



**PULP & PAPER**

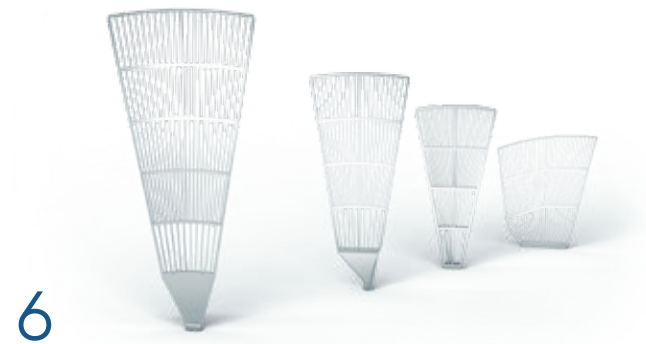
**FOCUS ON YOUR  
DISC FILTER**

**INNOVATIVE SERVICE SOLUTIONS**

**ANDRITZ**

**ENGINEERED SUCCESS**

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**ANDRITZ DISC FILTER SECTORS**

Easy replacement and upgrade



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**DISC FILTER UPGRADES**

Filtrate valve

# ANDRITZ service expertise for improved disc filter operation

ANDRITZ has a long history in dewatering technologies: the first dewatering press was built in 1950. In the past 25 years, more than 600 ANDRITZ disc filters have been sold and installed in pulp and paper mills around the world.

ANDRITZ offers a broad range of services, regardless of who the original equipment manufacturer (OEM) was. Our overall objective is to support our customers in meeting their requirements for disc filter operation, such as high production efficiency, low maintenance, or excellent filtrate quality.

Most of our disc filter service products have their product home in Europe. However, we rely on the knowledge and expertise of an entire network of ANDRITZ product and service experts around the world.

**APPLICATIONS**

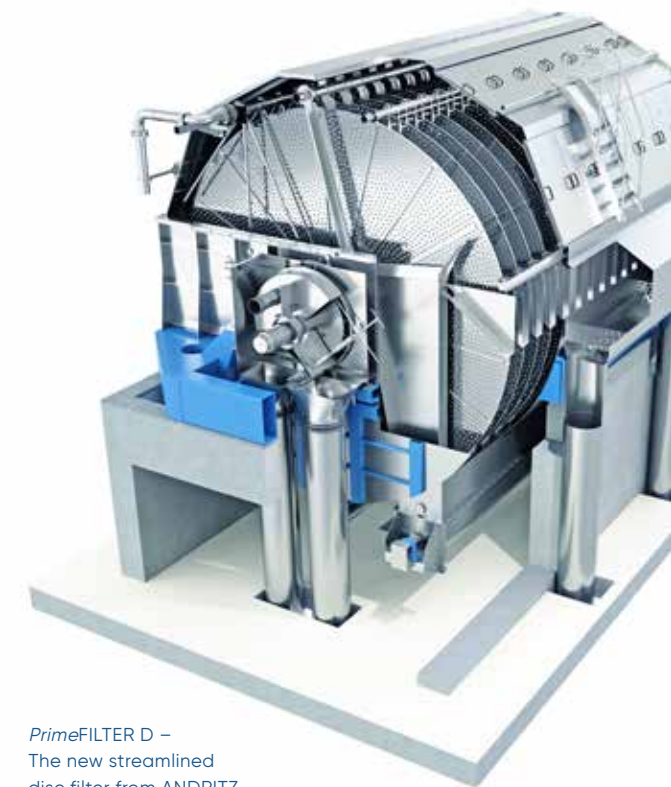
- ANDRITZ disc filters as well as machines from other suppliers, such as Alström, Beloit, GLV, Hedemora, Impco, Kvaerner, Voith, Wenrui, Dorr Oliver.
- Our service portfolio also comprises disc thickeners of various designs and brands, such as Akse, Elephant, HydroDrain, HydroDisc.

**PROJECTS ACCOMPLISHED ON ANDRITZ AND COMPETITOR'S DISC FILTERS**

Service and upgrades:



Spare and wear parts:



PrimeFILTER D – The new streamlined disc filter from ANDRITZ.

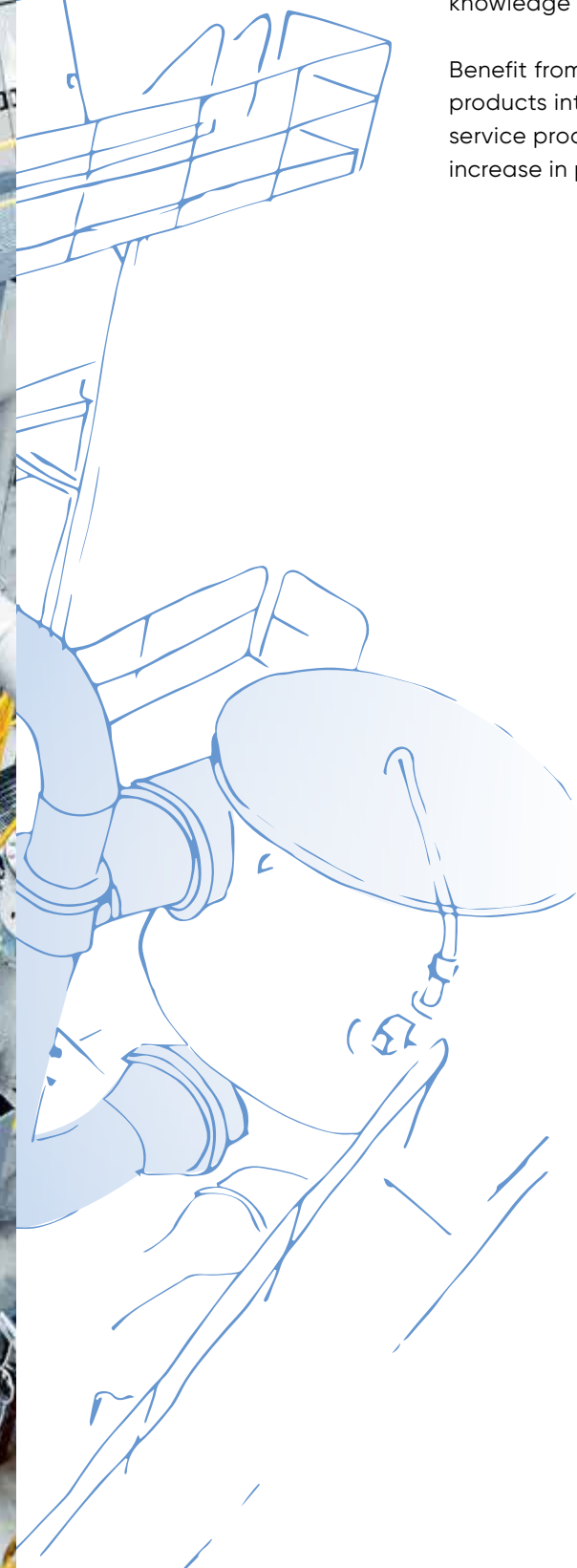


# In-depth process knowledge

## The key to better production efficiency

Often it's not enough to look at just a single component. You have to see the big picture. The key is process know-how. We at ANDRITZ have gathered in-depth knowledge in various processes in the pulp and paper industry over many years.

Benefit from our manufacturing knowledge and let us help you integrate the right products into your individual processes. We have proven time and again that our service products in combination with our process expertise lead to a measurable increase in production efficiency and a lower total cost of ownership.





# ANDRITZ disc filter sectors

## Easy replacement and upgrade

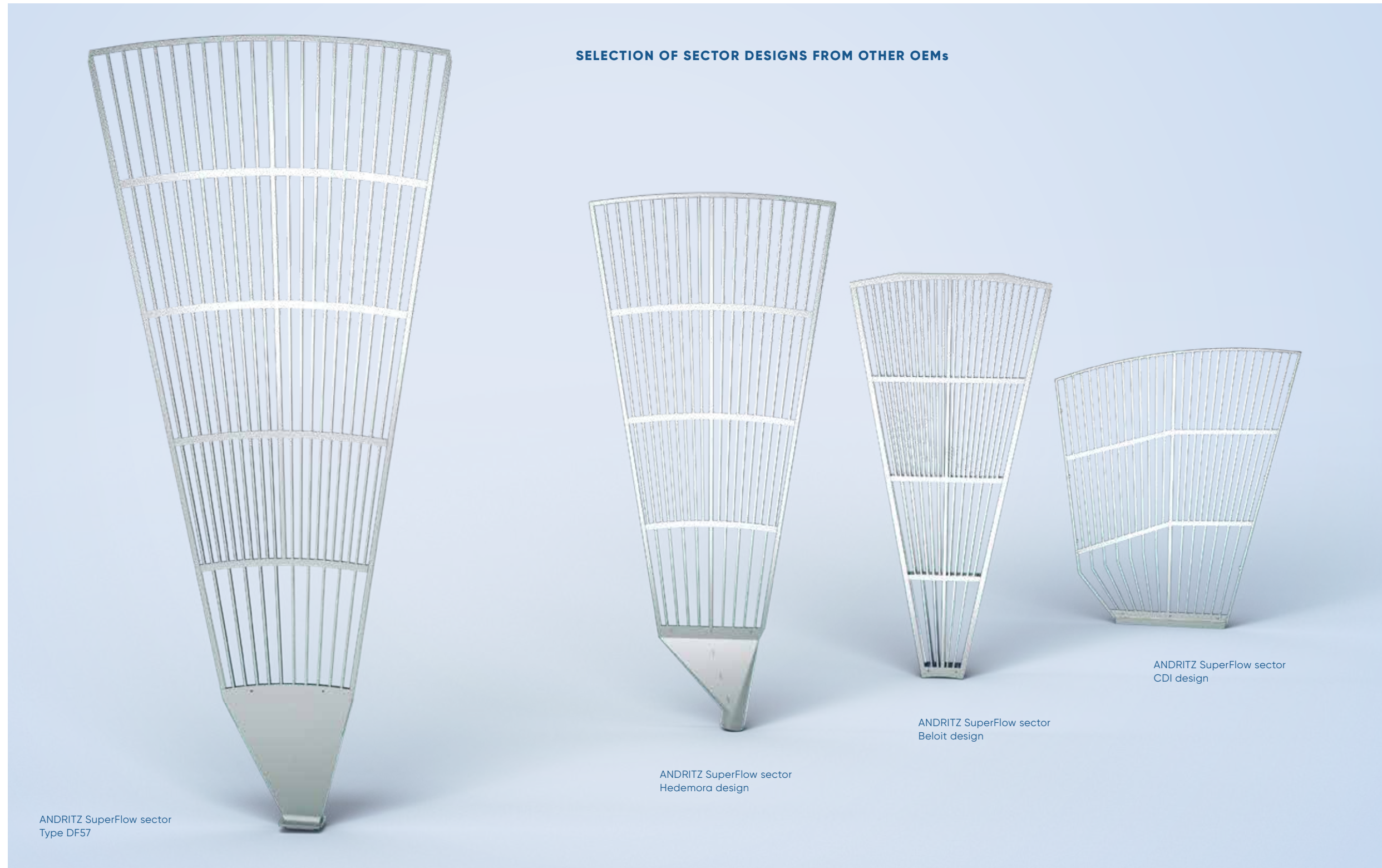
### INCREASE EFFICIENCY WITH SECTOR DESIGNS TO SUIT YOUR PROCESS

No matter whether you have to replace a single sector or a complete disc, ANDRITZ can offer you the perfect solution for your process requirements.

The ANDRITZ SuperFlow sector design is our state-of-the-art solution for all disc filters – whatever the make or model. We offer a number of replacement and upgrade sectors to suit your specific needs.

### BENEFITS

- SuperFlow sector design available for all types of disc filter sectors – ANDRITZ and other OEM designs
- One-to-one replacement of sectors or complete discs
- System upgrade (e.g. cassette design converted for direct mounting on shaft)



# SuperFlow disc filter sector

## High drainage and excellent reliability

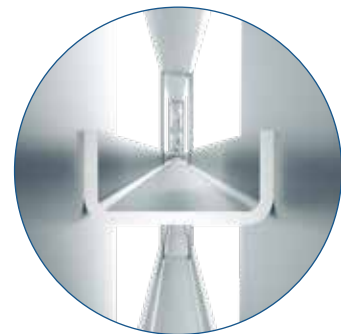
The performance of disc filters depends on their ability to dewater pulp sufficiently and transport the filtrate out of the filtering equipment. The design of the sectors inside the disc filter is key to this performance. Sectors that enable high drainage produce fiber mats with high dryness – and increase the production capacity of the filter.

The open area of the sector, the enhanced filtrate flow, and the rigid structure are all influencing factors that contribute towards highly effective drainage.

ANDRITZ SuperFlow sectors can be installed in various other disc filter brands, such as Ahlström, Beloit, GLV, Hedemora, Impco, Kvaerner, Voith, Wenrui, Dorr Oliver.

