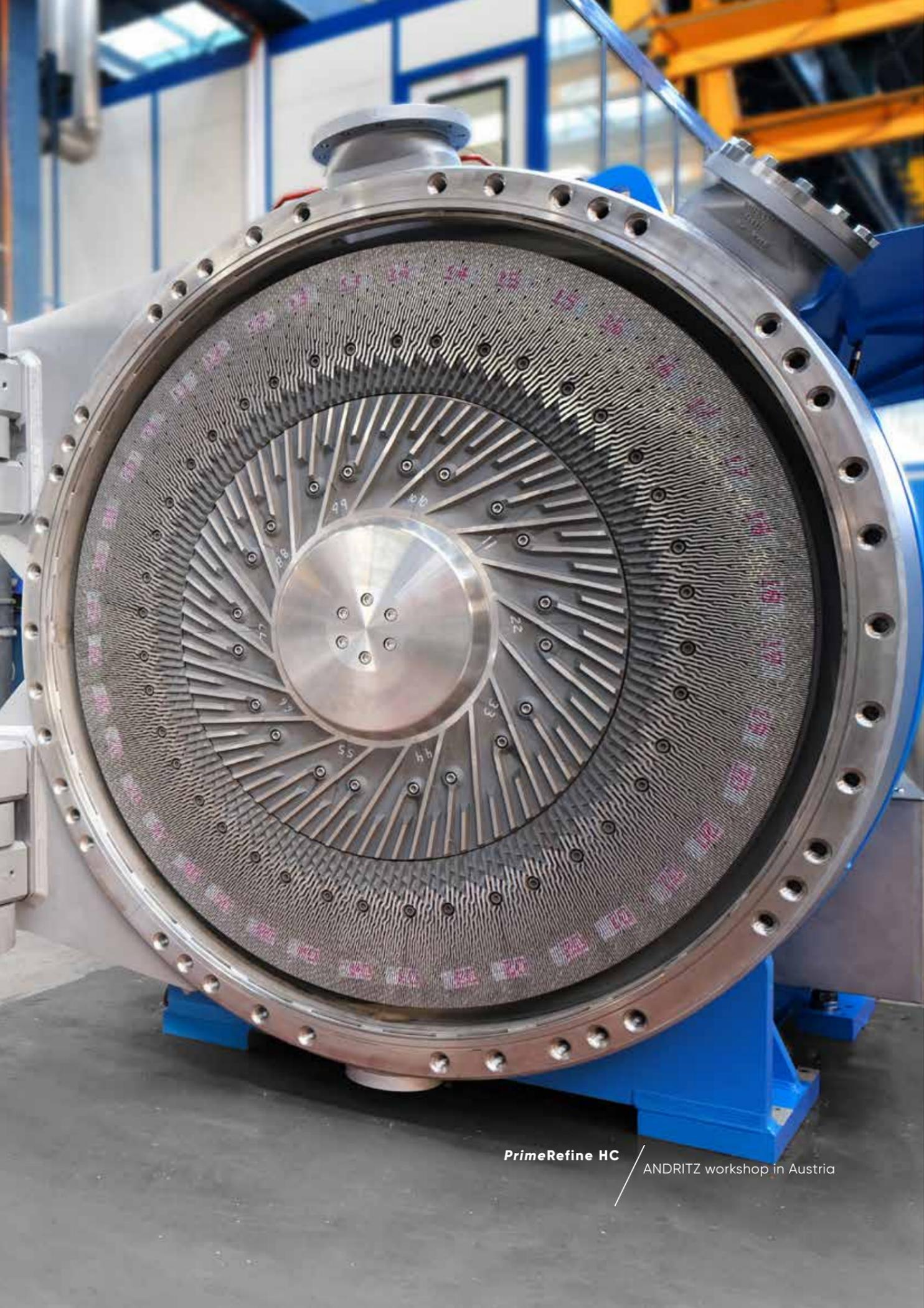




# FIBER-SAVING INNOVATION FOR SUPERIOR TISSUE

*PrimeRefine HC T*

**ANDRITZ**



PrimeRefine HC  
ANDRITZ workshop in Austria

# Why high-consistency refining for tissue?

When it comes to optimizing pulp properties for tissue production, the choice between high-consistency (HC) and low-consistency (LC) refining plays a crucial role. While LC refining is often associated with tensile strength improvements, HC refining offers distinct advantages that make it the preferred choice for tissue applications.

