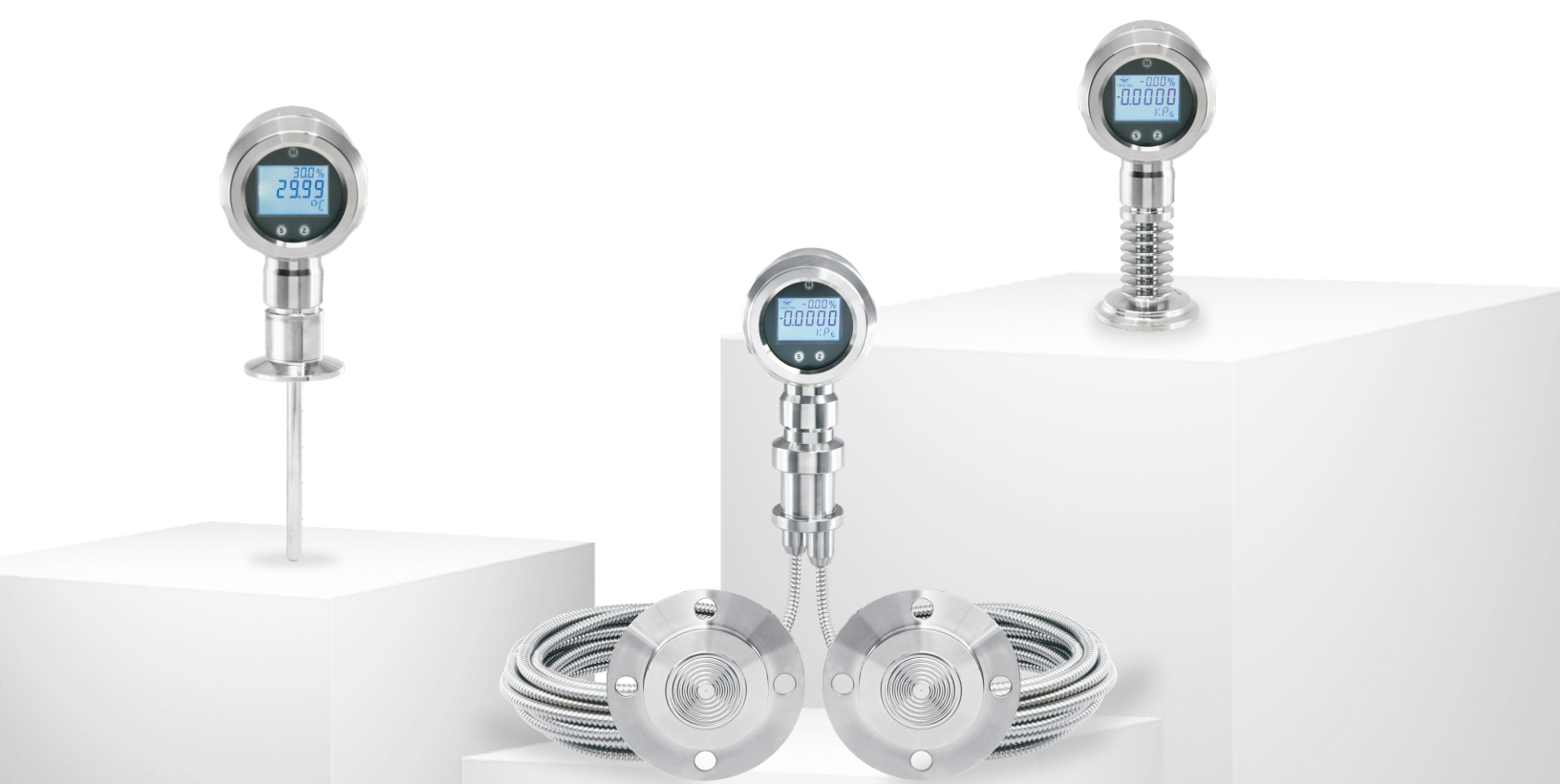
上潤®
Wide Plus

Sanitary Pressure / Differential Pressure Transmitter
Sanitary Temperature Transmitter

Product Manual



Free technical service hotline
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FUJIAN WIDE PLUS PRECISION INSTRUMENTS CO., LTD

Wide Plus®

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FUJIAN WIDE PLUS PRECISION INSTRUMENTS CO., LTD

Sanitary Pressure / Differential Pressure Transmitter

Core Definition

A sanitary pressure / differential pressure transmitter is an industrial measuring instrument that meets sanitary-grade requirements in food, beverage, pharmaceutical, biomedical and other applications. It is used to measure the pressure or differential pressure of fluid media and convert them into standard electrical signals (such as 4~20mA, HART, PROFIBUS-PA, etc.) for output.

Sanitary Design

- **Safe Materials**: Wetted parts including the diaphragm are made of food-grade / pharmaceutical-grade materials such as 316L stainless steel, Hastelloy C, or 316 stainless steel for other wetted components, free from heavy-metal precipitation and compliant with FDA certification.
- **No Dead Zones**: Designed with a cavity-free / smooth chamber structure. Sensor surface polishing achieves Ra ≤ 0.8 μm (mirror finish), and can reach up to Ra＜0.38 μm (15 μin). No recesses or gaps to prevent medium residue and bacterial growth.
- **Easy-to-Clean Compatibility**: Supports CIP (Clean-in-Place) and SIP (Sterilize-in-Place) processes. Withstands high temperatures (e.g., 150°C steam) and chemical cleaning agents with no residue after cleaning.
- **Compliant Sealing**: Equipped with sanitary gaskets – VMQ (standard), EPDM, or customer-specified materials. Odorless, non-swelling, and prevents medium leakage or gasket contamination.
- **Standardized Connections**: Uses sanitary quick-fit connections (clamp, sanitary threaded, etc.) for easy assembly and disassembly, enabling fast maintenance and cleaning to meet rapid production line changeover requirements.

Core Advantages

- **High-Precision Measurement**: Measuring accuracy of ±0.1% FS, up to ±0.075% FS, capable of detecting tiny pressure fluctuations in applications such as pharmaceutical liquid delivery and food filling.
- **Safety & Compliance**: The transmitter fully complies with industry standards including 3-A (food machinery), EHEDG (European Hygienic Engineering & Design Group), and GMP (Good Manufacturing Practice), and is certified to 3-A Sanitary Standards.

Applications

- **Food & Beverage**: Pressure monitoring in dairy fermentation tanks, juice filling lines, and beer brewing pipelines (avoids material contamination and supports CIP cleaning).

- **Pharmaceutical & Biotechnology**: Pressure measurement in pharmaceutical storage tanks, infusion pipelines, and bioreactors (fermenters) (GMP-compliant, supports SIP sterilization, prevents cross-contamination).
- **Daily Chemical Industry**: Pressure monitoring in cosmetic emulsion mixing tanks and sterile laundry detergent production equipment (non-toxic materials, no hygienic dead zones).
- **Drinking Water Treatment**: Pressure measurement in pure and mineral water pipelines (ensures water quality is unaffected by equipment materials).

WP365 Series Sanitary Pressure / Differential Pressure Transmitter

The WP365 Series Sanitary Pressure / Differential Pressure Transmitter adopts high-reliability monocrystalline silicon technology. The sensor is positioned at the top of the metal body, away from the medium contact surface, achieving mechanical isolation and thermal isolation. The high-strength electrical insulation between the sensor leads and the metal matrix enhances the flexibility of electronic circuits and the capability to withstand transient voltage surges.It can cope with complex chemical environments and mechanical loads, featuring high measurement accuracy, strong output signals, and excellent long-term stability. Meanwhile, it possesses strong resistance to electromagnetic interference.

Product Description

Sensor Capsule

It adopts **316L food-grade stainless steel isolation diaphragm** (compliant with 3-A Sanitary Standards). The measured pressure is stably transmitted to the MEMS monocrystalline silicon sensing core through internally filled sanitary silicone oil, which not only physically isolates the medium from the sensing components but also ensures compatibility in hygienic applications.

Process pressure is applied to the sensor isolation diaphragm, causing a minute deflection. This exerts stress on the Wheatstone bridge inside the sensor, resulting in a change in strain resistance. The resistance variation is measured and converted into a digital signal for processing by the microprocessor.

During factory characterization, all sensors undergo pressure and temperature cycling tests across their full operating range. Correction coefficients are generated based on the acquired data and stored in the memory of the smart board, ensuring accurate signal compensation during transmitter operation.

Electronic Circuit Board

The electronic board utilizes high-performance integrated circuits and surface-mount technology (SMT). It corrects the input signals from the sensor and performs linearization processing. The output stage of the electronic board module converts digital signals into analog outputs and communicates with the handheld communicator.

The LCD header can display pressure value, current value, or percentage of the measuring range.

Data Storage

Configuration data is stored in the permanent EPROM memory of the transmitter electronic board module. Data is retained permanently after power loss, allowing the transmitter to resume operation immediately upon power restoration.

D/A Conversion & Signal Transmission

Process variables are stored as digital data, enabling accurate correction and conversion to engineering units. The corrected signal data is converted into analog output signals. A HART communicator can directly access sensor readings in digital form without D/A conversion, achieving higher accuracy.

Communication Format

The WP365 series transmitters communicate using the HART protocol, which employs the industry-standard Bell 202 frequency-shift keying (FSK) technology. Remote communication is realized by superimposing high-frequency signals onto the analog output. This technology enables simultaneous communication and output without compromising loop integrity. The WP365 series transmitters are compatible with HART protocol-compatible host systems.

Software Functions

The HART protocol allows users to easily perform menu configuration, testing, and specific setting functions on the WP36 series.

