



LBP Newsletter March 2015

Uncoated Copper Mirrors

We had a good opportunity to compare the performance of our Gold coated Copper mirrors with uncoated Copper ones recently. A customer sent us dozens of large water cooled mirrors from his 6KW CO₂ laser to re-manufacture. The effect of the workplace environment had dulled and corroded the bare Copper mirror surfaces, simply handling them had caused stains on the mirror face. In comparison a Gold coated mirror, from exactly the same laser, had barely changed its appearance or performance.

We've also recently gained customers in tropical climates who had problems with any exposed Copper on mirrors corroding, even in storage. Moisture reacts with exposed Copper to cause pitting and staining, even through pinholes in dielectric coating like this example. Several OEMs are now specifying Copper mirrors should be Electroless Nickel plated so no part of the mirror is exposed Copper. This is already the case with all our Gold coated Copper mirrors.

Some of our competitors are now warning that Copper mirrors should be kept absolutely dry, which is simply impossible if they are to be used. Especially as some of them are water cooled!



Gold coated Copper (L) and uncoated Copper



Copper mirror showing pitting marks



Copper (top) and E-Nickel comparison

Sub Contract Lapping



Aluminium plate lapped and polished

We have added a Mitutoyo SurfTest to our metrology equipment and straight away used it to qualify the results on several jobs. A customer in the Middle East was struggling to find someone to lap a large profiled Aluminium plate to 1um flatness and a high quality surface finish. We used our large diamond lapping machine and after measuring with the new instrument we had achieved Ra = 0.020um, Rq 0.029, and Rz 0.281um.

A customer in the nuclear industry needed some Tungsten Carbide parts lapped and polished to a mirror grade finish. We processed some samples and the customer measured Ra 1 nanometre surface roughness after polishing.

Contact us for help,
information and prices:

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Diagonal Mirrors

Demand for diagonal mirrors in various forms seems to have surged recently. We have made traditional diagonal mirrors such as these Gold coated Copper ones, although the diagonal angle here is 60 degrees. We've also made Stainless Steel versions with through holes for Laser Induced Breakdown Spectroscopy, and some small Gold coated Copper for Er:YAG surgical laser handpieces.

Talking of surgical lasers, it seems being left handed can cause great difficulty for surgeons both in using surgical equipment designed for right handed surgeons and in being trained by right handed instructors. With lasers at least it's possible to use a mirror to flip the beam paths and allow right handed and left handed use.



60 degree Gold coated Copper mirrors

Stainless diagonal lipstick mirrors



Gold coated Copper mirrors for Er:YAG laser

Exhibitions

We attended the **SPIE Photonics West** show in San Francisco in February and were once again impressed with the show organisation and the quality and quantity of visitors. Thanks for visiting if you were there!

We now have a short video taken at the show that you can see on our You Tube channel:

www.youtube.com/user/laserbeamproducts

We will also be exhibiting at the **Laser World of Photonics** show in **Munich 22-25 June** this year. It's always an important event for us and we look forward to welcoming many of you to our stand. We'll be showing a wide range of our mirrors and coatings including Gold coated Copper, Aluminium, Stainless Steel and Electroless Nickel.



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