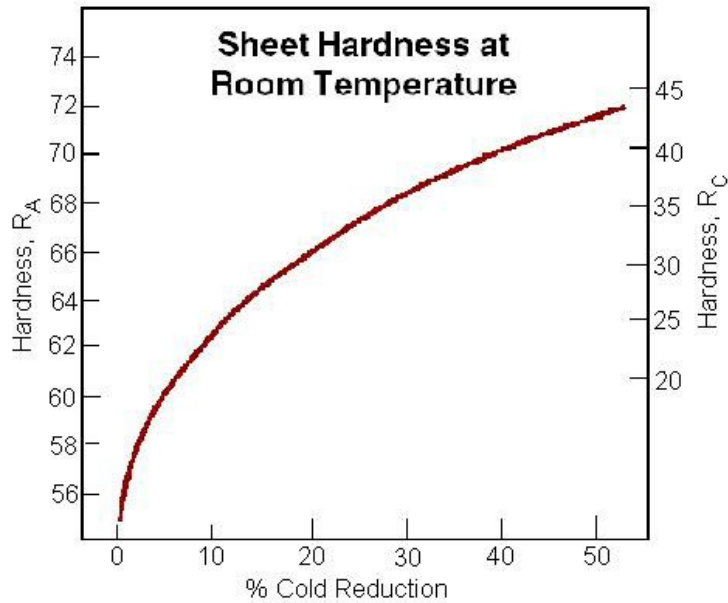


HAYNES[®] 556[®] alloy

Fabrication Characteristics

HAYNES[®] 556[®] alloy is normally final solution heat-treated at 2150°F (1175°C) for a time commensurate with section thickness. Solution heat-treating can be performed at temperatures as low as about 2125°F (1165°C), but resulting material properties will be altered accordingly. Annealing during fabrication can be performed at even lower temperatures, but a final, subsequent solution heat treatment is needed to produce optimum properties and structure. Please [click here](#) or see the [Haynes Welding SmartGuide](#) for more information.

Typical Hardness Properties



Form	Hardness, HRBW	Typical ASTM Grain Size
Sheet	91	4 - 6.5
Plate	92	3.5 - 6.5
Bar	89	3 - 5.5

All samples tested in solution-annealed condition.

HRBW = Rockwell Hardness "B", Tungsten Indentor.

Effect of Cold Reduction upon Room Temperature Tensile Properties*

Cold Reduction	Subsequent Anneal Temperature	Yield Strength 0.2% Offset		Ultimate Tensile Strength		Elongation
		ksi	MPa	ksi	MPa	
%	None					%
0		52.9	365	115.0	795	50.7
10		93.3	645	127.8	880	34.8
20		113.3	780	142.1	980	23.5
30		144.1	995	172.6	1190	12.0
40		155.8	1075	189.3	1305	10.1
50		169.7	1170	204.2	1410	8.0
0	1850°F (1010°C)	52.6	365	114.7	790	44.8
10		76.9	530	121.6	840	34.3
20		88.8	610	127.0	875	30.3
30		92.7	340	135.2	930	26.6
40		80.0	550	133.3	920	30.6
50		83.0	570	135.0	930	31.7
0	1950°F (1065°C)	52.9	365	115.8	800	45.2
10		76.8	530	122.2	845	36.9
20		76.8	530	124.7	860	34.8
30		66.0	455	125.1	865	38.3
40		71.4	490	128.1	885	36.7
50		77.9	535	131.0	905	33.4
0	2050°F (1121°C)	54.3	375	117.0	805	47.0
10		55.3	380	117.4	810	48.0
20		58.4	405	120.1	830	45.4
30		63.5	440	123.6	850	43.0
40		66.9	460	124.7	860	42.4
50		70.8	485	126.6	875	35.0

* Based upon rolling reductions taken upon 0.120-inch (3.0mm) thick sheet. Duplicate tests.

Typical Microstructure

(ASTM 5 grain size) Annealed at 2150°F (1175°C)



Etchant: 95ml

HCL plus 5gm oxalic acid, 4 volts