Configuration

A HART communicator can be conveniently used to adjust current, configure parameters, view HART information, perform two-point trimming, and conduct graphical monitoring via the WP36 series menu.Transmitter parameter configuration includes:

- Zero and full-scale setting
- Engineering unit selection
- Linear or square-root output
- Damping time
- Display mode
- Display accuracy

HART Information allows informational data to be entered into the transmitter for identification and physical description, including:

- Date
- Tag ID: up to 8 characters
- Loop description: up to 16 characters

- Message: up to 32 characters

Testing

When a system fault occurs and the operator confirms a loop issue, the transmitter can be set to provide a specific output for loop testing.

Specific Settings

Specific settings are required during transmitter initialization and digital electronic board maintenance. They allow fine-tuning of the sensor and analog output to meet factory pressure standards.

Options

LCD Meter Head

Digital meter head, 3-line, 5½-digit LCD display

- Direct digital display for higher accuracy
- Displays pressure, current or percentage of range as required by user
- 360° rotatable for convenient installation

Transient Voltage Protection

- Integrated transient voltage protection terminal
- Electromagnetic compatibility in compliance with national standards:
  - IEC 61000-4-2: Electrostatic discharge immunity test, Level III, Class B
  - IEC 61000-4-4: Electrical fast transient / burst immunity test, Level III, Class B
  - IEC 61000-4-5: Surge (impulse) immunity test, Level III, Class B

Specifications

Performance Indicators

Overall performance is defined as the combined error consisting of reference accuracy, effect of ambient temperature, and effect of span variation.

Stability

≤ ±0.1% FS / 5 years Under reference conditions, zero-based span, sanitary oil fill, 316 stainless steel isolation diaphragm, (4~20) mA analog output, with digital trim values equal to span setpoint values.

Output

- 4~20 mA DC + HART Protocol
- PROFIBUS-PA Fieldbus Communication
- 4~20 mA DC + RS485 Communication
- Customized versions available

Functional Indicators

Reference Accuracy of Sensor Limits and Measuring Span Accuracy

Range	Range and Sensor Limits			Minimum Range	Reference Accuracy for Reduced Range			
	Lower Range Limit（LRL）		Upper Range Limit（URL）		X≤Range	X>Range	X=	Upper Range Limit
	365GL	365AL						（URL）
0	-40kPa	0kPa	40kPa	10kPa	±0.1%	$\pm\{0.05\frac{\text{Sensor Upper Range Limit}}{\text{Range}}\}\%$	20kPa	40kPa
1	-100kPa	0kPa	250kPa	12.5kPa	±0.1%	$\pm\{0.02\frac{\text{Sensor Upper Range Limit}}{\text{Range}}\}\%$	50kPa	250kPa
A	-100kPa	0kPa	1000kPa	100kPa			200kPa	1000kPa
2	-100kPa	0kPa	3000kPa	300kPa			600kPa	3000kPa

Range	Range and Sensor Limits			Minimum Range	Reference Accuracy for Reduced Range			
	Lower Range Limit（LRL）		Upper Range Limit（URL）		X≤Range	X>Range	X=	Upper Range Limit
	365L	365D						（URL）
M	-40kPa	-40kPa	40kPa	10kPa	±0.1%	$\pm\{0.05\frac{\text{Sensor Upper Range Limit}}{\text{Range}}\}\%$	20kPa	40kPa
H	-250kPa	-250kPa	250kPa	50kPa	±0.1%	$\pm\{0.04\frac{\text{Sensor Upper Range Limit}}{\text{Range}}\}\%$	100kPa	250kPa
V	-1000kPa	-1000kPa	1000kPa	250kPa	±0.1%	$\pm\{0.05\frac{\text{Sensor Upper Range Limit}}{\text{Range}}\}\%$	500kPa	1000kPa

Zero Effect

The zero position can be revised on-site according to actual installation location, or pressure zero offset can be performed.

Zero and Range Adjustment Requirements

- Zero and range can be adjusted arbitrarily within the range limits specified in Table 1.
- The span must be greater than or equal to the minimum span indicated in Table 1.

Damping Time Constant

The total damping time constant is the sum of the damping time constants of the amplifier module and the sensor capsule.The damping time constant of the amplifier module is adjustable from 0 to 100 seconds.

Damping time of the capsule (isolation sensing diaphragm and silicone oil fill): ≤ 0.2 s

Power-up startup time after power failure: ≤ 2 sTime for data to return to normal operation: ≤ 20 s

Installation Position Effect

The transmitter can be installated in any orientation. A maximum deviation of up to 400 Pa caused by mounting position can be corrected via the zero reset function.

Power Supply Effect

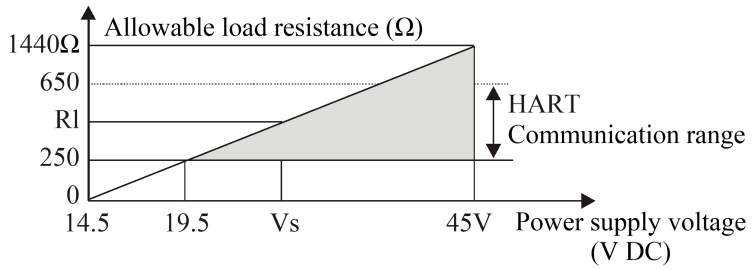
When the supply voltage varies within 14.5 V / (19.5 ~ 45) V DC, the change in zero and span shall not exceed ±0.005% of upper range limit per volt.

Power Supply

An external power supply is required. The standard transmitter (4~20 mA) operates at (14.5 ~ 45) V DC under no-load conditions.

Loop Load Limit

The maximum loop resistance is determined by the supply voltage of the external power supply, with the relationship as follows:



Supply Voltage – Load Characteristic Diagram

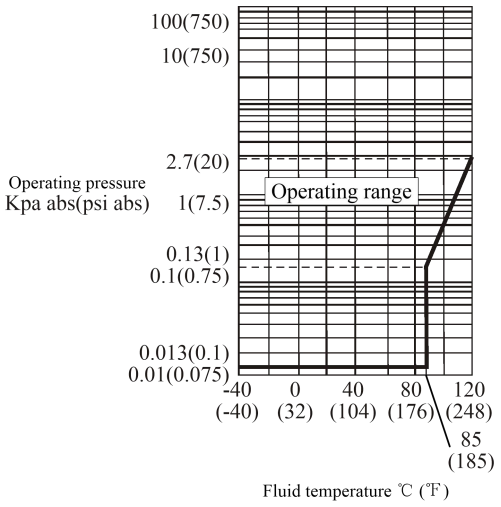
Note:

- Transmitters with backlit display: Supply voltage range is 14.5 ~ 45 V DC
- Intrinsically safe series transmitters: Supply voltage range is 14.5 ~ 28 V DC
- Operating voltage for HART communication shall be higher than 19.5 V DC

Application

Food & beverage, pharmaceutical & biotechnology, daily chemical industry, drinking water treatment and other applications.

Minimum Pressure



Operating Pressure vs. Wetted Temperature Diagram

Fault Mode

Output Code

When a sensor or microprocessor fault is detected through self-diagnosis, the transmitter will drive a high or low alarm output to alert the user.The alarm output value depends on the factory configuration of the transmitter:

Linear output: 3.8 ＜ I ＜ 20.8

- C4: I = 20.8 mA　　High alarm
- CN: I = 3.8 mA　　Low alarm

Temperature Limits

- Ambient: -20 ~ 70 ℃
- Storage: -40 ~ 85 ℃

Temperature Drift

Total effect per 10 ℃ within the range of -20 ~ 80 ℃

- Zero temperature effect: ≤ ±0.1% FS (over full temperature range, reference accuracy class 0.1)
- Full-scale temperature effect: ±0.01% FS / ℃

Humidity Limit

0 ~ 100% relative humidity

Mechanical Specifications

Process Connection

- Clamp: 1.5" / 2"
- Flush diaphragm: G1/2 external thread / M20×1.5 external thread
- Union connection
- DRD flange connection

Wetted Parts

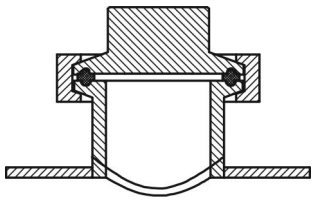
- Process isolation diaphragm: 316L stainless steel, Hastelloy C
- Other wetted materials: 316L stainless steel
- Wetted surface finish: Compliant with 3-A sanitary standards; Ra ＜ 0.8 μm (31.5 μin), up to Ra ＜ 0.38 μm (15 μin)
- Process medium temperature: -10 ~ +80 ℃; -10 ~ +120 ℃ with heat sink or capillary
- Cleaning temperature: 150 ℃, max. 30 minutes
- Accuracy: Class 0.075, Class 0.1, Class 0.2
- Process connections: Clamp / DRD65 flange / flush diaphragm / union, or global / industry-standard connections such as ISO 2852, DIN 32676
- Overpressure / static pressure limit:
  - Direct mount: max. working pressure 6 MPa

    - Flange mount: the smaller value of flange nominal pressure and transmitter maximum range
- Seals: FDA-compliant seals, VMQ (standard), EPDM or customer-specified

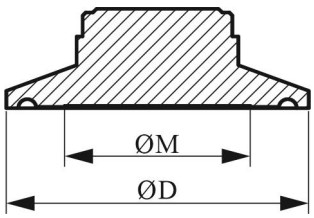
Process Connection

Clamp Connection（P1/P2）

Installation Drawing

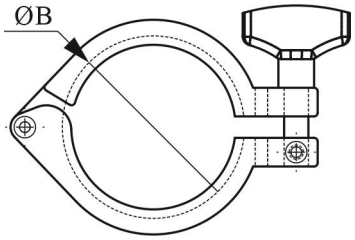


Dimension Drawing



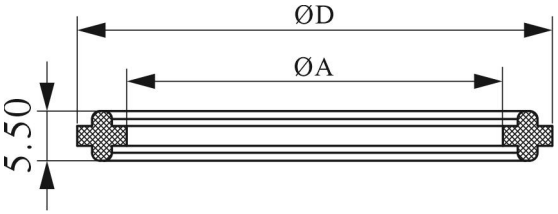
Specification	Dimensions ΦD mm	Corrugated Dimension ΦM mm
1-1/2"	50.5	31
2"	64	42
Measuring Range	Gauge Pressure	-0.1~1.6MPa
	Absolute Pressure	0~1.6MPa
	Differential Pressure	0-10kPa~1MPa

