

# PRESSURE GAUGES TEMPERATURE GAUGES

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## ***PAKKENS***<sup>®</sup>

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*Büyük işler, mühim teşebbüsler  
ancak müsterek mesai ile mümkündür.*

*H. Atatürk*

Huge works, important cooperations,  
only possible with shared shifts.

## PAKKENS INSTRUMENTS

**PAKKENS is a well known manufacturer of pressure and temperature instruments for over 40 years.**

Our instrumentation product portfolio covers all kinds of gauges and related accessories such as standard and high accuracy industrial, process and commercial pressure gauges, contact type pressure gauges, pressure gauges with output signal, differential pressure gauges, diaphragm seals, diaphragm seal systems, solid front pressure gauges, pressure transmitters, bi-metal and gas actuated temperature gauges, combined gauges, valves and manifolds, thermowells,

instrumentation accessories, calibration services, etc.

PAKKENS Instruments offers more than 15.000 standard and custom products, and is the market leader in Turkey.

As of today, the company has the first and most advanced certified instrumentation calibration laboratory in Turkey, and has very well structured design&development, quality, manufacturing, planning and logistics processes and systems to guarantee world class products with optimal prices.

## PAKKENS VALVES

**PAKKENS also designs, develops and manufactures hydraulic groups and a complete portfolio of hydraulic accessories for well known boiler manufacturers and other customers.**

As of today, PAKKENS offers a wide range of composite and brass hydraulic groups, that would fit in virtually all boiler platforms whether it is combi, CH only or storage type.

The company had dedicated most of its resources to become a global solution partner for the design

and manufacture of hydraulic groups and related accessories, and became a fully integrated company able to realize all processes from conceptual design to series production in-house.

PAKKENS is a customer oriented company that can offer tailor made solutions even for annual quantities as low as 1.000 sets per year, and performs all design, tooling and sample production completely free of charge and without any customer commitment.

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## Pressure Transmitters



### General Specifications:



- Used for pressure measurement of gases and liquids which do not attack AISI 316L.
- Can withstand higher rates of overpressure.
- Output Signal can be transferred via cable up to 100 m.
- Long operating life thanks to its monolithic sensor.
- Can be manufactured with both a diaphragm seal and a Data Logger 10 connection.
- Pressure Range: -1 bar/0 bar...0,5/600 bar
- Non-Linearity: 0.5% of F.S. / Optional: 0.1% of F.S (IEC698-2)
- Accuracy: 1.2% of F.S. / Optional: 1% of F.S
- Process Fluid Temperature: -25 °C...+100 °C
- Operating Pressure: Full-scale value
- Supply Voltage: 9-30 V
- Output Signal: 4-20 mA
- Socket Connection Types: Mini Socket, M12x1, Standard Socket
- Ingress Protection Rate: IP65
- PED:2014/68/EU Directive
- ATEX: 2014/34/EU Directive
- Industrial Applications: Process control, industrial robots, machine building, pumps/compressors, hydraulic/pneumatic systems, water and waste water treatment systems, HVAC systems, etc.



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## Accurate Pressure Gauges



### General Specifications:

- Used where high accuracy is needed.
- Used for pressure measurement of gases and liquids that do not attack Copper/Stainless Steel alloys.
- For aggressive media AISI 316L or Monel 400 can be used.
- Case Diameter: Ø100 mm, Ø160 mm, and Ø250 mm
- Pressure Range: -1 bar...600 bar/ -1 bar...1000 bar for Stainless Steel Products/The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 1.0
- Process Fluid Temperature : (Copper Alloys) : +60 °C Optional : +120 °C  
(Copper Alloys & Liquid Filled Products) : +60 °C Optional : +100 °C / +120 °C  
(Stainless Products) : +200 °C  
(Stainless & Liquid Filled Products) : +100 °C / +200 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Optional Vib-Lock movement for vibrating environments.
- Optional adjustable or drag pointers.
- Conformity: EN 837-1 Ingress Protection Rate: IP41, IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Liquid-filled versions exist. (Filling Liquid: Glycerin/ Silicone oil)
- Industrial Applications: Water treatment, petrochemical plants, machine building, and hydraulic/pneumatic systems



