

# Solutions for hazardous area cable terminations





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## Global Termination Solutions

Eaton's Crouse-Hinds Division provides a termination solution for virtually every cable type used in hazardous and industrial environments – both onshore and offshore and above and below ground. Our adaptors, reducers, plugs, drains and additional products are used to support hazardous area installations throughout the world, enhancing safety and productivity in the most severe environmental conditions.

Our thread conversion products are designed for strict adherence to global specifications, meeting international approvals including ATEX, IECEx and CSA certifications. Our products are also suitable for industries made hazardous by the presence of dust.

Eaton's Crouse-Hinds Division thread conversion products are the safest solution for your hazardous area installation. In oil and gas, mining or power generation installations, our products are the reliable and safe way to terminate cable and conduit installation.

## Global Support & Manufacturing

Eaton's Crouse-Hinds Division manufactures in five continents and sells into more than 100 countries. We have dedicated sales support in every major location with local technical sales and engineering teams to support your immediate needs. As one of the largest oil and gas bulk electrical and instrument material suppliers, we can easily provide you a single source for all the components to complete your project on time and on budget.



*Powering Business Worldwide*

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The product information published in our catalogues and literature is not guaranteed. It has been compiled with care and is sufficiently accurate for most purposes. It is subject to change without notice. Occasionally, it may be necessary to modify the materials, finishes or other components of the product. These changes will in no way reduce the performance or function for which the product is intended.

All statements, technical information and recommendations contained herein are based on information and tests we believe to be reliable. The accuracy or completeness thereof are not guaranteed. In accordance with Eaton's Crouse-Hinds' Terms and Conditions of Sale, and since conditions of use are outside our control, the purchaser should determine the suitability of the product for his/her intended use and assumes all risk and liability whatsoever in connection therewith.

All sales of Eaton's Crouse-Hinds products are specifically subject to the Terms and Conditions of Sale as shown in Eaton's Crouse-Hinds distributor price sheets.

When selecting Ex certified accessories for use in hazardous areas, it is important to ensure that the product selected not only performs the task required (i.e. adapting the thread), but also maintains the overall integrity of the equipment into which it will be fitted.

To help with the selection of Redapt products, we have prepared the following as a guide. However, when selecting equipment for use in hazardous areas, the appropriate national or international standards or codes of practice must be considered.

### **Product approvals (see page 8)**

Redapt products are manufactured to comply with the relevant standards for which they are designed. This means Redapt products meet with the exacting standards found within hazardous area environments. To assist in ease of use, the Redapt range of adaptors, reducers, stopping plugs and breather drains are approved Exd I and IIC and Exe I and IIC and tested to IP66 and IP68.

### **Equipment certificates, Ex thread adaptors and Ex stopping plugs**

Redapt adaptors and reducers with metric female threads (Ex adaptors) and full range of stopping plugs (Ex stopping plugs) and breather drains are certified as apparatus and granted equipment certificates. This means that they can be fitted into Ex apparatus enclosures without further certification.

### **Component certificates**

Redapt adaptors and reducers with non-coaxial threads, 90 degree adaptors, 'Y' and 'T' (twin inlet) adaptors and 90 degree swivel adaptors are certified as components, and as such require further approval before they can be fitted to Ex apparatus enclosures. This applies to all products that have a 'U' at the end of the certificate number.

### **Worldwide compatibility**

Keeping pace with the rapidly changing approvals and to ensure worldwide compatibility, Redapt has the following approvals: North American Ex approvals for both methods of hazardous location classification, Zones and Divisions in addition to our existing ATEX and IECEx approvals. Redapt can therefore offer adaptors and reducers Ex d and e I M2 and IIC Gb and/or Class I, Division 1, groups A, B, C, D, or Exe II, Class I, Division 2, etc.

### **Ingress protection (see page 9)**

To ensure that the ingress protection of the equipment is maintained, the accessories need to satisfy the same level of protection as the equipment. The Redapt Exd I and IIC and Exe I and IIC range of adaptors, reducers, stopping plugs and breather drains are fitted with an integral O-ring seal and have been independently tested to IP66 and IP 68.

### **Material**

To ensure the long-term integrity of the installation, care should be taken in selecting the product material; in particular, taking into account any corrosive atmosphere present and/or the potential for corrosion brought about by mating dissimilar metals. As standard we supply brass, which is suitable for most applications. In certain atmospheres, most notably ammonia, or to avoid bi-metallic corrosion and electrolytic action, it may be advisable to select an alternative material or request plated brass.

### **Thread fit, gauging and length**

Parallel threads are gauged to a medium fit (6g, 6H) and are manufactured to provide a minimum of eight full threads, unless otherwise specified. Tapered threads are gauged and dimensioned to provide for five fully engaged threads, unless otherwise specified.

### **Part numbering system (see page 10)**

When ordering or enquiring about adaptors and reducers, the male thread size should always be quoted first, followed by the female.

### **Dimensions**

It is advisable to check the dimensions of the product to ensure that it can be installed into the equipment without fouling. Dimensions are given in the catalogue for regular metric size products; for other dimensions or information, please contact us. *Please note that dimensions are subject to change.*

### **Product marketing**






















To ensure clarity the relevant product information is marked on the product, and/or shown on the packaging and/or within the installation instructions.

### **European directives**

Products approved within the ATEX directive will be shipped with detailed installation instructions. The CE mark is applied to the packaging and confirms that Redapt products meet with the essential health and safety requirements of the applicable European directives.

*Redapt products are outside the scope of the Electromagnetic Compatibility Directive (EMC) as they are passive.*

Product type

		<b>IECEX</b>					<b>CCOE</b>
		IECEX	ATEX Gas & Dust	ATEX Mining (M2 only)	North America	Russia	India
Adaptors and reducers (metallic)		■	■	■	■	■	■
Adaptors and reducers (nylon)		■	■		■	■	
Swivel adaptors		■	■	■		■	
'Y' adaptors 'T' adaptors		■	■	■			
90 degree adaptors		■	■	■	■		
Male to male and female to female (IECEX only) adaptors		■	■		■	■	
Insulated adaptors		■	■	■			
Cable gland stopper boxes		■	■			■	
Unions			■		■	■	
Stopping plugs (metallic) (check individual plugs for certification)		■	■	■	■	■	■
Stopping plugs (nylon)		■	■		■	■	
Breather drains Exe		■	■	■	■	■	
Breather drains Exde		■	■	■			
Earth lead adaptors		■	■		■	■	
Threaded earth plates			■				
Flexible conduit stopper boxes		■	■			■	
Flexible conduit							



### **ATEX directive compliance**

The ATEX directive (2014/34/UE) applies to equipment and protective systems intended for use in potentially explosive atmospheres within Europe. The directive outlines the conformity assessment procedures and product classification for Ex products.

Redapt complies with ATEX having had an EC type-examination carried out on our Ex product range and our production QA assessed and approved. This is in line with the requirements for Ex products for use in gas groups I and II.



### **North American approval**

The Canadian Standards Association (CSA) develops standards, tests and certifies products for use in Canada and internationally. CSA international is recognised by the U.S. Occupational Safety and Health Administration (OSHA) under the Nationally Recognised Testing Laboratory (NRTL) scheme and are able to test and certify products for use in hazardous locations within the U.S.A. as well as Canada. Traditionally, Ex products used within North America have been designed and tested for compliance within the 'class and division system'.

Redapt products have been assessed and certified for use throughout North America in both the 'class and division system' and the 'zone system'.



### **IEC Ex approval**

The International Electrotechnical Commission (IEC) has developed the IECEx international certification scheme in an attempt to harmonise national standards used throughout the world with the aim of producing an approval that is recognised globally. The IECEx scheme is based on the 3 zone concept of area classification.

Redapt products have been approved under the IECEx scheme and are compliant with the requirements of the scheme via IEC 60079-x.



### **TR-UNION approval**

The EX EAC certificate and the regulation for equipment used in potentially explosive atmospheres, therefore classified explosion proof, is based on the Technical Regulations 012/2011 of the Eurasian Customs Union (TR CU 012/2011). The Custom Union Technical Regulations regulate the quality of the product on the markets of Russia, Belarus, Kazakhstan and soon of Armenia and Kyrgyzstan. The certificate resulting from the compliance with the provisions of the TR CU 012/2011 is the EX EAC certificate, comparable to European ATEX.



### **Indian Hazardous Location system**

Requirement under Rule 102 of the Petroleum Rules, 2002 lays down that no electrical wiring shall be installed and no electrical apparatus shall be used in petroleum refinery, storage installation, storage shed, service station or any other place where petroleum is refined, blended, stored, loaded/filled or unloaded unless it is approved by the Chief Controller of Explosives (CCoE certificate). It is in this context that electrical equipment which has to be used in a hazardous area covered under Petroleum Rules, 2002 shall require approval from the Chief Controller of Explosives.

### **Notes**

#### **Equipment certificates, Ex thread adaptors and Ex stopping plugs**

Redapt adaptors and reducers with metric female threads (Ex adaptors) and full range of stopping plugs (Ex stopping plugs) and breather drains are certified as apparatus and granted equipment certificates. This means that they can be fitted to Ex apparatus enclosures without further certification (see installation instructions).

#### **Component certificates**

Products certified as components require further approval before they can be fitted to Ex apparatus enclosures. A certificate number ending with the 'U' suffix denotes a component certificate (see installation instructions).

#### **Aluminium products**

Aluminium versions of AD-U, RD-U, PD-U, PA-D, PB-D Series and GF nylon and aluminium versions of DP-E Series are not suitable for Group I applications.

#### **Temperature classification**

Redapt products do not carry a temperature class or 'T' rating as they are passive and do not generate any heat.



Hazardous area standards generally state a minimum IP rating of IP54 or NEMA 3 for degree of protection against solid foreign objects and against water. However, it is essential when selecting Redapt products to ensure that the product will maintain the IP or NEMA rating of the equipment and the integrity of the installation.

The following table contains definitions detailing the environmental protection levels that Redapt products are capable of maintaining:

## **IP codes are based on the IEC standard dust/water 50269 – degrees of protection provided by enclosures**

### **1st numeral – protection against solid objects**

### **2nd numeral – protection against water**

- |             |   |
|-------------|---|
| <b>IP54</b> | <ul style="list-style-type: none"> <li>• Dust protected. Prevents ingress of dust sufficient to cause harm.</li> <li>• Protected from splashing water from any direction.</li> </ul>  |
| <b>IP66</b> | <ul style="list-style-type: none"> <li>• Dust-tight. No ingress of dust possible.</li> <li>• Protected against heavy seas or powerful jets of water. Prevents ingress sufficient to cause harm.</li> </ul>  |
| <b>IP67</b> | <ul style="list-style-type: none"> <li>• Dust-tight. No ingress of dust possible.</li> <li>• Protected against harmful ingress of water when immersed between a depth of 150mm to 1m.</li> </ul>  |
| <b>IP68</b> | <ul style="list-style-type: none"> <li>• Dust-tight. No ingress of dust possible.</li> <li>• Protected against submersion. Suitable for continuous immersion in water at stated depth. (Depth stated for Redapt products = 2m for 60 minutes duration)</li> </ul> |

## **North American and Canadian markets define environmental protection as CSA and NEMA enclosure types**

- |                |  |
|----------------|--|
| <b>Type 3</b>  | <ul style="list-style-type: none"> <li>• Type 3 enclosures are intended for outdoor use primarily to provide a degree of protection against rain, sleet, windblown dust and damage from external ice formation.</li> </ul>   |
| <b>Type 4</b>  | <ul style="list-style-type: none"> <li>• Type 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against wind blown dust and rain, splashing water, hose directed water and damage from external ice formation.</li> </ul>                                    |
| <b>Type 4X</b> | <ul style="list-style-type: none"> <li>• Type 4X enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against corrosion, wind blown dust and rain, splashing water, hose directed water and damage from external ice formation.</li> </ul>                        |
| <b>Type 6</b>  | <ul style="list-style-type: none"> <li>• Type 6 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against hose directed water, the entry of water during occasional temporary submersion at a limited depth and damage from external ice formation.</li> </ul> |
| <b>Type 6P</b> | <ul style="list-style-type: none"> <li>• Type 6P enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against hose directed water, the entry of water during prolonged submersion at a limited depth and damage from external ice formation.</li> </ul>           |

