

Designation	DIN	EN Nr.	UNS (ASTM)	LMSA
CuNi1.3Si0.25	-	-	C19002	B135

Chemical composition

Cu	Ni	Si	Sn	Zn	Others
Balance	0.80 - 1.80	0.15 - 0.35	0.10 - 0.15	0.35 - 0.50	0.50 max.

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

Main technical properties and features

STOL®76M is a Copper-Nickel-Silicon alloy containing around 1.5% Ni and 0.3% Silicon. This alloy can be hardened by cold work and by thermal treatment due to the precipitation of Ni-Si-phases. The NiSi-precipitations confers to the alloy excellent thermal relaxation properties, event at temperatures up to 150 °C. This alloy has high strength, excellent hot and forming properties, excellent bendability and good corrosion resistance. The electrical and thermal conductivity is good. The alloy has good weldability, soldering and brazing properties. The alloy is insensitive to corrosion cracking. STOL®76M alloy is considered as a versatile option for enhanced material performance compared to traditional high copper alloys and tin Brasses.

STOL®76M is a modified version of the STOL®76 alloy, presenting a reduced peeling-off effects of tin coating even at temperatures up to 150 °C, depending on the usage conditions. The improved properties are of particular interest for connectors used in the automotive, electrical and electronics sectors.

Typical uses

STOL®76M is mainly used in the automotive industry for switches, relays, contacts, terminals and connectors. This alloy is also used in components for the electrical industry such as contacts and switches, connectors, terminals, stamped parts, semiconductor components, etc..

Typical manufacturing range

	Thickness (mm)	Width (mm)	Length (mm)
Rolled products Strip in coils ^[1]	0.010 - 1.500	1.5 - 200.0	-
Strip as sheets ^[1]	0.010 - 1.500	10.0 - 200.0	100 - 3000

^[1] Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

Mechanical properties of strips^[1]

Temper	R _m (N/mm ²)	R _{p0.2} (N/mm ²)	A _{50mm} (%)	Hardness HV	R/t (90°) G / B ^[2]
R360	360 - 430	300 min.	12 min.	100 - 130	0 / 0
R410	410 - 470	360 min.	9 min.	125 - 155	0 / 0
R460	460 - 520	410 min.	7 min.	135 - 165	0.5 / 1
R500	500 - 600	450 min.	10 min.	150 - 190	-
R520	520 - 580	460 min.	5 min.	145 - 175	1 / 2
R580	580 - 650	540 min.	8 min.	170 - 200	1 / 1
R580 S	580 - 650	520 min.	9 min.	170 - 200	0.5 / 0.5
R620	620 - 700	570 min.	6 min.	180 - 210	1.0 / 1.5

^[1] According to EN 1652.

^[2] Minimum bend radius at 90°. R = radius, t = strip thickness, G = "Good way", perpendicular to rolling direction and B = "Bad way", parallel to rolling direction. Strip thickness ≤ 0.50 mm.

Heat treatment

Stol® 76 alloy can be heat treat by precipitation hardening.

Supersaturation temperature (°C)	Aging temperature (°C)	Aging time (h)
900 - 1000	400 - 600	2 - 4

Physical properties

Modulus of elasticity	kN/mm ²	135
Poisson ratio		0.34
Density	g/cm ³	8.92
Melting point	°C	1078
Linear dilatation coefficient (20 - 300°C)	10 ⁻⁶ /°C	16.8
Thermal conductivity at 20°C	W/m K	250
Heat Capacity at 20°C	J/(kg. K)	0.377
Electrical conductivity at 20°C	MS/m	33
Electrical conductivity at 20°C	% IACS	57%

Tolerances (strip and foil)

Thickness	Thickness (mm)		EN Standard		Lamineries MATTHEY		
	≥	<	10140 Precision	10258 Precision	LMSA Standard	LMSA Precision	LMSA Extreme
<p>The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.</p> <p>Our "LMSA Precision" and "LMSA Extreme" tolerances are available upon request.</p>	-	0.025	-	-	-	-	± 0.001
	0.025	0.050	-	-	± 0.003	± 0.002	± 0.0015
	0.050	0.065	-	± 0.003	± 0.003	± 0.0025	± 0.002
	0.065	0.100	-	± 0.004	± 0.004	± 0.0035	± 0.003
	0.100	0.125	± 0.005	± 0.006	± 0.005	± 0.004	± 0.003
	0.125	0.150	± 0.005	± 0.006	± 0.005	± 0.005	± 0.004
	0.150	0.250	± 0.010	± 0.008	± 0.008	± 0.006	± 0.004
	0.250	0.300	± 0.010	± 0.009	± 0.009	± 0.007	± 0.005
	0.300	0.400	± 0.010	± 0.010	± 0.010	± 0.007	± 0.005
	0.400	0.500	± 0.015	± 0.012	± 0.012	± 0.008	± 0.006
	0.500	0.600	± 0.015	± 0.014	± 0.014	± 0.010	± 0.007
	0.600	0.800	± 0.015	± 0.015	± 0.015	± 0.010	± 0.007
	0.800	1.000	± 0.015	± 0.018	± 0.018	± 0.012	± 0.009
	1.000	1.200	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
	1.200	1.250	± 0.020	± 0.020	± 0.020	± 0.015	± 0.012
1.250	1.500	± 0.020	± 0.020	± 0.020	± 0.015	± 0.014	
Width	Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.						
Camber	Width (mm)		Camber max. (mm/m)				
	>	≤	LMSA Standard		LMSA Extreme		
			≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm	
	3	6	12	-	6	-	
	6	10	8	10	4	5	
10	20	4	6	2	3		
20	250	2	3	1	1.5		
Surface	Special surface qualities upon request						
Flatness	Special requirement on the longitudinal or transversal flatness upon request						

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