

UTO SERIES



# SOURIAU

Robust Metal & Shielded Connector







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### Contacts

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# UTO SERIES

# Overview

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## Typical Applications



Energy - Power



Robotics - Machine tools



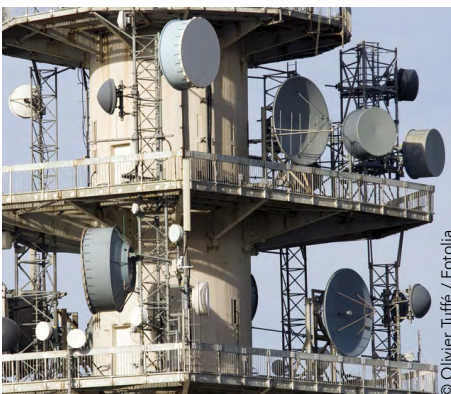
Building Automation & Control



Instrumentation measurement



Off road - Mining - Railway



Telecom - Data infrastructure

## Features & Benefits

### WATER PROOF

#### IP68/69K Dynamic Mated

Ideal for outdoor and indoor dynamic applications requiring continuous underwater immersion, routine pressure washing and dust protection.

### SIGNAL INTEGRITY

#### EMI Shielded

65 dB at 100 Mhz: Qualified and compatible to be used in electromagnetic radiation areas and ensures proper signal integrity and transmission.

### CORROSION RESISTANT

#### Salt Spray 48 & 96 Hours

Designed to withstand climate ingress and exposure to salt spray or corrosive atmospheres while still maintaining mechanical and electrical functionality.

### QUICK MATING

#### 1/3 Bayonet Coupling

With only 1/3 twist of the bayonet coupling system, connectors are mated with audible "click" and tactile feel to confirm proper mating. This mating feature eliminates connection uncertainty and reduces time and labor during installation.

### COST SAVINGS

#### Mixed Power & Signal Layouts

Power supply and signal transmission can be combined in a unique interconnect solution to reduce system complexity and minimize component/installation costs.

Single Wire Sealing



Straight Strain Relief



Right Angle Strain Relief



Short Cable Gland



Long Cable Gland



Heat Shrink Boot Adapter



Overmoulded



Choice of Crimp Contacts

- machined
- stamped and formed
- coaxial
- fiber optics



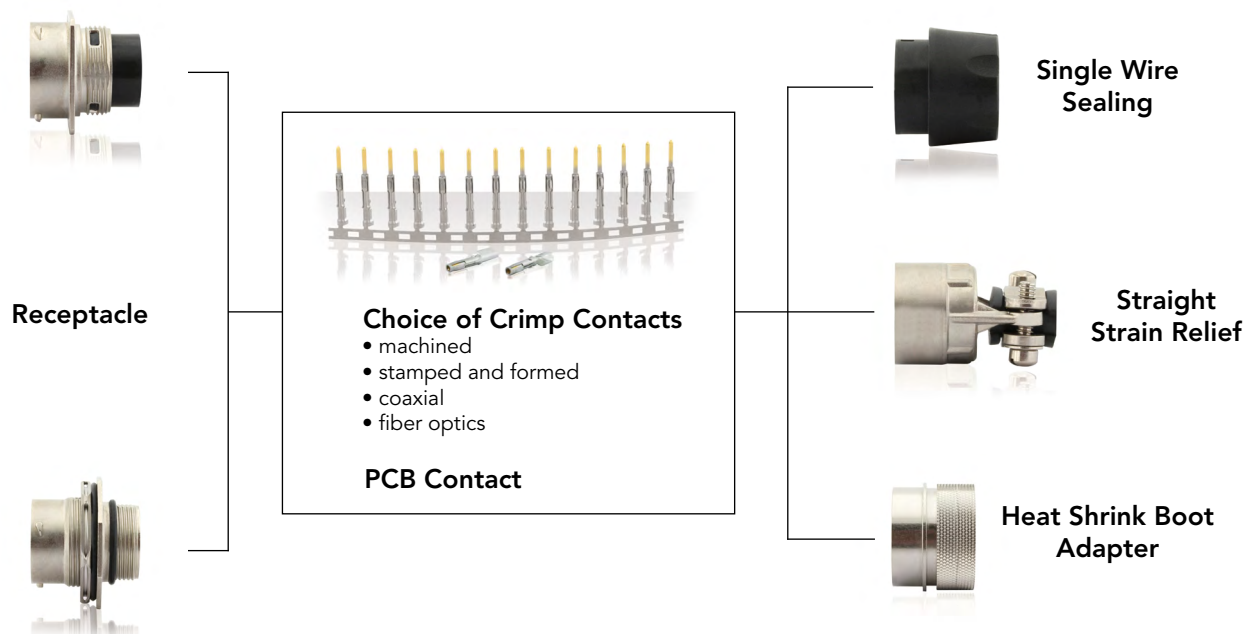
Plug

UTO Series



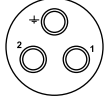
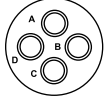
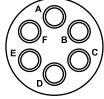
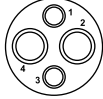
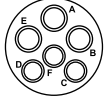
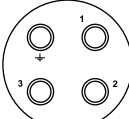
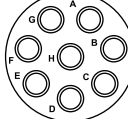
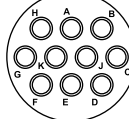
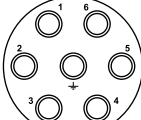
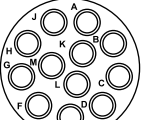
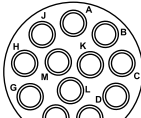
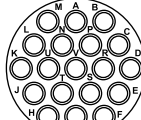
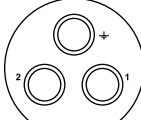
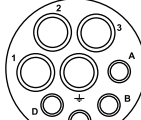
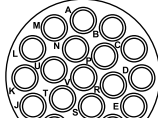
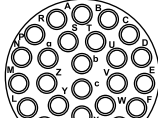
Sealed: IP68/69K  
Shielded  
Corrosion resistant  
UL compliant

## Overview





## Layouts (Electrical parameter according to IEC 61984 & IEC 61140)

| Shell size | Contact #16 (Ø 1.6)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Contact #20 (Ø 1.0)                                                                                                                                                | Contact #8 (Ø 3.6)                                                                                                                                                               | Mixed Power                                                                                                                                                                                                                                                                                                                                                             |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10         | <p><b>103</b><br/>16A 150V<br/>2 contacts<br/>+ground<br/>3xØ1.6 (#16)</p>  <p>Page 20</p> <p><b>104*</b><br/>13A 150V<br/>4 contacts<br/>4xØ1.6 (#16)</p>  <p>Page 36</p>                                                                                                                                                                            | <p><b>106*</b><br/>7A 80V<br/>6 contacts<br/>6xØ1.0 (#20)</p>  <p>Page 44</p>     |                                                                                                                                                                                  | <p><b>102W2</b><br/>25A 200V<br/>4 contacts<br/>2xØ2.4 (#12)<br/>2xØ1.0 (#20)</p>  <p>Page 32</p> <p><b>103W3</b><br/>5A 40V<br/>6 contacts<br/>3xØ1.6 (#16)<br/>3xØ1.0 (#20)</p>  <p>Page 40</p> |
| 12         | <p><b>124</b><br/>16A 150V<br/>3 contacts<br/>+ground<br/>4xØ1.6 (#16)</p>  <p>Page 28</p> <p><b>128</b><br/>10A 125V<br/>8 contacts<br/>8xØ1.6 (#16)</p>  <p>Page 52</p>                                                                                                                                                                             | <p><b>1210*</b><br/>6A 40V<br/>10 contacts<br/>10xØ1.0 (#20)</p>  <p>Page 60</p>  |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                         |
| 14         | <p><b>147</b><br/>16A 150V<br/>6 contacts<br/>+ground<br/>7xØ1.6 (#16)</p>  <p>Page 48</p> <p><b>1412</b><br/>10A 150V<br/>12 contacts<br/>12xØ1.6 (#16)</p>  <p>Page 64</p> <p><b>1492</b><br/>10A 150V<br/>12 contacts<br/>12xØ1.6 (#16)</p>  <p>Page 68</p> | <p><b>1419</b><br/>5A 40V<br/>19 contacts<br/>19xØ1.0 (#20)</p>  <p>Page 72</p> | <p><b>142G1</b><br/>40A 250V<br/>2 contacts<br/>+ground<br/>3xØ3.6 (#8)</p>  <p>Page 24</p> | <p><b>148</b><br/>17A 230V<br/>8 contacts<br/>4xØ2.4 (#12)<br/>4xØ1.6 (#16)</p>  <p>Page 56</p>                                                                                                                                                                                    |
| 16         | <p><b>1619*</b><br/>9A 150V<br/>19 contacts<br/>19xØ1.6 (#16)</p>  <p>Page 76</p>                                                                                                                                                                                                                                                                                                                                                    | <p><b>1626</b><br/>4A 40V<br/>26 contacts<br/>26xØ1.0 (#20)</p>  <p>Page 84</p> |                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                         |

\* Ethernet compatible see page 168 & 169

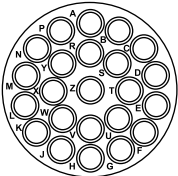
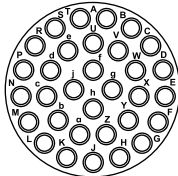
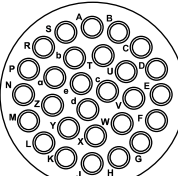
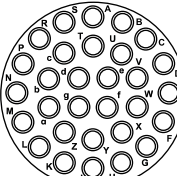
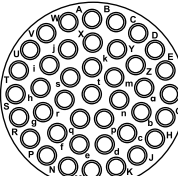
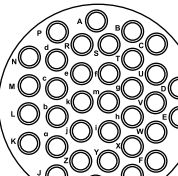
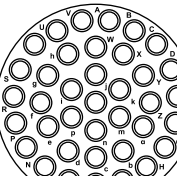
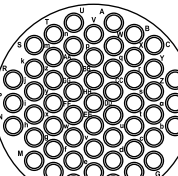
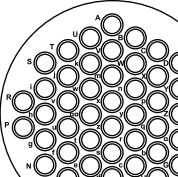
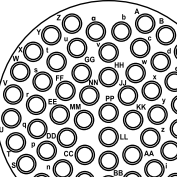


Contacts #16:  
from AWG 30 to 14,  
0.05 to 2.5 mm<sup>2</sup>

Contacts #20:  
from AWG 26 to 18,  
0.13 to 0.93 mm<sup>2</sup>

Contacts #8:  
from AWG 16 to 8,  
1.5 to 10 mm<sup>2</sup>

Contacts #12:  
from AWG 22 to 12,  
0.13 to 4 mm<sup>2</sup>

| Shell size | Contact #16 (Ø 1.6)                                                                                                                                                  |  | Contact #20 (Ø 1.0)                                                                                                                                                   |  |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 18         | <p><b>1823</b><br/>8A 150V<br/>23 contacts<br/>23xØ1.6 (#16)</p>  <p>Page 80</p>    |  | <p><b>1832</b><br/>4A 50V<br/>32 contacts<br/>32xØ1.0 (#20)</p>  <p>Page 96</p>    |  |
| 20         | <p><b>2028</b><br/>7A 150V<br/>28 contacts<br/>28xØ1.6 (#16)</p>  <p>Page 88</p>   |  | <p><b>2030</b><br/>7A 150V<br/>30 contacts<br/>30xØ1.6 (#16)</p>  <p>Page 92</p>    |  |
|            |                                                                                                                                                                      |  | <p><b>2041</b><br/>8A 80V<br/>41 contacts<br/>41xØ1.0 (#20)</p>  <p>Page 108</p>  |  |
| 22         | <p><b>2235</b><br/>6A 150V<br/>35 contacts<br/>35xØ1.6 (#16)</p>  <p>Page 100</p> |  | <p><b>2238</b><br/>6A 150V<br/>38 contacts<br/>38xØ1.6 (#16)</p>  <p>Page 104</p>  |  |
|            |                                                                                                                                                                      |  | <p><b>2255</b><br/>3A 80V<br/>55 contacts<br/>55xØ1.0 (#20)</p>  <p>Page 116</p> |  |
| 24         | <p><b>2448</b><br/>6A 160V<br/>48 contacts<br/>48xØ1.6 (#16)</p>  <p>Page 112</p> |  | <p><b>2461</b><br/>3A 80V<br/>61 contacts<br/>61xØ1.0 (#20)</p>  <p>Page 120</p> |  |

## General technical characteristics



### Materials

- **Shell:** Zinc alloy
- **Backshells and cable glands:** Brass
- **Coupling ring:** Aluminum alloy
- **Coupling spring:** Spring stainless steel
- **Insert:** Glass-filled thermoplastic
- **Contacts:** See page 129
- **Halogen free**
- **RoHS compliant & conforms to the Chinese standard SJ/T1166-2006 (Chinese RoHS equivalent)**



### Environmental

- **Operating temperature:**  
from -40°C to +105°C  
40/100/21 per NFF 61-030
- **Flammability rating:**  
UL94 V-0  
I2F3 according to NFF 16101 and NFF 16102
- **Salt spray:**  
per MIL-STD-202 method 101  
- 48 h (standard version)  
- 96 h (black anodized coupling ring)  
Higher salt spray resistance (200/500 h) upon request
- **Sealing:**  
Per IEC 60529/DIN 40050: Dynamic IP67 / IP68 (under 10 m of water during 1 week) / IP69K in mated condition and in combination with sealed backshell.
- **Fluid resistance:**
  - Gas and oil
  - Mineral oil
  - Acid bath
  - Basic bath
- **Shielding effectiveness:**  
65 dB at 100 MHz

### Electrical



- **Layouts 1412, 1492, 142G1, 148, 2030, 2238 qualified in accordance with:**
  - UL 1977: Certificate ECBT2  
File number: E169916
  - CSA C22.2: Certificate ECBT8  
File number E169916
- Also see pages 10 & 11

### Mechanical

- **Durability:**  
500 matings & unmatings per MIL-C-26482
- **Vibration resistance:**  
55-2000 Hz, acceleration 15 g per MIL-C-26482 (Series 1)  
10-100 Hz, acceleration 2 g per NFF61030
- **Thermal shock:**  
5 cycles 30 min. from -40°C to 105°C per MIL-STD-202 method 207
- **Mechanical shock:**  
50 g, 11 ms period per MIL-C-26482 (Series 1)  
30 g, 18 ms period per NFF61030



# UTO SERIES

# Connector

|                                   |     |
|-----------------------------------|-----|
| ■ Upgrade of the UTO Series ..... | 16  |
| ■ Cable Assembly .....            | 17  |
| ■ 2 contacts + ground             |     |
| 103: 10A 500V.....                | 20  |
| 142G1: 44A 600V.....              | 24  |
| ■ 3 contacts + ground             |     |
| 124: 16A 500V.....                | 28  |
| ■ 4 contacts                      |     |
| 102W2: 20A 500V.....              | 32  |
| 104*: 10A 500V.....               | 36  |
| ■ 6 contacts                      |     |
| 103W3: 5A 250V.....               | 40  |
| 106*: 5A 250V.....                | 44  |
| ■ 6 contacts + ground             |     |
| 147: 10A 500V.....                | 48  |
| ■ 8 contacts                      |     |
| 128: 10A 500V.....                | 52  |
| 148: 25A 250V.....                | 56  |
| ■ 10 contacts                     |     |
| 1210*: 5A 250V.....               | 60  |
| ■ 12 contacts                     |     |
| 1412: 10A 500V.....               | 64  |
| 1492: 10A 500V.....               | 68  |
| ■ 19 contacts                     |     |
| 1419: 5A 250V.....                | 72  |
| 1619*: 9A 500V.....               | 76  |
| ■ 23 contacts                     |     |
| 1823: 8A 500V.....                | 80  |
| ■ 26 contacts                     |     |
| 1626: 4A 250V.....                | 84  |
| ■ 28 contacts                     |     |
| 2028: 5A 500V.....                | 88  |
| ■ 30 contacts                     |     |
| 2030: 5A 500V.....                | 92  |
| ■ 32 contacts                     |     |
| 1832: 4A 250V.....                | 96  |
| ■ 35 contacts                     |     |
| 2235: 5A 500V.....                | 100 |
| ■ 38 contacts                     |     |
| 2238: 5A 500V.....                | 104 |
| ■ 41 contacts                     |     |
| 2041: 3A 250V.....                | 108 |
| ■ 48 contacts                     |     |
| 2448: 5A 500V.....                | 112 |
| ■ 55 contacts                     |     |
| 2255: 3A 250V.....                | 116 |
| ■ 61 contacts                     |     |
| 2461: 3A 250V.....                | 120 |

Electrical parameters according to UL1977

\* Ethernet compatible see pages 164 & 165

## Upgrade of the UTO Series



### Description of change:

To better meet the demanding requirements and diversity of industrial markets/applications, SOURIAU changed the position of the wavy washer inside the plug. This slight modification makes the new version of the UTO sealed to IP68/69K in dynamic conditions.

### Product part number:

Below is an overview of the old part numbers with the corresponding new part numbers.

Note that some of the old part numbers where backshells were included will now be sold individually, i.e. plug connector + backshell.

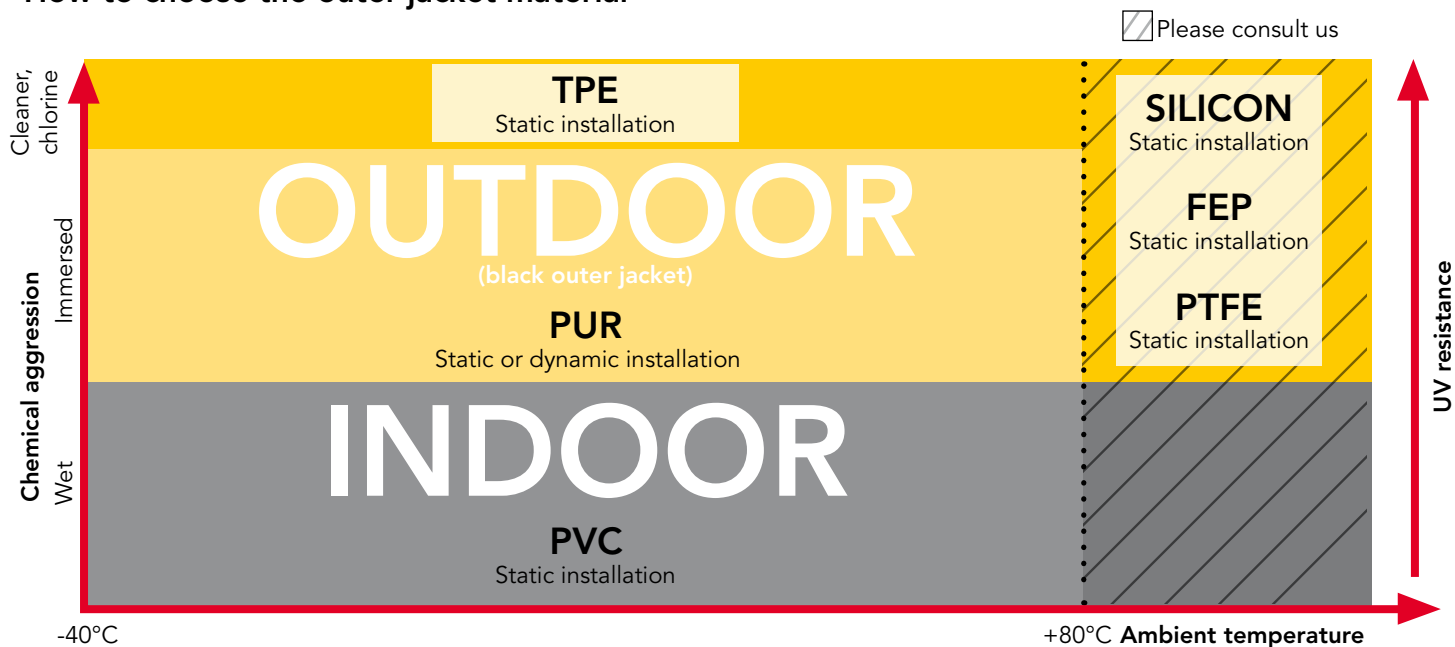
| Old part number | New part number connector | New part number backshell | Comments                                                         |
|-----------------|---------------------------|---------------------------|------------------------------------------------------------------|
| UTO0/6-S/PT     | UT00/6-S/PH(6)            | -                         | -                                                                |
| UTO0-S/PHT      | UT00-S/PH(6)              | -                         | -                                                                |
| UTO0/6AC-S/PT   | UT00/6-S/PH(6)            | -                         | -                                                                |
| UTO0/6PG-S/PHT  | UT00/6-S/PH(6)            | UT0-AC                    | -                                                                |
| UTO-21/22-      | Keep old part number      | UT0-JC                    | Silkscreen version                                               |
| UTO-44/45-      | Keep old part number      | -                         | Screw coupling version                                           |
| UTO-ACT         | -                         | UT0-AC                    | 851 backshell Nickel plated                                      |
| UTO-PGT         | -                         | UT0-JC                    | Longer threading on connector side + metric cable gland          |
| UTOS-PGT        | -                         | UT0S-JC                   | Longer threading on connector side + shielded metric cable gland |
| U-AD01T         | UT0-AD01                  | UT0-AD01                  | Longer threading to achieve sealing                              |
| U-AD01N         | Keep old part number      | -                         | Used on old UT06-45N screw coupling version                      |

## Cable Assembly

SOURIAU has provided connectors for various applications for more than 90 years and has been used in the most extreme environments. Conscious about the difficulty in finding a quick and reliable harness manufacturer, we began our own in-house cable assembly production. It allows customers to reduce the number of suppliers and to take advantage of the "best in class" quality of the SOURIAU group. Overmoulding is a process that further enhances the sealing properties and helps to minimize stress on the cable termination to the connector. In addition, the wires are encapsulated inside the molding which creates a barrier preventing liquid/moisture from entering the equipment through the connector or cable jacket if breached.

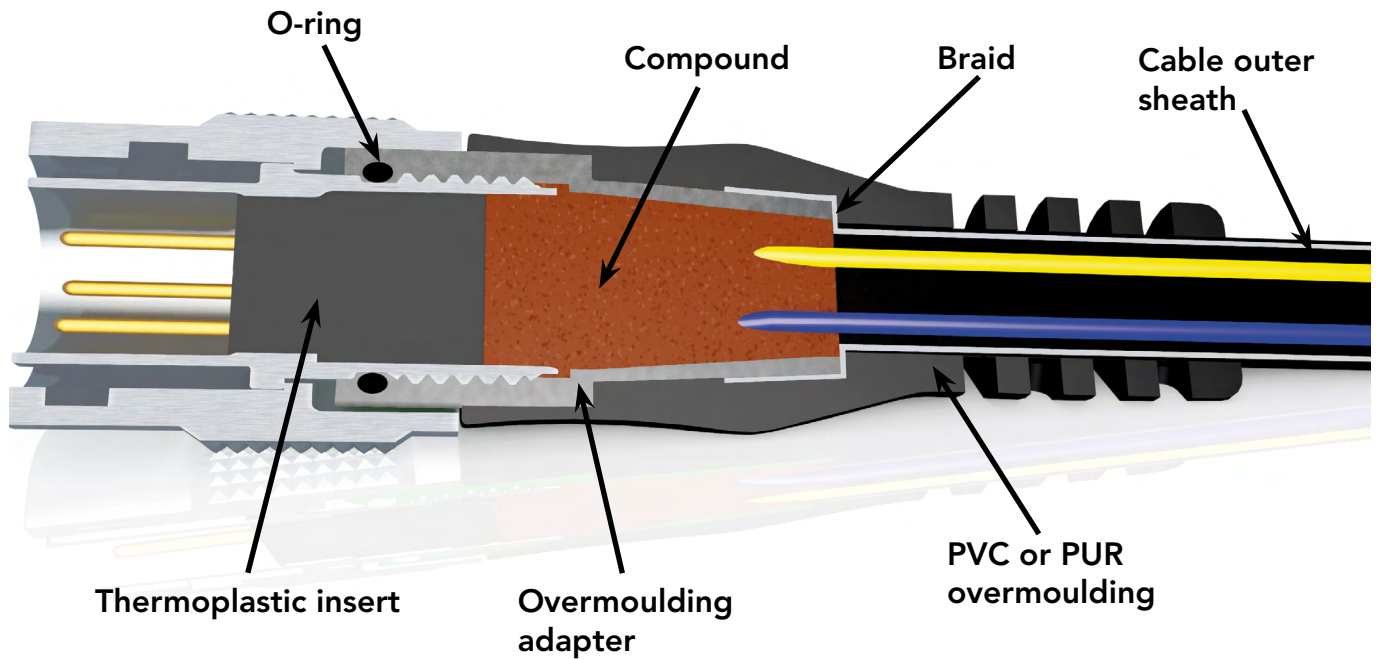


### How to choose the outer jacket material





## Overmoulding Description



### Discrete connector

GOOD



### Overmoulded connector

BEST



## UTO Robust Metal & Shielded Cable Assembly



### Description

#### Connector

- Shielded metal connector
- Extreme sealing: IP68/69K dynamic mated
- 26 layouts
- Rapid 1/3 turn connection

#### Cable

- TPE outer sheath (black)
- 300V
- Shielded
- Flammability rating UL 1581 Sec.1080 (VW-1)

#### Applications

- Machining Centers (Oil Resistant)
- Assembly Automation Equipment
- Geophysical Equipment
- Solar (UV Stable)
- Outdoor Displays

### Specifications

| PLATING         | SALT SPRAY | DEGREE              | WATERPROOF             | COUPLING              |
|-----------------|------------|---------------------|------------------------|-----------------------|
| Black anodized* | 96 H       | -40° C up to 105° C | IP68/69K dynamic mated | 500 matings/unmatings |
| Nickel          | 48 H       |                     |                        |                       |

\* Custom black anodized version available on demand

### Custom Capabilities



Harness with custom cable

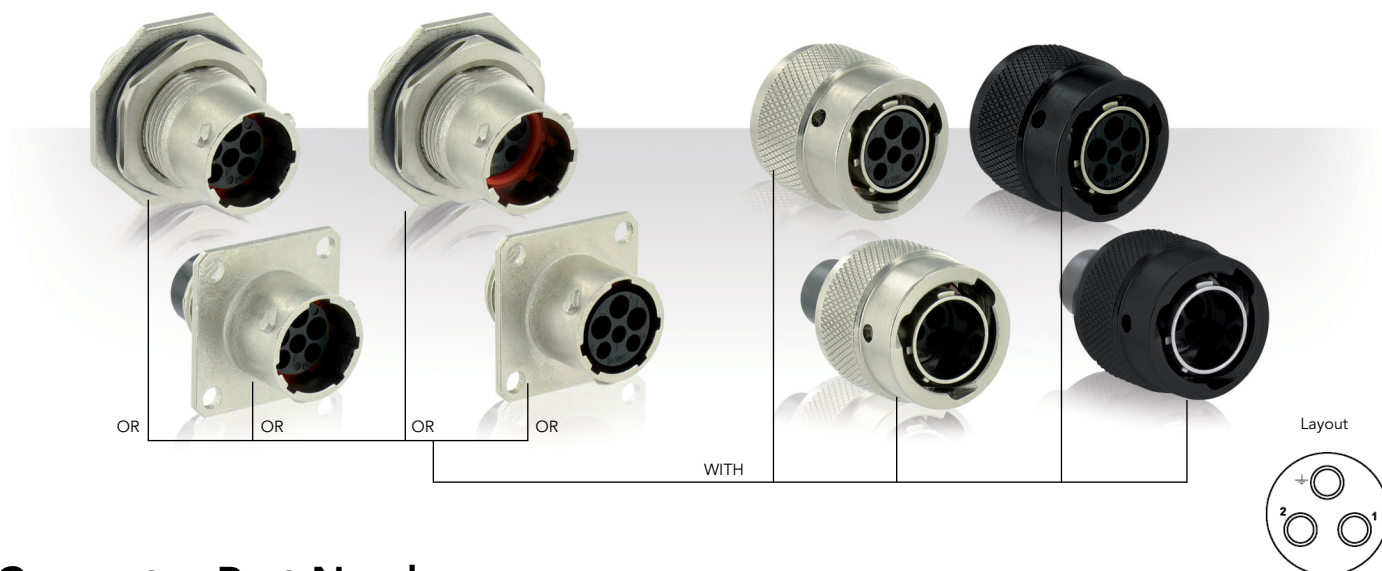


Harness with double ends



Y or T shape connection

## 103 (Shell size 10, 2 + ground, 3x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                |                            |
|------------------------------------------|--------------------------|--------------------|------------|----------------------------|----------------------------|
|                                          |                          |                    |            | Male insert                | Female insert              |
| Contacts supplied separately see page 23 | Square flange receptacle | IP67               | 96h        | <b>UT00103PH</b>           | <b>UT00103SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00103PH6</b>          | <b>UT00103SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06103PH</b>           | <b>UT06103SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06103PH02 (Black)</b> | <b>UT06103SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07103PH</b>           | <b>UT07103SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07103PH6</b>          | <b>UT07103SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT07103PH01</b>         | <b>UT07103SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07103PH601</b>        | <b>UT07103SH601</b>        |

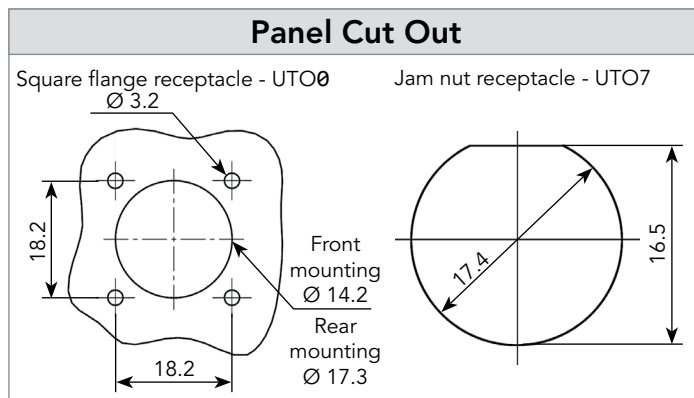
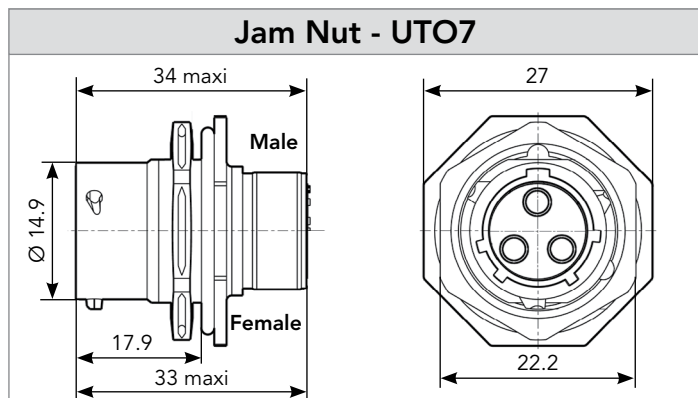
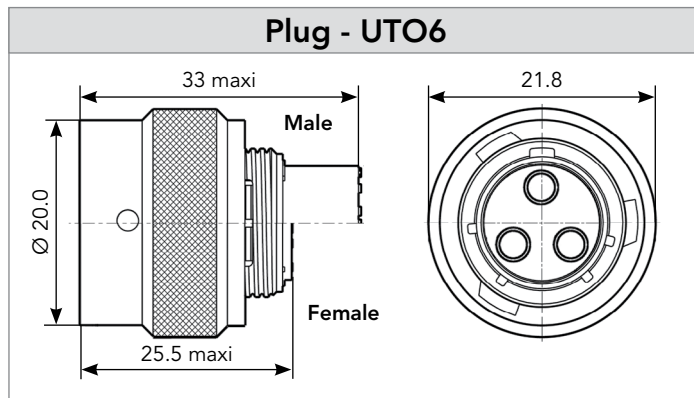
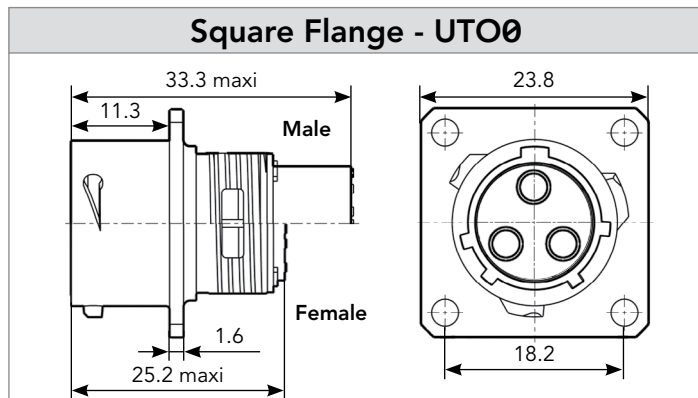
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 3/6                        | <b>UT010JCS</b>    | <b>UT010JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 5/8                        | <b>UT010JCSL</b>   | <b>UT010JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 4/6.5                      | <b>UT0S10JCS</b>   | <b>UT0S10JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 5/8.5                      | <b>UT0S10JCSL</b>  | <b>UT0S10JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 5                          | <b>UT010AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT010AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 4/10                       | <b>UT010LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 4/8.8                      | <b>UT0S10JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 4/10                       | <b>UT010JCPGN</b>  |                  |

**103** (Shell size 10, 2 + ground, 3x#16)

2 +  
⏏

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

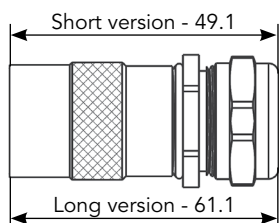


Fig. 1

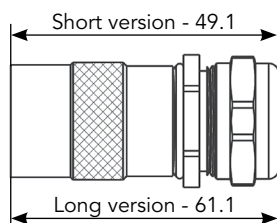


Fig. 2

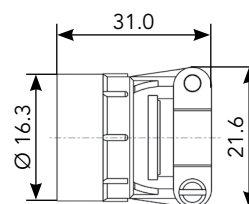


Fig. 5

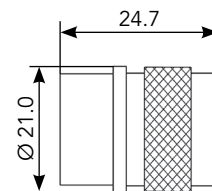


Fig. 6

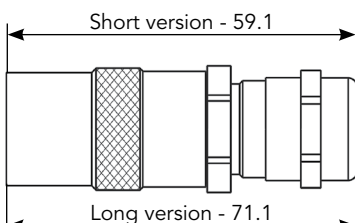


Fig. 3

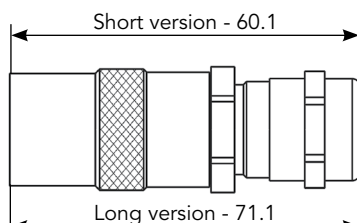


Fig. 4

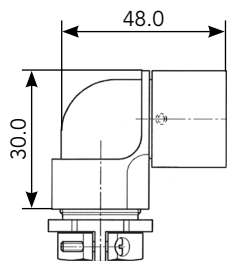


Fig. 7

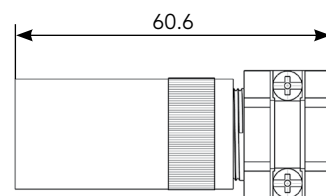


Fig. 8

Note: all dimensions are in mm



103 (Shell size 10, 2 + ground, 3x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT010DCG\*

**Dustcap (Plug)**



Part number  
UTG610DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD12B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

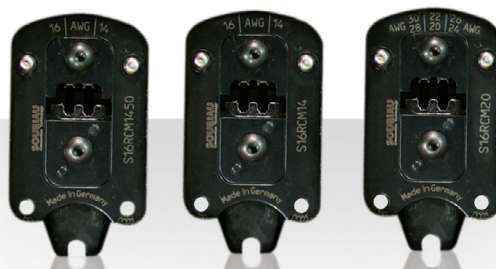
See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT010DC

**103** (Shell size 10, 2 + ground, 3x#16)



## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

(3): For dimensions see page 132

Note: all dimensions are in mm

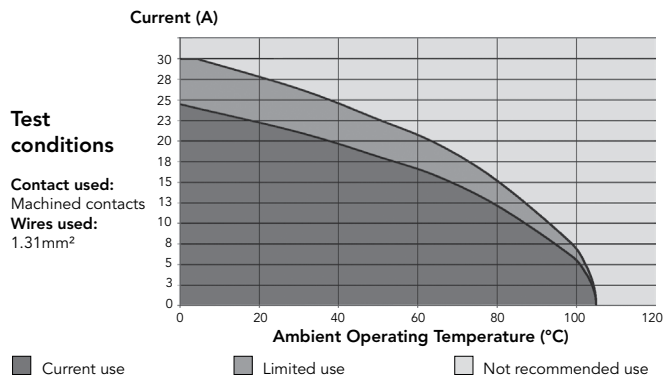
### Electrical Characteristics

**UL**  
10A 500V UL94 V-0

**CSA**  
7A 500V UL94 V-0

**IEC**  
16A 150V 2.5kV 3

### UTO 103 Derating Curves



## 142G1 (Shell size 14, 2 + ground, 3x#8)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                  |                              |
|------------------------------------------|--------------------------|--------------------|------------|------------------------------|------------------------------|
|                                          |                          |                    |            | Male insert                  | Female insert                |
| Contacts supplied separately see page 27 | Square flange receptacle | IP67               | 96h        | <b>UT00142G1PH</b>           | <b>UT00142G1SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00142G1PH6</b>          | <b>UT00142G1SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06142G1PH</b>           | <b>UT06142G1SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06142G1PH02 (Black)</b> | <b>UT06142G1SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07142G1PH</b>           | <b>UT07142G1SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07142G1PH6</b>          | <b>UT07142G1SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT07142G1PH01</b>         | <b>UT07142G1SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07142G1PH601</b>        | <b>UT07142G1SH601</b>        |

## Backshells

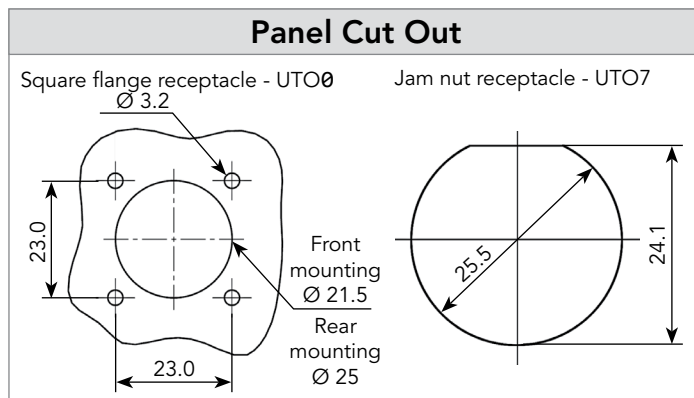
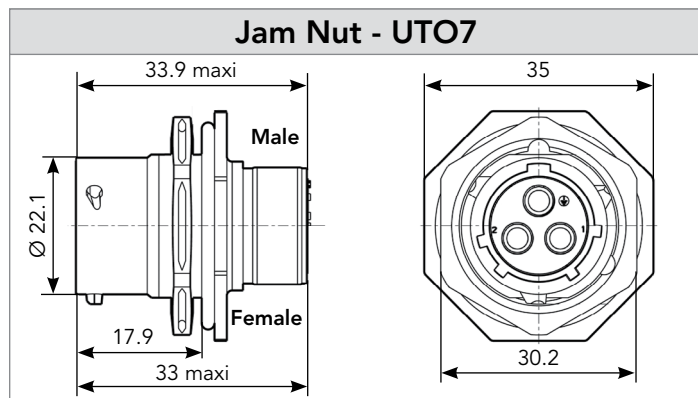
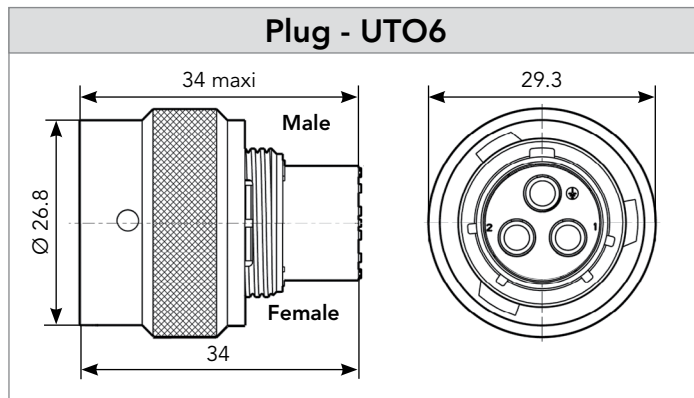
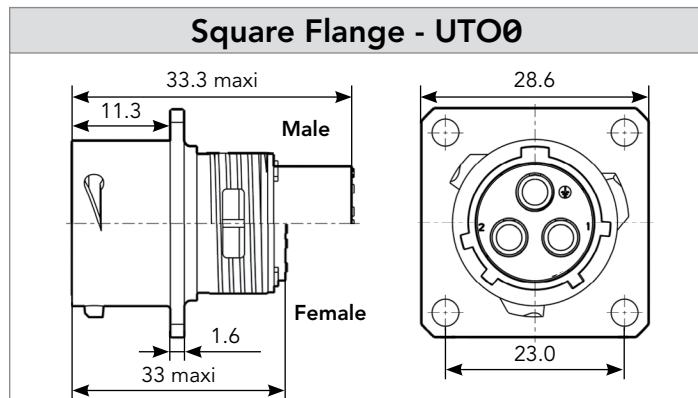
| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | <b>UT014JCS</b>    | <b>UT014JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | <b>UT014JCSL</b>   | <b>UT014JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | <b>UT0S14JCS</b>   | <b>UT0S14JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | <b>UT0S14JCSL</b>  | <b>UT0S14JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | <b>UT014AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT014AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | <b>UT014LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | <b>UT0S14JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | <b>UT014JCPGN</b>  |                  |



# 142G1 (Shell size 14, 2 + ground, 3x#8)

2 +  
⏏

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

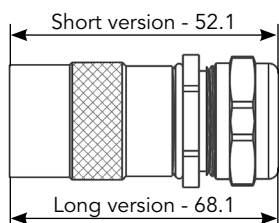


Fig. 1

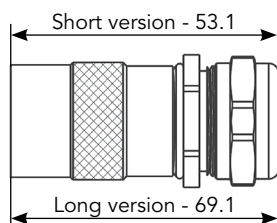


Fig. 2

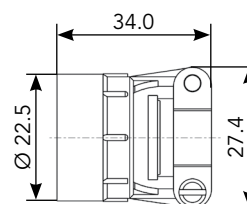


Fig. 5

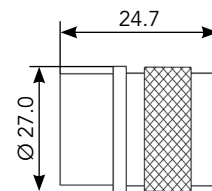


Fig. 6

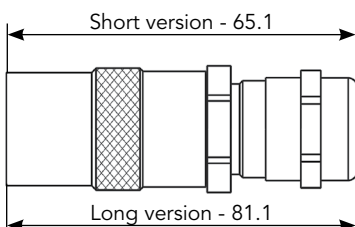


Fig. 3

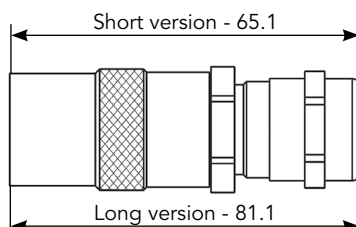


Fig. 4

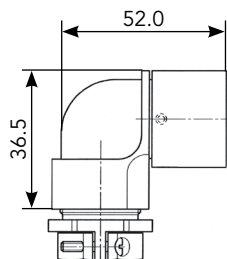


Fig. 7

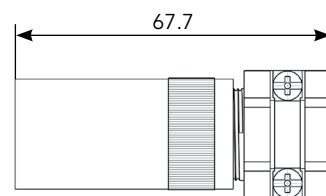


Fig. 8

Note: all dimensions are in mm

## 142G1 (Shell size 14, 2 + ground, 3x#8)

### Accessories and Tooling

#### Dustcap (Receptacle)



Part number

UT014DCG\*

#### Dustcap (Plug)



Part number

UTG614DCG\*

#### Gasket



Part number / Neoprene

UTFD14B

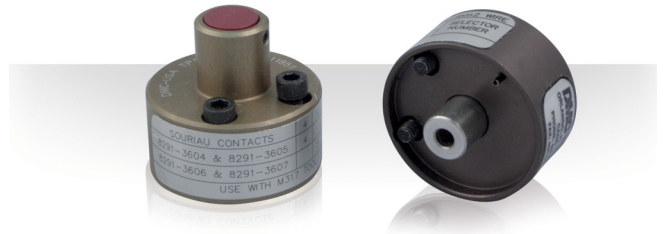
#### Hand Tool



Part number

M317

#### Positioner + Locator Setting



Part number

VGE10078A

#### Extraction Tool #8



Part number

51060210936

\* For dustcap without chain, skip "G", e.g. UT014DC

## 142G1 (Shell size 14, 2 + ground, 3x#8)



### Contacts

| #8    | Contact type            | AWG | Part number                |                            | Max wire Ø | Max insulator Ø |
|-------|-------------------------|-----|----------------------------|----------------------------|------------|-----------------|
|       |                         |     | Male                       | Female                     |            |                 |
| Crimp | Machined                | 16  | 82913601A                  | 82913600A                  | 1.72       | 6.5             |
|       |                         | 14  | 82913603A                  | 82913602A                  | 2.22       |                 |
|       |                         | 12  | 82913605A                  | 82913604A                  | 2.82       |                 |
|       |                         | 10  | 82913607A                  | 82913606A                  | 3.50       |                 |
|       |                         | 8   | 82913609A                  | 82913608A                  | 4.35       |                 |
| PCB   | Machined <sup>(2)</sup> | -   | 82911685NPC <sup>(1)</sup> | 82911684NPC <sup>(1)</sup> | -          | -               |

(1): Example of plating, for other plating options see page 129  
(3): For dimensions see page 132

Note: all dimensions are in mm

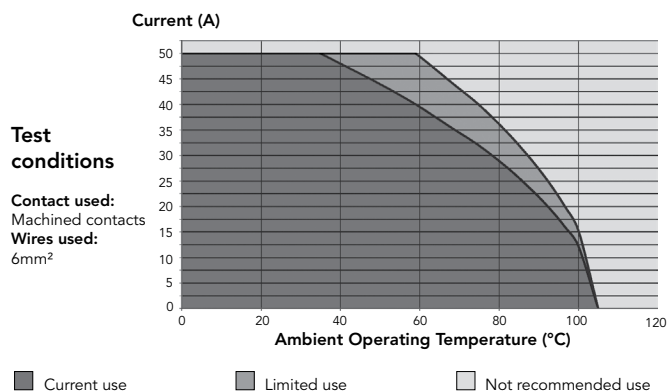
### Electrical Characteristics

**UL**  
44A 600V UL94 V-0

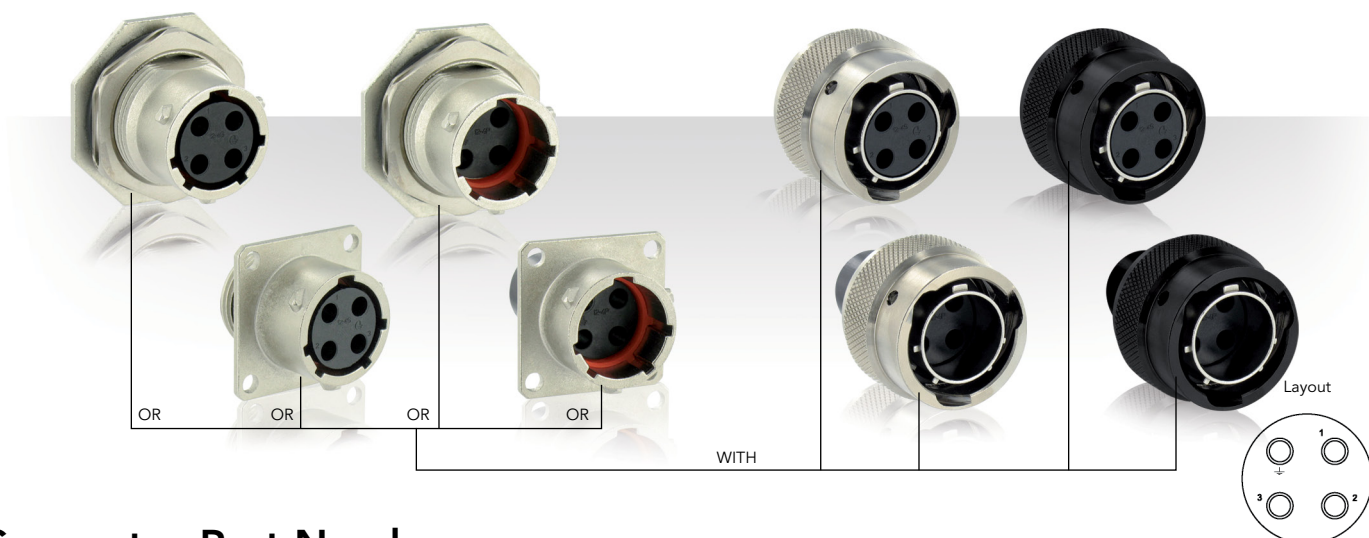
**CSA**  
30A 600V UL94 V-0

**IEC**  
40A 250V 3kV 3

### UTO 142G1 Derating Curves



## 124 (Shell size 12, 3 + ground, 4x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                |                            |
|------------------------------------------|--------------------------|--------------------|------------|----------------------------|----------------------------|
|                                          |                          |                    |            | Male insert                | Female insert              |
| Contacts supplied separately see page 31 | Square flange receptacle | IP67               | 96h        | <b>UT00124PH</b>           | <b>UT00124SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00124PH6</b>          | <b>UT00124SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06124PH</b>           | <b>UT06124SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06124PH02 (Black)</b> | <b>UT06124SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07124PH</b>           | <b>UT07124SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07124PH6</b>          | <b>UT07124SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT07124PH01</b>         | <b>UT07124SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07124PH601</b>        | <b>UT07124SH601</b>        |

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | <b>UT012JCS</b>    | <b>UT012JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | <b>UT012JCSL</b>   | <b>UT012JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | <b>UT0S12JCS</b>   | <b>UT0S12JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | <b>UT0S12JCSL</b>  | <b>UT0S12JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 8.2                        | <b>UT012AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT012AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/12                     | <b>UT012LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 04/11.9                    | <b>UT0S12JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 04/11.9                    | <b>UT012JCPGN</b>  |                  |

## Dimensions



Note: all dimensions are in mm

**124** (Shell size 12, 3 + ground, 4x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT012DCG\***

**Dustcap (Plug)**



Part number  
**UTG612DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD13B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + york090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES

\* For dustcap without chain, skip "G", e.g. UT012DC





**124** (Shell size 12, 3 + ground, 4x#16)

## Contacts

3 +  
⏏

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

(3): For dimensions see page 132

Note: all dimensions are in mm

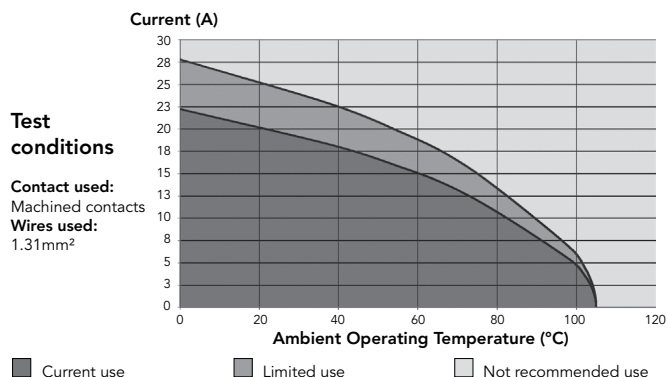
### Electrical Characteristics

**UL**  
16A 500V UL94 V-0

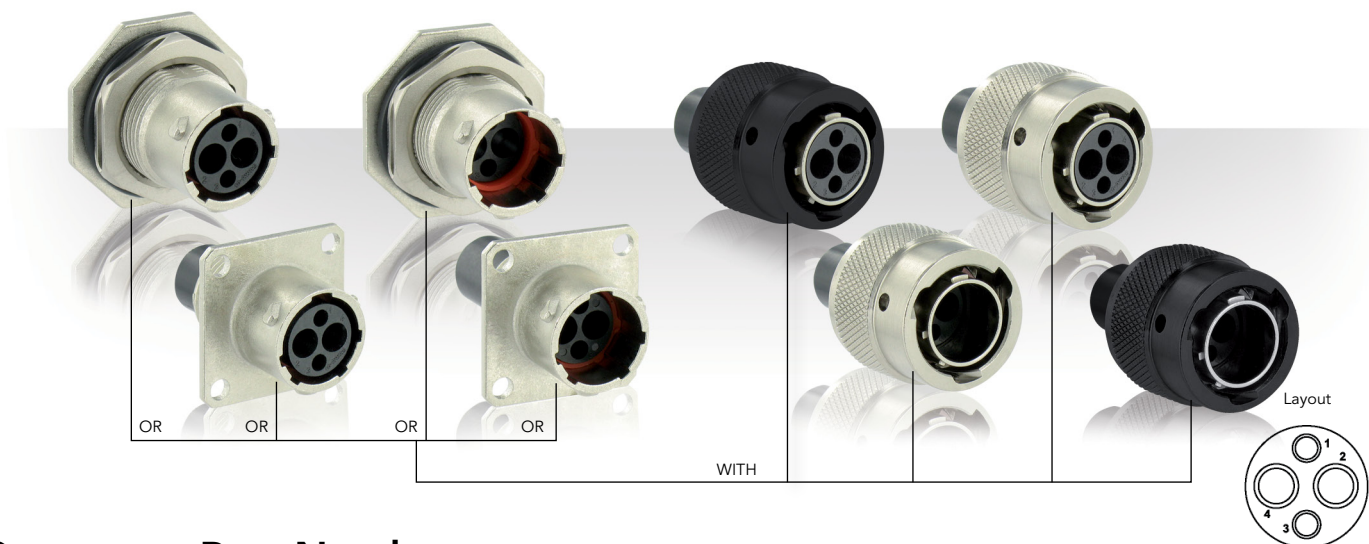
**CSA**  
13A 500V UL94 V-0

**IEC**  
16A 150V 2.5kV 3

### UTO 124 Derating Curves



## 102W2 (Shell size 10, 2x#12 + 2x#20)



## Connector Part Numbers

Drilling pattern see page 176

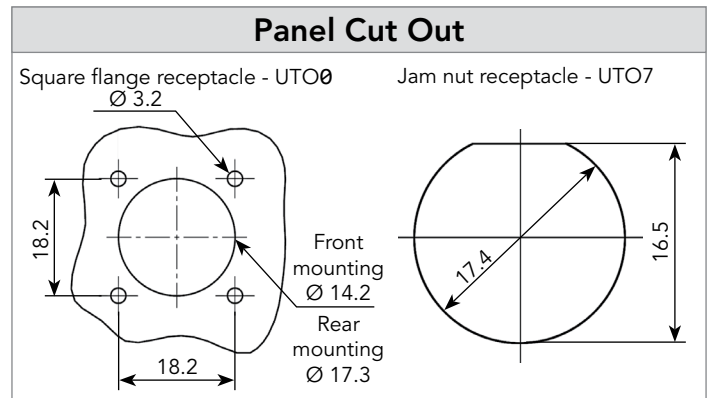
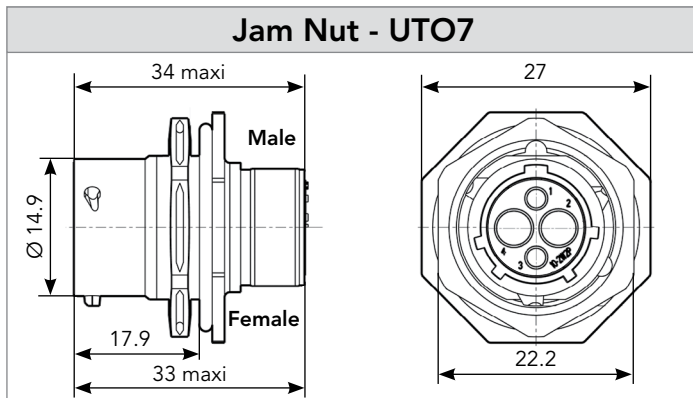
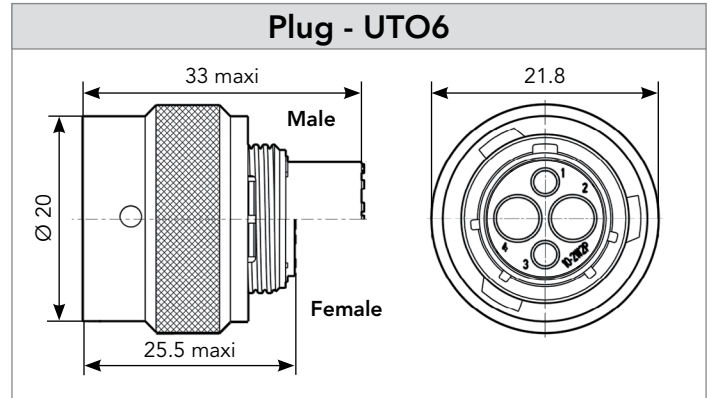
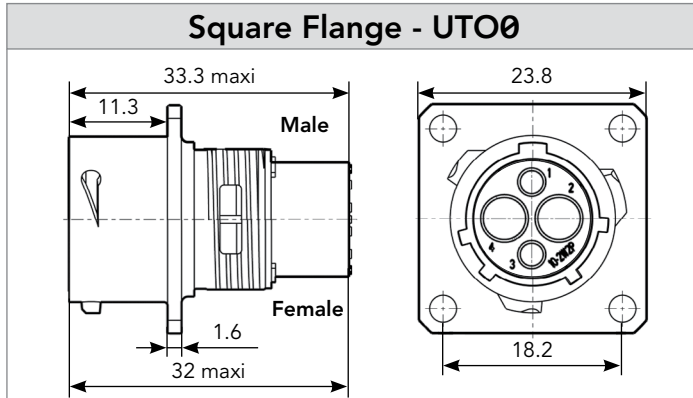
| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                  |                              |
|------------------------------------------|--------------------------|--------------------|------------|------------------------------|------------------------------|
|                                          |                          |                    |            | Male insert                  | Female insert                |
| Contacts supplied separately see page 35 | Square flange receptacle | IP67               | 96h        | <b>UT00102W2PH</b>           | <b>UT00102W2SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00102W2PH6</b>          | <b>UT00102W2SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06102W2PH</b>           | <b>UT06102W2SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06102W2PH02 (Black)</b> | <b>UT06102W2SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07102W2PH</b>           | <b>UT07102W2SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07102W2PH6</b>          | <b>UT07102W2SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT07102W2PH01</b>         | <b>UT07102W2SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07102W2PH601</b>        | <b>UT07102W2SH601</b>        |

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 3/6                        | <b>UT010JCS</b>    | <b>UT010JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 5/8                        | <b>UT010JCSL</b>   | <b>UT010JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 4/6.5                      | <b>UT0S10JCS</b>   | <b>UT0S10JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 5/8.5                      | <b>UT0S10JCSL</b>  | <b>UT0S10JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 5                          | <b>UT010AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT010AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 4/10                       | <b>UT010LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 4/8.8                      | <b>UT0S10JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 4/10                       | <b>UT010JCPGN</b>  |                  |

