

Replacement Laser Cutter Lenses and Mirrors

DT Workshop Equipment Reference — D&T / STEM resource for school workshops | Consumables & Spares

Laser cutters rely on a beam path of mirrors and a focusing lens that degrade over time from smoke, heat and cleaning damage. Replacement lenses and mirrors, with the right sizes, focal lengths and coatings, restore cut quality and machine safety.

Key Features

- Focal lengths commonly 38.1, 50.8, 63.5 mm
- Zinc selenide (ZnSe) lenses for CO₂
- 15-25 mm diameter mirrors and lenses
- Reflective gold or molybdenum mirrors
- Coated optics for transmission efficiency

Typical Uses in the Workshop

- Replace damaged or burnt-out focusing lenses
- Restore beam alignment after mirror wear
- Keep cut quality consistent
- Stock spare optics for rapid changeover

Safe Operation

1. Switch off and lock out the machine
2. Clean optics with approved lens cleaner and lint-free swabs
3. Check for pits, cracks and coating damage
4. Replace with the correct focal length and size
5. Re-align the beam after any lens or mirror change

SAFETY NOTES

- Never operate the laser without the correct optics in place
- Do not look at the beam or its reflections
- Use the interlock and disable the tube during service
- Clean optics only with approved materials
- Store optics in sealed containers with desiccant

Maintenance & Consumables

- Clean lenses weekly or when cutting quality drops
- Check mirrors monthly for beam burn
- Handle optics by the edges only
- Record lens changes for cost tracking
- Keep spare optics and cleaning kit on hand

Specification & Buying Notes

Buy lenses and mirrors matched to the machine's make and model with the correct focal length and size. Purchase from the maker or a reputed optics supplier - fakes fail fast. A stock of one spare lens and mirrors set is prudent.