



THREADED ROD & WASHER WEIGHT CHART

Weight per metre (kg/m) · Weight per piece (kg) · Weight per 100 pieces (kg)

M3 to M100 · Carbon Steel · SS 304 · SS 316 · Brass · Titanium

DIN 975 Threaded Rod · DIN 125 Flat Washer · DIN 9021 Large Washer · DIN 127 Spring Washer

2025 – 2026 EDITION

Threaded Rod

DIN 975 · ISO 888 · ASME B18.31

Full thread rod M3–M100 · 1m/2m/3m lengths

Flat Washer

DIN 125A · ISO 7089 · ASME B18.22.1

Standard flat washer M3–M100

Large Washer

DIN 9021 · ISO 7093

Large OD flat washer · Wide load distribution

Spring Washer

DIN 127 · ISO 7090

Split lock washer M3–M48

Materials

CS 7.85 g/cc · SS304 7.93 · SS316 7.98

Method

$\pi/4 \times d^2 \times L \times \rho$ (rod)

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Threaded Rod — Dimensions & Weight per Metre (kg/m)

DIN 975 / ISO 888 / ASME B18.31 · Full thread · M3 to M100 · All materials

Size	Pitch (mm)	Nom. Dia d (mm)	Minor Dia d ₁ (mm)	Cross-sect. Area (mm ²)	CS (kg/m)	SS 304 (kg/m)	SS 316 (kg/m)	Brass (kg/m)	Ti Gr.2 (kg/m)
M3	0.50	3	2.387	4.48	0.0555	0.0561	0.0564	0.0601	0.0319
M4	0.70	4	3.141	7.75	0.0986	0.0997	0.100	0.107	0.0567
M5	0.80	5	4.018	12.68	0.154	0.156	0.157	0.167	0.0886
M6	1.00	6	4.773	17.89	0.222	0.224	0.226	0.240	0.128
M8	1.25	8	6.466	32.84	0.395	0.399	0.401	0.427	0.227
M10	1.50	10	8.160	52.30	0.617	0.623	0.627	0.668	0.354
M12	1.75	12	9.853	76.25	0.888	0.897	0.903	0.961	0.510
M14	2.00	14	11.546	104.70	1.208	1.221	1.228	1.308	0.694
M16	2.00	16	13.546	144.12	1.578	1.594	1.604	1.709	0.907
M18	2.50	18	14.933	175.14	1.998	2.018	2.031	2.163	1.148
M20	2.50	20	16.933	225.19	2.466	2.491	2.507	2.670	1.417
M22	2.50	22	18.933	281.53	2.984	3.014	3.033	3.231	1.714
M24	3.00	24	20.319	324.26	3.551	3.587	3.610	3.845	2.040
M27	3.00	27	23.319	427.08	4.495	4.540	4.569	4.867	2.582
M30	3.50	30	25.706	518.99	5.549	5.605	5.641	6.008	3.188
M33	3.50	33	28.706	647.20	6.714	6.783	6.825	7.270	3.857
M36	4.00	36	31.092	759.25	7.990	8.072	8.123	8.652	4.591
M39	4.00	39	34.092	912.84	9.378	9.473	9.533	10.15	5.388
M42	4.50	42	36.479	1045.14	10.88	10.99	11.06	11.78	6.248
M45	4.50	45	39.479	1224.11	12.48	12.61	12.69	13.52	7.173
M48	5.00	48	41.865	1376.55	14.21	14.35	14.44	15.38	8.161
M52	5.00	52	45.865	1652.16	16.67	16.84	16.95	18.05	9.578
M56	5.50	56	49.252	1905.19	19.33	19.53	19.65	20.94	11.11
M60	5.50	60	53.252	2227.21	22.20	22.42	22.56	24.03	12.75
M64	6.00	64	56.639	2519.54	25.25	25.51	25.67	27.34	14.51
M68	6.00	68	60.639	2887.98	28.51	28.80	28.98	30.87	16.38
M72	6.00	72	64.639	3281.55	31.96	32.29	32.49	34.61	18.36
M76	6.00	76	68.639	3700.26	35.61	35.97	36.20	38.56	20.46
M80	6.00	80	72.639	4144.09	39.46	39.86	40.11	42.73	22.67
M90	6.00	90	82.639	5363.64	49.94	50.45	50.77	54.07	28.69
M100	6.00	100	92.639	6740.27	61.65	62.28	62.67	66.76	35.42

