

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

\* values for stress relieved qualities

Physical Properties			
Typical values in annealed temper at 20 °C			
Density		8.86	g/cm <sup>3</sup>
Thermal expansion coefficient	20 .. 300 °C	17	10 <sup>-6</sup> /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 <sup>-3</sup> /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

Due to continuous improvements within our production process, the details given in our brochure cannot be guaranteed. We reserve the right to update or change our products without prior notice. We recommend that you seek confirmation of our product details / specifications before committing to specific alloys.