

HeiDetect Flex Robot



ROBOT-GUIDED X-RAY
INSPECTION FOR
ALUMINIUM STRUCTURAL
COMPONENTS

HeiDetect Flex Robot



Flexible, efficient, robust

Its low space requirement, full enclosure and robust construction enable integration into the manufacturing process, even under extreme conditions in series production. Variable loading concepts enable high flexibility with the integration of the HeiDetect Flex Robot. Due to the adjustable gripper, safe component handling is possible at any time, also in case of complicated geometries.

Most advanced X-ray technology for highest quality

The HeiDetect Flex Robot is a fully automatic 2D X-ray inspection system, which - due to the integration of the image evaluation software ISAR and the detector XEye, developed by the Fraunhofer Development Centre X-ray Technology (EZRT) - enables almost pseudo error-free evaluation with stable image quality.

Because of the high-performance image processing, casting defects such as cavities, pores, nests and foreign objects can be detected and classified. Defects can be recognised from a range of 3% of the radiated wall thickness. Large-scale oxides can be detected from a size of 1% of the wall thickness. The evaluation software ISAR provides an ergonomic user interface, by means of which customer-specific test parameters can be set. Key data can be transmitted to an existing enterprise data or PPS system.

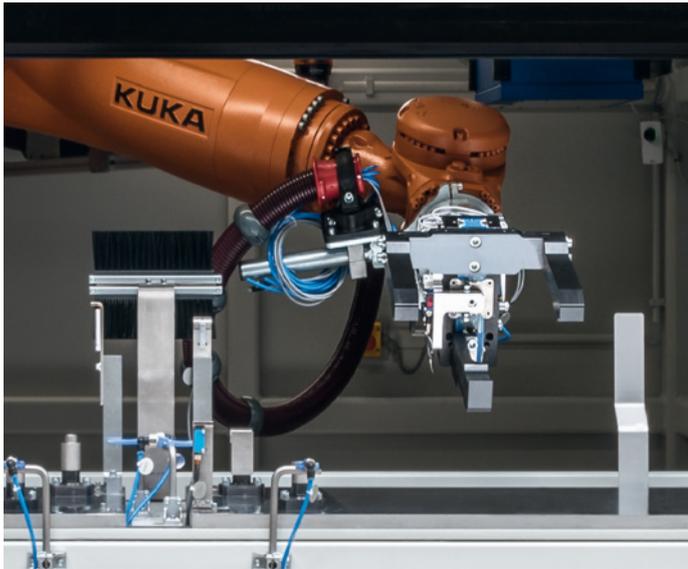
Specially prepared test results are transmitted to production in real time, enabling trend observation and product quality improvement with the objective of minimising the reject rate. You will produce considerably more efficiently and be able to rely a hundred per cent on your quality.

The technical design will be made depending on the relevant country-specific requirements and standards (CE/UL/...).

Your advantages

- › High flexibility with the workpiece geometry
- › Variable loading concepts enable perfect integration into the manufacturing process
- › Compact X-ray equipment, especially designed for inline inspection during production
- › Flexible positioning of components due to using a 6-axis robot (KUKA)
- › Permanently stable image quality thanks to the degradation-free XEye Detector
- › Fewer test positions due to a large detector area
- › Offline remote parameterisation in ongoing operations
- › No distortions and brightness variations, no reparameterisation required
- › Almost pseudo error-free defect detection due to cutting-edge Fraunhofer image evaluation ISAR
- › Control centre for multi-machine operation
- › Trend detection
- › Statistics module
- › Step wedge for cyclical inspection of the X-ray system
- › Relevant testing standards are taken into consideration, new standards can be integrated

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Convincing plant engineering with high throughput

Because of the integrated industrial robot, the X-ray inspection system HeiDetect Flex Robot achieves very high flexibility and speed. As a result, it is perfectly suitable for inline operation in mass production of aluminium cast parts. Large areas in one test position can be evaluated because of the large inlet surface of the XEye Detector. This advantage enables less handling steps and reduces the test time per component.

Technical data

Test system		Detector**	
Length	3,280 mm	Type	XEye 4020
Width	2,750 mm	Active surface	400 mm x 200 mm
Height	2,320 mm	Pixel size	100 µm - 400 µm
Weight	11 t	X-ray tubes	
Max. workpiece weight	40 kg*	Manufacturer	COMET / VJX
Fully automatic data evaluation	Fraunhofer ISAR	Tube voltage	160-225 kV
Ambient temperature	up to 50 °C	Tube power	variable

*Optionally, a higher workpiece weight is also possible

**Optionally, further detectors (also various sizes) are possible

Variable loading concepts for high flexibility



Continuous conveyor technology



Loading via rotary table



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