



# VEGAMIP Microwave Barrier

# Reliable level switching under rough conditions

**Abrasive bulk solids like minerals, coal or ores require robust measurement technology. Through many years of experience, VEGA knows these difficult operating conditions well and has designed the VEGAMIP microwave barrier particularly with the requirements and needs of the bulk solids industry in mind.**

## **Wear-free measurement with highest reliability**

The VEGAMIP microwave barrier detects point levels without direct contact to the medium. This non-contact technology is especially advantageous for abrasive media or very high temperatures. VEGAMIP can simply measure right through a microwave-permeable vessel wall or window of ceramic or plastic. The microwave barrier also offers many application possibilities in the area of liquid level switching or object detection.

## **Reliable and maintenance-free**

Whether in bulk solids or liquids – VEGAMIP is insensitive to dirt, dust and buildup, enabling it to detect the limit level with great reliability. Its application range extends from transfer points on conveyor belts to coal silos and wood chipping systems to temperature critical applications such as lime kilns and waste incineration plants. VEGAMIP is also a reliable and maintenance-free solution for applications like vehicle or ship positioning.



“As a partner of industry, we also feel obligated to find solutions to the difficult problems posed by rough operating conditions. We have already proven this as a pioneer in microwave level measurement with radar. Many customers want robust and simple solutions. That’s why we’ve worked intensively with the technology of the microwave barrier, developed it further and finally perfected it as VEGAMIP.”



### **VEGAMIP: All advantages at a glance**

- Apply as a minimum or maximum sensor
- Maintenance and wear free, non-contact technology
- Reliable level detection even with buildup, dust, fog, rain or snowfall
- Insensitive to abrasive products and high temperatures
- Independent of material dampness and consistency
- Through-wall level detection is possible with plastic vessels
- Wide application spectrum, from the food industry to steel production

# VEGAMIP in the plics<sup>®</sup> system – modular design increases flexibility





**Trend-setting measurement technology orientates itself around the people who use it. That's why we developed plics® – the world's first modular product system for instrumentation. Every one of our sensors is custom built from plics® components and thus optimally fulfils the requirements of every industry and its specific applications.**

### **Simpler planning with plics®**

The free choice and combination of sensor, process fitting, electronics and housing simplifies instrument selection and engineering for use in machines and plants. With plics®, cost reduction starts right at the planning stage.

### **Clear advantages in plant construction**

Short delivery time, uncomplicated connection, fast setup and commissioning save the plant builder significant time and costs. The configuration of VEGA instruments, their wiring and their commissioning is always the same. Whoever knows this can work with any plics® measuring principle and application at any time.

### **Assistance for the user**

plics® gives a convincing performance in daily use due to its high operational reliability, simplified servicing, and reduced spare parts stocking through the use of many identical parts. The consistency of technology and operation simplifies and accelerates working with different plics® instruments.

### **The plics® advantages for VEGAMIP**

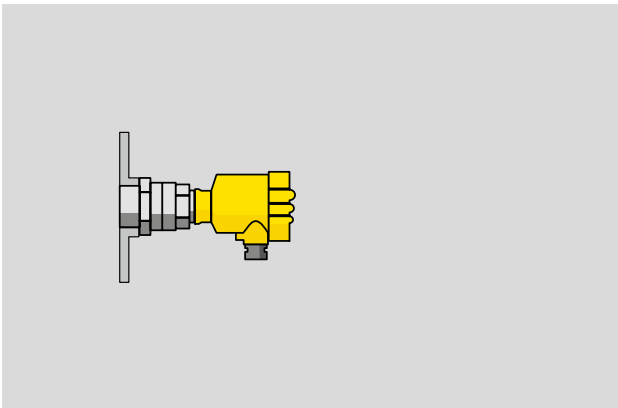
The VEGAMIP microwave barrier is of course a plics® sensor. Both the transmitter VEGAMIP T61 and the receiver VEGAMIP R61 fully utilize the advantages of the modular concept:

- Housings for every application: plastic, aluminium or stainless steel
- Antenna systems for widely different applications
- Mounting adapter for high process temperatures
- Standardized connection concept
- Simple electronics exchange