# 102W2 (Shell size 10, 2x#12 + 2x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

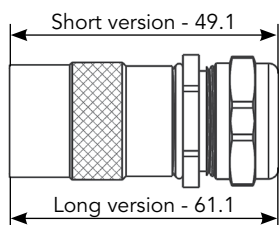


Fig. 1

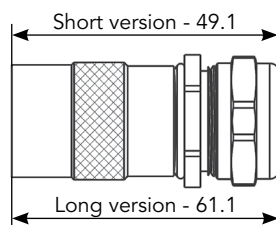


Fig. 2

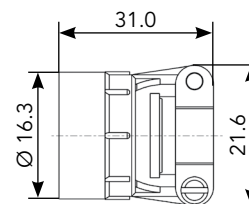


Fig. 5

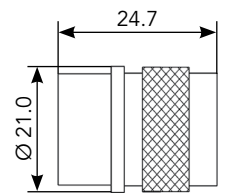


Fig. 6

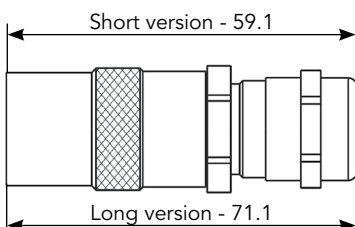


Fig. 3

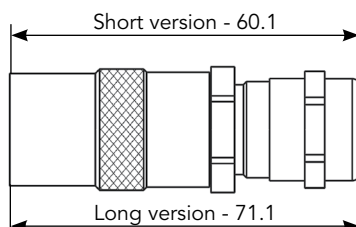


Fig. 4

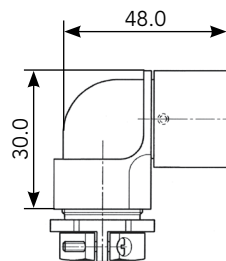


Fig. 7

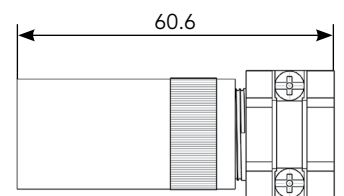


Fig. 8

Note: all dimensions are in mm

## 102W2 (Shell size 10, 2x#12 + 2x#20)

### Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT010DCG\*

**Dustcap (Plug)**



Part number  
UTG610DCG\*

**Gasket**



Part number / Neoprene  
UTFD12B

**Crimp Tooling #12**



Part number Hand Tool  
M317



Part number  
Positioner + Locator Setting  
VGE10077A

**Extraction Tooling #12**



Part number  
Extraction Tool  
51060210924

**Crimp Tooling #20**



Part number  
SHANDLES



Part number  
TOOLKIT



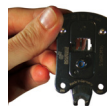
| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | S20RCM*             |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | S20RCM*             |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | S20RCM*             |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | S20SCM20*           |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | S20SCM20*           |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANDLES



Handle

+



Head

=



Complete set

**Extraction Tool #20**



Part number  
RX20D44

\* For dustcap without chain, skip "G", e.g. UT010DC

**102W2** (Shell size 10, 2x#12 + 2x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |
| #12   |                                                                  |       |                             |                             |            |                 |
| Crimp | Machined                                                         | 22    | 82911457NA                  | 82911456A                   | 0.87       | 4.90            |
|       |                                                                  | 20    | 82911459NA                  | 82911458A                   | 1.12       |                 |
|       |                                                                  | 18    | 82911461NA                  | 82911460A                   | 1.42       |                 |
|       |                                                                  | 16    | 82911463NA                  | 82911462A                   | 1.72       |                 |
|       |                                                                  | 14    | 82911465NA                  | 82911464A                   | 2.22       |                 |
|       |                                                                  | 12    | 82911467NA                  | 82911466A                   | 2.82       |                 |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6 or SM24WL3S26

(3): For dimensions see page 132

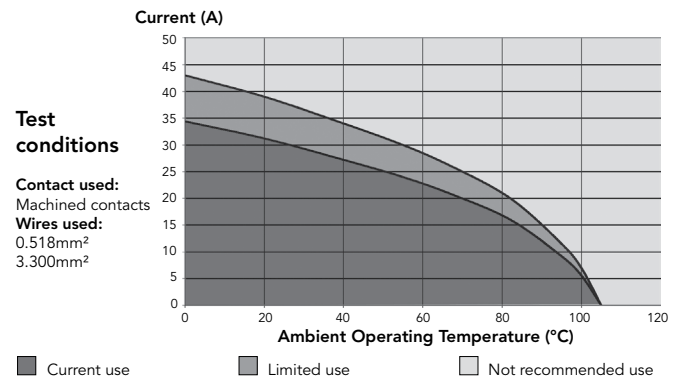
Note: all dimensions are in mm

**Electrical Characteristics**

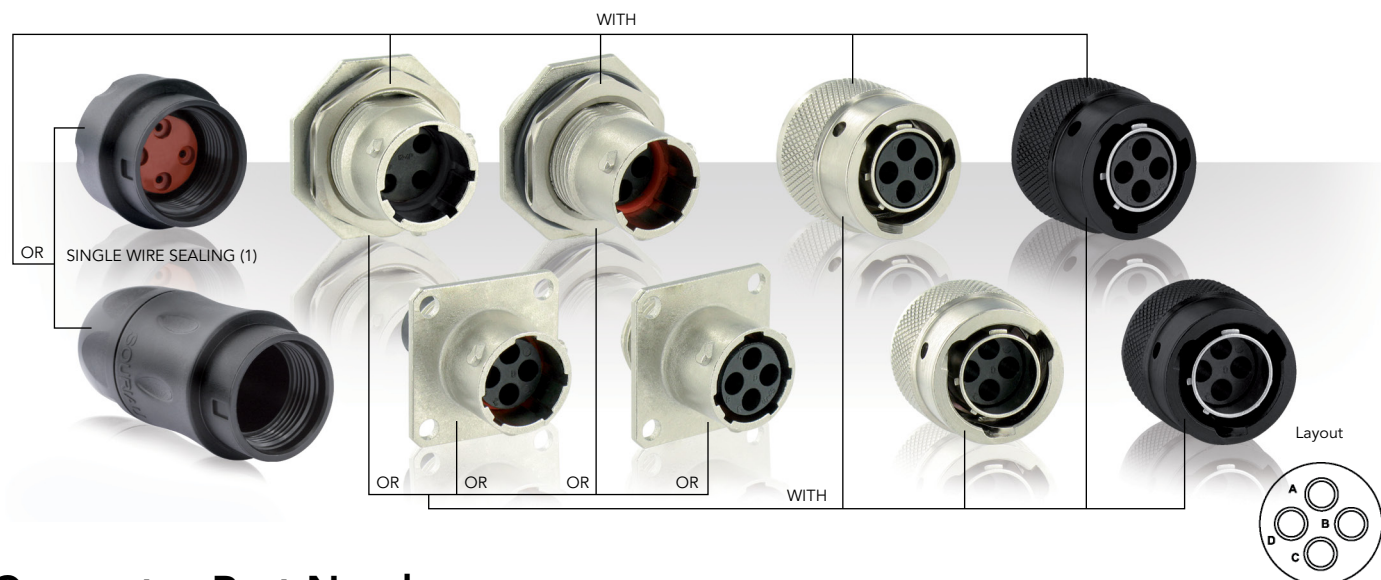
**UL**  
20A 500V UL94 V-0

**CSA**  
18A 500V UL94 V-0

**IEC**  
25A 200V 3kV 3

**UTO 102W2 Derating Curves**

## 104 (Shell size 10, 4x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*                      |                                          |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------------------|------------------------------------------|
|                                          |                          |                    |            | Male insert                       | Female insert                            |
| Contacts supplied separately see page 39 | Square flange receptacle | IP67               | 96h        | <b>UT00104PH</b>                  | <b>UT00104SH</b>                         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00104PH6</b>                 | <b>UT00104SH6</b>                        |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06104PH</b>                  | <b>UT06104SH<sup>(1)</sup></b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06104PH02 (Black)</b>        | <b>UT06104SH02<sup>(1)</sup> (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07104PH<sup>(1)</sup></b>    | <b>UT07104SH</b>                         |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07104PH6<sup>(1)</sup></b>   | <b>UT07104SH6</b>                        |
|                                          |                          | IP67               | 96h        | <b>UT07104PH01<sup>(1)</sup></b>  | <b>UT07104SH01</b>                       |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07104PH601<sup>(1)</sup></b> | <b>UT07104SH601</b>                      |

\* Other discrimination keying option, see page 180

(1): For single wire sealing solution please add GN or GJC after UT06 or UT07. Eg UT07GN104PH

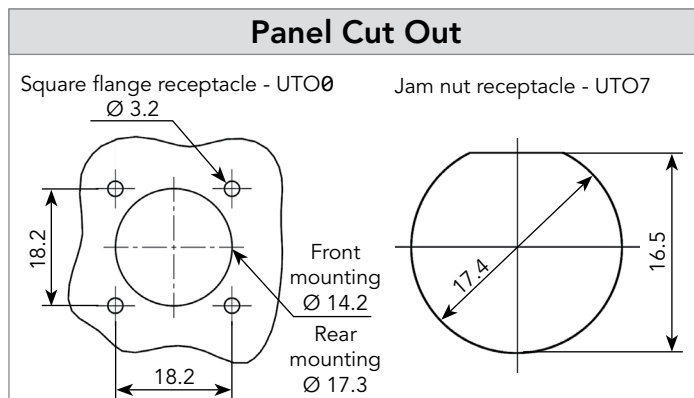
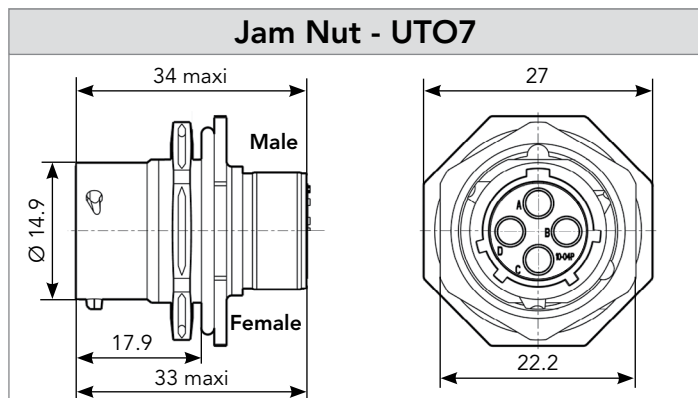
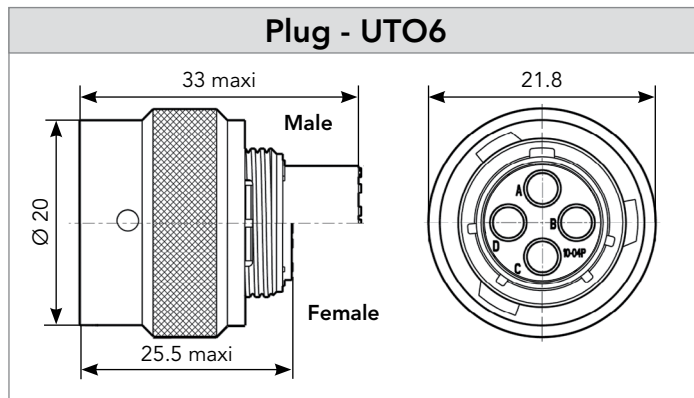
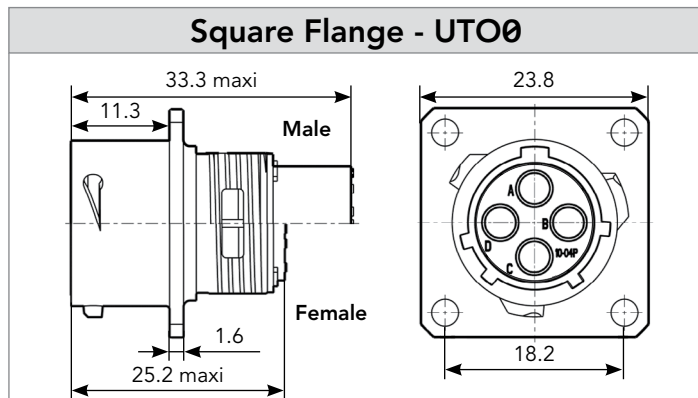
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 3/6                        | <b>UT010JCS</b>    | <b>UT010JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 5/8                        | <b>UT010JCSL</b>   | <b>UT010JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 4/6.5                      | <b>UT0S10JCS</b>   | <b>UT0S10JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 5/8.5                      | <b>UT0S10JCSL</b>  | <b>UT0S10JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 5                          | <b>UT010AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT010AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 4/10                       | <b>UT010LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 4/8.8                      | <b>UT0S10JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 4/10                       | <b>UT010JCPGN</b>  |                  |



# 104 (Shell size 10, 4x#16)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

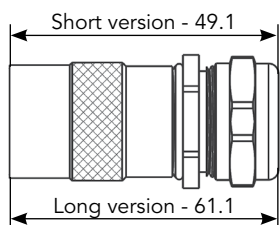


Fig. 1

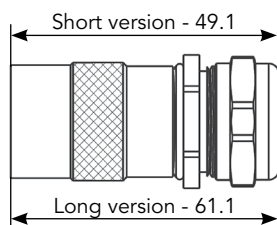


Fig. 2

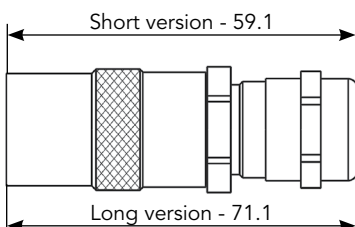


Fig. 3

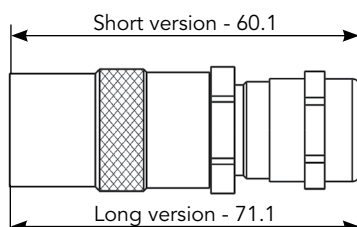


Fig. 4

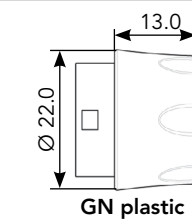


Fig. 5

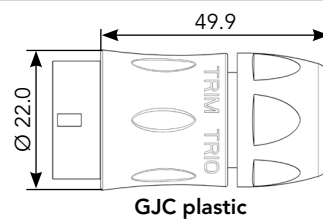


Fig. 6

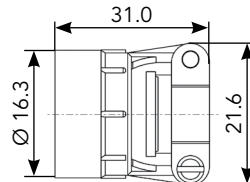


Fig. 7

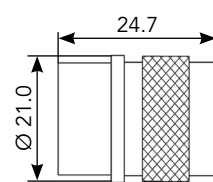
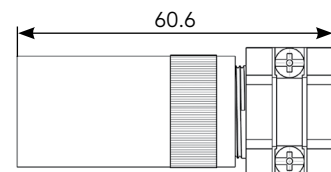
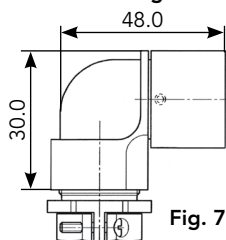


Fig. 8



Note: all dimensions are in mm

104 (Shell size 10, 4x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT010DCG\*

**Dustcap (Plug)**



Part number  
UTG610DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD12B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

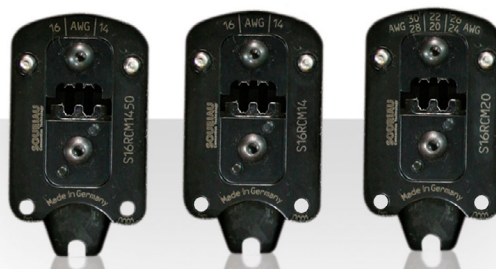
See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT010DC

104 (Shell size 10, 4x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

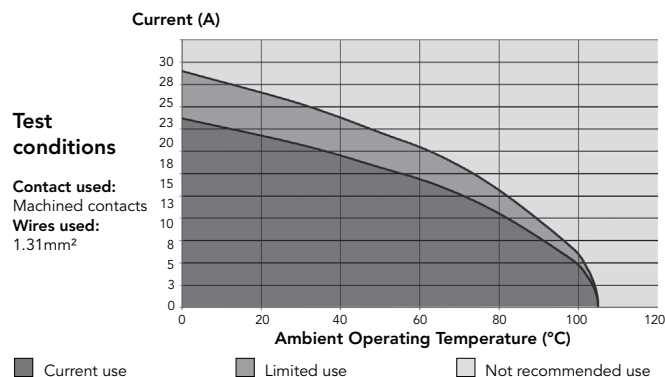
### Electrical Characteristics

**UL**  
10A 500V UL94 V-0

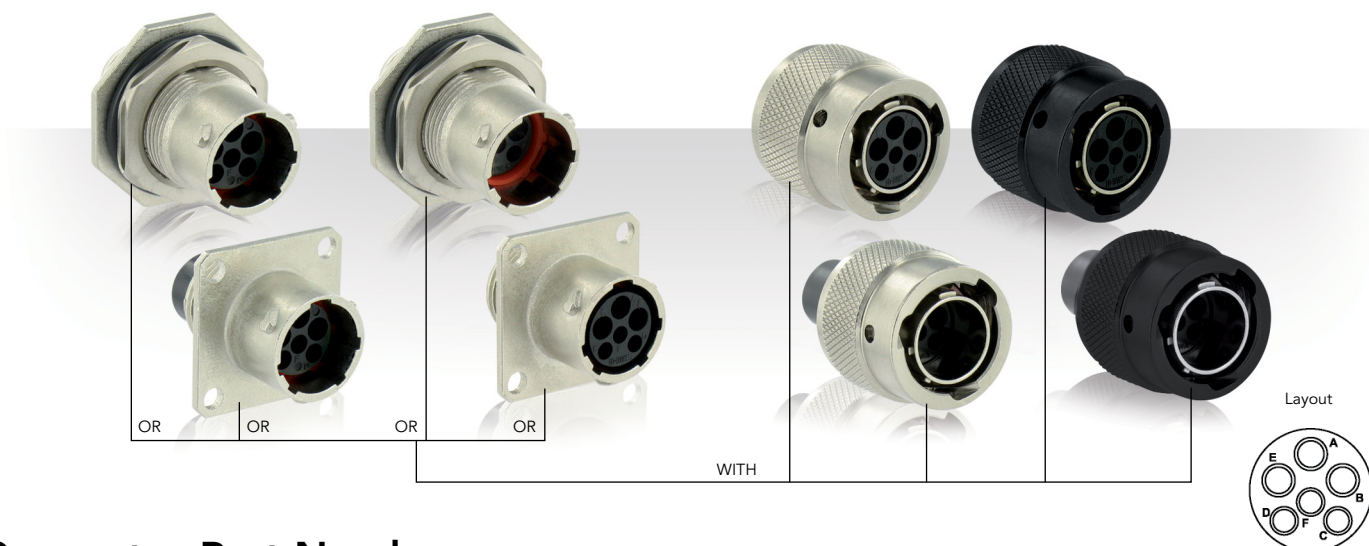
**CSA**  
7A 500V UL94 V-0

**IEC**  
13A 150V 2.5kV 3

### UTO 104 Derating Curves



## 103W3 (Shell size 10, 3x#16 + 3x#20)



## Connector Part Numbers

Drilling pattern see page 176

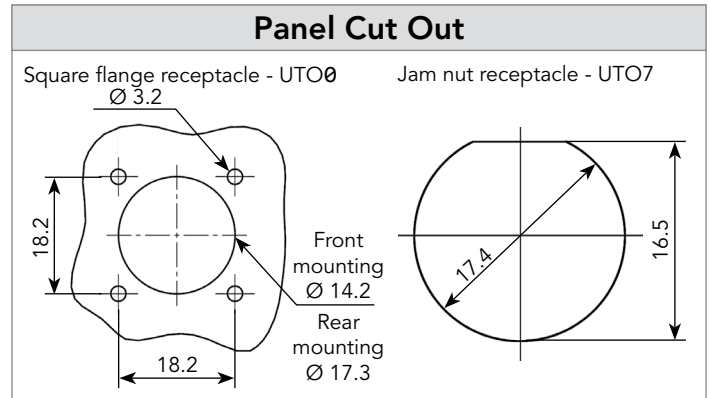
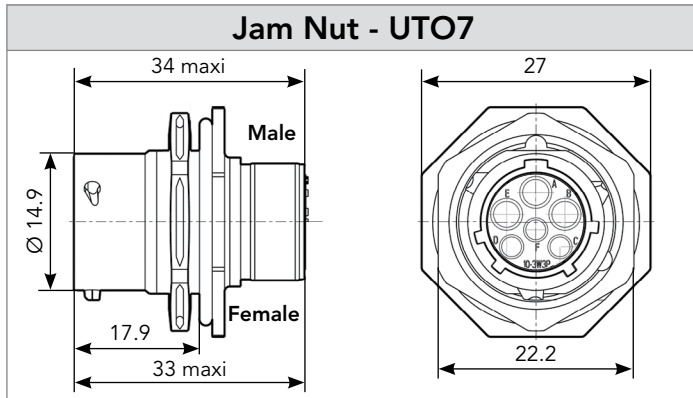
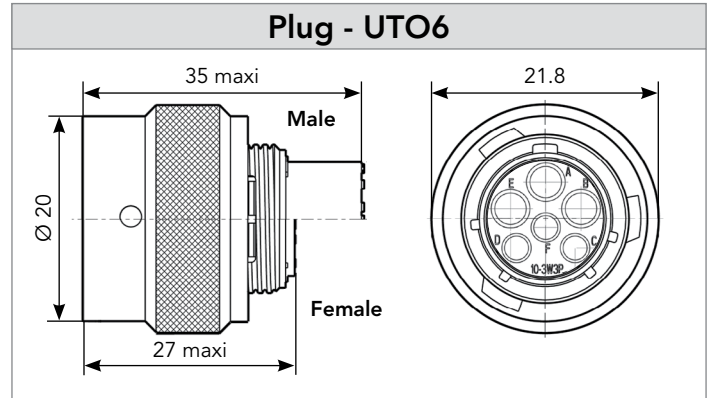
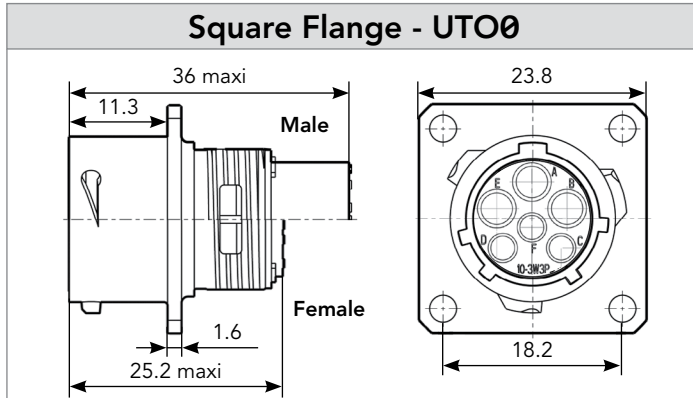
| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                  |                              |
|------------------------------------------|--------------------------|--------------------|------------|------------------------------|------------------------------|
|                                          |                          |                    |            | Male insert                  | Female insert                |
| Contacts supplied separately see page 43 | Square flange receptacle | IP67               | 96h        | <b>UT00103W3PH</b>           | <b>UT00103W3SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00103W3PH6</b>          | <b>UT00103W3SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06103W3PH</b>           | <b>UT06103W3SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06103W3PH02 (Black)</b> | <b>UT06103W3SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07103W3PH</b>           | <b>UT07103W3SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07103W3PH6</b>          | <b>UT07103W3SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT07103W3PH01</b>         | <b>UT07103W3SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07103W3PH601</b>        | <b>UT07103W3SH601</b>        |

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 3/6                        | <b>UT010JCS</b>    | <b>UT010JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 5/8                        | <b>UT010JCSL</b>   | <b>UT010JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 4/6.5                      | <b>UT0S10JCS</b>   | <b>UT0S10JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 5/8.5                      | <b>UT0S10JCSL</b>  | <b>UT0S10JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 5                          | <b>UT010AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT010AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 4/10                       | <b>UT010LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 4/8.8                      | <b>UT0S10JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 4/10                       | <b>UT010JCPGN</b>  |                  |

# 103W3 (Shell size 10, 3x#16 + 3x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

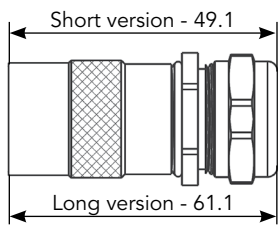


Fig. 1

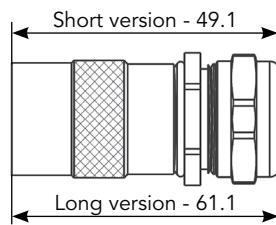


Fig. 2

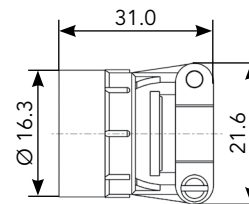


Fig. 5

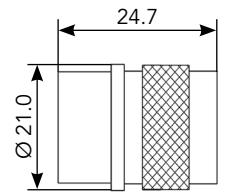


Fig. 6

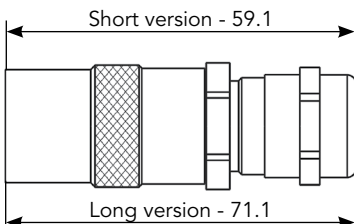


Fig. 3

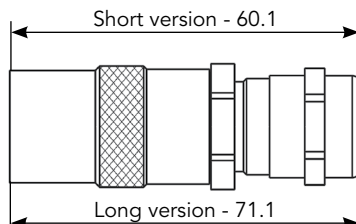


Fig. 4

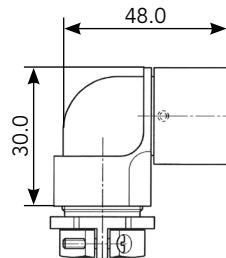


Fig. 7

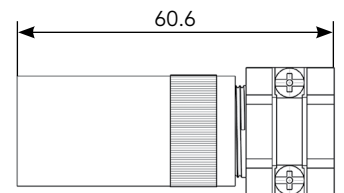


Fig. 8

Note: all dimensions are in mm

# 103W3 (Shell size 10, 3x#16 + 3x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT010DCG\***

**Dustcap (Plug)**



Part number  
**UTG610DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD12B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Extraction Tool #20**



Part number  
**RX20D44**

**Crimp Tooling (without Shandles)**

| Contacts                       | Contact size                        | Part number of head                                                               |
|--------------------------------|-------------------------------------|-----------------------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | <b>S16RCM20*</b>                                                                  |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | <b>S16RCM20*</b>                                                                  |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | <b>S16RCM20*</b>                                                                  |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | <b>S16RCM20*</b>                                                                  |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | <b>S16RCM16*</b>                                                                  |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | <b>S16RCM14*</b>                                                                  |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | <b>S16SCM20*</b>                                                                  |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | <b>S16SCM20*</b>                                                                  |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | <b>S16SCML1*</b>                                                                  |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | <b>S16SCML1*</b>                                                                  |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | <b>S16SCML11*</b>                                                                 |
| RMDXK10D28K                    | Coaxial contacts                    | <b>M10S1J<br/>with die set &amp;<br/>stop bushing<br/>see page<br/>173 to 174</b> |
| RCDXK1D28K                     |                                     |                                                                                   |
| RM/RC DX60xxD28K               |                                     |                                                                                   |
| RM/RC DXK10D28 +<br>york090    |                                     |                                                                                   |
| RM/RC DX60xxD28                | Standard contacts<br>#20<br>Ø 1mm   | <b>S20RCM</b>                                                                     |
| RM/RC 24W3K <sup>(1)</sup>     |                                     | <b>S20RCM</b>                                                                     |
| RM/RC 20W3K <sup>(1)</sup>     |                                     | <b>S20RCM</b>                                                                     |
| RM/RC 18W3K <sup>(1)</sup>     |                                     | <b>S20RCM</b>                                                                     |
| SM/SC 24WL3 <sup>(1)(2)</sup>  |                                     | <b>S20SCM20</b>                                                                   |
| SM/SC 20WL3 <sup>(1)(2)</sup>  |                                     | <b>S20SCM20</b>                                                                   |

(1): Example of plating, for other plating options see page 129  
 (2): loose contact  
 \* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT010DC



# 103W3 (Shell size 10, 3x#16 + 3x#20)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
| 14      |                                                                  | SM14M1TK6 <sup>(1)(2)</sup>     | SC14M1TK6 <sup>(1)(2)</sup>  | -                            | 3.20       |                 |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
| #20     |                                                                  |                                 |                              |                              |            |                 |
| Crimp   | Machined                                                         | 26-24                           | RM24W3K                      | RC24W3K                      | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20W3K                      | RC20W3K                      | 1.15       | 1.60            |
|         |                                                                  | 20-18                           | RM18W3K                      | RC18W3K                      | 1.30       | 2.10            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24W3TK6 <sup>(1)(2)</sup>  | SC24W3TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 26-24                           | SM24W3S26 <sup>(1)(2)</sup>  | SC24W3S25 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20W3TK6 <sup>(1)(2)</sup>  | SC20W3TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 22-20                           | SM20W3S26 <sup>(1)(2)</sup>  | SC20W3S25 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RMW5016K                     | RCW5016K                     | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6 or SM24WL3S26

(3): For dimensions see page 132

Note: all dimensions are in mm

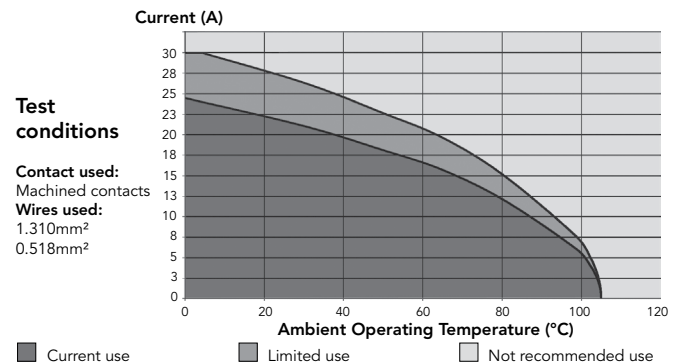
## Electrical Characteristics

**UL**  
5A 250V UL94 V-0

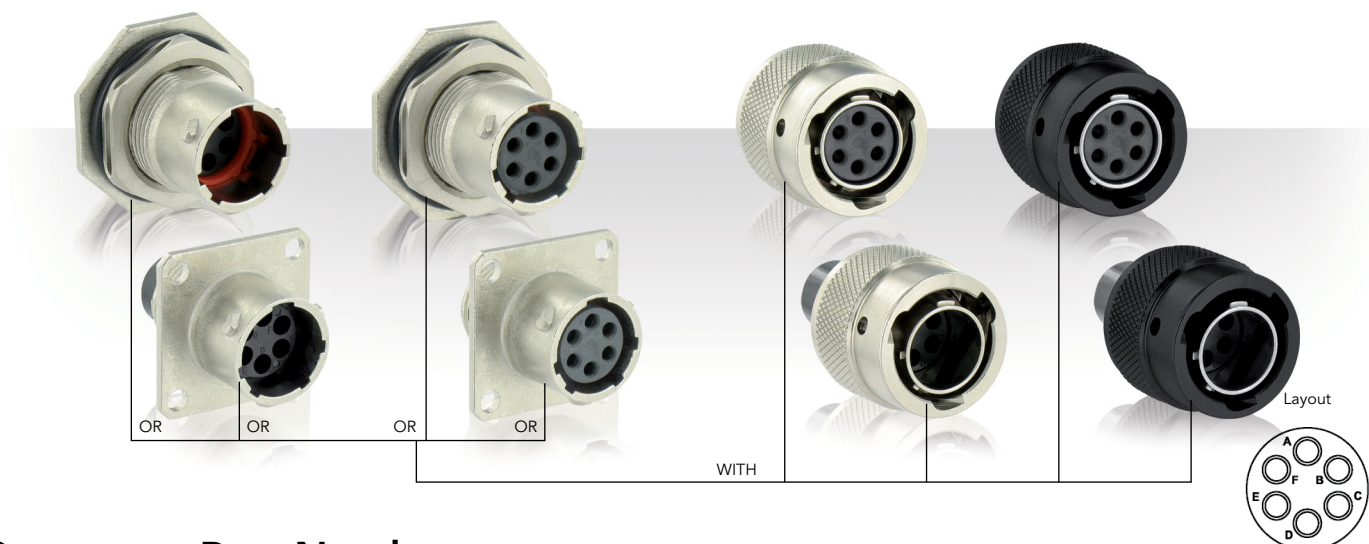
**CSA**  
5A 200V UL94 V-0

**IEC**  
5A 40V 1.5kV 3

## UTO 103W3 Derating Curves



# 106 (Shell size 10, 6x#20)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                          |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 47 | Square flange receptacle | IP67               | 96h        | UT0W0106PH           | UT0W0106SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W0106PH6          | UT0W0106SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W6106PH           | UT0W6106SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT0W6106PH02 (Black) | UT0W6106SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT0W7106PH           | UT0W7106SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT0W7106PH6          | UT0W7106SH6          |
|                                          |                          | IP67               | 96h        | UT0W7106PH01         | UT0W7106SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W7106PH601        | UT0W7106SH601        |

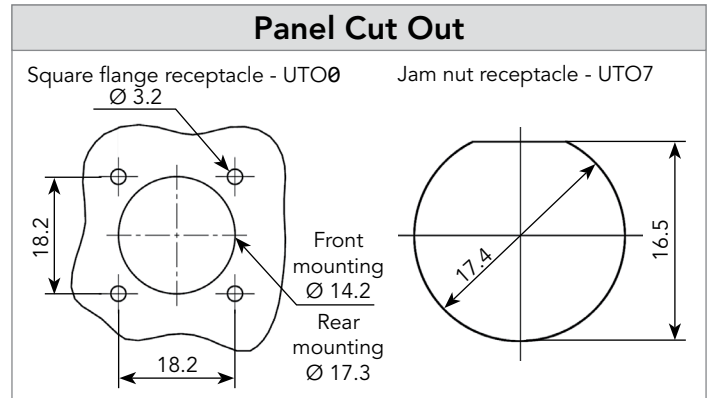
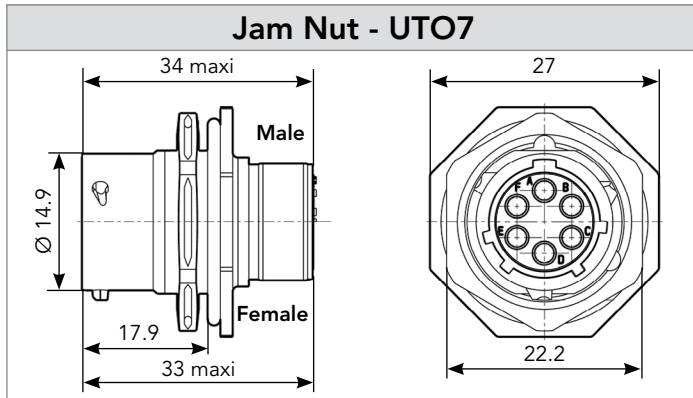
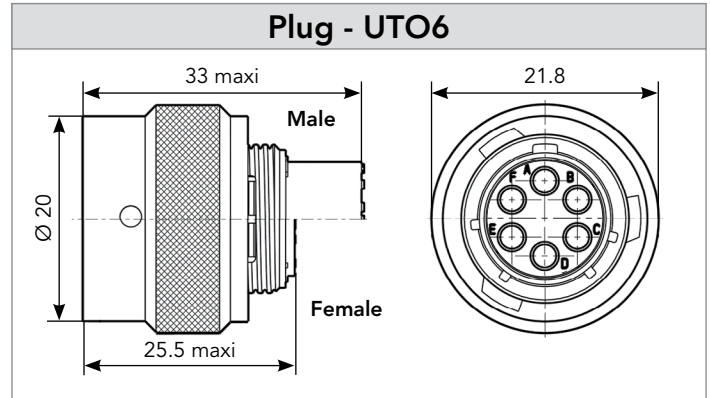
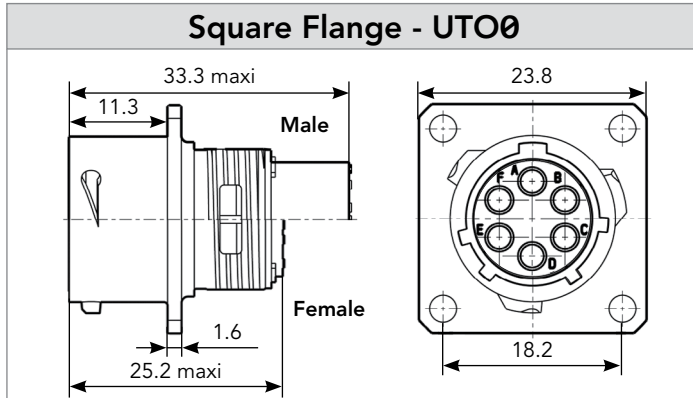
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 3/6                        | UT010JCS      | UT010JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 5/8                        | UT010JCSL     | UT010JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 4/6.5                      | UT0S10JCS     | UT0S10JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 5/8.5                      | UT0S10JCSL    | UT0S10JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 5                          | UT010AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT010AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 4/10                       | UT010LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 4/8.8                      | UT0S10JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 4/10                       | UT010JCPGN    |              |

# 106 (Shell size 10, 6x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

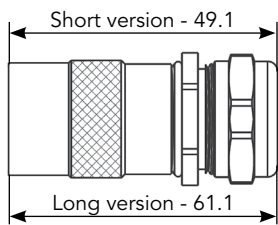


Fig. 1

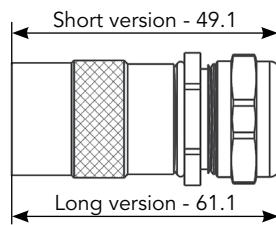


Fig. 2

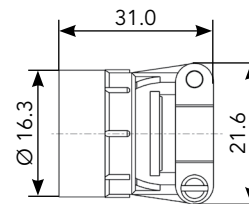


Fig. 5

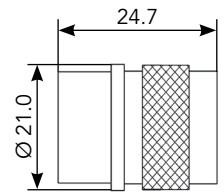


Fig. 6

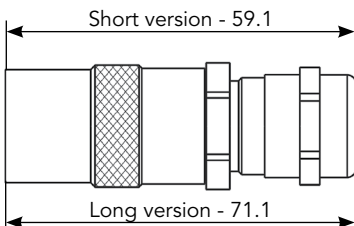


Fig. 3

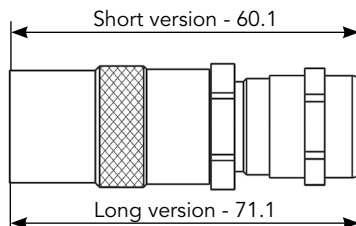


Fig. 4

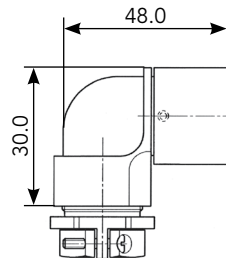


Fig. 7

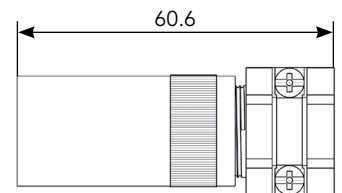


Fig. 8

Note: all dimensions are in mm

**106** (Shell size 10, 6x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT010DCG\***

**Dustcap (Plug)**



Part number  
**UTG610DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD12B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANGLES


 + 
 
 = 
 

Handle      Head      Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT024DC

**106** (Shell size 10, 6x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

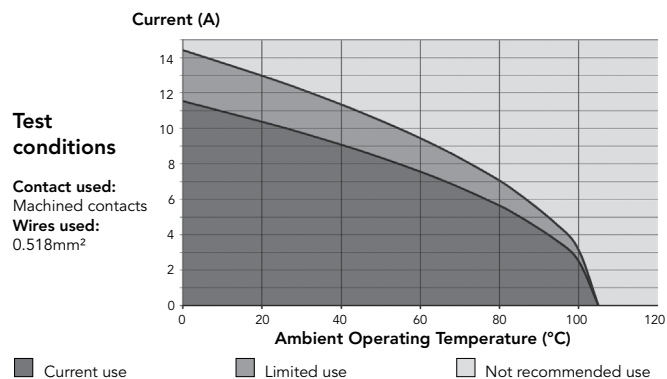
6

**Electrical Characteristics**

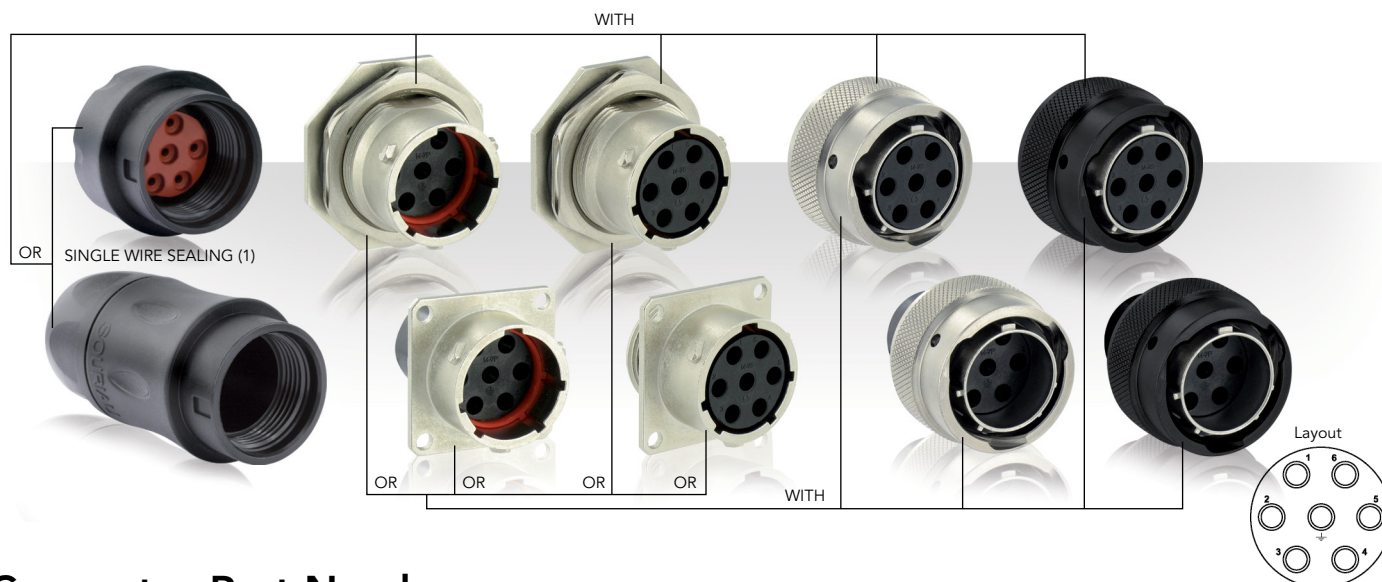
**UL**  
5A 250V UL94 V-0

**CSA**  
4A 250V UL94 V-0

**IEC**  
7A 80V 1.5kV 3

**UTO 106 Derating Curves**

# 147 (Shell size 14, 6 + ground, 7x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                       |                                          |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------------------|------------------------------------------|
|                                          |                          |                    |            | Male insert                       | Female insert                            |
| Contacts supplied separately see page 51 | Square flange receptacle | IP67               | 96h        | <b>UT00147PH</b>                  | <b>UT00147SH</b>                         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00147PH6</b>                 | <b>UT00147SH6</b>                        |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06147PH</b>                  | <b>UT06147SH<sup>(1)</sup></b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06147PH02 (Black)</b>        | <b>UT06147SH02<sup>(1)</sup> (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07147PH<sup>(1)</sup></b>    | <b>UT07147SH</b>                         |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07147PH6<sup>(1)</sup></b>   | <b>UT07147SH6</b>                        |
|                                          |                          | IP67               | 96h        | <b>UT07147PH01<sup>(1)</sup></b>  | <b>UT07147SH01</b>                       |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07147PH601<sup>(1)</sup></b> | <b>UT07147SH601</b>                      |

(1): For single wire sealing solution please add GN or GJC after UT06 or UT07. Eg UT07GN147PH

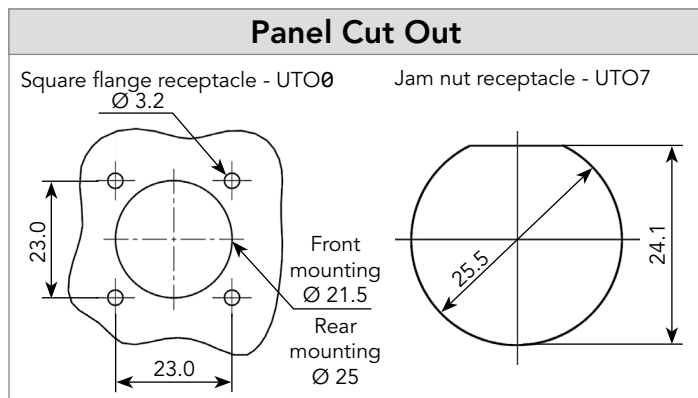
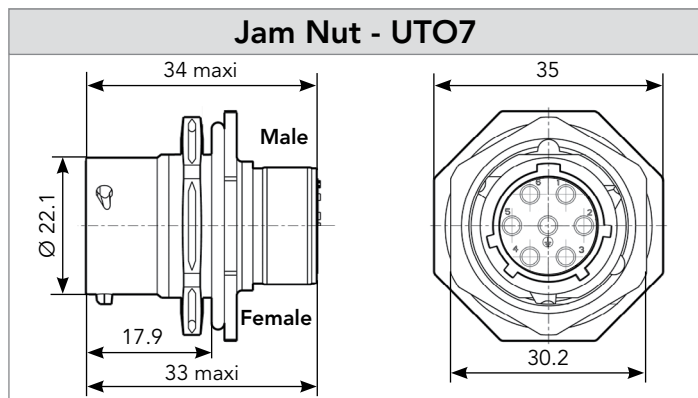
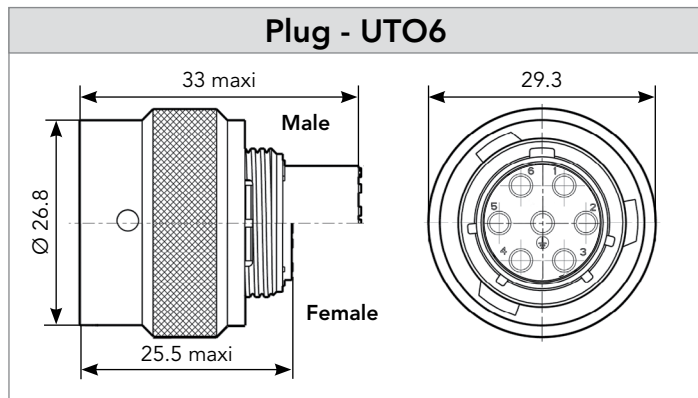
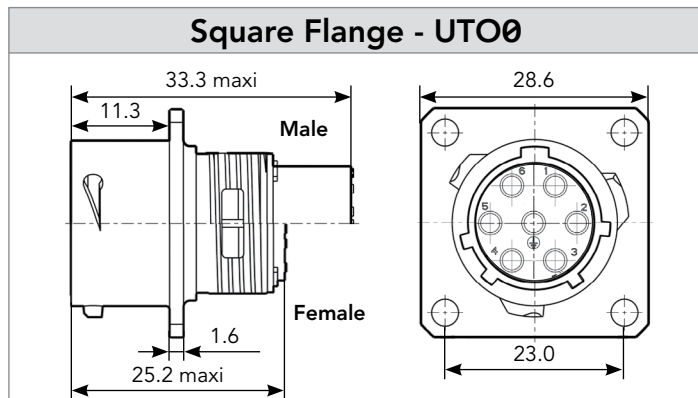
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | <b>UT014JCS</b>    | <b>UT014JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | <b>UT014JCSL</b>   | <b>UT014JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | <b>UT0S14JCS</b>   | <b>UT0S14JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | <b>UT0S14JCSL</b>  | <b>UT0S14JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | <b>UT014AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT014AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | <b>UT014LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | <b>UT0S14JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | <b>UT014JCPGN</b>  |                  |



# 147 (Shell size 14, 6 + ground, 7x#16)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

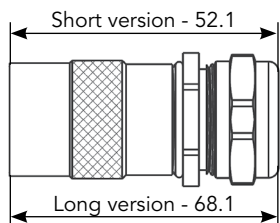


Fig. 1

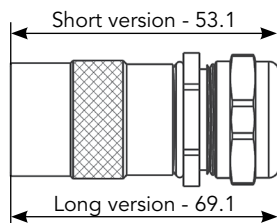


Fig. 2

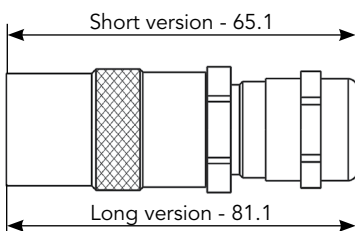


Fig. 3

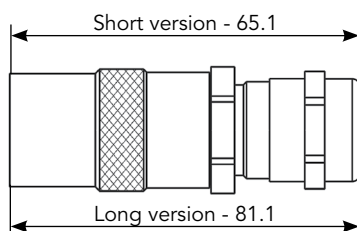
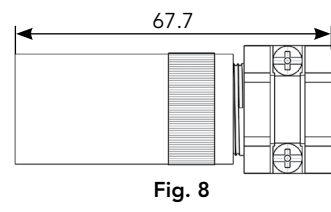
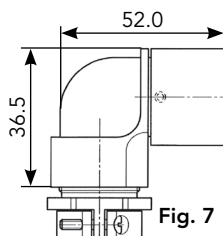
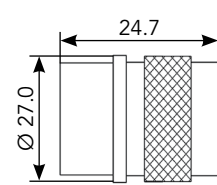
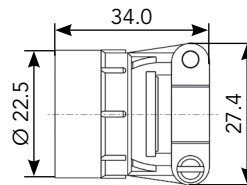
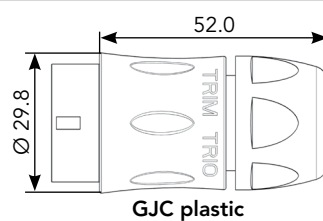
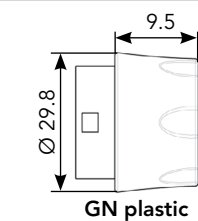


Fig. 4



Note: all dimensions are in mm

**147** (Shell size 14, 6 + ground, 7x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT014DCG\***

**Dustcap (Plug)**



Part number  
**UTG614DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD14B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + york090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT014DC

**147** (Shell size 14, 6 + ground, 7x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

(3): For dimensions see page 132

Note: all dimensions are in mm

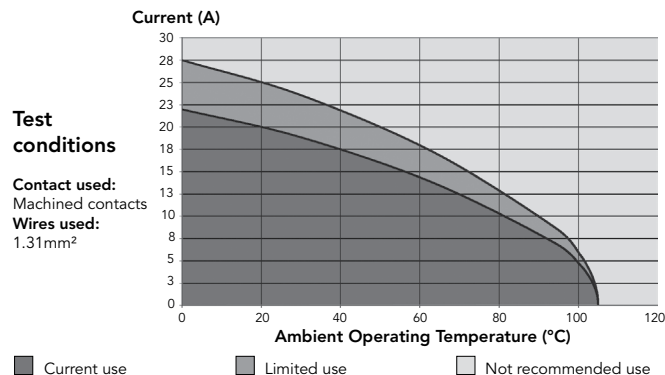
### Electrical Characteristics

**UL**  
10A 500V UL94 V-0

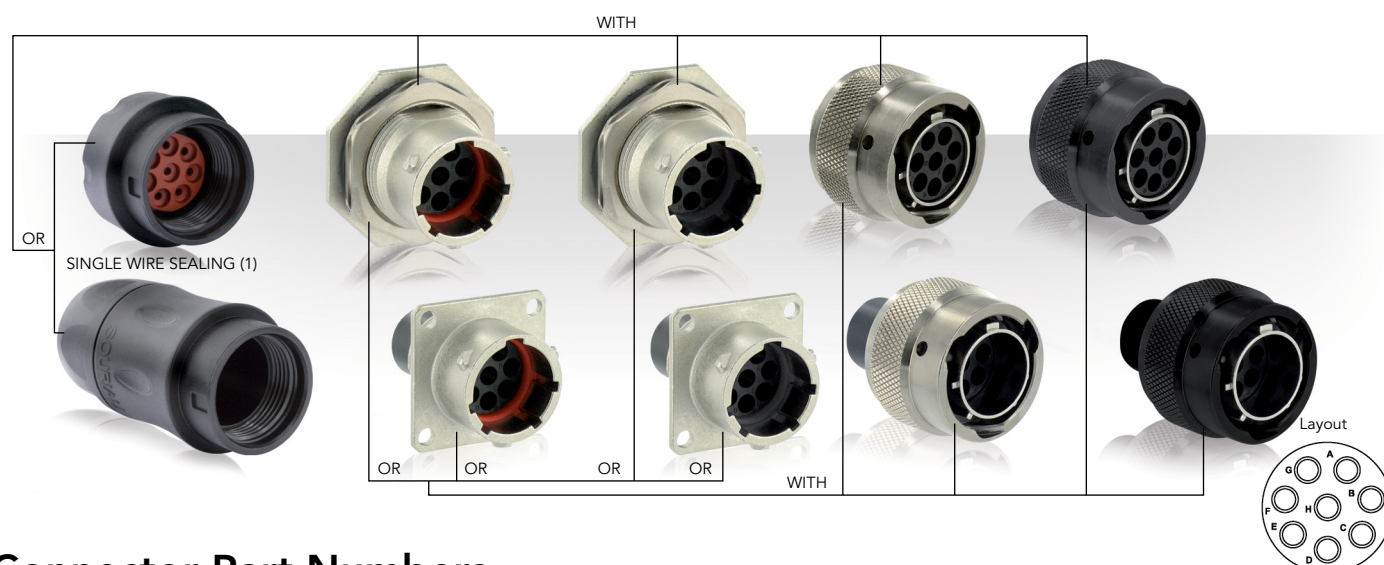
**CSA**  
7A 500V UL94 V-0

**IEC**  
16A 150V 2.5kV 3

### UTO 147 Derating Curves



# 128 (Shell size 12, 8x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*                      |                                          |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------------------|------------------------------------------|
|                                          |                          |                    |            | Male insert                       | Female insert                            |
| Contacts supplied separately see page 55 | Square flange receptacle | IP67               | 96h        | <b>UT00128PH</b>                  | <b>UT00128SH</b>                         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00128PH6</b>                 | <b>UT00128SH6</b>                        |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06128PH</b>                  | <b>UT06128SH<sup>(1)</sup></b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06128PH02 (Black)</b>        | <b>UT06128SH02<sup>(1)</sup> (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07128PH<sup>(1)</sup></b>    | <b>UT07128SH</b>                         |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07128PH6<sup>(1)</sup></b>   | <b>UT07128SH6</b>                        |
|                                          |                          | IP67               | 96h        | <b>UT07128PH01<sup>(1)</sup></b>  | <b>UT07128SH01</b>                       |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07128PH601<sup>(1)</sup></b> | <b>UT07128SH601</b>                      |

\* Other discrimination keying option, see page 180

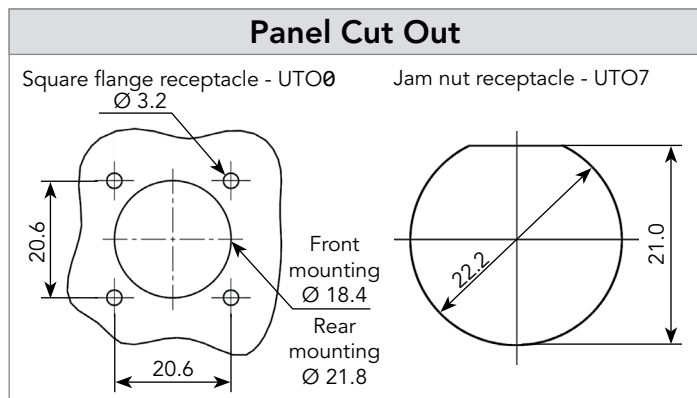
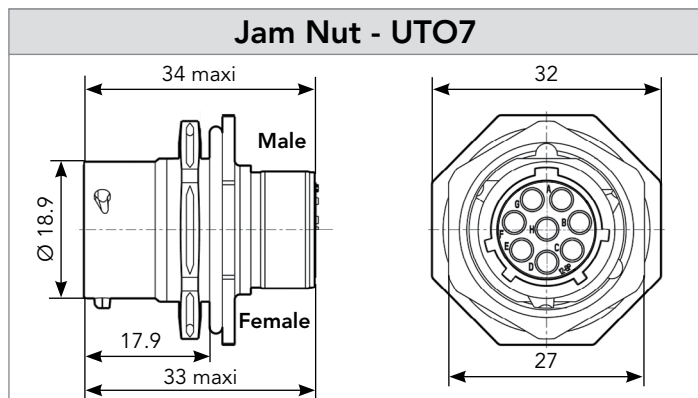
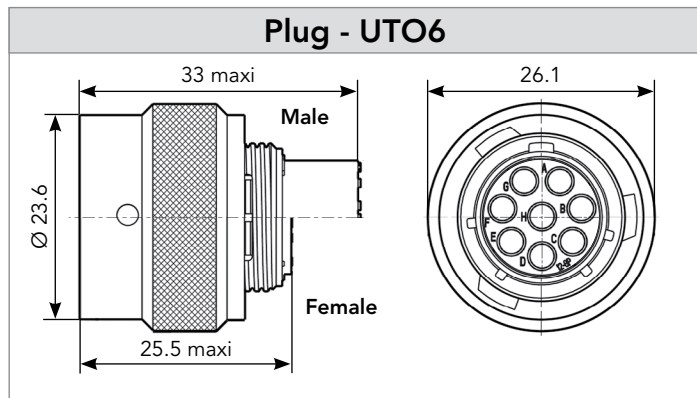
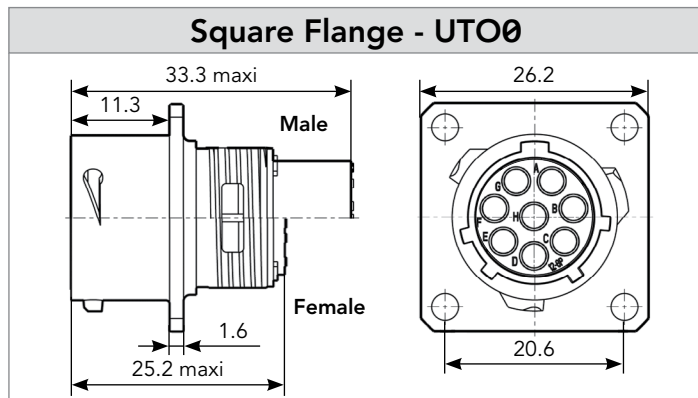
(1): For single wire sealing solution please add GN or GJC after UT06 or UT07. Eg UT07GN128PH

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | UT012JCS      | UT012JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | UT012JCSL     | UT012JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | UT0S12JCS     | UT0S12JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | UT0S12JCSL    | UT0S12JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 8.2                        | UT012AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT012AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/12                     | UT012LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 04/11.9                    | UT0S12JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 04/11.9                    | UT012JCPGN    |              |

128 (Shell size 12, 8x#16)

