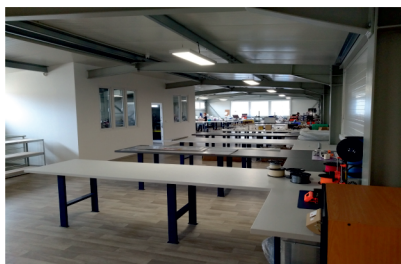




CATALOGUE OF MEASUREMENT AND REGULATION TECHNOLOGY

www.thermis.cz





What you can see is a measuring device - thermometer, thermostat, pressure gauge, flowmeter or an heating element from which you expect high accuracy, constant and guaranteed operation.

A gauge, which you perceive as a comprehensive feature without the need of understanding the principles of operation, without the need of knowledge of technical parameters and other details.

For you it is a comprehensive feature in which we have invested countless hours of development, continuous innovation, modifications tailored to particular applications and harmonization on customers request.

It is up to us to offer a valuable product to you, which will be fully suitable and functional for your needs.

It is up to us to ensure full support during the product selection process and provide with consulting services to reach the most suitable solution.

It is up to us to ensure sufficient amount of products on stock, sufficient amount of spare part to assure fast and trouble-free production of atypical products and special designs.

It is up to us to provide with complete sales and after sales services including all additional attributes.

We do everything to see, that you can only enjoy the function of our product - whether it's a thermometer, pressure gauge, heating element or a flowmeter. All without any concerns.

We would like to present our new catalog, where we introduce wide range of new products and novelties. Should you require detailed technical specification of the products, you may ask for complete technical pages, which are available on our webside - www.thermis.cz.

- A. TEMPERATURE MEASUREMENT
- B. PRESSURE MEASUREMENT
- C. TEMPERATURE REGULATION
- D. PRESSURE REGULATION
- E. PRESSURE MEAS. ACCESORIES
- F. FLOW MEASUREMENT
- G. LEVEL SENSORS
- H. LIQUID HEATING

A.

TEMPERATURE MEASUREMENT

- A.1.1. Thermometer ETR
- A.1.2. Bimetallic thermometer TR and TÚ
- A.1.3. Bimetallic thermometer DTR and DtÚ
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Basic measurement unit of temperature is 1K (kelvin). Degree Celsius $1^{\circ}\text{C} = 1\text{K}$; Degree Fahrenheit $1^{\circ}\text{F} = 5/9\text{K}$

$$\text{Kelvin scale} \quad K = \frac{5(F+459,67)}{9}$$

$$F = \frac{9K}{5} - 459,67$$

$$\text{Celsius scale: } C = \frac{5(F-32)}{9}$$

$$F = \frac{9C}{5} + 32$$

Note: Absolute zero value can never be reached. It can only be approximated.

-273,15°C	0°C	100°C
0 K	273,15K	373,15K
-459,67°F	32°F	212°F

Melting point is a temperature at which solid material passes from solid to a liquid state.

Freezing point is a temperature at which liquid changes its state into a solid.

Significant values and melting points of some elements

Absolute zero	-273 °C
Mercury	-38,83 °C
Water	0 °C
Tin	232 °C
Lead	237 °C
Aluminium	658 °C
Copper	1083 °C
Steel	1350-1400 °C
Iron	1535 °C
Titanium	1668 °C
Chrome	1907 °C
Carbon	3642 °C

Basic principles of temperature measurement

Mechanical temperature measurement

Bimetallic measurement - works on principle of expansion of two different metals, which deforms a spring (spiral). By means of deformed spring made of these two metals and a conversion mechanism, the measured value is displayed on the dial of the gauge.

Capillary measurement- the measuring mechanism consists of two parts: a cartridge and a capillary with a marked scale. When heating the cartridge (stem) the indicating medium expands, which results in level change inside the capillary and by means of a marked scale it is possible to read the measured value.

Pressure measurement - is made of a closed pressure loop which includes a Bourdon pen and a stem or capillary with sensor. This closed system is pressurized with inert gas. Heating of the stem or the sensor results in increased pressure inside the system and deformation of Bourdon pen. By means of a transfer mechanism similar to the ones used in pressure gauges, it is possible to read the measured value on the gauge.

HEATING

THERMOMETER ETR



diameter 63, 80, 100, 160mm
bottom, back connection
including CuZn well G1/2

DESCRIPTION:

- head: galvanized sheet
 - copper stem
- acrylate inspection hole
- brass thermowell with thread G1/2 is part of the thermometer
- back connection, on individual request
bottom connection

APPLICATION:

- heating and sanitary technology
- heating management, power engineering
- other operations without high technical requirements

TECHNICAL PARAMETERS:

- case diameter: 63, 80, 100, 160mm
- temperature ranges: 0-120°C (-50+50, -30+30, -20+40, -20+60, -15+45, -10+70, -10+60, 0-40, 0-50, 0-60, 0-80, 0-100, 0-160, 0-200, 0-250, 0-300, 0-400, 0-500°C
- stem length: 50, 65, 105, 150, 200mm
- accuracy: kl.2

SPECIFICATION:

Heating thermometers are universally applicable devices for local temperature measurement, mainly used in heating engineering and light industry. Thermometers may be used for temperature measurement in any position.

Thermometers head may be placed into simple environment according to ČSN 33 0300 within range -30+110°C. Permitted tolerance for all ranges is in accordance with kl.2 from all range. Measured temperature must not exceed max. scale range.

Thermometers are produced with various stem lengths as mentioned in the technical documentation. Brass thermowell PN25 (for thermowells with lengths up to 105 mm) and PN6 (for longer thermowells) with G1/2 thread comes as part of the thermometer, see technical documentation.

BIMETALLIC THERMOMETER TR and TÚ

diameter 60, 100, 120mm
bottom, back connection
all-stainless steel design



DESCRIPTION:

- head made of stainless steel 17 240/1.4301
- stem made of stainless steel 17 248/1.4541
 - glass inspection hole
- head surrounding temperature -30+110°C
 - thermometer is supplied without well
- back connection TR (straight thermometer)
- bottom connection TÚ (angular thermometer)

APPLICATION:

- heating and sanitary technologies
- heating management, power engineering
 - food industry
 - chemical engineering
 - hydraulics

TECHNICAL PARAMETERS:

- case diameter: 60, 100, 120mm
- temperature ranges: -30+50, 0-120, 0-160, 0-200, 0-350, 0-450°C
- stem length: 45, 60, 100, 160, 250, 400, 630, 1000, 1500mm
- stem diameter: 8mm up to length 400mm
10mm up to length 630mm
 - accuracy class: 2%

SPECIFICATION:

Technical thermometers with bimetallic measure system are universally applicable devices for local temperature measurement in most industries.

Thermometers are designed for measurement in any position and for less demanding conditions.

Thermometers are produced with various stem lengths, as mentioned in the technical documentation.

Should the stem be protected from high pressures or aggressive mediums, it is necessary to use a thermowell. Standard thermowells available- steel PN6, stainless steel PN25 and PN40, special wells for high parameters according to DIN or ON standards.

**BIMETALLIC
THERMOMETER
DTR a DTÚ****diameter 106mm
bottom, back connection****DESCRIPTION:**

- resistant plastic head
- stainless steel stem 17 248/1.4541
- glass inspection hole
- the thermometer is supplied without stem
- back connection DTR (straight thermometer)
- bottom connection DTÚ (angular thermometer)

APPLICATION:

- heating and sanitary industry
- heating management, power engineering
 - food industry
 - chemical industry
 - hydraulic systems

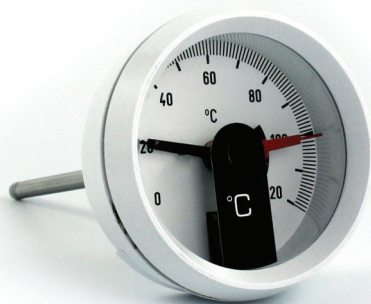
TECHNICAL PARAMETERS:

- case diameter: 106mm
- temperature range: -30+50, 0-120, 0-200, 0-350, 0-450°C
- stem length: 60, 100, 160, 250, 400, 630, 1000, 1500mm
- stem diameter: 8mm up to length 400mm
12mm up to length 630mm
- accuracy class: 2%

SPECIFICATION:

Bimetallic technical thermometers are due to its design and accuracy meant to be used for normal measuring under operational conditions. They are used for direct temperature measuring in almost all branches of industry. They may be used in cold rooms, boiler rooms, bakeries, drying rooms, green houses, smokehouses and in many other places using central heating systems. In specific cases the thermometers may be designed for extreme climate conditions.

A well must be used if it is necessary to protect the stem from high pressures or aggressive agents. Standard wells are available - steel PN6, stainless steel PN25 and PN40, then special wells for high parameters according to DIN or ON standards.



CONTACT BIMETALLIC THERMOMETER DKR

diameter 106mm
contacts Min, Max

DESCRIPTION:

- resistant plastic head
- stainless steel stem 17 248/1.4541
 - glass inspection hole
 - adjustable contacts Min or Max
- thermometer is supplied without well
 - bottom connection

APPLICATION:

- heating and sanitary industry
heating management, power engineering
 - food industry
 - chemical industry
 - hydraulic systems

TECHNICAL PARAMETERS:

- case diameter: 106mm
- temperature range: -30+50, 0-120, 0-200, 0-350°C
- stem length: 100, 160, 250, 400mm
 - stem diameter: 8mm
 - accuracy class: 2%
- contact load: 250V/50mA

SPECIFICATION:

DKR thermometer is equipped with switch-on contacts and due to its application it is manufactured as a maximum or minimum type. Max thermometer ensures, that the contacts are getting closer with increasing temperature and when the set temperature is reached, the circuit is connected. Minimum thermometers ensure, that the contacts are getting closer with decreasing temperature and when the set temperature is reached, the circuit is connected.

A well must be used if it is necessary to protect the stem from high pressures or aggressive agents. Standard wells are available - steel PN6, stainless steel PN25 and PN40, then special wells for high parameters according to DIN or ON standards.

CAPILLARY THERMOMETER 2440

diameter 63mm
back connection
capillary up to 7m



DESCRIPTION:

- stainless steel head 17 240/1.4301
- stainless steel head and sensor 17 248/1.4541
 - glass inspection hole
 - panel mounting onto yoke or front flange

APPLICATION:

- heating and sanitary industry
- heating management, power engineering
 - hydraulics

TECHNICAL PARAMETERS:

- case diameter: 63mm
- temperature ranges: -40+40, -20+60, 0-80, 0-120, 0-150, 0-200, 0-250, 0-300, 0-400, 0-500, 0-600°C
 - capillary length: 1; 1,5; 2; 3; 7m
 - accuracy class: 2,5%

SPECIFICATION:

Capillary thermometer 2440 is used for remote measuring in all industrial applications.

stainless steel cased head of the thermometer may be placed in simple environment according to ČSN 33 0300 in range -30+110 °C.

The allowed tolerance for all ranges is $\pm 2,5\%$ within all scale. In standard version the stainless steel capillary is supplied in lengths up to 7m, it is possible to order capillary in plastic braiding. Stainless steel sensor with 8mm diameter can be placed freely or in a thermometer well.

A well must be used if it is necessary to protect the sensor from high pressures or aggressive agents. Standard wells are available - steel PN6, stainless steel PN25 and PN40, then special wells for high parameters according to DIN or ON standards.



INDUSTRIAL THERMOMETER TPS, TPZ, TPO

diameter 63, 80, 100, 160mm
bottom, back,
turning connection

DESCRIPTION:

- bayonet or encapsulated case
- stainless steel stem 17 248/1.4541
 - glass inspection hole
- threadless or threaded connection
- bottom connection TPS, back connection TPZ, turning connection TPO

APPLICATION:

- heating industry
- petrochemically industry
 - food industry
- cooling industry
- pharmaceutical industry
 - hydraulics

TECHNICAL PARAMETERS:

- diameters: 63, 80, 100, 160mm
- temperature ranges: -40+40, -40+60, -30+50, -20+50, -20+40, -20+60, 0-60, 0-80, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300, 0-350, 0-400, 0-500°C
- stem lengths: 50, 60, 100, 160, 200, 250, 400mm
- connection threads: G1/4, G1/2, G3/4, G1, M18x1,5, M20x1,5, M24x1,5, M24x1,5, M27x2, 1/2NPT, 3/4NPT
 - accuracy: class 1
 - protection: IP 65
- choice if silicon or glycerine filling

SPECIFICATION:

Industrial thermometers TPS, TPZ, TPO are the highest series from all bimetallic thermometers, which can be used in very demanding conditions. The stem may be exposed to pressures up to 25bar, for higher pressures it is required to use a well.

Industrial thermometers are supplied in wide range of designs with choice of connectors. Case in bayonet or encapsulated design, other optional accessories: silicone or glycerine dampers, max. pressure needle, lazy needle, etc.

A well must be used if it is necessary to protect the stem from high pressures or aggressive agents. Standard wells are available - steel PN6, stainless steel PN25 and PN40, then special wells for high parameters according to DIN or ON standards.



PRESSURE STEM TTS THERMOMETER

diameter 63, 80, 100, 160mm
bottom, back
bended connection

DESCRIPTION:

- bayonet stainless steel case 17 240/1.4301
- stainless steel stem 17 248/1.4541; 17 348/1.4571
 - glass inspection hole, safety glass
 - individual stem lengths, connections and other design features
- back, bottom and bended connection

APPLICATION:

- food industry
 - hydraulics
- petrochemical industry
 - cooling industry
- light and heavy industry
 - pharmaceutical industry

TECHNICAL PEARAMETERS:

- case diameters: 63, 80, 100, 160mm
- temperature ranges: -40+40, -40+60, -30+60, -20+40, -20+60, 0-60, 0-80, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300, 0-350, 0-400, 0-500, 0-600°C
- stem lengths: 125, 160, 200, 250, 315, 400, 500, 1000mm, individual
- stem diameters: 6, 8, 10mm, individual
 - accuracy: 1%
- protection: IP 65

SPECIFICATION:

Pressure thermometers use for measuring a closed pressure circuit with Bourdon tube. Compared to bimetallic thermometers, this system is remarkable for its higher accuracy, stability and resistance. They may be used in all kinds of operations due to the wide range of types and versions. Its accuracy is reached even in very demanding conditions.

Pressure thermometers come in wide range of designs. You may choose from various connections: threadless, with union nut, fixed or turning outer thread. Case is made of steel or stainless steel. Choose from other accessories: silicone or glycerine damping, magnetic or inductive contacts, indication needle, lazy needle, etc. Specify the pressure thermometer features in the order by modification of the order code, see technical page.

CAPILLARY PRESSURE TTK THERMOMETER

diameter 63, 80, 100, 160mm
bottom, back connection
cantilever or flange mounting



DESCRIPTION:

- bayonet case 17 240/1.4301
- stainless steel capillary 17 248/1.4541, PVC braiding or spiral protection
 - glass inspection hole
 - individual capillary lengths, sensor and connection designs, other variations
 - back, bottom connection

APPLICATION:

- food industry
- petrochemical industry
 - cooling industry
- semi-heavy and heavy industry
 - pharmaceutical industry
 - hydraulics

TECHNICAL PARAMETERS:

- diameters: 63, 80, 100, 160mm
- temperature ranges: -40+40, -40+60, -30+50, -20+50, -20+40, -20+60, 0-60, 0-80, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300, 0-350, 0-400, 0-500, 0-600°C
- capillary lengths: 1; 1,6; 2,5; 4; 6; 10; 12; 16; 25m
- sensor lengths: 125, 160, 200, 250, 315, 400mm, individual
 - sensor diameter: 6, 8, 10mm, individual
 - accuracy: 1%
 - protection: IP 65

SPECIFICATION:

Capillary pressure thermometers use for measuring a closed pressure circuit with Bourdon tube. Compared to the bimetallic thermometers, this system is remarkable for its higher accuracy, stability and resistance. They may be used in all kinds of operations due to the wide range of types and versions. Capillary pressure thermometers come in wide range of designs. You may choose from various connection and case designs, different stem lengths from 1 to 25 m, sensor design, etc. Choose from other accessories: silicone or glycerine damping, magnetic or inductive contacts, indication needle, lazy needle, etc. Specify the capillary pressure thermometer features in the order by modification of the order code, see technical page.



BOILER and TECHNICAL THERMOMETER

scale 160, 240mm
straight, angular

DESCRIPTION:

- boiler design KMU, KMP, KVU, KVP, technical design TMU, TMP, TVU, TVP
 - duralumin or plastic case
- well protection – duralumin, brass, stainless steel
 - angular (90°) or straight design
 - ethanol or mercury filling

APPLICATION:

- heating and sanitary technology
 - petrochemical industry
 - cooling industry
 - light industry
- pharmaceutical industry

TECHNICAL PARAMETERS:

- case: 160, 240mm
- temperature ranges: 0-130°C (boiler); -60+30, -35+50, 0-50, 0-100, 0-160, 0-200, 0-300, 0-400°C (technical)
 - stem length: 50, 80mm (boiler); 60, 100, 160, 250, 400, 630, 1000mm (technical)
- sensor length: 125, 160, 200, 250, 315, 400mm
 - sensor diameter: 6, 8, 10mm
- threads: M20x1,5, G1/2, (M24x2, M27x2, G3/4)

SPECIFICATION:

Boiler and technical thermometers display measured temperature using capillary system filled with organic fluid (coloured spirit or mercury). Designed into wide range of industrial applications without high demands on mechanical resistance. Technical and boiler thermometers are supplied in wide scale of temperature ranges and stem lengths, in design with small (160mm) or big (240mm) display panel and choice of plastic or duralumin case. Protection well of the thermometers sensor does not feature pressure resistance, hence it is not designed for closure of pressure system and serves only as a protective element of the fragile thermometers stem or sensor. In case of use in pressure system it is required to insert the thermometer with its protection well (or socket) into thermometers well, which will withstand pressures of the particular application.

MACHINAL THERMOMETER TSR,TSU

scale 110, 150, 200mm
straight, angular



DESCRIPTION:

- straight design TSR2, TSR1, TSR7
- angular design TSU4, TSU3, TSU9
- duralumin case with brass anodized finish
- ethanol filling

APPLICATION:

- heating and sanitary technology
 - petrochemical industry
 - cooling industry
 - light industry
- energetic industry

TECHNICAL PARAMETERS:

- case: 110, 150, 200mm
- temperature ranges: -60+40, -30+50, 0-100, 0-120, 0-160, 0-200
- stem length: 30, 40, 63, 100, 160, 250, 400
 - stem diameter: D10mm, d8mm
- accuracy class: according to DIN 16195
- process connection: M20x1,5, G1/2 B

SPECIFICATION:

Machinal thermometers display measured temperature using capillary system filled with organic fluid (coloured spirit). Designed into a wide range of industrial applications even into operation with higher demands on mechanical resistance. Machinal thermometers are supplied in wide scale of temperature ranges and stem lengths, in design with display panel 110, 150 and 200mm. Stem of thermometer has standard pressure resistance PN6. For higher pressures is necessary to insert thermometer into protection well, which has corresponding parameters. Thermometers are supplied in straight or angular design. Stem length according to design from 30-400mm. Thermometers can be supplied even with stainless steel stem for higher chemical and pressure resistance PN25.

ROUND CAPILLARY THERMOMETER



type 2037 Ø37mm, type 2040
Ø40mm, type 2052 Ø52mm
capillary 500-3000mm

DESCRIPTION:

- coloured plastic case
- acryl inspection hole
- stainless steel/copper capillary
 - copper/stainless steel sensor
 - panel mounting design
- spring latch for easy mounting

APPLICATION:

- heating and sanitary technology
- heating management, power engineering
 - light industry

TECHNICAL PARAMETERS:

- case: 37, 40, 52mm
- temperature range: -40+40, 0-120, 50-350°C
- capillary length: 500, 1000, 1500, 2000, 3000mm
 - sensor size: 6,5x30, 8,5x30, 3x80mm

SPECIFICATION:

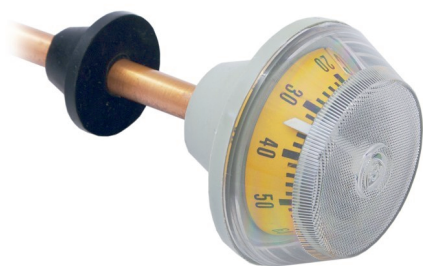
Capillary thermometers are designed for all applications, where the place of measuring is not identical with the place of reading. They may be used in all kinds of operations due to the wide range of types and versions.

Frequently used for boilers, heating and cooling systems.

Sensor of capillary thermometers is supplied in copper with diameters 6,5 and 8,5mm or made of stainless steel with diameter 3 mm. Maximum temperature of case surroundings must not exceed 70°C.

PRESERVING THERMOMETER DTD2

universal design
20-110°C



DESCRIPTION:

- acryl/plastic head
 - copper stem
- acryl inspection hole
- bottom connection

APPLICATION:

- food industry
(food preserving)

TECHNICAL PARAMETERS:

- diameter: 55mm
- temperature range: 20-110°C
 - scale division: by 2°C
 - stem length: 255mm
- accuracy: 2,5% of the range

SPECIFICATION:

Preserving thermometers DTD2 are used for temperature determination during fruit, vegetable, mushroom and other food preservation within the given temperature range.

Thermometers may be used for measuring in all possible positions. The thermometer stem is watertight cased, so that it can be used without a well. Thermometer head can be placed in all environments of temperatures between 0 and 80°C. Bottom part of the head, which is in direct contact with the lid of the preserving pot can withstand temperatures up to 95°C. Thermometer head can not come into contact with naked flame, neither can it be immersed into water. Measured temperature can not exceed the scale range. Thermometers must be treated without significant shocks and vibrations. While measuring the stem must be immersed at least 100mm into the measured environment. The stem must not be subject of a mechanical stress.

OTHER THERMOMETERS

DTTR Thermometer DTTR is designed for temperature measurements of metal pipelines and central heating piping. Thermometer provides fast information about temperature in any part of the pipeline without disturbing it by simply putting the thermometer in contact with the pipeline. This system helps keeping the operational and maintenance costs down.



Scale division	Measure range	For \varnothing of pipeline	Accuracy
by 1°C	0-120°C	3/8", 1/2", 3/4", 1"	at 20°C $\pm 5^\circ\text{C}$
		5/4", 6/4", 2"	at 50°C $\pm 3^\circ\text{C}$
			at 80°C $\pm 5^\circ\text{C}$

TRV Technical bimetallic thermometers type TRV are suitable for temperature measurements mainly in agriculture (silage and compost temperature, corn and staw storage, etc.), in food industry (brewery, malhouses). They can also be used for temperature measuring in coal storages, soaking rooms, etc. Wide range of application.



Scale division	Measure range	Accuracy	Stem length
by 1°C	-30+50°C	$\pm 2\%$ of the range	1500mm
by 2°C	0-200°C	$\pm 2\%$ of the range	1500mm

DTST This thermometer is designed for indoor measurements. Easy reading enables for constant information about environments temperature and thus makes it a very convenient gadget to have at home or in the office. Thermometer comes in round design and is placed in a metal stand. All metal parts are surface treated. Thanks to these features it can serve as a good promotion object and can help you create an image of your company. Logos and other marking on the scale can be arranged with the manufacturer. Comes in gold or silver design.



Scale division	Measure range	Accuracy	Outer diameter
by 1°C	-10+50°C	2% of the range	60mm

DTN Wall bimetallic thermometer of round shape is designed mainly for direct wall mounting. Thermometer with a very reliable bimetallic system enables temperature monitoring and control in living rooms, offices and other workplaces, and removes the need of complicated column reading. It enable constant information about environments temperature and thus it brings comfort to home and workplace. Only a brief look on the distinct scale with needle gives you a very clear information from significant distances. Thermometers case is made of plastic and may be ordered in various colours (white, yellow, red, blue, orange). Weight approx. 420g.



Scale division	Measure range	Accuracy	Outer diameter
by 1°C	-10+50°C	$\pm 2\%$ from the range	225mm
by 1°C	-30+50°C	$\pm 2\%$ from the range	225mm

OTHER THERMOMETERS

DTOK Thermometer is designed for outdoor temperature measurements. Easy value reading enables constant information about outdoor temperature and helps you choose suitable clothing. This round-shaped thermometer comes with a fitting leg (for example for window frame attachment). The thermometer may be turned around its axis in order to make the reading even easier. It may also serve as a good promotion object. Company logos and other marking on the scale can be arranged with the manufacturer.



Scale division	Measure system	Accuracy	Outer diam.
by 1°C	-30+50°C	±2% from the range	60mm

T 120 S Bimetallic measure system in shape of Archimedes spiral is placed in a round-shaped head. The red area on the scale mark out the suggested temperature for sauning. Stainless steel materials were used, distinct scale for easy reading and visual aspect. By placing your company logo on this device you can create a nice present or promotion object. Weight approx. 160g.



Scale division	Measure range	Accuracy	Outer diameter
by 1°C	0-120°C	±2% from the range	120mm

T 120 N T 120 N is to be used in households, workplaces, etc. It is designed to be hanged directly on wall. Bimetallic measure system in shape of Archimedes spiral is placed in a round-shaped head. Weight approx. 420g.



Scale division	Measure range	Accuracy	Outer diameter
by 1°C	-10+50°C	±2% from the range	225mm
by 1°C	-30+50°C	±2% from the range	225mm

TR for smoke houses TR thermometer is designed for mounting into smokehouses. Distinct scale print marks the temperature ranges suggested for smoke-curing, and making barbecue. Weight approx. 100g.



Head diameter	Measure range	Stem length	Stem D
100mm	0-260°C	250mm	8mm

MTCC Combined device for pressure and temperature measurements in systems, where the place of measuring is not identical with the place of reading.



Thermometer part		Pressure gauge part	
Scale range	0-120°C	Scale range	0-4bar
Measuring range	20-100°C	Scale division	by 0,1bar
Scale division	by 2 K	Accuracy class	2,5
Accuracy class	4	Connect. sensors	G1/4,M14x1
Sensors size	∅6x29mm		

STANDARD THERMOWELL



length from 50mm to 1505mm

PN 6, 25, 40

DESCRIPTION:

- materials: steel, brass, copper, stainless steel and other metals, other surface finish available
 - attachment thread -inner, outer
 - process connection thread
 - stem attachment using side bolt, union nut or outer thread on the stem

APPLICATION:

- heating and sanitary technology
- heating management, power engineering
 - food industry
 - chemical industry
 - hydraulics

TECHNICAL PARAMETERS:

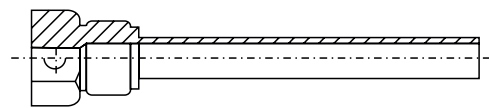
- standard well lengths: 50, 65, 105, 165, 255, 405, 635, 1005, 1505mm, individual
 - diameter of hole: 9; 12mm
- thread: M20x1,5, G1/2, 1/2NPT, individual
 - PN 6 -varnished steel, brass/ copper,
 - PN 25 stainless steel multipart, PN 40 one-piece

SPECIFICATION:

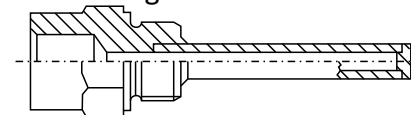
Thermowells are intended to protect stems of all kinds of thermometers, technical, boiler or pressure thermometers mainly in moderate demanding or demanding conditions.

Thermowells are used at operations, where it is essential to seal the pressure system or where the thermometers stem or sensor could be damaged.

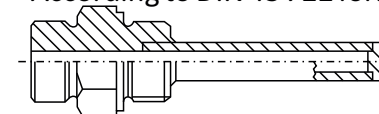
Choice of design must be made with regard to the particular application. STANDARD with attachment bolt



According to DIN 43 722 form 5 and 6

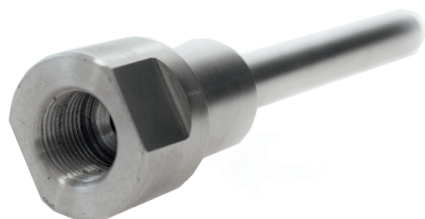


According to DIN 43 722 form 8 and 9



THERMOWELL FOR HIGH PARAMETERS

length from 50mm to 1505mm
PN 25 up to unlimited



DESCRIPTION:

- materials: 11 353, 11523, 15 128, 17 248, 17 348 individual
- attachment thread - inner, outer
 - process connection thread
 - welding conel DIN/ČSN
- flange design according to DIN/ČSN

APPLICATION:

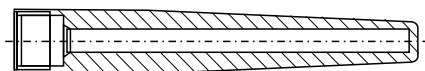
- heating and sanitary technology
- heating management, power engineering
 - food industry
 - chemical industry
 - hydraulics

TECHNICAL PARAMETERS:

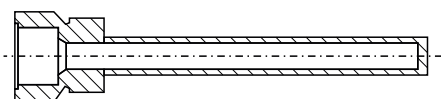
- standard well lengths: 50, 65, 105, 165, 255, 405, 635, 1005, 1505mm, individual
- diameter of hole: 3,5; 5; 7; 9; 12; 14mm
 - thread: M14x1,5, M18x1,5, M20x1,5, M27x2, M33x2, G1/2, G3/4, G1, 1/2NPT, 1NPT, individual

SPECIFICATION:

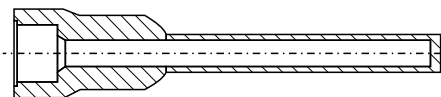
According to DIN 43 722



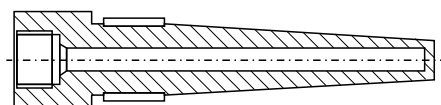
According to ON 027210



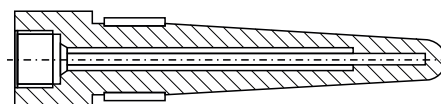
According to ON 027212



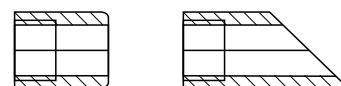
According to ON 027215



According to ON 027217



Weldolet





SENSORS/TRANSDUCERS WITH CURRENT OUTPUT

sensor: Pt100, 500, 1000
Cu50, 100; Ni100, 500, 1000
current output 4-20mA
voltage output

DESCRIPTION:

- case stainless steel, connector DIN 43 650
- stainless steel connection 17 248/1.4541
 - transducer-current/voltage
- sensors in wide range of resistances
- design: stem, room, contact, cable

APPLICATION:

- hydraulics
- power engineering
 - heating industry
- petrochemical industry

TECHNICAL PARAMETERS:

- sensors: resistance types - Pt100, Pt500, Pt1000
Cu50, Cu100, Ni100, Ni500, Ni1000
- transducers: current 0-20mA, 4-20mA /
voltage 0-5V, 0-10V
- stem length: 35, 50, 65, 105, 165, 250mm
or on individual request
- connection thread: G1/4 (G1/2, M12x1,5, M20x1,5)
or on individual request
- protection: up to IP 65

SPECIFICATION:

Electronic sensors/transducers with resistance output are designed for temperature measurement of liquid, gas, loose and solid materials with high accuracy and reliability of measurement. Serves for very fast and accurate temperature measurement even in demanding operations. Sensor itself can be made of Pt, Cu or Ni. They enable immediate transfer of measured temperature in form of analog output, which can be further processed/assessed using suitable device (display/regulatory unit). Thanks to wide range of designs and sensor types they can meet all your requirements. Sensor/transducers are supplied in cable KST, stem with terminal board STSs, contact with terminal board STSp, room PST and outside designs. Sensor/transducers coding is as follows: e.g. stem sensor with resistance output with DIN connector is coded STS, and when equipped with inbuilt transducer for analog output 4-20mA, its code is značí se STS/I.

TEMPERATURE SENSOR THST



DESCRIPTION:

- sensor Pt100, Pt500, Pt1000, Ni1000, KTY, NR
- high accuracy, low power consumption, wide working range of surrounding temperature
- integrated construction, easy to install

APPLICATION:

- chemical industry
- heating industry
- power engineering
- pharmacy

TECHNICAL PARAMETERS:

- heat range: up to 500 °C according to used sensor
- connection thread: G1/2 (G1/4, G3/4, M12x1,5, M20x1,5, M27x2, NPT) or on individual request

SPECIFICATION:

Compact temperature sensor suitable for direct mounting or mounting to thermowell. Temperature sensors according to standard 1/1 DIN B, 1/3 DIN B or 1/6 DIN B.

Sensors are suitable for wide range of applications in industry, food processing, air-conditioning systems, heating etc. (sensors for air temperature are used without thermowells due to quick response receiving).

Integrated sensor changes its inner resistance according to temperature. Main advantage is linear conveyance characteristic in whole range of measured temperatures.

Modular conception is suitable for wide range of applications, it is possible to provide variable connection threads on individual request. Magnesium oxide guarantees high resistance against impacts and vibrations and also improves heat exchange and electrical insulation of sensor.

TEMPERATURE TRANSDUCER TO ATEX ENVIRONMENT THTB4



DESCRIPTION:

- stability and resistance to vibrations
- stainless steel case with high resistance to external conditions and pressures
- various installations, on individual request
- variable methods of process connection

APPLICATION:

- petrochemical industry
 - heating industry
 - power engineering
- compressors, pumps
- gas distribution

TECHNICAL PARAMETERS:

- temperature ranges: -50-0, 0-60, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300°C
 - output signal: 1-5V, 4-20mA
- connection: fixed thread, fixed flange, turning thread, turning flange
- accuracy class: 0,5%FS (standard), 1%FS

SPECIFICATION:

Temperature transducers THTB4 use Pt100 or similar temperature sensors. By means of the inbuilt transducer it converts the measured value to an analog output, for details see technical parameters.

Cylindric case of the THTB4 transducer features high strength of the outer coating and resistance (also suitable into ATEX environment). THTB4 construction, where the sensor is sealed by epoxy resin, features very good resistance to shocks and vibrations, resists temperature overloading and has a heavy-duty robust design. THTB4 is widely used for measurements and regulations in many industrial applications.



ROBUST TEMPERATURE TRANSDUCER WITH DISPLAY INTO ATEX ENVIRONMENT THTI8

DESCRIPTION:

- use of Pt100 or other temperature resistance as a pick-up element
 - high accuracy, low power consumption, wide working range of environment temperature
 - integrated construction, easy installation
- high accuracy of transmitted signal up to 1000m

APPLICATION:

- petrochemical industry
 - heating industry
- power engineering
 - food industry
 - healthcare

TECHNICAL PARAMETERS:

- temperature ranges: -200-0, -100-0, 0-60, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300, 0-400, 0-500, 0-750, 0-1200, 0-1300, 0-1600, 0-1800 °C
 - output signal: 4-20mA
- connection: M 27x2 (outer), G1/2, M20x1,5
 - accuracy class: thermistor - 0,25%FS; 0,5%FS(standard); thermocouple - 0,75%FS

SPECIFICATION:

Temperature transducers THTI8 use temperature sensors Pt100. By means of the inbuilt transducer it converts the measured value to an analog output, for details see technical parameters.

Local temperature indication on 3 ½ LCD display optional. THTI8 case is made of aluminium, parts that come in contact with the medium are made of stainless steel 17 248/1.4541. THTI8 is suitable for temperature measurements in most industrial applications. Also suitable for ATEX environment.



BATTERY POWERED DIGITAL THERMOMETERS 7035,7036,7037,7038

diameter 100mm
stem and capillary design

DESCRIPTION:

- case: stainless steel 17 240/1.4301
- stem: stainless steel 17 348/1.4571
 - glass inspection hole, LCD display
 - smooth or threaded connection
- bottom or back connection, stem or capillary design
 - value loading every 6 seconds

APPLICATION:

- power-engineering
- heating industry
- food industry
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 100mm
- temperature ranges: -100+100, -50+50, 0-60, 0-80, 0-100, 0-120, 0-160, 0-200, 0-300, 0-400, 0-500°C
 - connection threads: G1/2 (G1/4, M18x1,5, M20x1,5, M24x1,5)
- stem length: 63, 100, 150, 200mm
 - accuracy: kl.0,3%
 - protection: IP 65

SPECIFICATION:

Digital all-stainless steel thermometers are designed for local/remote temperature measurement of liquids, vapour, air and other mediums within temperature range -50+500°C (Atex design 400°C) with accuracy 0,3%. Used in industries, where it is necessary to read the measured value directly in the place of measurement. Case material stainless steel 17 240/1.4301, stem and thread made of stainless steel 17 348/1.4571, 4-digit 18mm high LCD display. Bottom and back connection, standard version is powered by battery. Normalized sensor output 4-20mA. Conductors from the measuring insertion are routed to the plastic head with transducer, display unit and output connector. Adapter is equipped with screwing for sensors attachment to the relevant armature. The transducer works as a passive transmitter in the current loop.

DIGITAL THERMOMETER

for mobile use



DESCRIPTION:

- light, easy, mobile
- advanced settings optional
- resistant case

APPLICATION:

- power engineering
- mechanical engineering
- gas distribution
- food industry

THERMOMETER GMH 1150 BASIC



- basic thermometer for sensors with thermocouple type K

THERMOMETER GMH 32.. WITH ADVANCED SETTINGS



- thermometer for one or two sensors with thermocouples K, J, N, S, T

SPECIFICATION:

Hand-held digital thermometers are designed for mobile temperature measurement of liquids, vapour, air and other mediums within temperature range $-199+1750^{\circ}\text{C}$.

Thanks to the wide range of applicable sensors the hand-held thermometers may be used in various applications.

Hand-held thermometers are supplied from basic designs showing current temperature only with min/max function up models with advanced settings.



HAND-HELD CONTACTLESS THERMOMETER PYROMETER

temperature ranges -50+1450°C

DESCRIPTION:

- ergonomic design
- laser aiming of the measured object
- emissivity-surface effectiveness in emitting energy
 - lid-up display
- advanced settings Min/Max

APPLICATION:

- mechanical engineering
- civil engineering
- air-conditioning
- food industry
- health care

TECHNICAL PARAMETERS:

- temperature ranges: -20+380, -20+450, -20+750, -50+380, -50+550, -50+700, -50+850, -50+1250, -50+1450°C
- dependance of the measured surface on distance from the object: 8:1, 12:1, 30:1
- adjustable functions Min/Max, Hold

SPECIFICATION:

Contactless infrared thermometer for fast temperature measurement. Aiming is performed by means of laser ray and the measured temperature is instantly shown on the LCD display.

Battery-powered, accuracy $\pm 2^{\circ}\text{C}$. Optional unit of measurement $^{\circ}\text{C}$ or $^{\circ}\text{F}$.

The display may be lid up, if selected. Higher models enable for emissivity settings, which ensures accurate measurement without distortion caused by surface of the measured object.

B.**PRESSURE MEASUREMENT**

standard

- B.1.1. Standard pressure gauge 301S/301Z 40mm
- B.1.2. Standard pressure gauge 308S/308Z 50mm
- B.1.3. Standard pressure gauge 304/358 63mm
- B.1.4. Standard pressure gauge 310/320 80mm
- B.1.5. Thermomanometer 3081/3082
- B.1.6. Standard pressure gauge 312/322 100mm
- B.1.7. Standard pressure gauge 313/323 160mm
- B.1.8. Heavy duty pressure gauge
- B.1.9. Low pressure gauge 304M/358M 63mm
- B.1.10. Low pressure gauge 312M/322M 100mm
- B.1.11. Low pressure gauge 313M/323M 160mm
- B.1.12. Shock resistant pressure gauge 304G/358G 63mm
- B.1.13. Shock resistant pressure gauge 310G/320G 80mm
- B.1.14. Shock resistant pressure gauge 384/322G 100mm
- B.1.15. Shock resistant pressure gauge 313G/323G 160mm
- B.1.16. Control pressure gauge 313
- B.1.17. Contact pressure gauge
- B.1.18. Pressure gauge with separating membrane
- B.1.19. Double pressure gauge
- B.1.20. Differential pressure gauge 5637/5638
- B.1.21. Differential pressure gauge with magnetic piston
- B.1.22. Differential pressure gauge 702.01. 100mm
- B.1.23. Differential pressure gauge 5595/5596
- B.1.24. Differential pressure gauge 5670/5675/1620
- B.1.25. Industrial differential pressure gauge 732(3).50/1610/2700
- B.1.26. Heavy duty differential pressure gauge 732.14/2680
- B.1.27. Differential pressure gauge 1630
- B.1.28. All-stainless steel pressure gauge with bourdon pen

industrial

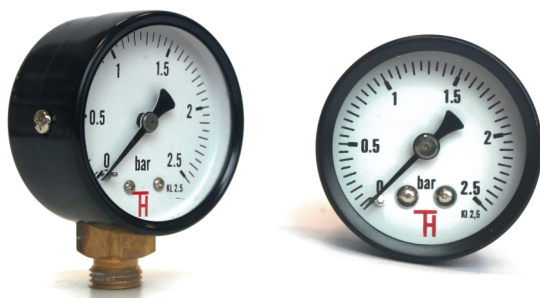
differential

stainless steel

- B.1.29. All-stainless steel low pressure gauge
- B.1.30. All-stainless steel contact pressure gauge
- B.1.31. All-stainless steel pressure gauge with separating membrane
- B.1.32. All-stainless steel double and differential pressure gauge
- B.1.33. Round capillary pressure gauge 1037/1040/1052
- B.1.34. Square capillary pressure gauge 1137/1145

special application

- B.1.35. Round capillary thermomanometer 3040/3052
- B.1.36. Mini pressure gauge and pressure indicator
- B.1.37. Welding pressure gauge 404
- B.1.38. Mining pressure gauge 1251/1252
- B.1.39. Pressure gauge type 329
- B.1.40. Rail vehicle pressure gauge
- B.1.41. Pressure gauge assembly THCR-II A
- B.2.1. Standard pressure transducer THPB1, THIPB1
- B.2.2. Pressure transducer with front membrane THPB2, THIPB2
- B.2.3. Pressure transducer with ceramic sensor THPB3, THIPB3, CS, PS (HART)
- B.2.4. Pressure transducer with high frequency response THPB4, THIPB4
- B.2.5. Pressure transducer for high pressures THPB7, THIPB7
- B.2.6. Pressure transducer for high temperatures THPB8, THIPB8
- B.2.7. industrial pressure transducer THPB9, THIPB9
- B.2.8. Capacity pressure transducer ceramic membrane THPB10, THIPB10
- B.2.9. Capacity pressure transducer for ATEX environment THPB11, THIPB11
- B.2.10. Pressure transducer increased corrosion resistance THPB3-c, THIPB3-c
- B.2.11. Pressure transducer for differential pressures THPB5, THIPB5
- B.2.12. Combined pressure and temperature transducer THPB13
- B.2.13. Digital pressure gauge 3323/3324
- B.2.14. Digital pressure gauge THY6
- B.2.15. Digital pressure gauge THY7
- B.2.16. Hand-held pressure gauges



STANDARD PRESSURE GAUGE 301S/301Z

diameter 40mm
bottom and back connection

DESCRIPTION:

- metal case
- acrylate/glass inspection hole
- connection 301S (bottom), 301Z (back), CuZn and copper alloys
- measurement mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- food industry
- health care
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 40mm
- measure range: 0-100, 160, 250, 400, 600kPa, 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40MPa -0,1+2,4; -0,1+1,5; -0,1+0,9MPa -100+500; -100+300; -100+150; -100-0kPa
- scale: Pa, bar, individual
- connection threads: G1/8 (G1/4, M10x1, M12x1,5)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
- accuracy class: 2,5%

SPECIFICATION:

Standard pressure gauges 301S/301Z are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 60°C.

Other alternatives of design on request - special scale design, connection thread, max. pressure needle etc.

STANDARD PRESSURE GAUGE 308S/308Z

diameter 50mm
bottom and back connection



DESCRIPTION:

- metal case
- glass inspection hole
- connection 308S (bottom), 308Z (back) CuZn and copper alloys
- measure mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- food industry
- health care
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 50mm
- measure ranges: 0-100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500; -100+300; -100+150; -100-0kPa
- scale: Pa, bar, individual
- connection threads: G1/4 (G1/8, G1/2, M10x1, M12x1,5)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
- accuracy class: 2,5%

SPECIFICATION:

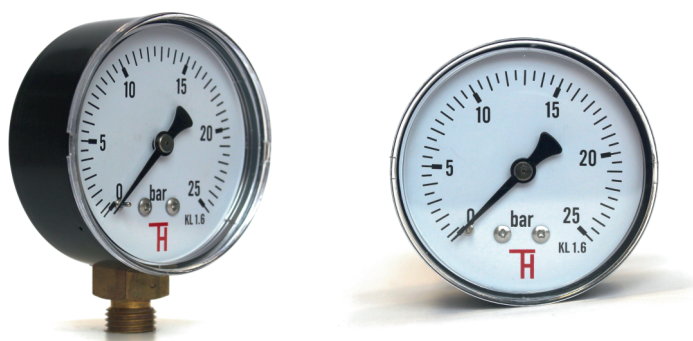
Standard pressure gauges 308S/308Z are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 60°C.

Other alternatives of design on request - special scale design, connection thread, max. pressure needle etc..

STANDARD PRESSURE GAUGE 304/358

diameter 63mm
bottom and back connection



DESCRIPTION:

- metal case
- glass/acrylate inspection hole
- connection 304 (bottom), 358 (back) CuZn and copper alloys
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- food industry
- health care
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 63mm
- measure ranges: 0-100, 160, 250, 400, 600kPa, 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40MPa -0,1+2,4; -0,1+1,5; -0,1+0,9MPa -100+500; -100+300; -100+150; -100-0kPa
- scale: Pa, Bar, individual
- connection threads: M12x1,5, G1/4 (G1/8, G1/2, M10x1)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
- accuracy class: 1,6%

SPECIFICATION:

Standard pressure gauges 304 bottom, 358 back are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 60°C.

Other alternatives of design on request - special scale design, connection thread, max. pressure needle etc.



STANDARD PRESSURE GAUGE 310/320

diameter 80mm
bottom and back connection

DESCRIPTION:

- metal case
- glass inspection hole
- connection 310 (bottom), 320 (back) CuZn and copper alloys
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - pneu-systems
- control systems
 - hydraulics

TECHNICAL PARAMETERS:

- diameter: 80mm
- measure ranges 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 10; 16; 25; 40; 60MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500; -100+300; -100+150; -100-0kPa
scale: Pa, bar, individual
- connection threads: G1/2 (G1/8, G1/4, M12x1,5, M20x1,5)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - accuracy class 1,6%
 - special scale design

SPECIFICATION:

Standard pressure gauges 310/320 are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 80°C.

Other alternatives of design on request - special scale design, connection thread, lazy needle, max. pressure needle etc.



THERMOMANOMETER 3081/ 3082

diameter 80mm
bottom and back connection

DESCRIPTION:

- steel case
- plastic inspection hole
- connection 3081 (bottom), 3082 (back) CuZn and copper alloys
- measuring mechanism CuZn and copper alloys
- including closing valve G1/2

APPLICATION:

- heating industry and sanitary technology
- heating management, power engineering
- other operations without high demands

TECHNICAL PARAMETERS:

- diameter: 80mm (63mm)
- temperature ranges: 0-120°C (0-150°C)
- pressure ranges: 0-4, 6, 10, 16bar
- connection thread: G1/2
- accuracy class: pressure gauge 1,6%; thermometer 2,5%

SPECIFICATION:

Thermomanometers 3081/3082 are produced according to standard EN837-1. Designed for simultaneous pressure and temperature measuring.

Instruments are equipped with automatic closing valve, that enables instrument change without heating system drainage.

Design of diameter 80mm, also diameter 63mm available. Other individual design options on request: special scale design, connection threads, back or front flange, max. pressure needle, etc.



STANDARD PRESSURE GAUGE 312/322

diameter 100mm
bottom and back connection

DESCRIPTION:

- metal case
- glass inspection hole
- connection 312 (bottom), 322 (back) CuZn and copper alloys
- back/front flange
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- pneu-systems
- control-system
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 100mm
- measuring ranges: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 0-2,5; 4; 10; 16; 25; 40; 60MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500; -100+300; -100+150; -100+150kPa
- scale: Pa, bar, individual
- connection thread: M20x1,5, G1/2 (G3/4, M12x1,5)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - accuracy: 1,6%
 - special scale design

SPECIFICATION:

Standard pressure gauges 312/322 are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 80°C.

Other alternatives of design on request - special scale design, connection thread, lazy needle, max. pressure needle etc.



STANDARD PRESSURE GAUGE 313/323

diameter 160mm
bottom and back connection

DESCRIPTION:

- bayonet metal case
- glass inspection hole
- connection 313 (bottom), 323 (back) CuZn and copper alloys
 - back/front flange
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - pneu-systems
- control systems
 - hydraulics

TECHNICAL PARAMETERS:

- diameter: 160mm
- measuring ranges: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 10; 16; 25; 40; 60; 100MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500; -100+300; -100+150; -100-0kPa
 - scale: Pa, bar, individual
 - connection threads: G1/2, M20x1,5
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - accuracy class: 1% (313); 1,6% (323)
 - special scale design

SPECIFICATION:

Standard pressure gauges 313/323 are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Standard pressure gauges are suitable for use in conditions without high demands on the device. Environment temperature -40 up to 60°C, maximum medium temperature T_{max} 80°C.

Other alternatives of design on request - special scale design, connection thread, lazy needle, max. pressure needle etc.



HEAVY DUTY PRESSURE GAUGE

diameters 63, 100, 160mm
bottom and back connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - safety glass inspection hole
- connection 304R, 312R, 313R (bottom), 358R, 322R, 323R (back) CuZn and copper alloys
 - back/front flange
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- light and semi-heavy industry
 - food industry
 - gas distribution

TECHNICAL PARAMETERS:

- diameter: 63,100,160mm
- measuring ranges: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100; 160MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500; -100+300; -100+150; -100-0kPa
 - dial design: kPa/MPa, bar
 - connection thread: M20x1,5, G1/2 (G1/8, G1/4, M12x1,5, NPT)
 - accuracy class: 1%, 1,6% (pr.63mm)
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - special dial design

SPECIFICATION:

Heavy duty pressure gauges are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have corrosive effect on copper alloys.

Heavy duty pressure gauges are designed into demanding conditions of industries and other applications where measurement stability and accuracy is essential.

Surrounding temperature -40 up to 60°C, medium temperature T_{max} 80°C. Other options of design on request - special scale design, atypical dial, connection thread, front and back flange, lazy needle, etc.

LOW PRESSURE GAUGE

304M, 358M

diameter 63mm

bottom and back connection



DESCRIPTION:

- stainless steel case 17 240/1.4301
 - glass inspection hole
 - connection 304M (bottom), 358M (back) CuZn and copper alloys
- measuring mechanism CuZn and copper alloys
 - reset bolt

APPLICATION:

- gas industry
- heating industry
- air-conditioning
- power engineering
- gas distribution

TECHNICAL PARAMETERS:

- diameter: 63mm
- measure ranges: 0-400, 600Pa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40kPa
-150+250; -200+400; -400+600Pa
-0,6+1; -1+1,5; -1,5+2,5; -2+4;
-4+6; -6+10; -10+15; -15+25kPa
-400-0; -600-0Pa
-1-0; -1,6-0; -2,5-0; -4-0; -6-0; -10-0; -16-0; -25-0; -40-0kPa
 - scale: Pa, bar
- connection threads: G1/4, M12x1,5
 - accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - special scale design

SPECIFICATION:

Low pressure gauges 304M/358M are produced according to standard EN837-3. Mainly used for pressure measuring of liquids, vapour and gases, that do not have corrosive effect on copper alloys.

Low pressure gauges are designed for very low pressure measurements up to 400Pa. Used primary in gas distribution.

Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C. Low pressure gauges are equipped with regulatory bolt for exact reset, when it is required to set zero value before each installation.

Other design options on request - special scale design, connection thread, glycerine or silicon damping, front/back flange, etc.



LOW PRESSURE GAUGE

312M, 322M

diameter 100mm
bottom and back
connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - safety glass inspection hole
- connection 312M (bottom), 322M (back) CuZn and copper alloys
- measuring mechanism CuZn and copper alloys
 - reset bolt

APPLICATION:

- gas industry
- heating industry
- air-conditioning
- power engineering
- gas distribution

TECHNICAL PARAMETERS:

- diameter: 100mm
- measure ranges: 0-400, 600Pa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40kPa
 - 150+250; -200+400; -400+600Pa
 - 0,6+1; -1+1,5; -1,5+2,5; -2+4;
 - 4+6; -6+10; -10+15; -15+25kPa
 - 400-0; -600-0Pa
 - 1-0; -1,6-0; -25,-0; -4-0; -6-0; -10-0; -16-0; -25-0; -40-0kPa
 - scale: Pa, bar
- connection threads: M20x1,5, G1/2
 - accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - special scale design

SPECIFICATION:

Low pressure gauges 312M/322M are produced according to standard EN837-3. Mainly used for pressure measuring of liquids, vapour and gases, that do not have corrosive effect on copper alloys.

Low pressure gauges are designed for very low pressure measurements up to 400Pa. Used primary in gas distribution.

Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C. Low pressure gauges are equipped with regulatory bolt for exact reset, when it is required to set zero value before each installation.

Other design options on request - special scale design, connection thread, glycerine or silicon damping, front/back flange, etc.



LOW PRESSURE GAUGE

313M, 323M

diameter 160mm
bottom and back
connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - safety glass inspection hole
- connect. 313M (bottom), 323M (back) CuZn and copper alloys
 - measuring mechanism CuZn and copper alloys
 - reset bolt

APPLICATION:

- gas industry
- heating management
 - air-conditioning
- power engineering
 - gas distribution

TECHNICAL PARAMETERS:

- diameter: 160mm
- measure range: 0-400, 600Pa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40kPa
 - 150+250; -200+400; -400+600Pa
 - 0,6+1; -1+1,5; -1,5+2,5; -2+4;
 - 4+6; -6+10; -10+15; -15+25kPa
 - 400-0; -600-0Pa
 - 1-0; -1,6-0; -2,5-0; -4-0; -6-0; -10-0; -16-0; -25-0; -40-0kPa
- scale: Pa, bar
- connection thread: M20x1,5, G1/2
 - accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - special scale design

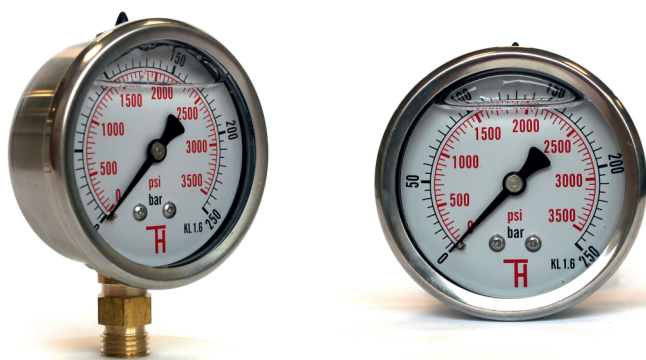
SPECIFICATION:

Low pressure gauges 313M/323M are produced according to standard EN837-3. Mainly used for pressure measuring of liquids, vapour and gases, that do not have corrosive effect on copper alloys.

Low pressure gauges are designed for very low pressure measurements up to 400Pa. Used primary in gas distribution.

Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C. Low pressure gauges are equipped with regulatory bolt for exact reset, when it is required to set zero value before each installation.

Other design options on request - special scale design, connection thread, glycerine or silicon damping, front/back flange, etc.



SHOCK RESISTANT PRESSURE GAUGE 304G/ 358G

diameters 63mm
bottom, back connection
glycerine filling

DESCRIPTION:

- bayonet case / encased stainless steel 17 240/1.4301
 - safety glass inspection hole, acrylate
 - connection 304G (bottom), 358G (back) CuZn and copper alloys
- measure mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - hydraulics
- mechanical engineering
- petrochemical industry

TECHNICAL PARAMETERS:

- diameter: 63mm
- measure ranges: 0-100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100MPa
 - scale: Pa, bar, bar/psi, individual
- connection thread: G1/4 (M12x1,5, NPT)
 - accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator

SPECIFICATION:

Shock resistant pressure gauges 304G/358G are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Shock resistant pressure gauges with water-tight case are designed into harsh conditions, where the pressure gauge is exposed to vibration, humidity and other complicating conditions. Resists vibration, shocks and pressure surges for which purpose they are equipped with pressure shock absorbers. Supplied with encased design or bayonet case. Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C. Other design options on request - special scale design, connection threads, max. pressure needle, etc.



SHOCK RESISTANT PRESSURE GAUGE 310G/320G

diameter 80mm
bottom, back connection
glycerine filling

DESCRIPTION:

- encased stainless steel case 17 240/1.4301
 - acrylate inspection hole
- connection 310G (bottom); 320G (back)
CuZn and copper alloys
- measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - hydraulics
- mechanical engineering
- petrochemical industry

TECHNICAL PARAMETERS:

- diameter: 80mm
- measure ranges: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100MPa
 - scale: Pa, bar, bar/psi, individual
- connection threads: G1/2 (M20x1,5, NPT)
 - accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator,
vacuum indicator

SPECIFICATION:

Shock resistant pressure gauges 310G/320G are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Shock resistant pressure gauges with water-tight case are designed into harsh conditions, where the pressure gauge is exposed to vibration, humidity and other complicating conditions. Resists vibration, shocks and pressure surges for which purpose they are equipped with pressure shock absorbers. Supplied with encased design case. Environment temperature -40 up to 60°C, medium temperature T_{max} 80°C. Other design options on request - special scale design, connection threads, max. pressure needle, lazy needle etc.



