



WOODWORKING SOLUTIONS

HOW TO PROTECT YOUR PROCESS
FROM FIRE AND DUST EXPLOSIONS

WOODWORKING SOLUTIONS

FIREFLY SYSTEMS

FILTER & SILO PROTECTION

PLANERGUARD

PLANERGUARD

FIREFLY MDF SOLUTIONS

CONTACT US

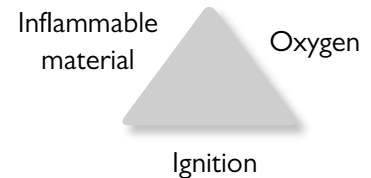


Rapid growth

The woodworking industry is becoming more complex. Higher efficiency and automation are both results of the rapid technical achievements within the industry. Investments in the business have increased, causing production downtime to be even more costly. Machinery producing at higher speeds as well as an increase in waste material leads to a larger risk of fire. The demands on production safety and fire prevention have therefore also increased.

Is your company at risk?

Three elements are needed to cause a fire or an explosion:



Wood is a particularly inflammable material. Wood dust in a filter can ignite from 470°C (878°F). In a silo, this temperature can be as low as 260°C (500°F)*.

Compare this to the temperature of a newly extinguished match, which is 500°C (932°F)...

*according to the U.S. National Fire Protection Association (NFPA)

Machinery that typically generates ignition sources:

- Planer/Router/Moulder
- Sander
- Hogger
- Band saw
- Fans

We never generalise

Every factory in the process industries is different. Even within the same type of business, such as the woodworking industry, no two factories operate alike. The risk therefore for fire or a dust explosion will vary from factory to factory.

Since 1973, Firefly has specialised in creating tailor-made solutions that will fit your operation. Our competent staff have vast experience in the woodworking industry and the highest technical skills necessary to design a safe fire prevention solution for your company.

In order to protect your company from fire and dust explosions:

- You need a fast and reliable system of the highest technical standard
- You need a tailor-made system
- You need detection of potential hazards: i.e. sparks and hot particles occurring in your process
- You need a system which is insensitive to daylight, thus minimising numerous false alarms and costly downtime
- You need an extinguishing method adapted to your process to minimise the risk of water damage



How we protect your business

Firefly always delivers complete system solutions. Our staff are able to perform an on-site assessment and design a solution that will provide optimal safety against fire and dust explosions.

Firefly has a range of unique products which are combined in a system depending on the design of your process. Our systems are designed to protect the process and prevent damage to plants.



Extinguishing

Using full cone water spray

Using water mist

Using mechanical diversion, isolation, steam or gas

Detection

Detectors that indicate sparks and hot particles

Detectors that indicate flames



Control

Control unit for system monitoring and process control

Services

On-site system assessment

Commissioning and education

Service after installation

Solutions

Firefly has developed several unique solutions for the woodworking industry. With these solutions we can effectively protect your company against costly fires and dust explosions:

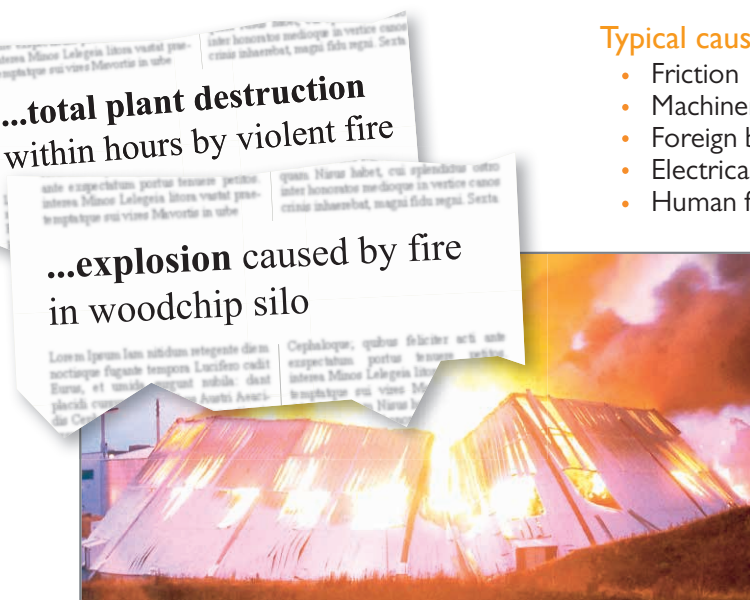
- Filter and Silo protection
- PlanerGuard
- Band saw protection
- SanderGuard



Why Filter and Silo protection?

