Energy Chemical / petrochemical Oil & gas Water / wastewater

# Pressure gauges in the process industry





# Our knowledge for your success



Alexander Wiegand, Chairman and CEO, WIKA

## Part of your business

WIKA is a global market leader in pressure, temperature and level measurement technology, with an annual turnover of over 700 million euros. Working together with our customers, we develop comprehensive solutions based on our high-quality measurement technology components, with the solutions ultimately being integrated into their business processes.

## Excellence in technology and service

Our leading position in the world market is based on various factors: As a family-run company with a rich tradition founded in 1946, we have a great wealth of experience. With currently over 7,300 highly qualified and motivated employees, we have an immense knowledge pool and strong capability. Furthermore, there is our consistent dedication to quality in service and technology. More than 500 experienced sales experts ensure that our customers are advised individually and competently right from the beginning.

# Global player for mechanical pressure measuring instruments



Presence in over 80 countries

Think global, act local: WIKA is represented around the world by numerous wholly-owned subsidiaries and other sales agencies. And because we are local, we understand the relevant country-specific requirements, standards and applications. This is how we ensure individual support to our customers.

#### This makes us

#### unique

- Global production sites
- Qualified technological know-how
- Unique breadth and depth of products
- Practical expertise in manufacturing processes
- Perfected lean management
- Customer-focused consulting and service

# **Quality made by WIKA**

#### Global production sites

The high-tech production in our owned modern production facilities (Germany, Brazil, China, India, Poland, Switzerland, South Africa and USA) is the best guarantee for short delivery times throughout the world. It also enables a high flexibility for country or customer-specific special features. WIKA also stands for excellent quality: Since 1994 the quality management system has been certified to ISO 9001. The effectiveness of the quality management system is regularly evaluated and improved upon through internal and external audits. Through WIKA's corporate quality standards, uniform and effective worldwide, we set the benchmark here.

#### Qualified technological know-how

The three resilient pressure element technologies (with Bourdon tube, diaphragm element or capsule element measuring systems) have been developed, qualified and manufactured by WIKA themselves. Equally important for a reliable measured value display is the movement, which converts the spring travel into an angle of rotation. Our "Swiss Movement" is not only as precise as a Swiss watch movement, but they are also especially robust and durable. These elementary assemblies are the perfect basis for the development of new products. When the product design is defined, the production line is also planned and implemented within WIKA's equipment construction. Finally, the product and process development is extensively qualified within our own test laboratory. Many of WIKA's internal test standards are even specified to higher levels than, for example, the European basic standard EN 837.

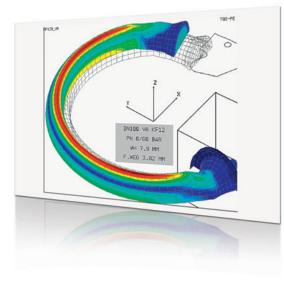
#### Unique breadth and depth of products

WIKA's indicating pressure measuring instruments for relative, absolute and differential pressure have been proven millions of times over. For the various requirements in process instrumentation, pressure elements in stainless steel or special materials are available. Accepted around the world, a variety of measuring ranges, process connections, approvals, nominal sizes, safety versions, high overpressuresafety measuring elements or liquid fillings for critical applications are a guarantee for the best measuring point design. The ideal extension to this is the comprehensive accessories programme which includes pressure-gauge valves, stop-cocks, syphons, adapters and much more.



WIKA offers a large variety of measuring instruments for the process industry

## Benefit from our many years of experience







#### Practical expertise in manufacturing processes

Manufacturing processes and procedures at WIKA are based on many years of experience. This technical expertise in processes is typically documented within process control plans as well as operating procedures and work instructions. New or modified processes are evaluated with regard to performance and quality and released for manufacturing by process sign-offs. Core processes within the pressure gauge production are, for example, welding with subsequent 100% leak test as well as a 100% calibration and adjustment of the instruments. It is not only the processes that are clearly defined, but also the employees who are appropriately trained. Here, WIKA has placed a high value on the internal training in the "Welding Academy" and the "Adjustment Academy".

#### Perfected lean management

Production processes are designed and continuously improved in accordance with the WIKA Production System (WPS), based on the KAIZEN philosophy. The environment and energy programme is also refined continuously within the meaning of "continuous improvement". Complex problems are dealt with in a structured way by in-house Black Belts using the Six-Sigma Method, thus ensuring lasting solutions. Through the WPS, we pursue the objective of improving the quality of the products and processes, and thus to achieve the highest possible customer satisfaction through the best quality, the highest delivery reliability as well as attractive delivery times and prices. Customer orientation is at the centre of all our efforts at WIKA.

