

An innovative concept – ANDRITZ Screen Booster – helps any mill upgrade the performance of its Screen Room. The Booster modules – Basket, Bearing Unit, Rotor, and Dilution Rotor – were created to enhance any of four critical components in a screening system. Any one, or all, of these upgrades can be easily installed on a screen as needed, regardless of the original equipment manufacturer.

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The ANDRITZ Screen Booster concept consists of modular upgrades to help a mill achieve the highest performance from its Screen Room. The Boosters provide significant improvements in efficiency, capacity, debris removal, reliability, and energy savings. An ROI on these cost-effective solutions can, depending upon the approach, be achieved in a matter of weeks.

BETTER WAY TO BOOST SCREEN PERFORMANCE

BASKET BOOSTER

The Screen Basket upgrade is a big step toward realizing the full potential of a screen by directly profiting from the most efficient debris removal while maintaining capacity and runnability. This upgrade features the BarTec UTWist basket design, the first and only screen basket that allows adjustment of the profile height along the vertical position of the basket. This ability to adjust the wire permits achieving a perfect balance between runnability and screening efficiency for a variety of screening applications.

In any screening process, the basket's profile height and slot width are crucial for achieving the required debris removal at a desired capacity. Slot accuracy and precision are critical – smaller slots are likely to plug the screen while larger slots allow unwanted debris to find its way into the accept pulp.



By adjusting the UTWist wires, a minimum profile height can be set at the top of the basket (for high debris removal screening efficiency) while increasing the profile height in the reject area to avoid stock thickening, and the risk of higher fiber losses or plugging that often is associated with high thickening factors.

BEARING BOOSTER

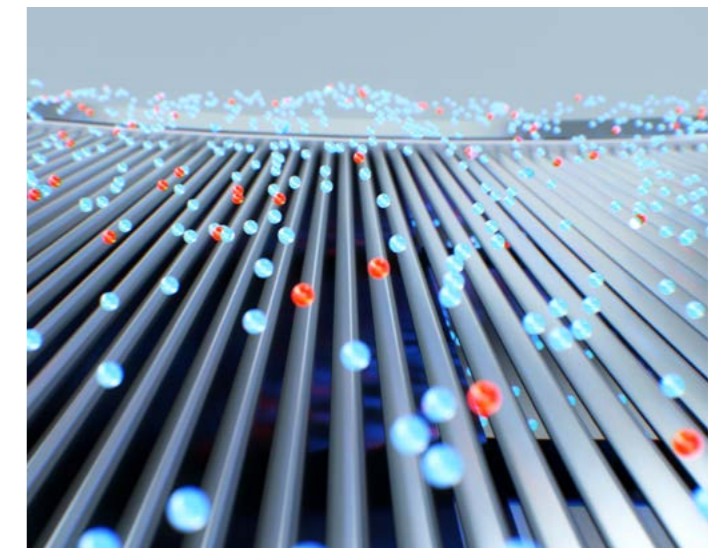
The Screen Bearing Unit upgrade dramatically increases the operating life and reliability of the screen's bearing unit. Since the overall design on the upgraded Bearing Unit is modular, every unit is customized to fit the specific screen in which it is being installed. The Bearing Unit upgrade can be installed on most common screen models.

