

# EX PRESSURE TRANSMITTER

Swiss based Trafag is a leading international supplier of high quality sensors and monitoring instruments for measurement of pressure and temperature. The EX pressure transmitter EXNT is based on Trafag's own thin-film-on-steel sensor technology with excellent long-term stability and offers reliable and accurate pressure measurement over a wide temperature range. The intrinsic safety design is certified for applications in Ex-Zones 0, 1, 2 (gas), 20, 21, 22 (dust) and mining.



## Applications

- Shipbuilding
- Ex Zones 0, 1, 2 (gas); 20, 21, 22 (dust) and mining
- Hydrogen

## Features

- - II 1G Ex ia IIC T4/T6 Ga
  - II 1D Ex ia IIIC T130° Da
  - I M1 Ex ia I Ma
  - II 1/2G Ex ia IIC T4/T6 Ga/Gb (with plastic-type connector)
- Pressure ranges from 0.4 to 2000 bar
- Completely welded sensor system
- Optional with hydrogen-compatible sensor
- ATEX and IECEx

## Technical Data

|                      |   |                       |  |
|----------------------|---|-----------------------|--|
| Measuring principle  | Thin-film-on-steel  | Media temperature     | Max. -40°C ... +120°C<br>(see electrical connection)   |
| Measuring range      | 0 ... 0.4 to 0 ... 2000 bar<br>0 ... 5 to 0 ... 30000 psi | Ambient temperature   | Max. -40°C ... +120°C<br>(see electrical connection)   |
| Output signal        | 4 ... 20 mA   | Approval / conformity | GL, KRS, RMRS<br>ATEX / IECEx, according to the norm<br>EN/IEC 60079-0/EN 60079-11/<br>EN 60079-26/ EN 50303 |
| Accuracy @ 25°C typ. | ± 0.5 % FS typ.<br>± 0.3 % FS typ.                        |                       |  |

