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SOURIAU

UTL Series



Dynamic IP68/69K • UV Resistant • UL/IEC Compliant



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UTL Series

Overview

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UTL Series

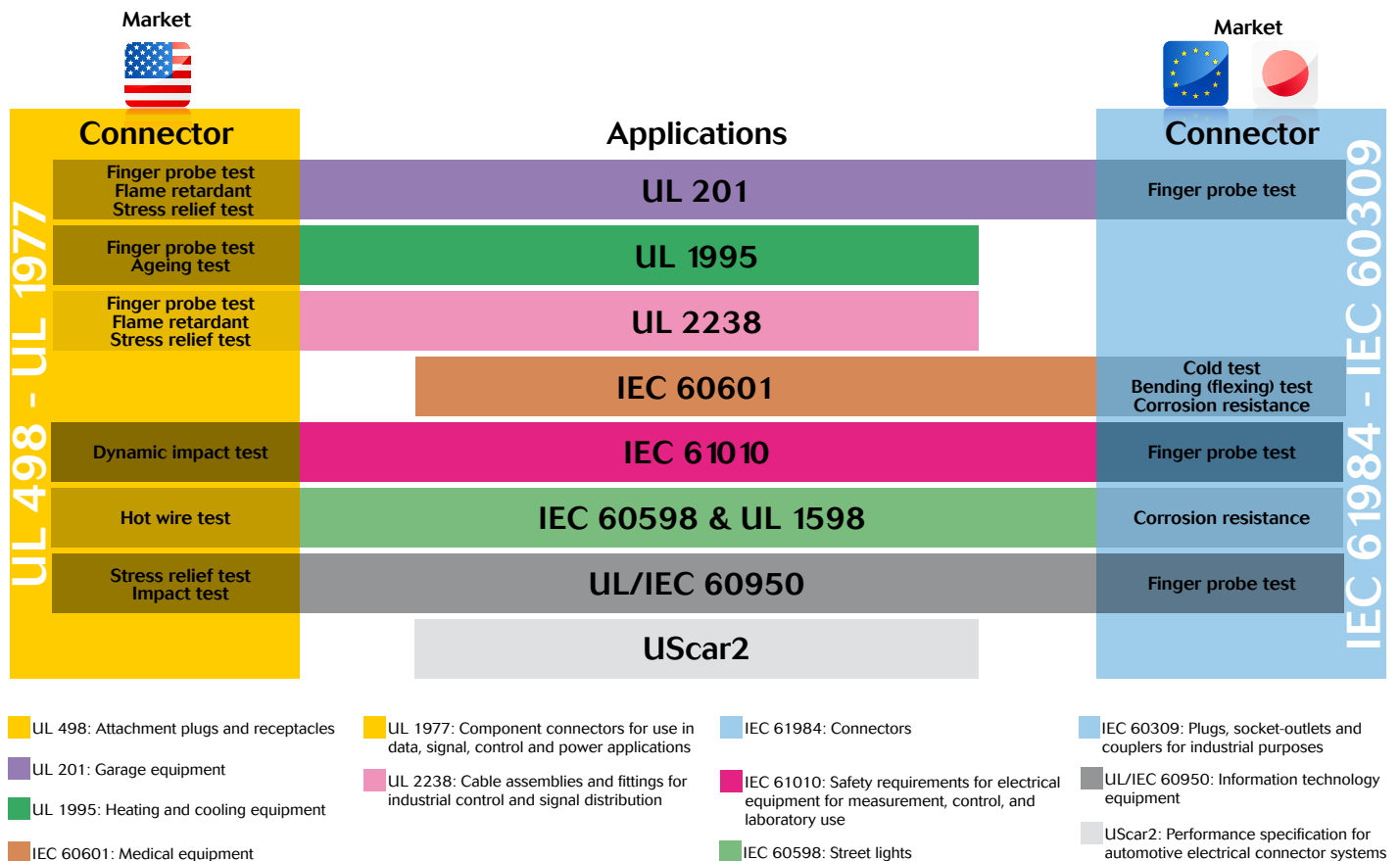
Overview

In today fast paced environment we are all buying electronic devices with confidence. To achieve a high such level of trust, the legislator had to put in place a wide variety of safety standards

Being conscious of the number of standards and the difficulty to find an appropriate connector, Souriau decided to release an all-in-one solution. The UTL series is a unique connector which is compliant with ALL industry standards you can see nowadays.

In addition to this it has been designed to be exclusively overmolded o prevent unwanted tamper. Souriau having the ability to supply cable assemblies it is therefore a gain of time with a one stop shopping supplier. There is no need anymore to look for a cable house able to terminate this fantastic product.