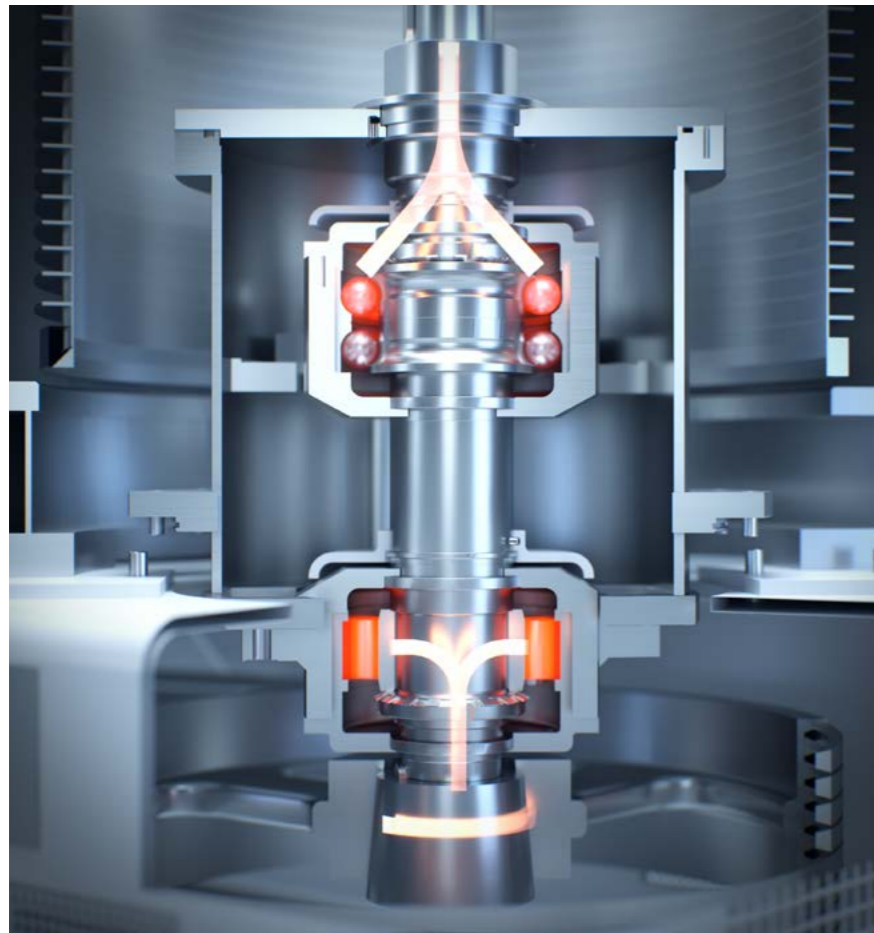
An ROI in terms of less downtime, longer maintenance intervals, and reduced inventory carrying costs for spare parts is often recognized in applications where high production rates, high rotor tip speeds, high motor loads, and high temperatures place additional demands on the screen bearings.

The upgraded Bearing Unit is designed with the shaft package and bearing frame as separate units. Bolted construction enables quick dismantling of the shaft package without removing the frame. The design allows quick and easy access to individual bearings, to reduce downtime and save maintenance costs. Since the shaft package is the only component requiring a changeout, replacement part costs are reduced to a minimum.

The key to the Bearing Unit's extended life can be found in its ability to perfectly balance the radial and axial forces inside the screen. The load on the upper bearings is primarily an axial load from the weight of the shaft and rotor, so inclined ball bearings are used to absorb the forces at their point of origin. Unloaded from axial forces, the lower bearings (floating cylindrical roller bearings) easily accommodate the remaining radial load generated by the motor. The cylindrical bearing design compensates for any thermal expansion of the shaft.

UTWist Screen Basket - the perfect balance between runnability and screening efficiency.





The Screen Bearing Unit Upgrade for increased operating life and reliability.

Protecting the bearings from water leakage is also crucial. The upgraded Bearing Unit uses multiple methods to protect the bearings from contamination. First, there are separate bolted bearing housings and double-acting mechanical seals to prevent water from entering the bearing frame. In addition, rotating deflectors protect the bearing housings inside the frame in the unlikely event of a seal failure. Large openings between the shaft package and the bearing frame allow for any water to be removed, avoiding plugging of drainpipes or water penetrating the bearing housing. Leaked water and grease are collected and discharged by a splash guard to protect the pulley system below.

The splash guard provides a kind of "early warning system" of seal failure, allowing a quick response to potential problems. In addition, the Bearing Unit can be equipped with vibration and temperature sensors for online monitoring.



The unique hydrodynamic shape for high capacity while saving energy.

ROTOR BOOSTER

The Screen Rotor upgrade includes a closed (drum) rotor design with optimized foils to fluidize stock for high capacity while saving energy.

The rotor – an ANDRITZ Drum 400 Dolphin – is a proven performer. It has foils with a unique hydrodynamic shape that has been perfected with sophisticated computer-based simulation tools and proven in hundreds of installations around the world. The ROI from reductions in power consumption compared to a conventional rotor can be quite substantial.

