



PULP & PAPER

SUPERIOR SOLUTIONS FOR WASH PRESSES

**PRODUCTS AND SERVICES FOR ANY
OEM'S WASH PRESSES**

ANDRITZ

ENGINEERED SUCCESS

Introduction to ANDRITZ Wash Press Services

ANDRITZ understands the importance of equipment availability which brings overall performance and profitability to the customer mills. Every single piece of equipment in the process must perform well.

ANDRITZ understands and respects the importance of equipment performance and availability. These are key factors for our customers profitability. Challenges with wash press performance can create production bottlenecks, decrease product quality, increase COD loading, and have negative environmental impacts. ANDRITZ has developed an array of innovative products and services for all brands and types of wash presses that minimizes these issues.

The Best Available Technology (BAT) is used to customize products and achieve customer requirements. Our focus is to continuously improve durability, runability and efficiency of the wash press through better performance and reducing maintenance costs. The key

to developing our innovative products comes from our on-site service personnel. Our service personnel are highly trained and experienced in various scopes, such as single machines to full production lines, always with the customer needs in focus. These attributes combined with our strong product portfolio provide our customers with high level of expertise and service.

ANDRITZ also offers turnkey service solutions which provide planning, spare parts, scheduling, and maintenance of wash presses during a shutdown. This allows mill personnel to focus on other areas before, during and after the shutdown.



Spare Parts

Component upgrades

Process upgrades

Rolls

Roll rebuilds

New rolls

Roll upgrades

Services

Turnkey services

Maintenance planning

Troubleshooting

Field services

Process surveys



Wash press parts and retrofits for optimized availability and process performance

IMPROVED RELIABILITY

ANDRITZ mindset is to develop and produce parts and components that can be trusted to remain available for extended running time. Uninterrupted production without component failures is direct profit to the mill.

MATERIAL SELECTIONS FOR EXTENDED LIFETIME

OEM experience about manufacturing and quality demands leads to a various selection of materials and design depending on process conditions.

SIMPLER MAINTENANCE

The origin of many upgrades is feedback from our field service personnel who emphasize the importance of time and money spent on maintenance actions.

CONSTANT WASHING RESULTS

Reliability, controllability, and repeatability are the key words for constant washing result. We at ANDRITZ are committed to help mills in achieving high process performance and availability of the wash press.



PARTS AND ASSEMBLIES

ANDRITZ provides standard spare parts for almost all presses on the market. They are designed and manufactured in compliance with high quality standards. These parts, like seals, doctor blades and bearings, are available from single parts to complete shutdown spare part packages. A diverse stock of spare parts is maintained to shorten delivery times. Besides the standard spare parts, ANDRITZ offers parts and assemblies with improved features. These are designed to solve problems with component lifetime, difficult maintenance, missing properties and/or lack in process performance.

RETROFITS

ANDRITZ offers a comprehensive range of wash press retrofits to ensure smooth and reliable operation for longer shutdown intervals.

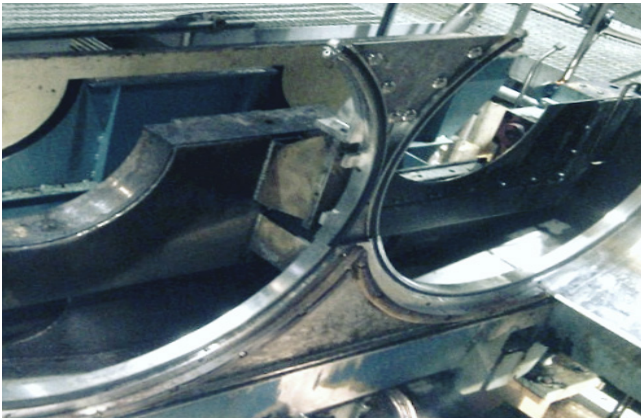
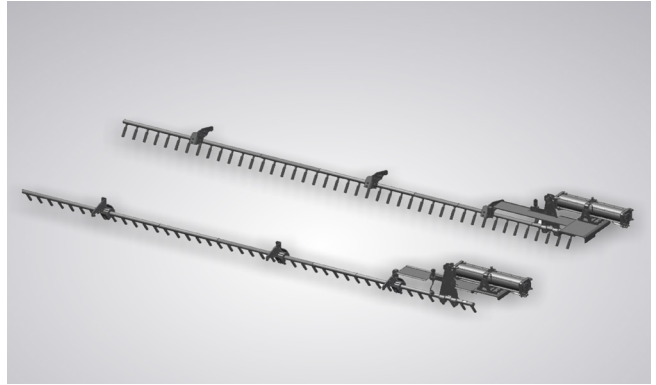
Retrofitting the equipment with new components that were not yet available when the machine was originally built will bring new features to

