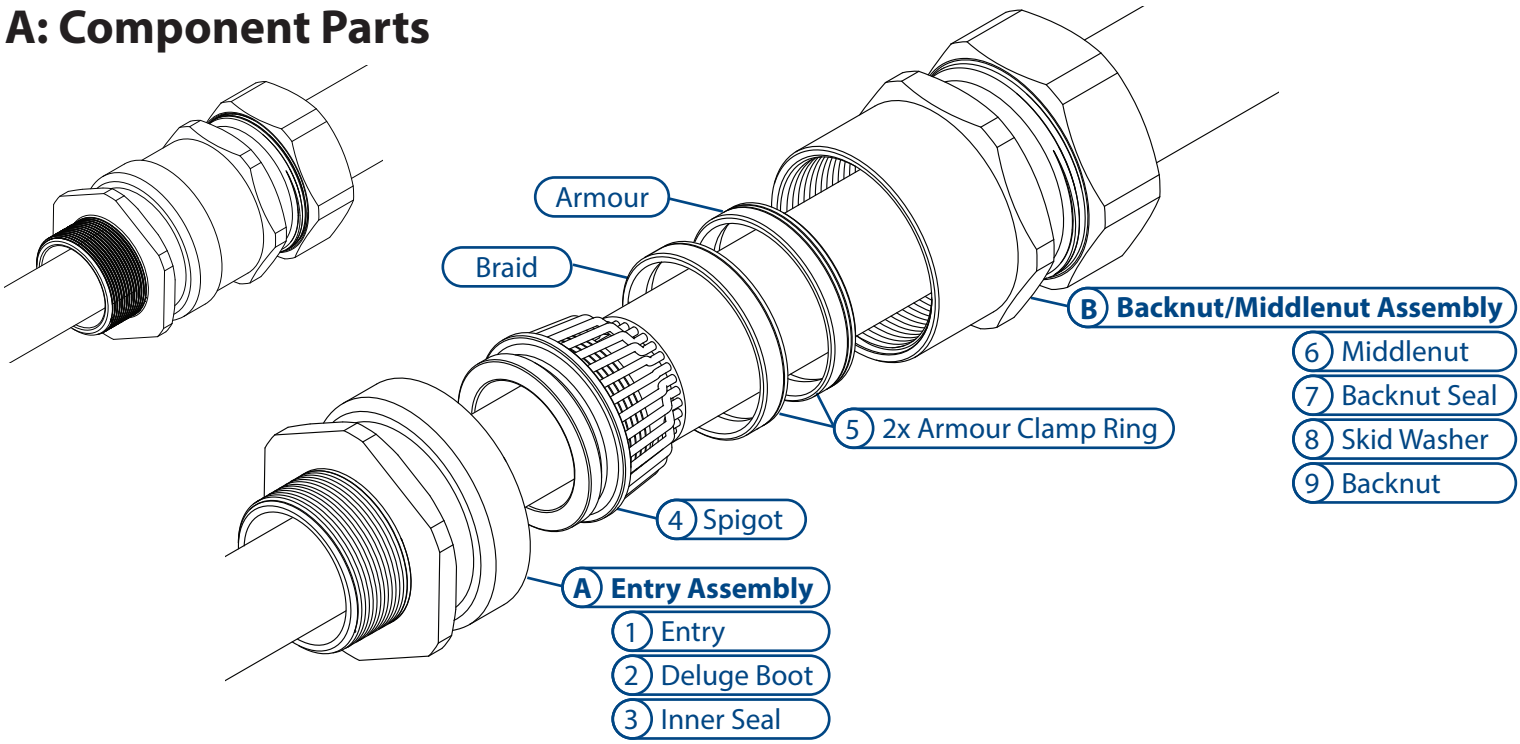
Cable Gland Assembly Instructions
APEX E1FU

