UTO SERIES

SOURIAU

Robust Metal & Shielded Connector

Esterline
Connection Technologies

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UTO SERIES

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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 features 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.

Range

Single Wire Sealing

Straight Strain Relief

Right Angle Strain Relief

Short Cable Gland

Long Cable Gland

Heat Shrink Boot Adapter

Overmoulded

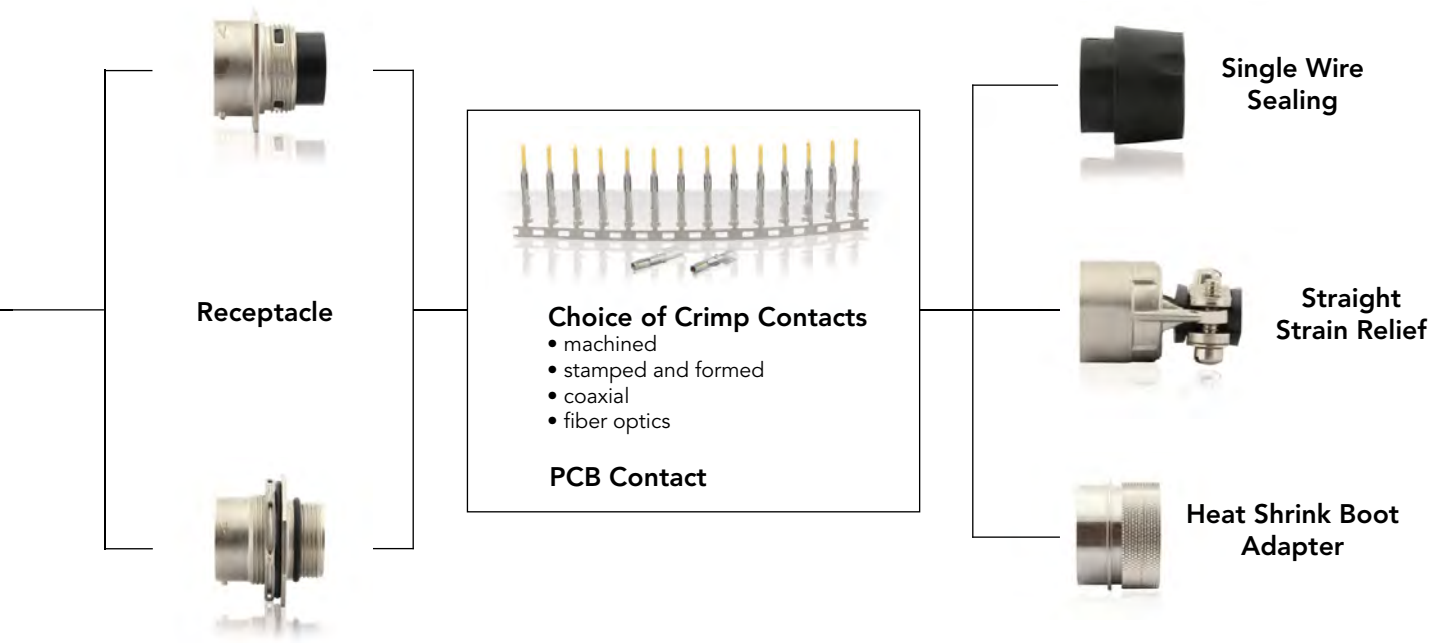
Choice of Crimp Contacts
- machined
- stamped and formed
- coaxial
- fiber optics

Plug

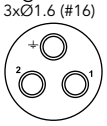
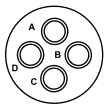
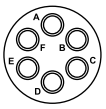
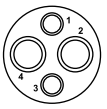
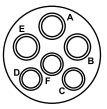
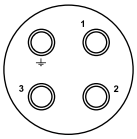
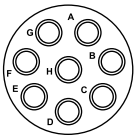
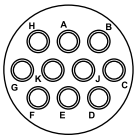
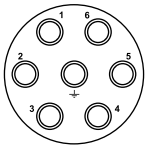
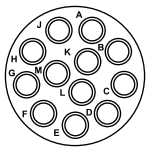
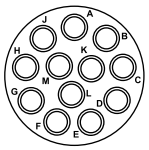
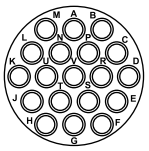
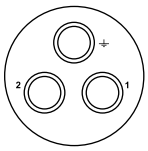
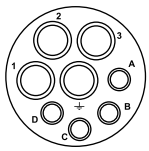
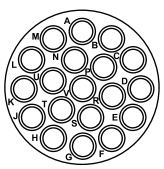
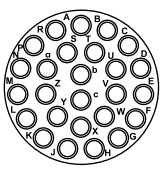
UTO Series

Sealed: IP68/69K
Shielded
Corrosion resistant
UL compliant

Overview


Receptacle
Choice of Crimp Contacts
• machined
• stamped and formed
• coaxial
• fiber optics
PCB Contact
Single Wire Sealing
Straight Strain Relief
Heat Shrink Boot Adapter

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

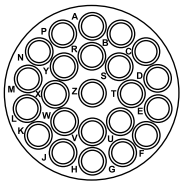
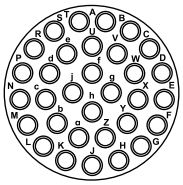
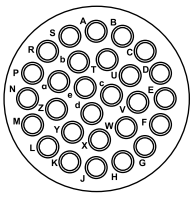
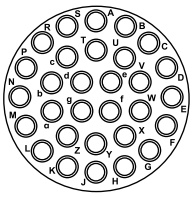
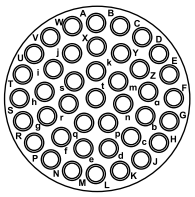
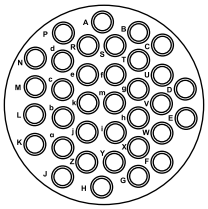
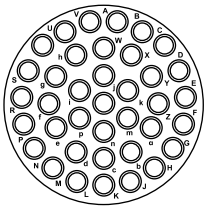
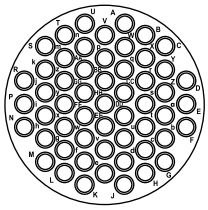
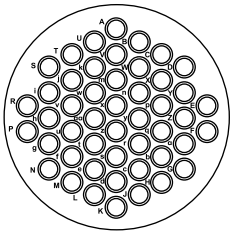
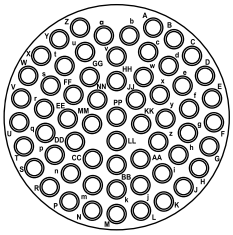
* Ethernet compatible see page 168 & 169

Contacts #16:
from AWG 30 to 14,
0.05 to 2.5 mm²

Contacts #20:
from AWG 26 to 18,
0.13 to 0.93 mm²

Contacts #8:
from AWG 16 to 8,
1.5 to 10 mm²

Contacts #12:
fromAWG 22 to 12,
0.13 to 4 mm²

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

General technical characteristics

Materials

- **Shell:** Zinc alloy
- **Backshells and cable glands**: Brass
- **Coupling ring**: Aluminum alloy
- **Coupling spring**: Spring stainless steel
- **Insert**: Glass-filled thermoplast
- **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

- **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

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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

Old UTO New UTO

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.

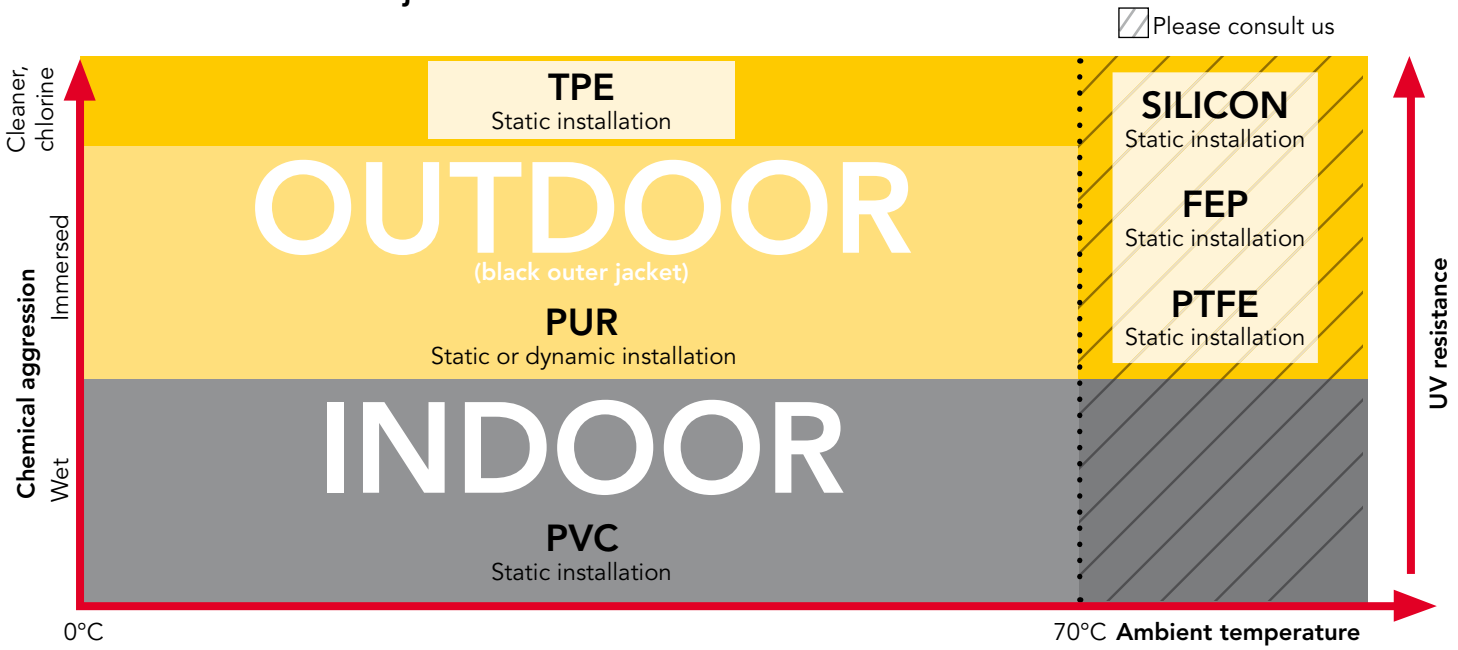
Product part number:
Below is an overview of the old part numbers with the corresponding new part numbers.
Note that some of the old part numbers where backshells were included will now be sold individually, i.e. plug connector + backshell.

Old part number	New part number connector	New part number backshell	Comments
UTO**0**/6-S/PT	**UT00/6-S/PH(6)**	**-**	-
UTO**0**-S/PHT	**UT00-S/PH(6)**	**-**	-
UTO**0**/6AC-S/PT	**UT00/6-S/PH(6)**	**-**	-
UTO**0**/6PG-S/PHT	**UT00/6-S/PH(6)**	**UT0-AC**	-
UTO-21/22-	**Keep old part number**	**UT0-JC**	Silksreen 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-AD**0**1T	**UT0-AD01**	**UT0-AD01**	Longer threading to achieve sealing
U-AD**0**1N	**Keep old part number**	**-**	Used on old UT**0**6-45N screw coupling version

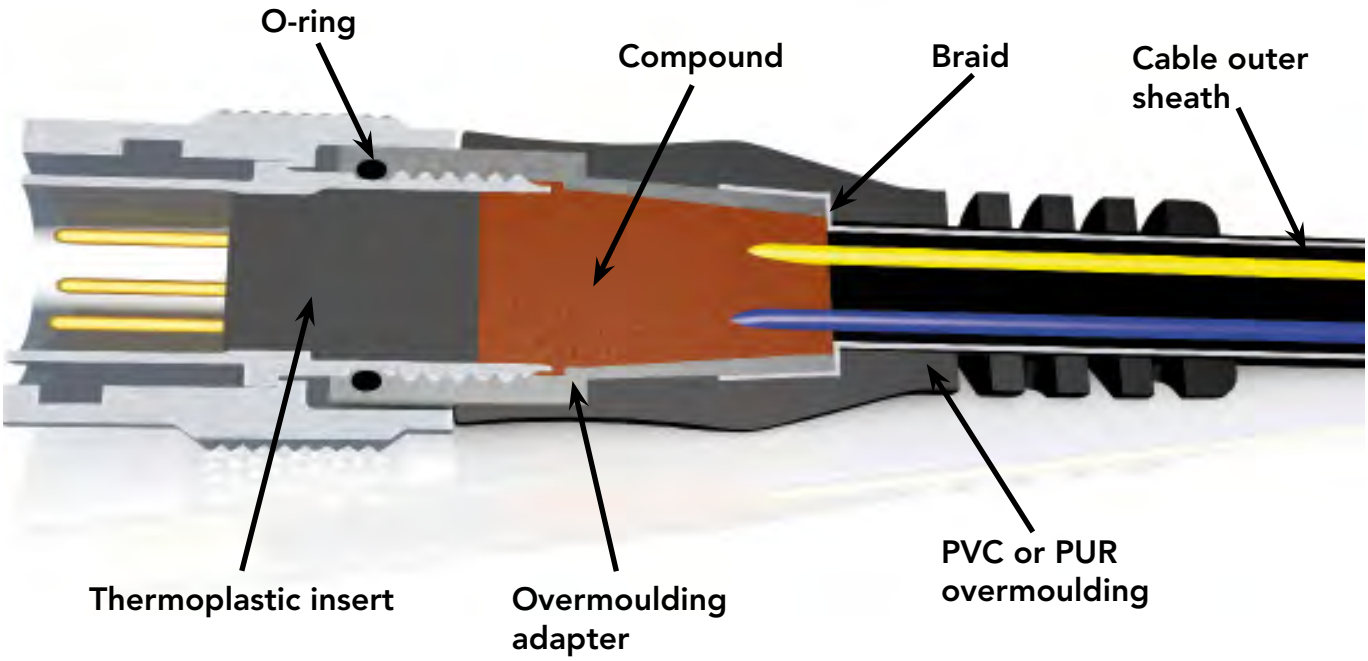
Cable Assembly

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

...water ingress unhampered, leading to damage.

Overmoulded connector

BEST

...prevents water ingress via capillary action.

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

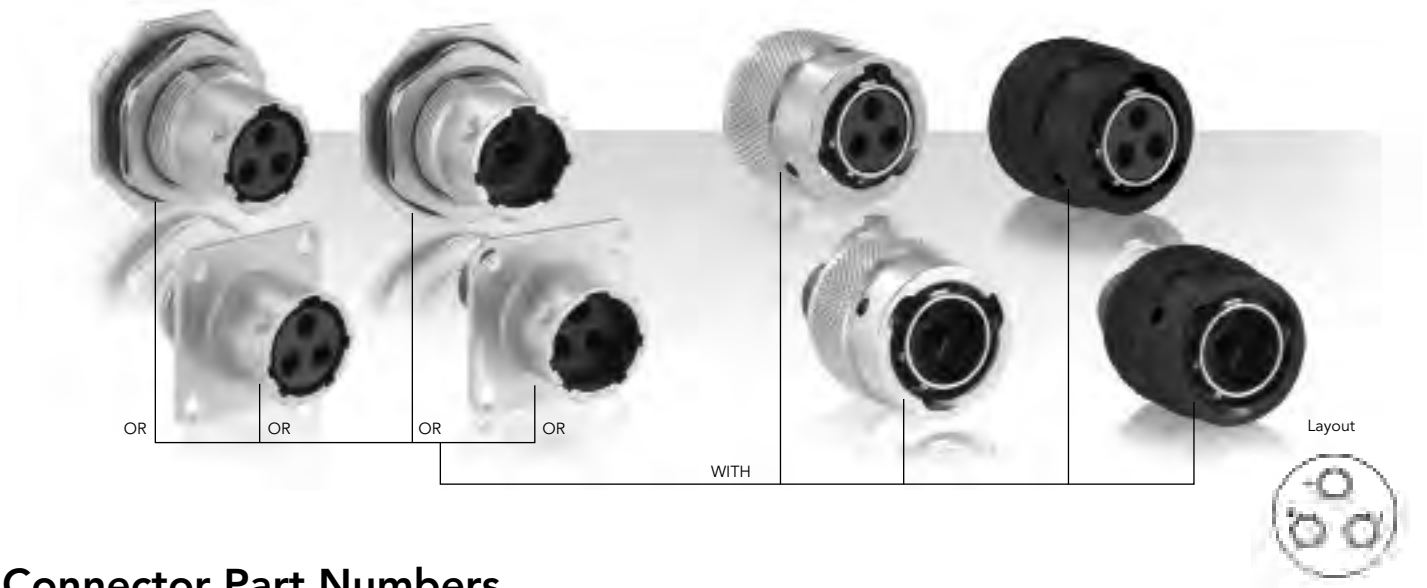
Custom Capabilities

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	UT00103PH	UT00103SH
		IP68 & IP69K	96h	UT00103PH6	UT00103SH6
	Plug	IP67, IP68 & IP69K	48h	UT06103PH	UT06103SH
		IP67, IP68 & IP69K	96h	UT06103PH02(Black)	UT06103SH02(Black)
	Jam nut receptacle	IP67	48h	UT07103PH	UT07103SH
		IP68 & IP69K	48h	UT07103PH6	UT07103SH6
		IP67	96h	UT07103PH01	UT07103SH01
		IP68 & IP69K	96h	UT07103PH601	UT07103SH601

Backshells

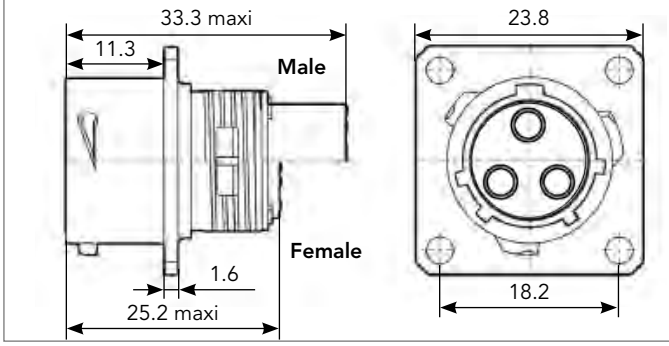
Backshell type	Shielding	Cable range (Ø mm) min/max	Part number	
			Short version	Long version
Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)	-	3/6	UT010JCS	UT010JC
Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)	-	5/8	UT010JCSL	UT010JCL
Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)	3	4/6.5	UT0S10JCS	UT0S10JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	4/8.8	UT0S10JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	4/10	UT010JCPGN	

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

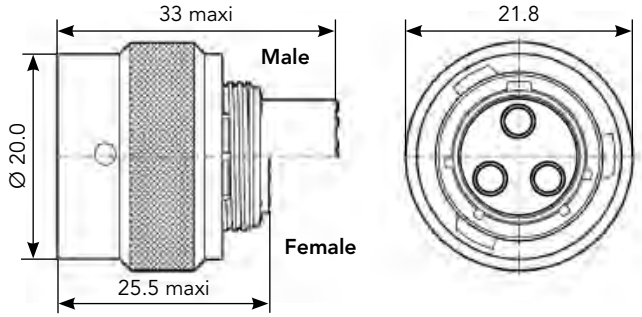
2 + ⏚

Dimensions

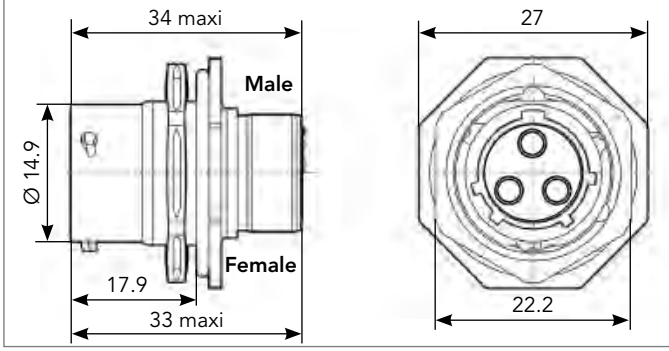
Square Flange - UTO0



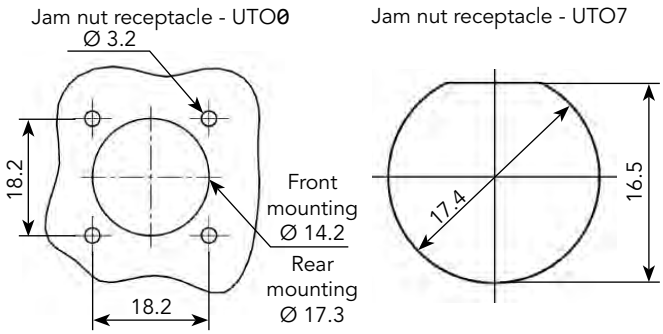
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

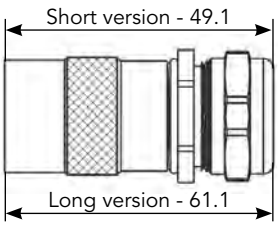


Fig. 1

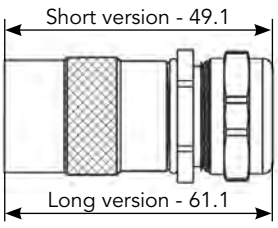


Fig. 2

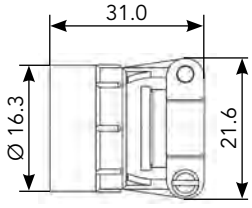


Fig. 5

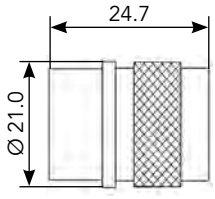


Fig. 6

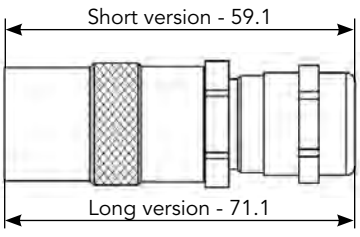


Fig. 3

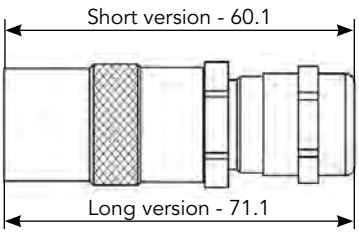


Fig. 4

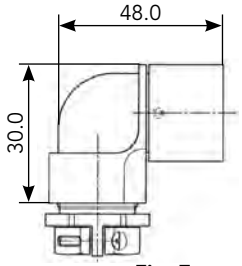


Fig. 7

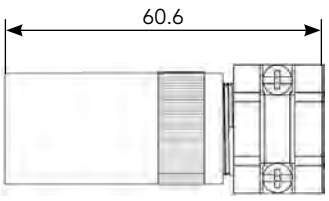


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD12B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

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

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

2 + ⏚

Contacts

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

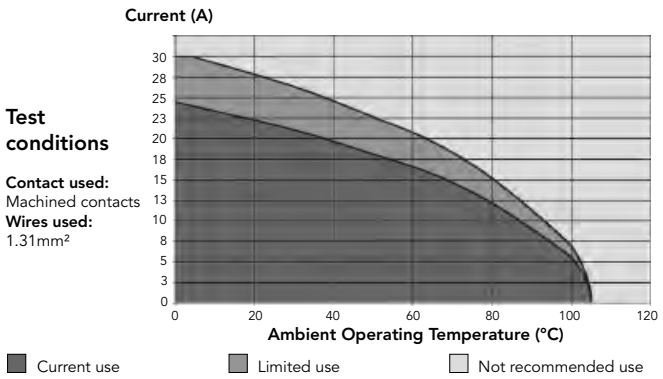
Electrical Characteristics

UL
10A 500V UL94 V-0

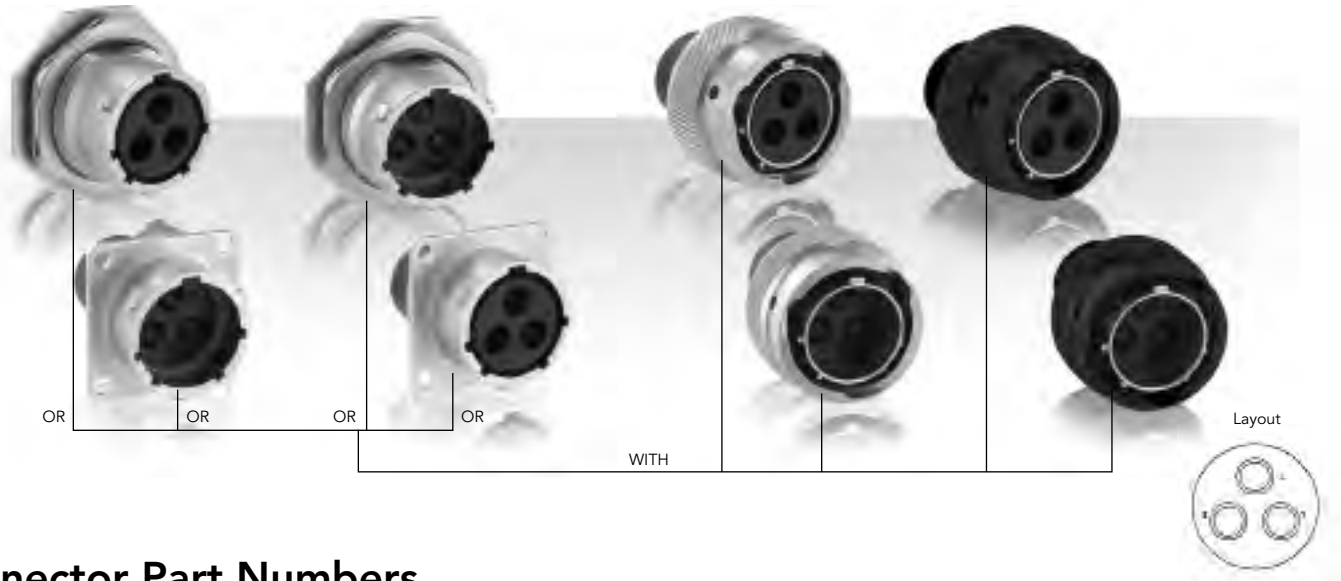
CSA
7A 500V UL94 V-0

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	UT00142G1PH	UT00142G1SH
		IP68 & IP69K	96h	UT00142G1PH6	UT00142G1SH6
	Plug	IP67, IP68 & IP69K	48h	UT06142G1PH	UT06142G1SH
		IP67, IP68 & IP69K	96h	UT06142G1PH02(Black)	UT06142G1SH02(Black)
	Jam nut receptacle	IP67	48h	UT07142G1PH	UT07142G1SH
		IP68 & IP69K	48h	UT07142G1PH6	UT07142G1SH6
		IP67	96h	UT07142G1PH01	UT07142G1SH01
		IP68 & IP69K	96h	UT07142G1PH601	UT07142G1SH601

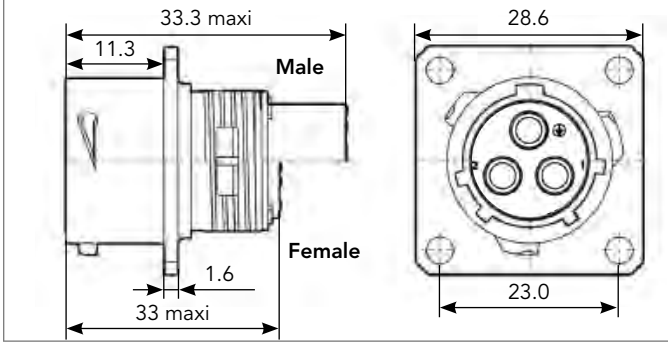
Backshells

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)	3	07/10.5	UT0S14JCS	UT0S14JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	UT0S14JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	UT014JCPGN	

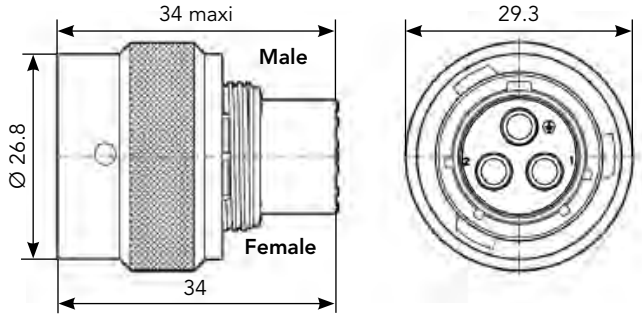
142G1 (Shell size 14, 2 + ground, 3x#8)

Dimensions

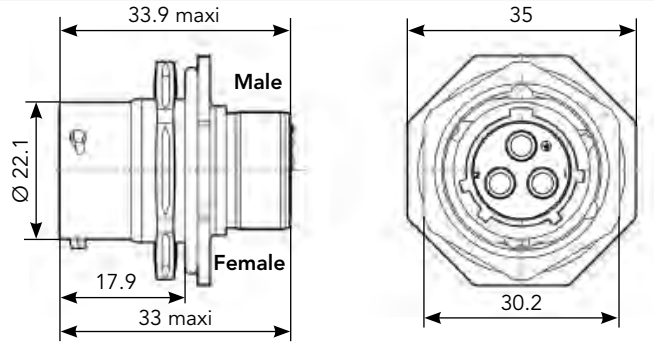
Square Flange - UTO0



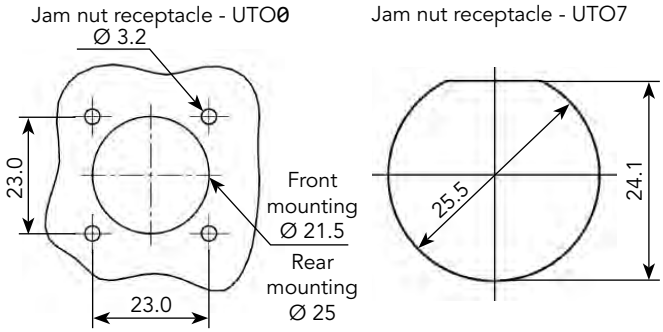
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

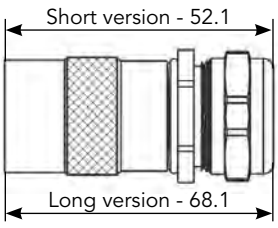


Fig. 1

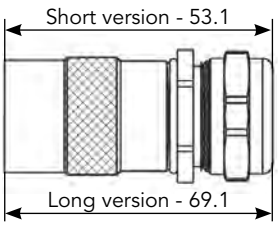


Fig. 2

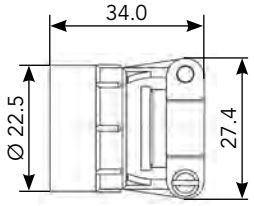


Fig. 5

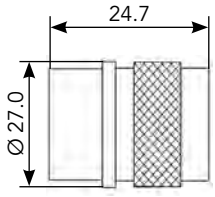


Fig. 6

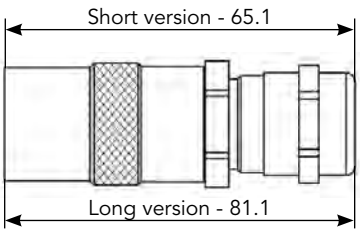


Fig. 3

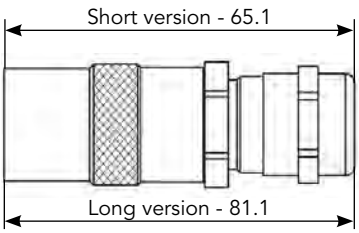


Fig. 4

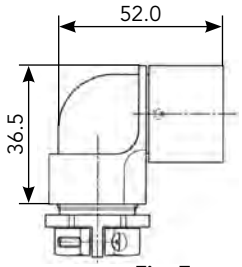


Fig. 7

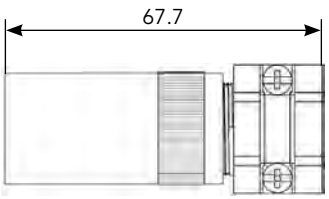


Fig. 8

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*

Hand Tool

Part number
M317

Gasket

Part number / Neoprene
UTFD14B

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 (2)	-	**82911685NPC(1)**	**82911684NPC(1)**	-	-

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

Note: all dimensions are in mm

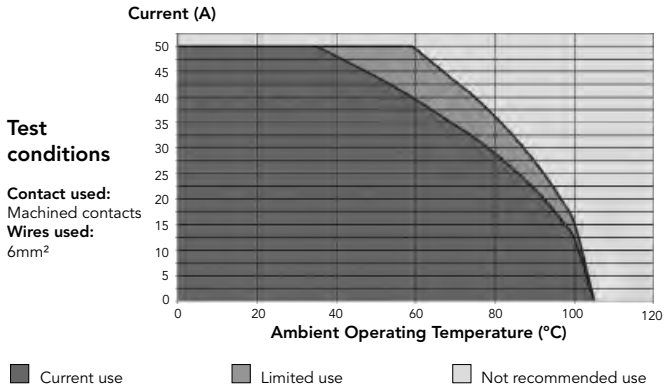
Electrical Characteristics

UL
44A 600V UL94 V-0

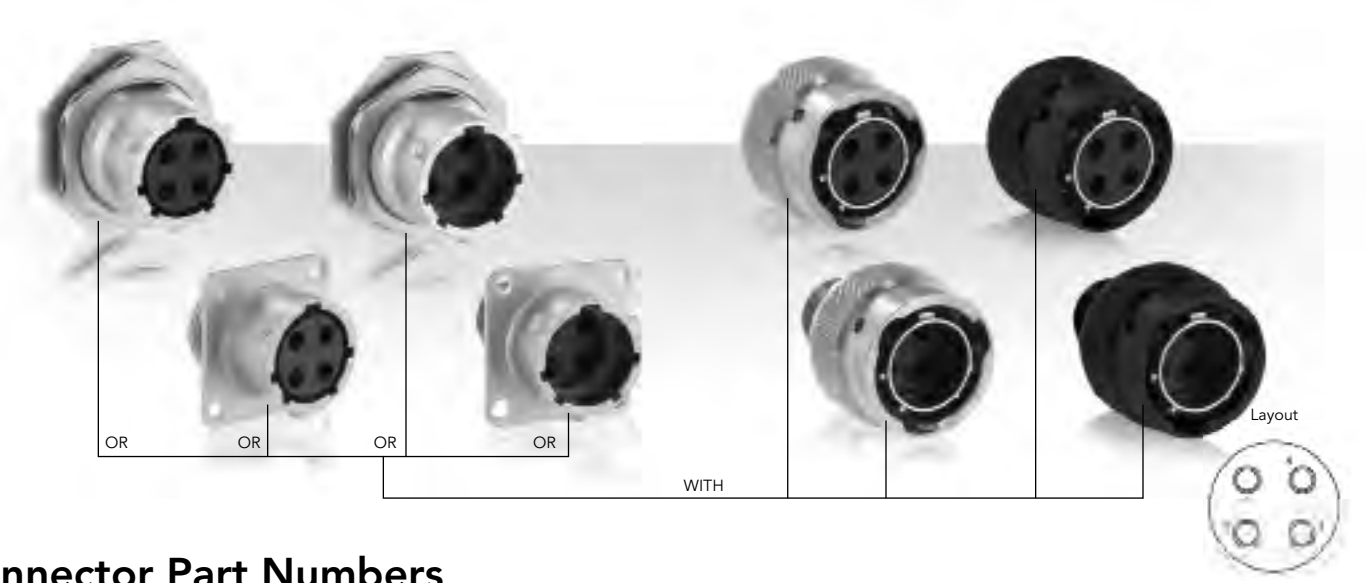
CSA
30A 600V UL94 V-0

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	**UT00124PH**	**UT00124SH**
		IP68 & IP69K	96h	**UT00124PH6**	**UT00124SH6**
	Plug	IP67, IP68 & IP69K	48h	**UT06124PH**	**UT06124SH**
		IP67, IP68 & IP69K	96h	**UT06124PH02**(Black)	**UT06124SH02**(Black)
	Jam nut receptacle	IP67	48h	**UT07124PH**	**UT07124SH**
		IP68 & IP69K	48h	**UT07124PH6**	**UT07124SH6**
		IP67	96h	**UT07124PH01**	**UT07124SH01**
		IP68 & IP69K	96h	**UT07124PH601**	**UT07124SH601**

Backshells

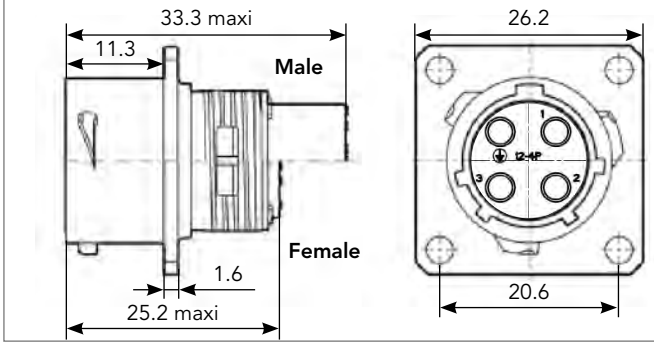
Backshell type	Shielding	Cable range (Ø mm) min/max	Part number	
			Short version	Long version
Cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.1)	-	06/10	UT012JCS	UT012JC
Cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.2)	-	08/12	UT012JCSL	UT012JCL
Shielded cable gland with strain relief nut for water protected applications (IP68 & IP69K) (Fig.3)	3	07/10.5	UT0S12JCS	UT0S12JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	04/11.9	UT0S12JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	04/11.9	UT012JCPGN	

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

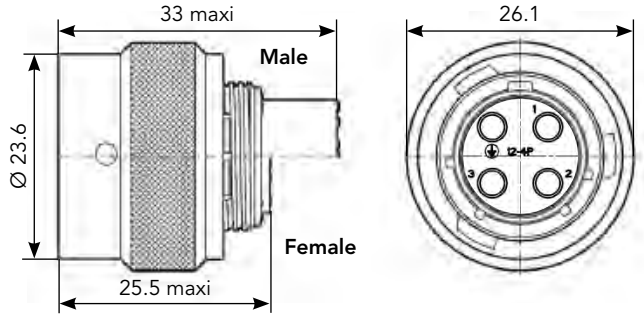
3 +

Dimensions

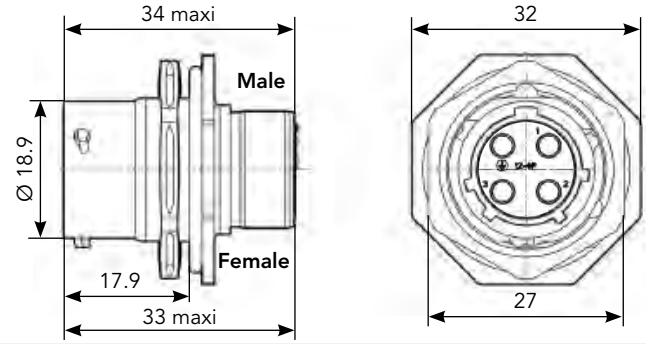
Square Flange - UTO0



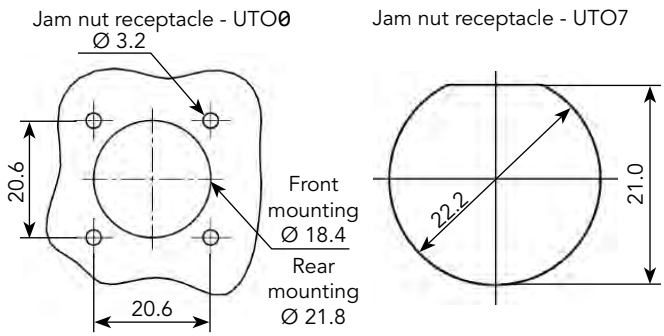
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

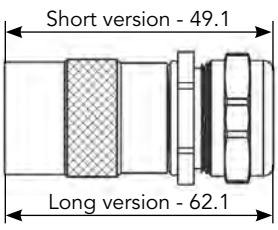


Fig. 1

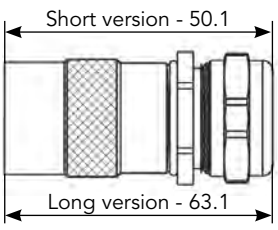


Fig. 2

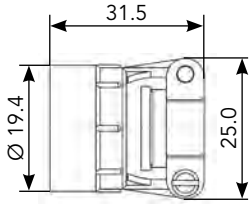


Fig. 5

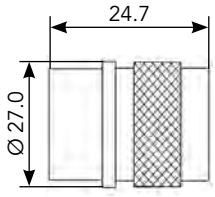


Fig. 6

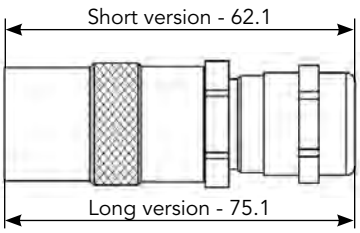


Fig. 3

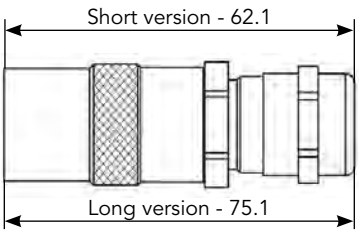


Fig. 4

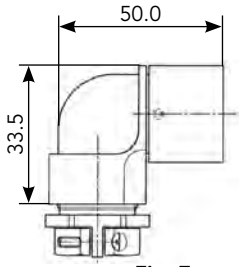


Fig. 7

Fig. 8

Note: all dimensions are in mm

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD13B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