### **Integral O-rings available**

- |            |                  |
|------------|------------------|
| • Silicone | • Fluorosilicone |
| • Nitrile  | • EPDM           |
| • Neoprene | • Viton          |

# Part numbering system

## Codes

Page No.	Product	Digits 1 & 2
<b>Adaptors and reducers</b>		
14-17	<b>AD</b>	Adaptor
14-17	RD	Reducer
18	TA	Swivel - in-line male to female
18	TC	Swivel - in-line female to female
18	TD	Swivel - in-line male to male
18	TP	Swivel - 90° male to female
18	TQ	Swivel - 90° female to female
18	TR	Swivel - 90° male to male
19	AY	'Y' adaptor
20	AT	'T' adaptor
21	AR	90° adaptor
22	AM	Male to male adaptor
23	AF	Female to female adaptor
24-25	AI	Insulated adaptor
<b>Stopping Plugs</b>		
26-27	PD	Dome head plug
28	PA	Type A plug
28	PB	Type B plug
29	PH	Hex head plug
30	PX	Hollow hex head plug
<b>Breather Drains</b>		
31	DP	Breather drain (Exe)
32	BD	Breather drain (Exde)
<b>Other products</b>		
33	SB	Stopper box (rigid conduit/cable gland)
34	UN	Union - male to female
34	UF	Union - female to female
35	AE	Earth lead adaptor
36	ET	Threaded earth plate
37	FX	Stopper box (flexible conduit)

Certification	Digit 3
<b>U</b>	Exd I and IIC & Exe I and IIC
D	Exd I and IIC
E	Exe I and IIC
F	Industrial (marked product)

Material	Digit 4
<b>1</b>	Brass
2	Mild steel
3	Stainless steel
4	Glass filled nylon
5	Aluminium
6	Nylon 6
7	Red fibre

Plating	Digit 5
0	Unplated
<b>1</b>	Electroless nickel
2	Zinc
6	Chromatised

## Example

Digits 1 & 2	Digit 3	Digit 4	Digit 5	Digits 6 & 7	Digits 8 & 9
<b>AD</b>	<b>U</b>	<b>1</b>	<b>1</b>	<b>29</b>	<b>04</b>
Adaptor	Exd/e certified	Brass	Nickel-plated	1/2" NPT (male)	M20 (female)

**Always quote male thread first.**

## Male thread – digits 6 & 7, female thread – digits 8 & 9 Note: threadform codes below to be used for both male and female threads.

Metric	ET imperial conduit	NPT	NPSM	ISO pipe parallel (BSPP)	ISO pipe taper (BSPT)	PG
03 M16	17 5/8" ET	<b>29</b> 1/2" NPT	42 1/2" NPSM	55 1/2" BSPP	68 1/2" BSPT	79 PG7
<b>04 M20</b>	18 3/4" ET	30 3/4" NPT	43 3/4" NPSM	56 3/4" BSPP	69 3/4" BSPT	80 PG9
05 M25	19 1" ET	31 1" NPT	44 1" NPSM	57 1" BSPP	70 1" BSPT	81 PG11
06 M32	20 1 1/4" ET	32 1 1/4" NPT	45 1 1/4" NPSM	58 1 1/4" BSPP	71 1 1/4" BSPT	82 PG13.5
07 M40	21 1 1/2" ET	33 1 1/2" NPT	46 1 1/2" NPSM	59 1 1/2" BSPP	72 1 1/2" BSPT	83 PG16
08 M50	22 2" ET	34 2" NPT	47 2" NPSM	60 2" BSPP	73 2" BSPT	84 PG21
09 M63	23 2 1/2" ET	35 2 1/2" NPT	48 2 1/2" NPSM	61 2 1/2" BSPP	74 2 1/2" BSPT	85 PG29
10 M75	24 3" ET	36 3" NPT	49 3" NPSM	62 3" BSPP	75 3" BSPT	86 PG36
11 M80 x 2.0	ET Special	37 3 1/2" NPT	50 3 1/2" NPSM	63 3 1/2" BSPP	76 3 1/2" BSPT	87 PG42
12 M85 x 2.0		38 4" NPT	51 4" NPSM	64 4" BSPP	77 4" BSPT	88 PG48
13 M90 x 2.0		NT Special	NS Special	BP Special	BT Special	PG Special
14 M100 x 2.0						
15 M110 x 2.0						
BZ M120 x 2.0						
MT Special						

## Part numbering system for DPE breather drains only (page 31)

Product	Certification	Material	Plating	Thread type	Thread length	Hole position	Castellated I/nut
<b>DP</b> Standard	<b>E</b> Exe I and IIC	1 Brass	<b>0</b> Unplated	<b>04</b> M20	<b>S1</b> 10mm	2 Holes	With
		<b>3</b> S/steel	1 E/nickel	05 M25	S2 10mm	2 Holes	Without
		4 GF Nylon	2 Zinc	06 M32	S3 15mm	3 Holes	With
				29 1/2" NPT	S4 15mm	3 Holes	Without
				30 3/4" NPT			
				31 1" NPT			

Note: Glass filled nylon version is only available in S2 and S4 options and is not supplied complete with a brass castellated locknut.  
NPT threaded breather drains are only available in S3 and S4 options.

### Example

Standard	Exe I and IIC	Stainless steel	Unplated	M20	10mm
<b>DP</b>	<b>- E</b>	<b>- 3</b>	<b>- 0</b>	<b>- 04</b>	<b>- S1</b>

## Part numbering system for BDU breather drains only (page 32)

Product	Certification	Material	Plating	Thread	O-ring
<b>BD</b> Standard	<b>U</b> Exd I and IIC and Exe I and IIC	1 Brass	<b>0</b> Unplated	<b>04</b> M20	D0 no O-ring
		<b>3</b> Stainless steel	1 Electroless nickel	05 M25	<b>D1</b> Silicone
			2 Zinc	29 1/2" NPT	D2 Fluorosilicone
				30 3/4" NPT	D3 Viton
					D4 EPDM
					D5 Neoprene
					D6 Nitrile

### Example

Standard	Exd I and IIC and Exe I and IIC	Stainless steel	Unplated	M20	Silicone O-ring
<b>BD</b>	<b>- U</b>	<b>- 3</b>	<b>- 0</b>	<b>- 04</b>	<b>- D1</b>

# Part numbering system

**Flexible conduit product coding (see pages 38-39)** Please note the product coding for flexible conduit differs from the main coding.

Digits 1 to 4 product codes - flexible conduit	Digit 5* colour (for FEZR only)	Digits 6 & 7 thread size of conduit	Digits 8 & 9 defaults to '00'
FAZ3 Galv. steel conduit with rubber cover and stainless steel overbraid	B Black	01 M10	00
FDZH Galv. steel conduit with rubber cover	G Grey	02 M12	
FEZR Galv. steel conduit with PVC cover	O Orange	03 M16	
FFZR Galv. steel conduit with galv. steel braid and PVC cover		04 M20	
FGZR Stainless steel conduit with PVC cover		05 M25	
		06 M32	
FYZ3 Stainless steel fixing clip		07 M40	
FZZR Plated steel with PVC liner fixing clip		08 M50	
		09 M63	

\* Digit 5 represents colour, although only the FEZR conduit is available in other colours. For other conduit types/clips, use 'B' for black as default.

Conduit sold in 25 metre reels as standard; other lengths available on application.

## Example

Digits 1 to 3	Digit 4	Digit 5	Digits 6 & 7	Digits 8 & 9
<b>FAZ</b>	<b>3</b>	<b>B</b>	<b>04</b>	<b>00</b>
Galv. steel conduit with rubber cover and stainless steel overbraid		Black	M20	Default

## Example

Digits 1 to 3	Digit 4	Digit 5	Digits 6 & 7	Digits 8 & 9
<b>FEZ</b>	<b>R</b>	<b>G</b>	<b>07</b>	<b>00</b>
Galv. steel conduit with PVC cover		Grey	M16	Default

## ISO metric

BS 3643 1.5mm pitch

Size	Major dia.	TPI
M16	15.97	16.93
M20	19.97	16.93
M25	24.97	16.93
M32	31.97	16.93
M40	39.97	16.93
M50	49.97	16.93
M63	62.97	16.93
M75	74.97	16.93
2.0mm pitch		
M80	79.97	12.70
M85	84.97	12.70
M90	89.97	12.70
M100	99.97	12.70
M110	109.97	12.70
M120	119.97	12.70

## NPT

ANSI/ASME B1.20.1

Size	Pipe dia.	TPI
½"	21.34	14.00
¾"	26.67	14.00
1"	33.40	11.50
1¼"	42.16	11.50
1½"	48.26	11.50
2"	60.33	11.50
2½"	73.03	8.00
3"	88.90	8.00
3½"	101.60	8.00
4"	114.30	8.00

## PG

BS 3643 1.5mm pitch

Size	Major dia.	TPI
PG7	12.50	20.00
PG9	15.20	18.00
PG11	18.60	18.00
PG13.5	20.40	18.00
PG16	22.50	18.00
PG21	28.30	16.00
PG29	37.00	16.00
PG36	47.00	16.00
PG42	54.00	16.00
PG48	59.30	16.00

## Alternate ISO pipe thread designations

BS 3643 1.5mm pitch

UK	<b>BSP</b> Parallel or Taper BS2279 (BS21)
Europe	<b>G</b> (Parallel) <b>GK</b> (Taper) <b>R</b> (Parallel) <b>RK</b> (Taper)
Japan	<b>PF</b> (Parallel) JIS B 303
CIS	<b>K mpy</b> (Taper)

## BSP ISO pipe thread

ISO R/7; UNI 6125

Size	Pipe Dia.	TPI
⅜"	16.66	19.00
½"	20.96	14.00
¾"	26.44	14.00
1"	33.25	11.00
1¼"	41.91	11.00
1½"	47.80	11.00
2"	59.61	11.00
2½"	75.18	11.00
3"	87.88	11.00

## ET imperial conduit

BS31

Size	Major dia.	TPI
⅝"	15.88	18.00
¾"	19.05	16.00
1"	25.40	16.00
1¼"	31.75	16.00
1½"	38.10	14.00
2"	50.80	14.00
2½"	63.50	14.00
3"	76.20	14.00

## Thread dimension substitution chart

Metric	NPT (or NPS)	PG	BSP ISO Pipe	ET
M16	–	7, 9	–	⅝"
M20	½"	11, 13.5	½"	¾"
M25	¾"	16	¾"	1"
M32	1"	21	1"	1¼"
M40	1¼"	29	1¼"	1½"
M50	1½"	36	1½"	2"
M63	2"	42, 48	2"	2½"
M75	2½"	–	2½"	3"
M90 x 2.0	3"	–	3"	–
M100 x 2.0	3½"	–	–	–
M110 x 2.0	–	–	–	–
M120 x 2.0	–	–	–	–

# Metallic (Exde) adaptors and reducers - ADU / RDU Series



Type ADU

## Features

- International Ex approvals
- IP66, IP68, CSA Enclosure Type (NEMA) 4X, 6P
- Various threadforms/materials available

## Benefits

- Used to change size/threadform of connection device
- Maintains Ex certification while matching threadforms

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium
- Mild steel

## Threadforms

- Metric
- NPT
- PG
- ISO Pipe (BSP)
- ET

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Technical specification

### Code of protection categories

ATEX: I M2, II 2 GD, Ex d I/IIC Mb Gb, Ex e I/IIC Mb Gb, Ex tb IIIC Db, IP6X

IECEX: Ex d I/IIC, Mb/Gb, Ex e I/IIC, Mb/Gb, Ex tb IIIC Db, IP6X

CSA: Ex de IIC IP66/67/68; Class I, Divisions 1 and 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 4X/6P

EAC: ExdeIU, ExdeIIICU, IP66 / 67 / 68

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

CSA: C22.2 No .30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-1-11, CAN/CSA 60079-7-12, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 00ATEX1094X

