The all new 600T Series transmitter
The first choice pressure transmitter is now an even bigger choice
**GENERAL DESCRIPTION**

Model 621SM is a specific application transmitter using a differential design for liquid level interface and density measurements, typically for two non mixable liquids (one upon the other) of different specific gravity, in a tank.

The transmitter has a defined structure with two seals:
- one direct mount flanged flush diaphragm seal is on the high pressure side.
- one remote seal, selectable wafer or flanged flush diaphragm, is fitted via capillary to the low pressure side.

The seals should have the same physical characteristics (size, materials, etc.) for the two sides; these are suitable to interface tank nozzle of 2in/3in to ANSI or DN50/DN80 to DIN.

**FUNCTIONAL SPECIFICATIONS**

**Range and span limits**

<table>
<thead>
<tr>
<th>Sensor code</th>
<th>Upper Range Limit (URL)</th>
<th>Lower Range Limit (LRL)</th>
<th>Minimum Span</th>
<th>Compatibility (allowed seal types)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>621SM Liquid level interface, density</td>
<td></td>
<td></td>
<td>Direct mount and one remote seal (max length in m)</td>
</tr>
<tr>
<td><strong>A</strong></td>
<td>2.5 kPa</td>
<td>- 2.5 kPa</td>
<td>0.25 kPa</td>
<td>3in/DN80 wafer or flanged flush diaphragm seal (2)</td>
</tr>
<tr>
<td></td>
<td>25 mbar</td>
<td>- 25 mbar</td>
<td>2.5 mbar</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10 inH2O</td>
<td>- 10 inH2O</td>
<td>1 inH2O</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>10 kPa</td>
<td>- 10 kPa</td>
<td>1 kPa</td>
<td>2in/DN50 wafer or flanged flush diaphragm seal (2)(•)</td>
</tr>
<tr>
<td></td>
<td>100 mbar</td>
<td>- 100 mbar</td>
<td>10 mbar</td>
<td>3in/DN80 wafer or flanged flush diaphragm seal (4)</td>
</tr>
<tr>
<td></td>
<td>40.1 inH2O</td>
<td>- 40.1 inH2O</td>
<td>4 inH2O</td>
<td></td>
</tr>
</tbody>
</table>

The combinations sensor code/seal type marked (•) modify the base accuracy rating and static pressure effect; refer to performance specifications.

**Turndown ratio (TD):**
- up to 10:1

**Span limits**
- Maximum span = URL
- Minimum span = URL/TD

**Zero suppression and elevation**
- Zero and span can be adjusted to any value within the range limits detailed in the table as long as:
  - calibrated span ≥ minimum span

**Damping**
- Selectable time constant : 0, 0.25, 0.5, 1, 2, 4, 8 or 16 sec.

**Electromagnetic compatibility (EMC)**
- Comply with EN 50081-2 for emission and EN 50082-2 for immunity requirements and test; CE marking.

**Turn on time**
- Operation within specification in less than 2 sec. with minimum damping.

**Insulation resistance**
- > 100 MΩ @ 1000 Vdc (terminals to earth)

**Temperature limits °C (°F)**
- **Process**
  - The following table shows characteristics of fill fluid used in the seals on the two sides of transmitter model 621SM.

<table>
<thead>
<tr>
<th>FILL FLUIDS (APPLICATION)</th>
<th>OPERATING CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silicone oil DC 200 (General purpose)</td>
<td>T\text{max} @ P &gt; of Tmin</td>
</tr>
<tr>
<td>150 (302) @ 35 mbar abs</td>
<td>-20 (-4)</td>
</tr>
<tr>
<td>Inert (Galden) (Oxygen Service)</td>
<td>100 (212) @ 75 mbar abs</td>
</tr>
<tr>
<td>-10 (-14)</td>
<td></td>
</tr>
</tbody>
</table>

- **Ambient (is the operating temperature)**
  - Silicone oil : -20 and +85°C (-4 and +185°F)
  - Inert : -10 and +85°C (+14 and +185°F)
  - Upper ambient limit for CoMeter : +70°C (+158°F)

- **Storage**
  - Lower limit : -50°C (-58°F); -40°C (-40°F) for LCD indicators
  - Upper limit : +120°C (+248°F); +85°C (+185°F) for LCD indicators

**Time response**
- The time response of a transmitter/seal system is function of some characteristics which define relevant coefficients as follows:

**Configuration coefficient (K1)**
- 2in/DN50 seal : 9.2 x L
- 3in/DN80 seal : 9.2 x L

"L" is the capillary length of the remote seal; if present.
The seal(s) constant time is calculated by the following formula:

\[ T_{S6} \text{ (sec)} = [K1 \times (K2 + K3 \times K4) \times K5] \]

The total constant time of the transmitter/seal system is the combination of relevant response times by the following formula:

\[ T_{TX} \text{ (sec)} = T_{TR} + T_{S6} \times 1.2 + 0.1 \]

The following table details the transmitter time values (T_{TR}) in sec. for the transducers with specific filling fluids @25°C (77°F):

<table>
<thead>
<tr>
<th>Sensor Code</th>
<th>K2</th>
<th>K3</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0.12</td>
<td>0.37</td>
</tr>
<tr>
<td>B</td>
<td>1.9</td>
<td>0.2</td>
</tr>
</tbody>
</table>

The operating temperature coefficient (K4) to be considered only for operating temperature less than 25°C (77°F)

\[ K4 = \left| T - 25 \right| \text{ (absolute value)} \]

Coefficient K4 should be considered = 0 for temperatures above 25°C (77°F)

Overpressure limits (without damage to the transmitter)
- Lower : 0.067 kPa abs, 0.67 mbar abs, 0.01 psia (0.13 kPa abs, 1.33 mbar abs, 0.02 psia for sensor A).
- Double the lower limit with inert filling
- Upper (transmitter sensor limit or flange / fitting rating of the seal, whichever is less)
  - model 621SM
    - sensor code A : 1 MPa, 10 bar, 145 psi
    - sensor code B : 5 MPa, 50 bar, 725 psi
  - flanged seals (S6F)
    - ANSI CL 150 : 2 MPa, 20 bar, 290 psi
    - ANSI CL 300 : 5 MPa, 50 bar, 725 psi
    - DIN ND 16 : 1.6 MPa, 16 bar, 230 psi
    - DIN ND 40 : 4 MPa, 40 bar, 580 psi

Static pressure
Transmitters model 621SM operate within specifications between the following limits
- Lower
  - atmosphere (the two sides are wetted)
- Upper
  - same of overpressure limit

Proof pressure
The transmitter meets SAMA PMC 27.1 requirements and can be exposed without leaking to line pressure of up to 10 MPa, 100 bar, 1450 psi (2 MPa, 20 bar, 290 psi for sensor A) or two times the flange/fitting rating of the seal, whichever is less.

**Electrical Characteristics and Options**

- **HART digital communication and 4 to 20 mA output**

**Power Supply**
The transmitter operates from 10.5 to 42 Vdc with no load and is protected against reverse polarity connection (additional load allows operations over 42 Vdc). For EEEx ia and intrinsically safe approval power supply must not exceed 30 Vdc.

**MINIMUM OPERATING VOLTAGES**

| Load limitations - 4-20 mA and HART total loop resistance : |
|-----------------|-----------------|-----------------|
| Supply voltage  | R_\text{(kΩ)}   | (ohms)          |
| 10.5            | 1430            | 22              |
| 10.7            | 1430            | 12.1            |
| 12.1            | 1430            | 12.5            |
| 12.5            | 1430            | 14.1            |
| 14.1            | 1430            | 14.3            |

**Load limitations**

- 4 to 20 mA only
- 4 to 20 mA and HART digital communication

**Optional indicators**
- **Output meter (user adjustable)**
  - LCD : 3 1/2-digit with 10 mm (3/8 in) high, 7-segment characters. Engineering unit labels are provided. LCD output meter may be calibrated within the range -1999 to +1999 with a span adjustable between 100 and 3999 units. (Display of decimal point, if required, is switch selectable)
    - analog : 36 mm (1.4 in) scale on 90°
  - **CoMeter**
    - 5-digit (± 99999 counts) programmable with 7.6 mm. high (3 in), 7-segment numeric characters plus sign and digital point
    - 10-segment bargraph display (10% per segment)
    - 7-digit LCD with 6 mm. high (2.3 in), 14-segment alphanumeric characters.

**Optional surge protection**
Up to 2.5 kV (5 kA discharge current) of 8 µs rise time/20 µs decay.

**Output signal**
Two-wire 4 to 20 mA dc, user-selectable for linear or square root output, power of 3/2 or 5/2, 5th order or two 2nd order switching point selectable programmable polynomial output.
HART® communication provides digital process variable (% , mA or engineering units) superimposed on 4 to 20 mA signal, with protocol based on Bell 202 FSK standard.
Output current limits (to NAMUR standard)
Overload condition
- Lower limit : 3.8 mA dc
- Upper limit : 20.5 mA dc

Transmitter failure mode (to NAMUR standard)
The output signal can be user-selected to a value of 3.7 or 22 mA on gross transmitter failure condition, detected by self-diagnostics.
In case of CPU failure the output is driven <3.7 mA or >22 mA.

