



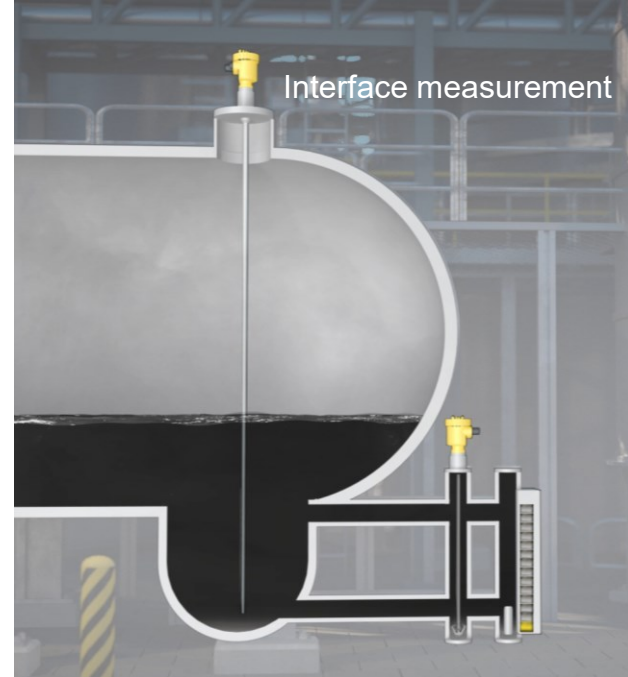
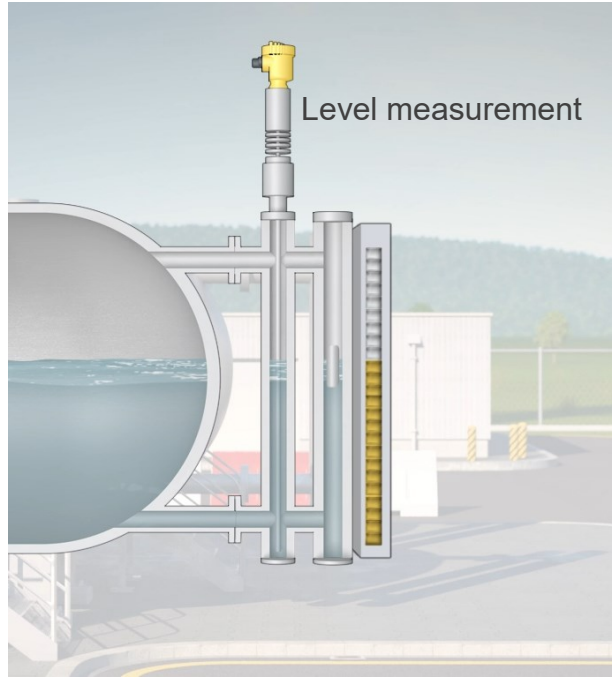
Guided Wave Radar

Level and Interface Measurement

MEDITECNA

VEGA HOME
OF VALUES

Measuring principle



VEGAFLEX 81 for all liquids



Exchangeable rod
Max. length: 6 m



Exchangeable cable
Max. length: 75 m

Coax version
Max. length: 6 m



Max temp	:	200 °C
Min temp	:	- 60 °C
Max press	:	40 barg
Min press	:	-1 barg

VEGAFLEX 83 for pure and aggressive media



Cable PFA-coated
Max. length: 32 m

Rod electro-polished
or PFA-coated
Max. length: 4 m

Max temp	:	150 °C
Min temp	:	- 40 °C
Max press	:	16 barg
Min press	:	-1 barg



VEGAFLEX 86 for extreme temperatures and pressures



Exchangeable rod
Max. length: 6 m



Exchangeable cable
Max. length: 75 m

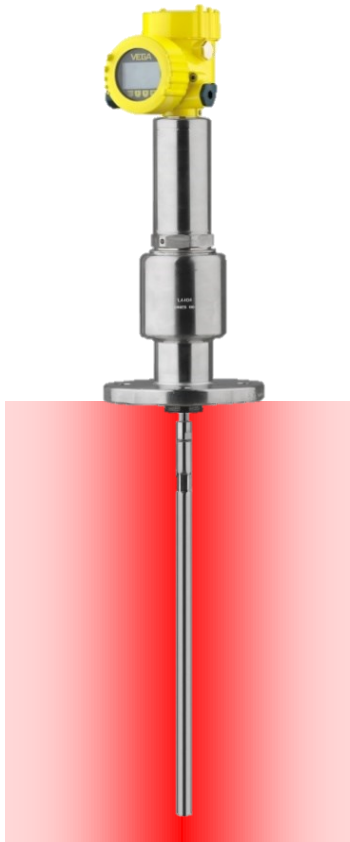
Coax version
Max. length: 6 m



Max temp	: 450 °C
Min temp	: - 196 °C
Max press	: 400 barg
Min press	: -1 barg

GWR types

Rod:
8/12/16 mm



Cable:
2/4 mm



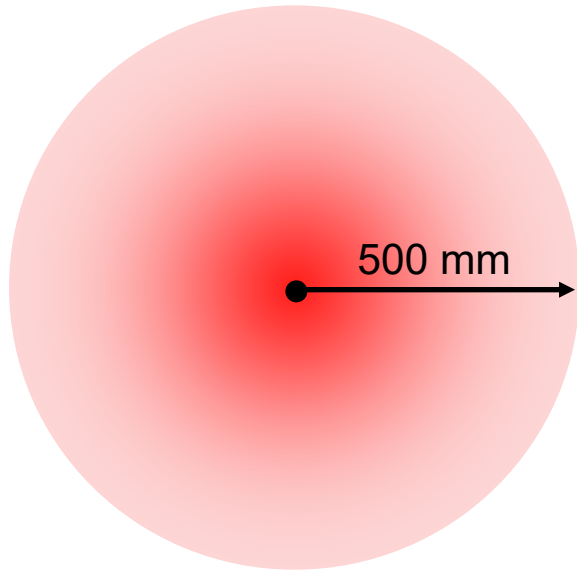
(Centering)
weight

316/316L, Duplex,
Alloy C22, ...

