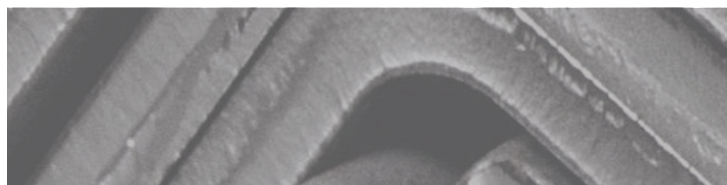


# STEEL ANGLES

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European Rolling Tolerances Standard  
-EN 1005-2 : 1993



## European Rolling Tolerances Standard -EN1 005-2 : 1993

This European standard specifies tolerances on shapes dimensions and mass of hot rolled structural steel equal and unequal leg angles.

### Tolerance on shapes and dimensions Leg Length ( A or B )

The deviation from nominal on length shall be within the tolerance given in the following table.

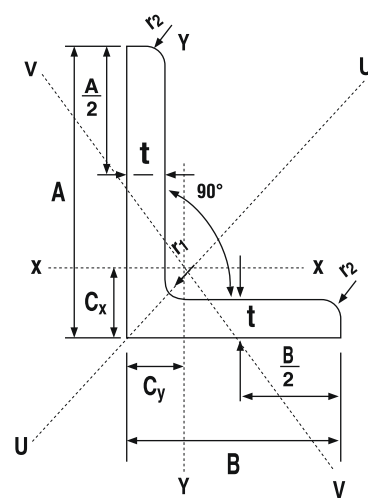
For unequal leg angles, the longer leg length (A) shall be used to determine the tolerance band.

Longer Leg Length A ( mm )		Tolerance (mm)	
Up to and including 50	( A ≤ 50 )	+ 1.0	- 1.0
Greater than 50 up to and including 100	( 50 < A ≤ 100 )	+ 2.0	- 2.0
Greater than 100 up to and including 150	( 100 < A ≤ 150 )	+ 3.0	- 3.0
Greater than 150 up to and including 200	( 150 < A ≤ 200 )	+ 4.0	- 4.0
Greater than 200	( A > 200 )	+ 6.0	- 4.0

### Section Thickness , t (mm)

The deviation from nominal on thickness shall be within the tolerance given in the following table.

Section Thickness ( t )		Tolerance (mm)	
Up to and including 5	( t ≤ 5 )	+ 0.5	- 0.5
Greater than 5 up to and including 10	( 5 < t ≤ 10 )	+ 0.75	- 0.75
Greater than 10 up to and including 15	( 10 < t ≤ 15 )	+ 1.0	- 1.0
Greater than 15	( t > 20 )	+ 1.20	- 1.20

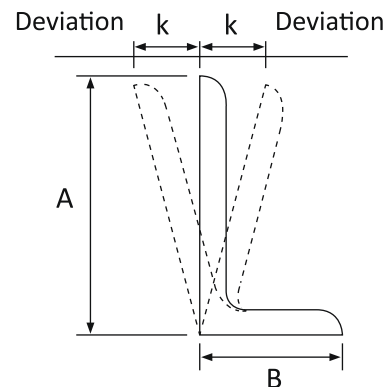


### Out of Square , k (mm)

Out-of-squareness of section shall not exceed the maximum following table.

For unequal leg angles, the longer leg length ( A ) shall be used to determine the tolerance band.

Out of Square (k) - Longer Leg Length A ( mm )		Tolerance ( mm )
Up to and including 100	( A ≤ 100 )	+ 1.0
Greater than 100 up to and including 150	( 100 < A ≤ 150 )	+ 1.5
Greater than 150 up to and including 200	( 150 < A ≤ 200 )	+ 2.0
Greater than 200	( A > 200 )	+ 3.0



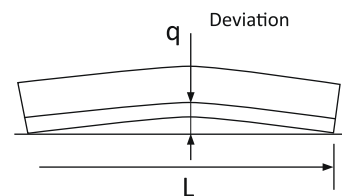
## European Rolling Tolerances Standard -EN1 005-2 : 1993

This European standard specifies tolerances on shapes dimensions and mass of hot rolled structural steel equal and unequal leg angles.

