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CRIMP SPECIFICATIONS

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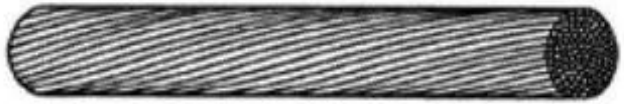
Cable types according to IEC60228 and DIN/VDE 0295

Round single / solid conductors (re) per class 1

Round multi-stranded conductors (rm) per class 2

Fine stranded conductors per class 5

Fine-stranded conductors per class 6



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Standard crimp method is a Hexagonal crimp

The most common type of crimp for cable lugs and connectors is the hexagonal crimp as this crimp profile is suitable for copper and aluminum conductors.

The range of applications covering hexagonal crimps includes the crimping of conductors as per VDE-0295/IEC60228 categories 2, 5 and 6 and the processing of non-tension connections of aluminum cables and aluminum ropes.
The advantage of a hexagonal crimp is the central force which is applied consistently from all directions and over a larger area during the crimping operation. During this crimping operation the individual strands of the conductor are being homogeneously compressed preventing any damage.
The result is a strong mechanical connection. Due to the even compression the hexagonal crimps are also suitable for application in medium and high voltage areas. However, these advantages are faced with some limitations.
The complete compression of wire strands using a hexagonal crimp and standard crimping dies is not possible. This means: **Standard hexagonal crimps are not guaranteed being gas-tight.**
Therefore it should be observed that a professional hexagonal crimp requires the use of crimping dies which are matched exactly with material and dimensions. Good compression is between 5 and 15%. To much creates cracks on the strands.

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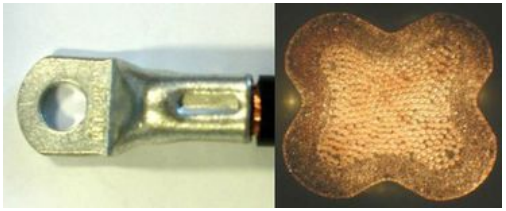
Proven and tested 4-Ident crimp

The indent crimp represents the oldest electrical crimp profile. This crimp profile is solely suitable for the processing of copper and is often used in control panels and switch cabinets operated within a range of 1000 V. The quad point crimp originates in the USA and is being used mainly in panels and switch cabinets up to 1000 V. These are also used in other electrical connections i.e. in drive systems for locomotives where this type of crimp offers the perfect solution. This crimp profile is suitable for cable lugs and connectors ranging from 10 mm^2 up to 300 mm^2 in combination with cables per VDE 0295 classification 2, 5 and 6



Attention: Application for use with pre-insulated cable lugs and connectors is not allowed.

The advantage over a simple indent crimp is the way the centric force is applied and that no crimping dies are needed. This means that with just one crimping tool all the above mentioned cross sections can be processed. The quality of the crimp depends solely on the force and quality of the crimping tool used.

The pull force results will although be lower then other crimp techniquest like hexagonal and B-crimp.

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Gas tight crimp

Gastight crimps are being used predominantly in the motor industry and in aggressive environments such as agricultural operations or chemical industries. A gastight connection means that both conductor and cable lug or connector is compacted together so tightly that no notable gap exists. This means that the ingress of fluid or a gaseous medium is not possible under normal atmospheric conditions. An oxidation of the individual crimped strands is prevented and an increase in resistance is avoided. For this reason gastight crimps provide for a permanent connection and good electrical conductivity.

A gastight connection can be tested by inspecting the polished cross section of the lug. There is no restriction to specific types of cables; therefore all types of conductors are suitable for gastight crimps. To meet the high technical requirements of gastight connections it is absolutely imperative to use only high quality branded crimping tools and connecting material and some kind of deformation is required.

Gastight crimps for example provide for a permanent connection and good electrical conductivity. The ingress of fluid or a gaseous medium is not possible under normal atmospheric conditions. An oxidation of the individual crimped strands is prevented and an increase in resistance is avoided.

4-I dent crimp, B-crimps or DUAL crimps (hex and indet, like Elpress) can achieve a close gas tight crimp level.

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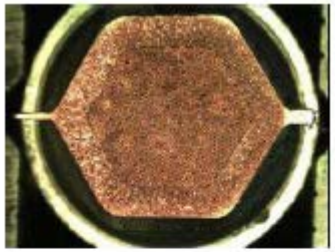
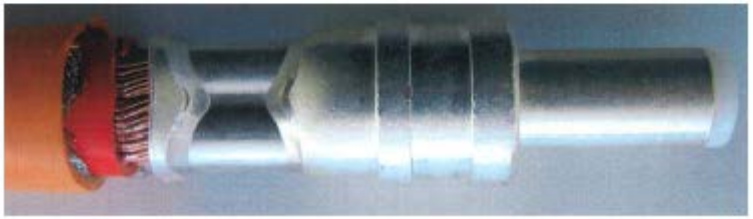
Some examples of crimp styles

Hexagonal crimp



Deep Thorn B crimp

Regular B crimp*



* More used on open crimp barrels

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Fig. 3. Hex-style crimp

Hex-style crimp…

The hex-style crimp has been the industry's preference for crimping compression connectors copper, and aluminum/copper cables up to 500mm².

The hex-style crimp provides superior electrical performance and excellent pullout strength, and hex dies emboss the die code onto the connector for easy inspection and verification of a proper crimp after installation

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Fig. 2. Indent-style crimp

Single Indent-style crimp…

Correct execution with a proper tool that corresponds to the size of cable and connector enables the indent-style crimp to ensure reliable electrical performance and excellent pullout resistance. An indent-style crimp results in rounded edges and no flash on the connector. It also forms strands tightly together inside the connector, which eliminates air gaps from the conductor. The indent-style crimp, however, does not provide the ability to inspect for a proper crimp.

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Dual style crimp…

A third method of attaching connectors to flexible conductors was introduced, which combines the best of the indent- and hex-style crimps: superior pullout ratings and the ability to inspect for a proper crimp. This system consists of standard hex die halves and an indenter. The hex portion provides die embossing for easy identification and inspection, where the indenter is round and smooth and produces the higher pullout values across all types of flex cables and can achieve gas tight solution due to the deformation.

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