



QIROX Compact systems

Your customised solution for automated welding of medium-sized and complex workpieces

CLOOS

Weld your way.

www.cloos.de

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Compact systems „Ready to weld“

The **QIROX compact systems** are perfectly matched "ready to weld" systems in a compact size. Each compact system is equipped with two stations so that a high and economic duty cycle can be obtained. While the robot is welding the components on one side, loading or unloading is carried out simultaneously on the other station. Robot and positioner are mounted on a common base frame. This guarantees a quick and perfectly adjusted system assembly.

All In One

Each **compact system AIO** is equipped with two stations so that a high and economic duty cycle can be obtained. While the robot is welding the components on one side, loading or unloading is carried out simultaneously on the other station. The clamping lengths of the standard versions can be changed. Optionally you obtain a movable counter bearing, so that the clamping lengths can be infinitely adjusted.

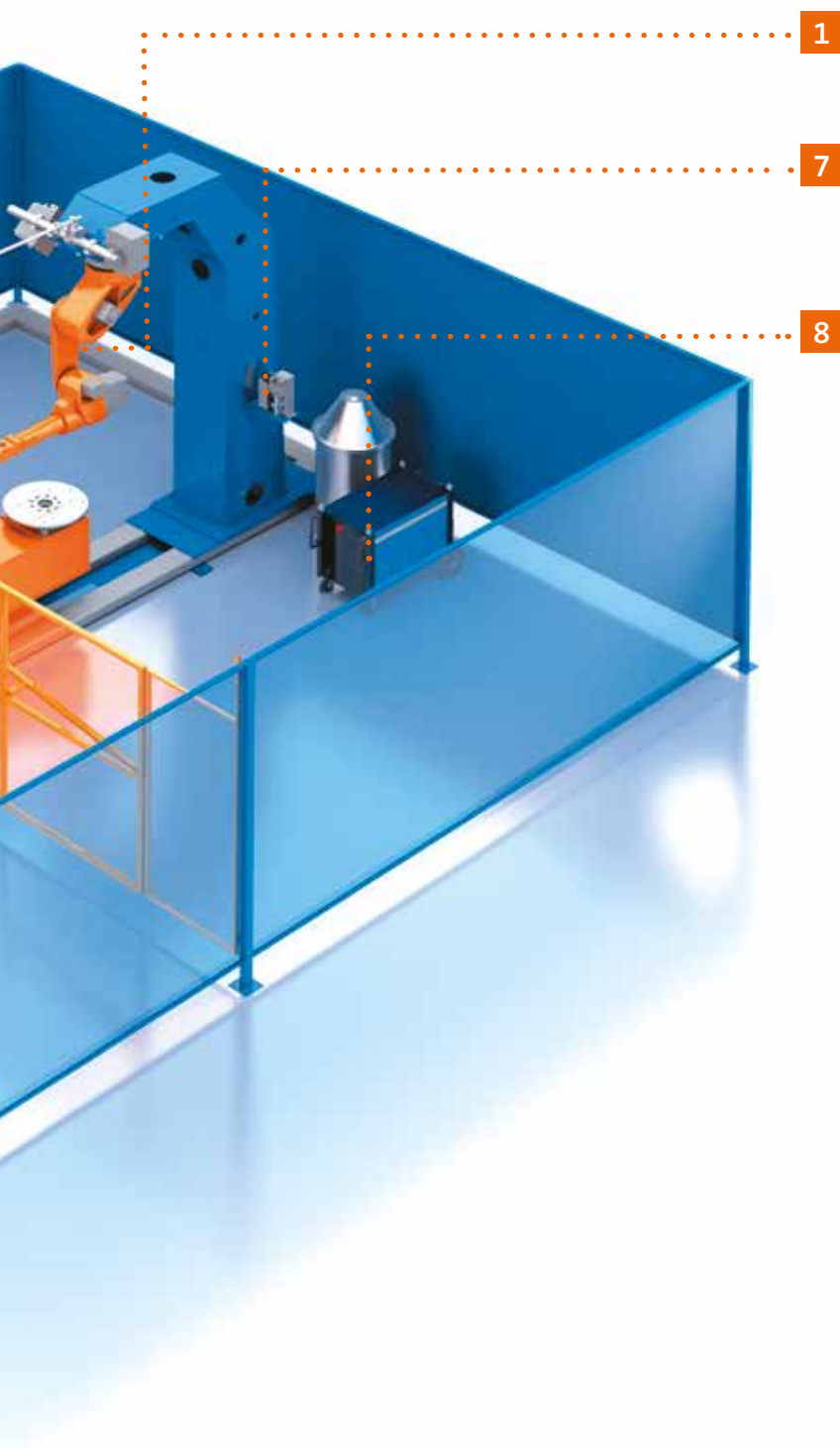
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7 good reasons for a CLOOS Compact system

