

ST3000 Series 900 Smart Transmitter

Remote-sealed type of Absolute Pressure Transmitters

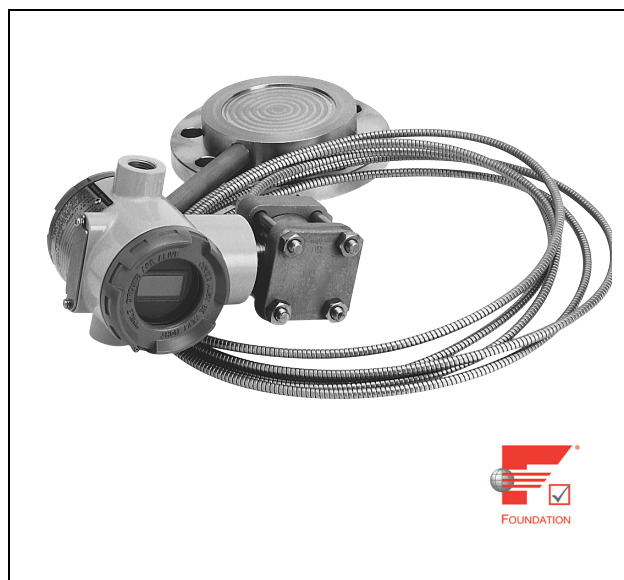
with FOUNDATION™ fieldbus

Model STS922/STS940

OVERVIEW

The ST3000 Series 900 with FOUNDATION™ fieldbus is an accurate, stable, and reliable pressure / differential pressure transmitter, which fully complies with the 31.25 kbps voltage mode FOUNDATION™ fieldbus. Its built-in AI function blocks provide process variables to devices on the Fieldbus and its PID control function block enables process control in the field.

Since the ST3000 Series 900 is FOUNDATION™ registered, it can operate seamlessly with other registered field devices as well as host systems in a wide range of control applications.



FEATURES

Excellent stability and high performance

- Long-term stability is proven in 500,000 installations worldwide.
- Unique characterization and composite semiconductor sensors realize excellent temperature and static pressure characteristics.

Function to correct the temperature of the fill fluid of the capillary section

Changes in the density of the fill fluid caused by temperature fluctuations are calculated, and the output is corrected accordingly. This function substantially reduces (to 1/5 - 1/10) the effect of seasonal fluctuations in temperature.

APPLICATION

Petroleum / Petrochemical / Chemical

For the measurement of liquid levels including corrosive fluids at high temperatures, and high temperatures under vacuum

Electric power / City gas / Other utilities

For measurement applications that require high degrees of stability and accuracy.

Pulp and paper

For lines that need transmitters resistant to chemical liquids, corrosive fluids and the like.

Iron and steel / Nonferrous metal / Ceramics

For lines that require stable measurement under strictly controlled (temperature, humidity, etc.) conditions.

Machinery / Shipbuilding

For lines that require stable measurement under strictly controlled (temperature, humidity, vibration, etc.) conditions.

FUNCTIONAL SPECIFICATIONS

Type of protection

JIS C0920 watertight: NEMA3 and 4X

JIS F8001 class 2 watertight: IEC IP67

FM Explosionproof approval

Explosionproof for Class I (Gas, steam), Division 1, Group A, B, C, D


Dust-ignition for Class II (Inflammable dust), Division 1, Group E, F, G

Suitable for Class III (inflammable fiber), Division 1

Nonincendive for Class I, Division 2, Group A, B, C, D

ATEX Flameproof approval

Certificate number: INERIS99ATEX0010 X

 II 2 GD EExd IIC T6 at $-20 \leq T_{amb} \leq +60^{\circ}\text{C}$

NEPSI Flameproof approval

Ex d II T6 (with NEPSI Dust Ignition DIP DT T13)

Measuring span / Setting range / Working pressure range

| | Measuring span | Setting range | Working pressure range | Overload resistant value |
|---------|--|--|---|--|
| STS 922 | 4 to 104 kPa abs. {30 to 780 mmHg abs.} | 0 to 104 kPa {0 to 780 mmHg abs.} | 0.13 to 104 kPa abs. | 300 kPa abs. {3.0 kgf/cm ² } |
| STS 940 | 35 to 3500 kPa abs. {0.35 to 35 kgf/cm ² abs.} | 0 to 3500 kPa abs. {0 to 35 kgf/cm ² abs.} | Up to flange rating of the setting range, which is lower. | 5250 kPa abs. {52.5 kgf/cm ² } |

Supply voltage and load resistance

9 to 32 V DC.

