QIROX Grinding Solutions

Individual solutions for automated grinding

CLOOS

Weld your way.

www.cloos.de

QIROX Grinding Solutions

Maximum efficiency	Page	4
QIROX robot QRC-30/45/60-PL	Page	6
FerRobotics	Page	8
Exemplary application	Page	10

Sensitive robotic elements meet high-tech automation

Process optimisation with individual solutions for automated grinding

The demand for high-complex chained systems is steadily increasing. Solutions for automated welding technology with upstream and downstream processes such as grinding are more and more being integrated in a production line. In combination with the sensitive robotic elements from FerRobotics, the CLOOS QIROX robot QRC-30/45/60-PL offers a wide range of possibilities for different areas of application. While CLOOS contributes its robot and system engineering know-how to the joint projects, FerRobotics contributes its technological expertise for the grinding applications with patented force/contact intelligence.
Benefit from individual solutions for automated grinding. Close automation gaps and increase the efficiency in your manufacturing processes!

- Optimise your processes with individual solutions for automated grinding.
- Use the numerous applications of the QIROX-Roboters QRC-30/45/60-PL.
- Choose between different end-of-arm tools for your special task.

QIROX Grinding Solutions

Automated grinding and polishing:

Maximum efficiency for your production processes

In addition to welding technology, grinding and polishing are among the key machining operations in numerous industries and sectors. The applications are extremely diverse. Use also our solutions for automated grinding and polishing. The robots offer consistently high quality – even in 24/7 operation. You also benefit from shorter cycle times, minimised costs and increased productivity.

Your advantages at a glance:

- Highest precision by using a robot
- Permanently high-quality results with consistently high quality
- Efficient production due to faster grinding and polishing processes
- Cost reduction due to minimised abrasive consumption
- Relief for employees due to improved working environment

Grinding - the perfect finish

Choose from the wide range of customised grinding solutions that achieve an optimum surface quality with reliable force control and the necessary sensitivity. The constant contact force reduces abrasive consumption and noticeably reduces the cleaning effort thanks to the integrated extraction system. The innovative grinding systems are suitable for surface processing of almost all materials.
Applications: Among other things, rework of visible seams, production of cabins, machine housings, sheet metal assemblies, components for rail vehicles and the automotive industry.

Polishing - the perfect surface

A polishing process is always aimed at achieving the most perfect surface finish possible - on the one hand to meet visual demands, but also due to technical requirements. With a large selection of process-optimised polishing convenience solutions, you can easily achieve optimum results.
Applications: Among other things, component optimisation for downstream manufacturing processes such as lacquering and coating.

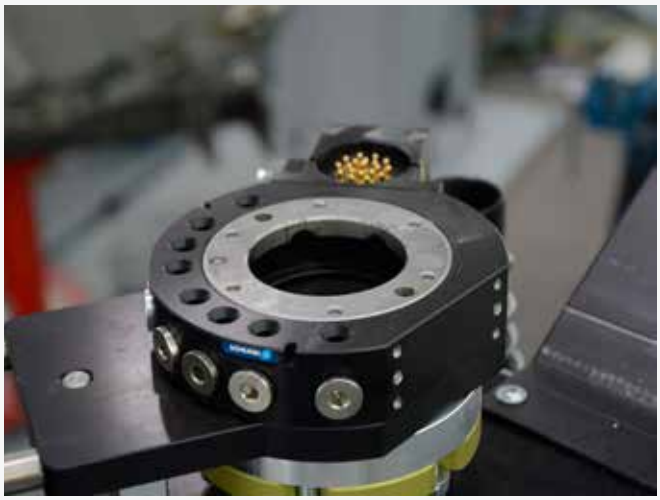
QIROX Grinding Solutions

QIROX QRC-30/45/60-PL robot

More than welding

Whether laser or laser-hybrid welding, handling or grinding tasks – the QIROX QRC-30/45/60-PL robot is a true all-rounder with a high payload capacity for a wide range of applications. The optional changing tool allows the flexible use of different working processes with one robot. The QRC-30/45/60-PL is characterised by high dynamics with a low weight and a slim product design. The robot also impresses with a big working envelope and little floor space. Benefit from the repeatability, the long service life and long maintenance intervals. Due to the modular design, we realise customised solutions for you Extensions and retrofits are possible at any time.

- **A wide variety of application possibilities:** Laser welding, laser hybrid welding, handling, grinding etc.
- **High dynamics:** Modern materials for reduced weight and slim product design with ergonomic forms



Tool changing system

Combine different technologies!

With the tool changing system, you can use different grinding applications on one robot.

- Combination of different grinding processes and methods
- Use of different grinding applications

Abrasive media changing station

Fast, simple and automatic

With the abrasive media changing station, you can change different abrasive media quickly, easily and automatically. The change of the abrasive media is controlled by a sensor. A sensor monitors the filling level of the magazines.

