

Pressure
Temperature
Level
Force
Flow

Measurement technology for the iron and steel industry



WIKAI

Part of your business



Alexander Wiegand,
Chairman and CEO, WIKA

About us

As a family-run business acting globally, with over 10,000 highly qualified employees, the WIKA group of companies is a worldwide leader in pressure and temperature measurement. The company also sets the standard in the measurement of level and flow, and in calibration technology.

Founded in 1946, WIKA is today a strong and reliable partner for all the requirements of industrial measurement technology, thanks to a broad portfolio of high-precision instruments and comprehensive services.

With manufacturing locations around the globe, WIKA ensures flexibility and the highest delivery performance. Every year, over 50 million quality products, both standard and customer-specific solutions, are delivered in batches of 1 to over 10,000 units.

With numerous wholly owned subsidiaries and partners, WIKA competently and reliably supports its customers worldwide. Our experienced engineers and sales experts are your competent and dependable contacts locally.

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WIKA – Your partner in the iron and steel industry

To increase productivity and product quality in primary metallurgy, WIKA supports you with a comprehensive portfolio of process instrumentation that enables flexible operation and complete process monitoring.

Our robust and reliable measuring instruments have been developed on the basis of many years of application experience and can withstand even extreme process conditions. Customers trust our instrumentation solutions for measurements under high-pressure conditions up to 10,000 bar or at extreme process temperatures up to 2,000 °C, e.g. for the melting of metals or in applications with highly abrasive process media.

With WIKA's product portfolio, from innovative force, pressure, temperature, level and flow instrumentation to calibration technology and service offerings, your equipment can operate more efficiently and produce high-quality products while increasing profitability and flexibility.

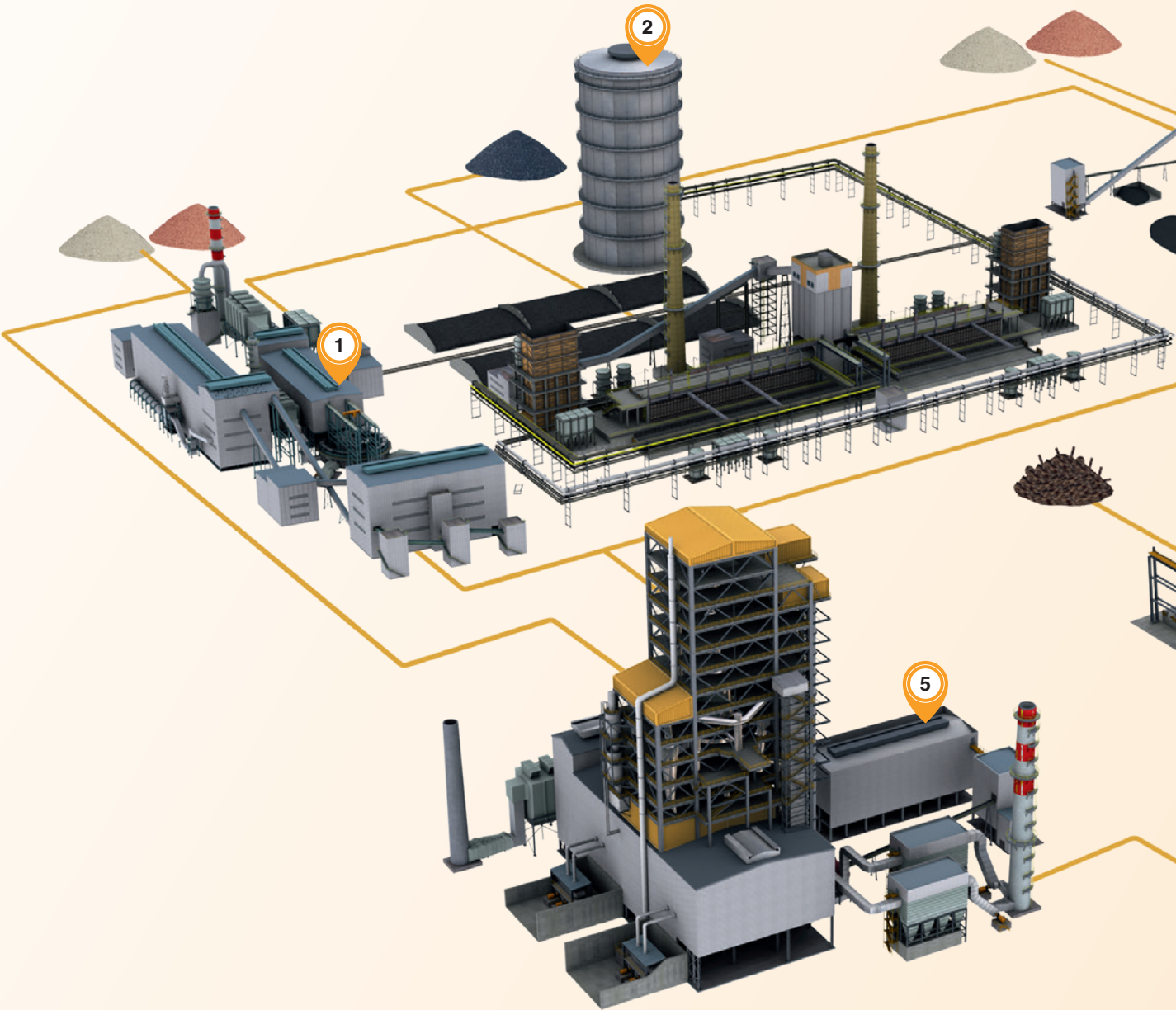
Whether standard products or custom designs: Working with you we'll find the right concepts for your requirements.

Integrated steel works

Steel is one of the most important materials for almost all sectors in civil engineering, in machine and tool building and through to precision engineering. Due to the harsh process conditions and the enormous demand for raw materials and energy, the optimisation of production processes is given high priority. The product quality and reproducibility of batches are of the utmost importance as they reduce the cost of the process. Iron and steel production processes require

robust measurement technology that is capable of detecting faults reliably while keeping the cost-effectiveness of the process in view.

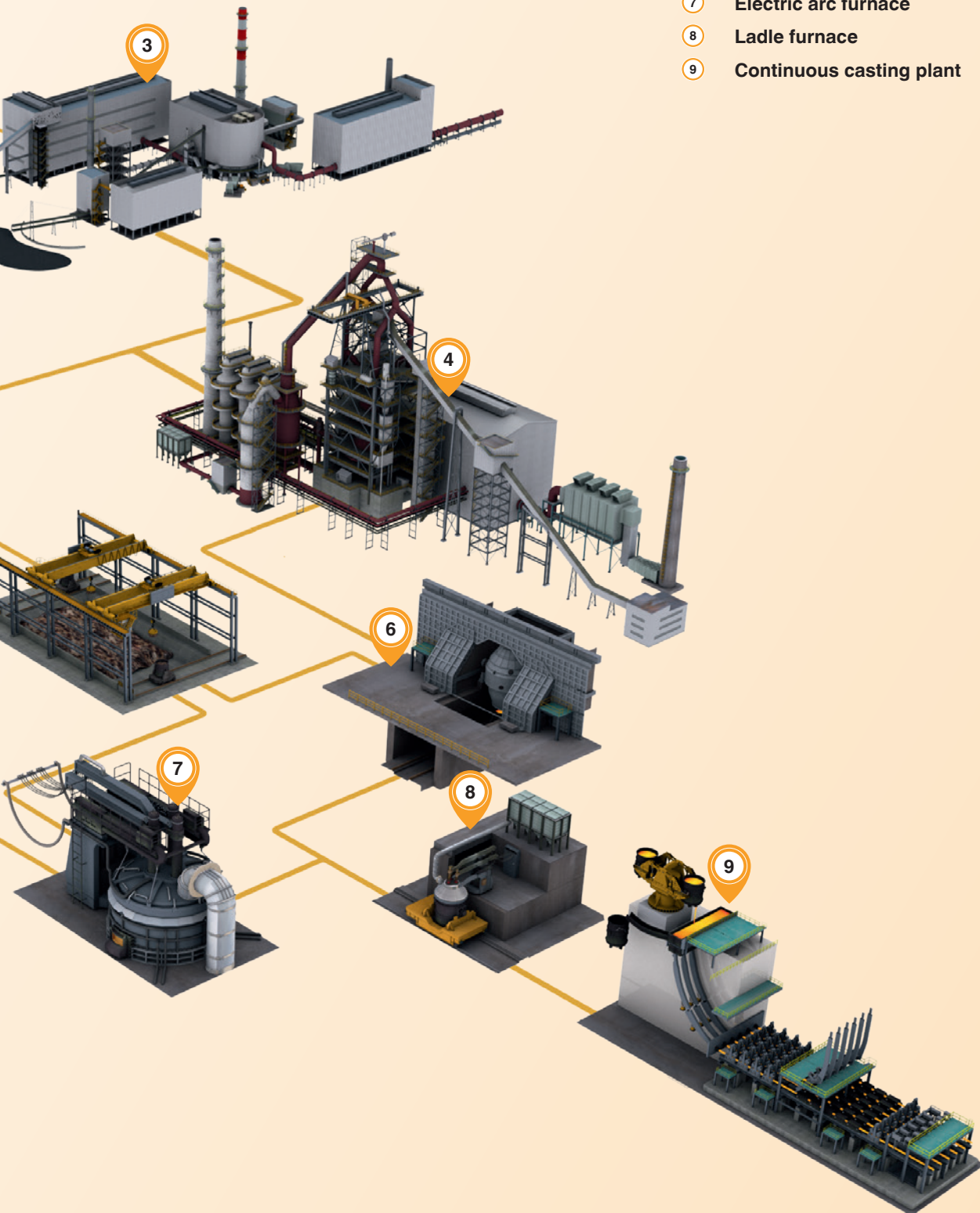
When it comes to the right solutions for your production processes, you can rely on WIKA measurement technology.



