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VOITH

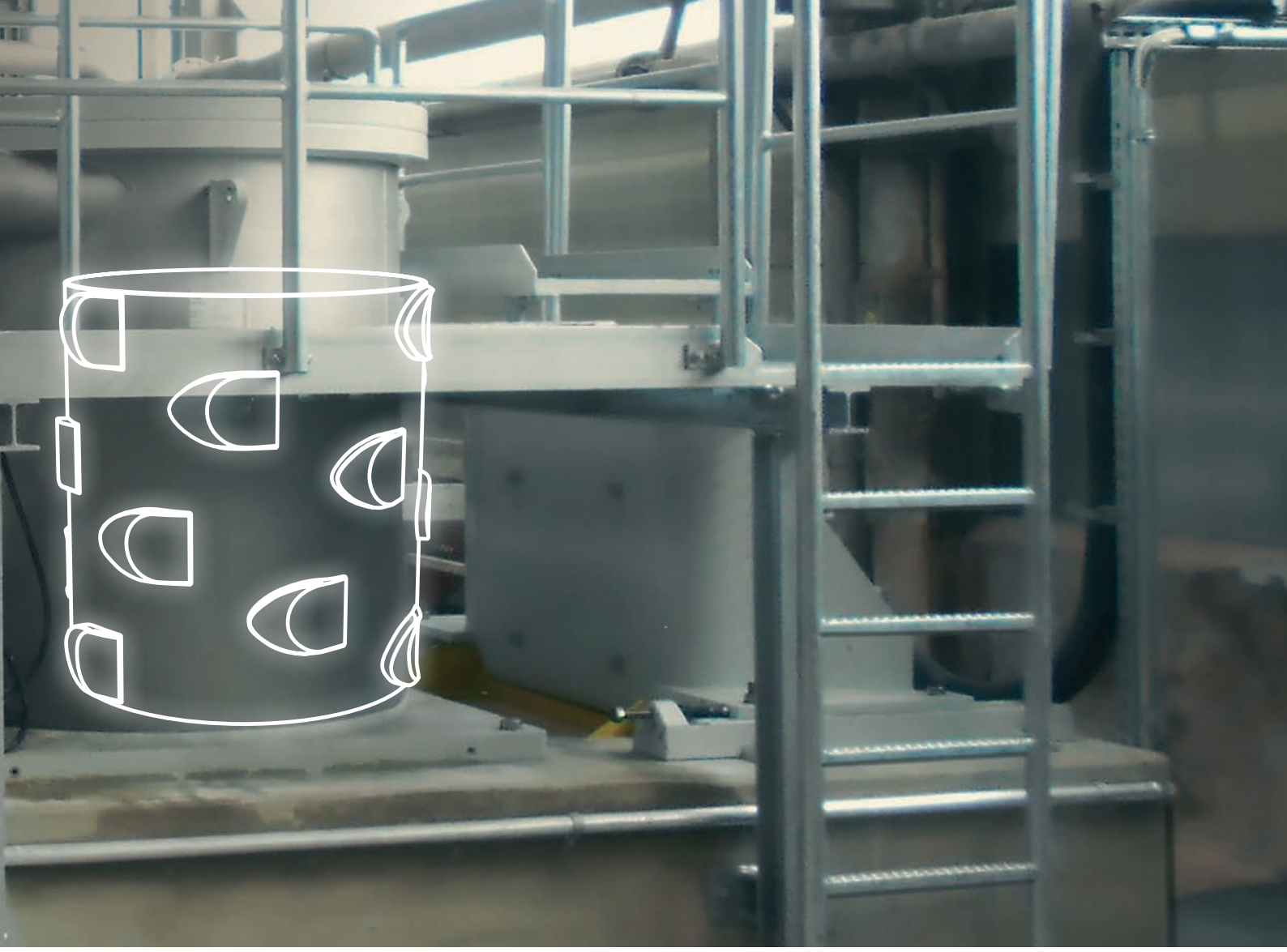
Your paper quality starts with screening efficiency

ScreenFit

Papermaking – and screening – get more demanding!

Screening requirements have changed tremendously over the last years. Inferior raw material properties for pulp and paper as well as increasing papermaking manufacturing costs, like energy, have led to higher demands for energy-efficient products and to further process optimizations. Therefore, all manufacturers had to increase their effectiveness in order to compete and be sustainable in the globalized pulp and paper industry environment.

With this booklet, we provide you with practical material to make your screening process more effective and your screening section fit for Papermaking 4.0.



