






heavy | mate[®] D

- Rated voltage 250 V
- Rated current 10 A ... 16 A
- Termination: crimp
- Number of contacts: 7, 15, 25, 40, 50, 64, 128



Approvals, Testhouse	Characteristics	Approval-Number
SEV 	250 V, 10 A	
UL 	600 V, 14 A 600 V, 15 A (high current)	E 63093
CSA 	600 V, 10 A	48932

In general approvals refer to representative versions of the connector series. Extent and specification of tests upon request.

General information

- Contact inserts without crimp contacts, crimping tools see separate catalogue „Tools“.
- Contacts must be ordered separately, processing instructions see catalogue „Tools“.
- We recommend using the high profile housings / hoods for the heavy|mate® D inserts.
- Connectors series heavy|mate® D may be engaged or disengaged when live but without electrical load.
If these connectors are mated or unmated under load, the load shall be reduced to 10 % of the rated current.
- For contact inserts for turned contacts, guide pins and guide socket are recommended (see page 256).
- By using contact inserts with two PE-connections without hoods, it is necessary to connect the facing of each PE-connection.
- If connectors are mounted in non conductive housings both protective earthing terminals shall be mounted.



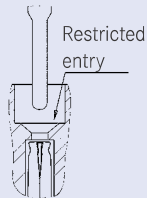
Standardised connectors according to DIN EN 175 301 - 801 (DIN 43652)

Interchangeable with all other products which are according to the standard.

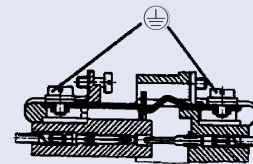
- Contact insert to contact insert 15, 25, 40, 64 way.
- Contact insert to housing 15, 25, 40, 64 way.

High protection against mismatching

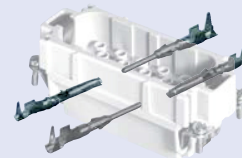
- Female inserts with funnel shaped contact entry avoids mismatching with stamped contacts.



First-to-mate last-to-break protective ground contact



Contact inserts for stamped contacts and for turned contacts

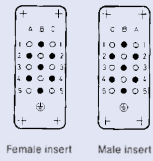


Range of housings

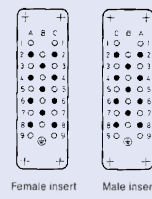
Size A3/4	Size A10	Size A16
Size E16	Size E24	Size E48

Modified contact arrangement for rated voltages of 400 V

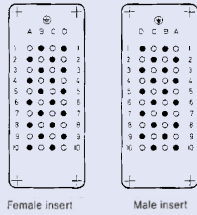
(15) → 7 + ⊕



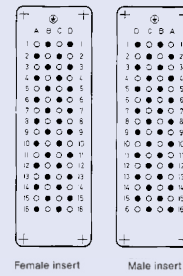
(25) → 11 + ⊕



(40) → 20 + ⊕



(64) → 32 + ⊕



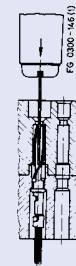
- full load contact
- unoccupied

Removal of contacts, front releas

stamped male contacts
all turned contacts



stamped female contacts



heavy|mate[®] D Characteristics contact inserts

General Characteristics	Standard	Value							
Number of contacts		7	15	25	40	50 2x25	64	128 2x64	
Contact arrangement	DIN EN 175 301-801 (DIN 43652)		•	•	•		•		
Termination technique		crimp, wire wrap							
Max. wire diameter		4.1 mm							
Flammability	UL 94	V-0							
Electrical Characteristics									
Rated voltage ¹⁾	IEC 60664-1	250 V~ (400 V~ ²⁾) (600 V UL / CSA ³⁾)							
Pollution degree	IEC 60664-1	3							
Installation (overvoltage) category	IEC 60664-1	III							
Material group	IEC 60664-1	III b							
Rated impulse withstand voltage	IEC 60664-1	4 kV							
Rated current	IEC 60512-5-2	see derating curves							
Rated current T _{amp} = 40 °C		16 A	12 A	12 A	10 A	10 A	10 A	10 A	
Insulation resistance	IEC 60512-3-1	≥ 10 ¹⁰ Ω							
Climatical Characteristics									
Climatic category	IEC 60068-1	40/125/21							
Upper temperature	IEC 60512-11-9	+ 125°C							
Lower temperature	IEC 60512-11-10	- 40°C							
Mechanical Characteristics									
IP-degree of protection pin insert	IEC 60529	unmated IP00				mated IP20			
IP-degree of protection socket insert	IEC 60529	unmated IP20				mated IP20			
Weight pin insert		8 g	28 g	34 g	53 g	68 g	65 g	130 g	
Weight socket insert		8 g	30 g	38 g	64 g	76 g	82 g	164 g	
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles							
Materials									
Insert	IEC 60664-1	PBTP	PC GV ⁴⁾						
Colour insert	IEC 60664-1	grey							

