MILLARD WIRE

Specification Sheet

Last Modified: May 16, 2017

C75200

Nickel Silver, 65-18

Chemical Composition

(%max., unless shown as range or min.)

	Cu(1)	Fe	Pb	Mn	Ni(2)	Zn
Min./Max.	63.0-66.5	0.25	0.05	0.5	16.5-19.5	Rem.
Nominal	65	-	-	-	18	17

(1) Cu value includes Ag.

(2) Ni value includes Co.

Note: Cu + Sum of Named Elements, 99.5% min.

Applicable Specifications

Product	Specification
Bar	ASTM B122, B151 SAE J463, J461
Plate	ASTM B122
Rod	ASTM B151 SAE J463, J461
Sheet	ASTM B122 SAE J463, J461
Strip	ASTM B888, B122 SAE J461, J463
Wire	ASTM B206

Common Fabrication Processes

Blanking, Drawing, Etching, Forming and Bending, Heading and Upsetting, Roll Threading and Knurling, Shearing, Spinning, Squeezing and Swaging

Millard Wire & Specialty Strip Co.

449 Warwick Industrial Drive • Warwick, RI 02886

Phone: (401) 737-9330 • Fax: (401) 737-9340

Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Fair
Coated Metal Arc Welding	Not Recommended
Spot Weld	Good
Seam Weld	Fair
Butt Weld	Good
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Poor
Machinability Rating	20

Thermal Properties

Treatment	Temp./Time – US	Temp./Time – SI
Stress Temperature		
Solution Minimum		
Solution Maximum		
Solution Time		
Solution Medium	None	
Precipitation Value		
Precipitation Time		
Precipitation Medium	None	
Annealing Minimum	1100	594
Annealing Maximum	1400	761
Annealing Time		
Hot Works Minimum		
Hot Works Maximum		

Mechanical Properties

(Measured at Room Temperature, 68°F (20°C))

	Section Size	Cold Work	Typ/Min	Temp	Tensile Strength	Yield Strength (0.5% ext. under load)	Yield Strength (0.2% offset)	Yield Strength (0.05% offset)	El	Rockwell Hardness				Vickens Hardness	Brinell Hardness		Shear Strength	Fatigue Strength	Izod Impact Strength
	in.	%		F	ksi	ksi	ksi	ksi	%	B	C	F	30T	500	500	3000	ksi	ksi	ft-lb
	mm.			C	MPa	MPa	MPa	MPa									MPa	MPa	J
Flat Products																			
OS015	0.04	0	TYP	68	60	30	-	-	32	55	-	90	-	-	-	-	-	-	0
	1			20	414	207	-	-	32	55	-	90	-	-	-	-	-	-	0
H02	0.04	0	TYP	68	74	62	-	-	8	83	-	-	72	-	-	-	-	-	0
	1			20	510	427	-	-	8	83	-	-	72	-	-	-	-	-	0
Wire																			
H01	0.08	0	TYP	68	73	65	-	-	16	-	-	-	-	-	-	-	-	-	0
	2			20	503	448	-	-	16	-	-	-	-	-	-	-	-	-	0
OS035	0.08	0	TYP	68	58	25	-	-	45	-	-	-	-	-	-	-	-	-	0
	2			20	400	172	-	-	45	-	-	-	-	-	-	-	-	-	0
Flat Products																			
OS035	0.04	0	TYP	68	58	25	-	-	40	40	-	85	-	-	-	-	-	-	0
	1			20	400	172	-	-	40	40	-	85	-	-	-	-	-	-	0
H04	0.04	0	TYP	68	85	74	-	-	3	87	-	-	75	-	-	-	-	-	0
	1			20	586	510	-	-	3	87	-	-	75	-	-	-	-	-	0
Wire																			
OS015	0.08	0	TYP	68	60	30	-	-	35	-	-	-	-	-	-	-	-	-	0
	2			20	414	207	-	-	35	-	-	-	-	-	-	-	-	-	0
Rod																			
H04	0.5	20	TYP	68	70	60	-	-	20	78	-	-	-	-	-	-	-	-	0
	12.7			20	483	414	-	-	20	78	-	-	-	-	-	-	-	-	0
OS035	0.5	0	TYP	68	56	25	-	-	42	-	-	-	-	-	-	-	-	-	0
	12.7			20	386	172	-	-	42	-	-	-	-	-	-	-	-	-	0
Wire																			
H04	0.08	0	TYP	68	103	90	-	-	3	-	-	-	-	-	-	-	-	-	0
	2			20	710	621	-	-	3	-	-	-	-	-	-	-	-	-	0
H02	0.08	0	TYP	68	86	80	-	-	7	-	-	-	-	-	-	-	-	-	0
	2			20	593	552	-	-	7	-	-	-	-	-	-	-	-	-	0
Flat Products																			
H01	0.04	0	TYP	68	65	50	-	-	20	73	-	-	65	-	-	-	-	-	0
	1			20	448	345	-	-	20	73	-	-	65	-	-	-	-	-	

*Fatigue Strength: 100 x 10^6 cycles, unless indicated as [N]X 10^6.

Physical Properties

Property	US Customary	Metric
Melting Point - Liquidus	2030 F	1110 C
Melting Point - Solidus	1960 F	1071 C
Density	0.316 lb/in3 at 68 F	8.75 gm/cm3 @ 20 C
Specific Gravity	8.75	8.75
Electrical Resistivity	173 ohms-cmil/ft @ 68 F	28.76 microhm-cm @ 20 C
Electrical Conductivity	6 %IACS @ 68 F	0.035 MegaSiemens/cm @ 20 C
Thermal Conductivity	19 Btu · ft/(hr · ft2·oF)at 68F	32.9 W/m · oK at 20 C
Coefficient of Thermal Expansion	9 ·10-6 per oF (68-572 F)	16.2 ·10-6 per oC (20-300 C)
Specific Heat Capacity	0.090 Btu/lb/oF at 68 F	377.1 J/kg · oK at 293 K
Modulas of Elasticity in Tension	18000 ksi	124000 MPa
Modulus of Rigidity	6800 ksi	46880 MPa

Tempers Most Commonly Used

Flat Products	
STRIP, ROLLED	H01, H02, H04, OS015, OS035
WIRE, ROLLED	H01, H02, H04, OS025

Other	
ROD	H00, H02, OS035
WIRE	H00, H01, H02, H04, OS015, OS035

Typical Uses

Consumer

Holloware, Radio Dials, Name Plates, Hollow Ware, Costume Jewelry, Camera Parts, Bows, Musical Instrument Parts, Table Flat Ware, Zippers

Fasteners

Screws, Rivets

Industrial

Base for Silver Plate, Core Bars, Truss Wire, Etching Stock, Templates

Casting Characteristics

No casting characteristics available for this alloy.