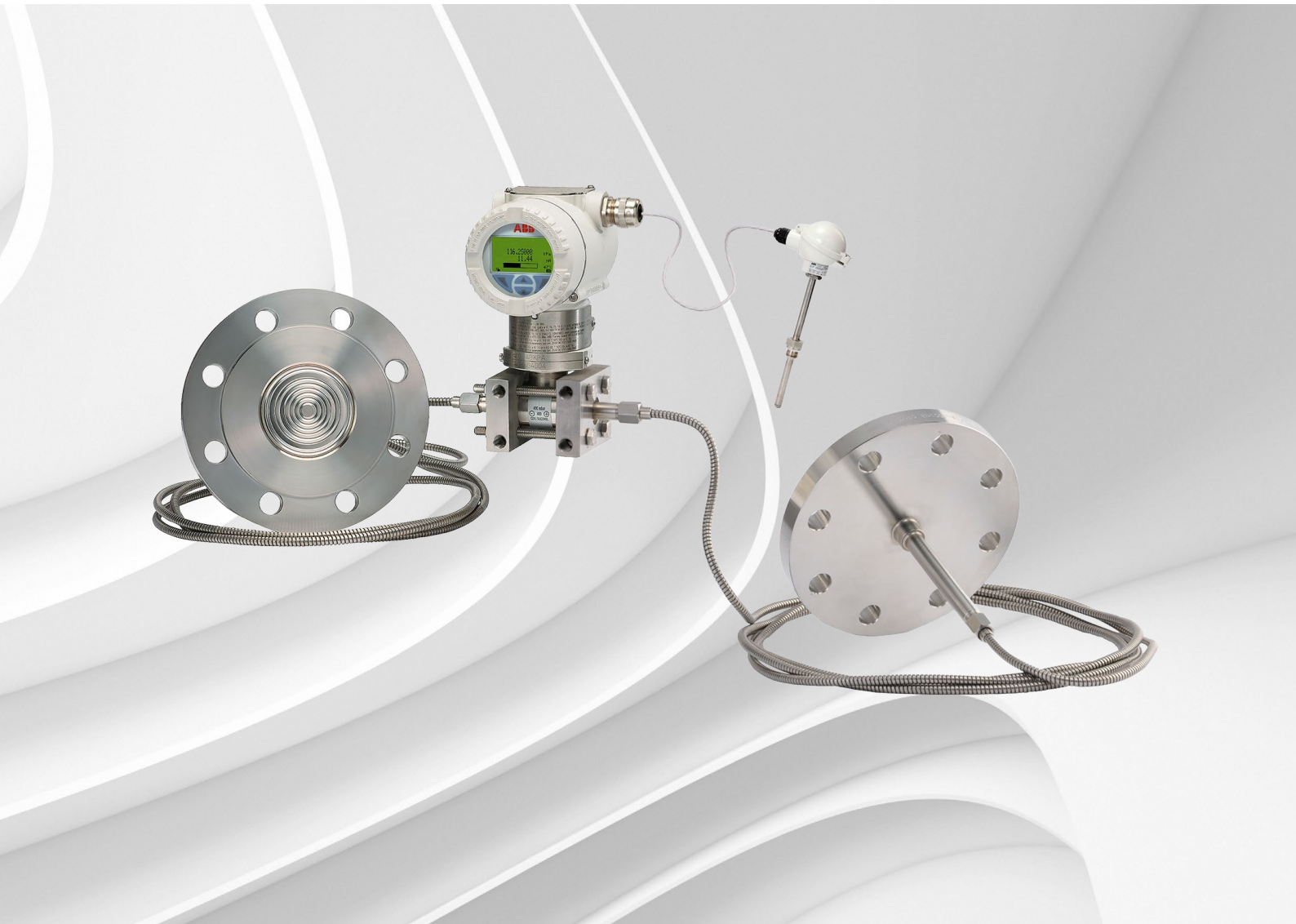
ABB MEASUREMENT & ANALYTICS | DATA SHEET

# Model 266CRH,CRT, JRH, JRT

## Multivariable pressure transmitters



# Measurement made easy

## Engineered solutions for all applications

**Base accuracy**
- **0.075 % of calibrated span (266CRH, 266JRH)**
- **0.04 % of calibrated span (266CRT, 266JRT)**

**266CRH/CRT mass flow measurement with compensation, level measurement with compensation for gases, steam, and liquids**
- Dynamic compensation of pressure and temperature changes

**266JRH/JRT high-performance transmitter for measuring differential pressure, absolute pressure, and process temperature in a single device**

**Proven sensor technology together with state-of-the-art digital technology**
- Large turn down ratio of up to 60:1

**Comprehensive range of functions**
- Integrated counting function
- Binary output as pulse / frequency output or limit monitor

**Flexible configuration options**
- Local configuration via keys on LCD indicator

**New TTG (Through-The-Glass) key technology**
- Enables quick and easy local configuration without the need to open the cover - even in environments with explosion protection

**Full compliance with Pressure Equipment Directive (PED) category III**

# Introduction

## 266CRH / 266CRT

Thanks to their multisensor technology, these transmitters are capable of measuring three separate process variables at the same time and offer the option of dynamic calculation of the following values:

- Mass flow for gases, steam, and liquids by means of
- dynamic compensation
- Standard volume flow for gases by means of dynamic
- compensation
- Heat flow for water and steam
- Drum water level and level measurement with density
- compensation of liquids

The differential pressure and absolute pressure are measured by two integrated sensors. The process temperature is measured by an external standard Pt100 resistance thermometer.

**Flow calculation**

The flow calculation carried out by these transmitters includes compensation of pressure and / or temperature as well as more complex variables such as discharge coefficient, thermal expansion, Reynolds number, and compressibility factor.
The 266CXX pressure transmitters include flow equations for superheated steam, saturated steam, gases, and liquids - so you only need one device for your system.
Multivariable transmitters represent a more economical solution than the designs that have been used for this type of measuring point up to now, in which three different transmitters for differential pressure, absolute pressure, and temperature report their values to a DCS, PLC, or flow computer.

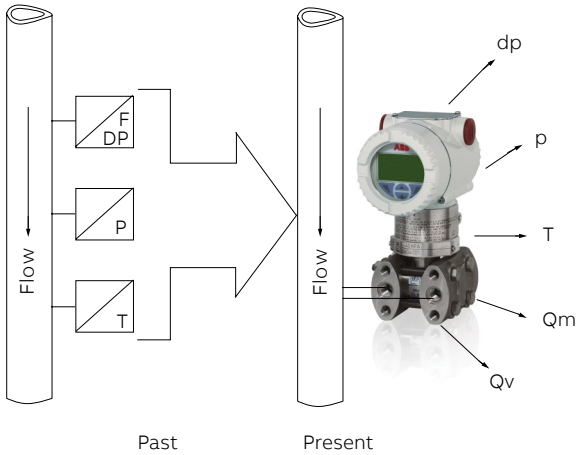



**Figure. 1: Flow measurement - past and present**

The dynamic mass flow of the 266CXX is calculated using the following equation:

$$Qm \approx \frac{C}{\sqrt{1-\beta^4}} \cdot \varepsilon \cdot d^2 \cdot \sqrt{\rho_1 \cdot dp}$$

Qm = Mass flow
C = Discharge coefficient
β = Diameter ratio
ε = Gas expansion factor
d = Inside diameter of the differential flow sensor
dp = Differential pressure
ρ = Density

The flow calculation process is based on the following standards:

- AGA 3
- DIN EN ISO 5167

# ...Introduction

**Flow coefficient**

The discharge coefficient is defined as the actual flow divided by the theoretical flow. It corrects the theoretical equation for the effect on the velocity profile (Reynolds number), assuming that no energy is lost between between the pressure taps and pressure tap location.
It is dependent on the differential flow sensor, the diameter ratio, and the Reynolds number.
Compensation for the discharge coefficient ensures a high level of measuring accuracy for flow measurement with primary elements.

**Gas expansion factor**

The gas expansion factor corrects for density differences between pressure taps due to expansion of compressible media. It does not apply to liquids which are essentially noncompressible.
The gas expansion factor is dependent on the diameter ratio, the isentropic exponent, the differential pressure, and the static pressure of the medium.

**Diameter ratio**

The diameter ratio is dependent on the inside diameter of the differential flow sensor and the pipe diameter, which in turn are subject to temperature functions.
If the temperature of the medium being measured changes, the material of the process pipe and differential flow sensor expands or contracts.
The thermal expansion coefficients are dependent on the material of the pipe and differential flow sensor, and are used for calculating the change in diameters. This ensures a high level of flow accuracy in applications with low and high temperatures.

**Medium density**

The medium density has a direct effect on the flow calculation.
The 266CXX pressure transmitters compensate for the medium density resulting from changes in temperature and / or pressure as follows:

- Gases as a function of p and T based on gas laws, taking compressibility factors into account; for natural gas, based on AGA 8 or SGERG
- Superheated steam as a function of p and T based on steam tables
- Saturated steam as a function of p based on steam tables
- Liquids as a function of T

**Mass flow calculations**

With the 266CXX pressure transmitters, mass flow calculations
can be configured for the following differential flow sensors:

- Orifice corner pressure taps, ISO
- Orifice flange pressure taps, ISO
- Orifice D and D/2 pressure taps, ISO
- Orifice corner pressure taps, ASME
- Orifice flange pressure taps, ASME
- Orifice D and D/2 pressure taps, ASME
- Orifice flange pressure taps, AGA 3
- Orifice 2.5D and 8D pressure taps
- Small bore orifice, flange pressure taps
- Small bore orifice, corner pressure taps
- ISA 1932 nozzle
- Long radius nozzle wall pressure taps, ISO
- Long radius nozzle wall pressure taps, ASME
- Standard Venturi pipe, rough-cast inlet, ISO
- Standard Venturi pipe, machined inlet, ISO
- Standard Venturi pipe, welded inlet, ISO
- Standard Venturi pipe, rough-cast inlet, ASME
- Standard Venturi pipe, machined inlet, ASME
- Standard Venturi pipe, welded inlet, ASME
- Venturi, nozzle, ISO
- Pitot tube
- Wedge element
- Plus all non-standard flow sensors

ABB offers a complete range of differential flow sensors. We provide the full testing and documentation that your application needs. Whether the requirement is a single orifice plate with a simple Certificate of Conformity or a project requiring full material inspection, traceability, third-party verification, calibration and comprehensive data dossiers – ABB can satisfy all of the requirements. In addition compact solutions are available, OriMaster, a compact orifice flowmeter, and PitoMaster, a compact pitot flowmeter.

**Level measurement**

The following functions are available for level measurement with pressure and temperature compensation:

- Level measurement with temperature compensation, on open tank
- Level measurement with pressure and temperature
- compensation, on closed tank, with and without diaphragm seal
- Fill volume measurement by means of tank shape specification
- Drum water level measurement

All of the functionality, including all the data required for compensated mass flow or for level measurement, is configured entirely using the PC-based DTM 266-MV. A simplified setting method, which uses the (optional) LCD indicator, is available for flow and level calculation. EDD-based systems such as handheld terminals are also supported.

**266JRH / 266JRT**

This intelligent transmitter provides the user with precise measurements of differential pressure, absolute pressure, and process temperature (the latter by means of an externally connected Pt100 resistance thermometer), in just one device.

## General description

The diaphragm seal models described in this data sheet are combined with transmitters 266CRX and 266JRX. One or two diaphragm seals can be connected to the transmitter via a capillary tube. The following models, which have different order codes, are available:

1. Models 266CRH and 266CRT for compensated mass flow measurement are designed with two diaphragm seals of the same type and size. In the case of compensated level measurement, they are designed with one or two diaphragm seals depending on the application.
2. Models 266JRH and 266JRT for differential pressure, absolute pressure, and process temperature may be designed with either two remote seals of the same type and size or with one remote seal (on the high pressure (H) or low pressure (L) side) plus a standard process flange with threaded connection. In this case, the threaded connection (1/4-18 NPT or 1/2-14 NPT using adapter) is for the fluid-filled or gas-filled impulse line on the side opposite to the diaphragm seal.

The table below lists the standard types of remote seal that can be used together with transmitters 266CRX and 266JRX.
For specifications and details of the diaphragm seals, please refer to the corresponding diaphragm seal data sheet DS/S26.
Differential pressure transmitters with two diaphragm seals:
In all cases, the specifications below only apply to identical seal designs on both sides.

| **Diaphragm seal model** | Diaphragm seal type | Seal diaphragm size (thickness) | Mnemonic symbol |
|---|---|---|---|
| S26WA<br>S26WE | Wafer diaphragm seal<br>(ASME and EN standards) | 1.5 in. / DN 40 | P1.5 |
| | | 2 in. / DN 50 | P2 |
| | | 3 in. / DN 80 | P3 |
| | | 1.5 in. / DN 40 (thin) | F1.5 |
| | | 2 in. / DN 50 (thin) | F2 |
| | | 3 in. / DN 80 (thin) | F3 |
| S26FA<br>S26FE<br>S26RA<br>S26RE | Flush diaphragm flanged seal<br>(ASME and EN standards;<br>fixed and rotating flange) | 2 in. / DN 50 | P2 |
| | | 3 in. / DN 80 | P3 |
| | | 4 in. / DN 100 | P3 |
| | | 2 in. / DN 50 (thin) | F2 |
| | | 3 in. / DN 80 (thin) | F3 |
| | | 4 in. / DN 100 (thin) | F3 |
| | Extended diaphragm flanged seal<br>(ASME and EN standards;<br>rotating flange S26RA and S26RE only) | 2 in. / DN 50 | E2 |
| | | 3 in. / DN 80 | E3 |
| | | 4 in. / DN 100 | P3 |
| S26RJ | Flush diaphragm flanged seal<br>(JIS standards; rotating flange only) | A 50 | P2 |
| | | A 80 | P3 |
| | | A 100 | P3 |
| S26RR | Flush diaphragm flanged seal<br>(ring joint in acc. with ASME standards; rotating flange) | 1.5 in. | P1.5 |
| | | 2 in. | P2 |
| | | 3 in. | P3 |
| S26CN | Flanged diaphragm seal, "chemical tee" | 3 in. | P3 |
| S26TT | Off-line diaphragm seal; threaded connection | 2 1/2 in. | T 2.5 |
| S26MA, S26ME | Off-line diaphragm seal; flange connection<br>(ASME and EN standards) | 2 1/2 in. | T 2.5 |
| S26SS | Diaphragm seal with compression nut<br>Triclamp<br>Cherry Burrel<br>Aseptic diaphragm seal for sanitary applications | 1 1/2 in. | K 1.5 |
| | | 2 in. / F50 | S2 |
| | | 3 in. / F80 | S3 |
| | | 4 in. | S3 |
| S26VN | Diaphragm seal for weld-on saddle flange or weld-in sleeve flange | 2 1/2 in. | P1.5 |
| S26UN | Threaded diaphragm seal for flange sleeve or welding spud | 1 1/2 in. | Z1.5 |
| S26BN | Button diaphragm seal | 1 in. | B1 |
| S26PN | Flanged diaphragm seal for urea service | 1 1/2 in. | U1.5 |
| | | 2 1/2 in. | U2.5 |

