Amphenol

Amphenol-Tuchel Electronics GmbH

eco|mate m

Circular Connectors

|mate by Amphenol

The Company

Amphenol-Tuchel Electronics GmbH is a member of the USA based Amphenol Corporation. With our own global presence we offer our customers exceptional technical support and worldwide service in the areas of development, production and distribution. Amphenol-Tuchel Electronics GmbH has a successful history as a partner to our customers and sets standards for connector technology.

Quality

From the beginning of the development process, Amphenol-Tuchel Electronics GmbH gives quality considerations the top priority. Meeting customer requirements is the main focus of the product development process.
Interdisciplinary project teams with diverse backgrounds from marketing, product engineering and production guarantee the development and production of robust and reliable connector solutions.
Our quality assessment begins with the initial contact to the customer and extends through the life of the product. A satisfied customer is the measure of our success.
We strive to use environmentally friendly processes that minimize the waste of natural resources and introduction of toxins into the environment.

Certi cations: TS 16949
ISO 14001
ISO 9000:2000

General information

We reserve the right to change the design due to improvement in quality, development or production requirements.

This catalogue must not be used in any form or manner without our prior approval in writing (Copyright Law, Fair Trading Law, Civil Code).

This release replaces all former releases.

eco|mate is a registered trademark.
Usage or modification is not allowed without written permission of Amphenol-Tuchel.

eco|mate m

r Ċ=¨Ġ cable screw connection with clamping ring
r Ċ Strain relief and mounted gasket all in one component
r Ċ*Ā½ÜØÜÓĖs[ÏÏĞĊăÅ[ë¨}ĊÅ[Ø}Ï¨Ċ¶ÜĀĊ a better grip and safer handling
r ĊO[ăĊ¨ØĖØ¼£¶ÜĀĊĊÅ¨ĊëĀÜĊ¨sĊĖë¨Ċs[ëăĊ on the receptacle housing
r Ċ?Ø¨Ċs[iÏ¨ĊÅÜĕăĖØ½£¶ÜĀĊ[ÏÏĊs[iÏ¨ĊĊ Ċ Ċ diameters (6 mm - 12,5 mm)

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Product Description

In design and conception the eco|mate m program meets the high requirements for applications in industrial technology. Easy operation, reduced dimensions and a more robust design are only a few of the features of the series.

The connector s main area of application is in the fields of plant construction and machine building. The connector is used for measuring and controlling applications as well as for power supply.
technology. The series is comprised of a large selection of housings and shapes and offers models with screw, solder and crimp termination.

Features:

- r ĊCircular Connectors with 3+PE and 6+PE contacts
- r Ċ2ÜĕăÈØ½ĊsÜÓëÜØ¨ØČăĊÓ[}¨Ċ¶ĀÜÓĊëĀ¨ÓÈĕÓĊÓÜÏ}ÈØ½ĊÓ[Č¨ĀÈ[ÏĊ Ċ
- r Ċ'[iÏ¨ĊÅÜĕăÈØ½ĊăČĀ[È½ÅČĊÜĀĊ[Ø½Ï¨}Ċ
- r ĊGĀÜČ¨sČÈÜØĊsÏ[ăăĊ3GĊĈ¸ĊĈćĊÈØĊÓ[Č¨}ĊsÜØ}ÈČÈÜØĊÈØĊ[ssÜĀ}[Øs¨ĊĜÈČÅĊ)3=Ċ*=ĊĈĤ¸ēĈĊ Ċ
- r Ċ'Ï[ÓëÈØ½ĊĀÈØ½ĊÜĀĊÈØČ¨ĀØ[ÏĊăČĀ[ÈØĊĀ¨ÏÈ¨¶

Advantages:

