



TISSUESOLUTIONS

WEBCAN, DOCTOR BLADE, LOG SAW
AND YANKEE HOOD PROTECTION



Losing millions due to fires



»Fire hits ... tissue mill in the UK«

»A fire broke out at the ... mill in the UK on September 10. A small blaze erupted in the drying section of a paper machine at 4 pm.«

» ... fire caused by technical fault«

»The police investigation of the fire last weekend at ... has concluded that the storage hall fire was caused by a technical fault, with no human error or act to blame. The police has named the cause as a spark from a steel part used in cleaning a drying cylinder, something which can happen in any papermaking operation and something which had occasionally happened in the past at ... Although all safety directions were followed, the police believe a spark must have landed on a finished roll, which was then stored in the parent-reel store where the fire later broke out. The spark was not visible and not to be expected, ... reports. Nevertheless, a faint smell of smoke caused employees to carry out an inspection and they found the cause and tried to remove the roll with a crane, but this was not possible.«

»Fire strikes at ... warehouse in the U.K.«

»A spectacular blaze has destroyed one of ... tissue product warehouses in the U.K.«

An industry losing millions of Euros every year due to fires - some small, some major

News clips like these are unfortunately too common. As production rates are increasing, so are the risks. One of the big concerns at a tissue plant is fire.

The worst and most feared scenario is that ignition sources, created by a production related problem, such as sparks and doctor blade friction, are transferred to the warehouse within the tissue reel. The typical frequency of this scenario is low, but if and when it happens, the result or consequence is devastating.

WebScan safeguards the mill by scanning the tissue web prior to being wound up into tissue reels. By continuously scanning the entire tissue width, the risk of something passing by unnoticed is minimised.

By finding the ignition sources - e.g. hotspots, black embers or even sparks on the tissue web before they end up within a tissue reel, a warehouse fire can be avoided.



WebScan

A unique method safeguarding the mill and the storage facility.

The WebScan system consists of WD detectors (sensors), mounted above the tissue web, at a suitable location between the Yankee dryer and reeling. The detectors are connected to a Firefly control unit.

The detectors will receive the heat radiation emitted by ignition sources on the tissue web and provide an alarm within milliseconds after finding a hotspot on the tissue web. The alarm signal from the control unit can be used by the mill's control system, PLC/DCS, for necessary actions.

As each detector is addressable, the system can provide the location of the ignition source along the width of the tissue web. This information can then be used by the mill's control system.

The detectors utilise Firefly Self Diagnostics, FSD technology, confirming sensitivity as well as internal temperature and humidity. As some tissue machines are quite hot at the dry end and wash downs are common, FSD ensures the function of WebScan.

Installation

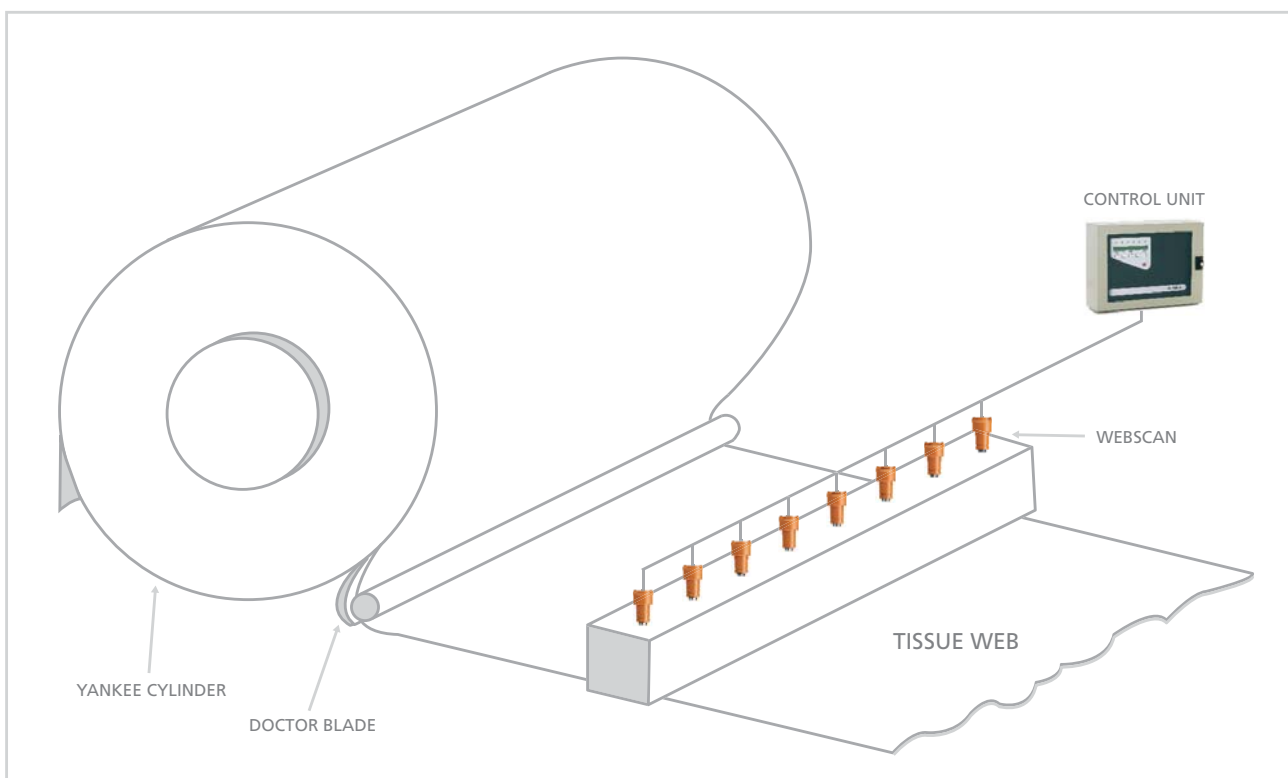
As the purpose is to find ignition sources on the tissue web prior to reeling, WebScan needs to be mounted at a location between the Yankee dryer and reeling operation. A common location is before or after the QCS (Quality Control System). In some cases WebScan is integrated with a foil.

