

Pressure
Temperature
Level
Force
Flow

Applications and subsystems for **machine building**



WIKAI

Part of your business



About us

As a family-run business acting globally, with over 9,300 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, force 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.

Contents

Your partner in all areas	03	Product review	
Machine tools	06	Pressure measurement	32
Plastics machinery	08	Temperature measurement	37
Applications		Level measurement	40
Hydraulic power packs	10	Flow measurement	43
Lubrication systems	12	Force measurement	45
Screw compressors	14	Further product selection	
Piston compressors	16	Diaphragm seals	46
Pumps and systems	18	Sensor integration	47
Tank level measurement	20	Accessories	48
Filter systems	22	Calibration technology	49
Cooling lubricant system	24	WIKA worldwide	52
Granulate preparation	26		
Temperature control units	28		
General machine building	30		

WIKA – Your partner in all areas of machine building

WIKA supports companies in machine building with instrumentation solutions and services for pressure, temperature, level, force and flow measurement. Through many years of close cooperation with machine-building companies across a wide range of industrial sectors, the industry-specific challenges are well known to us.

As a strong partner, we provide versatile support in the calibration, maintenance and repair of your measuring instruments – in our globally accredited DKD/DAkkS calibration laboratories as well as via a mobile service that can also calibrate your instruments on site. Furthermore, our experienced engineers provide you with fast and reliable worldwide support for demanding large-scale projects, from planning through implementation to after-sales support.

In the breadth and depth of its range, WIKA offers an outstanding selection of measurement solutions. Thus component manufacturers and also machine and equipment builders always find the optimum solution for their specific demands within the following segments:

- Textile machinery
- Presses
- Filling and packaging machinery
- Test benches
- Calibration benches
- Woodworking machinery
- Water jet cutting machines



Competent. Reliable. High performance.

Technological know-how and unique level of in-house production

WIKA assures its renowned high level of product quality right from the outset through its highly motivated development team, a unique level of in-house production as well as specific production processes, all based on many years of experience.

Our extensive competence in methodology is reflected in comprehensive process management plans as well as clearly defined operating procedures and work instructions. For example, we subject all product and process developments to a comprehensive series of tests in our dedicated test laboratories before integrating them in our production facilities. For these tests, many of our internal standards are formulated in a much more stringent way than specified in the basic standards.

Excellent quality, outstanding employees

Quality made by WIKA – this message is our commitment and our promise for the highest possible quality. In order to meet this every day, we continuously improve our production operations through Lean Management, the KAIZEN philosophy and the Six Sigma method.

We secure the sustainability of these improvements with in-house Black Belts as well as with globally valid matrix certification with audits – conducted by an independent and globally renowned certification body.

Continuous optimisation, market and customer orientation, an uncompromising approach to quality, comprehensive employee development, employee satisfaction and environmental protection are firmly entrenched elements of our management system. All this together makes us your reliable partner for measurement technology – today and in the future.

International approvals

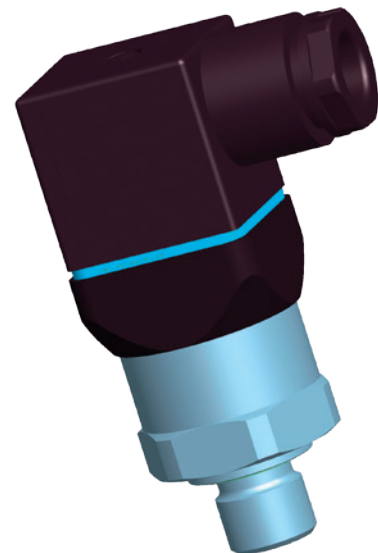
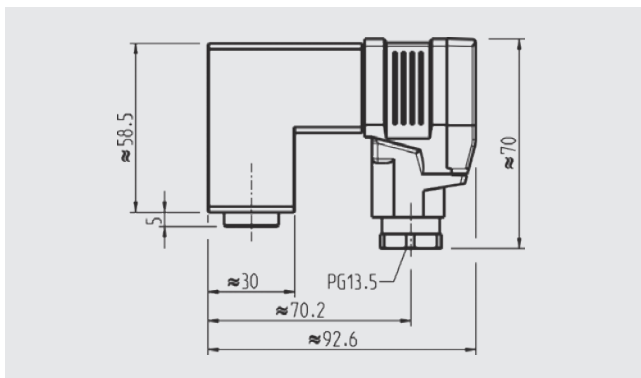
WIKA only supplies instruments which meet the guidelines and standards of the machine-building industry. In addition, rigorous testing of the instruments used, by national and international authorised bodies, guarantees their reliability. WIKA holds approvals from different industrial nations and test authorities.

The following approvals and declarations of conformity are examples. Please use the specifications of the respective products from their data sheet.



CAD files for your plant planning

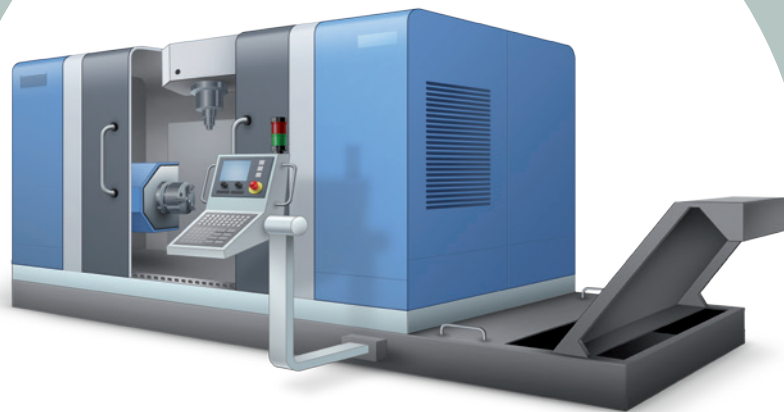
For many products, we offer CAD files (2D or 3D) in order to facilitate the integration of the instruments into your design. Various neutral and native formats guarantee compatibility with your individual planning software.



Machine tools

This term combines turning, drilling and milling centres, presses, punches and also laser processing machines or high-pressure water jet cutters. As metalworkers themselves, WIKA knows the challenges of different machine tools from their own experience. The cooperation between development and their own pre-manufacturing has led to products which fulfil the measurement tasks of a machine tool outstandingly. Use the experience of WIKA for the selection of the right measuring instrument and its positioning.

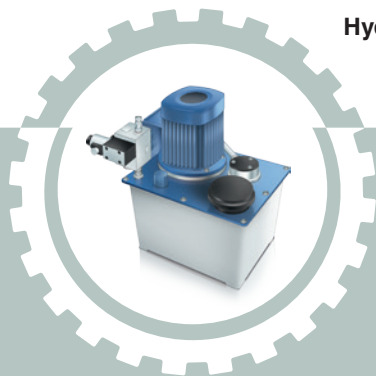
Any machine tool, besides the machine itself, consists of the oil hydraulics (e.g. for the generation of the clamping pressure), the lubrication system for the lubrication of the bearings and drives as well as the cooling lubricant system for the tool cooling.



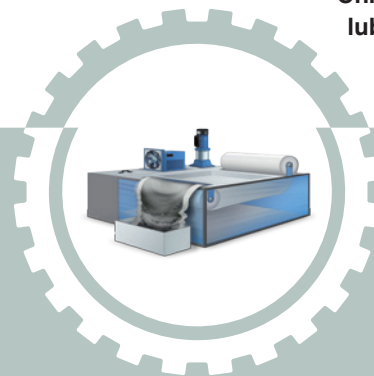
Our robust and accurate measuring instruments monitor the level in the cooling lubricant tank, the clamping force via the hydraulic pressure at the clamping cylinder, the spindle bearing temperature or also the closing force of a press. Our flow switch detects any insufficient flow of the cooling lubricant and thus protects the tool and workpiece from overheating and damage.

With presses, force is the main measured variable. In most cases, with hydraulically operated presses, the hydraulic pressure is measured and the force calculated from the piston area of the closing cylinder. A far more accurate result is provided by force transducers.

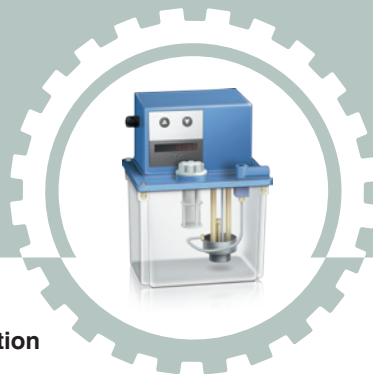
All measurement parameters can be displayed at the measuring point, transmitted to the machine control with various standard signals or reported as a switch output on a limit value being exceeded.



Hydraulic power pack
see page 10



Chip filter and cooling lubricant, see pages 24 and 26



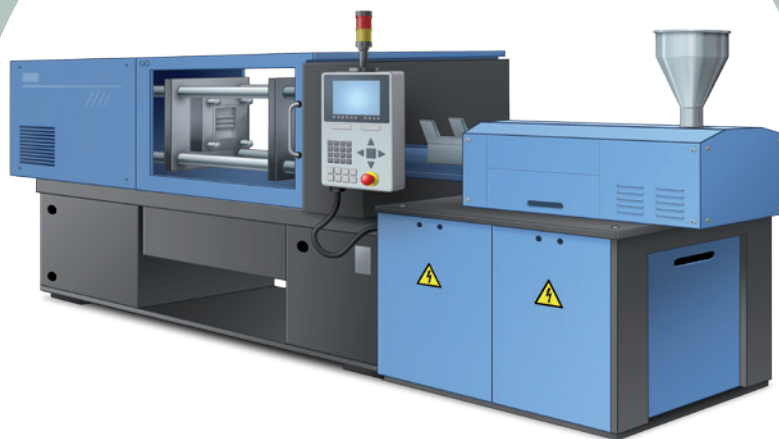
Central lubrication
see page 12

Plastics machinery

As numerous as the products they manufacture are the designs of plastics machinery. A blow-film machine for the production of breathable or barrier films, films for heavy sacks, adhesive tapes or labels looks different from an injection moulding machine for the production of children's toys, parts for cases or transparent headlamp lenses. The common feature is the melting and moulding of plastic granules.

Basically, a distinction is made between extruders with continuous delivery of the melt and injection moulding machines, in which cavities in a mould tool are filled with a single charge of melt.

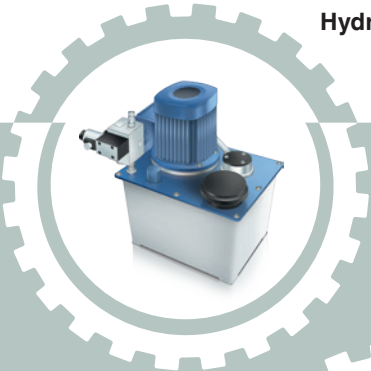
To melt the plastic granules, both types have several heating sleeves, which are mounted at intervals around the screw conveyor. Accurate temperature measurement is a prerequisite for product quality. The temperature of the melt must be within narrow limits. On the one hand, there must be the ability to flow, on the other hand, if the maximum temperature is exceeded, the plastic material is damaged.



