C70315

6.4. STOL® 94 - CuNiSi

KME
ENGINEERING COPPER SOLUTIONS

Alloy Designation	STOL® 94
EN	CuNiSi
DIN CEN/TS 13388	
UNS	C70315

Chemical Composition (Balance)
Weight percentage

Cu	Rest	%
Ni	2.5	%
Si	0.6	%
Zn	≤ 2	%
Sn	≤ 1	%

Characteristics

STOL® 94 is a CuNiSi alloy which is available in cold worked and precipitation hardened tempers. It combines maximum strength with excellent bendability, good electrical conductivity, excellent resistance against relaxation.
Partial substitute for copper-beryllium alloys.
Due to the NiSi-precipitations the relaxation properties, even at temperatures up to 150 °C are excellent. In combination with a tin coating even at temperatures around 150 °C (3.000h) the tin coating does not peel off. The electrical and thermal conductivity is good. Welding, soldering and brazing properties are good too.

Main Applications

Automotive: Switches and Relays, Terminals, Contacts, Connectors, miniaturized connectors.
Electrical: Switches and Relays, Terminals, Contacts, Connectors.

Mechanical Properties (EN 1652)

* values for stress relieved qualities

Temper	Temper H.. = Cold worked TM = Mill hardened	Tensile Strength Rm MPa	Yield Strength min. $Rp_{0.2}$ Mpa	Elongation min. A_{50mm} %	Hardness HV only for information	Bendability 90° gw rel. Bending Radius R/T Strip Thickness ≤ 0.50mm	bw
R360	H00 ($^1/_8$ Hard)	360 .. 430	250	14 16 *	100 .. 130	0	0
R410	H01 ($^1/_4$ Hard)	410 .. 470	360	9 12 *	125 .. 155	0	0.5
R460	H02 ($^1/_2$ Hard)	460 .. 520	410	7 10 *	135 .. 165	0.5	1
R520	H03 ($^3/_4$ Hard)	520 .. 580	460	5 8 *	145 .. 175	1	2
R580	H06 (Extra Hard)	580 .. 650	520	4 6 *	170 .. 200	1	2.5
R620	TM01 ($^1/_2$ Hard)	620 .. 720	540	16	180 .. 240	0	0
R660	TM02 ($^1/_2$ Hard)	660 .. 750	590	10	200 . 250	1	1
R750	TM04 (Hard)	750 .. 830	680	8	210 .. 260	2	2
R800	TM05 (SHM)	≥ 800	750	5	≥ 210	2	3

Physical Properties
Typical values in annealed temper at 20 °C

Density		8.86	g/cm³
Thermal expansion coefficient	20 .. 300 °C	17	10^{-6}/K
Specific heat capacity		0.399	J/(g·K)
Thermal conductivity		185	W/(m·K)
Electrical conductivity	MS/m	25	MS/m
Electrical conductivity	IACS	43	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	3	10^{-3}/K
Modulus of elasticity	GPa	130	GPa

Fabrication Properties *

Cold Forming Properties	Good
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Fair
Gas Shielded Arc Welding	Good
Laser Welding	Less suitable

* For more details call our technical service