

The Pre-Purchase Checklist

Seven things to verify before you spend \$2,000–\$8,000 on a MOPA fiber laser. Written for buyers, not engineers.

Spec sheets for MOPA machines are full of numbers that don't matter and quiet about the ones that do. Run these seven checks in order. Any one of them failing is a reason to keep looking — there is always another machine.

1. Confirm it is actually a MOPA

Plenty of listings say “fiber laser” and show colour-marked stainless in the photos, but the machine is a standard Q-switched fiber laser that physically cannot produce that result.

The tell is **adjustable pulse width**. A real MOPA lets you set pulse duration independently, usually across a range such as 2–500 nanoseconds.

What to do: If the spec sheet does not state an adjustable pulse-width range, it is not a MOPA. Ask the seller in writing before you buy.

2. Check the laser source brand

The source is the heart of the machine and its single most expensive component. JPT is the most common in this bracket — the M7 series appears in a large share of 30W–100W MOPA machines. Raycus and IPG also appear.

What matters most is that the source is **named at all**. It determines both mark quality and whether the machine can be serviced in three years.

What to do: A listing that will not tell you whose source is inside is a listing to walk away from.

3. Match wattage to the work you will actually sell

Wattage	Typical price	Best suited to
20–30W	\$1,500–\$2,500	Jewellery, small detailed parts, light-duty marking
50–60W	\$2,500–\$4,500	Most small businesses — the common sweet spot
100W+	\$4,500–\$8,000	Production volume, deep engraving, industrial parts

What to do: more wattage does not mean a better-looking mark. It means faster cycles and deeper cuts. Colour on stainless comes from pulse control, not power — it is available at 20–30W.

4. Check the working area, and the lens that sets it

Working area is decided by the lens, and it is a trade-off most first-time buyers miss. A larger lens gives a bigger field but a less concentrated spot — less fine detail, less effective depth. A smaller lens gives sharper, deeper marks in a smaller field.

Common setups are 110 × 110mm for detail work and 175 × 175mm or 200 × 200mm for larger pieces.

What to do: If you will engrave both jewellery and larger flat items, a machine shipping with two lenses is worth paying for.

5. Budget for the accessories you will actually need

The machine price is not the total price. Three things get underestimated:

- **Rotary attachment** — required for anything cylindrical: tumblers, rings, bracelets, bottles, pens. If you plan to sell drinkware, this is not optional.
- **Fume extraction** — marking metal produces fine particulate you should not be breathing. Budget a few hundred dollars minimum.
- **Enclosure and rated eyewear** — 1064nm is invisible and dangerous to eyes. Glasses rated for a CO2 laser will not protect you.

Budget: accessories typically add **\$750 to \$2,650** to the machine price. A guide quoting sticker price alone is setting you up badly.

6. Verify software compatibility and licence

Most fiber and MOPA systems run EZCAD2, which usually ships with the machine. LightBurn supports many galvo fiber lasers and is worth checking for if you already use it.

What to do: Confirm which software the machine runs and whether the licence is included or extra.

7. Ask about warranty length and where support lives

Warranty runs anywhere from one to three years. More important than the length is **where support is located**.

What to do: A machine with domestic support and stocked replacement parts gets you running again far faster than a cheaper import where every service question is a two-week email chain across time zones.

Red flags in a listing

Most bad purchases announce themselves. Walk away, or ask hard questions, if you see:

- **No named laser source.** The biggest one. That component is most of the machine's value and all of its serviceability.
- **Colour engraving photos with no adjustable pulse width in the specs.** Both cannot be true. One of them is marketing.
- **A price far below everything comparable.** A machine 40% under the field usually differs in source quality, warranty or support.
- **"MOPA" in the title but nowhere in the specifications.**

Before you buy, you should be able to answer all seven. If you cannot answer even one — particularly checks 1 and 2 — you do not yet have enough information to spend the money.

Full guides, wattage comparisons and the accessory cost breakdown are at mopalaserengraverbuyingguide.com. Questions about a specific machine: laserengravingbusinessstartup@gmail.com

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