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A modular system with high flexibility

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Modular vision platform

A modular system with high flexibility

Cretec's modular QBIC vision platform is the result of consistent synergies between networked, scalable, complete vision solutions. It enables simple, fast installation, flexible automation and low maintenance requirements.

In the premium automotive segment, a perfect appearance is a very important part of brand image and marketing. Buyers can be extremely exacting. Components must therefore be highly precise, while no visible surface defects may spoil their flawless appearance. The human eye can easily overlook something when lighting conditions vary slightly. Here, perfection in quality control is guaranteed only by high-performance 3D machine vision.

A feasibility study for an automotive company used a 3D image scan to detect defects unequivocally at numerous measuring points relating to the precise positioning of plastic blades fitted into aluminium wheels. The 3D vision system had to provide measured evidence that every blade met the specified permissible gap and height difference relative to the aluminium surface. Alongside a more elaborate inline solution, a stand-alone, flexible solution using the compact QBIC

platform offered convincing technological and economic advantages for industrial series production.

Each wheel is placed manually or automatically in the vision system's drawer and moved into the measuring position. From above, a 20 MP camera records the wheel's exact centring, rotational position and type with an inspection accuracy of 0.3 to 0.15 mm. This also documents its flawless condition. A six-axis robot moves the 3D camera measuring head to the respective inspection positions.

High-accuracy measuring concept

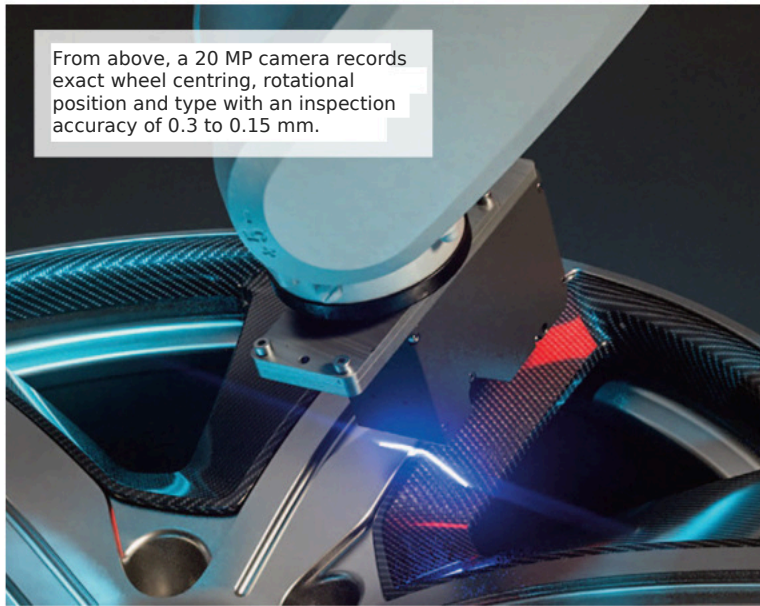
Cretec's measuring concept for inline and offline use provides an accuracy per measuring point of less



QBIC modules combine control, data analysis and communication in an autonomous system.

than 10 µm in all three dimensions during wheel inspection. MSA measurement accuracy is better than 100 µm. This ensures very high accuracy and flexibility, because each inspection feature can be adjusted individually at any time. The cycle time for a complete wheel inspection in QBIC is less than one minute.

Using QBIC during the feasibility study allowed the study to be completed with around 50% less time. Further time savings came from faster final project implementation and quicker, simpler installation and integration into production. Accelerated project delivery also proved to be an important economic factor. In the event of a complaint, the documentation provides the measuring-point data, all measured values and every wheel type. This supplies evidence that the wheel was in flawless



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m or 1.2 m × 1.2 m, with a maximum height of 2 m. Integrated retractable wheels allow it to be moved quickly for delivery or relocation and connected to other QBIC units.

The complete solution economically automates numerous vision tasks simultaneously in a minimal space. Integration options include electrical equipment, controls, a high-performance PC, cameras, the VisionTube code verifier, a cobot or robot, different vision modules, intelligent lighting, a large touchscreen monitor, industrial communication modules and neural networks. A mains-independent power supply maintains operation during a power failure and prevents data loss. It even allows the system to be relocated while operating. Integrated

condition when delivered.

Small footprint

The mobile platform with its minimal footprint and modular hardware and software ensures exceptional flexibility for complete vision-system solutions. This shortens project development, installation and adaptation to new product variants. Versatile QBIC modules, each with a broad range of capabilities, are linked directly into an autonomous system through control, data analysis and communication.

The hexagonal design of the Cretec vision system provides excellent access from all sides and great flexibility in designing particularly compact, mobile solutions. Depending on the version, the complete QBIC module requires a footprint of only 0.8 m × 0.8

high-performance PCs also make these solutions suitable for demanding tasks using artificial-intelligence algorithms.

Complete QBIC solutions cover a broad range of applications: pick-and-place, registration and classification tasks, ID codes, inspection, 2D and 3D measurement, surface inspection, decision-making and sorting processes.

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