### BENEFITS

- Higher production capacity due to hydraulically optimized design
- Greater reliability and availability due to rigid structure
- Easy maintenance due to lower sector weight



### U-PROFILE CONSTRUCTION

- Largest possible filtration area
- Excellent support for the filter bag providing longer lifetime
- Effective washing, no risk of plugging
- Less weight compared to other designs
- Rigid and reliable design

ANDRITZ SuperFlow sector  
Type DF57



# Sector foot gaskets

For stable vacuum and excellent filtrate quality



Felt gasket



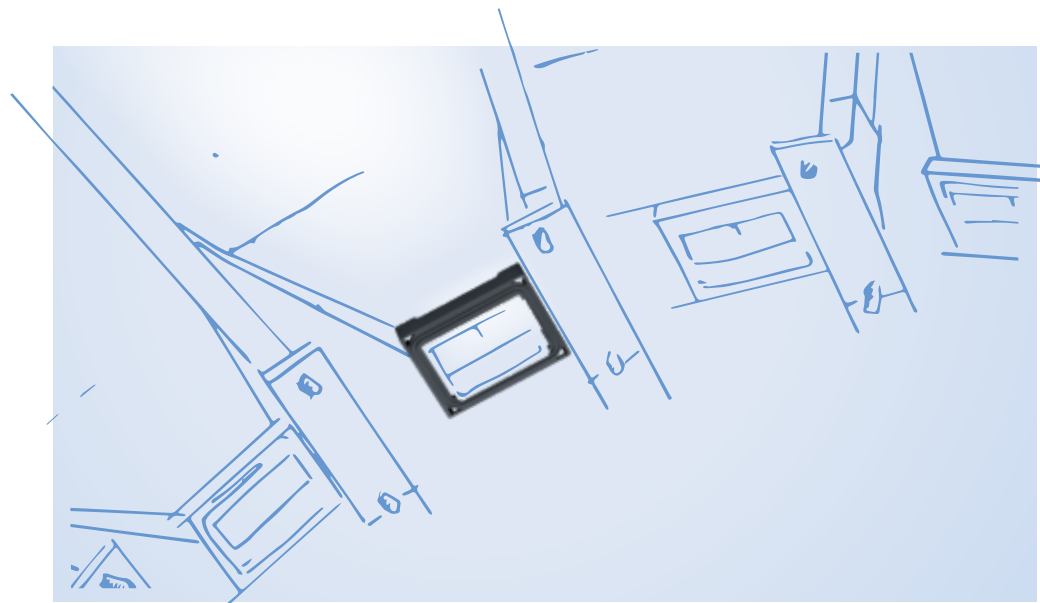
Standard rubber gasket



Reinforced rubber gasket



Reinforced rubber gasket with deflection protection



## REINFORCED RUBBER GASKET

- Stainless steel core prevents the gasket from being sucked into the shaft
- Double-sided lip seals
- Adapts to unevenness
- Tight fitting around the foot plate with no adhesives
- Better performance compared to conventional felt or standard rubber gaskets
- Stable and compact shape for longer lifetime
- Optional design with stabilizing bolts (deflection protection) to prevent axial sector runout

## BENEFITS

- Tailor-made solutions for all sector types and designs

# Cassette gaskets

## Case study

### APPLICATION

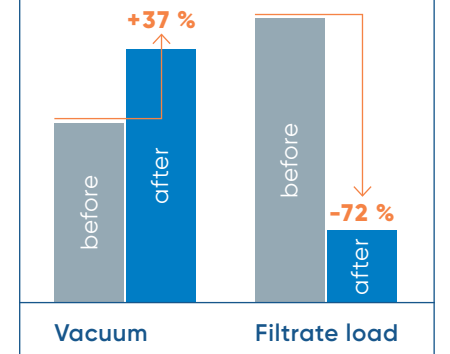
- The Ahlström AD disc filter sectors had a conventional felt gasket.
- Increasing problems with low vacuum which was reducing the machine performance and ended up in a drop in production (bottleneck).
- Huge problems with high filtrate loads resulting in plugged nozzles and waste of fibers.

### THE ANDRITZ SOLUTION

- Installation of state-of-the-art rubber gaskets
- ANDRITZ standard seal design was adapted to customer's application within a matter of days
- Successfully installed during on-site rebagging job

### THE RESULT

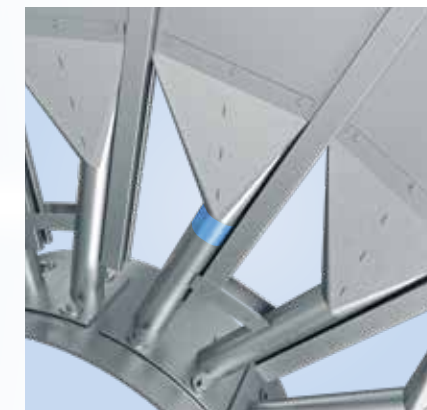
- Much better sector performance



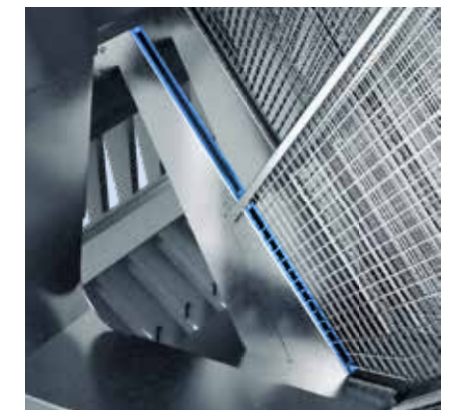
State-of-the-art rubber gasket

### TAILOR-MADE

ANDRITZ cassette gaskets are available for various sector designs, such as Hedemora and CDI. They can be adapted easily to the customer's requirements.



Hedemora type



CDI type



# Disc filter bags

Perfectly tailored solutions for any every make or model

ANDRITZ disc filter bag solutions are available with different mesh sizes and designs for high capacity and improved filtrate quality. We offer different materials to suit various process needs: polypropylene (PP) is our standard material; PVDF filter bags are the most resistant and can withstand suspension temperatures of up to 90°C as well as difficult chemical loads; PET bags can also be supplied if required.

For specific process conditions and/or sector designs, a support mesh can be inserted between the bag and the rigid structure of the sector in order to increase the supported area of the bag for longer lifetime. With the ANDRITZ Leaf Tester (see page 24), we can run on-site tests for various filter types to find the most suitable solution for your application.

## BENEFITS

- Right fabric for customer-specific needs
- Flat and corrugated designs
- For all thickening and save-all applications
- Solutions for any make or model

## CUSTOMIZED BAGS FOR VARIOUS SECTOR TYPES

- 1 Flat bag with 16% open area
- 2 Flat bag with 29% open area
- 3 Support mesh
- 4 Corrugated bag



# Flat filter bags

## Excellent dewatering for various applications

Flat filter bags are used in standard applications for thickening purposes or in the save-all process. ANDRITZ disc filter bags are available in several designs and mesh sizes (depending on the required open area), and in different materials for operating temperatures up to 90°C. They can be customized for every sector make or model and according to the customer's specific application.

### PARAMETERS OF FLAT FILTER BAGS

Application	Thickening or save-all
Filtration area	100%
Open area	16% or 29%
Material	PP, PVDF, PET
Zipper	Stainless, PP, PVDF; zipperless design also possible
Temperature	PP, PET: up to 65°C / PVDF: up to 90°C

### FULL BAG LIFETIME

A perfectly aligned and effective shower system for cleaning the bags is essential to keep the production performance of your disc filter up and ensure that the installed filter bags complete their full expected lifecycle (see page 32).



Cleaned bag



Bag plugged due to insufficient cleaning

### DISC FILTER BAGS

Available for various sectors from ANDRITZ and other OEMs



# High-capacity disc filter bags

## Larger filtration area due to corrugated surface

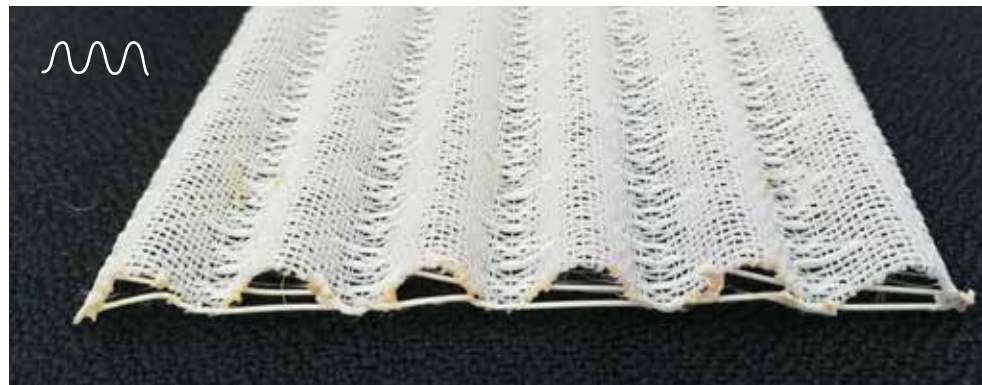
If there is an increase in production or a grade change, using high-capacity disc filter bags can be a good choice. Thanks to the corrugated surface, ANDRITZ HiCapBags have a larger filtration area. The bag material is a hybrid of two polymer types with different shrinkage behavior, thus forming corrugations.

### FILTRATION AREA 115%



HiCapBag 115

### FILTRATION AREA 130%



HiCapBag 130

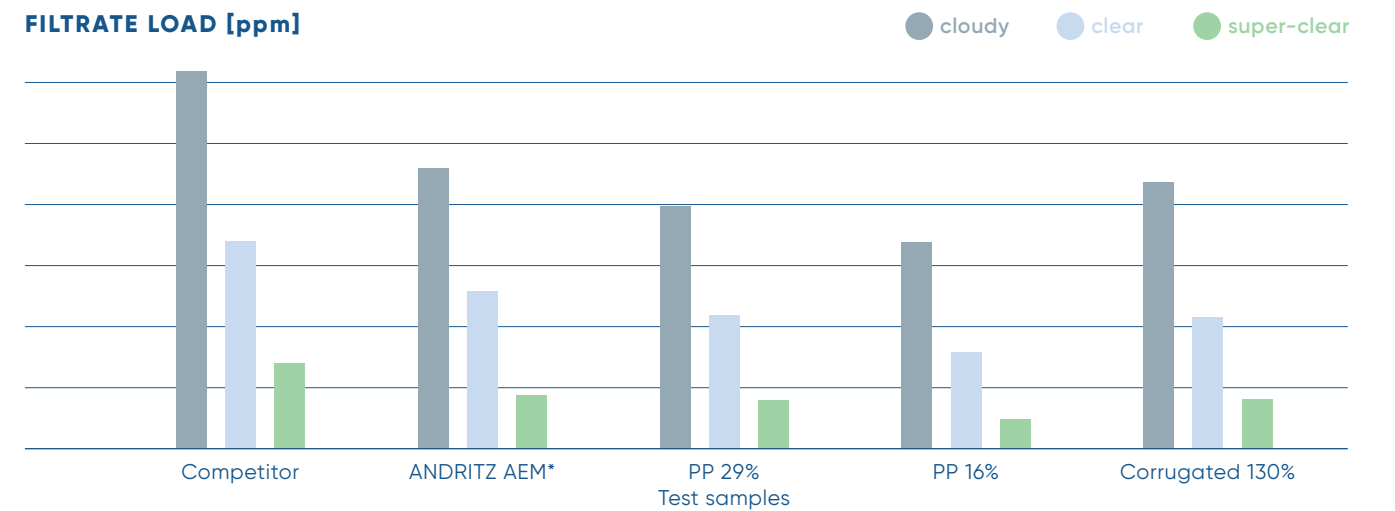
#### BENEFITS

- Higher capacity
- Two corrugation heights
- Innovative weave design for durable corrugation over the bag's lifecycle
- Easy to clean, with excellent knock-off characteristics
- For thickening and save-all process applications

### PARAMETERS OF CORRUGATED FILTER BAGS

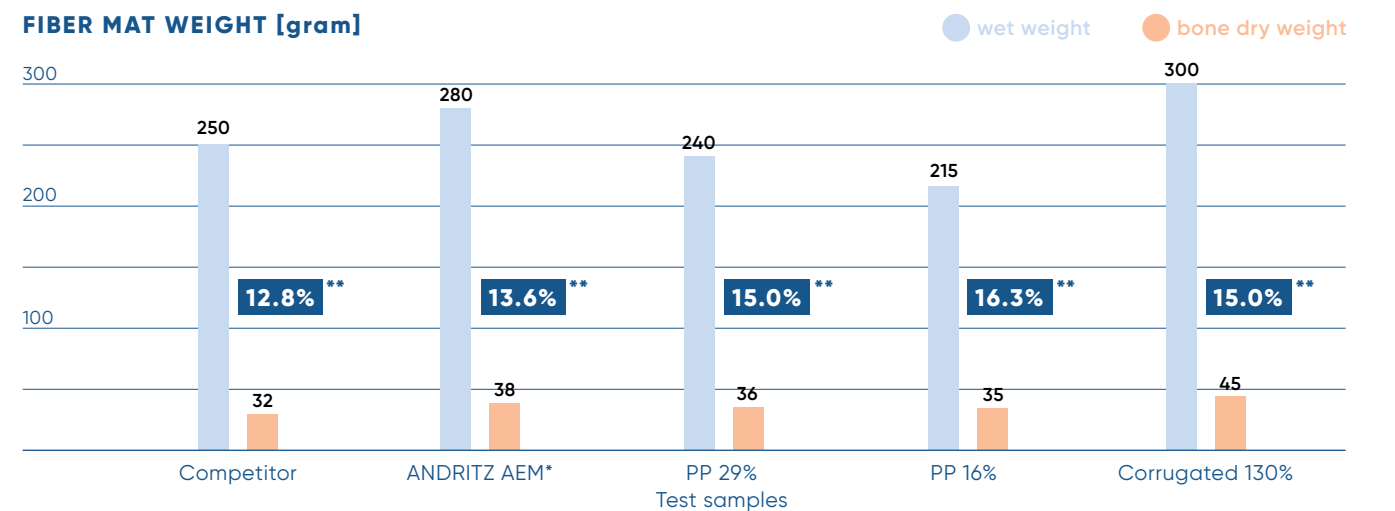
	HighCapBag 115	HighCapBag 130
Filtration area	115%	130%
Frequency	low	high
Temperature	up to 70°C	up to 70°C
Open area	34%	34%

### FILTRATE LOAD [ppm]



\* ANDRITZ Engineered Mesh

### FIBER MAT WEIGHT [gram]



\*\* Dry content

Depending on the pulp and process parameters used, a production increase of up to 25% is possible. These values have been verified several times in a Leaf Tester analysis. The above diagram illustrating an example shows that the production increase (weight of bone dry fibers) is very impressive.



