







# heavy | mate<sup>®</sup> M

- Modular connector
- More module slots than heavy | mate<sup>®</sup> F and market standard
- Rated voltage 63 - 1000 V
- Rated current 5 A ... 250 A
- Termination: crimp



Approvals, Testhouse	Characteristics	Approval-Number
VDE 	Characteristics see rated voltage and rated current of each module	56 79 ÜG
SEV 		
UL 		E 63093
CSA 		48932

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

## General information

- Modules inserts without crimp contacts, crimping tools see separate catalogue “Tools”.
- Contacts must be ordered separately, processing instructions see catalogue “Tools”.
- Connectors series heavy|mate® M 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 rated current.

- We recommend using the high profile housings / hoods for the heavy|mate® M inserts.
- Empty modul spaces have to be filled with blind modules.
- Torque for PE connection 1.8 Nm

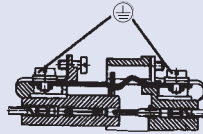


## Advantages of the system

- High combination possibilities
- Possibility of inverse configuration
- Rated voltage up to 1000 V
- Low cost

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

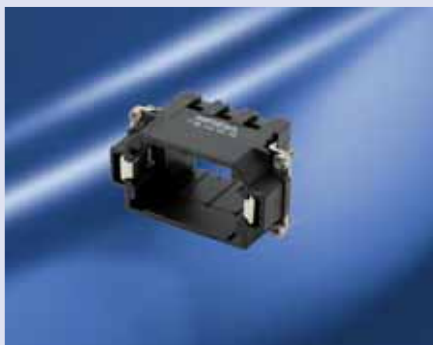
Minimum wire size 0.5 mm<sup>2</sup>



## Modules



## Frames



## Range of housings



### Requirements

- 3 x 400V; 50A; 6mm<sup>2</sup> wire gauge
- 8 x 250V; 8A; 1.5mm<sup>2</sup> wire gauge
- 5 x 400V; 15A; 4mm<sup>2</sup> wire gauge

### Solution

#### 1. Check how 16 contacts can be realized; see modules overview on page 130

Possible selection:

- a) 1 x 20 contacts
- b) 2 x 10 contacts
- c) 1 x 10 contacts+ 2 x 5 contacts
- d) 1 x 3 contacts + 1 x 5 contacts + 1 x 10 contacts

#### 2. Check technical parameters / solution, see detail pages of the modules on page 138

Possible selection:

- a) not possible due to voltage
- b) not possible due to voltage
- c) not possible due to current
- d) POSSIBLE

#### 3. Choose matching contact, see detail page of the modules on page 138

Possible selection:

- a) 3 contacts = C146 A03 001 E8 → contacts = VN01 036 0002 1C
- b) 5 contacts = C146 A05 001 E8 → contacts = VN01 025 0033 1C
- c) 10 contacts = C146 A10 001 E8 → contacts = VN01 016 0027 1C

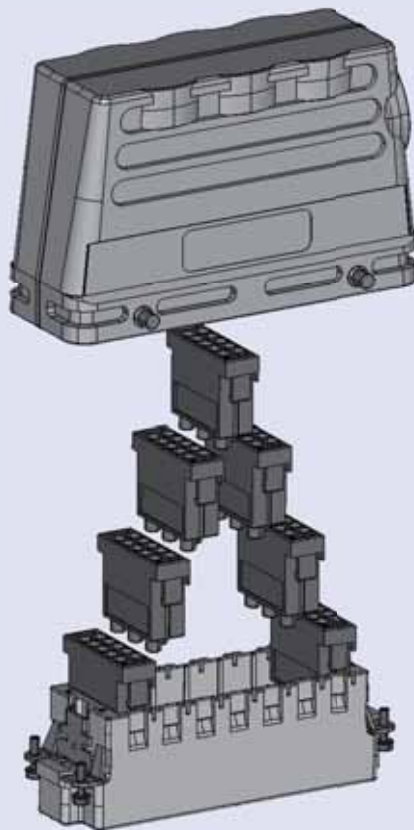
#### 4. Choose matching frame, see frames on page 136

Solution: C146 P10 001 G8

#### 5. Choose matching housing, see housings from page 184

Solution: C146 21R010 600 8

### Schematic construction

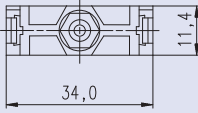

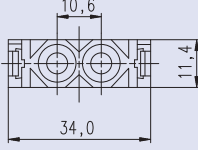

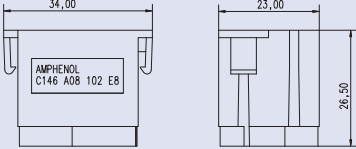

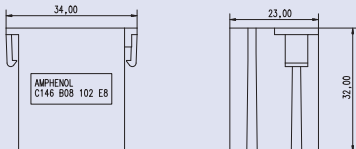



Description	Part Number	Drawing	Figure
<b>1 contact, 1000 V, Details see page 138</b>			
Pin Module	C146 A01 001 E8		
Socket Module	C146 B01 004 E1		
<b>2 contacts for turned contacts, 1000 V, Details see page 140</b>			
Pin Module	C146 A02 001 E8		
Socket Module	C146 B02 001 E8		
<b>2 contacts Powermodule for turned contacts, 1000 V, Details see page 142</b>			
Pin Module	C146 A02 801 E8		
Socket Module	C146 B02 801 E8		

Description	Part Number	Drawing	Figure
<b>3 contacts for turned contacts, 1000 V, Details see page 144</b>			
Pin Module	C146 A03 801 E8		
Socket Module	C146 B03 801 E8		
<b>3 contacts for turned contacts, 690 V, Details see page 146</b>			
Pin Module	C146 A03 001 E8		
Socket Module	C146 B03 001 E8		
<b>5 contacts for stamped contacts, 1000 V, Details see page 148</b>			
Pin Module	C146 D04 001 E8 (4 pol) C146 D05 001 E8 (4 + PE) C146 D05 801 E8 (5 pol)		
Socket Module	C146 C04 001 E8 (4 pol) C146 C05 001 E8 (4 + PE) C146 C05 801 E8 (5 pol)		

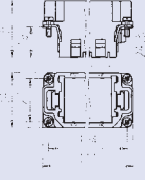

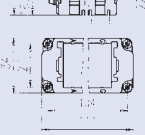





Description	Part Number	Drawing	Figure
<b>5 contacts for turned contacts, 400 V, Details see page 150</b>			
Pin Module	C146 A05 001 E8		
Socket Module	C146 B05 001 E8		
<b>10 contacts for stamped contacts, 400 V, Details see page 152</b>			
Pin Module	C146 D10 001 E8		
Socket Module	C146 C10 001 G8		
<b>10 contacts for turned contacts, 400 V, Details see page 154</b>			
Pin Module	C146 A10 001 E8		
Socket Module	C146 B10 001 E8		



