Procemex ProClean Pinhole Camera

Image Quality After Six Months of Operation

procemex

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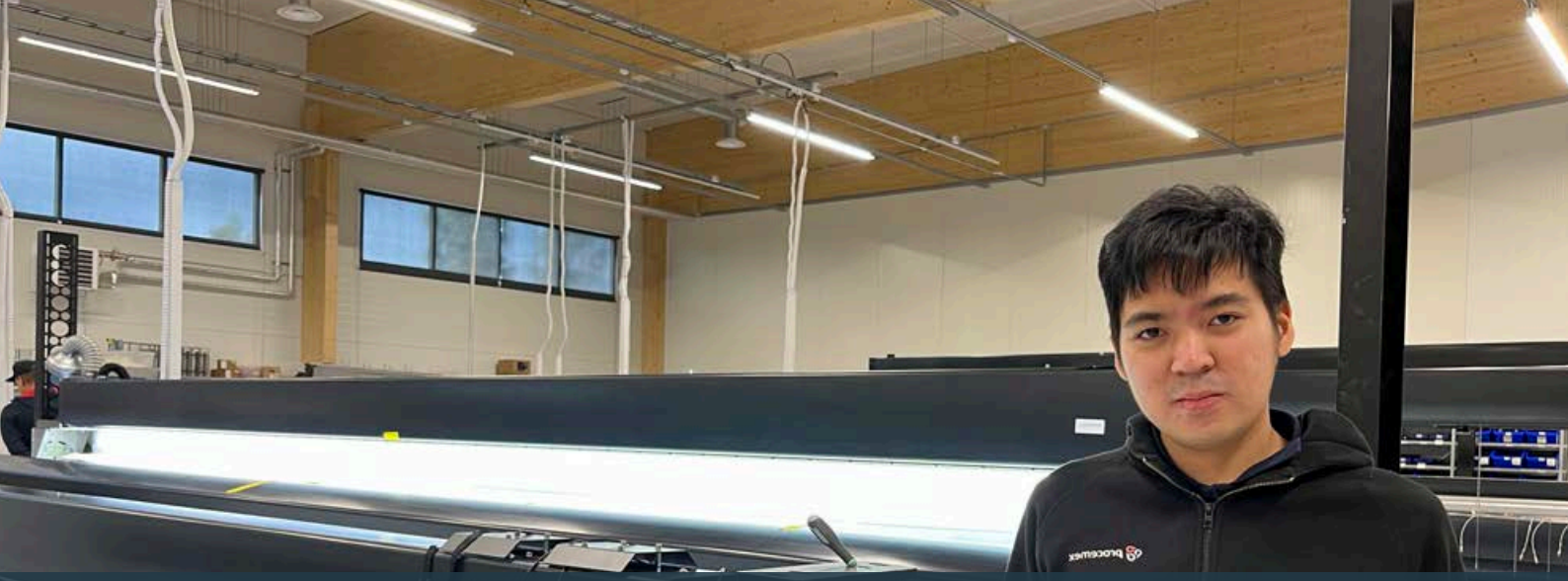


Dika Akilla, Service Engineer of NVG (Procemex exclusive partner in South East Asia and China), visiting Procemex Finland having a look on the finalization of the web monitoring and inspection system before it is shipped to Indonesia.

How Procemex ProClean Pinhole camera images looked after six months from installation

I have been working in the paperindustry for several years in Indonesia. During this time, I have traveled across different areas in Indonesia and visited dozens of paper mills. It has been very exciting to see with my own eyes the extreme conditions, where the paper web monitoring cameras must perform optimally, to provide accurate images to mill operators, enabling them to enhance production line efficiency and recognize paper web defects accurately and on time.

Paper mills today require, that web monitoring cameras provide sharp high-resolution images at the highest machine speeds and requirements.

As many of the web monitoring cameras are located in the forming and press section, it is critical to keep cameras and lights clean in harsh environment to deliver excellent images for improved troubleshooting and efficiency.

I thought it would be interesting to take before and after images with Procemex ProClean Pinhole Cameras, and see, how they perform and maintain the image quality in harsh paper mill conditions, six months after installation.