Filters and Silos are key components in the woodworking process. A fire or dust explosion can have devastating consequences! Lengthy downtimes, damage to your machinery and loss of revenue are good examples. Loss of human life is a worst case scenario.

Machinery can create ignition sources. There is a large risk that they will follow your production line into the filter. Once inside the filter, combined with wood dust and oxygen, you have the perfect environment for a fire or dust explosion. The risk of a fire or dust explosion in a silo is even greater when the material is stored in layers. A fire in a silo can take several days to extinguish due to the large volumes of material stored.



Typical causes of fire/dust explosions in filters and silos

- Friction
- Machinery breakdown
- Foreign bodies
- Electrical problems
- Human factor

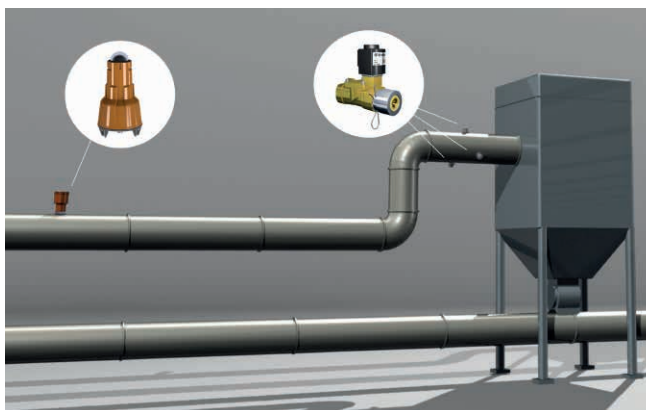


Our solution

System design depends on the characteristics of the material as well as the way the process is designed. In order for a fire or a dust explosion to occur, the ignition source needs to have a certain temperature and energy.

Filter protection

In order to protect a filter, Firefly delivers detectors that can indicate sparks and hot particles with a temperature over 400°C (752°F). An extinguishing zone is normally installed to eliminate these dangerous particles.



Minimum ignition temperature for wood in:

Cloud	Layer
470 °C	260 °C

Source: NFPA (National Fire Protection Association)



Silo protection

In order to protect a silo, Firefly delivers detectors that can indicate sparks and hot particles with a temperature over 250°C (482°F). As with a filter, an extinguishing zone is installed to eliminate these dangerous particles.

Our tailor-made system solutions for the wood-working industry effectively minimise the risks for fire or dust explosion in filters and silos.



Why protect planers?

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 because they are high speed machines with many moving parts. A planer can generate dangerous ignition sources in the form of sparks and hot particles.

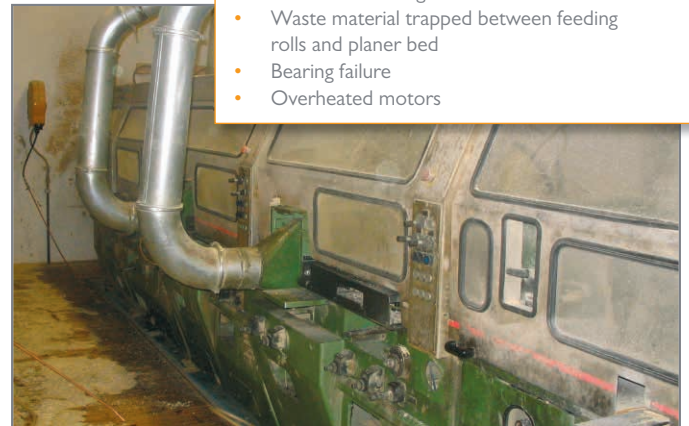
Accumulation of shavings or oil can cause violent fires. The situation is aggravated by the high air flow within the machine.