# Disc filter bags

Painted edges



## FEATURES

- Polymer-coated bag edges
- Improved knock-off behavior by creating sharp mat edges
- Good alternative to knock-off profiles for reduced maintenance
- Applicable to all sector designs

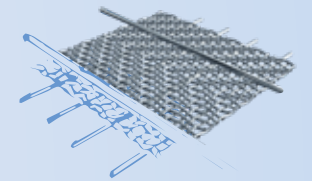
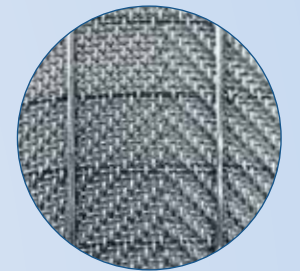
# Steel mesh disc filter sectors

ANDRITZ Engineered Mesh (AEM) design

By using ANDRITZ steel mesh sectors, you can avoid unnecessary shut-downs to change and repair damaged filter bags and sectors because no re-bagging is needed. No matter what make or model of disc filter you have, the ANDRITZ replacement and upgrade solutions suit all market needs.

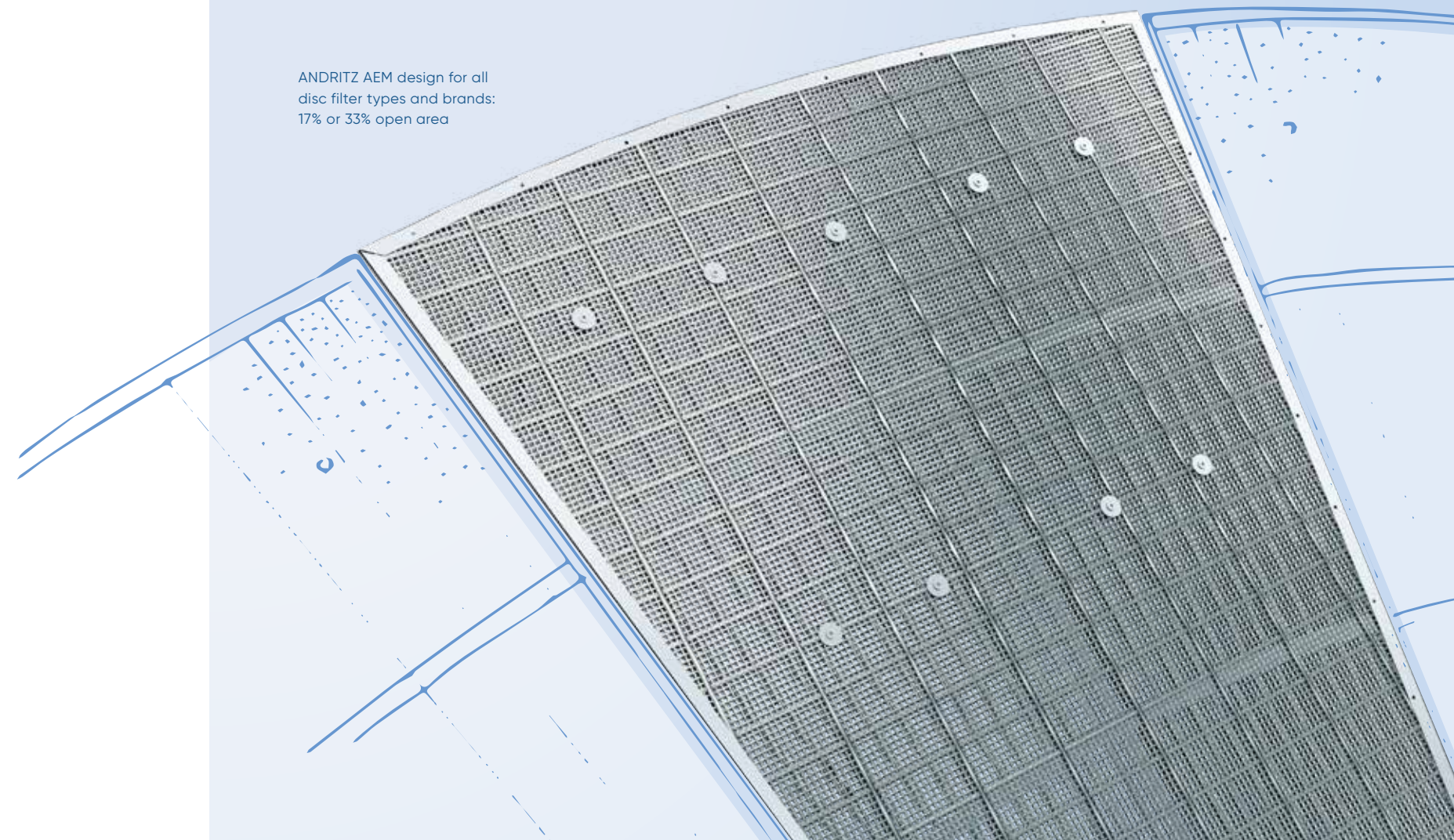
## BENEFITS

- No reduction of hydraulic performance
- Stable and proven SuperFlow construction
- Improved knock-off and cleaning
- High-quality stainless steel
- If there is mechanical damage, only the mesh needs to be changed
- Conversion to bag if there is a change in the process



Three-layer structure of AEM design

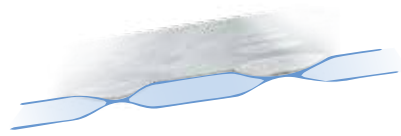
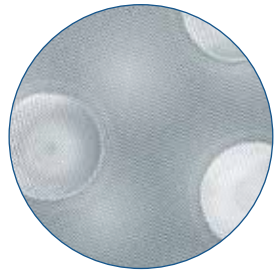
ANDRITZ AEM design for all disc filter types and brands:  
17% or 33% open area





# Bagless disc filter sectors

## Conical Cell (CC) design



Cross section of CC bagless sector

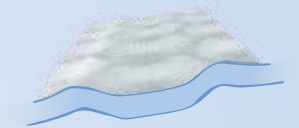
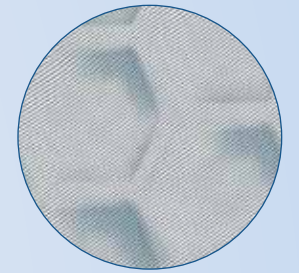
The ANDRITZ Conical Cell bagless sector is made of perforated sheet metal in a three-dimensional cell-type design. The conical cell pattern is customized for each sector's dimensions. The low internal volume improves drainage and thus filtration performance, whereas the special metal structure makes the sector very rigid. Our CC bagless sectors are only available for ANDRITZ disc filters.

### WHY BAGLESS?

- Less maintenance because there are no filter bags to be changed
- Improved process stability
- Designed for increased production

# Bagless disc filter sectors

## PolyHex design

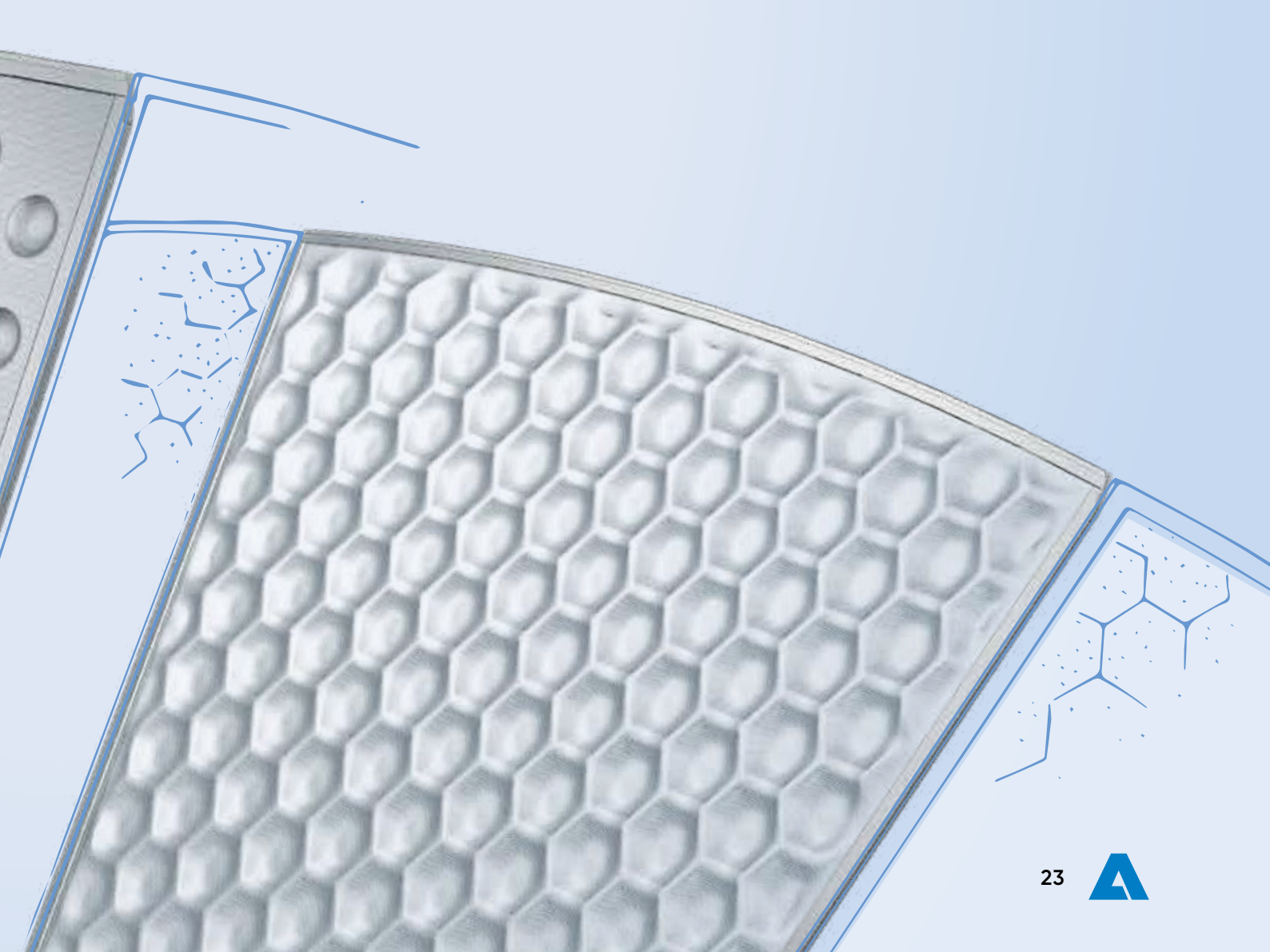


Cross section of PolyHex sector

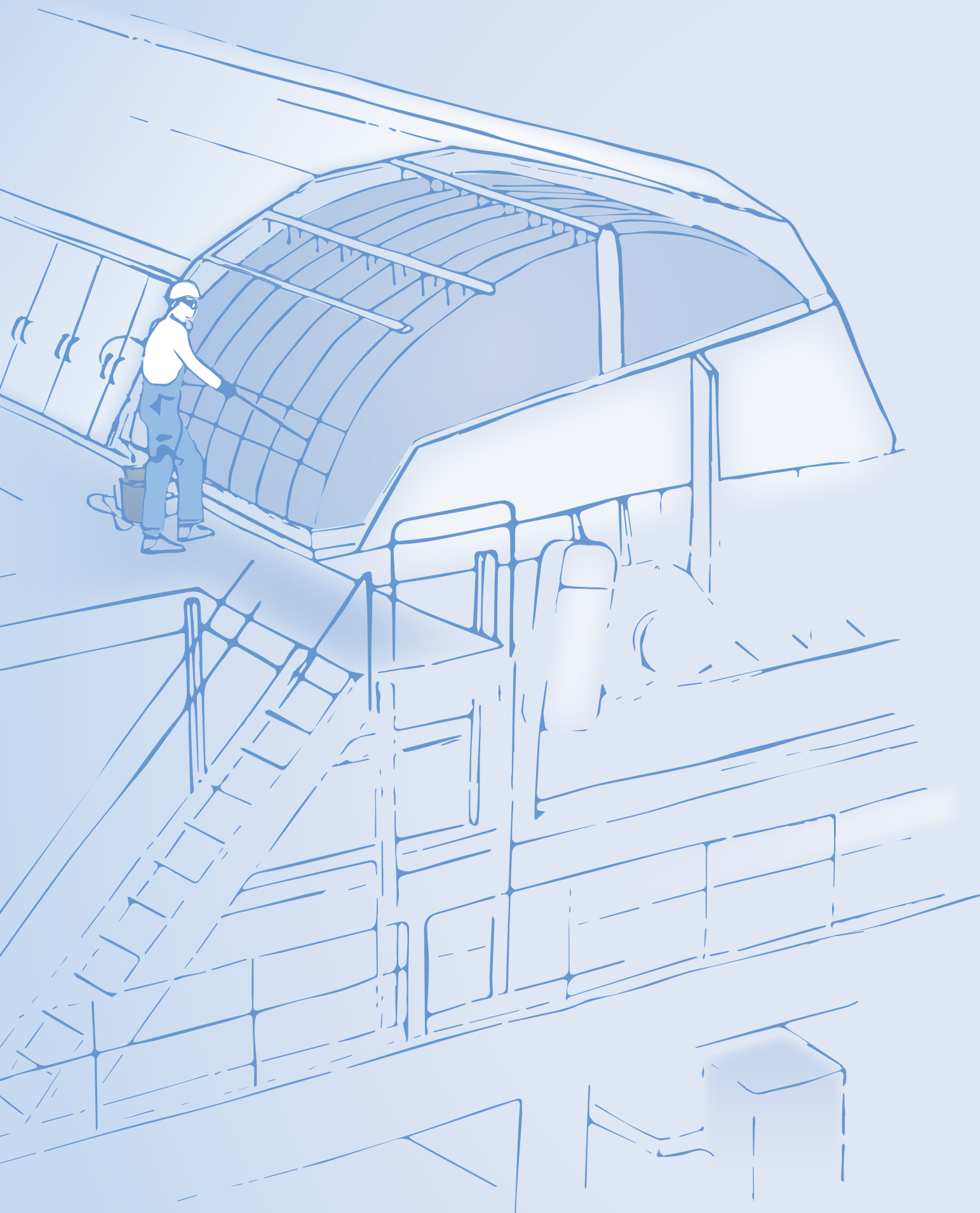
The new ANDRITZ PolyHex bagless sector features a perforated, stainless steel filtration plate with a honeycomb-like structure. Highest rigidity is guaranteed by the structured design, which also contributes towards excellent filtrate flow and high drainage.