# Functional specification

## Measuring range limits and span limits

| Sensor Code | Measuring range upper limit (URL) | Measuring range lower limit (LRL) | | Minimum measuring span | |
|---|---|---|---|---|---|
| | | Models 266CRH/CRT | Models 266JRH/JRT | Models 266CRH/CRT | Models 266JRH/JRT |
| C | 6 kPa | 0 | -6 kPa | 0.6 kPa | 0.6 kPa |
| | 60 mbar | | -60 mbar | 6 mbar | 6 mbar |
| | 24 inH2O | | -24 inH2O | 2.41 inH2O | 2.41 inH2O |
| F | 40 kPa | 0 | -40 kPa | 0.67 kPa | 0.67 kPa |
| | 400 mbar | | -400 mbar | 6.7 mbar | 6.7 mbar |
| | 160 inH2O | | -160 inH2O | 2.67 inH2O | 2.67 inH2O |
| L | 250 kPa | 0 | -250 kPa | 4.17 kPa | 4.17 kPa |
| | 1000 inH2O | | -1000 inH2O | 16.73 inH2O | 16.73 inH2O |
| N | 2000 kPa | 0 | -2000 kPa | 33.3 kPa | 33.3 kPa |
| | 20 bar | | -20 bar | 333 mbar | 333 mbar |
| | 290 psi | | -290 psi | 4.83 psi | 4.83 psi |
| R | 10000 kPa | - | -10000 kPa | 167 kPa | 167 kPa |
| | 100 bar | | -100 bar | 1.67 bar | 1.67 bar |
| | 1450 psi | | -1450 psi | 24.17 psi | 24.17 psi |

## Absolute pressure sensor (second sensor)

| Sensor Code | Measuring range upper limit (URL) | Measuring range lower limit (LRL) | Minimum measuring span |
|---|---|---|---|
| 2 | 2000 kPa | 0 abs | 20 kPa |
| | 20 bar | | 0.2 bar |
| | 290 psi | | 2.9 psi |
| 3 | 10000 kPa | 0 abs | 100 kPa |
| | 100 bar | | 1 bar |
| | 1450 psi | | 14.5 |
| 4 | 41000 kPa | o abs | 410 kPa |
| | 410 bar | | 4.1 bar |
| | 5945 psi | | 59.5 psi |

# ...Functional specification

## ...Measuring range limits and span limits

**Span limits**

Maximum span = URL
(for differential pressure transmitter, can be adjusted up to ± URL (TD = 0.5) within the measuring range limits).

**Important**

To optimize measuring accuracy, it is recommended that you select the transmitter sensor code with the lowest turn down ratio.

**Recommendation for square root function**

At least 10 % of measuring range upper limit (URL)

**Zero position suppression and elevation**

The zero position and span can be set to any value within the measuring range limits listed in the table if:

- already set span ≥ minimum span

**Temperature input**

Process temperature range -200 ... 850 °C (-328 ... 1562 °F) with external resistance thermometer (Pt100) in four-wire circuit.

**Damping**

Configurable time constant between 0 and 60 s.
This is in addition to the sensor response time.

**Warm-up time**

Ready for operation as per specifications in less than 10 s with minimum damping.

**Insulation resistance**

>100 MΩ at 500 V DC (between terminals and ground).

# Operating limits

SEE ALSO DATA SHEET DS/S26 FOR INFORMATION ON OTHER POSSIBLE RESTRICTIONS BASED ON DIAPHRAGM SEAL VERSIONS.

## Pressure limits

### Gauge pressure limits

The transmitter models 266CRX/JRX can operate without damage within the following overpressure limits

| Sensors | Filling fluid | Overpressure limits |
|---|---|---|
| Sensors C to R | Silicone oil | 0.07 kPa abs., 0.7 mbar abs., 0.5 mm Hg<br>and 16 MPa, 160 bar, 2,320 psi, or<br>25 MPa, 250 bar, 3,625 psi, or<br>41 MPa, 410 bar, 5,945 psi<br>depending on code variant selected |
| Sensors C to R | Fluorocarbon (Galden) | 17.5 kPa abs., 175 mbar abs., 131 mm Hg<br>and 16 MPa, 160 bar, 2,320 psi, or<br>25 MPa, 250 bar, 3,625 psi, or<br>41 MPa, 410 bar, 5,945 psi<br>depending on code variant selected |

### Static pressure limits

Transmitters for differential pressure, models 266MRT, can operate within the specifications with the following limit values.

| Sensors | Filling fluid | Static pressure limits |
|---|---|---|
| Sensors C to R | Silicone oil | 3.5 kPa abs., 35 mbar abs., 0.5 psia<br>and 16 MPa, 160 bar, 2,320 psi, or<br>25 MPa, 250 bar, 3,625 psi, or<br>41 MPa, 410 bar, 5,945 psi<br>depending on code variant selected |
| Sensors C to R | Fluorocarbon (Galden) | 17.5 kPa abs., 175 mbar abs., 131 mm Hg<br>and 16 MPa, 160 bar, 2,320 psi, or<br>25 MPa, 250 bar, 3,625 psi, or<br>41 MPa, 410 bar, 5,945 psi<br>depending on code variant selected |

**The overpressure limits and upper static pressure limits can be lowered by means of the nominal pressure rating of the diaphragm seal flange; see diaphragm seal data sheet DS/S26.**

### Test pressure

The transmitters can withstand a pressure test with the following line pressure without leaking:

| Model | Test pressure |
|---|---|
| 266CRX/JRX | 1.5 x nominal pressure (static pressure limit) simultaneously on both sides 1 |

1 Or double the value of the pressure sensor flange pressure stage, depending on which value is less.
Meets hydrostatic test requirements of ANSI/ISA–S 82.03.

# ...Operatinging limits

## Temperature limits °C (°F)

### Environment

This is the operating temperature.

| All models | Ambient temperature limits |
|---|---|
| Silicone oil | -40 ... 85 °C (-40 ... 185 °F) |
| Fluorocarbon (Galden) | -40 ... 85 °C (-40 ... 185 °F) |

| All models | Ambient temperature limits |
|---|---|
| Integral LCD display | -40 ... 85 °C (-40 ... 185 °F) |
| Viton gasket | -20 ... 85 °C (-4 ... 185 °F) |
| PTFE gasket | -20 ... 85 °C (-4 ... 185 °F) |

Below -20  C (-4 °F) and above 70 °C (158 °F), it may no longer be possible to read the LCD display clearly.

### Important

For applications in explosive environments, the temperature range specified on the certificate / approval applies dependent upon the degree of protection sought.

### Process

| All models | Process temperature limits |
|---|---|
| Silicone oil | -40 ... 121 °C (-40 ... 250 °F) 1 |
| Fluorocarbon (Galden) | -40 ... 121 °C (-40 ... 250 °F) 2 |
| Viton gasket | -20 ... 121 °C (-4 ... 250 °F) |
| PTFE gasket | -20 ... 85 °C (-4 ... 185 °F) |

1 85 °C (185 °F) for applications under 10 kPa, 100 mbar abs., 1.45 psia up to 3.5 kPa abs., 35 mbar abs., 26 mm Hg
2 85 °C (185 °F) for applications below atmospheric pressure up to 17.5 kPa abs., 175 mbar abs., 131 mm Hg

The table below contains the specifications for diaphragm seal filling fluids when used in transmitters with (a) diaphragm seal(s).

| Filling fluid (application) | Process temperature and pressure limits | | | |
|---|---|---|---|---|
| | Tmax °C (°F) @ Pabs > than | Pmin mbar abs (mm Hg) | Tmax °C (°F) @ Pmin | Tmin °C (°F) |
| Silicone oil DC 200 10 cSt | 250 (480) @ 385 mbar | 0,7 (0,5) | 130 (266) | -40 (-40) |
| Silicone oil Baysilone PD5 5 cSt | 250 (480) @ 900 mbar | 0,7 (0,5) | 45 (123) | -85 (-121) |
| Fluorocarbon Galden G5 (oxygen applications) | 160 (320) @ 1 bar | 2,1 (1,52) | 60 (140) | -20 (-4) |
| Fluorocarbon Halocarbon 4.2 (oxygen applications) | 180 (356) @ 425 mbar | 4 (3) | 70 (158) | -20 (-4) |
| Silicone polymer Syltherm XLT (cryogenic applications) | 110 (230) @ 118 mbar | 2,1 (1,52) | 20 (68) | -100 (-148) |
| Silicone oil DC 704 (high-temperature applications) | 375 (707) @ 1 bar | 0,7 (0,5) | 220 (328) | -10 (14) |
| Vegetable oil Neobee M-20 (food and beverage, sanitary applications) with FDA approval | 200 (390) @ 1 bar | 10 (7,2) | 20 (68) | -18 (0) |
| Mineral oil Esso Marcol 122 (food and beverage, sanitary applications) with FDA approval | 250 (480) @ 630 mbar | 0,7 (0,5) | 110 (230) | -6 (21) |
| Glycerin water 70 % (food and beverage, sanitary applications) with FDA approval | 93 (200) @ 1 bar | 1000 (760) | 93 (200) | -7 (-20) |

| | Process limits | | |
|---|---|---|---|
| **Flushing ring gasket material** | **Pressure (max.)** | **Temperature** | **P x T** |
| Garlock | 6.9 MPa, 69 bar, 1,000 psi | -73 ... 204 °C (-100 ... 400 °F) | 250,000 (°F x psi) |
| Graphite | 2.5 MPa, 25 bar, 362 psi | -100 ... 380 °C (-148 ... 716 °F) | |
| PTFE | 6 MPa, 60 bar, 870 psi | -100 ... 250 °C (-148 ... 482 °F) | |

## Storage

| **Models 266XRT** | **Storage temperature range** |
|---|---|
| Storage temperature | -50 ... 85 °C (-58 ... 185 °F) |
| Integral LCD display | -40 ... 85 °C (-40 ... 185 °F) |

| | **Humidity during storage** |
|---|---|
| Relative humidity | Up to 75% |

## Limits for environmental effects

**Electromagnetic compatibility (EMC)**

Meets requirements of EN 61326 and Namur NE-21
Overvoltage strength (with surge protection): 4 kV
(in acc. with IEC 1000-4-5 EN 61000-4-5).

**Pressure Equipment Directive (PED)**

Instruments with a maximum operating pressure of 41 MPa, 410 bar, 5.945 psi comply with Directive 2014/68/EU category III, module H.

**Humidity**

Relative humidity: Up to 100 %.
Condensation, icing: Permissible.

**Vibration resistance**

Acceleration up to 2 g at frequencies of up to 1000 Hz (according to IEC 60068-2-6).
Acceleration limited to 1 g for housing out of stainless steel.

**Shock resistance**

Acceleration: 50 g
Duration: 11 ms
(according to IEC 60068-2-27).

**IP rating**

The transmitter is dust and sand-proof and protected against
immersion effects in accordance with EN 60529 (2001) with
IP 67 (IP 68 on request), by NEMA 4X, or by JIS C0920.

**Hazardous atmospheres**

With or without integral LCD display

**Type of protection "Intrinsic safety":**

Approval in accordance with ATEX Europa (code E1) and IEC Ex (code E8)
II 1 G Ex ia IIC T6/T5/T4 and II 1/2 G Ex ia IIC T6/T5/T4; IP67.
II 1 D Ex iaD 20 T85°C and II 1/2 D Ex iaD 21 T85 °C; IP67
NEPSI China (Code EY)
Ex ia IIC T4T6, DIP A20TA, T4~T6.

**Type of protection "Flameproof (enclosure)":**

Approval in accordance with ATEX Europa (code E2) and IEC Ex (code E9)
II 1/2 G Ex d IIC T6 and
II 1/2 D Ex tD A21 T85 °C (–50 °C ≤ Ta ≤+75 °C); IP67.
NEPSI China (Code EZ)
Ex d IIC T6, DIP A21TA, T6.

**Type of protection "nL":**

ATEX Europa (code E3) and IEC Ex (code ER)
Declaration of Conformity
II 3 G Ex nL IIC T6/T5/T4 and II 3 D Ex tD A22 T85 °C; IP67.
NEPSI China (code EY) Declaration of conformity
Ex nL IIC T4T6, DIP A22TA, T6.

**FM approvals for USA (code E6) and FM approvals for Canada (code E4):**

- Explosionproof (US): Class I, Div. 1, Groups A, B, C, D
- Explosionproof (Canada): Class I, Div. 1, Groups B, C, D
- Dust ignitionproof : Class II, Div. 1, Groups E, F, G
- Suitable for: Class II, Div. 2, Groups F, G; Class III, Div.1, 2
- Nonincendive: Class I, Div. 2, Groups A, B, C, D
- Intrinsically safe: Class I, II, III, Div. 1, Groups A, B, C, D, E, F, G
  Class I, Zone 0 AEx ia IIC T6/T4, Zone 0 (FM US)
  Class I, Zone 0 Ex ia IIC T6/T4, Zone 0 (FM Canada)

ATEX combined (code EW = E1 + E2 + E3), (code E7 = E1 + E2)

ATEX combined and FM approvals (code EN = EW + E4 + E6)

**Combined FM approvals for USA and Canada**

- Intrinsic safety (Code EA)
- Flameproof (enclosure) (Code EB)
- Non–incendive (Code EC)

IEC combined (code EH = E8 + E9), (code EI = E8 + E9 + ER)

NEPSI combined (code EP = EY + EZ), (code EQ = EY + EZ + ES)

- EAC–Ex (GOST) Russia, Kazakhstan, Belarus, ), based on ATEX
- Inmetro (Brazil), based on ATEX

For ambient temperatures -40 … 85°C (-40 … 185°F) the information based on the temperature classes in the associated certificates, must be complied with.
The temperature sensor circuit (Pt100) and the digital output (pulse / limit value output) must be connected in accordance with the requirements of the Ex certificate.

