UTS Series
Double insulated

SOURIAU

UTS Series for Class II & double insulated industrial equipments

UTS connector series is now suitable for Class II & double insulated equipment with a 4 pos and 7 pos offering.

Design according to IEC61140	Suitable for Class II double insulated equipment
Waterproof IP68/69K & UV resistant	Ideal for outdoor applications
Ergonomic design	Easy handling
1/3 bayonet coupling	Quick & secure mating
Specific keying system	No risk to connect a Class I with a Class II connector

Esterline
Connection Technologies

General Technical Characteristics

Materials

- **Body connector + Backshell:** Thermoplastic
- **Insert:** UTS Standard
- **Nut:** Metal
- **Contacts:** Copper alloy
- **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 (all UTS except the Sealed Unmated version) see page 180
  - UL94 HB (UTS Sealed Unmated version only)
  - I3F2 according to NFF 16101 & NFF 16102
- **Salt spray:**
  per EIA-026A ≥500 hours
- **UV resistant:**
  No mechanical degradation or important variation of color after 5 years of exposure in natural environment (equivalent exposure to sun and moisture as per ISO 4892) and F1 rated per UL 746C
- **Sealing:**
  - UTS Standard: IP68/IP69K dynamic (mated)
  - UTS Sealed Unmated version: IP68/IP69K dynamic (unmated)
  - UTS Single Wire Sealed: IP67/69K (up to IP68 with double sealing backshell)
  - UTS Screw Termination Contacts: IP68/IP69K dynamic (mated)

  Note: IP68=10 m underwater during 1 week
- **Fluid resistance:**
  - Gas and Oil
  - Mineral oil
  - Acid bath
  - Basic bath

Electrical

- **In accordance with:**
  - UL 1977: Certificat ECBT2 File number: E169916
  - CSA C22.2 n°182.3: Certificat ECBT8 File number: E169916

Mechanical

- **Durability:**
  250 matings & unmatings per MIL-C-26482
- **Vibration resistance (all UTS versions except UTS Screw Termination contacts):**
  Sinusoidal vibrations per EN 60512-4 - from 10 to 2000 Hz
- **Thermal shock:**
  5 cycles 30 min. from -40°C to 105°C per MIL-STD-1344 method 1003

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 UTS 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 UTS series can be used with the appropriate layouts without grounding feature.

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 UTS series when it comes to a class III device.

Conclusion:

UTS series can be used in class I, class II & 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. If you have questions regarding the UTS which can be for each category, please contact our technical support.

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

1244 (Shell size 12, 4x#16)

Layout

Connector Part Numbers

Contact type	Connector type	Backshell	Part number	
			Male insert	Female insert
Crimp contacts supplied separately see page 7	Jam nut receptacle	Without (Fig. 1)	**UTS71244P**	**UTS71244S**
	Free hanging receptacle	Cable gland (Fig. 5)	**UTS1JC1244P**	**UTS1JC1244S**
	Plug	Without (Fig. 3)	**UTS61244P**	**UTS61244S**
		Cable gland (Fig. 4)	**UTS6JC1244P**	**UTS6JC1244S**
PCB contacts supplied separately see page 7	Jam nut receptacle	Without (Fig. 2)	**UTS71244P**	**UTS71244S**

1244 (Shell size 12, 4x#16)

Dimensions

Jam Nut Receptacle - UTS7

Fig. 1

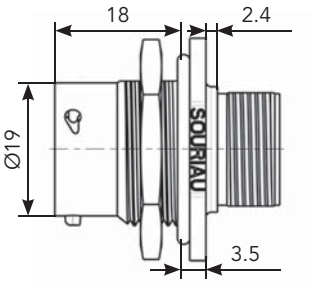
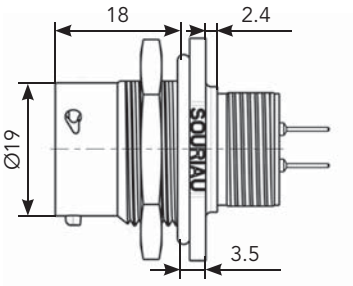
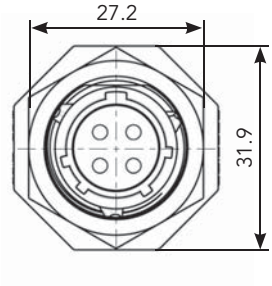