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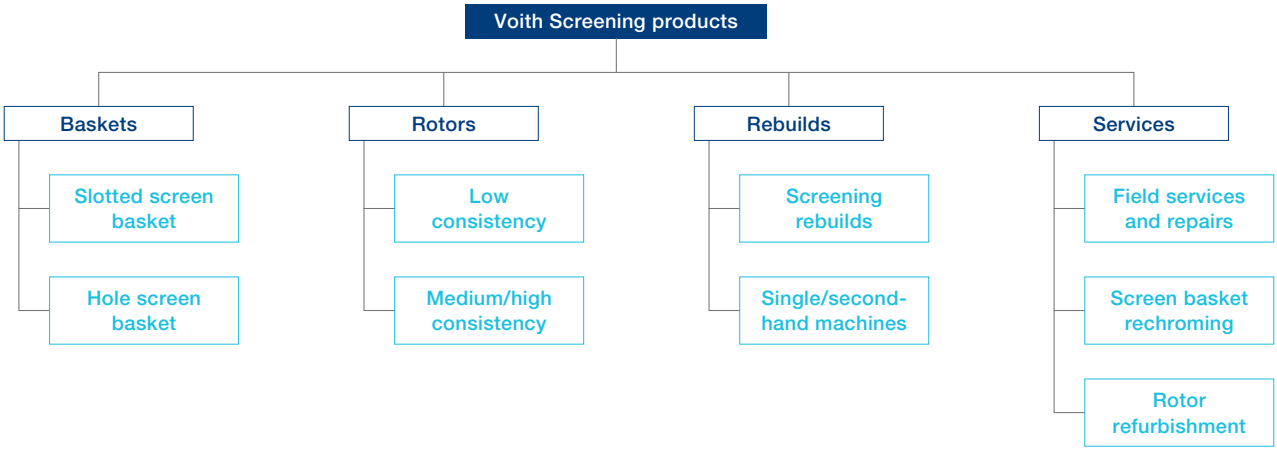
Product portfolio
Overview

Our revised product portfolio offers highly engineered solutions using modern, innovative manufacturing techniques to meet functional requirements. Whatever application, we offer high-quality rotors and cylinder baskets to pressurized screens suitable for our own machines as well as non-Voith machines.

What Voith offers



Slotted screen basket

Hole screen basket

Rotor for low consistency: MultiFoil

Rotor for medium/high consistency: EclipseR

Rebuilds

- Rebuilds of Voith and non-Voith screening systems
- Single machines/second-hand machines

Our service and added value

- Technical field services and repairs
- Technological optimization for Voith and non-Voith screening systems
- SmartBasket for asset management
- Rechroming of baskets
- Refurbishment and repair of screening rotors
- Easy ordering in the Voith Paper Webshop

Screen baskets

A Voith screen basket offers precise, reliable technology for centrifugal and centripetal pressure screens for Voith and non-Voith machines. All kinds of stock, in the most varied stock preparation, broke screening and pulp screening applications, can be reliably screened, even with high stock consistencies and trash loads.

C-bar screen baskets are unique. Their overlapping bar design protects the slots from high wear and keeps the slot widths constant over their whole lifetime.

Perfect fit for your screening application
Screen basket portfolio

Slot screen baskets

In many studies, the C-bar has proven itself to be the most reliable screen basket with the lowest specific energy consumption and lowest fiber loss when considering high throughput rates and efficiency. These achievements, coupled with constant slot width during the entire service life are based on the unique profile of the C-bar, with the overlapping arrangement of the profile bar design.

C-bar - The perfect solution for a wide range of applications

With the C-bar screen cylinder, Voith offers a precise and reliable technology. The C-bar screen cylinder is suitable for all types of pulp, in the most diverse stock preparation as well as in the approach-flow process. For particularly high forces during the sorting process, the C-bar HerculeX or the even more robust HerculeXX with bolted end rings are used.

For extremely high proportions of contaminants, such as in presorting, the C-bar HerculeX D is equipped with spoiler bars that prevent contaminants from accumulating between the rotor and the basket and remove them from the machine in a targeted manner.

Standard C-bar basket
Centrifugal application

C-bar HerculeX
Robust version

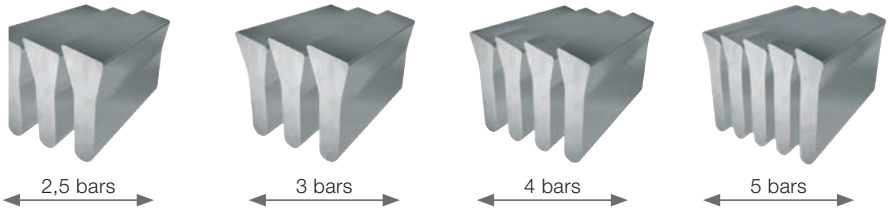
C-bar HerculeXX
Bolted end rings

C-bar HerculeX D
Robust version with spoiler bars

In order to meet every possible application, C-bar baskets are available with four different profile types. This ensures the best possible yield and efficiency for removing contaminant and stickies.

Regardless of whether a subsystem operates centripetally or centrifugally, Voith will provide you with a perfectly manufactured C-bar basket tailored specifically to your application.

C-bar profiles



C-bar L
Specific application, e.g., extremely long fibers

C-bar S
Proven standard for long fibers

C-bar Q
Proven standard for all paper grades

C-bar R
Especially for highest throughput rates or fractioning

Hole screen baskets

The Voith NDura hole screen basket offers precise and reliable technology for centrifugal pressure screens. Due to an optimized pitch design, we can achieve high open screen areas with a high throughput rate.

Further advances in our manufacturing techniques target a high precision in different hole designs and roundness of the screen basket.

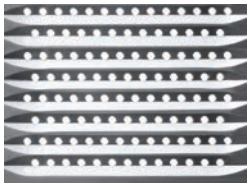
All kinds of stock, in the most varied stock preparation, wet end process, broke screening, can be reliably screened, even with high stock consistencies. It can be used for Voith screens and for all machines and associated rotor combinations of other manufacturers.