06/2019

Data sheet H72329t

Subject to change

## Ordering information/type code

|                                      |  |                                     |                             | 8292 .                                  | XX                         | XX                          | XX        | XX | XX |  |
|--------------------------------------|--|-------------------------------------|-----------------------------|---|----------------------------|-----------------------------|-----------|----|----|--|
| <b>Measuring range <sup>1)</sup></b> | <b>Pressure measurement range [bar]</b>  | <b>Over pressure [bar]</b>          | <b>Burst pressure [bar]</b> | <b>Pressure measurement range [psi]</b> | <b>Over pressure [psi]</b> | <b>Burst pressure [psi]</b> |           |    |    |  |
|                                      | 0 ... 0.4 <sup>2)</sup>  | 1.2                                 | 25                          | 0 ... 5 <sup>2)</sup>                   | 18                         | 350                         | <b>F9</b> |    |    |  |
|                                      | 0 ... 0.6 <sup>2)</sup>  | 1.5                                 | 25                          | 0 ... 10 <sup>2)</sup>                  | 25                         | 350                         | <b>G0</b> |    |    |  |
|                                      | 0 ... 1.0 <sup>2)</sup>  | 2.0                                 | 25                          | 0 ... 15 <sup>2)</sup>                  | 30                         | 350                         | <b>G1</b> |    |    |  |
|                                      | 0 ... 1.6  | 3.5                                 | 80                          | 0 ... 25                                | 50                         | 1200                        | <b>G3</b> |    |    |  |
|                                      | 0 ... 2.5  | 5                                   | 100                         | 0 ... 30                                | 30                         | 720                         | <b>G5</b> |    |    |  |
|                                      | 0 ... 4  | 8                                   | 100                         | 0 ... 50                                | 120                        | 860                         | <b>G6</b> |    |    |  |
|                                      | 0 ... 6  | 12                                  | 100                         | 0 ... 100                               | 170                        | 1450                        | <b>G7</b> |    |    |  |
|                                      | 0 ... 10   | 20                                  | 200                         | 0 ... 150                               | 290                        | 2900                        | <b>G8</b> |    |    |  |
|                                      | 0 ... 16   | 32                                  | 200                         | 0 ... 250                               | 460                        | 2900                        | <b>G9</b> |    |    |  |
|                                      | 0 ... 25   | 50                                  | 300                         | 0 ... 400                               | 730                        | 4350                        | <b>H0</b> |    |    |  |
|                                      | 0 ... 40   | 80                                  | 300                         | 0 ... 500                               | 1160                       | 4350                        | <b>H1</b> |    |    |  |
|                                      | 0 ... 60   | 120                                 | 500                         | 0 ... 1000                              | 1740                       | 5800                        | <b>H2</b> |    |    |  |
|                                      | 0 ... 100  | 200                                 | 500                         | 0 ... 1500                              | 2900                       | 7250                        | <b>H3</b> |    |    |  |
|                                      | 0 ... 160  | 320                                 | 1000                        | 0 ... 2000                              | 4640                       | 10850                       | <b>H5</b> |    |    |  |
|                                      | 0 ... 250  | 500                                 | 1000                        | 0 ... 3000                              | 7250                       | 14500                       | <b>G4</b> |    |    |  |
|                                      | 0 ... 400  | 800                                 | 1500                        | 0 ... 5000                              | 11600                      | 21750                       | <b>H4</b> |    |    |  |
|                                      | 0 ... 600  | 1000                                | 2000                        | 0 ... 7500                              | 14500                      | 29000                       | <b>H6</b> |    |    |  |
|                                      | 0 ... 1000 <sup>9)</sup>   | 1600                                | 3000                        | 0 ... 15000 <sup>9)</sup>               | 25000                      | 45000                       | <b>H8</b> |    |    |  |
|                                      | 0 ... 1600   | 3000                                | 4000                        | 0 ... 25000                             | 45000                      | 60000                       | <b>H9</b> |    |    |  |
| 0 ... 2000                           | 3000   | 4000                                | 0 ... 30000                 | 45000                                   | 60000                      | <b>J0</b>                   |           |    |    |  |
| <b>Sensor</b>                        | Relative pressure, accuracy: 0.3% (> 1 bar)  |                                     |                             |   |                            |                             | <b>23</b> |    |    |  |
|                                      | Relative pressure, accuracy: 0.5% (> 1 bar)  |                                     |                             |   |                            |                             | <b>25</b> |    |    |  |
|                                      | Relative pressure, accuracy: 0.5% (≤ 1 bar)  |                                     |                             |   |                            |                             | <b>26</b> |    |    |  |
|                                      | Relative pressure, accuracy: 0.5 %, wetted parts hydrogen compatible <sup>7) 8)</sup>  |                                     |                             |   |                            |                             | <b>35</b> |    |    |  |
|                                      | Relative pressure, accuracy: 0.3 %, wetted parts hydrogen compatible <sup>7) 8)</sup>  |                                     |                             |   |                            |                             | <b>33</b> |    |    |  |
| <b>Pressure connection</b>           | G1/4" male <sup>3)</sup>   |                                     |                             |   |                            |                             | <b>17</b> |    |    |  |
|                                      | G1/4" male (Manometer) EN 837 <sup>3) 8)</sup>   |                                     |                             |   |                            |                             | <b>53</b> |    |    |  |
|                                      | G1/4" female <sup>3) 8)</sup>  |                                     |                             |   |                            |                             | <b>10</b> |    |    |  |
|                                      | G1/2" male <sup>3) 8)</sup>  |                                     |                             |   |                            |                             | <b>21</b> |    |    |  |
|                                      | G1/2" male (Manometer) EN 837 <sup>3) 8)</sup>   |                                     |                             |   |                            |                             | <b>11</b> |    |    |  |
|                                      | R1/4" male <sup>3) 8)</sup>  |                                     |                             |   |                            |                             | <b>19</b> |    |    |  |
|                                      | 1/4" NPT male <sup>3) 8)</sup>   |                                     |                             |   |                            |                             | <b>30</b> |    |    |  |
|                                      | M18x1.5 male (conical seal: 58°) <sup>4) 8)</sup>  |                                     |                             |   |                            |                             | <b>29</b> |    |    |  |
| <b>Electrical connection</b>         | Male electrical plug EN 175301-803-A, plastic  |                                     |                             |   |                            |                             | <b>05</b> |    |    |  |
|                                      | Male electrical plug M12x1, 5-pole, metal  |                                     |                             |   |                            |                             | <b>35</b> |    |    |  |
|                                      | Male electrical plug MIL-C 26482, 6-pole, metal <sup>5)</sup>  |                                     |                             |   |                            |                             | <b>02</b> |    |    |  |
|                                      | Male electrical plug Binder 723, 5-pole, metal   |                                     |                             |   |                            |                             | <b>14</b> |    |    |  |
|                                      | Cable with shield, material FDR 25 (Raychem), 4 x 0.5mm <sup>2</sup> (cable length see "Accessories") - not ship approved <sup>10)</sup>                       |                                     |                             |   |                            |                             | <b>78</b> |    |    |  |
|                                      | Cable intrinsically safe with shield, material PVC, 2 x 0.75mm <sup>2</sup> (-40...+80°C), (cable length see "Accessories") - not ship approved <sup>10)</sup> |                                     |                             |   |                            |                             | <b>80</b> |    |    |  |
| <b>Output signal</b>                 | <b>Signal output</b>   | <b>Load resistance</b>              | <b>I (supply)</b>           | <b>U (supply)</b>                       |                            |                             |           |    |    |  |
|                                      | 4 ... 20 mA  | (U <sub>supply</sub> -10 V) / 20 mA |                             | 10 ... 30 VDC                           | <b>19</b>                  |                             |           |    |    |  |