- Safety
- Machine performance
- Maintenance
- Lifetime

EXAMPLES OF OUR RETROFIT SOLUTIONS

HIGH PRESSURE CLEANING

- Eliminates need of chemical dissolving
- Enough pressure to prevent scale problems
- No clogging of nozzles, increased cleaning efficiency
- Oscillating shower with low water consumption
- All roll surface is covered



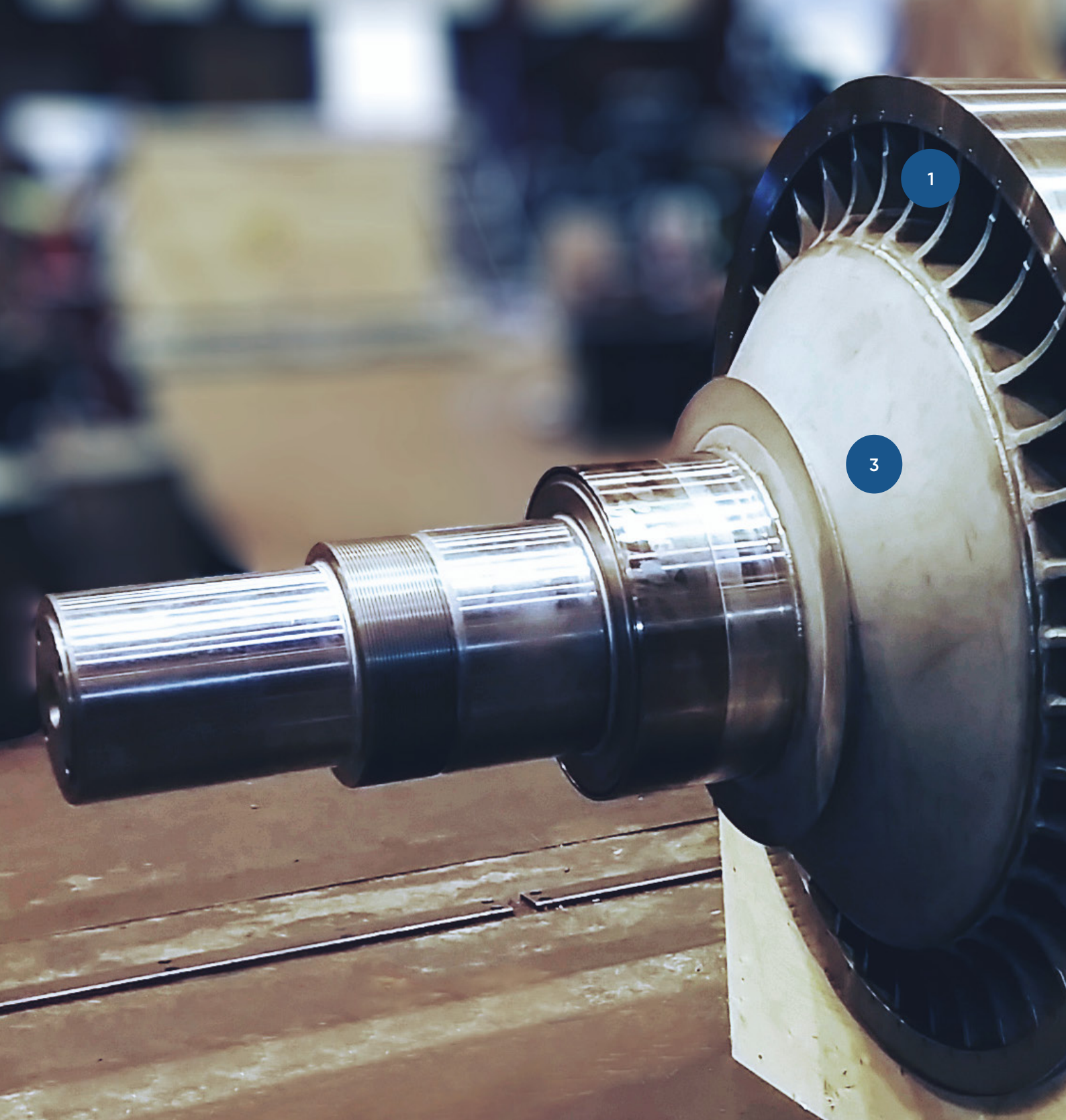
SEAL UPGRADES

- No water leakage
- Eliminates seal water leakage into the process
- Evenly distributes the load on all seals
- Easier to install compared to the original seal
- Lower maintenance cost

PLANETARY GEAR CONVERSION

- Reduced energy consumption
- Simplified maintenance





1 DECK SECTION

ANDRITZ provides a fatigue resistant roll design, present in ANDRITZ new rolls and as optional upgrades in roll refurbishments.

Featuring: Reinforced design, improved screen plates, and a less stress sensitive structure.

2 END RING SURFACE

ANDRITZ offers replaceable end rings for improved roll lifetime and cost-effective roll repair when needed.

3 CORROSION COVER

ANDRITZ shaft cover is designed to handle and significantly reduce stress due to material heat expansion during operation. Flexiline assures that there will be no cracks in the shaft lining plates, which would risk the roll lifetime due to corrosion.



ANDRITZ Roll - made to last

ANDRITZ Roll Services offer innovative solutions for mills that are facing problems with deck section cracks, journal breaks, cladding leaks, screen plates wearing and roll cores fatiguing. ANDRITZ provides superior solutions at the highest quality workmanship for nearly all twin roll presses manufactured within the industry.

ROLL REPAIRS