Hole screen basket

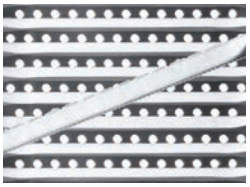
Customer benefits

+ **High screening efficiency and throughput due to unique profile design**
+ **Low fiber loss due to precise processing**

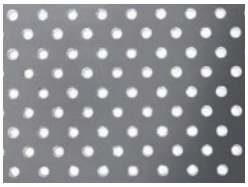
Hole screen types



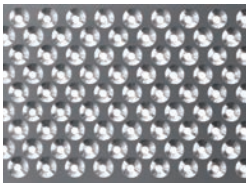
NDura CL
Contour gives highest throughput rates



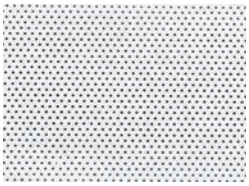
NDura D CL
Like CL-type, with higher trash loads



NDura SD
Smooth drilled hole for various applications



NDura PL
Profiled hole design for all WEP applications



F-type filter
Equipment for all kinds of fine filtration

Number one in technology
Slot screen baskets

Long lifetime

- Overlapping profiles avoid wear in the slot
- Rechroming

ScreenFit with Voith rotors

- MultiFoil for LC
- EclipseR for MC

Covers all applications

- For all grades
- For all process steps

Strength

- Standard C-bar
- HerculeX
- Unique clamping design

Customized

- Breaker bars
- Slot width
- Bar width
- Profile depth
- Chrome layer thickness
- Standard/WEP quality

Highest throughput

- Highest open area due to overlapping design
- Smallest bar width

Engineered for stability and accuracy
Hole screen baskets

Long lifetime

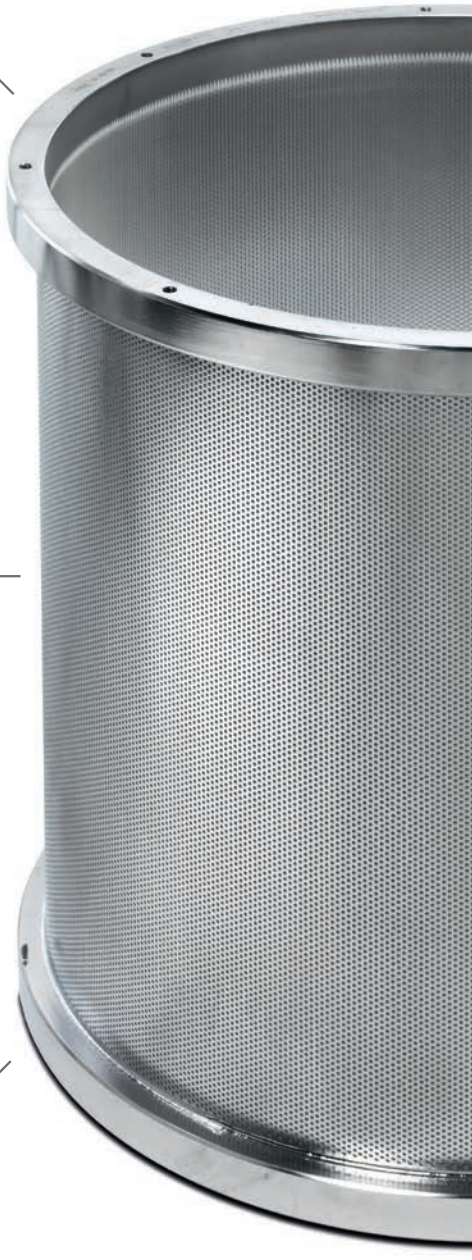
- Wear protection through Voith hard chrome-plating technology

ScreenFit with Voith rotors

- Best performance with Voith rotors
- But also suitable for all other OEM rotors

Covers all applications

- Ideal for use in stock preparation, as well as broke, pulp and approach flow screening



Strength

- NDura quality screen basket material guarantees high basket strength

Customized

- Breaker bars
- Hole diameter
- Various designs for different applications
- Chrome layer thickness
- Stock prep/WEP quality

Highest throughput

- Highest throughput due to large open screening surface

Screening rotors

Higher demands in raw material screening require increased screening efficiency and pose distinct challenges for facility operators. Voith screening rotors are the ideal answer, combining maximum screening quality and throughput with optimal energy use in each area of application.

Unique geometry for maximum energy savings
Screening rotors portfolio

EclipseR coarse and slot screening rotor

Long-standing experience and modern CFD analyses were the basis for the exceptional foil geometry of the EclipseR rotor. It not only facilitates maximum throughputs at stock consistencies of up to 4.5% with high or low levels of contaminants but also ensures efficient and reliable screening. The EclipseR rotor is today's standard coarse screening rotor for Voith screens, and the number of applications in other OEM machines increases globally, day by day.

Evolution of the EclipseR rotor for MC applications

Step/Bumb/Lobed

- Reliable standard rotors for many years
- Different designs for different applications (grades)

Eclipse

- Low energy consumption
- Many successful DIP applications

EclipseR

- Low energy consumption
- Suitable for all grades

Cut your energy demand by up to 35%

Thanks to the new rotor design and innovative foil geometry, the energy consumption in the screening process can be reduced by up to 35% compared to former models. This is particularly enabled due to the lower peripheral rotor speed needed to keep the flow through the screen unobstructed.