## Dimensions



### Backshells (for Mated Connector Length: See Page 153)

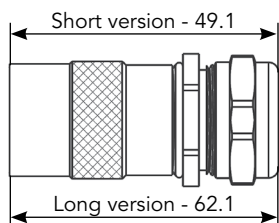


Fig. 1

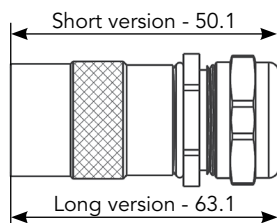


Fig. 2

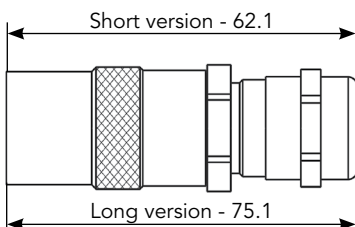


Fig. 3

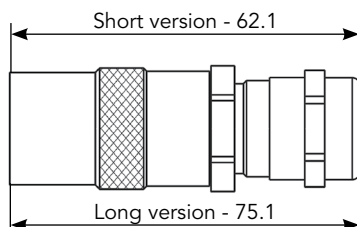


Fig. 4

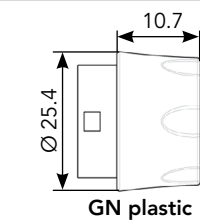


Fig. 5

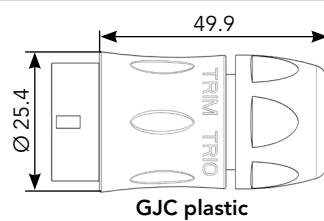
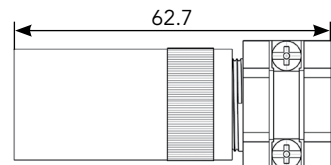
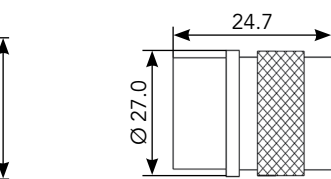
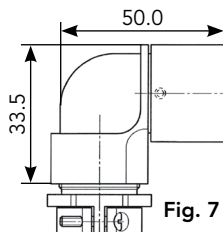
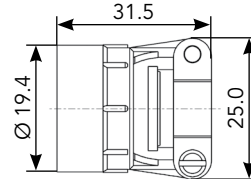


Fig. 6



Note: all dimensions are in mm



128 (Shell size 12, 8x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT012DCG\*

**Dustcap (Plug)**



Part number  
UTG612DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD13B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

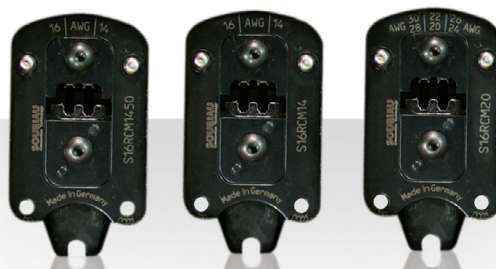
See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT012DC



**128** (Shell size 12, 8x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

(3): For dimensions see page 132

Note: all dimensions are in mm

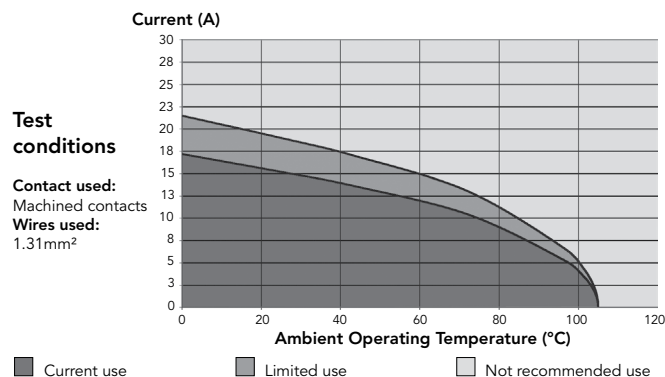
### Electrical Characteristics

**UL**  
10A 500V UL94 V-0

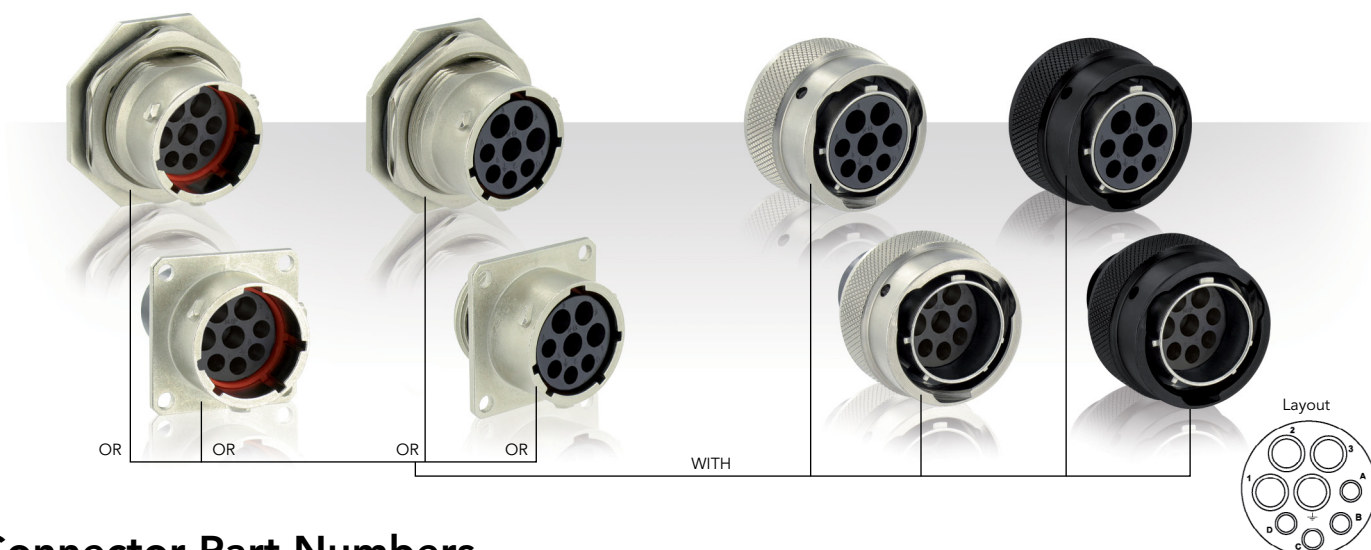
**CSA**  
7A 500V UL94 V-0

**IEC**  
10A 125V 2.5kV 3

### UTO 128 Derating Curves



## 148 (Shell size 14, 4x#12 + 4x#16)



## Connector Part Numbers

Drilling pattern see page 176

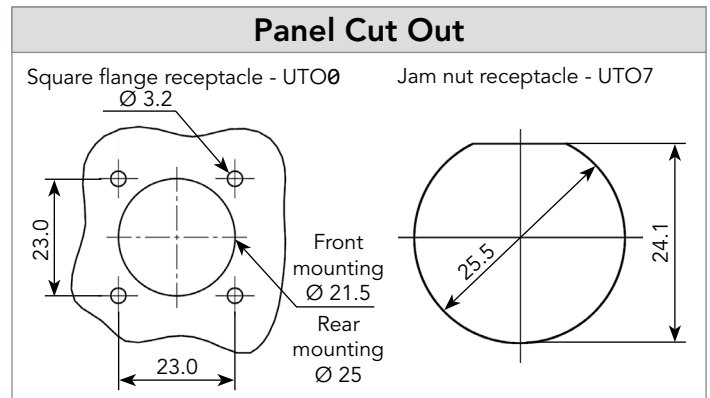
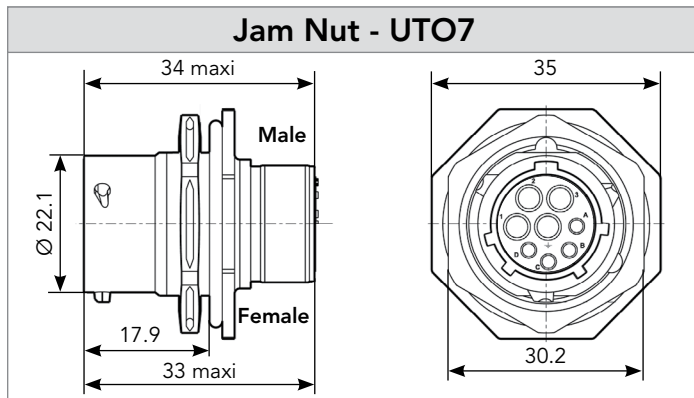
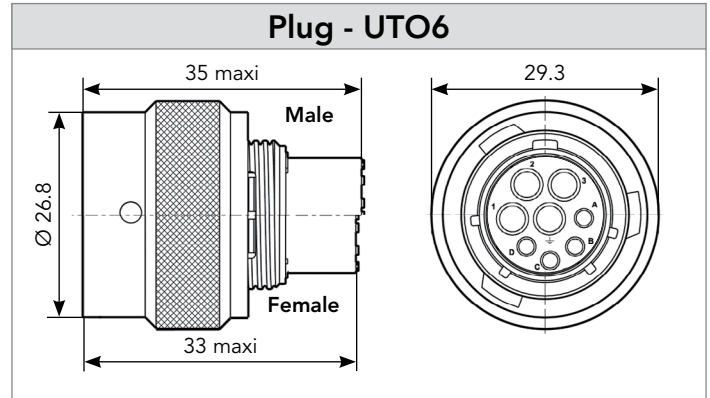
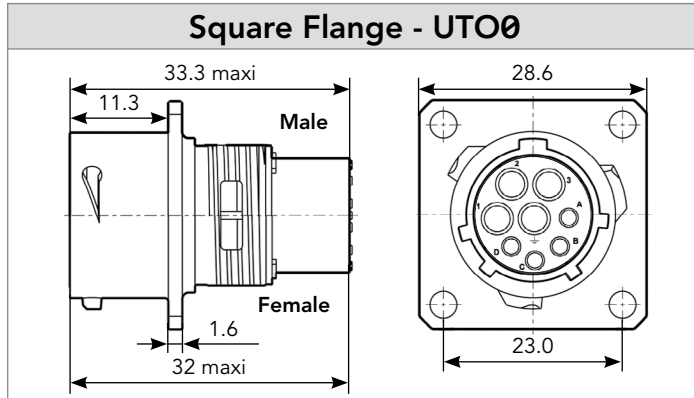
| Contact type                             | Connector type           | Sealing            | Salt spray | Part number                |                            |
|------------------------------------------|--------------------------|--------------------|------------|----------------------------|----------------------------|
|                                          |                          |                    |            | Male insert                | Female insert              |
| Contacts supplied separately see page 59 | Square flange receptacle | IP67               | 96h        | <b>UT00148PH</b>           | <b>UT00148SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT00148PH6</b>          | <b>UT00148SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT06148PH</b>           | <b>UT06148SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT06148PH02 (Black)</b> | <b>UT06148SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT07148PH</b>           | <b>UT07148SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT07148PH6</b>          | <b>UT071482SH6</b>         |
|                                          |                          | IP67               | 96h        | <b>UT071482PH01</b>        | <b>UT07148SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT07148PH601</b>        | <b>UT07148SH601</b>        |

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | <b>UT014JCS</b>    | <b>UT014JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | <b>UT014JCSL</b>   | <b>UT014JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | <b>UT0S14JCS</b>   | <b>UT0S14JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | <b>UT0S14JCSL</b>  | <b>UT0S14JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | <b>UT014AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT014AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | <b>UT014LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | <b>UT0S14JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | <b>UT014JCPGN</b>  |                  |

**148** (Shell size 14, 4x#12 + 4x#16)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

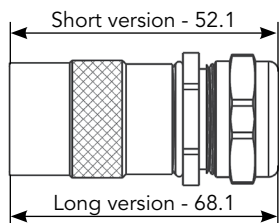


Fig. 1

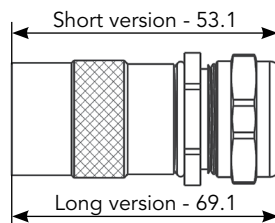


Fig. 2

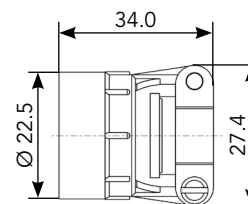


Fig. 5

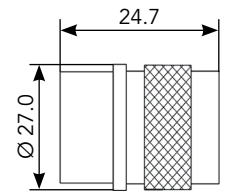


Fig. 6

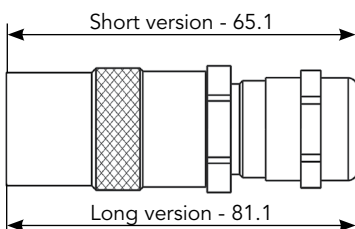


Fig. 3

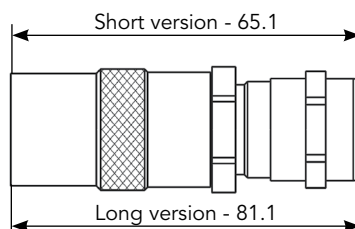


Fig. 4

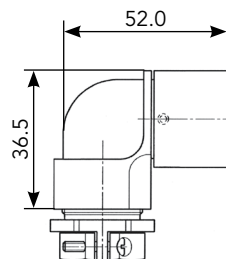


Fig. 7

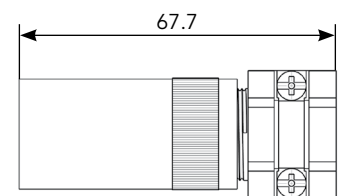


Fig. 8

Note: all dimensions are in mm

148 (Shell size 14, 4x#12 + 4x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT014DCG\*

**Dustcap (Plug)**



Part number  
UTG614DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD14B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPE0

See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling #12**



Part number Hand Tool  
M317



Part number  
Positioner + Locator Setting  
VGE10078A



Part number  
Extraction Tool  
51060210924

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head |
|--------------------------------|-------------------------------------|---------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*           |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*           |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*           |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*           |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*           |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*           |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*           |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*           |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*           |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*           |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*          |
| RMDXK10D28K                    |                                     | Coaxial contacts    |
| RCDXK1D28K                     |                                     |                     |
| RM/RC DX60xxD28K               |                                     |                     |
| RM/RC DXK10D28 + yorK090       |                                     |                     |
| RM/RC DX60xxD28                |                                     |                     |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT014DC

# UTO Series | Connector

**148** (Shell size 14, 4x#12 + 4x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
| #12     |                                                                  |                                 |                              |                              |            |                 |
| Crimp   | Machined                                                         | 22                              | 82911457NA                   | 82911456A                    | 0.87       | 4.90            |
|         |                                                                  | 20                              | 82911459NA                   | 82911458A                    | 1.12       |                 |
|         |                                                                  | 18                              | 82911461NA                   | 82911460A                    | 1.42       |                 |
|         |                                                                  | 16                              | 82911463NA                   | 82911462A                    | 1.72       |                 |
|         |                                                                  | 14                              | 82911465NA                   | 82911464A                    | 2.22       |                 |
|         |                                                                  | 12                              | 82911467NA                   | 82911466A                    | 2.82       |                 |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

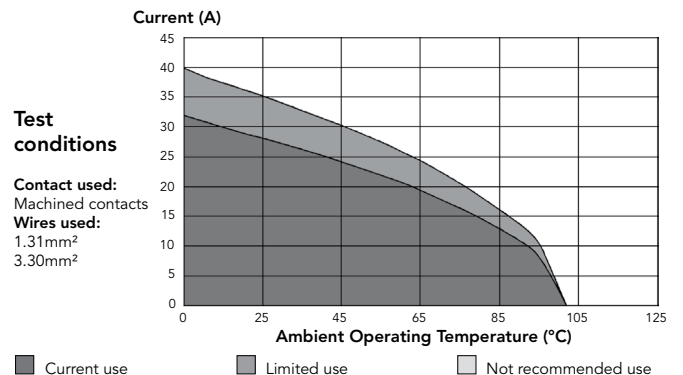
### Electrical Characteristics

**UL**  
25A 250V UL94 V-0

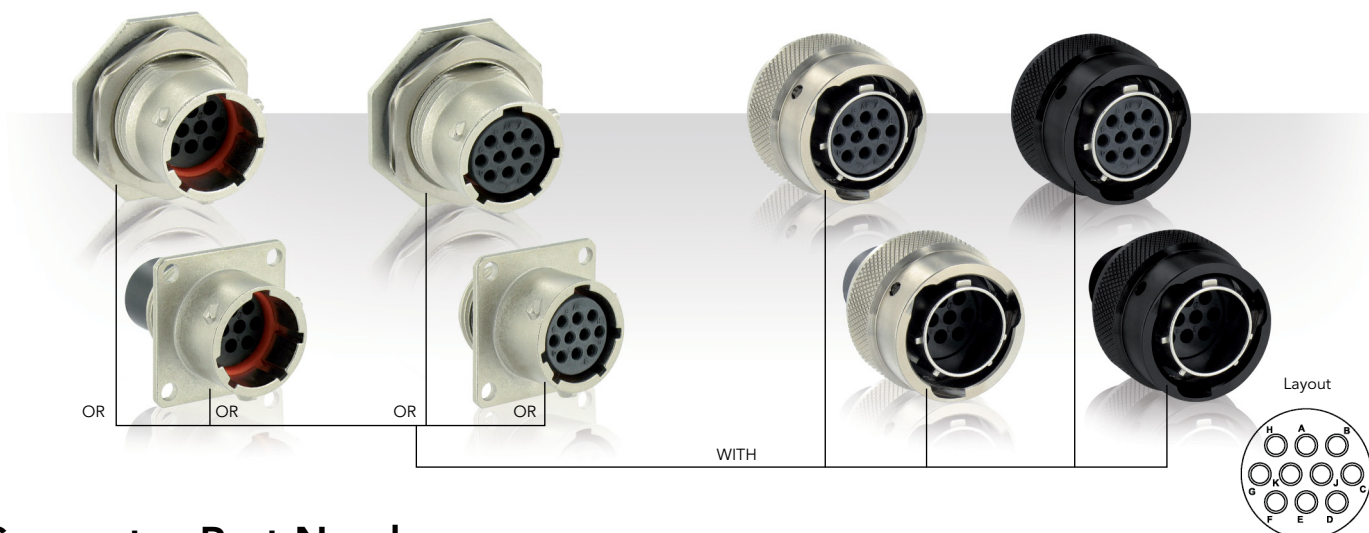
**CSA**  
17A 250V UL94 V-0

**IEC**  
17A 230V 1.5kV 3

### UTO 148 Derating Curves



## 1210 (Shell size 12, 10x#20)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                          |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 63 | Square flange receptacle | IP67               | 96h        | UT0W01210PH           | UT0W01210SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W01210PH6          | UT0W01210SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W61210PH           | UT0W61210SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT0W61210PH02 (Black) | UT0W61210SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT0W71210PH           | UT0W71210SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT0W71210PH6          | UT0W71210SH6          |
|                                          |                          | IP67               | 96h        | UT0W71210PH01         | UT0W71210SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W71210PH601        | UT0W71210SH601        |

\* Other discrimination keying option, see page 180

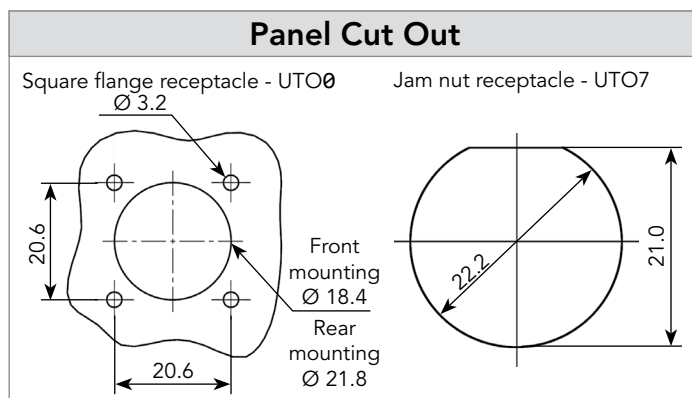
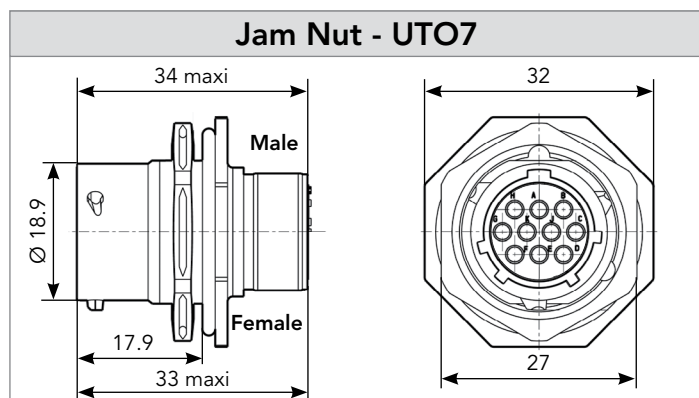
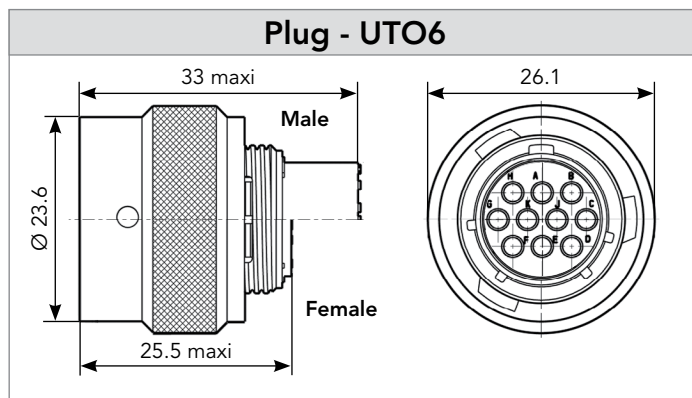
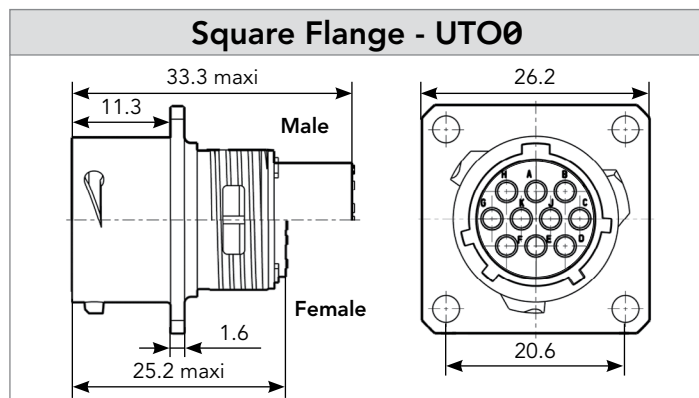
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | UT012JCS      | UT012JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | UT012JCSL     | UT012JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | UT0S12JCS     | UT0S12JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | UT0S12JCSL    | UT0S12JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 8.2                        | UT012AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT012AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/12                     | UT012LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 04/11.9                    | UT0S12JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 04/11.9                    | UT012JCPGN    |              |



# 1210 (Shell size 12, 10x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

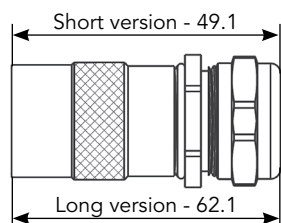


Fig. 1

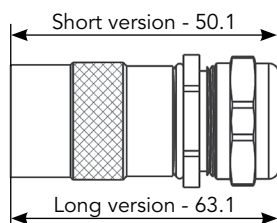


Fig. 2

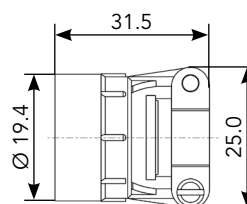


Fig. 5

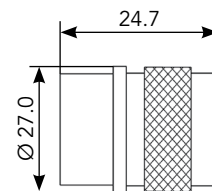


Fig. 6

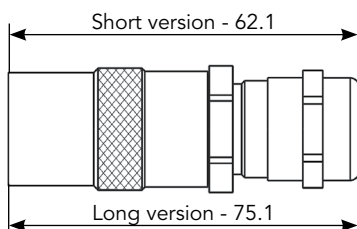


Fig. 3

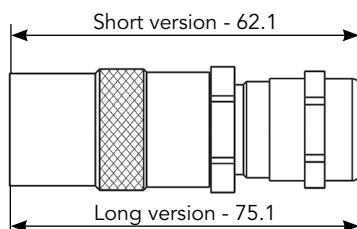


Fig. 4

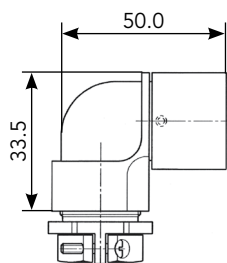


Fig. 7

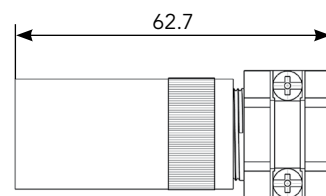


Fig. 8

Note: all dimensions are in mm

**1210** (Shell size 12, 10x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT012DCG\***

**Dustcap (Plug)**



Part number  
**UTG612DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD13B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANGLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT012DC

**1210** (Shell size 12, 10x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

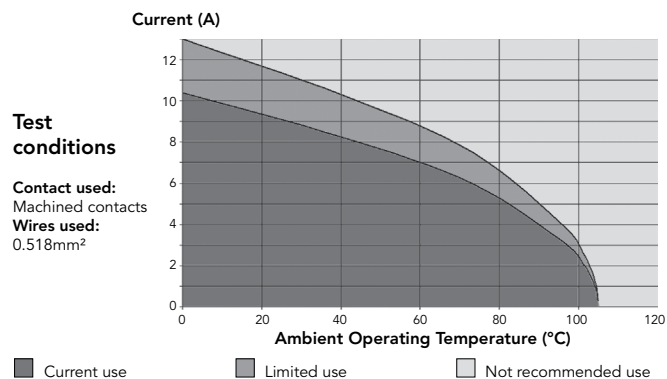
10

**Electrical Characteristics**

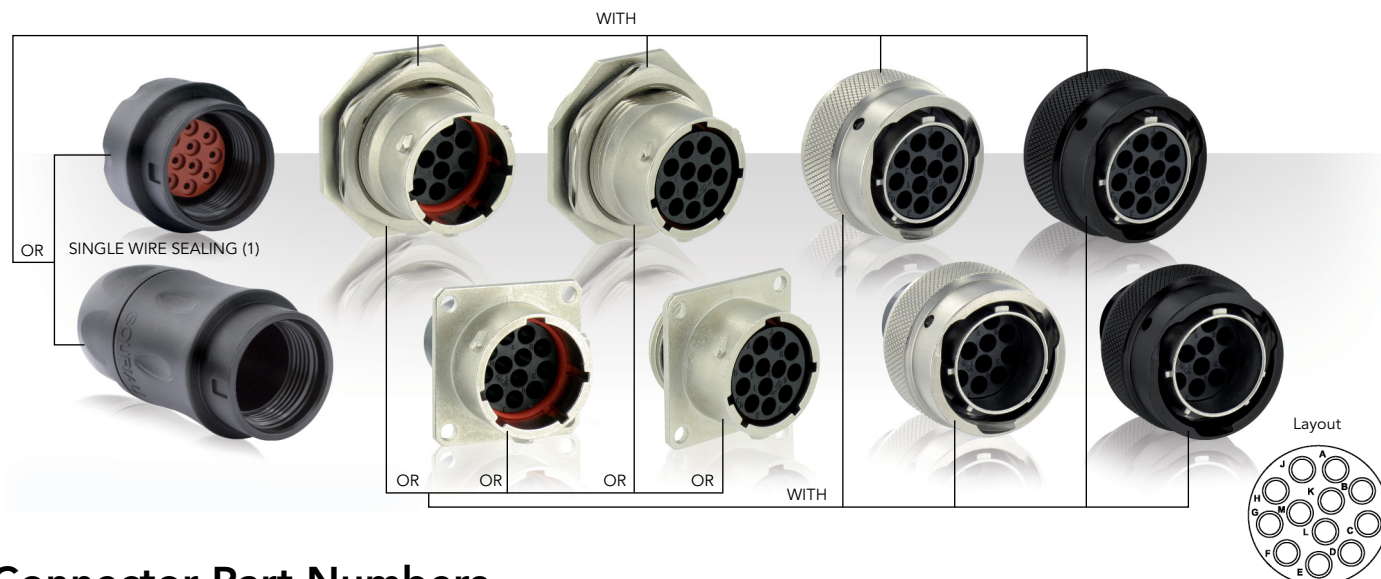
**UL**  
5A 250V UL94 V-0

**CSA**  
4A 250V UL94 V-0

**IEC**  
6A 40V 1.5kV 3

**UTO 1210 Derating Curves**

# 1412 (Shell size 14, 12x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*                       |                                           |
|------------------------------------------|--------------------------|--------------------|------------|------------------------------------|-------------------------------------------|
|                                          |                          |                    |            | Male insert                        | Female insert                             |
| Contacts supplied separately see page 67 | Square flange receptacle | IP67               | 96h        | <b>UT001412PH</b>                  | <b>UT001412SH</b>                         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT001412PH6</b>                 | <b>UT001412SH6</b>                        |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT061412PH</b>                  | <b>UT061412SH<sup>(1)</sup></b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT061412PH02 (Black)</b>        | <b>UT061412SH02<sup>(1)</sup> (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT071412PH<sup>(1)</sup></b>    | <b>UT071412SH</b>                         |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT071412PH6<sup>(1)</sup></b>   | <b>UT071412SH6</b>                        |
|                                          |                          | IP67               | 96h        | <b>UT071412PH01<sup>(1)</sup></b>  | <b>UT071412SH01</b>                       |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT071412PH601<sup>(1)</sup></b> | <b>UT071412SH601</b>                      |

\* Other discrimination keying option, see page 180

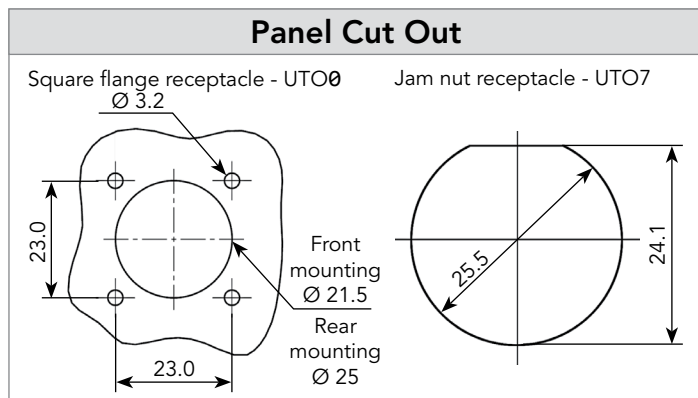
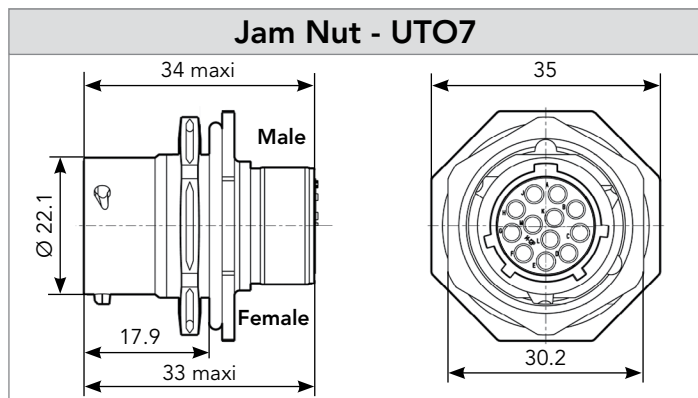
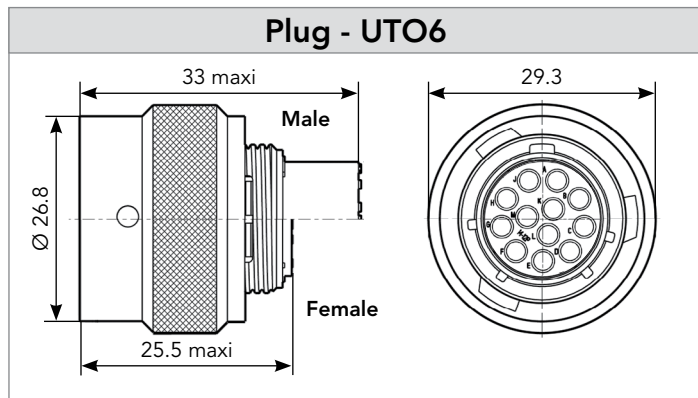
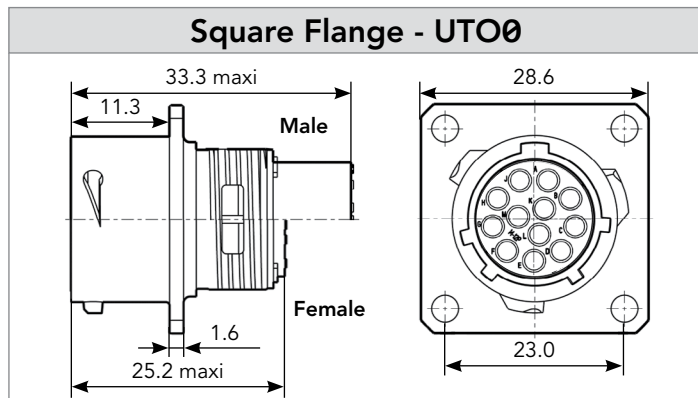
(1): For single wire sealing solution please add GN or GJC after UT06 or UT07. Eg UT07GN1412PH

## Backshells

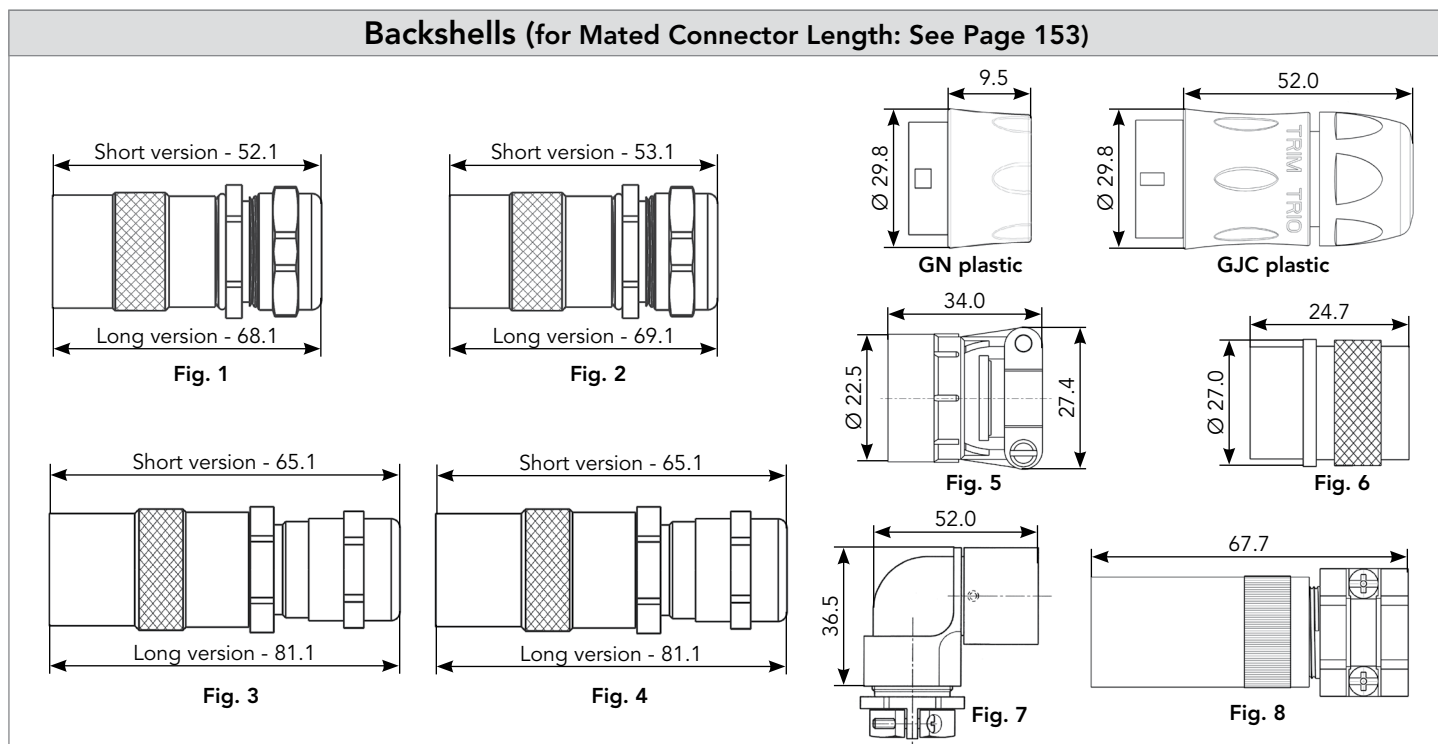
| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                           |           |                            | Short version      | Long version     |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | <b>UT014JCS</b>    | <b>UT014JC</b>   |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | <b>UT014JCSL</b>   | <b>UT014JCL</b>  |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | <b>UT0S14JCS</b>   | <b>UT0S14JC</b>  |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | <b>UT0S14JCSL</b>  | <b>UT0S14JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | <b>UT014AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | <b>UT014AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | <b>UT014LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | <b>UT0S14JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | <b>UT014JCPGN</b>  |                  |

# 1412 (Shell size 14, 12x#16)

## Dimensions



12



Note: all dimensions are in mm



**1412** (Shell size 14, 12x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT014DCG\***

**Dustcap (Plug)**



Part number  
**UTG614DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD14B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

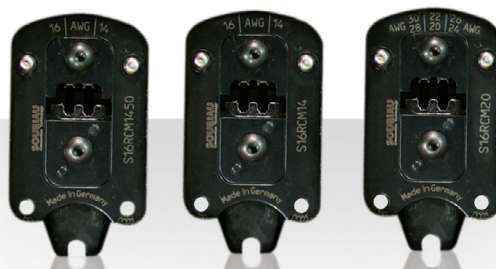
See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT014DC



# 1412 (Shell size 14, 12x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

12

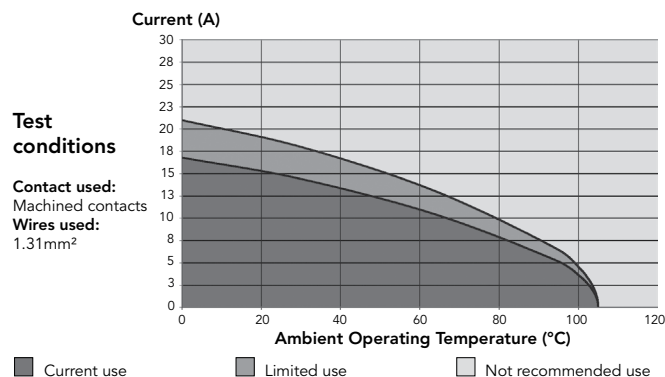
## Electrical Characteristics

**UL**  
10A 500V UL94 V-0

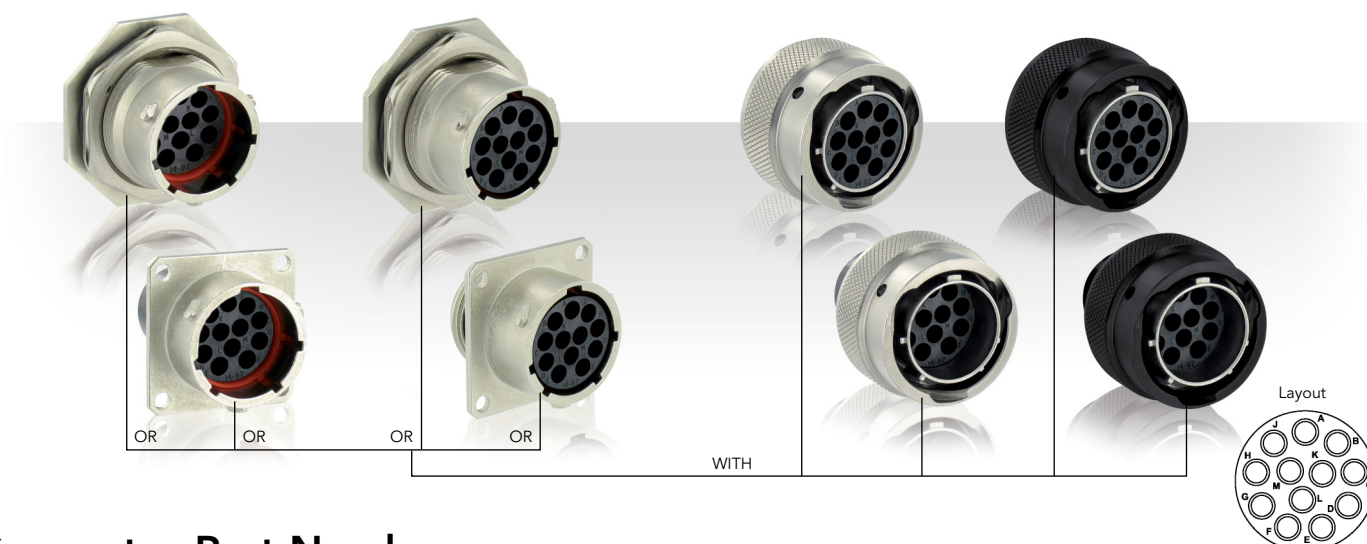
**CSA**  
7A 500V UL94 V-0

**IEC**  
10A 150V 2.5kV 3

## UTO 1412 Derating Curves



## 1492 (Shell size 14, 12x#16)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                          |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 71 | Square flange receptacle | IP67               | 96h        | UT001492PH           | UT001492SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT001492PH6          | UT001492SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT061492PH           | UT061492SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT061492PH02 (Black) | UT061492SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT071492PH           | UT071492SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT071492PH6          | UT071492SH6          |
|                                          |                          | IP67               | 96h        | UT071492PH01         | UT071492SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT071492PH601        | UT071492SH601        |

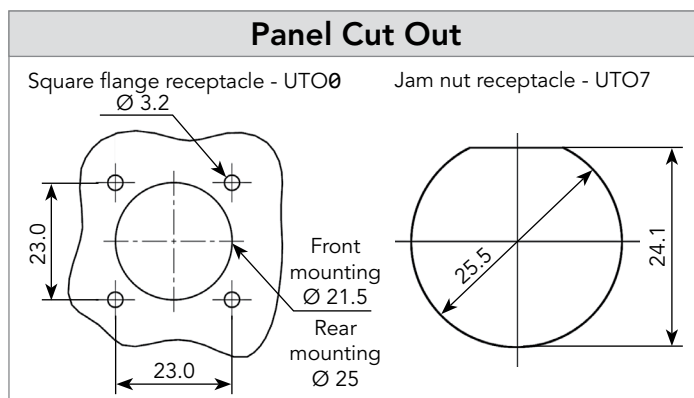
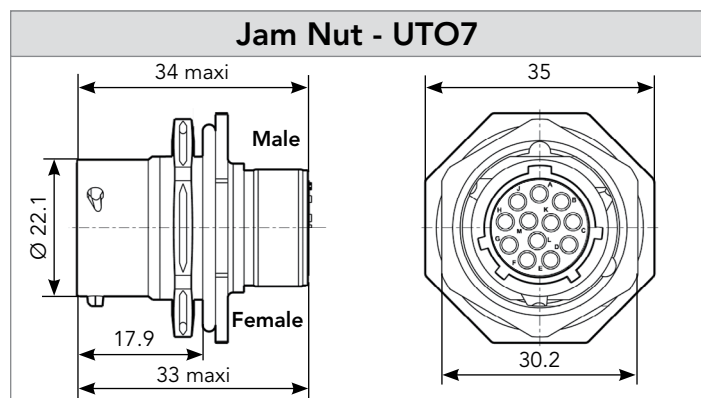
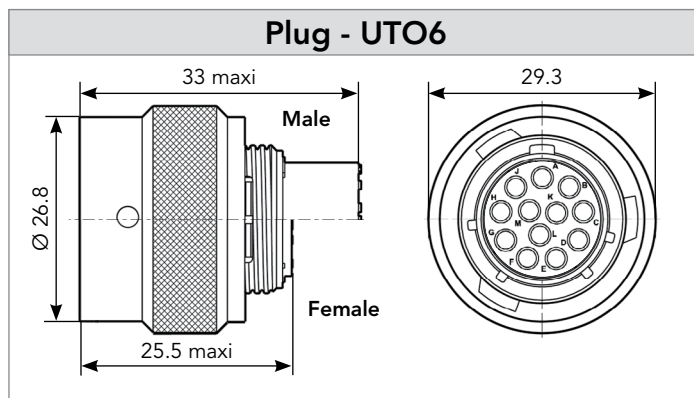
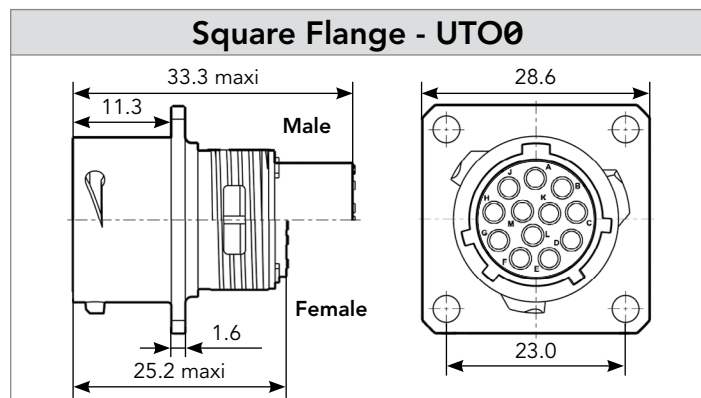
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | UT014JCS      | UT014JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | UT014JCSL     | UT014JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | UT0S14JCS     | UT0S14JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | UT0S14JCSL    | UT0S14JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | UT014AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT014AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | UT014LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | UT0S14JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | UT014JCPGN    |              |

# 1492 (Shell size 14, 12x#16)

## Dimensions



12

## Backshells (for Mated Connector Length: See Page 153)

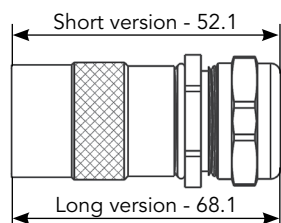


Fig. 1

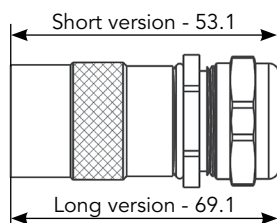


Fig. 2

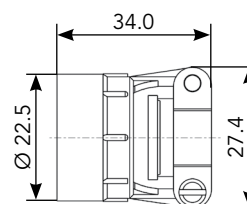


Fig. 5

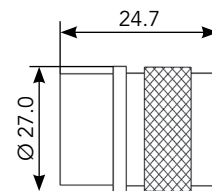


Fig. 6

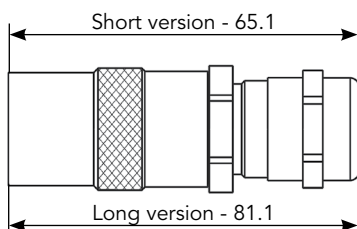


Fig. 3

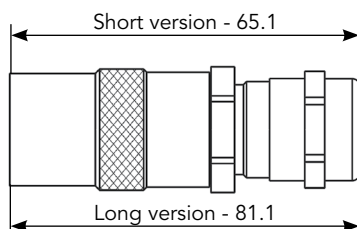


Fig. 4

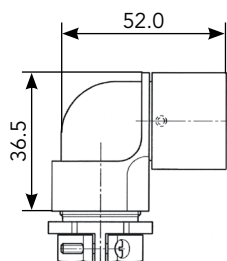


Fig. 7

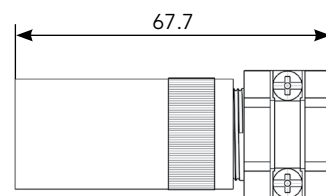


Fig. 8

Note: all dimensions are in mm

**1492** (Shell size 14, 12x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT014DCG\***

**Dustcap (Plug)**



Part number  
**UTG614DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD14B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

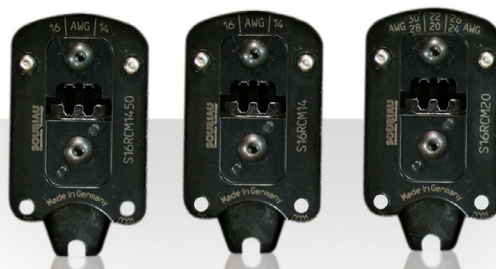
See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT014DC

**1492** (Shell size 14, 12x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: **SM20ML1TK6**

(3): For dimensions see page 132

Note: all dimensions are in mm

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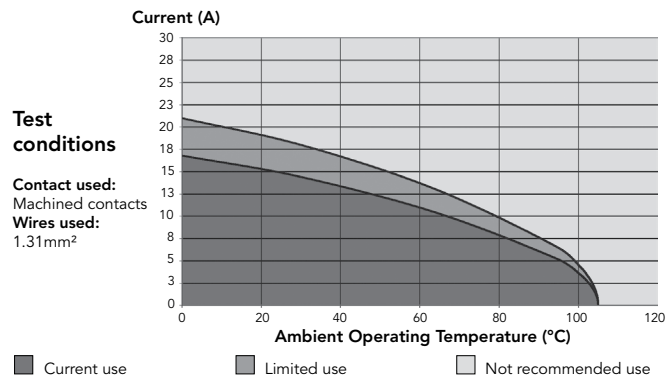
### Electrical Characteristics

**UL**  
10A 500V UL94 V-0

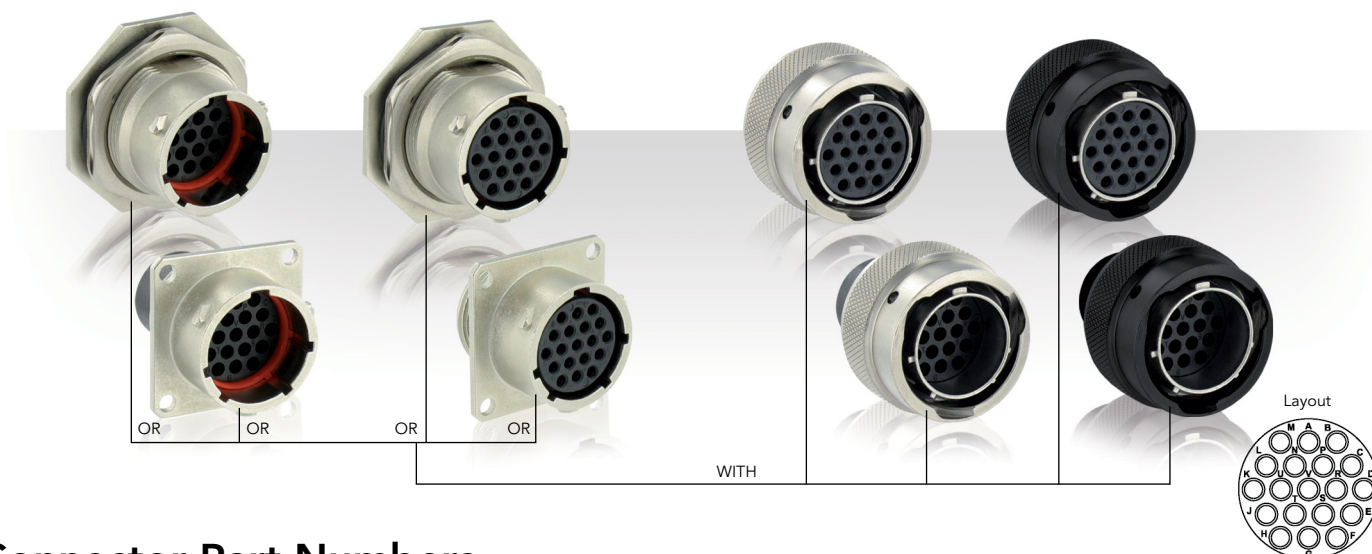
**CSA**  
7A 500V UL94 V-0

**IEC**  
10A 150V 2.5kV 3

### UTO 1492 Derating Curves



# 1419 (Shell size 14, 19x#20)



## Connector Part Numbers

Drilling pattern see page 176

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                          |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 75 | Square flange receptacle | IP67               | 96h        | UT0W01419PH           | UT0W01419SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W01419PH6          | UT0W01419SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W61419PH           | UT0W61419SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT0W61419PH02 (Black) | UT0W61419SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT0W71419PH           | UT0W71419SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT0W71419PH6          | UT0W71419SH6          |
|                                          |                          | IP67               | 96h        | UT0W71419PH01         | UT0W71419SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W71419PH601        | UT0W71419SH601        |

\* Other discrimination keying option, see page 180

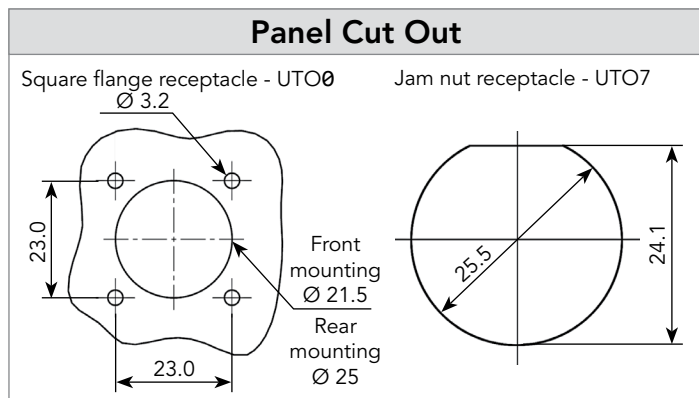
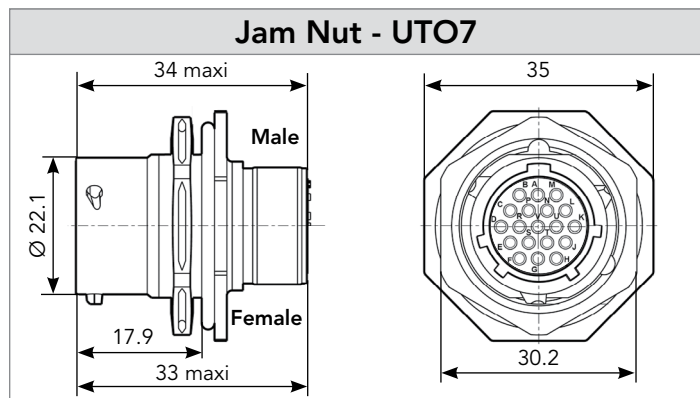
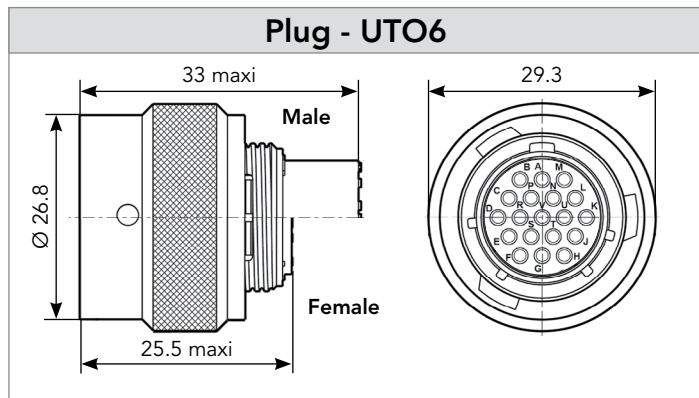
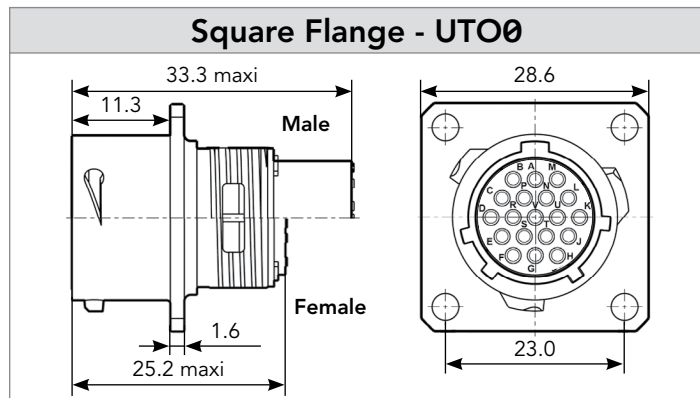
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 06/10                      | UT014JCS      | UT014JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 08/12                      | UT014JCSL     | UT014JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 07/10.5                    | UT0S14JCS     | UT0S14JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 08/12.5                    | UT0S14JCSL    | UT0S14JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 10                         | UT014AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT014AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 6.5/14                     | UT014LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 6.5/13.5                   | UT0S14JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 6.5/13.5                   | UT014JCPGN    |              |



# 1419 (Shell size 14, 19x#20)

## Dimensions



19

## Backshells (for Mated Connector Length: See Page 153)

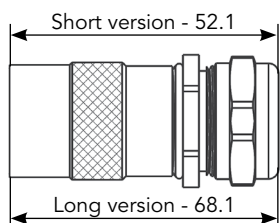


Fig. 1

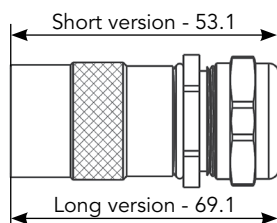


Fig. 2

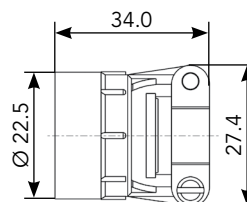


Fig. 5

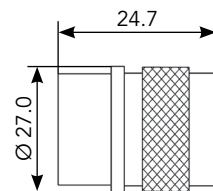


Fig. 6

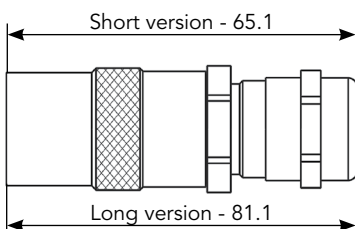


Fig. 3

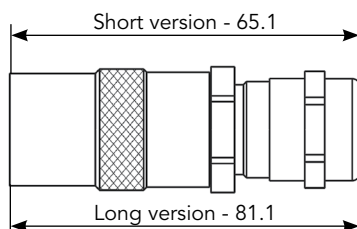


Fig. 4

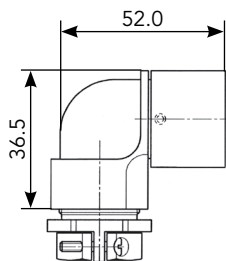


Fig. 7

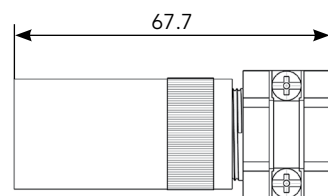


Fig. 8

Note: all dimensions are in mm

**1419** (Shell size 14, 19x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT014DCG\***

**Dustcap (Plug)**



Part number  
**UTG614DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD14B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANGLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT014DC