Fig. 2





Front view

Free Hanging - UTS1 / Plug - UTS6

Fig. 3

Fig. 4

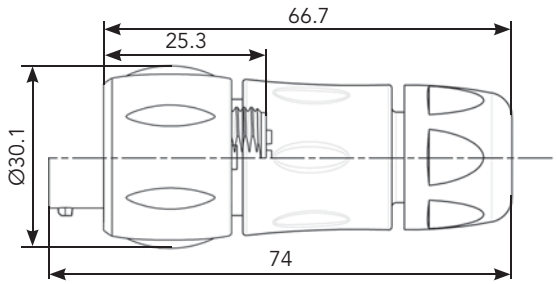
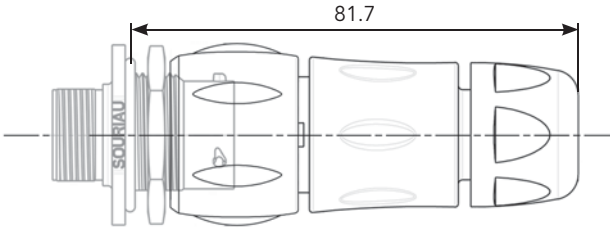


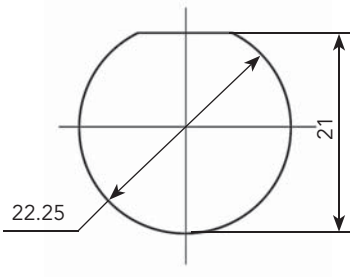
Fig. 5

Mated Connector Lengths - UTS7



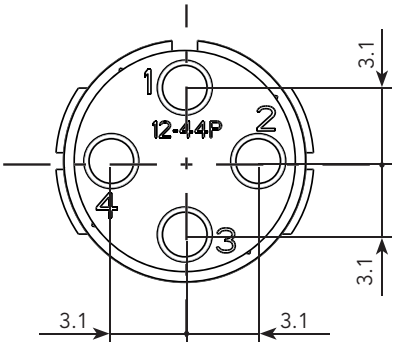
Panel Cut Out

Jam Nut Receptacle - UTS7



Drilling Pattern

Cavity size:
1.3mm



Note: all dimensions are in mm

1244 (Shell size 12, 4x#16)

Accessories and Tooling

Jam Nut Sealing Caps


IP68/69K

Part number
UTS12DCG


IP68/69K Metal terminal

Part number
UTS12DCGR

Handle (without Head)

Part number
SHANDLES

Tool Kit

Part number
TOOLKIT

Plug Sealing Cap


IP68/69K

Part number
UTS612DCG

Square Flange Sealing Cap


IP68/69K Metal terminal

Part number
UTS12DCGE

Plastic Protective Cap

Part numbers	
Receptacle cap	Plug cap
85005587A	85005596

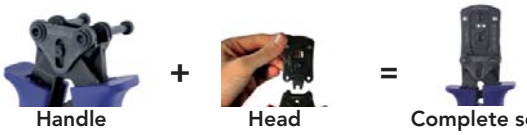
Color Coding Rings

Part numbers	
Receptacles	Plugs
UTS712CCRR	UTS612CCRR
UTS712CCRY	UTS612CCRY
UTS712CCRG	UTS612CCRG

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
RCDXK1D28K		
RM/RC DX60xxD28K		
RM/RC DXK10D28 + york090		
RM/RC DX60xxD28		

(1): Example of plating, for other plating options see page 12
* Heads to be used with handle PN: SHANDLES



Handle Head Complete set

1244 (Shell size 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
PCB	Machined (3)	-	RM20M12E83K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see UTS catalog pages 167, 200 to 206	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + york090	-	-
	Twisted pair Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
Fiber optic	POF contacts (Plastic Optical Fiber)	-	RMPOF1000	RCPOF1000B	-	-

(1): Example of plating (2): Loose piece contact available if putting L. Example: **SM20ML1TK6** (3): For dimensions see page 12 Note: all dimensions are in mm

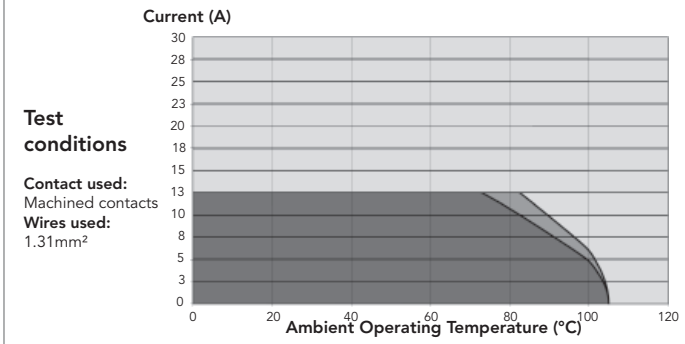
Electrical Characteristics

UL
10A 500V UL94 V-0

CSA
7A 500V UL94 V-0

IEC
16A 300V 4kV 3
Temperature elevation: 50°C

UTS 1244 Derating Curves



Theoric value, please contact us for specific requirements

1477 (Shell size 14, 7x#16)

