

4.6 C19010

Application Range

Hardenable Cu-Ni-Si alloy preferred in automotive, electrical and electronic industries. The alloy is especially suitable for components with middle level strength requirements (up to 620 MPa) in combination with good electrical conductivity and resistance to relaxation.

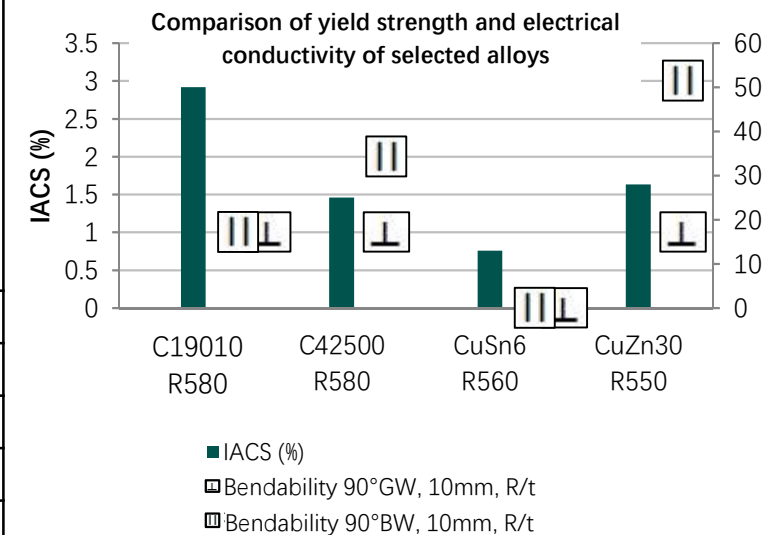
Physical Properties

Chemical Position (reference value) %

Density *	g/cm ³	8.9	Cu	Rest
Thermal conductivity *	W/(m·k)	260	Ni	0.8 - 1.8
Electr. conductivity ***	MS/m	35/29	Si	0.15 - 0.35
Electr. conductivity ***	IACS (%)	60/50	Other	max. 0.8
Thermal expansion c. **	10 ⁻⁶ K	16.8		
Modulus of elasticity *	Gpa	135		

Condition	Temper class	Tensile strength	Yield strength	Elongation		Hardness (reference value) HV	Electr. conductivity MS/m	Bendability R/t ¹⁾²⁾ 90°		Bendability R/t ¹⁾²⁾ 180°	
		T.S. min. - max. MPa	Rp 0.2 min. MPa	A50 min. %					GW Strip thickness ≤0.5mm	BW Strip thickness ≤0.5mm	GW Strip thickness ≤0.5mm
Cold rolled	R360	360 - 430	300	12	14 ³⁾	100 - 130	35	0	0	0	0
	R410	410 - 470	360	9	11 ³⁾	125 - 155	35	0	0	0.5	1
	R460	460 - 520	410	7	9 ³⁾	135 - 165	35	0.5	1	1.5	3
	R520	520 - 580	460	5	7 ³⁾	145 - 175	35	1	2	2.5	4
Precipitation hardened	R580	580 - 650	520	9		160 - 210	29	1	1	3	5

R/t: Bending 90° @ 10 mm bending width



*Reference values at room temperature

**Between 20 and 300 °C

*** Values for the lowest temper class

¹⁾ $r = x \cdot t$ (strips up to $t = 0.50$ mm)

²⁾ Sample width = 10 mm / bending at smaller bending widths on request (Evaluation according to page 5.4.2. of Hand-Out)

³⁾ Valid only as thermal stress relieved qualities

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