Ambient temperature limits / Temperature ranges of wetted parts

| | | Temperature Range (°C) *1 *4 | |
|-----------------------------------|------------------------|------------------------------|-------------------------------|
| | | High-temp. vacuum models | High-temp. high-vacuum models |
| Wetted parts section | Normal operating range | -5 to 280 | 10 to 300 |
| | Operative limit range | -10 to 310 | -10 to 310 |
| Ambient temperature *2 | Normal operating range | -5 to 55 | 10 to 55 |
| | Operative limit range | -10 to 60 | -10 to 60 |
| Specific gravity of fill fluid *3 | | 1.07 | 1.09 |

Note *1. See the working pressures and temperatures of the wetted parts section in Figure 1.

*2. Ambient temperatures of the transmitter itself

*3. Approximate values at the temperature of 25°C

*4. Note that if the operating temperature falls below the lower limit of the normal operating range, the response of the transmitter becomes slower.

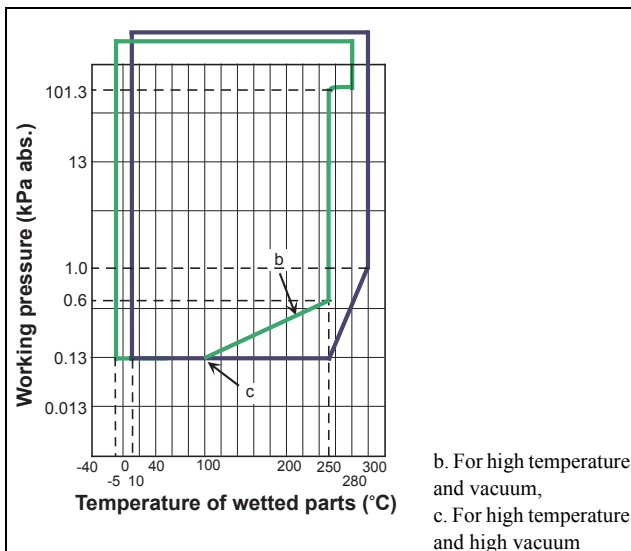


Figure 1 Working pressure temperature of wetted parts section (For high temperature and vacuum / high temperature and high vacuum)

Ambient humidity limits

5 to 100% RH

Stability against supply voltage change

± 0.005% FS/V

OPTIONAL SPECIFICATIONS**Lightning protection**

Peak value of voltage surge: 12kV

Peak value of current surge: 1000A

Built-in indicating meter

The digital LCD indicator (optional) indicates engineering units and can be set freely between -19999 and 19999 (4.5 digits). For meter calibration, specify the following items when placing your order

- Meter calibration range
- Meter calibration unit
- Linear / Square-root for meter indication

Bolts and nuts materials (for fastening meter body cover)

Carbon steel (SNB7), SUS304, SUS630

Corrosion-resistant finish**Corrosion-resistant finish**

Corrosion-resistant paint (Baked acrylic paint), fungus-proof finish

Corrosion-proof finish

Corrosion-proof paint (Baked epoxy paint), fungus-proof finish

Corrosion-resistant finish (silver paint)

Transmitter case is coated with silver paint in addition to the above corrosion-resistant finish.

Oil free finish

The transmitter is shipped with oil-free wetted parts.

Elbow

This is an adaptor for changing the electrical conduit connection port from the horizontal to the vertical direction, if required by wiring conditions in the field. One or two elbows may be used as needed.

Conformance to SI units

We deliver transmitters set to any SI units as specified.

