

## Brief Instructions

# Adapters, Metal AD.\*

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### Validity

Specific processes and instructions in this instruction manual require special provisions to guarantee the safety of the operating personnel.

### Target Group, Personnel

Responsibility for planning, assembly, commissioning, operation, maintenance, and dismantling lies with the plant operator.

The personnel must be appropriately trained and qualified in order to carry out mounting, installation, commissioning, operation, maintenance, and dismantling of the device. The trained and qualified personnel must have read and understood the instruction manual.

### Reference to Further Documentation

Observe laws, standards, and directives applicable to the intended use and the operating location. Observe Directive 1999/92/EC in relation to hazardous areas.

The corresponding datasheets, manuals, declarations of conformity, EC-type-examination certificates, certificates, and control drawings if applicable support this document. You can find this information under [www.pepperl-fuchs.com](http://www.pepperl-fuchs.com).

### Intended Use

The metal adapters type AD.\* are suitable to adjust different thread types and sizes for connections to enclosures certified according to type of protection Ex d, Ex e or Ex tb.

### Remarks on Assembly

For non-threaded enclosures it is recommended to use flat washer gaskets (e.g. fiber washer of Klingersil type C-4400 or similar, or chloroprene or silicone washer gaskets) between screw-in component and the enclosure.

For threaded enclosures both fiber washers or O-rings can be used.

Metric metal screw-in components when supplied as individual packaging units are equipped with washer gasket and O-ring. Variants for ambient temperatures below -50 °C are available. Please refer to the individual datasheets for details.

### Mounting and Installation

Observe the installation instructions according to IEC/EN 60079-14.

If you intend to install the device or enclosure in areas that may be exposed to aggressive substances, ensure that the stated surface materials are compatible with these substances. If required, contact Pepperl+Fuchs for further information.

Install the adapter (3) in the entry of the enclosure.

Use washer gasket (1) and O-Ring (2) when appropriate.

Screw the second installation component into the adapter (3).

Tighten all screw threads with the specified torque.

ENG

## IP Protection Method Mode for Ex d / Ex e

### Tapered NPT threads:

In order to guarantee the specified IP66 / IP68 rating when using NPT threads, sealant agent (Loctite 577 or similar) shall be applied on at least two full threads before fitting the adapter to the enclosure. In any case pay attention to guarantee the metallic continuity.

### Ex d enclosures and tapered NPT threads:

Assemble through a threaded hole. The enclosure wall has to be thick enough to engage at least 5 full threads.

### Ex d enclosures and metric threads:

Assemble through a threaded hole with O-ring on the thread outside of the enclosure. The enclosure wall has to be thick enough to engage at least 5 full threads.

### Ex e enclosures, metric threads and tapered NPT threads:

Tighten with locknut inside and fiber washer gasket on the thread outside of the enclosure. In case of O-ring it has to be positioned between fiber washer and screw head. An enclosure wall thickness of minimum 1.5 mm has to be respected.

### Operation, Maintenance, Repair

Observe IEC/EN 60079-17 for maintenance and inspection.

If there is a defect, always replace the device with an original device.

Do not modify or manipulate the device.

### Delivery, Transport, Disposal

Disposing of device and packaging must be in compliance with the applicable laws and guidelines of the respective country.

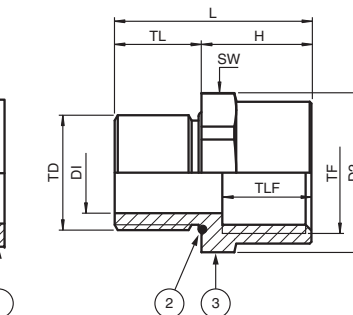
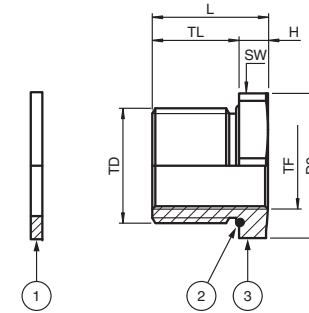
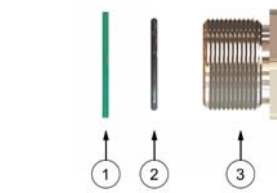
### Type Code / Model Number

| 1  | 2 | 3   | 4 | 5    | 6 | 7  |   |   |   |    |   |     |
|----|---|-----|---|------|---|----|---|---|---|----|---|-----|
| AD | . | **  | . | ***  | . | ** | . | * | . | ** | . | K** |
| AD | . | M50 | . | NPT2 | . | BN | . | C | . | 18 | . | K01 |