Interact safety standards



UTL Series

Overview



UTL range overview

The UTL Series is a plastic connector range designed to respect modern safety standards.



The stainless steel latch coupling system makes it simple to use. With only 1 finger, connectors are mated with an audible and sensitive "click". The key shape of the coupling system makes it blind mateable. In dark conditions the color and mechanical discriminations helps you to do it and avoid you to damage connectors.

The philosophy of the UTL Series is built around three key elements:

Dynamic IP68/69K



The UTL Series is rated at IP68/69K... even in dynamic conditions. This means that it remain sealed even when used continuously underwater or cleaned using a high pressure hose and cable is moving.

If this same level of performance is required even when connectors then we have special sealed contacts. This unique fetature helps you to product your electronics from ingress of water. This is particulary insteresting when using with NEMA enclosure or outdoor luminaires.

UV Resistant



In most applications, our connectors are exposed to extreme climatic conditions; it was therefore key for us to select the materials best able to cope with the targeted environment.

In most applications, our connectors are exposed to extreme climatic conditions; it was therefore key for us to select the materials best able to cope with the targeted environment.

The UTL Series uses an outdoor rated material. Underwriters Laboratories classifies it "F1" per UL746C.

UL/IEC Compliant



The outmost priority for any electrical installation is to protect personnel from any shock hazard.

In North America, Underwriters Laboratories insisted that connector manufacturers, depending of the application, respect their standards. The UTL Series had thus been qualified, certified by this organisation and compliant with the UL 1598, UL1977, UL498, UL60320.

In Europe and in Asia, IEC standards are better known and trusted by end users. Like its American equivalent, the IEC refers to safety rules. The UTL Series was obviously designed to respect these rules and especially the IEC 60598, IEC60065, IEC60320, IEC61076-2-103.



