



Connector
World

SURE-SEAL



RUBBER MOULDED CIRCULAR CONNECTORS

Connector World

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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 100 mating cycles with machined contacts, silver-plated

Environmental Data

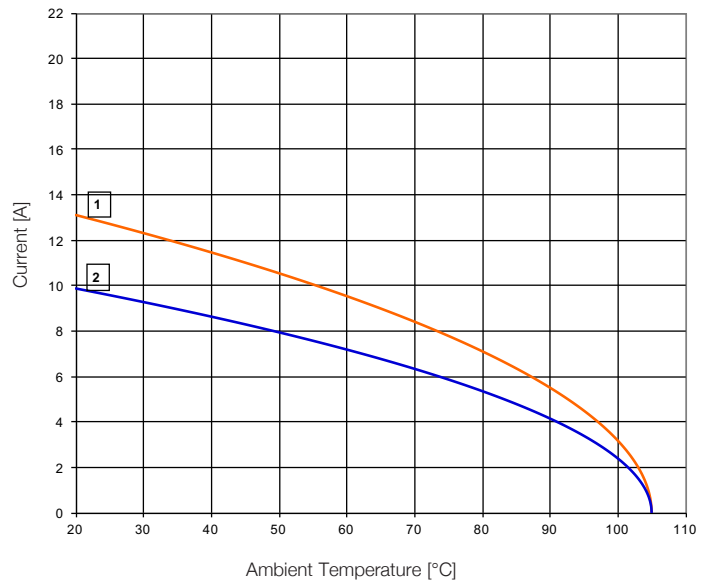
Temperature Range	-40°C to 105°C (-40°F to 221°F)
Humidity Range	up to 95% r.h.
Sealing	IP67 (IEC 60529)
Salt Spray	100 h (DIN 50021, test SS)
Vibration	Sine wave 10-55 Hz, 1,5mm (IEC 60512-4, test 6d)
Physical Shock	Half sine 500 m/s ² , 11ms
Fluid Compatibility	Fuel, engine oil, brake fluid, detergent 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 0,75mm²
— 2: 2-way connector, wire size 0,4mm²

Connector fully equipped with stamped contacts

*Further information available upon request



Dimensions shown in mm
Specifications and dimensions subject to change

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PRODUCT OVERVIEW

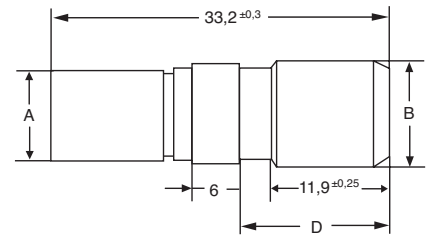
Contact Arrangements



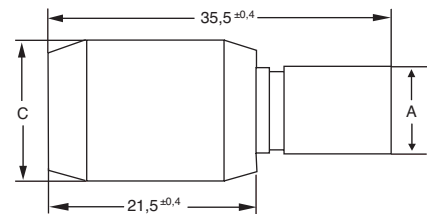
Part Numbers



Plug 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



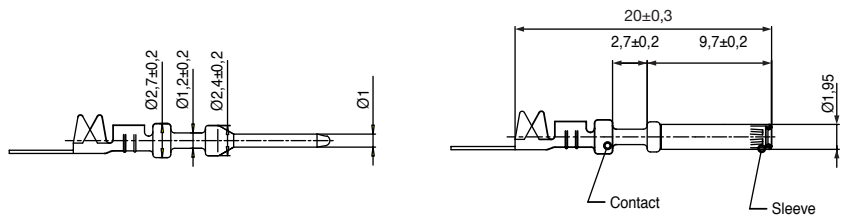
Receptacle No. of contacts	Shell size	Part number
2	MSS 2 R	120-8551-100
3	MSS 3 R	120-8551-101
4	MSS 4 R	120-8551-102



Measurements

Shell size	Ø A ± 0,15	Ø B - 0,2	Ø C - 0,3	D ± 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