PHYSICAL SPECIFICATIONS**Materials****Fill fluid**

Silicone oil for high-temperature vacuum, and high temperature high-vacuum models

For specific gravity, refer to "Ambient temperature limits / Temperature ranges of wetted parts" on page 2

Center body

SUS316

Transmitter case

Aluminum alloy

Meter body cover

SUSF304

For Wetted parts

SUS316(SUS316L for diaphragm only)

SUS316L

Flange materials

SUS304, SUS316, SUS316L

Finish

Baked acrylic paint

Housing light beige (Munsell 4Y7.2/1.3)

Cap dark beige (Munsell 10YR4.7/0.5)

Weight

Approx. 13.3 kg (STS922)

(Including JIS10K-80A flange and capillary 5 m long)

INSTALLATION**Electrical connection**

1/2NPT internal thread

Grounding

Resistance 100 Ω max.

Mounting

Direct mounting on the process side

Using 2-inch pipe mounting brackets: Mount the transmitter on a horizontal or vertical 2-inch pipe

Bracket

Carbon steel

U-bolt and nuts

SUS304

Process connection**Measured pressure**

Flanges

Flush diaphragm

JIS10K, 20K and 30K: 80 mm (RF) equivalents

ANSI 150 and 300: 3 inches (RF) equivalents

JPI 150 and 300: 3 in (RF) equivalents

Extended diaphragm

JIS10K, 20K and 30K: 100 mm (RF) equivalents

ANSI 150 and 300: 4 inches (RF) equivalents

JPI 150 and 300: 4 in (RF) equivalents

Flange standards

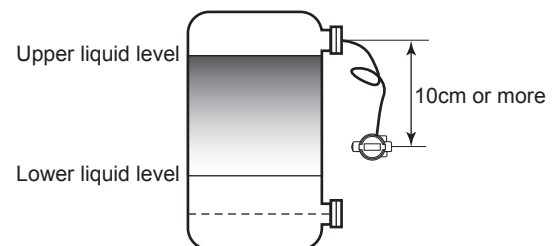
JIS; JIS B 2210(1984)

ANSI; ANSI B 16.5(1988)

JPI; JPI-7S-15-93

Mounting notes**For pressure measurement**

- 1) If the fluid to be measured contains hydrogen, please consult us.
- 2) When mounting the transmitter, leave a space of at least 10 cm under the upper nozzle of the tank. If the no space is available, please consult us.



PERFORMANCE SPECIFICATIONS

Max working pressure

- Note) 1. Max working pressure depends on flange rating, flange materials and operating temperature. Please refer to the following data. Operating range of temperature depends on specification of transmitters.
2. In case of flange type (model STC940) and remote scaled type (model STS9[] , model STH940), max working pressure depends on the smaller value of either 1.5 MPa or following data.
3. In case of remote scaled type (model STH960), max working pressure depends on the smaller value of either 10 MPa or following data.

| | JIS | JPI/ANSI |
|---------|-----|----------|
| SUS304 | | |
| SUS316 | | |
| SUS316L | | |

Accuracy

Shown for each item is the percentage ratio for χ (kPa), which is the greatest value of either XD_SCALE_EU_100^(*1), XD_SCALE_EU_0^(*2), or the span.

Model STS922 (for high-temperature vacuum, high-temperature high-vacuum service)

| | | | |
|---|----------------|--|--|
| Accuracy | | $\pm 0.25\%$ | (For $\chi \geq 12$ kPa abs. (90 mmHg abs.)) |
| | | $\pm (0.1 + 0.15 \times \frac{12}{\chi})\%$ | (For $\chi < 12$ kPa abs. (90 mmHg abs.)) |
| Temperature characteristics (Shift from the set range) Change of 30°C | Zero shift | $\pm (0.14 + 0.52 \times \frac{12}{\chi})\%$ | χ : kPa abs. |
| | | | |
| | Combined shift | $\pm 0.79\%$ | (For $\chi \geq 12$ kPa abs. (90 mmHg abs.)) |
| | | $\pm (0.19 + 0.6 \times \frac{12}{\chi})\%$ | (For $\chi < 12$ kPa abs. (90 mmHg abs.)) |

