

HIGH VOLTAGE CONNECTORS FOR SPECIAL APPLICATIONS



05 Series



5G Series



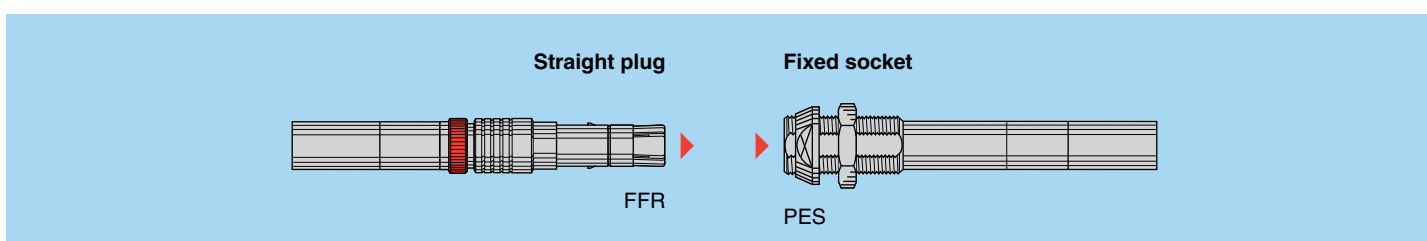
K and S Series

05 Series Connectors



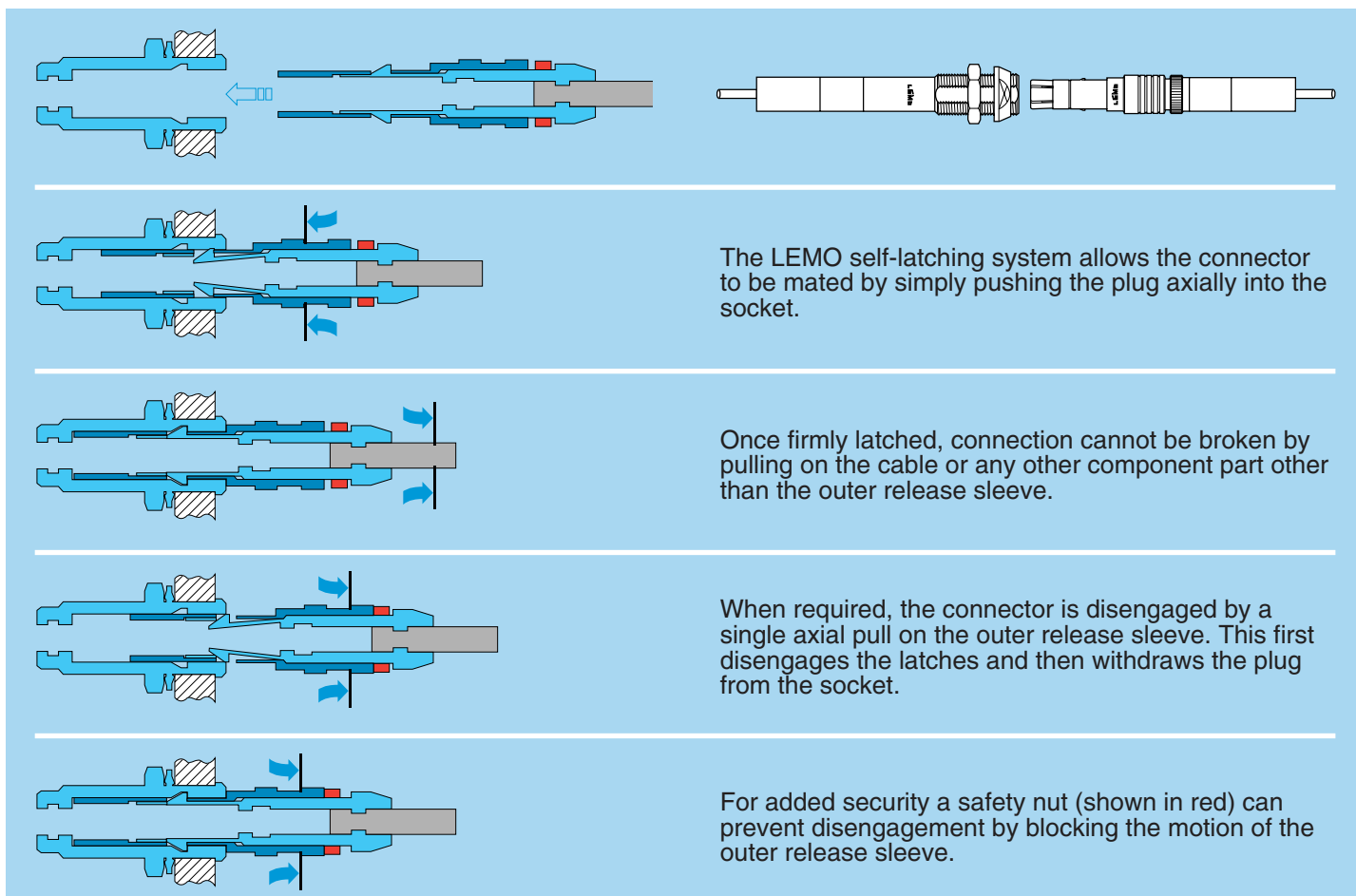
High voltage connectors of the new 05 miniature series have been specifically developed to meet the requirements of experimental nuclear research programme. The 05 series contains a miniature HV 12kV d.c. (test voltage) contacts. This crimp contact is removable from the shell and is inserted in a PEEK insulator. The actual mating is provided by the LEMO Push-Pull system, renowned for its reliability worldwide and a red safety nut to secure the connection. The compact design of these connectors makes them ideal for applications where minimal mass and space saving are critical factors.

Interconnections



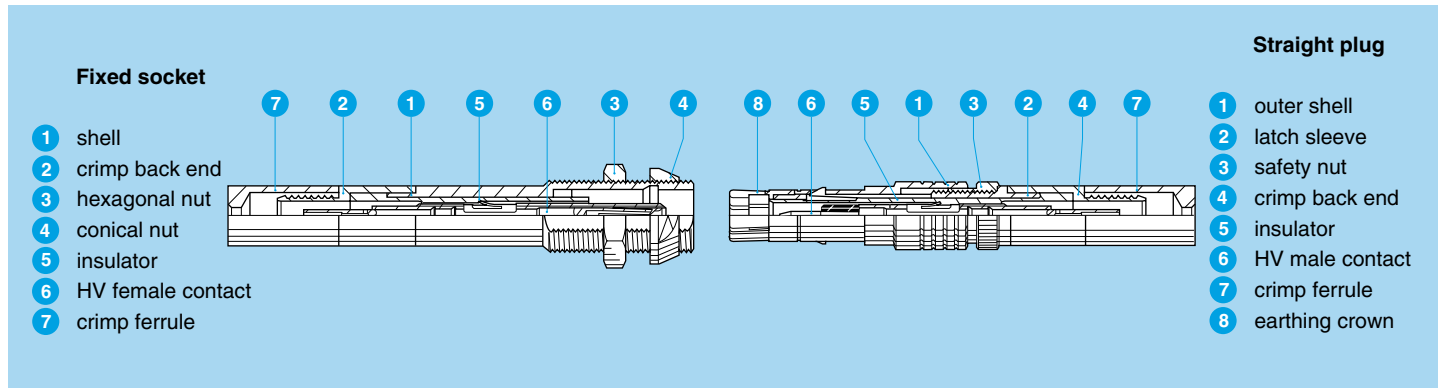
LEMO's Push-Pull Self-Latching Connecting System

This self-latching system is renowned worldwide for its easy and quick mating and unmating features. It provides absolute security against vibration, shock or pull on the cable, and facilitates operation in a very limited space.

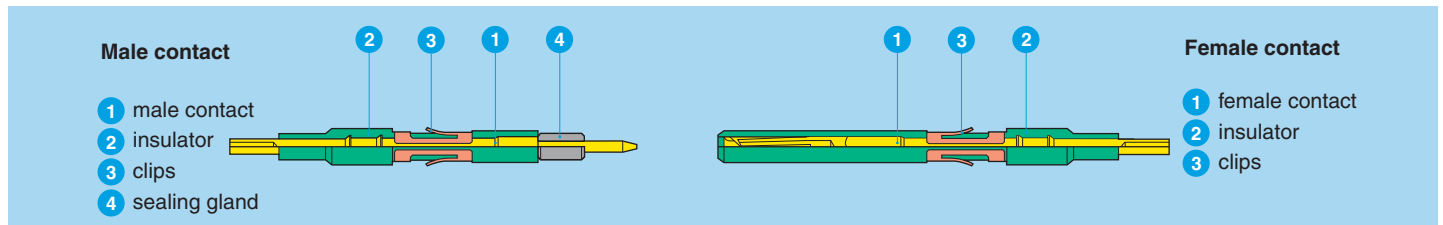


Part Section Showing Internal Components

Connector



HV Contact



Technical characteristics

Mechanical and climatical

| Characteristic | Value | Standard |
|-------------------------|----------------------|----------------------|
| Contact retention force | 40 N | IEC 60512-8 test 15a |
| Working temperature | -20 °C to +125°C | |
| Mechanical life | > 200 cycles | IEC 60512-5 test 9a |
| Climatic class | 20/125/21 | IEC 60068-1 |
| Radiation resistance | > 10 ⁶ Gy | |

Electrical characteristics

| Characteristic | Value | Standard |
|---------------------------------|----------------------|---------------------|
| Test voltage d.c. ¹⁾ | 12 kV (1 min.) | IEC 60512-2 test 4a |
| Rated current | 4 A | IEC 60512-3 test 5a |
| Contact resistance | ≤ 8 mΩ | IEC 60512-2 test 2a |
| Screen resistance | ≤ 150 mΩ | IEC 60512-2 test 2f |
| Insulation resistance | ≥ 10 ¹² Ω | IEC 60512-2 test 3a |

Note:

¹⁾ specific assembly instructions shall be respected. (see page 6 and 7)

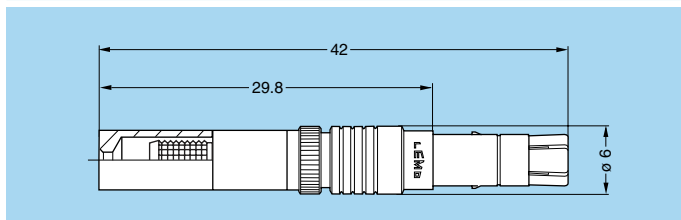
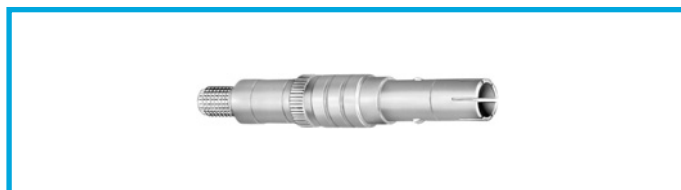
Materials and Treatment – Connector

| Component | Material (standard) | Surface treatment (µm) |
|------------------------|---------------------|------------------------|
| | | Ni |
| Outershell + crimp end | Aluminium (AA 6012) | 5 |
| Safety nut | Aluminium (AA 6012) | Anodized red |
| Earthing crown | Aluminium special | 5 |
| Latch sleeve | Aluminium special | 5 |
| Hex and conical nut | Aluminium (AA 6012) | Anodized natural |
| Insulator | PEEK | – |
| Crimp ferrule | Aluminium (AA 6012) | 5 |

Contact

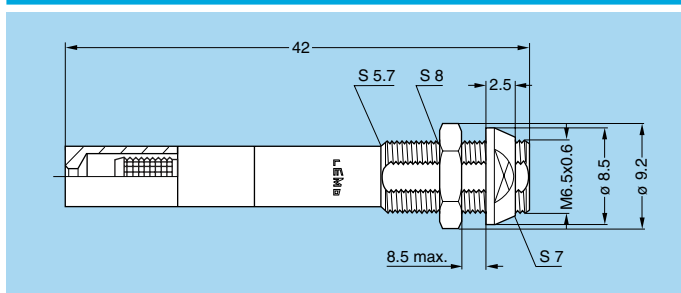
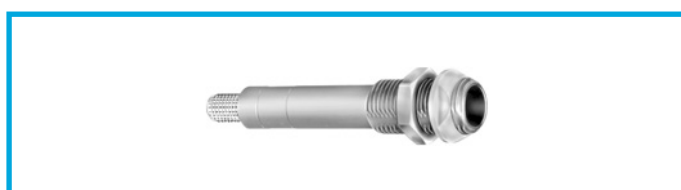
| Component | Material (standard) | Surface treatment (µm) | | |
|----------------|---------------------|------------------------|----|-----|
| | | Cu | Ni | Au |
| Male contact | Brass (UNS C38500) | 0.5 | 3 | 1.0 |
| Female contact | Bronze (UNS C54400) | 0.5 | 3 | 1.5 |
| Contact clips | Cu-Be (QQ-C-530) | – | | |
| Insulator | PEEK | – | | |
| Sealing gland | Silicone PVMQ | – | | |

