

CONVERSION TABLES

Useful Tables Weights - Kg/Metre

ROUND BARS:

Metric Size mm	Imperial Equivalent Size inch	kg/m
3	0.1181	0.056
3.175	1/8	0.062
4	0.1575	0.099
4.762	3/16	0.140
5	0.1969	0.154
6	0.2362	0.222
6.350	1/4	0.247
7.937	5/16	0.388
8	0.3150	0.395
9.525	3/8	0.559
10	0.3937	0.617
11.112	7/16	0.761
12	0.4724	0.888
12.700	1/2	0.994
13	0.5118	1.042
14	0.5512	1.208
14.287	9/16	1.259
15.875	5/8	1.554
16	0.6299	1.578
17	0.6693	1.782
17.462	11/16	1.880
19	0.7480	2.226
19.050	3/4	2.237
20	0.7874	2.466
20.637	13/16	2.626
22	0.8661	2.984
22.225	7/8	3.045

Metric Size mm	Imperial Equivalent Size inch	kg/m
23.812	15/16	3.496
24	0.9449	3.551
25	0.9843	3.853
25.400	1	3.978
28	1.1024	4.834
28.575	1 1/8	5.034
30	1.1811	5.549
31.750	1 1/4	6.215
32	1.2598	6.313
33	1.2992	6.714
34.925	1 3/8	7.520
35	1.3780	7.553
38.100	1 1/2	8.950
40	1.5748	9.865
41.275	1 5/8	10.504
44.450	1 3/4	12.181
45	1.7717	12.485
47.625	1 7/8	13.984
50	1.9685	15.413
50.800	2	15.911
53.975	2 1/8	17.962
55	2.1654	18.650
57.150	2 1/4	20.137
60	2.3622	22.195
60.325	2 3/8	22.436
63.500	2 1/2	24.861
65	2.559	26.049

Metric Size mm	Imperial Equivalent Size inch	kg/m
69.850	2 3/4	30.081
70	2.756	30.120
75	2.953	34.680
76.200	3	35.799
80	3.149	39.458
82.55	3 1/4	42.013
88.90	3 1/2	48.726
90	3.543	49.939
100	3.937	61.654
101.60	4	63.642
105	4.134	67.973
110	4.331	74.601
114.30	4 1/2	80.547
120	4.724	88.781
127.0	5	99.441
130	5.118	104.19
140	5.512	120.84
150	5.905	138.72
152.40	6	143.19
160	6.299	157.83
180	7.086	199.75
200	7.874	246.61
210	8.267	271.89
220	8.661	298.40
230	9.055	326.14
250	9.842	385.33

HEXAGON BARS:

6.35	1/4	0.274
7.94	5/16	0.428
9.52	3/8	0.616
11.11	7/16	0.840
12.70	1/2	1.096
14.29	9/16	1.388
15.87	5/8	1.712

19.05	3/4	2.466
20.64	13/16	2.894
20.83	0.820	2.948
22.22	7/8	3.358
23.37	0.920	3.711
25.40	1	4.386
26.99	1 1/16	4.946

28.57	1 1/8	5.550
31.75	1 1/4	6.853
34.92	1 3/8	8.292
38.10	1 1/2	9.868
47.24	1.860	15.166
52.07	2.050	18.379

To calculate the weights of Bright Steel Bars in kg/metre, use the following formulae: -

Hexagons	- (size a/f in mm) ²	x .006798	= weight per metre in kilograms
Squares	- (size a/f in mm) ²	x .00785	= weight per metre in kilograms
Rounds	- (Diameter in mm) ²	x .006165	= weight per metre in kilograms
Flats	- Width in mm x thickness in mm	x .00785	= weight per metre in kilograms.

