

Material Data Sheet

Technischer Verkauf

Low alloyed copper alloy

Material designation:	EN-Material-No.	DIN-Material-No.
	CW106C [CuCr1Zr]	2.1293

Scope

This data sheet applies to long products made of precipitation hardening copper alloy CW106C.

Application

The material CW106C exhibits strength even at elevated temperatures. In addition to high wear resistance, the material is characterized by high electrical conductivity when fully hardened. In a natural atmosphere, CW106C exhibits good corrosion resistance. This material is mainly used in electrical engineering and mechanical engineering as a contact material, as well as in instrument manufacturing.

Chemical composition in %

Cu	Cr	Zr	Fe	Si
Rest ^{a)}	0,5 – 1,2	0,03 – 0,3	≤0,08	≤0,1

Other elements: total: max. 0,2 %

^{a)} elements not listed in the table are included under "Other elements".

Mechanical properties at room temperature (rod, bar) acc. EN 12163

Temper	Dimensions		Tensile strength R_m	Proof strength $R_{p0,2}$	Elongation			Hardness Brinell HBW
	diameter	hexagonal			$A_{100\text{ mm}}$	$A_{11,3}$	A	
	[mm]	[mm]	[N/mm ²]	[N/mm ²]	[%]	[%]	[%]	
M	All	All	as manufactured, without defined mechanical properties					
R370	>50-100	>25-100	≥370	≥360	-	-	≥16	-
H120	>50-100	>25-100	-	-	-	-	-	120-160
R430	>30-50	≥10-25	≥430	≥350	-	-	≥10	-
H135	>30-50	≥10-25	-	-	-	-	-	135-175
R470	≥4-30	-	≥470	≥420	-	≥6	≥8	-
H150	≥4-30	-	-	-	-	-	-	150-180

Mechanical properties at room temperature (profiles und rectangular bars) acc. EN 12167

Temper	Dimensions		Tensile strength R_m	Proof strength $R_{p0,2}$	Elongation			Hardness Brinell HBW
	profiles ^{a)}	rectangular bar thickness			$A_{100\text{ mm}}$	$A_{11,3}$	A	
		[mm]	[N/mm ²]	[N/mm ²]	[%]	[%]	[%]	
M	All	All	As manufactured, without defined mechanical properties					
R370	-	≥10-40	≥370	≥250	-	-	≥16	-
H120	-	≥10-40	-	-	-	-	-	120-160
R430	-	≥3-30	≥430	≥350	≥3	≥6	≥10	-
H135	-	≥3-30	-	-	-	-	-	135-175
R470	-	≥3-10	≥470	≥540	≥2	≥5	≥8	-
H150	-	≥3-10	-	-	-	-	-	150-180

^{a)} The mechanical properties of profiles depend on the shape and dimensions of the profile and must be agreed between the buyer and supplier.

Reference data for some physical properties (for guidance only)

Density at 20 °C	Electrical conductivity	Thermal conductivity	Specific heat capacity	Young's modulus	Shear modulus
[kg/dm ³]	[MS/m]	[W/m·K]	[J/Kg·K]	[MPa]	[MPa]
8,91	≤43,0 ^{a)}	310-330 ^{b)}	386	110000-130000 ^{c)}	-

^{a)} Heat-treated. In solution annealed condition: 20 MS/m.

^{b)} Heat-treated. In solution annealed condition: 170 W/m·K.

^{c)} Heat-treated. In solution annealed condition: 170 W/m·K.

Guidance on the temperatures for hot forming and heat treatment

Soft annealing temperature	Stress-relieving annealing temperature	Hot forming temperature
600-800 °C	300-350 °C	850-950 °C

Processing/Welding

In the solution-annealed condition the material has a very good hot and cold formability. Cold formability becomes more difficult as hardening increases. Furthermore, CW106C is only moderately suitable for welding and brazing. The machinability of this material is rated as moderate to difficult. Machinability improves with increasing mechanical strength.

Remark

The material is compliant to RoHS and REACH.

Editor

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Reference

DIN EN 12163: 2025-02	Beuth Verlag GmbH, Postfach, D-10772 Berlin
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Copper Material Data Sheets	Deutsches Kupferinstitut Berufsverband e.V. D-40239 Düsseldorf

Important note

Information given in this data sheet about the condition or usability of materials respectively products are no warranty for their properties, but act as a description.

The information we give on for advice complies to the experiences of the manufacturer as well as our own. We cannot give warranty for the results of processing and application of the products.