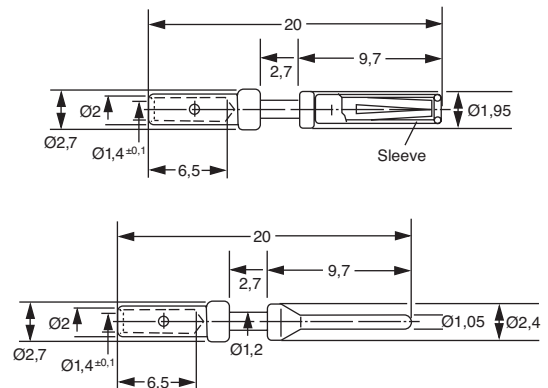
Contacts, stamped, tinned With insulation support			Pins	Sockets	Wire hole fillers
Mini SURE-SEAL (MSS-100)	0,4–0,75 mm ²	Individual	330-8672-100	031-8703-100	225-1012-000
		on reels, 5000 pcs.	121348-0100	121347-0100	225-1012-000



Pin	Socket	Wire hole filler *
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* 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 mm ²	Individual	330-8672-005	031-8703-052	225-1012-000



Pin	Socket	Wire hole filler *
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* 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) 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 100 mating cycles with machined contacts, silver-plated

Environmental Data

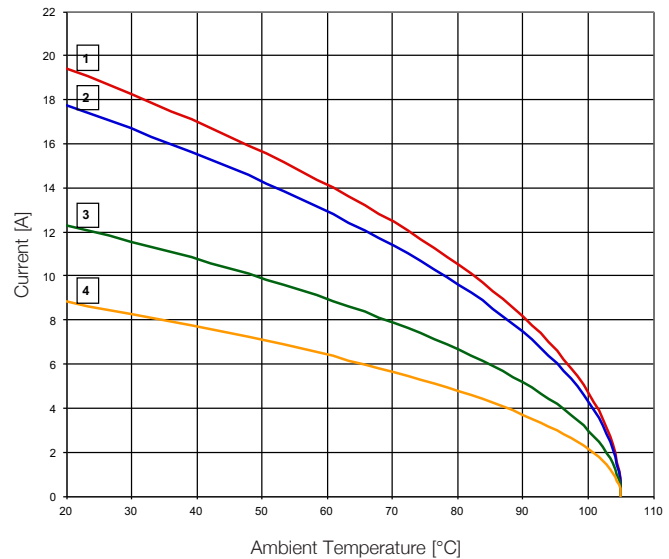
Temperature Range	-40°C to 105°C (-40°F to 221°F)
Humidity Range	up to 95% r.h.
Sealing	IP67 (IEC 60529)
Salt spray	100 h (DIN 50021, test SS)
Vibration	Sine wave 10-55 Hz, 1,5mm (IEC 60512-4, test 6d)
Physical Shock	Half sine 500 m/s ² , 11ms
Fluid Compatibility	Fuel, engine oil, brake fluid, detergent 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 1,5mm²
- 2: 7-way connector, wire size 1,5mm²
- 3: 2-way connector, wire size 0,5mm²
- 4: 7-way connector, wire size 0,5mm²

Connector fully equipped with stamped contacts



*Further information available upon request

Dimensions shown in mm
Specifications and dimensions subject to change

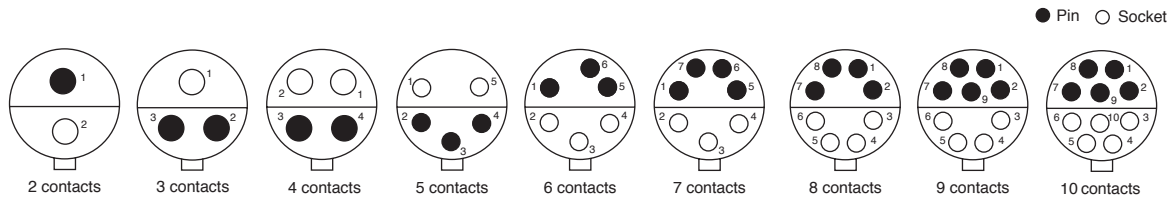
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PRODUCT OVERVIEW