Maximum service life and efficiency

Due to the new geometry and clever arrangement of the foils, there is a stronger suction impulse, enabling a reliable unobstructed flow through the screen and increasing the production capacity as well. The resulting lower peripheral speeds guarantee gentle screening and extend the lifetime of the screen basket and rotor.

Area of application

The EclipseR rotor can be used in stock preparation, reject and pulp screening for the production of graphic papers, board, packaging papers as well as pulp. The rotor covers all applications and consistency ranges of up to 4.5%. It can be used in Voith screening systems and all common machines from other manufacturers, whereby the distances between rotor and screen basket wall are adjustable depending on the area of application. The EclipseR rotor can be combined with hole and slotted screen baskets.

Even though the EclipseR rotor is covering all former rotors in one unique rotor type, a step rotor still gives very good performance for raw materials with extremely high trash loads and is still used in some applications.

MultiFoil rotor

Less energy demand and improved slot cleanliness are the main benefits of MultiFoil rotors. These rotors offer an ideal combination of screening quality and throughput rates. The innovative blade geometry prevents the spinning of fibers and reduces pulsations to successive process steps.

With no spinning of fibers, the rotor speed can often be reduced, whereby fiber-preserving and energy-saving screening becomes possible.

The dynamic pressure and suction pulse create an ideal differential speed between rotor and pulp suspension. Thus no additional shredding of contaminants or stickies is generated. In addition, it leads to lower wear on the processed screen basket surface.

The MultiFoil rotor concept allows reliable, efficient operation of the screen with C-bar slot and hole screen baskets. Using Voith's patented foil geometry, with an effect similar to that of an airplane wing profile, the flow facilitates ideal screening.

The MultiFoil rotors operate in the most varied applications for graphic paper, board and packaging, tissue and specialty paper grades and can be combined with all slot and hole baskets. To achieve the best screening efficiency for a machine or system, Voith offers an on-site screening system analysis to maximize performance gains.

Customer benefits

+ Sustained highest clearing frequency, thanks to its uniform through-flow profile with short suction impulses
+ Energy savings, through its unique foil design and optimized foil arrangement
+ No fiber spinning

Technical data

	MultiFoil Low consistency	EclipseR Medium – High consistency
Inlet consistency	< 2.8% (Fractionation 3.5%)	> 2.5 – 4.5%
Field of application	Fine/WEP/Fractionation	Coarse/Tail/Broke/Virgin pulp
Characteristics	• The best LC rotor on the market • No spinning due to engineered blade geometry • High efficient screening with minimal pulsation	• Highly efficient screening • Lowest energy consumption • For high trash loads
Tip speed	10 – 19 m/s	13 – 24 m/s (Depending on gap)
Basket/Rotor gap	3 mm	DIP 5 mm OCC/Coarse/Virgin 7.5 or 10 mm

The best-in-class rotor
EclipseR

Lowest energy consumption

- Savings up to 35% compared to old generation rotors

Reliable operation

- Works in a wide range of tip speeds, consistencies and trash loads

Covers all applications

- For graphic paper, B&P and virgin pulp

Highest efficiency

- Highest sticky removal efficiency
- High clearing effect on screen basket surface