### Straightness , q (mm)

The deviation from straightness shall not exceed the tolerances given in the following table.

For unequal leg angles, the longer leg length ( A ) shall be used to determine the tolerance band.



Longer Leg Length A ( mm )		Tolerance ( mm )		
		Over Full Bar Length	Over Any Part Bar Length	
			Deviation q ( mm )	Length Considered, L ( mm )
Up to and including 150	( A ≤ 150 )	0.4% L	1,500	6.0
Up to and including 200	( A ≤ 200 )	0.2% L	2,000	4.0
Greater than 200	( A > 200 )	0.1% L	3,000	3.0

### Tolerance on Mass

The deviation from the nominal mass of any individual piece shall not exceed :

- ± 6% for thickness for  $t \leq 4\text{mm}$  or
- ± 4% for thickness for  $t > 4\text{mm}$

The deviation from the nominal mass is the difference between the actual mass of the piece and the calculated mass. The calculated mass shall be determined using a density of  $7,850 \text{ kg/m}^3$ .

### Tolerance on Length

The tolerance on ordered length shall be either :

- ± 50mm; or
- 0 / +100mm where minimum lengths are requested

# Dimensions and Properties

## Equal Angle

Designation Size	Unit Mass			Radius		Area of Section	Distance Centre of Gravity	Second Moment Of Area			Radius Of Gyration			Elastic Modulus
				Root	Toe			Axis	Axis	Axis	Axis	Axis	Axis	
A x A x t	M			r <sub>1</sub>	r <sub>2</sub>		C <sub>x</sub> , C <sub>y</sub>	x-x, y-y	u-u	v-v	x-x, y-y	u-u	v-v	x-x, y-y
mm x mm x mm	kg/m	kg/ft	lb/ft	mm	mm	cm <sup>2</sup>	cm	cm <sup>4</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm	cm	cm	cm <sup>3</sup>
20 x 20 x 3	0.885	0.27	0.59	3.5	2.4	1.11	0.593	0.381	0.601	0.160	0.585	0.735	0.380	0.271
25 x 25 x 3	1.12	0.34	0.75	3.5	2.4	1.14	0.718	0.784	1.24	0.326	0.745	0.938	0.481	0.440
x 4	1.45	0.44	0.97	3.5	2.4	1.84	0.758	1.00	1.58	0.422	0.737	0.926	0.479	0.574
x 5	1.70	0.52	1.14	3.5	2.4	2.25	0.796	1.19	1.87	0.516	0.728	0.912	0.479	0.701
30 x 30 x 3	1.36	0.41	0.91	5	2.4	1.74	0.836	1.41	2.23	0.590	0.901	1.13	0.582	0.652
x 4	1.76	0.54	1.18	5	2.4	2.27	0.879	1.81	2.86	0.758	0.893	1.12	0.578	0.853
x 5	2.16	0.66	1.45	5	2.4	2.78	0.919	2.17	3.42	0.921	0.884	1.11	0.576	1.04
35 x 35 x 6	1.65	0.50	1.11	5	2.4	3.87	1.08	4.13	6.51	1.76	1.03	1.30	0.674	1.71
38 x 38 x 3	1.72	0.52	1.16	6	2.4	2.24	1.03	2.99	4.72	1.25	1.15	1.45	0.748	1.08
x 4	2.36	0.72	1.59	6	2.4	2.93	1.07	3.85	6.10	1.61	1.15	1.44	0.741	1.41
x 5	2.79	0.85	1.87	6	2.4	3.60	1.12	4.66	7.36	1.95	1.14	1.43	0.736	1.73
x 6	3.33	1.01	2.24	6	2.4	4.25	1.15	5.40	8.51	2.29	1.13	1.41	0.733	2.04