**1419** (Shell size 14, 19x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

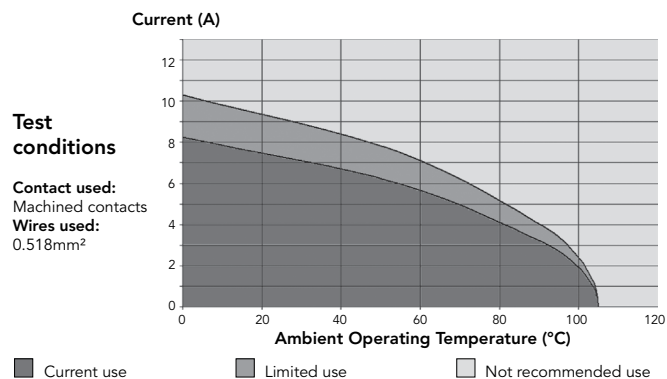
Note: all dimensions are in mm

**Electrical Characteristics**

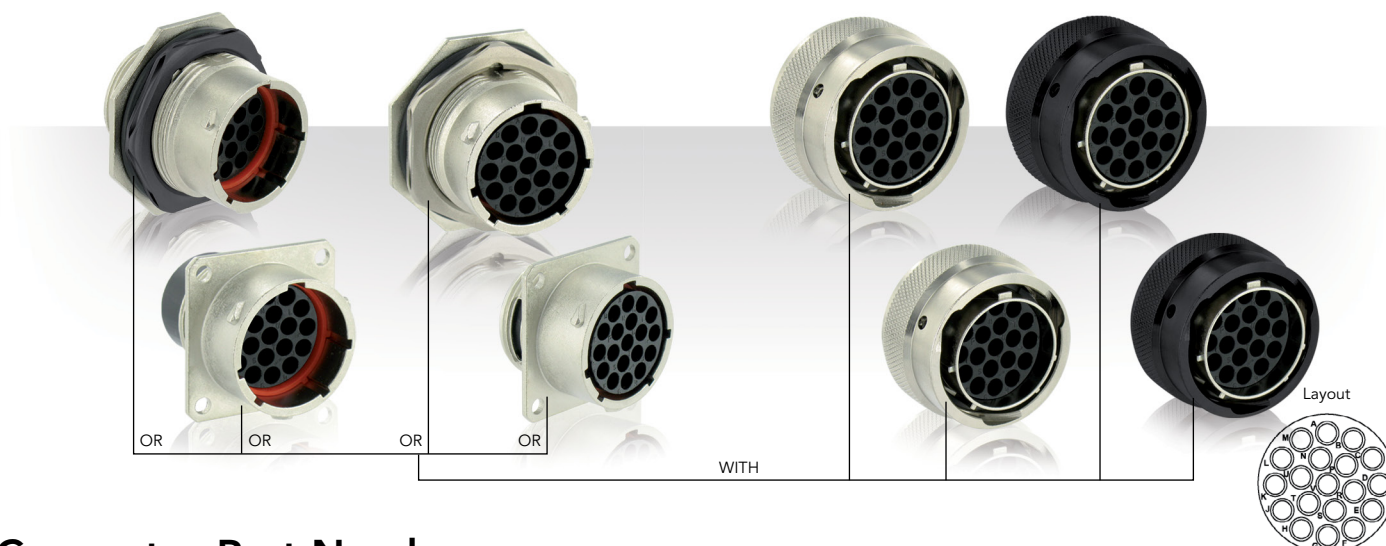
**UL**  
5A 250V UL94 V-0

**CSA**  
4A 250V UL94 V-0

**IEC**  
5A 40V 1.5kV 3

**UTO 1419 Derating Curves**

## 1619 (Shell size 16, 19x#16)



## Connector Part Numbers

Drilling pattern see page 177

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*                |                             |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------------|-----------------------------|
|                                          |                          |                    |            | Male insert                 | Female insert               |
| Contacts supplied separately see page 79 | Square flange receptacle | IP67               | 96h        | <b>UT001619PH</b>           | <b>UT001619SH</b>           |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT001619PH6</b>          | <b>UT001619SH6</b>          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT061619PH</b>           | <b>UT061619SH</b>           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | <b>UT061619PH02 (Black)</b> | <b>UT061619SH02 (Black)</b> |
|                                          | Jam nut receptacle       | IP67               | 48h        | <b>UT071619PH</b>           | <b>UT071619SH</b>           |
|                                          |                          | IP68 & IP69K       | 48h        | <b>UT071619PH6</b>          | <b>UT071619SH6</b>          |
|                                          |                          | IP67               | 96h        | <b>UT071619PH01</b>         | <b>UT071619SH01</b>         |
|                                          |                          | IP68 & IP69K       | 96h        | <b>UT071619PH601</b>        | <b>UT071619SH601</b>        |

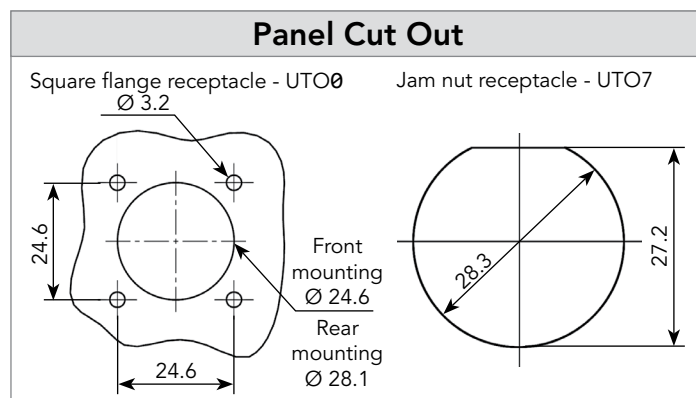
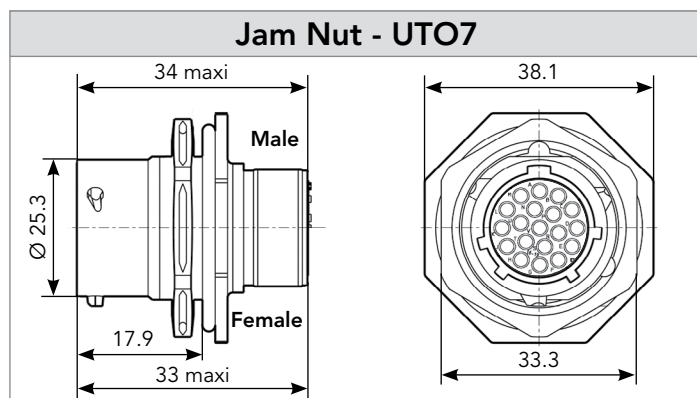
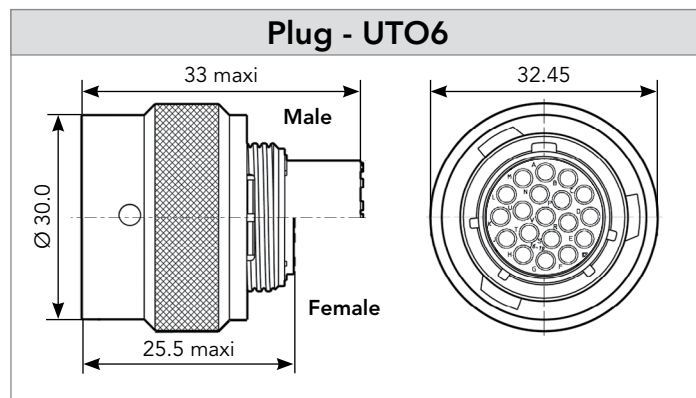
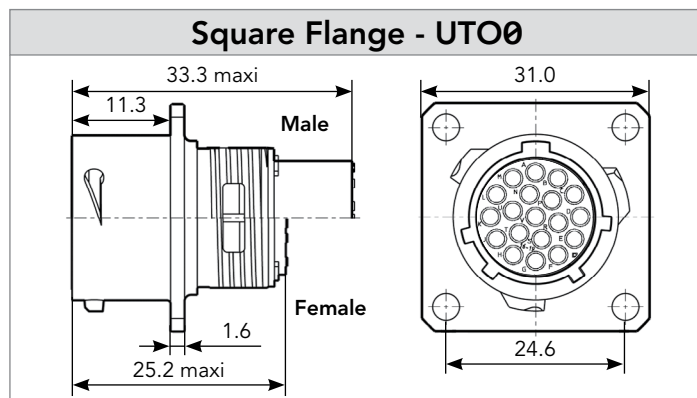
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                                 |           |                            | Short version      | Long version     |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 9.5/14                     | <b>UT016JCS</b>    | <b>UT016JC</b>   |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 11.5/18                    | <b>UT016JCSL</b>   | <b>UT016JCL</b>  |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 10/14.5                    | <b>UT0S16JCS</b>   | <b>UT0S16JC</b>  |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 13.5/18                    | <b>UT0S16JCSL</b>  | <b>UT0S16JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 13                         | <b>UT016AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | <b>UT016AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 6.5/16                     | <b>UT016LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 6.5/16                     | <b>UT0S16JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 6.5/16                     | <b>UT016JCPGN</b>  |                  |

# 1619 (Shell size 16, 19x#16)

## Dimensions



19

## Backshells (for Mated Connector Length: See Page 153)

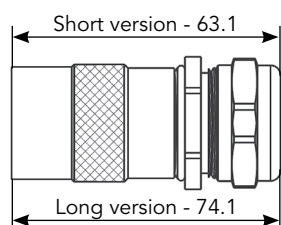


Fig. 1

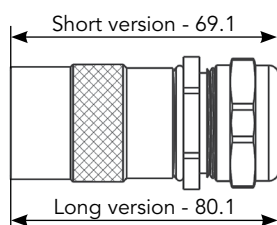


Fig. 2

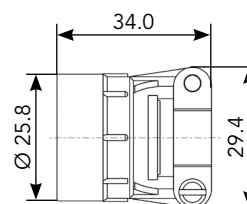


Fig. 5

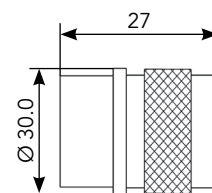


Fig. 6

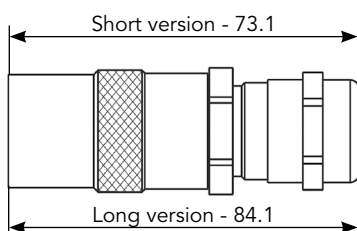


Fig. 3

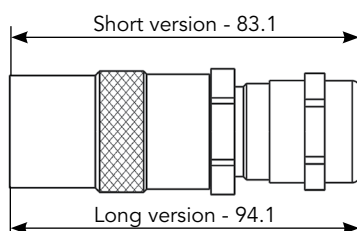


Fig. 4

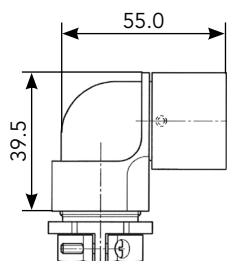


Fig. 7

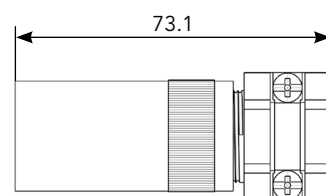


Fig. 8

Note: all dimensions are in mm

**1619** (Shell size 16, 19x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT016DCG\***

**Dustcap (Plug)**



Part number  
**UTG616DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD15B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT016DC



# 1619 (Shell size 16, 19x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

19

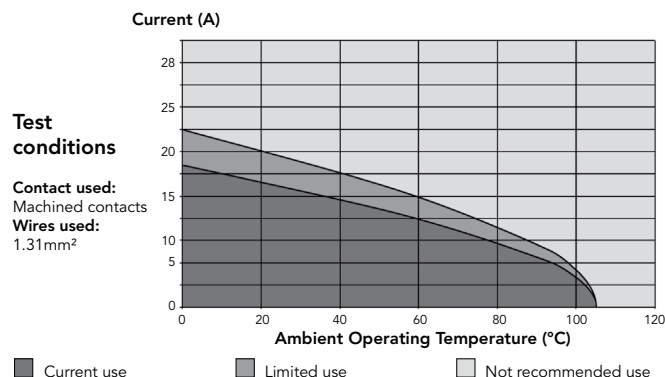
## Electrical Characteristics

**UL**  
9A 500V UL94 V-0

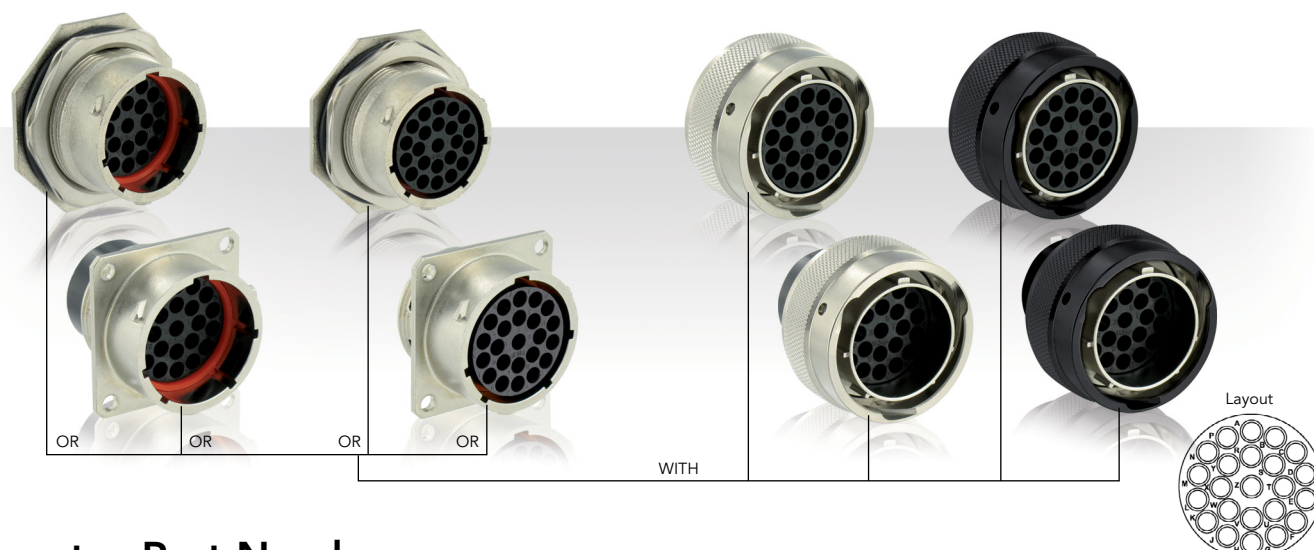
**CSA**  
6A 500V UL94 V-0

**IEC**  
9A 150V 2.5kV 3

## UTO 1619 Derating Curves



## 1823 (Shell size 18, 23x#16)



## Connector Part Numbers

Drilling pattern see page 177

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                          |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 83 | Square flange receptacle | IP67               | 96h        | UT001823PH           | UT001823SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT001823PH6          | UT001823SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT061823PH           | UT061823SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT061823PH02 (Black) | UT061823SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT071823PH           | UT071823SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT071823PH6          | UT071823SH6          |
|                                          |                          | IP67               | 96h        | UT071823PH01         | UT071823SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT071823PH601        | UT071823SH601        |

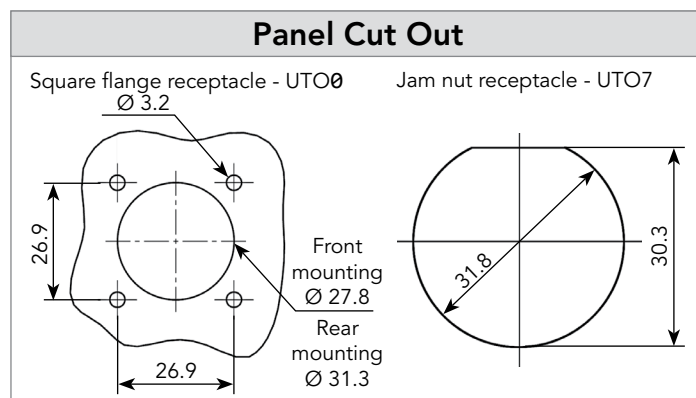
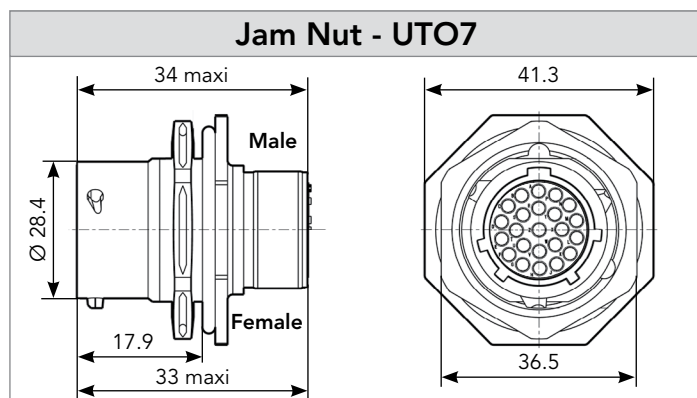
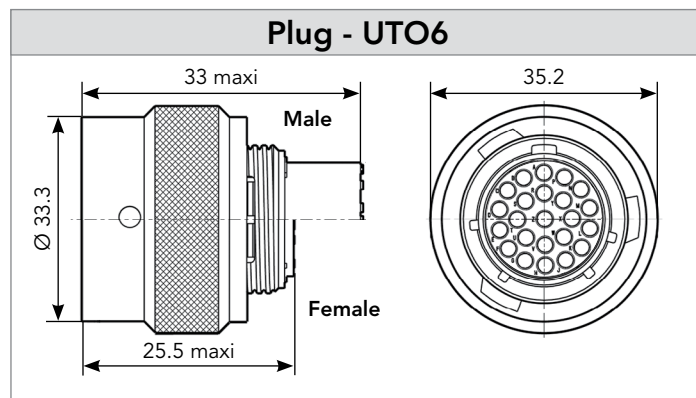
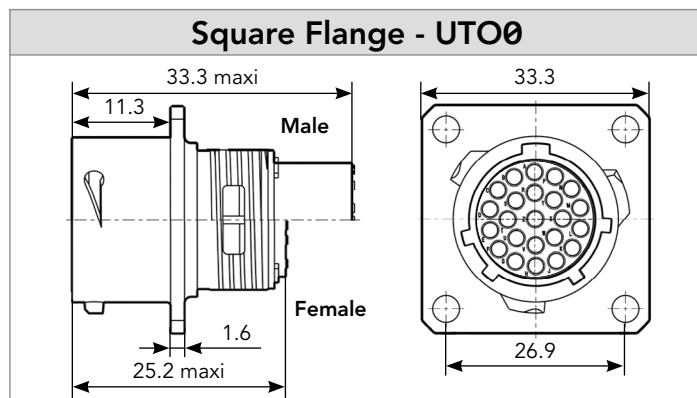
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 9.5/14                     | UT018JCS      | UT018JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 11.5/18                    | UT018JCSL     | UT018JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 10/14.5                    | UT0S18JCS     | UT0S18JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 13.5/18                    | UT0S18JCSL    | UT0S18JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 16.0                       | UT018AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT018AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | UT018LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 6.5/16                     | UT0S18JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 6.5/16                     | UT018JCPGN    |              |

# 1823 (Shell size 18, 23x#16)

## Dimensions



23

## Backshells (for Mated Connector Length: See Page 153)

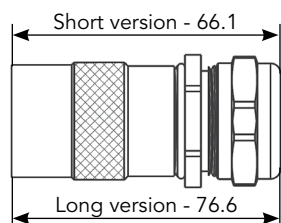


Fig. 1

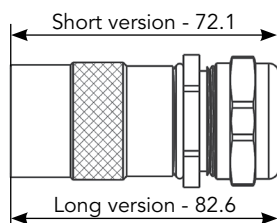


Fig. 2

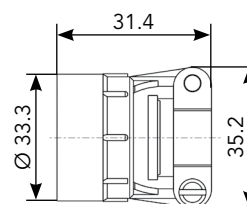


Fig. 5

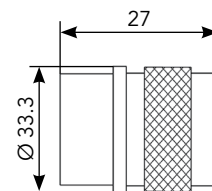


Fig. 6

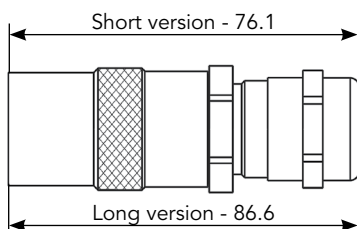


Fig. 3

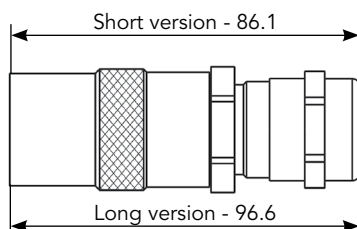


Fig. 4

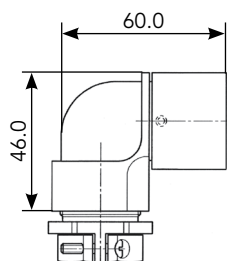


Fig. 7

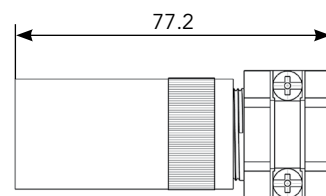


Fig. 8

Note: all dimensions are in mm

**1823** (Shell size 18, 23x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT018DCG\***

**Dustcap (Plug)**



Part number  
**UTG618DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD16B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT018DC

# 1823 (Shell size 18, 23x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

23

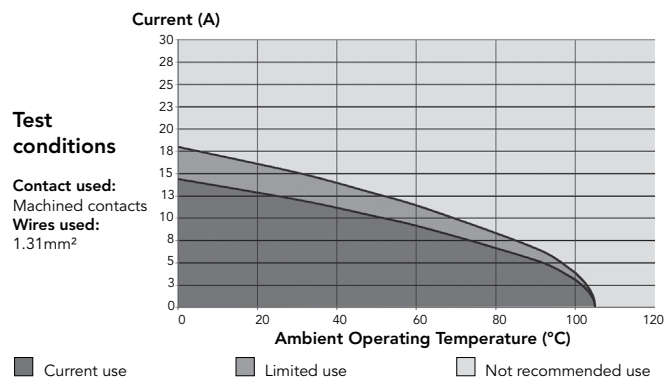
## Electrical Characteristics

**UL**  
8A 500V UL94 V-0

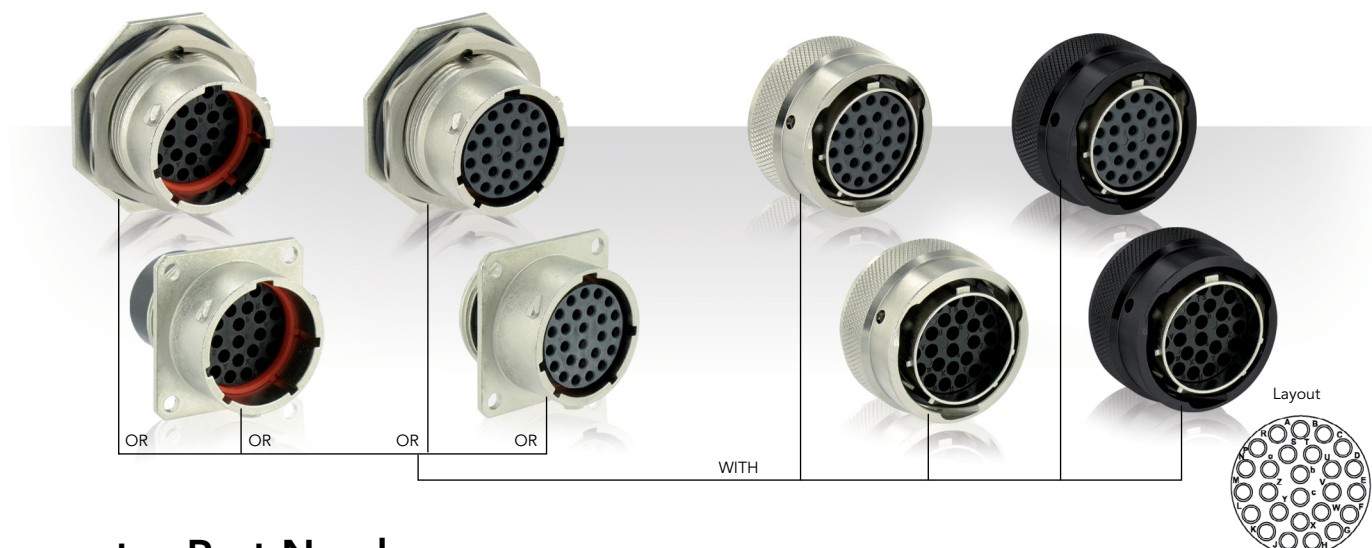
**CSA**  
7A 500V UL94 V-0

**IEC**  
8A 150V 2.5kV 3

## UTO 1823 Derating Curves



## 1626 (Shell size 16, 26x#20)



## Connector Part Numbers

Drilling pattern see page 177

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                          |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 87 | Square flange receptacle | IP67               | 96h        | UT0W01626PH           | UT0W01626SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W01626PH6          | UT0W01626SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W61626PH           | UT0W61626SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT0W61626PH02 (Black) | UT0W61626SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT0W71626PH           | UT0W71626SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT0W71626PH6          | UT0W71626SH6          |
|                                          |                          | IP67               | 96h        | UT0W71626PH01         | UT0W71626SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W71626PH601        | UT0W71626SH601        |

\* Other discrimination keying option, see page 180

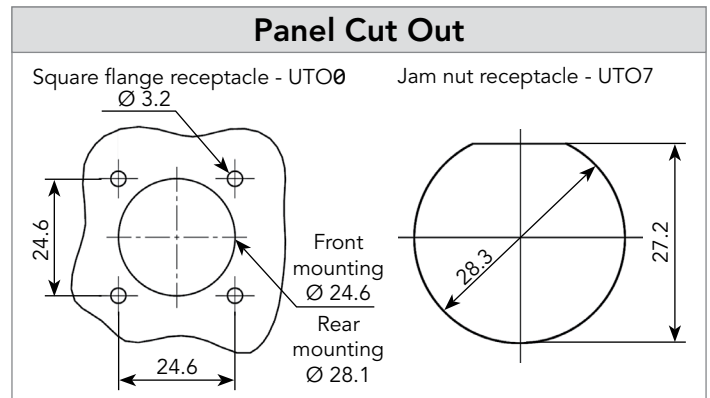
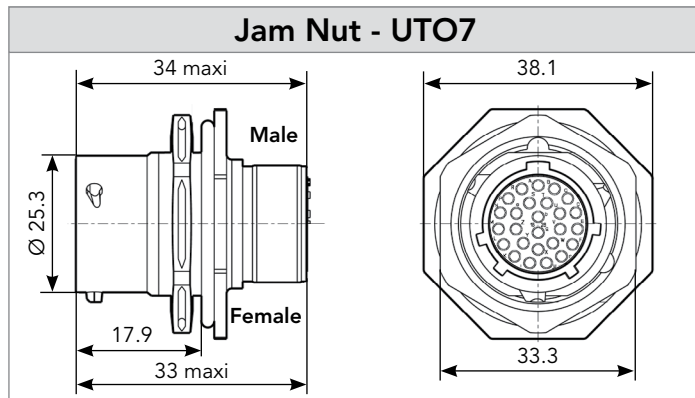
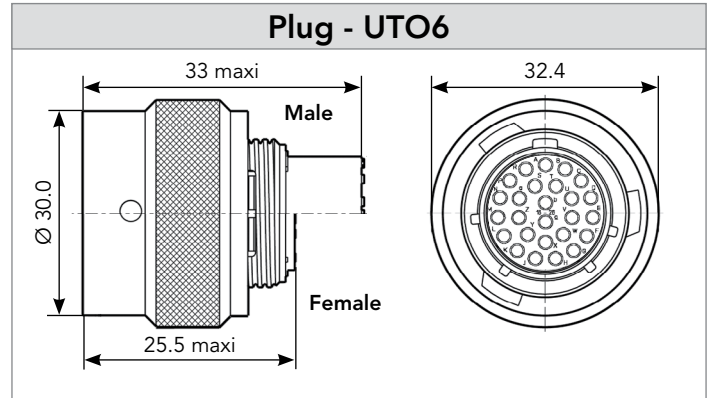
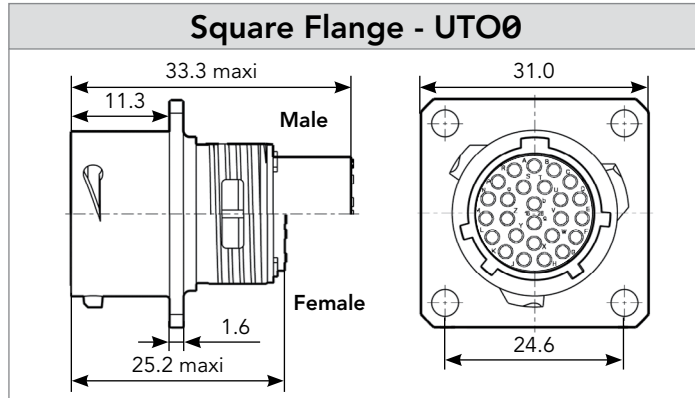
## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 9.5/14                     | UT016JCS      | UT016JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 11.5/18                    | UT016JCSL     | UT016JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 10/14.5                    | UT0S16JCS     | UT0S16JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 13.5/18                    | UT0S16JCSL    | UT0S16JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 13                         | UT016AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT016AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 6.5/16                     | UT016LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 6.5/16                     | UT0S16JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 6.5/16                     | UT016JCPGN    |              |



# 1626 (Shell size 16, 26x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

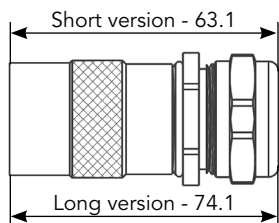


Fig. 1

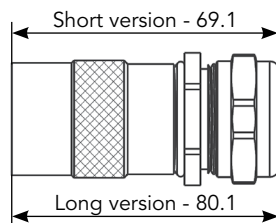


Fig. 2

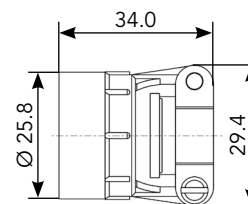


Fig. 5

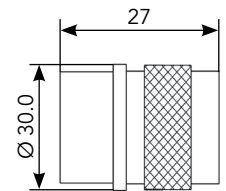


Fig. 6

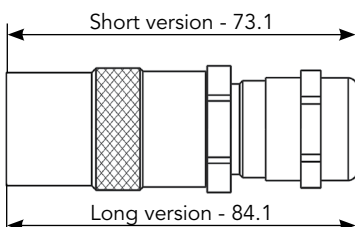


Fig. 3

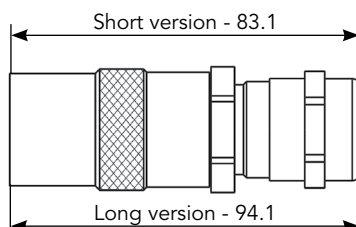


Fig. 4

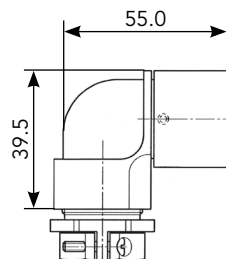


Fig. 7

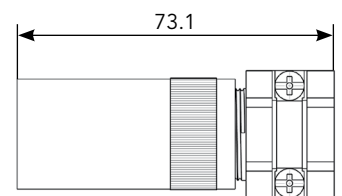


Fig. 8

Note: all dimensions are in mm

**1626** (Shell size 16, 26x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT016DCG\***

**Dustcap (Plug)**



Part number  
**UTG616DCG\***

**Handle (without Head)**



Part number  
**SHANDLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD15B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANDLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT016DC

**1626** (Shell size 16, 26x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

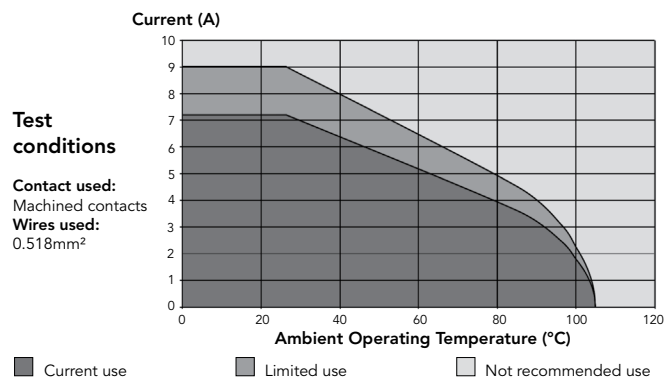
Note: all dimensions are in mm

**Electrical Characteristics**

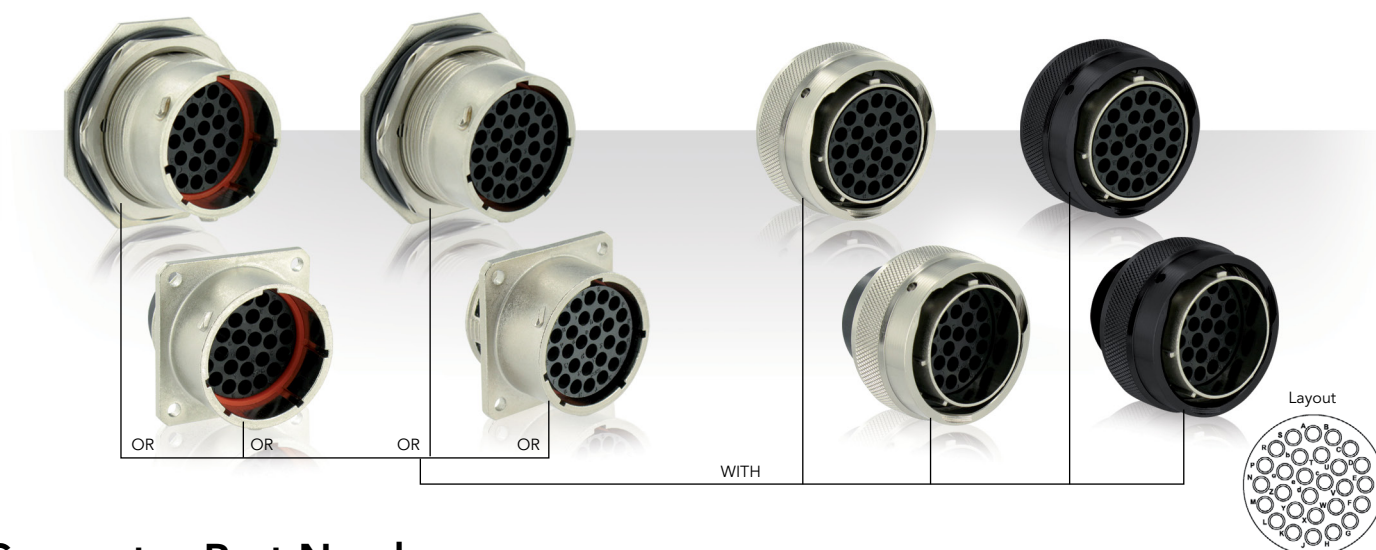
**UL**  
4A 250V UL94 V-0

**CSA**  
3A 250V UL94 V-0

**IEC**  
4A 40V 1.5kV 3

**UTO 1626 Derating Curves**

## 2028 (Shell size 20, 28x#16)



## Connector Part Numbers

Drilling pattern see page 178

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                          |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 91 | Square flange receptacle | IP67               | 96h        | UT002028PH           | UT002028SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT002028PH6          | UT002028SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT062028PH           | UT062028SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT062028PH02 (Black) | UT062028SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT072028PH           | UT072028SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT072028PH6          | UT072028SH6          |
|                                          |                          | IP67               | 96h        | UT072028PH01         | UT072028SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT072028PH601        | UT072028SH601        |

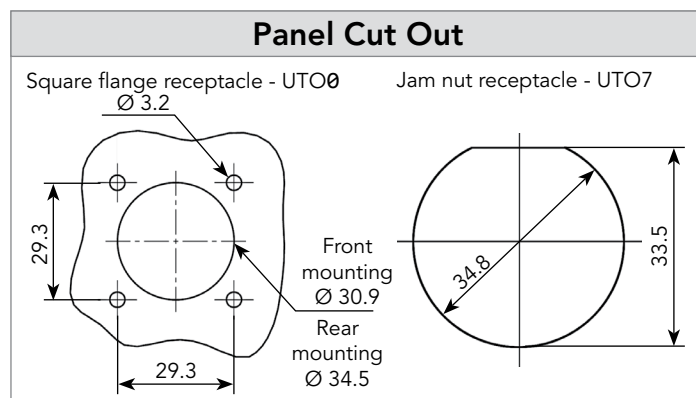
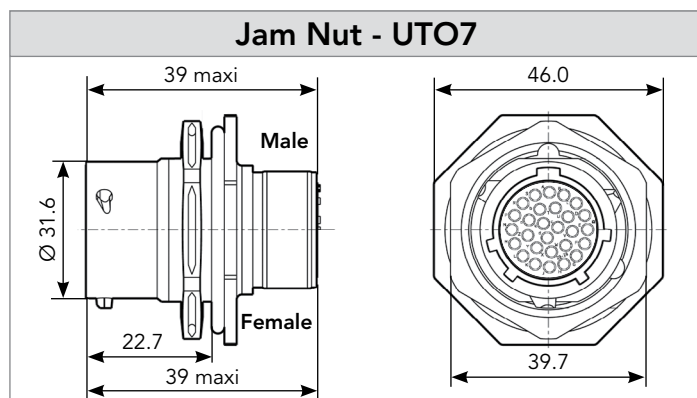
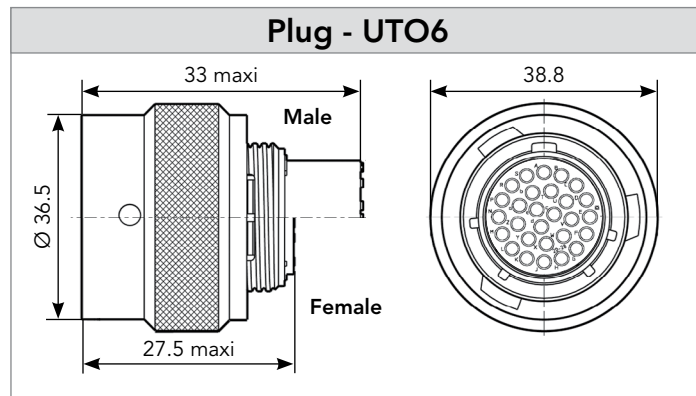
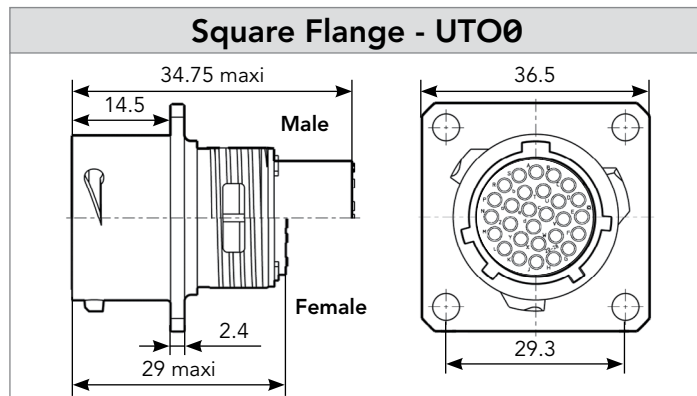
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT020JCS      | UT020JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT020JCSL     | UT020JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S20JCS     | UT0S20JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S20JCSL    | UT0S20JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 16.0                       | UT020AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT020AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 9/21                       | UT020LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 9/21                       | UT0S20JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 9/21                       | UT020JCPGN    |              |

2028 (Shell size 20, 28x#16)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

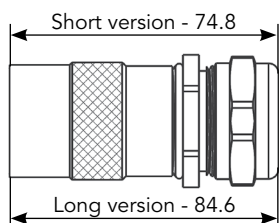


Fig. 1

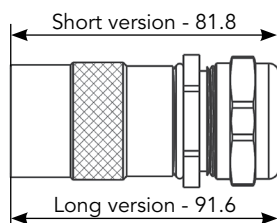


Fig. 2

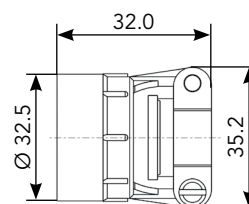


Fig. 5

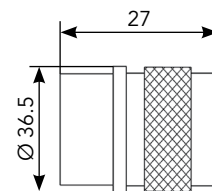


Fig. 6

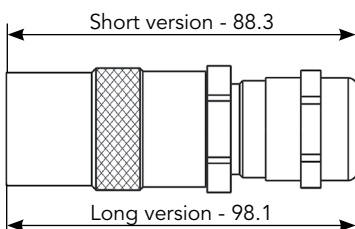


Fig. 3

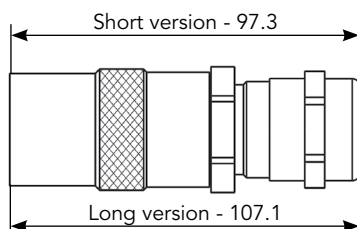


Fig. 4

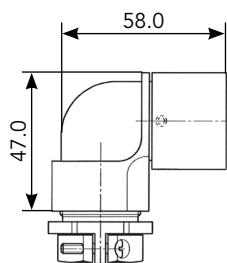


Fig. 7

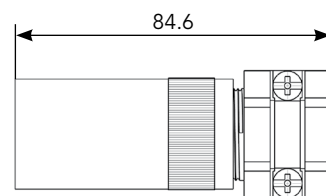


Fig. 8

Note: all dimensions are in mm

2028 (Shell size 20, 28x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT020DCG\*

**Dustcap (Plug)**



Part number  
UTG620DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD17B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT028DC



## 2028 (Shell size 20, 28x#16)

### Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

28

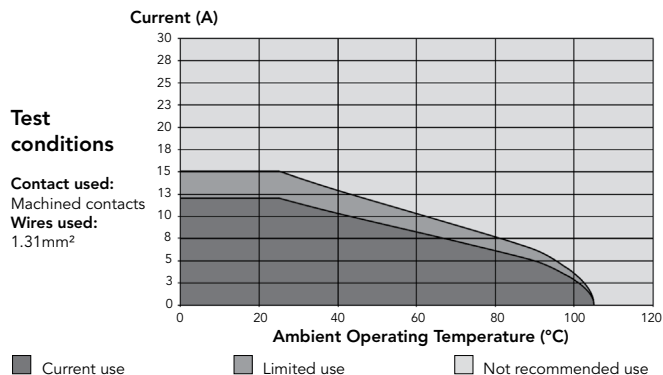
### Electrical Characteristics

UL  
5A 500V UL94 V-0

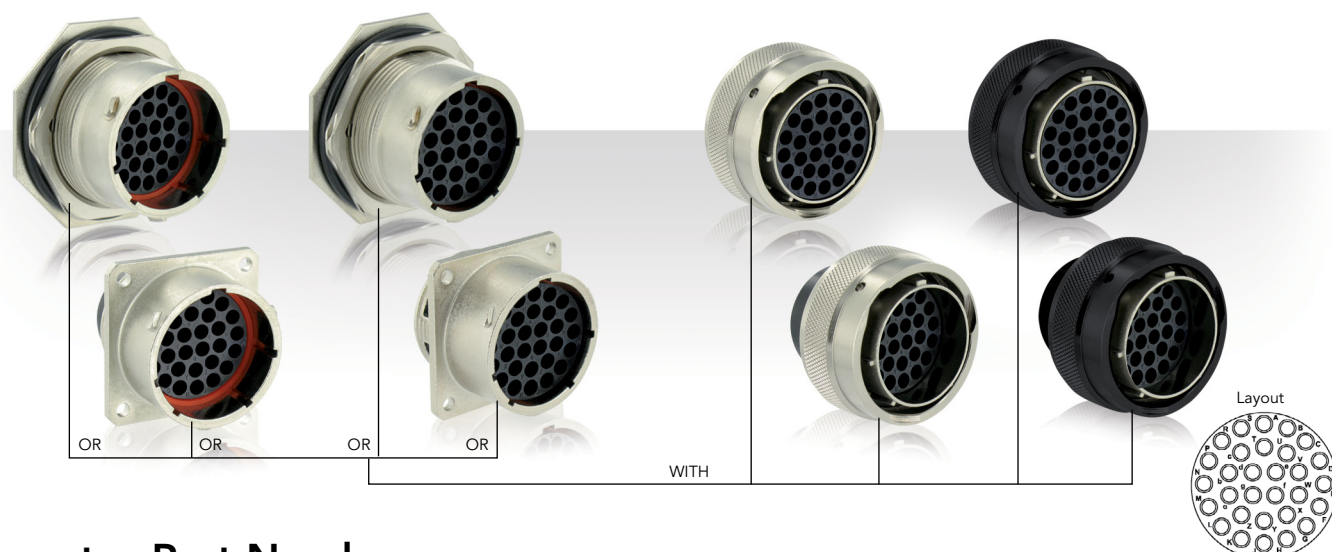
CSA  
3A 500V UL94 V-0

IEC  
7A 150V 2.5kV 3

### UTO 2028 Derating Curves



## 2030 (Shell size 20, 30x#16)



## Connector Part Numbers

Drilling pattern see page 178

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                          |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 95 | Square flange receptacle | IP67               | 96h        | UT002030PH           | UT002030SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT002030PH6          | UT002030SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT062030PH           | UT062030SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT062030PH02 (Black) | UT062030SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT072030PH           | UT072030SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT072030PH6          | UT072030SH6          |
|                                          |                          | IP67               | 96h        | UT072030PH01         | UT072030SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT072030PH601        | UT072030SH601        |

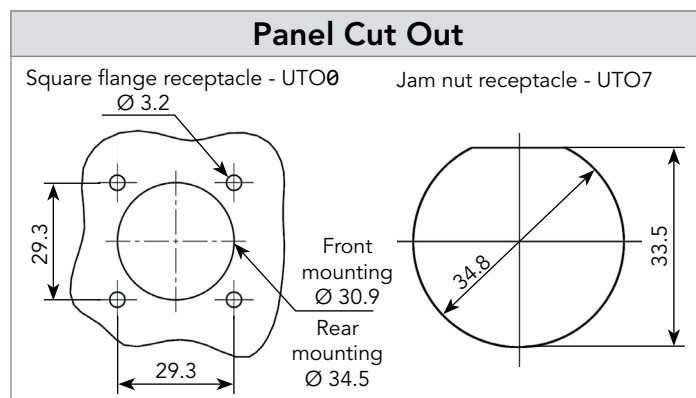
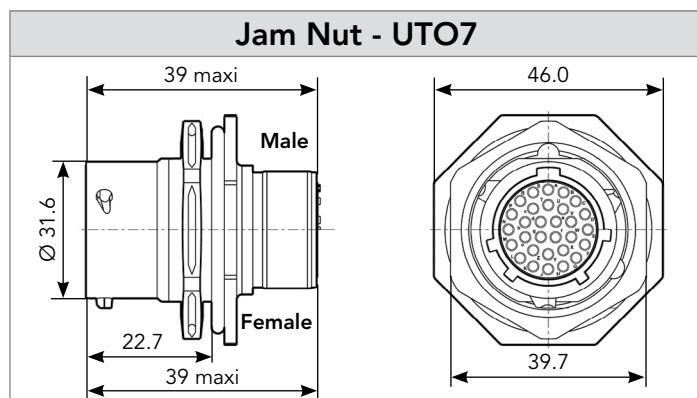
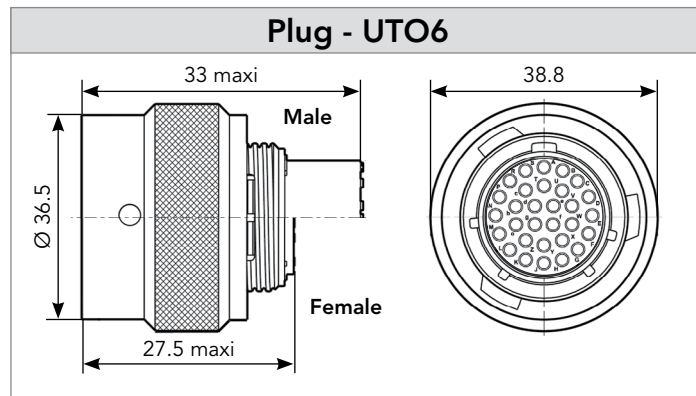
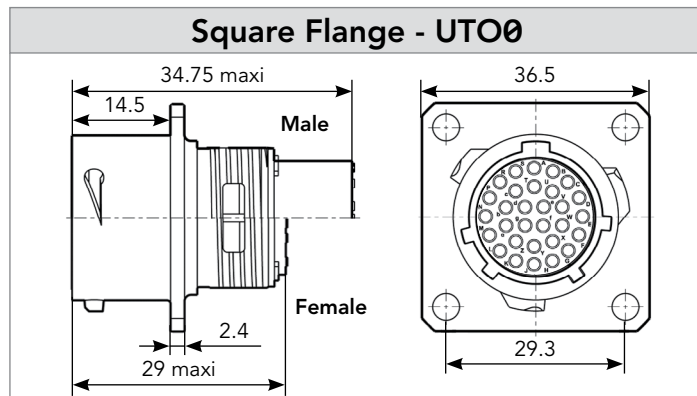
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT020JCS      | UT020JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT020JCSL     | UT020JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S20JCS     | UT0S20JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S20JCSL    | UT0S20JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 16.0                       | UT020AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT020AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 9/21                       | UT020LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 9/21                       | UT0S20JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 9/21                       | UT020JCPGN    |              |

## 2030 (Shell size 20, 30x#16)

### Dimensions



### Backshells (for Mated Connector Length: See Page 153)

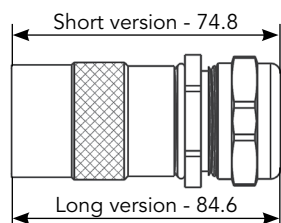


Fig. 1

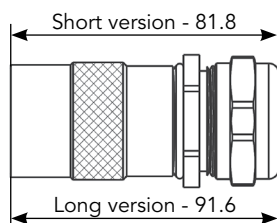


Fig. 2

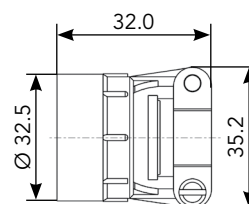


Fig. 5

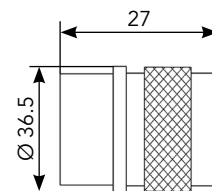


Fig. 6

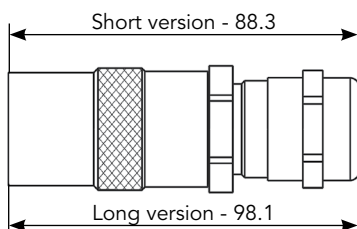


Fig. 3

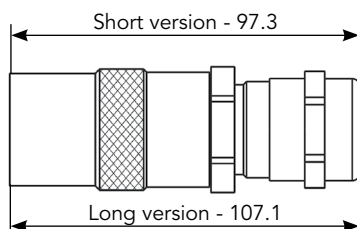


Fig. 4

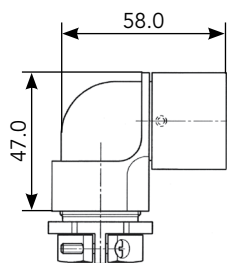


Fig. 7

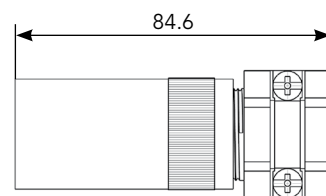


Fig. 8

Note: all dimensions are in mm

2030 (Shell size 20, 30x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT020DCG\*

**Dustcap (Plug)**



Part number  
UTG620DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD17B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

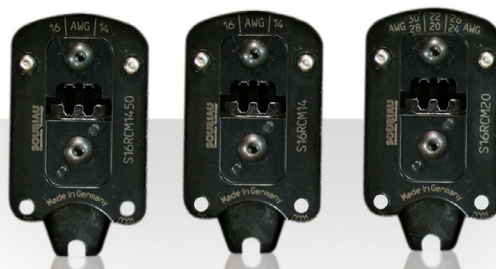
See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT028DC

## 2030 (Shell size 20, 30x#16)

### Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

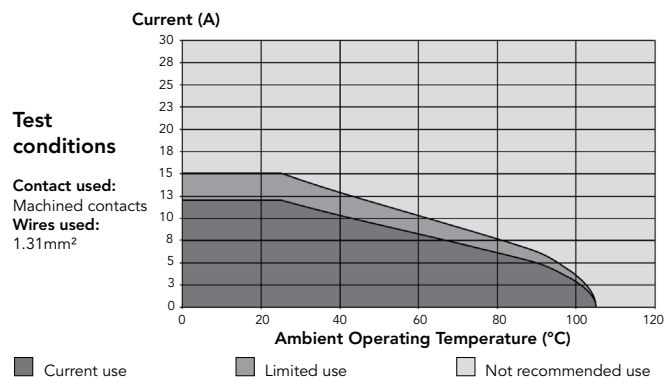
### Electrical Characteristics

**UL**  
5A 500V UL94 V-0

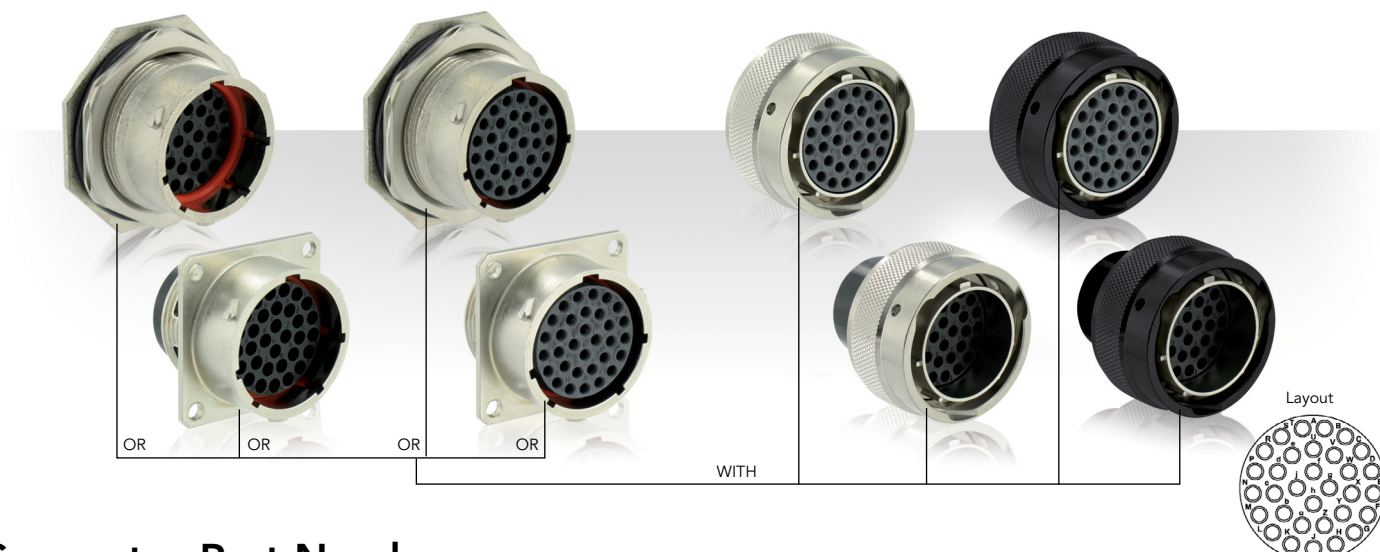
**CSA**  
3A 500V UL94 V-0

**IEC**  
7A 150V 2.5kV 3

### UTO 2030 Derating Curves



## 1832 (Shell size 18, 32x#20)



## Connector Part Numbers

Drilling pattern see page 177

| Contact type                             | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                          |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 99 | Square flange receptacle | IP67               | 96h        | UT0W01832PH           | UT0W01832SH           |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W01832PH6          | UT0W01832SH6          |
|                                          | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W61832PH           | UT0W61832SH           |
|                                          |                          | IP67, IP68 & IP69K | 96h        | UT0W61832PH02 (Black) | UT0W61832SH02 (Black) |
|                                          | Jam nut receptacle       | IP67               | 48h        | UT0W71832PH           | UT0W71832SH           |
|                                          |                          | IP68 & IP69K       | 48h        | UT0W71832PH6          | UT0W71832SH6          |
|                                          |                          | IP67               | 96h        | UT0W71832PH01         | UT0W71832SH01         |
|                                          |                          | IP68 & IP69K       | 96h        | UT0W71832PH601        | UT0W71832SH601        |

\* Other discrimination keying option, see page 180

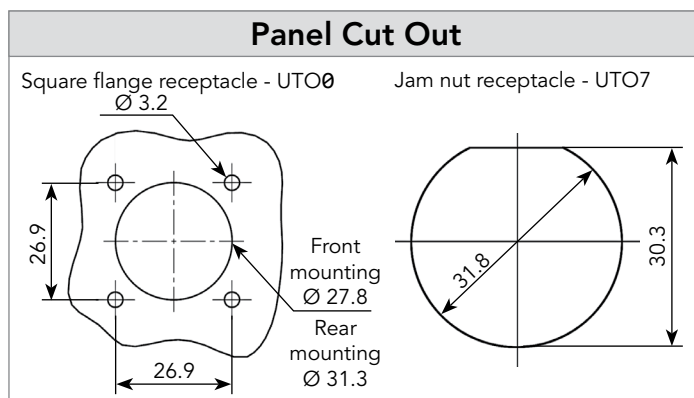
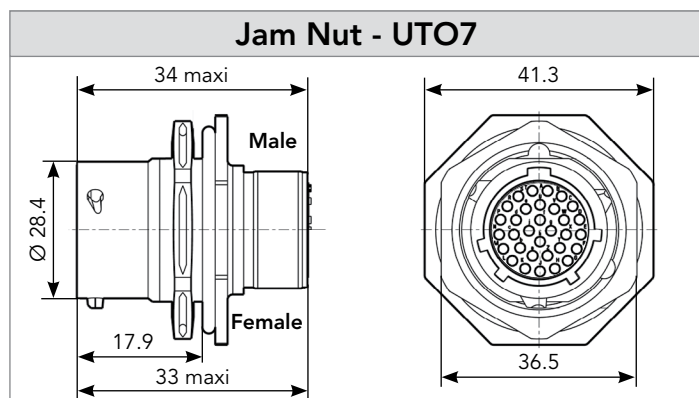
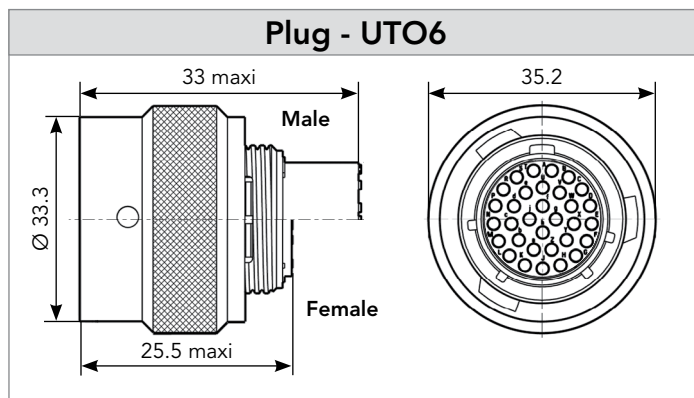
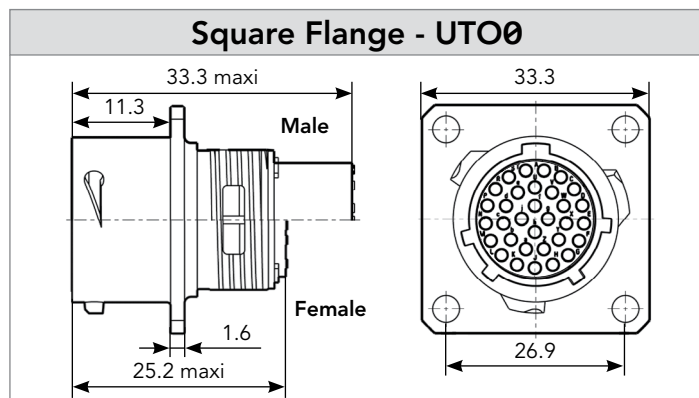
## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 9.5/14                     | UT018JCS      | UT018JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 11.5/18                    | UT018JCSL     | UT018JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 10/14.5                    | UT0S18JCS     | UT0S18JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 13.5/18                    | UT0S18JCSL    | UT0S18JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 16.0                       | UT018AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT018AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | UT018LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 6.5/16                     | UT0S18JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 6.5/16                     | UT018JCPGN    |              |