IECEX: IECEX SIR 12.0016X

CSA: 1248014 (LR 106084)

EAC: TR RU C-GB.GB06.B.00106

CCoE: P362565/1

### Temperature

Temperature will depend on the type of O-ring used:

None: -50°C to +180°C

Nitrile: -20°C to +80°C (supplied as standard)

EPDM: -30°C to +125°C

Neoprene: -20°C to +100°C

Viton: -5°C to +180°C

Silicone: -30°C to +180°C

Fluorosilicone: -50°C to +150°C

The maximum temperature is limited to +150°C for Group I applications

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

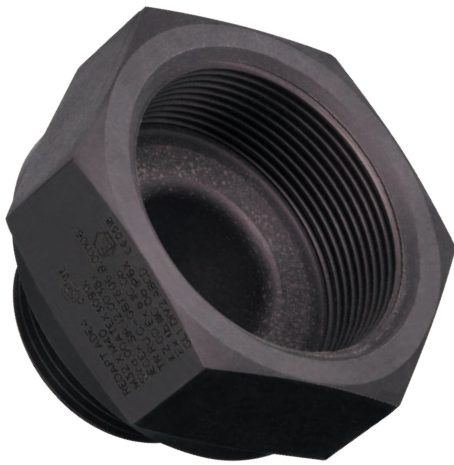
### Part number:

Please refer to page 10 for part numbering system

## Available thread sizes and corresponding bore size

Metric	Bore	NPT	Bore	ISO Pipe	Bore	ET	Bore	PG	Bore
M16	10.00	-	-	3/8"	10.00	5/8"	10.00	PG7	8.00
M20	14.00	1/2"	15.00	1/2"	15.00	3/4"	14.00	PG9	10.00
M25	18.00	3/4"	19.00	3/4"	19.00	1"	18.00	PG11	13.50
M32	24.00	1"	25.00	1"	25.00	1 1/4"	24.00	PG13.5	14.00
M40	32.00	1 1/4"	32.00	1 1/4"	32.00	1 1/2"	32.00	PG16	16.00
M50	41.00	1 1/2"	38.00	1 1/2"	38.00	2"	41.00	PG21	21.00
M63	53.00	2"	49.00	2"	49.00	2 1/2"	53.00	PG29	29.00
M75	64.00	2 1/2"	60.00	2 1/2"	60.00	3"	64.00	PG36	38.00
M80 x 2.0	69.00	3"	75.00	3"	75.00	-	-	PG42	45.00
M85 x 2.0	73.00	3 1/2"	88.00	3 1/2"	88.00	-	-	PG48	50.00
M90 x 2.0	78.00	4"	100.00	4"	100.00	-	-	-	-

Sizes M12 to M120 available.



Type ADE4

## Features

- International Ex approvals
- IP66, IP68
- Various threadforms available

## Benefits

- Used to change size/threadform of connection device
- Maintains increased safety certification while matching threadforms

## Materials

- Glass filled nylon

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO Pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: II 2 GD, Ex e IIC Gb, Ex tb IIIC Db, IP6X

IECEX: Ex e IIC Gb, Ex tb IIIC Db, IP6X

CSA: Ex e IIC IP66 / 67 / 68; Class I, Division 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 4X/6P

EAC: ExeIIC, IP66 / 67 / 68

### Compliance standards

ATEX: EN 60079-0, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-7, IEC 60079-31

CSA: C22.2 No.0.17-00 (R2009), CAN/CSA 60079-0-11, CAN/CSA 60079-7-12, CAN/CSA 60079-31:12

UL514C 3rd Editions

### Certificate details

ATEX: Sira 00ATEX3091X

IECEX: IECEX SIR 12.0038X

CSA: 1248014 (LR 106084)

EAC: TR RU C-GB.GB06.B.00106

### Temperature

Temperature will depend on the type of O-ring used

No O-ring: -20°C to +40°C

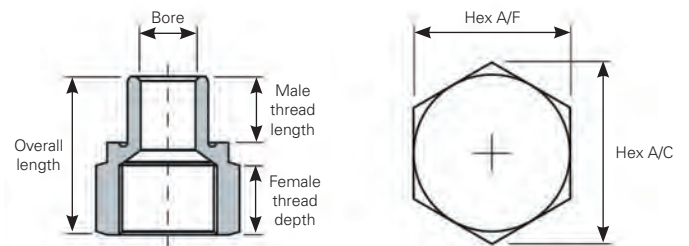
Viton O-ring: -5°C to +40°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system



## Available thread sizes and corresponding bore size

Metric	Bore	NPT	Bore	ISO Pipe	Bore	ET	Bore	PG	Bore
M16	9.00	-	-	3/8"	9.30	5/8"	9.30	PG9	9.00
M20	11.00	1/2"	12.00	1/2"	12.00	3/4"	11.00	PG11	10.00
M25	16.00	3/4"	13.00	3/4"	13.00	1"	16.00	PG13.5	11.50
M32	21.00	1"	18.00	1"	18.00	1 1/4"	21.00	PG16	13.50
M40	31.00	1 1/4"	33.00	1 1/4"	33.00	1 1/2"	31.00	PG21	19.00
M50	41.00	1 1/2"	38.00	1 1/2"	38.00	2"	40.00	PG29	28.00
-	-	-	-	-	-	-	-	PG36	37.00
-	-	-	-	-	-	-	-	PG42	44.00





STEP 2 – Having obtained the reference number, go to the relevant column within the dimension tables to obtain the adaptor or reducer’s dimensions. Please note that these dimensions refer to metallic products only.

## Adaptors

Metric x metric, metric x PG, PG x metric, PG x PG																			
Reference numbers	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	257	258	259
Hex across flats	23.4	27.0	30.5	33.0	36.0	37.6	37.6	47.2	55.9	61.2	70.1	90.2	106.4	106.4	114.3	23.4	31.8	41.3	57.2
Hex across corners	26.8	31.0	35.0	38.0	41.5	43.2	43.2	53.4	64.3	70.4	81.8	103.7	122.4	122.4	131.4	26.8	36.1	47.7	66.0
Male thread length	16	16	16	16	16	16	16	16	16	16	16	16	16	20	20	15	16	16	16
Female thread length	17	17	17	17	17	17	17	17	17	17	17	17	22	22	22	20	17	17	17
Total length	38.5	38.5	38.5	38.5	38.5	38.5	38.5	38.5	39.5	39.5	39.5	39.5	45.0	49.0	49.0	42.0	38.5	38.5	39.5

Metric x NPT, PG x NPT																			
Reference numbers	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	261	262	263	-
Hex across flats	27.0	30.5	32.0	37.6	37.6	41.3	47.2	55.9	57.2	70.1	80.0	106.4	106.4	114.3	127.0	90.2	120.7	139.7	-
Hex across corners	31.0	35.0	36.7	43.2	43.2	47.5	53.4	64.3	66.0	81.8	92.0	122.4	122.4	131.4	147.0	104.1	139.4	161.3	-
Male thread length	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	20	20	-	-
Female thread length	20	20	20	20	25	25	26	26	26	27	40	35	42	42	44	22	22	22	-
Total length	42	42	42	42	47	47	47	48	48	48	58	58	62	62	62	48	48	49	-

NPT x metric, NPT x PG																			
Reference numbers	232	233	234	235	236	237	238	239	240	241	242	243	244	260	265	-	-	-	-
Hex across flats	23.4	28.6	30.5	37.6	37.6	44.5	55.9	70.1	70.1	90.2	90.2	106.4	114.3	90.2	33.0	-	-	-	-
Hex across corners	26.8	32.9	35.0	43.2	43.2	51.1	64.3	70.4	81.8	103.7	103.7	122.4	131.4	103.7	38.0	-	-	-	-
Male thread length	20	20	20	20	25	25	25	25	25	25	35	35	35	16	20	-	-	-	-
Female thread length	17	17	17	17	17	17	17	17	17	17	17	22	22	35	77	-	-	-	-
Total length	43	43	43	43	48	48	49	49	49	49	59	64	64	58	43	-	-	-	-

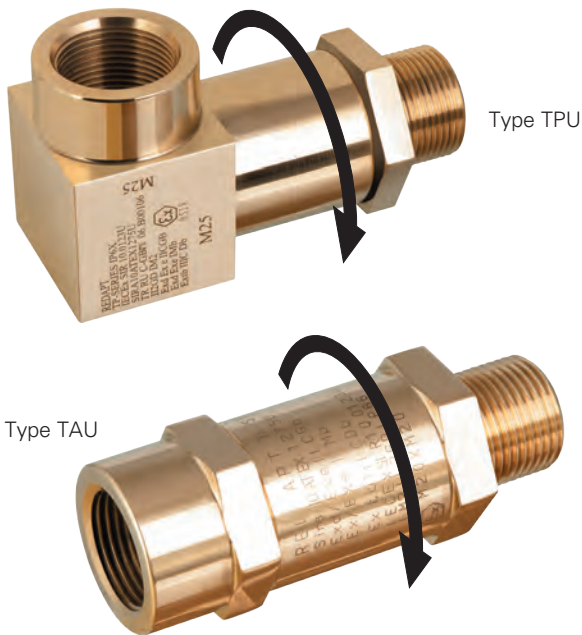
NPT x NPT																			
Reference numbers	245	246	247	248	249	250	251	252	253	254	255	256	264	-	-	-	-	-	-
Hex across flats	23.4	30.5	37.6	37.6	47.2	55.9	70.1	80.0	80.0	106.4	114.3	127.0	158.8	-	-	-	-	-	-
Hex across corners	26.8	35.0	43.2	43.2	53.4	64.3	81.8	92.0	92.0	122.4	131.4	146.0	183.3	-	-	-	-	-	-
Male thread length	20	20	20	25	25	25	25	25	35	35	35	35	35	-	-	-	-	-	-
Female thread length	20	20	25	25	25	25	25	35	35	35	35	35	47	-	-	-	-	-	-
Total length	46	46	51	56	56	57	57	67	77	77	78	78	81	-	-	-	-	-	-

## Reducers

Metric and PG																			
Reference numbers	301	302	303	304	305	306	307	308	309	310	311	312	313	324	325	326	-	-	-
Hex across flats	27.0	30.5	31.8	36.0	37.6	44.5	47.2	55.9	57.2	70.1	90.2	106.4	114.3	61.2	120.7	127.0	-	-	-
Hex across corners	31.0	35.0	36.7	41.5	43.2	51.1	53.4	64.3	66.0	81.8	103.7	122.4	131.0	70.7	139.4	146.6	-	-	-
Male thread length	16	16	16	16	16	16	16	16	16	16	16	20	20	16	16	16	-	-	-
Total length	26	26	26	26	26	26	26	27	27	27	27	31	31	27	28	28	-	-	-

NPT																			
Reference numbers	314	315	316	317	318	319	320	321	322	323	327	-	-	-	-	-	-	-	-
Hex across flats	23.4	27.9	34.9	44.5	52.1	61.2	80.0	90.2	106.4	120.7	146.0	-	-	-	-	-	-	-	-
Hex across corners	26.8	32.1	40.2	51.1	59.9	70.4	92.0	103.7	122.4	138.8	168.6	-	-	-	-	-	-	-	-
Male thread length	20	20	25	25	25	25	35	35	35	35	35	-	-	-	-	-	-	-	-
Total length	30	30	35	35	35	36	46	46	46	47	47	-	-	-	-	-	-	-	-

# In-line and 90 degree (Exde) swivel adaptors - TAU / TPU Series



## Features

- In-line and 90° models available
- International Ex approvals
- IP66, IP68
- Male to male and female to female options available
- Various threadforms/materials available

## Benefits

- Allows 360° choice of cable entry/exit positions (90° model)
- In-line models allow independent connection at both ends
- Improves ease of installation in confined or difficult situations

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO Pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: I M2, (not aluminium) Ex d Ex e IIC Gb, Ex d, Ex e I Mb (not aluminium), Ex tb IIIC Db IP 6X