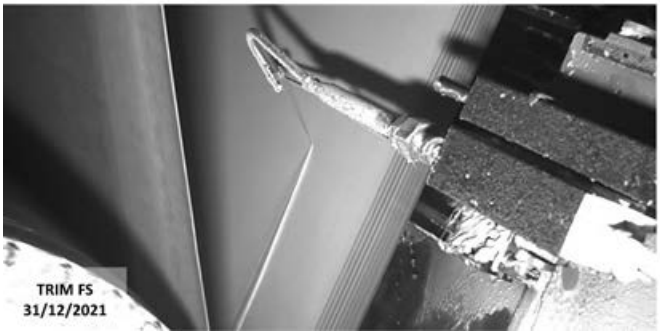
The installation consisted of multiple Procemex ProClean pinhole cameras that monitored different phases of the paper production. The pictures taken present really well, why so many mill operators insist on using Procemex ProClean Pinhole cameras instead of the traditional web monitoring cameras.

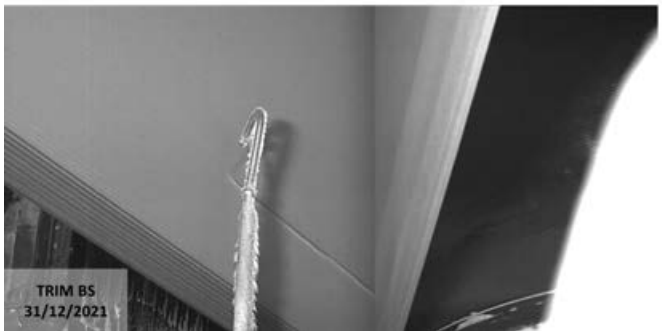
The picture on the left column shows the camera image taken on the installation day, and the picture on the right shows the image, that was taken with the same pinhole camera, six months after the installation date.

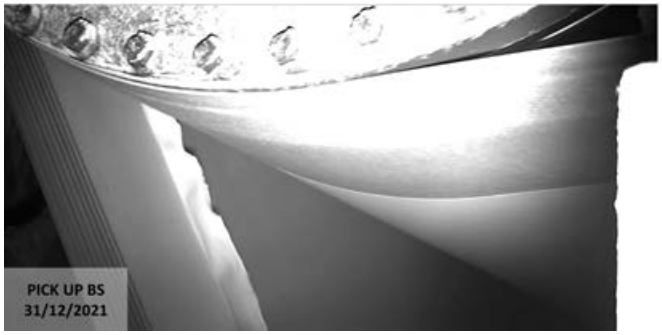
When looking at these images, I am not surprised, why so many paper mills in Indonesia have shifted away from using traditional cameras to Procemex ProClean Pinhole cameras.