Clamp Collar（Unit：mm）



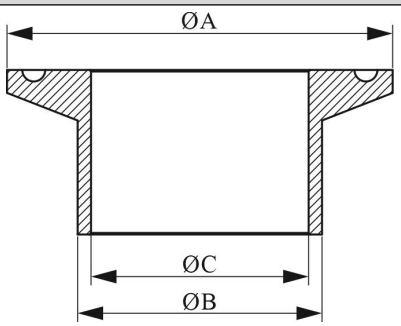
Specification	Dimension（ΦB）
1-1/2"	53.9
2"	67.4

Seal Ring（Unit：mm）



Specification	Dimension（ΦD）	Dimension（ΦA）
1-1/2"	50.5	35.8
2"	64	47.8

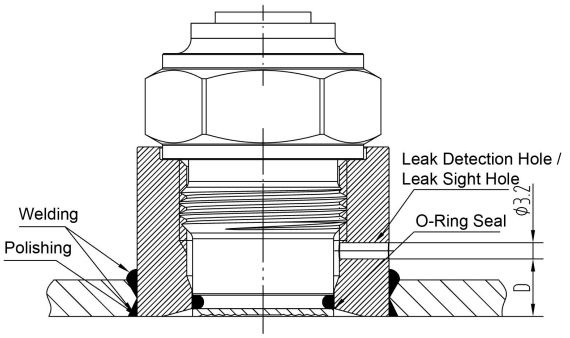
Welded Adapter（Unit：mm）



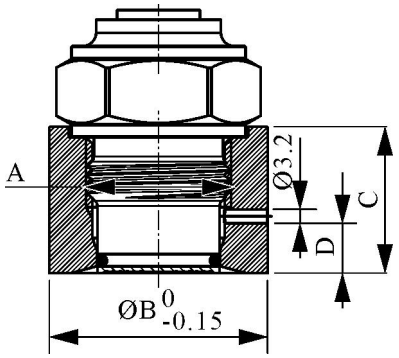
Specification	Dimension（ΦA）	Dimension（ΦB）	Dimension（ΦC）
1-1/2"	50.5	38	35.6
2"	64	51	48.6

Flush Diaphragm（P3/P4）

Installation Drawing



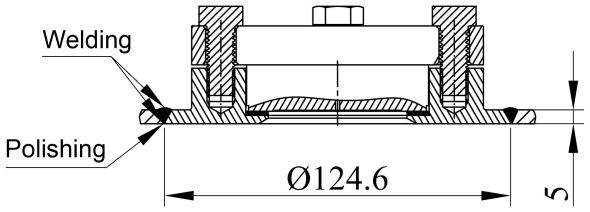
Dimension Drawing



Specification	Outer Diameter of Welding Hub ΦB mm	Height of Weld Hub C mm	Sight Hole Position D mm
G1/2	40	20	5.5
M20×1.5	40	19	5.5
Measuring Range	Gauge Pressure	-0.1~3MPa	
	Absolute Pressure	0~3MPa	

DRD65 Flange Connection（P6）

Installation Drawing



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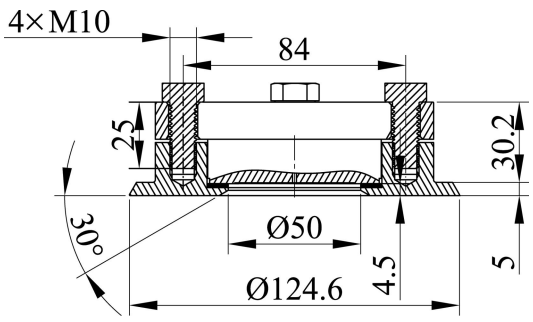
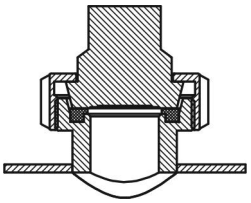
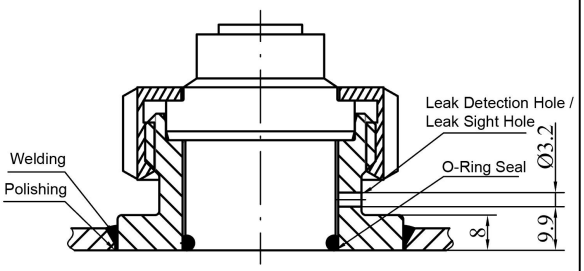
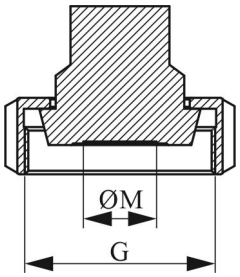
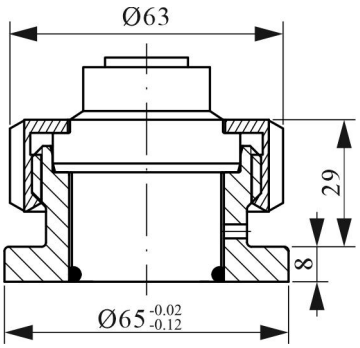
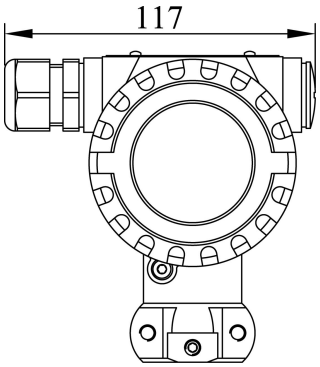
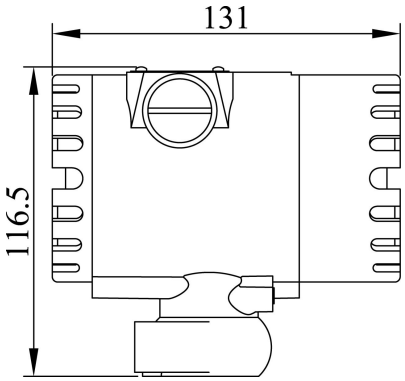
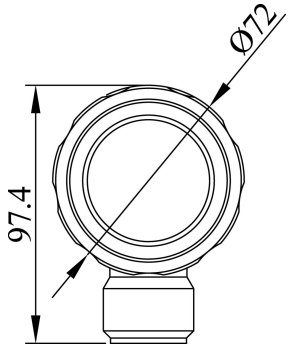
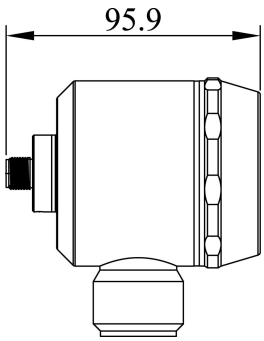
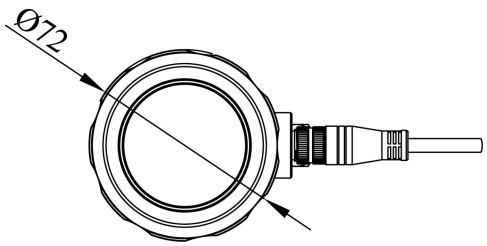
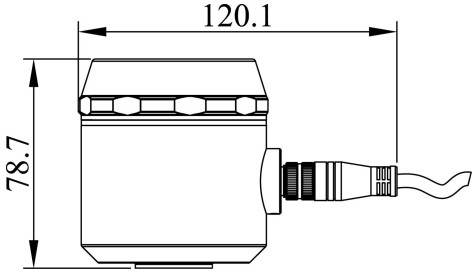
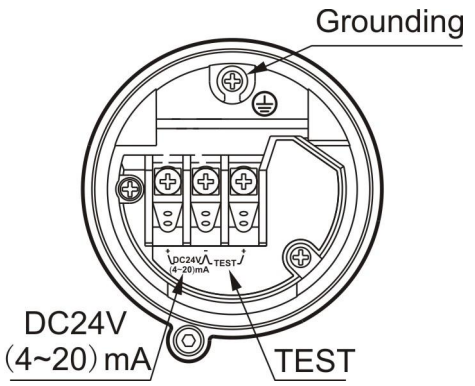
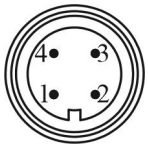


Measuring Range	Gauge Pressure	-0.1~3MPa
	Absolute Pressure	0~3MPa
	Differential Pressure	0-10kPa~1MPa

Union（P5）				
Installation Drawing				
Dimension Drawing				
Specification		Dimension G mm	Corrugated Dimension ΦM mm	Outer Diameter of Welding Hub ΦG mm
DN25		Rd 52×1/6	20	65
DN40		Rd 65×1/6	31	-
DN50		Rd 78×1/6	42	-
Measuring Range	Gauge Pressure	-0.1~3MPa		-0.1~3MPa
	Absolute Pressure	0~3MPa		0~3MPa

