

# PRESSGUARD™

PRESS & HOT OIL PUMP ROOM  
PROTECTION



## WOOD PANEL SOLUTIONS

HOW TO PROTECT YOUR PROCESS  
FROM FIRE AND DUST EXPLOSIONS

- WOOD PANEL INDUSTRY
- FIREFLY SYSTEMS
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”It must be said, even in front of the supplier, that I would recommend any wood working factory not to save money on this type of equipment. I will install a PressGuard™ system on all presses we have. It should be an industry standard.”  
 Mr. Piya Piyasombatkul, President of the Metro Group  
 MDF and Particle Board producer in Thailand

25.000.000 USD...  
 ...is the estimated yearly loss of revenue for worldwide wood panel producers due to press fires.

Every year there are hundreds of fires in presses throughout the world. Production downtime and damage to the press are costly consequences.

If you think safety is expensive – try an accident!



### Press – The heart of your board plant

Presses are never exactly alike. Efficiency of continuous, single or multi-opening presses has always been a high priority for the wood panel industry. The demand for increased productivity has led many factories to make customer specific modifications and additions to their presses. As a result, this has had a negative effect on particularly maintenance and cleaning procedures. Press protection systems relying on standard solutions often prove to be inadequate.

Effective press protection requires the design of a plant specific system.

- Important parameters when designing a PressGuard™ system
- type of press
  - design of the press
  - condition of the press
  - location of the press
  - design of the exhaust
  - cleaning procedures
  - operational procedures
  - fire procedures
  - oil leakage
  - material build-up
  - electrical cables
  - heating oil transfers
  - press temperatures
  - fire spreading possibilities
  - location of control room
  - other factors



Press protection

### Did you know....

Question: What is the absolute most critical aspect in successfully fighting a fire?

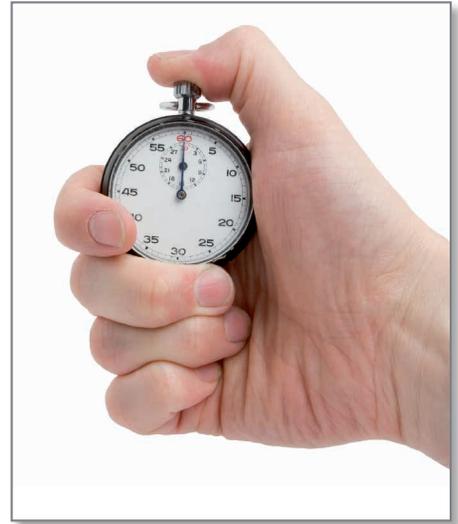
The location of the fire?  
The chosen extinguishing method?  
The material in the environment?

No.

The right answer is **TIME**.

The longer time you give a fire to develop, the harder it is to extinguish and the more damage it will cause.

This principle is no different for presses.



### When your aim is to protect a press, two factors are critical:

1. Fast and reliable detection at the right areas, in and around the press
2. Suppression without secondary consequences

Firefly has taken the factors above into account when developing the Firefly PressGuard™ system.  
The reaction time for PressGuard™ can be as quick as 2 seconds from detection to the start of suppression.

## PressGuard™ - the concept

### On Site System Adaptation

Due to the complexity and individuality of each specific press, the Firefly PressGuard™ concept starts with a thorough On Site System Adaptation of the press.

#### Step 1

Firefly engineers will first examine the risk factors in your factory. There will be several questions to raise for example:

- Where can a fire start? (hot surfaces, fans in the roof, lights, brush wheel, etc.)
- From where can a fire spread to the press?
- To where can a fire spread from the press?
- Is there any sensitive equipment located close to the press (cables, oil pumps, etc.)
- More important factors

#### Step 2

Firefly engineers tailor the PressGuard™ system based on the information gathered, for example:

- The exact location of detectors and water nozzles will be determined
- Extra protection of external sensitive cables located close to high risk areas of the press
- Protection of external sensitive equipment close to high risk areas
- More important factors



## PressGuard™ detection

Different areas of a press require different detection methods. Firefly has a wide range of detectors to meet specific requirements.

