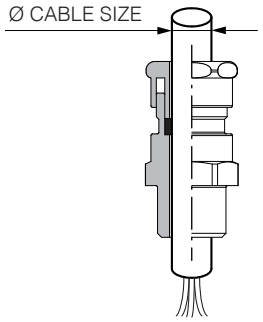
Cable glands and plugs for ex-proof valves and pumps

Multicertified ATEX, IECEx, EAC

1 MULTICERTIFIED CABLE GLAND FOR NON-ARMOURED CABLES - Group II (surface plants)

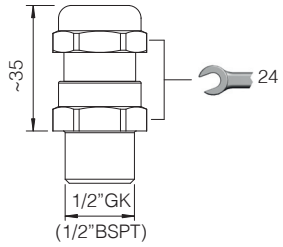
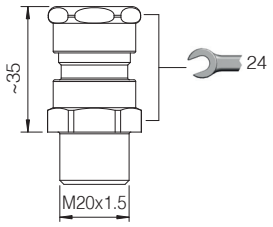
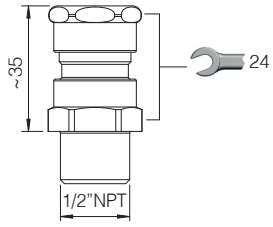
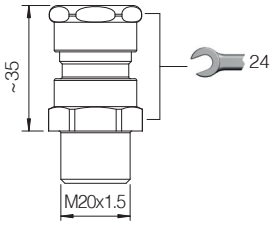


Cable glands for use with non-armoured plastic insulated cables
Flameproof **Exd IIC Gb**, Increased Safety **Exe IIC Gb** and Dust **Extb IIIC Db II 2 GD**, suitable for use in Zone 1, Zone 2, Zone 21, Zone 22.
Construction and Test Standards: IEC/EN 60079-0, IEC/EN60079-1, IEC/EN 60079-7 and IEC/EN 60079-31.
Ingress Protection: IP66, IP67 and IP 68 (30 meters for 7 days) to IEC/EN 60529 and NEMA 4X
Deluge Protection to DTS01
Operating Temperature Range: -60°C to +100°C

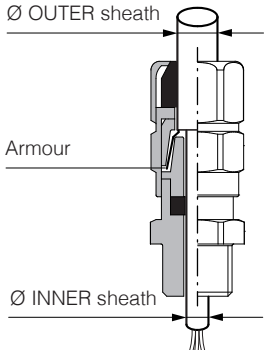
Material: Nickel Plated Brass or AISI 316
Cable glands are marked ATEX, IECEx and EAC

The electric cable must be suitable for the working temperature as specified in the "safety instructions" delivered with the first supply of Atos ex-proof valves.

See section 4 for cable gland assembly.

CABLE GLAND CODE AND DIMENSIONS	MULTICERTIFICATION	CHARACTERISTICS	COMPONENTS
PAMC/GK  Tightening torque: **20 Nm**	**ATEX INERIS 06 ATEX 0014X** Type examination certificate: INERIS 17 ATEX 3009X **IEC Ex**: IEC Ex INE 10.0010X **EAC**: RU C-IT.АЯ 45.B.00909 **CCC** Ex NEPSI Certificate: Nr. 2021322313003706 **ATEX:** EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31 **IECEx:** IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 **EAC:** EN60079-0 and EN60079-1	**Material:** Nickel plated brass **Threaded connection:** GK-1/2" ISO/UNI-6125 (tapered) **Cable size:** 6,5 to 10 mm	On-off and proportional ex-proof valves, pumps with "GK" threaded connection (solenoid and LVDT transducer) **Approved only for the Italian market**
PAMC/M  Tightening torque: **20 Nm**	Referred to certificates: - Baseefa 06 ATEX0056X - IECEx BAS 06.0013X Item type: 501-421 CE Ex **ATEX:** EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31 IECEx **IECEx:** IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 EAC **EAC:** EN60079-0 and EN60079-1	**Material:** Nickel plated brass **Threaded connection:** M20x1,5 UNI-4535 **Cable size:** 6,5 to 11,9 mm	On-off and proportional ex-proof valves, pumps with "M" threaded connection (solenoid, LVDT transducer and on-board driver)
PAMC/NPT  Tightening torque: **20 Nm**		**Material:** Nickel plated brass **Threaded connection:** 1/2" NPT ANSI/ASME B1.20.1 (tapered) **Cable size:** 6,5 to 11,9 mm	On-off and proportional ex-proof valves, pumps with "NPT" threaded connection (solenoid and LVDT transducer)
PAXMC/M  Tightening torque: **20 Nm**		**Material:** Stainless steel AISI 316 **Threaded connection:** M20x1,5 UNI-4535 **Cable size:** 6,5 to 11,9 mm	On-off ex-proof stainless steel valves type "X" and "XS"

