

## FORCE PER UNIT LENGTH - SPRING RATE - BEAM LOADING

Unit	Nm <sup>-1</sup>	kgf m <sup>-1</sup>	lbf in <sup>-1</sup>	lbf ft <sup>-1</sup>	tonf in <sup>-1</sup>
Nm	1	0.101972	5.71017 x 10 <sup>-3</sup>	68.5221 x 10 <sup>-3</sup>	2.546263 x 10 <sup>-6</sup>
kgf m <sup>-1</sup>	9.80665	1	55.9975 x 10 <sup>-3</sup>	0.671968	24.9967 x 10 <sup>-3</sup>
lbf in <sup>-1</sup>	175.127	17.565	1	12	0.446429 x 10 <sup>-3</sup>
lbf ft <sup>-1</sup>	14.5939	1.48816	0.083333	1	37.2024 x 10 <sup>-6</sup>
tonf in <sup>-1</sup>	392264	40001.9	2240	26880	1

- Nm = 10<sup>-3</sup> N mm<sup>-1</sup>

## MOMENT - TORQUE - TORSION

Unit	Nm	N cm	ft lbf	in lbf	ozf in
Nm	1	100	0.737562	8.850745	141.61192
N cm	10 <sup>-2</sup>	1	7.37565 x 10 <sup>-3</sup>	88.50745 x 10 <sup>-3</sup>	1.4161192
lbf ft	1.355818	135.5818	1	12	192
lbf	0.112985	11.2985	0.833333	1	16
ozf in	0.007062	0.706155	0.00520833	0.0625	1

## MOMENT OF INERTIA

Unit	kg m <sup>2</sup>	kg mm <sup>2</sup>	lb ft <sup>2</sup>	slug ft <sup>2</sup>	lb in <sup>2</sup>
kg m <sup>2</sup>	1	10 <sup>6</sup>	23.7304	0.737565	3417.18
kg mm <sup>2</sup>	10 <sup>-6</sup>	1	23.7304 x 10 <sup>-6</sup>	0.737565 x 10 <sup>-6</sup>	3.41718 x 10 <sup>-3</sup>
lb ft <sup>2</sup>	0.04214	42140	1	0.031081	144
slug ft <sup>2</sup>	1.35573	1355730	32.17405	1	4633.06
lb in <sup>2</sup>	0.292639 x 10 <sup>-3</sup>	292.639	6.94444 x 10 <sup>-3</sup>	0.21588 x 10 <sup>3</sup>	1

## SECOND MOMENT OF AREA

Unit	cm <sup>4</sup>	ft <sup>4</sup>	in <sup>4</sup>	mm <sup>4</sup>
cm <sup>4</sup>	1	1.15862 x 10 <sup>-6</sup>	0.0240251	104
ft <sup>4</sup>	863097	1	.20736	86309.7 x 10 <sup>3</sup>
in <sup>4</sup>	41.6231	48.2253 x 10 <sup>-6</sup>	1	416.231 x 10 <sup>3</sup>
mm <sup>4</sup>	10 <sup>-4</sup>	0.115862 x 10 <sup>-9</sup>	2.4025 x 10 <sup>-6</sup>	1