Model STS940 (for high-temperature vacuum, high-temperature high-vacuum service)

| | | | |
|---|----------------|---|---|
| Accuracy | | $\pm 0.25\%$ | (For $\chi \geq 350$ kPa abs. (3.5 kgf/cm ² abs.)) |
| | | $\pm (0.1 + 0.15 \times \frac{350}{\chi})\%$ | (For $\chi < 350$ kPa abs. (3.5 kgf/cm ² abs.)) |
| Temperature characteristics (Shift from the set range) Change of 30°C | Zero shift | $\pm (0.14 + 0.52 \times \frac{350}{\chi})\%$ | χ : kPa abs. |
| | | | |
| | Combined shift | $\pm 0.79\%$ | (For $\chi \geq 350$ kPa abs. (3.5 kgf/cm ² abs.)) |
| | | $\pm (0.19 + 0.6 \times \frac{350}{\chi})\%$ | (For $\chi < 350$ kPa abs. (3.5 kgf/cm ² abs.)) |

Note) (*1): XD_SCALE_EU_100 denotes the upper limit of the calibration range.

(*2): XD_SCALE_EU_0 denotes the lower limit of the calibration range.

(*3): Within a range of XD_SCALE_EU_100 ≥ 0 and XD_SCALE_EU_0 ≥ 0 .

FIELDBUS SPECIFICATIONS**Block supported by the S900**

| Name of block | Number of block | Description | Max. execution time msec. |
|--------------------|-----------------|---|---------------------------|
| Resource block | 1 | The Resource Block (RB) maintains overall resources of the S900. | - |
| Transducer block | 1 | The Transducer Block (XB) interfaces with the sensing element of the S900, converts the measured value into specified engineering unit, and sends it to the AI Function Block. | - |
| AI Function Block | 2 | The AI Function Block (AI FB) accepts an analog input signal from the XB, scales it, detects alarm conditions, and provides it in a uniform format on the Fieldbus network. | 75 |
| Diagnostics Block | 1 | The Diagnostics Block (DB) is Yamatake proprietary block which provides the result of self-diagnostics of the S900. | - |
| PID Function Block | 1 | The PID Function Block (PID FB) accepts a process variable (PV) from an AI Function Block on the Fieldbus network, calculates the valve position using the PID algorithm, and sends a new valve output signal to the AO Function Block. | 125 |

VCR structure

The S900 has 16 VCRs (Virtual Communication Relationships), of which the first one is dedicated to the SMIB/NMIB as defined by Foundation Fieldbus specifications. The rest of the VCRs are fully configurable. Their default configurations are shown below:

| VCR No. | Configuration | VCR No. | Configuration |
|---------|-----------------------------|---------|---------------|
| 1 | QUB (Server) for NIMIB/SMIB | 9 | QUU (Source) |
| 2 | BNU (Subscriber) | 10 | QUU (Source) |
| 3 | BNU (Subscriber) | 11 | QUU (Source) |
| 4 | BNU (Subscriber) | 12 | QUB (Server) |
| 5 | BNU (Subscriber) | 13 | QUB (Server) |
| 6 | BNU (Publisher) | 14 | QUB (Server) |
| 7 | BNU (Publisher) | 15 | QUB (Server) |
| 8 | QUU (Source) | 16 | QUB (Server) |

Network parameters

The following table lists the key parameter values that affect the interoperability of the Fieldbus devices. The LAS must be configured to satisfy these parameters. If other devices on the same Fieldbus network require a greater number for them, the greater number must be used. This however will degrade network performance.

| Symbol | Parameter name | Range of value |
|---------|-------------------------------|--|
| V (ST) | Slot Time | 4 to 100 |
| V (MID) | Minimum Interframe Gap | 10 to $(V (MRD) - 1) \times V (ST)$, less than 120 inclusive. |
| V (MRD) | Maximum Response Delay | $V (MRD) \times V (ST)$ shall be greater than 20 and $V (MRD)$ shall be less than 11, inclusive. |
| T1 | SM step timer | 96000 (3 seconds) |
| T2 | SM set address sequence timer | 1920000 (60 seconds) |
| T3 | SM set address wait timer | 480000 (15 seconds) |

- Note)*
- An LAS requires parameters other than those listed here for operation. Please refer to the user's manual that is provided with your LAS device.
 - The T3 must be set between 15 seconds and 60 seconds.

