

# Where safety and productivity matters On-Site Yankee Services



# Always local, all over the world

Maintenance and service are the key to efficient paper production – no matter where in the world. Our service teams offer a reliable and fast Yankee cylinder service.

A worldwide network of Voith specialists provide a tailored service which is supported by the knowledge and experience gained from years of tissue industry experience.



Our Service –  
Part of Your  
Business.

# For more safety and productivity

## Inspection service

**Voith offers an extensive cylinder service: from grinding and coating to mechanical and diagnostics. Thanks to years of experience in service and roll production, the solutions of Voith are proven.**

### **The routine inspections**

Routine inspections are carried out on an annual basis and contain the visual examination of the cylinder surface, screws and bolts of the condensate removal system. During the inspection, the service team also controls measurement of cover deformation, tube distance, surface roughness, the crowning and diameter.

### **Out of schedule inspections**

To guarantee safety, official authorities and insurance companies legislate that regular inspections are carried out. However, special events, such as thermal shock or increased mechanical use are reasons for out of schedule inspections. These include the ultrasound testing of all machine screws and wall thickness measurements. Plus, magnetic particle testing of highly worn sections of the cylinders.



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#### Your benefits

- + Fast reaction of local contacts
  - + Global network of service centers
  - + Extensive services offered
  - + Combined know-how of Voith as a service provider and machine producer
  - + Latest technology through a strong focus on research and development
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# Make your cylinder run smoothly

## Grinding services

During tissue production, the cylinder suffers from surface wear. Deforming of the profile or deviations from roundness can cause quality and production errors. These effects can seriously affect your productivity. The grinding service of Voith refreshes the cylinder surface ensuring optimum drying and sheet handling.

### **Wear: A troublesome topic**

Creping as well as smoothing cylinders are subject to the highest burdens. Deformation and loss of quality will influence the production negatively. To bring back high quality, Voith can eliminate unevenness, improve the runout and restore the crowning. Voith uses the most modern techniques to grind your cylinder.

### **Doctor-mounted grinding (DMG)**

By grinding your cylinder with a small grinding device, Voith service teams can remove scratches, corrosion or organic films from the surface. This grinding device from Voith can also refresh rotation drums and drying cylinders.

### **Virtual Reference grinding (VRG)**

VRG uses the most modern laser measurement technology to achieve the highest accuracy with a minimum of material removed from the cylinder surface. Creping and smoothing cylinders are ground to reach a precise runout and crowning. Through attaching the VRG directly on the doctor holder, no removal of paper machine parts is required. This ensures that the down time is reduced and your machine returns faster to full production.

### **Tangential grinding**

Tangential grinding is used for creping and smoothing cylinders. It is particularly effective at recovering the runout as well as removing existing metal coatings and chatter marks.

### **Super finish**

By super finishing with stone and film your rolls achieve highest surface qualities.

### **MiniGrinder**

The MiniGrinder's small size allows it to fit into all models of tissue machines without the hassle of dismantling machine parts, which reduces the time needed for grinding jobs. The MiniGrinder provides similar grinding power as traditional, larger, tangential grinding methods. Additionally, the exhaust system of the MiniGrinder reduces airborne particles to a minimum.



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#### Your benefits

- + Experience and equipment to repair and refresh the condition of your cylinder
  - + Short time for installation and setup
  - + Quick and precise grinding
  - + Efficient sheet handling
  - + Improved crowning accuracy for highest surface quality
  - + Longer service life of your cylinder at minimum downtime
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#### Characteristics

- Easy transport of equipment
  - Direct installation on doctor holder or smoothing cylinder
  - Controlled high performance grinding
  - Fast and precise grinding
  - Improved crown accuracy
  - No or limited dismantling of your paper machine
  - Minimum material removal
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# The ultimate protection against corrosion TerraDry express coatings

All cylinders in the paper machine are subject to high demands and corrosion during tissue production. High-quality coatings from the TerraDry product family counteract corrosion and wear, while improving the durability of the rolls.

## Full-surface coatings

Yankee and MG cylinders can be coated with wear and corrosion resistant materials. TerraDry coatings can be supplied as 'Express', meaning they are applied on location at your site. They provide the platform for an even, organic film that will increase the creping quality of your paper machine.

## Edge coatings

Voith employees repair and coat worn-out cylinder edges using arc spraying. High-quality materials will optimize the surface of your yankee.

## Spot repair

For small surface damages, Voith offers the spot repair technique. Through the homogeneity of the repair technique, the bulk material will not be influenced negatively. Spot repair replaces repairs using pins.

## TerraDry MG Express

This coating is applied to smoothing cylinders and is characterized through very high wear and corrosion resistance. The coating can be applied on site and enables an efficient cleaning of the cylinder surface. TerraDry MG Express coatings improve the gloss and smoothness of the paper and enable an excellent output.

## TerraDry H Express

This coating offers good protection for the Yankee cylinder.

## TerraDry HC Express

This Yankee cylinder coating is highly resistant to corrosion and scratches and thus protects the cylinder reliably over a long term.

## TerraDry HC+ Express

This coating for Yankee cylinders provides resistance to corrosion. It is highly wear resistant with a superior bonding strength and is particularly resistant to chatter marks. TerraDry HC+ Express increases the lifetime of the cylinder.





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#### Your benefits

- + Optimal cylinder performance
  - + Shorter downtime
  - + Improved wear resistance
  - + Quick on-site application
  - + Several coatings for every need
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#### Characteristics

- Excellent corrosion resistance
  - Optimized thermal efficiency
  - Enhanced creping quality
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Did you know that during a spot repair service, steam leakages can also be sealed?