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Optional

MH Series

## Solid Front Pressure Gauges



### General Specifications:

- Used for pressure measurement of gases and liquids which do not attack AISI 316L.
- The product is equipped with a solid front safety plate to prevent frontal damage and blow out. In case of high pressure, back lid blows out to vent excess pressure.
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: 0.6bar...1000 bar/ The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 1.0
- Process Fluid Temperature : +200 °C / Optional : +100 °C (Glycerin Filled Products)  
+200 °C (Silicone Oil Filled Products)
- Operating Pressure: Full-scale value
- Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Optional Vib-Lock movement for vibrating environments.
- Optional adjustable type pointers.
- Conformity: EN 837-1
- Ingress Protection Rate: IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Filling Liquid: Glycerin/ Optional: Silicone oil
- Industrial Applications: Petrochemical plants, mining industry, machine building, hydraulic/pneumatic systems



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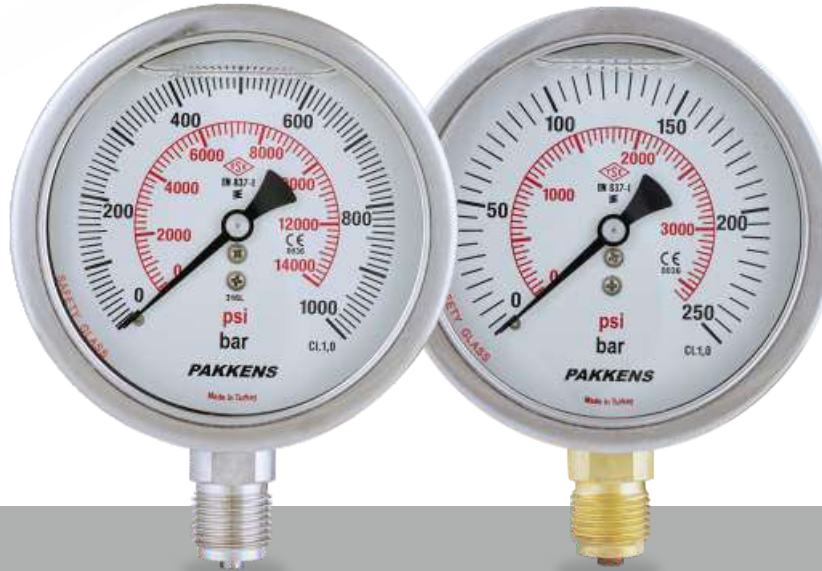
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Optional



## Liquid Filled Accurate Pressure Gauges



### General Specifications:

- Filling fluid effectively dampens system pulsation in vibrating environments, making the pointer easy to read.
- Used for pressure measurement of gases and liquids that do not attack Copper/Stainless Steel alloys.
- For aggressive media AISI 316L or Monel 400 can be used.
- Filling Liquid: Glycerin/ Optional: Silicone oil
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: -1 bar...600 bar/ -1 bar...1000 bar for Stainless Steel Products / The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 1.0
- Process Fluid Temperature: Copper Alloys : +60 °C/ Optional: +100 °C/+120 °C  
Stainless Products : +100 °C/ Optional: +200 °C (Silicone Oil Filled)
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Conformity: EN 837-1
- Ingress Protection Rate: IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Optional Vib-Lock movement for vibrating environments.
- Industrial Applications: Petrochemical plants, mining industry, machine building, hydraulic/pneumatic systems



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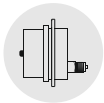
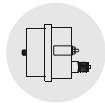
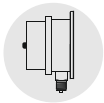
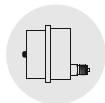
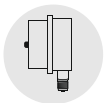
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Optional

