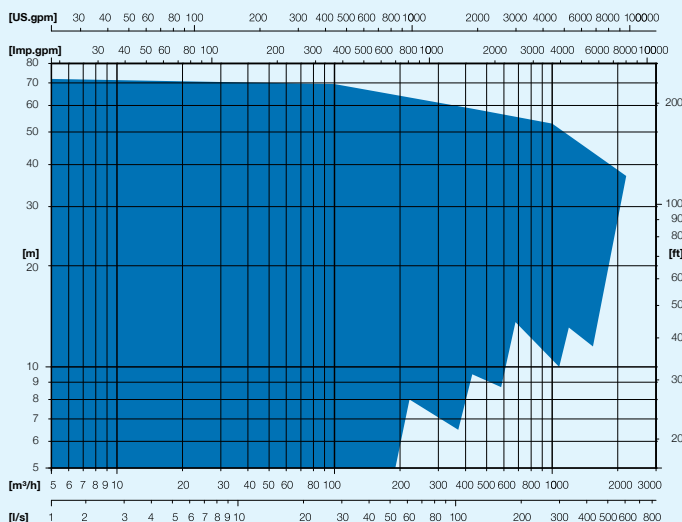
Media: Water, waste water, high-viscosity media, and media containing solids, consistencies up to 6%; slurries containing large particles (up to 140 mm); abrasive media

Special benefits: Modular base frame design; generously sized shafts; standard construction length of 1 to 2 m; flexible coupling – also developed for transporting coarse media

Materials: Cast iron, stainless steel

Impeller design: Open or vortex impeller

Applications: Water and waste water, pulp and paper, other industries

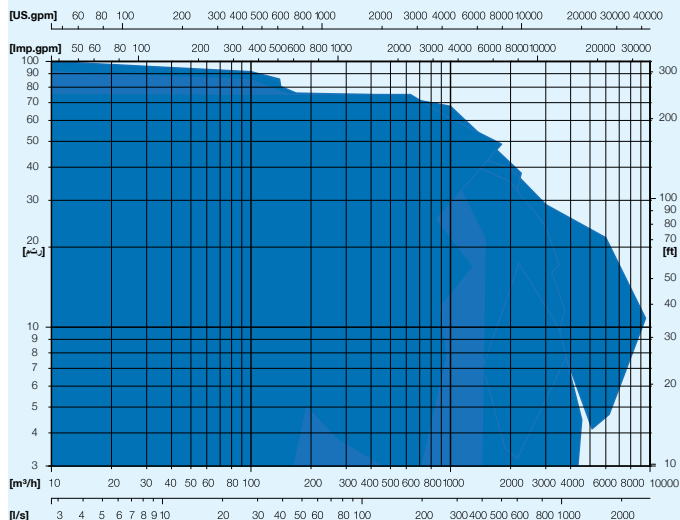


Sewage pumps, dry



Nominal diameter (DN)	65 to 700
Flow rate	up to 10,000 m³/h
Head	up to 100 m
Pressure	up to 16 bar
Temperature	up to 140° C

- Design:** Single-stage waste water pumps
- Media:** Low-viscosity, high-viscosity, and abrasive media, as well as gaseous and non-gaseous slurries
- Special benefits:** Easy to maintain due to its modular design; impeller unit can be removed from the installed pump casing
- Materials:** Cast iron, stainless steel
- Shaft seal:** Gland packing, mechanical seal
- Impeller design:** Single-channel, double-channel, vortex, multi-channel, open mixed-flow impeller
- Applications:** Waste water

