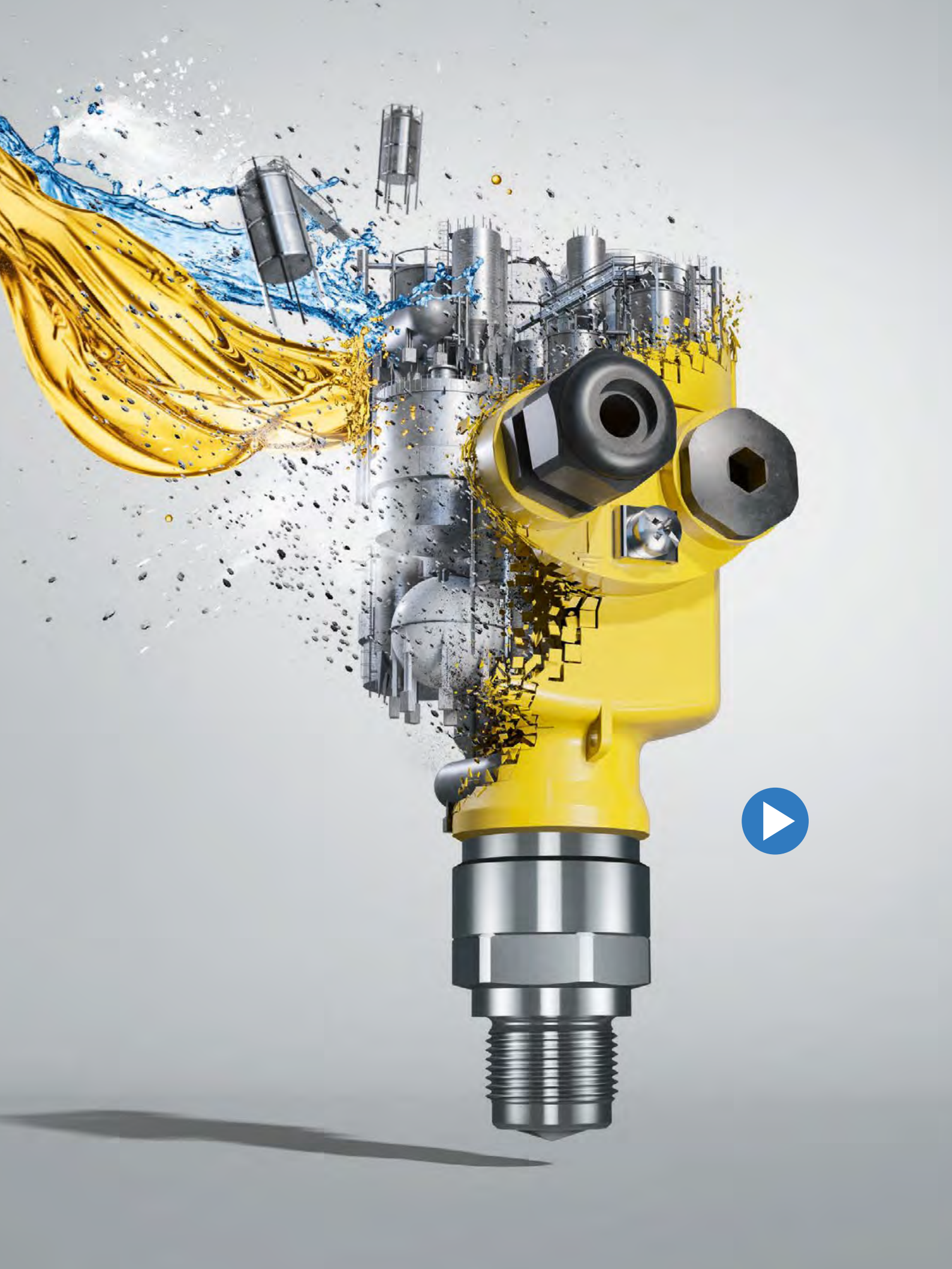




BORN WHERE VALUES  
ARE VALUED.

**THE 6X® – THE NEW  
RADAR LEVEL SENSOR**

**VEGA**



## **VEGA. HOME OF VALUES.**

We're going to introduce you to more than just a new radar level sensor. The following pages will give you a view into its inner values: the perfection of technology and, most importantly, people's ideas and experiences. These valuable assets have combined to produce the most advanced, reliable and accurate radar level device to deliver added value to your business.