|                    |  |    |
|--------------------|--|----|
| <b>Accessories</b> | Female electrical connector EN 175301-803-A (DIN43650-A), plastic (not for zones 0 (gas))  | 58 |
|                    | Female electrical plug M12x1, 5-pole, plastic (not for zones 0 (gas))  | 33 |
|                    | Female electrical plug M12x1, 5-pole, metal  | 35 |
|                    | Female electrical connector MIL-C 26482, 6-pole, metal   | 32 |
|                    | Female electrical connector Binder 723, 5-pole, metal  | 37 |
|                    | Pressure peak damping element $\varnothing$ 0.4 mm   | 44 |
|                    | Pressure peak damping element $\varnothing$ 1.0 mm   | 40 |
|                    | Cable length 1.5 m <sup>6)</sup>   | 1M |
|                    | Cable length 3.0 m <sup>6)</sup>   | 3M |
|                    | Cable length 5.0 m <sup>6)</sup>   | 5M |
|                    | Special electrical connection: Pin 1 +, Pin 2 -<br>(only for output signal 4 ... 20 mA and male electrical plug EN175301-803-A / DIN43650-A) | 92 |
|                    | Zener barrier 28V/93mA; R $\approx$ 300 $\Omega$ ; Ordering no ZEN28VDC  |    |
|                    | Damping elements and snubber see data sheet H72258   |    |

<sup>1)</sup> Extended overpressure as well as customized pressure ranges upon request

<sup>2)</sup> Only with sensor 26 (0.5%)

<sup>3)</sup> For pressure ranges  $\leq$  600 bar

<sup>4)</sup> For pressure ranges  $>$  600 bar

<sup>5)</sup> For pressure ranges  $<$  40 bar upon request

<sup>6)</sup> Other cable lengths upon request

<sup>7)</sup> Pressure ranges 0 ... 40 to 0 ... 1000 bar, max. ambient and media temperature +85°C

<sup>8)</sup> Upon request

<sup>9)</sup> With sensors 33 and 35: Overpressure 1300 bar/19000 psi, Burst pressure 2600 bar/38000 psi

<sup>10)</sup> Cable length max. 20 m

## Standard products (extra short lead time)

| Product No. | Type Code                          | Pressure range [bar] | Over pressure max. [bar] | Supply [VDC] | Accuracy @ 25°C typ. [%] |
|-------------|------------------------------------|----------------------|--------------------------|--------------|--------------------------|
| EXNT0.4A    | 8292 69 2617 05 0000 0000 19 58 92 | 0 ... 0.4            | 1.2                      | 10 ... 30    | $\pm$ 0.5                |
| EXNT0.6A    | 8292 70 2617 05 0000 0000 19 58 92 | 0 ... 0.6            | 1.5                      | 10 ... 30    | $\pm$ 0.5                |
| EXNT1.0A    | 8292 71 2617 05 0000 0000 19 58 92 | 0 ... 1              | 2                        | 10 ... 30    | $\pm$ 0.5                |
| EXNT2.5A    | 8292 75 2517 05 0000 0000 19 58 92 | 0 ... 2.5            | 5                        | 10 ... 30    | $\pm$ 0.5                |
| EXNT4.0A    | 8292 76 2517 05 0000 0000 19 58 92 | 0 ... 4              | 8                        | 10 ... 30    | $\pm$ 0.5                |
| EXNT6.0A    | 8292 77 2517 05 0000 0000 19 58 92 | 0 ... 6              | 12                       | 10 ... 30    | $\pm$ 0.5                |
| EXNT10.0A   | 8292 78 2517 05 0000 0000 19 58 92 | 0 ... 10             | 20                       | 10 ... 30    | $\pm$ 0.5                |
| EXNT16.0A   | 8292 79 2517 05 0000 0000 19 58 92 | 0 ... 16             | 32                       | 10 ... 30    | $\pm$ 0.5                |
| EXNT25.0A   | 8292 80 2517 05 0000 0000 19 58 92 | 0 ... 25             | 50                       | 10 ... 30    | $\pm$ 0.5                |
| EXNT40.0A   | 8292 81 2517 05 0000 0000 19 58 92 | 0 ... 40             | 80                       | 10 ... 30    | $\pm$ 0.5                |
| EXNT100.0A  | 8292 83 2517 05 0000 0000 19 58 92 | 0 ... 100            | 200                      | 10 ... 30    | $\pm$ 0.5                |
| EXNT250.0A  | 8292 74 2517 05 0000 0000 19 58 92 | 0 ... 250            | 500                      | 10 ... 30    | $\pm$ 0.5                |