- Automatic change of different grinding media
- Sensor scanning to monitor the fill level of the magazines
- Sensor control of abrasive media change

QIROX Grinding Solutions

Grinding applications with patented force/contact intelligence

Sensitive end-effectors for automated grinding

FerRobotics Compliant Robot Technology is the global leader in the development and distribution of sensitive robotic elements (end-of-arm tools / end-effectors) that equip robots and cobots with contact intelligence. The sensitive robotic elements give robots feeling and thus ensure more efficient, finer and more valuable production results.

Active Contact Flange – ACF

Multifunctional end-of-arm tool for any industrial robot

The Active Contact Flange fits every robot like a velvet glove. Robots equipped with ACF are able to reliably measure the force they apply, meaning they can meet the requirements of complex component parts of their own accord. ACF combines all the fortes of Active Compliant Technology to form a universally applicable Add-on. It is able to automate both contact-sensitive operations and applications with various tolerance levels in a simple, reliable and economical manner, thus increasing the competitiveness of our customers.

- **Surface treatment:** Grinding, sanding, polishing
- **All types of material:** Steel, aluminium, titanium, magnesium, carbon, chrome-nickel

FERROBOTICS
perfect feeling

CLOOS Grind Control Interface GCI 1.0

Your Human-Machine Interface to the CLOOS robot system

- Simple and intuitive control of contact pressure, rotational speed and feed
- Display with set/actual values
- Additional mobile panel for visualisation during programming
- Optional: Extensive diagnostics possibilities
- Optional: Web interface for grinding control

Active Angular Kit

Integrated angle grinding solution for automated surface treatment

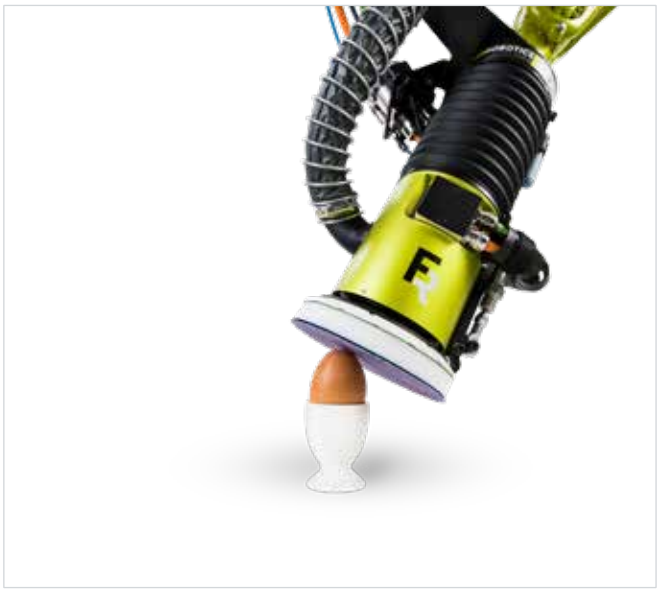
As an integrated grinding solution for weld rework, the Active Angular Kit also guarantees a significant increase in productivity. The precisely matched system package combines the Active Compliant Technology with a robot-compatible angle grinder. Industrial grinding processes can thus be automated: speed of rotation, contact pressure and feed rate can be individually controlled simultaneously. The compact and simple design of the AAK offers the highest process quality. Compared to commercially available devices, this highly resilient, industrial-grade grinder doubles performance even with continuous use.

- Grind/remove welds
- Deburring
- For small workpieces
- For large areas
- For high material removal

Active Orbital Kit – AOK

Integrated Orbital Sander for automated surface treatment

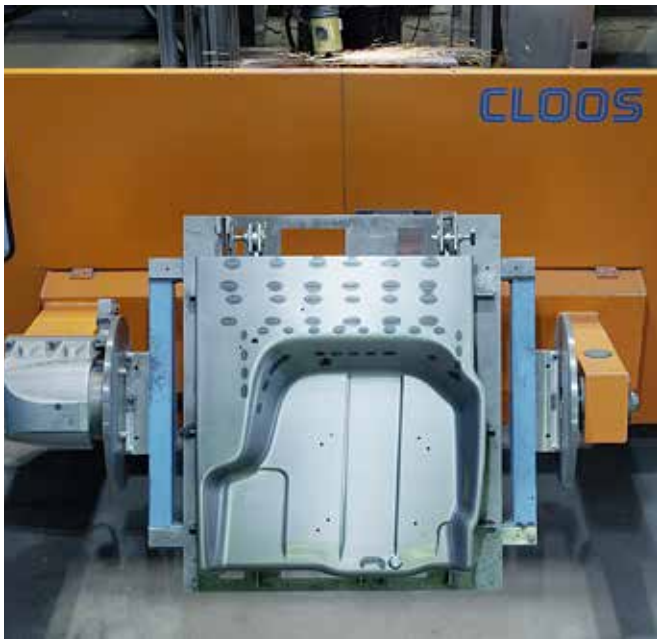
The Active Orbital Kit is an intelligent system package, which combines the Active Compliant Technology with a specially developed orbital grinder. This integrated complete solution automates the industrial grinding process with individual control of all process parameters: speed of rotation, contact force and feed rate The AOK offers the highest process quality from a single source. The system design is compact and simple. The enormously durable grinder is designed for industrial use and delivers twice the output of standard devices, 24 hours a day, 7 days a week.



