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Collaborative robotics in inclusion companies

Inclusion meets cost-effectiveness

The legally required participation of disadvantaged people in regular working life presents companies with the challenge of simultaneously taking social and economic interests into account. ISAK gGmbH has been using collaborative robotics from Bosch Rexroth for this purpose since May 2017 and has demonstrated how the balancing act between inclusion and cost-effectiveness can be mastered in daily use using the APAS assistant.

How can disabled people be included in production processes that need to keep pace with competitive conditions? A manual assembly process of plastic nozzles at ISAK gGmbH was analyzed for this purpose. Physically disabled employees operate a hand press that joins strainers and nozzles together up to 8,000 times a day. This pressing process is now being taken over by an APAS assistant. In this way, the robot offers partial automation that has a positive effect on productivity. It also relieves the employees' ergonomic workload by reducing the otherwise necessary force required for press-fitting to zero and compensating for the operators' different ranges and heights at the same time.

Competitive advantages for disadvantaged people

In this solution, two height-adjustable work tables, which communicate with APAS using a sensor system, support the compensation of different gripping radii. As a result, the robot's working level adapts to the selected table heights. The system therefore not only accommodates people of extremely different heights (e.g. people with restricted growth), but also improves the competitiveness of inclusive companies such as ISAK gGmbH. This can prevent simple assembly work from being relocated to low-wage countries and allow disabled people to participate in regular working life. One important side effect is also the acquisition of new knowledge about supporting people without disabilities through robotics. The whole project is state funded.

The challenge

Participation of disadvantaged people in working life, integration of economic & social objectives

The solution

Combination solution consisting of APAS assistant and two height-adjustable work tables

The result

"The solution is geared totally to the users. And particularly to those who are not usually the focus."

Wolfgang Pomrehn, Product Manager APAS Production assistant



Solved with

- ▶ APAS assistant, adapted for pressing strainers / nozzles
- ▶ 2 electrically adjustable work tables with electrical height adjustment
- ▶ Sensor system for communication between the APAS & work tables