UTL Series Overview

UTL Series

UTL Series Crimp contact



Sealed: IP68/69K
UV resistant
UL/IEC compliant



Corrosion-proof
Plastic housing

Plugs

Overmolding cable plug



Ground line



x 3



x 1

Phase line
Neutral line

Overmolding cable plug



Ground line



x 1



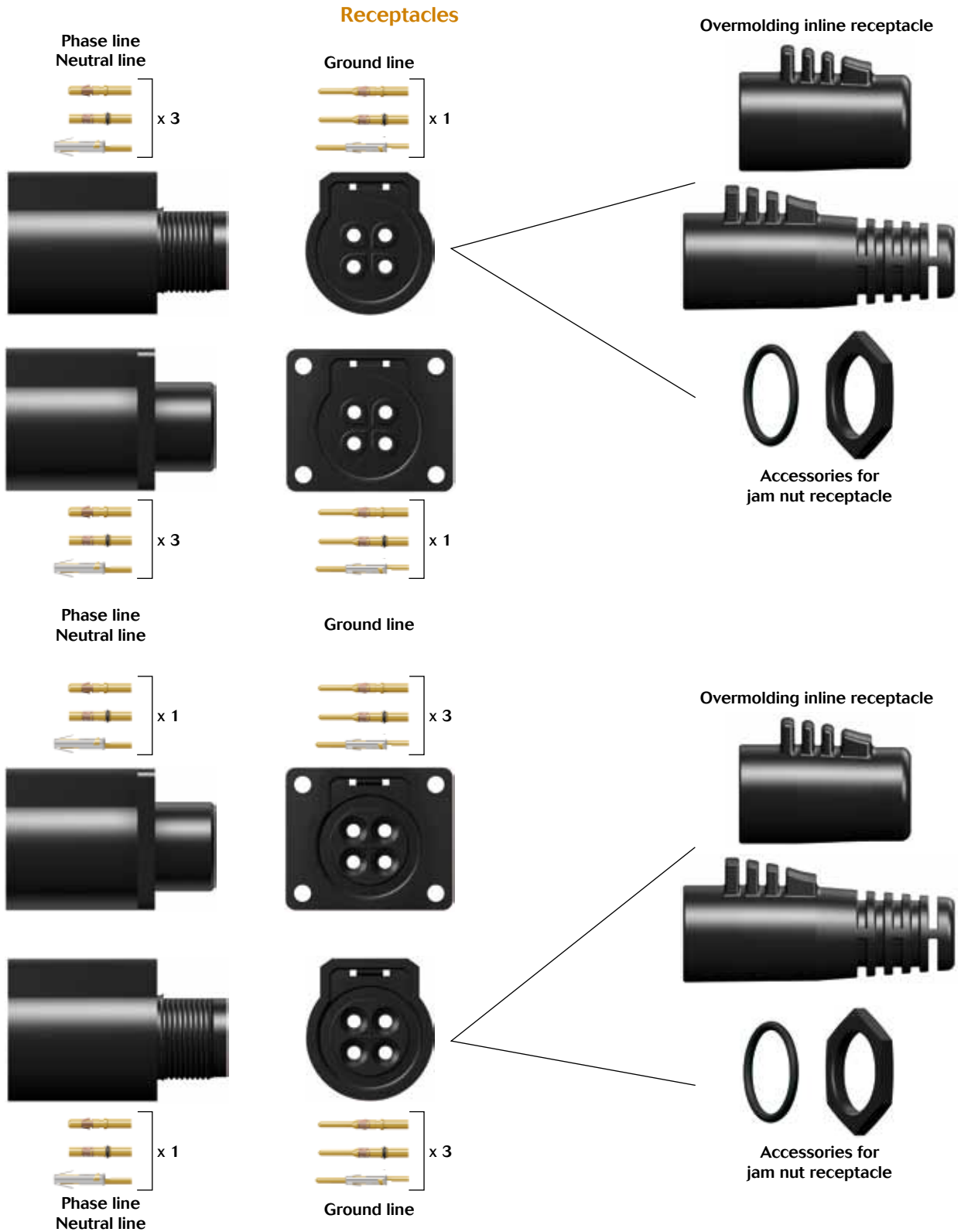
x 3

Phase line
Neutral line

UTL Series Overview



range overview





Mechanical

- 1 • Durability:
500 matings & unmatings (with stamped and formed contact, S18 plating)

Environmental

- 3 • Operating temperature:
from -40°C to +105°C
- Flammability rating:
UL 94 5VA
- Salt spray:
≥1000 hours
- UV resistant:
No mechanical degradation or important variation of colour of exposure in natural environment (F1 material per the UL 746C)
- 4 • Sealing:
 - IP68/69K mated with standard contacts
 - IP68/69K even unmated with sealed contacts (see p23)
- Fluid resistance:
 - Gasoil
 - Mineral oil
 - Acid bath
 - Basic bath



UTL Series Overview



characteristics



Electrical

- UL: 600V 16A
277V 13A for CBC use
- CN: 600V 13A
277V 10A for CBC use
- IEC: 230/400V 16A
- 2 • Connector for Breaking circuit
- First Mate Last Break contact mating on earth line

Material

- Body connector + Backshell: Thermoplastic
- Insert: Connector: Thermoplastic
- Contacts: See page 22
- Nut: Metal
- Halogen free
- RoHS compliant & conform to the Chinese standard SJ/T1166-2006 (Chinese RoHS equivalent)



Qualification

- In accordance with:
 - IEC60065, IEC60598, UL1598, IEC60320, UL498, UL94, UL746, IEC61076-2-103
 - UL 1977: UL file number E169916
 - IEC 61984: Pending





