

Inspection of sleeves for vehicle fuel injection systems

In use

Checkbox Compact PLC and intelligent compact vision system SBOI-Q

Key features

- 100% quality inspection
- Reliable detection and rejection of faulty parts
- Smooth material feed

On the safe side

Faulty components in the production process are every industrial firm's nightmare. Valuable time, tight budgets and reputation are at stake. System manufacturers therefore need to get to grips with their customers' increasing quality requirements. Inspection systems such as intelligent compact vision systems or the Checkbox from Festo ensure these nightmares never see materialise.

Quality assurance is a central issue at Technik-Zentrum-Esslingen GmbH (TZE), particularly when it comes to the production of sleeves for fuel injection systems. With a part throughput rate of approx. 100 inspection parts per minute, the previous manual and visual final inspection was no longer adequate. A visual inspection system was needed.

A two-fold inspection system

The problem called for a complete package of feed and visual unit. It was expected to feed the drawing sleeves in the correct orientation and at the same time to check the cross-sectional diameter of the part cross sections. Against this background, TZE opted for the company ifc intelligent feeding components in Oedheim.

▼ Complete solution comprising feed unit and visual unit: the Checkbox Compact PLC and compact vision system SBOI-Q inspect drawing sleeves for vehicle injection systems.



As a supplier of flexible feed systems for type and orientation checking and quality inspection, ifc primarily uses vision systems and components from Festo. In the case of the sleeves, a Checkbox Compact PLC in combination with the new surface-based vision system SBOI-Q was felt to be the ideal solution.

100% quality process

The sleeves are inspected at two stations; the first one checks the cross section and the second the diameter. The "multifunctional" Checkbox Compact PLC is the first station. It controls the flow of the sleeves and at the same time checks their cross section as they

pass the optical duct. It performs a comparison against the dimensions of a good part learned beforehand and sends a signal to the ejector in the case of a faulty part.

If the cross section of the inspected part is acceptable, a message is forwarded to the downstream integrated compact vision system SBOI-Q. As per the second station, it checks the part diameter and ensures that only perfect parts reach the production process. The interaction of the two systems guarantees 100% quality inspection. Deformed or damaged parts are reliably detected and rejected. ■



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Checkbox Compact PLC

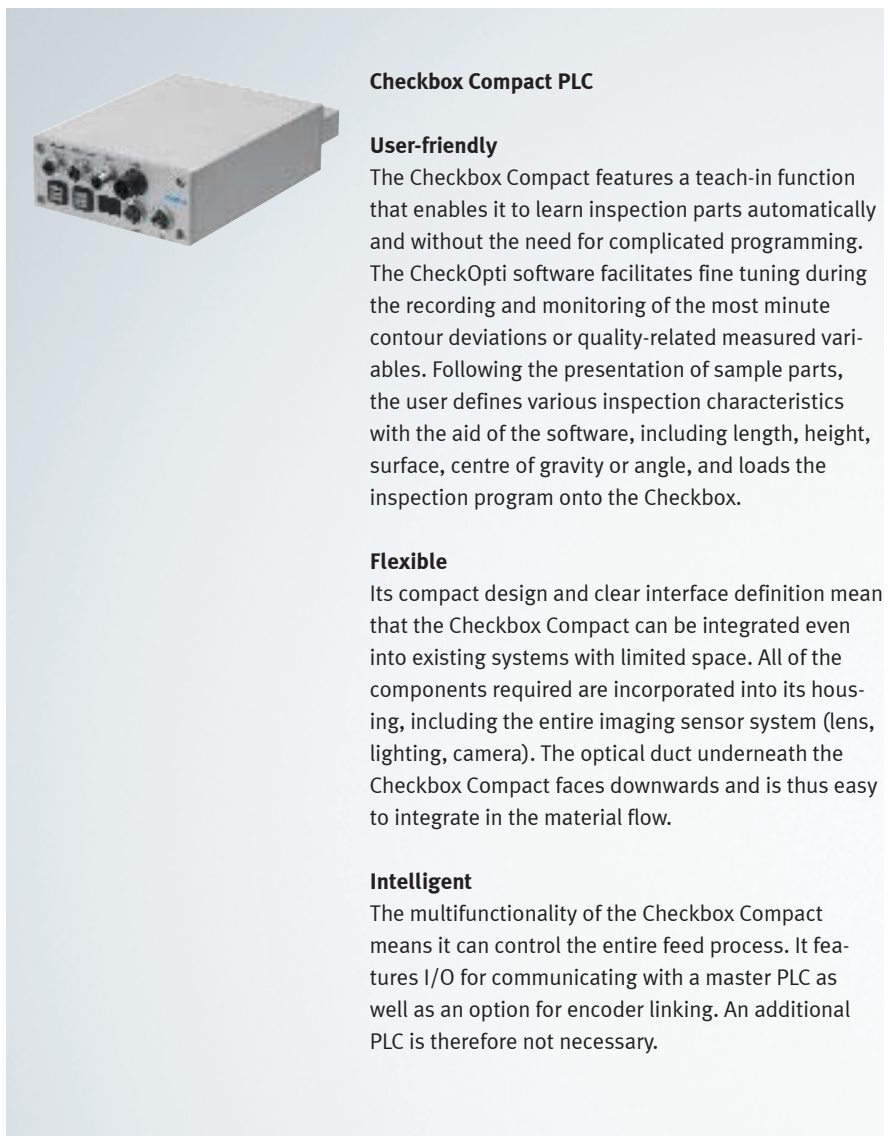
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Compact vision system SBO..-Q



Intelligent compact vision system SBO..-Q

The intelligent camera delivers reliable inspection results for a broad range of applications. The system can be used to check regularly and irregularly moving or static parts. Left: SBOI-Q with integrated lens; right: SBOC-Q with threaded connection for different lenses.



Checkbox Compact PLC

User-friendly

The Checkbox Compact features a teach-in function that enables it to learn inspection parts automatically and without the need for complicated programming. The CheckOpti software facilitates fine tuning during the recording and monitoring of the most minute contour deviations or quality-related measured variables. Following the presentation of sample parts, the user defines various inspection characteristics with the aid of the software, including length, height, surface, centre of gravity or angle, and loads the inspection program onto the Checkbox.

Flexible

Its compact design and clear interface definition mean that the Checkbox Compact can be integrated even into existing systems with limited space. All of the components required are incorporated into its housing, including the entire imaging sensor system (lens, lighting, camera). The optical duct underneath the Checkbox Compact faces downwards and is thus easy to integrate in the material flow.

Intelligent

The multifunctionality of the Checkbox Compact means it can control the entire feed process. It features I/O for communicating with a master PLC as well as an option for encoder linking. An additional PLC is therefore not necessary.