



## Company profile

SOURIAU is focused on the supply of connection technologies for severe environment. Our Company has a presence in the world's major aerospace / defense programs and is strongly positioned in the railways, geophysical, robotics and instrumentation markets.

The Company has been created by the successive acquisitions of the industrial, aeronautics, defense and space activities of SOURIAU, JUPITER and BURNDY.



### Laboratory & Test Center

SOURIAU has its own independent test center recognized by many National Standard

Laboratories. This Center carries-out validation or qualification programs complying with : MIL- Standard - CECC - GSFC - VDE - SCC - EN - CSA - UL. The laboratory has the capabilities to perform testing in compliance with the above mentioned standards as follows :

- electrical • environmental • mechanical.



### Design & Development

SOURIAU continues its strong commitment to invest in design

and development to provide innovative solutions. Our Company is structured into cross-functional teams of scientists, engineers and technicians working closely with customers to bring new products to market. More than 6% of our sales are invested in new product development.



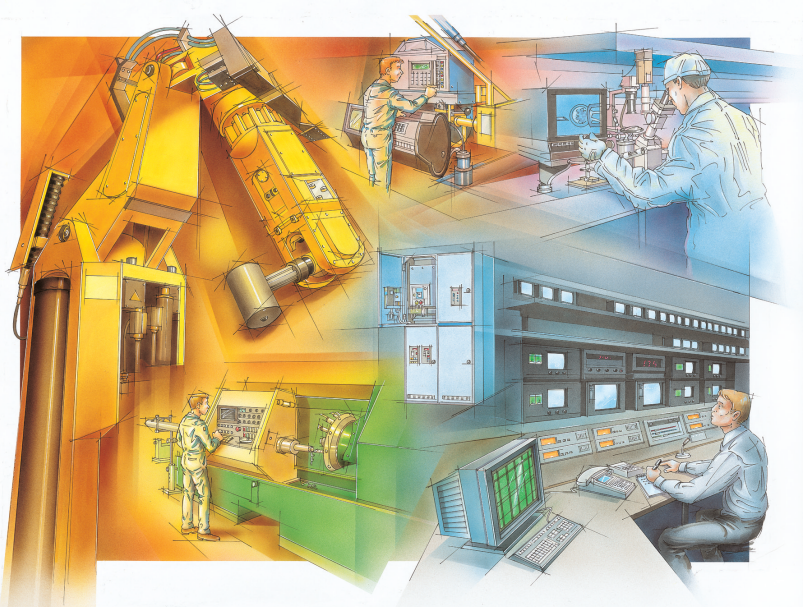
### Quality Assurance

Quality is a key objective for SOURIAU focusing on :

- Total Customer Satisfaction.
- The widespread application of a Quality Assurance system that spans all processes, is consistent throughout the company and meets the requirements of ISO 9001 / ISO 14001 / MIL-STD 790 / NATO AQAP 110 / BOEING D1-9000 / AS-9100.

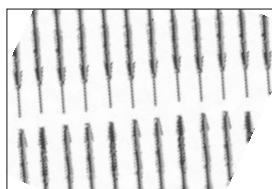
## Description

- **UTOW** series is a range of circular connectors that are an **"high density"** extension from the well known **TRIM TRIO interconnection system**.
- It was designed to meet the diversified needs for electrical and industrial electronic connections and used for **Rack & Panel, PC Board and cable connections**.
- Its physical characteristics and performances are appreciated in numerous fields of applications :
  - **Test and measurement**
  - **Process control, handling equipment**
  - **Factory automation and motor drives**
  - **Public transportation, traffic control**
  - **Medical instrumentation, telecom.**
- **UTOW** series is intermateable with following international standards: **MIL-C-26482 Series I and equivalents**.

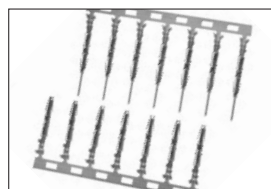


## The TRIM TRIO high density concept

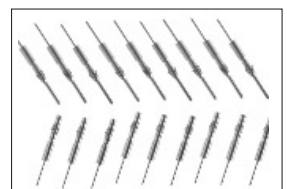
**Approve # 20 contacts one time and change connector size as needed**