Description	Part Number	Drawing	Figure
<b>Pneumatic module, 1 or 2 connections, Details see page 162</b>			
Pin Module	C146 G01 014 G8 (2.5 mm) C146 G01 024 G8 (4.0 mm) C146 G02 014 G8 (2.5 mm) C146 G02 024 G8 (4.0 mm)		
Socket Module	C146 H01 034 G8 (2.5 mm) C146 H01 044 G8 (4.0 mm) C146 H02 034 G8 (2.5 mm) C146 H02 044 G8 (4.0 mm)		
<b>Shielded module 2x4 contacts for bus signals, 50 V, Details see page 164</b>			
Pin Module	C146 A08 102 E8 C146 A05 100 G8		
Socket Module	C146 B08 102 E8 C146 B05 100 G8		



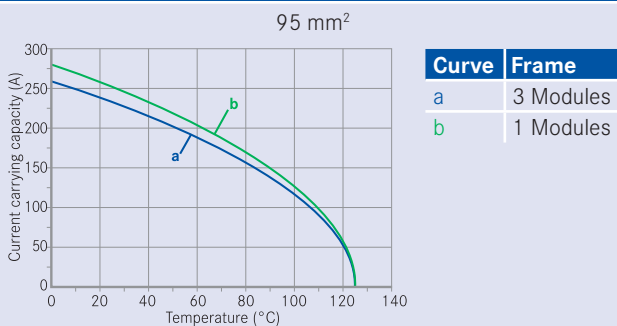
Description	Part Number	Drawing	Figure
<b>Frame for 2 modules   Size E6   Housings from page 196</b>			
Frame for pin modules	C146 P06 001 G8 C146 P06 002 G8 (2 x PE)		
Frame for socket modules	C146 S06 001 G8 C146 S06 002 G8 (2 x PE)		
<b>Frame for 3 modules   Size E10   Housings from page 198</b>			
Frame for pin modules	C146 P10 001 G8 C146 P10 002 G8 (2 x PE)		
Frame for socket modules	C146 S10 001 G8 C146 S10 002 G8 (2 x PE)		
<b>Frame for 5 modules   Size E16   Housings from page 205</b>			
Frame for pin modules	C146 P16 001 G8 C146 P16 002 G8 (2 x PE)		
Frame for socket modules	C146 S16 001 G8 C146 S16 002 G8 (2 x PE)		

Description	Part Number	Drawing	Figure
<b>Frame for 7 modules   Size E24   Housings from page 211</b>			
Frame for pin modules Positions A-G	C146 P24 001 G8 C146 P24 002 G8 (2 x PE)		
Frame for pin modules Positions H-N	C146 P24 101 G8 C146 P24 102 G8 (2 x PE)		
Frame for socket modules Positions A-G	C146 S24 001 G8 C146 S24 002 G8 (2 x PE)		
Frame for socket modules Positions H-N	C146 S24 101 G8 C146 S24 102 G8 (2 x PE)		

## heavy|mate<sup>®</sup> M Characteristics 1 contact module

General Characteristics	Standard	Value
Number of contacts		1
Termination technique		crimp
Wire gauge		50 / 70 / 95 mm <sup>2</sup> (AWG 1/00/000)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	1000 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	3
Material group	IEC 60664-1	2
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 1 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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	IEC 60529	20
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

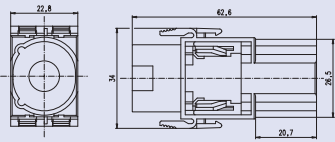

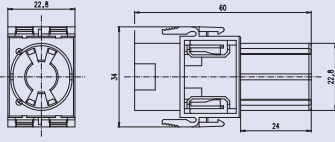

### Derating Curves




### General requirements

- Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).
- Parts to be used as connectors, not as plug devices (connector with breaking capacity). Do not mate under current or voltage!

# heavy|mate® M 1 contact module + crimp contacts

Description	Part Number	Drawing	Figure
<b>1 contact module (Please order contacts separately)</b>			
Pin module	C146 A01 001 E8		
Socket module	C146 B01 004 E8		

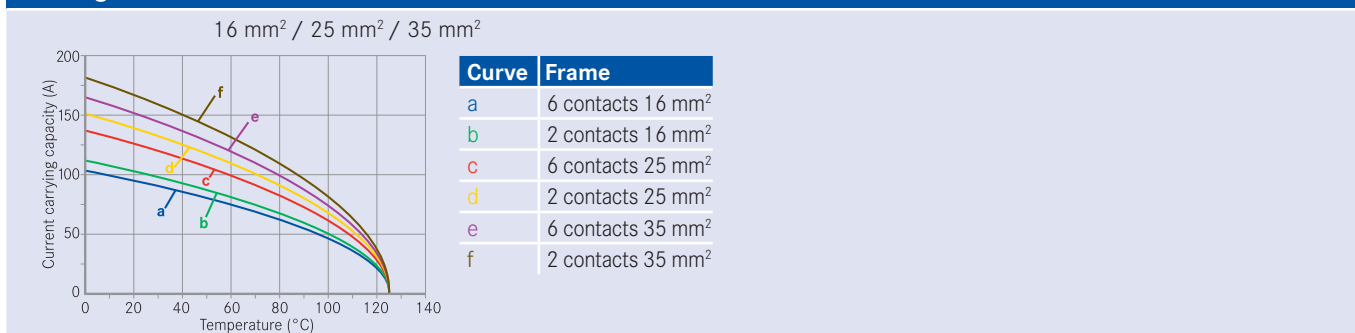
Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 10 mm crimp contacts</b>						
Single contact	50 mm <sup>2</sup>	1	1	N01 100 6001 001	N02 100 6121 002	
	70 mm <sup>2</sup>	00	1	N01 100 6002 001	N02 100 6122 002	
	95 mm <sup>2</sup>	000	1	N01 100 6003 001	N02 100 6123 002	

<b>Tools</b>				
Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Crimping dies	50 mm <sup>2</sup>		TE 0500 103	
	70 mm <sup>2</sup>		TE 0500 201	
	95 mm <sup>2</sup>		TE 0500 301	

For use in pneumatic crimping tool EK12042 by Klauke or AHPW 400C by Neko .  
Further tools see catalogue "Tools"

General Characteristics	Standard	Value
Number of contacts		2
Termination technique		crimp
Wire gauge		16 / 25 / 35 mm <sup>2</sup> (AWG 6/4/2)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	1000 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	3
Material group	IEC 60664-1	2
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 1 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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	IEC 60529	20
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

### Derating Curves



### General requirements

- Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).
- Parts to be used as connectors, not as plug devices (connector with breaking capacity). Do not mate under current or voltage!