Plug

Contact Arrangements

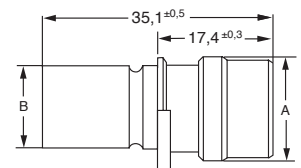


Part Numbers

2, 3 and 4 Contacts



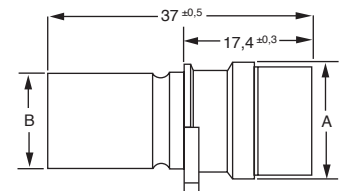
No. of contacts	Shell size	Part number	Ø A - 0,3	Ø B - 0,3	Insulation Ø
2	SS2P	120-8552-000	13,9	10,9	1,8 - 2,8
3	SS3P	120-8552-001	15,2	12,3	1,8 - 2,8
4	SS4P	120-8552-002	15,2	12,3	1,8 - 2,8



5, 6 and 7 Contacts



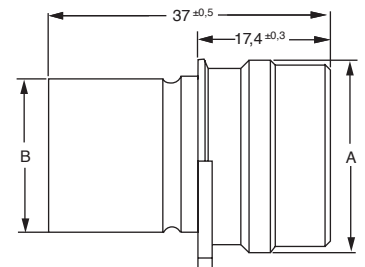
No. of contacts	Shell size	Part number	Ø A - 0,3	Ø B - 0,3	Insulation Ø
5	SS5P	120-8552-005	25,3	20,2	1,8 - 2,8
6	SS6P	120-8552-006	25,3	20,2	1,8 - 2,8
7	SS7P	120-8552-007	25,3	20,2	1,8 - 2,8



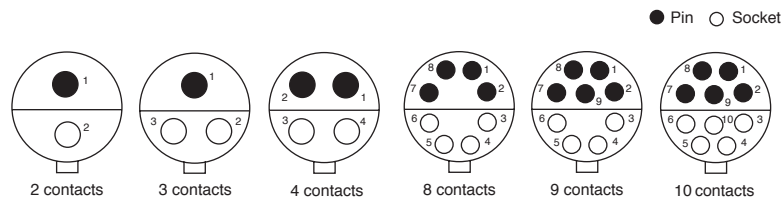
8 to 10 Contacts



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



Plug with Flange Contact Arrangements

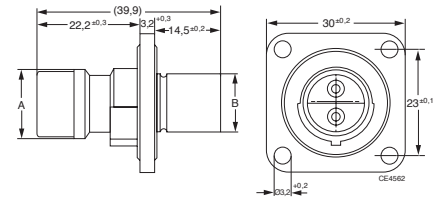


Part Numbers

2, 3 and 4 Contacts



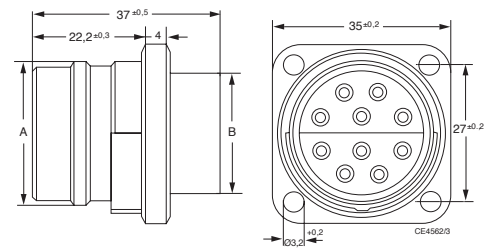
No. of contacts	Shell size	Part number	Ø A - 0,3	Ø B - 0,3	Insulation Ø
2	SSF2P	120-8552-200	13,9	10,8	1,8 - 2,8
3	SSF3P	120-8552-201	15,2	12,3	1,8 - 2,8
4	SSF4P	120-8552-202	15,2	12,3	1,8 - 2,8