MK Series

## Pressure Gauges with Electrical Contacts



### General Specifications:

- Indicate the process pressure locally, and enable the user to monitor limit values, so that the process could be started, stopped or switched.
- Used for pressure measurement of gases and liquids that do not attack Copper/Stainless Steel alloys.
- For aggressive media AISI 316L or Monel 400 can be used.
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: -1 bar...600 bar/ -1 bar...1000 bar for Stainless Steel Products  
The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 1.0
- Process Fluid Temperature: Copper Alloy Products: +60 °C, Optional: +120 °C Stainless Products: +200 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Contact Types: Standard Products: NO, NC, NONC, NONO, NCNO, NCNC  
Ex-proof Products: Inductive Contact
- Conformity: EN 837-1 Ingress Protection Rate: IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Filling Liquid: Silicone oil
- Industrial Applications: Process control, industrial robots, machine building, pumps/compressors, hydraulic/pneumatic systems, water and waste water treatment systems, HVAC systems, etc.



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Optional

## Diaphragm Seal Pressure Gauges



### General Specifications:

- All diaphragm groups are manufactured from AISI 316L.
- Can be manufactured from Monel 400 diaphragms upon request.
- Can be manufactured with electrical contacts upon request.
- Suitable for the measurement of highly viscous and crystallizable mediums.
- Optional Vib-Lock movement for vibrating environments.
- Manufactured according to 3A and EHEDG certifications for the food industry.
- Can be manufactured with PTFE coating upon request.
- Filling Liquid: Glycerin / Optional: Silicone oil
- Diaphragm Seal Filling Liquid: Silicone oil and FDA approved filling liquid for 3A and EHEDG certified products.
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: -1 bar...1000 bar / The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 1.0
- Process Fluid Temperature: +150 °C For 3A and EHEDG certified products: +80 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Conformity: EN 837-1
- Ingress Protection Rate: IP65
- PED: 2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Industrial Applications: Food and Beverage, pharmaceuticals, biotechnology, paper processing, cement manufacturing, petrochemicals, chemicals, mining industry, machine building, hydraulic systems, etc.



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Optional

SH Series

## Diaphragm Pressure Gauges



### General Specifications:

- Diaphragm is directly connected to the movement, enabling the gauge to have a swift and stable readout when compared to Bourdon tube gauges.
- All diaphragm groups are made up of AISI 316L.
- PTFE coated and electrical contacted gauges are available upon request.
- Highly suitable for the measurement of viscous and crystallizable mediums.
- Used for the measurement of low pressures.
- Liquid-filled gauges are available to be used in vibrating environments or with pulsating pressures.
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: 40 mbar...600 mbar, 1 bar...25bar/ The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Filling Liquid: Glycerin/ Optional: Silicone oil
- Accuracy: CL 1.6
- Process Fluid Temperature: +150 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Conformity: EN 837-3
- Ingress Protection Rate: IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Industrial Applications: Petrochemical plants, mining industry, machine building, hydraulics/pneumatics