Detailed information
can be found online



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Sinter plant

Productivity and efficiency

With sintering, a mixture of fine ores, coke, recycled process materials and other aggregates is prepared, through melting, for further use in the blast furnace to ensure gas permeability for the reducing gases.

For the sintering process, the control of the sintering hood and its associated burner and the temperature in the furnace

are crucial. A lost oven can result in complete process stop and fluctuating temperatures affect the quality of the product being produced.

WIKA has a portfolio of high-performance measuring instruments that are tailored to the measuring tasks of sinter plants.



Detailed information
can be found online

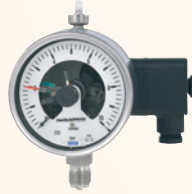




UPT-20



PSM-700



PGS23



TR10



TG54



TC80



ELS



FLS



OLS-C05



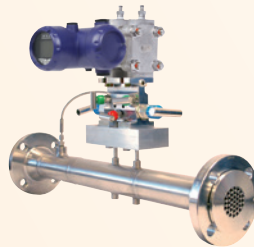
F2221



F3831



F1211



FLC-HHR



DME



FLC-VT-BAR









CTH6200



CPH7000



PASCAL ET

- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

Coke plant

Cost effectiveness and quality

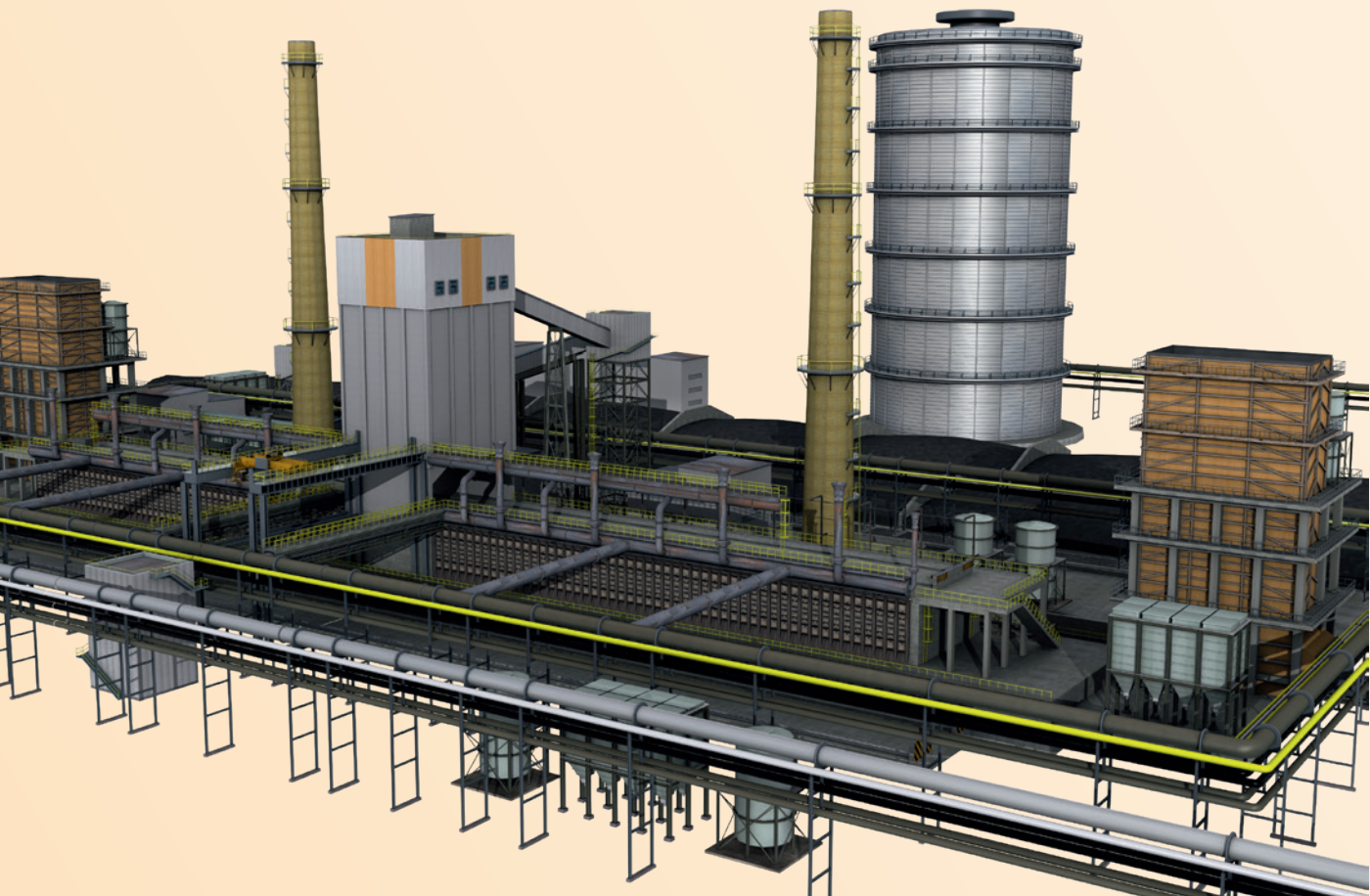
In the coke plant, the coal is converted to coke by heating the prepared coal mixture batch, in the absence of air, to a temperature of 1,000 to 1,300 °C for a period of 16 to 30 hours.

Coke, as a reducing agent, has a major impact on the cost-effectiveness of the process and the quality of the final product.

Challenge: The quality of the coke is determined by the mixture of different types of coal.

In order to achieve optimal process conditions in coke plants, the furnace pressure and the furnace temperature in the individual furnaces are monitored individually.

In the coke plant, high-precision load cells ensure a controlled mixture of the various types of coal to achieve the desired recipe composition. Our measuring instruments, which are tailored precisely to the respective requirements, guarantee a smooth processing of the vast quantities of raw materials.