With injection moulding machines, precise pressure measurement is important for the correct tool clamping force. The approach of “the bigger the better” does not apply here. Too high a pressure will deform the tool and the injected parts will be deformed. If the pressure is too low and the tool is insufficiently closed, the melt forces the cavities apart from each other and there will be burrs on the product.

Each plastics machine, alongside the machine itself, includes various peripheral devices. Before the feed (the funnel) the preparation of the granulate occurs, the dedusting and drying. Particles and humidity would inevitably lead to defects

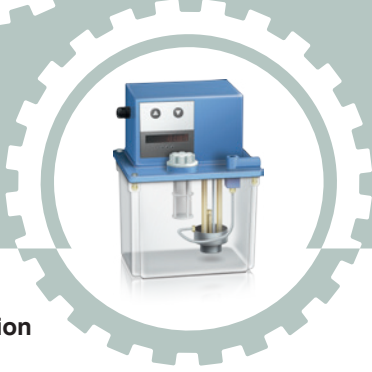
in the product. The cooling of the tool is handled by temperature control units. Through the melt, the tool is continuously supplied with heat, which must be dissipated in a controlled way. The oil hydraulics drive the clamping cylinder and generate the closing force, often in excess of 10,000 kN. Easy, precise and low-wear movements are ensured by a lubrication system. Everywhere, precise, robust and reliable WIKA measuring instruments help to produce high-quality plastic products.



Hydraulic power pack
see page 10



Deduster and dryer
see page 26



Central lubrication
see page 12



Temperature control unit
see page 28

Hydraulic power packs

From fun-fair rides to workshop lifting platforms and also machine tools or plastics machinery – their operation always requires a hydraulic power pack. Only the high energy density of hydraulic machinery offers the highest forces at the lowest possible size.

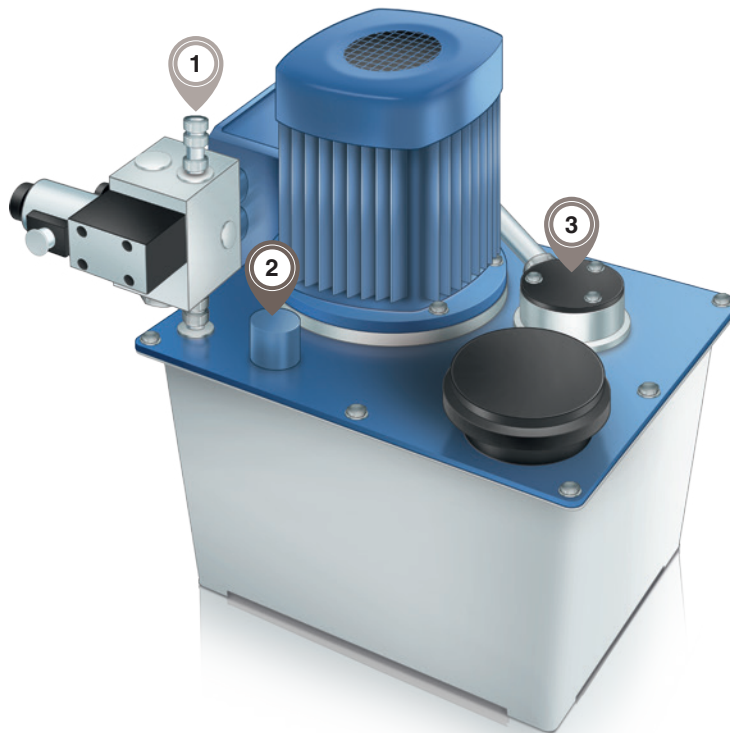
The system pressure is read from a pressure gauge. Liquid-filled models are easily readable and unaffected by vibration.

The continuous recording and maintenance of the system and control pressures is monitored by pressure switches or sensors. The PSD-4 electronic pressure switch offers a combination of switching output, analogue output and an LED display which also offers good readability in dark mounting sites. Mechanical damping of the pressure port protects the sensor element from pressure spikes.

The monitoring of the fill level in the hydraulic oil tank can signal oil deficiencies before the pump starts to suck in air.

With our temperature monitoring of the hydraulic oil, critical conditions can be identified early and the operational time for the oil can be extended.

Special requirements at the point of usage have been considered with our product development. For example, WIKA instruments work reliably in the gondola of a wind turbine and offer approvals for specific operating conditions or installation locations (e.g. ATEX).



Legend – Hydraulic power packs:

- ① System pressure – Pressure
- ② Oil level in the tank – Level
- ③ Temperature of the hydraulic oil – Temperature

Pressure

Pressure sensor ①



A-10
O-10
M-10
S-20
IS-3

Pressure gauge ①



111.10
111.12
113.53
131.11
213.53

Pressure switch ①



PSD-4



PSM01
PSM02
PSM03

Temperature

Resistance thermometer ③



TR30
TFT35
TF35

Level

Level switch ②



LSD-30



OLS-C01
OLS-C51



RLS-1000
RLS-3000

Lubrication systems

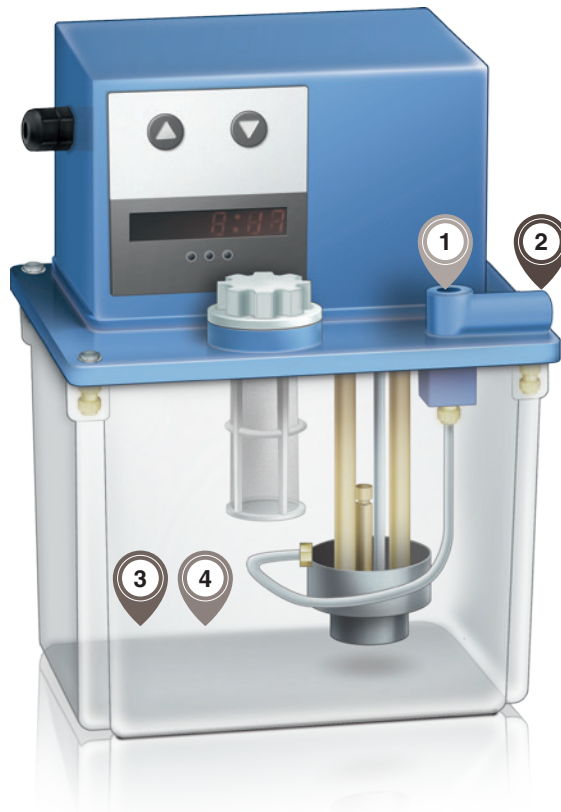
Lubrication systems with lubricating grease or oil minimise friction and wear. They improve the machine reliability and service life of all moving parts and bearings, reducing corrosion and lowering downtime.

WIKA measurement technology enables lubrication with the right quantity at exactly the right point. For this, recording the system pressure is a basic prerequisite. To ensure that the desired quantity of the lubricant is actually provided – and that no outlets are blocked – it is advisable to install a flow measuring instrument.

Your advantage: The consumption is optimised and thus also lubricant costs and environmental compatibility.

The level monitoring in the reservoir ensures uninterrupted lubrication. This can be carried out through visual inspection or automatically – for example, if the reservoir is mounted out-of-sight – with a level sensor or switch.

If the lubrication system is exposed to wind and weather, low ambient temperatures can lead to a lubricant viscosity that is too high. Here, there should be heating of the reservoir. Its control uses the measuring signal of a temperature switch (monitoring of limit values) or a temperature probe (continuous temperature measurement). Our RLS-3000 float switch offers the special feature of level and temperature measurement combined into a single instrument.



Legend – Lubrication systems:

- ① Connection of the lubrication system – Pressure
- ② Monitoring of the supply of the lubrication points – Flow
- ③ Level of the reservoir – Level
- ④ Temperature of the lubricant – Temperature

Pressure

Pressure sensor ①



A-10
O-10

Pressure gauge ①



111.10
113.53
213.53

Pressure switch ①



PSM01
PSM02

Temperature

Resistance thermometer ④



TR10
TR30
TR31
TR33
TFT35
TF35

Dial thermometer ④



54

Temperature switch ④



TFS35
TSD-30

Level

Level switch ③



LSD-30
OLS-C01
RLS-1000
RLS-3000

Flow

Flow switch ②



FSD-3
FWS

Screw compressors

Screw compressors are the most widely used compressor design in the industry. They supply compressed air continuously, are very well controllable, extremely efficient and quiet (occupational safety, environmental protection, noise emission). There are versions with different numbers of stages, various cooling and lubricating processes or drive types.

The most common model is the single-stage, oil-lubricated rotating screw compressor. Wherever even the lowest quantities of oil in the compressed air would contaminate the product or the process, oil-free compressors are used.

At the air inlet and the compressed air outlet, pressure and temperature are measured. For this, both pressure gauges/thermometers for direct display, and also pressure sensors/resistance thermometers with Pt100 or PTC sensors are standard instrumentation. In addition, pressures and differential pressures at the suction filter and at the oil reservoir/filter are monitored.

Further temperature measuring points are found at the oil cooler or in the area of compressed air preparation (e.g. filter dryer). Furthermore, our measuring instruments also reliably monitor the pressure and the level in the compressed air tank.



Legend – Screw compressors:

- | | |
|--|---|
| ① Air inlet – Pressure | ⑤ Compressed air tank – Pressure |
| ② Air inlet – Temperature | ⑥ Condensate in compressed air tank – Level |
| ③ Outlet of the compressor stage – Pressure | ⑦ Compressed air outlet – Pressure |
| ④ Outlet of the compressor stage – Temperature | ⑧ Compressed air outlet – Temperature |