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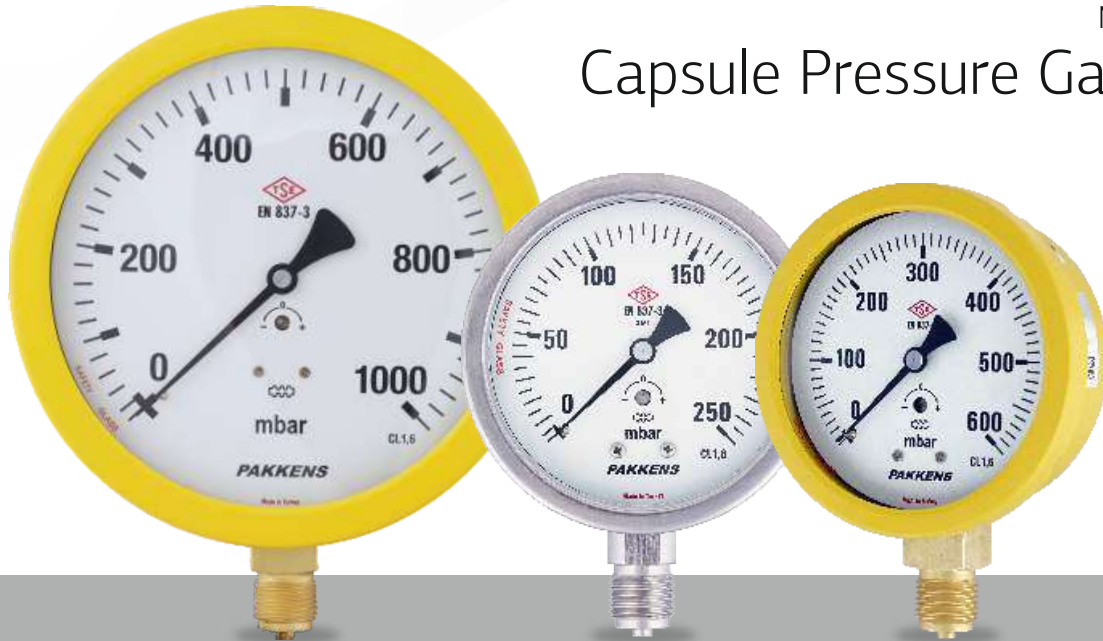


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## Capsule Pressure Gauges



### General Specifications:

- Capsule diaphragm gauges are used to measure very low pressures.
- Not suitable for the measurement of highly viscous and crystallizable mediums.
- Used for pressure measurement of gases and liquids that do not attack Copper alloys.
- For corrosive media, AISI 316L can be used.
- Liquid-filled gauges are available to be used in vibrating environments or with pulsating pressures.
- Filling Liquid: Glycerin/ Optional: Silicone oil
- Case Diameter: Ø63 mm, Ø70 mm, Ø100 mm and Ø160 mm
- Pressure Range: 2.5 mbar...1000 mbar
- Accuracy: CL 1.6
- Process Fluid Temperature: +100 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Conformity: EN 837-3
- Ingress Protection Rate: IP41, IP65
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Industrial Applications: Medical, vacuum, laboratory instruments, environmental technology, filter monitoring, gas-energy distribution, machine building.





DG Series

## Differential Pressure Gauges



### General Specifications:

- Used to measure the pressure difference between two separate pressure sources.
- Used for differential pressure measurements of gases and liquids which do not attack AISI316L.
- Can be used to monitor filter clogging, flow rate and liquid level.
- PED:2014/68/EU Directive, ATEX: 2014/34/EU Directive
- Industrial Applications: Petrochemical plants, mining industry, water and waste water treatment systems, hydraulic systems.

#### Gauges with static pressure of 1.3 times the full-scale value.

- Case, Cover, and Pressure Sensing Instruments: Stainless Steel
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: 25 mbar...30 bar
- Accuracy: CL 1.0/ CL 1.6
- Process Fluid Temperature: +100 °C/+200 °C
- Confirmity: EN 837-1, EN 837-3
- Ingress Protection Rate: IP65
- Can be produced with hose connections upon request.