**Machined**



**Stamped and formed**



**Dip solder contacts**



**UTOW series**



## Metal circular connector

**Completely intermateable with MIL-C-26482 S1 connectors, using # 20 (1.0 mm) contacts**

### What is UTOW?

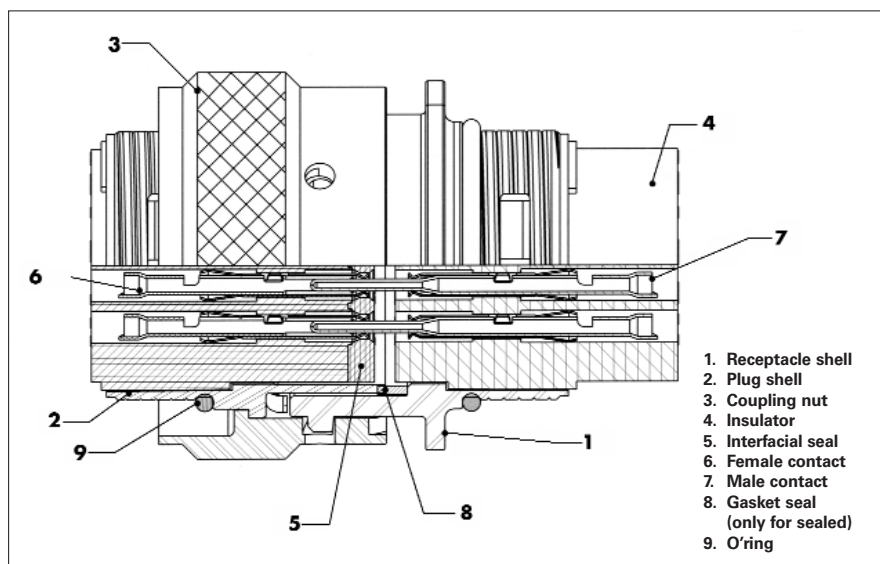
Souriau's UTOW is an extension of the well known TRIM TRIO interconnection system. It is a cost effective high density & robust circular connector for the industrial market.

### Why UTOW?

Ever changing market demands & applications resulted in the development of a new connector concept **offering additional features & benefits** to the existing MIL-C-26482 S1 connectors, still being completely intermateable.

### What are these main additional features & benefits?

- Hard thermoplastic insert with **UL94V0 flammability rating**.
- Insert orientations available from the normal position to W, X, Y or Z.
- Besides size 20 (1.0 mm pin dia.) solid machined contacts also stamped and formed snap-in contacts are available **offering lower installed cost**.
- Nickel plating protection adapted to the industrial requirements.
- Socket connectors have an interfacial seal to "guide" the socket contact in the perfect position, this to avoid misalignment and probe damage during mating. Front release of the contacts remains possible.



### Performance characteristics

- Operating temperature : -40°C to +105°C
- Insulation resistance : 5000 MΩ min
- Test potential : 1500 Vrms
- Durability : 500 matings and unmatings
- Vibration resistance : < 10 MS
- Thermal shock : -40°C to +105°C
- Corrosion : salt spray 48 hr
- Shielding effectiveness : 65 dB at 10 MHz

### Construction

- Shells and accessories : Aluminium alloy
- Coupling ring : Aluminium alloy
- Coupling spring : Spring stainless steel
- Interfacial seal : Thermoplastic
- Insert : Glass-filled thermoplast UL94V0
- Finish : Nickel

### Contact accommodation

- "UTOW" connectors accept size 20 crimp-type removable snap-lock contacts (see contacts section)
- Contacts to be ordered separately

## How to order

| Connector family      | UTOW                                                                                 | 0 | 16 | 26 | P | - | - | - | - |
|-----------------------|--------------------------------------------------------------------------------------|---|----|----|---|---|---|---|---|
|                       | UTOW                                                                                 | 6 | 16 | 26 | S | - | H | - | - |
| Body variation :      | 0 : Wall mounting receptacle<br>6 : Cable plug                                       |   |    |    |   |   |   |   |   |
| Shell size            |                                                                                      |   |    |    |   |   |   |   |   |
| Insert arrangement    |                                                                                      |   |    |    |   |   |   |   |   |
| Type of contacts :    | P : Pin contacts<br>S : Socket contacts                                              |   |    |    |   |   |   |   |   |
| Insert polarisation : | No letter : Standard version<br>W, X, Y, Z : Different orientations (see next page)  |   |    |    |   |   |   |   |   |
| Application :         | No letter : Not sealed (only possible for receptacle)<br>H : Water protected version |   |    |    |   |   |   |   |   |
| Design variation :    | No letter : Standard version<br>Others : Special versions                            |   |    |    |   |   |   |   |   |
| Plating :             | No letter : Standard version = Nickel plated<br>Others : Special platings            |   |    |    |   |   |   |   |   |



## Insert Arrangements Viewed from front face of male insulator

16 - 26

22 - 55

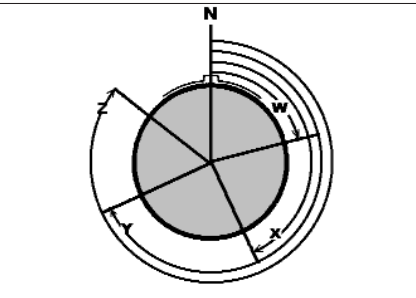
24 - 61

**Other arrangements and body variations under development. Please consult factory for detailed information.**

Contact identification positions shown are for mating face of pin contact connectors, and wire face of socket contact connectors. Marking on wire face is moulded-in. Marking on the mating face is moulded-in for pin versions. For socket versions, each mating face has an interfacial seal with silkscreen marking.

