

Technical data sheet for Z+F wire ferrules

The materials of the wire ferrules manufactured by Zoller & Fröhlich GmbH, can be described as follows:

- Production: Made in Germany
- Hazardous Substances: The materials used for production are classified as not noxious
- Used materials:
 - Insulating Collar: Polypropylene-fluoropolymer (UL-File No. E111275)
 - Copper Tube: Copper (Cu-DHP)
 - Tin Plating: Galvanically tin-plated, shiny
- Additional materials: compliant with ROHS and WEEE directives 2011/65/EU, 2002/96/EG and 2003/11/EG as well as the REACH regulation (EG) no. 1907/2006
- Thermostability: heat resistant from -5° C up to +105° C
- Standards:
 - DIN 46228-4:1990
 - UL certificate
Certificate no. E333905 from the 1st August 2012
 - CSA-US / ANSI-UL, CSA-US certificate
Certificate no. 1176867 from the 19th September 2012
Master Contract no. 209623
 - Conflict minerals according to Sec. 1502 DFA

Kindly note that due to the fact that the substances mentioned above were not used in the production process, It is not possible to exclude that insignificant amounts are contained in the product. According to the specification of the suppliers, the absence of these substances is not proved by tests. Regarding RoHS, REACH and the conflict minerals the company Zoller & Fröhlich GmbH is in a constant dialogue with their suppliers in the supply chain. In addition to that our suppliers are committed by the legislator to inform us immediately, if the conformity cannot be guaranteed anymore.

Wangen im Allgäu, August 2014



Dr.-Ing. Christoph Fröhlich
Managing Director

i.A. Michael Hitz
Purchasing Manager



RoHS 
2011/65/EU

Technical data sheet for uninsulated wire ferrules

The materials of the uninsulated wire ferrules distributed by Zoller & Fröhlich GmbH can be described as follows:

- Production: Made in Germany
- Hazardous Substances: The materials used for production are classified as not noxious
- Used materials:
Copper Tube: Copper (Cu-DHP)
Tin Plating: Galvanically tin-plated, shiny
- Additional materials: compliant with ROHS and WEEE directives 2011/65/EU, 2002/96/EG and 2003/11/EG as well as the REACH regulation (EG) no. 1907/2006
- Thermostability: heat resistant up to +120° C
- Standards:
 - DIN 46228-1:1992
 - CSA-US / ANSI-UL, CSA-US certificate
Certificate no. 1176867 from the 19th September 2012
Master Contract no. 209623
 - ROHS and WEEE directives,
2011/65/EU, 2002/96/EG and 2003/11/EG
 - REACH regulation (EG) no. 1907/2006
 - Conflict minerals according to Sec. 1502 DFA

Kindly note that due to the fact that the substances mentioned above were not used in the production process, it is not possible to exclude that insignificant amounts are contained in the product.

According to the specification of the suppliers, the absence of these substances is not proved by tests.

Regarding RoHS, REACH and the conflict minerals the company Zoller & Fröhlich GmbH is in a constant dialogue with their suppliers in the supply chain. In addition to that our suppliers are committed by the legislator to inform us immediately, if the conformity cannot be guaranteed anymore.

Wangen im Allgäu, March 2014

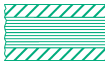


Dr.-Ing. Christoph Fröhlich
Managing Director



Korrekte Verwendung von Aderendhülsen Correct use of ferrules

**Richtig
right**



**Falsch
wrong**



schräger Schnitt
oblique cut



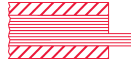
abgescherter Leiter
deformed wire



zurückstehender Leiter
wire standing back

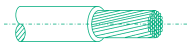


abgequetschter Leiter
squeezed wire



herausgezogener Leiter
wires sticking out

**Richtig
right**



**Falsch
wrong**



Isolation nicht richtig
eingeschnitten
Insulation not cut
correctly



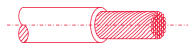
Reste der Isolation
auf dem Leiter
Remaining insulation
on the wire



Leiterisolation beschädigt
Insulation damaged



Einzellitzen beschädigt
oder abgeschnitten
Single strands cut or
damaged



Einzellitzen zu intensiv
verdrillt
Single strands twisted
too strongly



Einzellitzen nicht verdrillt
Single strands too straight

Crimpen

Hinweise zum Crimpen

Unter „Crimpen“ versteht man die Erstellung einer homogenen, nicht lösbaren Verbindung zwischen Leiter und Aderendhülse. Diese wird ausschließlich durch hochwertige Präzisionswerkzeuge und Maschinen erreicht. Das Resultat ist eine elektrisch und mechanisch sichere Verbindung. Die gängigsten nationalen und internationalen Normen werden bei Z+F Produkten berücksichtigt: DIN 46228 Teil 1 und 4, EN 60947-1, VG 95211, CSA-US-Zertifizierung und UL-Zertifizierung.

Schneiden

Hinweise zum Schneiden

Zuerst muss der Leiter durchtrennt werden. Ein glatter, gerader Schnitt ohne Leiterverformung ist der Grundstein für eine korrekte Weiterverarbeitung.

Cutting

Instructions for cutting

First the wire has to be cut. A straight and even cut without deformation of the wire is the basis for correct further processing.

Abisolieren

Hinweise zum Abisolieren

Vor dem Aufbringen der Aderendhülse muss abisoliert werden. Hierunter versteht man das Durchtrennen und Entfernen einer definierten Länge der Isolation ohne Beschädigung des Leiters und der verbleibenden Isolation.

- Abisolierlänge: Die exakte Abisolierlänge bestimmt sich anhand des Leiterquerschnitts und der Crimplänge der Aderendhülse. Leichte Abweichungen können je nach Isolationsstärke des Leiters notwendig sein.
- Abisolierqualität: Das Abisoliermaß muss eingehalten werden und der Leiter darf nicht beschädigt werden.
- Normen: Die DIN EN 60352-2 enthält Hinweise auf Abisolierfehler, die es zu vermeiden gilt.

Stripping

Instructions for stripping

Before installing the ferrule, the wire has to be stripped. Stripping means to cut and remove the wire insulation at a certain length without damaging the wire and the remaining wire insulation.

- Stripping length: The exact stripping length results out of the cross-section and the crimping length of the ferrule. Small variations can be necessary depending on the insulation thickness.
- Stripping quality: It is important to guarantee the stripping depth and not to damage the conductor.
- Standard: In the DIN EN 60352-2 stripping errors are listed which should be avoided.

Crimping

Instructions for crimping

“Crimping“ is the production of a homogeneous and tight connection between wire end and ferrule. Such a connection can only be guaranteed by the use of high precision tools and machines. The result is an electrical and mechanical safe connection. The most common national and international standards are taken into consideration with Z+F products: DIN 46228 part 1 and 4, EN 60947-1, VG 95211, CSA-US certification and UL-certification.