Models



FFR Straight plug for cable crimping, with safety nut

| Part Number | Cable group |
|--------------------|-------------|
| FFR.05.403.LLAE141 | 1 |
| FFR.05.403.LLAE142 | 2 |



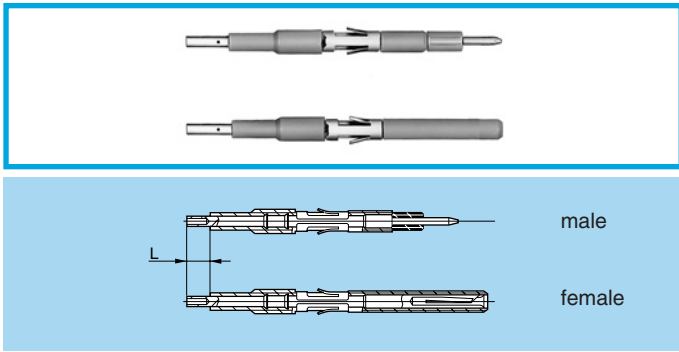
PES Fixed socket, with two nuts, for cable crimping

| Part Number | Cable group |
|--------------------|-------------|
| PES.05.403.LLLE141 | 1 |
| PES.05.403.LLLE142 | 2 |

Recommended high voltage cables

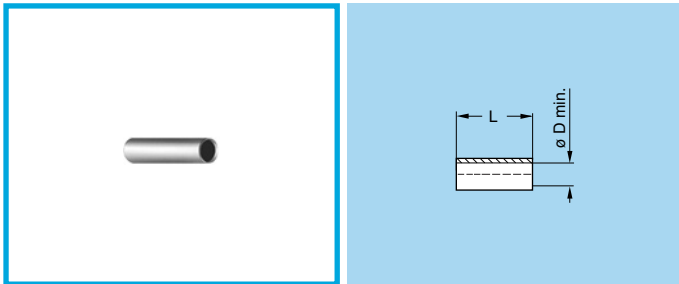
| Cable group | Manufacturer Part Number | CERN Type | Construction and dimensions | | | | | | | | |
|-------------|--------------------------|-------------------|-----------------------------|------|------|------------|-----|-----------------------------------|-------------|------|---------------|
| | | | Conductor | | | Dielectric | | Screen | Sheath | | Corona screen |
| | | | Constr. | Mat. | ø | Mat. | ø | Mat. | Mat. | ø | |
| 1 | ABBNK - 45/94 | HTC 50-1-1 | 7x0.17 | CuSn | 0.51 | PE solid | 1.5 | CuSn 16x4x0.1 | Polyolefine | 3.3 | yes |
| 2 | HABIA 31789-004-001 | HFI 150 mini coax | Mono | Cu | 0.16 | HFI 150 | 0.5 | Drain 2x0.1 + Alu polyester | HFI 150 | 1.15 | no |

Accessories



FFA-ERA High Voltage Contacts

| Contact Part Number | | Cable group | L (mm) |
|---------------------|-----------------|-------------|--------|
| Male contact | Female contact | | |
| FFA.05.403.ZLA1 | ERA.05.403.ZLL1 | 1 | 4 |
| FFA.05.403.ZLA2 | ERA.05.403.ZLL2 | 2 | 6 |



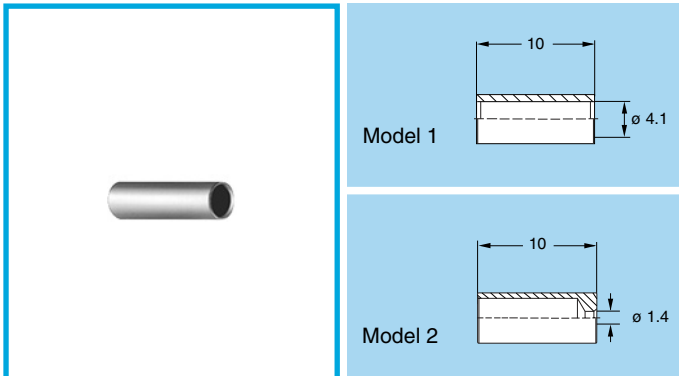
GMA Heatshrink tube

Shall be ordered separately

| Part number | Cable group | Supplier | | øD (mm) | L (mm) |
|---------------|-------------|----------|-------------------|---------|--------|
| | | Name | Product reference | | |
| GMA.30.010.ST | 1+2 | RAYCHEM® | RNF 3000 3/1 | 3.0 | 13 |
| GMA.15.010.ST | 2 | RAYCHEM® | RNF 3000 1.5/0.5 | 1.5 | 9 |

Note: for cable group 2, the two heatshrink tubes are necessary

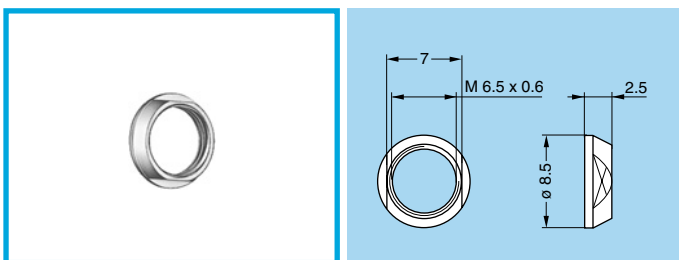
- Material: Polyolefin transparent



FFS Crimp ferrule

| Part number | Cable group | Model |
|---------------|-------------|-------|
| FFS.05.160.PM | 1 | 1 |
| FFS.05.161.PM | 2 | 2 |

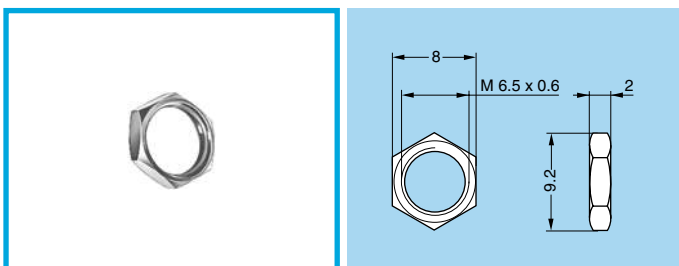
- Material: Aluminium alloy (AA6012) nickel plated



GEC Conical nut

| Part number |
|---------------|
| GEC.05.241.PT |

- Material: Aluminium alloy (AA 6012) natural anodized.

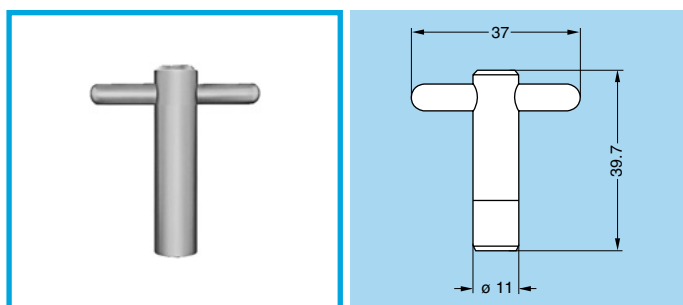


GEA Hexagonal nuts

| Part number |
|---------------|
| GEA.05.241.PT |

- Material: Aluminium alloy (AA 6012) natural anodized.

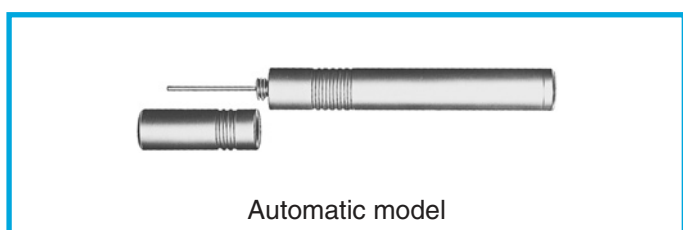
Tooling



DCH Spanner for conical nut

| |
|----------------|
| Part Number |
| DCH.91.113.9TN |

- Material: Blackened steel.



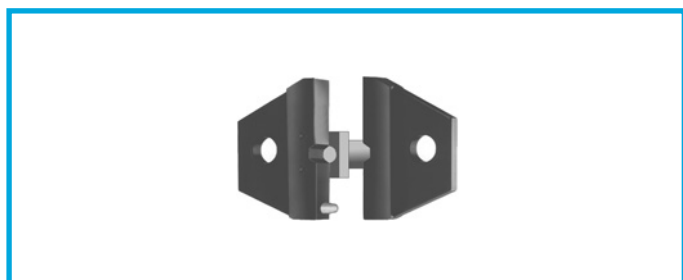
DCF Extraction tools for HV contacts

| |
|----------------|
| Part Number |
| DCF.91.133.5LT |



DPH Crimping tool with die and positioner

| Part Number | Applications | Cable group | Marking on die |
|----------------|----------------|-------------|----------------|
| DPH.99.005.2K | shield | 1-2 | DPH.91.005.2K |
| DPH.99.060.11K | centre contact | 1 | DPH.91.001.16K |
| DPH.99.065.11K | centre contact | 2 | DPK.91.001.16K |

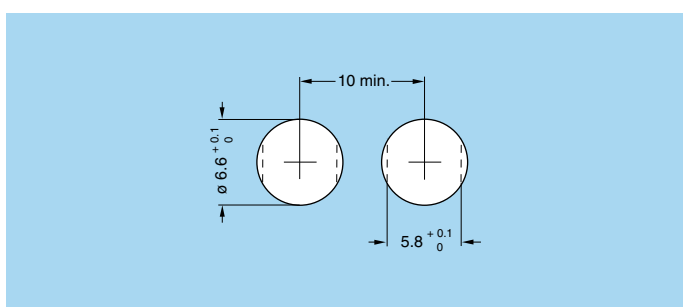


DPN Dies and positioner

| Part Number | Applications | Cable group | Marking on die |
|----------------|----------------|-------------|----------------|
| DPN.99.005.2K | shield | 1-2 | DPH.91.005.2K |
| DPN.99.060.11K | centre contact | 1 | DPH.91.001.16K |
| DPN.99.065.11K | centre contact | 2 | DPK.91.001.16K |

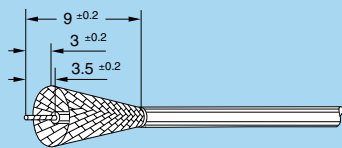
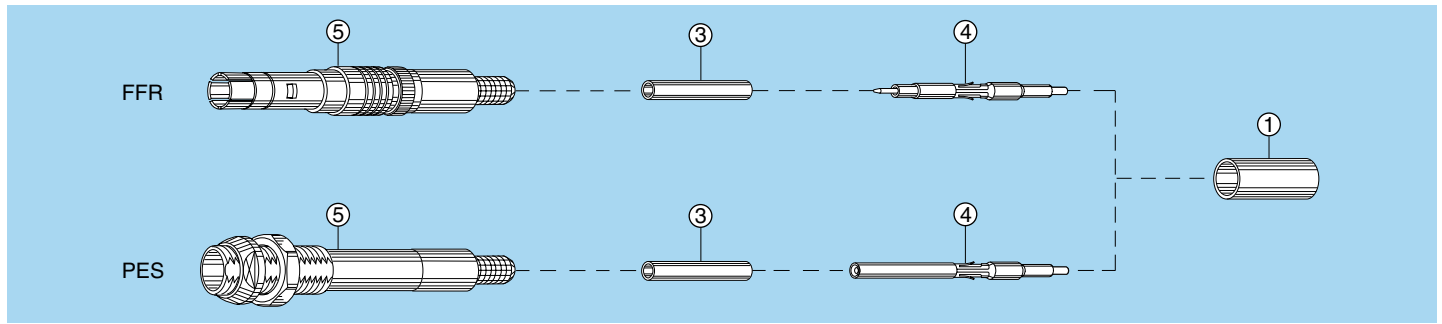
- Dies material: Blackened steel