PERFORMANCE SPECIFICATIONS
Stated at ambient temperature of 23°C ± 3K (75°F ± 5), relative humidity of 50% ±20%, atmospheric pressure, mounting position with vertical diaphragm and zero based range for transmitter with seal isolating diaphragms in AISI 316 L ss and silicone oil fill and HART digital trim values equal to 4-20 mA span endpoints, in linear mode. Unless otherwise specified, errors are quoted as % of span.
Some performance data 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.

Accuracy rating
% of calibrated span, including combined effects of terminal based linearity, hysteresis and repeatability.
- ± 0.10% for TD from 1:1 to 5:1
- ± 0.02 x \( \frac{URL}{span} \) for TD from 5:1 to 10:1

Multiply the values by 2 for sensor/seal combination marked (+)

Optional indicators accuracy
- analog output meter : ± 2% full scale deflection
- LCD output meter : ± 0.1% of calibrated span ± 1 unit
- CoMeter
  - digital : ± 0.10% of max span(16 mA) ± 1 digit
  - analog (bargraph) : 10%

Operating influences

Temperature effects
total effect per 20 K (36°F) ambient temperature change on transmitter sensor between the limits of -20°C to + 65°C (-4 to +150°F) and per 20 K (36°F) process temperature change on seals diaphragm between the process operating temperature limits
- sensor A with 3in/DN80 seals : 0.01 kPa, 0.1 mbar, 0.04inH2O
- sensor B with 2in/DN50 seals : 0.03 kPa, 0.3 mbar, 0.12 inH2O
- sensor B with 3in/DN80 seals : 0.02 kPa, 0.2 mbar, 0.08 inH2O

Optional LCD output meter ambient temperature per 1 K (1.8°F) change between the limits of -20 and +80°C (-4 and +176°F) Total effect : ± (0.0002 x span units + 0.1) of reading.

Optional CoMeter ambient temperature
Total reading error per 20K (36°F) change between the ambient limits of -20 and +70°C (-4 and +158°F) :
± 0.15% of max span (16 mA).

Static pressure (zero errors can be calibrated out at line pressure) per 1 MPa, 10 bar or 145 psi
- sensor code A
  - zero error : ± 0.15% of URL
  - span error : ± 0.15% of reading
- sensor code B
  - zero error : ± 0.08% of URL
  - span error : ± 0.08% of reading
Multiply by 1.5 the errors for sensor/seal combinations marked (+)

Supply voltage
Within voltage/load specified limits the total effect is less than 0.005% of URL per volt.

Load
Within load/voltage specified limits the total effect is negligible.

Radio frequency interference
Total effect : less than 0.10% of span from 20 to 1000 MHz and for field strengths up to 30 V/m when tested with shielded conduit and grounding, with or without meter. Meets IEC 801.

Common mode interference
No effect from 100 V rms @ 50 Hz, or 50 Vdc.

Series mode interference
No effect from 1 V rms @ 50 Hz.
PHYSICAL SPECIFICATIONS
(Refer to ordering information sheets for variant availability related to specific model or versions code)

Materials

Process seal isolating diaphragms (*)
AISI 316 L ss, Hastelloy C276 ◊;

Fill fluids
Silicone oil (DC200) or inert fill (perfluorinated polyethers - Galden ◊)

Mounting flanges
Carbon steel; AISI 316 ss

Sensor housing: AISI 316 L ss

Bolts and nuts
- Plated carbon steel bolts class 8.8 per UNI 5737 (ISO 4014) and nuts class 6.8 per UNI 3740/4 (ISO 898/2).
- AISI 316 ss bolts and nuts Class A4-50 per UNI 7323 (ISO 3506), in compliance with NACE MR0175 Class II.

Electronic housing and covers
Barrel version
- Low-copper content aluminium alloy with baked epoxy finish;
- AISI 316 L ss.
DIN version
- Low-copper content aluminium alloy with baked epoxy finish

Covers O-ring: Buna N.

Local zero and span adjustments:
Glass filled polycarbonate plastic (removable)

Tagging
AISI 316 ss data plate attached to the electronics housing.

