Closing the Distance

High Speed Extinguishment increases applicational Flexibility

With Spark extinguishing systems it is possible to render ignition potential harmless and protect subsequent facilities. A new ultra fast solution reduces the necessary minimum extinguishing distance and allows for a more flexible application.

WILFRIED HENZE *

Fig. 1: A new technology reduces the minimum distance between spark detection and extinguishing.

Pictures: Grecon

Spark Extinguishing Systems have been in use for more than 30 years. They have the task to detect sparks, glowing or hot particles or other ignition sources in exhaust ducts, transport and conveying systems before they reach a downstream apparatus, for example a filter or a silo.

* W. HENZE
The author is Sales Director of Grecon, Germany,
Tel. +49 (0) 5181 / 79 - 235,
E-Mail: wilfried.henze@grecon.de

Every time when flammable products will be exhausted or transported a formation of ignition sources can occur due to various reasons at the beginning of the transport line and travel through the conveyor system to following areas and cause an ignition in form of a fire or in an extreme case an explosion.

In most of the cases, this ignition potential cannot cause an explosion in the area of the transport. Thus with the help of spark extinguishing systems it is possible to render ignition potential harmless and protect subsequent facilities from fires or explosions.

How it Works

Today in many plants and in almost every industry the mode of action described above will be used. Through it, it will be achieved that fires or explosions do not occur – it will be extinguished before it gets burned.

Prerequisite for this mode of action is always the correct project planning. This primarily includes an adequately dimensioned extinguishing distance.

The so-called extinguishing distance is the space between spark detector and extinguishing device which will supplied with water. The water pressure should be between 4 and 9 bar.

Because of the compliance with this extinguishing distance it will be achieved that ignition sources, which have been detected by the spark detector come into contact with the already formed water mist spray. At this point the first cooling phase and thus extinguishing effect will begin.

The Faster the Better

The faster the extinguishing device is the shorter the distance between spark detector and extinguishing device can be. Today generally the delay times of the available extinguishing devices are 200 to 300 milliseconds. In normal exhaust ducts air speeds between 20 and 30 metres per second exist.

This means that with an average delay time of 250 milliseconds and an average air speed of 30 metres per second a minimum distance of 7.5 meters between spark detector and extinguishing device has to be observed.

The consequence of these planning specifications is that corresponding mounting points have to be found. Often

EVENT INFORMATION

Safety Congress at Powtech

Grecon is a member of Index, the international association of experts for industrial explosion protection. In parallel with the 2011 Powtech Exhibition in Nürnberg, Germany, the Index Safety Congress 2011 will take place on October 11 and 12 at the Nürnberg Congress Centre.

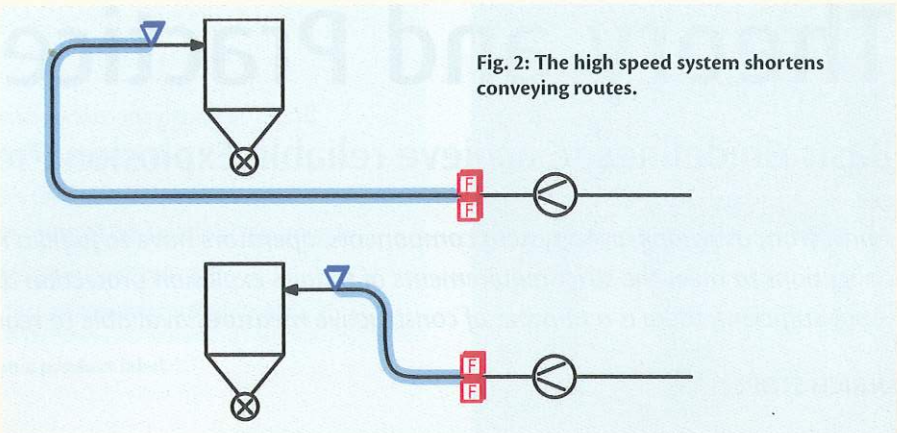

Fig. 2: The high speed system shortens conveying routes.

upgrades at the exhaust and conveying ducts have to be carried out to build the necessary reaction distances.

New Fields of Application

This difficulty will not apply in the future if the new Grecon Extinguishment Ultra High Speed will be used.

This new extinguishment technology, which will also work with water, is designed and configured in such a way that a compact valve-nozzle combination reduces the reaction time by a factor of three.

This has been achieved in particular by means of a newly designed valve and a new nozzle geometry in connection with the general arrangement. It was also important that the water pressure didn't have to increase.

In addition to the advantages described above new application fields will be established with this new technology. Due to technical reasons in many devices no exorbitantly long transport distances are required. In these devices it will be possible to also install spark extinguishing systems in the future.

Another field is also in many unprotected plant areas in various industries which were not handled because a modification, i.e. a duct extension, was not possible due to shortage of space. Even in these cases the spark extinguishing technology can now be installed in the future to ensure the prevention of fire and explosion protection.

For their systems, Grecon has also developed in combination with the new extinguishing technology a new operating concept for the control console. The new operation panel Touch and Slide, whose handling is similar to that of the iPhone, opens further information and control possibilities.

With this system, control and operation has become much faster and easier, and the information content for the operator will increase. Interesting is also that the company's existing control consoles of the 5000 and 7000 series can be retrofitted with the new display.

In any case, it is always worthwhile to ask an expert, because fire and explosion prevention is always better than to fight against damage. Usually spark extinguishing systems do not interrupt the running working process, but rather minimize breakdowns. ■

Fig. 3: The control panel offers touch and slide operation.