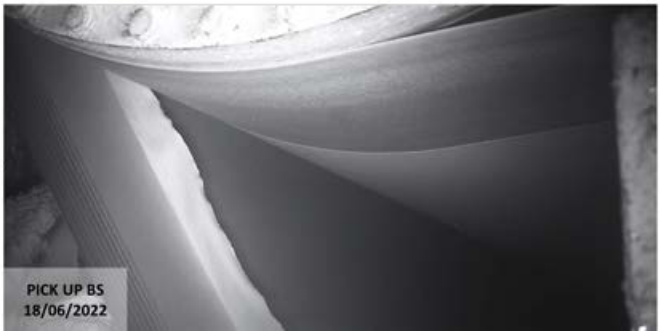
On Installation Day

After 6 Months of Operation



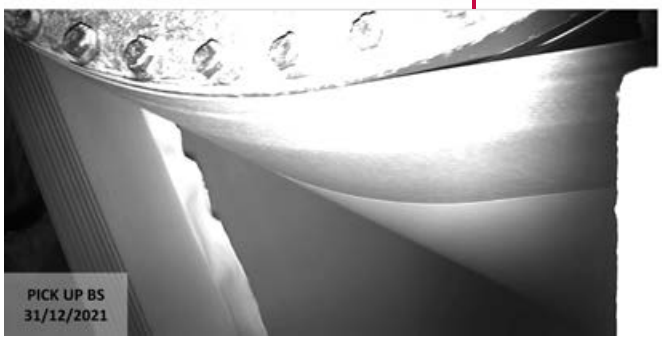


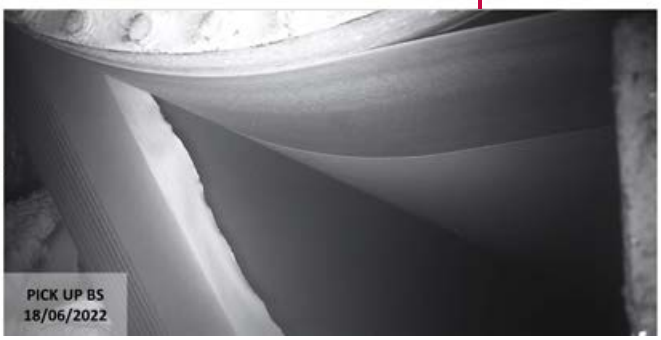


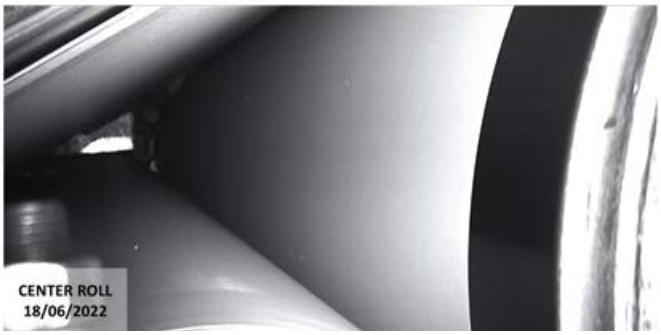


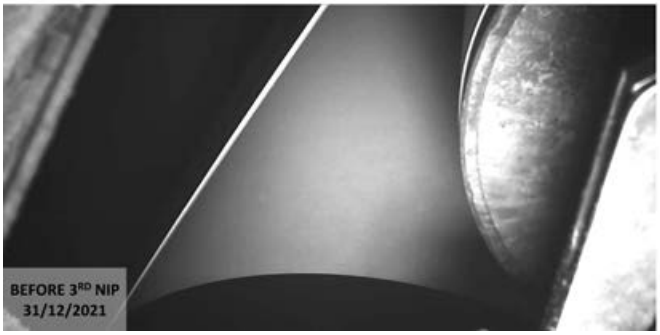
On Installation Day

After 6 Months of Operation









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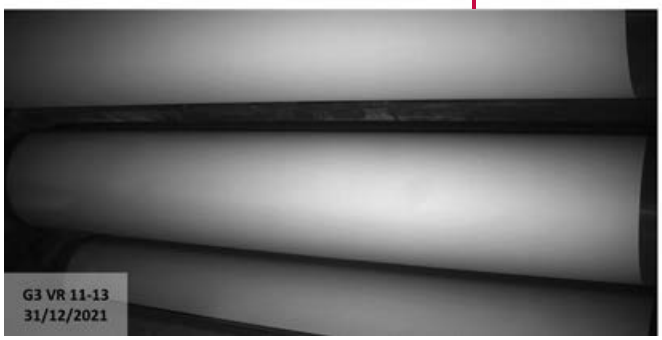