Connector Part Numbers

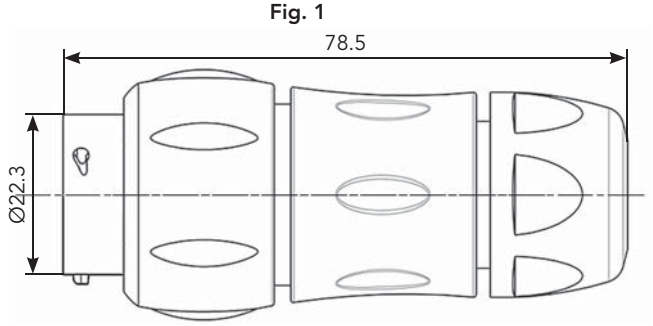
Contact type	Connector type	Backshell	Part number	
			Male insert	Female insert
Crimp contacts supplied separately see page 11	Free hanging receptacle	Cable gland (Fig. 1)	**UTS1JC1477P**	**UTS1JC1477S**
	Plug	Without (Fig. 2)	**UTS61477P**	**UTS61477S**
	Plug	Cable gland (Fig. 3)	**UTS6JC1477P**	**UTS6JC1477S**
	Jam nut receptacle	Without (Fig.4)	**UTS71477P**	**UTS71477S**
PCB contacts loaded see page 11	Jam nut receptacle	Without (Fig. 6)	**UTS71477P**	**UTS71477S**

1477 (Shell size 14, 7x#16)

Dimensions

Free Hanging - UTS1

Fig. 1



Plug - UTS6

Fig. 2

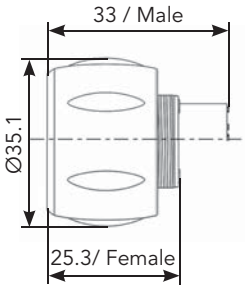
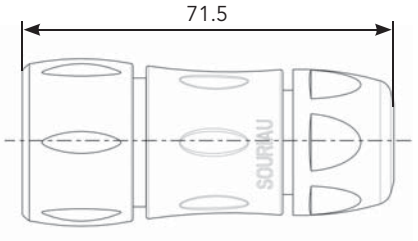


Fig. 3



Jam Nut Receptacle - UTS7

Fig. 4

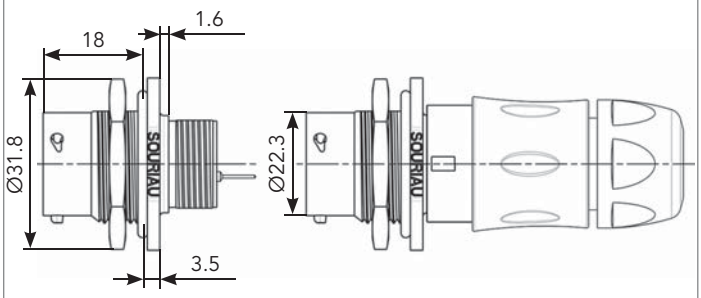
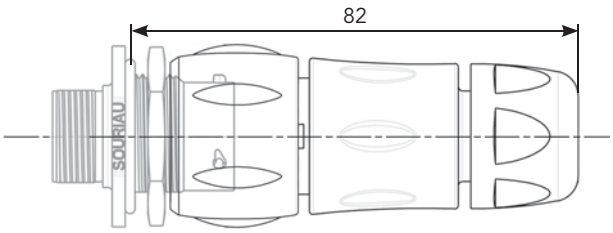


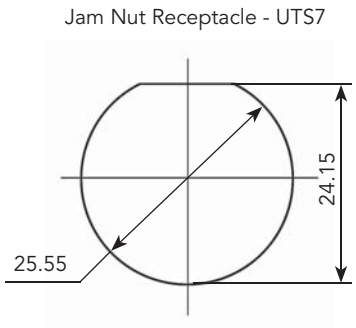
Fig. 6

Fig. 5

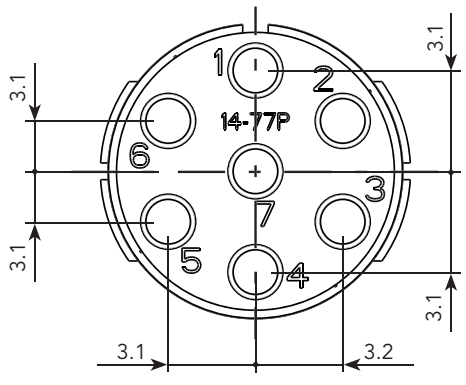
Mated Connector Lengths - UTS7



Panel Cut Out



Drilling Pattern



Note: all dimensions are in mm

1477 (Shell size 14, 7x#16)