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

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

3 + ⏚

Contacts

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

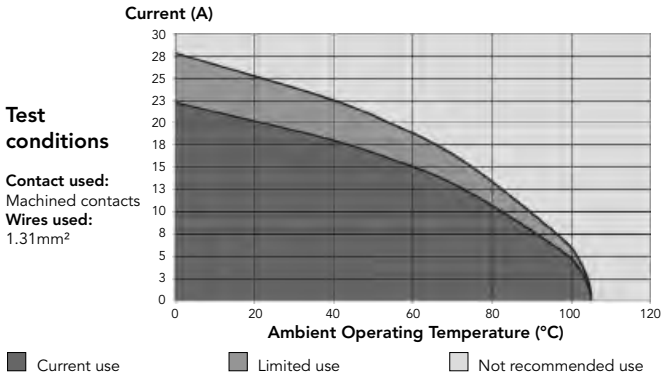
Electrical Characteristics

UL
16A 500V UL94 V-0

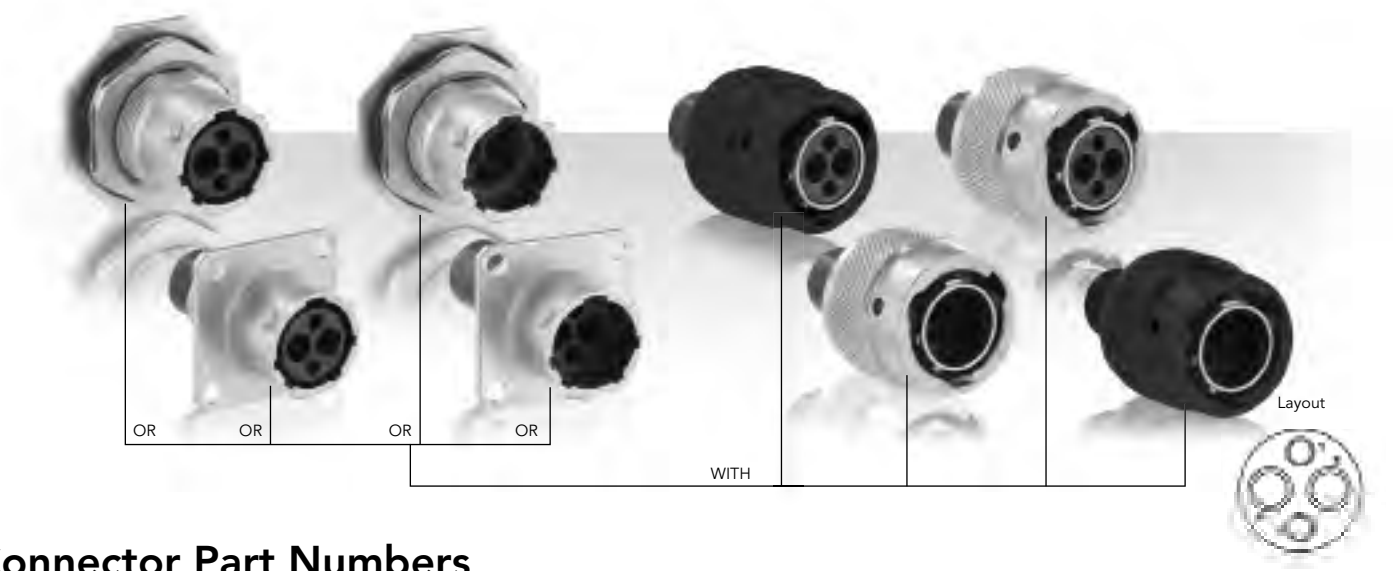
CSA
13A 500V UL94 V-0

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	UT00102W2PH	UT00102W2SH
		IP68 & IP69K	96h	UT00102W2PH6	UT00102W2SH6
	Plug	IP67, IP68 & IP69K	48h	UT06102W2PH	UT06102W2SH
		IP67, IP68 & IP69K	96h	UT06102W2PH02(Black)	UT06102W2SH02(Black)
	Jam nut receptacle	IP67	48h	UT07102W2PH	UT07102W2SH
		IP68 & IP69K	48h	UT07102W2PH6	UT07102W2SH6
		IP67	96h	UT07102W2PH01	UT07102W2SH01
		IP68 & IP69K	96h	UT07102W2PH601	UT07102W2SH601

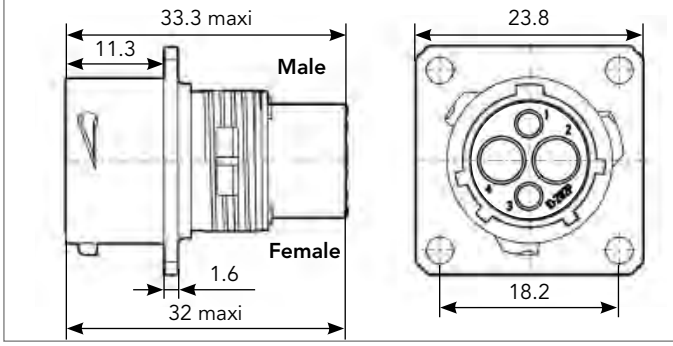
Backshells

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)	3	4/6.5	UT0S10JCS	UT0S10JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	4/8.8	UT0S10JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	4/10	UT010JCPGN	

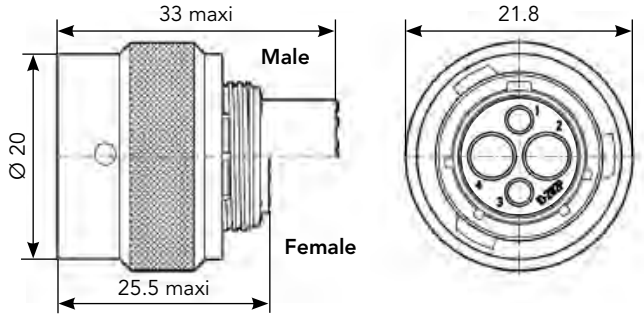
102W2 (Shell size 10, 2x#12 + 2x#20)

Dimensions

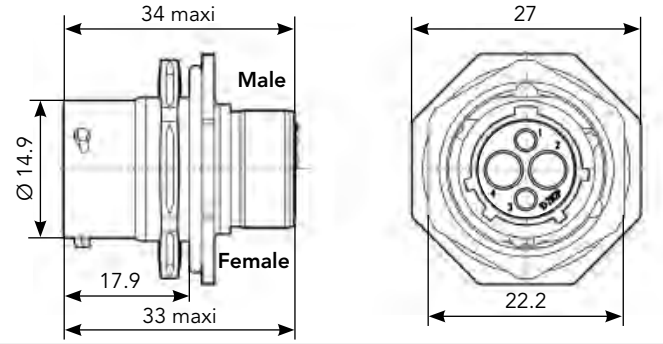
Square Flange - UTO0



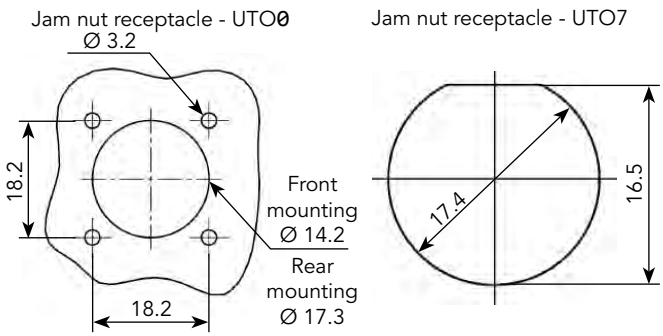
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

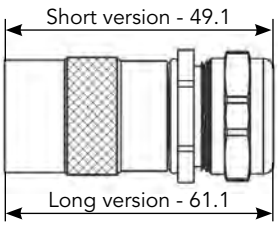


Fig. 1

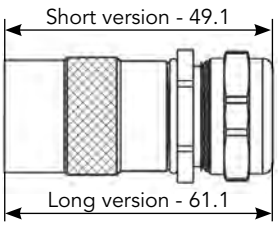


Fig. 2

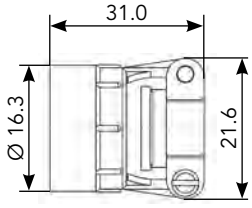


Fig. 5

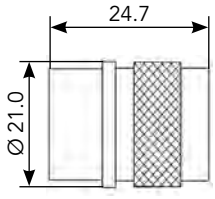


Fig. 6

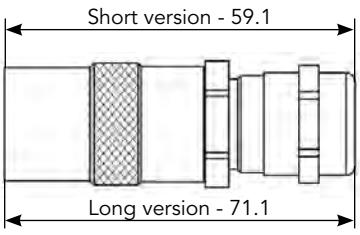


Fig. 3

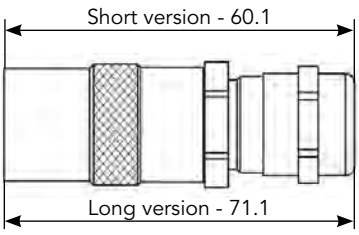


Fig. 4

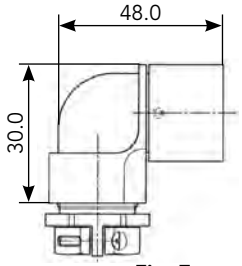


Fig. 7

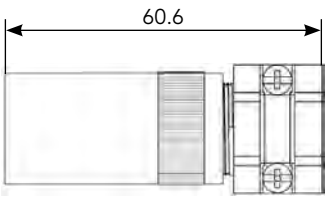


Fig. 8

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 #20

Part number
SHANDLES

Part number
TOOLKIT

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

Crimp Tooling #12

Part number Hand Tool
M317

Part number positioner + locator setting
VGE10077A

Extraction Tool #20

Part number
RX20D44

Extraction Tooling #12

Part number Extraction Tool
51060210924

* 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 See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	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

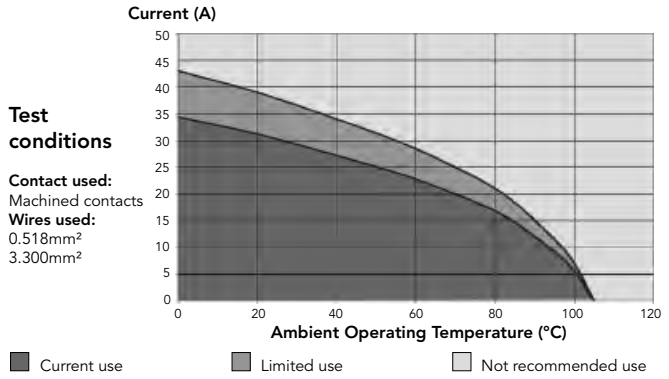
Electrical Characteristics

UL
20A 500V UL94 V-0

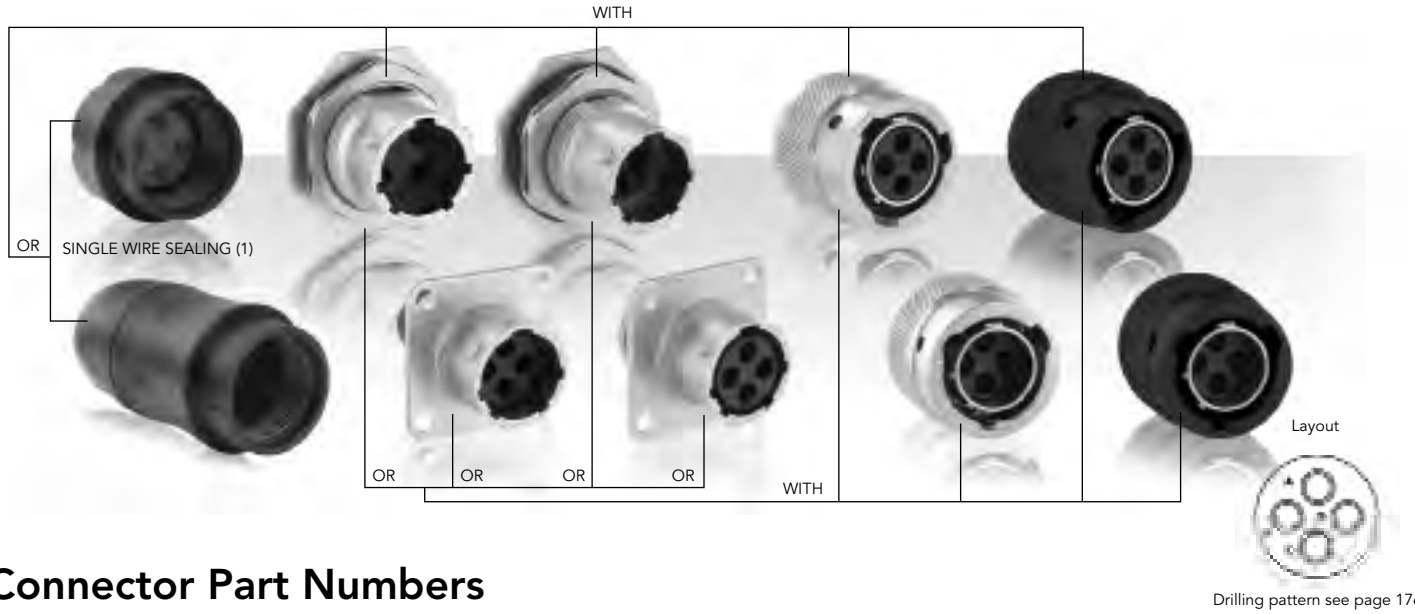
CSA
18A 500V UL94 V-0

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	UT00104PH	UT00104SH
		IP68 & IP69K	96h	UT00104PH6	UT00104SH6
	Plug	IP67, IP68 & IP69K	48h	UT06104PH(1)	UT06104SH(1)
		IP67, IP68 & IP69K	96h	UT06104PH02(1) (Black)	UT06104SH02(1) (Black)
	Jam nut receptacle	IP67	48h	UT07104PH(1)	UT07104SH(1)
		IP68 & IP69K	48h	UT07104PH6(1)	UT07104SH6(1)
		IP67	96h	UT07104PH01(1)	UT07104SH01(1)
		IP68 & IP69K	96h	UT07104PH601(1)	UT07104SH601 (1)

* Other discrimination keying option, see page 182

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

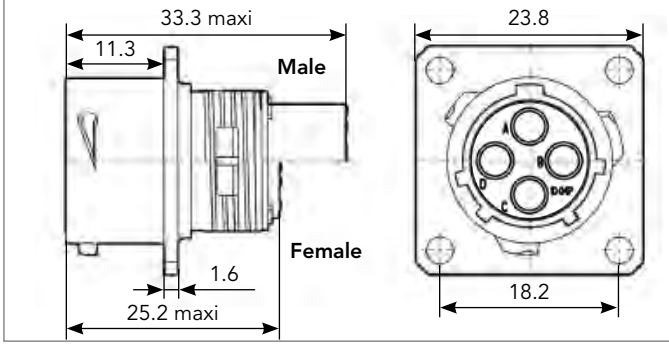
Backshells

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	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)	3	4/6.5	UT0S10JCS	UT0S10JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	4/8.8	UT0S10JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	4/10	UT010JCPGN	

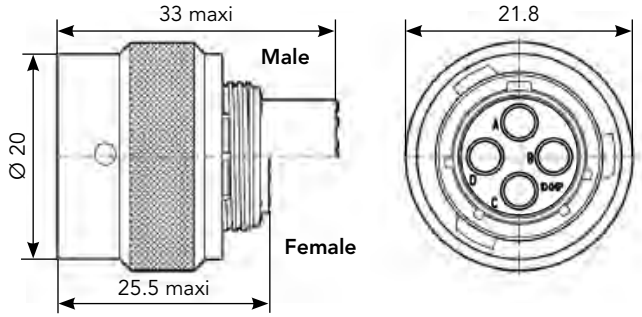
104 (Shell size 10, 4x#16)

Dimensions

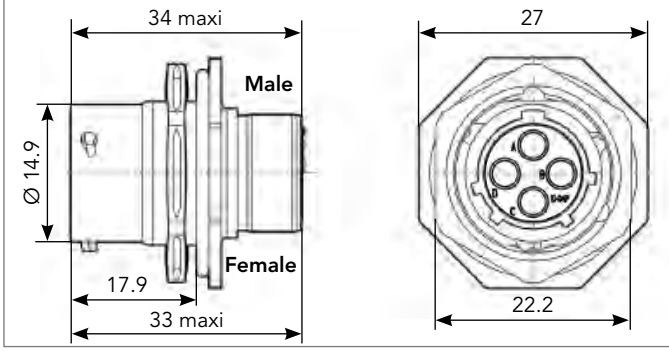
Square Flange - UTO0



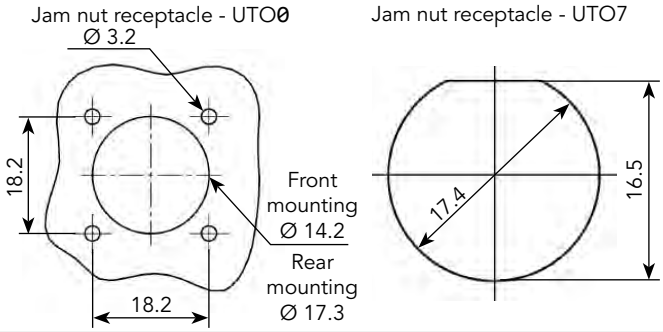
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 157)

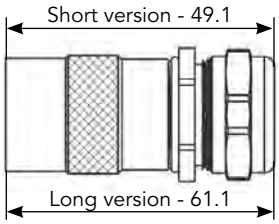


Fig. 1

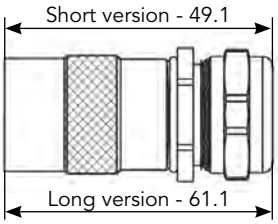


Fig. 2

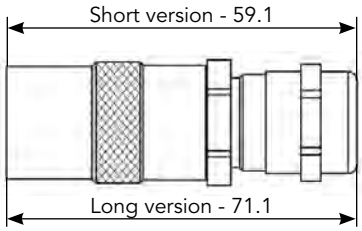


Fig. 3

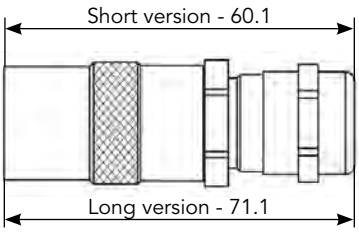
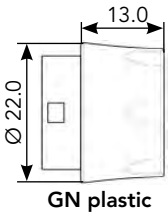
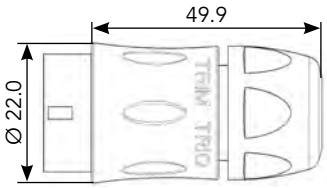


Fig. 4



GN plastic



GJC plastic

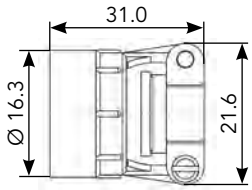


Fig. 5

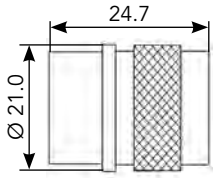


Fig. 6

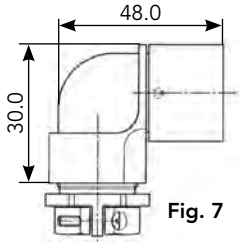


Fig. 7

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD12B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

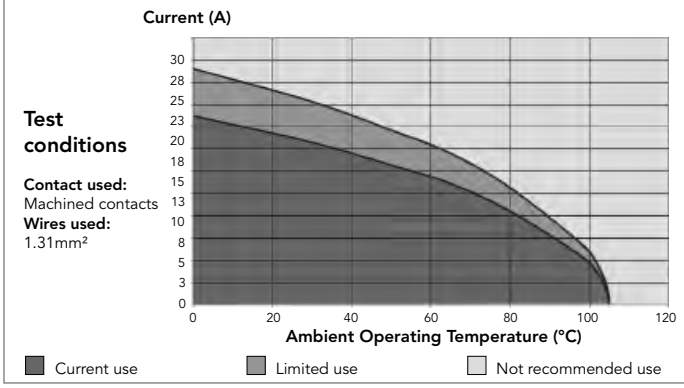
Electrical Characteristics

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)

Drilling pattern see page 176

Connector Part Numbers

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

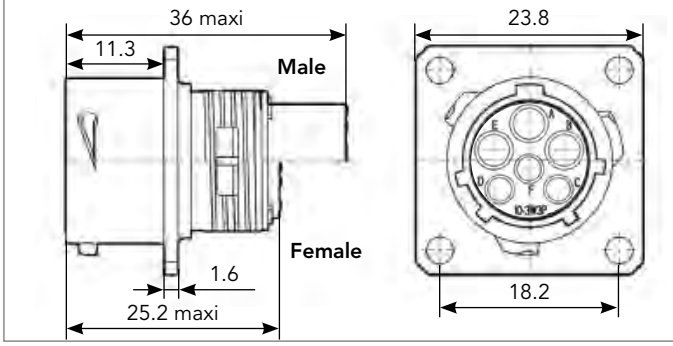
Backshells

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)	3	4/6.5	UT0S10JCS	UT0S10JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	4/8.8	UT0S10JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	4/10	UT010JCPGN	

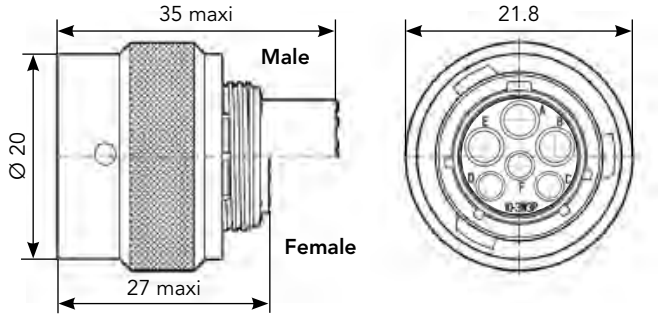
103W3 (Shell size 10, 3x#16 + 3x#20)

Dimensions

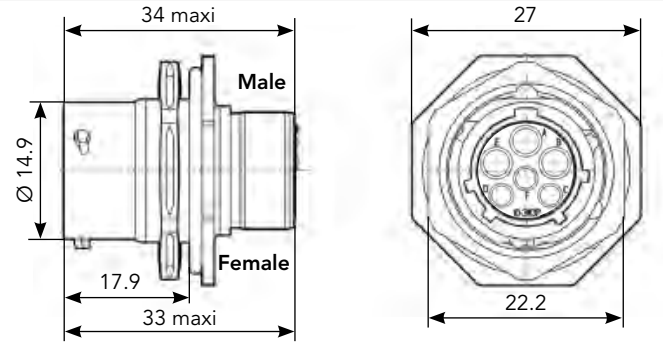
Square Flange - UTO0



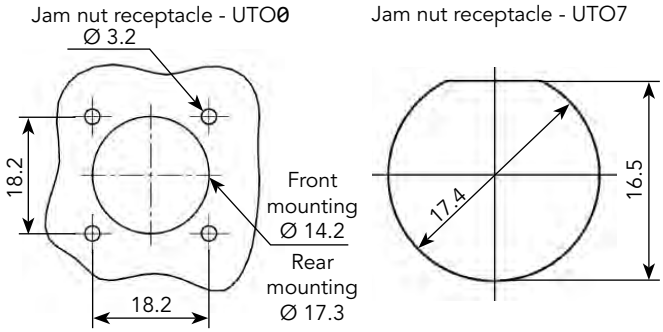
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

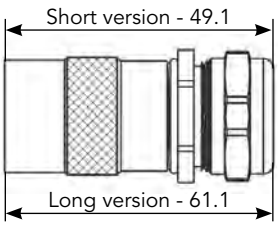


Fig. 1

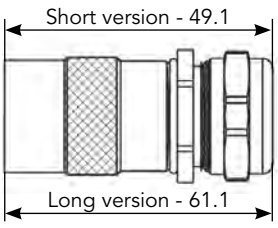


Fig. 2

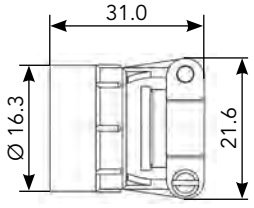


Fig. 5

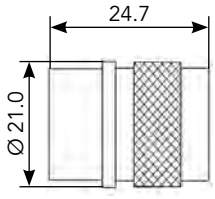


Fig. 6

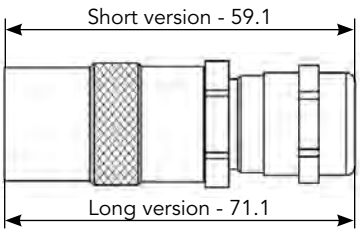


Fig. 3

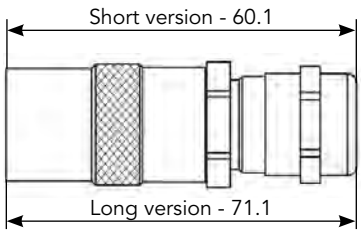


Fig. 4

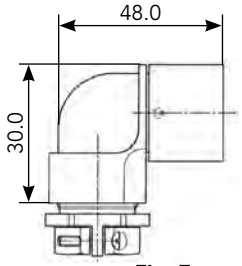


Fig. 7

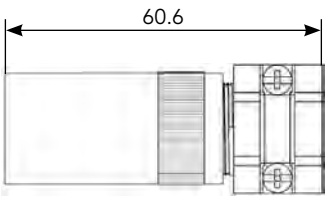


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD12B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 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(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 173 to 174
RCDXK1D28K		
RM/RC DX60xxD28K		
RM/RC DXK10D28 + york090		
RM/RC DX60xxD28		
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM
RM/RC 20W3K(1)		S20RCM
RM/RC 18W3K(1)		S20RCM
SM/SC 24WL3(1)(2)		S20SCM20
SM/SC 20WL3(1)(2)		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

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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 See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	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

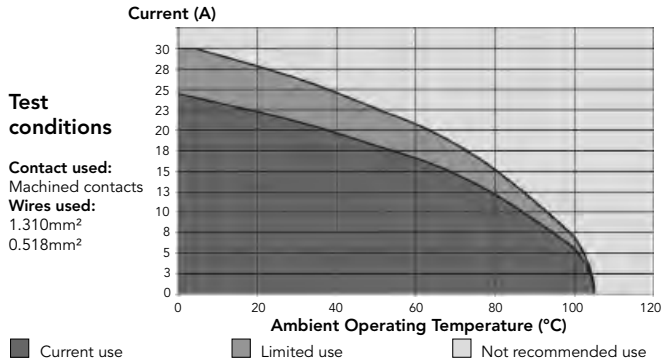
Electrical Characteristics

UL
5A 250V UL94 V-0

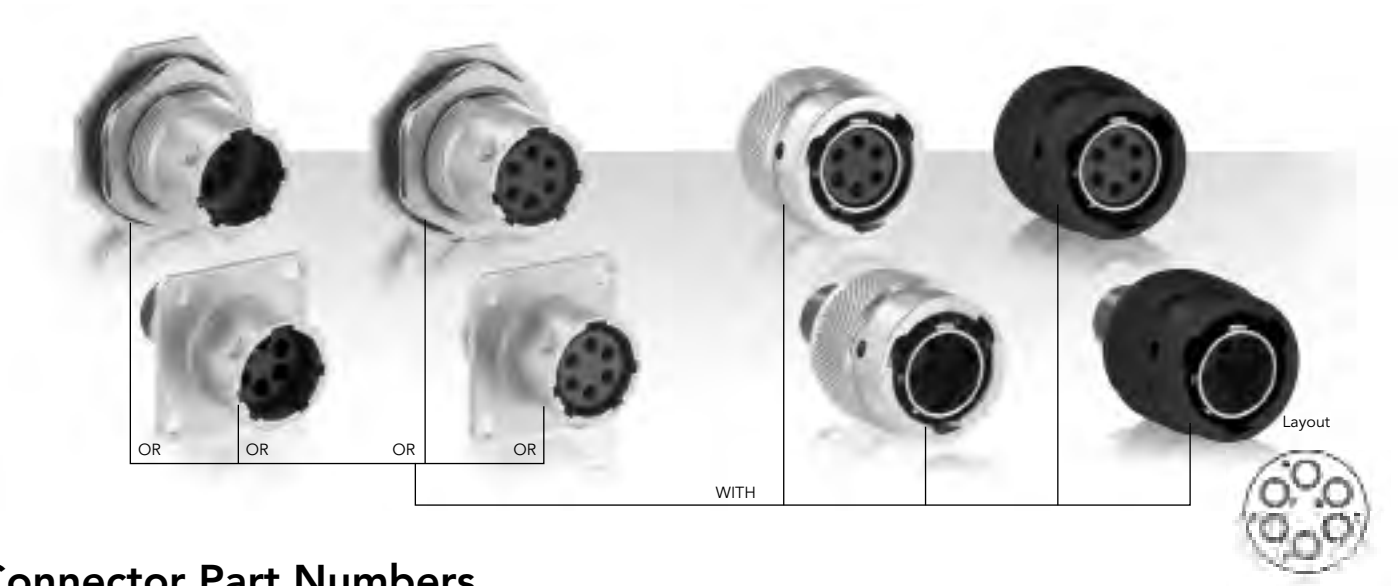
CSA
5A 200V UL94 V-0

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 182

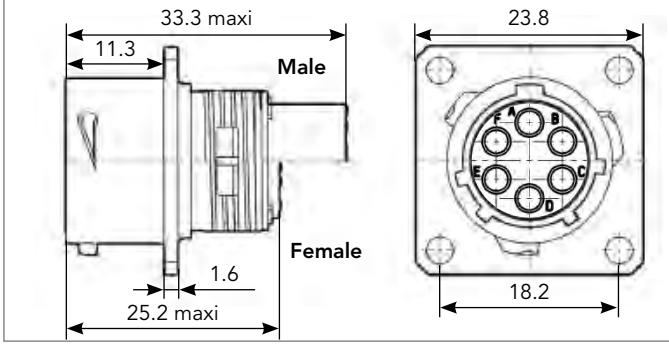
Backshells

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)	3	4/6.5	UT0S10JCS	UT0S10JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	4/8.8	UT0S10JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	4/10	UT010JCPGN	

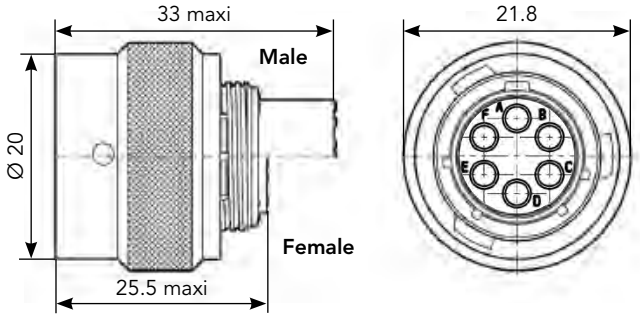
106 (Shell size 10, 6x#20)

Dimensions

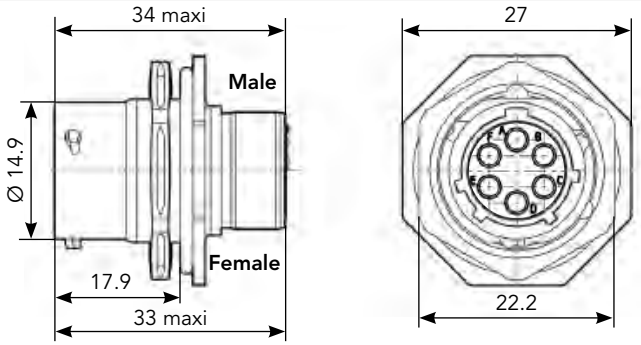
Square Flange - UTO0



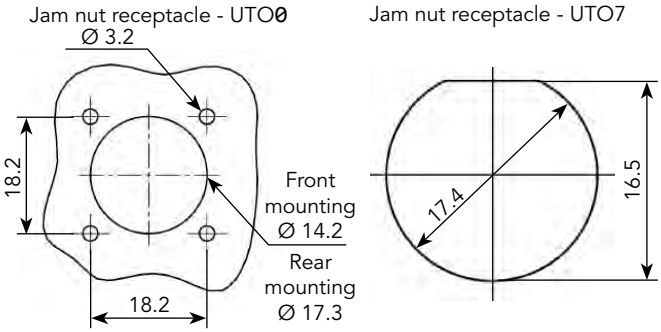
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

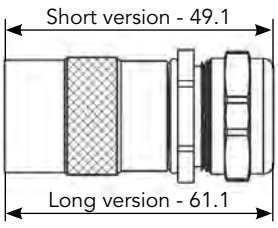


Fig. 1

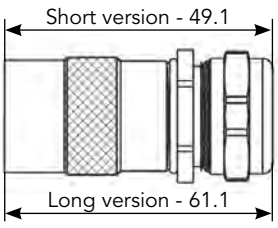


Fig. 2

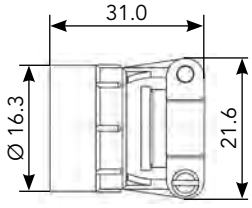


Fig. 5

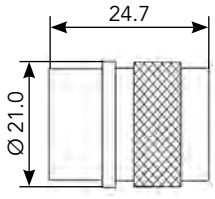


Fig. 6

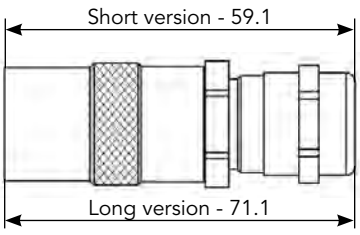


Fig. 3

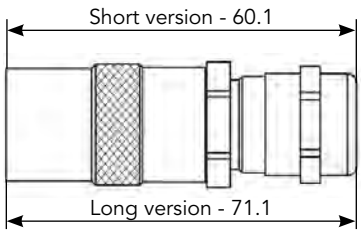


Fig. 4

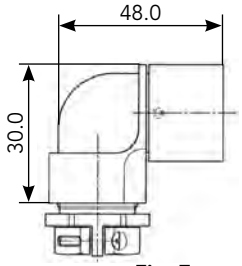


Fig. 7

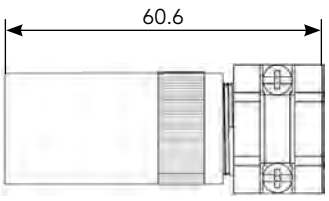


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD12B

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	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

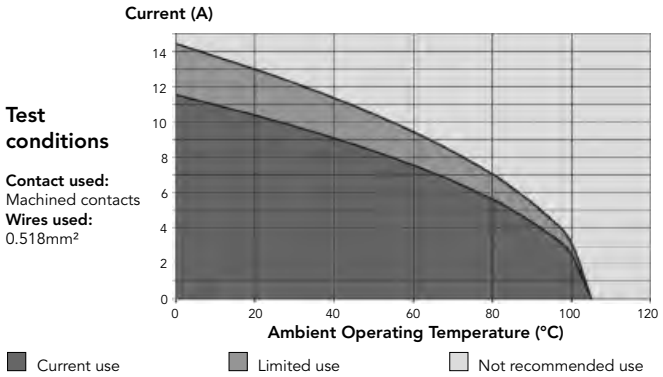
Electrical Characteristics

UL
5A 250V UL94 V-0

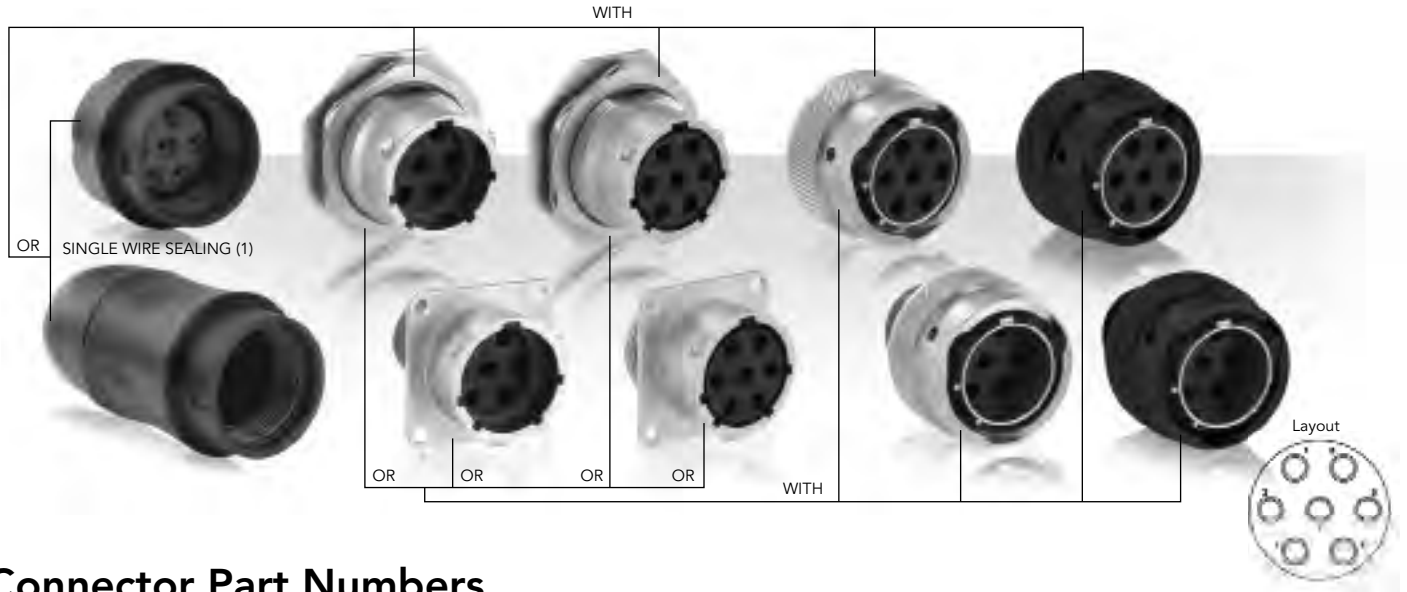
CSA
4A 250V UL94 V-0

IEC
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	UT00147PH	UT00147SH
		IP68 & IP69K	96h	UT00147PH6	UT00147SH6
	Plug	IP67, IP68 & IP69K	48h	UT06147PH(1)	UT06147SH(1)
		IP67, IP68 & IP69K	96h	UT06147PH02(1) (Black)	UT06147SH02(1) (Black)
	Jam nut receptacle	IP67	48h	UT07147PH(1)	UT07147SH(1)
		IP68 & IP69K	48h	UT07147PH6(1)	UT07147SH6(1)
		IP67	96h	UT07147PH01(1)	UT07147SH01(1)
		IP68 & IP69K	96h	UT07147PH601(1)	UT07147SH601(1)

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

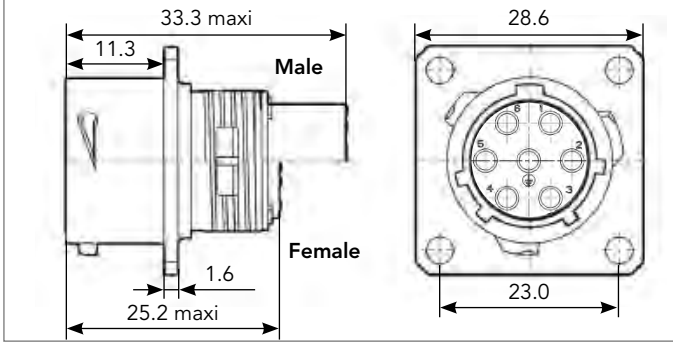
Backshells

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	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)	3	07/10.5	UT0S14JCS	UT0S14JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	UT0S14JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	UT014JCPGN	

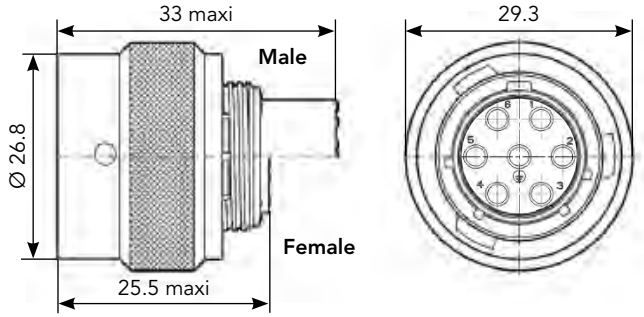
147 (Shell size 14, 6 + ground, 7x#16)

Dimensions

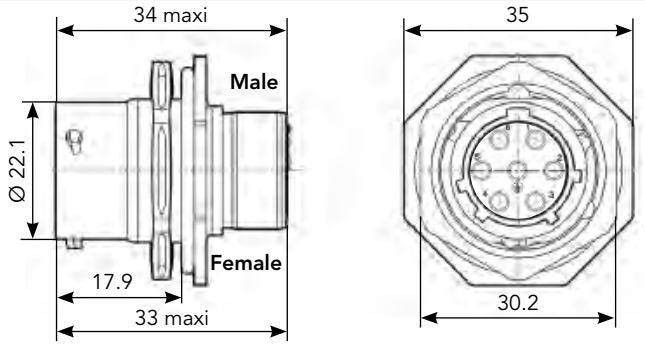
Square Flange - UTO0



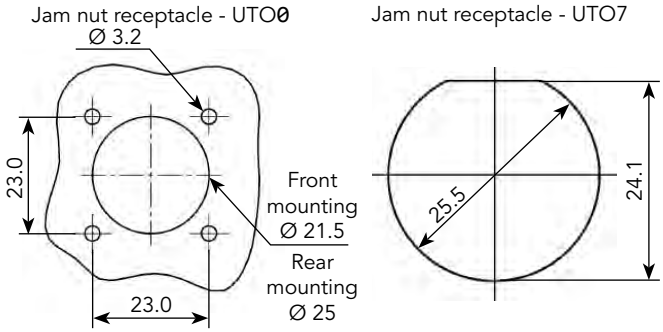
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