# heavy|mate® M 2 contacts Radsok module + crimp contacts

Description	Part Number	Drawing	Figure
<b>2 contacts module for turned contacts (Please order contacts separately)</b>			
Pin module	C146 A02 001 E8		
Socket module	C146 B02 001 E8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 6 mm crimp contacts</b>						
Single contact	16 mm <sup>2</sup>	6	1	N01 060 0007 1	N02 060 6117 001	
	25 mm <sup>2</sup>	4		N01 060 0004 1	N02 060 6114 001	
	35 mm <sup>2</sup>	2		N01 060 0008 1	N02 060 6118 001	
<b>Cable lug for earth connection</b>						
Single contact	16 mm <sup>2</sup>	6	1	N15 043 0003 003		

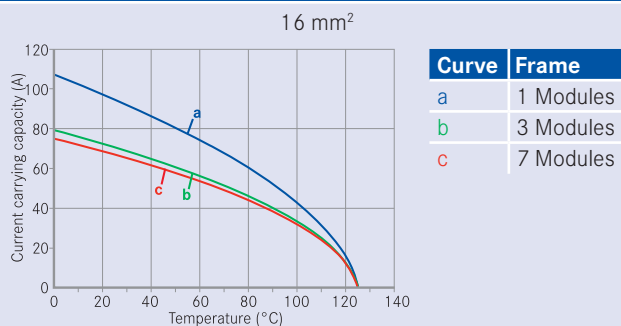
<b>Tools</b>					
Description	for wire gauge	Part Number			Tool
		Contact locator	Crimping dies		
Crimping dies	16 mm <sup>2</sup>	-	TE 0600 062	-	
	25 mm <sup>2</sup>	-	TE 0600 042	-	
	35 mm <sup>2</sup>	-	TE 0600 022	-	

For use in pneumatic crimping tool EK12042 by Klauke or AHPW 400C by Neko .  
Further tools see catalogue "Tools"

## heavy|mate<sup>®</sup> M Characteristics 2 contacts Powermodule

General Characteristics	Standard	Value
Number of contacts		2
Termination technique		crimp
Wire gauge		16 mm <sup>2</sup> (AWG 6)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	1000 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	3
Material group	IEC 60664-1	2
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 1 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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	IEC 60512-9-1	≥ 500 Steckzyklen
Mechanical operation	IEC 60529	20
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

### Derating Curves



### General requirements

- Due to reduced cross sections at PE contacts of frames, the PE contact has to be additionally protected against short circuits by using a protection circuit offering a sufficiently short breaking time (<0.25s).
- Parts to be used as connectors, not as plug devices (connector with breaking capacity). Do not mate under current or voltage!

# heavy|mate® M 2 contacts Powermodule + crimp contacts

Description	Part Number	Drawing	Figure
<b>2 contacts module (Please order contacts separately)</b>			
Pin module	C146 A02 801 E8		
Socket module	C146 B02 801 E8		

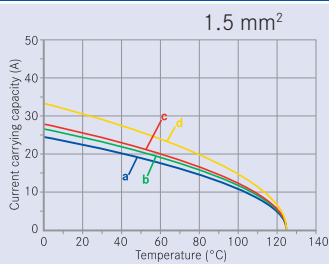
Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 3.6 mm crimp contacts</b>						
Single contact	16 mm <sup>2</sup>	6	100	VN01 036 0021 1C	VN02 036 0021 1C	
<b>Cable lug for earth connection</b>						
Single contact	16 mm <sup>2</sup>	6	1	N 15 043 0003 003		

<b>Tools</b>				
Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Crimping dies	16 mm <sup>2</sup>	-	-	TE 0600 063 <sup>1)</sup>
Removal tool for contacts		-	-	FG 0300 146 3
Removal tool for modules		-	-	FG 1000 146

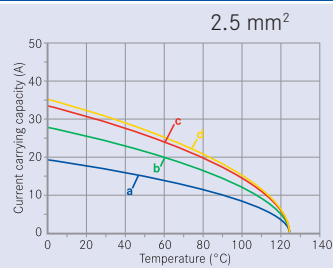
For use in pneumatic crimping tool EK12042 by Klauke or AHPW 400C by Neko .  
Further tools see catalogue "Tools"

General Characteristics	Standard	Value
Number of contacts		3
Termination technique		crimp
Wire gauge		1.5 - 10 mm <sup>2</sup> (AWG 16 - 8)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	1000 V <sup>1)</sup>
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 1 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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	IEC 60529	20
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

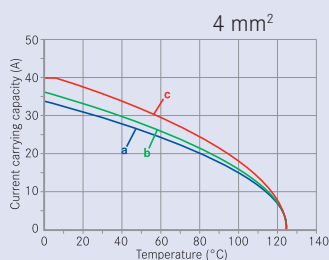
**Derating Curves**



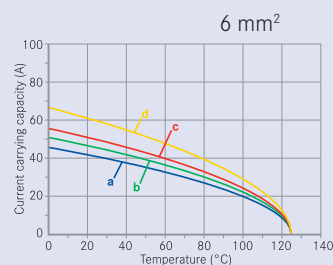
Curve	Frame
a	7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



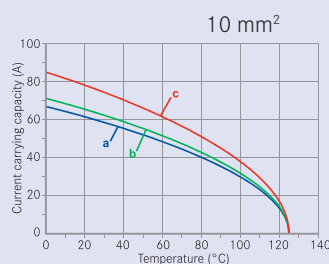
Curve	Frame
a	7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



Curve	Frame
a	7 Modules
b	3 Modules
c	1 Modules

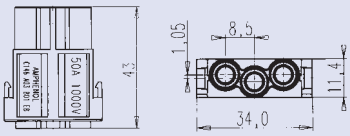

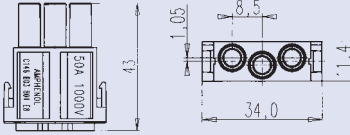




Curve	Frame
a	5-7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



Curve	Frame
a	3-7 Modules
b	2 Modules
c	1 Modules

# heavy|mate® M 3 contacts module + crimp contacts

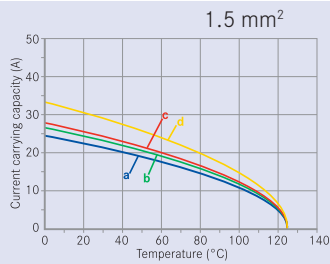
Description	Part Number	Drawing	Figure
<b>3 contacts module (Please order contacts separately)</b>			
Pin module	C146 A03 801 E8		
Socket module	C146 B03 801 E8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 3.6 mm crimp contacts (All contacts 2mm first-to-mate to other modules)</b>						
	1.5 mm <sup>2</sup>	16	100	VN01 036 0004 1C	VN02 036 0004 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 036 0005 1C	VN02 036 0005 1C	
	4.0 mm <sup>2</sup>	12	100	VN01 036 0001 1C	VN02 036 0001 1C	
	6.0 mm <sup>2</sup>	10	100	VN01 036 0002 1C <sup>1)</sup>	VN02 036 0002 1C <sup>1)</sup>	
	10.0 mm <sup>2</sup>	8	100	VN01 036 0003 1C <sup>1)</sup>	VN02 036 0003 1C <sup>1)</sup>	