The streamlined foil geometry creates minimal restrictions to stock flow, even at high consistencies. This allows operation of the rotor at a lower speed to achieve the same throughput as a conventional rotor, with lower power consumption. The pressure zone of the Dolphin foil provides optimum flow distribution over the entire screen basket surface, saving energy, while the suction (pulse) zone reduces the thickening effect, keeps the basket clean, and improves runnability.

DILUTION ROTOR BOOSTER

The Screen Dilution Rotor upgrade can be easily combined with the Rotor Booster to minimize expensive fiber losses – increasing yield, minimizing plugging, and reducing downtime for maintenance or operational adjustments. This patented upgrade is available for most common screen types. The Dilution Rotor upgrade addresses two major issues impacting the operation of a pressure screen:

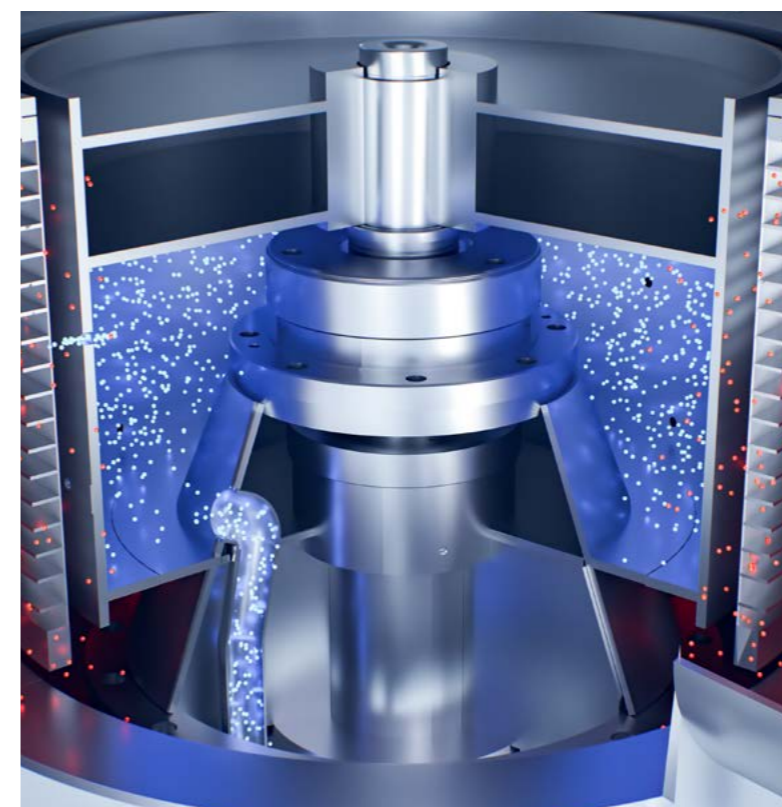
1/ During operation, stock tends to thicken toward the reject end of the screen, which results in fiber loss and lower yield, and can cause plugging of the screen. This thickening effect is more noticeable when running narrow slots, which are often needed to achieve the required screening efficiency.

2/ The vortex created by the screen rotor moves plastics and other contaminants to the center of the rotor and away from the basket. These contaminants can wrap around the shaft and damage the mechanical seal or even the bearing unit.

The Dilution Rotor upgrade manages and controls the stock thickening effect AND protects the rotor interior from damaging contaminants. This is accomplished by adding a dilution pipe and sealing ring to the existing bearing housing.

Dilution water is fed through the dilution pipe into the lower part of the rotor. The dilution water flows through holes in the rotor shell into the screening zone, which reduces the stock consistency before critical thickening occurs in the reject section of the screen. The sealing ring installed in the bearing housing maintains an over-pressure situation to control the dilution water and also prevents contaminants from accumulating inside the rotor.

The Dilution Rotor upgrade manages and controls the stock thickening effect and protects the rotor interior from damaging contaminants.



A BOOST TO PERFORMANCE

Modular upgrades are often the most cost-effective and quick-ROI approaches to enhance screening performance. Sometimes it is obvious where the "weak link" is in the screen (e.g., frequent bearing failures). Other times, a mill may benefit from an audit by an ANDRITZ specialist to determine the components to upgrade.

ANDRITZ has decades of experience with designing and building its own screen brands – as well as optimizing thousands of competitors' screens.

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