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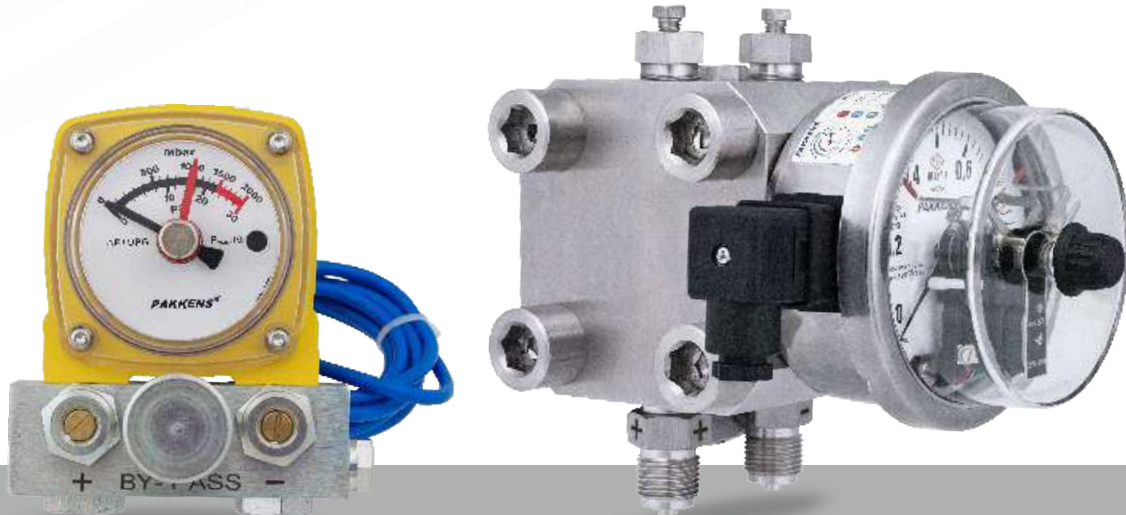


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Optional

# Differential Pressure Gauges

**Gauges with static pressure of max. 100 bar**

- Case and Cover: Brass
- Case Diameter: 80x80 mm
- Pressure Range: 300 mbar...2000 mbar
- Accuracy: CL 10
- Process Fluid Temperature: +150 °C
- Contact Type: NO
- Ingress Protection Rate: IP65
- Conformity: EN 837-3

**Gauges with static pressure of max. 250 bar**

- Case and Block: AISI316L
- Liquid-filled gauges are available to be used in vibrating environments or with pulsating pressures
- Filling Fluid: Glycerin/ Optional: Silicone oil
- Case Diameter: Ø100 mm and Ø160 mm
- Pressure Range: 1 bar...25 bar
- Accuracy: CL 1.6
- Process Fluid Temperature: +150 °C
- Operating Pressure: Full-scale value
- Contact Types: Standard Products: NO, NC, NONC, NONO, NCNO, NCNC / Ex-proof Products: Inductive Contact
- Conformity: EN 837-3
- Ingress Protection Rate: IP65



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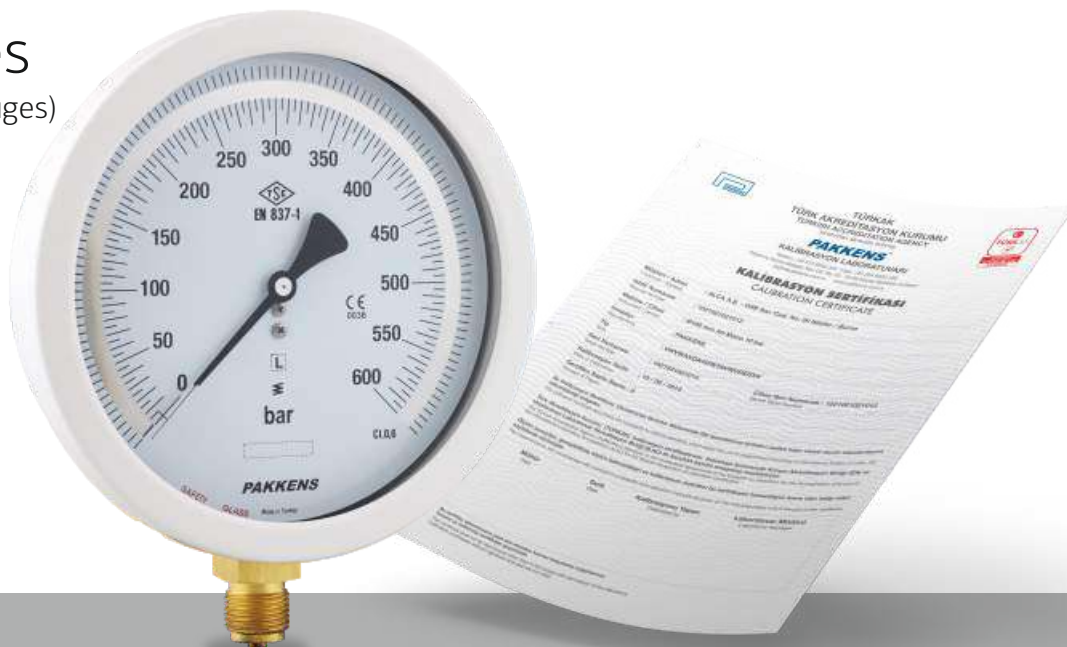
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Optional