Pressure

Pressure sensor

① ③ ⑤ ⑦



C-2
O-10

Pressure gauge

① ③ ⑤ ⑦



111.10
111.12

Pressure switch

⑤



PSD-4

Temperature

Resistance thermometer

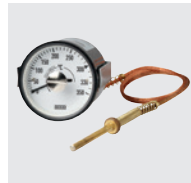
② ④ ⑧



TF35
TF37
TF45
TFT35
TR33

Thermometer with switch contacts

② ④ ⑧



SB15
SC15

Temperature switch

② ④ ⑧



TFS35
TFS135

Level

Optoelectronic switch

⑥



OLS-C01
OLS-C05

Magnetic float switch

⑥



HLS-M

Float switch

⑥



RLS-1000

Continuous measurement

⑥



RLT-1000

Piston compressors

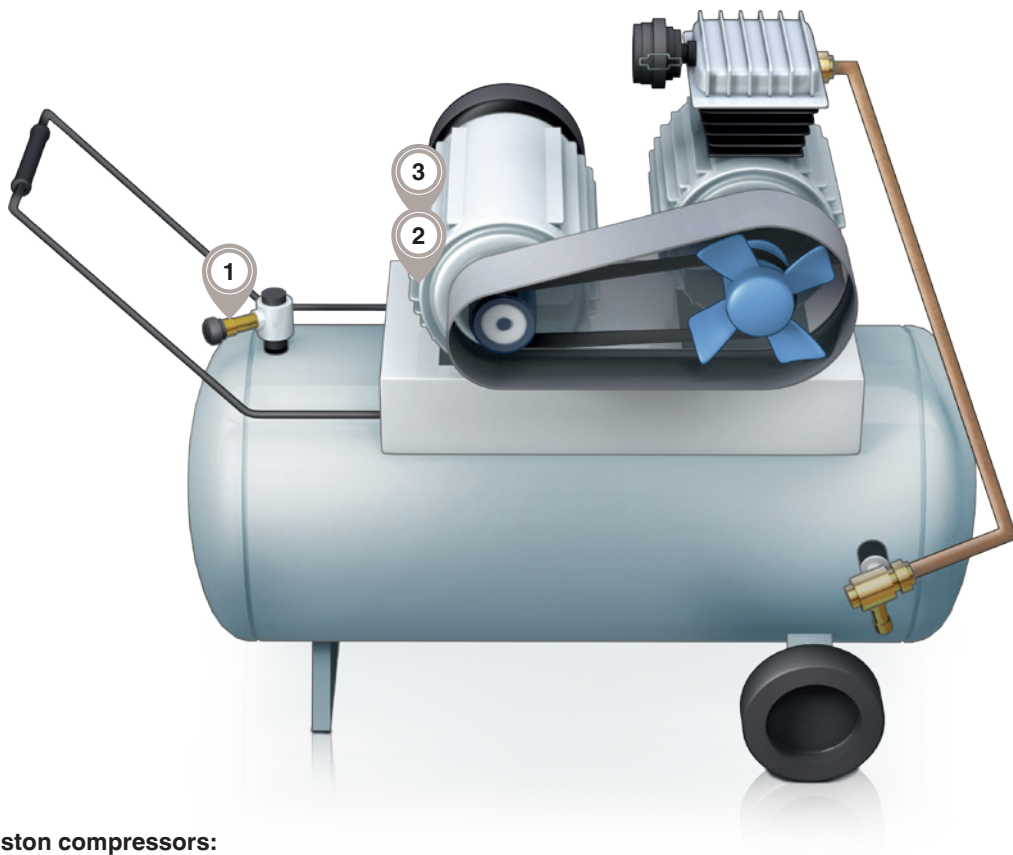
Piston compressors are 1-, 2-, 3- or 4-cylinder versions, corresponding to the compressed air demand or the level of pressure required of them. With a 2-cylinder compressor as “parallel switching”, the generated air volume is doubled. In “series switching”, where the output of the first cylinder is connected to the input of the second cylinder, higher system pressures are achieved.

A piston compressor consists of a crankshaft, a connecting rod, a cylinder and piston and a valve head. The crankshaft is driven via a V-belt, usually by an electric motor.

There are small models which only consist of a motor with cylinder/piston. However, most compressors have a compressed air tank, in order to maintain a stable system pressure to the compressed air consumer.

The operation of compressed air tools leads to dropping pressure in the tank. When the pressure drops below the lower limit, the motor starts; when the upper limit is exceeded, the motor automatically switches off. Pressure switches ensure a stable system pressure within the set limits (switch points).

The pressure in the tank, so the available working pressure, and thus also the function of the on/off switch, is reliably indicated by the WIKA pressure gauge.



Legend – Piston compressors:

- ① Compressed air tank – Pressure
- ② Working air – Pressure
- ③ Compressed air input in the tank – Pressure

Pressure

Pressure gauge

① ②



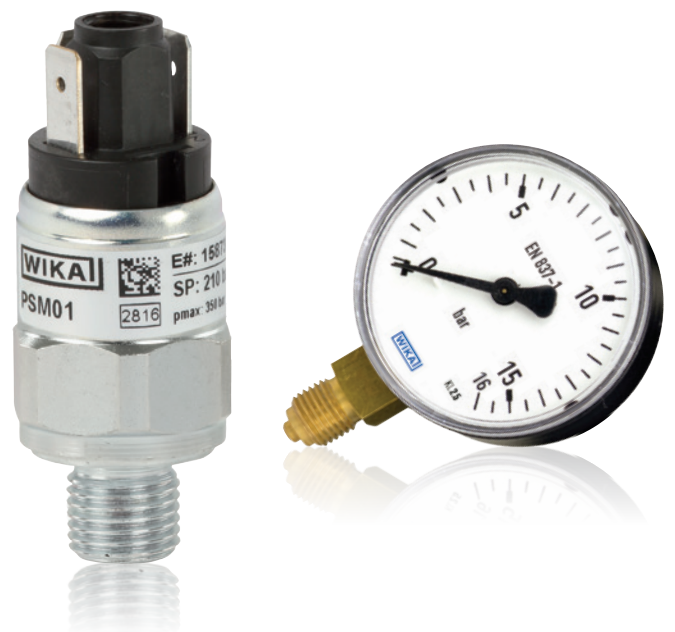
111.10
111.12
213.53

Pressure switch

③



PSM01
PSM02



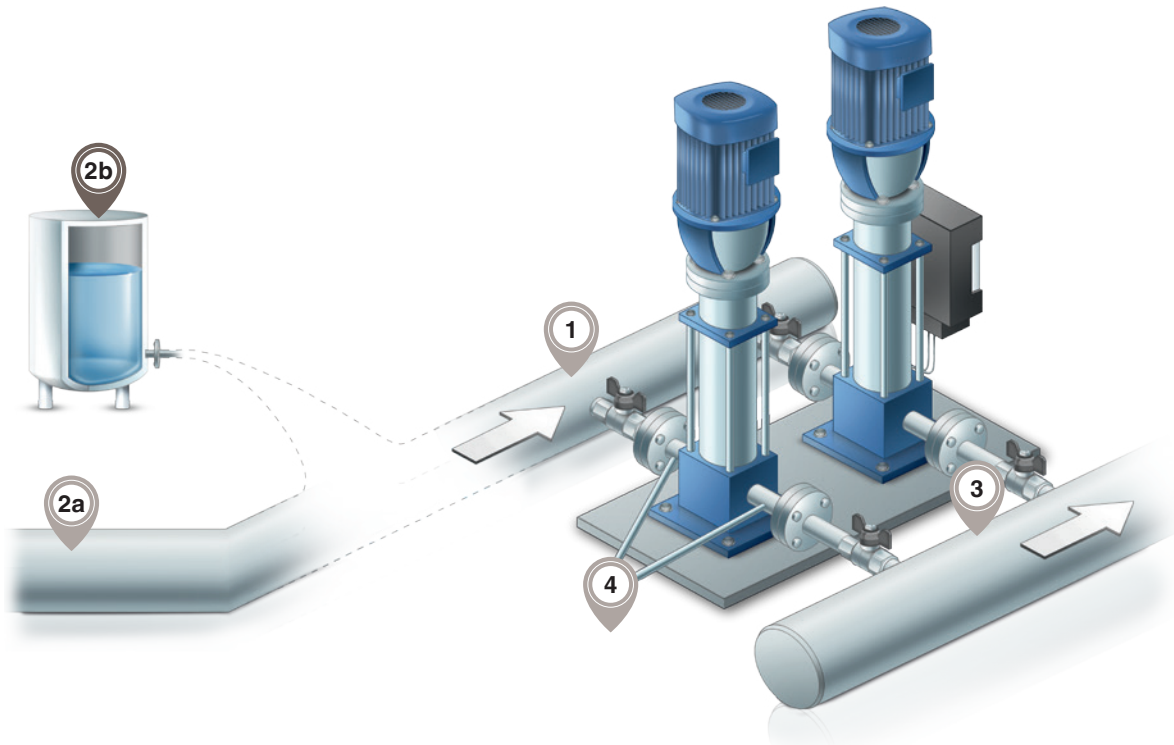
Pumps and systems

The first pumps ensured the supply of drinking water to people, thus increasing the quality of life. Today, pumps supply the widest range of media in many processes and designs. The safe monitoring and automatic control of output pressures and delivery volumes is important. Specially for these measuring tasks, WIKA offers the right portfolio for each application and each pump.

Our pressure switches protect centrifugal pumps with insufficient input pressure against dry running.

Pressure sensors measure the pressure at the output and allow a constant system pressure through energy-efficient speed control. They detect pressure rises when running against a closed valve or gate, thus protecting the pump.

Diaphragm pumps are frequently used with aggressive or toxic media. Here, reliable diaphragm monitoring by pressure switches or process transmitters ensures the protection of people and the environment.



Legend – Pumps and systems:

- ① Input pressure – Pressure
- ②a Dry run protection – Pressure
- ②b Dry run protection – Level
- ③ Output pressure – Pressure
- ④ Pump performance – Differential pressure

Pressure

Pressure sensor

3



A-10
IS-3
O-10

Pressure gauge

1

3



113.53
131.11
213.53
232.53
233.53

Differential pressure gauge

4



DPGS40

Pressure switch

2a

3



PSD-4
PSM-520



PSM01
PSM02

Level

Submersible pressure sensor

2b



LS-10
LF-1

Level switch

2b



OLS-C01



RLS-1000
RLS-2000
RLS-3000
RLS-4000



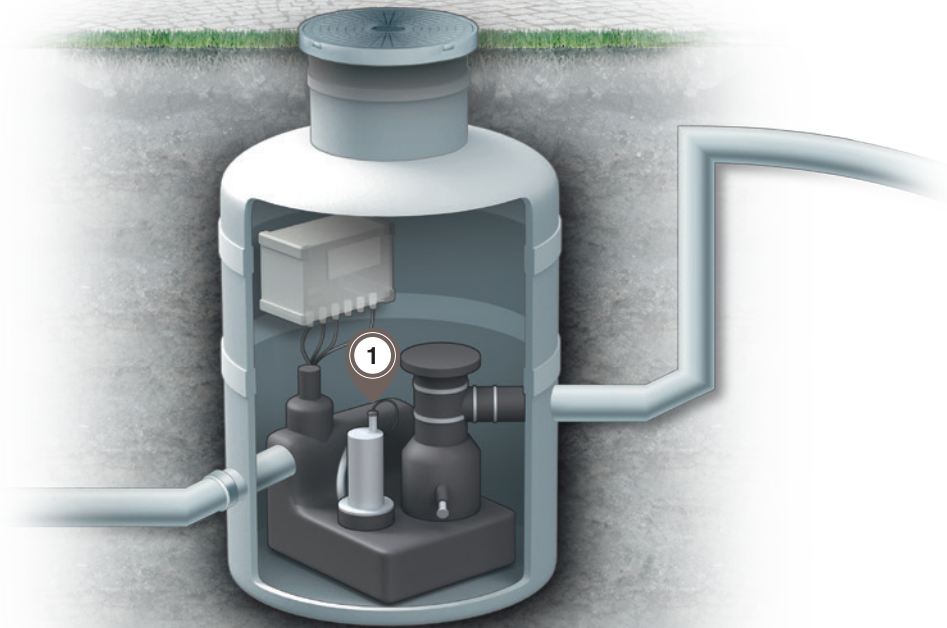
Tank level measurement

Whenever liquid media circulate from and into a storage tank in the circuit, for example the cooling lubricant of a machine tool or when liquids are conveyed from a tank or delivered into a tank, the filling height in the tank is a relevant control variable.

This can be designed as a simple on/off control of the pump using a float switch or an optoelectronic level switch. Frequently, a continuously measuring submersible pressure sensor (hydrostatic pressure of the liquid column in the tank) is also used to operate an energy-efficient speed-controlled pump.