# 1832 (Shell size 18, 32x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

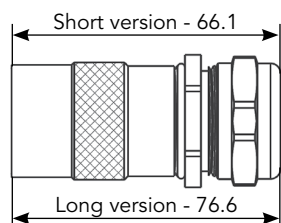


Fig. 1

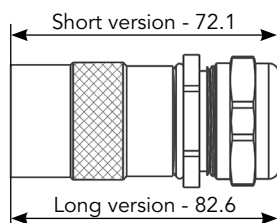


Fig. 2

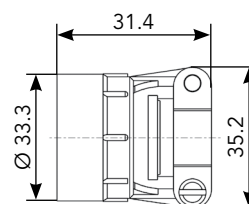


Fig. 5

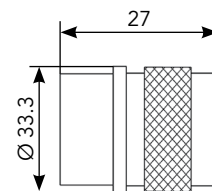


Fig. 6

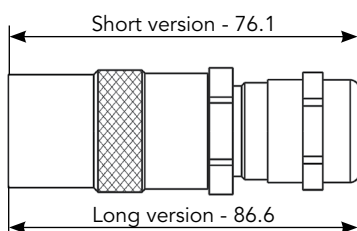


Fig. 3

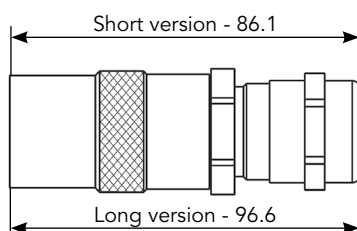


Fig. 4

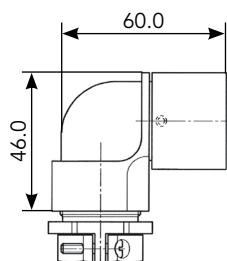


Fig. 7

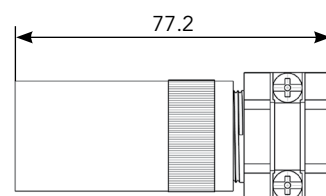


Fig. 8

Note: all dimensions are in mm

**1832** (Shell size 18, 32x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT018DCG\***

**Dustcap (Plug)**



Part number  
**UTG618DCG\***

**Handle (without Head)**



Part number  
**SHANDLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD16B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANDLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT018DC

## 1832 (Shell size 18, 32x#20)

### Contacts

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

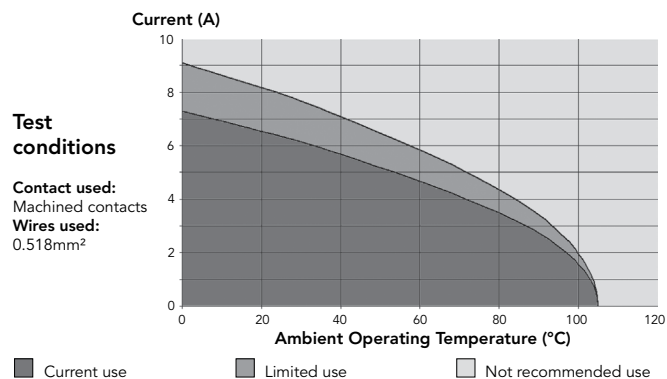
### Electrical Characteristics

**UL**  
4A 250V UL94 V-0

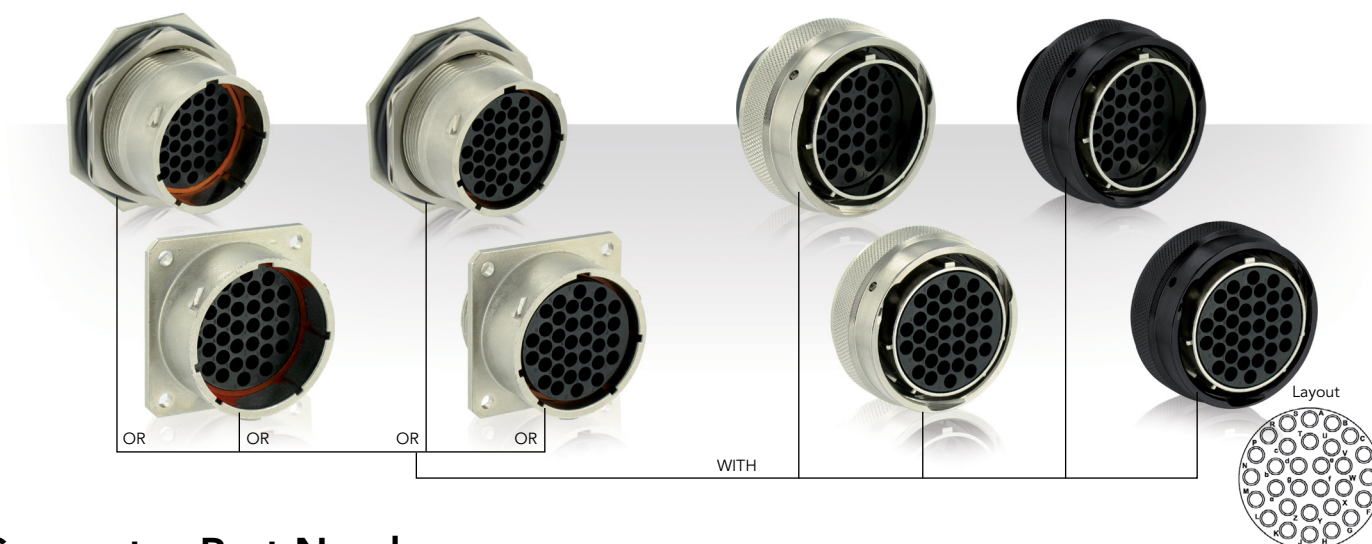
**CSA**  
3A 250V UL94 V-0

**IEC**  
4A 50V 1.5kV 3

### UTO 1832 Derating Curves



## 2235 (Shell size 22, 35x#16)



## Connector Part Numbers

Drilling pattern see page 178

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|-------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                           |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 103 | Square flange receptacle | IP67               | 96h        | UT002235PH           | UT002235SH           |
|                                           |                          | IP68 & IP69K       | 96h        | UT002235PH6          | UT002235SH6          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | UT062235PH           | UT062235SH           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | UT062235PH02 (Black) | UT062235SH02 (Black) |
|                                           | Jam nut receptacle       | IP67               | 48h        | UT072235PH           | UT072235SH           |
|                                           |                          | IP68 & IP69K       | 48h        | UT072235PH6          | UT072235SH6          |
|                                           |                          | IP67               | 96h        | UT072235PH01         | UT072235SH01         |
|                                           |                          | IP68 & IP69K       | 96h        | UT072235PH601        | UT072235SH601        |

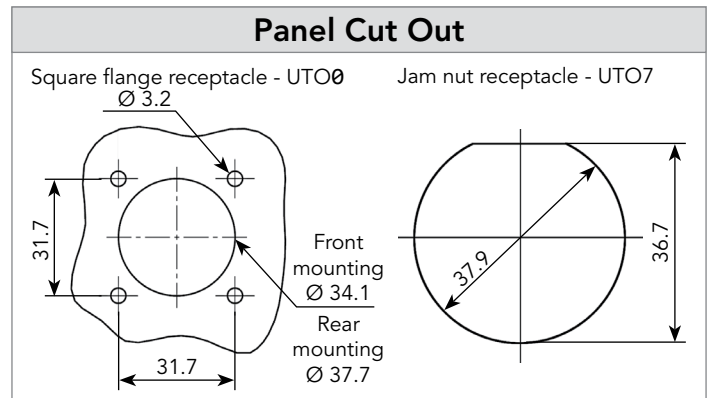
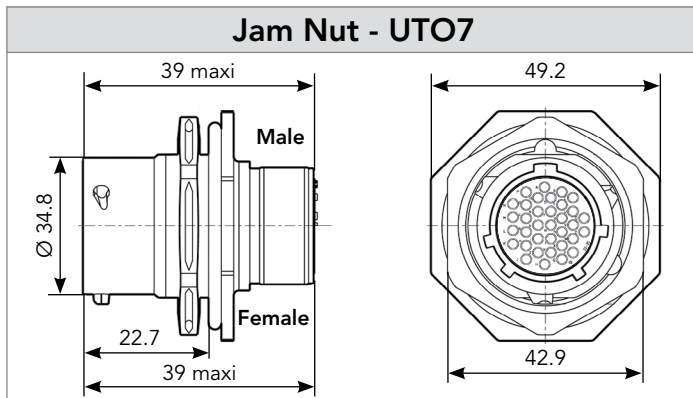
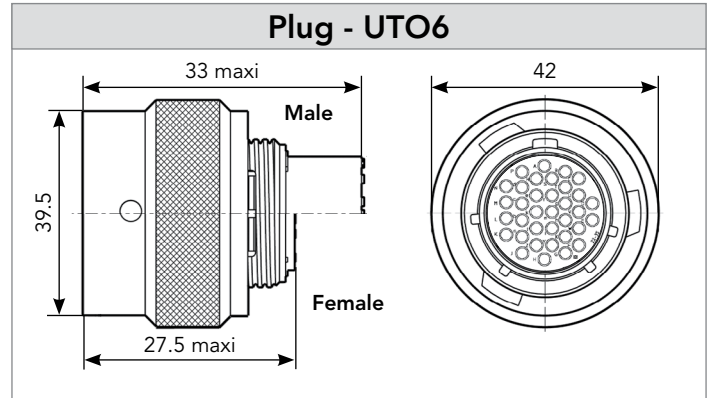
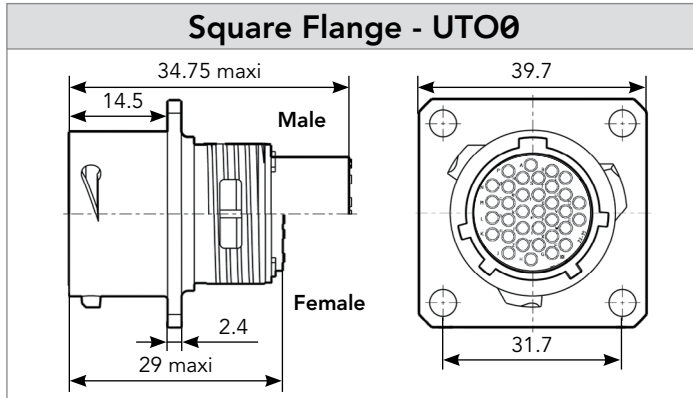
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT022JCS      | UT022JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT022JCSL     | UT022JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S22JCS     | UT0S22JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S22JCSL    | UT0S22JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 19.3                       | UT022AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT022AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | UT022LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 9/21                       | UT0S22JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 9/21                       | UT022JCPGN    |              |

## 2235 (Shell size 22, 35x#16)

### Dimensions



### Backshells (for Mated Connector Length: See Page 153)

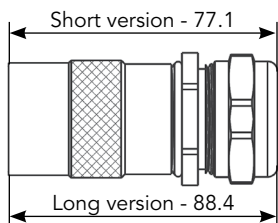


Fig. 1

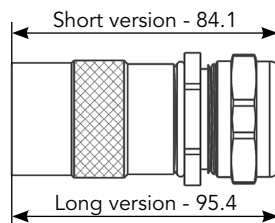


Fig. 2

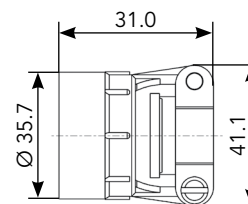


Fig. 5

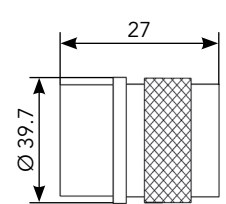


Fig. 6

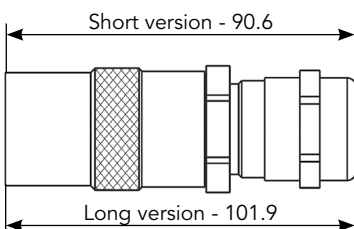


Fig. 3

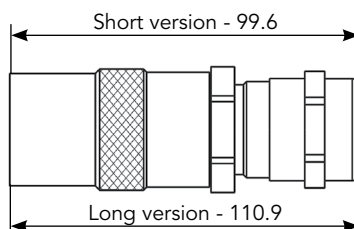


Fig. 4

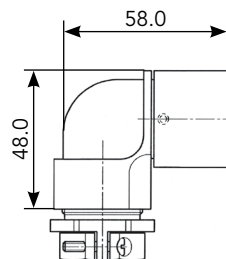


Fig. 7

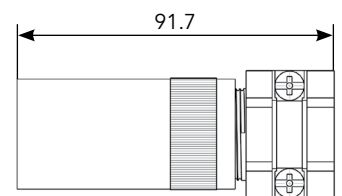


Fig. 8

Note: all dimensions are in mm

2235 (Shell size 22, 35x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
UT022DCG\*

**Dustcap (Plug)**



Part number  
UTG622DCG\*

**Handle (without Head)**



Part number  
SHANGLES

**Tool Kit**



Part number  
TOOLKIT

**Gasket**



Part number / Neoprene  
UTFD18B

**Dummy Contact #16**



Part number / Polyamide 6.6  
SMSPKE0

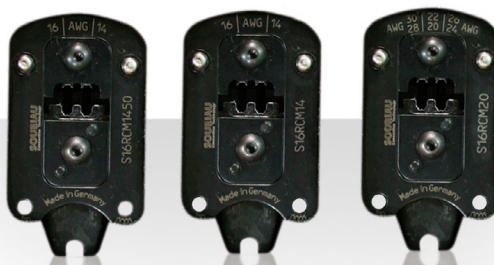
See page 180 for more information

**Extraction Tool #16**



Part number  
RX2025GE1

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT022DC



## 2235 (Shell size 22, 35x#16)

### Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

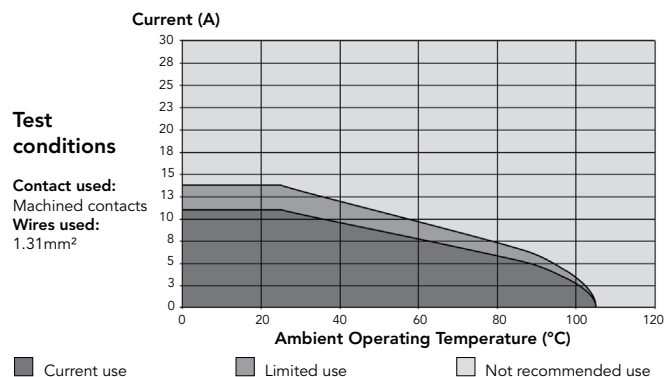
### Electrical Characteristics

**UL**  
5A 500V UL94 V-0

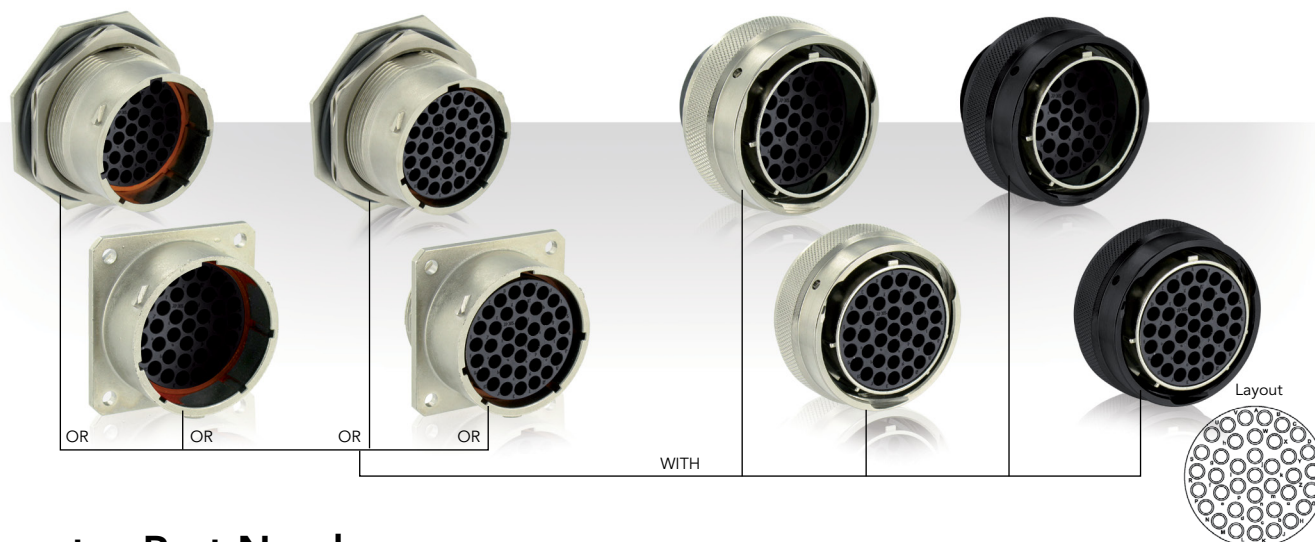
**CSA**  
3A 500V UL94 V-0

**IEC**  
6A 150V 2.5kV 3

### UTO 2235 Derating Curves



## 2238 (Shell size 22, 38x#16)



## Connector Part Numbers

Drilling pattern see page 178

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*         |                      |
|-------------------------------------------|--------------------------|--------------------|------------|----------------------|----------------------|
|                                           |                          |                    |            | Male insert          | Female insert        |
| Contacts supplied separately see page 107 | Square flange receptacle | IP67               | 96h        | UT002238PH           | UT002238SH           |
|                                           |                          | IP68 & IP69K       | 96h        | UT002238PH6          | UT002238SH6          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | UT062238PH           | UT062238SH           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | UT062238PH02 (Black) | UT062238SH02 (Black) |
|                                           | Jam nut receptacle       | IP67               | 48h        | UT072238PH           | UT072238SH           |
|                                           |                          | IP68 & IP69K       | 48h        | UT072238PH6          | UT072238SH6          |
|                                           |                          | IP67               | 96h        | UT072238PH01         | UT072238SH01         |
|                                           |                          | IP68 & IP69K       | 96h        | UT072238PH601        | UT072238SH601        |

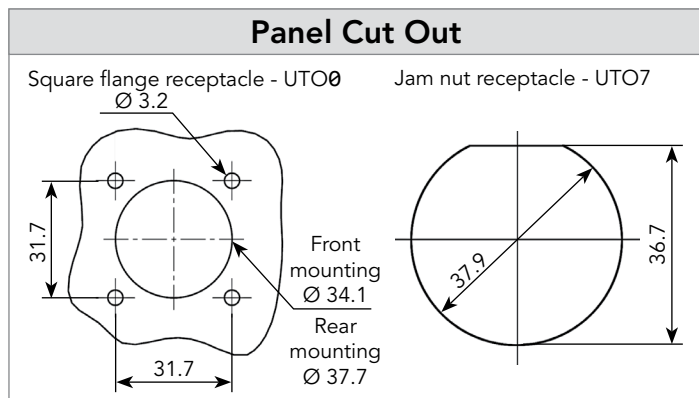
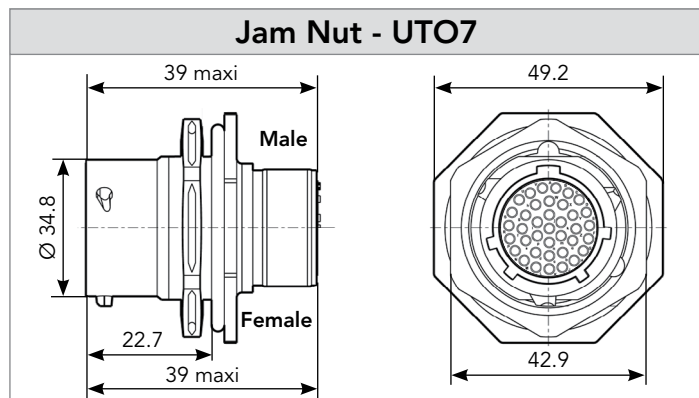
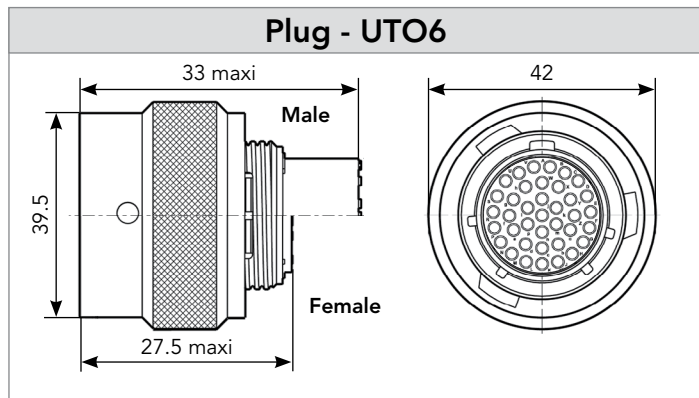
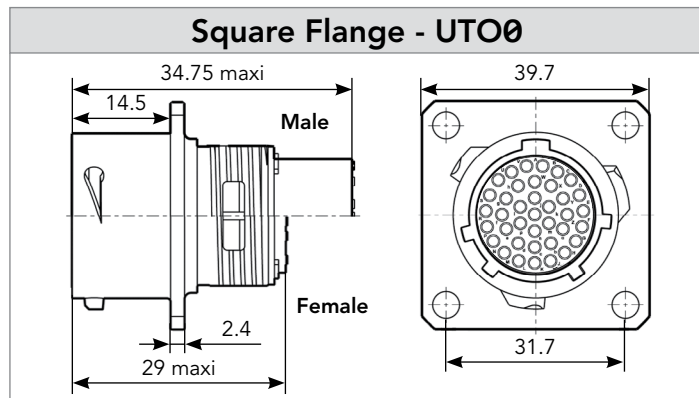
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT022JCS      | UT022JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT022JCSL     | UT022JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S22JCS     | UT0S22JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S22JCSL    | UT0S22JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 19.3                       | UT022AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT022AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | UT022LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 9/21                       | UT0S22JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 9/21                       | UT022JCPGN    |              |

## 2238 (Shell size 22, 38x#16)

### Dimensions



### Backshells (for Mated Connector Length: See Page 153)

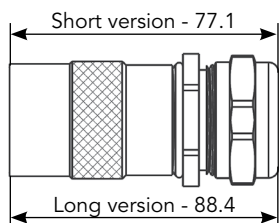


Fig. 1

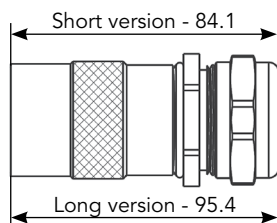


Fig. 2

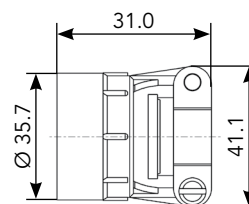


Fig. 5

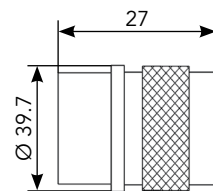


Fig. 6

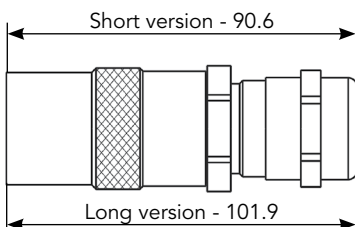


Fig. 3

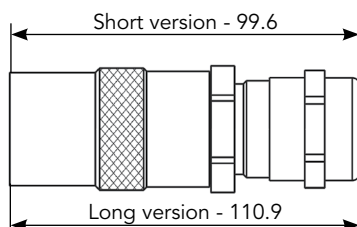


Fig. 4

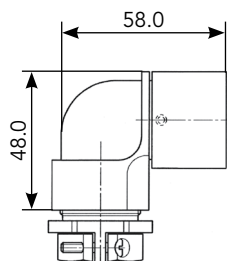


Fig. 7

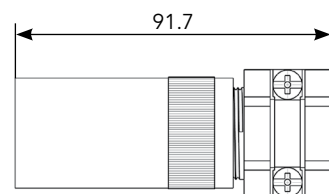


Fig. 8

Note: all dimensions are in mm

**2238** (Shell size 22, 38x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT022DCG\***

**Dustcap (Plug)**



Part number  
**UTG622DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD18B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT022DC

# 2238 (Shell size 22, 38x#16)

## Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

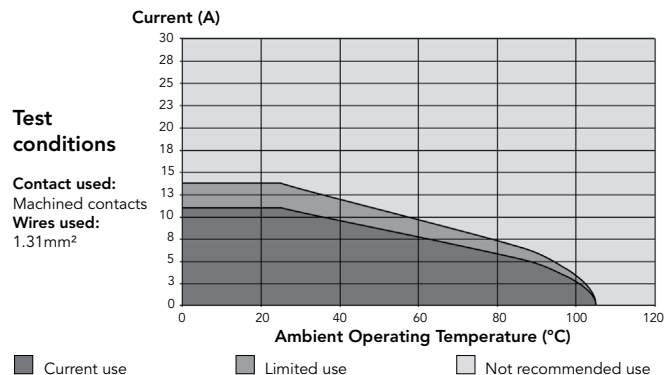
## Electrical Characteristics

**UL**  
5A 500V UL94 V-0

**CSA**  
3A 500V UL94 V-0

**IEC**  
6A 150V 2.5kV 3

## UTO 2238 Derating Curves



## 2041 (Shell size 20, 41x#20)



## Connector Part Numbers

Drilling pattern see page 178

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|-------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                           |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 111 | Square flange receptacle | IP67               | 96h        | UT0W02041PH           | UT0W02041SH           |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W02041PH6          | UT0W02041SH6          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W62041PH           | UT0W62041SH           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | UT0W62041PH02 (Black) | UT0W62041SH02 (Black) |
|                                           | Jam nut receptacle       | IP67               | 48h        | UT0W72041PH           | UT0W72041SH           |
|                                           |                          | IP68 & IP69K       | 48h        | UT0W72041PH6          | UT0W72041SH6          |
|                                           |                          | IP67               | 96h        | UT0W72041PH01         | UT0W72041SH01         |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W72041PH601        | UT0W72041SH601        |

\* Other discrimination keying option, see page 180

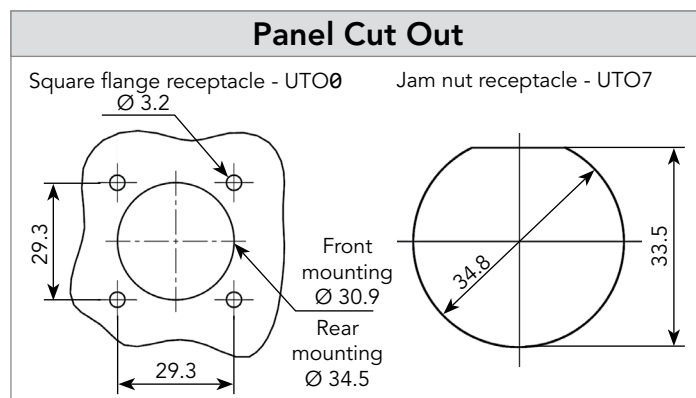
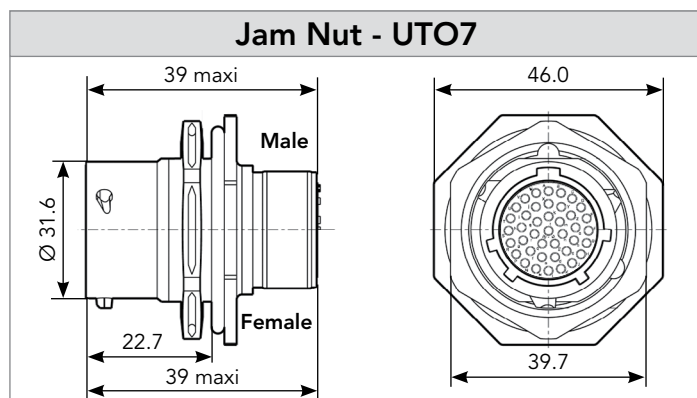
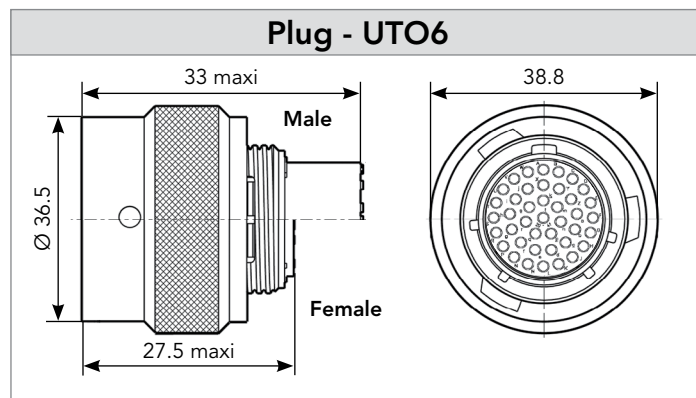
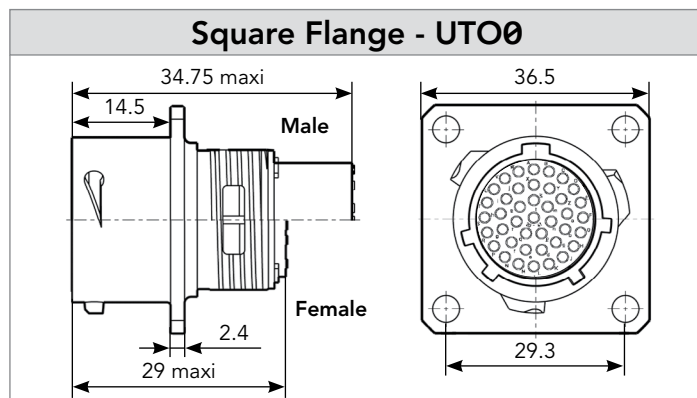
## Backshells

| Backshell type                                                                                            | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                           |           |                            | Short version | Long version |
| Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT020JCS      | UT020JC      |
| Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT020JCSL     | UT020JCL     |
| Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S20JCS     | UT0S20JC     |
| Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S20JCSL    | UT0S20JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                              | -         | 16.0                       | UT020AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                         | -         | -                          | UT020AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                              | -         | 9/21                       | UT020LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                               | ✓         | 9/21                       | UT0S20JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                        | -         | 9/21                       | UT020JCPGN    |              |



## 2041 (Shell size 20, 41x#20)

### Dimensions



### Backshells (for Mated Connector Length: See Page 153)

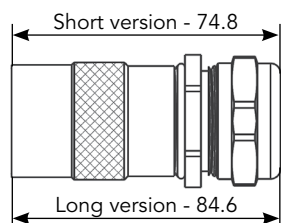


Fig. 1

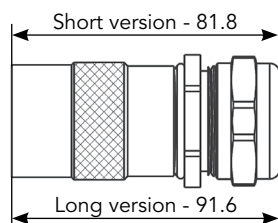


Fig. 2

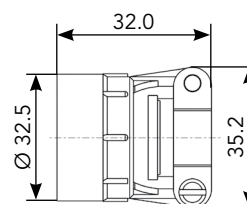


Fig. 5

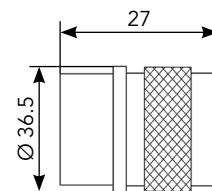


Fig. 6

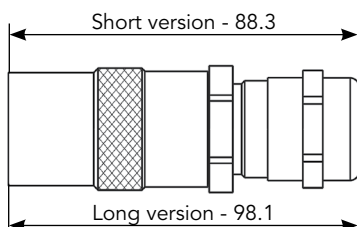


Fig. 3

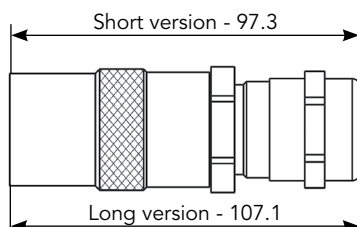


Fig. 4

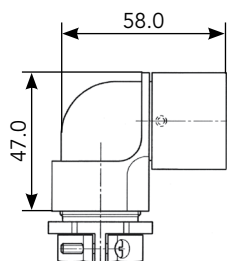


Fig. 7

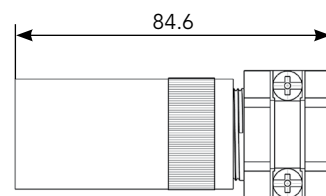


Fig. 8

Note: all dimensions are in mm

**2041** (Shell size 20, 41x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT020DCG\***

**Dustcap (Plug)**



Part number  
**UTG620DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD17B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANGLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT020DC

## 2041 (Shell size 20, 41x#20)

### Contacts

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

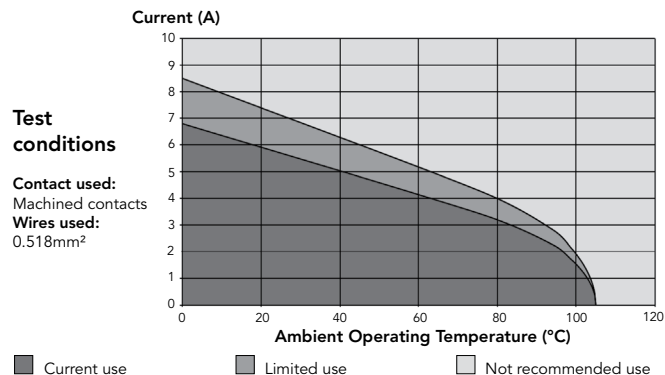
### Electrical Characteristics

**UL**  
3A 250V UL94 V-0

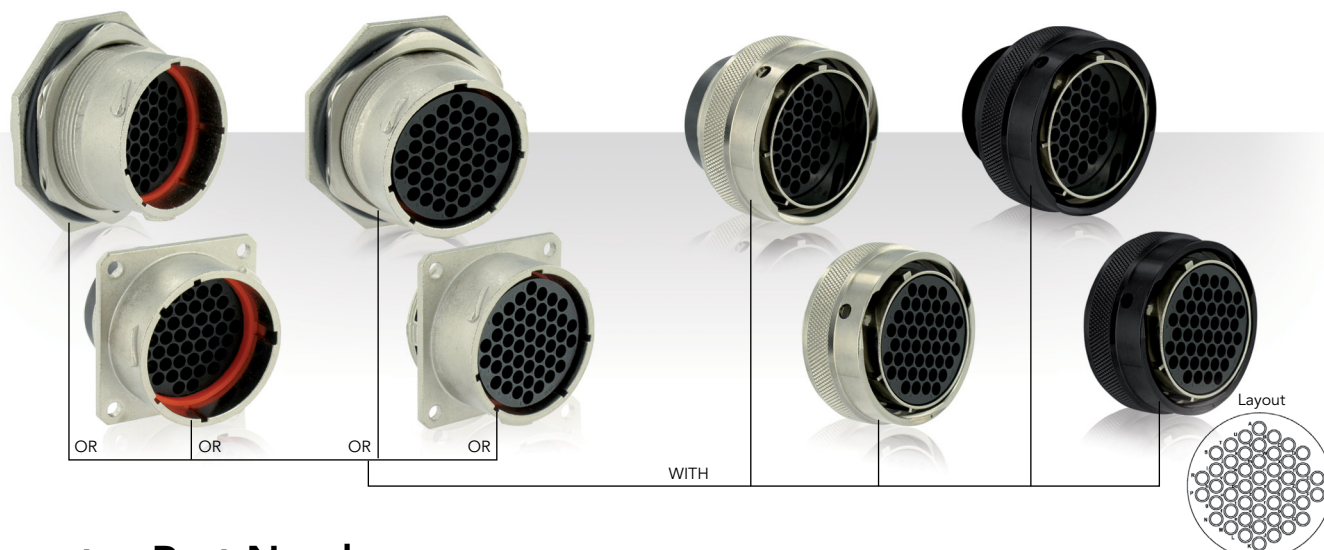
**CSA**  
2A 250V UL94 V-0

**IEC**  
8A 80V 1.5kV 3

### UTO 2041 Derating Curves



## 2448 (Shell size 24, 48x#16)



## Connector Part Numbers

Drilling pattern see page 179

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*                |                             |
|-------------------------------------------|--------------------------|--------------------|------------|-----------------------------|-----------------------------|
|                                           |                          |                    |            | Male insert                 | Female insert               |
| Contacts supplied separately see page 115 | Square flange receptacle | IP67               | 96h        | <b>UT002448PH</b>           | <b>UT002448SH</b>           |
|                                           |                          | IP68 & IP69K       | 96h        | <b>UT002448PH6</b>          | <b>UT002448SH6</b>          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | <b>UT062448PH</b>           | <b>UT062448SH</b>           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | <b>UT062448PH02 (Black)</b> | <b>UT062448SH02 (Black)</b> |
|                                           | Jam nut receptacle       | IP67               | 48h        | <b>UT072448PH</b>           | <b>UT072448SH</b>           |
|                                           |                          | IP68 & IP69K       | 48h        | <b>UT072448PH6</b>          | <b>UT072448SH6</b>          |
|                                           |                          | IP67               | 96h        | <b>UT072448PH01</b>         | <b>UT072448SH01</b>         |
|                                           |                          | IP68 & IP69K       | 96h        | <b>UT072448PH601</b>        | <b>UT072448SH601</b>        |

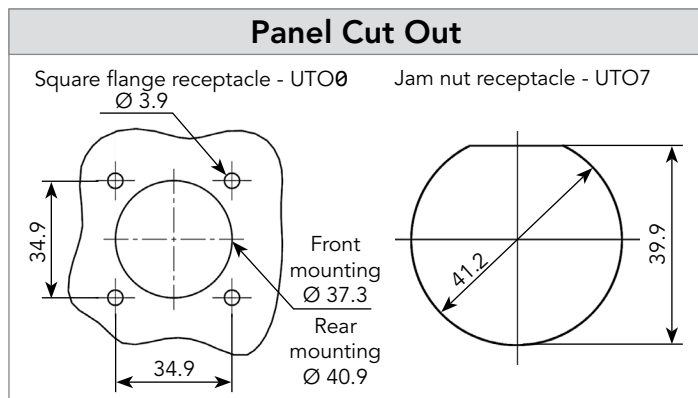
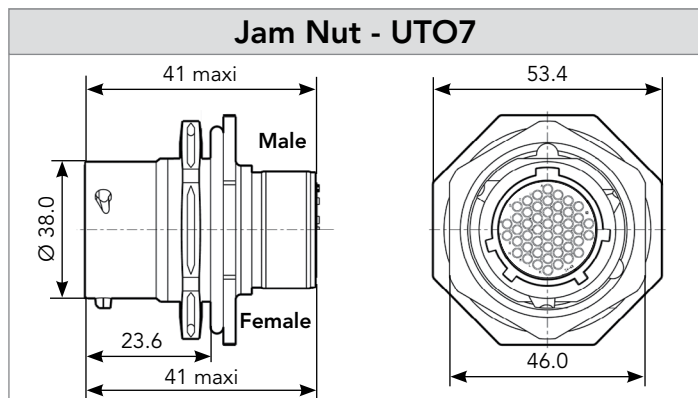
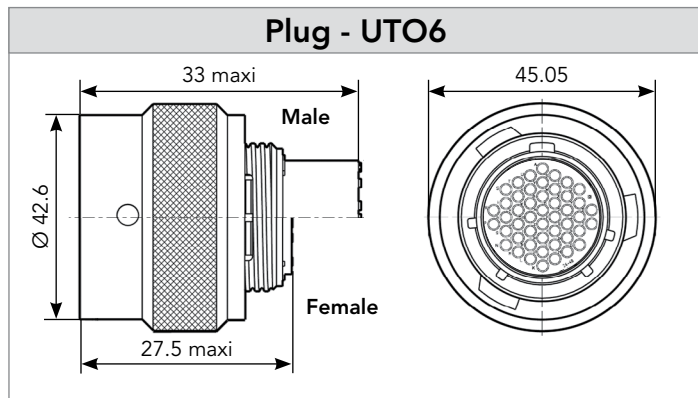
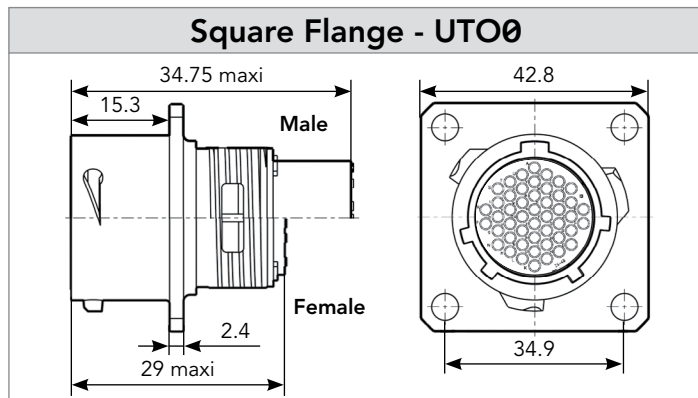
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number        |                  |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|--------------------|------------------|
|                                                                                                                 |           |                            | Short version      | Long version     |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | <b>UT024JCS</b>    | <b>UT024JC</b>   |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | <b>UT024JCSL</b>   | <b>UT024JCL</b>  |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | <b>UT0S24JCS</b>   | <b>UT0S24JC</b>  |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | <b>UT0S24JCSL</b>  | <b>UT0S24JCL</b> |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 19.3                       | <b>UT024AC</b>     |                  |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | <b>UT024AD</b>     |                  |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | <b>UT024LPGN</b>   |                  |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 9/21                       | <b>UT0S24JCPGN</b> |                  |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 9/21                       | <b>UT024JCPGN</b>  |                  |

# 2448 (Shell size 24, 48x#16)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

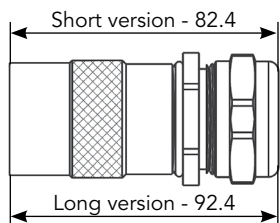


Fig. 1

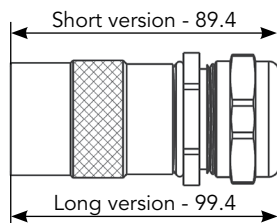


Fig. 2

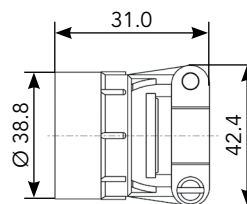


Fig. 5

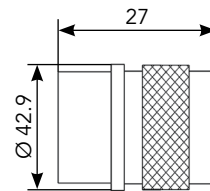


Fig. 6

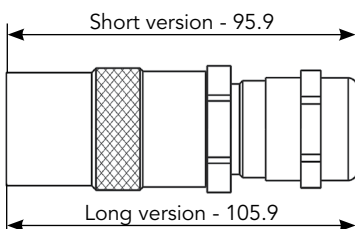


Fig. 3

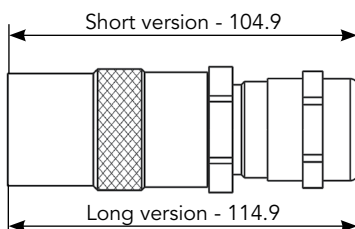


Fig. 4

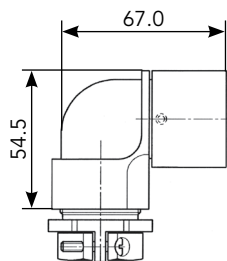


Fig. 7

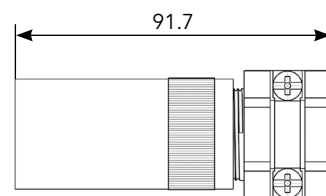


Fig. 8

Note: all dimensions are in mm

**2448** (Shell size 24, 48x#16)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT024DCG\***

**Dustcap (Plug)**



Part number  
**UTG624DCG\***

**Handle (without Head)**



Part number  
**SHANGLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD19B**

**Dummy Contact #16**



Part number / Polyamide 6.6  
**SMSPKE0**

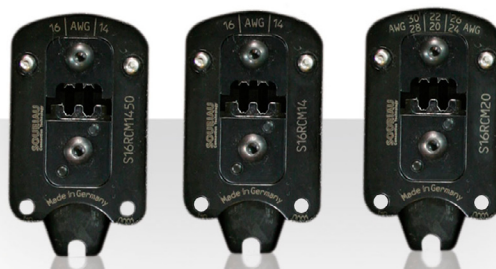
See page 180 for more information

**Extraction Tool #16**



Part number  
**RX2025GE1**

**Crimp Tooling (without Shandles)**



| Contacts                       | Contact size                        | Part number of head                                                |
|--------------------------------|-------------------------------------|--------------------------------------------------------------------|
| RM/RC 28M1K <sup>(1)</sup>     | Standard contacts<br>#16<br>Ø 1.6mm | S16RCM20*                                                          |
| RM/RC 24M9K <sup>(1)</sup>     |                                     | S16RCM20*                                                          |
| RM/RC 20M13K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 20M12K <sup>(1)</sup>    |                                     | S16RCM20*                                                          |
| RM/RC 16M23K <sup>(1)</sup>    |                                     | S16RCM16*                                                          |
| RM/RC 14M30K <sup>(1)</sup>    |                                     | S16RCM14*                                                          |
| SM/SC 24ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 20ML1TK6 <sup>(1)</sup>  |                                     | S16SCM20*                                                          |
| SM/SC 16ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 14ML1TK6 <sup>(1)</sup>  |                                     | S16SCML1*                                                          |
| SM/SC 16ML11TK6 <sup>(1)</sup> |                                     | S16SCML11*                                                         |
| RMDXK10D28K                    | Coaxial contacts                    | M10S1J<br>with die set &<br>stop bushing<br>see page<br>173 to 174 |
| RCDXK1D28K                     |                                     |                                                                    |
| RM/RC DX60xxD28K               |                                     |                                                                    |
| RM/RC DXK10D28 + yorK090       |                                     |                                                                    |
| RM/RC DX60xxD28                |                                     |                                                                    |

(1): Example of plating, for other plating options see page 129  
\* Heads to be used with handle PN: SHANGLES



\* For dustcap without chain, skip "G", e.g. UT024DC



## 2448 (Shell size 24, 48x#16)

### Contacts

| #16     | Contact type                                                     | AWG                             | Part number                  |                              | Max wire Ø | Max insulator Ø |
|---------|------------------------------------------------------------------|---------------------------------|------------------------------|------------------------------|------------|-----------------|
|         |                                                                  |                                 | Male                         | Female                       |            |                 |
| Crimp   | Machined                                                         | 30-28                           | RM28M1K <sup>(1)</sup>       | RC28M1K <sup>(1)</sup>       | 0.55       | 1.00            |
|         |                                                                  | 26-24                           | RM24M9K <sup>(1)</sup>       | RC24M9K <sup>(1)</sup>       | 0.80       | 1.60            |
|         |                                                                  | 22-20                           | RM20M13K <sup>(1)</sup>      | RC20M13K <sup>(1)</sup>      | 1.15       | 1.80            |
|         |                                                                  | 22-20                           | RM20M12K <sup>(1)</sup>      | RC20M12K <sup>(1)</sup>      | 1.15       | 2.20            |
|         |                                                                  | 20-16                           | RM16M23K <sup>(1)</sup>      | RC16M23K <sup>(1)</sup>      | 1.80       | 3.20            |
|         |                                                                  | 16-14                           | RM14M30K <sup>(1)</sup>      | RC14M30K <sup>(1)</sup>      | 2.30       | 3.20            |
|         | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24                           | SM24M1TK6 <sup>(1)(2)</sup>  | SC24M1TK6 <sup>(1)(2)</sup>  | -          | 0.90-1.60       |
|         |                                                                  | 22-20                           | SM20M1TK6 <sup>(1)(2)</sup>  | SC20M1TK6 <sup>(1)(2)</sup>  | -          | 1.20-2.10       |
|         |                                                                  | 18-16                           | SM16M1TK6 <sup>(1)(2)</sup>  | SC16M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
|         |                                                                  | 18-16                           | SM16M11TK6 <sup>(1)(2)</sup> | SC16M11TK6 <sup>(1)(2)</sup> | -          | 3.00            |
|         |                                                                  | 14                              | SM14M1TK6 <sup>(1)(2)</sup>  | SC14M1TK6 <sup>(1)(2)</sup>  | -          | 3.20            |
| PCB     | Machined <sup>(3)</sup>                                          | -                               | RM20M12E8K <sup>(1)</sup>    | RC20M12E84K <sup>(1)</sup>   | -          | -               |
| Coaxial | Cable Multipiece                                                 | see pages<br>131,<br>168 to 174 | RMDXK10D28                   | RCDXK1D28                    | -          | -               |
|         | Cable Monocrimp                                                  |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |
|         | Twisted pair Multipiece                                          |                                 | RMDXK10D28 +<br>york090      | RCDXK1D28 +<br>york090       | -          | -               |
|         | Twisted pair Monocrimp                                           |                                 | RMDX60xxD28                  | RCDX60xxD28                  | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20ML1TK6

(3): For dimensions see page 132

Note: all dimensions are in mm

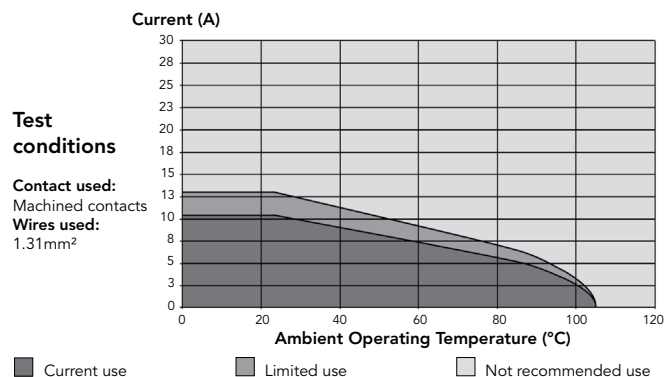
### Electrical Characteristics

**UL**  
5A 500V UL94 V-0

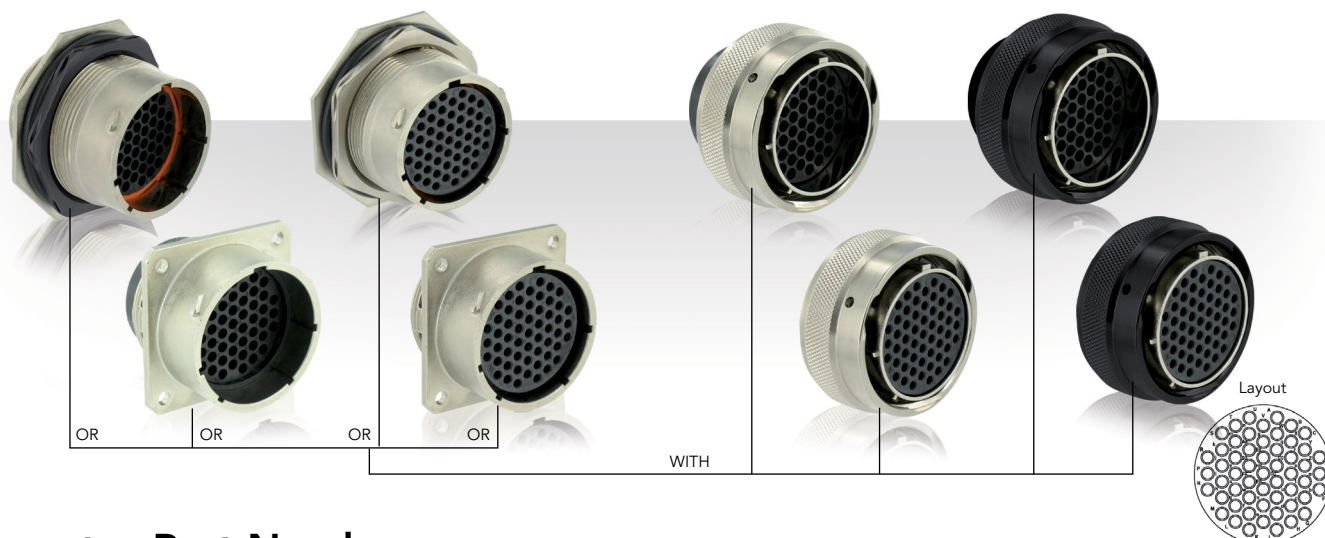
**CSA**  
3A 500V UL94 V-0

**IEC**  
6A 160V 2.5kV 3

### UTO 2448 Derating Curves



## 2255 (Shell size 22, 55x#20)



## Connector Part Numbers

Drilling pattern see page 179

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|-------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                           |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 119 | Square flange receptacle | IP67               | 96h        | UT0W02255PH           | UT0W02255SH           |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W02255PH6          | UT0W02255SH6          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W62255PH           | UT0W62255SH           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | UT0W62255PH02 (Black) | UT0W62255SH02 (Black) |
|                                           | Jam nut receptacle       | IP67               | 48h        | UT0W72255PH           | UT0W72255SH           |
|                                           |                          | IP68 & IP69K       | 48h        | UT0W72255PH6          | UT0W72255SH6          |
|                                           |                          | IP67               | 96h        | UT0W72255PH01         | UT0W72255SH01         |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W72255PH601        | UT0W72255SH601        |

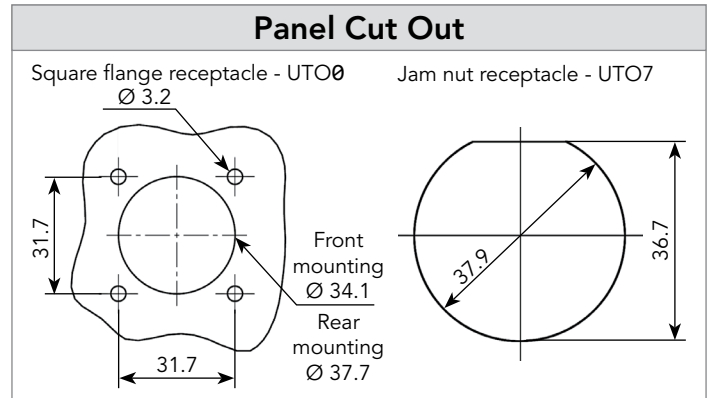
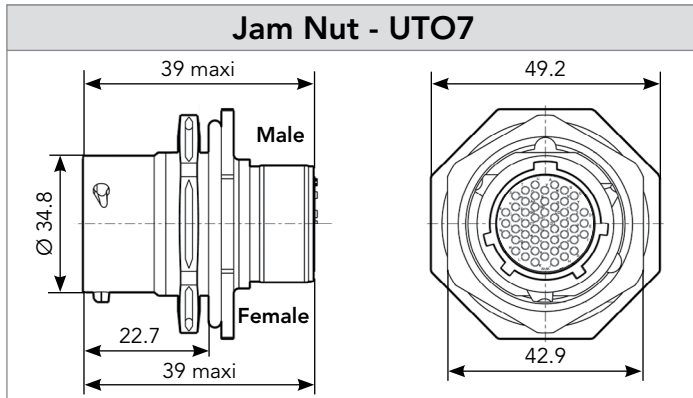
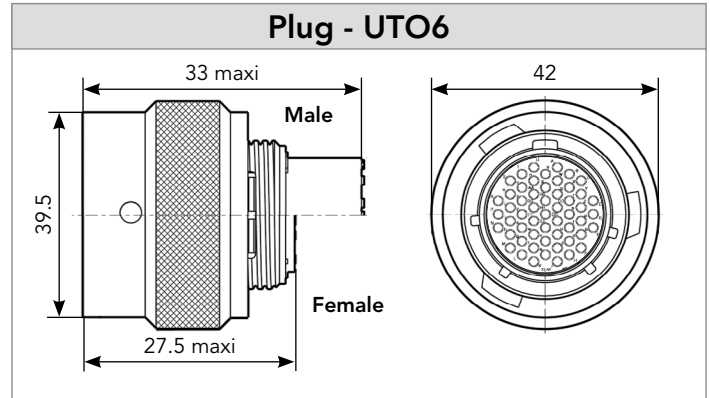
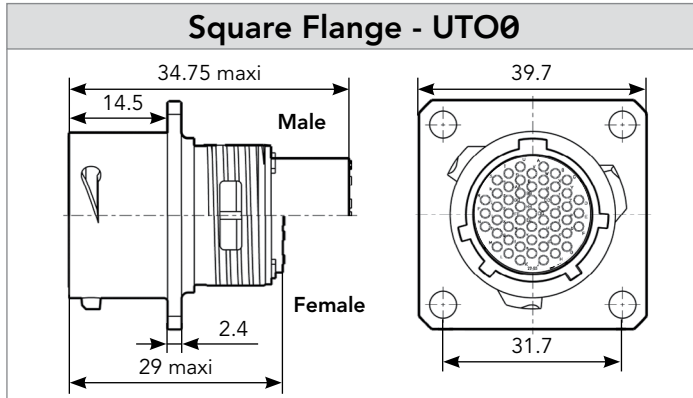
\* Other discrimination keying option, see page 180

## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT022JCS      | UT022JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT022JCSL     | UT022JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S22JCS     | UT0S22JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S22JCSL    | UT0S22JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 19.3                       | UT022AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT022AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 9/21                       | UT022LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 9/21                       | UT0S22JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 9/21                       | UT022JCPGN    |              |

# 2255 (Shell size 22, 55x#20)

## Dimensions



## Backshells (for Mated Connector Length: See Page 153)

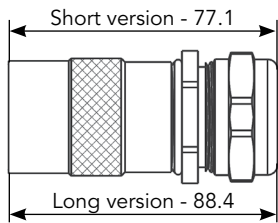


Fig. 1

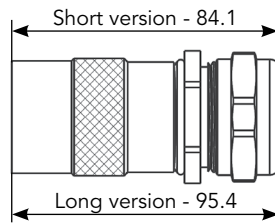


Fig. 2

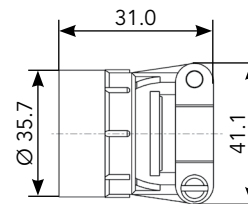


Fig. 5

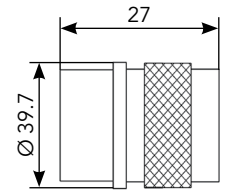


Fig. 6

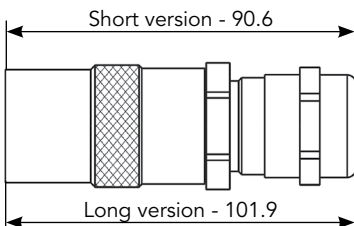


Fig. 3

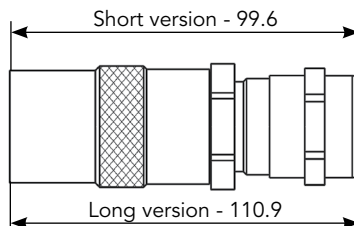


Fig. 4

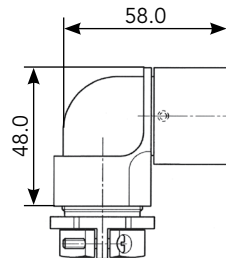


Fig. 7

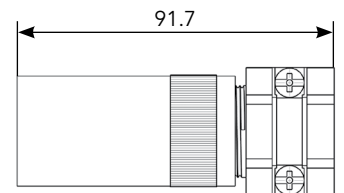


Fig. 8

Note: all dimensions are in mm

**2255** (Shell size 22, 55x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT022DCG\***

**Dustcap (Plug)**



Part number  
**UTG622DCG\***

**Handle (without Head)**



Part number  
**SHANDLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



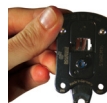
Part number / Neoprene  
**UTFD18B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANDLES


Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT024DC

## UTO Series | Connector

**2255** (Shell size 22, 55x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

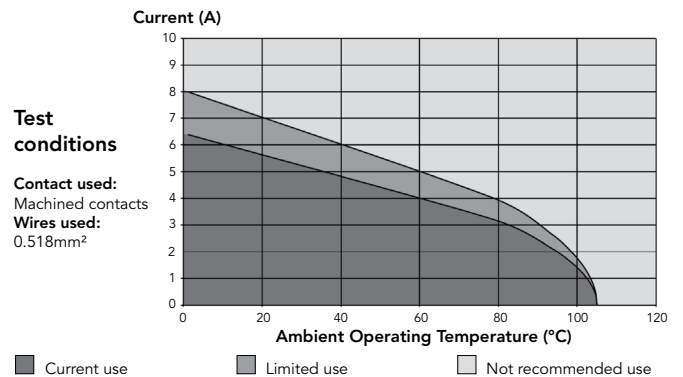
Note: all dimensions are in mm

**Electrical Characteristics**

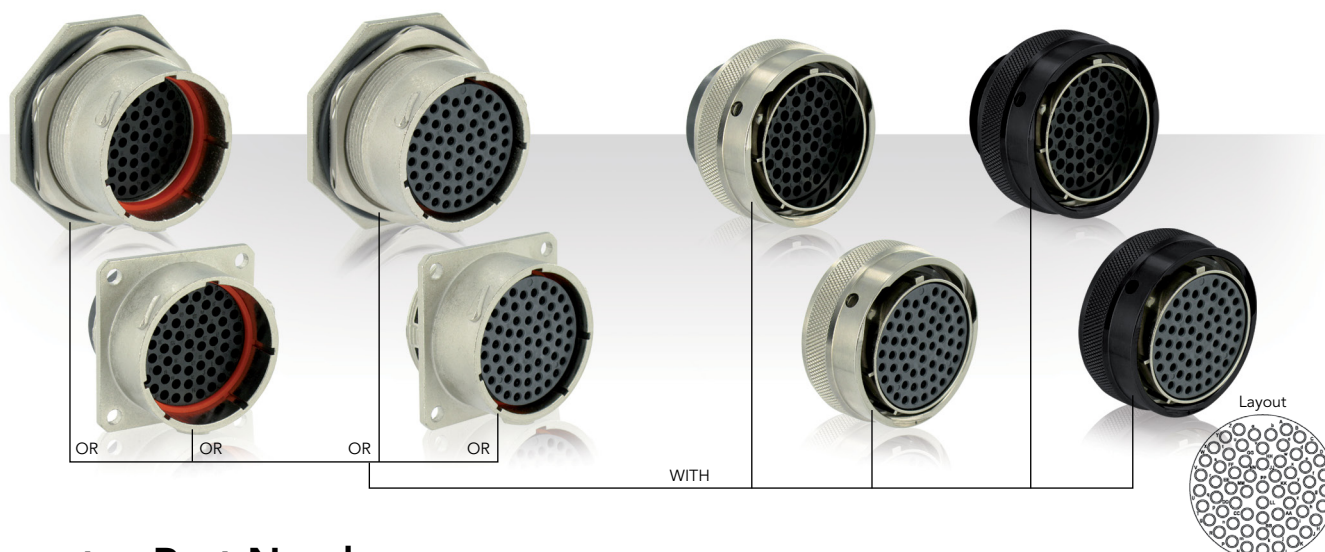
**UL**  
3A 250V UL94 V-0

**CSA**  
2A 250V UL94 V-0

**IEC**  
3A 80V 1.5kV 3

**UTO 2255 Derating Curves**

## 2461 (Shell size 24, 61x#20)



## Connector Part Numbers

Drilling pattern see page 179

| Contact type                              | Connector type           | Sealing            | Salt spray | Part number*          |                       |
|-------------------------------------------|--------------------------|--------------------|------------|-----------------------|-----------------------|
|                                           |                          |                    |            | Male insert           | Female insert         |
| Contacts supplied separately see page 123 | Square flange receptacle | IP67               | 96h        | UT0W02461PH           | UT0W02461SH           |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W02461PH6          | UT0W02461SH6          |
|                                           | Plug                     | IP67, IP68 & IP69K | 48h        | UT0W62461PH           | UT0W62461SH           |
|                                           |                          | IP67, IP68 & IP69K | 96h        | UT0W62461PH02 (Black) | UT0W62461SH02 (Black) |
|                                           | Jam nut receptacle       | IP67               | 48h        | UT0W72461PH           | UT0W72461SH           |
|                                           |                          | IP68 & IP69K       | 48h        | UT0W72461PH6          | UT0W72461SH6          |
|                                           |                          | IP67               | 96h        | UT0W72461PH01         | UT0W72461SH01         |
|                                           |                          | IP68 & IP69K       | 96h        | UT0W72461PH601        | UT0W72461SH601        |

\* Other discrimination keying option, see page 180

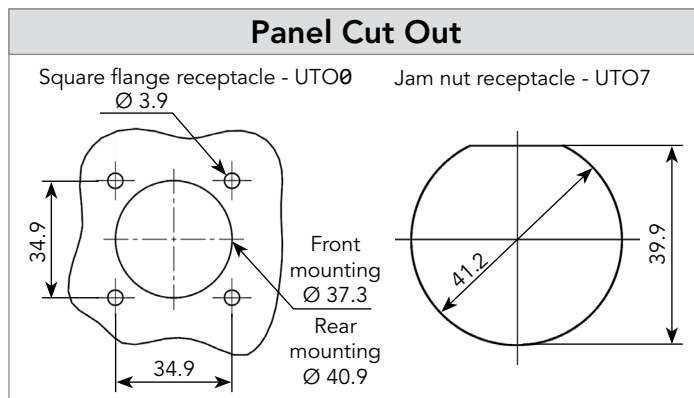
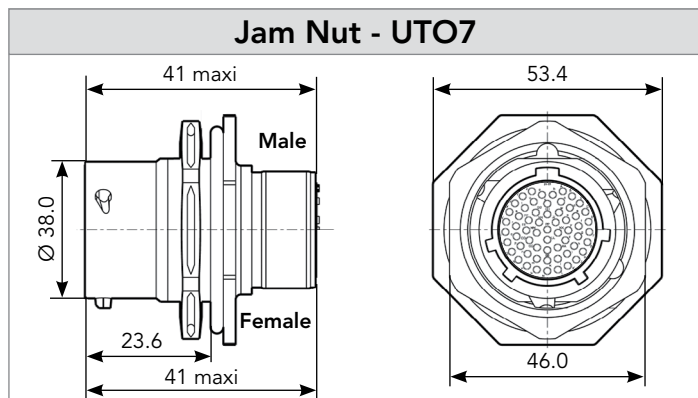
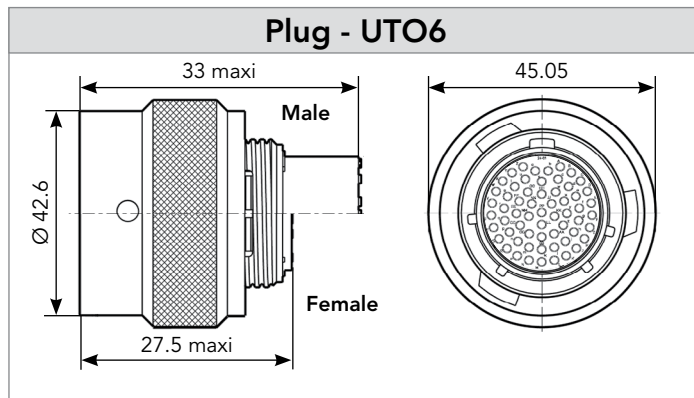
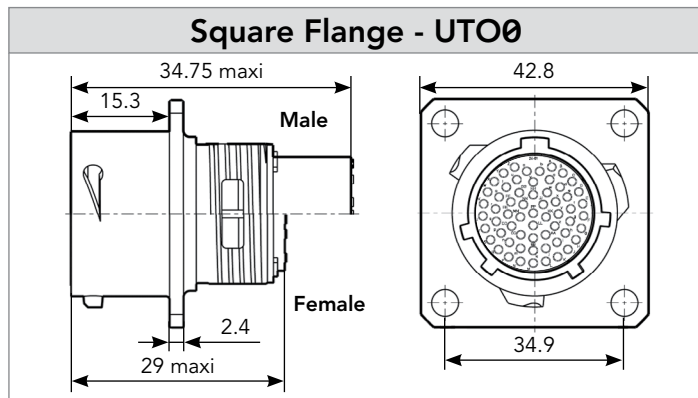
## Backshells

| Backshell type                                                                                                  | Shielding | Cable range (Ø mm) min/max | Part number   |              |
|-----------------------------------------------------------------------------------------------------------------|-----------|----------------------------|---------------|--------------|
|                                                                                                                 |           |                            | Short version | Long version |
| Short cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)                | -         | 11.5/18                    | UT024JCS      | UT024JC      |
| Short cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)          | -         | 15/24                      | UT024JCSL     | UT024JCL     |
| Short shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)       | ✓         | 13.5/18                    | UT0S24JCS     | UT0S24JC     |
| Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4) | ✓         | 17/24                      | UT0S24JCSL    | UT0S24JCL    |
| Metal cable clamp with strain relief (Fig.5)                                                                    | -         | 20.6                       | UT024AC       |              |
| Metal shrink boot adaptor (Fig.6)                                                                               | -         | -                          | UT024AD       |              |
| Metal right angle cable clamp with strain relief nut (Fig.7)                                                    | -         | 17/30                      | UT024LPGN     |              |
| Shielded cable clamp with plastic strain relief nut (Fig.8)                                                     | ✓         | 17/29.5                    | UT0S24JCPGN   |              |
| Cable clamp with plastic strain relief nut (Fig.8)                                                              | -         | 17/29.5                    | UT024JCPGN    |              |



## 2461 (Shell size 24, 61x#20)

### Dimensions



### Backshells (for Mated Connector Length: See Page 153)

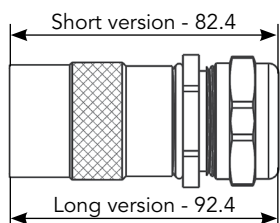


Fig. 1

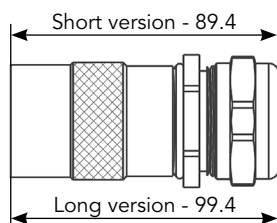


Fig. 2

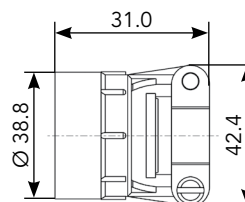


Fig. 5

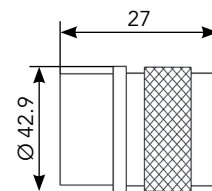


Fig. 6

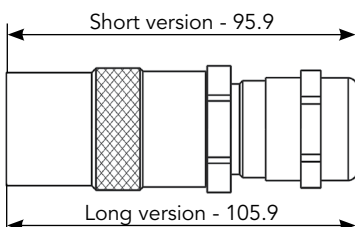


Fig. 3

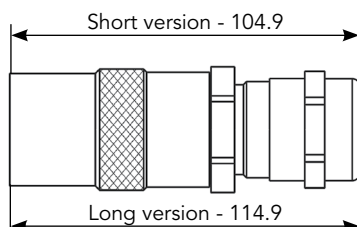


Fig. 4

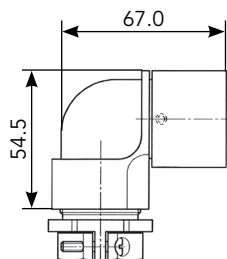


Fig. 7

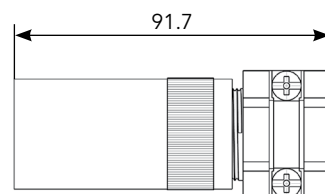


Fig. 8

Note: all dimensions are in mm

**2461** (Shell size 24, 61x#20)

## Accessories and Tooling

**Dustcap (Receptacle)**



Part number  
**UT024DCG\***

**Dustcap (Plug)**



Part number  
**UTG624DCG\***

**Handle (without Head)**



Part number  
**SHANDLES**

**Tool Kit**



Part number  
**TOOLKIT**

**Gasket**



Part number / Neoprene  
**UTFD19B**

**Crimp Tooling (without Shandles)**



| Contacts                      | Contact size                      | Part number of head |
|-------------------------------|-----------------------------------|---------------------|
| RM/RC 24W3K <sup>(1)</sup>    | Standard contacts<br>#20<br>Ø 1mm | <b>S20RCM*</b>      |
| RM/RC 20W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| RM/RC 18W3K <sup>(1)</sup>    |                                   | <b>S20RCM*</b>      |
| SM/SC 24WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |
| SM/SC 20WL3 <sup>(1)(2)</sup> |                                   | <b>S20SCM20*</b>    |

(1): Example of plating, for other plating options see page 129  
(2): loose contact  
\* Heads to be used with handle PN: SHANDLES





Handle + Head = Complete set

**Extraction Tool #20**



Part number  
**RX20D44**

\* For dustcap without chain, skip "G", e.g. UT024DC

**2461** (Shell size 24, 61x#20)**Contacts**

| #20   | Contact type                                                     | AWG   | Part number                 |                             | Max wire Ø | Max insulator Ø |
|-------|------------------------------------------------------------------|-------|-----------------------------|-----------------------------|------------|-----------------|
|       |                                                                  |       | Male                        | Female                      |            |                 |
| Crimp | Machined                                                         | 26-24 | RM24W3K                     | RC24W3K                     | 0.80       | 1.60            |
|       |                                                                  | 22-20 | RM20W3K                     | RC20W3K                     | 1.15       | 1.60            |
|       |                                                                  | 20-18 | RM18W3K                     | RC18W3K                     | 1.30       | 2.10            |
|       | Stamped & Formed reeled contacts<br>See note (2) for loose piece | 26-24 | SM24W3TK6 <sup>(1)(2)</sup> | SC24W3TK6 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 26-24 | SM24W3S26 <sup>(1)(2)</sup> | SC24W3S25 <sup>(1)(2)</sup> | -          | 0.90-1.60       |
|       |                                                                  | 22-20 | SM20W3TK6 <sup>(1)(2)</sup> | SC20W3TK6 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  | 22-20 | SM20W3S26 <sup>(1)(2)</sup> | SC20W3S25 <sup>(1)(2)</sup> | -          | 1.20-2.10       |
|       |                                                                  |       |                             |                             |            |                 |
| PCB   | Machined <sup>(3)</sup>                                          | -     | RMW5016K                    | RCW5016K                    | -          | -               |

(1): Example of plating, for other plating options see page 129

(2): For loose piece contact packaging, place "L" in part number. Example: SM20WL3TK6

(3): For dimensions see page 132

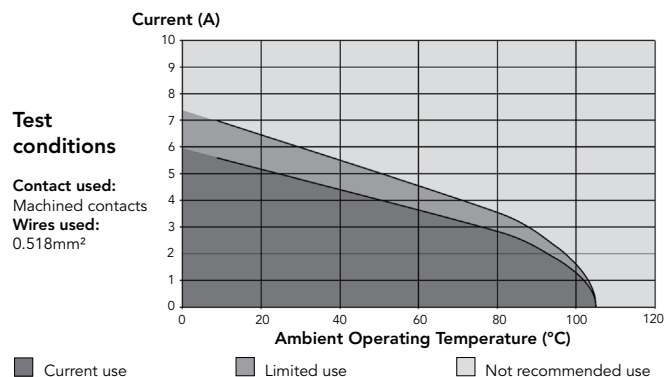
Note: all dimensions are in mm

**Electrical Characteristics**

**UL**  
3A 250V UL94 V-0

**CSA**  
2A 250V UL94 V-0

**IEC**  
3A 80V 1.5kV 3

**UTO 2461 Derating Curves**

# UTO SERIES

# Contacts

|                                        |     |
|----------------------------------------|-----|
| ■ Description .....                    | 126 |
| ■ Contact Plating Selector Guide ..... | 127 |
| ■ Contact Selector Guide .....         | 128 |
| ■ Packaging .....                      | 128 |
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| ■ #16 Coaxial Contacts .....           | 131 |
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| ■ Fiber Optic Contacts .....           | 133 |

## Contacts



### Description

The UTO series is delivered without contacts and offers the unique feature to use the same style contact in any layout with the same active part size (i.e. #20, #16, #12, etc.). This provides our customers with an easy solution to buy only one type of contact to equip all their connectors even if housings/shell sizes are different.

This provides the benefit of standardization and subsequent reduced inventory costs. In addition, it eliminates the need for added tooling and simplifies the assembly process. SOURIAU contacts are designed for simple snap-in installation and further eliminate the need for insertion tooling.

In addition to the below "crimp" style contact options, the UTO series can also be equipped with PCB contacts.

Crimp contacts are available in different versions:



• machined



• stamped & formed



• coaxial



• fiber optic



## Contact Plating Selector Guide

Once the contact size has been selected, the next step is to decide on which type to use. SOURIAU offers two main types of electrical contacts:

- Machined
- Stamped & Formed

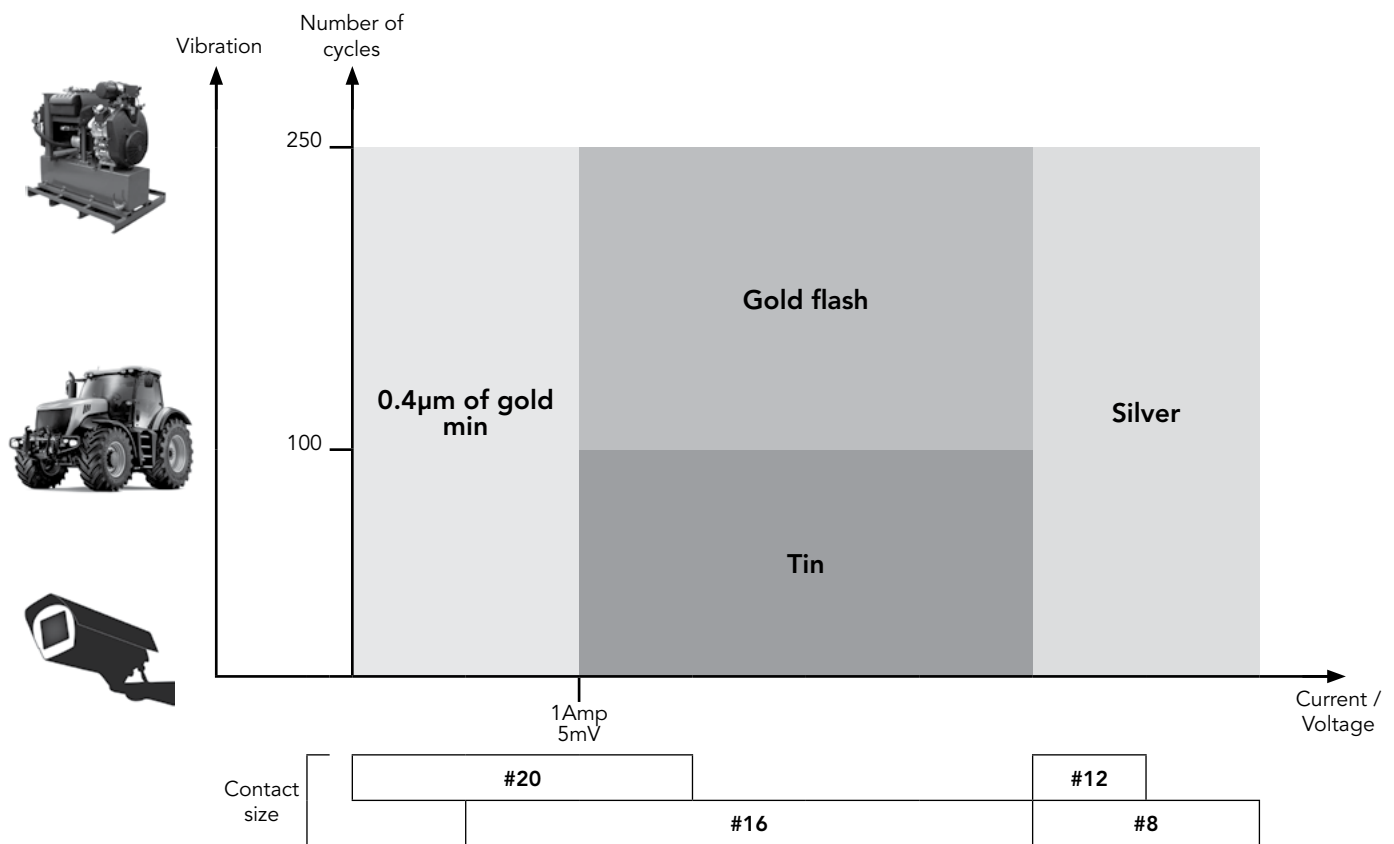
Machined contacts are generally chosen as a better solution for power applications or when lower quantities are needed.

Stamped & formed contacts offer the ability to be crimped automatically which makes them more suitable for high volume production applications.

The next decision to make is: What plating should I choose?

The graph below can help guide you to plating recommendations based on application, mating cycles and current/voltage needs.

Note: do not mix different plating (i.e. tin plated pin contacts with gold plated socket contacts).



## Contact Selector Guide

### Contacts supplied separately

| Electrical characteristics: contact resistance |                  |       |
|------------------------------------------------|------------------|-------|
| #20<br>Ø1mm                                    | Machined         | < 6mΩ |
|                                                | Stamped & formed | < 6mΩ |
| #16<br>Ø1.6mm                                  | Machined         | < 3mΩ |
|                                                | Stamped & formed | < 6mΩ |
| #12<br>Ø2.4mm                                  | Machined         | < 5mΩ |
| #8<br>Ø3.6mm                                   | Machined         | < 5mΩ |

| Available plating options                               |                                                                                                              |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| A                                                       | 2µm Nickel + 2µm Ag                                                                                          |
| J                                                       | Gold flash over Nickel 2µm mini                                                                              |
| K                                                       | 0.4 µm Gold over 2 µm Nickel mini                                                                            |
| S31                                                     | Active part: Gold flash over Nickel<br>Crimp area: 1.3µm Tin mini over Nickel<br>Other: 1.3µm Tin mini       |
| S18                                                     | Active part: 0.75µm Gold mini over Nickel<br>Crimp area: 1.3µm Tin mini over Nickel<br>Other: 1.3µm Tin mini |
| S25<br>S26                                              | Active part: 0.75µm Au over Nickel<br>Crimp area: flash Au over Nickel                                       |
| TK6                                                     | 0.5µm - 2.5µm Sn pre-plated                                                                                  |
| D70                                                     | Superseded by S31                                                                                            |
| S6                                                      | Superseded by S18                                                                                            |
| Other platings on request (contact supplied separately) |                                                                                                              |
| T                                                       | Tin 3µm (-0/+2) over 1.3µm Nickel mini                                                                       |
| D28*                                                    | 0.75µm mini Gold over 2µm Nickel mini                                                                        |

\* For Coax contacts only

## Packaging

Due to the wide variety of applications, contact packaging is offered for small series (bulk package) and high volume production (reeled contacts):

### Size contacts #20 & #16



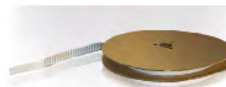
- 25 pieces loose package (stamped & formed contacts)



- 50 pieces bulk package (machined contacts)



- 1,000 pieces bulk package (machined contacts)



- 3,000 pieces reeled (stamped & formed contacts)



- 2,000 pieces reeled (machined contacts)  
Size #16 only

### Size contacts #12 & #8



- 100 pieces bulk package (machined contacts)

Note: 1,000 pieces bulk package available by adding 1000 at the end of the part number: e.g. RC16M23K1000  
2,000 pieces reeled package available by adding K at the beginning of the part number: e.g. KRC16M23K

# Crimp Contacts

## Standard Version



| Contact size   | Type             | Wire size |                 | Part number               |                           | Max wire Ø | Max insulator Ø    | Available plating<br>see page 128 |
|----------------|------------------|-----------|-----------------|---------------------------|---------------------------|------------|--------------------|-----------------------------------|
|                |                  | AWG       | mm <sup>2</sup> | Male                      | Female                    |            |                    |                                   |
| #20<br>Ø1 mm   | Machined         | 26-24     | 0.13-0.20       | RM24W3K                   | RC24W3K                   |            | 1.58 max           | K                                 |
|                | Stamped & Formed | 26-24     | 0.13-0.25       | SM24W3 - <sup>(1)</sup>   | SC24W3 - <sup>(1)</sup>   |            | 0.89-1.58          | TK6<br>S25 (female)<br>S26 (male) |
|                |                  |           |                 | SM24WL3 - <sup>(2)</sup>  | SC24WL3 - <sup>(2)</sup>  |            |                    |                                   |
|                | Machined         | 22-20     | 0.32-0.52       | RM20W3K                   | RC20W3K                   |            | 1.58 max           | K                                 |
|                | Stamped & Formed | 22-20     | 0.35-0.5        | SM20W3 - <sup>(1)</sup>   | SC20W3 - <sup>(1)</sup>   |            | 1.17-2.08          | TK6<br>S25 (female)<br>S26 (male) |
|                |                  |           |                 | SM20WL3 - <sup>(2)</sup>  | SC20WL3 - <sup>(2)</sup>  |            |                    |                                   |
| #16<br>Ø1.6 mm | Machined         | 20-18     | 0.50-0.93       | RM18W3K                   | RC18W3K                   |            | 2.10 max           | K                                 |
|                | Machined         | 30-28     | 0.05-0.08       | RM28M1 -                  | RC28M1 -                  | 0.55       | 1.1                | K, J                              |
|                | Machined         | 26-24     | 0.13-0.2        | RM24M9 -                  | RC24M9 -                  | 0.8        | 1.6                | K, J                              |
|                | Stamped & Formed | 26-24     | 0.13-0.25       | SM24M1 - <sup>(1)</sup>   | SC24M1 - <sup>(1)</sup>   | 0.89-1.28  | No insulation grip | S31, S18, TK6                     |
|                |                  |           |                 | SM24ML1 - <sup>(2)</sup>  | SC24ML1 - <sup>(2)</sup>  |            |                    |                                   |
|                | Machined         | 22-20     | 0.32-0.52       | RM20M13 -                 | RC20M13 -                 | 1.18       | 1.8                | K, J                              |
|                |                  |           |                 | RM20M12 -                 | RC20M12 -                 |            | 2.2                |                                   |
|                | Stamped & Formed | 22-20     | 0.35-0.5        | SM20M1 - <sup>(1)</sup>   | SC20M1 - <sup>(1)</sup>   | 1.17-2.08  | No insulation grip | S31, S18, TK6                     |
|                |                  |           |                 | SM20ML1 - <sup>(2)</sup>  | SC20ML1 - <sup>(2)</sup>  |            |                    |                                   |
|                | Machined         | 20-16     | 0.52-1.5        | RM16M23 -                 | RC16M23 -                 | 1.8        | 3.2                | K, J                              |
|                | Stamped & Formed | 18-16     | 0.8-1.5         | SM16M1 - <sup>(1)</sup>   | SC16M1 - <sup>(1)</sup>   | 3.0        | No insulation grip | S31, S18, TK6                     |
|                |                  |           |                 | SM16ML1 - <sup>(2)</sup>  | SC16ML1 - <sup>(2)</sup>  |            |                    |                                   |
| #12<br>Ø2.4 mm | Machined         | 18-16     | 0.8-1.5         | SM16M11 - <sup>(1)</sup>  | SC16M11 - <sup>(1)</sup>  | 2.0-3.0    | Insulation grip    | S31, S18, TK6                     |
|                |                  | 18-16     | 0.8-1.5         | SM16ML11 - <sup>(2)</sup> | SC16ML11 - <sup>(2)</sup> |            |                    |                                   |
|                |                  | 16-14     | 1.5-2.5         | RM14M30 -                 | RC14M30 -                 |            |                    |                                   |
|                |                  | 14        | 2.0-2.5         | SM14M1 - <sup>(1)</sup>   | SC14M1 - <sup>(1)</sup>   |            |                    |                                   |
|                |                  | 14        | 2.0-2.5         | SM14ML1 - <sup>(2)</sup>  | SC14ML1 - <sup>(2)</sup>  |            |                    |                                   |
|                |                  | 14        | 2.0-2.5         | SM14ML1 - <sup>(2)</sup>  | SC14ML1 - <sup>(2)</sup>  |            |                    |                                   |
|                | Machined         | 22        | 0.13-0.4        | 82911457N -               | 82911456 -                | -          | 4.9                | A, K                              |
|                |                  | 20        | 0.5             | 82911459N -               | 82911458 -                |            |                    |                                   |
|                |                  | 18        | 0.75-1.0        | 82911461N -               | 82911460 -                |            |                    |                                   |
|                |                  | 16        | 1.5             | 82911463N -               | 82911462 -                |            |                    |                                   |
|                |                  | 14        | 2.5             | 82911465N -               | 82911464 -                |            |                    |                                   |
| #8<br>Ø3.6 mm  | Machined         | 12        | 4               | 82911467N -               | 82911466 -                | -          | 6.5                | A                                 |
|                |                  | 16        | 1.5             | 82913601A                 | 82913600A                 |            |                    |                                   |
|                |                  | 14        | 2.5             | 82913603A                 | 82913602A                 |            |                    |                                   |
|                |                  | 12        | 4               | 82913605A                 | 82913604A                 |            |                    |                                   |
|                |                  | 10        | 6.0             | 82913607A                 | 82913606A                 |            |                    |                                   |
| #8<br>Ø3.6 mm  | Machined         | 8         | 10.0            | 82913609A                 | 82913608A                 | -          | 6.5                | A                                 |
|                |                  | 8         | 10.0            | 82913609A                 | 82913608A                 |            |                    |                                   |

(1) contact reeled (2) loose contact  
Example: RM24W3K - Size #20, Machined, AWG24 wire.

Note: all dimensions are in mm

## Crimp Contacts (Continued)

### First Mate Last Break Contacts

| Contact size                                      | Type     | Wire size |           | Part number |             | Max wire Ø (mm) | Max insulator Ø (mm) |  |      | Available plating see p. 128 |
|---------------------------------------------------|----------|-----------|-----------|-------------|-------------|-----------------|----------------------|-------------------------------------------------------------------------------------|------|------------------------------|
|                                                   |          | AWG       | mm²       | Male        | Female      |                 |                      | Front                                                                               | Rear |                              |
| #16<br>Ø1.6 mm<br>Longer male contact (+1mm)      | Machined | 30-28     | 0.05-0.08 | RM28M1GE1-  | -           | 0.55            | 1.1                  | -                                                                                   | Red  | KorJ                         |
|                                                   |          | 26-24     | 0.13-0.2  | RM24M9GE1-  |             | 0.8             | 1.6                  | Red                                                                                 | Red  |                              |
|                                                   |          | 22-20     | 0.32-0.52 | RM20M13GE1- |             | 1.18            | 1.8                  | Black                                                                               | Red  |                              |
|                                                   |          |           |           | RM20M12GE1- |             |                 | 2.2                  | Blue                                                                                | Red  |                              |
|                                                   |          | 20-16     | 0.52-1.5  | RM16M23GE1- |             | 1.8             | 3.2                  | -                                                                                   | Red  |                              |
|                                                   |          | 16-14     | 1.5-2.5   | RM14M30GE1- |             | 2.28            | -                    | -                                                                                   | Red  |                              |
| #16<br>Ø1.6 mm<br>Shorter female contact (-0.7mm) | Machined | 30-28     | 0.05-0.08 | -           | RC28M1GE7-  | 0.55            | 1.1                  | -                                                                                   | Blue | KorJ                         |
|                                                   |          | 26-24     | 0.13-0.2  |             | RC24M9GE7-  | 0.8             | 1.6                  | Red                                                                                 | Blue |                              |
|                                                   |          | 22-20     | 0.32-0.52 |             | RC20M13GE7- | 1.18            | 1.8                  | Black                                                                               | Blue |                              |
|                                                   |          |           |           |             | RC20M12GE7- |                 | 2.2                  | Blue                                                                                | Blue |                              |
|                                                   |          | 20-16     | 0.52-1.5  |             | RC16M23GE7- | 1.8             | 3.2                  | -                                                                                   | Blue |                              |
|                                                   |          | 16-14     | 1.5-2.5   |             | RC14M30GE7- | 2.28            | -                    | -                                                                                   | Blue |                              |

### How to make FMLB / LMFB connection

| Contact 1 \ Contact 2   | Standard male contact | Standard female contact | Longer male contact |
|-------------------------|-----------------------|-------------------------|---------------------|
| Standard male contact   |                       | ✓                       |                     |
| Standard female contact | ✓                     |                         | ✓<br>FMLB           |
| Shorter female contact  | ✓<br>LMFB             |                         |                     |

First Mate Last Break contacts should be chosen only if the cavity is not marked with the ground symbol. For cavities marked with the ground symbol, standard contacts will fulfill the same role as a first mate, last break contact used in a standard cavity.



Ground symbol

## #16 Coaxial Contacts

### Coaxial Contact Range

SOURIAU provides 2 types of coaxial contacts suitable for 50 or 75Ω, coaxial cable or twisted pair cable.

#### Monocrimp coaxial contact

- The monocrimp one-piece coaxial contacts offer high reliability plus the economic advantage of a 95% reduction in installation time over conventional assembly methods.
- This economy is achieved by simultaneously crimping both the inner conductor and outer braid or drain wire.



#### Multipiece crimp coaxial contact

- The inner conductor and outer braid is crimped individually.
- The thermoplastic insulating bushing in the outer body is designed to accept and permanently retain the inner contact.
- An outer ferrule is used to connect the braid to the outer contact and provide cable support to ensure against bending and vibration.



#### Suitable for Coaxial cable or Twisted cable

- For jacket diameter from 1.78 to 3.05mm  
Inner conductor up to 2.44mm diameter



- For jacket diameter from 0.64 to 1.45mm  
Inner conductor from AWG30 to AWG24



#### Contacts for coaxial cable summary

| Contact type | Contact range |                | Contact part number with cable combination | Cabling notice      |
|--------------|---------------|----------------|--------------------------------------------|---------------------|
|              | Male contact  | Female contact |                                            |                     |
| Multipiece   | RMDXK10D28    | RCDXK1D28      | See page 168                               | See pages 172 & 173 |
| Monocrimp    | RMDX60xxD28   | RCDX60xxD28    |                                            | See page 174        |

#### Contacts for twisted pairs cable summary

| Contact type | Contact range        |                     | Contact part number with cable combination | Cabling notice |
|--------------|----------------------|---------------------|--------------------------------------------|----------------|
|              | Male contact         | Female contact      |                                            |                |
| Multipiece   | RMDXK10D28 + YORK090 | RCDXK1D28 + YORK090 | See page 169                               | See page 170   |
| Monocrimp    | RMDX60xxD28          | RCDX60xxD28         |                                            | See page 171   |

## PCB Contacts

### PCB Contacts

#### PCB soldering

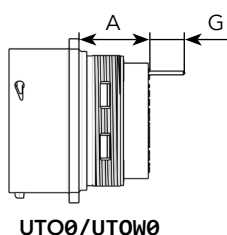
The UTO series can be used in a wave soldering process, but not reflow soldering process.  
All high temperature processes are prohibited.



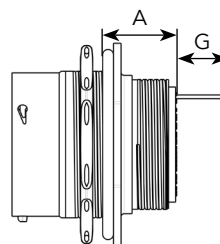
| Contact size  | Type          | Part number  |              | Plating<br>see page 128 |
|---------------|---------------|--------------|--------------|-------------------------|
|               |               | Male         | Female       |                         |
| #20<br>Ø1mm   | Short version | RMW50A7K     | RCW50A7K     | K                       |
|               | Long version  | RMW5016K     | RCW5016K     |                         |
| #16<br>Ø1.6mm | Short version | RM20M12E8-   | RC20M12E8-   | K or J                  |
|               | Long version  | RM20M12E83-  | RC20M12E83-  |                         |
|               |               |              | RC20M12E84-  |                         |
| #8<br>Ø3.6mm  | -             | 82911685NPC  | 82911684NPC  | 2 µm Ni                 |
|               |               | 82911685NAPC | 82911684NAPC | 2 µm Ni + 0.6 µm Ag     |

#### Nominal length G (mm)

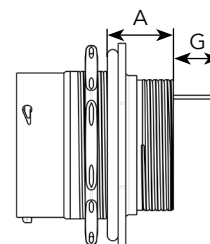
Dimension of dipsolder contacts out of connector  
(contacts to be ordered separately).



UTO0/UTOW0



UTO7/UTOW7  
Male insert



UTO7/UTOW7  
Female insert

#### UTO0 and UTOW0

| Connector size | A (mm) | Pin contact     |                  |              |              | Socket contact  |                  |                  |              |              |
|----------------|--------|-----------------|------------------|--------------|--------------|-----------------|------------------|------------------|--------------|--------------|
|                |        | RM20M<br>12E8K* | RM20M<br>12E83K* | RMW<br>50A7K | RMW<br>5016K | RC20M<br>12E8K* | RC20M<br>12E83K* | RC20M<br>12E84K* | RCW<br>50A7K | RCW<br>5016K |
| 10             | 21.5   | 3.9             | 9.1              | 9.5          | 10.3         | 3.2             | 8.4              | 11.9             | 9.8          | 10.5         |
| 12             | 21.5   | 3.9             | 9.1              | 9.5          | 10.3         | 3.2             | 8.4              | 11.9             | 9.8          | 10.5         |
| 14             | 21.5   | 3.9             | 9.1              | 9.5          | 10.3         | 3.2             | 8.4              | 11.9             | 9.8          | 10.5         |
| 16             | 21.5   | 3.9             | 9.1              | 9.5          | 10.3         | 3.2             | 8.4              | 11.9             | 9.8          | 10.5         |
| 18             | 21.5   | 3.9             | 9.1              | 9.5          | 10.3         | 3.2             | 8.4              | 11.9             | 9.8          | 10.5         |
| 20             | 19.9   | 3.9             | 9.1              | 9.2          | 10.3         | -               | 6.2              | 9.7              | 7.6          | 8.3          |
| 22             | 19.9   | 3.9             | 9.1              | 9.2          | 10.3         | -               | 6.2              | 9.7              | 7.6          | 8.3          |
| 24             | 19.1   | 3.9             | 9.1              | 9.2          | 10.3         | -               | 6.2              | 9.7              | 7.6          | 8.3          |

#### UTO7 and UTOW7

| Connector size | A (mm) | Pin contact     |                  |              |              | Socket contact   |                  |              |              |
|----------------|--------|-----------------|------------------|--------------|--------------|------------------|------------------|--------------|--------------|
|                |        | RM20M<br>12E8K* | RM20M<br>12E83K* | RMW<br>50A7K | RMW<br>5016K | RC20M<br>12E84K* | RC20M<br>12E86K* | RCW<br>50A7K | RCW<br>5016K |
| 10             | 14.9   | 3.9             | 9.1              | 9.5          | 10.4         | 4.6              | 8                | 2.4          | 3.0          |
| 12             | 14.9   | 3.9             | 9.1              | 9.5          | 10.4         | 4.6              | 8                | 2.4          | 3.0          |
| 14             | 14.9   | 3.9             | 9.1              | 9.5          | 10.4         | 4.6              | 8                | 2.4          | 3.0          |
| 16             | 14.9   | 3.9             | 9.1              | 9.5          | 10.4         | 4.6              | 8                | 2.4          | 3.0          |
| 18             | 14.9   | 3.9             | 9.1              | 9.5          | 10.4         | 4.6              | 8                | 2.4          | 3.0          |
| 20             | 15.4   | -               | 5                | 5            | 6            | -                | 3.6              | -            | -            |
| 22             | 15.4   | -               | 5                | 5            | 6            | -                | 3.6              | -            | -            |
| 24             | 16     | -               | 3.6              | 3.6          | 4.6          | -                | 2.2              | -            | -            |

\* Plating indication see page 128

Note: all dimensions are in mm



## Fiber Optic Contacts

## Description

## Size 16 fiber optic contacts for UTO and other TRIM TRIO® connectors

Size 16 fiber optic contacts are designed for the integration of optical links in UTO and other TRIM TRIO® cable connectors.

**The Fiber optic contacts are designed to accommodate:**

- Plastic Optical Fiber (POF) 1 mm core and 2.2 mm jacket



Typical features and benefits are:

- Socket contact is spring loaded to avoid any air gap between the two optical faces.
- Low insertion loss is provided by high precision pieces.
- Single jumpers, multiway harness and active device housings can be supplied regarding customer requirement.

## Technical Characteristics

## Performance

- Fiber type: .....POF
- Wave length: ..... 650 nm
- Optical insertion loss (typ.): ..... 2 dB max.
- Jacketed external diameter: .....2.2mm
- Temperature range: .....-25°C to +70°C
- Cable retention: .....49N
- Mating cycles without cleaning: ..... 50
- Max. mating cycles: ..... 500

## Construction

- Contact body: Copper alloy

## Connector accommodation

Any TRIM TRIO® size 16 contact can be used in any contact position in any connector in the TRIM TRIO® size 16 interconnection system: UTP, UTS, UTG, UTO.

## Fiber Optic Contacts (Continued)

## Ordering Information

## POF Contacts (Plastic Optical Fiber)

Male contact ..... RMPOF1000

Female contact ..... RCPOF1000B

## POF Contact (Plastic Optical Fiber)

## STANDARD TOOLING KIT - P/N 80MS0004

The *standard tooling kit* is made of the part numbers below that can be ordered separately as well.

| Part numbers | Descriptions                                                   |
|--------------|----------------------------------------------------------------|
| 80WD0005     | Stripping tool                                                 |
| 80WD0025     | Automatic stripping tool for Ø 0.5 mm, 0.6 mm, 0.7 mm & 3.8 mm |
| 80WM0006     | Ruler                                                          |
| 80WP0005     | Polishing plate                                                |
| 80WP0013     | Non slip base (to hold the polishing plate)                    |
| 80WP0014     | Polishing disk (grain size 9µm)                                |
| 80WP0018     | Polishing tool                                                 |
| 80WP0019     | Polishing disk (grain size 30µm)                               |
| 80WS0002     | Crimping plier                                                 |

## SPECIFIC TOOLING LIST - Can only be ordered separately

| Part numbers | Descriptions   |
|--------------|----------------|
| 80WG0010     | Needle         |
| 80WG0015     | Capsule        |
| 80WG0016     | Syringe        |
| 80WN0005     | Dry air spray  |
| 80WN0006     | Optical paper  |
| 80WN0012     | Dropper bottle |
| 80WN0008     | Wiping solvent |



# UTO SERIES

# Technical Information

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## Automatic Crimping Tools



# SOURIAU

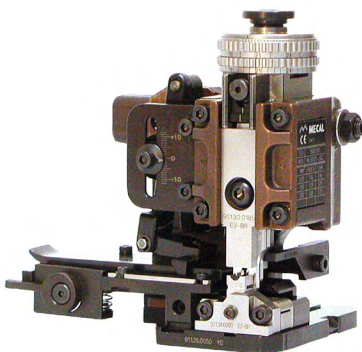
**Mecal is a leader in manufacturing tooling for crimping terminals over a stripped wire.**

Established in 1976, Mecal has become one of the world's leading companies dedicated to the design and manufacture of semi automatic production tools for strip fed, open barrel crimp terminals, serving the Automotive, Telecom and Datacom industries.

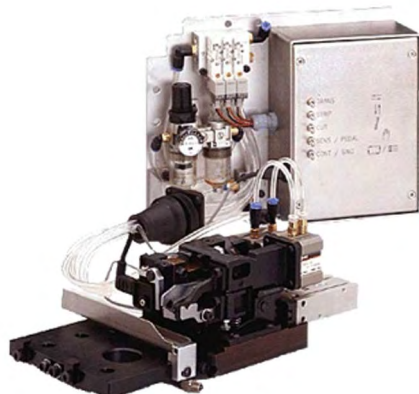
**The extreme environment interconnect specialist "from deep sea to deep space".**

SOURIAU designs, manufactures and markets high performance interconnect solutions for severe environments dedicated to the aerospace, defense, light and heavy industry markets.

**SOURIAU has been working in partnership with Mecal for many years. With sales offices located in all major industrial regions of the world, the combined strengths of both organisations has resulted in a truly global solution to all your production tooling needs.**



Mini Applicator



Stripper



Presses

Mecal sales network:

[www.mecal.net/eng/retevendita.php](http://www.mecal.net/eng/retevendita.php)



## Tooling

### Crimp Tool Table

#### Standard contacts

| Contact size   | Part number                  | Head*     | Handles* | Extraction tools |
|----------------|------------------------------|-----------|----------|------------------|
| #20<br>Ø 1mm   | RM/RC 24W3K                  | S20RCM    | SHANGLES | RX20D44          |
|                | RM/RC 20W3K                  |           |          |                  |
|                | RM/RC 18W3K                  |           |          |                  |
|                | SM 24WL3S <sup>*(1)</sup>    | S20SCM20  |          |                  |
|                | SC 24WL3S <sup>*(1)</sup>    |           |          |                  |
|                | SM/SC 20WL3S <sup>*(1)</sup> |           |          |                  |
| #16<br>Ø 1.6mm | RM/RC 28M1*                  | S16RCM20  |          | RX2025GE1        |
|                | RM/RC 24M9*                  |           |          |                  |
|                | RM/RC 20M13*                 |           |          |                  |
|                | RM/RC 20M12*                 |           |          |                  |
|                | RM/RC 16M23*                 | S16RCM16  |          |                  |
|                | RM/RC 14M30*                 | S16RCM14  |          |                  |
|                | SM/SC 24ML1*                 | S16SCM20  |          |                  |
|                | SM/SC 20ML1*                 |           |          |                  |
|                | SM/SC 16ML1*                 | S16SCML1  |          |                  |
|                | SM/SC 14ML1*                 |           |          |                  |
|                | SM/SC 16ML11*                | S16SCML11 |          |                  |

(1) loose contact

\* Endurance of SHANGLES & Head tools = 50,000 cycles

| Contact size   | Part number            | Tool with separate locator |                              |     | Extraction tools |
|----------------|------------------------|----------------------------|------------------------------|-----|------------------|
|                |                        | Hand tool                  | Positioner + locator setting |     |                  |
| #12<br>Ø 2.4mm | 82911457N* / 82911456* | M317                       | VGE10077A                    | 1-2 | 51060210924      |
|                | 82911459N* / 82911458* |                            |                              | 2   |                  |
|                | 82911461N* / 82911460* |                            |                              | 2   |                  |
|                | 82911463N* / 82911462* |                            |                              | 3   |                  |
|                | 82911465N* / 82911464* |                            |                              | 3   |                  |
|                | 82911467N* / 82911466* |                            |                              | 4   |                  |
| #8<br>Ø 3.6mm  | 82913601A / 82913600A  | M317                       | VGE10078A                    | 3   | 51060210936      |
|                | 82913603A / 82913602A  |                            |                              | 3   |                  |
|                | 82913605A / 82913604A  |                            |                              | 4   |                  |
|                | 82913607A / 82913606A  |                            |                              | 5   |                  |
|                | 82913609A / 82913608A  |                            |                              | 6/7 |                  |

\* see page 129 for plating options and other contact details

#### Specific contacts (First mate Last break contacts)

| Contact size                            | Part number*               | Hand tools<br>(SHANDLES) head | Tool with separate locator |                              |      | Extraction tools |      |   |
|-----------------------------------------|----------------------------|-------------------------------|----------------------------|------------------------------|------|------------------|------|---|
|                                         |                            |                               | Hand tool                  | Positioner + locator setting |      |                  |      |   |
| #16<br>Ø 1.6mm<br>Longer RM<br>contact  | RM28M1GE1K                 | S16RCM20                      |                            |                              |      | RX2025GE1        |      |   |
|                                         | RM24M9GE1K                 |                               |                            |                              |      |                  |      |   |
|                                         | RM20M13GE1K                |                               |                            |                              |      |                  |      |   |
|                                         | RM16M23GE1K<br>RM20M12GE1K | S16RCM16                      | MH860                      | MH86186                      | 6/8  |                  |      |   |
|                                         | RM14M30GE1K                | S16RCM14                      |                            |                              |      |                  |      |   |
| #16<br>Ø 1.6mm<br>Shorter RC<br>contact | RC28M1GE7K                 | S16RCM20                      | MH860                      | MH86164G                     | 4/6  |                  |      |   |
|                                         | RC24M9GE7K                 |                               |                            |                              | 5/6  |                  |      |   |
|                                         | RC20M13GE7K<br>RC20M12GE7K |                               |                            |                              | 5/7  |                  |      |   |
|                                         | RC16M23GE7K                | 6/8                           |                            |                              |      |                  |      |   |
|                                         | RC14M30GE7K                | S16RCM14                      |                            |                              | M317 |                  | UH25 | 3 |
|                                         |                            |                               |                            |                              |      |                  |      |   |

\* see page 130 for plating options and other contact details

#### Coaxial contacts

See coax contacts details on page 131 and cabling notice pages 170 to 174.

# Crimping Instructions

## Wire Stripping Crimp Version

|                                                                                                                          | Part number                                                                   |                                                                               | Stripping length L (mm) |
|--------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------|
|                                                                                                                          | Male                                                                          | Female                                                                        |                         |
| <b>Machined contact</b><br>             | #20 - Ø 1mm                                                                   |                                                                               |                         |
|                                                                                                                          | RM24W3- / RM20W3-<br>RM18W3-                                                  | RC24W3- / RC20W3-<br>RC18W3-                                                  | 4.8                     |
|                                                                                                                          | #16 - Ø 1.6mm                                                                 |                                                                               |                         |
|                                                                                                                          | RM28M1- / RM24M9-<br>RM20M13- / RM20M12-                                      | RC28M1- / RC24M9-<br>RC20M13- / RC20M12-                                      | 4.8                     |
|                                                                                                                          | RM16M23- / RM14M30-                                                           | RC16M23- / RC14M30-                                                           | 7.1                     |
|                                                                                                                          | #12 - Ø 2.4mm                                                                 |                                                                               |                         |
|                                                                                                                          | 8291 1457- / 8291 1459-<br>8291 1461- / 8291 1463-<br>8291 1465- / 8291 1467- | 8291 1456- / 8291 1458-<br>8291 1460- / 8291 1462-<br>8291 1464- / 8291 1466- | 7 to 8                  |
|                                                                                                                          | #8 - Ø 3.6mm                                                                  |                                                                               |                         |
|                                                                                                                          | 8291 3601- / 8291 3603-<br>8291 3605- / 8291 3607-<br>8291 3609-              | 8291 3600- / 8291 3602-<br>8291 3604- / 8291 3606-<br>8291 3608-              | 6.5 to 7.5              |
| <b>Stamped &amp; formed</b>                                                                                              | #16 - Ø 1.6mm                                                                 |                                                                               |                         |
| <b>With insulation support</b><br>    | SM24M1- / SM24ML1-<br>SM20M1- / SM20ML1-                                      | SC24M1- / SC24ML1-<br>SC20M1- / SC20ML1-                                      | 4                       |
|                                                                                                                          | SM16M11- / SM16ML11-                                                          | SC16M11- / SC16ML11-                                                          | 4.65                    |
|                                                                                                                          | #20 - Ø 1mm                                                                   |                                                                               |                         |
|                                                                                                                          | SM24W3- / SM24WL3-<br>SM20W3- / SM20WL3-                                      | SC24W3- / SC24WL3-<br>SC20W3- / SC20WL3-                                      | 4                       |
| <b>Without insulation support</b><br> | #16 - Ø 1.6mm                                                                 |                                                                               |                         |
|                                                                                                                          | SM16M1- / SM16ML1-                                                            | SC16M1- / SC16ML1-                                                            | 6.35                    |
|                                                                                                                          | SM14M1- / SM14ML1-                                                            | SC14M1- / SC14ML1-                                                            | 6.35                    |

Note: See page 129 for plating options and other contact details

## Crimping

One of the key factors which affects the performance of a connector is the way contacts are terminated. Crimped connections are nowadays seen as the best solution to ensure quality throughout the lifetime of the product. Here are some reasons why we recommend this method of termination for UTO connectors:

### Advantages (Extract from the IEC 60352-2):

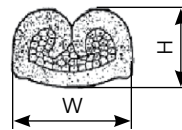
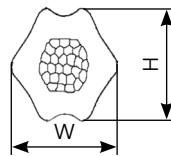
- Efficient processing of connections at each production level
- Processing by fully-automatic or semi-automatic crimping machines, or with hand operated tools
- No cold-soldered joints
- No degradation of the spring characteristic of female contacts by the soldering temperature

- No health risk from heavy metal and flux steam
- Preservation of conductor flexibility behind the crimped connection
- No burnt, discolored and overheated wire insulation
- Good connections with reproducible electrical and mechanical performances
- Easy production control.

To ensure that the crimp tooling is performing according to original specifications, it is important to carry out regular checks. A common way to check the performance of tooling is with a simple pull test, ideally using a dedicated electric pull tester. Minimum recommended pull forces are indicated in the tables below:



Machined contact



Stamped & Formed contact



| Active contact part                    | Contact type                                     | Die location on heads | Wire section range | Section (mm <sup>2</sup> ) | Tensile straight test (mini) | Height (mm)<br>H (±0.075) | Width (mm)<br>W (±0.075) | Tooling head p/n |
|----------------------------------------|--------------------------------------------------|-----------------------|--------------------|----------------------------|------------------------------|---------------------------|--------------------------|------------------|
| Machined contacts size #20<br>Ø 1 mm   | RM24W3K<br>RC24W3K                               | 26/24                 | AWG 26             | 0.12 min                   | 15 N                         | 0.95                      | 1.27                     | S20RCM           |
|                                        |                                                  |                       | AWG 24             | 0.25 max                   | 32 N                         |                           |                          |                  |
|                                        | RM20W3K<br>RC20W3K                               | 22/20                 | AWG 22             | 0.32 min                   | 40 N                         | 1.26                      | 1.78                     |                  |
|                                        |                                                  |                       | AWG 20             | 0.50 max                   | 60 N                         |                           |                          |                  |
|                                        | RM18W3K<br>RC18W3K                               | 20/18                 | AWG 20             | 0.50 max                   | 60 N                         | 1.35                      | 1.86                     |                  |
|                                        |                                                  |                       | AWG 18             | 0.82 max                   | 90 N                         |                           |                          |                  |
| S & F contacts size #20<br>Ø 1 mm      | SM24WL3TK6*<br>SC24WL3TK6*                       | 26/24                 | AWG 26             | 0.12 min                   | 15 N                         | 0.80                      | 1.49                     | S20SCM20         |
|                                        |                                                  |                       | AWG 24             | 0.25 max                   | 32 N                         |                           |                          |                  |
|                                        | SM20WL3TK6*<br>SC20WL3TK6*                       | 22/20                 | AWG 22             | 0.32 min                   | 40 N                         | 1.01                      | 1.53                     |                  |
|                                        |                                                  |                       | AWG 20             | 0.50 max                   | 60 N                         |                           |                          |                  |
| Machined contacts size #16<br>Ø 1.6 mm | RM28M1K*<br>RC28M1K*                             | 30/28                 | AWG 30             | 0.05 min                   | 11 N                         | 1.14                      | 1.41                     | S16RCM20         |
|                                        |                                                  |                       | AWG 28             | 0.08 max                   | 11 N                         |                           |                          |                  |
|                                        | RM24M9K*<br>RC24M9K*                             | 26/24                 | AWG 26             | 0.12 min                   | 15 N                         | 1.15                      | 1.41                     |                  |
|                                        |                                                  |                       | AWG 24             | 0.25 max                   | 32 N                         |                           |                          |                  |
|                                        | RM20M13K*<br>RC20M13K*<br>RM20M12K*<br>RC20M12K* | 22/20                 | AWG 22             | 0.32 min                   | 40 N                         | 1.26                      | 1.76                     |                  |
|                                        |                                                  |                       | AWG 20             | 0.50 max                   | 60 N                         |                           |                          |                  |
|                                        |                                                  |                       | AWG 22             | 0.32 min                   | 40 N                         |                           |                          |                  |
|                                        |                                                  |                       | AWG 20             | 0.50 max                   | 60 N                         |                           |                          |                  |
|                                        | RM16M23K*<br>RC16M23K*                           | 20                    | AWG 20             | 0.50 max                   | 60 N                         | 1.66                      | 2.18                     | S16RCM16         |
|                                        |                                                  | 18                    | AWG 18             | 0.82 max                   | 90 N                         | 1.80                      | 2.28                     |                  |
|                                        |                                                  | 16                    | AWG 16             | 1.50 max                   | 150 N                        | 1.96                      | 2.43                     |                  |
|                                        | RM14M30K*<br>RC14M30K*                           | 16                    | AWG 16             | 1.50 min                   | 150 N                        | 2.10                      | 2.68                     | S16RCM14         |
|                                        |                                                  | 14                    | AWG 14             | 2.50 min                   | 230 N                        | 2.30                      | 2.78                     |                  |
| S & F contacts size #16<br>Ø 1.6 mm    | SM24ML1TK6*<br>SC24ML1TK6*                       | 26/24                 | AWG 26             | 0.12 min                   | 15 N                         | 0.84                      | 1.50                     | S16SCM20         |
|                                        |                                                  |                       | AWG 24             | 0.25 max                   | 32 N                         |                           |                          |                  |
|                                        | SM20ML1TK6*<br>SC20ML1TK6*                       | 22/20                 | AWG 22             | 0.32 min                   | 40 N                         | 1.02                      | 1.54                     |                  |
|                                        |                                                  |                       | AWG 20             | 0.50 max                   | 60 N                         |                           |                          |                  |
|                                        | SM16ML11TK6*<br>SC16ML11TK6*                     | 18                    | AWG 18             | 0.75 min                   | 90 N                         | 1.32                      | 2.09                     | S16SCML11        |
|                                        |                                                  | 16                    | AWG 16             | 1.50 max                   | 150 N                        | 1.36                      | 2.10                     |                  |
|                                        | SM16ML1TK6*<br>SC16ML1TK6*                       | 18                    | AWG 18             | 0.75 min                   | 90 N                         | 1.49                      | 2.02                     | S16SCML1         |
|                                        |                                                  | 16                    | AWG 16             | 1.50 max                   | 150 N                        | 1.7                       | 2.05                     |                  |
|                                        | SM14ML1TK6*<br>SC14ML1TK6*                       | 14                    | AWG 14             | 2.50 max                   | 230 N                        | 1.79                      | 2.58                     |                  |

\*: example of plating options, for other plating see page 129

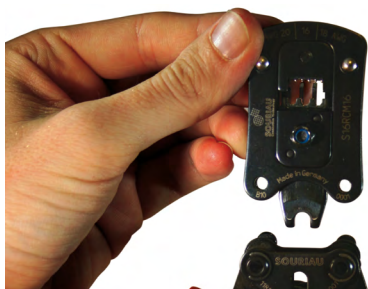
## Handle & Interchangeable Heads

### User Guide

- 1) Fully close then release the tool, keep it open.  
Open the 2 pins.



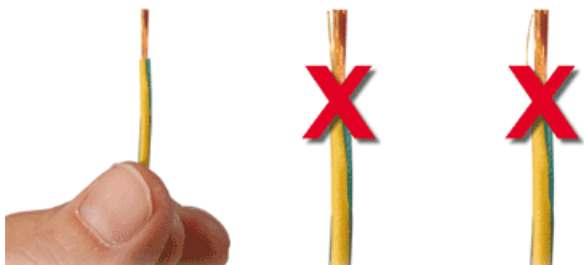
- 2) Choose the adapter head (sold separately), keep vertical and slide it into the handle until the mechanical end.



- 3) Close the two pins simultaneously to maintain the head.



- 4) Strip the cable properly checking the size recommended in the catalog on page 140.



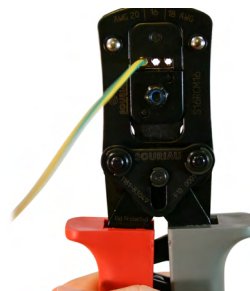
- 5) Place conductors, with no deteriorations, in the bucket contact. All strands to be located in the crimp bucket.



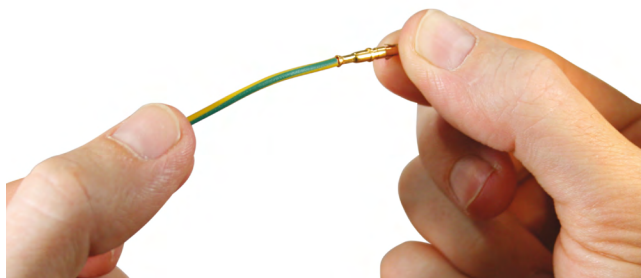
- 6) Position the contact in the bottom of the tool by checking its orientation.



- 7) To crimp contact assembly-cable, tighten sharply the clip to the end of the mechanism.



- 8) To control crimp quality, slightly pull cable with two fingers to control retention.