II 2GD, Ex d Ex e IIC Gb, Ex d Ex e I Mb (not aluminium), Ex tb IIIC Db IP 6X

IECEX: Ex d IIC Gb, Ex e IIC Gb, Ex d I Mb, Ex e I Mb, Ex tb IIIC Db IP 6X

EAC: ExdIU, ExeIU, ExeIIU, ExdIIU, IP66

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

### Certificate details

ATEX: Sira 10ATEX1275U

IECEX: IECEX SIR 10.0123U, IECEX SIR 12.0016X (in-line)

EAC: TR RU C-GB.GB06.B.00106

### Temperature

Exd Temperature range: -20°C to +60°C

Exe Temperature range: -50°C to +200°C

### Ingress protection (IP):

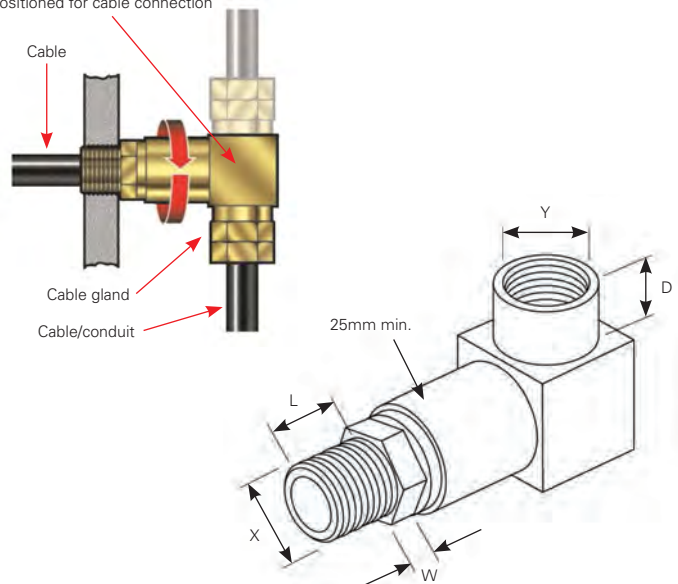
Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

### 90° swivel adaptor

This part rotates, enabling the cable glands to be correctly positioned for cable connection



## Dimensions of metric versions

Male thread (X)	Female thread (Y)	L	W	D
M20	M20	17.00	4.00	17.00
M25	M20 to M25	17.00	4.00	17.00
M32	M20 to M32	17.00	5.00	17.00
M40	M20 to M40	17.00	5.00	17.00
M50	M20 to M50	17.00	5.00	17.00
M63	M20 to M63	17.00	5.00	17.00
M75	M20 to M75	17.00	5.00	17.00



## Technical specification

### Code of protection categories

ATEX: II 2 GD / I M2, Ex db I Mb, Ex eb I Mb (not aluminium),  
Ex db IIC Gb, Ex eb IIC Gb, Ex tb IIC Db IP 66

IECEx: Ex db I Mb, Ex eb I Mb (not aluminium), Ex db IIC Gb, Ex eb IIC Gb,  
Ex tb IIC Db IP 6X

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEx: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

### Certificate details

ITS16ATEX101340U

IECEx ITS 16.0015U

### Temperature

Temperature range: -60°C to +200°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- International Ex approvals
- IP66, IP68
- Available in brass, stainless steel, mild steel and aluminium

## Benefits

- Provides extra means of connection where space is limited
- Used to change size/threadform of connection device
- Maintains Ex certification while matching threadforms

## Materials

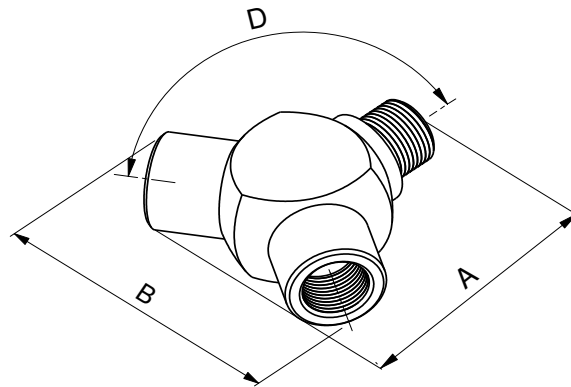
- Brass CZ121
- 316 stainless steel
- Mild steel
- Aluminium

## Threadforms

- Metric
- NPT

## Plating options

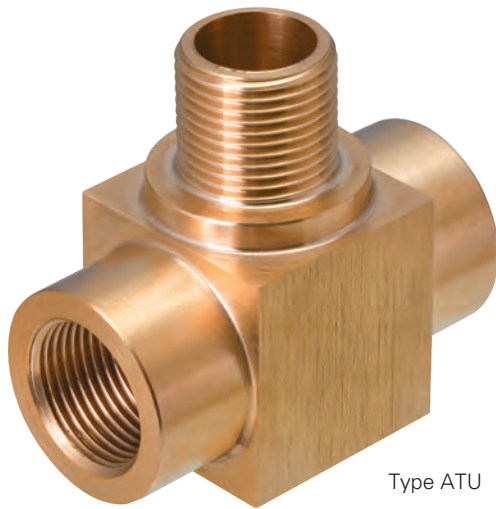
- Electroless nickel
- Zinc
- Others on application



## Dimensions of metric and NPT versions

Male size	Female size	A (max.)	B (max.)	Angle between entries (D)
M16	M16	65.00	75.00	120°
M20	M20	65.00	75.00	120°
M25	M25	67.00	78.00	120°
M32	M32	70.00	81.00	120°
M40	M40	89.00	102.00	120°
M50	M50	104.00	120.00	120°
M63	M63	131.00	151.00	120°
M75	M75	153.00	177.00	120°
3/8" NPT	3/8" NPT	65.00	75.00	120°
1/2" NPT	1/2" NPT	65.00	75.00	120°
3/4" NPT	3/4" NPT	67.00	78.00	120°
1" NPT	1" NPT	78.00	90.00	120°
1 1/4" NPT	1 1/4" NPT	89.00	102.00	120°
1 1/2" NPT	1 1/2" NPT	104.00	120.00	120°
2" NPT	2" NPT	131.00	151.00	120°
2 1/2" NPT	2 1/2" NPT	153.00	177.00	120°

# 'T' (Exde) adaptors - ATU Series



Type ATU

## Technical specification

### Code of protection categories

ATEX: II 2 GD / I M2, Ex db I Mb, Ex eb I Mb (not aluminium),  
Ex db IIC Gb, Ex eb IIC Gb, Ex tb IIIC Db IP 66

IECEX: Ex db I Mb, Ex eb I Mb (not aluminium), Ex db IIC Gb, Ex eb IIC Gb,  
Ex tb IIIC Db IP 6X

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

### Certificate details

ITS16ATEX101340U

IECEX ITS 16.0015U

### Temperature

Temperature range: -60°C to +200°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to  
manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- International Ex approvals
- IP66, IP68
- Available in brass, stainless steel, mild steel and aluminium

## Benefits

- Provides an opportunity for two cable entries using one equipment entry
- Can be used to change size/threadform of connection device
- Maintains Ex certification while matching threadforms

## Materials

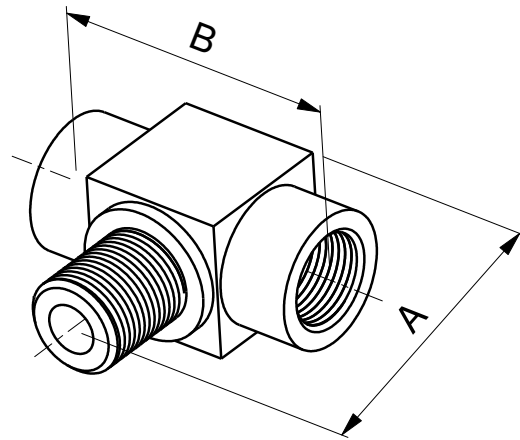
- Brass CZ121
- 316 stainless steel
- Mild steel
- Aluminium

## Threadforms

- Metric
- NPT

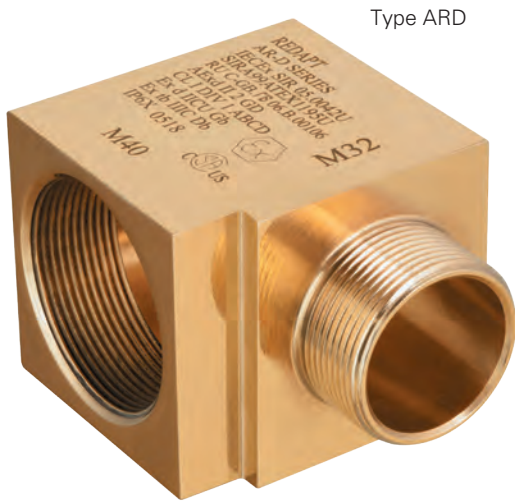
## Plating options

- Electroless nickel
- Zinc
- Others on application



## Dimensions of metric and NPT versions

Male size	Female size	A (max.)	B (max.)
M16	M16 to M20	49.00	60.00
M20	M16 to M25	55.00	65.00
M25	M16 to M32	64.00	72.00
M32	M16 to M40	73.00	80.00
M40	M16 to M50	84.00	90.00
M50	M16 to M63	99.50	105.00
M63	M16 to M75	117.00	120.00
M75	M16 to M75	117.00	120.00
3/8" NPT	3/8" to 1/2" NPT	49.50	60.00
1/2" NPT	3/8" to 3/4" NPT	60.20	65.00
3/4" NPT	3/8" to 1" NPT	69.50	72.00
1" NPT	3/8" to 1 1/4" NPT	84.30	81.00
1 1/4" NPT	3/8" to 1 1/2" NPT	95.00	90.00
1 1/2" NPT	3/8" to 2" NPT	111.00	105.00
2" NPT	3/8" to 2 1/2" NPT	129.20	120.00
2 1/2" NPT	3/8" to 2 1/2" NPT	142.50	120.00



Type ARD

## Technical specification

### Code of protection categories

ATEX: II 2GD, Ex d IIC Gb, Ex tb IIIC Db, IP6X

IECEX: Ex d IIC Gb, Ex tb IIIC Db IP6X

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31

### Certificate details

ATEX: Sira 99ATEX1195U

IECEX: IECEX SIR 12.0016X

### Temperature

The item is classified as a component and therefore metallic products are not given an operating temperature range

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- International Ex approvals
- IP64, CSA Enclosure Type (NEMA) 3
- Available in brass, stainless steel and aluminium
- Various threadforms available

## Benefits

- Provides means of connection where space is limited
- Can be used to change size/threadform of connection device
- Maintains Ex certification while matching threadforms

## Materials

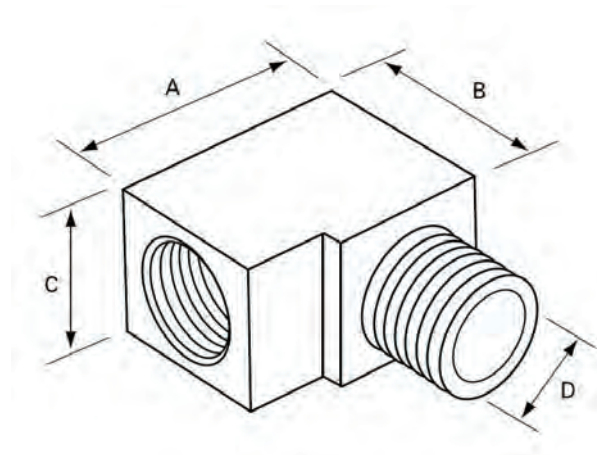
- Brass CZ121
- 316 stainless steel
- Aluminium

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO Pipe (BSP)
- ET

## Plating options

- Electroless nickel
- Zinc
- Others on application



## Dimensions of metric versions

Size	Bore (D)	Male length	Height (A)	Length (B)	Width (C)
M16 x M16	10.00	16.00	33.00	27.00	23.00
M20 x M20	14.00	16.00	39.00	29.00	25.40
M25 x M25	18.00	16.00	46.00	35.00	32.00
M32 x M32	24.00	16.00	51.00	44.00	40.00
M40 x M40	32.00	16.00	61.00	52.00	48.00
M50 x M50	41.00	16.00	73.00	65.00	60.00
M63 x M63	53.00	16.00	86.00	77.00	73.00
M75 x M75	64.00	16.00	99.00	94.00	87.00