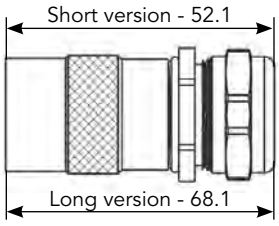


Fig. 1

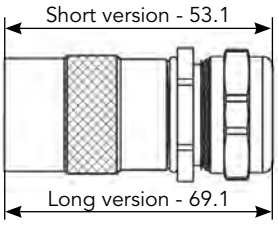


Fig. 2

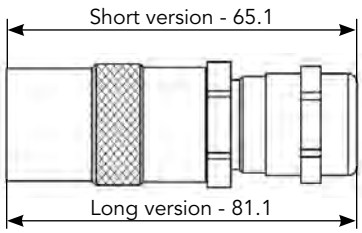


Fig. 3

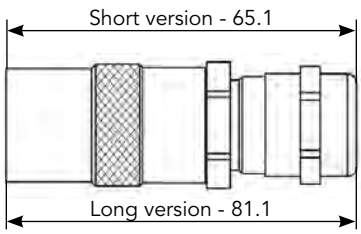
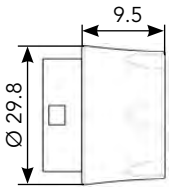
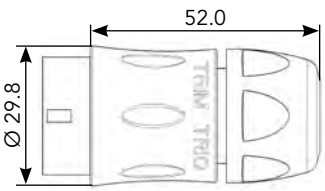


Fig. 4



GN plastic



GJC plastic

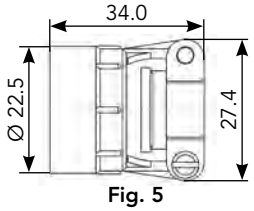


Fig. 5

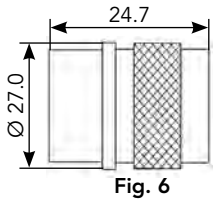


Fig. 6

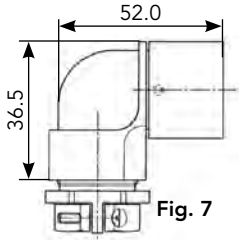


Fig. 7

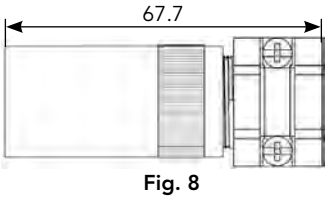


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD14B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

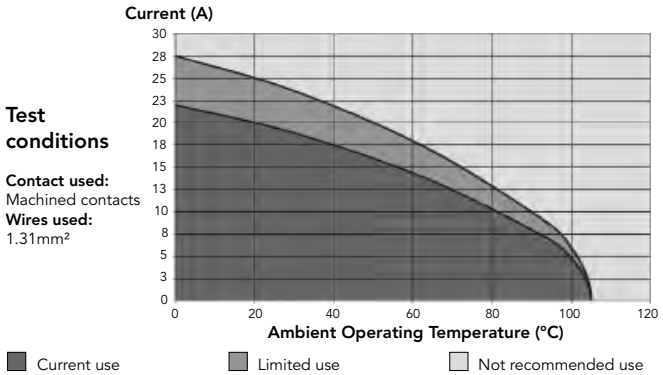
Electrical Characteristics

UL
10A 500V UL94 V-0

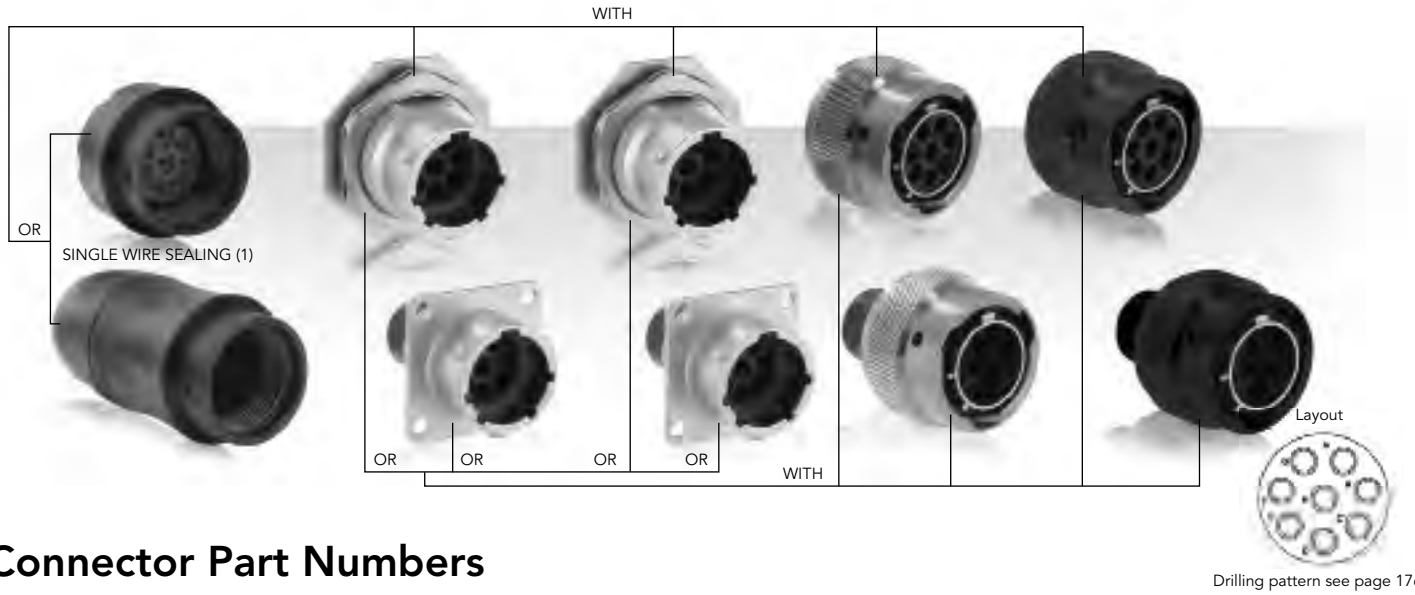
CSA
7A 500V UL94 V-0

IEC
16A 150V 2.5kV 3

UTO 147 Derating Curves



128 (Shell size 12, 8x#16)



Connector Part Numbers

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

Drilling pattern see page 176

* Other discrimination keying option, see page 182

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

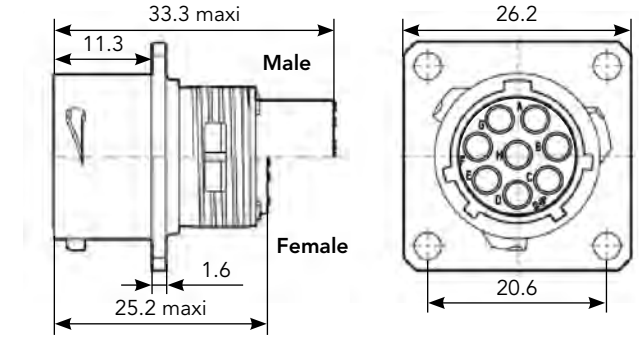
Backshells

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)	3	07/10.5	UT0S12JCS	UT0S12JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	04/11.9	UT0S12JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	04/11.9	UT012JCPGN	

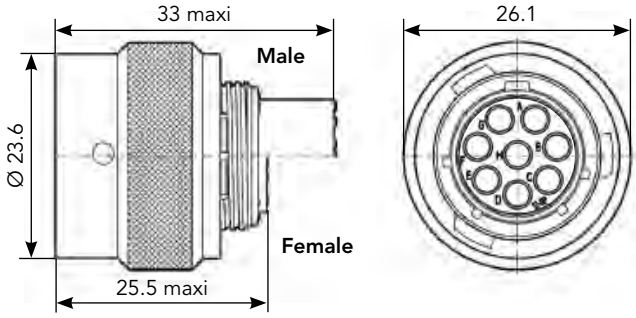
128 (Shell size 12, 8x#16)

Dimensions

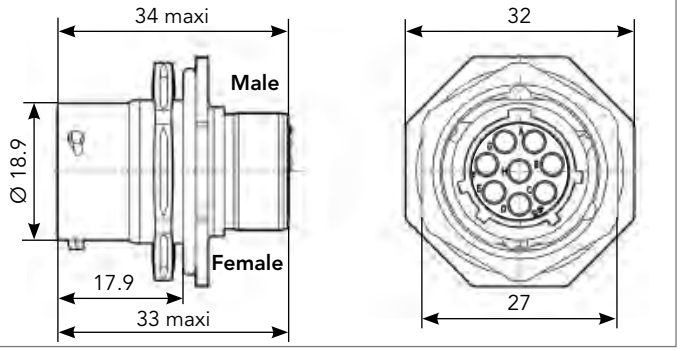
Square Flange - UTO0



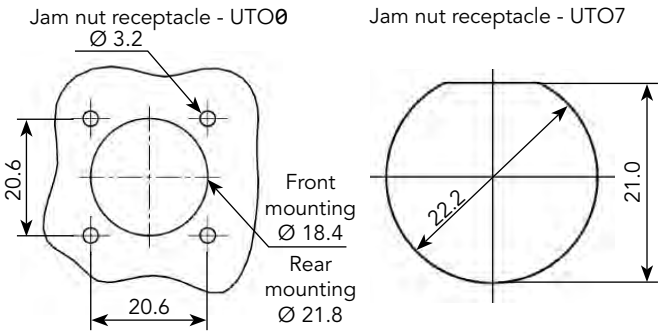
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

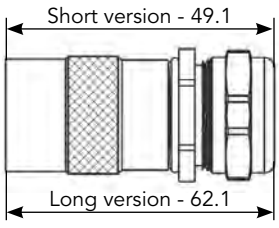


Fig. 1

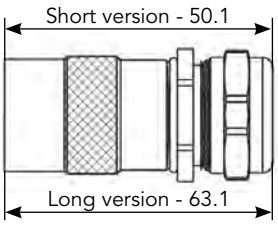


Fig. 2

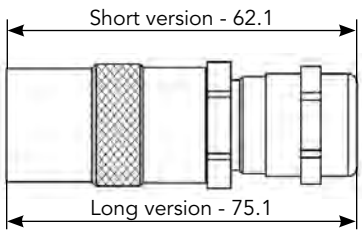


Fig. 3

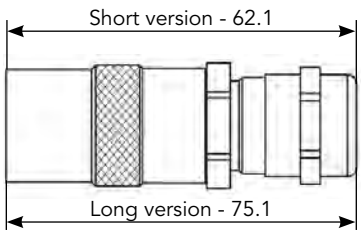
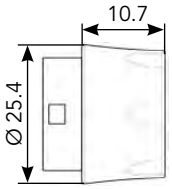
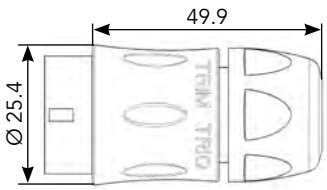


Fig. 4



GN plastic



GJC plastic

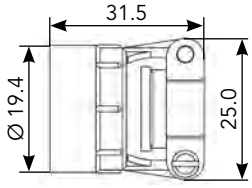


Fig. 5

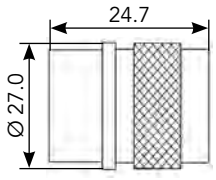


Fig. 6

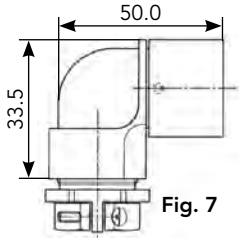


Fig. 7

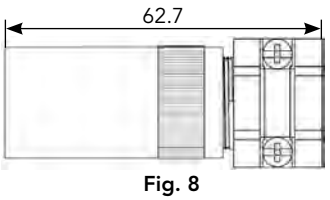


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD13B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

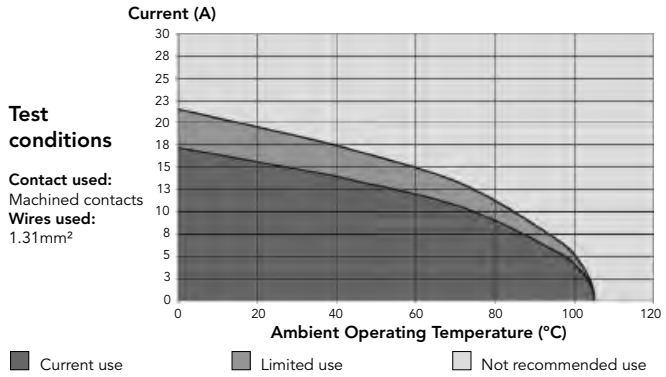
Electrical Characteristics

UL
10A 500V UL94 V-0

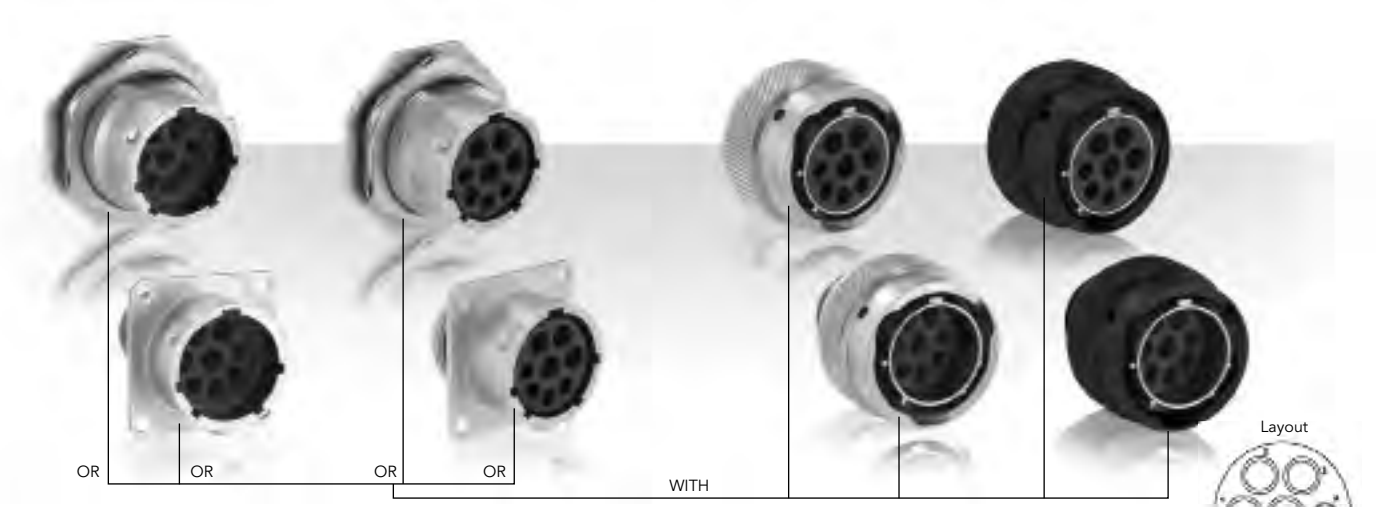
CSA
7A 500V UL94 V-0

IEC
10A 125V 2.5kV 3

UTO 128 Derating Curves



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



Drilling pattern see page 176

Connector Part Numbers

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

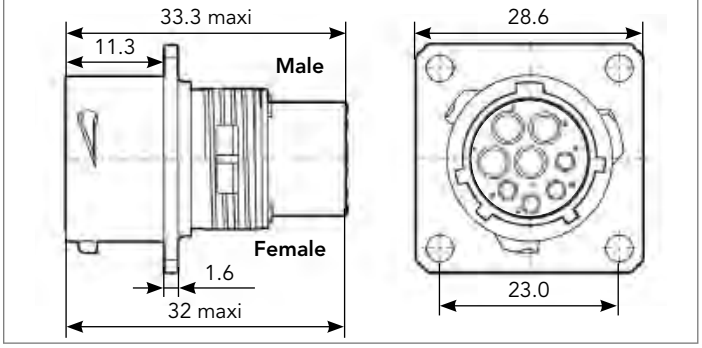
Backshells

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)	3	07/10.5	**UT0S14JCS**	**UT0S14JC**
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	**UT0S14JCPGN**	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	**UT014JCPGN**	

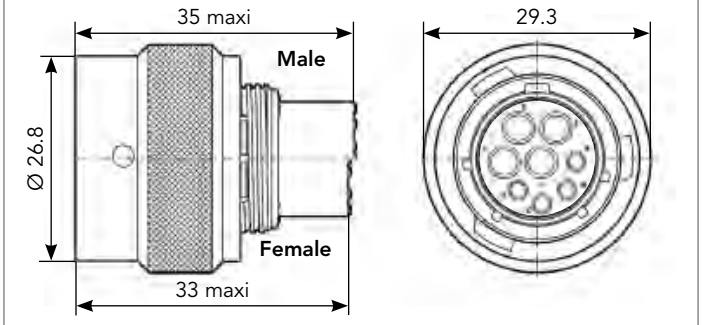
148 (Shell size 14, 4x#12 + 4x#16)

Dimensions

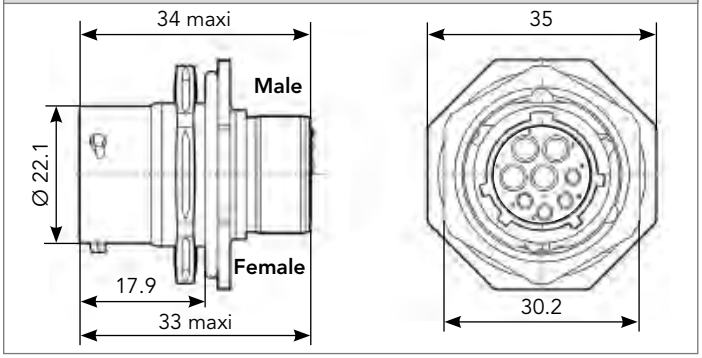
Square Flange - UTO0



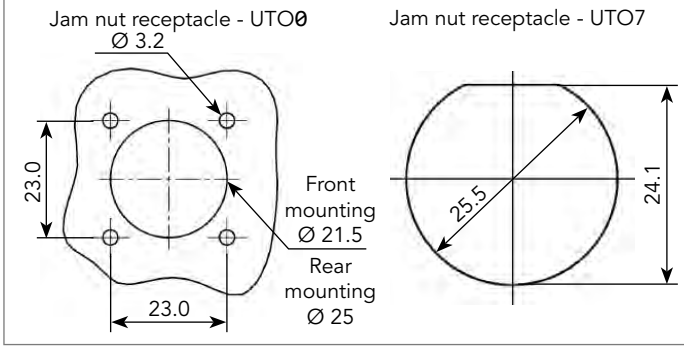
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

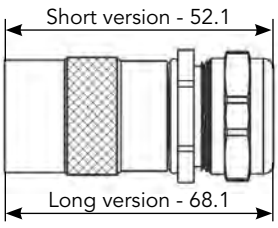


Fig. 1

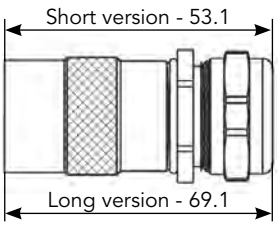


Fig. 2

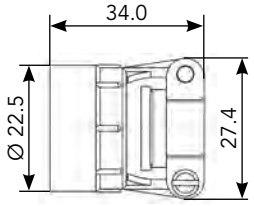


Fig. 5

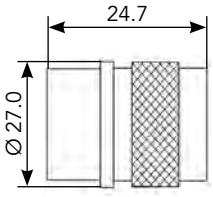


Fig. 6

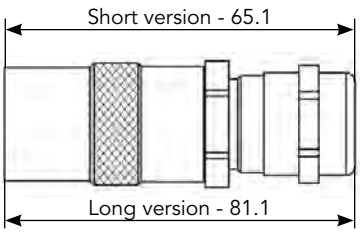


Fig. 3

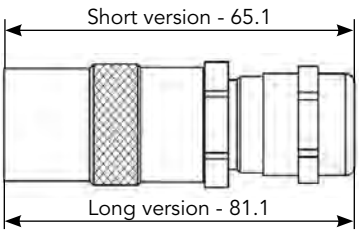


Fig. 4

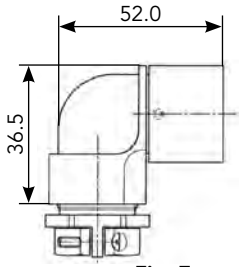


Fig. 7

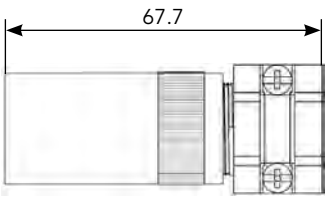


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD14B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX20D44

Crimp Tooling #12

Part number Hand Tool
M317

Part number positioner + locator setting
VGE10078A

Part number Extraction Tool
51060210924

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

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle Head Complete set

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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

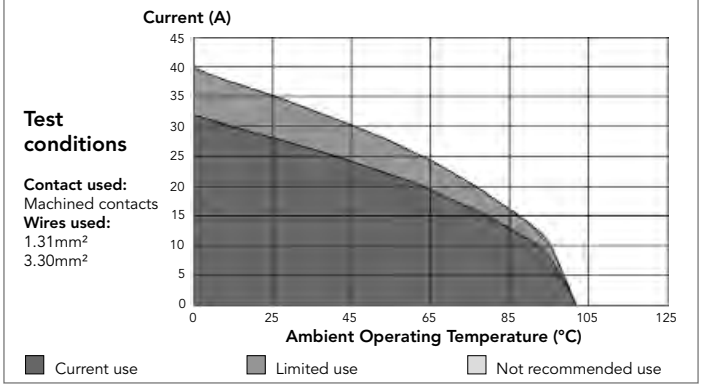
Electrical Characteristics

UL
25A 250V UL94 V-0

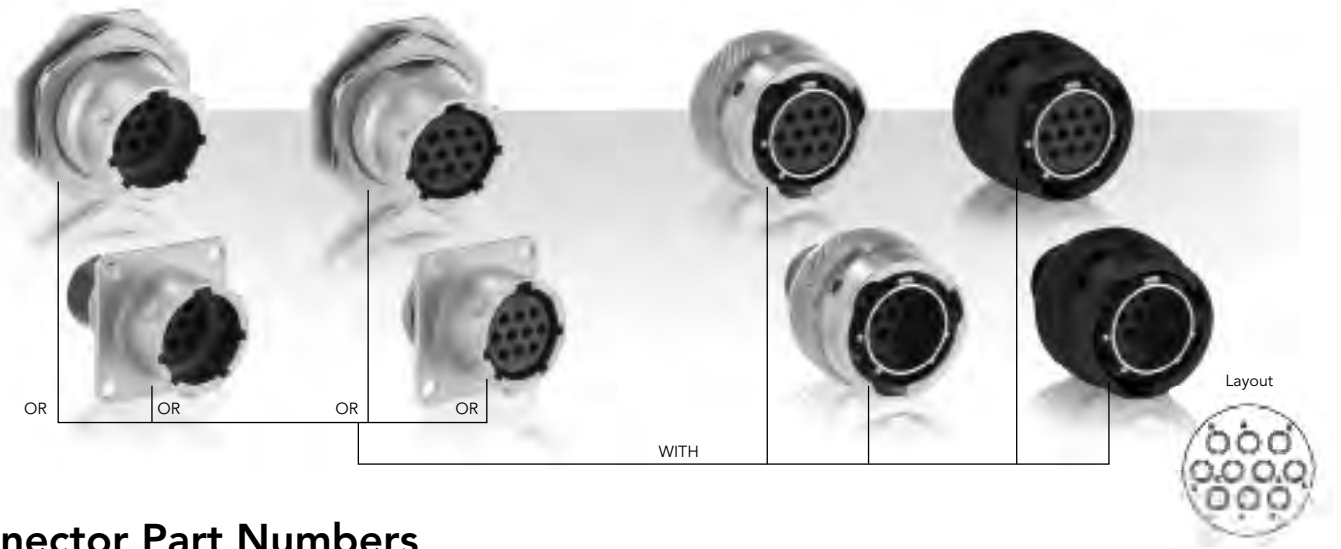
CSA
17A 250V UL94 V-0

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 182

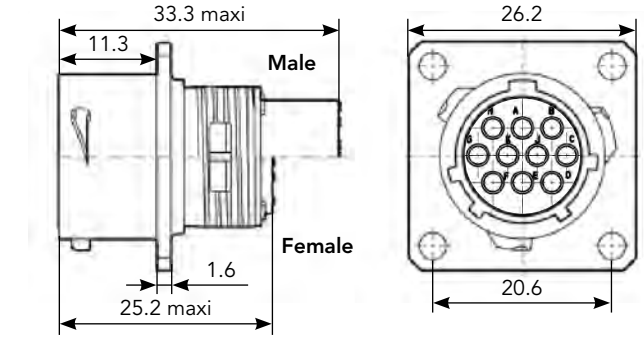
Backshells

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)	3	07/10.5	UT0S12JCS	UT0S12JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	04/11.9	UT0S12JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	04/11.9	UT012JCPGN	

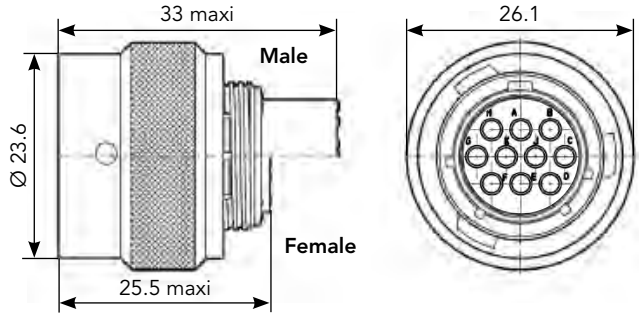
1210 (Shell size 12, 10x#20)

Dimensions

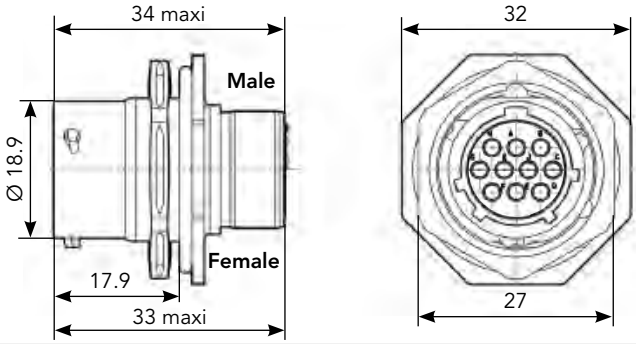
Square Flange - UTO0



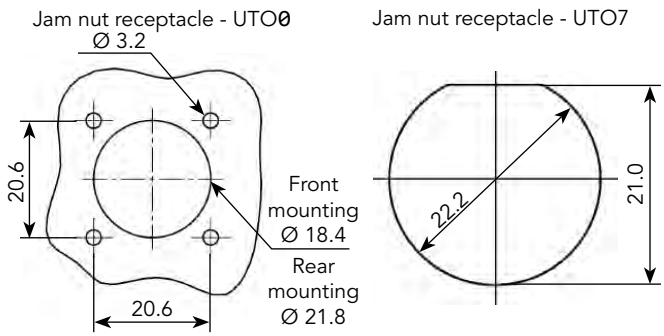
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

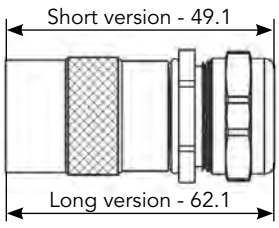


Fig. 1

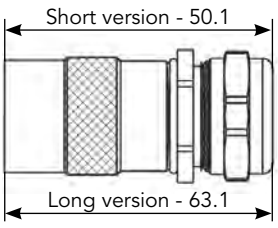


Fig. 2

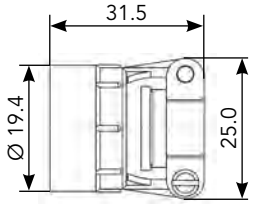


Fig. 5

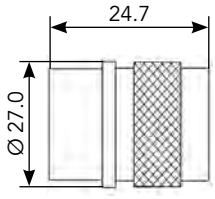


Fig. 6

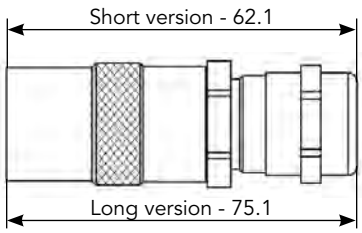


Fig. 3

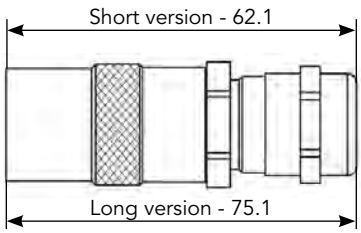


Fig. 4

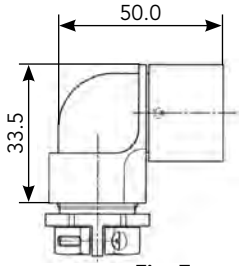


Fig. 7

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD13B

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	**SM24W3TK6**(1)(2)	**SC24W3TK6**(1)(2)	-	0.90-1.60
		26-24	**SM24W3S26**(1)(2)	**SC24W3S25**(1)(2)	-	0.90-1.60
		22-20	**SM20W3TK6**(1)(2)	**SC20W3TK6**(1)(2)	-	1.20-2.10
		22-20	**SM20W3S26**(1)(2)	**SC20W3S25**(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	**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

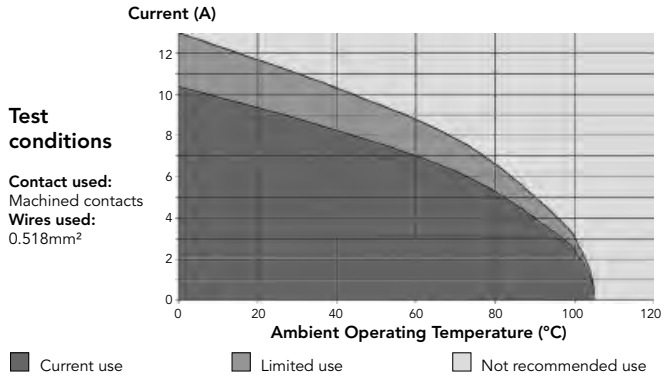
Electrical Characteristics

UL
5A 250V UL94 V-0

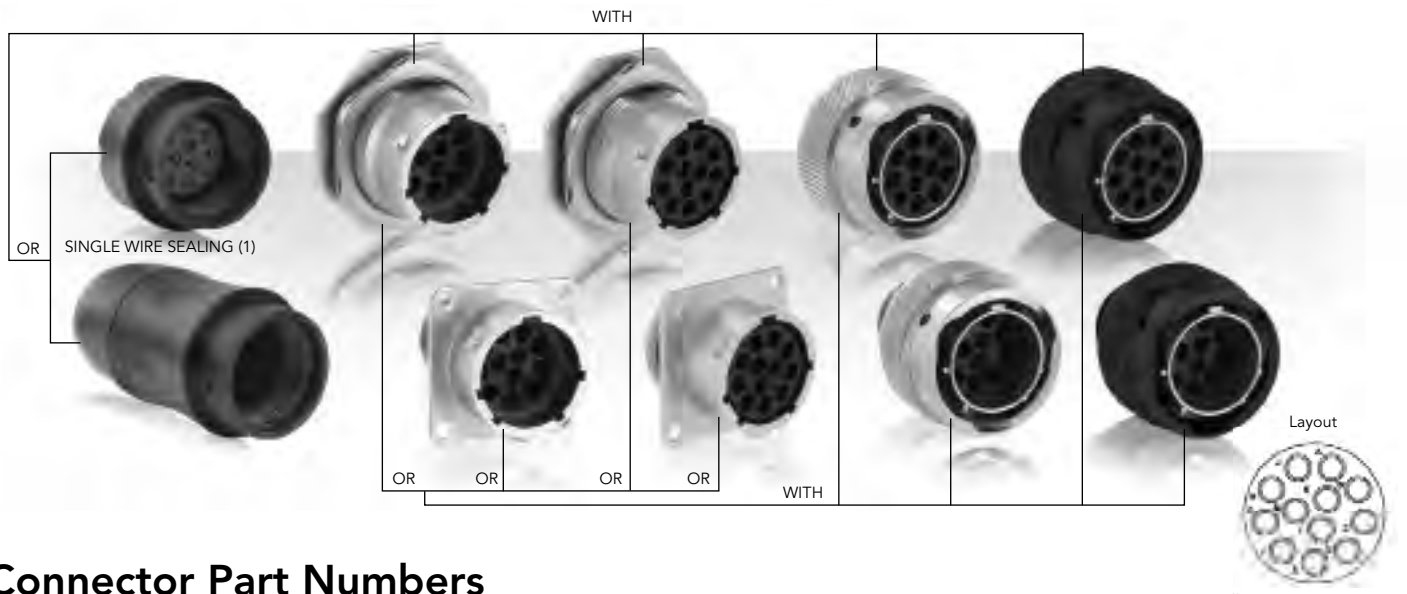
CSA
4A 250V UL94 V-0

IEC
6A 40V 1.5kV 3

UT0 1210 Derating Curves



1412 (Shell size 14, 12x#16)



Connector Part Numbers

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

Drilling pattern see page 176

* Other discrimination keying option, see page 182

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

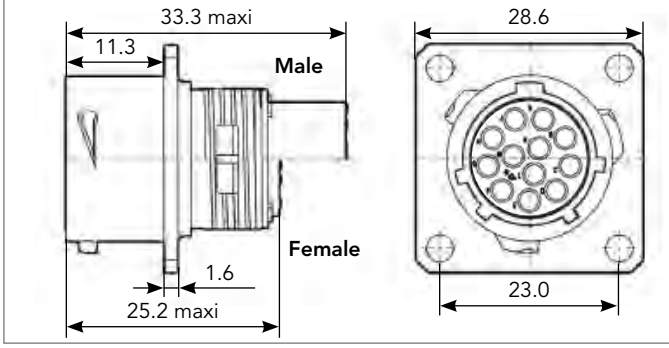
Backshells

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	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)	3	07/10.5	UT0S14JCS	UT0S14JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	UT0S14JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	UT014JCPGN	

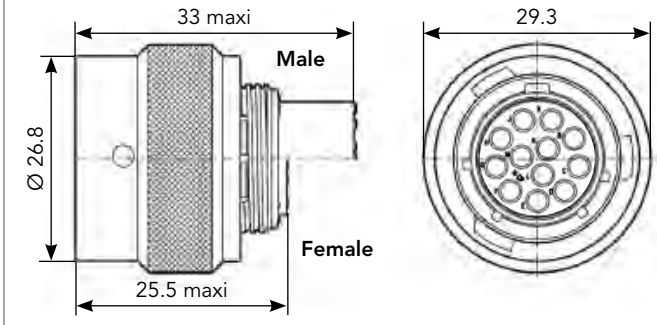
1412 (Shell size 14, 12x#16)

Dimensions

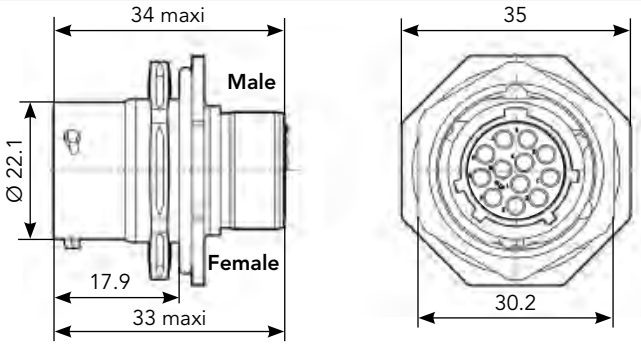
Square Flange - UTO0



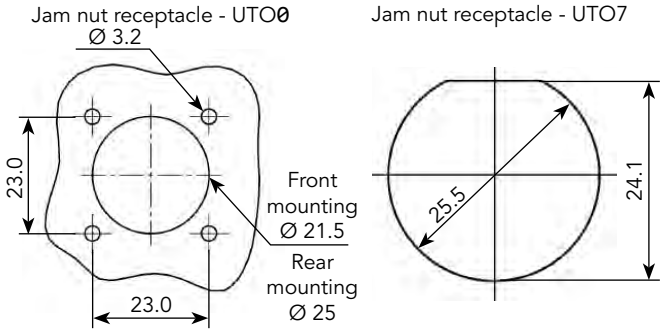
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

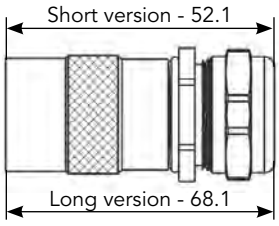


Fig. 1

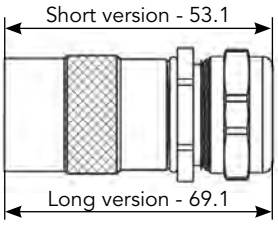


Fig. 2

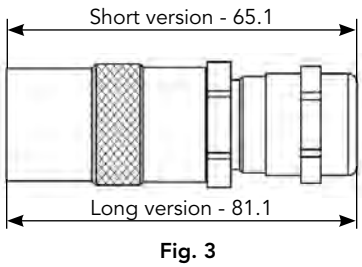


Fig. 3

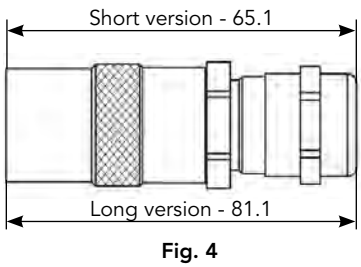
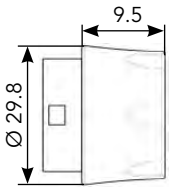
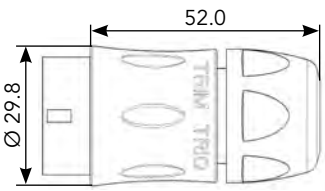


Fig. 4



GN plastic



GJC plastic

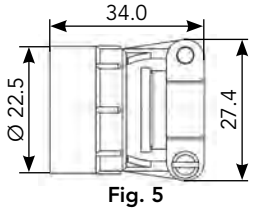


Fig. 5

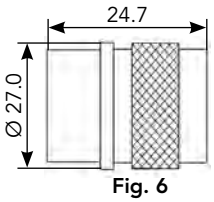


Fig. 6

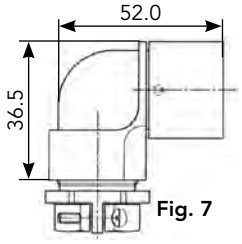


Fig. 7

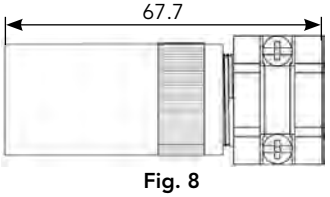


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD14B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

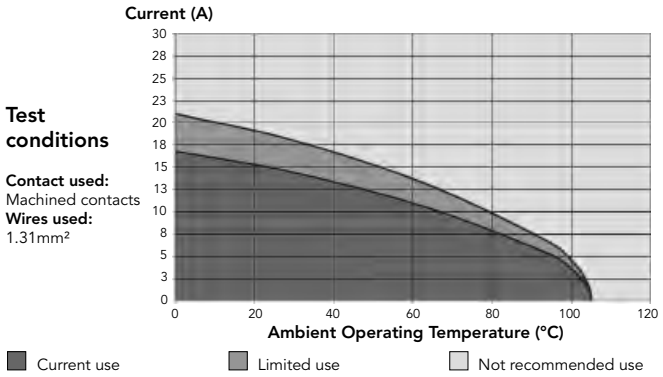
Electrical Characteristics

UL
10A 500V UL94 V-0

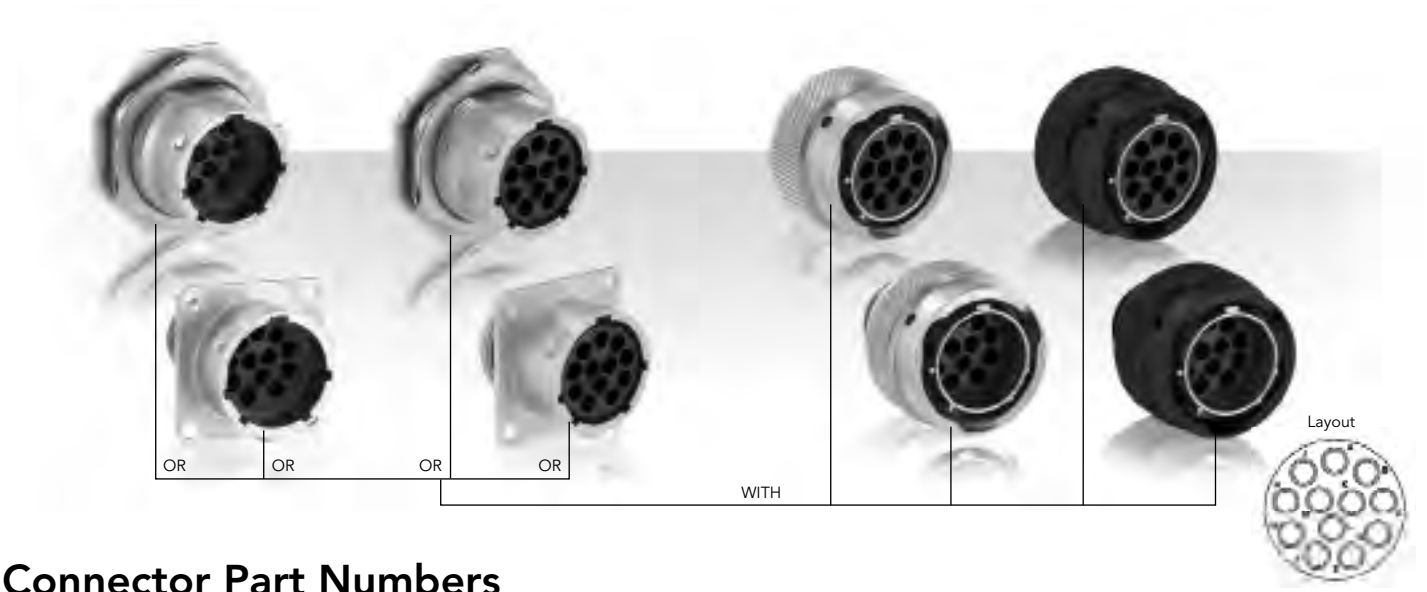
CSA
7A 500V UL94 V-0

IEC
10A 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	**UT0614912PH**	**UT061492SH**
		IP67, IP68 & IP69K	96h	**UT0614192PH02**(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 182

