PROTECTION SYSTEMS FROM firefly

# FIREFLY WOODWORKING SOLUTIONS

Fire protection solutions for the woodworking industry

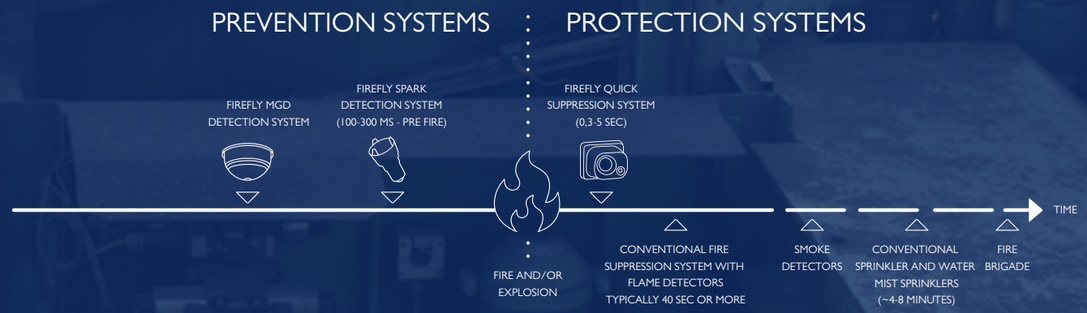
# PREVENT FIRES AND DUST EXPLOSIONS IN THE WOOD INDUSTRY

FIRES – THE LEADING CAUSE OF FINANCIAL LOSS
Fires and explosions are the most significant causes of loss in a majority of property insurance claims in the wood processing and furniture manufacturing industry. According to a 10-year study conducted by leading insurance consultancy Risk Logic, where fire or explosions account for almost 75% of the accumulated financial losses in the wood processing and furniture manufacturing industry.

In a furniture manufacturing process, wood dust and oxygen is always present. In case of a mechanical failure in a machine or a fan related to the dust accumulation system the wood dust can easily be ignited, resulting a fire or worst case a dust explosion.

Firefly's **fire preventive** and **fire protective** solutions for the woodworking industry help detect the first sign of ignition sources and suppress fires at an early stage, avoiding costly downtime and damage to machinery.

Don't wait until it's too late – contact Firefly today to learn more about our solutions for the woodworking industry.



# FIRE PREVENTION
## SPARK DETECTION SYSTEM

Firefly's Spark Detection and Extinguishing System will, in milliseconds, detect and extinguish ignition sources inside the process, before they cause fire or dust explosion.

Firefly's unique TrueDetect™ technology enables detection of all type of ignition sources such as hot black particles, sparks and flames. All our detectors are insensitive to daylight, to avoid unnecessary detections or false positives.

The Spark Detection System is typically combined with a water extinguishing zone, based on Firefly's high-speed and powerful full-cone water spray system. This unique extinguishing concept is designed to cover the entire cross section of a duct or a chute and to penetrate the material flow and air flow.

The Firefly True IR Spark Detection and Extinguishing System is certified according to Factory Mutual (FM)* and Schadenverhütung GmbH (VdS)*.

* FM certificate no. 3060012, Vds approval no. S6990002.

# FIRE PROTECTION
## QUICK SUPPRESSION SYSTEM

The Firefly Quick Suppression System is designed for extremely quick detection and suppression of flames or fires in and around machinery and in high-risk areas or volumes. The system has been fire tested with the test protocol DFL TM170307-1261 and verified by the DNV.

Firefly's Quick Suppression System operates with high performance flame detectors and efficient water mist suppression. The Firefly water mist system has remarkable fire suppression capabilities, utilizing a very small amount of water.

The purpose of the Firefly Quick Suppression System is to act quick enough to avoid or significantly reduce damages and production downtime as well as avoiding a fire from escalating and spreading into other areas. Conventional extinguishing methods, for example sprinklers, need large flames generating a high amount of heat to react and an extensive amount of water is needed to extinguish a fire.

# FIREFLY EXIMIO™
# INTELLIGENT SYSTEM ARCHITECTURE

The Firefly EXIMIO™ system is an intelligent and decentralized system with a modular system architecture. Detectors and extinguishing equipment are connected to local EXIMIO™ hub, thus making cable routing and overall installation more efficient and less expensive. The EXIMIO™ system is flexible, additional zones are easy to add on to an existing system in case of growth or changes in the customer's process.