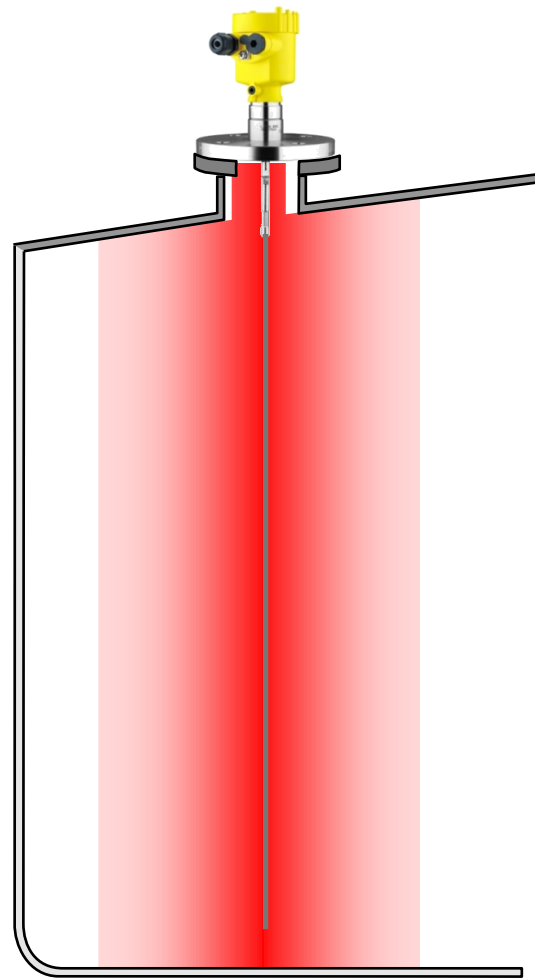


Coaxial
probe
Ø 21 mm
Ø 42 mm

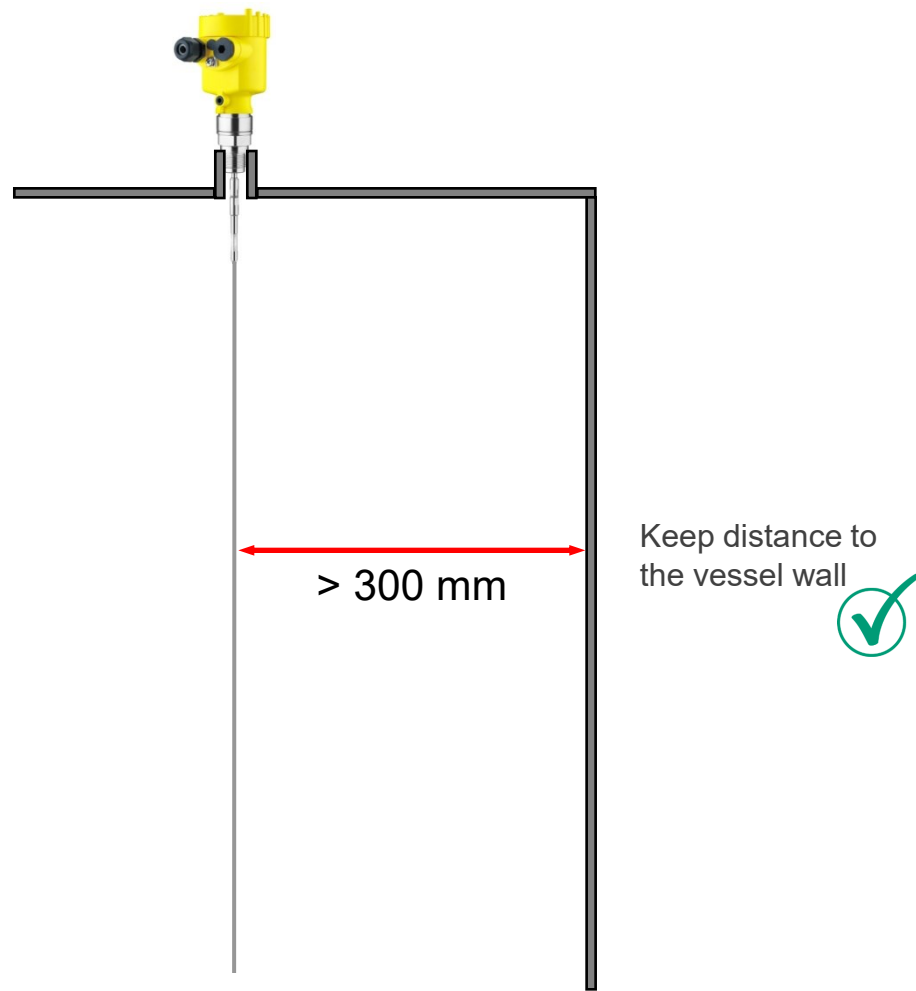
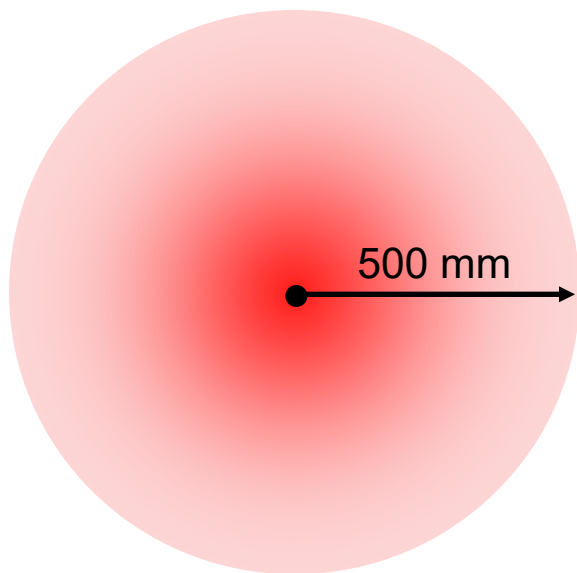
Energy field



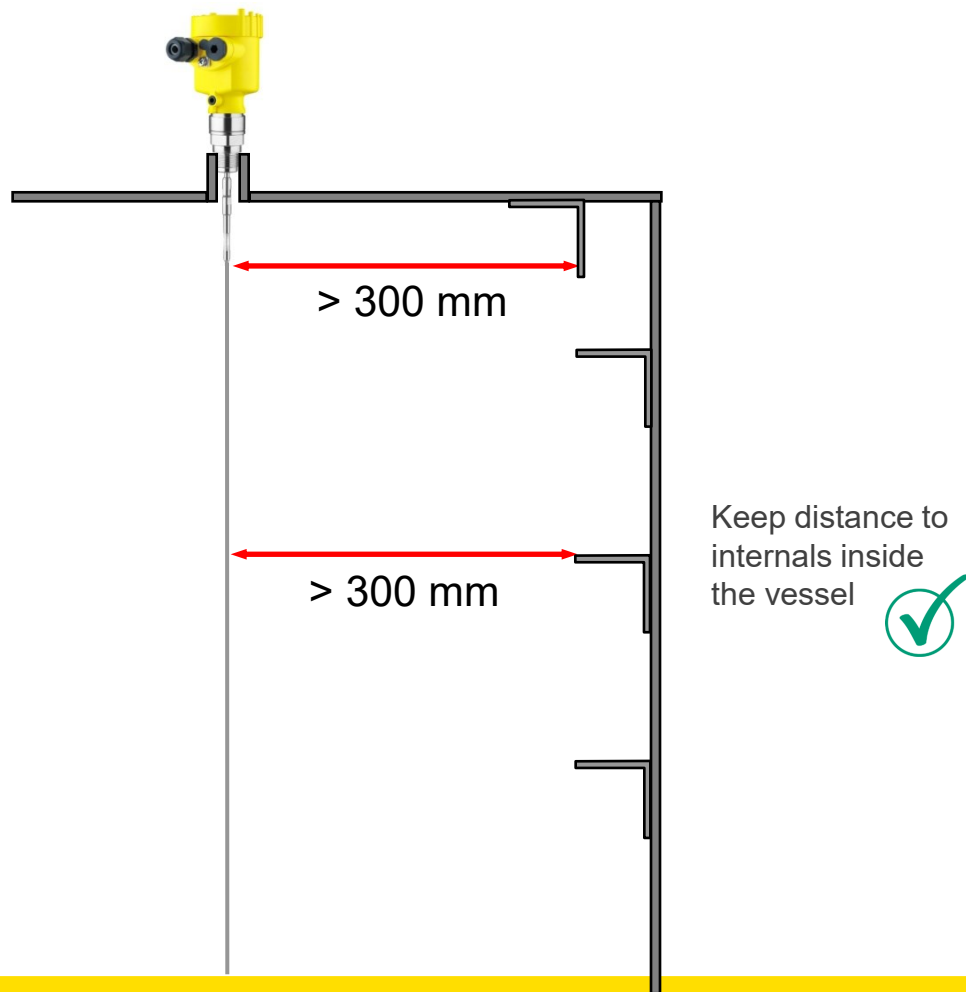
Expert tip:
GWR will influence other GWR within this energy field!