## Additional information

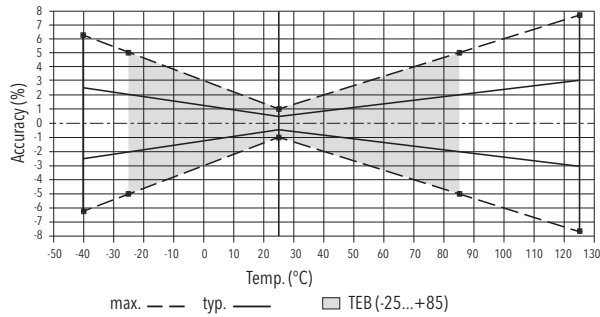
|                  |              |  |
|------------------|--------------|--|
| <b>Documents</b> | Data sheet   | <a href="http://www.trafag.com/H72329">www.trafag.com/H72329</a> |
|                  | Instructions | <a href="http://www.trafag.com/H73329">www.trafag.com/H73329</a> |
|                  | Flyer        | <a href="http://www.trafag.com/H70657">www.trafag.com/H70657</a> |

| Specifications                  |                                    |  |
|---------------------------------|------------------------------------|--|
| <b>Electrical Data</b>          | Output / supply voltage            | 4 ... 20 mA; 24 (10 ... 30) VDC  |
|                                 | Rise time                          | Typ. 1 ms / 10 ... 90 % nominal pressure   |
|                                 | Switch-on-delay                    | Max. 1.5 s   |
| <b>Environmental conditions</b> | Media temperature                  | Max. -40°C ... +120°C<br>(see electrical connection)   |
|                                 | Ambient temperature                | Max. -40°C ... +120°C<br>(see electrical connection)   |
|                                 | Protection <sup>1)</sup>           | Min. IP65<br>Electrical connection cable: IP67<br>Electrical connection 02: IP67   |
|                                 | Humidity                           | Max. 95 % relative   |
|                                 | Vibration                          | 10 g (50...2000 Hz)  |
|                                 | Shock                              | 50 g / 3 ms  |
| <b>EMC Protection</b>           | Emission                           | IEC 61000-6-4  |
|                                 | Immunity                           | IEC 61000-6-2  |
| <b>Mechanical Data</b>          | Sensor (wetted parts)              | 1.4542 (AISI630), optional hydrogen-compatible steel   |
|                                 | Pressure connection (wetted parts) | Pressure ranges ≤ 250 bar and > 600 bar:<br>1.4542 (AISI630)<br>Pressure ranges > 250 bar and ≤ 600 bar:<br>1.4301 (AISI304)<br>Optional hydrogen-compatible steel |
|                                 | Housing                            | 1.4301 (AISI304)   |
|                                 | Sealing                            | FKM 70 Sh  |
|                                 | Male electrical plug               | See ordering information   |
|                                 | Weight                             | ~ 165 g  |
|                                 | Mounting torque                    | 25 Nm<br>Pressure connection 29: 30 Nm   |