ST3000 Series 900 electric pressure transmitter
Model STS922/STS940 (remote-sealed diaphragm type for absolute pressure)
Flush diaphragm type: 3 inches (80 mm)
for High-temperature / Vacuum, high-temperature / High-vacuum service

Model No.: STS9XX - I II III IV V VI VII VIII - Option I - Option II

Basic Model No.

| | | | |
|----------------|--|--------|---|
| Measuring span | 4.0 to 104 kPa abs (30 to 780 mmHg abs.) *1 | STS922 | Flush diaphragm flange type: 3 inches (80 mm) |
| | 35 to 3500 kPa abs (0.35 to 35 kgf/cm ² abs.)*2 | STS940 | |

| Selection I | | | Code | Fill fluid code | |
|-------------|-----------------------------|--|------------|-----------------|---|
| I | Fill fluid | Model No. | | 4 | 7 |
| | | STS922/STS940 Flush diaphragm flange type 3 inches (80 mm) | Fill fluid | 4 | |
| | | | | 7 | |
| II | Flange standard | ANSI flange | A | ✓ | ✓ |
| | | JIS flange | J | ✓ | ✓ |
| | | JPI flange | P | ✓ | ✓ |
| III | Flange type & rating | JIS 10K, ANSI/JPI 150 (RF) equivalent | A | ✓ | ✓ |
| | | JIS 20K, ANSI/JPI 300 (RF) equivalent | B | ✓ | ✓ |
| | | JIS 30K, ANSI/JPI 600 (RF) equivalent | C | ✓ | ✓ |
| IV | Flange material | SUS304 | 7 | ✓ | ✓ |
| | | SUS316 | 2 | ✓ | ✓ |
| | | SUS316L | 8 | ✓ | ✓ |
| V | Material of wetted parts | SUS316L (Diaphragm:SUS316L, others: SUS316L) | 8 | ✓ | ✓ |
| VI | Finish of gasket face | Standard (JIS Ra3.2 (12.5S)) | J | ✓ | ✓ |
| VII | Parts | Flush diaphragm 3 inches (80 mm) | 00 | ✓ | ✓ |
| VIII | Length of capillary Tube | 2 m | 2 | ✓ | ✓ |
| | | 3 m | 3 | ✓ | ✓ |
| | | 4 m | 4 | ✓ | ✓ |
| | | 5 m | 5 | ✓ | ✓ |
| | | 6 m | 6 | ✓ | ✓ |
| | | 7 m | 7 | ✓ | ✓ |
| | | 8 m | 8 | ✓ | ✓ |
| | | 9 m | 9 | ✓ | ✓ |
| | 10 m | A | ✓ | ✓ | |

(Continued)

Note) *1 Specify range in abs. pressure. Correct: 0 to 500 mmHg abs. Incorrect: -700 mmHg to 1 kgf/cm²

*2 Specify range in abs. pressure. Correct: 0 to 3 kgf/cm² abs. Incorrect: -1 to 2 kgf/cm² abs.

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Model No.: STS9XX - I II III IV V VI VII VIII - **Option I - Option II**

| | | Code | Fill fluid code | |
|------------|--|------|-----------------|---|
| | | - | 1 | 2 |
| Options I | No options | X | ✓ | ✓ |
| | Built-in indicating smart meter (0 to 100% liner scales) | P | ✓ | ✓ |
| | Built-in indicating smart meter (engineering unit scales) | R | ✓ | ✓ |
| | SUS630 bolt and nuts material | U | ✓ | ✓ |
| | Corrosion-resistant finish | A | ✓ | ✓ |
| | Corrosion-proof finish | B | ✓ | ✓ |
| | Corrosion-resistant finish, silver paint | D | ✓ | ✓ |
| | Oil free finish | K | ✓ | ✓ |
| | FM Explosionproof | 3 | ✓ | ✓ |
| | ATEX Flameproof | 6 | ✓ | ✓ |
| | | - | | |
| Options II | No option | XX | ✓ | ✓ |
| | Water free finish (with oil free finish) | A7 | ✓ | ✓ |
| | NEPSI Flameproof | C1 | ✓ | ✓ |
| | Custom calibration | C7 | ✓ | ✓ |
| | FOUNDATION™ fieldbus *33 | D6 | ✓ | ✓ |
| | One elbow | E1 | ✓ | ✓ |
| | Two elbows | E2 | ✓ | ✓ |
| | Mounting bracket | E9 | ✓ | ✓ |
| | Material certificate | H2 | ✓ | ✓ |
| | Fieldbus communication stack BASIC class (used with option D6) *33 | L1 | ✓ | ✓ |
| | SI unit | U1 | ✓ | ✓ |

Note) *33 “FOUNDATION™ fieldbus - code D6” and “Fieldbus communication stack BASIC class - code L1” must be selected.