- **Economic**
Weld any workpiece at economic conditions - with our customised solutions for maximum productivity and efficiency.
- **Compact**
Just integrate the systems into your production - the compact design saves production surface.
- **User-friendly**
Use our comfortable operating panels - we guarantee easy, precise and intuitive handling.
- **Reliable**
Count on "Made in Germany" – as technology leader we guarantee maximum performance in proven CLOOS quality.
- **Flexible**
Realise individual extensions and retrofits - the modular design makes it possible.
- **Time-saving**
Benefit from easy assembly and maintenance - our compact systems are completely pre-installed electrically and mechanically.
- **Single source supply**
Trust in many years of know-how together with highest innovation power.

Basic equipment of a compact system:

1. QIROX Welding robot
2. Welding torch with anti-collision sensor
3. Sensors
4. Positioners
5. QIROX Controller
6. Safety technology
7. Torch cleaning unit
8. QINEO Welding power source

Productivity by
perfection





Compact system QR-CS-10

with two-station rotary positioner

Page **8**



Compact system QR-CS-20

with horizontal rotary positioner with vertical rotation and counter bearing

Page **10**

AIO



Compact system QR-CS-25 Flex

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Compact system QR-CS-30

with horizontal rotary positioner with vertical rotation and counter bearing for medium-sized to big workpieces

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AIO



Compact system QR-CS-35 Flex

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Compact system QR-CS-40

with vertical rotary positioner with vertical rotation and counter bearing

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Compact system QR-CS-50

with rotary positioner with turning/ swivelling movement for small to medium-sized workpieces

Page **20**



Compact system QR-CS-60

with horizontal rotary positioner with turning/ swivelling movement for medium-sized to big workpieces

