

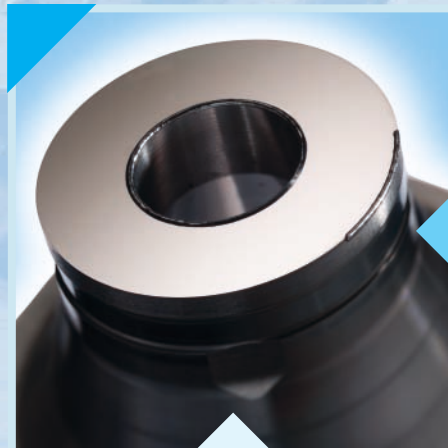
## **Controlled safe environment**

## **Safety first**

Besides the advantage of outstanding quality, there are also disadvantages associated with laser technology. Laser controlled equipment emits radiation which is harmful for the skin and eyes. The released gases can be harmful for humankind and the environment. Therefore, CZL only works in a controlled and highly protected environment in order to comply with all safety requirements. Laser welding takes more time than other welding techniques. The equipment and safety measures demand higher investment costs. The specially developed tools are extremely expensive. This price tag shows that the use of laser technology is more expensive than the use of conventional welding techniques. CZL always offers to calculate the price difference based on the quality criteria of the customer. This 'comparative test' allows customers to play it safe.

## **CZL Tilburg BV**

The optimisation of production processes places a heavy burden on businesses in widely divergent high tech fields. When costs cannot longer be cut, the smallest details become a major issue. With more than a quart century experience in surface treatment, CZL Tilburg manages to increase the production output. The added value lies in the longer machine life, increased capacity and durability of valuable parts. As a specialist of the overhaul, repair, upgrading and maintenance of complex tools, special products and (machine) parts, CZL helps customers to modify machines and parts.



## **CZL Tilburg B.V.**

### **Surface techniques**

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## **CZL Tilburg B.V.**

### **Surface techniques**

*Laser welding*





*High precision required*

## Laser welding

The repair of mould sections and state-of-the-art components demands the highest level of precision. CZL Tilburg BV has the required experience and technical know-how and uses high quality equipment. This allows CZL to meet the most stringent quality criteria in the world. CZL uses laser technology (Light Amplification by Stimulated Emission of Radiation). The laser equipment emits a very powerful beam of energy or beam of light. This laser beam can be focused onto a very small area. The weld is produced by the melting of the material onto which the laser beam is focused.

The most important characteristic of laser welding is the short pulse burst. The energy pulse is only emitted during a fraction of a second. The time between melting and solidification is so short that practically no heat penetrates the zone adjacent to the weld area. A distinctive advantage of laser technology is that the heated area only covers a few hundreds of a millimetre. This decreases the risk of hot cracks and thin sheets can be welded without any distortion. Because CZL uses shielding gases during the welding process, no corrosion or other type of contamination occurs. The substrate does not discolour and continues to meet the required specifications.

*Accurate to the nearest micrometer*

## Restored to its original state

CZL uses advanced technology for the accurate positioning of the beam in small areas. The repair is carried out without any damage to the surface and structure of the base metal. The slight heat input prevents thermal distortion and the material keeps its original dimensions to the nearest micrometer. The end result shows that the weld almost has the same physical characteristic as the original material. This is of great importance for the hardness and wear resistance. The repaired surface does not leave any traces in or on the moulded product.

CZL makes an essential contribution to the constant quality of the production process. Customers not only save on maintenance and repair costs but also increase efficiency. Waste and scrapped products are considerably reduced during the production process. A mould which has been treated by CZL fully complies with the original quality criteria. The durability of the weld measures up to the original surface of the mould. CZL restores the mould to its original state for a fraction of the original purchase price.



## Applications:



- Repair of damaged and/or worn mould sections and state-of-the-art components
- Modification of mould sections and state-of-the-art components
- Precision welding of thin sheets



## Successfully used on:

- Tool steel
- Powder metallurgic materials
- Hardened steel
- Aluminium
- Different copper alloys