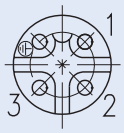
- r Quick and easy assembly
- r ĊJsĀ¨Ĝ¨}Ċs[iÏ¨Ċ½Ï[Ø}ĊĜÈČÅĊsÏ[ÓëÈØ½ĊĀÈØ½ĊĊ Ċ Ċ Ċ
- r ĊJČĀ[ÈØĊĀ¨ÏÈ¨¶Ċ[Ø}ĊÓÜĕØČ¨}Ċ½[ăÎ¨ČĊ[ÏÏĊÈØĊÜØ¨ĊsÜÓëÜØ¨ØČĊ
- r Ċ'[iÏ¨ĊÅÜĕăÈØ½zĊăČĀ[È½ÅČĊÜĀĊ[Ø½Ï¨}zĊ¶ÜĀĊČÅ¨Ċs[iÏ¨Ċ}È[Ó¨Č¨ĀĊĈĊçĊã¨z¸ĊÓÓĊ
- r ĊIÜiĕăČĊČÅĀ¨[}Ċ¶ÜĀĊČÅ¨ĊăsĀ¨Ĝ¨}Ċs[iÏ¨Ċ½Ï[Ø}Ċ
- r Ċ*Ā½ÜØÜÓÈs[ÏÏĞĊ}¨ăÈ½Ø¨}ĊëĀÜ}ĕsČĊĀ[Ø½¨Ċ¶ÜĀĊă[¶¨ČĊÅ[Ø}ÏÈØ½
- r Pre-loaded ground contact
- r Fastening for the protective caps on the housing of the receptacles
- r ĊLÅ¨ĊĊeco|mateĊĊĊëĀÜ½Ā[ÓĊÈăĊsÜÓë[ČÈiÏ¨ĊĜÈČÅĊČÅ¨Ċ'ãĈçãĊă¨ĀÈ¨ăĊ

Additional standards:

- r ĊLÅ¨ĊĈóG*ĊÓÜ}¨ÏĊsÜĀĀ¨ăëÜØ}ăĊČÜĊ)3=ĊÙĈ®»ÇãĊÈØČ¨Ā¶[s¨ĊČÜĊČÅ¨Ċă½Ø[ÏĊ transmission on inside cabin applications for agricultural machines and tractors

Testhouse		Characteristics
VDE		3+PE, 400 V, 16 A 6+PE, 250 V, 10 A (solderversion) 6+PE, 250 V, 13 A (crimpversion)
SEV		3+PE, 400 V, 16 A 6+PE, 250 V, 10 A (solderversion) 6+PE, 250 V, 13 A (crimpversion)
UL [1]		3+PE, 400V, 16A 6+PE, 250V, 13A
CSA		3+PE, 250 V, 12 A 6+PE, 250 V, 8 A

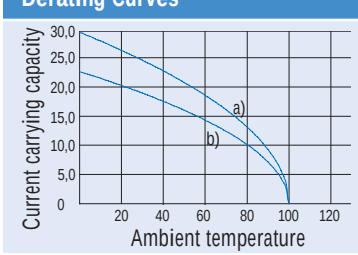
In general approvals refer to versions of the connector series. Test report upon request.
[1] Please refer to Conditions of Acceptability

General Characteristics	Standard	Characteristics		
=ěÓ i ¨ĂĊÜ¶ĊsÜØĊ[sĊă		3 + PE	6 + PE	
View on male mating side				
Electrical Characteristics		screw type	solder type	crimp type
I [Ċ¨}ĊěÜÏĊ[½¨	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	400 V	250 V	250 V
I [Ċ¨}ĊĖÓëěÏă¨ĊĜĖĊĂăĉ[Ø}ĊěÜÏĊ[½¨	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	6000 V	4000 V	
Pollution degree	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	3	3	
Installation (overvoltage) category	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	III	III	
Material group	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	II	II	
Current carrying capacity	)3=Ċ*=ĊĈĤ¸ãēÇ¸ÇēzĊL¨ăĊĊ¸ i	16 A / + 55 °C	12 A/ + 55 °C	13 A / + 55 °C
Insulation resistance	)3=Ċ*=ĊĈĤ¸ãēÇĎÇăzĊL¨ăĊĊĎ[	Ø 10^8 T	Ø 10^8 T	
Contact resistance	)3=Ċ*=ĊĈĤ¸ãēzĊL¨ăĊĊē[	Ω 5 m T	Ω 5 m T	
Climatic Characteristics				
Climatic category	)3=Ċ*=ĊĈĤĤĈ®Çã	40 / 100 / 56	40 / 125 / 56	
Operating temperature		-40°C ... +100°C	-40°C ... +125°C	
Mechanical Characteristics				
Degree of protection	)3=Ċ*=ĊĈĤ¸ēÙ	3GĊĈ¸ĊĊĊ3GĊĈć		
Insertion and withdrawal force	)3=Ċ*=ĊĈĤ¸ãēÇãĎÇēzĊL¨ăĊĊãĎ i	ΩĊã¸Ċ=	ΩĊĎĤĊ=	
Mechanical operation	)3=Ċ*=ĊĈĤ¸ãēzĊL¨ăĊĊÙ[	Ø 500 mating cycles		
Materials				
Housing material		PA 6.6 / PA 6		
Dielectric material		PA 6.6 / PA 6		
Gasket material		=¨ÜëĀ¨Ø		
Material lace for protective cap		TPE		
Contact plating		silver plated / gold plated		
Other Characteristics				
Termination technique		screw	solder	crimp
Wire gauge / AWG		Ĥzć¸ĊÇĊēz¸ĊÓÓ[2] AWG 18-14	Ó[ĝăĊĤzć¸ĊÓÓ[2] AWG 18	0,14 - 1,5 mm[2] AWG 26 - 16
Flammability	UL 94	VO		
Locking system		round thread		