40 x 40 x 3	1.83	0.56	1.23	6	2.4	2.36	1.08	3.51	5.55	1.47	1.22	1.53	0.789	1.20
x 4	2.42	0.74	1.63	6	2.4	3.09	1.12	4.53	7.18	1.89	1.21	1.52	0.782	1.58
x 5	2.95	0.90	1.98	6	2.4	3.80	1.17	5.48	8.68	2.29	1.20	1.51	0.776	1.94
x 6	3.52	1.07	2.37	6	2.4	4.49	1.20	6.37	10.1	2.69	1.19	1.50	0.773	2.28
45 x 45 x 4	2.74	0.84	1.84	7	2.4	3.52	1.24	6.59	10.4	2.75	1.37	1.72	0.884	2.02
x 5	3.38	1.03	2.27	7	2.4	4.33	1.29	7.99	12.6	3.34	1.36	1.71	0.878	2.49
x 6	3.99	1.22	2.68	7	2.4	5.12	1.33	9.31	14.7	3.90	1.35	1.69	0.873	2.93
50 x 50 x 3	2.33	0.71	1.57	7	2.4	2.99	1.32	7.06	11.1	2.97	1.54	1.93	0.997	1.92
x 4	3.06	0.93	2.06	7	2.4	3.92	1.37	9.17	14.5	3.82	1.53	1.92	0.987	2.52
x 4.5	3.40	1.04	2.28	7	2.4	4.38	1.39	10.2	16.1	4.23	1.52	1.92	0.984	2.82
x 5	3.77	1.15	2.53	7	2.4	4.83	1.41	11.2	17.7	4.64	1.52	1.91	0.980	3.11
x 6	4.43	1.35	2.98	7	2.4	5.72	1.45	13.0	20.6	5.43	1.51	1.90	0.974	3.67
x 8	5.78	1.76	3.88	7	2.4	7.44	1.53	16.5	25.9	6.97	1.49	1.87	0.968	4.74
60 x 60 x 5	4.55	1.39	3.06	8	2.4	5.86	1.65	19.8	31.4	8.24	1.84	2.31	1.19	4.56
x 6	5.42	1.65	3.64	8	2.4	6.95	1.70	23.2	36.8	9.65	1.83	2.30	1.18	5.40
63 x 63 x 5	4.75	1.45	3.19	8	2.4	6.16	1.73	23.1	36.6	9.58	1.93	2.44	1.25	5.05
x 6	5.71	1.74	3.84	8	2.4	7.31	1.77	27.1	42.9	11.2	1.92	2.42	1.24	5.98
x 8	7.42	2.26	4.99	8	2.4	9.55	1.85	34.5	54.6	14.4	1.90	2.39	1.23	7.76
65 x 65 x 5	5.00	1.52	3.36	9	2.4	6.40	1.77	25.5	40.3	10.6	2.00	2.51	1.29	5.39
x 6	5.91	1.80	3.97	9	2.4	7.59	1.82	29.9	47.4	12.4	1.98	2.50	1.28	6.38
x 8	7.66	2.33	5.15	9	2.4	9.91	1.90	38.2	60.4	15.9	1.96	2.47	1.27	8.29
x 9	8.55	2.61	5.75	9	2.4	11.0	1.94	42.0	66.4	17.6	1.95	2.45	1.26	9.21
70 x 70 x 6	6.38	1.94	4.29	9	2.4	8.19	1.94	37.7	59.8	15.7	2.15	2.70	1.38	7.46
x 7	7.38	2.25	4.96	9	2.4	9.46	1.98	43.1	68.3	17.9	2.13	2.69	1.38	8.59
x 8	8.43	2.57	5.66	9	2.4	10.71	2.02	48.3	76.5	20.1	2.12	2.67	1.37	9.70
75 x 75 x 5	5.69	1.73	3.82	10	4.8	7.37	2.00	38.7	61.2	16.2	2.29	2.88	1.48	7.02
x 6	6.85	2.09	4.60	10	4.8	8.76	2.04	45.7	72.4	19.0	2.28	2.88	1.47	8.38
x 8	9.03	2.75	6.07	10	4.8	11.5	2.13	59.0	93.5	24.5	2.27	2.85	1.46	11.0
x 9	9.96	3.04	6.69	10	4.8	12.8	2.17	65.3	103	27.2	2.26	2.84	1.46	12.3
x 10	10.99	3.35	7.38	10	4.8	14.1	2.21	71.3	113	29.8	2.25	2.83	1.45	13.5
x 12	13.00	3.96	8.74	10	4.8	16.7	2.29	82.7	130	35.0	2.23	2.80	1.45	15.9
80 x 80 x 6	7.34	2.24	4.93	10	4.8	9.36	2.17	56.0	88.7	23.2	2.45	3.08	1.58	9.6
x 8	9.66	2.94	6.49	10	4.8	12.3	2.26	72.4	115	30.0	2.43	3.06	1.56	12.6
x 10	11.8	3.60	7.93	10	4.8	15.1	2.34	87.7	139	36.5	2.41	3.03	1.55	15.5

