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# SURE-SEAL Series

ITT

# We Connect

## When it matters most

For more than a century, ITT Cannon has developed innovative interconnect solutions for the world's harshest environments. With facilities in the United States, Germany, Italy, Mexico, China and Japan, each with its unique strengths, we offer our customers interconnect solutions that are truly Engineered for Life.

In addition to this truly global footprint, we offer highly specialized, segmented industry expertise. We have a proven track record as an industry leader in harsh-environment applications. This has equipped us with the knowledge needed to continue to produce the most resilient, reliable connectors for our customers' most challenging conditions.

## Interconnect solutions for the harshest environments.

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### The ITT Cannon difference

- Global capabilities & local support
- Proven application expertise
- A century of interconnect leadership
- A committed innovator & business partner

### About ITT

ITT is a diversified leading manufacturer of highly engineered critical components and customized technology solutions for the energy, transportation and industrial markets. Building on its heritage of innovation, ITT partners with its customers to deliver enduring solutions to the key industries that underpin our modern way of life. Founded in 1920, ITT is headquartered in Stamford, Connecticut, with employees in more than 35 countries and sales in a total of approximately 125 countries. For more information, visit www.itt.com.

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Our connector portfolio remains the most extensive

in the industry, offering a reliable and cost effective range of interconnect solutions

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# Introduction to SURE-SEAL

## This series was designed to meet the increased requirements for safety and reliability in the transportation field.

These field serviceable and sealed connectors satisfy all of the parameters defined by automotive / industrial standards including vibration, shock, temperature cycling, salt water spray, petroleum derivatives, industrial gases, and most important low millivolt drop and low contact resistance.

SURE-SEAL is as a reliable, watertight, low-cost solution for many manufacturers of heavy vehicles, trucks & buses, motorcycles and agricultural equipment. New applications are golf carts, outdoor lighting, portable construction signs and insulation monitors in electric buses.

SURE-SEAL with its simple design is an ideal solution anywhere a small low cost and fully sealed connector is needed.

### Product portfolio

| | Mini SURE-SEAL | SURE-SEAL |
|---|---|---|
| **Number of contacts** | 2 - 4 | 2 - 10 |
| **Max. Current rating @ 40°C*** | 11 A | 17 A |
| **Wire range** | 0,4 - 0,75mm² (AWG 20 - 18) | 0,5 - 1,0mm² (AWG 20 - 16)<br>0,75 - 1,5mm² (AWG 18 - 14) |
| **Wire insulation sealing range** | 1,4 - 1,8 mmØ | 1,8 - 2,8 mmØ |
| **Contact platings** | Stamped contacts: tin,<br>Machined contacts: silver | Stamped contacts: tin,<br>Machined contacts: silver, gold |
| **Max. Durability**** | 100 mating cycles | |
| **IP class** | IP67 (IEC 60529) | |
| * Depends on number and type of contacts used. ** Depends on plating and type of contacts used. | | |

### ➤ Simple design

Reducing total installation cost through one-piece molded rubber bodies. No other parts - other than contacts - are needed to assemble a complete sealed interconnect.

### ➤ Simple two set assembly

Save time and installation cost through a simple crimp and insertion process. No further steps are needed to receive a sealed connector system

### ➤ Chemical resistance

Sealing integrity is maintained with exposure to brake fluid, gasoline, diesel fuel, anti freeze, ozone and steam cleaning under normal operation conditions.

### ➤ Polarized against mis-mates

The main faces are designed with two stepped planes for a proper oriented contacts engagement. A raised indexing rib and matching raised indexing spline allows “blind” mating.

### ➤ Low cost stamped contacts

Without sacrificing quality, the cost of SURE-SEAL connectors is kept low with e.g. stamped contacts available on reels in continuous strips or as loose pieces.

### ➤ Environmentally sealed

No need for filler plugs and wire seals through rugged multiple moisture seals. SURE-SEAL is not just splash proof but truly submersible for short periods of time.

This document solely applies to SURE-SEAL products manufactured by ITT Cannon. ITT Cannon does not assume any responsibility or liability relating to the use, intermatability, compatibility, or interface of its SURE-SEAL products with any third party Sure-Seal products.

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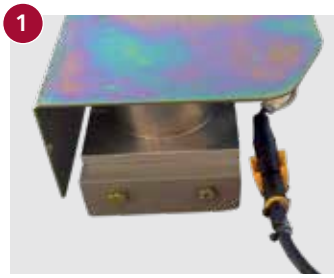
# Industries & Applications

## INDUSTRIES

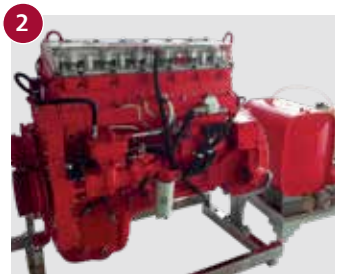
## APPLICATIONS

1



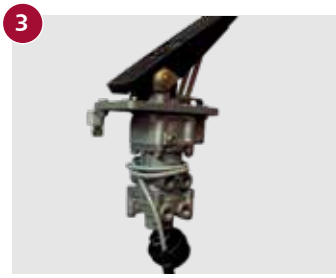
SURE-SEAL connectors assure reliable data of sensors for temperature and pressure

2



Off-Highway dump truck engines successfully driven with SURE-SEAL

3



Reliable breaking systems realized with SURE-SEAL connection

4

Ensuring a safe work at night and day with SURE-SEAL connectors on head and taillights

# Mini SURE-SEAL

## TECHNICAL DATA

### Electrical Data

| | |
|---|---|
| Operating Voltage | 48 VDC* |
| Operating Current | see derating curve |
| Contact Resistance | 10 Milliohms max. |
| Dielectric Withstanding Voltage | 1200 VAC at sea level |
| Insulation Resistance | 100 Megaohms min. |

### Wire Dimensions

| | |
|---|---|
| Wire Range | 0,4–0,75 $mm^2$ (AWG 20-18) |
| Wire Insulation Sealing Range | 1,4–1,8 mmØ |

### Mechanical Data

| | |
|---|---|
| No. of contacts per connector | 2 to 4 |
| Polarization | Stepped plane positive polarization and visual polarization |
| Contact Retention | 30 N minimum |
| Durability | 50 mating cycles with stamped contacts, tin-plated<br>100 mating cycles with machined contacts, silver-plated |