[1] Ċ)3=Ċ*=ĊĈĤĈĈ»Çãĉ≙ VDE 0110-1 ≙ IEC 60664-1

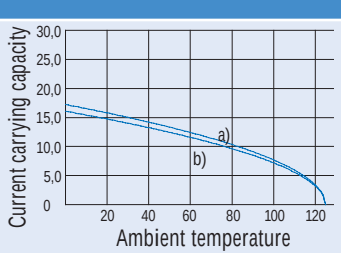
The stated technical values refer to the use as connector without breaking capacity (COC). If these components are used as plug and socket device a reduced current carrying capacity has to be considered. The characteristics have to be requested from the manufacturer.

Derating Curves



No. of contacts 3 + PE

all contacts under load
a) wire gauge 2,5 mm†
b) wire gauge 1,5 mm†



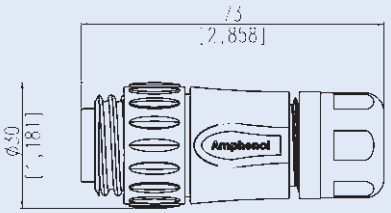
No. of contacts 6 + PE

all contacts under load
a) wire gauge 1,5 mm[2], stamped crimp contacts
i ĨĊĜĖĀ¨Ċ½[ě½¨ĊĤzć¸ĊÓÓ[2], stamped solder contacts

Male cable connector straight

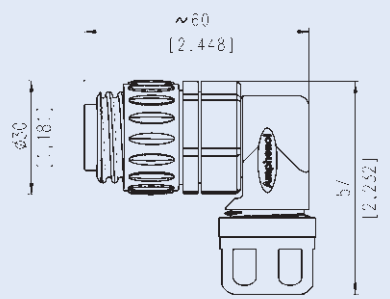
Version strain relief with clamping ring: 6 - 12,5 mm

Version with internal strain relief and clamping ring: 6 - 10 mm



No. of contacts	Termination technique	Back shell color	Part number Strain relief with clamping ring Contact plating		Part number Internal strain relief + clamping ring Contact plating	
			Silver plated	Gold plated	Silver plated	Gold plated
3 + PE	screw	blue	C016 20H003 100 10	C016 20H003 200 10	C016 20H003 110 10	C016 20H003 210 10
3 + PE	screw	black	C016 20H003 100 12	C016 20H003 200 12	C016 20H003 110 12	C016 20H003 210 12
6 + PE	solder	blue	C016 30H006 100 10	C016 30H006 200 10	C016 30H006 110 10	C016 30H006 210 10
6 + PE	solder	black	C016 30H006 100 12	C016 30H006 200 12	C016 30H006 110 12	C016 30H006 210 12
6 + PE	crimp[1]	blue	C016 10H006 000 10	C016 10H006 000 10	C016 10H006 010 10	C016 10H006 010 10
6 + PE	crimp[1]	black	C016 10H006 000 12	C016 10H006 000 12	C016 10H006 010 12	C016 10H006 010 12

Male cable connector right angled, strain relief with clamping ring cable diameter 6 - 12,5 mm