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

# Dimensions and Properties

## Equal Angle

Designation Size	Unit Mass			Radius		Area of Section	Distance Centre of Gravity	Second Moment Of Area			Radius Of Gyration			Elastic Modulus
				Root	Toe			Axis	Axis	Axis	Axis	Axis	Axis	
A x A x t	M			r <sub>1</sub>	r <sub>2</sub>		C <sub>x</sub> , C <sub>y</sub>	x-x, y-y	u-u	v-v	x-x, y-y	u-u	v-v	x-x, y-y
mm x mm x mm	kg/m	kg/ft	lb/ft	mm	mm	cm <sup>2</sup>	cm	cm <sup>4</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm	cm	cm	cm <sup>3</sup>
90 x 90 x 6	8.30	2.53	5.58	11	4.8	10.6	2.41	81.0	128	33.7	2.76	3.48	1.78	12.3
x 7	9.61	2.93	6.46	11	4.8	12.3	2.46	93.2	148	38.7	2.76	3.47	1.77	14.3
x 8	10.90	3.32	7.32	11	4.8	13.9	2.50	105	167	43.5	2.75	3.46	1.77	16.2
x 9	12.20	3.72	8.20	11	4.8	15.6	2.54	117	185	48.2	2.74	3.45	1.76	18.0
x 10	13.40	4.08	9.00	11	4.8	17.2	2.58	128	202	52.9	2.73	3.43	1.76	19.9
x 12	15.90	4.85	10.68	11	4.8	20.3	2.66	149	235	62.1	2.70	3.40	1.75	23.5
x 13	17.00	5.18	11.42	11	4.8	21.9	2.70	159	251	66.6	2.69	3.39	1.74	25.2
100 x 100 x 6	9.20	2.80	6.18	12	4.8	11.9	2.65	113	178	47.0	3.08	3.88	1.99	15.3
x 7	10.70	3.26	7.19	12	4.8	13.7	2.70	130	206	53.9	3.08	3.87	1.98	17.8
x 8	12.20	3.72	8.20	12	4.8	15.6	2.75	146	232	60.6	3.07	3.86	1.97	20.2
x 10	15.00	4.57	10.08	12	4.8	19.2	2.83	178	283	73.8	3.05	3.84	1.96	24.8
x 12	17.80	5.43	11.96	12	4.8	22.8	2.91	208	330	86.5	3.02	3.81	1.95	29.4
x 13	19.10	5.82	12.83	12	4.8	24.5	2.95	222	352	92.8	3.01	3.79	1.95	31.5
x 15	21.90	6.68	14.72	12	4.8	28.0	3.02	250	395	105	2.99	3.76	1.94	35.8
120 x 120 x 8	14.70	4.48	9.88	13	4.8	18.8	3.24	259	411	107	3.71	4.67	2.38	29.5
x 10	18.20	5.55	12.23	13	4.8	23.3	3.32	316	502	130	3.69	4.64	2.37	36.4
x 12	21.60	6.58	14.51	13	4.8	27.6	3.41	371	588	153	3.66	4.62	2.36	43.1
x 15	26.60	8.11	17.87	13	4.8	34.0	3.52	448	710	186	3.63	4.57	2.34	52.8
125 x 125 x 8	14.90	4.54	10.01	14	4.8	19.7	3.36	294	466	122	3.87	4.87	2.49	32.2
x 10	19.09	5.82	12.83	14	4.8	24.3	3.44	360	570	149	3.84	4.84	2.47	39.7
x 12	22.67	6.91	15.23	14	4.8	28.9	3.53	422	669	174	3.82	4.81	2.46	47.0
130 x 130 x 8	15.90	4.85	10.68	14	4.8	20.5	3.48	332	527	138	4.03	5.07	2.59	34.9
