

Insulated (Exd/Exe) adaptors – DB Series

Technical specification

The DB series is a Redapt range of insulated adaptors that provide a method of insulating a cable gland and the cable armour from the equipment into which it has been fixed.

Insulated adaptors provide a vital safety precaution for systems with sensitive electronic equipment that are reliant on an interference-free power supply. Male and female thread are available in different materials if galvanic corrosion is a factor.

With ATEX and IECEx certification for both Exd "Flameproof" and Exe "Increased Safety" environments, insulated adaptors are suited for hazardous-area applications worldwide.

Certifications and compliances



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

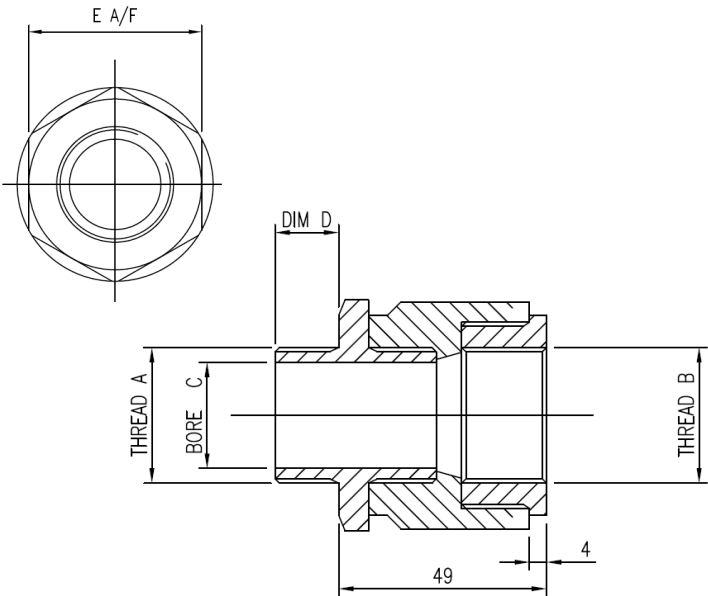
ATEX: ITS16ATEX101088X
IECEx: IECEx ITS 16.0049X

Temperature
-20°C to +130°C

Ingress protection (IP):
IP64 when fitted without sealing washer. IP66/IP68 when fitted with washer or thread sealant according to manufacturer's instructions.

Dimensions

Thread (A)	Thread (B)	Bore (C) max	Thread (D) min	A/F E
M16	M20 – M12	9.0	15.0	1.48"
M20	M25 – M12	14.3	15.0	1.48"
M25	M32 – M12	20.5	15.0	1.62"
M32	M40 – M12	26.8	15.0	1.86"
M40	M50 – M12	31.8	15.0	2.22"
M50	M63 – M12	44.6	15.0	2.76"
M63	M75 – M12	55.7	15.0	3.15"
M75	M90 – M12	67.9	15.0	3.55"



Threadforms

Metric
NPT
NPSM
Pg
ISO Pipe (BSP)
ET

Thread (A)	Thread (B)	Bore (C)	Thread (D)	A/F E
3/8" NPT	3/8" NPT	9.0	15.5	1.48"
1/2" NPT	1/2" NPT	14.3	20.2	1.48"
3/4" NPT	3/4" NPT	20.5	20.5	1.62"
1" NPT	1" NPT	26.8	25.3	1.86"
1.1/4" NPT	1.1/4" NPT	31.8	26.0	2.22"
1.1/2" NPT	1.1/2" NPT	44.6	26.5	2.76"
2" NPT	2" NPT	55.7	27.2	3.15"

Insulated (Exd/Exe) adaptors – DB Series

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.

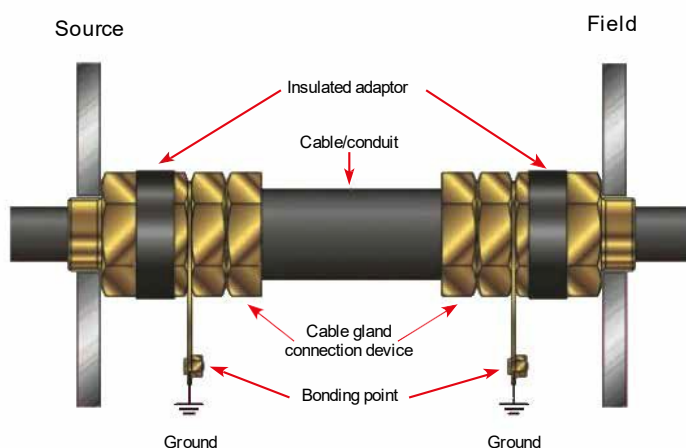
Single point grounding

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.

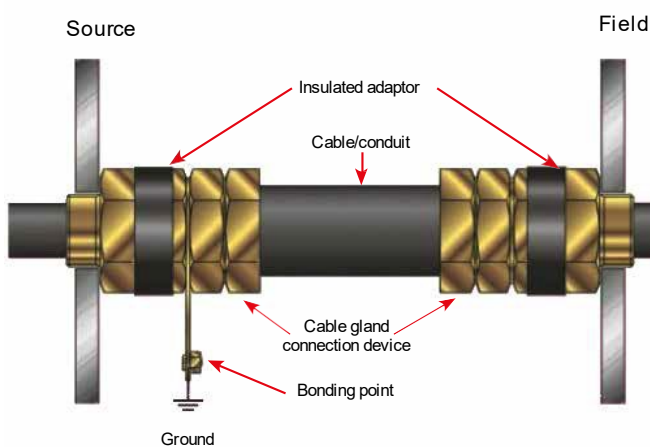
Single point grounding can:

- 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.

Insulated (Exd/Exe) adaptors - Product coding

Product	DIGITS 1 & 2
Exd/Exe Insulated ADAPTOR	DB

Certification	DIGIT 3
U	Exd I and IIC & Exe I and IIC

Material	DIGIT 4
1	Brass
2	Mild steel
3	Stainless steel
5	Aluminium

Note: Glass filled nylon insulating material

Notes:

- Thread form codes below to be used for both male and female threads.
- For mixed materials or additional thread options please contact us.

DIGITS 6 & 7 Male thread ; DIGITS 8 & 9 Female thread							
Metric	ET imperial conduit	NPT	NPSM	ISO pipe parallel (BSPP)	ISO pipe taper (BSPT)	PG	
03 M16	17 5/8" ET	29 1/2" NPT	42 1/2" NPSM	55 1/2" BSPP	68 1/2" BSPT	79	PG7
04 M20	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

Example

Digits 1&2	Digit 3	Digit 4	Digits 6&7 Digits 8&9	
DB	-	U	-	1 - 29 - 04
Insulated Adaptor	Exd/e certified	Brass	1/2" NPT (male)	M20 (female)

Always quote male thread first.

Thread dimension chart

ISO metric

BS 3643 1.5mm pitch

Size	Major dia.	TPI
M12	11.97	16.93
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

DIN 40430

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

UK	BSP Parallel or Taper BS2279 (BS21)
Europe	G (Parallel) GK (Taper) R (Parallel) RK (Taper)
Japan	PF (Parallel) JISB 303
CIS	K mpy (Taper)

BSP ISO pipe thread

ISO R/7; UNI 6125

Size	Pipe Dia.	TPI
⅝"	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	—	—	—	—