




## heavy | mate<sup>®</sup> Q

- Compact design
- Even in a metal housing
- Rated voltage up to 690 V
- Numbers of contacts: 5 + PE, 4/2 + PE, 7 + PE, 8 + PE, 12 + PE, 17 + PE

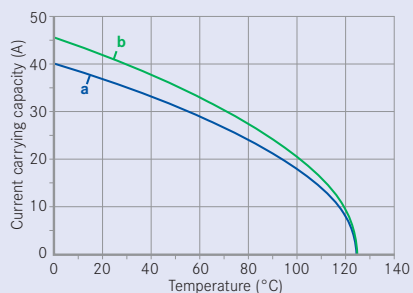


Approvals, Testhouse	Characteristics	Approval-Number
UL 	In preparation	In preparation
CSA 	In preparation	In preparation

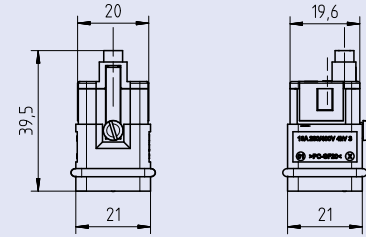

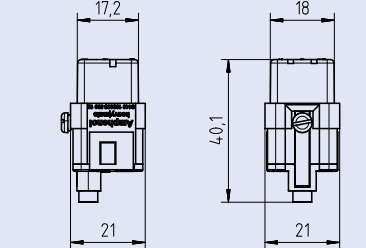


## heavy|mate® Q Characteristics contact inserts 5 + PE

General Characteristics	Standard	Value
Number of contacts		5 + PE
Termination technique		crimp
Wire gauge		0.5 – 4.0 mm <sup>2</sup> (AWG 20-12)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	400 V (conductor – conductor) 230 V (conductor – earth)
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	6 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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver) /Au (gold)

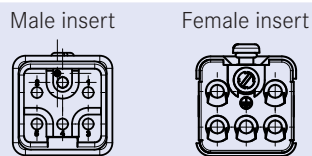
### Derating Curves



Curve	Wire gauge
a	4.0 mm <sup>2</sup>
b	6.0 mm <sup>2</sup>

Description	Part Number	Drawing	Figure
<b>Contact insert 5 +PE (Please order contacts separately)</b>			
Male insert	C146 10A005 500 12		
Female insert	C146 10B005 500 12		
<b>Coding element</b>			
Coding element	N17 045 000 1		

**Contact arrangement**



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 0035 1C	VN02 025 0035 1C	
	0.75 - 1.0 mm <sup>2</sup>	18	100	VN01 025 0036 1C	VN02 025 0036 1C	
	1.5 mm <sup>2</sup>	16	100	VN01 025 0037 1C	VN02 025 0037 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 025 0038 1C	VN02 025 0038 1C	
	4.0 mm <sup>2</sup>	12	100	VN01 025 0039 1C	VN02 025 0039 1C	
gold plating	0.5 mm <sup>2</sup>	20	100	VN01 025 0035 2C	VN02 025 0035 2C	
	0.75 - 1.0 mm <sup>2</sup>	18	100	VN01 025 0036 2C	VN02 025 0036 2C	
	1.5 mm <sup>2</sup>	16	100	VN01 025 0037 2C	VN02 025 0037 2C	
	2.5 mm <sup>2</sup>	14	100	VN01 025 0038 2C	VN02 025 0038 2C	
	4.0 mm <sup>2</sup>	12	100	VN01 025 0039 2C	VN02 025 0039 2C	