## ENHANCED ABSORBENCY, POROSITY, AND SOFTNESS

HC refining is particularly effective in enhancing key tissue properties such as absorbency, porosity, and softness. By increasing fiber curl and modifying the internal fiber structure rather than just promoting external fibrillation, HC refining creates a bulkier and more open sheet structure, which improves liquid absorption and softness. In contrast, LC refining primarily improves tensile strength but does not enhance fiber curling, which is essential for tissue-grade products.

## OPTIMIZED STRENGTH WITH LESS FIBER CUTTING

One of the key benefits of HC refining is its ability to increase pulp tensile strength with minimal changes in Canadian Standard Freeness (CSF) or Schopper-Riegler (SR) values. This process achieves enhanced strength with less fiber cutting compared to LC refining, resulting in reduced long-fiber consumption and

lower dust generation. The refining gap in HC refining, typically between 1.0 – 3.0 mm, contributes to more controlled fiber treatment, whereas LC refining, with a much narrower gap of 0.1 – 0.2 mm, leads to higher external fibrillation and potential fiber straightening, which is less desirable for tissue applications.

## SUSTAINABLE AND COST-EFFECTIVE FIBER USE

With its ability to modify fiber structure while preserving fiber length, HC refining supports a more efficient use of raw materials. Less fiber cutting means better strength properties with reduced reliance on expensive long fibers, leading to cost savings and improved sustainability in tissue production. Additionally, the reduced dust generation contributes to better machine cleanliness and improved product quality. For tissue manufacturers looking to achieve superior softness, absorbency, and strength while optimizing fiber efficiency, HC refining is the preferred choice over LC refining.



# Comparison between HC and LC refining

**HC refining consistency: ~ 26%**  
**Refining gap: <3 mm**

- Increases fiber curl, by enhanced fiber-to-fiber interaction.
- Improves internal fiber structure modification and external fibrillation.
- Reduces fiber cutting compared to low-consistency refining, resulting in better strength properties, lower long-fiber consumption, and reduced dust generation.
- Increases pulp tensile strength with minimal change in pulp CSF\*/SR\*\*.

**LC refining consistency: ~3-5%**  
**Refining gap: 0.1-0.2 mm**

- Does not induce fiber curling; initial refining effect straightens the fibers.
- Decreases porosity and changes CSF\*/SR\*\* more rapidly compared to HC refining.
- Focuses on tensile strength improvement, but the LC refining process also causes more fiber cutting and creation of fines.

\* CSF is short for Canadian Standard Freeness.

\*\* SR is short for Schopper-Riegler beating degree.