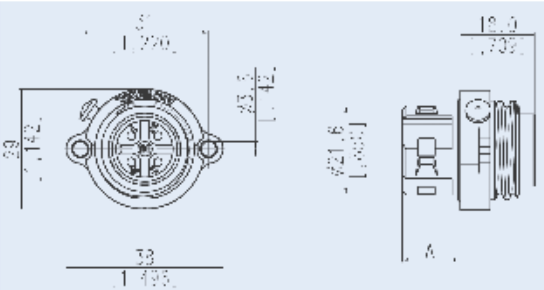


No. of contacts	Termination technique	Back shell color	Part number Strain relief with clamping ring Contact plating	
			Silver plated	Gold plated
3 + PE	screw	blue	C016 20K003 100 10	C016 20K003 200 10
3 + PE	screw	black	C016 20K003 100 12	C016 20K003 200 12
6 + PE	solder	blue	C016 30K006 100 10	C016 30K006 200 10
6 + PE	solder	black	C016 30K006 100 12	C016 30K006 200 12
6 + PE	crimp[1]	blue	C016 10K006 000 10	C016 10K006 000 10
6 + PE	crimp[1]	black	C016 10K006 000 12	C016 10K006 000 12

Female receptacle, screw termination (3+PE), solder termination or crimp version (6+PE)

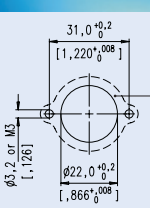
Dimension A

Screw version:	13,5 mm
Solder version:	12,5 mm
Crimp version:	16,5 mm



No. of contacts	Termination technique	Back shell color	Part number Contact plating	
			Silver plated	Gold plated
3 + PE	screw	black	C016 20G003 100 12	C016 20G003 200 12
6 + PE	solder	black	C016 30G006 100 12	C016 30G006 200 12
6 + PE	crimp[1]	black	C016 10G006 000 12	C016 10G006 000 12

Mounting cut-out[2]



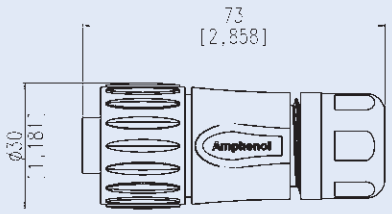
For sealing reason this surface needs to be level and free of burrs.

[1] Crimp contacts see page 10 / Crimp tooling see catalogue Tools .
[2] ¢<ÜëØ¢Ëø½¿ÂÜÏ¨¢E¢ëë¢GÈ¢ÂÜë¢¢sÅ[Ó¶¨Ãz¢ãëè¢[ïÏ¨¢ã¨[ÏÈø½¿¶ÜÃ¢ãsÃ¨Gã¢Ëã¢Ø¨s¨ãã[ÃGÈ¢LÈ½Å¢¨ØÈø½¿¢ÜÃõë¨¢Hz®=Óð

Female cable connector straight

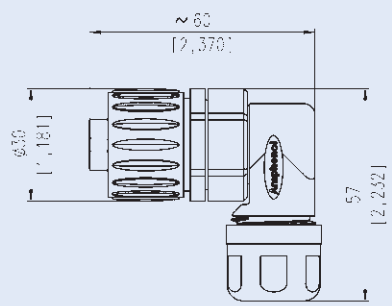
Version strain relief with clamping ring: 6 - 12,5 mm

Version with internal strain relief and clamping ring: 6 - 10 mm



No. of contacts	Termination technique	Back shell color	Part number Strain relief with clamping ring Contact plating Silver plated	Gold plated	Part number Internal strain relief + clamping ring Contact plating Silver plated	Gold plated
3 + PE	screw	blue	C016 20D003 100 10	C016 20D003 200 10	C016 20D003 110 10	C016 20D003 210 10
3 + PE	screw	black	C016 20D003 100 12	C016 20D003 200 12	C016 20D003 110 12	C016 20D003 210 12
6 + PE	solder	blue	C016 30D006 100 10	C016 30D006 200 10	C016 30D006 110 10	C016 30D006 210 10
6 + PE	solder	black	C016 30D006 100 12	C016 30D006 200 12	C016 30D006 110 12	C016 30D006 210 12
6 + PE	crimp[1]	blue	C016 10D006 000 10	C016 10D006 000 10	C016 10D006 010 10	C016 10D006 010 10
6 + PE	crimp[1]	black	C016 10D006 000 12	C016 10D006 000 12	C016 10D006 010 12	C016 10D006 010 12

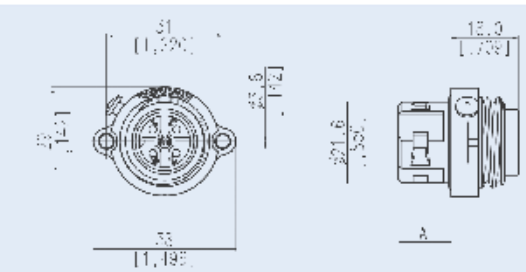
Female cable connector right angled, strain relief with clamping ring cable diameter 6 - 12,5 mm