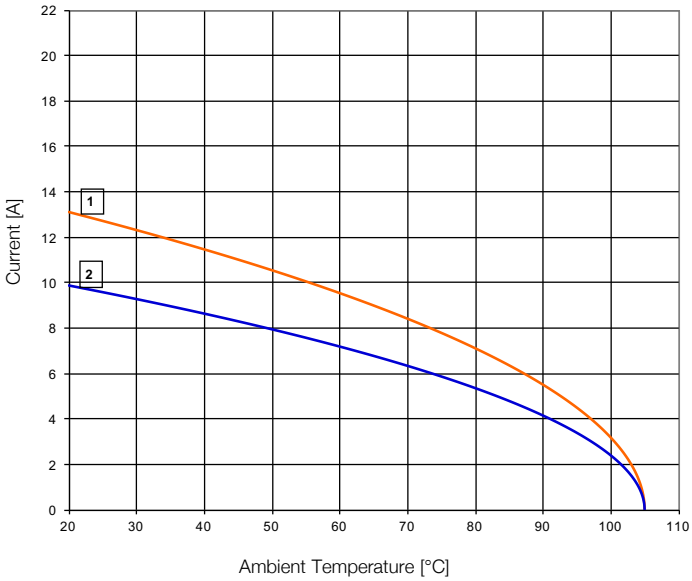
### Environmental Data

| | |
|---|---|
| Temperature Range | -40°C to 105°C (-40°F to 221°F) |
| Humidity Range | up to 95% r.h. |
| Sealing | IP67 (IEC 60529) |
| Salt Spray | 100 h (DIN 50021, test SS) |
| Vibration | Sine wave 10-55 Hz, 1,5mm (IEC 60512-4, test 6d) |
| Physical Shock | Half sine 500 $m/s^2$, 11ms |
| Fluid Compatability | Fuel, engine oil, brake fluid, detergent fluid and others |
| Ozone Resistance | 50 pphm, 48 h (DIN 53509-1) |

### Materials and Finishes

| | |
|---|---|
| Plug and Receptacle | Nitril-Butadien rubber |
| Contacts, stamped | Copper alloy, tin plating |
| Contacts, machined | Copper alloy, hard silver plating |

Current rating - Mini SURE-SEAL




— 1: 2-way connector, wire size 0,75$mm^2$
— 2: 2-way connector, wire size 0,4$mm^2$

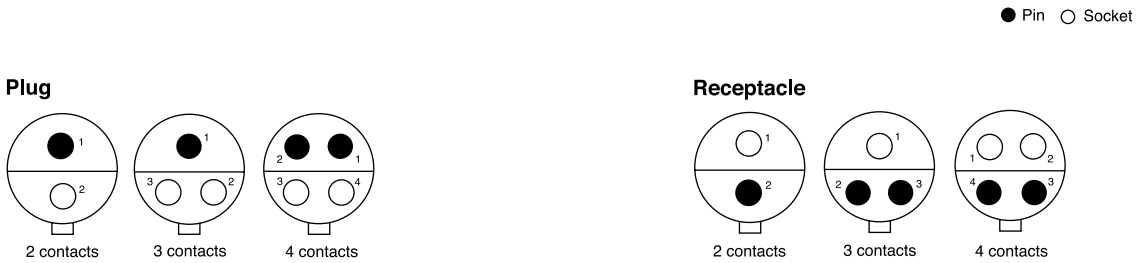
Connector fully equipped with stamped contacts

*Further information available upon request

RoHS COMPLIANT PART NUMBERS

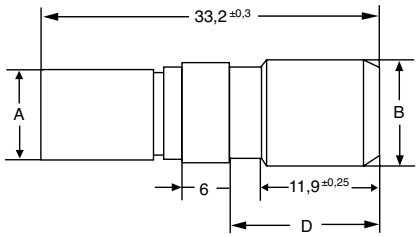
Dimensions shown in mm
Specifications and dimensions subject to change

## Contact Arrangements

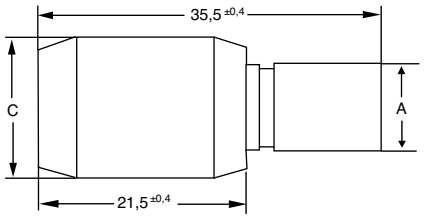



## Part Numbers

| Plug<br>No. of contacts | Shell size | Part number |
|---|---|---|
| 2 | MSS 2 P | 120-8552-100 |
| 3 | MSS 3 P | 120-8552-101 |
| 4 | MSS 4 P | 120-8552-102 |



| Receptacle<br>No. of contacts | Shell size | Part number |
|---|---|---|
| 2 | MSS 2 R | 120-8551-100 |
| 3 | MSS 3 R | 120-8551-101 |
| 4 | MSS 4 R | 120-8551-102 |

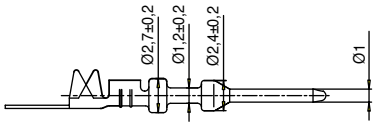


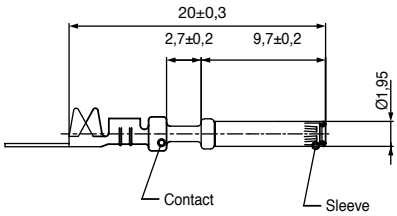

## Measurements

| Shell size | Ø A<br>± 0,15 | Ø B<br>- 0,2 | Ø C<br>- 0,3 | D<br>± 0,3 |
|---|---|---|---|---|
| MSS 2 P/R | 8,2 | 9,6 | 13,4 | 16,3 |
| MSS 3 P/R | 8,8 | 10,4 | 14,4 | 13,4 |
| MSS 4 P/R | 8,8 | 11,0 | 15,0 | 13,4 |

| Contacts, stamped, tinned<br>With insulation support | | | Pins | Sockets | Wire hole fillers |
|---|---|---|---|---|---|
| Mini SURE-SEAL (MSS-100) | 0,4–0,75 mm² | Individual | 330-8672-100 | 031-8703-100 | 225-1012-000 |
| | | on reels, 5000 pcs. | 121348-0100 | 121347-0100 | 225-1012-000 |

| Pin | Socket | Wire hole filler * |
|---|---|---|

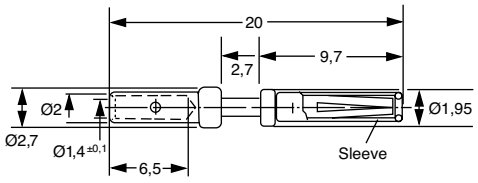


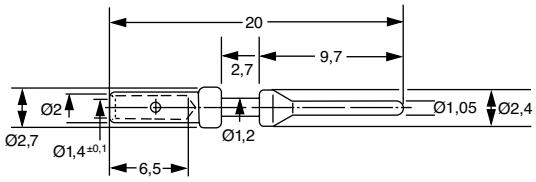




* Wire hole fillers are inserted into unused cavities instead of a contact in order to create a watertight sealing.

| Contacts, machined, silver plated | | | Pins | Sockets | Wire hole fillers |
|---|---|---|---|---|---|
| Mini SURE-SEAL (MSS-100) | 0,4–0,75 mm² | Individual | 330-8672-005 | 031-8703-052 | 225-1012-000 |

| Pin | Socket | Wire hole filler * |
|---|---|---|




* Wire hole fillers are inserted into unused cavities instead of a contact in order to create a watertight sealing.

