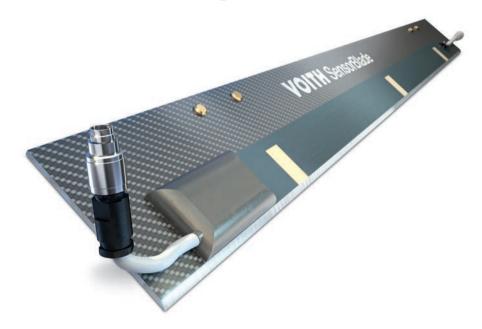


# Service for perfect doctoring Voith Doctoring Solutions



# Your benefits

- + Everything from one source: investigation and recommendations for optimizing the doctor work
- + Perfect doctor alignment: decrease of paper draw, reduction of sheet breaks
- + Reduced energy consumption due to less rewetting and increase of dewatering efficiency
- + SensorBlade: blade line load measurement
- + Improved paper machine runability
- + Extended blade lifetime leading to less blade cost
- + Reduced roll cover wear



#### Doctoring services to maximize runability

Doctor applications in the former, press and dryer sections and the calender have a considerable influence on the runabilty of a paper production line.

The reliable performance of the doctor system, whether for removing contaminants and water from roll surfaces or for the web pick-up on rolls and cylinders, must be ensured at all times. Especially removing the sheet from the center press roll during a web break must be immediate and effective. Misalignment or uneven loading of the doctor system may lead to sheet passing, serious damages and downtime.

Therefore the system "beam-holder-blade-roll" must be tuned perfectly.

#### Why Voith?

As a full-line supplier, Voith provides advanced solutions around doctoring. Voith offers the machine builder know-how combined with a doctoring solutions portfolio. A team of doctoring solutions experts not only takes care of the blades themselves but focuses on the overall doctoring process with all relevant products playing together: doctor system, blade holder, doctor alignment, blades and roll cover.

The combined development of roll covers and doctor blades offers synergies resulting in high value for our customers.

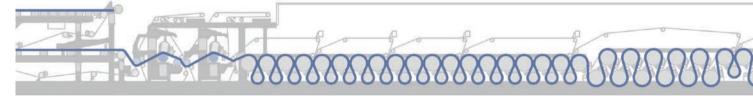
# Doctor positions in a paper machine

## Forming section

Important for dewatering

#### Press section

Essential for web pick-up at the center press roll



#### **Breast roll**

Problem: insufficient doctoring leading to fiber and water passing Solution approach: check of blade line load and doctor setting with SensorBlade

**Implementation:** optimization of doctor alignment and blade

pressure

Your advantage: higher dryness and less fiber build-up

#### Suction press roll

Problem: rewetting and limitation in dryness Solution approach: reduce rewetting and optimize dewatering efficiency Implementation: custom-designed doctor system Your advantage: higher dewatering and reduced

energy consumption

#### Center press roll

**Problem:** increased draw, sheet passing, insufficient web pick-up

**Solution approach:** optimize roll surface conditioning and roughness, check of the blade line load with SensorBlade

Implementation: maintenance and alignment of the doctor system, installation of the perfect blade for your roll cover to optimize your roll cover conditioning

Your advantage: reduced sheet breaks and shutdowns, increased machine availability (OEE)

#### **Doctoring Solutions services**

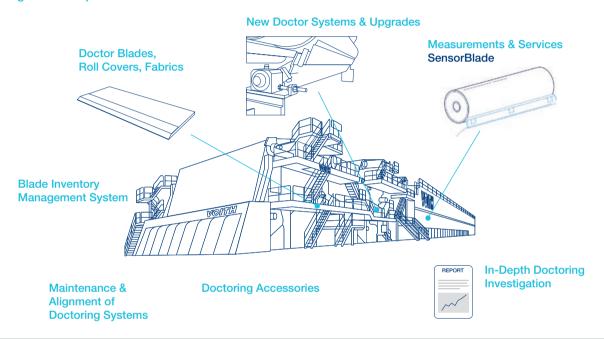
With our Doctoring Solutions services, we will assist you during shutdowns, for troubleshooting as for continuous doctoring improvements. You can focus on your core competences; we take care of the doctoring.

