

FUSIBLE PLUGS FOR OIL & GAS FIRE DETECTING PLANTS



What they are

They are plugs with a hole filled with an alloy melting to a pre-set temperature of about 30°C higher than the maximum ambient temperature (+70°C or +100°C). They are used as safety equipment with the aim to take a fire and automatically activate all the sequences both to protect the plant and to safeguard the people.

Because of their important Safety Service it is necessary that fusible plugs as well as all the other components included in the system are designed, manufactured and installed in a correct way. A lot of manufacturers consider the fusible plug a poor component. For **Pneumoidraulica Engineering** is not the same!

How they work

They are assembled in a sequence on a pneumatic line realized by 8 mm. O.D. or 10 mm. O.D. tubing. The line is pressurized with instruments air by means of two excess flow valves (mounted in a sequence). Those valves has to have an intervention Δp not higher than 350 mmH₂O. The same line acts on the pneumatic safety blocks of the general cabinet placed on the station.

The excess flow valve is a primary element for the safety of the system and the aim of this valve is to rectify the light leak happens on the circuit; in case it is closed, the circuit is doomed to depressurize itself with a consequent generation of a fault alarm (ESD).

The excess flow valve has to be perfectly sized in order to be able to receive the Δp when at least one plug it melts and immediately intercept the pneumatic feed.

It is enough

Provided that a plug melts when a temperature increase after a fire and the excess flow valve creates the depressurization of the line and the relevant block on the pneumatic cabinet.

Main defects you can find:

Plugs with a too small hole

Sometimes you can find plugs with a hole diameter smaller than the nominal diameter of the tubing, i.e. 8 mm. (we also found plugs with hole 3.5 mm.); in this case, to obtain the intervention of the excess flow valve, more than one plug has to melt so more time it is necessary to put the system on safety. Moreover those plugs have a small surface oriented to fire and they need more time to reach the melting temperature.

Our plugs have a hole diameter of 8 mm. but they have an internal conical shape and the surface oriented to fire becomes 12 mm. (as showed on the picture below). In this way we can have a quick depressurization and reduce the intervention time.



Excess Flow Valve with a more bigger deltapi

Often you can find they use no suitable excess flow valves (in many cases they are for Industry and not for Oil & Gas application). These valves have a very big deltapi (even 25 times bigger than the necessary) and the manufacturer do not stated the deltapi of the valve.

Our excess flow valves (model no. VAEF12SS) have a deltapi of 350 mmH₂O and this information is inscripted on the valve body. Each valve is tested to assure the compliance.

Plugs with a leakage

To avoid the leakage of the plug some manufacturers produce plugs with a small hole so the melting alloy can easily adhere to the plug body. In this way they can assure no leakage but the plug is not suitable for the reasons stated above.

The shape of our plugs is properly designed and they are tested at a pressure of 100 bar.

Unidentified plugs

As safety equipments the plugs have to clearly carry the name of the manufacturer and it is fundamental they also carry the melting temperature. On the market you can find many plugs in which those information are lacking.

Others anomalies

Plugs and their stands have not to be varnished but they have made in AISI 316 stainless steel.

Plugs have to be of twin ferrule compression type and not screwed type.

OTHER FEATURES OF “PNEUMOIDRAULICA ENGINEERING” FUSIBLE PLUGS

- Perfect accordance with Standards ISO10418 and specification ENI no. 20193.VAR.SAF.SDS;
- Surface oriented to fire with a conical shape to facilitate the heating in case of fire (unique on the market);
- On request the plugs are available complete with pre-assembled ferrule to assure the perfect tight of each joint;
- On request we can supply pre-shaped tubing for the easy and quick on-site assembly.

For further information please contact:

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