Installation conditions

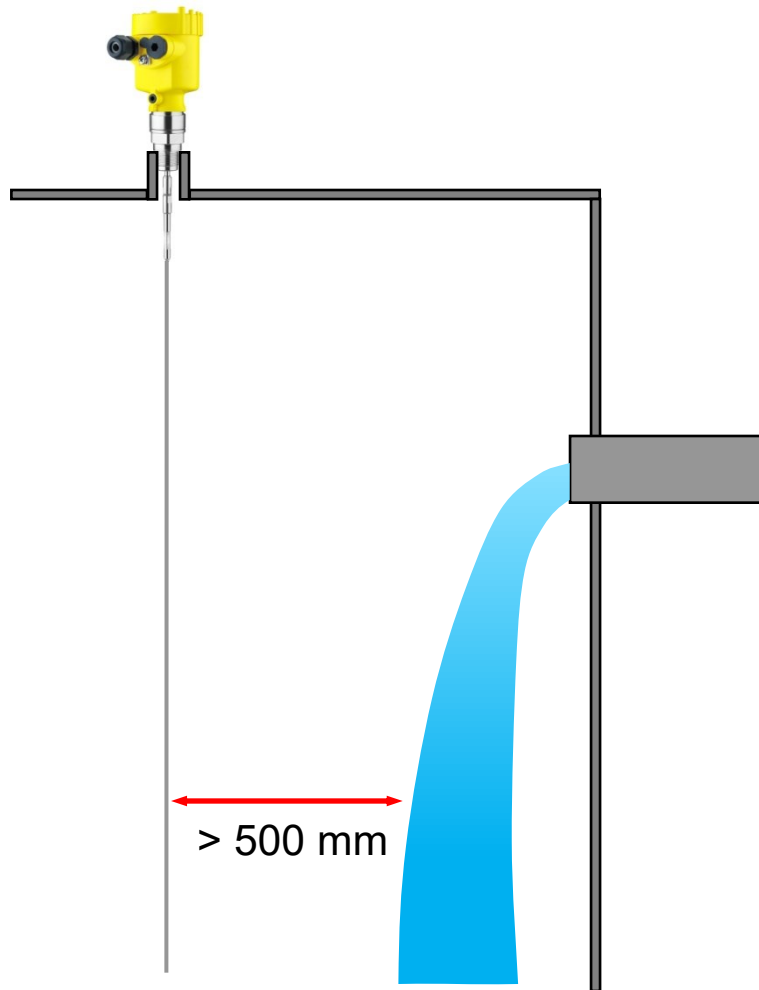


Installation conditions

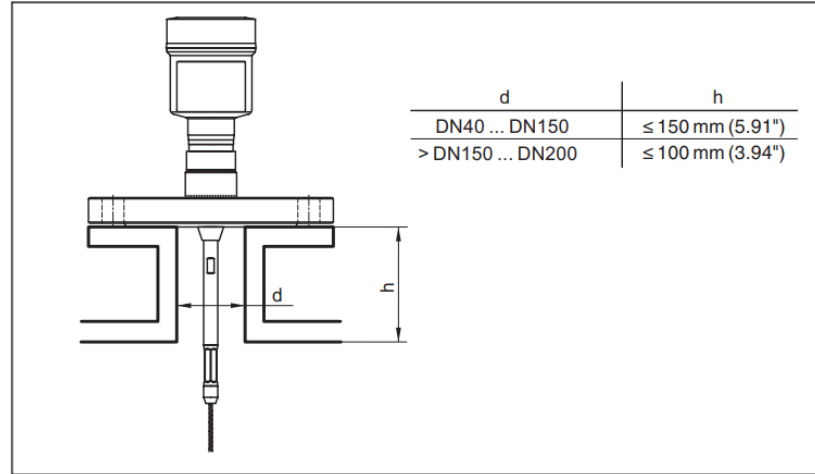


Installation conditions

Keep distance to inflowing media



Installation conditions



Use short nozzles with small diameter ✓

Cable vs Rod vs Coax



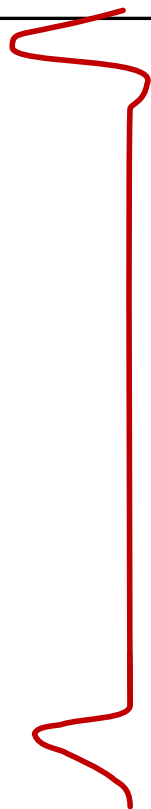
Application	Cable	Rod	Coax
Measurement to tank bottom	-	+/-	++
Close to wall	-/+	-/+	++
Interface	+/-	+	++
Measurement in bypass	++	++	++
Large length (>10 mtr)	++	-	--
Small tanks	-	+	++
Low dielectric medium (<1,6)	-	+/-	++
Bulk Solids	+	+/-	--
Fouling medium	+	+	--

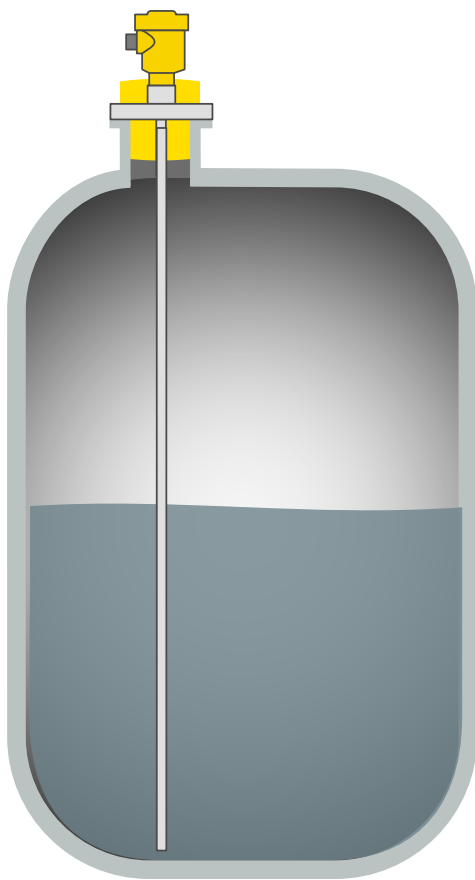
Echocurve



Distance

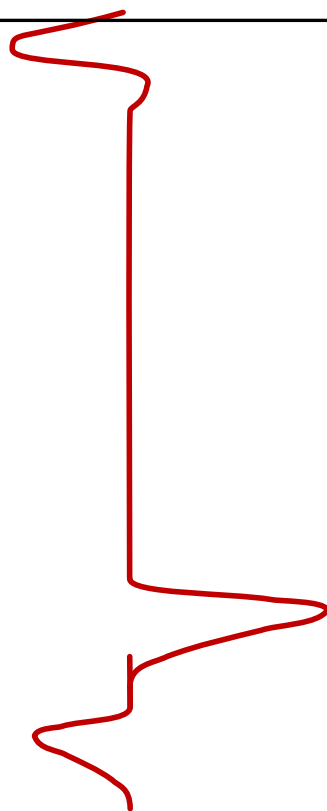
Signal strength [mV]

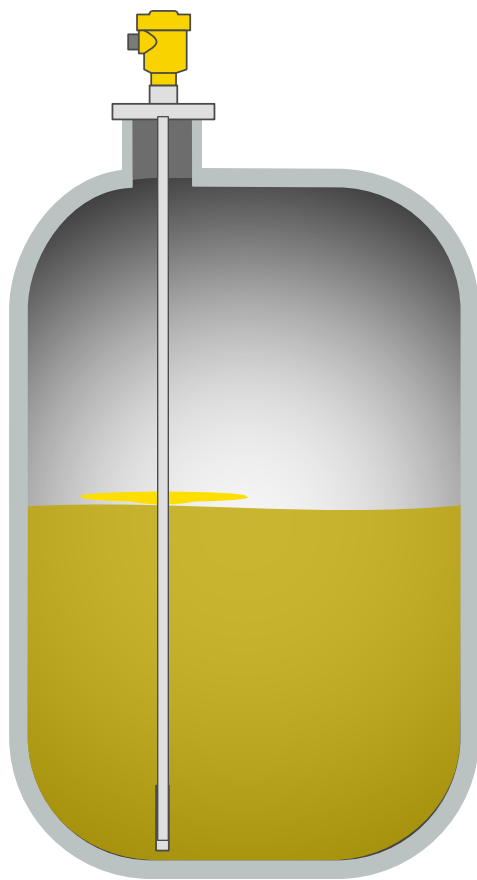




Distance

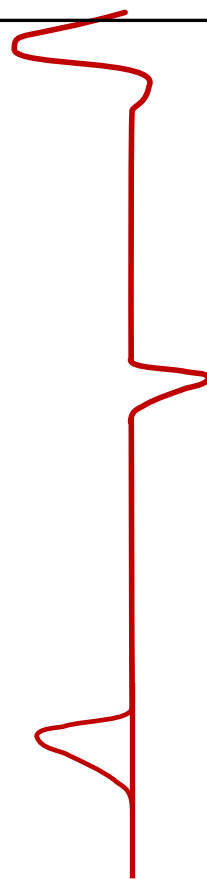
Signal strength [mV]