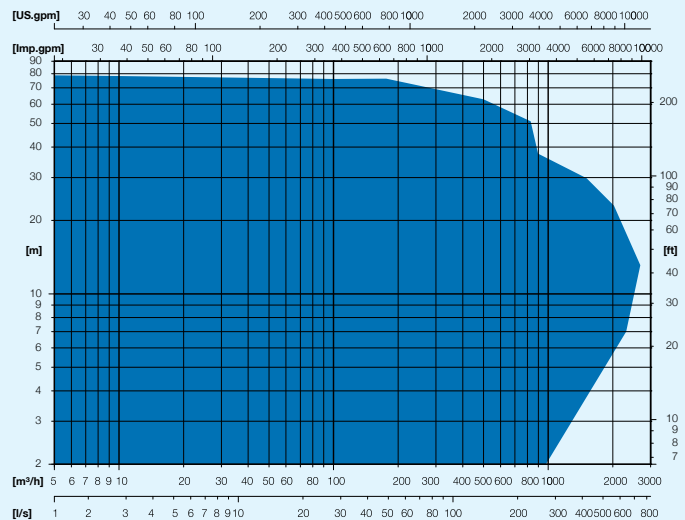


Sewage pumps, wet



Nominal diameter (DN)	65 to 400
Flow rate	up to 2,600 m³/h
Head	up to 80 m
Pressure	up to 10 bar
Temperature	up to 40° C

- Design:** Single-stage submersible pumps in close-coupled design
- Media:** Sewage and waste water, as well as sludges with solid content (10% dry substance max.)
- Special benefits:** Explosion-proof designs can be supplied; available with a float switch
- Materials:** Cast iron, stainless steel
- Shaft seal:** Mechanical seal
- Impeller design:** Single-channel, double-channel, vortex impeller
- Applications:** Waste water



Single-flow submersible motor pumps

MS-T – Modular Shaft Technology



Well Ø from 6" upwards
Flow rate up to 900 m³/h
Head up to 800 m
Pressure up to 100 bar
Temperature up to 75° C

Design: Multi-stage, single-flow submersible motor pumps

Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: Maintenance-free; long service life, and high operating reliability; can be supplied optionally with modular shaft technology for flexible extension or reduction of the number of stages

Materials: Cast iron, aluminum-bronze, stainless steel

Impeller design: Radial, semi-axial impeller

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

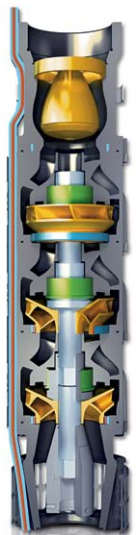
The cost of an application is becoming increasingly important in making investment decisions. This raises the question of whether the continuous shaft concept is still up to date. Installing and removing a pump with a continuous shaft requires numerous individual steps. The logistics and storage of many different individual parts is associated with high costs. Adjustments to changing heads are generally only possible through cost-intensive exchanging of pumps.

MS-T – The solution

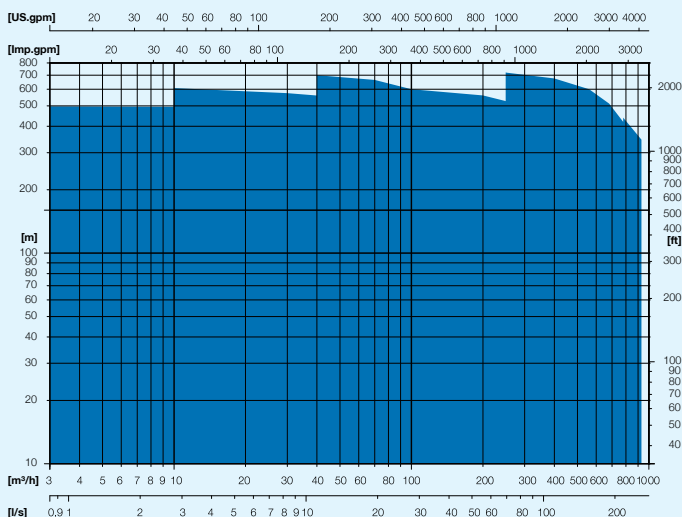
MS-T is not only a technological evolution, from the cost perspective it is a revolution.