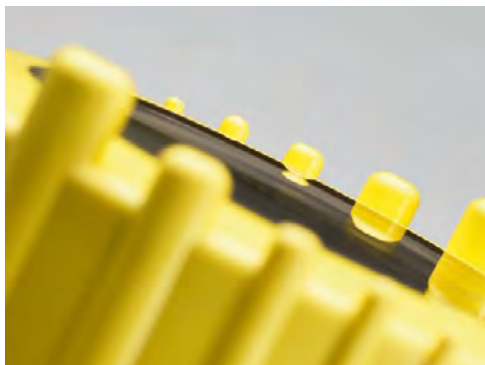
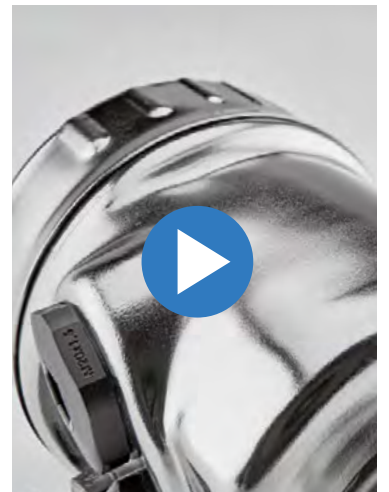
VEGAPULS 6X will fundamentally change how you measure level: The way you select, integrate and use an instrument will be easier than ever. In short, it's a sensor for all applications.

<b>New sensor</b>	■ Page 4
<b>People</b>	■ Page 6
<b>Simplicity</b>	■ Page 10
<b>Security</b>	■ Page 12
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# WE DON'T MAKE A HUNDRED DIFFERENT THINGS.



Ideas for real improvements don't grow on trees, they come from people. People who identify, carefully consider and implement the functions that a radar level sensor has to perform to make your processes not only significantly more efficient and reliable, but above all, simpler.



## **One for everything**

With VEGAPULS 6X you get a sensor that can handle any application, no matter if the medium to be measured is liquid, solid, hot, cold, hazardous or corrosive. No longer do you need to select the right instrument from a multitude of different options. Just leave that to us. You specify the operational parameters and process conditions, we'll put together a measuring instrument that is tailor-made for you.



### Ready for any application

We equip VEGAPULS 6X with the optimal measuring frequency for your application. The modular sensor is ready for any challenge – a range of different housings, i.e. plastic, aluminium and stainless steel, as well as a wide selection of process fittings and antenna designs – this means it's prepared to face any kind of industrial environment. A choice of signal outputs and adjustment concepts contribute to making system integration reliable, simple and compatible across all industries.



- One sensor for all applications
- Simple selection and configuration
- Custom assembly of individual components
- Delivery in record time

# INSTEAD, WE MAKE ONE THING RIGHT.

# ONE CLEVER MIND COMES UP WITH A GOOD IDEA.



Ahead of many others, 30 years ago we recognised the great advantages that radar technology offered for level measurement. And we have continued developing it to this day – right up to the VEGAPULS 6X. This instrument is the result of decades of collaboration between numerous dedicated employees.