Detailed information
can be found online





CPT-21



DSS27M



PSD-4



TC80-H



T32



TC50



LSD-30



FLR



BNA



F2211



F3833



F1211



FLC-APT



FSD-3



FLC-OP









CTH6200



CPH6300



CPG2500

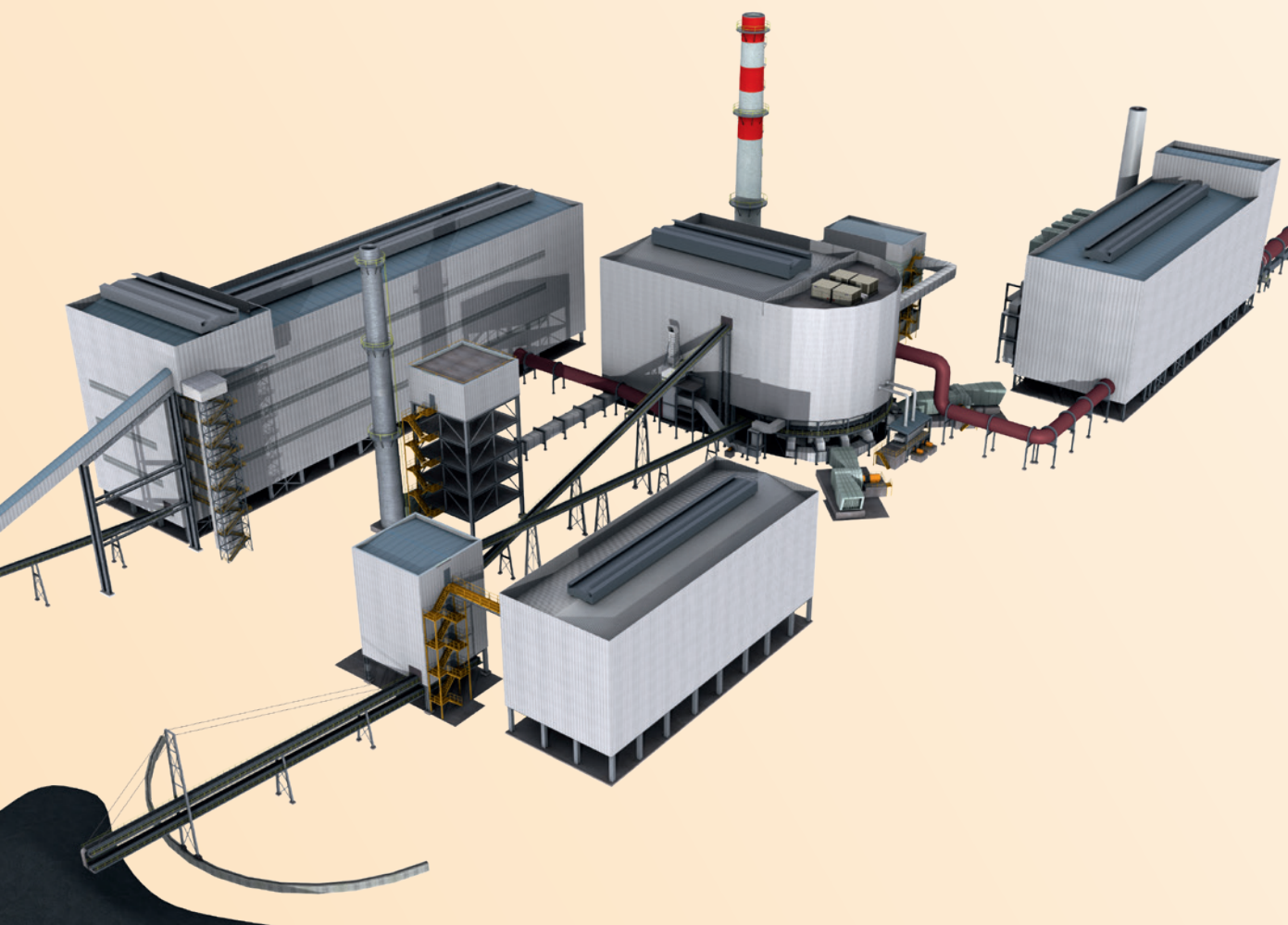
- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

Pellet plant

Productivity and efficiency

Pellets are small balls of iron ore that are used in the production of steel. They are made with technology that utilises the powder that is produced during ore extraction. The process of granulation combines the blending of the raw material and a thermal treatment that burns the soft green pellets into hard balls. The raw material is rolled into a ball and then fired in a furnace or in a travelling grate to sinter the particles into a hard ball.

WIKA offers durable and high-quality process instrumentation for the production of the highest-quality pellets.



Detailed information
can be found online





UPT-20



PCA



DSS27T



TC40



TR55



TC80-H



BZG



LF-1



OLS-C05



F1136



F4812



F9204



FLC-CO



FLC-HHR-FP



FWS









CPG500



CTH7000



CTD9300

- | | | | |
|---|-------------|---|-------------|
|  | Pressure |  | Force |
|  | Temperature |  | Flow |
|  | Level |  | Calibration |

Blast furnace

High reliability for high availability

During the blast furnace process, sinter or pellets, in addition to ore, coke and lime, serve to bind the unwanted constituents of the ore in the slag and also reduce the melting temperature of the iron. They are fed from above into the blast furnace, while hot compressed air is introduced from the tuyères in the lower part. Auxiliary reducing agents or fuels – such as coal, fuel oil, natural gas or other sources – can also be injected from the bottom of the furnace.

The monitoring of fuel pressure and temperature, as well as the monitoring of blast furnace gas pressure are of utmost importance to provide normalised consumption and operating data for the process controls.

Efficient temperature monitoring enables the early detection of possible system failures. WIKA thermocouples have proven themselves to have fast and reliable temperature detection. Another challenge in blast furnace operation is the monitoring of cooling media.



