Workplace Solutions

Secure. Precise. Simple.

Crimping tools designed for your application

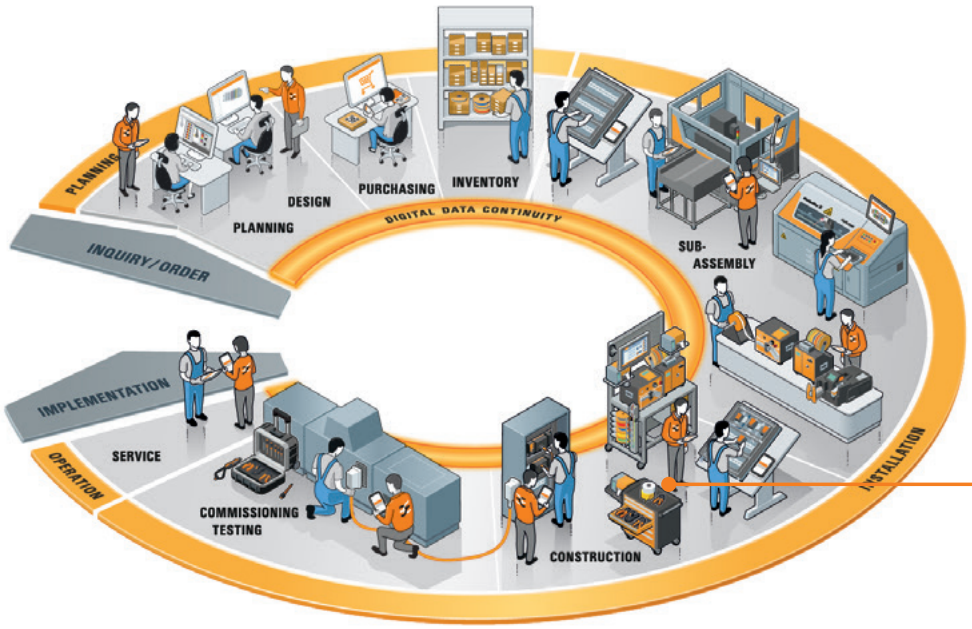
Weidmüller

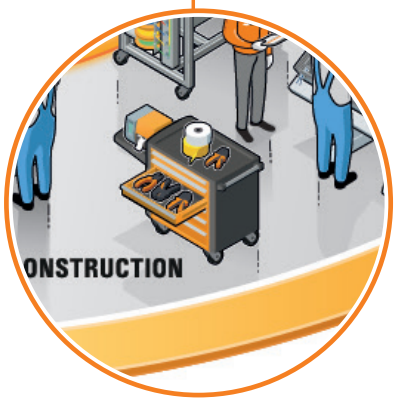
Workplace Solutions

Optimise work processes in panel building with complete solutions for the workshop

With Weidmüller, you have a strong partner by your side to support you in all work phases with perfectly coordinated solutions for your workshop. Based on many years of practical experience in panel building, we offer a comprehensive portfolio to effectively speed up your processes and increase your quality.

When it comes to products, at Weidmüller we have been developing and manufacturing specialist tools to meet the most stringent requirements for over 40 years. When we develop new products, we always have one goal in mind: to make your job easier, to optimise workflows and to help protect the long-term productivity of your business. With our selection of crimping tools, we offer you the right crimp shape for every type of connection. This allows you to create reliable, durable and stable crimped connections of the highest quality for the desired cross-section. .