#### **Engineering at the heart of the application**

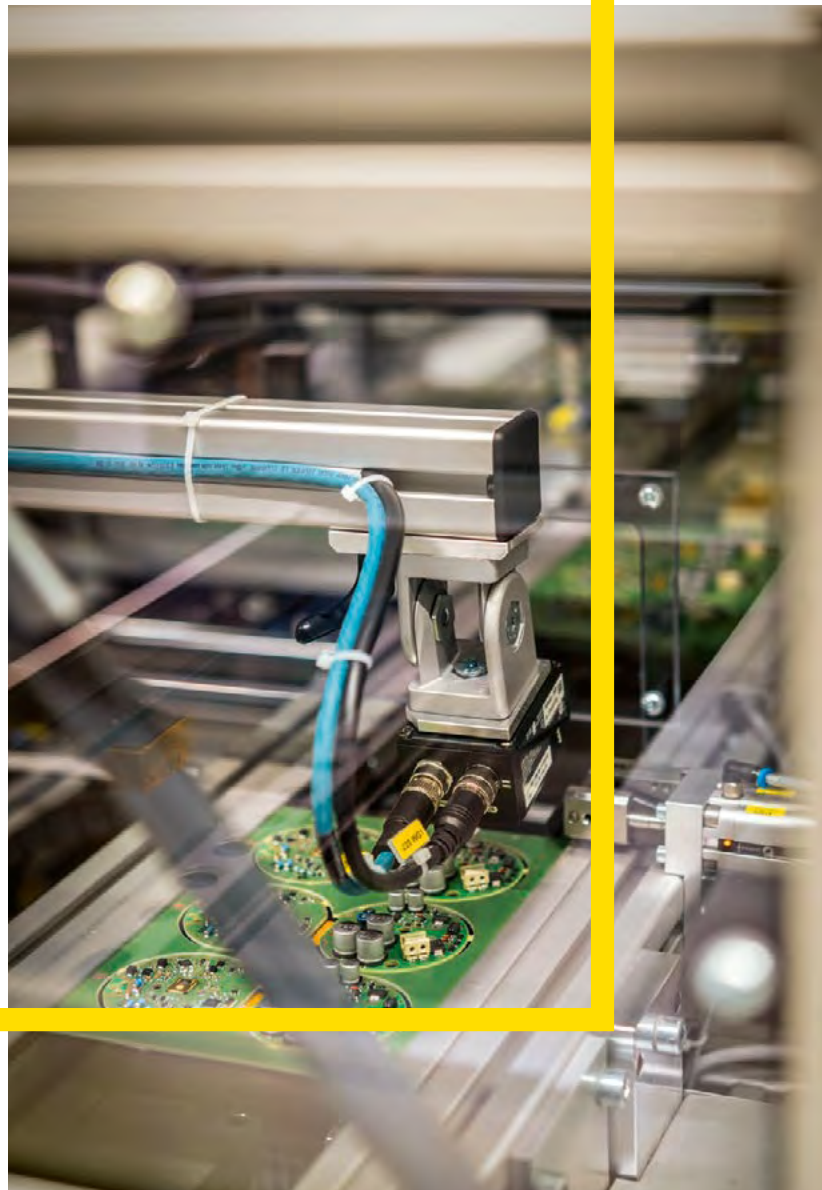
Without the people who ask the right questions, apply instruments in unusual places, and recognise what is important to users, VEGAPULS 6X would not exist. When we incorporate a measurement technology into your processes, the complicated part stays out of sight.





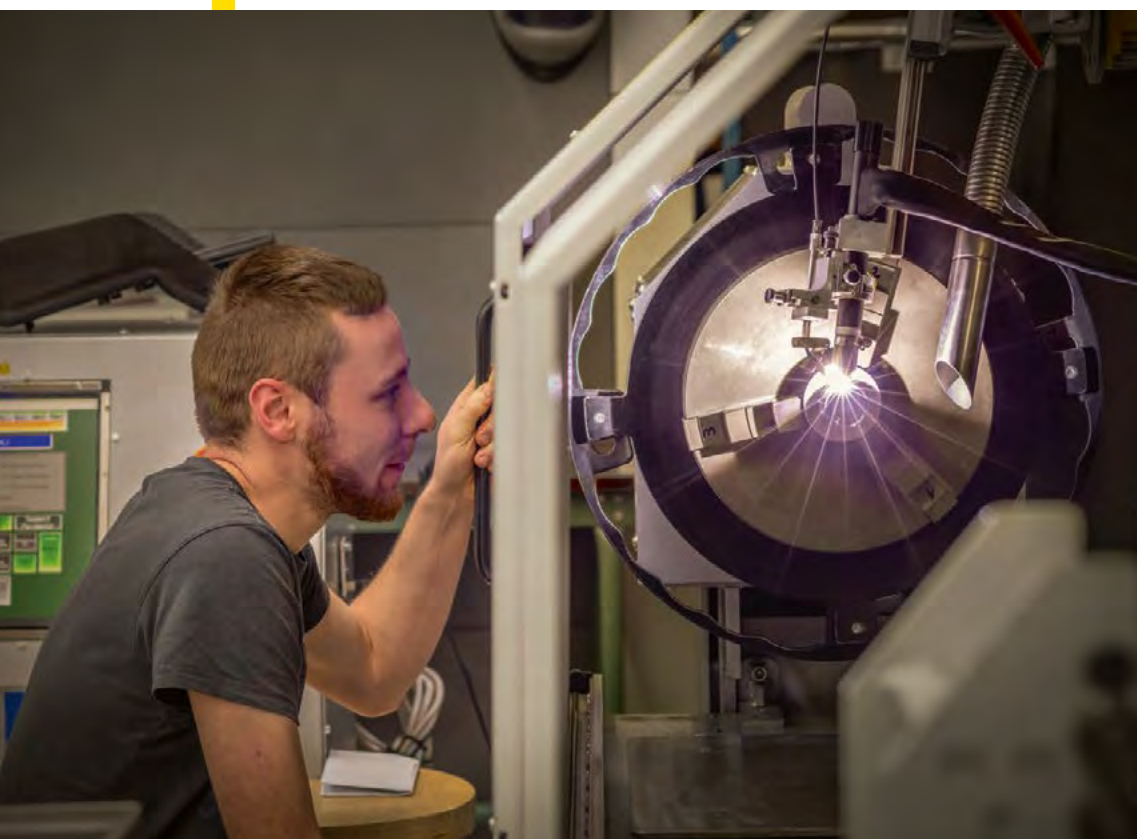
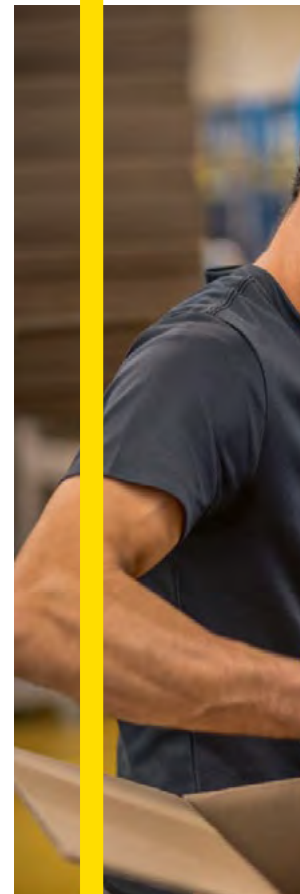
### **The sum of the best ideas**