Non-wetted Parts

Housing	Die-cast Aluminum (powder coated) 	Stainless Steel 
Dimension Drawing	  	   

<table>
<tr><td>Electrical Connection</td><td colspan="2">Internal Thread,M20×1.5 Internal Thread</td><td colspan="3">M12×1 4-pin Aviation Connector</td></tr>
<tr><td>Explosion Protection</td><td colspan="2">Flameproof Exd Ⅱ CT6</td><td colspan="3">None</td></tr>
<tr><td>Protection Rating</td><td colspan="5">IP67</td></tr>
<tr><td>Cover O-ring</td><td colspan="5">NBR (Nitrile Butadiene Rubber)</td></tr>
<tr><td>Fill Fluid</td><td colspan="5">Sanitary Oil（NEOBEE M-20）</td></tr>
<tr><td rowspan="6">Wiring Diagram</td><td colspan="2">Terminal Block</td><td colspan="3">Wiring Diagram for Stainless Steel Housing</td></tr>
<tr><td colspan="2" rowspan="2"> 
</td><td rowspan="2"> 
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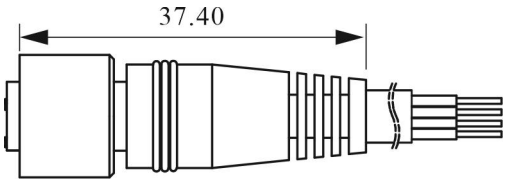
（4~20）mA±</td><td>Power Supply & Output</td><td colspan="3" rowspan="3">Aviation Connector (Unit: mm)
 
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<tr><td>TEST±</td><td>External Ammeter Test Terminal (Impedance < 10 Ω)</td></tr>
<tr><td>⏚</td><td>Earth Ground Terminal</td></tr>
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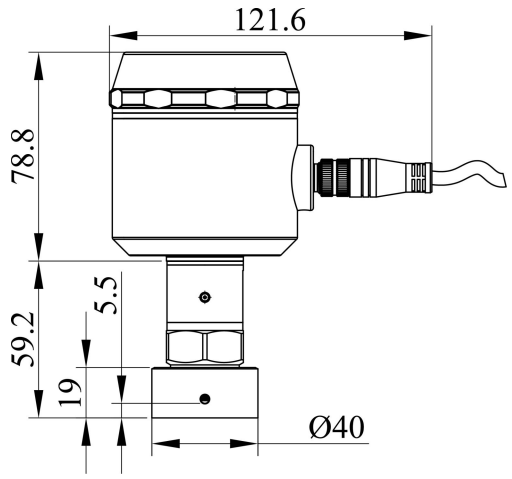
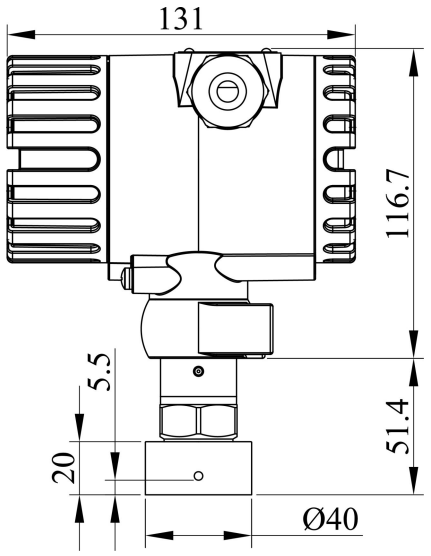
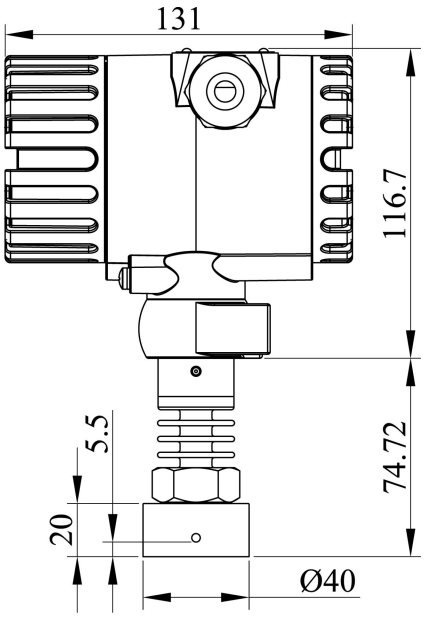


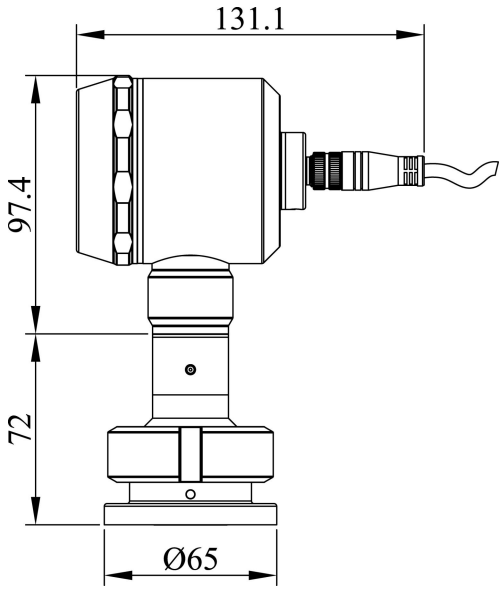
Stainless steel front-view housing with welded hub & flush diaphragm



Aluminum housing with welded hub & flush diaphragm

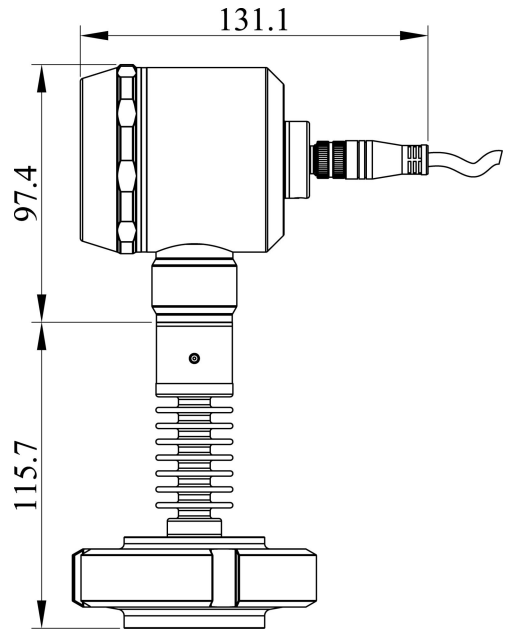


Aluminum housing with welded hub & high-temperature flush diaphragm

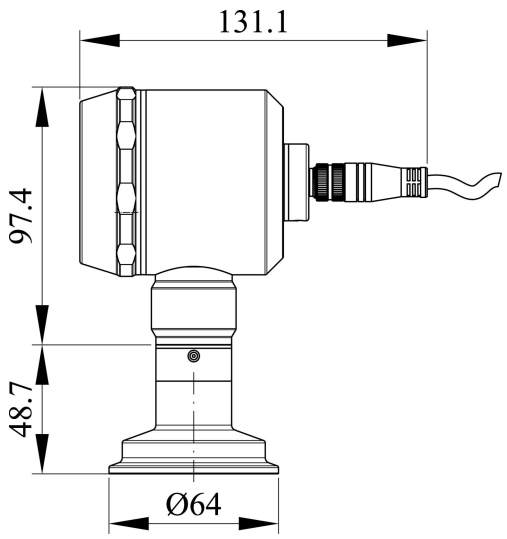


Stainless steel housing with welded hub and DN25 union (insert type)

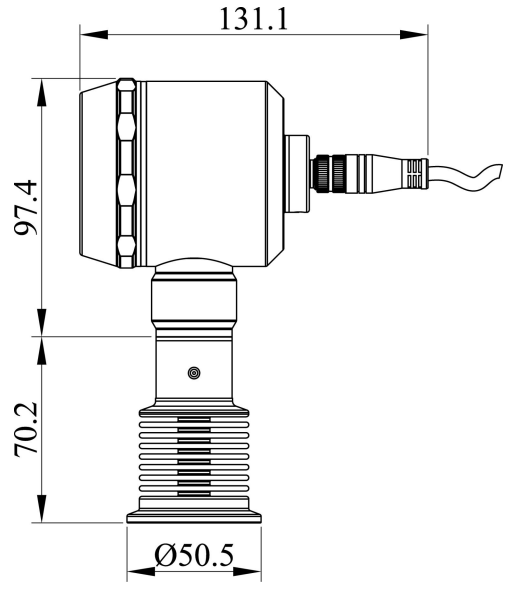
Outline dimensions (Unit: mm)



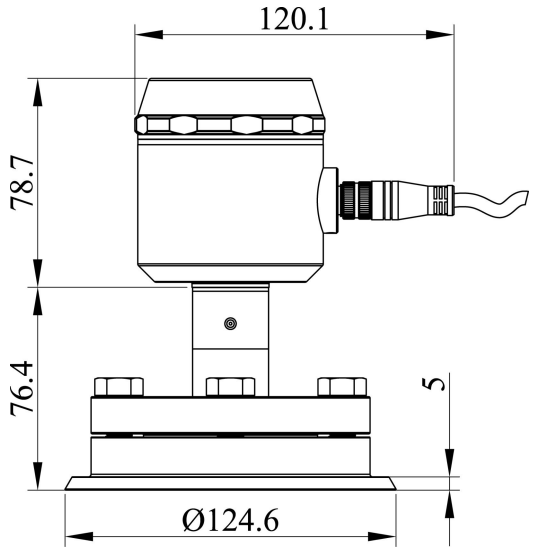
Stainless steel side-view housing with high-temperature union