Discover your optimisation potential now:
www.weidmueller.com/workplace

Crimping – a permanent connection

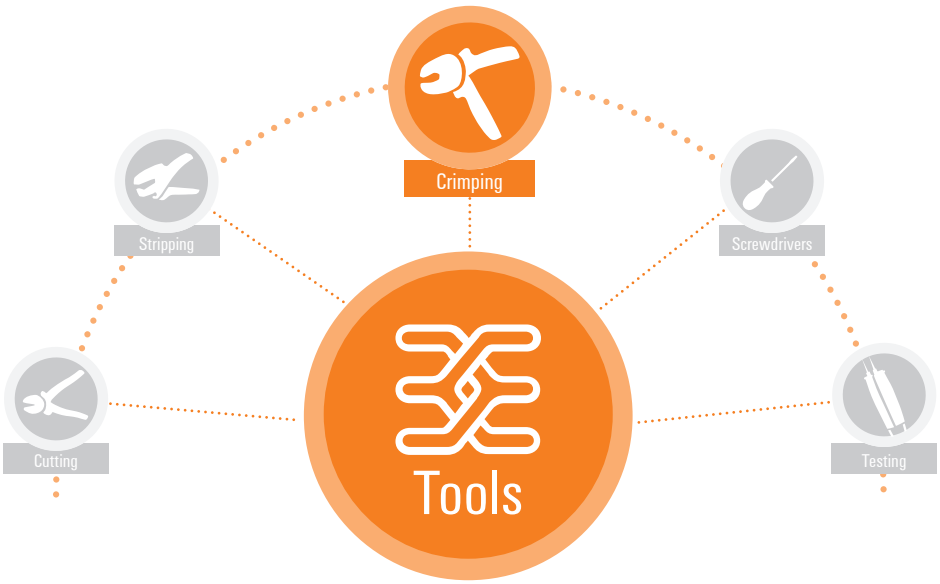
High-precision tools for perfect connections

Crimping is a joining process that connects two components with each other by a defined pressing process. The method forms a secure connection between the conductor and contact and has largely replaced the soldering process.

The most important task when crimping is to prevent crimping errors and thereby achieve homogeneous crimped connections. The production of a quality crimp not only requires manual skill, but also coordinated crimping tools and wire-end ferrules. International standards and regulations, such as DIN EN 60352-2, are essential quality criteria for perfect crimped connections. Tensile strength achievement and the prevention of typical crimping errors play a major role. The advantages of crimped connections are also listed quite explicitly.

Advantages of crimp connections:

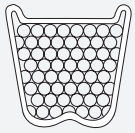
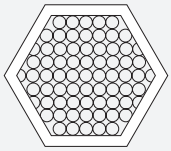
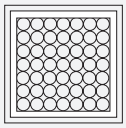
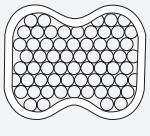
- Efficient manufacture of connections on any production scale.
- Processing with fully or semi-automatic crimping machines or manual crimping tools.
- No cold solder joints.
- The spring characteristics of the spring contacts are not affected by soldering heat.
- Conductor flexibility behind the crimped connection is maintained.
- No burnt, discoloured or overheated conductor insulation.
- Good connections with reproducible electrical and mechanical values.
- Easy monitoring of production.



A coordinated system for your applications

Typical press shapes for wire-end ferrules

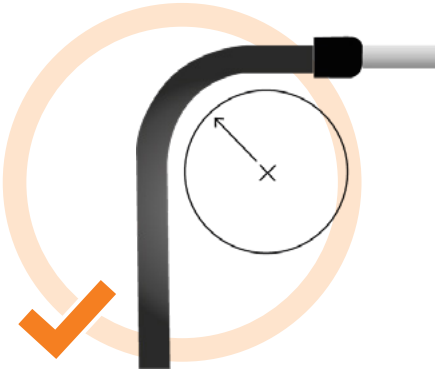
There is a wide range of press shapes available on the market for crimping wire-end ferrules. It is not possible to specify in general which is the most suitable press shape. Each press shape offers individual advantages as well as disadvantages. These must be weighed up in relation to their subsequent application.

Crimping shape	pros and cons	
 Trapezoidal crimp shape	+ Low deformation under load in the contact point. + Smooth continuous surface. - No neutral insertion direction.	
 Hexagonal crimp shape	+ Neutral position due to virtually circular cross-section. + Ideal for circular connection compartments. - No smooth surface.	
 Square crimp shape	+ Maximum contact area. + Ideal for square connection compartments. - No smooth surface.	
 WM crimp shape	+ Minimal deformation under load in the contact point. + Smooth continuous surface. + Press shape corresponds with EN 60947-1. - Position is not neutral.	