Panel cut-out

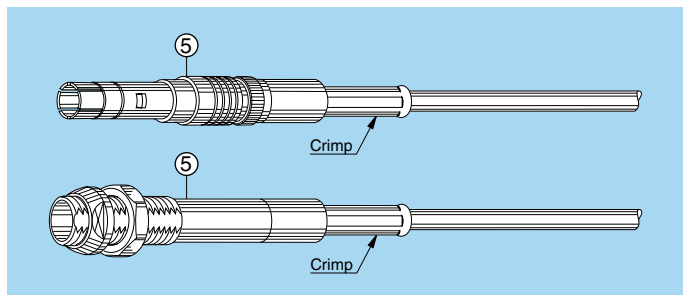
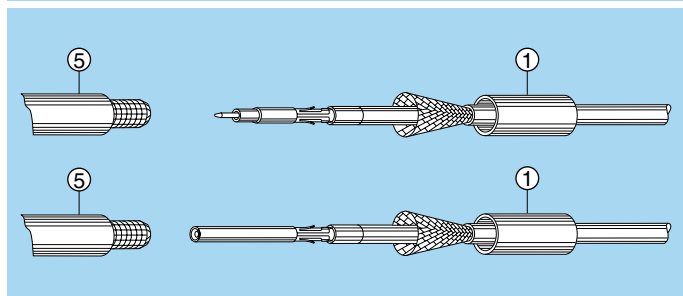
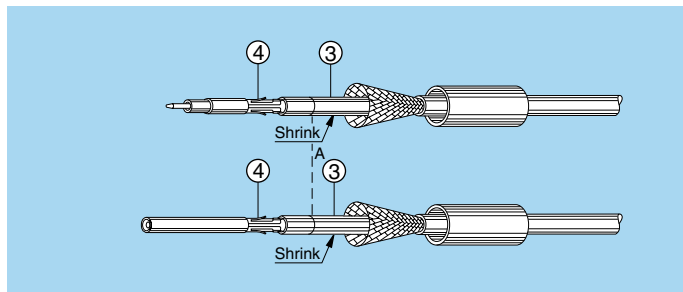
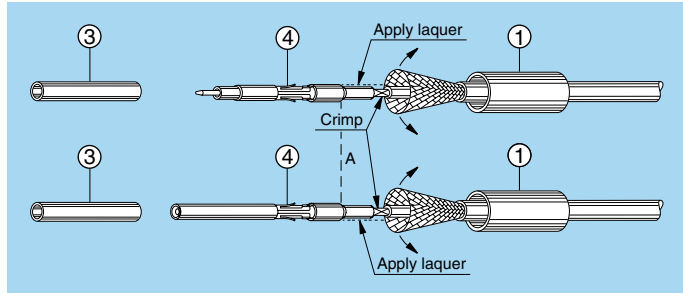


Recommended mounting nut torque: 0.8 Nm.

Termination Instructions Cable Group 1



Dimensions in mm.



1. Strip the cable according to the given dimensions, remove carefully the cable corona screen, making sure that the cable dielectric is not damaged. Remove also the aluminium foil and the textile tape. Clean the dielectric with isopropyl alcohol.

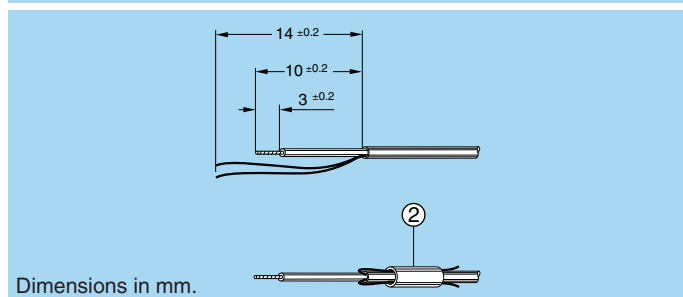
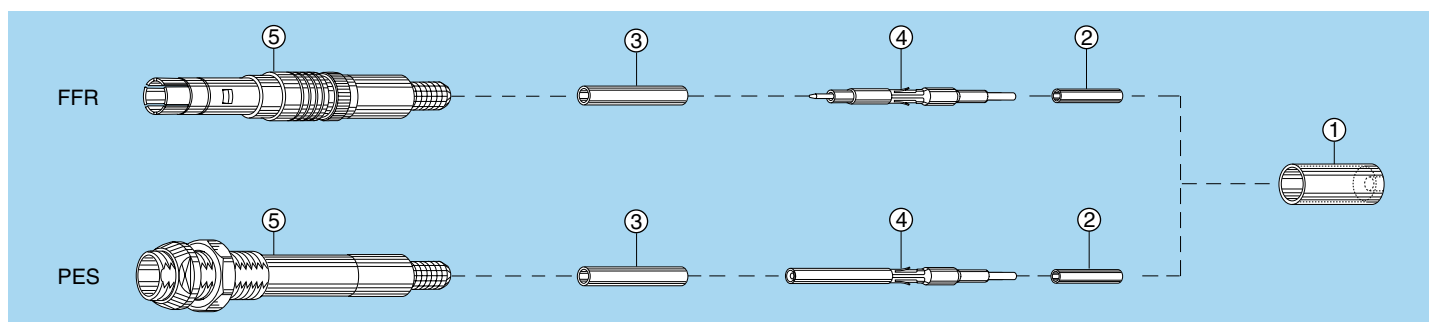
2. Place the crimp ferrule ② on the cable. Widen completely the shield braid and fold it back over the jacket. Introduce the cable center conductor into the HV contact ④ until the contact end rests against the dielectric and the conductor is visible through the contact inspection hole. Crimp with the LEMO crimping tool DPH.99.060.11K. Cover the crimp section of the contact and the Peek end of the HV contact with a layer of insulating laquer. Let the laquer dry, approx. 15 min. Note: We recommend the laquer Urethan ref: Cellpack n° 912110

3. Slide the heatshrink tube ③ over the HV contact until it rests against the contact insulator. One end of the heatshrink tube shall be located at the position A of the HV contact insulator. Shrink the tube.

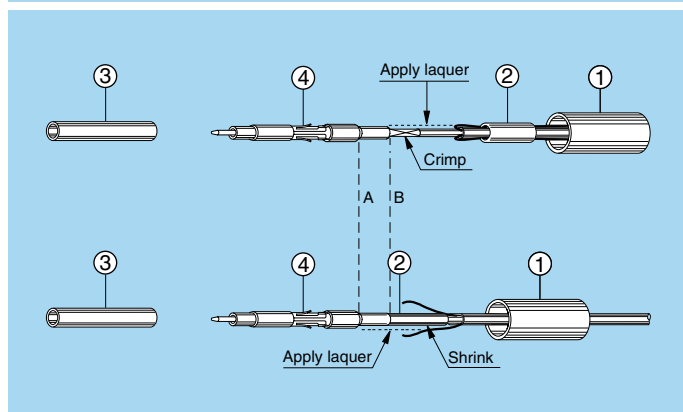
4. Fully introduce the HV contact into the connector shell ⑤. Check that the contact is correctly located and remains in position when given a gentle pull. Place the cable shield braid strand over the shell crimp back end, cut the length of braid in excess.

5. Slide the crimp ferrule over the cable shield until it rests against the connector shell. Crimp with the LEMO crimping tool DPH.99.005.2K.

Termination Instructions Cable Group 2

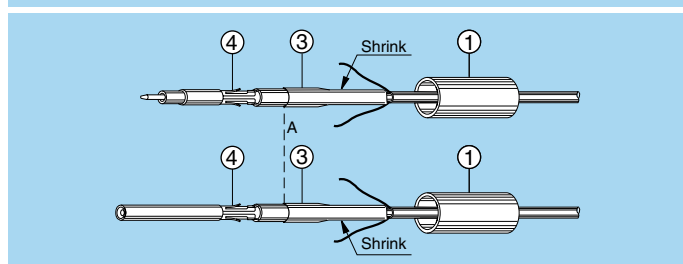


1. Strip the cable according to the given dimensions, cut the aluminium foil making sure that the dielectric is not damaged. Do not damage the 2 drain wires. Fold the drain wires back over the outer jacket and slide over the small heatshrink tube ②. Clean the dielectric with isopropyl alcohol.

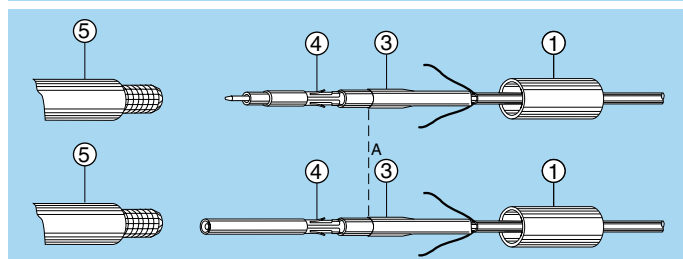


2. Place the crimp ferrule ① introducing first the small diameter on the cable. Introduce the cable center conductor and a part of the dielectric into the HV contact ④ until the conductor is fully visible through the contact inspection hole. Crimp with the LEMO crimping tool DPH.99.065.11K. Cover the crimp section of the contact and a short length of the dielectric with a layer of insulating laquer. Let the laquer dry, approx. 15 min. Note: We recommend the laquer Urethan ref: Cellpack n° 912110

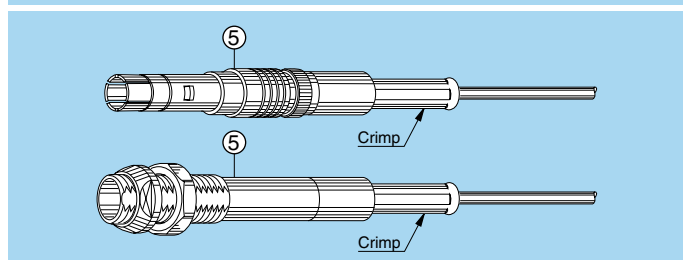
Slide the heatshrink tube ② over the HV contact until it rests against the contact insulator at the position B. Shrink the tube. Cover the Peek end of the HV contact and the first heatshrink tube with a layer of the insulating laquer. Let the laquer dry, approx. 15 min.



3. Slide the heatshrink tube ③ over the HV contact until it rests against the contact insulator. One end of the heatshrink tube shall be located at the position A of the HV contact insulator. Shrink the tube.



4. Fully introduce the HV contact into the connector shell ⑤. Check that the contact is correctly located and remains in position when given a gentle pull. Place the 2 drain wire around the shell crimp back end.



5. Slide the crimp ferrule over the cable shield until it rests against the connector shell. Crimp with the LEMO crimping tool DPH.99.005.2K.

5G Series Connectors



High voltage cylindrical connectors of the new 5G series have been specifically developed to meet the requirements of the "ATLAS" experimental nuclear research programme at the CERN.

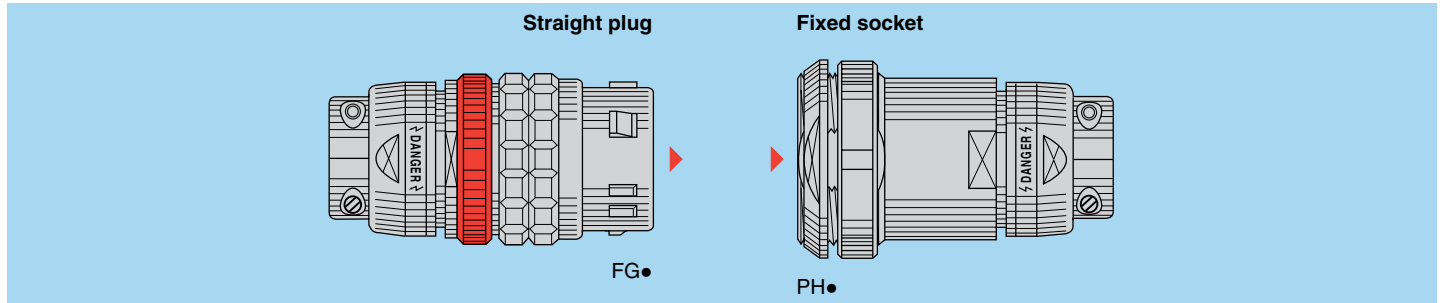
The 5G series contains 50 miniature HV 12kV d.c. (test voltage) contacts. These crimp contacts are removable from the shell and are inserted in a PEEK insulator. The same HV contacts are used in the 05 series.

The actual mating is provided by the LEMO Push-Pull system, renowned for its reliability worldwide and a red safety nut to secure the connection.

Two keying alternative (code R or W) are available.