For all installations, the customer requires a “fit and forget” solution. The plant must function 100 % reliably, resistant against the widest variety of media and insensitive to solids. Of course this also applies to float switches and submersible pressure sensors

The pictured example of a sewage lifting system shows the challenging task of maintenance-free level measurement with an extremely solids-laden medium. Here WIKA, in close cooperation with our customers, has developed a solution with unique reliability.



Legend – Tank level measurement:

① Level

Level

Submersible pressure sensor



LS-10
LF-1

Optoelectronic switch



OLS-C01
OLS-C02

Bypass



BNA

Float switch



RLS-6000



HLS-M



Filter systems

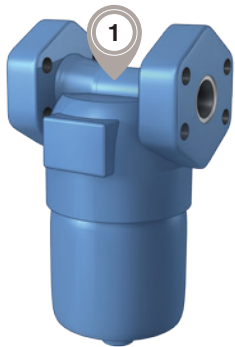
The usage of filters is as diverse as the requirements for their monitoring. The filter of a ventilation system, whose contamination produces a differential pressure of a few millibars, requires different instrumentation than a cartridge filter for oil hydraulics.

Hydraulic filter application

Particles in hydraulic oil lead to a markedly higher wear of all moving parts, such as hydraulic pumps and motors, valve pistons or in the cylinder. Therefore, one or more filters in the circuit are among the most important components.

Installation is often in the return line to the tank, where the pressure level is low and the discharge is made against atmospheric pressure. Here a gauge pressure transmitter monitors the filter contamination.

If one wants to protect specific components such as the hydraulic motor, then the filter must be fitted in front of these components. For the monitoring of these, one requires differential pressure measurement – measurement of the pressure drop (the contamination) across the filter.



All have the requirement for reliability in common, which is also, or especially, true for the measurement technology. Only the reliable measuring signal of a WIKA process transmitter, differential pressure transmitter or pressure gauge enables efficient and trouble-free operation of the system. Your advantage: The energy consumption is optimised and thus also operating costs and environmental compatibility.

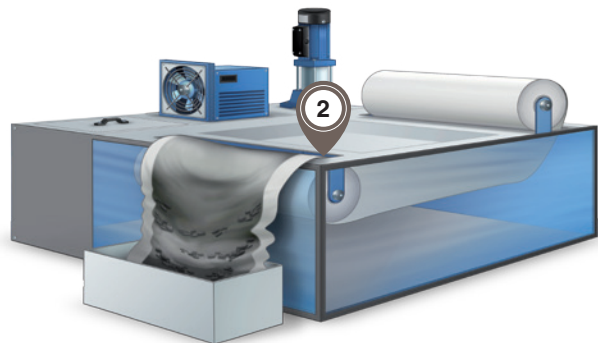
Machine tool application

With the machining of a metal part in a machining centre, chips are produced. This is transported by the cooling lubricant in the machine tool to a conveying system which then transfers it from the processing area.

The chip separator separates the solid chips and the liquid cooling lubricant so that it can be returned to the circuit. The chips are sent for recycling and should also be as “clean” as possible.

A problem is frequently the float switch in the chip separator of the belt filter, which controls the further transport on the belt filter. The chips accrued are held on this and can no longer be washed away. This leads to an overflow of the cooling lubricant, with corresponding effort in the cleaning of the hall – and also the risk of accidents due to the slippery floor.

Our manufacturing depth enables us to develop solutions and test them in our own pre-manufacturing. We understand what reliability means.



Legend – Hydraulic filter/machine tool:

- ① Contamination of the filter – Pressure
- ② Contamination of the filter – Level (backing up of cooling lubricant)

Pressure

Pressure sensor

①



A-10
S-20

Pressure gauge

①



111.10
111.12
213.53
113.53
DPS40
DPGS40
A2G-05

Pressure switch

①



PSD-4
PSM02

Level

Level switch

②



RLT-1000
RLS-1000
RLS-6000
HLS-M



Cooling lubricant system

When machining, the cooling lubricant emulsion fulfils two important functions in a machine tool: It cools the tool (drill, cutter) and supports the chip removal.

The system consists of the components

- Chip conveyor
- Chip filter
- Tank/pump unit

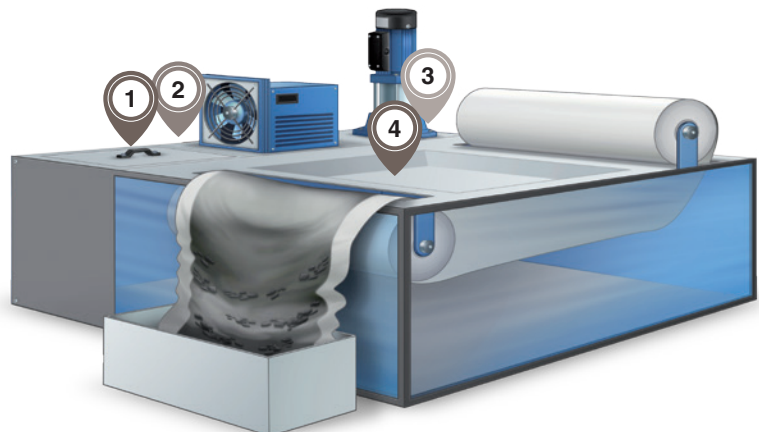
Through evaporation at the tool, through the removal of chips with cooling lubricant on it, and through the carry-over of foreign oils, the level in the cooling lubricant tank and the operating concentration changes. In larger metalworking companies, an employee is often engaged, full-time, with level control and refilling. In the scope of Industry 4.0, automatic measurement and documentation of the level brings several advantages. In addition to demand-based refilling, consumption is documented and changes (e.g. leaks) are detected.

Through the workpiece machining, the cooling lubricant heats up. This heat must be removed through heat exchangers and the limit temperatures (manufacturer specifications) must be strictly observed. A simple limit switch can monitor the maximum temperature, or a resistance thermometer measures the temperature of the emulsion in the tank. Thus, demand-based cooling is possible, which leads to significant energy savings.

TRGS 611 prescribes regular monitoring and documentation of the cooling lubricant:

- Regulations for the operating concentration, in practice, 4 ... 8 % (hand-held refractometer)
- Checking the pH value (pH test paper)
- Determination of the nitrite content (test strips)
- Determination of the temperature.
- Germ count (up to now, without limit or standard value)

The current standard is for on-site measurement and subsequently manual entry into a paper-based table. WIKA is working on an Industry 4.0 solution for the automatic documentation of these measured values. In addition to the removal of manual measurement, a more frequent measurement gives an early indication of any impending “tipping” of the cooling lubricant. It can then be averted and an exchange of the cooling lubricant can be avoided.



Legend – Cooling lubricant system:

- ① Level in the tank – Level
- ② Temperature of the cooling lubricant – Temperature
- ③ Transport of the cooling lubricant – Pressure
- ④ Contamination of the filter – Level (backing up of cooling lubricant)

Pressure

Pressure sensor

③



A-10
S-11

Pressure gauge

③



111.10
111.12
213.53
113.53

Pressure switch

③



PSD-4
PSM02

Temperature

Resistance thermometer

②



TR10-C
TF35
TFT35

Dial thermometer

②



52
32

Temperature switch

②



TFS35
TSD-30

Level

Level switch

①

④



RLT-1000
RLS-1000
RLS-6000
HLS-M

Granulate preparation

The drying and dedusting on the granules is a basic precondition for the manufacturing of superior plastic parts.

Due to product abrasion, many plastic granules already contain dust and fibres (angel hair) when delivered. These cause a reduction in quality in the end product, especially in optical and high-gloss parts, or it can lead to plant downtime through product clogging. Pressure measurement from WIKA monitors the vacuum of the deduster.

A particular challenge is to dry hygroscopic thermoplastics to the optimum residual humidity for processing. This is only possible using air processing with an extremely low dew point and thus a minimal absolute water content. Tempe-

rature measuring instruments from WIKA support the energy-efficient operation of the dryers. Our level measuring instruments monitor the filling height in the drying vessel, and pressure measuring instruments secure the air supply to the blower.

As a plastics processor with over 30 of our own injection moulding machines, WIKA understands these challenges. The cooperation of our development and manufacturing has led to products which fulfil the measurement tasks of granulate preparation outstandingly.



Legend – Deduster & dryer:

- ① Heated air – Temperature
- ② Filling the vessel – Load cell
- ③ Air flow – Pressure
- ④ Dust removal – Vacuum

Pressure

Pressure sensor

③ ④



A-10
R-1

Pressure gauge

③ ④



111.10
111.12
212.20
611.10
PGS25

Pressure switch

③ ④



PSD-4
PSM02

Temperature

Dial thermometer

①



50
SC15

Resistance thermometer

①



TF35
TF37
TF45
TFT35
TR33

Temperature switch

①



TFS35
TFS135

Force

Load cell

②



F4801



Temperature control units

Temperature control units are frequently used in the plastics and rubber industries. In these applications, they preheat the tools to operating temperature and dissipate the heat generated by the material during series production, thus avoiding overheating of the tool and damage to the product. Further application areas are in the chemical and pharmaceutical industries, in the food & beverage and packaging industries, metalworking or wood processing.

A plastics machine frequently runs in continuous operation (24/7). The safe operation relies, in a large part, on the quality of the temperature control.

Temperature control units have an external connection to a circuit, such as in the temperature control of an injection moulding tool in the plastics industry, and they are available as immersion baths, such as those used in laboratories or for quality assurance. The designs stretch from standard series production instruments through to project-designed temperature control plants (frequently multi-circuit systems) for production processes, for which large volumes of heat are required and possibly large quantities of heat must be removed.

A temperature control unit consists of the following main components:

- Vessel with heater and heat exchanger
- Recirculation pump
- Temperature controller

The versions cover cooling instruments down to $-150\text{ }^{\circ}\text{C}$, to heating systems (thermal oil heaters) up to $+400\text{ }^{\circ}\text{C}$. As a heat transfer medium, water, glycol or thermal oils are used.

A level switch ensures that the heat transfer medium in the tank is sufficiently full and also controls the automatic refilling. If there is sufficient heat transfer fluid in the vessel, the circulation pump conveys it through the load and back to the vessel. In the tank, the actual temperature is measured and fed through to the temperature controller. If the actual temperature exceeds the set point, the solenoid valve from the cooling water connection opens and cools the heat transfer medium in the tank to the set temperature. In the opposite case, the heat transfer medium is heated, usually with an electric cartridge heater.



Legend – Temperature control unit:

- ① Level in the tank – Level
- ② Temperature in the vessel – Temperature
- ③ Temperature in the inlet line – Temperature
- ④ Pressure in the inlet line – Pressure
- ⑤ Flow measurement for the process – Flow
- ⑥ Temperature in the return line – Temperature

Pressure

Pressure sensor

④



A-10
S-20
M-10
R-1

Pressure gauge

④



111.10
111.12
213.53
113.53

Pressure switch

④



PSD-4
PSM02

Temperature

Resistance thermometer

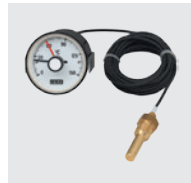
② ③ ⑥



TF35
TF45
TFT35
TR10-C

Dial thermometer

② ③ ⑥



50
32
SC15
52

Level

Submersible pressure sensor

①



LS-10

Floats

①



RLT-1000
RLS-1000

Optoelectronic switch

①



OLS-C01

Flow

Flow switch

⑤



FSD-3

General machine building

The close cooperation with our customers enables instruments that meet individual requirements in a very special way and reliably ensure machine functionality. This increases the performance of equipment and strengthens the competitiveness and market position of our customers.