Calibration
- Standard: at maximum span, zero based range, ambient temperature and pressure
- Optional: at specified range and ambient conditions; or at operating temperature.

Optional extras
Output indicator:
plug-in rotatable type, LCD or analog.
Standard LCD output meter scale is 0 to 100% linear; special linear scale to specified range and engineering unit is available. Standard analog output meter scale is 0 to 100% linear; special graduation is available.

Supplemental customer tag
AISI 316 ss tag fastened to the transmitter with stainless steel wire for customer's tag data up to a maximum of 56 characters and spaces on two lines for tag number and tag name, and up to a maximum of 28 characters and spaces for calibration details.

Surge protection
Material traceability

Environmental protection
Wet and dust-laden atmospheres
The transmitter is dust and sand tight and protected against immersion effects as defined by IEC 529 (1989) to IP 67 (IP 68 on request) or by NEMA to 4X or by JIS to C0920

Hazardous atmospheres
With or without output meter/integral display
INTRINSIC SAFETY/EUROPE:
ATEX/TÜV approval
EC-Type Examination Certificate no. EX5 00 12 42206 001
II 1 G T50°C, EEx ia IIC T5 (-40°C ≤ Ta ≤+40°C)
T95°C, EEx ia IIC T4 (-40°C ≤ Ta ≤+85°C)
FLAMEPROOF/EUROPE:
ATEX/CESI approval;
EC-Type Examination Certificate no. CESI 00 ATEX 035
II 1/2 GD T80°C, EEx d IIC T6 (-40°C ≤ Ta ≤ +70°C)
T95°C, EEx d IIC T5 (-40°C ≤ Ta ≤ +85°C)
FACTORY MUTUAL (pending) :
- Explosionproof: Class I, Div. 1, Groups A, B, C, D
- Dust ignitionproof: Class II, Div. 1, Groups E, F, G
Process connections
Flush diaphragm flanged seal (**):
2in or 3in ANSI 150 to 300 RF
DN50 or DN80 DIN ND 16-40 Form C
Wafer seal (backup flange not supplied)
2in, 3in to ANSI; DN50, DN80 to DIN.

Electrical connections
Two 1/2 NPT or M20x1.5 or PG 13.5 or 1/2 GK threaded conduit entries, direct on housing; straight or angle Harting HAN connector and one plug, on request.

Terminal block
• HART version
  Three terminals for signal/external meter wiring up to 2.5 mm² (14 AWG) and three connection points for test and communication purposes.

Grounding
Internal and external 6 mm² (10 AWG) ground termination points are provided.

Mounting position
Transmitter can be mounted in any position but with a maximum ± 1° from vertical.
Electronics housing may be rotated to any position. A positive stop prevents over travel.

Mass (without options)
9 to 12 kg approx (20 to 27 lb); add 1.5 kg (3.4 lb) for AISI housing.
Add 650 g (1.5 lb) for packing.

Packing
Carton

◊ Hastelloy is a Cabot Corporation trademark
◊ Galden is a Montefluos trademark
(*) Wetted parts of the transmitter.
(**) Bolts and nuts, gasket and mating flange supplied by Customer

CONFIGURATION
• Transmitter with HART communication and 4 to 20 mA
Standard configuration
Transmitters are factory calibrated to customer’s specified range.
Calibrated range and tag number are stamped on the tag plate. If a calibration range and tag data are not specified, the transmitter will be supplied with the plate left blank and configured as follows:
  • Engineering Unit: specify code option
  • 4 mA: zero
  • 20 mA: Upper Range Limit (URL)
  • Output: linear
  • Damping: 1 sec.
  • Transmitter failure mode: Upscale
  • Software tag characters: blank
  • Optional LCD output indicator: 0 to 100.0% linear
Any or all the above configurable parameters, including Lower range-value and Upper range-value which must be the same unit of measure, can be easily changed using the HART hand-held communicator. The transmitter database is customized with specified flange type and material, O-ring and drain/vent materials and meter code option.