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AIO



Compact system QR-CS-70 Flex

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AIO



Compact system QR-CS-80 Flex

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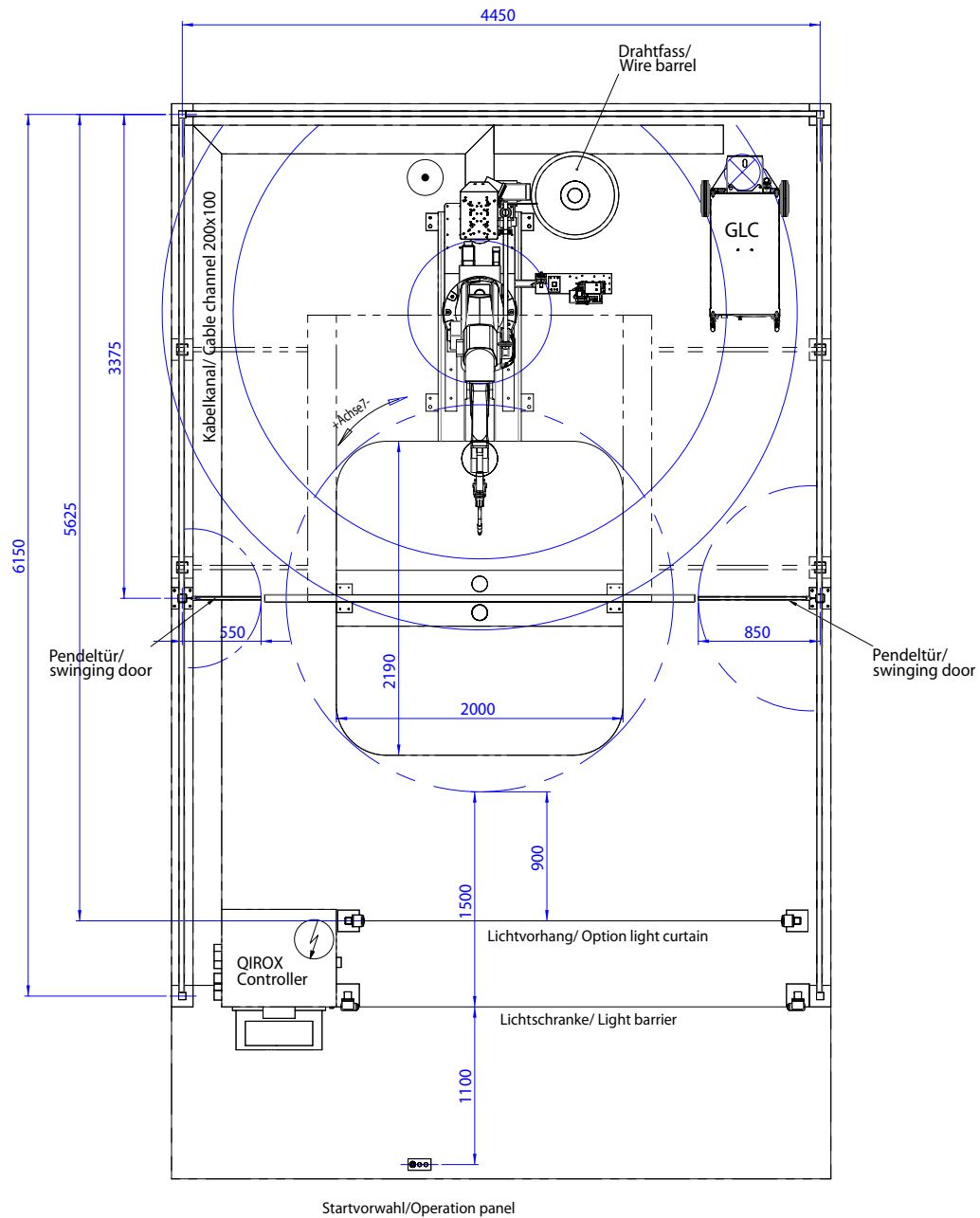
Compact system QR-CS-10

with an automated two-station rotary positioner.



Description

The QIROX QR-CS-10 compact system is a "ready to weld system" with automated rotary table QR-WP-TH. You can select the load per station from 250 and 1000 kg.



Technical data

Nominative load capacity	250 - 1000 kg	Total weight	max. 2100 kg
Height	2500 mm	Clamping surface (max.)	2000 x 1050 mm

Compact system QR-CS-20

with a horizontal rotary positioner with vertical rotation and counter bearing for small to medium-sized workpieces.



Description

The QIROX QR-CS-20 compact system is a "ready to weld system" with two-station rotary table incl. a turning axis and a counter bearing per station. The robot is mounted in upright position. You can select the load per station from 250 and 500 kg.

