



PELLET SOLUTIONS™

HOW TO PROTECT BIOENERGY
PROCESSES AGAINST FIRE
AND DUST EXPLOSIONS

FIREFLY SYSTEMS

FIRES IN THE PELLET INDUSTRY

PELLET PRODUCTION SOLUTIONS

POWER PLANT SOLUTIONS

WHY FIREFLY?

CONTACT US

It's not a question if it will burn but *when*

Pellet factory destroyed in a violent fire

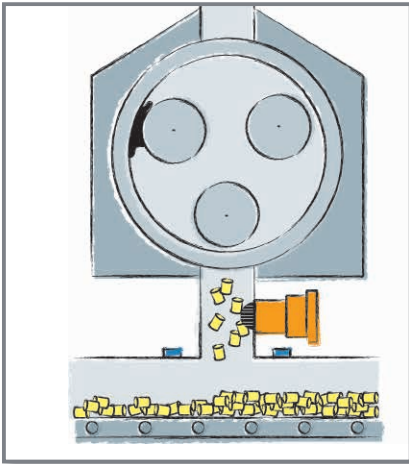
20 million vanished in smoke...



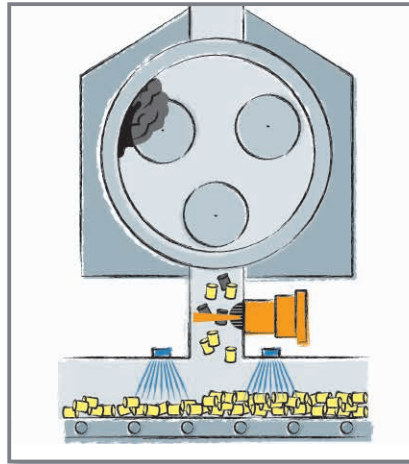
Firefly – Keeps you in production

Headlines about fires in pellet plants are unfortunately common. It is however no coincidence that the wood pellet industry is particularly exposed to fires. In a pellet manufacturing process there are several high risk zones where fires or dust explosions can occur. Furthermore, the pellet process environment is very demanding. This is why customer adapted solutions are required in order to achieve an efficient protection for the pellet manufacturing process.

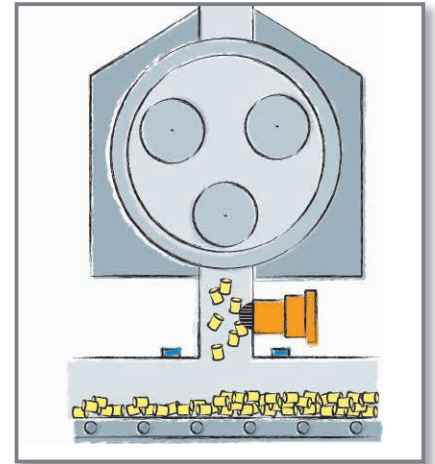
A possible scenario



Bearing problems at one of the roller can create friction. Overheating occurs...



Dangerous overheated pellets exit the die. Instantaneously, the overheated pellets are detected and extinguished by the Firefly system.



You have just avoided a possible fire!

We never generalise

Since 1973, Firefly has specialised in creating tailor-made solutions that will fit your operation. Our competent staff has vast experience in the pellet 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 to match your process flow.
- You need detection of potential hazards: i.e. both sparks and hot particles occurring in your process.
- You need an effective extinguishing method that can penetrate large production flows.

Additionally, to ensure uninterrupted production:

- 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 plant

Firefly always delivers tailor-made system solutions. Our engineers are able to create a system design 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 industrial processes, increase safety, and prevent damage to plants.

Detection

Detectors that indicate hot particles, sparks and flames in pneumatic or mechanical conveying systems

Detectors that indicate flames in open areas



Extinguishing

Using full cone water spray

Using water mist

Using mechanical diversion, isolation, steam or gas

Control

Control unit for system monitoring and process control

Services

Risk assessment adapted to each customer

Installation & Commissioning

On-site service of installed systems

Solutions

Firefly has developed unique solutions for the pellet industry. With these solutions, your plant can effectively be protected against costly fires and dust explosions.