Detailed information
can be found online





DSS27T



DPT-10



PSM-700



TC80



TC40



TR10-F



BZG



LF-1



OLS-H



F9204



F3831



F1211



FLC-HHR-FP



FLC-VT-WS



FLC-CO









CPG1500



CTD9100-1100



CPH7000

- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

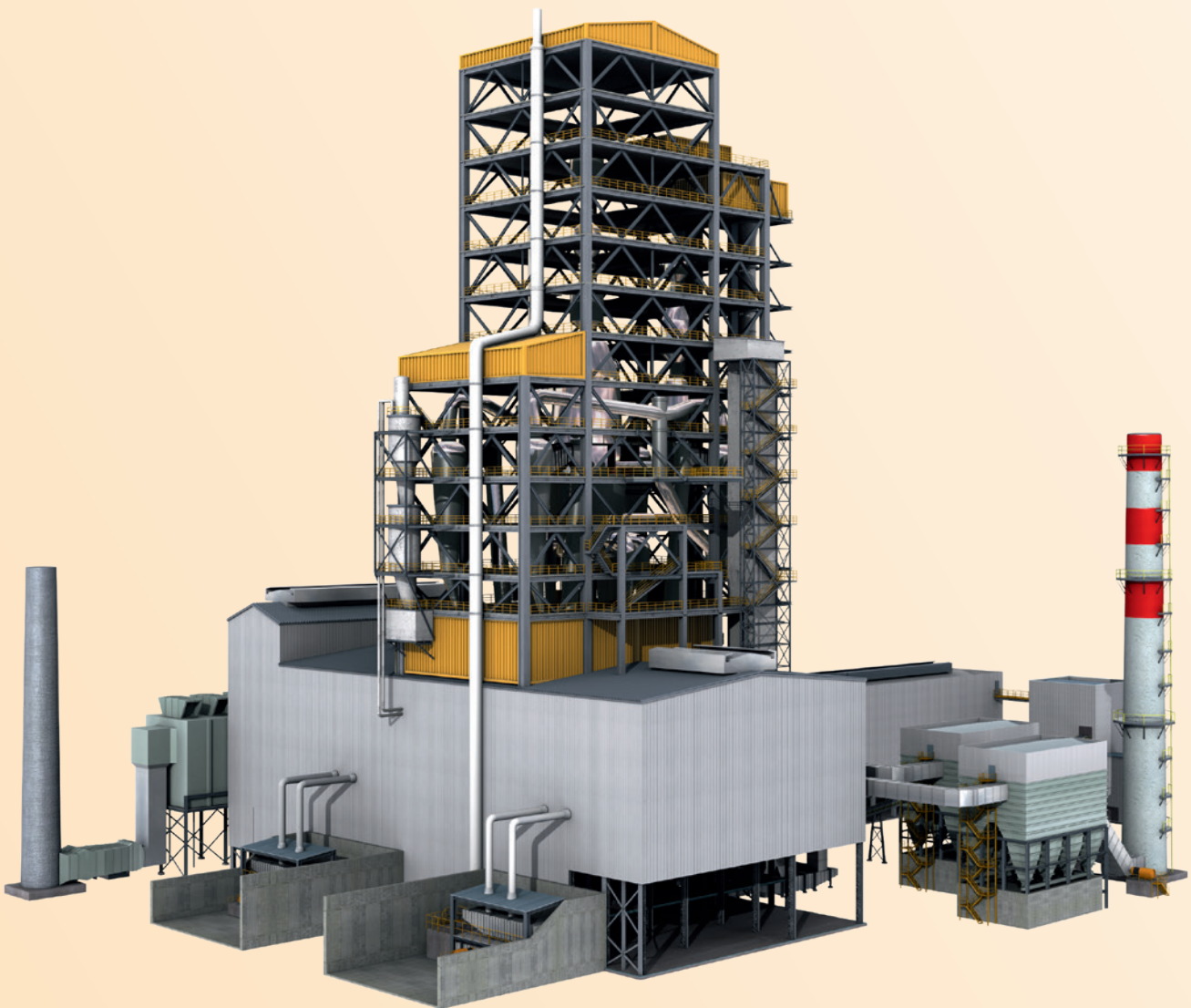
Direct reduced iron plant

Process safety

Direct reduced iron (DRI), an alternative way of producing iron, has been developed to overcome the difficulties of conventional blast furnaces. DRI is successfully implemented in various parts of the world using natural gas or coal technology. On the one hand, the DRI process is very energy-efficient; on the other hand, further energy gains can be realised if the hot material is immediately transferred to an EAF melting operation (EAF = electric arc furnace). In this

way, the heat from the direct reduced iron process reduces the cost of melting the DRI in the EAF, significantly reducing energy costs.

Hydrogen represents a special challenge of the DRI process. WIKA offers special pressure and temperature sensors for hydrogen applications to ensure the smooth running of the DRI process.



Detailed information
can be found online





IPT



PGS43.100



PCA



TR12-B



TC84



55 with 8xx



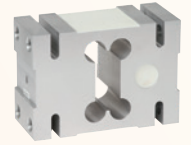
FLS



BNA-L



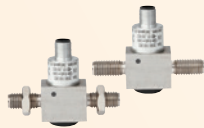
LH-20



F4817



F1211



F2301



FLC-FC



FLC-VT-WS



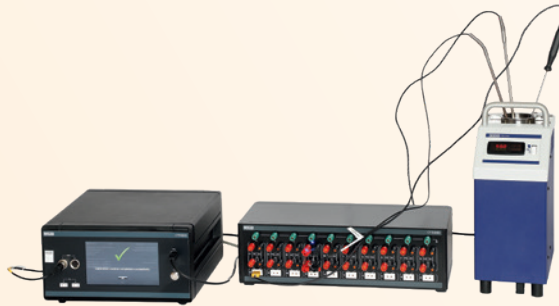
FLC-CO









Pascal100



CTP5000-T25



CTR3000 with
Multiplexer CTS3000

- | | | | |
|---|-------------|---|-------------|
|  | Pressure |  | Force |
|  | Temperature |  | Flow |
|  | Level |  | Calibration |

Basic oxygen furnace

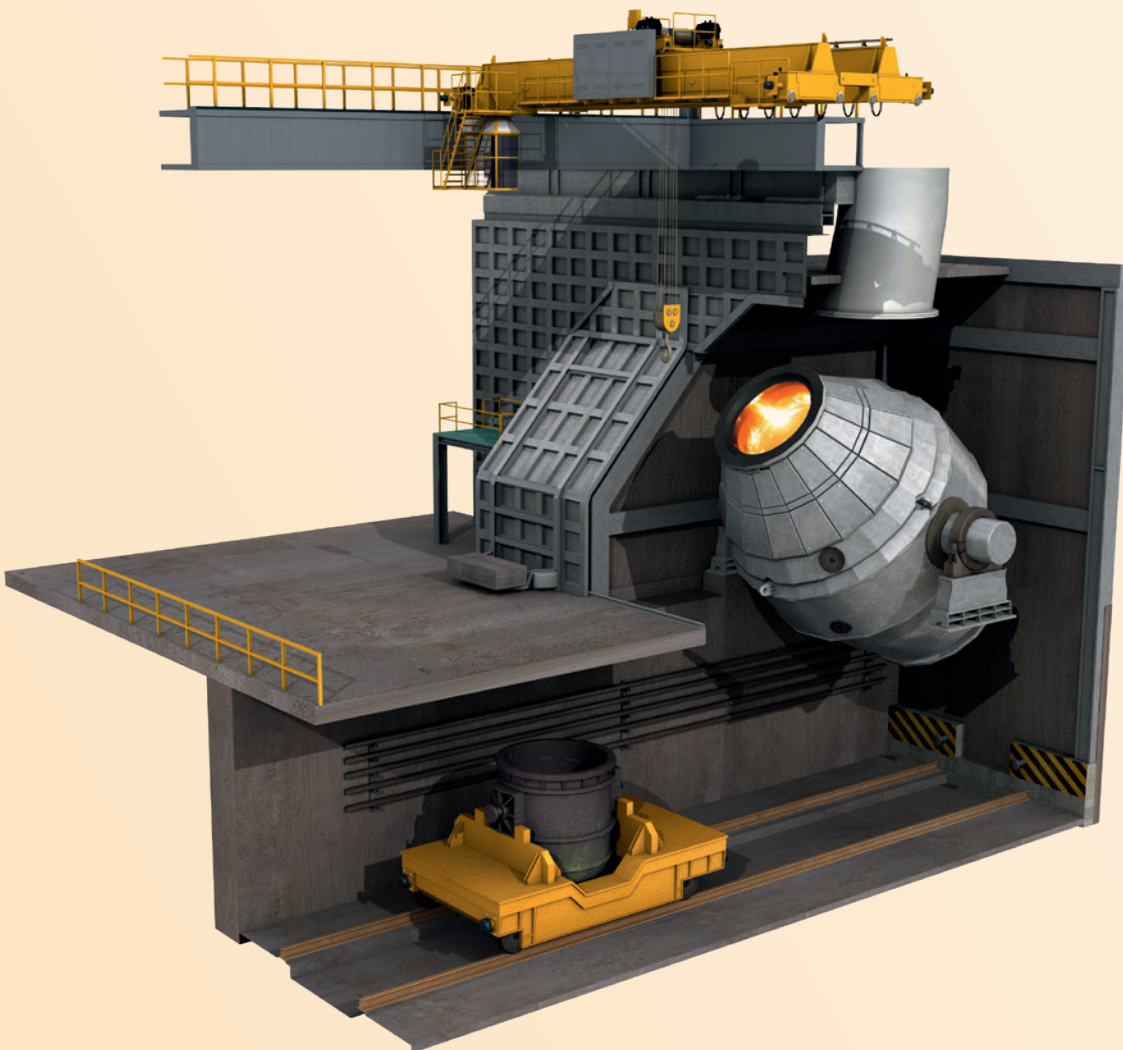
Ensuring the steel quality

The pig iron produced in the blast furnace is used in the steel works in a liquid state where it is converted into crude steel in the converters. Here, the carbon contained in the pig iron is burnt by blowing in pure oxygen.

An important trend in steel metallurgy is the rise in steel grades with increasing flexibility of metallurgical plants, in addition to which the further improvement of the logistics in steel works remains a permanent challenge. In steel converters, the troublesome tramp elements contained in pig

iron, such as carbon, silicon, sulphur and phosphorus, are removed in the basic oxygen furnace (BOF) by blowing in oxygen. In doing this, temperatures of up to 1,700 °C are generated in the converter.

