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Easing the pressure placed on industrial silos

Industrial operations can ensure the structural safety and integrity of their silos by making use of the KCS silo safety system, which is distributed to the South African market through WAMGROUP – an internationally-recognised specialist in the manufacture of screw conveyors and bulk material handling and processing equipment.

The Italian-crafted KCS silo safety system consists of a central electronic monitoring and control unit, and is capable of managing a series of silos that are filled by tankers with powders or granular materials, notes WAM South Africa's, General Manager, Emilie Marchand.

"Damage to the silo or its accessories is most likely to occur during the operation of filling from tankers. The KCS silo safety system is supplied in component form and prevents overfilling and excess pressurisation, thereby avoiding damage to the silo while reducing the risk of dust emission into the atmosphere," she explains.

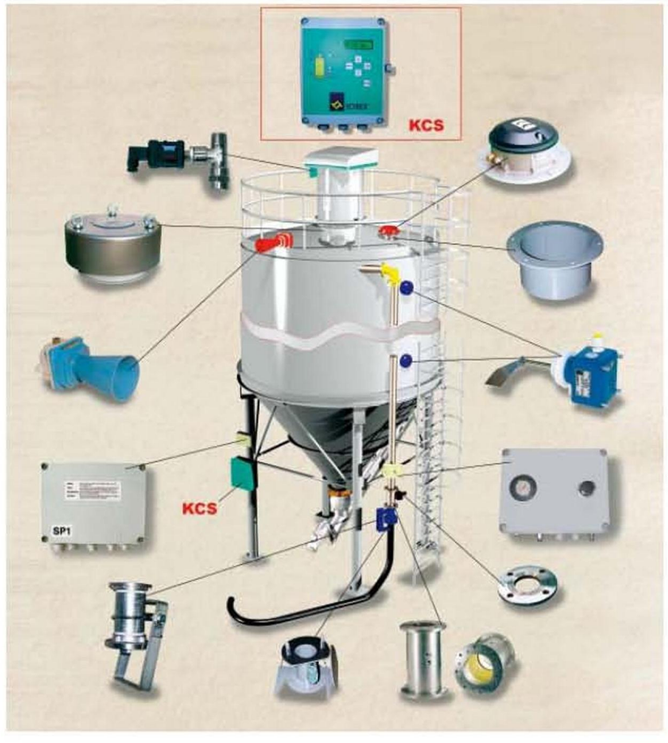
Johannesburg-based Bulk Handling Equipment (BHE) is a specialist distributor of WAM equipment and accessories, and the company has commissioned the KCS silo safety system at a number of large power plants and cement factories across South Africa since 2008.

BHE Sales Manager Luca Rossi notes that the KCS silo safety system, supplied in component form, prevents both overfilling and excess pressurisation built up during the filling process of a silo. "This avoids damage to the silo, the venting filter and reduces the risk of dust emissions, making it an environment-friendly product," he says.

The system consists of a central electronic monitoring and control unit which manages a series of silos and a component kit including one power panel for each silo, a pinch valve, a tanker coupling with the filling pipe (silo pipe connection), a maximum level indicator, a differential pressure switch or electronic pressure meter, a pressure gauge for the venting filter, a pressure relief valve and an audible alarm.

He notes that the VHS pressure relief valve is important to discharge possible pressure inside the silo, as well as negative pressure. This is due to the fact that there is positive pressure when the silo is filled, and negative pressure when it is emptied.

"Air input and output is corrected by the valve opening one way or the other, thus maintaining the corred pressure and avoiding possible silo damage. The dust emissions can be channelled through a duct which is connected to an outlet pipe.



KCS Silo Safety System.

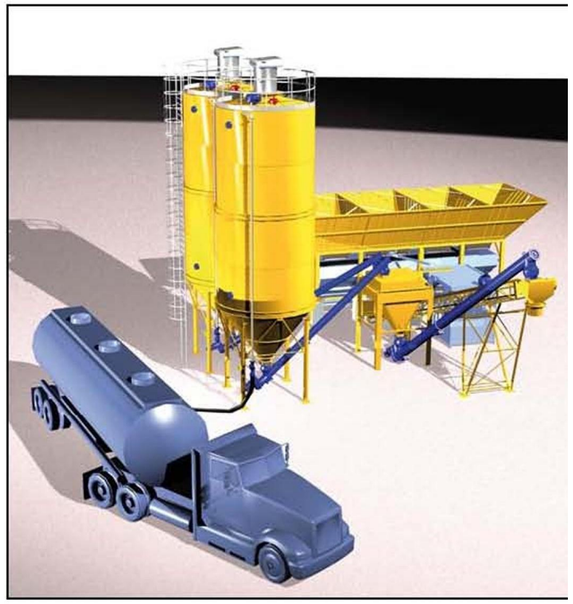
"The KCS silo safety system is supplied in component form and prevents overfilling and excess pressurisation, thereby avoiding damage to the silo while reducing the risk of dust emission into the atmosphere."

The VHS pressure release valve comes standard in a 273mm body diameter, and is cast in either carbon steel or stainless steel. It is capable of air volume intakes of up to 5000m³ per hour, and is preset for a maximum negative pressure of -0.005 bar, and a maximum excess pressure of 0.05 bar," Luca says. ▶

He points out that the accepted international pumping limit for filling a silo is 1.4 bar. He does, however note that many tank operators in South Africa are pumping at pressures of up to 2-bar to increase loads. "This creates the risk of the filters being blown off and the silo being damaged as a result of overpressure. By safely redirecting the excess spillage at low pressures, the VHS valve ensures that this risk is entirely eliminated. What's more, the VHS valve requires minimal maintenance, thereby ensuring further long-term cost savings."

According to Emilie, the KCS silo safety system also ensures that local industries comply with increasingly stringent environmental legislation, by eliminating the risk of toxic substances being ejected into the air as a result of silo spillage.

"The KCS system has proven to be highly-successful in industrialised countries, where laws regarding the safeguarding of silos and bins against excess and negative pressure are rigorously enforced. There is no doubt that developing countries such as South Africa will be following this trend in the short-term, and I am confident that the KCS silo safety system will obtain measurable market share within the next two years as a result," she concludes.



KCS silo safety system in operation, preventing overfilling and excess pressurisation by the tanker.