

PUMP SOLUTIONS
FOR ENVIRONMENTAL
AND MUNICIPAL
TECHNOLOGY



YOU CAN RELY ON THEM: BÖRGER ROTARY LOBE PUMPS



Market leader for elastomer-coated rotary lobe pumps and experts in macerating technology. We are represented in more than 65 countries and remain on course for growth. Not only are we a global player but also an independent, family-owned and second generation managed company.

“Constantly making things better” has been our guiding principle right from the start. This is evident by the quality, durability and ease of maintenance of all our products. Not only has it shaped our company history since 1975 with continuous new developments and innovations, it is also expressed in the honest and reliable partnership with customers, suppliers and staff.

Our pump solutions for environmental and municipal technology are customized to the specific demand. Whether pumping municipal wastewater and biosolids, disposal of chemicals or for sewer rehabilitation – our experienced experts know the requirements, recommend suitable products or develop individual solutions for you. Highest quality “Made in Germany”.

The background of the entire page is a photograph of a wastewater treatment plant. In the foreground, there are several long, horizontal metal pipes extending across a body of water. In the middle ground, there are concrete walkways with metal railings. In the background, there are large, dark, dome-shaped structures, likely part of the plant's ventilation or storage system. The sky is clear and blue.

BÖRGER®

EXCELLENCE – MADE TO LAST

Börrger rotary lobe pumps and macerators are designed for trouble free, continuous operation, as we want you to be able to work as effectively as possible. This is the reason why we only offer powerful and durable machines with unbeatable ease of maintenance features.

PERFECTLY MATCHED: BÖRGER PUMP AND MACERATING SYSTEMS



Börger provides innovative and customized pump solutions for environmental and municipal technology. Whether it's a wastewater plant, a recycling and composting service provider or a company that operates environmental technology, Börger has a solution for you.

Due to its wide range of rotor geometries, materials, and pump sizes, the Börger Pump can be used in a variety of applications with different fluid types, including those with high flow rates and those that need to operate in specific local conditions. The Börger Pump has become synonymous with flexibility in the pump industry.

RELIABLE AND EFFICIENT PROCESS

Börger offers high-performance pumps and macerators with space-saving design and minimal energy consumption. Their reliability and durability guarantee a market leading system to give you peace of mind.





WASTE



GRAY WATER



PRIMARY SLUDGE



WASTE



RECYCLING



COLLECTION
SYSTEM



WELLPOINT DEWATERING



WASTE OIL / SOLVENTS



THICKENED SLUDGE



FLOTATION
SLUDGE



WASTE ACTIVATED
SLUDGE



TUNNEL INGRESS



SLURRIES

DEWATERED
SLUDGE



FOOD WASTE



SEWER FLUSHING

PRODUCT OVERVIEW

ENVIRONMENTAL AND MUNICIPAL TECHNOLOGY

You can rely on Börger products. For any fluid, from the most delicate to the most viscous, we offer a wide variety of rotary lobe pumps that can handle it. We also offer macerating units for various solids and stainless steel tanks, constructed to handle any liquid.



ROTARY LOBE PUMPS

Börger is a specialist for rotary lobe pumps. We offer 25 pump sizes with flow rates of 1 – 1,440 m³/h and a large selection of equipment and additional parts. The large-scale geometry and short passage enable the medium to be pumped gently.

MOBILE PUMPS

The compact Börger pumps are especially suitable as cart pumps, high-performance pumps mounted on a trailer, on a tanker truck or as portable units.



CONTROL UNITS

Börger is ready to provide a control unit to match your needs. Each control unit is specifically designed and programmed for the product and application by Börger's in-house electrical engineering department.



STAINLESS STEEL TANKS

Börger stainless steel tanks in segmental design with capacities of 30 to 5,000 m³ are very well suited for storing different liquids.



MACERATING TECHNOLOGY

Börger provides suitable solutions for particle size reduction of solids contained in liquids. By offering three different macerators, the Multicrusher, OrbitGrinder, and Rotorrake, we are able to provide the ideal unit for every solid material to be macerated.

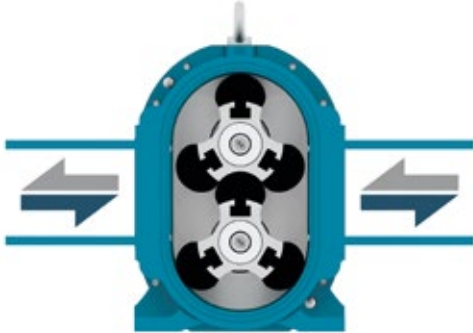


AGITATOR TECHNOLOGY

In order to homogenize liquids and prevent the formation and deposit of solids, the Börger submersible B-MX mixer agitates various fluids.

