




**LASER BEAM PRODUCTS**

**NEWSLETTER**



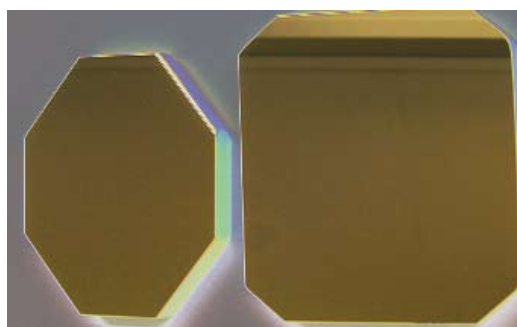
## Aluminium mirrors for lightweight

**F**or high speed motion, or scanning mirrors, Aluminium is replacing Silicon as a substrate material. Both materials have a similar density, but Aluminium is far more suitable to machine into complex shapes. Since the rise in other uses for Silicon, such as photovoltaics, Silicon material prices have risen sharply. Aluminium mirrors can be coated with reflective coatings such as Gold, protected silver, and MAXR for CO<sub>2</sub> laser.

Apart from the dramatic weight reduction Aluminium mirrors look identical to a Copper mirror, just 60% lighter.

Gold is the preferred coating as it offers a consistent reflectivity across wide angles of incidence and for a wide spectrum from visible to the deep infra red. Power handling is several Kilowatts of CO<sub>2</sub> laser power.

Finally holes, and fixing spigots can be machined directly into the mirror to attach pulleys, shafts etc.



**Gold coated Aluminium**

**T**here are other applications where weight reduction is important such as defence or aerospace.

Copper	8.9g/cm <sup>3</sup>
Silicon	2.3g/cm <sup>3</sup>
Aluminium	2.7g/cm <sup>3</sup>
BK7 Glass	2.5g/cm <sup>3</sup>

Densities of mirror materials

Our unique Gold electrochemical coating means no tooling costs for coating prototype mirrors.

NEW FOR Winter 2009

.....**Polished Tungsten mirrors**

.....**Convex axicon mirrors**

.....**CO<sub>2</sub> laser mirrors with < 1 nm Ra surface roughness**

## Did you know?

*Polished metal mirrors are perfect for visible and even ultra-violet applications?*

*Because chemically polished surfaces are far smoother than diamond machined surfaces, there is no scatter and diffraction from the machining process.*

*Recent measurements made on an interferometric microscope showed:*

*Chemically polished metal  
**3nm Ra Roughness***

*Chemically polished Silicon  
**0.9nm Ra roughness***



**Unwanted surface structure on Diamond machined copper**

## Dust on optics.....?

LBP optics are packed in a Class 100 flow booth, and then sealed in vacuum packaging. There are still times when dust needs to be removed from optics during assembly, or use. This powerful air blower is perfect for the job, no propellant gases or residue to contaminate mirrors. We are giving one away free with every order placed in December 2009.