2 MULTICERTIFIED CABLE GLAND FOR ARMOURED CABLES - Group II (surface plants)

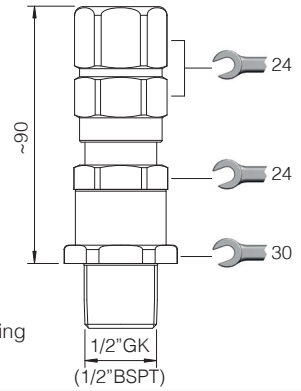
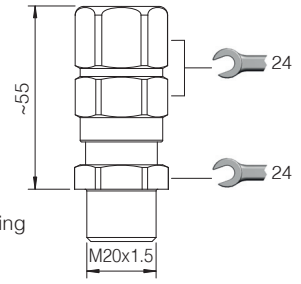
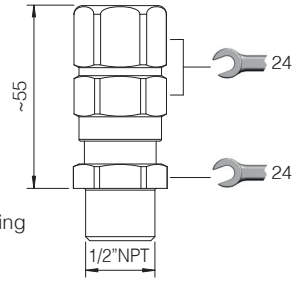
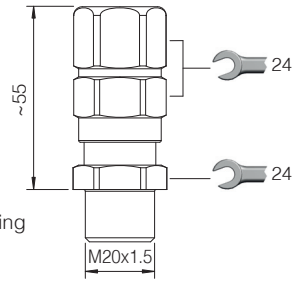


Cable glands for use with single wire armour 'W', wire braid 'X', steel tape armour 'Z', plastic insulated cables.
Flameproof **Exd IIC Gb**, Increased Safety **Exe IIC Gb**, Dust **Extb IIIC Db** and **ExnR IIC Gc II 2 / 3GD**, suitable for use in Zone 1, Zone 2, Zone 21, Zone 22.
Construction and Test Standards: IEC/EN 60079-0, IEC/EN 60079-1, IEC/EN 60079-7, IEC/EN 60079-15 and IEC/EN 60079-31.
Ingress Protection: IP66, IP67 and IP 68 (30 meters for 7 days) to IEC/EN 60529 and NEMA 4X
Deluge Protection to DTS01.
Operating Temperature Range: -60°C to +80°C

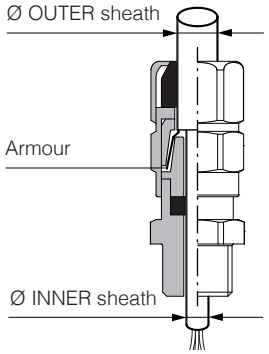
Seal on the cable inner sheath
Outer deluge seal to prevent moisture ingress to the cable armour / braid
Cable retention, low smoke
Material: Nickel Plated Brass or AISI 316
Cable glands are marked ATEX, IECEx and EAC

The electric cable must be suitable for the working temperature as specified in the "safety instructions" delivered with the first supply of Atos ex-proof valves.

See section 4 for cable gland assembly.

CABLE GLAND CODE AND DIMENSIONS	MULTICERTIFICATION	CHARACTERISTICS	COMPONENTS
PAAMC/GK  Tightening torque: **20 Nm**	Referred to certificates: - Baseefa 06 ATEX0056X - IECEx BAS 06.0013X Item type: 501-453RAC CE Ex **ATEX:** EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31 IECEx **IECEx:** IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 EAC **EAC:** EN60079-0 and EN60079-1	**Material:** Nickel plated brass **Threaded connection:** GK-1/2" ISO/UNI-6125 (tapered) **Cable size:** INNER sheath size 3,2 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves, pumps with "GK" threaded connection (solenoid and LVDT transducer) **Approved only for the Italian market**
PAAMC/M  Tightening torque: **20 Nm**		**Material:** Nickel plated brass **Threaded connection:** M20x1,5 UNI-4535 **Cable size:** INNER sheath size 3,2 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves, pumps with "M" threaded connection (solenoid, LVDT transducer and on-board driver)
PAAMC/NPT  Tightening torque: **20 Nm**		**Material:** Nickel plated brass **Threaded connection:** 1/2" NPT ANSI/ASME B1.20.1 (tapered) **Cable size:** INNER sheath size 3,2 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves, pumps with "NPT" threaded connection (solenoid and LVDT transducer)
PAAXMC/M  Tightening torque: **20 Nm**		**Material:** Stainless steel AISI 316 **Threaded connection:** M20x1,5 UNI-4535 (6H/6g) **Cable size:** INNER sheath size 3,2 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off ex-proof stainless steel valves type "X" and "XS"