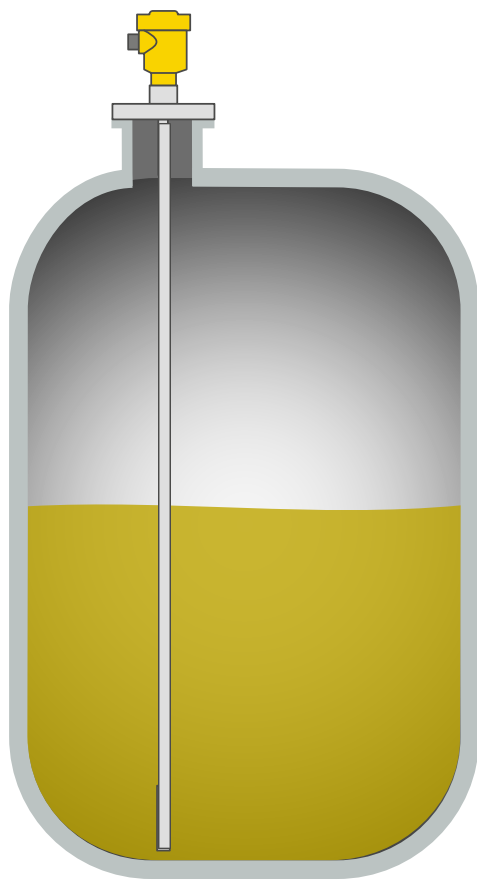




Distance

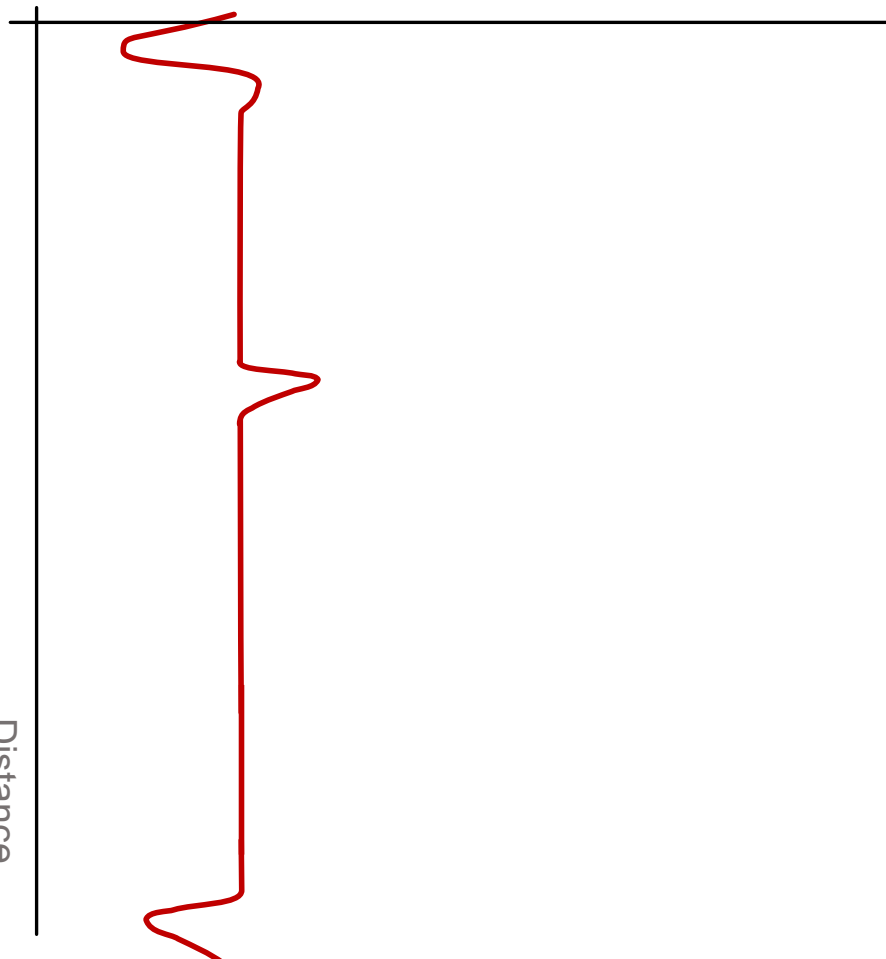
Signal strength [mV]



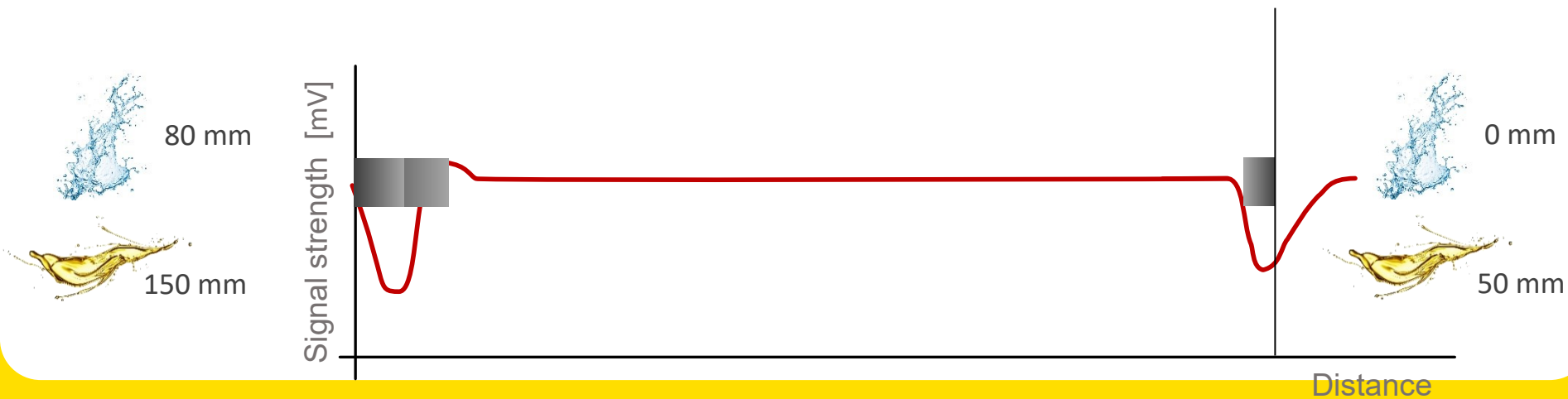


Distance

Signal strength [mV]