# SURE-SEAL

## TECHNICAL DATA

### Electrical Data

| | |
|---|---|
| Operating Voltage | 48 VDC* |
| Operating Current | see derating curve |
| Contact Resistance | 10 Milliohms max. |
| Dielectric Withstanding Voltage | 1200 VAC at sea level |
| Insulation Resistance | 100 Megaohms min. |

### Wire Dimensions

| | |
|---|---|
| Wire Range | 0,75–1,5 $mm^2$ (AWG 18-14)<br>0,5-1,0 $mm^2$ (AWG 20-16) |
| Wire insulation Sealing Range | 1,8–2,8 mmØ |

### Mechanical Data

| | |
|---|---|
| No. of contacts per connector | 2 to 10 |
| Polarization | Stepped plane positive polarization and visual polarization |
| Contact Retention | 35 N minimum |
| Durability | 50 mating cycles with stamped contacts, tin-plated<br>100 mating cycles with machined contacts, silver-plated |

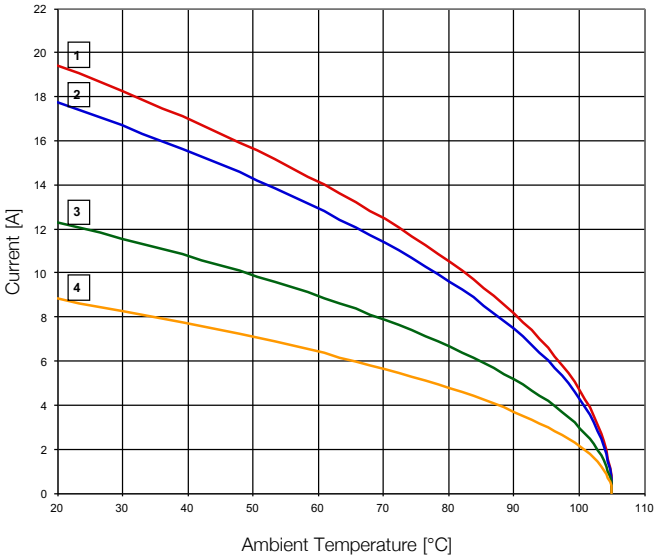
### Environmental Data

| | |
|---|---|
| Temperature Range | -40°C to 105°C (-40°F to 221°F) |
| Humidity Range | up to 95% r.h. |
| Sealing | IP67 (IEC 60529) |
| Salt spray | 100 h (DIN 50021, test SS) |
| Vibration | Sine wave 10-55 Hz, 1,5mm (IEC 60512-4, test 6d) |
| Physical Shock | Half sine 500 $m/s^2$, 11ms |
| Fluid Compatability | Fuel, engine oil, brake fluid, detergent fluid and others |
| Ozone Resistance | 50 pphm, 48 h (DIN 53509-1) |

### Materials and Finishes

| | |
|---|---|
| Plug and Receptacle | Nitril-Butadien rubber |
| Contacts, stamped | Copper alloy, tin plating |
| Contacts, machined | Copper alloy, hard silver plating |

Current rating - SURE-SEAL




— 1: 2-way connector, wire size 1,5$mm^2$
— 2: 7-way connector, wire size 1,5$mm^2$
— 3: 2-way connector, wire size 0,5$mm^2$
— 4: 7-way connector, wire size 0,5$mm^2$

Connector fully equipped with stamped contacts

RoHS COMPLIANT PART NUMBERS

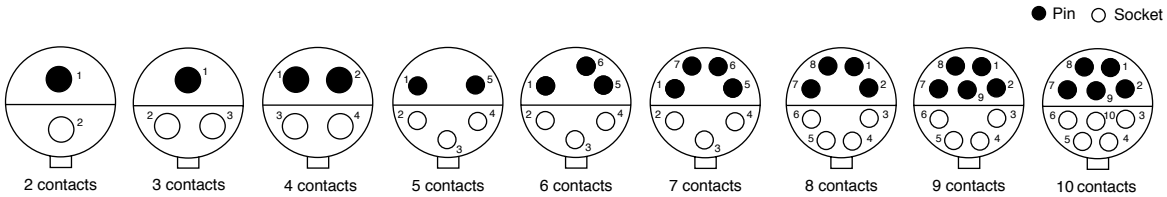
*Further information available upon request

Dimensions shown in mm
Specifications and dimensions subject to change

# PRODUCT OVERVIEW

## Plug

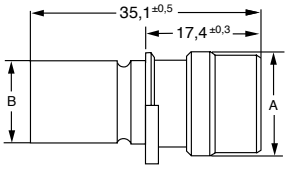
## Contact Arrangements




## Part Numbers

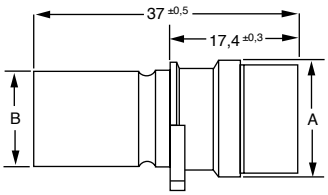
### 2, 3 and 4 Contacts

| No. of contacts | Shell size | Part number | Ø A - 0,3 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 2 | SS2P | 120-8552-000 | 13,9 | 10,9 | 1,8 - 2,8 |
| 3 | SS3P | 120-8552-001 | 15,2 | 12,3 | 1,8 - 2,8 |
| 4 | SS4P | 120-8552-002 | 15,2 | 12,3 | 1,8 - 2,8 |



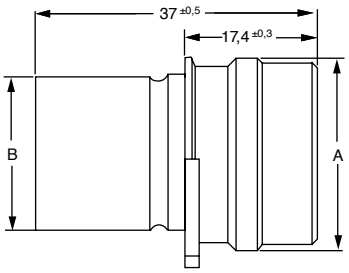

### 5, 6 and 7 Contacts

| No. of contacts | Shell size | Part number | Ø A - 0,3 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 5 | SS5P | 120-8552-005 | 25,3 | 20,2 | 1,8 - 2,8 |
| 6 | SS6P | 120-8552-006 | 25,3 | 20,2 | 1,8 - 2,8 |
| 7 | SS7P | 120-8552-007 | 25,3 | 20,2 | 1,8 - 2,8 |