SHOCK RESISTANT PRESSURE GAUGE 384/322G

diameter 100mm
bottom, back connection
glycerine filling

DESCRIPTION:

- bayonet case/encased stainless steel case 17 240/1.4301
 - safety glass/acrylate inspection hole
- connection 384 (bottom); 322G (back) CuZn and copper alloys
 - measuring mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - hydraulics
- mechanical engineering
- petrochemical industry

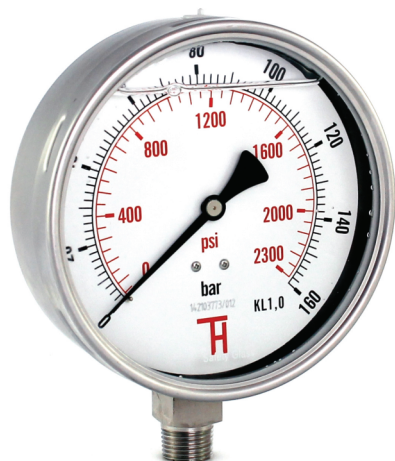
TECHNICAL PARAMETERS:

- diameter: 100mm
- measure ranges: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100; 160...700MPa
 - scale: Pa, bar, bar/psi, individual
 - connection thread: G1/2 (M20x1,5, NPT)
 - accuracy class: bayonet 1%, encased 1,6%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator

SPECIFICATION:

Shock resistant pressure gauges 384/322G are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Shock resistant pressure gauges with water-tight case are designed into harsh conditions, where the pressure gauge is exposed to vibration, humidity and other complicating conditions. Resists vibration, shocks and pressure surges for which purpose they are equipped with pressure shock absorbers. Supplied with encased design or bayonet case. Environment temperature -40 up to 60°C, medium temperature T_{max} 80°C. Other design options on request - special scale design, connection threads, max. pressure needle, lazy needle etc.



SHOCK RESISTANT PRESSURE GAUGE 313G/ 323G

diameter 160mm
bottom, back connection
glycerine filling

DESCRIPTION:

- bayonet case, stainless steel 17 240/1.4301
 - safety glass/acrylate inspection hole
- connection 313G (bottom), 323G (back)
CuZn and copper alloys
- measure mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
 - hydraulics
- mechanical engineering
- petrochemical industry

TECHNICAL PARAMETERS:

- diameter: 160mm
- measure range: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100; 160...700MPa
 - stupnice: Pa, bar, bar/psi, individual
- connection threads: G1/2, (M20x1,5, NPT)
 - accuracy class: 1%
- design: pressure gauge, pressure-vacuum indicator,
vacuum indicator

SPECIFICATION:

Shock resistant pressure gauges 313G/323G are produced according to standard EN837-1. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Shock resistant pressure gauges with water-tight case are designed into harsh conditions, where the pressure gauge is exposed to vibration, humidity and other complicating conditions. Resists vibration, shocks and pressure surges for which purpose they are equipped with pressure shock absorbers. Supplied with bayonet case. Environment temperature -40 up to 60°C, medium temperature T_{max} 80°C. Other design options on request - special scale design, connection threads, max. pressure needle, lazy needle etc.

CONTROL PRESSURE GAUGE 313

diameter 160 mm
bottom connection



DESCRIPTION:

- bayonet case of stainless steel 17 240/1.4301
 - glass inspection hole
 - bottom connection CuZn and copper alloys
- measure mechanism CuZn and copper alloys/stainless steel
 - low pressure design from 400Pa up to 40kPa, high pressure design from 60kPa up to 160MPa

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
 - light industry
- calibration, certification, inspection

TECHNICAL PARAMETERS:

- diameter: 160mm
- measure ranges: 0-400, 600Pa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40kPa
 - 0-60, 100, 160, 250, 400, 600kPa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100; 160MPa
 - 0,1+2,4; -0,1+1,5; -0,1+0,9MPa
 - 100+500, -100+300, -100+150, -100-0kPa
- connection threads: M20x1,5, G1/2
- accuracy class: 1%, 0,6%, 0,4%, 0,25%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator

SPECIFICATION:

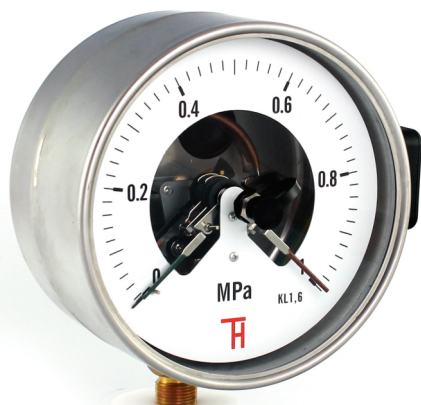
Control pressure gauges 313 are produced according to standard EN837-1(3). Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have a corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism.

Control pressure gauges are designed for certification, accurate measurements, etc. Supplied in accuracy class 1%; 0,6%; 0,4%; 0,25%. Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C. Pressure gauge dial comes with a very fine interval design and beginning from accuracy class 0,6% also with a mirror background.

Other design options on request - special scale design, connection threads, etc. Control pressure gauges can be supplied with valid calibration certificates.

CONTACT PRESSURE GAUGE

diameters 100, 160 mm
bottom, back connection



DESCRIPTION:

- stainless steel case 17 240/1.4301
 - glass inspection hole
- bottom, back connection, CuZn and copper alloys
 - el. connection – cable output DIN 43 650
- measure mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- mechanical engineering
 - compressors
- regulatory stations
 - blowers

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measuring ranges: 0-60, 100, 160, 250, 400, 600kPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa,
-100+500; -100+300; -100+150; -100-0kPa
scale: Pa, bar, individual
- connection threads: M20x1,5 (G1/2)
 - accuracy class: 1,6%, 2,5%
- contact type: switch-on, switch-off, throw-over
- design: pressure gauge, pressure-vacuum indicator,
vacuum indicator

SPECIFICATION:

Contact pressure gauges are produced according to standard EN837-1(3). Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have corrosive effect on copper alloys and its viscosity allows for measuring using bourdon pen mechanism, capsule or separating membranes. Pressure gauges with switching contacts (on/off) are used in engineering practice where it is required to work within limited band of pressure span. Easily adjustable contacts using the supplied wrench. Environment temperature -40 up to 60°C, medium temperature T_{max} 80°C. Other design options on request - special scale design, connection threads, contacts, etc. Pressure gauge may be supplied with glycerine or silicone(312KG) damping.

PRESUURE GAUGE WITH SEPARATING MEMBRANE

diameters 100, 160mm
bottom connection



DESCRIPTION:

- bayonet case made of stainless steel 17 240/1.4301
 - glass inspection hole, safety glass
 - bottom/back connection
- measure mechanism made of CuZn and copper alloys

APPLICATION:

- power engineering
- food industry
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measuring ranges:
 - 0-4, 6, 10, 16, 25, 40, 60, 100, 160, 250, 400, 600kPa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60MPa
 - 0,1+2,4; -0,1+1,5; -0,1+0,9MPa
 - 100+500, -100+300, -100+150, -100+150kPa
 - 0,6+1; -1+1,5; -1,5+2,5; -2+4; -4+6kPa
 - 6+10; -10+15; -15+25kPa
 - 1-0; -1,6-0; -2,5-0; -4-0; -6-0; -10-0; -16-0; -25-0; -40-0kPa
- connection threads: G1/4, G1/2, M12x1,5, M20x1,5
 - scale: Pa, bar, individual
 - accuracy class: 1,6%, 2,5%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator

SPECIFICATION:

Pressure gauges with separating membrane are made in accordance with standard EN837-3. These pressure gauges are used in all applications, where it is necessary to separate the medium from measure mechanism and in applications, where it is impossible to use pressure gauges with Bourdon pen. They may be used for all aggressive mediums. For mediums of high viscosity and loose mediums it is applicable to use flange with widened connection thread or an opened flange. Environment temp. T_{min} -40 up to T_{max} 60°C, medium temp. T_{max} 80°C (higher according to the application). Pressure gauges are supplied in default with screwed type of membrane (type 41, PN 25), but may be supplied in wide range of separating membranes (for food industry, clamp, for paper industry, opened, front membrane, see chapter E.7.) Other options of design on individual request - special scale design, connection threads, with switch-off contacts, etc.

SEPARATING MEMBRANES

Type 41.. (DN) a) screwed together



Screwed-together separating membrane is designed for separation of sensing element and the measure unit from impact of liquid, which may be corrosive, caustic, of higher density or high temperature. This membrane is suitable for pressures from -1 to 25 bar. Enables utilization of big membrane with small connection dimensions: G1/2, M20x1,5, NPT1/2 (other on request). Separator may be taken apart and the inner space may be cleaned. For pressure measurements of aggressive chemicals it is possible to use membranes made of tantalum or protection foil PTFE; bottom part may be made of resistant plastic or equipped with lining.

b) screwed together with welded-on membrane



Screwed-together separating membrane is designed for separation of sensing element and the measure unit from impact of measured medium, which may be corrosive, of high viscosity or of other aggressive characteristics. The membrane is welded on to the upper part by tantalum-stainless steel weld. This design enables easy cleaning of the system. Welded-on membrane is suitable for pressures from -1 up to 400bar.

Type 55.. (DN): flange



Flange separating membrane is designed for separation of the sensing element from impact of measured medium, which may be corrosive, of high viscosity or of other aggressive characteristics, using flange process connection according to DIN 2501, EN 1092-1, ANSI B16,5 or flange on individual request.

Type 53.. (DN): clamp



Separating membrane is welded onto the construction. Mainly used in food, drink, water industry or other applications with toughened hygienic requirements. Quick-connect coupling with clamp connection, dimensions DN: 25, 32, 40, 50, 65 (DN 25, 32 and 40 with identical outer dimension). Quick-connect coupling enables easy disassembly for cleaning.

Type 32.. (DN): food industry



Separating membrane is welded onto the construction. Mainly used in food, drink, water industry or other applications with toughened hygienic requirements. Connection using quick-connect coupling with union nut according to DIN 11851. Conical socket (special design: threaded socket). Dimensions DN: 25, 32, 40, 50.

Type 34.. (DN): paper industry



Connection using union nut flange (alternatively fixed flange). Separator's body with short tube. Membrane diameter 48 up to 59mm. Mainly used in paper industry. Dimensions of the flange are distinct from the standardized ones in order to use big membrane and maintain small assembly dimensions.

SEPARATING MEMBRANES

Type 45.. (DN): welded-together



Welded-together membrane is designed for separation of sensing element and measure unit from impact of liquid, which may be corrosive, caustic, of higher density or high temperature. This membrane is suitable for pressures from 0 to 600 bar. Commonly used for efficient pressure shock absorption, because it enables use of a very narrow throttling cross section without the danger of clogging. Connection: G1/2, M20x1,5, G1/4, M12x1,5 according to DIN 16288. Device diameter: 40, 50, 60mm. Membranes size correspondents with the diameter of the device. Material: stainless steel (on request Monel, nickel, etc.)

Type 43.. (DN): threaded pin



Separating membrane type 43 is designed for separation of sensing element and measure unit from impact of liquid, which may be corrosive, have high viscosity or feature another kind of aggressivity. Universal separating membrane with wide range of use thanks to the universal connection with G - thread. Suitable for high pressures up to 60 MPa

Type 56.. (DN): with cooling extension



Membrane separators are besides other things used for pressure measurements of hot substances and liquid alloys, which would otherwise solidify inside pressure gauge or transducer. Measured pressure is transferred by means of working liquid through capillary that is cooled by the outside environment. Cooling extension prevents the pressure gauge or transducer from overheating. When filled with high-temperature oil, the cooling extension enables pressure measurement of mediums of temperatures up to 400°C.

Type 57.. (DN): with movable capillary



Mainly used for level measurements in closed containers, for liquid density and flow measurements. The separator itself is usually flange or sandwich type. Other types with membrane of minimum diameter 48mm may be used as well. In order to balance the temperature error it is recommended to use capillaries of same lengths and as short as practicable; capillaries lengths usually up to 6m.

Other: Type 58.. (DN)



Separator exploits the characteristics of big membrane while built into a pipeline of smaller inner diameter. Thanks to the special construction it is still possible to maintain the sanitation characteristics without the need of separators disassembly. The membrane is efficiently washed by the flowing liquid in the pipe. Sealing of the lid meets strict hygienic regulations.



DOUBLE PRESSURE GAUGE 13352/13353

diameters 100, 160mm
bottom connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - glass inspection hole
 - connection 2x bottom
 - back/front flange
- measurement mechanism CuZn and copper alloys

APPLICATION:

- heating industry
- air-conditioning
- food industry
- power engineering

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measure range: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500, -100+300, -100+150, -100- 0kPa
- connection thread: M20x1,5 (G1/2)
- accuracy class: 1,6%
- design: pressure gauge, pressure-vacuum indicator,
vacuum indicator

SPECIFICATION:

Double pressure gauges (differential) 13352/13353 are produced in compliance with EN837-1 standard. Mainly used for measurements of liquids, vapour and gases that do not have corrosive effect on copper alloys. Double pressure gauges are used in applications, where it is necessary to measure value of two pressures or the difference between two static pressures. One source of pressure measurement, one dial is showing both the values. The main scale shows values of the two static pressures and the sub-scale shows the two pressure difference. Environment temperature -20 up to 60°C, medium temperature T_{max} 60°C. Other design options on individual request - special scale design, connection threads, switching contacts, front and back flange, etc.



DIFFERENTIAL PRESSURE GAUGE 5637/5638

diameter 160mm
2x bottom connection

DESCRIPTION:

- case: black varnished steel / stainless steel 17 240/1.4301
 - glass/safety glass inspection hole
 - connection 2x bottom
- measure mechanism: CuZn and copper alloys (5637), stainless steel 17 348/1.4571 (5638)

APPLICATION:

- heating industry
- air-conditioning
- food industry
- healthcare industry
- hydraulics

TECHNICAL PARAMETERS:

- diameter: 160mm
- measure ranges: 0-1; 1,6; 2,5; 4; 6bar
- max. static pressure: 1,6; 4; 10; 16bar
- connection thread: 2x G1/2, 2x M20x1,5
 - accuracy class: 1,6%
 - protection: IP 65

SPECIFICATION:

Differential pressure gauges 5637/5638 are basic differential manometers with single indication of differential pressure only.

Differential pressure gauges 5637/5638 can be used for pressure measurements of all liquids, vapours and gases, that do not have a corrosive effect on copper alloys and their viscosity allows the use of measuring mechanism. Differential pressure gauges are supplied in size 160mm with the option of electric contacts. Environment temperature -20 up to 60°C, medium temperature T_{max} 100°C.

Other design options on individual request -special scale design, connection threads,max. pressure needle, etc.



DIFFERENTIAL PRESSURE GAUGE with magnetic piston

2x side connection

DESCRIPTION:

- case: steel, aluminium cast or stainless steel
- inspection hole: acrylate, glass
 - connection 2x side, bottom
- measurement mechanism: CuZn, stainless steel
 - piston sealing: NBR, EPDM, Viton
 - design: with direct entry or with separating membrane

APPLICATION:

- air-conditioning
 - hydraulics
- power engineering
- petrochemical industry
 - chemical industry

TECHNICAL PARAMETERS:

- diameter: 63, 80, 100, 115, 150mm
- measure ranges - differential pressure: 0-40kPa, 0-1MPa
- max. static pressure: 10, 25, 40MPa
 - connection thread: G1/4 (G1/2, 1/2NPT inner or outer)
- accuracy class: 3% for differential pressure

SPECIFICATION:

Differential pressure gauges with magnetic pistons are suitable for all applications with high static pressures. They are produced in compliance with EN 837-3 standard. Differential pressure gauges can be used for measurements of all liquids, gases and vapour that do not have corrosive effect on copper alloys and its viscosity allows for use of measuring mechanism made of stainless steel class 1.4305. For mediums of higher viscosity it is possible to use pressure gauges with separating membranes.

Differential pressure gauges with magnetic pistons may be used in applications for measurements of small pressure differences even in high static pressures. This design finds its application in wide range of operations, pressure gauges may be supplied with piston and spring or with a membrane, in wide range of materials - brass, aluminium, stainless steel. Maximum environment temperature -20 up to 60°C , medium temperature $T_{\text{max}} 100^{\circ}\text{C}$. Other design options on individual request - with switching contacts, analog output, special scale design, connection threads, etc.



DIFFERENTIAL PRESSURE GAUGE 702.01./5591

diameter 100mm
2x bottom connection

DESCRIPTION:

- cast case GD-AlSi 12(Cu) 3.2982
- glass, safety glass inspection hole
- connection 2x bottom inner or outer
- measure mechanism: stainless steel
 - seals: FPM/FKM

APPLICATION:

- heating industry
- air-conditioning
- power engineering
- petrochemical industry
- light industry and other

TECHNICAL PARAMETERS:

- diameter: 100mm
- measure ranges - differential pressure: 0-0,25...0-25bar
 - max. static pressure: 25bar
- connection thread: 2x G1/4, inner or outer
- accuracy class: 2,5% for differential pressure, 4% for static pressure
 - protection: IP 65

SPECIFICATION:

Differential pressure gauges 702.01./5591 are universal differential manometers with inbuilt static pressure display. They are produced in compliance with EN837-3. Differential pressure gauges 702.01./5591 can be used for pressure measurements of all liquids, vapours and gases, that do not have corrosive effect on copper alloys and their viscosity allows the use of measuring mechanism made of stainless steel 1.4305. These differential pressure gauges are commonly used in filtration units, pressure pumps and other appliances where it is necessary to monitor both static and differential pressure.

Differential pressure gauges are supplied in size $d=100\text{mm}$. Environment temperature -10 up to 70°C , medium temperature $T_{\text{max}} 90^{\circ}\text{C}$. Other design options on individual request - switching contacts, special scale design, connection threads, etc.



INDUSTRIAL DIFFERENTIAL PRESSURE GAUGE 5595/5596

diameters 100, 160mm
2x bottom connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - glass/safety glass inspection hole
 - connection 2x bottom
- measure mechanism: CuZn and copper alloys, stainless steel 17 348/1.4571
- membrane: stainless steel 17 240/1.4301

APPLICATION:

- power engineering
- chemical industry
- petrochemical industry
 - hydraulics

TECHNICAL PARAMETERS:

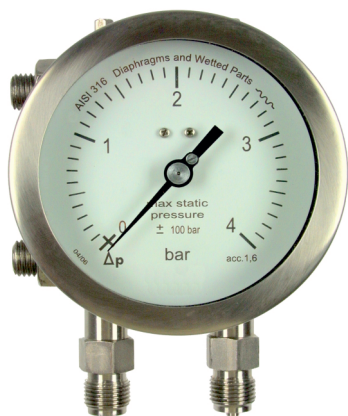
- diameter: 100mm (5595), 160mm (5596)
- measure ranges - differential pressure: 0-160mbar...0-10bar
 - max. static pressure: 25bar
- connection threads: 2x G1/2
 - connection: paralel
 - pitch: 54mm
- accuracy class: 1,6%
 - protection: IP 65

SPECIFICATION:

Industrial differential pressure gauges 5595/5596, produced in compliance with EN837-3 standard are suitable for lower pressures. Differential pressure gauges 5595/5596 can be used for pressure measurements of all liquids, vapours and gases, that do not have a corrosive effect on copper alloys and their viscosity allows the use of measuring mechanism.

Differential pressure gauges are supplied in sizes $d=100, 160\text{mm}$ and are suitable into more demanding conditions while measuring aggressive mediums thanks to their resistance to organic dissolving agents. Environment temperature -20 up to 60°C , medium temperature $T_{\text{max}} 80^{\circ}\text{C}$.

Other design options on individual request - analog output signal 0-20mA and 4-20mA, increased overload capacity, special scale design, connection threads, etc.



DIFFERENTIAL PRESSURE GAUGE 5670/5675/1620

diameter 100, 160mm
2x bottom connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
- glass , safety glass inspection hole
 - connection 2x bottom
- measure mechanism: stainless steel 17 348/1.4571
 - seals: NBR, FPM

APPLICATION:

- heating industry
- air-conditioning
 - food industry
- healthcare industry
- chemical industry

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measure range: 0-25mbar...0-25bar
- max. static pressure: 25bar, 100bar
- connection threads: 2x G1/2; 2x G1/4
 - accuracy class: 1,6%
- protection: IP 54, with glycerine filling IP 65

SPECIFICATION:

Differential pressure gauges 5670/5675/ 1620 are all-stainless steel heavy-duty manometers designed into heavy and demanding conditions.

They are produced in compliance with EN 837-3 standard. Differential pressure gauges 5670/5675 can be used for pressure measurements of all liquids, vapours and gases, that do not have a corrosive effect on copper alloys and stainless steel class 17 348/1.4571 as well as their viscosity allows the use of membrane measuring mechanism. Environment temperature -30 up to 60°C, medium temperature T_{max} 60°C. Pressure gauges are supplied in sizes $d=100, 160$ mm. They may be supplied with glycerine filling, electric contacts and ATEX environment design.

Other design options on request - special scale design, connection threads, etc.



DIFFERENTIAL PRESSURE GAUGE 732(3).50/1610/2700

diameter 100, 160mm
2x bottom connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
 - glass, safety glass inspection hole
 - connection 2x bottom
- measurement mechanism: CuZn and copper alloys, stainless steel 17 348/1.4571
- membrane: stainless steel 17 240/1.4301
 - ATEX design

APPLICATION:

- power engineering
- chemical industry
- petrochemical industry
 - hydraulics

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measure ranges -differential pressure: 0-16mbar...0-25bar
 - max. static pressure: 25bar
- connection threads: 2x G1/4 inner
 - connection: paralel
 - pitch: 54mm
 - accuracy class: 1,6%
- protection: IP 54, with glycerine IP 65

SPECIFICATION:

Industrial differential pressure gauges 732.50/1610/2700, produced in compliance with EN837-3 standard are suitable for lower pressures. Differential pressure gauges 732.50/1610/2700 can be used for pressure measurements of all liquids, vapours and gases, that do not have a corrosive effect on copper alloys and their viscosity allows the use of measuring mechanism. Pressure gauges are supplied in sizes $d=100, 160\text{mm}$ and are suitable into more demanding conditions while measuring aggressive mediums. They are resistant to organic dissolving agents. Environment temperature -20 up to 60°C , medium temperature $T_{\text{max}} 100^\circ\text{C}$. Other design options on individual request - analog output signal $0-20\text{mA}$ and $4-20\text{mA}$, electric contacts, inductive contacts, increased overload capacity, special scale design, connection threads, etc.



HEAVY DUTY DIFFERENTIAL PRESSURE GAUGE

732.14/2680

diameter 100, 160mm
2x bottom connection

DESCRIPTION:

- stainless steel case 17 240/1.4301/AISI 304
 - glass, safety glass inspection hole
 - connection 2x bottom
- measurement mechanism: stainless steel 17 348/1.4571
 - seals: NBR, FPM

APPLICATION:

- power engineering
 - air-conditioning
 - food industry
- healthcare industry
 - chemical industry

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measure ranges: 0-60mbar...0-40bar
- max. static pressure: 40bar, 100bar, 250bar, 400bar
 - connection threads: 2x G1/2 inner
- accuracy class: 1,6% (732.14); 2,5% (762.14)
- protection: IP 54, with glycerine filling IP 65

SPECIFICATION:

Differential pressure gauges 732.14/2680 are all-stainless steel heavy duty manometers designed into heavy and demanding conditions. They are produced in compliance with EN837-3 standard. Differential pressure gauges 732.14/2680 can be used for pressure measurements of all liquids, vapours and gases, that do not have a corrosive effect on copper alloys and stainless steel class 17 348/1.4571 as well as their viscosity must allow the use of membrane measuring mechanism. Environment temperature -20 up to 60°C, medium temperature T_{max} 100°C. Differential pressure gauges are supplied in sizes $d=100, 160mm$. Pressure gauges may be supplied with glycerine filling, electric contacts and ATEX environment design. Other design options on request - special scale design, switching contacts, analog output, connection threads, etc.

DIFFERENTIAL PRESSURE GAUGE 1630

diameter 63 mm
2x back connection



DESCRIPTION:

- stainless steel case 17 240/1.4301
 - polycarbonate inspection hole
 - connection 2 x back
- measurement mechanism: CuZn and copper alloys

APPLICATION:

- air-conditioning
- pneumatic appliances
 - light industry

TECHNICAL PARAMETERS:

- diameter: 63mm
- measure range - differential up to 2,5kPa
 - max. static pressure: 40kPa
 - connection threads: 2x G1/4,
- hose connection: d =6, d=8, d=10mm
 - accuracy class: 2,5%
 - protection: IP 65

SPECIFICATION:

Differential pressure gauges type 1630 are suitable for very low differential pressures and static pressures up to 40 kPa. They are produced in compliance with EN837-3 standard and can be used for measuring of all vapour and gases, that do not have corrosive effect on copper alloys.

Differential pressure gauges are supplied in size 63mm and are suitable into conditions, where it is necessary to measure low differential pressures up to 2,5kPa. Environment temperature -40 up to 60°C, maximum medium temperature 60°C.

Other design options on request - special scale design, connection threads, etc.



ALL STAINLESS STEEL PRESSURE GAUGE WITH BOURDON PEN

diameters 63, 100, 160mm
bottom, back connection

DESCRIPTION:

- bayonet case/encased stainless steel 17 240/1.4301
 - safety glass/acrylate inspection hole
- back/bottom connection: stainless steel 17 348/1.4571
- measurement mechanism: stainless steel 17 348/1.4571

APPLICATION:

- food industry
- petrochemical industry
- pharmaceutical industry
- power engineering

TECHNICAL PARAMETERS:

- diameter: 63, 100, 160mm
- measure range: 0-60, 100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25...700MPa
-0,1+2,4; -0,1+1,5; -0,1+0,9MPa
-100+500, -100+300, -100+150, -100+150kPa
 - scale: Pa, bar, individual
- connection threads: M12x1,5, M20x1,5 (G1/4, G1/2, NPT)
 - accuracy class: d. 63mm 1,6%
d. 100, 160mm 1%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator

SPECIFICATION:

All stainless steel pressure gauges with bourdon pen for measuring pressures of values up to 100MPa (for d. 63mm), up to 400MPa (for d.100mm) and up to 700MPa (for d.160mm).

Pressure gauges are produced in compliance with EN837-1 standard and are suitable for measurements of all non-viscous and non-aggressive liquids, vapour and gases that do not have corrosive/descriptive effect on stainless steel material cl.17 348/1.4571 of the measurement mechanism.

Other options of design on request - special scale design, connection threads, back/front flange, silicone or glycerine damping (mark G), etc.



ALL STAINLESS STEEL LOW PRESSURE GAUGE

diameters 63, 100, 160mm
bottom and back

DESCRIPTION:

- case encased/ bayonet stainless steel 17 240/1.4301
 - acrylate, safety glass inspection hole
- connection: bottom/back stainless steel 17 348/1.4571
- measurement mechanism: stainless steel 17 348/1.4571

APPLICATION:

- food industry
- petrochemical industry
- pharmaceutical industry
- power engineering

TECHNICAL PARAMETERS:

- diameter: 63, 100, 160mm
- measure ranges: 0-250, 400, 600Pa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40kPa,
-150+250, -200+400, -400+600Pa,
-0,6+1; -1+1,5; -1,5+2,5; -2+4;
-4+6; -6+10; -10+15; -15+25kPa
-400-0, -600-0Pa
-1-0; -1,6-0; -2,5-0; -4-0; -6-0; -10-0; -16-0; -25-0; -40-0kPa
- connection thread: M12x1,5, M20x1,5 (G1/4, G1/2)
 - accuracy class: 1,6%, 1%
- design: pressure gauge, pressure-vacuum indicator,
vacuum indicator
- special scale design

SPECIFICATION:

All stainless steel low pressure gauges are produced in compliance with EN837-3 standard.

Pressure gauges are suitable for measurements of all non-viscous and non-aggressive liquids, vapour and gases, that do not have corrosive/ destructive effect on stainless steel class 17 348/1.4571 using measurement mechanism of capsule membrane.

Other options of design on individual request - special scale design, connection threads, back/front flange, glycerine or silicone damping (mark G), etc.



ALL-STAINLESS STEEL CONTACT PRESSURE GAUGE

diameters 100, 160mm
bottom, back connection

DESCRIPTION:

- stainless steel case 17 240/1.4301
- inspection hole: glass, safety glass
- connection: bottom, back stainless steel 17 348/1.4571
- measurement mechanism: stainless steel 17 348/1.4571

APPLICATION:

- food industry
- petrochemical industry
- pharmaceutical industry
- power engineering

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measure ranges:
 - 0-60, 100, 160, 250, 400, 600kPa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 100; 160MPa
 - 0,1+2,4; -0,1+1,5; -0,1+0,9MPa,
 - 100+500, -100+300, -100+150, -100+0kPa
- connection threads: M20x1,5, G1/2
- accuracy class: 1,6%, 1%
- design: pressure gauge, pressure-vacuum indicator, vacuum indicator
 - contact design: switch-on, switch-off, throw-over inductive

SPECIFICATION:

All-stainless steel contact pressure gauges are used in technical practice where it is necessary to work within some limited band of pressure span. Pressure gauges are produced in compliance with EN837-1 standard. Pressure gauges are suitable for measurement of all aggressive mediums, that do not have a corrosive/ destructive effect on stainless steel class 17 348/1.4571. Pressure gauges have a standard equipment of M20x1,5 or G1/2 connection, switch-on/switch-off magnetic contact, may be diversified by throw-over or inductive contact design. Possible choice of glycerine or silicone damping.



ALL-STAINLESS STEEL PRESSURE GAUGE WITH SEPARATING MEMBRANE

diameters 100, 160mm
bottom, back connection

DESCRIPTION:

- case: stainless steel 17 240/1.4301
- inspection hole: glass, safety glass
- connection and measurement system stainless steel 17 348/1.4571

APPLICATION:

- food industry
- petrochemical industry
- pharmaceutical industry
- power engineering

TECHNICAL PARAMETERS:

- diameter: 100, 160mm
- measuring ranges:
 - 0-4, 6, 10, 16, 25, 40, 60, 100, 160, 250, 400, 600kPa
 - 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60MPa
 - 0,1+2,4; -0,1+1,5; -0,1+0,9MPa
 - 100+500, -100+300, -100+150, -100+0kPa
 - 0,6+1; -1+1,5; -1,5+2,5; -2+4;
 - 4+6; -6+10; -10+15; -15+25kPa
- scale: Pa, bar, individual
- connection threads:
 - M20x1,5 (G1/2), threads to M65x2 (G1 1/2)
- accuracy class: 1%

SPECIFICATION:

All-stainless steel pressure gauges with a basic screwed-together separating membrane, in stainless steel design, alter. teflon-coated design.

Pressure gauges are produced in compliance with EN837-3 standard. They are used for measurements of all aggressive media, that do not have a corrosive/ destructive effect on stainless steel materials class 17 348/1.457, alternatively teflon.

At applications, where it is impossible to use the screwed-together separating membrane, it is applicable to use other type of membrane from wide range of designs and materials. For details see chapter E.7/Separating membranes.

ALL STAINLESS STEEL DOUBLE AND DIFFERENTIAL PRESSURE GAUGES

diameter 80, 100, 160 mm
bottom and back connection

SPECIFICATION:

All-stainless steel double pressure gauges are used for measurements of two pressures difference of aggressive mediums, wide spectrum of vacuum and pressure measurements. All-stainless steel differential pressure gauges are designed for measurements of final pressure difference of aggressive mediums. Wide spectrum of differential pressure gauges.

DOUBLE: Double pressure gauges are used mainly in applications, where it is necessary to measure values of two static pressures or differential pressure between two static pressures. Its an issue of one source of pressure measurement, where values are shown on one dial only. The main scale shows values of two static pressures and on the auxiliary scale you can read the difference of the two static pressures. Environment temperature -20 up to 60°C, medium temperature T_{max} 60°C.

Series: 13352,
13353



DIFFERENTIAL: Industrial differential pressure gauges 5595/5596 are suitable for lower pressures. Differential pressure gauges may be used for pressure measurement of liquids, gases and vapour, which do not have corrosive effect on copper alloys and its viscosity allows for measurement using the measure mechanism. Differential pressure gauges are supplied in diameters $d=100, 160\text{mm}$ and are suitable into demanding conditions while measuring aggressive mediums, they are resistant to organic dissolving agents. Environment temperature -20 up to 60°C, medium temperature T_{max} 80°C.

Series: 5595/
5596



Series: Differential pressure gauges 5637/5638 are basic differential pressure gauges with one indicator only, they indicate only the real pressure. Differential pressure gauges 5637/5638 may be used for two static pressures measurement of all liquids, gases and vapour, which do not have corrosive effect on copper alloys and its viscosity allows for measurement using the measure mechanism. Differential pressure gauges are supplied in diameters $d=160\text{mm}$ with option of el. contacts. Environment temperature -20 up to 60°C, medium temperature T_{max} 100°C.



Series: Differential pressure gauges 5670/5675 are all-stainless steel heavy-duty pressure gauges designed into demanding conditions. Differential pressure gauges 5670/5675 may be used for all pressure measurements of liquids, gases and vapour, which do not have corrosive effect on copper alloys and stainless steel 17 348/1.4571 and its viscosity allows for measurement using membrane measure mechanism. Environment temperature -30 up to 60°C, medium temperature T_{max} 60°C. Differential pressure gauges are supplied in diameters $d=100, d=160\text{mm}$. Pressure gauges may be supplied with glycerine filling, with electric contacts and in ATEX environment design.





ROUND CAPILLARY PRESSURE GAUGE

1037 Ø 37, 1040 Ø 40
1052 Ø 52mm

capillary 1000mm

DESCRIPTION:

- case: coloured plastic
- inspection hole: acrylate
- copper capillary with PVC protection
- panel mounting design
- spring latch for easy mounting

APPLICATION:

- heating industry and sanitary technology
- heating management, power engineering
- light industry

TECHNICAL PARAMETERS:

- case: 37, 40, 52mm
- measure ranges: 0-4, 6bar
- capillary length: 500, 1000, 1500, 2000, 3000mm
- thread: G1/4 (M12x1,5, M14x1)

SPECIFICATION:

Capillary pressure gauges are designed for all applications, where the place of measuring is not identical with the place of reading.

Thanks to wide range of designs they can be used in miscellaneous applications. Mainly used for boilers, heating systems and other operations with pressure measurement necessity.

Maximum temperature of case surrounding is 70°C. Other options of design on individual request - special scale design, connection thread, etc.



SQUARE CAPILLARY PRESSURE GAUGE

1137 37x37mm

1145 45x45mm

capillary 1000mm

DESCRIPTION:

- case: coloured plastic
- inspection hole: acrylate
- copper capillary with PVC protection
- panel mounting design
- spring latch for easy mounting

APPLICATION:

- heating industry and sanitary technology
- heating management, power engineering
- light industry

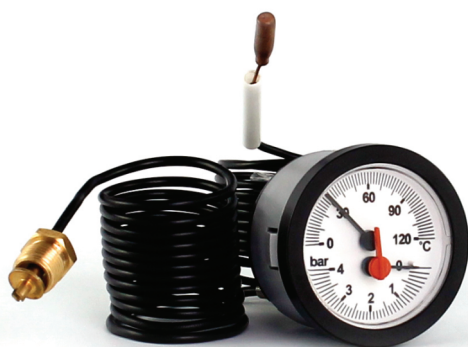
TECHNICAL PARAMETERS:

- case: 37x37mm
(assembly 42x42mm including collar)
45x45mm
(assembly 48x48mm including collar)
- measure ranges: 0-4, 6bar
- capillary length: 500, 1000, 1500, 2000, 3000mm
- závit: G1/4 (M12x1,5, M14 x1)

SPECIFICATION:

Capillary pressure gauges are designed for all applications, where the place of measuring is not identical with the place of reading. Thanks to wide range of designs they can be used in miscellaneous applications. Mainly used for boilers, heating systems and other operations with pressure measurement necessity.

Maximum temperature of case surrounding is 70°C. Other options of design on individual request - special scale design, connection thread, etc.



ROUND CAPILLARY THERMOMANOMETER

3040 Ø 40mm

3052 Ø 52mm

capillary 500-2000mm

DESCRIPTION:

- coloured plastic case
- acrylate inspection hole
- copper capillary with PVC protection

APPLICATION:

- heating industry and sanitary technology
- heating management, power engineering
- light industry

TECHNICAL PARAMETERS:

- case: 40, 52mm
- temperature ranges: 0-120°C
- pressure ranges: 0-4, 6bar
- capillary length: 500, 1000, 1500, 2000mm
- sensor: 6,5x25mm
- thread: G1/4 (M12x1,5, M14x1)

SPECIFICATION:

Capillary thermomanometers are designed into all applications, where the place of measuring is not identical with the place of reading.

Used for simultaneous pressure and temperature measurement. Thanks to wide range of designs they may be used in miscellaneous applications. Mainly used for boilers, heating systems and other operations with pressure measurement necessity.

Maximum temperature of case surrounding is 70°C. Other options of design on individual request - special scale design, connection thread, etc.



MINI PRESSURE GAUGE AND PRESSURE INDICATOR

diameter 23-50mm
back connection

DESCRIPTION:

- plastic, steel case
- acrylate inspection hole
- connection back CuZn and copper alloys
- measure mechanism CuZn and copper alloys

APPLICATION:

- health care
- fire extinguishers
- industrial gases distribution

TECHNICAL PARAMETERS:

- diameter: 23, 25, 30, 36, 37, 40, 50mm
- measure ranges: do 400bar
- connection threads: G1/8 (M10x1)
- accuracy class: 4% or 2,5%

SPECIFICATION:

Mini pressure gauges and pressure indicators are produced in compliance with EN837-1(3) standard. Mainly used for simple pressure measurements of liquids, vapour and gases, that do not have corrosive effect on copper alloys and their viscosity allows for use of measurement mechanism with bourdon pen.

Mini pressure gauges are suitable into conditions, where simple pressure indication is required with no high demands on accuracy.

Mainly used for pressure vessels, fire extinguishers, reducing valves, etc. Environment temperature -40 up to 60°C, medium temperature T_{max} 60°C.



Code	1180	1182	1185
Diameter	25mm	23, 35mm	25, 30, 36, 40, 50mm
Thread	G1/8	G1/8	G1/8
Accuracy class	4%; 2,5%	4%	4%
Ranges	0-400bar	0-400bar	0-400bar
Case	plastic	brass, chrome	stainless steel
Inspection hole	acrylic	acrylic	polycarbonate
Spring	Cu - alloy	Cu - alloy, stainless steel	Cu - alloy, stainless steel
Protection	IP 43	IP 54	IP 54



Code	1186	1187	1188
Diameter	36mm	25, 30, 37mm	23mm
Thread	G1/8	G1/8	G1/8
Accuracy class	2,5%	4%	4%
Ranges	0-3000psi	0-28bar	0-28bar
Case	stainless steel	stainless steel	brass, chrome
Inspection hole	polycarbonate	polycarbonate	acrylic
Spring	Be, CuZn alloy	CuZn alloy	Cu
Protection	IP 54	IP 54	IP 54

**WELDING
PRESSURE GAUGE
404**

diameter 63mm
bottom, back connection

**DESCRIPTION:**

- metal case with pressurized vent
- acrylate inspection hole, twofold edging
- connection bottom, back CuZn and copper alloys
- measurement mechanism CuZn and copper alloys

APPLICATION:

- industrial gases distribution
 - industrial gases storing
 - reducing valves

TECHNICAL PARAMETERS:

- diameter: 63mm
- measure ranges: 0-100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 31,5; 40MPa
 - scale: Pa, bar
- connection threads: G1/4, M12x1,5
(G1/8, G1/2, M10x1)
- accuracy class: 2,5%

SPECIFICATION:

Welding pressure gauges 404 are produced in compliance with EN562 standard. Mainly used for simple pressure measurements of industrial gases, that require oxygen purity, that do not have corrosive effect on copper alloys and their viscosity allows for use of measurement mechanism with bourdon pen.

Welding pressure gauges are suitable for measurements of industrial gases (acetylene, oxygen). Supplied in industrial gases design or universal design (NEUTRAL). Environment temperature -40 up to 60 °C, maximum medium temperature T_{max} 60°C. Other design options on individual request - special scale design, connection threads, etc.



MINING PRESSURE GAUGE 1251,1252

diameter 40, 50mm
bottom connection

DESCRIPTION:

- case: cast CuZn (1251), stainless steel (1252)
 - acrylate inspection hole
- bottom connection DIN20043/DN10
- measure mechanism CuZn and copper alloys
 - glycerine damping optional

APPLICATION:

- mining industry
 - hydraulics
- other heavy industry

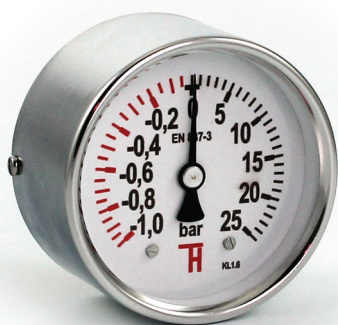
TECHNICAL PARAMETERS:

- diameter: 40, 50mm
- measure ranges: 0-100, 160, 250, 400, 600kPa
0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60MPa
 - connection: DIN20043/DN10
 - accuracy class: 2,5%

SPECIFICATION:

Mining pressure gauges are produced in compliance with EN837-1 standard. Mainly used for simple pressure measurement of liquids, vapour and gases, that do not have corrosive effect on copper alloys and their viscosity allows for use of bourdon pen measurement mechanism.

Pressure gauges are designed for use in mining industry. They are equipped with mining connector according to DIN20043/DN10. Pressure gauges are supplied in heavy duty design with case made of CuZn cast (type 1251) or stainless steel (type 1252). Maximum environment temperature 10 up to 60°C, medium temperature T_{max} 60°C. Other design options on individual request - special scale design, connection thread, glycerine damping, etc.



PRESSURE GAUGE 329

diameter 80 mm
back connection

DESCRIPTION:

- stainless steel /chrom. steel case
- plexiglass/safety glass inspection hole
- back connection CuZn and copper alloys
- measure mechanism CuZn and copper alloys
- overload 1,3x

APPLICATION:

- firefighting
- tank trucks and cisterns
- road cleaning vehicles
- suction vehicles

TECHNICAL PARAMETERS:

- diameter: 80mm
- measure ranges: -1+25bar; 0-25bar
- connection threads: M20x1,5 or G1/2
- accuracy class: 2,5%
- protection: -IP 54

SPECIFICATION:

Pressure gauges type 329 are produced in compliance with EN837-3 standard. Mainly used for simple pressure measurement of liquids, vapour and gases that do not have corrosive effect on copper alloys. Pressure gauges are designed into cisterns, tank trucks and fire fighting vehicles. They are to be placed onto pumps and suction devices. Equipped to be used in more demanding conditions. Resistant to shocks, machine vibrations and pulses. Their heavy-duty design ensures high functionality, safety and long life-time. Environment temperature -25 up to 60°C, medium temperature -20 up to 80°C. Other design options on individual request - special scale design, connection threads, lazy needle, red line, mirror dial, stainless steel front flange,....



RAIL VEHICLE PRESSURE GAUGE

diameters 80, 100 mm
back connection

DESCRIPTION:

- case Al cast/stainless steel
- glass or polycarbonate inspection hole
 - connection pin CuZn
- measurement mechanism CuZn

TECHNICAL PARAMETERS:

- diameter: 80, 100mm
- measure ranges: 0-10bar, 0-12bar, 0-16bar, other pressure range on request
- connection threads: G1/8 (G1/4; G3/8; G1/2; M12x1,5; M14x1,5; M16x1,5; M20x1,5)
 - accuracy class: 1,6%, 1%
 - protection: IP 54

SPECIFICATION:

Pressure gauges are produced in compliance with EN837-1 standard. Pressure gauges are designed for pressure measurements of gases and liquids of low viscosity with no solid admixtures. These mediums must not form crystals or have corrosive effect on copper alloys. Suitable for use on rail vehicles, mainly in break and fuel systems. Environment temperature -20 up to 60°C, medium temperature T_{max} 60°C. Gearing mechanism enables pressure transfer from the measurement mechanism element using the needle on the dial. Differential pressure gauge contains of two independently working measurement systems. Each measurement system has its own connection. Special gearing mechanism transfers each separate value by means of two needles with identical axis of rotation onto the same dial.



PRESSURE GAUGE ASSEMBLY THCR-II A FOR KRYO USE

diameter 100, 160mm
with multifunction valve

DIFFERENTIAL PRESSURE GAUGE:

- indicates differential pressure between bottom and top layer of liquid in a container
 - model THCR-II
 - 160mm/100mm
 - max. static pressure 40 bar
- differential ranges: 0-15kPa (0-1,5m H₂O)
0-20kPa (0-2,0m H₂O)
0-30kPa (0-3,0m H₂O)
- accuracy: $\pm 2,5\%$ of the range
 - oxygen purity
- connection M18X1.5 (metric) or 1/4 - 18 NPTF

STATIC PRESSURE GAUGE:

- measures pressure of the top vapour phase in a container
 - model 322ROB 100mm
- pressure ranges: 0-1; 1,6; 2,5; 4; 6; 10; 16; 25; 40bar
- accuracy: 1,6% from all range
 - oxygen purity
 - connection M20x1,5

OPTIONAL ACCESSORIES:

- transducer for static pressure 4-20mA, 0-10V
- transducer for differential pressure (layer) 4-20mA, 0-10V
 - switching contacts Min/Max
- individual procedural connection threads M, G, NPT design inner, outer, welding tubular connection
 - mounting flanges

SPECIFICATION:

Model THCR-II A is a combined differential pressure gauge, used for indication of differential pressure in cryogenic containers that contain liquefied gases. THCR-II A contains three basic elements - differential pressure gauge, static pressure gauge and multifunction valve. All set is placed in an aluminum heavy-duty case for increased protection of the entire device.

MULTIFUNCTION VALVE: Replaces 4 original valves on the container. Broken differential or static pressure gauge may be replaced without isolation gas pipeline, only by gradual adjusting. When using multifunction valve, the whole process is simplified, random step may be eliminated and thus the differential pressure gauge is protected and its life-time is prolonged. Also the area of pipeline installation may be reduced compared to the original 4-valve design.

STANDARD PRESSURE TRANSDUCER series THPB1, THIPB1 (HART)



DESCRIPTION:

- completely stainless steel construction
- suitable for low pressure and vacuum measurements
 - automatic testing, laser zero setting
- resistant to high-frequency shocks and interference
 - resistant to corrosion, impact and wear
- protection from reverse polarity, current protection, overvoltage protection
 - connector material: 17 248/ 1.4541
 - membrane material: 17 348/ 1.4571

APPLICATION:

- chemical industry
 - hydrology
- power engineering metallurgy

TECHNICAL PARAMETERS:

- measuring ranges: -1-0-...0,1-1000bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V; 0,5-4,5V
4-20mA HART/THIPB1
- connection: G1/2 (G1/4, M12x1,5, M20x1,5, 1/2 NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,1% FS; 0,25% FS (standard); 0,5%FS
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB1 works on the principle of piezo-resistant technology, as a sensor unit THPB1 uses a stainless steel membrane.

Transducers cylindrical case is made of stainless steel, including process connection.

THPB1 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

Some of the assets of the transducer are its integrated construction, sturdy and heavy-duty design, high accuracy and long-term stability. THPB1 is suitable for pressure measurements in most of industrial operations, widely used for pressure measuring in chemical industry, metallurgy, power engineering, hydrology, etc.



PRESSURE TRANSDUCER WITH FRONT MEMBRANE series THPB2, THIPB2 (HART)

DESCRIPTION:

- front membrane - construction without input pressure hole
- automatic testing, laser zero setting
- high accuracy and strength
- membrane type of connection against impurities
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- food industry
- health care
- viticulture, wine-making

TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,1-350bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V, 4-20mA HART/THIPB2
- connection: G1/2 (G1/4, M12x1,5, M20x1,5, 1/2 NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,25% FS (standard); 0,5%FS
 - pressure type: relative, absolute
- environment temperature: -40+125 °C

SPECIFICATION:

Pressure transducer THPB2 works on the principle of piezo-resistant technology, as a sensor unit THPB2 uses a chip.

Transducers cylindric case is made of stainless steel, including process connection. Process connection may be threaded, with front membrane, clamp or flange. Connection with front membrane is suitable as a protection against sediment load, crystallization, high viscosity liquids and similar mediums.

THPB2 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and long-term stability. THPB2 is widely used in food industry, health care, viticulture, etc.



PRESSURE TRANSDUCER WITH CERAMIC SENSOR series THPB3, THIPB3 options: CS, PC, (HART)

DESCRIPTION:

- silicon sensor
- automatic testing, laser zero setting
- high accuracy and long-term stability
- protection from reverse polarity, current protection, overvoltage protection
 - resistance to wear and corrosion
- options: THPB3, THPB3-CS, THPB3-PC

APPLICATION:

- food industry
- power engineering
 - health care
- chemical industry

TECHNICAL PARAMETERS:

- measuring ranges: 0-1...600bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V, 4-20mA HART/THIPB3
- connection: G1/4 (M20x1,5, 1/4 NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,25% FS (standard); 0,5%FS
 - pressure type: relative, absolute
- environment temperature: -40+125 °C

SPECIFICATION:

Pressure transducer with ceramic sensor THPB3 is equipped with integrated high quality silicon sensor and specially strengthened circuit. Transducers cylindrical case is made of stainless steel, including process connection. THPB3 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges. Sensor membrane THPB3 is made of ceramic material and all parts that come in contact with medium are made of stainless steel 321. THPB3 may be used for pressure measurement even in operations of variable temperatures thanks to the high temperature stability of the silicon sensor. Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and temperature change stability. THPB3 is suitable for pressure measuring in most industrial applications, widely used in chemical, food industry, health care and power engineering.



PRESSURE TRANSDUCER WITH HIGH FREQUENCY RESPONSE

series THPB4, THIPB4
(HART)

DESCRIPTION:

- monitoring frequency based on MEMS chip
 - high accuracy and stability
 - immediate response

APPLICATION:

- petrochemical industry
 - food industry
 - hydraulics
- chemical industry

TECHNICAL PARAMETERS:

- measuring ranges: 0-0,1..1000bar
 - output signal: 0-5V
 - 4-20mA HART/THIPB4
- connection: G1/4 (M12x1, M20x1,5)
 - supply voltage: 12-32V DC
- accuracy class: 0,1%FS, 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB4 works with a high frequency pressure sensor and a special closed circuit of high frequency characteristics.

THPB4 works on high frequency of monitoring (max. 1MHz).

Transducers cylindrical case is made of stainless steel, including process connection.

Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and long-term stability. THPB4 is suitable for dynamic measuring and monitoring of pressures in real time. Mainly used in chemical, petrochemical, oil industry and in military research, explosive experiments, mechanical and hydraulic testing, mechanization of measuring devices and developments of mechanical constructions.



PRESSURE TRANSDUCER FOR HIGH PRESSURES series THPB7, THIPB7 (HART)

DESCRIPTION:

- high accuracy, high tightness
- wide range of applications, long life-time
 - long-term stability
- resistance to corrosion, abrasion and impact

APPLICATION:

- metallurgy
- power engineering
hydraulics
- chemical industry
- health-care

TECHNICAL PARAMETERS:

- measuring ranges: 0-10..5000bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V,
4-20mA HART/THIPB7
- connection: G1/4 (G 1/ 2, M20x1,5, M22x1,5)
 - supply voltage: 12-36V DC
- accuracy class: 0,1%FS, 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB7 uses advanced metal foil as a sensor element. THPB7 uses Wheatstone bridge to convert pressure load into mV electric signal, which is then transferred onto a standard output. Thanks to the small size of the sensor unit it may be used in various versions, either with front membrane or with opened connection. Transducers cylindrical case is made of stainless steel, including process connection. THPB7 is fully tested on computer and zero value is set by means of laser that enables high sensitivity in wide range of temperatures. Some of the assets of the transducer are the integrated construction, its sturdy and heavy-duty design, high accuracy and long-term stability. THPB7 is designed for medium and high pressure measurements up to 5000bar. THPB7 is suitable for measurements in most industrial applications, used mainly in chemical, metallurgical industry, power engineering, hydraulics, health care, etc.



PRESSURE TRANSDUCER FOR HIGH TEMPERATURES series THPB8, THIPB8 (HART)

DESCRIPTION:

- suitable for high temperature measurements (max. 180°C)
 - reliable performance, good long-term stability
 - resistance to corrosion and vibrations
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- metallurgical industry
 - power engineering
 - food industry
 - health care
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,04- 1000bar
 - output signal: 4-20mA, 1-5V, 4-20mA HART/THIPB8
- connection: G1/4 (G1/2, M20x1,5, 1/4 NPT)
 - supply voltage: 10-36V DC
- accuracy class: 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer for high temperatures THPB8 is designed for measurements of high temperature mediums. THPB8 uses a special sensor, that may be in direct contact with the monitored medium. This technology enables compact size of THPB8.

Transducers cylindric case is made of stainless steel, including cooling and process connection. THPB8 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

Some of the assets of the transducer are high accuracy, high temperature resistance up to 180 °C and high stability of measurement independant on temperature change. THPB8 is suitable for pressure measuring in most industrial applications with high liquid and gases temperatures, in aviation, health care, power engineering, food and chemical industry.



INDUSTRIAL PRESSURE TRANSDUCER series THPB9, THIPB9

DESCRIPTION:

- good value for money
 - Al cast case
- resistance to corrosion, shocks and wear
 - resistance to reverse polarity, overvoltage protection, current protection

APPLICATION:

- metallurgical industry
- power engineering
- chemical industry
- hydrology

TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,1-600bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V, 4-20mA HART/THIPB9
 - connection: G1/2 (M20x1,5)
 - power supply voltage: 12-16V DC
- accuracy class: 0,25%FS; 0,5%FS (standard)
- pressure types: relative, absolute
 - protection: IP 65

SPECIFICATION:

Pressure transducer THPB9 uses high quality sensors of pressure insulated by stainless steel separating membrane functioning as the sensing element. Connector THPB9 and separating membrane are made of stainless steel, electronic case and display unit is made of aluminum cast. THPB9 is fully tested on computer and set to zero by laser with sensitivity in wide temperature range. Output signal may be showed on the LCD display unit. THPB9 is proved to work by long-term use in demanding processes and is suitable for pressure measurement and control in heavy-duty conditions. THPB9 is suitable for pressure measuring in most industrial applications, chemical industry, metallurgy, power engineering, hydrology, etc.



CAPACITY PRESSURE TRANSDUCER WITH CERAMIC MEMBRANE

series THPB10,
THIPB10 (HART)

DESCRIPTION:

- high resistance to wear and shocks
 - long-term stability
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- metallurgical industry
 - power engineering
 - hydrology
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -2,5-0,5...0,5- 5kPa
-10-1...0-10kPa, 0-2...20kPa
- sensor ranges: 0-5kPa, 0-10kPa, 0-20kPa
- output signal: 4-20mA, 4-20mA HART/THIPB10
 - connection: G1/2 (M20x1,5, M42x1,5)
 - supply voltage: 12-30V DC
- accuracy class: 0,5%FS; 1%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB10 works on principle of pressure measuring using capacity technology with ceramic sensor.

THPB10s cylindric case is made of stainless steel, including process connection.

Pressure transducer is designed for measurements of low pressures in corrosive and aggressive mediums and in demanding conditions.

THPB10 uses high quality ceramic sensor and special amplifier. THPB10 has an integrated construction, long-term stability, high anti-corrosive resistance and high resistance to pressure shocks.

THPB10 is suitable for measuring and control of low pressures in chemical industry, metallurgy, power engineering, hydrology, etc.



CAPACITY PRESSURE TRANSDUCER FOR ATEX ENVIRONMENT series THPB11, THIPB11 (HART)

DESCRIPTION:

- ATEX - class EXIICT5
- resistant to pressure overloading and temperature change
- resistance to corrosion, wear, impact
- dustproof

APPLICATION:

- metallurgical industry
- power engineering
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -1bar...0-5mbar...1000bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V
4-20mA HART/THIPB11
- connection: G1/2 (M20x1,5)
- supply voltage: 12-36V DC
- accuracy class: 0,25%FS, 0,5%FS (standard)
- pressure type: relative, absolute
- environment temperature: -20+80 °C
- protection: IP65

SPECIFICATION:

Pressure transducer THPB11 works on the principle of capacity technology with ceramic membrane. Electronics case is made of aluminium cast.

Thanks to use of dry technology (without using transfer liquid) of pressure measurement and sturdy electronic part, known as SMT technology, the transducer shows exceptional technical parameters of ceramic-capacity pressure transducers.

Thanks to this construction THPB11 are usable in ATEX environment (EXIICT5). THPB11 is suitable for pressure measurement in most industrial applications. Widely used in operations, where ATEX resistance is required, mainly in chemical industry, metallurgy and power engineering.



PRESSURE TRANSDUCER WITH INCREASED RESISTANCE TO CORROSION series THPB3-c, THIPB3-c (HART)

DESCRIPTION:

- used for aggressive mediums with corrosive effects
 - PVDF - material of wetted parts
 - of ceramic membrane (96% Al₂O₃)

APPLICATION:

- food industry
- power engineering
- petrochemical industry
- health care

TECHNICAL PARAMETERS:

- measure ranges: 0-1...200bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V
4-20mA HART/THIPB3-c
- connection: G1/4 (G1/2, M20x1,5, 1/2NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,25%FS, 0,5%FS (standard)

SPECIFICATION:

Pressure transducer THPB3-c with increased resistance to corrosion comes from the same technical basis as transducer THPB3. Pick-up membrane THPB3-c is ceramic, the inbuilt wetted parts are separated by a separating membrane made of polyvinylidenfluorid (PVDF), thanks to which this model has increased resistance to corrosion 96% Al₂O₃. Transducers cylindrical case is made of stainless steel. THPB3-c is fully tested on computer and zero value is set by means of laser with sensitivity in wide range of temperatures. THPB3-c is designed for pressure measurement of corrosive mediums in most industrial applications, widely used for pressure measurement in petrochemical industry, power engineering, food industry, health care, hydrology, etc.