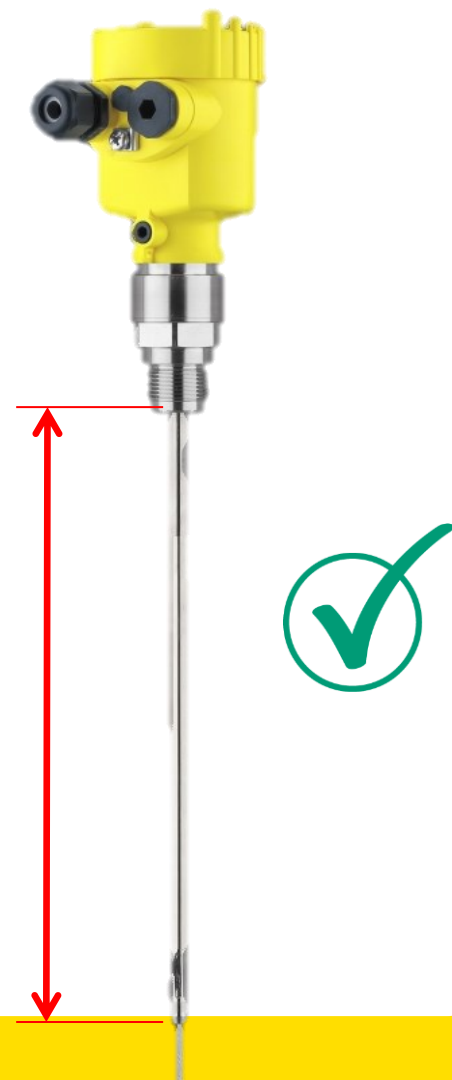
Block distance



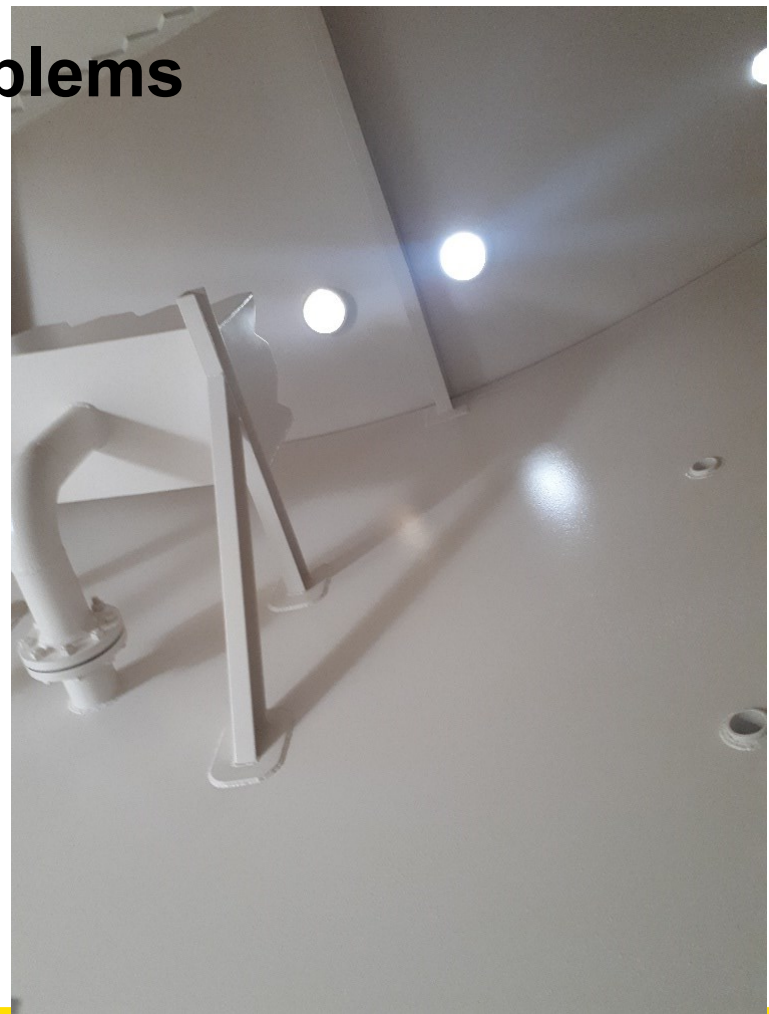
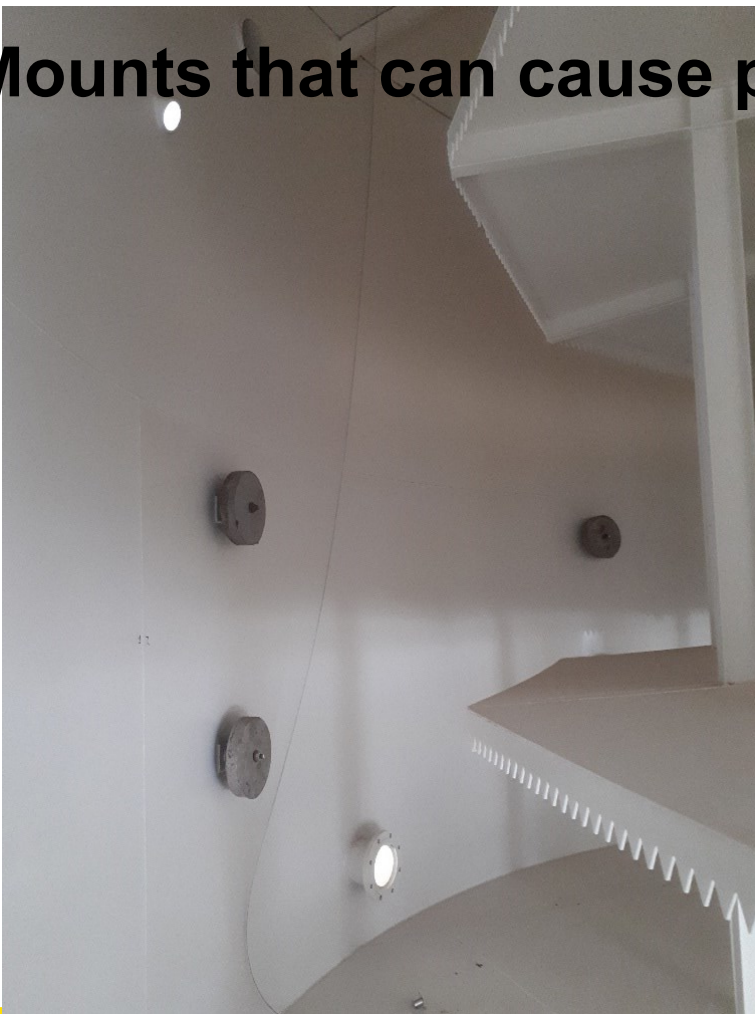