Threaded Rod Weight per Piece (kg) — M3 to M20 · C

DIN 975 / ISO 888 · Standard lengths: 0.25m · 0.5m · 1m · 1.5m · 2m · 2.5m · 3m · Also per metre for cut lengths

Size Length →	0.25m (250mm)	0.50m (500mm)	1m (1000mm)	1.50m (1500mm)	2m (2000mm)	2.50m (2500mm)	3m (3000mm)
M3	0.0139	0.0277	0.0555	0.0832	0.111	0.139	0.166
M4	0.0247	0.0493	0.0986	0.148	0.197	0.247	0.296
M5	0.0385	0.0771	0.154	0.231	0.308	0.385	0.462
M6	0.0555	0.111	0.222	0.333	0.444	0.555	0.666
M8	0.0986	0.197	0.395	0.592	0.789	0.986	1.184
M10	0.154	0.308	0.617	0.925	1.233	1.541	1.850
M12	0.222	0.444	0.888	1.332	1.776	2.220	2.663
M14	0.302	0.604	1.208	1.813	2.417	3.021	3.625
M16	0.395	0.789	1.578	2.368	3.157	3.946	4.735
M18	0.499	0.999	1.998	2.996	3.995	4.994	5.993
M20	0.617	1.233	2.466	3.699	4.932	6.165	7.398

Threaded Rod Weight per Piece (kg) — M22 to M48 · C

DIN 975 / ISO 888 · Standard lengths 1m · 2m · 3m · Heavy structural & EPC project rods

Size Length →	0.5m (500mm)	1m (1000mm)	1.5m (1500mm)	2m (2000mm)	2.5m (2500mm)	3m (3000mm)
M22	1.492	2.984	4.476	5.968	7.460	8.952
M24	1.776	3.551	5.327	7.103	8.878	10.65
M27	2.247	4.495	6.742	8.989	11.24	13.48
M30	2.774	5.549	8.323	11.10	13.87	16.65
M33	3.357	6.714	10.07	13.43	16.79	20.14
M36	3.995	7.990	11.99	15.98	19.98	23.97
M39	4.689	9.378	14.07	18.76	23.44	28.13
M42	5.438	10.88	16.31	21.75	27.19	32.63
M45	6.242	12.48	18.73	24.97	31.21	37.45
M48	7.103	14.21	21.31	28.41	35.51	42.62

Threaded Rod Weight — M52 to M100 & All Material C

Heavy-duty infrastructure · Oil & gas · Power plant anchor rods · All weights in kg

A · M52 – M100 THREADED ROD — CARBON STEEL (7.85 g/cc) per 1m / 2m / 3m

Size	Pitch (mm)	d (mm)	CS 1m (kg)	CS 2m (kg)	CS 3m (kg)	SS304 1m (kg)	SS316 1m (kg)	Brass 1m (kg)	Ti Gr.2 1m (kg)
M52	5.00	45.87	16.67	33.34	50.01	16.84	16.95	18.05	9.578
M56	5.50	49.25	19.33	38.67	58.00	19.53	19.65	20.94	11.11
M60	5.50	53.25	22.20	44.39	66.59	22.42	22.56	24.03	12.75
M64	6.00	56.64	25.25	50.51	75.76	25.51	25.67	27.34	14.51
M68	6.00	60.64	28.51	57.02	85.53	28.80	28.98	30.87	16.38
M72	6.00	64.64	31.96	63.92	95.88	32.29	32.49	34.61	18.36
M76	6.00	68.64	35.61	71.22	106.8	35.97	36.20	38.56	20.46
M80	6.00	72.64	39.46	78.92	118.4	39.86	40.11	42.73	22.67
M90	6.00	82.64	49.94	99.88	149.8	50.45	50.77	54.07	28.69
M100	6.00	92.64	61.65	123.3	185.0	62.28	62.67	66.76	35.42