Stainless steel side-view housing with 2" clamp

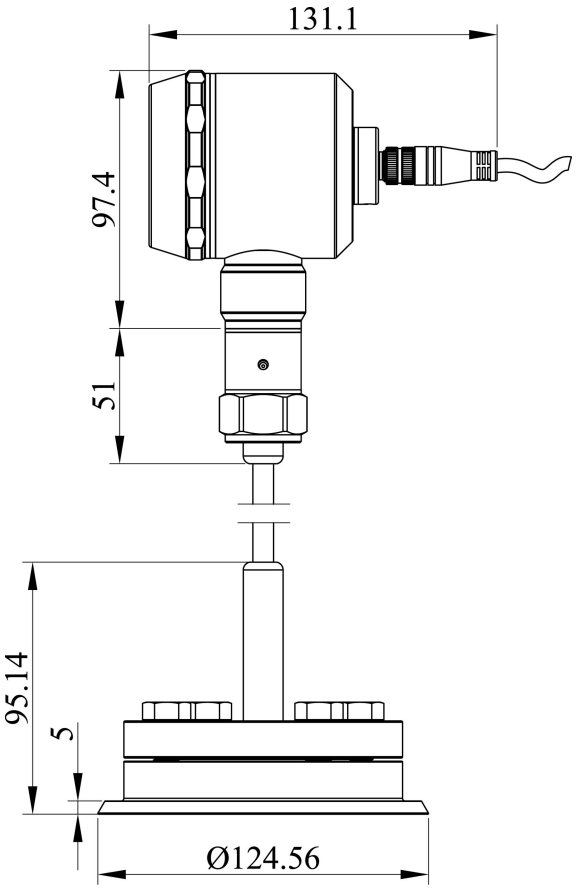


Stainless steel side-view housing with high-temperature 1–1.5" clamp

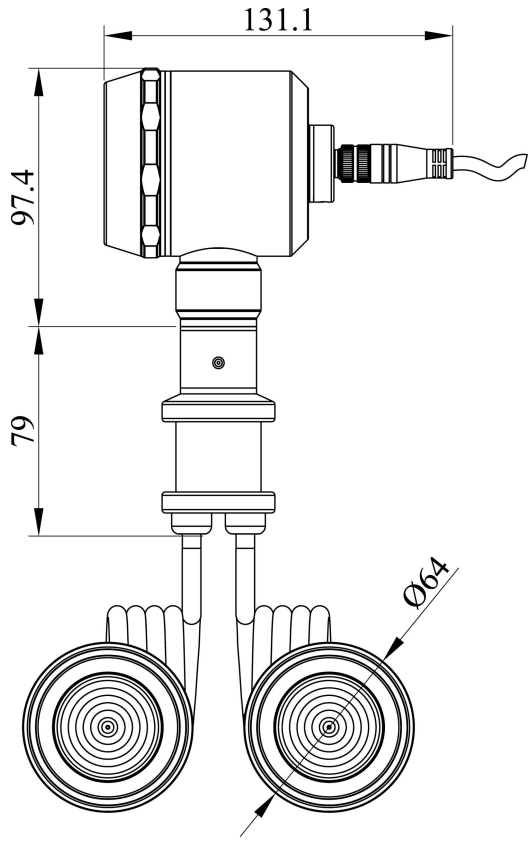


Stainless steel front-view housing with DRD flange connection

Outline dimensions (Unit: mm)



Stainless steel side-view housing with single remote seal DRD flange connection



Stainless steel side-view housing with dual remote seal 2" clamp connection

Outline dimensions (Unit: mm)

WP365GL / AL Sanitary Pressure Transmitter

Model	Description	
WP365	Monocrystalline Silicon Sanitary Type	
Code	**Transmitter Type**	
GL-	Gauge Pressure Transmitter	
AL-	Absolute Pressure Transmitter	
Code	**Pressure Measuring Range**	
0	（0-10~40）kPa	
1	（0-12.5~250）kPa	
A	（0-0.25~1）MPa	
2	（0-0.5~3）MPa	
Code	**Transmitter Output**	
S	Standard Smart Type: (4–20) mA DC with HART Protocol	
P	PROFIBUS-PA Fieldbus Communication	
R	Smart Type: (4–20) mA DC with RS485 Communication	
B	Smart Type: (4–20) mA DC + HART + Bluetooth (for analog sensors only)	
Y	Customized	
Code	**Fill Fluid**	**Diaphragm Material**
A	Sanitary Oil	316L Stainless Steel
B	Sanitary Oil	Hastelloy C
Code	**Process Interface**	
P1	Clamp (1.5", Φ50.5 mm)	
P2	Clamp (2", Φ64 mm)	
P3	Flush Diaphragm, G1/2 External Thread	
P4	Flush Diaphragm, M20×1.5 External Thread	
P5	Union	
P6	DRD65，Flange Connection	
Y	Customized	
Code	**Capillary Option**	
□□	Capillary length 0–5 m (two digits, e.g. 02 for 2 m); omit if no capillary	
Code	**Electrical Interface**	
A	NPT1/2 Internal Thread (die-cast aluminum housing)	

M	M20×1.5 Internal Thread (die-cast aluminum housing)
J	M12×1 4-pin aviation connector (stainless steel housing)
Y	Customized
Code	**Meter Head**
-M	LCD Display
-N	NO Display
Code	**Hazardous Area Certification**
N	General Purpose (non-explosion-proof)
D	Flameproof Ex db II CT6 Gb
I	Intrinsically Safe Ex ia II CT6 Ga
Code	**Mounting Bracket**
N	No Bracket
B4	Pipe Bracket (for 2" pipe)
B5	Flat Plate Bracket
Code	**Other Options**
H	Accuracy 0.075% FS
R	With Heat Sink
A	Die-cast Aluminum Housing
S1	Stainless Steel Housing, Side View
S2	Stainless Steel Housing, Front View
Q4	Calibration Certificate (contact our company)
C4	High Alarm (default: no alarm)
CN	Low Alarm (default: no alarm)
Y	Special Functions (contact our company when ordering)

WP365L / D Sanitary Differential Pressure Transmitter

Model	Description	
WP365	Monocrystalline Silicon Sanitary Type	
Code	**Transmitter Type**	
L-	Single Process Connection Differential Pressure Transmitter	
D-	Dual Process Connection Differential Pressure Transmitter	
Code	**Pressure Measuring Range**	
M	（0-10~40）kPa	
H	（0-50~250）kPa	
V	（0-0.1~1）MPa	
Code	**Transmitter Output**	
S	Smart Type: (4–20) mA DC with HART Protocol	
J	Smart Type（4~20）mA DC with Out put is HART+$\sqrt{\triangle}$	
P	PROFIBUS-PA 现场总线通讯	
P	PROFIBUS-PA Fieldbus Communication	
R	Smart Type: (4–20) mA DC with RS485 Communication	
B	Smart Type: (4–20) mA DC + HART + Bluetooth (for analog sensors only)	
Code	**Fill Fluid**	**Diaphragm Material**
A	Sanitary Oil	316L Stainless Steel
B	Sanitary Oil	Hastelloy C
Code	**High Side Process Connection**	
P1	Clamp (1.5", Φ50.5 mm)	
P2	Clamp (2", Φ64 mm)	
P6	DRD65 Flange Connection	
Y	Customized	
Code	**High Side (H) Capillary Length**	
□□	Capillary length 0–5 m (two digits, e.g. 02 for 2 m)	
Code	**Low Side Process Connection**	
P1	Clamp (1.5", Φ50.5 mm)	
P2	Clamp (2", Φ64 mm)	
P6	DRD65 Flange Connection	
P	1/4-18 NPT Internal Taper Thread	

Y	Customized
Code	**Low Side (L) Capillary Length**
□□	Capillary length 0–5 m (two digits, e.g. 02 for 2 m); omit if no capillary
Code	**Electrical Interface**
A	NPT1/2 Internal Thread (die-cast aluminum housing)
M	M20×1.5 Internal Thread (die-cast aluminum housing)
J	M12×1 4-pin aviation connector (stainless steel housing)
Y	Customized
Code	**Meter Head**
-M	LCD Display
-N	NO Display
Code	**Hazardous Area Certification**
N	General Purpose (non-explosion-proof)
D	Flameproof Ex db II CT6 Gb
I	Intrinsically Safe Ex ia II CT6 Ga
Code	**Mounting Bracket**
N	No Bracket
B4	Pipe Bracket (for 2" pipe)
B5	Flat Plate Bracket
Code	**Other Options**
H	Accuracy 0.075% FS
A	Die-cast Aluminum Housing
S1	Stainless Steel Housing, Side View
S2	Stainless Steel Housing, Front View
Q4	Calibration Certificate (contact our company)
C4	High Alarm (default: no alarm)
CN	Low Alarm (default: no alarm)
Y	Special Functions (contact our company when ordering)

WP-8 / K1 / AK Series Sanitary Pressure Transmitter

The WP-8/K1/AK series sanitary pressure transmitters are assembled using internationally advanced sensors combined with high-precision electronic components through strict manufacturing processes. By fully utilizing the technical advantages of the sensors, the WP series general sanitary pressure transmitters deliver excellent technical performance. It features strong overload and impact resistance, low temperature drift, high stability, and high measurement accuracy The pressure sensor adopted by this series is an all-welded stainless steel body,equipped with a built-in solid-state pressure sensitive chip and a stainless steel isolating diaphragm, with the interior of the steel body filled with sanitary oil. The measured pressure acts on the diaphragm and is transmitted to the sensitive chip through the sanitary oil. The sensitive chip is connected to the transmitter's dedicated amplifier circuit via wires; it utilizes the piezoresistive effect of semiconductor silicon material to realize the conversion between pressure and electrical signals. Since the electrical signal output by the Wheatstone bridge on the sensitive chip has a good linear relationship with the applied pressure,accurate pressure measurement can be achieved

Key Features

- Strong overload and shock resistance
- High stability: better than 0.1% FS per year
- Strong anti-interference capability: waterproof, dustproof, shockproof, explosion-proof and corrosion-resistant
- Wide applicability: various models, process connections and wetted materials available for various measurement scenarios
- Easy installation: reasonable structure, compact size, light weight, and can be mounted directly in any position