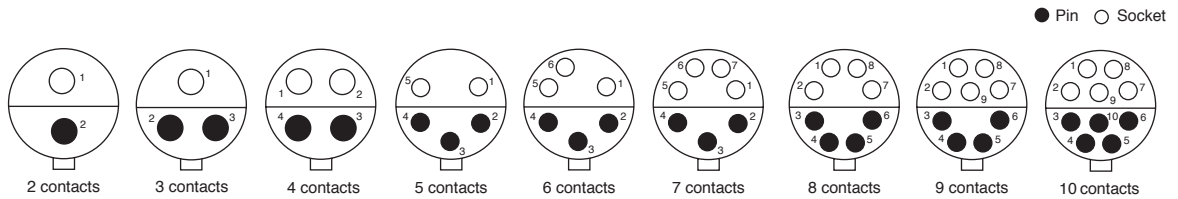
8, 9 and 10 Contacts



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



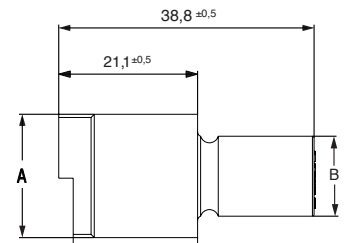
Receptacle Contact Arrangements



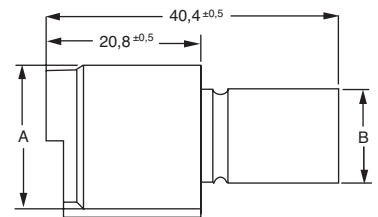
Part Numbers



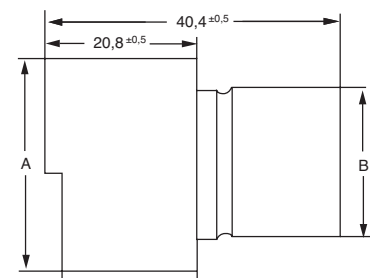
No. of contacts	Shell size	Part number	Ø A - 0,5	Ø B - 0,3	Insulation Ø
2	SS2R	120-8551-000	18,0	10,9	1,8 - 2,8
3	SS3R	120-8551-001	18,9	12,3	1,8 - 2,8
4	SS4R	120-8551-002	18,9	12,3	1,8 - 2,8



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





Contacts, stamped, tinned With insulation support		Pins	Sockets
SURE-SEAL (SS20) 0,5–1,0 mm ²	individual	330-8672-001	031-8703-001
	on reels, 5000 pcs.	121348-0020	121347-0020
SURE-SEAL (SS10) 0,75–1,5 mm ²	individual	330-8672-000	031-8703-000
	on reels, 5000 pcs.	121348-0010	121347-0010



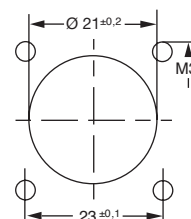
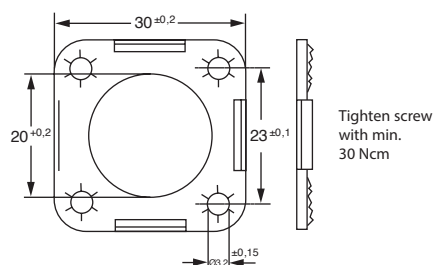
Contacts, machined, silver plated With insulation support		Pins	Sockets
SURE-SEAL (SS20) 0,5–1,0 mm ²		330-8672-002	031-8703-050
SURE-SEAL (SS10) 0,75–1,5 mm ²		330-8672-003	031-8703-051

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

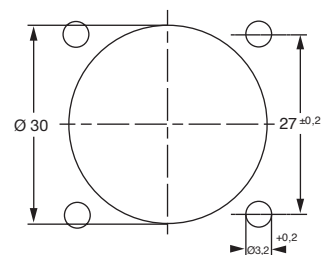
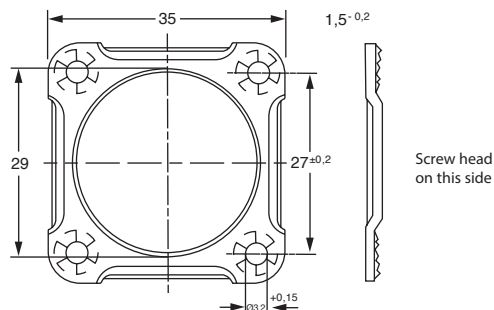
Mounting plate For SURE-SEAL with flange, steel, zinc finish

Mounting dimensions Front and rear panel mounting

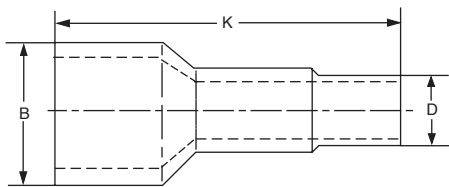
Part no. 066-8516-000
(for 2 to 4 way connectors)