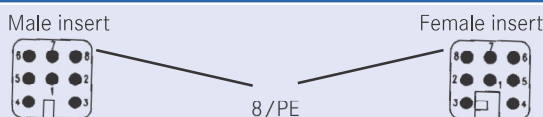
Description	Part Number	Drawing	Figure
Contact insert 7 + ⊕, 42 V~ in metal housings/250 V in thermoplastic housings (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A007 000 2		
Male insert for turned crimp contacts	C146 10A007 500 2		
Female insert for stamped crimp contacts	C146 10B007 000 2		
Female insert for turned crimp contacts	C146 10B007 500 2		

Pin layout

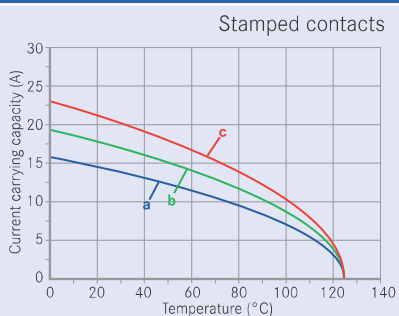


Description	Part Number	Drawing	Figure
Contact insert 8, 42 V~ in metal housings/250 V in thermoplastic housings (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A008 000 2		
Male insert for turned crimp contacts	C146 10A008 500 2		
Female insert for stamped crimp contacts	C146 10B008 000 2		
Female insert for turned crimp contacts	C146 10B008 500 2		

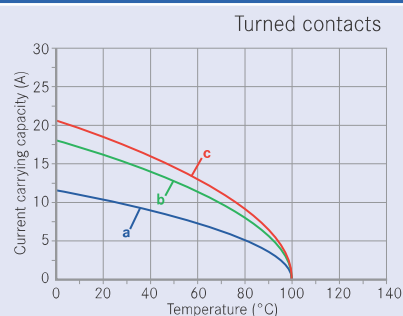
Pin layout (Note: For use up to 42 V~, the PE contact can be used as regular contact.)



Derating curves



Curve	Wire gauge
a	0.5 mm ²
b	1.5 mm ² & 2.5 mm ²
c	1.5 mm ² -2.5 mm ² (High current)

