

**LASER BEAM PRODUCTS**

**NEWSLETTER July 2012**



## Lightweight Aluminium Mirrors

Our Aluminium Mirrors are proving to be increasingly popular. Lightweight (around 30% of the weight of Copper) and with good laser damage resistance they have been used for many different applications including:

- \* High speed galvo or scanning mirrors.
- \* Medical and dental optical systems.
- \* Scientific instruments and gas analysis equipment.
- \* Defence and aerospace.

They can have exactly same coatings as copper including:

- \* Electroplated Gold for near and far infra red use.
- \* Gold for Terahertz radiation.
- \* Protected Silver for visible and near infra red use.
- \* MaxR for high reflectivity for CO<sub>2</sub> lasers.
- \* Protected Aluminium for UV and visible.

We can also include mounting holes, dowel pins, O ring grooves, through holes and other alignment features in to the mirror, eliminating the need for mounts. Our plated coatings cover all mirror surfaces including the internal surface of holes, so chemical resistance is maintained.

Aluminium is readily machinable by conventional machine tools, unlike Silicon.

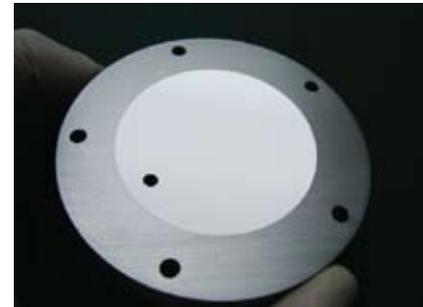
Aluminium doesn't chip or crack like glass-based optics.

Aluminium mirrors can be made as small as 5-10mm diameter, 1mm thick.

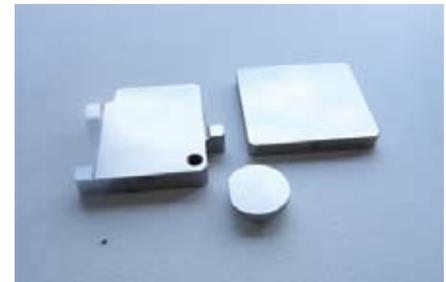
Mirrors can be made with extreme parallelism.



Aluminium 'lipstick' mirrors



Aluminium Mirror with Nickel coating



Lightweight Aluminium Mirrors



Galvo Mirrors

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## Why do optics fail?

Every wonder why your CO<sub>2</sub> optics fail, or what contaminants can cause optics to overheat?

Please take a look at the pdf download on our website, especially if you use heat transfer paste!!

[www.lbp.co.uk/Documents/contamination\\_of%20CO<sub>2</sub>\\_optics.pdf](http://www.lbp.co.uk/Documents/contamination_of%20CO2_optics.pdf)

## London Olympics

27 July – 12 August 2012

29 August – 9 September 2012

The Olympic and Paralympic Games begin in London on 27th July. We don't anticipate any disruption to our business, but we have been advised that deliveries may be affected, and some charges may be increased during this period. Please check with your couriers and delivery services when booking.

If you do need deliveries from us during this period please order in plenty of time.

There's plenty of help and advice available for businesses at [www.getaheadofthegames.com](http://www.getaheadofthegames.com)

## Mirrors for Terahertz

Terahertz (THz), T waves, or sub millimeter radiation, is currently finding more and more applications. The controversial full body scanners at airports that can "see through clothes" are based on T waves.

Less publicised is the use of THz radiation for medical imaging, chemical analysis, and for production quality control; "seeing" through cardboard packaging for example.

Absolute reflectance standards have yet to be developed for these wavelengths, but in the range 0.2 - 3.0 THz the reflectivity of Gold is reported as 99%.

The thickness of the metal reflective surface should be at least twice the "skin depth" at that wavelength. That's around 2.5nm at visible wavelengths (600THz), and 65nm at 1THz. Laser Beam Products' Gold coated mirrors have Gold thickness many times this minimum value.

It means that users of THz radiation can confidently specify Gold coated metal mirrors, probably our Gold coating made onto all Aluminum mirrors.



We're already supplying these type of mirrors for Terahertz and millimetric radiation.

## For Scientific and Laser mirrors, think Laser Beam Products

We can supply mirrors in many materials including Copper, Aluminium, Silicon, Nickel, Brass and Molybdenum and with a variety of optical coatings including Gold, MaxR, Protected Silver and 1/4 wave phase retarder.

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