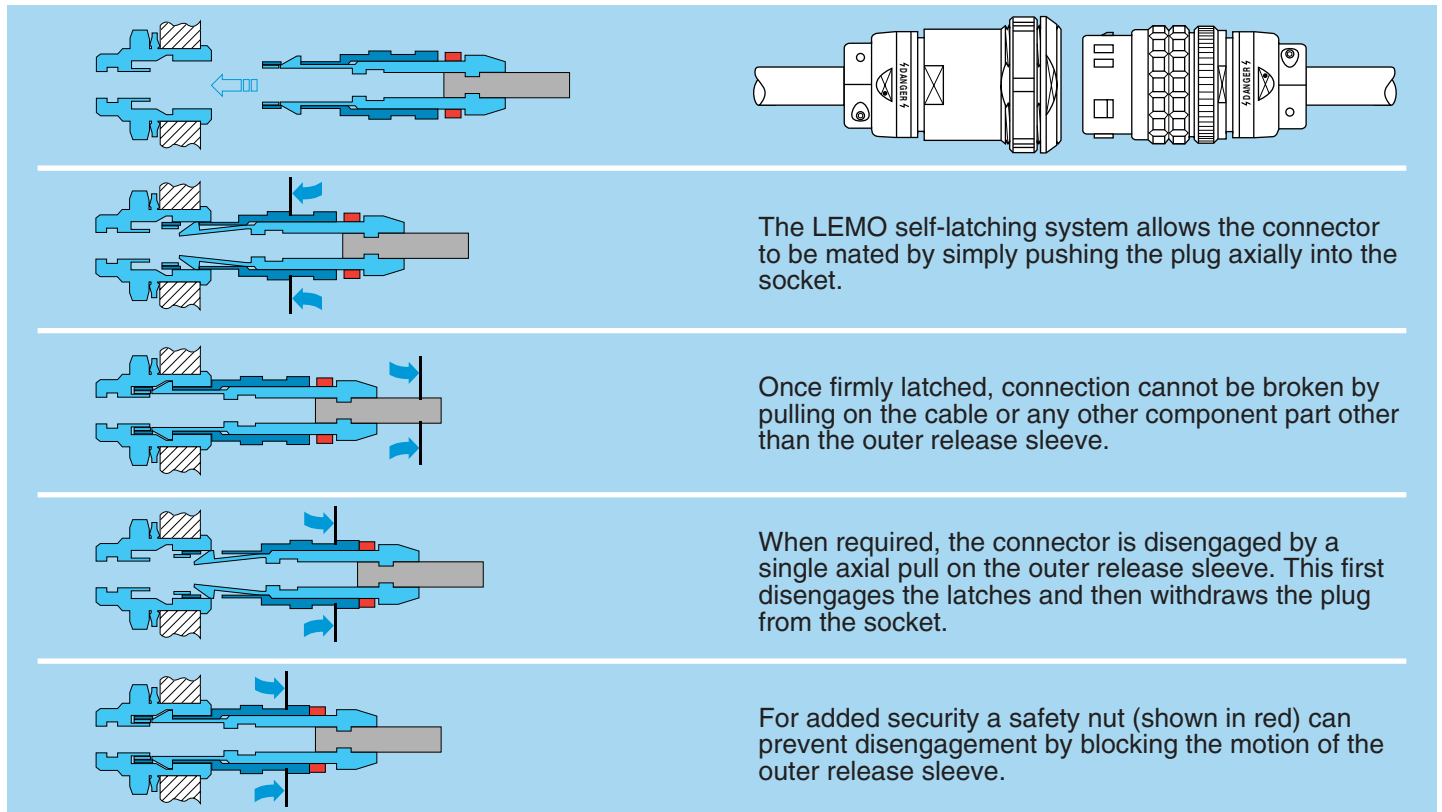
The compact design of these connectors makes them ideal for applications where minimal mass and space saving are critical factors.

Interconnections



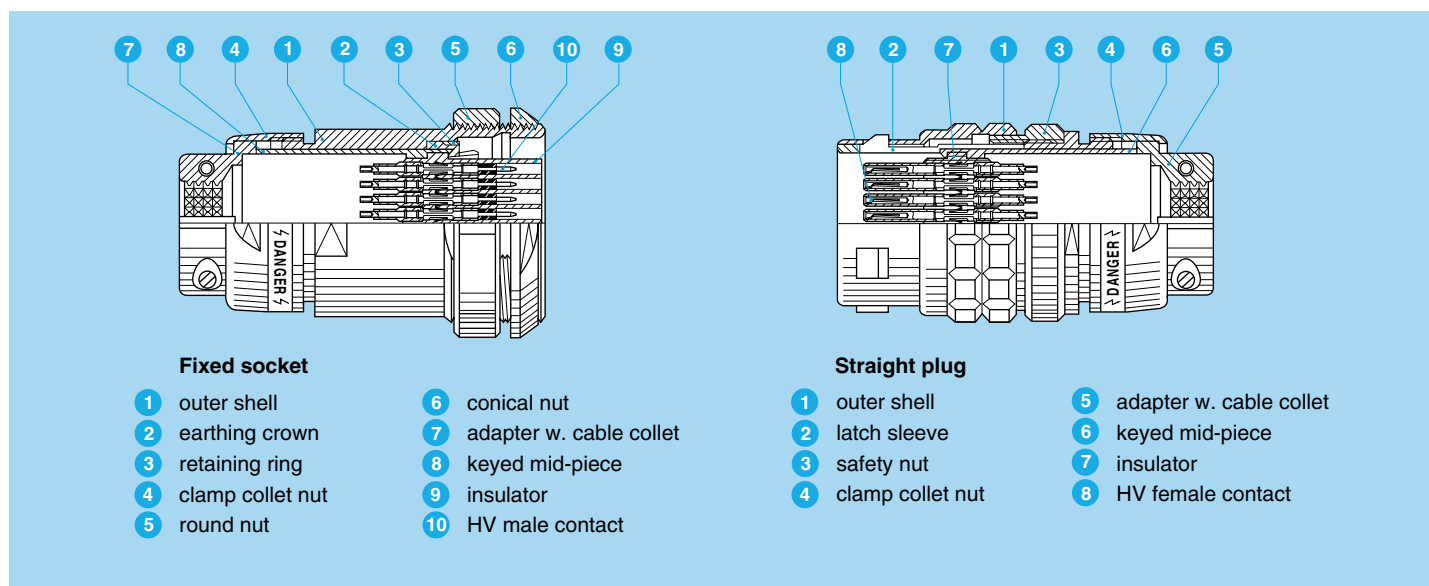
LEMO's Push-Pull Self-Latching Connecting System

This self-latching system is renowned worldwide for its easy and quick mating and unmating features. It provides absolute security against vibration, shock or pull on the cable, and facilitates operation in a very limited space.

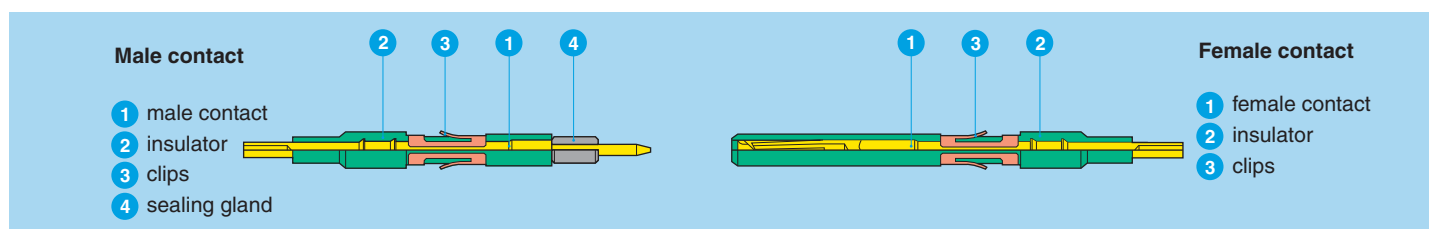


Part Section Showing Internal Components

Connector



HV Contact



Technical characteristics

Mechanical and climatical

| Characteristic | Value | Standard |
|-------------------------|---------------------|----------------------|
| Contact retention force | 40 N | IEC 60512-8 test 15a |
| Working temperature | -20 °C to +125°C | |
| Mechanical life | > 100 cycles | IEC 60512-5 test 9a |
| Climatic class | 20/125/21 | IEC 60068-1 |
| Radiation resistance | >10 ⁶ Gy | |

Electrical characteristics

| Characteristic | Value | Standard |
|---------------------------------|----------------------|---------------------|
| Test voltage d.c. ¹⁾ | 12 kV (1 min.) | IEC 60512-2 test 4a |
| Rated current | 4 A | IEC 60512-3 test 5a |
| Contact resistance | ≤ 8 mΩ | IEC 60512-2 test 2a |
| Screen resistance | ≤150 mΩ | IEC 60512-2 test 2f |
| Insulation resistance | ≥ 10 ¹² Ω | IEC 60512-2 test 3a |

Note: ¹⁾ specific assembly instructions shall be respected.

Materials and Treatment – Connector

| Component | Material (standard) | Surface treatment (µm) |
|-------------------------|---------------------|------------------------|
| | | Ni |
| Outershell + collet nut | Aluminium (AA 6012) | Anodized natural |
| Safety nut | Aluminium (AA 6012) | Anodized red |
| Earthing crown | Aluminium special | 5 |
| Latch sleeve | Aluminium special | 5 |
| Round and conical nut | Aluminium (AA 6012) | Anodized natural |
| Insulator | PEEK | – |
| Other metallic pieces | Aluminium | Anodized natural |

Contact

| Component | Material (standard) | Surface treatment (µm) | | |
|----------------|---------------------|------------------------|----|-----|
| | | Cu | Ni | Au |
| Male contact | Brass (UNS C38500) | 0.5 | 3 | 1.0 |
| Female contact | Bronze (UNS C54400) | 0.5 | 3 | 1.5 |
| Contact clips | Cu-Be (QQ-C-530) | – | | |
| Insulator | PEEK | – | | |
| Sealing gland | Silicone PVMQ | – | | |

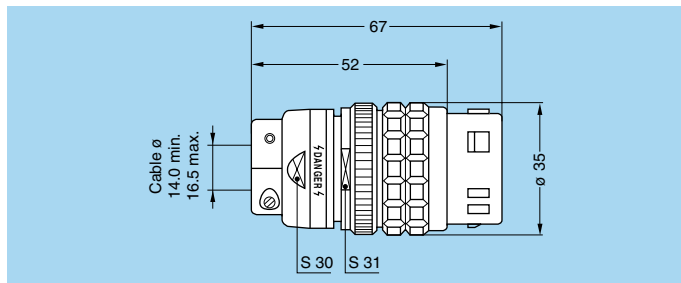
Alignment key and polarized keying system

| <p>Front view of a socket</p> | Ref. | Dot Colour | Angle | | | | HV contact type | |
|-------------------------------|------|------------|----------|---------|----------|----------|-----------------|--------|
| | | | α | β | γ | δ | Plug | Socket |
| | ●●R | yellow | 110° | 105° | 25° | 35° | male | female |
| ●●W | red | 95° | 115° | 20° | 30° | female | male | |

Models



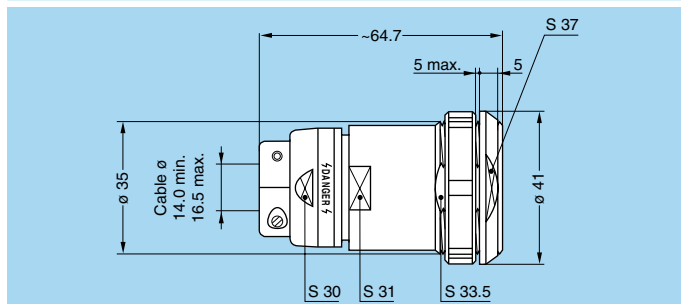
FG Straight plug with keys (code R or W), cable clamp-collet and safety nut



| Part Number | Cable Group |
|--------------------|-------------|
| FGR.5G.450.LLAY5T1 | 1 |
| FGR.5G.450.LLAY5T2 | 2 |
| FGW.5G.450.LLLY5T1 | 1 |
| FGW.5G.450.LLLY5T2 | 2 |



PH Fixed socket with keys (code R or W), cable clamp-collet, 2 nuts fixing (back panel mounting)

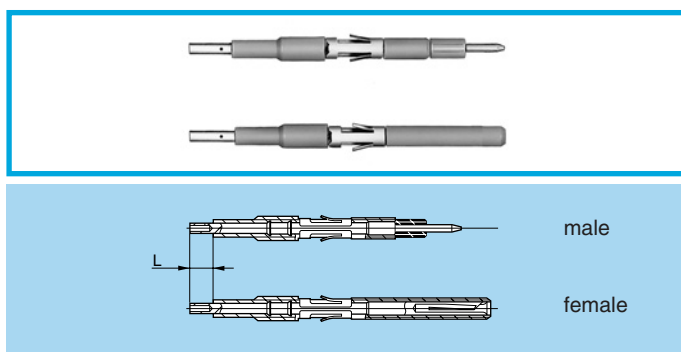


| Part Number | Cable Group |
|--------------------|-------------|
| PHR.5G.450.LLLY5T1 | 1 |
| PHR.5G.450.LLLY5T2 | 2 |
| PHW.5G.450.LLAY5T1 | 1 |
| PHW.5G.450.LLAY5T2 | 2 |