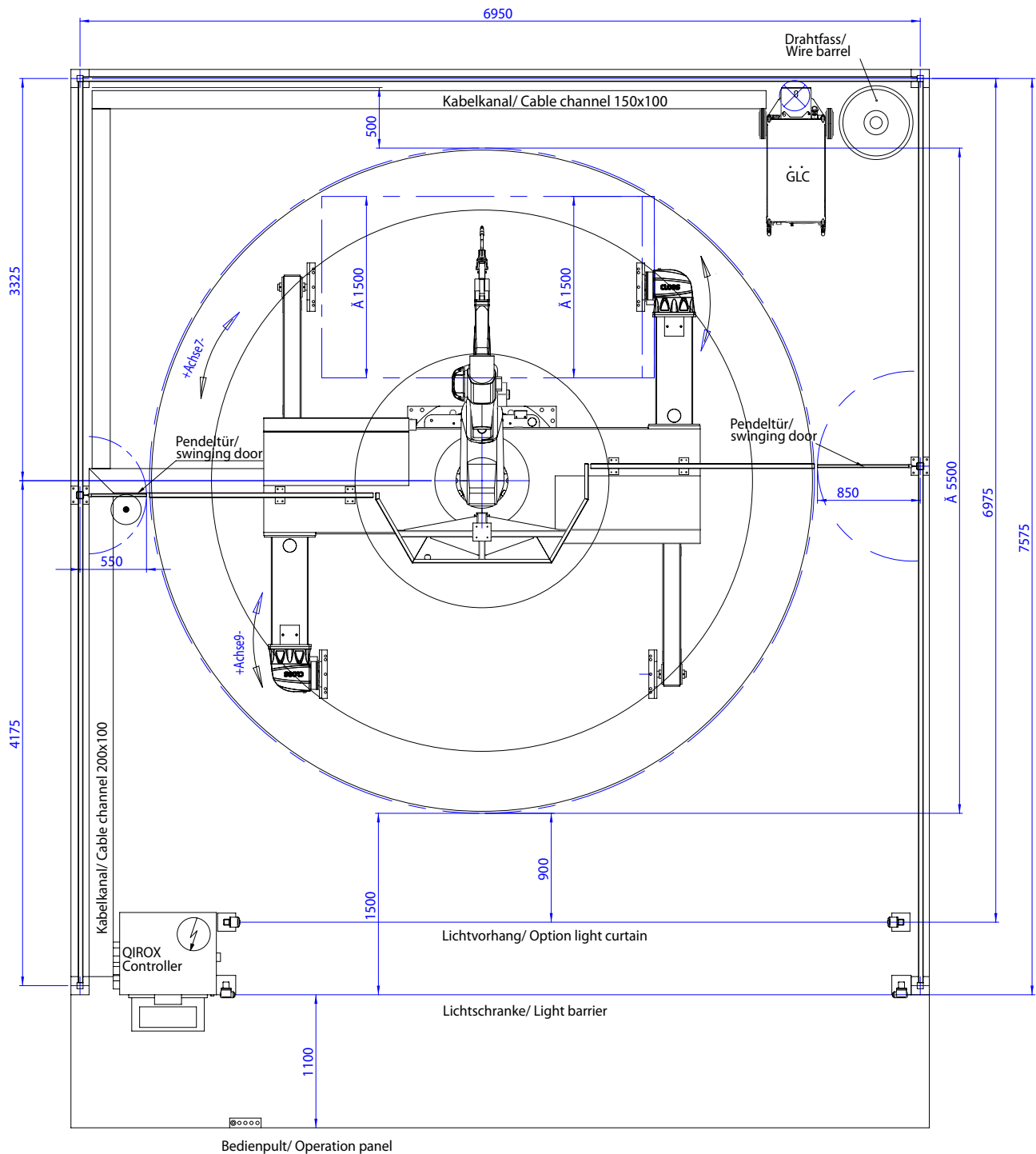
Compact system QR-CS-25 Flex

Double station positioner with horizontal station change and a horizontal rotary axis and a counter bearing each



Description

The QIROX Compact system QR-CS-25 Flex is suitable for components up to 1000 kg. The robot is fixed on the work-piece positioner which turns around the robot.