B · WEIGHT PER 100 RODS × 1 METRE LENGTH — CARBON STEEL (kg)

Size	kg/m (CS)	100 × 1m rods (kg)	100 × 2m rods (kg)	100 × 3m rods (kg)	100 × 1m SS304 (kg)	100 × 1m Ti (kg)
M6	0.222	22.20	44.39	66.59	22.42	12.75
M8	0.395	39.46	78.92	118.4	39.86	22.67
M10	0.617	61.65	123.3	185.0	62.28	35.42
M12	0.888	88.78	177.6	266.3	89.69	51.01
M16	1.578	157.8	315.7	473.5	159.4	90.68
M20	2.466	246.6	493.2	739.8	249.1	141.7
M24	3.551	355.1	710.3	1065.4	358.7	204.0
M30	5.549	554.9	1109.8	1664.7	560.5	318.8
M36	7.990	799.0	1598.1	2397.1	807.2	459.1
M48	14.21	1420.5	2841.0	4261.5	1435.0	816.1
M64	25.25	2525.3	5050.7	7576.0	2551.1	1450.9
M80	39.46	3945.8	7891.7	11837.5	3986.1	2267.0
M100	61.65	6165.4	12330.8	18496.1	6228.2	3542.1

Flat Washer Weight — DIN 125A · ISO 7089 · M3 to M100

Weight per piece (kg) & per 100 pieces (kg) · Carbon Steel · SS 304 · SS 316 · Brass · Titanium

Size	ID (mm)	OD (mm)	Thk (mm)	CS (kg/pc)	SS304 (kg/pc)	SS316 (kg/pc)	Brass (kg/pc)	Ti (kg/pc)	100pcs CS (kg)	100pcs SS (kg)
M3	3.4	7	0.5	0.00012	0.00012	0.00012	0.00012	0.00007	0.0115	0.0117
M4	4.5	9	0.8	0.00030	0.00030	0.00030	0.00032	0.00017	0.0300	0.0303
M5	5.5	10	1.0	0.00043	0.00043	0.00044	0.00047	0.00025	0.0430	0.0434
M6	6.6	12	1.6	0.00099	0.0010	0.0010	0.0011	0.00057	0.0991	0.100
M8	9.0	16	1.6	0.0017	0.0017	0.0018	0.0019	0.00099	0.173	0.174
M10	11.0	20	2.0	0.0034	0.0035	0.0035	0.0037	0.0020	0.344	0.348
M12	13.5	24	2.5	0.0061	0.0061	0.0062	0.0066	0.0035	0.607	0.613
M14	15.5	28	2.5	0.0084	0.0085	0.0085	0.0091	0.0048	0.838	0.847
M16	17.5	30	3.0	0.0110	0.0111	0.0112	0.0119	0.0063	1.098	1.109
M18	20.0	34	3.0	0.0140	0.0141	0.0142	0.0151	0.0080	1.398	1.413
M20	22.0	37	3.0	0.0164	0.0165	0.0166	0.0177	0.0094	1.637	1.654
M22	24.0	39	3.0	0.0175	0.0177	0.0178	0.0189	0.0100	1.748	1.766
M24	26.0	44	4.0	0.0311	0.0314	0.0316	0.0336	0.0179	3.107	3.139
M27	30.0	50	4.0	0.0395	0.0399	0.0401	0.0427	0.0227	3.946	3.986
M30	33.0	56	4.0	0.0505	0.0510	0.0513	0.0547	0.0290	5.048	5.100
M33	36.0	60	5.0	0.0710	0.0717	0.0722	0.0769	0.0408	7.103	7.175
M36	39.0	66	5.0	0.0874	0.0883	0.0888	0.0946	0.0502	8.739	8.828
M39	42.0	72	5.0	0.105	0.107	0.107	0.114	0.0606	10.54	10.65
M42	45.0	78	6.0	0.150	0.152	0.153	0.163	0.0863	15.02	15.17
M45	48.0	85	6.0	0.182	0.184	0.185	0.197	0.105	18.20	18.39
M48	52.0	92	6.0	0.213	0.215	0.217	0.231	0.122	21.31	21.52
M52	56.0	98	6.0	0.239	0.242	0.243	0.259	0.137	23.93	24.17
M56	60.0	105	6.0	0.275	0.277	0.279	0.297	0.158	27.47	27.75
M60	64.0	110	8.0	0.395	0.399	0.401	0.427	0.227	39.48	39.88
M64	68.0	115	8.0	0.424	0.429	0.431	0.459	0.244	42.42	42.86
M68	72.0	120	8.0	0.455	0.459	0.462	0.492	0.261	45.46	45.92
M72	76.0	125	8.0	0.486	0.491	0.494	0.526	0.279	48.58	49.07
M76	80.0	130	8.0	0.518	0.523	0.526	0.561	0.298	51.79	52.32
M80	84.0	140	8.0	0.619	0.625	0.629	0.670	0.355	61.87	62.50
M90	94.0	155	10.0	0.936	0.946	0.952	1.014	0.538	93.65	94.60
M100	104.0	175	10.0	1.221	1.234	1.242	1.322	0.702	122.1	123.4

