

Advanced Aerospace Treatments Lift Technical Jewellery to New Heights

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Technical jewellery pioneers, Bailey of Sheffield, who's iconic stainless steel bracelets (<https://www.baileyofsheffield.com/>) and necklaces have an international market are working with aerospace coatings specialist Wallwork Cambridge (<http://www.wallworkht.co.uk/>) to enable products to be customised by clients with long life colours.

MD Scott Bailey explained, "The technical aesthetic that drives our business allows our clients to make a strong personal statement about the relationship between technology and creativity. Our products are a combination of precision engineering with craft skills such as hand assembly and finishing. Each item is uniquely numbered and comes with a longer-than-lifetime guarantee and a promise to re-polish and return to the customer in best condition if returned to the factory at ten year intervals."

"Colour provided by the advanced Wallwork PVD process gives another level of customisation. We can offer an ever-expanding range of finishes from matt and gloss black through to gold with shades of rose, petrol blue and other colours in between," Scott added.

New to the Bailey range are beads. These intricately machined cylinders slot into the cable jewellery and have solid or perforated sides. Beads are available in the full colour spectrum and provide a further level of personal customisation as users can mix and match to suit their own style. A customisation tool on the Bailey web site allows customers to choose the cable bracelet size and cable colour along with the number, geometry and colours of beads that are added.

Technical coatings are applied by Wallwork in computer-controlled vacuum machines that are designed and built by the company. This ensures that the process can be replicated perfectly every time to achieve precisely the desirable high quality finish expected by Bailey customers.

Using the physical vapour deposition (PVD) process, the jewellery to be coated are rotated on a carousel within the vacuum chamber where the donor material, contained in a small crucible, is bombarded with a high-energy electron beam. This vaporises the alloy and the vapour is then drawn to and condenses on the surface of the item to be coated under the effect of a negative electrical charge. Even very complex and irregular shapes, such as the perforated beads, are coated consistently and the precise thickness and microstructure of the coating imparts the specified colour.

Speaking for Wallwork, Howard Maher explained, "The use of industrial coatings in the decoration of personalised items is rising through customer demand. Watches, mobile phone cases, whisky flasks and other items can all be PVD coated using a range of materials previously the reserve of aerospace and F1 engineers. Since these industrial finishes are designed to give hardness, durability and other properties to engineered components working at extremes, they have exceptional properties which means finished jewellery keeps looking good way beyond when other finishes start to fade and fail."

Bailey's operate from the historic Portland Works where stainless steel was first produced. The material used in jewellery production is 316L marine grade stainless. Coatings applied, mainly alloys of titanium nitride, are tougher than the original substrate and because of the unique process follow every

contour of the intricate wire ropes and perforated beads.

More Information

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Images at:

www.ainsmag.co.uk/client-news/wallwork-group/advanced-aerospace-and-motorsport-coatings-find-new-application-in-technic