



## Glovebox Hermetic Feedthrough with Replaceable Core

The ULC feedthrough with replaceable core ensures the glovebox remains hermetically sealed whatever its life phase, during normal usage and maintenance

- Replaceable core** ■ For maintenance  
To allow for connector configuration changes  
To simplify the design of complex gloveboxes
- Hermetic** ■ Leakage rate  $\leq 10^{-6}$  atm.cm<sup>3</sup>/s (pushthrough)
- Large range** ■ 3 shell sizes  
Multipin signal & power, thermocouple, coaxial
- Quick connect** ■ Push-Pull coupling system



## Description

- New generation of ULC feedthrough connector with an exclusive safe maintenance system
- 3 sizes available (3, 4, 5)

## Application

- Gloveboxes where signal and power transmission through the box wall is required

## Certification & Quality program

- UL1977 listed
- NQA-1 program

## Technical features

### Electrical

- **Plug contacts:**  
Signal & Power: Crimp removable/  
optional solder fixed  
Thermocouple: Solder fixed  
Coaxial
- **Insulation resistance:**  
5GΩ under 500 Vdc (unmated)

### Mechanical

- **Endurance:**  
500 mating / unmating of plug on  
feedthrough  
50 core replacements

### Environmental

- **Temperature range:**  
-15 to + 90°C
- **Salt spray resistance:**  
500 hours
- **Plug sealing:**  
Crimp contacts: IP55 (unmated),  
IP68 Immersion resistance to 2 bars  
(mated)  
Solder contacts: IP68 (unmated and  
mated)
- **Feedthrough hermeticity:**  
Helium leakage rate  
≤ 10<sup>-6</sup> atm cm<sup>3</sup>/s under 1 bar of  
differential pressure  
100% controlled before shipment

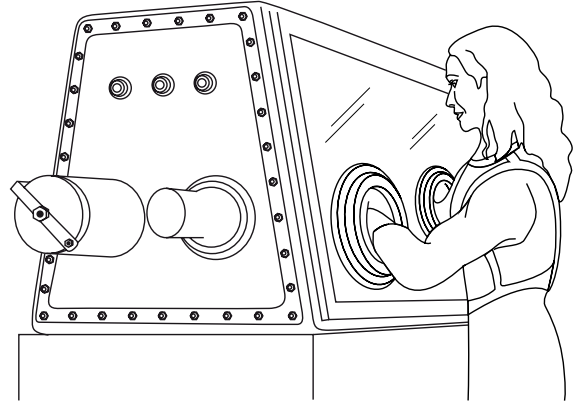
| Materials & plating | Feedthrough and plug component |           |        |             |                                       |                                  |
|---------------------|--------------------------------|-----------|--------|-------------|---------------------------------------|----------------------------------|
|                     | Shells                         | Insulator | Seals  | Cable clamp | Other non-metallic internal materials | Contacts                         |
| Material            | Stainless steel                | PEEK      | Viton® | PEEK        | Nylatron®                             | Refer to details on page 9 to 12 |
| Plating             | Passivated                     | /         | /      | /           | /                                     |                                  |

## SOURIAU in the nuclear industry

### Field proven

#### A connector range dedicated to the nuclear industry

The ULC range has been installed in gloveboxes and hot cells around the world for decades. With standard and remote manipulated versions, this range addresses the high level of requirements associated with nuclear fuel production, fuel reprocessing and waste management industries, as well as experimental facilities.



### Approved quality assurance program

#### SOURIAU quality assurance program meets international & nuclear standards:

- ISO 9001/EN 9100
- ASME NQA-1 (10 CFR 50 App. B)

### UL certified

#### ULC connectors

The range of feedthrough with replaceable core is part of the SOURIAU ULC Series connectors that are recognized by Underwriters Laboratory Inc.® as compliant with the UL 1977 standard (Component Connectors for Use in Data, Signal, Control and Power Applications).



