

Functioning of the HRC demonstrators AUTOMATICA 2016

- Short description -

Subject: Testing task in the metal casting sector
– Relief in danger zones

Integrator

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Assembly description

A KUKA LBR iiwa with a Co-Act WSG fitted is on the pedestal. In the rear section of the plate there is a conveying belt dummy with 7 workpiece deposits with workpieces. In the front section, 3 workpiece deposits are mounted. In the middle of the plate, there is an opening with a locking mechanism consisting of two pneumatic cylinders and two closing plates. The opening is intended to constitute the insertion of an X-ray machine. The X-ray is simulated by the appropriate lighting.

Description of the program sequence

1. The robot grips the first workpiece from the conveying belt and holds it in the opening in the table. The cover closes and an X-ray procedure is simulated by light signals.
2. If the workpiece is error free, the robot puts the workpiece back in its original position on the conveying belt.
3. If the workpiece is not OK, the robot drives the component forwards at a person's chest height.
4. The gripper opens by means of a tensile movement on the workpiece and a worker is able to remove the workpiece.
5. After the faulty workpiece has been removed, the robot goes to the first free storage location in the front section of the table and indicates to set the workpiece down there.
6. If the faulty workpiece is not removed, the robot sets the workpiece down in the front section after a short period of time.

As soon as all 3 deposits are filled, the robot clears the workpieces back onto the conveying belt and the cycle begins again.
Upon contact/collision, the robot remains still, if touched again the process is continued.

Components used

Robots	KUKA LBR iiwa 7 R800
Flange	ISO 050
Grippers	WSG 050-110-B (0306120)
Sensor system	-
Attachment fingers	customer-specific, Material: Anodized aluminum, protective coating in Automatica design, integrated lighting (colors: red; green; yellow; blue)
Protection cover	adapted to WSG 050, in Automatica design, material: PA 12 (reworked)
Adaptation	customer-specific, 1-part. Adapter plate between WSG and KUKA, Material: Anodized aluminum

Further technical information

Control assembly	Sequential program via KUKA control
Communication	Controlling the gripper via Profinet
Electrical wiring	Use of the robot-side feed-through

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