x 9	17.90	5.46	12.03	14	4.8	22.9	3.53	370	586	153	4.02	5.06	2.58	39.0
x 10	19.70	6.00	13.24	14	4.8	25.3	3.57	406	645	168	4.01	5.05	2.57	43.1
x 12	23.50	7.16	15.79	14	4.8	30.1	3.65	477	758	197	3.98	5.02	2.56	51.1
x 15	28.80	8.78	19.35	14	4.8	37.1	3.77	578	916	240	3.95	4.97	2.54	62.6
x 16	30.70	9.36	20.63	14	4.8	39.4	3.81	610	966	253	3.94	4.95	2.54	66.3
150 x 150 x 8	18.00	5.49	12.10	16	4.8	23.8	3.97	518	820	215	4.66	5.87	3.01	46.9
x 10	23.00	7.01	15.46	16	4.8	29.5	4.06	635	1008	263	4.64	5.85	2.99	58.0
x 12	27.30	8.32	18.34	16	4.8	35.0	4.14	748	1187	309	4.62	5.82	2.97	68.9
x 15	33.80	10.30	22.71	16	4.8	43.2	4.26	909	1442	375	4.59	5.78	2.95	84.6
x 16	35.70	10.88	23.99	16	4.8	45.9	4.30	960	1523	397	4.57	5.76	2.94	89.8
x 18	40.10	12.22	26.95	16	4.8	51.2	4.38	1060	1680	440	4.55	5.73	2.93	99.8
x 19	41.90	12.77	28.16	16	4.8	53.8	4.42	1109	1756	462	4.54	5.71	2.93	105
175 x 175 x 12	31.80	9.69	21.37	16	4.8	41.0	4.77	1208	1920	497	5.43	6.84	3.48	94.9
x 15	39.40	12.01	26.48	16	4.8	50.7	4.89	1474	2342	606	5.39	6.80	3.46	117
200 x 200 x 12	36.55	11.14	24.56	18	4.8	47.2	5.38	1829	2906	753	6.23	7.85	4.00	125
x 13	39.49	12.04	26.54	18	4.8	50.9	5.42	1967	3126	809	6.22	7.84	3.99	135
x 15	45.30	13.81	30.44	18	4.8	58.3	5.50	2237	3555	919	6.19	7.81	3.97	154
x 16	48.50	14.78	32.59	18	4.8	62.0	5.54	2369	3765	973	6.18	7.79	3.96	164
x 18	54.20	16.52	36.42	18	4.8	69.4	5.62	2627	4174	1080	6.15	7.76	3.95	183
x 20	59.90	18.26	40.25	18	4.8	76.6	5.70	2877	4569	1185	6.13	7.72	3.93	201
x 24	71.10	21.67	47.78	18	4.8	90.8	5.85	3357	5322	1391	6.08	7.65	3.91	237
x 25	73.60	22.43	49.46	18	4.8	94.3	5.89	3472	5502	1442	6.07	7.64	3.91	246
x 26	76.80	23.41	51.61	18	4.8	97.8	5.93	3586	5680	1492	6.05	7.62	3.91	255
250 x 250 x 25	93.70	28.56	62.96	20	4.8	120	7.14	7030	11170	2891	7.67	9.67	4.92	394
x 28	104.00	31.70	69.88	20	4.8	133	7.25	7741	12290	3195	7.63	9.61	4.90	436
x 32	118.00	35.97	79.29	20	4.8	151	7.40	8650	13710	3593	7.58	9.54	4.89	491
x 35	128.00	39.01	86.01	20	4.8	164	7.51	9305	14720	3887	7.54	9.49	4.88	532
300 x 300 x 35	155.00	47.24	104.16	24	18	197	8.71	16300	25900	6690	9.09	11.50	5.82	766
350 x 350 x 35	182.00	55.47	122.30	24	18	232	9.96	26600	42300	10800	10.70	13.50	6.83	1060

