ABERLINK
Innovative Metrology

Case Study

Electrical Case Study 10/2016

Company: Underwater Lights Ltd

Xtreme

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Sevenoaks, Kent based Underwater Lights Ltd designs and manufactures high quality lighting solutions for yachts using the latest LEDs and electronic components. The quality of the company's underwater LED lighting means that it is now recognised throughout the world as a leader in this challenging sector.

After gaining Lloyds Register approval for the BULLEYT underwater light in 1991, the company's first successful product was superseded by the popular UL Ti MATE range of Underwater Lights in 2004. Further development and expansion has ensured that the now comprehensive, advanced UL Ti MATE range continues to be the most efficient such lights currently available.

Peter Urquhart, Director and Designer for Underwater Lights Ltd. explained. "We have fitted more than 15,000 lights world-wide over the past 25 years and are proud of the fact that many of the world's most luxurious superyachts are fitted with our products.

"We have developed a comprehensive portfolio of lighting solutions for both the interior and exterior of superyachts and work closely with owners and designers throughout the world to ensure the delivery of both standard and bespoke lighting systems. So successful have our designs and innovations been, our lights are often copied, although never replicated or bettered."

Although many of the company's competitors outsource their manufacturing, to help guarantee the continued premium quality of its products, Underwater Light Limited boast its own high-tech manufacturing facility that is equipped with modern CNC machine tools. This autonomy allows closer control of production and improved levels of quality control throughout all manufacturing processes.

Given the extremely harsh environments Underwater Lights products are used in, the company oversees a rigorous quality control regime. In addition to strict goods inward checks and continuous in-process production monitoring, each finished product undergoes a meticulous final inspection routine. To ensure the continued quality of the company's output Underwater Lights recently invested in an Xtreme Coordinate Measuring Machine from Aberlink.

Peter Urquhart continued. "All at Underwater Lights pride ourselves on the premium quality of our products, we also understand that, in addition to the innovative nature and exceptional performance of our lights, our reputation has been established through our outstanding quality standards. To guarantee the water-tight integrity and longevity of our assembled products, each of their individual elements have very demanding dimensional tolerances, therefor we apply meticulous levels of inspection to all of our components.

"The most important elements, related to creating the desired water-tight seal in our underwater lights, are two very accurately machined mating, tapered parts. To ensure there are no dimensional inaccuracies or differences in geometries in these two tight tolerance components they undergo the most meticulous of inspection routines.

"As our ever increasing manufacturing output had begun to place a strain on our existing inspection facilities, we recently searched for a fast and accurate means of inspecting our components, including our mating tapered parts. Having considered a couple of alternative options, a demonstration of Aberlink's advanced new CMM convinced us that the machine was the ideal answer to our inspection problems.

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"The recently installed Aberlink Xtreme has proven very easy to use and has further reduced our already low scrap levels. The machine's accurate and speedy measuring routines are now giving instant feed-back to our production department and helping to ensure the continued premium quality of our lighting systems."

Having caused quite a stir when launched at the MACH 2016 exhibition, the Xtreme has proven to be an instant success, so much so, Aberlink's manufacturing facility is now working flat-out to keep pace with both UK and overseas demand for this unique Coordinate Measuring Machine.

The Xtreme was designed with a novel non-Cartesian structure and uses linear motors and mechanical bearings, this advantageous arrangement ensures that the CMM maintains its impressive accuracy performance at very fast measurement rates and that it does not suffer from the accumulative inaccuracies that occur in conventional 3-axis Cartesian arrangements.

As the inexpensive Xtreme requires no compressed air and has the shortest learning curve of any equivalent system - just one day without prior CMM experience - the robust CMM represents an ideal 'plug and go' solution. In addition, the Xtreme's integral temperature control function ensures that accuracy is maintained even when the surrounding ambient temperature is not controlled.

Ensuring greater user productivity and profitability, the Xtreme utilises Aberlink's renowned 3D software. A welcome bi-product of any Aberlink 3D inspection routine is that a simultaneous picture of the measured component is created on the CMMs computer screen. Dimensions between the measured features, mirroring those that appear on the component drawing, can be simply picked off as required. In essence this 'smart' software represents an intelligent measuring system that is able to automatically recognise and define the various features being measured. Aberlink 3D is the easiest to use and most intuitive CMM software currently available making it ideal for use by both quality and production personnel.

Photograph courtesy of Klaus Jordan for Underwater Lights Ltd use only

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