MS-T is designed using a modular concept – with all of its technical and economic advantages:

- Flexible adjustment to changing pumping conditions – easy and fast by extending or reducing the number of stages.
- Simple, time-saving, and targeted installation and removal of individual stages, either horizontal or vertical.
- A small number of highly standardized components ensure high availability and short delivery times, as well as low storage costs for the operator.



Thus, pumps with MS-T are the best solution wherever there is a need for operating reliability, freedom from maintenance, long service life, high efficiency, and flexible heads.



Double-suction submersible motor pumps

HDM – Heavy Duty Mining



Well Ø from 20" upwards
Flow rate up to 6,000 m³/h
Head up to 1,500 m
Pressure up to 150 bar
Temperature up to 75° C

Design: Multi-stage, double-flow submersible motor pumps

Media: Clean, slightly contaminated, and abrasive raw, clean, mineral, sea, industrial, mine, and cooling water

Special benefits: No axial thrust, double-flow design for long service life and high reliability; maintenance-free

Materials: Cast iron, bronze, aluminum-bronze, stainless steel

Impeller design: Radial impeller

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

The use of submersible motor pumps for large volumes or in great depths is associated with high stresses on the equipment. The higher the pump performance, the greater the axial thrust on the pump, motor, and its thrust bearing. The consequence: overloading and an increased risk of failure.

HDM – The solution

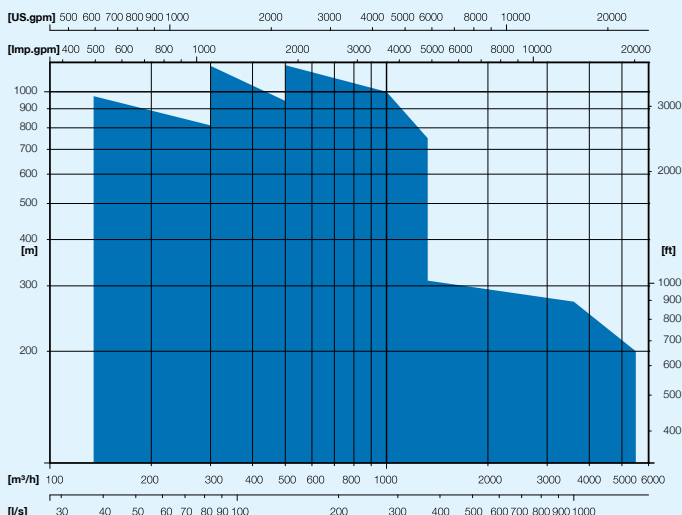
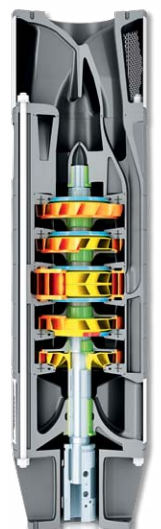
Two pumps are arranged one above the other, running in counter direction and driven by a continuous pump shaft. Splitting the workload between both pumps ensures complete axial thrust balancing and thus contributes towards solving the problems of force effects on the unit and loads on the thrust bearings; at the same time, the flow and suction speed outside the pump is halved. Thus, well walls are protected around the suction areas, and the intake of abrasive particles is minimized.

The result

In addition to technical benefits – HDM offers complete balancing of the axial thrust, flow speeds halved, and smaller impeller cross-sections – there are also economic benefits: maximum operating reliability, minimal wear, and long service life, which can often be more than 20 years. In combination with ANDRITZ high-performance submersible motors, the result is a complete technical solution.

Custom solutions

Each ANDRITZ submersible pump with HDM technology is customized. It is individually configured to meet your requirements.



Submersible motors

MC-T – Modular Cooling Technology



Well Ø from 8" upwards
Power up to 5,000 kW
Voltage up to 14,000 V
Temperature up to 75° C

Design: Water-filled and water-cooled three phase asynchronous motors with squirrel-cage rotors

Special benefit: Rewindable winding

Materials: Cast iron, bronze, stainless steel

Shaft seal: Mechanical seal

Installation: Vertical, some horizontal

Applications: Water, mining, other industries (e.g. off-shore)

The challenge

Efficient and cost-effective cooling of submersible motors is a constant source of discussion by well and mine operators. Derating is a less-than-ideal solution. In addition to high capital and energy costs, the overlarge, downgraded motors usually require a larger well diameter. Oil cooling needs careful consideration as well – any failure can cause ecological damage.