Customized

- Best fit for each application with 5, 7.5 and 10 mm gap

Long lifetime of basket

- Lowest tip speed for long lifetime of basket

Portfolio matrix

Slotted baskets and rotors

C-bar

C-bar HerculeX

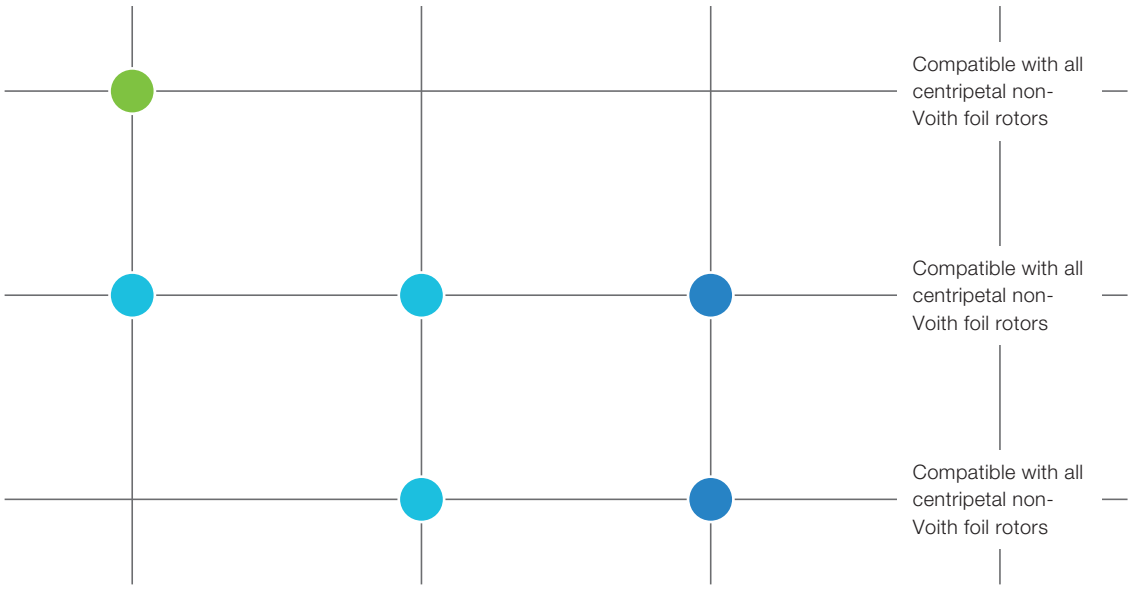
C-bar HerculeX D

C-bar C

MultiFoil rotor

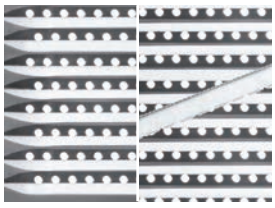
EclipseR rotor

Step rotor

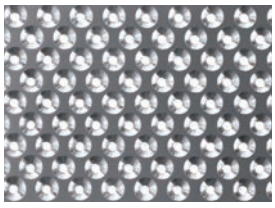


- For all grades up to 2.8% consistency
- For all grades up to 3.5% consistency
- For all grades up to 3.5% consistency for coarse screening with high trash content

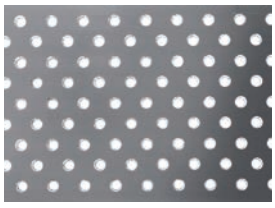
Hole baskets and rotors



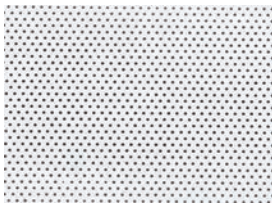
NDura CL and D CL



NDura PL



NDura SD

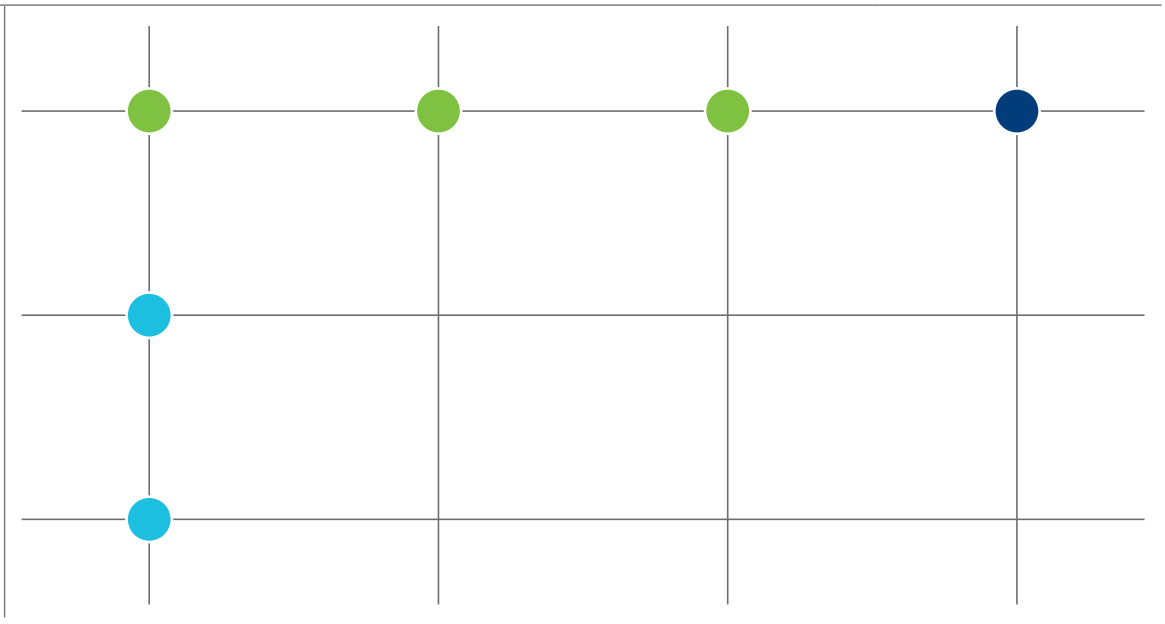


Filtrate baskets

MultiFoil rotor

EclipseR rotor

Step rotor



- For all grades up to 2.8% consistency
- For all grades up to 4.5% consistency
- Waste/white water/Filtrate handling ≤ 1.0% stock consistency

Service

At Voith, the success of the customer takes center stage. Service means delivering customized service solutions and utilizing our full expertise to help them reach their goals.

Maintain sorting efficiency

Screening systems are a key component in the field of stock preparation and papermaking. The need for well-maintained screening equipment is increasing in all areas of screening applications, be it in the field of recycling or in the approach flow system of the paper machine. Always, the target is to maintain the main screening benefits of low energy consumption, reliable operation and high sorting efficiency over the total operation time.

There will be no compromises in screening efficiency as we support you to safeguard proper performance of your sorting equipment, to achieve high cleanliness and minimize fiber losses.

Sustainabilty in service

Voith Paper service specialists' experience is based on the successful sizing, delivery and operation of a large number of baskets and rotors delivered every year. With regularly and repeatedly provided inspections, we support you to expand the lifetime of your equipment to the maximum. Inspection combined with repair and refurbishment services is our contribution to maximize sustainability.