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.

Typical causes of fire in a planer

- Presence of foreign bodies
- Waste material trapped between feeding rolls and planer bed
- Bearing failure
- Overheated motors



Our solution – PlanerGuard

Our PlanerGuard system depends entirely on the design of the planer. The PlanerGuard system consists of fast and reliable detection as well as effective water mist extinguishing.

PlanerGuard is, as all Firefly systems, insensitive to daylight. This factor is crucial for avoiding numerous false alarms since the planer is normally located in a well lit location.

High speed planers

Modern high speed planers achieve speeds that were unthinkable a few years ago. This results in increased production which also elevates the risk of fire. Planing at high speeds leads to an increase in friction heat, making the process vulnerable to fire.

Firefly focuses on indicating and extinguishing ignition sources at an early stage. Our experience shows that the feeding rolls and transmission are the main causes of fire. Similarly problems can be generated at the planing head.

As a consequence, Firefly's PlanerGuard focuses on these critical areas both in terms of detection and extinguishing. Firefly has a unique range of detectors and the choice of detector depends entirely upon which parts of the planer need to be monitored. Firefly also delivers the most effective extinguishing to gain advantage from early detection. Typically extinguishing is in the form of a fine water mist which quickly and effectively extinguishes the fire without causing costly downtime and damage to your planer.

PlanerGuard also comprises equipment for detection and extinguishing in the dust extraction system. You can find more information in the section Filter and Silo protection.



Open planers

The construction of an open planer causes difficulties when designing an extraction system. In many cases, large amounts of shavings are accumulated in and around the planer. When ignited, these shavings can cause rapid fires resulting in considerable damages.

Our experience shows that a fire in an open planer can be generated by feeding mechanisms or the machining heads. Mechanical wear can also be a problem for open planers in older designs. Experience also shows that a fire often starts at the in-feed of the planer.



Firefly's PlanerGuard monitors this type of machine by using flame detectors monitoring the open area. It is important that extinguishing can take place even in closed areas of the planer. This is especially true for open planers. Water mist will extinguish fire quickly and efficiently, even in these closed areas. Water mist also ensures that your planer isn't damaged by water.

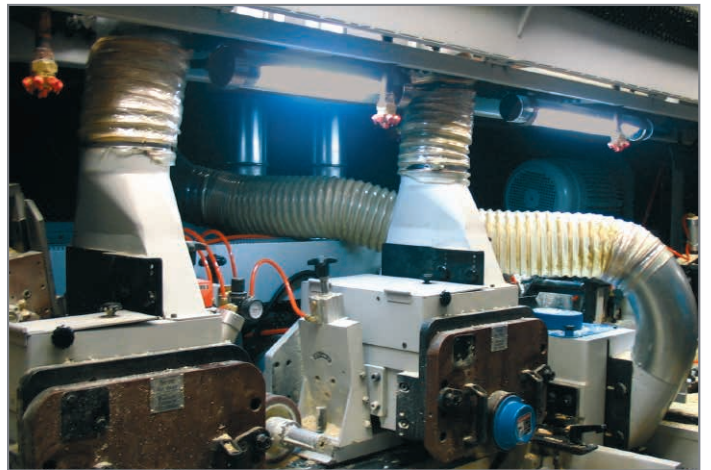
PlanerGuard also comprises equipment for detection and extinguishing in the dust extraction system. You can find more information in the section Filter and Silo protection.



Moulders

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.

The risk for fire caused by frictional heat or problems at the feeding rolls isn't as significant for moulders compared to other types of machines as speeds are relatively low. Our experience shows that the most common causes of fire in a moulder are due to overheating of motors and driving mechanisms, as well as spark generation at the machining heads.