We offer protection of:

- Dryers
- Dryer cyclones
- Intermediate storage
- Mills
- Presses
- Coolers
- Screens
- Pellet silos
- Filters

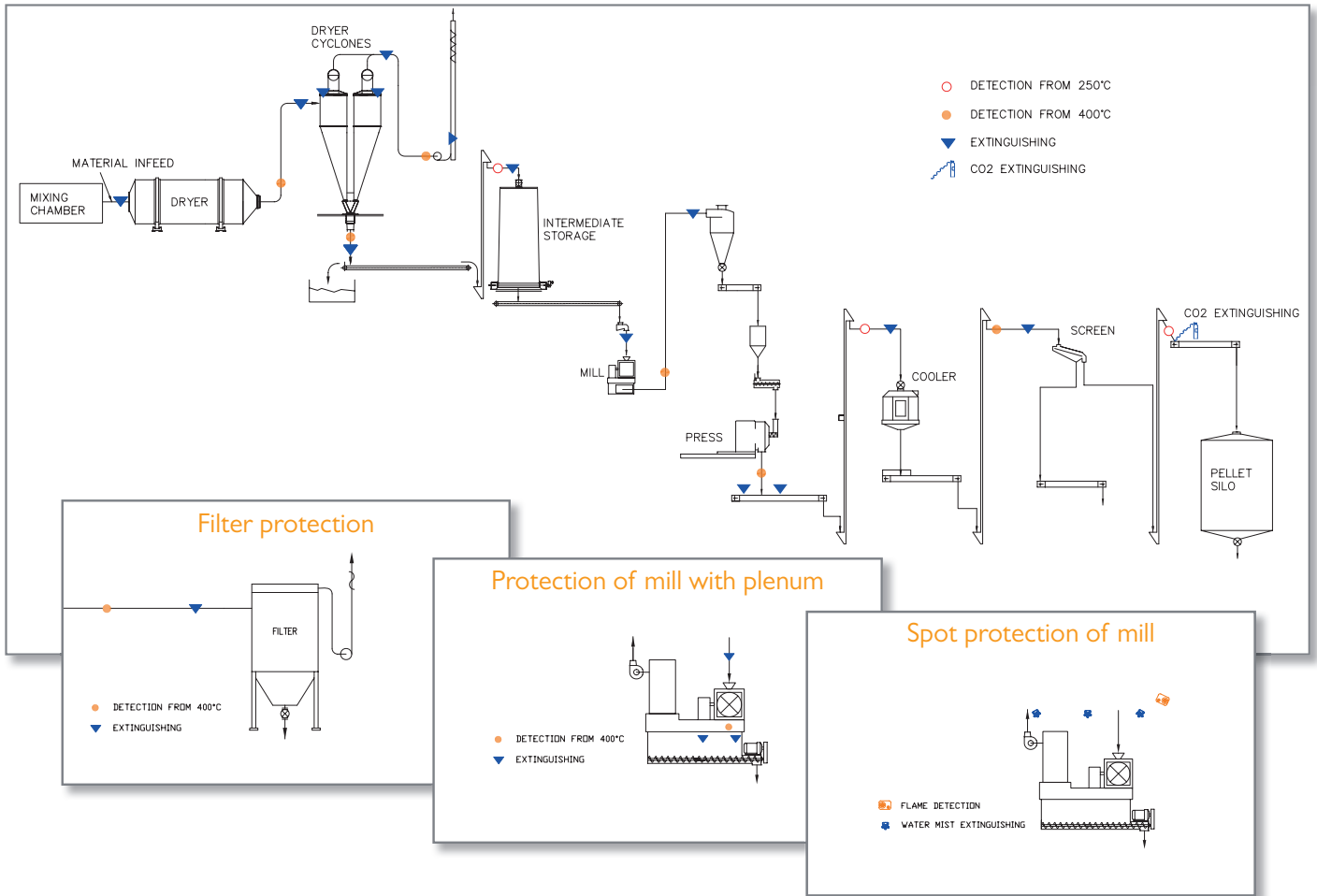
Besides spark detection we offer spot protection of high risk machinery using flame detection and water mist.

