

# **BRC**

## **IMPERIAL/METRIC CONVERSION TABLES**

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# Conversion Factors

Imperial to S.I. Metric		S.I. Metric to Imperial	
<b>1. Length</b>			
1 yd	=	0.9144 m	1 m = 1.093 61 yd
1 ft	=	0.3048 m	= 3.280 84 ft
1 in	=	25.4 mm	1 mm = 39.3701 in
			1 mm = 0.039 37 in
<b>2. Area</b>			
1 yd <sup>2</sup>	=	0.836 127 m <sup>2</sup>	1 m <sup>2</sup> = 1.195 99 yd <sup>2</sup>
1 ft <sup>2</sup>	=	0.092 903 m <sup>2</sup>	= 10.7639 ft <sup>2</sup>
1 in <sup>2</sup>	=	645.16 mm <sup>2</sup>	1 mm <sup>2</sup> = 0.001 550 in <sup>2</sup>
<b>3. Area/Unit Width</b>			
1 in <sup>2</sup> /ft	=	2116.7mm <sup>2</sup> /m	1 mm <sup>2</sup> /m = 0.4724 x 10 <sup>-3</sup> in <sup>2</sup> /ft
<b>4. Volume. Modulus of Section</b>			
1 yd <sup>3</sup>	=	0.7646 m <sup>3</sup>	1 m <sup>3</sup> = 1.308 yd <sup>3</sup>
1 ft <sup>3</sup>	=	0.0283 m <sup>3</sup>	= 35.315 ft <sup>3</sup>
	=	28.317 litre	1 litre = 0.0353 ft <sup>3</sup>
1 gal <sup>†</sup>	=	4.546 litre	= 0.2200 gal (0.264 U.S gal)
1 in <sup>3</sup>	=	16.387 x 10 <sup>3</sup> mm <sup>3</sup>	
<b>5. Mass</b>			
1 tonne*	=	1.016 05 t	1 t = 0.984 207 tonne
1 lb	=	0.453 592 37 kg	1 kg = 2.204 62 lb
<b>6. Mass/Unit Length</b>			
1 lb/ft	=	1.488 16 kg/m	1 kg/m = 0.671 969 lb/ft
<b>7. Mass/Unit Area</b>			
1 lb/ft <sup>2</sup>	=	4.882 43 kg/m <sup>2</sup>	1 kg/m <sup>2</sup> = 0.204 816 lb/ft <sup>2</sup>
<b>8. Density (Mass/Unit Volume)</b>			
1 lb/ft <sup>3</sup>	=	16.0185 kg/m <sup>3</sup>	1 kg/m <sup>3</sup> = 0.062 428 lb/ft <sup>3</sup>
<b>9. Force (load or weight)</b>			
1 lbf	=	4.448 N	1 N = 0.2248 lbf
1 kip	=	4.448 kN	1 kN = 0.2248 kip
1 tonf	=	9.964 kN	= 0.1004 tonf
<b>10. Force (load or weight)/Unit Length</b>			
1 lbf/ft	=	14.59 N/m	1 N/m = 0.0685 lbf/ft
	=	0.0146 kN/m	1 kN/m = 68.52 lbf/ft
1kip/ft	=	14.59 kN/m	= 0.0685 kip/ft
1ton/ft	=	32.69 kN/m	= 0.0306 tonf/ft

\* 1 tonne (metric)= 2240 lbs

\* 1 tonne (imperial)= 2000 lbs

† 1 Imp gal. = 1.20095 U.S. gal

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# Conversion Factors

Imperial to S.I. Metric	S.I. Metric to Imperial
<b>11. Force (load/unit area)</b>	
1 lbf/ft <sup>2</sup> = 47.88 N/m <sup>2</sup> (Pa)	1kPa = 20.9 lbf/ft <sup>2</sup>
= 0.047 88 kN/m <sup>2</sup> (kPa)	=
1 kip/ft <sup>2</sup> = 47.88 kN/m <sup>2</sup> (kPa)	1 kPa = 0.0209 kip/ft <sup>2</sup>
= 0.047 88 MN/m <sup>2</sup> (MPa)	=
1 tonf/ft <sup>2</sup> = 107.3 kPa	1 MPa = 20.9 kip/ft <sup>2</sup>
= 0.1073 MPa	= 9.324 tonf/ft <sup>2</sup>
<b>12. Moment of Force</b>	
1 lbf.in = 0.113 N m	1N.m = 8.851 lbf.in
= 0.000 113 kNm	= 0.7376lbf.ft
1 lbf.ft = 1.356 Nm	1kN.m = 8851 lbf.in
= 0.001 356 kNm	= 737.6 lbf.ft
1 kip.in = 0.113 kNm	= 8.851 kip.in
1 kip.ft = 1.356 kNm	= 0.7376 kip.ft
1 ton.ft = 3.037kNm	= 0.3293 tonf.ft
<b>13. Moment of Force</b>	
1 lbf.in/ft = 0.371 Nm/m	1kN.m/m = 2.698 lbf.in/ft
= 0.000 371 kN/m/m	= 0.2248 lbf.ft/ft
1 lbf.ft/ft = 4.448 Nm/m	1kN.m/m = 2698 lbf.in/ft
= 0.004 448 kNm/m	= 224.8 lbf.ft/ft
1 kip.ft/ft = 4.448 kNm/m	= 0.2248 kip.ft/ft
1 tonf.ft/ft = 9.964 kNm/m	= 0.1004 tonf.ft/ft
<b>14. Stress &amp; Modulus of Elasticity</b>	
1 lbf/in <sup>2</sup> = 6.895 kPa	1kPa = 0.1450 lbf/in <sup>2</sup>
= 0.006 895 MPa	1 MPa = 145.0lbf/in <sup>2</sup>
1 kip/in <sup>2</sup> = 6.895 MPa	= 0.1450 kip/in <sup>2</sup>
1 tonf./ft = 15.444 MPa	= 0.064 75tonf/in <sup>2</sup>
<b>15. Properties of Sections</b>	
(a) Section Modulus Z	
1 in <sup>3</sup> = 16.4 x 10 <sup>3</sup> mm <sup>3</sup>	1 mm <sup>3</sup> = 0.061 x 10 <sup>-3</sup> in <sup>3</sup>
(b) Second Moment of Area I	
1 in <sup>4</sup> = 0.4162 x 10 <sup>6</sup> mm <sup>4</sup>	1 mm <sup>4</sup> = 2.403 x 10 <sup>-6</sup> in <sup>4</sup>
<b>16. Thickness</b>	
1 micron = 0.001 mm	
1 mil = 0.001 in	