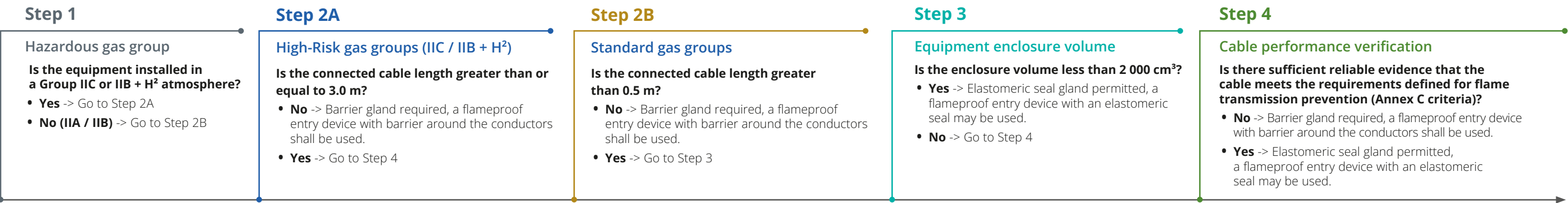


Cable glands for hazardous areas

eaton.com/cableglands

Cable gland selection guidance for Exd applications (60079-14:2024)

This guidance is based on the decision logic from latest IEC/EN/BS standards and is intended to support installers in selecting appropriate cable entry devices for hazardous area installations.



Summary of outcomes Barrier gland required when: - Cable length is below threshold (0.5 m or 3.0 m depending on gas group) - No validated cable performance evidence Elastomeric seal gland may be used when: - Minimum cable length criteria are met - Enclosure volume is below 2 000 cm³ - Cable meets Annex C performance evidence requirements	Reference This guidance is derived from 60079-14:2024. Refer to the full standard for complete requirements and compliance obligations. Note: This document is an interpretation intended to aid practical installation decisions and does not replace the official standard.	Additional guidance (for Installer use) - Ensure correct thread interface (Metric or NPT) and sealing method are used - Confirm required IP rating using appropriate accessories (sealing washers, O-rings, thread sealant, etc.) - Always verify compatibility with: - Equipment certification - Cable construction - Installation environment (vibrations, corrosion, chemicals, etc...) - Ambient temperature	Not yet familiar with barrier glands 1FC/6FC? A two-part epoxy sealing compound is provided with each barrier gland. It is quick (approx. 3 min.) and easy (protective gloves are included) to mix and install. The compound is kneaded until a uniform green color is obtained. It is then packed around the conductors to effectively seal the cable. - Working time is up to 45/60 min. at 20°C. - It can be used in any mounting position. - Full cure time: 24h. - Best-before date indicated on the tube
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	ADE 1F2	ADE 1F2 DS	ADE 1F2 A	ADE 1FC	ADE 4F	ADE 5F	ADE 6F	ADE 6FC
Type of gland	Elastomer seal glands (for unarmoured cables)				Barrier gland (for unarmoured cable)			
Zones Protection	1,2,21,22 Ex db IIC / Ex eb IIC / Ex tb IIIC / Ex nRc IIC				1,2,21,22 Ex db IIC / Ex eb IIC / Ex tb IIIC / Ex nRc IIC			
Applications	 Unarmoured Braided EMC Shielded EMC Screened				 Steel Wire Braid Steel Wire Armour Steel Tape Armour Lead Sheathed Cable (4F & 5F only)			
Benefits	-60°C to +140°C				-60°C to +140°C -60°C to +80°C -60°C to +80°C -60°C to +80°C			
Benefits	Compact gland with wide sealing range. Optional clamping module Double seal on outer sheath provides stronger mechanical retention Premium solution with integrated clamping device for strain relief, perfect for mobile applications				Permanent epoxy barrier around the conductors for highest safety in Ex d applications, deluge seal Universal armour clamping optional Cable Clamping Module Universal and inspectable armour clamping & anti rotation feature for delicate armour Universal & inspectable armour clamping, deluge seal. Passive inspectable inner seal for cold flow protection Permanent epoxy barrier around the conductors for highest safety in Ex d applications, inspectable armour clamping and deluge seal			

Certified accessories for cable management in electrical installations

Ex d adaptors and reducers
Provide a means of connection between dissimilar thread forms or sizes. (brass, stainless steel 316L) All types of threads (ISO, NPT, PG, etc...)

Ex d or Ex e plugs
Provide a method of blanking off unused entries in equipment. (brass, stainless steel 316L, polyamide) All types of threads (ISO, NPT, PG, etc...)

Ex d or Ex e breather drains
Provide a method of preventing moisture build-up in enclosure. (brass, stainless steel 316L, polyamide) Several sizes/types of threads (M20, M25, NPT 1/2", NPT 3/4")

Ex d special shapes adaptors (Y & T, elbows)
Provide an opportunity to run cables in additional entries or at an angle in confined or difficult situations (brass, stainless steel 316L, polyamide) All types of threads (ISO, NPT, PG, etc...)

Ex e earth lead adaptors
Provide a method of bonding a cable gland or conduit termination to a grounding point within an enclosure (brass) All types of threads (ISO, NPT, PG, etc...)

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ADE key features:

Typical applications:

Installation guide

Recommended installations for maintaining ingress protection

ISO Metric threaded hole

Metallic housing IP66/68

NPT threaded hole

Metallic housing IP66/68

ISO Metric clearance hole

Metallic housing IP66/68

ISO Metric clearance hole

Plastic housing* IP54/66*

ISO Metric clearance hole with threaded internal metallic plate

Plastic housing IP66/68

*) The standard protection rating for this type of mounting configuration is IP54. An IP66 rating could be achieved, provided that the earth tag is mounted perfectly perpendicular and is not subjected to any bending stress. IP66 can also be achieved by mousing the earth tag inside the enclosure.

Selection of cable entry devices (Extract from 60079-14:2024)

Equipment type of protection	Type of protection for cable glands, adaptors, reducers and plugs			
	Ex d *	Ex e	Ex n	Ex t
Ex d	X			
Ex e	X	X		
Ex 'i' - Group II ^a	X	X	X	
Ex 'i' - Group III ^a				X
Ex 'n'	X	X	X	
Ex 'p' - Group II	X	X	X ^b	
Ex 'p' - Group III				X
Ex 't'				X

X denotes permitted use.
a) Only applicable if a specific condition of use for the intrinsically safe Ex equipment requires the use of entry devices complying with 60079-0.
b) Only permitted for Gc installations.
*) See cable gland selection guidance on top left

Non-certified accessories for ADE glands

Clamping modules
To increase strain relief and meet 8.3.2 of 60079-14:2024

Earth tags
Provide earthing continuity of the gland on GRP or plastic enclosures

Locknuts & earthing locknuts
for mounting of cable glands or accessories on clearance holes

Serrated washers
To withstand vibrations

Washers
Insure high ingress protection IP66 / IP67 / IP68

Shrouds
For cosmetic protection of cable glands against dust or sand

Lead sheath washer
for electrical continuity of the lead sheath

Thread lubricant HTL
To prevent seizing for stainless steel glands