UTL Series

UTL Series

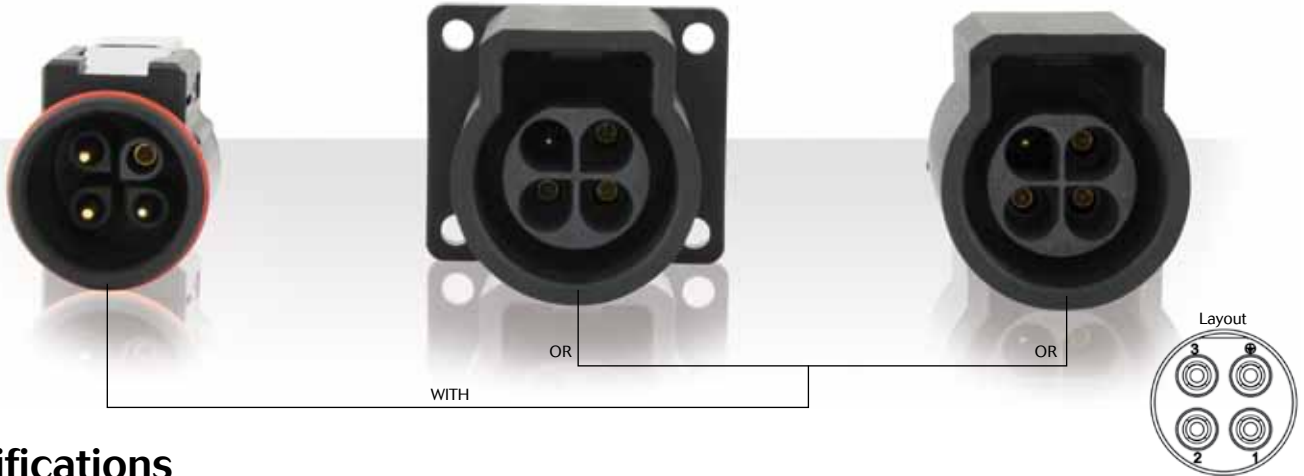
Mechanics

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UTL Series

103G1



Specifications

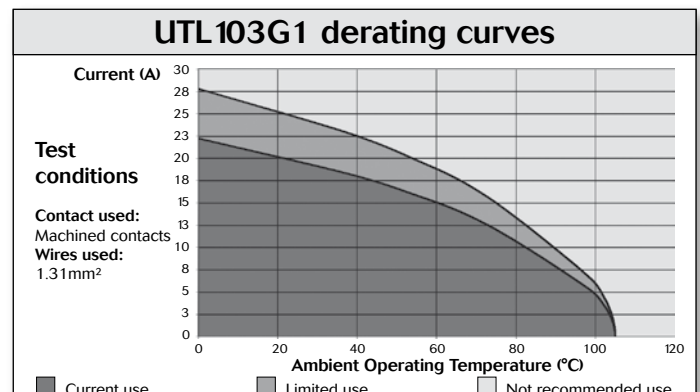
Contact type	Connector type	Part number			
		Male insert		Female insert	
		Black color	Grey color	Black color	grey color
Crimp contacts supply separately see page 17	Square flange receptacle	UTL0103G1P <input type="checkbox"/>	UTL0103G1P03	UTL0103G1S	UTL0103G1S03
	Plug	UTL6103G1P	UTL6103G1P03	UTL6103G1S <input type="checkbox"/>	UTL6103G1S03
	Jam nut receptacle	UTL7103G1P <input type="checkbox"/>	UTL7103G1P03	UTL7103G1S	UTL7103G1S03
	In line receptacle	UTL1103G1P <input type="checkbox"/>	UTL1103G1P03	UTL1103G1S	UTL1103G1S03

48h sample service

Harnesses

Connector type	Overmolded harnesses, straight ending					
	Male insert			Female insert		
	3 ft	6 ft	12 ft	3 ft	6 ft	12 ft
Plug 1 side	UTLMKT63G1P3FT	UTLMKT63G1P6FT	UTLMKT63G1P12FT	UTLMKT63G1S3FT	UTLMKT63G1S6FT	UTLMKT63G1S12FT
Plug 2 sides	-	-	-	UTLMKT63G1SP3FT	UTLMKT63G1SP6FT	UTLMKT63G1SP12FT
Plug + in line	-	-	-	UTLMKT613G1SP3FT	UTLMKT613G1SP6FT	UTLMKT613G1SP12FT

Electrical characteristics
<p>UL 600V 16A 277V 10A for CBC use</p> <p>CN 600V 13A 277V 10A for CBC use</p> <p>IEC 16A 230/400V 16A</p>