### BENEFITS

- Increased stiffness, thus less crash potential
- Filtrate flow-optimized design enhancing production
- Additional surface for production increase
- Perfect mat knock-off due to specially treated sheet metal surface
- Suitable for all furnishes and paper grades







# ANDRITZ Leaf Tester

## Comparative testing of filter types and process parameters

Disc filter performance can deteriorate in the course of time. This drop in productivity, filtrate quality, or level of dryness can be caused by a number of factors, such as poor maintenance, worn parts, or incorrect adjustments.

The ANDRITZ Leaf Tester – a measurement and simulation device – can help determine the improvement potential of your disc filter based on stock samples collected directly at your machine during everyday operation. The ANDRITZ Leaf Tester combines a comparison of various filter types (sector designs, bags) with simulated process parameters in order to establish the optimum set-up.



ANDRITZ Leaf Tester on-site measurement unit

### SIMULATION OF PROCESS PARAMETERS

- Vacuum
- Rotational speed
- Filtrate split
- Drying time

### COMPARISON OF FILTER TYPES

- SuperFlow sectors
- Grid sectors
- Bagless sectors
- Flat and corrugated bags
- Selected competitor filter types

### BENEFITS

- Testing under real operating conditions at the customer's disc filter
- Comparison of filter types and evaluation of process parameters
- Low-effort test providing fast results
- Clear improvement recommendations from ANDRITZ



Disassembly of disc filter sector, removal of old filter bag



High-pressure cleaning of sector



Sector repair (if required)



Installation of new filter bag

# Re-bagging service

## Directly at your mill

The most professional and comfortable way for you to change filter bags is for us to come to your mill for disassembly and inspection of your disc filter sectors.

We will remove the old filter bags with special equipment and tools and clean the sectors with high-pressure water in a cleaning booth. If needed, we can re-

pair damaged sectors with welding equipment. Then we mount new filter bags. Our mobile shrinking oven holds up to 40 segments at a time and will carefully shrink the bags to fit tightly onto the sectors. After this, we mount the gaskets and reinstall the sectors in the disc filter, followed by an inspection of the assembled disc filter unit.



Securing the filter bag



Mobile shrinking oven



## OUR ON-SITE RE-BAGGING RECORD

**3** > **960** > **48**  
disc filters sectors hours

# ANDRITZ Disc Filter Service Box

## On-site disc filter maintenance

The ANDRITZ Disc Filter Service Box comes right to your mill. It is a compact unit staffed with ANDRITZ technicians who can repair or replace bags or wear parts.

The Disc Filter Service Box contains all the equipment and tools needed. All we need at the mill site is a workshop location, water, and electricity – and we will be on site whenever your shutdown is scheduled.

You profit from professional inspection of your machine, renewal of the filter bags, repairs as necessary, and the satisfaction of knowing that the work results in higher filter performance and safe operations.

### BENEFITS

- All work performed on site
- Quick bag replacement during regular shutdowns
- All sectors refurbished at the same time
- Reconditioned, rebuilt disc filter
- Single supplier – sole responsibility and accountability
- Significant increase in equipment performance
- High operating safety



# Disc filter upgrades

## Long-lasting solutions for improved operating efficiency

There are various options for optimizing filter operation, reducing operating problems (such as plugging of filters or variations in consistency or filter vat level), increasing production capacity, or improving filtrate quality. ANDRITZ provides upgrades for each type of disc filter, no matter who the original equipment manufacturer was.

### MECHANICAL AND/OR PROCESS UPGRADES

- Production increase
- Reduced filtrate load
- Less maintenance effort and downtime
- Reduced total cost of ownership
- Highest equipment availability
- Increased overall equipment effectiveness
- Safety improvement
- Short ROI period

### UPGRADE SOLUTIONS AVAILABLE FOR

- Knock-off system
- Cleaning system
- Center shaft
- Shaft seal
- Disc stabilization
- Repulper



# Disc filter upgrades

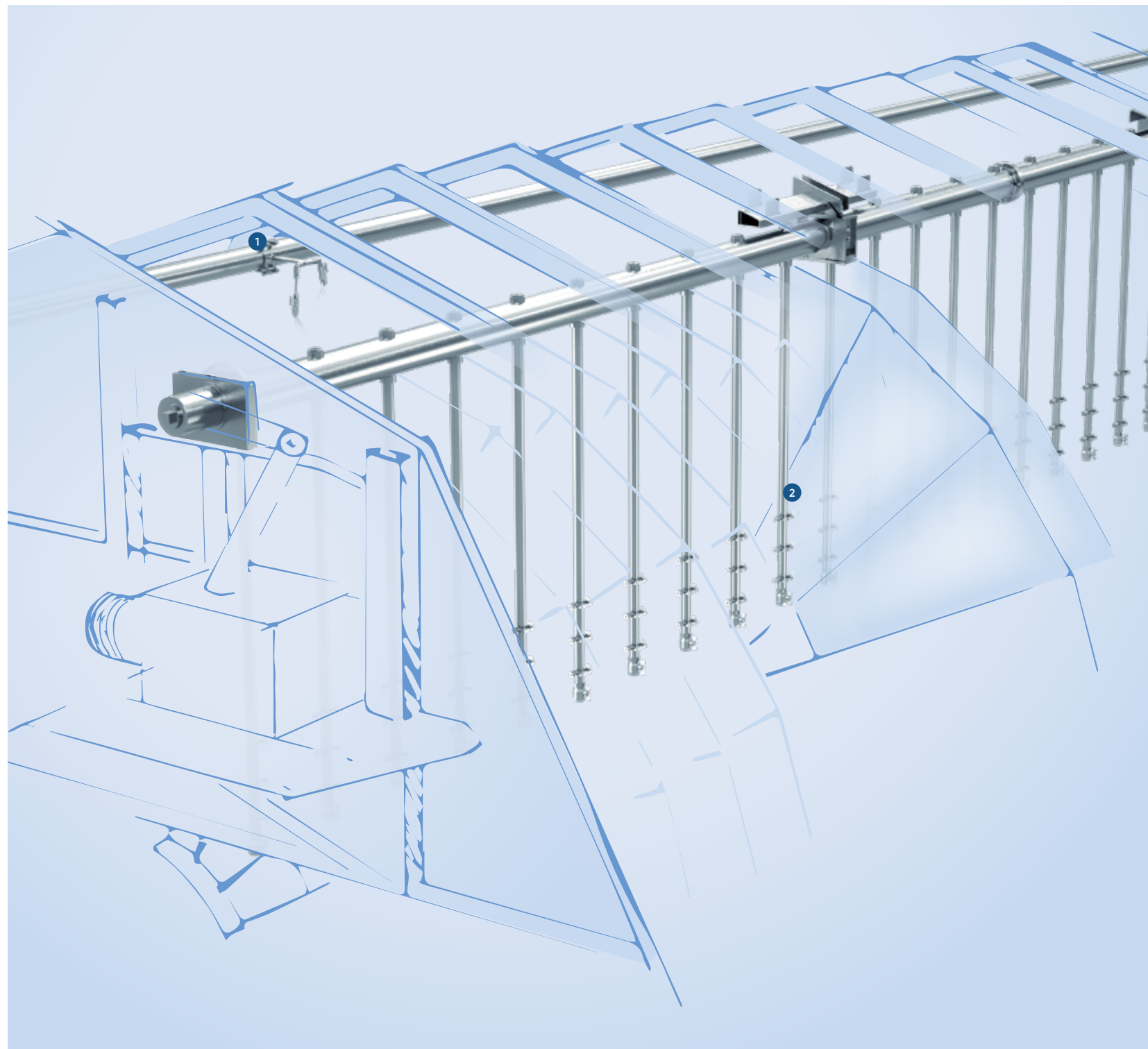
## Shower systems

### 1 KNOCK-OFF SHOWER

The knock-off shower is responsible for removing of the fiber mat from the sector. The perfect timing, which is essential here, is a result of accurate adjustment without nozzle plugging. Best production is only achieved by 100% fiber mat knock-off.



The ANDRITZ HighFlex knock-off system is 3D-adjustable and ensures a perfect knock-off point that can be easily re-adjusted to changing process conditions or components (e.g. sector or bag type). All ANDRITZ HighFlex shower systems are equipped with cleanable nozzles.



### 2 CLEANING SHOWER

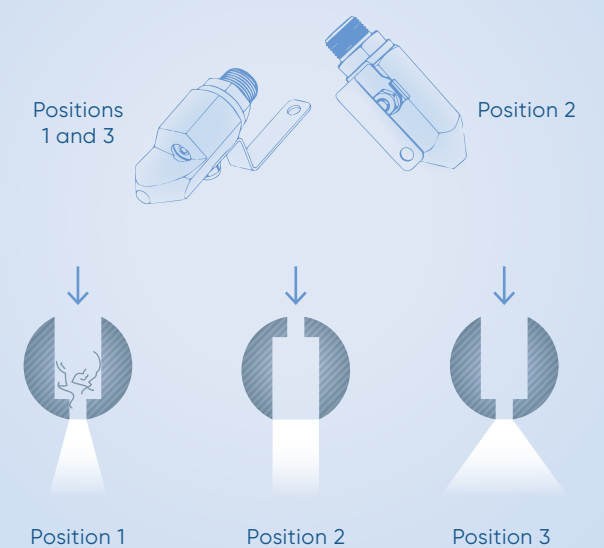
The function of the cleaning shower system is to keep the open area of the sector clear. ANDRITZ upgrades for cleaning showers comprise the following:

- Oscillating system for reduced water and energy consumption
- Maintenance-free Teflon bearings for reduced friction and better lifetime
- Screwed lances for reduced installation time and easy exchange in case of damage
- Flush connections allowing flushing of the lances
- Reinforced main pipe to avoid crashes
- Cleanable nozzles to prevent plugging

#### BENEFITS

- Very high operating efficiency
- Prevents transport of fines and dirt to the nozzles
- Efficient cleaning of the filter bags
- Very high outlet consistency

#### CLEANABLE NOZZLES



# Disc filter upgrades

## Center shaft

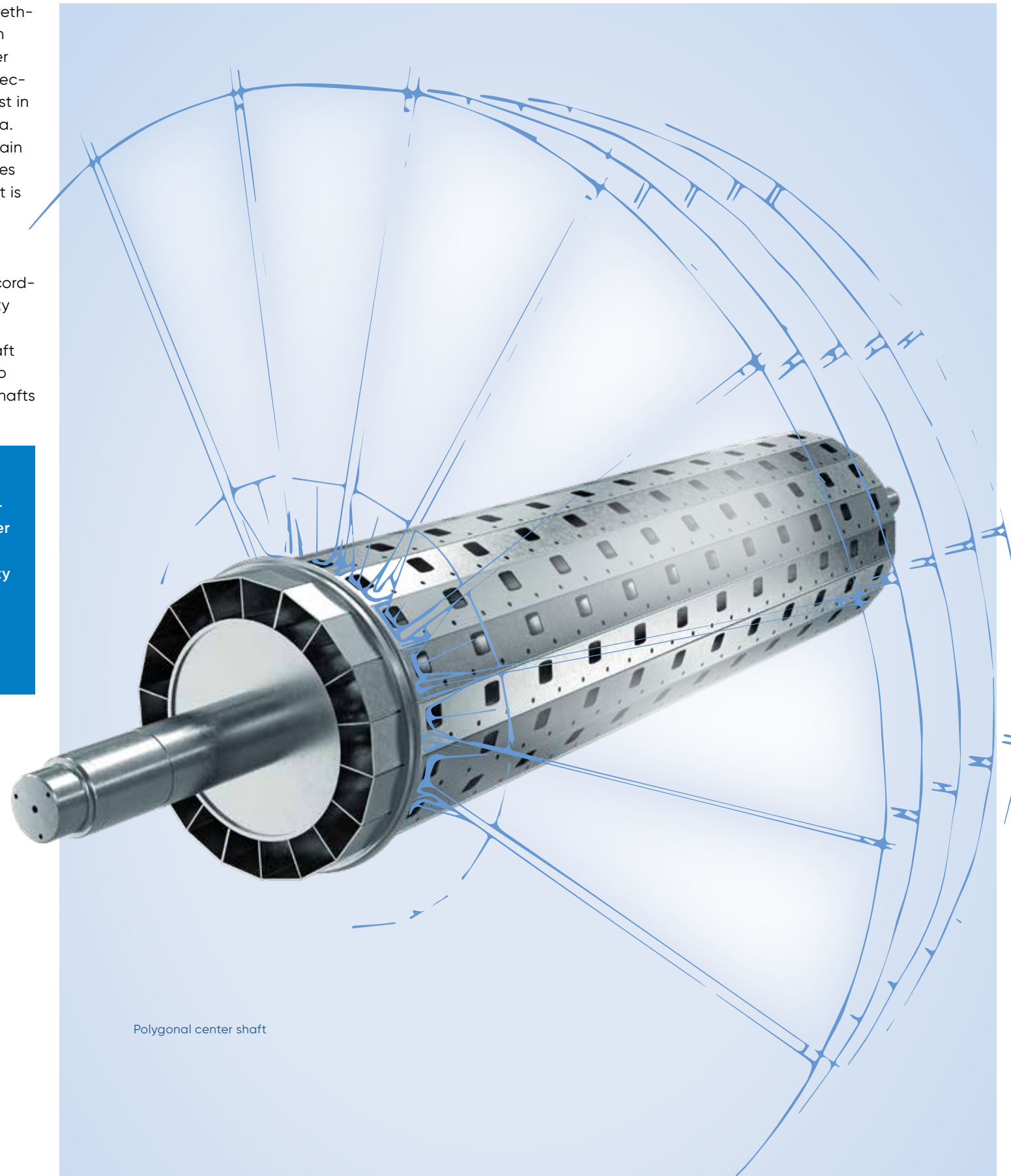
A drop in the filtrate quality together with vacuum fluctuations can be caused by a defective center shaft. To verify the defect, it is recommended to apply a water test in combination with a pipe camera. An emergency repair can maintain disc filter operation in most cases until a replacement center shaft is available.