Area of application for wire-end ferrules with plastic collars
Technical information

Wire-end ferrules are designed to protect the individual strands of a conductor. This prevents unwanted damage, kinking of individual strands or fraying of the entire conductor. The inside of the plastic collar on the wire-end ferrule is cone-shaped to make it easier to insert the strands into the ferrule. It also prevents the angular conductor insulation edges from getting caught in the insertion funnel of the contact point.

Risk of breakage due to overload



correct bending radius

What is important is that the plastic collar of the wire-end ferrule does not offer any anti-kink protection, as is usually the case with insulated cable lugs for example. The plastic collar also does not provide any mechanical insulation support and must therefore not be subjected to excessive bending or tension. For this reason, the relevant standards must be observed during installation. According to DIN VDE 0298-300, cables may only be laid within a certain bending radius. For example, for PVC insulated cables with conductor diameters of ≤ 20 mm, this equates to six times the conductor diameter. In practice, this means that no significant tension may be applied to the AEH plastic collar.

Standards and approvals

Weidmüller wire-end ferrules

Weidmüller crimping tools

Approval

Crimping process and preparatory measures
The way to the perfect connection

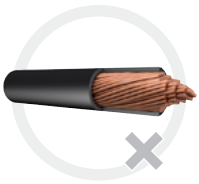
Cutting

The process chain for cable processing always starts with cutting the conductor. It is important to ensure that a clean, square and above all crush-free cut is made.

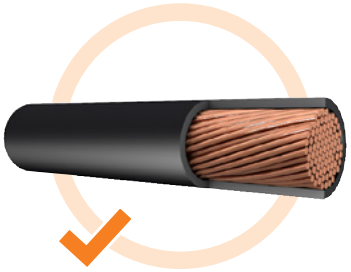
TOOL TIP: Weidmüller KT 8 (9002650000)

Sheared-off conductor

Pulled out conductor



Crushed cable

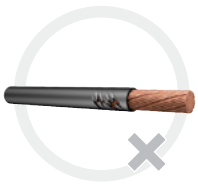


Example of a clean cut

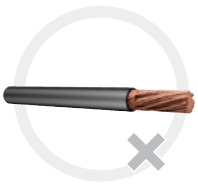
Stripping

After cutting the conductor, it is prepared for crimping. First, a predetermined length of insulation is removed without damaging the conductor. The subsequent contact point or the wire-end ferrule to be processed determines how much of the conductor insulation needs to be removed. Care must also be taken here to make sure that the cable is stripped to a high quality standard. Stripping errors that must be avoided are listed in DIN IEC 60352-2.

TOOL TIP: Weidmüller stripax® (9005000000)

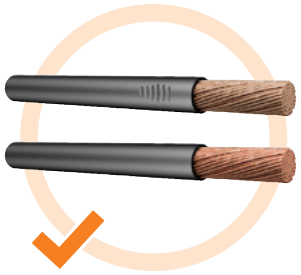


Damaged conductor insulation



Damaged or cut-off individual wires

Excessively twisted individual wires



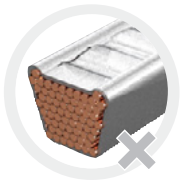
Correctly stripped conductor

The crimping process

After stripping the insulation, a suitable contact or wire-end ferrule can be crimped onto the end of the cable. Steps:

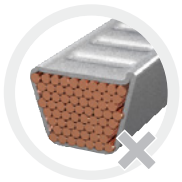
- Push the wire-end ferrule onto the conductor as far as it will go
- Conductor must protrude out of the ferrule, but no more than 1 mm
- Place the tool directly behind the plastic collar
- Crimp over the entire length of the sleeve. Do this in two steps if necessary

TOOL TIP: Weidmüller PZ 6 Roto L (1444050000)

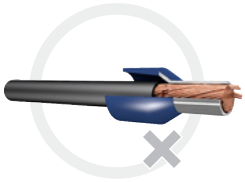


Formation of cracks at the sides.
Sides split open

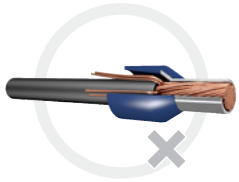
Formation of cracks at the impressions of the crimping jaw