Our comprehensive Process Services portfolio, our trainings, audits, consulting and measurement diagnostic capabilities offer expert support according to your needs.

Geometry is all that counts
Rechroming of screen baskets

Small abrasive particles in the stock create wear on the tip of the profile bars in the screen basket. Worn profiles reduce capacity and increase fiber content in the reject. The process is progressive and irreversible and will end in the required replacement of the screen basket.

Renewing the chrome layer maintains the contour of the profile bars and hence the screening technology. Chrome is one of the most wear-resistant materials, which also can be applied repeatedly. This makes rechroming the most economical way to manage wear in screen baskets.

We will assess the status of your basket on site and arrange the rechroming including logistics. Voith Paper sales and service personnel are trained to assess the condition of baskets and determine the need for rechroming. A special measuring tool calibrated for the type of profile gives a reliable indication of the condition of the current chrome layer.

Inspection and rechroming intervals are based on the application of each basket.

Customer benefits

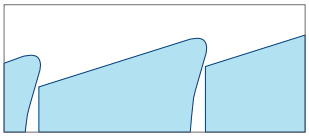
+ Optimized chrome layers 80 µm – 250 µm
+ Repeatable process
+ Lowest cost per ton of all coatings
+ Stress-free coating method
+ Simple, reliable profile checks
+ Slot width remains unaffected
+ Over 20 years of experience
+ Consistent technological results
+ On-site condition assessment

Save time and money
Voith repair service

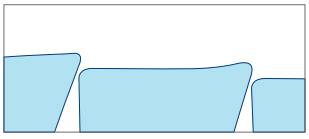
Turn to Voith to bring your components and systems back to optimal running condition, allowing you to keep production high while limiting unplanned downtime. Voith offers a repair service on its OEM components and on many pieces of non-Voith equipment, which is backed by an expert engineering and applications staff. Looking for a specific spare part? We keep an inventory of the most high-demand papermaking components in our workshops. In addition, all repaired items are backed by a one-year parts and labor “as new” warranty to help you stay on track with your time and your budget.

Comparison of new and worn screen basket

New screen basket // 0.25 mm



Worn screen basket



Our services

- **Rotor/screw repair**
- **Exchange program**
- **Stock preparation service**

Worldwide service for long-lasting stock preparation
Refurbishment of rotors

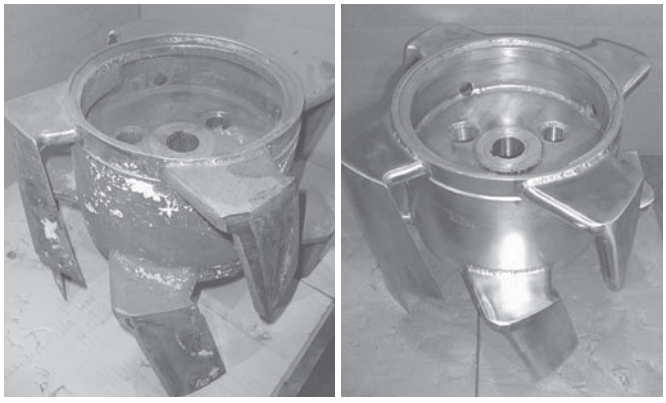
In view of the considerable cost pressures facing the paper industry, it is increasingly important to reduce energy costs and increase life cycle of your valuable stock preparation equipment.

Heavy contaminants in recovered paper cause wear to the working elements of your stock preparation machines. In almost all cases, proper performance of these machines depends upon maintaining the original design geometry of the working elements.

Variations in geometry will cause loss of production, which reduces the output of your process equipment. Regular and thorough repairs to the original rotor profiles are required. Voith Paper launched a comprehensive service specializing in the repair and refurbishment of these technologically critical wearing parts. By restoring the original design geometry of the working elements, the papermaker achieves an optimal balance between operating costs and technological performance.

Minisorter MS05

Before refurbishment **After refurbishment**



Customer benefits

+ **Consistent technological performance**
+ **Predictable repair intervals**
+ **Optimized maintenance cost and performance requirements**
+ **Optimized geometry for specific applications**

Areas of application

Our services can be used for all rotor types and screen basket combinations of your stock preparation equipment, irrespective of the manufacturer and type of pulper.

Some good examples are the repair of Andritz, Black Clawson, Metso, Aikawa, GL&V rotor and screen basket combinations.

Dimensions and service intervals

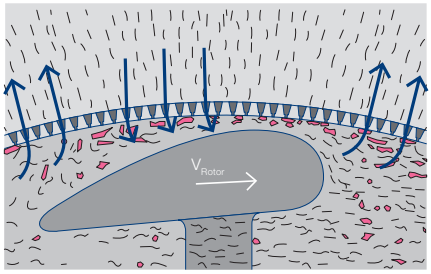
As the rotor geometry directly affects the screening efficiency, and, accordingly, the production cost per ton of fiber, restoring that geometry can sustain the optimal balance between minimized operating costs and maximized technological performance.

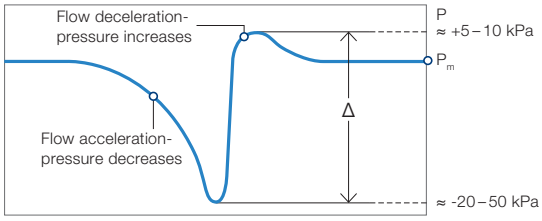
Voith Paper technicians always begin with an on-site analysis to determine what repair is necessary and schedule the work to ensure that the required replacement parts are available in time.