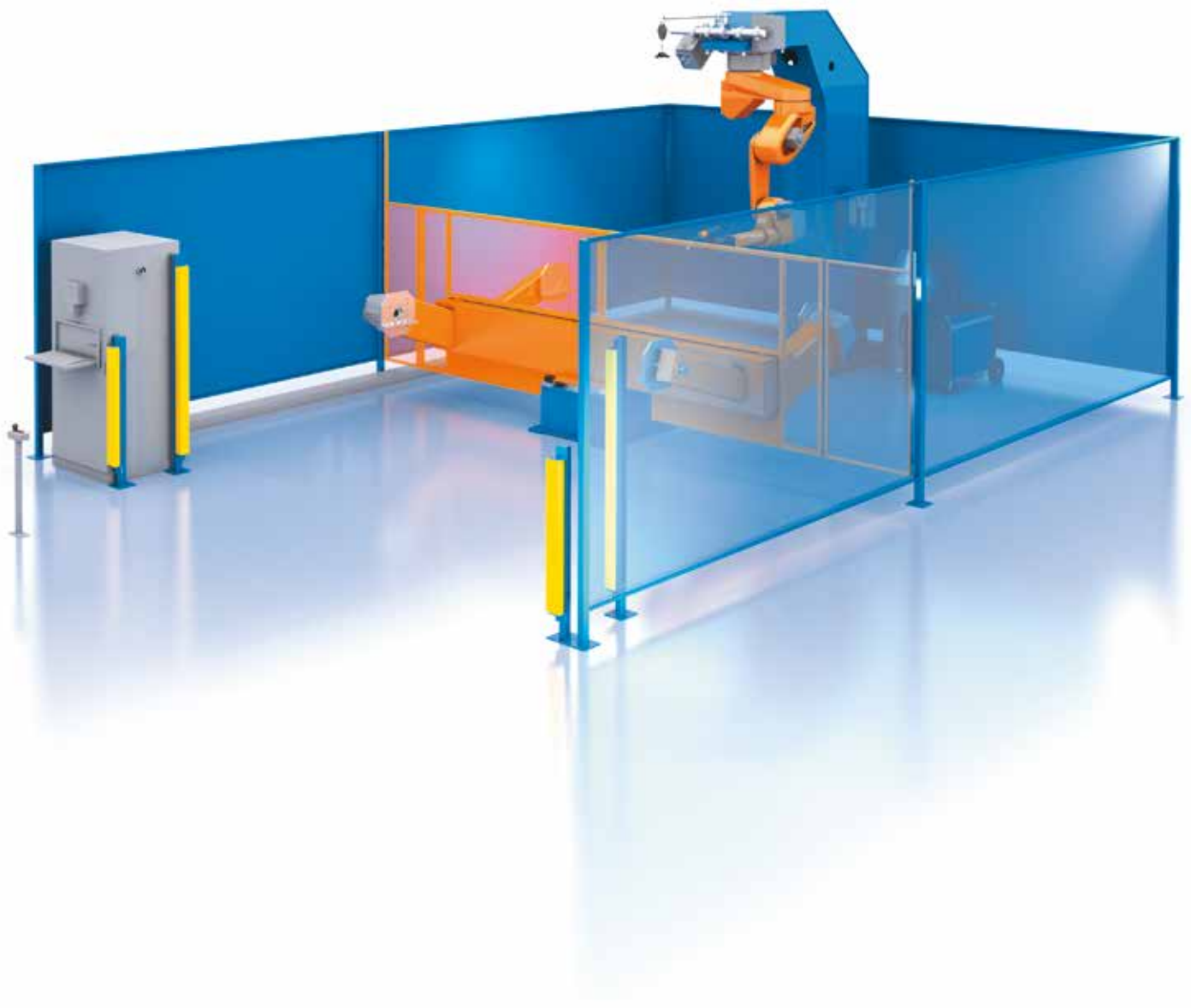
Technical data

Nominative load capacity	250 - 500 kg	Total weight	max. 2100 kg
Height	2500 mm	Clamping length	2000/2250/2500/2750 or 2000-2750 movable
Component size	Ø 1500 x 2750 mm		