Technical Specifications

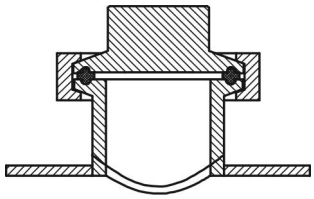
- Pressure type: gauge pressure, absolute pressure, sealed gauge pressure
- Range: -0.1MPa ~ 0kPa ~ 10kPa … 3MPa
- Supply voltage: 12.5 ~ 36 V DC
- Output signal: 4~20 mA DC / 4~20 mA DC + HART / 4~20 mA DC + RS485 communication
- Diaphragm material: 316L stainless steel or Hastelloy C
- Other wetted parts: 316L stainless steel
- Wetted surface finish: compliant with 3-A sanitary standards; Ra ＜ 0.8 μm (31.5 μin), up to Ra ＜ 0.38 μm (15 μin)
- Fill fluid: sanitary oil (NEOBEE M-20)
- Process medium temperature: -10 ~ +70 ℃; -10 ~ +120 ℃ with heat sink
- Cleaning temperature: 150 ℃, max. 30 minutes
- Accuracy: Class 0.2, Class 0.5
- Process connection: clamp, flush diaphragm and other global or industrial standard connections

- Seals: FDA-compliant seals, VMQ (standard), EPDM or customer-specified
- Housing material / electrical connection:
  - Die-cast aluminum / NPT1/2 internal thread or M20×1.5 internal thread
  - 304 stainless steel / M12×1 4-pin aviation connector or Hirschmann connector
- Certification: 3-A Sanitary Standards certified
- Temperature limits:
  - Ambient: -20 ~ 70 ℃
  - Storage: -20 ~ 80 ℃
- Effect of ambient temperature variation: ±0.15% FS / 10 ℃

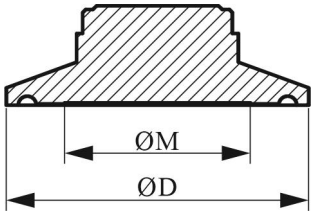
Process Connection

Clamp Connection（P1/P2）

Installation Drawing

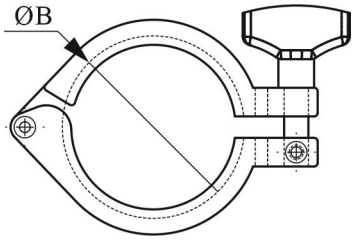


Dimension Drawing



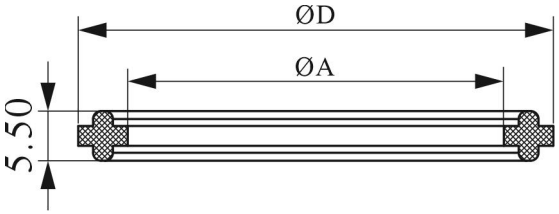
Specification	Dimension ΦD mm	Corrugated Dimension ΦM mm
1-1/2"	50.5	31
2"	64	42
Measuring Range	Gauge Pressure	-0.1~1.6MPa
	Absolute Pressure	0~1.6MPa
	Differential Pressure	0-10kPa~1MPa

Clamp Collar（Unit：mm）



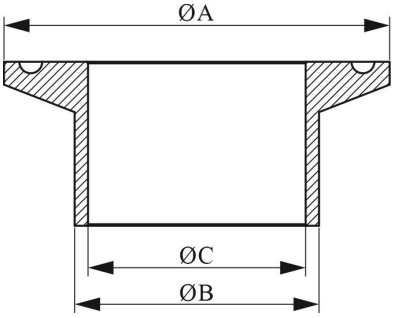
Specification	Dimension（ΦB）
1-1/2"	53.9
2"	67.4

Seal Ring（Unit：mm）



Specification	Dimension（ΦD）	Dimension（ΦA）
1-1/2"	50.5	35.8
2"	64	47.8

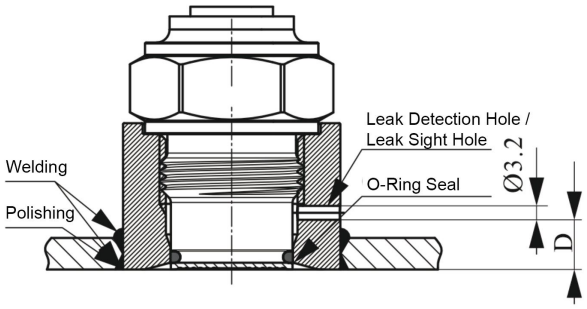
Welded Adapter（Unit：mm）



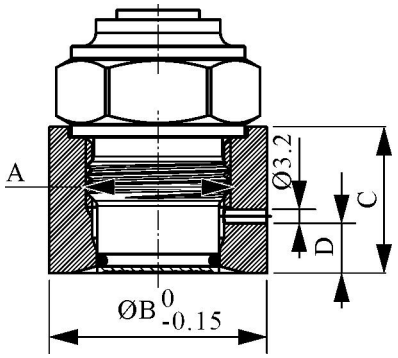
Specification	Dimension（ΦA）	Dimension（ΦB）	Dimension（ΦC）
1-1/2"	50.5	38	35.6
2"	64	51	48.6

Flush Diaphragm（P3/P4）

Installation Drawing



Dimension Drawing

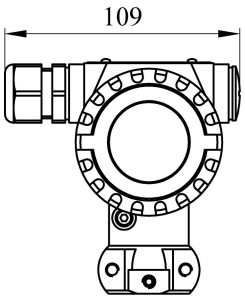
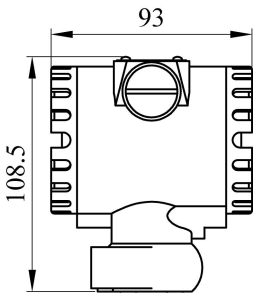
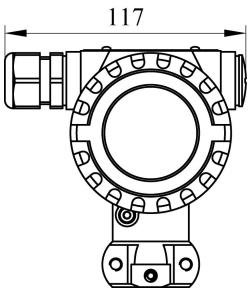
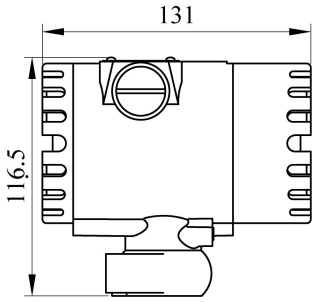
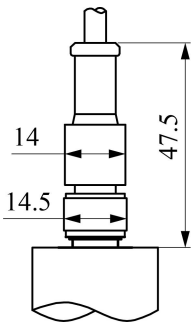
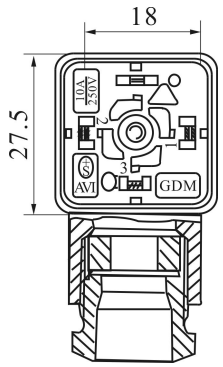
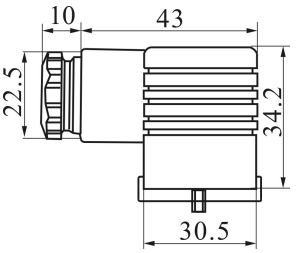


Specification	Outer Diameter of Welding Hub ΦB mm	Height of Weld Hub C mm	Sight Hole Position D mm
G1/2	40	20	5.5
M20×1.5	40	19	5.5
Measuring Range	Gauge Pressure	-0.1~3MPa	
	Absolute Pressure	0~3MPa	

WP Series Pressure Transmitter Standard Range Table

G03		0~10kPa
G04		0~16kPa
G05	A1	0~20kPa
G06	A2	0~25kPa
G07	A3	0~30kPa
G08	A4	0~35kPa
G09	A5	0~40kPa
G10	A6	0~60kPa
G11	A7	0~100kPa
G12	A8	0~160kPa
G13	A9	0~200kPa
G14	A10	0~250kPa
G15	A11	0~400kPa
G16	A12	0~600kPa
G17	A13	0~1000kPa
G18	A14	0~1600kPa
G19	A15	0~2000kPa
G20	A16	0~2500kPa
G21	A17	0~3000kPa
G30		-10~10kPa
G31		-20~20kPa
G32		-50~50kPa
G33		-100~60kPa
G34		-100~100kPa
G35		-100~150kPa
G36		-100~300kPa
G37		-100~500kPa
G38		-100~900kPa
G39		-100~1500kPa
G40		-100~2000kPa

Non-wetted Parts

	K1	AK	8 Series Aviation Connector	8 Series Hirschmann Connector
Picture				
Dimension Drawing	 	 		 