# Male to male (Exd) adaptors - AMD Series



Type AMD

## Features

- International Ex approvals
- IP64, CSA Enclosure Type (NEMA) 3
- Available in brass and stainless steel
- Various threadforms available

## Benefits

- Provides method of connecting female threadforms
- Connects either matching or dissimilar sizes/threadforms
- Maintains Ex certification

## Materials

- Brass CZ121
- 316 stainless steel

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Threadforms

- Metric
- NPT
- PG
- ISO pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: II 2GD, Ex d IIC Gb, Ex tb IIIC Db, IP6X

IECEX: Ex d IIC Gb, Ex tb IIIC Db IP6X

CSA: Ex d IIC IP54, Class I, Division 1 and 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 3

EAC: ExdIIICU

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31

CSA: C22.2 No. 30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-1-11, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 99ATEX1114X

IECEX: IECEX SIR 12.0016X

EAC: TR RU C-GB.GB06.B.00106

CSA: 1248014 (LR 106084)

### Temperature

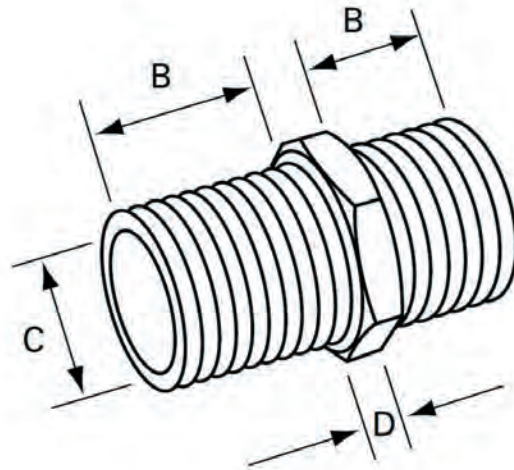
Temperature range: -50°C to +180°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

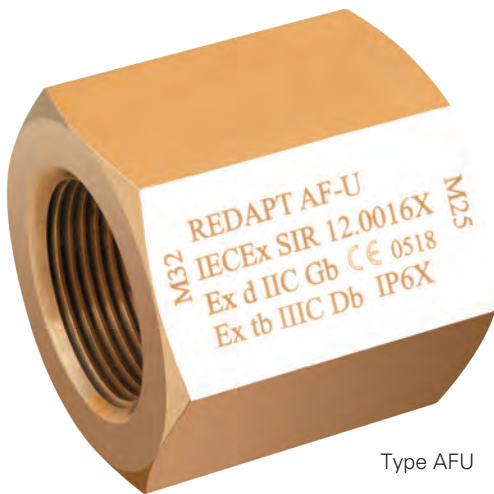
### Part number:

Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	B (min.)	C	D	A/F
M16	16.00	11.00	5.00	23.37
M20	16.00	14.00	5.50	23.37
M25	16.00	18.00	5.50	30.48
M32	16.00	24.00	5.50	37.59
M40	16.00	32.00	5.50	47.24
M50	16.00	41.00	6.00	55.88
M63	16.00	53.00	6.00	70.10
M75	16.00	64.00	6.50	80.01



Type AFU

## Technical specification

### Code of protection categories

IECEX: Ex d IIC Gb, Ex tb IIIC Db IP6X

### Compliance standards

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31

### Certificate details

IECEX: IECEX SIR 12.0016X

### Temperature

Temperature range: -50°C to +180°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- IECEX approval
- IP64
- Available in brass and stainless steel
- Various threadforms available

## Benefits

- Provides method of connecting male threadforms
- Connects either matching or dissimilar sizes/threadforms
- Maintains Ex certification

## Materials

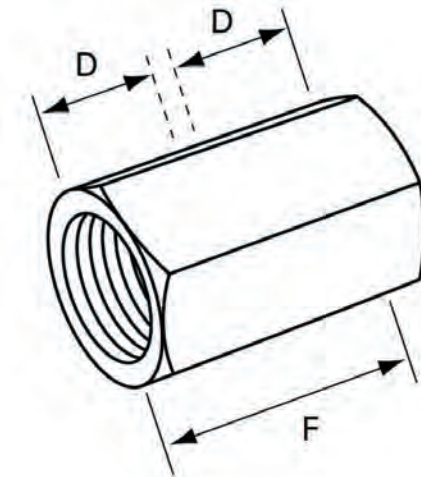
- Brass CZ121
- 316 stainless steel

## Threadforms

- Metric
- NPT
- PG
- ISO pipe (BSP)
- ET

## Plating options

- Electroless nickel
- Zinc
- Others on application



## Dimensions of metric versions

Size	D	F	A/F
M16	16.00	37.50	23.37
M20	16.00	37.50	23.37
M25	16.00	37.50	30.48
M32	16.00	37.50	37.59
M40	16.00	37.50	47.24
M50	16.00	37.50	55.88
M63	16.00	37.50	70.10
M75	16.00	37.50	80.01

# Insulated (Exd) adaptors - AID Series



Type AID

## Features

- International Ex approvals
- IP54, CSA Enclosure Type (NEMA) 3
- Available in brass, stainless steel, mild steel and aluminium
- Glass filled nylon insulating material

## Benefits

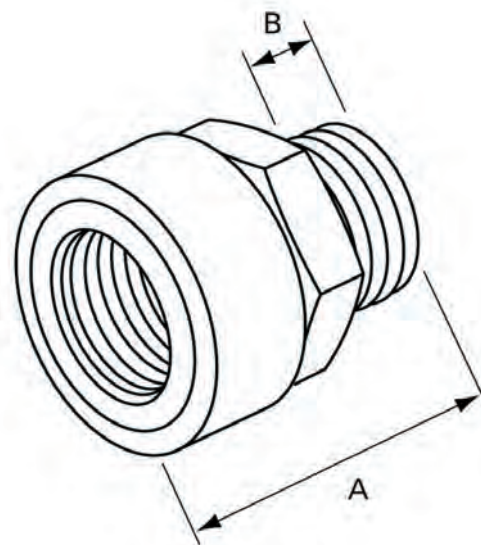
- Provides method of insulating connection device from the equipment
- Allows armour current to be controlled in a positive manner
- Inspection of grounding made easy

## Materials

- Brass CZ121
- 316 stainless steel
- Mild steel
- Aluminium

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO pipe (BSP)
- ET



## Dimensions of metric versions

Size	Total length (A)	Male length (B)
M16	60.00 (min.)	15.00 (min.)
M20	60.00 (min.)	15.00 (min.)
M25	60.00 (min.)	15.00 (min.)
M32	60.00 (min.)	15.00 (min.)
M40	60.00 (min.)	15.00 (min.)
M50	60.00 (min.)	15.00 (min.)
M63	60.00 (min.)	15.00 (min.)
M75	60.00 (min.)	15.00 (min.)

## Technical specification

### Code of protection categories

ATEX: II 2 GD, Ex db IIC Gb, Ex eb IIC Gb, Ex tb IIIC Db

IECEX: Ex db IIC Gb, Ex eb IIC Gb, Ex tb IIIC Db

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31, IEC 60079-7

### Certificate details

ATEX: ITS16ATEX101088X

IECEX: IECEX ITS 16.0049X

### Temperature

Temperature range -20°C to +130°C

### Part number:

Please refer to page 10 for part numbering system

NB: Product may differ slightly in appearance to photograph



## Application

To avoid relying on the contact between cable termination and equipment enclosure for grounding the cable armour, an insulated adaptor can be fitted to both ends of the cable with a grounding device (i.e. earth tag/lug) fitted between the adaptor and the termination. The armour current can then be taken from the grounding device to ground in a controlled, positive manner that can be *inspected* easily.

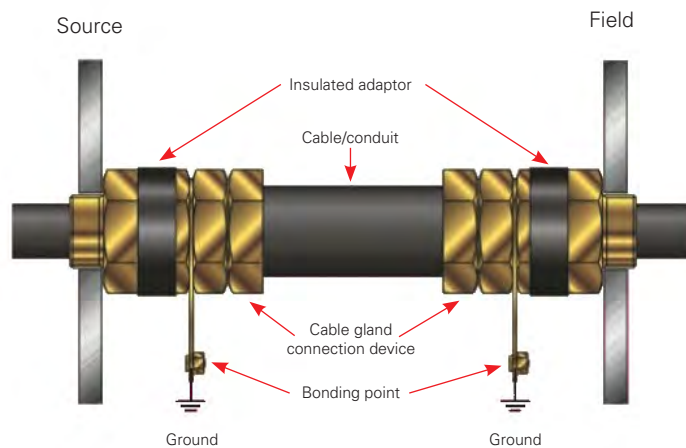
## Single point grounding

In many applications it is sufficient to ground the cable armour at one end. For single point grounding, the insulated adaptors would again be used at both ends of the cable but with the earth tag fitted only to the end where grounding is required.

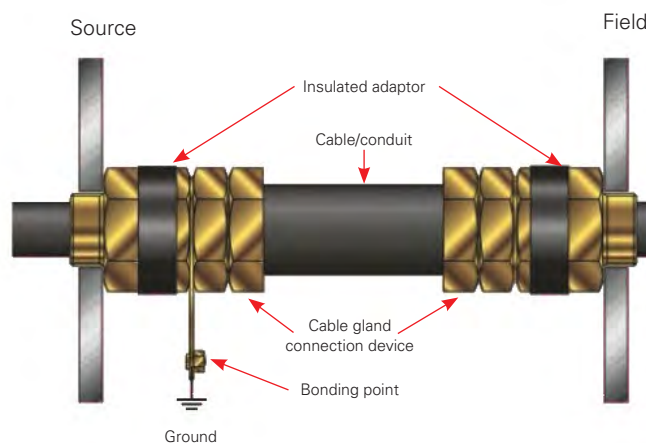
Single point grounding can:

- Reduce the circulating currents that can cause heating of high capacity cables.
- Reduce the risk of damage to electronic equipment within the enclosure in the event of a short circuit to ground through the enclosure.
- Reduce the problems of electrical noise on the armour affecting the clean earth required for some sensitive instruments.

## Standard application



## Single point grounding



Note: Graphic representation only - actual appearance may differ.