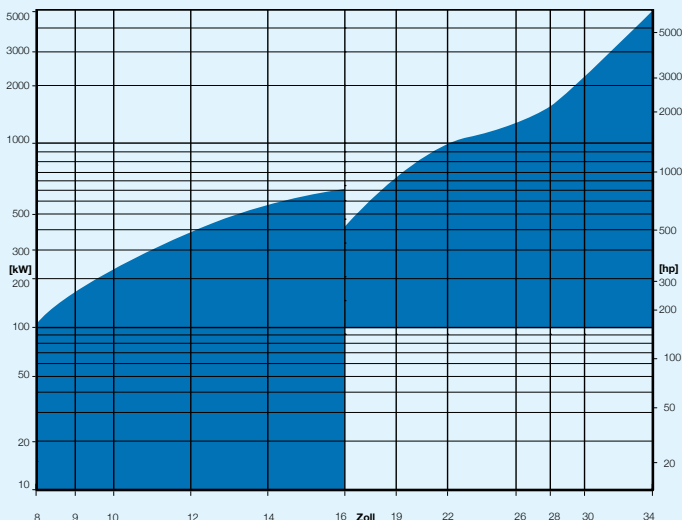
MC-T – The solution

MC-T, an intelligent and compact cooling system, is the best solution here. A pump impeller brings flow into the cooling circuit and thus provides flow in the right direction. Our own-development cooling channels ensure heat absorption at all thermal sources and heat evacuation, as well as providing optimal heat conduction through the outside of the motor to the flow medium. The additional use of heat exchanger modules allows precise dimensioning of the cooling capacity.

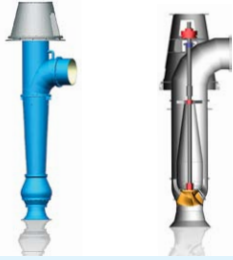


Technical details and economic benefits

- Media temperature up to 75° C
- High efficiency across the entire performance range
- Uses drinking water as the coolant
- Low investment required
- Reduced energy costs
- Maximum reliability
- Long service life



Vertical line shaft pumps



Flow rate	up to 70,000 m³/h
Head	up to 80 m
Power	up to 10,000 kW

Design: Pull-out or non pull-out

Special benefits: Option with hydraulically adjustable impeller blades: The hydraulic impeller blade adjustment mechanism allows the impeller angle to be varied continuously during operation. Thus, the operator can react promptly to changes in flow rate and head.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

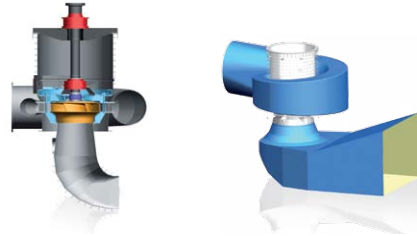
Shaft seal: Gland packing, mechanical seal

Impeller design: Radial, axial, and semi-axial impeller, optionally adjustable angle impeller blades or hydraulically adjustable impeller blades

Applications: Water, thermal power, other industries



Vertical volute pumps



Flow rate	up to 180,000 m³/h
Head	up to 40 m (concrete volute) up to 250 m (metal volute)
Power	up to 30,000 kW (concrete volute) up to 50,000 kW (metal volute)