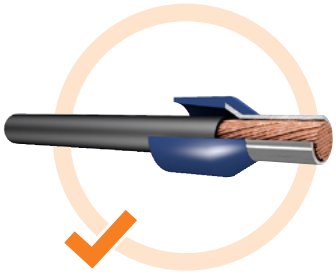
Asymmetrical crimping shape
Burr formation on one side



Single conductor
squeezed off



Single conductor
pushed back



Conductor strands protruding out of the copper tube

Further error patterns that must be avoided during crimping:

- Sleeve not filled by conductor.
- Plastic collar damaged by crimping jaw.
- Conductor insulation is not pushed into the plastic collar.
- Wire-end ferrule is bent in longitudinal direction after crimping.

Weidmüller Service

A reliable partner even after your purchase

Weidmüller offers a wide range of services relating to our manual tools, automatic machines and printers.
When it comes to crimping tools, it is essential that the quality of the crimped connection is checked on a regular basis in order to avoid expensive failures during operation later down the line.

Weidmüller contacts and the corresponding tools are perfectly matched. However, the conductor to be crimped represents an unknown variable in the crimped connection due to the different construction types and fluctuating actual cross-sections. Weidmüller tools and contacts can compensate for most fluctuations in the conductor. However, crimped connections with exotic conductors in particular should be carefully checked at the beginning.

Weidmüller supports you with a range of certification services:

Certification when reordering	Prior to delivery, we arrange for your new tool to be certified by production-independent bodies and additional tests. Afterwards we guarantee the quality of our tool with a letter and seal.
Recertification	Has your tool been in use for a long time and you want to make sure that it still meets all standards? Send it to our Service department and we will test it thoroughly.
Process monitoring	Do you want to secure your process without having to send in your tools on a regular basis for recertification? Not a problem. All you have to do is crimp sample conductors and send these to us. We then check the crimping quality for you.

Different standards require different extraction forces. A short overview of the most important standards can be found here:

mm^2	0.2	0.34	0.5	0.75	1	1.5	2.5	4	6	10	16	25	35
AWG	24	22	20	18	-	16	14	12	10	8	6	4	2
DIN 60999-1 DIN 60947-1 DIN 46228-1/4	10 N	15 N	20 N	30 N	35 N	40 N	50 N	60 N	80 N	90 N	100 N	135 N	190 N
UL 486 F	20 N	20 N	20 N	30 N	35 N	40 N	50 N	60 N	80 N	90 N	100 N	135 N	190 N
DIN 60352-2	28 N	40 N	60 N	85 N	108 N	150 N	230 N	310 N	360 N	380 N			

On the right side with Weidmüller

A German family business with the highest quality standards

As a German family business, our claim is to offer the highest quality, constant innovation and total reliability.

State-of-the-art production methods, specialist expertise and a passion for our products have laid the foundation for us to produce professional, high-quality tools and marking systems that are „made in Germany“ for more than 40 years.

100% premium quality

- Premium products „Made in Germany“ for over 40 years
- Certifications and approvals always up-to-date and according to all relevant standards
- Perfect combination of tools and products from a single source

Our goal

Products are usually only as good as the tool with which they are machined.
This is why at Weidmüller, everything fits together. From terminal block assembly to the installation of sensitive electronic components – we have the right tool for all applications.

In this way, we would like to help you to make your work easier while increasing your profitability.

Standards and approvals
UL certification according to UL 486F

Approvals and industrial standards generally serve to standardise industrial products and are of great importance for the global market. They are generally considered a basic requirement for being able to offer and sell products internationally.
UL approval is characterised - as the name suggests - by the fact that it is an approval and not a pure standard. The difference lies in the proof. While the fulfilment of norms and standards is often confirmed by the manufacturers themselves, UL has its own testing laboratories and only awards UL approval after extensive tests. Wire-end ferrules, for example, are always tested in the system with their processing tool in accordance with UL 486 F. The ferrule + processing tool receive a joint approval after successfully passing the test.