A: Component Parts



TECHNICAL DATA

Cable Gland Type:	Apex E1FU
Equipment Type:	Group II Compression Cable Gland
Ingress Protection:	IP66, IP67
Operating Temp:	-60°C to +130°C

INSTALLATION NOTES

1. All cable glands must be installed by a suitably trained and competent individual.
2. Cable gland entry threads are machined in accordance with BS 3643 6g (Metric) or ANSI/ASME B1.20.1 (NPT)
3. The enclosure material shall be compatible with the cable gland. The material used shall not introduce environmental factors that affect the type of protection applied.
4. To maintain IP ratings, Hawke recommends the use of a Hawke IP washer or other approved sealing method.
5. To ensure effective sealing of an IP washer, enclosure sealing face surface finish shall be smooth and free from damage. The entry hole should be drilled perpendicular to the sealing face.
6. When using enclosures with plain through holes, Hawke recommends nominal +0.3mm of diametric clearance over the major diameter of the thread. For example, to accommodate an M20 entry, drill 20.3 diameter.
7. Enclosure wall thickness is dependent on gland entry thread length, style of enclosure entry hole (threaded or plain), protection concept of the installation and the required use of accessories. The installer should be aware of and specify for these requirements, for example Exd requires 5 full threads of metric engagement in line with 60079-14.
8. External earth tags are recommended to be fitted adjacent to the flange of the cable gland entry, so they remain in direct contact with the cable gland. Any sealing washer should be placed between tag and enclosure. For more information on placement of accessories, visit www.hubbell.com/hawke.

CERTIFICATION DETAILS

Ex db eb IIC Gb / Ex nR IIC Gc / Ex ta IIIC Da

ATEX:	CML23ATEX1003X	CML19ATEX4507X (Ex nR)
UKEX:	CML23UKEX1005X	CML21UKEX4133X (Ex nR)
IECEx:	IECEx CML23.0002X	IECEx CML21.0012 (Ex nR)

ACCESSORIES

Hawke offer the following accessories to enable correct sealing and ground of cable gland.

Shroud:	For additional corrosion protection
Locknut:	To secure gland into position
Sealing Washer:	For additional ingress protection
Earth Tag:	For external bonding point
Serrated Washer:	To prevent vibration loosening locknuts

SPECIFIC CONDITIONS OF USE

The following conditions relate to safe installation and/or use of the equipment.

i. When the glands are used for increased safety, dust protection and/or restricted breathing, the entry thread shall be suitably sealed (in accordance with EN / IEC 60079-14) to maintain the ingress protection rating of the associated enclosure. Not applicable when Hawke IP 66/67 sealing washer is used.
ii. The glands have a service temperature of -60°C to +130°C.
iii. Glands for use with unarmoured or braided cables are only suitable for fixed installations, the cable for which must be effectively clamped to prevent pulling and twisting (does not apply when fitted with rear clamping device or Hawke Gland Mounted Clamp (GMC).

TORQUE VALUES

The torque values below are a general recommendation and may vary dependent on cable type. For best result, tighten in line with the number of turns described in the instructions STEPS 6 & 7.

Torque Figures Nm									
Gland Size	Os	O	A	B	C	C2	D	E	F
Middlenut Torque	5-10	5-10	8-15	10-20	15-25	25-40	25-40	40-45	55-75
Backnut Torque	8-12	8-12	8-12	8-12	15-20	25-30	30-35	40-45	40-45

EU Declaration of Conformity and UK Attestation of Conformity in accordance with European Directive 2014/34/EU and UK Statutory Instrument 2016/1107

Manufacturer: Hawke International, Oxford Street West, Ashton-under-Lyne, OL7 0NA, United Kingdom
Equipment: APEX E1FU Cable Gland
Provisions of the Directive fulfilled by the Equipment: Group II Category 2G Ex db eb IIC Gb, 3G Ex nR IIC Gc, 1D Ex ta IIIC Da – IP66/67
Harmonized Standards used: EN 60079-0:2018, EN60079-1:2014, EN60079-7:2015+A1:2018, EN60079-15:2019, EN60079-31:2014