PRESSURE TRANSDUCER FOR DIFFERENTIAL PRESSURE series THPB5, THIPB5

DESCRIPTION:

- good value for money, long-term stability
 - resistance to overloading up to 200%,
to overpressure up to 100%
- protection from reverse polarity, current protection,
overvoltage protection
 - easy installation
- integrated construction in stainless steel design

APPLICATION:

- food industry
- power engineering
- health care
- petrochemical industry

TECHNICAL PARAMETERS:

- measuring ranges: 0-0,1...35bar
- output signal: 4-20mA, 0-5V, 0-10V; 1-5V; 0,5-4,5V
4-20mA HART/THIPB5
 - connection: G1/4 inner thread (M12x1,5)
 - accuracy class: 0,1% FS ; 0,25%FS (standard)
 - pressure type: differential

SPECIFICATION:

Pressure transducer of differential pressure works on the principle of piezo-resistant technology, as measure element it uses a differential sensor with insulated stainless steel membrane.

Transducers cylindric case is made of stainless steel, including process connection.

Some of the assets of the transducer are its integrated construction, heavy duty and sturdy design, high accuracy and long-term stability. THPB5 is suitable for pressure measuring and regulation of corrosive mediums in most industrial applications, in petrochemical industry, power engineering, health care, hydraulics, airconditioning, etc.



COMBINED PRESSURE AND TEMPERATURE TRANSDUCER

series THPB13

DESCRIPTION:

- ceramic sensor with temperature sensor Pt100
 - material : stainless steel AISI 304 or 316L
 - sealing material : EPDM, NRB or FKM

APPLICATION:

- hydraulics
- power engineering
- heating industry
- mechanical engineering

TECHNICAL PARAMETERS:

- measuring range - pressure: 0-2 bar...600 bar
 - measuring range - temperature: -40+105°C
- connection thread: 1/2 NPT, G1/2", G1/4", M20x1,5
- electric connector: M12x1,5, DIN43650 A, cable
- output signal: 4-20 mA, 0,2-10,2 V, 0-10V, 0-5 V
 - power supply: 12-30VDC, 10-30VDC
 - accuracy calss: 1,0%FS
 - protection: IP 65
- ambient temperature: -20+85°C

SPECIFICATION:

The combined pressure and temperature transmitter THPB13 with ceramic sensor and PT100 temperature sensor is ideal for solving general industrial applications. Thanks to its compatibility, the transmitter can be combined with all standard industrial output signals. The cylindrical body of the transmitter is made of stainless steel, including the process connection. The transmitter THPB13 is suitable for measuring pressures in most industrial applications and hydraulics.



DIGITAL PRESSURE GAUGE

3323/3324

DESCRIPTION:

- robust design
- LCD display with high resolution
 - min/max values memory
- available units: MPa, psi, bar, kPa, kg/cm²
- 1-15min. automatic shut-off function

APPLICATION:

- energetics
- petrochemical industry
- heating industry
- hydraulics

TECHNICAL PARAMETERS:

- measuring range: -1-0...0-1000 bar
 - display range: -9999-19999
- connection thread: G1/2 (G1/4)
- accuracy class: 0,5%FS; 0,25%FS
 - protection: IP65
 - Micro-USB B

SPECIFICATION:

Digital pressure gauge 3323/3324 is an ideal solution for local digital measurement with extended functions. The pressure gauge is equipped with a graphic representation of the measured value from the total range.

Standard functions Min/Max, Min/Max alarm. Automatic recording of measured values.

The pressure gauge is equipped with a micro USB connector for fast data transfer.

The digital pressure gauge is widely used for pressure measurement in the petrochemical industry, energy, heating, hydraulics, etc.

The possibility of expanding functions - data logger, bluetooth.



DIGITAL PRESSURE GAUGE series TH1Y6

DESCRIPTION:

- LCD display with high resolution
- min/max pressure value during measure process
- choice of units: Mpa, psi, bar, kPa, kg/cm²
- 1-15min. automatic shut-off function

APPLICATION:

- power engineering
- petrochemical industry
- heating industry

TECHNICAL PARAMETERS:

- measuring ranges: -1-0...0,1-1000bar
- display range: -1999-9999
 - overloading: 150% FS
- connection: G1/2 (G1/4, M20x1,5, ½NPT)
- accuracy class: 0,1% FS; 0,25%FS (standard);0,5%FS
- pressure: relative, absolute

SPECIFICATION:

Digital pressure gauge TH1Y6 is designed for high accuracy pressure measurements of liquids and gases. Main assets of this device are all-stainless steel design, 4-digit LCD display, low power consumption, long-term resistance to overloading. Flexible use of digital pressure gauge, its setting and operation is very easy, safe and reliable.

TH1Y6 pressure gauge is widely used for pressure measurements in petrochemical industry, power engineering, heating industry, etc.



DIGITAL PRESSURE GAUGE

series TH1Y7

DESCRIPTION:

- robust design
- LCD display with high resolution
 - min/max values memory
- available units: MPa, psi, bar, kPa, kg/cm²
- 1-15min. automatic shut-off function

APPLICATION:

- energetics
- petrochemical industry
- heating industry
- hydraulics

TECHNICAL PARAMETERS:

- measuring range: -1-0...0-1000 bar
 - display range: -1999-9999
- connection thread: G1/2 (G1/4, M20x1,5, 1/2NPT)
 - accuracy class: 0,5%FS; 0,2%FS
- pressure types: relative pressure, absolute pressure
 - overload: 120%FS

SPECIFICATION:

The TH1Y7 digital pressure gauge is designed for measuring the pressure of dripping and gaseous media with high measurement accuracy.

Advantages include all-stainless steel design, 4-digit LCD display, low power consumption, long-term resistance to overload.

The use of the TH1Y7 digital pressure gauge is flexible, its operation and adjustment is very simple, safe and reliable.

TH1Y7 is widely used for pressure measurement in the petrochemical industry, energetics, heating industry, etc.



HAND -HELD DIGITAL PRESSURE GAUGES

mobile use
for alarm, logger, data etc.

DESCRIPTION:

- light, easy, portable
- resistant case

APPLICATION:

- power engineering
- mechanical engineering
- gas distribution, air conditioning
- food industry

DIGITAL PRESSURE GAUGES WITH INTEGRATED SENSOR

- GDH 200xx - basic design;
for overpressure, vacuum and differential pressure
- GMH31xx - design with advance functions;
for overpressure, vacuum and differential pressure,
optional Ex design

DIGITAL PRESSURE GAUGES FOR EXCHANGABLE SENSORS

- GMHxx - for overpressure, vacuum and differential pressure,
EX design optional, all pressure sensors
series GMSD/MSD can be used with option of Ex design

SENSORS GMSD FOR LOW PRESSURES

- for overpressure, vacuum and differential pressure,
not suitable for aggressive mediums and water

STAINLESS STEEL SENSOR GMSD UP TO 400BAR

- for overpressure, vacuum and differential pressure,
suitable for aggressive mediums and water

SPECIFICATION:

Hand-held digital pressure gauges are designed for mobile measurement of relative, absolute and differential pressures in range of -1+400 bar. Pressure gauges are divided into two main groups. Pressure gauges with inbuilt sensor are designed for direct pressure measurement using connecting tubes, max. pressure up to 2,5 bar. Pressure gauges with external sensor can measure ranges up to 400 bar.



Digital pressure gauges
with integrated sensors



Digital pressure gauges
for exchangeable sensors



Sensors for low pressures



Stainless steel sensor

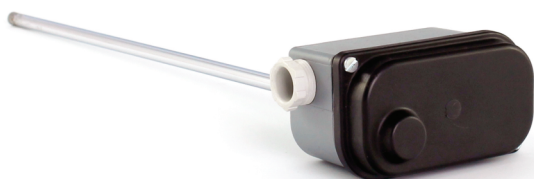
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TEMPERATURE REGULATION

- C.1.1. Stem thermostat series TH 140
- C.1.2. Stem thermostat series TH 160
- C.1.3. Stem thermostat series TH 220, TH 221
- C.1.4. Stem thermostat series TH 260, TH 261
- C.1.5. Stem thermostat series TH 20
- C.1.6. Thermoregulator series KR 10, KR 20
- C.1.7. Thermoregulator series RT 8801, RT 8803, RT 8804
- C.1.8. Single-phase capillary thermostat MMG
- C.1.9. Capillary thermostat series TKR 100, TKR 200, TKR 300
- C.1.10. Thermal fuse KNTP 881x.xx, KNTP 8823.02
- C.1.11.a Capillary thermal fuse series WPR 100,
- C.1.11.b Capillary thermal fuse series WPR 200
- C.1.12.a Three-phase capillary thermostat series MMG
- C.1.12.b Three-phase capillary thermal fuse series MMG
- C.1.13. Single-phase thermostat combined with a fuse BBSC
- C.1.14. Three-phase thermostat combined with a fuse RAC
- C.1.15. Cased contact thermostat series THP 90, WTHP 90
- C.1.16. Cased stem thermostat series THS
- C.1.17. Cased stem thermostat series DTHSC-90
- C.1.18 Cased capillary thermostat series THK
- C.1.18.a Room cased thermostat THPRC
- C.1.19. Bimetallic thermostats
- C.1.20. Bimetallic thermostat THBT, THBTST
- C.1.21. Temperature regulator
- C.1.22. Digital thermostat THDK, THDP, THDS
- C.1.23. Electronic temperature switch THTS2

STEM THERMOSTAT series TH 140

resistant thermostat IP 44
load up to 15A



DESCRIPTION:

- temperature sensitive element is the stem of thermostat, consisting of: for TH 140 and TH 143 dilating brass for TH 141 and TH 144 anticorrosive tube
- temperature expansion of the tube is transferred by invar bar through lever gearing onto switching mechanism, which is placed in a waterproof head
 - regulatory button for required temperature setting is also placed in a waterproof head and may be arrested, so that the setting can not be changed by means of vibration, etc.
- for thermostat mounting into the regulated environment use union nut on thermostats stem
 - thermostats TH 140 and TH 141 are designed for direct loading - switching contacts are bypassed by arc-suppression condenser
 - thermostat TH 143 and TH 144 are designed for alternate loading

TECHNICAL PARAMETERS:

- regulatory range: 20-140°C (TH140,143)
100-200°C (TH141, 144)
- switching temperature difference: 1-4K (TH140, 143)
1-6K (TH141,144)
- stem length: 303 (TH141, 144); 350mm (TH140,143)
 - setting accuracy: 10%
- contact load: 60V, 1A ss; 120V, 0,5A ss (TH140, 141)
250V st, 15A st (TH143,144)
 - protection: IP 44

SPECIFICATION:

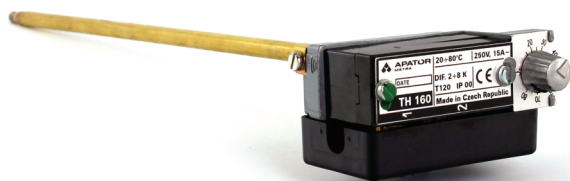
These thermostats are temperature dependent single-pole switches, which are designed for temperature regulation in liquid environment.

Suitable for hot-water heating regulation of thermoplastic and rubber moulding presses, further for regulation and temperature detection of water and oil baths.

The core of these thermostats is a reliable mechanical system, that has no power consumption itself. For assembly in liquid environment it is necessary to use a protection well. The stem must not be exposed to mechanical stress and must be placed in a way, so that it can freely dilate. Thermostats working position is arbitrary.

STEM THERMOSTAT series TH 160

protection IP 00
load up to 15A



DESCRIPTION:

- thermostats consist of two main parts: temperature sensor and switching head
 - dilative change of sensor is transferred by means of lever onto the switch
 - thermostats are made in switch off design (2 terminal) or switch over design (3 terminal)
- terminals are screwed with option of conductor connection with max. section 4 mm
 - protection terminal must be connected to protection conductor
- standard design is fitted with terminal cover for protection against unintended contact

TECHNICAL PARAMETERS:

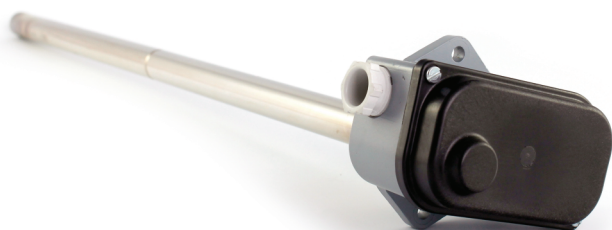
- regulatory range: 20-75°C (TH160.1) 20-80°C (TH160, 160.2), 20-100°C (TH167) 20-160°C (TH162), 20-200°C (TH165) 30-160°C (TH164), 50-90°C (TH163) 60-120°C (TH169), 100-200°C (TH166)
- difference of switching temperatures: 8, 10, 16K
 - stem length: 100, 125, 160, 200, 250, 315mm
 - setting accuracy: 10%
 - contact load: 250V, 15A st TH 162 a TH 165 - 250V, 10A st
 - number of terminals: 2, 3
 - protection: IP 00

SPECIFICATION:

Stem thermostats TH 160 are temperature-dependent single-pole switches, based on principle of different temperature dilatation of two different metals. They are designed for electric circuit switching, however not as the main switch. The core of these thermostats is a reliable mechanical system, that does not have any power consumption itself. Products are known for significantly low operational and maintenance costs compared to electronic systems. Temperature setting of thermostats TH 160, TH 160.1, TH 160.2, TH 163, TH 164, TH 166, TH 167 a TH 169 is performed by a regulatory knob. Temperature may be reset within the nominal range by the operator. Switching temperature of thermostats TH 162 and TH 165 is set by the manufacturer based on order request. The preset temperature is fixed and may not be changed by the operator.

STEM THERMOSTAT series TH 220, TH 221

protection IP 44
load up to 15A



DESCRIPTION:

- thermostats consist of two main parts: temperature sensor and switching head
- temperature sensitive element is the stem, consisting of brass tube; its dilatation is transferred onto the switching mechanism by invar bar
- the whole thermostat system is closed in a waterproof cover with cable gland P13,5

TECHNICAL PARAMETERS:

- regulatory range: $-20+60^{\circ}\text{C}$
- switching temperature difference: 1-3K
 - setting accuracy: 5%
- contact load: 1A, 60V ss; 0,5A, 120V ss (TH 220)
250V, 15A st (TH 221)
- permitted head temperature: $-30+60^{\circ}\text{C}$
 - permitted stem temperature: 140°C
 - protection: IP 44

SPECIFICATION:

Stem thermostats TH 220, TH 221 are temperature-dependent single-pole switches, designed for temperature regulation in gas environment, ex. in air heating pipes or in other closed areas with high humidity and dustiness. They can be used for cooling and air-conditioning purposes, in combination with electric valves it can be used also for regulation of vapour or water heating, or as temperature sensor in heated areas. The core of these thermostats is a reliable mechanical system, that has no power consumption itself. They are known for significantly low operational and maintenance costs compared to electric systems. Switching mechanism consists of quick-break single-pole switch. The scale of switching temperatures is marked directly on the regulatory knob. Thermostat mounting is performed by two screws on the feet on thermostats head. It is essential to avoid mechanical load of the stem during the installation.

STEM TERMOSTAT series TH 260, TH 261

protection IP 00
load up to 15A



DESCRIPTION:

- thermostats consist of two main parts: temperature sensor and switching head
- temperature-dependent element is the stem, consisting of dilating tube made of anti-corrosive heat-resistant steel
- regulatory knob for temperature setting is closed in a waterproof head and may be arrested

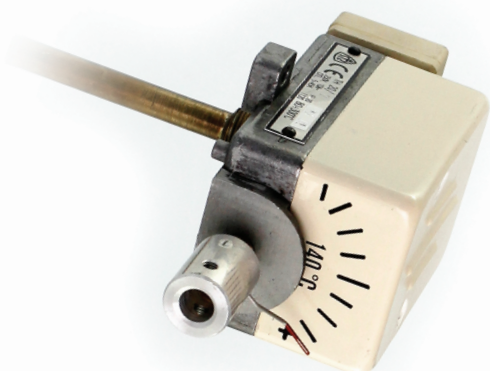
TECHNICAL PARAMETERS:

- regulatory range: 200-400°C
- switching temperature difference: 5-20K
 - setting accuracy: 10%
- contact load: 0,5A, 120V ss (TH 260)
15A, 250V st (TH 261)
- permitted head temperature: 120°C
- permitted stem temperature: 500°C
 - protection: IP 44

SPECIFICATION:

Stem thermostats TH 260, TH 261 are temperature-dependant single-pole switches, designed for protection against excessive exhaust gas temperature of diesel aggregate used for diesel-electric train heating. They may also be used for other thermoregulation.

Core of these thermostats is a reliable mechanical system, that has no power consumption itself. They are known for significantly low operational and maintenance costs compared to electric systems. Temperature dilation of the tube is transferred by invar bar and lever gearing onto the switching mechanism, which is enclosed in a waterproof head. There are two feet with screw holes designated for thermostat mounting.

**STEM
THERMOSTAT
series TH 20****protection IP 00
load up to 10A****DESCRIPTION:**

- thermostats consist of two main parts: temperature sensor and a switching head
- switching head must be placed in environment of maximum temperature 120°C and relative air humidity max. 80%.

TECHNICAL PARAMETERS:

- regulatory range: 80-320°C
- switching temperature difference: min. 1K, max. 12K
- setting accuracy: $\pm 16^{\circ}\text{C}$ for 200°C
- contact load: 10A, 250V st
- number of terminals: 2, 3
- protection: IP 00

SPECIFICATION:

Thermostat TH20 is basically a single-pole automatic switch, based on principle of different temperature expansion of two metals. It is designed for thermoregulation in gas environment, heated by alternate current (electric ovens etc.), within its range. The core of these thermostats is a reliable mechanical system, that has no power consumption itself. They are known for significantly lower operational and maintenance costs compared to electric systems.

The thermostat consists of a stem and a switch head. The stem comprises of expansive tube and invar bar. For fitting purposes the thermostat is equipped with two holy risers. It is necessary to install the thermostat in a way, so that the lower part of the switching head is approximately 2 cm away from the body wall and this area is filled with insulating material, so that the head temperature does not exceed +120°C.

THERMOREGULATOR series KR 10, KR 20



capillary length 500, 1000mm
load up to 16A

DESCRIPTION:

- design: switch off or throw-over terminal
 - connection terminal: flat pins 6,3x0,8 according to ČSN EN 612 10
 - number of terminals: 2/3

TECHNICAL PARAMETERS:

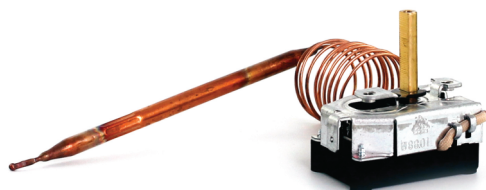
- regulatory range: 7-77°C (KR 10, KR 11)
35-95°C (KR 20, KR 21)
 - switch off design: KR 10, KR 20
 - throw-over design: KR 11, KR 21
- switching temperature difference: 2-6K
 - nominal current: 16/10A
 - nominal voltage: 240/400V
- max. sensor temperature: 90°C (KR 10, KR 11)
110°C (KR 20, KR 21)
 - protection: IP 00

SPECIFICATION:

Thermoregulators (thermostats) are single-pole temperature regulators, whose function is based on principle of fluid expansibility. They consist of two main parts: switch mechanism and capillary temperature sensor. Thermoregulators enable phase-conductor micro-disconnection. They may signalize electric load micro-disconnection. Under normal working conditions the capillary regulators keep appliances temperature or its parts temperature within desired range, preset by the user, by automatic switching of the electric circuit. Capillary regulators are not designed for disconnection of an appliance from electric circuit. The obligatory parameters of the capillary regulator are determined in technical conditions TP MŠ – 030/01.

THERMOREGULATOR series RT8801, RT8803 RT8804

capillary length 1000mm
load up to 16A



DESCRIPTION:

- design: switch off or throw-over contact
- connecting terminals: flat pins 6,3x0,8 according to ČSN EN 612 10
 - number of terminals: 2/3

TECHNICAL PARAMETERS:

- regulatory range: 0-40°C (RT 8801)
7-77°C (RT 8803)
50-190, 50-250, 50-320°C (RT 8804)
- switch off design: RTxx.01, RTxx.02
 - throw-over design: RTxx.021
- switching temperature difference: 1-3K, 2-5K, 4-10K
 - nominal current: 16(2,6)A
 - nominal voltage: 240V
- max. sensor temperature: 50°C (RT 8801)
90°C (RT 8803)
330°C (RT 8804)
- protection: IP 00, RT built-in

SPECIFICATION:

Thermoregulators (further only RT) are designed for thermoregulation in devices heated by electric alternate current, such as water heaters and electric ovens. RT is not to be used as a switch.

RT8801, RT8803, RT8804 are single-pole capillary thermoregulators based on principle of fluid expansibility.

RT consists of two main parts - switching unit and capillary temperature sensor. There is a protection grounding pin on the cover.

The regulated temperature may be set by the user within the regulatory range, RT 8803 may also be used as an antifreeze protection.

RT installation is performed by two M4 screws.



SINGLE-PHASE CAPILLARY THERMOSTAT series MMG

capillary length 1000mm
load up to 20A

DESCRIPTION:

- design: switch-off or throw-over
- connection terminal: flat pins 6,3x0,8 according to ČSN EN 612 10
 - sensor material: copper
- capillary: copper with PVC protection

TECHNICAL PARAMETERS:

- regulatory range: 7-77, 20-127, 50-190°C
- sensor dimensions: 5x132mm, 6,5x113mm, 4x168mm
 - capillary dimensions: 1,4x920mm; 1,4x550mm; 1x1180mm
- switching temperature difference: 4K, 6K
 - switching range: 16A, 240V
 - nominal voltage: 250V
- max. environment temperature: 80°C
 - protection: IP 00

SPECIFICATION:

Single-phase capillary thermostats MMG are designed mainly for use in hot water boilers, washing machines, electric cookers, ovens and other appliances equipped with automatic thermoregulation.

May be used for all mediums, where it is possible to ensure correct heat transfer between the medium and the sensor.

CAPILLARY THERMOSTAT series TKR 100, 200, 300

setting by shaft,
screw, fixed
load 16A



DESCRIPTION:

- function of change-over contacts: switch-off/ switch-on
 - case material: galvanized sheet, plastic
 - sensor material: copper, stainless steel
- capillary material: copper with PVC protection, stainless steel

TECHNICAL PARAMETERS:

- regulatory range: -30+35, 0-40, 7-77, 0-90, 20-127, 0-210, 0-300°C
- setting accuracy: ± 5 , $\pm 3-8$, $\pm 6-10$, $\pm 8-15$ °C
 - difference: 2 ± 1 , 3 ± 1 , 6 ± 2 , 8 ± 2 °C
- max.sensor temperature: 65, 120, 135, 250, 350°C
- capillary length: 500, 1000, 1500, 2000, 3000mm
 - angular setting: 270°C
- contact load: 16(4)A, 250V; 6(1)A, 400V

SPECIFICATION:

Capillary thermostats are designed for thermoregulation in appliances heated up by alternate electric current (boilers, etc.)

Thermostats do not serve as a breaker.

Thermostats are supplied with change-over contacts, you can choose from desired function: switch on or switch off. Required temperature can be set by shaft (regulatory knob shaft shoulder optional) model TKR 100, on model TKR 200 using screwdriver by turning screw with temperature scale. On model TKR 300 the required temperature can not be set, the fixed value is set by manufacturer.



THERMAL FUSE

series KNTP 881*.*
KNTP 8823.02

single-pole and double-pole

DESCRIPTION:

- design:
single-pole (KNTP 8812.02, 8813.02, 8814.02),
double-pole (KNTP 8823.02)
- connection terminals: flat pins 6,3x0,8
according to ČSN EN 612 10
- sensor material: copper, stainless steel

TECHNICAL PARAMETERS:

- switching temperature ranges:
35-99°C (KNTP 8812.02)
35-80°C (KNTP 8813.02)
50-320°C (KNTP 8814.02)
- switching temperature difference: -6, -10°C
- max. sensor temperature: 90°C (KNTP 8813.02)
110°C (KNTP 8812.02)
330°C (KNTP 8814.02)
- nominal current: 16(3,5)A
 - nominal voltage: 250V
- protection: IP 00, KNTP is built-in

SPECIFICATION:

Capillary non-reversible thermal fuse (further only KNTP) is a protection device with temperature sensor, which serves as a temperature limiter in appliances heated up by AC under abnormal working conditions. KNTP does not serve as a switch. KNTP is built-in single or double-pole switching capillary non-reversible fuse, that works on principle of liquid dilatation. KNTP consists of two main parts - switching mechanism and capillary temperature sensor. When the sensors environment temperature reaches the switch-off value preset by the manufacturer, electric circuit is disconnected. Another start of the system must be done mechanically by pressing the button on the switches body, after the sensor has cooled down. It is not allowed to turn the KNTP on under el. load. Mounting of KNTP is performed by two M4 screws. There is a protection grounding pin on the cover. Only skilled personnel may reconnect the system.

CAPILLARY THERMAL FUSE series WPR 100

automatic reset



DESCRIPTION:

- design: automatic reset WPR 100
- capillary material: copper with PVC protection
 - sensor material: copper

TECHNICAL PARAMETERS:

- temperature range: 100, 90-110°C (WPR 100)
 - setting accuracy: 0-6°C; $\pm 3^\circ\text{C}$
 - switching difference: $20 \pm 5^\circ\text{C}$
- max. sensor temperature: 135°C
 - capillary length: 1500mm
- contact load: c-2: 16A, 250V AC; 6A, 400V AC
c-1: 4A 250V AC; 1A 400V AC

SPECIFICATION:

Capillary thermal fuses WPR 100 are provided to protect the temperature in case of failure of the operating thermostat in devices heated by electricity. alternating current (boilers, boilers, etc.). Thermal fuses do not act as a switch. Thermal fuses are included in the design with switching contacts, where the function: switching/opening can be selected.

Thermal fuses are included in the version with a fixed or adjustable setting. WPR100 thermal fuses are automatic, i.e. when the temperature drops by a difference, it switches on.



CAPILLARY THERMAL FUSE series WPR 200, 200 B

manual reset

DESCRIPTION:

- design: manual reset
- capillary material: copper with PVC protection
- sensor material: copper

TECHNICAL PARAMETERS:

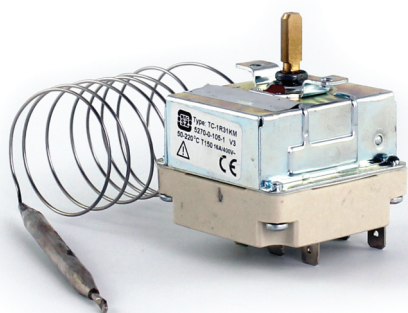
- temperature range: 90-110°C
- setting accuracy: 0-6°C; $\pm 3^\circ\text{C}$
- switching difference: $20 \pm 5^\circ\text{C}$
- max. sensor temperature: 135°C
 - capillary length: 1500mm
- contact load: c-2: 16A 250V AC; 6A 400V AC
c-1: 4A 250V AC; 1A 400V AC

SPECIFICATION:

Capillary thermal fuses WPR 200, 200 B are used to protect the electrical circuit, in case of overload they automatically break the circuit. It thus protects the appliance from damage, especially in devices used for heating with electric alternating current (boilers, boilers and similar devices).

The fuses do not serve as a Power Button switch! For versions with switching contacts, the desired function can be selected: switching or opening.

In addition, the fuses are supplied in a version with a fixed or adjustable temperature. WPR 200/200 B, are equipped with a manual reset, where reconnection is possible only mechanically by pressing the reset button.



THREE-PHASE CAPILLARY THERMOSTAT series MMG

adjustable shaft
load 16A/400V

DESCRIPTION:

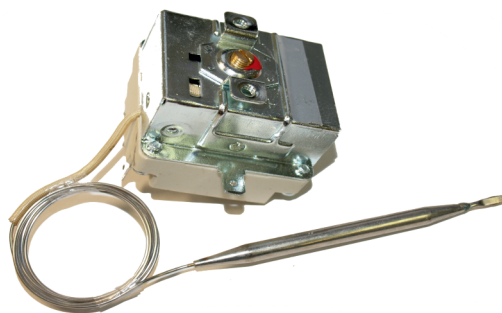
- design: 3 phase switch-off contact
- capillary material: stainless steel with PVC protection
 - sensor material: stainless steel

TECHNICAL PARAMETERS:

- temperature range: 50-220, 50-300°C
 - contact load: 16A/400V
 - switching difference: 10°C
- max. sensor temperature: 320°C
 - capillary length: 920mm
- contact load: 16(4)A 250V; 6(1)A 400V

SPECIFICATION:

Three-phase capillary thermostat automatically breaks a circuit when reaching preset temperature. When temperature drops, the thermostat connects the circuit again and systematically maintains the medium temperature by positions on/off. These thermostats are used mainly for washing machines, kitchen and industrial cookers, ovens, etc. Suitable for temperature control of gas, liquid and solid materials.

**THREE-PHASE
THERMAL FUSE
series MMG****manual reset
load 16A/400V****DESCRIPTION:**

- design: manual reset
- capillary material: stainless steel with PVC protection
 - sensor material: stainless steel
 - connection: A 6,3 clamp stirrup

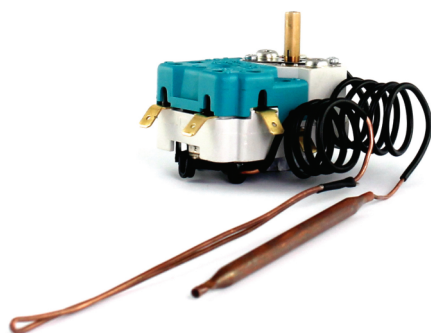
TECHNICAL PARAMETERS:

- switch-off temperature: 250, 315°C
 - contact load: 16A, 400V
 - sensor diameter: 6mm
 - capillary length: 920mm
 - protection: IP 00

SPECIFICATION:

Three-phase thermal fuses - when the sensors environment temperature reaches the switch-off temperature preset by the manufacturer, electric circuit is disconnected, this way the fuse protects a device from overheating. Another start of the system must be done mechanically.

Thermal fuses are suitable mainly for hot water boilers and other heating devices as a protection device. Applicable for temperature limitation of liquid, gas and solid materials.



THERMOSTAT COMBINED WITH A FUSE BBSC manual reset, single-phase load 20A

DESCRIPTION:

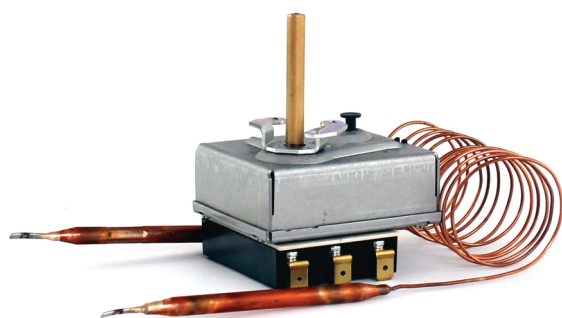
- design : single-phase, manual reset
- sensor and capillary material: copper
- connection: connector covered in brass or nickel, terminal FAST ON 6,3

TECHNICAL PARAMETERS:

- regulatory range: 7-77°C
 - thermal fuse: 102°C
- switching temperature: approx. 5% from temperature range
 - current load: 20A, 240V; 15A, 400V
 - sensor diameter: 6mm
 - capillary length: 520mm
 - protection: IP 00

SPECIFICATION:

When using combined thermostat with fuse series BBSC, the thermostat automatically disconnects the electric circuit when reaching a preset temperature. In case of temperature drop it connects the circuit again and it systematically keeps the medium temperature by constant switching of positions on/off. If the temperature of temperature sensors environment reaches fixed switching value previously set by manufacturer, the electric circuit is disconnected, thereby the fuse protects the appliance from overheating. These thermostats are used mainly for washing machines, industrial kitchen cookers, ovens, electric radiators, sanitations, health care, etc. Suitable for temperature control of liquid, gas and solid materials.



THERMOSTAT COMBINED WITH A FUSE RAC

manual reset, three-phase
load 20 (30)A/400V

DESCRIPTION:

- design: three-phase, manual reset
- material of capillary/sensor: copper/stainless steel
 - membrane material: stainless steel
 - terminal: M4x8, FAST ON connector

TECHNICAL PARAMETERS:

- setting range: 7-77, 30-85, 0-100, 0-300°C (TR)
95, 100, 110, 330°C (STB)
- switching difference: -10, -12, -30°C (TR),
-10, -30°C (STB)
- switching load: 20/30A, 400V
 - protection: IP 00

SPECIFICATION:

Combined thermostat with a fuse series RAC automatically disconnects the electric circuit when reaching a preset temperature. In case of temperature drop it connects the circuit again and it systematically keeps the medium temperature by constant switching of positions on/off. If the temperature of temperature sensors environment reaches fixed switching value previously set by manufacturer, the electric circuit is disconnected, thereby the fuse protects the appliance from overheating.

These thermostats are used mainly for washing machines, industrial kitchen cookers, ovens, etc. Suitable for temperature control of liquid, gas and solid materials.

CASED

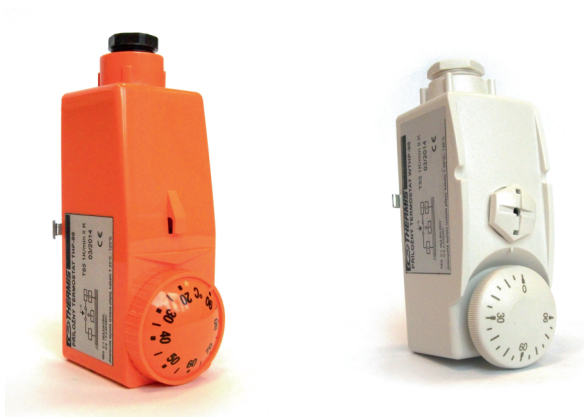
CONTACT

THERMOSTAT

series THP 90,

WTHP 90

opened/covered regulation

**DESCRIPTION:**

- design: contact, opened or covered regulation
- mounting: onto pipe
- output: contact switch on or switch off
- placement: common environment

TECHNICAL PARAMETERS:

- temperature range: 20-90°C (THP 90), 0-90°C (WTHP 90)
 - temperature difference: 8±3K
 - contact load: 1-2=16(2,5)A/250V
1-3=2,5A/250V (THP90)
-1-2=16(4)A/250V, 1-3=6(1)A/400V (WTHP90)
 - protection: IP 20 (THP 90), IP 40 (WTHP 90)

SPECIFICATION:

Contact cased thermostats are mainly used in applications, where the emphasis is put on visual aspect and easy control, or where it is convenient to prevent direct contact with the contacts. Main advantages of these thermostats are easy control, mounting and reliability.

Widely used for switching of boiler circulation pump. Thermostats THP, WTHP feature change-over contact for connection and disconnection of electric circuit. While using thermostat THP it is possible to set the switching difference. Type THP is also supplied in design with covered regulation dedicated for protection against unintended contact or unprofessional manipulation. Thermostat series WTHP is due to its wider range suitable for applications, where it is necessary to regulate temperatures close to zero. For these purposes serves also the higher protection IP 40.

**CASED STEM
THERMOSTAT**

series THS

**DESCRIPTION:**

- design: stem, freely accessible regulation
- mounting: thermowell D8mm threaded G1/2
 - contacts: switch-on or switch-off
- PPTC reset (fuse): automatic reset Δt 20°C, manual reset

TECHNICAL PARAMETERS:

- temperature range: 0-90°C (THS 90)
40/70-210°C (THS 210)
- temperature difference: 5 K
 - stem length: 100-300mm
 - contact load:
C-1=16(4)A/250V~, 7A/400V~
- protection: IP 40

SPECIFICATION:

Stem thermostats THS 90/210 are designed for operation of electric appliances depending upon temperature of measured medium. Mounting is performed into heating system using copper protection well with thread G1/2. Suitable material is used for joint sealing, preferably teflon tape. Maximum permissible pressure on the well 10bar (1 MPa). Made in wide range of temperature ranges. Standard stem length 100mm (in case of need 200, 300mm).

**CASED STEM
THERMOSTAT**

series DTHSC-90

**DESCRIPTION:**

- design: stem, freely accessible regulation
- mounting: thermowell D14mm with thread G1/2
 - contacts: NO (normally open) or NC (normally closed)
 - limiter: manual reset
- manual reset is under removable cover

APPLICATION:

- heating industry
- thermal management
 - light industry
 - hydraulics

TECHNICAL PARAMETETS:

- regulation range: 30-90°C
 - limiter: 99°C
- temperature difference: 8 K
- stem lenght (icluding thread): 110 mm
 - contact load: 20(5)A-250VAC
 - protection: IP 40
 - PN6

SPECIFICATIONS:

DTHSC-90 cased stem thermostats with manual reset are designed for temperature control in liquid and other environments, where in the event of a thermostat failure, the thermostatic fuse, which is part of this device, automatically switches off the circuit. The fuse here serves exclusively as a safety protection element, which can be manually switched on after removing the cover.

**CASED
CAPILLARY
THERMOSTAT**

series THK

**DESCRIPTION:**

- design: capillary freely accessible regulation
- mounting: on wall, bracket

TECHNICAL PARAMETERS:

- temperature range: 0-90°C
- temperature difference: 5K
 - capillary length: 1000mm
- contact load: 16(4)A/250V, 6(1)A/400V
 - protection: IP 40

SPECIFICATION:

Encased capillary thermostats THK are designated for use in operations, where emphasis is put on visual aspect or where it is important to prevent direct contact with the contacts. Operational thermostats enable temperature setting using a knob. Sensor of diameter 6,5mm and length 72mm should be placed in a protection well. Sensor is connected with the thermostat by 1m long capillary. Thermostat is attached using wall clips.



ROOM CASED THERMOSTAT

series THPRC

DESCRIPTION:

- design: room freely accessible regulation
- mounting: on wall, console
- modern design

APPLICATION:

- heating industry
- thermal management
- light industry
- hydraulics

TECHNICAL PARAMETERS:

- measuring range: 20-60°C
- temperature difference: 1,5±1°C
- contact load: 20(5)A / 250V
 - protection: IP 54
- connector FastOn 6,3 mm

SPECIFICATIONS:

THPRC room thermostats are designed to control electrical equipment depending on the room temperature. They are mounted on the wall.

Thermostat with IP 54 protection. The main advantages include easy operation, installation and reliability. The thermostat is attached to the wall/console using brackets. The thermostats allow you to set the monitored temperature with a knob.

BIMETALLIC THERMOSTATS

automatic, manual reset
closing/opening contact



Contact thermostat

- simple contact thermostat for wide range of application



Threaded thermostat

- screwing thermostat for simple regulation



Thermal fuse with manual reset

- simple thermal fuse with manual reset suitable for wide range of applications



Thermal fuse with automatic reset

- simple thermal fuse with automatic reset suitable for wide range of applications

Temperature range	0-40...0-250°C, alter. on request
Max. oper. voltage	250V AC
Max. oper. current	10A / 16A
Contact resistance	≤50mΩ / ≤10mΩ (golden-plated cont.)
Elect. connection	FAST ON 2,8/4,8/6,3mm
Connection design	straight/angular 45°, 90°
Contact surface	threadless / with thread M5x1
Reset	automatic / manual
Sensor dimensions	16x12mm
Number of cycles	10.000
Protection	IP 54

SPECIFICATION:

Bimetallic thermostats are used for closing or opening of electric circuits when reaching value of a preset temperature. This temperature is fixed, set by the manufacturer and may not be changed.

These remarkably small thermostats are produced in design with both automatic and manual reset.

Connecting contacts are made in straight or angular design and the contact surface is either threadless or with thread M5x1mm.



BIMETALLIC THERMOSTAT THBT WITH Pt100 SENSOR THBTST

DESCRIPTION:

- wide range of switch-on values
- high accuracy, no need to charge, wide working range of surrounding temperature
- integrated construction, easy to install

APPLICATION:

- chemical industry
- heating industry
- power engineering
- pharmacy

TECHNICAL PARAMETERS:

- heat range: from 65 °C to 150 °C according to used sensor
- connection thread: G1/2 (G1/4, G3/4, M12x1,5, M20x1,5, M27x2, NPT) or on individual request
- possibility to extend with temperature sensor Pt100 (THBTST)

SPECIFICATION:

Bimetallic thermostat THBT in compact and robust case can be extended with temperature sensor Pt100 (THBTST). Thermostats are suitable for direct mounting and also for mounting into thermowell. Thermostats are adjusted for specific switch-on / switch-off value from production and can not be changed by user later.

Sensors are suitable for wide range of applications in industry, food processing, air-conditioning systems, heating, hydraulic etc. (sensors for air temperature are used without thermowells due to quick response receiving)

Compact and robust case is suitable for wide range of applications, it is possible to provide variable connection threads on individual request. Magnesium oxide guarantees high resistance against impacts and vibrations and also improves heat exchange and electrical insulation of sensor.



TEMPERATURE REGULATOR

room, capillary,
stem

DESCRIPTION:

- compact design
- connection using clamps on the switch or connector (except for Ex design and switch B)

APPLICATION:

- heating
- hydraulics
- air-conditioning

TECHNICAL PARAMETERS:

- ranges: -40+60°C in 5 ranges (type 61 113 - room)
- -40+210°C in 7 ranges (type 61 126 - capillary)
- -40+140°C in 5 ranges (type 61 134 - stem)
 - el. load: 250V/10A,
 - 250V/2A, cos f 0.6-0.3
 - =250V/0,1A
 - =48V/0,2A
- shocks during operation: f=10-55Hz, sa=do 0,15mm
- protection: IP 65

SPECIFICATION:

Stem thermoregulators are used mainly for regulation and indication of temperatures with option of regulators mounting directly in area of temperature measurement by means of well, which is an integral part of the regulator. The well may be supplied in brass or stainless steel design with threads M27x2 or G3/4, lugs with threads M27x2 or G3/4 and wall rubber grommets.

Capillary thermoregulators are used mainly for regulation and indication of temperatures with the option of placing the regulator away from the regulated medium. A well may be supplied on order request in brass or stainless steel design with threads M27x2 or G3/4, lugs with threads M27x2 or G3/4 and wall rubber grommets.

Room thermoregulators are used mainly for simple regulation and indication of temperatures in rooms (lounges, vestibules, etc.)

Environment temperature of the regulators is -40+60°C.

DIGITAL THERMOSTAT

series THDK, THDP, THDS

capillary, surface-mounting,
immersion



DESCRIPTION:

- design: capillary, surface-mounting, immersion
 - mounting: according to the model
 - placement: common environment

TECHNICAL PARAMETERS:

- temperature range: 5-90°C (THDK), 5-80°C (THDP, THDS)
 - temperature difference: $\pm 1,5^{\circ}\text{C}$
 - contact load: 10(1,5)A/250V
 - case: plastic
 - protection: IP 40

APPLICATIONS:

- power engineering
 - hydraulics
- heating industry

SPECIFICATIONS:

Digital thermostats are most often used in applications where the emphasis is on appearance and simple operation, or where it is advisable to avoid direct contact with the contacts. The main advantages include simple operation, assembly and reliability. They are most often used for sensing the temperature of water in domestic hot water tanks or in heating systems. Thermostats THDK (capillary), THDP (touch), THDS (stem) are equipped with the function of setting the switching difference and the function of switching the opening / switching mode (heating / cooling). Due to their wider regulation range, thermostats are also suitable for applications where it is necessary to regulate temperatures close to zero. The higher IP 40 protection is also an advantage.



TEMPERATURE SWITCH THTS2 ELECTRONIC

DESCRIPTION:

- 4 -digit display for temperature monitoring
 - adjust valve/ % trim of adjust
- emitting diode is part of the outer case (LED)contact status display, simple operation
 - simple control and handling

APPLICATION:

- petrochemical industry
- power-engineering
- hydraulics

TECHNICAL PARAMETERS:

- temperature ranges: -50-0, 0-60, 0-100, 0-120, 0-160, 0-200°C
 - output signal: 4-20mA
- connection : G1/4, G1/2, M20x1,5
- accuracy class: 0,5%FS (standard)

SPECIFICATION:

Temperature switch THTS2 enable digital temperature measurement and regulation with display on LCD panel, output 4-20mA and switching contacts. For temperature scanning the THTS2 uses temperature sensor Pt100 or similar. By means of inbuilt transducer it converts the measured value onto an analog output, see technical parameters.

THTS2 then evaluates the outcomes by two relay outputs, that may be set individually. THTS2 features simple control. Wide application of THTS2, used for temperature measurement of liquids in petrochemical industry, power engineering, hydraulics, etc.

D.

PRESSURE REGULATION

- D.1.1. Pressure switches
- D.1.2. Standard pressure switch series 200
- D.1.3. Standard pressure switch series 400
- D.1.4. Heavy-duty pressure switch 600
- D.1.5. Pressure difference switch series 700
- D.1.6. Electronic pressure switch THPS2
- D.1.7. Static pressure governor
- D.1.8. Differential pressure governor
- D.1.9. Pressure and vacuum governor
- D.1.10. Pressure and vacuum limiter

PRESSURE SWITCHES

ranges 0,3-400bar
voltage 42-250V



DESCRIPTION:

- adjustable or fixed hysteresis
- membrane or piston design
- connecting, disconnecting or throw-over contact

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- cooling systems

Series 200 - STANDARD MAX. 42V

- membrane pressure switch
ranges from 0,3-10bar

Series 400 - STANDARD MAX. 250V

- membrane and piston design
ranges from 0,3-200bar

Series 600 - HEAVY DUTY MAX. 250V

- membrane and piston design,
ranges from 0,2-400bar
high overload capacity

Series 700 - PRESSURE DIFFERENCE SENSOR MAX. 250V

- membrane and piston design

SPECIFICATION:

Pressure switches are designed to maintain required pressure level. They are a cheaper option to contact pressure gauges and pressure regulators.

Wide range of switches from standard, contact, throw-over to heavy-duty type will meet your requirements of simple pressure regulation without the need of current state indication.



STANDARD PRESSURE SWITCH series 400

switch-on, switch-off or
throw-over contact, max. 250V

DESCRIPTION:

- working element:
membrane with spring NBR, EPDM, Viton,
piston with spring UR, NBR, Viton,
- switching element: switch-on (NO), switch-off (NC),
throw-over (SW)
- installation position: any
- material: brass, special design stainless steel,
galvanised steel

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- cooling systems

TECHNICAL PARAMETERS:

- measuring ranges: 0,3-2bar,
1-10bar, 10-70bar, 50-200bar
- connection thread: G1/4, (M12x1,5, M10x1, G1/8)
 - hysteresis: 15-20%
 - max. el. contact load: 250V AC / 5A
250V DC / 0,25A – resistance or inductive load
- el. connection: 2x FAST ON 6,3 , 3x FAST ON 6,3
 - protection: IP 00, DIN 40050

SPECIFICATION:

Standard pressure switches series 400 are designed for external pressure measuring of applications without high requirements on resistance. They are used for simple pressure measuring of liquids and gases within temperature range - 25+85°C, always according to membrane type, mainly used for air, water, cooling emulsion, hydraulic oils. Other mediums on request. Supplied in design with switch-on (NO) or switch-off (NC), throw-over (SW) contact, membrane or piston designed for wide range of applications. Max. voltage 250V, load max. 5A.

Standard connection thread G1/4" (alternatively M12x1,5, M10x1, G1/8"), material galvanized steel (alternatively brass or stainless steel).

Membrane material: NBR, EPDM, Viton.

Contact cover may be supplied as an accessory.



HEAVY-DUTY PRESSURE SWITCH series 600

throw-over contact SW
max. 250V

DESCRIPTION:

- working element
membrane with spring NBR, EPDM, Viton,
piston with spring
- switching element: throw-over contact SW
 - installation position: any
- material: brass, special design stainless steel,
galvanised steel

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- cooling systems

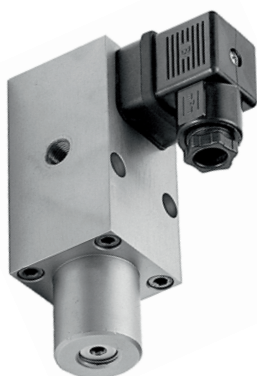
TECHNICAL PARAMETERS:

- measuring ranges: 0,3-2bar, 1-10bar,
10-70bar, 50-200bar
- max.working pressure: up to 400bar
 - connection thread: G1/4"
(alter. M12x1,5, M10x1, G1/8")
 - hysteresis: 15-20%
- max. el. contact load: 250V AC/5A
250V DC / 0,25A - resistance or inductive load
- el. connection: connector DIN 43650
 - protection: IP 65, DIN 40050

SPECIFICATION:

Heavy-duty pressure switches series 600 with throw-over contact (SW), membrane or piston. They are used for gas and liquid pressure measuring in temperature ranges -25+85°C, always according to membrane type, air, water, oil emulsion, hydraulic oil and other medium on request.

Max. voltage 250V, max. load 5A. Standard connection thread G1/4" (alternatively M12x1,5, M10x1, G1/8"), material galvanized steel (alternatively brass or stainless steel). Adjustable hysteresis. Wide range of membranes for aggressive mediums. ATEX version available.



PRESSURE DIFFERENCE SWITCH series 700

throw-over contact
max. 250V

DESCRIPTION:

- working element:
membrane with spring, NBR, EPDM, Viton
- switching element: throw-over contact SW
 - installation position: any
 - material: brass

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- cooling systems

TECHNICAL PARAMETERS:

- differential pressure measuring ranges: 0,3-2bar, 0,5-3bar, 2-10bar, 5-50bar
 - max. static pressure: 10, 250bar
 - connection thread: 2x G1/8
 - hysteresis: 15-20%
 - max. el. contact load: 250V AC / 5A, 250V DC / 0,25A – resistance and inductive load
- el. connection: conector DIN 43650 with output Pg9
 - protection: IP 65

SPECIFICATION:

Pressure difference switch series 700 with throw-over contact (SW) membrane and piston, designed for wide range of applications. Used for gases and liquid pressure measuring within the temperature range -25+85°C, always according to type of membrane, mainly air, water, oil emulsion, hydraulic oils and other medium on request. Max. voltage 250V design max. 5A.

Standard connection thread 2x G1/8" (material brass alternatively stainless steel). Membrane material: NBR (EPDM, Viton, CR).



ELECTRONIC PRESSURE SWITCH THPS2

DESCRIPTION:

- OLED display
- Reverse voltage protected
- Relay output
- SS304 casing
- Switch point setting

APPLICATION:

- petrochemical industry
 - hydraulics
- power-engineering

TECHNICAL PARAMETERS:

- Measuring range: 0...0,07 až 0...1000bar
- A class of accuracy: $\pm 0,5\%$ FS (standard), $\pm 0,25\%$ FS
 - Operating Temperature: $-20+60^{\circ}\text{C}$
 - Stability: $\pm 0,25\%$
 - Pmax: 150% FS
- Process connection: G1/4, G1/2, M20x1,5
NPT1/4, NPT $\frac{1}{2}$
 - Supply Voltage: 14~30Vdc
 - Rated relay load: max.1A
- Overvoltage protection: 32Vdc
 - Coverage: IP65

SPECIFICATION:

THPS2 is intelligent pressure switch combining pressure measurement, local display and control together. The pressure switch has an easy-to-read OLED display, quick setup, reaction and good electromagnetic compatibility for pressure control. THPS2 allows the visually compile process pressure on display and switch the status of the contacts using the switch output and analog output. Output signals THPS2 are applicable for a wide range of applications. The use of THPS2 is very wide, used for pressure control in hydraulic systems on pumps, hydraulic and pneumatic equipment, power engineering, petrochemical industry, and so on.



STATIC PRESSURE GOVERNOR

range -0,7+30bar
adjustable difference

DESCRIPTION:

- case: plastic
- inspection hole: acrylate
- connection: threaded or hose

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- power-engineering

TECHNICAL PARAMETERS:

- measuring ranges (switching difference):
-0,7+3bar (0,2+1,5)bar, -0,7+6bar (0,6+4)bar,
1+10bar (1+3)bar, 5+16bar (1+4)bar,
5+24bar (2+5)bar,
5+30bar(5+10)bar, 8+30bar(3-5)
- max. working pressure: 16,5; 35bar
- static pressure: max. 10bar, max. 250bar
- connection thread: G1/4 (M12x1,5) hose
 - throw-over contacts: 250V/12A

SPECIFICATION:

Pressure governors are designed to maintain a desired static pressure range according to switching value and difference settings. They can be used for all gas and liquid mediums, which do not have a corrosive effect on copper alloys. Permissible medium temperature -10°C +120°C or -45°C +110°C depending on design.

Pressure governors are supplied with G1/4 connection or with hose connection. They are designed for fixed pipeline installation, alternatively for wall bracket mounting, which is part of the packing.



DIFFERENTIAL PRESSURE GOVERNOR

range -0,7+30bar
fixed difference

DESCRIPTION:

- case: plastic
- inspection hole: acrylate
- connection: threaded or hose
- design: 2x bottom, 1x bottom /1x upper

APPLICATION:

- heating industry
 - hydraulics
- air-conditioning
- power engineering

TECHNICAL PARAMETERS:

- measuring ranges (switching difference):
-0,7+6bar (0,6+4)bar, -0,7+6bar (0,6+4)bar,
0,7+6bar (doubled voltage=1), 8+30bar
(fixní3+5)bar, 8+30bar (doubled voltage=4)bar
- working pressure: (factory setting) /
max. pressure - (3/2) / 16,5bar,
(2/15) / 35bar, (3/2) / 16,5bar,
(20/manual reset) / 35bar, (3/manual reset) / 16,5bar
- connection thread: 2x G1/4 or hose
- throw-over contacts: 250V/12A

SPECIFICATION:

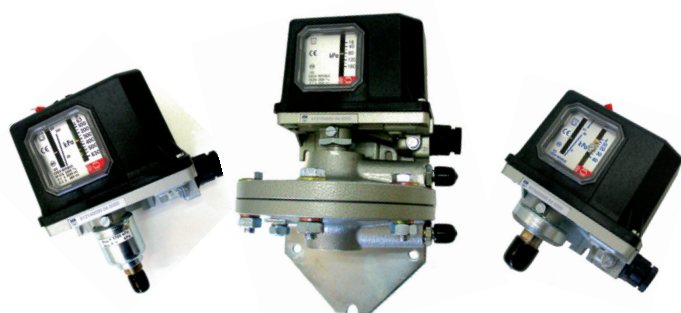
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They can be used for all gas and liquid mediums, which do not have a corrosive effect on copper alloys. Permissible medium temperature - 10°C +120°C or -45°C +110°C depending on design.

Pressure governors are supplied with 2x G1/4 connection or hose connection. They are designed for fixed pipeline installation or wall bracket mounting, which is part of the packing.

PRESSURE AND VACUUM GOVERNOR

bellows, membrane,
differential pressure



DESCRIPTION:

- case: plastic
- inspection hole: acrylate
- compact design
- connection: clamps on the switch or connector (except for Ex design and switch B)

APPLICATION:

- heating industry
- hydraulics
- air-conditioning
- power-engineering

TECHNICAL PARAMETERS:

- range: -80kPa-4MPa
in 11 ranges (type 61 214) 4 kPa-4MPa
in 4 ranges (type 61 218) 4 kPa-40kPa (61 242),
-0,3 kPa-10kPa in 8 ranges (type 61 219),
0 kPa-10kPa in 7 ranges (type 61 220),
4 kPa-160kPa in 2 ranges (type 61 215),
4 kPa-160kPa in 2 ranges (type 61 215)
- el. load: 250V/10A, $\cos 1$,
250V/2A, $\cos f$ 0,6-0,3
= 250V/0,1A
= 48V/0,2A
- protection: IP 65
design: ATEX

SPECIFICATION:

Pressure and vacuum governors are designed for pressure regulation and signalization of gases and liquids of regulated medium temperatures maximum -40+120 °C.

Governors are intended for use in demanding conditions, where higher IP protection and heavy-duty design is required.

Pressure and vacuum governors are supplied in high pressure design, bellows, with fixed preset values and for differential pressures. Maximum surrounding temperature -40 up to 60°C.

E. PRESSURE GAUGE ACCESSORIES

- E.1.a. Pressure gauge cock
- E.1.b. Pressure gauge cock TP
- E.2. Pressure gauge valve
- E.3. Button valve
- E.4. Condensation loop
- E.5. Manometric connectors and adapters
- E.6. Ball valve three way
- E.7. Multi-way valve manifolds
- E.8. Separating membrane
- E.9. Screwed-together separating membrane - type 41
- E.10. Flange separating membrane - type 55
- E.11. Clamp separating membrane- type 53
- E.12. Separating membrane for food industry- type 32
- E.13. Welded separating membrane - type 45
- E.14. Separated membrane threaded pin - type 43
- E.15. Shock absorbers, coolers
- E.16. Pressure gauge case for extreme conditions

PRESSURE GAUGE COCK



two-way, three-way
PN 6, PN 25

DESCRIPTION:

- body material- brass 423223
- handle material – heat-resistant plastic
- connection material – carbon steel/brass
 - design for distribution of air, liquids (16 260, 16 262, 16 263)
- bleeding hole (16 260, 16 262)
 - testing connection (16 263)

APPLICATION:

- heating industry
- air-conditioning
 - gas industry
- power engineering

TECHNICAL PARAMETERS:

- connection thread
 - DIN 16 260: G1/4, M12x1,5
 - DIN 16 262 : G1/2, M20x1,5
 - DIN 16 263 : G1/2, M20x1,5
- PN(pressure) - 0,6MPa for 16 260;
2,5MPa for 16 262 , 16 263
- testing connection - M20x1,5L (16 263)

SPECIFICATION:

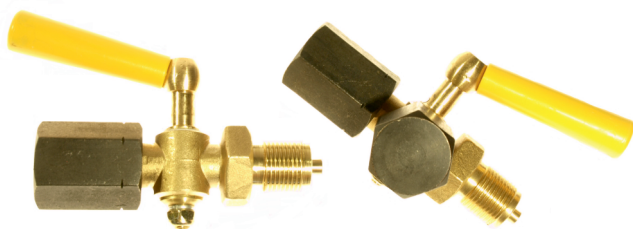
Pressure gauge pin cocks of two-way or three-way design with socket connection are produced in accordance with DIN 16 260, 16 262, 16 263 a EN 837-2 standards, they are designed as a special closing armature for pressure gauges with flat sealing, for working pressures and temperatures.