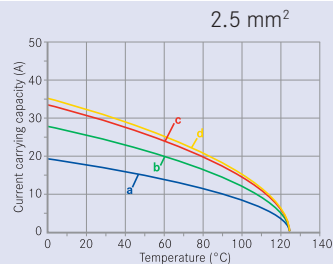
<b>Tools</b>					
Description	for wire gauge	Part Number			Tool
		Contact locator	Crimping dies		
Removal tool for contacts	-	-	-	-	FG 0300 146 3
Removal tool for modules	-	-	-	-	FG 1000 146
Crimping tool for single contacts	1.5 - 2.5 mm <sup>2</sup>	TA 0010 146 000 2	TA 0000 144		TA 0000
	4.0 mm <sup>2</sup>	TA 0010 146 000 4	TA 0000 124		
	6.0 mm <sup>2</sup>	TA 0010 146 000 4	TA 0000 124		
4-ondet crimping tool <sup>2)</sup>	1.5 -10.0 mm <sup>2</sup>	-	-	-	TB 0200 146
Crimping tool for cable lugs	6.0 mm <sup>2</sup>	-	TA 0000 180		TA 0000
	10.0 mm <sup>2</sup>	-			
<b>Cable lugs for PE connection</b>				<b>Pieces</b>	<b>Part Number</b>
Cable lug	6.0 mm <sup>2</sup>	-	20		N15 006 000 9Z
	10.0 mm <sup>2</sup>	-	20		N15 010 000 7Z
Further tools see catalogue "Tools"					

General Characteristics	Standard	Value
Number of contacts		3
Termination technique		crimp
Wire gauge		1.5 - 10 mm <sup>2</sup> (AWG 16 - 8)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	630 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II (PA)
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 1 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

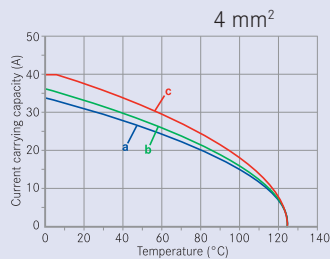
**Derating Curves**



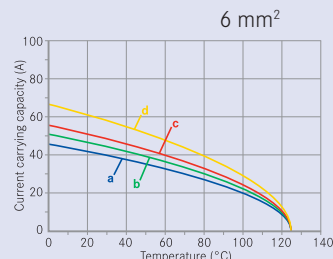
Curve	Frame
a	7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



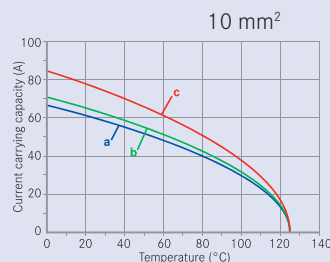
Curve	Frame
a	7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



Curve	Frame
a	7 Modules
b	3 Modules
c	1 Modules

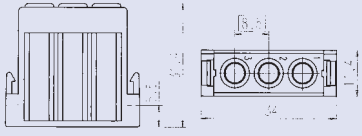

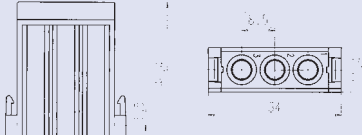




Curve	Frame
a	5-7 Modules
b	3 Modules
c	2 Modules
d	1 Modules



Curve	Frame
a	3-7 Modules
b	2 Modules
c	1 Modules

# heavy|mate® M 3 contacts module + crimp contacts

Description	Part Number	Drawing	Figure
<b>3 contacts module (Please order contacts separately)</b>			
Pin module	C146 A03 001 E8		
Socket module	C146 B03 001 E8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 3.6 mm crimp contacts single contact</b>						
silver plating	1.5 mm <sup>2</sup>	16	100	VN01 036 0004 1C	VN02 036 0004 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 036 0005 1C	VN02 036 0005 1C	
	4.0 mm <sup>2</sup>	12	100	VN01 036 0001 1C	VN02 036 0001 1C	
	6.0 mm <sup>2</sup>	10	100	VN01 036 0002 1C <sup>1)</sup>	VN02 036 0002 1C <sup>1)</sup>	
	10.0 mm <sup>2</sup>	8	100	VN01 036 0003 1C <sup>1)</sup>	VN02 036 0003 1C <sup>1)</sup>	

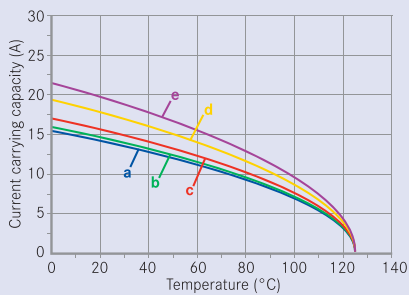
<b>Tools</b>					
Description	for wire gauge	Part Number			Tool
		Contact locator	Crimping dies		
Removal tool for contacts	-	-	-	-	FG 0300 146 3
Removal tool for modules	-	-	-	-	FG 1000 146
Crimping tool for single contacts	1.5 - 2.5 mm <sup>2</sup>	TA 0010 146 000 5	TA 0000 144		TA 0000
	4.0 mm <sup>2</sup>	TA 0010 146 000 4	TA 0000 124		
	6.0 mm <sup>2</sup>	TA 0010 146 000 4	TA 0000 124		
4-indent crimping tool <sup>2)</sup>	1.5 - 10.0 mm <sup>2</sup>	-	-	-	TB 0200 146
Crimping tool for cable lugs	6.0 mm <sup>2</sup>	-	TA 0000 180		TA 0000
	10.0 mm <sup>2</sup>	-			
<b>Cable lugs for PE connection</b>				<b>Pieces</b>	<b>Part Number</b>
Cable lug	6.0 mm <sup>2</sup>	-	20		N15 006 000 9Z
	10.0 mm <sup>2</sup>	-	20		N15 010 000 7Z
Further tools see catalogue "Tools"					

# heavy|mate® M Characteristics 4 contacts, 4 + ⊕ , 5 contacts module for stamped contacts

General Characteristics	Standard	Value
Number of contacts		4 + ⊕ / 5
Termination technique		crimp
Wire gauge		0.5 - 4.0 mm <sup>2</sup> (AWG 20 - 12)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	1000 V <sup>1)</sup>
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II
Rated impulse withstand voltage	IEC 60664-1	8.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 5 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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	IEC 60529	20
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Male contacts		CuZn (brass)
Female contacts		CuSn (bronze)
Contact plating		Ag (silver)

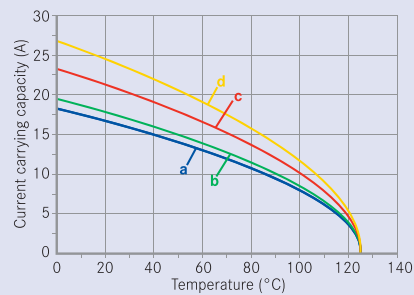
## Derating Curves

1.5 mm<sup>2</sup>



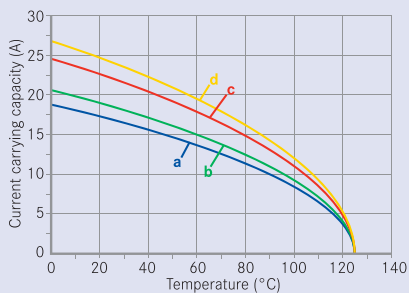
Curve	Frame
a	7 Modules
b	5 Modules
c	3 Modules
d	2 Modules
	1 Modules