Recommended high voltage cables

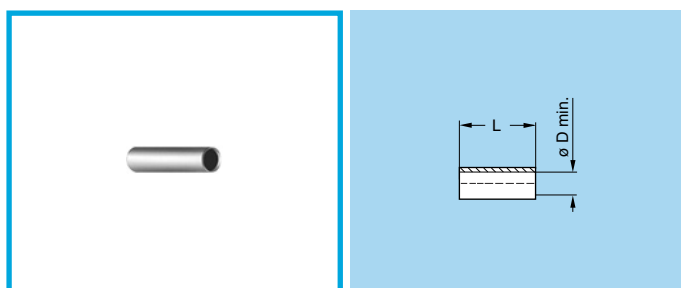
| Cable group | Manufacturer Part Number | CERN Type | Type/Nb. of conductor | Construction and dimensions | | | | | | | | |
|-------------|---|-------------------|-----------------------|-----------------------------|------|--------|------------|--------|-----------------------------|-------------|--------|---------------|
| | | | | Conductor | | | Dielectric | | Screen | Sheath | | Corona screen |
| | | | | Constr. | Mat. | ϕ | Mat. | ϕ | Mat. | Mat. | ϕ | |
| 1 | SILISOL CEPMB - 56x0.12 mm ² | | Multi/56 | 7x0.15 | CuSn | 0.45 | PE | 1.5 | CuSn + Alu | Silic | 14.5 | no |
| 1 | ABBNK - 45/94 | HTC 50-1-1 | Mono/1 | 7x0.17 | CuSn | 0.51 | PE solid | 1.5 | CuSn 16x4x0.1 | Polyolefine | 3.3 | yes |
| 2 | HABIA 31789-004-001 | HFI 150 mini coax | Mono/1 | Mono | Cu | 0.16 | HFI 150 | 0.5 | Drain 2x0.1 + Alu polyester | HFI 150 | 1.15 | no |

Accessories



FFA-ERA HV Contacts

| Contact Part Number | | Cable group | L (mm) |
|---------------------|-----------------|-------------|--------|
| Male contact | Female contact | | |
| FFA.05.403.ZLA1 | ERA.05.403.ZLL1 | 1 | 4 |
| FFA.05.403.ZLA2 | ERA.05.403.ZLL2 | 2 | 6 |



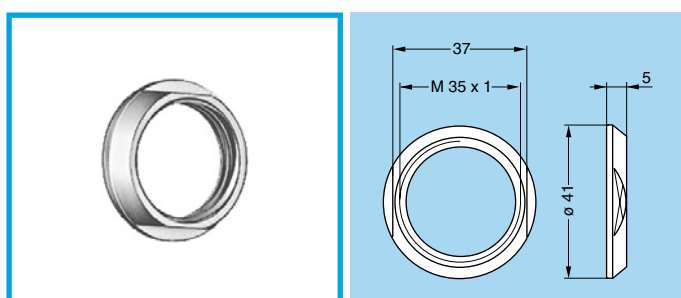
GMA Heatshrink tube

Shall be ordered separately

| Part number | Cable group | Supplier | | øD (mm) | L (mm) |
|---------------|-------------|----------|-------------------|---------|--------|
| | | Name | Product reference | | |
| GMA.30.010.ST | 1+2 | RAYCHEM® | RNF 3000 3/1 | 3.0 | 13 |
| GMA.15.010.ST | 2 | RAYCHEM® | RNF 3000 1.5/0.5 | 1.5 | 9 |

Note: for cable group 2, the two heatshrink tubes are necessary

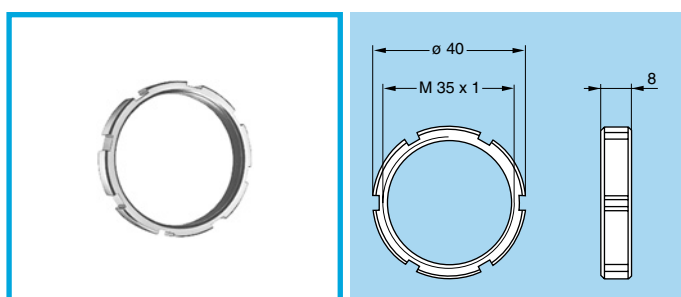
- Material: Polyolefin transparent



GEC Conical nut

| Part number |
|---------------|
| GEC.5G.240.PT |

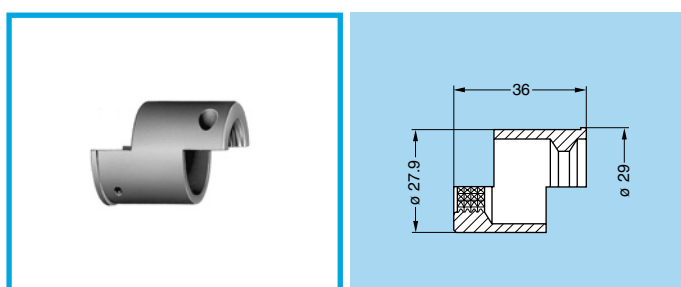
- Material: Aluminium alloy (AA6012) natural anodized



GEB Round nut

| Part number |
|---------------|
| GEB.5G.240.PT |

- Material: Aluminium alloy (AA6012) natural anodized



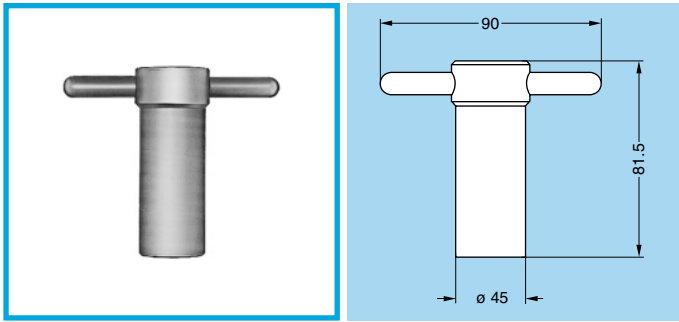
FGG Extension piece

| Part Number |
|---------------|
| FGG.5G.815.PN |

Note: allows an extension of the plug or the socket to make cable stripping and mounting easier when weight and size are not critical

- Material: Aluminium alloy (AA6012) natural anodized

Tooling

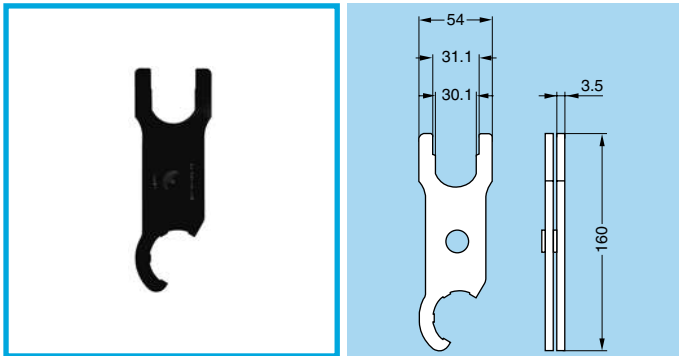


DCH Spanner for conical nut

Part Number

DCH.91.418.0TN

- Material: Blackened steel.

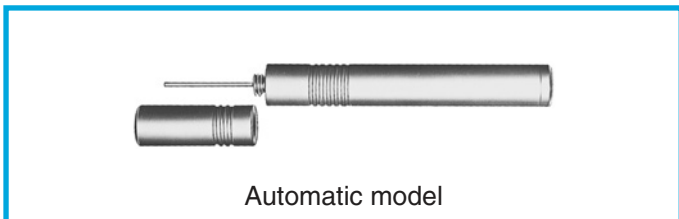


DCP Set of flat spanners for collet nuts and round nuts

Part Number

DCP.91.005.TN

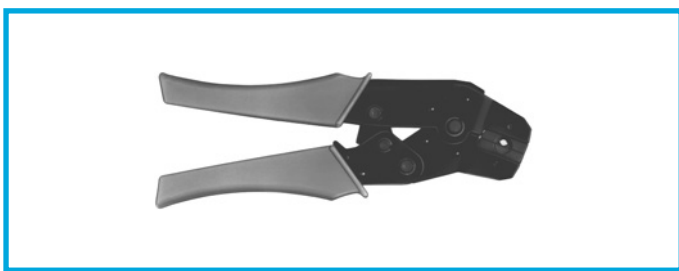
- Material: Blackened steel.



DCF Extraction tools for HV contacts

Part Number

DCF.91.133.5LT

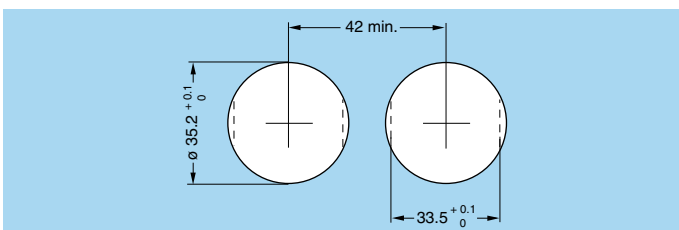


DPH Crimping tool with die and positioner

| Part Number | Applications | Cable group | Marking on die |
|----------------|----------------|-------------|----------------|
| DPH.99.005.2K | shield | 1-2 | DPH.91.005.2K |
| DPH.99.060.11K | centre contact | 1 | DPH.91.001.16K |
| DPH.99.065.11K | centre contact | 2 | DPK.91.001.16K |

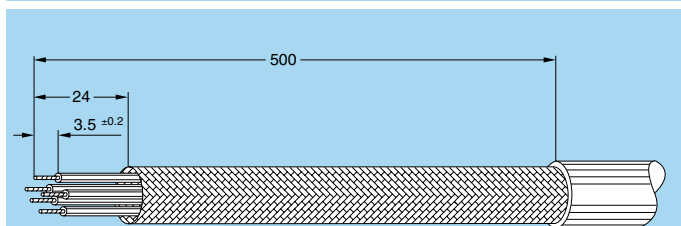
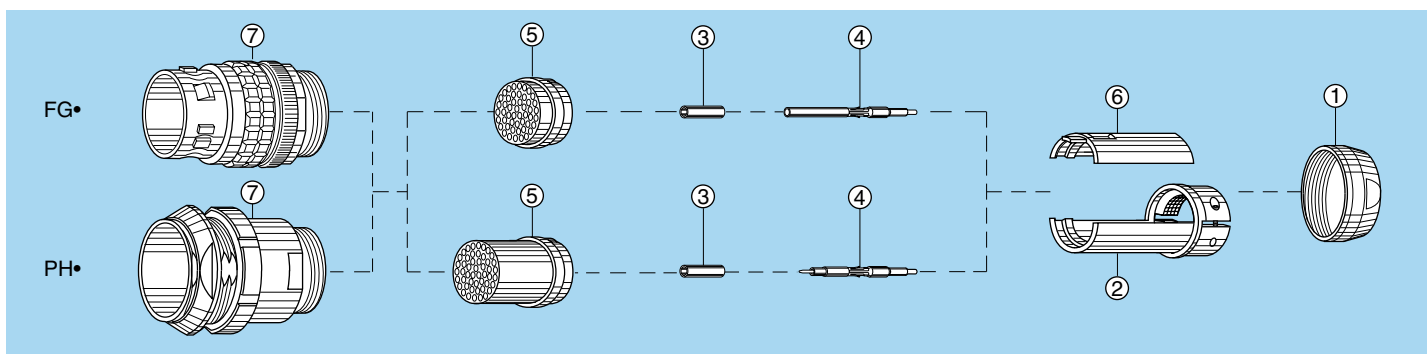
Note: DPN Dies and positioner: See 05 series data sheet.