#### **Customer-focused consulting and service**

Our sales service not only offers you standard products, but also our capabilities in consulting on complete measuring assemblies. As a reliable partner in the contractor business, we can support you in all phases of a project, from planning, through execution and implementation of the project, to the acceptance tests, logistics solutions, on-site support and after-sales service. Also, in calibration technology we offer a comprehensive range of services through our subsidiaries worldwide, which are accredited to the country-specific requirements – on-site service of your instruments, calibration equipment as well as consultancy and training in all aspects of calibration.

# 7 selection criteria lead you to the right standard product ...

		1							3		
	Type of pressure			Scale range				Aggregate state of the medium			
Model	Absolute pressure	Relative pressure	Differential pressure	< 16 mbar	≤ 0.6 bar	≤ 40 bar	≤ 1,600 bar	Gas or vapour	Liquid with low viscosity	Liquid with high viscosity	
232.50	0	•	0	0	0	•	•	•	•	0	
232.30	0	•	0	0	0	•	•	•	•	0	
432.50	0	•	0	0	•	•	0	•	•	•	
632.50	0	•	0	•	•	0	0	•	0	0	
532.51	•	0	0	0	•	•	0	•	•	0	
732.51	0	0	•	0	•	•	0	•	•	0	
732.14	0	0	•	0	•	•	0	•	•	0	

possible

O not possible



The first choice for scale ranges from 0.6 bar

Model 232.30 For the highest safety category S3 in accordance with EN 837

IVIOUEI 432.30

For low pressure ranges, high overpressure safety, critical media

4		<b>5</b>			6			7				
Materials of wetted parts			Indication accuracy			Nominal size			Special features			
Stainless steel	Monel	Special materials	0.6 %	1.0 %	1.6 %	2.5 %	63 mm	100 mm	160 mm	<b>Safety version</b> in accordance with EN 837, category S3	Liquid filling	Increased overpressure safety
•	•	0	0	•	•	0	•	•	•	0	•	0
•	•	0	0	•	•	0	•	•	•	•	•	0
•	•	•	•	•	•	•	0	•	•	•	•	•
•	0	0	0	•	•	0	•	•	•	0	•	0
•	•	0	•	•	•	•	0	•	•	•	•	•
•	0	0	0	0	•	0	0	•	•	•	•	0
•	0	•	0	0	•	0	0	•	•	0	•	•



Model 632.50 For very low pressure ranges Model 532.51 – 532.54 Absolute pressure measurement

Model 732.51 Differential pressure with fully welded media chamber

200

Model 732.14

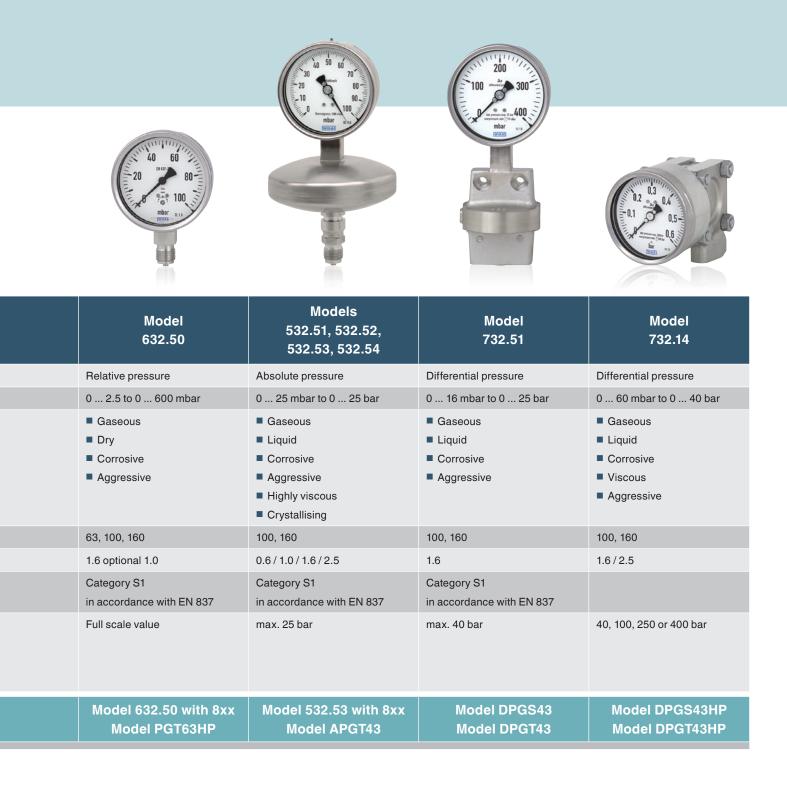
Differential pressure with the highest overpressure safety