2.5 mm<sup>2</sup>



Curve	Frame
a	7 Modules
b	3-5 Modules
c	2 Modules
d	1 Modules

4 mm<sup>2</sup>



Curve	Frame
a	7 Modules
b	5 Modules
c	3 Modules
d	1+2 Modules

# heavy|mate® M 4 contacts, 4 + ⊕ , 5 contacts module + crimp contacts

Description	Part Number	Drawing	Figure
<b>4 contacts, 4 + ⊕ , 5 contacts module, PE contact 2 mm first-to-mate (Please order contacts separately)</b>			
Pin module	C146 D04 001 E8 (4 pol) C146 D05 001 E8 (4 +PE) C146 D05 801 E8 (5 pol)		
Socket module	C146 C04 001 E8 (4 pol) C146 C05 001 E8 (4 + PE) C146 C05 801 E8 (5 pol)		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Stamped single contacts</b>						
silver plating	0.5 - 1.5 mm <sup>2</sup>	20 - 16	100	VN01 025 0001 101	VN02 025 0001 101	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	VN01 025 0010 101	VN02 025 0010 101	
	2.5 - 4.0 mm <sup>2</sup>	12	100	VN01 025 0043 1	VN02 025 0043 1	
gold plating	0.5 - 1.5 mm <sup>2</sup>	20 - 16	100	VN01 025 0001 102	VN02 025 0001 102	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	VN01 025 0010 102	VN02 025 0010 102	
<b>Stamped Contacts on reel for hand crimp tools</b>						
silver plating	0.5 - 1.5 mm <sup>2</sup>	20 - 16	200	ZN01 025 0001 1	ZN02 025 0001 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	ZN01 025 0010 1	ZN02 025 0010 1	
gold plating	0.5 - 1.5 mm <sup>2</sup>	20 - 16	200	ZN01 025 0001 2	ZN02 025 0001 2	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	ZN01 025 0010 2	ZN02 025 0010 2	
<b>Contacts on reel for crimp machines contact feeding left hand side</b>						
silver plating	0.5 - 1.5 mm <sup>2</sup>	20 - 16	2000	TN01 025 0001 1	TN02 025 0001 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	2000	TN01 025 0010 1	TN02 025 0010 1	
	2.5 - 4 mm <sup>2</sup>	12	2000	TN01 025 0043 1	TN02 025 0043 1	

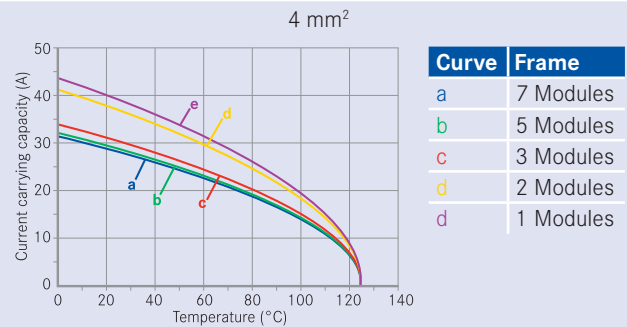
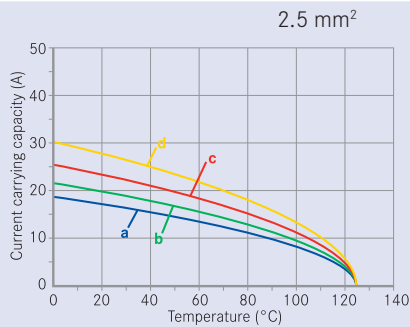
<b>Tools</b>				
Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Removal tool for contacts	-	-	-	FG 0200 146 1
Removal tool for modules	-	-	-	FG 1000 146
Crimping tool for single contacts	0.5 - 1.5 mm <sup>2</sup>	TA 0004 146 000 1	TA 0000 163	TA 0000
	1.5 - 2.5 mm <sup>2</sup>	TA 0005 146 000 3	TA 0000 141	
	2.5 - 4.0 mm <sup>2</sup>	TA 0003 146 000 1	TA 0000 121	

Further tools see catalogue "Tools"

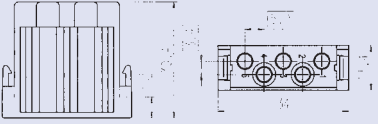

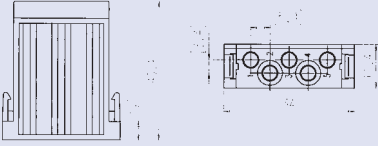

# heavy|mate<sup>®</sup> M Characteristics 5 contacts module for turned contacts


General Characteristics	Standard	Value
Number of contacts		5
Termination technique		crimp
Wire gauge		0.5 - 4.0 mm <sup>2</sup> (AWG 20 - 12)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	400 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II
Rated impulse withstand voltage	IEC 60664-1	6.0 kV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 2 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Cu-alloy
Contact plating		Ag (silver)

## Derating Curves



# heavy|mate® M 5 contacts module + crimp contacts

Description	Part Number	Drawing	Figure
<b>5 contacts module (Please order contacts separately)</b>			
Pin module	C146 A05 001 E8		
Socket module	C146 B05 001 E8		

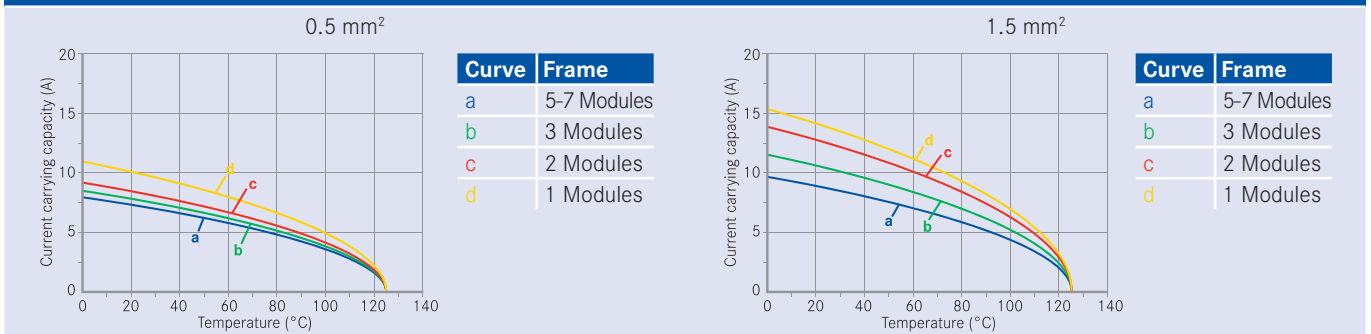
Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 2.5 mm crimp contacts single contact</b>						
silver plating	0.5 mm <sup>2</sup>	20	100	VN01 025 0029 1C	VN02 025 0029 1C	
	0.75 - 1.0 mm <sup>2</sup>	18	100	VN01 025 0030 1C	VN02 025 0030 1C	
	1.5 mm <sup>2</sup>	16	100	VN01 025 0031 1C	VN02 025 0031 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 025 0032 1C	VN02 025 0032 1C	
	4.0 mm <sup>2</sup>	12	100	VN01 025 0033 1C	VN02 025 0033 1C	