Compact system

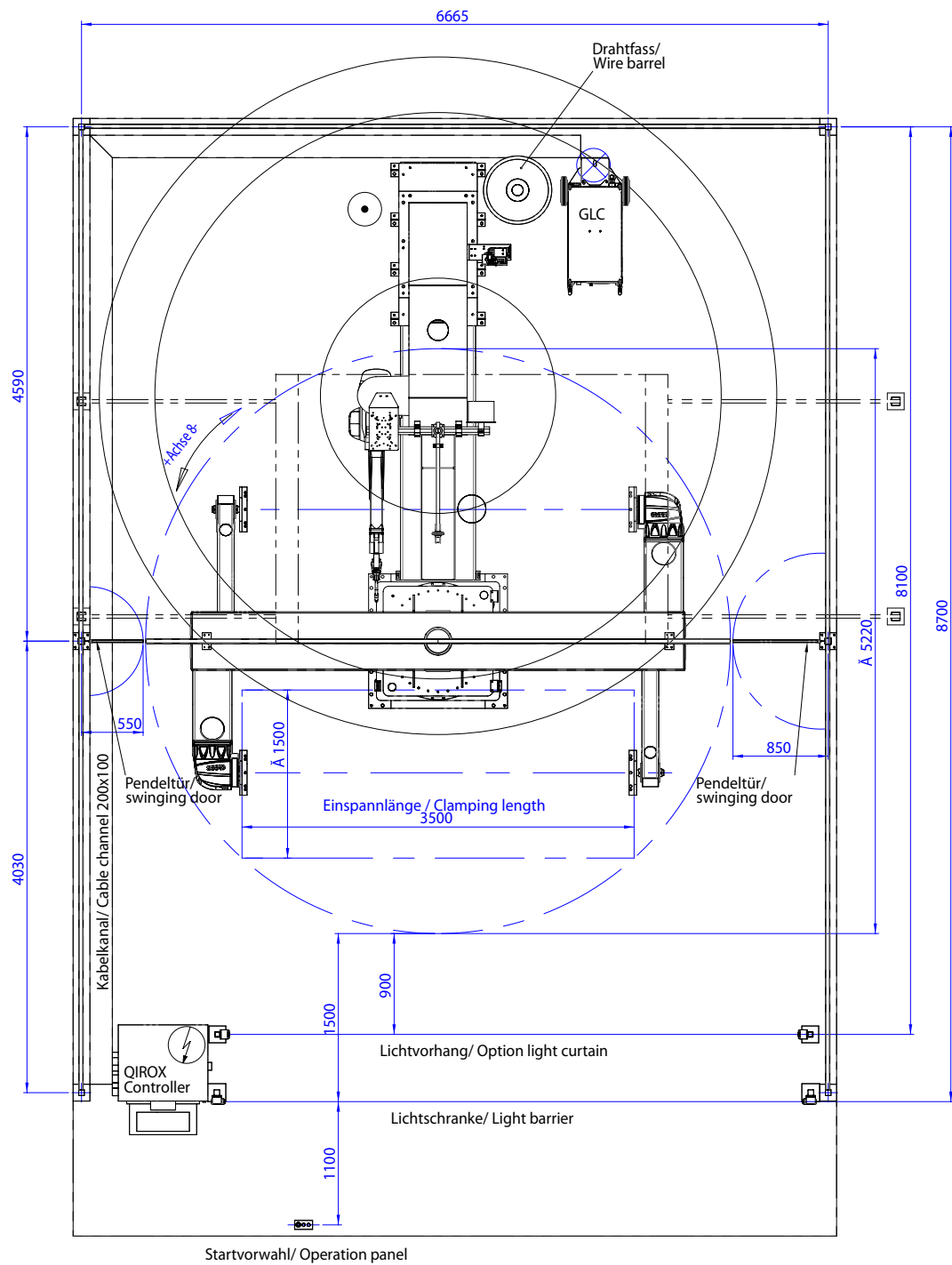
QR-CS-30

with a horizontal rotary positioner with vertical rotation and counter bearing for medium-sized to big workpieces.



Description

The QIROX QR-CS-30 compact system is a "ready to weld system" with two-station rotary table incl. a turning axis and a counter bearing per station. The robot is mounted in overhead position on a C frame. You can select the load per station from 500 and 1000 kg.



Technical data

Nominative load capacity	500 - 1000 kg	Total weight	max. 4300 kg
Height	3700 mm	Clamping surface (max.)	Ø 1500 x 3500 mm

Compact system

QR-CS-35 Flex

Double station positioner with horizontal station change and a horizontal rotary axis and a counter bearing each



Description

The QIROX Compact system QR-CS-35 Flex is suitable for components up to 1000 kg. The robot is mounted overhead on the workpiece positioner which turns around the overhead robot.

Compact system

QR-CS-40

with a vertical rotary positioner with vertical rotation and counter bearing for small workpieces.



Description

The QIROX QR-CS-40 compact system is a "ready to weld system" with two-station rotary table incl. a turning axis and a counter bearing per station. The robot is mounted in upright position. The load per station is 500 kg.