## Product overview

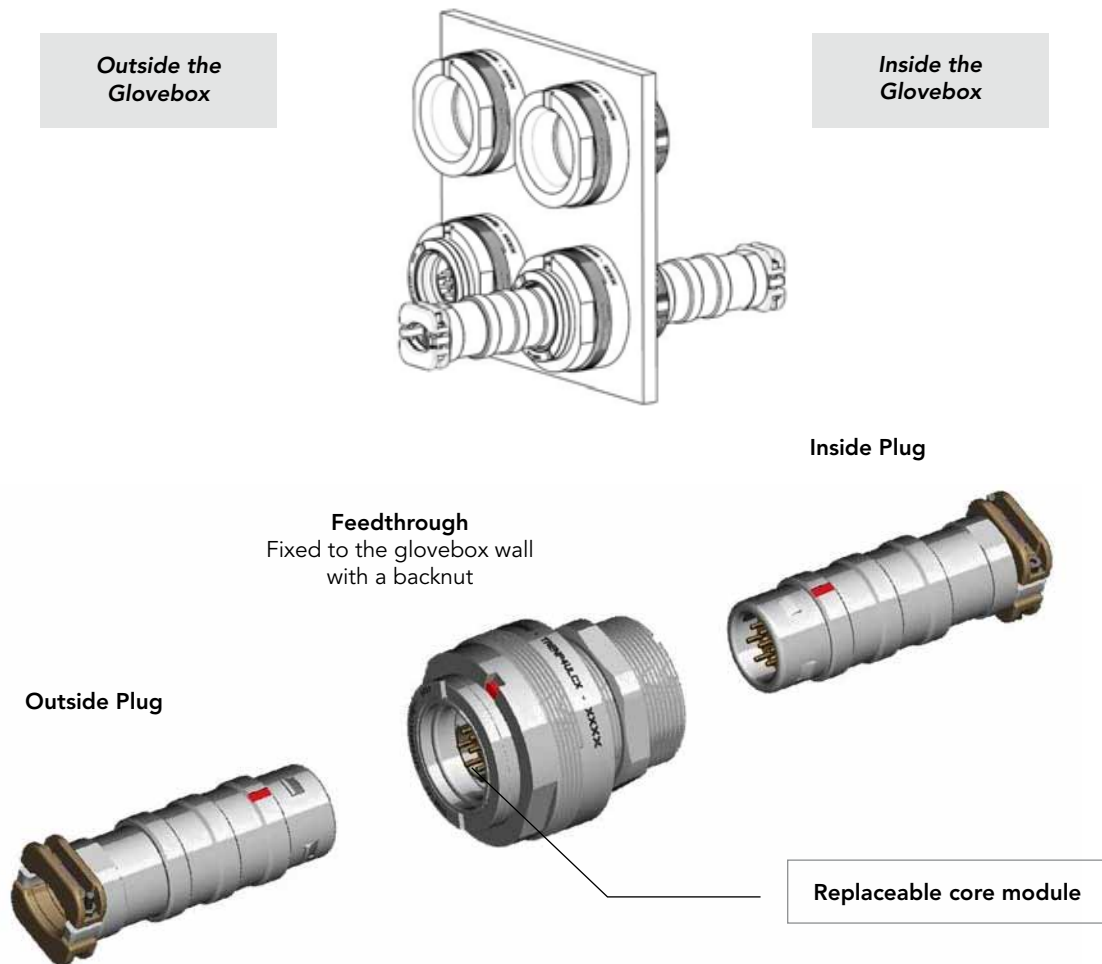
### General principle

A complete feedthrough system is composed of the feedthrough itself and two quick connect push-pull plugs.

The feedthrough features an easy and safe replaceable core that allows :

- Easier design of complex gloveboxes.  
At an early stage of the design, the connector size can be determined leaving the specification of the contact layout for a later phase. If spare feedthroughs are installed they will feature a dummy core (plug). The required contact layout will be mounted when needed by simply replacing the dummy shuttle.
- Layout adaptation to suit new needs.  
Should the need in term of sizes and number of contacts change, a new core with the adequate contact layout (within a same shell size) can be quickly installed.
- Easy maintenance of the system when insulator and/or contacts need to be replaced.

Maximize the availability of your installation by reducing the service time.

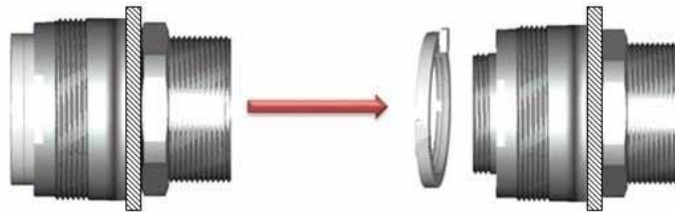


## Product overview

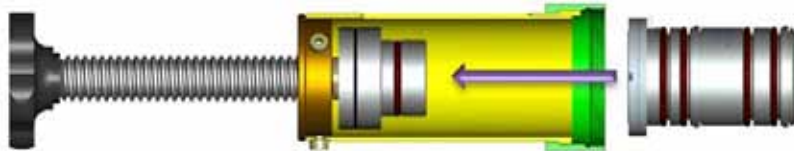
### Shuttle replacement process

Smooth replacement of the core module, by maintaining a high hermetic level  
(Leakage rate  $\leq 10^{-6}$  atm  $\text{cm}^3/\text{s}$ )

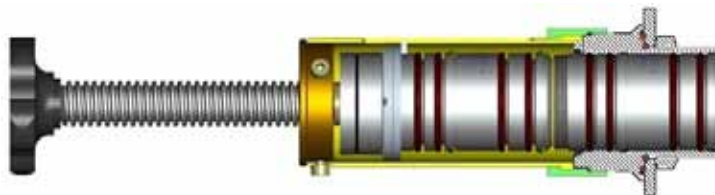
1) Unscrew the abutment nut



2) Install the new core in the tool



3) Screw the tool onto the feedthrough using the locking ring



4) There are four O rings on each shuttle to ensure that at least two are engaged at any point during the shuttle replacement process. This safety feature guarantees that the feedthrough remains hermetically sealed at all times

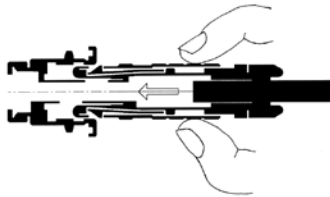


**A patented locking system allows the shuttle to move only in one direction and two O-rings maintain the high hermetic level at any time of the replacement process.**

## Product overview

### Push-Pull coupling plugs

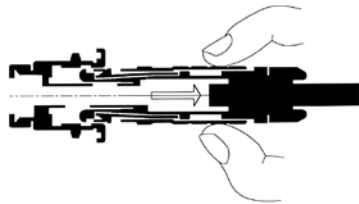
The ULC range is based on a reliable and safe Push-Pull system.



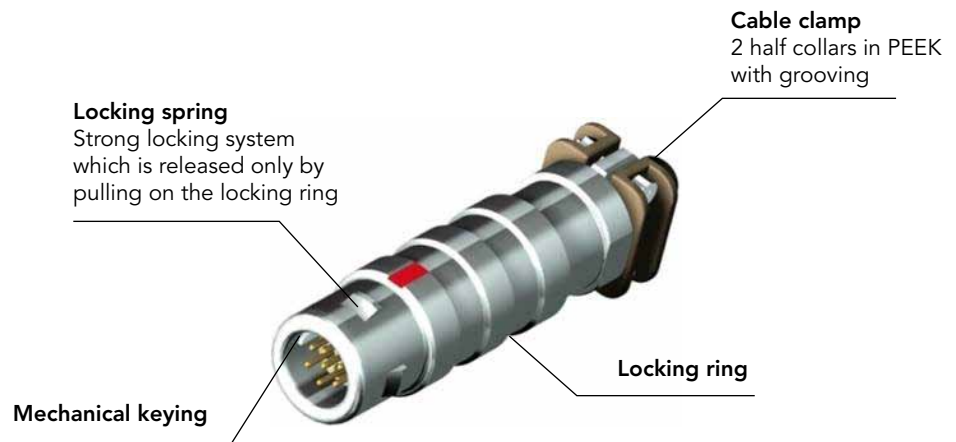
The latching of the plug into the receptacle is achieved by a simple axial push of the outer plug shell.