### REPLACEMENT OPTIONS

- One-to-one replacement according to the high ANDRITZ quality and safety standards
- Improved HighFlow center shaft
- Both options are applicable to round and polygonal center shafts

### BENEFITS

- Optimized design guarantees high stability of center shaft
- ANDRITZ quality and safety standards ensure high mechanical reliability
- All connecting parts can be re-used



Polygonal center shaft

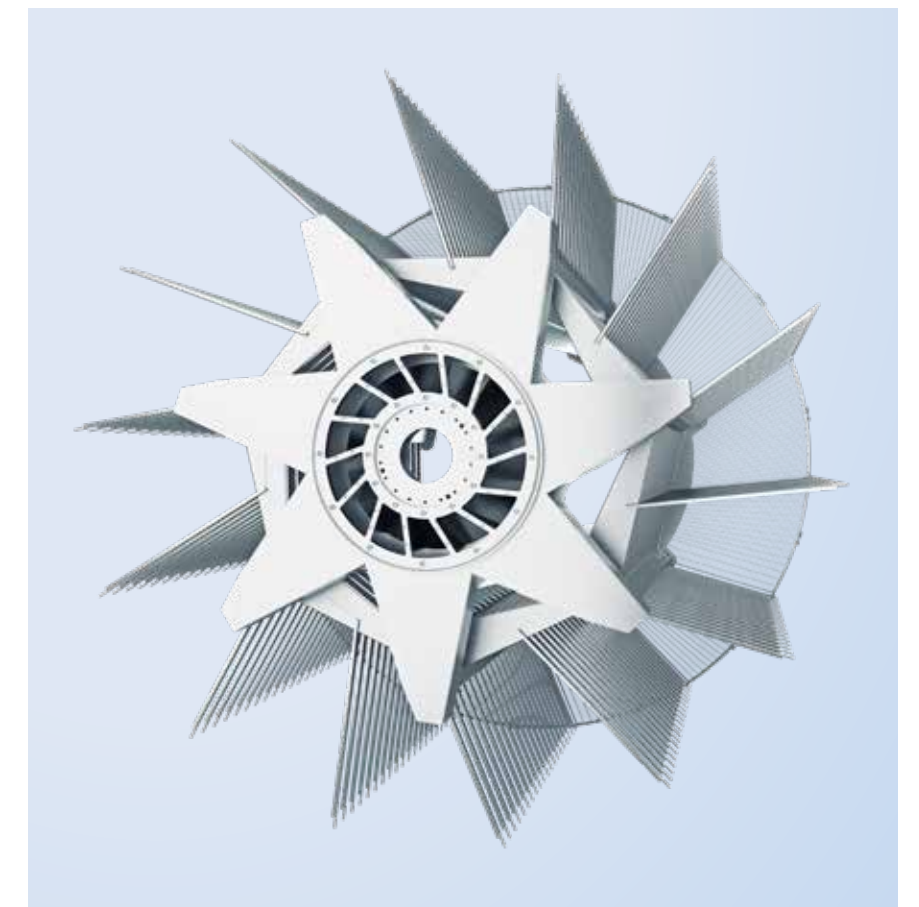
# Disc filter upgrades

## Rotor for filtrate removal

Besides the common center shaft, there are rotor-type designs for filtrate removal, such as CDI and CDP by GLV.

### REPLACEMENT OPTIONS

- One-to-one replacement according to the high ANDRITZ quality and safety standards
- Modular construction reduces shipping costs and installation effort on site



CDI rotor-type design



# Disc filter upgrades

## HighFlow center shaft

Many disc filters are equipped with a standard center shaft whose design is often not optimized for the applied volume flows. Depending on the process parameters, the filtrate channels – responsible for transporting the filtrate – might be oversized or under-dimensioned. A careful re-design of the shaft based on mass balance calculations is recommended.

### OVER-SIZED CHANNELS

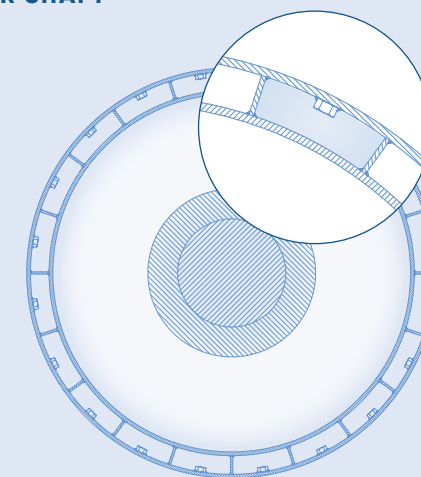
Often the channels do also carry a huge portion of air that leads to vacuum instabilities and then poor fiber mat formation and filtration. Any center shaft – no matter who the OEM was – can be exchanged for an ANDRITZ HighFlow center shaft, which is designed with cross-section optimized filtrate channels. The improvements gained are constant vacuum level, higher reliability and better performance of the entire disc filter.

### UNDER-DIMENSIONED CHANNELS

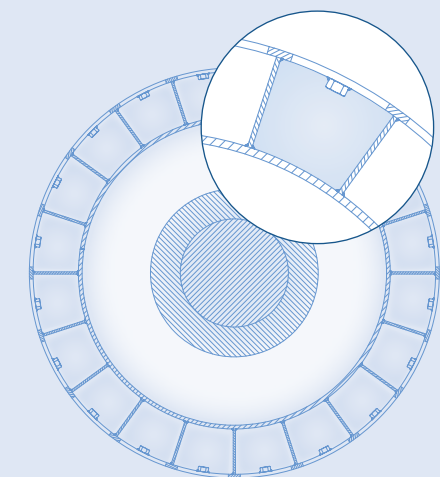
In this case, the filtrate channels are not able to remove the filtrate in the time available, causing a backward flush from the sectors back into the vat.

In both cases, a comprehensive inspection and evaluation of the entire mass balance are needed in order to detect further bottlenecks. The ANDRITZ HighFlow center shaft has already been installed in various disc filter models, such as Voith, GLV, Beloit, Impco, Ahlström, and Rauma Repola.

### CENTER SHAFT



Standard



Flow-optimized  
HighFlow center shaft



# Disc filter upgrades

## Filtrate valve

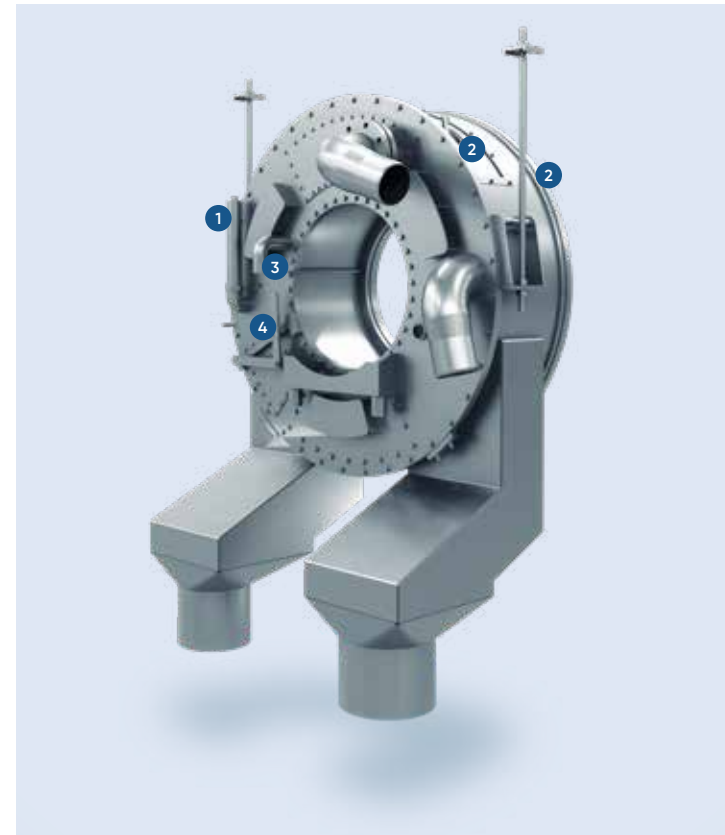
A stable vacuum is required for efficient dewatering in the disc filter. The filtrate valve is responsible for vacuum control, mat formation, knock-off point and filtrate split (cloudy, clear, super-clear). It connects the shaft to the drop legs. Upgrade solutions are available for box valves, Trunk Nozzle valves, as well as valves for rotor-type designs – the so-called Donut.

### FILTRATE VALVE UPGRADES

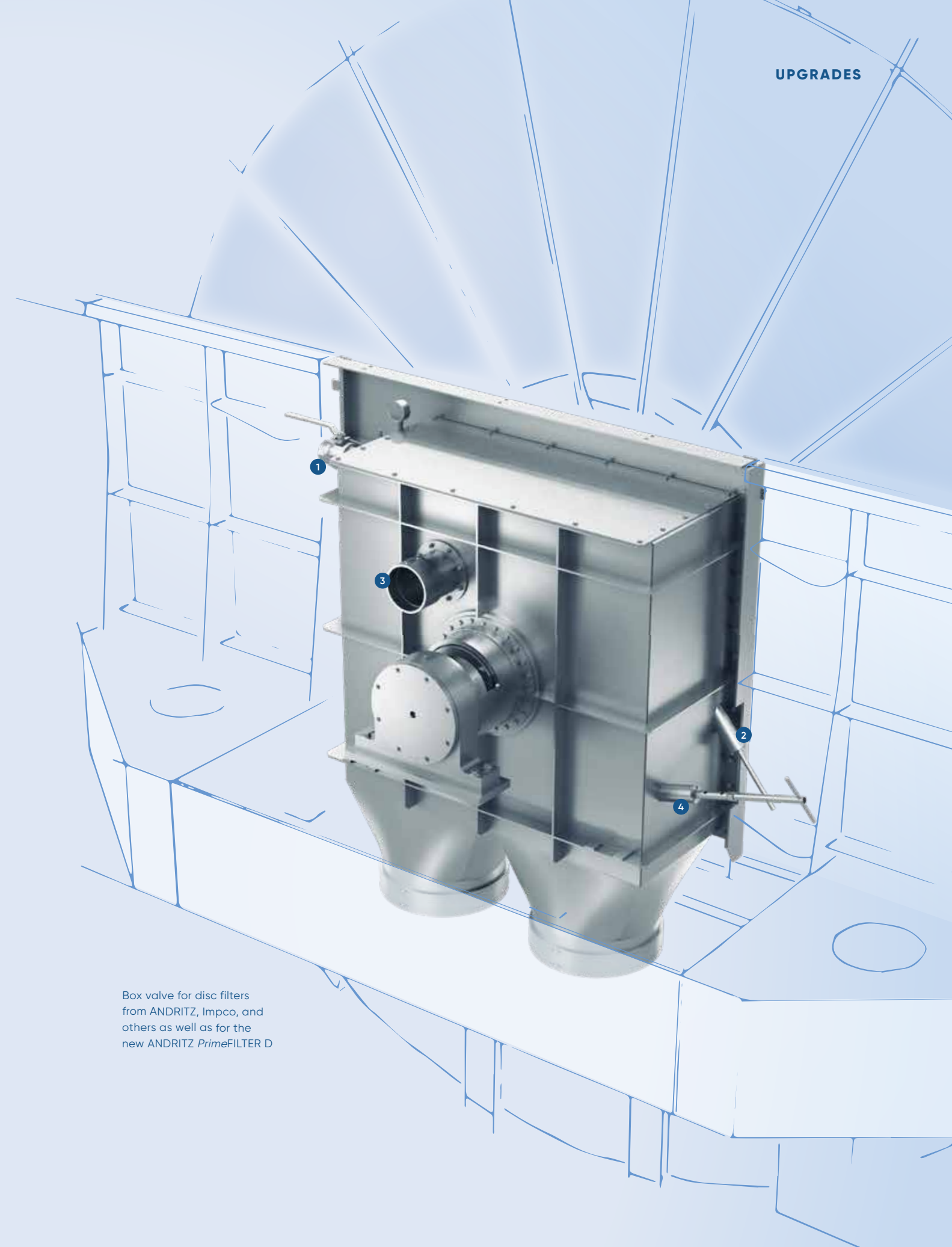
- 1 Vacuum breakers – keep vacuum below 0.3 bar to avoid unnecessary stress on various components
- 2 Optimized control disc – adapted to changing process conditions
- 3 Air removal – avoids vacuum fluctuations
- 4 Improved filtrate split – controls filtrate quantities and qualities
- 5 Stainless steel compensators – avoid leakage, enable longer lifetime



Trunk Nozzle valve for disc filters from Voith, Hedemora, GLV, Ahlström, and others



Donut valve for GLV CDI/CDP disc filters



Box valve for disc filters from ANDRITZ, Impco, and others as well as for the new ANDRITZ PrimeFILTER D



# Disc filter upgrades

## Shaft seal

At the vat lead-through of the shaft (side shield and center shaft) leak-ages happen quite often due to various reasons, such as wear on the shaft seal or the running surface, an unsuitable sealing system, or changing process conditions (temperature, chemicals). This leads to loss of fibers or loss of vacuum and thus also of disc filter efficiency. Furthermore, spillage at the machine is a safety issue, it makes the floor slippery.