MH Series

## Test Gauges

(Highest Precision Gauges)



### General Specifications:

- Suitable for calibration of high accuracy pressure gauges.
- Test gauges are provided with a PAKKENS Accredited Laboratory Calibration Certification.
- Used for pressure measurement of gases and liquids that do not attack Copper alloys.
- Integrated P-Vision dial for accurate and parallax free reading.
- Case Diameter: Ø160 mm
- Pressure Range: -1 bar...600 bar/ The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 0.6/ Optional: CL 0.25
- Process Fluid Temperature: +60 °C/ Optional: +120 °C
- Operating Pressure: Full-scale value
- Conformity: EN 837-1
- Ingress Protection Rate: IP41
- PED:2014/68/EU Directive
- Industrial Applications: Test benches, calibration benches, laboratory instruments, machine building



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## General Purpose Pressure Gauges



### General Specifications:

- Used where high accuracy is not required.
- Used for pressure measurement of gases and liquids that do not attack Copper alloys.
- Case Diameter: Ø40 mm, Ø50 mm, Ø63 mm, Ø100 mm, and Ø160 mm
- Pressure Range: Ø40: 1bar...400 bar, Ø50-Ø63-Ø100: -1bar...600 bar, Ø160: 2.5 bar...600 bar  
The product can be manufactured as a compound gauge for equivalent pressure ranges.
- Accuracy: CL 2.5/ Optional: CL 1.6
- Liquid-filled gauges are available to be used in vibrating environments or with pulsating pressures.
- Filling Liquid: Glycerin/ Optional: Silicone oil
- Process Fluid Temperature: +60 °C/ Optional: +100 °C and +120 °C
- Operating Pressure: Full-scale value  
Max steady-state operating pressure: Between 10% and 75% of the full-scale
- Conformity: EN 837-1
- Ingress Protection Rate: IP41, IP65
- PED:2014/68/EU Directive
- Industrial Applications: Machine building, pumps/compressors, hydraulic/pneumatic systems, water and waste water treatment systems, HVAC systems, etc.



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TB Series

## Bi-Metal Thermometers



### General Specifications:

- Used where industrial grade accuracy is required.
- Used for temperature measurement of gases and liquids that do not attack Stainless Steel.
- Liquid-filled gauges are available to be used in vibrating environments.
- Case Diameter: Ø100 mm and Ø160 mm
- Temperature Range: -30 °C...+500 °C/ Liquid Filled Products: -30°C...+300 °C
- Accuracy: CL 2.0/ Optional: CL 1.0
- Operating Range: Full-scale value. EN13190 Standard can be reviewed to see recommended operating range in details.
- Conformity: EN13190
- Ingress Protection Rate: IP51, IP65
- Filling Liquid: Silicone oil
- Stem Length: 100 mm...1000 mm
- ATEX: 2014/34/EU Directive
- Industrial Applications: Petroleum refineries, chemical plants, machine building, HVAC systems, boiler manufacturing.