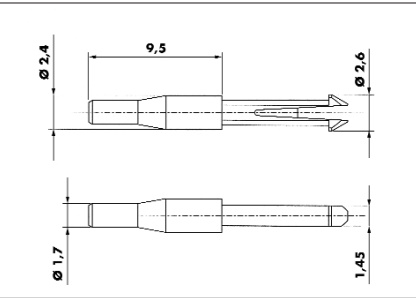
## Insert rotation positions

The table shows possible insert rotation positions. 5 positions N, W, X, Y and Z differ in the degree of rotation for the various connector sizes. The table indicates the exact degree of rotation.



| Shell size | Contact number | Insert rotation positions |     |     |     |
|------------|----------------|---------------------------|-----|-----|-----|
|            |                | W                         | X   | Y   | Z   |
| 16         | 26             | 60                        | -   | 275 | 338 |
| 22         | 55             | 30                        | 142 | 226 | 314 |
| 24         | 61             | 90                        | 180 | 270 | 324 |

## Discrimination pin



**SMSPE3**  
A dummy contact, which can be inserted in an empty contact cavity.

**Description**

In applications where similar connectors are used next to each other, mismatching can be a reason for disturbances, system failure or even danger to operating personnel. To eliminate mismatching, all UTOW connectors can be equipped with discrimination keys, which offer unlimited possibilities for a "fool - proof" interconnection system.

When this discrimination pin is used, the UTOW connector will only mate with a connector that has a vacant contact cavity at the corresponding position.

This system offers boundless opportunities for all applications that involve several identical UTOW connectors.

**The material used is polyamide 6.6**



## Connectors for crimp and dip solder contacts (contacts to be ordered separately)

**Cable plug  
for pin contacts**



| Part number |
|-------------|
| UT0W61626PH |
| UT0W62255PH |
| UT0W62461PH |

**Cable plug  
for sockets contacts**



| Part number |
|-------------|
| UT0W61626SH |
| UT0W62255SH |
| UT0W62461SH |

**Wall mounting receptacle  
for pin contacts**



| Part number |
|-------------|
| UT0W01626P  |
| UT0W02255P  |
| UT0W02461P  |

**Wall mounting receptacle  
for socket contacts**



| Part number |
|-------------|
| UT0W01626S  |
| UT0W02255S  |
| UT0W02461S  |

## Cable clamps and accessories (for other accessories consult factory)

**Straight cable clamp**



| Part number |
|-------------|
| UT016AC     |
| UT022AC     |
| UT024AC     |

**Metal dustcap**



| Part number |
|-------------|
| UT016DCG    |
| UT022DCG    |
| UT024DCG    |

**Plastic dustcap**



| Part number |
|-------------|
| UTP16DCG    |
| UTP22DCG    |
| UTP24DCG    |

For dustcaps without chain Skip "G".  
E.g. UT016DC or UTP16DC



## Size 20 contacts for UTOW connectors

### Description

Size 20 contacts with a .040" (1.0 mm) pin diameter are two piece crimp snap-in contacts in pin and socket version available in:

- Solid machined version
- Stamped and formed version
- Solid machined dip solder contacts :
  - 50A7
  - 5016

And designed for heavy duty top performance requirements.

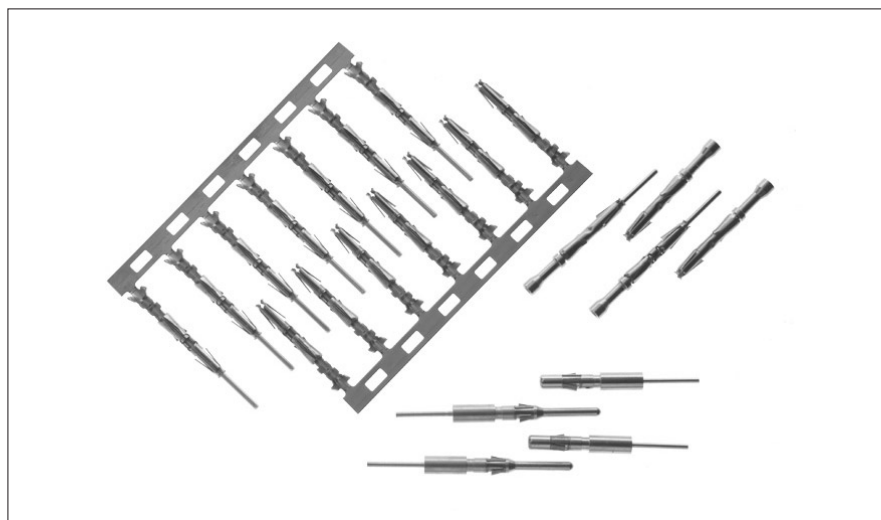
These contacts consist of a crimp/solder body made of high conductive copper alloy, and a stainless steel retaining spring featuring retention in the housing cavity and a closed entry socket to prevent probe damage.