## Tools





Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Removal tool for contacts	-	-	-	FG 0300 146 4
Removal tool for modules	-	-	-	FG 1000 146
Crimping tool for single contacts	0.5 - 2.5 mm <sup>2</sup>	TA 0010 146 000 2	TA 0000 144	TA 0000
	4.0 mm <sup>2</sup>	TA 0010 146 000 3	TA 0000 124	
Further tools see catalogue "Tools"				

General Characteristics	Standard	Value
Number of contacts		10
Termination technique		crimp
Wire gauge		0.14 - 2.5 mm <sup>2</sup> (AWG 26 - 14)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	400 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II
Rated impulse withstand voltage	IEC 60664-1	6.0 KV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 5 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Male contacts		CuZn (brass)
Female contacts		CuSn (bronze)
Contact plating		Ag (silver)

**Derating Curves**




# heavy|mate® M 10 contacts module + crimp contacts

Description	Part Number	Drawing	Figure
<b>10 contacts module (Please order contacts separately)</b>			
Pin module	C146 D10 001 E8		
Socket module	C146 C10 001 G8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	

### Stamped 1.6 mm single contact

silver plating	0.14 - 0.5 mm <sup>2</sup>	26 - 20	100	VN01 016 0003 1	VN02 016 0003 1	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	100	VN01 016 0002 1	VN02 016 0002 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	VN01 016 0005 1	VN02 016 0005 1	
gold plating	0.14 - 0.5 mm <sup>2</sup>	26 - 20	100	VN01 016 0003 2	VN02 016 0003 2	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	100	VN01 016 0002 2	VN02 016 0002 2	
	1.5 - 2.5 mm <sup>2</sup>	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 <sup>2</sup>	26 - 20	200	ZN01 016 0003 1	ZN02 016 0003 1	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	200	ZN01 016 0002 1	ZN02 016 0002 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	ZN01 016 0005 1	ZN02 016 0005 1	
silver plating High current	0.5 - 1.5 mm <sup>2</sup>	20 - 16	200	ZN01 016 0015 1	ZN02 016 0015 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	100	ZN01 016 0016 1	ZN02 016 0016 1	
gold plating Standard	0.14 - 0.5 mm <sup>2</sup>	26 - 20	200	ZN01 016 0003 2	ZN02 016 0003 2	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	200	ZN01 016 0002 2	ZN02 016 0002 2	
	1.5 - 2.5 mm <sup>2</sup>	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 <sup>2</sup>	26 - 20	2000	TN01 016 0003 1	TN02 016 0003 1	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	2000	TN01 016 0002 1	TN02 016 0002 1	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	2000	TN01 016 0005 1	TN02 016 0005 1	
silver plating High current	0.5 - 1.5 mm <sup>2</sup>	20 - 16	2000	TN01 016 0015 1	TN02 016 0015 1	
	1.5 - 2.5 mm <sup>2</sup>	18 - 14	2000	TN01 016 0016 1	TN02 016 0016 1	
gold plating Standard	0.14 - 0.5 mm <sup>2</sup>	26 - 20	2000	TN01 016 0003 2	TN02 016 0003 2	
	0.5 - 1.5 mm <sup>2</sup>	20 - 16	2000	TN01 016 0002 2	TN02 016 0002 2	
	1.5 - 2.5 mm <sup>2</sup>	16 - 14	2000	TN01 016 0005 2	TN02 016 0005 2	

### Tools

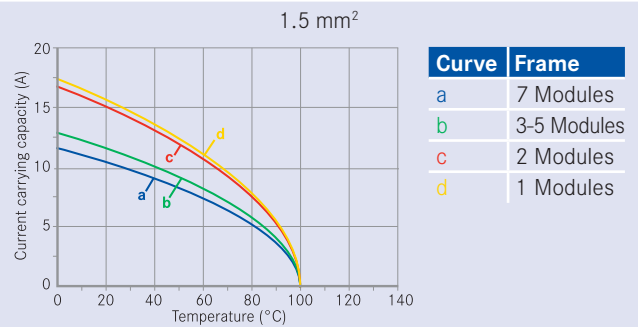
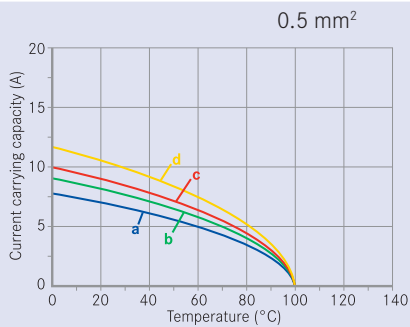
Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Removal tool for contacts/ modules	-	-	-	FG 0300 146 1 / FG 1000 146
Service crimping tool	0.14 - 0.5 mm <sup>2</sup> 0.5 - 1.5 mm <sup>2</sup>	-	-	TA 0100 146
Crimping tool for single contacts	0.14 - 0.5 mm <sup>2</sup>	TA 0001 146 000 1	TA 0000 202	TA 0000
	0.5 - 1.5 mm <sup>2</sup>	TA 0002 146 000 1	TA 0000 163	
	1.5 - 2.5 mm <sup>2</sup>	TA 0007 146 000 3	TA 0000 141	

Further tools see catalogue "Tools"

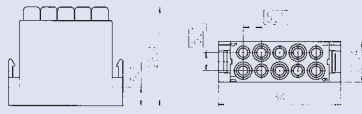

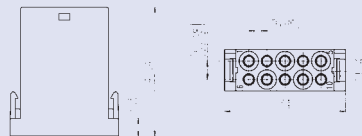

# heavy|mate® M Characteristics 10 contacts module for turned contacts



General Characteristics	Standard	Value
Number of contacts		10
Termination technique		crimp
Wire gauge		0.14 - 2.5 mm <sup>2</sup> (AWG 26 - 14)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	400 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II (PA)
Rated impulse withstand voltage	IEC 60664-1	6.0 kV
Current carrying capacity	IEC 60512-5-2	siehe Derating Kurven
Contact resistance	IEC 60512-2-1	≤ 5 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> Ω
Climatical Characteristics		
Climatic category	IEC 60068-1	40 / 100 / 21
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 Steckzyklen
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		CuZn (brass)
Contact plating		Ag (silver)

## Derating Curves



# heavy|mate® M 10 contacts module + crimp contacts

Description	Part Number	Drawing	Figure
<b>10 contacts module (Please order contacts separately)</b>			
Pin module	C146 A10 001 E8		
Socket module	C146 B10 001 E8		

