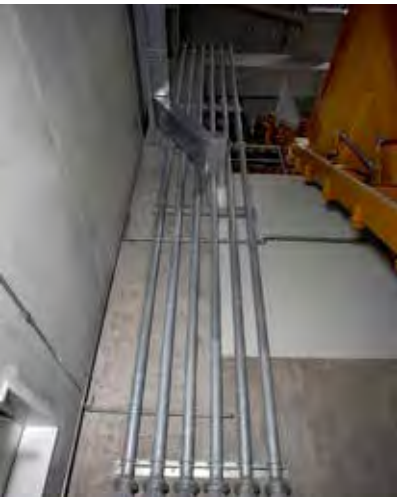
SILO SAFETEY EQUIPMENT

Silo Safety System
KCS







WAMGROUP

TOREX®

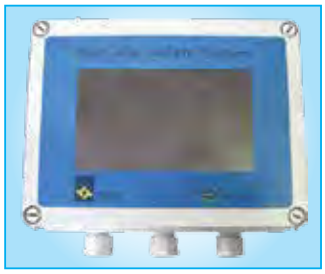
Silo Safety System KCS

THE ULTIMATE SOLUTION FOR PROBLEM-FREE PLANT OPERATION DURING SILO FILLING BY TANKER

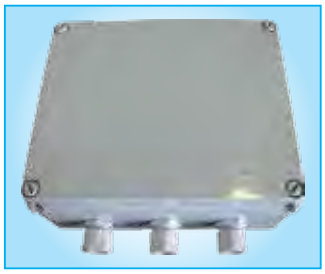
Damage to silos and accessories is most likely during tanker filling operation due to the risk of overfilling or excessive pressurisation.
The KCS Silo Safety System, which comes in component form, prevents both overfilling and excess pressure, thus avoiding damage to the silo, the venting filter or any other accessories, at the same time reducing the risk of dust emission.

1 SC-TOUCH CONTROL PANEL
SC-HUB CONTROL PANEL

The SC-TOUCH and SC-HUB manages information received from various silos and can be connected via Ethernet to the plant's PC or PLC.



SC-TOUCH



SC-HUB

The control panel (usually installed in the control room of the plant) monitors each silo as regards:

- Connection to silo
- Internal pressure of any silo
- Maximum level indicator free
- Presence of compressed air to filter (if SILOTOP® by WAM® or similar is used)
- Presence of compressed air to pinch valve
- Monitoring up to 32 silos simultaneously, maintaining control of the process status of each silo
- In case of an alarm condition in any silo the system will automatically monitor the situation even if another silo is tracked at the same time

Main Voltage: 110-230 V AC (fixed values)

2 SP2 – POWER PANELS

Each silo is equipped with an SP2 Power Panel which includes cable connections to all the system components.



3 KAT TANKER COUPLING PIPE

For coupling of material filling hosepipe to safety flange. Installed on silo filling pipe flange.



KAT 100 B



KAT 100 A / KAT 080 A



KAT 100 C

4 VM / VMM PINCH VALVE

VM / VMM Pinch Valve used to shut off silo filling pipe



VM Pneumatically Actuated Pinch Valve

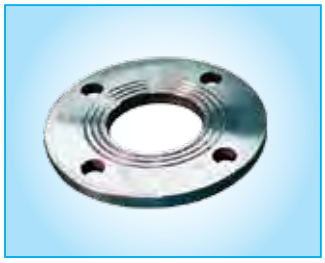


VMM Mechanically Actuated Pinch Valve

When necessary, instantaneously cuts off air and material flow through filling pipe at any time.

5 XKF COUPLING FLANGE

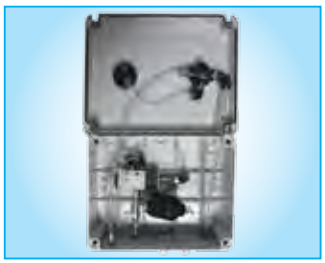
Connects pinch valve with silo filling pipe.