Crimp contacts accommodate AWG20 through AWG26 wire and the crimp barrels.

**All contacts have to be ordered separately.**

### Features and benefits

- Made from high conductive copper alloy with gold plate finish.
- Two piece construction with dual purpose spring which serves for contact retention and protects the body against damage.
- Stamped and formed contacts packaging:
  - On reel: 3000 pcs
  - In bulk packing: 100 pcs in plastic bag.
- Solid machined crimp and dip solder contacts packaging : 50 pcs in plastic box.



### Performance characteristics

- Current rating
- Contact resistance
- Dielectric withstanding voltage
- Contact retention in body
- Contact engagement force
- Contact separation force
- Plating

#### machined

75 Amps  
 $\leq 6 \text{ m}\Omega$   
 1500 Vrms min  
 90 N Max  
 5 N Max  
 2 N min  
 0.40  $\mu$  gold over nickel

#### stamped and formed

5 Amps  
 $\leq 15 \text{ m}\Omega$   
 1500 Vrms min  
 90 N Max  
 5 N Max  
 2 N min  
 0.75  $\mu$  gold over nickel

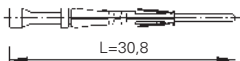
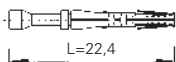
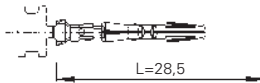
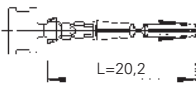
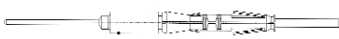
### Construction

- Contact body : high conductive copper alloy
- Outer spring : stainless steel

### Contact accommodation

- Any size 20 contacts for UTOW connectors can be used in any contact position.

## How to order

| Contact type           |                                                                                     |                 | Part number             | AWG                                                                                        | Section mm <sup>2</sup> | Insulation diameter |
|------------------------|-------------------------------------------------------------------------------------|-----------------|-------------------------|--------------------------------------------------------------------------------------------|-------------------------|---------------------|
| Machined crimp         |  | Pin             | RM24W3K                 | 26 - 24                                                                                    | 0.13 - 0.25             | 0.89 - 1.58         |
|                        |                                                                                     |                 | RM20W3K                 | 22 - 20                                                                                    | 0.35 - 0.50             | 1.17 - 2.08         |
|                        |  | Socket          | RC24W3K                 | 26 - 24                                                                                    | 0.13 - 0.25             | 0.89 - 1.58         |
|                        |                                                                                     |                 | RC20W3K                 | 22 - 20                                                                                    | 0.35 - 0.50             | 1.17 - 2.08         |
| Stamped & formed crimp |  | Pin reeled bulk | SM24W3S26<br>SM24WL3S26 | 26 - 24                                                                                    | 0.13 - 0.25             | 0.89 - 1.58         |
|                        |                                                                                     |                 | SM20W3S26<br>SM20WL3S26 | 22 - 20                                                                                    | 0.35 - 0.50             | 1.17 - 2.08         |
|                        |  | Socket          | SC24W3S25<br>SC24WL3S25 | 26 - 24                                                                                    | 0.13 - 0.25             | 0.89 - 1.58         |
|                        |                                                                                     |                 | SC20W3S25<br>SC20WL3S25 | 22 - 20                                                                                    | 0.35 - 0.50             | 1.17 - 2.08         |
| Machined Dip solder    |  | Pin             | 50A7<br>RMW50A7K        | For detailed technical information on drilling hole pattern and solder tails, see page ... |                         |                     |
|                        |                                                                                     |                 | 5016<br>RMW5016K        |                                                                                            |                         |                     |
|                        |  | Socket          | 50A7<br>RCW50A7K        |                                                                                            |                         |                     |
|                        |                                                                                     |                 | 5016<br>RCW5016K        |                                                                                            |                         |                     |



## Crimp tooling for machined contacts



Weight : 300 gr  
Length : 170 mm

### MH860

A light weight crimp tool qualified to MIL-C-22520 that gives an 8 impression crimp with a precision cycle-controlled ratcheting mechanism. It features an 8 step crimp-depth selector. The tool can be provided with different locator heads to crimp different contact types (to be ordered separately).

