

## Rockwell Conversion Chart

ROCKWELL CONVERSION CHART			
TEMPER	ROCKWELL SCALE		
	30-T	15-T	B
	83.1	93.1	100
	82.5	92.8	99
	81.8	92.5	98
	81.1	92.1	97
	80.4	91.8	96
	79.8	91.5	95
	79.1	91.2	94
	78.4	90.8	93
	77.8	90.5	92
	77.1	90.2	91
DR9 (75 NOMINAL)	76.4	89.9	90
	75.8	89.5	89
	75.1	89.2	88
	74.4	88.9	87
	73.8	88.6	86
DR8 (72 NOMINAL)	73.1	88.2	85
	72.4	87.9	84
	71.8	87.6	83
	71.1	87.3	82
	70.4	86.9	81
	69.7	86.6	80
	69.1	86.3	79
	68.4	86.0	78
	67.7	85.6	77
	67.1	85.3	76
T-5 (61 TO 69)	66.4	85.0	75
	65.7	84.7	74
	65.1	84.3	73
	64.4	84.0	72
	63.7	83.7	71
T-4 (57 TO 65)	63.1	83.4	70
	62.4	83.0	69
	61.7	82.7	68
	61.0	82.4	67
	60.4	82.1	66
	59.7	81.8	65
T-3 (53 TO 61)	59.0	81.4	64
	58.4	81.1	63
	57.7	80.8	62
	57.0	80.5	61
	56.4	80.1	60
	55.7	79.8	59
T-2 (49 TO 57)	55.0	79.5	58
	54.4	79.2	57
	53.7	78.8	56
	53.0	78.5	55
	52.4	78.2	54
	51.7	77.9	53
T-1 (45 TO 53)	51.0	77.5	52
	50.3	77.2	51
	49.7	76.9	50
	49.0	76.6	49
	48.3	76.2	48
	47.7	75.9	47
	47.0	75.6	46
	46.3	75.3	45
	45.7	74.9	44
	45.0	74.6	43
	44.3	74.3	42
	43.7	74.0	41
	43.0	73.6	40

"FULL HARD" #1 Temper  
B 84 MIN

"1/2 HARD" #2 Temper  
B 70-85

"1/4 HARD" #3 Temper, B 60-75

CQ (Commercial Quality), CS (Commercial Steel)  
#4 Temper, B 65 max.

DQ (Drawing Quality), DS (Drawing Steel),  
DDs (Deep Drawing Steel), # 5 Temper, B 55 max.

TIN MILL PRODUCTS USE THE  
ROCKWELL 30-T SCALE.

MATERIAL .0083 & LIGHTER IS  
TESTED ON THE 15-T SCALE  
& RESULTS CONVERTED TO  
THE 30-T SCALE (ASTM A-623)

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## Weights and Densities

### Weight Formulas

Weight per square foot (lbs):

Thickness x 144 x density (lbs/in<sup>3</sup>)

Weight per lineal foot (lbs):

Thickness x width x 12 x density (lbs/in<sup>3</sup>)

### Densities of Popular Metals

METAL	DENSITY POUNDS PER CUBIC INCH	METAL	DENSITY POUNDS PER CUBIC INCH
Aluminum (1100)	0.0979	Zinc	0.258
Brass	0.306	Platinum	0.775
Copper	0.322	Silver	0.378
Gold	0.697	Stainless Steel	0.29
Iron	0.284	Steel	0.2833
Lead	0.41	Tin	0.264

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## Tin Mill Products: Typical Mechanical Properties

The table below lists “typical” mechanical properties for the different Tempers of Tin Mill Products. Tin Mill Products are produced to meet the specifications called out by the ASTM, Euronorm or JIS standards. Steel mills generally will not, with a few exceptions, guarantee mechanical properties for Tin Mill Products.

<u>Temper*</u>	<u>P.S.I.</u> <u>Yield Strength</u>	<u>P.S.I.</u> <u>Tensile Strength</u>	<u>% Total</u> <u>Elongation</u>	<u>Rockwell</u> <u>30-T Scale</u>	<u>R Value</u>
B.A. T1	26,000 to 40,000	42,000 to 56,000	28% to 38%	45 to 53	1.5
B.A. T2	30,000 to 44,000	44,000 to 58,000	25% to 35%	49 to 57	1.4
B.A. T3	33,000 to 47,000	47,000 to 61,000	23% to 33%	53 to 61	1.3
C.A. T4	47,000 to 61,000	61,000 to 69,000	17% to 27%	57 to 65	1.1
C.A. T5	53,000 to 67,000	57,000 to 71,000	15% to 25%	61 to 69	1.1
B.A. DR8	---	72,000 to 84,000	3%	72 Nominal	1.2
C.A. DR8	---	76,000 to 88,000	2%	73 Nominal	1.1
C.A. DR9	---	82,000 to 94,000	1%	75 Nominal	1.1

\*B.A. = Batch Annealed

\*C.A. = Continuous Annealed

Yield Strength = the amount of pull on the metal before it permanently stretches(begins to form).

Tensile Strength = the amount of pull on the metal when it breaks.

% Elongation = the percent change in length when the material is pulled/stretched and broken into two pieces.

Rockwell 30-T scale measures superficial hardness only.

R Value = the materials ability to both stretch and compress without either cracking or wrinkling.

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