### Flame detection – Avoid false alarms!

#### Open areas

The area around a press contains many different disturbances that can affect regular flame detectors. The unique detector used for flame detection around a press is a two-channel UV/IR detector. By combining IR and the UV wavelength, the detector will efficiently recognise flames but discriminate other energy sources such as lamps, sunlight and even arc welding.

#### Enclosed volumes

In enclosed volumes such as heat tunnels, infeed and outfeed boxes, fire can easily become a problem if time is given for the fire to develop. Firefly uses fast acting IR flame detectors that will detect flames at a very early stage without the common problem of being daylight sensitive.



### Hot particle detection – Early warning

Firefly uses IR hot particle detectors in extraction ducts from the press. Detecting sparks and overheated material gives early warning of an incipient fire. This will also minimise the risk of fires in cyclones or in other process areas downstream in the extraction system.

Firefly's unique IR detectors are able to recognise sparks as well as hot particles from 250°C (482°F). Conventional detectors available on the market are unlikely to detect particles at temperatures below 700°C (1292°F).



## PressGuard™ extinguishing

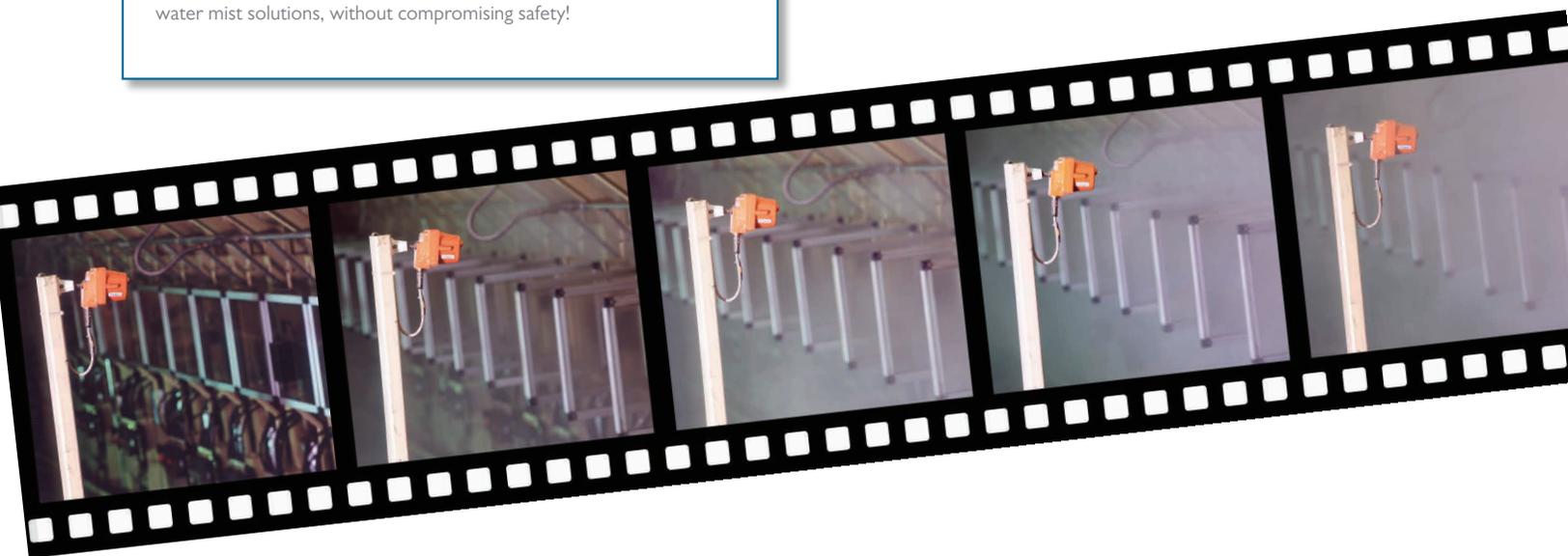
When conventional sprinklers are activated they can cause damages to the press due to the extensive use of water. A deluge of cold water on hot steel may result in a deformation for example of the steel belt or create electrical problems. After extinguishing with sprinklers, a time consuming clean-up follows due to the large amount of water used.

## Suppress the fire with minimal interruption

Firefly's philosophy is that suppression itself should not cause problems. The PressGuard™ uses water mist around the press. This is a safe and efficient suppression of fire with a minimum interruption of your process.