ST3000 Series 900 electric pressure transmitter
Model STS922/STS940 (remote-sealed diaphragm type for absolute pressure)
Extended diaphragm type: 4 inches (100 mm)
for High-temperature / Vacuum, high-temperature / High-vacuum service

Model No.: STS9XX - I II III IV V VI VII VIII - Option I - Option II

Basic Model No.

| | | | |
|----------------|--|--------|---|
| Measuring span | 4.0 to 104 kPa abs (30 to 780 mmHg abs.) *1 | STS922 | Extended diaphragm flange type: 4 inches (100 mm) |
| | 35 to 3500 kPa abs (0.35 to 35 kgf/cm ² abs.)*2 | STS940 | |

| Selection I | | | Code | Fill fluid code | |
|-------------|-----------------------------|---|------|-----------------|---|
| I | Fill fluid | Model No. | - | 4 | 7 |
| | | STS922/STS940 Extended diaphragm flange type 4 inches (100 mm) | 4 | | |
| | | | 7 | | |
| II | Flange standard | ANSI flange | A | ✓ | ✓ |
| | | JIS flange | J | ✓ | ✓ |
| | | JPI flange | P | ✓ | ✓ |
| III | Flange type & rating | JIS 10K, ANSI/JPI 150 (RF) equivalent | A | ✓ | ✓ |
| | | JIS 20K, ANSI/JPI 300 (RF) equivalent | B | ✓ | ✓ |
| | | JIS 30K, ANSI/JPI 600 (RF) equivalent *24 | C | ✓ | ✓ |
| IV | Flange material | SUS304 | 7 | ✓ | ✓ |
| | | SUS316 | 2 | ✓ | ✓ |
| | | SUS316L | 8 | ✓ | ✓ |
| V | Material of wetted parts | SUS316 (Diaphragm: SUS316L, others: SUS316) | 2 | ✓ | ✓ |
| | | SUS316L (Diaphragm:SUS316L, others: SUS316L) | 8 | ✓ | ✓ |
| VI | Finish of gasket face | Standard (JIS Ra3.2 (JIS12.5S)) | J | ✓ | ✓ |
| VII | Length of extended parts | L = 50 mm (4 inches / 100 mm) *24 | 09 | ✓ | ✓ |
| | | L = 100 mm (4 inches / 100 mm) *24 | 14 | ✓ | ✓ |
| | | L = 150 mm (4 inches / 100 mm) *24 | 19 | ✓ | ✓ |
| VIII | Length of capillary tube | 2 m | 2 | ✓ | ✓ |
| | | 3 m | 3 | ✓ | ✓ |
| | | 4 m | 4 | ✓ | ✓ |
| | | 5 m | 5 | ✓ | ✓ |
| | | 6 m | 6 | ✓ | ✓ |
| | | 7 m | 7 | ✓ | ✓ |
| | | 8 m | 8 | ✓ | ✓ |
| | | 9 m | 9 | ✓ | ✓ |
| | | 10 m | A | ✓ | ✓ |

(Continued)

Note) *1 Specify range in abs. pressure. Correct: 0 to 500 mmHg abs. Incorrect: -700 mmHg to 1 kgf/cm²

*2 Specify range in abs. pressure. Correct: 0 to 3 kgf/cm² abs. Incorrect: -1 to 2 kgf/cm² abs.