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



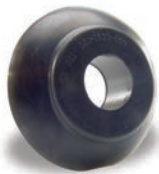
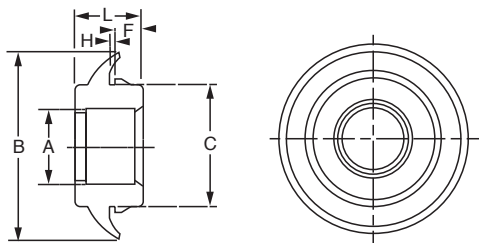
ACCESSORIES



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



Wire Fillers

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

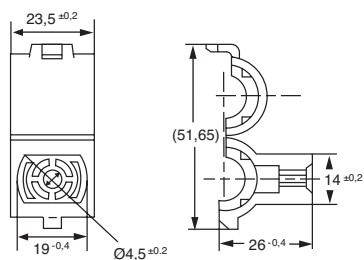
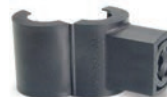
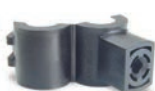
Mini SURE-SEAL Part number 225-1012-000	SURE-SEAL Part number 225-0093-000
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Clip/Clamp

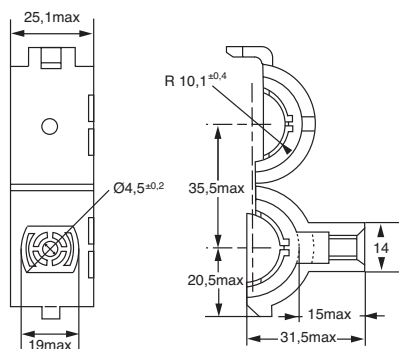
Clips/Clamps can be used as an extra lock to secure two connector halves. Due to its design it also offers the possibility for fixed mounting a mated pair by using a screw or a cable tie.

Clamp

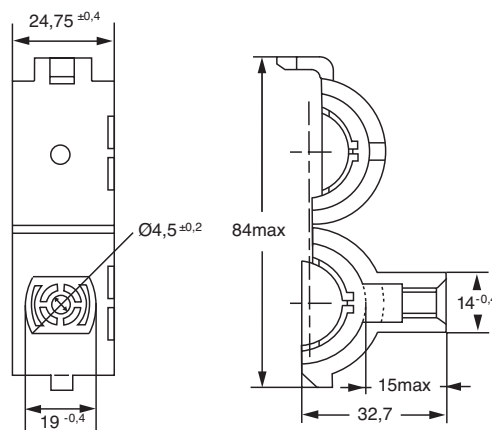
Clamps, plug and receptacle in mated condition



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



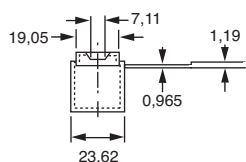
5, 6, 7 Contacts
Part no. 029-8514-000



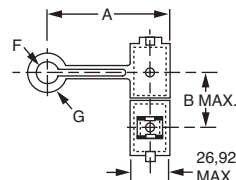
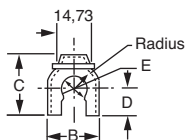
8, 9, 10 Contacts
Part no. 029-8514-004