Operators will control the system via a 12" color touch screen via the IntuVision™ panel - operators interface, that comes as standard in every Firefly EXIMIO™ System. IntuVision™ is easy to use and includes numerous of features and functions, for example ApplicationView™ is where a drawing of the zone will be shown on the screen.

By using IntuVision™ - Desktop, the customer can connect the system to an external computer, for example in the control room.

The system is OPC-UA compatible, with the availability to integrate the information from the EXIMIO™system into the customer SCADA system.

The Firefly System can be connected via an Ethernet cable or a modem to enable remote help and service.

## CONTROL UNIT BENEFITS

The unique EXIMIO™ 12" touch screen ensures quick and easy access to IntuVision™ user interface.

IP65 rated, dust and waterproof, that allows the flexibility for the control unit location with tough environments.

Touch Screen & IntuVision™ (operator's interface) Included as standard in a Firefly EXIMIO™ system.

Clear, informative and user friendly interface.

Modular and decentralized system architecture – easy to expand the system.

System engineers can connect remotely to the system for remote support.

# FILTER AND SILO PROTECTION

The bag house filter is considered as one of the most dangerous equipment in a wood working facility. The fine dust particulates inside the filter, in combination with large airflows, creates the perfect conditions for a rapid fire or a dust explosion, in case an ignition source will enter.

Silos can in some ways be even worse. Extinguishing a silo fire is a very difficult and dangerous task. It is not unusual that it takes days or even weeks to extinguish a large silo fire and the risk for an explosion is always present.

A good way to minimize the risk for fires or dust explosion is to take care of the ignition sources before they enter the filter or silo, by an appropriate spark detection and extinguishing system.

## FILTER PROTECTION

In order to protect a filter, Firefly uses its unique True-IR detector HD400 that can detect sparks and hot particles with a temperature down to 400°C (752°F). The detectors will be located in the extraction duct before the filter and at a certain distance after the detector(s), a powerful full cone extinguishing zone is located.

## SILO PROTECTION

In order to protect a silo, Firefly uses its unique True-IR detector HD250 that can detect sparks and hot particles with a temperature down to 250°C (482°F). The detectors will be located in the extraction duct before the silo or if material is fed to the silo mechanically, it will be located in a drop chute before the silo. At a certain distance after the detector(s), a powerful full cone extinguishing zone is located.

NOTE THAT A PARTICLE BELOW 650°C IS BLACK.

| MINIMUM IGNITION TEMPERATURE (MIT) FOR WOOD DUST | |
|---|---|
| Cloud | 470°C / 878°F |
| Layer | 260°C / 500°F |

*Source: NFPA (National Fire Protection Association)*

# RISKS IN THE PLANING PROCESS

A planer is one of the largest and most important investments. Unforeseen interruptions in production due to fire are often very costly. Planers can generate large amounts of inflammable material, which can accumulate in and around the machine. A planer has many moving parts that can generate dangerous ignition sources in the form of sparks and hot particles.

Accumulation of shavings or oil can cause violent fires. The situation is aggravated by the high air flow within the machine. Automation of the planing process as well as general conditions in the production areas dictate that the machine is often installed remote from operators stations. As a consequence, fires can go undetected for some time.

## RISK FACTORS IN PLANERS

- Friction
- Machinery breakdown
- Electrical problems
- Human factor

# PLANER PROTECTION

## - FIREFLY PlanerGuard™

PROTECTION OF HIGH SPEED PLANER

Planing at high speeds leads to an increase in friction heat, making the process vulnerable to fire. Firefly's Quick Suppression System PlanerGuard™ solution for high speed planers focuses on detecting ignition sources at an early stage. Water mist suppression is used to quickly and effectively suppress the fire with the aim to avoid costly downtime and damage to the planer. Firefly's water mist is very suitable for this type of application, as it provides an effective extinguishing effect, with small amounts of water.

PROTECTION OF OPEN PLANER

In many cases, large amounts of shavings are accumulated in and around the open planer. When ignited, these shavings can cause rapid fires resulting in considerable damage. Firefly's PlanerGuard™ solution for open planers monitors the machine by using flame detectors installed local to the area. Water mist suppression aims at quick and effective suppression of the fire, even in the closed areas of an open planer.

PROTECTION OF MOULDER

A moulder is often installed in a production area adjacent to other machinery. The consequences of a fire in a moulder can therefore be extensive and damage surrounding equipment.

Firefly's PlanerGuard™ system detects sparks or incipient fire at a very early stage. The PlanerGuard™ system can be designed in a cost-efficient way due to the compact design of the moulder. Water mist will suppress quickly and efficiently, even in these closed areas. Water mist also ensures that your moulder isn't damaged by water.