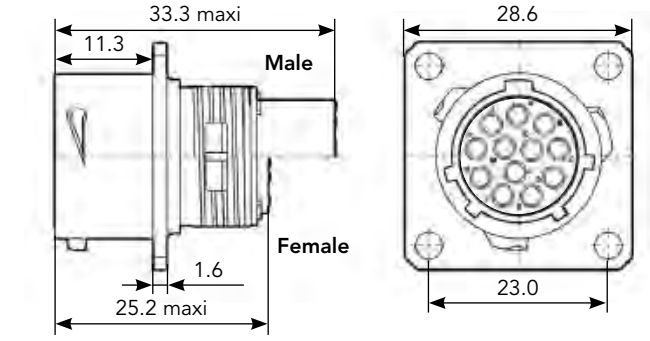
Backshells

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)	3	07/10.5	**UT0S14JCS**	**UT0S14JC**
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	**UT0S14JCPGN**	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	**UT014JCPGN**	

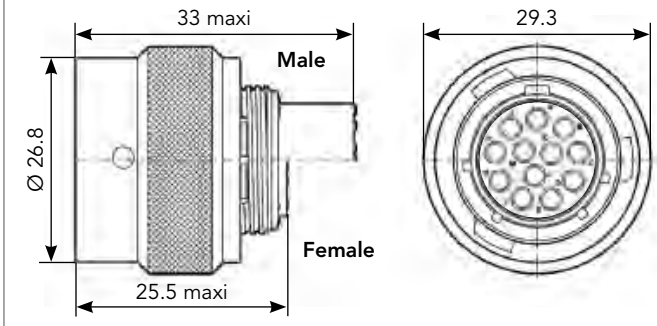
1492 (Shell size 14, 12x#16)

Dimensions

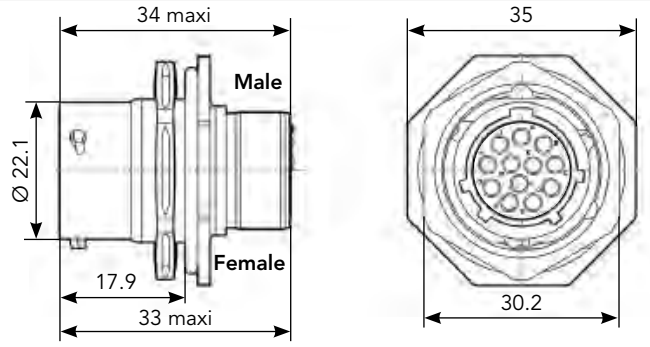
Square Flange - UTO0



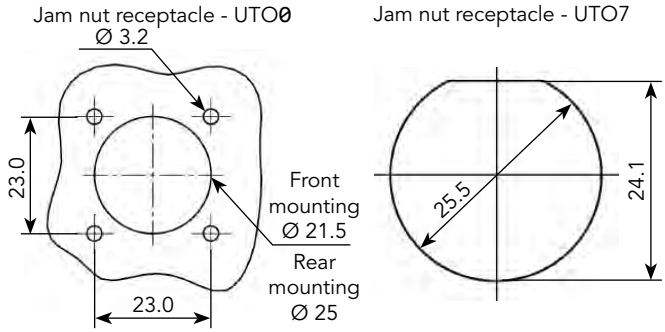
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

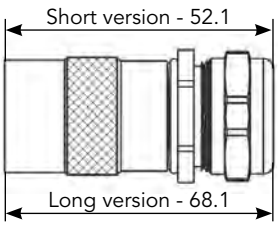


Fig. 1

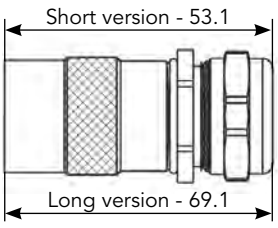


Fig. 2

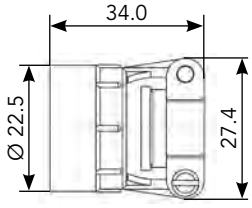


Fig. 5

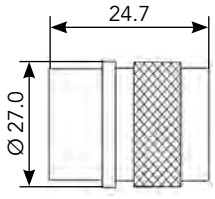


Fig. 6

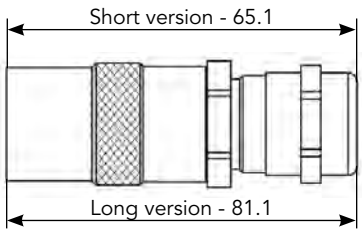


Fig. 3

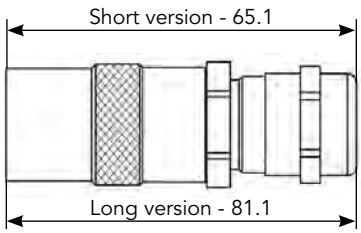


Fig. 4

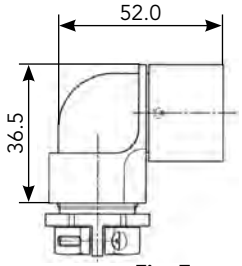


Fig. 7

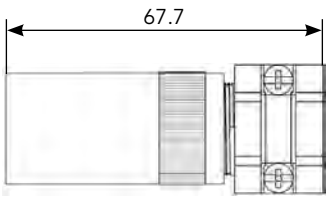


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD14B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

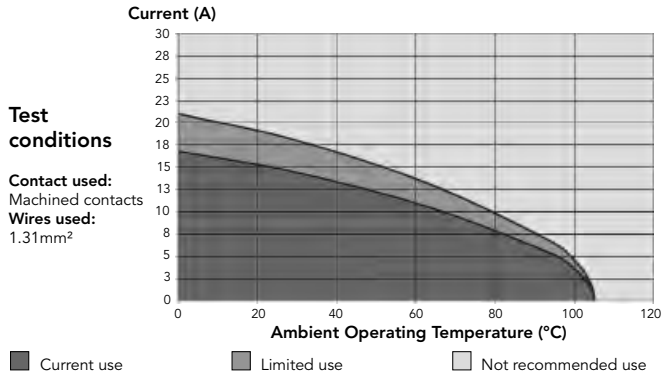
Electrical Characteristics

UL
10A 500V UL94 V-0

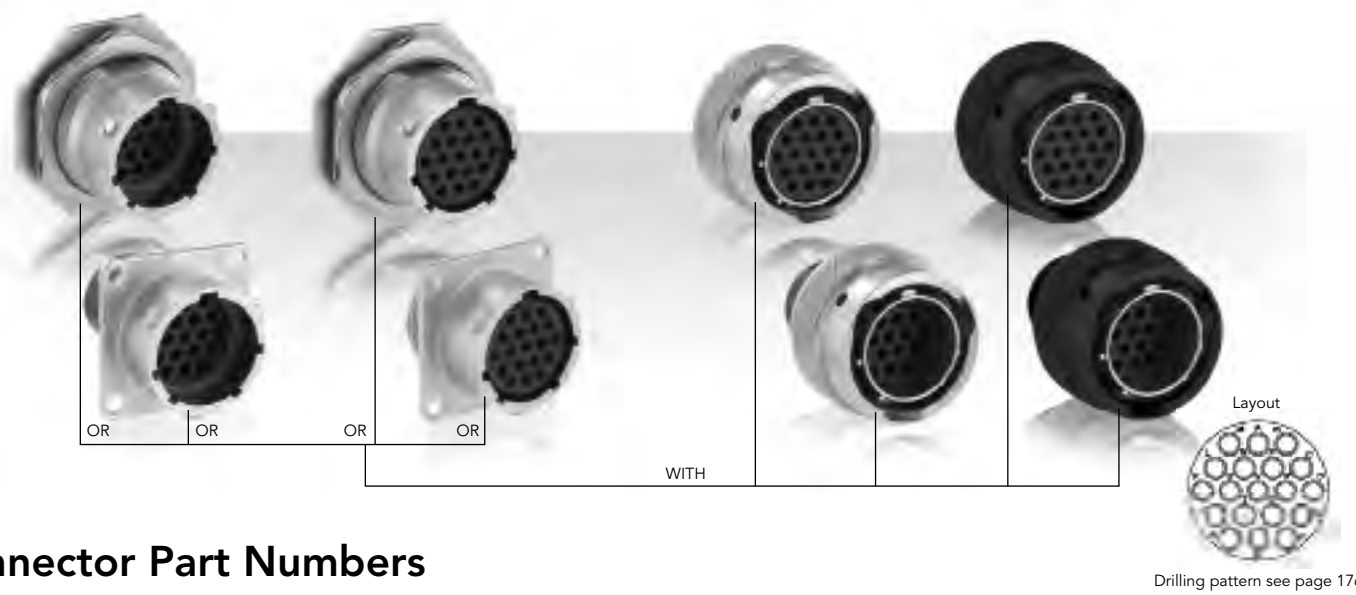
CSA
7A 500V UL94 V-0

IEC
10A 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 182

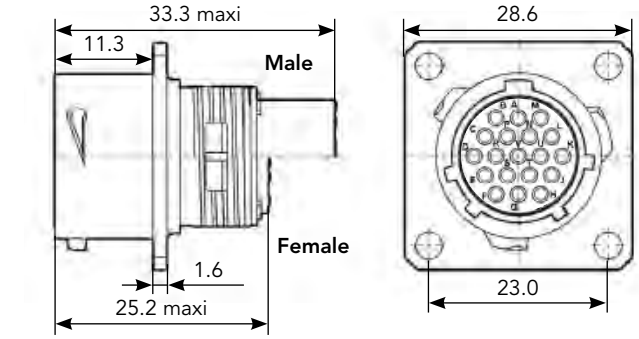
Backshells

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)	3	07/10.5	**UT0S14JCS**	**UT0S14JC**
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/13.5	**UT0S14JCPGN**	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/13.5	**UT014JCPGN**	

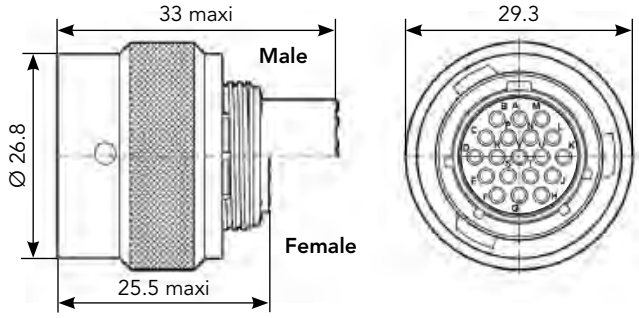
1419 (Shell size 14, 19x#20)

Dimensions

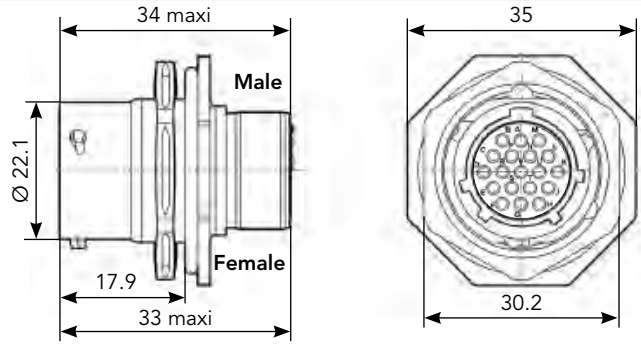
Square Flange - UTO0



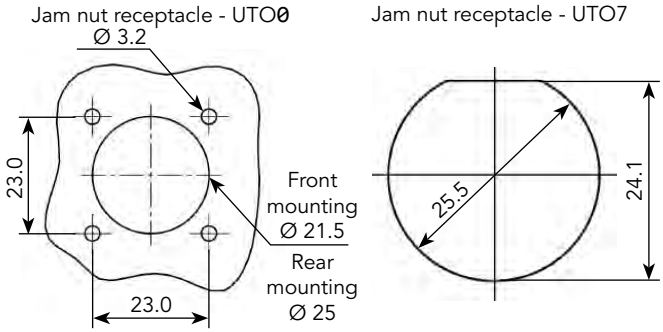
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

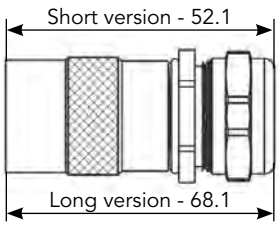


Fig. 1

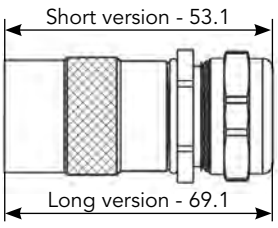


Fig. 2

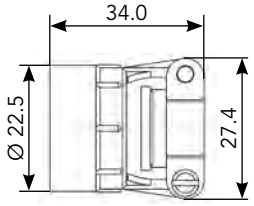


Fig. 5

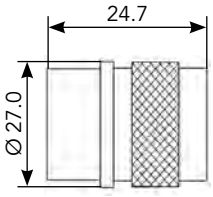


Fig. 6

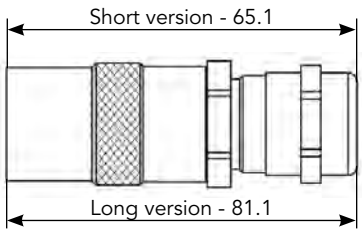


Fig. 3

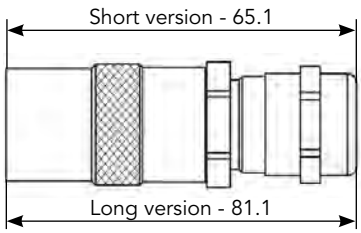


Fig. 4

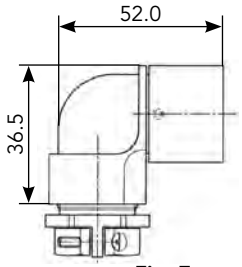


Fig. 7

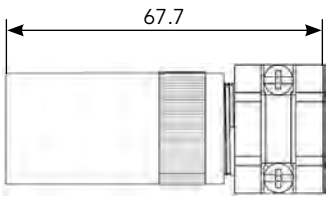


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD14B

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	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

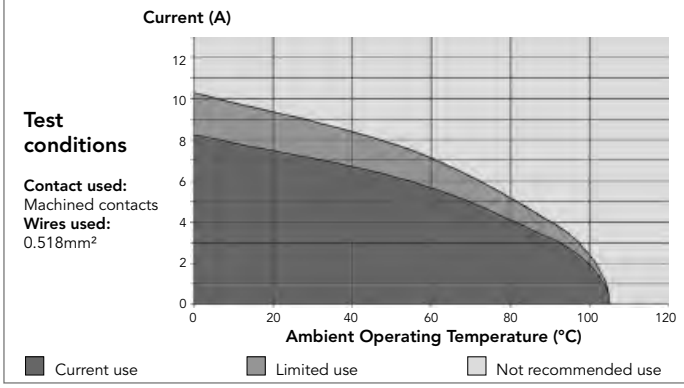
Electrical Characteristics

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	UT001619PH	UT001619SH
		IP68 & IP69K	96h	UT001619PH6	UT001619SH6
	Plug	IP67, IP68 & IP69K	48h	UT061619PH	UT061619SH
		IP67, IP68 & IP69K	96h	UT061619PH02(Black)	UT061619SH02(Black)
	Jam nut receptacle	IP67	48h	UT071619PH	UT071619SH
		IP68 & IP69K	48h	UT071619PH6	UT071619SH6
		IP67	96h	UT071619PH01	UT071619SH01
		IP68 & IP69K	96h	UT071619PH601	UT071619SH601

* Other discrimination keying option, see page 182

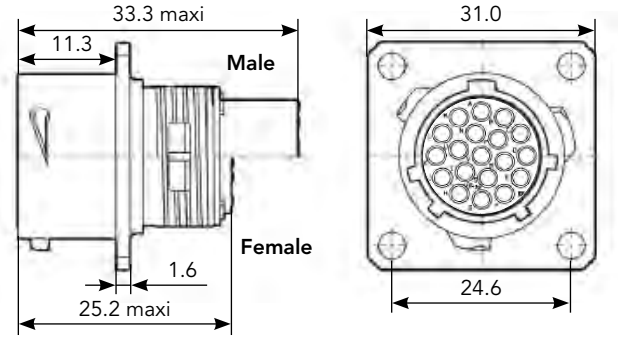
Backshells

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)	3	10/14.5	UT0S16JCS	UT0S16JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/16	UT0S16JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/16	UT016JCPGN	

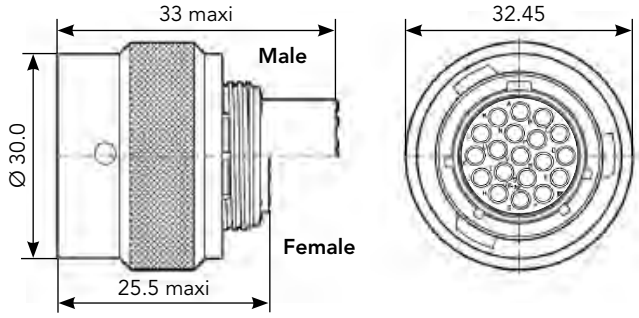
1619 (Shell size 16, 19x#16)

Dimensions

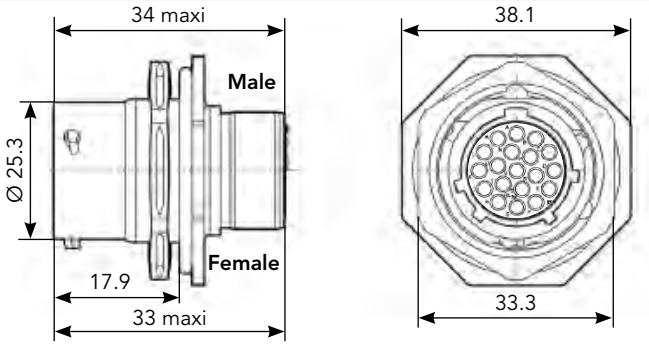
Square Flange - UTO0



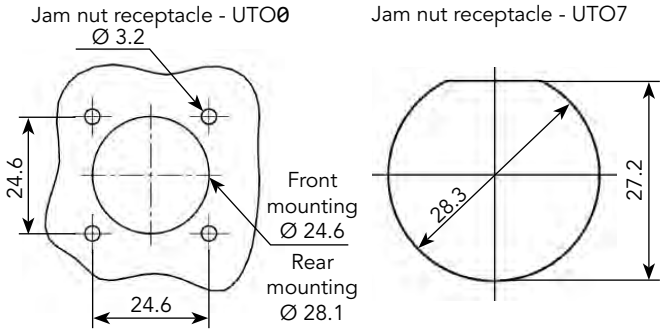
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



19

Backshells (for Mated Connector Length: See Page 153)

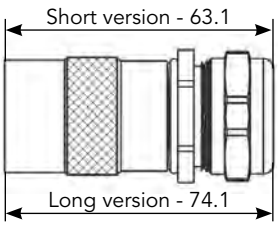


Fig. 1

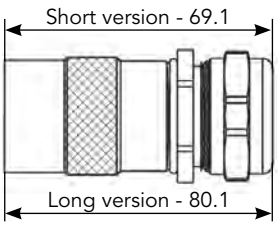


Fig. 2

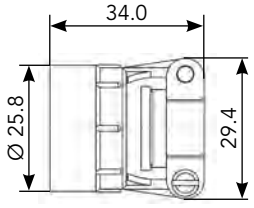


Fig. 5

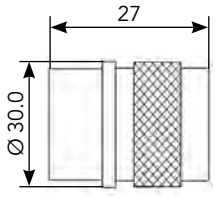


Fig. 6

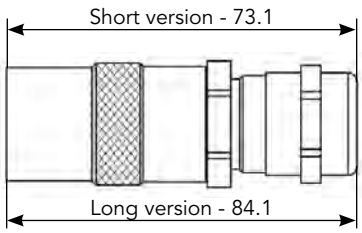


Fig. 3

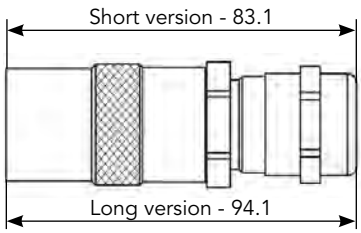


Fig. 4

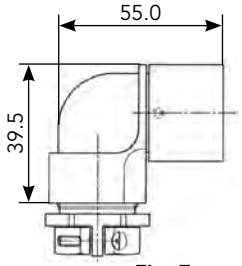


Fig. 7

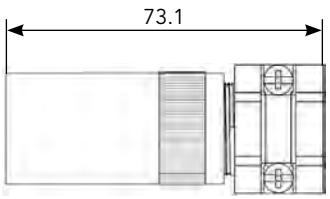


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD15B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

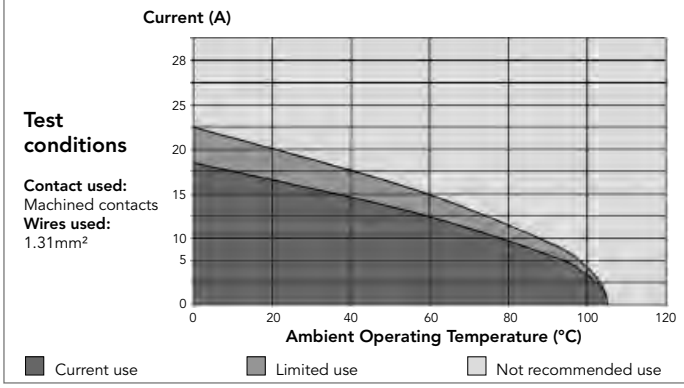
Electrical Characteristics

UL
9A 500V UL94 V-0

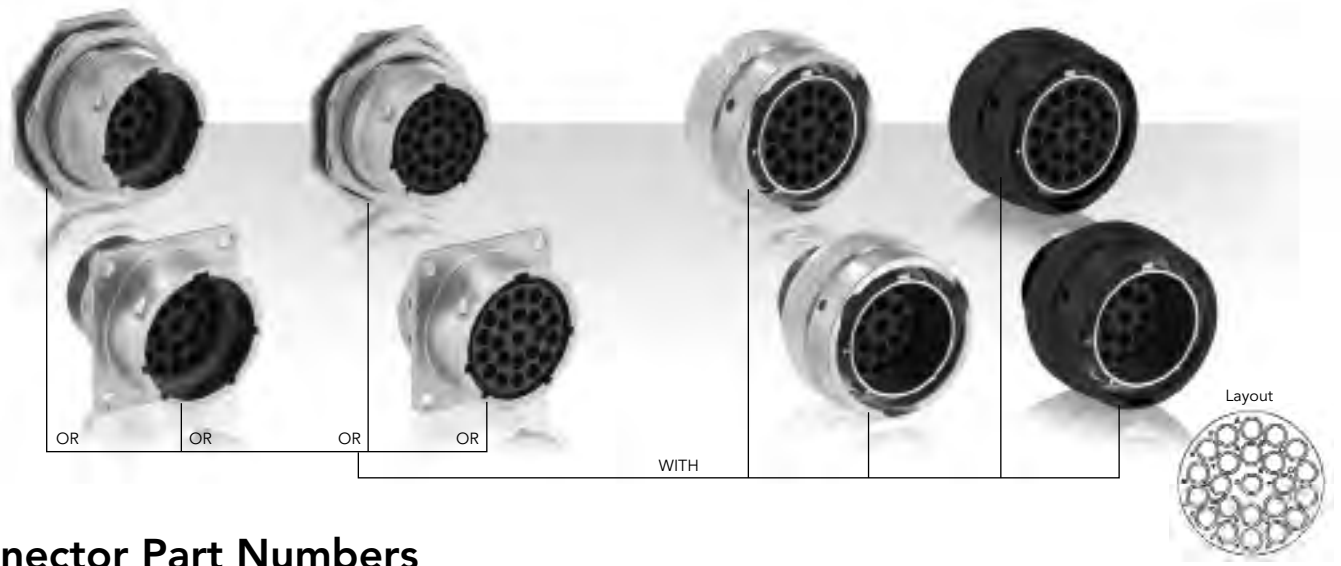
CSA
6A 500V UL94 V-0

IEC
9A 150V 2.5kV 3

UTO 1619 Derating Curves



1823 (Shell size 18, 23x#16)



Drilling pattern see page 177

Connector Part Numbers

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 182

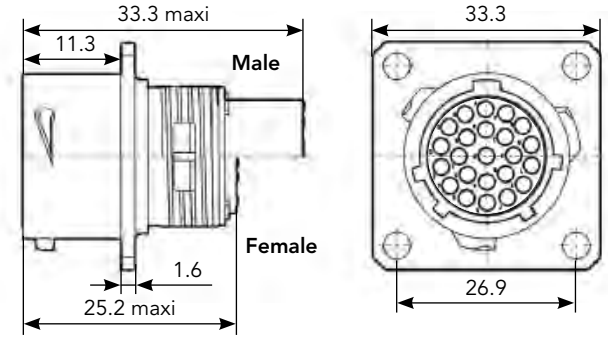
Backshells

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)	3	10/14.5	UT0S18JCS	UT0S18JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/16	UT0S18JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/16	UT018JCPGN	

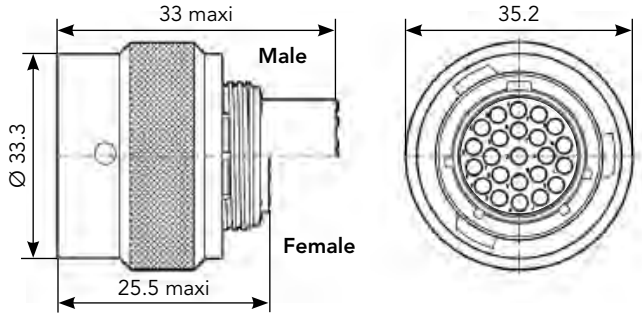
1823 (Shell size 18, 23x#16)

Dimensions

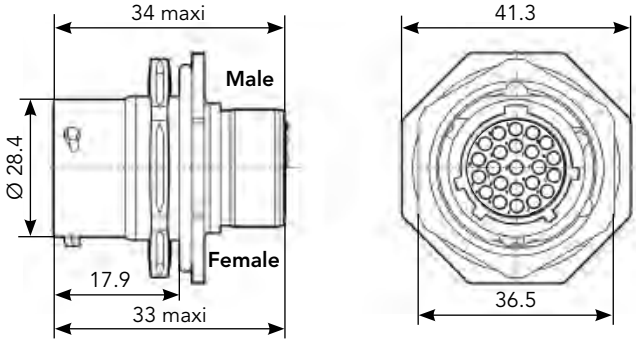
Square Flange - UTO0



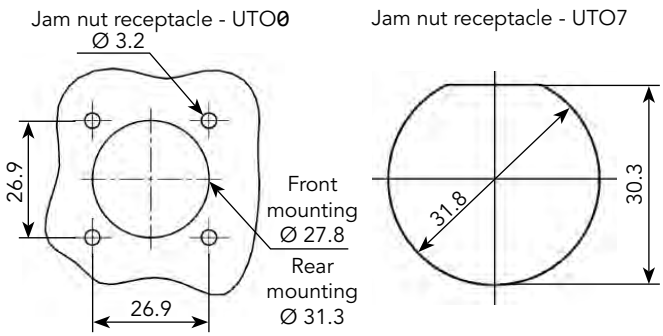
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

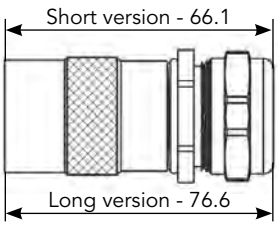


Fig. 1

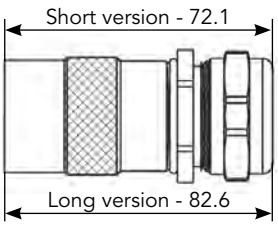


Fig. 2

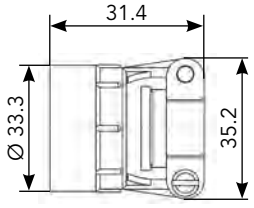


Fig. 5

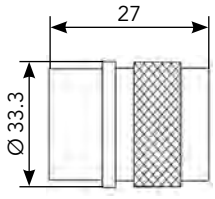


Fig. 6

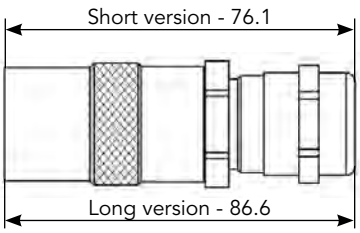


Fig. 3

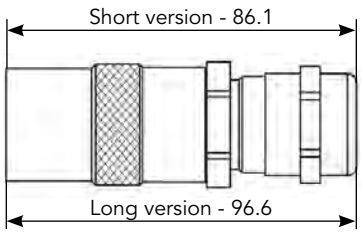


Fig. 4

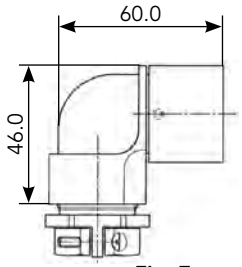


Fig. 7

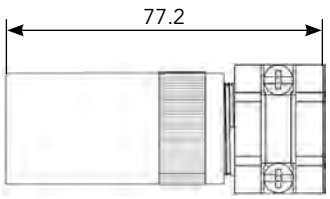


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD16B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle | Head | Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

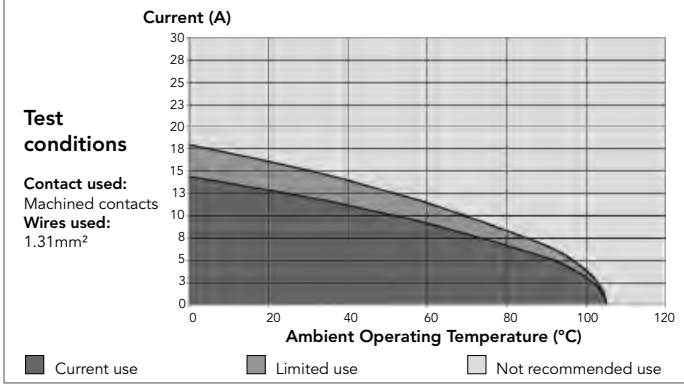
Electrical Characteristics

UL
8A 500V UL94 V-0

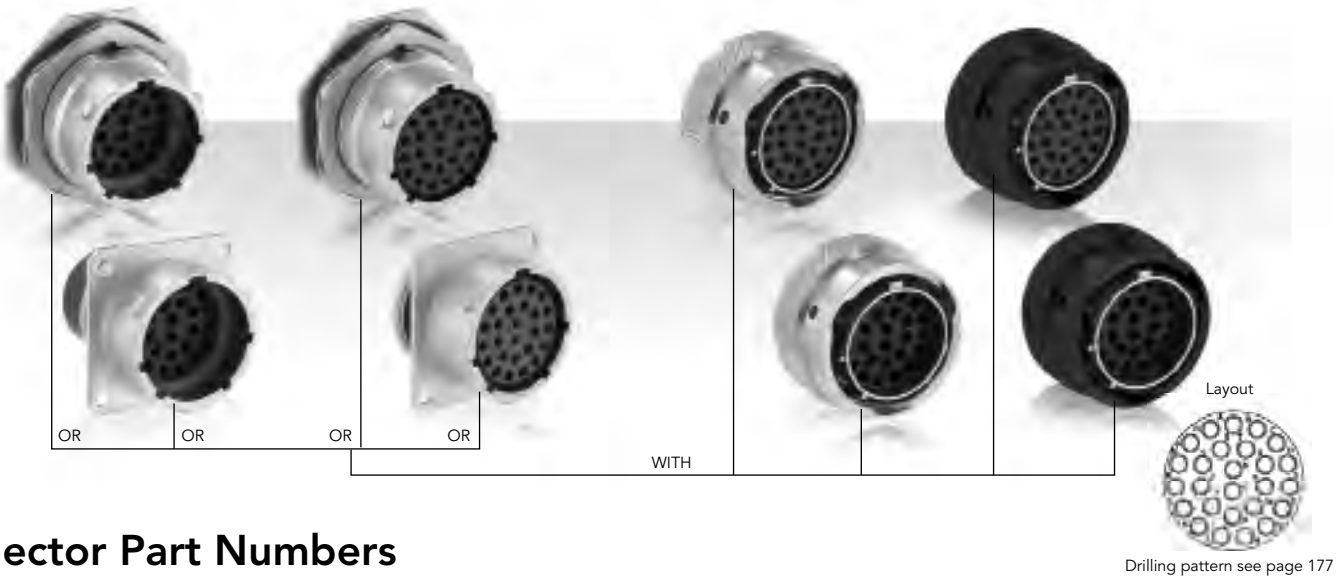
CSA
7A 500V UL94 V-0

IEC
8A 150V 2.5kV 3

UTO 1823 Derating Curves



1626 (Shell size 16, 26x#20)



Drilling pattern see page 177

Connector Part Numbers

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 182

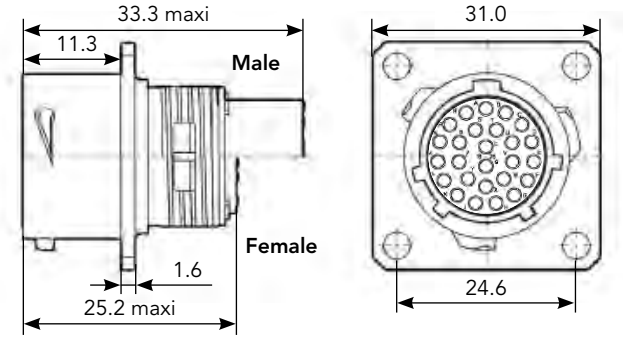
Backshells

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)	3	10/14.5	UT0S16JCS	UT0S16JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/16	UT0S16JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/16	UT016JCPGN	

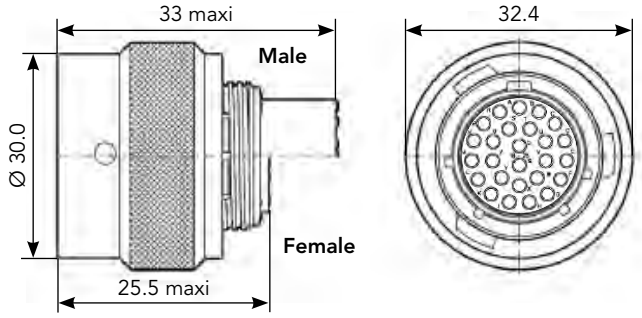
1626 (Shell size 16, 26x#20)

Dimensions

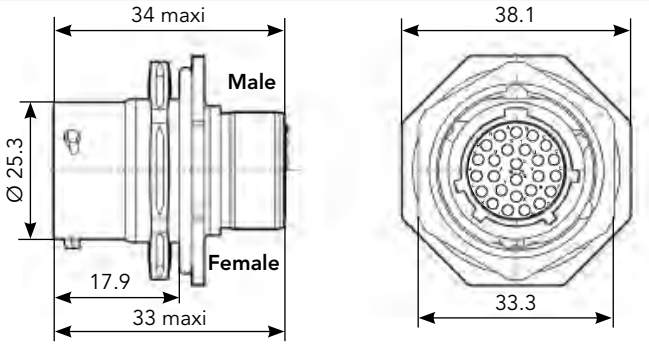
Square Flange - UTO0



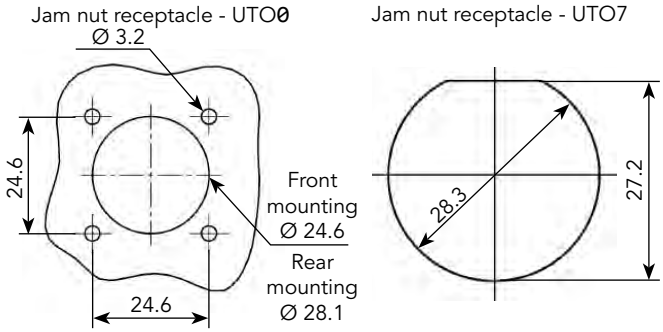
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

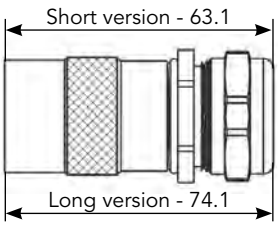


Fig. 1

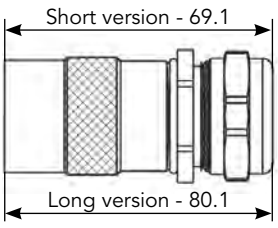


Fig. 2

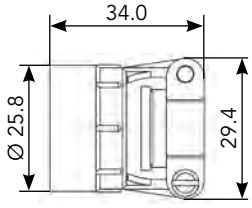


Fig. 5

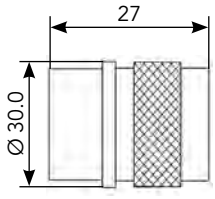


Fig. 6

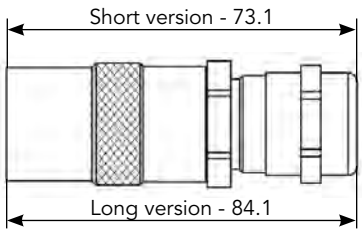


Fig. 3

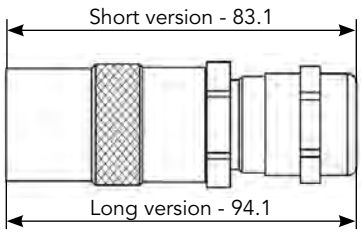


Fig. 4

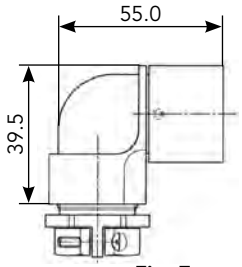


Fig. 7

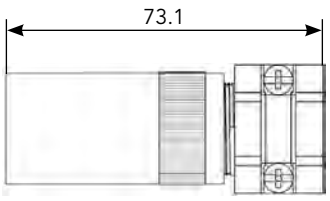


Fig. 8

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(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	SM24W3TK6(1)(2)	SC24W3TK6(1)(2)	-	0.90-1.60
		26-24	SM24W3S26(1)(2)	SC24W3S25(1)(2)	-	0.90-1.60
		22-20	SM20W3TK6(1)(2)	SC20W3TK6(1)(2)	-	1.20-2.10
		22-20	SM20W3S26(1)(2)	SC20W3S25(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	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

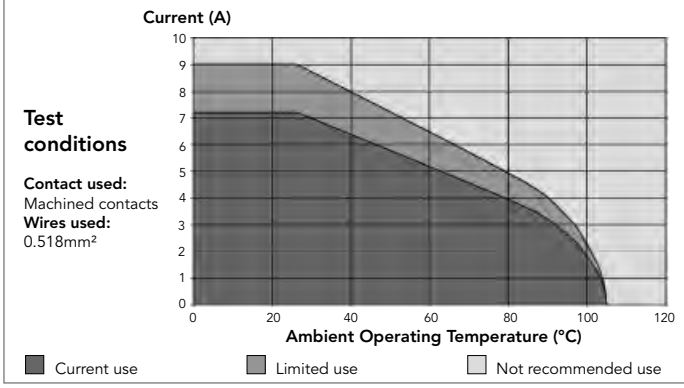
Electrical Characteristics

UL
4A 250V UL94 V-0

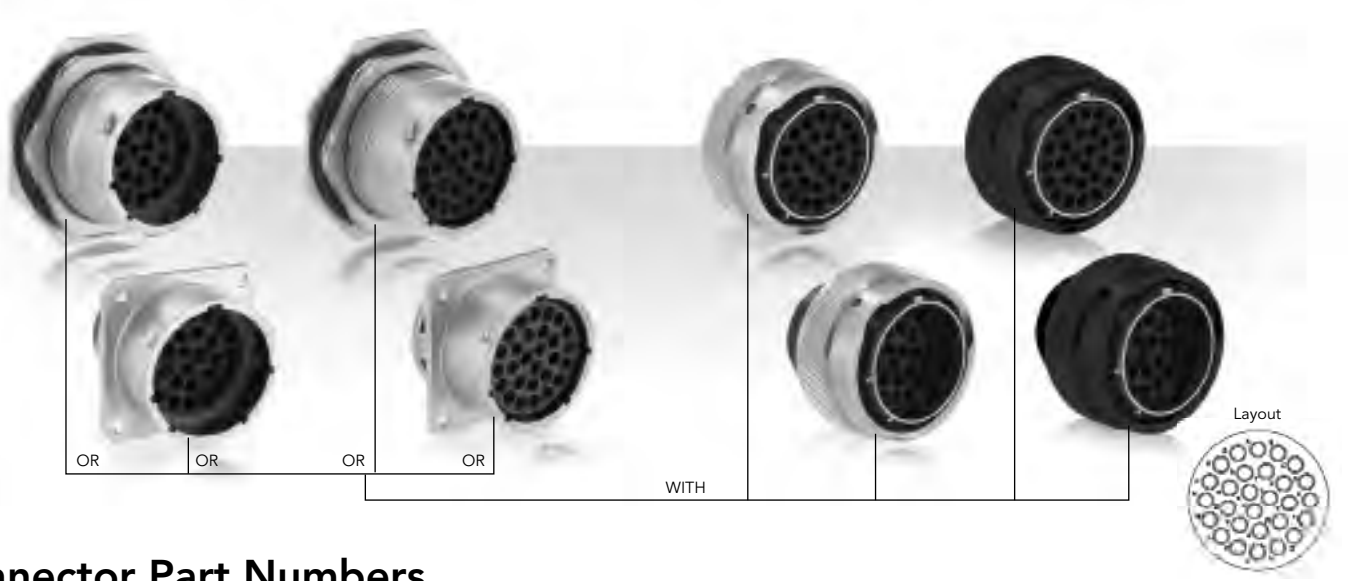
CSA
3A 250V UL94 V-0

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 182

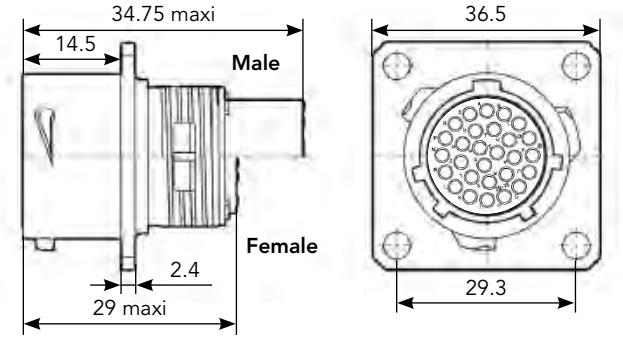
Backshells

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)	3	13.5/18	UT0S20JCS	UT0S20JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S20JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT020JCPGN	