### 8 to 10 Contacts

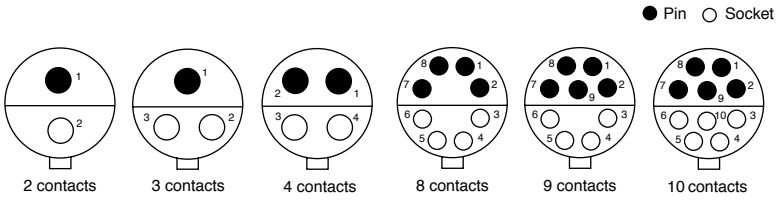
| No. of contacts | Shell size | Part number | Ø A ± 0,3 | Ø B ± 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 8 | SS8P | 120-8552-308 | 28,5 | 23,5 | 1,8 - 2,8 |
| 9 | SS9P | 120-8552-309 | 28,5 | 23,5 | 1,8 - 2,8 |
| 10 | SS10P | 120-8552-310 | 28,5 | 23,5 | 1,8 - 2,8 |




Dimensions shown in mm
Specifications and dimensions subject to change

## Plug with Flange

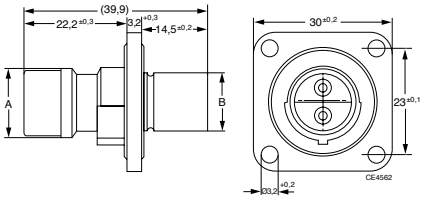
## Contact Arrangements




## Part Numbers

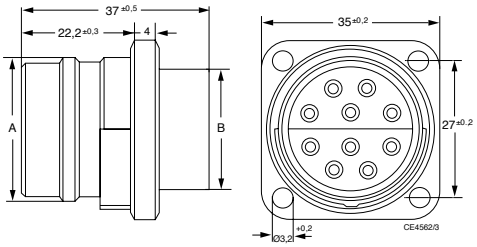
### 2, 3 and 4 Contacts

| No. of contacts | Shell size | Part number | Ø A - 0,3 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 2 | SSF2P | 120-8552-200 | 13,9 | 10,8 | 1,8 - 2,8 |
| 3 | SSF3P | 120-8552-201 | 15,2 | 12,3 | 1,8 - 2,8 |
| 4 | SSF4P | 120-8552-202 | 15,2 | 12,3 | 1,8 - 2,8 |



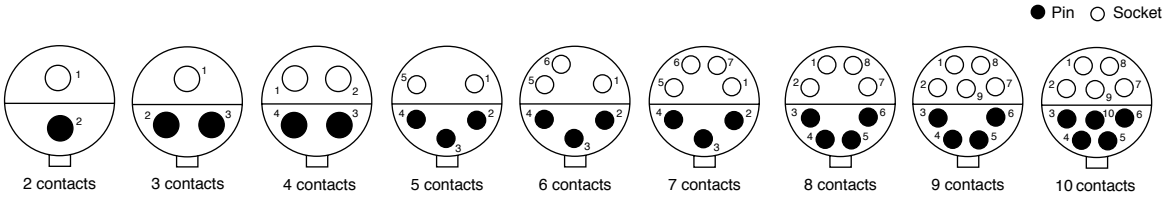

### 8, 9 and 10 Contacts

| No. of contacts | Shell size | Part number | Ø A ± 0,3 | Ø B ± 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 8 | SSF8P | 120-8552-305 | 28,5 | 23,5 | 1,8 - 2,8 |
| 9 | SSF9P | 120-8552-306 | 28,5 | 23,5 | 1,8 - 2,8 |
| 10 | SSF10P | 120-8552-307 | 28,5 | 23,5 | 1,8 - 2,8 |



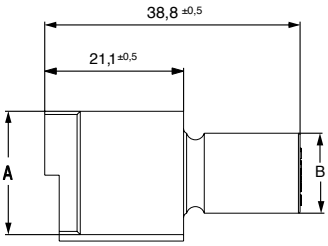
## Receptacle

## Contact Arrangements

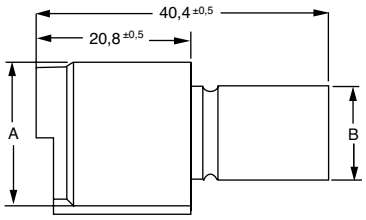



## Part Numbers

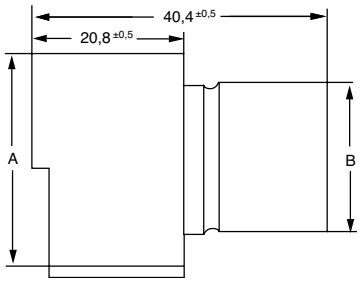
| No. of contacts | Shell size | Part number | Ø A - 0,5 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 2 | SS2R | 120-8551-000 | 18,0 | 10,9 | 1,8 - 2,8 |
| 3 | SS3R | 120-8551-001 | 18,9 | 12,3 | 1,8 - 2,8 |
| 4 | SS4R | 120-8551-002 | 18,9 | 12,3 | 1,8 - 2,8 |



| No. of contacts | Shell size | Part number | Ø A - 0,5 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 5 | SS5R | 120-8551-005 | 29,1 | 20,2 | 1,8 - 2,8 |
| 6 | SS6R | 120-8551-006 | 29,1 | 20,2 | 1,8 - 2,8 |
| 7 | SS7R | 120-8551-007 | 29,1 | 20,2 | 1,8 - 2,8 |



| No. of contacts | Shell size | Part number | Ø A - 0,5 | Ø B - 0,3 | Insulation Ø |
|---|---|---|---|---|---|
| 8 | SS8R | 120-8551-308 | 33,5 | 23,5 | 1,8 - 2,8 |
| 9 | SS9R | 120-8551-309 | 33,5 | 23,5 | 1,8 - 2,8 |
| 10 | SS10R | 120-8551-310 | 33,5 | 23,5 | 1,8 - 2,8 |




Dimensions shown in mm
Specifications and dimensions subject to change

| Pin | Socket |
|---|---|

| Contacts, stamped, tinned<br>With insulation support | | Pins | Sockets |
|---|---|---|---|
| SURE-SEAL (SS20)<br>0,5–1,0 mm² | individual | 330-8672-001 | 031-8703-001 |
| | on reels, 5000 pcs. | 121348-0020 | 121347-0020 |
| SURE-SEAL (SS10)<br>0,75–1,5 mm² | individual | 330-8672-000 | 031-8703-000 |
| | on reels, 5000 pcs. | 121348-0010 | 121347-0010 |

| Pin | Socket |
|---|---|

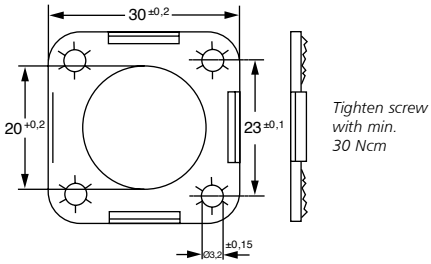
| Contacts, machined, silver plated<br>With insulation support | Pins | Sockets |
|---|---|---|
| SURE-SEAL (SS20) 0,5–1,0 mm² | 330-8672-002 | 031-8703-050 |
| SURE-SEAL (SS10) 0,75–1,5 mm² | 330-8672-003 | 031-8703-051 |

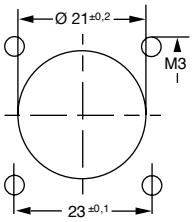
Wire size 12-14 and gold plating available upon request.