Our developments with more than 20,000 partners in the machine-building sector have led to a globally unique product programme covering the entire range of instrumentation requirements. The pictures show a selection of further application areas for which we have already implemented specific measurement technology.

Calibration benches



Presses

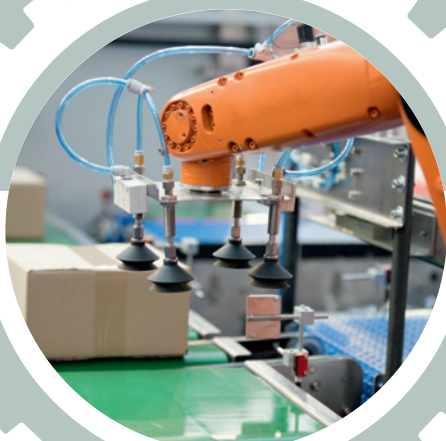


Woodworking machinery

Water-jet cutting machines



Textile machinery



Packaging machinery



Test benches

Pressure gauges



111.10, 111.12, 111.16

Pressure connection radial, back mount or panel mounting series

Nominal size:	40, 50, 63 mm
Scale range:	-1 ... 0 to 0 ... 400 bar
Accuracy class:	1.6/2.5
Data sheet:	PM 01.01, PM 01.10, PM 01.17



113.13

Plastic case, with liquid filling

Nominal size:	40, 50, 63 mm
Scale range:	-1 ... 0 to 0 ... 400 bar
Accuracy class:	2.5
Ingress protection:	IP65
Data sheet:	PM 01.04



213.53

Stainless steel case, with liquid filling

Nominal size:	50, 63, 100 mm
Scale range:	<ul style="list-style-type: none"> ■ NS 50: -1 ... 0 to 0 ... 400 bar ■ NS 63, 100: -1 ... 0 to 0 ... 1,000 bar
Accuracy class:	1.0 (NS 100), 1.6 (NS 50, 63)
Ingress protection:	IP65
Data sheet:	PM 02.12

Ex EAC GL



232.50, 233.50

Stainless steel version

Nominal size:	63, 100, 160 mm
Scale range:	<ul style="list-style-type: none"> ■ NS 63: 0 ... 1 to 0 ... 1,000 bar ■ NS 100: 0 ... 0.6 to 0 ... 1,000 bar ■ NS 160: 0 ... 0.6 to 0 ... 1,600 bar
Accuracy class:	1.0 (NS 100, 160), 1.6 (NS 63)
Ingress protection:	IP65
Data sheet:	PM 02.02



DPS40

DELTA-switch, differential pressure switch

Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Switch point reproducibility:	1.6 %
Ingress protection:	IP65
Data sheet:	PV 27.21



DPGS40

DELTA-comb, with integrated working pressure indication and micro switch

Nominal size:	100 mm
Scale range:	0 ... 0.25 to 0 ... 10 bar
Accuracy class:	2.5 (1.6 optional)
Ingress protection:	IP65
Data sheet:	PV 27.20

Ex EAC GL

Ex EAC IEC IECEx

Ex EAC IEC IECEx

Digital pressure gauges



CPG500

Digital pressure gauge

Accuracy (% of span): 0.25 \pm 1 digit

Measuring range: ■ 0 ... 60 to 0 ... 1,000 bar
 ■ -1 ... +20 to -1 ... + 40 bar

Special feature: ■ Robust case with protective rubber cap
 ■ Simple operation using four buttons

Data sheet: CT 09.01



CPG1500

Precision digital pressure gauge

Accuracy (% of span): down to 0.05 FS

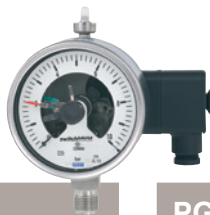
Measuring range: -1 ... 1,000 bar

Special feature: ■ Integrated data logger
 ■ WIKA-Cal compatible
 ■ Data transfer via WIKA-Wireless
 ■ Robust case IP65

Data sheet: CT 10.51



Contact pressure gauges



PGS23

Bourdon tube, with electronic pressure switch, stainless steel version

Nominal size: 63, 100, 160 mm

Scale range: 0 ... 0.6 to 0 ... 1,600 bar

Accuracy class: 1.0 / 1.6

Ingress protection: IP54

Data sheet: PV 22.02, PV 22.03



PGS25

Bourdon tube, with electronic pressure switch

Nominal size: 50, 63 mm

Scale range: 0 ... 1.6 to 0 ... 400 bar

Accuracy class: 2.5

Ingress protection: IP65

Data sheet: PV 21.04



Pressure sensors



A-10

For general industrial applications

Non-linearity (\pm % of span): ≤ 0.25 or 0.5 BFSL

Measuring range: ■ $0 \dots 0.05$ to $0 \dots 1,000$ bar
 ■ $0 \dots 0.1$ to $0 \dots 25$ bar abs.
 ■ $-0.025 \dots +0.025$ to $-1 \dots +24$ bar

Special feature: ■ Compact design
 ■ Free test report
 ■ 2 million possible variants

Data sheet: PE 81.60



O-10

OEM version

Non-linearity (\pm % of span): ≤ 0.5 BFSL

Measuring range: ■ $0 \dots 6$ to $0 \dots 600$ bar
 ■ $-1 \dots +5$ to $-1 \dots +59$ bar

Special feature: ■ For OEM quantities
 ■ Customer-specific variants
 ■ Special version for applications with water as medium

Data sheet: PE 81.65



C-2

For air compressors

Accuracy (\pm % of span): ≤ 2 or 1

Measuring range: ■ $0 \dots 6$ to $0 \dots 60$ bar
 ■ $-1 \dots +10$ to $-1 \dots +45$ bar

Special feature: ■ Robust design
 ■ Compact design
 ■ Long service life and high reliability

Data sheet: PE 81.47



S-20

For demanding measurement tasks

Non-linearity (\pm % of span): ≤ 0.125 , 0.25 or 0.5 BFSL

Measuring range: ■ $0 \dots 0.4$ to $0 \dots 1,600$ bar
 ■ $0 \dots 0.4$ to $0 \dots 40$ bar abs.
 ■ $-1 \dots 0$ to $-1 \dots +59$ bar

Special feature: ■ Extreme operating conditions
 ■ Customer-specific variants
 ■ Free test report

Data sheet: PE 81.61



S-11

For viscous and particle-laden media

Non-linearity (\pm % of span): ≤ 0.2 BFSL

Measuring range: ■ $0 \dots 0.1$ to $0 \dots 600$ bar
 ■ $0 \dots 0.25$ to $0 \dots 16$ bar abs.
 ■ $-1 \dots 0$ to $-1 \dots +24$ bar

Special feature: ■ Flush process connection
 ■ Medium temperature to 150°C
 ■ Comprehensive stocks

Data sheet: PE 81.02



IS-3

Ex ia, Ex nA, Ex tc

Accuracy (% of span): ≤ 0.5

Measuring range: ■ $0 \dots 0.1$ to $0 \dots 6,000$ bar
 ■ $0 \dots 0.25$ to $0 \dots 25$ bar abs.
 ■ $-1 \dots 0$ to $-1 \dots +24$ bar

Special feature: ■ Further worldwide Ex approvals
 ■ High-pressure version (optional)
 ■ Flush process connection (optional)
 ■ Suitable for SIL 2 per IEC 61508/IEC 61511 (optional)

Data sheet: PE 81.58





M-10, M-11

For applications with limited mounting space

- Accuracy (\pm % of span): ≤ 0.2 BFSL
- Measuring range: ■ 0 ... 6 to 0 ... 1,000 bar
- Special feature: ■ Small spanner width 19 mm
■ Flush connection G 1/4 available

Data sheet: PE 81.25



HP-2

For highest pressure applications

- Accuracy (\pm % of span): ≤ 0.25 or 0.5
- Measuring range: 0 ... 1,600 to 0 ... 15,000 bar
- Special feature: ■ Very high long-term stability
■ Excellent load cycle stability
■ Cavitation protection (optional)

Data sheet: PE 81.53



P-30, P-31

With high precision

- Accuracy (\pm % of span): ≤ 0.1 or 0.05
- Measuring range: ■ 0 ... 0.25 to 0 ... 1,000 bar
■ 0 ... 0.25 to 0 ... 25 bar abs.
■ -1 ... 0 to -1 ... +15 bar
- Special feature: ■ No additional temperature error in the range 10 ... 60 °C
■ Flush process connection (optional)
■ Analogue, CANopen® or USB

Data sheet: PE 81.54



Pressure gauges with output signal



PGT21

Bourdon tube, stainless steel case

- Nominal size: 50, 63 mm
- Scale range: 0 ... 1.6 to 0 ... 400 bar
- Accuracy class: 2.5
- Ingress protection: IP65, IP67 optional
- Data sheet: PV 11.03



PGT23

Bourdon tube, stainless steel version

- Nominal size: 63, 100, 160 mm
- Scale range: 0 ... 0.6 to 0 ... 1,600 bar
- Accuracy class: 1.0 / 1.6
- Ingress protection: IP54, filled IP65
- Data sheet: PV 12.03, PV 12.04



Pressure switches



MW

Diaphragm element

Setting range:	0 ... 16 mbar to 30 ... 600 bar
Ignition protection type:	Ex ia optional
Switch:	1 or 2 x SPDT or 1 x DPDT
Switching power:	AC 250 V / 20 A DC 24 V / 2 A
Data sheet:	PV 31.10, PV 31.11 (Ex)



PSD-4

Electronic pressure switch with display

Accuracy (\pm % of span):	≤ 0.5
Measuring range:	<ul style="list-style-type: none"> ■ 0 ... 0.4 to 0 ... 1,000 bar ■ 0 ... 0.4 to 0 ... 25 bar abs. ■ -1 ... 0 to -1 ... +24 bar
Special feature:	<ul style="list-style-type: none"> ■ Easily readable, robust display ■ Intuitive and fast setup ■ Easy and flexible mounting configurations ■ Flexibly configurable and scalable output signals
Data sheet:	PE 81.86



PSM01, PSM02, PSM03

For socket wrench mounting, with adjustable hysteresis, with adjustment knob

Setting range:	0.2 ... 2 to 40 ... 320 bar
Material:	Galvanised steel, stainless steel, (PSM03: zinc diecast, aluminium)
Switching power:	PSM01: AC 48 V, 2 A / DC 24 V, 2 A PSM02: AC 250 V, 4 A / DC 24 V, 4 A PSM03: AC 250 V, 4 A / DC 24 V, 3 A
Switching cycles:	PSM01: 1×10^6 PSM02: 2×10^6 PSM03: 5×10^6
Reproducibility:	$< 2 \%$
Data sheet:	PV 34.81, PV 34.82, PV 34.83