Custom configuration (option)
The following data may be specified in addition to the standard configuration parameters:
  • Descriptor: 16 alphanumeric characters
  • Message: 32 alphanumeric characters
  • Date: Day, month, year
  • Damping: Seconds

Available engineering units of pressure measure are:
Pa, kPa, MPa
inH2O@4°C, mmH2O@4°C, psi
inH2O@20°C, ftH2O@20°C, mmH2O@20°C
inhg, mmHg, Torr
g/cm², kg/cm², atm
mbar, bar
MOUNTING DIMENSIONS
(not for construction unless certified)

- Transmitter with barrel housing

- Transmitter with DIN housing
- Wafer type seal

<table>
<thead>
<tr>
<th>SIZE</th>
<th>DIMENSIONS mm (in)</th>
<th>A (dia)</th>
<th>B (dia)</th>
<th>H</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 in</td>
<td>2 in ANSI CL 150</td>
<td>60 (2.36)</td>
<td>92.1 (3.62)</td>
<td>23 (0.9)</td>
<td>139.7 (5.5)</td>
</tr>
<tr>
<td>3 in</td>
<td>2 in ANSI CL 300</td>
<td>89 (3.5)</td>
<td>127 (5)</td>
<td>23 (0.9)</td>
<td>139.7 (5.5)</td>
</tr>
<tr>
<td>DN 50</td>
<td>3 in ANSI CL 150</td>
<td>60 (2.36)</td>
<td>102 (4.02)</td>
<td>23 (0.9)</td>
<td>139.7 (5.5)</td>
</tr>
<tr>
<td>DN 80</td>
<td>3 in ANSI CL 300</td>
<td>89 (3.5)</td>
<td>138 (5.43)</td>
<td>23 (0.9)</td>
<td>139.7 (5.5)</td>
</tr>
</tbody>
</table>

- Flanged flush diaphragm seal

<table>
<thead>
<tr>
<th>SIZE/RATING</th>
<th>DIMENSIONS mm (in)</th>
<th>A (dia)</th>
<th>B (dia)</th>
<th>C (dia)</th>
<th>D (dia)</th>
<th>E (dia)</th>
<th>F</th>
<th>G</th>
<th>N° OF HOLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 in ANSI CL 150</td>
<td>60 (2.36)</td>
<td>92.1 (3.62)</td>
<td>120.5 (4.74)</td>
<td>152.5 (6)</td>
<td>20 (0.79)</td>
<td>19.5 (0.77)</td>
<td>9.5 (0.37)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>2 in ANSI CL 300</td>
<td>60 (2.36)</td>
<td>92.1 (3.62)</td>
<td>127 (5)</td>
<td>165 (6.5)</td>
<td>20 (0.79)</td>
<td>22.5 (0.88)</td>
<td>9.5 (0.37)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>3 in ANSI CL 150</td>
<td>89 (3.5)</td>
<td>127 (5)</td>
<td>152.5 (6)</td>
<td>190.5 (7.5)</td>
<td>20 (0.79)</td>
<td>24 (0.94)</td>
<td>9.5 (0.37)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>3 in ANSI CL 300</td>
<td>89 (3.5)</td>
<td>127 (5)</td>
<td>168.5 (6.63)</td>
<td>210 (8.26)</td>
<td>22 (0.86)</td>
<td>28.5 (1.12)</td>
<td>9.5 (0.37)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DN 50 DIN ND16</td>
<td>60 (2.36)</td>
<td>102 (4.02)</td>
<td>125 (4.92)</td>
<td>165 (6.5)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>9.5 (0.37)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DN 50 DIN ND40</td>
<td>60 (2.36)</td>
<td>102 (4.02)</td>
<td>125 (4.92)</td>
<td>165 (6.5)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>9.5 (0.37)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>DN 80 DIN ND16</td>
<td>89 (3.5)</td>
<td>138 (5.43)</td>
<td>160 (6.3)</td>
<td>200 (7.87)</td>
<td>18 (0.71)</td>
<td>20 (0.79)</td>
<td>9.5 (0.37)</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>DN 80 DIN ND40</td>
<td>89 (3.5)</td>
<td>138 (5.43)</td>
<td>160 (6.3)</td>
<td>200 (7.87)</td>
<td>18 (0.71)</td>
<td>24 (0.94)</td>
<td>9.5 (0.37)</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>
HART hand-held communicator may be connected at any wiring termination point in the loop, providing the minimum resistance is 250 ohm. If this is less than 250 ohm, additional resistance should be added to allow communications.
ORDERING INFORMATION model 621SM Liquid level interface and density transmitter

Select one character or set of characters from each category and specify complete catalog number. Refer to supplementary code and specify another number for each transmitter if additional options are required.