**Locator ref.: MH86301**

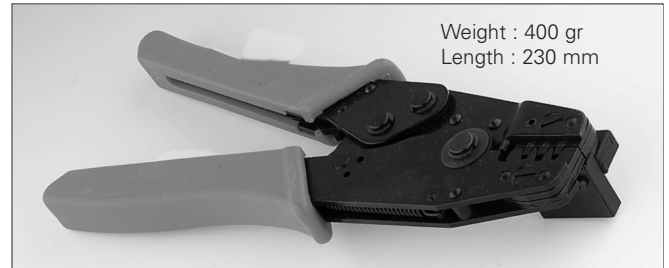


### RX20D44

A spring loaded extraction tool. This tool ensures that the contact locking louver is fully retracted before any pressure is applied to extract a contact. It is especially suitable for applications where the integrity of the assemblies are of the utmost importance.



## Crimp tooling for stamped and formed contacts



Weight : 400 gr  
Length : 230 mm



Weight : 400 gr  
Length : 205 mm

### Y16SCM3

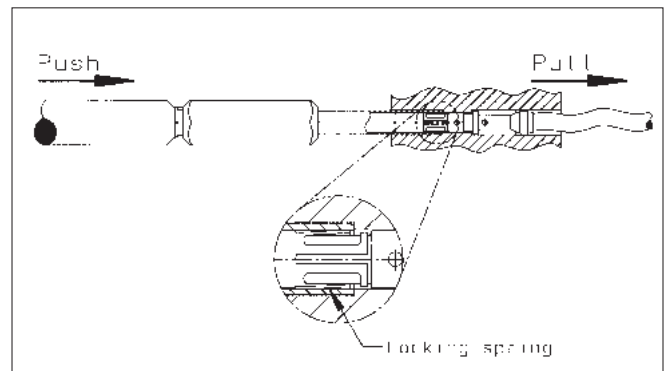
A light weight crimp tool with fixed 3-groove die set for AWG26 to 20 for: **size 20 loose piece formed contacts**.

Ratchet controlled to guarantee a complete crimp cycle. Each crimp tool is supplied with a locator to guarantee a perfect crimp indent positioning.

### Y14MTV

A light weight crimp tool with fixed 3-groove die set for AWG26 to 14 for: **Size 20 loose piece formed contacts**.

Ratchet controlled to guarantee a complete crimp cycle.



### How to extract a contact out of its cavity?

Slide the extraction tip over contact from mating side till the locking spring from the contact is depressed.

Push on handle to push out the contact with the spring loaded inner plunger.

### RTM205

This tool is especially designed to ease insertion **UTOW contacts** crimped on very flexible or small wire sizes. Simply position the insertion tool so that the tip of the tool bears against the back of the wire barrel, retaining the wire with thumb in the groove of the tool. Push the contact slowly into the connector until it snaps into position.



## K750ASC Stripper / Crimper machine

### Description

The Strip Crimp 750 processes all banded contacts with cross sections from 0,05 - 4,0 mm<sup>2</sup>.

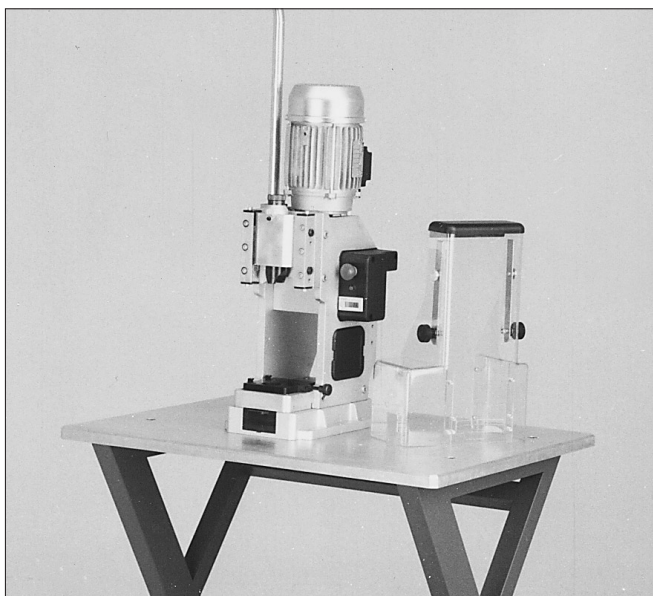
The press has a 40 mm stroke and can be used with all UNI-C applicators as well as side-feed mini-style applicators.

Built with well proven precision mechanics and state of the art electronics, the machine is extremely user friendly. One example is the graphic display from which all stripping parameters can be set and called up digitally.

Up to 254 different wire programs can be stored in the memory.

Precision stripping and gas tight crimps guarantee maximum processing quality.