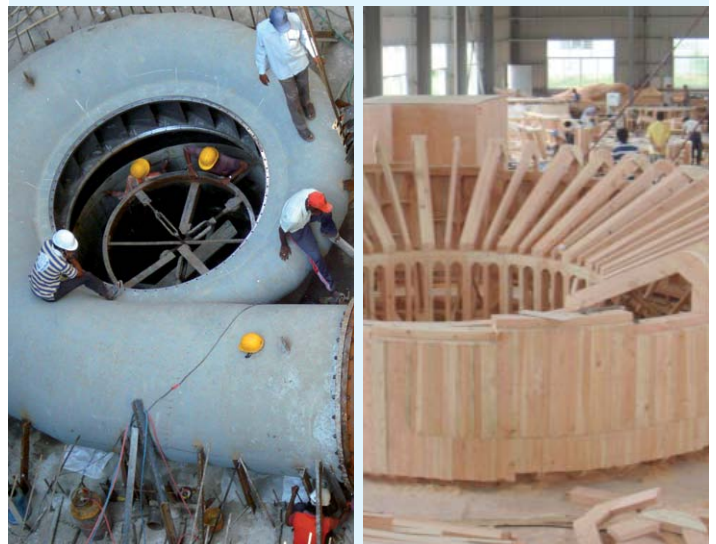
Design: Metal or concrete volute with or without guide vane mechanism

Special benefits: The hydraulic dimensioning and design of the volute casing depends on the specific output characteristics. Optimum flow is achieved in the volute thanks to its individual shaping, thus also achieving a high level of efficiency.