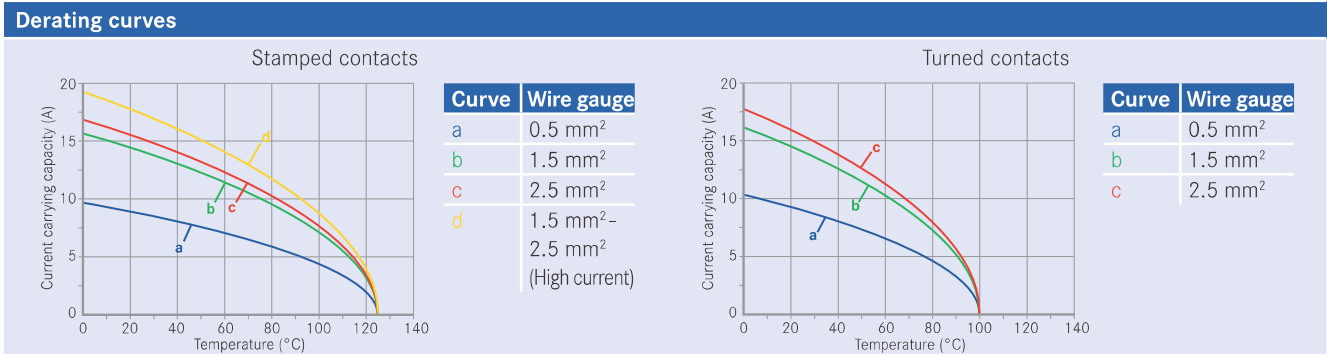


Curve	Wire gauge
a	0.5 mm ²
b	1.5 mm ²
c	2.5 mm ²

Description	Part Number	Drawing	Figure
Contact insert 15 + ⊕ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A015 000 2		
Male insert for turned crimp contacts	C146 10A015 500 2		
Female insert for stamped crimp contacts	C146 10B015 000 2		
Female insert for turned crimp contacts	C146 10B015 500 2		

Contact insert 15 + ⊕, 2 x PE-termination (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A015 060 2		
Female insert for stamped crimp contacts	C146 10B015 060 2		

Pin layout		Assembly instruction	
Male insert	Female insert	Panel cut out (insert)	



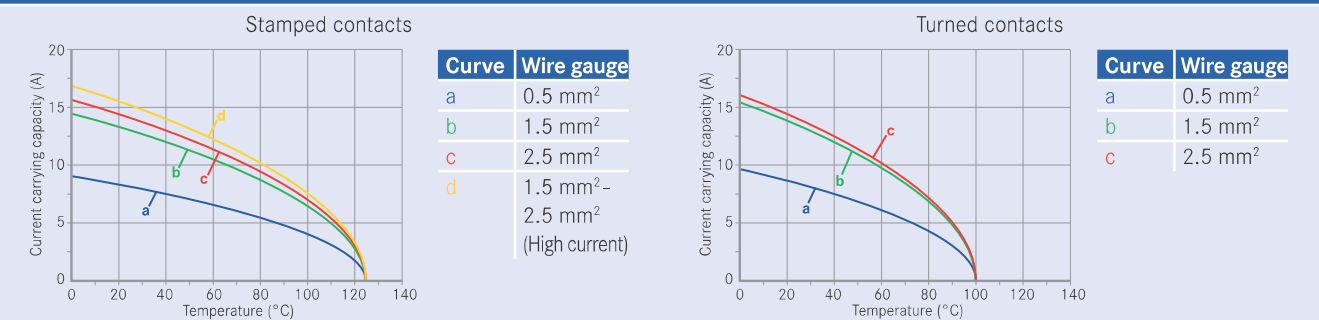
Description	Part Number	Drawing	Figure
Contact insert 25 + ⊕ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A025 000 2		
Male insert for turned crimp contacts	C146 10A025 500 2		
Female insert for stamped crimp contacts	C146 10B025 000 2		
Female insert for turned crimp contacts	C146 10B025 500 2		

Contact insert 25 + ⊕, 2 x PE-termination (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A025 060 2		
Female insert for stamped crimp contacts	C146 10B025 060 2		

Pin layout **Assembly instruction**

<p>Male insert</p>	<p>Female insert</p>	<p>Panel cut out (insert)</p>	
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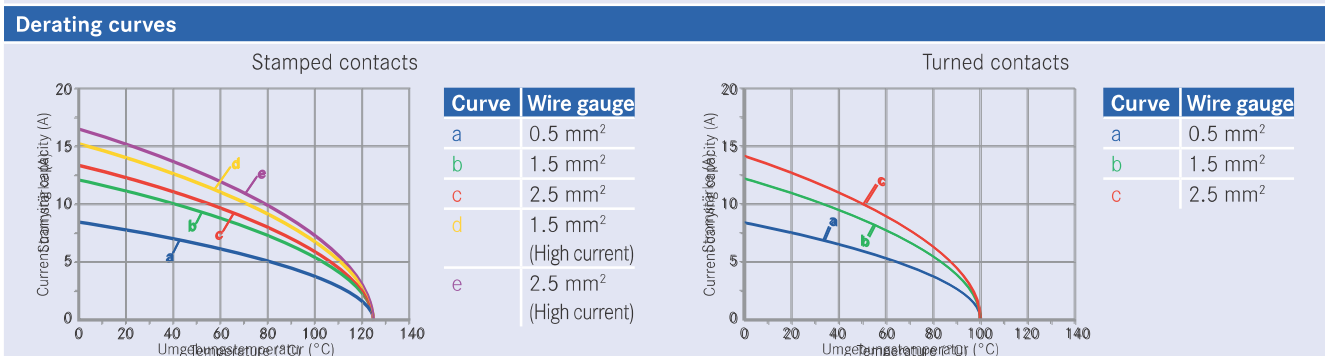
Derating curves