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet

# Dimensions and Properties

## Unequal Angle

Designation Size	Unit Mass			Radius		Area Of Section	Distance Centre Of Gravity		Second Moment Of Area				Radius of Gyration				Elastic Modulus		Angle x-x Axis to u-u Axis
				Root r <sub>1</sub>	Toe r <sub>2</sub>		C <sub>x</sub>	C <sub>y</sub>	Axis x-x cm <sup>4</sup>	Axis y-y cm <sup>4</sup>	Axis u-u cm <sup>4</sup>	Axis v-v cm <sup>4</sup>	Axis x-x cm	Axis y-y cm	Axis u-u cm	Axis v-v cm	Axis x-x cm <sup>3</sup>	Axis y-y cm <sup>3</sup>	
A x B x t	M			mm	mm	cm <sup>2</sup>	cm	cm	cm <sup>4</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm <sup>4</sup>	cm	cm	cm	cm	cm <sup>3</sup>	cm <sup>3</sup>	Axis
<b>63 x 38 x 4.5</b>	3.45	1.05	2.32	6	2.4	4.4	2.10	0.870	18.0	4.90	20.0	3.00	2.01	1.06	2.12	0.820	4.20	1.68	0.362
<b>x 6</b>	4.43	1.35	2.98	6	2.4	5.75	2.17	0.930	23.0	6.30	25.0	3.80	1.99	1.04	2.10	0.820	5.50	2.18	0.358
<b>75 x 50 x 6</b>	5.65	1.72	3.80	7	2.4	7.22	2.45	1.21	40.9	14.6	47.1	8.48	2.38	1.42	2.55	1.08	8.10	3.87	0.436
<b>x 8</b>	7.39	2.25	4.97	7	2.4	9.44	2.53	1.29	52.4	18.6	60.1	10.9	2.36	1.40	2.52	1.07	10.5	5.01	0.430
<b>100 x 65 x 7</b>	8.8	2.68	5.91	10	4.8	11.2	3.23	1.52	113	37.7	128	22.1	3.18	1.84	3.39	1.41	16.7	7.56	0.415
<b>x 8</b>	9.4	2.87	6.32	10	4.8	12.7	3.28	1.56	127	42.3	144	24.9	3.17	1.83	3.38	1.40	18.9	8.57	0.414
<b>x 9</b>	11.0	3.35	7.39	10	7.0	14.0	3.31	1.58	138	45.5	157	26.8	3.14	1.80	3.34	1.38	20.6	9.26	0.410
<b>x 10</b>	12.3	3.75	8.27	10	4.8	15.6	3.36	1.64	154	51.1	175	30.2	3.14	1.81	3.35	1.39	23.2	10.5	0.410
<b>x 12</b>	14.4	4.39	9.68	10	7.0	18.4	3.43	1.70	177	58.0	201	34.7	3.11	1.78	3.30	1.37	27.0	12.1	0.404
<b>100 x 75 x 7</b>	9.3	2.83	6.25	10	5.0	11.9	3.06	1.84	118	56.9	144	30.7	3.15	2.19	3.49	1.61	17.0	10.1	0.548
<b>x 8</b>	10.6	3.23	7.12	10	4.8	13.5	3.11	1.88	133	64.2	163	34.6	3.14	2.18	3.48	1.60	19.3	11.4	0.548