Materials: Cast iron, non-alloy and low-alloy steels, duplex and super duplex

Impeller design: Radial, semi-axial

Applications: Water, thermal power, other industries



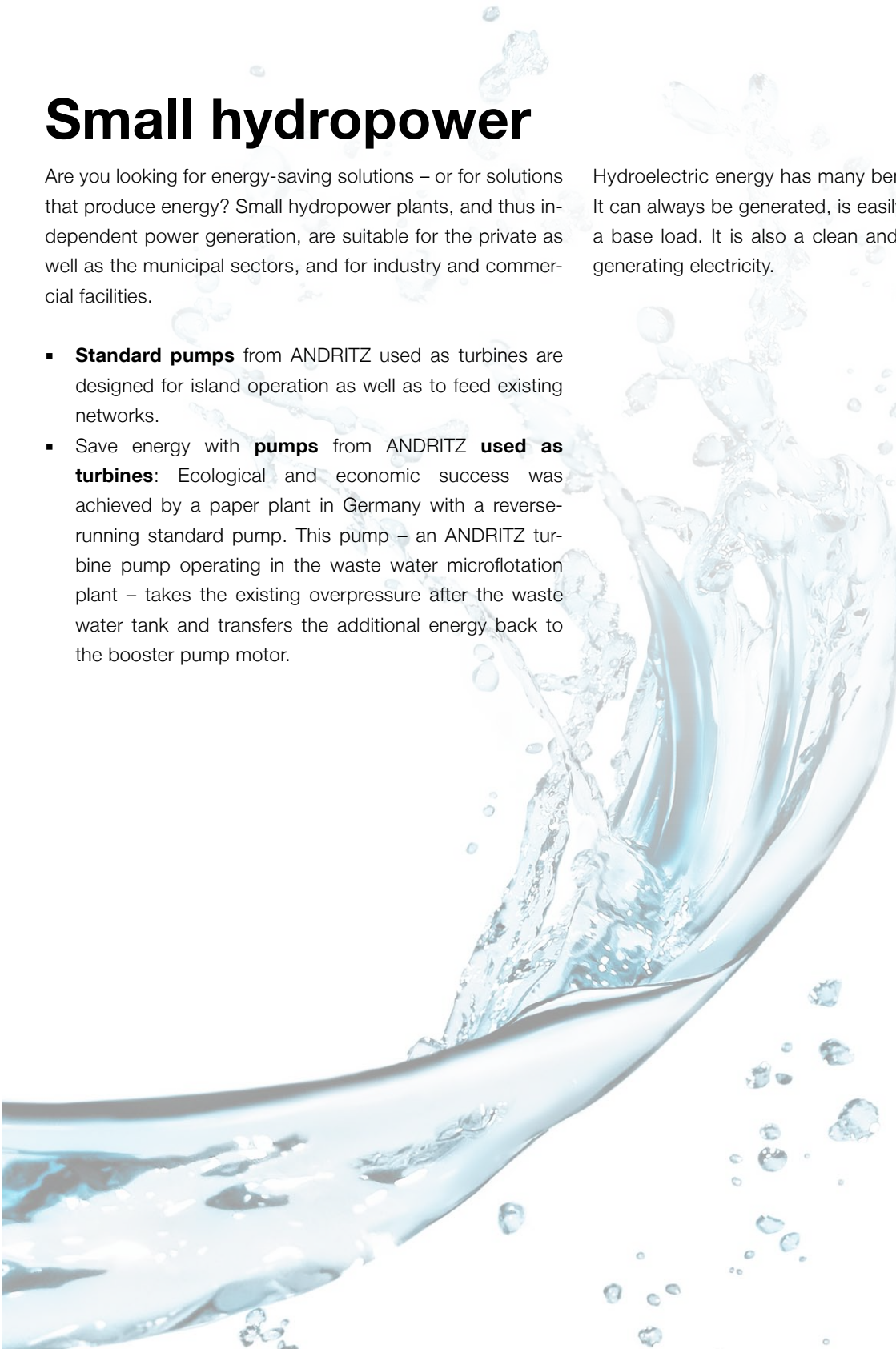
Small hydropower

Are you looking for energy-saving solutions – or for solutions that produce energy? Small hydropower plants, and thus independent power generation, are suitable for the private as well as the municipal sectors, and for industry and commercial facilities.

- **Standard pumps** from ANDRITZ used as turbines are designed for island operation as well as to feed existing networks.
- Save energy with **pumps** from ANDRITZ **used as turbines**: Ecological and economic success was achieved by a paper plant in Germany with a reverse-running standard pump. This pump – an ANDRITZ turbine pump operating in the waste water microflotation plant – takes the existing overpressure after the waste water tank and transfers the additional energy back to the booster pump motor.

Hydroelectric energy has many benefits:

It can always be generated, is easily stored, and guarantees a base load. It is also a clean and emission-free means of generating electricity.



Pumps as turbines



Nominal diameter (DN) 32 to 1200
Water flow up to 6 m³/s
Head up to 300 m
Power up to 2 MW

Design: Single-stage or multi-stage; single or double-flow; open and semi-open impeller

Media: Drinking water, residual water and waste water, stock suspensions in the pulp and paper industries

Special benefits: Low investment and fast amortization, short delivery times

Materials: Cast iron, bronze, stainless steel

Shaft seal: Gland packing, mechanical seal

Applications: Energy production and recovery: island facilities (e.g. for mountain refuges), drinking water turbines, waste water turbines, residual water turbines, small power plants connected to the electricity grid, pump turbines for storage in small applications

Multi-stage axial split case pumps



Nominal diameter (DN) 150 to 1600
Flow rate up to 30,000 m³/h
Head up to 800 m
Power up to 20 MW
Efficiency up to 91%

Design: Multi-stage axial split case pumps with various impeller arrangements in single or double flow design