Options and possible combinations

As well as the repairs on an individual order basis, a maintenance and repair program for repetitive repairs can be offered. Alternatively, the investment into a new rotor and/or screen basket can be combined with a service contract for the repair of both rotors and screen basket.

Principle of screening function: rotor effect





Our service offering for you
Servolution

Equipment services

Voith's experience as a leading machine builder and equipment supplier gives us the unique ability to offer value far beyond mere maintenance.

Process services

When papermakers want to step up their game, they turn to Voith for analysis and know-how that leads to step-change performance improvements.

Productivity services

In true partnership with our customer, Voith offers value-based productivity contracts that raise the bar on account-ability and performance outcomes.

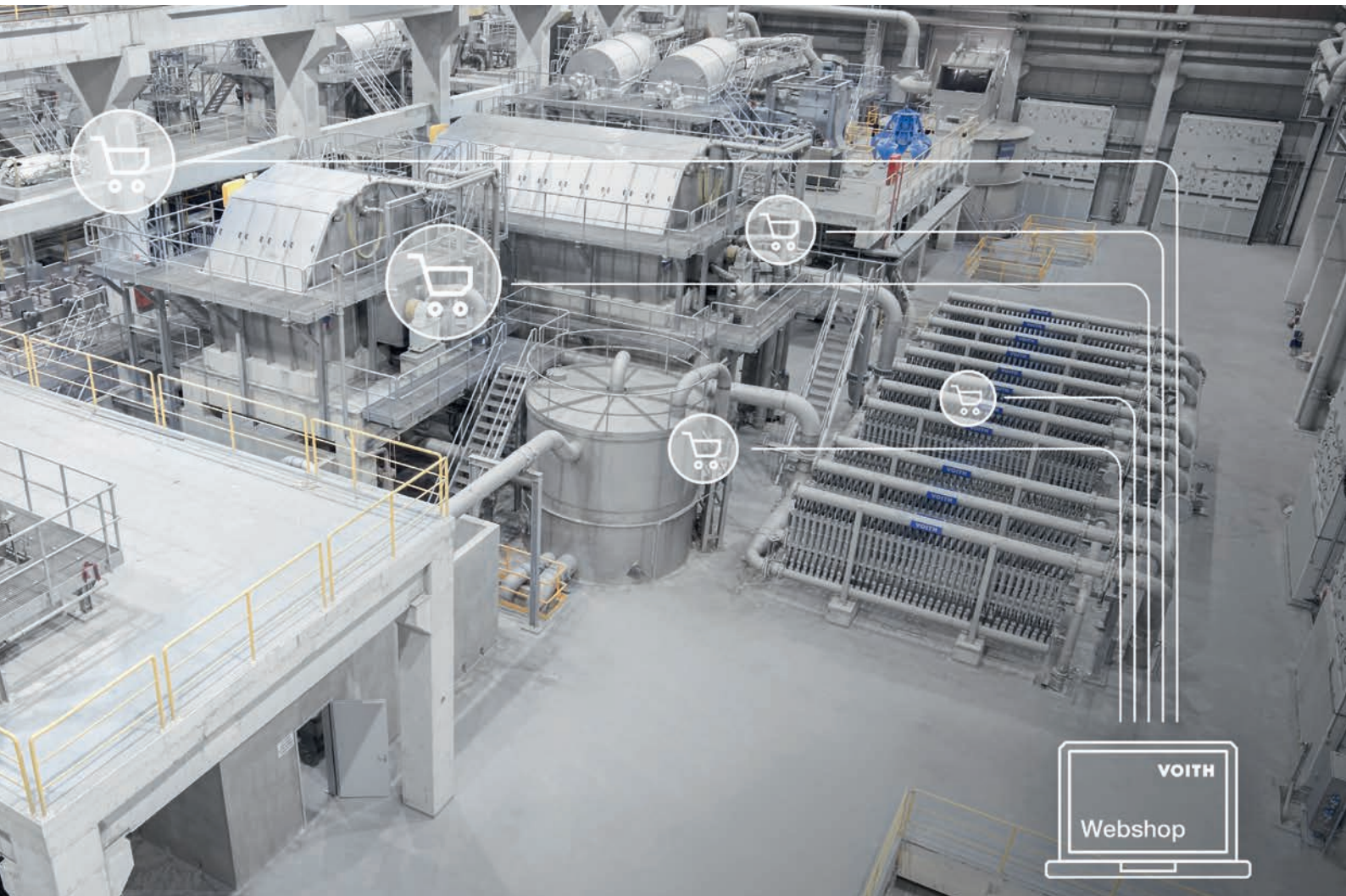
Integrated partnership

Why would a paper manufacturer completely integrate Voith into its business operations? Lots of reasons.

Voith Paper Webshop

Order products such as spare and wear parts as well as services from Voith quickly and easily 24 hours a day via the Voith Paper Webshop. Optimize your purchasing processes and find out about many other helpful functions.

Discover the Voith Paper Webshop and click here.



Case study
Upgrade of coarse screening in OCC mill

A screening rotor today is evaluated by its ability to combine high screening efficieny with throughput, its energy efficiency and ability to handle a wide spread of raw materials, stock consistencies and trash content.