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

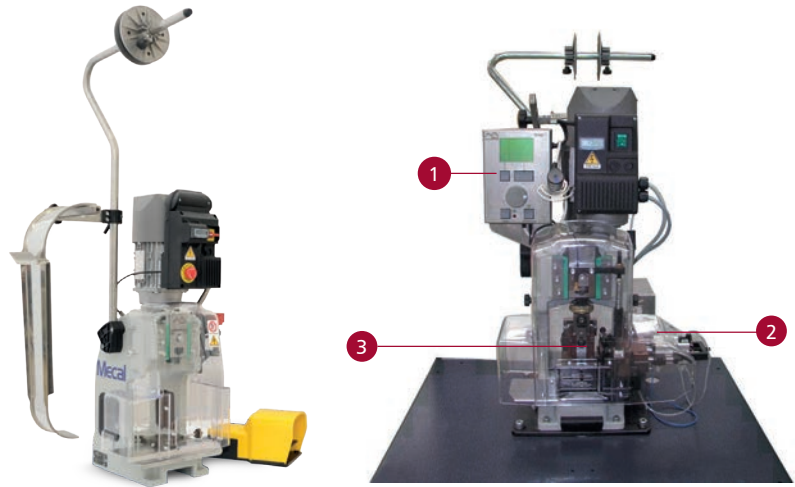


Crimp tool	Contacts	Contact size	Positioner	Wire size Pin and Socket mm ²	AWG
M22520-1-01 Part Number: 995-0001-585	330-8672-003 031-8703-051	SS10	120090-0114	0,75 - 1,5	
	330-8672-009 330-8672-002 031-8703-055	SS20	120090-0114	0,5 - 1,0	
	330-8672-008 031-8703-054	SS	120090-0114		12-14
	330-8672-005 031-8703-052	MSS-100	120090-0114	0,4 - 0,75	

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

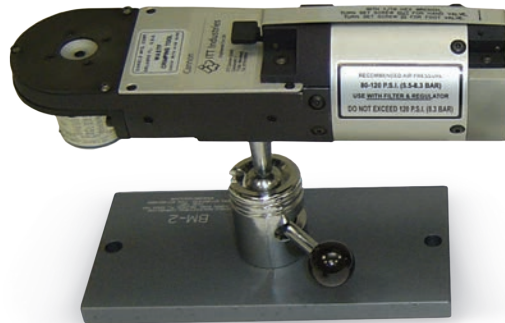
The Mini Applicator can be exchanged easy, quick and effortless. The compact construction as well as the clamping device allow using the Mini Applicator with other crimp machines.

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 mm ²
WWZ-MECAL-SS-10-MES1068-JA	121586-5215	Sure Seal	5,000	0,75 - 1,5
WWZ-MECAL-SS-20-MES0476-JB	121586-5216	Sure Seal	5,000	0,5 - 1,0
WWZ-MECAL-MSS-MES0946-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 mm ²	AWG
WA27F-CE Part Number: 121586-5067	330-8672-003 031-8703-051	SS10	120090-0114	0,75 - 1,5	
	330-8672-009 330-8672-002 031-8703-055	SS20	120090-0114	0,5 - 1,0	
	330-8672-008 031-8703-054	SS	120090-0114		12-14
	330-8672-005 031-8703-052	MSS-100	120090-0114	0,4 - 0,75	

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

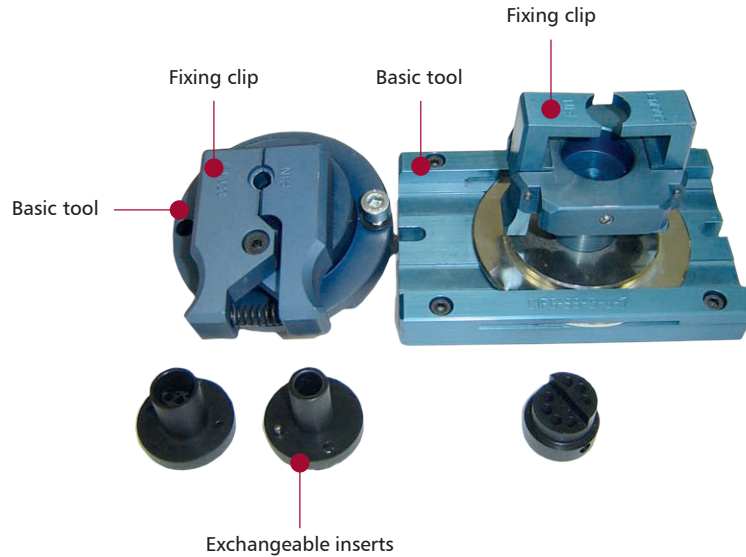
INSERTION TOOLS

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 of the image 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 SS 10P + R 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 SS 10P + R 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 SS 10P + R 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

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 SSF 2, 3, 4P 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 SSF 2, 3, 4P 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 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 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 2,3,4	SS...P + R 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 8,9,10	SS...P + R SSF...P	CIET-SS-8-9-10-KIT-10	121086-3228
4	2,3,4 2,3,4	SS...P + R 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 8,9,10	SS...P + R 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)