Media: Pure, slightly contaminated

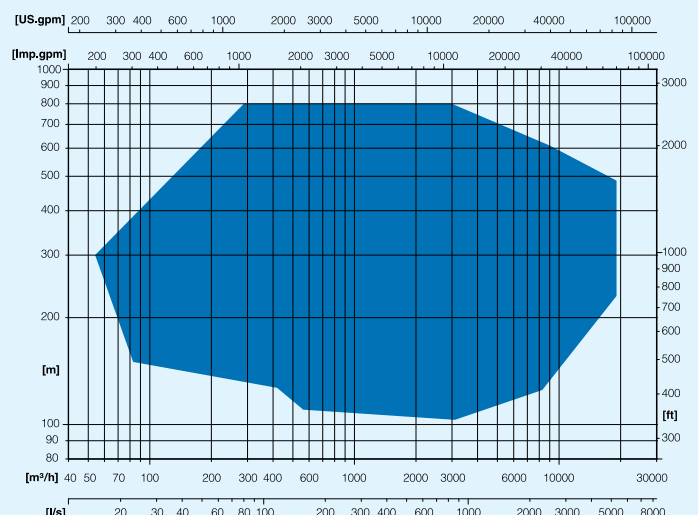
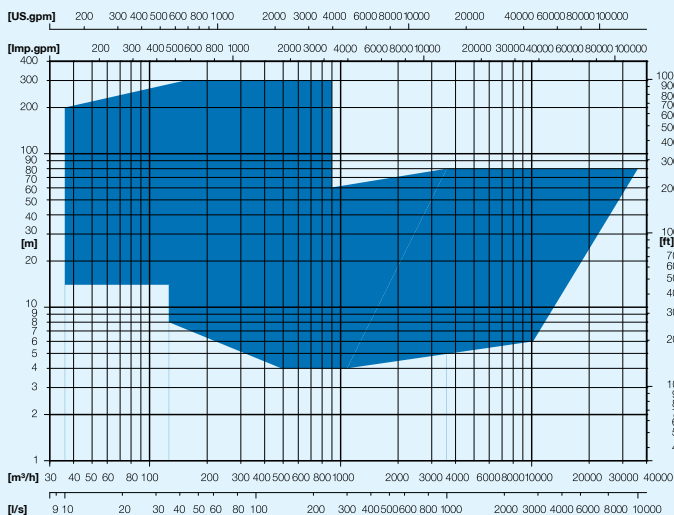
Special benefits: In-line casing design; horizontal installation, the motor can be placed on the left or right; efficiencies over 90%

Materials: Cast iron, stainless steel

Shaft seal: Gland packing, mechanical seal

Impeller design: Single or double flow closed radial impellers with optimum suction behavior and very good NPSH values

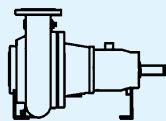
Applications: Water, other industries, small hydropower



Installation

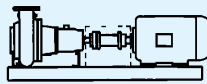
Bare shaft pumps

Installation:
dry, horizontal



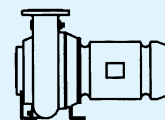
Pumps with flexibly coupled motor

Installation:
dry, horizontal or vertical



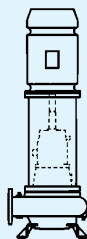
Pumps with directly coupled motor (close-coupled design)

Installation:
dry, horizontal or vertical



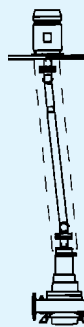
Pumps with flexibly coupled motor

Installation:
dry, vertical



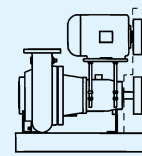
Pumps with cardan shaft drive

Installation:
dry, vertical



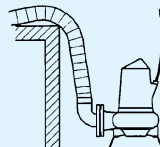
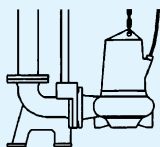
Pumps with V-belt drives

Installation:
dry, horizontal



Pumps with a directly coupled submersible motor

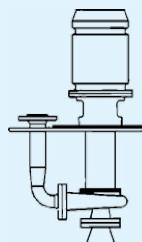
Installation:
wet, vertical



Installation:
wet, vertical, mobile

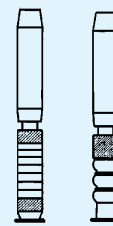
Pumps with drive via extended shaft or supporting tube system, with an optional pressure line