Efficient and safe cooling of the converter system is indispensable. Here, WIKA flow measuring elements combined with differential pressure transmitters are used, whereby inlet and outlet temperatures are recorded by means of temperature sensors.



Detailed information
can be found online





S-20



PSD-4



DPGS40



TR34



TC50



TC12-A



LSD-30



RLS-3000



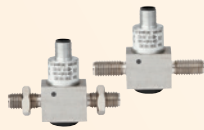
ELS



F9302



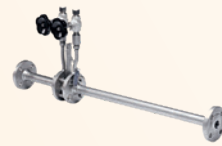
F5301



F2301



FLC-CO



FLC-MR



FSD-3









CPC4000



CTH6500



CTR3000

- | | | | |
|---|-------------|---|-------------|
|  | Pressure |  | Force |
|  | Temperature |  | Flow |
|  | Level |  | Calibration |

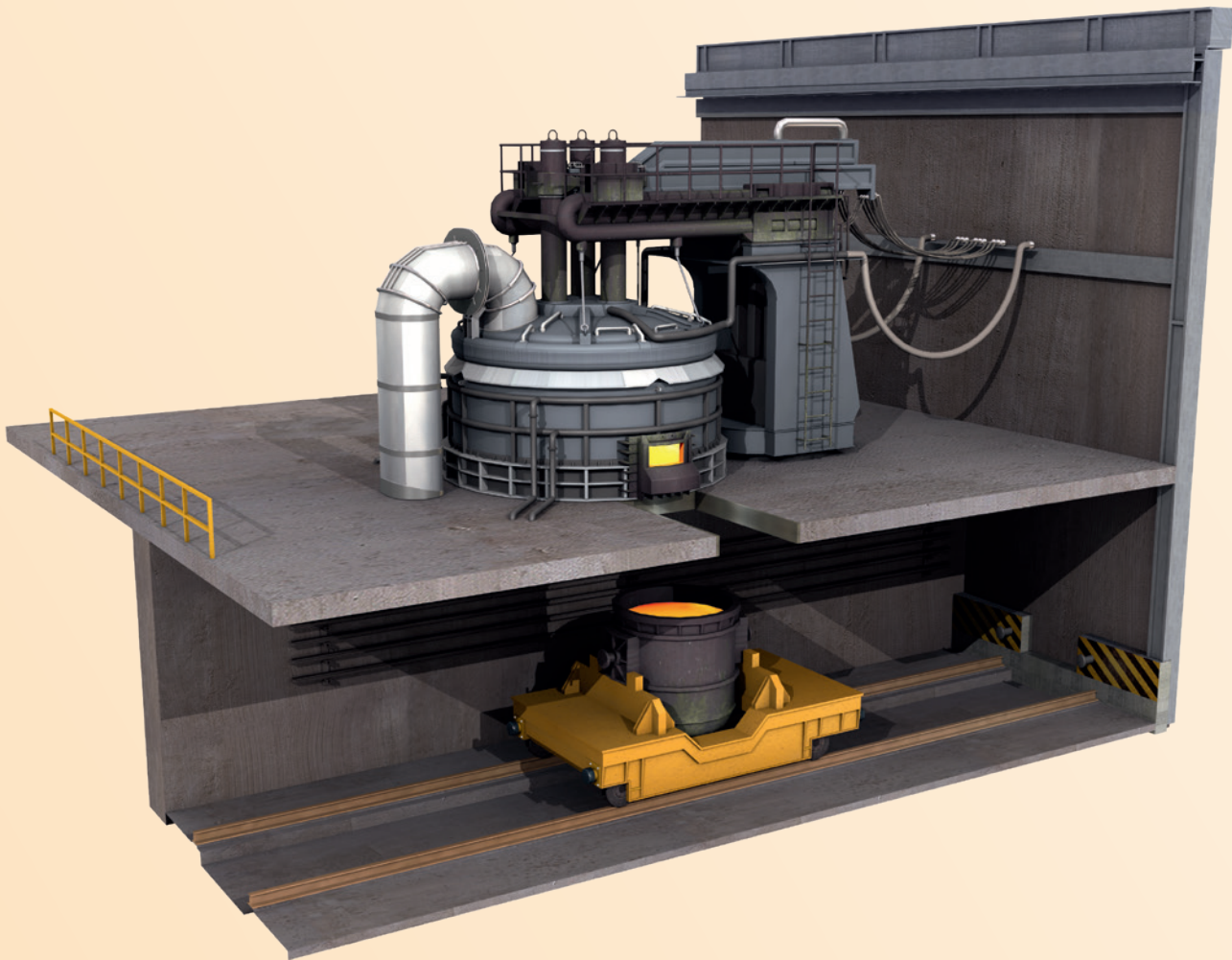
Electric arc furnace

Energy and raw material efficiency

Scrap-based steels are recovered in the electric arc furnace.

After loading the furnace, the melting process begins with the ignition of the arc. Using lances and/or burner systems and injectors in the furnace wall, the introduction of the oxygen and the fuel/gas mixtures takes place in order to accelerate

the melting and reduce the electrical energy requirement. Through monitoring of fuel pressure, temperature and flow values, normalised consumption and operating data are provided for the process controls. WIKA flow measuring instruments and pressure and temperature sensors perform this control task reliably and accurately.



Detailed information
can be found online





S-20



DPGS40



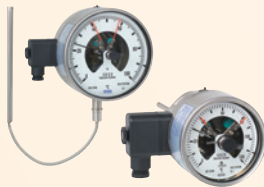
DPT-10



TC40



TR10-B



73 with 8xx



RLT-1000



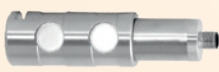
OLS-H



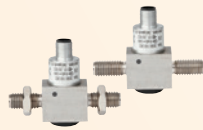
ELS



F9302



F5301



F2301



FSD-3



FWS



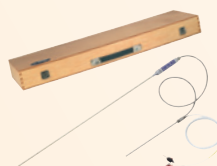
FLC-MR









CPG1500



CPH7650



CTP9000

- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

Ladle furnace

Improving the purity grade

Ladle furnaces in steel works are used in secondary metallurgy for the treatment of liquid steel. The melt is further desulphurised and adjusted to produce the steel grade desired by the customer.

The cover of the ladle furnace is usually lined with refractory materials and water-cooled. To ensure optimum operation of the ladle furnace, the exhaust duct, the electrode arms and

the cabling are also cooled. For this, sufficient water pressure and the correct water inlet temperature are crucial.

Thanks to their robust measuring technology, our resistance thermometers and pressure sensors are ideal for monitoring cooling water. Pressure sensors can be installed quickly and easily due to their compact dimensions.