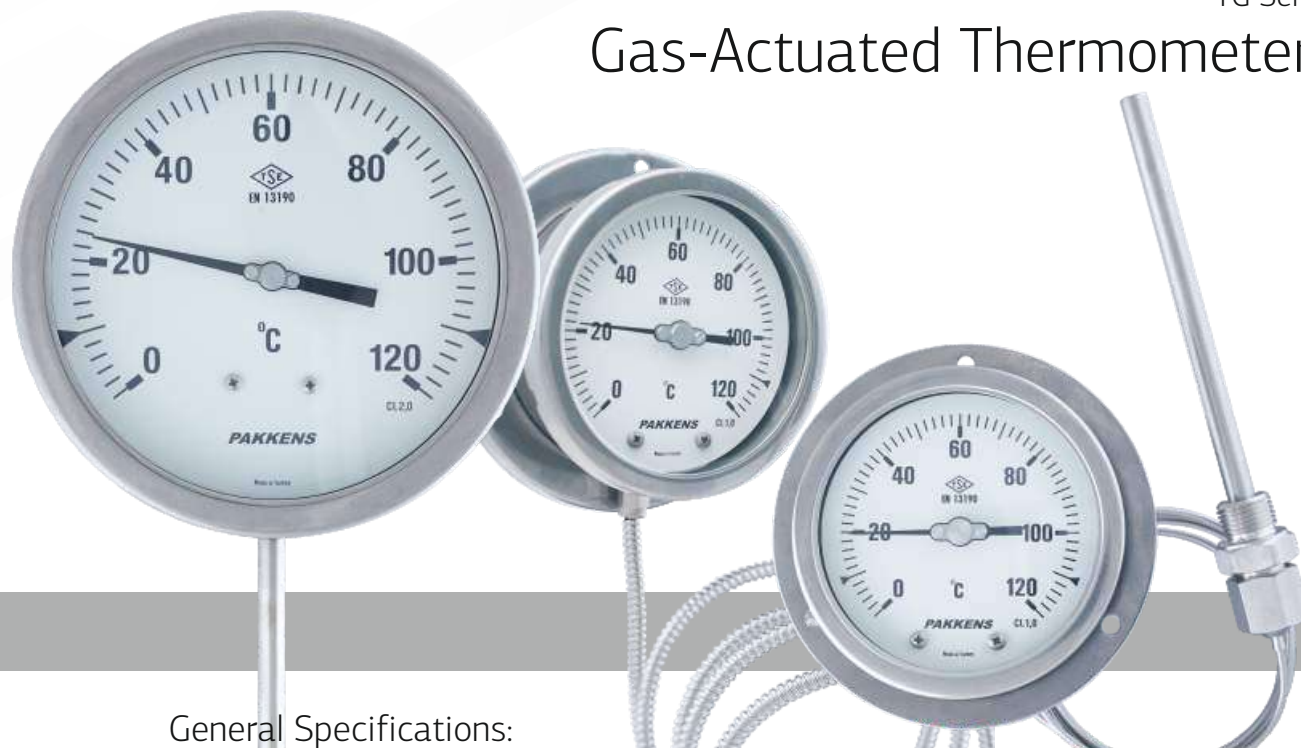


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Optional

## Gas-Actuated Thermometers



### General Specifications:

- Used where industrial grade accuracy is required.
- Used for temperature measurement of gases and liquids that do not attack Stainless Steel.
- With capillary tubing, thermometer body can be mounted away from the heat source. (max. 5 m)
- Liquid-filled gauges are available to be used in vibrating environments.
- Can be manufactured with electrical contacts upon request.
- Case Diameter: Ø100 mm and Ø160 mm
- Accuracy: CL 2.0/ Optional: CL 1.0
- Temperature Range: CL 2.0 : -40 °C...+350 °C  
CL 1.0 : -40 °C...+500 °C  
Liquid Filled Thermometers : -40 °C...+300 °C
- Operating Range: Full-scale value. EN13190 Standard can be reviewed to see recommended operating range in details.
- Contact Types: Standard Products: NO, NC, NONC, NONO, NCNO, NCNC/ Ex-proof Products: Inductive Contact
- Conformity: EN13190
- Ingress Protection Rate: IP51, IP65
- Filling Liquid: Silicone oil
- ATEX: 2014/34/EU Directive
- Industrial Applications: Petroleum refineries, chemical plants, machine building, HVAC systems, boiler manufacturing.