# The products in detail

These measuring instruments for the process industry are manufactured completely from stainless steel for increased corrosion resistance. They are developed, qualified and process-monitored in production in accordance with the EN 837 standard. The core components are WIKA's internally developed measuring systems and the Swiss precision movement. For harsh operating conditions, all instruments are also available with liquid filling. All instruments are also available with integrated switch contacts or transmitters. Thus, not only does a measuring point provide an on-site display without the need for a power supply, but also it provides an electrical output signal for monitoring or control.



Mechanical version	Model 232.50	Model 232.30	Model 432.50	
Type of pressure	Relative pressure	Relative pressure	Relative pressure	
Scale range	0 0.6 to 0 1,600 bar	0 0.6 to 0 1,600 bar	0 16 mbar to 0 25 bar	
Medium	<ul><li>Gaseous</li><li>Liquid</li><li>Corrosive</li><li>Aggressive</li></ul>	<ul><li>Gaseous</li><li>Liquid</li><li>Corrosive</li><li>Aggressive</li></ul>	<ul> <li>Gaseous</li> <li>Liquid</li> <li>Corrosive</li> <li>Aggressive</li> <li>Highly viscous</li> <li>Crystallising</li> </ul>	
Nominal size [mm]	63, 100, 160	63, 100, 160	100, 160	
Accuracy class	1.6 / 1.0	1.6 / 1.0	1.6 / 2.5 optional 0.6 / 1.0	
Safety version	Category S1 in accordance with EN 837	Category S3 in accordance with EN 837	Category S1 in accordance with EN 837	
Overpressure safety	NS 63 Full scale value NS 100, 160 1.3 x full scale value	NS 63 Full scale value NS 100, 160 1.3 x full scale value	5 x full scale value, max. 40 bar, optional 10 x full scale value	
Mechatronic version	Model PGS23	Model PGS23 Model PGT23	Model PGS43 Model PGT43	



You can find many more products in the product reviews "Mechanical pressure measuring instruments" and "Mechatronic pressure measuring instruments" at **www.wika.com**.

## **Mechatronic versions**

Pressure gauges with electrical output signal



A pressure gauge with an electrical output signal from the intelliGAUGE series combines all the advantages of a local display, without the need for a power supply, an electrical signal transmission for a modern measured value registration.

A magnet on the pointer shaft rotates proportionally to the instrument pointer as a direct linear function of the process pressure. The electronics positioned opposite the magnet register the rotary motion of the magnet. A magnetic-field-dependent sensor picks up this change on the electronic side, contact-free, wear-free and without influence on the pressure element. The sensor signal, proportional to the deflection, is converted to an electrical output signal via an amplifier. Patent applied for, among others European Patent No. EP 06113003.



## Pressure gauges with switch contacts



Switch contacts built into mechanical pressure measuring instruments close or open circuits depending on the process pressure. They can be used for various monitoring functions when a measured value either falls below or exceeds a preset value. Switch contacts are fitted behind the dial and can be set over the entire scale range using the set pointer. The instrument pointer (actual value pointer) moves freely across the entire scale range, independent of the setting. The contacts can be adjusted individually, using a removable adjustment key in the window.





# **Additional services**

For all pressure measuring instruments, we offer you a variety of options, approvals, certificates and a comprehensive selection of mechanical accessories – also as a complete measuring system with fitted diaphragm seal or as a "hook-up"!

- Liquid filling
- Special materials such as Monel, Hastelloy, PTFE, nickel, tantalum, titanium, silver
- Various assembly solutions (e.g. panel mounting flange)
- 2.2 test report per EN 10204 (e.g. state-of-the-art manufacturing, material proof, indication accuracy)
- 3.1 inspection certificate per EN 10204 (e.g. material proof for wetted metallic parts, indication accuracy)
- Approvals such as GOST, NACE, DVGW, Vd TÜV and many others
- CE conformity (ATEX, PED, EMC, LVD)
- Accessories such as shut-off valves, overpressure protectors, etc.
- Diaphragm seal mounting

#### **Examples**



#### Assembly





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