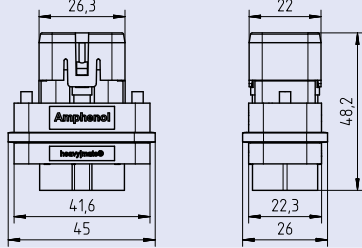

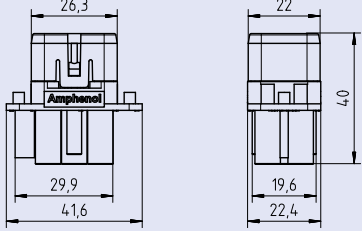

## heavy|mate® Q Characteristics contact inserts 4/2 + PE

General Characteristics	Standard	Value
Number of contacts		4/2 + PE
Termination technique		crimp
Wire gauge		1.5 – 6.0 mm <sup>2</sup> (AWG 16-10)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	Power: 400 V (Leiter - Erde) 690 V (Leiter - Leiter) Signal: 250 V
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	6 kV / 4 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>12</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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver)

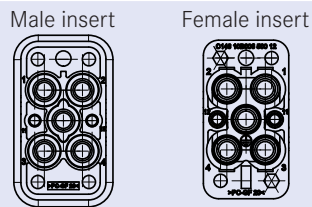
### Derating Curves

In preparation

**AVAILABLE  
FROM Q4/2013**

Description	Part Number	Drawing	Figure
<b>Contact insert 4/2 +PE (Please order contacts separately)</b>			
Male insert	C146 10A006 500 12		
Female insert	C146 10B006 500 12		

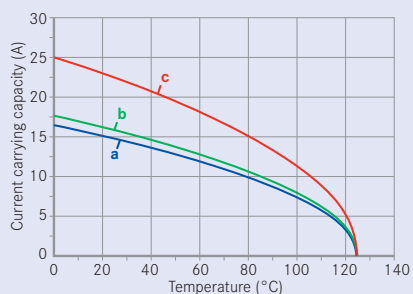
**Contact arrangement**



Supplied as	for wire gauge	AWG	Pieces	Part Number		Figure
				Male contact	Female contact	
<b>Turned 4 mm crimp contacts single contact</b>						
silver plating	1,5 mm <sup>2</sup>	16	100	VN01 040 0010 1C	VN02 040 0010 1C	
	2,5 mm <sup>2</sup>	14	100	VN01 040 0011 1C	VN02 040 0011 1C	
	4 mm <sup>2</sup>	12	100	VN01 040 0012 1C	VN02 040 0012 1C	
	6 mm <sup>2</sup>	10	100	VN01 040 0013 1C	VN02 040 0013 1C	
<b>Turned 1.6 mm crimp contacts single contact</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	

General Characteristics	Standard	Value
Number of contacts		7 + PE
Termination technique		crimp
Wire gauge		0.14 – 2.5mm <sup>2</sup> (AWG 26-14)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	400V
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	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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver) /Au (gold)

### Derating Curves



Curve	Wire gauge
a	0.75 mm <sup>2</sup>
b	1.5 mm <sup>2</sup>
c	2.5 mm <sup>2</sup>

Description	Part Number	Drawing	Figure
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Contact insert 7 + PE (Please order contacts separately)			
Male insert	C146 10A007 500 12		
Female insert	C146 10B007 500 12		

**Coding element**

Male insert	N17 059 000 1		
Female insert	N17 059 000 2		

**Contact arrangement**



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

Turned 1.6 mm crimp contacts single contact						
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	

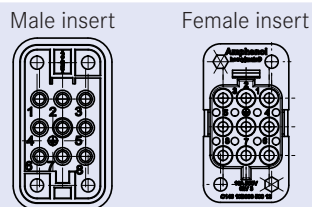
## heavy|mate® Q Characteristics contact inserts 8 + PE

General Characteristics	Standard	Value
Number of contacts		8 + PE
Termination technique		crimp
Wire gauge		0.5 – 4.0 mm <sup>2</sup> (AWG 20-12)
Flammability	UL94	V-0
Electrical Characteristics		
Rated voltage	IEC 60664-1	500 V
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	6 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>12</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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver) /Au (gold)
Derating Curves		
In preparation		