3 MULTICERTIFIED CABLE GLAND FOR ARMOURED CABLES - Group I (Mining)

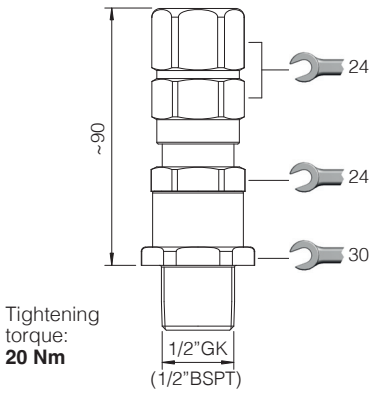
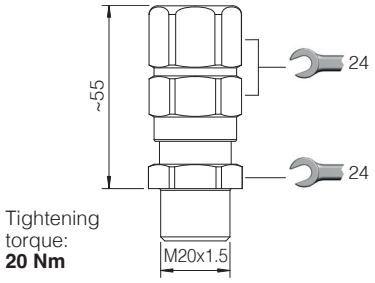
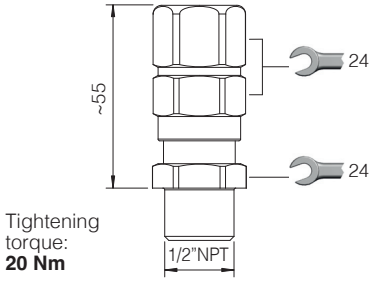


Cable glands for use with single wire armour 'W', wire braid 'X', steel tape armour 'Z', plastic insulated cables.
Flameproof **Exd I M2** and Increased Safety **Exe I M2**, suitable for use in Mines
Construction and Test Standards: IEC/EN 60079-0, IEC/EN 60079-1 and IEC/EN 60079-7
Ingress Protection: IP66, IP67 and IP 68 (30 meters for 7 days) to IEC/EN 60529
Operating Temperature Range: -60°C to +80°C

Seal on the cables inner sheath
Cable retention, low smoke
Material: Nickel Plated Brass
Cable glands are marked ATEX, IECEx and EAC

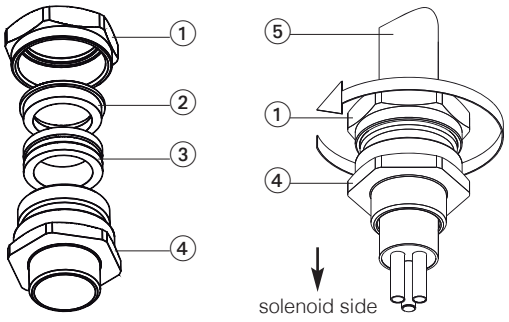
The electric cable must be suitable for the working temperature as specified in the "safety instructions" delivered with the first supply of Atos ex-proof valves.

See section 4 for cable gland assembly.

CABLE GLAND CODE AND DIMENSIONS	MULTICERTIFICATION	CHARACTERISTICS	COMPONENTS
PAAMMC/GK  Tightening torque: **20 Nm**	Referred to certificates: - Baseefa 08 ATEX0331X - IECEx BAS 08.0112X Item type: 453RAC CE Ex **ATEX:** EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31 IECEx **IECEx:** IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 EAC **EAC:** EN60079-0 and EN60079-1	**Material:** Nickel plated brass **Threaded connection:** GK-1/2" ISO/UNI-6125 (tapered) **Cable size:** INNER sheath size 3 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves with "GK" threaded connection (solenoid and LVDT transducer) **Approved only for the Italian market**
PAAMMC/M  Tightening torque: **20 Nm**		**Material:** Nickel plated brass **Threaded connection:** M20x1,5 UNI-4535 **Cable size:** INNER sheath size 3 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves with "M" threaded connection (solenoid, LVDT transducer and on-board driver)
PAAMMC/NPT  Tightening torque: **20 Nm**		**Material:** Nickel plated brass **Threaded connection:** 1/2" NPT ANSI/ASME B1.20.1 (tapered) **Cable size:** INNER sheath size 3 to 8 mm OUTER sheath size 5,5 to 12 mm	On-off and proportional ex-proof valves with "NPT" threaded connection (solenoid and LVDT transducer)