Ref. : K750ASC  
Power : 0.37 kWatt  
Weight : 85 kg  
Dimensions : 350 x 460 x 485



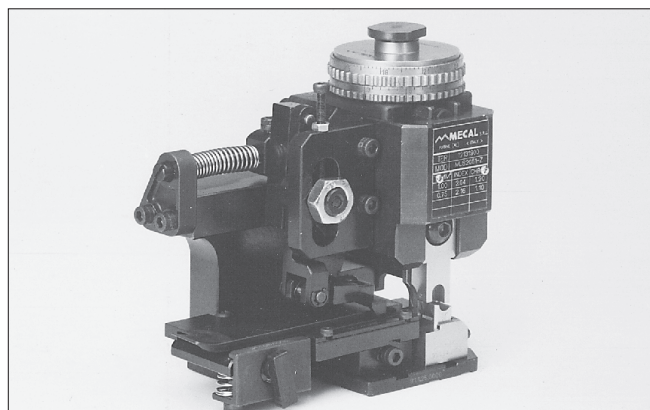
### P100MAN Crimping Press

This electromechanical high speed full automatic crimping press is specially designed for mass production and is realised totally in assembled steel parts. The available force consents the crimping of a wire section up to 2.5 mm<sup>2</sup>. The press has a 40 mm stroke and can be used together with side feed ministyle applicators.

The noise level of the press is less than 70 dB.

There is a safety mechanism that stops the press if the working speed is too high or the press does not complete its cycle. This protects the press or equipment mounted on board from damage.

Ref. : P100MAN  
Power : 0.37 kWatt  
Weight : 35 kg  
Dimensions : 200 x 300 x 580



### MLS--- Left side mini applicator

Mini applicators to crimp stamped and formed contacts. All the adjustments requested to make tool correctly functioning (crimp feeding pitch, crimp height...) can be simply made. Resolution of 0.03 mm. Regulation range from 0 to 2.7 mm.

Ref. : MLS0318B for AWG24 contacts  
MLS0555A for AWG20 contacts

Stroke : 40 mm  
Weight : 4.5 kg  
Dimensions : 145 x 107 x 150

### Options

#### 1 - Quality assurance for crimping technology...

A crimping force sensor continuously checks the quality of each individual crimp and records it without impairing the processing speed. The sensor detects bad crimp connections, eliminating the high subsequent costs otherwise caused by them.

For ordering consult factory.



## Wiring instructions

### Stripping instruction

This operation should be carried out with great care. Use stripping pliers which are designed for use with the size of wire being stripped.

In order to maintain the connector's sealing level and cable retention, the wires should have the external sheath dimensions conform to table.

Recommended conductor loading:

- 50% with Max diameter wires
- 50% with min diameter wires
- 100% with medium size wires.

#### Stamped & Formed

AWG 16 Ø 1.6 mm



AWG 20 Ø 1 mm



#### Machined

AWG 16 Ø 1.6 mm



AWG 20 Ø 1 mm



### Crimping instruction machined contacts

Insert the wire into the crimp barrel and ensure that it has penetrated correctly by checking that it may be seen through the inspection hole in the barrel.

The pliers must be used on the jaws side.

Place the correct locator for the contact size in the crimp tool. Completely open the tool.

Place the contact and wire in the tool. Fully close the tool, allowing it to reopen on its own. Visually check that the wire is visible through the inspection hole.

### Crimping instruction stamped and formed contacts

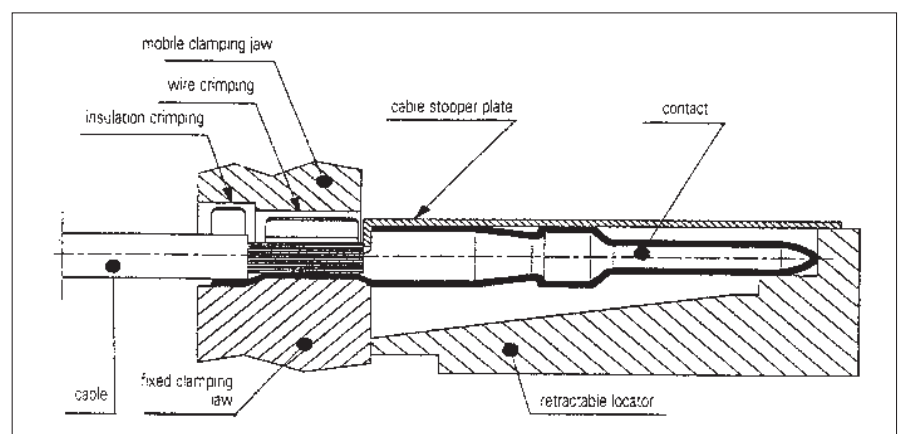
Completely open the tool.

Fully insert the contact into the locator appropriate gauge. The contact crimping lugs should be directed upwards according to the hereunder drawing.

Put the stripped wire in the crimping part until it comes in contact with the stopper plate. Make sure that no strands stick out of the stripping part.

Fully close the tool, allowing it to reopen on its own.

Visually check that the overall aspect of the crimping.





## Crimping instructions

### **The conductor and insulation crimp section**

Are designed to accommodate wire-conductor and insulation diameters, expressed in AWG (American Wire Gauge) or mm<sup>2</sup>.

