

Description **Coppered Carbon Steel Wire**

## Chemical composition

Electrolytically copper-plated carbon steel wire  
Carbon steel grades from C4D to C85D

## Main technical properties and features

At Voco carbon steel wire is coppered in an electrolytic process. Advantages of this process are a regular and homogenous copper coated surface and the strong bonding of copper to the steel core. This coating offers an improved resistance against corrosion and material fatigue caused by vibrations and bending.



Fig. 1: Twisted copper wire  $\varnothing$  0.60 mm

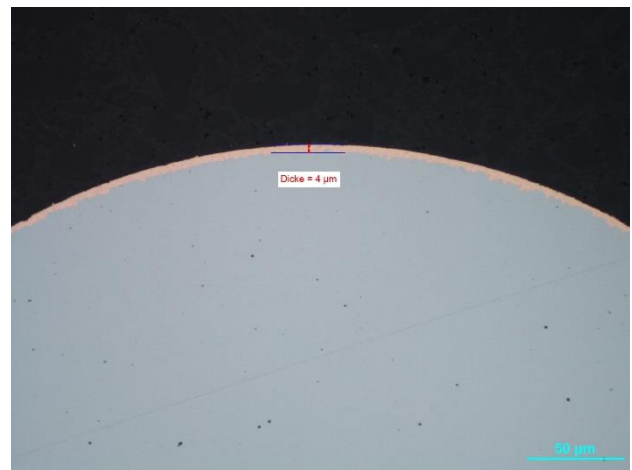


Fig. 2: Copper coating of 4 $\mu$ m - Resolution x 500

Voco performs copper coating of steel wires from  $\varnothing$  0.15 mm to  $\varnothing$  1.80 mm.

The copper coating process with in-house post drawing operation, allows to reach coating thicknesses from 0.30  $\mu$ m up to 12.00  $\mu$ m.

The copper coating significantly improves the electrical and thermal conductivity of the wire. Less expensive than pure copper, it's an excellent alternative for applications with low electrical resistivity needed.

The copper coating can also be used as lubricant for further processing of the metal wire. Further on, the copper coated wire simplifies soldering of carbon steel wire in detonator wire applications.

## Typical Applications

- Detonator wire in mining industry
- Lubricant for further processing of the wire (e.g. cold forging of screws)
- Activator for welding of carbon wire
- Electro-erosion
- Electric applications
- Décoration / design

## Typical manufacturing range

	Steel Grade	Diameter (mm)	Coating thickness (µm)	Packaging
Round Wire	C4D to C85D	0.15 – 1.80	0.30 – 12.00	K355 MP100 VM400 VM500 DIN630  Other coils on demand

Some combinations of diameters and copper thicknesses are not possible. Please let us know your needs. We will be pleased to give you advice.

## Material properties of coppered coated wire

Coating thickness (µm)	Tensile strength (MPa)	Elongation (%)	Electrical resistivity (Ohm/m) <sup>1</sup>
0.30 – 12.00	350 - 2500	3 % - 40 %	0.250 – 0.440

Electrical resistivity can be reduced for a requested diameter, by a thicker copper layer.

## Note

All information provided in this data sheet is based on best knowledge and the latest state of technology, but without guarantee. The use of materials should always be discussed with [our sales specialists](#) or [materials laboratory](#) on a product- and application-specific basis.