Example: Adapter, male thread size M50, female thread size NPT 2", body brass nickel-plated, O-Ring chloroprene, installation thread length 18 mm, one piece

| 1    | Series  |
|------|---|
| AD   | cable glands  |
| 2    | Thread, male  |
| M*   | male thread metric ISO pitch 1.5; sizes see dimensions data table         |
| NPT* | male thread NPT ANSI ASME B1.20.1; sizes see dimensions data table        |
| 3    | Thread, female  |
| M*   | female thread metric ISO pitch 1.5; sizes see dimensions data table       |
| NPT* | female thread NPT ANSI ASME B1.20.1; sizes see dimensions data table      |
| 4    | Material  |
| BN   | brass nickel-plated   |
| SS   | stainless steel   |
| 5    | Material seals / O-Ring   |
| C    | chloroprene / neoprene  |
| S    | silicone  |
| X    | no seal   |
| 6    | Thread length for installation in enclosure                               |
| **   | length in mm  |
| 7    | Packaging unit  |
|      | units not packaged, for use in Pepperl+Fuchs Solution Engineering Centers |
| K**  | units quantity per package  |

## Dimensions and Assembly



### Legend - details and values see data table

|     |                           |
|-----|---------------------------|
| 1   | Washer gasket (accessory) |
| 2   | O-Ring                    |
| 3   | Adapter                   |
| DI  | Diameter thru-hole        |
| D2  | Width across corners      |
| H   | Length outside enclosure  |
| SW  | Width across flats        |
| TD  | Thread size               |
| TF  | Thread size female        |
| TL  | Thread length             |
| TLF | Thread length female      |
| L   | Total length              |

## Technical Specifications

| General   |   |
|---|---|
| Types and variants                                      | AD* - see type code table   |
| Mechanical specifications                               |   |
| Dimensions  | see data tables   |
| Thread type   | metric ISO pitch 1.5 mm or NPT ANSI ASME B1.20.1  |
| Thread type female                                      | metric ISO pitch 1.5 mm or NPT ANSI ASME B1.20.1  |
| Degree of protection                                    | IP66 / IP68   |
| Mass  | see individual datasheets   |
| Material  |   |
| Adapter   | brass nickel-plated or AISI 316 (1.4401) stainless steel  |
| Finish  | inherent color silver   |
| O-Ring  | chloroprene / neoprene or silicone  |
| Washer gasket   | aramid fibers bonded with NBR   |
| Ambient conditions                                      |   |
| Ambient temperature                                     | chloroprene O-ring: -40 ... 100 °C (-40 ... 212 °F)<br>silicone O-ring: -60 ... 130 °C (-76 ... 266 °F)<br>washer gasket: -40 ... 80 °C (-40 ... 176 °F)<br>Service temperature might be limited by the use of O-rings or washer gaskets. |
| Data for application in connection with hazardous areas |   |
| EU-Type Examination Certificate                         | CESI 15ATEX029X   |
| Marking   | II 2 GD<br>Ex db IIC Gb<br>Ex eb IIC Gb<br>Ex tb IIIC Db  |
| International approvals                                 |   |
| IECEx approval  | IECEx CES 15.0006X  |
| UKCA approval   | CML 22 UKEX 1267X   |
| EAC approval  | RU C-DE.AA87.B.00459/20   |
| CCOE approval   | PESO A/P/HQ/KA/104/5579 (P420366)   |
| CCC approval  | 2021312313000345  |
| Conformity  |   |
| Degree of protection                                    | EN 60529  |
| CE marking  | 0102  |
| Standards   | IEC/EN 60079-0: 2012<br>IEC/EN 60079-1: 2007<br>IEC/EN 60079-7: 2007<br>IEC/EN 60079-31: 2009   |

**Variant-Specific Data Metric-Metric**

| Type              | Thread Male |         | Thread Female |          | Dimensions [mm] |    |      |    | Nut torques [Nm] |
|-------------------|-------------|---------|---------------|----------|-----------------|----|------|----|------------------|
|                   | TD          | TL [mm] | TF            | TLF [mm] | H               | L  | D2   | SW | SW               |
| AD.M20.M16.*.15.* | M20         | 15      | M16           | 19       | 4               | 19 | 27.5 | 25 | 6                |
| AD.M25.M20.*.15.* | M25         | 15      | M20           | 19       | 4               | 19 | 33   | 30 | 8.5              |
| AD.M32.M20.*.15.* | M32         | 15      | M20           | 19       | 4               | 19 | 39.5 | 36 | 9                |
| AD.M32.M25.*.15.* | M32         | 15      | M25           | 19       | 4               | 19 | 39.5 | 36 | 9                |
| AD.M40.M32.*.18.* | M40         | 18      | M32           | 22       | 4               | 22 | 50   | 45 | 9.5              |
| AD.M50.M40.*.18.* | M50         | 18      | M40           | 23       | 5               | 23 | 61   | 55 | 10               |
| AD.M63.M50.*.18.* | M63         | 18      | M50           | 23       | 5               | 23 | 77   | 70 | 10.5             |

