

# HM Wire International, Inc.

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## Alloy 600 - Inconel 600 Nickel Alloy

**Description:** Alloy 600 is a nonmagnetic, nickel based high temperature alloy possessing an excellent combination of high strength, hot and cold workability, and resistance to ordinary form of corrosion.

**Applications:** Barge and tank truck liners, furnance trays, mufflers, hangers, and soap.

<b>Nominal Composition:</b>	<b>C</b>	<b>Ni</b>	<b>Cr</b>	<b>Fe</b>	<b>Si</b>	<b>Mn</b>	<b>S</b>
	0.10	72.0	14 - 17	6 - 10	0.50	1.00	0.015
	<b>Cu</b>						
	0.50						

## **Average Physical Properties**

Physical Property	°F	British Units	°C	Metric Units
<b>Density</b>	Room	0.304 lb/cu in.	Room	8.43 g/cu cm.
<b>Electrical Resistivity</b>	70	40.6 microhm-in	21	1.03 microhm-m
	200	40.9	93	1.04
	400	41.5	204	1.05
	600	42.2	316	1.07
	800	43	427	1.09
<b>Coefficient of Thermal Expansion</b>	70 - 200	7.4 microinches/in.-°F	21 - 93	13.3 x 10 m/m·K
	70 - 400	7.7	21 - 204	13.9
	70 - 600	7.9	21 - 316	14.2
	70 - 800	8.1	21 - 427	14.6
<b>Thermal Conductivity</b>	70	103 Btu-in/ft <sup>3</sup> -hr.-°F	21	14.8 W/m·K
	200	109	93	15.7
	400	121	204	17.4
	600	133	316	19.2
	800	145	427	20.9
<b>Modulus of Elasticity</b>	Room	30.0 x 10 psi	Room	207 GPa

\*To be used as a guideline only.

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## Typical Mechanical Properties

Form and Condition	Tensile Strength		0.2% Yield Strength		% Elongation in 2"	% Reduction of Area	Rockwell Hardness
<b>Rod and Bar</b>							
<b>Cold-drawn</b>	-	-	-	-	-	-	-
Annealed	80-100	552-689	25-50	172-345	55-35	70-60	65-85B
As-drawn	105-150	724-1034	80-125	552-862	30-10	60-30	90B-30C
<b>Hot rolled</b>	-	-	-	-	-	-	-
Annealed	80-100	552-689	30-50	207-345	55-35	70-60	65-85B
As-rolled	85-120	586-827	35-90	241-621	50-30	65-50	75-95B
Hot-finished	80-120	586-827	35-90	241-621	50-30	65-50	75-95B
<b>Strip</b>	-	-	-	-	-	-	-
Annealed	80-100	552-689	30-45	207-310	55-35	----	84B max.

## Average Room Temp Tensile Data

Form	Condition	Ultimate Tensile Strength, Ksi (MPa)	Yield Strength at 0.2% offset, Ksi (Mpa)	Elongation in 2 in. (50.8mm) or 4D, percent
Sheet	Annealed	98 (676)	42 (290)	40
Plate	Annealed	95 (655)	41 (283)	45
Bar/Billet	Annealed	95 (655)	41 (283)	45
Sheet, Plate, Bar, Strip	Annealed	80 (550)*	35 (240)*	30*

\* - minimum

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