Connection can not be broken by pulling the cable or any other parts of the plug than the outer shell.



To unmate the plug from the receptacle, just pull the outer shell axially.



#### Easy to use

- Even with two pairs of gloves
- Self-locking mechanism

#### Quick to connect and disconnect

- A simple axial push/pull

#### Signal integrity ensured

- Secured against accidental disconnections

The outer shells are specially machined to ensure an easy handling/catching with gloves while ensuring the glove will not be damaged by sharp edges.

During the connection, contacts are mechanically protected by the connector housing.



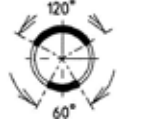



## Product overview

### Keying

The ULC feedthrough and plugs can be equipped with 6 different keyings:

- One glovebox can accommodate several ULC connectors of the same size and with the same contact layouts without any risk of a wrong mating. Six different keying options are available. Each specific pattern goes with a specific color marking on the plug and on the feedthrough. This line marking allows the operator to find the right orientation of the connector when connecting. The keying system uses a rigid sleeve that also protects the contacts during the mating process

- Patterns available (feedthrough front view):

| Keying code        | P1  | P2  | P3  | P4   | P5  | P6  |
|--------------------|---|---|---|--|---|---|
| Keying sector view |  |  |  |  |  |  |
| Color code         | Red   | Blue  | White   | Yellow   | Green   | Black   |

Note : If more patterns (up to 9) are needed, please contact SOURIAU

The color code is not painted on the feedthrough body but on the replaceable core washer. Hence the keying can also be changed during maintenance.



### Contacts

**Feedthrough:**

- For coaxial, feedthroughs receive a male contact on each side. Thus plugs will be equipped with female contacts.
- For thermocouple signal and power, feedthroughs receive female contacts on the inside of the glovebox and male contacts on the outside of the glovebox as standard. A reverse solution can be available on request.

**Plug:**

- ULC plugs receive solder fixed or crimped removable contacts. The different layouts are described on page 9 of this brochure.
- Crimp contacts shall be ordered separately to the plugs.














## Ordering information

| Basic series  | FE | MC | 5 | M5 | ULCX | N | P1 |
|---|----|----|---|----|------|---|----|
| <b>Shells</b>   |    |    |   |    |      |   |    |
| FE: Push-Pull plug with backshell   |    |    |   |    |      |   |    |
| TREN: Feedthrough   |    |    |   |    |      |   |    |
| NP: Spare replaceable shuttle   |    |    |   |    |      |   |    |
| <b>Contacts</b>   |    |    |   |    |      |   |    |
| MC*: Plug pin contact, crimp (for standard contact)   |    |    |   |    |      |   |    |
| MS: Plug pin contact, solder (coax & thermocouple contact)  |    |    |   |    |      |   |    |
| FC*: Plug socket contact, crimp (for standard contact)  |    |    |   |    |      |   |    |
| FS: Plug socket contact, solder (coax & thermocouple contact)   |    |    |   |    |      |   |    |
| FM: Penetrator pin/socket contacts (for standard, power & thermocouple contacts)<br>female contact on mounting nut side |    |    |   |    |      |   |    |
| MM: Penetrator pin/pin contact (for coaxial)  |    |    |   |    |      |   |    |
| <b>Shell</b>  |    |    |   |    |      |   |    |
| <b>Sizes</b>  |    |    |   |    |      |   |    |
| 3   |    |    |   |    |      |   |    |
| 4   |    |    |   |    |      |   |    |
| 5   |    |    |   |    |      |   |    |
| <b>Contact Layouts</b>  |    |    |   |    |      |   |    |
| Mxxx: Multipin  |    |    |   |    |      |   |    |
| Kxxx: Thermocouple  |    |    |   |    |      |   |    |
| CTXxx: Coaxial  |    |    |   |    |      |   |    |
| <b>Shell Material</b>   |    |    |   |    |      |   |    |
| ULCX: Stainless steel   |    |    |   |    |      |   |    |
| <b>Insulator Material</b>   |    |    |   |    |      |   |    |
| N: PEEK   |    |    |   |    |      |   |    |
| <b>Keying</b>   |    |    |   |    |      |   |    |
| P1 to P6  |    |    |   |    |      |   |    |

Important note: MC\* & FC\* Crimp contacts must be ordered separately.






### Contact layouts - Crimp or solder contacts

|                             |    | Multipin power & signal layouts with removable crimp or solder contacts for plugs           |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
|-----------------------------|----|---|---|--|--|--|--|---|---|----|-----------------------------|--|--|--|-----------------|--|--|--|---------------------------|--|--|--|
|                             |    | Contacts size   |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
|                             |    | #20   | #16   | #12  | #8   | #6   |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
| <b>Number of contacts</b>   | 4  |   | 3M4<br>    | 4M4<br>   | 5M4D8<br> | 5M4D6<br> |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
|                             | 7  | 3M7<br>    | 4M7<br>    | 5M7<br>   | 5M7D8<br> |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
|                             | 10 |   | 4M10<br>  | 5M10<br>   |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
|                             | 14 | 4M14<br> | 5M14<br> | <table border="1"> <tr> <td></td> <td>5</td> <td>M</td> <td>14</td> </tr> <tr> <td><b>Connector shell size</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Multipin</b></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>Number of contacts</b></td> <td></td> <td></td> <td></td> </tr> </table> |  |  |  | 5 | M | 14 | <b>Connector shell size</b> |  |  |  | <b>Multipin</b> |  |  |  | <b>Number of contacts</b> |  |  |  |
|                             |    | 5   | M   | 14   |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
| <b>Connector shell size</b> |    |   |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
| <b>Multipin</b>             |    |   |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
| <b>Number of contacts</b>   |    |   |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |
| 19                          |    | 5M19<br> |   |  |  |  |  |   |   |    |                             |  |  |  |                 |  |  |  |                           |  |  |  |

All the layouts described in this section are available with removable crimp contacts (MC & FC) or solder fixed contacts (M & F)  
 \* Only available with crimp removable contacts

