Continuous Level and Interface Measurement

Magnetic Level Indicators and Bridles for Level Measurement and Visualization

Looking Forward VEGA

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Leadership in Magnetic Level Indicators and Bridles

VEGA is dedicated to offering complete magnetic level indication and engineered bridle solutions for level measurement and visualization. For the added assurance of redundant monitoring, VEGA offers a complete line of magnetic level indicators (MLIs) and bridle combination units using guided wave radar and through-air radar technology.

Why Use MLI Technology?

The VEGAMAG 80 Series of MLIs are externally mounted chambers with visual indicators that are completely isolated from the process liquid. The VEGA MLI indicator is easily viewed from as far as 200 feet away due to the high contrast, wide yellow and black flags, which indicate liquid level position and vapor space, respectively.

Why Use Bridle Technology?

VEGA's non-mechanical bridle system provides a direct reading of the liquid level using the radar energy contained within a metallic chamber. It is unaffected by specific gravity, temperature, or pressure conditions that often cause problems with other mechanical devices that rely on a stable liquid density. The VEGAPASS can be easily isolated to allow maintenance without disruption to the process.

Benefits of the VEGAPASS and VEGAMAG

- High visibility flag system does not fog or leak, which are problems associated with older sight glass technologies.
- Flexible mounting configurations achieve redundant 4 … 20 mA and visual monitoring without adding additional process connections.
- Manufactured to B31.1/31.3 standards.
- New features, such as automatic run time correction for measurement in high temperature steam environments and seals for ammonia measurement, answer industry-specific demands.

plics® – Easy is Better

Instrument Platform plics®: Level Measurement Made to Order

Commercially available standard solutions for level measurement do not leave the user much leeway for truly optimal instrumentation. In contrast, the instrument platform plics® provides a variety of probe configurations, which are chosen based on application requirements. The plics platform allows for the most suitable combination of sensor, process fitting, electronics, and housing to be created. The result is an instrument that is highly reliable, economical, and user friendly. With sensors that offer reliable measurement using through-air or guided wave radar, and construction based on the plics principle, VEGA continues to lead the way in solving difficult and important applications.

How We Earn Your Business

The Right Instrument for Every Application

VEGA is committed to supplying instruments that work in all applications, not just those with ideal conditions. All new instruments are tested in extreme heat, dust, chemical, moisture, and cold environments before they are released. VEGA's goal is to enable customers to achieve operational efficiency with every measured process.