BÖRGER ROTARY LOBE PUMPS

ROBUST, RELIABLE AND CUSTOMIZED



Böhler rotary lobe pumps have been used in the municipal and environmental technology sector for more than 35 years. The solids handling pumps are powerful, reliable and efficient. Böhler pumps convey dirty, sludgy and abrasive media without problems.

CONSTRUCTION

1 The quick-release cover

Access to all wetted parts by simply loosening four ring nuts – maintenance without removal of pipe or drive systems (MIP®).

2 The rotors

Large selection of high-quality rotors for almost pulsation-free pumping of the medium.

3 The casing protection

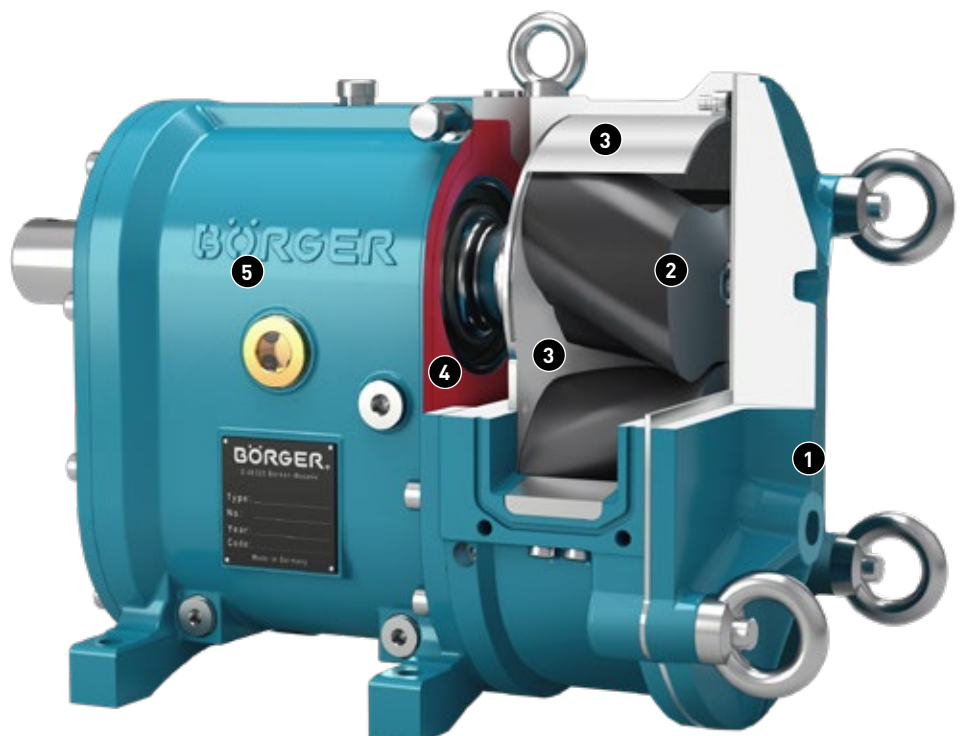
Depending on its size, the BLUEline pump is available with or without protection plates and liners. When pumping abrasive media containing solids, the protection plates and liners protect the pump casing from wear and can be replaced in a matter of minutes.

4 The intermediate chamber and shaft seal

The large-volume quench chamber is oil-filled and ensures the highest degree of safety. The ideal mechanical seal is selected depending on the medium.

5 The timing gear

The high-quality and maintenance-free timing gear guarantees a smooth and even operation of the rotors. The result is a long service life of the pump.



BLUEline Nova

AT A GLANCE

- + 25 pump sizes with flow rates of 1 – 1,440 m³/h
- + With and without casing protection plates and liners
- + Self-priming, pumping in slurr operation
 - + Resistant to solids
- + Ease of maintenance (MIP®)
- + Compact, space saving design
 - + Cantilevered carrier design
 - + Reversible

CASE STUDY: MEMBRANE FILTRATION

A membrane filtration system uses 8 Börger rotary lobe pumps which suck the water to be cleaned through the membranes. The membranes are cleaned by periodic back-flushing with filtered water. For this reason, it was important for the operator of the water treatment plant to use pumps which can be reversed. In addition, the pumps should have high suction capacity. As different quantities are pumped when operated in filtration mode compared to back-flushing mode Börger rotary lobe pumps are operated by means of a frequency converter controlling the pump speed.