Description	Part Number	Drawing	Figure
Contact insert 40 + ⊕ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A040 000 2		
Male insert for turned crimp contacts	C146 10A040 500 2		
Female insert for stamped crimp contacts	C146 10B040 000 2		
Female insert for turned crimp contacts	C146 10B040 500 2		

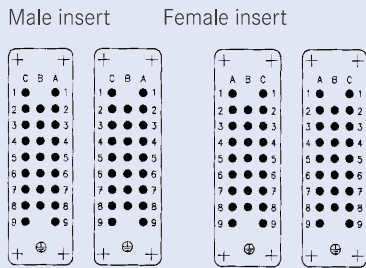
Contact insert 40 + ⊕, 2 x PE-termination (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A040 060 2		
Female insert for stamped crimp contacts	C146 10B040 060 2		

Pin layout		Assembly instruction	
Male insert	Female insert	Panel cut out (insert)	

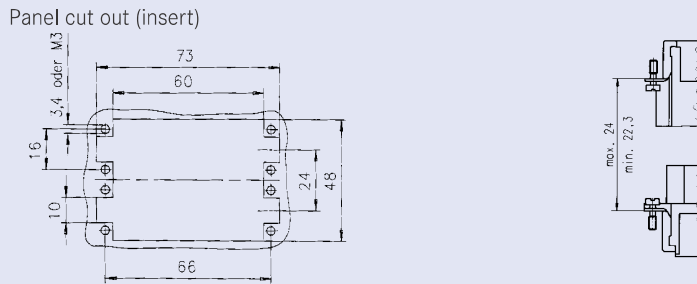


Description	Part Number	Drawing	Figure
Contact insert 50 + ⊕ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A025 000 2 + C146 10A025 005 2		
Male insert for turned crimp contacts	C146 10A025 500 2 + C146 10A025 505 2		
Female insert for stamped crimp contacts	C146 10B025 000 2 + C146 10B025 005 2		
Female insert for turned crimp contacts	C146 10B025 500 2 + C146 10B025 505 2		

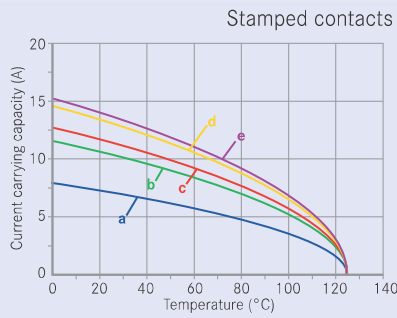
Pin layout



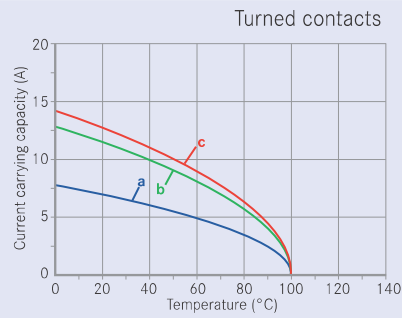
Assembly instruction



Derating curves



Curve	Wire gauge
a	0.5 mm ²
b	1.5 mm ²
c	2.5 mm ²
d	1.5 mm ² (High current)
e	2.5 mm ² (High current)