Standards and approvals

Weidmüller Wire end ferrules | Weidmüller Crimping tools | Approval

Every end user can check for themselves whether their material and tools used are certified by UL. UL has an online certification directory that contains all listed, classified or recognised products and components.
The directory can be accessed at https://productiq.ulprospector.com/de. The E-number concerning Weidmüller, which applies to hand tools in connection with the processing of wire-end ferrules, is: E499744.

In terms of content, UL 486 F for wire-end ferrules is very close to the German DIN 4.....
The most important technical details, the similarities and the differences are listed in the following table.

Further technical details can be found in our Technical Information:

www.weidmueller.com/crimping-whitepaper

Differences and similarities

UL 486 F and DIN 46228-4

	UL 486 F	DIN 46228-4
Cross-section range	AWG 26 - 1/0 (0,14 - 50 mm²)	0.5 - 50 mm² (AWG 20 - 1/0)
Dimensions, tolerances, identifying colours	Both standards are the same in terms of dimensions, tolerances, and identifying colours used on plastic sleeves.	
General	UL tests the wire end ferrule as part of a system, with appropriate tools	Necessary crimping tools are not standardized; therefore testing of the crimped wire end ferrule is not required, however a test can be agreed to. In this case, the test methods indicated below apply.
Test methods	Tensile testing Mould load test Dielectric strength testing	Dimensional inspection Tensile testing
Pull-off forces		

AWG	mm²	DIN 60999-1 DIN 60947-1 DIN 46228-1/4*	UL 486 F
26	0.14	-	7 N
24	0.2	10 N	10 N
22	0.34	15 N	15 N
20	0.5	20 N	20 N
18	0.75	30 N	30 N
-	1	35 N	35 N
16	1.5	40 N	40 N
14	2.5	50 N	50 N
12	4	60 N	60 N
10	6	80 N	80 N
8	10	90 N	90 N
6	16	100 N	100 N
4	25	135 N	135 N
2	35	190 N	190 N
1	50	236 N	190 N

*Under DIN 46228-4, the pull-off forces apply only above 0.5 mm²

Wire end ferrules	**Copper sleeve:** must consist of at least 80% copper and be coated with tin **Plastic sleeve:** Identifying colours as specified in the standard, must fulfil one of the conditions indicated for flammability a) Minimum flammability classification of HB in accordance with UL 94 or CAN/CSA-C22.2 no. 0.17 b) Filament test in accordance with UL 746C or CSA C22.2 no. 0.17 for a temperature of 650°C c) Flammability classification of SC-0, SC-1, SC-TC 0 or SC-TC 1 according to UL 1694	**Copper sleeve:** Cu-DHP or Cu-ETP according to DIN EN 12449:2016-11, tensile strength Rm min. 250 N/mm², electroplated with tin, layer thickness of at least 3 µm **Plastic sleeve:** Plastic moulding compound selected by the manufacturer, identifying colour as specified by the standard
Temperatures	Polymer material must have a minimum relative thermal index of 80°C.	The plastic sleeve must be suitable for a continuous temperature of at least 105°C
Labelling, marking and packaging	Smallest packing unit with the following information: • Manufacturer name, trademark, or trade name • Unique catalogue number or equivalent • Wire type. CU or copper • Stranding type (such as class B, C, ...) • Installation tool, manufacturer name, catalogue number • Stripping length	Smallest packing unit with the following information: • Name / origin designation of the manufacturer / supplier • Wire end ferrule standard designation

PZ 6 ROTO ADJ

World's first adjustable Crimping Tool

Simply efficient and comfortable crimping

With the new PZ 6 Roto ADJ, we have the first crimping tool with adjustable handle width in our product range. It reliably crimps wire-end ferrules with a cross-section of 0.14 to 6 mm² and can be optimally adapted to your individual preferences due to the rotatable crimping die and the adjustable handle width.