## Mounting plate
**For SURE-SEAL with flange, steel, zinc finish**

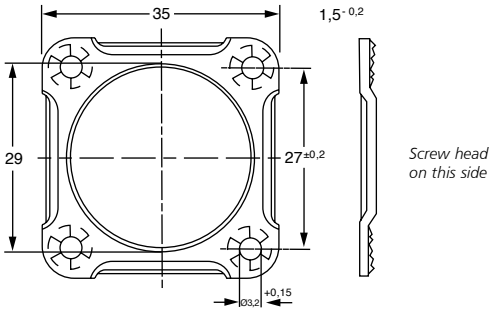
## Mounting dimensions
**Front and rear panel mounting**

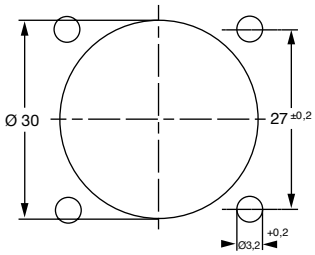
Part no. 066-8516-000
(for 2 to 4 way connectors)



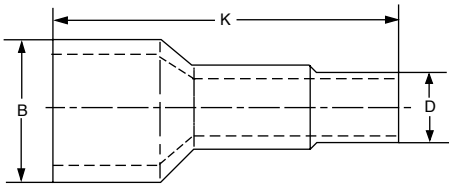




Part no. 066-8516-002
(for 8 to 10 way connectors)



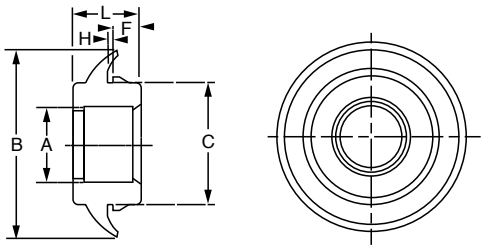
# ACCESSORIES



## Boot

Seals wired cable jackets to connector housing. It also provides abrasion resistance.

| For connector size | Part no. | B Ø max. | D Ø max. | Outer Cable Ø | K max. |
|---|---|---|---|---|---|
| 2 contacts | 317-1398-000 | 17,0 | 9,7 | 5,3 - 5,8 | 52,1 |
| 3/4 contacts | 317-1397-000 | 15,8 | 9,7 | 5,6 - 6,1 | 52,5 |
| 4/3 contacts | 317-1399-000 | 19,4 | 12,9 | 8,8 - 9,7 | 52,1 |
| 5/6/7 contacts | 317-8657-000 | 27,6 | 12,5 | 7,2 - 8,4 | 62,0 |
| 8/9/10 cont. | 317-8657-002 | 31,5 | 17,5 | 10,0 - 12,4 | 64,0 |



## Grommet

Grommets enable panel mounting of either plugs or receptacle. It snaps into a hole of a panel so non-flanged plugs or receptacles can be mounted.

| For connector size | Part no. | A Ø max. | B Ø max. | C Ø max. | F max. | H | L max. |
|---|---|---|---|---|---|---|---|
| 2 contacts | 351-1640-000 | 10,4 | 32,4 | 19,2 | 5,9 | 1,4 | 17,5 |
| 3/4 contacts | 351-1641-000 | 11,9 | 32,4 | 19,2 | 5,9 | 1,4 | 17,5 |
| 5/6/7 contacts | 351-1633-000 | 19,4 | 55,9 | 36,7 | 8,0 | 1,7 | 20,6 |
| 8/9/10 cont. | 351-1634-000 | 22,6 | 55,9 | 36,7 | 8,0 | 1,7 | 20,6 |

| Mini SURE-SEAL Part number 225-1012-000 | SURE-SEAL Part number 225-0093-000 |
|---|---|

## Wire Fillers

Wire hole fillers are inserted into unused cavities instead of a contact in order to create a watertight sealing.

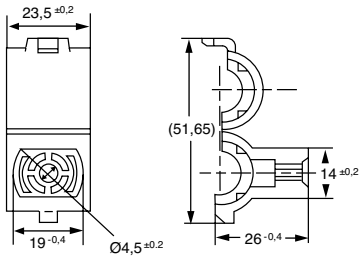
Dimensions shown in mm
Specifications and dimensions subject to change

## Clip/Clamp

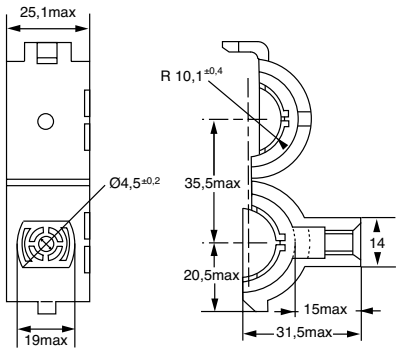
Clips/Clamps can be used as an extra lock to secure two connector halves. Due to its design it also offers the possibility for fixed mounting a mated pair by using a screw or a cable tie.