### MULTIPLE SOLUTIONS

ANDRITZ has a number of solutions to overcome this problem, such as:

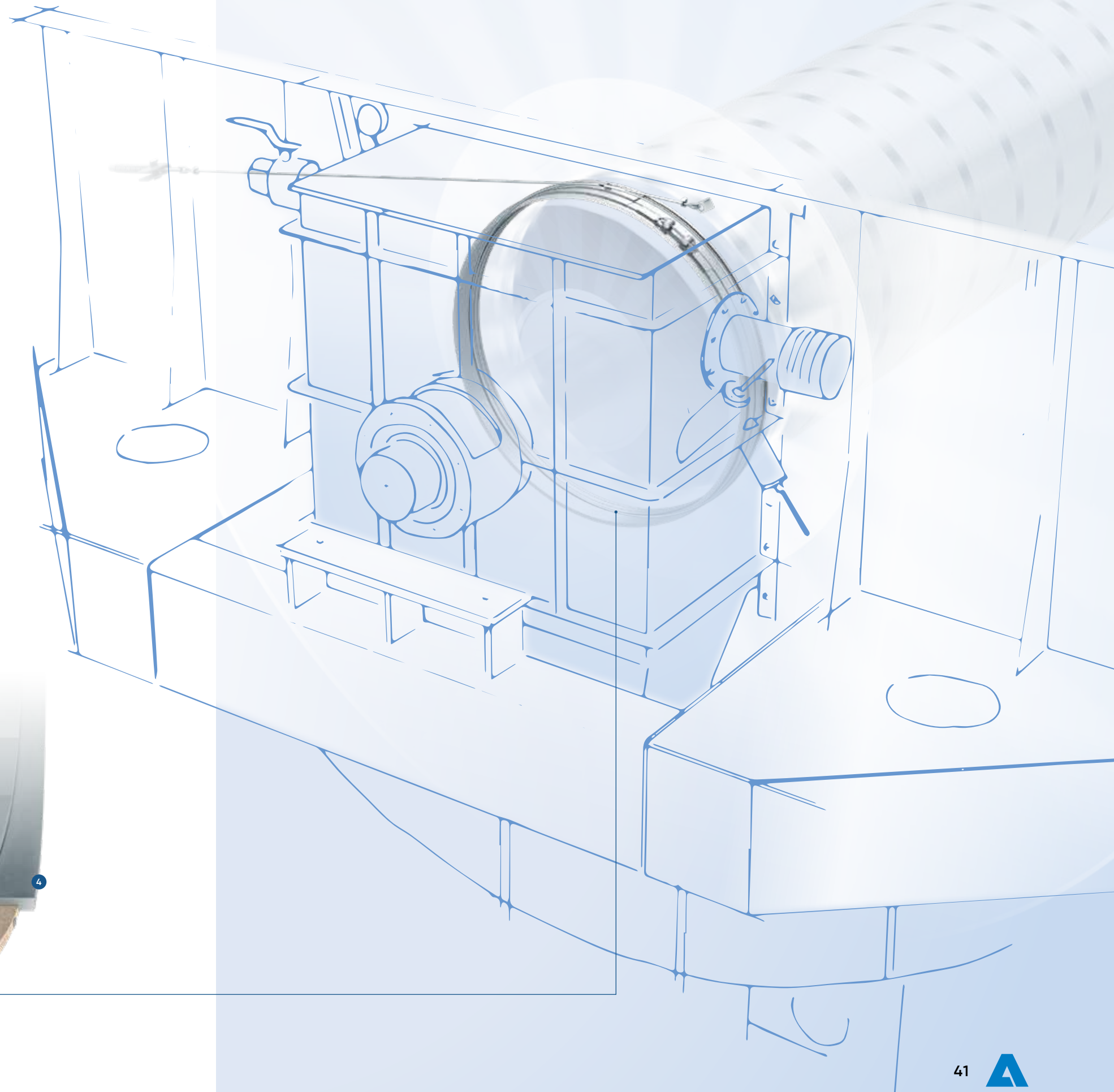
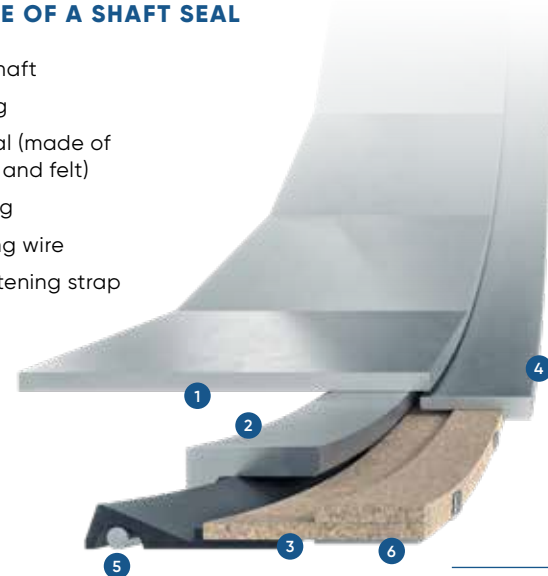
- One-to-one shaft seal replacement: felt seal, package gland seal, O-ring, V-lip
- Axial displacement of sealing surface
- Sealing water connection
- Grinding of running surface – this can also be done on site with our mobile grinding unit (see page 42)

### BENEFITS

- Saving resources (water, fibers)
- Re-establish or improve continuous disc filter efficiency
- Prevent damage to the center shaft
- Customized solutions for every application
- Available for virtually all disc filter designs (ANDRITZ and other OEMs)

### STRUCTURE OF A SHAFT SEAL

- 1 Center shaft
- 2 Wear ring
- 3 Shaft seal (made of Robadur and felt)
- 4 Static ring
- 5 Tensioning wire
- 6 Steel fastening strap



# Disc filter upgrades

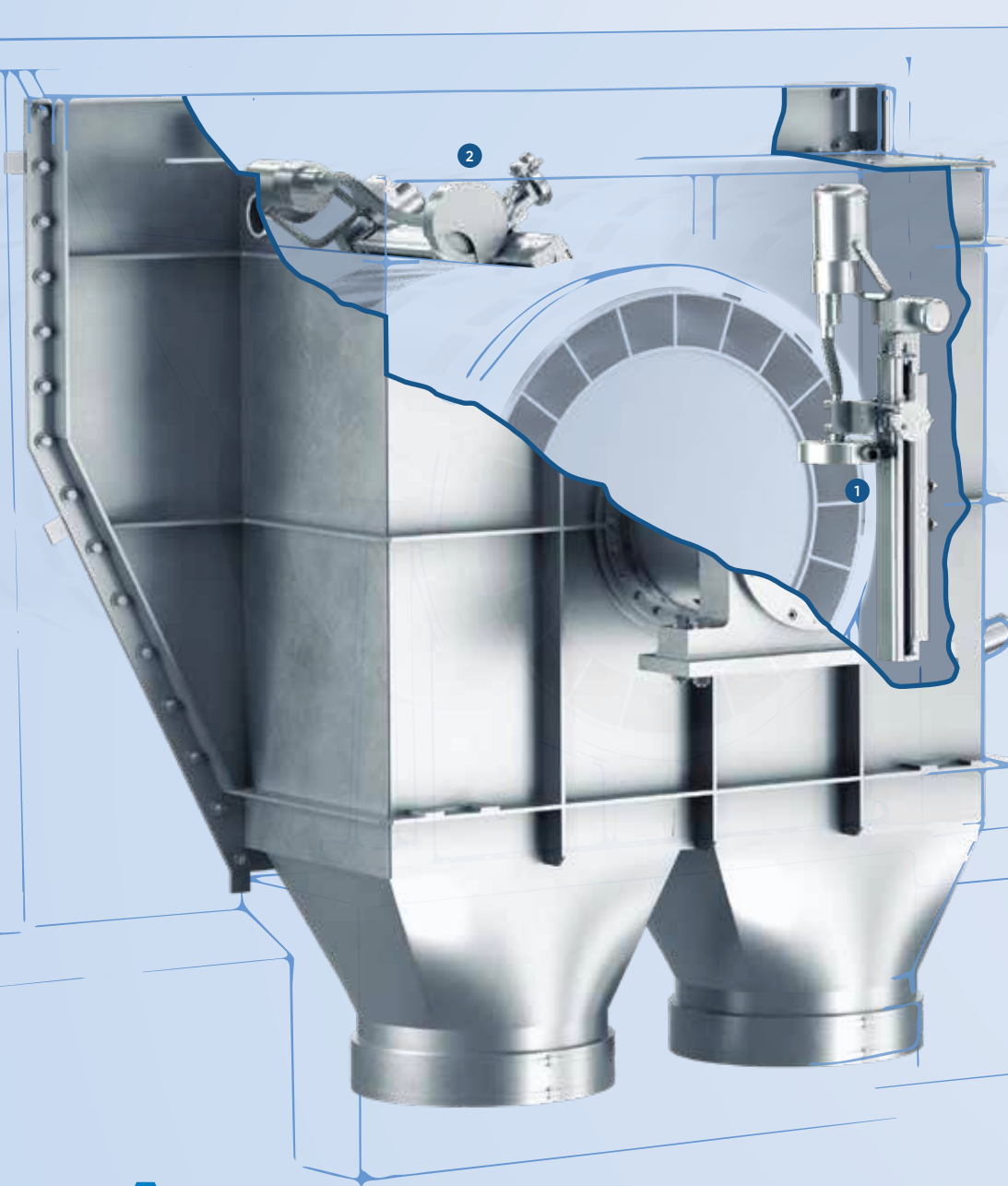
## Mobile grinding unit

Wear on the shaft leads to loss of vacuum and, therefore, reduced capacity and higher filtrate load. Regular shaft inspections are required in order to increase the shaft lifetime. ANDRITZ has a high-precision mobile unit for on-site shaft grinding. This saves valuable time for dismantling the shaft and shipping it to a repair center and also reduces downtime. An on-site grinding service job only requires two shifts.

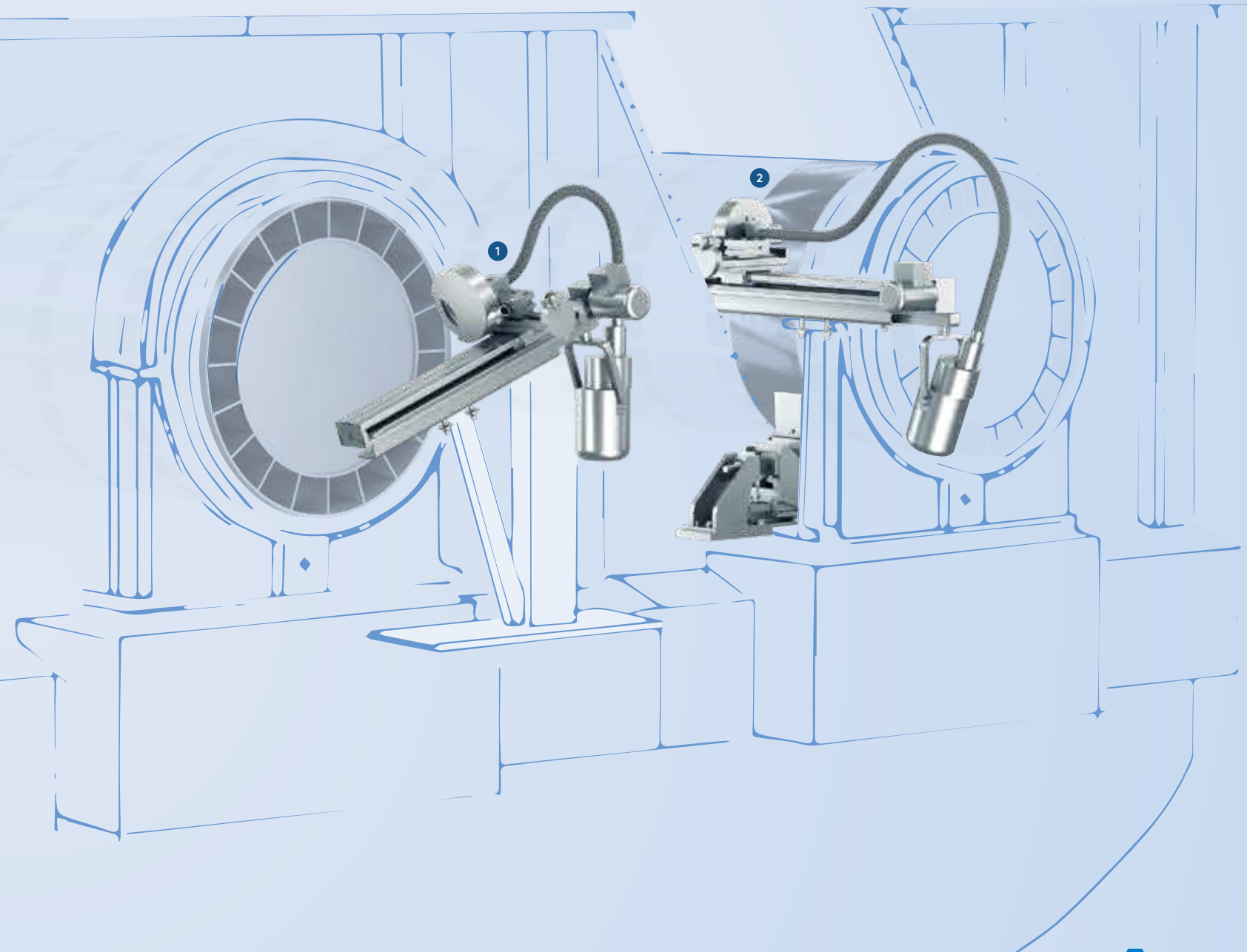
### MOBILE GRINDING

- ① Axial – shaft face end
- ② Radial – shaft seal

### MOBILE GRINDING FOR BOX VALVE



### MOBILE GRINDING FOR TRUNK NOZZLE VALVE





# Disc filter upgrades

## Disc stabilization

Higher disc diameters, increased inlet consistency, or hydraulic turbulence in the vat lead to axial movement by the discs. If – as a result – the sectors collide with the chutes and/or cleaning nozzles, the sectors and bags may be damaged. In the worst case, the entire disc or even the center shaft may be affected. As a result, a proper disc stabilization system is required.