No. of contacts	Termination technique	Back shell color	Part number Strain relief with clamping ring Contact plating Silver plated	Gold plated
3 + PE	screw	blue	C016 20F003 100 10	C016 20F003 200 10
3 + PE	screw	black	C016 20F003 100 12	C016 20F003 200 12
6 + PE	solder	blue	C016 30F006 100 10	C016 30F006 200 10
6 + PE	solder	black	C016 30F006 100 12	C016 30F006 200 12
6 + PE	crimp[1]	blue	C016 10F006 000 10	C016 10F006 000 10
6 + PE	crimp[1]	black	C016 10F006 000 12	C016 10F006 000 12

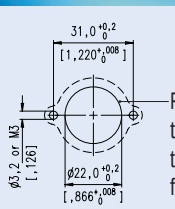
Male receptacle, screw termination (3+PE), solder termination or crimp version (6+PE)

Dimension A
Screw version: 14,0 mm
Solder version: 12,0 mm
Crimp version: 16,5 mm



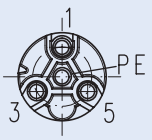
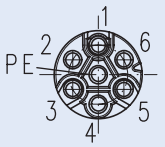
No. of contacts	Termination technique	Back shell color	Part number Contact plating Silver plated	Gold plated
3 + PE	screw	black	C016 20C003 100 12	C016 20C003 200 12
6 + PE	solder	black	C016 30C006 100 12	C016 30C006 200 12
6 + PE	crimp[1]	black	C016 10C006 000 12	C016 10C006 000 12

Mounting cut-out[2]



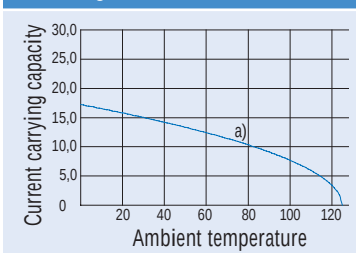
For sealing reason this surface needs to be level and free of burrs.

[1] Crimp contacts see page 10 / Crimp tooling see catalogue Tools .
[2]) Mounting hole Ø 22 without chamfer, suitable sealing for screws is necessary. LÈ½ÅĆ¨ØÈØ½ćĆÜÄõě¨ĆĤz®Ć=Ó∂

General Characteristics	Standard	Characteristics	
=ěÓ i ¨ÄĊÜ¶ĊsÜØĊ[sĊă		3 + PE	6 + PE
View on male mating side			
Electrical Characteristics		crimp type	
I [Ċ¨}ĊěÜÏĊ[½¨	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	600 V	
I [Ċ¨}ĊĖÓëěÏä¨ĊĜĖĊÅäĊ[Ø}ĊěÜÏĊ[½¨	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	6000 V	
Pollution degree	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	3 (mated)	
Installation (overvoltage) category	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	III	
Material group	)3=Ċ*=ĊĈĤĈĈ»Çãĉ[1]	II	
Current carrying capacity	)3=Ċ*=ĊĈĤ¸ãēÇ¸ÇēzĊL¨äĊĊ¸ i	14 A / + 40 °C	
Insulation resistance	)3=Ċ*=ĊĈĤ¸ãēÇĎÇäzĊL¨äĊĊĎ[	Ø 10^8 T	
Contact resistance	)3=Ċ*=ĊĈĤ¸ãēzĊL¨äĊĊē[	Ω 5 m T	
Climatic Characteristics			
Climatic category	)3=Ċ*=ĊĈĤĤĈ®Çã	40 / 125 / 56	
Operating temperature		-40°C ... +125°C	
Mechanical Characteristics			
Degree of protection	)3=Ċ*=ĊĈĤ¸ēÙ	IP 65	
Insertion and withdrawal force	)3=Ċ*=ĊĈĤ¸ãēÇãĎÇēzĊL¨äĊĊäĎ i	ΩĊĎ¸Ċ=	
Mechanical operation	)3=Ċ*=ĊĈĤ¸ãēzĊL¨äĊĊÙ[	Ø 500 mating cycles	
Materials			
Housing material		PA 6.6 / PA 6	
Dielectric material		PA 6.6 / PA 6	
Gasket material		=¨ÜëÄ¨Ø	
Contact plating		silver plated / gold plated	
Other Characteristics			
Termination technique		crimp	
Wire gauge / AWG		0,14 - 1,5 mm² AWG 26 - 16	
Flammability	UL 94	VO	
Locking system		round thread	

