SILO OVERFILL PROTECTION SYSTEMS

FILQUIP PTY LIMITED












"Specialists in material handling equipment for powders & granules."

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SYSTEM ADVANTAGES

Filquip can supply a tailored silo overfill protection system to suit any system, to prevent dangerous over pressurisation and over filling, while eliminating dust emissions.

- Avoid damage to silo and accessories.
- Reduce the risk of air pollution.
- Eliminate the risk of filling the incorrect silo.
- Start and stop the filter cleaner automatically.
- Systems can be tailored to suit applications including the need for Pressure monitoring, Over pressure or vacuum release valves, Fill control, Dust control and Operator destination selection panel.

SYSTEM FUNCTIONALITY

The Filquip silo safety system consists of all the required items for ensuring the silo being filled cannot be over pressurized or overfilled and eliminates dust emissions:

- Control panel – Available with key control to ensure the correct product is filled into the correct silo and with the ability to manage multiple silos.
- Pinch valves – Controls and isolates different silo fill lines.
- High level indicator – Provides feedback when the silo has reached a pre-set high level.
- Differential pressure switch or electronic pressure meter – Measure in silo pressure.
- Pressure Relief Valve (PRV) – Safety valve to release excess pressure in silo.
- Dust collector – Venting of excess air without any dust emissions.
- Ducting kit to vent to ground – Ducting from the PRV and dust collector to ground.
- Wear bends/elbows – Abrasion resistant pipe bends and elbows for the silo filling lines.
- Pneumatic fittings – Air regulators, fittings and airline required for pneumatic plumbing.
- Note: Available in 24VDC, 24VAC, 110V and 240V options.

ELECTRICAL CONTROL PANEL

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The Electrical Control Panel operates the overfill protection system and contains the logic to control to control the filling based on inputs from the level indicators and pressure switches.

- The Control Panel is fitted with a different key for each silo, when each silos key is turned on the; high level indicator begins rotating, dust collector initiates its cleaning cycle, and the fill pipe valve opens allowing silo filling to commence.
- Once the high-level indicator senses product at a pre-set high level, a light will begin flashing and an alarm will sound for a pre-set period of approximately 30 seconds before the fill line pinch valve is closed to prevent over-filling.
- The 30 second delay allows truck drivers to shut down their filling procedure.
- The alarm will sound until the key switch has been turned off or the level in the silo drops below the high level indicator.
- This control panel operates the run on timer for the reverse pulse dust collector.

PNEUMATIC DISTRIBUTION PANEL

The Pneumatic Distribution Panel manages the air supplied to the; Dust collectors reverse pulse cleaning system, Pinch valve actuation, Silo cone aerators and any pneumatic vibrators. Customised boxes are made for each installation, a standard build contains:

- Pressure regulator for dust collector reverse pulsing (Set to 6 Bar maximum).
- Regulator / Solenoid for aerators (Set to 1 Bar Maximum).
- Regulator / Solenoid for pinch valves (Set to 6 Bar Maximum).
- Indicator display – Open / close for each pinch valve.
- Labelling – Standard trefalyte black text on white background.
- Cabinet is fully plumbed and leak tested internally.
- 12mm push in fittings for airline outlets positioned at the bottom of the enclosure.

WAM SILOTOP DUST COLLECTOR

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The Silotop is a cylindrical shaped dust collector designed specifically for mounting on silos.

- Filtration surface area of 24.5m².
- Compact size of 800mm diameter in a Stainless steel body.
- Maintenance free automatic reverse air jet cleaning of the cartridges.
- The Silotop is compliant with the most advanced health and safety standards.

WAM PRESSURE RELIEF VALVE

Filquip supplies Spring-loaded (VCP) and Membrane (VHS) pressure relief valves to provide a safety net when abnormal pressure conditions develop in the silo, hopper or bin.

- Excess pressure up to 500 mm H_2O at a flow rate of 6,000m³/hour.
- Vacuum/Negative pressure up to -50 mm H_2O at a flow rate of 1,900m³/hour.
- Both VCP and VHS models available in stainless steel or poly construction.
- VHS series complete with duct to ground emissions spigot.