Compact system

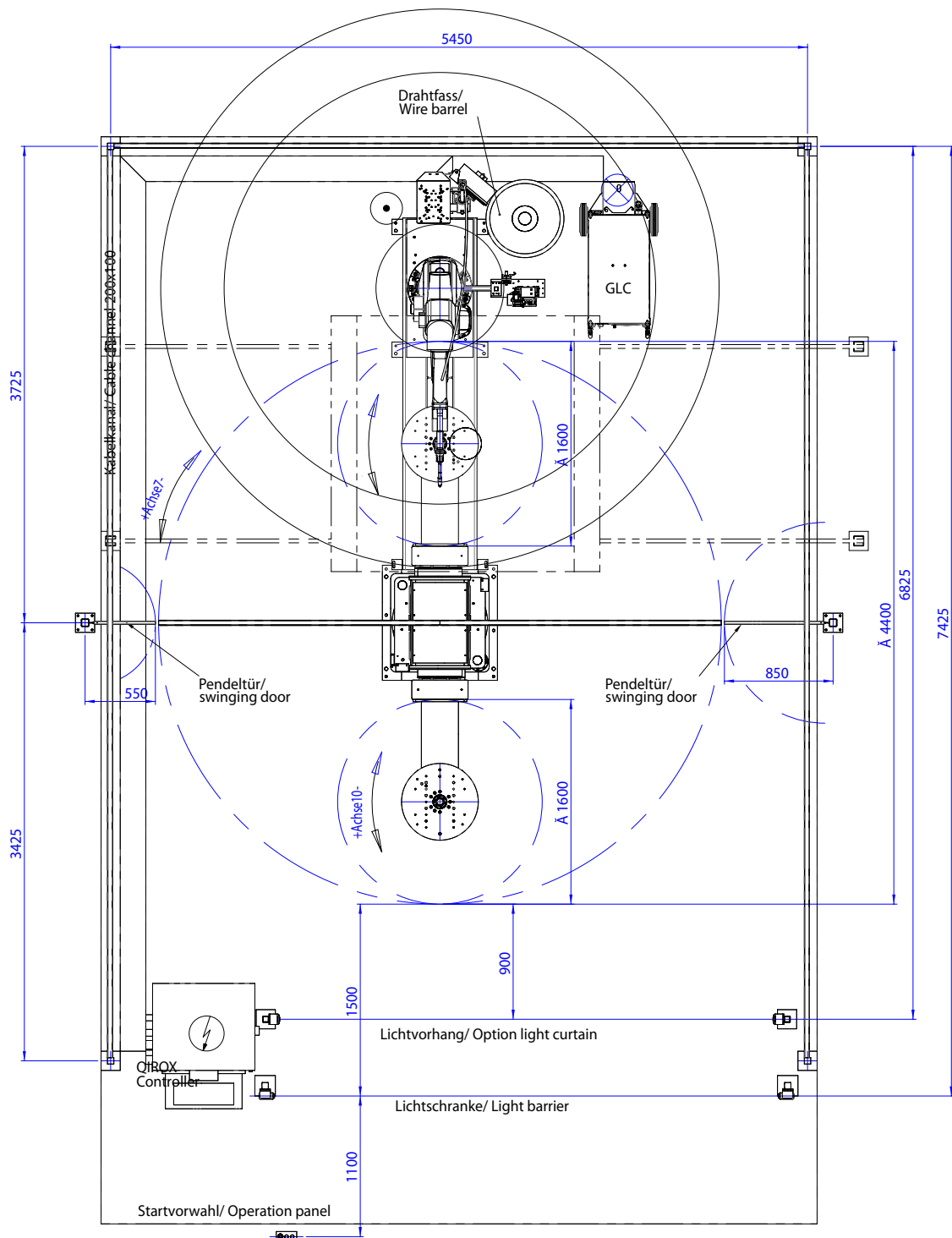
QR-CS-50

with a horizontal rotary positioner with turning/swivelling movement for small to medium-sized workpieces.



Description

The QIROX QR-CS-40 compact system is a "ready to weld system" with two-station rotary table incl. a turning/tilting axis per station. The robot is mounted in upright position. You can select the load per station from 250 and 500 kg.



Technical data

Nominative load capacity	250 - 500 kg	Total weight	max. 2400 kg
Height	2500 mm	Clamping surface (max.)	Ø 1600 mm

Compact system QR-CS-60

with a horizontal rotary positioner with turning/swivelling movement for medium-sized to big workpieces.



Description

The QIROX QR-CS-60 compact system is a "ready to weld system" with two-station rotary table incl. a turning/tilting axis per station. The robot is mounted in overhead position on a C frame. You can select the load per station from 500 and 1000 kg.