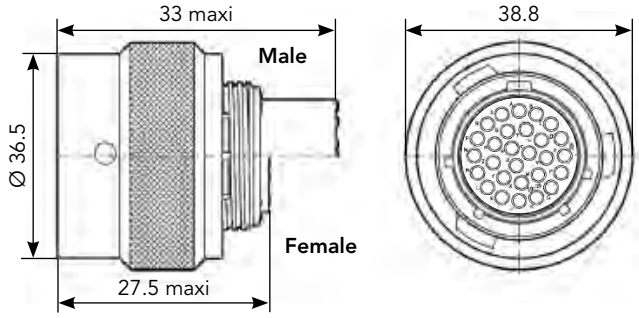
2028 (Shell size 20, 28x#16)

Dimensions

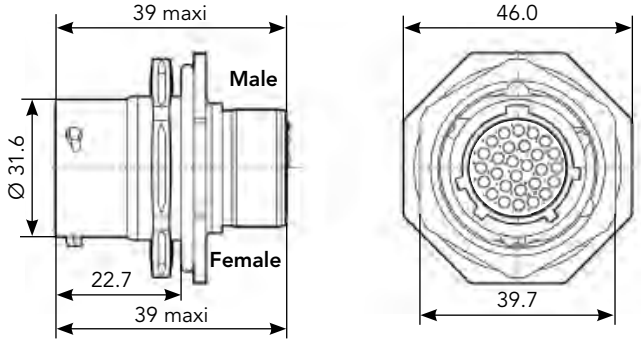
Square Flange - UTO0



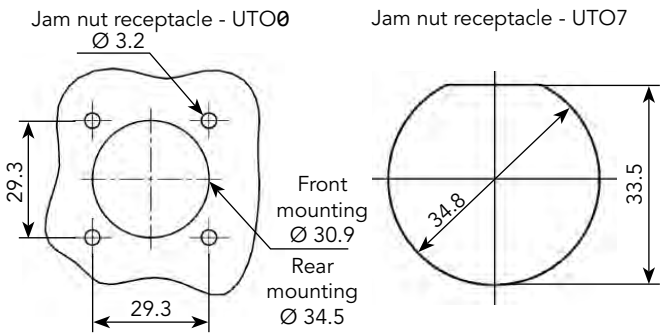
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

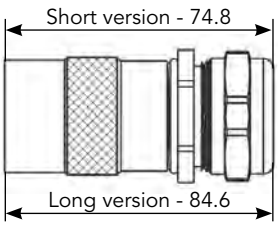


Fig. 1

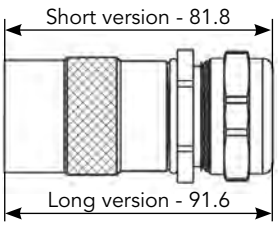


Fig. 2

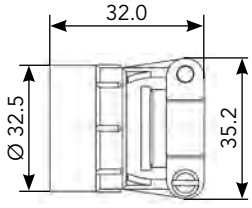


Fig. 5

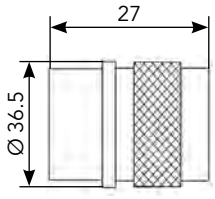


Fig. 6

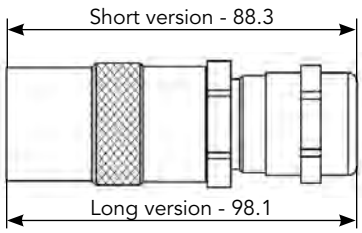


Fig. 3

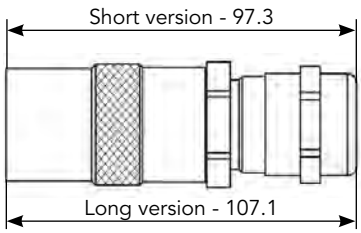


Fig. 4

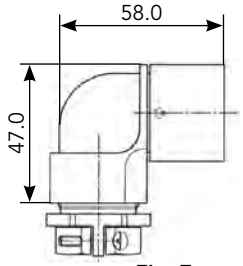


Fig. 7

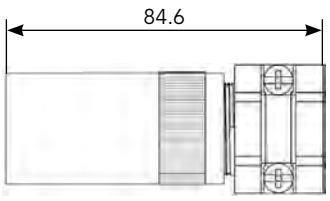


Fig. 8

Note: all dimensions are in mm

28

2028 (Shell size 20, 28x#16)

Accessories and Tooling

Dustcap (Receptacle)

Part number
UT020DCG*

Dustcap (Plug)

Part number
UTG620DCG*

Handle (without Head)

Part number
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD17B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle | Head | Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

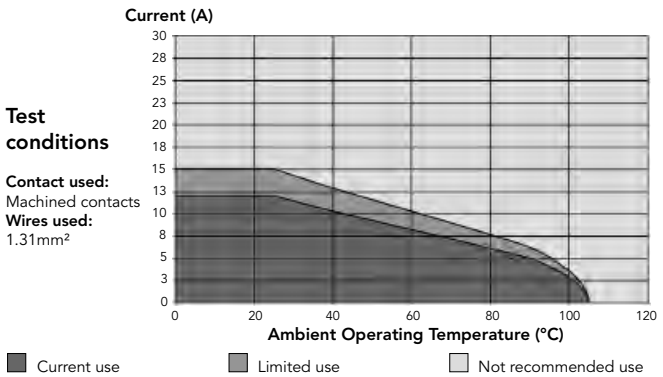
Electrical Characteristics

UL
5A 500V UL94 V-0

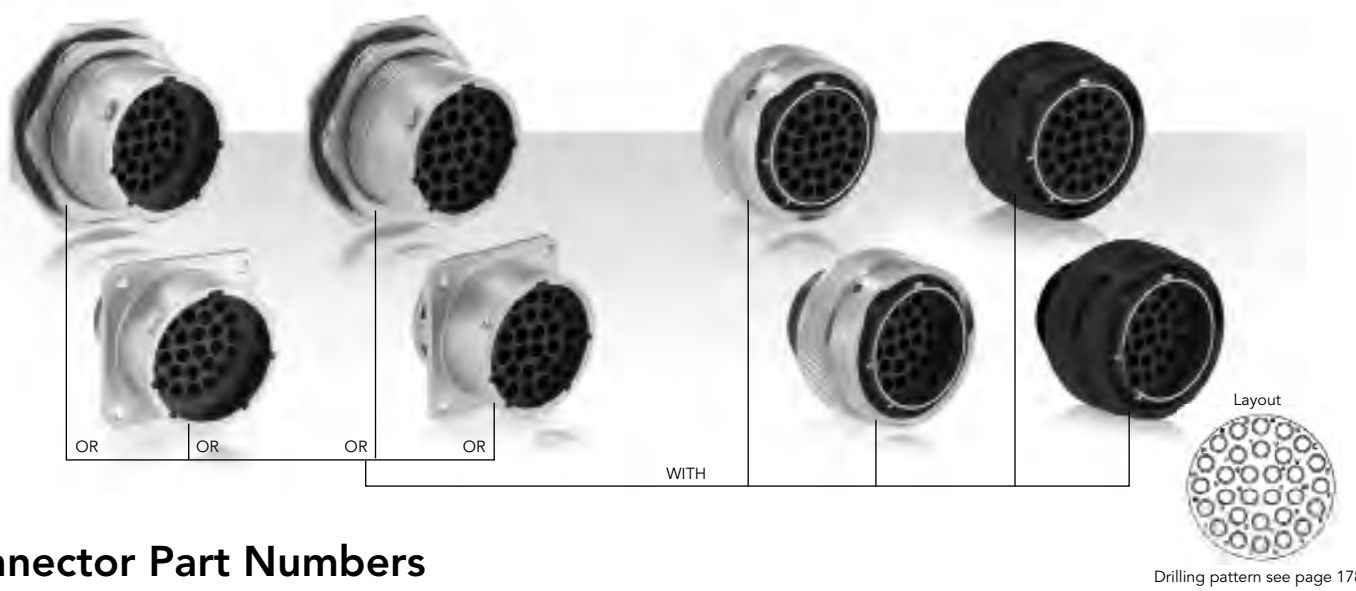
CSA
3A 500V UL94 V-0

IEC
7A 150V 2.5kV 3

UTO 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 possible discrimination, see page 180

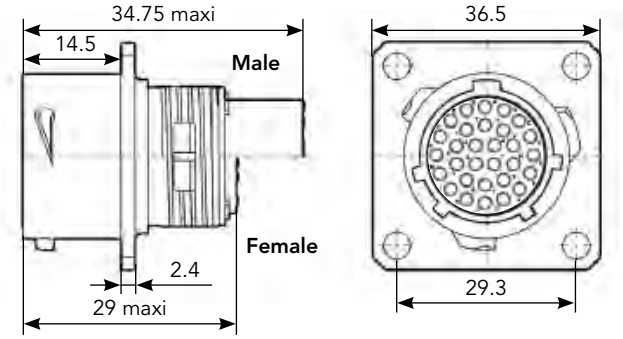
Backshells

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)	3	13.5/18	UT0S20JCS	UT0S20JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S20JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT020JCPGN	

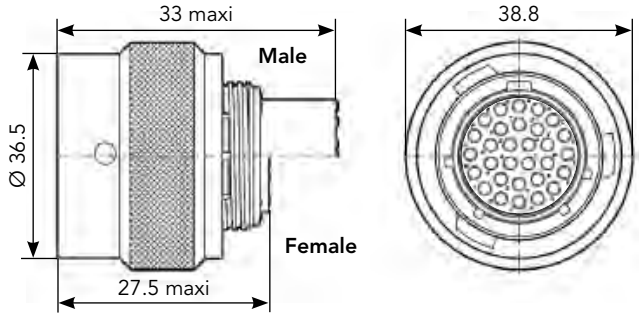
2030 (Shell size 20, 30x#16)

Dimensions

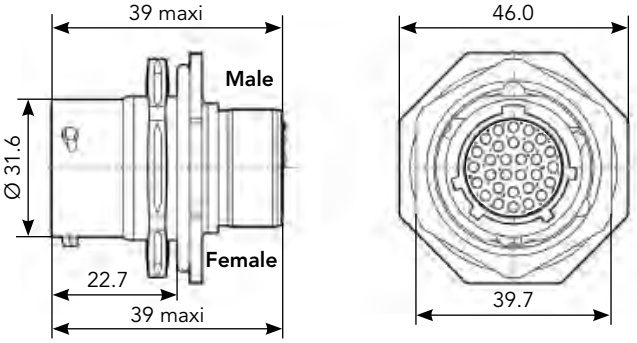
Square Flange - UTO0



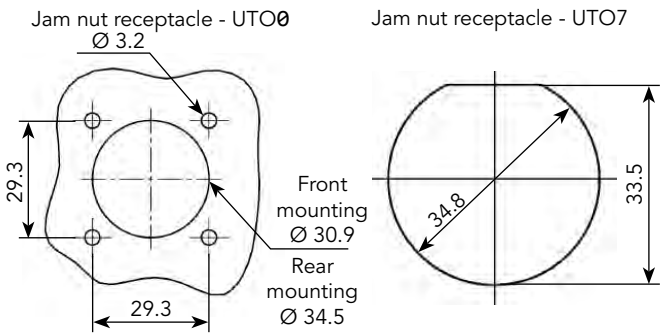
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

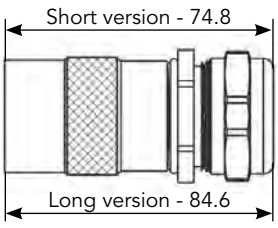


Fig. 1

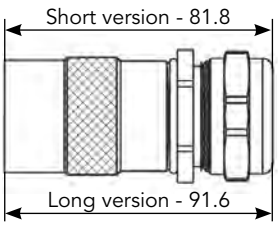


Fig. 2

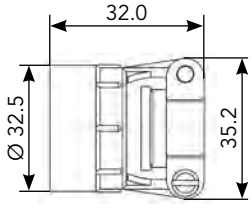


Fig. 5

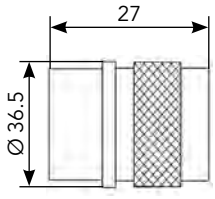


Fig. 6

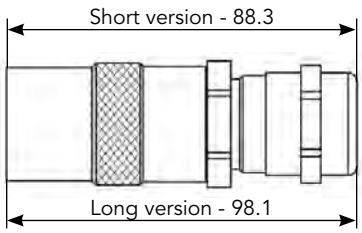


Fig. 3

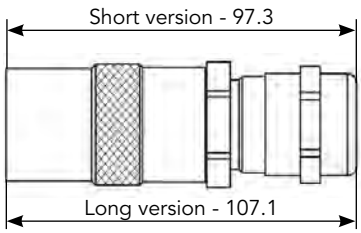


Fig. 4

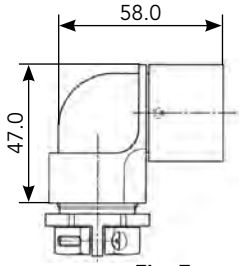


Fig. 7

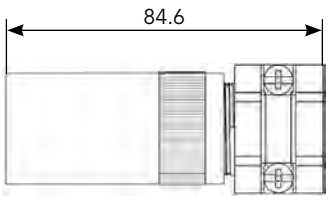


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD17B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

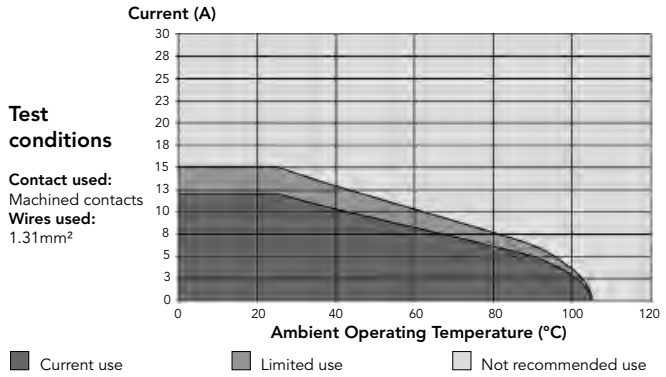
Electrical Characteristics

UL
5A 500V UL94 V-0

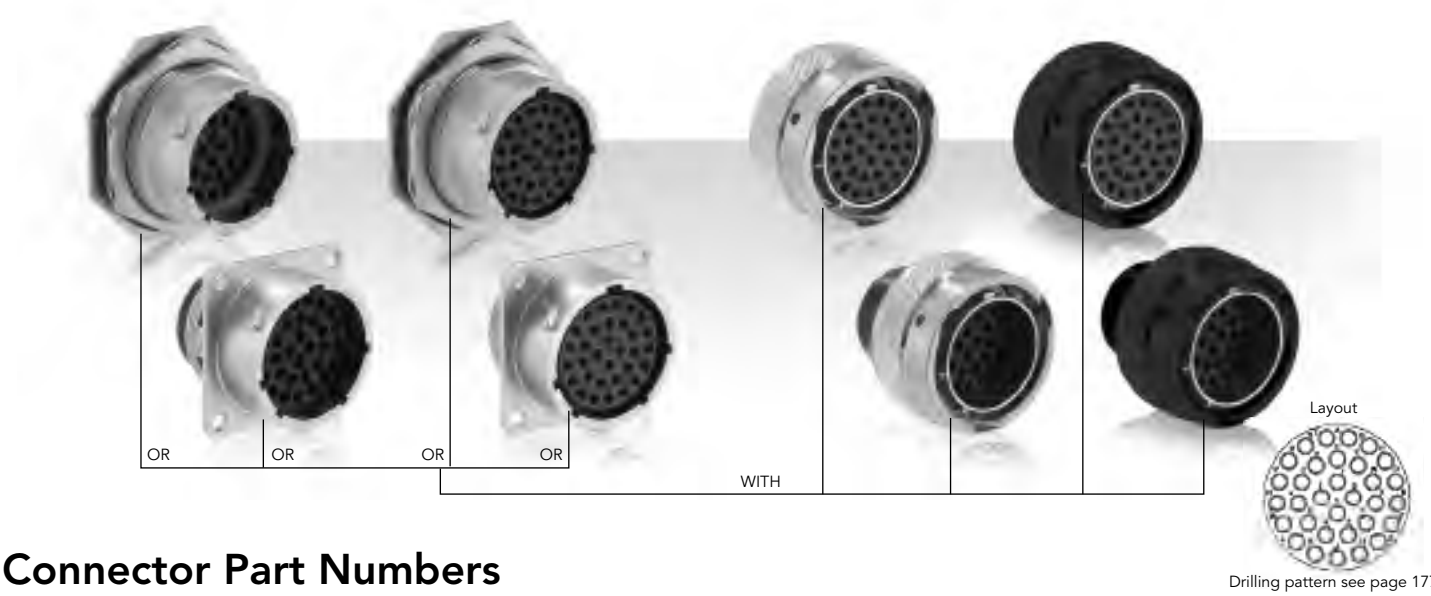
CSA
3A 500V UL94 V-0

IEC
7A 150V 2.5kV 3

UTO 2030 Derating Curves



1832 (Shell size 18, 32x#20)



Drilling pattern see page 177

Connector Part Numbers

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 182

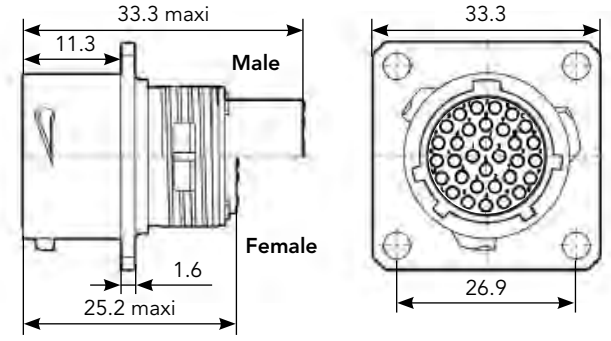
Backshells

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)	3	10/14.5	UT0S18JCS	UT0S18JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	6.5/16	UT0S18JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	6.5/16	UT018JCPGN	

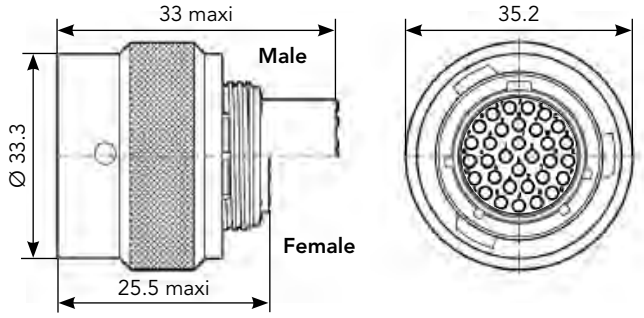
1832 (Shell size 18, 32x#20)

Dimensions

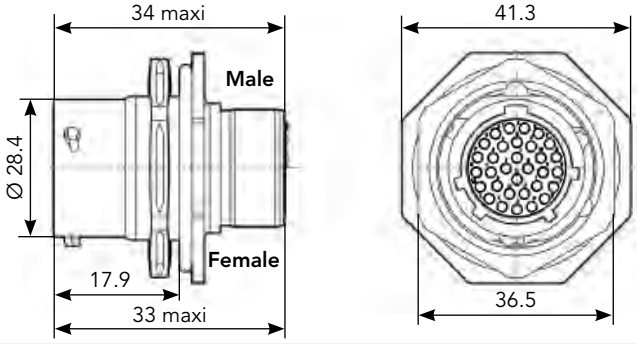
Square Flange - UTO0



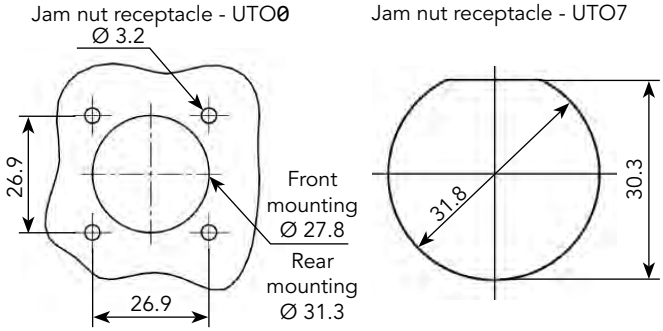
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

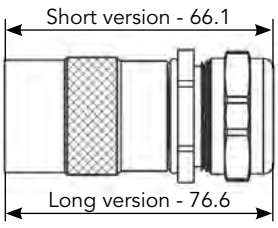


Fig. 1

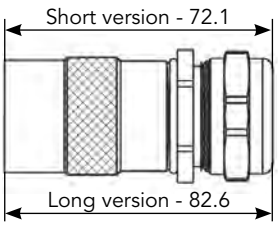


Fig. 2

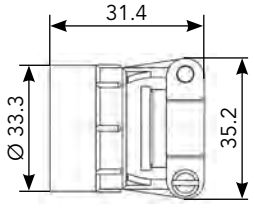


Fig. 5

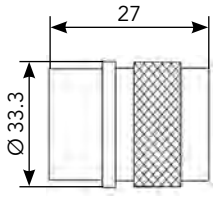


Fig. 6

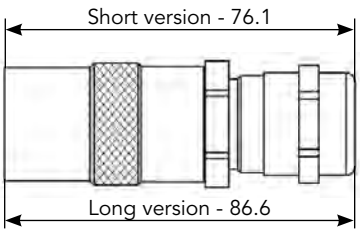


Fig. 3

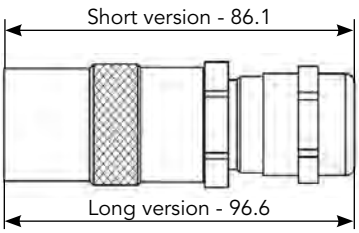


Fig. 4

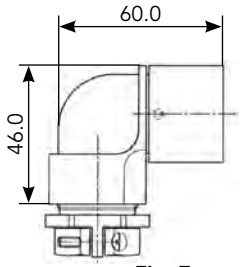


Fig. 7

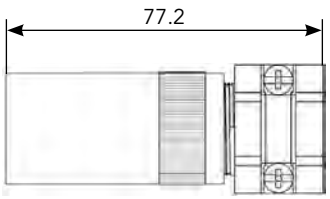


Fig. 8

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(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	**SM24W3TK6**(1)(2)	**SC24W3TK6**(1)(2)	-	0.90-1.60
		26-24	**SM24W3S26**(1)(2)	**SC24W3S25**(1)(2)	-	0.90-1.60
		22-20	**SM20W3TK6**(1)(2)	**SC20W3TK6**(1)(2)	-	1.20-2.10
		22-20	**SM20W3S26**(1)(2)	**SC20W3S25**(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	**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

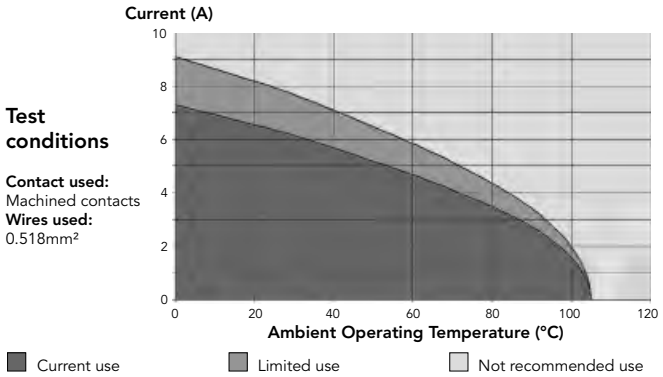
Electrical Characteristics

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

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

Drilling pattern see page 178

* Other discrimination keying option, see page 182

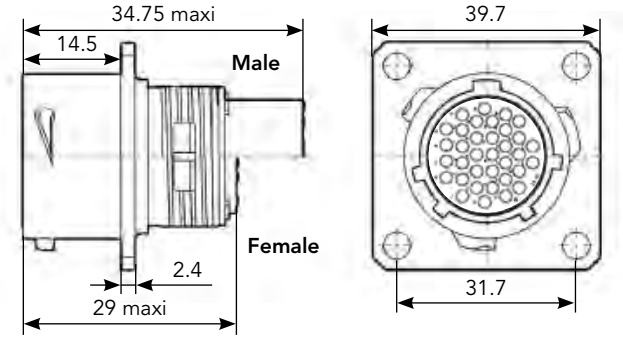
Backshells

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)	3	13.5/18	UT0S22JCS	UT0S22JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S22JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT022JCPGN	

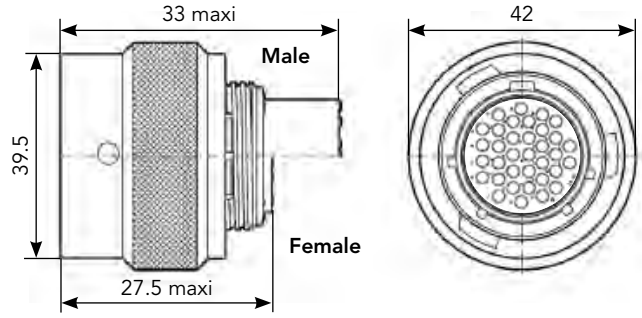
2235 (Shell size 22, 35x#16)

Dimensions

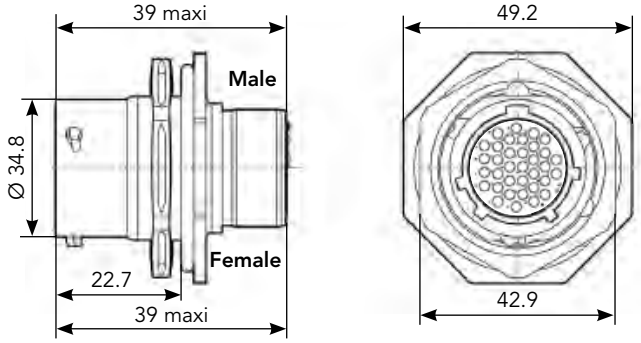
Square Flange - UTO0



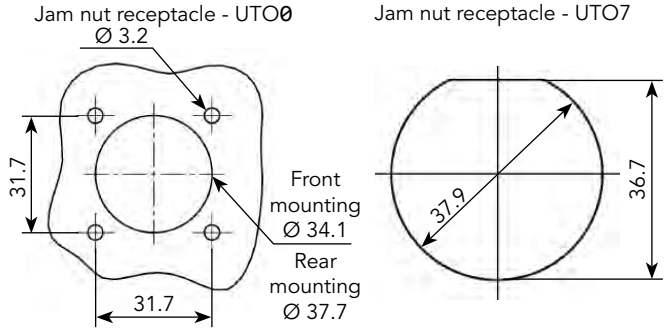
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

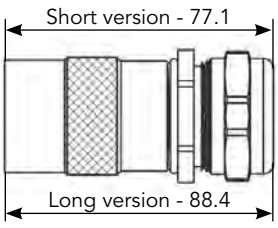


Fig. 1

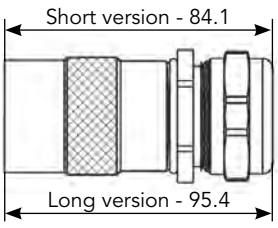


Fig. 2

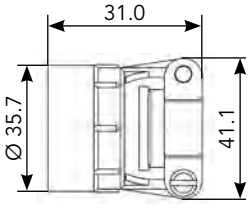


Fig. 5

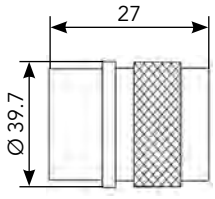


Fig. 6

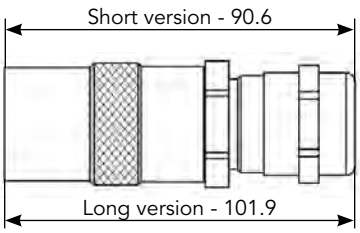


Fig. 3

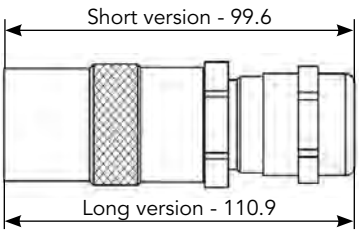


Fig. 4

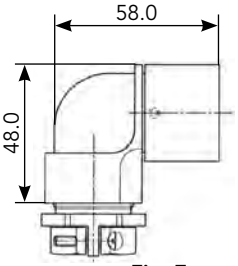


Fig. 7

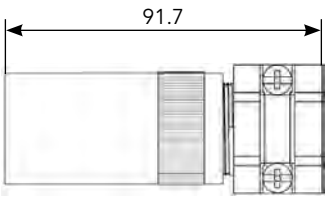


Fig. 8

Note: all dimensions are in mm

35

2235 (Shell size 22, 35x#16)

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

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

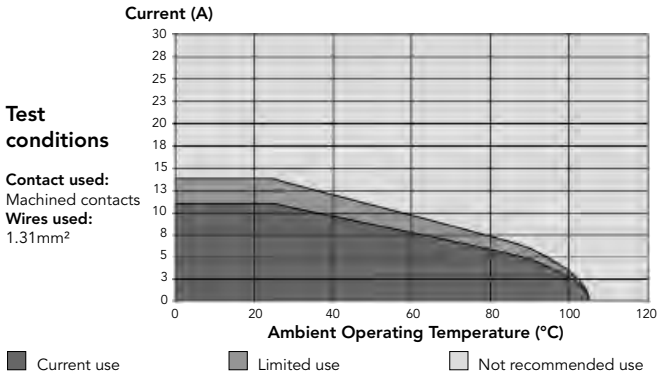
Electrical Characteristics

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 possible discrimination, see page 180

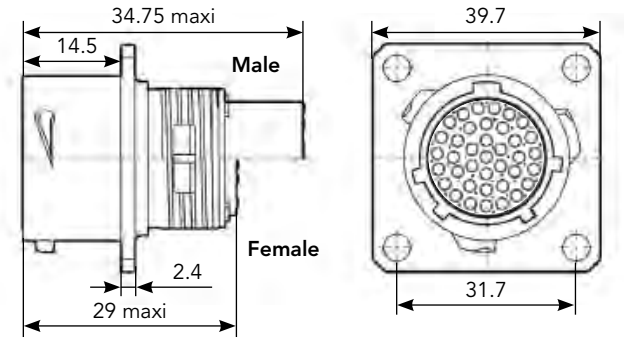
Backshells

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)	3	13.5/18	UT0S22JCS	UT0S22JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S22JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT022JCPGN	

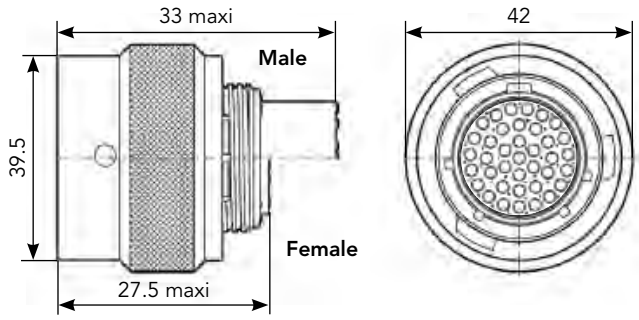
2238 (Shell size 22, 38x#16)

Dimensions

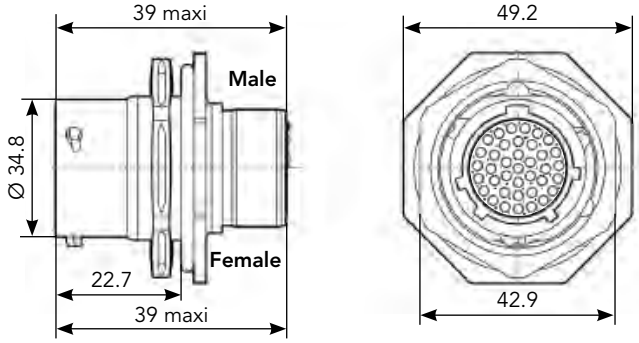
Square Flange - UTO0



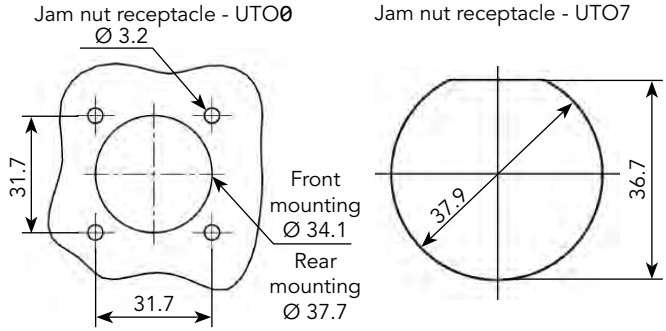
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

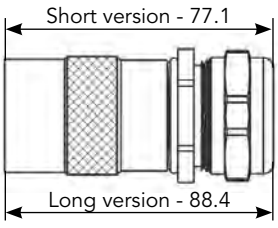


Fig. 1

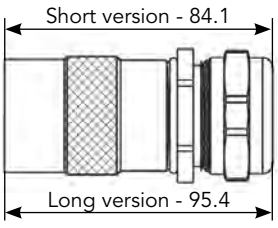


Fig. 2

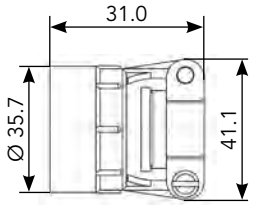


Fig. 5

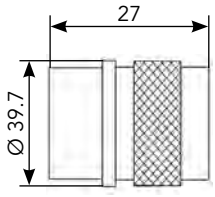


Fig. 6

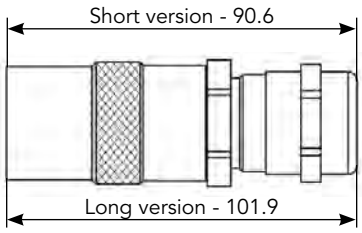


Fig. 3

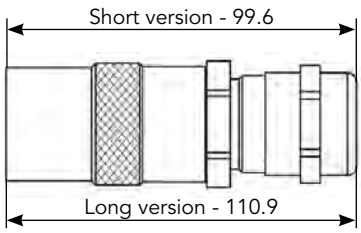


Fig. 4

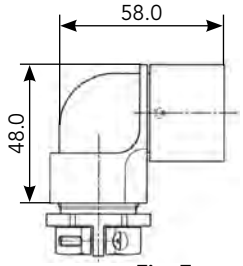


Fig. 7

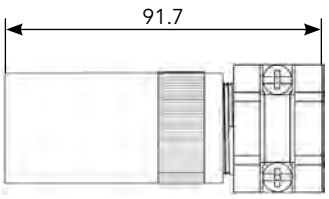


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD18B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

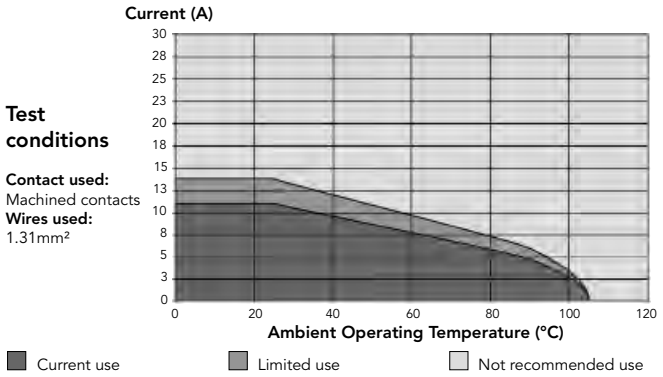
Electrical Characteristics

UL
5A 500V UL94 V-0

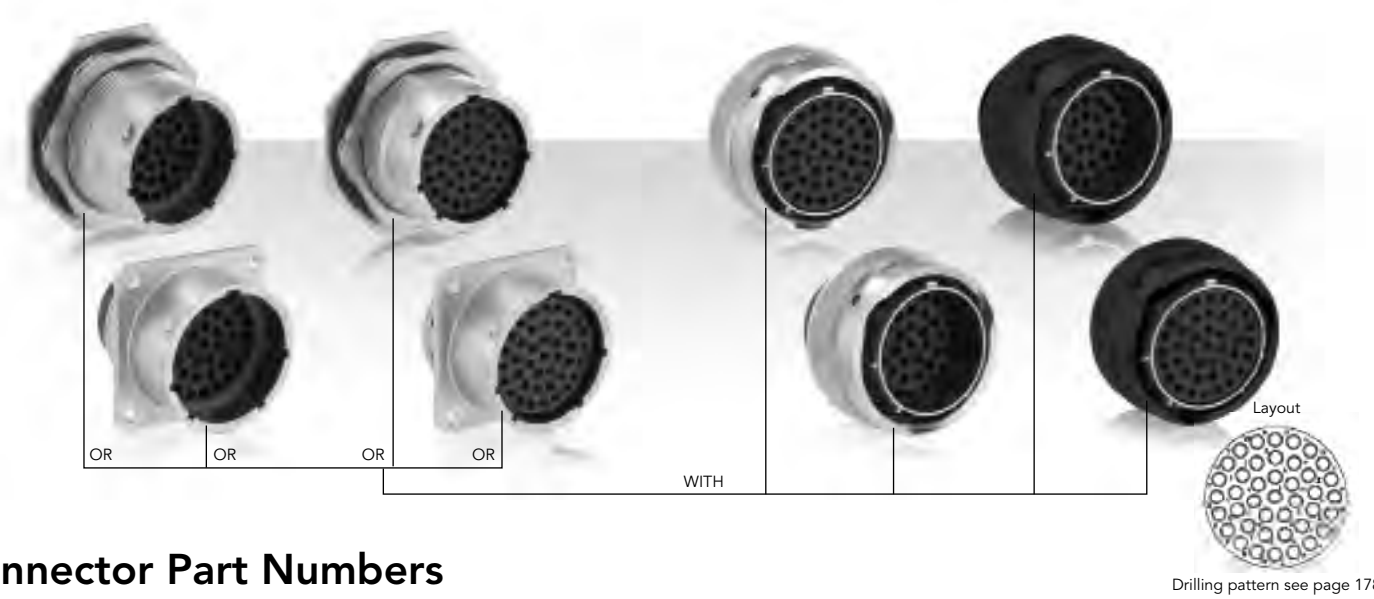
CSA
3A 500V UL94 V-0

IEC
6A 150V 2.5kV 3

UTO 2238 Derating Curves



2041 (Shell size 20, 41x#20)



Drilling pattern see page 178

Connector Part Numbers

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 182

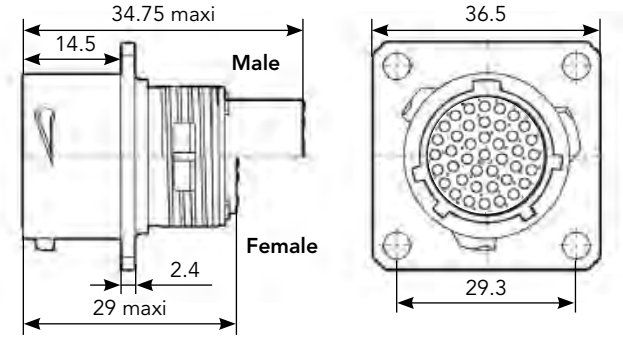
Backshells

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)	3	13.5/18	UT0S20JCS	UT0S20JC
Shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S20JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT020JCPGN	

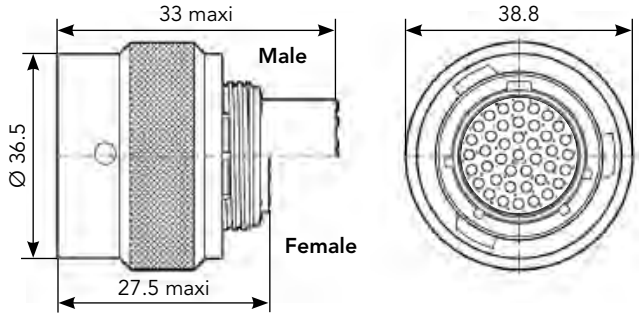
2041 (Shell size 20, 41x#20)