PSM-520

Heavy-duty version, adjustable switch differential

Setting range:	0 ... 5 bar to 6 ... 30 bar
Switch:	1 x change-over contact / SPDT
Switching power:	AC 230 V, 10 A
Data sheet:	PV 35.01



PCA

Compact pressure switch

Setting range:	-0.2 ... 1.2 to 100 ... 600 bar
Ignition protection type:	Ex d with stainless steel case optional
Switch:	1 x SPDT or DPDT
Switching power:	AC 250 V / 15 A DC 24 V / 2 A
Data sheet:	PV 33.30, PV 33.31 (Ex)



Dial thermometers



52, 54, 55

Industrial series, axial and radial

Nominal size:	25, 33, 40, 50, 63, 80, 100, 160 mm
Scale range:	-30 ... +50 to 0 ... +500 °C
Permissible operating pressure at thermowell/ stem:	Max. 25 bar
Wetted parts:	Stainless steel
Data sheet:	TM 52.01



IFC

Standard version

Nominal size:	52, 60, 80, 100 mm 48 x 48, 72 x 72, 96 x 96 mm
Scale range:	-100 ... +400 °C
Wetted parts:	Copper alloy
Option:	<ul style="list-style-type: none"> ■ Square case version ■ Other case materials ■ With micro switch
Data sheet:	TM 80.01



Thermometers with switch contacts



SC15

Expansion thermometer with micro switch, indicating temperature controller

Nominal size:	60, 80, 100 mm 45 x 45, 72 x 72, 96 x 96 mm
Scale range:	-100 ... +400 °C
Wetted parts:	Copper alloy
Option:	Sheet steel version
Data sheet:	TV 28.02

Glass thermometers



32

Machine glass thermometer, V-form

Nominal size:	110, 150, 200 mm
Scale range:	-30 ... +200 °C
Wetted parts:	Copper alloy
Option:	<ul style="list-style-type: none"> ■ Dual scale °F/°C ■ 3 variants: straight, 90° and 135°
Data sheet:	TM 32.02

Temperature switches



TSD-30

Electronic temperature switch with display

Measuring range:	-20 ... +80 °C, (-20 ... +120 °C optional)
Output:	<ul style="list-style-type: none"> ■ Switching outputs PNP or NPN ■ 4 ... 20 mA ■ 0 ... 10 V ■ IO-Link 1.1
Data sheet:	TE 67.16



TFS35, TFS135

Bimetal temperature switch

Switching temperature:	50 ... 200 °C, fixed
Feature:	<ul style="list-style-type: none"> ■ Compact design ■ Automatic reset ■ No capillary needed
Data sheet:	TV 35.01, TV 35.02

Thermocouples



TC10-D

Threaded, miniature design

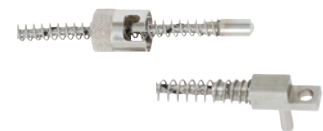
Sensor element:	Type K, J, E, N or T
Measuring range:	-200 ... +600 °C
Measuring point:	Ungrounded or grounded
Process connection:	Mounting thread
Data sheet:	TE 65.04



TC46

Hot runner thermocouple

Sensor element:	Type J or K
Measuring range:	-25 ... +400 °C
Measuring point:	Ungrounded or grounded
Feature:	<ul style="list-style-type: none"> ■ Probe diameter 0.5 ... 3.0 mm ■ Plastic-moulded transition
Data sheet:	TE 65.46



Thermocouple for plastics machinery

Measuring range:	-25 ... +400 °C
Measuring element:	Type J or K
Measuring point:	Ungrounded or grounded
Feature:	<ul style="list-style-type: none"> ■ Various process connections ■ Connection lead fibreglass with stainless steel braid
Data sheet:	TE 67.20



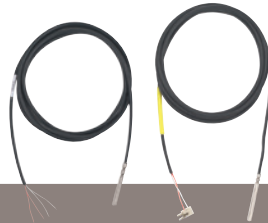
Resistance thermometers



TF35, TF37

Screw-in thermometer

Measuring range:	-50 ... +250 °C
Measuring element:	Pt100, Pt1000, NTC, KTY, Ni1000
Feature:	<ul style="list-style-type: none"> ■ Compact design ■ Very high vibration resistance ■ Ingress protection of IP54 to IP69K, depending on the connector
Data sheet:	TE 67.10, TE 67.12



TF45

OEM insertion thermometer with connection lead

Measuring range:	-50 ... +250 °C
Measuring element:	Pt100, Pt1000, NTC, KTY, Ni1000
Feature:	<ul style="list-style-type: none"> ■ Connection lead from PVC, silicone, PTFE ■ Probe sleeve from stainless steel ■ Protected against dust and water jets, IP65
Data sheet:	TE 67.15



TR40

Cable resistance thermometer

Sensor element:	1 x Pt100, 2 x Pt100
Measuring range:	-200 ... +600 °C
Connection method:	2-, 3- and 4-wire
Cable:	PVC, silicone, PTFE
Data sheet:	TE 60.40



TR31, TR33

Miniature design

Sensor element:	1 x Pt100, 1 x Pt1000
Measuring range:	-50 ... +250 °C
Output:	Pt100, Pt1000, 4 ... 20 mA
Data sheet:	TE 60.31, TE 60.33



TFT35

Compact temperature transmitter

Measuring range:	-50 ... +200 °C
Feature:	<ul style="list-style-type: none"> ■ Output signal 4 ... 20 mA, 0 ... 10 V, 0.5 ... 4.5 V ■ Factory configured ■ Measuring insert exchangeable ■ Electr. connection via plug connection
Data sheet:	TE 76.18



Float switches



HLS-M1, HLS-M2

Plastic version or stainless steel, with cable outlet

Process connection:	<ul style="list-style-type: none"> ■ ½" NPT (installation in the tank from outside) ■ G ¼" (installation in the tank from inside)
Pressure:	1 bar / 5 bar
Temperature:	-10 ... +80 °C / -40 ... +120 °C
Material:	PP / stainless steel 1.4301
Electrical connection:	Cable or connector
Data sheet:	LM 30.06



LSD-30

Electronic level switch, with display

Measuring range:	Probe length 250, 370, 410, 520, 730 mm, others on request
Density:	≥ 0.7 g/cm ³ (NBR float)
Switching output:	<ul style="list-style-type: none"> ■ 1 or 2 (PNP or NPN) ■ Analogue output (optional)
Process connection:	G ¾ A, ¾ NPT
Data sheet:	LM 40.01



RLS-1000

Stainless steel version

Switch points:	Up to 4 (normally closed, normally open, change-over contact)
Medium temperature:	-30 ... +80 °C -30 ... +150 °C optional
Guide tube length:	60 ... 1,500 mm
Data sheet:	LM 50.03



RLS-2000

Plastic version

Switch points:	Up to 4 Normally closed, normally open, change-over contact
Medium temperature:	-30 ... +80 °C -30 ... +120 °C optional
Guide tube length:	100 ... 1,500 mm
Data sheet:	LM 50.04



RLS-3000

Stainless steel version, with temperature output signal

Switch points:	Up to 3 Normally closed, normally open, change-over contact
Temperature output:	Normally closed, normally open, Pt100, Pt1000
Medium temperature:	-30 ... +80 °C (-30 ... +150 °C optional)
Guide tube length:	60 ... 1,500 mm
Data sheet:	LM 50.06



RLS-6000

For water and wastewater technology

Switching output:	Normally closed, normally open, change-over contact
Medium density:	≥ 1,000 kg/m ³
Medium temperature:	-10 ... +60 °C
Guide tube length:	150 ... 1,000 mm
Data sheet:	LM 50.09

Continuous measurement with float



RLT-1000

Stainless steel version

Accuracy:	12, 10, 6 or 3 mm
Output signal:	Resistance signal or 4 ... 20 mA
Temperature:	-30 ... +80 °C (+120 °C optional)
Guide tube length:	150 ... 1,500 mm
Data sheet:	LM 50.02



RLT-2000

Plastic version

Accuracy:	12, 10, 6 or 3 mm
Output signal:	Resistance signal or 4 ... 20 mA
Temperature:	-10 ... +80 °C (-30 ... +120 °C optional)
Guide tube length:	150 ... 1,500 mm
Data sheet:	LM 50.01



RLT-3000

Stainless steel version with temperature output signal

Accuracy:	12, 10, 6 or 3 mm
Output signal:	■ Level: 4 ... 20 mA ■ Temperature: 4 ... 20 mA, Pt100 or Pt1000
Temperature:	-30 ... +100 °C
Guide tube length:	150 ... 1,500 mm
Data sheet:	LM 50.05

Submersible pressure sensors



LS-10

Standard version

Accuracy (± % of span):	≤ 0.5
Measuring range:	0 ... 0.25 to 0 ... 10 bar
Data sheet:	PE 81.55



LF-1

For superior applications

Accuracy (± % of span):	≤ 0.5 or ≤ 1
Measuring range:	0 ... 0.1 to 0 ... 6 bar
Output signal:	■ 4 ... 20 mA (2-wire) ■ 4 ... 20 mA + HART® (2-wire) ■ DC 0.1 ... 2.5 V (3-wire)
Options:	■ Temperature output -40 ... +80 °C ■ Explosion protection per ATEX, FM, CSA and IECEx
Data sheet:	LM 40.04



Optoelectronic switches

OLS-C01



OEM switch, compact design, standard version

Material:	Stainless steel, borosilicate glass
Process connection:	G 3/8", G 1/2" or M12 x 1
Pressure:	Max. 25 bar
Temperature:	-30 ... +100 °C
Switching output	1 x PNP
Data sheet:	LM 31.31

OLS-C02



OEM switch, compact design, with selectable switch length

Material:	Stainless steel, borosilicate glass
Process connection:	G 1/2"
Pressure:	Max. 25 bar
Temperature:	-30 ... +100 °C
Switch length:	65 ... 3,000 mm
Switching output	1 x PNP
Data sheet:	LM 31.32

OLS-C04



OEM switch, compact design, refrigerant version, with transistor output

Material:	Steel, nickel-plated; glass
Process connection:	G 1/2", 1/2" NPT
Pressure:	Max. 40 bar
Temperature:	-40 ... +100 °C
Switching output	1 x PNP
Data sheet:	LM 31.34

OLS-C05



OEM switch, compact design, high-temperature version

Material:	Stainless steel, borosilicate glass
Process connection:	G 1/2"
Pressure:	Max. 25 bar
Temperature:	-40 ... +170 °C
Switching output	1 x PNP
Data sheet:	LM 31.33

OLS-C20



Compact design, high-pressure version

Material:	Stainless steel, quartz glass
Process connection:	<ul style="list-style-type: none"> ■ M16 x 1.5 ■ G 1/2 A ■ 1/2 NPT
Insertion length:	24 mm
Pressure:	0 ... 50 bar
Temperature:	-30 ... +135 °C
Data sheet:	LM 31.02

