



Pulp and Paper - Service

Top 10 tips for pulp and paper plant preventive maintenance

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In the pulp and paper industry preventing problems is infinitely preferable to curing them. Between 60 to 80 percent of all equipment malfunctions on QCS (Quality Control System) scanners and other equipment located throughout the process, are caused by incorrect maintenance. Maintenance should include basics like detailed cleaning, lubrication, alignment and the following operation and installation procedures.

Pulp and paper mills are conducive to harsh environments producing lots of dust and heat. Elimination or reduction of the effects of heat and dust is critical to the healthy performance of pulp and paper mills. A preventive maintenance campaign means that equipment failures which result in production downtime and cut profits can be kept to a minimum or even prevented entirely.

Here are the top ten tips for ensuring maximum system availability throughout a pulp and paper mill.

1. Keep it clean

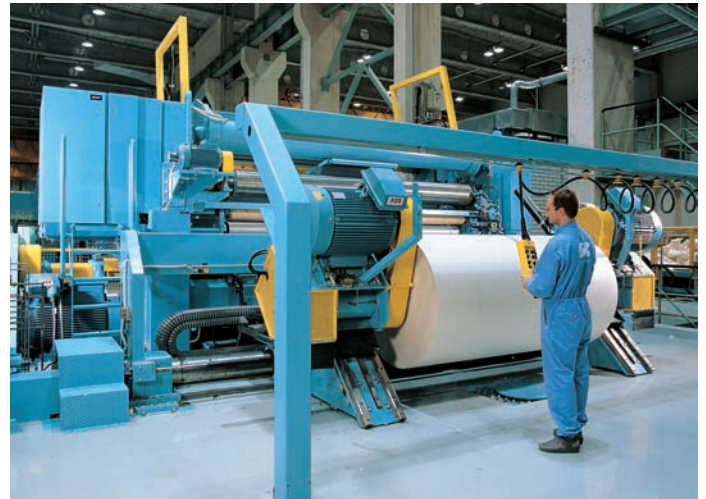
If dust is not controlled, then it can cause many potential risks in terms of measurement accuracy and overheating of critical electronic components. Dust is controlled using a well-developed head package design and well-engineered air wiping devices.

Distributed Control System equipment in particular should be sealed against the ingress of dust, as electronics coated with dust are particularly prone to overheating which can cause failures.

Particularly dirty areas should ideally be redesigned to protect equipment from dust. Keeping things clean also allows other problems to be spotted and rectified more readily. Cracks, leaks, loose connections and other problems are more easily found if the item is not covered in a thick layer of dust.

2. Be systematic

A good preventive maintenance schedule is one that is based on first class record keeping. A logbook should track what has been checked; what was found; and any corrective action that was taken. These records form a platform on which to base preventive maintenance schedules.



At a minimum, the logbook should include what, how and why an inspection was done.

3. Inspect regularly

Weekly checks on the quality control scanners can mean inspecting the sensor window material for damage or wear. Early detection of these problems will ensure sensor accuracy and hence more efficient production costs.

Monthly maintenance and verification checks as well as an annual inspection, in addition to regular maintenance on scanners and sensors, are to be carried out to ensure that the scanners and sensors give optimum performance through their entire lifetime.

Ideally, equipment should be inspected while operating not only to minimise shutdown time, but also to detect such things as vibration, correct operating pressures and leaks which can not be assessed on stationary equipment.

ABB will advise on the frequency of inspection for particular products, and will always endeavour to work within the constraints of an operating production plant.

4. Maintain scanners

Scanners and their onboard sensors are fundamental to maintaining quality.

The probability that a scanner will fail increases after three to 10 years of operation. One of the main reasons for failures is aging of components, but it can be affected by environmental conditions, such as dust and heat and therefore maintenance is key.

Preventive maintenance for scanners should involve:

- Visual inspection of the system and its environmental conditions
- Inspection of the connections
- Inspection of the ribbon and fibre optic cables
- Functional inspection of the fan and cooling system
- Inspection of the health pages and alarm history

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- Inspection and storage of the parameters
- Functional testing of the system under normal conditions
- Basic measurements with supply voltage
- Inspection of the spare part inventory
- Cleaning of the system

All these are offered and recommended by ABB and can form part of a Service Contract.

5. Apply regular maintenance to drives

Variable speed drives keep the plant moving, so regular preventive maintenance is vital to maintain their health. Keeping drives and motors clean ensures they are within their operating temperatures and helps achieve the best possible efficiency.

One of the options is to keep an eye on the drives in a plant remotely. This allows such features as drive system parameter verification, parameter changes, on-line measurements, changes to application software, upgrades to system software, remote guidance and written instructions sent to the maintenance PC.

6. Upgrade motors

Motors are another essential in the drive chain and those designed for high reliability will help maintain availability. A new motor for process industries has a 20-30 percent greater cooling surface than its predecessor, reducing the internal temperature considerably.

This gives longer component life and will protect motors from overheating. With improved cooling, lubrication intervals are 50 percent longer, as lower temperatures increase the life of the bearing grease.

7. Assign the right people for maintenance

A key strategy is to control who implements the preventative maintenance procedures and to have an agreed planned programme of work. The best results are achieved when specific people with the correct training are given personal ownership.

8. Give the right training

Employees should be trained in correct normal operation, so as not to exceed the device's parameters, and in what to do when problems occur. Shift engineers need the training so they know all about the operation of the system. Training



the staff only when the equipment is commissioned and not be concerned about maintaining current training can lead to more call outs to service engineers than needed, resulting in production delays.

9. Get professional help

Many vendors will also perform on site preventive maintenance. The best vendors will assign dedicated field service engineers to a mill to develop a close relationship with customers. This means that the field engineers are informed about the shutdown schedules so they can plan the more intensive maintenance activities and ensure that the installed base is operating in peak condition.

An alternative to performing preventive maintenance on site is to consider sending modules to the vendor's own workshop. If a module is to be sent to the workshop for repair, it is often practical to perform preventive maintenance at the same time.

Customers can also choose to have Remote Diagnostic Services (RDS). RDS offers facilities for monitoring current performance against benchmark data using asset monitors. This provides opportunities for predictive maintenance and all of its benefits.

10. Develop models and programmes to enhance maintenance

Many companies, including ABB, provide the process and manufacturing industries with a structured program to improve and sustain the performance of production assets. The best of these arrangements occurs when the client and the vendor work together as a team to develop a business model that supports the client by providing world-class reliability and maintenance services.

Look for a risk / reward performance mechanism that ensures that continuous improvement opportunities are identified and captured over the life of the contract.

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