## Contact layouts - Solder contacts

| Coaxial  |  |
|--|--|
|  <p><b>3CTX50</b><br/>50 Ohms - coaxial contact + impedance<br/>for coaxial cable AWG18 / shell size 3<br/>Max current rating = 3A<br/>Contact resistance <math>\leq 5\text{m}\Omega</math></p> |  <p><b>3CTX75</b><br/>75 Ohms - coaxial contact + impedance<br/>for coaxial cable AWG12 / shell size 3<br/>Max current rating = 8A<br/>Contact resistance <math>\leq 4\text{m}\Omega</math></p> |

| Chromel / Alumel thermocouple  |  |
|--|--|
| <p><b>3K3</b><br/>2 thermocouple contacts type K (1 Chromel and 1 Alumel) for wire #16 (Solder fixed)<br/>+ 2 standard copper contacts #16 (Solder fixed)<br/>Shell size 3</p> |  |

## Contact details - Crimp contacts

| Electrical characteristics |        |                         |                              |                        |
|----------------------------|--------|-------------------------|------------------------------|------------------------|
| Contact size               | Layout | Operating voltage (Vdc) | Current rating (per contact) |                        |
|                            |        |                         | UL recommendation            | SOURIAU recommendation |
| #6                         | 5M4D6  | VDC $\geq$ 600V         | 40A                          | 51A                    |
| #8                         | 5M4D8  |                         | 29A                          | 38A                    |
|                            | 5M7D8  |                         |                              |                        |
| #12                        | 4M4    |                         | 13A                          | 20A                    |
|                            | 5M7    |                         |                              | 16A                    |
|                            | 5M10   |                         |                              | 13A                    |
| #16                        | 3M4    |                         | 4.5A                         | 11A                    |
|                            | 4M7    |                         |                              | 9A                     |
|                            | 4M10   |                         |                              | 6.5A                   |
|                            | 5M14   |                         |                              | 4.5A                   |
|                            | 5M19   |                         |                              | 4.5A                   |
| #20                        | 3M7    |                         | 4A                           | 5A                     |
|                            | 4M14   |                         |                              | 4A                     |

## Contact details - Crimp contacts

| Crimp contacts (for plug) |         |     |        |       |                            |                    |  |  |     |
|---------------------------|---------|-----|--------|-------|----------------------------|--------------------|--|--|-----|
| Kit reference             | Contact |     |        | Wire  |                            | Electrical         | Mechanical                                     | Contacts quantity per kit                      |     |
|                           | #       | Ø   | Type   | AWG   | Section (mm <sup>2</sup> ) | Contact resistance |  |  |     |
| KCM8ULC0608               | 6       | 5.5 | Pin    | 8     | 10                         | /                  | Machined<br>copper alloy<br>Silver over Nickel | 20   |     |
| KCM8ULC0606               |         |     |        | 6     | 13.5                       | /                  |  |  |     |
| KCK8ULC0608               |         |     | Socket | 8     | 10                         | /                  |  |  |     |
| KCK8ULC0606               |         |     |        | 6     | 13.5                       | /                  |  |  |     |
| KCM8ULC0812               | 8       | 3.6 | Pin    | 12    | 4                          | ≤5 mΩ              |  | Machined<br>copper alloy<br>Silver over Nickel | 100 |
| KCM8ULC0810               |         |     |        | 10    | 6                          |                    |  |  |     |
| KCM8ULC0808               |         |     |        | 8     | 10                         |                    |  |  |     |
| KCK8ULC0812               |         |     | Socket | 12    | 4                          |                    |  |  |     |
| KCK8ULC0810               |         |     |        | 10    | 6                          |                    |  |  |     |
| KCK8ULC0808               |         |     |        | 8     | 10                         |                    |  |  |     |
| KCM8ULC1216               | 12      | 2.4 | Pin    | 14-16 | 1.5                        | ≤5 mΩ              | Machined<br>copper alloy<br>Gold over Nickel   | 500  |     |
| KCM8ULC1214               |         |     |        | 12-14 | 2.5                        |                    |  |  |     |
| KCK8ULC1216               |         |     | Socket | 14-16 | 1.5                        |                    |  |  |     |
| KCK8ULC1214               |         |     |        | 12-14 | 2.5                        |                    |  |  |     |
| KCM8ULC1628               | 16      | 1.6 | Pin    | 30-28 | 0.05-0.08                  | ≤3 mΩ              | Machined<br>copper alloy<br>Gold over Nickel   | 500  |     |
| KCM8ULC1624               |         |     |        | 26-24 | 0.13-0.20                  |                    |  |  |     |
| KCM8ULC1620               |         |     |        | 22-20 | 0.32-0.52                  |                    |  |  |     |
| KCM8ULC1616               |         |     |        | 20-16 | 0.52-1.5                   |                    |  |  |     |
| KCK8ULC1628               |         |     | Socket | 30-28 | 0.05-0.08                  |                    |  |  |     |
| KCK8ULC1624               |         |     |        | 26-24 | 0.13-0.20                  |                    |  |  |     |
| KCK8ULC1620               |         |     |        | 22-20 | 0.32-0.52                  |                    |  |  |     |
| KCK8ULC1616               |         |     |        | 20-16 | 0.52-1.5                   |                    |  |  |     |
| KCM8ULC2024               | 20      | 1   | Pin    | 26-24 | 0.13-0.20                  | ≤6 mΩ              | Machined<br>copper alloy<br>Gold over Nickel   | 500  |     |
| KCM8ULC2020               |         |     |        | 22-20 | 0.32-0.52                  |                    |  |  |     |
| KCK8ULC2024               |         |     | Socket | 26-24 | 0.13-0.20                  |                    |  |  |     |
| KCK8ULC2020               |         |     |        | 22-20 | 0.32-0.52                  |                    |  |  |     |