Large Flat Washer (DIN 9021) & Spring Lock Washer (DIN 127 / ISO 7090)

DIN 9021 / ISO 7093 · DIN 127 / ISO 7090 · Weight per piece & per 100 pieces

A · LARGE FLAT WASHER — DIN 9021 / ISO 7093 (Large OD for load distribution)

Size	ID (mm)	OD (mm)	Thk (mm)	CS (kg/pc)	SS304 (kg/pc)	SS316 (kg/pc)	100pcs CS (kg)	100pcs SS304 (kg)
M3	3.4	11	0.5	0.00034	0.00034	0.00034	0.0337	0.0341
M4	4.5	14	0.8	0.00087	0.00088	0.00088	0.0867	0.0876
M5	5.5	18	1.0	0.0018	0.0018	0.0018	0.181	0.183
M6	6.6	21	1.6	0.0039	0.0040	0.0040	0.392	0.396
M8	9.0	27	1.6	0.0064	0.0065	0.0065	0.639	0.646
M10	11.0	34	2.0	0.0128	0.0129	0.0130	1.276	1.289
M12	13.5	40	2.5	0.0219	0.0221	0.0222	2.185	2.208
M14	15.5	46	2.5	0.0289	0.0292	0.0294	2.891	2.921
M16	17.5	53	3.0	0.0463	0.0468	0.0471	4.629	4.676
M18	20.0	59	3.0	0.0570	0.0576	0.0579	5.699	5.757
M20	22.0	66	3.0	0.0716	0.0723	0.0728	7.162	7.235
M22	24.0	72	3.0	0.0852	0.0861	0.0866	8.523	8.610
M24	26.0	78	4.0	0.133	0.135	0.136	13.34	13.47
M27	30.0	88	4.0	0.169	0.171	0.172	16.88	17.05
M30	33.0	98	4.0	0.210	0.212	0.213	21.00	21.21
M33	36.0	107	5.0	0.313	0.316	0.318	31.30	31.62
M36	39.0	117	5.0	0.375	0.379	0.381	37.51	37.89
M39	42.0	126	5.0	0.435	0.439	0.442	43.50	43.95
M42	45.0	136	6.0	0.609	0.616	0.619	60.93	61.55
M45	48.0	146	6.0	0.703	0.710	0.715	70.33	71.05
M48	52.0	155	6.0	0.789	0.797	0.802	78.87	79.67
M52	56.0	168	6.0	0.928	0.938	0.943	92.81	93.75
M56	60.0	181	6.0	1.079	1.090	1.097	107.9	109.0
M60	64.0	194	8.0	1.654	1.671	1.682	165.4	167.1
M64	68.0	206	8.0	1.865	1.884	1.896	186.5	188.4
M68	72.0	219	8.0	2.110	2.131	2.145	211.0	213.1
M72	76.0	232	8.0	2.370	2.394	2.409	237.0	239.4
M76	80.0	245	8.0	2.645	2.672	2.689	264.5	267.2
M80	84.0	258	8.0	2.935	2.965	2.984	293.5	296.5
M90	94.0	290	10.0	4.640	4.688	4.717	464.0	468.8
M100	104.0	322	10.0	5.726	5.784	5.820	572.6	578.4