Dimensions

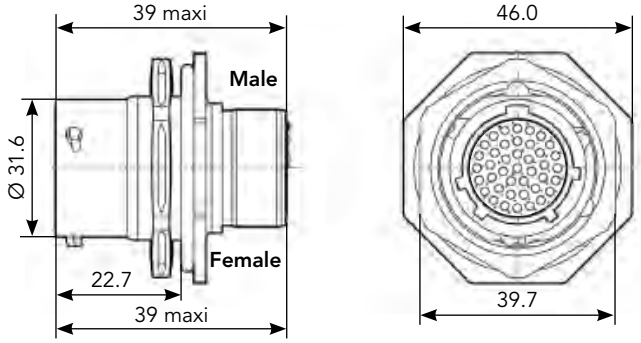
Square Flange - UTO0



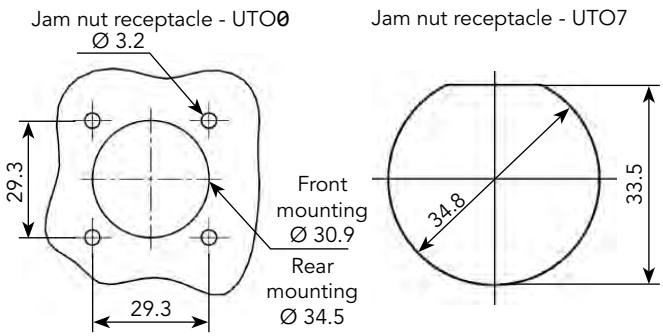
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

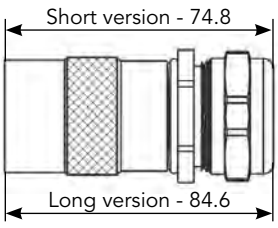


Fig. 1

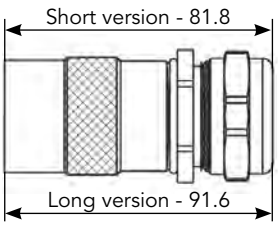


Fig. 2

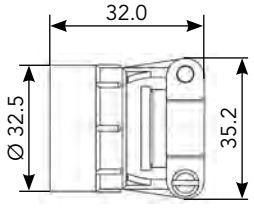


Fig. 5

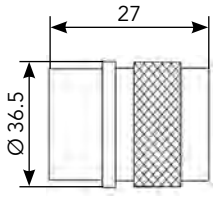


Fig. 6

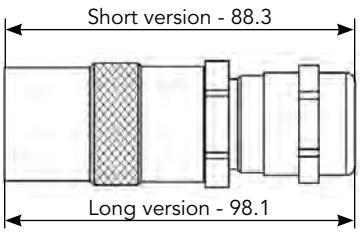


Fig. 3

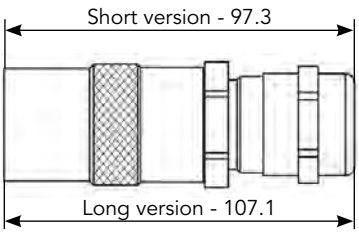


Fig. 4

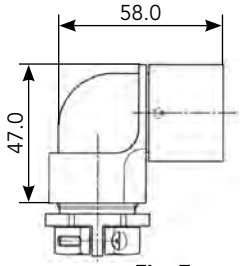


Fig. 7

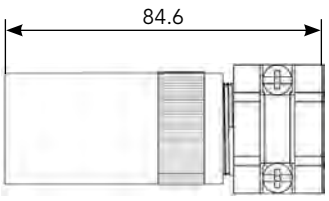


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD17B

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 24W3K(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	**SM24W3TK6**(1)(2)	**SC24W3TK6**(1)(2)	-	0.90-1.60
		26-24	**SM24W3S26**(1)(2)	**SC24W3S25**(1)(2)	-	0.90-1.60
		22-20	**SM20W3TK6**(1)(2)	**SC20W3TK6**(1)(2)	-	1.20-2.10
		22-20	**SM20W3S26**(1)(2)	**SC20W3S25**(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	**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

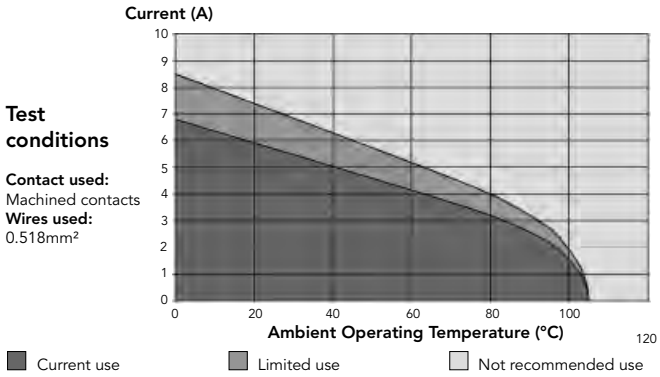
Electrical Characteristics

UL
3A 250V UL94 V-0

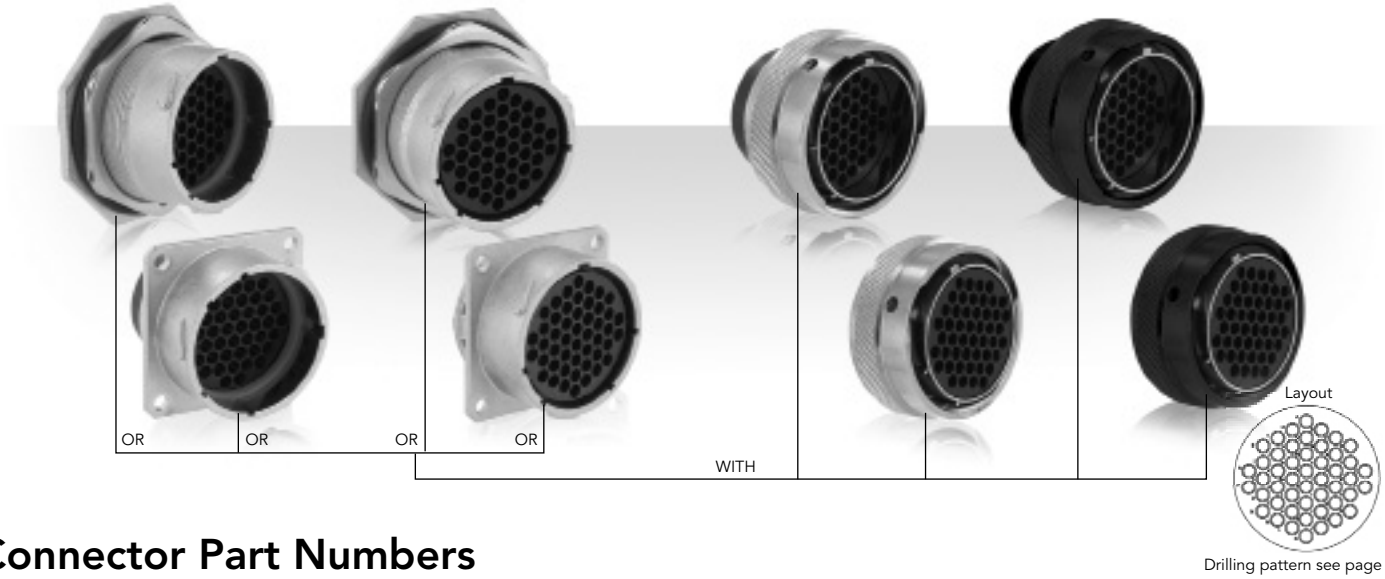
CSA
2A 250V UL94 V-0

IEC
8A 80V 1.5kV 3

UTO 2041 Derating Curves



2448 (Shell size 24, 48x#16)



Drilling pattern see page 183

Connector Part Numbers

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

* Other discrimination keying option, see page 182

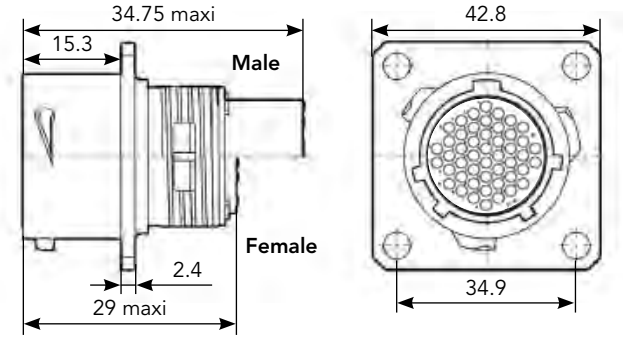
Backshells

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)	-	19.3	UT024AC	
Metal shrink boot adaptor (Fig.6)	-	-	UT024AD	
Metal right angle cable clamp with strain relief nut (Fig.7)	-	9/21	UT024LPGN	
Shielded cable clamp with plastic strain relief nut (Fig.8)	✓	9/21	UT0S24JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT024JCPGN	

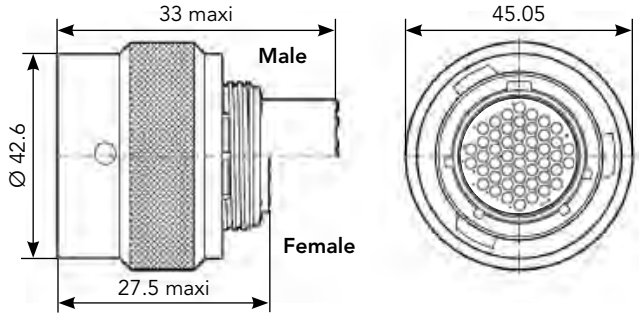
2448 (Shell size 24, 48x#16)

Dimensions

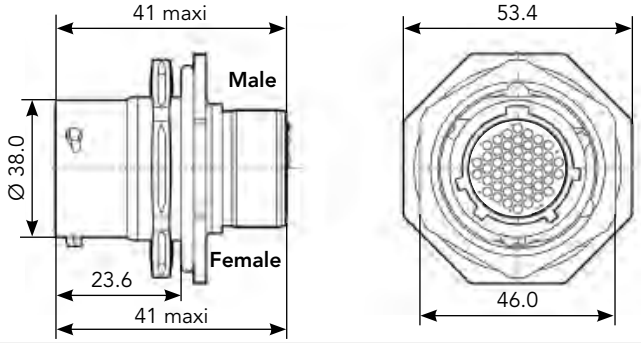
Square Flange - UTO0



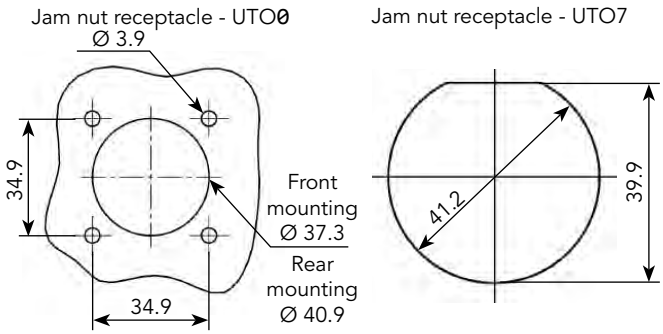
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

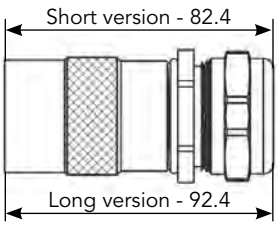


Fig. 1

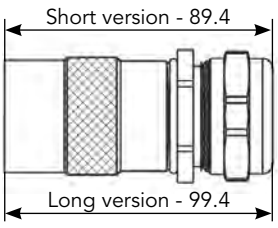


Fig. 2

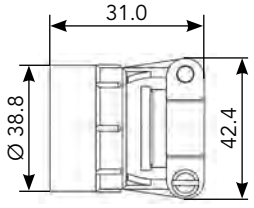


Fig. 5

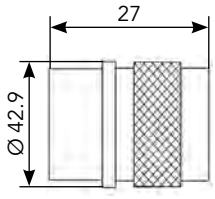


Fig. 6

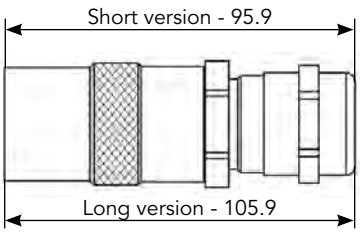


Fig. 3

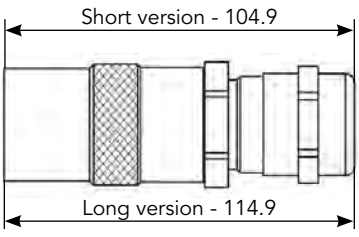


Fig. 4

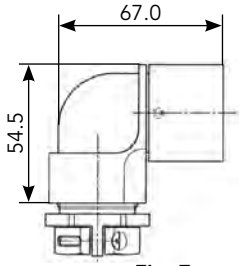


Fig. 7

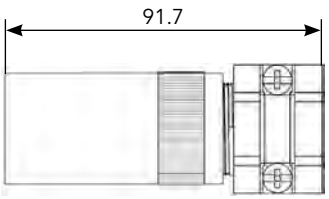


Fig. 8

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
SHANDLES

Tool Kit

Part number
TOOLKIT

Gasket

Part number / Neoprene
UTFD19B

Dummy Contact #16

Part number / Polyamide 6.6
SMSPKE0

See page 182 for more information

Extraction Tool #16

Part number
RX2025GE1

Crimp Tooling (without Shandles)

Contacts	Contact size	Part number of head
RM/RC 28M1K(1)	Standard contacts #16 Ø 1.6mm	S16RCM20*
RM/RC 24M9K(1)		S16RCM20*
RM/RC 20M13K(1)		S16RCM20*
RM/RC 20M12K(1)		S16RCM20*
RM/RC 16M23K(1)		S16RCM16*
RM/RC 14M30K(1)		S16RCM14*
SM/SC 24ML1TK6(1)		S16SCM20*
SM/SC 20ML1TK6(1)		S16SCM20*
SM/SC 16ML1TK6(1)		S16SCML1*
SM/SC 14ML1TK6(1)		S16SCML1*
SM/SC 16ML11TK6(1)		S16SCML11*
RMDXK10D28K	Coaxial contacts	M10S1J with die set & stop bushing see page 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: SHANDLES

Handle + Head = Complete set

* 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(1)	RC28M1K(1)	0.55	1.00
		26-24	RM24M9K(1)	RC24M9K(1)	0.80	1.60
		22-20	RM20M13K(1)	RC20M13K(1)	1.15	1.80
		22-20	RM20M12K(1)	RC20M12K(1)	1.15	2.20
		20-16	RM16M23K(1)	RC16M23K(1)	1.80	3.20
		16-14	RM14M30K(1)	RC14M30K(1)	2.30	3.20
	Stamped & formed reeled contacts See note (2) for loose piece	26-24	SM24M1TK6(1)(2)	SC24M1TK6(1)(2)	-	0.90-1.60
		22-20	SM20M1TK6(1)(2)	SC20M1TK6(1)(2)	-	1.20-2.10
		18-16	SM16M1TK6(1)(2)	SC16M1TK6(1)(2)	-	3.20
		18-16	SM16M11TK6(1)(2)	SC16M11TK6(1)(2)	-	3.00
		14	SM14M1TK6(1)(2)	SC14M1TK6(1)(2)	-	3.20
PCB	Machined (3)	-	RM20M12E8K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see pages 131, 168 to 174	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + 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

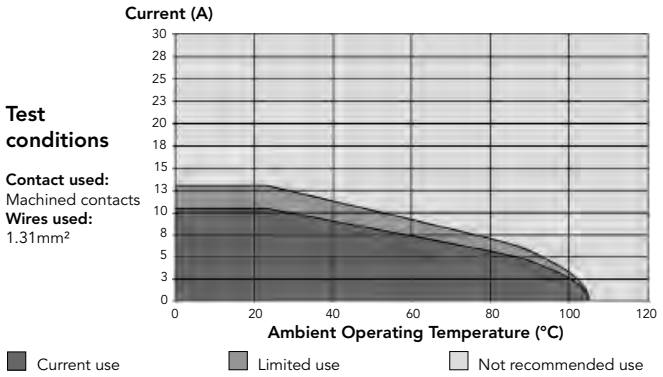
Electrical Characteristics

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 183

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 182

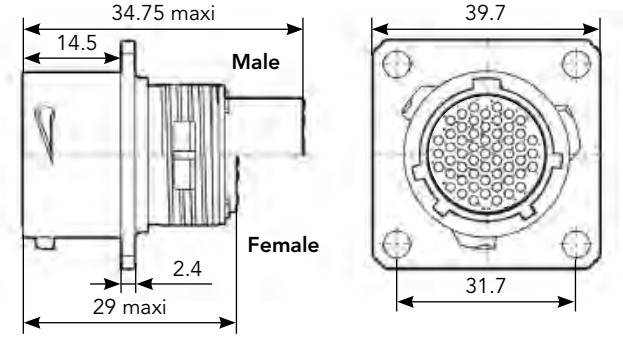
Backshells

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)	3	13.5/18	UT0S22JCS	UT0S22JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	9/21	UT0S22JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	9/21	UT022JCPGN	

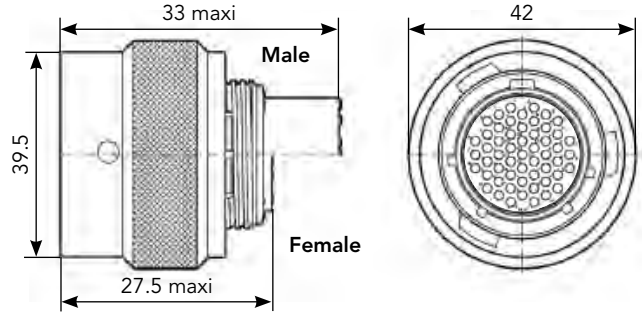
2255 (Shell size 22, 55x#20)

Dimensions

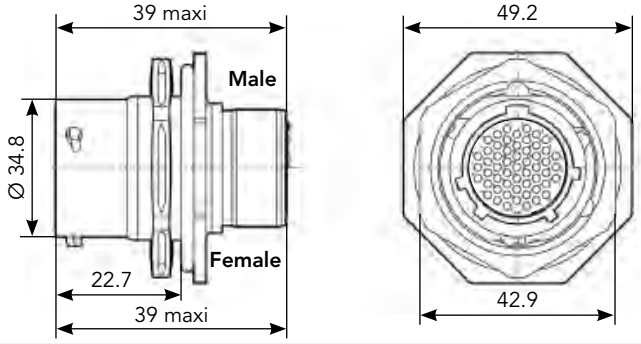
Square Flange - UTO0



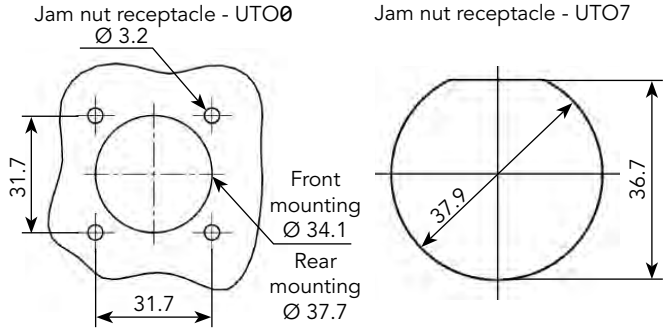
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

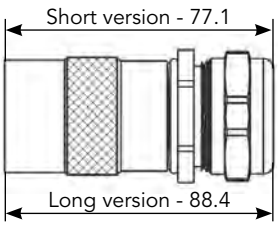


Fig. 1

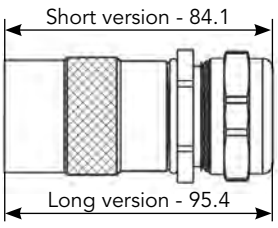


Fig. 2

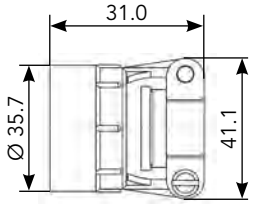


Fig. 5

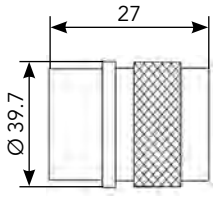


Fig. 6

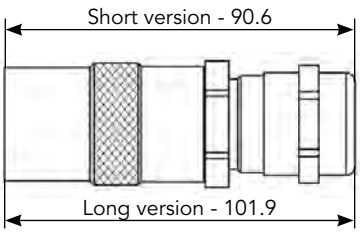


Fig. 3

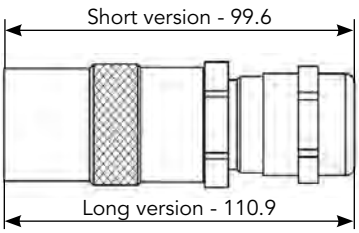


Fig. 4

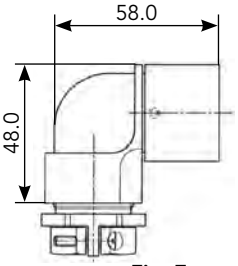


Fig. 7

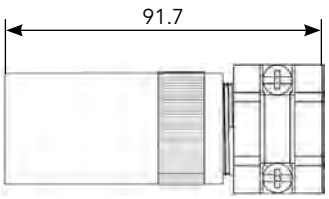


Fig. 8

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(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. UT024DC

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 See note (2) for loose piece	26-24	**SM24W3TK6**(1)(2)	**SC24W3TK6**(1)(2)	-	0.90-1.60
		26-24	**SM24W3S26**(1)(2)	**SC24W3S25**(1)(2)	-	0.90-1.60
		22-20	**SM20W3TK6**(1)(2)	**SC20W3TK6**(1)(2)	-	1.20-2.10
		22-20	**SM20W3S26**(1)(2)	**SC20W3S25**(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	**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

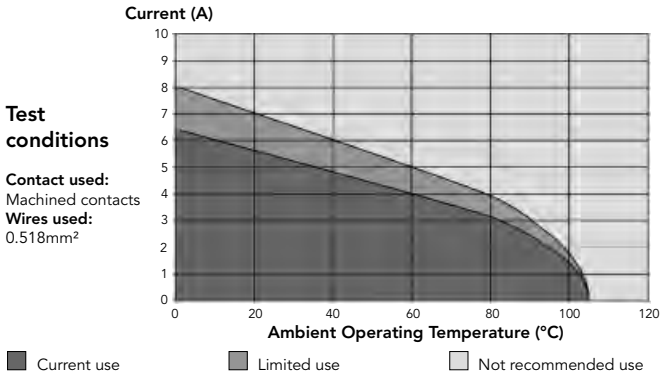
Electrical Characteristics

UL
3A 250V UL94 V-0

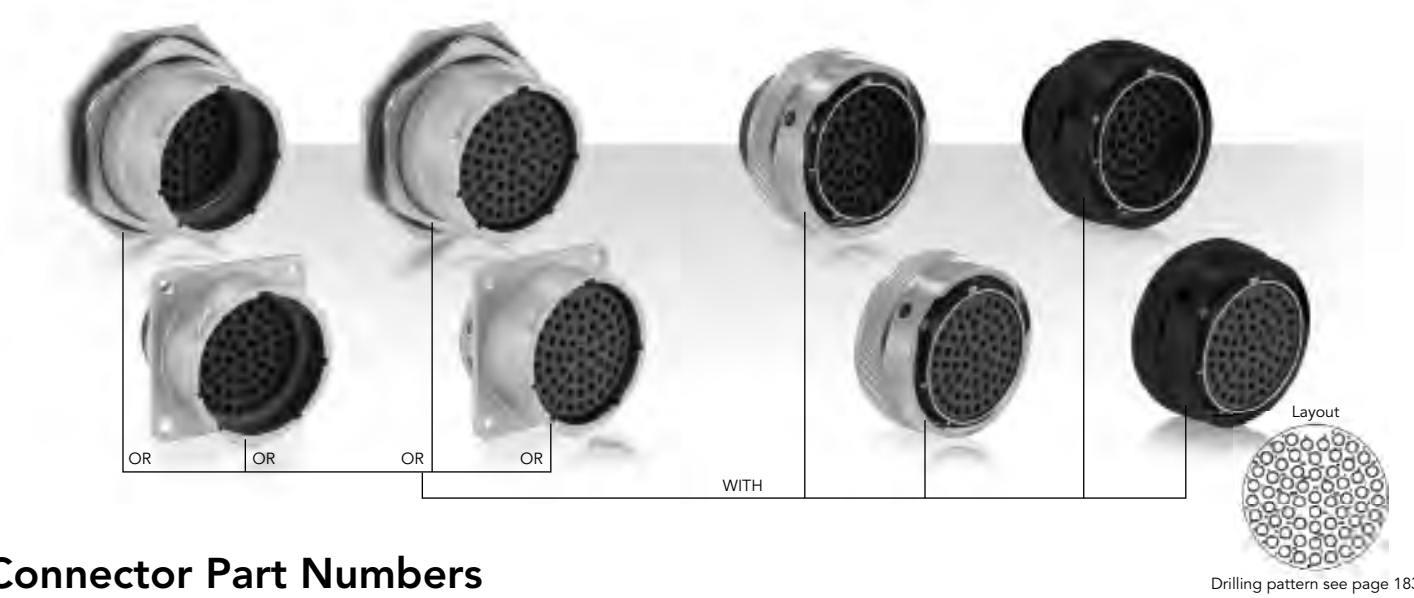
CSA
2A 250V UL94 V-0

IEC
3A 80V 1.5kV 3

UTO 2255 Derating Curves



2461 (Shell size 24, 61x#20)



Drilling pattern see page 183

Connector Part Numbers

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 182

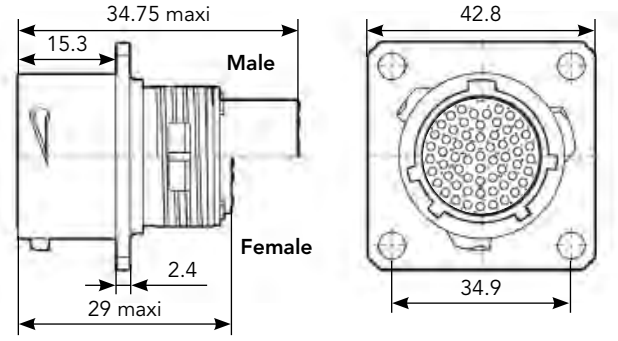
Backshells

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)	3	13.5/18	UT0S24JCS	UT0S24JC
Short shielded cable gland with large strain relief nut for water protected applications (IP68 & IP69K) (Fig.4)	3	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)	3	17/29.5	UT0S24JCPGN	
Cable clamp with plastic strain relief nut (Fig.8)	-	17/29.5	UT024JCPGN	

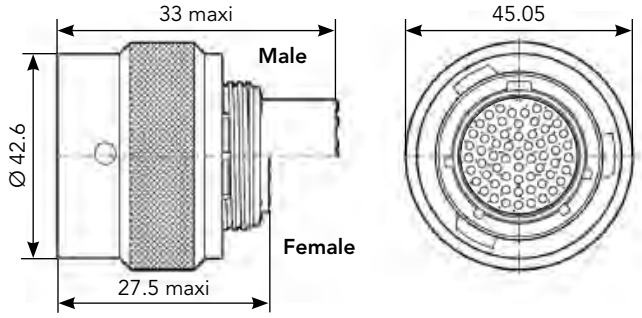
2461 (Shell size 24, 61x#20)

Dimensions

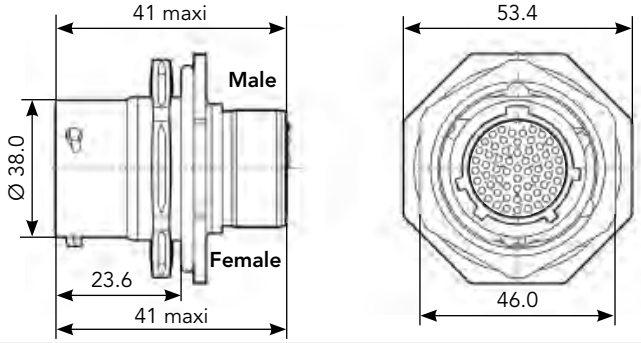
Square Flange - UTO0



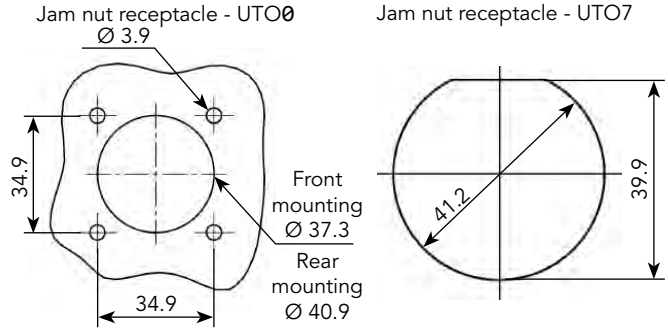
Plug - UTO6



Jam Nut - UTO7



Panel Cut Out



Backshells (for Mated Connector Length: See Page 153)

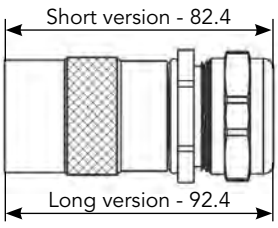


Fig. 1

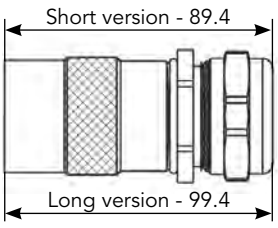


Fig. 2

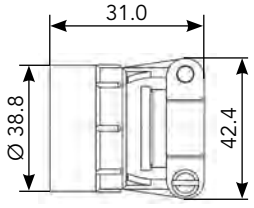


Fig. 5

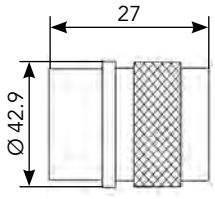


Fig. 6

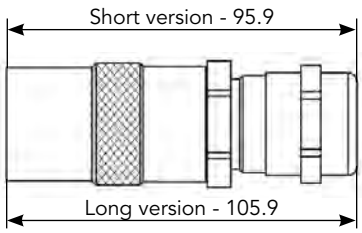


Fig. 3

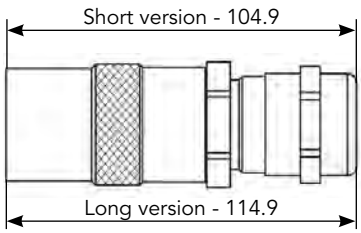


Fig. 4

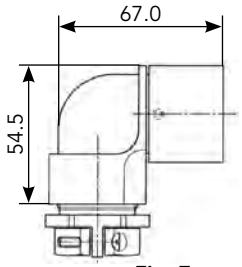


Fig. 7

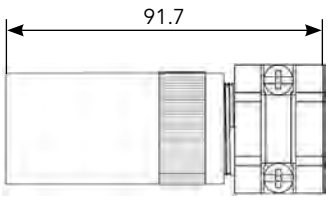


Fig. 8

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(1)	Standard contacts #20 Ø 1mm	S20RCM*
RM/RC 20W3K(1)		S20RCM*
RM/RC 18W3K(1)		S20RCM*
SM/SC 24WL3(1)(2)		S20SCM20*
SM/SC 20WL3(1)(2)		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. 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 See note (2) for loose piece	26-24	**SM24W3TK6**(1)(2)	**SC24W3TK6**(1)(2)	-	0.90-1.60
		26-24	**SM24W3S26**(1)(2)	**SC24W3S25**(1)(2)	-	0.90-1.60
		22-20	**SM20W3TK6**(1)(2)	**SC20W3TK6**(1)(2)	-	1.20-2.10
		22-20	**SM20W3S26**(1)(2)	**SC20W3S25**(1)(2)	-	1.20-2.10
PCB	Machined (3)	-	**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 v 132

Note: all dimensions are in mm

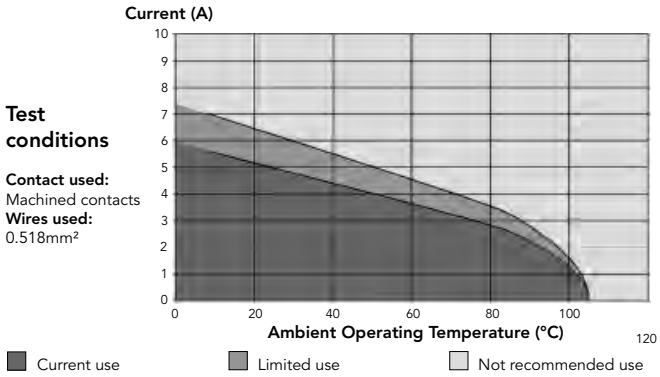
Electrical Characteristics

UL
3A 250V UL94 V-0

CSA
2A 250V UL94 V-0

IEC
3A 80V 1.5kV 3

UTO 2461 Derating Curves



UTO SERIES

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Contacts

- Description 126
- Contact Plating Selector Guide 127
- Contact Selector Guide 128
- Packaging 128
- Crimp Contacts 129
- #16 Coaxial Contacts 131
- PCB Contacts 132
- 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:

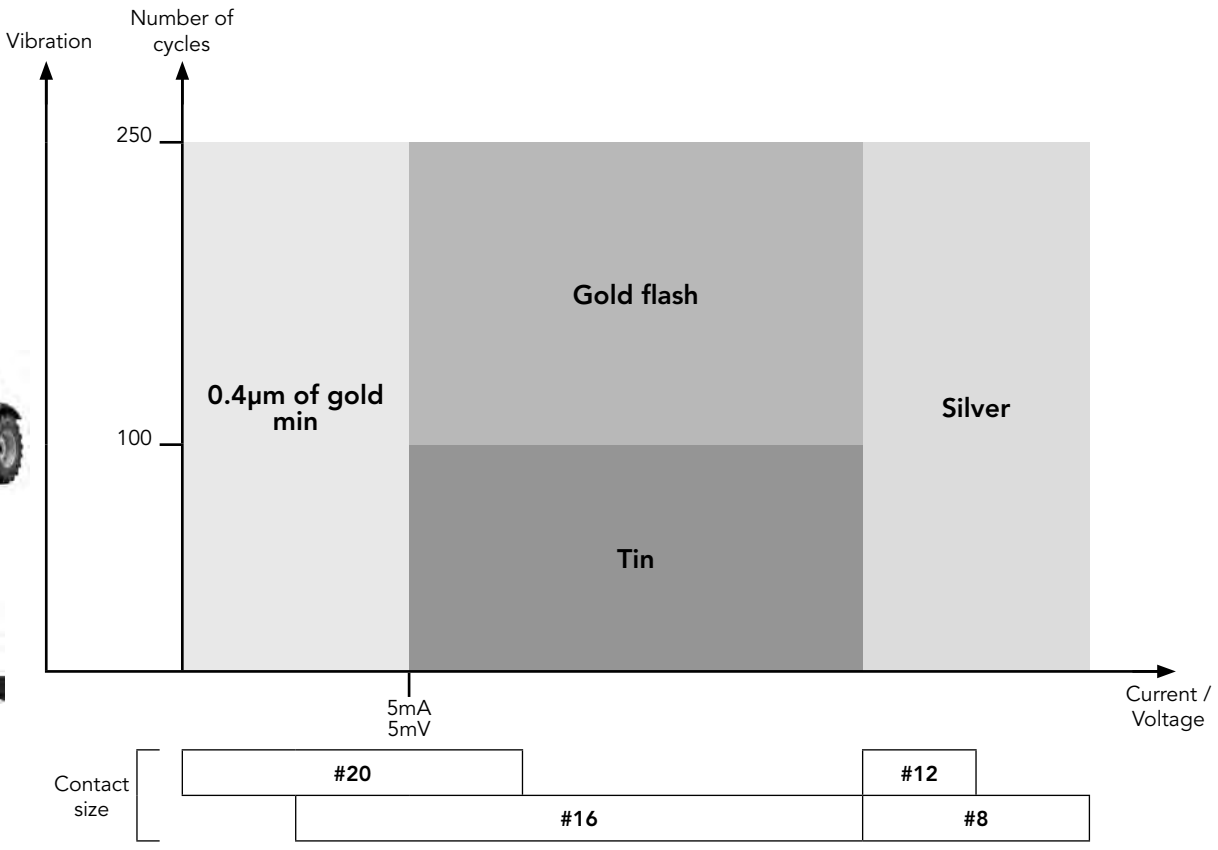
- Machined
- Stamped & Formed

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 Ø1mm	Machined	< 6mΩ
	Stamped & formed	< 6mΩ
#16 Ø1.6mm	Machined	< 3mΩ
	Stamped & formed	< 6mΩ
#12 Ø2.4mm	Machined	< 5mΩ
#8 Ø3.6mm	Machined	< 5mΩ

Available plating options	
A	2µ Ni + 2µ Ag
J	Gold flash over 2µ Ni
K	Min 0.4µ gold over 2µ Ni
S31	Active part: Gold flash over Ni Crimp area: Nickel
S18	Active part: 0.75µ gold min over 2µ Ni Crimp area: 1.3µ tin over Ni Other: Nickel
S25 **S26**	Active part: 0.75µ Au over Ni Crimp area: flash Au over Ni
TK6	2-5µ Sn pre-plated
D70	Superseded by S31
S6	Superseded by S18
Other platings on request (contact supplied separately)	
T	T: 2µm Ni mini all over + 3 to 5 µm Sn all over
D28	0.75µ gold over Ni

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)

• 1000 pieces bulk package (machined contacts)

• 3000 pieces reeled (stamped & formed contacts)

• 5000 pieces reeled (machined contacts)

Size contacts #12 & #8

• 100 pieces bulk package (machined contacts)

Crimp contacts

Standard Version

Contact size	Type	Wire size		Part number		Max wire Ø	Max insulator Ø	Available plating see page 128
		AWG	mm²	Male	Female			
#20 Ø1 mm	Machined	26-24	0.13-0.20	RM24W3K	RC24W3K		1.58 max	K
	Stamped & Formed	26-24	0.13-0.25	SM24W3-(1)	SC24W3-(1)		0.89-1.58	TK6 S25 (female) S26 (male)
				SM24WL3-(2)	SC24WL3-(2)			
	Machined	22-20	0.32-0.52	RM20W3K	RC20W3K		1.58 max	K
	Stamped & Formed	22-20	0.35-0.5	SM20W3-(1)	SC20W3-(1)		1.17-2.08	TK6 S25 (female) S26 (male)
				SM20WL3-(2)	SC20WL3-(2)			
	Machined	20-18	0.50-0.93	RM18W3K	RC18W3K		2.10 max	K
#16 Ø1.6 mm	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-(1) SM24ML1-(2)	SC24M1-(1) SC24ML1-(2)	0.89-1.28	Insulation grip	S31, S18, TK6
	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-(1) SM20ML1-(2)	SC20M1-(1) SC20ML1-(2)	1.17-2.08	Insulation grip	S31, S18, TK6
	Machined	20-16	0.52-1.5	RM16M23-	RC16M23-	1.8	3.2	K, J
	Stamped & Formed	18-16	0.8-1.5	SM16M1-(1) SM16ML1-(2)	SC16M1-(1) SC16ML1-(2)	3.0	No insulation grip	S31, S18, TK6
	Stamped & Formed	18-16	0.8-1.5	SM16M11-(1) SM16ML11-(2)	SC16M11-(1) SC16ML11-(2)	2.0-3.0	Insulation grip	S31, S18, TK6
	Machined	16-14	1.5-2.5	RM14M30-	RC14M30-	2.28	3.2	K, J
	Stamped & Formed	14	2.0-2.5	SM14M1-(1) SM14ML1-(2)	SC14M1-(1) SC14ML1-(2)	3.2	No insulation grip	S31, S18, TK6
#12 Ø2.4 mm	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-			
		12	4	82911467N-	82911466-			
#8 Ø3.6 mm	Machined	16	1.5	82913601A	82913600A	-	6.5	A
		14	2.5	82913603A	82913602A			
		12	4	82913605A	82913604A			
		10	6.0	82913607A	82913606A			
		8	10.0	82913609A	82913608A			

(1) contact reeled (2) loose contact
Exemple: **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)	Color band		Available plating see p. 128
		AWG	mm²	Male	Female			Front	Rear	
#16 Ø1.6 mm 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 Ø1.6 mm 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 onnection

Contact 1 / Contact 2	Standard male contact	Standard female contact	Longer male contact
Standard male contact		✓	
Standard female contact	✓		✓ FMLB
Shorter female contact	✓ 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

Note: all dimensions are in mm

#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

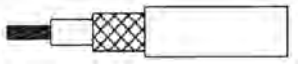
• The inner conductor and outer braid is crimped individually.