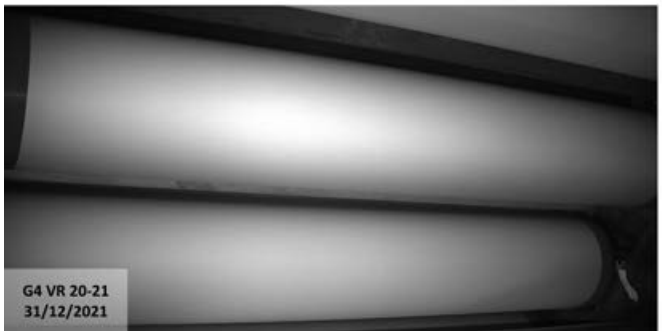

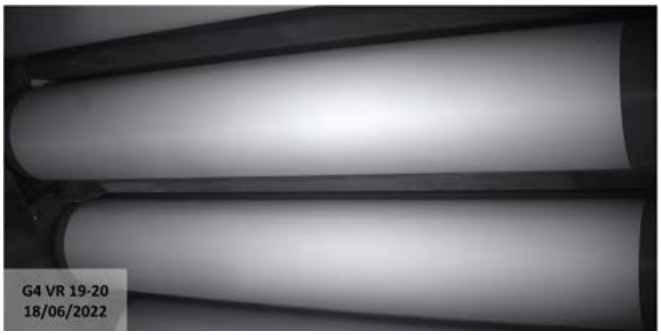

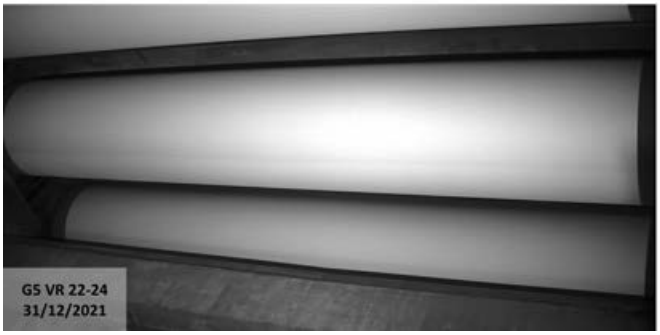

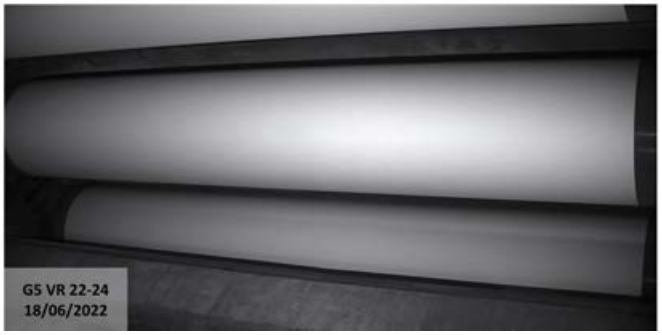

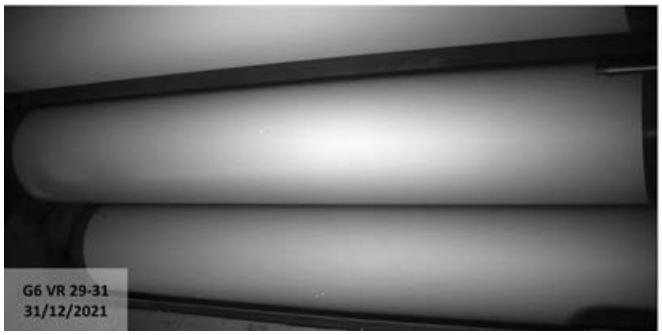

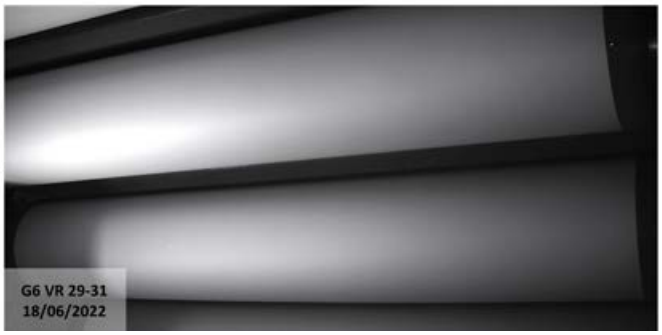

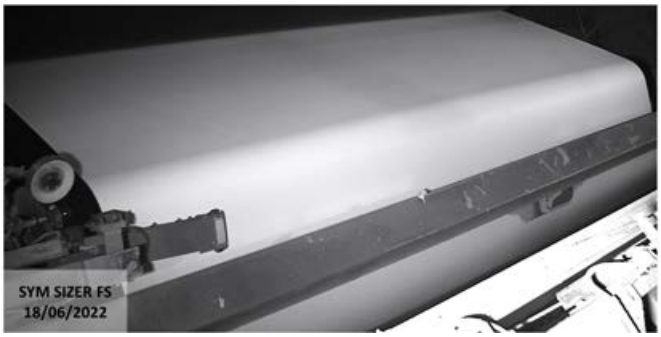

On Installation Day

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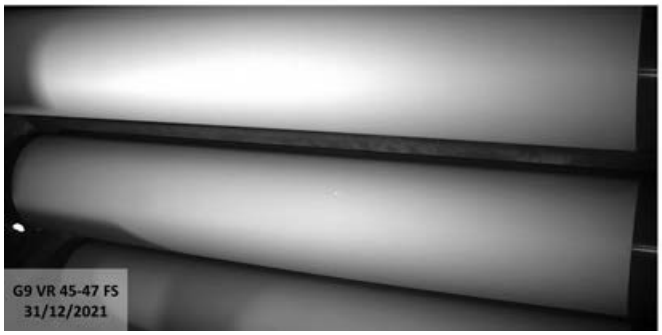
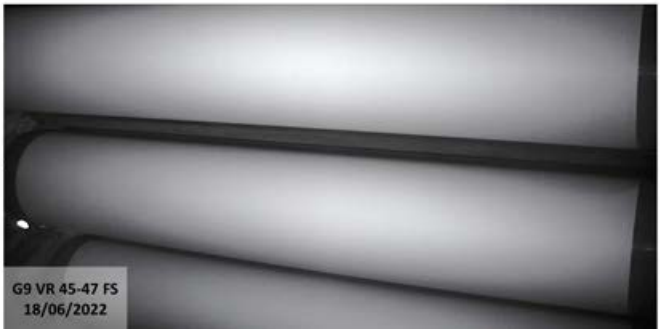
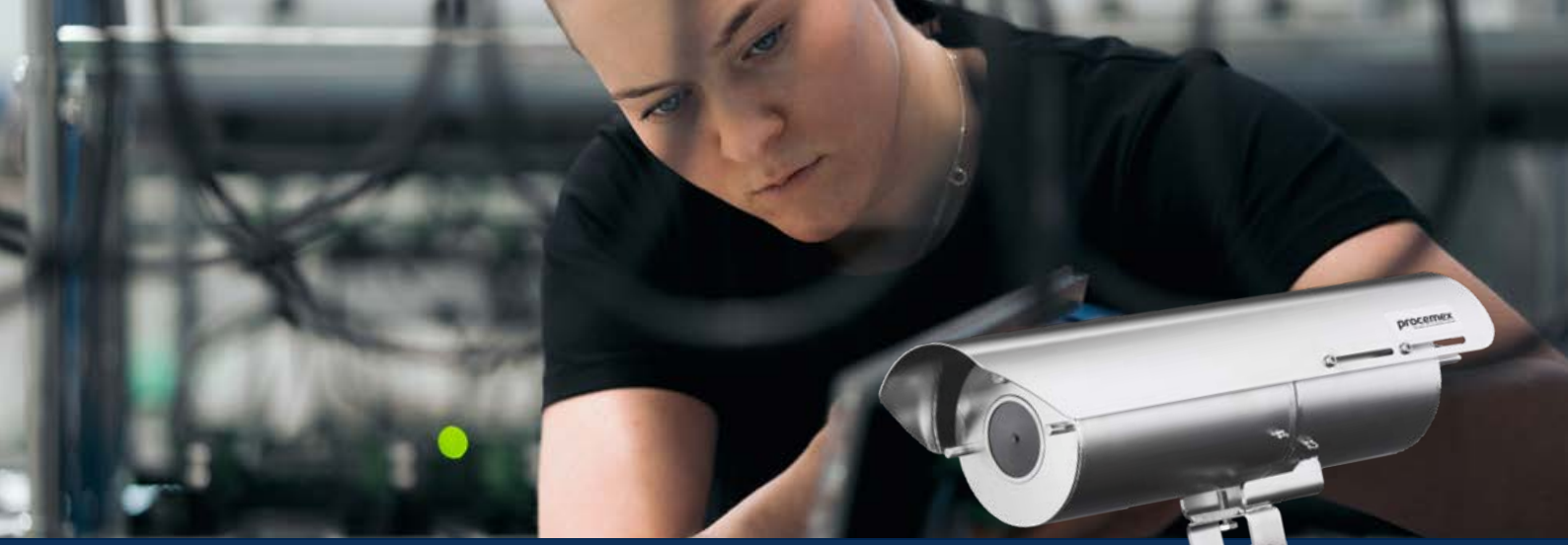






Procemex ProClean Camera

ProClean Camera technology keeps cameras clean

The challenge to keep the web break cameras clean is an everyday reality in all board and paper mills. Dirt in the camera's protection window make the images dark and fuzzy. The new Procemex ProClean pinhole technology guarantees that cameras stay clean 24/7 and provide sharp and clear images for operators to monitor paper defects and root causes of web breaks.

Web monitoring cameras are kept clean under harsh wet end conditions with the aid of instrument air flow. The air is blown through a 5 mm hole in front of the camera housing. As the air flow speeds up when passing the pinhole it forms a strong protection against dirt and prevents water and dirt entering the housing. The housing has no protection window that could get dirty or wear out. The camera is equipped with a dedicated pinhole zoom lens capable of viewing through a very small hole.

ProClean Camera image taken on the date of system installation

ProClean Camera image taken 6 months after system installation

Benefits

- No manual cleaning needed.
- ProClean Pinhole Cameras can be used in all paper machine locations from headbox to the reel.
- Existing standard housing can be converted into pinhole housing by changing the small nose piece.
- Low air consumption. No moving or wearing parts.
- Camera Resolution 2- 12Mpix. Always 100% visibility. Clear images from edge to edge. Procemex Smart Cameras are not limited by the network capability, as the camera processes data inside its own shell.
- 5-10 times higher shutter speeds over standard pinhole lenses. Clear images without blur caused by web movement.