The WebScan detectors are installed on a mounting box that will cover the full width of the tissue web. The size of the box is 200x200-280x280 mm (LxH). If the box isn't integrated with a foil, it should be mounted at 10-50 mm above the tissue web.

As some locations after the dryer can be humid and dusty that may result in build-up, WebScan can be equipped with efficient cleaning devices to ensure proper function, if needed.

Facts WebScan

- For machine speeds up to 50 m/s
- Detects hotspots, glows and sparks
- Continuous detection of the entire width
- Detects from 250°C



Doctor blade and Yankee protection

A smouldering fire at a doctor blade is very common, many times resulting in a bursting fire with costly downtime as a result.

As the area around the dry end of the Yankee dryer is usually dusty, a small smouldering fire can easily be spread by the rotation of the Yankee cylinder, scattering the ignition sources to an even larger area. Once the fire has got a grip, particular on the drive side of the tissue machine, the fire becomes not only dangerous but also difficult to extinguish without contributing to additional downtime. Usually massive amounts of water is needed to extinguish at this stage.

Fast, reliable and automatic flame detection

By automatically detecting the flames around the doctor blade, on the drive side, on the top of the Yankee Hood or at other areas of concern, one can avoid minimum loss of equipment, production or even human lifes.

The more time given a small flame, the larger it will become and consequently more difficult to extinguish.

Extinguish with a minimum of effort and disturbance – use water mist

Water mist, once hitting hot metal surfaces or flames, it transforms into steam, without the side effects of alternative extinguishing methods.

Water mist expands by more than 1700 times, therefore small quantities of water is needed. The cooling effect of heated steel is kept to a minimum, with minimal material stress as a result.

Firefly uses a low pressure (7-9 bars) water mist system with no recharging or replacement needed after an activation.



Log saw protection

Fires in log saw enclosures are common and costly.

The main generator and reason for this problem is the actual saw blade generating heat due to friction or the sparks and hot particles generated during sharpening of the saw blade.

As the encloses are generally dusty, ignition can easily cause equipment damage and loss of production time.

Fast, reliable and automatic flame detection

With fast and automatic flame detection inside the enclosure, loss can be kept to a minimum.

The more time given a small flame, the larger it will become and consequently more difficult to extinguish.

Extinguish with a minimum of effort and disturbance – use water mist

Water mist turns into steam once it hits the flames, therefore oxygen is eliminated and the fire quickly starves.

Water mist has the benefit that it does not damage the electrical equipment as mist has no force. The risk of flooding the log saw enclosure or the converting facility is unlikely as the water consumption is very low.

Firefly uses a low pressure (7-9 bars) water mist system with no recharging or replacement needed after an activation.

Facts Doctor blade, Yankee and Log saw protection

- Fast flame detection, UV/IR
- Efficient and reliable extinguishing
- No thermal stress
- Complete solution
- Minimal downtime

