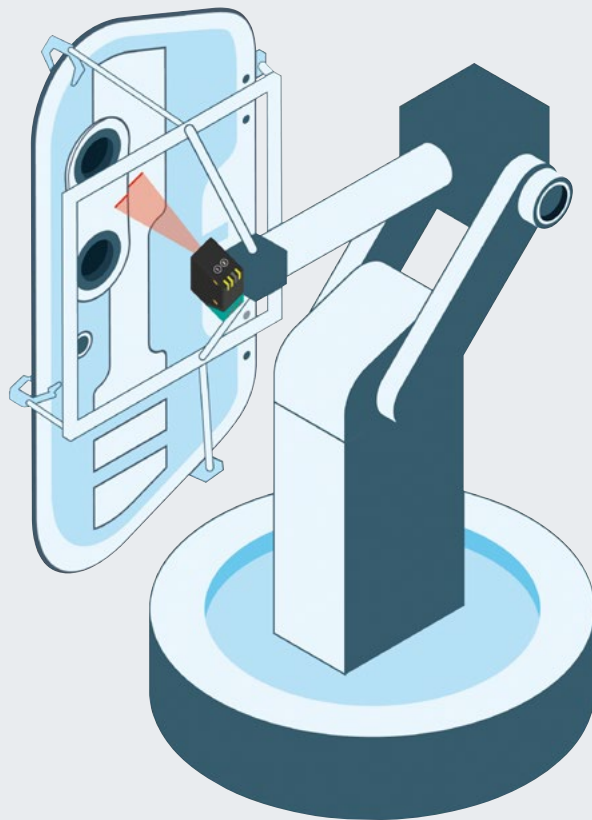# Automatic Component Inspection in Car Body Manufacturing

SmartRunner Matcher Monitors
Line Profiles

At a Glance

- Reliable detection of the target by comparing profiles using the light section method

- Object contrast not necessary

- Primarily unaffected by extraneous light

- Simple, intuitive parameterization

- Option to connect directly or via fieldbus

The Application

In the automotive industry, components are welded together in robotic welding cells during the production of car bodies. Prefabricated metal sheets are manually inserted into the robot's gripper. However, sheets may be incomplete or faulty. If an incomplete or faulty metal sheet is used, the entire car body will have to be scrapped. Errors made during this production stage cannot be corrected. An inspection process must be in place to check the components before they are used in this production stage.

Your automation, our passion.

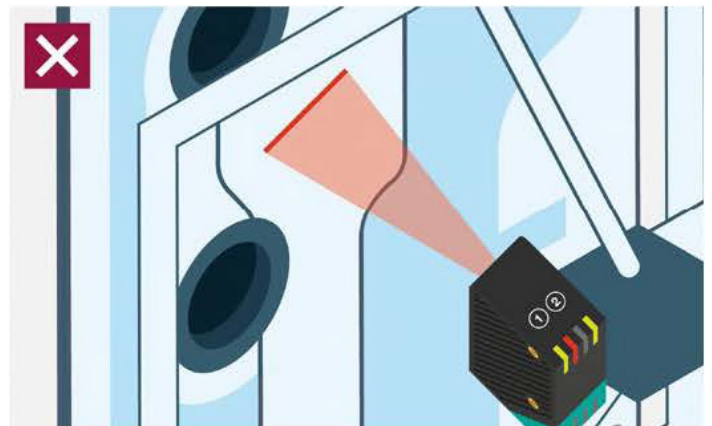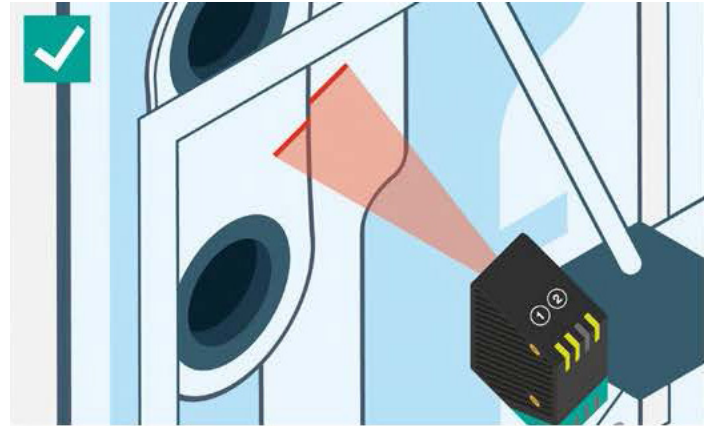**PEPPERL+FUCHS**

The Goal

The automated inspection must ensure that the sheet metal meets certain requirements, so certain contour characteristics must be reliably detected. In order to maintain the fast pace of robot-assisted production, this process should not cause any delays. Errors must always be reliably detected, regardless of the color of the component and any interference from extraneous light.

The Solution

The SmartRunner Matcher, with light section technology, is mounted on the robot's gripper. The sensor immediately detects the contour of the inserted metal sheet and compares it with the reference line profile. The reference profile is saved to the sensors via teach-in. If the sensor reports a fault, the work step is not carried out. The sensor can be connected to the robot control system via its digital input and output or connected to the PLC via SmartRunner gateway and fieldbuses such as Profinet or EtherNet/IP.

The Benefits

Unlike typical vision systems, the SmartRunner Matcher does not rely on object contrast. It also detects low-contrast objects based on the line profile, ensuring that components are reliably inspected. This is particularly useful in the case of dark targets with dark backgrounds. The sensor is also largely unaffected by extraneous light. The "wizard" that is integrated into the Vision Configurator software makes configuration simple with intuitive user guidance. A variety of connection options allow the sensor to be seamlessly integrated into various control systems.

SmartRunner Matcher Features

- Adjustable detection and position tolerances

- Quick parameterization and commissioning via teach-in, Data Matrix control codes, or the intuitive Vision Configurator wizard

- Storing and selection of up to 32 profiles on the sensor

- Output of the x/z position

- Simple integration into any control panel via digital switching signals and gateways for all common fieldbuses

- Laser class 1 classification prevents injury to eyes

For more information, visit
www.pepperl-fuchs.com/px-smartrunner