



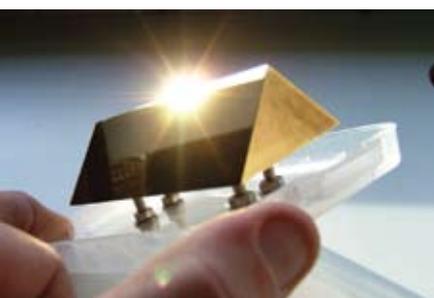
## Prototype Components

**If** you need low volume, low cost components for R&D and prototyping, talk to Laser Beam Products. We have the experience and manufacturing expertise to offer low cost production of low volume, highly complex optical components in a wide range of shapes and sizes from 5mm diameter up to 150mm maximum dimension.



This mirror is a deeply **concave Copper mirror with Gold coating**, used in the infra red for gas sensing. The small central hole is 1mm diameter and the circularity of it was checked with our video microscope. We also made the mounting tube at the same time, guaranteeing the threads mated correctly. Making mirror and mount in one item saves money, reduces assembly time, and simplifies replacement in the field.

These **hardened Stainless Steel** mirrors are used in a scanning mirror mounting. The flat faces are consistently flat right up to the edge of the holes, measured with our phase shifting interferometer. The tooling needed to make these cost just a few Euros, and small batches of just 3 parts could be made at a time. The customer free issued the machined part to us and we even made some slightly concave, and others slightly convex to assist in the assembly of the final scanning unit.



This **Gold coated Copper prism** shows why our Gold coating is so flexible. The entire mirror was coated in a few minutes, no tooling was needed. The sharp apex is also coated, as it is used as a beam splitter with a high power CO<sub>2</sub> laser. Our electronic autocollimator measured the face angles to arc second accuracy. After lengthy use or accidental damage the mirror can be repolished and recoated by us to be as good as new.

These **Aluminium mirrors** are used to save weight. Silver coated, they give 99%R in the 800nm - 5 micron spectrum. The small lugs are designed for mounting. These were made to a few microns parallelism to ease alignment. The intermediate nickel plated layer we apply gives corrosion resistance to the mirror, and is polished to better than 1nm roughness. Polished surfaces eliminate scatter in the visible from diamond machining.



### How to contact us:

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# Prototype Production

## Machining the blank

Our small machine shop is very efficient for turning and milling a small number of components to customer's drawings. We can machine dowels, datum surfaces and tapped holes in to the mirror body.

We also keep stocks of mirror grade metal so that we can keep your costs to a minimum. Starting materials include Copper, Aluminium, Stainless Steel, Tungsten, Titanium, Molybdenum, Brass and Nickel.

Over the years we have built up large stocks of jigs, holders and tools so that we can offer precision machining for many shapes and sizes. From as small as 5mm diameter to 150mm maximum dimension.

To ensure dimensional stability we have developed a stress-relieving protocol for many metal materials. This can be done on just one or two mirrors very cost-effectively.

## Polishing

We can polish single mirrors on our small polishing machines designed with prototyping in mind. We have a large stock of holders, spacers and polishing tools so can handle a wide variety of shapes and sizes. We can even polish customer's free issue material.

## Coating

Gold Coating - an immersion technique based around electro chemistry. Just one mirror can be gold coated in a few minutes, no special tooling is required. A tapped hole is useful for holding the mirror during operations.

Unlike vacuum-deposited coatings there are no high, once-only charges so small numbers can be done very cost-effectively.



**Whatever your requirements, contact us for help, information & prices:**

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