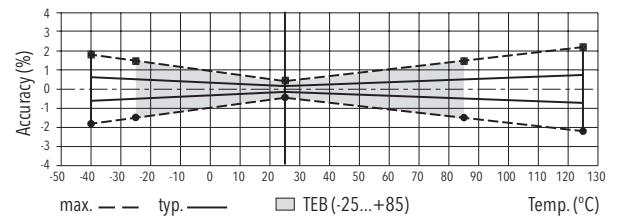
<sup>1)</sup> See electrical connection

| Accuracy  |               |  |  |   |
|---|---------------|--|--|---|
|   |               | Class 0.5 %<br>Ordering No. 25/35<br>(> 1 bar) | Class 0.3 %<br>Ordering No. 23/33<br>(> 1 bar) | Class 0.5 %<br>Ordering No. 26<br>(≤ 1 bar)                     |
| TEB @ -25 ... +85°C   | [% FS typ.]   | ± 2.0  | ± 0.5  | ± 1.0   |
| Accuracy @ +25°C  | [% FS typ.]   | ± 0.5  | ± 0.3  | ± 0.5   |
| NLH @ +25°C (BSL)   | [% FS typ.]   | ± 0.2  | ± 0.1  | ± 0.10  |
| TC zero point and span  | [% FS/K typ.] | ± 0.03   | ± 0.005  | ± 0.01  |
| Long term stability 1 year @ +25°C  | [% FS typ.]   | ± 0.2  | ± 0.2  | ± 0.2   |
| Mounting dependency with 180° rotation<br>(Vibration and shock: multiply this value with number of g) | [% FS typ.]   | -  | -  | 0 ... 1 bar: 0.05<br>0 ... 0.6 bar: 0.09<br>0 ... 0.4 bar: 0.13 |

## Class 0.5 %



## Class 0.3 %



## Electrical connection

|               |                                  | Protection / electrical connection   |                                     |  |                             |                              |                              |             |
|---------------|----------------------------------|--------------------------------------|-------------------------------------|--|-----------------------------|------------------------------|------------------------------|-------------|
|               |                                  | IP65*)                               | IP67 **)                            | IP67 **)   | IP65*)                      | IP67*)                       | IP65*)                       |             |
|               |                                  | Industrial standard<br>EN175301-803A | Cable<br>(4 x 0.5 mm <sup>2</sup> ) | Cable<br>(2 x 0.75 mm <sup>2</sup> )                           | Binder 723                  | MIL-C 26482                  | M12x1<br>5-pole              |             |
|               |                                  | <b>05</b>                            | <b>78</b>                           | <b>80</b>  | <b>14</b>                   | <b>02</b>                    | <b>35</b>                    |             |
|               |                                  |                                      |                                     |  |                             |                              |                              |             |
| Output signal |                                  | Standard<br>2<br>1<br>⊕              | <b>92</b><br>1<br>2<br>⊕            | brown<br>black<br>yellow / green<br><br>(blue = not connected) | 1 (black)<br>2 (black)<br>- | 3<br>1<br>5                  | A<br>C<br>F                  | 4<br>1<br>5 |
|               | <b>8292 .XX.XXXX.XX.19</b>       |                                      |                                     |  |                             |                              |                              |             |
| T-Range       | Ambient and media temperature T4 | -40 ... +120°C <sup>1)</sup>         | -40 ... +120°C <sup>1)</sup>        | -40 ... +80°C  | -30 ... +95°C <sup>1)</sup> | -40 ... +120°C <sup>1)</sup> | -40 ... +120°C <sup>1)</sup> |             |
|               | Ambient and media temperature T6 | -40 ... +65°C                        | -40 ... +65°C                       | -40 ... +65°C  | -30 ... +65°C               | -40 ... +65°C                | -40 ... +65°C                |             |
|               | For Ex zones                     | 1, 2<br>20, 21, 22                   |                                     | 0*, 1, 2<br>20, 21, 22   |                             | 0, 1, 2<br>20, 21, 22        |                              |             |

\* **Attention!** Additional measure against static charges are required for Zone 0 to 20 for these cables (laid with earthed metal braid, metal hose or metal pipe).

\*) Provided female connector is mounted according to instructions

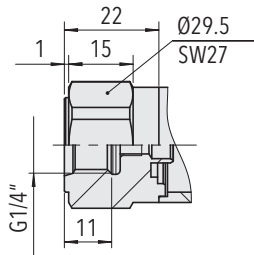
\*\*) Ventilation via cable end

\*\*\*) Only cable versions or female electrical plug with shield connection

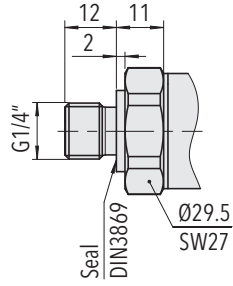
<sup>1)</sup> With sensors 33 and 35: max. +85°C

| Marking                          |   |
|----------------------------------|---|
| For Ex zones                     | Marking   |
| 0, 1, 2,<br>20, 21, 22<br>M1, M2 | <br>II 1 G Ex ia IIC T4/T6 Ga<br>II 1 D Ex ia IIIC T130°C Da<br>I M1 Ex ia I Ma                                       |
| 1, 2<br>20, 21, 22<br>M2         | <br>II 2 G Ex ia IIC T4/T6 Gb (version with plastic type connector)<br>II 1 D Ex ia IIIC T130°C Da<br>I M1 Ex ia I Ma |