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required
- Only one crimp insert for the whole cross-section range
- A rotating crimp insert allows for wire-end ferrules to be inserted from the side or front
- Lockable die
- ~AWG 26...10

Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	0.14...6 mm²

Ordering data

Type	Qty.	Order No.
PZ 6 ROTO ADJ	1	2831380000
PZ 6 ROTO ADJ ZERT	1	2831390000

PZ 6 Roto L

0,14...6 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required
-
- Only one crimp insert for the whole cross-section range
- A rotating crimp insert allows for wire-end ferrules to be inserted from the side or front
- Lockable die
- ~AWG 26...10

Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	0.14...6 mm²

Ordering data

Type	Qty.	Order No.
PZ 6 ROTO L	1	1444050000
PZ 6 ROTO L ZERT	1	1527230000

stripax® plus 2.5

0,5 - 2,5 mm²

- 3 functions: cutting, stripping, crimping
- Wire-end ferrules with plastic collars, in compliance with DIN 46228 Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required
- Automatic conveyance of wire-end ferrules
- Quick adjustment for different cross-sections
- Easy handling of ferrule strips

- Processing of strips of linked wire-end ferrules of 0.5...2.5 mm² from Weidmüller
- ~AWG 20...14

Technical data

Description of contact	
Type of contact	Strips of linked wire-end ferrules
Crimping range	0.5...2.5 mm²
Crimping range 1 (with multiple crimping positions)	0.5...0.75 mm²
Crimping range 2 (with multiple crimping positions)	1...1.5 mm²
Crimping range 3 (with multiple crimping positions)	2.5 mm²

Ordering data

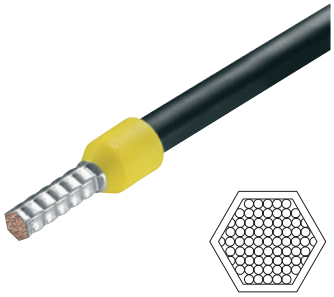
Type	Qty.	Order No.
STRIPAX PLUS 2.5	1	9020000000
STRIPAX PLUS 2.5 ZERT	1	9011980000

PZ 10 HEX

0,14...10 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Only one die for the whole cross-section range of 0.14... 10 mm²
- Side wire-end ferrule insertion with hexagon crimp shape
- ~AWG 26 ... 8



Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	0.14...10 mm²

Ordering data

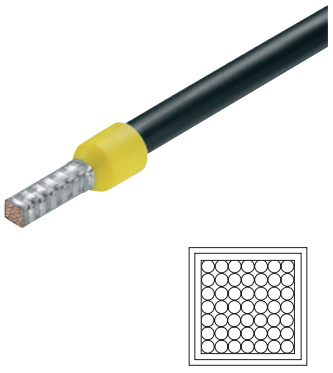
Type	Qty.	Order No.
PZ 10 HEX	1	1445070000
PZ 10 HEX ZERT	1	1989320000

PZ 10 SQR

0,14 ... 10 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Only one die for the whole cross-section range of 0.14... 10 mm²
- Side wire-end ferrule insertion with hexagon crimp shape
- ~AWG 26 ... 8



Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	0,14...10 mm²

Ordering data

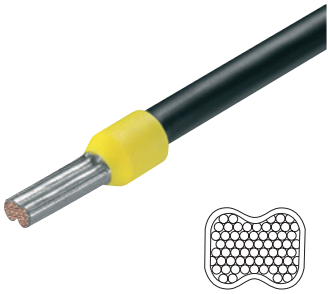
Type	Qty.	Order No.
PZ 10 SQR	1	1445080000
PZ 10 SQR ZERT	1	1989310000

PZ 6/5

0,25...6 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Crimp complies with Euro-Norm EN 60947-1
- Approval according to VG 95211 (military designation VG 95 236 T 14 B 002)
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Five crimping stations corresponding to the conductor cross-sections
- Wire-end ferrule insertion from the side
- ~AWG 24...10



Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	0.25...6 mm²
Crimping range 1 (with multiple crimping positions)	0.25 mm²...0.5 mm²
Crimping range 2 (with multiple crimping positions)	0.75 mm²...1.5 mm²
Crimping range 3 (with multiple crimping positions)	2.5 mm²
Crimping range 4 (with multiple crimping positions)	4 mm²
Crimping range 5 (with multiple crimping positions)	6 mm²