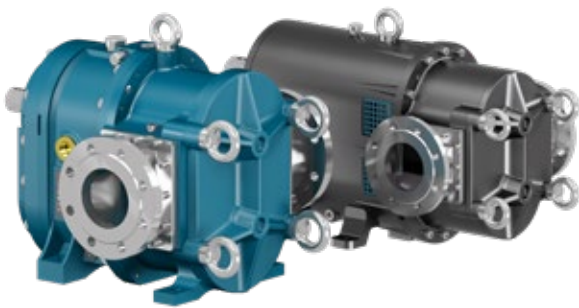


MAXIMAL MODULAR VARIETY

NO BÖRGER PUMP

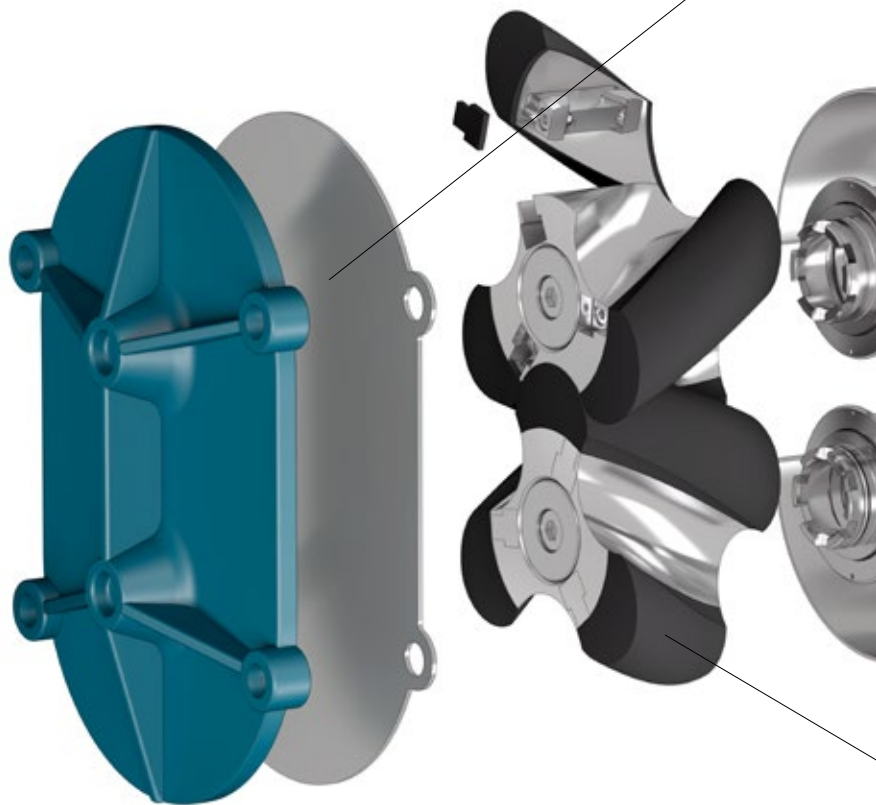
IS LIKE ANY OTHER

No matter which application – Börger builds a suitable rotary lobe pump for you. With suitable materials, exactly aligned construction and design, whether with overhead mounted drive, submerged or as a mobile pump. Even individual solutions are a specialty of Börger.



25 PUMP SIZES WITH FLOW RATES OF UP TO 1,440 m³/h

The BLUEline and ONIXline series differ in flow rates and pressure ranges. The proven BLUEline pumps achieve flow rates of up to 1,440 m³/h. The ONIXline pumps achieve optimum efficiencies at pressures of up to 16 bar.



Börger rotary lobe pumps overview

Pump series	Speed in rpm		Flow rate in m³/h		Max. pressure
	Min.	Max.	Min.	Max.	in bar
BLUEline Nova AN	1	800	0.03	35	10
BLUEline Nova PN	1	800	0.06	75	12
BLUEline Nova QN	1	600	0.14	110	8
BLUEline Legend PL	1	700	0.11	115	8
BLUEline Legend CL	1	600	0.23	185	8
BLUEline Legend FL	1	600	0.34	410	12
BLUEline Legend EL	1	600	0.62	1,110	10
BLUEline Legend XL	1	450	1.10	1,440	10

Pump series	Speed in rpm		Flow rate in m³/h		Max. pressure
	Min.	Max.	Min.	Max.	in bar
ONIXline BJ	1	800	0.05	65	16
ONIXline BL	1	800	0.11	135	16