VHS

VCP

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SILO DUCTING, VENTING AND FITTINGS

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The Dust Collector and Pressure Relief Valve are often vented through ducting to ground to ensure emissions can be prevented at the earliest possible notice. This also prevents material from being discharged on the top of the silo.

Ducting kits generally consist of 6” Galvanised Spiral Ducting & Male Joiner, 90° & 45° Pressed Bends, Y Pieces and Saddle Mount Hangers.

As part of the overfill protection package, Filquip supplies the following equipment and instrumentation for a fully operational system:

- UV stabilised nylon Airline from 6mm to 16mm (12mm Standard).
- Filter regulators, gauges, push in fittings, mounting brackets and shut off valves in 1/4”, 3/8” and 1/2” fittings.
- Solenoids in 2/2, 3/2 and 5/2 configuration for air control in any voltage (Typically 24VDC, 24VAC, 240V & 110V).

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TOREX IP PRESSURE SENSORS

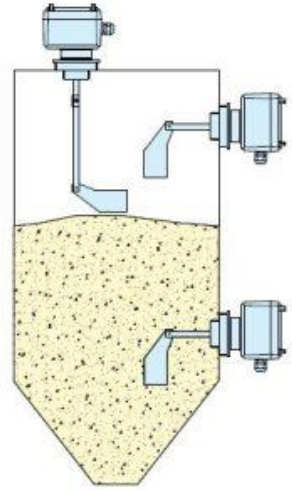
The TOREX IPE Electronic Pressure Meter & IPM Mechanical Pressure Meter has been developed for monitoring the pressure inside bins or silos during their filling, and especially during the purging of fill tankers.

- The pressure sensor membrane is self-cleaning and temperature resistant.
- The casing is aluminium alloy with IP55 protection rating.
- Available with 0-20mA or 4-20 mA output signal configurations.
- 24VDC supply voltage for IPE.
- IPX mounting spigot available for simple installation onto any silo.

TOREX ILT LEVEL INDICATORS

Filquip is a supplier of TOREX Rotating paddle level indicators.

- Available in Multi-voltage with rotation control.
- Available with extension kits (Standard 300, 600, 800, 1000mm).
- IP66 enclosure protection rating.



FILL PIPE VALVES AND WEAR BENDS

The TOREX pinch valve provides a valve seal which does not impede pneumatic conveying flow and is not as affected by the abrasive wear of pneumatic conveying.

The pinch valve is operated by introducing compressed air into the threaded bore of the valve interior, the internal flexible sleeve is shaped to hermetically seal the passage.

Filquip also supplied WAM butterfly valves for fill lines.

Filquip provides short and long radius wear bends made from WAM SINT polymer reducing pipe wear at diversion points.

Available in 2″, 3″ and 4″ Line sizes.

FILQUIP PRODUCT RANGES

Materials Handling Equipment

- Silo/Hopper filling systems
- Silo/Hopper discharging equipment
- Dust collection
- Screw conveyors
- Bucket elevators
- Rotary valves
- Bulk bag unloaders and much more equipment

Industrial Filtration and Filter Replacements

- Dust collectors
- Dust collector bags
- Dust collector cartridges
- Panel filters, HVAC, Spray booth and Bulk media
- Air slide replacement matting
- Blower inlet filter cartridges
- Liquid filter bags, Vessels and much more equipment

Water & Waste Water Equipment

- Chemical dosing (PAC, Polymer, Lime, Zeolite)
- Primary screens
- Grit separation
- Washer compactors
- Solids / liquids separators
- Shaftless screw conveyors (Sludge handling)
- Concrete reclaimation Equipment and much more equipment

Flow Aids – Vibration and Aeration

- Electric vibrators (AC and DC)
- Pneumatic vibrators
- Shock hammers
- Air blast cannons
- Hydraulic vibrators
- Fluidisers and aerators
- Concrete consolidators and pokers and much more equipment

Pneumatic Conveying

- Lean phase conveying
- Dense phase conveying
- Vacuum conveying and Industrial vacuum systems
- Diverter valves
- Air slides
- Wear bends and Elbows
- Pipe couplings

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