

PORTASILO Using AKO Pinch Valves To Help Protect The Environment

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Silo over pressurisation has resulted in a number of potentially serious incidents. For example filter housings weighing hundreds of kilos and powder products have been ejected from the tops of silos. At least one serious injury has occurred because of this problem. As well as the more obvious dangers there is a potentially huge risk to the environment if an explosion should occur.

Guidelines have been issued by the Health and Safety Executive to help companies affected by this hazard. Potentially all companies with storage silos need to be aware of the problem and take steps to ensure the safe filling of them.

Although specifically targeted at the cement, concrete and quarry industries, by implication this guidance will apply to all tanker filled silos.

When pumping powder, particle or granular products into a silo, increasing air pressure can sometimes cause damage to the silo and more seriously bystanders can be injured if an explosion occurs. At the very least silos can be overfilled, causing waste and/or contamination of product, costing thousands of pounds.

Portasilo are using the AKO Pinch Valve as part of their unique silo safety system. While the the Portasilo Pressure Relief Valve ultimately gives complete silo safety, the pinch valve helps to protect the environment by also helping to avoid over filling. Using a full bore 100mm diameter pinch valve allows unrestricted product flow. Tanker discharge time can be effectively reduced by more than 10%. FDA approved white rubber sleeves can be supplied with stainless steel contact parts for handling foodstuffs and pharmaceuticals.

Controlled filling systems using butterfly valves are also used on silo environmental protection systems, but the flow through the valve is restricted by the butterfly disk, slowing down the filling process. The valve seat can become contaminated with trapped product, resulting in spillage, waste and cross-contamination. The butterfly disk also wears very quickly increasing maintenance down time. Despite this some engineers feel this is necessary for their specific applications.

Previously standard type pinch valves have failed open, but using a RGS solenoid valve on the Portasilo system, the pinch valve will fail closed in most situations. When the pinch valve is open and the driver is unloading his tanker into the silo, loss of air is detected by a pressure switch and again the pinch valve immediately closes.

The AKO pinch valve is permanently mounted in the silo input line. As the tanker discharges its product load using its own integral pump, a paddle switch mounted in the top of the silo senses the increasing level of silo contents. When the movement of its rotating paddles is restricted by the level, it ceases rotation and trips a microswitch, sending a signal to the solenoid on the pinch valve. The solenoid activates instantly and allows air pressure to close the sleeve in the pinch valve. Simultaneously the pinch valve triggers an audible alarm advising the tanker driver to stop his pump.

The Portasilo Silo Safety System is unique in quality. For example the Pressure Relief Valve manufactured by Portasilo and used on their system is fully tested and certified, this is unique to the market, giving complete silo safety Guaranteed. The system also offers management control at the offloading point, operating instructions with lockable valve or key switch on the controller, and fully documented maintenance for all parts of the system.

Pinch Valves have been used for years in all abrasive applications. Due to the sleeve technology clear bore and simplicity of the pinch valve, the life in certain applications can be up to 6 times longer than a butterfly valve.

Simple maintenance with the AKO Pinch Valve not only puts it streets ahead of the 'traditional' valves, but also other pinch valves on the market. AKO Pinch Valve re-sleeves can be completed in between 5-15 minutes depending on the size the valve. Replacing only the sleeve means a fraction of the maintenance cost compared with a butterfly valve.

Quality is the key to this system using quality manufactured components readily available with large stocks in the UK.