- Grinding
- Polishing
- Small areas
- Large areas

QIROX Grinding Solutions

Automated rough and fine grinding of welded components



Kohl & Sohn GmbH

- Component: Battery covers
- Industry: Industrial vehicles

Highlights:

- **Active Orbital Kit – AOK:** Integrated Orbital Sander for automated surface treatment
- **Active Angular Kit – AAK:** Integrated angle grinding solution for automated surface treatment
- **Tool changing system:** Combination of different grinding applications on a robot
- **Abrasive media changing station:** Automatic change of different grinding media
- **CLOOS Grind Control Interface GCI 1.0:** ideal Human-Machine Interface to the CLOOS robot system

Kohl & Sohn GmbH is specialised in the production of larger formed parts and complex welded assemblies made of steel, stainless steel and aluminium. For the production of battery covers of forklifts, the company relies on automation solutions by CLOOS. After the automated welding process, the components are ground roughly and finely on a 2-station system. By switching to automated grinding, Kohl & Sohn benefits in particular from the reliable and reproducible quality. The robot is equipped with a tool changing system for maximum flexibility. So different grinding applications can be used depending on the application. The abrasive media are exchanged quickly, easily and automatically in a changing station. The CLOOS Grind Control Interface GCI 1.0 allows simple and intuitive control of contact pressure, rotational speed and feed and extensive diagnostics possibilities.

The way ...

Consulting

With this comprehensive “pre-service”, we take care of your project from the beginning and transfer our integrated process expertise to your component..

Planning

We elaborate a solution which perfectly meets your individual requirements.

Design

Due to the modular design of our product series we develop customised solutions which meet all your production requirements.

Production

Welding machine and robot technology is our strength - including our core competence: the arc.

Commissioning

Our specialists carry out the installation step-by-step in your production hall and test your system for faultless functionality.

Training

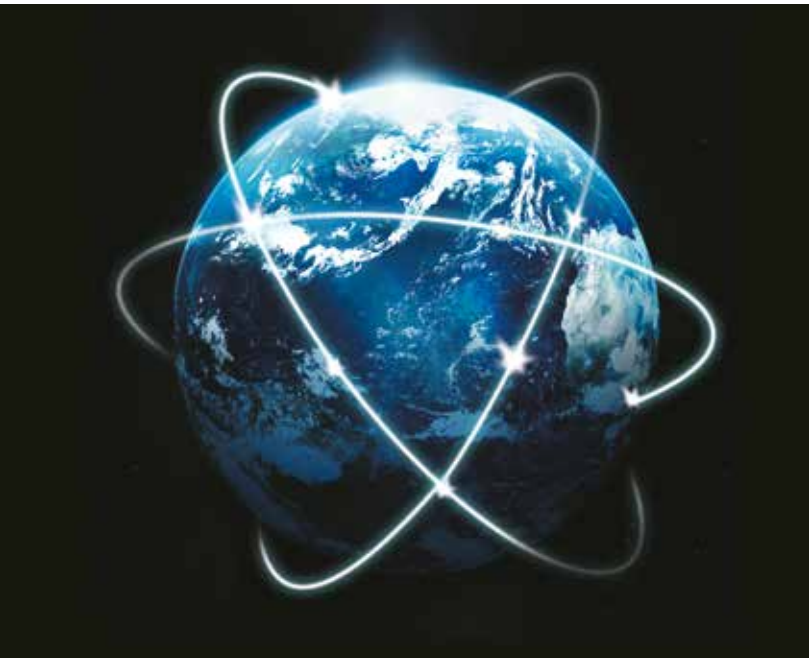
We train your employees and service technicians in programming, operation and maintenance in our modern training centre

Service

Our competence team advices you on any extensions, modifications and retrofits of your existing robot and welding systems.

... to your success.

All over the world



Carl Cloos Schweisstechnik GmbH
Main office: Carl-Cloos-Strasse 1
Central warehouse: Carl-Cloos-Strasse 6
35708 Haiger
GERMANY

Telephone +49 (0)2773 85-0
Telefax +49 (0)2773 85-275
E-mail info@cloos.de
www.cloos.de

PR2110-Grinding-EN

Subject to technical alterations.

CLOOS

Weld your way.