Detailed information
can be found online





PSD-4



S-20



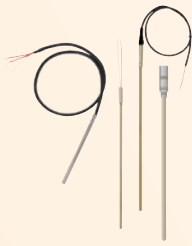
PGT23.100



TC53



TR10-D



TC40



LH-20



LSD-30



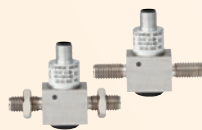
FLS-S



F3831



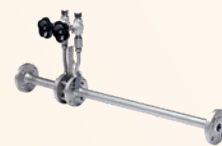
F6212



F23S1



DME



FLC-MR



FLC-FL









CTR3000



CPH6300



CTH7000

- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

Continuous casting plant

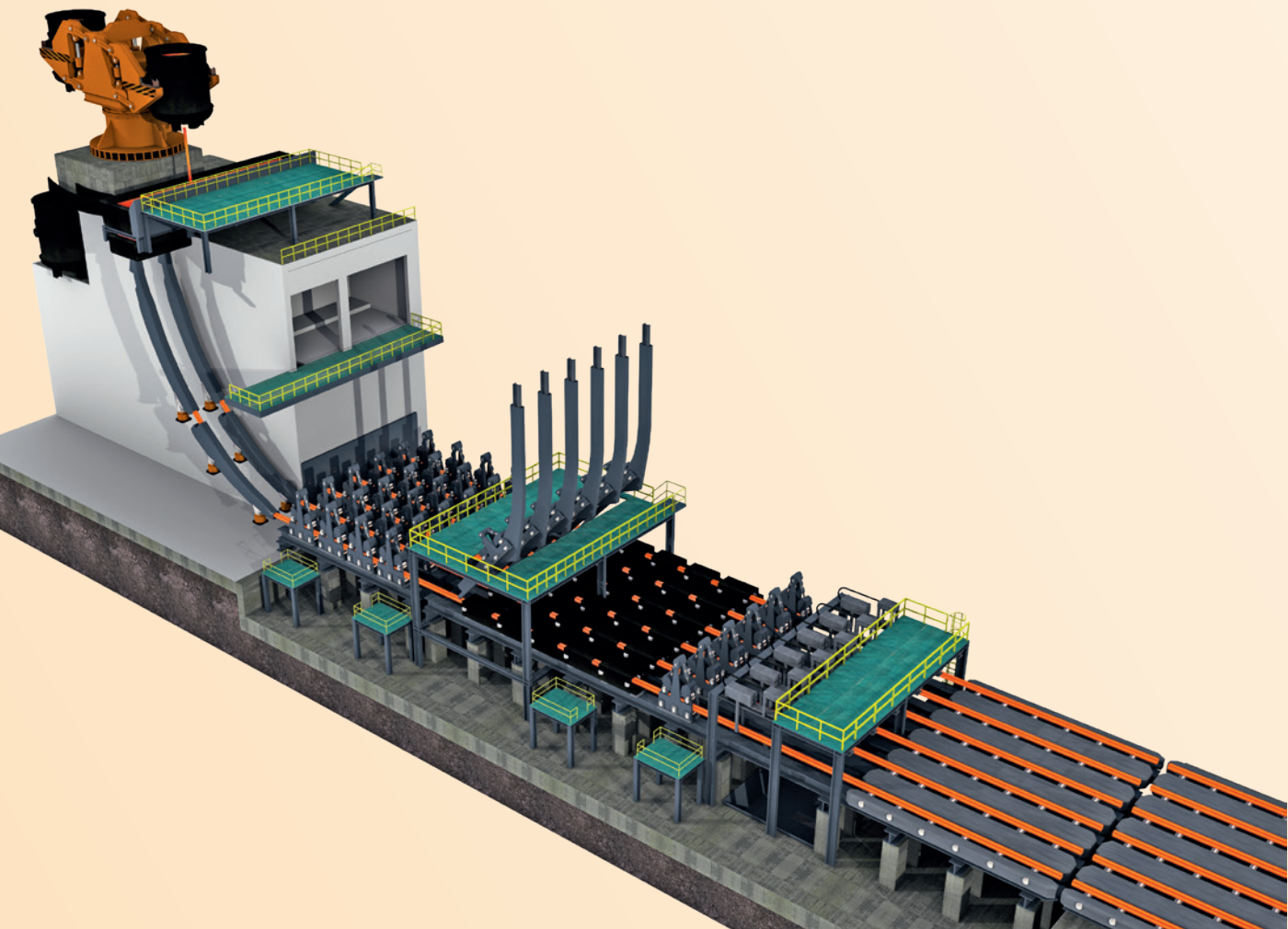
For the highest demands

In the continuous casting process, the liquid steel flows from the ladle through the distributor into the moulds. The steel-filled ladle is suspended in a rotatable tower that can hold two ladles. In the casting operation, both thermal and pressure monitoring methods are used to detect local escape of liquid steel or for penetration detection.

In order to prevent the penetration, it is essential to detect the temperature profile in the casting mould so that the development of cracks can be determined. For this purpose, thermocouples are embedded in the narrow and broad sides of

the mould so that they show a two-dimensional temperature profile of all sides of the mould. To determine the heat dissipation in the mould, the cooling water temperature at the cooling water inlet and outlet and also the coolant quantity are measured.

WIKA takes into account the harsh operating conditions of steel foundries with extremely robust products. They feature high resistance against shock, vibration and temperature fluctuations, high IP ingress protection and also outstanding EMC characteristics.



Detailed information
can be found online





A-10



PGS23.100



A-1200



TR33



TR55



TC10-B



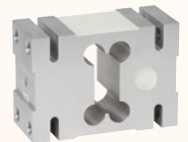
OLS-C05



RLS-3000



LF-1



F4817



F9302



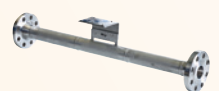
F3831



FLC-CO



FWS



FLC-RO-MS









CPH7000



CPC4000



CTR2000

- | | |
|---|---|
|  Pressure |  Force |
|  Temperature |  Flow |
|  Level |  Calibration |

Certified safety

Quality assurance

In steel production, extensive quality standards are stringently specified. WIKA ensures this through an effective quality assurance system.

Safety integrity level

The safety integrity level (SIL) of a component is certified through a manufacturer's declaration on the basis of an FMEDA (failure modes, effects and diagnostic analysis). The FMEDA is a systematic evaluation of the random failure behaviour of the component. With this, the statistical values

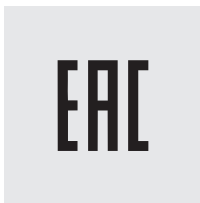
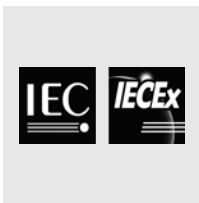
of individual components and their functional correlations are jointly assessed. The results are quantified data on the probability of failure and the reliability of the components.



International approvals/certificates

High-quality components are essential for safe and reliable production processes. They are a precondition for highly efficient processes, helping to avoid danger to people, environment and property. Rigorous testing of the instruments used, by national and international authorised bodies, results

in reliability and stable workflows. WIKA instruments offer a wide range of approvals and certificates, worldwide.



Electrical output signals

Bus technology

The general trend towards using digital bus systems instead of the conventional field instruments with an analogue output signal is being seen in the iron and steel industry as well.

Advantages:

- Higher accuracy
- Reduced wiring requirements
- Possibility of parameterisation
- Extended diagnostics of field instruments
- Improved process monitoring
- Reliable digital signal transmission

To plant managers this means a cost reduction and an increased availability of their plants.

Standard output signals

Based on the variety of output signals available our measuring instruments can be easily integrated into any plant concept. Among others, the following standard output signals are available:

- Analogue (e.g. 4 ... 20 mA, 0 ... 10 V)
- Analogue 4 ... 20 mA, design per ATEX Ex II 2G Ex ia IIC T4/T5/T6
- 4 ... 20 mA with a superimposed HART® protocol
- PROFIBUS-PA
- FOUNDATION Fieldbus

Interoperability

The image displays a collection of logos and product images for various industrial measurement and control systems. The logos include PRM, SIMATIC PDM, Cornerstone, FieldCare, Delta, FieldMate, PACTware, and AMS aware. Several handheld and rugged electronic devices are also shown, representing the physical instruments used in these systems. The entire collage is framed by an orange border at the top and bottom, with the WIKAI logo centered in a white box at the bottom.

Internal and also external tests certify the compatibility of our transmitters with almost all open software and hardware tools.

Time for networking

Internet of Things

IOT



Wireless sensors are no longer simply suppliers of measured values. Rather, the sensors can, in addition, be combined with extensive intelligence, so their performance is multiplied.

Autonomous wireless platform

Temperature sensors with SAW technology for low-voltage and medium-voltage switchgear

The robust, wireless, fully passive sensors operate maintenance-free in high electromagnetic fields and in high current and voltage environments (e.g. 20 kA, 545 kV). This enables direct measurement on the inside of this critical industrial equipment.

The unique temperature sensor has been designed for critical applications in power plants. SAW temperature sensors can be connected directly to the conductors, no battery or power source is required. They feature easy installation and maintenance. For new plants, they are also available as a retrofit solution.



Easy access

to precise measured data

Do you have to react quickly and flexibly to requirements? WIKA offers you a versatile digital pressure gauge with data logger for long-term monitoring.

The accuracy of digital measurement technology and the simplicity of an analogue gauge are brought together in this digital pressure gauge CPG1500, which in terms of performance, ease-of-use, and instrument features, is unmatched in the pressure measurement market.