## Clamp

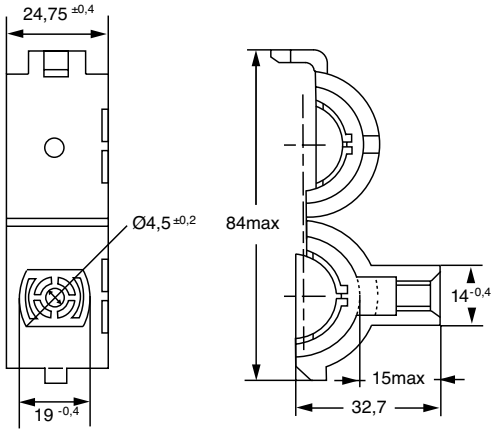
Clamps, plug and receptacle in mated condition




2, 3, 4 Contacts
Part no. 029-8514-001



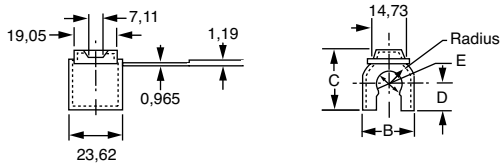

5, 6, 7 Contacts
Part no. 029-8514-000



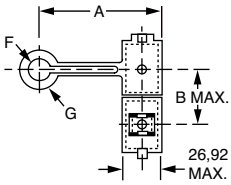

8, 9, 10 Contacts
Part no. 029-8514-004

## Mounting Clip

Clamps, plug and receptacle in mated condition




2, 3, 4 Contacts




5-10 Contacts

| Connector size | Colour of clip | Part no. | A max. | B | C | D | E Ø | F max. | G max. |
|---|---|---|---|---|---|---|---|---|---|
| 2 contacts | Red | 029-0263-000 | - | 22,6 | 25,4 | 10,7 | 10,7 | - | - |
| 3/4 contacts | Yellow | 029-0262-000 | - | 23,6 | 26,7 | 11,4 | 12,2 | - | - |
| 5/6/7 contacts | Natural | 026-0450-000 | 77,4 | 35,4 | - | - | - | 15,5 | 23,2 |
| 8/9/10 contacts | Black | 026-0451-000 | 77,4 | 38,6 | - | - | - | 16,8 | 24,4 |

# TOOLING

## CRIMP TOOLS

### Hand Crimp Tool CCT
for stamped contacts

| Crimp tool | Part number | Contact size | Pin contact | Socket contact |
|---|---|---|---|---|
| CCT-MSS/SS-20N | 121086-3331 | SS20 | 330-8672-001 | 031-8703-001 |
| CCT-MSS/SS-20N | 121086-3331 | MSS-100 | 330-8672-100 | 031-8703-100 |
| CCT-SS-10N | 121086-3332 | SS10 | 330-8672-000 | 031-8703-000 |

### Hand Crimp Tool M22520-1-01
for machined contacts

| Crimp tool | Contacts | Contact size | Positioner | Wire size Pin and Socket mm² | AWG |
|---|---|---|---|---|---|
| M22520-1-01<br>Part Number: 995-0001-585 | 330-8672-003<br>031-8703-051 | SS10 | 120090-0114 | 0,75 - 1,5 | |
| | 330-8672-009<br>330-8672-002<br>031-8703-055 | SS20 | 120090-0114 | 0,5 - 1,0 | |
| | 330-8672-008<br>031-8703-054 | SS | 120090-0114 | | 12-14 |
| | 330-8672-005<br>031-8703-052 | MSS-100 | 120090-0114 | 0,4 - 0,75 | |

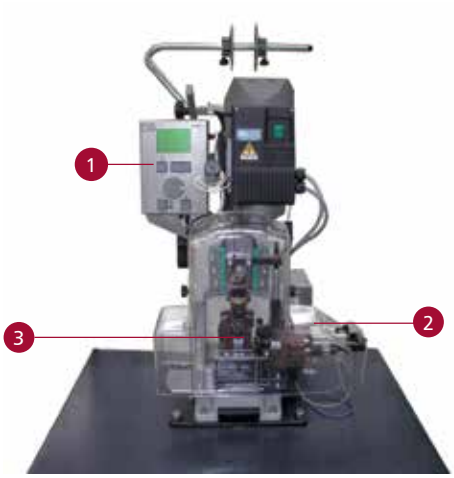
Dimensions shown in mm
Specifications and dimensions subject to change

## Semi-Automatic Crimp Press TT
for stamped contacts

The TT Crimp Press is available either in semi-automatic (for bench-top use) configuration or in full automatic (integrated into a cut and strip machine) configuration. Very compact and light, its spheroidal cast iron, one-piece structure offers the highest rigidity for a very stable crimping height value. A proprietary safety cover grants the operator a perfect view of the crimping zone while enjoying complete protection from any hazard. The semi-automatic configuration (for bench top use) always includes safety cover, reel arm, foot switch according to the international safety standard and CE regulation. Mini Applicators are available for all sizes of stamped and reeled contacts.

1. Crimp Force Control
2. Stripping Unit
3. Mini Applicator (to be ordered separately)

Mecal - TT




MECAL-TT-SC19-TT1000

| Description | Part number | Crimp machine type |
|---|---|---|
| Mecal - TT | 121586-5225 | Basic Crimp Machine TT |
| Mecal-TT-SC19 | 121586-5221 | Crimp Machine TT with stripping unit |
| MECAL-TT-SC19-TT1000 | 121586-5223 | Crimp Machine TT with stripping unit and crimp force control |

## Mini Applicator
for semi-automatic crimp machines

The Mini Applicator can be exchanged easy, quick and effortless. The compact construction as well as the clamping device allow using the Mini Applicator with other crimp machines.

### Contacts
Contacts for the different connector series are available on reels. They can be terminated with the Mini Applicator on the Basic Crimp Press TT.

| Quick change tool | Part number | Contact | Contact per reel | Termination range mm² |
|---|---|---|---|---|
| WWZ-MECAL-SS-10-EVS1068-JA | 121586-5215 | Sure Seal | 5,000 | 0,75 - 1,5 |
| WWZ-MECAL-SS-20-EVS0476-JB | 121586-5216 | Sure Seal | 5,000 | 0,5 - 1,0 |
| WWZ-MECAL-MSS-EVS0946-J | 121586-5214 | Mini Sure Seal | 5,000 | 0,4 - 0,75 |

## Pneumatic Crimp Tool WA27F-CE
for machined contacts

### Part Numbers

| Crimp tool | Contacts | Contact size | Positioner | Wire size Pin and Socket mm² | AWG |
|---|---|---|---|---|---|
| WA27F-CE<br>Part Number: 121586-5067 | 330-8672-003<br>031-8703-051 | SS10 | 120090-0114 | 0,75 - 1,5 | |
| | 330-8672-009<br>330-8672-002<br>031-8703-055 | SS20 | 120090-0114 | 0,5 - 1,0 | |
| | 330-8672-008<br>031-8703-054 | SS | 120090-0114 | | 12-14 |
| | 330-8672-005<br>031-8703-052 | MSS-100 | 120090-0114 | 0,4 - 0,75 | |