# Metallic dome head (Exde) stopping plugs - PDU Series



Type PDU

## Features

- International Ex approvals
- IP66, IP68, CSA Enclosure Type (NEMA) 4X, 6P
- Available in brass, stainless steel, mild steel and aluminium
- Various threadforms available

## Benefits

- Provides method of filling unused entries in equipment
- Maintains Ex certification
- Maintains IP integrity

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium
- Mild Steel

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO pipe (BSP)
- ET

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Technical specification

### Code of protection categories

ATEX: I M2, II 2 GD, Ex d I/IIC Mb Gb, Ex e I/IIC Mb Gb, Ex tb IIIC Db, IP6X

IECEx: Ex d I/IIC Mb/Gb, Ex e I/IIC Mb/Gb, Ex tb IIIC Db IP6X

CSA: Ex de IIC IP66/67/68; Class I, Division 1 and 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 4X/6P

EAC: ExdeIU, ExdeIIICU, IP66 / 67 / 68

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEx: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

CSA: C22.2 No. 30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-1-11, CAN/CSA 60079-7-12, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 00ATEX1094X

IECEx: IECEx SIR 12.0016X

CSA: 1248014 (LR 106084)

EAC: TR RU C-GB.GB06.B.00106

CCoE: P362565/1

### Temperature

Temperature will depend on the type of O-ring used:

None: -50°C to +180°C

Nitrile: -20°C to +80°C (supplied as standard)

EPDM: -30°C to +125°C

Neoprene: -20°C to +100°C

Viton: -5°C to +180°C

Silicone: -30°C to +180°C

Fluorosilicone: -50°C to +150°C

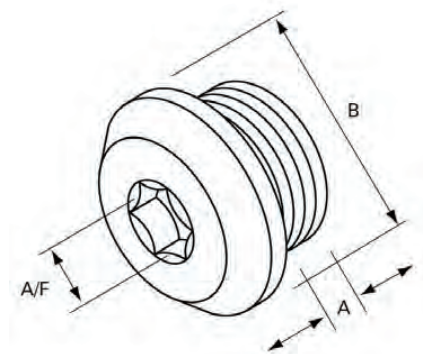
The maximum temperature is limited to +150°C for Group I applications

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	Thread length (A)	Hex (Allen) key A/F	Diameter (B)
M16	15.00	10.00	22.00
M20	15.00	10.00	27.00
M25	15.00	10.00	31.75
M32	15.00	10.00	40.00
M40	15.00	10.00	47.63
M50	15.00	10.00	57.15
M63	15.00	14.00	69.85
M75	15.00	14.00	82.55

# Glass filled nylon dome head (Exe) stopping plugs - PDE4 Series



Type PDE4

## Features

- International Ex approvals
- IP66, IP68, CSA Enclosure Type (NEMA) 4X, 6P
- Nitrile O-ring supplied as standard
- Various threadforms available

## Benefits

- Provides method of filling unused entries in equipment
- Maintains increased safety certification
- Maintains IP integrity

## Materials

- Glass filled nylon

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: II 2 GD, Ex e IIC Gb, Ex tb IIIC Db, IP6X

IECEX: Ex e IIC Gb, Ex tb IIIC Db IP6X

CSA: Ex e IIC IP66/67/68; Class I, Division 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 4X/6P

EAC: ExeIIC, IP66/67/68

### Compliance standards

ATEX: EN 60079-0, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-31, IEC 60079-7

CSA: C22.2 No.0.17-00 (R2009), CAN/CSA 60079-0-11, CAN/CSA 60079-7-12, CAN/CSA 60079-31:12

UL514 C 3rd Edition

### Certificate details

ATEX: Sira 00ATEX3091X

IECEX: IECEX SIR 12.0038X

CSA: 1248014 (LR 106084)

EAC: TR RU C-GB.GB06.B.00106

### Temperature

Temperature will depend on the type of O-ring used:

No O-ring: -20°C to +40°C

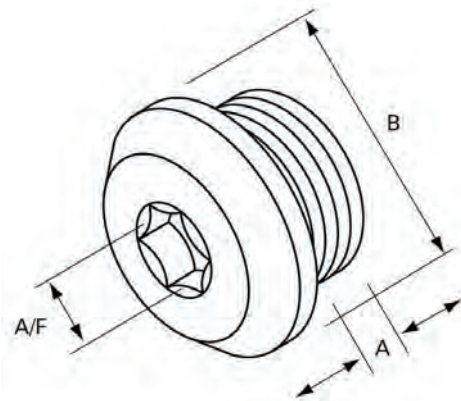
Viton O-ring: -5°C to +40°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	Thread length (A)	Hex (Allen) key A/F	Diameter (B)
M16	10.00 (min.)	10.00	20.50 (min.)
M20	10.00 (min.)	10.00	24.50 (min.)
M25	10.00 (min.)	10.00	29.50 (min.)
M32	10.00 (min.)	10.00	36.50 (min.)
M40	10.00 (min.)	10.00	44.50 (min.)
M50	10.00 (min.)	10.00	54.50 (min.)
M63	10.00 (min.)	10.00	67.50 (min.)
M75	10.00 (min.)	10.00	79.50 (min.)

Parallel threads have 10mm minimum length or to specification.

Tapered threads to provide for five fully engaged threads.

# Type A and Type B (Exd) stopping plugs - PAD / PBD Series



Type PBD

Type PAD

## Features

- International Ex approvals
- IP64 CSA Enclosure Type (NEMA) 3
- Available in brass, stainless steel, mild steel and aluminium
- Various threadforms available

## Benefits

- Provides method of filling unused entries in equipment
- Type B secures from inside, providing extra security
- Maintains Ex certification
- Maintains IP integrity

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium
- Mild steel

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO pipe (BSP)
- ET

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Technical specification

### Code of protection categories

ATEX: I M2, II 2 GD, Ex d I/IIC Mb Gb, Ex tb IIIC Db, IP6X

IECEX: Ex d I/IIC Mb/Gb, Ex tb IIIC Db IP6X

CSA: Ex d IIC IP54, Class 1, Division 1 & 2; Groups A,B,C & D; Class II, Groups E,F & G; Class III; Enclosure Type 3

EAC: ExdIIICU

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31

CSA: C22.2 No.30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-1-11, CAN/CSA 60079-31:12, UL 1203-5th Edition

### Certificate details

ATEX: Sira 99ATEX1113X

IECEX: IECEX SIR 12.0016X

CSA: 1248014 (LR 106084)

EAC: TR RU C-GB.GB06.B.00106

### Temperature

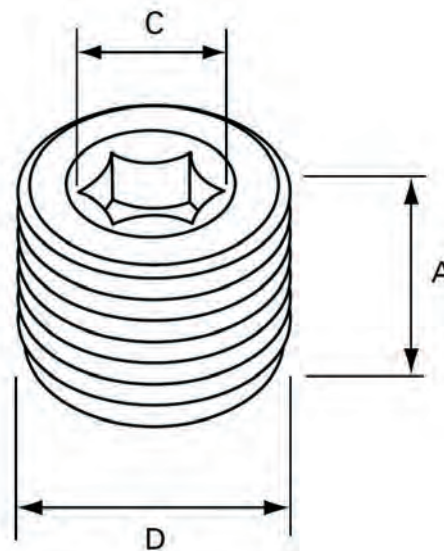
Temperature range: -50°C to +180°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	Overall length (A)	Hex recess (C)	Diameter (D)
M16	15.00	8.00	16.30
M20	15.00	10.00	20.30
M25	15.00	10.00	25.30
M32	15.00	10.00	32.30
M40	15.00	10.00	40.20
M50	15.00	10.00	50.20
M63	15.00	14.00	63.10
M75	15.00	14.00	75.00



Type PHE

## Features

- International Ex approvals
- IP6X CSA Enclosure Type (NEMA) 3
- Available in brass, stainless steel and aluminium
- Various threadforms available

## Benefits

- Provides method of filling unused entries in equipment
- Maintains increased safety certification
- Maintains IP integrity

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium

## Threadforms

- Metric
- NPT
- NPSM
- PG
- ISO pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: II 2GD, Ex e IIC Gb, Ex tb IIIC Db, IP6X

CSA: Ex d IIC IP54, Class I, Division 1 and 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 3

EAC: ExeIICU

### Compliance standards

ATEX: EN 60079-0, EN 60079-7, EN 60079-31

CSA: C22.2 No. 30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 00ATEX3092X

EAC: TR RU C-GB.GB06.B.00106

CSA: 1248014 (LR 106084)

### Temperature

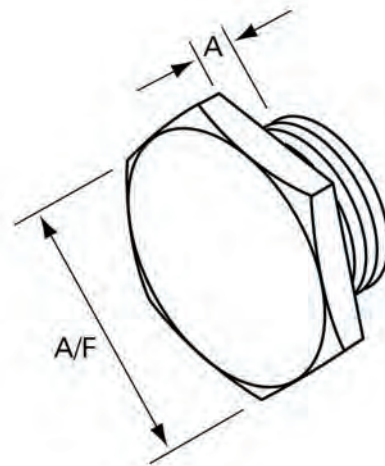
Temperature range: -50°C to +180°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

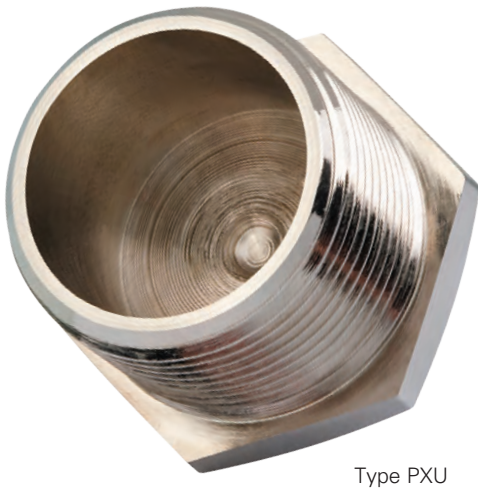
Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	A/F	Thread length (A)
M16	20.00 (min.)	12.00 (min.)
M20	24.00 (min.)	12.00 (min.)
M25	29.00 (min.)	12.00 (min.)
M32	36.00 (min.)	12.00 (min.)
M40	44.00 (min.)	12.00 (min.)
M50	54.00 (min.)	12.00 (min.)
M63	67.00 (min.)	12.00 (min.)
M75	79.00 (min.)	12.00 (min.)

# Hollow hex head (Exde) stopping plugs - PXU Series



Type PXU

## Features

- International Ex approvals
- Available in brass, stainless steel and aluminium
- Metric and NPT threads available

## Benefits

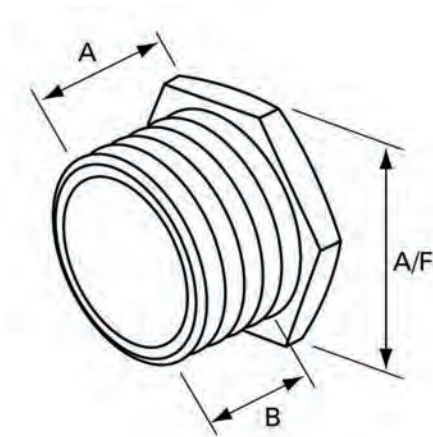
- Provides method of filling unused entries in equipment
- Maintains Ex certification
- Maintains IP integrity
- Lighter product due to hollow design

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium

## Threadforms

- Metric
- NPT



## Technical specification

### Code of Protection Categories

ATEX: II 2GD, Ex d IIC Gb, Ex e IIC Gb, Ex tb IIIC Db

IECEX: Ex d IIC Gb, Ex e IIC Gb, Ex tb IIIC Db

EAC: ExdeIIICU, ExdeIIICU, ExeIIIU

INMETRO: Ex de IIC Gb, Ex tb IIIC IP66 / 67 (brass and stainless steel)

NEPSI: Ex d II C Gb, Ex e II C Gb, DIP A21 Ta IP6X

### Compliance Standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

INMETRO: ABNT NBR IEC 60079-0, ABNT NBR IEC 60079-1, ABNT NBR IEC 60079-7, ABNT NBR IEC 60079-31

NEPSI: GB 3836.1-2010, GB 3836.2-2010, GB 3836.3-2010, GB 12476.1-2000

### Certificate Details

ATEX: Sira 10ATEX1224X

IECEX: IECEX SIR 07.0009X

EAC: TC RUC-G B.1506.B.00105

INMETRO: NCC 12.0764X

NEPSI: GYJ13.1311X

### Temperature

Temperature range: -50°C to +180°C

### Ingress protection (IP):

Tested to IP68

### Part number:

Please refer to page 10 for part numbering system

## Dimensions of metric versions

Size	A/F	Overall length (A)	Thread length (B)
M16	19.00	21.00	17.00
M20	24.00	21.00	17.00
M25	28.00	21.00	17.00
M32	37.50	21.00	17.00
M40	47.00	21.50	17.00
M50	56.00	22.50	17.00
M63	70.00	24.00	17.00
M75	80.00	25.00	17.00



Type DPE

## Features

- International Ex approvals
- IP66, CSA Enclosure Type (NEMA) 4X
- Available in two thread lengths: 10mm 2 drain holes or 15mm 3 drain holes
- Available in brass, stainless steel, aluminium and glass filled nylon
- Metric and NPT threads available

## Benefits

- Provides method of draining moisture within enclosures
- Allows air within enclosure to breathe with surrounding atmosphere
- Maintains increased safety certification
- Maintains IP integrity

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium
- Glass filled nylon

## Threadforms

- Metric
- NPT

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Dimensions of metric versions

Size	A/F	Overall length (A)	Thread length (B)
M20	28.60	23.00 (min.)	10.00 (min.)
M25	34.90	23.00 (min.)	10.00 (min.)
M32	41.30	23.00 (min.)	10.00 (min.)
½" NPT	28.60	28.00 (min.)	15.00 (min.)
¾" NPT	34.90	28.00 (min.)	15.00 (min.)
1" NPT	41.30	28.00 (min.)	15.00 (min.)