4 CABLE GLAND ASSEMBLY

Cable glands PAMC/* and PAXMC/M for non-armoured cables



Assembling procedure

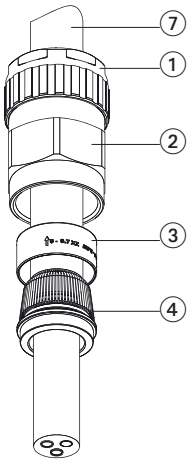
Unscrew the Back-nut ① from Entry ④
Push the electric cable ⑤ though the cable gland
Connect the cable wires to the solenoid terminal board
Screw-in the Entry ④ into the solenoid cable entrance lock it at relevant tightening torque specified in section 1
Lock the Back-nut ① using a wrench until a resistance is felt between internal seal ③ and the cable
Turn the Back-nut ① through a further half turn to ensure the complete inner sealing

① Back-nut
② Compression Spigot
③ Seal
④ Entry
⑤ Electric cable (non-armoured)

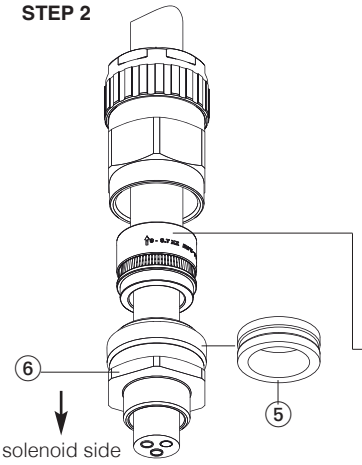
Cable glands PAAMC/*, PAAXMC/M and PAAMMC/* for armoured cables

① Back-nut
② Middle-nut
③ Reversible Armour Clamping Ring (RAC)
④ Armour Spigot
⑤ Inner Seal
⑥ Entry (with captive deluge seal), if required
⑦ Electric cable (armour type SWA, Braid X, Flat Steel wire Y, Steel type Z)

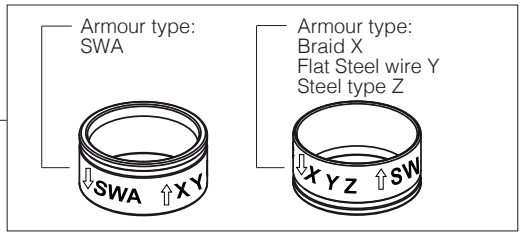
STEP 1



STEP 2



Reversible Armour Clamping ring (RAC) orientation



Note: the arrow corresponding to the correct armour type (SWA or X, Y, Z) must be orinted towards the ex-proof solenoid

Assembling procedure

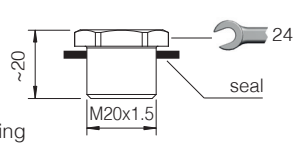
STEP 1

Unscrew Back-nut ① from Middle-nut ② and Entry ⑥ , push the cable through the Armour Spigot ④
Spread the armour over the Armour spigot ④ until the end of the armour is up against the shoulder of the armour cone
Position the Armour clamping ring ③ paying attention to its correct orientation depending to the armour type (see above)
Remove the Inner seal ⑤ from the Entry ⑥ , place the Entry ⑥ over the Armour Spigot ④
Move the sub-assembly ① + ② to meet the Entry ⑥ , connect the cable wires to the solenoid terminal board
Screw-in the Entry ⑥ into the solenoid cable entrance and lock it at relevant tightening torque specified in section 2 and 3
Hand tighten the Middle-nut ② to the Entry ⑥ and turn a further half turn with a wrench
Unscrew the Middle-nut ② and visually inspect that the armour has been successfully clamped between the armour spigot ④ and the armour clamping ring ③. If the armour is not correctly clamped, repeat the assembly

STEP 2

Re-assemble Middle-nut ② onto the components ③ + ④ + ⑤ + ⑥ paying attention to the correct orientation of the reversible armour Clamping ring ③ , tighten up the Middle-nut ② by hand first and then using a wrench a further 1 to 2 turns until fully tight
Hand tighten the Back-nut ① then tighten a further full turn using a wrench
Ensure that the Middle-nut ② does not rotate when tightening the Back-nut ①
Ensure that the deluge seal is compressed into correct position

5 THREADED PLUG

THREADED PLUG CODE AND DIMENSIONS	MULTICERTIFICATION	CHARACTERISTICS	COMPONENTS
ZMX-T  Tightening torque: **20 Nm**	**ATEX:** EN 60079-0, EN 60079-1, EN 60079-7 and EN 60079-31 **IECEx:** IEC 60079-0, IEC 60079-1, IEC 60079-7 and IEC 60079-31 **EAC:** EN60079-0 and EN60079-1	**Material:** Nickel plated brass **Threaded connection:** M20x1,5 UNI-4535	Proportional ex-proof valves and pumps with on-board driver