Bench Mount: BM-2 121586-5068
Foot Pedal: WA10 121586-5069

Dimensions shown in mm
Specifications and dimensions subject to change

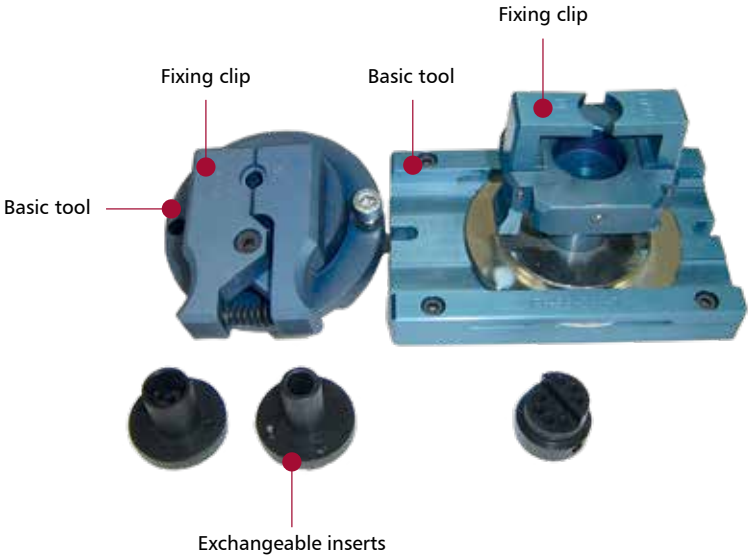
# INSERTION TOOLS

## Support Block for Series Production

Support block to fix the connectors and install contacts in small and medium series. This support block is used, according to individual requirements, with exchangeable inserts for plugs and receptacles.

The support block depicted on the left hand side of the image is visually representative of those used with 2 to 4 way SURE-SEAL and Mini SURE-SEAL connectors.

The support block depicted on the right hand side is visually representative of those used for 5 to 10 way SURE-SEAL connectors.




| No. of contacts | Basic tool to use for | | | | | |
|---|---|---|---|---|---|---|
| | SURE-SEAL | | | | Mini SURE-SEAL | |
| | Plug / Receptacle | | Plug with flange | | Plug / Receptacle | |
| | Description | Part no. | Description | Part no. | Description | Part no. |
| 2 | CIFG-SS-2 | 121086-3022 | CIFG-SS-2 | 121086-3057 | CIF-MSS-2 | 121086-3021 |
| 3 | CIFG-SS-3 | 121086-3019 | CIFG-SS-3 | 121086-3058 | CIF-MSS-3 | 121086-3077 |
| 4 | CIFG-SS-4 | 121086-3020 | CIFG-SS-4 | 121086-3059 | CIF-MSS-4 | 121086-3078 |
| 5/6/7 | CIFG-SS-5-6-7 | 121586-0080 | CIFG-SS-5-6-7 | * | | |
| 8/9/10 | CIFG-SS-8-9-10 | 121086-3056 | CIFG-SS-8-9-10 | * | | |

*available upon request

| No. of contacts | Exchangeable inserts to use for | | | | |
|---|---|---|---|---|---|
| | SURE-SEAL | | | Mini SURE-SEAL | |
| | Plug | Plug with flange | Receptacle | Plug | Receptacle |
| 2 | 195-8508-000 | 195-8508-000 | 195-8508-001 | 195-8508-013 | 195-8508-014 |
| 3 | 195-8508-002 | 195-8508-002 | 195-8508-003 | 195-8508-015 | 195-8508-016 |
| 4 | 195-8508-004 | 195-8508-004 | 195-8508-005 | 195-8508-017 | 195-8508-018 |
| 5/6/7 | 195-8508-006 | 195-8508-006 | 195-8508-007 | * | |
| 8/9/10 | 195-8508-008 | 195-8508-008 | 195-8508-009 | * | |

*available upon request

## Hand Insertion Tool CIT

Consists of a handle and an insertion tip.

| Type of insulator | Description | Part no. | Outer insulation Ø |
|---|---|---|---|
| SS 2P + R to<br>SS 10P + R<br>SSF 8, 9, 10P | CITG-SS-1 | 121086-3025 | 1,8-2,8 |
| SSF 2, 3, 4P | CIT-SSF-1 | 121086-3203 | 1,8-2,8 |
| MSS 2, 3, 4P + R | CIT-MSS-1 | 121086-3023 | 1,4-1,8 |

## Spare Parts for Hand Insertion Tool

### Insertion Tip

| Type of insulator | Description | Part no. | Outer insulation Ø |
|---|---|---|---|
| SS 2P + R to<br>SS 10P + R<br>SSF 8, 9, 10P | CITG-SS-1-TIP | 121586-0076 | 1,8-2,8 |
| SSF 2, 3, 4P | CIT-SSF-1-TIP | 121086-3202 | 1,8-2,8 |
| MSS 2, 3, 4P + R | CIT-MSS-1-TIP | 121586-0074 | 1,4-1,8 |

### Contact Holder Tip

| Type of insulator | Part no. | Outer insulation Ø |
|---|---|---|
| SS 2P + R to<br>SS 10P + R<br>SSF 8, 9, 10P | 317-8666-005 | 1,8-2,8 |
| SSF 2, 3, 4P | 317-8666-007 | 1,8-2,8 |
| MSS 2, 3, 4P + R | 317-8666-002 | 1,4-1,8 |

Dimensions shown in mm
Specifications and dimensions subject to change

### Handle

Spare part for hand insertion and extraction tools.
Part no.: 204-8501-002

### Guiding Pins

Guiding pins have to be used for socket contacts. They allow a softer insertion and protection of the insulator body. Guiding pins are not necessary for Mini SURE-SEAL.

Part no: 317-8588-000

## EXTRACTION AND REPAIR TOOLS

### Hand Extraction Tool

| Type of insulator | Pin contact | | Socket contact | |
|---|---|---|---|---|
| | Description | Part no. | Description | Part no. |
| SS 2 - 10P + R<br>SSF 2, 3, 4P<br>SSF 8, 9, 10P | CET-SS-P | 121586-0121 | CET-SS-S | 121586-0122 |
| MSS 2, 3, 4P + R | CET-MSS-P | 121586-0123 | CET-MSS-S | 121586-0124 |

### Spare Tip

| Type of insulator | Pin contact | | Socket contact | |
|---|---|---|---|---|
| | Description | Part no. | Description | Part no. |
| SS 2 - 10P + R<br>SSF 2, 3, 4P<br>SSF 8, 9, 10P | CET-SS-P-TIP | 121086-3207 | CET-SS-S-TIP | 121086-3189 |
| MSS 2, 3, 4P + R | CET-MSS-P-TIP | 121086-3191 | CET-MSS-S-TIP | 121086-3192 |

## Auxiliary Tools CIEF and CIET

### Auxiliary tools for repairs

Device for holding connectors during insertion and extraction of crimped contacts.

| No. of contacts | Type of insulator | Description | Part no. |
|---|---|---|---|
| 2,3,4 | SS...P + R<br>SSF...P | CIEF-SS-2-3-4 | 121086-3097 |
| 5,6,7 | SS...P + R | CIEF-SS-5-6-7 | 121086-3098 |
| 8,9,10 | SS...P + R<br>SSF...P | CIEF-SS-8-9-10 | 121086-3179 |
| 2,3,4 | MSS...P + R | CIEF-MSS-2-3-4 | 121086-3099 |

Guiding pins can be extracted by using a socket contact which is slightly tilted.

