oka Yoke is a Japanese concept that stands for “mistake-proofing” or “avoiding inadvertent errors”. The term describes the ongoing production trend of excluding errors already in the production process, instead of looking for them after assembly through the implementation of complex quality controls. With the poka yoke principle, faults are prevented by making it as difficult as possible for the production worker to carry out their working steps incorrectly.

The US car parts supplier, Johnson Controls, a leading company worldwide in the supply of car seats, roof lining systems, door panels, dashboards and electronics for vehicle interiors, also follows this principle in its production processes. With car seat production, for example, this involves the following specific requirements: it must be ensured that each component is fitted to the seat in the correct order, with the correct screw or rivet, the correct tool and with the correct amount of force.

This requirement is implemented using assembly devices with parallel arms or other so-called reaction arms supplied by Möve-Metall, in Mühlhausen. The company based in Thuringia, Germany, was formed out of the former VEB Möve Factory, has 50 employees and develops, designs and produces special machines, equipment, plants and, in particular, assembly and testing equipment for car parts suppliers. Möve-Metall developed a parallel arm with position detection for use in assembly processes. This enables the position measuring of the screw and rivet processes and reliably prevents incorrectly assembled parts.

“In order to screw in components, the car seat is fixed in positioning elements,” Michael Zimmermann,
With a resolution of 0.09°, Turck’s RI sensors provide more than sufficient accuracy.

With their assembly and testing devices, Möve-Metall GmbH in Mühlhausen primarily supports the car parts suppliers in fault-free production. Wherever a manufacturing process requires manual interventions, the machines and devices from Thuringia in Germany ensure precise assembly conditions. This also includes the screwing in of car seats using various assembly devices with parallel arms, for which the arm positions are detected with Turck’s inductive RI angle sensors.