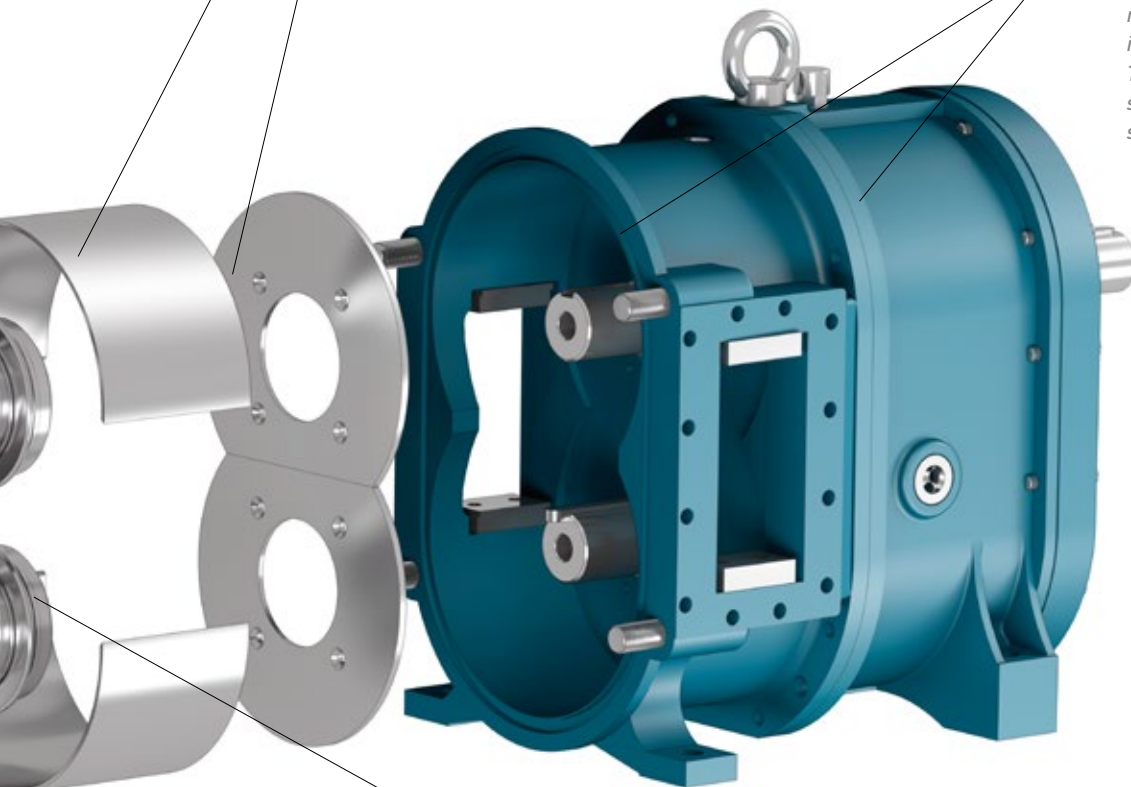
UNIQUE CASING PROTECTION

In order to prevent pump casing damage, e.g. due to abrasive or aggressive fluids, Börger pumps are equipped with casing protection. The unique casing liners and casing protection plates are available in different materials. For conveying pure, non-abrasive media, the Nova series AN, PN and QN are also available as a "clean" version without protection plates and liners.



UNIQUE BLOCK DESIGN

All 25 pump models feature dedicated, non-segmented pump casings and rotors in single-piece (BLOCK) construction. This design reflects the high quality standard of Börger and guarantees long service life with ease of maintenance.

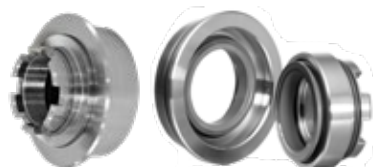


BLUEline Legend



VARIETY OF ROTORS

Börger offers a comprehensive range of rotors differentiated by geometry and material. We offer a suitable rotor for your application.



HIGH-QUALITY SEALS

Our solids-resistant, single-acting mechanical seals ensure the highest degree of safety. Individual shaft seal solutions for challenging applications are possible.

DETAILED AND LARGE VARIETY OF MATERIALS

Börger offers a broad range of materials for all pump components. For example, the pump casing can be manufactured in cast iron, cast steel, aluminum, stainless steel, Duplex steel or Hastelloy®.

AS VERSATILE AS YOUR TASKS

SUBMERGED PUMPS

The compact design, the chemical resistance and the ability to pump highly viscous media are reasons why the Börger rotary lobe pump is perfectly suited for submerged or semi-submerged applications. This is also an ideal solution if the NPSH a of the process system prohibits a dry pump installation.

DIFFERENT SKID DESIGNS

For pump installations, the plant's structural conditions and required accessories must be taken into account. Börger provides complete solutions to meet your needs, which include more than just pumps. We also manufacture the pump skid components for a turnkey installation.

Individually made base frames and customized flange connections, as well as stainless steel hoppers or feed augers, are part of Börger's product portfolio. The mounting position of the pump/drive combination is selected according to plant requirements.

Börger supplies special pump systems or mobile units from a single source. The design, metal construction and electrical engineering departments are up to the challenge.