When monitoring plants from remote locations or mobile units that cover long distances, a variety of protocols are available, such as LoRaWAN™, Sigfox, NB-IoT, LTE, CAT-M1 and Bluetooth, depending on the availability in each country.

Wireless networks and wireless process instrumentation require great know-how and careful planning. At WIKA, we are pleased to support you in this.

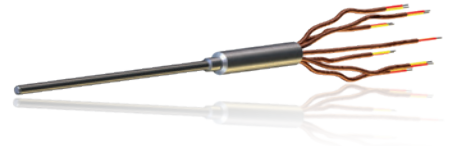
Talk to us.



Engineered solutions

Miniature multipoint thermometers

In principle, miniature multipoints are made from individual measuring probes with low diameters, which measure the temperature at different positions or heights. Each individual probe is protected with a sheath from either stainless steel or a special alloy. The individual thermocouples can be combined within a single thermowell. This design is used where the generation of a temperature profile is required, but the weight or size of the multipoint is limited. These designs are available in a number of variants.



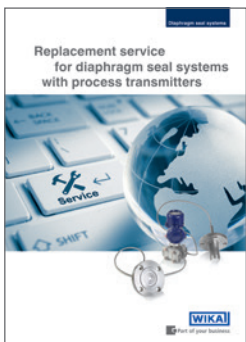
Temperature measurement in pilot plants

For research and development, processes are often built in pilot plants. Since the measurement of temperature data for the understanding of a new or modified process is of utmost importance, the thermocouple must be designed and manufactured carefully. Since the operation of pilot plants is on a smaller scale, the sensors must be scaled down, so as not to influence the processes taking place. At the same time it is important that the measured temperatures are correct. These factors are of utmost relevance and must already be taken into account during design.

Replacement service

for diaphragm seal systems with process transmitters

With the replacement service, the total costs of the diaphragm seal system can be clearly lowered. In this way, the service life of the process transmitter can be fully utilised, because only the diaphragm seal is replaced, preventatively or after failure.



Extensive information can be found in our flyer "Replacement service for diaphragm seal systems with process transmitters" at www.wika.com



Diaphragm monitoring

for critical processes

WIKA's patented double-diaphragm design is the solution for critical processes where neither the medium should find its way into the environment, nor should the system fill fluid find its way into the product (patent no. Germany: DE102016015447, China: CN108240885, Netherlands: NL2019251, USA: US2018180505).

In the event of a diaphragm rupture, a second diaphragm in the diaphragm seal system ensures the reliable separation of the environment and the process. The measuring task can still be performed. Time to act – without any risk for the process.



Extensive information can be found in the flyer "Diaphragm monitoring" at www.wika.com.



Variability

The diaphragm monitoring can be realised on a number of instrument variants. You can choose between the following basic models:

- Double-diaphragm system with flange connection and all welded, flush diaphragm
- Double-diaphragm system with threaded connection and internal, all welded diaphragm

Functional description

Diaphragm rupture detection: As soon as the monitoring instrument detects any change in pressure, the diaphragm monitoring system must be replaced.

Process pressure: Should a diaphragm rupture occur, the full process pressure acts on the monitoring instrument. In the event of a diaphragm rupture, the monitoring instrument must therefore be designed for this process pressure.

Medium: In the event of a diaphragm rupture, the measuring system of the monitoring instrument comes into contact with the medium. The measuring system must therefore be suitable for this medium.

Temperatures: The same process conditions apply to the monitoring instrument as to the pressure measuring instrument.



Diaphragm seals

Diaphragm seals are always used when the conditions at the point of usage deviate from the permissible specifications for the pressure measuring instrument. These are, for example:

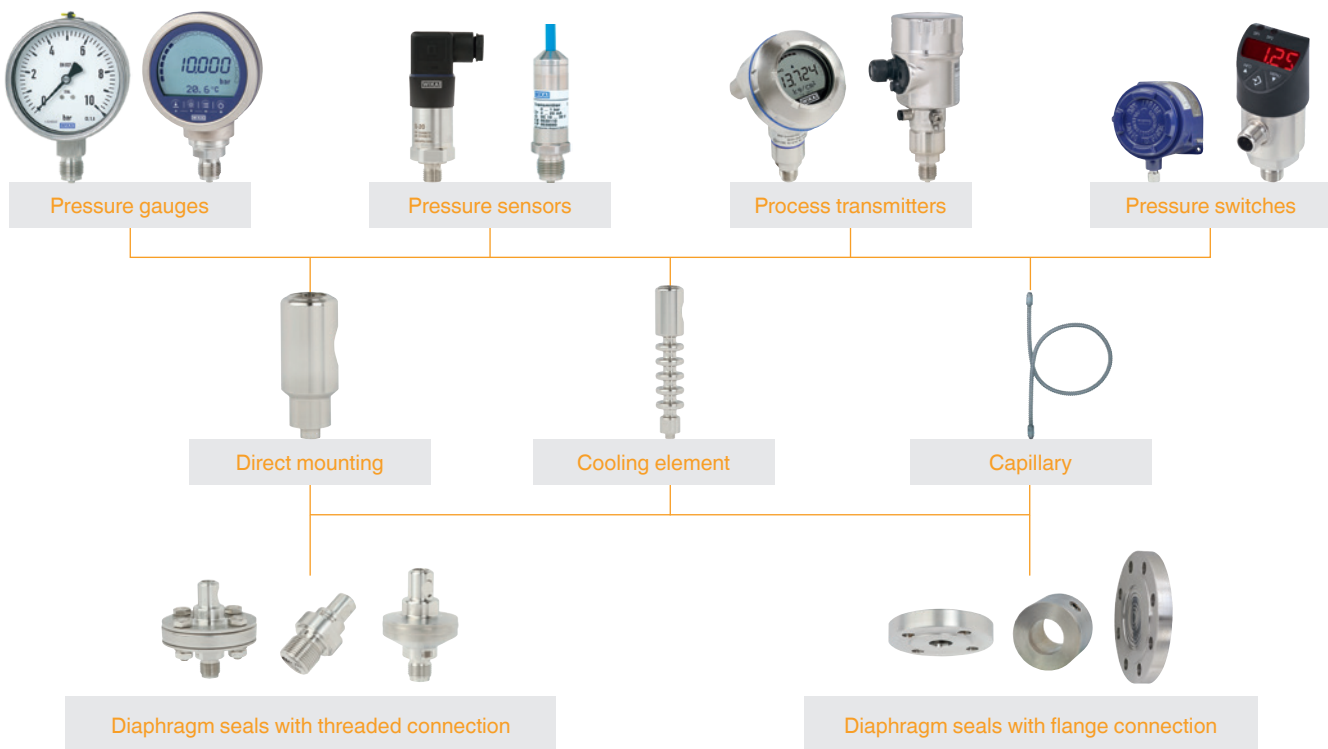
- Too low or too high temperatures of the media
- Aggressive media
- Particle-laden media
(also where there is scale formation in the hot water systems)
- Abrasive media
- Highly viscous media

A further application is the connection of the measuring point with a remotely mounted pressure measuring instrument.

Diaphragm seals are delivered by WIKA as ready-to-use, filled systems. These consist of the diaphragm seal itself (the process connection), the mounting element and the pressure measuring instrument. All components are perfectly matched to one another.

The combined systems can withstand a pressure of 10 mbar up to 3,600 bar at extreme temperatures (-130 ... +400 °C) and with a wide variety of media, thus enabling accurate pressure measurements under extreme conditions.

Our programme is rounded off by test certificates and approvals for specific applications.



Materials

For high-pressure measurement, high-strength stainless steel is used, while for pressure measurements at elevated temperatures, temperature-resistant stainless steel is needed. For processes involving highly aggressive media – in combination with diaphragm seals/gauges with diaphragm for pressure measurement, or thermowells for temperature measurement – an extensive range of chemically resistant materials is available. In this case, all wetted parts are made of this special material.