Installation:
wet or dry, vertical



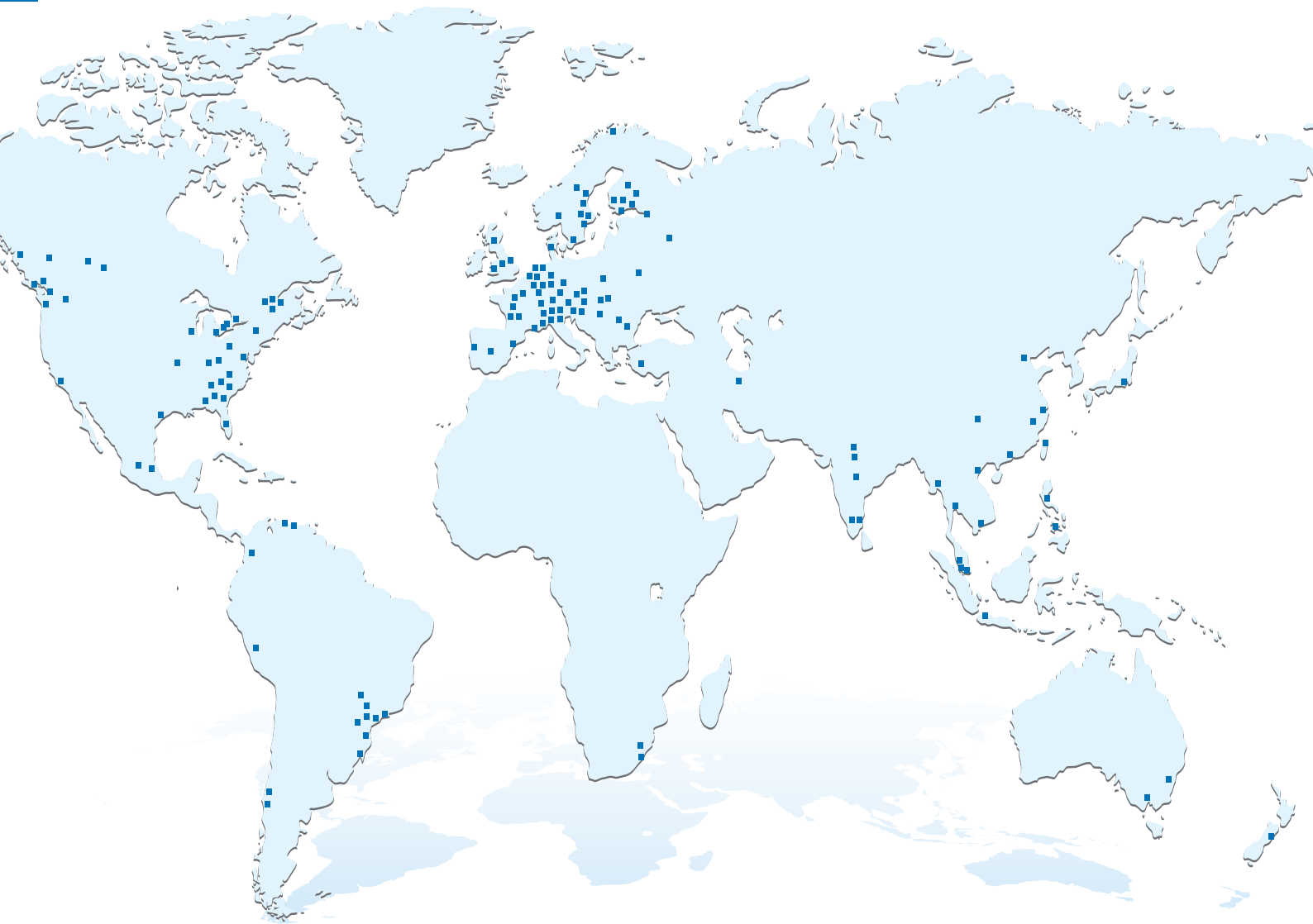
Pumps with directly coupled submersible motor, optionally with cooling or pipe shroud casing

Installation:
wet, vertical, partially horizontal



Close to our customers

ANDRITZ locations worldwide



ANDRITZ AG

Stattegger Strasse 18
8045 Graz, Austria
Phone: +43 (316) 6902 0
pumps@andritz.com



www.andritz.com/pumps