Success story

Omron's TM Series collaborative robots provide flexible CNC machine tending solution for gear manufacturer

Fischer Gears is a third-generation, family-owned company based in Randers, Denmark that has been producing gears, cogs and gearboxes for international players in the automotive, maritime and mining industries since 1920. As one of the market's leading suppliers, the company has state-of-the-art machinery that utilizes new technologies and processes to manufacture a range of standard and custom gears that can vary from a single piece to several hundred pieces.

Fischer Gears sought to make its processes even more streamlined by eliminating the manual loading and unloading of components into CNC machines. To improve its object handling system, the manufacturer needed a robust machine vision solution that could capture information from barcodes and also determine which items had already been machined and which ones remained unworked.

The company chose Omron as its supplier thanks to the high lifting capacity and built-in vision system of its TM Series collaborative robot. In particular, the cobot's Landmark positioning feature was a particularly attractive capability. The gear manufacturer's service partner, Nordelektro, was responsible for the implementation of the robotic solution.

Business need

Fischer Gears is a family-owned company that has been producing gears, cogs and gearboxes for industry and the maritime sector since 1920. As one of the market's leading suppliers, the company needs to be able to produce high-precision gears in bigger volume.

Unique solution

Fischer Gears has invested in two Omron TM collaborative robot to automate the feeding of metal parts into four CNC machines. A processes that has so far been manual.

Customer benefits

After investing in Omron TM collaborative robots, Fischer Gears is able to reduce costs and operate production 24 hours a day. The Omron TM robots also help to release Fischer Gear factory employees to other and more value-adding tasks.

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The solution
Flexible cobots with built-in vision

The need

With the goal of utilizing its human resources more effectively and finding a way to produce high-precision gears in larger volumes, Fischer Gears decided to automate tasks related to the loading and unloading of metal parts into CNC machines. These tasks were previously performed manually, creating a risk for the company's employees to develop repetitive stress injuries over time.

Because it produced a wide variety of gears, the company needed a flexible robotic solution to take over the machine tending requirements. In particular, Fischer Gears was looking for robots that could easily orient themselves in 3D space and separate the parts that had been processed from those still needing to be machined.

The technology

Fischer Gears invested in two Omron TM Series collaborative robots (cobots) to automate the feeding of metal parts into its four CNC machines. The cobots move between CNC machines to pick up the smaller-size parts, feed them, and close the machine doors. After CNC processing is complete, the cobots remove the parts and put them on a nearby pallet.

The built-in vision technology of the TM Series lets the system differentiate between machined and unworked items. The cobots are very flexible thanks to the 3D Landmark feature that enables a 2D camera to calibrate their position in three dimensions. When moved to a new machine, the cobots use 3D Landmark to reorient themselves.

Omron safety scanners are present on the cobots to ensure that any human entering the collaborative workspace will not be harmed by the moving robotic arm. This makes it possible for the cobots to work in an open factory environment.

The outcome

Thanks to the collaborative robots, Fischer Gears has achieved a new level of factory flexibility that wasn't possible before. It can fulfill existing and new customer demands very quickly, which has been a key contributor for annual growth. The industry needs robots to expand, so the new system helps Fischer Gears stay competitive.

In addition, the cobots free up the company's employees from having to perform repetitive movements throughout the day. By helping avoid repetitive stress injuries, the cobots significantly improve worker safety. They also make it possible for production to continue once the factory has closed for the day. Ultimately, the Omron solution has improved flexibility, quality, safety, and efficiency for Fischer Gears.