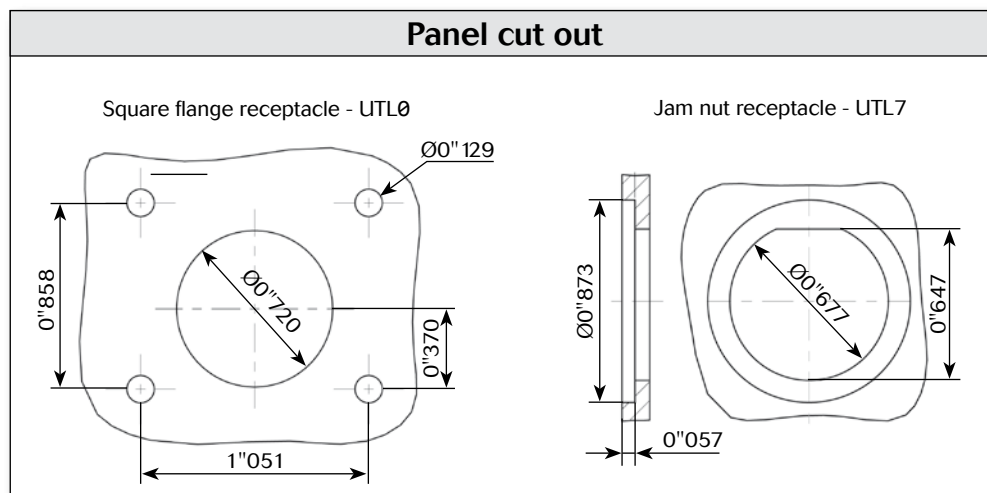
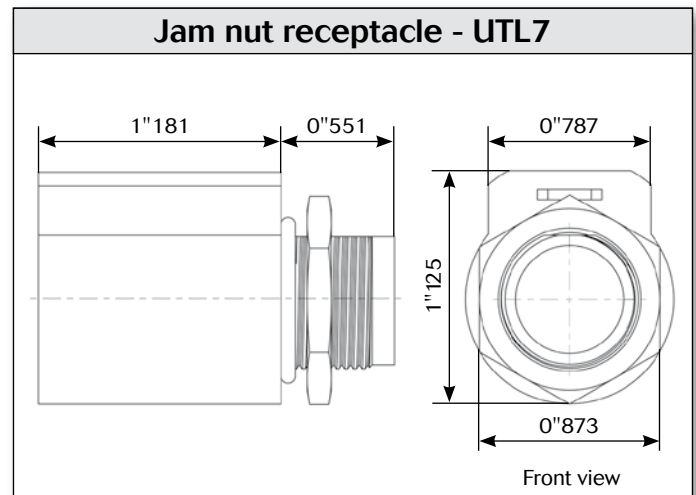
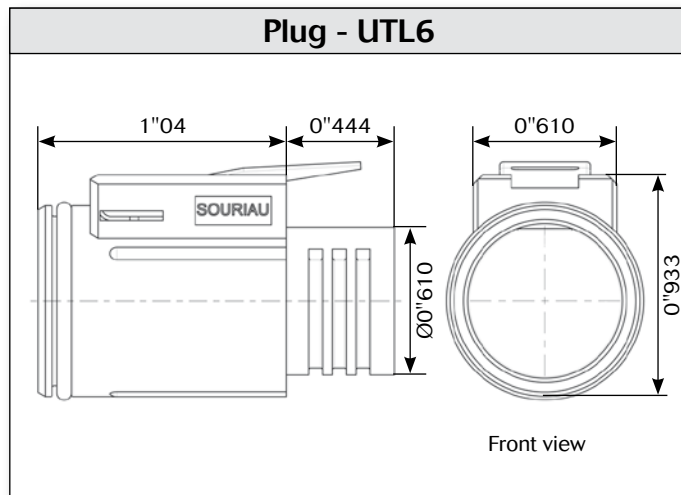
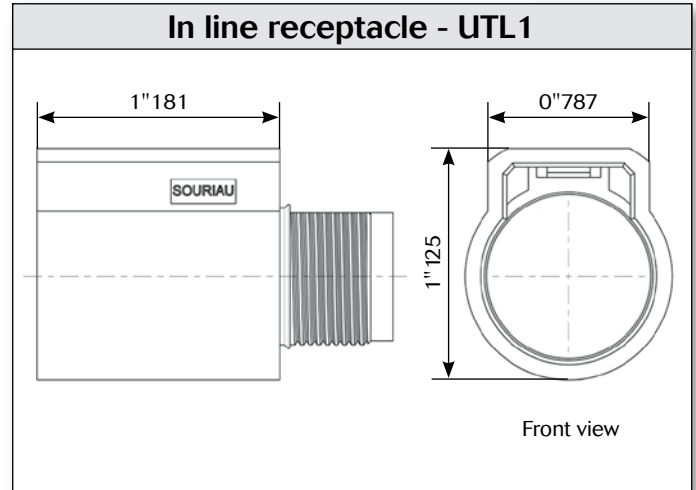
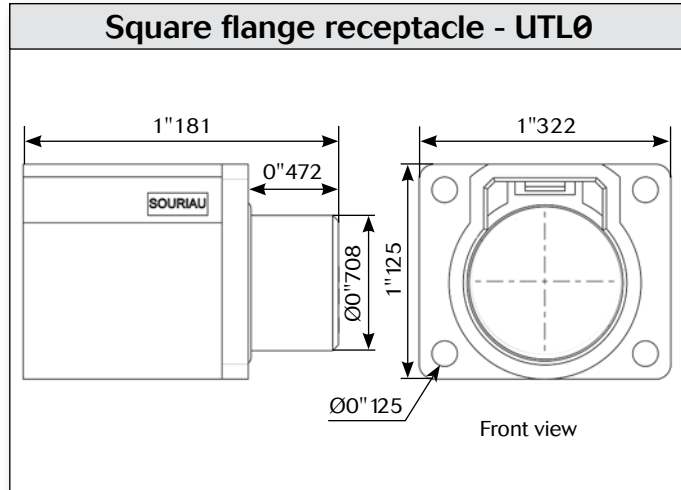
UTL Series