CONTROL PANEL TECHNOLOGY

Optional control panels make it easy to monitor and control your equipment. These panels are created by Börger's engineering department to suit your individual needs.

The control panel for your rotary lobe pump and macerator is a user-friendly device. It can also be used to control and monitor the macerator's rotation, which will help to prevent blockages.

Additionally, the necessary control functions for using your rotary lobe pump in potentially hazardous environments can be monitored.



SUBMERGED PUMPS



SKID DESIGNS



MOBILE PUMPS FOR FLEXIBLE SERVICE

Many sectors require flexible, mobile pump systems for deployment on short notice. As versatile as mobile pump solutions from Börger are, they have one thing in common: they are configured to the customers specification.

The experience designing and building hundreds of mobile pump units is reflected in each Börger mobile pump. We offer complete solutions – the trailer, the pump technology, and the control panel.

Börger rotary lobe pumps can be equipped with an electric drive, a hydraulic motor or a combustion engine depending on the application. They can also be driven by the PTO shaft of a vehicle.

Whether as a flexible hand cart pump, portable pump, high-performance pump on a trailer or compact tanker truck pump, Börger mobile units are ready on short notice. Simply connect the hoses and start the engine.

MOBILE PUMPS



MAINTENANCE IN PLACE (MIP®)

SIMPLE. EASE OF MAINTENANCE.



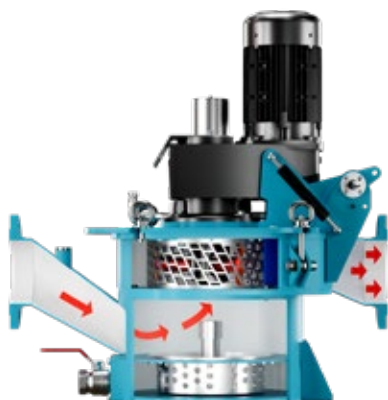
Repairs and downtimes are time-consuming and costly. To maximize your production time with minimized interruptions, your operating and maintenance personnel can inspect and if necessary replace all product wetted parts onsite.

Börrer pumps and macerators are designed for continuous operation and incorporate unbeatable ease of maintenance features. All components are extremely resilient and durable.

Expensive maintenance contracts? Not with Börrer products. We offer MIP® (Maintenance In Place). Control maintenance and repair procedures yourself. Product wetted parts can be inspected or replaced at the installation site without the need to remove piping and the drive system. This all can be done by your own personnel, easily and quickly.



COMPACT AND POWERFUL THE ORBITGRINDER



The OrbitGrinder is a cutting basket macerator that shreds solids reliably. It is equipped with the Constant Cutting System. Thanks to this completely new macerating concept, OrbitGrinder consistently achieves efficient maceration for perfect results.

OrbitGrinder	
Flow rate	260 m³/h
Pressure max. (heavy duty)	2 bar (5 bar)
Temperature max.	120° C

DESIGN AND FUNCTION

1 Cutting basket

The fluid containing solids is supplied to the OrbitGrinder. The fluid and the solids are conveyed to the Constant Cutting System where they enter the round cutting basket.

2 Blade arm with cutting blades

Inside the cutting basket, the cutting blades arranged in a star shape rotate over the surface of the cutting basket. The solids are shredded and flow radially through the cutting basket with the fluid.

3 Baffle plate

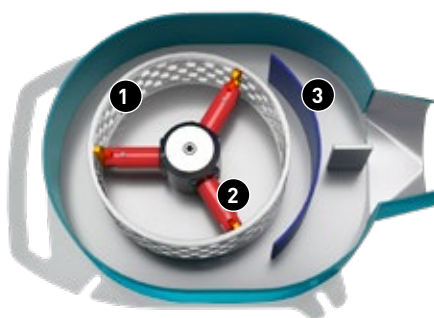
The baffle plate ensures that the suction force of the pump is distributed evenly around the cutting basket.

4 Quick-release cover

For maintenance and to remove the debris collector, the gas strut assisted quick-release cover is simply opened from above.