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# No limitations

## Mechanical service

The service and maintenance of cylinders take up a significant part of your engineering and maintenance resources in your paper plants. Our service employees are specialized in carrying out complex tasks on location. We plan and run the whole process.

### Control and reliability

Voith operates in all fields of repairs. Therefore, our specialists can call upon expertise know-how for any type of repair, on any roll or cylinder whether it is about results of safety inspections, status assessments as well as measure-technique and diagnostic services.

### Bearing changes

Changes of bearings take place on creping as well as smoothing cylinders.

### Turning operation

This service includes the turning of journal pins on drying cylinders and returning of rope grooves.

### Sealing

With a special treatment, Voith service teams seal steam leakages on cylinders. Through sealing, leakages of the head-shell-surface-contact can be eliminated. Head bolts and nuts can be replaced.

### Condensate system

This mechanical service incorporates maintenance and repair of the systems for condensate removal within the cylinder. This works for both types of cylinder: creping and smoothing.

### Continuous steam leakages

Due to the porosity in cast iron, steam leakages can occur. These leakages can be sealed by a specialized sealing process carried out by Voith employees.

### Repair of journal pins

Damaged journal pins can be restored in a short time. Following this step, new roll bearings can be assembled.

### Change of lid screws

This service is characterized through proven methods to seal steam leakages. Special seal screws will be manufactured to seal the leakages.



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#### Your benefits

- + Long years of expertise
  - + Effective expenditure of your time
  - + Increased safety
  - + Minimalized downtimes
  - + Improved production and quality
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#### Characteristics

- Reliable on-site service
  - Available worldwide
  - Innovative and proven repair techniques
  - Recognized service quality
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# Optimizing your runability

## Diagnostic service

**Maintenance and the planning are essential for a trouble-free production process in any paper mill. Voith offers diagnostic services which combine test, measuring and analysis to support you with the maintenance of your machines.**

### **The Voith diagnostic service**

The importance of safety cannot be overestimated. Your employees deserve to work in a safe environment. Your production process relies on a paper machine which is making paper. The diagnostic services by Voith provide 'peace of mind' that your Yankee meets industry standards in safety. With advanced measurements you get the opportunity to plan and prevent failures which can cause unplanned downtimes. In addition, you can be sure of achieving the highest drying efficiencies.

### **Inspections**

Cylinders must be tested for their safety. This inspection is based on international and local standards to ensure a safe production in your paper mill.

### **Vibration analysis**

Vibrations are common in a paper machine. They often start small and increase in severity, often with extreme consequences. The vibration analysis from Voith can locate their source often preventing failure of key components and unplanned machine shuts.

### **OTR Precise**

The new "On the Run" (OTR) Precise system provides an accurate topographic measurement of the Yankee cylinder surface. The installation can be done during a brief shutdown and measurements are performed during normal operation. Thanks to the superior tensioning detection, the OTR Precise system is providing a new level of accuracy for topographical measurements.

### **Laser contour measurement**

During the laser contour test (LWC), the crown profile and runout are measured under grinding steam pressure.

### **Infrared thermography**

The measurement of temperature distribution will be depicted in real time. This identifies areas of the Yankee which are inefficient in heat transfer to the sheet. The analysis can also show where excessive heat is being lost.

### **Head-Tilt-Measurement**

This is done under cold and steam conditions and identifies possible cracks in the head. It is an essential part of Yankee safety.

### **Magnetic particle testing**

Thanks to this testing method, cracks in cylinders, lids and pins can be detected.



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#### Your benefits

- + Early recognition of problems
  - + Optimization of the production
  - + Fast and accurate diagnosis and analysis due to measurement under real conditions
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Did you know that a head-tilt-measurement can be carried out during a safety inspection, too, which results in savings of time and money?

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# Increase safety

## Accurate calculations

The shape, size and condition of machine parts can make the difference between a process which is safe and optimized, or one that is a 'time-bomb'. Accurate calculations can ensure you are aware of your process as well as machine limitations and can take actions to ensure you are operating safely and efficiently.

### Mathematics as a great tool

Through the use of calculations and diagrams, often hidden conditions are exposed and become easier to understand. Our service team calculates and estimates factors that will help you in the end to recognize problems very early and to optimize your machines. Calculations can be performed which highlight limitations as to the condition of a Yankee, ensuring it is operated in a safe manner.

### Crowning calculation

The optimal crowning of Yankee cylinders and press rolls is a finite measurement. If the crowning is wrong, it can

negatively affect paper quality, runability and roll cover life. Voith can calculate the optimum crowning for your Yankee and rolls and ultimately ensure significant cost savings.

### Safety calculation

Safety is an important issue in every operation, also in the paper industry. Ensuring the safety of your employees and the production is paramount.

### Calculation of the steam and condensate system

The calculations of the Voith service employees can be of great help to optimize the steam and condensate system of your machine.

### Pressure limitation calculation

The Yankee cylinder is a pressurized vessel and as such subject to forces from within. On the outside, the Yankee surface is pressurized from press rolls. It is vital that you understand the condition of the cylinder and its limitations. The calculations and visualization of the cylinders load-bearing capacity of Yankee cylinders is done in diagrams according to TÜV, ASME and other relevant guidelines which helps to create an overview over the load-bearings during the production.



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#### Your benefits

- + Safe production through preventive calculations
- + Increased paper quality and sheet handling
- + Reduced roll cover damages

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#### Effects

- Optimized steam and condensate system
- Diagram according to regulations by TÜV and ASME
- Optimal crowning for Yankee cylinders and press rolls

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