6 VMX01 N / VMX01M PINCH VALVE CONTROL PANEL

"VMX01N" and "VMX01M" are pneumatic panels for "VM" and "VMM" pinch valve control





BVMX enables:

- Open / Close air supply to pinch valve by means of solenoid valve
- Adjust control pressure to pinch valve
- Get information on pressure line between solenoid valve and pinch valve

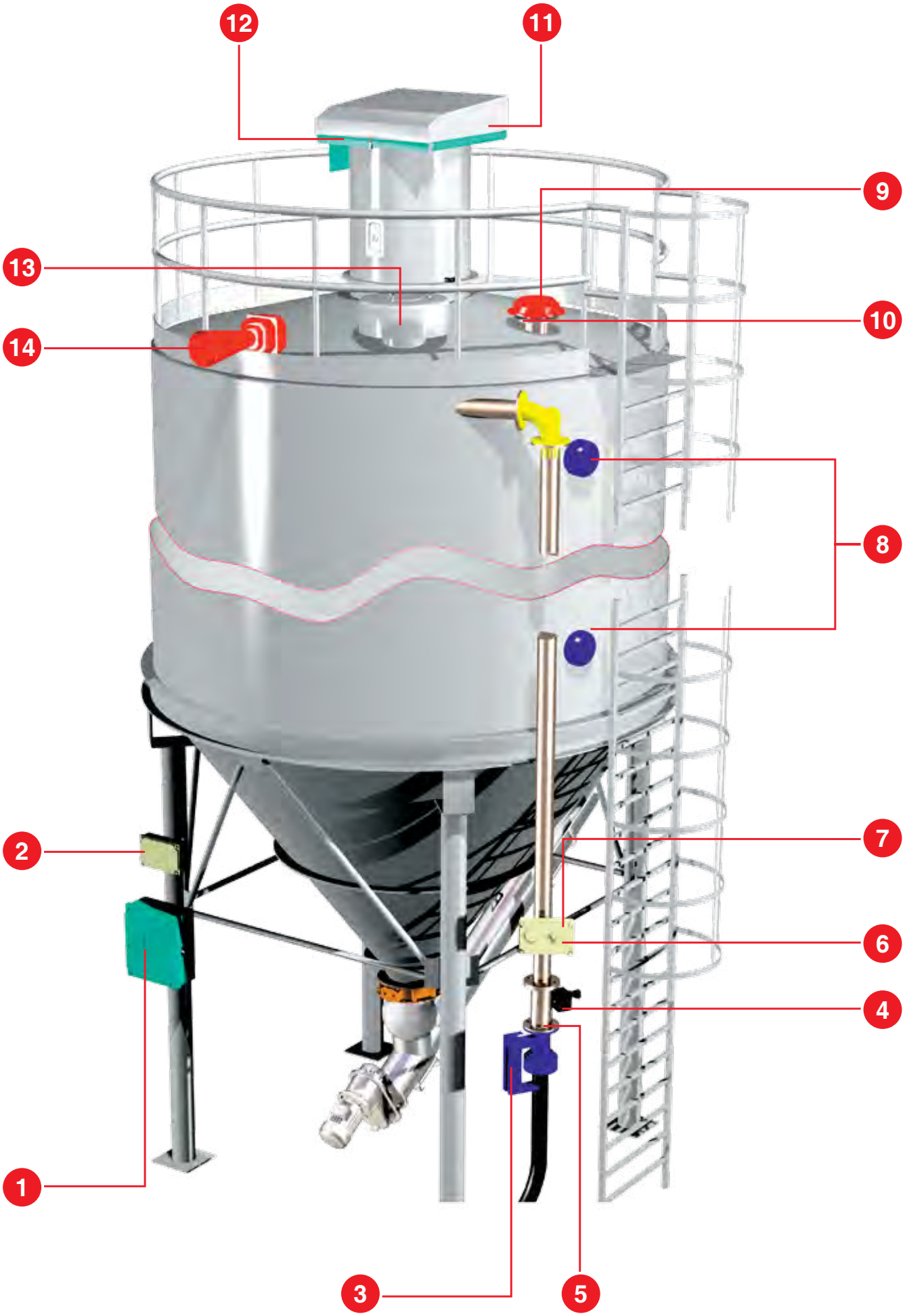
Power supply: 24V AC, 50/60 Hz

7 AIR LINE PRESSURE SWITCH

Sends signals on absence of compressed air in plant line for pinch valve control unit.