ANDRITZ roll repairs are done in our worldwide network of state-of-the-art excellence centers focusing on press roll rebuilds and improvements. Careful inspection of the roll shaft lining using pressure tests and NDT (Non-Destructive Test) of the carbon steel shaft combined with careful visual inspection ensure that all imperfections are identified. Having an open and transparent communication with the mill ensures that the rebuild is executed as agreed. Followed by pressure tests and final inspection – all described in the comprehensive repair report – the roll is ready to perform.

ROLL UPGRADES

ANDRITZ provides several roll upgrades for improved lifetime and process performance. Stronger deck sections combined with wider and optional thicker screen plates with less circumferential welds maximizes screen plate lifetime. Various end ring options, improved corrosion cover design and innovative sealing upgrades are valuable features for easy maintenance and longevity.

NEW ROLLS

ANDRITZ new rolls are made to last. Durable cores and journals combined with fatigue resistant deck sections and strong, wider screen plates result in the strongest roll on the market. ANDRITZ fatigue resistant screen plate solution provides high resistance against foreign objects and mechanical wear. Multiple selection of screen plate patterns allows us to choose the best screen plate for each application.

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2

4

SCREEN PLATE

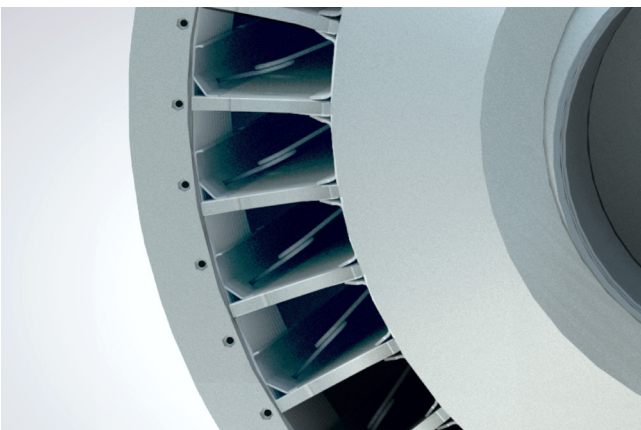
Wash press rolls often crack in the screen plate and it's circumferential welds. ANDRITZ provides thicker and wider screen plates as a solution to significantly improve the fatigue resistance of the screen plates and the roll.