### PRODUCT CODE

<table>
<thead>
<tr>
<th>PRODUCT CODE</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>abcde</td>
<td>621SM</td>
</tr>
</tbody>
</table>

- **BASE MODEL**: 1st to 5th characters
- **SENSOR**: 6th character
- **PROCESS CONNECTIONS**: 7th character
- **SEALS SYSTEM**: 8th character
- **OUTPUT**: 9th character
- **ELECTRICAL CERTIFICATION**: 10th character
- **TOP WORKS**: 11th character
- **ELECTRICAL OPTIONS**: 12th character

#### BASE MODEL - 1st to 5th characters
- **Sensor**: Liquid level, interface and density transmitter

#### SENSOR - 6th character
- **Span limits**
  - 0.25 and 2.5 kPa: A
  - 2.5 and 25 mbar: B
  - 1 and 10 kPa: 1 and 10 inH2O (Note): C
  - 2.5 and 25 mbar: 4 and 40.1 inH2O: D
  - Note: only available with 3in/DN80 seal size

#### PROCESS CONNECTIONS - TYPE OF SEALS (*) - 7th character
- **High pressure side**
  - All-welded direct mount flanged flush diaphragm seal: F
  - All-welded remote flanged flush diaphragm seal: G

- **Low pressure side**
  - All-welded remote wafer seal: H

#### FLANGED CONNECTION(S) TYPE (SEAL SIZE) AND RATING (High and Low Pressure Sides) - 8th character

<table>
<thead>
<tr>
<th>Material</th>
<th>Rating/size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon steel</td>
<td>1 2 3 4 5 6 7 8 A B C D E F G H I J K L M N O P Q R S T</td>
</tr>
<tr>
<td>AISI 316 ss</td>
<td>1 2 3 4 5 6 7 8 A B C D E F G H I J K L M N O P Q R S T</td>
</tr>
</tbody>
</table>

- **FLANGE IS NOT SUPPLIED WHEN WAFER TYPE SEAL IS SELECTED ON LOW PRESSURE SIDE**

#### Seal diaphragm material (*)
- **Fill fluid**
  - AISI 316 L ss: Silicone oil
  - Hastelloy C276*: Silicone oil
  - AISI 316 L ss: Inert fluid
  - Hastelloy C276*: Inert fluid

#### CAPILLARY LENGTH (low pressure side) - 10th character
- **Capillary length**
  - 0.5 m: A
  - 1 m: B
  - 1.5 m: C
  - 2 m: D
  - 2.5 m: E
  - 3 m: F
  - 3.5 m (Note): G
  - 4 m (Note): H
  - Note: not available with 2in or DN50 seals code 1, 3, 7, A, J, L, Q, S at position “h”

Compliance to NACE class II bolting, according to specification MR0175, latest revision

*Hastelloy is a Cabot Corporation trademark

*Process wetted-parts
ORDERING INFORMATION model 621SM Liquid level interface and density transmitter

## Bolts
- Carbon steel
- AISI 316 ss (NACE) (MWP = 14 MPa)

## Electrical connection
- 1/2" NPT
- M20 x 1.5 (CM 20)
- Pg 13.5
- 1/2" GK
- Harting HAN connector - straight entry (Note)
- Harting HAN connector - angle entry (Note)

## Output
- HART digital communication and 4 to 20 mA - SIL 2 according to IEC 61508/ISA S84.01

## Electrical certification
- General Purpose
- ATEX Group II Category 1/2 GD - Flameproof EEx d CESI approval
- ATEX Group II Category 1 G - Intrinsic Safety EEx ia TÜV approval
- Factory Mutual (FM - Explosion proof only) approval (only with 1/2" NPT and M20 electrical connection)

## Top Works
- Housing material
  - Aluminium alloy (Barrel version)
  - AISI 316 L ss (Barrel version)
  - Aluminium alloy (DIN version)

## Electrical Options
- Internal meter type
  - None
  - Digital LCD output indicator linear 0-100%, user scalable
  - Digital LCD output indicator linear scale (specify range and engineering units)
  - Analog output indicator linear 0-100% scale
  - Analog output indicator, special graduation (to be specified for linear scale)
  - Programmable signal meter and HART configurator (CoMeter)

## Labels Language
- Standard terminal block
- Surge protector (Requires certification code, 1, F, 9 at position "m")
- Terminal block for external meter
- Standard terminal block
- Surge protector (Requires certification code, 1, F, 9 at position "m")
- Terminal block for external meter

Note: requires certification code 1 at position "m"
### ORDERING INFORMATION

Select one character or set of characters from each category and specify complete catalog number in addition to each transmitter code, if required.

#### PRODUCT CODE

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<thead>
<tr>
<th>BASE MODEL - 1st to 2nd characters</th>
<th>Code</th>
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#### CONFIGURATION - 3rd character

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5th character

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8th character

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