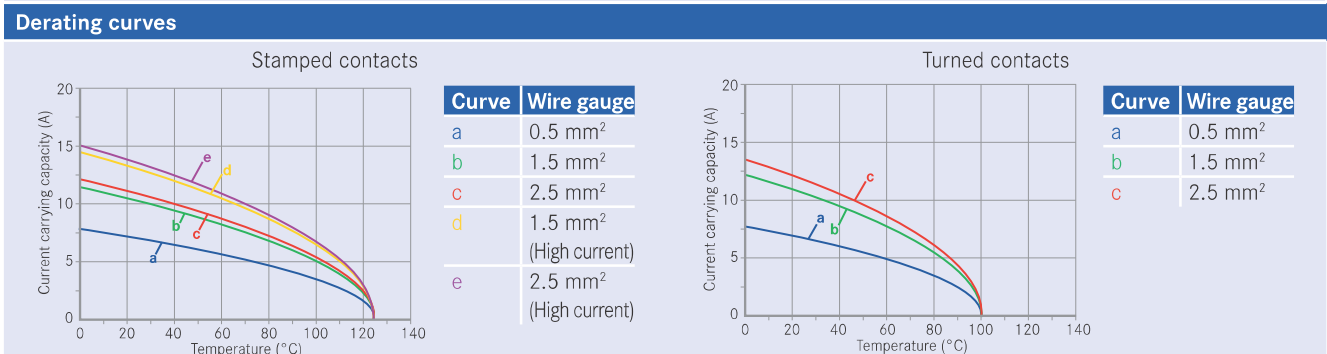


Curve	Wire gauge
a	0.5 mm ²
b	1.5 mm ²
c	2.5 mm ²

Description	Part Number	Drawing	Figure
Contact insert 64 + Ⓢ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A064 000 2		
Male insert for turned crimp contacts	C146 10A064 500 2		
Female insert for stamped crimp contacts	C146 10B064 000 2		
Female insert for turned crimp contacts	C146 10B064 500 2		

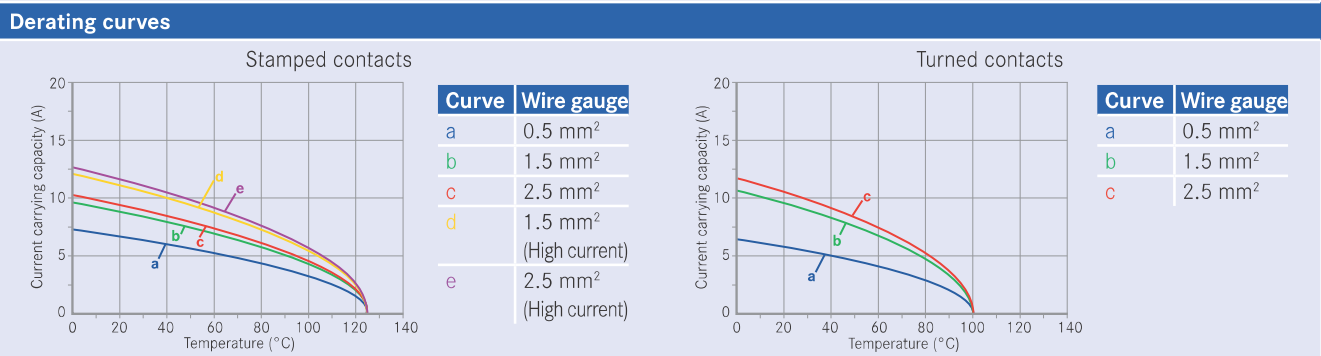
Contact insert 64 + Ⓢ, 2 x PE-termination (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A064 060 2		
Female insert for stamped crimp contacts	C146 10B064 060 2		

Pin layout		Assembly instruction	
Male insert	Female insert	Panel cut out (insert)	



Description	Part Number	Drawing	Figure
Contact insert 128 + ⊕ (Please order contacts separately, see page 34)			
Male insert for stamped crimp contacts	C146 10A064 000 2 + C146 10A064 005 2		
Male insert for turned crimp contacts	C146 10A064 500 2 + C146 10A064 505 2		
Female insert for stamped crimp contacts	C146 10B064 000 2 + C146 10B064 005 2		
Female insert for turned crimp contacts	C146 10B064 500 2 + C146 10B064 505 2		

Pin layout		Assembly instruction	
Male insert	Female insert	Panel cut out (insert)	



Large range of wire gauges

.N01 016 0003 1



.N01 016 0002 1



.N01 016 0005 1



Gas-tight (coldwelding)