Our Voith Doctoring Solutions team analyzes and investigates doctoring systems onsite and develops proposals to increase your paper machine efficiency.

Additional activities cover the optical control of rolls and cylinder surfaces. Moreover, the analysis of roll covers can be performed (e.g., roughness measurement, groove depth, surface tension).

With our Blade Inventory Management System, we reduce our customers' administration efforts significantly with automatic resupply of doctor blades. In addition, we can offer interesting commercial solutions.

#### **Doctoring Solutions portfolio**

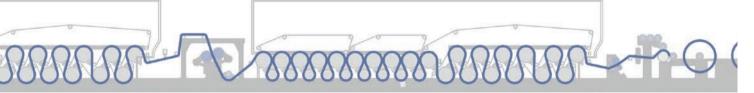


## **Dryer section**

Last dryer cylinder of a dryer group to take off the sheet

## Finishing section

Efficient cleaning to avoid cover damages



#### Reduced administration by digitalization

**Problem:** limited availability of staff (fixed cost situation)

**Solution approach:** reduction of administrative efforts (check of blade stock, re-ordering of blades, etc.)

Implementation: Blade Inventory Management System (BIMS) fully automated management of doctor blade stock

Your advantage: increase of staff availability, digitalization and transparent blade stock level

#### Dryer cylinders

**Problem:** sheet passing, contamination of dryer cylinders

**Solution approach:** check of the blade line load with SensorBlade, mechanical check of the entire doctor system

**Implementation:** service and adjustment of the doctor systems, optimization of blade qualities

Your advantage: less sticky build-up on dryer cylinders, improved dryer fabric cleanliness, optimized sheet take-off

#### Calender

**Problem:** stickies and hot-spots leading to cover damages

**Solution approach:** check of the blade line load with SensorBlade, improve doctoring by using suitable blade material

**Implementation:** maintenance and alignment of the doctor system, selection of the perfect doctor blade quality

Your advantage: efficient roll cover cleaning leads to less sticky build-up and avoiding hot spots, improved roll cover lifetime

#### Scope of services

Standard service activities include service and repair of doctor systems, measurement and alignment of doctor settings, visual inspection of blade conditions, and recommendations for possible improvements.

- · In-depth doctoring investigation/audit
- · Maintenance and alignment of doctoring systems
- · Blade Inventory Management System
- · New doctor systems, rebuilds and upgrades
- · SensorBlade measurements
- · Troubleshooting and service
- · Doctor and sealing blades

Doctoring Solutions are part of the comprehensive Servolution portfolio



# Equipment services

Installation & commissioning services

- ✓ Installation service
- ✓ Commissioning service

#### Maintenance

- ✓ Inspection
- ✓ Preventive maintenance
- ✓ Corrective maintenance
- Equipment improvement
- Repair & refurbishment

#### **Materials**

- ✓ Spare parts
- ✓ Wear parts & consumables

# Process services

#### **Audits**

- ✓ Production line
- Maintenance
- ✓ Digitalization
- Energy
- ✓ Safety
- ✓ IT-Security

# Expert support / consulting

- ✓ Smart monitoring
- ✓ Data analytics
- Condition monitoring
- ✓ Technology
- Maintenance
- ✓ Engineering
- Automation

# Training

- Equipment
- Operation / Technology
- ✓ Safety
- ✓ Methodology

#### Pilot trials

- ✓ Stock Preparation
- ✓ Pilot Paper Machine
- ✓ Pilot Coater
- **V** Pilot Calender
- ✓ Laboratory

# Measuring & diagnostics

- √ 3D scan
- ✓ Alignment service
- ✓ MobiLab
- Paper moisture profile analysis
- ✓ Paper profile analysis (Tapio)
- ✓ Nip load measurement
- SpeedUp certificate
- ✓ Vibration analysis
- ✓ Wet end process analysis

Please click on this **link** or scan the QR code to visit our Doctoring Solutions Services website:



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