Notified Body for EU-Type Examination: CML B.V. 2776 Amsterdam, NLD
EU-type Examination Certificate: CML23ATEX1003X, CML19ATEX4507X (Ex nR)
Notified Body for production: 0598

Approved Body for UK-Type Examination: CML B.V. 2503 Chester, UK
UK-type Examination Certificate: CML23UKEX1005X, CML21UKEX4133X (Ex nR)
Approved Body for production: 1180

On behalf of the above named company, I declare that on the date the equipment, accompanied by this declaration, is placed on the market the equipment conforms with all technical and regulatory requirements of the above listed directives.

Andrew Reid
Technical Manager

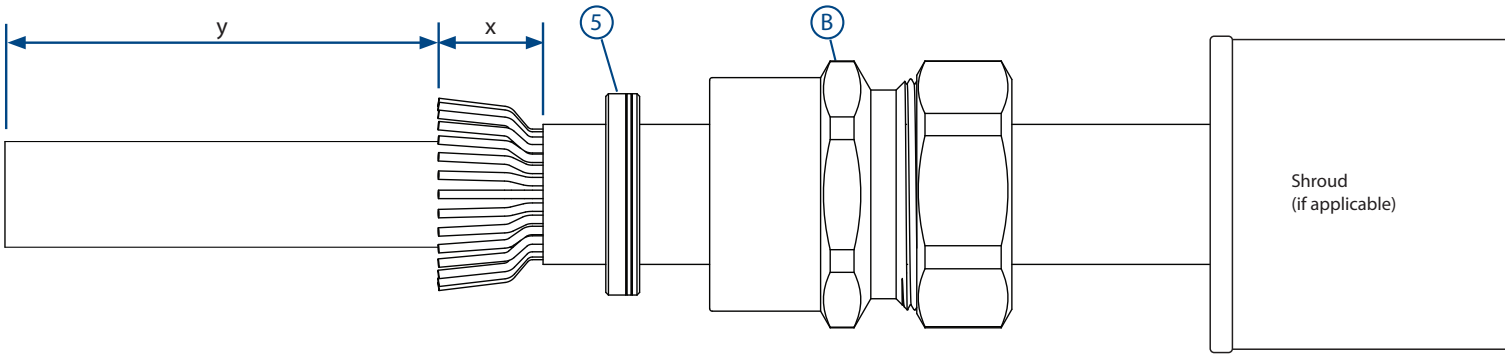
CABLE GLAND SELECTION TABLE

Size Ref.	Entry Thread Size		Cable Acceptance Details										Approx Installed Max Length	Hexagon Dimensions	
			Inner Sheath				Outer Sheath		Armour Clamp Ring						
			Standard Seal		Alternative Seal (S)				Braid		Armour				
	Metric	NPT	Min.	Max.	Min.	Max.	Min.	Max.	Equipment Side	Equipment Side	Equipment Side	Equipment Side		Across Flats	Across Corners
Os	M16/M20	½"	2.5	7.5			7.2	16.0	0 - 0.8		0.8 - 1.25		64.0	24.0	26.5
O	M16/M20	½"	6.5	11.3			7.2	16.0	0 - 0.8		0.8 - 1.25		64.0	24.0	26.5
A	M20	½" - ¾"	10.0	14.3	9.0	13.4	12.5	20.8	0 - 0.8		0.8 - 1.25		65.5	30.0	32.5
B	M25	¾" - 1"	13.0	19.5	9.5	15.4	18.0	27.0	0 - 0.7	0.5 - 1.0	0.8 - 1.25	1.25 - 1.6	76.0	36.0	39.5
C	M32	1" - 1¼"	19.5	26.4	15.5	21.2	24.5	33.0	0 - 0.7	0.5 - 1.25	1.25 - 1.6	1.6 - 2.0	78.0	46.0	50.5
C2	M40	1¼" - 1½"	25.0	32.4	22	28	31.0	41.5	0 - 0.7	0.5 - 1.25	1.25 - 1.6	1.6 - 2.0	89.0	55.0	60.6
D	M50	1½"	31.5	42.3*			36.0	51.7	0 - 0.7	0.5 - 1.6	1.6 - 2.0	2.0 - 2.5	104.0	65.0	70.8
		2"		43.3											
E	M63	2"	42.5	54.3*	38.0	46.5	53.0	64.5	0 - 0.7	0.5 - 1.6	1.6 - 2.0	2.0 - 2.5	104.0	80.0	88.0
		2½"		55.0											
F	M75	2½"	54.5	65.3*	53.0	58.3	64.0	77.5	0 - 0.7	0.5 - 1.6	1.6 - 2.0	2.0 - 2.5	106.0	95.0	104.0
		3"		66.7											