Panel cut-out

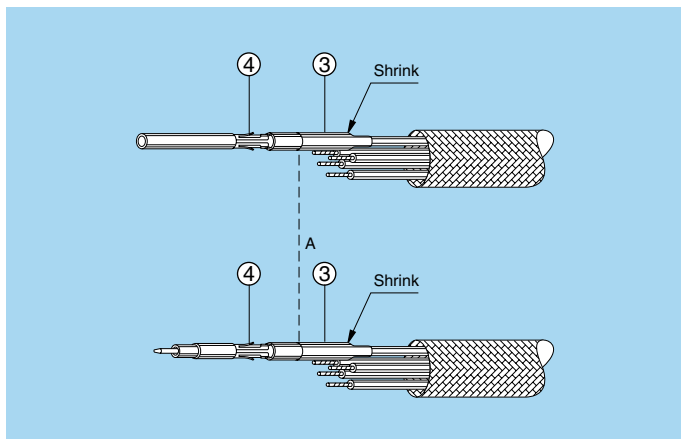
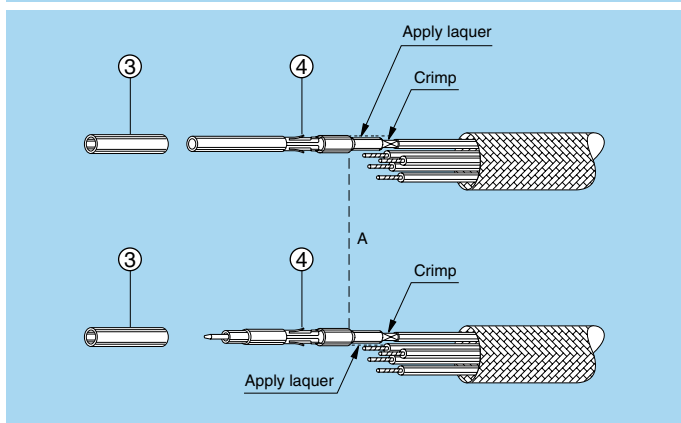
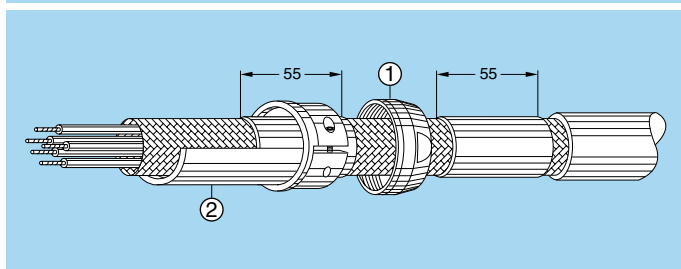


Recommended mounting nut torque: 7 Nm.

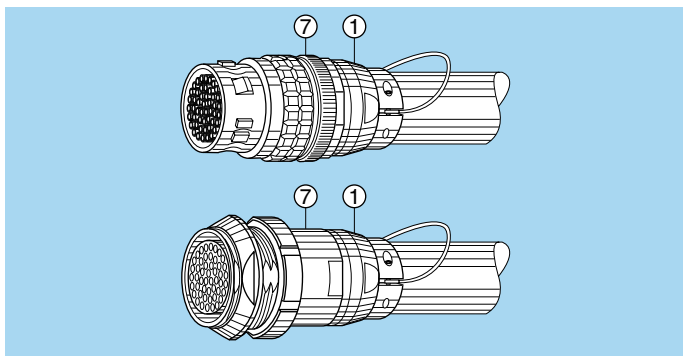
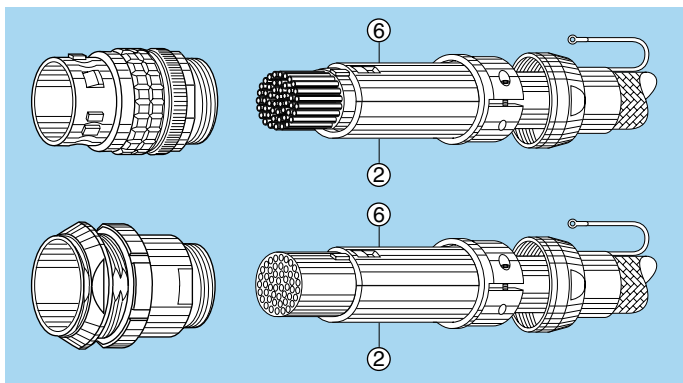
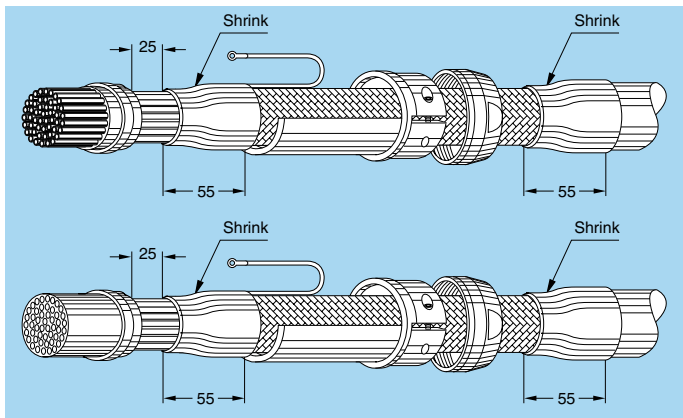
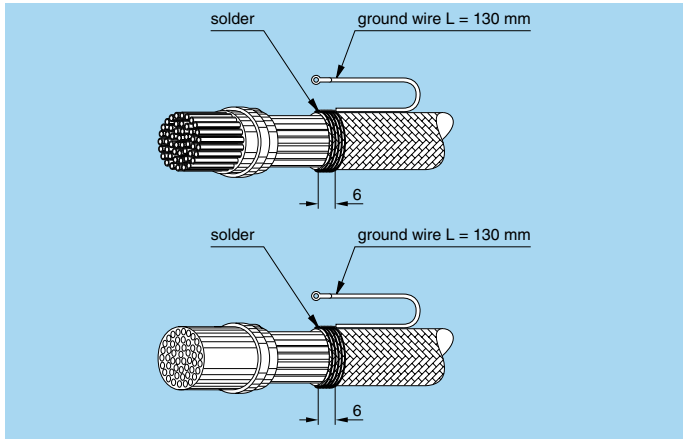
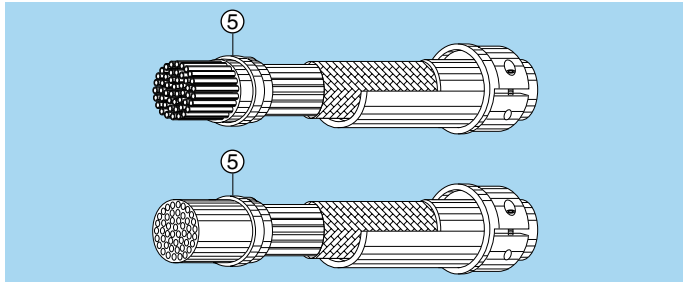
Termination Instructions Cable Group 1 (multi HT cable)



Dimensions in mm.



1. Strip the cable according to the given dimensions. A 500 mm length is necessary to give enough flexibility to the cable. Remove first the outer jacket and the screen then the dielectric of each individual high-voltage conductor, making sure that the cable dielectric is not damaged.
2. Slide 2 pieces of 55mm heat-shrink tubing, (not supplied) of the correct size, the clamp collet nut ① and the adapter with cable collet ② on the cable.
3. For each individual high-voltage conductor install a HV contact as follow:
 - 3.1 Introduce the cable center conductor into the HV contact ④ until the conductor end rests against the dielectric and the conductor is visible through the contact inspection hole. Crimp with the LEMO crimping tool DPH.99.060.11K. Cover the crimp section of the contact and the Peek end of the HV contact with a layer of insulating laquer. Let the laquer dry, approx. 15 min.
Note: We recommend the laquer Urethan ref: Cellpack n° 912110
 - 3.2 Slide the heatshrink tube ③ over the HV contact until it rests against the contact insulator. One end of the heatshrink tube shall be located at the position A of the HV contact insulator. Shrink the tube.



4. Fully introduce the HV contacts into the insulator ⑤.
 - The short insulator shall be fitted with the female HV contacts.
 - The long insulator shall be fitted with the male HV contacts.
 Check that the contacts are correctly located and remains in position when given a gentle pull.

5. Install a ground wire (not supplied) as follow:

- 5.1 Wrap a tin copper wire 0.5 mm² over a 6 mm length of the cable screen and hold the ground wire as shown. Then solder. Solder an earthing washer with a 3.5 mm hole on the other side.

- 5.2 Cover the end of the cable screen with the first heat-shrink tube and the end of the cable jacket with the second heat-shrink tube, then shrink.

6. Push the adapter with cable collet ② forward over the cable until the insulator locate into the groove on the adapter. Then fit the keyed mid-piece ⑥ onto the insulator, make sure that the key of the insulator is correctly located into the key of the mid-piece.

7. Next slide the connector shell ⑦ over the insulator assembly making sure that the key on the keyed mid piece goes into the key-way (under the color point/inside the shell).
 - Note that the HV contact type shall be respected depending upon the keying code as indicated on page 10.

Screw the collet nut ① and tighten to the maximum torque value of 4 Nm.

Tight the two screws of the adapter and in between on an appropriate manner the washer of the ground wire.



K and S Series Connectors

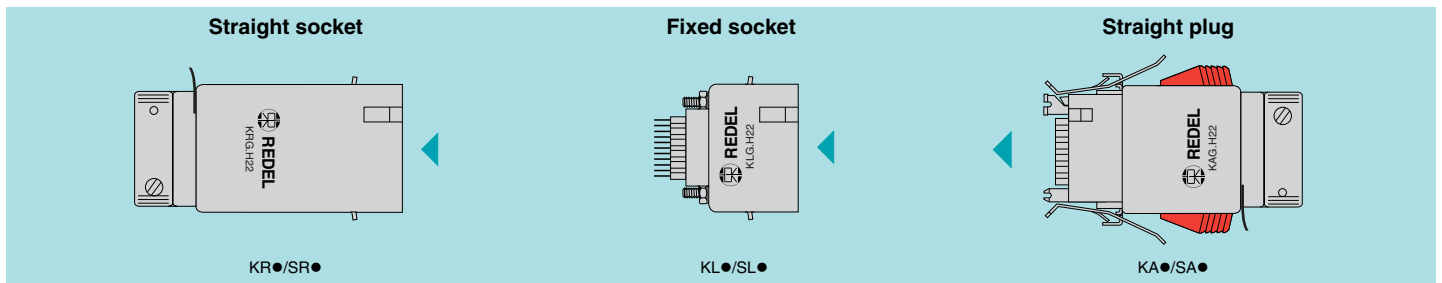


High voltage rectangular connectors of the new K and S series have been specially developed to meet the requirements of the "ATLAS" experimental nuclear research programme at the CERN.

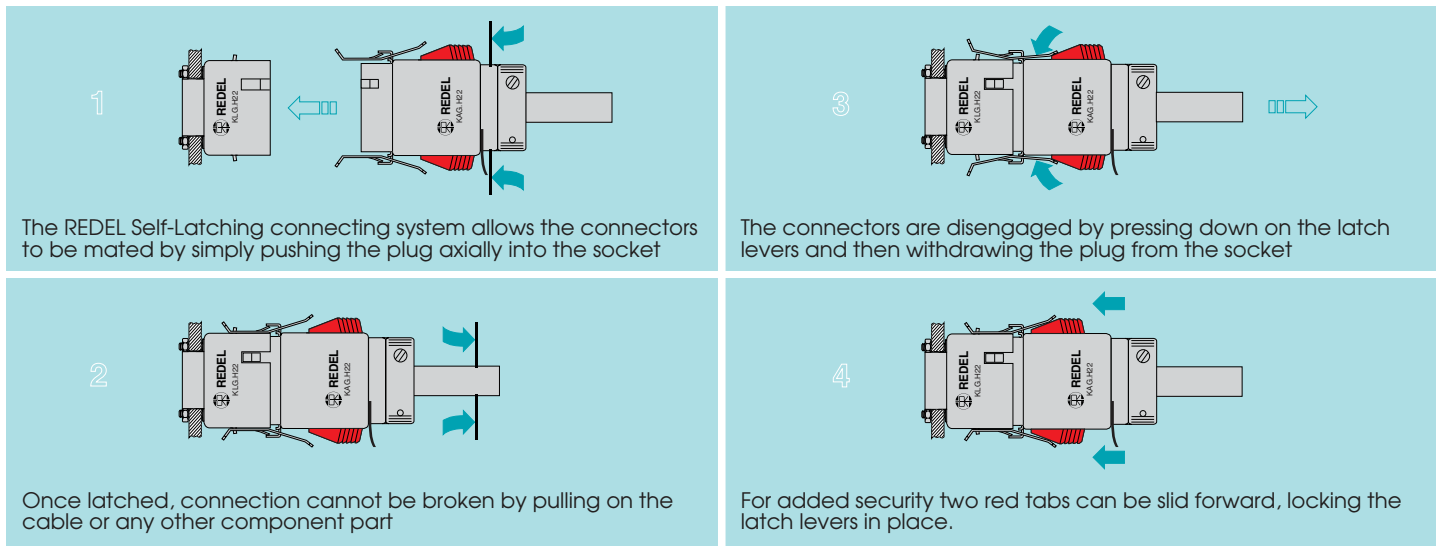
The K series contains 22 miniature HV contacts (12kV d.c. test voltage).

The S series contains 51 miniature HV contacts (12kV d.c. test voltage). These crimp contacts are removable from the shell and are inserted in a PEEK insulator. The mating is assured by guide pins and sleeves. Two red sliding tabs secure the connection by locking a pair of levers to a bracket mounted on the housing. The rectangular design of these connectors makes them ideal for applications where space saving is critical; for example on narrow panels.