# Specification – electrical data and options

**Power supply**

The transmitter operates from 10.5 ... 42 V DC with no load and is protected against reversed polarity (additional loads enable operation above 42 V DC).
During use in Ex ia zones and in other intrinsically safe applications, the power supply must not exceed 30 V DC.

**Ripple**

Max. 20 mV over a 250 Ω load as per HART specifications.

**Load limitations**

Total loop resistance at 4 ... 20 mA and HART:

$$R\ (k\Omega) = \frac{\text{Voltage supply} - \text{Minimum operating voltage (V DC)}}{22\ \text{mA}}$$

A minimum resistance of 250 Ω is required for HART communication.

**Output signal**

Two-wire output, 266CXX:
4 … 20 mA based on mass / standard volume flow or fill level,
full compensation of all pressure (P) and temperature (T) effects.
Two-wire output, 266JXX:
4 … 20 mA related to differential pressure, pressure, or temperatureThe HART communication provides the digital process variables which are superimposed on the 4 to 20 mA signal (protocol in accordance with Bell 202 FSK standard).

**Digital output (pulse / limit output)**

This digital output can be set as a pulse or limit output (transistor output) by making parameter changes using the software.

NPN transistor with open collector output

| | |
|---|---|
| Contact switching capacity | 10 … 30 V, maximum 120 mA DC |
| Low-level output voltage | 0 … 2 V |
| High-level output voltage | Maximum 30 V |
| Quiescent current | 500 µA |

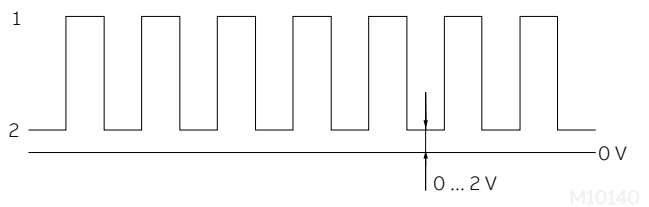



Figure 2: High and low level (pulse output)

1 High level | 2 Low level

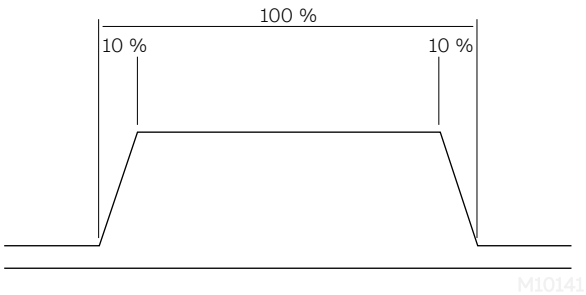



Figure 3: Edge steepness

**Pulse output**

The scaled, electrically isolated pulse output can be used for
flow measurement by means of an external counter.
Pulse output frequency with 100 %
output
Maximum 10 kHz
Duty cycle 50 % ± 10 % @ 0.1 Hz to 10 kHz
Minimum pulse width 50 µs at 10 kHz, duty cycle 1:1

**Limit output**

The output is set to a static high or low signal when a given limit is overshot / undershot.

**Output function, model 266CXX**

The 4 … 20 mA output signal is not linear; instead, it corresponds to the compensated flow or fill level.

**Output function, model 266JXX**

The 4 … 20 mA output signal corresponds to the differential pressure, pressure, or temperature, depending on the configuration.

**Output current limits (according to NAMUR standard)**

Overload condition

- Lower limit: 3.8 mA (configurable from 3.8 ... 4 mA)
- Upper limit: 20.5 mA (configurable from 20 ... 21 mA)

**Alarm current**

- Minimum alarm current: 3.6 mA (configurable from 3.6 ... 4 mA)
- Maximum alarm current: 21 mA (configurable from 20 ... 22 mA)

Standard setting: High alarm current (max. alarm current)

**Process diagnostics (PILD)**

Plugged impulse line detection (PILD) generates a warning via the HART communication. The device can also be configured to drive the analog output signal to the "alarm current".

# ...Specification – electrical data and options

## LCD display

M10142

**Figure 4: Integral LCD display with TTG operation**

**Integral LCD display (code L1)**

Wide screen LCD display, 128 x 64 pixel, 52.5 x 27.2 mm (2.06 x 1.07 in.), dot matrix, multilingual.
Four buttons for device configuration and management.
Easy setup for quick commissioning.
Customized visualizations which the user can select.
Total value and actual value flow indication.
The display can also be used to show static pressure, sensor temperature, and diagnosis notice, as well as make configuration settings.

**Integral LCD display with TTG–(Through–The–Glass) operation (code L5)**

As with the integral LCD display above, but featuring an innovative TTG (Through–The–Glass) button technology which can be used to activate the device's configuration and management menus without having to remove the transmitter housing cover.
The TTG (Through–The–Glass) buttons are protected against accidental activation.

## Specification - measuring accuracy

Stated at reference condition to IEC 60770 ambient temperature of 20 °C (68 °F), relative humidity of 65 %, atmospheric pressure of 1013 hPa (1013 mbar), mounting position with vertical diaphragm and zero based range for transmitter with isolating diaphragms in AISI 316 L ss or Hastelloy and silicone oil fill and HART digital trim values equal to 4 and to 20 mA span end points.
Unless otherwise specified, errors are quoted as % of span.
Some performance referring to the Upper Range Limit are affected by the actual turndown (TD) as ratio between Upper Range Limit (URL) and calibrated span.
IT IS RECOMMENDED TO SELECT THE TRANSMITTER SENSOR CODE PROVIDING THE TURNDOWN VALUE AS LOWEST AS POSSIBLE TO OPTIMIZE PERFORMANCE CHARACTERISTICS.

### Dynamic behavior (according to IEC 61298-1)

| Sensor | |
|---|---|
| Sensor F to R | 150 ms |
| Sensor C | 400 ms |
| Sensor A | 1000 ms |
| 266CXX: Reaction time for all sensors | 70 ms |
| 266JXX: Reaction time for all sensors | 40 ms |

Step response time (total) = reaction time + time constant

### Measuring error

% of calibrated span, consisting of terminal-based nonlinearity, hysteresis, and non-repeatability.

| Model | DP Sensor | For TD range | Measuring error |
|---|---|---|---|
| 266CRH, 266JRH with DF Mnemonic P3, F3, E3, F2 | C | From 1:1 to 5:1 | ± 0.075 % |
| | C | From 5:1 to 10:1 | ± (0.015 x TD) % |
| | F to R 1) | From 1:1 to 10:1 | ± 0.075 % |
| | F to R 1) | From 10:1 to 60:1 | ± (0.075 + 0.005 x TD - 0.05) % |
| 266CRH, 266JRH with DF Mnemonic different from above | C | From 1:1 to 5:1 | ± 0.10 % |
| | C | From 5:1 to 10:1 | ± (0.02 x TD) % |
| | F to R 1) | From 1:1 to 10:1 | ± 0.10 % |
| | F to R 1) | From 10:1 to 60:1 | ± (0.01 x TD) % |

1) Sensor R not with model 266CRH

| Model | DP Sensor | For TD range | Measuring error |
|---|---|---|---|
| 266CRT, 266JRT with DF Mnemonic P3, F3, E3, F2 | C | From 1:1 to 5:1 | ± 0.04 % |
| | C | From 5:1 to 10:1 | ± (0.008 x TD) % |
| | F to R 1) | From 1:1 to 10:1 | ± 0.04 % |
| | F to R 1) | From 10:1 to 60:1 | ± (0.04 + 0.005 x TD - 0.05) % |
| 266CRT, 266JRT with DF Mnemonic different from above | C | From 1:1 to 5:1 | ± 0.065 % |
| | C | From 5:1 to 10:1 | ± (0.013 x TD) % |
| | F to R 1) | From 1:1 to 10:1 | ± 0.065 % |
| | F to R 1) | From 10:1 to 60:1 | ± (0.0065 x TD) % |

1) Sensor R not with model 266CRT

# ...Specification – measuring accuracy

### Recommendation for square root function

At least 10 % of upper measuring range limit (URL)

| Model | Pabs sensor (second sensor) | Measuring error |
|---|---|---|
| 266CXX<br>266JXX | 1 to 4 | ± 0.1 % |

| Model | Process temperature measurement (Pt100) in acc. with IEC 60751 | Measuring error - Transmitter component |
|---|---|---|
| 266CXX<br>266JXX | -200 … 850 °C (-328 … 1,562 °F) | ± 0.3 K (0.54 °F) |

266CXX: The measuring accuracy of the mass or standard volume flow is not affected by the accuracy of the dp, p, and T measurement alone; rather, it also depends upon the primary device used (discharge coefficient), the pressure and temperature range to be compensated, as well as other parameters.
In typical applications, the flow measurement accuracy (without the primary device accuracy) is ± 0.7 … 0.9 % of the mass flow.

### Ambient temperature

Per 20 K change within the limits of -40 to 85 °C
(per 36 °F change within the limits of -40 to 185 °F):

| Model | Sensor | For TD range | |
|---|---|---|---|
| 266CRH,<br>266JRH | C to R 1) | 10:1 | ± (0.04 % URL + 0.06 % measuring span) |
| 266CRT<br>266JRT | C to R 1) | 10:1 | ± (0.03 % URL + 0.045 % measuring span) |

1) Sensor R not with model 266CRH/CRT

### Absolute pressure sensor

± (0.08 % URL + 0.08 % measuring span):
Limited to ± (0.1 % URL + 0.1 % measuring span) for the entire temperature range of 125 K within the limits of –40 … 85 °C (-40 … 185 °F).

SEE DATA SHEET DS/S26 FOR ADDITIONAL TEMPERATURE EFFECTS ON THE DIAPHRAGM SEALS:
The total temperature effect can be defined as the combined influence of the factors referred to above on the transmitter plus the influence of the diaphragm seal, dependent upon the operating temperature.

### Static pressure

Models 266CRX / 266JRX (zero signal errors may be calibrated out at operating pressure)

| Measuring range | Sensors C, F, L, N | Sensor R |
|---|---|---|
| Zero signal error | Up to 100 bar: 0.05 % URL | Up to 100 bar: 0.1 % URL |
| | > 100 bar: 0.05 % URL/100 bar | > 100 bar: 0.1 % URL/100 bar |
| Span error | Up to 100 bar: 0.05 % span | Up to 100 bar: 0.1 % span |
| | > 100 bar: 0.05 % span/100 bar | > 100 bar: 0.1 % span/100 bar |

### Power supply

Within the limit values for the voltage / load, the total influence is less than 0.005 % of the upper measuring range limit per volt.

### Load

Within the load / voltage limits, the total influence is negligible.

### Electromagnetic field

Meets all requirements of EN 61326 and NAMUR NE-21.

### Common-mode interference

No influence from 100 V rms @ 50 Hz, or 50 V DC

# Specification – physical

(Please refer to the order information to check the availability of different versions of the relevant model)

## Materials

**266JRX models only – Low pressure (L) side without diaphragm seal 1**

Stainless steel 1.4435 (AISI 316L);
Hastelloy C276; Monel 400; tantalum
A diaphragm seal with the required diaphragm material can be selected in this case too (as with the high pressure side).

**Process flanges, adapters, screw plugs, and vent / drain valves 1**

Stainless steel 1.4404 / 1.4408 (AISI 316L);
Hastelloy C276; Monel 400

**Screws and nuts**

Screws and nuts made from stainless steel AISI 316, class A4-70 as per UNI 7323 (ISO 3506) in compliance with NACE MR0175 Class II.

**Gaskets 1**

Viton (FPM); Buna (NBR); EPDM; PTFE; graphite

**Models 266JRH, 266JRT**

**Seal diaphragm material (high pressure side) 1**

Stainless steel AISI 316 L; Hastelloy C-276;
Hastelloy C-2000; Inconel 625; tantalum;
stainless steel AISI 316 L or Hastelloy C-276 with non-stick coating;
stainless steel AISI 316 L with anti-corrosion coating;
stainless steel AISI 316 L, gold-plated;
super duplex stainless steel (UNS S32750 in acc. with ASTM SA479);
Diaflex (AISI with anti-abrasion treatment)

**Diaphragm seal extension material 1**

Stainless steel AISI 316 L (also for Diaflex-coated and gold-plated diaphragm);
Hastelloy C-276; stainless steel AISI 316 L or Hastelloy C-276 with the same coating as the diaphragm.

**Diaphragm seal filling fluid**

Silicone oil DC200; silicone oil DC704; fluorocarbon (Galden); Fluorocarbon Halocarbon 4.2; silicone polymer Syltherm XLT; low-viscosity silicone oil Baysilone PD5; glycerin water; vegetable oil Neobee M-20; mineral oil Esso Marcol 122

**Sensor filling fluid**

Silicone oil, fluorocarbon (Galden)

**Sensor housing**

Stainless steel 1.4404 (AISI 316L)

**Electronics housing and cover**

Aluminum alloy (copper content ≤ 0.3 %) with baked epoxy finish (color: RAL 9002); stainless steel AISI 316L.

**O-ring cover**

Buna N (Perbunan)

**Mounting bracket 2**

Galvanized C steel with chromium passivation; stainless steel AISI 316, AISI 316L.

**Local zero point, measuring span, and write protection settings**

Fiber glass-reinforced polyphenylene oxide (removable)

**Plates**

Stainless steel (AISI 316) for transmitter name plate, certification plate, optional measuring point tag plate / settings plate fastened to the electronics housing, and optional tag
plate with customer data. All plates laser-labeled.

1 Transmitter parts that come into contact with fluid

2 U-bolt material: stainless steel AISI 400;
screw material: high-strength alloy steel or stainless steel AISI 316

# ...Specification – physical

## Calibration

Standard:

- 0 to measuring range upper limit, for ambient temperature and atmospheric pressure

Optional:

- To specified measuring span

## Optional extras

**Mounting bracket**

For vertical and horizontal 60 mm (2 in.) pipes or wall mounting

**LCD display**

Can be rotated in 90° increments into 4 positions

**Additional tag plates**

Code I2: For measuring point tag (up to 30 characters) and calibration specifications (up to 30 characters: lower and upper value plus unit), attached to transmitter housing.