Examples of spot protection applications:

- around mills
- around pellet presses
- boiler rooms
- reception areas



PELLET PRODUCTION SOLUTIONS



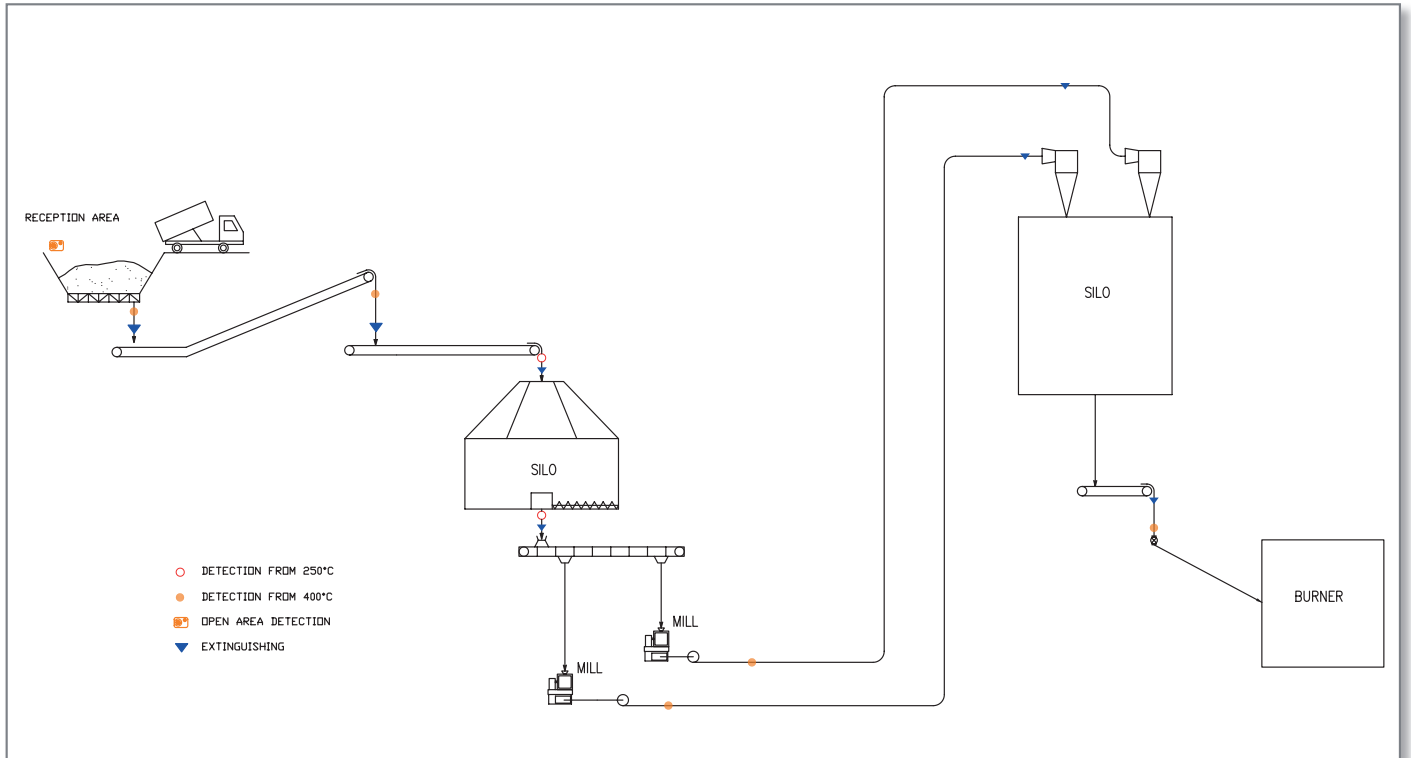
We protect your entire process

Have you ever had fire problems at for example your dryer, mill or press? Since 1973, Firefly has developed tailor-made protection solutions for the entire pellet producing process.

From dryer to press, from cooler to silo, protection of high risk machinery or filters; our technical competence and our highly sophisticated detectors ensures the best protection solution for your pellet production.