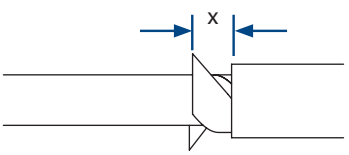
All dimensions in millimetres (except NPT where dimensions are in inches)
Os - F size metric entry threads are 1.5mm pitch as standard, 15mm length of thread
*Smaller diameters apply when selecting smaller diameter NPT entry threadform

B: Cable Preparation

Separate factory assembled cable gland into Entry Assembly (A) and Backnut/Middlenut Assembly (B) while setting the Armour Clamp Ring (5) & Spigot (4) to the side.
Optionally, install the Entry (1) into enclosure using the appropriate IP sealing method as defined by the application.
Slide shroud (if included), Backnut/Middlenut Assembly (B) onto the cable.
Cut cable to desired length and strip outer sheath.
Select the Armour Clamp Ring (5) for Braid or Armour, measure the braid/armour diameter/thickness, select orientation of Armour Clamp Ring (5) and install on the Cable. Then cut braid/armour to lengths as shown. Discard unused Armour Clamp Ring.
*If cable has an inner tape; strip that back to the same length as the braid.
**If the braids overlap each other; select correct orientation based on 2x measured diameter.



Tape Armour
After tape is spread, ensure ends are trimmed at 90° as shown



Select correct Clamping Ring based on tape thickness.

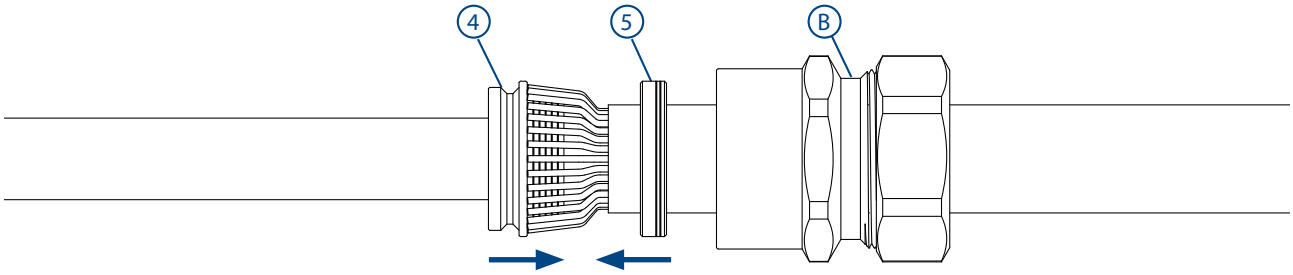
Strip Length		
Dim	Gland Size	
	Os-C	C2-F
x	20mm	25mm
y	To suit equipment	

Images for illustration purposes only.
Product supplied may differ from that shown.

