

DIN 603 M5 x 12 - request for dimensional verification

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Requirement

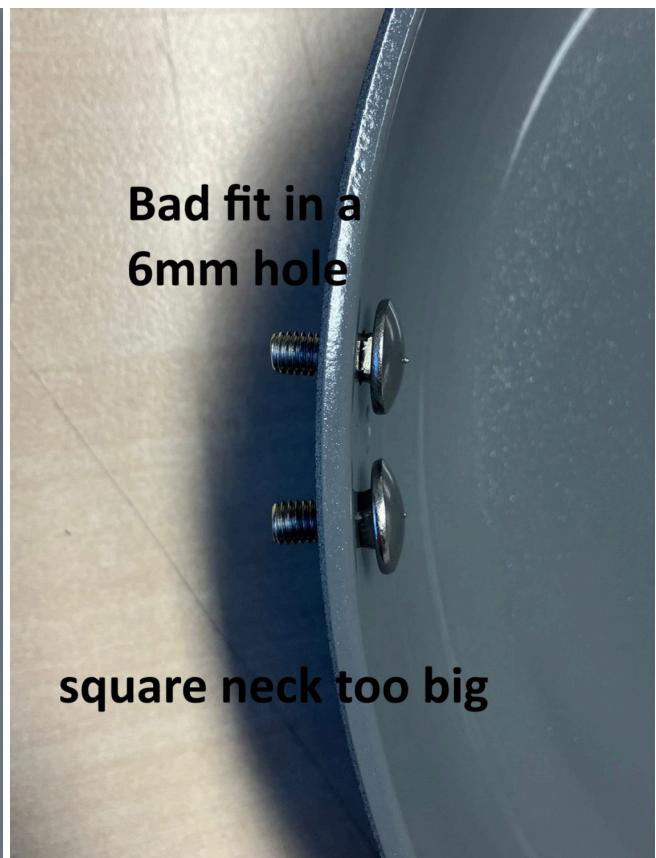
We are currently sourcing **DIN 603 M5 × 12 carriage bolts** for an assembly that uses **6 mm diameter holes in 4 mm thick aluminum plates**.

I have inserted images that show a batch that fits as desired and one that does not.

Although these are standard bolts, in our application the geometry of the **square neck and its fillet radii** is critical.

During assembly, the bolt must **slide almost completely into the hole** but offer a **slight interference fit** right before it reaches the end of the neck.

This small interference ensures that the **square section of the neck grips the edges of the hole**, preventing the bolt from rotating while the nut is tightened from the opposite side. This mechanical interlock eliminates the need for tools or adhesives to hold the bolt head during tightening — a detail that is essential for our assembly process.



In our design phase we used a sample batch of DIN 603 M5 × 12 bolts that behaved exactly as desired: the square neck could pass through a 6 mm hole with just enough resistance to hold the bolt in position once inserted.

However, when we later sourced bolts from other suppliers, we discovered that not all lots exhibited the same geometry.

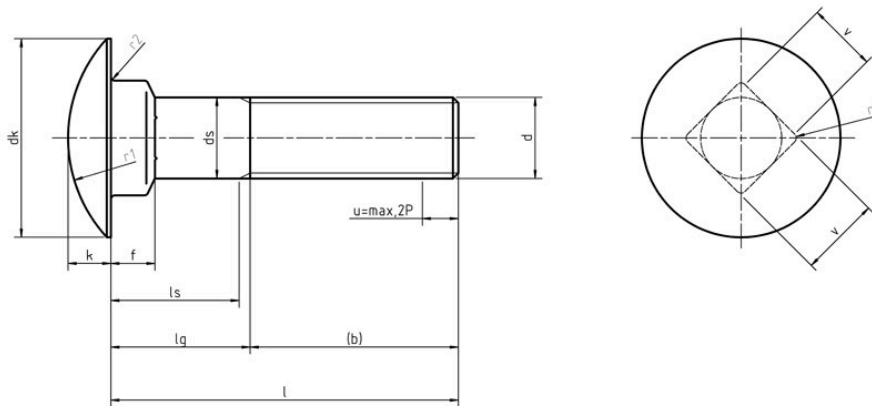
The main variation appears in the **square neck diagonal** and in the **small radii (r₂ and r₃)** that blend the neck into the head.

Depending on these tolerances, the bolt may either fit too loosely — allowing rotation — or be impossible to insert without damaging the hole.

Because this small detail has a major effect on our assembly, we are looking for a manufacturer who can help us **verify and control these specific dimensions**.

Technical drawing of DIN 603

DIN 603 MUSHROOM HEAD SQUARE NECK BOLT



Thread, d	p	da			dk		ds		f		k		r1	r2	r3	v	
		l < 125mm	125 < l < 200mm	l > 200mm	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	Approx.	MAX	MAX	MAX	MIN
M5	0.8	16	22	-	13.55	12.45	5	4.52	4.1	2.9	3.3	2.7	10.7	0.5	0.75	5.48	4.52
M6	1	18	24	-	16.55	15.45	6	5.52	4.6	3.4	3.88	3.12	12.6	0.5	0.9	6.48	5.52
M8	1.25	22	28	41	20.65	19.35	8	7.42	5.6	4.4	4.88	4.12	16	0.5	1.2	8.58	7.42
M10	1.5	26	32	45	24.65	23.35	10	9.42	6.6	5.4	5.38	4.62	19.2	0.5	1.5	10.58	9.42
M12	1.75	30	36	49	30.65	29.35	12	11.3	8.75	7.25	6.95	6.05	24.1	1	1.8	12.7	11.3
M16	2	38	44	57	38.8	37.2	16	15.3	12.9	11.1	8.95	8.05	29.3	1	2.4	16.7	15.3
M20	2.5	46	52	65	46.8	45.2	20	19.16	15.9	14.1	11.05	9.95	33.9	1	3	20.84	19.16

What we are looking for

We need **8 000 units** as soon as possible, followed by approximately **40 000 units during 2026**.

The bolts should be **DIN 603 M5 × 12**, in A2 stainless steel

Our key dimensional request concerns the **square neck**:

- the geometry should allow the bolt to **enter a 6 mm hole** almost completely, leaving a really small gap unseated**, which can be closed by tightening the nut.

If possible, we would appreciate a simple **verification on your side**, by testing insertion into a 6 mm aluminum hole.

Photographic documentation or measurement results would be very helpful.

We are also willing to **cover the cost of this verification** if needed.

I hope this explanation clarifies what we are trying to achieve and why.

If something is unclear, please feel free to call me directly at +39 377 685 1875.

We are very interested in establishing a collaboration and are ready to move quickly once we confirm that your production matches the required geometry.

Thank you for your attention,
and I look forward to your feedback.

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