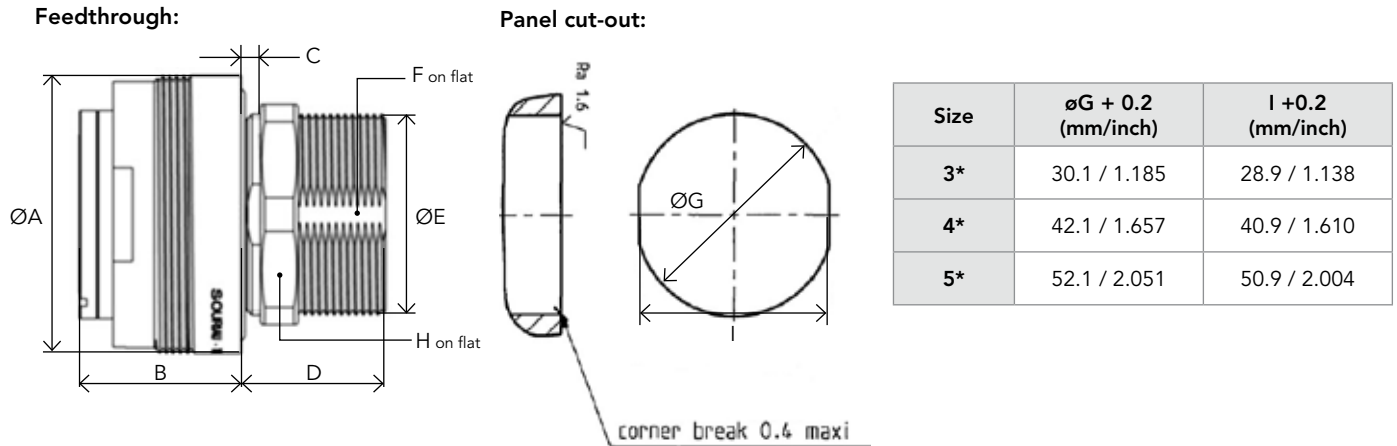
## Contact details - Solder contacts

| Solder contact table |                       |                             |                                     |                    |                                |
|----------------------|-----------------------|-----------------------------|-------------------------------------|--------------------|--------------------------------|
| Contact size         | Contact diameter (mm) | Solder bucket diameter (mm) | Max wire section (mm <sup>2</sup> ) | Indicative max AWG | Max current rating per contact |
| #12                  | 2.39                  | 2.6                         | 4.5                                 | 12                 | 26A                            |
| #16                  | 1.59                  | 2                           | 2.54                                | 14                 | 13A                            |
| #20                  | 1.02                  | 1.3                         | 1.13                                | 18                 | 7A                             |

| Electrical characteristics - Solder contacts |        |                         |                        |                              |                        |
|--|--------|-------------------------|------------------------|------------------------------|------------------------|
| Contact size                                 | Layout | Operating voltage (Vdc) |                        | Current rating (per contact) |                        |
|  |        | UL recommendation       | SOURIAU recommendation | UL recommendation            | SOURIAU recommendation |
| #12  | 4M4    | NA                      | 1200V                  | 13A                          | 20A                    |
|  | 5M7    | NA                      | 1600V                  |                              | 16A                    |
|  | 5M10   | NA                      | 1600V                  |                              | 13A                    |
| #16  | 3M4    | NA                      | 700V                   | 4.5A                         | 11A                    |
|  | 4M7    | NA                      | 1200V                  |                              | 9A                     |
|  | 4M10   | NA                      | 1000V                  |                              | 6.5A                   |
|  | 5M14   | NA                      | 1000V                  |                              | 6.5A                   |
|  | 5M19   | NA                      | 800V                   |                              | 4.5A                   |
|  | 6M37   | NA                      | 800V                   |                              | 4.5A                   |
| #20  | 3M7    | NA                      | 700V                   | 4A                           | 5A                     |
|  | 4M14   | NA                      | 900V                   |                              | 4A                     |

## Products details

### Feedthrough - Dimensions

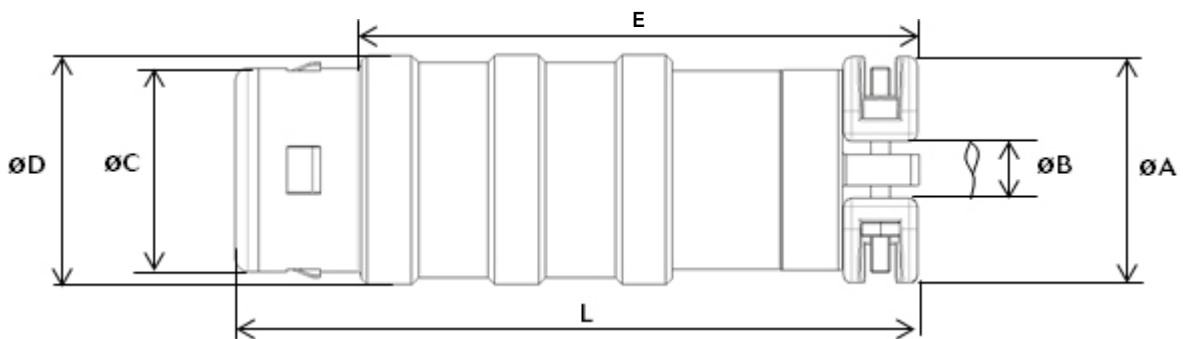


| Size | ØG + 0.2 (mm/inch) | I + 0.2 (mm/inch) |
|------|--------------------|-------------------|
| 3*   | 30.1 / 1.185       | 28.9 / 1.138      |
| 4*   | 42.1 / 1.657       | 40.9 / 1.610      |
| 5*   | 52.1 / 2.051       | 50.9 / 2.004      |

| Shell size | ØA Max (mm/inch) | ØE max (mm/inch) | B max (mm/inch) | C min (mm/inch) | C max (mm/inch) | D max (mm/inch) | F - 0.2 on flat (mm/inch) | H on flat (mm/inch) |
|------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|---------------------------|---------------------|
| 3*         | 50 / 1.969       | 30 / 1.181       | 35 / 1.378      | 4 / 0.157       | 21 / 0.827      | 31 / 1.220      | 28 / 1.102                | 33 / 1.299          |
| 4*         | 60 / 2.362       | 42 / 1.654       |                 |                 |                 |                 | 17 / 0.669                | 40 / 1.575          |
| 5*         | 70 / 2.756       | 52 / 2.047       |                 |                 | 50 / 1.969      |                 | 58 / 2.283                |                     |

\* Indicative dimensions. Please contact your SOURIAU representative for full external dimensions drawing.