Process conditions

Be careful of turbulences
or movements in the vessel



Mounts that can cause problems



Mounting that can cause problems



Mounting that can cause problems



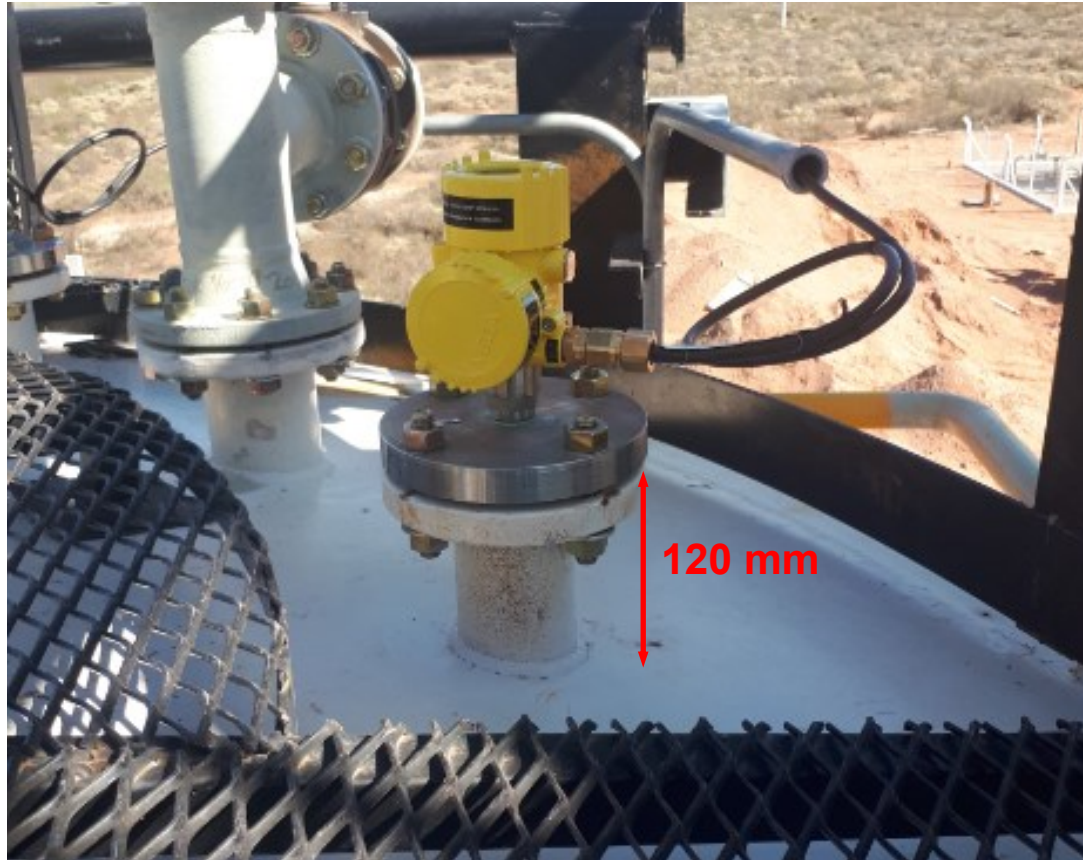
Mounting that can cause problems

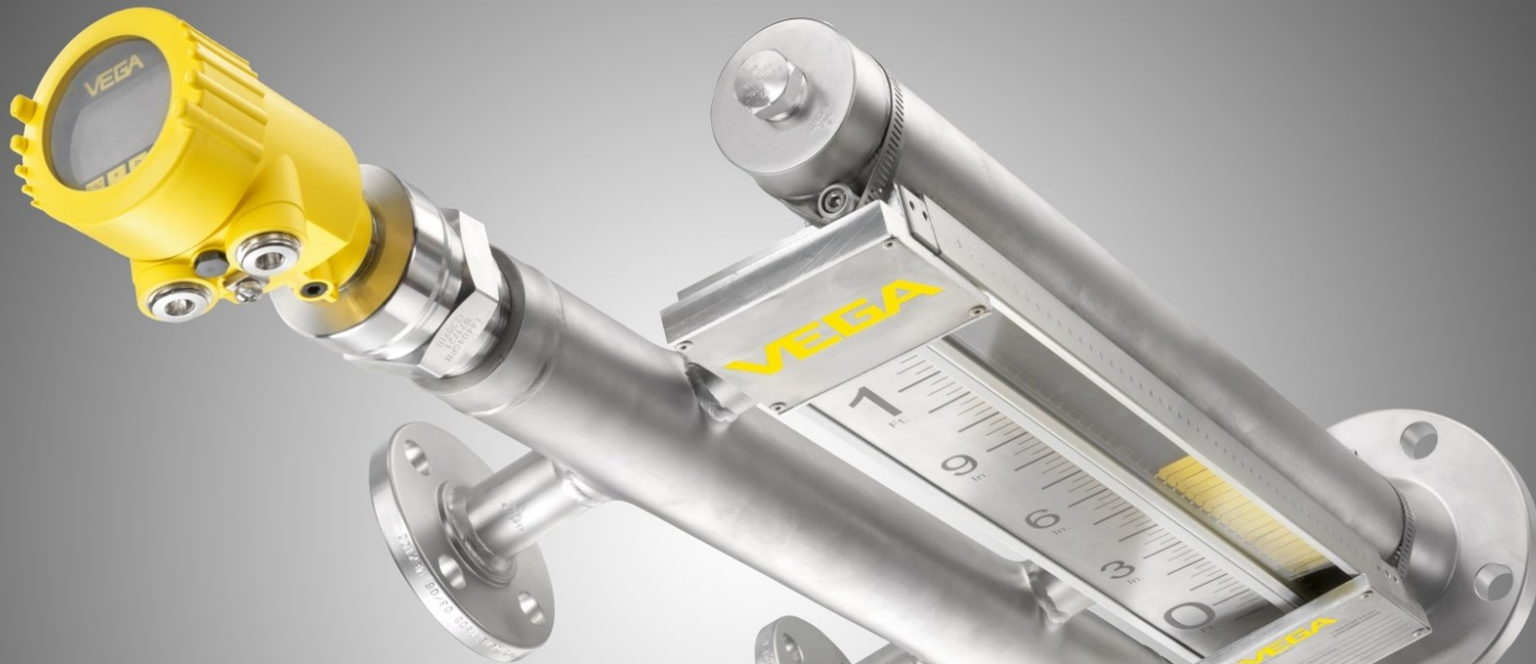


Mounting that can cause problems



Right mounting





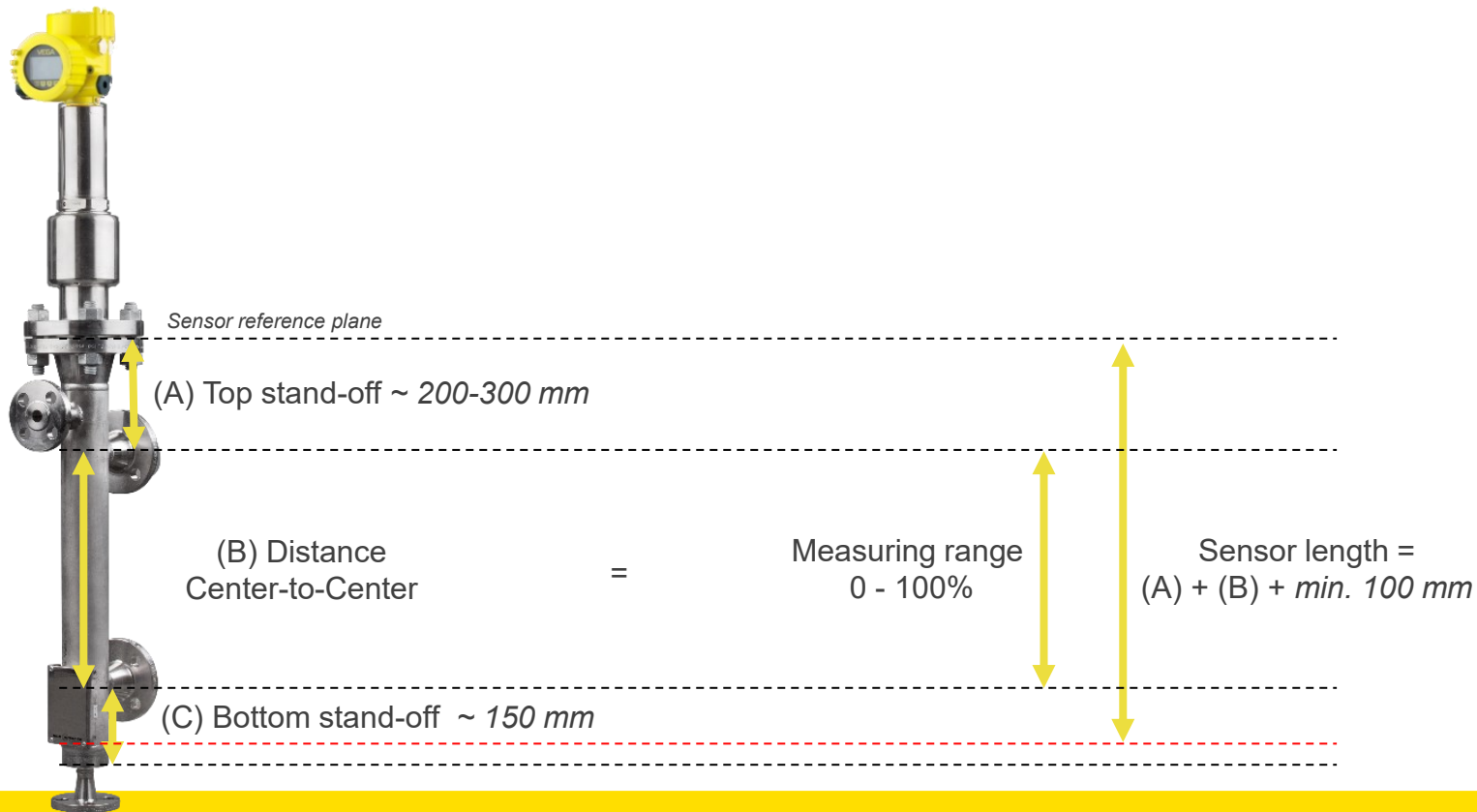
Bridle & Magnetic Level Indication

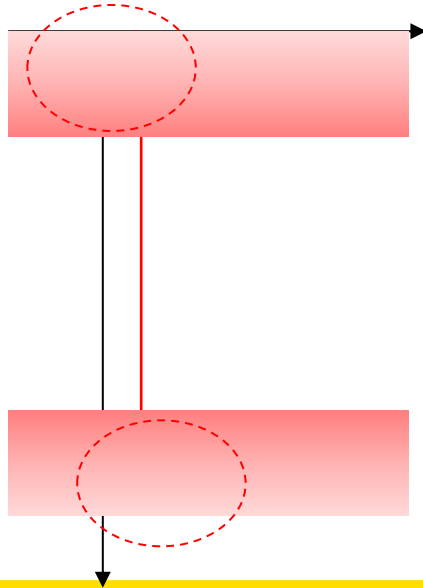
VEGAPASS & VEGAMAG Series

Product Family



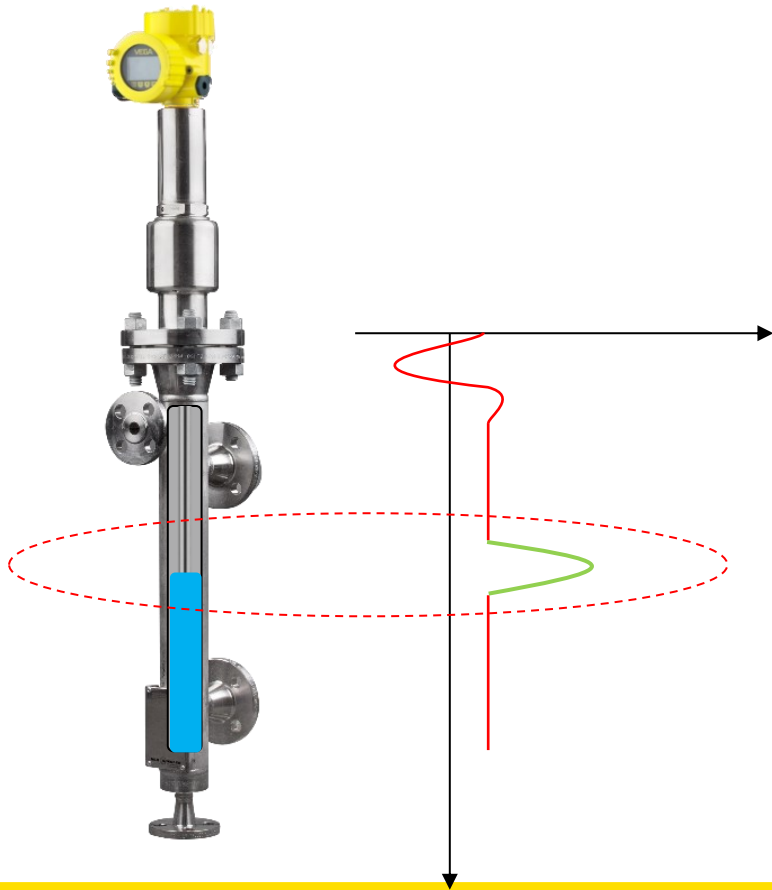
GWR in external chambers



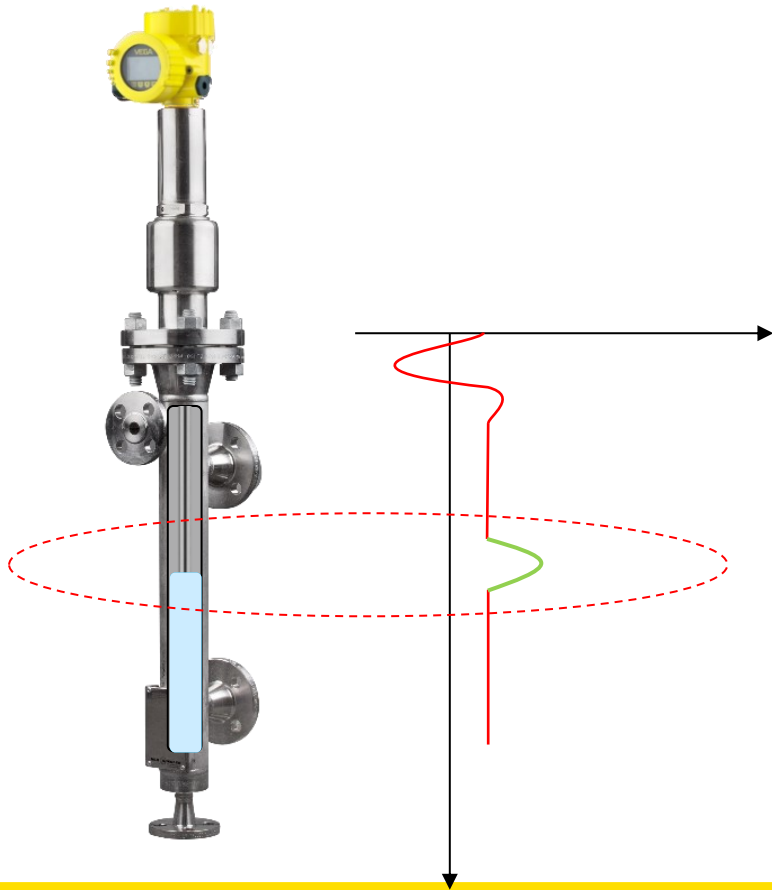