Code I1: For customer data (4 lines with 30 characters each), attached to transmitter housing with wire.

**Overvoltage protection**

- Code S2

**Cleaning stage for oxygen application (O2)**

Code P1

**Certificates (inspection, implementation, characteristics, material certificate)**

Code Cx and Hx

**Name plate and operating instruction language**

Code Tx and Mx

**Communication plug connector**

Code Ux

## Process connections

Flanges: 1/4-18 NPT on the process axis
Adapters: 1/2-14 NPT on the process axis
Fastening screw threads:
7/16–20 UNF with 41.3 mm center distance
Process connection via diaphragm seal: see data sheet DS/S26

## Electrical connections

Two 1/2-14 NPT or M20 x 1.5 threaded bores for cable glands, directly on housing.

**Terminals**

Three connections for signal / external display, four connections for a Pt100 resistance thermometer with 4-wire technology, and two connections for the digital output (pulse / alarm output). For wire cross sections of up to 2.5 mm2 (14 AWG) and connection points for testing and communication purposes.

**Grounding**

Internal and external ground terminals are provided for 6 mm2 (10 AWG) wire cross sections.

**Mounting position**

The transmitters can be installed in any position.
The electronic housing can be rotated into any position. A stop is provided to prevent overturning.

**Weight**

(without options or diaphragm seal)
Approximately 3.8 kg (8.4 lb); add 1.5 kg (3.3 lb) for housings
made from stainless steel.
Add 650 g (1.5 lb) for packaging.

**Packaging**

Carton

# Configuration

**Standard configuration**

Transmitters are calibrated at the factory to the customer's specified measuring range. The calibrated range and measuring point number are provided on the name plate. If this data has not been specified, the transmitter will be delivered with the plate left blank and the following configuration:

| | |
|---|---|
| Physical unit | kPa |
| 4 mA | Zero |
| 20 mA | Measuring range upper limit (URL) |
| Output | 266CXX: Square root<br>266JXX: Linear |
| Damping | 1 s |
| Transmitter interference mode | High alarm |
| Software tag (max. 8 characters) | Blank |
| Optional LCD display | PV in kPa; output in mA and in percent as bargraph |

Any or all of the configurable parameters listed above - including the lower and upper range values (with the same unit of measurement) - can easily be changed using a portable HART handheld communicator or a PC running the configuration software with the DTM for 266 models. Specifications concerning the flange type and materials, O-ring and vent / drain valve materials, and additional device options are stored in the transmitter database.

**Customer-specific configuration (option N6)**

The following information can be specified in addition to the standard configuration parameters:

| | |
|---|---|
| Description | 16 alphanumeric characters |
| Supplementary information | 32 alphanumeric characters |
| Date | Day, month, year |

## Mounting dimensions

(not design data) - dimensions in mm (inch)

**Transmitter with barrel housing**

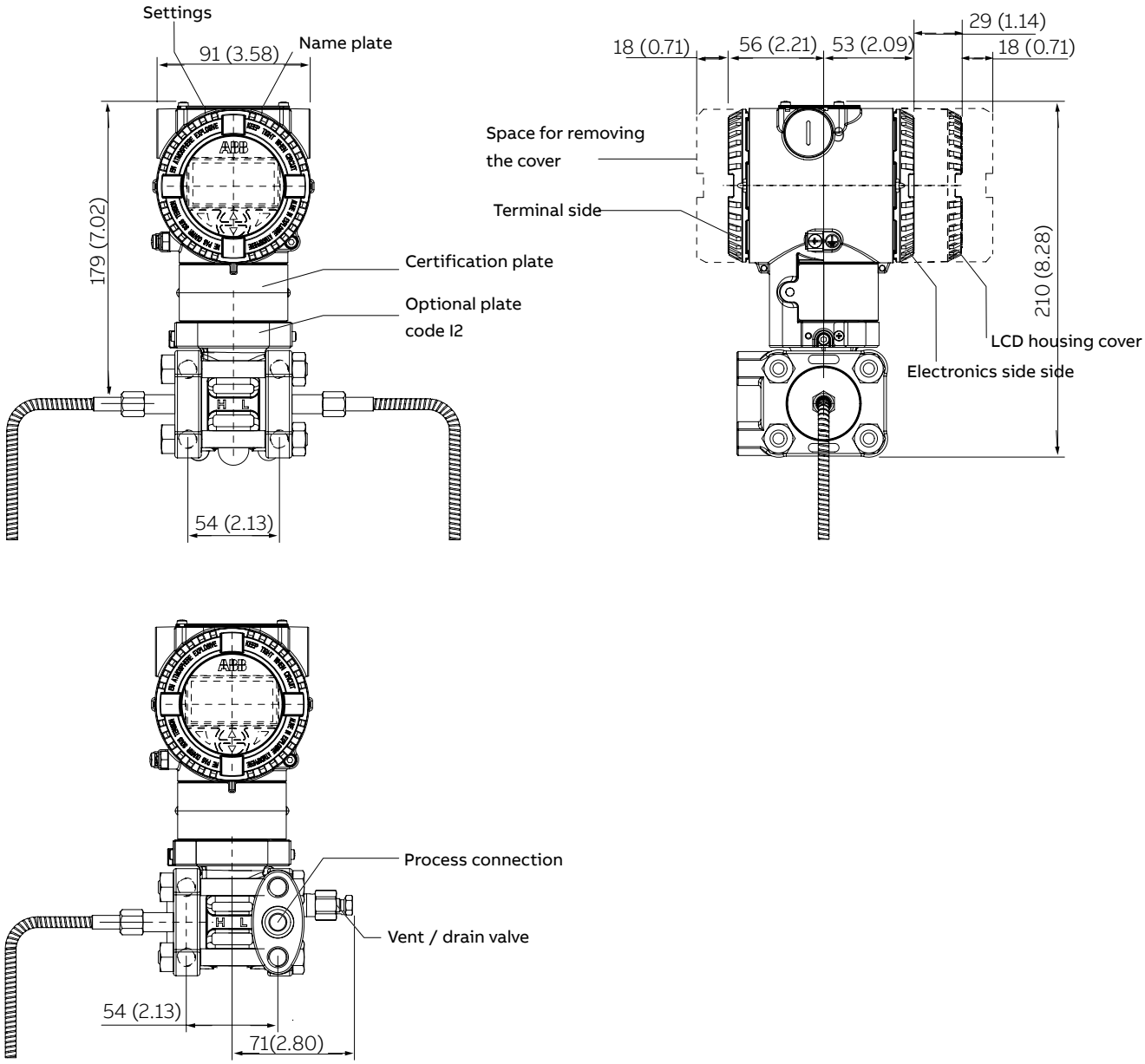



Figure 5: Dimensions - Barrel housing

**Important**

In the case of model 266MRT with only one diaphragm seal, the threaded connection (1/4 – 18 NPT direct or 1/2 – 14 NPT via adapter) of the standard process flange, the gasket groove, and the gasket comply with IEC 61518. The screw-on thread for attaching the adapter or other devices (e.g., manifold) to the process flange is 7/16-20 UNF.

**Transmitter with barrel housing and mounting bracket, for vertical or horizontal mounting on 60 mm (2 in.) pipe**

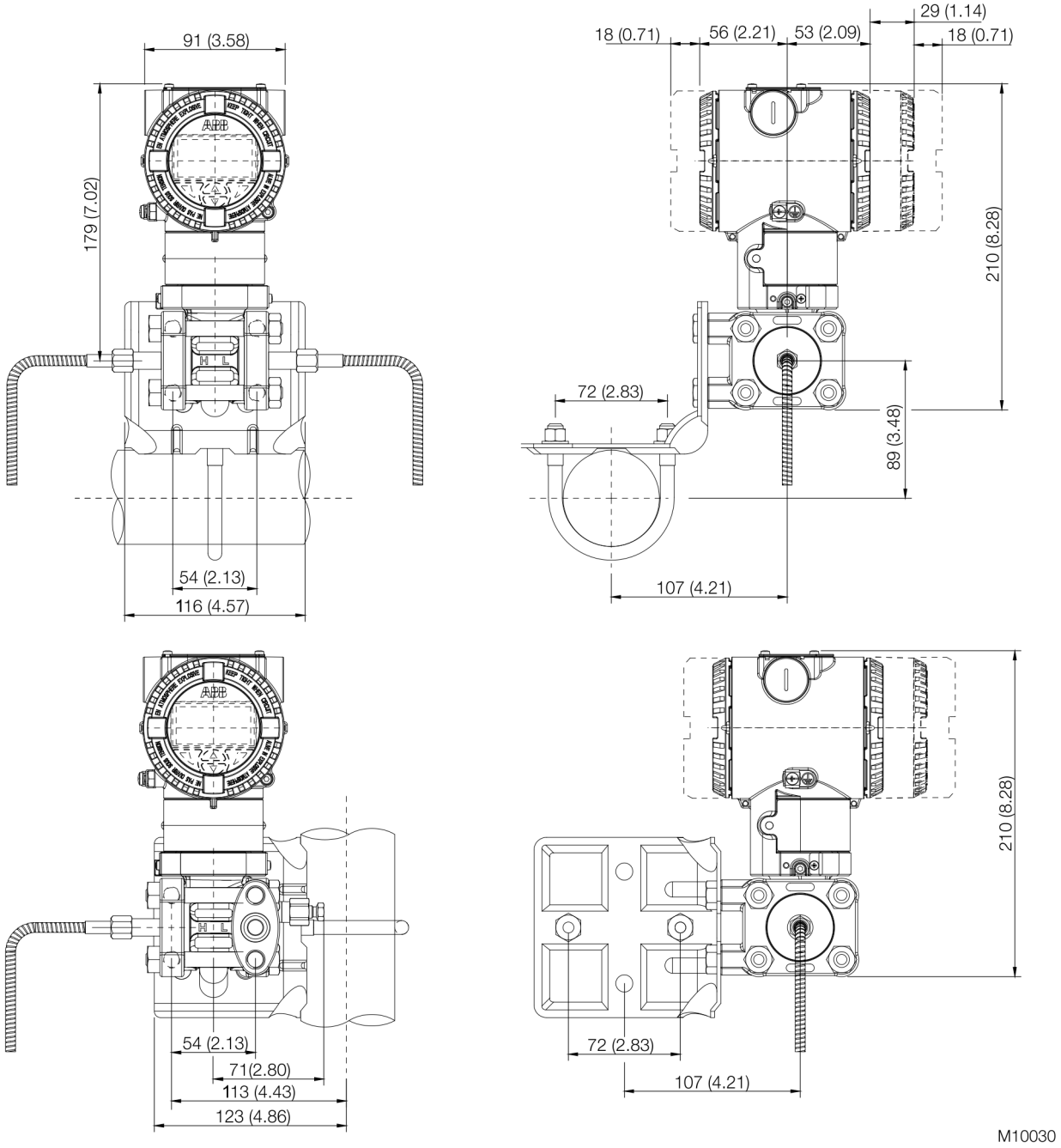



Figure 6: Pipe mounting - Barrel housing

## Mounting dimensions

(not design data) - dimensions in mm (inch)