B · SPRING / SPLIT LOCK WASHER — DIN 127 / ISO 7090 (M3 to M48)

Size	CS (kg/pc)	SS304 (kg/pc)	SS316 (kg/pc)	Brass (kg/pc)	100pcs CS (kg)	100pcs SS304 (kg)
M3	0.00001	0.00001	0.00001	0.00001	0.0012	0.0012
M4	0.00003	0.00003	0.00003	0.00003	0.0029	0.0029
M5	0.00006	0.00006	0.00006	0.00006	0.0056	0.0057

Combined Rod & Washer Kit Weights — Practical Reference

Total weight: 1 rod (1m) + 2 flat washers + 1 nut · Typical hanger / suspension rod assembly

A · SUSPENSION / HANGER ROD ASSEMBLY WEIGHT — 1m ROD + 2 FLAT WASHERS + 1 HEX NUT

Size	Rod 1m CS (kg)	2 Washers CS (kg)	1 Nut CS (kg)	TOTAL CS (kg)	TOTAL SS304 (kg)	TOTAL SS316 (kg)	50 kits CS (kg)	100 kits CS (kg)
M6	0.222	0.0020	0.0023	0.226	0.229	0.230	11.31	22.62
M8	0.395	0.0035	0.0049	0.403	0.407	0.410	20.15	40.29
M10	0.617	0.0069	0.0108	0.634	0.641	0.645	31.71	63.42
M12	0.888	0.0121	0.0157	0.916	0.925	0.931	45.78	91.56
M16	1.578	0.0220	0.0304	1.631	1.647	1.658	81.53	163.1
M20	2.466	0.0327	0.0584	2.557	2.583	2.600	127.9	255.7
M24	3.551	0.0621	0.0999	3.713	3.751	3.775	185.7	371.3
M27	4.495	0.0789	0.153	4.726	4.774	4.804	236.3	472.6
M30	5.549	0.101	0.212	5.862	5.922	5.959	293.1	586.2
M36	7.990	0.175	0.365	8.530	8.617	8.671	426.5	853.0
M42	10.88	0.300	0.607	11.78	11.90	11.98	589.1	1178.3
M48	14.21	0.426	0.913	15.54	15.70	15.80	777.2	1554.5
M52	16.67	0.479	1.127	18.28	18.46	18.58	913.8	1827.7
M60	22.20	0.790	1.578	24.56	24.81	24.97	1228.1	2456.3
M72	31.96	0.972	2.493	35.43	35.79	36.01	1771.3	3542.6
M80	39.46	1.237	3.229	43.92	44.37	44.65	2196.2	4392.5
M100	61.65	2.443	6.502	70.60	71.32	71.77	3529.9	7059.9

B · MATERIAL WEIGHT CORRECTION — multiply CS weight by factor below

Material	Density (g/cc)	Factor vs CS	To convert: $W_{\text{material}} = W_{\text{CS}} \times \text{Factor}$
Carbon Steel (Grade 4.6–12.9)	7.85	1.0000	e.g. M20 × 1m CS=2.466 kg → Carbon = 2.466 kg
Stainless Steel 304 (A2)	7.93	1.0102	e.g. M20 × 1m CS=2.466 kg → Stainless = 2.491 kg
Stainless Steel 316 (A4)	7.98	1.0166	e.g. M20 × 1m CS=2.466 kg → Stainless = 2.507 kg
Duplex 2205	7.80	0.9936	e.g. M20 × 1m CS=2.466 kg → Duplex = 2.450 kg
Brass C360	8.50	1.0828	e.g. M20 × 1m CS=2.466 kg → Brass = 2.670 kg
Titanium Grade 2	4.51	0.5745	e.g. M20 × 1m CS=2.466 kg → Titanium = 1.417 kg
Aluminium 6061	2.70	0.3439	e.g. M20 × 1m CS=2.466 kg → Aluminium = 0.848 kg