### Straight plug - Dimensions



| Shell size | L max (mm/inch) | ØA max (mm/inch) | ØB min (mm/inch) | ØB max (mm/inch) | ØD max (mm/inch) | ØC max (mm/inch) | E max (mm/inch) |
|------------|-----------------|------------------|------------------|------------------|------------------|------------------|-----------------|
| 3          | 75 / 2.953      | 22 / 0.866       | 5 / 0.197        | 11 / 0.433       | 21 / 0.827       | 18 / 0.709       | 55 / 2.165      |
| 4          | 90 / 3.543      | 30 / 1.181       | 7 / 0.276        | 17 / 0.669       | 30 / 1.181       | 27 / 1.063       | 70 / 2.756      |
| 5          | 115 / 4.528     | 36 / 1.417       | 10 / 0.394       | 21 / 0.827       | 40 / 1.575       | 36 / 1.417       | 91 / 3.583      |

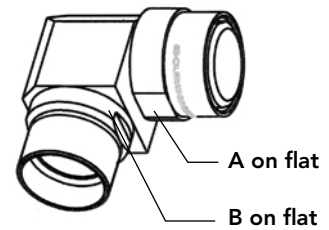
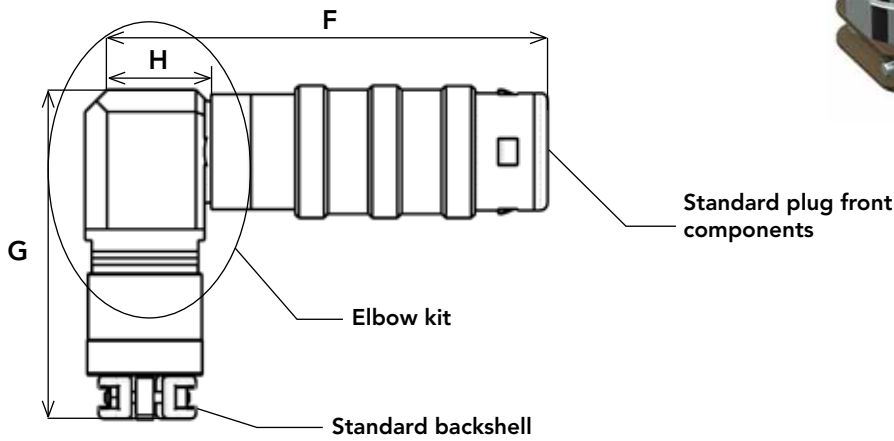
## Products details

### Elbow plug - Dimensions

#### 90° backshell for ULC plugs

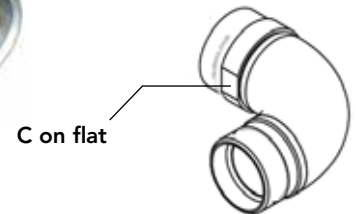
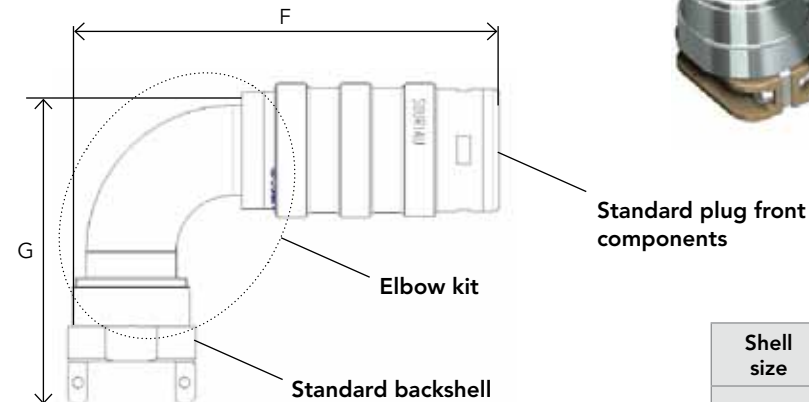
The ULC plugs can receive an optional 90° elbow that is installed between the standard plug nose and the backshell. The elbow kits shall be ordered separately from the plugs (refer to page 17)

#### Size 3 & 4 elbow



| Shell size | F max (mm/inch) | G max (mm/inch) | H max (mm/inch) | A on flat (mm/inch) | B on flat (mm/inch) |
|------------|-----------------|-----------------|-----------------|---------------------|---------------------|
| 3          | 90 / 3.543      | 60 / 2.362      | 25 / 0.984      | 18 / 0.709          | 16 / 0.63           |
| 4          | 115 / 4.528     | 85 / 3.346      | 35 / 1.378      | 26 / 1.024          | 24 / 0.945          |

#### Size 5 - 90° backshell

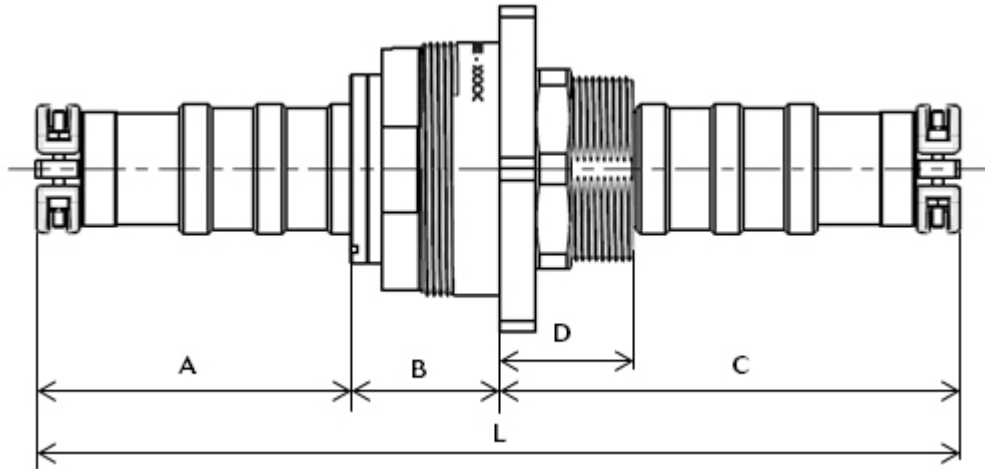


| Shell size | F max (mm/inch) | G max (mm/inch) | C on flat (mm/inch) |
|------------|-----------------|-----------------|---------------------|
| 5          | 155 / 6.102     | 120 / 4.724     | 34 / 1.339          |

Please, refer to page 17 for elbow backshell ordering information.