Echo curve with effective measurement range and dead band

Note: the dead band depends on the GWR and the medium!



Level of **Water**



Level of LNG, LPG

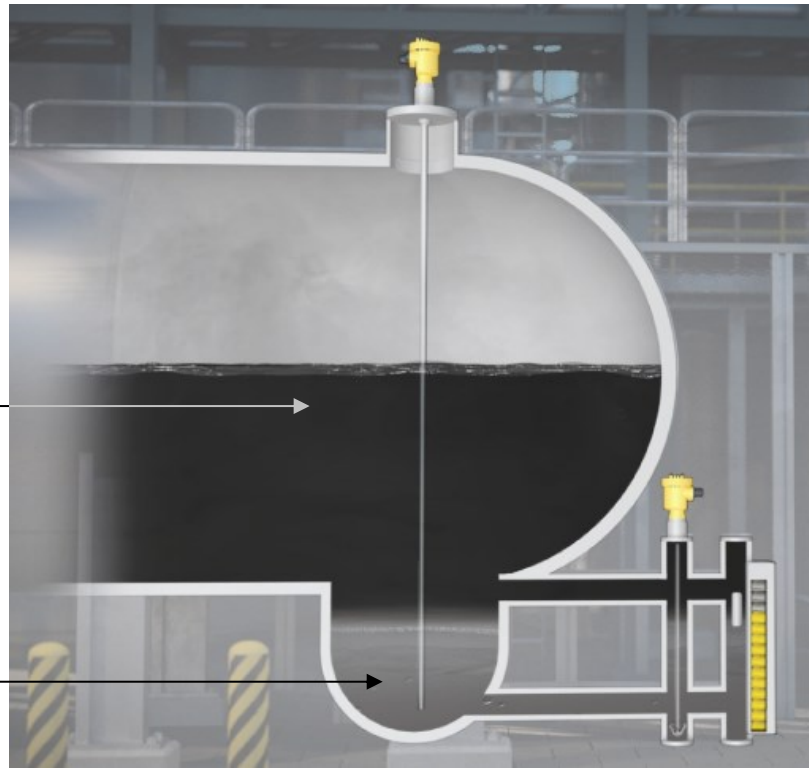
Criteria for interface measurement

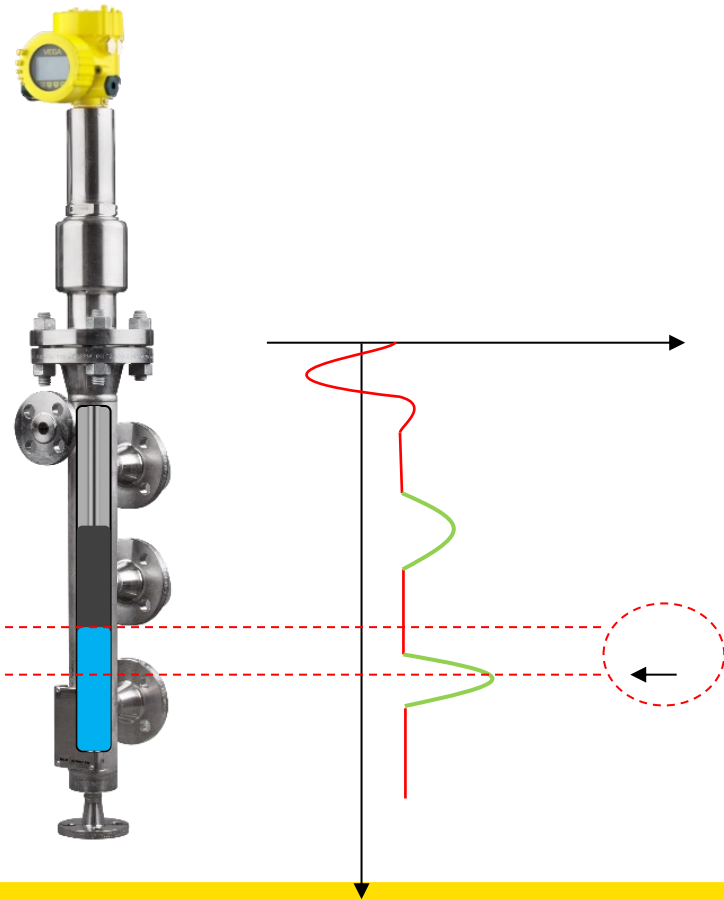
Upper medium

- must not be conductive
- the dielectric constant must be known
- the composition must be stable and homogeneous
- The minimum thickness is **50 mm**

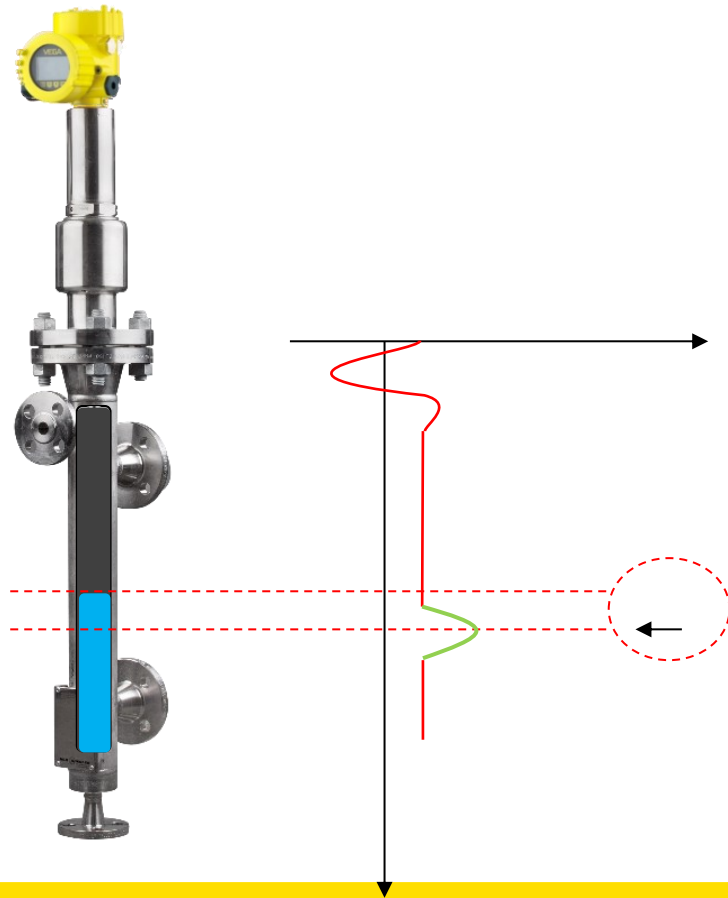
Lower medium

- clear separation to the upper medium
- must have at least **10x higher dielectric value** compared to the upper layer