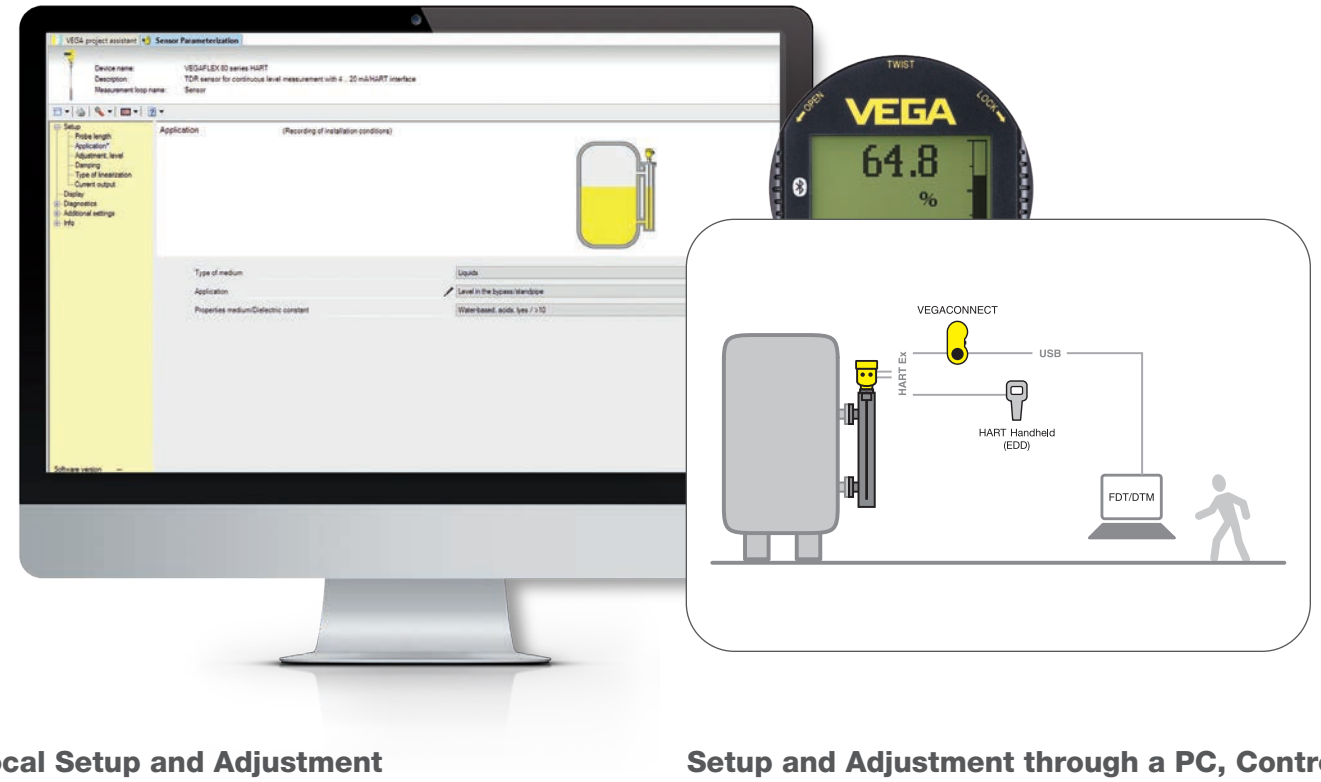
24 Hour Support

The VEGA Field Service team is trained to provide telephone, email, or on-site customer service. Whether starting up, configuring, or troubleshooting the system, VEGA Field Service provides necessary steps to ensure the measuring device and its outputs run efficiently. Through service and training, VEGA supports all users throughout the life of the installed solutions.

Performance Guarantee

To demonstrate our commitment to specifying the right instrument for each application, VEGA Americas offers a Performance Guarantee — if our recommended solution does not perform exactly as expected, we'll make it right.

Setup and Adjustment



Local Setup and Adjustment

The PLICSCOM indicating and adjustment module plugs into any plics instrument. It functions as a measured value indicator on the instrument and as a local adjustment device. The structure of the adjustment menu is clearly organized and makes setup and commissioning easy. In addition, status messages are displayed directly on the screen. When an instrument is exchanged, PLICSCOM ensures fast availability of the measuring point—all sensor data is saved by pressing a key on the PLICSCOM and later copied into the replacement sensor.

Setup and Adjustment through a PC, Control System, or Handheld Device

FDT/DTM technology is an innovative, manufacturer-independent description technology for field instruments. Complex field instruments operate with PCs using PACTware® as easily as with the current engineering and operating environments of control systems. With DTMs, the sensors are easily configurable and important adjustments can be carried out quickly.

VEGA supports all main standards for uniform, centralized field instrument operation. If the instruments are integrated in primary management or control systems, the field instruments are accessible for adjustment, servicing, and diagnostic purposes through the existing infrastructure. Both DTM and EDD description technologies are supported.

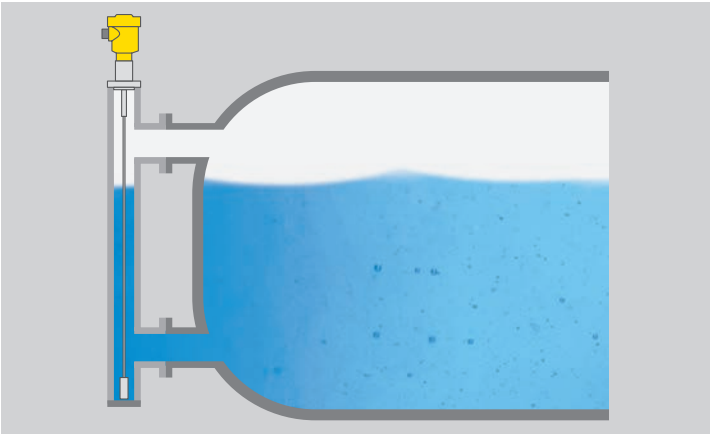
VEGAPASS 81 – Bridle Chamber or Stilling Well