**Transmitter with DIN housing and mounting bracket, for vertical or horizontal mounting on 60 mm (2 in.) pipe**

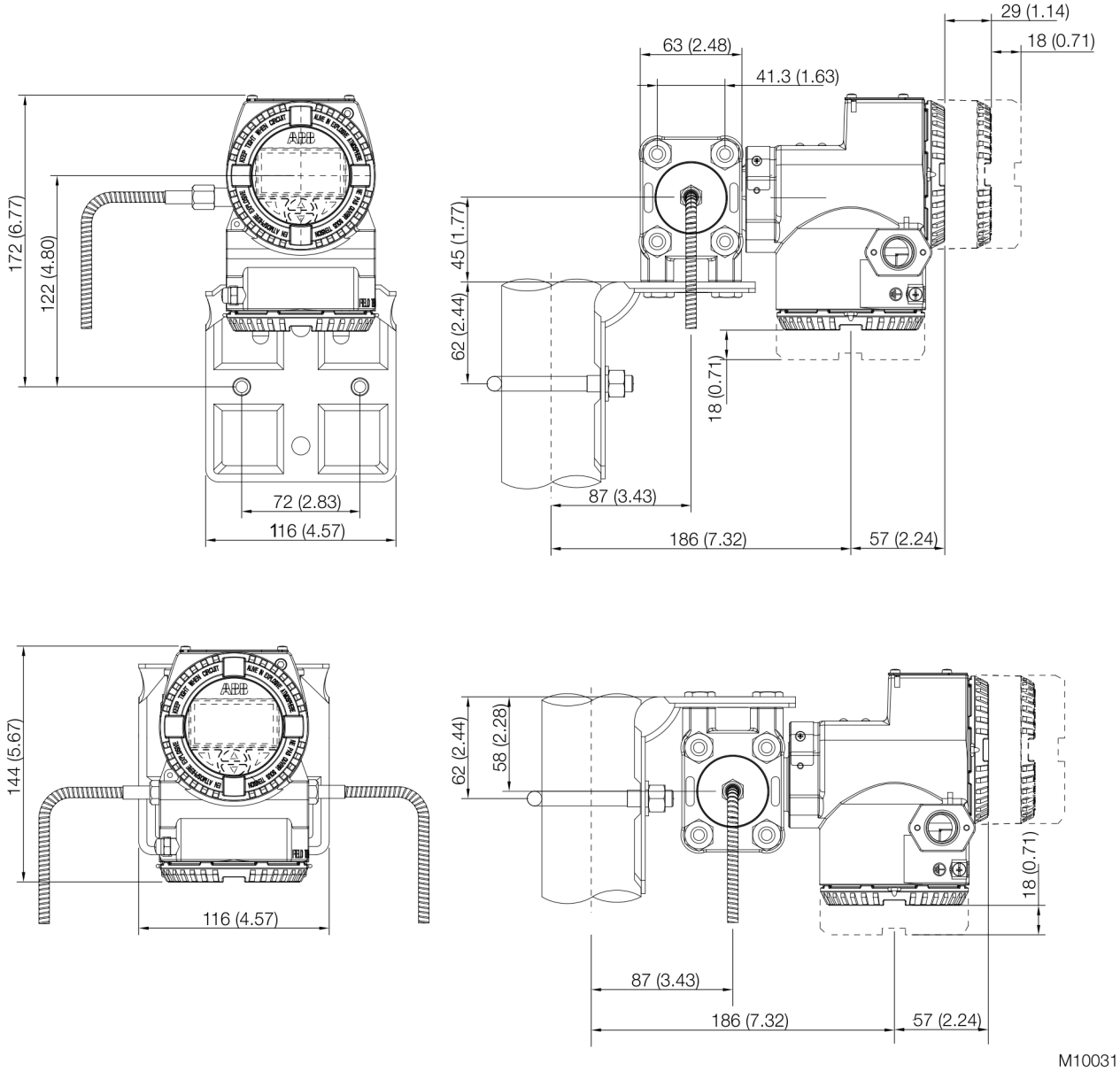



Figure 7: Pipe mounting - DIN housing

**Transmitter with barrel housing and flat bracket, for vertical or horizontal mounting on 60 mm (2 in.) pipe**

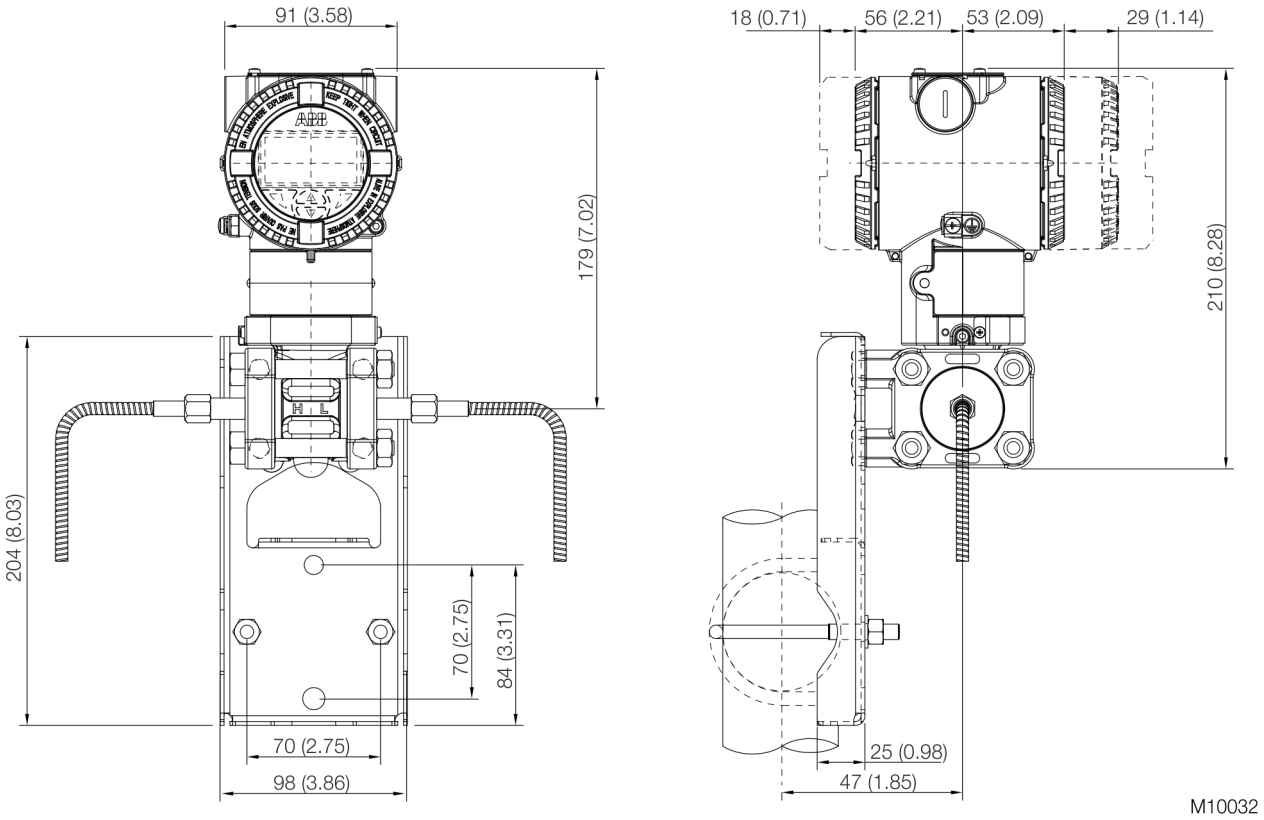



Figure 8: Flat bracket for pipe mounting - Barrel housing

## Electrical connections

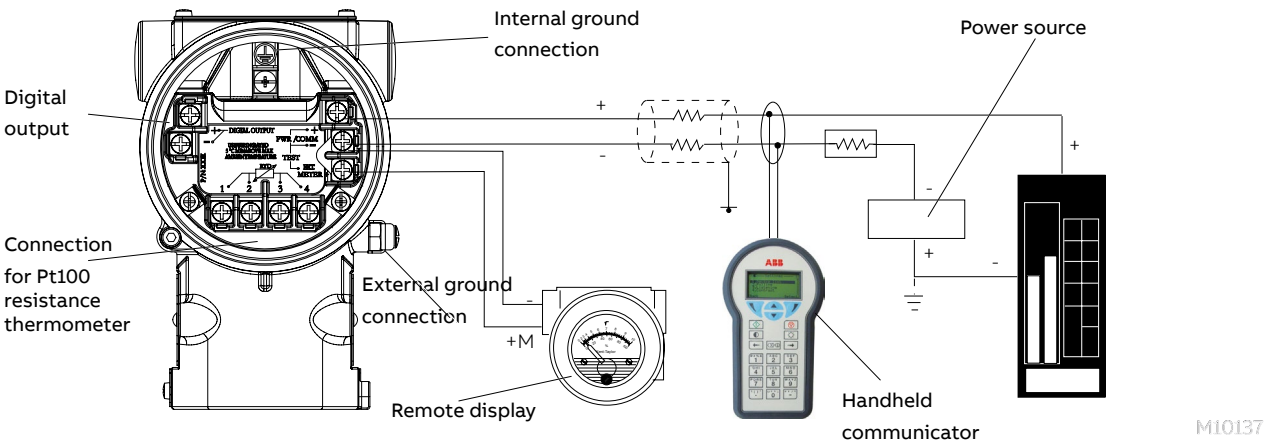



Figure 9: Electrical connections

The HART handheld terminal can be connected to any wiring termination point in the loop, provided there is a minimum resistance of 250 Ω between the handheld terminal and transmitter power supply. If this is less than 250 Ω, additional resistance needs to be incorporated in order to enable communication.

## Ordering information

**Basic ordering information model 266CRH Multivariable transmitter with remote seal(s), for mass flow and level**

Select one character or set of characters from each category and specify complete catalog number.

Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| **Base model - 1st to 6th characters** | | | | **2 6 6 C R H** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Multivariable transmitter with remote seal(s), for mass flow and level, base accuracy 0.075 %** | | | | | | | | | | | |
| **Sensor Span Limits – 7th character** | | | | | | | | | | | |
| 0.6 and 6 kPa | 6 and 60 mbar | 2.41 and 24 in. $H_2O$ | | | C | | | | | | |
| 0.67 and 40 kPa | 6.7 and 400 mbar | 2.67 and 160 in. $H_2O$ | | | F | | | | | | |
| 4.17 and 250 kPa | 41.7 and 2500 mbar | 16.7 and 1000 in. $H_2O$ | | | L | | | | | | |
| 33.3 and 2000 kPa | 0.333 and 20 bar | 4.83 and 290 psi | | | N | | | | | | |
| **Maximum Working Pressure – 8th character** | | | | | | | | | | | |
| 0 and 2 MPa | 0 and 20 bar | 0 and 290 psi | | | | 2 | | | | | |
| 0 and 10 MPa | 0 and 100 bar | 0 and 1450 psi | (not with Sensor Span Limits code A) | | | 3 | | | | | |
| 0 and 41 MPa | 0 and 410 bar | 0 and 5945 psi | (not with Sensor Span Limits code A) | | | 4 | | | | | |
| **Diaphragm Material / Fill Fluid – 9th character** | | | | | | | | | | | |
| AISI 316L SST (1.4435) | Silicone oil | | | | NACE | | S | | | | |
| Hastelloy® C-276 | Silicone oil | | | | NACE | | K | | | | |
| Monel 400® | Silicone oil | | | | NACE | | M | | | | |
| AISI 316 L ss gold plated | Silicone oil | | | | NACE | | V | | | | |
| Tantalum | Silicone oil | | | | NACE | | T | | | | |
| AISI 316L SST (1.4435) | Inert fluid – Galden (Suitable for oxygen applications) | | | (Note: 1) | NACE | | A | | | | |
| Hastelloy® C-276 | Inert fluid – Galden (Suitable for oxygen applications) | | | (Note: 1) | NACE | | F | | | | |
| Monel 400® gold-plated | Inert fluid – Galden (Suitable for oxygen applications) | | | (Note: 1) | NACE | | C | | | | |
| AISI 316 L ss gold plated | Inert fluid – Galden (Suitable for oxygen applications) | | | (Note: 1) | NACE | | Y | | | | |
| Tantalum | Inert fluid – Galden (Suitable for oxygen applications) | | | (Note: 1) | NACE | | D | | | | |
| Diaphragm seal | Silicone oil (Seal to be quoted separately) | | | | | | R | | | | |
| Diaphragm seal | Inert fluid – Galden (Seal to be quoted separately) | | | | | | 2 | | | | |
| **Process Flanges and Adapters Material / Connection – 10th character** | | | | | | | | | | | |
| AISI 316L SST (1.4404 / 1.4408) | 1/4-18 NPT female direct | | (horizontal connection) | | NACE | | | A | | | |
| AISI 316L SST (1.4404 / 1.4408) | 1/2-14 NPT female through adapter | | (horizontal connection) | | NACE | | | B | | | |
| AISI 316L SST (1.4404 / 1.4408) | 1/4-18 NPT female direct (DIN 19213) | | (horizontal connection) | | NACE | | | C | | | |
| Hastelloy® C-276 | 1/4-18 NPT female direct | | (horizontal connection) | | NACE | | | D | | | |
| Hastelloy® C-276 | 1/2-14 NPT female through adapter | | (horizontal connection) | | NACE | | | E | | | |
| Monel 400® | 1/4-18 NPT female direct | | (horizontal connection) | | NACE | | | G | | | |
| Monel 400® | 1/2-14 NPT female through adapter | | (horizontal connection) | | NACE | | | H | | | |
| AISI 316L SST (1.4404 / 1.4408) | For two seals construction | | | | NACE | | | R | | | |

continued on next page

# ...Ordering information

**...Basic ordering information model 266CRH Multivariable transmitter with remote seal(s), for mass flow and level**

Select one character or set of characters from each category and specify complete catalog number.
Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| | | | X | X | X |
|---|---|---|---|---|---|
| **Bolts Material / Gaskets Material – 11th character** | | | | | |
| AISI 316L SST (NACE - non exposed to H2S) / Viton (Suitable for oxygen applications) | | (Note: 1) | 3 | | |
| AISI 316L SST (NACE - non exposed to H2S) / PTFE (Max. 25 MPa / 250 bar / 3625 psi) | | | 4 | | |
| AISI 316L SST (NACE - non exposed to H2S) / EPDM | | | 5 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Perbunan | | | 6 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Graphite | | | 7 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Without gaskets (For two seals construction) | | | R | | |
| **Housing Material / Electrical Connection – 12th character** | | | | | |
| Aluminium alloy (Barrel type) | 1/2-14 NPT | | | A | |
| Aluminium alloy (Barrel type) | M20 x 1.5 | | | B | |
| AISI 316L SST (Barrel type) | 1/2-14 NPT | | | S | |
| AISI 316L SST (Barrel type) | M20 x 1.5 | | | T | |
| Aluminium alloy (DIN type) | M20 x 1.5 | | | J | |
| **Output – 13th character** | | | | | |
| HART digital communication and 4 … 20 mA | | (No additional options) | | | H |
| HART digital communication and 4 … 20 mA | | (Options requested by "Additional ordering code") | | | 1 |

**ADDITIONAL ORDERING INFORMATION for model 266CRH**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | | | XX | XX |
|---|---|---|---|---|---|
| **Vent and drain valve Material / Position** | | | | | |
| AISI 316L SST (1.4404) | On process axis | NACE | | V1 | |
| AISI 316L SST (1.4404) | On flanges side top | NACE | | V2 | |
| AISI 316L SST (1.4404) | On flanges side bottom | NACE | | V3 | |
| Hastelloy® C-276 | On process axis | NACE | | V4 | |
| Hastelloy® C-276 | On flanges side top | NACE | | V5 | |
| Hastelloy® C-276 | On flanges side bottom | NACE | | V6 | |
| Monel 400® | On process axis | NACE | | V7 | |
| Monel 400® | On flanges side top | NACE | | V8 | |
| Monel 400® | On flanges side bottom | NACE | | V9 | |
| **Explosion Protection Certification** | | | | | |
| ATEX Intrinsic Safety Ex ia | | | | | E1 |
| ATEX Explosion Proof Ex db | | | (Note: 2) | | E2 |
| ATEX Intrinsic Safety Ex ic | | | | | E3 |
| FM approval (Canada) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E4 |
| FM approval (USA) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E6 |
| FM approvals (USA and Canada) Intrinsic Safety | | | | | EA |
| FM approvals (USA and Canada) Explosion Proof | | | (Note: 2) | | EB |
| FM approvals (USA and Canada) Nonincendive | | | | | EC |
| Combined ATEX, IECEx and FM approvals (USA and Canada) | | | (Note: 2) | | EN |
| Combined ATEX Ex ia, Ex db and Ex ic | | | (Note: 2) | | EW |
| IECEx Intrinsic Safety Ex ia | | | | | E8 |
| IECEx Explosion Proof Ex db | | | (Note: 2) | | E9 |
| IECEx Intrinsic Safety Ex ic | | | | | ER |
| Combined IEC Approval Ex ia and Ex db | | | (Note: 2) | | EH |
| Combined IEC Approval Ex ia, Ex db and Ex ic | | | (Note: 2) | | EI |
| NEPSI Intrinsic Safety Ex ia | | | | | EY |
| NEPSI Explosion Proof Ex d | | | (Note: 2) | | EZ |
| NEPSI Intrinsic Safety Ex ic | | | | | ES |
| Combined NEPSI Ex ia and Ex d | | | (Note: 2) | | EP |
| Combined NEPSI Ex ia, Ex d and Ex ic | | | (Note: 2) | | EQ |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266CRH**

...Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | XX | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|
| **Other Explosion Protection Certifications** | | | | | | | |
| TR CU EAC Ex ia Russia (incl. GOST Metrologic Approval) | W1 | | | | | | |
| TR CU EAC Ex d Russia (incl. GOST Metrologic Approval) | W2 | | | | | | |
| TR CU EAC Ex ia Kazakhstan (incl. GOST Metrologic Approval) | W3 | | | | | | |
| TR CU EAC Ex d Kazakhstan (incl. GOST Metrologic Approval) | W4 | | | | | | |
| TR CU EAC Ex ia Belarus (incl. GOST Metrologic Approval) | WF | | | | | | |
| TR CU EAC Ex d Belarus (incl. GOST Metrologic Approval) | WG | | | | | | |
| **Integral LCD** | | | | | | | |
| With integral LCD display | | L1 | | | | | |
| TTG (Through The Glass) integral digital LCD display | | L5 | | | | | |
| **Mounting Bracket Shape / Material** | | | | | | | |
| For pipe mounting / Carbon steel (Not suitable for AISI housing) | | | B1 | | | | |
| For pipe mounting / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B2 | | | | |
| For wall mounting / Carbon steel (not suitable for AISI housing) | | | B3 | | | | |
| For wall mounting / AISI 316 SST (1.4401) (not suitable for AISI housing) | | | B4 | | | | |
| Flat type bracket / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B5 | | | | |
| **Operating Instruction Language** | | | | | | | |
| German | | | | M1 | | | |
| English | | | | M5 | | | |
| **Label and Tag Language** | | | | | | | |
| German | | | | | T1 | | |
| Italian | | | | | T2 | | |
| Spanish | | | | | T3 | | |
| Franch | | | | | T4 | | |
| **Additional Tag Plate** | | | | | | | |
| Supplemental wired-on stainless steel plate (4 lines, 32 characters each) | | | | | | I1 | |
| Laser printing of tag on stainless steel plate | | | | | | I2 | |
| Stainless steel tag, certifikation and wire-on plates | | | | | | I3 | |
| **Configuration** | | | | | | | |
| Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F | | | | | | | N2 |
| Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F | | | | | | | N3 |
| Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C | | | | | | | N4 |
| Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C | | | | | | | N5 |
| Custom | | | | | | | N6 |

| | | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|
| **Certificates** | | | | | | |
| Inspection certificate 3.1 acc. EN 10204 of calibration | | C1 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of the cleanliness stage | | C3 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of helium leakage test of the sensor module | | C4 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure test | | C5 | | | | |
| Declaration of compliance with the order 2.1 acc. EN 10204 for instrument design | | C6 | | | | |
| Printed record of configured data of transmitter | | CG | | | | |
| PMI test on wetted parts | | CT | | | | |
| **Approvals** | | | | | | |
| GOST Russia Metrologic Approval | | | Y1 | | | |
| GOST Kazakhstan Metrologic Approval | | | Y2 | | | |
| GOST Ukraine Metrologic Approval | | | Y3 | | | |
| GOST Belarus Metrologic Approval | | | Y4 | | | |
| Det Norske Veritas naval approval | | | YA | | | |
| **Material Traceability** | | | | | | |
| Certificate of compliance with the order 2.1 acc. EN 10204 for process wetted parts | | | | H1 | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure-bearing and process wetted parts with analysis certificates as material | (Note: 3) | | | H3 | | |
| Material certificate 2.2 acc. EN 10204 for the pressure bearing and process wetted parts | | | | H4 | | |
| **Connector** | | | | | | |
| With cable gland M20 x 1.5 | | | | | U8 | |
| **Seal Type High / Low Pressure Side** | | | | | | |
| For ordering information please refer to seal data sheet DS/S26 | | | | | | |

Note 1: Suitable for Oxygen service
Note 2: Not available with Housing Material / Electrical Connection code J
Note 3: Minor Parts with Factory Certificate acc. to EN 10204

**Standard delivery scope (changes possible with additional ordering code)**

- Adapters supplied loose
- Sealing plug for horizontal connection flange on the process axis (if no remote seal is selected); no vent / drain valve
- For standard applications (without explosion protection)
- No display, no mounting bracket, no surge protector
- Multilanguage short operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates

## Ordering information

**Basic ordering information model 266CRT Multivariable transmitter with remote seal, for mass flow and level.**

Select one character or set of characters from each category and specify complete catalog number.

Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| **Base model - 1st to 6th characters** | | | | **2 6 6 C R T** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Multivariable transmitter with remote seal, for mass flow and level, base accuracy 0.04 %** | | | | | | | | | | | |
| **Sensor Span Limits – 7th character** | | | | | | | | | | | |
| 0.6 and 6 kPa | 6 and 60 mbar | 2.41 and 24 in. $H_2O$ | | | C | | | | | | |
| 0.67 and 40 kPa | 6.7 and 400 mbar | 2.67 and 160 in. $H_2O$ | | | F | | | | | | |
| 4.17 and 250 kPa | 41.7 and 2500 mbar | 16.7 and 1000 in. $H_2O$ | | | L | | | | | | |
| 33.3 and 2000 kPa | 0.333 and 20 bar | 4.83 and 290 psi | | | N | | | | | | |
| **Maximum Working Pressure – 8th character** | | | | | | | | | | | |
| 0 and 2 MPa | 0 and 20 bar | 0 and 290 psi | | | | 2 | | | | | |
| 0 and 10 MPa | 0 and 100 bar | 0 and 1450 psi | (not with Sensor Span Limits code A) | | | 3 | | | | | |
| 0 and 41 MPa | 0 and 410 bar | 0 and 5945 psi | (not with Sensor Span Limits code A) | | | 4 | | | | | |
| **Diaphragm Material / Fill Fluid – 9th character** | | | | | | | | | | | |
| AISI 316L SST (1.4435) | | Silicone oil | | | | | NACE | S | | | |
| Hastelloy® C-276 | | Silicone oil | | | | | NACE | K | | | |
| Monel 400® | | Silicone oil | | | | | NACE | M | | | |
| AISI 316 L ss gold plated | | Silicone oil | | | | | NACE | V | | | |
| Tantalum | | Silicone oil | | | | | NACE | T | | | |
| AISI 316L SST (1.4435) | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | | NACE | A | | | |
| Hastelloy® C-276 | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | | NACE | F | | | |
| Monel 400® gold-plated | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | | NACE | C | | | |
| AISI 316 L ss gold plated | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | | NACE | Y | | | |
| Tantalum | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | | NACE | D | | | |
| Diaphragm seal | | Silicone oil (Seal to be quoted separately) | | | | | | R | | | |
| Diaphragm seal | | Inert fluid – Galden (Seal to be quoted separately) | | | | | | 2 | | | |
| **Process Flanges and Adapters Material / Connection – 10th character** | | | | | | | | | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct | (horizontal connection) | | | | NACE | | A | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/2-14 NPT female through adapter | (horizontal connection) | | | | NACE | | B | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct (DIN 19213) | (horizontal connection) | | | | NACE | | C | | |
| Hastelloy® C-276 | | 1/4-18 NPT female direct | (horizontal connection) | | | | NACE | | D | | |
| Hastelloy® C-276 | | 1/2-14 NPT female through adapter | (horizontal connection) | | | | NACE | | E | | |
| Monel 400® | | 1/4-18 NPT female direct | (horizontal connection) | | | | NACE | | G | | |
| Monel 400® | | 1/2-14 NPT female through adapter | (horizontal connection) | | | | NACE | | H | | |
| AISI 316L SST (1.4404 / 1.4408) | | For two seals construction | | | | | NACE | | R | | |

continued on next page

| | | | X | X | X |
|---|---|---|---|---|---|
| **Bolts Material / Gaskets Material – 11th character** | | | | | |
| AISI 316L SST (NACE - non exposed to H2S) / Viton (Suitable for oxygen applications) | | (Note: 1) | 3 | | |
| AISI 316L SST (NACE - non exposed to H2S) / PTFE (Max. 25 MPa / 250 bar / 3625 psi) | | | 4 | | |
| AISI 316L SST (NACE - non exposed to H2S) / EPDM | | | 5 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Perbunan | | | 6 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Graphite | | | 7 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Without gaskets (For two seals construction) | | | R | | |
| **Housing Material / Electrical Connection – 12th character** | | | | | |
| Aluminium alloy (Barrel type) | 1/2-14 NPT | | | A | |
| Aluminium alloy (Barrel type) | M20 x 1.5 | | | B | |
| AISI 316L SST (Barrel type) | 1/2-14 NPT | | | S | |
| AISI 316L SST (Barrel type) | M20 x 1.5 | | | T | |
| Aluminium alloy (DIN type) | M20 x 1.5 | | | J | |
| **Output – 13th character** | | | | | |
| HART digital communication and 4 … 20 mA | | (No additional options) | | | H |
| HART digital communication and 4 … 20 mA | | (Options requested by "Additional ordering code") | | | 1 |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266CRT**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | | | XX | XX |
|---|---|---|---|---|---|
| **Vent and drain valve Material / Position** | | | | | |
| AISI 316L SST (1.4404) | On process axis | NACE | | V1 | |
| AISI 316L SST (1.4404) | On flanges side top | NACE | | V2 | |
| AISI 316L SST (1.4404) | On flanges side bottom | NACE | | V3 | |
| Hastelloy® C-276 | On process axis | NACE | | V4 | |
| Hastelloy® C-276 | On flanges side top | NACE | | V5 | |
| Hastelloy® C-276 | On flanges side bottom | NACE | | V6 | |
| Monel 400® | On process axis | NACE | | V7 | |
| Monel 400® | On flanges side top | NACE | | V8 | |
| Monel 400® | On flanges side bottom | NACE | | V9 | |
| **Explosion Protection Certification** | | | | | |
| ATEX Intrinsic Safety Ex ia | | | | | E1 |
| ATEX Explosion Proof Ex db | | | (Note: 2) | | E2 |
| ATEX Intrinsic Safety Ex ic | | | | | E3 |
| FM approval (Canada) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E4 |
| FM approval (USA) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E6 |
| FM approvals (USA and Canada) Intrinsic Safety | | | | | EA |
| FM approvals (USA and Canada) Explosion Proof | | | (Note: 2) | | EB |
| FM approvals (USA and Canada) Nonincendive | | | | | EC |
| Combined ATEX, IECEx and FM approvals (USA and Canada) | | | (Note: 2) | | EN |
| Combined ATEX Ex ia, Ex db and Ex ic | | | (Note: 2) | | EW |
| IECEx Intrinsic Safety Ex ia | | | | | E8 |
| IECEx Explosion Proof Ex db | | | (Note: 2) | | E9 |
| IECEx Intrinsic Safety Ex ic | | | | | ER |
| Combined IEC Approval Ex ia and Ex db | | | (Note: 2) | | EH |
| Combined IEC Approval Ex ia, Ex db and Ex ic | | | (Note: 2) | | EI |
| NEPSI Intrinsic Safety Ex ia | | | | | EY |
| NEPSI Explosion Proof Ex d | | | (Note: 2) | | EZ |
| NEPSI Intrinsic Safety Ex ic | | | | | ES |
| Combined NEPSI Ex ia and Ex d | | | (Note: 2) | | EP |
| Combined NEPSI Ex ia, Ex d and Ex ic | | | (Note: 2) | | EQ |

| | XX | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|
| **Other Explosion Protection Certifications** | | | | | | | |
| TR CU EAC Ex ia Russia (incl. GOST Metrologic Approval) | W1 | | | | | | |
| TR CU EAC Ex d Russia (incl. GOST Metrologic Approval) | W2 | | | | | | |
| TR CU EAC Ex ia Kazakhstan (incl. GOST Metrologic Approval) | W3 | | | | | | |
| TR CU EAC Ex d Kazakhstan (incl. GOST Metrologic Approval) | W4 | | | | | | |
| TR CU EAC Ex ia Belarus (incl. GOST Metrologic Approval) | WF | | | | | | |
| TR CU EAC Ex d Belarus (incl. GOST Metrologic Approval) | WG | | | | | | |
| **Integral LCD** | | | | | | | |
| With integral LCD display | | L1 | | | | | |
| TTG (Through The Glass) integral digital LCD display | | L5 | | | | | |
| **Mounting Bracket Shape / Material** | | | | | | | |
| For pipe mounting / Carbon steel (Not suitable for AISI housing) | | | B1 | | | | |
| For pipe mounting / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B2 | | | | |
| For wall mounting / Carbon steel (not suitable for AISI housing) | | | B3 | | | | |
| For wall mounting / AISI 316 SST (1.4401) (not suitable for AISI housing) | | | B4 | | | | |
| Flat type bracket / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B5 | | | | |
| **Operating Instruction Language** | | | | | | | |
| German | | | | M1 | | | |
| English | | | | M5 | | | |
| **Label and Tag Language** | | | | | | | |
| German | | | | | T1 | | |
| Italian | | | | | T2 | | |
| Spanish | | | | | T3 | | |
| Franch | | | | | T4 | | |
| **Additional Tag Plate** | | | | | | | |
| Supplemental wired-on stainless steel plate (4 lines, 32 characters each) | | | | | | I1 | |
| Laser printing of tag on stainless steel plate | | | | | | I2 | |
| Stainless steel tag, certifikation and wire-on plates | | | | | | I3 | |
| **Configuration** | | | | | | | |
| Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F | | | | | | | N2 |
| Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F | | | | | | | N3 |
| Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C | | | | | | | N4 |
| Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C | | | | | | | N5 |
| Custom | | | | | | | N6 |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266CRT**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|
| **Certificates** | | | | | | |
| Inspection certificate 3.1 acc. EN 10204 of calibration | | C1 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of the cleanliness stage | | C3 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of helium leakage test of the sensor module | | C4 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure test | | C5 | | | | |
| Declaration of compliance with the order 2.1 acc. EN 10204 for instrument design | | C6 | | | | |
| Printed record of configured data of transmitter | | CG | | | | |
| PMI test on wetted parts | | CT | | | | |
| **Approvals** | | | | | | |
| GOST Russia Metrologic Approval | | | Y1 | | | |
| GOST Kazakhstan Metrologic Approval | | | Y2 | | | |
| GOST Ukraine Metrologic Approval | | | Y3 | | | |
| GOST Belarus Metrologic Approval | | | Y4 | | | |
| Det Norske Veritas naval approval | | | YA | | | |
| **Material Traceability** | | | | | | |
| Certificate of compliance with the order 2.1 acc. EN 10204 for process wetted parts | | | | H1 | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure-bearing and process wetted parts with analysis certificates as material | (Note: 3) | | | H3 | | |
| Material certificate 2.2 acc. EN 10204 for the pressure bearing and process wetted parts | | | | H4 | | |
| **Connector** | | | | | | |
| With cable gland M20 x 1.5 | | | | | U8 | |
| **Seal Type High / Low Pressure Side** | | | | | | |
| For ordering information please refer to seal data sheet DS/S26 | | | | | | |