Protection Against Excess-Pressure and Dust Emission



8 ILTA0 ROTATING LEVEL INDICATOR

Designed to indicate presence of material in the silo, bin or hopper.
Commonly used for materials with a minimum density of 0.3 t/m³.



Power Voltage: 24 V AC
Used to detect:
- Silo Full level
- Silo Empty level
- Intermediate or re-ordering level

9 IPE / IPM PRESSURE MEASURING DEVICE

Available as mechanical IPM4001 or IPE electronic version

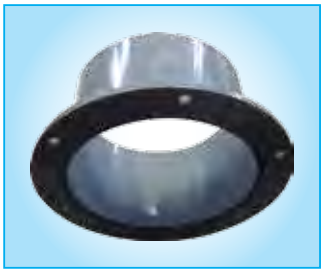


IPE
(Electronic Pressure Meter):
Continuously reads pressure inside the silo during filling through electric signal output.
Signal range optionally 0-20 mA (IPE1) or 4-20 mA (IPE5).
Pressure range: 0-99 cm H_2O

IPM
(Mechanical Pressure Switch):
Installed on top of the silo, indicates when critical pressure threshold is exceeded.
Pressure threshold: 40 cm H_2O with IPM4001

10 IPX STUB PIPE CONNECTION

Enables correct assembly of IPM pressure switch or IPE pressure meter on top of the silo.

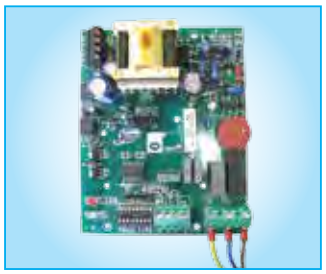


ASSEMBLY
Must be welded on the roof or on the side of the silo, after providing suitable circular opening.
MATERIAL: carbon steel
FINISHING: spray-painted RAL 9010 (pure white)

11 SILOTOP® VENTING FILTER

SILOTOP® is a cylindrically shaped dust collector for venting of pneumatically filled silo





Power voltage: 24 V AC
Dust separated from the air flow by special POLYPLEAT® filter elements drops back into the silo after an integrated automatic reverse air jet cleaning system inside the weather protection cover has removed it from the filter elements.

12 PF12 FILTER PRESSURE SWITCH

Sends signal to silo control panel on absence of compressed air for filter elements cleaning.



ASSEMBLY: screwed on SILOTOP® filter by means of connector.
Preset pressure switch: 4.5 bar

13 VCP / VHS PRESSURE RELIEF VALVE

VCP / VHS Pressure Relief Valves are used in all plants where it is required to control excess or negative pressure that may occur inside the silo, thereby preventing any possible damage.





All Pressure Relief Valve models can be provided with an inductive signalling system.
In the activation phase the signalling device generates an instantaneous signal so that the valve returns to its home position after the action.
The use of a device to maintain this signal is recommended.

14 LS AUDIBLE ALARM

The LS Audible Alarm provides an acoustic signal in case of any malfunction.



- Supply voltage: 110-230 V, 50 Hz.
- Sound level: 98 dB(A)
- Protection: IP66

Application






Benefits

- ✓ Avoid damage to silo and accessories;
- ✓ Reduce risk of air pollution;
- ✓ Eliminate risk of filling the incorrect silo;
- ✓ Start and stop filter cleaning automatically;
- ✓ Receive indication from electronic pressure meter whether filter might need attention;
- ✓ Benefit from control panel monitoring of:
  - Internal pressure of any silo
  - Maximum level indicator free
  - Presence of compressed air to venting filter (if air jet filter is used)
  - Presence of compressed air to pinch valve



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