Ordering data

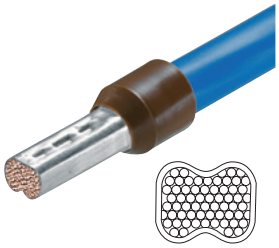
Type	Qty.	Order No.
PZ 6/5	1	**9011460000**
PZ 6/5 ZERT	1	**9017900000**

PZ 16

6...16 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Crimp complies with Euro-Norm EN 60947-1
- Approval according to VG 95211 (military designation VG 95 236 T 14 B 002)
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Three crimping stations corresponding to the conductor cross-sections
- Wire-end ferrule insertion from the side
- ~AWG 10...6



Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	6...16 mm²
Crimping range 1 (with multiple crimping positions)	6 mm²
Crimping range 2 (with multiple crimping positions)	10 mm²
Crimping range 3 (with multiple crimping positions)	16 mm²

Ordering data

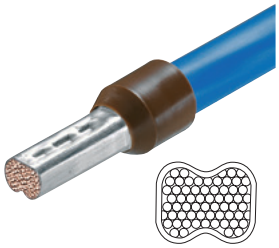
Type	Qty.	Order No.
PZ 16	1	**9012600000**
PZ 16 ZERT	1	**9017340000**

PZ 50

25...50 mm²

- For wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Approval according to VG 95211 (military designation VG 95 236 T 14 B 002)
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Three crimping stations corresponding to the conductor cross-sections
- Wire-end ferrule insertion from the side
- ~AWG 4...0



Technical data

Description of contact	
Type of contact	Wire-end ferrules with/without plastic collars
Crimping range	25...50 mm²
Crimping range 1 (with multiple crimping positions)	25 mm²
Crimping range 2 (with multiple crimping positions)	35 mm²
Crimping range 3 (with multiple crimping positions)	50 mm²

Ordering data

Type	Qty.	Order No.
PZ 50	1	9006450000
PZ 50 ZERT	1	9017400000

PZ ZH 16

Twin wire-end ferrules from 6...16 mm²

- For twin wire-end ferrules with and without plastic collars, according to DIN 46228 Part 1 and Part 4
- Ratchet for precise crimping
- Ergonomic handle design
- Minimal hand force required

- Three crimping stations corresponding to the conductor cross-sections
- Wire-end ferrule insertion from the side
- ~ AWG 10...6

Technical data

Description of contact	
Type of contact	Twin wire-end ferrules
Crimping range	6...16 mm²
Crimping range 1 (with multiple crimping positions)	6 mm²
Crimping range 2 (with multiple crimping positions)	10 mm²
Crimping range 3 (with multiple crimping positions)	16 mm²

Ordering data

Type	Qty.	Order No.
PZ ZH 16	1	9013600000
PZ ZH 16 ZERT	1	9013610000

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Benefit from our crimping competence

TT 864 RS WE

for RJ12 and RJ45
Order No: 9008120000

HTF 63

0.5...2.5 mm²
for F-plugs/sleeves
Order No. 9013400000

HTF RSV 16

for RSV and DSTV-HD contacts
AWG 26...16
Order No: 9017880000

CTI 6 G

0.5...6 mm²
for insulated connectors
Order No. 9202850000

HTF SUB-D

for SUB-D contacts
AWG 28...20
Order No: 9013260000

HTN 21

0.5...2.5 mm²
for insulated connectors
Order No. 9014610000

HTG 58/59

for coaxial connectors such as
BNC and TNC plugs
Order No. 9012020000

CTN 25 D 5

10...25 mm²
for cable lugs, acc. to DIN 46235
Order No. 9006230000

IE-CT-SC-POF

for SC/ST IP 20 and IP 67
connector
Order No. 9205340000

CTX CM 1.6/2.5

0.14...4 mm²
for HD, HE, ConCept M10 and M5
Order No. 9013400000

CTF PV WM4

2.5...6 mm²
for WM4, MC4 and SunCon4
Order No. 1222870000

HTX LWL

for fibre-optic connectors
Order No. 9011360000

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- Optimum integration into production processes
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- Quality „Made in Germany“ for different Conductor cross-sections

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- Simple function monitoring on the device
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