

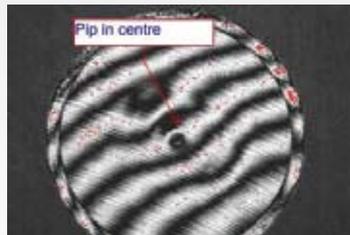
LBP Newsletter September 2014

CO₂ mirror distortion

Many people don't realise how easy it is to distort a laser mirror by over-tightening mounts or water fittings. We recently repaired a water cooled mirror 33mm thick that looked to be in good condition. By reflecting a visible laser beam from the mirror at 45 degrees we could see the distortion in the mode. On our interferometer we could make out a 2-3mm diameter convex "pip" in the centre of the mirror where the surface had been "punched through" by a mounting screw in the rear of the mirror. There was 16mm of solid copper between the bottom of the screw and the mirror face. It is also possible for the trained eye to make out the "punch through" from the water connector distorting the mirror face.



Copper mirror



Interferogram



red beam reflection

Other uses of optical polishing of metals - IPL Intense Pulsed Light

IPL equipment for medical and salon use is becoming more popular and is one example of how our polishing and plating skills are being used for new applications outside of industrial lasers. The lamps in these devices can generate a large amount of heat, so much so that the cavities and lamp housings need a highly polished metal construction. This is where our polishing skills come in - the images to the right show the ultra smooth finished surfaces we can achieve.

We also make cavities and internal structures for scientific instruments such as those for Laser Induced Breakdown spectroscopy (LIBS) and fluorescence spectroscopy.



Contact us for help,
information and prices:

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Exploited by your supplier?

We regularly make and repair mirrors for CO₂ lasers that have become unsupported by the Original Equipment Manufacturer. This can be shortly after purchase if the OEM has ceased trading, or sometimes as a cynical ploy to force customers into replacing perfectly serviceable systems before the end of their working life.

It seems laboratory equipment is similarly affected and we have had a rush in repairing mirrors for multipass gas cells used in environmental monitoring or chemical analysis. We've found the original mirrors to be of very poor quality to begin with. One customer was amazed by the huge increase in signal output that swamped his detector. Far more of an upgrade than a repair.



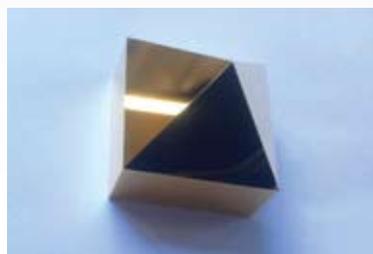
Gas Cell Repair

If you have any parts that need replacing or repairing, send us as much information as you can about the part including photos if you have them, or send us the original parts and any original packaging/labels and we will let you know if we can help.



Aluminium Mirrors

Solid aluminium mirrors can be used with all but the most powerful lasers. In this example the pyramidal mirror has been electrochemically gold coated. The gold coating covers the vertices and the faces in one continuous layer that will never peel or flake.



Aluminium pyramidal mirror

In the base are an array of tapped holes for mounting and alignment. We made just two of these parts very cost effectively for prototyping.

We are looking forward to exhibiting at Laser India in Bangalore for the first time this month as part of the British Pavilion.

It's a great opportunity for us to gain a better understanding of the Indian market and to meet some long standing customers and distributors face to face.

We'll be showing a range of our metal laser mirrors suitable for high power infrared and CO₂ lasers. If you're planning on visiting the show please come along and see us at **Booth A021**.

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