# VEGAMIP – as dependable as VEGA

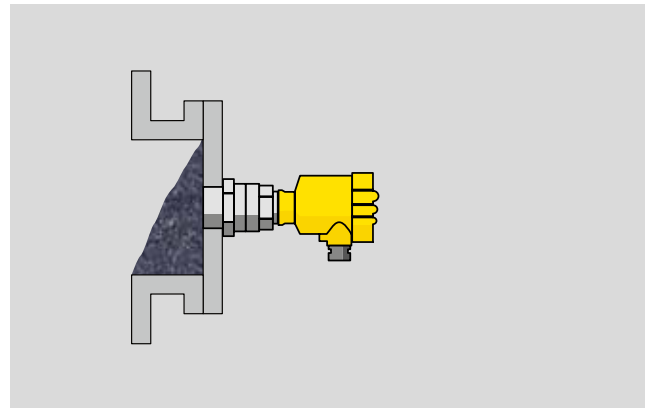
Like all developments at VEGA, the new VEGAMIP microwave barrier was well thought out and designed with the customer in mind. As a non-contact operating system, it guarantees reliable detection of limit levels, uninfluenced by dirt, buildup or baked-on deposits as well as independent of changing medium properties.

## Mounting options



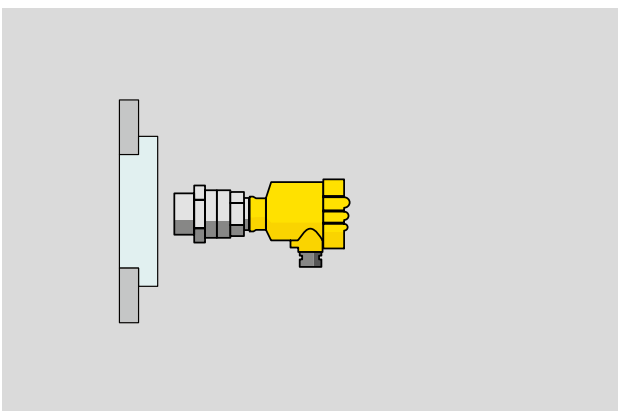
### Mounting in the silo wall

- Simple mounting in 1½" welded sleeve
- Low wear due to front flush installation in the vessel



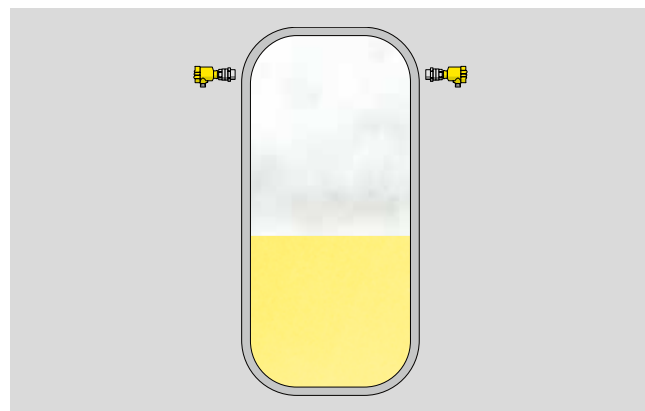
### Mounting in threaded flange

- Easy adaption to existing sockets



### Measurement through window

- No direct contact with medium
- Window materials: plastic, ceramic, glass
- Ideal for high temperatures and abrasive media



### Measurement through vessel wall

- No direct contact with medium
- Vessel materials: plastic, ceramic, glass
- Ideal for aggressive media



### Configuration and function

A VEGAMIP T61 transmitter and a VEGAMIP R61 receiver form the VEGAMIP microwave barrier. The microwave signals emanating from the transmitter are detected by the receiver. If the microwave signal is interrupted by the medium, the receiver generates a switching signal.

### Technical data

Operating voltage	20 ... 253 V AC or 20 ... 72 V DC
Transmitting frequency	24 GHz (ISM Band)
Measuring range	up to 100 m
Process fitting	G1½ A or 1½ NPT
Process temperature	-40 ... +80 °C (with mounting adapter up to +450 °C)
Process pressure	-1 ... +4 bar (-100 ... +400 kPa)
Approvals	General wireless permit, Dust Ex according to ATEX FM, CSA, IEC
Output	Relay (DPDT)

### Antennas

#### Standard antenna

- 1½" stainless steel process fitting with integrated horn antenna and PTFE cover

#### Plastic antenna

- 80 mm plastic horn antenna with PP cover for higher signal focussing
- Mounting with collar flange or mounting strap