Forged unit with threaded pin on the inlet side, modified for flat sealing. On the outlet side it is equipped with a socket for pressure gauge connection.

Two-way cocks are equipped with a side bleeding hole for bleeding during pressure gauges disassembly. Three-way cocks are equipped with a side duct for connection of control pressure gauge. The cone is attached from the bottom by a nut.

PRESSURE GAUGE COCK

heating gases
two-way, three-way
PN 16



DESCRIPTION:

- body material- brass 423223
- handle material – heat-resistant plastic
- connection material – carbon steel/brass
- technical gases design (16 262TP, 16 263TP)
 - bleeding hole (16 262 TP)
- testing connection (16 263 TP)

APPLICATION:

- heating industry
- air-conditioning
 - gas industry
- power engineering

TECHNICAL PARAMETERS:

- connection thread
 - DIN 16 262 TP: G1/2, M20x1,5
 - DIN 16 263 TP: G1/2, M20x1,5
 - PN16 - 16 262 TP , 16 263 TP
- testing connection - M20x1,5L (16 263 TP)

SPECIFICATION:

Pressure gauge pin cocks of two-way or three-way design with socket connection are produced in accordance with DIN 16 262, 16 263 and EN 837-2 standards, they are designed as a special closing armature for pressure gauges with flat sealing, for working pressures and temperatures.

Forged unit with threaded pin on the inlet side, modified for flat sealing. On the outlet side it is equipped with a socket for pressure gauge connection.

Two-way cocks are equipped with a side bleeder hole for bleeding during pressure gauges disassembly. Three-way cocks are equipped with a side duct for connection of control pressure gauge. The cone is attached from the bottom by a nut. The TP version is for heating gases (technical).

PRESSURE GAUGE VALVE

two-way, three-way
PN 250-630



DESCRIPTION:

- body material-brass 42 3223,
fireproof steel 15 028
stainless steel 17 027
austenit stainless steel 17 348/1.4571
- control knob material – heat-resistant plastic
 - connection material – carbon steel
 - bleeding hole
 - testing connection

APPLICATION:

- heating industry
- air-conditioning
 - gas industry
- power-engineering
- chemical industry
- food industry

TECHNICAL PARAMETERS:

- connection thread- M20x1,5, G1/2
 - PN 63MPa
 - T_{max} 525°C
- testing connection M20x1,5L (137517.B)

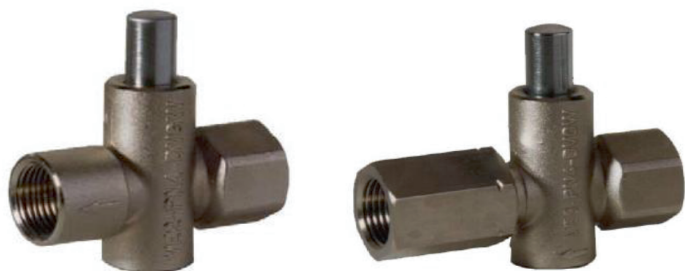
SPECIFICATION:

Pressure gauge pin valves with pipe connection are produced in accordance with ČSN 137517 and EN 837-2 standards. They are designed as a special regulatory armature for pressure gauges with flat sealing, for working pressures and temperatures mentioned in the table. Its use is limited in dependance on working liquid type, temperature and concentration.

Forged unit with threaded pin on the inlet side, modified for flat sealing. On the outlet side it is equipped with a pipe connection for attachment of a pressure gauge. Three way valve is equipped with a side duct for connection of a control pressure gauge. It comes with a bleeding knob for pressure release after closing of the valve. Pressure gauge valve may be installed in any position.

**BUTTON
VALVE
DVGW - 28
DVGW-28A**

G 1/4", 3/8", 1/2"

**DESCRIPTION:**

- body material- nicked brass
- button material- nicked brass
- closure material- nicked brass
- compression spring: SS DIN 17224
 - sealing: NBR O-ring
- connection: steel B16 DIN 7993 Zn

APPLICATION:

- air-conditioning
- power engineering
- petrochemical industry

TECHNICAL PARAMETERS:

- connection thread: inner G1/2 (DVGW-28A), inner G1/4, 3/8, 1/2 (DVGW-28)
 - PN(pressure): 5 bar
- pressure check 0,5 - 10bar

SPECIFIKACE:

Button valves DVGW-28, DVGW-28A are designed as a special closing armature for pressure gauges measuring gas medium. Basic purpose is the pressure gauge function check and verification of the zero point. This allows replacement of the pressure gauge while the whole system is fully operational. Max. working temperature is 70°C. Button valves can be used for closing of air, gasses or gas fuels.

CONDENSATION LOOP

ČSN 137530
PN 250



DESCRIPTION:

- design:
 - A - bent for pin
 - B - bent for welding
 - C - coiled for pin
 - D - coiled for welding
- material: structural carbon steel 11 523, corrosion proof steel 17 027
 - individual materials
 - wall thickness up to 5mm
 - installation: any position
- supplied with right-/left connection

APPLICATION:

- heating industry
- petrochemically industry
- power engineering

TECHNICAL PARAMETERS:

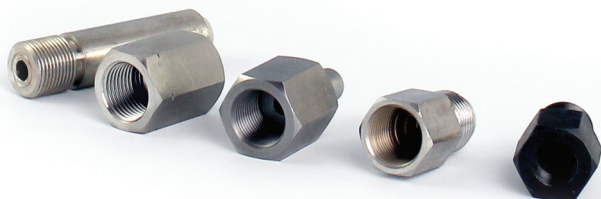
- connection thread - M20x1,5, G1/2
 - T_{max} 300(400)°C
 - PN 25MPa

SPECIFICATION:

Condensation loops are produced in accordance with EN837-2 standards. Condensation loops are used for connection and protection of pressure gauges against harmful effects and high temperature of measured medium, for working pressures and temperatures. Supplied in versions bent for welding or pin or coiled for welding or pin. Design must be chosen according to position of installation and with regard to condensation needs. Material either carbon steel or stainless steel (17 027). They may be supplied in other materials, mainly made of other steel classes 11, 12, 15, steel PG, or with material with wall thickness 2-5 mm. Condensation loops are tested according to ČSN 13 3060, part 2 only water testing for tightness impermeability.

MANOMETRIC CONNECTORS AND ADAPTERS

steel, stainless steel, brass
 T_{\max} 300°C, PN 630



DESCRIPTION:

- Adaptive manometric connector type 13 75 24.A
 M right inner / M left inner
 G inner right / G left inner



- Sliding nut type 13 75 24.B
 Nipple for welding nut



- Nipple for welding type 13 75 24.C
 Sliding nut nipple



- Piece for welding type 13 75 24.D
 Welding piece, use with „A“
 adapter, M left or right



- Adaptive manometric connector type 13 75 24.E
 M right inner / G right outer
 G right inner / M right outer



- Adaptive manometric connector type 13 75 24. F
 M right inner / G right inner



- Adaptive socket connector 13 75 24. G
 M left inner / G right inner

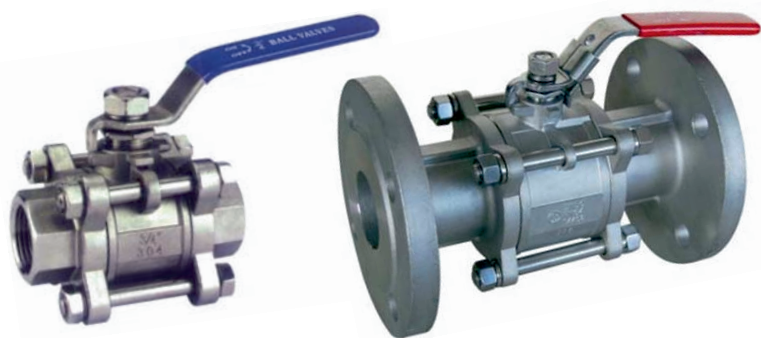


SPECIFICATION:

Pressure gauge connectors and adapters are produced in accordance with standard EN837-2. Connectors and adapters are designed for connection and reduction of pressure gauges with manometric cocks and valves. Supplied in materials: carbon steel, stainless steel and brass.

TECHNICAL PARAMETERS:

- PN 63MPa, 50MPa
- T_{\max} : 200°C, 300°C

**BALL VALVE
THREE WAY****two- way, three- way
PN 70****DESCRIPTION:**

- Material - SS 304,316L
- Quality precision castings
- Material connections – carbon steell
 - vent hole
 - testing connection
- Design thread, welded, flange DIN, ANSI, GB

APPLICATION:

- air-conditioning
 - energetics
- petrochemical industry
 - food industry

TECHNICAL PARAMETERS:

- Types of treads - internal BSPT, NPT, DIN 2999
- connecting threads - G1/4, 3/8, ½ 3/4, 1, 5/4, 6/4, 2, 2-1/2, 3, 4
- flanges- DIN, ANSI, GB, flanges for welding
 - P_{max} 70bar

SPECIFICATION:

Ball three-part cock 2 KKT, KKT 3 full flow valve with its floating ball. Floating balls compensates for worn and thermal expansion. FULL design minimizes pressure loss. The shaft of the cock is insured against firing. Ball valve consists of a three-part structure, with control lever stops. Serves as a built-in solid pipeline, such as shut-off valve for any installation position. Other design options according to individual requirements - chateau handles etc.

**DESCRIPTION:**

- body material: stainless steel 17 348/1.4571
- gasket material: stainless steel 17 348/1.4571
Si₃N₄ or plastic
- sealing O-rings: FPM, NBR, EPDM
 - seal: PTFE, PEEK, Grafoil

APPLICATION:

- heating management
 - power engineering
- petrochemical industry
- pharmaceutical industry

TECHNICAL PARAMETERS:

- PN 42 MPa
- T_{max} 500°C
- materials: stainless steel 17 348/1.4571
ceramics Si₃N₄, plastic
 - design: 2, 3, 5 way

SPECIFICATION:

Multi-way valve manifolds are used mainly for safe and controlled use of differential pressure gauges and differential pressure sensors. They serve for closing, opening, bleeding and connection of impulse piping, installed for differential pressure gauges and sensors of differential pressure.

The basis of this system is a body with screwed-in valve units. Its base is part of the body of the main armature. Armatures with soft sealing have bases of special shape, which help to ensure perfect tightness. Main body material: stainless steel 17 348/1.4541. Valve units are of various constructions depending on the type of used spindle. That may consist of elastomer O-ring, or plug made of graphite or plastic seal.

SEPARATING MEMBRANES



DESCRIPTION:

Measured pressure acts through membrane upon working liquid, that fills up the area behind membrane and transfers the pressure onto measure mechanism of sensor or pressure gauge. Pressure transfer is performed by means of oil, that fills up the pressure gauge. In between the upper and lower flange there is a membrane, that separates in inlet of measured medium from the measure mechanism and transfers the measured pressure onto the pressure gauges filling. If not mentioned otherwise, the membranes are made of corrosion-resistant steel. Membranes may also be produced in the following designs: leaded steel, teflon-plated steel, stainless steel, sprayed with epox. polish, PTFE, Hestelloy, Monel, Nickel, Tantan, Titan, silver-plated steel.

Flanges: cast-iron, leaded cast-iron, rubberized cast-iron, stainless steel, brass, rubberized steel. Separating membranes are suitable for all pressure gauges of diameters: 63, 100 and 160mm.

APPLICATION:

- power-engineering
- petrochemical industry
 - food industry
- farmaceutical industry

SPECIFICATION:

Separating membranes are used during pressure measurements in cases, where it is impermissible to let the measured substance get in contact with the measurement mechanism of the sensor or the pressure gauge. Separating membranes enable pressure measurement of chemical substances, that have corrosive effect on material of the pressure gauges measure element. Perfect sealing of the area filled with working liquid is a basic prerequisite for a reliable and trouble-free operation. For these purposes the most suitable are separators with metal membranes, which are welded to the separator body. All used construction elements and their connection must meet requirements of vacuum tightness.

SEPARATING MEMBRANES

Type 41.. (DN) a) screwed together



Screwed-together separating membrane is designed for separation of sensing element and the measure unit from impact of liquid, which may be corrosive, caustic, of higher density or high temperature. This membrane is suitable for pressures from -1 to 25 bar. Enables utilization of big membrane with small connection dimensions: G1/2, M20x1,5, NPT1/2 (other on request). Separator may be taken apart and the inner space may be cleaned. For pressure measurements of aggressive chemicals it is possible to use membranes made of tantalum or protection foil PTFE; bottom part may be made of resistant plastic or equipped with lining.

b) screwed together with welded-on membrane



Screwed-together separating membrane is designed for separation of sensing element and the measure unit from impact of measured medium, which may be corrosive, of high viscosity or of other aggressive characteristics. The membrane is welded on to the upper part by tantalum-stainless steel weld. This design enables easy cleaning of the system. Welded-on membrane is suitable for pressures from -1 up to 400bar.

Type 55.. (DN): flange



Flange separating membrane is designed for separation of the sensing element from impact of measured medium, which may be corrosive, of high viscosity or of other aggressive characteristics, using flange process connection according to DIN 2501, EN 1092-1, ANSI B16,5 or flange on individual request.

Type 53.. (DN): clamp



Separating membrane is welded onto the construction. Mainly used in food, drink, water industry or other applications with toughened hygienic requirements. Quick-connect coupling with clamp connection, dimensions DN: 25, 32, 40, 50, 65 (DN 25, 32 and 40 with identical outer dimension). Quick-connect coupling enables easy disassembly for cleaning.

Type 32.. (DN): food industry



Separating membrane is welded onto the construction. Mainly used in food, drink, water industry or other applications with toughened hygienic requirements. Connection using quick-connect coupling with union nut according to DIN 11851. Conical socket (special design: threaded socket). Dimensions DN: 25, 32, 40, 50.

Type 34.. (DN): paper industry



Connection using union nut flange (alternatively fixed flange). Separator's body with short tube. Membrane diameter 48 up to 59mm. Mainly used in paper industry. Dimensions of the flange are distinct from the standardized ones in order to use big membrane and maintain small assembly dimensions.

SEPARATING MEMBRANES

Type 45.. (DN): welded-together



Welded-together membrane is designed for separation of sensing element and measure unit from impact of liquid, which may be corrosive, caustic, of higher density or high temperature. This membrane is suitable for pressures from 0 to 600 bar. Commonly used for efficient pressure shock absorption, because it enables use of a very narrow throttling cross section without the danger of clogging. Connection: G1/2, M20x1,5, G1/4, M12x1,5 according to DIN 16288. Device diameter: 40, 50, 60mm. Membranes size correspondents with the diameter of the device. Material: stainless steel (on request Monel, nickel, etc.)

Type 43.. (DN): threaded pin



Separating membrane type 43 is designed for separation of sensing element and measure unit from impact of liquid, which may be corrosive, have high viscosity or feature another kind of aggressivity. Universal separating membrane with wide range of use thanks to the universal connection with G - thread. Suitable for high pressures up to 60 MPa

Type 56.. (DN): with cooling extension



Membrane separators are besides other things used for pressure measurements of hot substances and liquid alloys, which would otherwise solidify inside pressure gauge or transducer. Measured pressure is transferred by means of working liquid through capillary that is cooled by the outside environment. Cooling extension prevents the pressure gauge or transducer from overheating. When filled with high-temperature oil, the cooling extension enables pressure measurement of mediums of temperatures up to 400°C.

Type 57.. (DN): with movable capillary



Mainly used for level measurements in closed containers, for liquid density and flow measurements. The separator itself is usually flange or sandwich type. Other types with membrane of minimum diameter 48mm may be used as well. In order to balance the temperature error it is recommended to use capillaries of same lengths and as short as practicable; capillaries lengths usually up to 6m.

Other: Type 58.. (DN)



Separator exploits the characteristics of big membrane while built into a pipeline of smaller inner diameter. Thanks to the special construction it is still possible to maintain the sanitation characteristics without the need of separators disassembly. The membrane is efficiently washed by the flowing liquid in the pipe. Sealing of the lid meets strict hygienic regulations.

SCREWED TOGETHER SEPARATING MEMBRANE

Type 41.. (DN)



SPECIFICATION:

Screwed together separating membrane is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive, have high viscosity or feature another kind of aggressivity.

The membrane itself may be screwed on (suitable for pressures up to 2,5MPa) or welded on (suitable for pressures up to 40MPa)

PROCESS CONNECTION:

- G1/4, G1/2, M20x1,5, BSP, NPT, individual

CONNECTION TO MEASURING ELEMENT:

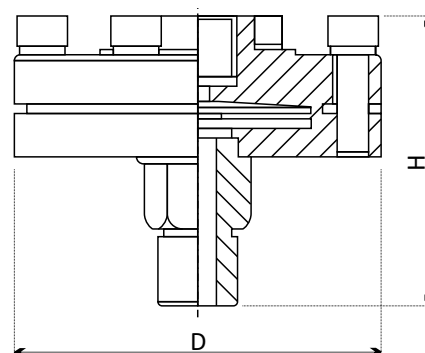
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- upper flange: varnished steel, rubberized, stainless steel 17 246/1.4878, 17 348/1.4571
- bottom flange: varnished steel, rubberized, stainless steel 17 246/1.4878, 17 348/1.4571, teflonplated, PVC, PTFE, silon, individual
- membrane: steel, rubberised steel, teflon-plated, stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+2,5MPa - screwed together membrane
- pressure range: -0,1+40MPa - welded membrane



Type	Size and characteristics			
	D	H	Pressure	Weight
41	97	75	-0,1+2,5MPa	1,40kg
Screw.	97	75	-0,1+2,5MPa	1,40kg
Weld.	97	75	-0,1+40MPa	1,40kg

Transfer liquid	Temper. range°C
Silikon (low viscosity)	from -40 to +130°C
Silikon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glycerine	from -5 to +100°C

FLANGE SEPARATING MEMBRANE

Type 55.. (DN)



SPECIFICATION:

Flange separating membrane is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive, have high viscosity or feature another kind of aggressivity.

Using process flange connection, in accordance with DIN 2501, EN 1092-1, ANSI B16,5 or flange made according to individual requirements.

PROCESS CONNECTION:

- flange DIN 2501, EN 1092-1, ANSI B16,5; individual

CONNECTION TO MEASURING ELEMENT:

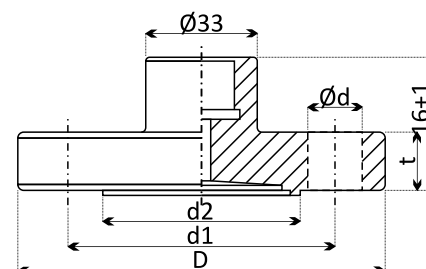
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- flange: stainless steel 17 246/1.4878, 17 348/1.4571 teflonplated, PVC, PTFE, individual
- membrane: steel, rubberised steel, teflon-plated, stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+2,5MPa (ANSI B16,5)



Type 55	Dimensions in mm according to DIN 2501					
DN	PN	D	d1	d2	t	d
15	6	80	55	40	12	4x11
15	40	95	65	45	16	4x14
20	6	90	65	50	14	4x11
20	40	105	75	58	18	4x14
25	6	100	75	60	14	4x11
25	40	115	85	68	18	4x14
32	6	120	90	70	14	4x14
32	40	140	100	78	18	4x18
40	6	130	100	80	14	4x14
40	40	150	110	88	18	4x18
50	6	140	110	90	14	4x14
50	40	165	125	102	20	4x18

Transfer liquid	Temper. range °C
Silikon (low viscosity)	from -40 to +130°C
Silikon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glycerine	from -5 to +100°C

CLAMP SEPARATING MEMBRANE Type 53.. (DN)



SPECIFICATION:

Clamp separating membrane type 53 is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive, have high viscosity or feature another kind of aggressivity.

Using process clamp connection, size 1-2", DN 25-50. Suitable mainly for food industry and for applications, where sanitization often takes place.

PROCESS CONNECTION:

- clamp 1", 1½", 2"
- DN 25, 32, 40, 50

CONNECTION TO MEASURING ELEMENT:

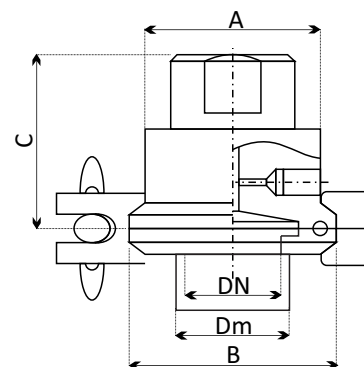
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- body: stainless steel 17 246/1.4878, 17 348/1.4571 teflonplated, PTFE, individual
- membrane: stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual
- accessories: clamp socket, sealing

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+4MPa



Type 53	Dimensions in mm according to DIN 32676					
DN	PN	A	B	C	DN	Dm
25	40	41	50,5	33	25	28
32	40	41	50,5	33	32	34
40	40	41	50,5	33	40	38
50	40	53	64	33	50	48
Dimensions in mm according to ISO 2852						
1"	40	41	50,5	33	40	38
1½"	40	41	50,5	33	40	38
2"	40	53	64	33	50	48

Transfer liquid	Temper. range°C
Silikon (low viscosity)	from -40 to +130°C
Silikon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glycerine	from -5 to +100°C

SEPARATING MEMBRANE FOR FOOD INDUSTRY Type 32.. (DN)



SPECIFICATION:

Separating membrane type 32 is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive, have high viscosity or feature another kind of aggressivity.

Using process connection with union nut DN 25-50 in accordance with DIN 11851.

Suitable mainly for food industry.

PROCESS CONNECTION:

- DN 25, 32, 40, 50

CONNECTION TO MEASURING ELEMENT:

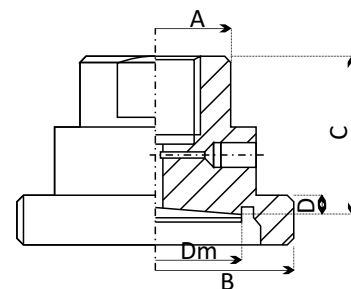
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- body: stainless steel 17 246/1.4878, 17 348/1.4571 teflonplated, PTFE, individual
- membrane: stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual
 - accessories: counterpart, sealing

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+4MPa



Type 32	Dimensions in mm according to DIN11851					
DN	PN	A	B	C	D	Dm
25	40	35	63	38	10	28
32	40	41	70	38	10	34
40	40	48	78	38	10	38
50	40	61	92	38	10	48

Transfer liquid	Temper. range°C
Silikon (low viscosity)	from -40 to +130°C
Silikon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glycerine	from -5 to +100°C

WELDED SEPARATING MEMBRANE Type 45.. (DN)



SPECIFICATION:

Separating membrane type 45 is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive or feature another kind of aggressivity. Using process connection G1/4, G1/2, M12x1,5; M20x1,5, thread of BSP, NPT type. Separating membrane type 45 is suitable mainly for high pressures and temperatures in demanding conditions.

PROCESS CONNECTION:

- G1/4, G1/2, M20x1,5, BSP, NPT, individual

CONNECTION TO MEASURING ELEMENT:

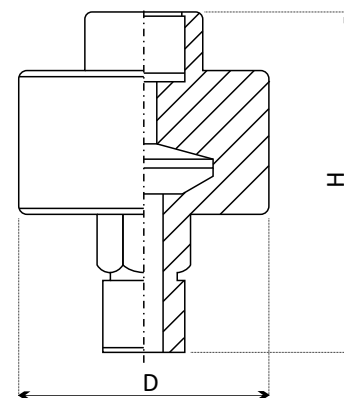
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- body: stainless steel 17 246/1.4878, 17 348/1.4571 teflonplated, PTFE, individual
- membrane: stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+60MPa



Type	Size and characteristics			
	D	H	Pressure	Weight
45	62	90	-0,1+60 MPa	1,13 kg

Transfer liquid	Temper. range°C
Silikon (low viscosity)	from -40 to +130°C
Silikon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glycerine	from -5 to +100°C

SEPARATING MEMBRANE THREADED PIN Type 43.. (DN)



SPECIFICATION:

Separating membrane type 43 is designed for separation of measuring device sensing element from the impact of measured mediums, that may be corrosive, have high viscosity or feature another kind of aggressivity. They are universally applicable separating membranes with wide range of use thanks to the universal connection with G - thread. Suitable for high pressures up to 60MPa.

PROCESS CONNECTION:

- outer thread G1/2, G3/4, G1, G5/4, G6/4, G2"

CONNECTION TO MEASURING ELEMENT:

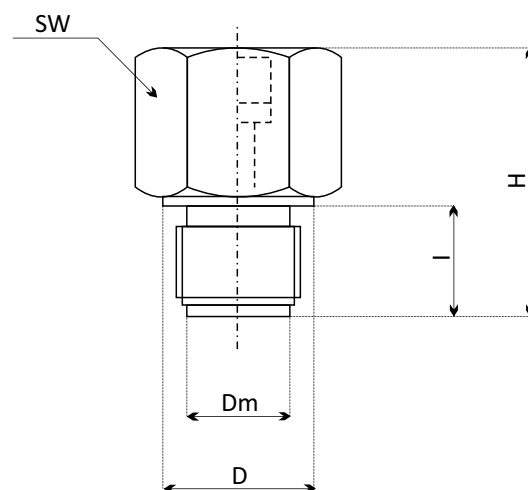
- G1/4, G1/2, M20x1,5, BSP, NPT, cooler, capillary line, individual

DESCRIPTION:

- body: stainless steel 17 246/1.4878, 17 348/1.4571 teflonplated, PTFE, individual
- membrane: stainless steel 17 246/1.4878, 17 348/1.4571, tantal, hesteloy, individual

TECHNICAL PARAMETERS:

- temperature according to transfer liquid: -40+240°C
- pressure range: -0,1+60MPa



Type 43	Dimensions					
DN	PN	SW	D	Dm	H	I
G1/2"	600	30	26	17	48	20
G3/4"	600	32	32	22	45	20
G1"	600	41	39	25	50	28
G5/4"	600	50	50	38	60	30
G6/4"	600	55	60	40	64	30
G2"	600	60	60	54	64	30

Transfer liquid	Temper. range°C
Silikon (low viscosity)	from -40 to +130°C
Silicon (high viscosity)	from -30 to +240°C
Fluorocarbon oil	from -30 to +160°C
Glyceríne	from -5 to +100°C

PRESSURE SHOCK ABSORBERS COOLER 03515

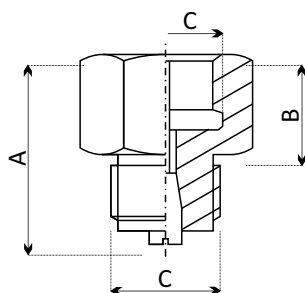


SPECIFICATION:

Pressure shock absorbers are designed for protection of pressure gauges measure mechanism against mediums pressure shocks. Applicable for non-solidifying liquids and gases that do not create crystals and that do not have corrosive effect on material of the capillary and body. Supplied with various inner diameters of the absorbing capillary.

TECHNICAL PARAMETERS:

- connection: M12x1,5, M20x1,5, G1/4, G1/2
- brass (suitable for pressures up to 25MPa)
- steel (suitable for pressures up to 60MPa)



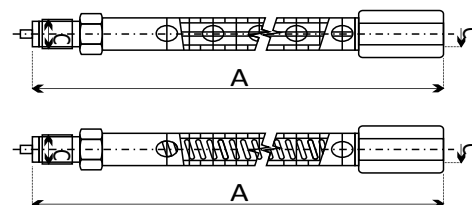
C	Dimensions			
	PN	SW	A	B
M12x1,5, G1/4	600	17	35	18
M20x1,5, G1/2	600	27	50	25

SPECIFICATION:

Coolers of measured mediums are used for protection of pressure gauges measure mechanism against mediums increased temperature. Cooling is achieved by routing the medium through capillary. Capillary of straight or spiral design is protected by perforated tube.

TECHNICAL PARAMETERS:

- connection: M20x1,5, G1/2
- type 03515/1 - straight capillary
- type 03515/2 - spiral capillary



Type	T _{max}		Dimensions	
	Steel	St. steel	A	C
03515/1	200°C	200°C	280	M20x1,5, G1/2"
03515/2	400°C	600°C	280	



PRESSURE GAUGE CASE FOR EXTREME CONDITIONS THPI 150 with/without electric heating; Tmin -80°C

DESCRIPTION:

- case material aluminium /dural
- connection material: stainless steel 17 248/1.4541
 - acrylate / argon double glass inspection hole
 - insulation: pyrogel
 - passive heating by medium
- active heating by electric heating cable 15/30W, individual
- bushing for el. contacts or signal

APPLICATION:

- heating management
 - air-conditioning
 - gas industry
- power engineering
- chemical industry
- food industry

TECHNICAL PARAMETERS:

- for pressure gauges D100mm
- connection thread - M20x1,5, G1/2, 1/2NPT
 - environment Tmin up to -90°C
- heating power supply 230V AC / 24V DC, individual

SPECIFICATION:

Protection cases into extreme conditions are designed for protection of pressure gauges mainly against very low temperatures and other adverse conditions. Case is made of robust aluminium-dural component. Attachment connection including thread is made of stainless steel 17 248/1.4541. Default inspection hole made of acrylate, on request it may also be supplied with argon double glass. Pyrogel serves as a very efficient primary insulation, thickness 10mm (it is equivalent to approx. 20cm of polystyren insulation). Thanks to the elaborated construction, minimum temperature bridges and very efficient insulation the case does not require active heating. The inner area is heated up passively by means of measured medium. In case of insufficient heating, the case may be equipped with active heating of standard output 15/30W. The case is made for heavy-duty design of pressure gauge, diam. 100mm. Wide options of customization: connections, size, pass-through connector for contact pressure gauges, etc.

F. FLOW MEASUREMENT

- F . 1 . Flowmeter EV
- F . 2 . Flowmeter LZS
- F . 3 . Flowmeter LZM - G
- F . 4 . Flowmeter LZB - 3, 4, 6, 10
- F . 5 . Flowmeter LZB - 15...100
- F . 6 . Flowmeter LZB - S
- F . 7 . Flowmeter LZB - VA - FA
- F . 8 . Flowmeter LZM - Z
- F . 9 . Flowmeter LZM - T
- F . 10 . Flowmeter LZM - 6 T O₂
- F . 11 . Flowmeter LVB
- F . 12 . Flowmeter LZZ, LZK, LZD
- F . 13 . Magnetic-inductive flowmeter
- F . 14 . Electromagnetic induction flowmeter MAG-VIEW
- F . 15 . Flowmeter ultrasonic F3
- F . 16 . Flowmeter ultrasonic TDS
- F . 17 . Flowmeter HD 005



FLOWMETER EV

spring flowmeter
rate of flow:
2l/h - 380l/h liquid
5l/sec - 370 l/sec gas

DESCRIPTION:

- case: PC, PSU
- connection material: plastic, teflon or stainless steel
 - float spring: stainless steel, plastic
 - any position of installation
- option of liquid(water) and gases(air) measuring

APPLICATION:

- power engineering
- air-conditioning
- food industry
- mechanical engineering
- water management

TECHNICAL PARAMETERS:

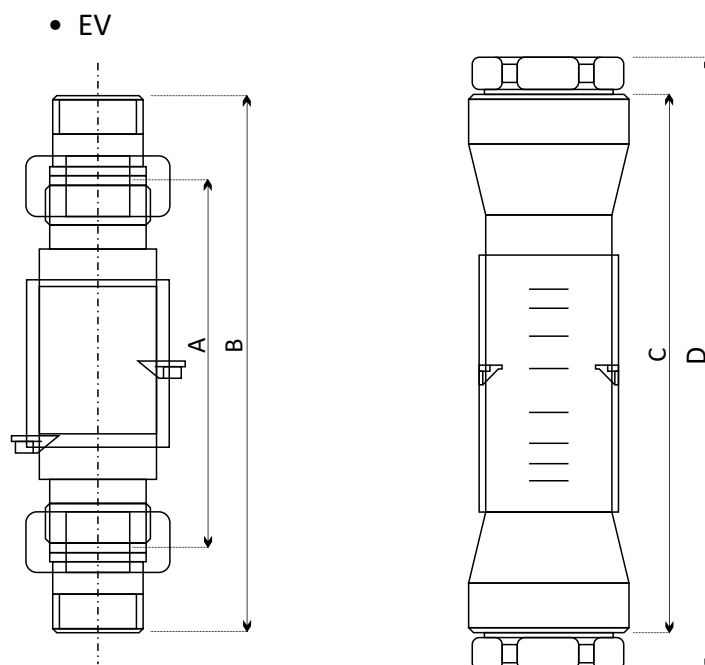
- model: EV 15, 20, 25, 40, 50
- measuring range: liquid 2-20, 4-26, 4-35, 5-60, 15-65, 20-10, 12-90, 20-200, 30-280, 40-380l/min;
gases 5-20, 10-30, 15-45, 20-70, 30-80, 35-110, 15-95, 20-140, 25-275, 45-370l/sec
- connection thread: G1/2 (G 3/4, G1), G1 (1/2, G 2)
 - T max: 120°C
 - PN: 1MPa
- T ensuring measurement accuracy: 0-80°C
 - accuracy class: 5%

SPECIFICATION:

Spring-tube flowmeters EV are used for flow measuring of liquids (water, gases), where it is essential to measure instantaneous flow. Flowmeters work on a principle of floats orifice plate resistance to spring in a closed cylindrical measuring tube.

Flowmeters are equipped with two adjustable red needles of limiting values and a scale liter per minute, alternatively a scale for gas measuring. They are suitable for all positions of installation. Only products PC, PSU are supplied with a high temperature and corrosive resistance.

Type	Measure range		Thread	Accuracy class	Technical parameters	
	l/min liquid (H2O)	20°C l/sec gas				
EV 15 20 25	2-20	5-20	plastic/ stainless steel G1/2 (G3/4, G1)	± 5%	Pmax	1MPa
	4-26	10-30			Tmax	120°C
	4-35	15-45			T ensuring accuracy	0-80°C
	5-60	20-70			Body	ABS plastic
	15-65	30-80			Connection	ABS, brass, chromed brass, stainless steel
EV 40 50	20-100	35-110	plastic/ stainl. steel G1 (G1/2, G2)	± 5%	Float	stainless steel
	12-90	15-95				
	20-200	20-140				
	30-280	25-275				
	40-380	45-370				



Dimensions in mm				
Type	A	B	C	D
EV	135	179	198	225

FLOWMETER LZS



LZS-C long version
LZS-D short version

DESCRIPTION:

- case: plastic (PC, PSU)
- connection material: plastic, teflon
- float material: stainless steel, plastic, plastic ABS
- guiding rod material: stainless steel
 - installation: vertical only
- connecting for glueing or melting
 - option of switching contacts
 - option of liquid measuring

APPLICATION:

- power engineering
 - air-conditioning
 - food industry
- mechanical engineering
 - water management

TECHNICAL PARAMETERS:

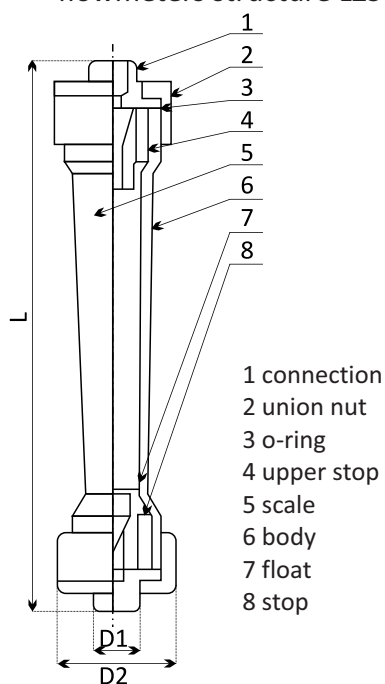
- diameter: 15, 25,32, 50, 65, 100, 125
- measuring ranges: long type 10-100, 16-160, 25-250, 40-400, 60-600, 100-1000, 160-1600, 250-2500 l/hod; 0,4-4; 0,6-6; 1-10; 1,6-16 m³/h
- short type: 5-50, 10-100, 16-160, 25-250, 40-400, 50-500, 60-600, 100-1000, 160-1600, 250-2500 l/h; 0,4-4; 0,6-6; 1-10; 2,5-16; 5-26; 2-25, 8-40, 12-60, 14-90, 18-120, 25-150, 25-180 m³/h
 - T max: 0-60°C
- PN: less than 0,6 bar
 - accuracy class: 4%

SPECIFICATION:

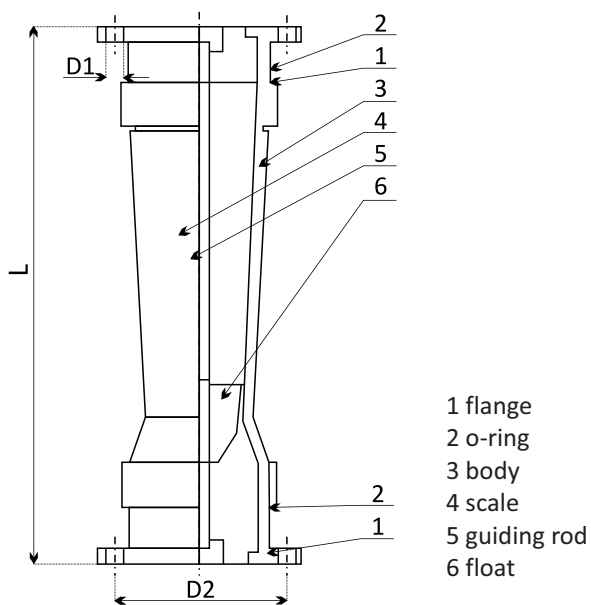
Float flowmeter LZS is a basic type of vertical flowmeter, designed for measurements and control of non-aggressive mediums. Produced in two default lengths (long and short). Cheap, effective and patented solution. Flowmeters may be equipped with one or two switching contacts of limiting values. Vertical installation only. Connection flow into DN 65mm and terminated with a PVC connection, determined for glueing or melting. Flowmeters of DN 100 and DN125mm are equipped with flange connection.

Type	Diameter (mm)	Range		Medium parameters		Accuracy class
		long tube design	short tube design	°C	MPa	
LZS-15	15	10-100 l/h	5-50 l/h	0-60	<0,6	4%
		16-160 l/h	10-100 l/h			
		25-250 l/h	16-160 l/h			
		40-400 l/h	25-250 l/h			
		60-600 l/h	40-400 l/h			
		-	50-500 l/h			
		-	60-600 l/h			
		-	100-1000 l/h			
LZS-25	25	100-1000 l/h	100-1000 l/h			
		160-1600 l/h	160-1600 l/h			
		250-2500 l/h	250-2500 l/h			
LZS-32	32	-	0,4-4 m ³ /h			
		-	0,6-6 m ³ /h			
LZS-50	50	0,4-4 m ³ /h	-			
		0,6-6 m ³ /h	-			
		1-10 m ³ /h	1-10 m ³ /h			
		1,6-16 m ³ /h	1-10 m ³ /h			
LZS-65	65	-	2,5-16 m ³ /h			
		-	5-25 m ³ /h			
		-	8-40 m ³ /h			
		-	12-60 m ³ /h			
LZS-100	100	-	14-90 m ³ /h			
		-	18-120 m ³ /h			
LZS-125	125	-	25-150 m ³ /h			
		-	25-180 m ³ /h			

• flowmeters structure LZS-15 - 65



• flowmeters structure LZS-100 - 125



Type	Dimensions in mm						Connection diameters:
	Long tube design			Short tube design			
	L	D1	D2	L	D1	D2	
LZS-15	280	20	45	202	20	45	15-20
LZS-25	380	32	68	226	32	60	25-32
LZS-32	-	-	-	288	40	74	32-40
LZS-50	430	63	98	341	63	98	50-63
LZS-65	-	-	-	430	75	122	65-75
LZS-100	547	17	175	550	flange		100
LZS-125	547	17	205	550			125

FLOWMETER LZM-G

float flowmeter
rate of flow:

0,5 l/h - 750 l/h liquid
1 m³/h - 1400 m³/h gas



DESCRIPTION:

- case: plastic (PC, PSU)
- connection material: plastic, PVC, polypropylen
brass, stainless steel, chromium-plated brass
- float material: stainless steel
- guide rod material: stainless steel
 - sealing: O-ring NBR or Al
 - installation: only vertical
- option of liquid (water) and gases (air) measuring

APPLICATION:

- power engineering
- air-conditioning
- food industry
- mechanical engineering
- water management

TECHNICAL PARAMETERS:

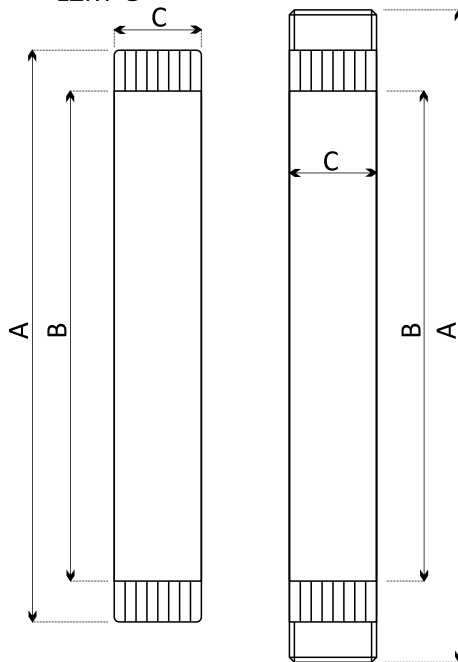
- design: 15G, 20G, 25G, 40G, 50G
- measuring ranges: 0,5-4, 1-7, 1,8-18,
4-36, 10-70, 20-100, 20-110, 20-150, 80-220,
80-300, 150-450, 190-560, 220-750 l/min (water)
- 1-10, 1,6-16, 4-40, 6-60, 16-160, 25-250, 35-350, 80-400,
10-500, 120-600, 30-850, 400-1200, 500-1400 m³/h (air)
- T max: 90°C
- PN: 6 bar
- connection thread: G1/2 (G3/4, G1, G2)
- accuracy class: 4%

SPECIFICATION:

Tube-float flowmeters LZM-G are threaded, tube flowmeters, which are used in applications, where it is necessary to measure instantaneous flow. Flowmeters are designed for liquid (water) or gases (air) measurements. Flowmeter works on principle of float with orifice plate inside a closed cylindric measuring tube. Flowmeters are equipped with scale liter/min. Connection of the flowmeter is arranged as inner or outer thread G1/2 - 1". Vertical instalation only.

Type	Measuring range		Thread		Case	Connection	Float	Accuracy class
	l/min liquid (H ₂ O)	m ³ /hour gas						
LZM-15G	0,5-4	1-10	G1/2"	1/2"BSP	plastic (PC, PSU)	ABS, PVC polypropyl., brass, stainless steel, chromium- plated. brass	stainless steel	4%
LZM-15G	1-7	1,6-16	G1/2"	1/2"BSP				
LZM-15G	1,8-18	4-40	G1/2"	1/2"BSP				
LZM-20G	4-36	6-60	G3/4"	3/4"BSP				
LZM-25G	10-70	16-160	G1"	1"BSP				
LZM-25G	20-100	25-250	G1"	1"BSP				
LZM-25G	20-150	35-350	G1"	1"BSP				
LZM-40G	20-110	25-250	G1"	1 1/2"BSP				
LZM-40G	20-150	35-350	G1"	1 1/2"BSP				
LZM-40G	80-220	80-400	G2"	2"BSP				
LZM-50G	80-300	100-500	G2"	2"BSP				
LZM-50G	80-360	120-600	G2"	2"BSP				
LZM-50G	150-450	300-850	G2"	2"BSP				
LZM-50G	190-560	400-1200	G2"	2"BSP				
LZM-50G	220-750	500-1400	G2"	2"BSP				

• LZM-G



Dimensions in mm			
Type	A	B	C
LZM-15G	210	180	32
LZM-20G	278	236	45
LZM-25G	265	235	51
LZM-40G	306	235	51
LZM-50G	380	270	75

FLOWMETER LZB



panel

diameter: 3,4,6,10

2,5 ml/min - 160 l/h liquid

0,03 l/min - 2,5 m³/h gas

DESCRIPTION:

- case: stainless steel
- connection material: stainless steel
 - flowmeters core: silicate glass
- sealing and other hydrophilic parts: teflon
 - switching contacts of limiting values
 - regulatory knob
 - panel mounting
- option of liquid (water) and gases (air) measuring

APPLICATION:

- power engineering
- food industry
- mechanical engineering
 - agriculture
 - automation
- petrochemical industry

TECHNICAL PARAMETERS:

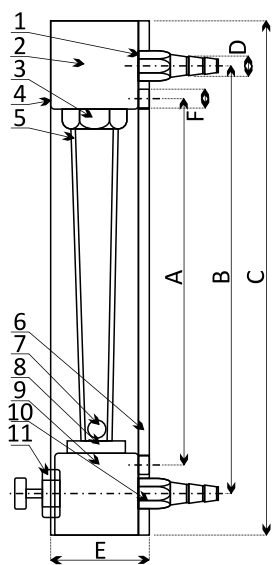
- diameter: DN 3, 4, 6, 10 mm
- measuring range: 2,5-25, 6-60, 10-100ml/min,
1-10l/h...16-160l/h (water)
0,03-0,3, 0,06-0,6, 0,1-1, 0,15-1,5l/min
0,016-0,16m³/h ... 0,25-2,5m³/h (air)
 - T max: -20+200 °C
 - PN: 0,6 Mpa, 1 Mpa
 - thread: 2x M6
- accuracy class: 2,5%, 4%, 6%

SPECIFICATION:

LZB glass flowmeters in panel design are used for instantaneous flow measurements of aggressive liquids and gases. The core of this flowmeter is made of silicate glass, case of stainless steel. Other hydrophilic parts of the flowmeter are made of teflon. Such construction ensures corrosion resistance of this series. Flowmeters are suitable for measurements of various types of acids and alcalis, oxidants and other corrosive substances, such as chemicals, kerosene, fertilizers, etc. Panel flowmeters are equipped with reduction/throttle valve for required flow setting. Flowmeters may further be equipped with switching contacts of limiting values.

Type	Diamet. (mm)	l/hour liquid (H ₂ O)	m ³ /hour (gas)	Accuracy class	Working pressure
LZB-3	Ø3	2,5-25 ml/min	0,03-0,3l/min	4, 6	<0,6
		6-60 ml/min	0,06-0,6l/min		
		10-100 ml/min	0,1-1l/min		
			0,15-1,5l/min		
LZB-4	Ø4	1-10	0,016-0,16	2,5, 4	<1
		1,6-16	0,025-0,25		
		2,5-25	0,04-0,4		
			-		
LZB-6	Ø6	2,5-25	0,04-0,4	2,5	<1
		4-40	0,06-0,6		
		6-60	0,1-1		
			-		
LZB-10	Ø10	6-60	0,1-1	2,5	<1
		10-100	0,16-1,6		
		16-160	0,25-2,5		
			-		

• flowmeters structure LZB-3...10



- 1 Output
- 2 Cases upper base
- 3 Scale
- 4 Case
- 5 Body
- 6 Mounting plate
- 7 Float
- 8 L- base
- 10 Input
- 11 Needle valve

Dimensions in mm						
Type	A	B	C	D	E	F
LZB-3	-	116	136	8	26 x 25	-
LZB-4	178	204	234	9	39,5 x 34	2-M6
LZB-6	178	204	234	9	39,5 x 34	2-M6
LZB-10	178	208	238	12	39,5 x 34	2-M6



FLOWMETER LZB / LZB-F

DN 15...100
glass / steel design

DESCRIPTION:

- case: steel
- inspection hole: glass
- connection: flange , option of threaded adapters
- float and guide rod: stainless steel
- design: LZS-F all hydrophilic parts are teflon-plated, Viton sealing

APPLICATION:

- sanitary equipment and heating engineering
- heating management, power engineering
- mechanical engineering
- chemical industry

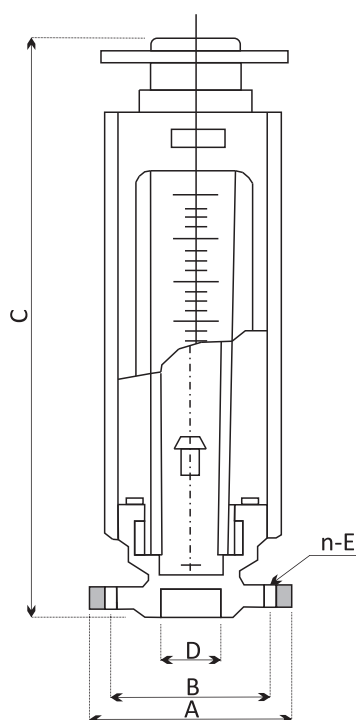
TECHNICAL PARAMETERS:

- diameter: DN 15, 25, 40, 50, 80, 100 mm
- measuring range for liquids: 6-60 l/h... 50-120 m³/h
- measuring range for gases: 0,25-2,5... 500-2500m³/h
 - connection thread: G1/2
 - accuracy class: 1,5 - 2,5%
 - PN: 0,4- 0,6

SPECIFICATION:

Float flowmeters LZB in combined steel and glass design are used for instantaneous flow measurements of standard liquids and gases. The core of this flowmeter is made of silicate glass, case is made of steel and surface-treated steel. All hydrophilic parts of the flowmeter are teflon-plated, that ensures corrosion resistance of this series. Flowmeters are suitable for measurements of various types of liquids and gases, that do not have corrosive effect on contact materials and sealing. Default connection by flange, threaded adapters come as accessories.

Measuring ranges							
Model	LZB 15	LZB 25	LZB 40	LZB 50	LZB 80	LZB 100	LZB 100
Diamet. (mm)	15	25	40	50	80	100	100
Liquid (H ₂ O) l/h	16-160	40-400	160-1600	400-4000	1-10m ³ /h	5-25m ³ /h	12-60m ³ /h
	25-250	60-600	250-2500	600-6000	1,6-16m ³ /h	8-40m ³ /h	16-80m ³ /h
	40-400	100-1000	300-3000	1000-10000	8-40m ³ /h	-	50-120m ³ /h
Gas m ³ /h	0,25-2,5	1-10	4-40	10-100	50-250	120-600	300-1500
	0,4-4	1,6-16	6-60	16-160	80-400	200-1000	500-2500
	0,6-6	2,5-25	-	-	-	-	-
Accuracy %	2,5	1,5	1,5	1,5	1,5	1,5	1,5
PN max MPa	<0,6	<0,6	<0,6	<0,6	<0,4	<0,4	<0,4



Dimensions in mm					
Model	A	B	C	D	n-E
LZB-15	95	65	470+2,5	15	n-14
LZB-25	115	85	470+2,5	25	n-14
LZB-40	145	110	570+3	40	n-18
LZB-50	160	125	570+3	50	n-18
LZB-80	185	150	660+3,5	80	n-18
LZB-100	205	170	660+3,5	100	n-18

FLOWMETER LZB-S

DN 15...100
glass / stainless steel design



DESCRIPTION:

- case: stainless steel
- inspection hole: glass
- connection: flange , option of threaded adapters
 - float and guide rod: stainless steel
- design: LZS-B all hydrophilic parts are teflon-plated, Viton sealing

APPLICATION:

- food industry
- heating management, power engineering
 - mechanical engineering
 - chemical industry

TECHNICAL PARAMETERS:

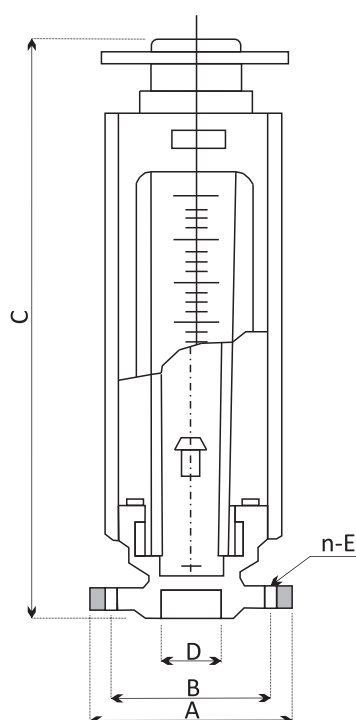
- diameter: DN 15, 25, 40, 50, 80, 100 mm
- measuring range for liquids: 6-60 l/h... 50-120 m³/h
- measuring range for gases: 0,25-2,5... 500-2500m³/h
 - connection thread: G1/2
 - accuracy class: 1,5 - 2,5%
 - PN: 0,4- 0,6

SPECIFICATION:

All-stainless steel float flowmeters LZB-S in design that combines stainless steel, glass, PTFE and Viton are used for instantaneous flow measurements of standard and aggressive liquids and gases. The core of this flowmeter is made of silicate glass, case is made of stainless steel. All hydrophilic parts of the flowmeter are made of stainless steel or they are teflon-plated. Such construction ensures corrosion resistance of this series. Flowmeters are suitable for measurements of various types of liquids and gases, that do not have corrosive effect on contact materials and sealing. Default connection by flange, threaded adapters come as accessories.

Measuring ranges							
Type	LZB 15	LZB 25	LZB 40	LZB 50	LZB 80	LZB 100	LZB 100
Diamet. (mm)	15	25	40	50	80	100	100
Liquid (H ₂ O) l/h	16-160	40-400	160-1600	400-4000	1-10m ³ /h	5-25m ³ /h	12-60m ³ /h
	25-250	60-600	250-2500	600-6000	1,6-16m ³ /h	8-40m ³ /h	16-80m ³ /h
	40-400	100-1000	300-3000	1000-10000	8-40m ³ /h	-	50-120m ³ /h
Gas m ³ /h	0,25-2,5	1-10	4-40	10-100	50-250	120-600	300-1500
	0,4-4	1,6-16	6-60	16-160	80-400	200-1000	500-2500
	0,6-6	2,5-25	-	-	-	-	-
Accuracy %	2,5	1,5	1,5	1,5	1,5	1,5	1,5
PN max MPa	<0,6	<0,6	<0,6	<0,6	<0,4	<0,4	<0,4

- LZB-S 15...100



Dimensions in mm					
Type	A	B	C	D	n-E
LZB-15	95	65	470 ±2,5	15	n-14
LZB-25	115	85	470 ±2,5	25	n-14
LZB-40	145	110	570 ±3	40	n-18
LZB-50	160	125	570 ±3	50	n-18
LZB-80	185	150	660 ±3,5	80	n-18
LZB-100	205	170	660 ±3,5	100	n-18



FLOWMETER LZB-VA/-FA

rate of flow:
4 l/h - 16000 l/h liquid
0,12 m³/h - 300 m³/h gas

DESCRIPTION:

- case: surface-treated steel or stainless steel
- connection material: surface-treated steel or stainless steel
 - flowmeters core: silicate glass
 - sealing and other hydrophilic parts: teflon
 - installation: only vertical
- option of liquid(water) and gases (air) measuring
 - design: VA (threaded) or FA (flange)

APPLICATION:

- power engineering
- food industry
- mechanical engineering
 - agriculture
 - automation
- petrochemical industry

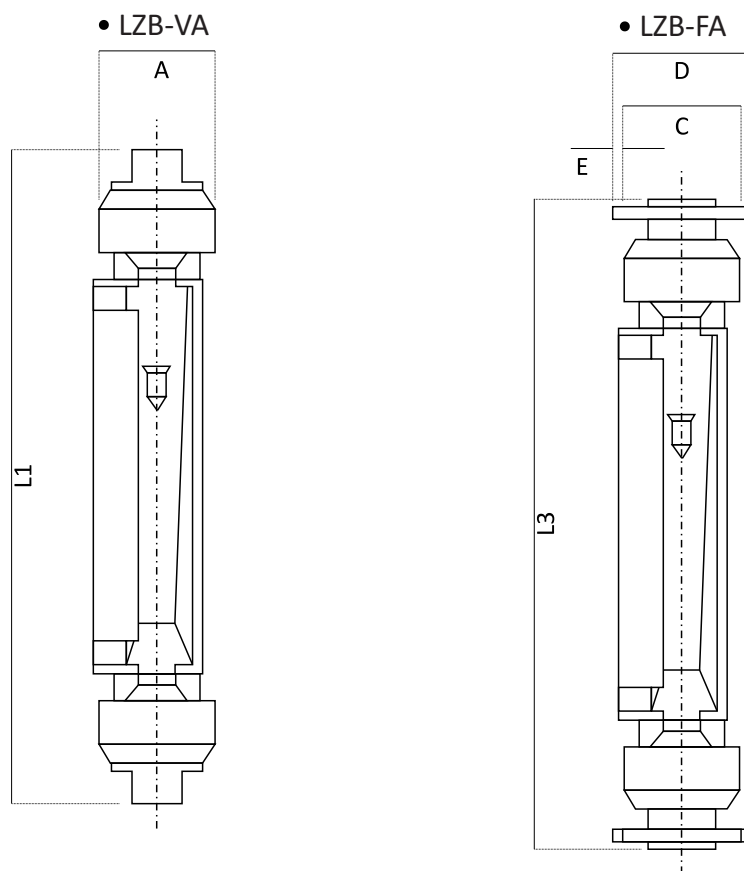
TECHNICAL PARAMETERS:

- diameter: DN 15, 25, 40, 50 mm
- measuring range: 4 - 40l/h... 4000-16000 l/h (water)
0,12-1,2m³/h ... 30-300m³/h (air)
 - T max: -20+200°C
- PN: 0,7MPa; 0,9MPa, 1MPa
- thread: G1/2, G1, G1 ½, G2"

SPECIFICATION:

Float flowmeters LZB-VA/-FA in glass design are used for instantaneous flow measurements of aggressive liquids and gases. The core of this flowmeter is made of silicate glass, case is made of surface-treated steel or stainless steel. Other hydrophilic parts of the flowmeter are made of teflon. Such construction ensures corrosion resistance of this series. Flowmeters are suitable for measurements of various types of acids and alcalis, oxidants and other corrosive substances, such as chemicals, kerosene, fertilizers, etc. Vertical installation only.