VEGAPULS 6X adds up to the best that's technically possible today. It's the result of the application experience we've gained from the more than 1 million VEGA radar level sensors in use worldwide. This is what motivates us, because at our company someone is always thinking: "There has to be an even better way to do this."

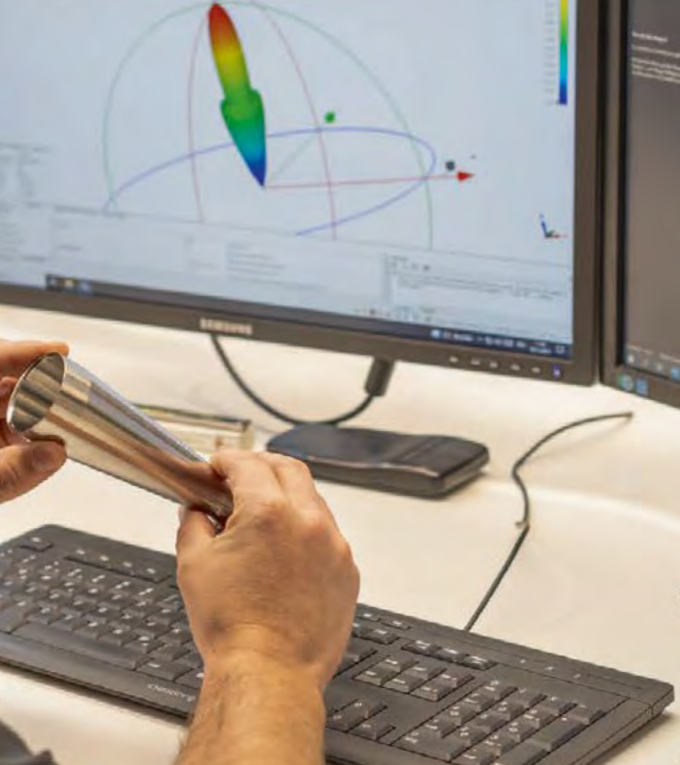




Nobody comes up with perfect things on their own. It takes different perspectives, talents and ideas, as well as openness and attention to detail, to be aware of what the process world expects from us.







#### **All for one**

Our radar and high frequency technology specialists work with state-of-the-art radar antenna simulation tools. They test the microwave properties of materials, continually optimising mechanical components and sensor design, utilising their in-depth application knowledge.