• 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

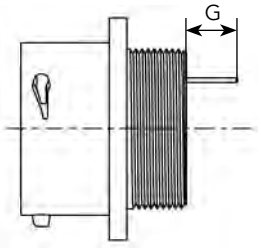
PCB soldering

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 see page 128
		Male	Female	
#20 Ø1mm	Short version	RMW50A7K	RCW50A7K	K
	Long version	RMW5016K	RCW5016K	
#16 Ø1.6mm	Short version	RM20M12E8-	RC20M12E8-	K or J
	Long version	RM20M12E83-	RC20M12E83-	
			RC20M12E84-	
#8 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 and UTOW0

Connector size	Pin contact				Socket contact				
	RM20M 12E8K*	RM20M 12E83K*	RMW 50A7K	RMW 5016K	RC20M 12E8K*	RC20M 12E83K*	RC20M 12E84K*	RCW 50A7K	RCW 5016K
10	4.1	9.2	9.51	10.41	4.65	8.5	4.65	2.4	3.04
12	4.4	9.2	9.51	10.41	3.3	8.5	4.65	2.4	3.04
14	4.1	9.2	9.51	10.41	3.3	8.5	5.35	2.4	3.04
16	4.1	9.2	9.51	10.41	3.3	8.5	4.65	2.4	3.04
18	-	9.2	5	6	-	-	4.65	-	-
20	-	4.85	5	6	-	-	-	-	-
22	-	4.85	5	6	-	-	-	-	-
24	-	3.35	3.6	4.6	-	-	-	-	-

UTO7 and UTOW7

Connector size	Pin contact				Socket contact				
	RM20M 12E8K*	RM20M 12E83K*	RMW 50A7K	RMW 5016K	RC20M 12E8K*	RC20M 12E83K*	RC20M 12E84K*	RCW 50A7K	RCW 5016K
10	4.1	9.2	9.51	10.41	4.65	8.5	4.65	2.4	3.04
12	4.4	9.2	9.51	10.41	3.3	8.5	4.65	2.4	3.04
14	4.1	9.2	9.51	10.41	3.3	8.5	5.35	2.4	3.04
16	4.1	9.2	9.51	10.41	3.3	8.5	4.65	2.4	3.04
18	-	9.2	5	6	-	-	4.65	-	-
20	-	4.85	5	6	-	-	-	-	-
22	-	4.85	5	6	-	-	-	-	-
24	-	3.35	3.6	4.6	-	-	-	-	-

* Plating indication see page 128

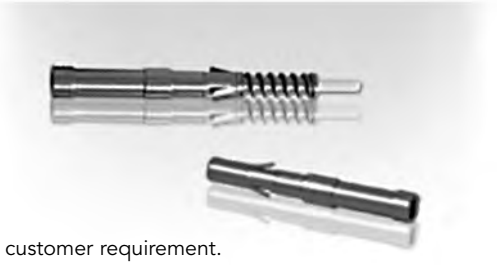
Note: all dimensions are in mm

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

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UTO Series

Technical Information

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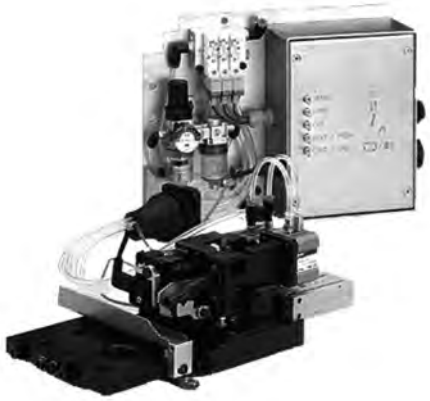
Automatic Crimping Tools

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

Tooling

Crimp Tool Table

Standard contacts

Contact size	Part number	Head	Handles	Extraction tools
#20 Ø 1mm	RM/RC 24W3K	S20RCM	SHANDLES (endurance of SHANDLES tool = 5,000 cycles)	RX20D44
	RM/RC 20W3K			
	RM/RC 18W3K			
	SM 24WL3S*(1) SC 24WL3S*(1)	S20SCM20		
	SM/SC 20WL3S*(1)			
#16 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

Contact size	Part number	Tool with separate locator			Extraction tools
		Hand tool	Positioner + locator setting		
#12 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 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 (SHANDLES) head	Tool with separate locator			Extraction tools
			Hand tool	Positioner + locator setting		
#16 Ø 1.6mm Longer RM contact	RM28M1GE1K	S16RCM20				RX2025GE1
	RM24M9GE1K					
	RM20M13GE1K					
	RM16M23GE1K RM20M12GE1K	S16RCM16	MH860	MH86186	6/8	
	RM14M30GE1K	S16RCM14				
#16 Ø 1.6mm Shorter RC contact	RC28M1GE7K	S16RCM20	MH860	MH86164G	4/6	
	RC24M9GE7K				5/6	
	RC20M13GE7K RC20M12GE7K				5/7	
	RC16M23GE7K	S16RCM16			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	
Machined contact	**#20 - Ø 1mm**		
	RM24W3- / RM20W3- RM18W3-	RC24W3- / RC20W3- RC18W3-	4.8
	#16 - Ø 1.6mm		
	RM28M1- / RM24M9- RM20M13- / RM20M12-	RC28M1- / RC24M9- RC20M13- / RC20M12-	4.8
	RM16M23- /RM14M30-	RC16M23- /RC14M30-	7.1
	#12 - Ø 2.4mm		
	8291 1457- / 8291 1459- 8291 1461- / 8291 1463- 8291 1465- / 8291 1467-	8291 1456- / 8291 1458- 8291 1460- / 8291 1462- 8291 1464- / 8291 1466-	7 to 8
	#8 - Ø 3.6mm		
	8291 3601- / 8291 3603- 8291 3605- / 8291 3607- 8291 3609-	8291 3600- / 8291 3602- 8291 3604- / 8291 3606- 8291 3608-	6.5 to 7.5
Stamped & formed	**#16 - Ø 1.6mm**		
With insulation support	SM24M1- / SM24ML1- SM20M1- / SM20ML1-	SC24M1- / SC24ML1- SC20M1- / SC20ML1-	4
	SM16M11- / SM16ML11-	SC16M11- / SC16ML11-	4.65
	#20 - Ø 1mm		
	SM24W3- / SM24WL3- SM20W3- / SM20WL3-	SC24W3- / SC24WL3- SC20W3- / SC20WL3-	4
Without insulation support	**#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

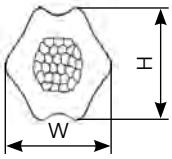
Crimping

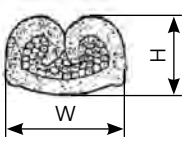
One of the key factors which affects the performance of a connector is the way contacts are terminated. Crimped connections are nowadays seen as the best solution to ensure quality throughout the lifetime of the product. Here are some reasons why we recommend this method of termination for UTO connectors:

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 (mm²)	Tensile straight test (mini)	Height (mm) H (±0.075)	Width (mm) W (±0.075)	Tooling head p/n
Machined contacts size #20 Ø 1 mm	RM24W3K RC24W3K	26/24	AWG 26	0.12 min	15 N	0.95	1.27	S20RCM
			AWG 24	0.25 max	32 N			
	RM20W3K RC20W3K	22/20	AWG 22	0.32 min	40 N	1.26	1.78	
			AWG 20	0.50 max	60 N			
	RM18W3K 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 Ø 1 mm	SM24WL3TK6* SC24WL3TK6*	26/24	AWG 26	0.12 min	15 N	0.80	1.49	S20SCM20
			AWG 24	0.25 max	32 N			
	SM20WL3TK6* 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 Ø 1.6 mm	RM28M1K* RC28M1K*	30/28	AWG 30	0.05 min	11 N	1.14	1.41	S16RCM20
			AWG 28	0.08 max	11 N			
	RM24M9K* RC24M9K*	26/24	AWG 26	0.12 min	15 N	1.15	1.41	
			AWG 24	0.25 max	32 N			
	RM20M13K* RC20M13K*	22/20	AWG 22	0.32 min	40 N	1.26	1.76	
			AWG 20	0.50 max	60 N			
	RM20M12K* RC20M12K*		AWG 22	0.32 min	40 N			
			AWG 20	0.50 max	60 N			
	RM16M23K* 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* 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 Ø 1.6 mm	SM24ML1TK6* SC24ML1TK6*	26/24	AWG 26	0.12 min	15 N	0.84	1.50	S16SCM20
			AWG 24	0.25 max	32 N			
	SM20ML1TK6* SC20ML1TK6*	22/20	AWG 22	0.32 min	40 N	1.02	1.54	
			AWG 20	0.50 max	60 N			
	SM16ML11TK6* SC16ML11TK6*	18	AWG 18	0.82 min	90 N	1.32	2.09	S16SCML11
		16	AWG 16	1.50 max	150 N	1.36	2.10	
	SM16ML1TK6* SC16ML1TK6*	18	AWG 18	0.82 min	90 N	1.49	2.02	S16SCML1
		16	AWG 16	1.50 max	150 N	1.7	2.05	
	SM14ML1TK6* 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

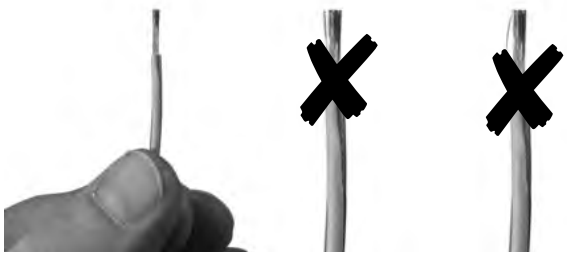
User Guide

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, slighty pull cable with two fingers to control retention.

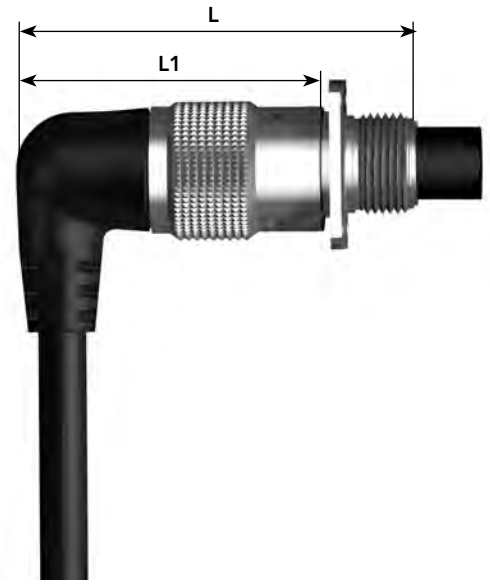
Extraction Tools

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

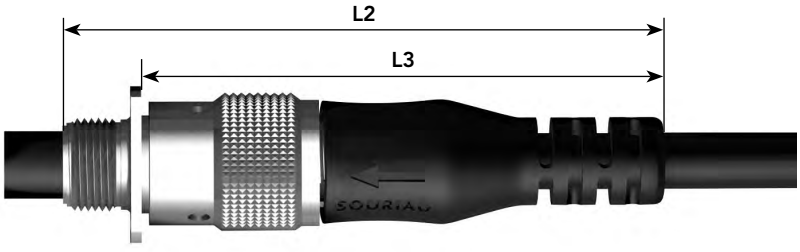
Contact Extraction Instructions

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



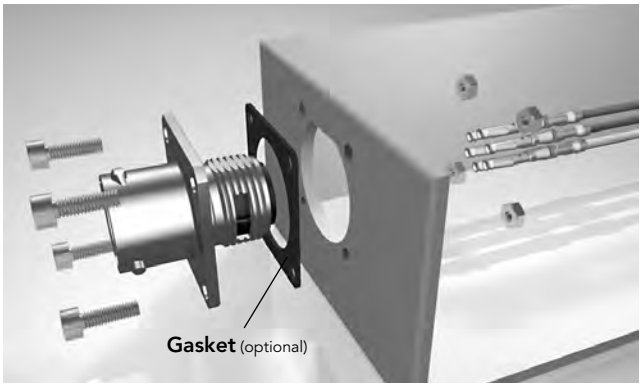
Note: all dimensions are in mm

Assembly Instructions

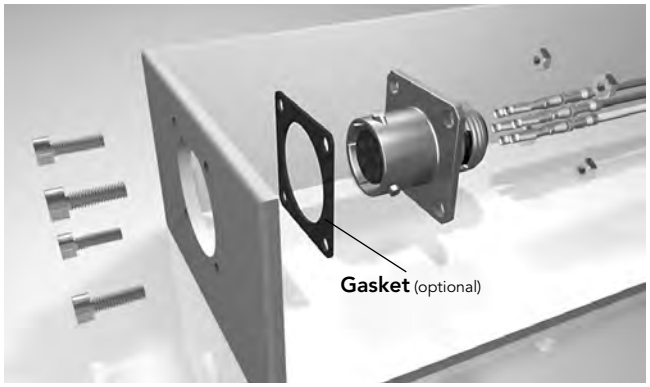
UTO0 Assembly (Mounting Suggestion)

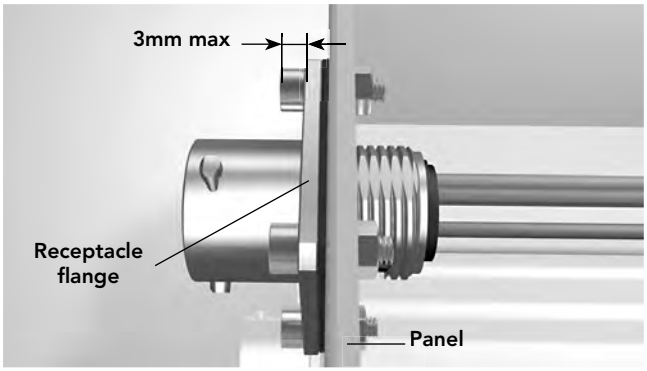
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM20**0**5 crimp contacts)
- Place receptacle in the panel cut-out
- Secure receptacle with screws (not supplied)
  Tighten screws: M2.5 for size connectors 10 to 22, M3 for 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).

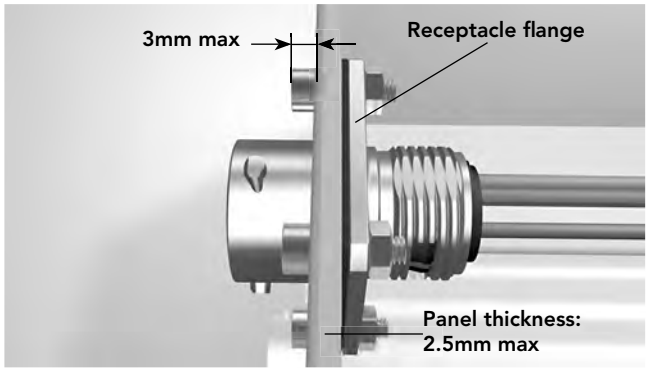
Front mounting : Crimp version



Rear mounting : Crimp version



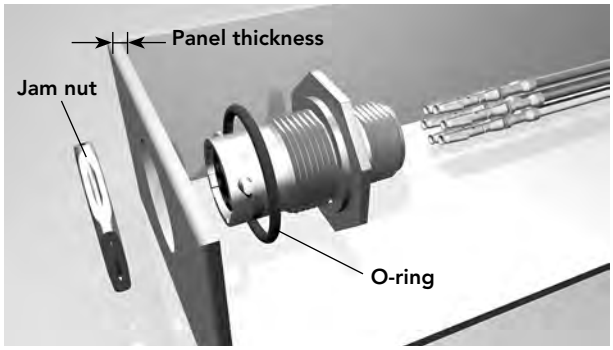




	Shell size							
	10	12	14	16	18	20	22	24
Screws tightening torque (Nm)	0.30/0.40	0.30/0.40	0.30/0.40	0.30/0.40	0.35/0.45	0.50/0.60	0.55/0.65	0.55/0.65

UTO7 Assembly (Mounting Suggestion)

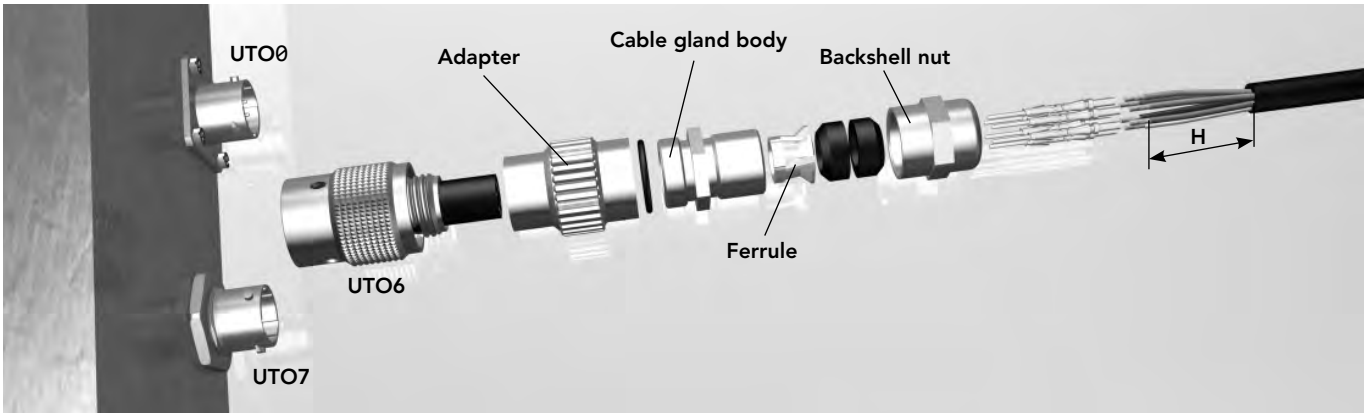
- Strip wires and crimp contacts (see pages 140 & 141)
- Insert contacts into connector cavities (insert manually or use tool RTM205 crimp contacts)
- Seat o-ring, place receptacle in the panel cut-out
- Tighten jam nut



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).

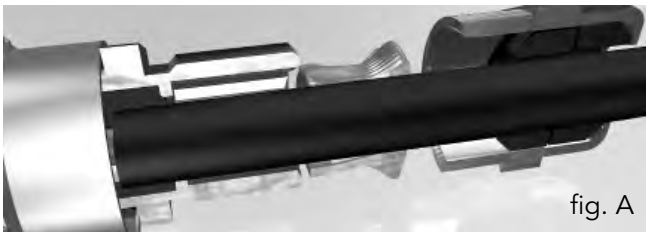


fig. A

fig. B

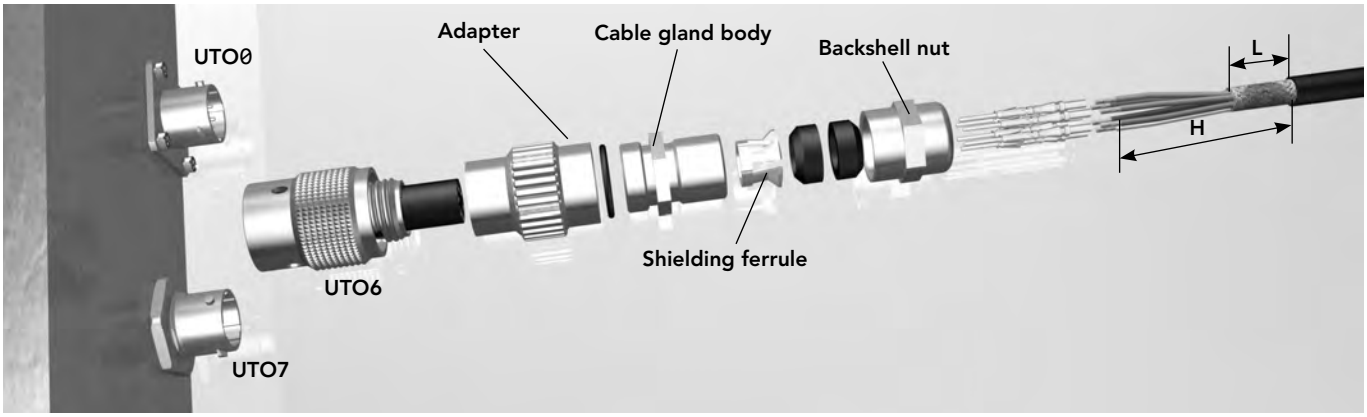
Shell size	Adapter tightening torque (Nm)	Cable gland body tightening torque (Nm)	Backshell nut tightening torque* (Nm)	H min. (mm)			
				JCS/JCSL		JC/JCL	
				Male	Female	Male	Female
10	6	6	5	21	29	32	39
12	10	10	8	21	29	31	39
14	10	10	8	25	33	39	47
16	14	14	12	32	40	43	51
18	14	14	12	37	45	47	55
20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

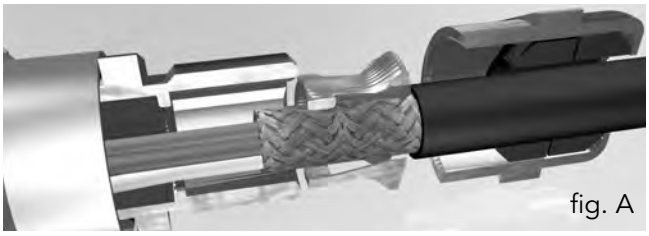


fig. A

fig. B

Shell size	Adapter tightening torque (Nm)	Cable gland body tightening torque (Nm)	Backshell nut tightening torque (Nm)	H min. (mm)				L min. (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

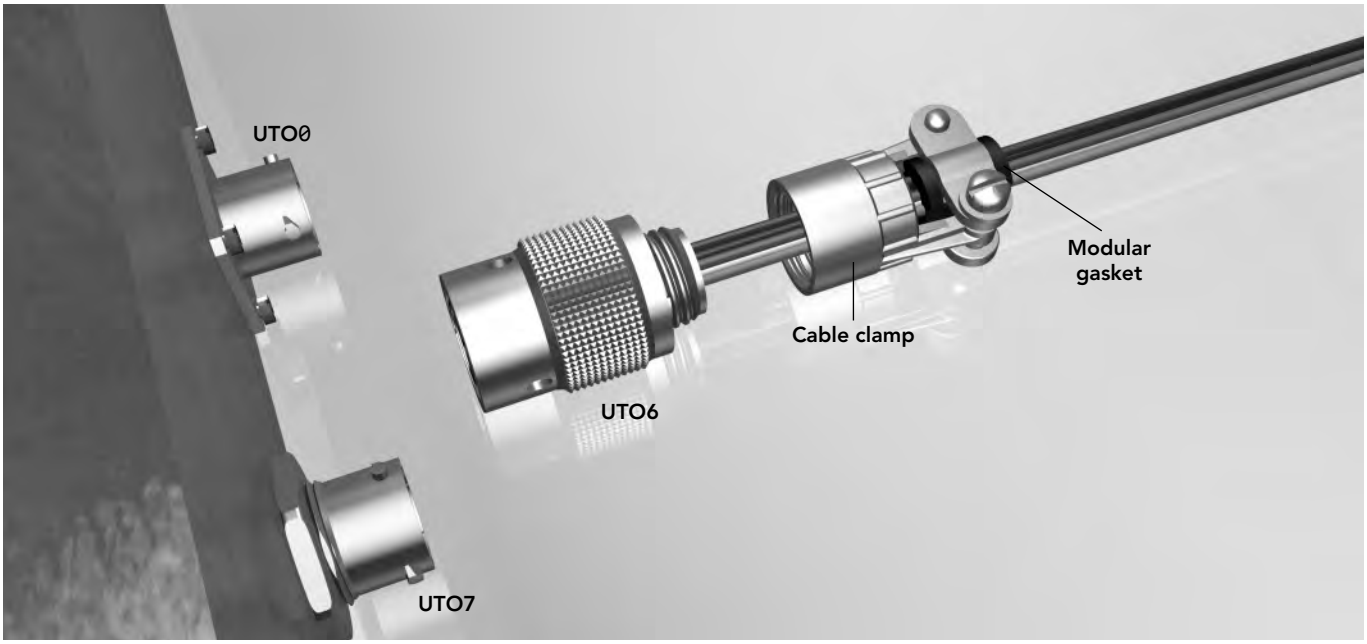
* Indicative torque, needs to be adjusted depending on the cable used

Spanner size

Shell size	JCS/JC		JSCL/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)

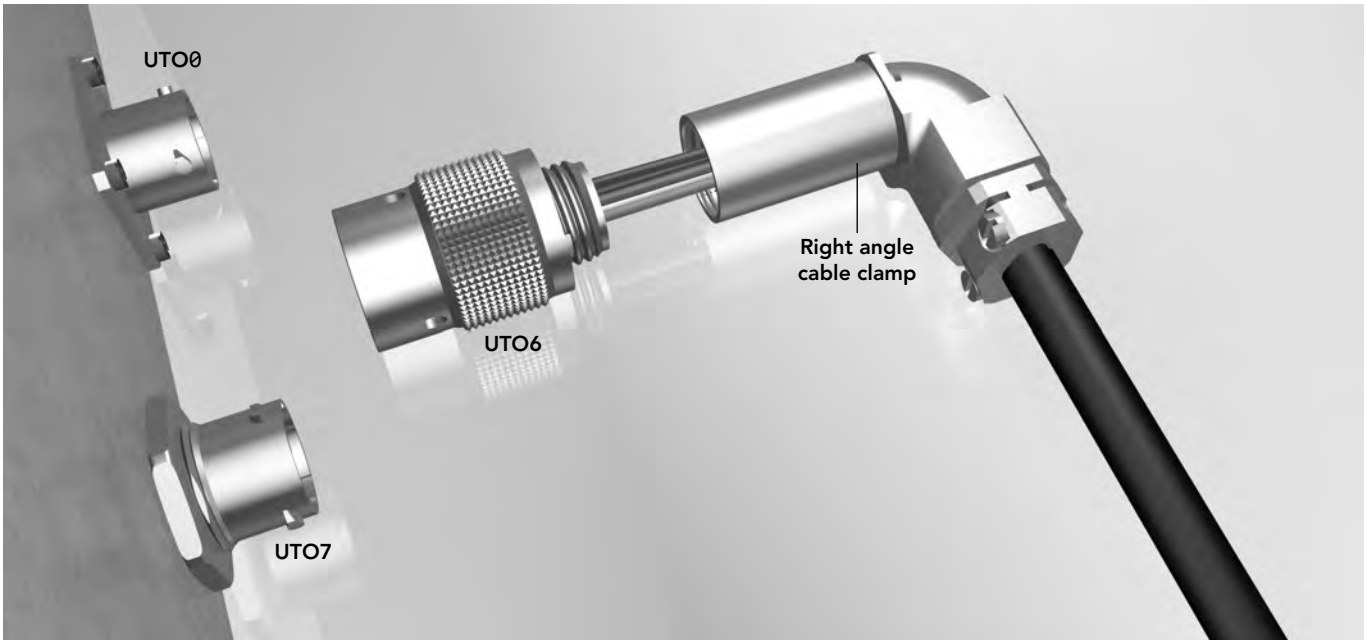
UTO0 or UTO7 with UTO6 + AC Backshell Assembly



- 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.

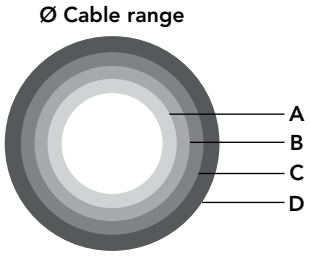
Shell size	Cable clamp tightening torque (Nm)	Clamp (mm)	
		Min	Max
10	4	1.5	5.0
12	5	3.0	8.2
14	5	4.0	10.0
16	9	6.0	13.0
18	9	8.5	16.0
20	11	10.0	16.0
22	13	9.0	19.3
24	15	11.0	20.6

UTO0 or UTO7 with UTO6 + LPGN Backshell Assembly



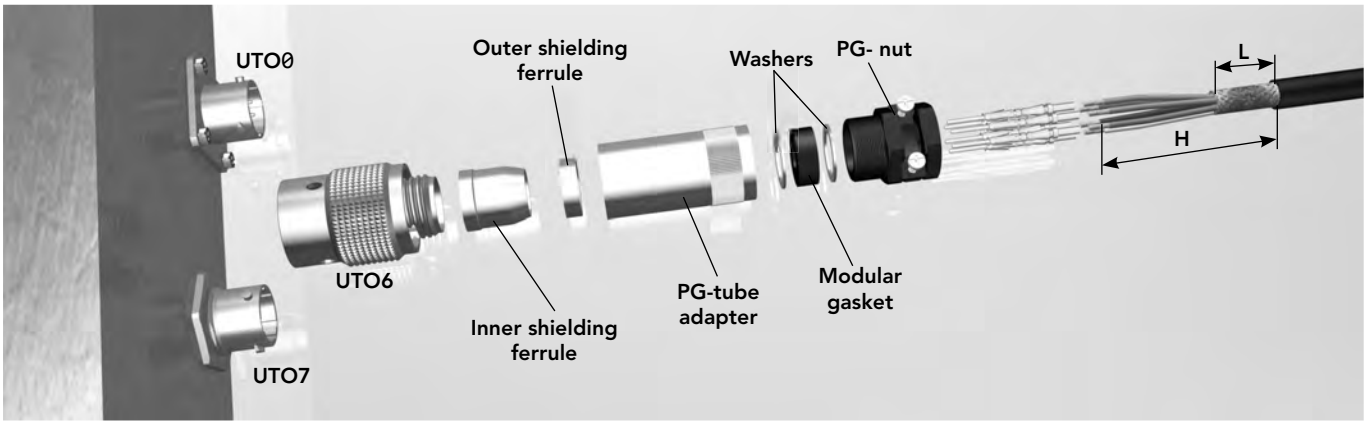
- Remove inner part of the modular gasket to adjust the internal diameter to fit the cable (see table)
- Slide accessories onto the cable
- Strip external cable jacket
- Strip wires and crimp contacts (see pages 140 & 141)
- Tighten backshell with plug and mate plug with a receptacle (recommended torque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

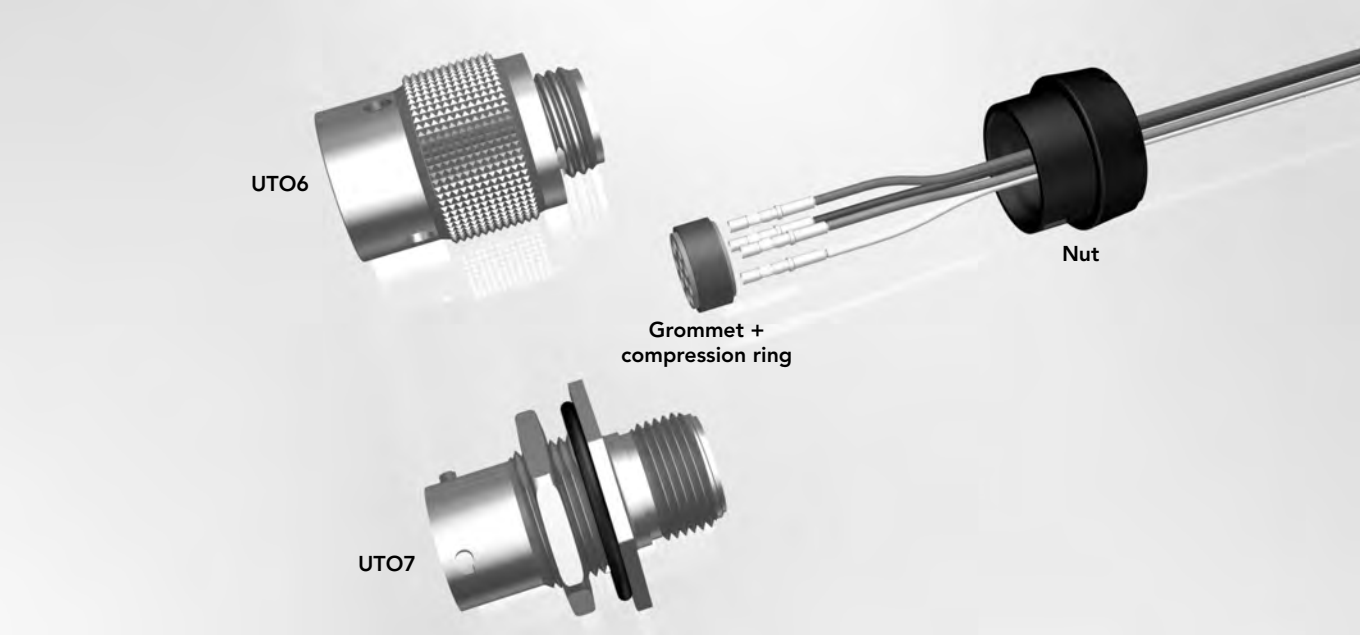
fig. A

fig. B

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

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

UTO6 or UTO7 with GN Backshell Assembly

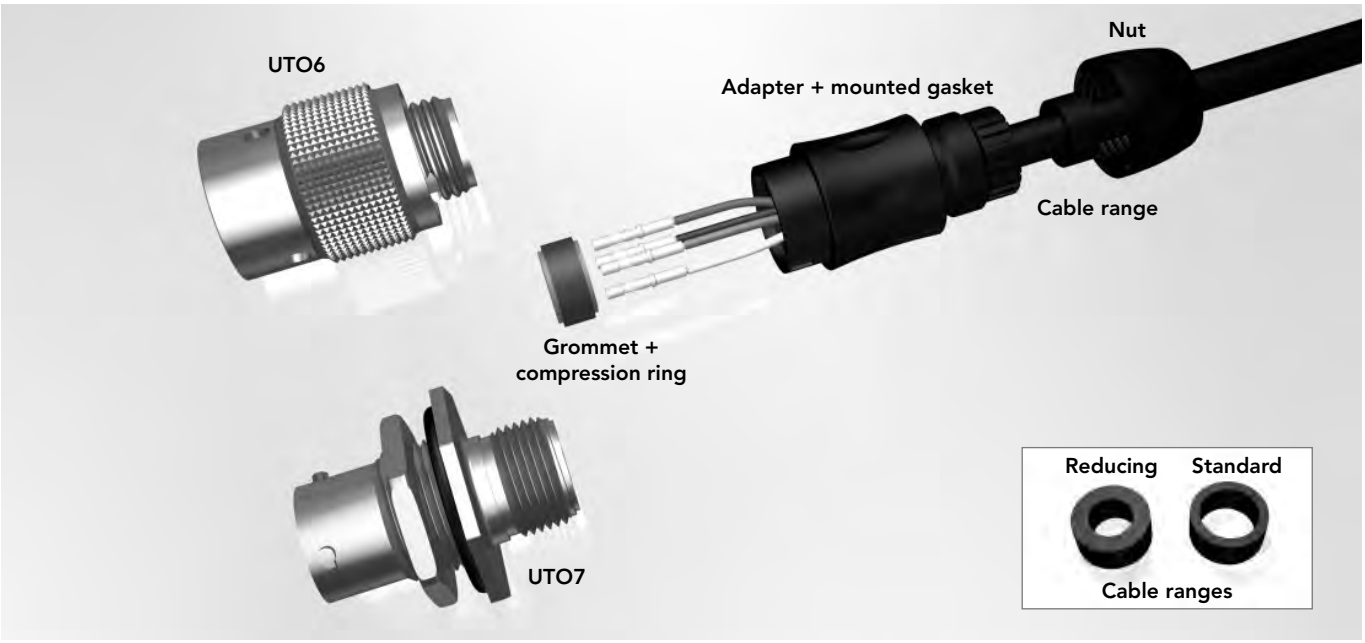


- Strip wires and crimp contacts (see pages 140 & 141)
- Insert first contact into the grommet (first contact in cavity A, no tool is required). Then insert the contact in the connector cavity A (insert manually or use tool RTM2Ø5)
- Insert the other contacts
- Tighten the nut to rear of either UTO7 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 1.7 mm to 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

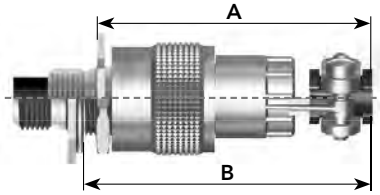


- Strip wires and crimp contacts (see pages 140 & 141)
- Insert first contact into the grommet (first contact in cavity A, no tool is required). Then insert the contact in the connector cavity A (insert manually or use tool RTM2Ø5)
- Insert the other contacts
- Tighten adapter with plug, choose right 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	From 1.7 mm to 3.0 mm
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	

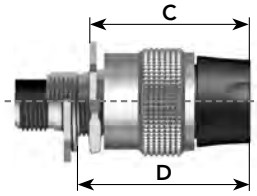
Mated Connector Length with Backshell

UTO0 + UTO6 + AC



UTO7 + UTO6 + AC

UTO0 + UTO6GN

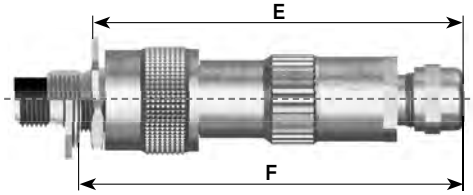


UTO7 + UTO6GN

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

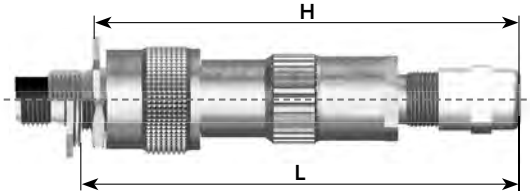
UTO0 + UTO6 + UTO with JCS or JC or JCSL or JCL



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



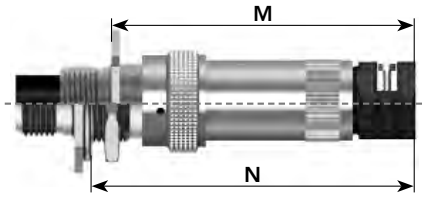
UTO7 + UTO6 + UTOS with JCS or JC or JCSL or JCL

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)

UTO0 + UTO6 + JCPGN



UTO7 + UTO6 + JCPGN

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 – 1.5mm² wires

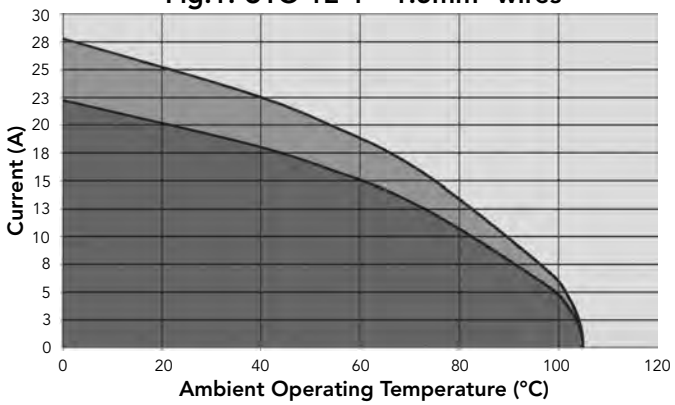


Fig.2: UTO 12-8 – 1.5mm² wires

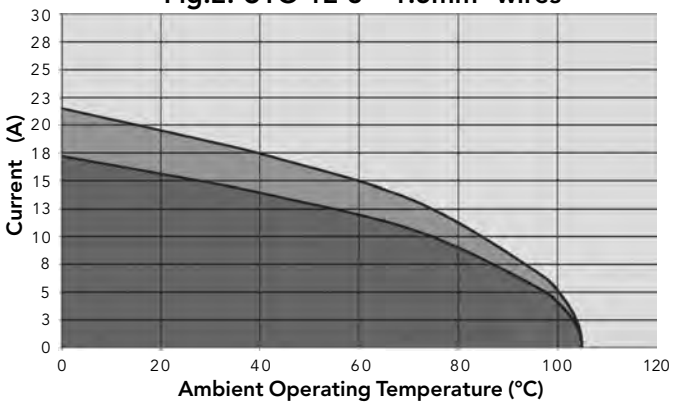
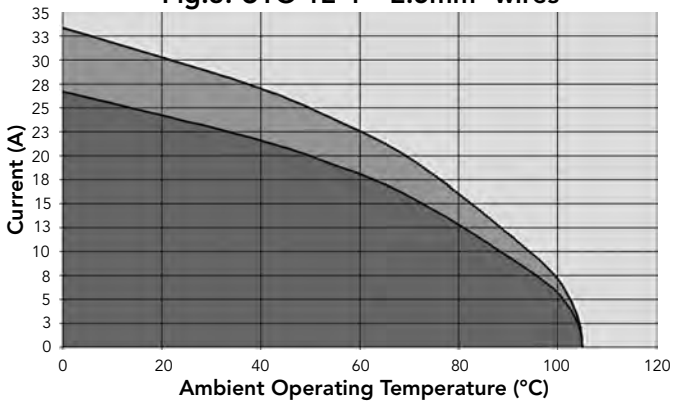
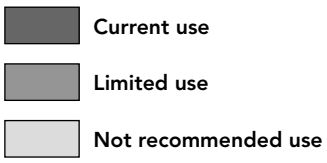


Fig.3: UTO 12-4 – 2.5mm² wires





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.

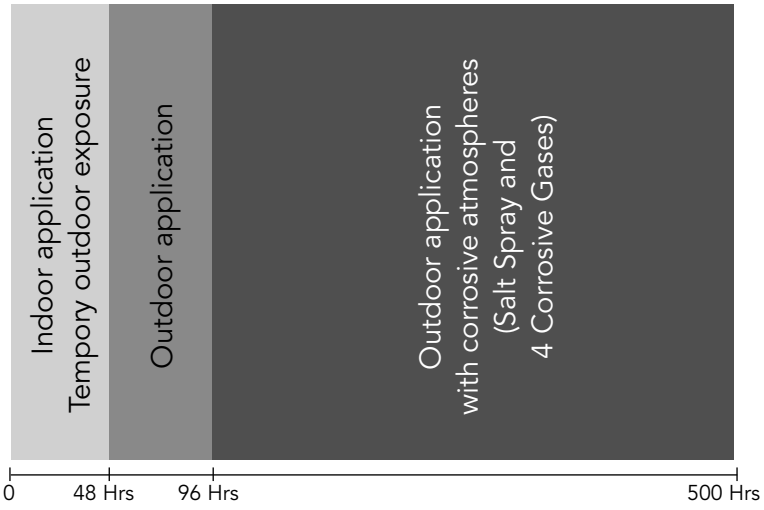
$$(dB)=10\text{Log}\ \frac{Pin}{Pout}$$

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

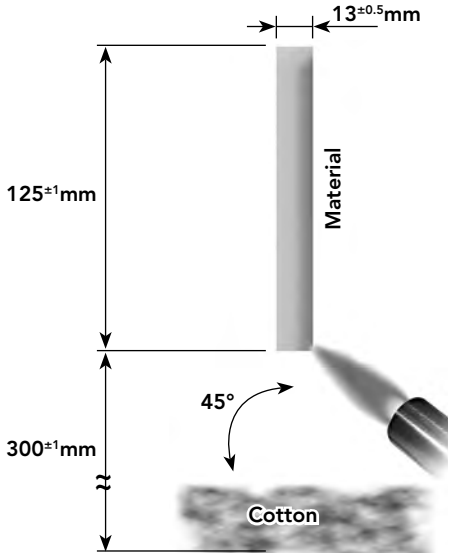
This standard is dedicated to plastics flammability. It characterises how the material burns in various orientation and thicknesses.

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.

