

# C19010

## STOL® 76 - CuNiSi

Alloy Designation	STOL® 76
EN	CuNiSi
DIN CEN/TS 13388	
UNS	C19010

### Characteristics

**STOL® 76** is a CuNiSi alloy that can be hardened by cold forming and by precipitation of NiSi-phases during a heat treatment. It has excellent bendability, excellent hot and cold forming properties, a high strength and a good corrosion resistance.

Due to the NiSi-precipitations the relaxation properties, even at temperatures up to 150 °C are excellent. The electrical and thermal conductivity is good. Welding, soldering and brazing properties are good too.

### Main Applications

**Automotive:** Switches and Relays, Contacts, Connectors, Terminals.  
**Electrical:** Switches and Relays, Contacts, Connectors, Terminals, Components for the electrical industry, Stamped parts, Semiconductor Components, Junction Boxes.

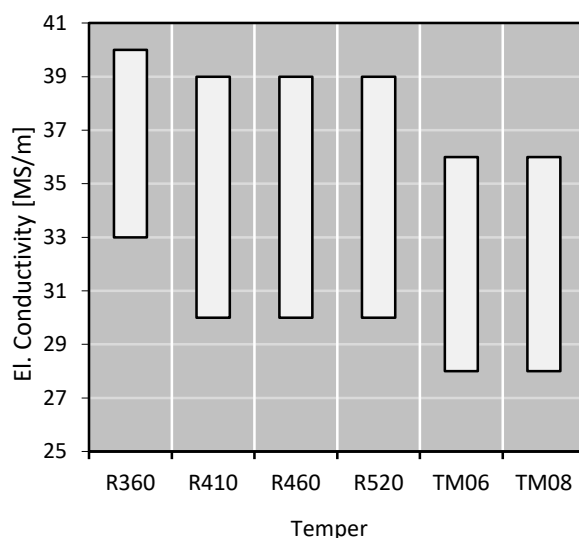
Chemical Composition (Balance)		
Weight percentage		
Cu	Rest	%
Ni	1.3	%
Si	0.25	%
P	0.03	%

Mechanical Properties (EN 1652)								
Temper	Temper <small>H.. = Cold worked TM = Mill hardened</small>	Tensile Strength	Yield Strength Minimum	Elongation Minimum		Hardness	Bending 90°	
		Rm	Rp0.2	A <sub>50mm</sub>		HV **	gw rel. Bending Radius R/T	bw
		MPa	MPa	%		HV	Strip Thickness ≤ 0.50mm	
<b>R360</b>	H01 (¼ hard)	360 .. 430	300	12	14 *	100 .. 130	0	0
<b>R410</b>	H02 (½ hard)	410 .. 470	360	9	11 *	125 .. 155	0	0
<b>R460</b>	H04 (¾ hard)	460 .. 520	410	7	9 *	135 .. 165	0.5	1
<b>R520</b>	H06 (extra hard)	520 .. 580	460	5	7 *	145 .. 175	1	2
<b>R520</b>	TM06 (XHM)	520 .. 590	440	8		155 .. 180	0.5	0.5
<b>R580</b>	TM08 (SHM)	580 .. 650	520	9		160 .. 210	1	1

\* values for stress relieved qualities / \*\* only for information

Physical Properties			
Typical values in annealed temper at 20 °C			
Density		8.93	g/cm <sup>3</sup>
Thermal expansion coefficient	20 .. 300 °C	16.8	10 <sup>-6</sup> /K
Specific heat capacity		0.377	J/(g·K)
Thermal conductivity		260	W/(m·K)
Electrical conductivity	MS/m	35	MS/m
Electrical conductivity	IACS	60	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	2	10 <sup>-3</sup> /K
Modulus of elasticity	GPa	135	GPa

### Electrical Conductivity



#### Fabrication Properties \*

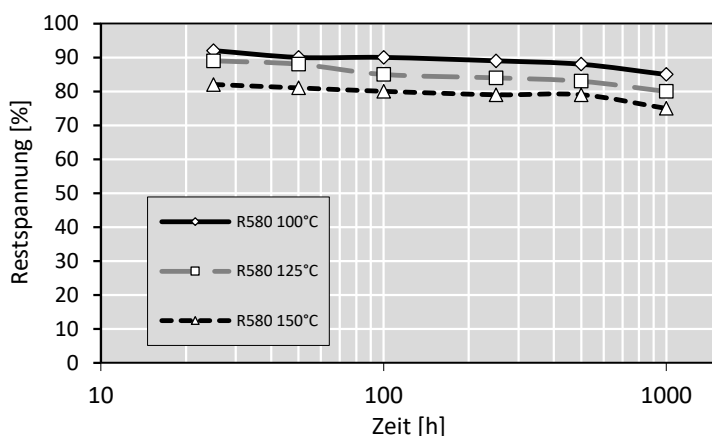
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Less suitable
Gas Shielded Arc Welding	Excellent
Laser Welding	Fair

\* For more details call our technical service

#### Corrosion Resistance \*

STOL® 76 has good corrosion resistance.  
The alloy is insensitive to stress corrosion cracking.

#### Relaxation Properties



Relaxation values give an indication about stress relieve of strip under tension for a certain time and temperature.  
Typical test sample thickness is 0.3 – 0.6 mm.

Initial Stress  
80% von  $R_{p0.2}$   
Parallel Rolling Direction

#### Bend Fatigue (at room temperature)

The fatigue strength gives an indication about the resistance to variations in applied tension. It is measured under symmetrical alternating load. The maximum bending load for  $10^7$  load cycles without crack is measured. Dependent on the temper class it is approximately 1/3 of the tensile strength  $R_m$ .

#### Available delivery forms \*

- Strips in coils
- Traverse-wound coils with drum weights up to 1.5 t
- TECSTRIP®\_multicoil up to 2.5 t
- Hot-Dip-Tinned strips in thickness range 0.10 up to 1.20 mm

\* For more details call our sales service

Due to continued improvements within our production process, the details stated in our brochure can not be guaranteed. We reserve the right to update or amend our products, without prior notification. We suggest that you obtain confirmation of our product details / specifications prior to committing to specific alloys.