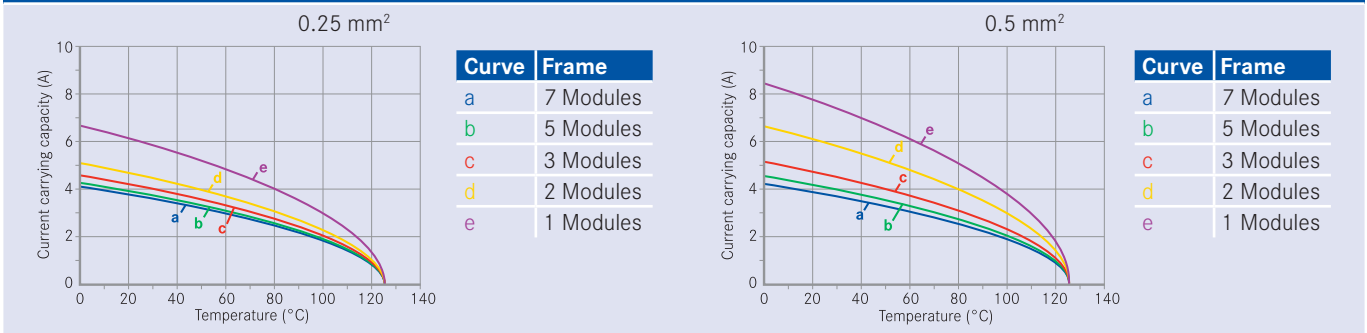
Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 1.6 mm crimp contacts single contact</b>						
silver plating	0.14 - 0.37mm <sup>2</sup>	26 - 22	100	VN01 016 0024 1C	VN02 016 0024 1C	
	0.5 mm <sup>2</sup>	20	100	VN01 016 0025 1C	VN02 016 0025 1C	
	0.75 - 1.0 mm <sup>2</sup>	20 - 16	100	VN01 016 0026 1C	VN02 016 0026 1C	
	1.5 mm <sup>2</sup>	16 - 15	100	VN01 016 0027 1C	VN02 016 0027 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 016 0028 1C	VN02 016 0028 1C	
gold plating	0.14 - 0.37mm <sup>2</sup>	26 - 22	100	VN01 016 0024 2C	VN02 016 0024 2C	
	0.5 mm <sup>2</sup>	20	100	VN01 016 0025 2C	VN02 016 0025 2C	
	0.75 - 1.0 mm <sup>2</sup>	20 - 16	100	VN01 016 0026 2C	VN02 016 0026 2C	
	1.5 mm <sup>2</sup>	16 - 15	100	VN01 016 0027 2C	VN02 016 0027 2C	
	2.5 mm <sup>2</sup>	14	100	VN01 016 0028 2C	VN02 016 0028 2C	
<b>FO contacts</b>						
single contact	1.0 mm POF	-	10	VN01 016 0040 8 X	VN02 016 0040 8 X	

Tools					
Description	for wire gauge	Part Number			Tool
		Contact locator	Crimping dies		
Removal tool for contacts	-	-	-	-	FG 0300 146 1
Removal tool for modules	-	-	-	-	FG 1000 146
Crimping tool for single contacts	0.14 - 1.0 mm <sup>2</sup> 1.5 mm <sup>2</sup> 2.5 mm <sup>2</sup>	TA 0010 146 000 1	TA 0000 184		TA 0000
Crimping tool for FO contacts <sup>1)</sup>	1.0 mm POF/FO	-	-	-	TB 0500 146

Further tools see catalogue "Tools"

General Characteristics	Standard	Value
Number of contacts		20
Termination technique		crimp
Wire gauge		0.09 - 0.5 mm <sup>2</sup> (AWG 28 - 20)
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	63 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II (PA)
Rated impulse withstand voltage	IEC 60664-1	4.0 KV
Current carrying capacity	IEC 60512-5-2	see derating curves
Contact resistance	IEC 60512-2-1	≤ 5 mΩ
Insulation resistance	IEC 60512-3-1	≥ 10 <sup>10</sup> 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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Male contacts		CuZn (brass)
Female contacts		CuSn (bronze)
Contact plating		Au (gold)

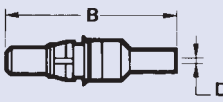
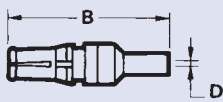
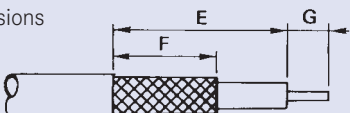
**Derating-Kurven**



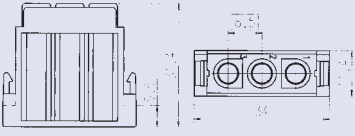

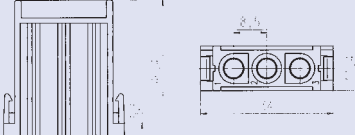




# heavy|mate<sup>®</sup> M Characteristics 3 contacts module for coax contacts

General Characteristics	Standard	Value
Number of contacts		3
Termination technique		crimp, solder
Flammability	UL 94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	250 V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	III
Material group	IEC 60664-1	II
Impedance		50 Ω
Working frequency		2 GHz
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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		redbrown
Contact plating		Au (gold)

Contact dimensions		Part Number	B	D	E	F	G
Male contact		17 DM 537 401	23.6	1.7	7.9	6.3	2
Female contact		17 DM 537 421	23.6	1.7	7.9	6.3	2
		17 DM 537 405	26.3	3.2	9.5	7.9	2
Stripping dimensions		17 DM 537 425	26.3	3.2	9.5	7.9	2

# heavy|mate® M 3 contacts module for coax contacts + crimp contacts

Description	Part Number	Drawing	Figure
<b>3 contacts module for coax contacts (Please order contacts separately)</b>			
Pin module	C146 A03 501 E8		
Socket module	C146 B03 501 E8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Single contacts <sup>1)</sup></b>						
	RG 174, 179, 316		1	17 DM 537 401	17 DM 537 421	
	RG 58		1	17 DM 537 405	17 DM 537 425	

<b>Tools</b>						
Description	for cable size	6-hex-size in mm			Part Number	
					Crimping dies	Tool
Removal tool for contacts	-	-	-	-	-	FG 0300 146 3
Removal tool for modules	-	-	-	-	-	FG 1000 146
Crimping tool for single contacts	RG 58	5.4	(6.5)	(1.7)	TA 0000 401	TA 0000
	RG 174, 179, 316	3.25	(4.5)	(1.7)	TA 0000 402	TA 0000
Further tools see catalogue "Tools"						

## Brief information

- For integration of standard RJ45 components
- Worldwide real-time access on machines and facilities
- Easy assembly through the use of standard RJ45 components
- One connector for power, signal and data transmission
- 4 additional power crimp contacts
- Time- and money saving through the use of similar active- and passive components
- Unitary transmission protocol in the office- and production environment.
- Meets CAT 5 for Ethernet acc. ISO/IEC 11801