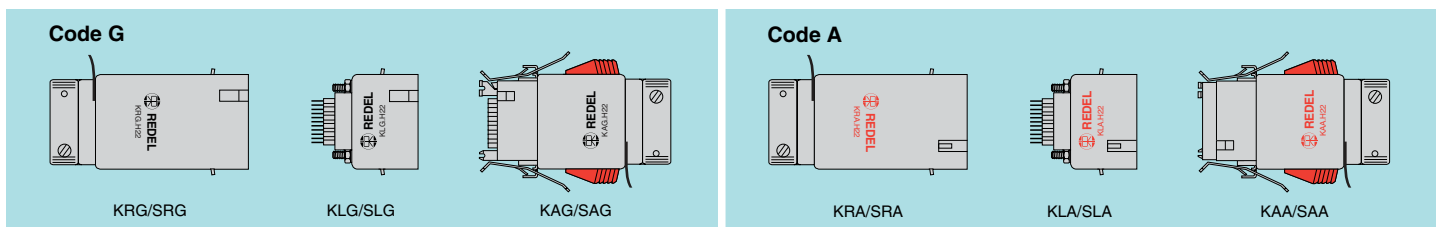
INTERCONNECTION



SELF-LATCHING CONNECTING SYSTEM

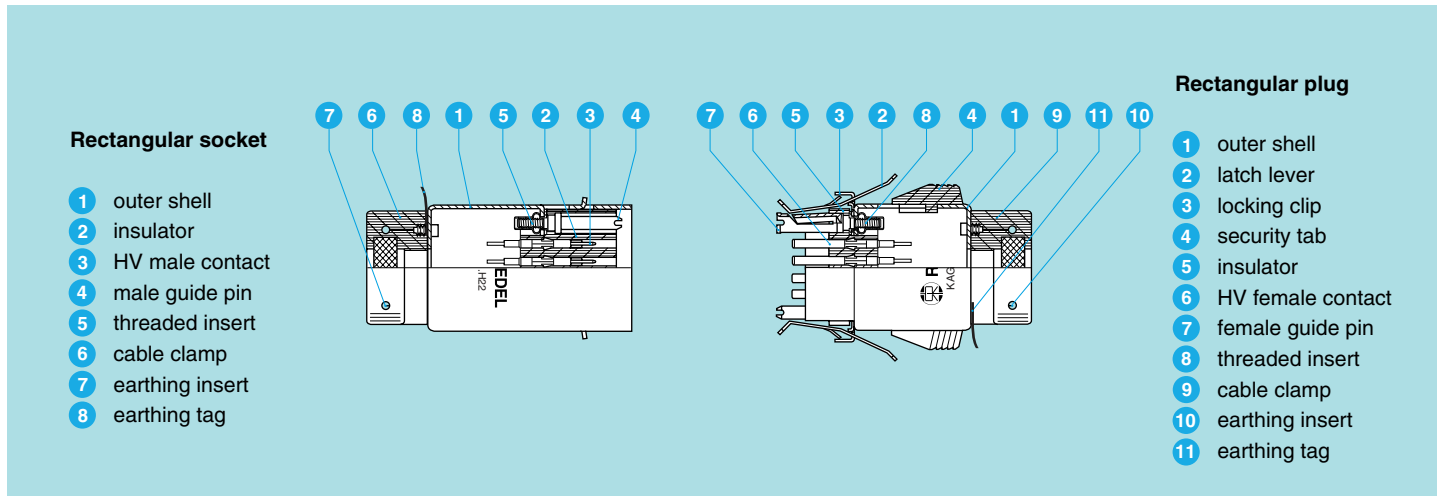


ALIGNMENT KEY

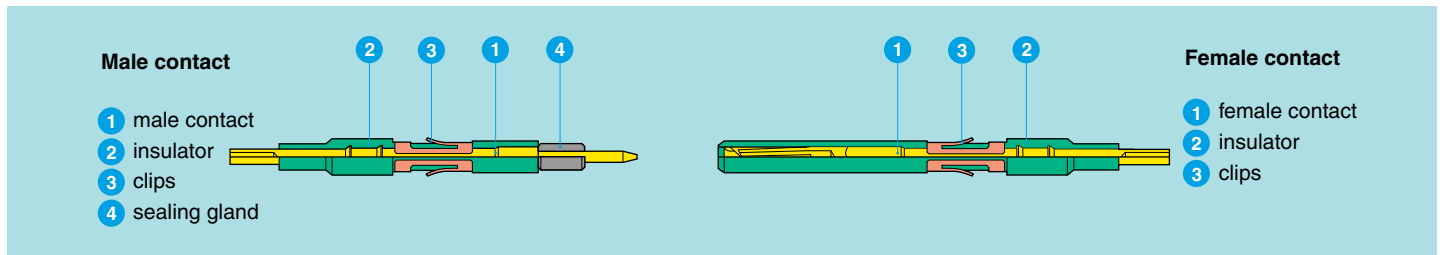


PART SECTION SHOWING INTERNAL COMPONENTS

Connector



HV Contact



TECHNICAL CHARACTERISTICS

Mechanical and climatical

| Characteristic | Value | Standard |
|-------------------------|----------------------|----------------------|
| Contact retention force | 40 N | IEC 60512-8 test 15a |
| Working temperature | -20 °C to +125°C | |
| Mechanical life | > 100 cycles | IEC 60512-5 test 9a |
| Climatic class | 20/125/21 | IEC 60068-1 |
| Radiation resistance | > 10 ⁶ Gy | |

Electrical characteristics

| Characteristic | Value | Standard |
|---------------------------------|----------------------|---------------------|
| Test voltage d.c. ¹⁾ | 9/12 kV (1 min.) | IEC 60512-2 test 4a |
| Rated current | 4 A | IEC 60512-3 test 5a |
| Contact resistance | ≤ 8 mΩ | IEC 60512-2 test 2a |
| Screen resistance | ≤ 150 mΩ | IEC 60512-2 test 2f |
| Insulation resistance | ≥ 10 ¹² Ω | IEC 60512-2 test 3a |

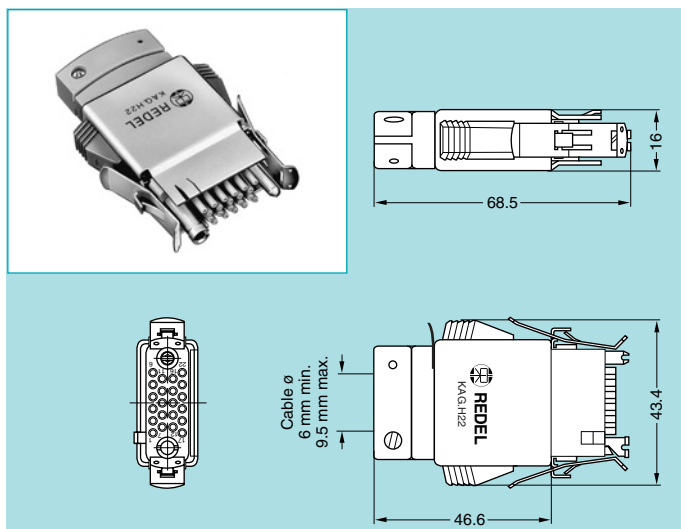
Note: ¹⁾ specific assembly instructions shall be respected.
 9 kV dc apply to the pair KA●/KL● and SA●/SL●.
 12 kV dc apply to the pair KA●/KR● and SA●/SR●.

Materials and Treatment – Connector

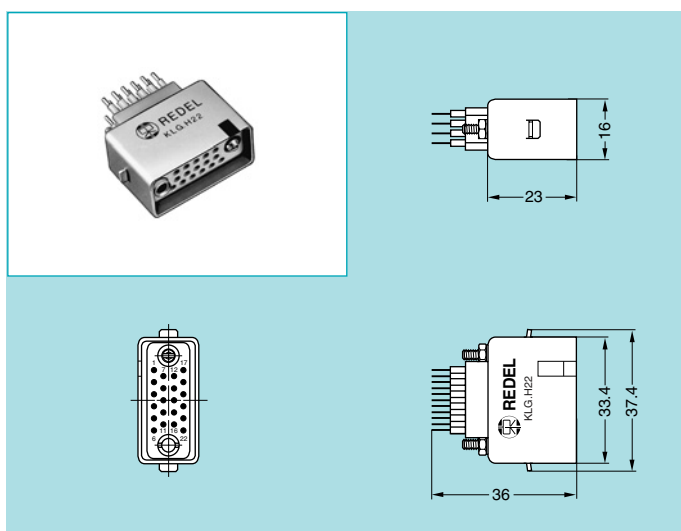
| Component | Material (standard) | Surface treatment (µm) |
|----------------------|---------------------|------------------------|
| | | Ni |
| Outershell | Aluminium | 5 |
| Latching mechanism | Bronze | 5 |
| Insulator | PEEK | – |
| cable clamp | PSU | – |
| Other met. pieces | Stainless Steel | – |
| Other plastic pieces | PSU | – |

Contact

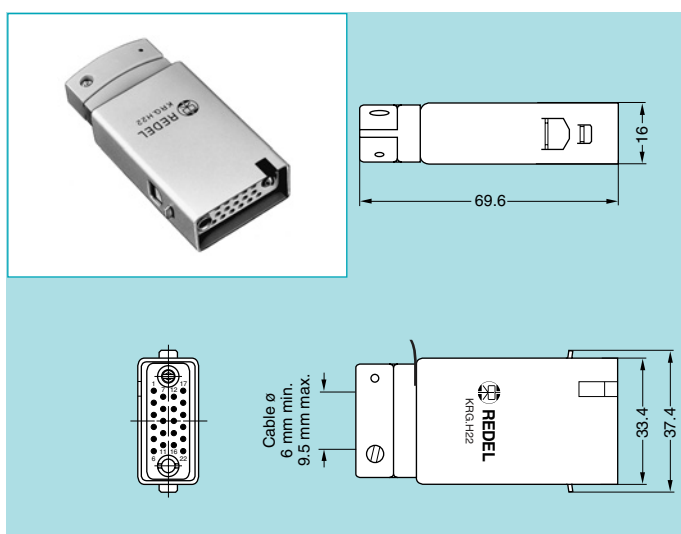
| Component | Material (standard) | Surface treatment (µm) | | |
|----------------|---------------------|------------------------|----|-----|
| | | Cu | Ni | Au |
| Male contact | Brass (UNS C38500) | 0.5 | 3 | 1.0 |
| Female contact | Bronze (UNS C54400) | 0.5 | 3 | 1.5 |
| Contact clips | Cu-Be (QQ-C-530) | – | | |
| Insulator | PEEK | – | | |
| Sealing gland | Silicone PVMQ | – | | |

MODELS K series (22 contacts)

KA● Straight plug with key (code G or A) and cable collet

| Part Number | Cable Group | Contact Type | Marking |
|----------------|-------------|--------------|---------|
| KAG.H22.LLZBG | no contact | female | black |
| KAA.H22.LLZBG | | male | red |
| KAG.H22.LLLB1G | 1 | female | black |
| KAA.H22.LLAB1G | | male | red |
| KAG.H22.LLLB2G | 2 | female | black |
| KAA.H22.LLAB2G | | male | red |

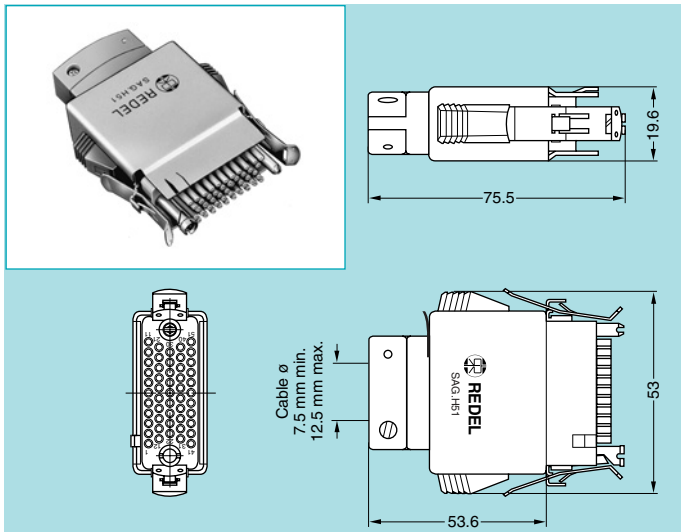

KL● Fixed socket with key (code G or A), two screw fixing

| Part Number | Cable Group | Contact Type | Marking |
|---------------|-------------|--------------|---------|
| KLK.H22.LLZG | no contact | male | black |
| KLA.H22.LLZG | | female | red |
| KLK.H22.LLA1G | 1 | male | black |
| KLA.H22.LLL1G | | female | red |
| KLK.H22.LLA2G | 2 | male | black |
| KLA.H22.LLL2G | | female | red |