C: Installing Cable Gland

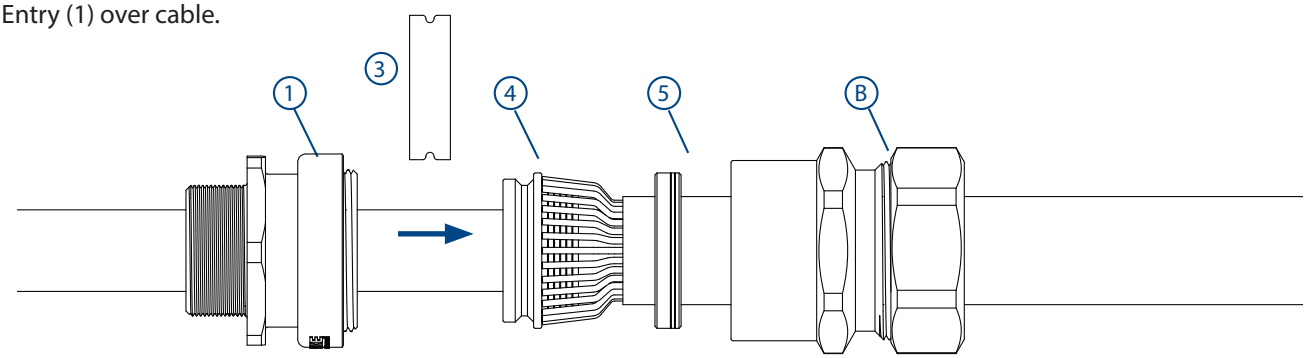
Step 1 : Fit Braid/Armour to Spigot

Slide Spigot (4) over cable.
Push braid/armour up to Spigot (4) shoulder.
Slide Armour Clamp Ring (5) up to the braid/armour by hand.



Step 2 : Prepare to Clamp Braid/Armour

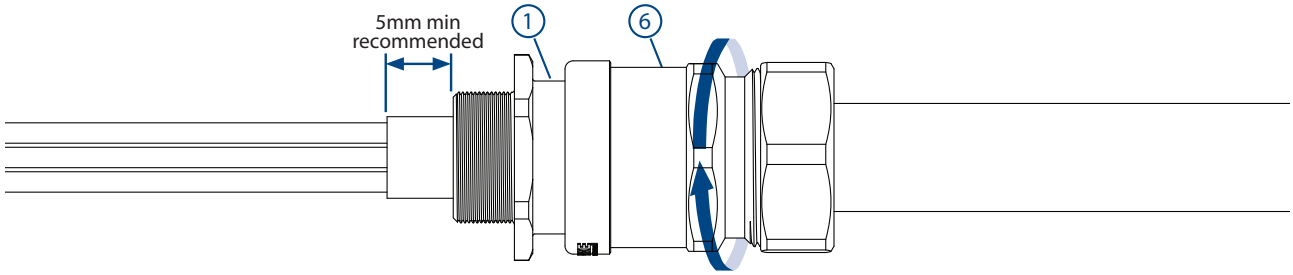
Ensure Inner Seal (3) is removed from assembly.
Slide Entry (1) over cable.



Note: A spare entry component could be used to clamp the armourings, which removes the need to remove the inner seal of the gland to be assembled.