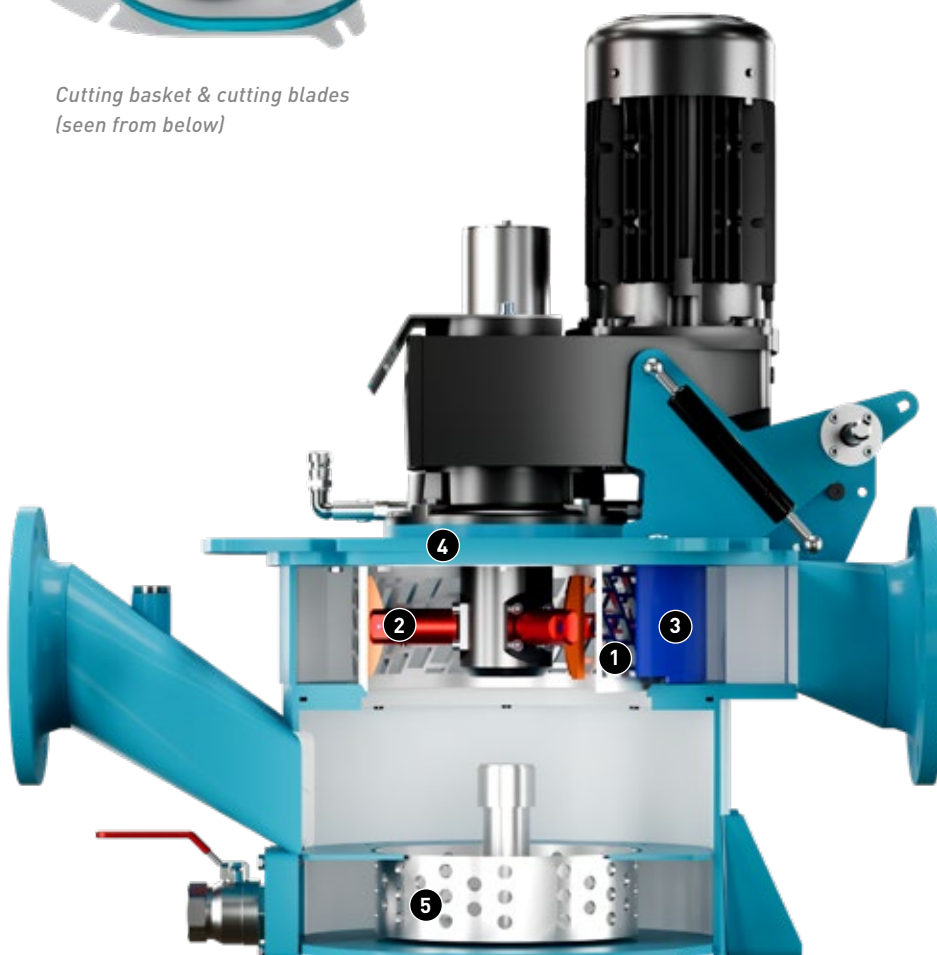
5 Debris collector

Impurities that cannot be shredded are collected in the debris collector.



Cutting basket & cutting blades
(seen from below)

new

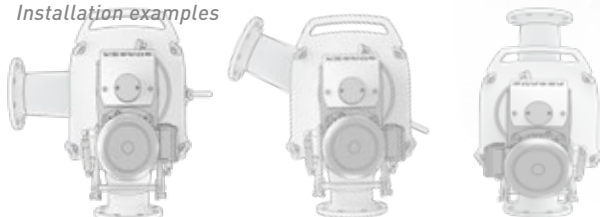


VERY SIMPLE INTEGRATION INTO YOUR SYSTEM

The OrbitGrinder can be integrated perfectly in almost any existing system. The in- and outlet can be positioned to each other at different angles.

The top and bottom parts of the OrbitGrinder are connected by screws. In order to change the angle between the inlet and outlet, the bottom part of the OrbitGrinder is disconnected from the top part and screwed on again in the desired position.

Installation examples



AT A GLANCE

- + Perfect macerating result thanks to the Constant Cutting System
- + Adjustable particle size maceration
- + Large selection of component materials available
- + Compact design, macerator can be retrofitted into every system
- + ATEX-compliant design upon request
- + Long service life
- + Ease of maintenance thanks to MIP®
- + Energy efficient



CONSTANT CUTTING SYSTEM FOR A CONSISTENTLY OUTSTANDING MACERATING RESULT

The CONSTANT CUTTING SYSTEM ensures a consistently outstanding macerating result:

The circumferential speed of the blades is the same in every cutting point. This way, an excellent cutting result is achieved in every point. In addition, the service life increases compared to common perforated disk macerators.

The contact pressure can be readjusted individually for each blade. This is done completely automatically by a central adjustment unit. As a result, the cutting force remains constantly high for each blade and the cutting result is consistently good.

The blades are pivot-mounted using a single-point suspension. They lie perfectly on the surface of the cutting basket.

EASY MAINTENANCE IN A MATTER OF MINUTES

The OrbitGrinder is designed according to the Maintenance in Place (MIP®) principle. All maintenance work can be done easily and quickly at the installation site of the device. It is not necessary to remove the OrbitGrinder from the pipeline.

Only the quick-release cover, which is supported by a gas strut, is folded upwards. All wear parts can be accessed easily and replaced within a few minutes. The debris collector is removed and emptied. Any escape of liquid during maintenance work is prevented.