Level and interface
measurement in a chamber
with gas phase (Oil and *Water*)

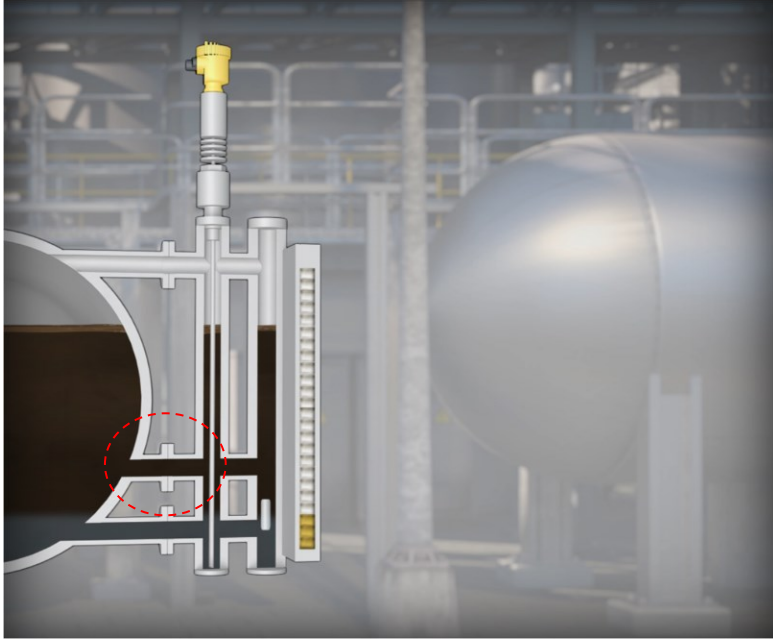


Interface measurement in a chamber **without gas phase** and fully submerged probe (Oil and **Water**)

Criteria for interface measurement

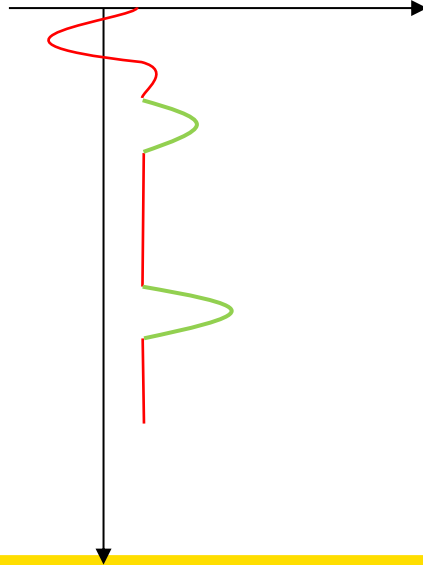


The interface in the chamber can only be equal to the tank if the oil level reaches the upper tank connection and circulation occurs.



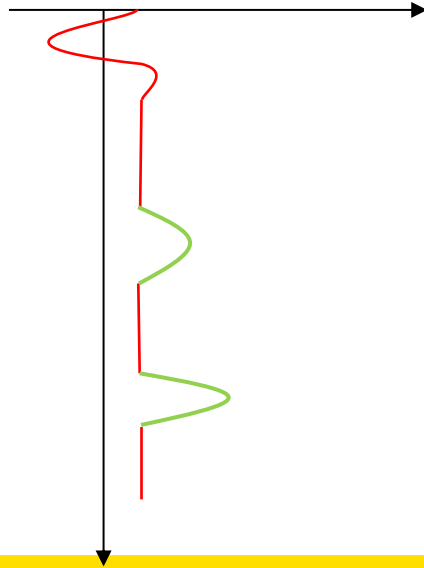
If this can technically not be achieved, multiple tank connections should be added.

Special cases



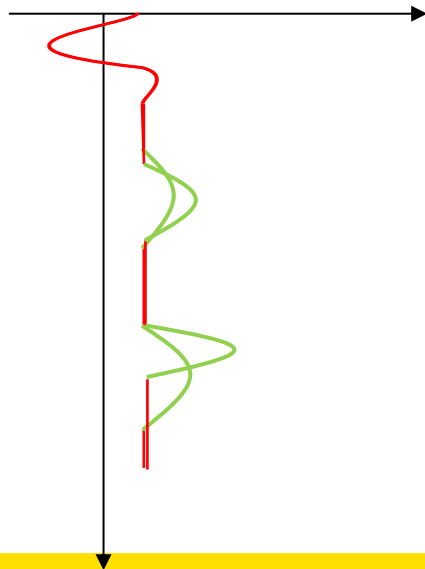
Level measurement in a chamber with **air pocket**

Special cases



Level measurement in a chamber with a **water sump**

Special cases



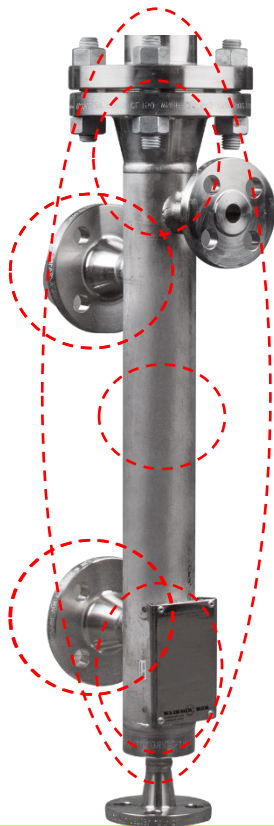
Level and interface
measurement in a chamber
Emulsion

Chamber design recommendations

Larger chamber diameter minimizes plugging, enhances flow-thru

Large process connections improve flow-thru

Insulate chamber to minimize temperature and density differences



Minimize the distance from tank to chamber, to reduce time for the liquid to cool down or warm up (cryogenic applications)

Consider a sufficient top- and bottom-stand-off to ensure that the dead bands are outside the effective measuring range

Plug-and-Play Solution

Pre-commissioned and assembled



Plug-and-Play Solution

Pre-commissioned and assembled



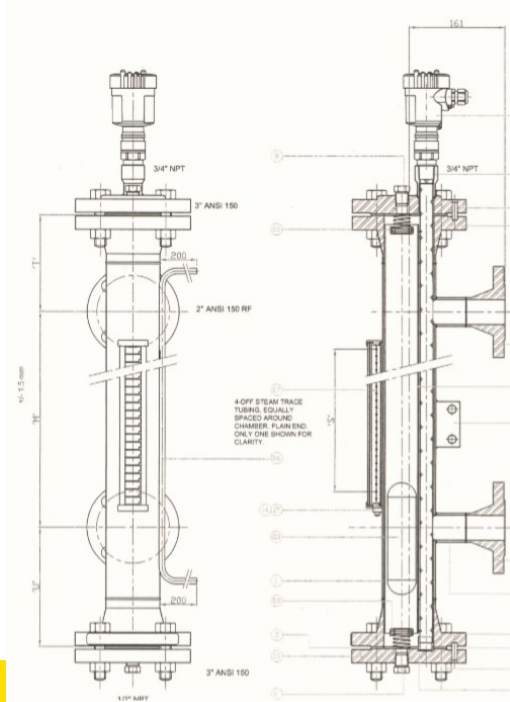
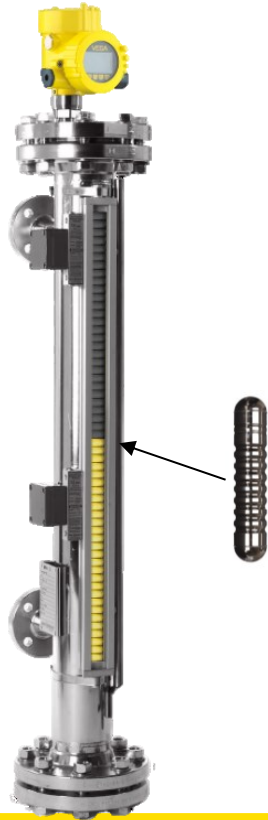
Plug-and-Play Solution

Pre-commissioned and assembled



VEGAMAG – Magnetic Level Indicator

Single Pipe



Dual Pipe