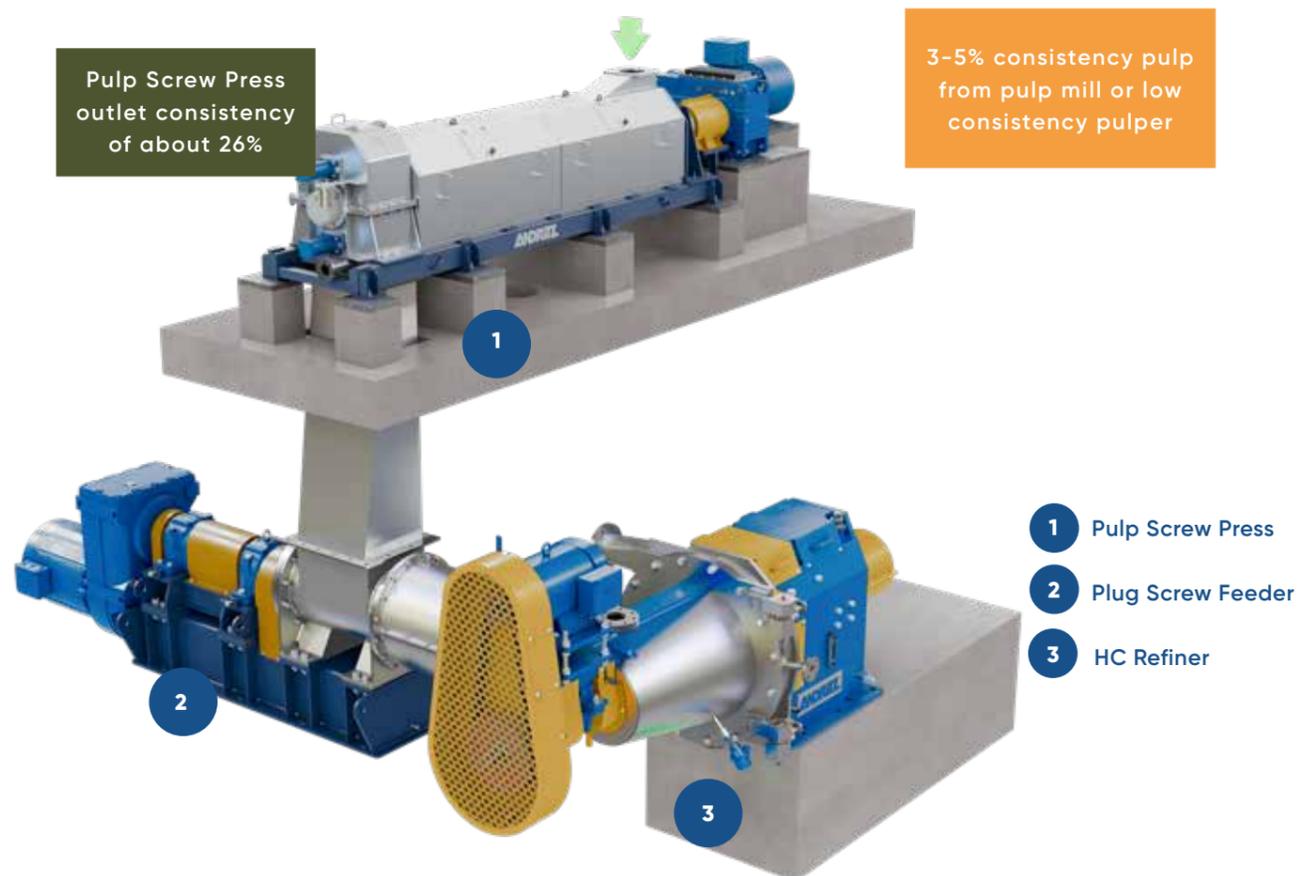
**PREFERRED BY LEADING  
TISSUE MAKERS, WITH  
OVER 30 REFERENCES  
ACROSS ASIA SINCE  
2020.**

# Advantages of the ANDRITZ PrimeRefine HC T

The combination of stable refining performance, optimized stock feeding, and a compact design results in enhanced operational efficiency. The PrimeRefine HC T system not only improves tissue quality, but also reduces maintenance requirements, optimizes fiber utilization, and lowers overall operational costs.

The ANDRITZ PrimeRefine HC T is expertly engineered for refining hardwood pulp and non-wood fibers in tissue production. These typically short fibers benefit from the system's ability to minimize fiber cutting while maximizing internal fibrillation. This ensures fibers

retain their length as much as possible, delivering superior performance in tissue manufacturing. It is a proven innovation that significantly reduces long fiber consumption, thereby enhancing the profitability and sustainability of tissue manufacturers.



ANDRITZ PrimeRefine HC T in compact design

Since its launch in 2020, the system has consistently demonstrated exceptional performance across various applications, offering the following key benefits.

- 10-15% reduction in long fiber consumption ratio: Achieve significant fiber savings without compromising the final product quality.
- Uncompromised paper properties: Maintain the strength, softness, and hand feel of the final product.
- Reduced dust generation: Minimize fiber cutting, resulting in fewer fines and less dust.
- Stable operation and consistent fiber properties: Equipped with an automatic hydraulic numeric gap control system, separated from the oil lubrication system.
- Cost-effective solution: Lower cost in investment and operation, longer lifetime of refiner fillings with easier operation.





## DISCOVER OUR FULL-RANGE PORTFOLIO FROM FIBER PROCESSING TO PAPERMAKING

An outstanding paper product requires outstanding production – matched with the particular needs of raw material and final product. Discover the full-range portfolio from ANDRITZ: Excellent stock preparation that allows best fiber development according to furnish and with economical use of resources. *PrimeLine* paper machines that are a synonym for producing top-quality tissue, paper, and board grades. Complete lines or single units, upgrades, and modernizations. Contact us and benefit from your individual package in papermaking technology.

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