SMART FIRE PROTECTION

By combining different types of intelligent detectors, we can detect the first signs of ignition at an early stage and activate water mist quickly and stop the process. The goal is to act so quickly that damage does not occur in the machine and to minimize costly production interruptions.

The placement of detectors in the machine are carefully positioned by Firefly's risk experts to enable the earliest possible detection.

Firefly's water mist is very suitable for this type of application as it provides an effective extinguishing effect, with small amounts of water.

# THE RISKS IN A TRIMMER

The trimming operation is an essential part of a saw mill. Any disruption in the trimmer will affect the entire sawmill.

The trimming operation generates significant amounts of sawdust. If not properly managed, the sawdust can accumulate in or around the trimmer. In the event of an ignition, a fire can quickly develop, causing damage to the machine or spreading into the extraction ducts or to other areas around the machine.

A possible cause of ignition can be friction heat caused by the saw blades or by other moving parts in the machine. Sparks or hot particles can be generated during the trimming operation, starting a fire inside the machine or being extracted into the dust extraction system.

FIREFLY TRIMMING PROTECTION

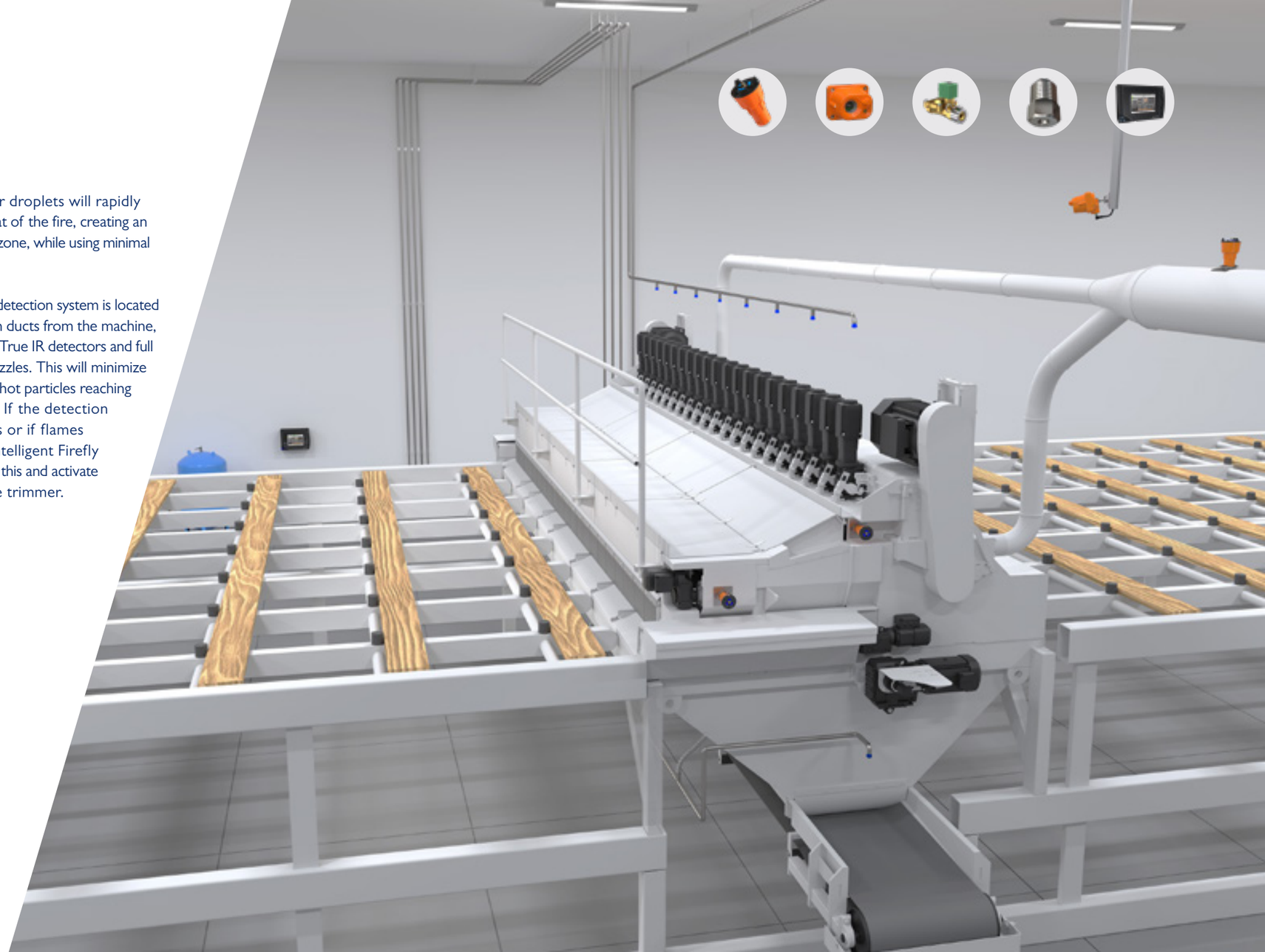
Fireflys unique solution for protection of trimmers combines a quick suppression system in the machine itself and a spark detection system in the extraction ducts from the machine.