<b>x 9</b>	11.8	3.60	7.93	10	4.8	15.1	3.15	1.92	148	71.1	181	38.4	3.13	2.17	3.46	1.60	21.6	12.7	0.546
<b>x 10</b>	13.0	3.96	8.74	10	4.8	16.6	3.19	1.96	162	77.7	198	42.2	3.12	2.16	3.45	1.59	23.8	14.0	0.545
<b>x 12</b>	15.4	4.69	10.35	10	4.8	19.7	3.27	2.03	189	90.3	230	49.5	3.10	2.14	3.42	1.59	28.1	16.5	0.541
<b>x 13</b>	16.5	5.03	11.09	10	4.8	21.2	3.31	2.07	202	96.3	245	53.1	3.09	2.13	3.40	1.58	30.2	17.7	0.539
<b>125 x 75 x 6.5</b>	10.0	3.05	6.72	11	4.8	12.7	4.07	1.62	206	56.6	228	34.4	4.02	2.11	4.23	1.64	24.4	9.63	0.360
<b>x 7</b>	10.7	3.26	7.19	11	4.8	13.7	4.10	1.64	220	60.5	244	36.7	4.01	2.10	4.22	1.64	26.2	10.3	0.360
<b>x 8</b>	12.2	3.72	8.20	11	4.8	15.5	4.14	1.69	249	68.1	275	41.3	4.00	2.10	4.21	1.63	29.7	11.7	0.360
<b>x 9</b>	13.5	4.11	9.07	11	4.8	17.4	4.19	1.73	276	75.5	306	45.8	3.99	2.09	4.20	1.62	33.2	13.1	0.359
<b>x 10</b>	15.0	4.57	10.08	11	4.8	19.2	4.23	1.77	303	82.6	336	50.2	3.98	2.08	4.18	1.62	36.7	14.4	0.358
<b>x 12</b>	17.8	5.43	11.96	11	4.8	22.7	4.32	1.84	355	96.0	392	58.8	3.95	2.06	4.16	1.61	43.4	17.0	0.354
<b>x 13</b>	19.1	5.82	12.83	10	7.0	24.3	4.35	1.87	376	101	414	61.9	3.93	2.04	4.13	1.60	46.1	17.9	0.352
<b>150 x 75 x 7</b>	12.1	3.69	8.13	12	5.0	15.5	5.17	1.50	364	63.1	386	40.8	4.85	2.02	5.00	1.62	37.0	10.5	0.263
<b>x 8</b>	13.8	4.21	9.27	11	4.8	17.5	5.23	1.54	411	71.2	436	45.8	4.84	2.02	4.99	1.62	42.1	11.9	0.263
<b>x 9</b>	15.3	4.66	10.28	12	8.5	19.4	5.25	1.55	447	75.3	473	48.7	4.79	1.97	4.93	1.58	45.8	12.7	0.259
<b>x 10</b>	17.0	5.18	11.42	11	4.8	21.7	5.32	1.62	503	86.3	533	55.8	4.82	2.00	4.96	1.60	52.0	14.7	0.261
<b>x 12</b>	20.2	6.16	13.57	11	4.8	25.7	5.41	1.70	591	100	626	65.3	4.79	1.98	4.93	1.59	61.6	17.3	0.259
<b>x 15</b>	24.8	7.56	16.66	11	4.8	31.7	5.53	1.81	715	120	756	79.2	4.75	1.95	4.89	1.58	75.5	21.1	0.254
<b>150 x 90 x 8</b>	14.3	4.36	9.61	10	5.0	18.7	4.93	1.97	436	121	484	72.7	4.83	2.54	5.09	1.97	43.3	17.2	0.364