DN	Type	Measuring ranges		Display length (mm)	Working temp.(°C)	Working press. (MPa)
		l/hour liquid H ₂ O	m ³ /hour gas			
15	VA30S-15 FA30S-15	4-40; 6-60; 10-100; 16-160; 25-250; 40-400; 63-630	0,12-1,2; 0,3-3; 0,5-5; 0,8-8; 1,2-12	300	-20+200	1,0
			20-20			
25	VA30S-25 FA30S-25	63-630; 100-1000; 160-1600; 250-2500	2-20; 3-30			
			5-50; 8-80			
40	VA30S-40 FA30S-40	160-1600; 250-2500 400-4000	5-50			
			8-80; 12-120			
50	VA30S-50 FA30S-50	400-4000; 630-6300 1000-10000; 4000-16000	12-120; 20-200; 30-300			



DN	Threaded VA			Flange FA			
	L1	A	Thread	L3	D	C	E
15	344	38	G1/2	343	95	65	4x14
25	344	55	G1	343	115	85	4x14
40	370	70	G1 ½	370	145	110	4x18
50	380	90	G2	370	160	125	4x18



FLOWMETER LZM-Z

panel mounting
rate of flow:
10 l/h - 170 l/min liquid
0,1 m³/h - 350 m³/h gas

DESCRIPTION:

- case: acrylate, glass
- connection material: ABS, PVC, polypropylen brass, stainless steel, chromium-plated brass
- float: acrylate, teflon
 - sealing: NVR, PTFE
 - control valve
- installation: only vertical
- option of liquid(water) and gases (air) measuring

APPLICATION:

- food industry
- mechanical engineering
- test and lab equipment

TECHNICAL PARAMETERS:

- model: 15Z, 15ZA, 25Z
- measuring range: 10-100, 16-160, 25-250 l/h
0,5-4...10-170l/min (water)
from 0,1-1m³/h up to 35-350m³/h (air)
 - T max: 80°C
 - PN: 6 bar
- thread: G1/2, G1"
- accuracy class: 4%

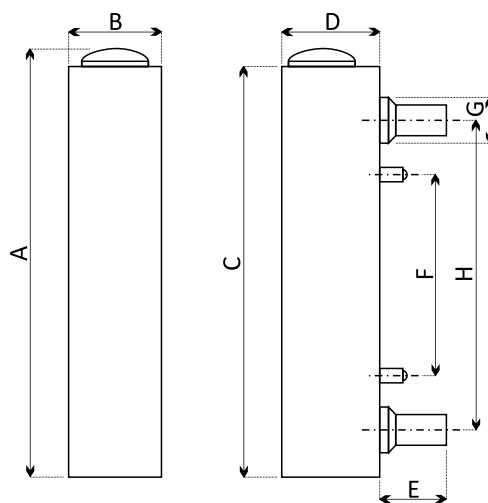
SPECIFICATION:

Flowmeters LZM-Z are used for instantaneous flow measurements of liquid and gases.

This model of flowmeter is suitable for panel mounting. Comes in various materials of float and connection. Vertical installation only.

Type	Measuring range		Material	Thread		Accuracy class
	l/min liquid H ₂ O	m ³ /hour gas				
LZM-15ZA	-	0,1-1	ABS, brass, chromium- plated brass, stainless steel	G1/2"	1/2" BSPT	4%
LZM-15Z	-	0,6-6		G1/2"	1/2" BSPT	
LZM-15Z	10-100 l/ hour	-		G1/2"	1/2" BSPT	
LZM-15Z	16-160 l/ hour	-		G1/2"	1/2" BSPT	
LZM-15Z	25-250 l/ hour	-		G1/2"	1/2" BSPT	
LZM-15Z	0,5-4	1-10		G1/2"	1/2" BSPT	
LZM-15Z	1-7	1,6-16		G1/2"	1/2" BSPT	
LZM-15Z	1-11	2,5-25		G1/2"	1/2" BSPT	
LZM-15ZA	2-18	4-40		G1/2"	1/2" BSPT	
LZM-15Z	5-35	10-100		G1"	1/2" BSPT	
LZM-25Z	10-50	20-100		G1"	1/2" BSPT	
LZM-25Z	10-70	16-160		G1"	1/2" BSPT	
LZM-25Z	10-130	25-250		G1"	1/2" BSPT	
LZM-25Z	10-150	30-300		G1"	1/2" BSPT	
LZM-25Z	10-170	35-350		G1"	1/2" BSPT	

- LZM-15Z, LZM-15ZA, LZM-25Z



Dimensions in mm								
Type	A	B	C	D	E	F	G	H
LZM-15ZA	157	32	150	35	25	60	25	110
LZM-15Z	175	32	168	35	25	76	25	127
LZM-25Z	234	45	226	46	33	100	37	160

FLOWMETER LZM-T



with regulatory valve
rate of flow:
6ml/min - 170 l/min liquid
0,2 l/min - 160 m³/h gas

DESCRIPTION:

- case: acrylate, glass
- connector material: ABS, PVC, polypropylen brass, stainless steel, chromium-plated brass
- float: acrylate, teflon
 - sealing: NVR, PTFE
 - control valve
- installation: only vertical
- option of liquid (water) and gases (air) measuring

APPLICATION:

- food industry
- mechanical engineering
- test and lab equipment

TECHNICAL PARAMETERS:

- model: 4T, 6T, 8T, 15T, 20T, 25T
- measuring range: from 6-60ml/min up to 100-1000ml/min
2,5-25, 4-40, 6-60 l/h
0,5-4 l/min... 30-170 l/min (water)
from 0,2-2l/min up to 6-30 l/min
from 1-10m³/h up to 16-160m³/h (air)
 - T max: 80°C
 - PN: 6 bar
- thread: G1/4, G1/2, G3/4, G1"
 - accuracy class: 4%

SPECIFICATION:

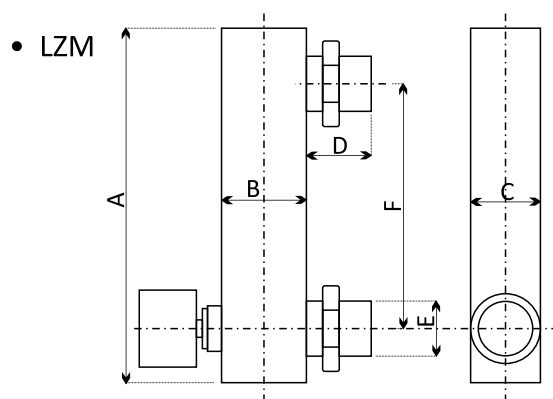
Flowmeters LZM-T are used for instantaneous flow measurements of liquid and gases.

This model of flowmeter is suitable for panel mounting. Flow may be regulated by use of valve. Manufactured in accuracy class 4%. Various materials of connectors, floats and valves.

Vertical installation only.

Type	Measuring range		Thread	Accuracy class
	l/min liquid H ₂ O	l/min (gas)		
LZM-4T	6-60	0,2-2	directly	4%
LZM-4T	40-400	1-12	directly	
LZM-6T	25-250	0,04-0,4	onto pipe	
LZM-6T	16-160	1-5	G1/4"	
LZM-6T	80-400	2-10	G1/4"	
LZM-6T	100-500	3-15	G1/4"	
LZM-6T	100-600	4-20	G1/4"	
LZM-6T	200-800	5-25	G1/4"	
LZM-6T	100-1000	6-30	G1/4"	
LZM-8T	2,5-25 l/hour	-	G1/4"	
LZM-8T	4-40l/hour	-	G1/4"	
LZM-8T	6-60 l/hour	-	G1/4"	
LZM-15T	0,5-4l/min	1-10 m ³ /h	G1/2"	
LZM-15T	0,8-8l/min	1,6-16 m ³ /h	G1/2"	
LZM-15T	2-18l/min	4-40 m ³ /h	G1/2"	
LZM-20T	8-40l/min	2,5-25 m ³ /h	G3/4"	
LZM-20T	8-60l/min	6-60 m ³ /h	G3/4"	
LZM-20T	8-80l/min	1 6-80 m ³ /h	G3/4"	
LZM-25T	10-50l/min	16-160 m ³ /h	G1"	
LZM-25T	20-100l/min		G1"	
LZM-25T	30-130l/min		G1"	
LZM-25T	30-170l/min		G1"	

Design	Valve	Equipment	Float	O-ring
T - with valve	brass	ABS	stainless steel	rubber
O - without valve	stainless steel	brass	acrylic	
		chromium-plated		



Dimensions in mm						
Type	A	B	C	D	E	F
LZM-4T	94	27	21	14	14	70
LZM-6T	102	30	25	20	M18x1,5	77
LZM-8T	110	30	25	20	M18x1,5	80
LZM-15T	206	37	32	33	G1/2	165
LZM-20T	220	44	39	49	G3/4	165
LZM-25T	240	50	44	48	G1	175

FLOWMETER LZM-6T O₂

with valve
for oxygen measurements
ranges: 0 – 14l/min



DESCRIPTION:

- case: acrylate
- connector material: ABS, brass, chromium-plated brass
 - float: acrylate, stainless steel
 - sealing: O-ring(rubber)
 - control valve
 - installation: only vertical
- option of gas measurement(oxygen)

APPLICATION:

- food industry
- mechanical engineering
 - air-conditioning
 - power engineering

TECHNICAL PARAMETERS:

- model: LZM-6T O₂
- measure range: 1-3l/min... 0,5-14l/min
 - thread: M10x1mm or 9/16-18
 - accuracy class: 5%

SPECIFICATION:

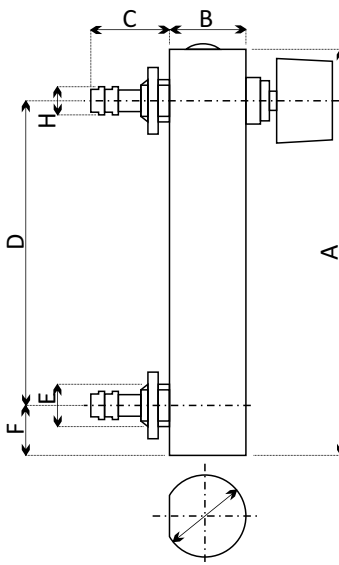
Flowmeters LZM-6T O₂ are used for flow control and measurements of oxygen and its concentrations. Mediums flow may be regulated by a valve.

This model is suitable for panel mounting. Produced in accuracy class 5%. Float, connector and valve can be made of various materials, optional special scale design for oxygen, etc.

Install into vertical position only.

Type	Range(l/min)	Connection	Accuracy class	Design
LZM-6T O ₂	1-3	onto pipe	5%	with valve LZM-6T O ₂ without valve LZM-6O O ₂
	0-5			
	1-5			
	1-5			
	0,5-10			
	2-10			
0,5-14				
Design	Valve	Connection	Float	Sealing
T-with valve	brass	ABS	stainless steel	rubber
O - no valve	stainless steel	brass	acrylate	butyl
		chromium-plated		

• LZM-6T O₂



Type	Range (l/min)	Dimensions (mm)							
		A	B	C	D	E	F	G	H
LZM-6T O ₂	1-3	60	20	19 -21	40	M10x1 or 9/16-18	8	22	8
	1-5	106	20		80		13	22	8
	0,5-10	106	20		80		13	22	8
	2-10	106	20		80		13	22	8
	0,5-14	106	20		80		13	22	8
	0-5	115	20		90		13	22	8
	1-5	115	20		90		13	22	8

FLOWMETER LVB



vortex flowmeter
DN6...25, 0,5l-150l/min

DESCRIPTION:

- water volumetric flow meter
- working on the principle of vortex
 - for mounting into piping
 - any position of installation
 - low pressure lost
- the possibility of atypical version - clamp connection, high pressure version...

APPLICATION:

- petrochemical industry
- chemical industry
- food industry
- metallurgy

TECHNICAL PARAMETERS:

- DN: 6, 8, 10, 15, 20, 25
- measuring range from 0,5 l/min to 150 l/min
- measurement accuracy: 50...100%FS <2%; up to 50%FS <1%
 - PN: 12bar (+40°C), 6bar (+100°C)
- environment temperature: -15+85°C
 - case: PA6T/6I (40%GF)
 - sensor: ETFE
 - seal: EPDM
- output: analog (4-20mA) or pulse
 - IP 65

SPECIFICATION:

Basic series of flowmeters LVB offer compact, easy and affordable price solution for monitoring the flow or consumption.

Flowmeters are working on the principle of vortex, LVB series are using for measurement the flow of water and low viscous liquids. Flowmeters can be used for a wide range of media in the temperature range up to 125°C.

They can be used in petrochemical, chemical and food industry and also in metallurgy and scientific research for measurement and regulation.

It is possible to choose analog or pulse output.

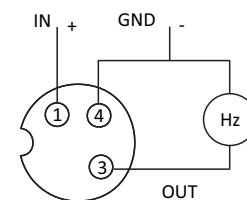
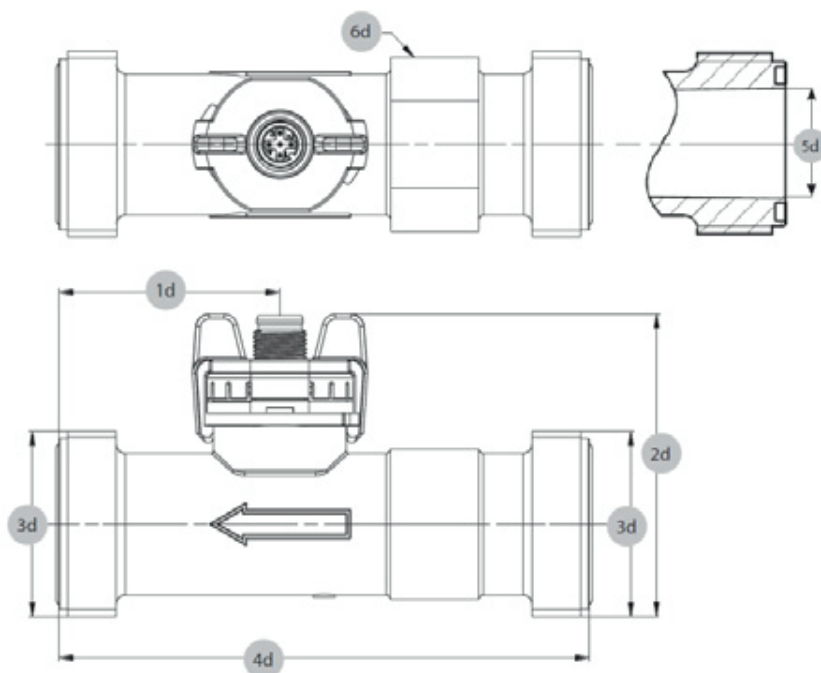
Analog output signal is standard 4-20mA.

Level of protection is IP 65.

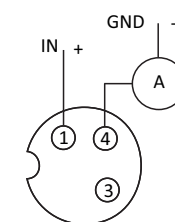
Type	Nom. size	Capacity	Output - analog or pulse	Volume	Pressure lost
LBV-06	DN 6	0,5...10l/min	4-20mA or 28...427 Hz	0,386ml	$(240 \cdot Q^2) / 100$
LBV-08	DN 8	0,9...15l/min	4-20mA or 30...384 Hz	0,638ml	$(85,0 \cdot Q^2) / 100$
LBV-10	DN 10	2,0...40l/min	4-20mA or 26...473 Hz	1,403ml	$(22,5 \cdot Q^2) / 100$
LBV-15	DN 15	3,5...50l/min	4-20mA or 20...272 Hz	3,047ml	$(6,70 \cdot Q^2) / 100$
LBV-20	DN 20	5,0...85l/min	4-20mA or 14...227 Hz	6,213ml	$(2,50 \cdot Q^2) / 100$
LBV-25	DN 25	9,0...150l/min	4-20mA or 12...201 Hz	12,412ml	$(0,92 \cdot Q^2) / 100$

Q = flow in l/min; example for LVB-06 at the flow rate 8l/min: $(240 \cdot 8^2) / 100 = 153,6$ mbar

- LVB



Frequency output



Electric output

Pin	Color
1	brown
3	blue
4	black

Dimensions in mm							
Model	1d	2d	3d	4d	5d	6d	Weight
LBV-06	43,7	53,0	G1/2	77	12	12	47g
LBV-08	43,7	53,0	G1/2	77	12	12	47g
LBV-10	35,0	51,3	G1/2	81	12	19	57g
LBV-15	36,6	56,1	G3/4	87	16	22	68g
LBV-20	36,6	61,5	G1	105	20	27	92g
LBV-25	50,0	68,3	G1 1/4	120	26	34	100g



FLOWMETER LZZ, LZK, LZD

LZZ-side indicator
LZK-el.contact
LZD-wire version

DESCRIPTION:

- case: steel
- version: with side indicator LZZ, with el. connector LZK, wire version LZD
- any position of installation
- option of liquid (water) and gases (air) measuring

APPLICATION:

- petrochemical industry
- chemical industry
- food industry
- mechanical and civil engineering

TECHNICAL PARAMETERS:

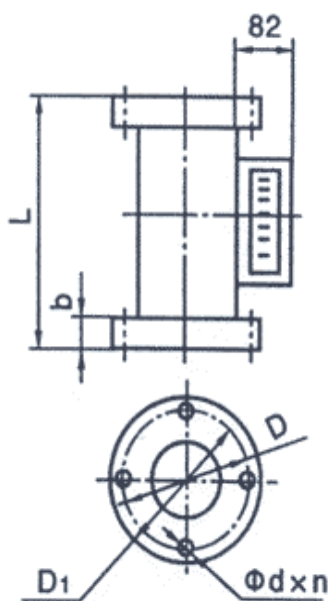
- diameter: 15, 25, 40, 50, 80, 100, 150
- measuring range: liquid 0,025; 0,04; 0,06; 0,1; 0,16; 0,25; 0,4; 0,6; 1; 1,6; 2,5; 4; 6; 10; 16; 25; 40; 60; 160m³; gases 0,7; 1,1; 1,8; 2,8; 4; 7; 10; 16; 30; 45; 70; 110; 160; 250; 400; 750; 1100; 1800; 2500m³
- connection: flange according the JB/T81-94(PN1,6,PN2,5) or JB/T82.2-94 (PN4, PN6,3)
- environment temperature: -20 + 50°C
 - media temperature: -80+120°C
 - PN: 1,6 MPa
- El.output: 2 wires 4-20mA, 3 wires 0-10mA, 4 wires 0-20mA, 4-20mA
- EX - version: IblICT4 with LB830S with safety protection
 - Power, el. contacts (LZK): 24V DC ±20%, 12V DC± 10%

SPECIFICATION:

Flowmeters LZZ, LZK, LZD with steel case are suitable for the measurement the flow of liquid and gases into piping. This series of the flowmeters come in several options. With side indicator (LZZ), with electrical contact (LZK) or with el. output according standard signals 0-10, 4-20mA 2/4 wire version (LZD). LZ.. flowmeters have simple construction, reliable service with low pressure lost and are supplied in various modifications: EX version, stainless steel, with a condensation container etc. Installation in all positions.

Type	DN	Maximum flow rate in m ³		Measuring range	Accuracy	Weight
		water 20°C	air 20°C			
LZZ-15 LZD-15	15	0,025	0,7	10:1	1,5-2,5%	5
		0,04	1,1			
		0,06	1,8			
		0,1	2,8			
		0,16	4			
		0,25	7			
		0,4	10			
LZZ-25 LZD-25	25	0,6	16			7,2
		1	30			
		1,6	45			
		2,5	70			
LZZ-40 LZD-40	40	4	110			10
		6	160			
LZZ-50 LZD-50	50	10	250			13
		16	400			
LZZ-80 LZD-80	80	25	750	17		
		40	1100			
LZZ-100 LZD-100	100	60	1800	23		
			2500			
LZZ-150 LZD-150	150	160	400	30		

- LZZ, LZK, LZD



Dimensions in mm					
DN	L	b	D	D1	dxn
15	250	14	95	65	14x4
25	250	18	115	85	14x4
40	250	20	145	110	18x4
50	250	22	160	125	18x4
80	250	24	195	160	18x8
100	250	26	215	180	18x8
150	250	28	280	240	23x8

MAGNETIC-INDUCTIVE FLOWMETERS

DN 10... DN 1000



DESCRIPTION:

- construction material: welded steel
 - flow tube: stainless steel
- connection flange and sensors cover: carbon (stainless) steel
 - assembly connection: flange DIN, BS, ANSI
 - flow direction: both-way measurement
 - internal diameter: DN 10... DN 1000
 - environment temperature: -20+50°C

APPLICATION:

- water industry
- petrochemical industry
- mechanical and civil engineering
 - farmaceutical industry
 - food industry

TECHNICAL PARAMETERS:

- value indication: only by exter. indicator, control system, PC
- analog. output: 4/0-20mA, generally adjustable within range 0-30mA/300 Ohmů
- frequency output: instantaneous flow (0-2kHz)/ max. 30V/50mA DC
- binary output with modes (relay): inductionless load 30V/2A DC; 125V/0,5A AC
- communic. output: network LONWORKS, protocol LonTalk
 - power supply: 24V/500mA DC
 - cable outlets: 2 pieces PG 11
- measuring accuracy: 0,5% from the measured value within range 10-100% Qmax

SPECIFICATION:

Control unit integrated in the sensors body - without display. Welded steel construction. Does not contain elements built into the measurement tube. Protection IP 65/NEMA 3.

All sensors are manufactured in compliance with international standards. Wide range of flanges (DIN, BS, ANSI...). Flange or screw design. Adjustable filtration of measurement and low flow suppression.



Standard sensor



Compact design



Separate design





ELECTROMAGNETIC INDUCTION FLOW METER

pipe instalation
MVM

DESCRIPTION:

- process connectons stainless steel/PVDF
 - case aluminuim/ABS
 - fast response
- instalation in any position
 - electrodes stainless steel

APPLICATION:

- petrochemical industry
- chemical industry
- food industry
- metallurgy

TECHNICAL PARAMETERS:

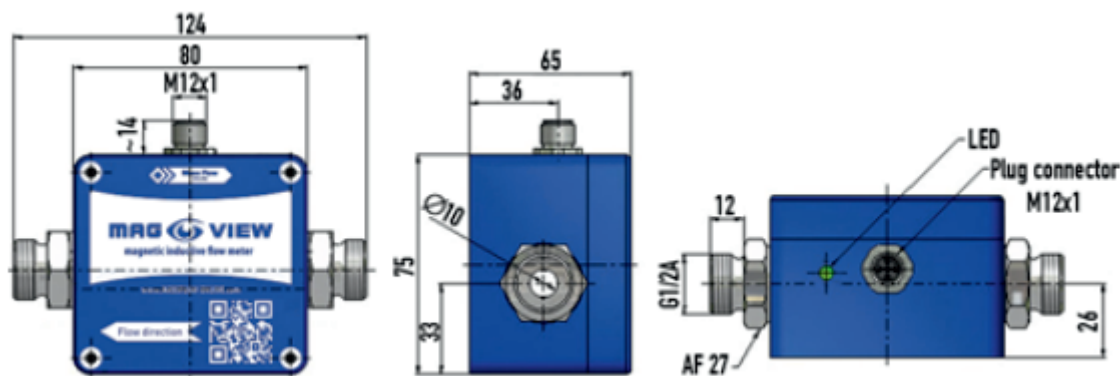
- measuring ranges: 0,5-250 l/min (MVM-xxx PA)
- measuring ranges: 0,1-250 l/min (MVM-xxx QA)
 - connection: 1/2 BSP, 3/8 BSP, 3/4 BSP, 1 BSP vnější závit
- power supply: 12-24 VDC, 24 VDC
 - output: 4-20mA
 - IP65

SPECIFICATION:

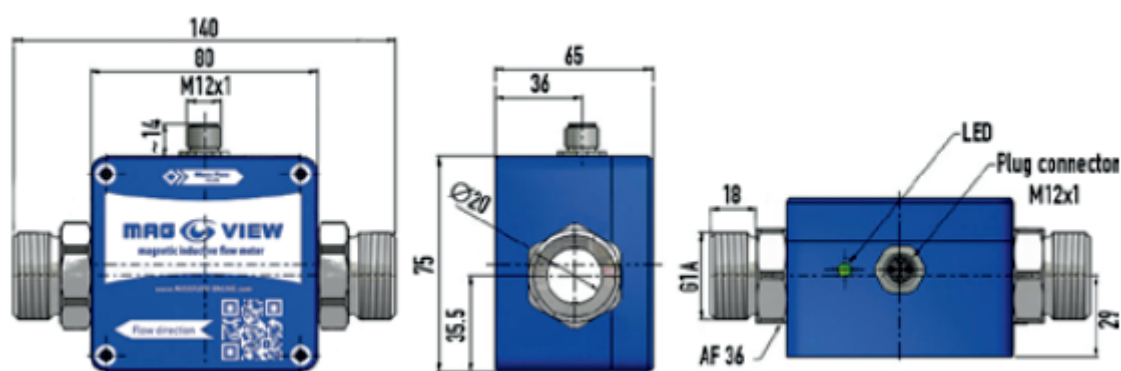
Electromagnetic flowmeter MVM offer high quality in areas where flow sensors with moving parts cannot be used. Flowmeter is designed for continuous measurement flow rates or for dosing, dosing electrically conductive liquids. MVM works on the magnetic induction principle. The measuring tube is in the magnetic field. If electrically the conductive medium passes through the measuring tube and therefore the voltage is perpendicular to the magnetic field induced into the medium, which is proportional to the average flow speed and captured by two electrodes. Pulse signal frequency and optional analog output is proportional to the flow.

Type	Measuring ranges	Thread		DN	Max. con.	Medium/amb. temp.	Accuracy class
	l/min liquid (H ₂ O)						
MVM-030 PA	0,5-30 l/min	G1/2"	1/2" BSP	7	50 μS/cm	-20+90°C	1,5%
MVM-060 PA	1-60 l/min	G1/2"	1/2" BSP	10			
MVM-250 PA	5-250 l/min	G1"	1" BSP	20			
MVM-002 QA	0,1-2 l/min	G3/8"	3/8" BSP	3	20 μS/cm	Medium: -10+60°C Ambient: 5-60°C	1%
MVM-005 QA	0,25-5 l/min	G1/2"	1/2" BSP	6			
MVM-020 QA	1-20 l/min	G1/2"	1/2" BSP	8			
MVM-050 QA	2,5-50 l/min	G3/4"	3/4" BSP	15			
MVM-200 QA	5-200 l/min	G1"	1" BSP	20			
MVM-250 QA	12,5-250 l/min	G1 1/4"	1 1/4" BSP	25			

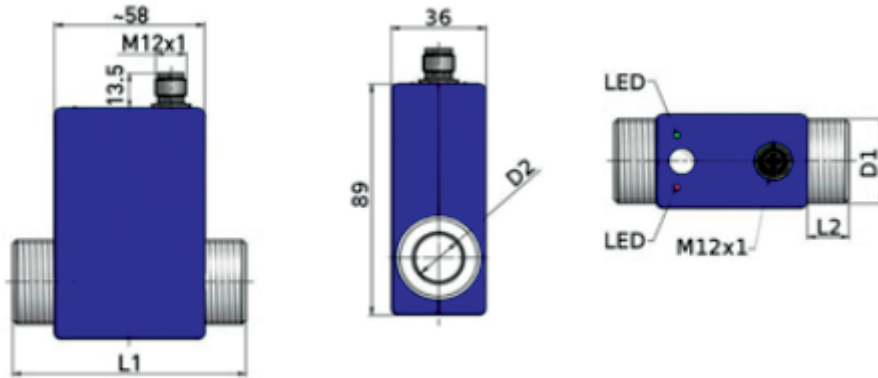
- MVM-030 PA a MVM-060- PA



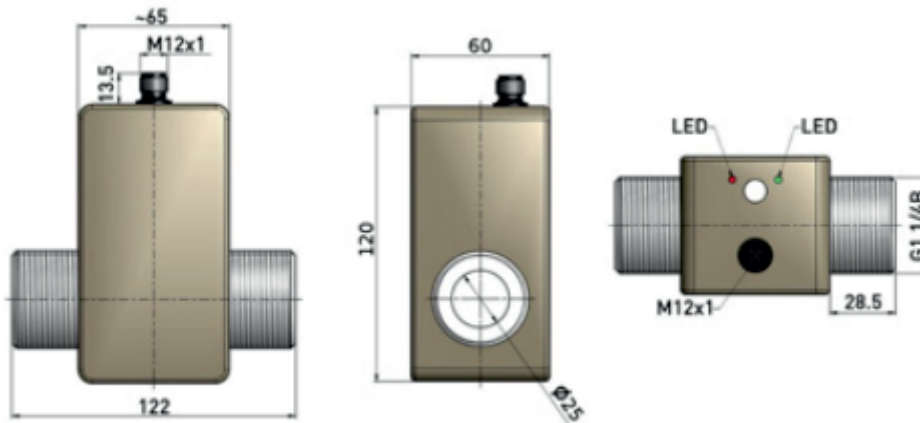
- MVM-250 PA



- MVM-002/005/050/100 QA

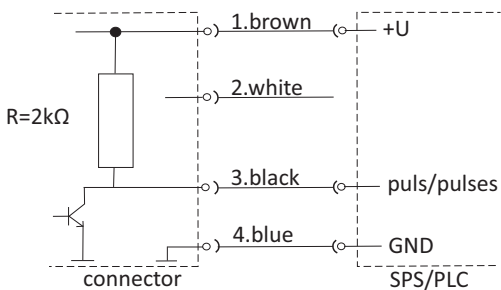


- MVM-250 QA



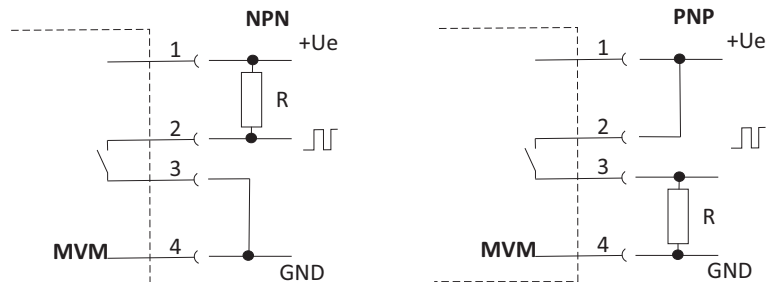
Type	L1	L2	D1	D2
MVM-002 QA	85	13,3	G3/8	3
MVM-005 QA	85	13,3	G1/2	8x2
MVM-020 QA	85	13,3	G1/2	8
MVM-050 QA	90	15,5	G3/4	14
MVM-200 QA	90	15,5	G1	18

CONNECTION DIAGRAM TO PLC:



Electric connection

CONNECTION DIAGRAM TO NPN or PNP:



ULTRASONIC FLOWMETER

for pipe instalation
type F3



DESCRIPTION:

- process connection: by 4 screws
- pipe material: PVC, carbon steel, stainless steel, copper
 - conection trough Wi-Fi
 - various mounting positions

APPLICATION:

- cleaning system
- chemical industry
 - energy
 - agriculture

TECHNICAL PARAMETERS:

- flow range: 0,4 - 90 m³/h
 - pipe size: DN20- DN80
 - accuracy.: 2%
- power supply: 10 - 36VDC/ 500mA
 - output: 4-20mA, RS 485, Wi-Fi
 - IP54

SPECIFICATION:

Ultrasonic flowmeters are designed for flow measurement with fast and easy instalation.

Ultrasonic flowmeter type F3 is for noninvasive instalation for pipes in ranges from DN20 to DN80 from PVC, carbon steel, stainless steel and copper. Instalation by attaching and thightening the 4 screws. Flowmeter F3 can be used at outdoor aplications due to protection rate IP54.

Flowmeter F3 can be used for measuring chilled water in HVAC system, cleaning system, supply system, residential water, farming irrigation system, etc.

Flowmeter F3 has output 4-20mA and own network support for Wi-Fi connection with support for cloud saving with "Gentos iCloud" application for easy remote acces.

Type	F3
Flow range	0,4 - 90 m ³ /h
Medium	water, sea water, deionized water, chilled water, residential water, hot water
Accuracy	2%
Pipe size	DN 20, 25, 32, 40, 50, 65, 80
Display	1,44"LCD
Pipe material	PVC, carbon steel, stainless steel, copper
Medium temp.	0 - 60°C
Ambient temp.	-10 - 50°C
Outputs	4 - 20mA, RS 485, WiFi
Power supply	10 - 36VDC/ 500mA
Cable length	2m
Protection rate	IP54

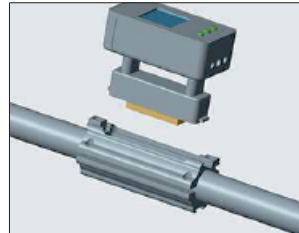
- Instalation:



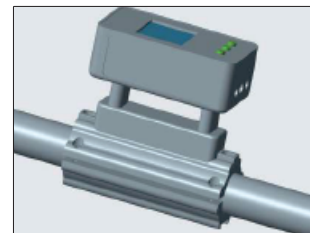
1. Take out the product



2. Clamp the pipe



3. Tighten the screw



4. Power on to start

Dimension unit: in mm								
Model F3	∅ PVC, steel	∅ copper	W	W1	L	L1	H	flow (m ³ /h)
DN 20	25 - 29	25 - 29	60	51	105	115	121	0,4 - 6
	21 - 25	21 - 25	60	51	105	115	121	
DN 25	32 - 36	25 - 29	60	56	105	115	128	0,5 - 9
	28 - 32	21 - 25	60	56	105	115	128	
DN 32	39 - 43	32 - 36	60	63	105	115	135	0,9 - 15
	35 - 39	28 - 32	60	63	105	115	135	
DN 40	50 - 54	39 - 43	60	74	105	115	146	1,3 - 23
	46 - 50	35 - 39	60	74	105	115	146	
DN 50	63 - 67	50 - 54	60	89	105	115	159	2 - 35
	59 - 63	46 - 50	60	89	105	115	159	
DN 65	76 - 80	63 - 67	60	102	105	115	172	3,5 - 60
	72 - 76	59 - 63	60	102	105	115	172	
DN 80	87 - 91	76 - 80	60	113	105	115	183	5,5 - 90
	83 - 87	72 - 76	60	113	105	115	183	

FLOWMETER ULTRASONIC TDS

for installation into the pipe
DN 15-6000mm



DESCRIPTION:

- TDS-100H - hand held, DN 15-6000 mm
 - TDS-100P - portable, DN 15-6000 mm
- TDS-100F1 - wall mount, DN 15-6000 mm
 - TDS-100M - modular, DN 15-6000 mm

APPLICATION:

- petrochemical industry
 - chemical industry
 - food industry
 - metallurgy
- water management

TECHNICAL PARAMETERS:

- accuracy: <1% (100H, 100P, 100F1)
- power supply: 90~230VAC (100H), 220VAC or 110VAC (100P), 85~264VAC or 24VDC (100F1), 8~36VDC (100M)
- interface: RS 232 or OCT output (100H), RS 485 (100P)
 - output: 4-20mA
- IP65 (100F1), IP57 (100M)

SPECIFICATION:

Ultrasonic flowmeters TDS series are working on principle of two ultrasonic transducers fixed on the outer surface of the steel pipe (or any other conductive material). The advantage of this measurement is that the transducers are not in contact with the medium.

It is to choose a pulse or analog output signal (4...20mA). In case of lack of power or air is alarm activated and can be set via a rotary switch with 16 adjustable values. Installation in any position.

Type		Measuring range	Temperature
TDS -100H	hand held	DN15- 6000mm	0-160°C
TDS -100P	portable	DN15- 6000mm	0-160°C
TDS -100F1	wall mount	DN15- 6000mm	0-160°C
TDS -100M	modular	DN15- 6000mm	0-160°C

TDS -100H



TDS -100P







TDS-100F1



TDS - 100M



		Type	Measuring range
Sensor		S2	DN15 - 100mm
Sensor		M2	DN50 - 700mm
Sensor		L2	DN300 - 6000mm
Sensor		HS	DN15 - 100mm
Sensor		HM	DN50 - 700mm
Shielded transducer cables			SEYV75 - 2

FLOWMETER HD005



turbine flowmeter
DN2...300, 10l-1800m³/h

DESCRIPTION:

- threaded or flanged connection
 - precalibrated rotor
- design with / without local display
 - rotor from karbid wolfram
 - all stainless steel case
- atypical design - clamp connection, high-pressure, HART communication...

APPLICATION:

- petrochemical industry
 - chemical industry
 - food industry
 - metallurgy

TECHNICAL PARAMETERS:

- DN: 2,4,6,10,15,25,40,50,80,100,150,200,250,300
 - measuring range from 10l/h to 1800m³/h
 - accuracy from: 0.2, 0,5, 1%
 - PN: <40MPa
 - case: stainless steel 304 (or 316)
 - bearing and axle: karbid wolfram
 - rotor: stainless steel 304 (or Alloy CD4Mcu)
 - output: 4-20mA, 0-10 V, HART
 - IP65

SPECIFICATION:

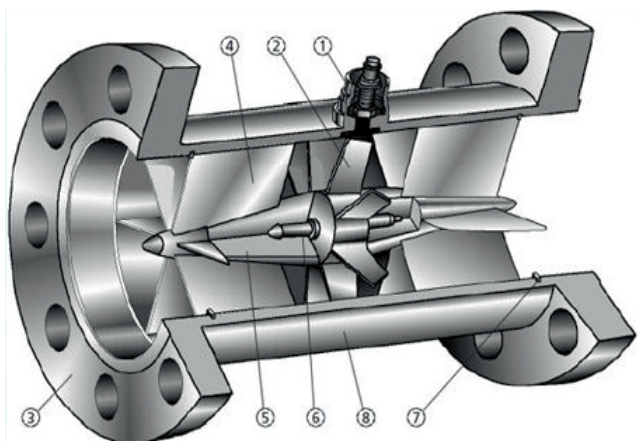
Turbine flowmeters HD005 series are design for flow measurement of low viscosity fluids. They can be used for the media in the temperature range -20 till +120°C They can be used in petrochemical, chemical and food industry and also in metallurgy or scientific researche for measurement and regulation.

It is to choose a pulse or analog (current, voltage) output. It is possible to choose different ways for displaying.

Output signal is 4-20mA or 0-10V. Level of protection is IP65.

DN (mm)	Flow (m ³ /h)						Medium temperature °C	PN (MPa)	Ambient temperature °C	Pressure lost (MPa)	
	Inaccuracy 0.2%		Inaccuracy 0.5%		Inaccuracy 1.0%						
	Min	Max	Min	Max	Min	Max					
2					0.03	0.16	-20	6.3	-25	0.12	
4					0.04	0.25		6.3		0.08	
6					0.1	0.6		16		0.05	
10					0.2	1.2		25		0.035	
15			0.6	4	0.6	6		40			
25			1.6	10	1	10		+120		+55	0.025
40	3	20	3	20	2	20					
50	6	40	6	40	4	40					
80	16	100	16	100	10	100					
100	25	160	25	160	20	200					
150	60	400	50	300	40	400					
200			100	600	80	800					
250			160	1000	120	1200					
300			260	1600	180	1800					

- structure of flowmeter HD005



1. Signal output
2. Rotor
3. Flanged or threaded connection
4. Vane flow for low speed
5. Load of vane flow
6. Rotor and axle bearing from karbid wolfram
7. Insurance clips
8. All stainless steel case

G. PRESSURE AND TEMPERATURE TRANSDUCERS

- | | | |
|-------------|--|---|
| pressure | G.1.1. | Standard pressure transducer THPB1, THIPB1 |
| | G.1.2. | Pressure transducer with front membrane THPB2, THIPB2 |
| | G.1.3. | Pressure transducer with ceramic sensor THPB3, THIPB3, CS, PC (HART) |
| | G.1.4. | Pressure transducer with high frequency response THPB4, THIPB4 |
| | G.1.5. | Pressure transducer for high pressures THPB7, THIPB7 |
| | G.1.6. | Pressure transducer for high temperatures THPB8, THIPB8 |
| | G.1.7. | Industrial pressure transducer THPB9, THIPB9 |
| | G.1.8. | Capacity pressure transducer with ceramic membrane THPB10, THIPB10 |
| | G.1.9. | Capacity pressure transducer for ATEX environment THPB11, THIPB11 |
| | G.1.10. | Pressure transducer with increased resistance to corrosion series THPB3-c, THIPB3-c |
| | G.1.11. | Pressure transducer for differential pressure THPB5, THIPB5 |
| temperature | G.1.12. | Combined pressure and temperature transducer THPB13 |
| | G.1.13. | Display unit ZED 601 |
| | G.2.1. | Sensors/transducers with current output |
| | G.2.2. | Temperature sensor THST |
| | G.2.3. | Temperature transducer to ATEX environment THTB4 |
| G.2.4. | Robust temperature transducer with display into ATEX environment THTI8 | |
| G.2.5. | Bimetallic thermostat sensor THBT, THBTST | |

STANDARD PRESSURE TRANSDUCER series THPB1, THIPB1 (HART)



DESCRIPTION:

- completely stainless steel construction
- suitable for low pressure and vacuum measurements
 - automatic testing, laser zero setting
- resistant to high-frequency shocks and interference
 - resistant to corrosion, impact and wear
- protection from reverse polarity, current protection, overvoltage protection
 - connector material: 17 248/ 1.4541
 - membrane material: 17 348/ 1.4571

APPLICATION:

- chemical industry
 - hydrology
- power engineering metallurgy

TECHNICAL PARAMETERS:

- measuring ranges: -1-0-...0,1-1000bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V; 0,5-4,5V
4-20mA HART/THIPB1
- connection: G1/2 (G1/4, M12x1,5, M20x1,5, 1/2 NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,1% FS; 0,25% FS (standard); 0,5%FS
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB1 works on the principle of piezo-resistant technology, as a sensor unit THPB1 uses a stainless steel membrane.

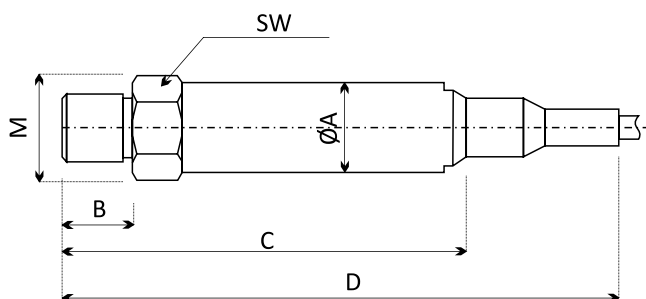
Transducers cylindrical case is made of stainless steel, including process connection.

THPB1 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

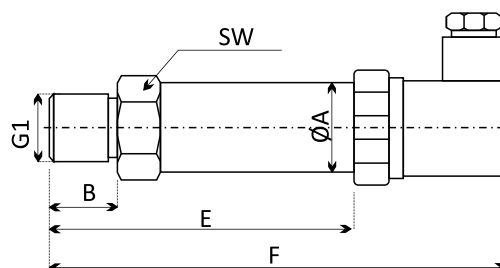
Some of the assets of the transducer are its integrated construction, sturdy and heavy-duty design, high accuracy and long-term stability. THPB1 is suitable for pressure measurements in most of industrial operations, widely used for pressure measuring in chemical industry, metallurgy, power engineering, hydrology, etc.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temperature	-40+120°C
Range	-1-0...0,1-1000bar	Working temp. range	-30+80°C
Accuracy class	0,1%FS; 0,25%FS (standard); 0,5%FS	Electric. connect.	DIN 43650 and other see table
Pressure type	relative (G), absolute (A)	Connection	G1/2 (G1/4, M12x1,5, M20x1,5, 1/2NPT)
Output signal	4-20mA; 0-5V; 0-10V; 1-5V; 0,5-4,5V 4-20mA HART/THIPB1	Connect. material	stainless steel 17 248/1.4541
		Membrane mater.	stainless steel 17 348/1.4571
Stability	<0,2%FS/year	Case material	aluminium
Loading resistance	$RL=(U-12V)/0,02A$ (4-20mA current output) U - loop voltage (V)	Sealing	N-butyronitril or fluor sealing ring
Power supply voltage	12-36V DC	Overloading	150%FS

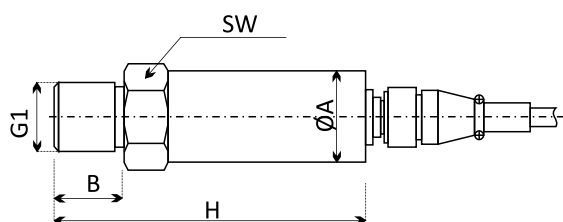
- Waterproof connector



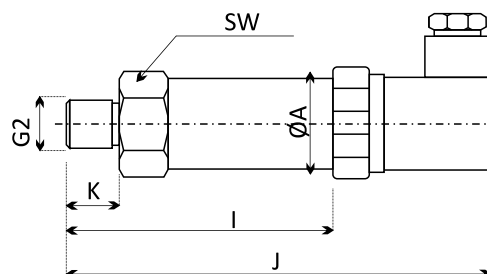
- DIN 43650 connector



- Cable connector

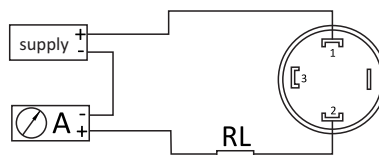


- DIN 43650 connector



Dimensions in mm													
A	B	C	D	E	F	G1	G2	H	I	J	K	M	SW
27	18	107	147	74	119	G1/2	G1/4	80	70	113	14	M20x1,5	27

Wiring diagram



Order code:

THPB1, THIPB1(HART)	
Range	measuring range: -1-0...0,1-1000bar
(X1-X2)	X1 - lower limit, X2 - upper limit of the measuring range
Code	Pressure type
G	relative
A	absolute
Code	Accuracy class
B	0,1%
C	0,25%
D	0,5%
Code	Output signal
O1	4-20mA
O2	0-5V
O3	1-5V
O4	0-10V
O5	0,5- 4,5V
Oz	on request
Code	Other
E1	DIN 43650
E2	cable connector
E3	waterproof connector
E4	cable (locknut)
Ez	other electric. connection
D1	3-1/2 LCD
D2	3-1/2LED
I2	Ex II CT6
P1	G1/4
P2	G1/2
P3	1/4NPT
P4	M20x1,5
P9	flange
Pz	on request

THPB1	(0-10)bar	G	D	O1	E1(D2I1)P2
	Range	Pressure type	Accuracy class	Output signal	Other



PRESSURE TRANSDUCER WITH FRONT MEMBRANE series THPB2, THIPB2 (HART)

DESCRIPTION:

- front membrane - construction without input pressure hole
- automatic testing, laser zero setting
- high accuracy and strength
- membrane type of connection against impurities
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- food industry
- health care
- viticulture, wine-making

TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,1-350bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V, 4-20mA HART/THIPB2
- connection: G1/2 (G1/4, M12x1,5, M20x1,5, 1/2 NPT)
- supply voltage: 12-36V DC
- accuracy class: 0,25% FS (standard); 0,5%FS
- pressure type: relative, absolute
- environment temperature: -40+125 °C

SPECIFICATION:

Pressure transducer THPB2 works on the principle of piezo-resistant technology, as a sensor unit THPB2 uses a chip.

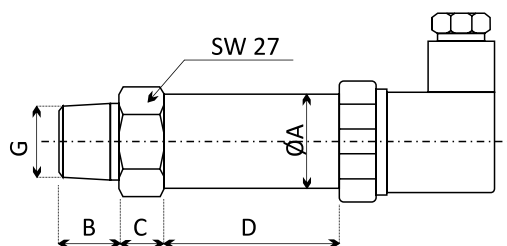
Transducers cylindric case is made of stainless steel, including process connection. Process connection may be threaded, with front membrane, clamp or flange. Connection with front membrane is suitable as a protection against sediment load, crystallization, high viscosity liquids and similar mediums.

THPB2 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

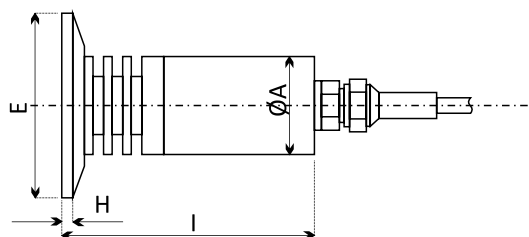
Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and long-term stability. THPB2 is widely used in food industry, health care, viticulture, etc.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temperature	-40+120°C
Range	-1-0...0,1-350bar	Working temper. range	-30+80°C
Accuracy class	0,25%FS; 0,5%FS (standard)	Electr. connection	DIN 43650, other, see table
Pressure	relative (G), absolute (A)	Connection	G1/2 (G1/4, M12x1,5, M20x1,5, 1/2NPT)
Output signal	4-20 mA, 0-5V, 0-10V, 1-5V 4-20 mA HART/THIPB2	Connection mater.	st. steel 17 248/1.4541
		Membrane mater.	st. steel 17 348/1.4571
Stability	<0,2%FS/year	Case material	st. steel or Al alloy
Loading resistance	$RL=(U-12V)/0,02$ (4-20mA current output) U - loop voltage (V)	Medium environ. temperature	-40+125°C
Supply voltage	12-36V DC	Overloading	150%FS

• Type I (PT 1/2)

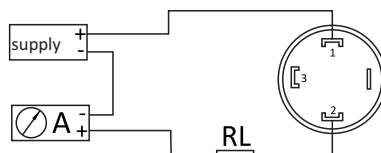


• Type II (2'' clamp)



Dimensions in mm									
A	B	C	D	E	F	G	H	I	SW
27	18	10	46	50,4	27	G1/2PT	2,8	67	27

Wiring diagram



Order code:

THPB2 - I	Typ I	
THPB2 - II	Typ II	
Range	measure range: -1-0...0,1-350bar	
(X1-X2)	X1 - lower limit of the measuring range, X2 - upper limit of the measuring range	
Code	Pressure	
G	relative	
A	absolute	
Code	Accuracy class	
B	0,1%	
C	0,25%	
D	0,5%	
Code	Output signal	
O1	4-20mA	
O2	0-5V	
O3	1-5V	
O4	0-10V	
Code	Connection	
P2	G1/2	
P4	M20x1,5	
Pc	2"clamp	
Pz	on request	
Code	Elect. connect.	
E1	DIN 43650	
E2	cable connector	
E3	PVC shielded cable	
Ez	on request	

THPB2	(0-200)bar	G	D	O1	P2	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electrical connection



PRESSURE TRANSDUCER WITH CERAMIC SENSOR series THPB3, THIPB3 options: CS, PC, (HART)

DESCRIPTION:

- silicon sensor
 - automatic testing, laser zero setting
 - high accuracy and long-term stability
- protection from reverse polarity, current protection, overvoltage protection
 - resistance to wear and corrosion
- options: THPB3, THPB3-CS, THPB3-PC

APPLICATION:

- food industry
- power engineering
 - health care
- chemical industry

TECHNICAL PARAMETERS:

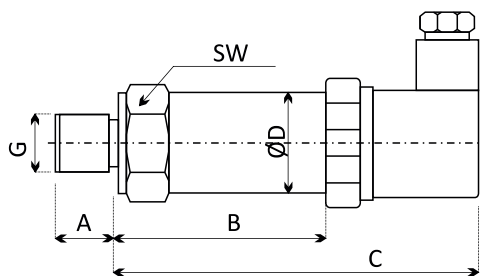
- measuring ranges: 0-1...600bar
- output signal: 4-20mA; 0-5V; 0-10V; 1-5V, 4-20mA HART/THIPB3
- connection: G1/4 (M20x1,5, 1/4 NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,25% FS (standard); 0,5%FS
 - pressure type: relative, absolute
- environment temperature: -40+125 °C

SPECIFICATION:

Pressure transducer with ceramic sensor THPB3 is equipped with integrated high quality silicon sensor and specially strengthened circuit. Transducers cylindrical case is made of stainless steel, including process connection. THPB3 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges. Sensor membrane THPB3 is made of ceramic material and all parts that come in contact with medium are made of stainless steel 321. THPB3 may be used for pressure measurement even in operations of variable temperatures thanks to the high temperature stability of the silicon sensor. Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and temperature change stability. THPB3 is suitable for pressure measuring in most industrial applications, widely used in chemical, food industry, health care and power engineering.

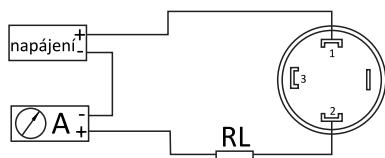
Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temperature	-40+120°C
Range	0 - 1 ... 600 bar	Working temper. range	-30+95°C
Accuracy class	0,25%FS; 0,5%FS (standard)	Electr. connection	DIN 43650, other, see table
Pressure	relative (G), absolute (A)	Connection	G 1/4 (M20x1,5; 1/4 NPT)
		Sealing	N-Butyronitril/fluor seal. ring
Output signal	4-20 mA, 0-5V, 0-10V, 1-5V 4-20 mA HART/THIPB3	Connection mater.	st. steel 17 248/1.4541
		Membrane mater.	ceramic
Stability	<0,2%FS/year	Case material	st. steel 17 248 / 1.4541
Loading resistance	$RL=(U-12V)/0,02$ (4-20mA current output) U - loop voltage (V)	Medium environ. temperature	-40+125°C
Supply voltage	12-36V DC	Overloading	150%FS

HART/THIPB3

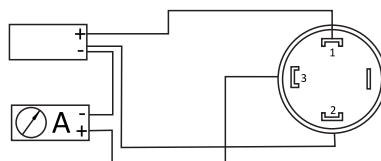


Dimensions in mm					
A	B	C	D	G	SW
12	56	~95	27	G1/4	27

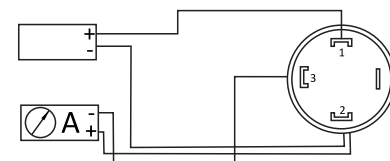
Wiring diagram 4-20mA:



Wiring diagram 0-20mA:



Wiring diagram 0-5V, 0-10 V



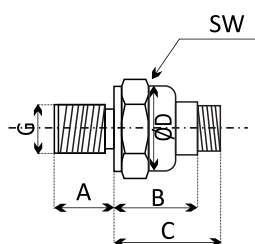
Order code:

THPB3,THIPB3	Type					
	Range	measuring range: 0-1...600bar				
	(0-X) bar	X - required measuring range				
	Code	Pressure				
	G	relative				
	A	absolute				
	Code	Accuracy class				
	C	0,25%				
	D	0,5%				
	Code	Output signal				
	O1	4-20mA				
	O2	0-5V				
	O3	1-5V				
	O4	0-10V				
	O5	0-20mA				
	Code	Connection				
	P1	G1/4				
	P3	1/4NPT				
	P4	M20x1,5				
	Pz	on request				
	Code	Electr. connect.				
	E1	DIN 43650				
	E2	cable connector				
	E3	PVC shielded cable				
	Ez	on request				

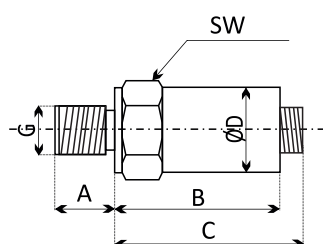
THPB3	(0-200)bar	G	D	O1	P2	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electric connection

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temperature	-40+120°C
Range	0-10bar, 0-16bar (PC) -100-0; 0-1...600bar (CS)	Working temper. range	-20+85°C
Accuracy class	0,5%FS (CS) ; 1,5%FS (PC)	Electr. connection	M12x1,5
Pressure	relative (G), absolute (A) (CS) relative (PC)	Connection	G 1/4 ; M12x1,5; 1/4NPT
		Sealing	NBR
Output signal	4-20 mA (PC) 4-20 mA, 0-5V, 0-10V, 1-5V (CS)	Connection mater.	st. steel 17 248/1.4541
		Membrane mater.	ceramic
Stability	<0,2%FS/year	Case material	st. steel 17 248 / 1.4541
Loading resistance	$RL=(U-12V)/0,02$ (4-20mA current output) U - loop voltage (V)	Medium environ. temperature	-40+125°C
Supply voltage	10-28 VDC (PC), 10-30 VDC (CS)	Overloading	1,5xPN

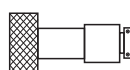
• THPB 3-PC



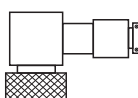
• THPB 3-CS



• Variants of connectors:



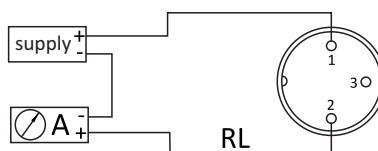
Direct



Angular

Type	Dimensions in mm					
	A	B	C	D	G	SW
THPB3-CS	12	32	36	22	G1/4	22
THPB3-PC	10	19	24	20	G1/4	22

Wiring diagram



Order code:

Type	THPB3 CS					
Range	measuring range: 0-1...600bar					
(0 X) bar	X - required measuring range					
	Code	Pressure				
	G	relative				
	A	absolute				
		Code	Accuracy class			
		C	0,25%			
		D	0,5%			
			Code	Output signal		
			O1	4-20mA		
			O2	0-5V		
			O3	1-5V		
			O4	0-10V		
				Code	Connection	
				P1	G1/4	
				P3	1/4NPT	
					Code	Electr. connect.
					E1	Cable connector

THPB3 CS	(0-200)bar	G	D	O1	P3	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electric connection

Type	THPB3 PC					
Range	measuring range: 0-10bar, 0-16bar					
(0 X) bar	X - required measuring range					
	Code	Pressure				
	G	relative				
		Code	Accuracy class			
		D	1,5%			
			Code	Output signal		
			O1	4-20mA		
				Code	Connection	
				P1	G1/4	
					Code	Electr. connect.
					E1	Cable connector

THPB3 PC	0-10bar	G	D	O1	P1	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electric connection



PRESSURE TRANSDUCER WITH HIGH FREQUENCY RESPONSE

series THPB4, THIPB4
(HART)

DESCRIPTION:

- monitoring frequency based on MEMS chip
 - high accuracy and stability
 - immediate response

APPLICATION:

- petrochemical industry
- food industry
- hydraulics
- chemical industry

TECHNICAL PARAMETERS:

- measuring ranges: 0-0,1..1000bar
 - output signal: 0-5V
 - 4-20mA HART/THIPB4
- connection: G1/4 (M12x1, M20x1,5)
 - supply voltage: 12-32V DC
- accuracy class: 0,1%FS, 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

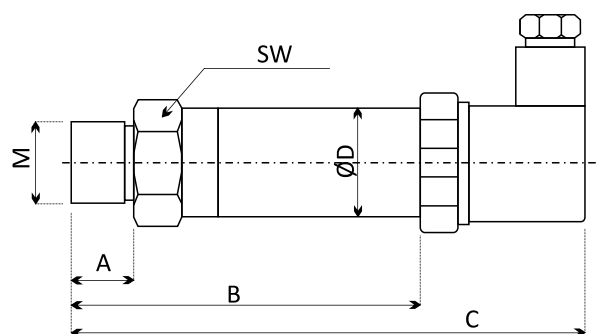
Pressure transducer THPB4 works with a high frequency pressure sensor and a special closed circuit of high frequency characteristics.

