

CARR'S UPDATE

Laser Welding on Aluminium.

Aluminium is hard to weld conventionally with Tig, because you have to get the material so hot. This is a particular problem on internal corners, where the access is more difficult.

However the laser welder will go where you point it and with an energy density in the weld pool, which is ten times that of Tig, the whole block can be welded at room temperature without the risk of cracking. Most aluminium types can be welded.



Aluminium tool had weld porosity, Carr's welded & dressed.

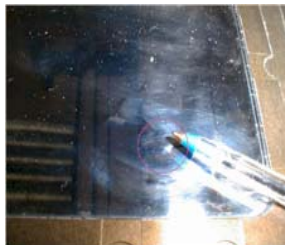
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Toolroom services at

Carr's:

- Laser welding all metals.
- Cold pulse welding to steel.
- Brush-on metals to steel, copper and aluminium.
- Cold pulse welding to Aluminium.
- Ali-weld brazing to aluminium.
- Welding on site.
- Polishing and texturing.



Porosity in Aluminium.

Some aluminium comes with porosity, which when viewed under the laser microscope can be welded in the individual spots. Other porosity can arise from conventional welding and rather than re-weld, Carr's can fill the spots and stone - in after welding to be sure the job is perfect.

Titanium welding.

Titanium is an amazing material. The aircraft grade Ti64 is so tough, it appears to be too light to have the strength it has. When welding, great care has to be taken to keep the material shielded with argon. The material when hot, absorbs water and oxygen from the air and goes brittle very easily! If allowed, this brittle material will crack. Fortunately, when welding with the Nd laser, only very small areas are heated at a time and the residual heat left in the welded area is so small, that cracking is not a problem.

The laser is best utilised when small sections are being welded. Ti wire at 0.25mm is available for using as filler material, so inserts can be welded into a larger structure or small cracks / machining errors can be welded for re-machining.

If you have Titanium that needs welding, why not contact Phil Carr.

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Now includes this newsletter and the last few newsletters.

Send mail and photos
to: "phil.
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Plasma Welding at Carr's

Plasma welding is akin to Tig welding, in that a hand held torch is used to make a molten weld pool, where a hand filler rod can be added.

Carr's have adopted the process to allow deep cracks and penetration welds of over 2 mm to be achieved. The plasma process does generate more heat input into the job and so has to be used carefully, where only the section of metal allows.

Carr's can only weld steel and titanium at present; aluminium only if prior warning given.



Plasma welding onto stavax tool, where water ways were cracked.

Prototyping and pre-production.

Designers and production engineers please take note. You do not have to beg a large laser manufacturer to do feasibility studies and then be beholden to them for a large capital outlay. Carr's will look at any metal welding project where laser welding may be considered a benefit.

We are used to small number of components to weld and will quickly establish the suitability of the process to your designs. It may be another welding process would be more suitable.

Carr's will advise and weld small pre-production units in just a few days.

Please ring Phil Carr. 01536 412828.

Site-work services.



Peugeot 206 Console tool cold pulse welded on press.

This is the tool for the Peugeot 206 console. The tool runs on a 2500 tonne press and is ideal for in-situ working as the press opens up over 2 metres. Also, taking the tool away to a toolmaker can take days, so for small metal-on repairs and modifications, Carr's can whiz in and out in hours to keep the machines running. In this case Carr's had to widen a switch aperture, so a standard switch and blank would fit securely.

CARR'S ON SHOW.

We are attending the Southern Manufacturing show on 27th and 28th February 2002. Please do come to keep abreast of new innovations and processes. We will have a laser there welding on the stand, so if you have a job that day, bring it along and we may be able to weld items, while we are there.

We hope to see many of our existing customers at Thorpe Park and perhaps some new ones as well.