

Imagination and Innovation Expand Applications for Laser Welding Jewellery

As the use of lasers within jewellery manufacturing becomes more widespread, jewellers are now realising their full potential by using them to undertake welding and joining processes which cannot be performed using traditional methods, without risking damage to the precious metals or stones.

The Performance laser series from Rofin-Baasel has long been established as the clear market leader within the jewellery sector, and this reputation is now being further enhanced by the skill and innovation of individual jewellers.

Wishes and Challenges

Townsend Fine Jewellers is a family business stretching back over 4 generations and are widely recognised as a leading UK bespoke jeweller, having unrivalled expertise in gemstones and design. As a bespoke jeweller, the ability to satisfy the imagination and wishes of the client is paramount however this can often present unusual and unique challenges in the process of producing the finished article.

The combination of Townsend's expertise together with the flexibility of their Performance laser has enabled the production of a bespoke set of gold and pearl cuff links, which would have been impossible to manufacture without the laser.

The cuff links were manufactured by drilling the base disk and captivating the pearl using a wire cage. The individual parts of the wire cage were in turn threaded through the holes in the disk and then secured by laser welding.



(Cuff Links – 18ct white & rose gold with Tahitian black pearl)

Each of the individual cuff link components was finish polished prior to assembly. The precision and cleanliness of the laser welding process eliminated the need for any subsequent cleaning which may possibly have compromised the shine on the pearl.

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Precision Welding

A further example of innovation made possible by the Performance laser was the production of a matching set of platinum wedding rings. Each ring had over 2 carats of diamonds which were to be channel set into the ring. The precision of the laser eliminated the need for excessive filler material to set the stones and only a single piece of wire was required, accurately placed and welded with a minimum of finishing required following the welding process.

Townsend also use their Rofin laser to repair and modify items of jewellery. Re-sizing of platinum rings using the laser can be performed with no visible joint lines and repairing “claws” can be easily achieved without having to remove the gemstone, as there is minimal risk of any heat damage to the stone.

All joining processes are now more precise, as using the laser it is easy to “tack” parts together then ensure that everything is straight and aligned before finish welding the item, something which is much more difficult to do when using the traditional soldering process.



(Platinum and diamond rings)

Reliable and Proven Technology

Users of Rofin’s Performance laser benefit from a process of continuous improvement which is based upon extensive customer feedback. The result is a system which inspires innovation and enhances the skills of the jeweller by providing precise control of the joining process.

Rofin offers a complete range of lasers including CO₂, YAG, vanadate and fibre lasers. Rofin also provides solutions for laser cutting and marking applications.

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