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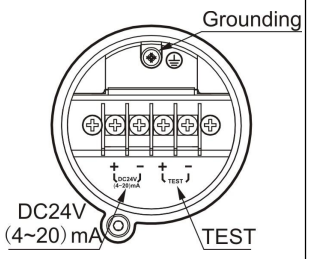
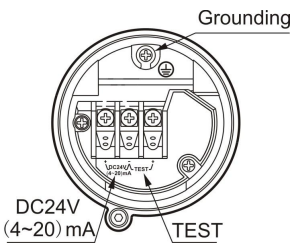
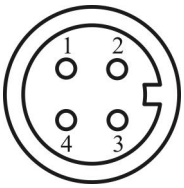
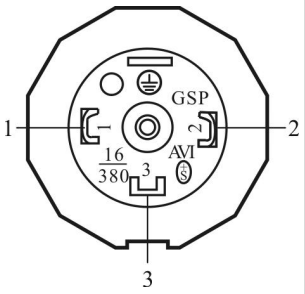
<tr><td rowspan="5">Wiring Diagram</td><td colspan="2"> 
</td><td colspan="2"> 
</td><td> 
</td><td colspan="2"> 
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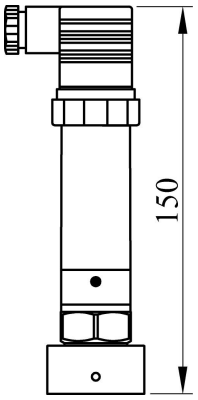
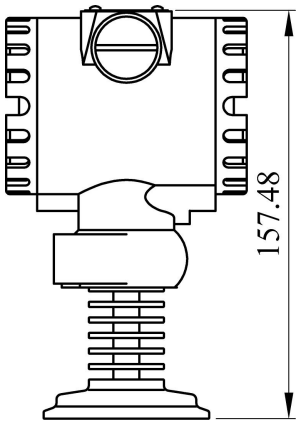
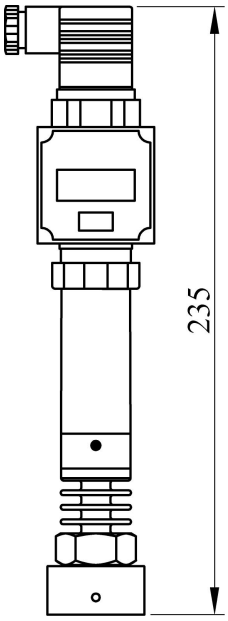
<tr><td colspan="2">Terminal Block</td><td colspan="2">Wiring Definition for Aviation Plug Connection</td><td colspan="2">Pin Definition for Hirschmann Connector Connection</td></tr>
<tr><td>DC24V（4~20）mA±</td><td>Power Supply & Output</td><td>1/Red</td><td>Power +</td><td>Pin</td><td>2-Wire</td></tr>
<tr><td rowspan="2">TEST±</td><td rowspan="2">External Ammeter Test Terminal (Impedance < 10 Ω)</td><td>2/Black</td><td>Power -</td><td>1</td><td>Power +</td></tr>
<tr><td>3/Blue</td><td>Grounding</td><td>2</td><td>Power -</td></tr>
<tr><td>⏚</td><td>Earth Ground Terminal</td><td>4</td><td>NC</td><td>3</td><td>NC</td></tr>
<tr><td>Electrical Connection</td><td colspan="3">NPT 1/2 Internal Thread,M20×1.5 Internal Thread</td><td colspan="3">M12×1 4-Pin Aviation Connector</td></tr>
<tr><td>Protection Rating</td><td colspan="6">IP65</td></tr>
<tr><td>Fill Fluid</td><td colspan="6">Sanitary Oil（NEOBEE M-20）</td></tr>
</table>



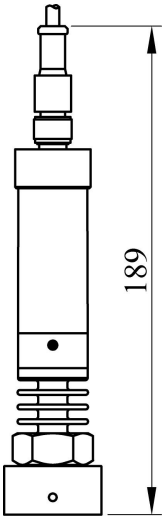
Hirschmann connector, no display, flush diaphragm



Aluminum housing, no display, clamp connection

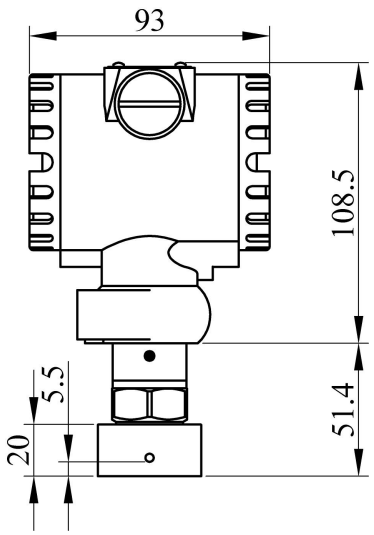


Hirschmann connector, with display, with heat dissipation, flush diaphragm

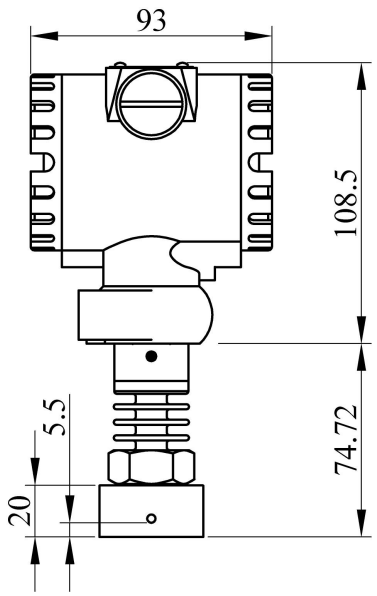


Aviation connector, no display, with heat dissipation, flush diaphragm

Overall dimensions (Unit: mm)



K1 aluminum housing, no display, flush diaphragm



K1 aluminum housing, no display, with heat dissipation, flush diaphragm

Overall dimensions (Unit: mm)

WP-8 / K1 / AK Sanitary Pressure Transmitter

Model	Transmitter Type	
WP-8-	Sanitary Pressure Transmitter (Compact Type)	
WP-K1-	Sanitary Pressure Transmitter	
WP-AK-	Sanitary Pressure Transmitter (Smart Type)	
Code	Fill Fluid	Diaphragm Material
HA	Sanitary Oil	316L Stainless Steel
HB	Sanitary Oil	Hastelloy C
Code	Process Connection Material	
1	316L Stainless Steel	
Code	Signal Output Mode	
E	(4~20)mA DC 2-wire (For Series 8 & K1)	
I	Smart (4~20)mA DC 2-wire with HART Protocol (For Series AK)	
S	(4~20)mA + 485 Communication (Modbus-RTU)	
Code	Process Connection	
P1	Clamp Type (1.5") Φ50.5mm	
P2	Clamp Type (2") Φ64mm	
P3	Flush Diaphragm, G1/2 Male Thread	
P4	Flush Diaphragm, M20×1.5 Male Thread	
Code	Explosion-proof Grade	
S	Standard (Non-explosion-proof)	
Code	Display Mode	
A	No Local Indicator	
C	LCD Display (Not Applicable for Aviation Connector)	
Code	Accuracy Class	
2	Class 0.2	
5	Class 0.5	
Code	Measuring Range	
□	Standard Range List	
Code	Pressure Type	
G	Gauge Pressure	
A	Absolute Pressure	

Code	Electrical Interface
A	NPT1/2 Female Thread, Aluminum Housing (For Series K1 / AK)
M	M20×1.5 Female Thread, Aluminum Housing (For Series K1 / AK)
J	M12×1 Aviation Connector, Stainless Steel Housing (For Series 8)
J1	Hirschmann Connector, Stainless Steel Housing (For Series 8)
Code	Other Options
R	Heat Sink
Y	Special Function (Please Contact Our Company When Ordering)

WP30 Sanitary Temperature Transmitter

The WP30E Sanitary Temperature Sensor is a core component that directly contacts the measured medium, senses temperature, and converts it into a transmittable signal. It is specially designed for industries with stringent cleanliness requirements, such as food and beverage, pharmaceutical, and biomedical fields. The probe is made of high-quality food-grade 316L material, adopting advanced micro-processing technologies including laser welding and electrolytic polishing, with full-process clean control. It features a sanitary, crevice-free, thread-gap-free structure for accurate real-time temperature measurement of fluids or materials in pipelines and tanks.

The WP30T Sanitary Integrated Temperature Transmitter can convert the resistance signal output by the sanitary sensor into a standard current signal. It features anti-interference, moisture-proof and dust-proof performance, and flexible installation. It can be directly connected to control systems such as PLC and DCS to meet the requirements of remote monitoring and automatic control in sanitary applications, making it a key device for temperature measurement in modern sanitary industries.

Sanitary Design

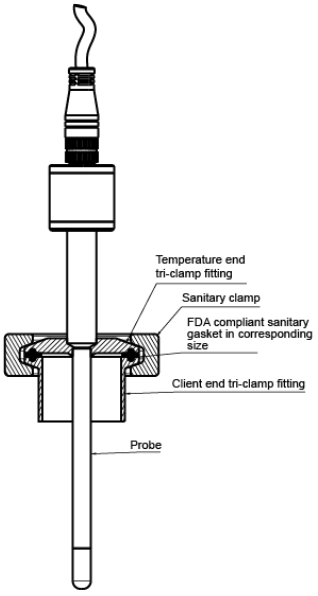
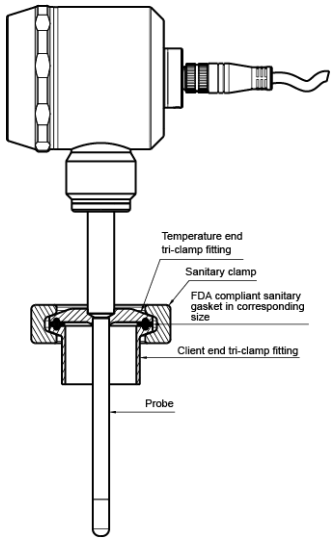
- Material Safety: Parts in contact with the medium are made of 316L stainless steel, free of heavy metal precipitation.
- Crevice-Free Structure: Designed with “cavity-free / smooth chamber”. Sensor surface polishing accuracy reaches Ra ≤ 0.8 μm (mirror grade), and can be as high as Ra ＜ 0.38 μm (15 μin). No recesses or gaps, preventing medium residue and bacterial growth.
- Easy Cleaning Compatibility: Compatible with CIP (Clean-in-Place) and SIP (Sterilize-in-Place) processes.
- Compliant Sealing: Seals comply with FDA regulations, including VMQ (default), EPDM, or customer-specified materials. Odorless, non-swelling, preventing medium leakage or seal contamination.
- Standardized Connections: Equipped with sanitary quick-fit connectors (e.g., clamp-type connectors) for easy assembly and disassembly, enabling fast equipment maintenance and cleaning to meet rapid production line changeover requirements.