THPB4 works on high frequency of monitoring (max. 1MHz).

Transducers cylindrical case is made of stainless steel, including process connection.

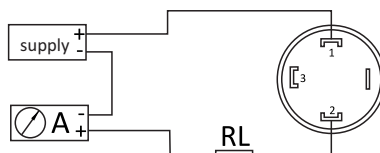
Some of the assets of the transducer are its sturdy and heavy-duty design, high accuracy and long-term stability. THPB4 is suitable for dynamic measuring and monitoring of pressures in real time. Mainly used in chemical, petrochemical, oil industry and in military research, explosive experiments, mechanical and hydraulic testing, mechanization of measuring devices and developments of mechanical constructions.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Mediums storing temper.	-40+120°C
Range	0-0,1...1000bar	Working temper. range	-40+100°C
Accuracy class	0,1%FS; 0,25%FS; 0,5%FS (standard)	Electr. connection	DIN 43 650 and other see table
Pressure	relative (G), absolute (A)	Connection	G1/4 (M20x1,5, M12x1)
Output signal	0-5V and other voltages of output signal 4-20mA HART/THPB4	Connection material	stainless steel 17 248/1.4541
Stability	<0,2%FS/year	Case material	stainless steel 17 248/1.4541
Dynamic frequency response	1 MHz max.	Overloading	≥200%FS
Power supply	12-32V DC		



Dimensions in mm					
A	B	C	D	M	SW
18	98	135	27	M20X1,5	27

Wiring diagram



Order code:

THPB4,THIPB4	Type		
	Range	measuring range: 0-0,1...1000bar	
	(X - 0)	X - upper limit of required range	
	Code	Pressure type	
	G	relative	
	A	absolute	
	Code	Accuracy class	
	B	0,1%	
	C	0,25%	
	D	0,5%	
	Code	Output signal	
	O1	0-5V and other voltages of output signal	
	Code	Connection	
	P1	G1/4	
	P4	M20x1,5	
	P6	M12x1	
	Pz	on request	
	Code	Elect. connect.	
	E1	DIN 43650	
	E2	cable connector	
	E3	PVC shielded cable	
	Ez	on request	

THPB4	(0-10)bar	G	D	O1	P1	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electric. connection



PRESSURE TRANSDUCER FOR HIGH PRESSURES series THPB7, THIPB7 (HART)

DESCRIPTION:

- high accuracy, high tightness
- wide range of applications, long life-time
 - long-term stability
- resistance to corrosion, abrasion and impact

APPLICATION:

- metallurgy
- power engineering
hydraulics
- chemical industry
- health-care

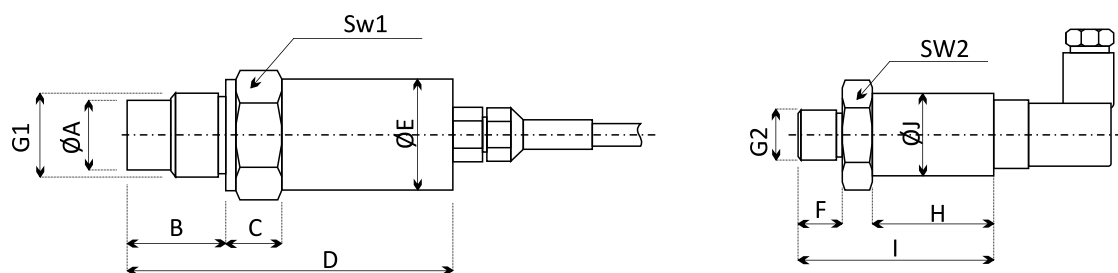
TECHNICAL PARAMETERS:

- measuring ranges: 0-10..5000bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V,
4-20mA HART/THIPB7
- connection: G1/4 (G 1/ 2, M20x1,5, M22x1,5)
 - supply voltage: 12-36V DC
- accuracy class: 0,1%FS, 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

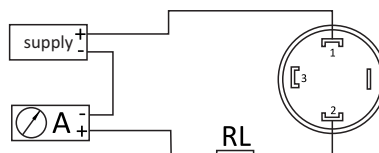
Pressure transducer THPB7 uses advanced metal foil as a sensor element. THPB7 uses Wheatstone bridge to convert pressure load into mV electric signal, which is then transferred onto a standard output. Thanks to the small size of the sensor unit it may be used in various versions, either with front membrane or with opened connection. Transducers cylindrical case is made of stainless steel, including process connection. THPB7 is fully tested on computer and zero value is set by means of laser that enables high sensitivity in wide range of temperatures. Some of the assets of the transducer are the integrated construction, its sturdy and heavy-duty design, high accuracy and long-term stability. THPB7 is designed for medium and high pressure measurements up to 5000bar. THPB7 is suitable for measurements in most industrial applications, used mainly in chemical, metallurgical industry, power engineering, hydraulics, health care, etc.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temperature	-30+100°C
Range	0-10...5000bar	Working temp. range	-20+80°C
Accuracy class	0,1%FS; 0,25%FS; 0,25FS standard	Elect. connection	DIN43650 and other see table
Pressure type	relative (G), absolute (A)	Connection	G1/4 (G1/2, M20x1,5, M22x1,5)
Output signal	4-20mA, 0-5V, 0-10V, 1-5V 4-20mA HART/THIPB7	Membrane mater.	17-4PH
Stability	<0,2%FS/year	Connection material	stainless steel 17 248/1.4541
Loading resistance	$RL=(U-12V)/0,02A$ (4-20mA current output) U - loop voltage V	Case material	stainless steel 17 248/1.4541
Power supply voltage	12-36V DC	Sealing	N-butyronitril or fluor sealing ring
		Overloading	150%FS



Dimensions in mm												
A	B	C	D	E	F	G1	G2	H	I	J	SW1	SW2
17	24,5	12	86,5	27	14	G1/2	G1/4	30	52	22	27	22

Wiring diagram



Order code:

THPB7, THIPB7(HART)			
Range	measuring range: 0-10...5000bar		
(0-X) bar	X - measured range		
	Code	Pressure type	
	G	relative	
	A	absolute	
	Code	Accuracy class	
	B	0,1%	
	C	0,25%	
	D	0,5%	
	Code	Output signal	
	O1	4-20mA	
	O2	0-5V	
	O3	1-5V	
	O4	0-10V	
	O5	0,5-4,5V	
	Oz	on request	
	Code	Other	
	E1	DIN 43650	
	E2	cable connector	
	E3	PVC shielded cable	
	Ez	other el. connections	
	D1	3-1/2 LCD	
	D2	3-1/2 LED	
	P1	G1/4 embedded membr.	
	P2	G1/2 embedded membr.	
	P4	M20x1,5 embedded membr.	
	P7	M22x1,5 embedded membr. (for high pressures)	
	P8	front membrane (G1/2): 0-10....1200bar	
	Pz	on request	

THPB7	(0-100)bar	G	D	O1	E1(D2) P4
	Range	Pressure type	Accuracy class	Output signal	Other



PRESSURE TRANSDUCER FOR HIGH TEMPERATURES series THPB8, THIPB8 (HART)

DESCRIPTION:

- suitable for high temperature measurements (max. 180°C)
 - reliable performance, good long-term stability
 - resistance to corrosion and vibrations
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- metallurgical industry
 - power engineering
 - food industry
 - health care
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,04- 1000bar
 - output signal: 4-20mA, 1-5V, 4-20mA HART/THIPB8
- connection: G1/4 (G1/2, M20x1,5, 1/4 NPT)
 - supply voltage: 10-36V DC
- accuracy class: 0,25% FS ; 0,5%FS (standard)
 - pressure type: relative, absolute

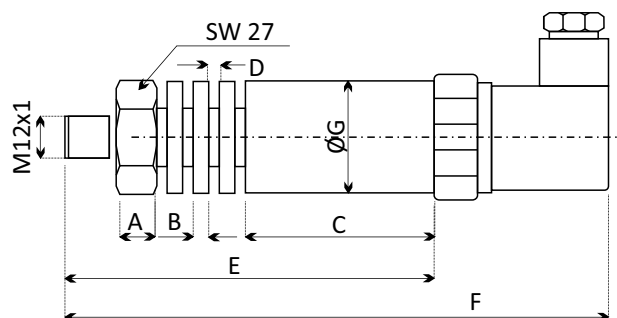
SPECIFICATION:

Pressure transducer for high temperatures THPB8 is designed for measurements of high temperature mediums. THPB8 uses a special sensor, that may be in direct contact with the monitored medium. This technology enables compact size of THPB8.

Transducers cylindric case is made of stainless steel, including cooling and process connection. THPB8 is fully tested on computer and zero value is set by means of laser with high sensitivity in wide range of temperature ranges.

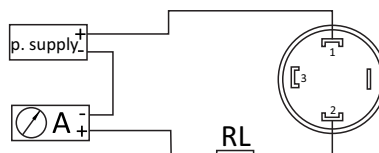
Some of the assets of the transducer are high accuracy, high temperature resistance up to 180 °C and high stability of measurement independant on temperature change. THPB8 is suitable for pressure measuring in most industrial applications with high liquid and gases temperatures, in aviation, health care, power engineering, food and chemical industry.

Technical parameters			
Medium	gas or liquid suitable for contact with stainless steel	Middle value of range	-20+145°C or -20+175°C
Range	-1-0...0,04-1000bar	Operational temperature range	-40+135°C
Accuracy class	0,25%FS; 0,5%FS (standard)	Elect. connection	DIN 43650 and other see table
Pressure type	relative (G), absolute (A)	Connection	G1/4 (G1/2, M20x1,5, 1/4NPT)
Stability	<0,2%FS/year	Sealing	N-Butyronitril/fluor sealing ring
Output signal	4-20mA, 1-5V 4-20mA HART/THIPB8	Connector material	stainless steel 17 248/1.4341
Stability	<0,5%FS/year	Response time	<1ms
Loading resistance	$RL=(U-10V)/0,02A$ (4-20mA current output) U - loop voltage (V)	Supply voltage	10-36V DC
		Overloading	200%FS (max. 150MPa)



Dimensions in mm								
A	B	C	D	E	F	G	M	SW
10	4	50	3	98	144	30	M12x1	27

Wiring diagram



Order code:

THPB8, THIPB8(HART)					
Range	measure range -1-0...0,04-1000bar				
(X1-X2)bar	X1 - bottom limit of measure range, X2 - upper limit of measure range				
Code	Pressure type				
G	relative				
A	absolute				
Code	Accuracy class				
C	0,25%				
D	0,5%				
Code	Output signal				
O1	4-20mA				
O2	0-5V				
O3	1-5V				
Oz	on request				
Code	Connection				
P1	G1/4				
P2	G1/2				
P3	1/4NPT				
P4	M20x1,5				
Pz	on request				
THPB7	(-1-10)bar	G	D	O1	P2
	Range	Pressure type	Accuracy class	Output signal	Other



INDUSTRIAL PRESSURE TRANSDUCER series THPB9, THIPB9

DESCRIPTION:

- good value for money
 - Al cast case
- resistance to corrosion, shocks and wear
 - resistance to reverse polarity, overvoltage protection, current protection

APPLICATION:

- metallurgical industry
- power engineering
- chemical industry
- hydrology

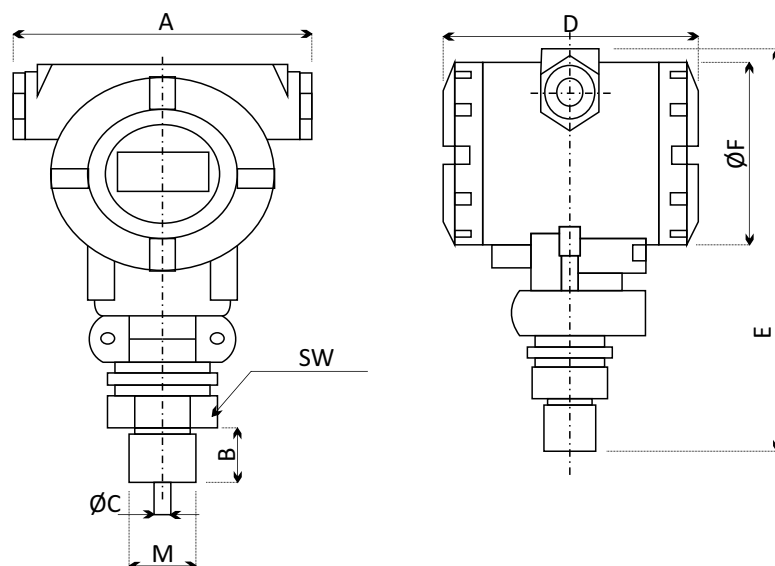
TECHNICAL PARAMETERS:

- measure ranges: -1-0...0,1-600bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V, 4-20mA HART/THIPB9
 - connection: G1/2 (M20x1,5)
 - power supply voltage: 12-16V DC
- accuracy class: 0,25%FS; 0,5%FS (standard)
- pressure types: relative, absolute
 - protection: IP 65

SPECIFICATION:

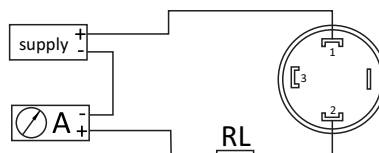
Pressure transducer THPB9 uses high quality sensors of pressure insulated by stainless steel separating membrane functioning as the sensing element. Connector THPB9 and separating membrane are made of stainless steel, electronic case and display unit is made of aluminum cast. THPB9 is fully tested on computer and set to zero by laser with sensitivity in wide temperature range. Output signal may be showed on the LCD display unit. THPB9 is proved to work by long-term use in demanding processes and is suitable for pressure measurement and control in heavy-duty conditions. THPB9 is suitable for pressure measuring in most industrial applications, chemical industry, metallurgy, power engineering, hydrology, etc.

TECHNICAL PARAMETERS			
Medium	gas or liquid suitable for contact with stainless steel	Temperature range	0-70°C
Range	-1-0...0,1-600bar	Storing temp.	-40+100°C
Accuracy class	0,25%FS; 0,5%FS (standard)	Electric connection	M20x1,5 (inner thread)
Pressure type	relative (G), absolute (A)	Connection	G1/2 (M20x1,5)
Stability	<0,2%FS/year	Sealing	fluorine - sealing ring
Output signal	4-20mA, 0-5V, 0-10V, 1-5V 4-20mA HART/THIPB9	Connector material	stainless steel 17 248/1.4541
		Membrane material	stainless steel 17 348/1.4571
Supply voltage	12-36V DC	Response time	<1ms
Load resistance	$RL=(U-12V)/0,02A$ (4-20mA current output) U - loop voltage (V)	Overload	150%FS-300%FS (determines measure range)
Case material	cast aluminium		



Dimensions in mm							
A	B	C	D	E	F	M	SW
110	20	5	102	150	68	M20x1,5	27

Wiring diagram



Order code:

THPB9, THIP98(HART)	
Range	measure range: -1-0...0,1-600bar
(X1-X2)bar	X1 - bottom limit of the measure range, X2 - upper limit of the measure range
Code	Pressure type
G	relative
A	absolute
Code	Accuracy class
C	0,25%
D	0,5%
Code	Output signal
O1	4-20mA
O2	0-5V
O3	1-5V
Oz	on request
Code	Connection
P2	G1/2
P4	M20x1,5
Pf	flange
Pz	on request
I1	ATEX design
I2	non-flammable
M1	3-1/2 LCD
M2	3-1/2 LED

THPB9	(-1~10)bar	G	D	O1	P2(I1M1)
	Range	Pressure type	Accuracy class	Output signal	Other



CAPACITY PRESSURE TRANSDUCER WITH CERAMIC MEMBRANE

series THPB10,
THIPB10 (HART)

DESCRIPTION:

- high resistance to wear and shocks
 - long-term stability
- protection from reverse polarity, current protection, overvoltage protection

APPLICATION:

- metallurgical industry
 - power engineering
 - hydrology
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -2,5-0,5...0,5- 5kPa
-10-1...0-10kPa, 0-2...20kPa
- sensor ranges: 0-5kPa, 0-10kPa, 0-20kPa
- output signal: 4-20mA, 4-20mA HART/THIPB10
 - connection: G1/2 (M20x1,5, M42x1,5)
 - supply voltage: 12-30V DC
- accuracy class: 0,5%FS; 1%FS (standard)
 - pressure type: relative, absolute

SPECIFICATION:

Pressure transducer THPB10 works on principle of pressure measuring using capacity technology with ceramic sensor.

THPB10s cylindric case is made of stainless steel, including process connection.

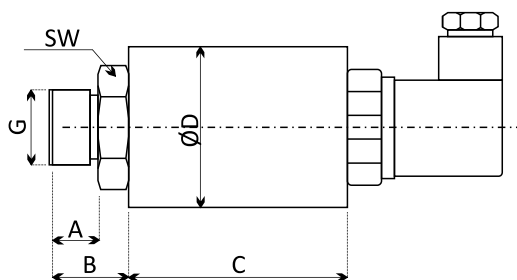
Pressure transducer is designed for measurements of low pressures in corrosive and aggressive mediums and in demanding conditions.

THPB10 uses high quality ceramic sensor and special amplifier. THPB10 has an integrated construction, long-term stability, high anti-corrosive resistance and high resistance to pressure shocks.

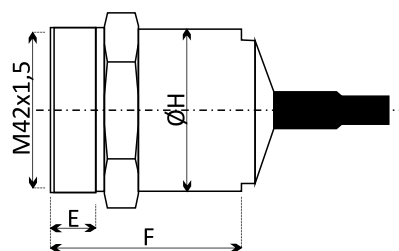
THPB10 is suitable for measuring and control of low pressures in chemical industry, metallurgy, power engineering, hydrology, etc.

Technical parameters					
Medium	gas or liquid suitable for direct contact with stainless steel			Environment temper. range	-30+70°C
Sensors range	0-5kPa	0-10kPa	0-20kPa	Medium temp.	-30+80°C
Range	-2,5-0,5...0,5-5	-10-1...1-10	0-2...20kPa	Storing temp.	-30+85°C
Accuracy class	0,5%FS; 1%FS (standard)			Elect. connection	DIN 43650 and other see table
Pressure type	relative (G), absolute (A)			Connection	G1/2 (M20x1,5, M42x1,5)
Stability	<0,5%FS/year			Sealing	fluor sealing ring
output signal	4-20mA 4-20mA HART/THIPB10			Connection mater.	stainless steel 17 248/1.4541
Overloading	400kPa, 600kPa (for range 20kPa)			Membrane mater.	ceramic
Loading resistance	RL=(U-12V)/0,02A (4-20mA current output) U - loop voltage (V)				
Power supply voltage	12-30V DC				

• inner hollow

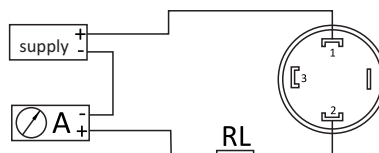


• front membrane



Dimensions in mm									
A	B	C	D	E	F	G	H	M	SW
12	20	57	42	12	~50	G1/2	43	M42x1,5	27

Wiring diagram:



Order code:

THPB10, THIPB10(HART)					
Range (X1-X2)	X1- lower limit, X2 - upper limit of the measuring range				
	Code	Range			
	R1	-2,5-0,5...0,5-5kPa			
	R2	-10-1...1-10kPa			
	R3	0-2...20kPa			
	Code	Pressure			
	G	relative			
	A	absolute			
	Code	Accuracy class			
	D	0,5%			
	E	1%			
	Code	Pressure connection			
	P4	G1/2			
	Px	M42x1,5			
	Pz	on request			
	Code	Connection			
	E1	DIN 43650			
	E2	waterproof connector			
	I	ATEX environ., EX II CT6			
THPB10	(-2~10)bar	G	D	P4	E1(I)
	Range	Pressure type	Accuracy class	Pressure connect.	Other



CAPACITY PRESSURE TRANSDUCER FOR ATEX ENVIRONMENT series THPB11, THIPB11 (HART)

DESCRIPTION:

- ATEX - class EXIICT5
- resistant to pressure overloading and temperature change
- resistance to corrosion, wear, impact
- dustproof

APPLICATION:

- metallurgical industry
- power engineering
- chemical industry

TECHNICAL PARAMETERS:

- measure ranges: -1bar...0-5mbar...1000bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V
4-20mA HART/THIPB11
- connection: G1/2 (M20x1,5)
- supply voltage: 12-36V DC
- accuracy class: 0,25%FS, 0,5%FS (standard)
- pressure type: relative, absolute
- environment temperature: -20+80 °C
- protection: IP65

SPECIFICATION:

Pressure transducer THPB11 works on the principle of capacity technology with ceramic membrane. Electronics case is made of aluminium cast.

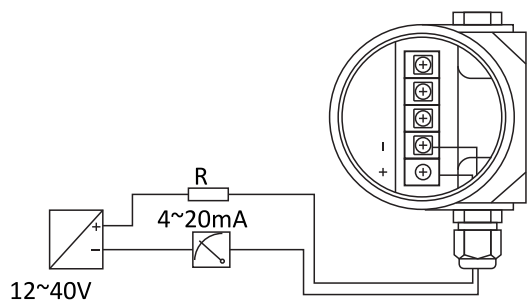
Thanks to use of dry technology (without using transfer liquid) of pressure measurement and sturdy electronic part, known as SMT technology, the transducer shows exceptional technical parameters of ceramic-capacity pressure transducers.

Thanks to this construction THPB11 are usable in ATEX environment (EXIICT5). THPB11 is suitable for pressure measurement in most industrial applications. Widely used in operations, where ATEX resistance is required, mainly in chemical industry, metallurgy and power engineering.

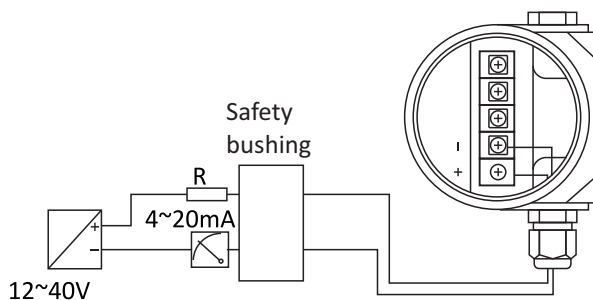
Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel and ceramic	Environment temperature	-20+80°C
Range	-1bar...0-5mbar...1000bar	Working temp. range	-40+85°C
Overloading	300%FS-10000%FS (determines meas. range)	Connection	G1/2 (M20x1,5)
Electrical connection	M20x1,5 (inner thread) or 1/2NPT (inner thread)	Medium temp.	-40+125°C
Output signal	4-20mA, 0-5V, 0-10V, 1-5V 4-20mA HART/THIPB11	Connection material	stainless steel 17348/1.4571
Stability	<0,2%FS/year	Case material	Al alloy
Loading resistance	$RL=(U-12V)/0,02A$ (4-20mA current output) U - loop voltage (V)	Protection	IP 65
Power supply voltage	12-36V DC	Accuracy class	0,25%FS; 0,5FS (standard)

Wiring diagram

- Explosion-proof environment



- Suitable for ATEX environment



Order code:

THPB11, THIPB11(HART)	
Range	Measuring range: -1bar...0-0,005bar...1000bar
(X1-X2)bar	X1 - lower limit, X2 - upper limit of measuring range
Code	Pressure type
G	relative
A	absolute
Code	Accuracy class
B	0,1%
C	0,25%
D	0,5%
Code	Output signal
O1	4-20mA
H	4-20mA HART
Code	Connection
P2	G1/2
P4	M20x1,5
P9	flange
Pt	threaded type
pk	clamp type
Pq	food industry type
Pz	on request
Code	Connection material
A	321
B	316L
C	hastelloy-C
D	brass
Z	on request
Code	Other features
M0	without display
M2	with display
D1	ATEX environ.

THPB11	(0~200)bar	G	D	O1	P2	A	M0D1
		Pressure type	Accuracy class	Output signal	Connection	Conn. mater.	Other features



PRESSURE TRANSDUCER WITH INCREASED RESISTANCE TO CORROSION series THPB3-c, THIPB3-c (HART)

DESCRIPTION:

- used for aggressive mediums with corrosive effects
 - PVDF - material of wetted parts
 - of ceramic membrane (96% Al₂O₃)

APPLICATION:

- food industry
- power engineering
- petrochemical industry
- health care

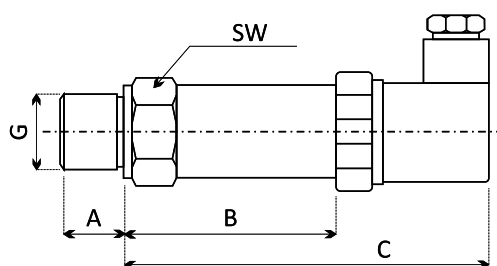
TECHNICAL PARAMETERS:

- measure ranges: 0-1...200bar
- output signal: 4-20mA, 0-5V, 0-10V, 1-5V
4-20mA HART/THIPB3-c
- connection: G1/4 (G1/2, M20x1,5, 1/2NPT)
 - supply voltage: 12-36V DC
- accuracy class: 0,25%FS, 0,5%FS (standard)

SPECIFICATION:

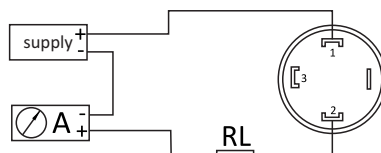
Pressure transducer THPB3-c with increased resistance to corrosion comes from the same technical basis as transducer THPB3. Pick-up membrane THPB3-c is ceramic, the inbuilt wetted parts are separated by a separating membrane made of polyvinylidenfluorid (PVDF), thanks to which this model has increased resistance to corrosion 96% Al₂O₃. Transducers cylindrical case is made of stainless steel. THPB3-c is fully tested on computer and zero value is set by means of laser with sensitivity in wide range of temperatures. THPB3-c is designed for pressure measurement of corrosive mediums in most industrial applications, widely used for pressure measurement in petrochemical industry, power engineering, food industry, health care, hydrology, etc.

Technical parameters			
Medium	gas or liquid compatible with ceramic material and PVDF	Compensating temper. range	0-70°C
Rozsah	0-1...200bar	Working temper. range	-30+95°C
Accuracy class	0,25%FS, 0,5%FS (standard)	Electric. connect.	DIN 43650 and other see table
Pressure type	relative (G), absolute (A)	Connection	G1/4 (G1/2, M20x1,5, 1/2NPT)
Output signal	4-20mA, 0-5V, 0-10V, 1-5V 4-20mA, HART / THIPB3-c	Connection mater.	polyvinylidenfluorid (PVDF)
		Membrane mater.	ceramic (96%AL2O3)
Stability	<0,2%FS/year	Case material	stainless steel 17c248/1.4541
Loading material	$RL=(U-12V)/0,02A$ (4-20mA current output) U-loop voltage (V)	Storing temper.	-40+100°C
Power supply voltage	12-36V DC	Overloading	150%FS



Dimensions in mm				
A	B	C	G	SW
14	56	~95	G1/2	27

Wiring diagram



Order code:

THPB3-c, THIPB3-c (HART)	
Range	measuring range: 0-1...200bar
(0-X)bar	X- measuring range
Code	Pressure type
G	relative
A	absolute
Code	Accuracy class
C	0,25%
D	0,5%
Code	Output signal
O1	4-20mA
O2	0-5V
O3	1-5V
O4	0-10V
Code	Connection
P2	G1/2
P3	1/2NPT
P4	M20x1,5
Pz	on request
Code	Electric. connect.
E1	DIN 43650
E2	cable connector
E3	PVC shielded cable
Ez	on request

THPB3-c	(0-200)bar	G	D	O1	P2	E1
	Range	Pressure type	Accuracy class	Output signal	Connection	Electrical connection



PRESSURE TRANSDUCER FOR DIFFERENTIAL PRESSURE series THPB5, THIPB5

DESCRIPTION:

- good value for money, long-term stability
 - resistance to overloading up to 200%,
to overpressure up to 100%
- protection from reverse polarity, current protection,
overvoltage protection
 - easy installation
- integrated construction in stainless steel design

APPLICATION:

- food industry
- power engineering
- health care
- petrochemical industry

TECHNICAL PARAMETERS:

- measuring ranges: 0-0,1...35bar
- output signal: 4-20mA, 0-5V, 0-10V; 1-5V; 0,5-4,5V
4-20mA HART/THIPB5
 - connection: G1/4 inner thread (M12x1,5)
 - accuracy class: 0,1% FS ; 0,25%FS (standard)
 - pressure type: differential

SPECIFICATION:

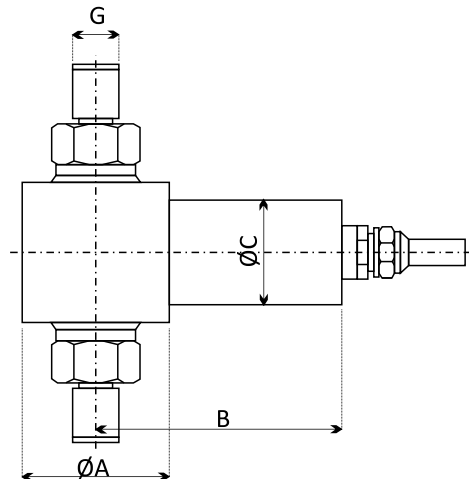
Pressure transducer of differential pressure works on the principle of piezo-resistant technology, as measure element it uses a differential sensor with insulated stainless steel membrane.

Transducers cylindric case is made of stainless steel, including process connection.

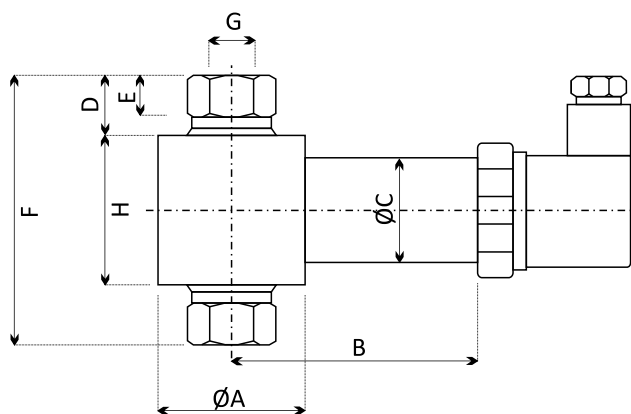
Some of the assets of the transducer are its integrated construction, heavy duty and sturdy design, high accuracy and long-term stability. THPB5 is suitable for pressure measuring and regulation of corrosive mediums in most industrial applications, in petrochemical industry, power engineering, health care, hydraulics, airconditioning, etc.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Storing temper.	-40+100°C
		Supply voltage	12-36V DC
Range	0-0,1...35bar 200%FS (differential pres.), 1000%FS (static pres.)	Working temper. range	-30+80°C
		Electric. connect.	DIN 43650 and other see table
Accuracy class	0,1%FS, 0,25%FS (standard) , 0,5%FS	Compensating temper. range	0-70°C
Pressure type	differential (D)	Connect. material	stainless steel 17 248/1.4541
System pressure	1000%FS	Membrane mater.	stainless steel 17 348/1.4571
Output signal	4-20mA, 0-5V, 0-10V, 1-5V, 0,5-4,5V 4-20mA, HART / THIPB5	Connection	G1/4 inner thread (M12x1,5)
Stability	<0,2%FS/year	Sealing	N - butyronitril or fluor sealing ring
Loading resistance	RL=(U-12V)/0,02A (4-20mA current output) U-loop voltage (V)		
Pressure effect in system	0,05%FS/bar		

• THPB5 with cable connector

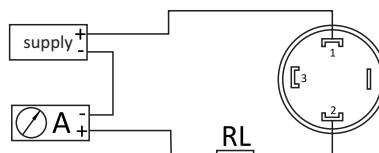


• THPB5 with DIN connector



Dimensions in mm							
A	B	C	D	E	F	G	H
39	66	27	15	10	66	G1/4	36

Wiring diagram



Order code:

THPB5, THIPB5(HART)	
Range	measuring range: 0-0,1...35bar
(0-X)bar	X- measuring range
Code	Pressure type
D	differential
Code	Accuracy class
B	0,1%
C	0,25%
D	0,5%
Code	Output signal
O1	4-20mA
O2	0-5V
O4	0-10V
Oz	on request
Code	Other
E1	DIN 43650
E2	cable connector
E3	PVC shielded cable
Ez	other el. connections
D1	3½ LCD
D2	3½ LED
Pn	G1/4 inner thread
Pa	relief valve
P6	M12x1,5 outer thread
Pz	on request

THPB 5	(0-1)bar	D	D	O1	E1(D1)Pn
	Range	Pressure type	Accuracy class	Output signal	Other



COMBINED PRESSURE AND TEMPERATURE TRANSDUCER

series THPB13

DESCRIPTION:

- ceramic sensor with temperature sensor Pt100
 - material : stainless steel AISI 304 or 316L
 - sealing material : EPDM, NRB or FKM

APPLICATION:

- hydraulics
- power engineering
- heating industry
- mechanical engineering

TECHNICAL PARAMETERS:

- measuring range - pressure: 0-2 bar...600 bar
 - measuring range - temperature: -40+105°C
- connection thread: 1/2 NPT, G1/2", G1/4", M20x1,5
- electric connector: M12x1,5, DIN43650 A, cable
- output signal: 4-20 mA, 0,2-10,2 V, 0-10V, 0-5 V
 - power supply: 12-30VDC, 10-30VDC
 - accuracy calss: 1,0%FS
 - protection: IP 65
- ambient temperature: -20+85°C

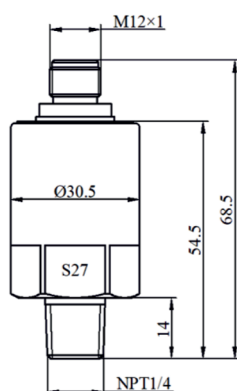
SPECIFICATION:

The combined pressure and temperature transmitter THPB13 with ceramic sensor and PT100 temperature sensor is ideal for solving general industrial applications. Thanks to its compatibility, the transmitter can be combined with all standard industrial output signals. The cylindrical body of the transmitter is made of stainless steel, including the process connection. The transmitter THPB13 is suitable for measuring pressures in most industrial applications and hydraulics.

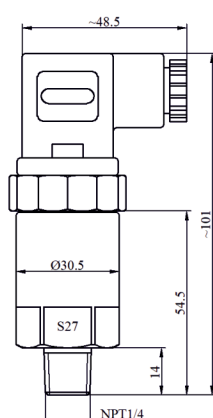
Technical parameters			
Range	0-2 bar.....600 bar - pressure -40+105°C - temperature	Temperature for stocking	-40+100°C
Medium	gas or liquid suitable for contact with stainless steel	Working temp. range	-20+85°C
Accuracy class	1,0%FS	Temperature sen.	Pt100
Electrical connectr	DIN43650 A, M12x1 (4-pin) cable connector, shielded cable	Pressure sensor	ceramic
		Connection mat.	st. steel AISI304 or AISI316L
Connection thread	G1/4", G1/2", M20x1,5 1/2 NPT, 1/4 NPT	Power supply	12-30VDC, 10-30VDC
		Sealing	EPDM, NBR, FKM
Output signal	4-20 mA; 0-10VDC; 0-5VDC; 0,2-10,2VDC	Overload	150%FS
		Protection	IP65

- THPB13

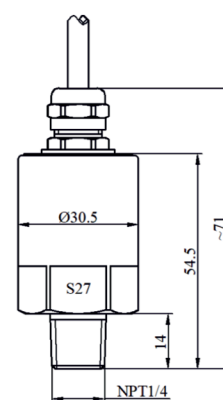
M12x1 (4-pin)



DIN 43650 A

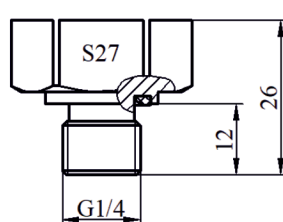


Cable connection

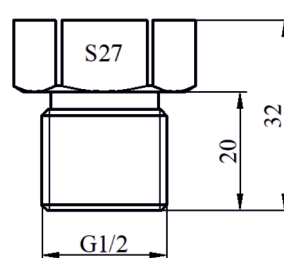


- Připojení

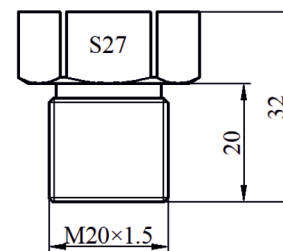
G1/4"



G1/2"



M20x1,5



- Wiring diagram

Diagram for: 4-20mA:

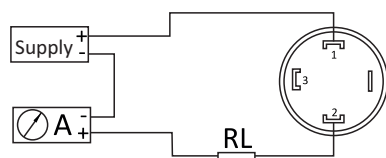
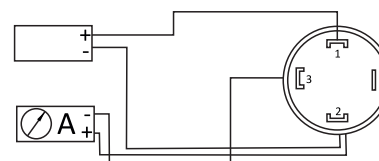


Diagram for: 0- 5V, 0-10 V



Ordering code:

THPB13	Type	
	Range	measuring range: 0-2 600bar
	(0-X) bar	X-required measuring range
	Code	Accuracy class
	C	0,25%
	D	0,5%
	Code	Connection thread
	P1	G1/4
	P2	G1/2
	P3	M20x1,5
	P4	1/2 NPT
	P5	1/4 NPT
	Code	Output signal
	O1	4-20mA
	O2	0,2-10,2V
	O3	0-5V
	O4	0-10V
	Code	Power supply
	N1	10-30VDC
	N2	(5±0,25) VDC
	N3	12-30VDC
	Code	Electrical conn.
	E1	DIN43650 A
	E2	M12x1
	E3	Cable conn.
	E4	Shielded cable
	Code	Seal
	T1	NBR
	T2	FKM
	T3	EPDM

THPB13	(0-200 bar)	C	P1	O1	N3	E1	T1
	Range	Accuracy class	Connection thread	Output signal	Power supply	Electrical connector	Seal



DISPLAY UNIT series ZED 601

for connector DIN 43650

DESCRIPTION:

- 4 - digit 3 ½ LCD temperature display
- simple handling and operation

APPLICATION:

- power engineering
- petrochemical industry
- heating industry

TECHNICAL PARAMETERS:

- dimensions: 42x42x42 mm
 - output signal: 4 - 20mA
 - display accuracy: 0,1% FS
 - temperature shift: 0,1% FS
 - el. connection: DIN 43650
- accuracy class: 0,2% FS (standard)
 - display accuracy: 0,1% FS
 - protection: IP65

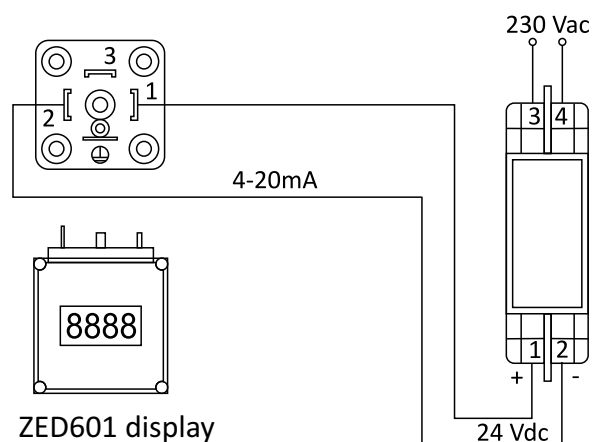
SPECIFICATION:

Display unit ZED601 is a microprocessor display unit built into current loop of transducer 4-20mA, does not require any additional power supply. May be connected to any kind of transducer using connector DIN 43650.

ZED601 is equipped with heavy duty plastic cover and is mounted directly between power source and transducer. Contains of 4-digit 3 ½ display, height 7,6mm, turning in 90 degrees angle.

Technical parameters			
Medium	gas or liquid suitable for direct contact with stainless steel	Environment temp. range	0-60°C
Output signal	4-20mA	Storing temp.	-30+60°C
Accuracy class	0,2%FS (standard)	Electr. connection	DIN 43650
Display accuracy	0,1%FS	IP protection	IP 65
Temperature drift	0,1%FS	Dimensions	42x42x42mm

Wiring diagram





SENSORS/TRANSDUCERS WITH CURRENT OUTPUT

sensor: Pt100, 500, 1000
Cu50, 100; Ni100, 500, 1000
current output 4-20mA
voltage output

DESCRIPTION:

- case stainless steel, connector DIN 43 650
- stainless steel connection 17 248/1.4541
 - transducer-current/voltage
- sensors in wide range of resistances
- design: stem, room, contact, cable

APPLICATION:

- hydraulics
- power engineering
 - heating industry
- petrochemical industry

TECHNICAL PARAMETERS:

- sensors: resistance types - Pt100, Pt500, Pt1000
Cu50, Cu100, Ni100, Ni500, Ni1000
- transducers: current 0-20mA, 4-20mA /
voltage 0-5V, 0-10V
- stem length: 35, 50, 65, 105, 165, 250mm
or on individual request
- connection thread: G1/4 (G1/2, M12x1,5, M20x1,5)
or on individual request
- protection: up to IP 65

SPECIFICATION:

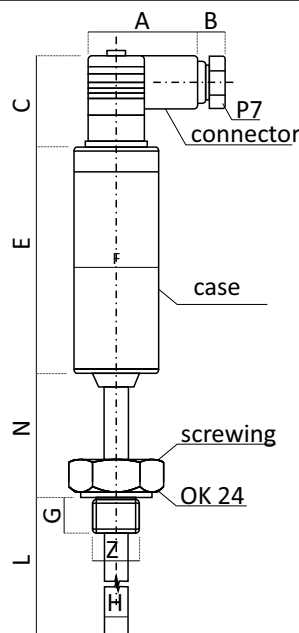
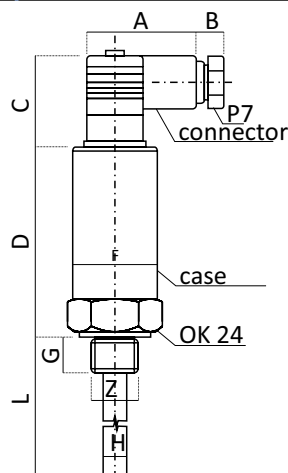
Electronic sensors/transducers with resistance output are designed for temperature measurement of liquid, gas, loose and solid materials with high accuracy and reliability of measurement. Serves for very fast and accurate temperature measurement even in demanding operations. Sensor itself can be made of Pt, Cu or Ni. They enable immediate transfer of measured temperature in form of analog output, which can be further processed/assessed using suitable device (display/regulatory unit). Thanks to wide range of designs and sensor types they can meet all your requirements. Sensor/transducers are supplied in cable KST, stem with terminal board STSs, contact with terminal board STSp, room PST and outside designs. Sensor/transducers coding is as follows: e.g. stem sensor with resistance output with DIN connector is coded STS, and when equipped with inbuilt transducer for analog output 4-20mA, its code is značí se STS/I.



TEMPERATURE SENSOR WITH CONNECTOR- STK

Type 02805, 02806

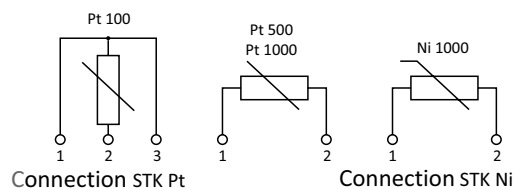
	STKs Pt	STKs Ni	STKs/I
Sensor	Pt100, Pt500, Pt1000	Ni1000	Pt100
Measure range	-40+300°C	-40+150°C	-50°C+400°C in 6 ranges
Accuracy	B according to ČSN EN 60751		± 1% from measure range
Output			4-20mA, pasiv, unipolar
Voltage			10÷36V DC
Time stability	0,05% (10 000h)		
Environment temp.	-25+75°C		
Extension N [mm]	without, 37, 100		
Thread	without thread, G1/4, M12x1,5, G1/2, M20x1,5		
Stem	30, 40, 100, 160, 250		
Electric connection	cable: $\varnothing 3\div 6$ mm, conductor: 0,75mm		
Temp. response time	without well - air: 45s, water: 8s; with well - water: 35s		
Max. overpressure	without well: 4MPa/100°C; 3,1MPa/300°C		
Protection	IP 65		




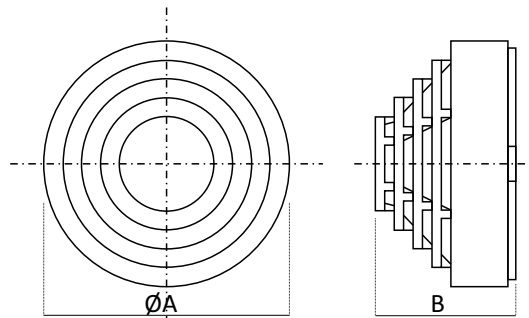
Dimensions in mm

A	B	C	D	E	F	G	H	L	N	Z
28	~10	26	55	60	$\varnothing 24$	10	$\varnothing 6$	30-250	37,100	see table

Wiring diagram

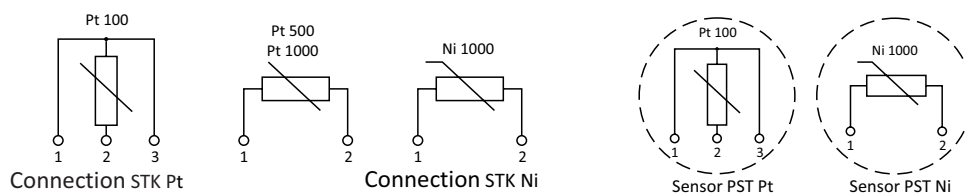


	ROOM TEMPERATURE SENSOR - PST Type 02825
	PST
Measure range	-30+60°C
Accuracy	B according to ČSN EN 60751
Measuring current	up to 1mA
Temperature coefficient	5 000, 6 180 ppm/K (Ni)
Sensor	Pt100, Ni1000
Temper. response time	air: 15s
Protection	IP 20



Dimensions in mm	
A	B
65	38

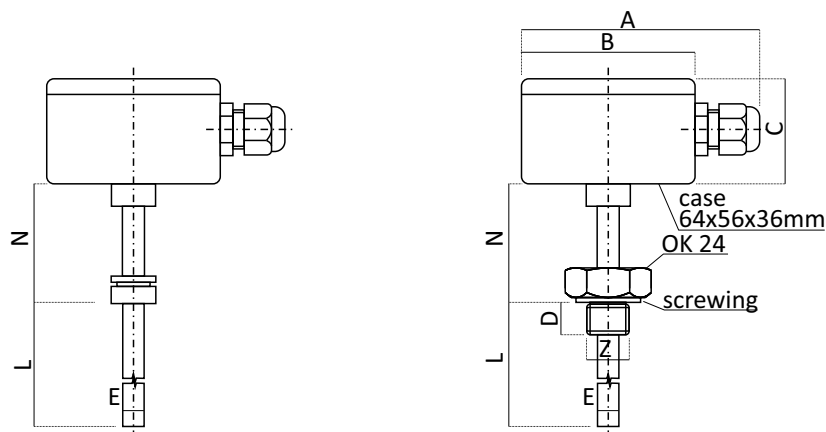
Wiring diagram





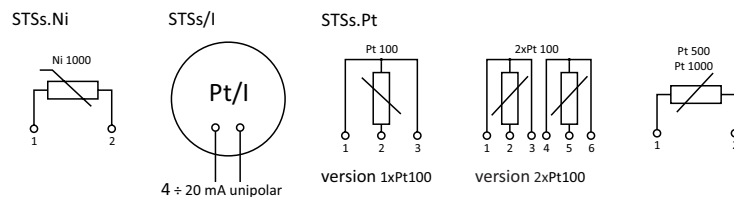
TEMPERATURE SENSOR WITH PLASTIC TERMINAL BOARD - STS Type 02807, 02808

	STSs Pt	STSs Ni	STSs/I
Sensor	1xPt100,2xPt100,Pt500,Pt1000	Ni1000	Pt100
Measure range	-40+200°C	-40+180°C	-40+200°C in 3 ranges
Pccuracy	B according to ČSN EN 60751		1% from measure range
Output			4-20mA, passive, unipolar
Voltage			10÷36V DC
Time stability	0,05% (10 000h)		
Environment temp.	-30+80°C		
Extension N [mm]	37, 100		
Thread	without thread, G1/4, M12x1,5, G1/2, M20x1,5		
Stem	30, 40, 100, 160, 250		
Electric connection	cable: $\varnothing 3,5 \div 8$ mm, conductor: 0,75 ² mm		
Temp. response time	without well - air: 45s, water: 8s; with a well Je -water: 35s		
Max. overpressure	without well: 4MPa/100°C; 3,1MPa/180°C		
Protection	IP 65		



Dimensions in mm							
A	B	C	D	E	L	N	Z
~87	64	36	10	$\varnothing 6$	40,100,160,250	37,100	see table

Wiring diagram



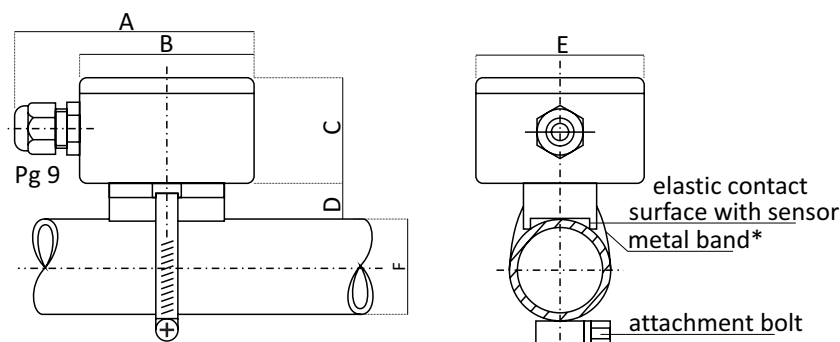


CONTACT SENSOR WITH TERMINAL BOARD

- STSp Type 02813, 02814

	STSp Pt	STSp Ni	STSp/I
Sensor	Pt100	Ni1000	Pt100
Measure range	-40+200°C	-30+80°C	0+100°C
Accuracy	B according to ČSN EN 60751		1% from measure range
Output			4-20mA, passive, unipolar
Voltage			10÷36V DC
Time stability	0,05% (10 000h)		
Environment temp.	-30+80°C		
Electric connection	cable: Ø3,5÷8mm; conductor: 0,75mm		
Max. current in the loop	34mA (for sensor break off)		
Protection	IP 65		

Metal band (part of supply) enables attachment to piping of max. diameter 48mm. When using thicker piping it is necessary to use adequately longer band. Minimum piping diameter (28mm) due to ability of the elastic contact surface of the sensor to adapt to the piping shape.

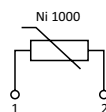


Dimensions in mm

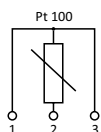
A	B	C	D	E	F
~87	64	36	~14	58	Ø28÷48

Wiring diagram

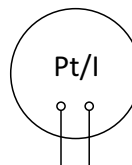
STSp.Ni




STSp.Pt



STSp/I



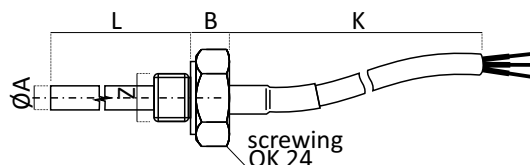
4÷20mA unipolar
(10÷36V)
any polarity

	CABLE TEMPERATURE SENSOR - KST Type 05120, 05121, 02827, 02927		
	KST	KSTz	KST.Ex
Sensor	Pt	Ni	Pt 100
Measure range	-40+180°C		-30+170°C
Accuracy	B according to ČSN EN 60751		
Electric connection	silicon cable: Ø4mm, conductor cross-section: 0,34mm		
Temp. response time	without well - air: 45s, water: 8s; with well Je - water: 35s		
Max. overpressure	4MPa/100°C; 3,1MPa/180°C		
Protection	IP 65		

- Cable sensor KST

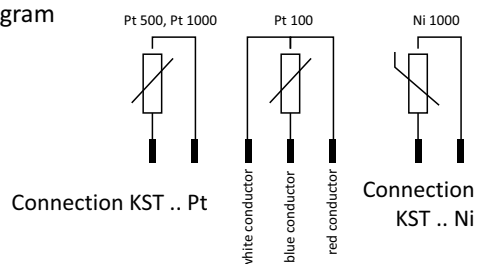


- Cable sensor KSTz



Dimensions in mm				
A	B	L	K	Z
Ø6	10	30-250	1000-5000	see table

Wiring diagram





TEMPERATURE SENSOR THST

DESCRIPTION:

- sensor Pt100, Pt500, Pt1000, Ni1000, KTY, NR
- high accuracy, low power consumption, wide working range of surrounding temperature
- integrated construction, easy to install

APPLICATION:

- chemical industry
- heating industry
- power engineering
- pharmacy

TECHNICAL PARAMETERS:

- heat range: up to 500 °C according to used sensor
- connection thread: G1/2 (G1/4, G3/4, M12x1,5, M20x1,5, M27x2, NPT) or on individual request

SPECIFICATION:

Compact temperature sensor suitable for direct mounting or mounting to thermowell. Temperature sensors according to standard 1/1 DIN B, 1/3 DIN B or 1/6 DIN B.

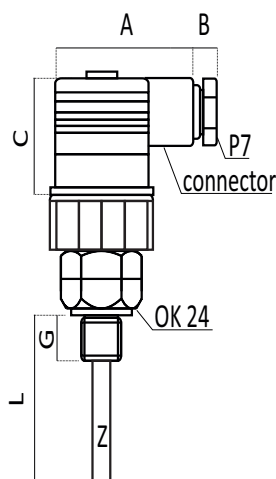
Sensors are suitable for wide range of applications in industry, food processing, air-conditioning systems, heating etc. (sensors for air temperature are used without thermowells due to quick response receiving).

Integrated sensor changes its inner resistance according to temperature. Main advantage is linear conveyance characteristic in whole range of measured temperatures.

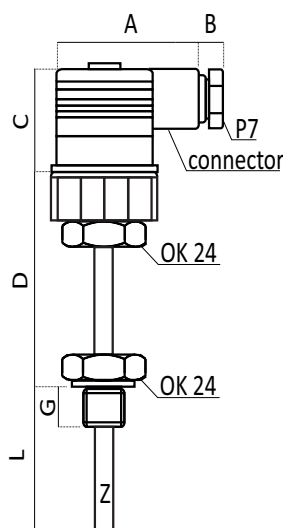
Modular conception is suitable for wide range of applications, it is possible to provide variable connection threads on individual request. Magnesium oxide guarantees high resistance against impacts and vibrations and also improves heat exchange and electrical insulation of sensor.

Technical parameters			
Medium	gas or liquid suitable for contact with stainless steel	Storage temperature	-40+80°C
Range	-50 to 500°C by concrete sensor	Working heat range	-30+80°C individual
Wiring	2W, 3W, 4W	Material	AISI304, AISI316TI, PTFE foil
Submersible length	60, 90, 100, 160, 250	Thermal response time	without th.w.-air 45s, water 8s with thermowell - water 35s
Extensions	0, 30, 100mm	Protection	IP 65
Connection thread	G1/4, G1/2, G3/4, M12x1,5, M20x1,5, M27x2, NPT, individual	Max. overpressure	without thermowell 10MPa/100°C, 3,1MPa/300°C
Connector	DIN 43650, Mini, Mikro, M14x1	Accuracy	B by ČSN EN 60751
Sensor type	Pt100, Pt500, Pt1000, Ni1000, KTY, NR	Time stability	0,05% (10 000 hours)

• THST without extension



• THST with extension

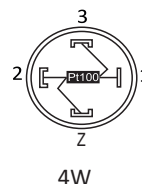
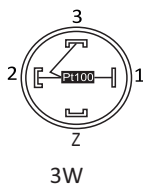
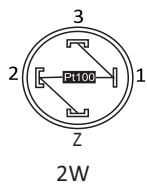


Dimensions in mm

A	B	C	D	G	L	Z
41	~ 5	34	30 and 100	16	30-250	see table

Wiring diagram

Default wiring



THST									
	Type								
	Pt100								
	Pt500								
	Pt1000								
	Ni1000								
	KTY								
	NR								
	Length								
	60								
	90								
	100								
	160								
	250								
	Individual								
	Outer Ø of stem								
	6								
	7								
	8								
	9								
	Code	Connection							
	P1	G1/4							
	P2	G1/2							
	P8	G3/4							
	P6	M12x1,5							
	P4	M20x1,5							
	P7	M27x2							
	P5	NPT							
	Pz	Individual							
	Wiring								
	2W								
	3W								
	4W								
	Code	Extension							
	-	Without extension							
	30	30 mm							
	100	100 mm							
	Code	Connector							
	E1	DIN 43650							
	E5	DIN 43650 Mini							
	E6	DIN 43650 Mikro							
	E7	M14x1							
	Code	Material							
	M1	AISI304							
	M2	AISI316Ti							
	M3	PTFE foil coating							

THST	Pt100	90	7	P2	2W	-	E1	M1
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TEMPERATURE TRANSDUCER TO ATEX ENVIRONMENT THTB4



DESCRIPTION:

- stability and resistance to vibrations
- stainless steel case with high resistance to external conditions and pressures
- various installations, on individual request
- variable methods of process connection

APPLICATION:

- petrochemical industry
 - heating industry
 - power engineering
- compressors, pumps
 - gas distribution

TECHNICAL PARAMETERS:

- temperature ranges: -50-0, 0-60, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300°C
 - output signal: 1-5V, 4-20mA
- connection: fixed thread, fixed flange, turning thread, turning flange
- accuracy class: 0,5%FS (standard), 1%FS

SPECIFICATION:

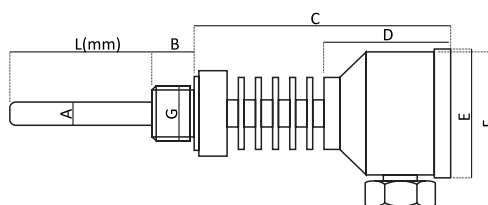
Temperature transducers THTB4 use Pt100 or similar temperature sensors. By means of the inbuilt transducer it converts the measured value to an analog output, for details see technical parameters.