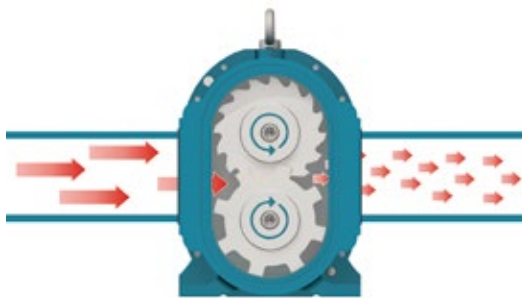


MULTICRUSHER

VERSATILE MACERATOR



The dual-shaft grinder Multicrusher effectively and reliably processes solids contained in liquids and ensures that downstream pumps and equipment operate smoothly.



OPERATING PRINCIPLE

The basic design of the dual-shaft grinder is based on the proven Börger rotary lobe pump. The two shafts are equipped with blades and spacers instead of rotors. The solids-laden medium passes through the counter-rotating blade configuration and is therefore macerated.

Börger Multicrusher overview

Multicrusher series	Max. capacity in m³/h	Max. pressure in bar
HAN	25	12
HPL	80	12
HCL	120	12
HFL	260	12



CONSTRUCTION

- 1 The quick-release cover**
 Access to all wetted parts through the quick-release cover – maintenance without removal of pipe or drive systems (MIP®).
- 2 The blades**
 The degree of maceration of the Börger Multicrusher depends on the blade selection, selected blade tooth shapes, blade thickness, arrangement of the blades and operational speed of the Multicrusher.
- 3 The intermediate chamber**
 The large-volume quench chamber is filled with oil and ensures the highest degree of safety.
- 4 The timing gear and gear reducer**
 The different circumferential speeds of the carrier shafts and the sharp blades create an excellent cutting result.



MULTICRUSHER AT A GLANCE

- + Variable degree of maceration due to flexible blade combinations
- + Compact, space saving design
- + Available in stainless steel
- + Low life-cycle costs
- + Long service life

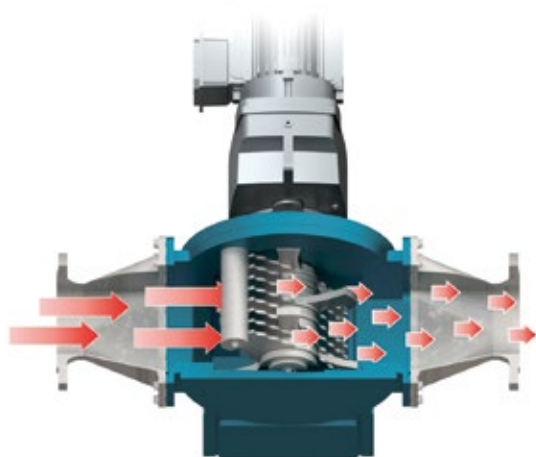
CASE STUDY: PRIMARY SLUDGE CONVEYANCE

In order to macerate the solids in the primary sludge before the sludge is further processed, a Multicrusher is installed upstream of the Börger primary sludge pumps on the suction side. The treatment plant operator was particularly impressed by the degree of safety, maceration result and operation almost without wear.



ROTORRAKE

ROBUST SINGLE-SHAFT COARSE MACERATOR



The Rotorrake tackles macerating tasks where others have failed – for macerating very coarse solids and rags. Coarse objects which cannot be macerated are ejected into the debris collector.

OPERATING PRINCIPLE

The solids containing liquids flow through the stationary counter blades which are arranged at an angle. The solids are captured by the counter blades and shredded by the cutting action of the rotating blades. The reduced solids then continue to flow suspended in the liquid.

Börrer Rotorrake overview

Rotorrake	Max. capacity in m ³ /h	Max. pressure in bar
RR 6000	360	5
RR 9000	540	5