(Continued from previous page)

Model No.: STS9XX - I II III IV V VI VII VIII - **Option I - Option II**

| | | Code | Fill fluid code | |
|------------|--|------|-----------------|---|
| | | - | 1 | 2 |
| Options I | No options | X | ✓ | ✓ |
| | Built-in indicating smart meter (0 to 100% liner scales) | P | ✓ | ✓ |
| | Built-in indicating smart meter (engineering unit scales) | R | ✓ | ✓ |
| | SUS630 bolt and nuts material | U | ✓ | ✓ |
| | Corrosion-resistant finish | A | ✓ | ✓ |
| | Corrosion-proof finish | B | ✓ | ✓ |
| | Corrosion-resistant finish, silver paint | D | ✓ | ✓ |
| | Oil free finish | K | ✓ | ✓ |
| | FM Explosionproof | 3 | ✓ | ✓ |
| | ATEX Flameproof | 6 | ✓ | ✓ |
| | | - | | |
| Options II | No option | XX | ✓ | ✓ |
| | Water free finish (with oil free finish) | A7 | ✓ | ✓ |
| | NEPSI Flameproof | C1 | ✓ | ✓ |
| | Custom calibration | C7 | ✓ | ✓ |
| | FOUNDATION TM fieldbus *33 | D6 | ✓ | ✓ |
| | One elbow | E1 | ✓ | ✓ |
| | Two elbows | E2 | ✓ | ✓ |
| | Mounting bracket | E9 | ✓ | ✓ |
| | Material certificate | H2 | ✓ | ✓ |
| | Fieldbus communication stack BASIC class (used with option D6) *33 | L1 | ✓ | ✓ |
| | SI unit | U1 | ✓ | ✓ |

Note) *24 In case "ANSI / JPI 600" is used for 3 inches flange type and rating, not available for the extended diaphragm flange type.

*33 "FOUNDATIONTM fieldbus - code D6" and "Fieldbus communication stack BASIC class - code L1" must be selected.

DIMENSIONS

[Unit: mm]

Flush diaphragm flange / Extended diaphragm flange

[Unit: mm]

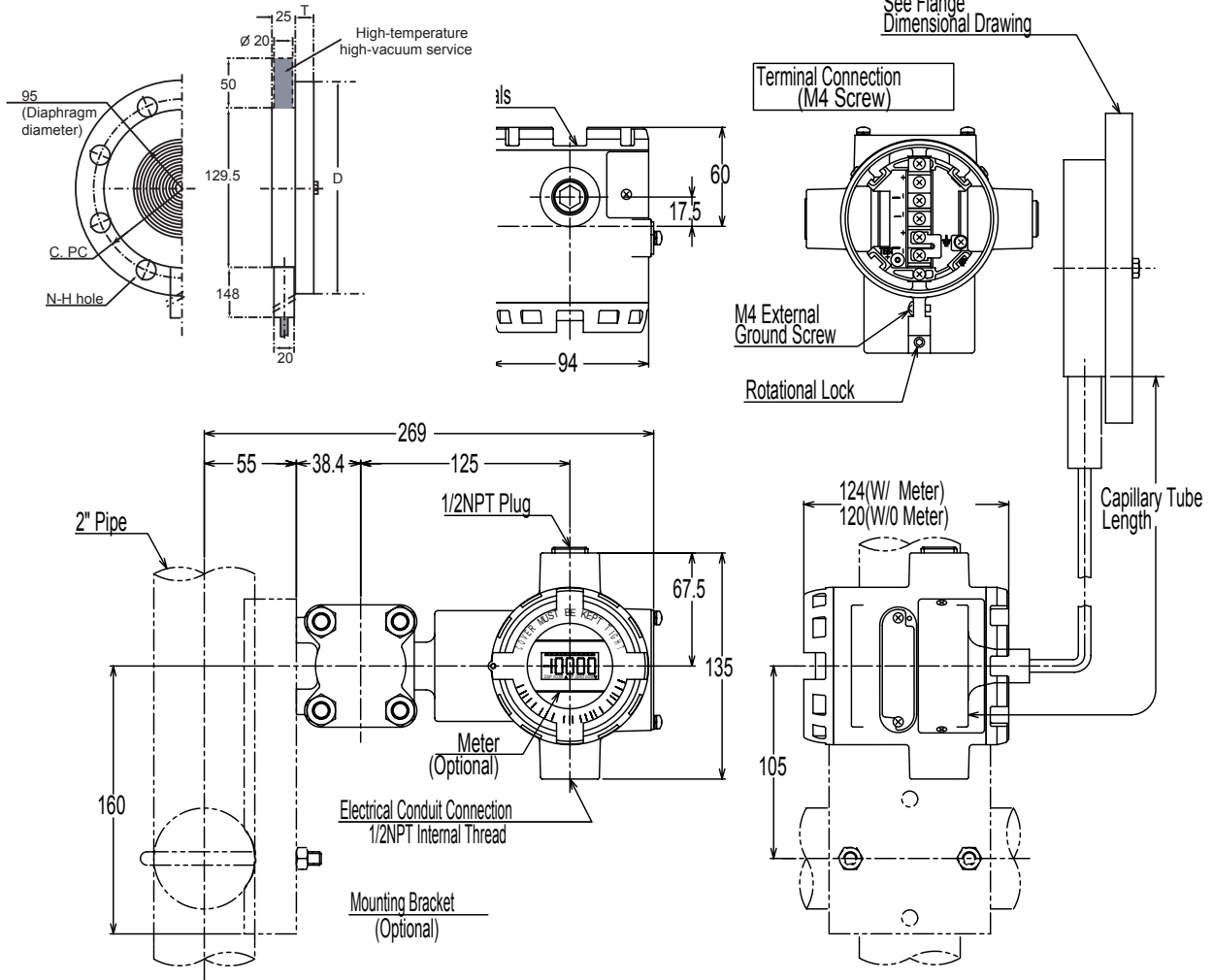
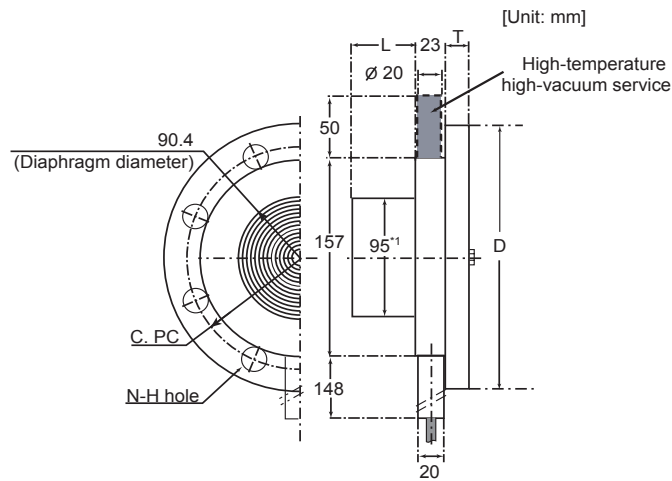