For each wire gauge, a correct crimp requires a crimp height that offers the highest performance.

This performance is defined as the highest tensile strength force.

A good conductor crimp can be guaranteed if the tensile strength force is equal or higher as indicated on the graph below. E.g. a conductor of AWG20

(0.52 mm<sup>2</sup>) has a good crimp if the tensile strength is min 84N.

The tensile strength force is measured in Newtons and is the wire-to-contact connection that will withstand when a straight axial load is applied to the terminated wire. This is however a destructive test and is therefore inappropriate as a 100% inspection method.

An alternative method is to measure crimp height. The crimp height is measured at the conductor-crimp section.

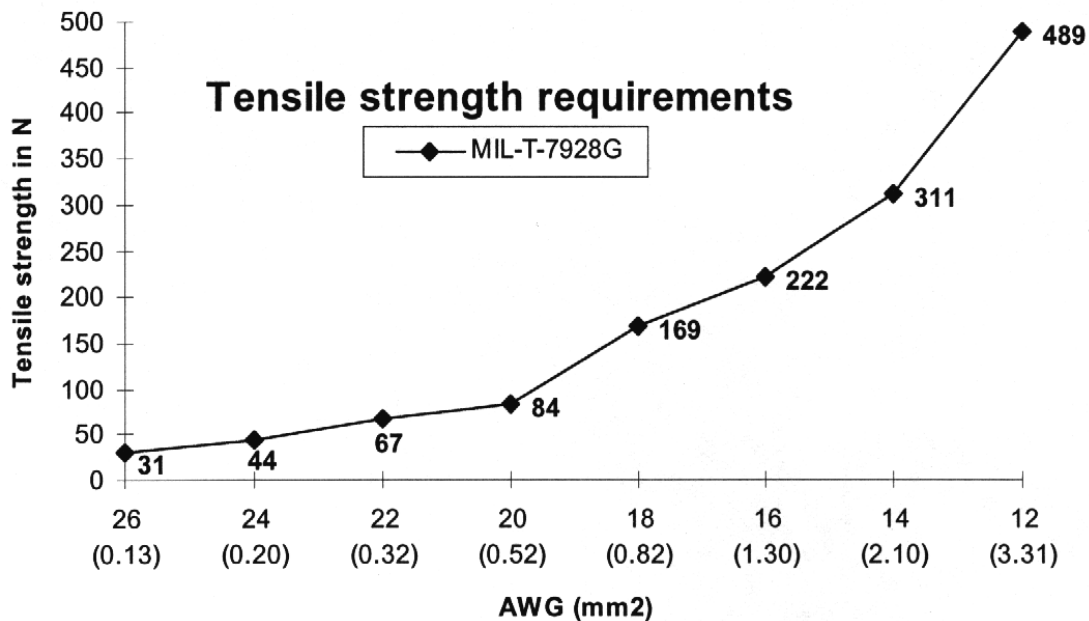
• **If the dimension is too small**, then the conductor is over-crimped and the wire strands could be damaged,

which results in a lower tensile strength force.

• **If the dimension is too large**, then the conductor is under-crimped and the wire strands will not be deformed enough to assure that the crimp will pass the tensile strength test.

In both cases, the application tooling's crimp height should be adjusted.

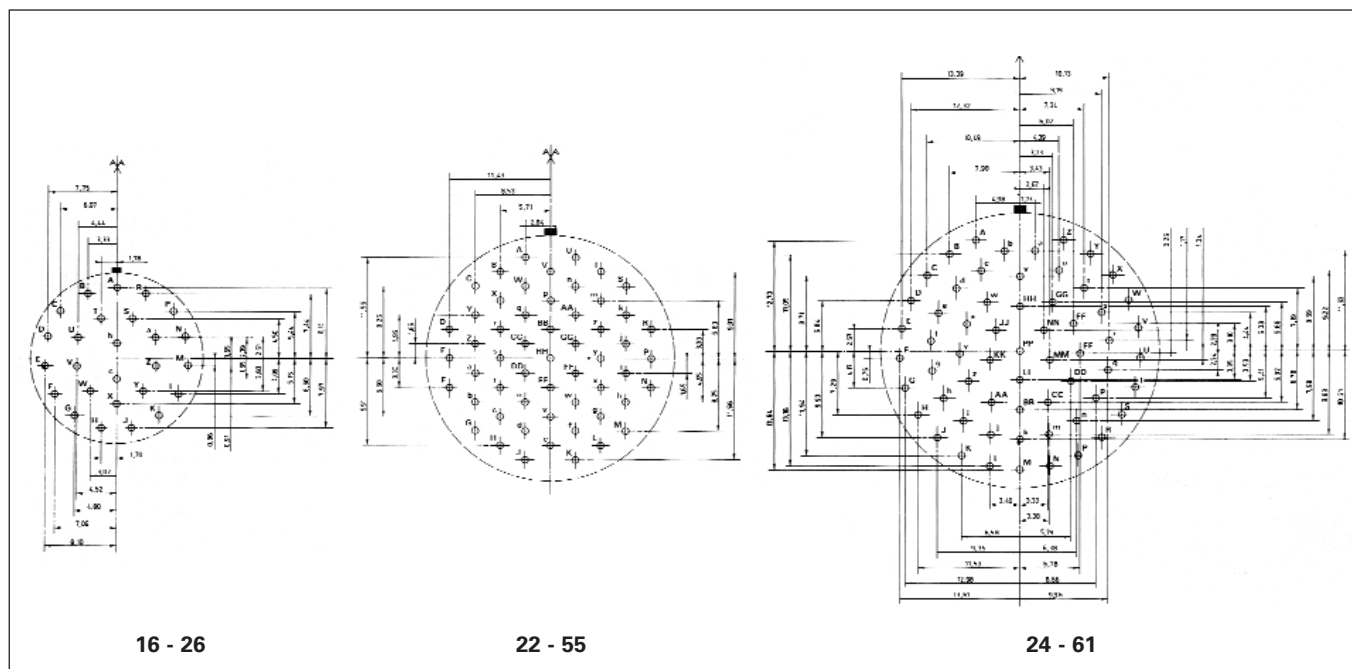
In order to have the right tooling's crimp height go and no-go gauges can be obtained and are defined in function of the type of crimp tooling and the wire gauge. For further information consult factory.