Cylindric case of the THTB4 transducer features high strength of the outer coating and resistance (also suitable into ATEX environment). THTB4 construction, where the sensor is sealed by epoxy resin, features very good resistance to shocks and vibrations, resists temperature overloading and has a heavy-duty robust design. THTB4 is widely used for measurements and regulations in many industrial applications.

TECHNICAL PARAMETERS			
Measured medium	gas or liquid suitable for direct contact with stainless steel	Tolerance $\Delta^{\circ}\text{C}$	class A (0,15+0,002 t)
Measuring range	-50+300 $^{\circ}\text{C}$	Stability	0,15% FS/year
Output signal	4-20mA, 1-5V	Response time	<30s
Accuracy class	0,5%FS(standard); 1%FS	Voltage	$\leq 5\text{mA}$
Environment temp. range	-40+85 $^{\circ}\text{C}$	Atex environment	Ex IIBT4, ExdIIBT4
Relative humidity	5-95%		

THTB4	
Range (X1-X2) $^{\circ}\text{C}$	measuring range: -50+300 $^{\circ}\text{C}$ X1 - lower limit, X2 - upper limit of the measured temperature
Code	Output signal
O1	4-20mA
O2	0-5V
Oz	on request
Code	Connection
T0	fixed thread
T1	fixed flange
T2	turning thread
T3	turning flange
Tz	on request
Code	Electrical connection
To	PVC cable
T1	DIN 43650
T2	cable connector
E0	non-explosive environment
E1	fire-resistant environment EX II CT6
E2	ATEX environment EX II CT6
T	on request
Code	Length L (mm)

THTB4	(0-200) $^{\circ}\text{C}$	O1	T0(G1/2)	P2	80
	Range	Output signal	Connection	Electric. connect.	Length



Dimensions in mm							
A	B	C	D	E	F	G	L
$\varnothing 8$	15	~102	46	46	57		see table of specification



ROBUST TEMPERATURE TRANSDUCER WITH DISPLAY INTO ATEX ENVIRONMENT THTI8

DESCRIPTION:

- use of Pt100 or other temperature resistance as a pick-up element
 - high accuracy, low power consumption, wide working range of environment temperature
 - integrated construction, easy installation
- high accuracy of transmitted signal up to 1000m

APPLICATION:

- petrochemical industry
 - heating industry
- power engineering
 - food industry
 - healthcare

TECHNICAL PARAMETERS:

- temperature ranges: -200-0, -100-0, 0-60, 0-100, 0-120, 0-160, 0-200, 0-250, 0-300, 0-400, 0-500, 0-750, 0-1200, 0-1300, 0-1600, 0-1800 °C
 - output signal: 4-20mA
- connection: M 27x2 (outer), G1/2, M20x1,5
 - accuracy class: thermistor - 0,25%FS; 0,5%FS(standard); thermocouple - 0,75%FS

SPECIFICATION:

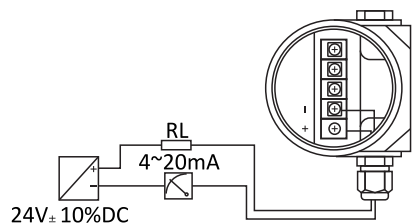
Temperature transducers THTI8 use temperature sensors Pt100. By means of the inbuilt transducer it converts the measured value to an analog output, for details see technical parameters.

Local temperature indication on 3 ½ LCD display optional. THTI8 case is made of aluminium, parts that come in contact with the medium are made of stainless steel 17 248/1.4541. THTI8 is suitable for temperature measurements in most industrial applications. Also suitable for ATEX environment.

TECHNICAL PARAMETERS			
Measured medium	gas or liquid suitable for direct contact with stainless steel	Working temp. range	-20+60°C
Temperature range	thermocouple: E, K, S, B temperature resistance: Pt100, Cu50	Display	LCD digital. indicator in °C units, -1999-1999
Submersion	50-2000mm (on individual request)	Connection	M27x2 (outer), G1/2, M20x1,5
Accuracy class	thermistor - 0,25%FS; 0,5%FS (standard) thermocouple - 0,75%FS	Electrical connection	1/2NPT or M20x1,5 (inner)
Output signal	4-20mA	Connect. mater.	stainless st. 17 248/1.4541/321
Stability	<0,25%FS/year	Case material	aluminium
Supply voltage	24V±10%DC	Atex environment	ATEX IIBT6
Loading resistance	RL(max.)=(V-12)/0,02V: transmitter supply	IP protection	IP 65

THTI8	
Code	Measuring range
E	thermocouple 0-750°C
K	thermocouple 0-1200°C
S	thermocouple 0-1300°C
C	Cu 50 temperature resistance: 0-1600°C
P	Pt 100 temperature resistance: -200+500°C
Z	on request
Code	Sensor diameter
L1	10mm
L2	12mm
L3	on request
Code	Connection
0	fixed thread G1/2
1	turning thread M27x2, M20x1,5
2	fixed flange
3	turning flange
Z	on request
Code	Other features
D0	without display
D1	LCD display
D2	LED display
D3	0~100% indicator
E0	non-explosive environment
E1	EXD IIBT6
E2	EXIA II BT6
Code	Length L (mm)
THTI8	P 0-200°C
	Range
L1	Sensor diameter
1	Connection
D1E0	Other features
80	Length

Wiring diagram:



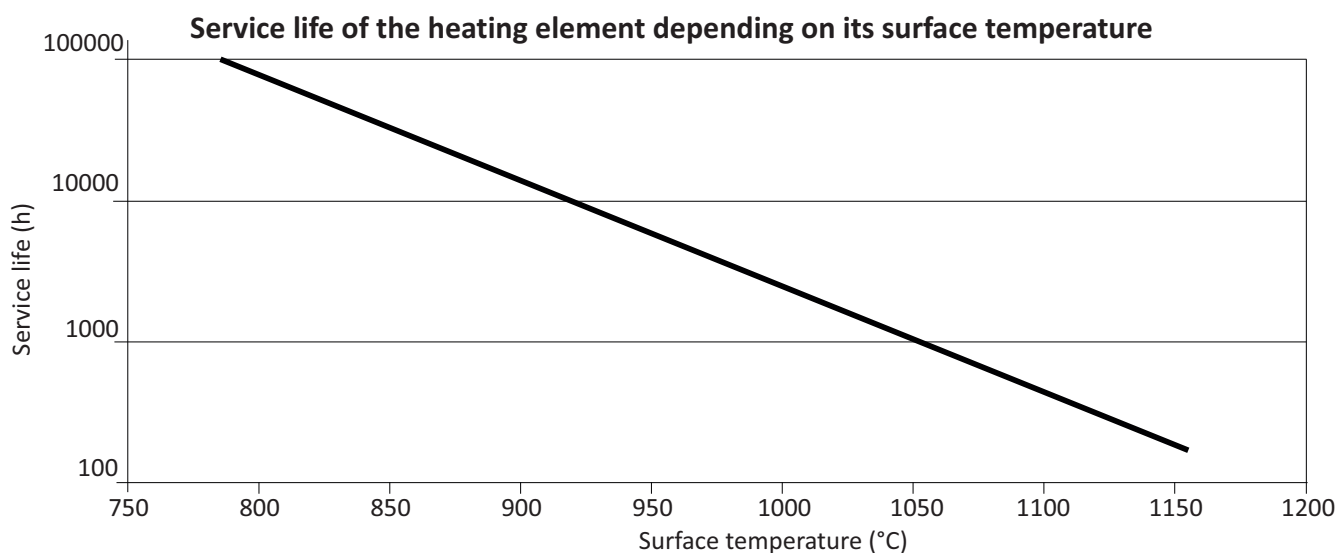
H.

HEATING ELEMENTS

- H.1.1. Heating element with regulation TRG 11
- H.1.2. Heating element with regulation TRG 13
- H.1.3. Digital regulation TRG 31
- H.1.4. Heating element with regulation TRG 20
- H.1.5. Flow Heater TRGPOV 11/13
- H.1.6. Heating element with regulation TRG05
- H.2. Heating elements for water and similar liquids
 - H.2.a Flange heating element up to 15 000W
 - H.2.b Flange heating element up to 50 000W
- H.3. Galvanic heating element
- H.4 Heating element in ATEX desing
 - H.4.a Heating element RFA - threaded
 - H.4.b Heating element - FP -flanged
 - H.4.c Heating elements for ATEX- type combo, spatial
 - H.4.d Heating panels / plates
 - H.4.e Airflow heating
 - H.4.f Heating elements for oil ATEX -heat exchangers, columns
- H.5. Oil heating
- H.6. Heating cartridges

Max. surface loading of the heating element according to working environment

Application	Material of the element			
	Copper	Steel	Stainless steel	Incoloy 800
slack water	10		10	
flowing water	14		14	
water in flow-heater i	25		25	
water vapour	6		6	
light oils		3,5	3,5	
oil		1,2	1,2	
special heating oils		12	12	
stationary air		1,7	5	6
agitated air v=2m/s		2	5,5	6,5
agitated air v=10m/s		5	10	10



Formula for calculation of elements required output

$$P = \frac{k \cdot \Delta T \cdot m}{s}$$

P elements output

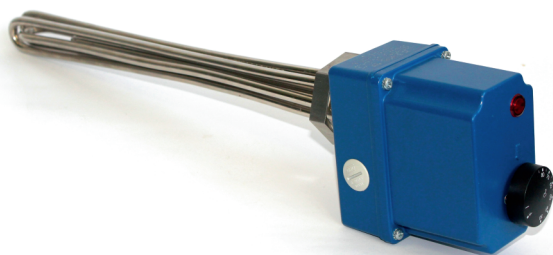
k koeficient of specific heat capacity (see table)

ΔT difference between the initial and the final temperature

m medium weight

s heating time

Material	k
water	4180
ethanol	2460
ice	2090
oil	2000
air	1003
aluminium	896
iron	450
copper	383



HEATING ELEMENT WITH REGULATION TRG 11

type TRG 11
1 500-12 000W

DESCRIPTION:

- heating element with inbuilt regulation including thermal fuse
- connection material: steel, brass, stainless steel 17 248/1.4541
- rods material: steel, brass, stainless steel 17 248/1.4541, Incoloy 800

APPLICATION:

- food industry
- mechanical engineering
 - power engineering
 - heating
 - hydraulics

TECHNICAL PARAMETERS:

- power: 1 500, 2 000, 2 400, 3 000, 4 000, 4 500, 6 000, 7 500, 9 000, 12 000W
- regulatory range/ T fuse: 0-40°C/55°C; 7-77°C/99°C; 20-127°C/150°C; 30-85°C/110°C; 50-150°C/180°C
- thread: M48x2, G6/4 or individual
- power supply: 230/400V
- protection: IP 54

SPECIFICATION:

Heating element consists of two parts. Heating part is made of three U-shaped heating rods (made of mentioned materials) which are connected to the head by M48x2 or G1½ thread. Terminal board is made of Al cast with IP 54. Other component parts are a regulatory capillary thermostat in mentioned ranges, thermal fuse that protects the heating element from overheating, glow tube to indicate the current state (heating/not heating) and a regulatory knob with marked scale. Electric supply is possible from both sides through the OBO-VTEC bushing.

Heating element is designed for direct heating of any liquid (material of the element must be suited to the medium). During operation the element must be constantly immersed in the liquid up to the head. Suitable for operations, where immediate thermoregulation is essential.

Power (W)	Power Supply (V)	Immersed length L	Connection thread	Material	Regulatory range / thermal fuse
1500	230/400	290	M48x2, G 6/4'' atypical connections: G5/4'', Clamp 100, flange according to DIN	brass, stainless steel 17248/1.4541, Incoloy 800	0-40°C / 55°C 7-77°C / 99°C 20-127°C / 150°C 30 – 85°C / 110°C 50-150°C/ 180°C
2000	230/400	290			
2400	230/400	290			
3000	230/400	290			
4000	230/400	310			
4500	230/400	335			
6000	230/400	435			
7500	230/400	610			
9000	230/400	670			
12000	230/400	810			

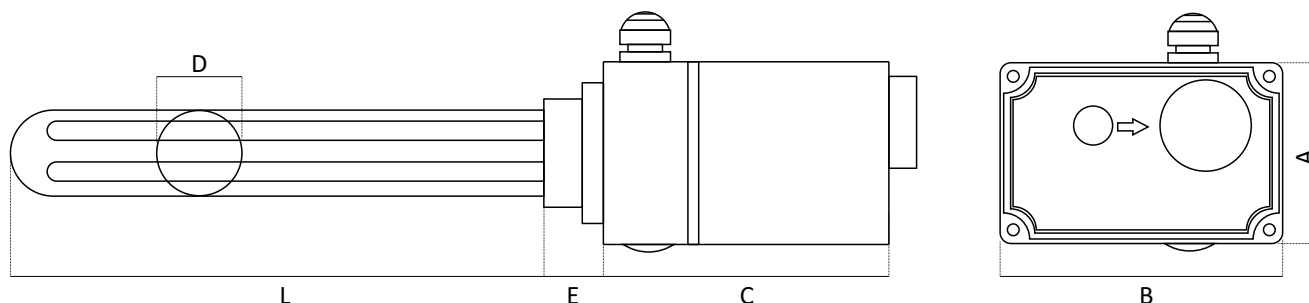
Adjustments on request: - shortened design
 - material working and surface finish of submersible rods
 - individual colour of the control terminal board
 - customized control (electronic thermostat, sensor Pt100, only thermal fuse, etc.)

Order code

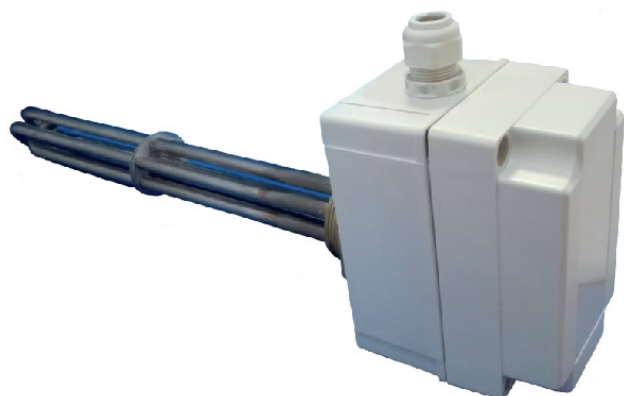
Power Range / thermal fuse Thread Nut Connector mater. Material rods Individual

Code	Power: mention in W determine from 1500-12000W
Code	Range / thermal fuse
1	0-40°C / 55°C
2	7-77°C / 99°C
3	20-127°C / 150°C
4	30-85°C / 110°C
5	50-150°C / 180°C
Code	Thread
M48	M48x2
G6/4''	G6/4''
O	other
Code	Nut
1	YES
2	NO

Code	Connector material
M	brass
N	stainless steel 17248/1.4541
O	other
Code	Rod material
M	brass
N	stainless steel 17 248/1.4541
I	Incoloy 800
Code	Individual
N	individual non-heating part
P	surface finish
T	other temperature ranges
O	other - specify



Dimensions in mm						
Type	A	B	C	D	E	L
TRG 11	80	125	120	38	22	290, 310, 335, 435, 610, 670, 810



HEATING ELEMENT WITH REGULATION TRG 13

type TRG 13
1 500-12 000W

DESCRIPTION:

- heating element with inbuilt regulation including thermal fuse
- connection material: steel, brass, stainless steel 17 248/1.4541
- rods material: steel, brass, stainless steel 17 248/1.4541, Incoloy 800

APPLICATION:

- food industry
- mechanical engineering
 - power engineering
 - heating
 - hydraulics

TECHNICAL PARAMETERS:

- power: 1 500, 2 000, 2 400, 3 000, 4 000, 4 500, 6 000, 7 500, 9 000, 12 000W
- regulatory range/ T fuse: 0-40°C/55°C; 7-77°C/99°C; 20-127°C/150°C; 30-85°C/110°C; 50-150°C/180°C
- thread: M48x2, G6/4 or individual
- power supply: 230/400V
- protection: IP 67

SPECIFICATION:

Heating element consists of two parts. Heating part is made of three U-shaped heating rods (made of mentioned materials) which are connected to the head by M48x2 or G1½ thread. Terminal board is made of plastic cast with IP 67. Other component parts are a regulatory capillary thermostat in mentioned ranges, thermal fuse that protects the heating element from overheating, glow tube to indicate the current state (heating/not heating) and a regulatory knob with marked scale. Electric supply is possible from both sides through the OBO-VTEC bushing.

Heating element is designed for direct heating of any liquid (material of the element must be suited to the medium). During operation the element must be constantly immersed in the liquid up to the head. Suitable for operations, where immediate thermoregulation is essential.

Design „S” : not transparent case

Design „L” : transparent case with ON/OFF indicator

Power (W)	Power Supply (V)	Immersed length L	Connection thread	Material	Regulatory range / thermal fuse
1500	230/400	290	M48x2, G 6/4" atypical connections: G5/4", Clamp 100, flange according to DIN	brass, stainless steel 17248/1.4541, Incoloy 800	0-40°C / 55°C 7-77°C / 99°C 20-127°C / 150°C 30 – 85°C / 110°C 50-150°C / 180°C
2000	230/400	290			
2400	230/400	290			
3000	230/400	290			
4000	230/400	310			
4500	230/400	335			
6000	230/400	435			
7500	230/400	610			
9000	230/400	670			
12000	230/400	810			

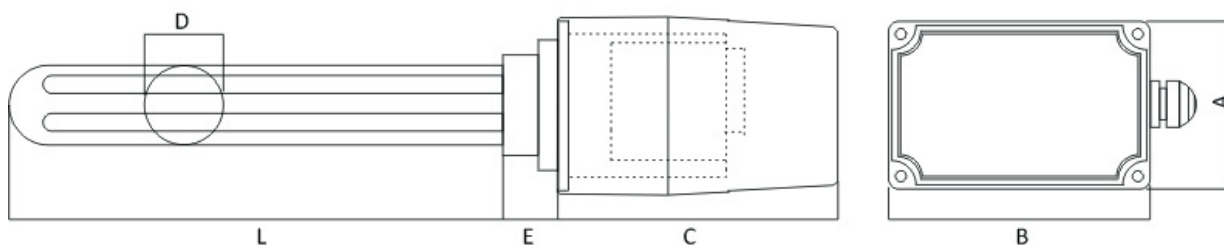
Adjustments on request: - shortened design
 - material working and surface finish of submersible rods
 - individual colour of the control terminal board
 - customized control (electronic thermostat, sensor Pt100, only thermal fuse, etc.)

Order code

TRG11							
	Power	Range / thermal fuse	Thread	Nut	Connector mater.	Material rods	Individual

Code	Power: mention in W determine from 1500-12000W
Code	Range / thermal fuse
1	0-40°C / 55°C
2	7-77°C / 99°C
3	20-127°C / 150°C
4	30-85°C / 110°C
5	50-150°C / 180°C
Code	Thread
M48	M48x2
G6/4"	G6/4"
O	other
Code	Nut
1	YES
2	NO

Code	Connector material
M	brass
N	stainless steel 17248/1.4541
O	other
Code	Rod material
M	brass
N	stainless steel 17 248/1.4541
I	Incoloy 800
Code	Individual
N	individual non-heating part
P	surface finish
T	other temperature ranges
O	other - specify



Dimensions in mm						
Type	A	B	C	D	E	L
TRG 13	80	125	120	38	22	290, 310, 335, 435, 610, 670, 810



HEATING ELEMENT WITH DIGITAL REGULATION TRG 31

type TRG 31
1 500-12 000W

DESCRIPTION:

- heating element with digital regulation including thermal fuse
 - connection material: steel, brass, stainless steel 17 248/1.4541
- rods material: steel, brass, stainless steel 17 248/1.4541, Incoloy 800

APPLICATION:

- food industry
- mechanical engineering
 - power engineering
 - heating industry
 - hydraulics

TECHNICAL PARAMETERS:

- power: 1 500, 2 000, 2 400, 3 000, 4 000, 4 500, 6 000, 7 500, 9 000, 12 000W
- regulatory range/ T fuse: 0-90°C/110°C
- adjustable switch difference: 1-16°C
- thermostat delay: 0-9 min
- thread: M48x2, G6/4 or individual
 - power supply: 230/400V
 - protection: IP 54

SPECIFICATION:

Heating element consists of two parts: heating part is made of three U-shaped heating rods (made of mentioned materials) which are connected to the head by M48x2 or G1½. Terminal board is made of Al cast with IP 54. Other component parts are a regulatory digital thermostat in mentioned ranges, thermal fuse that protects the heating element from overheating and glow tube to indicate the current state (heating/not heating). Electric supply is possible from both sides through the OBO-VTEC bushing.

Heating element is designed for direct heating of any liquid (material of the element must be suited to the medium). During operation the element must be constantly immersed in the liquid up to the head. Suitable for operations, where immediate thermoregulation is essential.

Power (W)	Power supply (V)	Immersed length L	Connection thread	Material	Regulatory range / thermal fuse
1500	230/400	290	M48x2, G 6/4" atypical connections: G5/4", Clamp 100, flange according to DIN	brass, stainless steel 17248/1.4541, Incoloy 800	0-90°C / 110°C
2000	230/400	290			
2400	230/400	290			
3000	230/400	290			
4000	230/400	310			
4500	230/400	335			
6000	230/400	435			
7500	230/400	610			
9000	230/400	670			
12000	230/400	810			

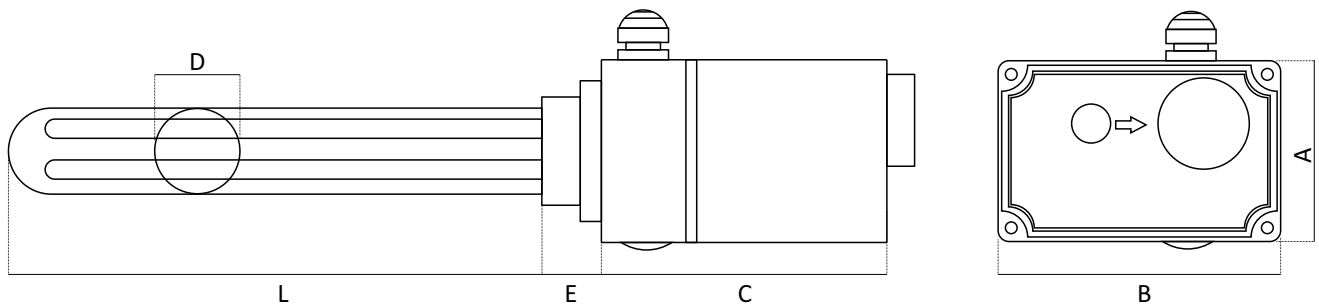
Adjustments on request: - shortened design
 - material working and surface finish of submersible rods
 - individual colour of the control terminal board
 - customized control (electronic thermostat, sensor Pt100, only thermal fuse, etc.)

Order code

Power Range / thermal fuse Thread Nut Connector mat. Mat. TRG Individual

Code	Power: mention in W
	determine from 1500-12000W
Code	Range / thermal fuse
1	0-90°C / 110°C
Code	Thread
M48	M48x2
G6/4"	G6/4"
O	other
Code	Nut
1	Yes
2	No
Code	Connector material
M	brass
N	stainless steel 17248/1.4541
O	other

Code	Rod material
M	brass
N	stainless steel 17 248/1.4541
I	Incoloy 800
Code	Individual
N	individual non-heating part
P	surface finish
T	other temperature ranges
O	other - specify



Dimensions in mm						
Type	A	B	C	D	E	L
TRG 31	80	125	120	38	22	290, 310, 335, 435, 610, 670, 810



HEATING ELEMENT WITH REGULATION TRG 20

type TRG 20
1 500 - 12 000W

DESCRIPTION:

- heating element with inbuilt regulation including thermal fuse
- connection material: brass with nickel plating
- rods material: brass/copper with nickel plating

APPLICATION:

- photovoltaic systems
 - storage tanks
 - energy
 - heating
- bivalent source

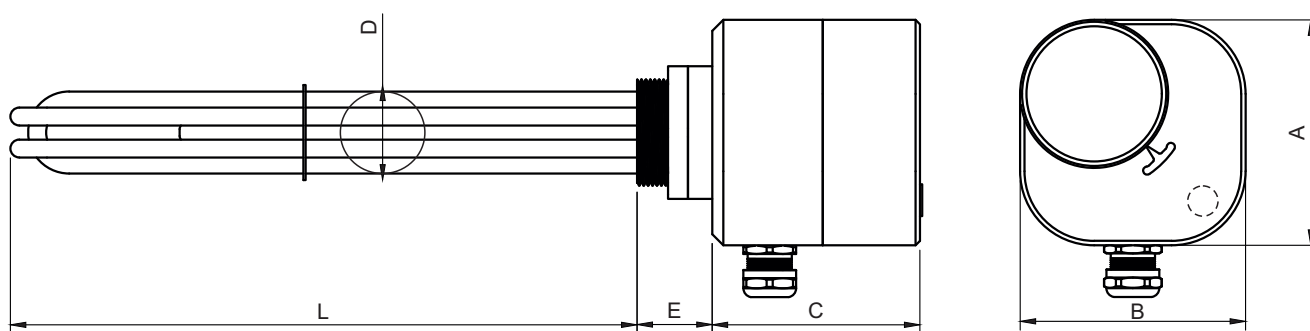
TECHNICAL PARAMETERS:

- power: 1 500, 2 000, 2 400, 3 000, 4 500, 6 000, 7 500, 9 000, 12 000W
- regulatory range/ T thermal fuse: 7-77°C/99°C
- connection thread: G6/4" / M48x2
 - power supply: 230/400V
 - non-heating part: 100 mm (suitable for tanks with insulation)
 - protection: IP 44

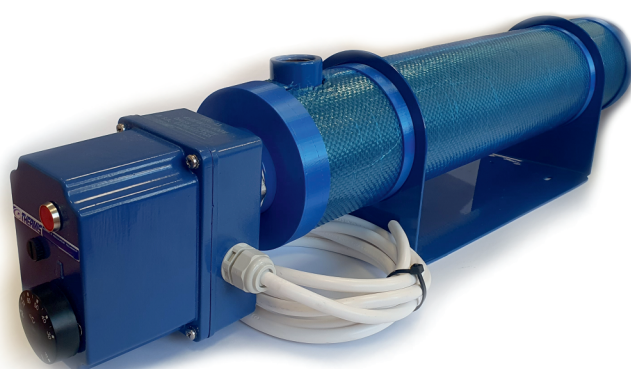
SPECIFICATION:

The heating element consists of two parts: the heating part consists of three U-shaped copper heating rods attached to a brass flange with G6/4" thread. To ensure durability, the heating part is nickel-plated. The regulation part is placed in a plastic (ABS) case, which includes a capillary thermostat in the specified temperature range and a thermal fuse protecting against overheating of the heating element, a glow lamp indicating the status (heating/not heating) and a control knob with a marked scale. The electrical connection is possible via an electrical bushing. The heating element is intended for direct heating of liquids in water tanks. The heating element must be constantly immersed up to the head in the liquid. The heating element is suitable as a bivalent source when used in photovoltaic systems. Suitable for use where it is necessary to immediately regulate the temperature of the liquid.

Power (W)	Power supply (V)	Immersion length L	Connection thread	Material	Regulatory range / thermal fuse
1500	230/400	290	M48x2, G 6/4''	Brass, copper	7-77°C / 99°C
2000	230/400	290			
2400	230/400	390			
3000	230/400	390			
4000	230/400	433			
4500	230/400	433			
6000	230/400	528			
7500	3x400	650			
9000	3x400	720			
12000	3x400	850			



Dimensions in mm						
Type	A	B	C	D	E	L
TRG 20	102	102	94	38	34	290, 390, 433, 528, 650, 720, 850



FLOW HEATER TRGPOV 11 / 31 WITH REGULATION

POWER
1 500 - 12 000 W

DESCRIPTION:

- flow heater with regulation TRGPOV 11, TRGPOV 31
 - flow heater component TPOV
 - connection: steel Dn25 G3/4
 - heating rods: nicked brass

APPLICATION:

- accessory (supplement) to the solar system and heat pumps

TECHNICAL PARAMETERS:

- power: 1500,....., 12000 W
 - G6/4" as connection for heating element
- DN 25 (connection G3/4") for water (input / output)
 - max. PN 6
 - TRGPOV 11 - regulation range/ T fuse:
7-77°C/99°C; 30-85°C/110°C
 - TRGPOV 31 - regulation range/ T fuse:
0-90°C/110°C
- power supply: 1x230V / 3x230V, 3x400V
cable 2 m
 - protection: IP54

SPECIFICATIONS:

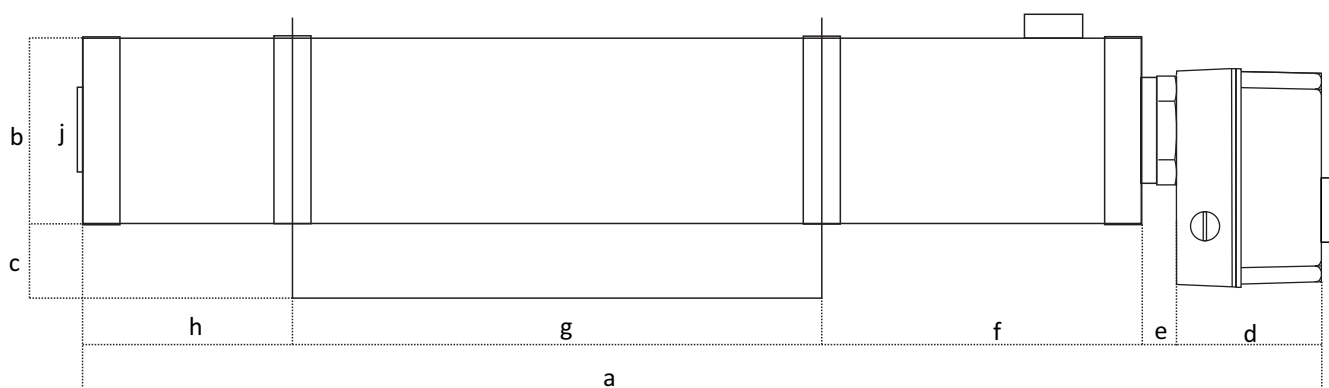
Flow heaters are supplied in two versions TRGPOV11 with manual regulation and TRGPOV31 with digital regulation. TPOV is a separate heater body. Flow heater is intended for direct heating of liquid. A heating element located in a cylindrical body is used to heat the liquid, which includes a manual / digital thermostat in the specified temperature range and a thermal fuse protecting the heating element from overheating, and a glow plug indicating the state (heating / not heating) for TRGPOV 11, for TRGPOV 31 by signaling on the display. Electrical supply is possible from both sides via the OBO-VTEC bushing. The body must be constantly immersed in liquid during operation. Installation is possible both in vertical and horizontal position. The standard version with an output of up to 6.0 kW has a body length of 600 mm, and the extended version with an output of up to 12 kW has a body length of 850 mm.

Type	TRGPOV11	TRGPOV13
Power for body of length 600mm	1; 2 ;2,4 ;3;4 ;4,5 ;6 kW/ 1x230V;3x230V	1; 2 ;2,4 ;3;4 ;4,5 ;6 kW / 1x230V; 3x230V
Power for body of length 850mm	7,5; 9; 12 kW / 3x230V; 3x400V	7,5; 9 kW 3x230V; 3x400V
Regulation range	7-77°C, 30-85°C	0-90°C
Thermal fuse	99°C	99°C
Process input/output	G3/4" in / G3/4" in	G3/4" in / G3/4" in
Instrumental connection	G6/4"	G6/4"
Body material	steel class 11 surface finish	steel class 11 surface finish
Heating rods	nickel brass	nickel brass
Protection	IP54	IP54
Cabling	3x1,5; 3x2,5; 4x2,5; 5x2,5 2m	3x1,5; 3x2,5; 4x2,5; 5x2,5 2m
Holder	300x120x160mm	300x120x160mm
Installation	horizontal/vertikal	horizontal/vertikal

• Dependence Δt on flow l/min

Power W	Flow L/min	1	3	5	10	15
1500	dT	21	7	4	2	1,5
2000	dT	28	10	6	3	2
2400	dT	34	11	7	4	2,5
3000	dT	42	14	9	5	3
4000	dT	57	19	11	6	4
4500	dT	64	21	13	7	4,5
6000	dT	86	29	17	9	6
7500	dT	107	36	21	11	7
9000	dT	128	42	26	13	9
12000	dT	171	57	34	17	12

• TRGPOV11, TRGPOV13



Dimension in mm									
a	b	c	d	e	f	g	h	i	j
738	107	43	120	18	150	300	150	input G3/4"	output G3/4"



HEATING ELEMENT WITH REGULATION TRG 05

type TRG 05
2 000W, 3 000W

DESCRIPTION:

- heating element with built-in regulation including thermal fuse
 - connection: brass
 - rods: copper

APPLICATION:

- engineering
 - energy
- heating industry

TECHNICAL PARAMETER:

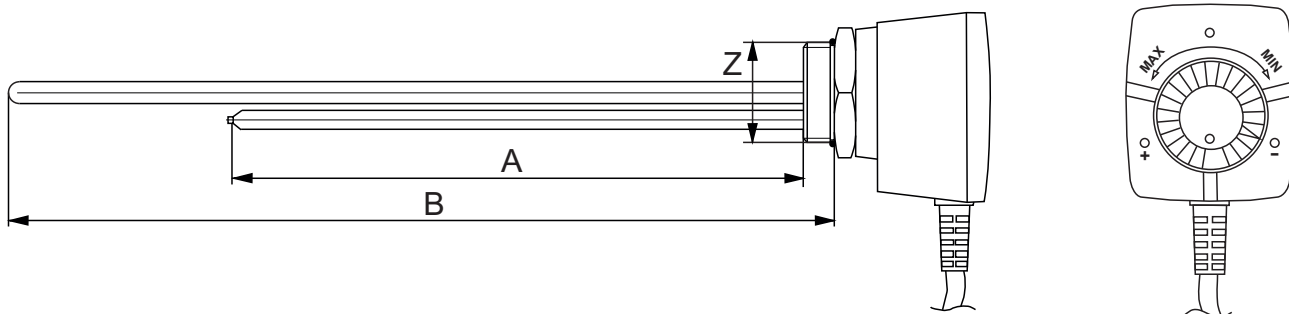
- power: 2 000, 3 000W
- regulation range/ T fuse: 20-70°C/95°C
 - thread: G6/4
- power supply: 1x230V
 - protection: IP 44
- cable cord with pin 1,3m

SPECIFICATION:

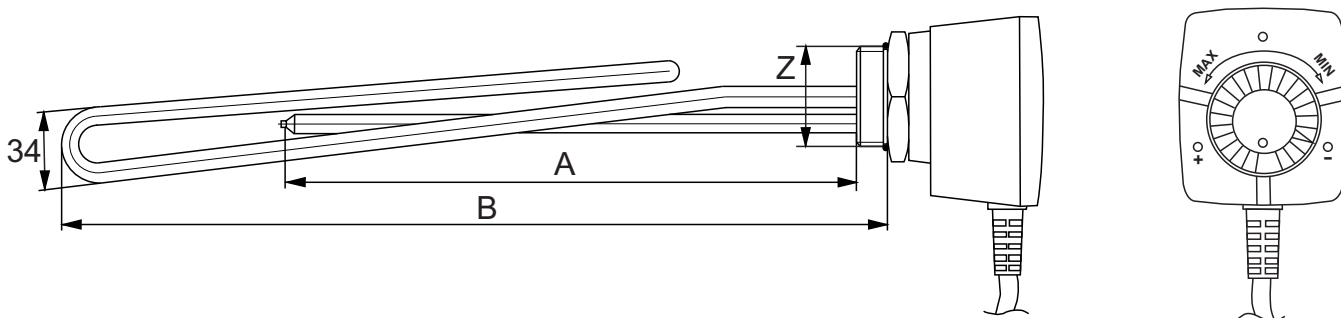
The heater is intended for direct heating of water and similar liquids without the risk of carbonization of the media on the surface of the body. During operation, the body must be constantly immersed up to the head in the liquid. Suitable for use where immediate liquid temperature control is required. Use in boilers and flow heaters.

Regulation range 20-70°C / fuse 95°C, connection thread G6/4". Plastic head with IP 44 cover.

Power (W)	Power supply (V)	Immersion length L	Connexion thread	Material	Regulation range / thermal fuse
2000	230	360	G 6/4''	brass/copper	20-70°C / 95°C
3000	230	340			
Protection IP 44					
Cable cord with pin 1,3 m					
Plastic cover					



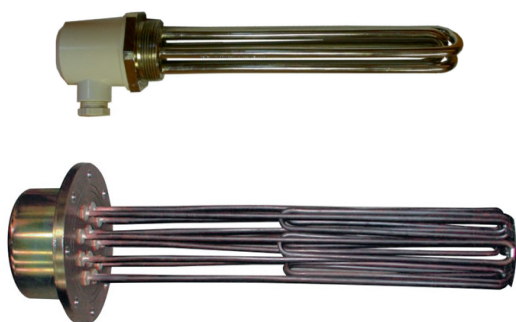
Dimensions in mm					
Type	Power	Z	A	B	Total length
TRG 05	2000W	G6/4''	240	360	435



Dimensions in mm					
Type	Power	Z	A	B	Total length
TRG 05	3000W	G6/4''	240	340	415

HEATING ELEMENTS FOR LIQUID HEATING

power 500W - 50 000W
water and similar
liquid heating



DESCRIPTION:

- flange material: steel including rubber seal, galvanized steel, brass nickel-plated/stainless steel, stainless steel 17 240/1.4301; 17 346/1.4401
- rods material: copper - nickel-plated/stainless steel, stainless steel 17 240/1.4301; 17 346/1.4401

APPLICATION:

- electric appliances – boilers, washing machines, dishwashers, electric-boilers, oil radiators, hotwater radiators, kettles, coffee machines, deep fryers
 - food industry and gastronomy
 - water heaters, various brewing and boiling machines, gas chambers, deep fryers and frying devices
- transportation and industry – heating of coolants and transmission oils in motor vehicles during winter operation

TECHNICAL PARAMETERS:

- power: 500-50 000W
- power supply: 110, 230, 400, 480V, individual
- IP protection: IP 00 - IP 68

SPECIFICATION:

Heating elements are designed for water and similar liquid heating without risk of medium carbonisation on the elements surface. They consist of heating rods in desired shape and of attachment flange according to application and use. The heating rods are usually made of copper, copper with surface working, various classes of stainless steel, may be teflon-plated. Flanges are made of brass, steel and various classes of stainless steel. Loading of the heating rods is dependant on liquid flow and usually ranges within 6-9W/cm², according to the actual application there is an option of adjustments for higher/lower loading. Power supply of the heating rods is optional according to customer requirements 110V, 230V, 400V, 480V, 500V. On individual request the heating elements may be supplied with other adjustments: atypical shape of heating rods, individual connected flanges, other materials or surface working.

Socket heating element

Type: 5107; 14006950; 16.xxx

SPECIFICATION:

Heating element consists of heating rod connected to the oval-shaped flange. Outlets feature flat pins. Designed for direct water heating in electric water heaters, during operation it must be fully immersed up to the flange. Attachment performed by means of threaded pin M6, sealing by rubber gasket, which is part of the flange.

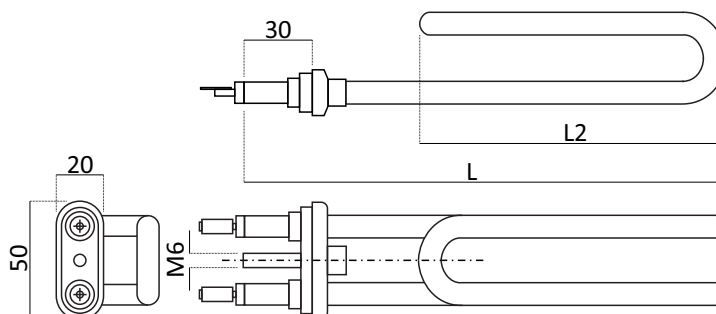
DESCRIPTION:

- heating rods: copper - nickel-plated
- flange: brass - nickel-plated, including rubber gasket
- PN: 6bar



TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	L2 (mm)	Thread		
5107/7	140695070	16.121	230	850	170	94	Oval flange 20x50 mm
5107/1	140695010	16.102	230	1000	205	121	
5107/8	140695020	16.131	230	1350	230	146	
5107/3	140695030	16.141	230	1600	330	236	
5107/9	1406950740	16.151	230	1750	290	213	
5107/6	140695060	16.161	230	2000	325	208	
5107/5	140695050	16.171	230	2400	400	313	



Threaded heating element

Type: 5101 / 5102; 14010970; 40.xxx

SPECIFICATION:

Heating element consists of one heating rod, attached to a brass head (M48x2/ G6/4"). Heating rod is terminated by connection clamps with M4 screws, which serve for inlet cable connection. Designed for water and similar liquid heating (boilers), during operation it must be fully immersed up to the head. For flange sealing it is recommended to use copper, klingerit or other appropriate gasket under the thread.

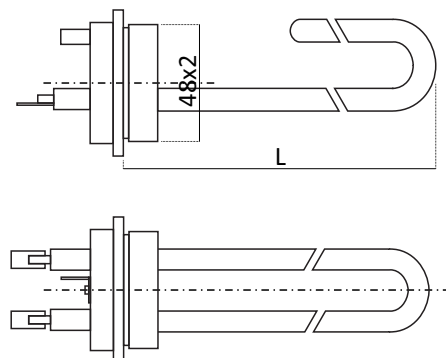
DESCRIPTION:

- heating rods: copper - nickel-plated
- flange: brass - nickel-plated,
- PN: 6bar



TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	L2 (mm)	Thread		
5101/011	1401097010	40.800	230	800	285	M48x2 G6/4"	
5101/013	1401097020	40.1000	230	1000	370		
5102/011	1401097030	40.1600	230	1600	293		220
5101/018	1401097040	40.2000	230	2000	353		
5102/012	1401097050	40.2400	230	2400	363		300



Threaded heating element IP 54

Type: 5144; 14011900; 40.xxx



SPECIFICATION:

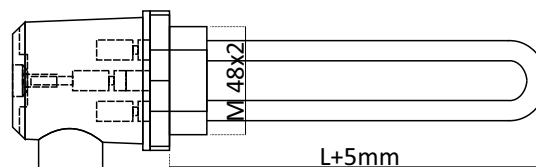
Heating element consists of three U-shaped heating rods fixed to a brass head with lid (protection IP 54) and with el. bushing PG13,5. Flange attachment hexagon of size 65. Designed for direct water and similar liquid heating in water heaters, electro-boilers, etc. During operation it must be constantly immersed up to the head.

DESCRIPTION:

- heating rods: copper - nickel-plated/stainless steel
- flange: brass - nickel-plated/ stainless steel
- PN: 10bar
- atypical adjustments: individual connectors – clamp, flanges according to DIN, other threads, etc.
- customized heating rods – length, shape, diameter, surface finish
- el. connection – voltage, power supply change

TECHNICAL PARAMETERS:

Type			Supply (V)	Power (W)	L (mm)	Thread
5144/1	1401190091		230/3x230	1500	148	M48x2 G6/4"
5144/2	1401190081		230/3x230	2000	178	
5144/3	1401190010	40.911	230/3x230	2400	203	
5144/4	1401190020	40.921	230/3x230	3000	240	
5144/5	1401190030	40.931	230/3x230	4000	303	
5144/6	1401190040	40.941	230/3x230	4500	333	
5144/7	1401190050	40.951	230/3x230	6000	428	
5144/8	1401190060	40.961	400/3x400	7500	520	



Heating element for washing machines

Type: 14089; 02.xxx



SPECIFICATION:

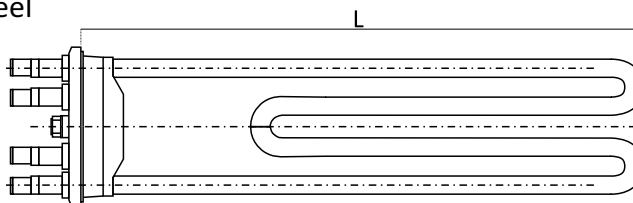
Heating element for direct water heating in automatic washing machines. There is a flat-oval hole 18x70 serving for installation, sealing is done by means of one screw M8. Heating rod is made of copper or stainless steel and must be immersed during all operation.

DESCRIPTION:

- heating rods: copper - nickel-plated / stainless steel
- flange: steel including rubber seal
- PN: 6bar
- optional individual adjustments: length, shape, power

TECHNICAL PARAMETERS:

Type		Supply (V)	Power (W)	L (mm)	L2 (mm)	Thread
1408990060	02.1750	230	1750	190		Oval flange for hole 70x18 mm
1408990040	02.2000	230	2000	225		
1408990100	02.2500	230	2500	180	220	
1408990150	02.2800	230	2800	300		
1408990050	02.3000	380	3000	370	300	
1408990080	02.4000	380	4000	370		



Heating element for industrial washing machines

Type: 309/989; K048,052

SPECIFICATION:

Heating element is designed for direct water heating in industrial washing machines, it has two U-shaped heating rods placed in one flange with rubber seal, determined into hole 70x18mm. Sealing is done by means of one screw M8. Heating rod is made of copper or stainless steel and must be fully immersed during operation. Heating elements are to be connected on nominal voltage as per wiring diagram of appliance for which they are designed.

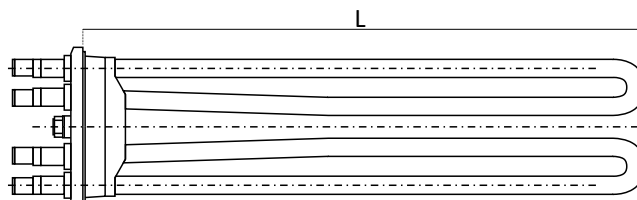
DESCRIPTION:

- heating elements: copper - nickel-plated / stainless steel
- flange: steel including rubber seal
- PN: 6bar
- option of individual adjustments: length, shape, power



TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	Material	Thread	
309	K052	230	2x2000	300	Copper	Oval flange for hole 70x18 mm
309		230	2x2000	350	Copper	
309		230	2x2000	470	Copper	
309	K048	230	2x3000	470	Copper	



Heating element for dish washers

Type: 14520

SPECIFICATION:

Heating element designed for dish washers produced by ALBA Hořovice company. Heating rods material - stainless steel, flange is made of brass.

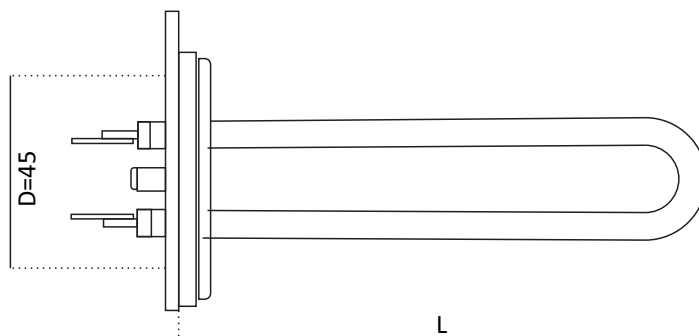
DESCRIPTION:

- stainless steel
- flange: brass
- PN: 6bar



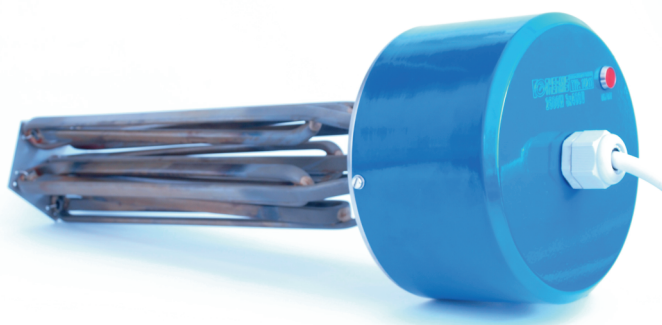
TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	Note
1452090000	3x230	3x2000	326	
1452090010	3x230	3x1333	326	
1452090030	3x230	3x2000	326	only with hole
1452090040	3x230	3x2000	326	with well
1452090050	3x230	3x1333	326	Cu-Ms/Ni
1452090060	3x400	3x3000	440	with well
1452090070	3x400	3x1333	326	



FLANGE HEATING ELEMENT UP TO 15 000W

type 14063 / 4034
7 500-15 000W



DESCRIPTION:

- steel cover of the terminal board IP 42
 - heating rods: copper, steel, stainless steel 17 240/1.4301; 17 346/1.4401
 - flange: galvanized steel, stainless steel 17 240/1.4301; 17 346/1.4401
- flange DIN 2501, EN 1092-1, ANSI B16,5, individual

APPLICATION:

- power engineering
- mechanical engineering
 - food industry
- pharmaceutical industry
- automotive industry

TECHNICAL PARAMETERS:

- power: 7 500, 9 000, 12 000, 15 000W, individual
 - power supply 120, 230, 400, 480, 500V
- atypical adjustments: increased IP, inbuilt el. control, inbuilt thermostat control, limit switches etc.
- individual length and shape of heating rods

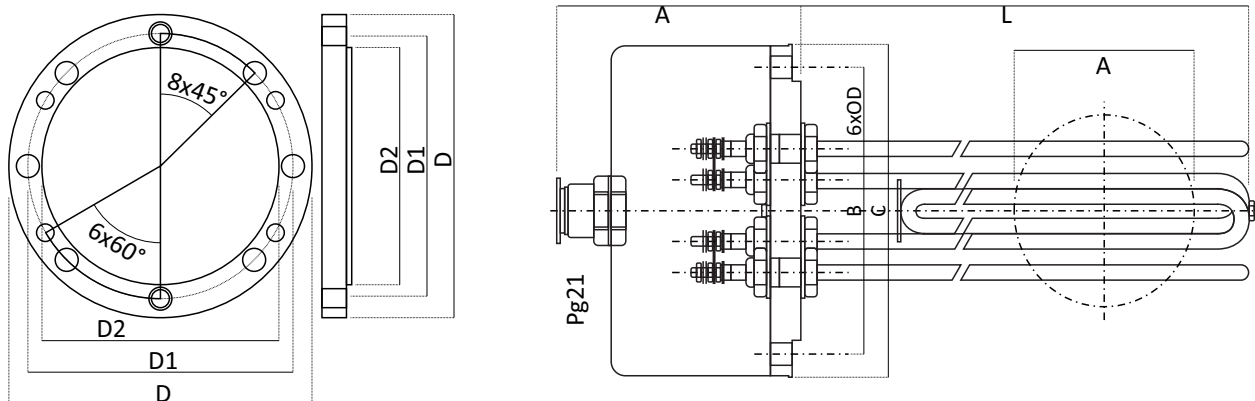
SPECIFICATION:

Heating rods are designed for direct water and similar liquid heating. During operation the rods must be fully immersed in the liquid.

Max. permissible pressure 1MPa. Heating rods with longer submersible length than 700mm should be supported.

Flange heating elements consist of steel/stainless steel flange (according to DIN 2501, EN 1092-1, ANSI B16,5/ alternatively on request) and three heating rods. Ceramic terminal board is protected by steel cover with el. bushing GP21/18, ensuring IP 42.

Type		Power supply (V)	Power (W)	L (mm)	Coating material
1406390010	403491010	3x400	7500	500	copper rods
1406390020	403491020	3x400	9000	500	copper rods
1406390030	403491050	3x400	12000	700	copper rods
1406390040	403491070	3x400	15000	800	copper rods
1406390060		3x480	7500	500	copper rods
1406390060		3x480	9000	700	copper rods
	403493010	3x400	7500	500	stainless steel rods
	403493020	3x400	9000	500	stainless steel rods
	403493050	3x400	12000	700	stainless steel rods
	403493070	3x400	15000	800	stainless steel rods



Connection flange dimensions according to PN					
PN(MPa)	D(mm)	D1(mm)	A(mm)	Screw	Test pressure MPa
1,0	182	158	14	6xM12	1,3
Dimensions in mm					
A	B	C	D	E	
155	158	182	13	106	

Customized adjustments:

Power supply: 120, 230, 400, 480, 500V

Length and shape of heating rods: on individual requirements

Heating rods material: copper, steel, stainless steel 17 240/1.4301; 17 346/1.4401, teflon-plated

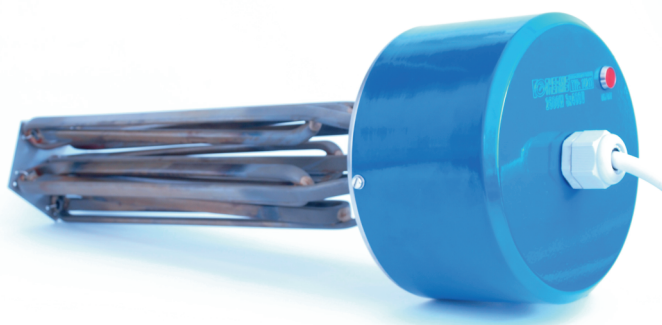
Flange design: flanges according to DIN 2501, EN 1092-1, ANSI B16,5, individual

Flange material: galvanized steel, stainless steel 17 240/1.4301; 17 346/1.4401

Atypical adjustments: increased IP protection, inbuilt el. control, inbuilt thermostat control, limit switches, etc.

FLANGE HEATING ELEMENT UP TO 50 000W

type 14071 / 4407
15 000-50 000W



DESCRIPTION:

- steel cover of terminal board IP 44
 - heating rods: copper, steel, stainless steel 17 240/1.4401; 17 346/1.4403
 - flange: galvanized steel, stainless steel 17 240/1.4401; 17 346/1.4403
- flange DIN 2501, EN 1092-1, ANSI B16,5, individual

APPLICATION:

- power-engineering
- mechanical engineering
 - food industry
- pharmaceutical industry
- automotive industry

TECHNICAL PARAMETERS:

- power: 15 000, 18 000, 24 000, 30 000, 50 000W, individual
- power supply 120, 230, 400, 480, 500V
- atypical adjustments: increased IP protection, inbuilt el. control, inbuilt thermostat control, limit switches etc.
- individual adjustments of length and shape of heating rods
 - pressure load : PN 0,6 / 1,0 / 2,5 / 6,4MPa

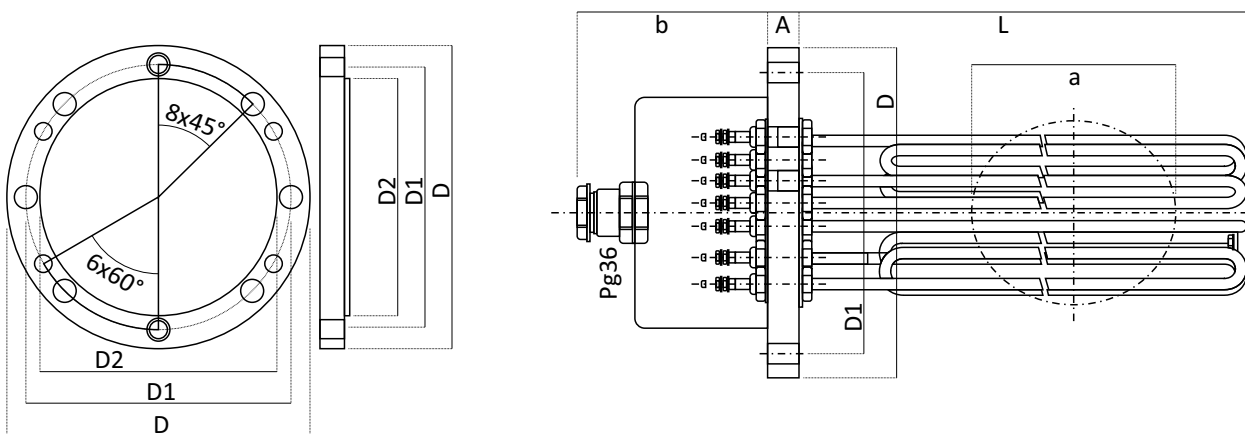
SPECIFICATION:

Heating rods are designed for direct water or similar liquid heating. During operation the rods must be fully immersed in the liquid.

Max permissible pressure up to 6,4MPa. Heating elements with submersible length over 700mm should be supported.

Flange heating elements consist of steel/ stainless steel flange (according to DIN 2501, EN 1092-1, ANSI B16,5/ alternatively on request) and three heating rods. Ceramic terminal board is protected by a steel cover with el. bushing GP36/28, ensuring IP 42.