The key to minimizing fire damages is quick detection and suppression. If a beginning fire can be stopped in time, damages and costly production stops can be avoided or significantly reduced.

The placement of detectors in the machine is carefully positioned by Firefly's risk experts to enable the earliest possible detection. In case of detection, the water mist system in the machine is immediately activated.

The atomized water droplets will rapidly evaporate by the heat of the fire, creating an efficient suppression zone, while using minimal amounts of water.

Additionally, a spark detection system is located in the dust extraction ducts from the machine, consisting of Firefly's True IR detectors and full cone water spray nozzles. This will minimize the risk of sparks or hot particles reaching the baghouse filter. If the detection frequency increases or if flames are detected, the intelligent Firefly system will recognize this and activate the water mist in the trimmer.



# OTHER PROTECTION SOLUTIONS FOR THE WOODWORKING INDUSTRY

FIREFLY SanderGuard™

The fine dust generated by a sanding machine can, when ignited, give rise to rapid spread of fire and, in the worst case, a dust explosions. Firefly's SanderGuard™ system solution is designed for all types of sanders. The system includes quick flame detection inside the sanding machine and water mist suppression, providing optimal protection of the sanding machine and reduces the risk of costly production interruptions.

Firefly's SanderGuard™ is designed to early indicate an incipient fire problem in the machine and quickly activate water mist, before the fire has time to take hold. The solution combines Firefly's spark detection system in the exhaust ducts with Firefly's Quick Suppression System inside the machine itself. The system is adapted to each sanding machine to cover the various risk zones that may occur. It is important to use detectors that are insensitive to daylight, as a sanding machine is not completely sealed, but light may enter. Firefly's detectors are insensitive to visible light, which minimizes the risk of false alarms and provides safer operation.

FIREFLY SOLUTION FOR BAND SAW

Large amounts of waste material often accumulates around the band saw due to its design. This accumulation together with high speed rotating mechanical parts and powerful motors creates a large risk for fire.

Protection of Band Saw includes a combinad protection solution of preventive and protective fire protection. Firefly's Quick Suppression System will protect Band Saw using flame detection in combination with water mist suppress around the machine. Our unique flame detectors are designed to only detect flames, but no other disturbances such as sunlight. Water mist suppression is effective in open as well as closed areas without damage to the machine. Firefly's Band Saw protection also comprises -extraction system with Firefly Spark Detection System.

# ABOUT FIREFLY

Firefly is a Swedish company that provides industrial fire prevention and protection systems to the process industry worldwide. Since 1973, Firefly has specialized in creating customized system solutions of the highest technical standards and quality. Based on customer needs and research, Firefly has developed and patented products and solutions, creating a unique portfolio of innovative products and system solutions to increase the level of safety.

The Firefly quality management system is certified according to ISO 9001 and EN ISO/IEC 80079-34. Firefly's products hold national and international third party certifications through FM, VdS, CSA, DNV, LCIE Bureau Veritas, Delta and RISE among others.

For more information on our certifications and approvals, please visit: www.firefly.se/about-us/certifications-approvals/

Do you have questions about fire and explosion risks? Our fire preventive experts will be happy to share our knowledge and experience.

## AS A FIREFLY CUSTOMER YOU RECEIVE

- A partnership with our fire prevention teams around the world.
- Digital progression based on robust safety systems.
- Technical innovation in fire prevention and protection.
- Fire protection through certified technology.

## JOIN THE FIREFLY CIRCLE OF SAFETY

## WE HAVE FIREFLY USERS FROM MULTIPLE INDUSTRIES ALL OVER THE WORLD

Firefly users in over 90 countries

■ Firefly users

Firefly's products are available with the following certifications and approvals:

For information on the certifications and approvals each product holds please visit:
www.firefly.se/about-us/certifications-approvals/

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