<b>x 9</b>	16.4	5.00	11.02	12	6.0	20.9	4.95	2.00	485	133	537	80.5	4.81	2.52	5.06	1.96	48.2	19.0	0.361
<b>x 10</b>	18.2	5.55	12.23	12	4.8	23.2	5.00	2.04	536	147	595	89.2	4.81	2.52	5.06	1.96	53.7	21.2	0.361
<b>x 12</b>	21.6	6.58	14.51	12	4.8	27.6	5.09	2.12	630	172	698	105	4.78	2.50	5.03	1.95	63.6	25.0	0.359
<b>x 15</b>	26.6	8.11	17.87	12	4.8	34.0	5.21	2.24	764	207	844	127	4.74	2.47	4.99	1.93	78.1	30.6	0.354
<b>150 x 100 x 8</b>	15.2	4.63	10.21	12	8.5	19.4	4.70	2.24	441	158	508	90.9	4.77	2.86	5.12	2.17	42.8	20.3	0.437
<b>x 9</b>	17.1	5.21	11.49	12	6.0	21.8	4.77	2.30	502	181	579	104	4.79	2.88	5.15	2.18	49.1	23.5	0.439
<b>x 10</b>	19.0	5.79	12.77	13	6.5	24.2	4.80	2.34	552	198	635	114	4.78	2.86	5.13	2.17	54.1	25.8	0.437
<b>x 12</b>	22.4	6.83	15.05	12	8.5	28.6	4.88	2.41	642	228	738	132	4.74	2.83	5.08	2.15	63.4	30.1	0.435
<b>x 14</b>	26.1	7.96	17.54	12	6.0	33.2	4.98	2.50	744	265	856	153	4.74	2.82	5.08	2.15	74.3	35.3	0.434
<b>x 15</b>	27.7	8.44	18.61	12	8.5	35.2	5.01	2.53	781	276	897	161	4.71	2.80	5.04	2.14	78.2	37.0	0.431
<b>200 x 100 x 10</b>	23.0	7.01	15.46	15	4.8	29.4	6.95	2.03	1233	215	1309	138	6.48	2.70	6.68	2.17	94.5	27.0	0.264
<b>x 12</b>	27.3	8.32	18.34	15	4.8	34.9	7.04	2.11	1454	252	1544	162	6.45	2.68	6.65	2.16	112	31.9	0.263
<b>x 14</b>	31.6	9.63	21.23	15	7.5	40.3	7.12	2.18	1654	282	1755	182	6.41	2.65	6.60	2.12	128	36.1	0.261
<b>x 15</b>	33.7	10.27	22.65	15	4.8	43.1	7.17	2.23	1772	303	1879	197	6.41	2.65	6.60	2.14	138	39.0	0.260
<b>200 x 150 x 12</b>	32.0	9.75	21.50	15	4.8	40.9	6.10	3.63	1667	813	2046	434	6.38	4.45	7.07	3.26	120	71.5	0.554
<b>x 15</b>	39.6	12.07	26.61	15	4.8	50.6	6.22	3.75	2037	989	2496	530	6.34	4.42	7.02	3.23	148	87.9	0.552
<b>x 18</b>	47.4	14.45	31.85	15	4.8	60.1	6.34	3.86	2390	1155	2923	622	6.30	4.38	6.97	3.22	175	104	0.549

Note : Calculated based on 1kg= 2.2046 lb and 1m=3.2808 feet