KR● Straight socket with key (code G or A) and cable collet

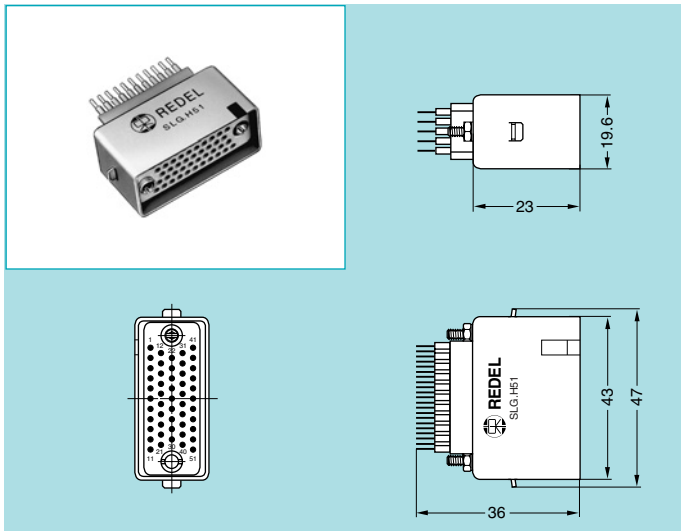
| Part Number | Cable Group | Contact Type | Marking |
|----------------|-------------|--------------|---------|
| KRG.H22.LLZBG | no contact | male | black |
| KRA.H22.LLZBG | | female | red |
| KRG.H22.LLAB1G | 1 | male | black |
| KRA.H22.LLLB1G | | female | red |
| KRG.H22.LLAB2G | 2 | male | black |
| KRA.H22.LLLB2G | | female | red |

MODELS S series (51 contacts)



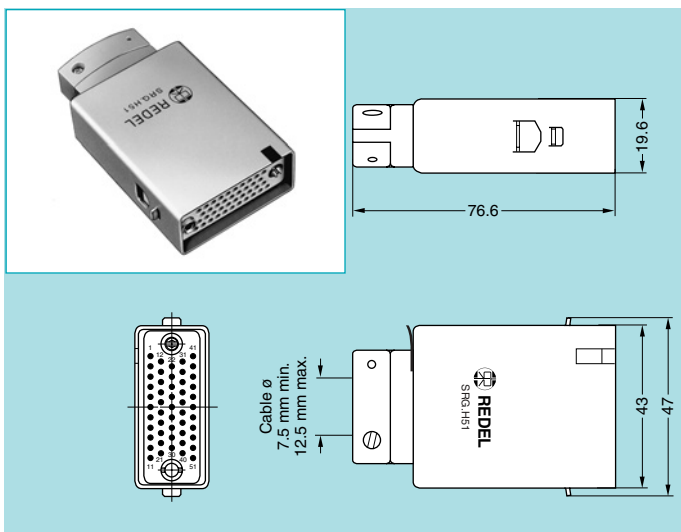
SA Straight plug with key (code G or A) and cable collet

| Part Number | Cable Group | Contact Type | Marking |
|----------------|-------------|--------------|---------|
| SAG.H51.LLZBG | no contact | female | black |
| SAA.H51.LLZBG | | male | red |
| SAG.H51.LLLB1G | 1 | female | black |
| SAA.H51.LLAB1G | | male | red |
| SAG.H51.LLLB2G | 2 | female | black |
| SAA.H51.LLAB2G | | male | red |



SL Fixed socket with key (code G or A), two screw fixing

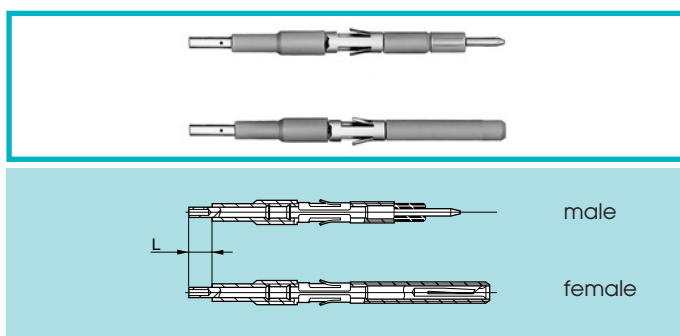
| Part Number | Cable Group | Contact Type | Marking |
|---------------|-------------|--------------|---------|
| SLG.H51.LLZG | no contact | male | black |
| SLA.H51.LLZG | | female | red |
| SLG.H51.LLA1G | 1 | male | black |
| SLA.H51.LLL1G | | female | red |
| SLG.H51.LLA2G | 2 | male | black |
| SLA.H51.LLL2G | | female | red |



SR Straight socket with key (code G or A) and cable collet

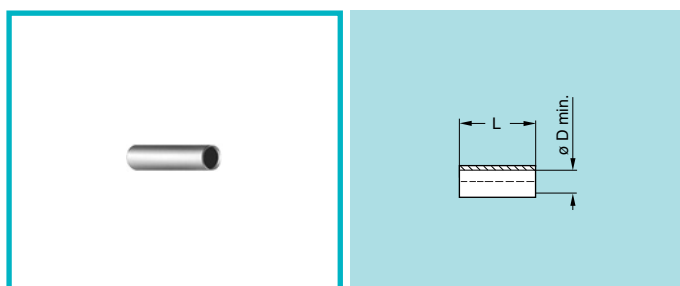
| Part Number | Cable Group | Contact Type | Marking |
|----------------|-------------|--------------|---------|
| SRG.H51.LLZBG | no contact | male | black |
| SRA.H51.LLZBG | | female | red |
| SRG.H51.LLAB1G | 1 | male | black |
| SRA.H51.LLLB1G | | female | red |
| SRG.H51.LLAB2G | 2 | male | black |
| SRA.H51.LLLB2G | | female | red |

ACCESSORIES



FFA-ERA High Voltage Contacts

| Contact Part Number | | Cable group | L (mm) |
|---------------------|-----------------|-------------|--------|
| Male contact | Female contact | | |
| FFA.05.403.ZLA1 | ERA.05.403.ZLL1 | 1 | 4 |
| FFA.05.403.ZLA2 | ERA.05.403.ZLL2 | 2 | 6 |



GMA Heatshrink tube

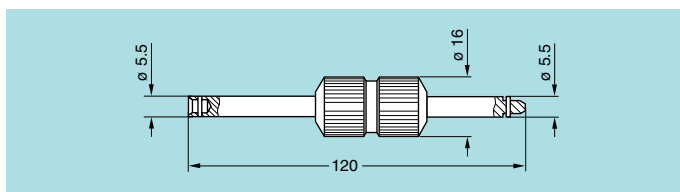
Shall be ordered separately

| Part number | Cable group | Supplier | | øD | L |
|---------------|-------------|----------|-------------------|-----|----|
| | | Name | Product reference | | |
| GMA.30.010.ST | 1 | RAYCHEM® | RNF 3000 3/1 | 3.0 | 13 |
| GMA.15.010.ST | 2 | RAYCHEM® | RNF 3000 1.5/0.5 | 1.5 | 9 |

Note: for cable group 2, the two heatshrink tubes are necessary

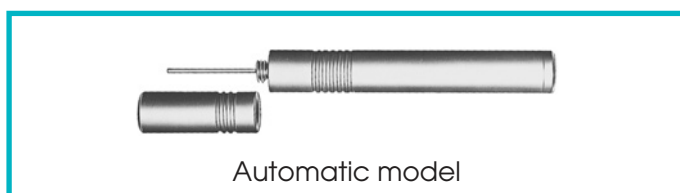
- Material: Polyolefine transparent

TOOLING



DCT Assembly tool for guide pins

| Part Number |
|----------------|
| DCT.91.551.0LA |



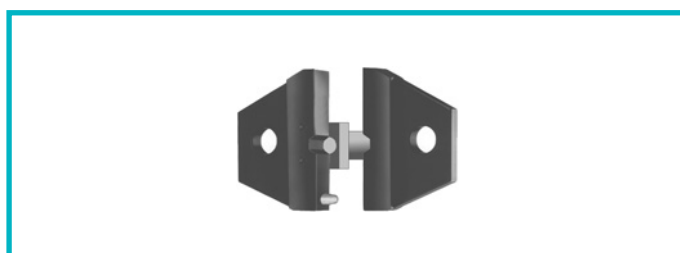
DCF Extraction tools for HV contacts

| Part Number |
|----------------|
| DCF.91.133.5LT |



DPH Crimping tool with die and positioner

| Part Number | Applications | Cable group | Marking on die |
|----------------|----------------|-------------|----------------|
| DPH.99.005.2K | shield | 1-2 | DPH.91.005.2K |
| DPH.99.060.11K | centre contact | 1 | DPH.91.001.16K |
| DPH.99.065.11K | centre contact | 2 | DPK.91.001.16K |

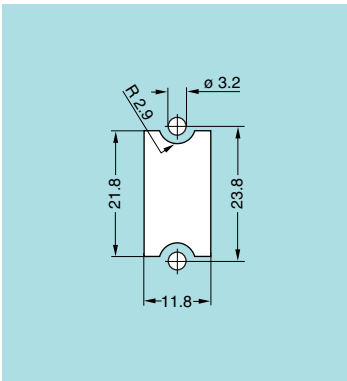


DPN Dies and positioner

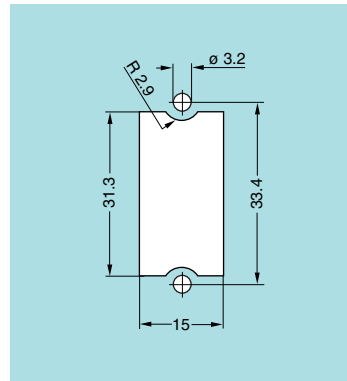
| Part Number | Applications | Cable group | Marking on die |
|----------------|----------------|-------------|----------------|
| DPN.99.005.2K | shield | 1-2 | DPH.91.005.2K |
| DPN.99.060.11K | centre contact | 1 | DPH.91.001.16K |
| DPN.99.065.11K | centre contact | 2 | DPK.91.001.16K |

- Dies material: Blackened steel

PANEL CUT-OUT



K series



S series

RECOMMENDED CABLES

| Cable group | Manufacturer Part Number | CERN Type | Type/Nb. of conductor | Construction and dimensions | | | | | | | | |
|-------------|---|----------------------|-----------------------|-----------------------------|------|------|------------|-----|-----------------------------------|------------------|------|---------------|
| | | | | Conductor | | | Dielectric | | Screen | Sheath | | Corona screen |
| | | | | Constr. | Mat. | ∅ | Mat. | ∅ | Mat. | Mat. | ∅ | |
| 1 | SILISOL CEPMB - 56x0.12 mm ² | | Multi/56 | 7x0.15 | CuSn | 0.45 | PE | 1.5 | CuSn + Alu | Silic | 14.5 | no |
| 1 | ABBnk - 45/94 | HTC 50-1-1 | Mono/1 | 7x0.17 | CuSn | 0.51 | PE solid | 1.5 | CuSn 16x4x0.1 | Polyo- lefine | 3.3 | yes |
| 2 | HABIA 31789-004-001 | HFI 150 mini coax | Mono/1 | Mono | Cu | 0.16 | HFI 150 | 0.5 | Drain 2x0.1 + Alu polyester | HFI 150 | 1.15 | no |

EARTHING CONTACT

Usually, some H.V. contacts are used to connect earthing from the cable shield to the instrument panel. For such earthing connection it is also possible to use L.V. crimp contacts. With a crimp barrel of 1,4 mm, these contacts can be used with wires AWG 18-20.

| Connector models | Contact type | Contact part number | Crimp hole ∅ | AWG range | Positioner part number | Selector position | Crimp tool part number |
|-------------------------|--------------|---------------------|--------------|-----------|------------------------|-------------------|----------------------------|
| KAG-KLA-KRA-SAG-SLA-SRA | male | KAG.565.ZZC | 1.4 mm | 18-20 | DCE.91.132.BVC | 8 - 7 | DPC.91.701.V ¹⁾ |
| KAA-KLG-KRG-SAA-SLG-SRG | female | EGG.3B.665.ZZM | 1.4 mm | 18-20 | DCE.91.133.BVM | 8 - 7 | |
| KAG-KLA-KRA-SAG-SLA-SRA | male | KAG.567.ZZC | 0.8 mm | 22-24-26 | DCE.91.132.BVC | 6 - 5 - 5 | |
| KAA-KLG-KRG-SAA-SLG-SRG | female | EGG.3B.667.ZZM | 0.8 mm | 22-24-26 | DCE.91.133.BVM | 6 - 5 - 5 | |

Note: 1) according to specification MIL-C-22520/7-01

Termination instructions

Refer to 05 series (page 6 & 7) for each individual H.V. contacts



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