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M6 · English · carriage-bolt-chart-m6-en

M6 Carriage Bolt Size & Weight Chart

M6 · under-head / overall · g per piece · kg / 1000 pcs · carbon steel 7.85 g/cm³

M6

GB/T 12-2013 · dk 13.1 · k1 4.4 · s 6.3 mm

Nominal diameter d	**6 mm**
Coarse pitch P (GB/T 196 series)	**1 mm**
Head diameter dk (dome max OD)	**13.1 mm**
Head height k1 (dome height)	**4.4 mm**
Square neck width s	**6.3 mm**
Thread length b (partly threaded basis)	**18 mm**

Row-level standard labelling: dimensions follow GB/T 12-2013 Round Head Square Neck Bolts (small dome head, max nominal values) as the primary source; DIN 603 is the equivalent German series and ISO 8677 the equivalent ISO series, cited for series reference only — no table values are reproduced from them. Tolerances, property classes and surface finish are agreed separately against the buyer's drawing or contract.

M6 Length Series: Under-Head / Overall / Unit Weight

Length convention (the point this chart adds): the length L specified by GB/T 12 and DIN 603 is the under-head length — measured from the bearing face (below the square neck) to the end of the shank, excluding the dome head. Overall length including the head = L + k1. Reporting the same bolt by the wrong convention shifts the figure by one head height (4.4 mm for M6), so confirm the convention with the supplier before assembly.

Under-head L (mm)	Overall L+k1 (mm)	Thread b (mm)	Unit weight (g/pc) g / piece	Bulk (kg/1,000 pcs) kg / 1000 pcs
M6×20	24.4	18	**8**	8
M6×25	29.4	18	**9**	9
M6×30	34.4	18	**10**	10
M6×35	39.4	18	**11**	11
M6×40	44.4	18	**12**	12
M6×45	49.4	18	**14**	14
M6×50	54.4	18	**15**	15
M6×55	59.4	18	**16**	16
M6×60	64.4	18	**17**	17
M6×70	74.4	18	**19**	19
M6×80	84.4	18	**21**	21
M6×90	94.4	18	**24**	24
M6×100	104.4	18	**26**	26
M6×120	124.4	18	**30**	30
M6×150	154.4	18	**37**	37

Unit weight = geometric volume of full-diameter shank (pi/4 x d^2 x L) + dome head (pi*h/6 x (3r^2 + h^2)) + square neck (s^2 x 0.5d), times 7.85 g/cm3 for carbon steel; rounded to avoid false precision (whole g below 100 g, 10 g steps below 1,000 g, 100 g steps above). Length series covers the catalog standard 20-80 mm plus common longer sizes made to order.

Calculation Basis and Assumptions Disclosed

Dimensions come from fastenerCalc.CB_DIMS (GB/T 12-2013 round head square neck, max nominal values, same source as the product catalog SKUs and the online weight calculator). Unit weights are all computed from geometry x density: full-diameter shank (pi/4 x d^2 x L) + dome head (pi*h/6 x (3r^2 + h^2)) + square neck (s^2 x 0.5d), at 7.85 g/cm3 for carbon steel, base metal only, coating excluded. Thread length follows the GB/T 12 partly threaded rule b = 2d + 6 (full thread when the shank is shorter, b = L), which matches the catalog spec_json threadLenMm row by row. No table values are reproduced from any copyrighted standard (e.g. ASME B18.5).

Boundary: unit weights are theoretical geometry estimates (excluding coatings and any rolled-thread material saving) for quotation, freight and packing budgets; actual weight varies with thread accuracy, head tolerance and coating (hot-dip galvanizing roughly +4.5%), and trade settlement is against actual measurement. Head diameter dk is a max nominal value and may differ from the buyer's drawing or sample; this chart is not an acceptance basis.

References

- GB/T 12-2013 Round Head Square Neck Bolts (National Public Service Platform for Standards Information) — https://openstd.samr.gov.cn/bzgk/gb/std?std_no=GB%2FT%2012-2013
- GB/T 196-2003 General Purpose Metric Screw Threads — Basic Dimensions, coarse pitches (same table as fastenerCalc.pitchOf) — https://openstd.samr.gov.cn/bzgk/gb/std?std_no=GB%2FT%20196-2003

- Dimensions and unit weights cross-checked row by row against carriage bolt SKU spec_json in the product catalog (same source as product pages)

Disclaimer: This table is engineering estimate data for selection, quotation and freight estimation reference only, not a design basis or acceptance standard.

Material Density Conversion

Table values are for carbon steel (7.85 g/cm3); other materials convert by density ratio: weight x factor (geometry unchanged).

Material	Density (g/cm3) g/cm³	Conversion Factor
Carbon Steel	7.85	×1.000
304 Stainless Steel	7.93	×1.010
316 Stainless Steel	7.98	×1.017
Brass	8.5	×1.083