Note 1: Suitable for Oxygen service

Note 2: Not available with Housing Material / Electrical Connection code J

Note 3: Minor Parts with Factory Certificate acc. to EN 10204

**Standard delivery scope (changes possible with additional ordering code)**

- Adapters supplied loose
- Sealing plug for horizontal connection flange on the process axis (if no remote seal is selected); no vent / drain valve
- For standard applications (without explosion protection)
- No display, no mounting bracket, no surge protector
- Multilanguage short operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates

## Ordering information

**Basic ordering information model 266JRH Multivariable transmitter with remote seal(s), for mass flow and level**

Select one character or set of characters from each category and specify complete catalog number.
Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| **Base model - 1st to 6th characters** | | | | **2 6 6 J R H** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Multivariable transmitter with remote seal(s) for differential pressure, absolute pressure and temperature measurement, base accuracy 0.075 %** | | | | | | | | | | | |
| **Sensor Span Limits – 7th character** | | | | | | | | | | | |
| 0.6 and 6 kPa | 6 and 60 mbar | 2.41 and 24 in. $H_2O$ | | | C | | | | | | |
| 0.67 and 40 kPa | 6.7 and 400 mbar | 2.67 and 160 in. $H_2O$ | | | F | | | | | | |
| 4.17 and 250 kPa | 41.7 and 2500 mbar | 16.7 and 1000 in. $H_2O$ | | | L | | | | | | |
| 33.3 and 2000 kPa | 0.333 and 20 bar | 4.83 and 290 psi | | | N | | | | | | |
| 167 and 10000 kPa | 1.67 and 100 bar | 24.2 and 1450 psi | | | R | | | | | | |
| **Maximum Working Pressure – 8th character** | | | | | | | | | | | |
| 0 and 2 MPa | 0 and 20 bar | 0 and 290 psi | | | | 2 | | | | | |
| 0 and 10 MPa | 0 and 100 bar | 0 and 1450 psi | (not with Sensor Span Limits code A) | | | 3 | | | | | |
| 0 and 41 MPa | 0 and 410 bar | 0 and 5945 psi | (not with Sensor Span Limits code A) | | | 4 | | | | | |
| **Diaphragm Material / Fill Fluid – 9th character** | | | | | | | | | | | |
| AISI 316L SST (1.4435) | | Silicone oil | | | NACE | | S | | | | |
| Hastelloy® C-276 | | Silicone oil | | | NACE | | K | | | | |
| Monel 400® | | Silicone oil | | | NACE | | M | | | | |
| AISI 316 L ss gold plated | | Silicone oil | | | NACE | | V | | | | |
| Tantalum | | Silicone oil | | | NACE | | T | | | | |
| AISI 316L SST (1.4435) | | Inert fluid – Galden (Suitable for oxygen applications) | | (Note: 1) | NACE | | A | | | | |
| Hastelloy® C-276 | | Inert fluid – Galden (Suitable for oxygen applications) | | (Note: 1) | NACE | | F | | | | |
| Monel 400® gold-plated | | Inert fluid – Galden (Suitable for oxygen applications) | | (Note: 1) | NACE | | C | | | | |
| AISI 316 L ss gold plated | | Inert fluid – Galden (Suitable for oxygen applications) | | (Note: 1) | NACE | | Y | | | | |
| Tantalum | | Inert fluid – Galden (Suitable for oxygen applications) | | (Note: 1) | NACE | | D | | | | |
| Diaphragm seal | | Silicone oil (Seal to be quoted separately) | | | | | R | | | | |
| Diaphragm seal | | Inert fluid – Galden (Seal to be quoted separately) | | | | | 2 | | | | |
| **Process Flanges and Adapters Material / Connection – 10th character** | | | | | | | | | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct | (horizontal connection) | | NACE | | | A | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/2-14 NPT female through adapter | (horizontal connection) | | NACE | | | B | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct (DIN 19213) | (horizontal connection) | | NACE | | | C | | | |
| Hastelloy® C-276 | | 1/4-18 NPT female direct | (horizontal connection) | | NACE | | | D | | | |
| Hastelloy® C-276 | | 1/2-14 NPT female through adapter | (horizontal connection) | | NACE | | | E | | | |
| Monel 400® | | 1/4-18 NPT female direct | (horizontal connection) | | NACE | | | G | | | |
| Monel 400® | | 1/2-14 NPT female through adapter | (horizontal connection) | | NACE | | | H | | | |
| AISI 316L SST (1.4404 / 1.4408) | | For two seals construction | | | NACE | | | R | | | |

continued on next page

# ...Ordering information

**...Basic ordering information model 266JRH Multivariable transmitter with remote seal(s), for mass flow and level**

Select one character or set of characters from each category and specify complete catalog number.
Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| | | | X | X | X |
|---|---|---|---|---|---|
| **Bolts Material / Gaskets Material – 11th character** | | | | | |
| AISI 316L SST (NACE - non exposed to H2S) / Viton (Suitable for oxygen applications) | | (Note: 1) | 3 | | |
| AISI 316L SST (NACE - non exposed to H2S) / PTFE (Max. 25 MPa / 250 bar / 3625 psi) | | | 4 | | |
| AISI 316L SST (NACE - non exposed to H2S) / EPDM | | | 5 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Perbunan | | | 6 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Graphite | | | 7 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Without gaskets (For two seals construction) | | | R | | |
| **Housing Material / Electrical Connection – 12th character** | | | | | |
| Aluminium alloy (Barrel type) | 1/2-14 NPT | | | A | |
| Aluminium alloy (Barrel type) | M20 x 1.5 | | | B | |
| AISI 316L SST (Barrel type) | 1/2-14 NPT | | | S | |
| AISI 316L SST (Barrel type) | M20 x 1.5 | | | T | |
| Aluminium alloy (DIN type) | M20 x 1.5 | | | J | |
| **Output – 13th character** | | | | | |
| HART digital communication and 4 … 20 mA | | (No additional options) | | | H |
| HART digital communication and 4 … 20 mA | | (Options requested by "Additional ordering code") | | | 1 |

**ADDITIONAL ORDERING INFORMATION for model 266JRH**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | | | XX | XX |
|---|---|---|---|---|---|
| **Vent and drain valve Material / Position** | | | | | |
| AISI 316L SST (1.4404) | On process axis | NACE | | V1 | |
| AISI 316L SST (1.4404) | On flanges side top | NACE | | V2 | |
| AISI 316L SST (1.4404) | On flanges side bottom | NACE | | V3 | |
| Hastelloy® C-276 | On process axis | NACE | | V4 | |
| Hastelloy® C-276 | On flanges side top | NACE | | V5 | |
| Hastelloy® C-276 | On flanges side bottom | NACE | | V6 | |
| Monel 400® | On process axis | NACE | | V7 | |
| Monel 400® | On flanges side top | NACE | | V8 | |
| Monel 400® | On flanges side bottom | NACE | | V9 | |
| **Explosion Protection Certification** | | | | | |
| ATEX Intrinsic Safety Ex ia | | | | | E1 |
| ATEX Explosion Proof Ex db | | | (Note: 2) | | E2 |
| ATEX Intrinsic Safety Ex ic | | | | | E3 |
| FM approval (Canada) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E4 |
| FM approval (USA) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E6 |
| FM approvals (USA and Canada) Intrinsic Safety | | | | | EA |
| FM approvals (USA and Canada) Explosion Proof | | | (Note: 2) | | EB |
| FM approvals (USA and Canada) Nonincendive | | | | | EC |
| Combined ATEX, IECEx and FM approvals (USA and Canada) | | | (Note: 2) | | EN |
| Combined ATEX Ex ia, Ex db and Ex ic | | | (Note: 2) | | EW |
| IECEx Intrinsic Safety Ex ia | | | | | E8 |
| IECEx Explosion Proof Ex db | | | (Note: 2) | | E9 |
| IECEx Intrinsic Safety Ex ic | | | | | ER |
| Combined IEC Approval Ex ia and Ex db | | | (Note: 2) | | EH |
| Combined IEC Approval Ex ia, Ex db and Ex ic | | | (Note: 2) | | EI |
| NEPSI Intrinsic Safety Ex ia | | | | | EY |
| NEPSI Explosion Proof Ex d | | | (Note: 2) | | EZ |
| NEPSI Intrinsic Safety Ex ic | | | | | ES |
| Combined NEPSI Ex ia and Ex d | | | (Note: 2) | | EP |
| Combined NEPSI Ex ia, Ex d and Ex ic | | | (Note: 2) | | EQ |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266JRH**

...Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | XX | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|
| **Other Explosion Protection Certifications** | | | | | | | |
| TR CU EAC Ex ia Russia (incl. GOST Metrologic Approval) | W1 | | | | | | |
| TR CU EAC Ex d Russia (incl. GOST Metrologic Approval) | W2 | | | | | | |
| TR CU EAC Ex ia Kazakhstan (incl. GOST Metrologic Approval) | W3 | | | | | | |
| TR CU EAC Ex d Kazakhstan (incl. GOST Metrologic Approval) | W4 | | | | | | |
| TR CU EAC Ex ia Belarus (incl. GOST Metrologic Approval) | WF | | | | | | |
| TR CU EAC Ex d Belarus (incl. GOST Metrologic Approval) | WG | | | | | | |
| **Integral LCD** | | | | | | | |
| With integral LCD display | | L1 | | | | | |
| TTG (Through The Glass) integral digital LCD display | | L5 | | | | | |
| **Mounting Bracket Shape / Material** | | | | | | | |
| For pipe mounting / Carbon steel (Not suitable for AISI housing) | | | B1 | | | | |
| For pipe mounting / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B2 | | | | |
| For wall mounting / Carbon steel (not suitable for AISI housing) | | | B3 | | | | |
| For wall mounting / AISI 316 SST (1.4401) (not suitable for AISI housing) | | | B4 | | | | |
| Flat type bracket / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B5 | | | | |
| **Operating Instruction Language** | | | | | | | |
| German | | | | M1 | | | |
| English | | | | M5 | | | |
| **Label and Tag Language** | | | | | | | |
| German | | | | | T1 | | |
| Italian | | | | | T2 | | |
| Spanish | | | | | T3 | | |
| Franch | | | | | T4 | | |
| **Additional Tag Plate** | | | | | | | |
| Supplemental wired-on stainless steel plate (4 lines, 32 characters each) | | | | | | I1 | |
| Laser printing of tag on stainless steel plate | | | | | | I2 | |
| Stainless steel tag, certifikation and wire-on plates | | | | | | I3 | |
| **Configuration** | | | | | | | |
| Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F | | | | | | | N2 |
| Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F | | | | | | | N3 |
| Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C | | | | | | | N4 |
| Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C | | | | | | | N5 |
| Custom | | | | | | | N6 |

| | | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|
| **Certificates** | | | | | | |
| Inspection certificate 3.1 acc. EN 10204 of calibration | | C1 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of the cleanliness stage | | C3 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of helium leakage test of the sensor module | | C4 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure test | | C5 | | | | |
| Declaration of compliance with the order 2.1 acc. EN 10204 for instrument design | | C6 | | | | |
| Printed record of configured data of transmitter | | CG | | | | |
| PMI test on wetted parts | | CT | | | | |
| **Approvals** | | | | | | |
| GOST Russia Metrologic Approval | | | Y1 | | | |
| GOST Kazakhstan Metrologic Approval | | | Y2 | | | |
| GOST Ukraine Metrologic Approval | | | Y3 | | | |
| GOST Belarus Metrologic Approval | | | Y4 | | | |
| Det Norske Veritas naval approval | | | YA | | | |
| **Material Traceability** | | | | | | |
| Certificate of compliance with the order 2.1 acc. EN 10204 for process wetted parts | | | | H1 | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure-bearing and process wetted parts with analysis certificates as material | (Note: 3) | | | H3 | | |
| Material certificate 2.2 acc. EN 10204 for the pressure bearing and process wetted parts | | | | H4 | | |
| **Connector** | | | | | | |
| With cable gland M20 x 1.5 | | | | | U8 | |
| **Seal Type High / Low Pressure Side** | | | | | | |
| For ordering information please refer to seal data sheet DS/S26 | | | | | | |

Note 1: Suitable for Oxygen service
Note 2: Not available with Housing Material / Electrical Connection code J
Note 3: Minor Parts with Factory Certificate acc. to EN 10204

**Standard delivery scope (changes possible with additional ordering code)**

- Adapters supplied loose
- Sealing plug for horizontal connection flange on the process axis (if no remote seal is selected); no vent / drain valve
- For standard applications (without explosion protection)
- No display, no mounting bracket, no surge protector
- Multilanguage short operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates

## Ordering information

**Basic ordering information model 266JRT Multivariable transmitter with remote seal, for mass flow and level.**

Select one character or set of characters from each category and specify complete catalog number.