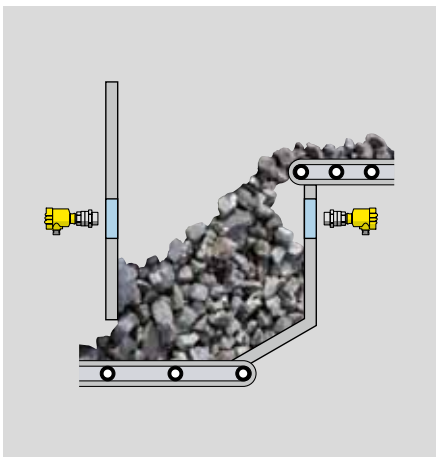
#### Special antennas

- Stainless steel horn antennas in different sizes for optimal process adaption
- Antenna extensions for protecting electronics from high process temperatures and for difficult mounting conditions



# Ruggedness for all operating conditions

No matter how rough and diverse the operating conditions are, VEGAMIP detects bulk solids just as well as liquids. Objects like vehicles and ships in loading zones are also reliably detected.

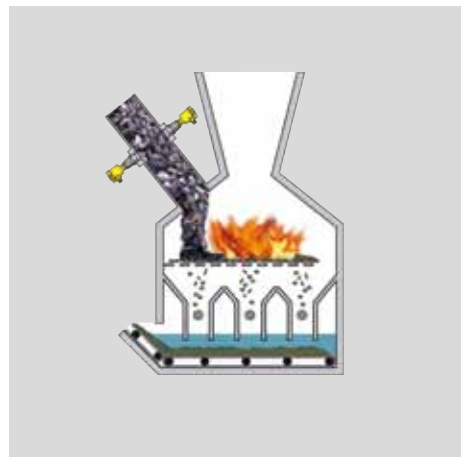


## Blockage detection of conveyor transfer points

- Wear-free measurement
- Independent of medium properties
- Robust and maintenance-free

### Mounting possibilities:

Measurement through windows of plastic, ceramic or special wear protection materials

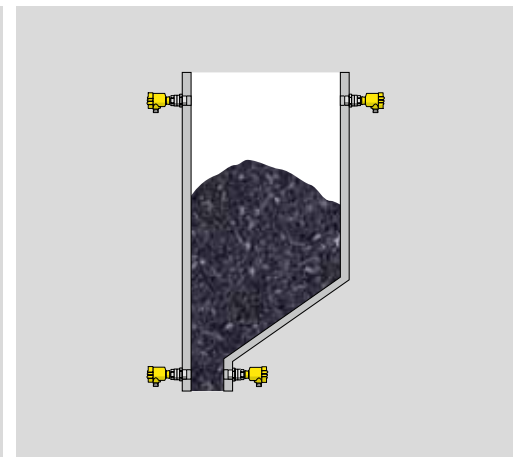


## Feed shaft in the waste incineration plant

- Wear-free measurement
- Independent of product composition
- Installation of several sensors in one shaft possible
- Maintenance-free operation

### Mounting possibilities:

Front-flush installation of sensors or measurement through plastic window



## Limit level monitoring in the coal silo

- Wear-free measurement
- Independent of medium properties
- Robust and maintenance-free

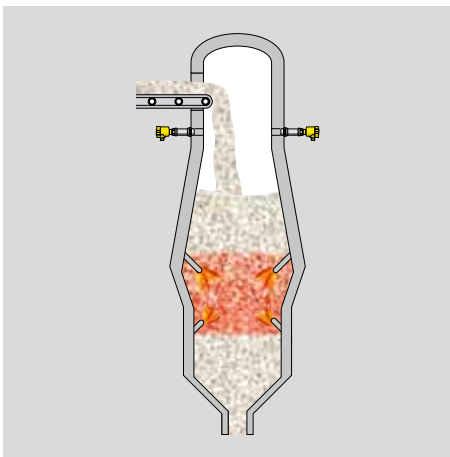
### Mounting possibilities:

Direct mounting on silo wall or on adapter flange





“At VEGA we are always conscious of our responsibility and understand how important our measurement technology is for the security of people, processes and plants. The heavy demands we place on our own reliability and performance are also reflected in the VEGAMIP microwave barrier.”

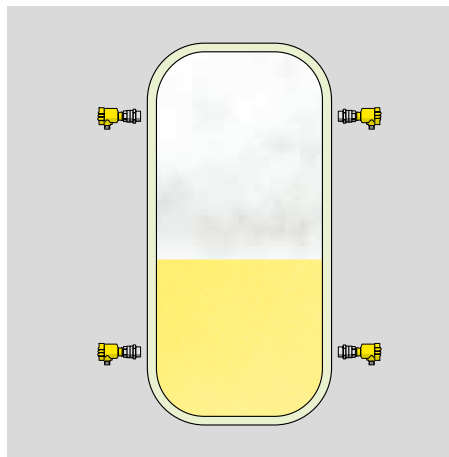


### Level detection in the lime kiln

- Independent of temperatures and strong dust
- Measurement through fire-proof lining
- Non-contact and wear-free