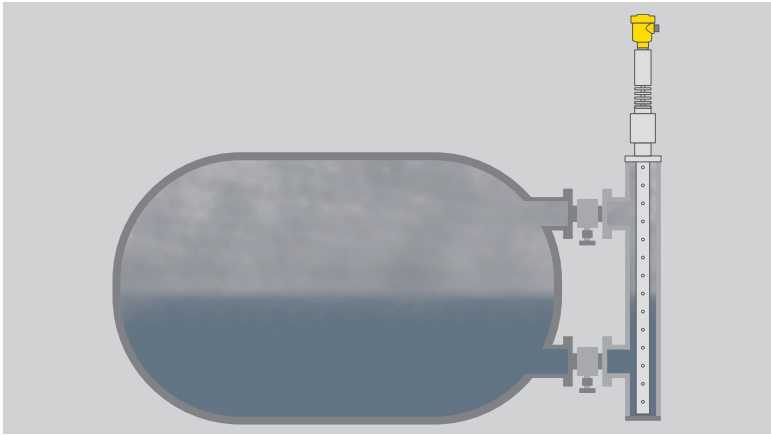
For use with guided wave radar or non-contact radar: VEGAPASS 81

The VEGAPASS 81 is a non-mechanical level system that provides a direct reading of the liquid level using the radar energy contained within the chamber. It is unaffected by specific gravity, temperature, or pressure, which may cause problems with other mechanical devices that rely on a stable liquid density.

VEGAPASS 81

- Measuring range: Up to 50 ft (15 m); Consult factory for lengths over 50 ft
- Temperature range: -320 ... +842°F (-195 ... +450°C)
- SIL2 qualified VEGAFLEX or VEGAPULS; standard version





Displacer Replacement

As with process and sight gauges, a large number of displacer level gauges require a significant amount of maintenance to keep them operational. The VEGAPASS 81 uses a VEGAFLEX guided wave radar housed inside of a bridle or chamber for monitoring liquid level. With no mechanical parts, guided wave radar greatly reduces maintenance and potential downtime.

- Non-moving parts are immune to mechanical failure
- Low maintenance requirements reduce downtime and costs

Steam Drums

High pressure steam is critical for the operation of the refinery. For the production and reliable supply of steam, accurate level measurement is required that allows efficient operation of the steam boiler. In addition to level measurement, high and low water limit detectors are also extremely important. As safety devices, they ensure that the water level neither exceeds the upper limit nor falls below the lower limit.

- Compliance to ASME B31.1 (code stamp available)
- Suitable for extremely high temperatures and pressures
- Reliable measured values with VEGAFLEX 86 through automatic measurement correction (integrated steam compensation)

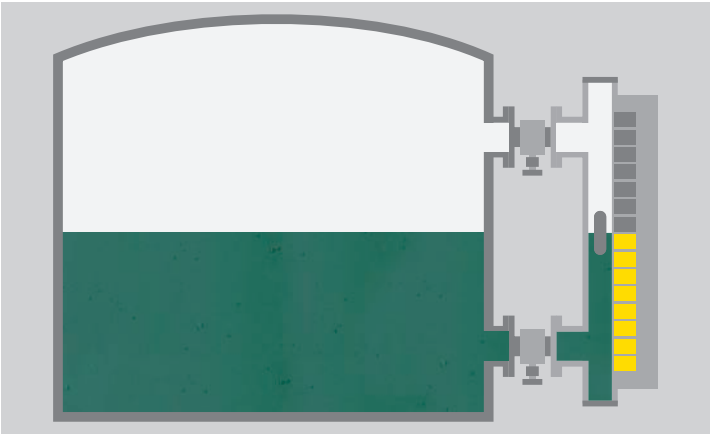
VEGAMAG 81–
Standard Magnetic Level Indicator