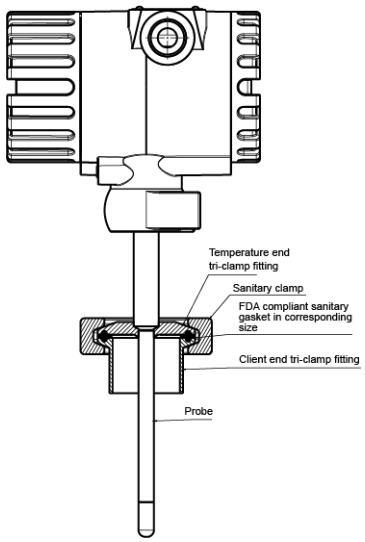
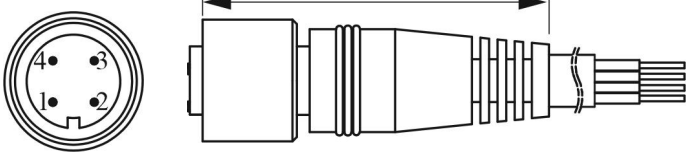
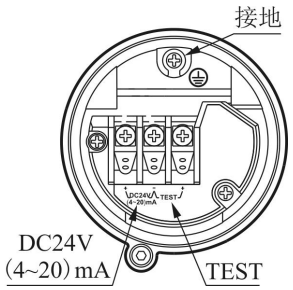
Applications

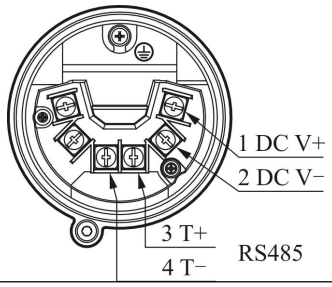
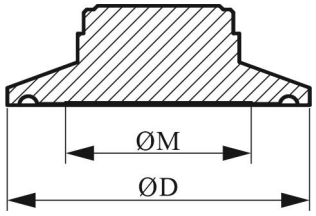
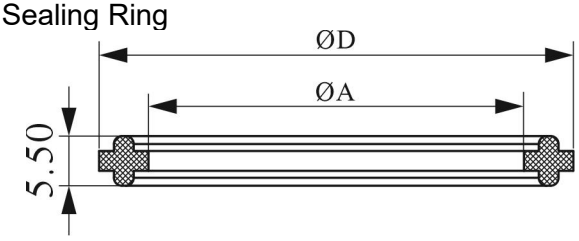
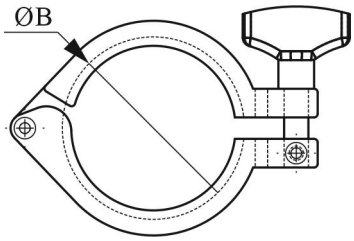
- Food & Beverage: On-site temperature monitoring for dairy fermentation tanks, juice filling lines, beer brewing pipelines, etc. (avoids material contamination and supports CIP cleaning).
- Pharmaceutical & Biotechnology: On-site temperature measurement for pharmaceutical liquid storage tanks, infusion pipelines, bioreactors (fermenters), etc. (complies with GMP, supports SIP sterilization, and prevents cross-contamination).

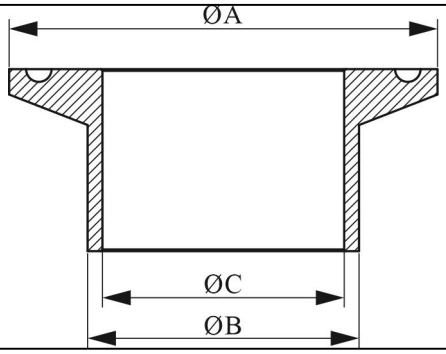
- Daily Chemical Industry: Temperature monitoring for cosmetic emulsion mixing tanks, sterile laundry detergent production equipment, etc. (non-toxic materials, no sanitary dead spaces).
- Drinking Water Treatment: Temperature measurement for purified water and mineral water conveying pipelines (ensures water quality is not affected by equipment materials).

Main Parameters

<table>
<tr><th></th><th>Temperature Sensor</th><th colspan="3">Temperature Transmitter</th></tr>
<tr><td>Image</td><td> 
</td><td colspan="2"> 


</td></tr>
<tr><td>Measuring Range</td><td>（-200~420）℃</td><td colspan="2">（-50~400）℃</td></tr>
<tr><td>Accuracy</td><td>Class A ±（0.15+0.002|t|）</td><td colspan="2">±0.2% of upper range limit, ±0.5% of upper range limit</td></tr>
<tr><td>Power Supply</td><td>None</td><td colspan="2">14~30V DC</td></tr>
<tr><td>EMC</td><td>None</td><td colspan="2">Compliant with IEC61000, Level 3</td></tr>
<tr><td>Output Signal</td><td>Resistance</td><td colspan="2">（4~20）mA、Modbus-RTU / RS485 & others</td></tr>
<tr><td>Terminal Box</td><td>Aviation connector</td><td>Stainless steel housing with display</td><td>Die-cast aluminum housing</td></tr>
<tr><td>Electrical Interface</td><td>M12×1 4-pin aviation connector</td><td>M12×1 4-pin aviation connector</td><td>1/2NPT（F）/M20×1.5（F）</td></tr>
<tr><td rowspan="5"></td><td colspan="2"> 
</td><td>2-Wire 4~20mA
 
</td></tr>
<tr><td>Identification</td><td>2-Wire</td><td>Modbus-RTU/RS485</td><td rowspan="4">4-Wire RS485 Communication</td></tr>
<tr><td>1/Brown</td><td>Power+</td><td>Power+</td></tr>
<tr><td>2/White</td><td></td><td>B-</td></tr>
<tr><td>3/Blue</td><td></td><td>A+</td></tr>
</table>

	4/Black	Power-	Power-	
Sesor	PT100/PT1000			
Sensor Standard	IEC60751 JB/T8622-1997			
Wetted Material	316L			
Wetted Parts Finish	Compliant with 3-A Sanitary Standard. Surface finish of wetted parts: Ra ＜ 0.8 μm (31.5 μin), and can be up to Ra ＜ 0.38 μm (15 μin).			
Sealing ring	FDA compliant VMQ (default), EPDM, or customer-specified			
Protection Class	IP65			
Nominal Pressure	1.6MPa			
Precess Connection	Clamp type 	Specification	1-1/2"	2"
		Dimension ΦD mm	50.5	64
		Corrugated Dimension ΦM mm	31	42
	Sealing Ring 	Dimension ΦD mm	50.5	64
		Dimension ΦA mm	35.8	47.8
	Clamp Collar 	Dimension ΦB mm	53.9	67.4
	Weld Adapter	Dimension ΦA mm	50.5	64

		DimensionΦB mm	38	51
		DimensionΦC mm	35.6	48.6

WP30E Sanitary Temperature Sensor

Model	Description
WP30E	Sanitary Temperature Sensor
Code	**Sensor Type**
1	Resistance Temperature Detector (RTD)
Code	**Sensor Code**
01	Pt100
02	Pt1000
03	Customer-specified
代码	**Electrical Interface**
J	M12×1 4-pin aviation connector
Y	Customized
Code	**Process Connection**
P1	Clamp type (1.5") Φ50.5 mm
P2	Clamp type (2") Φ64 mm
Y	Customized
Code	**Protection Tube Diameter**
1	Φ6
2	Φ8
3	Φ12
4	Φ16
Y	Customer-specified
Code	**Protection Tube Material**
L	316L Stainless Steel
Y	Customer-specified
Code	**Insertion Length**
（ * ）	Customer-specified insertion length, e.g. (150) means insertion length 150 mm

WP30T Sanitary Temperature Transmitter

Model	Description	
WP30T	Sanitary Temperature Transmitter	
Code	**Sensor Type**	
1	Resistance Temperature Detector (RTD)	
Code	**Sensor Code**	
01	Pt100	
02	Pt1000	
03	Customer-specified	
Code	**Extension Tube Specification**	
A	Standard type	
B	Extended type 1, 100 mm, for temperatures below 150 ℃	
C	Extended type 2, 150 mm, for temperatures below 200 ℃	
Y	Customized	
Code	**Electrical Interface**	**Housing**
A	NPT 1/2 internal thread	Die-cast aluminum
M	M20×1.5 internal thread	Die-cast aluminum
J	M12×1 4-pin aviation connector	Stainless steel
Y	Customized	
Code	**Display**	
M	LCD Display	
N	Without display	
Code	**Transmitter Output**	
I	（4~20）mA DC	
S	Standard smart type (4~20) mA DC with HART protocol	
P	PROFIBUS-PA fieldbus communication	
R	Smart type (4~20) mA DC with RS485 communication	
Y	Customized	
Code	**Range**	
（ * ）	Customer-specified range, e.g. (-50~300) means output range (-50~300) ℃	
Code	**Process Connection**	
+P1	Clamp type (1.5") Φ50.5 mm	

+P2	Clamp type (2") Φ64 mm
Y	Customized
Code	**Protection Tube Diameter**
1	Φ6
2	Φ8
3	Φ12
4	Φ16
Y	Customer-specified
Code	**Protection Tube Material**
L	316L Stainless Steel
Y	Customer-specified
Code	**Insertion Length**
（ * ）	Customer-specified insertion length, e.g. (150) means insertion length 150 mm

WP series products

Intelligent pressure and differential pressure transmitters
Intelligent multi-parameter transmitters
Intelligent temperature transmitters
Electromagnetic | vortex | multi-parameter | orifice | V-type flowmeters...
Radar | ultrasonic level meters
Smart IoT terminals
Intelligent digital instruments

CHPAG series products

High-precision monocrystalline silicon intelligent pressure/differential pressure transmitters
Instrument valve blocks and pipe fittings

Follow it for more details

NO:YCW2601

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