

M20 Carriage Bolt Size & Weight Chart

M20	under-head / overall	g per piece · kg / 1000 pcs	carbon steel 7.85 g/cm³
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M20

GB/T 12-2013 · dk 41.6 · k1 12.55 · s 20.52 mm

Nominal diameter d	20 mm
Coarse pitch P (GB/T 196 series)	2.5 mm
Head diameter dk (dome max OD)	41.6 mm
Head height k1 (dome height)	12.55 mm
Square neck width s	20.52 mm
Thread length b (partly threaded basis)	46 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.

M20 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 (12.55 mm for M20), 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
M20×20	32.55	20	160	160
M20×25	37.55	25	170	170
M20×30	42.55	30	180	180
M20×35	47.55	35	190	190
M20×40	52.55	40	210	210
M20×45	57.55	45	220	220
M20×50	62.55	46	230	230
M20×55	67.55	46	240	240
M20×60	72.55	46	260	260
M20×70	82.55	46	280	280
M20×80	92.55	46	310	310
M20×90	102.55	46	330	330
M20×100	112.55	46	350	350
M20×120	132.55	46	400	400
M20×150	162.55	46	480	480

Unit weight = geometric volume of full-diameter shank ($\pi/4 \times d^2 \times L$) + dome head ($\pi \times h/6 \times (3r^2 + h^2)$) + square neck ($s^2 \times 0.5d$), 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 ($\pi/4 \times d^2 \times L$) + dome head ($\pi \times h/6 \times (3r^2 + h^2)$) + square neck ($s^2 \times 0.5d$), 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

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