



**PULP & PAPER**

*PrimeService*  
**FOR YANKEES**

**EXTEND YOUR YANKEE'S LIFE CYCLE**

**ANDRITZ**

**ENGINEERED SUCCESS**

# Seeing the full picture with life cycle management

A well-maintained Yankee offers high potential for improved runability and efficient production – a remarkable competitive advantage for the customer. With our Yankee life cycle management, we focus on the overall added value for Yankees: from calculation, to manufacturing, coating (*PrimeCoat Stratos*), operation, and optimization; no matter whether the Yankee is used for tissue, paper, or tobacco production.

## THE HEART OF YANKEE SERVICE

Suppliers often only provide single Yankee service components like grinding, or they leave customers to maintain and service the Yankee themselves after purchase. With Yankee life cycle management, we focus on the overall added value for Yankees. We are one of the few suppliers able to offer customers a life time forecast for their Yankees. This is possible due to our experience in Yankee development and manufacturing work at ANDRITZ – all from a single source.

## SEEING THE FULL PICTURE

As a machinery supplier able to offer complete lines for tissue, paper, board, and special paper production, our experts do not see the Yankee as a stand-alone

solution but within its overall environment. In the course of the life cycle management package, the Yankee is analyzed and maintained in its interaction with other key components, such as the condensate removal system, press, and so on. Apart from the Yankee itself, life cycle management covers everything surrounding the Yankee, namely press rolls, hood and process air system, doctors, and the chemical coating equipment.

One of our strengths is that we offer complete lines – we have the necessary knowledge of and experience with the entire production process. We are not limited to mechanical issues or chemical processes as we have the full range of process, automation, instrumentation and operational experience.



**“Yankee life cycle management is more than just regular service. It includes customized solutions for new Yankees and rebuilds and accompanies the customer throughout the entire Yankee life cycle.”**

**ROBERT SCHLOFFER**

Director, Paper Machine Service, ANDRITZ

## LIFE CYCLE MANAGEMENT AT A GLANCE

Service	Examples
Mechanical on-site services	Grinding, metalizing, spot-repair, upgrade and repair of internal parts, ...
Diagnostics and analysis	On-the-run measurement, performance measurement, coating measurements, ...
Logistics and engineering	Customized rebuild solutions, on-site services like assembly and welding, ...
Performance checks and consulting	Drying-limit calculation, runability and energy consumption evaluation, ...
Troubleshooting	Steam leaks, vibrations, reduced drying performance, wear on doctor blades, ...
Safety and risk management	Life time calculation, inspections such as ultrasonic and metallurgical testing, and acoustic measurements, ...

## PrimeDry Steel Yankee

With diameters of up to 26 ft. and shell lengths of up to 7.4 m, ANDRITZ is the technology leader for large steel Yankees.

These high-performance drying cylinders are made entirely of steel, resulting in greater safety and better machine performance than cast-iron Yankees: the evaporation rate is 10–15% higher than in cast-iron models, which results in 8–10% better machine performance.

As a machinery supplier to the tissue, paper, board and special paper industries, we have experts and solutions for the entire production process, from wood handling, to stock preparation and the paper machine, to fabrics and rolls, automation, and services.



No matter whether we are talking about cast iron or steel, tissue, paper or tobacco machines, small or large (up to 26 ft. in diameter), old (rebuild) or new, we can demonstrate our success with our installations worldwide, and our service teams will be happy to help you to extend your Yankee's life time and enable smooth and troublefree operation.

With steel and cast-iron Yankees successfully in operation worldwide and a long-tradition as a supplier to the paper industry, we have in-depth know-how of the Yankee manufacturing, operating and service processes.

Our life cycle management for Yankees includes mechanical on-site services, troubleshooting, diagnostics and analysis, safety and risk management, logistics and engineering, performance checks, and consulting and is based on the three core elements: resources, experience, and know-how.



**ON-SITE SERVICES**

Our Yankee service team at Paloma Hygienic Papers, Slovenia



# Our Yankee service activities in detail



## MECHANICAL ON-SITE SERVICE

Apart from grinding services and exchange of spare parts, we offer leakage repairs, Yankee head testing and repairs, press nip calibration, and doctor blade adjustment.

And unlike other machine suppliers, we are capable of offering our own coating solution – *PrimeDry Stratos*. The thermal coating solution can be used for full-face coating edge and spot repair.



## SAFETY AND RISK MANAGEMENT

Annual or semi-annual checks are needed to confirm that the condition of the Yankee is in compliance with the pressure vessel safety regulations and other global standards (e.g. required by insurance companies).

Furthermore, an acoustic measurement can identify cracks independently on a steel or cast Yankee if there is any serious damage.



## TROUBLESHOOTING

If difficulties occur, our experts are able to develop solutions, not only for mechanical issues, such as Yankee surface and internal Yankee inspections, but also if there are problems with the control logic, for example in the steam and condensate system, or with the automation equipment. In addition, the dewatering rate can be checked and compared with the design conditions for optimum running.



## DIAGNOSTICS AND ANALYSIS

To maintain or improve runability, safety, and performance, very specific inspections, measurements or calculations are needed, which normally go beyond a mill's capacities. In addition, more and more insurance companies require annual checks of key components like the Yankee. We can take on a variety of duties, for example Finite Element Analysis for static and dynamic loads on the Yankee.



## LOGISTICS AND ENGINEERING

Unique logistics and engineering concepts for rebuilds and new installations offer a way of making the impossible possible. Nowadays, there seem to be no limits to the size of Yankees used in production.

Only transport restricts size and efficiency visions. Narrow streets, tunnels and weight regulations limit manufacturers in their options.

We have accepted the challenge and, with the world's largest steel Yankee (24 ft. in diameter, installed at Pöls PM3, Austria), we have proven that our logistics plan really pays off.



## PERFORMANCE CHECKS AND CONSULTING

When analyzing measurement results, the ability to see the bigger picture, meaning the production system and mill as a whole, is of utmost importance.

Thus, we do not give recommendations for the Yankee alone, but for the whole drying system (Yankee including the hood, re-evaporation system, and so on) and highlight potential for energy savings (like the combination of steel Yankee and steam-heated hood) and improved runability.

# Two of our service highlights for diagnostics and analysis

## FINITE ELEMENTE ANALYSIS (FEA)

This computational tool for engineering analyses includes mesh generation techniques for dividing a complex problem into small elements, as well as a software program coded with an FEM (Finite Element Method) algorithm. By using the FEA programs, we are able to conduct crowning curve calculations for cast and steel Yankees and for pressure rolls.

In addition, a complete stress analysis evaluation can be performed on the static and dynamic loads acting on the Yankee. Derating calculations of cast Yankees and fatigue stress analysis are also possible. With the calculation models, we are able to simulate most of the stresses arising during production of the paper. This allows a well-defined dimension – especially shell wall thickness – to achieve the optimum ratio of safety to drying efficiency.

## ON-THE-RUN (OTR) MEASUREMENT

OTR is a perfect diagnostic and analysis tool for obtaining a clear picture of the Yankee under production conditions. The main parameters in Yankee drying are temperature and the mechanical surface profile of the Yankee. We have developed a special device to measure both variables under all production conditions. With this device, we can ensure highly accurate measurement of the temperature profile and precise measurement of the Yankee surface topography. Conductive material like organic coating is not penetrated and has no influence on the distance readings.

OTR measurement requires a production stoppage of only a few hours as a major part of the measurements are taken during normal operating conditions. It is the perfect tool to extend the life time of your Yankee.



## 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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# ANDRITZ

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