



CMM Case Study 03/2019

Company: Knorr-Bremse Rail UK

Zenith 3

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Knorr-Bremse Rail UK is a member of the global Knorr-Bremse Rail Division who are leaders in braking systems for all types of rail vehicles, from trams to very high-speed trains. In addition to braking systems, the Knorr-Bremse Rail Division offer a wide portfolio of innovative sub-systems to the world's train builders including air conditioning, auxiliary power, door, monitoring and advisory systems.

Knorr-Bremse Rail UK operate four facilities in the UK and at their Corsham site in Wiltshire precision machining is carried out by a specialist team. The components produced at Corsham are all destined for use in the company's advanced mechatronic EP2002 Distributed Brake Control (DBC) system, manufactured at the nearby Knorr-Bremse facility at Melksham, Wiltshire. EP2002 is an 'intelligent' brake control system which self-compensates, in real time, to address the variable operating conditions the train finds itself in, including passenger loading, wheel spin and slide and variations in friction brake performance. The system has, and continues to be, an outstanding export success for Knorr-Bremse. Over 75,000 EP2002 units have been produced and sold to train builders globally with the Middle East and China being key markets. Recently launched is the new, evolutionary version of EP2002 known as EP2002 3.0. This latest version boasts even more features than EP2002 and will open up further markets around the world for the system.

Knorr-Bremse, through their Knorr Production System, demand the very highest possible quality assurance in manufacturing. The Rail Division holds a wide variety of certifications and accreditations, foremost of which is ISO 9001 and IRIS ISO/TS 22163, which goes beyond the ISO9001 standard to include requirements specific for application in the rail industry.

Due to the continuing global demand for EP2002, and the introduction of EP2002 3.0, further investment was approved by Knorr-Bremse Rail UK to support increased production efficiencies without any compromise to quality. CMM inspection was identified as essential in improving production efficiencies and highlighted as an area needing investment.

Research was conducted by Knorr-Bremse Rail UK into the available CMMs on the market. The company already had good experience with the performance of the Aberlink Axiom too HS CMM installed at their nearby Melksham manufacturing site and the Zenith too CMM in use at Corsham and when strengthening its CMM resource again chose Aberlink as supplier of choice.

Knorr-Bremse Quality Manager at Corsham, Aaron Rens, commented, "We produce safety critical parts where consistency of quality is absolutely paramount. We, of course, considered many CMM machines to deliver this consistent quality we need and chose the Zenith 3 CMM due to good standardisation, ease of programming, even when machining the most complex of parts, and good value for money. Service support also influenced our decision; with Aberlink we're able to phone and speak to support engineers and even software developers with any queries or feature requests and we receive a solution almost immediately."

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Purchased with the PH10M motorised probe head, SP25 scanning probe and Aberlink's Programming from CAD software module, Aaron, commenting on the Knorr-Bremse setup said, "The Aberlink Zenith 3 was bought for the evolution of features that we needed to allow us to measure in the quickest time possible. The Zenith with SP25 and Programming from CAD has hugely reduced inspection times, by up to 66% in fact. Our most complex part has over 600 unique features and the CAD software module saves weeks of work due to our ability to create inspection programs before the parts are even machined. We've also taken the additional steps of creating simplified versions of our part programs to allow our shop floor staff to perform in-process checks on key features."

In addition to using the Zenith 3 for accurate measurement of new parts, Knorr-Bremse uses the machine's SP25 scanning probe to good effect for lifetime wear analysis of critical features, enabling inspectors to detect any potential issues early on.

Now the largest UK owned CMM manufacturer, Aberlink's comprehensive range includes 40 variants of both CNC and manual CMM. Aberlink CMMs enable the precise measurement of the smallest of components, to parts of over 3metres long and up to 6 tonnes in weight. Customers can select from a wide range of probing and non-contact measurement options and on-machine fixturing. The company's wide range of available solutions allows Aberlink to offer high quality CMMs and vision measuring systems to suit all applications and budgets.

Based in Eastcombe, Gloucestershire, Aberlink has established a global reputation for its metrology products which are innovative, easy-to-use and competitively priced.

Designed and manufactured by Aberlink, the largest UK owned Coordinate Measuring Machine manufacturer, the Zenith 3 Series consists of 10 large capacity CNC machines with XYZ capacities ranging from 1000x1000x600mm up to 1000x3000x800mm. As well as being the easiest to use, a major benefit of Aberlink CMMs is just how affordable they are. Aberlink are proud to be *the only major metrology* manufacturer to supply machines with **zero annual software maintenance contracts or subscriptions** and, **free software updates** for the life of the machine. All of this means that the cost of ownership is very low and the shortest return on your investment is possible.

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