Diaphragm seals are manufactured from 316L stainless steel (1.4404/1.4435) as a standard. If diaphragm seals are required with wetted parts in special metals, then these are „metallically bonded“ using one of WIKA’s patented procedures. The junction between the diaphragm and the diaphragm seal body is designed to be diffusion-tight, vacuum protected and tear-resistant, and also resistant to all extremes of temperature to which the diaphragm seal might be exposed.

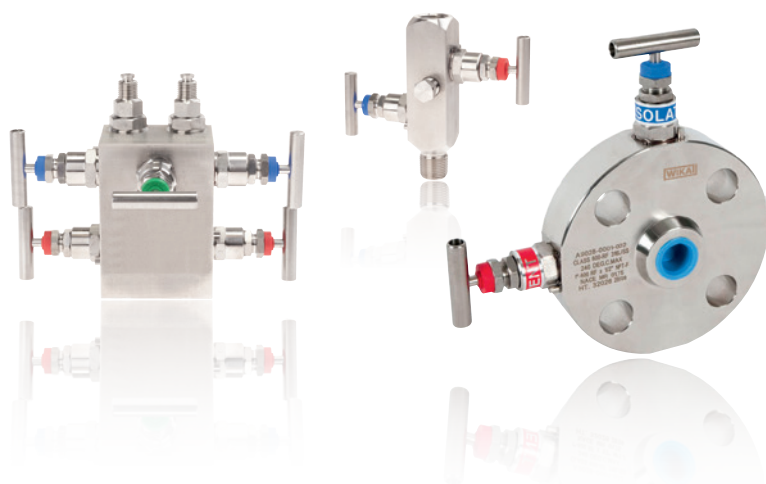
With pressure and differential pressure measuring instruments using diaphragm elements, wetted parts can be manufactured in the widest range of special materials. Measuring systems for Bourdon tube instruments are manufactured in 316L stainless steel (1.4404) as standard. All pressure-bearing materials used can be supplied with a 3.1 traceability certificate.

Large range of materials

Stainless steel	Nickel
Duplex 2205	Gold
Hastelloy B3	Platinum
Hastelloy C22	Tantalum
Hastelloy C276	Titanium
Incoloy alloy 825	Zirconium
Inconel alloy 718	Ceramic
Duratherm	Polytetrafluoroethylene PTFE
Monel alloy 400	Perfluoroalkoxy PFA

Mounting arrangements

WIKA is happy to support you in the selection of the correct components for your application. Alongside the extensive selection of instrumentation valves and accessories, WIKA also offers qualified assembly of different individual components into a complete measuring arrangement (“hook-up”). In addition to the valves and protective devices described here, combination with diaphragm seal systems is also possible.





Complete test assembly for pressure, temperature and electrical measurands

Calibration technology

Consultation, design, implementation – all from one source

Precise calibration instruments are the starting point for resolving your test requirements. However, they only form one part of a high-performance calibration system. From our extensive product range, we can design a complete and individual solution for you which contains all the relevant components - with adaptability for test items, pressure and vacuum supply, components for pressure control and fine adjustment, through to voltage supply and multimeters for the calibration of electrical test items.

Our particular strength lies in the project planning, development and the building of complete, individual, application-specific systems – from simple manual work stations through to fully automated test systems in production lines.

For more efficiency and comfort

Comprehensive accessories and user-friendly software

From individual components to complete turnkey kits – Our accessories are the ideal complement to the individual calibration instruments. Thus a complete solution is installed as quickly and easily as it is configured. The various packages complete the product programme for calibration technology and can be used in many different applications.



Free-of-charge demo download of the calibration software WIKAL-Cal



Extensive information can be found in our brochure "Accessories for calibration technology" at www.wika.com.



Versatile support

The WIKA calibration & service centre

Our worldwide laboratories are accredited in accordance with ISO 17025. We perform our own research and actively contribute our experience in DKD/DAkkS working groups and standards committees.

The calibration, maintenance and repair of your measuring instruments is carried out in full consideration of the latest national and international standards in our own WIKA calibration laboratory or on-site with you.

Should your measuring instrument not meet the required specifications, the deficiencies identified are immediately corrected.

As an independent service provider, naturally, we offer our services for measuring instruments from all manufacturers.



Your knowledge, up-to-date

WIKA training from our experts



Are you interested in a product, calibration or software training? As an individual or as a group; on-site at your company or at WIKA? Then speak to us.

We look forward to meeting you!

Service team
 Tel. +49 9372 132-5049
 CTServiceteam@wika.com

Calibration service

Our calibration laboratories have been calibrated for pressure and temperature for over 30 years. Since 2014, our calibration laboratory has also been accredited for the electrical measurands DC current, DC voltage and DC resistance. Recently, factory calibration for force and length measuring instruments has been expanding our portfolio.

- ISO 9001 certified
- DKD/DAkkS accredited (in accordance with DIN EN ISO/IEC 17025)
- Cooperation in the DKD/DAkkS working groups
- Over 60 years of experience in pressure and temperature measurement
- Highly qualified, individually trained personnel
- Latest reference instruments with the highest accuracy

Manufacturer-independent calibration – fast and precise for ...

Pressure



- -1 bar ... +8,000 bar (to +9,500 bar possible with factory calibration)
- Calibration using working standards (precise electrical pressure measuring instruments) or high-accuracy reference standards (pressure balances)
- With an accuracy of 0.003 % ... 0.01 % of reading
- In accordance with the directives DIN EN 837, DAkkS-DKD-R 6-1 or EURAMET cg-3

Temperature



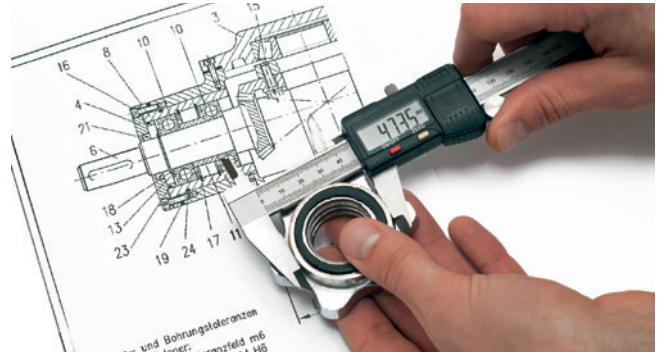
- -196 °C ... +1,200 °C
- Comparative calibration in calibration baths and tube furnaces with an accuracy of down to 1.5 mK
- Calibration at fixed points of ITS90 with the smallest possible measurement uncertainties
 - Triple point of mercury (-38.8344 °C)
 - Triple point of water (0.01 °C)
 - Melting point of gallium (29.7646 °C)
 - Solidification point of tin (231.928 °C)
 - Solidification point of zinc (419.527 °C)
 - Solidification point of aluminium (660.323 °C)
- In accordance with the appropriate DKD/DAkkS directives

Current, voltage and resistance



- DC current from 0 mA ... 100 mA
- DC voltage from 0 V ... 100 V
- DC resistance from 0 Ω ... 10 kΩ
- In accordance with the directives VDI/VDE/DGQ/DKD 2622

Length



- Factory calibration
- Replacement of the measuring device if required
- Calibration of special-purpose gauges in accordance with customer drawings
- Calibratable measuring devices
 - Calliper gauges to 800 mm
 - Testing pins up to 100 mm
 - Ring and plug gauges up to 150 mm
 - Tapered thread gauges up to 150 mm
 - Gauge blocks up to 170 mm (also possible as sets)
 - others on request

Force



- 2.5 N ... 6 MN
- Factory calibration
- With a system accuracy of up to 0.01 % with pressure loading or 0.02 % with tensile loads
- In accordance with directive DIN EN 10204

On site (pressure and temperature)



In order to have the least possible impact on the production process, we offer you a time-saving, on-site DAkkS calibration throughout Germany.

- In our calibration van or on your workbench
- With a DKD/DAkkS accreditation for pressure
 - from -1 bar ... +8,000 bar
 - with accuracies between 0.025 % and 0.1 % of FS for the standard used
- With a DAkkS accreditation for temperature from -55 °C ... +1,100 °C

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