

DEA BRAVO

Volvo Car Gent N.V., Belgium



Quality is firmly in the driving seat

by Birgit Albrecht

The legendary Volvo P1800 ES style rekindled fairytale memories. The vehicle's image-defining all-glass tailgate reminded people of Snow White's glass coffin. The successor model, the Volvo V40, rolls off the production line in the carmaker's works in Ghent, Belgium, where they rely on measuring systems from Hexagon Metrology.

Volvo models are not just appealing to the eye. Since its beginnings, the brand has led the field in vehicle safety. Last coup: the airbag, designed to protect pedestrians in a crash. The Chinese parent company has big plans for its protégé. The aim is to further establish the brand in the premium sector of the market. Thus, quality has been on everyone's lips since the take-over by the Geely group. The logical consequence:



bravo HP

tighter tolerances on the parts which particularly affect the metrology team.

Metrology is most important for the weld lines in the “A-Shop”. The process of welding makes it difficult to keep dimensions under control. Fluctuations are extremely common. That is where most inspections are carried out to compare the actual measurements against the specified values. In the “B-Shop”, the bodies-in-white are immersed in flamenco red, electric blue and other special colours. All other parts, including the engine, come together in the “C-Shop” during final assembly to create S60, XC60, C30 or V40 models.

Measuring large objects

Random inspections of the bodies-in-white are performed fully automatically on the weld lines in bypass on two DEABRAVO HP systems from Hexagon Metrology. The open design of the dual horizontal arm measuring machines simplifies the loading of the bulky bodies-in-white.

Either tactile or optical sensors can be selected. Among the features to be checked are the positions of the welded studs which are used to attach specific C-shop parts in a pre-determined position. They are measured with the laser sensor CMS106. The PC-DMIS software package compares the measured data with the CAD data.

9 times quicker

But why go for optical and not tactile? Both ways are possible. However, when measuring with tactile probes the irregular shape of the studs create a bottleneck. In earlier days only tactile probes were available at Volvo Car Gent. To achieve accurate results the metrologists had to place plastic cylinders on the studs, a manual intervention which took time. Also, after several measurements, the cylinders were worn out and had to be replaced.

Another time-killer: The measuring systems were placed in a measuring room. The bodies-in-white had to cover a greater distance in comparison to the new in-line concept. The whole procedure could take a full three hours. Today after 20 minutes, the sensors reveal the positions of the more than 170 connecting pins on a Volvo car body. With the in-line system and the optical sensor, the procedure is 9 times quicker.



The technicians start the measuring process on the DEA BRAVO from the terminals. The measuring program is supplied by colleagues in Volvo HQ in Gothenburg, Sweden.

Unshakeably accurate

Even troublesome part characteristics or poor ambient light immunity has no effect on accuracy of CMS106. Conventional optical sensors have to struggle against material characteristics and ambient light immunity. For example, reflections interfere with data capture from the part's surface.

The CMS106 generates a laser line consisting of several points, which is used to scan the surface of the car body. The laser line and laser intensity are adjusted to suit the part and the light conditions. Interfering factors can therefore have no effect on the accuracy of the measured results. Based on the positive experience with the sensor, Volvo also plans to measure the threaded holes on bodies-in-white in the future.

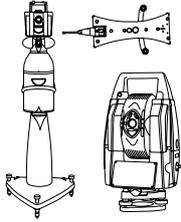


The positions of the connection pins are measured using laser technology. Additional cylinders or manual intervention is not necessary.

One partner for all

The factory in Ghent adopts various strategies to ensure the quality of the processes is maintained at a high level. In addition to the in-line systems, there are three measuring rooms. Preassembled component groups such as side parts are checked with horizontal arm or bridge measuring machines from Hexagon Metrology. Verifications when production processes change are also carried out in the measuring rooms. The portable Leica Absolute Tracker AT901 from Hexagon Metrology is used by Volvo to overcome measurement challenges directly on the production line. Service completes the metrology package: Hexagon Metrology even took over the complete project management and coordinated all subcontractors during installation of the DEA BRAVO system.

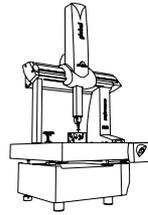




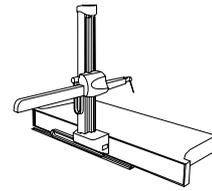
LASER TRACKERS & STATIONS



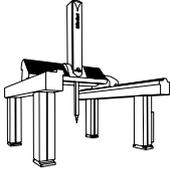
PORTABLE MEASURING ARMS



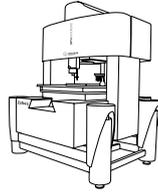
BRIDGE CMMs



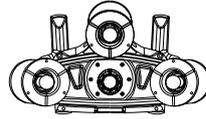
HORIZONTAL ARM CMMs



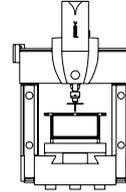
GANTRY CMMs



MULTISENSOR & OPTICAL SYSTEMS



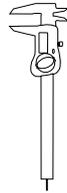
WHITE LIGHT SCANNERS



ULTRA HIGH ACCURACY CMMs



SENSORS



PRECISION MEASURING INSTRUMENTS



SOFTWARE SOLUTIONS



Hexagon Metrology offers a comprehensive range of products and services for all industrial metrology applications in sectors such as automotive, aerospace, energy and medical. We support our customers with actionable measurement information along the complete life cycle of a product – from development and design to production, assembly and final inspection.

With more than 20 production facilities and 70 Precision Centers for service and demonstrations, and a network of over 100 distribution partners on five continents, we empower our customers to fully control their manufacturing processes, enhancing the quality of products and increasing efficiency in manufacturing plants around the world.

For more information, visit www.hexagonmetrology.com.

Hexagon Metrology is part of Hexagon (Nordic exchange: HEXA B). Hexagon is a leading global provider of design, measurement and visualisation technologies that enable customers to design, measure and position objects, and process and present data.

Learn more at www.hexagon.com.