103G1



3 + ground
16A/600V
per UL1977

Dimensions



Note:
all dimensions are in inch

UTL Series

103G1



Accessories

Dustcap for plug



Part number
UTL610DCG 


Dustcap for receptacle



Part number
UTL10DCG 

48h sample service 

Dustcap for male plug UTL0/1/6




Part number
UTL103G1PDCG68

Dustcap for female plug UTL0/1/6



Part number
UTL103G1SDCG68

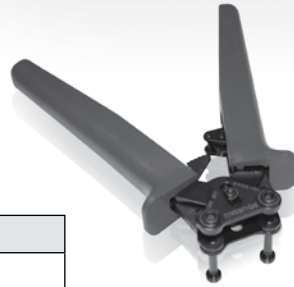
Grommet



Part number
SWSFILLERPLUG

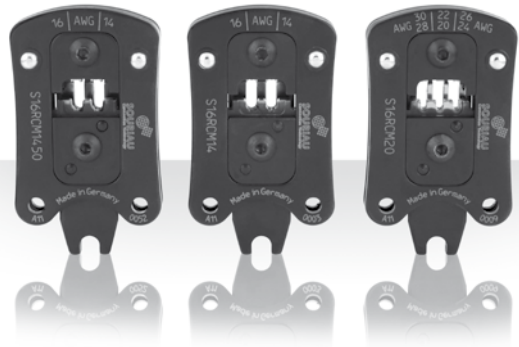
Tooling

Handle



Part number
SHANDLES

Crimp tooling



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
RM/RC 16M25K		S16RCM1625
RM/RC 14M25K		S16RCM1425
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
RCDXK1D28K	M10S-1J	
RM/RC DX60xxD28K	M10S-1J	
RM/RC DXK10D28 + york090	M10S-1J	
RM/RC DX60xxD28	M10S-1J	

(1): example of plating, for other plating see page 21

UTL Series

103G1



3 + ground
16A/600V
per UL1977

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	1.1	
		26-24	RM24M9K ⁽¹⁾ ⊙	RC24M9K ⁽¹⁾ ⊙	0.8	1.6	
		22-20	RM20M13K ⁽¹⁾ ⊙	RC20M13K ⁽¹⁾ ⊙	1.18	1.8	
		22-20	RM20M12K ⁽¹⁾ ⊙	RC20M12K ⁽¹⁾ ⊙	1.18	2.2	
		20-16	RM16M23K ⁽¹⁾ ⊙	RC16M23K ⁽¹⁾ ⊙	1.8	3.2	
		16-14	RM14M30K ⁽¹⁾ ⊙	RC14M30K ⁽¹⁾ ⊙	2.28	3.2	
	Machined with o-ring	20-16	RM16M25K ⁽³⁾ ⊙	RC16M25K ⁽³⁾ ⊙	1.8	3.2	
		16-14	RM14M25K ⁽³⁾	RC14M25K ⁽³⁾	2.28	3.2	
	Stamped & formed reeled contacts	26-24	SM24M1TK6 ⁽¹⁾⁽²⁾	SC24M1TK6 ⁽¹⁾⁽²⁾	0.89-1.28	-	
		22-20	SM20M1TK6 ⁽¹⁾⁽²⁾	SC20M1TK6 ⁽¹⁾⁽²⁾	1.17-2.08	-	
		18-16	SM16M1TK6 ⁽¹⁾⁽²⁾	SC16M1TK6 ⁽¹⁾⁽²⁾	3.0	-	
		18-16	SM16M11TK6 ⁽¹⁾⁽²⁾	SC16M11TK6 ⁽¹⁾⁽²⁾	2.0-3.0	-	
		14	SM14M1TK6 ⁽¹⁾⁽²⁾	SC14M1TK6 ⁽¹⁾⁽²⁾	3.2	-	
	Coaxial	Cable Multipiece	-	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 see page 21

(2): Loose piece contact available if putting L. Example: SM20ML1TK6

(3): Sealed contacts

48h sample service ⊙

Mechanics

Prototype kit - See instructions page 36

Connector type	Wire section	Boot	Part number	
			Male insert	Female insert
Plug	AWG 20	1	UTL6103G1P20AWG	UTL6103G1S20AWG
	AWG 16	1	UTL6103G1P16AWG	UTL6103G1S16AWG
	AWG 14	1	UTL6103G1P14AWG	UTL6103G1S14AWG
Inline receptacle	AWG 20	1	UTL1103G1P20AWG	UTL1103G1S20AWG
	AWG 16	1	UTL1103G1P16AWG	UTL1103G1S16AWG
	AWG 14	1	UTL1103G1P14AWG	UTL1103G1S14AWG
Jam nut receptacle	AWG 20	1	UTL7103G1P20AWG	UTL7103G1S20AWG
	AWG 16	1	UTL7103G1P16AWG	UTL7103G1S16AWG
	AWG 14	1	UTL7103G1P14AWG	UTL7103G1S14AWG
Square flange receptacle	AWG 20		UTL0103G1P20AWG	UTL0103G1S20AWG
	AWG 16		UTL0103G1P16AWG	UTL0103G1S16AWG
	AWG 14		UTL0103G1P14AWG	UTL0103G1S14AWG