#### **A story of precision**

- 1991** ■ First VEGA radar level transmitter series ready for production
- 1997** ■ The world's first radar sensor in two-wire technology
- 2004** ■ First radar level sensor especially for bulk solids
- 2014** ■ 80-GHz radar sensor for bulk solids measurement
- 2016** ■ The world's first 80-GHz radar sensor for liquids
- 2022** ■ Maximum simplicity, maximum precision: THE 6X®



# THOUSAND CLEVER MINDS PERFECT IT.

# SIMPLE, SIMPLER, THE 6X<sup>®</sup>



We build exactly the  
VEGAPULS 6X you need  
for your application.



**1 Display and adjustment module**  
with Bluetooth

**2 Electronics**  
4 ... 20 mA/HART, Profibus PA  
Foundation Fieldbus, Modbus

**3 Housing**  
Plastic, aluminium, stainless steel

**4 Process fittings**  
Threads from 3/4"  
Flanges from DN20/3/4"  
Hygienic connections

**5 Antennas**  
Integrated antenna  
Horn antenna, lens antenna  
Parabolic antenna

**What makes VEGAPULS 6X unique is not only its high reliability and accuracy. It's also about the ability to integrate seamlessly into your existing processes and function perfectly to meet your individual requirements.**

- Built according to your requirements
- Fast delivery
- High availability of all components
- Simple setup and adjustment

**You tell us what the sensor must be able to do**  
VEGAPULS 6X combines your needs with our experience. You provide us with all parameters via the new configurator, or during a personal consultation, we select the right instrument version for your process. From then on, it takes only a few days for your perfect radar sensor to be manufactured, tested and shipped.

**And then everything is very simple**  
Since all settings in VEGAPULS 6X can be pre-configured to your application in advance, it's ready for immediate use. The display and adjustment module is clear, concise and easy to understand. The instrument has Bluetooth for wireless adjustment with the VEGA Tools app. Welcome to radar level measurement of the future.



# ABSOLUTELY PRECISE.

How is reliability actually achieved in processes and systems? When sensors are carefully engineered right from the start and applied correctly. Like VEGAPULS 6X.

## **Process and system reliability**

No matter whether VEGAPULS 6X is operating under high temperatures or high pressure, in applications with dust, hot steam or extreme noise, it always delivers precise measuring results. This is due to its robust construction – using high-quality materials and encapsulated electronics, to optimally protect against external influences – as well as passing stringent quality tests that each and every sensor undergoes.



#### IT security

In view of the increasing digitalisation in industry, an extremely important point is effective protection against cyber attacks. That's why we've designed-in the latest IT security standard IEC 62443-4-2 into VEGAPULS 6X. It means that this sensor also meets the highest cyber-security standards currently established in the process industry.

# AND



# ABSOLUTELY SECURE.



#### Functional safety (SIL)

Equipped with SIL2/3, VEGAPULS 6X meets the strict, internationally standardised safety requirements that serve to protect health, the environment and products during process operations. It achieves excellent performance figures. In short: This sensor reduces safety risks and protects your system over the long term.

- Safety and reliability under all process conditions
- Risk minimisation according to SIL (IEC 61511)
- IT security standard IEC 62443-4-2
- Hygienic, wear and maintenance free

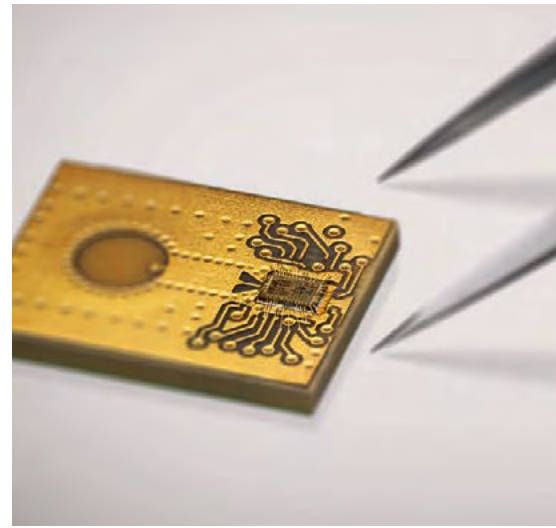


A close-up, over-the-shoulder view of a person with short brown hair looking intently at a precision microchip assembly machine. The machine features a rotating platform with a grid pattern and a complex assembly head with various tools and sensors. The background is dark and out of focus.

**HOW DO YOU  
FIND THE  
BEST CHIP?**

**YOU  
INVENT IT.**





The radar chip inside VEGAPULS 6X combines all our application know-how and the experience gained from 30 years of radar level measurement engineering.