**Variant-Specific Data NPT-Metric**

| Type                   | Thread Male |         | Thread Female |          | Dimensions [mm] |      |      |      |    | Nut torques [Nm] |
|------------------------|-------------|---------|---------------|----------|-----------------|------|------|------|----|------------------|
|                        | TD          | TL [mm] | TF            | TLF [mm] | H               | L    | DI   | D2   | SW | SW               |
| AD.NPT1/2.M20.*.15.*   | NPT 1/2"    | 15      | M20           | 15       | 19              | 34   | 14.5 | 27.5 | 25 | 8                |
| AD.NPT3/4.M20.*.15.*   | NPT 3/4"    | 15      | M20           | 19       | 4               | 19   | -    | 33   | 30 | 9                |
| AD.NPT3/4.M25.*.15.*   | NPT 3/4"    | 15      | M25           | 15       | 19              | 34   | 19   | 33   | 30 | 9                |
| AD.NPT3/4.M32.*.15.*   | NPT 3/4"    | 15      | M32           | 15       | 19              | 34   | 19   | 39.5 | 36 | 9                |
| AD.NPT1.M32.*.15.*     | NPT 1"      | 15      | M32           | 15       | 19              | 34   | 26   | 39.5 | 36 | 11               |
| AD.NPT1.M40.*.15.*     | NPT 1"      | 15      | M40           | 18       | 22              | 37   | 26   | 50   | 45 | 11               |
| AD.NPT1-1/4.M40.*.18.* | NPT 1-1/4"  | 18      | M40           | 18       | 22              | 40   | 35   | 50   | 45 | 13               |
| AD.NPT1-1/2.M50.*.18.* | NPT 1-1/2"  | 18      | M50           | 18       | 22              | 40   | 40   | 61   | 55 | 15               |
| AD.NPT2.M75.*.18.*     | NPT 2"      | 18      | M75           | 18       | 22.5            | 40.5 | 51   | 88.5 | 80 | 18               |

**Variant-Specific Data Metric-NPT**

| Type                   | Thread Male |         | Thread Female |          | Dimensions [mm] |      |    |      |    | Nut torques [Nm] |
|------------------------|-------------|---------|---------------|----------|-----------------|------|----|------|----|------------------|
|                        | TD          | TL [mm] | TF            | TLF [mm] | H               | L    | DI | D2   | SW | SW               |
| AD.M20.NPT1/2.*.15.*   | M20         | 15      | NPT 1/2"      | 15       | 19              | 34   | 14 | 27.5 | 25 | 6                |
| AD.M20.NPT3/4.*.15.*   | M20         | 15      | NPT 3/4"      | 15       | 19              | 34   | 14 | 33   | 30 | 6                |
| AD.M25.NPT1/2.*.15.*   | M25         | 15      | NPT 1/2"      | 19       | 4               | 19   | -  | 33   | 30 | 8.5              |
| AD.M25.NPT3/4.*.15.*   | M25         | 15      | NPT 3/4"      | 15       | 19              | 34   | 19 | 33   | 30 | 8.5              |
| AD.M25.NPT1.*.15.*     | M25         | 15      | NPT 1"        | 15       | 19              | 34   | 19 | 39.5 | 36 | 8.5              |
| AD.M32.NPT3/4.*.15.*   | M32         | 15      | NPT 3/4"      | 19       | 4               | 19   | -  | 39.5 | 36 | 9                |
| AD.M32.NPT1.*.15.*     | M32         | 15      | NPT 1"        | 15       | 19              | 34   | 26 | 39.5 | 36 | 9                |
| AD.M40.NPT1-1/4.*.18.* | M40         | 18      | NPT 1-1/4"    | 18       | 22              | 40   | 34 | 50   | 45 | 9.5              |
| AD.M40.NPT1-1/2.*.18.* | M40         | 18      | NPT 1-1/2"    | 18       | 22              | 40   | 34 | 61   | 55 | 9.5              |
| AD.M50.NPT1-1/2.*.18.* | M50         | 18      | NPT 1-1/2"    | 18       | 22              | 40   | 40 | 61   | 55 | 10               |
| AD.M50.NPT2.*.18.*     | M50         | 18      | NPT 2"        | 18       | 22.5            | 40.5 | 44 | 72   | 65 | 10               |
| AD.M63.NPT2.*.18.*     | M63         | 18      | NPT 2"        | 18       | 22.5            | 40.5 | 51 | 75   | 68 | 10.5             |