

Hardness Testing Accuracy Increases 60% for Bearing Manufacturer with INNOVATEST Falcon 507 from Bowers Group



Bowers Group has provided NMB Minebea UK Ltd with an INNOVATEST Falcon 507 Vickers, Knoop & Brinell Hardness Tester to ensure accurate testing of manufactured parts. The Falcon hardness tester has enabled NMB Minebea UK Ltd to increase its PTP testing results from Class 3 to Class 1, deliver a faster turnaround of samples, and dramatically increase the accuracy of the tests carried out. Jason Woodhouse, Laboratory Manager at NMB Minebea UK Ltd said: "Since investing in the Falcon, the accuracy of our hardness testing has improved by 60%. It's not just accurate, it's really simple and easy to use too."

NMB Minebea UK Ltd manufactures a variety of cold form parts for aerospace and military, including bearings and landing gear. Producing world class precision engineered products means that testing and quality assurance is key to NMB Minebea UK Ltd's success, and a variety of performance testing is carried out in its dedicated metallurgical lab.

Precise and accurate hardness measurement is of the utmost importance to performance critical parts made using the cold form process. Hardness needs to be accurately measured to prevent fracture during the cold form process, which can result in components having to be scrapped, and also damage to the dies and tooling on machines.

Jason Woodhouse continued: "We chose the Falcon 507 because it offered us all the features we needed at the right price. It was the perfect balance for us. Most people in the metallurgy lab use the hardness tester anything from once a day, to several times, depending on the demands of the current project."

Testing for aerospace companies and their supply chains must be carried out in accordance with a Proficiency Testing Program (PTP), which refer to a series of tests established by a number of aerospace firms including Airbus, Safran, GE, MTU, GKN, Airbus Helicopters and Rolls Royce in order to qualify Laboratories around the world on the basis of ISO 13528:2015 standard.

NMB Minebea UK Ltd can now test to ASTM and British Standards on the hardness tester, validate paperwork, and export all results to Microsoft Windows. To ensure the hardness tester is as accurate as it can be it is calibrated by an external company every 6 months. As part of NMB Minebea UK Ltd's NADCAP accreditation certain specifications must be met, and daily tests are undertaken to ensure the machine is functioning accurately.

NMB Minebea UK Ltd also have some dimensional metrology equipment from Bowers Group including 3 point bore gauges used for bore measurements, stick mics and thread mics.

The FALCON 500 series of hardness testing machines from INNOVATEST, and supplied in the UK by Bowers, improve conventional hardness testing methods by focussing on the elimination of user influence on the test results. The unique force actuator system utilises an electronically controlled closed loop system and advanced force sensor technology to achieve absolute accuracy, reliability and repeatability, on each of the forces used for a test.

The IMPRESSIONS software boasts a variety of useful features including file storing, test program setting and storing, image zoom, auto focus, limit settings, conversions to other hardness scales, system setup and (remote) control, pattern testing (CHD/Nht/Rht), and widely contributes to the high reproducibility of test results. Fully automatic image evaluation combined with intuitive operator software results in reduced operator influence on the test results.

In NMB Minebea UK Ltd's dedicated metallurgical lab, staff had previously used an old, manual Vickers hardness tester. Despite having performed well for many years, operators found that readings were beginning to drift and were gradually moving towards being outside of the accepted range. In addition, the old hardness tester made testing a fairly slow process; it was awkward to use and difficult to train people on.

NMB Minebea UK Ltd manufactures and supplies technical bearing products to aerospace and military industries. Based in its factory in Lincoln, the company is a world leader in the design and manufacture of bearing technologies. NMB Minebea UK Ltd manufactures a variety of advanced solutions for commercial, military or aerospace use; from landing gear bearings for major aircraft manufacturers to standard rod ends and spherical bearings for numerous applications. A number of machines are used during the manufacturing process including hydraulic presses, lathes, grinding machines and milling machines.

As a company at the forefront of bearing technology in aerospace applications, NMB Minebea UK Ltd is Nadcap Accredited and works to bsi AS/EN 9100 Series (Aerospace), ISO 9001 (Quality Management) and ISO 14001 (Environmental Management).