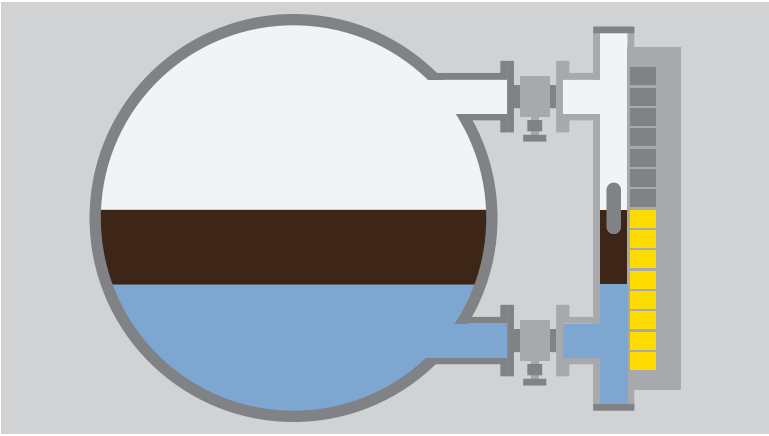
Single-chamber MLI:
VEGAMAG 81

The VEGAMAG 81 magnetic level indicator is designed to perform in the most demanding of applications. The wide aluminum flag design provides better visibility even in the highest temperature applications. The flag-indication used in conjunction with the scale provides a clear understanding of the process liquid levels. When combined with reed switches and Magnetostrictive transmitter technologies both discreet outputs and 4 … 20 mA signal can be provided for control.

VEGAMAG 81

- Measuring range: Up to 50 ft (15 m); Consult factory for lengths over 50 ft
- Temperature range: -320 ... +1,000°F (-195 ... +538°C)





Bulk Liquids Storage

Dependable storage in liquid applications is the basis for reliable production and supply. The VEGAMAG 81 provides a highly dependable, highly visible representation of liquid level even from far distances. The customizable VEGAMAG 81 can be sized for existing process connections on vessels ranging from large steel tanks to small totes. Additionally, reliable level measurement helps users remain compliant with government regulations.

- Visual indication from up to 200 ft (61 m) away
- Variety of non-magnetic materials available for process compatibility

Sight Glass Replacement

Retrofit opportunities are available and increasing as the chemical and petrochemical industries remove older and sometimes leak-prone sight glass units that were popular 20 to 30 years ago. The VEGAMAG 81 directly replaces almost any type of current process gauge using the existing vessel connections.

- Guided wave radar measures accurately during a fully flooded chamber or vapor layer
- MLI technology eliminates risk of leaks often associated with sight glass technology

VEGAMAG 82 – Dual-chamber Measuring System

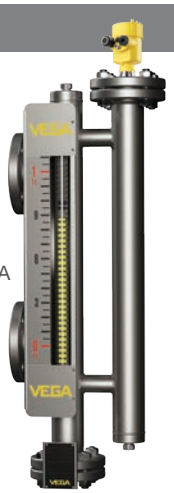
For use with guided wave radar:

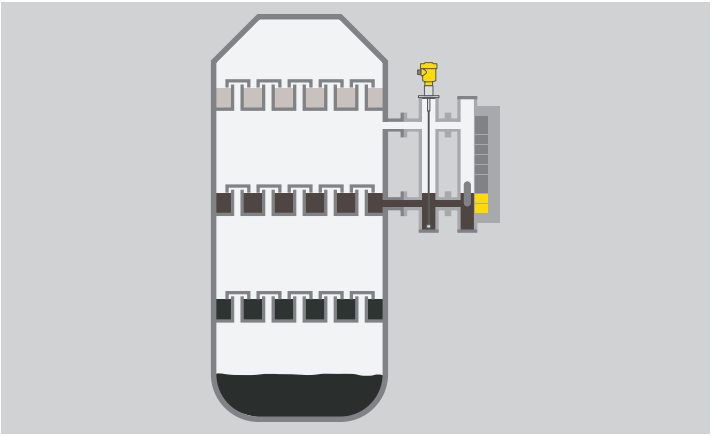
VEGAMAG 82

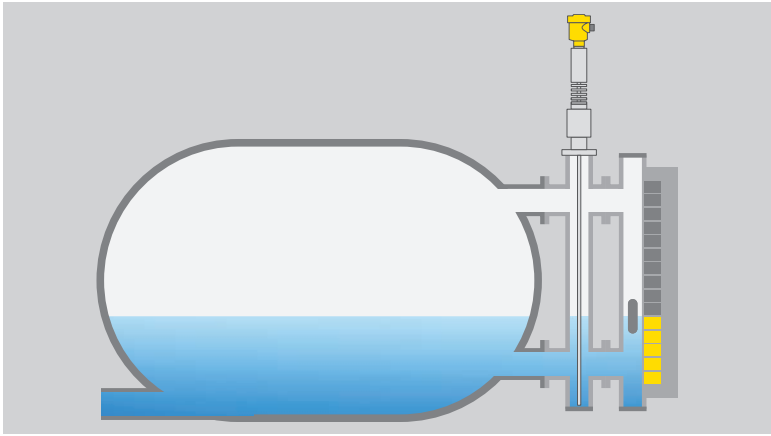
The VEGAMAG 82 series combination magnetic level indicator and bypass bridle chamber provides the benefits of both visual indication and process control. The dual-chamber system uses proven VEGAFLEX technology to provide the most complete visual and guided wave radar package available. This combination can be used in any application that requires visual and electronic level monitoring, as well as applications that require interface measurement. The VEGAMAG 82 mounts to most standard tank process connections.

VEGAMAG 82

- Measuring range: Up to 50 ft (15 m); Consult factory for lengths over 50 ft
- Temperature range: -320 ... +842°F (-195 ... +450°C)
- Output signal: 4 … 20 mA/HART, Foundation Fieldbus, Modbus, Profibus PA







Distillation Columns

Redundant monitoring is critical in such applications, which can require control and/or monitoring by multiple technologies. With the VEGAMAG 82, the operator has visual indication from the magnetic level indicator and a separate 4…20 mA signal from a redundant VEGAFLEX guided wave radar, which is installed in a parallel bridle attached to the MLI. The VEGAMAG 82's ability to operate in high temperature and high pressure environments makes it a perfect solution for such refining applications.

- MLI and guided wave radar provide redundancy
- Robust material options are very resistant to extreme process conditions

Feedwater Heaters

Within the power industry, continuous monitoring of the feed water to the boiler is a very critical measurement. Two separate loops for both the low pressure and high pressure heaters are needed for continuous monitoring. The combination of the VEGAMAG magnetic level indicator along with VEGAFLEX guided wave radar provide the reliability and robustness to perform the necessary measurement.

- Ability to handle high temperatures and pressures
- Can be designed to accommodate turbulent or flashing applications

VEGAMAG 83 – Single-chamber Measuring System

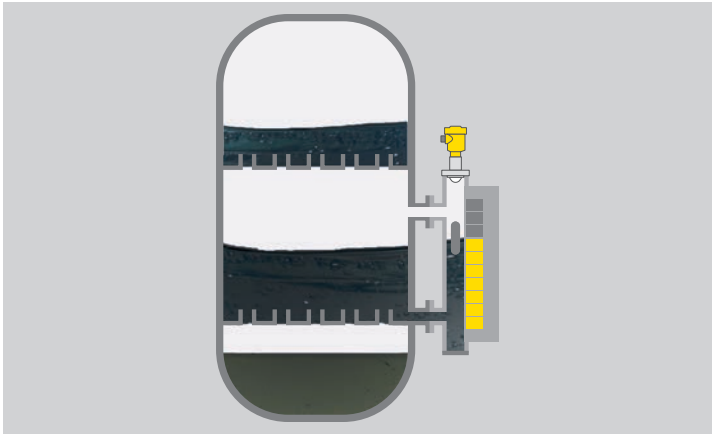
For use with non-contact radar:

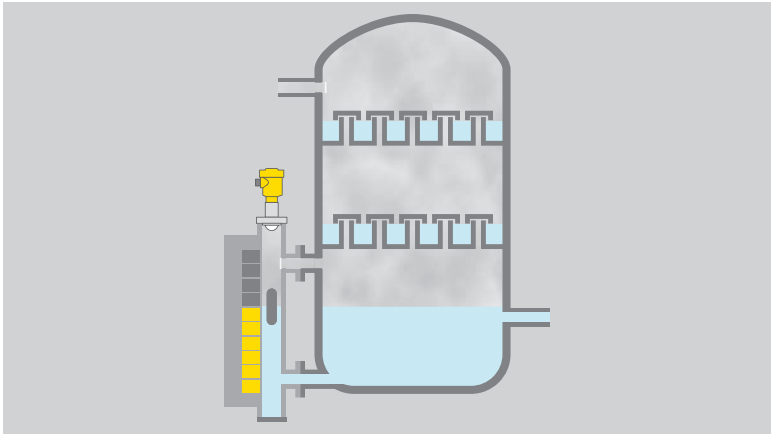
VEGAMAG 83

The VEGAMAG 83 is ideal for processes with low dielectric constant values, cryogenic applications, or light hydrocarbons. The chamber's compact design provides a smaller installation envelope and lighter weight for easier mounting. Standard VEGAPULS sensors are SIL2 qualified.

VEGAMAG 83

- Measuring range: Up to 50 ft (15 m); Consult factory for lengths over 50 ft
- Temperature range: -320 ... +842°F (-195 ... +450°C)
- Output signal: 4 … 20 mA/HART, Foundation Fieldbus, Modbus, Profibus PA





Hydrocracking

A number of refinery processes have unstable liquid surfaces and weak dielectric properties. Guided wave radar may have difficulty tracking the liquid level reliably due to energy loss into the process liquid. The VEGAMAG 83 solves this problem by using a non-contact VEGAPULS radar instrument in the same chamber as the magnetic float. By using this unique design, the radar is able to track the metallic float top rather than the liquid surface.

- Through-air radar is suitable for long measurement spans
- Tracking level of float top eliminates problems associated with low dielectric values

Continuous Level monitoring in LPG tanks

The VEGAMAG 83 performs best in applications where the media has a low dielectric value. The flat top float design provides a highly reflective target for the integrated VEGAPULS radar to track.

- Visual and electronic indication in a compact single chamber design
- Optional cryogenic insulation to maintain process conditions

Associated Technologies

Through-air radar: VEGAPULS

In continuous non-contact level measurement with radar, the sensor sends microwave signals towards the medium from above. The surface of the medium reflects the signals back in the direction of the sensor. Using the received microwave signals, the sensor determines the distance to the product surface and uses it to calculate the level.

VEGAPULS

- Measuring range: 0 ... 115 ft (0 ... 35 m)
- Pressure range: -14.5 ... +2,320 psi (-1 ... +160 bar)
- Temperature range: -320 ... +842°F (-195 ... +450°C)
- Output signal: 4 … 20 mA/HART, Foundation Fieldbus, Modbus, Profibus PA

Guided wave radar: VEGAFLEX

In level measurement with guided wave radar (GWR), microwave pulses are conducted along a cable or rod probe and reflected by the product surface. The measuring probe of the GWR sensor ensures that the signal reaches the medium undisturbed. Liquids, bulk solids, and separation layers (interfaces) in liquids are commonly measured with this measuring technique.

VEGAFLEX

- Measuring range: Cable: 0 ... 104 ft (0 ... 32 m), Rod: 0 ... 13 ft (0 ... 4 m)
- Pressure range: -14.5 ... +5,800 psi (-1 ... +400 bar)
- Temperature range: -320 ... +842°F (-195 ... +450°C)
- Output signal: 4 … 20 mA/HART, Foundation Fieldbus, Modbus, Profibus PA

VEGAFLEX Probe Configurations

- Rod
- Cable with Centering Weight

VEGAFLEX Spacers

- Stainless Steel
- Plastic

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