**AVAILABLE  
FROM Q4/2013**

Description	Part Number	Drawing	Figure
<b>Contact insert 8 + PE (Please order contacts separately)</b>			
Male insert	C146 10A008 500 12		
Female insert	C146 10B008 500 12		
<b>Coding element</b>			
Coding element	N17 045 000 1		

**Contact arrangement**



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 0035 1C	VN02 025 0035 1C	
	0.75 - 1.0 mm <sup>2</sup>	18	100	VN01 025 0036 1C	VN02 025 0036 1C	
	1.5 mm <sup>2</sup>	16	100	VN01 025 0037 1C	VN02 025 0037 1C	
	2.5 mm <sup>2</sup>	14	100	VN01 025 0038 1C	VN02 025 0038 1C	
	4.0 mm <sup>2</sup>	12	100	VN01 025 0039 1C	VN02 025 0039 1C	
gold plating	0.5 mm <sup>2</sup>	20	100	VN01 025 0035 2C	VN02 025 0035 2C	
	0.75 - 1,0 mm <sup>2</sup>	18	100	VN01 025 0036 2C	VN02 025 0036 2C	
	1.5 mm <sup>2</sup>	16	100	VN01 025 0037 2C	VN02 025 0037 2C	
	2.5 mm <sup>2</sup>	14	100	VN01 025 0038 2C	VN02 025 0038 2C	
	4.0 mm <sup>2</sup>	12	100	VN01 025 0039 2C	VN02 025 0039 2C	

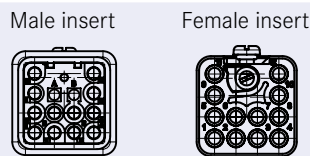
## heavy|mate® Q Characteristics contact inserts 12 + PE

General Characteristics	Standard	Value
Number of contacts		12 + PE
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	400 V
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	6 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>12</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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver) /Au (gold)
Derating Curves		
In preparation		

**AVAILABLE  
FROM Q4/2013**

Description	Part Number	Drawing	Figure
<b>Contact insert 12 +PE (Please order contacts separately)</b>			
Male insert	C146 10A012 500 12		
Female insert	C146 10B012 500 12		
<b>Coding element</b>			
Coding element	N17 028 000 1		

**Contact arrangement**



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 - 0.37 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	

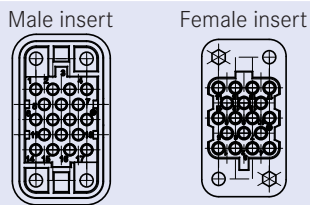
## heavy|mate® Q Characteristics contact inserts 17 + PE

General Characteristics	Standard	Value
Number of contacts		17 + PE
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	250 V
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	4 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>12</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		
Insert		PC
Colour insert		grey
Contacts		Cu-alloy
Contact plating		Ag (silver) /Au (gold)
Derating Curves		
In preparation		

**AVAILABLE  
FROM Q4/2013**

Description	Part Number	Drawing	Figure
<b>Contact insert 17 +PE (Please order contacts separately)</b>			
Male insert	C146 10A017 500 12		
Female insert	C146 10B017 500 12		

**Contact arrangement**



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 - 0.37 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	

General Characteristics	Standard	Value
Protection class housing		IP65
Locking system	DIN EN 175 301-801 (DIN 43 652)	locking levers
Salt mist resistance	IEC 60512-11-6:2002	>500h
Climatical Characteristics		
Climatic category	IEC 60068-1	40 / 125 / 21
Temperature range	IEC 60068-1	- 40 °C / + 125 °C
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		
Housings		PA 6.6
Rubber gasket		NBR
Locking lever		PA 6.6
Colour		black

**AVAILABLE  
FROM Q4/2013**

Description	M	Part Number	Drawing	Figure
<b>Hoods</b>				
Hood top entry	25	C146 10R008 606 12		
<b>Housings</b>				
Housing bulkhead mounting		C146 10F008 001 12		