KHP®181 (CuCrZr)

Standard Designation

EN not standardized /UNS C18160

Chemical Composition

Cu	Cr [%]	Zr [%]	
Balance	0.20 - 1.20	0.05 -0.25	

Description / Applications

KHP®181 is a precipitation-hardened CuCrZr alloy. It combines exceptionally high electrical conductivity with very good spring properties, even at high temperatures (> 200°C). The material is therefore frequently used in current-carrying spring elements in high-voltage applications, e.g., in connectors for electric vehicles.

Physical Properties[1)]

Density	8.9 g/cm³	Thermal expansion coefficient	$17{,}3 \cdot 10^{-6}$/K
Electrical conductivity	50 m/Ω·mm² 86 % IACS [2)]	Modulus of elasticity	137 GPa[3)]
Thermal conductivity	335 W/m·K		

[1)] Guideline values for soft temper, measured at room temperature

[2)] IACS = International Annealed Copper Standard

[3)] 1 GPa = 1 kN/mm²

Processing information

Weldability	good	Stress corrosion cracking	none
Solderability	good		

Mechanical properties

Temper	Tensile Strength Rm [MPa]	Yield Strength Rp0,2 [MPa]	Elongation A50 [%]	Hardness HV	Bendability[1)]			
					90° r/t[2)]		180° r/t[2)]	
					GW[3)]	BW[4)]	GW[3)]	BW[4)]
R480	480 - 560	min. 450	min. 8 %	150 - 190	1,5	1,5	2	2
R540	540 - 630	min. 500	min. 4 %	160 - 200	2	2	2,5	3
R540S	540 - 630	min. 500	min. 7 %	160 - 200	2	2	2.5	3

[1)] The r/t values are valid for a strip thickness up to 0.8 mm (without crack). The data refer to a width of the bending area of 5 mm.
V-shape bend test according to ISO 7438

[2)] r = inner radius, t = thickness

[3)] GW = good way

[4)] BW = bad way

The details in this datasheet are exclusively meant for general information only. They correspond to the state of knowledge at the time of issue and cannot replace the examination by our customers. Liability cannot be derived from the information.

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