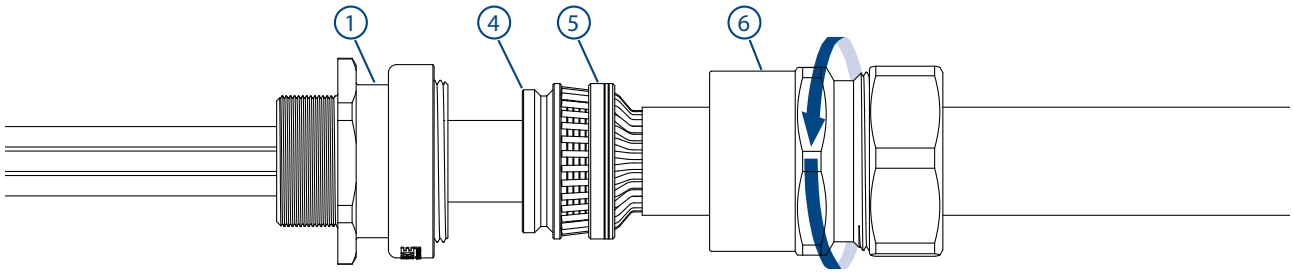
Step 3 : Clamp Braid/Armour

Slide Middlenut (6) up to Entry (1) and hand tighten.
Support the cable to prevent it twisting. Grip the Entry (1) with a spanner/wrench. Use a second spanner/wrench to tighten the Middlenut (6) half to three quarters of a turn.



Step 4 : Inspect Braid/Armour

Unscrew the Middlenut (6). The Armour Clamp Ring (5) should now be locked in place.
Inspect that the braid/armour has been successfully clamped between the Spigot (4) and the Armour Clamp Ring (5).
If clamping is not satisfactory, repeat Step 3, with an additional 1/4 turn and repeat the inspection.



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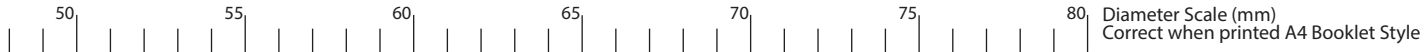
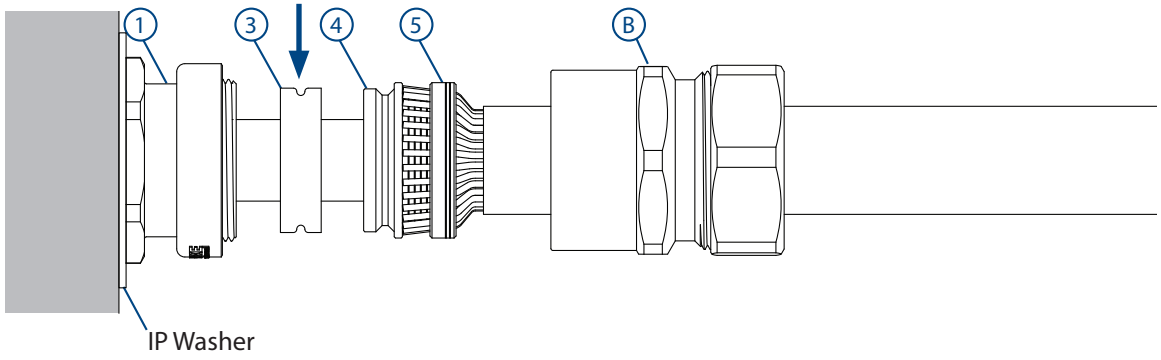


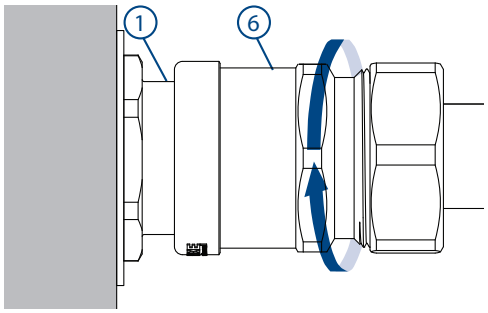
Step 5 : Install Inner Seal

Remove Backnut/Middlenut Assembly (B) and refit Inner Seal (3). Install Entry (1) to enclosure. If required, use the appropriate IP washer.