## Technical specification

### Code of protection categories

ATEX: I M2/II 2 GD, Ex e I/II Mb Gb, Ex tb IIIC Db IP66 Nylon: II2GD, Ex e IIGb Ex tb IIIC Db IP66

IECEX: Ex e I/II Mb/Gb, Ex tb IIIC Db IP66 Nylon: Ex e IIC Gb, Ex tb Db IP66

EAC: ExeIU Nylon, ExeIIU IP66

CSA; Class 1, Zone 1 Ex e II IP66, CSA Enclosure Type 4X (NEMA 4X)

### Compliance standards

ATEX: EN 60079-0, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-7, IEC 60079-31

CSA: CSA Standard C22.2 No. 0-M, CSA Standard C22.2 No. 0.5, CSA Standard C22.2 No. 94, CAN/CSA E79-7-95, UL2279

### Certificate details

ATEX: Sira 99ATEX3050X

IECEX: IECEX SIR 08.0024X

EAC: TR RU C-GB.GB06.B.00106

CSA: 185887-2500003408 (LR 106084)

### Temperature

Metallic body dependent on filter and seal material

Nylon body: -50°C to +125°C, unless limited by filter material

HDPE filter: -50°C to 85°C

Metallic filter dependent on body and interface material

Nitrile: -30°C to +100°C (supplied as standard)

EPDM: -50°C to +125°C

Neoprene: -40°C to +100°C

Viton: -20°C to +180°C

Silicone: -50°C to +180°C

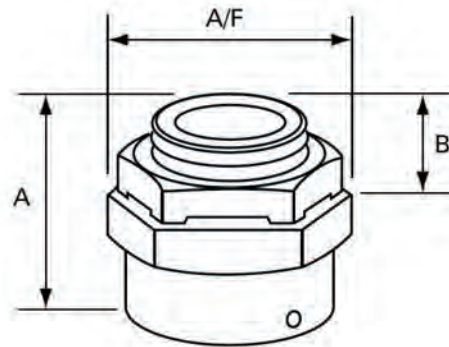
Fluorosilicone: -70°C to +150°C

### Ingress protection (IP):

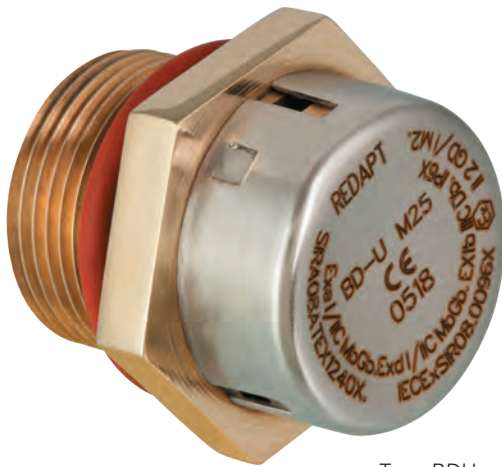
Tested to IP66

### Part number:

Please refer to page 11 for part numbering system



# Flameproof (Exde) breather drains - BDU Series



Type BDU

## Features

- International Ex approvals
- IP66
- Available in brass and stainless steel
- Metric and NPT threads available

## Benefits

- Provides method of draining moisture within enclosures
- Allows air within enclosure to breathe with surrounding atmosphere
- Maintains Ex certification
- Maintains IP integrity

## Materials

- Brass CZ121
- 316 stainless steel

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Threadforms

- Metric
- NPT\*

\*O-ring not supplied as standard

## Technical specification

### Code of Protection Categories

ATEX: I M2, II 2 GD, Ex e I/IIC Mb Gb, Ex d I/IIC Mb Gb, Ex tb IIIC Db IP6X

IECEX: Ex e I/IIC Mb Gb, Ex d I/IIC Mb Gb, Ex tb IIIC Db IP6X

### Compliance Standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

### Certificate Details

ATEX: Sira 08ATEX1240X

IECEX: IECEX SIR 08.0096X

### Temperature

Temperature range dependent on O-ring used (supplied on metric only)

Nitrile: -20°C to +80°C

EPDM: -30°C to +125°C

Neoprene: -20°C to +100°C

Viton: -5°C to +150°C

Silicone: -30°C to +150°C (supplied as standard)

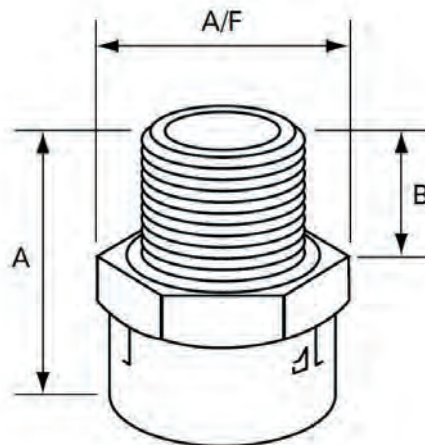
Fluorosilicone: -50°C to +150°C

### Ingress protection (IP):

Tested to IP66

### Part number:

Please refer to page 11 for part numbering system



## Dimensions of metric versions

Size	Hex A/F	Overall length (A)	Male thread length (B)
M20	27.00	31.00	16.00
M25	31.75	31.00	16.00
½" NPT	27.00	35.00	20.00
¾" NPT	31.75	35.00	20.00





Type SBU

## Technical specification

### Code of protection categories

ATEX: II 2 GD, Ex d IIC Gb / Ex e IC Gb, Ex tb IIIC Db IP6X

IECEX: Ex d IIC Gb / Ex e IIC Gb, Ex tb IIIC Db IP6X

EAC: ExdIICU

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-31, IEC 60079-7

### Certificate details

ATEX: ITS 12ATEX17707X

IECEX: IECEX ITS 12.0079X

EAC: POCC GB. 06.B01060

### Temperature

Temperature range -20°C to +85°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- International Ex approvals
- IP66
- Available in brass and stainless steel
- Various threadforms available

## Benefits

- Seals conductors at entry to enclosure
- Enables compound gland to be converted to barrier gland
- Maintains Ex certification
- Maintains IP integrity

## Materials

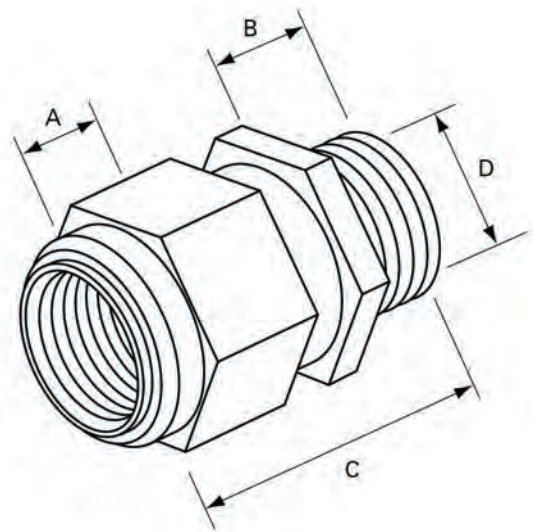
- Brass CZ121
- 316 stainless steel

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Threadforms

- Metric
- NPT
- PG
- ISO pipe (BSP)
- ET



## Dimensions of metric versions

Size	Bore (D)	Thread length (A, B) min.	Overall length (C)
M16	8.30	15.00 - 15.00	54.50
M20	11.30	15.00 - 15.00	56.80
M25	13.40	15.00 - 15.00	59.50
M32	17.70	15.00 - 15.00	64.30
M40	24.40	17.00 - 15.00	70.50
M50	31.80	17.00 - 15.00	67.80
M63	41.60	17.00 - 15.00	70.30

# Male to female unions / female to female unions (Exd) - UND / UFD Series



Type UND

Type UFD

## Features

- International Ex approvals
- Available in brass, stainless steel and aluminium
- Various threadforms available

## Benefits

- Provides a running joint
- Eliminates exposed threads
- Maintains Ex certification

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium

## Plating options

- Electroless nickel
- Zinc
- Others on application

## Threadforms

- Metric
- NPT
- PG
- ISO pipe (BSP)
- ET

## Technical specification

### Code of protection categories

ATEX: II 2GD, Ex d IIC Gb, Ex tb IIIC Db, IP6X

CSA: Ex d IIC IP54, Class I, Division 1 and 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 3

EAC: ExdIIICU

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-31

CSA: C22.2 No. 30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-1-11, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 00ATEX1096X

EAC: TR RU C-GB.GB06.B.00106

CSA: 1248014 (LR 106084)

### Temperature

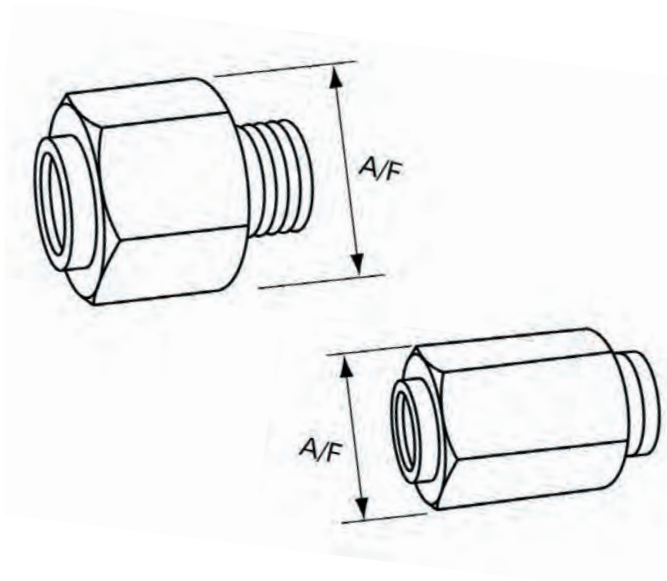
Temperature range: -50°C to +180°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system



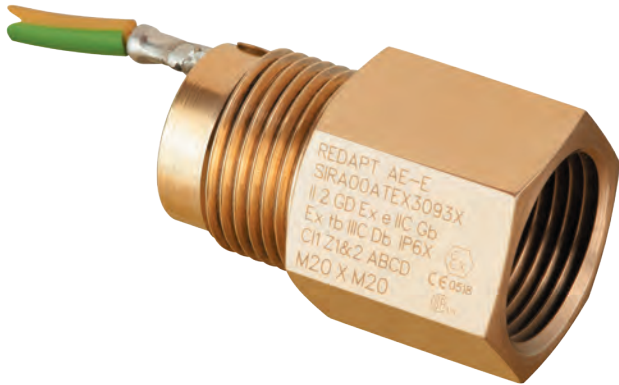
## Dimensions of metric versions

### Male to female unions (UN-D)

Size	A/F
M20	37.59
M25	42.42
M32	55.88
M40	55.88
M50	80.01
M63	90.17
M75	114.30

### Female to female unions (UF-D)

Size	A/F
M20	37.59
M25	42.42
M32	55.88
M40	55.88
M50	80.01
M63	90.17
M75	114.30



Type AEE

## Features

- International Ex approvals
- Available in brass, stainless steel, mild steel and aluminium
- Various threadforms available

## Benefits

- Provides a method of bonding cable gland or termination to a grounding or earth point
- Maintains Ex certification

## Materials

- Brass CZ121
- 316 stainless steel
- Aluminium
- Mild steel

## Threadforms

- Metric
- NPT
- PG
- ISO pipe (BSP)
- ET

## Technical specification

### Code of Protection Categories

ATEX: II 2GD, Ex e IIC Gb, Ex tb IIIC Db, IP6X

IECEX: Ex e IIC Gb, Ex tb IIIC Db IP6X

EAC: ExeIIU

CSA: Class I, Division 1 Groups C, D; Class I Division 2; Groups A, B, C, D; Class II, Groups E, F, G; Class III; Enclosure Type 3, Class I, Zone 1, AEx e IIB IP54, Class I, Zone 2, AEx e IIC IP54

### Compliance standards

ATEX: EN 60079-0, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-7, IEC 660079-31