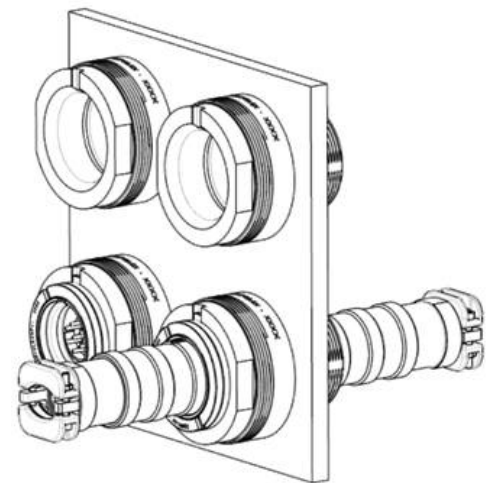
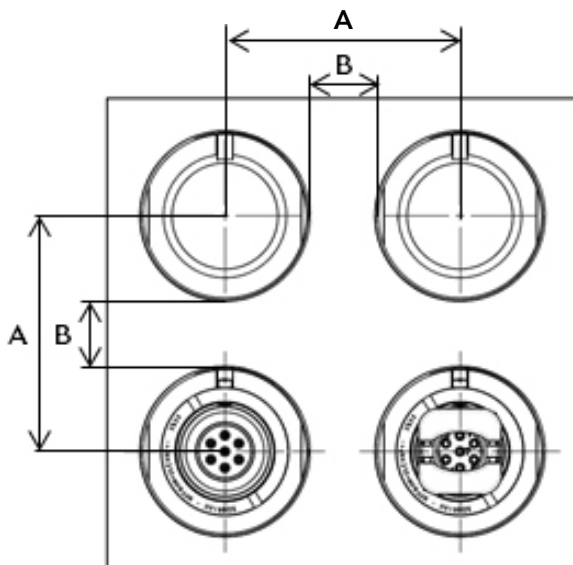
## Products details

### Assembly - Dimensions



| Shell size | A max (mm/inch) | B max (mm/inch) | C max (mm/inch) | D max (mm/inch) | L max (mm/inch) |
|------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| 3*         | 58.00 / 2.283   | 35 / 1.378      | 83 / 3.268      | 31 / 1.220      | 189 / 7.441     |
| 4*         | 75.00 / 2.952   |                 | 100 / 3.937     |                 | 222 / 8.74      |
| 5*         | 95 / 3.74       |                 | 128 / 5.039     |                 | 264 / 10.394    |

The minimal spacing between connectors indicated hereunder are recommended to optimize the number of feedthroughs mounted on a same panel (in case of straight backshells only).



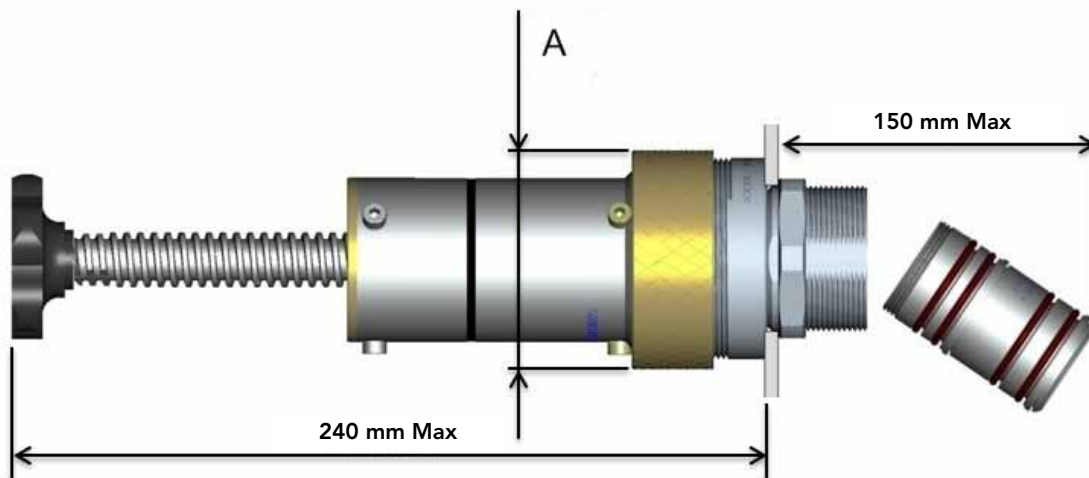
| Shell size | A min (mm/inch) | B min (mm/inch) |
|------------|-----------------|-----------------|
| 3*         | 65 / 2.559      | 25.00 / 1.004   |
| 4*         | 80.00 / 3.150   |                 |
| 5*         | 90.00 / 3.543   |                 |

\* Indicative dimensions. Please contact your SOURIAU representative for full external dimensions drawing.

## Products details

### Shuttle replacement tool - Dimensions

Recommended available room for shuttle replacement:



| Shell size | A max (mm/inch) |
|------------|-----------------|
| 3*         | 55 / 2.165      |
| 4*         | 65 / 2.559      |
| 5*         | 75 / 2.953      |

\* Indicative dimensions. Please contact your SOURIAU representative for full external dimensions drawing.



## Feedthrough options & accessories

### Feedthrough with dummy core module

As long as the glovebox design is not fully defined regarding feedthrough configuration, a feedthrough with a dummy core without electrical contacts can be mounted. When needed, the dummy core can be replaced by a core with the required layout.

