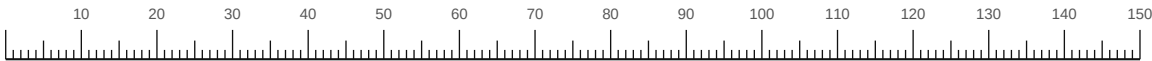


Bolt, Thread And Spanner Card

Why an 8mm bolt sometimes takes a 12mm spanner and sometimes a 13mm, how to identify a thread without a gauge, and a true-size thread pitch scale.

The thread on a Chinese scooter fastener is a standard ISO metric thread. The head is often not the size a European chart predicts. Both facts matter, and they are the reason this card exists.

PRINT CALIBRATION — CHECK BEFORE MEASURING



Lay a steel rule along this scale. The 150mm mark must fall at exactly 150mm. If it does not, reprint at 100% / “Actual size” with page scaling off — every measurement you take from a scaled sheet will be wrong.

THREAD PITCH AND HEAD SIZE

ISO metric coarse thread pitches, with hex head sizes under both conventions in common use

THREAD	COARSE PITCH	HEAD ACROSS FLATS — DIN/ISO	HEAD ACROSS FLATS — JIS
M5	0.80 mm	8 mm	8 mm
M6	1.00 mm	10 mm	10 mm
M8	1.25 mm	13 mm	12 mm
M10	1.50 mm	17 mm	14 mm
M12	1.75 mm	19 mm	17 mm
M14	2.00 mm	22 mm	19 mm

WHY THE SAME BOLT TAKES TWO DIFFERENT SPANNERS

The thread is identical either way — an M8 is an M8. What differs is how big the head is. European practice (DIN 933 / ISO 4014) uses a larger head than Japanese practice (JIS B1180), and Chinese powersports fasteners follow the Japanese sizes far more often than the European ones. That is why a chart tells you 13mm and the bolt on your scooter takes a 12mm. Pitches are ISO 261 coarse series. Always try the smaller spanner first: a 13mm on a 12mm head is how heads get rounded off.

MEASURING A BOLT PROPERLY

Diameter

Measure across the outside of the thread crests. An M8 bolt measures very close to 8.0mm across the thread — if you measure 7.8mm you still have an M8, worn or rolled slightly under.

Length

From under the head to the tip for a hex or flanged bolt. For a countersunk or flat-head bolt, from the top of the head, because the head sits inside the part.

Pitch without a gauge

Lay a steel rule along the threads, line the zero up with a crest, and count how many crests fall in 10mm. Divide 10 by that count. Six crests in 10mm is roughly a 1.5mm pitch.

The quick check

If a nut you know the size of runs freely down the thread by hand for its full depth, the diameter and pitch match. If it goes on two turns and stiffens, they do not — stop before you damage the thread.

[illegible]

Put the fasteners for each panel into their own bag and write the row number from this sheet on it. Reassembly then becomes a matter of reading rather than remembering.

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