Flow switches



FSD-3

Calorimetric flow switch

Output signal:	Flow: 4 ... 20 mA, PNP, NPN Temperature: 4 ... 20 mA, PNP, NPN Diagnostics: PNP, NPN
Process connection:	G ¼ A, G ½ A, ¼ NPT, ½ NPT or M18 x 1.5
Measuring range:	Water: 5 ... 150 cm/s Oil: 3 ... 300 cm/s
Data sheet:	FL 80.01



FWS

Flow monitor

Material:	Stainless steel, brass
Process connection:	G ¼ ... G 1½
Flow range:	0.005 ... 250 l/min (water), 0.2 ... 1,450 NL/min (air)
Media:	Liquids and gases
Output:	Optionally pointer, sight glass, reed contact
Data sheet:	LM 31.31



Force transducers



F1119

Hydraulic force transducer

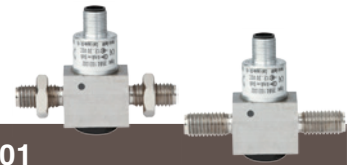
Nominal force F_{nom} :	0 ... 320 N to 0 ... 500 kN
Relative linearity error:	<ul style="list-style-type: none"> ■ Analogue $\leq \pm 1.6\% F_{nom}$ ■ Digital $\leq \pm 0.5\% F_{nom}$
Output signal:	Analogue or digital display
Ingress protection:	IP65
Data sheet:	FO 52.10



F1211

Compression force transducer

Nominal force F_{nom} :	0 ... 1 to 0 ... 1,000 kN
Relative linearity error:	$\leq \pm 0.2\% F_{nom}$
Output signal:	2 mV/V
Ingress protection:	IP67
Data sheet:	FO 51.10



F2301

Tension force transducer

Nominal force F_{nom} :	0 ... 1 to 0 ... 500 kN
Relative linearity error:	$\pm 0.2\% F_{nom}$
Output signal:	<ul style="list-style-type: none"> ■ 4 ... 20 mA, 2-wire/3-wire ■ 2 x 4 ... 20 mA, redundant ■ 0 ... 10 V, 3-wire ■ 2 x 0 ... 10 V, redundant
Ingress protection:	IP67 (IP69K optional)
Data sheet:	LM 31.32



F6212

Ring force transducer

Nominal force F_{nom} :	0 ... 2 to 0 ... 100 kN
Relative linearity error:	$\pm 0.2\% F_{nom}$
Output signal:	0.8 ... 1.2 mV/V
Ingress protection:	IP65
Data sheet:	FO 51.27



F9302

Strain transducer

Nominal force F_{nom} :	0 ... ± 200 , 0 ... ± 500 , 0 ... $\pm 1,000 \mu\text{N}$
Relative linearity error:	$\leq \pm 1\% F_{nom}$
Output signal:	4 ... 20 mA
Ingress protection:	<ul style="list-style-type: none"> ■ IP67 ■ IP69K (optional)
Data sheet:	FO 54.10

Load cells

F3831

Shear beam to 10 t

 Nominal force F_{nom} : 0 ... 500 to 0 ... 10,000 kg

Relative linearity

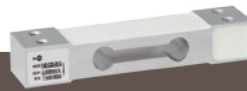
 error: 0.03 % F_{nom}

 Output signal:

- 2.0 ± 1 % mV/V
- 3.0 ± 1 % mV/V (option)

Ingress protection: IP65 (< 500 kg), IP67 (500 kg)

Data sheet: FO 51.21

F4801

Single-point load cell to 250 kg

 Nominal force F_{nom} : 0 ... 3 to 0 ... 250 kg

Relative linearity

 error: 0.02 % F_{nom}

Output signal: 2.0 ± 10 % mV/V

Ingress protection: IP65

Data sheet: FO 53.10

F4812

Single-point load cell to 650 kg

 Nominal force F_{nom} : 0 ... 50 to 0 ... 650 kg

Relative linearity

 error: 0.02 % F_{nom}

Output signal: 2.0 ± 10 % mV/V

Ingress protection: IP65

Data sheet: FO 53.11



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:

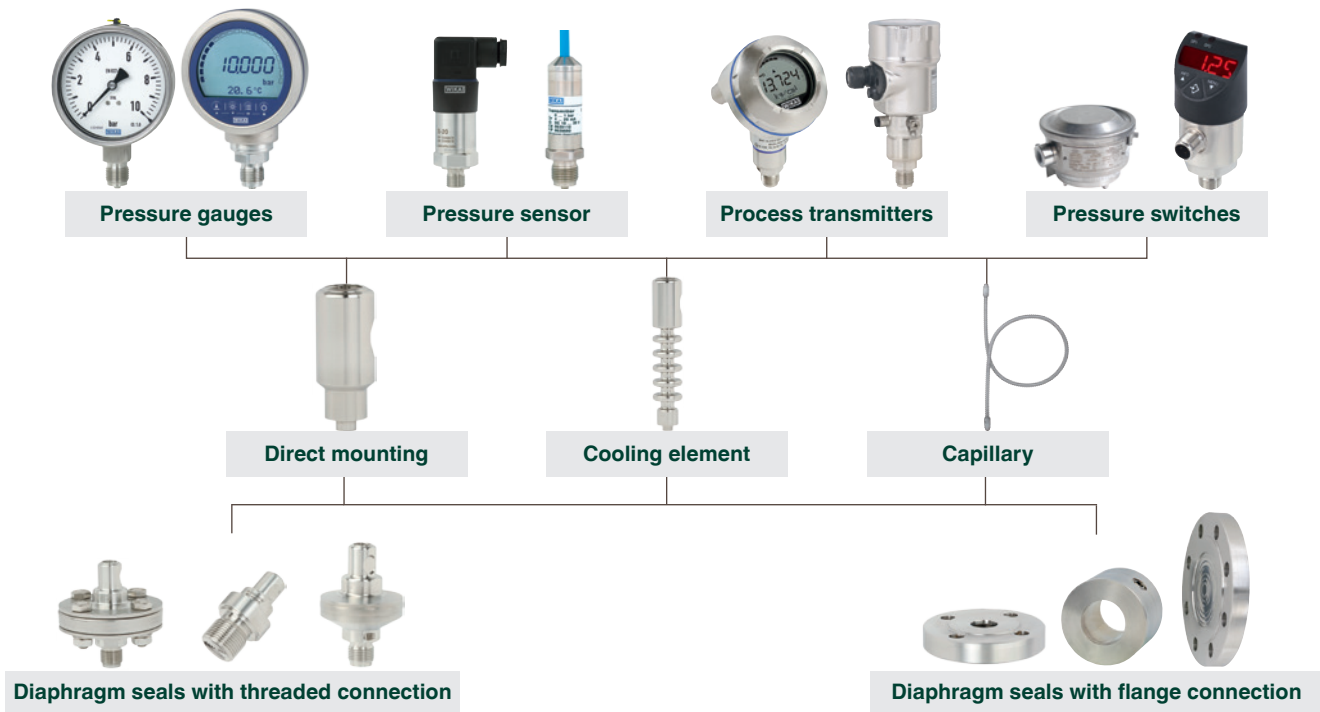
- Too low or too high temperatures of the media
- Aggressive media
- Particle-laden media (also where there is scale formation in the hot water systems)
- Abrasive media
- Highly viscous media

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 pressure measurements under extreme conditions.

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



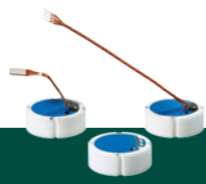
Sensor integration

For applications with limited mounting space, there is a need for highly integratable sensor solutions.

For the customer-specific design of such OEM sensor modules, WIKA can make experts in mechanics and electronics available to you from our development.

WIKA can rely on 3 sensor technologies to achieve the best possible implementation for customers in terms of performance and costs:

SCT-1



Metal thick-film-based sensor

Non-linearity (% of span):	≤ 0.25 ... 0.5
Measuring range:	0 ... 2 to 0 ... 100 bar
Special feature:	Excellent resistance to media
Signal:	mV/V
Data sheet:	PE 81.40

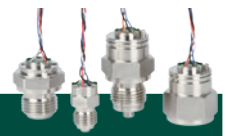
SPR-2, TPR-2



Piezo-based sensor

Non-linearity (% of span):	≤ 0.3
Measuring range:	0.4 ... 1,000 bar
Special feature:	<ul style="list-style-type: none"> ■ Gauge and absolute pressure measurement ■ High output signal ■ High overpressure safety
Signal:	mV/V
Data sheet:	PE 81.62

TTF-1



Metal thin-film-based sensor

Non-linearity (% of span):	≤ 0.1 ... 0.5
Measuring range:	0 ... 10 to 0 ... 1,000 bar
Special feature:	<ul style="list-style-type: none"> ■ Excellent resistance to media ■ Very good pressure spike and burst pressure safety
Signal:	mV/V
Data sheet:	PE 81.16

In addition to modules that provide the pure sensor signal and therefore require signal adjustment, WIKA can also provide modules that deliver an already adjusted, standardised signal.

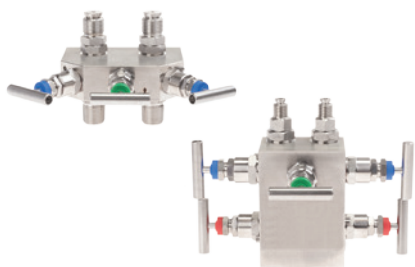
TI-1



Sensor module with signal processing

Accuracy (% of span):	≤ 0.25
Measuring range:	0 ... 0.4 to 0 ... 1,000 bar
Special feature:	<ul style="list-style-type: none"> ■ Processed signal ■ High variance in pressure connections
Signal:	Analogue and digital
Data sheet:	PE 81.57

Accessories



IV50, IV51

Valve manifolds for differential pressure measuring instruments



910.10, 910.11, IV10

Stopcocks and shut-off valves



Mating connector



910.14, 910.17

Adapters and sealings



Repeater power supplies and temperature controllers



Cooling elements

Calibration instruments



CPG1500

Precision digital pressure gauge

Measuring range: -1 ... 10,000 bar
 Accuracy (% of span): down to 0.05 FS
 Special feature:

- Integrated data logger
- WIKA-Cal compatible
- Data transfer via WIKA-Wireless
- Password protection possible
- Robust case IP65

 Data sheet: CT 10.51



CPH6300

Hand-held pressure indicator

Measuring range: 0 ... 0.025 to 0 ... 1,000 bar
 Accuracy: 0.2 %, 0.1 % (optional)
 Special feature:

- Robust and waterproof case with IP65, IP67
- Integrated data logger
- Differential pressure measurement (optional)

 Data sheet: CT 12.01



CPH7000

Portable process calibrator

Measuring range: -1 ... 25 bar (-1 ... 1,000 bar with CPT7000)
 Accuracy: 0.025 % FS
 Special feature:

- Integrated pressure generation
- Measurement of pressure, temperature, current, voltage, ambient conditions
- Supply of pressure, current and voltage
- Calibration function/data logger/switch test

 Data sheet: CT 15.51



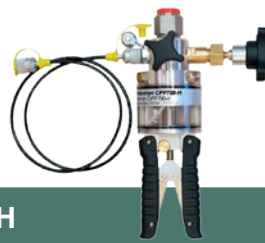
CPP30

Pneumatic hand test pump

Measuring range: -950 mbar ... +35 bar
 Medium: Ambient air
 Special feature:

- Pressure and vacuum generation switchable
- Compact dimensions

 Data sheet: CT 91.06



CPP700-H

Hydraulic hand test pump

Measuring range: 0 ... 700 or 0 ... 1,000 bar
 Medium: Oil or water
 Special feature:

- Integrated medium reservoir
- Ergonomic handling

 Data sheet: CT 91.07



CPG-KITH, CPG-KITP

Hydraulic or pneumatic service kit

- Simple testing and adjustment of pressure measuring instruments
- Kit consists of a CPG1500 reference instrument and a CPP-700H hand pump (hydraulic Pmax. 700 bar) or CPP-30 (pneumatic Pmax. 30 bar)

Calibration services

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.