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Optional

TE Series

## General Purpose Bi-Metal Thermometers



### General Specifications:

- Used where industrial grade accuracy is required.
- Used for temperature measurement of gases and liquids that do not attack Stainless Steel/Copper alloys.
- Case Diameter: Ø63 mm, Ø100 mm, and Ø160 mm
- Temperature Range: -30 °C...+500 °C
- Accuracy: CL 2.0
- Operating Range: Full-scale value. EN13190 Standard can be reviewed to see recommended operating range in details.
- Conformity: EN13190
- Ingress Protection Rate: IP51
- Industrial Applications: Machine building, HVAC systems, boiler manufacturing
- Stem Length: 100 mm...1000 mm  
(For back-connection type thermometers: 50 mm)



# General Purpose Gas-Actuated Thermometers



## General Specifications:

- Used where industrial grade accuracy is required.
- Used for temperature measurement of gases and liquids that do not attack Copper alloys.
- With capillary tubing, thermometer body can be mounted away from the heat source. (max. 2 m)
- Case Diameter: Ø40 mm, Ø50 mm, and Ø60 mm
- Temperature Range: -40 °C...+350 °C
- Accuracy: CL 2.0
- Operating Range: Full-scale value. EN13190 Standard can be reviewed to see recommended operating range in details.
- Conformity: EN13190
- Ingress Protection Rate: IP41
- Ø60mm Mikrotac thermometers (with micro switch) can be produced upon request.
- Industrial Applications: Machine building, HVAC systems, boiler manufacturing



## Combined Gauges



### General Specifications:

- Used for simultaneous measurement pressure and temperature in heating systems.
- With capillary tubing thermometer body can be mounted away from the heat source  
(For Ø40 mm and Ø50 mm: max. 2 m)
- Case Diameter: Ø40 mm, Ø50 mm, and Ø100 mm
- Temperature Range: +120 °C
- Pressure Range : Ø40 mm, Ø50 mm: 2.5 bar...10 bar  
Ø100 mm: 0.6 bar...60 bar
- Ingress Protection Rate: IP41
- Industrial Applications: Heating systems and boiler manufacturing.





## Accessories



### General Specifications:

#### **Pressure Gauge Syphon**

- Syphons are used to protect pressure gauge from water-hammers and excessive temperatures.
- Can be manufactured from stainless steel and black steel.
- Syphon Types: O-Type and U-Type

#### **Cooling Tower**

- Used between the pressure gauge and the process connection
- General-purpose of this instrument is to help pressure measurement of fluids at high-temperature.
- Material: AISI 316L

#### **Snubber for pressure measuring instruments**

- Can be used to reduce the vibration inside the fluid whose pressure is measured.
- Material: Brass and AISI 316L

#### **Pressure Gauge Valve**

- Can be used in places where pressure value is aimed to be controlled for a while and is not always desired to be seen.
- Types of Pressure Gauge Valves: PN6, PN64, and PN250
- Material: Brass and AISI 316L

#### **Thermostatic Regulator for Solid Fuel Burners**

- Used for keeping the temperature of the Solid Fuel Burners constant.
- Used for increasing the combustion efficiency of Solid Fuel Burners. It adjusts the combustion process by opening and closing the ventilation hatch in front of the burning device.

# Manifolds



## General Specifications:

- Manifolds enable the assembly and disassembly of pressure gauges quickly without deactivating the system they are mounted.
- Manifold Types: 1-way, 2-way, 3-way, and 5-way.
  - 1-way: 1 Isolation Valve, 1 Discharge Valve
  - 2-way: 1 Isolation Valve, 1 Discharge Valve, 1 Discharge Plug
  - 3-way: 2 Isolation Valves, 1 Integration Valve, 2 Discharge Plugs
  - 5-way: 2 Isolation Valves, 1 Integration Valve, 2 Discharge Valves
- Material: AISI 316L
- Max. Working Pressure: 6000 psi
- Industrial Applications: Petrochemical Plants and Treatment Plants.



Where Pressure Matters...™



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