

Bypass-Level Indicator

Performance, Innovation, Quality



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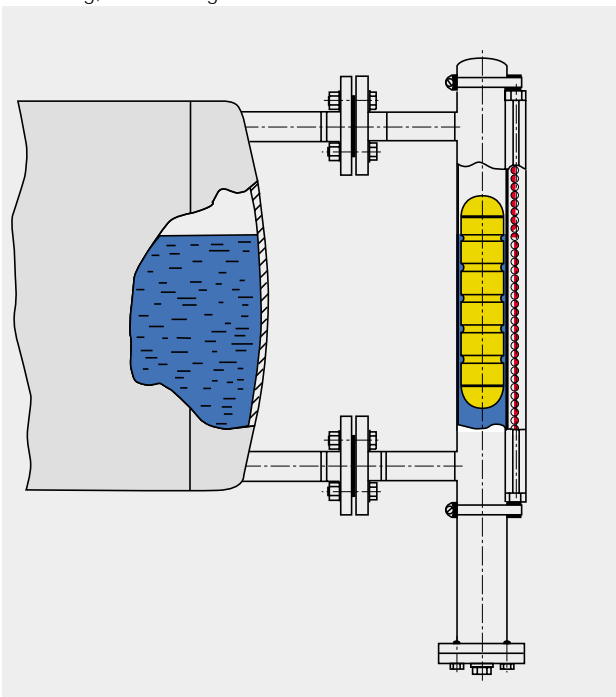


Description

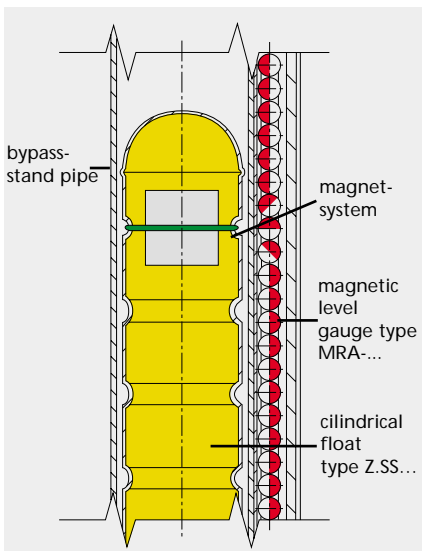
Principle of Operation

Bypass level gauges form an integral part of the pressure vessel.

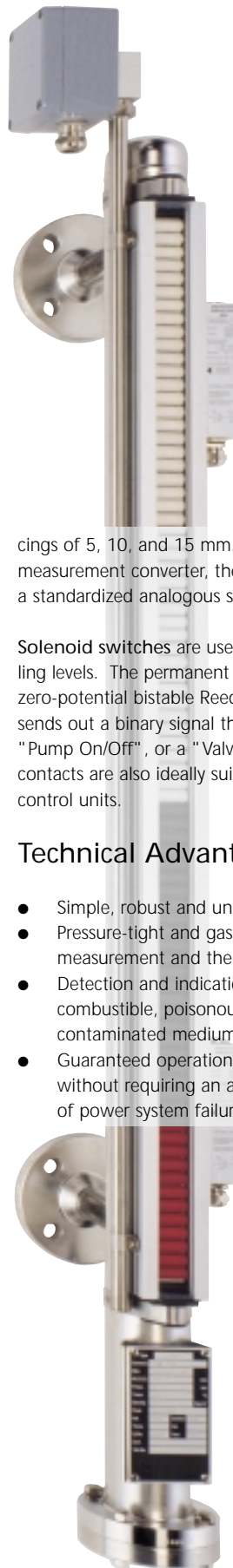
A stand pipe is attached to the side of a tank or a vessel across two process connections. With this direct connection, the filling level in the standpipe corresponds exactly to the level within the vessel (communicating pipes). A cylindrical float inside the bypass pipe has a built-in magnetic system. The magnetic field of the permanent magnet corresponds exactly to the level of the fluid in the standpipe. This magnetic field passes without contact through the walls of the standpipe tube and is received by indicator, recording, and switchgear elements attached on the outside.



Magnetic level gauges are used for displaying the filling level visually. Small plastic or aluminum rollers with inlaid bar magnets are held in an aluminum or stainless steel profile bar. Depending on the level of filling in the stand pipe, these rollers turn from white to red as the level rises and from red to white as the level drops. The filling level inside the vessel can thus be indicated continually without requiring any outside power source.



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Level sensors are used as pick-ups for continuous remote electrical indication of the filling level. The magnetic field of the permanent magnet in the cylindrical float acts through the wall to activate very small reed contacts that continually register the measurement voltage on a resistance measurement chain. This measurement voltage is proportional to the filling level (a 3-conductor potentiometer circuit).

The resolution of the reed contacts is produced with spacings of 5, 10, and 15 mm. When used in conjunction with a measurement converter, the resistance value can be converted into a standardized analogous signal.

Solenoid switches are used as limit value switches for various filling levels. The permanent magnet in the cylindrical float activates a zero-potential bistable Reed contact. Completely contactless, it sends out a binary signal that can be used as a "Full/Empty", a "Pump On/Off", or a "Valve Open/Close" signal. However, reed contacts are also ideally suited for forwarding signals directly to SPS control units.

Technical Advantages

- Simple, robust and unbreakable design.
- Pressure-tight and gas-tight separation between the measurement and the display chambers.
- Detection and indication of the filling levels of aggressive, combustible, poisonous, hot, turbulent, and severely contaminated mediums.
- Guaranteed operation of the magnetic level gauge without requiring an auxiliary power source, even in the case of power system failures.
- Usable in all fields of industry tanks to the use of a wide range of corrosion-proof materials.
- Models available for pressures ranging from a vacuum up to 400 bar.
- Models available for temperatures ranging from -160 °C to +400 °C.
- Models available for density ranging as of 350kg/m³