0.14

0.25

0.5

0.5

1.0

1.5

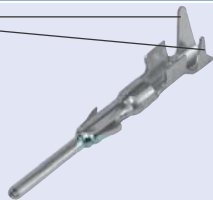
1.5

2.5



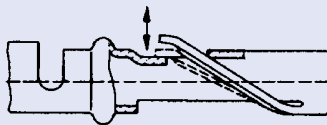
Stamped crimp contacts with insulation crimp, to absorb mechanical stress from the crimped connection

Insulation grip

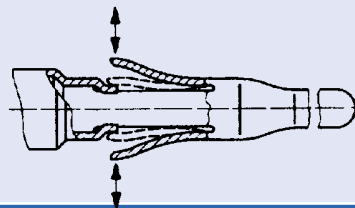


Mechanical retention spring stop on female and male contact

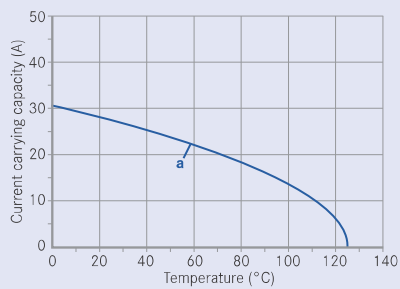
Female contact



Male contact

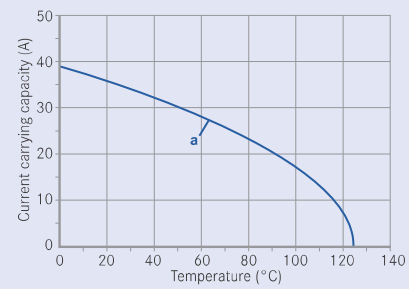


High current carrying capacity



Curve a: 2.5 mm² Standard contact. wire gauge

Example single contact




Curve a: 2.5 mm² High current contact, wire gauge

Stamped crimp contacts		
Electrical Characteristics		
Contact resistance	IEC 60512-2-1	≤ 5 m Ω
Climatical Characteristics		
Upper temperature	IEC 60512-11-9	+ 125 °C
Lower temperature	IEC 60512-11-10	- 40 °C
Mechanical Characteristics		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Male contact		Cu Zn (brass)
Female contact		Cu Sn (tin bronze)
Contact plating		Ag (silver) / Au (gold)
Turned crimp contacts		
Electrical Characteristics		
Contact resistance	IEC 60512-2-1	≤ 5 m Ω
Climatical Characteristics		
Upper temperature	IEC 60512-11-9	+ 100 °C
Lower temperature	IEC 60512-11-10	- 40 °C
Mechanical Characteristics		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Male contact		Cu Zn (brass)
Female contact		Cu Zn (brass)
Contact plating		Ag (silver) / Au (gold)