[1] Ċ)3=Ċ*=ĊĈĤĈĈ»Çãĉ≙ VDE 0110-1 ≙ IEC 60664-1

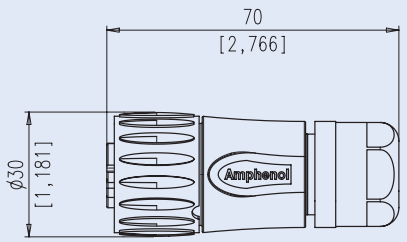
The stated technical values refer to the use as connector without breaking capacity (COC). If these components are used as plug and socket device a reduced current carrying capacity has to be considered. The characteristics have to be requested from the manufacturer.

Derating Curves	Testhouse	Characteristics
 **No. of contacts 6 + PE** all contacts under load a) wire gauge 1,5 mm², stamped crimp contacts	UL [1]	3+PE, 600 V, 13 A bei AWG 16 3+PE, 600 V, 5 A bei AWG 26 6+PE, 600 V, 13 A bei AWG 16 6+PE, 600 V, 5 A bei AWG 26

In general approvals refer to versions of the connector series. Test report upon request.

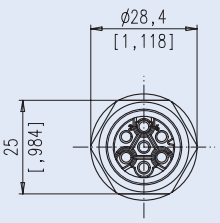
[1] Please refer to Conditions of Acceptability

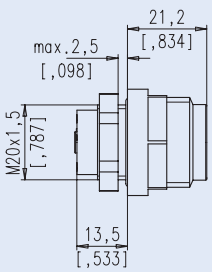
Female cable connector straight,
with clamping ring,
cable diameter 6 - 12,5 mm



No. of contacts	Termination technique	Back shell color	Part number Strain relief with clamping ring
3 + PE	crimp	black	C016 10D003 806 12
6 + PE	crimp[1)]	black	C016 10D006 806 12

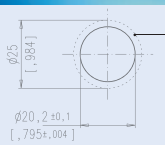
Male receptacle,
crimp version





No. of contacts	Termination technique	Back shell color	Part number
3 + PE	crimp	black	C016 10P003 806 12
6 + PE	crimp[1)]	black	C016 10P006 806 12

Mounting cut-out



For sealing reason this surface needs to be level and free of burrs.

[1)] Crimp contacts see page 10 / Crimp tooling see catalogue Tools .
[2)] LÈ½ÅĈ¨ØÈØ½ĉĈÜÄõĕ¨ĉ»ĉÇ¸ĉ=Ó∂

* standard dust cups don t t on high voltage versions special caps upon request
* Thread size M20 x 1,5 [2)]
* If turn protection is required, we recommend to glue receptacles

Stamped single contacts

Stamped contacts on reel
for hand crimping tools
200 pcs.

Stamped contacts on reel for crimping machines
2000 pcs. feeds to the right

2000 pcs. feeds to the left

Crimp Contacts, Pin for Standard Versions

Contact Ø in mm	Insulation Ø in mm	No. of contacts	Wire gauge	Supplied as	Pieces	Part number Contact plating	
						Silver plated	Gold plated
1,6	1,0 - 2,0	6 + PE	0,14 - 0,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=
1,6	1,8 - 2,8	6 + PE	0,5 - 1,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=

Crimp Contacts, Pin for High Voltage Versions

Contact Ø in mm	Insulation Ø in mm	No. of contacts	Wire gauge	Supplied as	Pieces	Part number Contact plating	
						Silver plated	Gold plated
1,6	1,0 - 2,0	6 + PE	0,14 - 0,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=
1,6	1,8 - 2,8	6 + PE	0,5 - 1,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=

Crimp Contacts, Socket for Standard and High Voltage Version

Contact Ø in mm	Insulation Ø in mm	No. of contacts	Wire gauge	Supplied as	Pieces	Part number Contact plating	
						Silver plated	Gold plated
1,6	1,0 - 2,0	6 + PE	0,14 - 0,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=
1,6	1,8 - 2,8	6 + PE	0,5 - 1,5 mm²	Single contact		S=	S=
						Y=	Y=
						2=	2=
						L=	L=

Find our tools in the catalogue Tools .