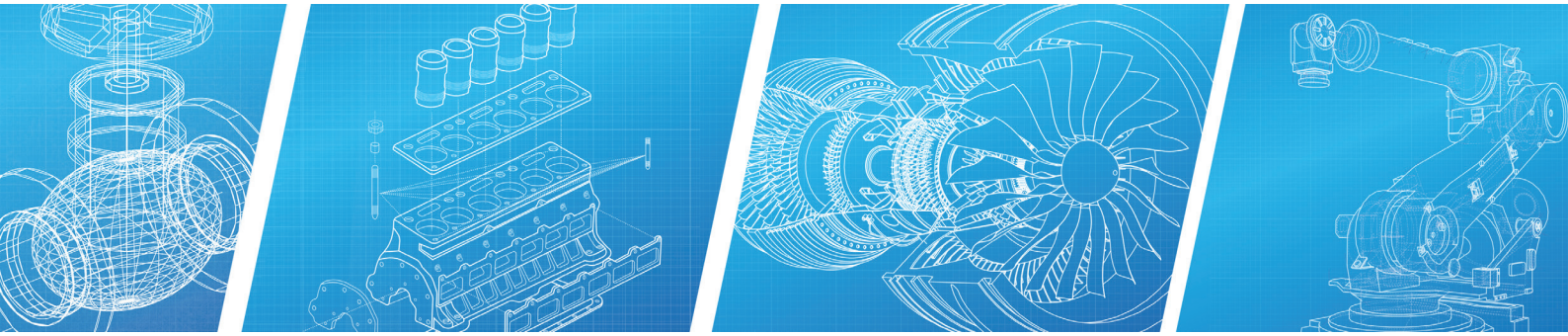
Bowers Group Case Study

Atlas Copco Bolting Solutions



Company Name	Atlas Copco Bolting Solutions	Products Supplied	Gagemaker MicTrac Gauge Setting System
Location	Wolverhampton, UK		
Industry	Industrial Engineering Tools		

APPLICATION BACKGROUND

Founded in 1873, Atlas Copco is a world leading engineering group manufacturing industrial tools and equipment. With headquarters in Sweden, Atlas Copco manufactures products at over 100 production sites across the world. The Atlas Copco Group of companies develop, manufacture, service, and rent industrial tools, air compressors, construction and assembly systems.

Atlas Copco's UK headquarters are based in Hemel Hempstead, providing compressed air and vacuum equipment, industrial power tools, and air, power and flow solutions, as well as service and maintenance. One of the companies manufacturing facilities is based in Wolverhampton, Staffordshire. This brand new, state of the art global bolting innovation centre is the headquarters of Tentec Ltd, which is one of the leading providers of bolt tightening solutions globally.

Tentec Ltd, part of the Atlas Copco group, was formed over 30 years ago, and the company designs, manufactures and distributes a wide range of hydraulic bolt tightening tools. The tools it makes are regarded as world class for their reliability , accuracy and they are used both on land and in subsea applications.

CHALLENGE

Many of the components manufactured by Atlas Copco are nickel plated in order to provide corrosion resistance for parts that will be typically be used in subsea and exposed to salt water. As saltwater can be extremely corrosive the components need to be exceptionally accurate considering the critical applications that they are part of. If a part doesn't meet tolerance, and is the wrong size, they will not meet stringent design criteria and will not be passed off by the inspection team.

Components used in the oil and gas industry are subjected to extremely high pressures. For example, an error in machining or measurement could result in an oversized thread. If used in an application where high pressure is a factor, an oversized thread may result in what is commonly known as 'thread-strip', so it is imperative that manufacturing & inspection processes are adhered to strinjent design principles.

Members of the quality team at Atlas Copco used 'Go/no-go' gauges as measurement inspection tools, which allow workpieces to be checked against allowed tolerances. As the name suggests, the check involves the workpiece having to pass one test (go) and fail the other (no-go).

Although 'Go/no-go' gauges are an integral part of the quality process used in manufacturing components at Atlas Copco, and are perfectly adequate, a more sophisticated method of measurement was required in order to further develop the measurement process on critical applications.

THE SOLUTION

Bowers Group provided Atlas Copco with a Gagemaker Mic Trac Gauge Setting System with a range of 0" to 24" Internal, 1 1/2" to 25 1/2" External. This multi-use gauge setting system sets or zeros most gauges with the use of interchangeable anvils or blocks, and incorporate the ForceLok™ feature to provide a constant anvil force that improves repeatability from operator to operator.

The Gagemaker Mic Trac Gauge Setting System is an electronic, adjustable calibration and measurement centre that will inspect parts, preset indicator system gages, and calibrate a variety of hand held inspection gauges. Suitable for use on the shop floor or in the calibration lab, the Mic Trac system contains receiver pads, which are precision ground in matching sets, and used as parallel surfaces for measuring or holding fixtures.

Atlas Copco initially expressed interest in the Gagemaker system after identifying the need to further develop the way they checked internal threads on components. Instead of using 'Go/no-go' gauges, Atlas Copco required a measurement method that was more specific for certain applications and are always looking towards continuous improvement

Atlas Copco now uses the Gagemaker system to measure the internal threads on a variety of components, including hydraulic bolt tightening tools.

The Gagemaker MicTrac allows Atlas Copco to provide more detailed feedback on tolerance to customers. For example, instead of giving a 'pass' or 'fail' result, they are now able to specify the exact measurement by which the tolerance has been met; or indeed, missed. Therefore, if a middle tolerance is achieved, the exact figure can be determined; accurate down to 5 decimal places.

The Gagemaker system has saved Atlas Copco a significant amount of money. If one of their old gauges is out of calibration, the team now have no need to replace it, as the Gagemaker fulfils this need.

Accuracy has increased due to the ability to measure components at various stages during the manufacturing process. The old gauges only allowed operatives to measure components at the very end of the process, meaning that if a mistake had been made, it would often be too late to correct. This, therefore, Could result in scrappage and waste.

The Gagemaker system, however, allows operatives to monitor the dimensions of the parts at intervals throughout the manufacturing process, enabling them to adjust the machining mid-way through manufacture to achieve required accuracy.

The connectivity that the Gagemaker system offers is also a huge benefit to Atlas Copco. The business was extremely keen to streamline the manufacturing process and offers a SPI output cable to transfer data to spreadsheets at the touch of a button. Digital readouts allow Atlas Copco to produce reports in order to provide customers with definitive evidence that manufactured components meet ISO standards and British standards.

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COMMENTS

Quality Inspection Manager, Darren Cleaver said: "We are very happy with the service and support we have received from Bowers Group and are confident that should be need further assistance they will be more than happy to help."

The majority of machinists here at Atlas Copco -Wolverhampton use the Gagemaker system. It has enabled us to halve the number of gauges we buy because it offers such flexible measurement capabilities. We use it primarily for measuring threads at the moment, but we plan to have several units in place for other manufactured parts throughout the business. Our next aim is to use a Gagemaker to measure internal and external splines, for increased accuracy and a higher level of control over the manufacturing process. Go/no go gauges are used at present, and although they are perfectly adequate, they are becoming an outdated method that we plan to upgrade.

We have shown some of our customers around and they're amazed by the set-up we've got now; it's really working well for us!

The Gagemaker has certainly helped us on our way to complete digitalisation, which is one of our aims for the future. Connectivity and data transfer capabilities provided by the Gagemaker are exceptional, and have really helped to streamline our processes. We are even looking at introducing virtual and augmented reality into our manufacturing and training; watch this space!"