Type	Power supply (V)	Power (W)	L (mm)	PN (MPa)	Rod material	
14071190010	440790010	3x400	15000	505	0,6	copper
14071190020	440790020	3x400	18000	575	0,6	copper
14071190030	440790050	3x400	24000	735	0,6	copper
14071190040	440790060	3x400	30000	870	0,6	copper
14071190050	440790110	3x500	15000	505	0,6	copper
14071190070	440790210	3x400	15000	505	1,0	copper
14071190080	440790220	3x400	18000	575	1,0	copper
14071190090	440790250	3x400	24000	735	1,0	copper
14071190100	440790260	3x400	30000	870	1,0	copper
14071190110	440790310	3x500	15000	505	1,0	copper
14071190120	440790360	3x500	30000	870	1,0	copper
<p>0 - determines the heating rod material is COPPER 3 - determines the heating rod material is STAINLESS STEEL 17 240/1.4401</p>						



Dimensions of connecting flange according to PN

PN(MPa)	D(mm)	D1(mm)	A(mm)	Screw	Test pressure MPa
0,6	260	225	20	8xM16	0,78
1,0	280	240	24	8xM20	1,3
2,5	270	220	22	8xM24	3,25
6,4	295	240	30	8xM27	8,3
Dimensions in mm					
a			b		
145			160		

Customized adjustments:

Power supply: 120, 230, 400, 480, 500V

Length and shape of heating rods: on individual requirements

Heating rods material: copper, steel, stainless steel 17 240/1.4401; 17 346/1.4403, teflon-plated

Flange design: flanges according to DIN 2501, EN 1092-1, ANSI B16,5

Flange material: galvanized steel, stainless steel 17 240/1.4401; 17 346/1.4403

Atypical adjustments: increased IP protection, inbuilt el. control, inbuilt thermostat control, limit switches, etc.

GALVANIC HEATING ELEMENT



Type - 1701
Type - 1705 – shaped
galvanic heating element

1701 - VERTICALLY IMMERSIBLE HEATING ELEMENTS

DESCRIPTION:

- rods material: stainless steel 17 348/1.4571, stainless steel 17 240/1.4301, porcelain, teflon, titanium, boron-silica glass

1705 - SHAPED HEATING ELEMENTS

DESCRIPTION:

- rods material: stainless steel 17 240/1.4301, stainless steel 17 348/1.4571, stainless steel teflon-plated, individual
- heating rods profile D8,5mm, 11,5x6,2mm
- power on individual requirements

APPLICATION:

- food industry
- mechanical engineering
 - power engineering
 - heating industry
 - hydraulics

TECHNICAL PARAMETERS:

- power: 1 100, 1 500, 1 800, 3 000, 4 500 (1701), on request (1705)
- supply: 3x400V (1701), on request (1705)
- protection: IP 65 (1701)

SPECIFICATION:

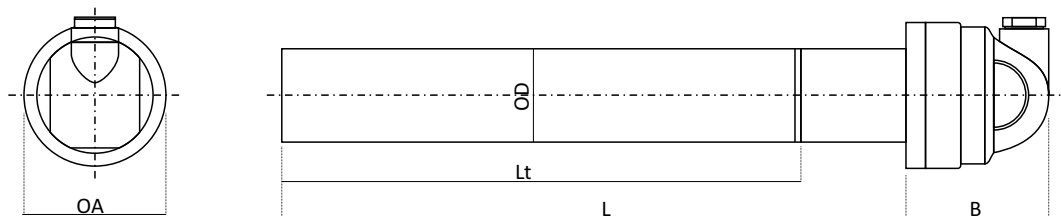
Vertical galvanic heating elements (1701) consist of coating (silica glass or noble steel), ceramic heating lining and water-proof el. terminal board. On the coating there is always a mark stating the minimum submersion, if there is no such mark, the element must be fully immersed in the bath during heating operation. El. terminal board is made of polypropylen, waterproof (IP 65) and resistant to heated medium as well as its vapour.

Shaped galvanic heating elements (1705) are shaped from long heating rods of oval or circular cross-section. The bottom heating part may as well follow an atypical shape of the tank. Outlets may be covered by PE head, Al box or rubberized head smoothly changing into cable.

1701 - vertically immersible heating elements

TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	Lt (mm)	D (mm)	Coating material
1701590010	3x400	1500	600	400	54	17 348/1.4571
1701590020	3x400	3000	800	600	54	17 348/1.4571
1701590040	3x400	4500	1270	1070	54	17 348/1.4571
1701790010	3x400	1500	600	400	54	17 240/1.4301
1701790020	3x400	3000	800	600	54	17 240/1.4301
1701790040	3x400	4500	1270	1070	54	17 240/1.4301
1701290010	3x400	1500	595	370	48	porcelain
1701290020	3x400	3000	785	560	48	porcelain
1701290050	3x400	4500	1280	1070	48	porcelain
1701290010	3x400	1100	600	400	54	porcelain
1701490020	3x400	1800	800	600	54	teflon
1701490030	3x400	3300	1270	1070	54	teflon
1701190010	3x400	1500	600	400	51	titanium Gr 2
1701190020	3x400	3000	800	600	51	titanium Gr 2
1701190040	3x400	4500	1270	1070	51	titanium Gr 2
1701890010	3x400	1500	600	400	50	boron-silica glass
1701890020	3x400	3000	800	600	50	boron-silica glass
1701890040	3x400	4500	1270	1070	50	boron-silica glass
1701390010	3x400	1500	600	400	50	quartz glass
1701390020	3x400	3000	800	600	50	quartz glass
1701390040	3x400	4500	1270	1070	50	quartz glass

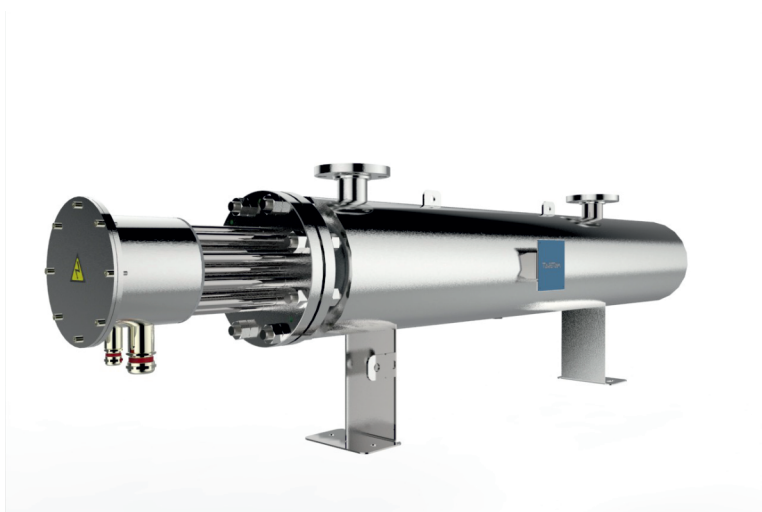


Dimensions in mm			
Type	A	B	L
1701...	78	75	545-1270

1705 - shaped heating elements

TECHNICAL PARAMETERS:

Type	Supply (V)	Power (W)	L (mm)	Coating material
1408990060	on request		D8,5mm, max. 4m in straight state	17 348/1.4571
1408990040	on request		11,5x6,2mm, max. 6m in straight state	17 240/1.4301



HEATING ELEMENTS INTO THE ENVIRONMENT RISK OF EXPLOSION - ATEX

Heating bodies and heating elements are designed in accordance with the international standards IEC / EN 60079-0, IEC / EN 60079-1, EN 60079-7 and IEC / EN 60079-31 in order to meet the demanding conditions in operations where maximum emphasis on safety, especially in zones with a risk of explosion. Thanks to their properties, they will also find application where IEC, CSA (Canada), INMETRO (Brazil) standards and schemes are implemented, as well as regulations in force in the United States. Entities with valid notifications or accreditations according to the reference certification scheme are involved in the certifications.

After passing the explosion, overpressure and heat tests required by C.E.S.I.C regulations, the components of the heating elements are also certified. They are mainly covers, flanges, pressure vessels or containers, in such a way that they cover the widest possible conditions and possibilities of use for direct heating of flammable gases and explosive dusts with IP 68 degree of protection.

To date, our portfolio includes products suitable for use in potentially explosive areas. For example: flange heaters, electric heat exchangers, indirect heaters for explosive gases, immersion heaters - both threaded and cantilever, heating coils in Combo design, anti-condensation heaters. Furthermore, simple smooth and ribbed radiators designed on the basis of functional requirements agreed with the customer and in accordance with thermodynamic properties and requirements set by regulations.

We cover these typical average applications in potentially explosive areas:

- preheating of heating oils
- heating and regeneration through passage technical and process gases
- heating of flammable gases (e.g. methane) in gas stations and in facilities at energy production
- heating of flammable storage areas materials- indirect heating of natural gas at high pressure (Seal Gas Heaters)
- separation and filtration of solvents and oil
- protection against frost and condensation
- contact heating of small tanks
- heating forms or bases with circulating oil circuits

Due to the individual approach to the customer, we are able to define a reasonable safety margin and properties of protective devices and then verify them with verification calculations.

CLASSIFICATION OF EXPLOSION ENVIRONMENTS AND PRODUCT LABELING

II	It indicates the environment where the device is installed, and the subsequent determination of a suitable heating element for heating. Group II environments are open spaces (not closed spaces/mines) in which gas or potentially explosive dust is present. Group I environments are open spaces/mines with the presence of gas. The supplied heating elements are intended for heating in a group II environment.														
2	<p>An environment with a risk of explosion is divided into zones according to the probability of an explosion. It is marked with the numbers 0-1-2 (indicates the presence of explosive gases) or 20-21-22 (indicates the presence of explosive dust). As the number decreases, the probability of an explosive atmosphere is created in the environment. Electrical equipment used in this explosive environment is further divided into CATEGORIES. The equipment is divided into categories according to the following table.</p> <table border="1"> <thead> <tr> <th>Category 1</th> <th>Category 2</th> <th>Category 3</th> </tr> </thead> <tbody> <tr> <td>Suitable for the zone 0</td> <td>Suitable for the zone 1</td> <td>Suitable for the zone 2</td> </tr> </tbody> </table> <p>Product suitable for highly explosive environments, can also be used for less explosive environments. The supplied heating elements belong to category 2, so they can be installed in zones 1 and 2.</p>	Category 1	Category 2	Category 3	Suitable for the zone 0	Suitable for the zone 1	Suitable for the zone 2								
Category 1	Category 2	Category 3													
Suitable for the zone 0	Suitable for the zone 1	Suitable for the zone 2													
G D	The letters G, D indicate whether the device is suitable for operation in an environment with the presence of explosive gases (G) or explosive dust (D). If both letters (G-D) are present, the device is suitable for an environment that simultaneously assumes the presence of explosive gases and explosive dust. In these cases, the products are marked with explosion resistance and data regarding protection against gas and explosive dust. The supplied heating elements are suitable for environments with explosive gas (G) and explosive dust (D).														
EX	EX is the designation of equipment for an environment with a risk of explosion. The EX symbol is always followed by one or more letters indicating different protection modes. Example: EX d (explosion protection); EX e (increased security)														
e/d e/tb -/d -/tb	Symbols of the type of equipment protection used with regard to the danger posed by the presence of gas or explosive dust, how it suppresses or prevents the effects of deflagration. The device may have more than one method of protection, and in this case they are all listed on the label. If the protection mode is separated by "/", the mode on the left is the relative protection of the process side and the protection of the external environment on the right side.														
IIC IIIA	Indicates the hazard level of explosive gas or dust for which the device is suitable. Gases are divided into three groups of increasing danger depending on temperature and percentage of ignition: group IIA (e.g. Methyl alcohol), IIB (e.g. Methane), IIC (e.g. Hydrogen). Explosive dust is divided into three groups of increasing danger IIIA, IIIB and IIIC, according to size and electrical conductivity (conductive or non-conductive).														
T1 ÷ T6	<table border="1"> <thead> <tr> <th>Temperature class</th> <th>Temperature°C</th> </tr> </thead> <tbody> <tr> <td>T1</td> <td><450</td> </tr> <tr> <td>T2</td> <td><300</td> </tr> <tr> <td>T3</td> <td><200</td> </tr> <tr> <td>T4</td> <td><135</td> </tr> <tr> <td>T5</td> <td><100</td> </tr> <tr> <td>T6</td> <td><85</td> </tr> </tbody> </table> <p>T1 - temperature class T140°C - max. surface temperature of equipment exposed to an explosive atmosphere</p>	Temperature class	Temperature°C	T1	<450	T2	<300	T3	<200	T4	<135	T5	<100	T6	<85
Temperature class	Temperature°C														
T1	<450														
T2	<300														
T3	<200														
T4	<135														
T5	<100														
T6	<85														
Gb/Db	Equipment protection level against explosive gases (G) and explosive dust (D). There are three levels of protection: Ga/Da = very high, Gb/Db = high, Gc/Dc = increased. The supplied heating elements have a high level of Gb/Db protection.														
IP65	Resistance of the electrical devices: 1.number: protection against intrusion of solid bodies 2.number: protection against liquid ingress														

Heating elements are equipped as standard with one or more safety systems with manual reset mode. If the nominal operating limits are exceeded, they are responsible for sending an alarm signal with a subsequent request to immediately cut off the heater. Setting alarms with manual reset forces the operator to check the cause of the circuit break before restoring operating conditions and restarting the process to avoid subsequent irreversible damage. If the control system is far from the heating, it is possible to control the safety intervention remotely. equipment in the control room if it is guaranteed that recovery after an intervention is not automatic. The choice of the most suitable temperature sensor is agreed after an individual consultation with the customer, taking into account the characteristics of the system and the requirements for the process. All power cables and cable grommets are connected directly to the housing, without the insertion of other elements. This accessory is also certified as standard for use in explosive environments.

HEATING ELEMENTS for ATEX

type RFA
threaded



DESCRIPTION:

- rods: AISI316 Ti, AISI 316 L, Incoloy 800
- flange : brass, stainless steel 17 34/1.4401
- Atex certification in accordance with ATEX94/9EC
 - case: from cast aluminium

APPLICATION:

- petrochemical industry
- mechanical engineering
 - power engineering
 - surface finishes

TECHNICAL PARAMETERS:

- power: 500, 1 000, 2000, 3000, 6 000, 9 000, 12 000, max. 18 000W
 - voltage: 48V - 690V
- connection: 1 1/4", 1 1/2", 2", 2 1/2"
 - power supply: 230/400V
 - protection: IP 65/IP 68
 - temperature class: T2÷T6
 - ambient temperature: -20/ +40°C
- max. surface temperature: T85÷400°C

SPECIFICATIONS:

The heating elements of the RFA series are characterized by more compact dimensions and are manufactured with nominally lower outputs than flanged heaters. The criteria for selection and evaluation of operating conditions are in any case the same as for flanged heaters, which guarantees that these products can be safely used in designated areas for direct or indirect heating of highly flammable substances (solvents) or highly explosive substances (LPG).

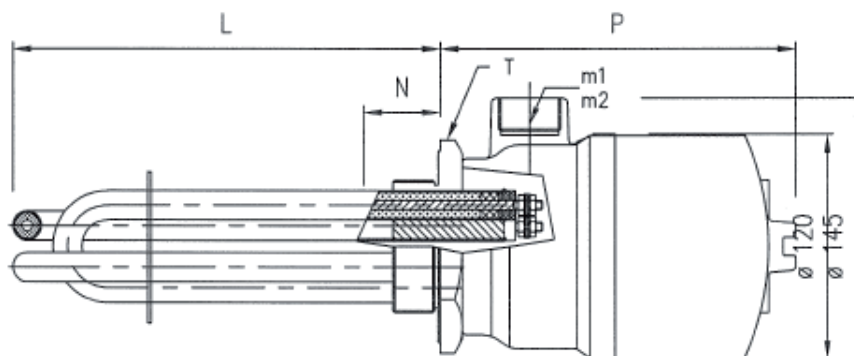
Depending on the requirements for use, threaded connections can be made of brass or stainless steel. In the menu, it is possible to choose heaters made of seamless stainless steel pipes: AISI316Ti, AISI 316L or material: Incoloy 800. The housing of the electrical terminal box is for easy installation of cabling and safety elements, or temperature sensors. It is made of cast aluminum divided into two half-shells.

Heating element RFA - threaded ATEX

TECHNICAL PARAMETERS:

Type	Power supply (V)	Power (W)	L (mm)	Flange	Material
RFA-0,50-11Q	230	500	280	1 1/4" 1 1/2" 2" 2 1/2"	Incoloy 800
RFA-6-16-B	3x230	6000	406		Incoloy 800
RFA-2-23-BNS	230	2000	590		Incoloy 800
RFA-111	230	1000	280		Incoloy 800
RFA-211	230	2000	280		Incoloy 800
RFA-311	3x230	3000	280		Incoloy 800
RFA-330	3x230	3000	762		Incoloy 800
RFA-616	3x400	6000	406		Incoloy 800
RFA-630	3x400	6000	762		Incoloy 800
RFA-916	3x400	9000	584		Incoloy 800
RFA-923	3x400	9000	584		Incoloy 800
RFA-926	3x400	9000	660		Incoloy 800
RFA-1223	3x400	12000	584		Incoloy 800
RFA-1233	3x400	12000	838		Incoloy 800

• RFA



SPECIFICATIONS:

T Connection thread 1 1/4", 1 1/2", 2", 2 1/2"

L Immersion length

N Non-heating section

C1-C2 Contact protection

S Distance template for fixing the position of the heating rods

M 1÷3 Grommet for cabling with internal thread

HEATING ELEMENTS for ATEX

type FP
flanged



DESCRIPTION:

- rods: Incoloy 800, Inconel 625, stainless steel 17346/1.4401, 17 349/ 1.4404, 17 248/ 1.4541
- flange : stainless steel 17 344/1.4401, 17 349/1.4404
- ATEX in accordance with ATEX EX 11 2 G/D

APPLICATION:

- petrochemical industry
 - engineering
- power engineering
- fuel heating
- surface finishes / treatments

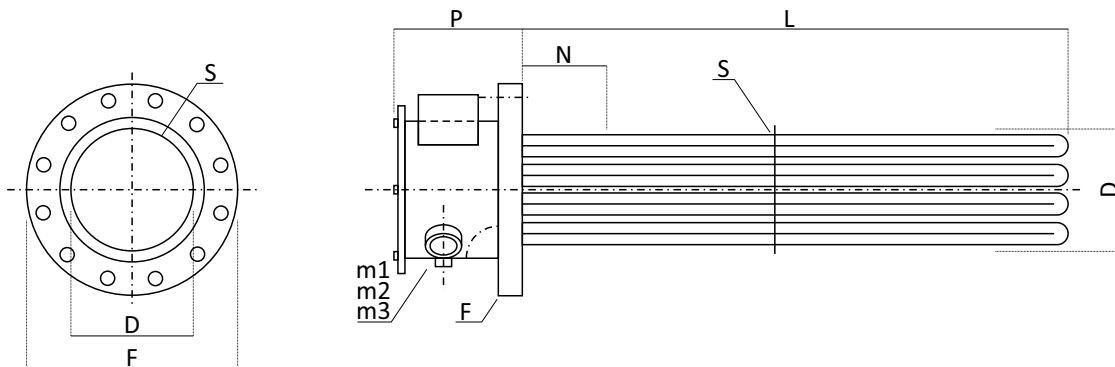
TECHNICAL PARAMETERS:

- power: up to 1000kW
- voltage: 48V - 690V
- flange diameter: 150 - 1000mm
 - protection: IP 66/IP 67
 - temperature class: T1÷T6
- ambient temperature: -60 + 70°C
- max. immersion length: 3665mm

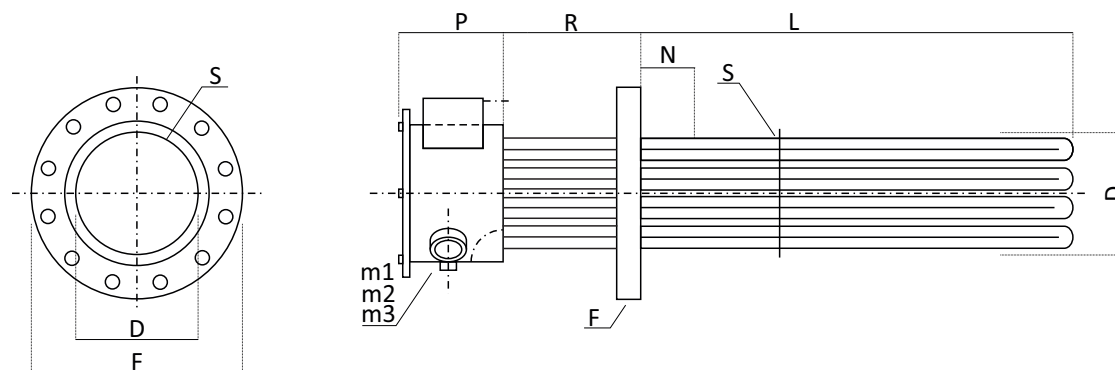
SPECIFICATIONS:

Flanged heaters are designed for heating static or flowing heat fluid in tanks or in pipes which serves for the transport of specific media. Body design always takes into account individual customer requirements based on which is defined: specific power, number of heating elements, properties of fluid, the maximum temperature of the mantle with over-new definition of "thermal safety" and following that the use of specific construction materials with corresponding spatial dimension of the heating elements. Design of flanged heaters with replaceable inner inserts in Ex design - single layer. This solution you will especially appreciate it in the case of heating oils and corrosive liquids. Heaters with heaters attached to the flange using threaded fittings with screw with a torx head. The advantage of this solution (with a case that is located in distance from the flange) is that the eventual leakage of the process fluid is dispersed into the external environment not into the electrical terminal.

Heating element FP - flanged



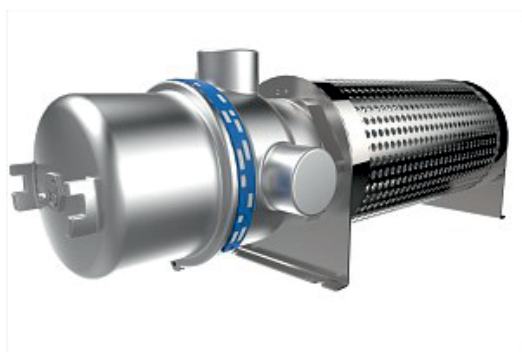
Heating element FP - flanged with non-heating section between flange and terminal block



SPECIFICATIONS:

- F Connection flange
- L Max. length below flange
- N Non-heating section
- P Height of terminal block - case (dimensions depends on flange size)
- R* Non-heating section between flange and terminal block
- D The maximum diameter of the heating bundle, i.e. wetted part
- S Distance template for fixing the position of the heating rods
- M 1÷3 Grommet for cabling with internal thread (mostly 1/2" NPT)

HEATING ELEMENTS for ATEX



type combo
spatial

DESCRIPTION:

- rods: AISI316 Ti, dia.16mm
- desing: protective grid made of galvanized or stainless steel AISI 304
- Atex in accordance with ATEX94/9EC

APPLICATION:

- petrochemical industry
- mining industry
- power engineering
- surface finishes / treatments

TECHNICAL PARAMETERS:

- power: 500, 800, 1000, 1200, 1500, 1600, 2000, 3000, 4000W
- voltage: 48V - 690V
- connection for wiring :2x 1/2"NPT (1x1/2"NPT +1x3/4"NPT for 3kW)
- protection: IP 65/IP 68
- temperature class: T3
- ambient temperature: -60/ +70°C

SPECIFICATIONS:

The spatial heating element is specially designed for heating small rooms up to 6÷8 m³, where it is desirable to prevent surface condensation of steam.

The heaters are designed for heating static air, they are characterized by a very low specific power (0.66 W / cm²), so that the surface temperature of the heating elements is limited in the presence of natural flow.

For this reason, these products are not suitable for heating large rooms with a complicated floor plan, as it is not possible to ensure that the air temperature is distributed evenly throughout the environment.

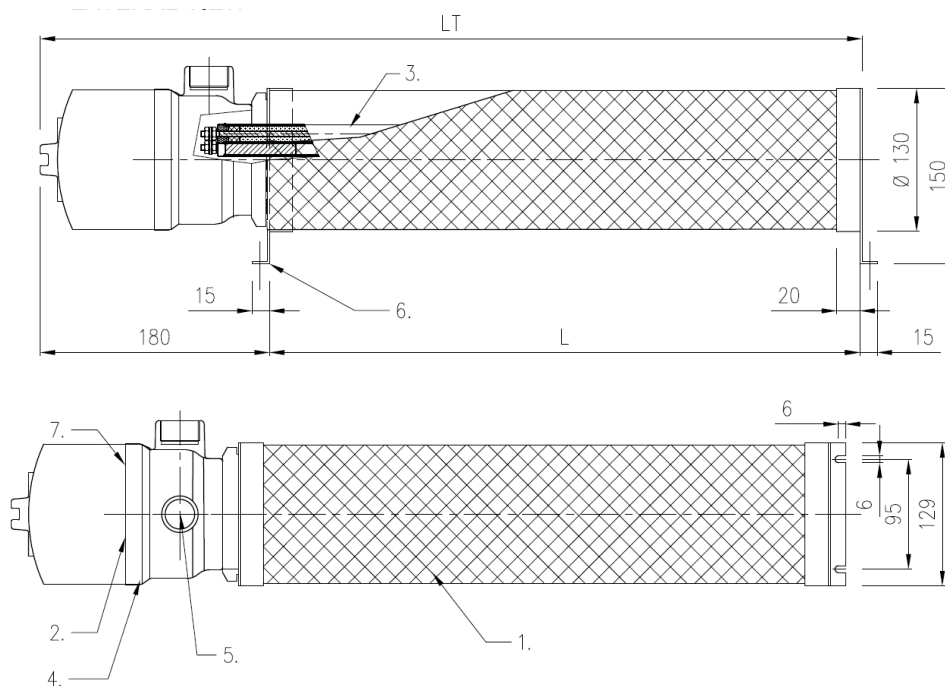
If you want to prevent condensation in rooms that have a complex shape and a volume greater than 6÷8 m³, it is advisable to use air heaters equipped with a fan

Heating element combo - spatial ATEX

Power W	Rods length mm	Rods diameter mm	Number of rods	Surface load W/cm ²	Lenght		Voltage V
					L (mm)	LT (mm)	
500	300	16	3	0,66	325	505	230/1Ph
800	500	16	3	0,66	525	705	230/1Ph
1000	550	16	3	0,66	575	755	230/1Ph
1200	700	16	3	0,66	725	905	230/1Ph
1500	800	16	3	0,66	825	1005	230/1Ph
1600	900	16	3	0,71	925	1005	230/1Ph
2000	1050	16	3	0,66	1075	1255	230/1Ph
3000	1450	16	3	0,71	1475	1655	230/1Ph
4000	1950	16	3	0,70	1975	2175	230/1Ph

Stainless steel / glvanized steel braiding class T3 -230V - 1 Ph

- combo



1. standard material version of the furnace protective grid: AISI 304, optional version on request customer, galvanized or AISI 316 stainless steel
2. thermostat with restart function and automatic reset under the cover of the range terminal 50-220°C
3. AISI 304 heating elements, profile (U), diameter 16 mm
4. terminal and head in accordance with IP 65, ATEX certification: N° CEC _ 10_ATEX_022X
5. connection for cabling according to power 2x 1/2"NPT (1x1/2"NPT +1x3/4"NPT for 3kW)
6. material design of mounting brackets AISI 304
7. thermal fuse with manual reset Tmax 150°C (internal reset)

HEATING ELEMENTS for ATEX

Heating plates / panels



DESCRIPTION:

- material of the heater : cast aluminum with durable perimeter armoring
- insulating heat shield of the underside of the panel
 - installation: horizontally on flat surfaces (alignment using locking screws)
- increasing the heating surface by means of others modules (4 panels = volume 12 bottles)
- certification: IEC/EN 60079-0, IEC/EN 60079-1, EN 60079-7, IEC/EN 60079-31

APPLICATION:

- petrochemical industry
- mechanical engineering
 - power engineering
- pressure cylinder logistics

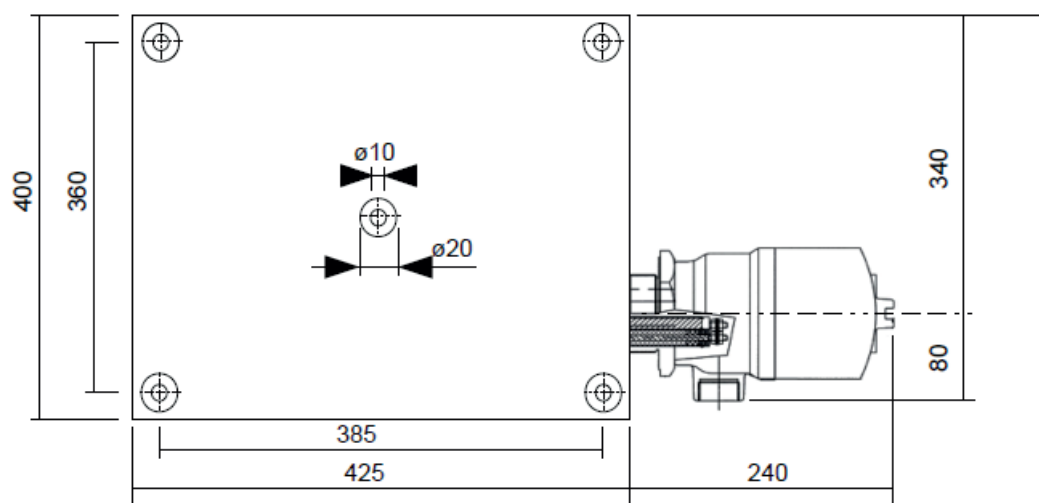
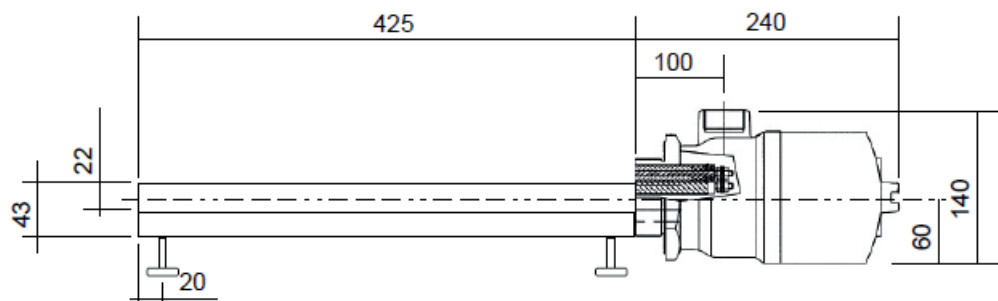
TECHNICAL PARAMETERS:

- max. load weight: 100kg
- temperature resistance of cabling: <math><126^{\circ}\text{C}</math>
 - temperature class: T4
- ambient temperature: $-60 + 70^{\circ}\text{C}$
- max. working temperature: 99°C
 - protection: IP 65/IP 68

SPECIFICATIONS:

The heating panels were designed to stabilize the internal pressure of cylinders containing technical gases. Heating the bottles with TP ensures that at lower ambient temperatures than the optimum temperature for processing, the formation of surface frost is prevented, so the contents of the bottle will be used to 100%. This is contact heating when the bottles are placed on the upper heating part of the panel. The generated heat is transferred through the shell of the bottle to the gas, which achieves a constant internal pressure even at a low external ambient temperature. An indisputable advantage is the optimization of gas consumption and the possibility of completely emptying the bottle and minimizing the residual gases inside the bottle, which would otherwise not be used due to insufficient pressure. An analogous product to the heating plates are the explosion-proof Clamp heaters. These too are produced by "drowning" one or more heating elements in aluminum or bronze fusion. They are made in the shape of cylinders or half shells. They enable cylindrical bodies to be heated.

Heating panels





HEATING ELEMENTS for ATEX

Air flow heating

DESCRIPTION:

- functional sets for heating the flowing air
- optimized performance of heating elements
 - optimized fan performance and auxiliary bridge
 - standard / all-stainless design

APPLICATION:

- petrochemical industry
 - vertical chambers
 - surface finishes
- room heating in an ATEX environment

TECHNICAL PARAMATERS:

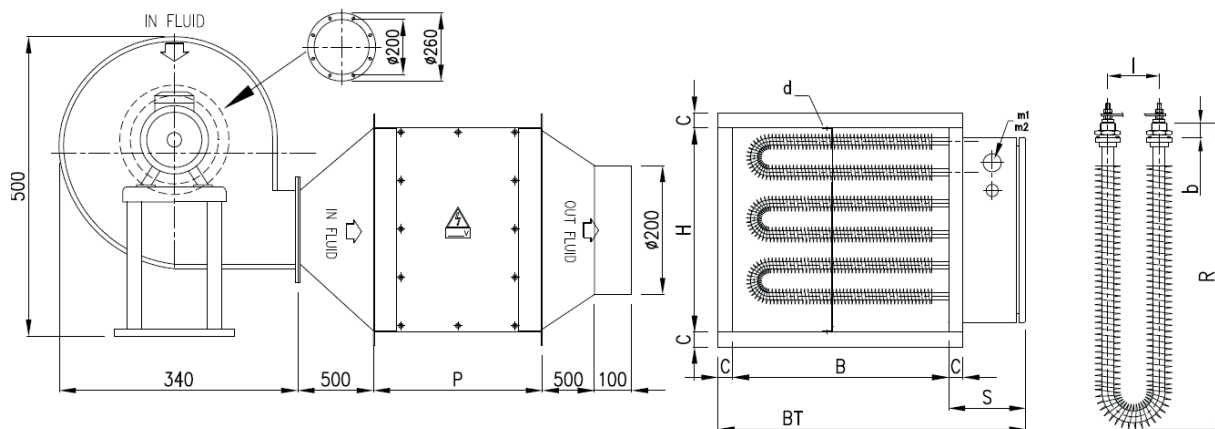
- power: up to 250kW
- voltage: 110V - 690V
- fan power: (battery x 4)

SPECIFICATIONS:

The hot-air electric unit is used to heat air or process gas by inserting it into air ducts or ventilation channels. The individual heating elements are ribbed to facilitate and improve the efficiency of heat exchange, but in the event that the heated medium contains suspended particles or aerosols, there is also a variant with smooth heating elements on offer, which prevent the settling of solid particles and subsequent reduction in performance (these and other technical and functional requirements are determined by the customer).

When creating a specific structure, sophisticated technical software is used to verify the thermodynamic performance, thanks to which it is possible to have an accurate analysis of the operating conditions of the thermalunit.

Ducted air heater



SPECIFICATIONS:

B x H	Dimensions of the passage channel
BT	Total width
HT	Total height
P	Depth
S	Height of electrical contact box
C	Frame height
R	The size of the support frame
M1	Grommet for cabling with internal thread
M2 / M3	Sockets for cable grommets sensor

Consistency between the project definition itself by the customer, and its analytical verification allows you to determine:

- specific power of heating elements
- pressure drop value
- surface temperature and its consequences define the corresponding security elements and temperature class
- construction materials
- dimensional characteristics

Furthermore, it is possible to verify whether the project meets the limitations resulting from the certification and thus propose adequate materials and optimal technical solutions. A data sheet is already provided in the offer, which summarizes the properties of the entire unit, including the temperature class, thus enabling the customer to check and have an overview of the main electrical data and of the system interface data and of the limitations resulting from the certification for the use of the heater in accordance with the properties of the system itself.



HEATING ELEMENTS for ATEX

Heat exchangers, columns

DESCRIPTION:

- options : Ex d, Ex e
- control: ON/ OFF with option - smooth regulation of power using a thyristor
 - installation: vertical, horizontal
- material of the spiral: AISI316, Duplex SAF 2205, Inconel 625
 - certification: ATEX, IECEx, EAC, CSA, cCSAus, INMETRO

APPLICATION:

- food factory
- mechanical engineering
 - power engineering
 - heating
 - hydraulics

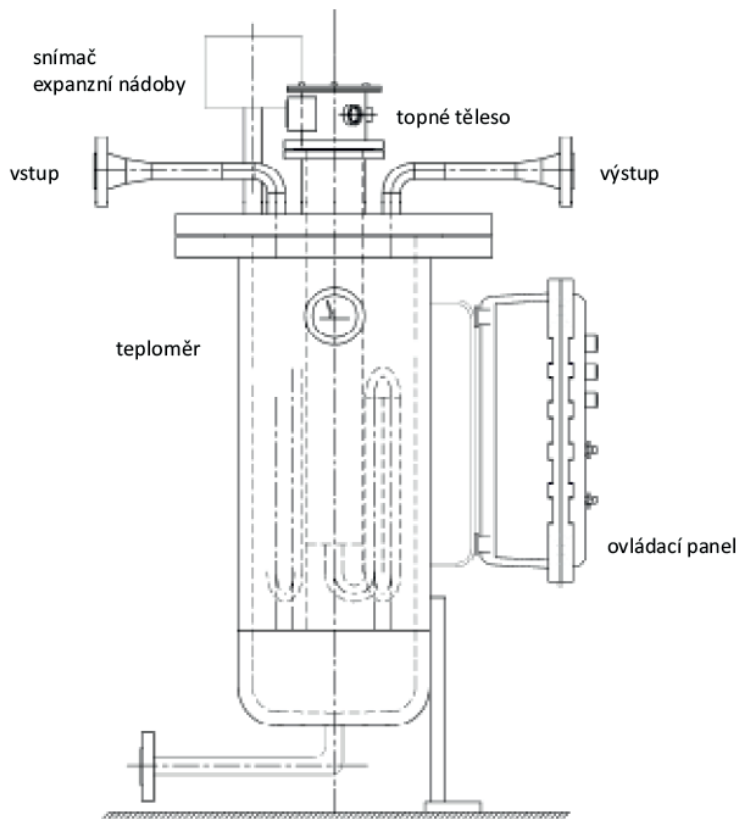
TECHNICAL PARAMETERS:

- max PM: up to 500barg
- max.temperature: up to 350°C
- ambient temperature: -60 + 70°C
 - protection: IP 66/IP 68

SPECIFICATIONS:

The double-walled electric duplicator for indirect heating, due to its compactness, high performance and a considerable degree of precision in the regulation of the operating temperature, forms a particularly interesting area of heating and rectification of liquids with the subsequent possibility of releasing the gaseous phase with high vapor tension. They can also be used in applications where, due to the heating of corrosive substances, there is a steep rise in surface temperatures and, as a result, an extreme increase in the corrosive properties of liquids, acids or alkaline substances. Materials normally resistant to corrosion can be destabilized by critical action as a result of these factors, in these cases it is advisable to use an indirect heating system in which the fluid passes through a spiral immersed in a liquid, depending on the working temperatures, it can be water, glycol or oil. It is an electric indirect type heat exchanger, with a more complex structural system than conventional el. exchanger, because it requires the use of specific fuses. systems such as level control, expansion tank and safety valve.

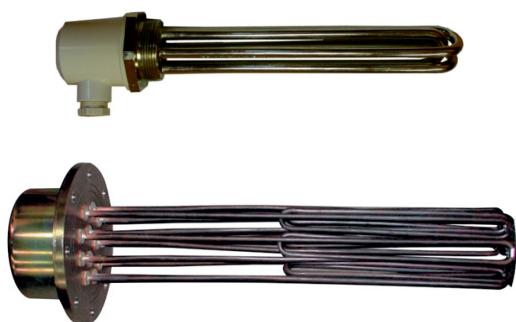
Diagram of an indirect electric heat exchanger



Another variant of indirect heating is a heat exchanger made of cast aluminum, where the spiral with heating elements is integrated directly into the aluminum incast - the result is a compact monolithic construction that is particularly safe because the operating fluid is not contaminated when the heater fails. With this product, the safety and control system is greatly simplified, as sensors to control the liquid level, expansion vessels, or safety valves (to protect against overpressure due to overheating of the secondary liquid) are no longer needed. The big advantage of this system is the relative lack of maintenance, on the other hand, the disadvantage is the absence of the possibility of replacing the heating system (only the temperature sensors can be changed). Greater thermal inertia compared to traditional indirect exchangers has a significant effect on accuracy temperature control, especially with variable flow rates. It is therefore suitable for processes with very constant operating parameters, such as high-pressure natural gas heating driven by rotary compressor. Compactness predestines this heat exchanger for heating anywhere where great emphasis is placed for variability and saving space, e.g. on platforms and applications where higher mobility is required.

HEATING ELEMENT FOR OIL HEATING

low loading W/cm²
500-12 500W



DESCRIPTION:

- flange material: brass, steel, stainless steel 17 240/1.4301; 17 346/1.4401
- rod material: copper, steel, stainless steel 17 240/1.4301; 17 346/1.4401
- threaded, flange design, with inbuilt regulation TRG

APPLICATION:

- hydraulics
- industrial control systems
- rail vehicles
- railway switches

TECHNICAL PARAMETERS

- power: 500-12 500W
- connection: threaded M48x2, G6/4", flange DIN 2501, EN 1092-1, ANSI B16,5, individual
- regulatory range/ T fuse: 0-40°C/55°C; 7-77°C/99°C; 20-127°C/150°C; 30-85°C/110°C; 50-150°C/180°C
- power supply 120, 230, 400, 480, 500V
- atypical adjustments: increased IP, inbuilt el. control, control by inbuilt thermostat, limit switches etc.
 - individual rods length and shape adjustments
 - PN: 0,6-6,4MPa
 - protection: IP 54

SPECIFICATION:

Heating elements for oil heating are specially modified tube elements, that ensure, that there is no oil or similar heated liquid carbonization on the surface or the element. Heating elements feature surface load within interval 1,4-2W/cm², that guarantees sufficient and safe heat transfer. It is also possible to produce elements with individual adjustments and lower/higher W/cm² loading requirements.

Commonly used materials for flanges are brass and nickel-plated steel, for heating rods carbon steel or stainless steel.

Power supply of the heating rods is optional and will be supplied according to customer requirements 110V, 230V, 400V, 480V, 500V, most commonly 1x230V or 1x400V (for single rod design) and 1x230V, 3x230V, 1x400 and 3x400V (for multi rod design).

Heating elements may be supplied with modifications according to customer requirements.

Heating element 1 - rod type 230V

Type: 14070, A4....



SPECIFICATION:

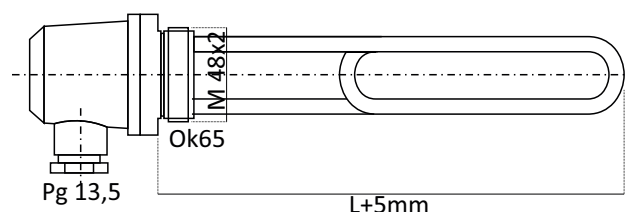
Heating element consists of one steel heating branch made in required shape and length which is connected to the brass head with lid (protection IP 54) and with el. bushing PG13,5. Flanges attachment hexagon size OK 65. Heating element designed for direct oil heating. Output surface load should be selected in a way, so that oil carbonisation does not take place. Working pressure 0,6MPa.

DESCRIPTION:

- heating rods: steel
- flange: brass
- PN: 6bar

TECHNICAL PARAMETERS:

Type		Supply (V)	Power (W)	L (mm)	Thread
1407090020	A4546	1x230	500	300	M48x2 G6/4"
1407090010	A4545	1x230	750	450	
1407090040	A4544	1x230	1000	580	
1407090060	A4547	1x230	1250	680	
1407090050	A4621	1x230	1800	820	
1407090030	A4820	1x230	2250	980	



Heating element 3 - rod type

Type: 14011, A4...



SPECIFICATION:

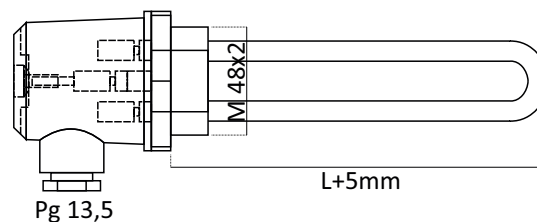
Heating element consists of three heating rods made in required shape and length connected to the brass head with lid (protection IP 54) and with el. bushing PG13,5. Flanges attachment hexagon size OK 65. Heating element designed for direct oil heating. Output surface load should be selected in a way, so that oil carbonisation does not take place. Working pressure 0,6MPa.

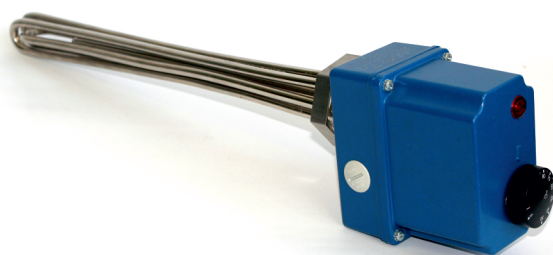
DESCRIPTION:

- heating rods: steel
- flange: brass
- PN: 6bar

TECHNICAL PARAMETERS:

Type		Supply (V)	Power (W)	L (mm)	Thread
1401193940	A4770	2x230/400V	500	300	M48x2 G6/4"
1401193860	A4609	2x230/400V	750	340	
14011	A4550	3x230/400V	1000	580	
1401194130	A4553	3x230/400V	1250	680	
1401194140		3x400V	1800	820	





HEATING ELEMENT WITH REGULATION FOR OIL HEATING

type TRG 11
500-2 250W

DESCRIPTION:

- heating element with inbuilt regulation including thermal fuse
- connection material: steel, brass, stainless steel 17 248/1.4541
 - rod material: steel, brass, stainless steel 17 248/1.4541, Incoloy 800

APPLICATION:

- hydraulic industry
- mechanical engineering
 - food industry
 - pharmaceutical industry
 - paper industry

TECHNICAL PARAMETERS:

- power: 500, 750, 1 000, 1 250, 1 800, 2 250W
- regulatory range/ T fuse: 0-40°C/55°C; 7-77°C/99°C; 20-127°C/150°C; 30-85°C/110°C; 50-150°C/180°C
 - thread: M48x2, G6/4 or individual
 - power supply: 230/400V
 - protection: IP 54

SPECIFICATION:

Heating elements consist of two parts. The heating part is made of three U-shaped steel heating rods, that are connected to the head by thread M48x2 or G1½". Terminal board is made of Al cast with protection IP 54. Another parts or the element are regulatory thermostat (capillary) with thermal fuse, that protects the heating element from overheating, glow tube indicating the mode (heating/not heating) and a regulatory knob with marked scale. Electric supply is possible from both sides through OBO-VTEC bushing.

Heating element is designed for direct oil and similar liquid heating. The element is specially modified to ensure there is no oil or similar heated liquid carbonization. During operation, the heating rods must be fully immersed in the liquid up to the head. Suitable in operations that require instant liquid temperature regulation.

Power (W)	Supply (V)	L (mm)	Connection thread	Material	Range/thermal fuse
500	230/400	300	M48x2, G 6/4'' atypical connections: G5/4'', Clamp 100, flanges according to DIN	steel, stainless steel 17 248/1.4541, Incoloy 800	0-40°C / 55°C 7-77°C / 99°C 20-127°C / 150°C 30-85°C / 110°C 50-150°C / 180°C
750	230/400	340			
1000	230/400	580			
1250	230/400	680			
1800	230/400	820			
2250	230/400	980			

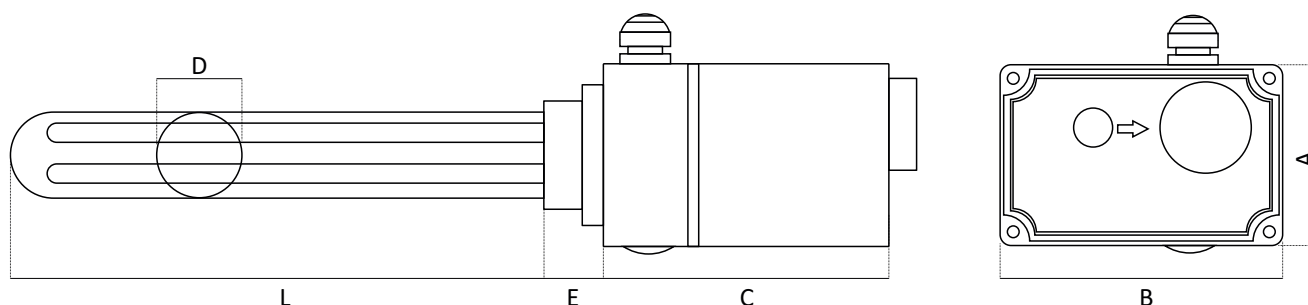
Customization on request: - shortened design
 - material treatment and surface finish of the submersible rods
 - individual colour or the control terminal board
 - customized control (electronic thermostat, sensor Pt100, thermal fuse only etc.)

Order code

TRG11							
	Power	Range / thermal fuse	Thread	Screw	Connect. mater.	TRG material	Individual

Code	power: write down in W determine from 500-2250W
Code	range / thermal fuse
1	0-40°C / 55°C
2	7-77°C / 99°C
3	20-127°C / 150°C
4	30-85°C / 110°C
5	50-150°C / 180°C
Code	thread
M48	M48x2
G6/4''	G6/4''
O	other
Code	screw
1	ANO
2	NE

Code	Connection material
M	brass
N	stainless steel 17 248/1.4541
O	other
Code	rod material
M	brass
N	stainless steel 17 248/1.4541
I	Incoloy 800
Code	individual
N	individual non-heating part
P	surface finish
T	other temperature ranges
O	other - specify



Dimensions in mm						
	A	B	C	D	E	L
TRG 11	80	125	120	38	22	290, 310, 335, 435, 610, 670, 810

FLANGE HEATING ELEMENTS up to 12 500W

type 14211 / 4411
2 500-12 500W



DESCRIPTION:

- steel cover of terminal board IP 44
 - heating rods: copper, steel, stainless steel 17 240/1.4301; 17 346/1.4401
 - flange: galvanized steel, stainless steel 17 240/1.4301; 17 346/1.4401
- flange DIN 2501, EN 1092-1, ANSI B16,5, individual

APPLICATION:

- hydraulics
- mechanical engineering
 - food industry
 - pharmaceutical industry
 - paper industry

TECHNICAL PARAMETERS:

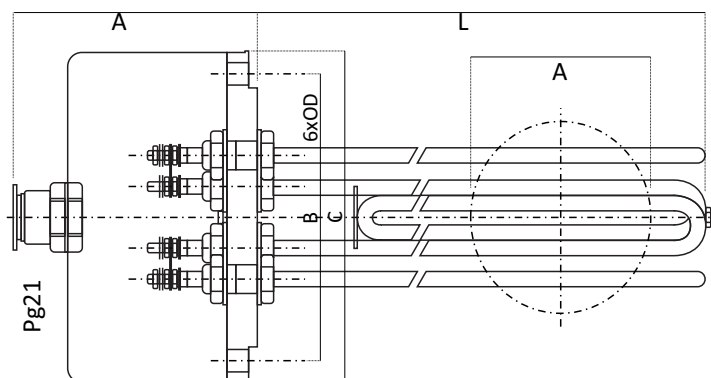
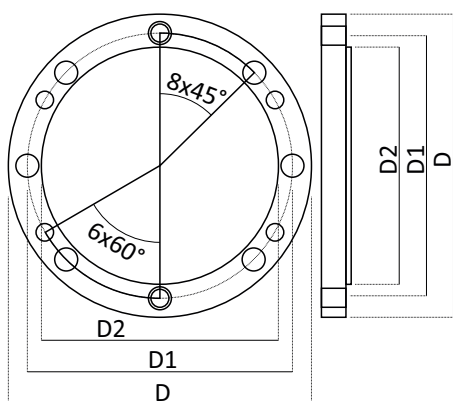
- power: 2 500, 3 500, 4 000, 5 500, 7 000, 8 000, 10 000, 12 500W, individual
 - supply: 120, 230, 400, 480, 500V
- atypical adjustments: increased IP, inbuilt el. control, control by inbuilt thermostat, limit switches etc.
 - individual rods length and shape adjustments
 - pressure load: PN 0,6 / 1,0 / 2,5 / 6,4MPa

SPECIFICATION:

Heating elements are designed for water, oil and similar liquid heating and are adjusted in a way, so that they do not cause oil carbonisation. Heating elements must be fully immersed in the liquid during operation.

Max. permissible pressure 0,6; 1; 2,5 and 6,4MPa. Heating elements with submersible length over 700mm should be supported. Flange heating elements consist of nickel-plated steel flange (according to DIN 2501, EN 1092-1, ANSI B16,5/ alternatively on customers request) and three heating rods. Ceramic terminal board is protected by a steel cover with el. bushing GP21/18, ensuring IP 42.

Type	Supply (V)	Power (W)	L (mm)		
1421190020	441191010	3x400	2500	400	steel rods
1421190030	441191060	3x400	6000	700	steel rods
1421190040		3x400	10000	1000	steel rods
1421190050	441191090	3x400	12500	1250	steel rods
1421190060	441191040	3x480	4000	600	steel rods
1421190070	441191020	3x480	3500	400	steel rods
1421190080	441191080	3x400	8000	1075	steel rods
1421190090	441191050	3x400	5500	800	steel rods
	441191410	3x500	2500	400	steel rods
	441191412	3x500	3500	400	steel rods
	441191440	3x500	4000	600	steel rods
	441191460	3x500	6000	700	steel rods
	441191470	3x500	7000	950	steel rods
	441191480	3x500	8000	1075	steel rods
	441191490	3x500	12500	1250	steel rods
	<p>0 - determines PN 0,6MPa for design 3x400V 1 - determines PN 1,0MPa for design 3x400V 2 - determines PN 2,5MPa for design 3x400V 3 - determines PN 6,3MPa for design 3x400V 4 - determines PN 0,6MPa for design 3x500V 5 - determines PN 1,0MPa for design 3x500V</p>				



Dimensions of connection flange according to PN					
PN(MPa)	D(mm)	D1(mm)	A(mm)	Screw	Testing pressure MPa
1,0	182	158	14	6xM12	1,3
Dimensions in mm					
A	B	C	D	E	
155	158	182	13	106	

Customization on request:

Power supply: 120, 230, 400, 480, 500 V; Shape and length of heating rods: on individual request; Heating rods material: copper, steel, stainless steel 17 240/1.4301; 17 346/1.4401, teflon-plated; Flange design: flange according to DIN 2501, EN 1092-1, ANSI B16,5; Flange material: galvanized steel, stainless steel 17 240/1.4301; 17 346/1.4401;

Atypical customization: increased IP protection, inbuilt el. control, control by inbuilt thermostat, limit switches, etc.

HEATING CARTRIDGES

diameter 6,5-20mm
100-3 000W



TECHNICAL PARAMETERS:

- diameter: heating cartridges are supplied in a circular section of diameter:
6,5; 8; 10; 12,5; 16; 20mm
- connection type: heating cartridges are supplied in threadless design, but also with connection thread or flange
 - threadless
 - metric threads M10x1; M12x1,5; M14x1,5; M16x1,5; M18x1,5; M20x1,5; M22x1,5; M24x2; M27x2
 - inch threads G $\frac{1}{2}$ " , G $\frac{3}{4}$ " , G1"
 - attachment flange
 - with reversed threaded flange
- electric outlets: heating cartridges are supplied with various types of electric conductor connection:
 - nickel-plated outlets
 - with inner conductor connection
 - with outer conductor connection
 - with silicone cable
 - cable with metal protection brading
 - cable in flexible metal hose
- electric connection:
 - one-way
 - both-way

SPECIFICATION:

Heating cartridges are designed for use in wide range of industrial applications, mainly for form and injection molding machines heating, heating of machine part, etc. Heating cartridges are supplied in wide range of designs and can be subject of individual modifications according to customers requirements. They are supplied according to mentioned parameters.

TECHNICAL PARAMETERS:

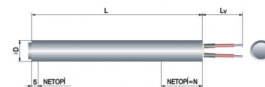
- body design: according to application heating cartridges may be supplied in design:
 - straight
 - right-angled

- body material: material of the cartridge body's coat may be selected from:
 - stainless steel
 - brass

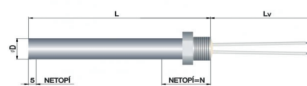
- individual customization: you may choose from wide range of individual designs and adjustments:
 - individual length; length of the non-heating part; defined process of output load
 - high-load design of the heating cartridges up to 20W/cm²; various electric outlet design: teflon insulation, glass-wool insulation, string of beads, etc.
 - surface finish of the heating cartridge body
 - thermocouple

TECHNICAL PARAMETERS:

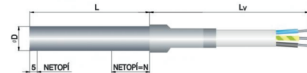
- diameter:



- connection type:



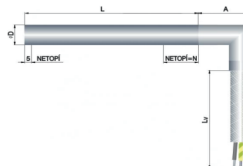
- electric outlets:



- electric outlets:



- electric connection:



Order code

TP									
	Power	Length	Diameter	Body design	Material	Connection type	El. outlets	El.connect.	Individual type

Code	Power: write down in W determine from 100-3000W
Code	Length: write down in mm as required
Code	Diameter:
1	6,5mm
2	8mm
2	10mm
4	12mm
5	16mm
6	20mm
Code	Body design:
P	straight
U	right-angled

Code	Material
N	stainless steel
M	brass
Code	Connection type
0	threadless
1	M10x1
2	M12x1,5
3	M14x1,5
4	M16x1,5
5	M18x1,5
6	M20x1,5
7	M27x2
8	G $\frac{1}{2}$ "
9	G $\frac{3}{4}$ "
10	G1"

Code	El. outlets
N	nickel-plated outlets
I	with inner cond. connect.
O	with outer cond. connect.
S	with silicon cable
K	with metal protec.braiding
H	in flexible metal hose
Code	El. connection
J	one-way
O	both-way
Code	Individual: specify
N	individual non-heating part
V	defined output process
E	el. outlet design
P	surface finish
T	thermocouple
O	other - specify