In most cases you can fully activate the Firefly water mist system on your press during production!

The Firefly water mist system compared to other water mist solutions  
Firefly PressGuard™ uses 4-6 times less water compared to alternative water mist solutions, without compromising safety!



## Harmless suppression is essential

When using water mist on a hot press, the water vaporises into steam. The steam effectively quenches the fire and gradually cools down the press.

The water mist has a specific droplet size especially designed for suppression on hot surfaces. If the droplets are too small they will be swept away by the thermal air flow. If they are too big, the risk for rapid cooling and structural damages of the press increases.

### The facts about water mist

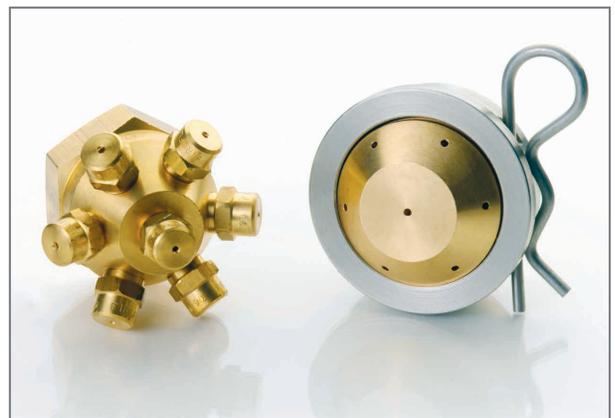
By Factory Mutual Research

#### Cools the fire area and blocking the heat radiation

Cooling is accomplished due to the greater surface area presented by the quasi-gas created by water mist systems, and the blocking of radiant heat by the many microscopic droplets.

#### Displacing the oxygen

The atomized droplets are drawn to the base of the fire and flash instantaneously to steam, expanding in volume by 1,700 times, thereby displacing oxygen required for combustion.



## Hot Oil Pump Room protection

### Why protect the Hot Oil Pump Room?

A fire in the hot oil pump room can be devastating! In general, there are no staff present in and around the hot oil pump room. A fire can therefore grow for some time before it is noticed.

### A few scenarios are to be considered:

- A fire can spread in the supply channels for the thermal oil and into the press  
Probable consequence: both the press and the hot oil pump room are on fire.

- Do you have a cable tray with signal cables from the press to the control room located on top of the hot oil pumps? This is fairly common.  
Probable consequence: even a small fire inside the hot oil pump room can cause damage to those cables. The result will be costly downtime.

- A larger fire breaks out in the hot oil pump room.

Probable consequence: serious damage to your plant. Oil and fire are one of the worst combinations!

The protection of the hot oil pump room is usually included as a part of the Firefly PressGuard™ system.



## Our solution

A system combining flame detection and water mist is installed inside the hot oil pump room.

Firefly's solution is designed to quickly indicate flames in the area around the hot oil pumps. At an early stage of a fire, the water mist system is activated to suppress the flames around the oil pumps and to minimise the risk of fire spreading into other areas.



## Firefly customers

Masonite

Metro

Laminex

Daiken

Evergreen/Siam Fibreboard

Vanachai

Masisa

Arauco

Kastamonu

Novopan

## The Firefly PressGuard™ Solution

The Firefly PressGuard™ Solution can consist of a third party approved Quick Suppression System. The solution can also include a Firefly Spark Detection System certified according to FM or VdS and Flame Detectors certified by FM. For more information on our certifications and approvals please visit: [www.firefly.se/en/company/approvals](http://www.firefly.se/en/company/approvals)



## Firefly – Keeps you in production

Firefly is one of the world-leading developer of fire and explosion protection systems for the process industries. Founded in 1973, Firefly has specialized in creating customized system solutions of the highest technical standards and quality. Firefly owns more than 40 patents, creating a unique portfolio of innovative products and system solutions to increase the level of safety.

The unique Firefly PressGuard™ system has proved to be the most effective in preventing fire in and around presses. Firefly co-operates with leading experts and institutions around the world to develop safe solutions for frontline industries.

Interested in protecting your press against fire?  
Contact us!  
We will be happy to share our experience with you.



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