You won't find a radar chip like the one in VEGAPULS 6X anywhere – except at VEGA: Because no chip on the market could meet our requirements for use in high-precision level measurements, we simply developed one ourselves.

#### **The heart of the sensor**

If we had to make a list of the most important innovations in VEGAPULS 6X, its radar chip would be right at the top. At the sensor's heart, is the pulsating technology that empowers it to fulfil our high expectations in terms of precision and reliability. And this is mainly thanks to its ability to self-diagnose during operation, which makes it possible to seamlessly and continually monitor the accuracy and performance of the sensor.

# SOME CALL IT TECHNICAL DATA.



You want to know what's behind VEGAPULS 6X? To better understand why it fits so well into your application? The table provides the most important technical data. You can find out more facts and values at [www.vega.com/radar](http://www.vega.com/radar)



# WE CALL IT INNER VALUES.



**-196** **PROCESS TEMPERATURE** **+450 °C**

**-1** **PROCESS PRESSURE** **+160 BAR**

**MEASURING RANGE**

**120 M**

**MEASUREMENT ACCURACY**

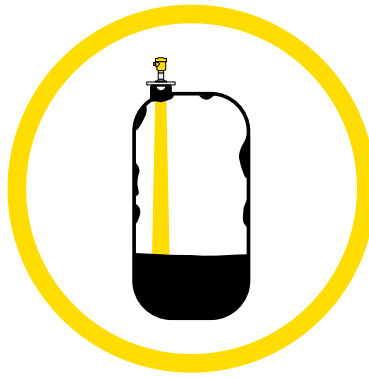
**±1 MM**

#### VEGAPULS 6X



<b>Frequency</b>	80 GHz, 26 GHz, 6 GHz
<b>Beam angle</b>	From $\geq 3^\circ$
<b>Process fitting</b>	Threads from $\frac{3}{4}$ ", flanges from DN20/ $\frac{3}{4}$ ", hygienic connections
<b>Version</b>	Integrated antenna, horn antenna, lens antenna, parabolic antenna
<b>Antenna material</b>	Ceramic, PEEK, PFA, PP, PTFE, PVDF, 316L/Alloy
<b>Seal</b>	EPDM, FFKM, FKM, graphite, PEEK
<b>Housing</b>	Plastic, aluminium, stainless steel
<b>Protection class</b>	IP66/IP67, IP68 (1 bar), IP69K, Type 6X
<b>Output signal</b>	4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus
<b>Other properties</b>	Functional safety SIL (IEC 61511) IT security (IEC 62443-4-2) Gas Ex, Dust Ex Overfill protection Food/pharmaceutical certification Ship approval



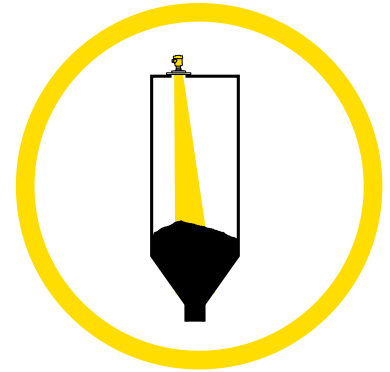


### **Ideal for applications with heavy buildup**

VEGAPULS 6X offers a wide range of antenna systems – tailored to your application. The antennas meet the highest requirements in terms of reliability and hygiene. What is more, the sensor's software algorithms filter out interference caused by buildup on the antenna system.

#### **Benefits**

- Measurement not affected by condensate and buildup
- Rapid system availability after cleaning cycles
- Non-contact measurement for maintenance-free operation



### **For all media**

Thanks to its wide dynamic range, VEGAPULS 6X can detect the level, even with the smallest reflections from poorly reflective materials. In "Simple" terms, it means that dielectric (DK) values no longer play a role. The sensor can measure all product levels reliably.

#### **Benefits**

- Universal applicability for all processes
- Independent of the reflective properties of the materials measured
- Reliable measurement even in agitated conditions



### **Level in the focus**

VEGAPULS 6X focuses the radar level signal precisely onto the product surface, right past interfering installations and agitators. The reflected signals are analysed and evaluated using experience-based methods. This makes the measurement more precise and reliable.

#### **Benefits**

- Simple setup and commissioning even in complex applications
- High accuracy under all process conditions
- Measurement certainty over the entire measuring range



CHEMICALS  
ENERGY  
FOOD  
PHARMA  
OIL AND GAS  
BUILDING  
MATERIALS  
METAL  
PAPER  
SHIPBUILDING



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