### 1 GUIDE ROLLS AND 2 RING FASTENING ELEMENTS

The distance between the guide rolls limits the axial movement by the disc. The ring fastening elements enhance the stiffness of the disc and form a smooth running surface for the guide rolls.

### 3 SLIDE SHOE

A sliding block installed at the bottom of the vat prevents serious disc damage due to chute impacts. With the ANDRITZ design, the sliding shoe can be maintained and replaced from outside of the vat.

### 4 REINFORCED SECTOR HOLDERS

The sector holder in cassette-type sectors can be reinforced in order to increase disc stability.



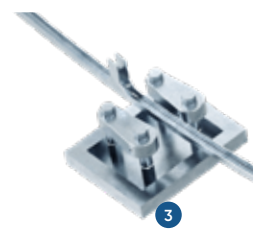
Ring fastening element



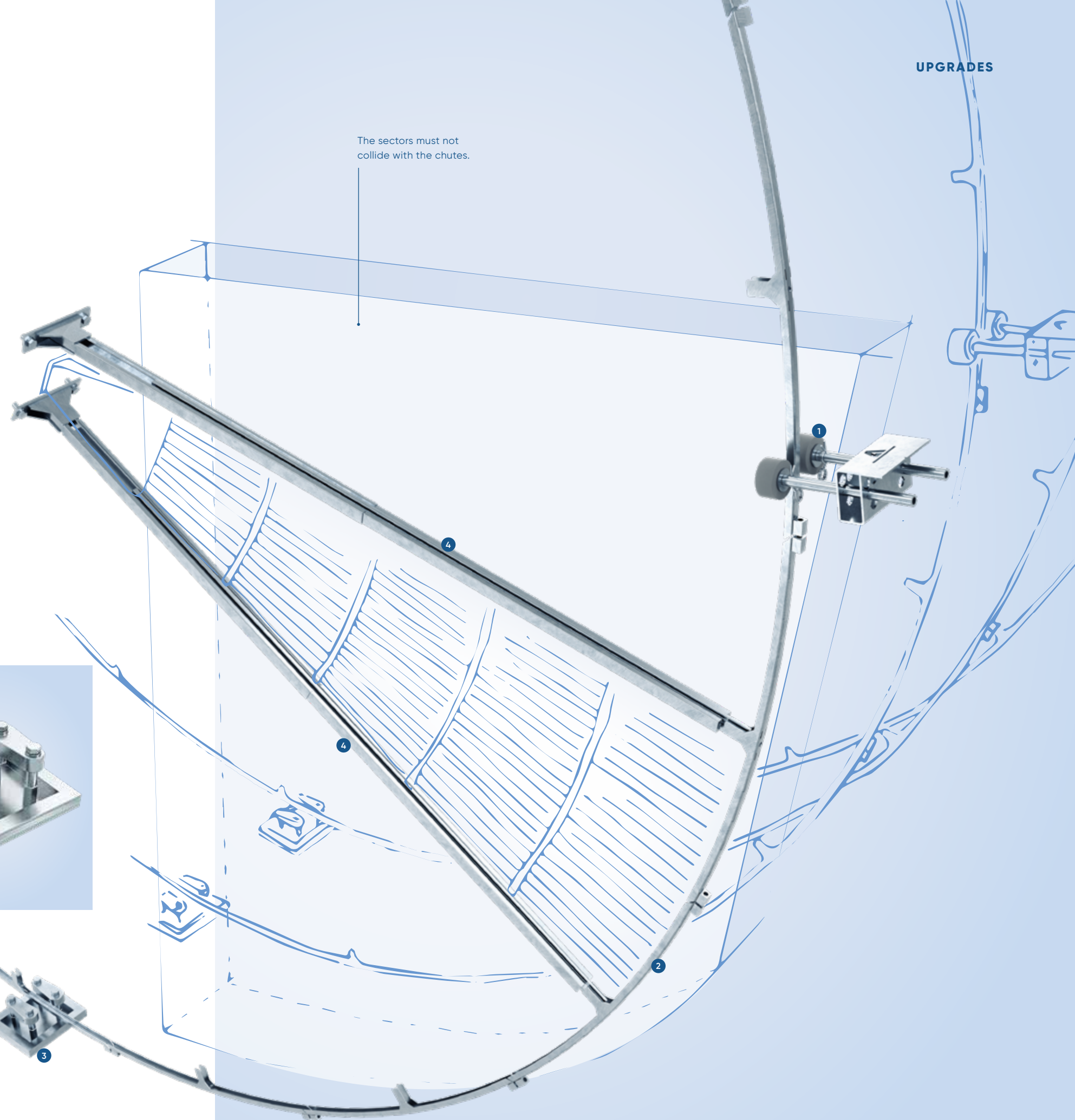
Guide rolls



Slide shoe

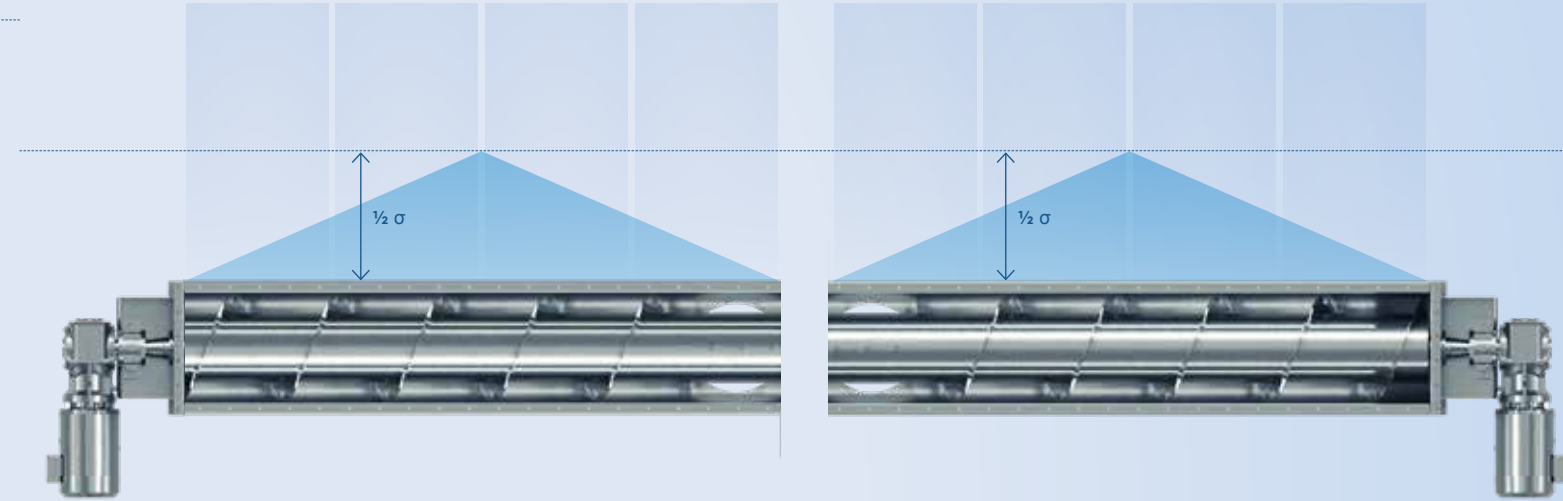
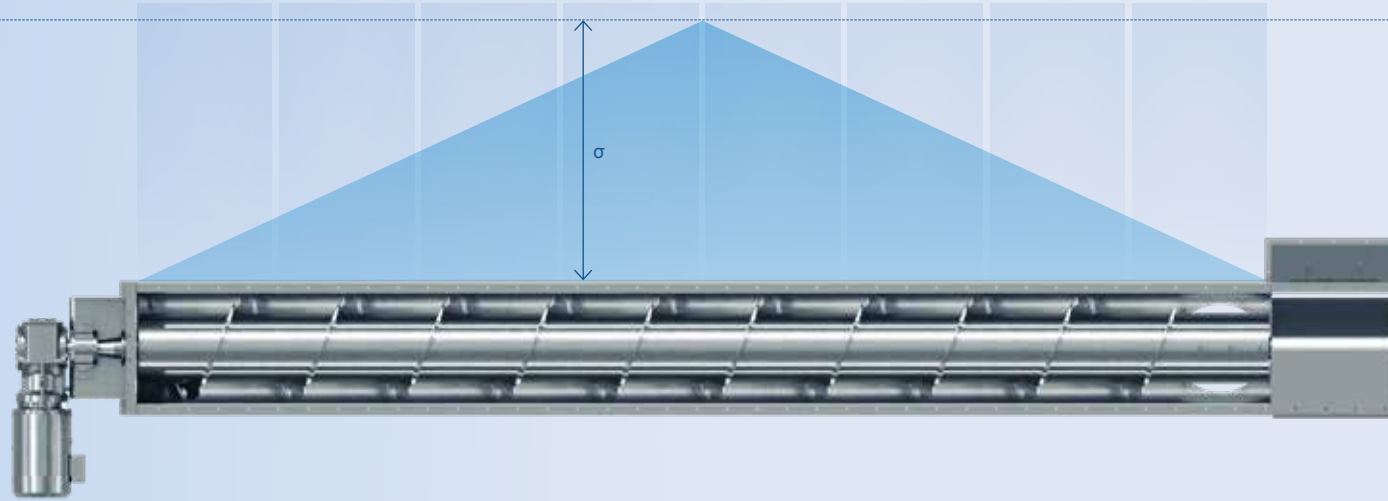


3



# Disc filter upgrades

## Repulper



In a split repulper comprising two short screws, the maximum bending stress per screw is reduced, so there is no risk of a screw break.

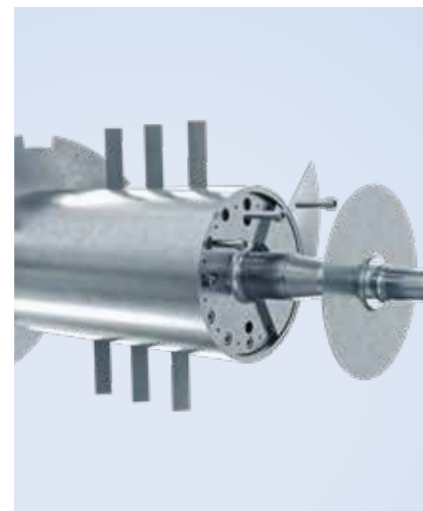
The repulper transports the thickened pulp out of the disc filter and delivers it to the next stage in the process.

### SPLIT REPULPER

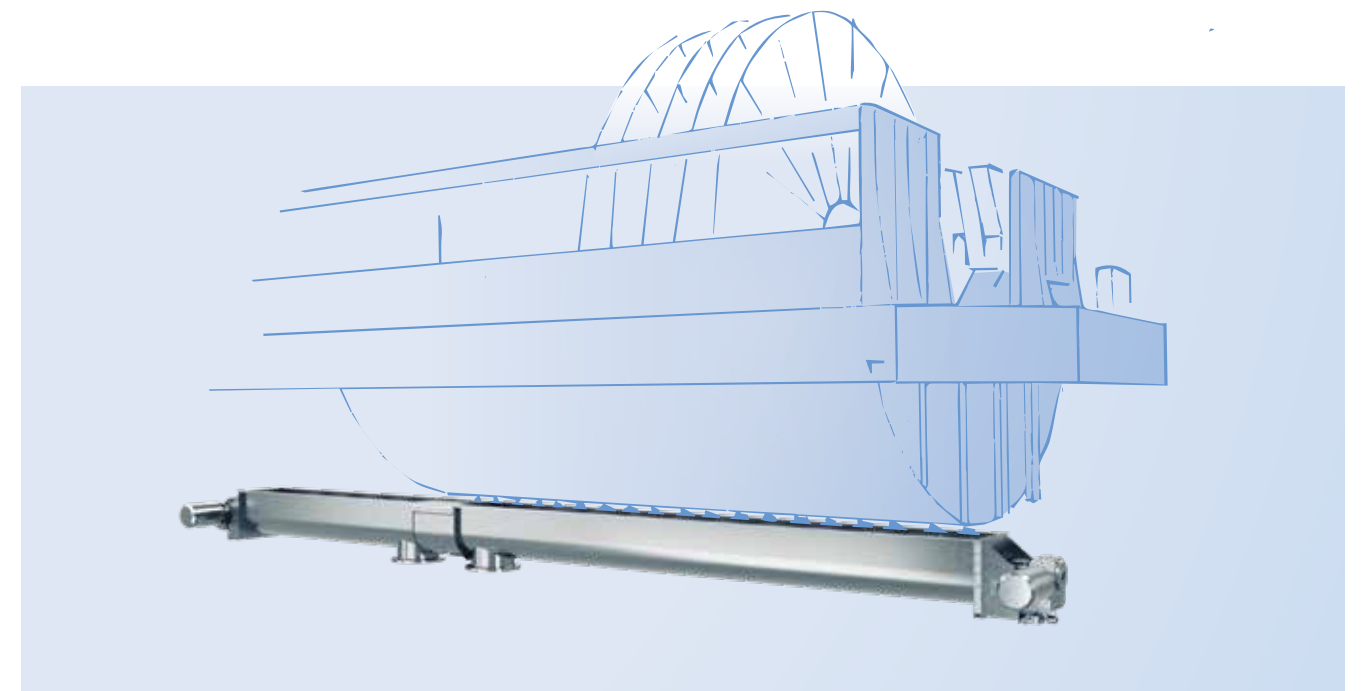
Disc filters may contain up to 35 discs. As a consequence, repulper screws can be up to almost 14 m long. If the process conditions change, for example higher outlet consistency or continuous production overload of the disc filter, repulper screws with such dimensions can break. To overcome this problem in the future, it is worth considering a split solution with two shorter repulper screws.

### BOLTED SHAFT ENDS

The shaft end of the repulper screw may be damaged for the same reasons mentioned above or by a foreign object dropping into the disc filter. A replacement screw designed with bolted shaft ends can be an economical solution. In the future, it will be sufficient to replace only the shaft ends, involving very little effort.