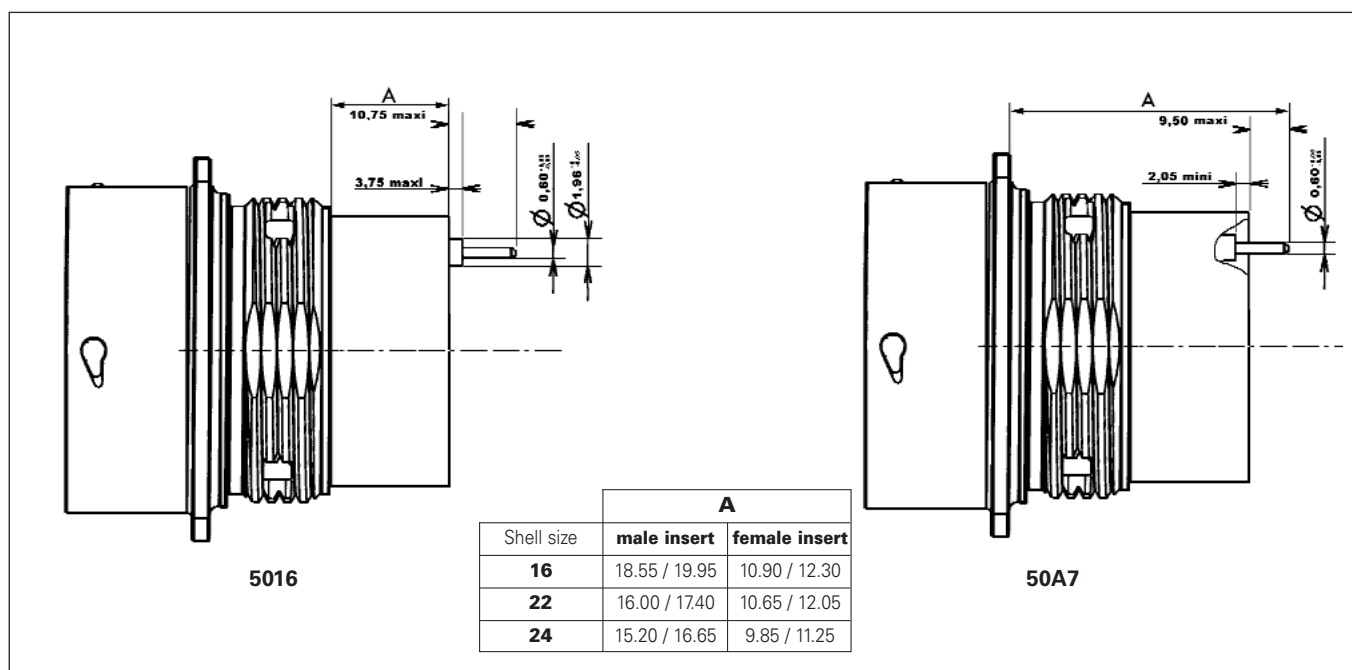


## Recommended drilling hole pattern

Terminations viewed from male rear face (soldering side)  
Hole sizes : 0.90 mm



## Dimensions of wall mount receptacle equipped with dip solder contacts



Souriau reserves the right to make any engineering refinements, alterations or improvements deemed necessary on its products.  
The dimensions appearing in this catalogue are thus subject to change without notice.  
When dimensions are critical detailed drawings should be requested.