NB: Contacts supplied (S31 plating)



UTL Series

Contacts

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UTL Series

Contacts

Contacts



Description

The UTL series is delivered without contact (crimp version). Contacts are not loaded, this series offers the unique possibility to use the same contact in any layout as long as it receives the same active part size. Thus it is possible to buy only one contact reference and equip all connectors even if housings are different.

The main benefit is the standardisation which means reduction of inventory cost.

Bearing in mind that any additional tool or complicated assembly process should be avoided, our contacts are based on a snap-in principle which avoid the use of an insertion tool.

Crimp contacts are available in different versions:



• machined



• stamped & formed



• coaxial

In addition, UTL series can obviously be equipped with solder contacts, PCB contacts.



Contact plating selector guide

As soon as you know what contact size you need, you next have to decide on which type to use.

Souriau proposes mainly two different types of electrical contacts:

- Machined
- Stamped & formed

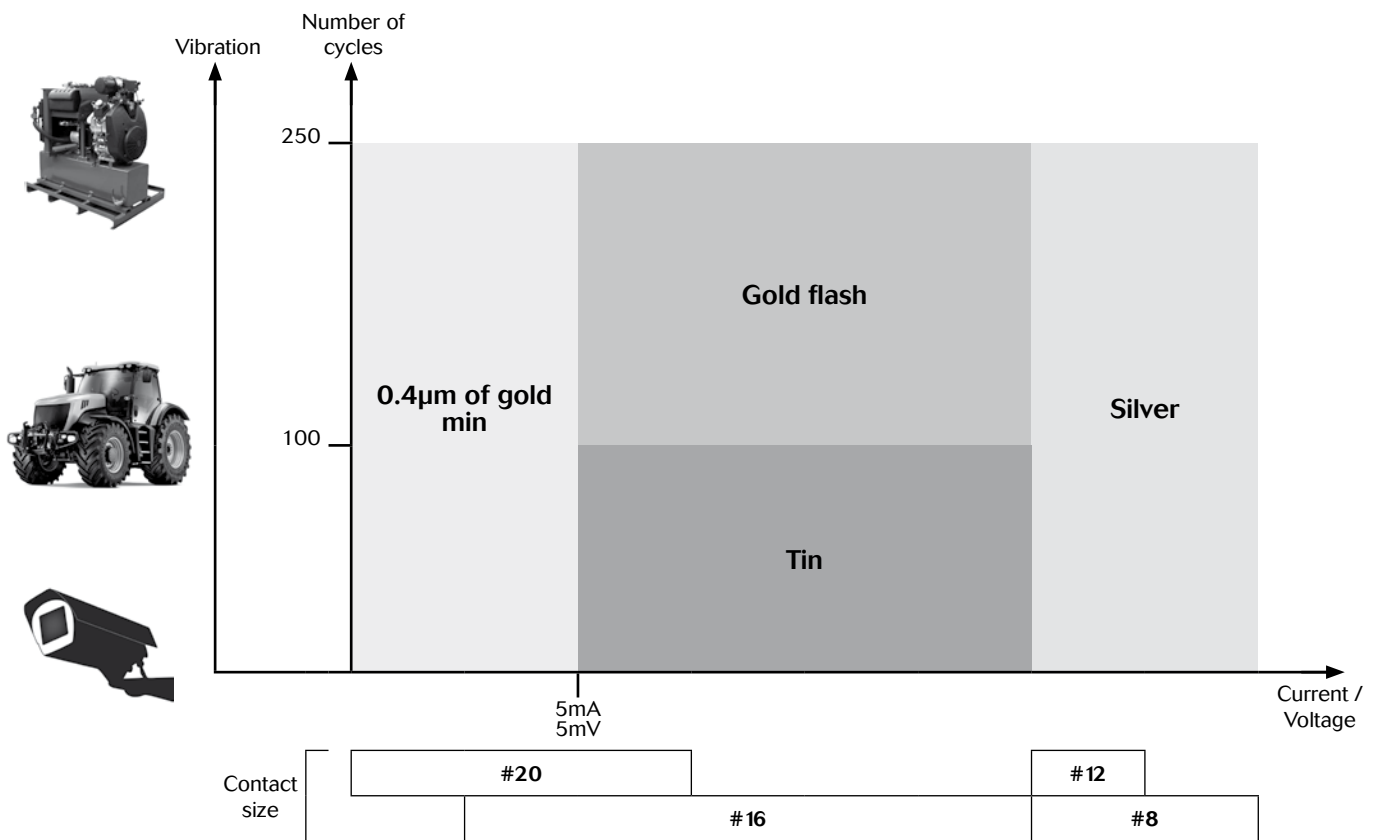
Machined contacts are generally chosen for low quantities purpose as well as a better solution for power applications.