POWER PLANT SOLUTIONS



Protection of power plants

When inflammable material is crushed, milled, conveyed and stored, the risk of fire increases. The use of renewable sources of energy, such as pellets, increases this risk as this material usually is dry and needs only low ignition energy to ignite.

Firefly has vast experience in protecting power plants from fire and explosions. With unique patented technology Firefly can detect sparks and hot particles in your process and eliminate them before they create a fire or explosion.



Detection of sparks and hot particles down to 250°C

If you extinguish a match, its temperature will be around 470°C / 800°F. This is about the same temperature that is needed to ignite whirling wood dust, which exists in for example a filter. Layers of wood dust, which exist in a pellet silo, can ignite at even lower temperatures (~260°C / 500°F). Firefly detects sparks and hot particles down to 250°C / 480°F.

Conventional spark detection systems detect light from a spark, i.e. temperatures from about 700°C / 1290°F and up.



Minimum ignition temperature for wood in:

Cloud	Layer
470 °C / 800°F	260 °C / 500°F

Source: NFPA (National Fire Protection Association)

Many fire problems in the pellet industry are caused by friction. The friction itself does not generate sparks, but causes hot surfaces and heated material. When the material reaches its lowest ignition temperature, it can cause ignition in the process.

Research* clearly shows that (black) hot particles are more common as a source of ignition within the process industry than first thought. Therefore Firefly has developed a unique patented technology based on Infrared (IR) radiation detection, which makes it possible to detect and eliminate both sparks and hot particles with temperatures down to 250°C / 480°F.

Firefly detectors are NOT daylight sensitive

Conventional spark detection systems detect daylight, which dramatically increases the risk of false alarms.

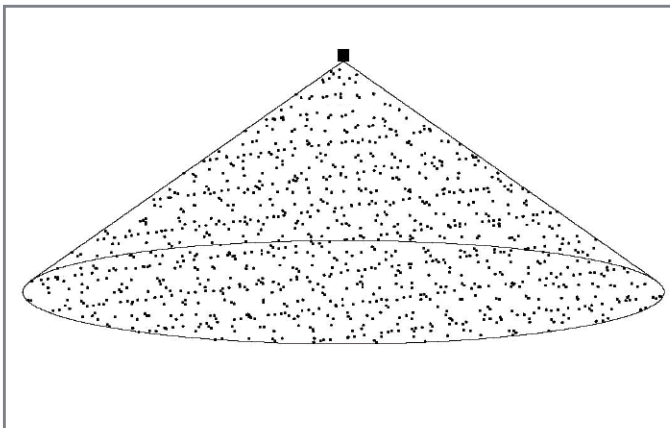
*Prof. Rolf K. Eckhoff, "Dust explosions in the process industries" (2nd edition)

Powerful extinguishing with full-cone water spray

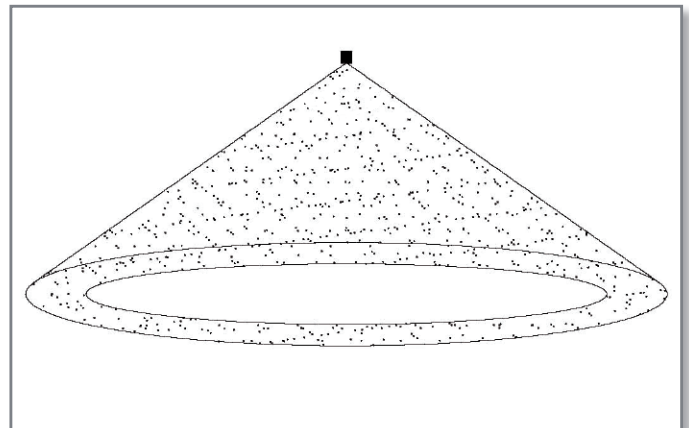
The pellet industry handles large amounts of material; from hundreds of kilos up to several tons per hour. High flows of compact material demand a powerful extinguishing which is able to penetrate large production flows. Firefly provides powerful extinguishing using full-cone water spray.

Conventional systems use extinguishing with small water droplets. The water is only divided in the periphery (hollow-cone nozzles).

Firefly



Conventional spark detection system



Firefly customers



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 pellet 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





Firefly Pellet Solutions™ - Ver 4.2 | EN
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