No cleaning needed

ProClean Technology

BETTER RESOLUTION • HIGHER SHUTTER SPEED • CLEARER IMAGE • MAINTENANCE-FREE • NO CLEANING

Standard Pinhole camera vs. Procemex ProClean™ Camera

A standard pinhole camera with 1/2.000 sec or lower shutter speed can't stop paper movement properly and lacks light especially in corners of the imaging area. Procemex ProClean pinhole camera, with 1/8.000 sec shutter speed stops paper movement and has even illumination across the imaging area resulting to crystal clear images.

Procemex ProClean Pinhole camera is equipped with a dedicated pinhole zoom lens capable of viewing through a small 5mm hole. The lense is a unique purpose-built component designed to utilize available illumination better reaching 5-10 times higher shutter speeds over standard pinhole lenses.

Higher shutter speed stops fast moving paper web better resulting to **crystal clear image quality.**

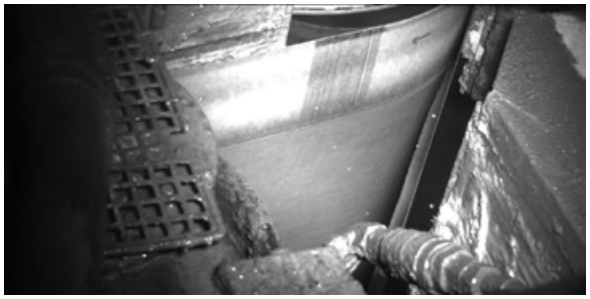
The benefits of ProClean Pinhole Camera are trouble-free operation, low air consumption, 100% continuous visibility and the simplicity of the concept. There are no moving or wearing parts such as wipers, electronics or controlling components.

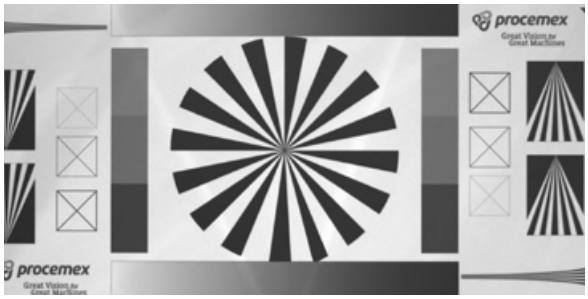
Continuous air flow enables pinhole cameras to film undisturbed 100% over the time without washing cycles or wiper movements causing blind times during the cleaning process.

Small Pinhole = Low Air Consumption

STANDARD PINHOLE CAMERA

PROCEMEX PROCLEAN PINHOLE CAMERA





Efficient lighting with LEDs

Procemex uses LED strobe lights that can be synchronized with AC sync with ambient illumination to prevent a fade in-fade out effect from happening.

The latest LED technology is enhanced with custom designed focusing lenses, and optimized use of power. Procemex ECO LED Light has indirect cooling unit, that can use instrument air or water. The benefit of indirect cooling is that there is no instrument air inside the light, eliminating the risk of over-pressurizing the housing and ensuring greater safety for the protection window.

Enhanced visibility with additional cameras

With strategically positioned cameras, potential runnability issues can be detected earlier and the defect root causes can be analysed more quickly.

One way to enhance the performance of the excisting web monitoring system, is to add more cameras to new positions. With sufficient number of cameras, all the necessary parts of the paper web can be covered, assuring efficient sheet break and defect root cause analysis.

Procemex ProClean Pinhole Cameras can be used in all paper machine locations from headbox to the reel. With broader camera coverage, it's easier to pinpoint the exact reason for sheet breaks.

Onsite Services | Maximize the reliability of your vision systems

With Procemex Onsite Services, you can ensure maximum reliability and optimal performance of your vision systems.

We offer systematic and continuous system audits, along with well-scheduled onsite maintenance services, to guarantee a reliable operation of paper machine's vision system. In addition, we provide comprehensive training for system operators, equipping them with the skills and knowledge needed to efficiently operate the system. This, in turn, enables you to optimize the entire paper making process, ensuring its smooth and efficient performance.

procemex

Member of the ANDRITZ GROUP

Future Proof and Backward Compatible

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