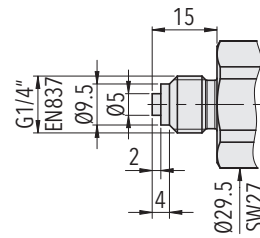
## Dimensions



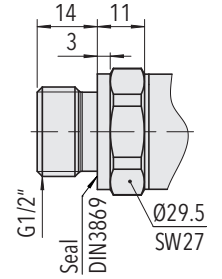
**8292.XX.XX10.XX.XX.XX**  
(≤ 600 bar)



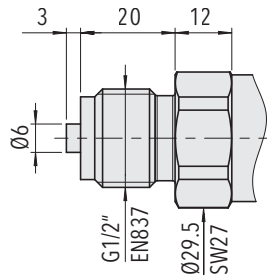
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(≤ 600 bar)



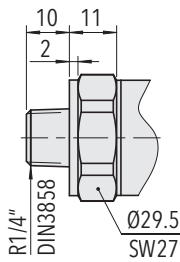
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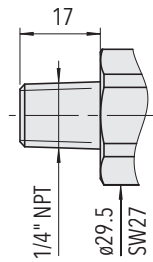
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(≤ 600 bar)



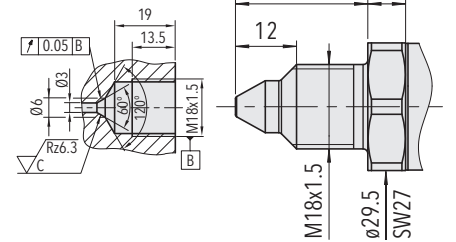
**8292.XX.XX11.XX.XX.XX**  
(≤ 600 bar)



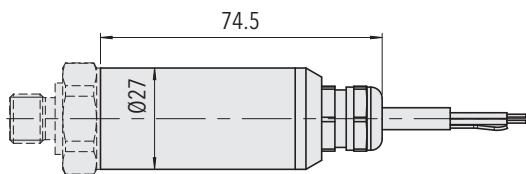
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(≤ 600 bar)



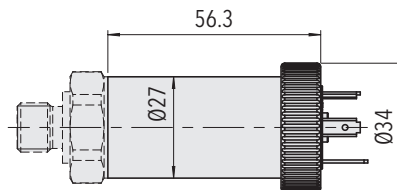
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(≤ 1000 bar)



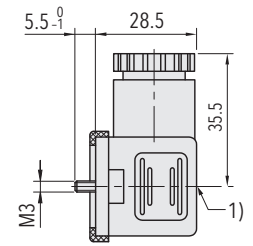
**8292.XX.XX29.XX.XX.XX**  
(> 600 bar)



**8292.XX.XXXX.78/80.XX.XX**

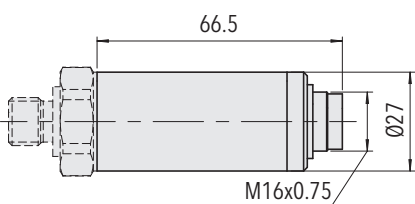


**8292.XX.XXXX.05.XX.XX**

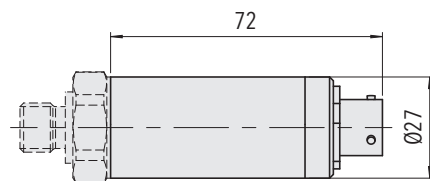
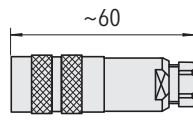


1) Tightening torque 50...60 Ncm

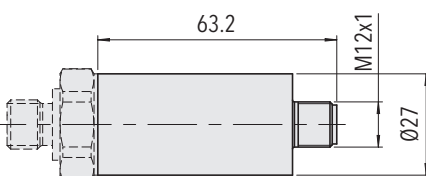
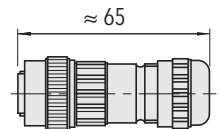
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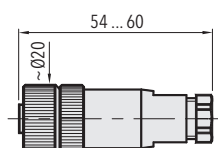
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**8292.XX.XXXX.02.XX.32**



**8292.XX.XXXX.35.XX.XX**



**8292.XX.XXXX.XX.XX.33/35**