Process upgrades for peak performance

ANDRITZ upgrade products offer multiple improvements to the wash press performance in terms of safety, reliability, quality, production costs and reduced environmental impact.

UniDry*

ANDRITZ UniDry eliminates dry pulp tendency to absorb excessive fluid flowing to nip area during roll rotation by controlling filtrate fluid dynamics inside the filtrate channel. This solution can be installed during a normal annual shutdown and does not need modifications to roll construction/design.



BENEFITS

- Higher discharge consistency
- Reduced chemical usage
- Improved performance
- Does not require modifications to the existing construction



>50%

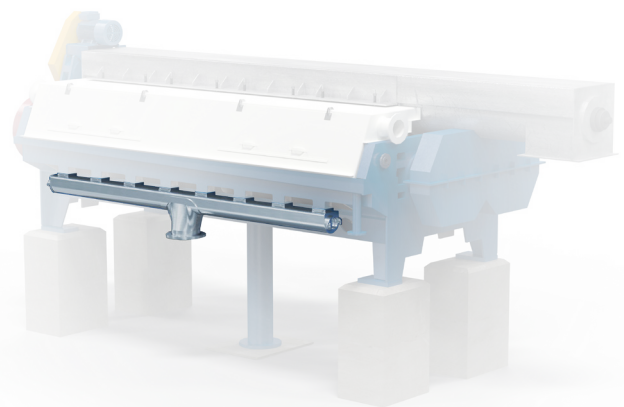
LESS SODA AND COD CARRYOVER WITH Mult-E-Nip

9

MONTHS PAYBACK TIME WITH A 1,5 KG/ TON COD REDUCTION WITH UniDry

SureFeed*

SureFeed technology is a bolt-on, center fed upgrade which results in more even pulp distribution along the press. This results in less plugging; maximizing the efficiency of the press and reducing maintenance time.



BENEFITS

- Increased capacity and feeding consistency
- Improved washing efficiency
- Higher availability, no plugging
- Can be installed during an annual shut down

27%

INCREASED CAPACITY WITH UniFeed

6,5%

FEED CONCENTRATION WITHOUT ANY INDICATION OF PLUGGING WITH SureFeed

+150 KEUR

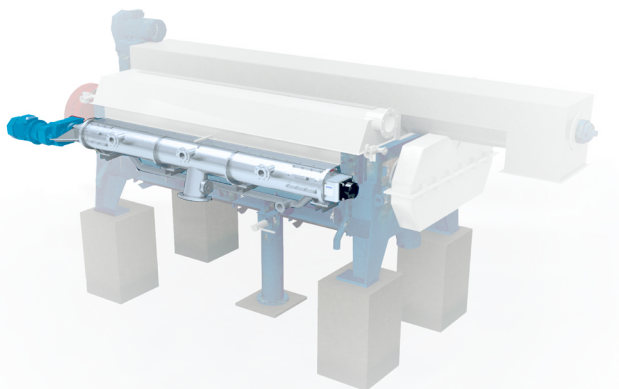
CHEMICAL SAVINGS ANNUALLY WITH PULP FEED UPGRADE

WASH PRESS

Examples how we have already improved our customers washing process

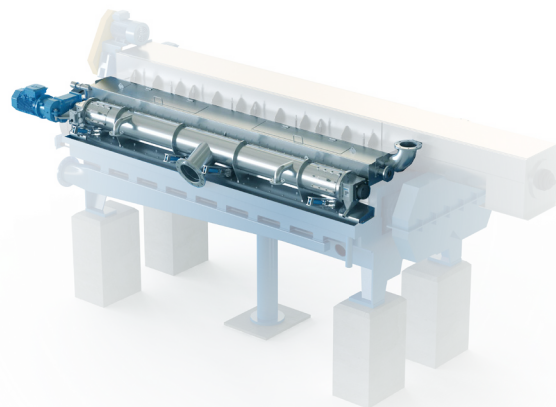
UniFeed*

UniFeed is an upgraded product available for DPA and DPB wash press feed systems which provides uniform pulp feeding without plugging. The standard delivery consists of the UniFeed feeding unit and an optimization of the wash press internal geometries for improved wash efficiency.