heavy|mate® D Stamped crimp contacts

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
Stamped single contacts						
silver plating standard	0.14 - 0.5 mm ²	26 - 20	100	VN01 016 0003 1	VN02 016 0003 1	
	0.5 - 1.5 mm ²	20 - 16	100	VN01 016 0002 1	VN02 016 0002 1	
	1.5 - 2.5 mm ²	16 - 14	100	VN01 016 0005 1	VN02 016 0005 1	
silver plating high current	0.5 - 1.5 mm ²	20 - 16	100	VN01 016 0015 1	VN02 016 0015 1	
	1.5 - 2.5 mm ²	16 - 14	100	VN01 016 0016 1	VN02 016 0016 1	
gold plating standard	0.14 - 0.5 mm ²	26 - 20	100	VN01 016 0003 2	VN02 016 0003 2	
	0.5 - 1.5 mm ²	20 - 16	100	VN01 016 0002 2	VN02 016 0002 2	
	1.5 - 2.5 mm ²	16 - 14	100	VN01 016 0005 2	VN02 016 0005 2	
Stamped Contacts on reel for hand crimp tools						
silver plating standard	0.14 - 0.5 mm ²	26 - 20	200	ZN01 016 0003 1	ZN02 016 0003 1	
	0.5 - 1.5 mm ²	20 - 16	200	ZN01 016 0002 1	ZN02 016 0002 1	
	1.5 - 2.5 mm ²	16 - 14	100	ZN01 016 0005 1	ZN02 016 0005 1	
silver plating high current	0.5 - 1.5 mm ²	20 - 16	200	ZN01 016 0015 1	ZN02 016 0015 1	
	1.5 - 2.5 mm ²	16 - 14	100	ZN01 016 0016 1	ZN02 016 0016 1	
gold plating standard	0.14 - 0.5 mm ²	26 - 20	200	ZN01 016 0003 2	ZN02 016 0003 2	
	0.5 - 1.5 mm ²	20 - 16	200	ZN01 016 0002 2	ZN02 016 0002 2	
	1.5 - 2.5 mm ²	16 - 14	100	ZN01 016 0005 2	ZN02 016 0005 2	
Stamped contacts on reel for crimp machines contact feeding left hand side						
silver plating standard	0.14 - 0.5 mm ²	26 - 20	2000	TN01 016 0003 1	TN02 016 0003 1	
	0.5 - 1.5 mm ²	20 - 16	2000	TN01 016 0002 1	TN02 016 0002 1	
	1.5 - 2.5 mm ²	16 - 14	2000	TN01 016 0005 1	TN02 016 0005 1	
silver plating high current	0.5 - 1.5 mm ²	20 - 16	2000	TN01 016 0015 1	TN02 016 0015 1	
	1.5 - 2.5 mm ²	18 - 14	2000	TN01 016 0016 1	TN02 016 0016 1	
gold plating standard	0.14 - 0.5 mm ²	26 - 20	2000	TN01 016 0003 2	TN02 016 0003 2	
	0.5 - 1.5 mm ²	20 - 16	2000	TN01 016 0002 2	TN02 016 0002 2	
	1.5 - 2.5 mm ²	16 - 14	2000	TN01 016 0005 2	TN02 016 0005 2	
Tools for stamped crimp contacts						
Description	for wire gauge	Part Number				
		Contact locator	Crimping dies	Tool		
Removal tool for contacts	-	-	-	FG 0300 146 1		
Service crimping tool	0.14 - 0.5 mm ² 0.5 - 1.5 mm ²	-	-	TA 0100 146		
Crimping tool for single contacts	0.14 - 0.5 mm ²	TA 0001 146 000 1	TA 0000 202	TA 0000		
	0.5 - 1.5 mm ²	TA 0002 146 000 1	TA 0000 163	TA 0500		
	1.5 - 2.5 mm ²	TA 0007 146 000 3	TA 0000 141			
Further tools see catalogue "Tools"						

heavy|mate® D Turned crimp contacts

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
Turned crimp contacts single contact						
silver plating	0.14 - 0.37 mm ²	26 - 22	100	VN01 016 0024 1C	VN02 016 0024 1C	
	0.5 mm ²	20	100	VN01 016 0025 1C	VN02 016 0025 1C	
	0.75 - 1.0 mm ²	20 - 16	100	VN01 016 0026 1C	VN02 016 0026 1C	
	1.5 mm ²	16 - 15	100	VN01 016 0027 1C	VN02 016 0027 1C	
	2.5 mm ²	14	100	VN01 016 0028 1C	VN02 016 0028 1C	
gold plating	0.14 - 0.37 mm ²	26 - 22	100	VN01 016 0024 2C	VN02 016 0024 2C	
	0.5 mm ²	20	100	VN01 016 0025 2C	VN02 016 0025 2C	
	0.75 - 1.0 mm ²	20 - 16	100	VN01 016 0026 2C	VN02 016 0026 2C	
	1.5 mm ²	16 - 15	100	VN01 016 0027 2C	VN02 016 0027 2C	
	2.5 mm ²	14	100	VN01 016 0028 2C	VN02 016 0028 2C	
Tools						
Description	for wire gauge	Part Number				
		Contact locator	Crimping dies	Tool		
Removal tool for contacts	-	-	-	FG 0300 146 1		
Crimping tool for single contacts	0.14 - 1.0 mm ² 1.5 mm ² 2.5 mm ²	TA 0010 146 000 1	TA 0000 184	TA 0000 TA 0500		
Further tools see catalogue "Tools"						