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

Then comes the question: What plating should I choose ?

Hereunder is a graph with criteria to guide you:

NB: do not mix different plating (e.g. tin plated pin contact with gold plated socket contact).





Contact selector guide

Contact supply separately

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

Available platings (contact supply separately)	
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

Packaging

Conscious of the wide variety of applications, contact packaging has been considered for small series (bulk packaging) and high volume production (reeled contacts):

Size contact #16



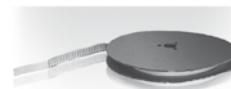
- 25 pieces bulk packing (stamped & formed contacts)



- 50 pieces bulk packing (machined contacts)



- 1000 pieces bulk packing (machined contacts)



- 3000 pieces reeled (stamped & formed contacts)



- 5000 pieces reeled (machined contacts)



Crimp contacts

Standard version



Contact size	Type	Wire size		Part number		Max wire Ø	Max insulator Ø	Plating available
		AWG	mm ²	Male	Female			
# 16 Ø1.6 mm	Machined	30-28	0.05-0.08	RM28M1- (1) (2)	RC28M1- (1) (2)	0.55	1.1	K
	Machined	26-24	0.13-0.2	RM24M9- (1) (2)	RC24M9- (1) (2)	0.8	1.6	K
	Stamped & Formed	26-24	0.13-0.25	SM24M1- (1) SM24ML1- (2) (2)	SC24M1- (1) SC24ML1- (2) (2)	0.89-1.28	Insulation grip	S31, S18, TK6
	Machined	22-20	0.32-0.52	RM20M13- (1) (2)	RC20M13- (1) (2)	1.18	1.8	K
				RM20M12- (1) (2)	RC20M12- (1) (2)		2.2	
	Stamped & Formed	22-20	0.35-0.5	SM20M1- (1) SM20ML1- (2) (2)	SC20M1- (1) SC20ML1- (2) (2)	1.17-2.08	Insulation grip	S31, S18, TK6
	Machined	20-16	0.52-1.5	RM16M23- (1) (2)	RC16M23- (1) (2)	1.8	3.2	K
	Machined with o-ring	20-16	0.52-1.5	RM16M25-	RC16M25-	1.8	3.2	K
	Stamped & Formed	18-16	0.8-1.5	SM16M1- (1) SM16ML1- (2) (2)	SC16M1- (1) SC16ML1- (2) (2)	3.0	No insulation grip	S31, S18, TK6
	Stamped & Formed	18-16	0.8-1.5	SM16M11- (1) SM16ML11- (2) (2)	SC16M11- (1) SC16ML11- (2) (2)	2.0-3.0	Insulation grip	S31, S18, TK6
	Machined	16-14	1.5-2.5	RM14M30- (1) (2)	RC14M30- (1) (2)	2.28	3.2	K
	Machined with o-ring	16-14	1.5-2.5	RM14M25-	RC14M25-	2.28	3.2	K
Stamped & Formed	14	2.0-2.5	SM14M1- (1) SM14ML1- (2) (2)	SC14M1- (1) SC14ML1- (2) (2)	3.2	No insulation grip	S31, S18, TK6	

(1) contact reeled (2) loose contact

Example: RM16M23K - Size # 16, Machined, AWG20 wire, gold plating.

48h sample service (2)

REMINDER

Plugs and receptacles have to be equipped with both contact genders.

EX: UTL6103G1P = 3 x SM16M1531 + 1 x SC16M1531



#16 coaxial contacts

Coaxial contact range

We provide 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.



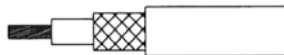
Multipiece crimp coaxial contact

- 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.

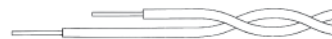


Suitable for Coaxial cable or Twisted cable

- 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 50	See pages 54 & 55
Monocrimp	RMDX60xxD28	RCDX60xxD28		See page 56

48h sample service

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 51	See page 52
Monocrimp	RMDX60xxD28	RCDX60xxD28		See page 53

UTL Series

Contacts

