C18665

STOL® 78 - CuMgP

Alloy Designation	STOL® 78
EN	CuMgP
DIN CEN/TS 13388	
UNS	C18665

Characteristics

STOL® 78 is a high Magnesium (Mg) alloyed material with excellent formability at medium strength and good conductivity. Typical applications are automotive, electrical and electronic connectors, relays, current carrying springs and junction boxes.

Chemical Composition (Balance)

Weight percentage

Cu	Rest	%
Mg	0.6	%
P	0.01	%

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.

Mechanical Properties (EN 1652)

Temper	Tensile Strength Rm	Yield Strength Minimum $Rp_{0.2}$	Elongation Minimum A_{50mm}	Hardness HV *	Bending 90° gw rel. Bending Radius R/T	Bending 90° bw rel. Bending Radius R/T
	MPa	MPa	%	HV	Strip Thickness ≤ 0.50mm	
R380	380 .. 460	330	14	115 .. 145	0	0
R460	460 .. 520	410	10	140 .. 165	0.5	1
R520	520 .. 570	460	8	160 .. 180	1	2.5
R570	570 .. 620	500	6	175 .. 195	2.5	5
R620 **	≥ 620	550	3	≥ 190	3	6

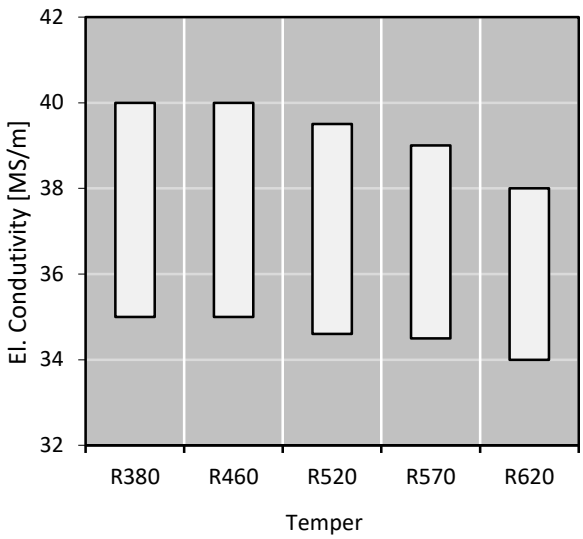
*only for information / ** Thickness max. 0.50 mm

Physical Properties

Typical values in annealed temper at 20 °C

Density		8.81	g/cm³
Thermal expansion coefficient	20 .. 300 °C	17.3	10^{-6}/K
Specific heat capacity		0.32	J/(g·K)
Thermal conductivity		270	W/(m·K)
Electrical conductivity	MS/m	36	MS/m
Electrical conductivity	IACS	62	%
Thermal coefficient of electrical resistance	(0 .. 100 °C)	2.5	10^{-3}/K
Modulus of elasticity	GPa	130	GPa

Electrical Conductivity



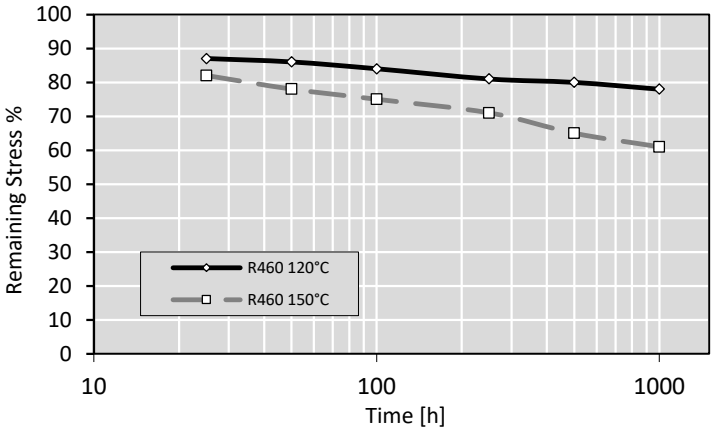
Fabrication Properties *	
Cold Forming Properties	Excellent
Machinability (Rating 20)	Less suitable
Electroplating Properties	Excellent
Hot Tinning Properties	Excellent
Soft Soldering, Brazing	Excellent
Resistance Welding	Less suitable
Gas Shielded Arc Welding	Excellent
Laser Welding	Fair

* For more details call our technical service

Corrosion Resistance *

STOL® 78 has a good resistance in in natural and industrial atmosphere.
Practically resistant against 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 $Rp_{0,2}$
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