Refer to additional ordering information and specify one or more codes for each transmitter if additional options are required.

| **Base model - 1st to 6th characters** | | | | **2 6 6 J R T** | **X** | **X** | **X** | **X** | **X** | **X** | **X** |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Multivariable transmitter with remote seal(s) for differential pressure, absolute pressure and temperature measurement, base accuracy 0.04 %** | | | | | | | | | | | |
| **Sensor Span Limits – 7th character** | | | | | | | | | | | |
| 0.6 and 6 kPa | 6 and 60 mbar | 2.41 and 24 in. $H_2O$ | | | C | | | | | | |
| 0.67 and 40 kPa | 6.7 and 400 mbar | 2.67 and 160 in. $H_2O$ | | | F | | | | | | |
| 4.17 and 250 kPa | 41.7 and 2500 mbar | 16.7 and 1000 in. $H_2O$ | | | L | | | | | | |
| 33.3 and 2000 kPa | 0.333 and 20 bar | 4.83 and 290 psi | | | N | | | | | | |
| 167 and 10000 kPa | 1.67 and 100 bar | 24.2 and 1450 psi | | | R | | | | | | |
| **Maximum Working Pressure – 8th character** | | | | | | | | | | | |
| 0 and 2 MPa | 0 and 20 bar | 0 and 290 psi | | | | 2 | | | | | |
| 0 and 10 MPa | 0 and 100 bar | 0 and 1450 psi | (not with Sensor Span Limits code A) | | | 3 | | | | | |
| 0 and 41 MPa | 0 and 410 bar | 0 and 5945 psi | (not with Sensor Span Limits code A) | | | 4 | | | | | |
| **Diaphragm Material / Fill Fluid – 9th character** | | | | | | | | | | | |
| AISI 316L SST (1.4435) | | Silicone oil | | | | NACE | S | | | | |
| Hastelloy® C-276 | | Silicone oil | | | | NACE | K | | | | |
| Monel 400® | | Silicone oil | | | | NACE | M | | | | |
| AISI 316 L ss gold plated | | Silicone oil | | | | NACE | V | | | | |
| Tantalum | | Silicone oil | | | | NACE | T | | | | |
| AISI 316L SST (1.4435) | | Inert fluid – Galden (Suitable for oxygen applications) Note: 1) | | | | NACE | A | | | | |
| Hastelloy® C-276 | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | NACE | F | | | | |
| Monel 400® gold-plated | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | NACE | C | | | | |
| AISI 316 L ss gold plated | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | NACE | Y | | | | |
| Tantalum | | Inert fluid – Galden (Suitable for oxygen applications) (Note: 1) | | | | NACE | D | | | | |
| Diaphragm seal | | Silicone oil (Seal to be quoted separately) | | | | | R | | | | |
| Diaphragm seal | | Inert fluid – Galden (Seal to be quoted separately) | | | | | 2 | | | | |
| **Process Flanges and Adapters Material / Connection – 10th character** | | | | | | | | | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct | (horizontal connection) | | | NACE | | A | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/2-14 NPT female through adapter | (horizontal connection) | | | NACE | | B | | | |
| AISI 316L SST (1.4404 / 1.4408) | | 1/4-18 NPT female direct (DIN 19213) | (horizontal connection) | | | NACE | | C | | | |
| Hastelloy® C-276 | | 1/4-18 NPT female direct | (horizontal connection) | | | NACE | | D | | | |
| Hastelloy® C-276 | | 1/2-14 NPT female through adapter | (horizontal connection) | | | NACE | | E | | | |
| Monel 400® | | 1/4-18 NPT female direct | (horizontal connection) | | | NACE | | G | | | |
| Monel 400® | | 1/2-14 NPT female through adapter | (horizontal connection) | | | NACE | | H | | | |
| AISI 316L SST (1.4404 / 1.4408) | | For two seals construction | | | | NACE | | R | | | |

continued on next page

| | | | X | X | X |
|---|---|---|---|---|---|
| **Bolts Material / Gaskets Material – 11th character** | | | | | |
| AISI 316L SST (NACE - non exposed to H2S) / Viton (Suitable for oxygen applications) | | (Note: 1) | 3 | | |
| AISI 316L SST (NACE - non exposed to H2S) / PTFE (Max. 25 MPa / 250 bar / 3625 psi) | | | 4 | | |
| AISI 316L SST (NACE - non exposed to H2S) / EPDM | | | 5 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Perbunan | | | 6 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Graphite | | | 7 | | |
| AISI 316L SST (NACE - non exposed to H2S) / Without gaskets (For two seals construction) | | | R | | |
| **Housing Material / Electrical Connection – 12th character** | | | | | |
| Aluminium alloy (Barrel type) | 1/2-14 NPT | | | A | |
| Aluminium alloy (Barrel type) | M20 x 1.5 | | | B | |
| AISI 316L SST (Barrel type) | 1/2-14 NPT | | | S | |
| AISI 316L SST (Barrel type) | M20 x 1.5 | | | T | |
| Aluminium alloy (DIN type) | M20 x 1.5 | | | J | |
| **Output – 13th character** | | | | | |
| HART digital communication and 4 … 20 mA | | (No additional options) | | | H |
| HART digital communication and 4 … 20 mA | | (Options requested by "Additional ordering code") | | | 1 |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266JRT**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | | | XX | XX |
|---|---|---|---|---|---|
| **Vent and drain valve Material / Position** | | | | | |
| AISI 316L SST (1.4404) | On process axis | NACE | | V1 | |
| AISI 316L SST (1.4404) | On flanges side top | NACE | | V2 | |
| AISI 316L SST (1.4404) | On flanges side bottom | NACE | | V3 | |
| Hastelloy® C-276 | On process axis | NACE | | V4 | |
| Hastelloy® C-276 | On flanges side top | NACE | | V5 | |
| Hastelloy® C-276 | On flanges side bottom | NACE | | V6 | |
| Monel 400® | On process axis | NACE | | V7 | |
| Monel 400® | On flanges side top | NACE | | V8 | |
| Monel 400® | On flanges side bottom | NACE | | V9 | |
| **Explosion Protection Certification** | | | | | |
| ATEX Intrinsic Safety Ex ia | | | | | E1 |
| ATEX Explosion Proof Ex db | | | (Note: 2) | | E2 |
| ATEX Intrinsic Safety Ex ic | | | | | E3 |
| FM approval (Canada) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E4 |
| FM approval (USA) (Only available with 1/2-14 NPT or M20 electrical connections) | | | (Note: 2) | | E6 |
| FM approvals (USA and Canada) Intrinsic Safety | | | | | EA |
| FM approvals (USA and Canada) Explosion Proof | | | (Note: 2) | | EB |
| FM approvals (USA and Canada) Nonincendive | | | | | EC |
| Combined ATEX, IECEx and FM approvals (USA and Canada) | | | (Note: 2) | | EN |
| Combined ATEX Ex ia, Ex db and Ex ic | | | (Note: 2) | | EW |
| IECEx Intrinsic Safety Ex ia | | | | | E8 |
| IECEx Explosion Proof Ex db | | | (Note: 2) | | E9 |
| IECEx Intrinsic Safety Ex ic | | | | | ER |
| Combined IEC Approval Ex ia and Ex db | | | (Note: 2) | | EH |
| Combined IEC Approval Ex ia, Ex db and Ex ic | | | (Note: 2) | | EI |
| NEPSI Intrinsic Safety Ex ia | | | | | EY |
| NEPSI Explosion Proof Ex d | | | (Note: 2) | | EZ |
| NEPSI Intrinsic Safety Ex ic | | | | | ES |
| Combined NEPSI Ex ia and Ex d | | | (Note: 2) | | EP |
| Combined NEPSI Ex ia, Ex d and Ex ic | | | (Note: 2) | | EQ |

| | XX | XX | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|---|
| **Other Explosion Protection Certifications** | | | | | | | |
| TR CU EAC Ex ia Russia (incl. GOST Metrologic Approval) | W1 | | | | | | |
| TR CU EAC Ex d Russia (incl. GOST Metrologic Approval) | W2 | | | | | | |
| TR CU EAC Ex ia Kazakhstan (incl. GOST Metrologic Approval) | W3 | | | | | | |
| TR CU EAC Ex d Kazakhstan (incl. GOST Metrologic Approval) | W4 | | | | | | |
| TR CU EAC Ex ia Belarus (incl. GOST Metrologic Approval) | WF | | | | | | |
| TR CU EAC Ex d Belarus (incl. GOST Metrologic Approval) | WG | | | | | | |
| **Integral LCD** | | | | | | | |
| With integral LCD display | | L1 | | | | | |
| TTG (Through The Glass) integral digital LCD display | | L5 | | | | | |
| **Mounting Bracket Shape / Material** | | | | | | | |
| For pipe mounting / Carbon steel (Not suitable for AISI housing) | | | B1 | | | | |
| For pipe mounting / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B2 | | | | |
| For wall mounting / Carbon steel (not suitable for AISI housing) | | | B3 | | | | |
| For wall mounting / AISI 316 SST (1.4401) (not suitable for AISI housing) | | | B4 | | | | |
| Flat type bracket / AISI 316 SST (1.4401) (Not suitable for AISI housing) | | | B5 | | | | |
| **Operating Instruction Language** | | | | | | | |
| German | | | | M1 | | | |
| English | | | | M5 | | | |
| **Label and Tag Language** | | | | | | | |
| German | | | | | T1 | | |
| Italian | | | | | T2 | | |
| Spanish | | | | | T3 | | |
| Franch | | | | | T4 | | |
| **Additional Tag Plate** | | | | | | | |
| Supplemental wired-on stainless steel plate (4 lines, 32 characters each) | | | | | | I1 | |
| Laser printing of tag on stainless steel plate | | | | | | I2 | |
| Stainless steel tag, certifikation and wire-on plates | | | | | | I3 | |
| **Configuration** | | | | | | | |
| Standard – Pressure = inH2O/ psi at 68 °F; Temperature = deg. F | | | | | | | N2 |
| Standard – Pressure = inH2O/ psi at 39.2 °F; Temperature = deg. F | | | | | | | N3 |
| Standard – Pressure = inH2O/ psi at 20 °C; Temperature = deg. C | | | | | | | N4 |
| Standard – Pressure = inH2O/ psi at 4 °C; Temperature = deg. C | | | | | | | N5 |
| Custom | | | | | | | N6 |

# ...Ordering information

**...ADDITIONAL ORDERING INFORMATION for model 266JRT**

Add one or more 2-digit code(s) after the basic ordering information to select all required options

| | | XX | XX | XX | XX | XX |
|---|---|---|---|---|---|---|
| **Certificates** | | | | | | |
| Inspection certificate 3.1 acc. EN 10204 of calibration | | C1 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of the cleanliness stage | | C3 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of helium leakage test of the sensor module | | C4 | | | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure test | | C5 | | | | |
| Declaration of compliance with the order 2.1 acc. EN 10204 for instrument design | | C6 | | | | |
| Printed record of configured data of transmitter | | CG | | | | |
| PMI test on wetted parts | | CT | | | | |
| **Approvals** | | | | | | |
| GOST Russia Metrologic Approval | | | Y1 | | | |
| GOST Kazakhstan Metrologic Approval | | | Y2 | | | |
| GOST Ukraine Metrologic Approval | | | Y3 | | | |
| GOST Belarus Metrologic Approval | | | Y4 | | | |
| Det Norske Veritas naval approval | | | YA | | | |
| **Material Traceability** | | | | | | |
| Certificate of compliance with the order 2.1 acc. EN 10204 for process wetted parts | | | | H1 | | |
| Inspection certificate 3.1 acc. EN 10204 of pressure-bearing and process wetted parts with analysis certificates as material | (Note: 3) | | | H3 | | |
| Material certificate 2.2 acc. EN 10204 for the pressure bearing and process wetted parts | | | | H4 | | |
| **Connector** | | | | | | |
| With cable gland M20 x 1.5 | | | | | U8 | |
| **Seal Type High / Low Pressure Side** | | | | | | |
| For ordering information please refer to seal data sheet DS/S26 | | | | | | |

Note 1: Suitable for Oxygen service

Note 2: Not available with Housing Material / Electrical Connection code J

Note 3: Minor Parts with Factory Certificate acc. to EN 10204

**Standard delivery scope (changes possible with additional ordering code)**

- Adapters supplied loose
- Sealing plug for horizontal connection flange on the process axis (if no remote seal is selected); no vent / drain valve
- For standard applications (without explosion protection)
- No display, no mounting bracket, no surge protector
- Multilanguage short operating instruction and English labeling
- Configuration with kPa and °C units
- No test, inspection, or material certificates

**IMPORTANT REMARK FOR ALL MODELS**
The selection of suitable wetted parts and filling fluid for compatibility with the process media is a customers responsibility, if not otherwise notified before manufacturing.

**NACE compliance information**

**1** The materials of constructions comply with metallurgical recommendations of NACE MR0175/ISO 15156 for sour oil field production environments. As specific environmental limits may apply to certain materials, please consult latest standard for further details. Materials AISI 316 / AISI 316L, Hastelloy C-276, Monel 400 also conform to NACE MR0103 for sour refining environments.

**2** NACE MR0175 addresses bolting requirements in two classes:

- **Exposed bolts**: bolts directly exposed to the sour environment or buried, encapsulated or anyway not exposed to atmosphere
- **Non exposed bolts**: the bolting must not be directly exposed to sour environments, and must be directly exposed to the atmosphere at all times.

266CRH, 266CRT, 266JRH, 266JRT bolting identified by “NACE” are in compliance to the requirements of NACE MR0175 when considered “non exposed bolting”.

**Trademarks**
™ Hastelloy C-276 is a Cabot Corporation trademark
™ Hastelloy C-2000 is a Haynes International trademark
™ Monel is an International Nickel Co. trademark
™ Viton is a DuPont de Nemours trademark
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™ Galden is a Montefluos trademark
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™ Neobee M 20 is a Stepan Company trademark
™ Esso Marcol 122 is an Esso Italiana trademark
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Castel Maggiore (BO) 40013
Via Lirone 60/i

e-mail: info@eurotecsrl.com
Tel: +39 051/6321595
Website: www.eurotecsrl.com

C.F.: 04103780377
P.I.: 01596581205

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**ABB Ltd.**
**Measurement & Analytics**
Howard Road St. Neots
Cambridgeshire PE19 8EU
UK
Tel: +44 (0)1480 475321
Fax: +44 (0)1480 217948

**ABB Inc.**
**Measurement & Analytics**
125 E. County Line Road
Warminster PA 18974
USA
Tel: +1 215 674 6000
Fax: +1 215 674 7183

**abb.com/measurement**

**ABB S.p.A.**
**Measurement & Analytics**
Via Luigi Vaccani 4
22016 Tremezzina Loc. Ossuccio (CO)
Italy
Tel: +39 0344 58111

**ABB Automation Products GmbH**
**Measurement & Analytics**
Schillerstr. 72
32425 Minden
Germany
Tel: +49 551 905 534
Fax: +49 551 905 555

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