Accessories and Tooling

Jam Nut Sealing Caps


IP68/69K

Part number
UTS14DCG


IP68/69K Metal terminal

Part number
UTS14DCGR

Handle (without Head)

Part number
SHANDLES

Tool Kit

Part number
TOOLKIT

Plug Sealing Cap


IP68/69K

Part number
UTS614DCG

Square Flange Sealing Cap


IP68/69K Metal terminal

Part number
UTS14DCGE

Plastic Protective Cap

Part numbers	
Receptacle cap	Plug cap
85005588A	85005597

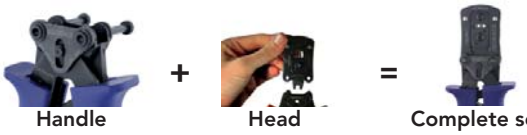
Color Coding Rings

Part numbers	
Receptacles	Plugs
UTS714CCRR	UTS614CCRR
UTS714CCRY	UTS614CCRY
UTS714CCRG	UTS614CCRG

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
RCDXK1D28K		
RM/RC DX60xxD28K		
RM/RC DXK10D28 + york090		
RM/RC DX60xxD28		

(1): Example of plating, for other plating options see page 12
* Heads to be used with handle PN: SHANDLES



Handle Head Complete set

1477 (Shell size 14, 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)	-	RM20M12E83K(1)	RC20M12E84K(1)	-	-
Coaxial	Cable Multipiece	see UTS catalog pages 167, 200 to 206	RMDXK10D28	RCDXK1D28	-	-
	Cable Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
	Twisted pair Multipiece		RMDXK10D28 + york090	RCDXK1D28 + york090	-	-
	Twisted pair Monocrimp		RMDX60xxD28	RCDX60xxD28	-	-
Fiber optic	POF contacts (Plastic Optical Fiber)	-	RMPOF1000	RCPOF1000B	-	-

(1): Example of plating (2): Loose piece contact available if putting L. Example: **SM20ML1TK6** (3): For dimensions see page 12 Note: all dimensions are in mm

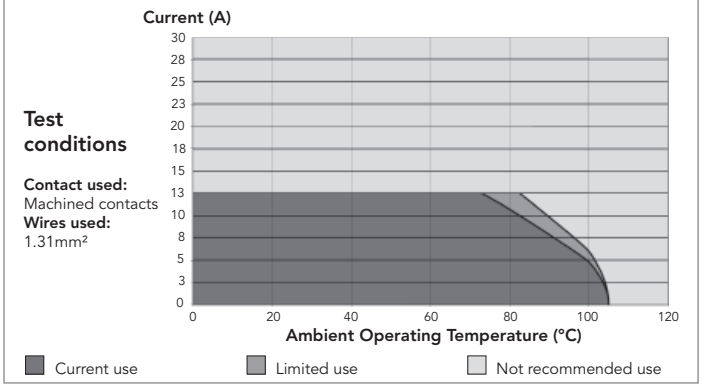
Electrical Characteristics

UL
10A 500V UL94 V-0

CSA
7A 500V UL94 V-0

IEC
16A 300V 4kV 3
Temperature elevation: 50°C

UTS 1477 Derating Curves



Contacts selector guide

Contact supplied separately

Electrical characteristics: contact resistance		
#16 Ø1.6mm	Machined	< 3mΩ
	Stamped & Formed	< 6mΩ

Contact preloaded

Electrical characteristics: contact resistance		
#16 Ø1.6mm	Machined	< 3mΩ

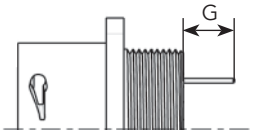
Available plating (contact preloaded)
Min 0.4µ gold over 0.8µ Ni

Available platings (contact supplied separately)	
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
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
NPC	2 µm Ni

PCB contact dimension

Minimal length G (mm)

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



Connector size	Pin contact*				Socket contact*		
	RM20M12E83K or RM20M12E83J	RM20M12E84K or RM20M12E84J	RMW50A7K or RMW50A7J	RMW5016K or RMW5016J	RC20M12E84K or RC20M12E84J	RCW50A7K or RCW50A7J	RCW5016K or RCW5016J
12	7.3	10.8	8.4	9.3	3.9	8.4	9.3
14	7.3	10.8	8.4	9.3	3.6	-	-

* Plating indication see table above

For further information contact us at contactindustry@souriau.com
or visit our web site www.souriau-industrial.com

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