CSA: C22.2 No. 30-M1986 (R2012), CAN/CSA 60079-0-11, CAN/CSA 60079-31:12, UL1203-5th Edition

### Certificate details

ATEX: Sira 00ATEX3093X

IECEX: IECEX SIR 12.0016X

CSA: 1248014 (LR 106084)

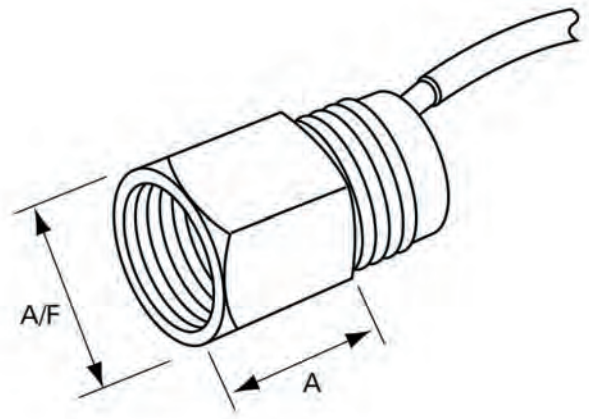
EAC: TC RUC-G B.ГБ06.B.00105

### Temperature

Temperature rating: -20°C to +40°C

### Part number:

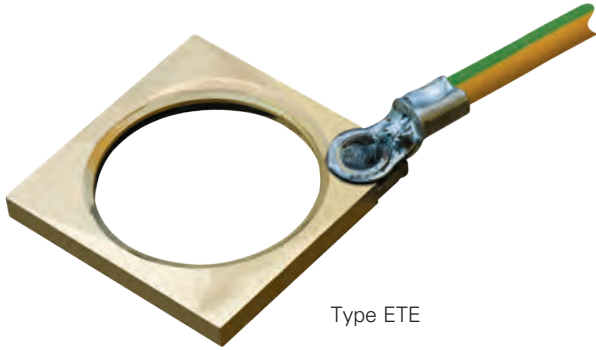
Please refer to page 10 for part numbering system



## Dimensions of metric versions

Size	Body length (A)	A/F
M16	21.50	23.37
M20	21.50	30.48
M25	21.50	37.59
M32	21.50	47.24
M40	21.50	55.88
M50	21.50	70.10
M63	21.50	90.17

# Threaded earth plates (Exe) - ETE Series



Type ETE

## Technical specification

Code of protection categories

ATEX: II 2GD, Ex e II

Compliance standards

ATEX: EN 50014, EN 50018, EN 50019, EN 50281-1-1

Certificate Details

ATEX: Sira 00ATEX1073U

Temperature

The item is classified as a component and is therefore not given a temperature rating

Part number:

Please refer to page 10 for part numbering system

## Features

- International Ex approvals
- Brass CZ121 material
- Supplied with earth lead
- Various threadforms available

## Benefits

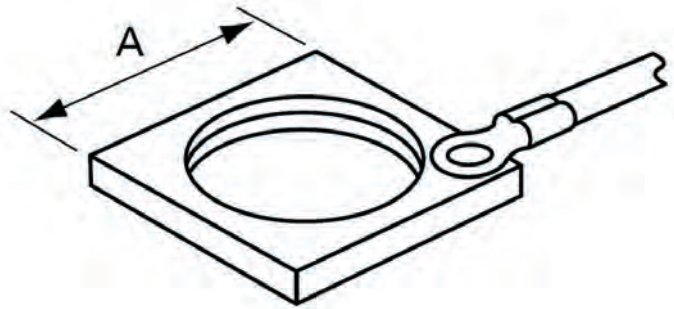
- Ensures earth continuity when terminating brass glands into non-metallic enclosures

## Materials

- Brass CZ121

## Threadforms

- Metric
- PG
- ET



## Dimensions of metric versions

Size	Material size (A)	Earth lead x 300mm (mm <sup>2</sup> )
M16	22.00	2.50
M20	30.00	2.50
M25	32.00	4.00
M32	38.00	6.00



Type FXU

## Technical specification

### Code of protection categories

ATEX: II 2 GD, Ex d IIC Gb / Ex e IIC Gb, Ex tb IIIC Db IP6X

IECEX: Ex d IIC Gb / Ex e IIC Gb, Ex tb IIIC Db IP6X

EAC: ExdIICU

INMETRO: BR-Ex d IIC Gb, BR-Ex tD A21 IP 66/67

### Compliance standards

ATEX: EN 60079-0, EN 60079-1, EN 60079-7, EN 60079-31

IECEX: IEC 60079-0, IEC 60079-1, IEC 60079-7, IEC 60079-31

### Certificate details

ATEX: ITS 12ATEX17707X

IECEX: IECEX ITS 12.0079X

### Temperature

Temperature range -20°C to +85°C

### Ingress protection (IP):

Independently tested to IP66 / IP68 when fitted in accordance to manufacturer's instructions

### Part number:

Please refer to page 10 for part numbering system

## Features

- ATEX Exd/Exe certification
- IP6X, CSA Enclosure Type (NEMA) 3
- Available in nickel-plated brass and stainless steel
- Supplied with compound, making off instructions and gloves

## Benefits

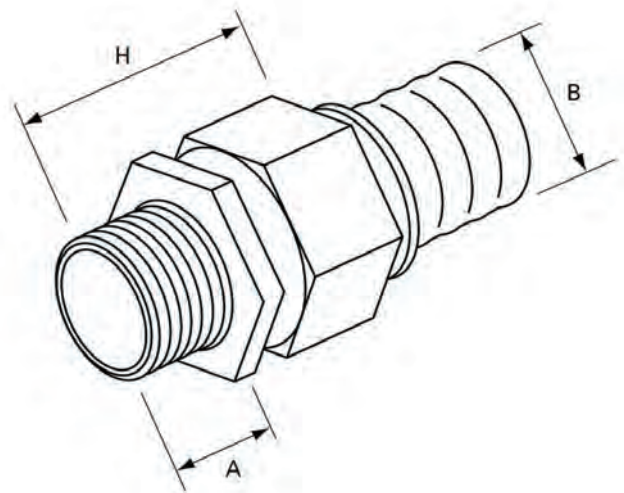
- Provides a flameproof connection for liquidtight and braided flexible conduit by means of compound barrier between individual insulated cable conductors
- Maintains Ex certification
- Maintains IP integrity

## Materials

- Nickel-plated brass
- 316 stainless steel

## Threadforms

- Metric



## Dimensions of metric versions

Size	Thread (A) min.	ØB nominal	Length (H)
M20	15.00	21.10	44.50
M25	15.00	26.40	46.00
M32	15.00	33.10	51.50
M40	15.00	41.80	52.50
M50	15.00	47.90	58.50
M63	15.00	59.70	61.50

# Flexible conduit



## Features

- Range of flexible conduit suitable for various applications
- IP66, IP67, IP68 (5 bar)
- Temperature ranges: -20°C to +105°C (FEZ, FFZ, FGZ)  
-45°C to +135°C (FDZ, FAZ)
- Available in various materials

## Benefits

- Provides impact and environmental protection for cables in outdoor/indoor installations

## Materials

- 316 stainless steel
- Galvanised steel

## Threadforms

- Metric

## Technical specification

### Conduit type FEZ

Description:	Galvanised steel, helically wound, flexible conduit with smooth oil-resistant and high temperature PVC cover
Application:	Machine tools or outdoor installations where liquidtight is a requirement
Features:	High mechanical strength and resistant to oils and greases UV-resistant (black) and good flexibility Smooth wipe clean outer cover Cover does not wrinkle when bent
Temperature:	-20°C to +105°C
IP rating:	IP66, IP67, IP68 (5 bar)
Approvals:	Lloyd's Register Type Approval

### Conduit type FDZ

Description:	Galvanised steel, helically wound, flexible conduit with smooth thermoplastic rubber cover. ONLY AVAILABLE IN BLACK
Application:	Machine tools or outdoor installations where liquidtight together with a low or high temperature rating is a requirement
Features:	High mechanical strength and resistant to oils and greases UV-resistant (black) and good flexibility Smooth wipe clean outer cover Cover does not wrinkle when bent
Temperature:	-45°C to +135°C
IP rating:	IP66, IP67, IP68 (5 bar)

### Conduit type FFZ

Description:	Galvanised steel, helically wound, flexible conduit with galvanised steel braid and oil resistant and high temperature PVC smooth cover. ONLY AVAILABLE IN BLACK
Application:	Machinery or outdoor installations where high corrosion resistance and liquidtight are a requirement combined with EMC screening.
Features:	High mechanical strength and resistant to oils and greases UV-resistant (black) and good flexibility Smooth wipe clean outer cover Cover does not wrinkle when bent
Temperature:	-20°C to +105°C
IP rating:	IP66, IP67, IP68 (5 bar)

### Part number:

Please refer to page 12 for part numbering system

## Dimensions - FEZ, FDZ, FFZ

Nominal size	Outside diameter	Inside diameter	Inside bend radius	Inside bend radius FFZ only
M10	11.80	7.00	35.00	-
M12	14.20	10.00	40.00	-
M16	17.80	12.60	45.00	-
M20	21.10	16.00	65.00	65.00
M25	26.40	21.00	100.00	100.00
M32	33.10	26.50	135.00	120.00
M40	41.80	35.40	175.00	140.00
M50	47.90	40.40	230.00	180.00
M63	59.70	51.60	280.00	-

Conduit sold in 25 metre reels; other lengths available on application.



## Technical specification

### Conduit type FGZ

Description:	Stainless steel (316), helically wound, flexible conduit with oil-resistant and high temperature PVC smooth cover. ONLY AVAILABLE IN BLACK
Application:	Food processing machinery or outdoor applications where high corrosion resistance and liquidtight are a requirement
Features:	High mechanical strength and resistant to oils and greases UV-resistant (black) and good flexibility Smooth wipe clean outer cover Cover does not wrinkle when bent
Temperature:	-20°C to +105°C
IP Rating:	IP66, IP67, IP68 (5 bar)

### Conduit type FAZ

Description:	Galvanised steel, helically wound, flexible conduit with thermoplastic rubber cover and stainless steel (316) overbraid
Application:	Very arduous industrial environments such as steel works
Features:	High mechanical strength High abrasion resistance and very high tensile strength EMC screening performance
Temperature:	-45°C to +135°C
IP Rating:	IP66, IP67, IP68 (5 bar)

### Conduit support P clips type FZZ

Description:	Type FZZ plated steel P clip with PVC liner
Application:	P clips to support flexible conduit Types FAZ, FDZ and FEZ

### Conduit Support P Clips Type FYZ

Description:	Type FYZ stainless steel P clip
Application:	P clips to support flexible conduit Type FAZ, FDZ, FEZ, FFZ and FGZ

### Part number

Please refer to page 12 for part numbering system

## Dimensions - FGZ

Nominal size	Outside diameter	Inside diameter	Inside bend radius
M10	11.80	7.00	35.00
M12	14.20	10.00	40.00
M16	17.80	12.60	45.00
M20	21.10	16.00	65.00
M25	26.40	21.00	100.00
M32	33.10	26.50	135.00
M40	41.80	35.40	175.00
M50	47.90	40.40	230.00
M63	59.70	51.60	280.00

Conduit sold in 25 metre reels; other lengths available on application.

## Dimensions - FAZ

Nominal size	Outside diameter	Inside diameter	Inside bend radius
M16	17.80	12.60	45.00
M20	21.10	16.00	65.00
M25	26.40	21.00	100.00
M32	33.10	26.50	135.00

Conduit sold in 25 metre reels; other lengths available on application.

## Non-certified accessories

A wide variety of non-certified accessories such as locknuts, washers and bushes are available to compliment the Redapt certified accessory range.

Materials include brass, stainless steel, aluminium, nylon, fibre and many others depending on product, with plating available on metallic finishes. A variety of threadforms are available.

For further information on our non-certified accessories, please consult the **Raxton thread conversion accessories** catalogue, visit the website [www.raxton.co.uk](http://www.raxton.co.uk) or contact our Customer Services team on +44 (0) 1922 450400.













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