Bolted shaft end



Split repulper



# Inspection and audits

## Early detection of potential risks

We offer you a performance evaluation and functional inspection during operation, with focus on the following topics:

- Visual inspection of hood, vat and frame
- Pulp feed and distribution
- Mat formation
- Uniformity of dewatering across machine
- Filtration capacity and mat dryness
- Proper mat knock-off and discharge
- Vacuum system
- Seal effectiveness
- Accurate vacuum break point and knock-off position
- Adequate sector cleaning
- Stable disc run or axial alignment
- Quality of cloudy, clear and super-clear filtrate
- Filter energy consumption
- Review of control system and interlocking

In our mechanical inspection during machine shutdown, we take a closer look at the following main parts:

- Sectors and bags
- Center shaft
- Shaft seals
- Knock-off showers
- Cleaning showers
- Vacuum valves
- Drop legs
- Bearings
- Gear boxes
- Repulper

The result is a detailed report of the machine status and recommended improvement measures.

### BENEFITS

- Holistic view of the entire disc filter
- Prevents unscheduled shutdowns
- Reduced downtime for scheduled shutdowns
- Repair and upgrade solutions for any make or model
- Proper planning of maintenance budget
- Optimized filter operation and mechanical conditions
- Longer component lifetime



# Boost performance of the disc filter

Improve capacity, filter operation, and filtrate quality

## OBJECTIVES

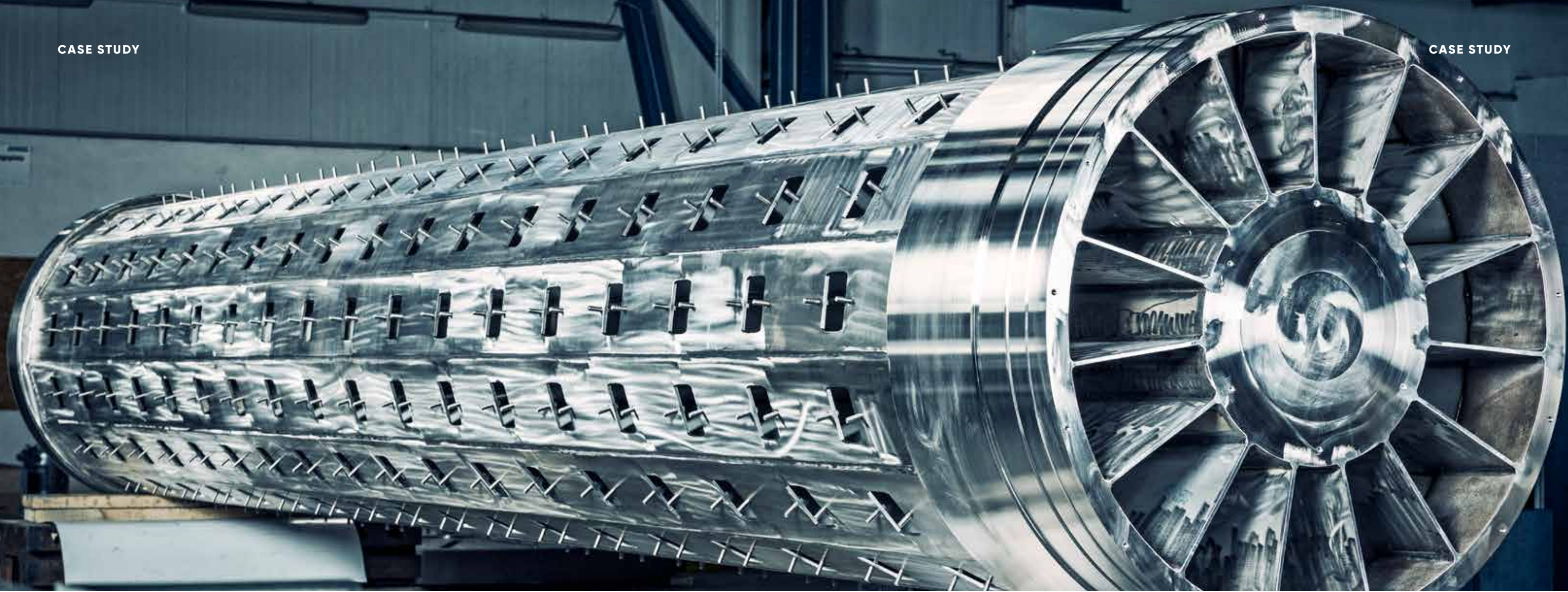
- Determine options to improve the capacity and filtrate quality
- Optimize filter operation
- Eliminate operating problems, such as plugging of filter cloths and variations in filter consistency or filter vat level
- Improve internal water management in the paper machine approach systems or in stock preparation

## BENEFITS

- Higher efficiency and profitability
- Options for increased capacity and/or better filtrate quality







# Smart investment in the future

## Case study

### THE CHALLENGE

- Competitor save-all disc filter with old center shaft design
- Leaking due to cracks
- Fluctuating vacuum situation
- Unsatisfactory hydraulic behavior
- Poor mat formation
- Unstable operating conditions influenced by seasonal weather conditions (summer vs. winter) causing paper machine shutdowns

### THE SOLUTION

- Replacement of old center shaft:
  - New polygonal shaft with reinforced design
  - Improved seal situation
  - Optimized hydraulic flow pattern
- Re-bagging of existing sectors with new filter bags to meet high filtrate quality demands for fiber recovery

### THE RESULT

- Constant and stable operating conditions maintained throughout the year
- White water recovery at required flow
- Very good mat formation
- Constant super-clear filtrate quality at 20 ppm
- Constant vacuum at 0.25 bar

Smart investment in the future to ensure paper machine runnability.



# Focus on production increase

## Case study

### THE CHALLENGE

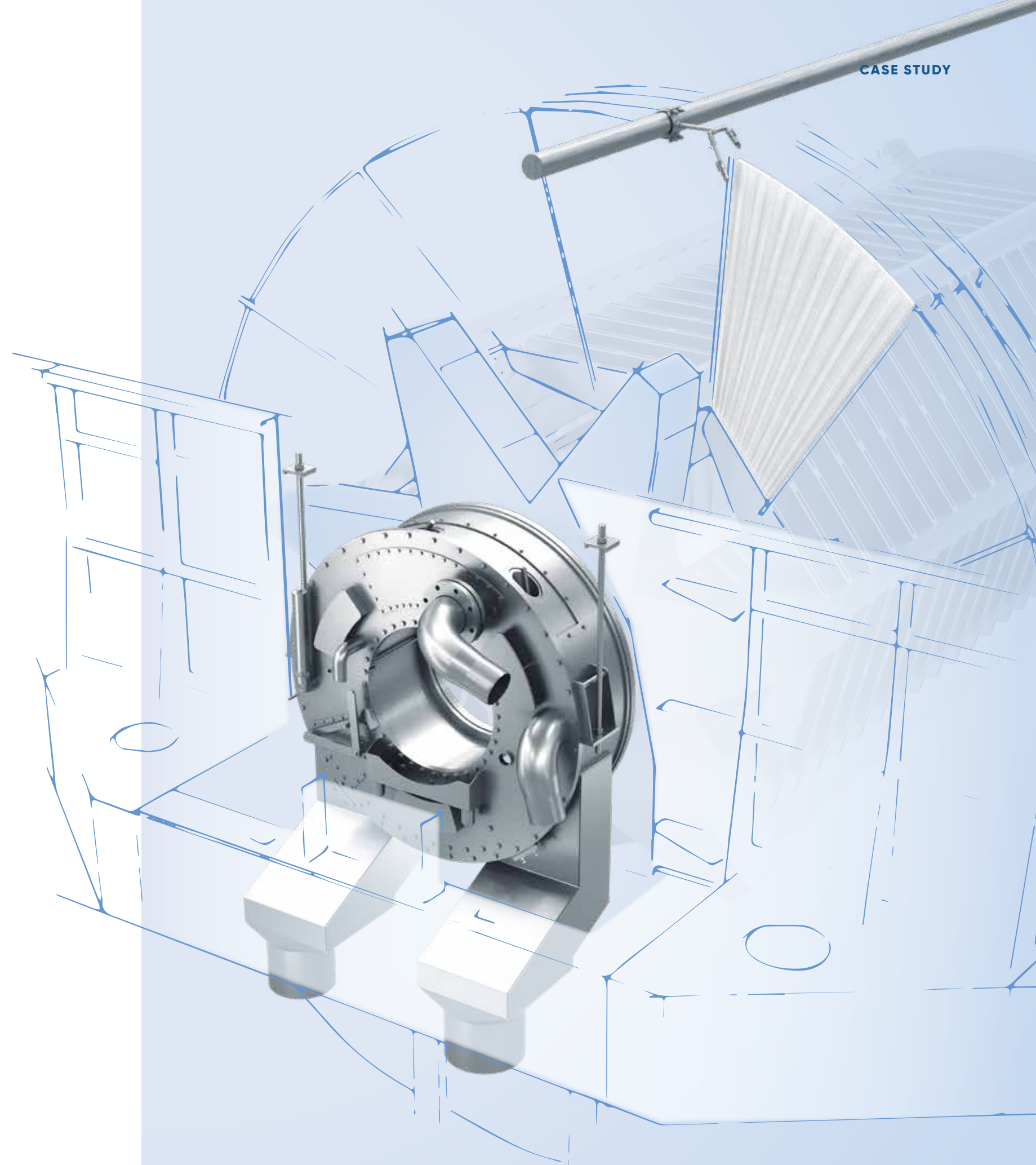
- GLV CDI filter (rotor-type design) for thickening applications
- Requested production increase of 20%
- Reduce pollution of clear filtrate
- New filtrate split in terms of quantities
- Volume of cloudy filtrate could not be handled in the subsequent process steps (waste of process water), and this was already a problem before the production increase

### THE SOLUTION

- New Donut filtrate valve
- Corrugated HiCapBags
- Fully adjustable HighFlex knock-off shower system
- Installation of deflector plates to reduce turbulence and increase pulp level in the vat

### THE RESULT

- 20% production increase
- Much lower filtrate loads
- All filtrates generated can be used in subsequent process steps, thus loss of resources was stopped successfully





# Quick guide

## Innovative solutions to your disc filter problems

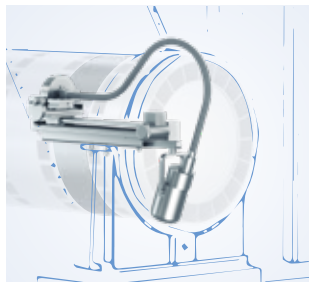
To meet your specific disc filter requirements, we would like to give you a summary of the solutions we recommend for typical areas of concern.

### AREA OF CONCERN:

#### PRODUCTION AND/OR CAPACITY ISSUES OR PRODUCTION INCREASE

**1. Mechanical issues** can be solved with our on-site capabilities, such as mobile grinding.

*Page 42*



**2. Sectors, gaskets and the right filter bags** for high drainage and excellent filtrate quality.

*Page 6*

#### 3. Disc stabilization

Proper disc stabilization helps you prevent damage to sectors and bags.

*Page 44*



#### 4. Knock-off and cleaning system

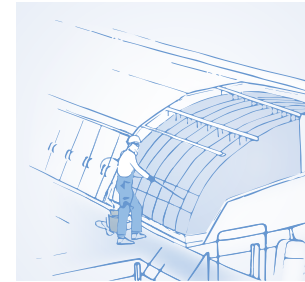
A state-of-the-art knock-off and cleaning system have an immediate impact on production.

*Page 32*

#### 5. Leaf Tester

We evaluate your machine's potential in terms of maximum production and filtrate qualities.

*Page 25*



#### 6. Process evaluation calculation and improvement simulation

Investigate the disc filter-related process to identify the potentials and obtain a comprehensive calculation and simulation of the new set-up (often accompanied by a Leaf Tester analysis).

*Page 50*

### AREA OF CONCERN:

#### FIBER CONTAMINATION IN THE FILTRATES

**1. Mechanical condition** should be evaluated in an inspection or audit.

*Page 48*

#### 2. Bags, sectors, and gaskets

- Inappropriate bags in use? This can be verified in a Leaf Tester analysis.
- Fiber contamination due to cracked bags and leaking gaskets? This can be remedied easily.

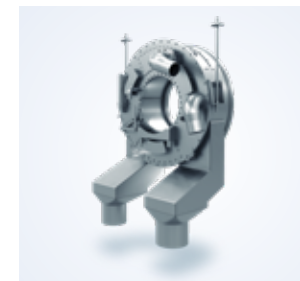
*Page 6*



#### 3. Filtrate valve

Various ways of influencing the filtrate fiber load, such as gaskets and filtrate split.

*Page 38*



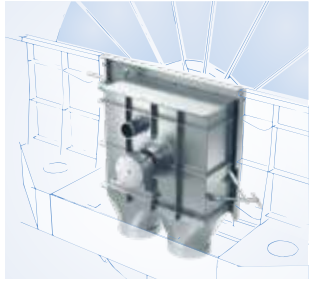


## FAQs

### ANDRITZ ALSO HAS THE RIGHT SOLUTIONS FOR ISSUES SUCH AS ...

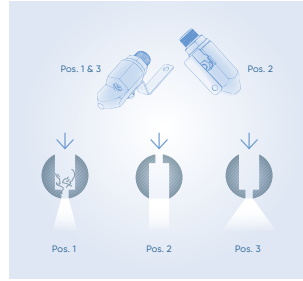
#### Low or fluctuating vacuum

Page 38



#### Plugged nozzles

Page 33



#### Knock-off problems

Page 32



#### Repulper shaft problems

Page 44



#### Center shaft: cleaning, repair, or replacement

Page 34



#### Leakage at the vat seal (vat with center shaft)

Page 46

#### Problems with bearings, motors, and gear boxes

#### Frame, vat, and hood modifications and rebuilds

An on-site audit or inspection should be the first step in each solution-finding process.

## DISC FILTER SERVICE SOLUTIONS

We focus on your  
dewatering needs.





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