

Tank Silo Protection System

Shield lite protection from over-pressurization

The Shield Lite compact panel monitoring and control equipment from Hycontrol gives users a range of new monitoring and diagnostic tools and indicating when the system is suffering from blocked filtration or endangered by poor delivery driver behaviour. It is simple to install, can be retro-fitted to existing tank silos and is easy to operate.

Powder storage silos are commonplace in many industries handling cement, lime, sugar flour and others but are at risk of over-pressurisation during tanker deliveries. The root causes of this are invariably either driver error resulting in uncontrolled air pressure being discharged during the filling procedure, or a failure of the filter venting unit. Pressures from as little as 1 or 2 psi are enough to rupture a silo or blow its filter unit off the top. This poses serious risks, which is why a comprehensive, failsafe safety and control system is vital.

A silo protection system (SPS) monitors pressure in the silo during a fill and take action to protect the vessel if anything goes wrong. The essential components of a standard SPS are:

- (1) Pressure relief valve (PRV)
- (2) Pressure sensor
- (3) High-level alarm probe
- (4) Air filter (binvent or venting unit)
- (5) Control and alarm panel at the fill point
- (6) Shut-off valve on the fill pipe



The SHIELD Lite silo protection system is designed to provide control and test functions to prevent silo over-pressurisation and filter blinding during a tanker delivery. The system can work with one or two level probes of different lengths; these can be Hycontrol level probes which have a built-in GLT (Ground Level Testing). It is simple to install, can be retro-fitted to existing tank silos and is easy to operate.



A successful 6 second test of the complete system opens the failsafe fill point valve to allow filling for 90 minutes after which it will close. A siren and beacon will also sound to test their operation.

During a fill:

- If a high-pressure alert is detected, alarm and beacon activate and instantly closes the inlet valve.
- If a PRV opening is detected, alarm and beacon activate and instantly closes the inlet valve.
- If a high-level alert is detected, alarm and beacon activate and inlet valve closes after 30 seconds

Logs totalised counts for the number of events on incidents of pressure, level, PRV, override and vacuum detection. It provides early warning of blocked filters or poor driver behaviour using ratio alarms. The Silo filter is switched on and off using the control panel. Simple key/button operation with information displayed on backlit LCD screen.

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