Heavy-Duty Industrial Robot

KR 15/2 Robot
- 6 axes/servomotors with bearing control
- Ultimate load 15 kg (33 lbs.)
- Working range > 1.5 m (4' 11") / spherical from the base pivot
- Repeating accuracy < 0.1 mm (0.004") over the entire working range
- Track speed > 1 m/sec. (3' 3"/sec.)
- Programming of the positions: via a hand-held terminal with an 8" VGA-color display
- 6D-mouse to intuitively move the robot axis
- Soft keys with internationally understandable icon display
- The keypad is clearly divided by color into functional blocks

Rotating Positioning Drive
- Load capacity > 250 kg (551 lbs.)
- Diameter of the turntable 800 mm (2' 7.5");
  includes at least 4 T-grooves to fasten adapter disks
- Positioning accuracy < 0.1 mm (0.004") along the outer circumference of the turntable
- Variations of the height along the outer circumference of the turntable < 0.1 mm (0.004")
- Concentricity < 0.1 mm (0.004") along the outer circumference of the turntable
- Speed 0 – 60 rpm continuous

EC Inspection Electronics

Electronics Cabinet
- Electronic system integrated into a cabinet with optional Simatic S7, safety circuits and EC-instruments
- Dimensions (H/W/D): 2100 x 600 x 600 (82.7" x 28.6" x 28.6")
- IP54 protection class
- Standard climate control: filter vent; optional air conditioner
- Feed standard 3 x 400 VAC, 50/60 Hz; others upon request
- Power consumption including robot max. 10 KVA

**Eddy Current Test Instrument**
- ELOTEST B1 V4; ELOTEST PL 300; ELOTEST PL.E
- Measuring data acquisition via the ELOTEST PC4 to record the measuring and the position data, if a B1 or a PL.E is used
- ScanAlyzer 5.x Aero evaluation software in English or French
- Evaluation system:
  19" industrial PC; min. 700 MHz; 320 MB RAM; CD-ROM; AGP graphics; profibus-DP; CD-RW burner; Ethernet 10/100 MBit; MS Windows NT 4.0, 2000, XP; 15" TFT display; Color inkjet printer

Documentation
All available manuals and documents are either in German or English.

Control Industrial Robot

KR C1/ KR C2-Control Cabinet
- Open network-capable PC-technology
- Standard CAN/Device Net and Ethernet; slots for common bus systems e. g. INTERBUS-S; FIPIO
- Integrated oscilloscope function for robot diagnostics and to support the programming
- Track profile function for optimum interaction between the individual robot motors and their speed
- Disk and CD-ROM drive for data integrity
- Options such as master-/slave-operation of robots or remote diagnosis via Internet
- Easy operation and programming via KUKA-control panel (KCP) with Windows 95 operating surface
- Compact stackable control cabinet
- One control for all robot systems
- Dimensions (H x W x D): 1880 x 650 x 500 mm (6' 2" x 2' 2 .5" x 1' 7 2/3")
- Number of controllable axes max 8 (6 robot axes + rotating drive) option probe adjustment
- Micro processor: Pentium
- Operating surface: Windows, internally VX-Works
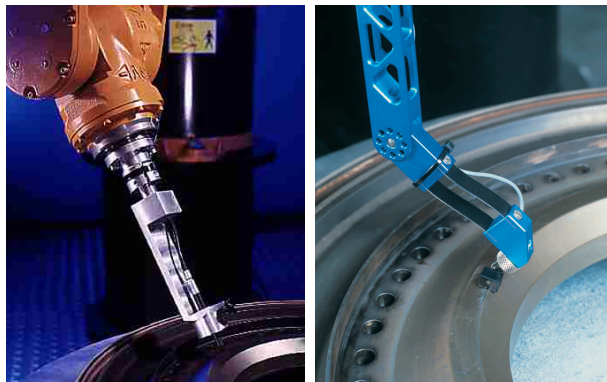
Probe connected to the robot: rifid arm/ flexible arm

EloScan

Eddy-Current Robotic System

Outstanding Repeatability, Accuracy and Flexibility

Reducing the Unknown Human Factor

automated

The automated **EloScan** eddy current inspection system has been primarily designed for the inspection of rotating symmetric components of aircraft engines. Because of its universal design, it can also be used for the inspection of other complex components where the probe must be guided precisely along or inside the part.

main components

The following items are integrated into the **EloScan** eddy current scan system and combined into a user-friendly system:

- Reliable multi-axis industrial **robot** for exact probe guidance
- Extremely rugged **positioning drive** with face plate (Ø 800 mm) to continuously rotate or exactly position the component
- **Hand-held** programming device with graphic display
- **ScanAlyzer software** to record, display, analyze and document measuring data
- Electronics-**cabinet**

user-friendly

The system has been designed with user-friendliness in mind and can be set up for a different inspection within just a few minutes.

The operator can easily call up and carry out recurrent inspection jobs. The storage and evaluation of the measuring data as well the calibration with a reference standard can be accomplished fully automatic.

documentation

A complete documentation is ensured by saving the position data of the probe or the probe system and the corresponding measuring data of one or more test instruments. The "raw data" that are acquired during the inspection can be stored on any mass storage medium or – if desired – be exported as a table with values.

evaluation

The **ScanAlyzer** software lets the user evaluate, analyze and document the measuring results. For these purposes, the software offer various tools such as offline filter, offline phase rotation or offline gain. It is also possible to integrate customized "mathematical" filters. The software is based on the new "layer technology" that lets the user acquire and evaluate the data of up to 128 measuring channels simultaneously. The individual layers can be offset against each other and the result can be displayed as a C-scan online during the inspection.

Windows NT Workstation or Windows 2000 XP provides the powerful operating system.

In addition to scanning the surface of a part in a rotating or oscillating fashion with a pointed probe, the system is also able to **inspect** bore holes with rotating probes. These can be integrated into the inspection procedure.

mechanics & robotics

The extremely rugged and precise mechanical components of the system have been designed for many years of continuous operation and require only very little maintenance. The robot technology has already proven itself in the automotive industry (VW, BMW, GM). By forming a partnership with KUKA Roboter GmbH, the repair and service worldwide and within hours is assured. Moreover KUKA maintains a number of training facilities that offer the operators in-depth training in robot technology.

service

Likewise, the entire eddy current system as well as the industrial PC (Siemens) are designed for years of continuous and trouble free operation. EloScan-customers receive an exclusive express service for spare parts to minimize downtimes.

experience

Rohmann GmbH can look back on more than 10 years of combining robot technology with eddy current inspection.

safety

The system offers several standard safety devices and surveillance functions to protect both the operator and the test pieces against harm. As an option, the system can be equipped with various protective cells or laser systems (in accordance with the operator's applicable safety guidelines).

installation

With quick and easy mounting (fastening the system to industrial floors) and an uncomplicated adjustments respectively calibration the system is operational within just a few hours. The controller is able to compensate for uneven floors. Thus, complex measurements and balancing that are required for other linear systems are not needed for this system.

future-oriented

The system is designed to accommodate future applications. As an option, it will be possible to integrate other methods of inspection such as ultrasound. When using the suitable eddy current technology, array technology can also be used. The system has several approvals of the most important manufacturers of aircraft engines and its range of applications is continuously expanding.

applications

The **EloScan**'s range of applications is not limited to the inspection of components of aircraft engines. In combination with an optional SPC the system can also be used for automated inspections in all fields of NDT.