General Characteristics	Standard	Value module	Value RJ45
Number of contacts		4	8
Termination technique		crimp	mate
Wire gauge		0.14 - 2.5mm <sup>2</sup>	
Flammability	UL 94	V-0	V - 0
Electrical Characteristics			
Rated voltage	IEC 60664-1	400 V AC	125 V AC
Rated impulse withstand voltage	IEC 60664-1	6 kV	1.8 kV
Current carrying capacity	IEC 60512-5-2	13 A <sup>1)</sup>	1.5 A
Contact resistance	IEC 60512-2-1	≤ 5 mΩ	≤ 20 mΩ
Insulation resistance	IEC 60512-3-1	10 <sup>10</sup> Ω	5 <sup>9</sup> Ω
Climatical Characteristics			
Upper temperature	IEC 60512-11-9	+ 100 °C	+ 80 °C
Lower temperature	IEC 60512-11-10		- 20 °C
Mechanical Characteristics			
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles	≥ 500 mating cycles
Materials			
Module		PA 6.6 GF	
Colour module		black	black
Male contacts		CuZn (brass)	CuSn (bronze)
Female contacts		CuZn (brass)	CuSn (bronze)
Contact plating		Ag (silver)	Au (gold)

# heavy|mate<sup>®</sup> M RJ module + crimp contacts

Description	Part Number	Drawing	Figure
<b>RJ module</b>			
Pin module	C146 E12 001 E8		
Socket module	C146 F12 001 G8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 1.6 mm single contacts</b>						
silver plating	0.14 - 0.37 mm <sup>2</sup>	26 - 22	100	VN01 016 0024 1C	VN02 016 0024 1C	
	0.5 mm <sup>2</sup>	20	100	VN01 016 0025 1C	VN02 016 0025 1C	
	0.75 - 1.0 mm <sup>2</sup>	20 - 16	100	VN01 016 0026 1C	VN02 016 0026 1C	
	1.5 mm <sup>2</sup>	16 - 15	100	VN01 016 0027 1C	VN02 016 0027 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 016 0028 1C	VN02 016 0028 1C	
gold plating	0.14 - 0.37 mm <sup>2</sup>	26 - 22	100	VN01 016 0024 2C	VN02 016 0024 2C	
	0.5 mm <sup>2</sup>	20	100	VN01 016 0025 2C	VN02 016 0025 2C	
	0.75 - 1.0 mm <sup>2</sup>	20 - 16	100	VN01 016 0026 2C	VN02 016 0026 2C	
	1.5 mm <sup>2</sup>	16 - 15	100	VN01 016 0027 2C	VN02 016 0027 2C	
	2.5 mm <sup>2</sup>	14	100	VN01 016 0028 2C	VN02 016 0028 2C	

**Brief information**

- Power, signal and pneumatic within a single connector
- Very stable brass contacts
- Pneumatic socket contacts with barrier, closes when the connector is open
- Available with single or double connections
- Connection for 2.5 mm or 4 mm PTFE (Teflon)-tubes
- Tubes can be disassembled from the terminations

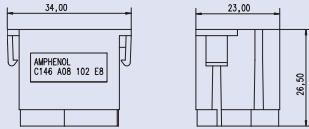

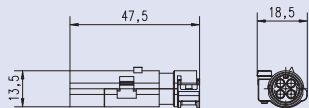

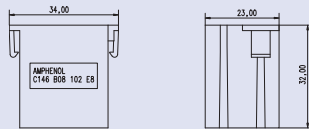

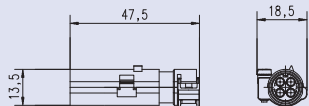

General Characteristics	Standard	Value
Number of contacts		1 / 2
Termination technique		tube termination
Wire gauge		2.5 mm / 4.0 mm
Flammability	UL 94	V-0
Technical Characteristics		
Operating pressure		8 bar with PTFE tube
Operating path		4.0 mm
Locking		locking on one side
Pneumatic tube		only use PTFE tubes <sup>1)</sup>
Climatical Characteristics		
Upper temperature		+100 °C
Lower temperature		- 20 °C
Mechanical Characteristics		
Mechanical operation		5000 mating cycles
Materials		
Module		PA 6.6 GF
Colour module		black
Contacts		Brass MS 58


Description	Part Number	Drawing	Figure
<b>Pneumatic module</b>			
Pin module	C146 G01 014 G8 (2.5 mm) C146 G01 024 G8 (4.0 mm)		
Socket module	C146 H01 034 G8 (2.5 mm) C146 H01 044 G8 (4.0 mm)		
Pin module	C146 G02 014 G8 (2.5 mm) C146 G02 024 G8 (4.0 mm)		
Socket module	C146 H02 034 G8 (2.5 mm) C146 H02 044 G8 (4.0 mm)		

## heavy|mate<sup>®</sup> M Characteristics Shielded module

General Characteristics	Standard	Value
Number of contacts		2X4
Termination technique		crimp
Wire gauge		0.14 – 2.5 mm <sup>2</sup> (AWG 26-14)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	50V
Pollution degree	IEC 60664-1	3
Installation (overvoltage) category	IEC 60664-1	3
Material group	IEC 60664-1	3b
Rated impulse withstand voltage	IEC 60664-1	0.8 kV
Current carrying capacity	IEC 60512-5-2	10A
Contact resistance	IEC 60512-2-1	≤ 5mΩ
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		
Mechanical operation	IEC 60512-9-1	≥ 500 mating cycles
Materials		
Module		PC
Colour module		grey
Contacts		Cu-alloy
Contact plating		Au (gold)

# heavy|mate® M Shielded module + crimp contacts

Description	Part Number	Drawing	Figure
<b>Contact insert 2x4 contacts (Please order contacts separately)</b>			
Pin module	C146 A08 102 E8		
Male contact carriers 4 contacts	C146 A05 100 G8		
Socket module	C146 B08 102 E8		
Female contact carriers 4 contacts	C146 B05 100 G8		

Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 1.6mm crimp contacts</b>						
Single contacts	0.14 – 0.37 mm <sup>2</sup>	26-22	100	VN01 016 0024 2C	VN02 016 0024 2C	
	0.5 mm <sup>2</sup>	20	100	VN01 016 0025 2C	VN02 016 0025 2C	
	0.75 – 1.0 mm <sup>2</sup>	20-16	100	VN01 016 0026 2C	VN02 016 0026 2C	
	1.5 mm <sup>2</sup>	16-15	100	VN01 016 0027 2C	VN02 016 0027 2C	
	2.5 mm <sup>2</sup>	14	100	VN01 016 0028 2C	VN02 016 0028 2C	

Tools				
Description	for wire gauge	Part Number		
		Contact locator	Crimping dies	Tool
Crimping tool	-	-	-	TA 0000 oder TA 0500
Crimping dies	-	-	-	TA 00000 184
Contact locator	-	-	-	TA 0010 146 000 1
Removal tool for contacts	-	-	-	FG 0300 146 1

Further tools see catalogue "Tools"

Contact size	Part Number	Figure
1.0 mm	17D 438 SP	
1.6 mm	FG 0300 146 1	
2.5 mm turned	FG 0300 146 4	
2.5 mm stamped	FG 0200 146 1	
3.6 mm	FG 0300 146 3	

Contact size	Part Number	Figure
Removal tool for modules	FG 1000 146	
Blank modules	C146 A00 001 E8 (pin) C146 B00 001 E8 (socket)	
Module coupler	C146 10Z000 002 8	
Assembly angle	C146 10Z001 001 8	
Strain relief	C146 10Z002 001 8	