Table of flange dimension
Flush diaphragm flange

| Rating | Flange rating | D | T | C | N | H |
|------------------|---------------------|-----|------|-----|---|----|
| 3 inches / 80 mm | JIS 10K - 80 mm | 185 | 18 | 150 | 8 | 19 |
| | JIS 20K - 80 mm | 200 | 22 | 160 | 8 | 23 |
| | JIS 30K - 80 mm | 210 | 28 | 170 | 8 | 23 |
| | ANSI 150 - 3 inches | 190 | 24 | 152 | 4 | 19 |
| | ANSI 300 - 3 inches | 210 | 28.5 | 168 | 8 | 22 |
| | JPI 150 - 3 inches | 190 | 24 | 152 | 4 | 19 |
| | JPI 300 - 3 inches | 210 | 28.5 | 168 | 8 | 22 |

Extended diaphragm flange



| Rating | Flange rating | D | T | C | N | H |
|-------------------|---------------------|-----|----|-----|---|----|
| 4 inches / 100 mm | JIS 10K - 100 mm | 210 | 18 | 175 | 8 | 19 |
| | JIS 20K - 100 mm | 225 | 24 | 185 | 8 | 23 |
| | JIS 30K - 100 mm | 240 | 32 | 195 | 8 | 25 |
| | ANSI 150 - 4 inches | 229 | 24 | 191 | 8 | 19 |
| | ANSI 300 - 4 inches | 254 | 32 | 200 | 8 | 22 |
| | JPI 150 - 4 inches | 229 | 24 | 191 | 8 | 19 |
| | JPI 300 - 4 inches | 254 | 32 | 200 | 8 | 22 |

| Extended length L |
|-------------------|
| 50 |
| 100 |
| 150 |



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