## Extraction Tools

| Contact size | Extractor   |
|--------------|-------------|
| #20          | RX20D44     |
| #16          | RX2025GE1   |
| #12          | 51060210924 |
| #8           | 51060210936 |

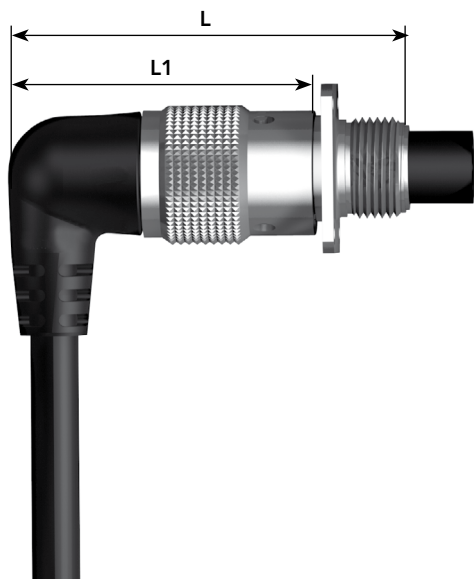


## Contact Extraction Instructions

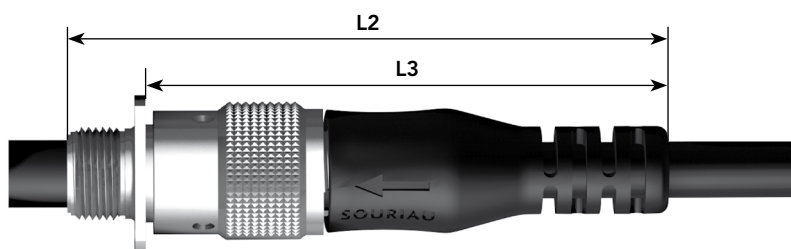
Place the tool into the cavity from front face of the connector, push on the handle, then remove the contact.



## Dimensions Overmoulded Harnesses



| Shell size | UTO0  |        |        |        | UTO7  |        |        |        |
|------------|-------|--------|--------|--------|-------|--------|--------|--------|
|            | L max | L1 max | L2 max | L3 max | L max | L1 max | L2 max | L3 max |
| 8          | 42.8  | 36.8   | 80.7   | 57.2   | 46.8  | 36.8   | 85.8   | 57.2   |
| 10         | 55.8  | 50.3   | 98.6   | 92     | 60.5  | 50.3   | 102.7  | 92     |
| 12         | 57.1  | 51.4   | 99.3   | 93.7   | 61.4  | 51.4   | 106.4  | 93.7   |
| 14         | 62.5  | 56.3   | 100.3  | 94.6   | 67.6  | 56.3   | 104.8  | 94.6   |



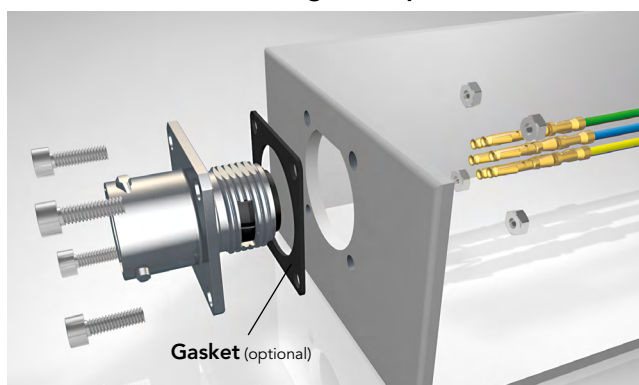
Note: all dimensions are in mm

## Assembly Instructions

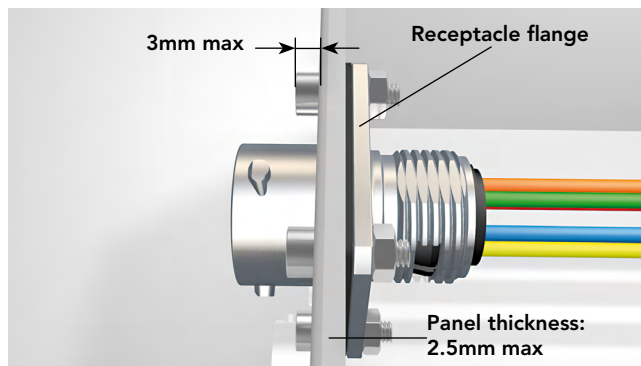
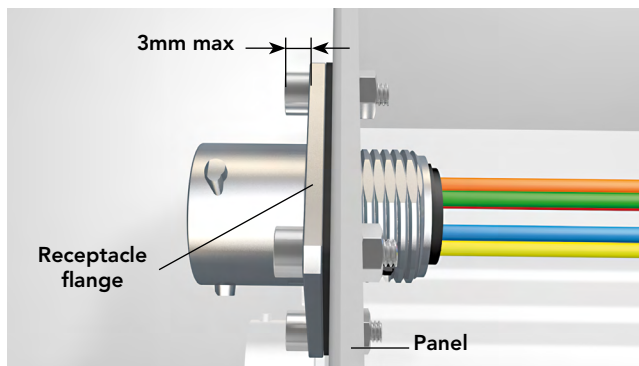
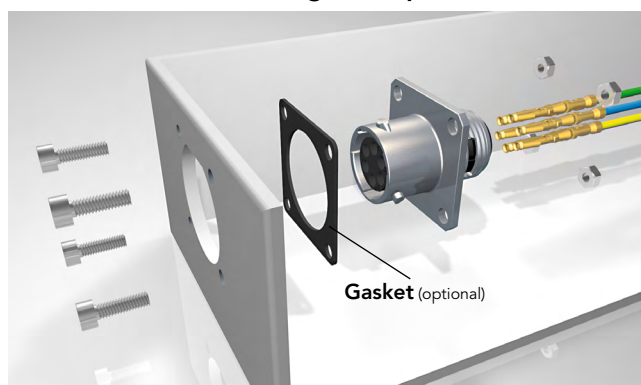
### UTO0 Assembly (Mounting Suggestion)

- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205 crimp contacts)
- Place receptacle in the panel cut-out
- Secure receptacle with screws (not supplied)  
Tighten screws: M2.5 for size connectors 10 to 22, M3 for size connectors 24  
(recommended torque: see table below)
- For complete sealing of the system use optional gasket and sealed screw solution (not sold by SOURIAU).

#### Front mounting : Crimp version



#### Rear mounting : Crimp version



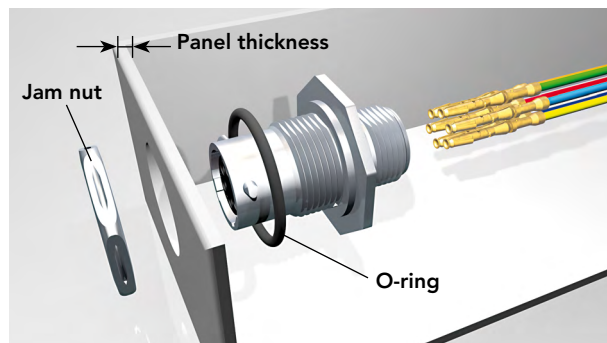
|                               | Shell size |           |           |           |           |           |           |           |
|-------------------------------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                               | 10         | 12        | 14        | 16        | 18        | 20        | 22        | 24        |
| Screws tightening torque (Nm) | 0.30/0.40  | 0.30/0.40 | 0.30/0.40 | 0.30/0.40 | 0.35/0.45 | 0.50/0.60 | 0.55/0.65 | 0.55/0.65 |



## UTO7 Assembly (Mounting Suggestion)

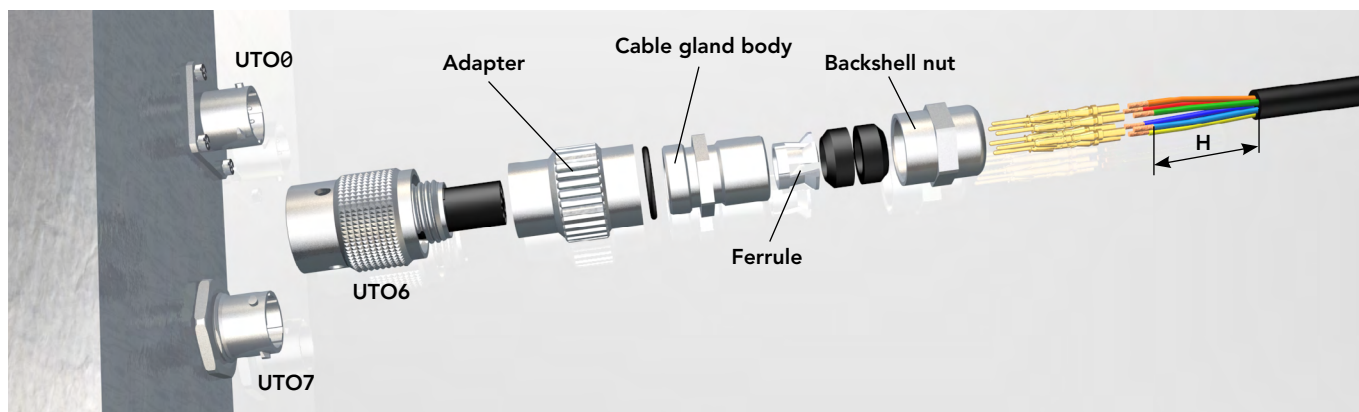
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205 crimp contacts )
- Seat o-ring, place receptacle in the panel cut-out
- Tighten jam nut

| Shell size | Jam nut torque (Nm) | Exterior jam nut dim. (mm) | Ø Wire max (mm) | Panel thickness max (mm) |
|------------|---------------------|----------------------------|-----------------|--------------------------|
| 10         | 6                   | 22.2                       | 3.2             | 3.2                      |
| 12         | 9                   | 27.0                       | 3.2             | 3.2                      |
| 14         | 10                  | 32.0                       | 3.2             | 3.2                      |
| 16         | 13                  | 33.3                       | 3.2             | 3.2                      |
| 18         | 20                  | 36.5                       | 3.2             | 3.2                      |
| 20         | 23                  | 39.7                       | 3.2             | 6.4                      |
| 22         | 25                  | 42.9                       | 3.2             | 6.4                      |
| 24         | 26                  | 46.0                       | 3.2             | 6.4                      |



## Assembly Instructions (Continued)

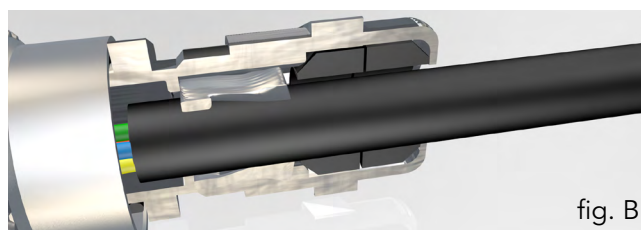
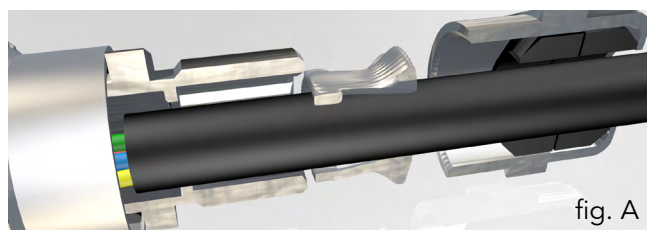
### UTO0 or UTO7 with UTO6 + JCS or JC or JCSL or JCL for Unshielded Cable



- Slide accessories onto the cable
- Strip external cable jacket (see dimension H in the table below)
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205)
- Screw adapter to the rear of the connector body and screw cable

gland body to adapter and tighten (recommended torque: see table below)

- Mate the plug with the receptacle to make the following step easier
- Slide ferrule inside the cable gland body as shown in fig. A
- Tighten backshell nut with cable gland body as shown in fig. B (recommended torque: see below).



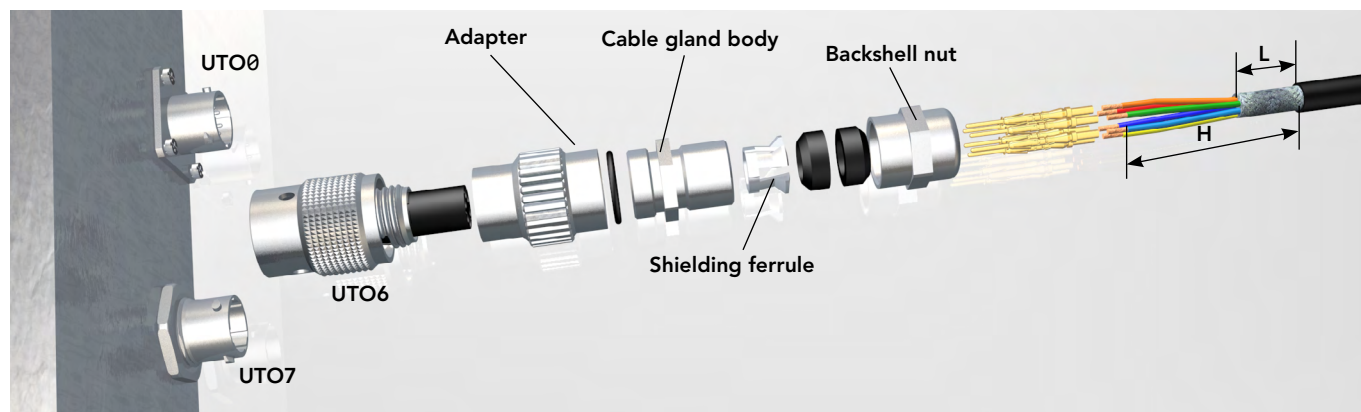
| Shell size | Adapter tightening torque (Nm) | Cable gland body tightening torque (Nm) | Backshell nut tightening torque* (Nm) | H min. (mm) |        |        |        |
|------------|--------------------------------|-----------------------------------------|---------------------------------------|-------------|--------|--------|--------|
|            |                                |                                         |                                       | JCS/JCSL    |        | JC/JCL |        |
|            |                                |                                         |                                       | Male        | Female | Male   | Female |
| 10         | 6                              | 6                                       | 5                                     | 21          | 29     | 32     | 39     |
| 12         | 10                             | 10                                      | 8                                     | 21          | 29     | 31     | 39     |
| 14         | 10                             | 10                                      | 8                                     | 25          | 33     | 39     | 47     |
| 16         | 14                             | 14                                      | 12                                    | 32          | 40     | 43     | 51     |
| 18         | 14                             | 14                                      | 12                                    | 37          | 45     | 47     | 55     |
| 20         | 24                             | 24                                      | 20                                    | 39          | 47     | 49     | 57     |
| 22         | 24                             | 24                                      | 20                                    | 41          | 50     | 53     | 61     |
| 24         | 24                             | 24                                      | 20                                    | 47          | 55     | 57     | 65     |

\* Indicative torque, needs to be adjusted depending on the cable used

#### Spanner size

| Shell size  | JCS/JC           |               | JCSL/JCL         |               |
|-------------|------------------|---------------|------------------|---------------|
|             | Cable gland body | Backshell nut | Cable gland body | Backshell nut |
| 10          | 17 mm            | 14 mm         | 17 mm            | 17 mm         |
| 12 & 14     | 22 mm            | 20 mm         | 22 mm            | 22 mm         |
| 16 & 18     | 26 mm            | 24 mm         | 30 mm            | 30 mm         |
| 20, 22 & 24 | 33 mm            | 30 mm         | 40 mm            | 40 mm         |

## UTO0 or UTO7 with UTO6 + JCS or JC or JCSL or JCL for Shielded Cable



- Slide accessories onto the cable
- Strip external cable jacket (see dimension H and L in the table below)
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205)
- Screw adapter to the rear of the connector body and screw cable

gland body to adapter and tighten (recommended torque: see table below)

- Mate the plug with the receptacle to make the following step easier
- Slide ferrule inside the cable gland body as shown in fig. A
- Tighten backshell nut with cable gland body as shown in fig. B (recommended torque: see below).

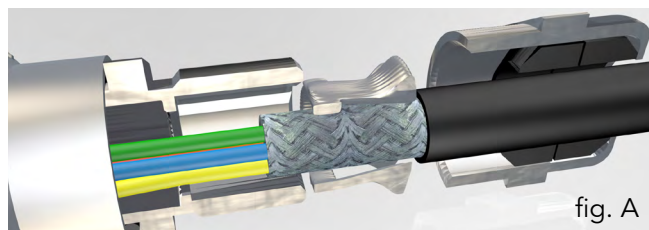


fig. A

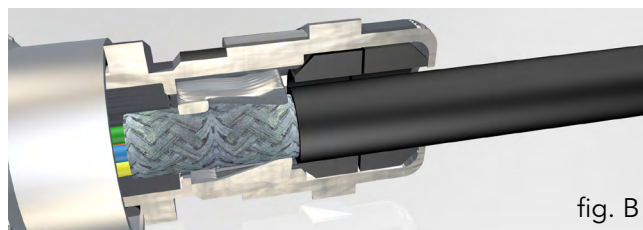


fig. B

| Shell size | Adapter<br>tightening torque<br>(Nm) | Cable gland body<br>tightening torque<br>(Nm) | Backshell nut<br>tightening torque<br>(Nm) | H min. (mm) |        |        |        | L min.<br>(inch) |
|------------|--------------------------------------|-----------------------------------------------|--------------------------------------------|-------------|--------|--------|--------|------------------|
|            |                                      |                                               |                                            | JCS/JCSL    |        | JC/JCL |        |                  |
|            |                                      |                                               |                                            | Male        | Female | Male   | Female |                  |
| 10         | 6                                    | 6                                             | 5                                          | 50          | 58     | 61     | 68     | 8                |
| 12         | 10                                   | 10                                            | 8                                          | 54          | 61     | 65     | 73     | 12               |
| 14         | 10                                   | 10                                            | 8                                          | 59          | 66     | 73     | 80     | 12               |
| 16         | 14                                   | 14                                            | 12                                         | 68          | 75     | 79     | 86     | 12               |
| 18         | 14                                   | 14                                            | 12                                         | 72          | 80     | 83     | 91     | 12               |
| 20         | 24                                   | 24                                            | 20                                         | 80          | 89     | 90     | 98     | 14               |
| 22         | 24                                   | 24                                            | 20                                         | 83          | 91     | 94     | 102    | 14               |
| 24         | 24                                   | 24                                            | 20                                         | 88          | 96     | 98     | 106    | 14               |

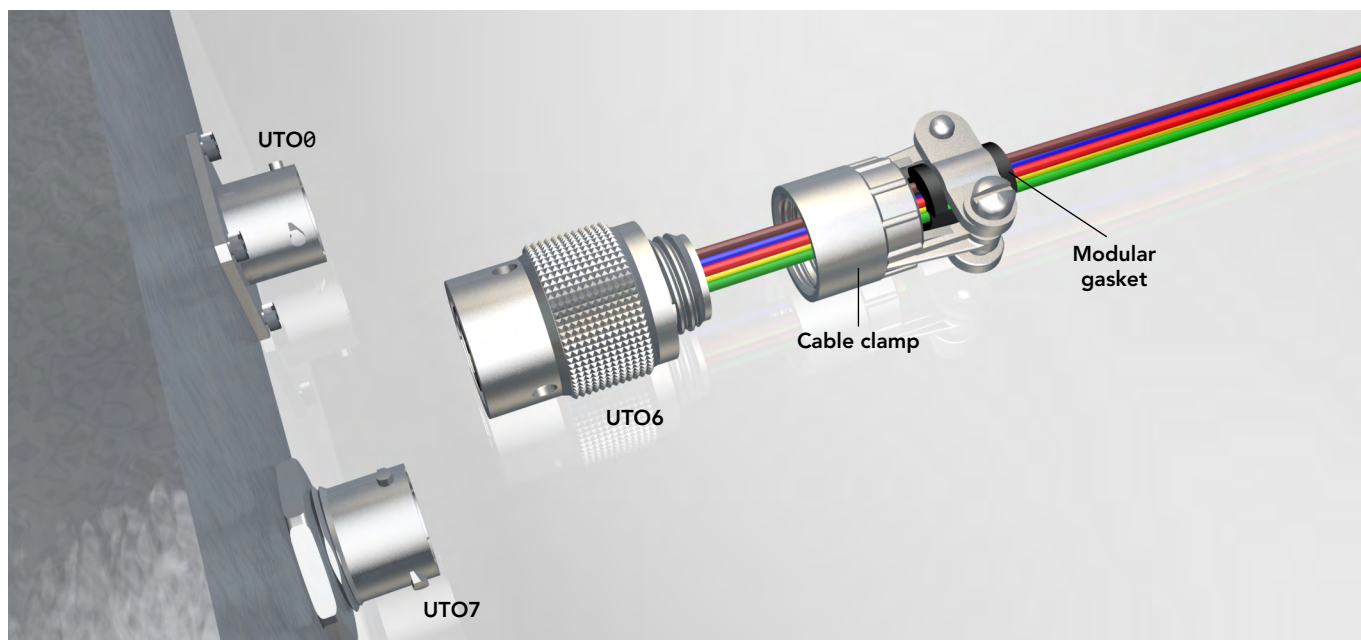
\* Indicative torque, needs to be adjusted depending on the cable used

### Spanner size

| Shell size  | JCS/JC           |               | JCSL/JCL         |               |
|-------------|------------------|---------------|------------------|---------------|
|             | Cable gland body | Backshell nut | Cable gland body | Backshell nut |
| 10          | 17 mm            | 14 mm         | 17 mm            | 17 mm         |
| 12 & 14     | 22 mm            | 20 mm         | 22 mm            | 22 mm         |
| 16 & 18     | 26 mm            | 24 mm         | 30 mm            | 30 mm         |
| 20, 22 & 24 | 33 mm            | 30 mm         | 40 mm            | 40 mm         |

## Assembly Instructions (Continued)

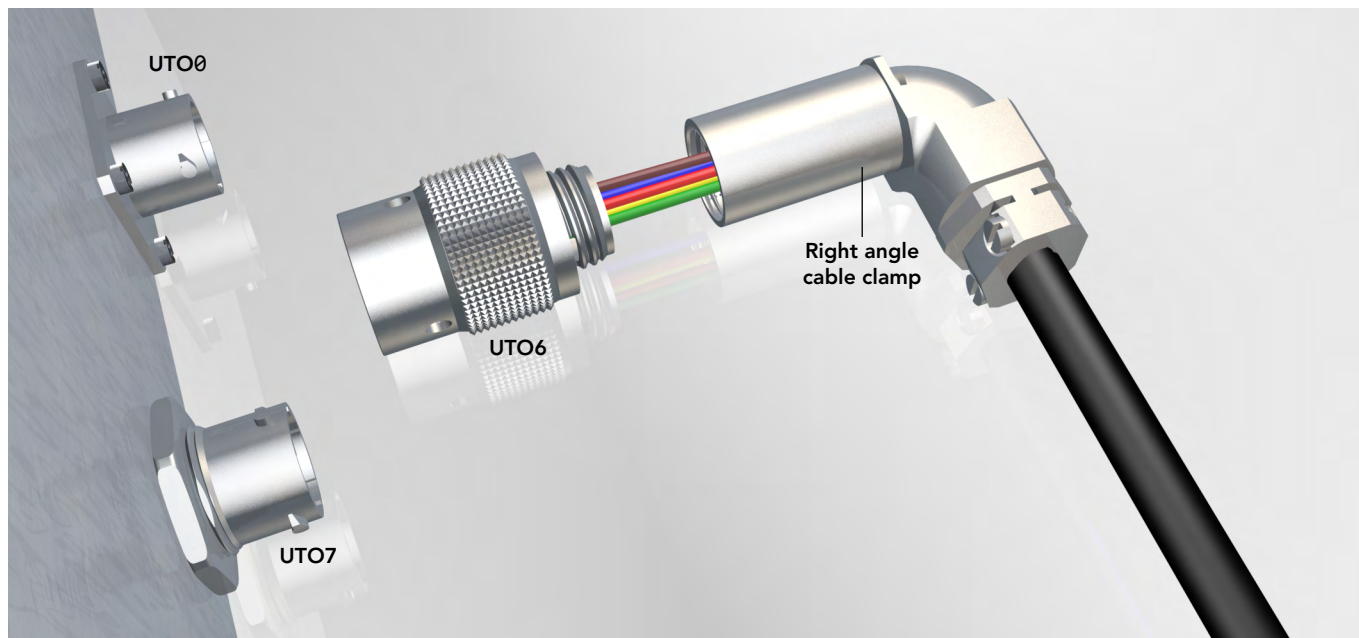
### UTO0 or UTO7 with UTO6 + AC Backshell Assembly



- Slide accessories onto the cable
- Strip external cable jacket
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205)
- Tighten backshell with plug and mate plug with a receptacle (recommended torque values to be applied according to the table below)
- Tighten backshell screws.

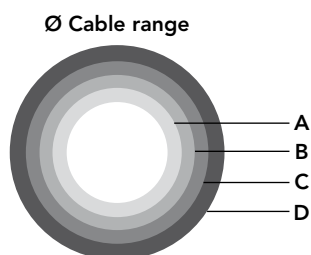
| Shell size | Cable clamp tightening torque (Nm) | Clamp (mm) |      |
|------------|------------------------------------|------------|------|
|            |                                    | Min        | Max  |
| 10         | 4                                  | 1.5        | 5.0  |
| 12         | 5                                  | 3.0        | 8.2  |
| 14         | 5                                  | 4.0        | 10.0 |
| 16         | 9                                  | 6.0        | 13.0 |
| 18         | 9                                  | 8.5        | 16.0 |
| 20         | 11                                 | 10.0       | 16.0 |
| 22         | 13                                 | 9.0        | 19.3 |
| 24         | 15                                 | 11.0       | 20.6 |

## UTO00 or UTO7 with UTO6 + LPGN Backshell Assembly



- Remove inner part of the modular gasket to adjust the internal diameter to fit the cable (see table)
- Slide accessories onto the cable
- Strip external cable jacket
- Strip wires and crimp contacts (see pages 140 & 141)
- Tighten backshell with plug and mate plug with a receptacle (recommended torque values to be applied according to the table below)
- Tighten backshell screws.

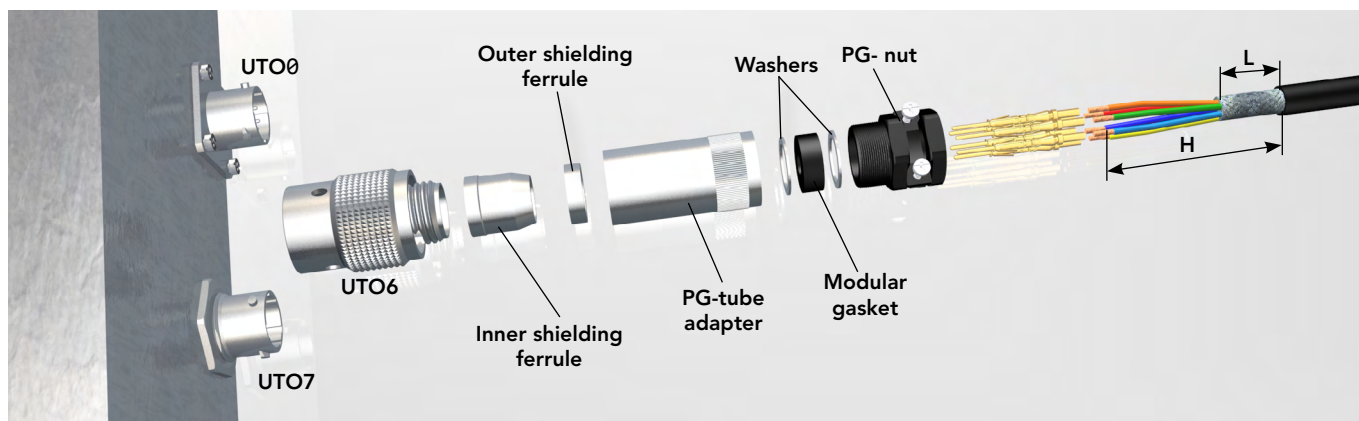
| Shell size | Right angle cable clamp tightening torque (Nm) | Ø Cable range (mm) |      |      |    |
|------------|------------------------------------------------|--------------------|------|------|----|
|            |                                                | A                  | B    | C    | D  |
| 10         | 6                                              | 5                  | 7.5  | 10   | -  |
| 12         | 10                                             | 7.5                | 10   | 13   | -  |
| 14         | 10                                             | 7.5                | 10   | 13   | -  |
| 16         | 14                                             | 7.5                | 11   | 13.5 | 16 |
| 18         | 14                                             | 10                 | 13.5 | 17   | 20 |
| 20         | 24                                             | 10                 | 13.5 | 17   | 20 |
| 22         | 24                                             | 10                 | 13.5 | 17   | 20 |
| 24         | 24                                             | 18                 | 22   | 25.5 | 29 |





## Assembly Instructions (Continued)

### UTO0 or UTO7 with UTO6 + JCPGN Backshell Assembly



- Mate UTO6 (plug) with UTO0 or UTO7 already mounted on a panel
- Slide accessories onto the cable
- Strip external cable jacket (see dimension H and L)
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use RTM205 tool)

- Place cable braid shield over inner shielding ferrule (See fig. A) and slide the outer ferrule over the braid shield for UTOS-JCPGN
- Screw PG-tube adapter with plug (recommended torque: see below table)
- Tighten PG-nut with PG-tube adapter (See fig. B)
- Tighten PG-nut screws.



fig. A



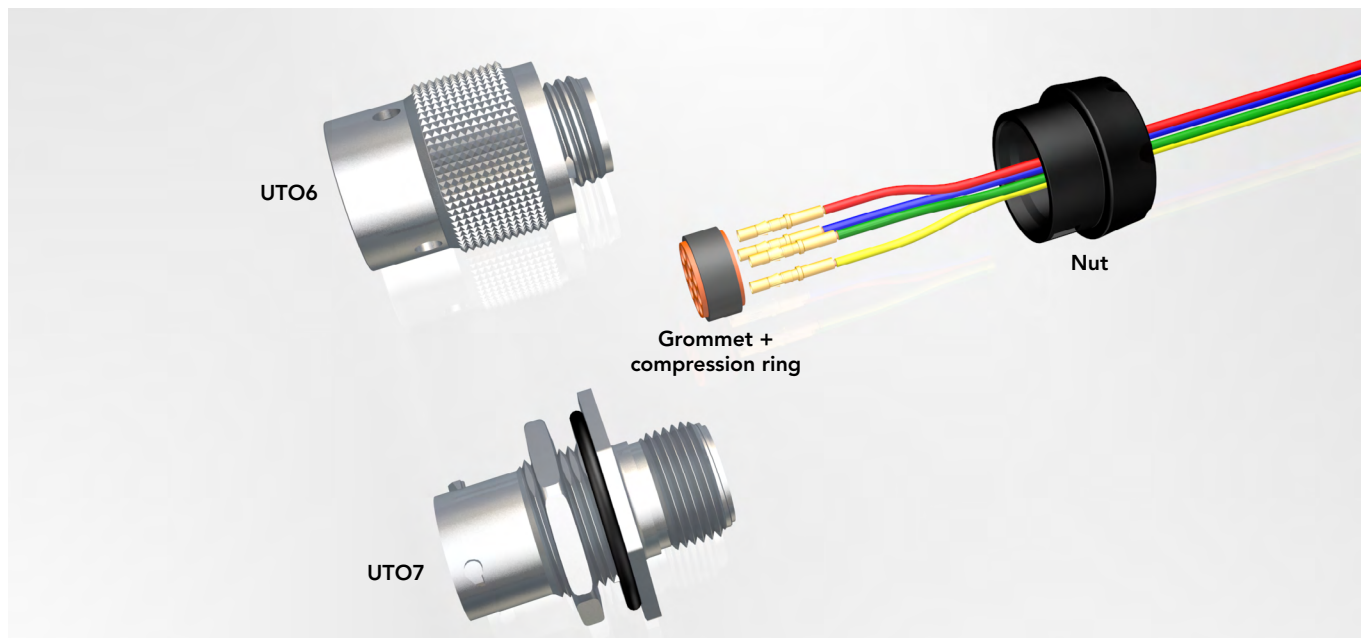
fig. B

| Shell size | PG-tube tightening torque (Nm) | PG-nut tightening torque (Nm) | Ø Cable range (mm) |             | H min. (mm)  |                 | L min. (mm) |
|------------|--------------------------------|-------------------------------|--------------------|-------------|--------------|-----------------|-------------|
|            |                                |                               | UTO                | UTOS        | Pin contacts | Socket contacts |             |
| 10         | 4                              | 1.5                           | 4 to 10            | 4 to 8.8    | 26.5         | 34.2            | 17.6        |
| 12         | 6                              | 1.5                           | 4 to 11.9          | 4 to 11.9   | 26.5         | 34.2            | 17.6        |
| 14         | 10                             | 3.5                           | 6.5 to 13.5        | 6.5 to 13.5 | 29.6         | 37.2            | 20.6        |
| 16         | 10                             | 6.5                           | 6.5 to 16          | 6.5 to 16   | 31.6         | 39.2            | 22.6        |
| 18         | 10                             | 6.5                           | 6.5 to 16          | 6.5 to 16   | 36.9         | 42.3            | 26.7        |
| 20         | 15                             | 9                             | 9 to 21            | 9 to 21     | 36.4         | 41.8            | 26.1        |
| 22         | 15                             | 9                             | 9 to 21            | 9 to 21     | 43.4         | 48.8            | 33.2        |
| 24         | 15                             | 12                            | 17 to 29.5         | 17 to 29.5  | 43.8         | 49.2            | 33.6        |

Ø individual braid shield conductor between 0.3 and 0.5mm  
Torques to be applied with the plug mated with the receptacle.



## UTO6 or UTO7 with GN Backshell Assembly

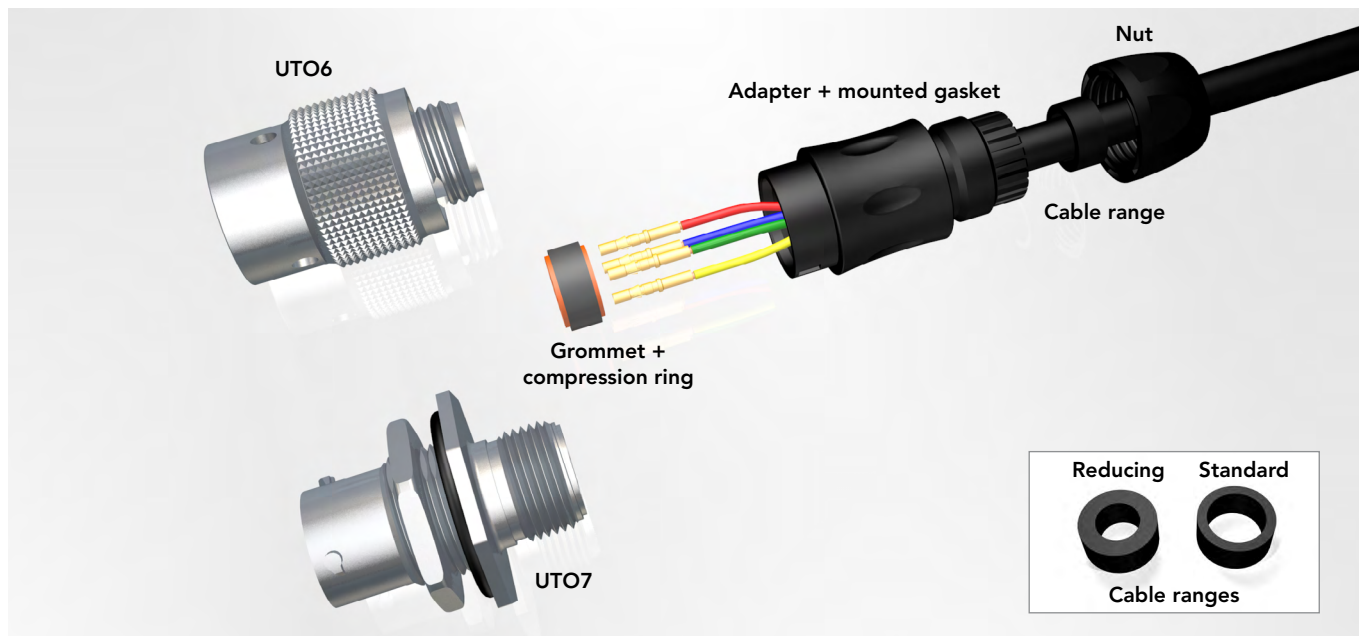


- Strip wires and crimp contacts (see pages 140 & 141)
- Insert first contact into the grommet (first contact in cavity A, no tool is required). Then insert the contact in the connector cavity A (insert manually or use tool RTM205)
- Insert the other contacts
- Tighten the nut to rear of either UTO7 or UTO6 (recommended torque values to be applied according to the table below).

| Shell size | layout | Nut tightening torque (Nm) | Ø Wire                         |
|------------|--------|----------------------------|--------------------------------|
| 10         | 4      | 1                          | From<br>1.7 mm<br>to<br>3.0 mm |
| 12         | 8      | 1.5                        |                                |
| 14         | 7      | 1.5                        |                                |
| 14         | 12     | 1.5                        |                                |

## Assembly Instructions (Continued)

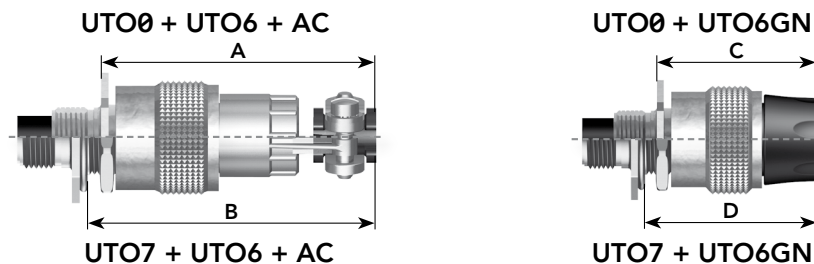
### UTO6 or UTO7 with GJC Backshell Assembly



- Strip wires and crimp contacts (see pages 140 & 141)
- Insert first contact into the grommet (first contact in cavity A, no tool is required). Then insert the contact in the connector cavity A (insert manually or use tool RTM205)
- Insert the other contacts
- Tighten adapter with plug, choose right seal (waste the other seal)
- Tighten the nut to rear of either UTO7 or UTO6 (recommended torque values to be applied according to the table below).

| Shell size | Layout | Recommended jacket strip length (mm) |        | Adapter tightening torque (Nm) | Nut tightening torque (Nm) | Ø Cable range Standard seal (mm) | Ø Cable range Reducing seal (mm) | Ø Wire |
|------------|--------|--------------------------------------|--------|--------------------------------|----------------------------|----------------------------------|----------------------------------|--------|
|            |        | Male                                 | Female |                                |                            |                                  |                                  |        |
| 10         | 4      | 21                                   | 29     | 1.5                            | 1                          | 2.5/8.0                          | 1.5/5.0                          |        |
| 12         | 8      | 25                                   | 33     | 2                              | 2.5                        | 5.0/12.0                         | 3.0/9.0                          |        |
| 14         | 7      | 29                                   | 36     | 3                              | 2.5                        | 7.0/14.0                         | 5.0/12.0                         |        |
| 14         | 12     | 29                                   | 36     | 3                              | 2.5                        | 7.0/14.0                         | 5.0/12.0                         |        |

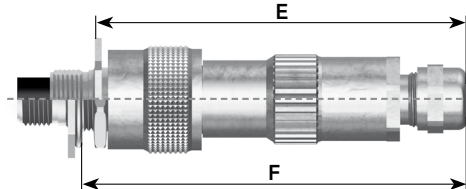
## Mated Connector Length with Backshell



| Shell size | UTO0 + UTO6    |                | UTO7+ UTO6     |                |
|------------|----------------|----------------|----------------|----------------|
|            | + AC backshell | + GN backshell | + AC backshell | + GN backshell |
|            | A max (mm)     | C max (mm)     | B max (mm)     | D max (mm)     |
| 10         | 53.5           | 39.1           | 58.3           | 43.9           |
| 12         | 53.5           | 38.9           | 58.3           | 43.7           |
| 14         | 52.0           | 39.4           | 56.8           | 44.2           |
| 16         | 55.5           | -              | 60.3           | -              |
| 18         | 56.5           | -              | 61.3           | -              |
| 20         | 58.5           | -              | 64.0           | -              |
| 22         | 57.0           | -              | 62.5           | -              |
| 24         | 59.0           | -              | 64.5           | -              |

### Backshell without shielding

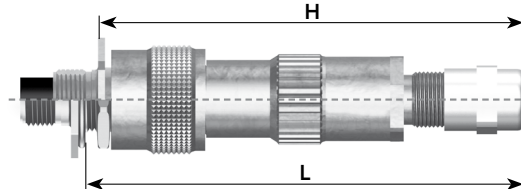
UTO0 + UTO6 + UTO with  
JCS or JC or JCSL or JCL



UTO7 + UTO6 + UTO with  
JCS or JC or JCSL or JCL

### Backshell with shielding

UTO0 + UTO6 + UTOS with  
JCS or JC or JCSL or JCL

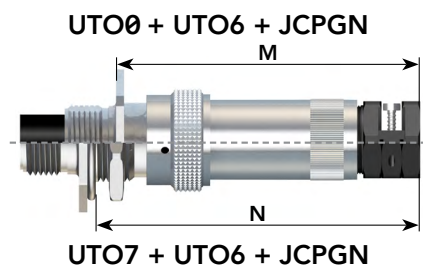


UTO7 + UTO6 + UTOS with  
JCS or JC or JCSL or JCL

| Shell size | UTO0 + UTO6 + UTO with |       |       |       | UTO7+ UTO6 + UTO with |       |       |       | UTO0 + UTO6 + UTOS with |       |       |       | UTO7+ UTO6 + UTOS with |       |       |       |
|------------|------------------------|-------|-------|-------|-----------------------|-------|-------|-------|-------------------------|-------|-------|-------|------------------------|-------|-------|-------|
|            | JCS                    | JC    | JCSL  | JCL   | JCS                   | JC    | JCSL  | JCL   | JCS                     | JC    | JCSL  | JCL   | JCS                    | JC    | JCSL  | JCL   |
|            | E max                  | E max | E max | E max | F max                 | F max | F max | F max | H max                   | H max | H max | H max | L max                  | L max | L max | L max |
| 10         | 68.1                   | 80.1  | 68.1  | 80.1  | 72.8                  | 84.8  | 72.8  | 84.8  | 78.1                    | 90.1  | 79.1  | 91.1  | 82.8                   | 94.8  | 83.8  | 95.8  |
| 12         | 68.1                   | 81.1  | 69.1  | 82.1  | 72.8                  | 85.8  | 73.8  | 86.8  | 81.1                    | 94.1  | 81.1  | 94.1  | 85.8                   | 98.8  | 85.8  | 98.8  |
| 14         | 73.1                   | 87.1  | 74.1  | 88.1  | 77.8                  | 91.8  | 78.8  | 92.8  | 86.1                    | 100.1 | 86.1  | 100.1 | 90.8                   | 104.8 | 90.8  | 104.5 |
| 16         | 82.1                   | 93.1  | 88.1  | 99.1  | 86.8                  | 97.8  | 92.8  | 103.8 | 92.1                    | 103.1 | 102.1 | 113.1 | 96.8                   | 107.8 | 106.8 | 117.8 |
| 18         | 85.1                   | 95.6  | 91.1  | 101.6 | 89.8                  | 100.3 | 95.8  | 106.3 | 95.1                    | 105.6 | 105.1 | 115.6 | 99.8                   | 110.3 | 109.8 | 120.3 |
| 20         | 98.4                   | 108.2 | 105.4 | 115.2 | 103.9                 | 113.7 | 110.9 | 120.7 | 111.9                   | 121.7 | 120.9 | 130.7 | 117.4                  | 127.2 | 126.4 | 136.2 |
| 22         | 100.7                  | 112.0 | 107.7 | 119.0 | 106.2                 | 117.5 | 113.2 | 124.5 | 114.2                   | 125.5 | 123.2 | 134.5 | 119.7                  | 131.0 | 128.7 | 140.0 |
| 24         | 106.9                  | 116.9 | 113.9 | 123.9 | 112.4                 | 122.4 | 119.4 | 129.4 | 120.4                   | 130.4 | 129.4 | 139.4 | 125.9                  | 135.9 | 134.9 | 144.9 |

Note: all dimensions are in mm

## Mated Connector Length with Backshell (Continued)



| Shell size | UTO0 + UTO6 + JCPGN | UTO7+ UTO6 + JCPGN |
|------------|---------------------|--------------------|
|            | M max (mm)          | N max (mm)         |
| 10         | 82.4                | 87.1               |
| 12         | 84.6                | 89.3               |
| 14         | 89.6                | 94.3               |
| 16         | 95.0                | 99.7               |
| 18         | 99.1                | 103.8              |
| 20         | 111.1               | 116.6              |
| 22         | 118.2               | 123.7              |
| 24         | 132.9               | 138.5              |

Note: all dimensions are in mm

## Rated Current & Working Voltage

### Current Carrying Capacity

The current carrying capacity of a connector is limited by the thermal properties of materials used in its construction. The amount of current that can be handled depends on the size of cable used, the ambient temperature and the heat that is generated inside the connector. Part 3 of the IEC 60512 standard determines through a derating curve, the maximum current permissible, which varies from one layout to another (Fig.1 & Fig.2). Wire size plays an important role in dissipating heat and avoid overheating (Fig.1 & Fig.3).

Please note that the curve should be adjusted when dealing with potential hot spots, which can occur as a result of unequal loading of current across a number of contacts. As a general rule, it is best to avoid placing power handling contacts in the middle of the connector; try to locate them towards the edge where heat can be dissipated more effectively. Eventually you should find a level which represents the permissible operating range:

Fig.1: UTO 12-4 – 1.5mm<sup>2</sup> wires

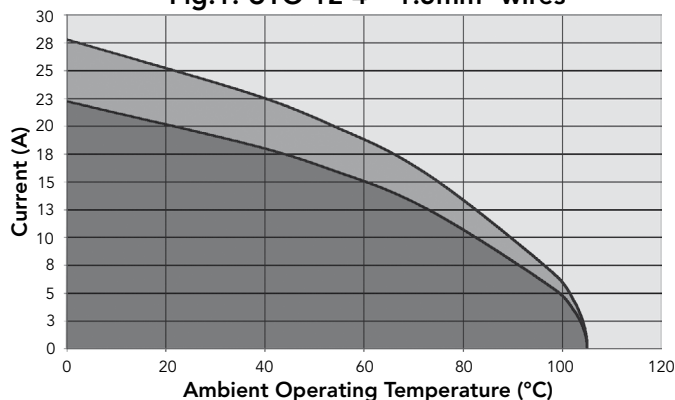


Fig.2: UTO 12-8 – 1.5mm<sup>2</sup> wires

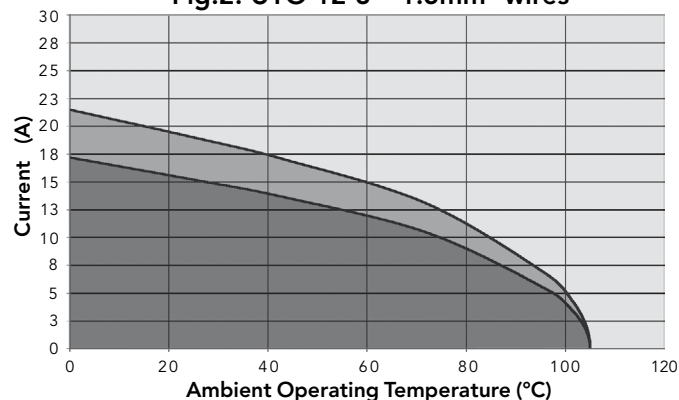
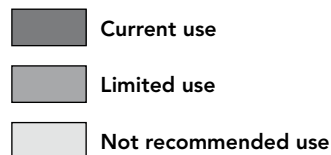
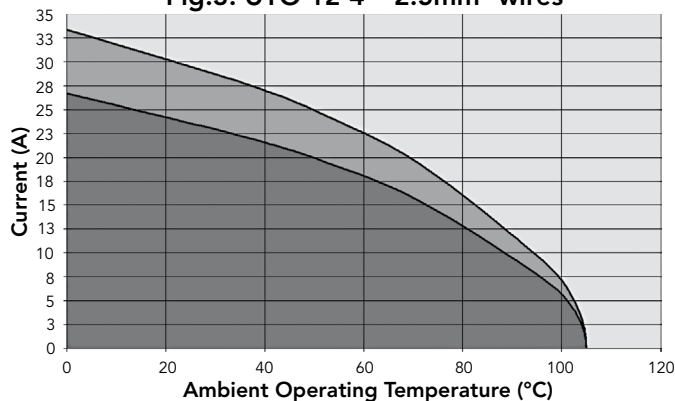


Fig.3: UTO 12-4 – 2.5mm<sup>2</sup> wires



The **rated current** is defined as uninterrupted continuous current that a connector can take when all contacts are energized simultaneously without exceeding the maximum limit of temperature. The earth contact is never loaded.

## Shielding Effectiveness/Corrosion

### Shielding Effectiveness

EMC (Electro-Magnetic Compatibility) means a device (e.g. a connector) can tolerate interferences and continue to work properly.  
It's generally measured via the shielding effectiveness.  
This value is a ratio between the power radiated inside to the maximum power interferences outside.

$$(dB)=10\text{Log} \frac{P_{in}}{P_{out}}$$

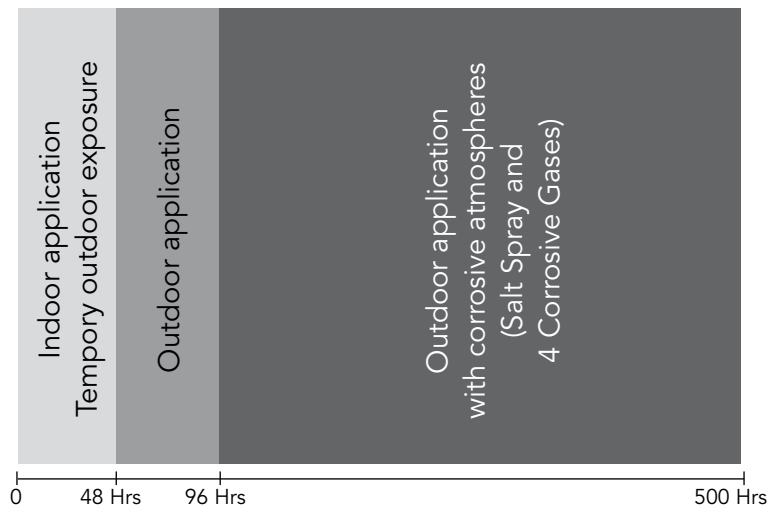
Pin: Power in  
Pout: Power out



### Corrosion Resistance

Control of corrosion impact on electronic devices is an important expertise. Metal connectors suitable for outdoor and indoor use should be able to withstand climate ingress, exposure to salt spray and corrosive gases while still maintaining mechanical and electrical functionality.

Over the years, many different test methods have been developed but never really captured the exact equivalence between testing scenarios and real electronic device exposure to corrosive environments. SOURIAU has been developing, manufacturing and testing connector solutions for more than 90 years and has developed a unique corrosion test based on Salt Spray exposure combined with four additional corrosive gases. Typical industrial applications may involve exposure to corrosive atmospheres equivalent to 48 or 96 hours. SOURIAU's UTO product series has been validated to withstand corrosive agent exposure at these timeframes. In addition, we can offer different solutions and plating options to withstand longer corrosion exposure times and test up to 500 hours.





## UL94 + UL1977

Underwriter Laboratories



There are two main standards for industrial connectors: UL94 & UL1977

### UL94

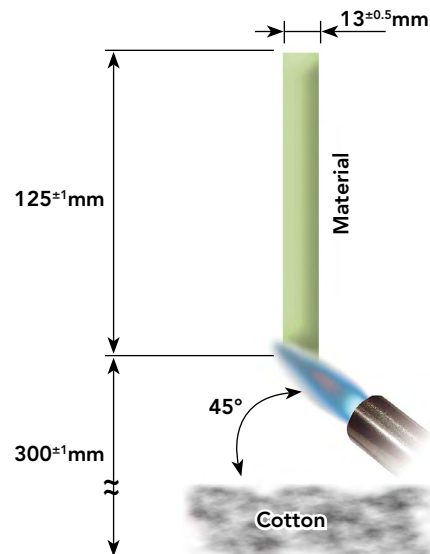
This standard is dedicated to plastics flammability. It characterises how the material burns in various orientation and thicknesses.

The UTO series has been rated at **V-0** & **HB**.

Procedure: A specimen is supported in a vertical or horizontal position and a flame is applied to the bottom of the specimen. The flame is applied for ten seconds and then removed until flaming stops, at which time the flame is reapplied for another ten seconds and then removed. Two sets of five specimens are tested.

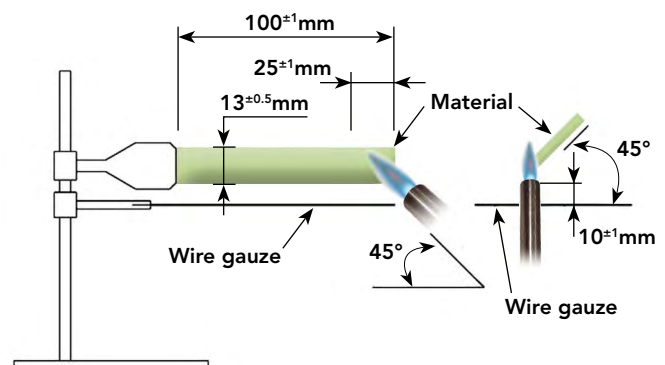
#### V-0 Vertical burning:

- Specimens must not burn with flaming combustion for more than 10 seconds after each test flame application
- Total flaming combustion time must not exceed 50 seconds for each set of 5 specimens
- Specimens must not burn with flaming or glowing combustion up to the specimen holding clamp
- Specimens must not drip flaming particles that ignite the cotton
- No specimen can have glowing combustion remain for longer than 30 seconds after removal of the test flame.



#### HB Horizontal burning:

- A material classified HB shall not have a burning rate exceeding 40 mm per minute over a 75 mm span for specimens having a thickness of 3.0 to 13 mm
- A material classified HB shall not have a burning rate exceeding 75 mm per minute over a 75 mm span for specimens having a thickness less than 3.0 mm
- A material classified HB shall cease to burn before the 100 mm reference mark.



## UL94 + UL1977 (Continued)

Underwriter Laboratories 

### UL1977

There are several standards which deal with plug and receptacle. Each of them is only for a small area of applications. It could be telecommunication, etc. The UL 1977 covers single and multipole connectors intended for factory assembly.

Requirements apply to devices taking into account intensity and voltage. The categories are as follows:

|        | 0       | 30 V<br>(42 V peak) | 600 V |
|--------|---------|---------------------|-------|
| 0      |         |                     |       |
|        | Type 0  | Type 1A             |       |
| 8.3 A  |         |                     |       |
|        | Type 1B | Type 2              |       |
| 31 A   |         |                     |       |
|        |         | Type 3              |       |
| 200 A  |         |                     |       |
|        | Type 4  |                     |       |
| 1000 A |         |                     |       |

According to above table, the level of performance that has to be reached could be different. Most of them are explained in the following page.

### Insulating materials:

Material uses for electrical insulation, as a minimum, have to comply with the characteristics shown below:

#### • Minimum ratings for polymeric materials

| Type | Flame rating | Relative thermal index (RTI)<br>Electrical/mechanical w/o impact */** |
|------|--------------|-----------------------------------------------------------------------|
| 0    | -            | 50/50                                                                 |
| 1A   | HB           | 50/50                                                                 |
| 1B   | HB           | 50/50                                                                 |
| 2    | HB           | 50/50                                                                 |
| 3    | HB           | 50/50                                                                 |
| 4    | HB           | 50/50                                                                 |

\* The RTI of the material shall not be lower than the temperature measured during the Temperature Test.

\*\* For a thickness less than that for which a value has been established, the RTI of the minimum thickness with an established value shall be used.

### Assembly:

Connector has to be keyed to prevent any mismatching that can damage the machine or hurt the user. In the same way, plugs and sockets have to be equipped to protect persons against contact with live parts.

Finally the identified grounding contact shall be located so that the corresponding electrical continuity has to be completed before any other contact.

### UL1977

#### Spacing:

For a 250V max connector, distance through air or over material shall be 1.2mm whereas from 250V to 600V connector the spacing is 3.2mm minimum. These distances have to be taken between uninsulated live parts as shown in the matrix below:

#### • Applicability of spacing requirements

| Type | Uninsulated live part - uninsulated live part of opposite polarity | Uninsulated live part - uninsulated grounded metal part | Uninsulated live part - exposed dead metal part |
|------|--------------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------|
| 0    | No                                                                 | No                                                      | No                                              |
| 1A   | Yes                                                                | Yes                                                     | Yes                                             |
| 1B   | Yes                                                                | Yes                                                     | No                                              |
| 2    | Yes                                                                | Yes                                                     | Yes                                             |
| 3    | Yes                                                                | Yes                                                     | Yes                                             |
| 4    | Yes                                                                | Yes                                                     | Yes                                             |

An alternative way to determine voltage rating is with the Dielectric-Withstand test. If during one minute there is no arc-over or breakdown the rated voltage is given as shown below:

- a) 500 volts for a type 1B device
- b) 1000 volts plus twice rated voltage for types 1A, 2, 3 and 4 devices.

#### Marking:

A device shall be legibly marked with the manufacturer's trade name, trade mark, or other descriptive marking by which the organisation responsible for the product may be identified. (Exception: If the device is too small, or where the legibility would be difficult to attain, the manufacturer's name, trademark, or other descriptive marking may appear on the smallest unit container or carton)

The following shall be marked on the device or on the smallest unit container or carton or on a stuffer sheet in the smallest unit container or carton:

- a) The catalog number or an equivalent designation
- b) The electrical rating in both volts and amperes, if assigned
- c) Whether ac or dc, if restricted
- d) Flammability class, if identified

Example - Marking for the arrangement 10-3:

**10A 500V UL94 V-0**

# IEC 61984 & IP Codes Explained

## IEC 61984

The norm is dedicated to connectors with rated voltage above 50V and up to 1000V and rated currents up to 125A per contact. Depending on your application connectors should be compliant with another standard. This has to be double checked with the customer.

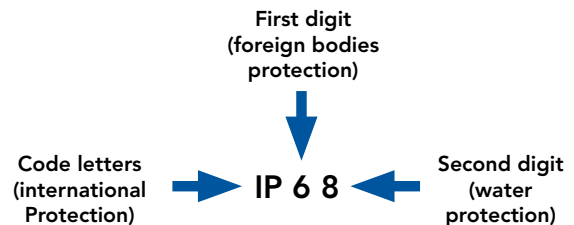
There are a lot of constructional requirements and performances specified in that standard. Most of them are illustrated in greater details hereafter.

### Provisions for earthing:

The UTO connector is intended to be used on Class I or Class III (see IEC 61140) systems. Even if the purpose of our connector is not to interrupt current, there is a need to add a protective earth contact. This one shall be a "First mate, last break" style. Critically, among all of the normal assumptions we make in designing a connector, this contact has to be considered as a live part and must be protected attached to the ground wire.

### IP Code:

IP is a coding system defined by the IEC 60529 to indicate the degrees of protection provided by an enclosure. The aim of this is to give information regarding the accessibility of live parts against ingress of water and other foreign bodies.



| 1 <sup>st</sup> digit | Degree of protection                                                                                                                                                | 2 <sup>nd</sup> digit | Degree of protection                                                           |
|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------------------------------------------------------------------------|
| 0                     | No protection against accidental contact.<br>No protection against solid foreign bodies.                                                                            | 0                     | No protection against water.                                                   |
| 1                     | Protection against contact with any large area by hand and against large solid foreign bodies with a diameter bigger than 50 mm.                                    | 1                     | Drip-proof.<br>Protection against vertical water drips.                        |
| 2                     | Protection against contact with the fingers.<br>Protection against solid foreign bodies with a diameter bigger than 12 mm.                                          | 2                     | Drip-proof.<br>Protection against water drips up to a 15° angle.               |
| 3                     | Protection against tools, wires or similar objects with a diameter bigger than 2.5 mm.<br>Protection against small solid bodies with a diameter bigger than 2.5 mm. | 3                     | Spray-proof.<br>Protection against diagonal water drips up to a 60° angle.     |
| 4                     | Same as 3 however diameter is bigger than 1 mm.                                                                                                                     | 4                     | Splash-proof.<br>Protection against splashed water from all directions.        |
| 5                     | Full protection against contact. Protection against interior injurious dust deposits.                                                                               | 5                     | Hose-proof.<br>Protection against water (out of a nozzle) from all directions. |
| 6                     | Total protection against contact.<br>Protection against penetration of dust.                                                                                        | 6                     | Protection against temporary flooding.                                         |
|                       |                                                                                                                                                                     | 7                     | Protection against temporary immersions.                                       |
|                       |                                                                                                                                                                     | 8                     | Protection against water pressure.<br>Pressure to be specified by supplier.    |

UTO offers high sealing performance IP68 / 69K...  
Even in dynamic situations.