### Kit for field repair work and prototype

| Kit | No. of contacts | Type of insulator | Description | Part no. |
|---|---|---|---|---|
| 1 | 2,3,4<br>2,3,4 | SS...P + R<br>SSF...P | CIET-SS-2-3-4-KIT-10 | 121086-3226 |
| 2 | 5,6,7 | SS...P + R | CIET-SS-5-6-7-KIT-10 | * |
| 3* | 8,9,10<br>8,9,10 | SS...P + R<br>SSF...P | CIET-SS-8-9-10-KIT-10 | 121086-3228 |
| 4 | 2,3,4<br>2,3,4 | SS...P + R<br>SSF...P | CIET-SS-2-3-4-KIT-20 | 121086-3229 |
| 5 | 5,6,7 | SS...P + R | CIFG-SS-8-9-10 | * |
| 6* | 8,9,10<br>8,9,10 | SS...P + R<br>SSF...P | CIET-SS-8-9-10-KIT-20 | * |
| 7 | 2,3,4 | SS...P + R | CIET-MSS-2-3-4-KIT | 121086-3232 |

* upon request

#### Contents

1 Operating instruction
1 CIEF Insertion and extraction holder
1 CIT Insertion tool
1 CET Extraction tool (socket contacts)
1 CET Extraction tool (pin contacts)
1 CCT Crimp tool

Lubricating fluid: Isopropyl alcohol
10 Guiding pins (not included for MSS)

Dimensions shown in mm
Specifications and dimensions subject to change

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# SURE-SEAL

## PRODUCT SAFETY INFORMATION

THIS NOTE MUST BE READ IN CONJUNCTION WITH THE PRODUCT DATA SHEET/CATALOG. FAILURE TO OBSERVE THE ADVICE IN THIS INFORMATION SHEET AND THE OPERATING CONDITIONS SPECIFIED IN THE PRODUCT DATA SHEET/ CATALOG COULD RESULT IN HAZARDOUS SITUATIONS.

### 1. MATERIAL CONTENT AND PHYSICAL FORM

Electrical connectors do not usually contain hazardous materials. They contain conducting and non-conducting materials and can be divided into two groups.
a) Printed circuit types and low cost audio types which employ all plastic insulators and casings.
b) Rugged, Fire Barrier and High Reliability types with metal casings and either natural rubber, synthetic rubber, plastic or glass insulating materials. Contact materials vary with type of connector and also application and are usually manufactured from either: Copper, copper alloys, nickel, alumel, chromel or steel. In special applications, other alloys may be specified.

### 2. FIRE CHARACTERISTICS AND ELECTRIC SHOCK HAZARD

There is no fire hazard when the connector is correctly wired and used within the specified parameters. Incorrect wiring or assembly of the connector or careless use of metal tools or conductive fluids, or transit damage to any of the component parts may cause electric shock or burns. Live circuits must not be broken by separating mated connectors as this may cause arcing, ionization and burning. Heat dissipation is greater at maximum resistance in a circuit. Hot spots may occur when resistance is raised locally by damage, e.g. cracked or deformed contacts, broken strands of wire. Local overheating may also result from the use of the incorrect application tools or from poor quality soldering or slack screw terminals. Overheating may occur if the ratings in the product Data Sheet/Catalog are exceeded and can cause breakdown of insulation and hence electric shock. If heating is allowed to continue it intensifies by further increasing the local resistance through loss of temper of spring contacts, formation of oxide film on contacts and wires and leakage currents through carbonization of insulation and tracking paths. Fire can then result in the presence of combustible materials and this may release noxious fumes. Overheating may not be visually apparent. Burns may result from touching overheated components.

### 3. HANDLING

Care must be taken to avoid damage
to any component parts of electrical connectors during installation and use. Although there are normally no sharp edges, care must be taken when handling certain components to avoid injury to fingers. Electrical connectors may be damaged in transit to the customers, and damage may result in creation of hazards. Products should therefore be examined prior to installation/use and rejected if found to be damaged.

### 4. DISPOSAL

Incineration of certain materials may release noxious or even toxic fumes.

### 5. APPLICATION

Connectors with exposed contacts should not be selected for use on the current supply side of an electrical circuit, because an electric shock could result from touching exposed contacts on an unmated connector. Voltages in excess of 30 V ac or 42.5 V dc are potentially hazardous and care should be taken to ensure that such voltages cannot be transmitted in any way to exposed metal parts of the connector body. The connector and wiring should be checked, before making live, to have no damage to metal parts or insulators, no solder blobs, loose strands, conducting lubricants, swarf, or any other undesired conducting particles. Circuit resistance and continuity check should be made to make certain that there are no high resistance joints or spurious conducting paths. Always use the correct application tools as specified in the Data Sheet/Catalog. Do not permit untrained personnel to wire, assemble or tamper with connectors. For operation voltage please see appropriate national regulations.

### IMPORTANT GENERAL INFORMATION

(i) Air and creepage paths/Operating voltage. The admissible operating voltages depend on the individual applications and the valid national and other applicable safety regulations.
For this reason the air and creepage path data are only reference values. Observe reduction of air and creepage paths due to PC board and/or harnessing.

(ii) Temperature
All information given are temperature limits. The operation temperature depends on the individual application.

(iii) Other important information
Cannon continuously endeavors to improve their products. Therefore, Cannon products may deviate from the description, technical data and shape as shown in this catalog and data sheets.

All data subject to change without notice.

This document solely applies to SURE-SEAL products manufactured by ITT Cannon. ITT Cannon does not assume any responsibility or liability relating to the use, intermatability, compatibility, or interface of its SURE-SEAL products with any third party Sure-Seal products.

# Notes

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ITT's Cannon brand is a world leader in the design and manufacture of highly engineered connector solutions for multiple end markets.

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## Why ITT

ITT is a focused multi-industrial company that designs and manufactures highly engineered critical components and customized technology solutions. ITT's Cannon brand is a leading global manufacturer of connector products serving international customers in aerospace, defense, medical, industrial and transportation end markets. ITT's Connector business, which also includes the Veam and BIW Connector Systems brand, manufactures and supplies a variety of connectors and interconnects that make it possible to transfer data, signal and power in an increasingly connected world.

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ITT Cannon Sure Seal Catalog 0423