

Metric vs. Inch Fasteners

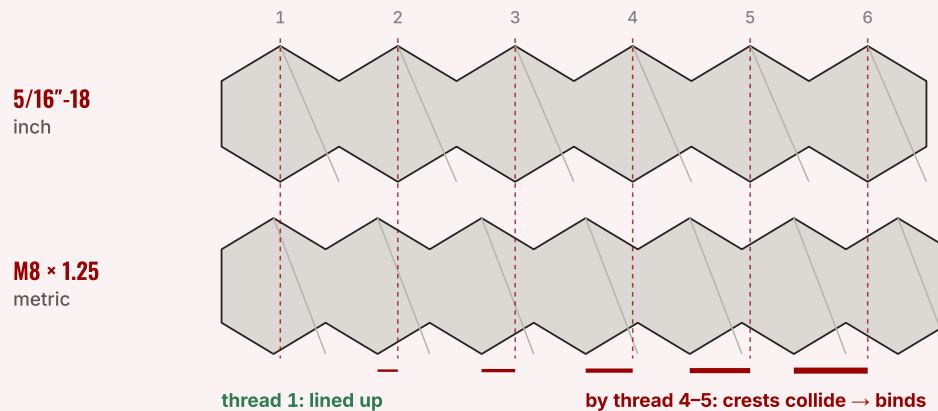
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They share the same shelf and some of them look almost identical — which is exactly how a metric bolt ends up cross-threaded into an inch nut. Here's how to keep them straight.

Metric and inch are two separate systems, and they **don't mix**. A few sizes are so close that one will **start** threading into the other — then bind and strip both.

The dangerous twin: M8 and 5/16"

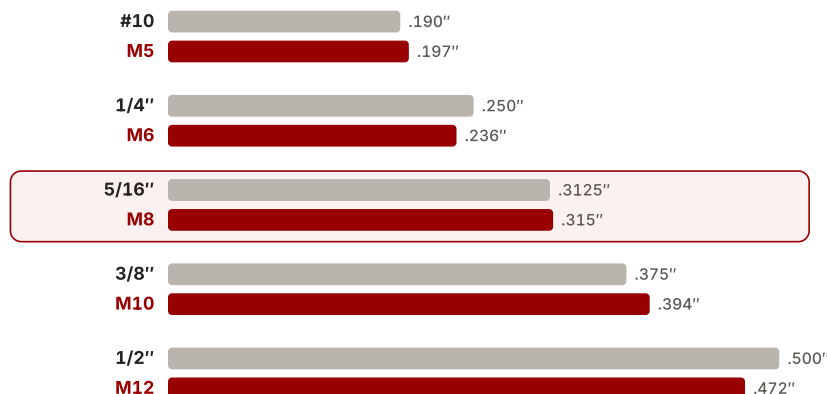
An **M8** is 0.315" across; a **5/16"** is 0.3125" — just **two-and-a-half thousandths** apart. They thread together a turn or two, feel "close enough," then jam and chew up the threads. Here's why:



First six threads, enlarged. Each M8 thread is about 0.006" shorter than a 5/16" thread — the red gap grows every turn. If a bolt starts but suddenly fights you, stop and check the system — don't force it.

The lookalike sizes

These sizes sit close in diameter. Same diameter doesn't mean same thread — the pitches differ, so they won't actually mate.



Diameters to scale. Grey = inch, red = metric. The highlighted pair is the one that fools people.



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INCH SIZE	DIA.	METRIC NEAR-MATCH	DIA.	APART BY
#10	0.190"	M5	0.197"	0.007"
1/4"	0.250"	M6	0.236"	0.014"
5/16"	0.3125"	M8	0.315"	0.0025" — watch out
3/8"	0.375"	M10	0.394"	0.019"
1/2"	0.500"	M12	0.472"	0.028"

Diameters are the nominal major diameter (metric sizes converted from millimeters). Close diameters, different threads — never interchangeable.

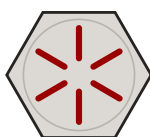
How to tell them apart

1. Read the head markings — the quickest tell

INCH (SAE) — LINES



Grade 5
3 radial lines



Grade 8
6 radial lines

METRIC — NUMBERS



Class 8.8
property class



Class 10.9
property class



Class 12.9
property class

Metric bolts carry a **property class number** on the head — like **8.8** **10.9** **12.9**. Inch (SAE) bolts use **radial lines** — three for Grade 5, six for Grade 8. See the grades chart.

2. Check how the thread is called out

M 8 × 1.25

metric 8 mm across 1.25 mm between threads

5/16 – 18

5/16" across 18 threads per inch

Metric is **diameter × pitch** in millimeters. Inch is **diameter–TPI**. Different language, different system.

The simple rule

✓ Spins on by hand

Same system. Keep going.

? Measure it

Lands on a tidy millimeter (6, 8, 10 mm)? Probably metric. A clean fraction? Probably inch.

✗ Starts, then fights

Stop — you may have crossed the two systems.

When in doubt, bring both pieces in and we'll gauge them in seconds.



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