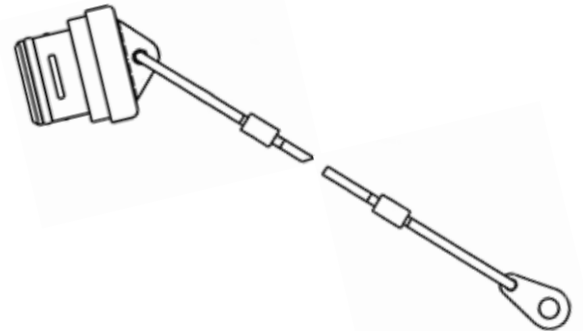
| Shell size | Reference |
|------------|-----------|
| 3          | TREN3ULCX |
| 4          | TREN4ULCX |
| 5          | TREN5ULCX |



### EPDM protective cap

When the feedthrough is not connected with the plugs it can be protected and sealed with EPDM caps.

| Shell size | Reference |
|------------|-----------|
| 3          | ULCLBRE3C |
| 4          | ULCLBRE4C |
| 5          | ULCLBRE5C |



## Plug accessories

### Optional 90° elbow

| Shell size | Reference    |
|------------|--------------|
| 3          | 8ULCESCULCX3 |
| 4          | 8ULCESCULCX4 |
| 5          | 8ULCESCULCX5 |



## Ground contacts & shielding options

### T1 option

Connection of ground contact to the connector body by a ground spring soldered on contact n°1. The shell to shell resistance with the T1 option is 10mΩ.

| Contact size | Reference |
|--------------|-----------|
| #16          | 8ULCT16   |
| #20          | 8ULCT20   |



### T3 option

Cable shield connected to the connector shell at 360° (for cables with shielding braid).

| Shell size | Reference |
|------------|-----------|
| 3          | 8ULC3T3   |
| 4          | 8ULC4T3   |
| 5          | 8ULC5T3   |



## Tools

### Crimping tool

| Contact size | Description  | Reference        |
|--------------|--|------------------|
| #6           | Pneumatic crimping tool for #6 contacts            | OUT8ULCWA23      |
|              | Die assembly, #6 contacts                          | OUT8ULCWA233     |
|              | Locator, #6 contacts                               | OUT8ULCWA2310    |
| #8 & #12     | Crimping tool for power contacts (without locator) | OUT8ULCM317      |
|              | Locator for #8 contacts                            | OUT8ULCVGE10078A |
|              | Locator for #12 contacts                           | OUT8ULCVGE10077A |
| #16 & #20    | Crimping tool with locator for #16 & #20 contacts  | OUT8ULCMH860     |
|              | Locator for #16 contacts                           | OUT8ULCMH86164G  |
|              | Locator for #20 contacts                           | OUT8ULCMH86301   |

## Tools

### Shuttle replacement tool

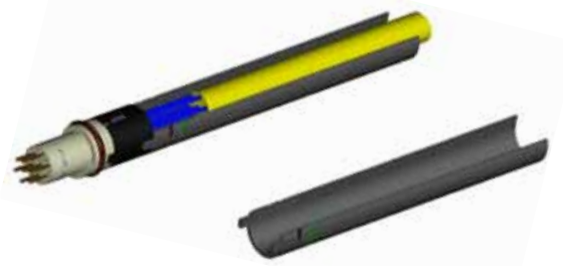
The extraction tool is made of stainless steel. The locking ring is made of bronze.

| Shell size | Reference   |
|------------|-------------|
| 3          | OUT8ULCSRT3 |
| 4          | OUT8ULCSRT4 |
| 5          | OUT8ULCSRT5 |



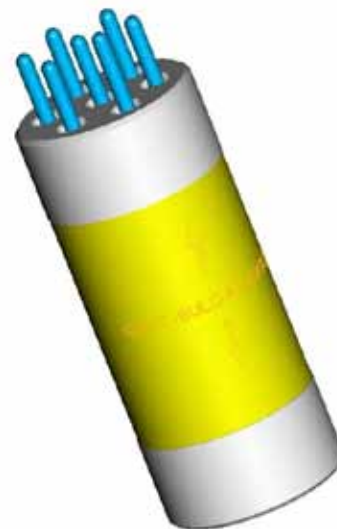
### Plug assembly tool (for connector without T3 option)

| Shell size | Reference  |
|------------|------------|
| 3          | OUTULCXME3 |
| 4          | OUTULCXME4 |
| 5          | OUTULCXME5 |



### Plug assembly tool (for plug with female contacts and T3 option)

| Contact layout | Reference      |
|----------------|----------------|
| 3M4            | OUT8ULCAT3M4   |
| 3M7            | OUT8ULCAT3M7   |
| 4M4            | OUT8ULCAT4M4   |
| 4M10           | OUT8ULCAT4M10  |
| 5M7            | OUT8ULCAT5M7   |
| 5M10           | OUT8ULCAT5M10  |
| 5M14           | OUT8ULCAT5M14  |
| 5M19           | OUT8ULCAT5M19  |
| 5M4D6          | OUT8ULCAT5M4D6 |
| 5M4D8          | OUT8ULCAT5M4D8 |
| 5M7D8          | OUT8ULCAT5M7D8 |



Important note: This tool can also be used for electrical checking during connector assembly operations

## Tools

| Contact extraction tool |                                     |                    |
|-------------------------|-------------------------------------|--------------------|
| Contact size            | Description                         | Reference          |
| #6                      | Extraction tool                     | OUT8ULCET6         |
| #8                      | Extraction tool with extraction tip | OUT8ULC51060210936 |
|                         | Spare extraction tip                | OUT8ULC51060213436 |
| #12                     | Extraction tool with extraction tip | OUT8ULC51060210924 |
|                         | Spare extraction tip                | OUT8ULC51060213424 |
| #16                     | Extraction tool                     | OUT8ULCRX2025GE1   |
| #20                     | Extraction tool                     | OUT8ULCRX20D44     |

| Insertion tool                              |                |
|---|----------------|
| Description                                 | Reference      |
| Insertion plier for contacts #12, #16 & #20 | OUT8ULC850029B |
| Insertion tool for contacts #16 & #20       | OUT8ULCRTM205  |

For further information contact us at [contactnuclear@souriau.com](mailto:contactnuclear@souriau.com)  
 or visit our web site [www.souriau.com/nuclear](http://www.souriau.com/nuclear)