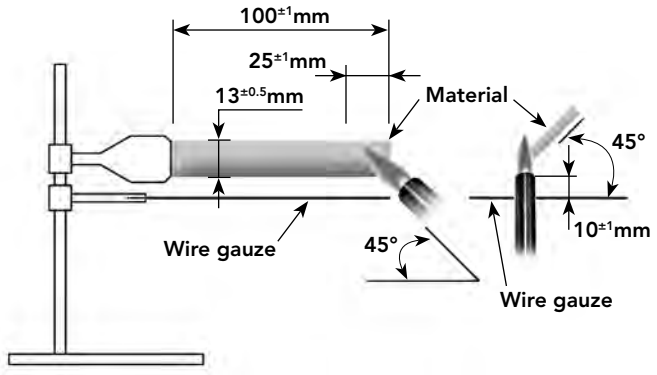
V-0 Vertical burning:

- 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.



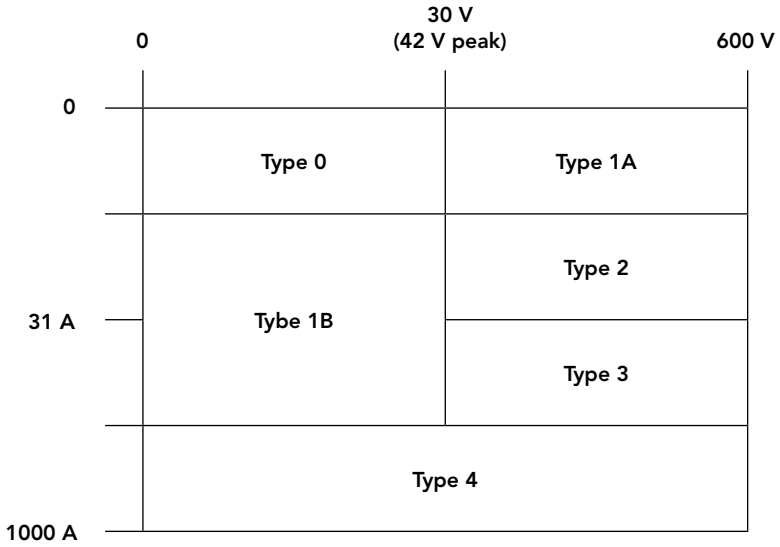
UL94 + UL1977 (Continued)

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:



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) 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 mismating 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.

Underwriter Laboratories

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.

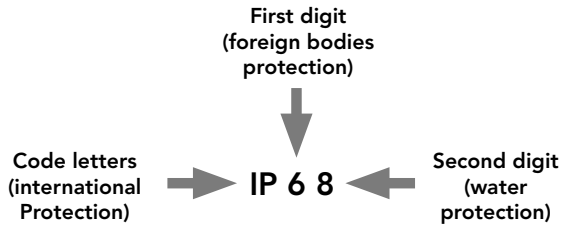
There are a lot of constructional requirements and performances specified in that standard. Most of them are illustrated in greater details hereafter.

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.



1st digit	Degree of protection
0	No protection against accidental contact. No protection against solid foreign bodies.
1	Protection against contact with any large area by hand and against large solid foreign bodies with a diameter bigger than 50 mm.
2	Protection against contact with the fingers. Protection against solid foreign bodies with a diameter bigger than 12 mm.
3	Protection against tools, wires or similar objects with a diameter bigger than 2.5 mm. Protection against small solid bodies with a diameter bigger than 2.5 mm.
4	Same as 3 however diameter is bigger than 1 mm.
5	Full protection against contact. Protection against interior injurious dust deposits.
6	Total protection against contact. Protection against penetration of dust.

2nd digit	Degree of protection
0	No protection against water.
1	Drip-proof. Protection against vertical water drips.
2	Drip-proof. Protection against water drips up to a 15° angle.
3	Spray-proof. Protection against diagonal water drips up to a 60° angle.
4	Splash-proof. Protection against splashed water from all directions.
5	Hose-proof. Protection against water (out of a nozzle) from all directions.
6	Protection against temporary flooding.
7	Protection against temporary immersions.
8	Protection against water pressure. 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. Protection against high pressure water (out of a nozzle) from all directions.

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IEC 60664-1 ed.2.0 "Copyright © 2007 IEC Geneva, Switzerland.www.iec.ch"

IEC 61984

Overvoltage

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

Per the IEC 60664-1 (formely 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.

Class I:

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.

Class II:

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.

Class III:

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
Type 1	•						
Type 3				•			
Type 3R		•					
Type 3S				•			
Type 4						•	
Type 4X						•	
Type 6							•
Type 12			•				
Type 13					•		

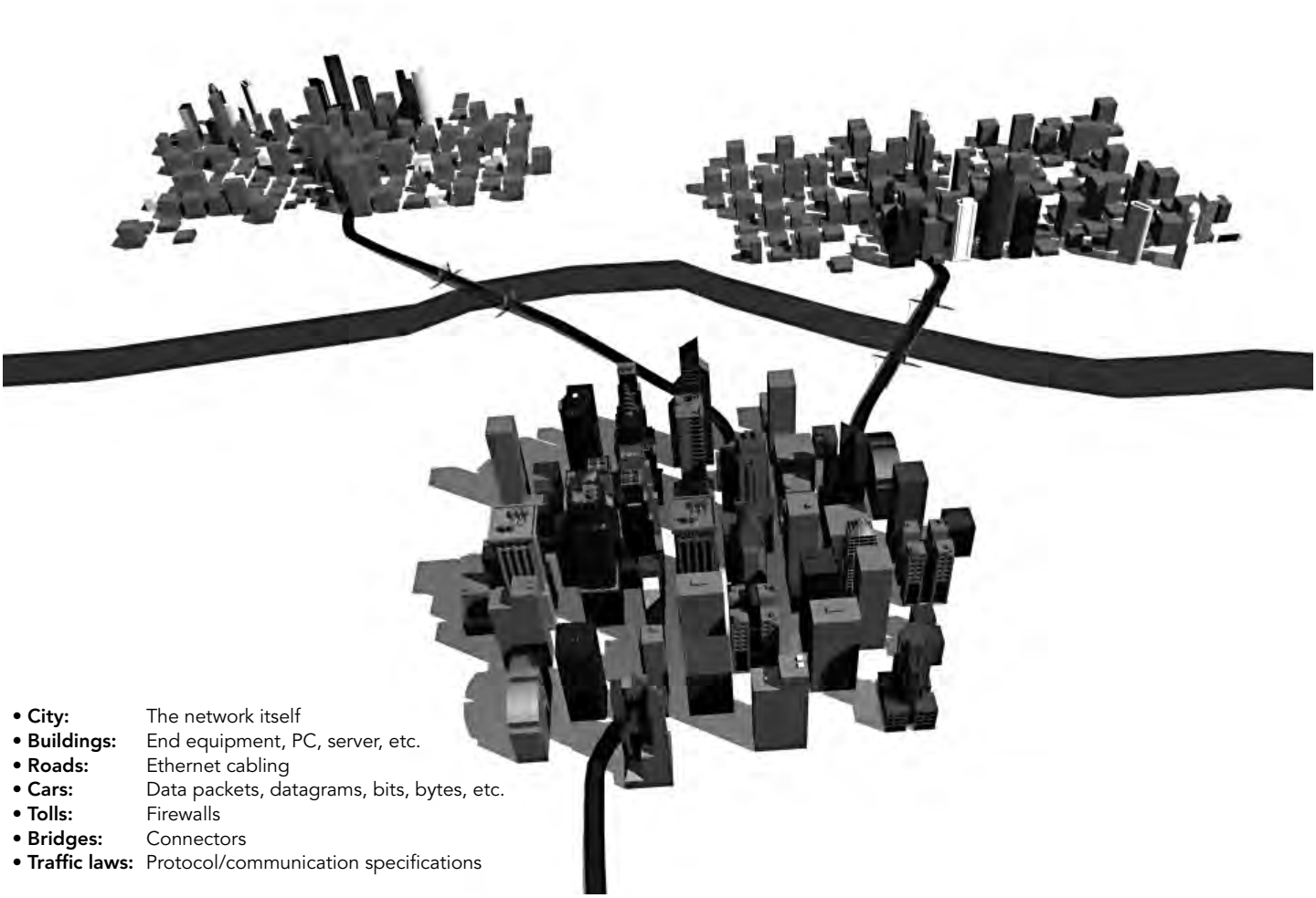
• indicates compliance

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 **occasional temporary** submersion at a limited depth and damage from external ice formation.
6P	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 prolonged** 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

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Appendices

- #16 Coaxial Contacts/Cabling Notices 168
- Glossary of Terms 175
- Drilling Pattern 176
- Discrimination/Keying Methods 178
- Part Number Index 181

#16 Coaxial Contacts

Coaxial Cable - Contact Monocrimp and Multipiece

Cable type	Impe-dance	Contact type	Ø over jacket		Ø over dielectric		Inner cond size	Ø outer braid		Male contact kit for coaxial cable	Female contact kit for coaxial cable
			inch	mm	inch	mm	Ext. Ø mm	inch	mm		
RG161/U	75	Multi 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 crimp	0.110"	2.79	0.06"	1.52	0.51	0.078"	1.98 max	RMDX6036D28	RCDX6036D28
KX21TVT (europe) 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 piece	0.1"	2.54	0.058"	1.47	0.3	-	-	RMDXK10D28	RCDXK1D28
PRD PN 247AS-C1123-001	-	Mono 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 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

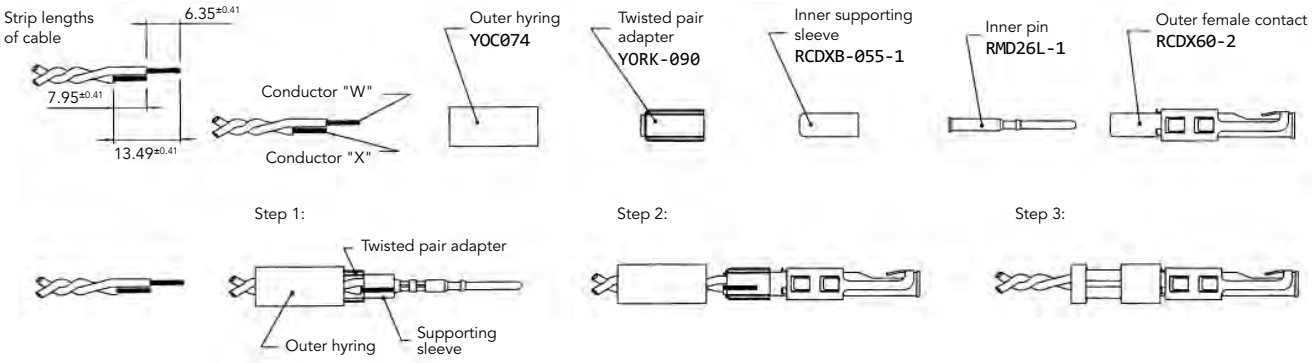
Cable type	Contact type	Inner AWG cond	Ø over jacket (single wire)		Inner cond size		Ø outer braid		Male contact kit for coaxial cable	Female contact kit for coaxial cable
			inch	mm	Stranded definition	Ext. Ø mm	inch	mm		
2#24 stranded MIL-W-16878 type B	Multi piece	24	0.049"	1.24 max	7/.008		-	-	RMDXK10D28	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)

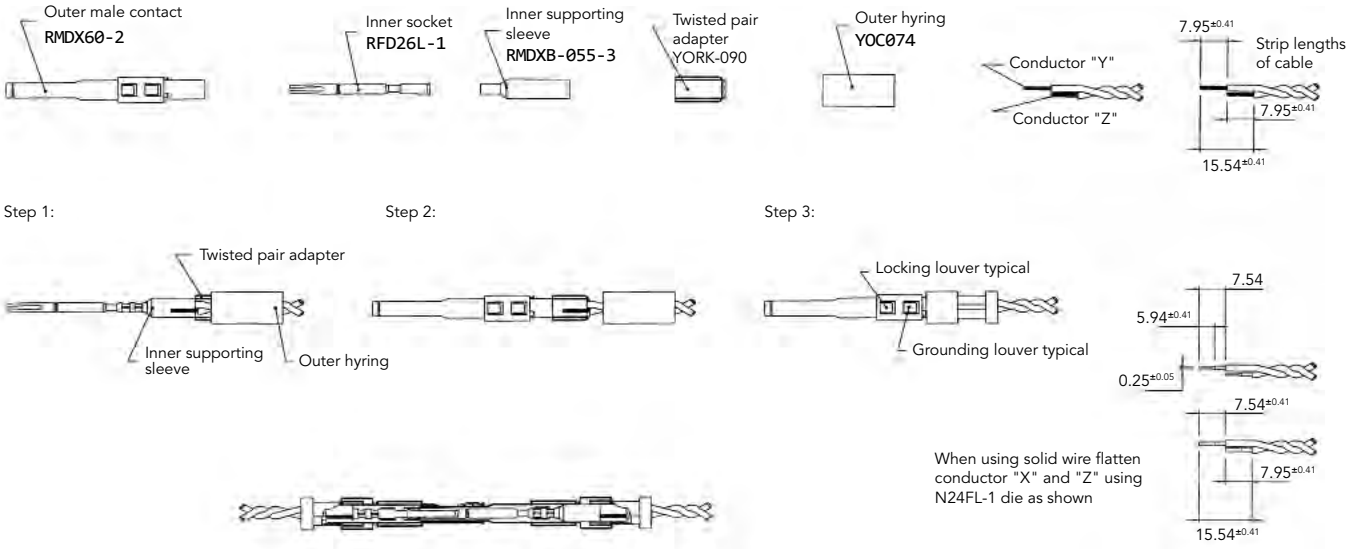
Twisted Pair Cable Multipiece Contact Cabling

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

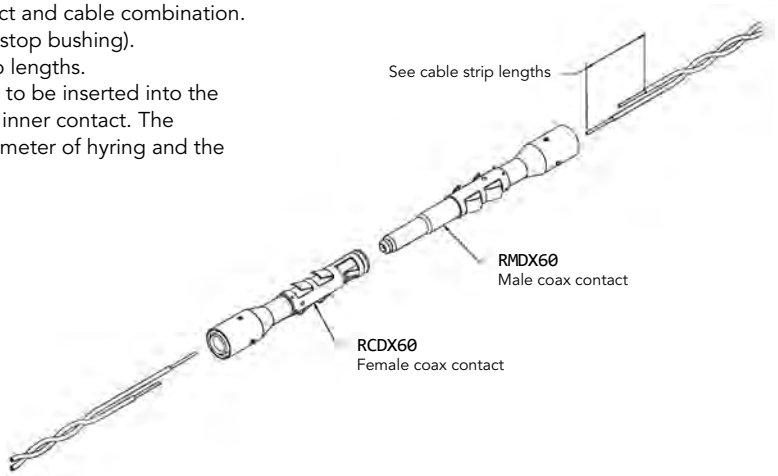


Note : all dimensions are in mm

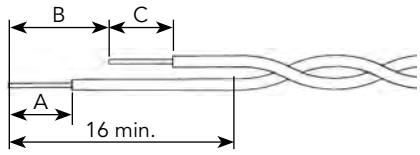
Twisted Pair Cable Monocrimp Contact Cabling

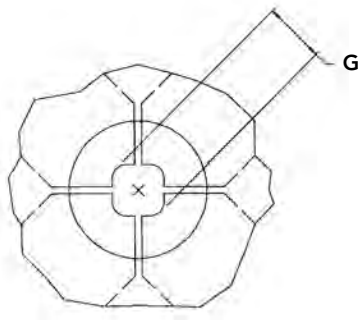
Cable reference	Contact type	Male contact	Female contact	Crimp tool	Die set	Stop bushing	Cable strip length			Inner conductor crimp		Braid crimp	
							A	B	C	g dim	t dim	g dim	t dim
#28 7/.0036 per Hitachi spec ec-711 (13-2820)	Mono crimp	RMDX6031D28 + YORX090	RCDX6031D28 + YORX090	M10S1J	S80	SL105	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.

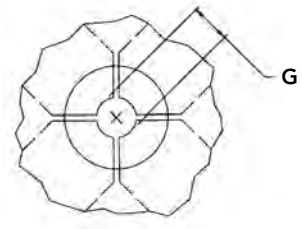


Cable strip length





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)

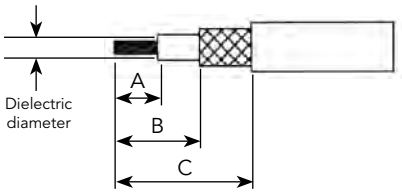
Multipiece Male Contact with Coax Cable

Cable reference	Contact	Hyring 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: 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					S26D2		4.37	7.95	15.88
RG174/U							4.37	7.95	15.88
RG178A/U		YOC074 + RMDXB0553			S23D2		7.54	9.12	17.53
RG196U							7.54	9.12	17.53
AMPHENOL 21-598		YOC074			-		4.37	7.95	15.88
surprenant pn 8134					-		4.37	7.95	15.88

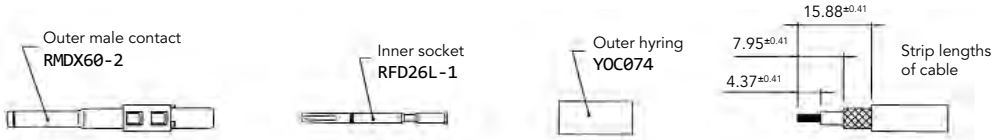
Multipiece kit details

RMDXK10D28 includes	RMDX602D28	Outer contact
	RFD26L1D28	Inner contact
	YOC074	Outer hyring
	RMDXB0553	Inner supporting sleeve

Cable strip length



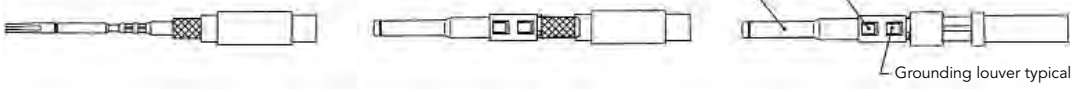
Contact assembly with dielectric diameter over 1.4mm - without inner supporting sleeve



Step 1:
- Assemble outer hyring onto cable
- Assemble inner socket to inner conductor and crimp

Step 2:
- Insert the assembly into the outer male contact until the inner socket snaps into place
- The cable braid (shield) should now cover the barrel of the outer male contact as shown

Step 3:
- Slide outer hyring forward against spring and crimp in place as shown

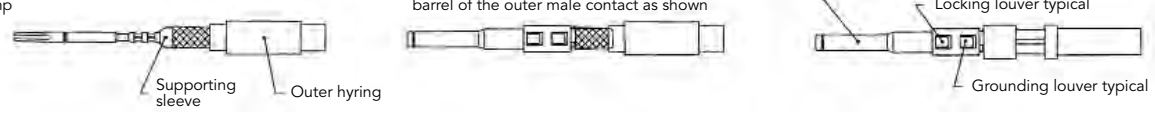


Contact assembly with dielectric diameter under 1.4mm - with inner supporting sleeve

Step 1:
- Assemble outer hyring onto cable
- Assemble supporting sleeve over dielectric and under braid
- Assemble inner socket to inner conductor, push back against sleeve and crimp

Step 2:
- Insert the assembly into the outer male contact until the inner socket snaps into place
- The cable braid (shield) should now cover the barrel of the outer male contact as shown

Step 3:
- Slide outer hyring forward against spring and crimp in place as shown



Note : all dimensions are in mm

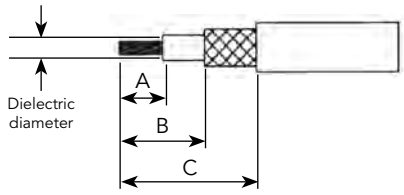
Multipiece Female Contact with Coax Cable

Cable reference	Contact	Hyring 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: RCDXK1D28	YOC074	S221	SL471	S23D2	SL46D2	4.37	-	11.13
RG179							4.37		11.13
RG187U							4.37		11.13
RG188/U					S26D2		4.37		11.13
RG174/U							4.37		11.13
RG178A/U		YOC074 + RMDXB0553			S23D2		6.35		11.13
RG196U							6.35		11.13
AMPHENOL 21-598		YOC074			-		4.37		11.13
surprenant pn 8134					-		4.37		11.13

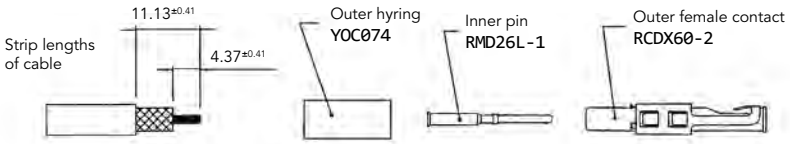
Multipiece kit details

RCDXK1D28 includes	RCDX602D28	Outer contact
	RMD26L1D28	Inner contact
	YOC074	Outer hyring
	RCDXB0553	Inner supporting sleeve

Cable strip length

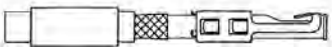


Contact assembly with dielectric diameter over 1.4mm - without inner supporting sleeve

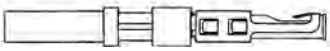


Step 1:
- Assemble outer hyring onto cable
- Assemble inner pin to inner conductor and crimp

Step 2:
- Insert the assembly into the outer female contact until the inner pin snaps into place
- The cable braid (shield) should now cover the barrel of the outer female contact as shown

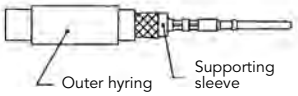


Step 3:
- Slide outer hyring forward against spring and crimp in place as shown

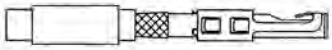


Contact assembly with dielectric diameter under 1.4mm - with inner supporting sleeve

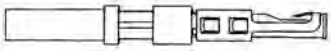
Step 1:
- Assemble outer hyring onto cable
- Assemble supporting sleeve over dielectric and under braid
- Assemble inner pin to inner conductor, push back against sleeve and crimp



Step 2:
- Insert the assembly into the outer female contact until the inner pin snaps into place
- The cable braid (shield) should now cover the barrel of the outer female contact as shown



Step 3:
- Slide outer hyring forward against spring and crimp in place as shown



Note : all dimensions are in mm

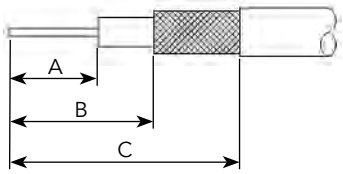
#16 Coaxial Contacts (Continued)

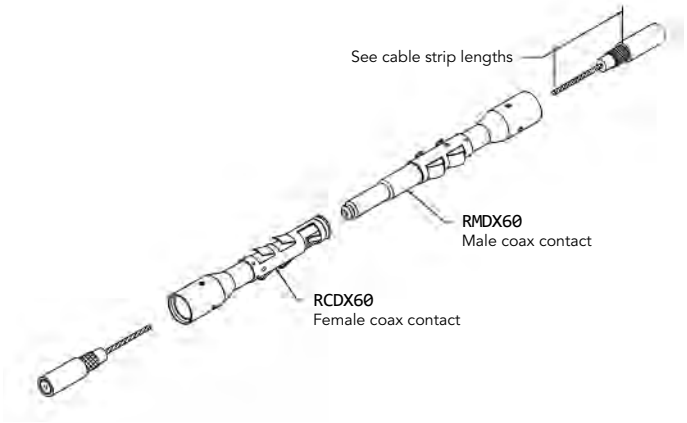
Coax Cable with Monocrimp Contact Cabling

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) 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 TOOL DIE SET STOP BUSHING 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 TOOL DIE SET STOP BUSHING 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, braid diam 2.64	RMDX6050D28	-		S80	SL105	5.1	6.35	8.9	-	-	-	-
inner cond. #30, braid diam 2.29	RMDX6050D28	-		S87	SL105	4.2	6.35	8.5	-	-	-	-
inner cond. #28, braid diam 2.9	RMDX6032D28	RCDX6032D28		S80	SL105	5.1	6.35	11.7	-	-	-	-
inner cond. #26, braid diam 1.78	RMDX6024D28	RCDX6024D28		S82	SL105	5.1	6.35	8.9	-	-	-	-
inner cond. #26, 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

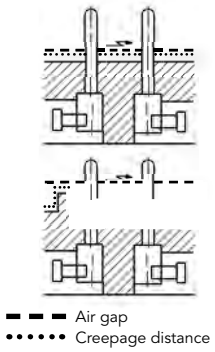




Note : all dimensions are in mm

• 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.

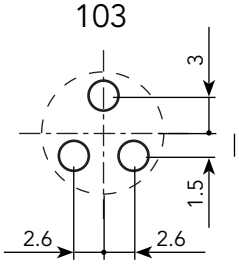
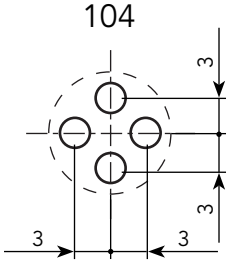
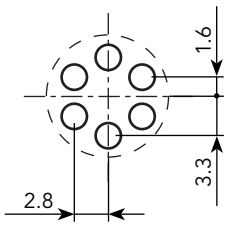
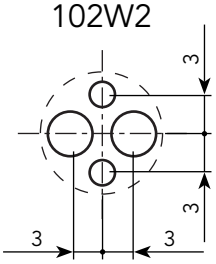
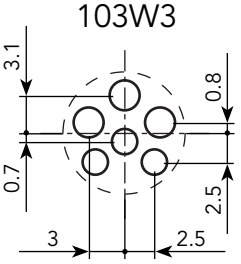
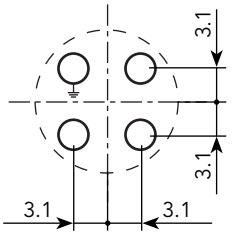
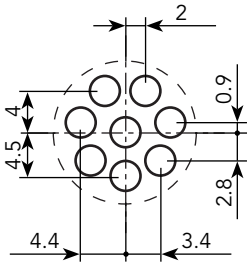
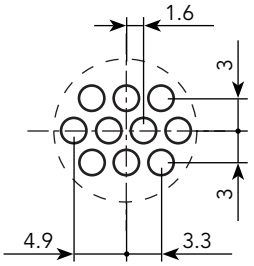
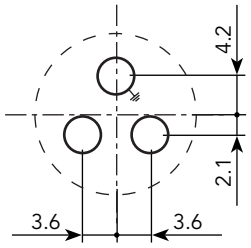
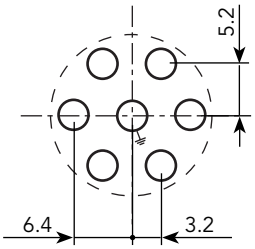
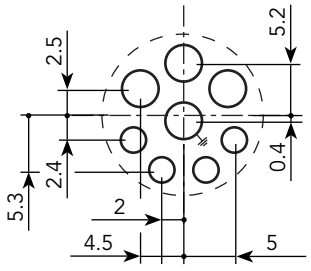
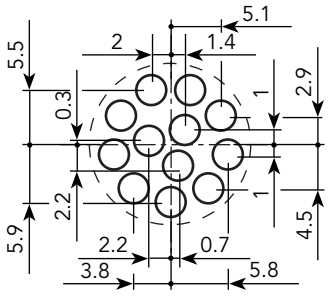
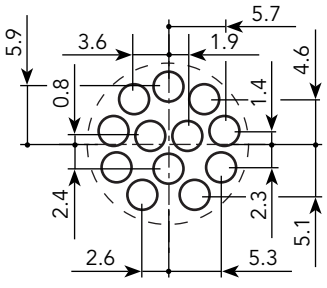
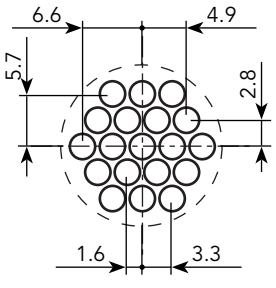
- RTI Elec: Electrical RTI, associated with critical electrical insulating properties.

- RTI Mech Imp: Mechanical Impact RTI, associated with critical impact resistance, resilience and flexibility properties.

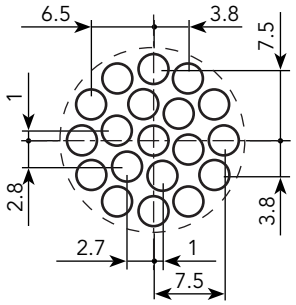
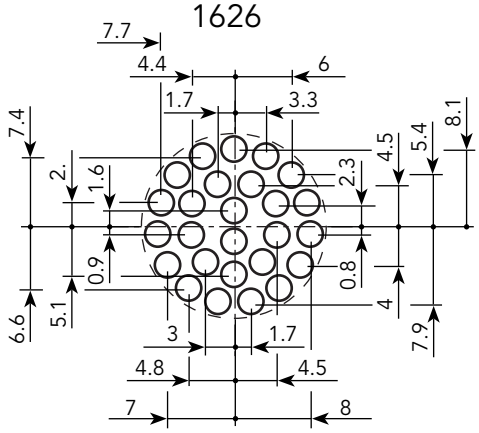
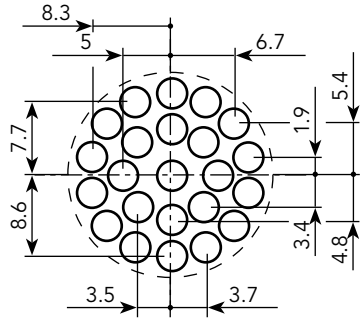
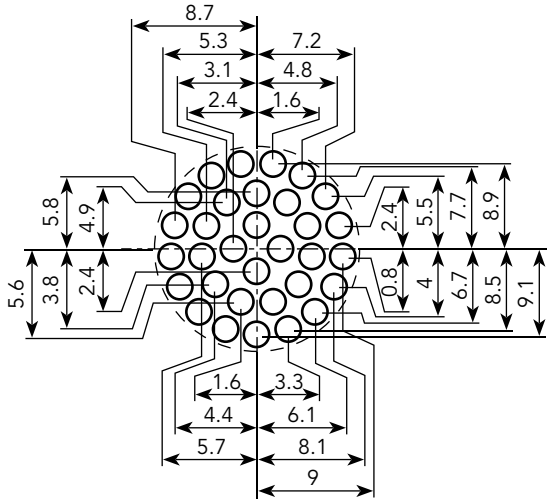
- RTI Mech Str: Mechanical Strength (Mechanical without Impact) RTI, associated with critical mechanical strength where impact resistance, resilience and flexibility are not essential.

Drilling Pattern

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

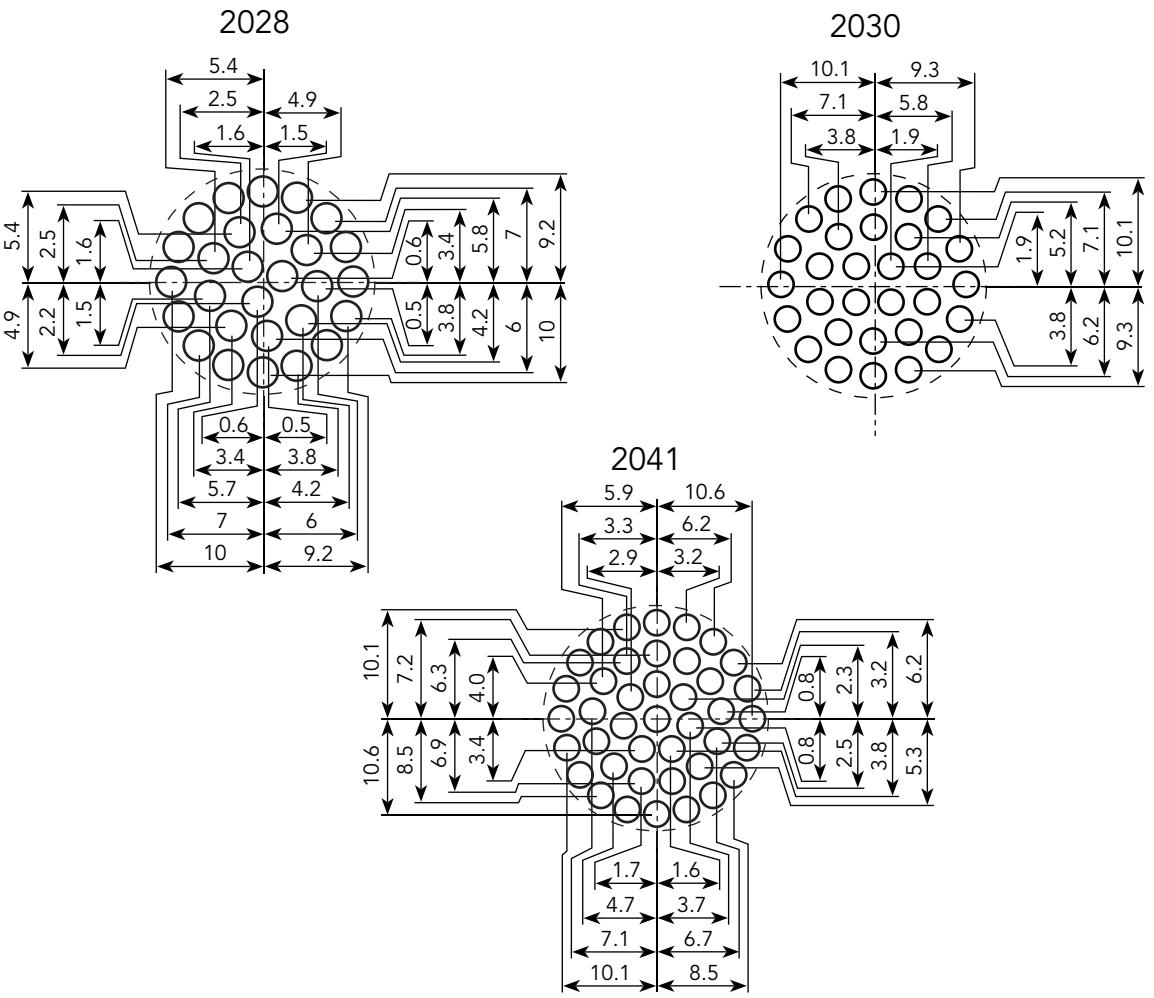
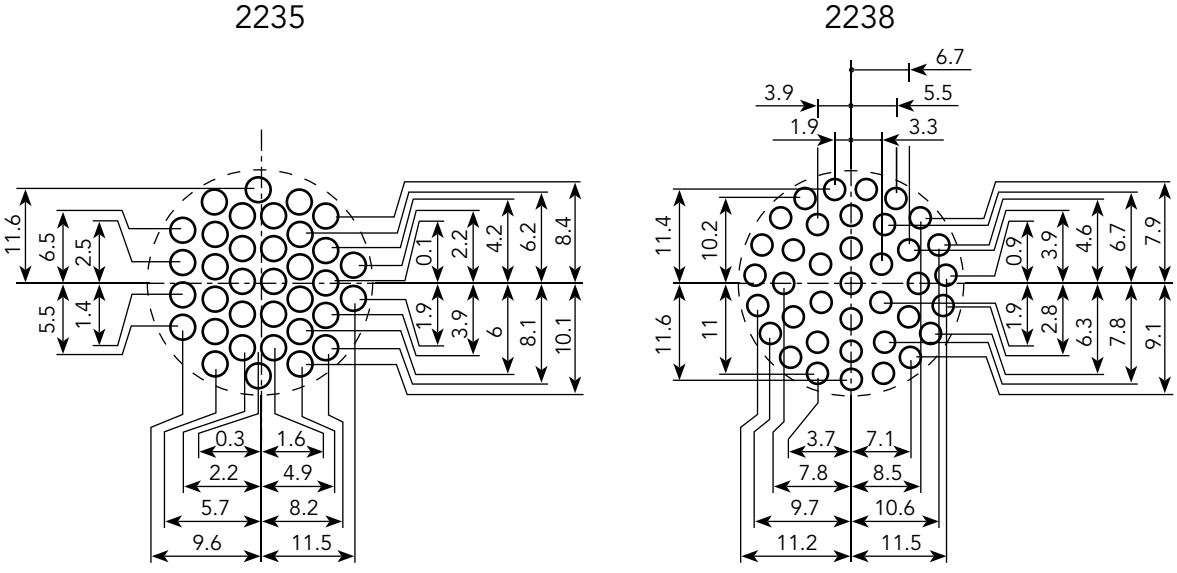
Shell Size	Dimensions (mm)
10	103  104  106  102W2  103W3 
12	124  128  1210 
14	142G1  147  148  1412  1492  1419 

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

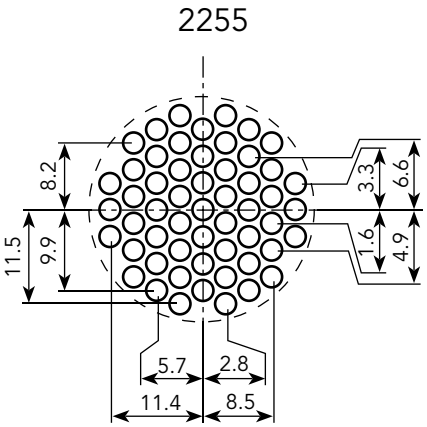
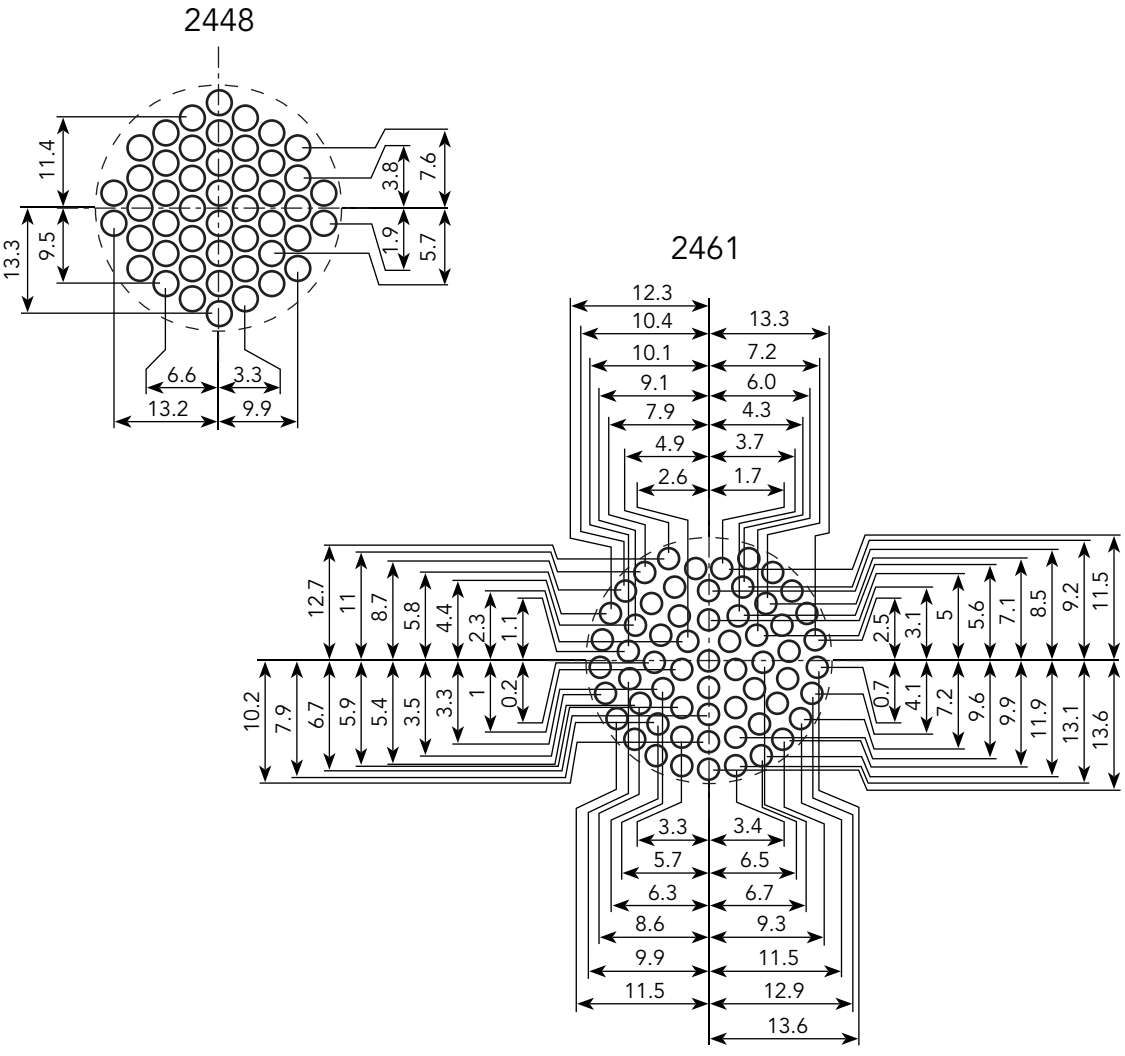
Shell Size	Dimensions (mm)
16	1619  1626 
18	1823  1832 

Drilling Pattern (Continued)

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

Shell Size	Dimensions (mm)
20	
22	

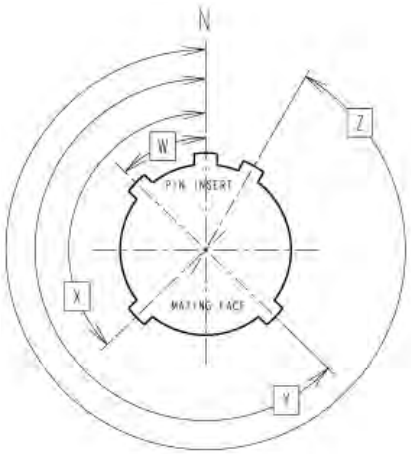
Hole sizes: #20=0.9mm, #16=1.3mm, #8=3.8mm

Shell Size	Dimensions (mm)
22	
24	

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°

SMSPKE0 (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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