- ISO 9001 certified
- DKD/DAkkS accredited (in accordance with DIN EN ISO/IEC 17025)
- Co-operation 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
- using high-accuracy reference standards (pressure balances) and working standards (precise electrical pressure measuring instruments)
- with an accuracy of 0.003 % ... 0.01 % of reading
- in accordance with the directives DIN EN 837, DAkkS-DKD-R 6-1, EURAMET cg-3 or EURAMET cg-17

Temperature



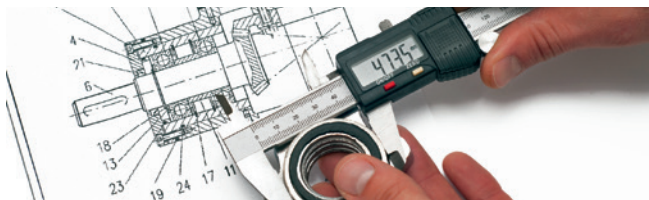
- -196 °C ... +1,200 °C
- in calibration baths and tube furnaces using appropriate reference thermometers
- with an accuracy of 2 mK ... 1.5 K or with various fixed-point cells (e.g. water, gallium, zinc, tin and aluminium)
- in accordance with the appropriate DKD/DAkkS and EURAMET directives

Current, voltage, 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 within 10 working days
- Replacement of the measuring device if required
- Calibration of special-purpose gauges according to customer drawings
- Calibrateable measuring devices
 - Caliper 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



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 (measurand pressure).

- 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
- Factory calibration for temperature from -55 ... +1,100 °C



WIKА worldwide

Europe

Austria
WIKА Messgeratevertrieb
Ursula Wiegand GmbH & Co. KG
Perfektastr. 73
1230 Vienna
Tel. +43 1 8691631
Fax: +43 1 8691634
info@wika.at
www.wika.at

Belarus
WIKА Belrus
Ul. Zaharova 50B, Office 3H
220088 Minsk
Tel. +375 17 2244164
Fax: +375 17 2635711
info@wika.by
www.wika.by

Benelux
WIKА Benelux
Industrial estate De Berk
Newtonweg 12
6101 WX Echt
Tel. +31 475 535500
Fax: +31 475 535446
info@wika.nl
www.wika.nl

Bulgaria
WIKА Bulgaria EOOD
Akad.Ivan Geshov Blvd. 2E
Business Center Serdika, building 3
Office 3/104
1330 Sofia
Tel. +359 2 82138-10
Fax: +359 2 82138-13
info@wika.bg
www.wika.bg

Croatia
WIKА Croatia d.o.o.
Hrastovicka 19
10250 Zagreb-Lucko
Tel. +385 1 6531-034
Fax: +385 1 6531-357
info@wika.hr
www.wika.hr

Denmark
WIKА Denmark A/S
Klintehoj Vaenge 6
3460 Birkerod
Tel. +45 4581 9600
Fax: +45 4581 9622
info@wika.as
www.wika.as

Finland
WIKА Finland Oy
Melkonkatu 24
00210 Helsinki
Tel. +358 9 682492-0
Fax: +358 9 682492-70
info@wika.fi
www.wika.fi

France
WIKА Instruments s.a.r.l.
Immeuble Le Trident
38 avenue du Gros Chene
95220 Herblay
Tel. +33 1 787049-46
Fax: +33 1 787049-59
info@wika.fr
www.wika.fr

Germany
WIKА Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Str. 30
63911 Klingenberg
Tel. +49 9372 132-0
Fax: +49 9372 132-406
info@wika.de
www.wika.de

Italy
WIKА Italia S.r.l. & C. S.a.s.
Via G. Marconi 8
20020 Arese (Milano)
Tel. +39 02 93861-1
Fax: +39 02 93861-74
info@wika.it
www.wika.it

WIKА Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Strae 30 · 63911 Klingenberg · Germany
Tel. +49 9372 132-0 · Fax +49 9372 132-406
info@wika.de · www.wika.de

North America

Canada
WIKА Instruments Ltd.
Head Office
3103 Parsons Road
Edmonton, Alberta, T6N 1C8
Tel. +1 780 4637035
Fax: +1 780 4620017
info@wika.ca
www.wika.ca

USA
WIKА Instrument, LP
1000 Wiegand Boulevard
Lawrenceville, GA 30043
Tel. +1 770 5138200
Fax: +1 770 3385118
info@wika.com
www.wika.com

Gayesco-WIKА USA, LP
229 Beltway Green Boulevard
Pasadena, TX 77503
Tel. +1 713 47500-22
Fax: +1 713 47500-11
info@wikahouston.com
www.wika.us

Mensor Corporation
201 Barnes Drive
San Marcos, TX 78666
Tel. +1 512 396-4200
Fax: +1 512 396-1820
sales@mensor.com
www.mensor.com

Latin America

Argentina
WIKА Argentina S.A.
Gral. Lavalle 3568
(B1603AUH) Villa Martelli
Buenos Aires
Tel. +54 11 47301800
Fax: +54 11 47610050
info@wika.com.ar
www.wika.com.ar

Brazil
WIKА do Brasil Ind. e Com. Ltda.
Av. Ursula Wiegand, 03
18560-000 Ipero - SP
Tel. +55 15 3459-9700
Fax: +55 15 3266-1196
vendas@wika.com.br
www.wika.com.br

Chile
WIKА Chile S.p.A.
Los Leones 2209
Providencia Santiago
Tel. +56 2 2209-2195
info@wika.cl
www.wika.cl

Colombia
Instrumentos WIKА Colombia S.A.S.
Avenida Carrera 63 # 98 - 25
Bogota – Colombia
Tel. +57 1 624 0564
info@wika.co
www.wika.co

Mexico
Instrumentos WIKА Mexico
S.A. de C.V.
Calzada San Isidro No. 97 P1-1
Col. San Francisco Tepecala Deleg.
Azcapotzalco
Ciudad de Mexico CP. 02730
Tel. +52 55 50205300
Fax: +52 55 50205300
ventas@wika.com
www.wika.mx

Asia

China
WIKА Instrumentation Suzhou Co., Ltd.
81, Ta Yuan Road, SND
Suzhou 215011
Tel. +86 512 6878 8000
Fax: +86 512 6809 2321
info@wika.cn
www.wika.com.cn

India
WIKА Instruments India Pvt. Ltd.
Village Kesnand, Wagholi
Pune - 412 207
Tel. +91 20 66293-200
Fax: +91 20 66293-325
sales@wika.co.in
www.wika.co.in

Iran
WIKА Instrumentation Pars Kish
(KFZ) Ltd.
Apt. 307, 3rd Floor
8-12 Vanak St., Vanak Sq., Tehran
Tel. +98 21 88206-596
Fax: +98 21 88206-623
info@wika.ir
www.wika.ir

Japan
WIKА Japan K. K.
MG Shibaura Bldg. 6F
1-8-4, Shibaura, Minato-ku
Tokyo 105-0023
Tel. +81 3 5439-6673
Fax: +81 3 5439-6674
info@wika.co.jp
www.wika.co.jp

Kazakhstan
TOO WIKА Kazakhstan
Microdistrict 1, 50/2
050036 Almaty
Tel. +7 727 225 9444
Fax: +7 727 225 9777
info@wika.kz
www.wika.kz

Korea
WIKА Korea Ltd.
39 Gajangsaneopseo-ro Osan-si
Gyeonggi-do 447-210
Tel. +82 2 86905-05
Fax: +82 2 86905-25
info@wika.co.kr
www.wika.co.kr

Malaysia
WIKА Instrumentation (M) Sdn. Bhd.
No. 23, Jalan Jurukur U1/19
Hicom Glenmarie Industrial Park
40150 Shah Alam, Selangor
Tel. +60 3 5590 6666
info@wika.my
www.wika.my

Philippines
WIKА Instruments Philippines Inc.
Ground Floor, Suite A
Rose Industries Building
#11 Pioneer St., Pasig City
Philippines 1600
Tel. +63 2 234-1270
Fax: +63 2 654-9662
info@wika.ph
www.wika.ph

Singapore
WIKА Instrumentation Pte. Ltd.
13 Kian Teck Crescent
628878 Singapore
Tel. +65 6844 5506
Fax: +65 6844 5507
info@wika.sg
www.wika.sg

Taiwan
WIKА Instrumentation Taiwan Ltd.
Min-Tsu Road, Pinjen
32451 Taoyuan
Tel. +886 3 420 6052
Fax: +886 3 490 0080
info@wika.tw
www.wika.tw

Thailand
WIKА Instrumentation Corporation
(Thailand) Co., Ltd.
850/7 Ladkrabang Road, Ladkrabang
Bangkok 10520
Tel. +66 2 32668-73
Fax: +66 2 32668-74
info@wika.co.th
www.wika.co.th

Africa / Middle East

Egypt
WIKА Near East Ltd.
Villa No. 6, Mohamed Fahmy
Elmohdar St. - of Eltayaran St.
1st District - Nasr City - Cairo
Tel. +20 2 240 13130
Fax: +20 2 240 13113
info@wika.com.eg
www.wika.com.eg

Namibia
WIKА Instruments Namibia Pty Ltd.
P.O. Box 31263
Pionierspark
Windhoek
Tel. +26 4 61238811
Fax: +26 4 61233403
info@wika.com.na
www.wika.com.na

South Africa
WIKА Instruments Pty. Ltd.
Chilvers Street, Denver
Johannesburg, 2094
Tel. +27 11 62100-00
Fax: +27 11 62100-59
sales@wika.co.za
www.wika.co.za

United Arab Emirates
WIKА Middle East FZE
Warehouse No. RB08JB02
P.O. Box 17492
Jebel Ali, Dubai
Tel. +971 4 883-9090
Fax: +971 4 883-9198
info@wika.ae
www.wika.ae

Australia

Australia
WIKА Australia Pty. Ltd.
Unit K, 10-16 South Street
Rydalmere, NSW 2116
Tel. +61 2 88455222
Fax: +61 2 96844767
sales@wika.com.au
www.wika.com.au

New Zealand
WIKА Instruments Limited
Unit 7 / 49 Sainsbury Road
St Lukes - Auckland 1025
Tel. +64 9 8479020
Fax: +64 9 8465964
info@wika.co.nz
www.wika.co.nz



Part of your business