Mult-E-Nip*

ANDRITZ's new Mult-E-Nip press upgrade, that is available for DPA presses, both LC and MC applications, allows increased production and improved washing efficiency. The upgrade has multiple wash zones and nips.



BENEFITS

- Increased productivity
- Reliable pulp distribution and assured availability of the press
- Short ROI
- Can be installed during an annual shut down

BENEFITS

- Increased production capacity
- Optimized feed distribution into the press
- Maximizes washing efficiency by adding displacement wash zones within the vat
- Can be installed during an annual shut down

Showcase

Washing improvement

ANDRITZ wash press portfolio supports the whole lifecycle of the press. Our strong process know-how and technological leadership is based on decades of continuous development. Personalized on-site services, knowledge of all presses on the market, and mill wide process knowledge are the keys to optimize the performance and lifecycle costs of a wash press and the washing process.

A brownstock washing line was running over the design capacity, which caused both operational problems due to wash press plugging as well as increased TOC carryover to bleaching and biological treatment. The consequence was increased operating costs and harmful effluent parameters. The mill started a program to improve washing result by replacing some of the old wash presses with new ANDRITZ COMPACT PRESSES and upgrading two presses located after oxygen bleaching.

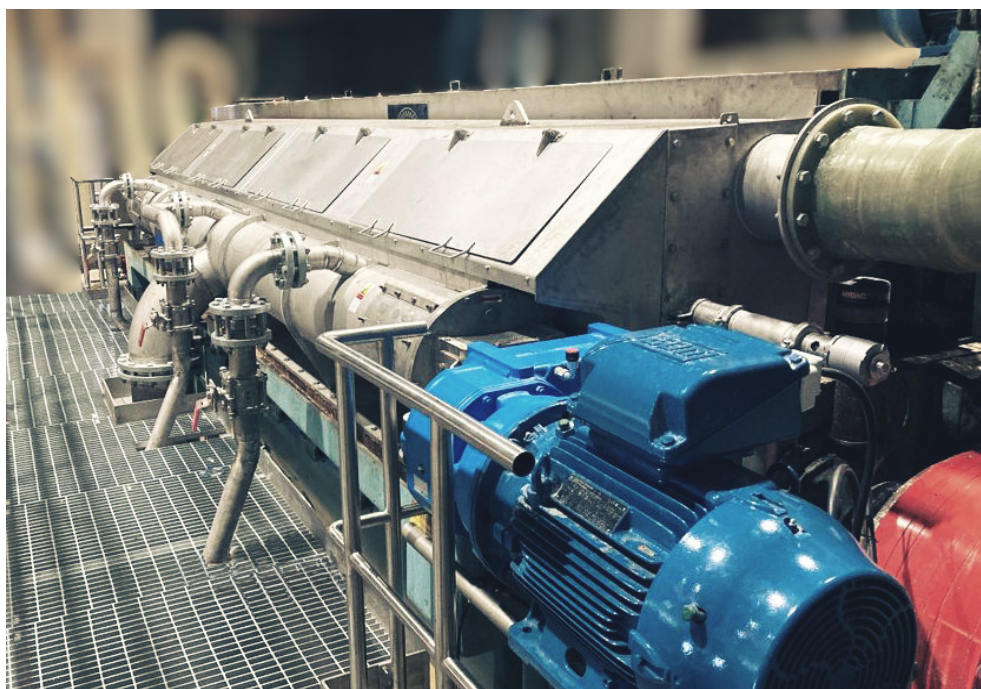
The first stage of the improvement program was to upgrade two DPA 1255 wash presses. These presses had serious problems with:

- Washing efficiency, leading to high TOC carryover to bleaching
- Plugging
- High alkaline level
- Production losses

ANDRITZ wash press team was carefully committed to identify the root causes for the poor operation and suggested an upgrade package that would bring the performance of the presses to desirable level. ANDRITZ package included upgrade components, thoroughly planned and organized shutdown execution, and start-up services.