Calculation Formulas, Technical Notes & Ordering Reference

How weights are calculated · Product descriptions · How to specify correctly

THREADED ROD WEIGHT

$$W \text{ (kg/m)} = \pi/4 \times d^2 \times \rho \div 1000 \times 1000$$

d = nominal diameter (mm) ρ = density (g/cc)

For cut length L mm: $W = W(\text{kg/m}) \times L \div 1000$

Minor dia: $d_{\text{min}} = d - 1.2269 \times p$ (ISO coarse thread)

Rod is approximated as solid cylinder of diameter d

FLAT WASHER WEIGHT

$$W \text{ (kg)} = \pi/4 \times (OD^2 - ID^2) \times t \times \rho \div 1000$$

OD = outer diameter ID = inner diameter (mm)

t = washer thickness (mm) ρ = density (g/cc)

DIN 125A: standard OD · DIN 9021: large OD

$$W \text{ (kg/100)} = W(\text{kg/pc}) \times 100$$

SPRING WASHER WEIGHT

Approximate: $W \approx \text{wire}_w \times \text{wire}_t \times \pi \times D_{\text{mean}} \times \rho$

$\text{wire}_w \approx 0.14 \times d$ · $\text{wire}_t \approx 0.09 \times d$ · $D_{\text{mean}} \approx 1.45 \times d$

Formula gives ±10% accuracy vs actual DIN 127

Actual weights vary with spring temper and OD

For precise weights request DIN 127 data sheet

MATERIAL CORRECTION

$$W_{\text{material}} = W_{\text{CS}} \times (\rho_{\text{material}} \div 7.85)$$

SS 304: ×1.0102 SS 316: ×1.0166

Brass C360: ×1.0828 Copper: ×1.1389

Titanium Gr.2: ×0.5745 Aluminium: ×0.3439

Duplex 2205: ×0.9936 Monel 400: ×1.1210

ACCURACY NOTES & DISCLAIMER

Threaded rod weights are calculated using nominal diameter d as a solid cylinder. Actual weight is slightly less (approx. 2–4%) because thread cutting removes material. Weight per metre values are theoretical — real weights depend on thread form, lead-in chamfers and surface finish. Washer weights use nominal DIN 125/9021/127 dimensions. Spring washer formula is an approximation (±8–12%).

For certified project weights on large orders, request a manufacturer weight certificate and material test report.

HOW TO CORRECTLY SPECIFY — ORDERING EXAMPLES

Structural hanger rod

M16 × 3000mm — Threaded Rod — DIN 975 — Grade 4.8 — Zinc Plated

Infrastructure, suspended ceilings, HVAC, pipe supports

Stainless rod chemical plant

M20 × 1000mm — Threaded Rod — DIN 975 — SS 316 (A4) — Natural

Corrosive environment — no coating required

HDG rod outdoor

M24 × 2000mm — Threaded Rod — DIN 975 — Grade 4.8 — Hot-Dip Galvanized

Outdoor, marine or buried service — BS EN ISO 1461

Flat washer order

M16 Flat Washer — DIN 125A — CS Grade A — Zinc Plated — Qty 500 pcs

Standard washer, confirm OD and thickness from this chart

Large washer order

M20 Large Flat Washer — DIN 9021 — SS 304 — Natural — Qty 200 pcs

Wide-bearing washer for timber or soft substrate

REQUEST WEIGHT CERTIFICATES · CUSTOM CUT LENGTHS · BULK PRICING

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