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 extinguish quickly and efficiently, even in these closed areas. Water mist also ensures that your moulder isn't damaged by water.

PlanerGuard also comprises equipment for detection and extinguishing in the dust extraction system. You can find more information in the section Filter and Silo protection.



Why Band saw protection?

The band saw is often the first stage in the production process. A failure of the band saw means that the flow of material to the rest of the production stops.

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.



Our solution

Firefly will tailor the system to suit the design of the band saw, focusing on areas of the band saw where the risk for fire is estimated to be greatest. We also take the layout of the production area into consideration, in order to prevent the spread of fire.

We use flame detection in combination with water mist extinguishing around the machine. Our unique flame detectors are designed to only detect flames, but no other disturbances such as sunlight.

Water mist extinguishing is effective in open as well as closed areas without damage to the machine.

Firefly's Band saw protection also comprises equipment for detection and extinguishing in the dust extraction system. You can find more information in the section Filter and Silo protection.



Why protect sanders?

The fine dust generated by this machine can, when ignited, give rise to severe dust explosions and rapid spread of fire.

The risk of a costly incident increases considerably when the sander becomes blocked due to a breakdown in the feeding system or the inclusion of foreign bodies. Broken or misaligned abrasive belts are a very common cause for ignition.



Our solution

Detecting sparks inside a sander is difficult for production staff due to the enclosed design. However, this does not present a problem for the installation of a Firefly detection and extinguishing system.

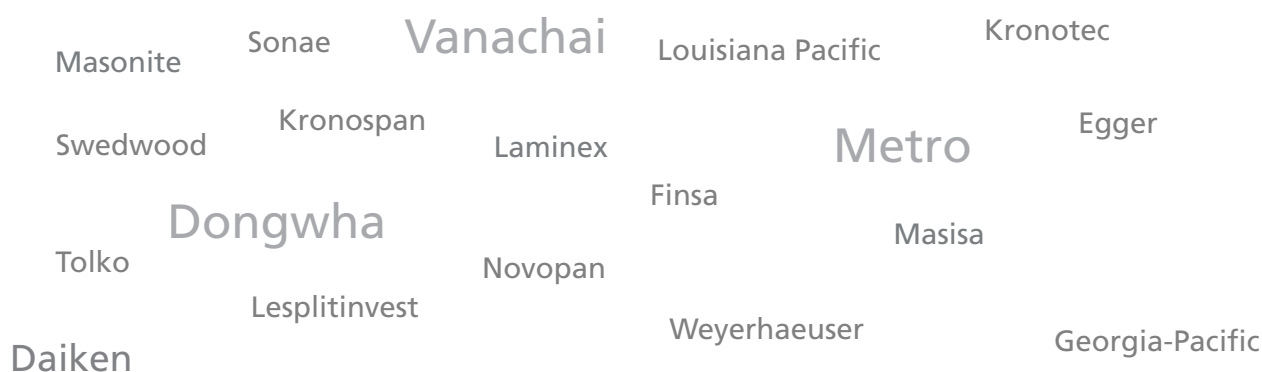
Firefly's SanderGuard is designed to quickly indicate a failure inside the machine and, before a fire can take hold, extinguish by using a water mist system. The extinguishing is designed to quickly cover the enclosed area and create an inert environment.

It is important to use detectors that are insensitive to daylight since sanders are regularly inspected for purposes of maintenance. Firefly's detectors only detect hot particles such as sparks and glowing particles.

Firefly's SanderGuard also comprises equipment for detection and extinguishing in the dust extraction system. You can find more information in the section Filter and Silo protection.



Firefly costumers



Firefly – Swedish Spark Detection Systems

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.

With unique solutions, quick delivery and excellent service, Firefly has become the natural choice for many customers within the woodworking industry worldwide.

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-GL, LCIE Bureau Veritas, Delta and RISE among others.

For more information on our certifications and approvals, please visit: www.firefly.se/en/company/approvals

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

Firefly – Keeps you in production



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