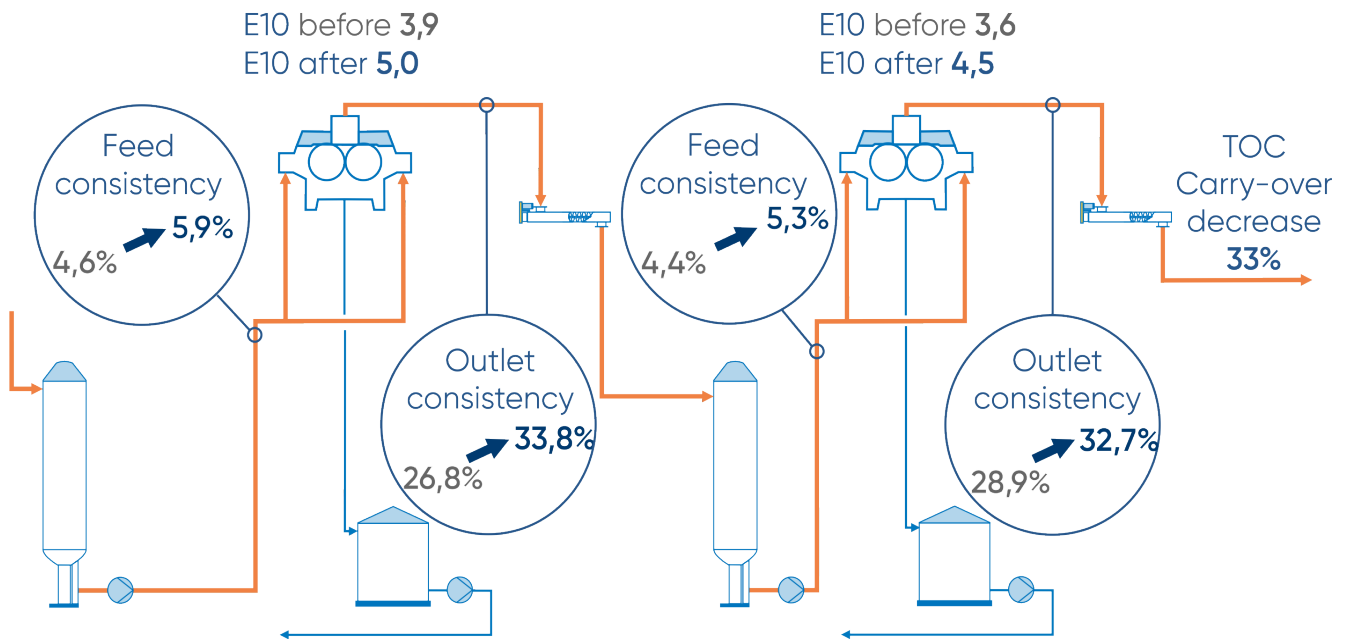
KEY UPGRADES

- UniFeed upgrade
- UniDry upgrade
- Roll exchange upgrade to enable roll change without feed system removal



DPA1255 upgraded with the ANDRITZ UniFeed.

UPGRADE RESULTS



The "before" (grey) is the average value based on measurements made four times during 4 months prior to the ANDRITZ upgrade project. The "after (blue) upgrade" is the average value based on daily measurements (50 times) since the start-up.

"We had continuous challenges with plugging which lead to lower availability with the existing wash presses. Plugging routinely resulted in unplanned stops to enable manual cleaning of the presses; roughly once per month. To increase availability and performance, the mill invested in an ANDRITZ UniFeed upgrade for two of the presses.

After the installation, there have been zero unplanned stops due to plugging and there has been a significant improvement in the outlet consistency which decreased the COD carryover to bleach plant dramatically. The result exceeded all expectations."

Mill Superintendent.



ANDRITZ FIBERLINES FOR CHEMICAL PULPING

ANDRITZ's process expertise, fiberline technology, and equipment design knowledge are preferred by the world's most demanding pulp producers and utilized in modern, state-of-the-art chemical pulp plants around the world from bagasse plants to the highest capacity eucalyptus mills. These mills have carefully researched the best available technologies and have selected ANDRITZ. This same expertise and technology can be easily applied to every pulp mill – enabling economic upgrades to improve production, environmental performance, and to decrease costs.

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