With our EclipseR rotor, we found the optimum in all these factors.

We did many rebuilds globally of Voith and non-Voith rotors to achieve the best performances, and to the satisfaction of our customers.

In this Taiwanese OCC mill, we replaced the step rotor in the first stage of coarse screening at 4% consistency.

As the inlet dirt content was up to 17%, we also replaced the 0.6 mm slot basket by our C-bar HerculeX D with additional deflaking capacity, which also helped to direct the reject towards the outlet and avoid accumulation of contaminants within the machine.

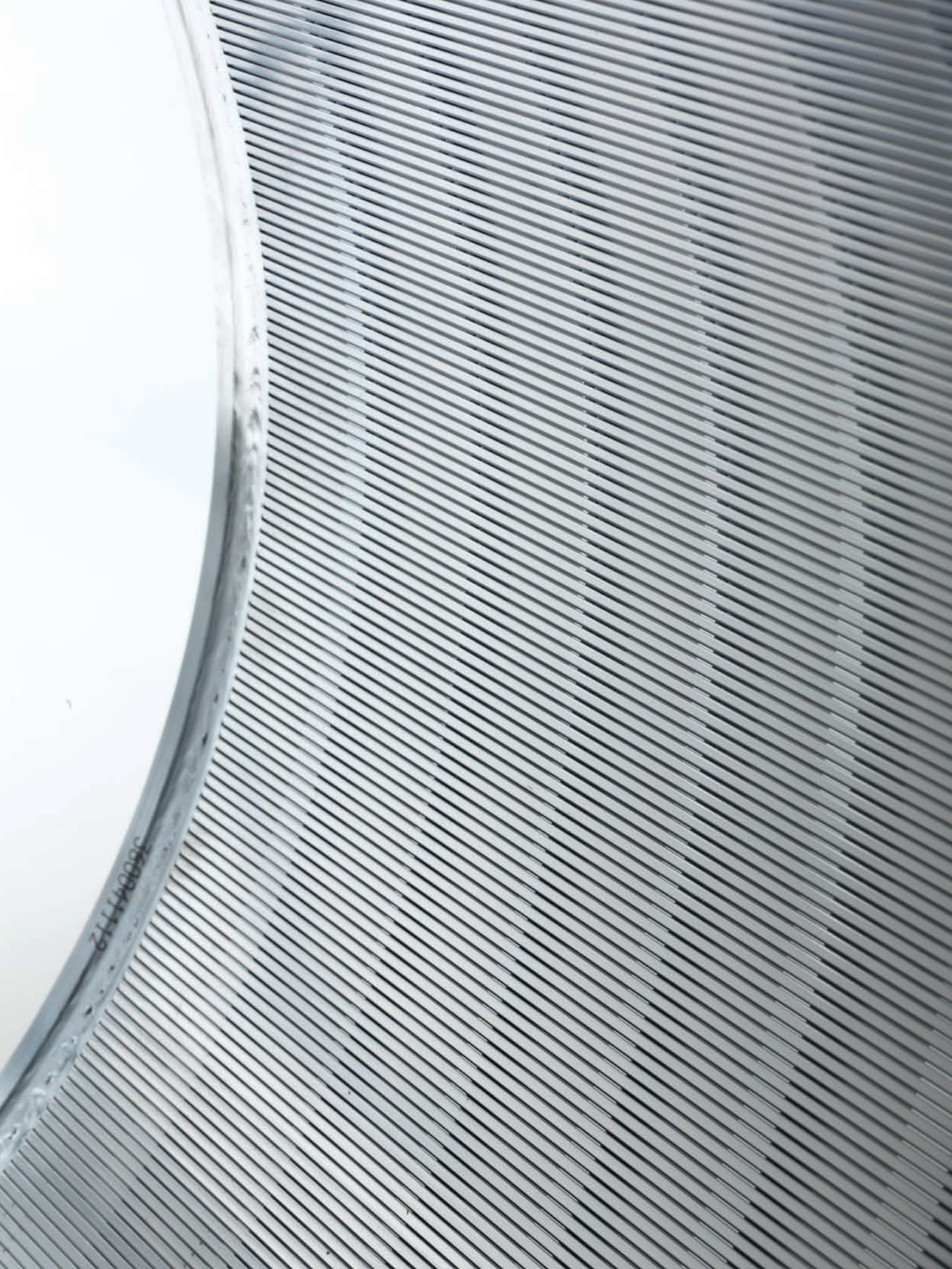
Before: C-bar HerculeX // 0.6 mm and step rotor

After: C-bar HerculeX D // 0.6 mm and EclipseR

	Before	After
Customer	OCC mill Taiwan	
Application	Coarse screening first stage TOCC at 4%	
Basket	C-bar HerculeX	HerculeX D with Spiral
Slot width [mm]	0.6	0.6
Rotor type	Step	EclipseR
Rotor speed [m/s]	19	17
Power consumption [kW]	68	53

Customer added value

+ 22% less energy consumption at same production
+ Spiral supports deflaking and directs reject towards outlet
+ 17% inlet dirt removal possible in this case



Please click on this **link** or scan the QR code to visit our screen baskets and rotors website:

How can we support you? Just contact us via our **webform.**

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