In addition to the IEC 60529 we conjointly use the DIN 40050 part 9 which are dedicated to road vehicles. The main differences are:

- **First digit:** 5 replaced by 5K, 6 by 6K. In the DIN the tested equipment is not depressurized as it is in the IEC.
- **Second digit:** 5K and 6K has been added and are equivalent respectively to 5 and 6 but with higher pressure. 9K which represents the High pressure cleaning.

|    |                                                                                                            |
|----|------------------------------------------------------------------------------------------------------------|
| 9K | High pressure hose-proof.<br>Protection against high pressure water (out of a nozzle) from all directions. |
|----|------------------------------------------------------------------------------------------------------------|

## IEC 61984

### Overvoltage

UTO connectors are qualified to be used on systems rated at Overvoltage category III

Per the IEC 60664-1 (formerly VDE 0110) each category is linked to the end application and where the device will be implemented:

- **Category IV** (primary overcurrent protection equipment):  
Origin of the installation
- **Category III** (any fixed installation with a permanent connection)  
Fixed installation and equipment and for cases where the reliability and the availability is subject to special requirements
- **Category II** (domestic appliances):  
Energy consuming equipment to be supplied from the fixed installation
- **Category I** (protected electronic circuit):  
For connection to circuit in which measures are taken to limit transient overvoltage.

### Pollution degree

Per the IEC 60664-1 (formerly VDE 0110) the environment affects the performance of the insulation. Particles can build a bridge between two metal parts. As a rule dust mixed with water can be conductive and more generally speaking metal dust is conductive. Finally, the standard defines 4 levels of pollution:

- **Degree 1** (Air conditioned dry room):  
No pollution or only dry, non conductive pollution occurs. The pollution has no influence.
- **Degree 2** (Personal computer in a residential area):  
Only non conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is to be expected.
- **Degree 3** (Machine tools):  
Conductive pollution occurs or dry non-conductive pollution occurs which becomes conductive due to condensation which is to be expected.
- **Degree 4** (Equipments on roof, locomotives):  
Continuous conductivity occurs due to conductive dust, rain or other wet conditions.

Finally, the harsher the environment is, the longer clearance and creepage distances should be. Nonetheless, according the IEC 61984, enclosure rated at IP54 or higher can be dimensioned for a lower pollution degree. This applies to mated connectors disengaged for test and maintenance.

### Marking

The marking should give enough details to the user to know what the main characteristics are and without going deep in technical documentation. Below examples identify the suitability of the connector:

- **Example 1:**  
Marking of a connector with rated current 16A, rated voltage 400V, rated impulse voltage 6kV and pollution degree 3, 2 and 1 for use in any system, preferably unearthed or delta-earthed systems:

16A 400V 6kV 3

- **Example 2:**  
Marking of a connector with rated current 16A, rated insulation voltages line-to-earth 250V, line-to-line 400V, rated impulse voltage 4kV and pollution degree 3, 2 and 1 for use in earthed systems:

16A 250V 400V 4kV 3

## IEC 61140 Explained

### IEC 61140

On a daily basis, we are using many electrical appliances, some are grounded, and some are not. The levels of grounding protection are clearly defined by the International Electrotechnical Commission standard IEC 61140, a standard that has an influence on our connectors and how they should be used; our customers therefore need to pay particular attention to the three categories defined within this standard to ensure compatibility with their system. Everything explained hereafter is valid for connectors not intended to interrupt current.

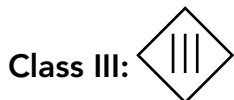


Devices which belong to this category have their chassis grounded via the ground wire (green/yellow in Europe, green in the US, Canada and Japan). A fault in the appliance might cause a live conductor to energize the casing. In this case, the current flows to the ground conductor and the circuit interrupter will cut off the power supply. In case of the UTO series, it means the envelope (coupling ring, backshell and housing) may become live, therefore, care needs to be taken to attach the connector to the ground. This is usually done via the ground conductor using a splice between the ground contact and the housing.



Products in this category have reinforced insulation, meaning that the casing does not need to be connected to ground. In this case, the possibility of electric shock has been removed. Most of the time, reinforced insulation means double insulation, i.e. the second layer will take over the first one in case the first one fails. The UTO series is not designed to comply with this standard, so we cannot recommend it for this product category.

Note: UL 1310 also defines a class II device, but in that case this is just to set the upper limit of use, like a wall charger for our cell phone.



In this category, electrical appliances are fed by a low voltage source (<48VAC or < 120VDC). In normal conditions live conductors can be accessible without any risk for the end user. No particular attention needs to be taken in regards to UTO series when it comes to a class III device.

### Conclusion :

UTO series can be used in class I and class III environments, but each category affects the product performance. Throughout the catalog, current and voltage ratings have been given for class I devices keeping in mind the ground conductor needs to be attached according to recommended wiring instructions.

Note: Special applications like recreational vehicles are not under the scope of the IEC 61140.



## What is NEMA Rating ?

- NEMA ratings vs IP ratings

Whereas IP ratings only consider protection against ingress of foreign bodies (first digit) and ingress of water (second digit), NEMA ratings consider these but also verify protection from external ice, corrosive materials, oil immersion, etc.

The correlation between NEMA & IP being limited only to dust and water, we can state that a NEMA type is equivalent to an IP rating but it is not possible to say the contrary.

Below a list of some NEMA standards:

| Enclosure rating | IP20 | IP22 | IP55 | IP64 | IP65 | IP66 | IP67 | IP68 |
|------------------|------|------|------|------|------|------|------|------|
| Type 1           | •    |      |      |      |      |      |      |      |
| Type 3           |      |      |      | •    |      |      |      |      |
| Type 3R          |      | •    |      |      |      |      |      |      |
| Type 3S          |      |      |      | •    |      |      |      |      |
| Type 4           |      |      |      |      |      | •    |      |      |
| Type 4X          |      |      |      |      |      | •    |      |      |
| Type 6           |      |      |      |      |      |      | •    |      |
| Type 6P          |      |      |      |      |      |      |      | •    |
| Type 12          |      |      | •    |      |      |      |      |      |
| Type 13          |      |      |      |      | •    |      |      |      |

• indicates compliance

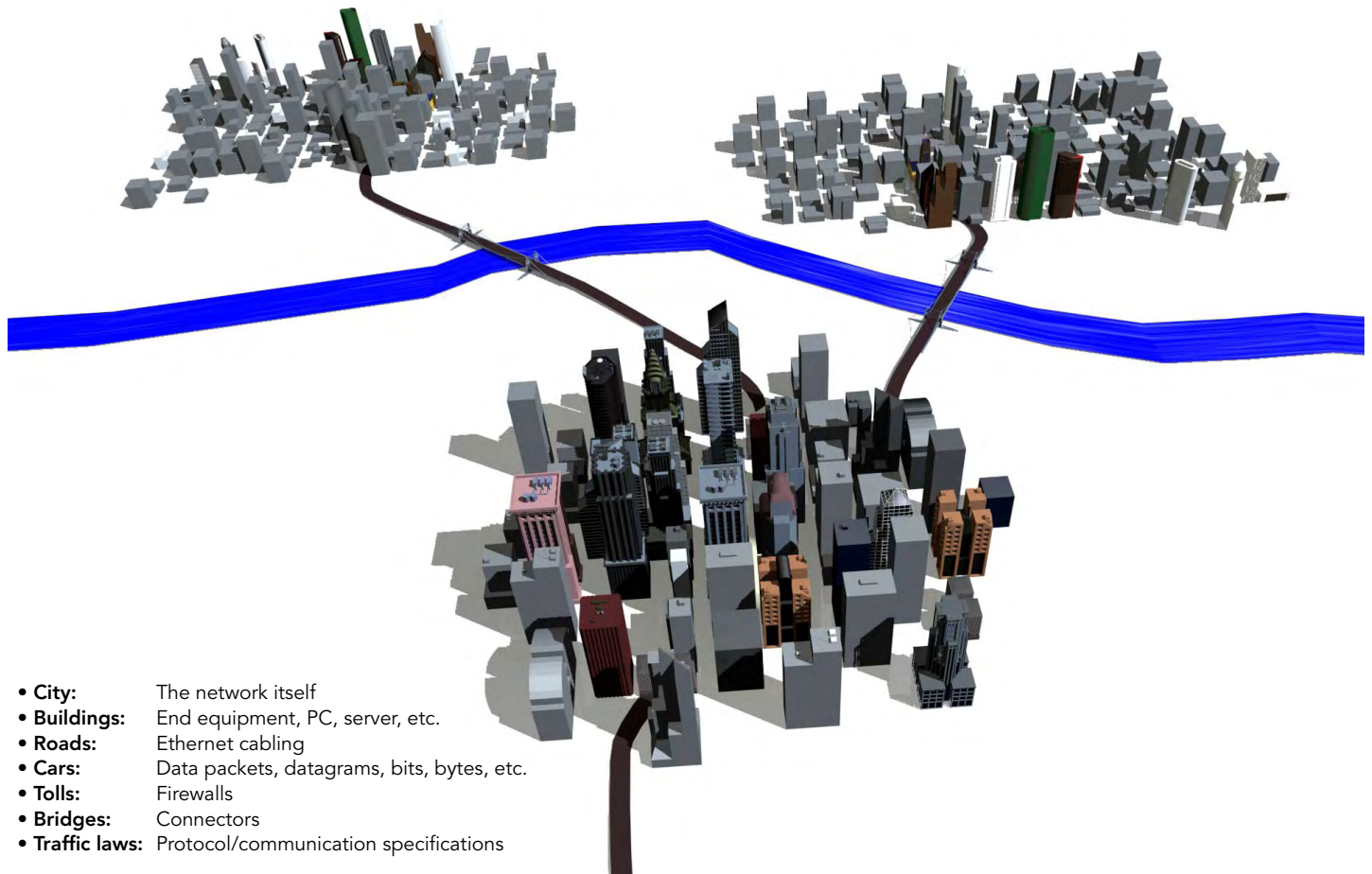


Type 6 rating can be either Type 6 or Type 6P - please see below:

|    |      |                                                                                                                                                                                                                                                                                                                               |
|----|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6  | IP67 | Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment, falling dirt, hose-directed water, the entry of water during <b>occasional temporary</b> submersion at a limited depth and damage from external ice formation. |
| 6P | IP68 | Enclosures constructed for either indoor or outdoor use to provide a degree of protection to personnel against incidental contact with the enclosed equipment, falling dirt, hose-directed water, the entry of water <b>during prolonged</b> submersion at a limited depth and damage from external ice formation.            |

## Ethernet for the Layman

In order to explain basic Ethernet theory, we can use a functional comparison to a busy city with highways, buildings and cars. To illustrate this, the table below provides correlation between the different components/pieces/links that encompass Ethernet network connectivity, and the larger scale infrastructure of a metropolitan city.



- **City:** The network itself
- **Buildings:** End equipment, PC, server, etc.
- **Roads:** Ethernet cabling
- **Cars:** Data packets, datagrams, bits, bytes, etc.
- **Tolls:** Firewalls
- **Bridges:** Connectors
- **Traffic laws:** Protocol/communication specifications

## Ethernet Basics

Ethernet is a widely used communications protocol that is used to transmit data packets (datagrams) between network devices. Imagine a highway in a large metropolitan area six lanes wide at rush hour. The vehicles on the highway need rules to follow so that they get to their destination without crashing into each other. In an Ethernet network link, there could be 100 million bits of information transmitted in one second. In the Ethernet standard, there exist rules to govern packet structure, transmission requirements, error correction, communication with end equipment, etc.

## Examining the differences between 100Mhz, 100 Base TX, Cat5e/Cat6. What does it all mean?

When discussing connectors and Ethernet, there are a few key details to be aware of:

- 100Mhz is a measurement of Frequency for the signal
  - Comparable to the Speed Limit of a highway
- 100BaseTX (or Fast Ethernet) is an Ethernet link standard and identifies available link bandwidth. The bandwidth is measured in units of Mbits/S (megabits per second)
  - Comparable to the number of cars that pass a point in one second
- Cat5e/Cat6 are an EIA/TIA standard for performance and physical characteristics for cables and connectors
  - Comparable to performance specifications of the car and highway.

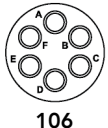
In connectors and cables, Fast Ethernet uses 2 pairs. One for transmit and one for receive. This way data traffic can flow in both directions simultaneously.

## Souriau offering:

Standard solutions.

UTO size 10, 6 contacts - Cat5e  
Twisted pairs

1 (Pair 1) ➔ A  
2 (Pair 1) ➔ B  
3 (Pair 2) ➔ E  
4 (Pair 2) ➔ D

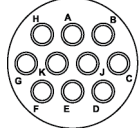


**106**  
6 Ø 1 (#20)

Shielding continuity done in cavity C&F.  
Note: Shielding can be replaced by DC power.

UTO size 12, 10 contacts - Cat5e  
Twisted pairs

1 (Pair 1) ➔ C  
2 (Pair 1) ➔ B  
3 (Pair 2) ➔ G  
4 (Pair 2) ➔ H

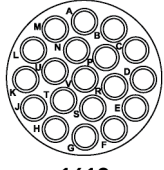


**1210**  
10 Ø 1 (#20)

Cat6 if shielding continuity done by other contact

UTO size 16, 19 contacts - Cat5e  
Twisted pairs (1Gb/s)

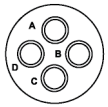
1 (Pair 1) ➔ A  
2 (Pair 1) ➔ B  
3 (Pair 2) ➔ D  
4 (Pair 2) ➔ E  
5 (Pair 3) ➔ G  
6 (Pair 3) ➔ H  
7 (Pair 4) ➔ K  
8 (Pair 4) ➔ L



**1619**  
19 Ø 1.6 (#16)

UTO size 10, 4 contacts - Cat6  
Quad cable

1 (Pair 1) ➔ A  
2 (Pair 1) ➔ B



**104**  
4 Ø 1.6 (#16)

## What about using coax contacts ?

Ethernet twisted pairs carry a symmetrical (balanced) signal. Once terminated into a coax contact, the inner core will be protected by a shield - but not the outer contact. Because of EMI issues, the signal will no longer be balanced. Conclusion - it does not work and is not recommended.

## What about using Quadrax contacts ?

The Quadrax contact is used in railway applications because of the use of quad cable. In this specific market, the standard Ethernet twisted pairs wires cannot be offered, they are too thin and often solid (not stranded).

In the rest of industry, UTP (Unshielded Twisted Pairs) cables are widely used. The Quadrax contact is not designed to terminate them. And thus, are not advised for industrial applications.

## Conclusion

To carry 100Mb/s data signal, 100BaseTX or Fast Ethernet recommends the use of Cat5e connectors as well as Cat5e cable with the support of a 100MHz signal. Nevertheless, a 100Mb/s signal can be transmitted in certain conditions (short distance, only one connector, lower frequency but a different code) thru many other connection materials - not necessarily Cat5e rated.

# UTO SERIES

# Appendices

|                                              |     |
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## #16 Coaxial Contacts

### Coaxial Cable - Contact Monocrimp and Multipiece

| Cable type                    | Impe-<br>dance | Contact<br>type | Ø over<br>jacket |          | Ø over<br>dielectric |       | Inner<br>cond<br>size<br><br>Ext.<br>Ø<br>mm | Ø outer braid |          | Male contact kit<br>for coaxial cable | Female contact kit<br>for coaxial cable |
|-------------------------------|----------------|-----------------|------------------|----------|----------------------|-------|----------------------------------------------|---------------|----------|---------------------------------------|-----------------------------------------|
|                               |                |                 | inch             | mm       | inch                 | mm    |                                              | inch          | mm       |                                       |                                         |
| RG161/U                       | 75             | Multi<br>piece  | 0.09"            | 2.29     | 0.057"               | 1.45  | -                                            | -             | -        | RMDXK10D28                            | RCDXK1D28                               |
| RG179A/U                      | 75             |                 | 0.105"           | 2.67     | 0.063"               | 1.6   | 0.3                                          | 0.084"        | 2.13 max |                                       |                                         |
| RG179B/U                      | 75             |                 | 0.105"           | 2.67     | 0.063"               | 1.6   | 0.3                                          | 0.084"        | 2.13 max |                                       |                                         |
| RG187/U                       | 75             |                 | 0.11"            | 2.79 max | 0.06"                | 1.52  | 0.3                                          |               |          |                                       |                                         |
| RG188/U                       | 50             |                 | 0.11"            | 2.79 max | 0.06"                | 1.52  | 0.51                                         | 0.078"        | 1.98 max |                                       |                                         |
| RG174/U                       | 50             |                 | 0.11"            | 2.92     | 0.06"                | 1.52  | 0.48                                         | 0.088"        | 2.24 max |                                       |                                         |
| AMPHENOL 21-598               | 50             |                 | 0.105"           | 2.67     | 0.06"                | 1.52  | 0.48                                         | -             | -        |                                       |                                         |
| RG196/U                       | 50             |                 | 0.08"            | 2.03 max | 0.034"               | 0.086 | 0.3                                          | -             | -        |                                       |                                         |
| RG178A/U                      | 50             |                 | 0.075"           | 1.91     | 0.034"               | 0.86  | 0.3                                          | 0.054"        | 1.37 max |                                       |                                         |
| RG/188A/U                     | 50             | Mono<br>crimp   | 0.110"           | 2.79     | 0.06"                | 1.52  | 0.51                                         | 0.078"        | 1.98 max | RMDX6036D28                           | RCDX6036D28                             |
| KX21TVT (europe)<br>RG178 B/U | 50             |                 | 0.075"           | 1.91     | 0.034"               | 0.86  | 0.3                                          | 0.054"        | 1.37 max | RMDX6034D28                           | RCDX6034D28                             |
| RG178 / BU                    | 50             |                 | 0.075"           | 1.91     | 0.034"               | 0.86  | 0.3                                          | 0.054"        | 1.37 max | RMDX6050D28                           | RCDX6016D28                             |
| RG174/U                       | 50             |                 | 0.115"           | 2.92     | 0.06"                | 1.52  | 0.48                                         | 0.088"        | 2.24 max | RMDX6032D28                           | RCDX6032D28                             |
| RG188A/U                      | 50             |                 | 0.11"            | 2.79     | 0.06"                | 1.52  | 0.51                                         | 0.078"        | 1.98 max | RMDX6036D28                           | RCDX6036D28                             |
| RG316/U                       | 50             |                 | 0.107"           | 2.72     | 0.06"                | 1.52  | 0.51                                         | 0.078"        | 2.05 max | RMDX6036D28                           | RCDX6036D28                             |
| raychem 5024A3111             | 50             |                 | 0.12"            | 3.05     | 0.083"               | 2.11  | 0.64                                         | 0.097"        | 2.46     | RMDX6052D28                           | RCDX6052D28                             |
| raychem 5026e1614             | 50             |                 | 0.083"           | 2.11     | 0.05"                | 1.27  | 0.48                                         | 0.067"        | 1.7      | RMDX6036D28                           | RCDX6036D28                             |
| surprenant pn 8134            | -              | Multi<br>piece  | 0.1"             | 2.54     | 0.058"               | 1.47  | 0.3                                          | -             | -        | RMDXK10D28                            | RCDXK1D28                               |
| PRD PN 247AS-<br>C1123-001    | -              | Mono<br>crimp   | 0.103"           | 2.62     | 0.06"                | 1.52  | 0.51                                         | 0.078"        | 1.98     | RMDX6018D28                           | RCDX6018D28                             |
| PRD PN 247AS-C1251            | -              |                 | 0.092"           | 2.34     | 0.05"                | 1.27  | 0.64                                         | 0.067"        | 1.7      | RMDX6018D28                           | RCDX6018D28                             |
| JUDD C15013010902             | -              |                 | 0.087"           | 2.13     | 0.05"                | 1.27  | 0.48                                         | 0.066"        | 1.67     | RMDX6036D28                           | RCDX6036D28                             |
| CDC PIN22939200               | -              |                 | 0.09"            | 2.29     | 0.048"               | 1.22  | 0.3                                          | 0.064"        | 1.63     | RMDX6046D28                           | RCDX6016D28                             |
| CDC PIN22939200               | -              |                 | 0.09"            | 2.29     | 0.048"               | 1.22  | 0.3                                          | 0.064"        | 1.63     | RMDX6050D28                           | RCDX6016D28                             |
| CDC PIN245670000              | -              |                 | 0.104"           | 2.64     | 0.067"               | 1.7   | 0.3                                          | 0.083"        | 2.11     | RMDX6050D28                           | RCDX6016D28                             |
| ampex                         | -              |                 | 0.114"           | 2.9      | 0.075"               | 1.91  | 0.38                                         | 0.09"         | 1.29     | RMDX6032D28                           | RCDX6032D28                             |
| TI PN 920580                  | -              |                 | 0.7"             | 1.78     | 0.038"               | 0.96  | 0.48                                         | 0.054v        | 1.37     | RMDX6024D28                           | RCDX6024D28                             |
| Honeywell PN 58000062         | -              |                 | 0.12"            | 3.05     | 0.077"               | 1.96  | 0.41<br>solid                                | 0.096"        | 2.44     | RMDX6026D28                           | RCDX6026D28                             |
| -                             | -              |                 | 0.104"           | 2.64     | 0.067"               | 1.7   | 0.3                                          | -             | 2.11     | RMDX6050D28                           | -                                       |
| -                             | -              |                 | 0.09"            | 2.29     | 0.048"               | 1.22  | 0.3                                          | -             | 1.63     | RMDX6050D28                           | -                                       |
| -                             | -              |                 | 0.114"           | 2.9      | 0.075"               | 1.91  | 0.38                                         | -             | 1.29     | RMDX6032D28                           | RCDX6032D28                             |
| -                             | -              |                 | 0.07"            | 1.78     | 0.038"               | 0.96  | 0.48                                         | -             | 1.37     | RMDX6024D28                           | RCDX6024D28                             |
| -                             | -              |                 | 0.12"            | 3.05     | 0.077"               | 1.96  | 0.41                                         | -             | 2.44     | RMDX6026D28                           | RCDX6026D28                             |



## Twisted Cable - Contact Monocrimp and Multipiece

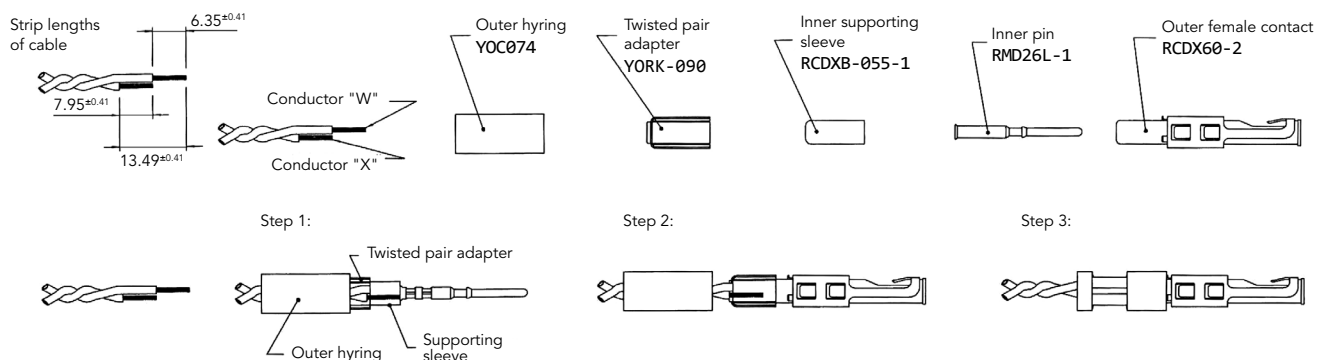
| Cable type                                                | Contact type | Inner AWG cond | Ø over jacket (single wire) |          | Inner cond size     |           | Ø outer braid |         | Male contact kit for coaxial cable | Female contact kit for coaxial cable |
|-----------------------------------------------------------|--------------|----------------|-----------------------------|----------|---------------------|-----------|---------------|---------|------------------------------------|--------------------------------------|
|                                                           |              |                | inch                        | mm       | Stranded definition | Ext. Ø mm | inch          | mm      |                                    |                                      |
| 2#24 stranded MIL-W-16878 type B                          | Multi piece  | 24             | 0.049"                      | 1.24 max | 7/.008              |           | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| 2 #24 solid MIL-W-76 type LW                              |              | 24             | 0.047"                      | 1.12 max | 1/.0201             |           | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| 2 #26 stranded MIL-W-76 type LW or MIL-W-16878 type B&E   |              | 26             | 0.043"                      | 1.09 max | 7/.0063             | 0.16      | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| 2 #28 solid MIL-W-81822/3                                 |              | 28             | 0.028"                      | 0.71 max |                     |           | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| Twisted pair 1/.201 solid MIL-W-76 type LW or MIL-W-16878 |              | 26             | 0.044"                      | 1.12 max | 1/.0201             | 0.511     | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| Twisted pair solid MIL-W-81822/3                          |              | 28             | 0.028"                      | 0.71 max | 1/.0126             | 0.32      | -             | -       | RMDXK10D28                         | RCDXK1D28                            |
| #28 7/.0036 per Hitachi spec ec-711 (13-2820)             | Mono crimp   | -              | 0.046"                      | 1.17     | 7/.0036             | -         | -             | -       | RMDX6031D28 + YORX090              | RCDX6031D28 + YORX090                |
| 20218201                                                  |              | -              | 0.028"                      | 0.71     | -                   | -         | -             | -       | RMDX6031D28 + YORX090              | RCDX6031D28 + YORX090                |
| #30 solid                                                 |              | -              | 0.025"                      | 0.64     | -                   | -         | -             | -       | RMDX6015D28 + YORX090              | RCDX6015D28 + YORX090                |
| #26 7/.0063                                               |              | 26             | 0.028"                      | 0.71     | 7/.063              | 0.16      | -             | -       | RMDX6031D28 + YORX090              | RCDX6031D28 + YORX090                |
| #26 19/.004                                               |              | 26             | 0.049"                      | 1.24     | 19/.004             | -         | -             | -       | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| #24 7/.008                                                |              | 24             | 0.049"                      | 1.24     | 7/.008              | -         | -             | -       | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| #24 19/.005                                               |              | 24             | 0.057"                      | 1.45     | 19/.005             | -         | -             | -       | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| -                                                         |              | 26             | -                           | 1.25     | -                   | -         | -             | 19x0.1  | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| -                                                         |              | 24             | -                           | 1.25     | -                   | -         | -             | 7x0.2   | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| -                                                         |              | 24             | -                           | 1.45     | -                   | -         | -             | 19x0.13 | RMDX6019D28 + YORX090              | RCDX6019D28 + YORX090                |
| -                                                         |              | 26             | -                           | 0.7      | -                   | -         | -             | 7x0.16  | RMDX6031D28 + YORX090              | RCDX6031D28 + YORX090                |

## #16 Coaxial Contacts (Continued)

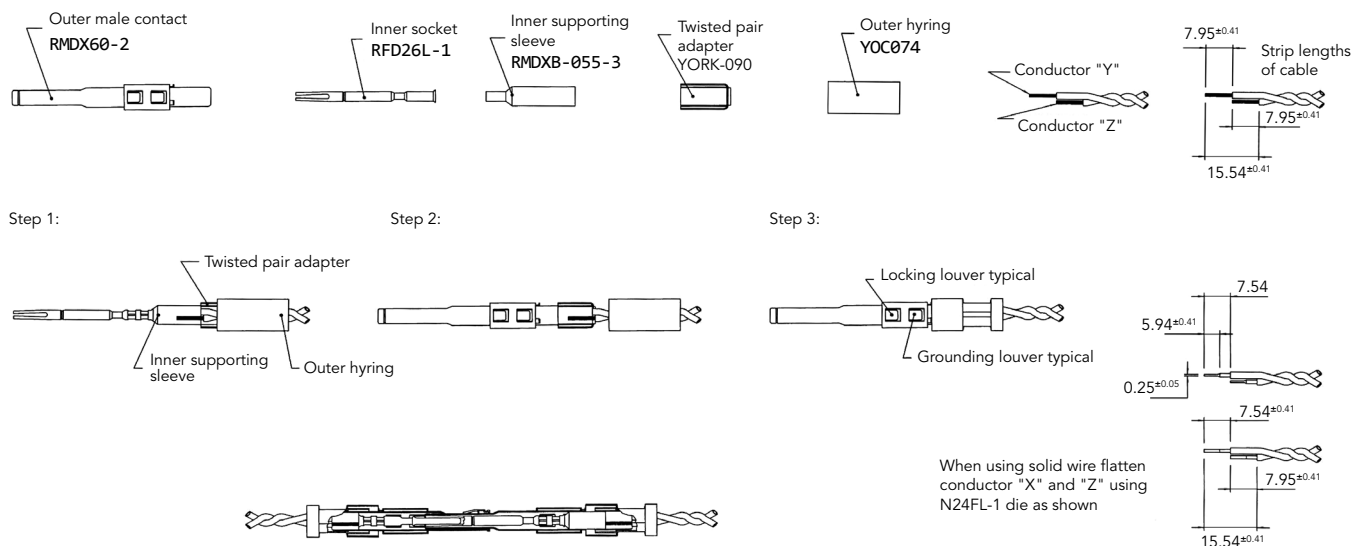
### Twisted Pair Cable Multipiece Contact Cabling

| Cable reference                                           | Contact type | Male contact | Female contact | Crimp tool | Die set | Stop bushing | Cable strip length |   |   | Inner conductor crimp |       | Braid crimp |       |
|-----------------------------------------------------------|--------------|--------------|----------------|------------|---------|--------------|--------------------|---|---|-----------------------|-------|-------------|-------|
|                                                           |              |              |                |            |         |              | A                  | B | C | g dim                 | t dim | g dim       | t dim |
| 2#24 stranded mil w 16878 type B                          | Multi piece  | RMDXK10D28   | RCDXK1D28      | M10S1J     | -       | -            |                    |   |   | See assembly notice   |       |             |       |
| 2 #24 solid mil-w-76 type LW                              |              |              |                |            |         |              |                    |   |   |                       |       |             |       |
| 2 #26 stranded mil w 76 type LW or mil w16878 type B & E  |              |              |                |            |         |              |                    |   |   |                       |       |             |       |
| 2 #28 solid mil-w-81822/3                                 |              |              |                |            |         |              |                    |   |   |                       |       |             |       |
| twisted pair 1/.201 solid mil w 76 type LW or mil w 16878 |              |              |                |            |         |              |                    |   |   |                       |       |             |       |
| twisted pair solid mil w 81822/3                          |              |              |                |            |         |              |                    |   |   |                       |       |             |       |

#### Female contact



#### Male contact

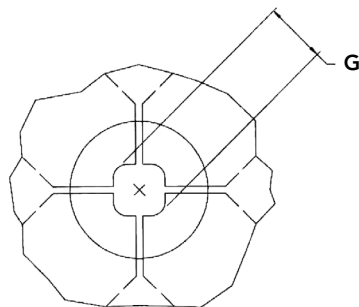
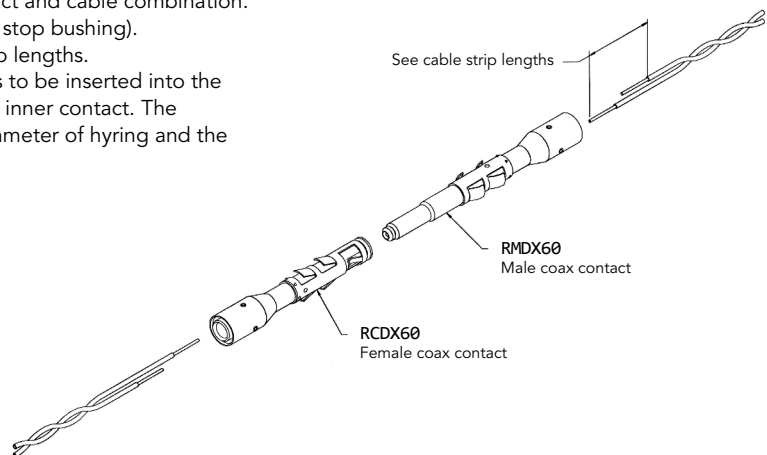
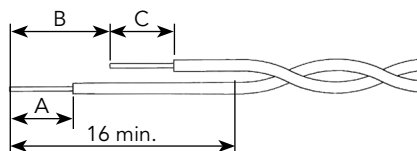


## Twisted Pair Cable Monocrimp Contact Cabling

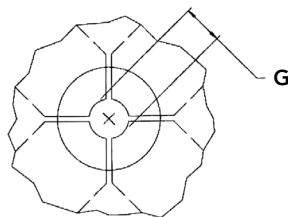
| Cable reference                               | Contact type | Male contact          | Female contact        | Crimp tool | Die set                                             | Stop bushing | Cable strip length |     |      | Inner conductor crimp |              | Braid crimp  |              |
|-----------------------------------------------|--------------|-----------------------|-----------------------|------------|-----------------------------------------------------|--------------|--------------------|-----|------|-----------------------|--------------|--------------|--------------|
|                                               |              |                       |                       |            |                                                     |              | A                  | B   | C    | g dim                 | t dim        | g dim        | t dim        |
| #28 7/.0036 per Hitachi spec ec-711 (13-2820) | Mono crimp   | RMDX6031D28 + YORX090 | RCDX6031D28 + YORX090 | M10S1J     | S80                                                 | SL105        | 4.7                | 6.1 | 4.32 | 1.30 to 1.12          | 1.4 to 1.22  | 2.97 to 2.84 | 3.07 to 2.9  |
| 20218204                                      |              |                       |                       |            | S80                                                 | SL105        | 3.94               | 6.1 | 3.16 | 1.30 to 1.17          | 1.4 to 1.22  | 2.97 to 2.84 | 3.07 to 2.79 |
| #30 solid                                     |              |                       |                       |            | S83                                                 | SL105        | 4.7                | 6.1 | 4.06 | 1.22 to 1.12          | 1.35 to 1.22 | 2.97 to 2.84 | 3.12 to 2.95 |
| #26 7/.0063                                   |              |                       |                       |            | S80                                                 | SL105        | 4.7                | 6.1 | 4.06 | 1.30 to 1.17          | 1.4 to 1.22  | 2.97 to 2.84 | 3.07 to 2.9  |
| #26 19/.004                                   |              |                       |                       |            | M10SG8 ASSY'Y TOOL DIE SET STOP BUSHING M10S1J TOOL |              | 4.7                | 6.1 | 4.06 | 1.22 to 1.17          | 1.35 to 1.22 | 2.84 to 2.79 | 3.12 to 2.97 |
| #24 7/.008                                    |              |                       |                       |            |                                                     |              | 4.7                | 6.1 | 4.06 | 1.22 to 1.17          | 1.35 to 1.22 | 2.84 to 2.79 | 3.12 to 2.97 |
| #24 19/.005                                   |              |                       |                       |            |                                                     |              | 4.7                | 6.1 | 4.06 | 1.22 to 1.17          | 1.35 to 1.22 | 2.84 to 2.79 | 3.12 to 2.97 |
| AWG26 (19x0.1)                                |              |                       |                       |            | M10SG8 crimping kit                                 |              | 4.7                | 6   | 4    |                       |              |              |              |
| AWG24 (7x0.2)                                 |              |                       |                       |            |                                                     |              |                    |     |      |                       |              |              |              |
| AWG24 (19x0.13)                               |              |                       |                       |            |                                                     |              |                    |     |      |                       |              |              |              |
| AWG26 (7x0.16)                                |              |                       |                       |            | S80                                                 | SL105        |                    |     |      |                       |              |              |              |

- Select appropriate monocrimp coax twisted pair contact and cable combination.
- Select appropriate crimp tooling (hand tool, S-die set, stop bushing).
- Strip the twisted pair cable to the designated wire strip lengths.
- Insert the stripped cable into the contact. One cable is to be inserted into the inside diameter of hyring, and pushed forward into the inner contact. The second cable is to be inserted between the outside diameter of hyring and the inside diameter of the outer contact body.
- Crimp the contact.

Cable strip length



Braid crimp (G) to be measured with die set fully closed



Inner conductor crimp (G) to be measured with die set fully closed

Note : all dimensions are in mm

## #16 Coaxial Contacts (Continued)

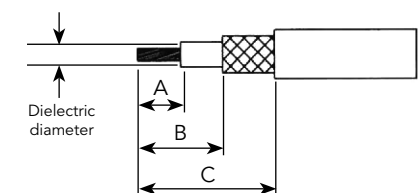
### Multipiece Male Contact with Coax Cable

| Cable reference       | Contact             | Hying complementary compoments | Outer contact crimp tool |              | Inner contact crimp tool |              | Cable strip length |      |       |
|-----------------------|---------------------|--------------------------------|--------------------------|--------------|--------------------------|--------------|--------------------|------|-------|
|                       |                     |                                | Crimp tool M10S1J        |              | Crimp tool M10S1J        |              |                    |      |       |
|                       |                     |                                | Die set                  | Stop bushing | Die set                  | Stop bushing | A                  | B    | C     |
| RG161U                | Male:<br>RMDXK10D28 | YOC074                         | S221                     | SL471        | S23D2                    | SL46D2       | 4.37               | 7.95 | 15.88 |
| RG179                 |                     |                                |                          |              |                          |              | 4.37               | 7.95 | 15.88 |
| RG187U                |                     |                                |                          |              |                          |              | 4.37               | 7.95 | 15.88 |
| RG188/U               |                     |                                |                          |              |                          |              | 4.37               | 7.95 | 15.88 |
| RG174/U               |                     | YOC074 +<br>RMDXB0553          |                          |              | S26D2                    |              | 4.37               | 7.95 | 15.88 |
| RG178A/U              |                     |                                |                          |              | S23D2                    |              | 7.54               | 9.12 | 17.53 |
| RG196U                |                     |                                |                          |              |                          |              | 7.54               | 9.12 | 17.53 |
| AMPHENOL<br>21-598    |                     |                                |                          |              | YOC074                   |              | -                  | 4.37 | 7.95  |
| surprenant pn<br>8134 |                     | -                              |                          |              |                          |              | 4.37               | 7.95 | 15.88 |

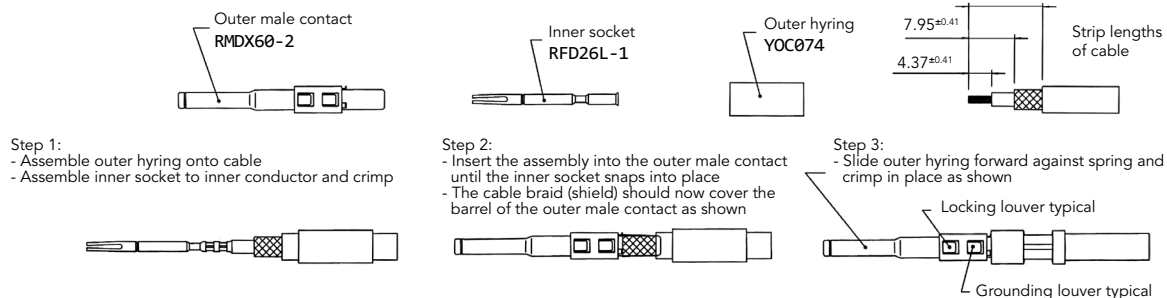
#### Multipiece kit details

|                     |            |                         |
|---------------------|------------|-------------------------|
| RMDXK10D28 includes | RMDX60D28  | Outer contact           |
|                     | RFD26L1D28 | Inner contact           |
|                     | YOC074     | Outer hyring            |
|                     | RMDXB0553  | Inner supporting sleeve |

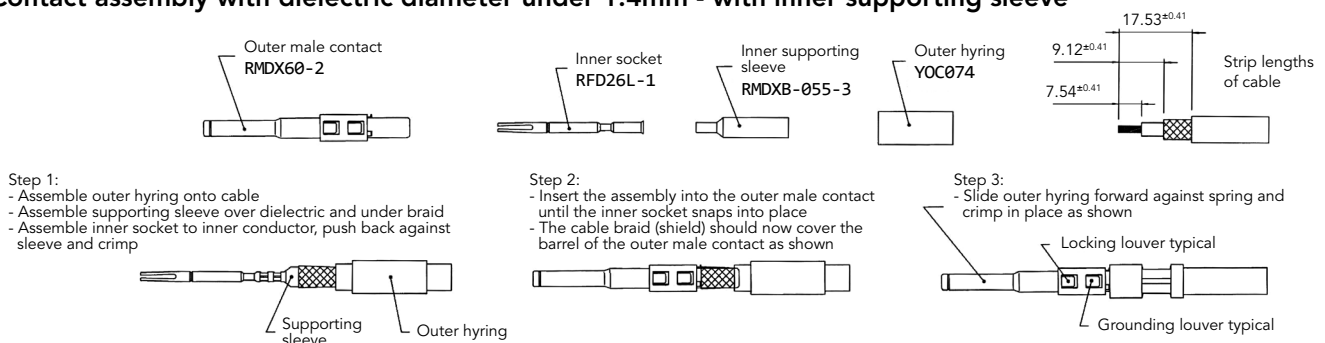
#### Cable strip length



#### Contact assembly with dielectric diameter over 1.4mm - without inner supporting sleeve



#### Contact assembly with dielectric diameter under 1.4mm - with inner supporting sleeve



Note : all dimensions are in mm

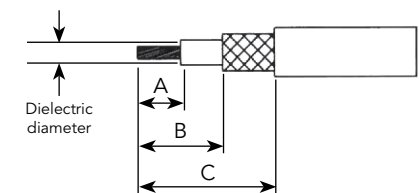
## Multipiece Female Contact with Coax Cable

| Cable reference       | Contact              | Hying complementary compoments | Outer contact crimp tool |              | Inner contact crimp tool |              | Cable strip length |   |       |       |
|-----------------------|----------------------|--------------------------------|--------------------------|--------------|--------------------------|--------------|--------------------|---|-------|-------|
|                       |                      |                                | Crimp tool M10S1J        |              | Crimp tool M10S1J        |              |                    |   |       |       |
|                       |                      |                                | Die set                  | Stop bushing | Die set                  | Stop bushing | A                  | B | C     |       |
| RG161U                | Female:<br>RCDXK1D28 | YOC074                         | S221                     | SL471        | S23D2                    | SL46D2       | 4.37               | - | 11.13 |       |
| RG179                 |                      |                                |                          |              |                          |              | 4.37               |   | 11.13 |       |
| RG187U                |                      |                                |                          |              |                          |              | 4.37               |   | 11.13 |       |
| RG188/U               |                      |                                |                          |              | 4.37                     |              | 11.13              |   |       |       |
| RG174/U               |                      | YOC074 +<br>RMDXB0553          |                          |              | S26D2                    |              | 4.37               |   | 11.13 |       |
| RG178A/U              |                      |                                |                          |              | S23D2                    |              | 6.35               |   | 11.13 |       |
| RG196U                |                      |                                |                          |              |                          |              | 6.35               |   | 11.13 |       |
| AMPHENOL<br>21-598    |                      |                                |                          |              | YOC074                   |              | -                  |   | 4.37  | 11.13 |
| surprenant pn<br>8134 |                      |                                |                          |              |                          |              | -                  |   | 4.37  | 11.13 |

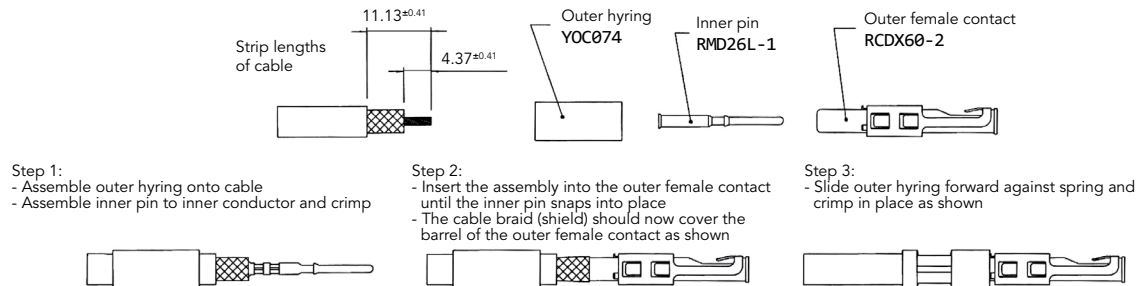
### Multipiece kit details

|                    |            |                         |
|--------------------|------------|-------------------------|
| RCDXK1D28 includes | RCDX602D28 | Outer contact           |
|                    | RMD26L1D28 | Inner contact           |
|                    | YOC074     | Outer hying             |
|                    | RCDXB0553  | Inner supporting sleeve |

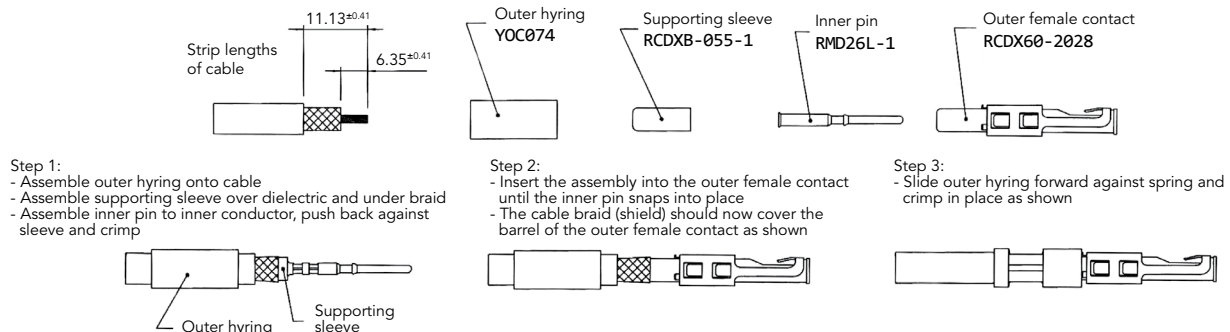
### Cable strip length



### Contact assembly with dielectric diameter over 1.4mm - without inner supporting sleeve



### Contact assembly with dielectric diameter under 1.4mm - with inner supporting sleeve



Note : all dimensions are in mm

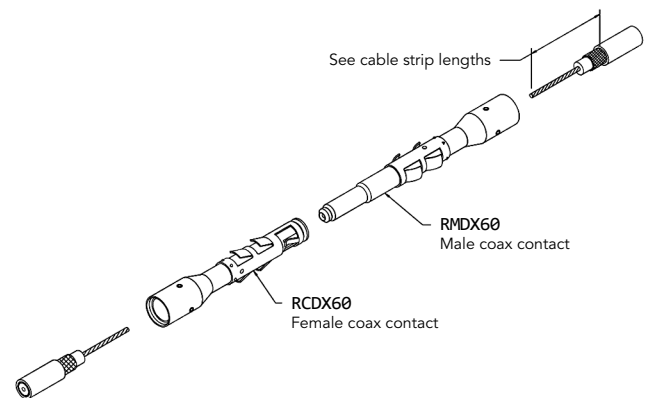
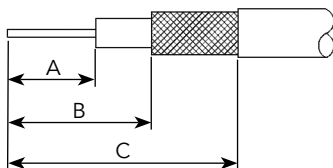
## #16 Coaxial Contacts (Continued)

### Coax Cable with Monocrimp Contact Cabling

| Cable reference                     | Male contact | Female contact | Crimp tool | Die set                                                      | Stop bushing | Cable strip length |      |       | Inner conductor crimp |           | Braid crimp |           |
|-------------------------------------|--------------|----------------|------------|--------------------------------------------------------------|--------------|--------------------|------|-------|-----------------------|-----------|-------------|-----------|
|                                     |              |                |            |                                                              |              | A                  | B    | C     | g dim                 | t dim     | g dim       | t dim     |
| CDC PIN22939200                     | RMDX6046D28  | RCDX6016D28    | M10S1J     | S80                                                          | SL105        | 4.19               | 5.97 | 8.51  | 1.30/1.17             | 1.40/1.22 | 2.77/2.64   | 3.02/2.84 |
| CDC PIN22939200                     | RMDX6046D28  | RCDX6016D28    |            | S87                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.30/1.17             | 1.40/1.22 | 2.77/2.64   | 3.02/2.84 |
| CDC PIN245670000                    | RMDX6050D28  | RCDX6016D28    |            | S80                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.30/1.17             | 1.40/1.22 | 2.97/2.84   | 3.12/2.95 |
| KX21TVT (europe)<br>RG178 B/U       | RMDX6034D28  | RCDX6034D28    |            | S82                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.30/1.17             | 1.32/1.17 | 2.84/2.74   | 3.07/2.9  |
| RG178 / BU                          | RMDX6050D28  | RCDX6016D28    |            | S87                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.30/1.17             | 1.40/1.22 | 2.77/2.64   | 3.02/2.84 |
| ampex                               | RMDX6032D28  | RCDX6032D28    |            | S80                                                          | SL105        | 5.08               | 6.35 | 11.68 | 1.30/1.17             | 1.40/1.22 | 2.97/2.84   | 3.12/2.95 |
| TI PN 920580                        | RMDX6024D28  | RCDX6024D28    |            | S82                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.35/1.19             | 1.42/1.27 | 2.87/2.74   | 3.07/2.9  |
| RG174/U                             | RMDX6032D28  | RCDX6032D28    |            | S80                                                          | SL105        | 5.08               | 6.35 | 11.68 | 1.30/1.17             | 1.40/1.22 | 2.97/2.84   | 3.12/2.95 |
| Honeywell PN 58000062               | RMDX6026D28  | RCDX6026D28    |            | S82                                                          | SL105        | 5.08               | 6.35 | 8.89  | 1.35/1.19             | 1.42/1.27 | 2.87/2.74   | 3.07/2.9  |
| RG188A/U                            | RMDX6036D28  | RCDX6036D28    |            | S80                                                          | SL105        | 5.08               | 6.35 | 11.68 | 1.30/1.17             | 1.40/1.22 | 2.97/2.84   | 3.12/2.95 |
| RG316/U                             | RMDX6036D28  | RCDX6036D28    |            | S80                                                          | SL105        | 5.08               | 6.35 | 11.68 | 1.30/1.17             | 1.40/1.22 | 2.97/2.84   | 3.12/2.95 |
| PRD PN 247AS-C1123-001              | RMDX6018D28  | RCDX6018D28    |            | M10SG8 ASSY'Y<br>TOOL DIE SET<br>STOP BUSHING<br>M10S1J TOOL |              | 5.08               | 6.35 | 8.89  | 1.22/1.17             | 1.35/1.22 | 2.92/2.79   | 3.12/2.97 |
| PRD PN 247AS-C1251                  | RMDX6018D28  | RCDX6018D28    |            |                                                              |              | 5.08               | 6.35 | 8.89  | 1.22/1.17             | 1.35/1.22 | 2.92/2.79   | 3.12/2.97 |
| raychem 5024A3111                   | RMDX6052D28  | RCDX6052D28    |            | S88                                                          | SL105        | 5.08               | 6.35 | 11.68 | 1.37/1.27             | 1.45/1.32 | 2.92/2.79   |           |
| raychem 5026e1614                   | RMDX6036D28  | RCDX6036D28    |            | M10SG8 ASSY'Y<br>TOOL DIE SET<br>STOP BUSHING<br>M10S1J TOOL |              | 5.08               | 6.35 | 8.89  | 1.22/1.17             | 1.35/1.22 | 2.92/2.79   | 3.12/2.97 |
| JUDD C15013010902                   | RMDX6036D28  | RCDX6036D28    |            |                                                              |              | 5.08               | 6.35 | 8.89  | 1.22/1.17             | 1.35/1.22 | 2.92/2.79   | 3.12/2.97 |
| inner cond. #30,<br>braid diam 2.64 | RMDX6050D28  | -              |            | S80                                                          | SL105        | 5.1                | 6.35 | 8.9   | -                     | -         | -           | -         |
| inner cond. #30,<br>braid diam 2.29 | RMDX6050D28  | -              |            | S87                                                          | SL105        | 4.2                | 6.35 | 8.5   | -                     | -         | -           | -         |
| inner cond. #28,<br>braid diam 2.9  | RMDX6032D28  | RCDX6032D28    |            | S80                                                          | SL105        | 5.1                | 6.35 | 11.7  | -                     | -         | -           | -         |
| inner cond. #26,<br>braid diam 1.78 | RMDX6024D28  | RCDX6024D28    |            | S82                                                          | SL105        | 5.1                | 6.35 | 8.9   | -                     | -         | -           | -         |
| inner cond. #26,<br>braid diam 3.05 | RMDX6026D28  | RCDX6026D28    |            | S82                                                          | SL105        | 5.1                | 6.35 | 8.9   | -                     | -         | -           | -         |

- Select appropriate cable and contact combination.
- Select appropriate crimp tooling (hand tool, S-die set, stop bushing).
- Strip coax cable to the designated wire strip lengths.
- Insert the stripped coax into the rear of the contact.
- Crimp the contact.

Cable strip length





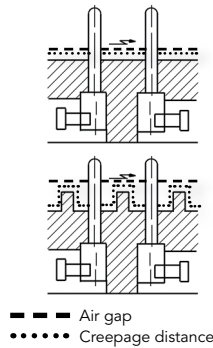
## Glossary of Terms

### • Clearance

Per the IEC 60664-1 it is the shortest distance between two conductive parts even over the air.

### • Creepage distance

Per the IEC 60664-1 it represents the shortest distance along the surface of the insulating material between two conductive parts.



### • Working voltage

Per the IEC 60664-1 it is the highest r.m.s. value of A.C. or D.C. voltage across any particular insulation which can occur when the equipment is supplied at rated voltage.

### • Rated impulse voltage

Impulse withstands voltage value assigned by the manufacturer to the equipment or to a part of it characterizing the specified withstand capability of its insulation against transient overvoltage.

### • Working current

It is the maximum continuous and not interrupted current able to be carried by all contacts without exceeding the maximum temperature of the insulating material.

### • Transient voltage

Extract from the IEC 60664-1: Short duration overvoltage of a few millisecond or less, oscillatory or non-oscillatory, usually highly damped.

### • CTI (Comparative Tracking Index)

The CTI value is commonly used to characterise the electrical breakdown properties of an insulating material. It allows users to know the tendency to create creepage paths. This value represents the maximum voltage after 50 drops of ammonium chloride solution without any breakdown.

### • RTI (Relative temperature Index):

Extract from ULs website:

Maximum service temperature for a material, where a class of critical property will not be unacceptably compromised through chemical thermal degradation, over the reasonable life of an electrical product, relative to a reference material having a confirmed, acceptable corresponding performance defined RTI.

- **RTI Elec:** Electrical RTI, associated with critical electrical insulating properties.
- **RTI Mech Imp:** Mechanical Impact RTI, associated with critical impact resistance, resilience and flexibility properties.
- **RTI Mech Str:** Mechanical Strength (Mechanical without Impact) RTI, associated with critical mechanical strength where impact resistance, resilience and flexibility are not essential.

## Drilling Pattern

Hole sizes: #20=0.9mm, #16=1.3mm, #8=3.8mm

| Shell Size | Dimensions (mm) |      |      |       |       |
|------------|-----------------|------|------|-------|-------|
| 10         | 103             | 104  | 106  | 102W2 | 103W3 |
|            |                 |      |      |       |       |
|            | 124             | 128  | 1210 |       |       |
|            |                 |      |      |       |       |
|            | 142G1           | 147  | 148  |       |       |
|            |                 |      |      |       |       |
| 14         | 1412            | 1492 | 1419 |       |       |
|            |                 |      |      |       |       |

Hole sizes: #20=0.9mm, #16=1.3mm, #8=3.8mm

| Shell Size | Dimensions (mm)                                   |
|------------|---------------------------------------------------|
| 16         | <div> <p>1619</p> </div> <div> <p>1626</p> </div> |
| 18         | <div> <p>1823</p> </div> <div> <p>1832</p> </div> |

## Drilling Pattern (Continued)

Hole sizes: #20=0.9mm, #16=1.3mm, #8=3.8mm

| Shell Size | Dimensions (mm) |      |
|------------|-----------------|------|
| 20         | 2028            | 2030 |
|            | 2041            |      |
| 22         | 2235            | 2238 |

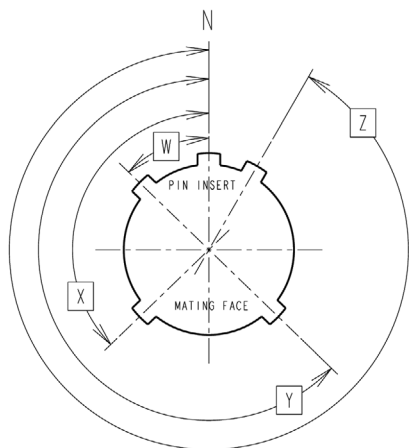
Hole sizes: #20=0.9mm, #16=1.3mm, #8=3.8mm

| Shell Size | Dimensions (mm)         |
|------------|-------------------------|
| 22         | <p>2255</p>             |
| 24         | <p>2448</p> <p>2461</p> |

## Discrimination/Keying Methods

In applications where similar connectors are used next to each other, mismatching can cause disturbances, system failure or even danger to operating personnel.

To eliminate mismatching, all Trim Trio® connectors are offered with discrimination keys to avoid interconnection system errors. In addition, the connector insert can also be rotated inside the shell to create custom keying options.



Connectors with rotated inserts can be ordered by adding the suffix W, X, Y or Z to the standard part number.

e.g. **UT0W0106PH** (standard key) → **UT0W0106PWH** (W key)

Consult us for overmoulded harnesses.

| Shell size | Layout | Discrimination key degrees |      |      |      |
|------------|--------|----------------------------|------|------|------|
|            |        | W                          | X    | Y    | Z    |
| 10         | 103    | -                          | -    | -    | -    |
|            | 102W2  | -                          | -    | -    | -    |
|            | 104    | 45°                        | -    | -    | -    |
|            | 103W3  | -                          | -    | -    | -    |
|            | 106    | 90°                        | -    | -    | -    |
| 12         | 124    | -                          | -    | -    | -    |
|            | 128    | 26°                        | -    | -    | -    |
|            | 1210   | 60°                        | 155° | 270° | 295° |
| 14         | 142G1  | -                          | -    | -    | -    |
|            | 147    | -                          | -    | -    | -    |
|            | 148    | -                          | -    | -    | -    |
|            | 1412   | 60°                        | -    | -    | -    |
|            | 1492   | 49°                        | 71°  | 145° | -    |
|            | 1419   | 30°                        | 165° | 315° | -    |
| 16         | 1619   | 30°                        | 165° | -    | 315° |
|            | 1626   | 60°                        | -    | 275° | 338° |
| 18         | 1823   | -                          | 158° | -    | 270° |
|            | 1832   | 85°                        | 138° | 222° | 265° |
| 20         | 2028   | 79°                        | -    | 259° | -    |
|            | 2030   | 34°                        | 90°  | 123° | 259° |
|            | 2041   | 45°                        | 126° | 225° | -    |
| 22         | 2235   | 13°                        | 162° | 198° | 265° |
|            | 2238   | 15°                        | 47°  | 150° | 331° |
|            | 2255   | 30°                        | 142° | 226° | 314° |
| 24         | 2448   | 60°                        | 120° | 189° | 351° |
|            | 2461   | 90°                        | 180° | 270° | 324° |

### SMSPE0 (only for UTO layouts using #16 contacts)

When one of these dummy contacts is used, the UTO connector will only mate with a connector which has a vacant cavity at the corresponding position.

The material used is polyamide 6.6.





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## Notes







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