Step 6 : Compress Inner Seal

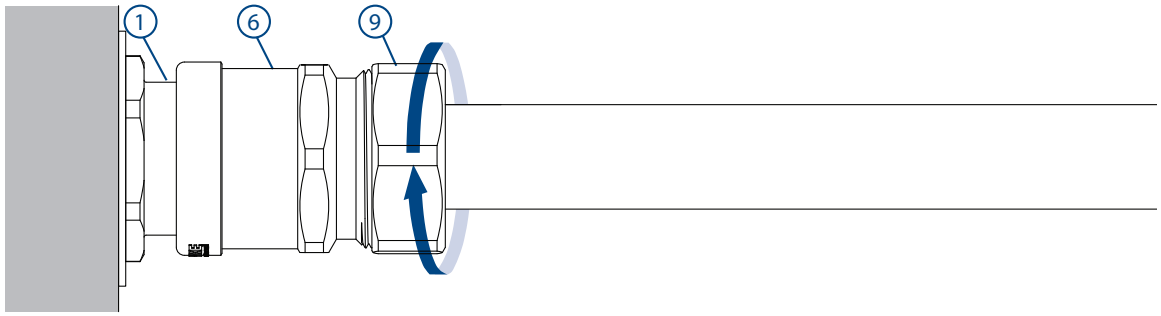
With Inner Seal (3) properly seated into the Entry (1), re-introduce the cable, tighten up the Middlenut (6) until the resistance of the spigot against the inner seal is felt. Use a spanner/wrench to tighten a further number of turns per table.



APEX INNER SEAL TIGHTENING GUIDE									
NUMBER OF TURNS TO TIGHTEN	GLAND SIZE								
	Os	O	A	B	C	C2	D	E	F
	CABLE DIAMETER RANGE (mm)								
7								42.5 - 44	54.5 - 56
6		6.5 - 7		13 - 14			31.5 - 34	44 - 47	56 - 58.5
5	2.5 - 3.3	7 - 8.2		14 - 15.6			34 - 36.5	47 - 50	58.5 - 61
4	3.3 - 4.7	8.2 - 9.3	10 - 11.2	15.6 - 16.8	19.5 - 21.5	25 - 27.5	36.5 - 39	50 - 52.5	61 - 63
3	4.7 - 6.2	9.3 - 10.3	11.2 - 12.5	16.8 - 18.2	21.5 - 23.5	27.5 - 30.5	39 - 42	52.5 - 55	63 - 65.5
2	6.2 - 7.5	10.3 - 11.2	12.5 - 13.8	18.2 - 19.3	23.5 - 26.4	30.5 - 32.4	42 - 44		65.5 - 67.5
1		11.2 - 11.8	13.8 - 14.4	19.3 - 19.7					

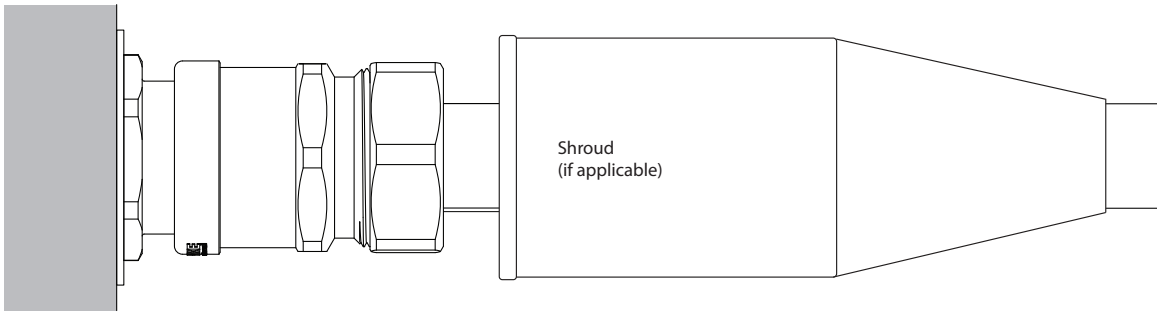
Step 7 : Install Backnut

Tighten the Backnut (9) until a seal is visually seen around the cable.
Use a spanner/wrench to grip the Middlenut (6).
While preventing the Middlenut (6) turning, use a second spanner/wrench to apply one further full turn to the Backnut (9).



Step 8 : Completion

Installation now complete.
Fit Shroud if Applicable.



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