

Cincinnati Tool Steel Company

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4140 Prehard/Annealed

Alloy

Specifications

Carbon (Max.)	.38/.46
Manganese	.70/1.00
Phosphorus (Max.)	.035
Sulfur (Max.)	.040
Chromium	.80/1.15
Molybdenum	.15/.25
Silicon	.15/.40
Vanadium (Max.)	.03
Other Elements	--
Heat treatment required	N&T
Surface Brinell Hardness (HB)	262/321 to 3" incl.; 241/321 over 3" to 6-1/2" incl.

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Flatness Tolerances

Hot Rolled or Thermally Treated Rectangular Sheared Plates, Circular and Sketch Plates

		Flatness Tolerances for Specified Widths, Inches										
Specified Thickness, Inches	Pattern Length	To 36 excl.	To 48 excl.	48 to 60 excl.	60 to 72 excl.	72 to 84 excl.	84 to 96 excl.	96 to 108 excl.	108 to 120 excl.	120 to 144 excl.	144 to 168 excl.	168 and excl.
To 1/4 excl.		13/16	1-1/8	1-3/8	1-7/8	2	2-1/4	2-3/8	2-5/8	2-3/4	--	--
1/4 to 3/8 excl.		3/4	15/16	1-1/8	1-3/8	1-3/4	1-7/8	2	2-1/4	2-3/8	--	--
3/8 to 1/2 excl.		3/4	7/8	15/16	15/16	1-1/8	1-5/16	1-1/2	1-5/8	1-7/8	2-3/4	3-1/8
1/2 to 3/4 excl.		5/8	3/4	13/16	7/8	1	1-1/8	1-1/4	1-3/8	1-5/8	2-1/4	3
3/4 to 1 excl.		5/8	3/4	7/8	7/8	15/16	1	1-1/8	1-5/16	1-1/2	2	2-5/8
1 to 2 excl.		9/16	5/8	3/4	13/16	7/8	15/16	1	1	1	1-5/8	2-1/4
2 to 4 excl.		1/2	9/16	11/16	3/4	3/4	3/4	3/4	7/8	1	1-1/4	1-5/8
4 to 6 excl.		9/16	11/16	3/4	3/4	7/8	7/8	15/16	1-1/8	1-1/4	1-1/4	1-1/2
6 to 8 excl.		5/8	3/4	3/4	15/16	1	1-1/8	1-1/4	1-5/16	1-1/2	1-1/2	1-1/2
8 to 10 excl.		3/4	13/16	15/16	1	1-1/8	1-1/4	1-5/16	1-3/8	1-1/2	1-1/2	1-1/2
10 to 12 excl.		3/4	15/16	1-1/8	1-1/4	1-5/16	1-3/8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
12 to 15 incl. (5)	To 155 long (5)	7/8	1	1-3/16	1-5/16	1-3/8	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2

Note 1 - Flatness Tolerances for length. The longer dimension specified is considered the length. Variations from a flat surface along the length should not exceed the tabular amount for the specified width in plates up to 12' in length, or in any 12' or longer plates.

Note 2 - Flatness Tolerances for Width. The flatness variation across the width should not exceed the tabular amount for the specified width.

Note 3 - When the longer dimension is under 36", the variation should not exceed 3/8". When the longer dimension is from 36" to 72" incl., the variation should not exceed 75% of the tabular amount for the specified width.

Note 4 - The above table and notes cover the flatness tolerances of circular and sketch plates, based on the maximum dimensions of those plates.

Note 5 - Plate lengths over 155" and/or over 15" in thickness should be referred for flatness tolerances.

Flatness is a function of ga. and width. The above shows commercial tolerances. Use 1/2 of the above table for your requirements.

Data shown are typical, and should not be construed as maximum or minimum values for specification or for final design. Data on any particular piece of material may vary from those herein.