CONVERSION TABLES

Approx. Comparison of Tensile Strength*

tons/in ²	p.s.i	kg/mm ²	N/mm ² or MPa	tons/in ²	p.s.i	kg/mm ²	N/mm ² or MPa
16	37,000	25.8	250	80	180,000	126.0	1236
20	45,000	31.6	309	81	182,000	128.0	1251
23	51,500	36.5	355	84	188,000	132.2	1297
26	58,000	40.8	402	85	190,000	133.6	1313
29	65,000	45.7	448	88	197,000	138.5	1359
30	67,000	47.1	463	90	202,000	142.0	1390
32	72,000	50.6	494	91	204,000	143.4	1405
33	74,000	52.0	510	94	210,000	148.4	1452
35	78,500	55.5	541	95	213,000	149.7	1467
36	81,000	57.0	556	97	217,000	152.6	1498
39	87,500	61.8	602	100	224,000	157.5	1544
40	90,000	63.3	618	104	233,000	163.8	1606
42	94,000	66.0	649	105	235,000	165.4	1622
45	101,000	71.0	695	107	240,000	168.5	1653
46	103,000	72.5	710	110	246,500	173.2	1699
49	110,333	77.3	757	113	253,000	178.0	1745
50	112,000	78.75	772	115	257,600	181.1	1776
52	116,500	82.0	803	117	262,000	184.3	1807
55	123,000	86.5	849	120	269,000	189.0	1853
58	130,000	91.4	896	123	275,500	194.0	1900
60	134,500	94.5	927	125	280,000	197.0	1931
62	139,000	97.7	957.5	126	282,500	198.0	1946
65	146,000	102.6	1004	130	291,000	205.0	2000
68	153,000	107.5	1050	133	298,000	209.0	2054
70	157,000	110.4	1081	135	302,400	213.0	2085
71	159,000	111.8	1097	136	304,500	214.0	2010
75	168,000	118.0	1158	140	313,600	221.0	2162
78	175,000	123.0	1205				

*A Guide Only

Metric to Gauge

Gauge Number	9	10	12	14	16	18	20	22	24	26	28
Birmingham Gauge (mm)	3.50	3.00	2.50	2.00	1.60	1.20	1.00	0.80	0.60	0.50	0.40
Galv. Sheet Gauge (B.M.T.)	3.45	2.95	2.45	1.95	1.55	1.15	0.95	0.75	0.55	0.45	0.35

*Note: Mild Steel only

CONVERSION TABLES

Approx. Equivalent Hardness Numbers and Tensile Strength for Brinell Hardness for Steel*

Brinell Hardness No. 10mm ball 3000kg Load	Diamond Pyramid Hardness No.	B-Scale 100kg Load 1/16" dia. Ball	Rockwell Hardness No. C-Scale 150kg Load Brale Penetrator	Tensile Strength in MPa
-	940	-	68.0	-
-	840	-	65.3	-
-	780	-	63.3	-
682	737	-	61.7	-
653	697	-	60.0	-
627	667	-	58.7	2392
601	640	-	57.3	2261
578	615	-	56.0	2158
555	591	-	54.7	2058
534	569	-	53.5	1962
514	547	-	52.1	1893
495	528	-	51.0	1817
477	508	-	49.6	1738
461	491	-	48.5	1665
444	472	-	47.1	1586
429	455	-	45.7	1513
415	440	-	44.5	1461
401	424	-	43.1	1391
388	410	-	41.8	1330
375	396	-	40.4	1271
363	383	-	39.1	1220
352	372	(110.0)	37.9	1175
341	360	(109.0)	36.6	1133
331	349	(108.5)	35.5	1097
321	339	(108.0)	34.3	1062
311	328	(107.5)	33.1	1029
302	319	(107.0)	32.1	1001
293	309	(106.0)	30.9	975
285	301	(105.5)	29.9	949
277	292	(104.5)	28.8	923
269	284	(104.0)	27.6	896
262	276	(103.0)	26.6	873

Brinell Hardness No. 10mm ball 3000kg Load	Diamond Pyramid Hardness No.	B-Scale 100kg Load 1/16" dia. Ball	Rockwell Hardness No. C-Scale 150kg Load Brale Penetrator	Tensile Strength in MPa
255	269	(102.0)	25.4	849
248	261	(101.0)	24.2	826
241	253	100.0	22.8	803
235	247	99.0	21.7	783
229	241	98.2	20.5	764
223	234	97.3	(18.8)	742
217	228	96.4	(17.5)	722
212	222	95.5	(16.0)	706
207	218	94.6	(15.2)	691
201	212	93.8	(13.8)	672
197	207	92.9	(12.7)	658
192	202	91.8	(11.5)	642
187	196	90.7	(10.0)	625
183	192	90.0	(9.0)	612
179	188	89.0	(8.0)	599
174	182	87.8	(6.4)	583
170	178	86.8	(5.4)	570
167	175	86.0	(4.4)	560
163	171	85.0	(3.3)	546
159	167	83.8	(2.1)	535
156	163	82.9	(0.9)	526
152	159	81.7	-	514
149	156	80.8	-	504
146	153	79.8	-	495
143	150	78.7	-	485
140	146	77.6	-	475
137	143	76.4	-	464
134	140	75.2	-	455
131	137	74.0	-	446
128	134	72.7	-	437
126	132	72.0	-	431

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