#### Mounting possibilities:

Mounting with temperature adapter with ceramic process separation

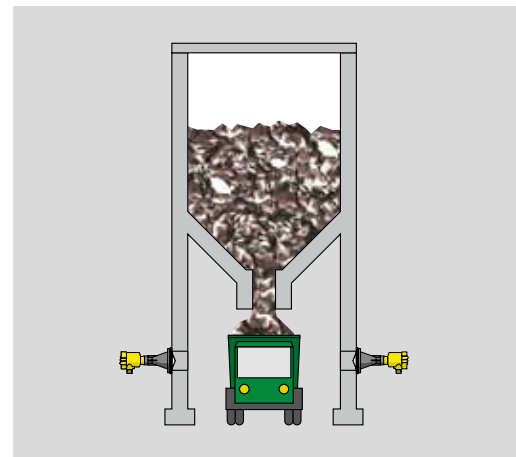


### Level detection in a plastic container

- Non-contact, no openings in container necessary
- Independent of product composition
- Installation of several sensors on one container possible
- Maintenance-free operation

#### Mounting possibilities:

Measurement directly through container wall



### Position detection of vehicles

- Microwave barrier signals when vehicle is present
- Independent of ambient conditions like dust, fog, rain, snowfall
- Use of several sensors possible
- Maintenance-free operation

#### Mounting possibilities:

Simple sensor mounting via different fixing assemblies

# Simplified to the utmost: setup and operation



“A microwave barrier must be, more than anything else, reliable. Through its robust technology, adaptability to any kind of process conditions and simplified adjustment concept, VEGAMIP meets this demand optimally. Like every new product, it represents VEGA’s philosophy: continuous progress from the technology leader – innovative, uncomplicated and guaranteed for the long term.”

**VEGAMIP is designed to be as a compact sensor, i.e. as a standalone device without an auxiliary signal conditioning instrument. When it comes to process installation, users also profit from VEGA's philosophy: simplify the technology and increase security.**

### **Setup and commissioning with the press of a button**

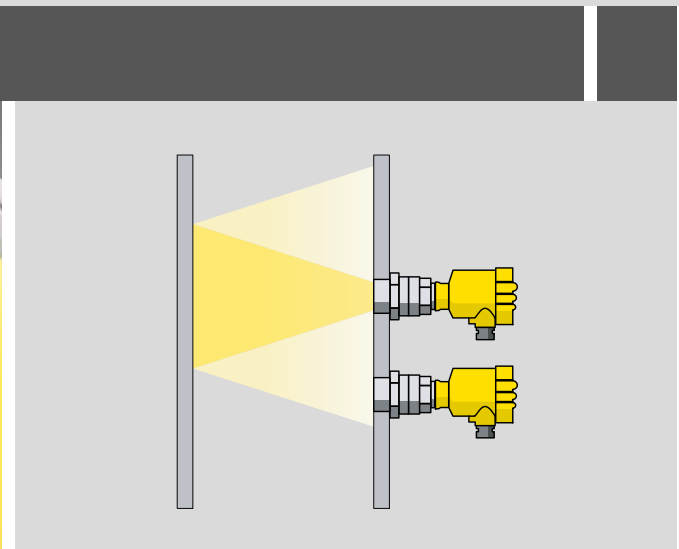
The switching point of VEGAMIP is adjusted with two buttons directly on the instrument. Sensitivity can be very precisely adjusted over a wide range. This guarantees switching reliability even with buildup and dirt on the windows.

- The VEGAMIP T61 transmitter needs no adjustment, an LED signals the operating status
- Signal strength is represented by an LED strip on the VEGAMIP R61 receiver
- The response speed of the receiver can be freely adjusted between 100 ms and 20 s
- Instrument adjustment is carried out simply via two buttons

### **Easy adaption to existing systems**

Thanks to plics®, VEGA's extensive application know-how gained from market-leading radar technology and its use under extremely demanding operating conditions has also benefited the VEGAMIP microwave barrier. The instrument can be easily adapted to the individual requirements of special measuring tasks. In cramped mounting situations or systems under high temperatures, for example, measurement can be carried out via metallic mirrors or a curved antenna system.

In confined spaces or in case of insufficient signal damping by the medium, the transmitter and the receiver can be mounted together on the same side of the vessel. The metallic vessel wall then serves as a reflector for the microwaves.





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