CONSTRUCTION

1 The quick-release cover

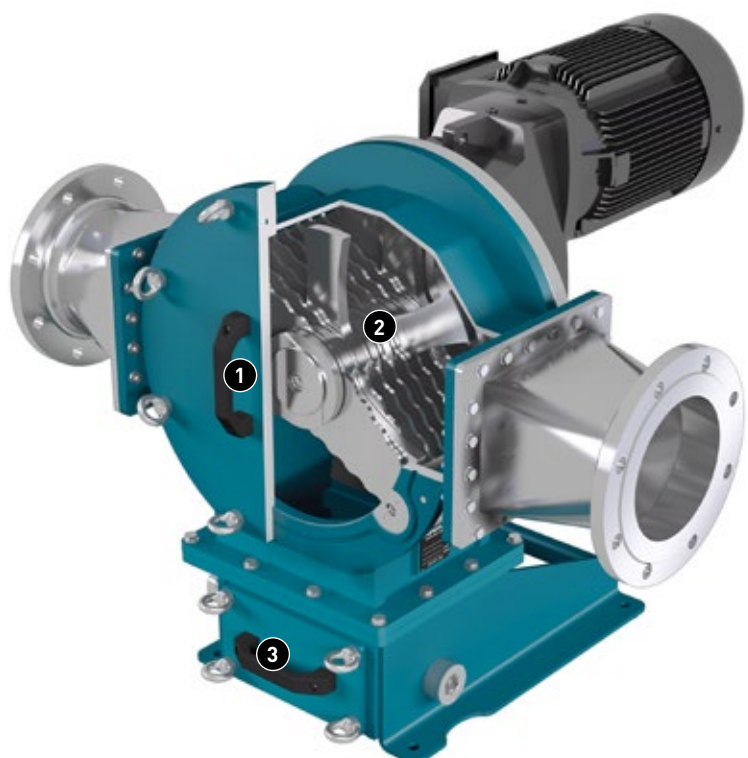
Access to all wetted parts through the quick-release cover – maintenance without removal of pipe or drive system (MIP®).

2 The blades and counter blades

Blades and counter blades are assembled alternately on the shaft. The rotational blades are moved by the shaft. The stationary counter blades are locked into the casing.

3 The debris collector

Solids that cannot be macerated are collected in the debris collector (With drainage device at the side).



ROTORRAKE AT A GLANCE

- + Effective coarse macerator
- + High resistance to wear due to no-contact arrangement of blades and counter blades
- + Blades and counter blades can be turned round for longer service life
- + Available in stainless steel
- + Energy efficient

CASE STUDY: ANAEROBIC DIGESTION RECIRCULATION

A wastewater treatment plant was having problems with rag buildup in their bio-solids. The macerators used were not able to handle the high rag accumulations, so they ended up clogging the digester recirculation pumps. The plant operator decided to install a Börger Rotorrake upstream of the pumps. There have been no pump blockages since that day. The operation of the Rotorrake has been trouble-free for more than two years.



B-MX SUBMERSIBLE MIXER

FOR EFFECTIVE AGITATION



SUBMERSIBLE MIXER AT A GLANCE

- + Various sizes
- + Completely made of stainless steel
- + Good flow pattern to the propellers
- + Cable routing at the protected back end of the mixer
- + High efficiency

The B-MX submersible mixer ensures that liquid media with solids is effectively agitated.

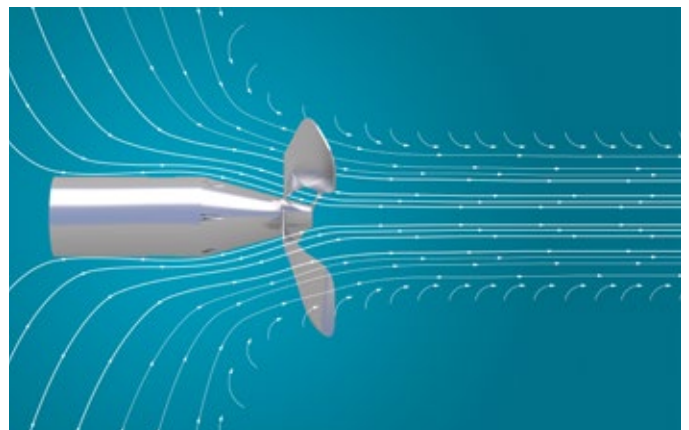
OPERATING PRINCIPLE

The slim design and smooth surface of the device allows liquid to flow to the displacement blades without creating turbulence. This guarantees high efficiency. The high precision casing and all wetted parts are made of stainless steel.

Börger Submersible Mixer overview

B-MX	Output in kW	Output in m³/h	Speed in rpm	Weight in kg
B-MX 9	9	3,780	346	170
B-MX 13	13	5,020	346	180
B-MX 18	18	6,860	346	220
B-MX 22	22	8,640	346	240

The slim, edge-free design of the B-MX and the geometry of the propeller blades have been optimized by means of the latest flow simulation programs and ensure highest efficiency.



STAINLESS STEEL TANKS FOR STORING LIQUIDS

Börger stainless steel tanks available in different materials grades are suitable for storing any liquid.

Capacities between 30 to 5,000 m³, various accessories and roof constructions allow a customized, customer centered solution. The storage size can be increased without problems due to the segmented tank design.

STAINLESS STEEL TANK AT A GLANCE

- + Capacity of 30 to 5,000 m³
- + Maintenance-free and lasting value
- + Can be increased and disassembled
- + Different roof constructions
- + Versatile function





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