Compact system QR-CS-70 Flex

Double station positioner with horizontal station change and a horizontal rotary axis and a counter bearing each

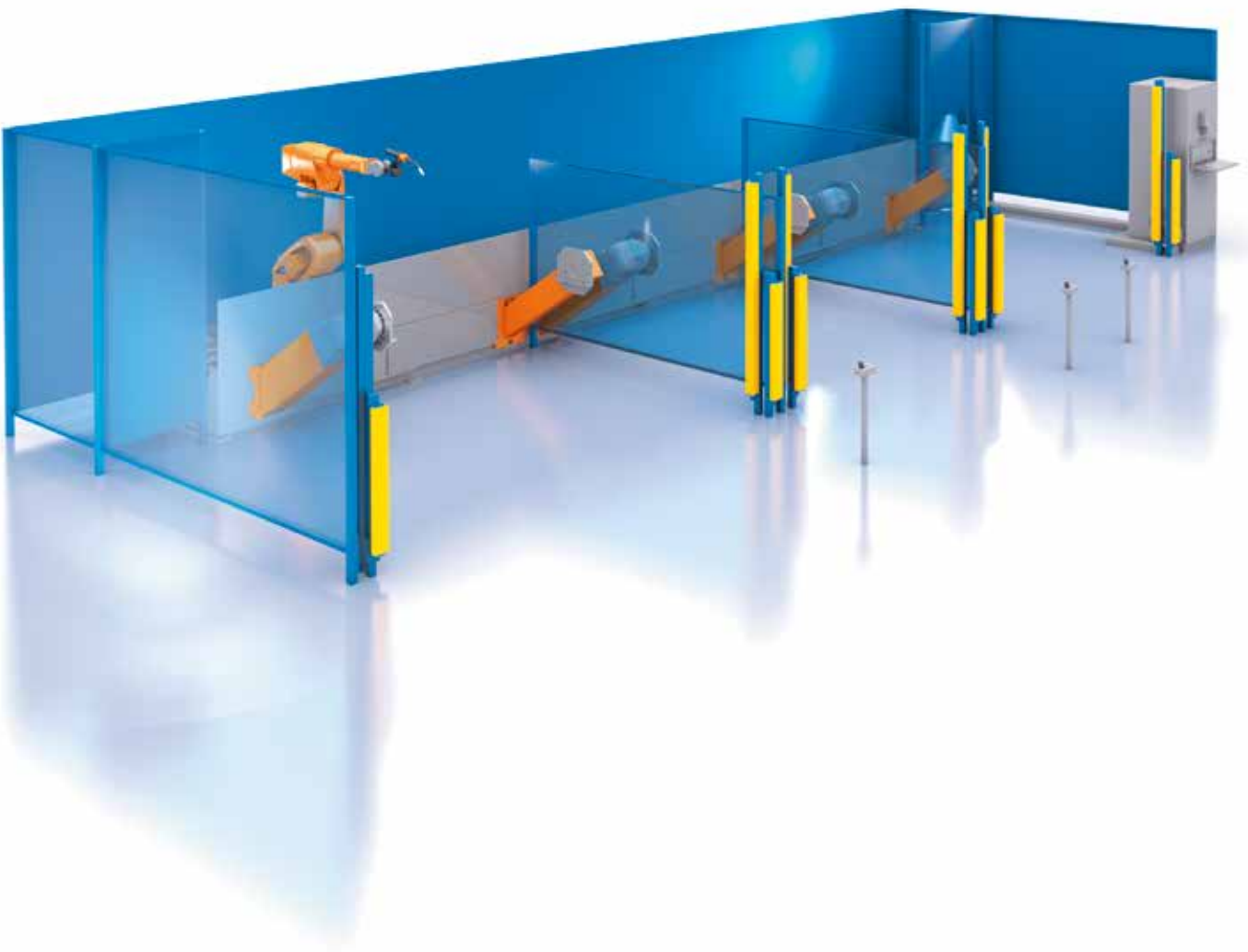


Description

The QIROX Compact system QR-CS-70 Flex is suitable for components up to 1000 kg. The robot is fixed on the work-piece positioner. As an option the sliding doors can also be opened by the robot.

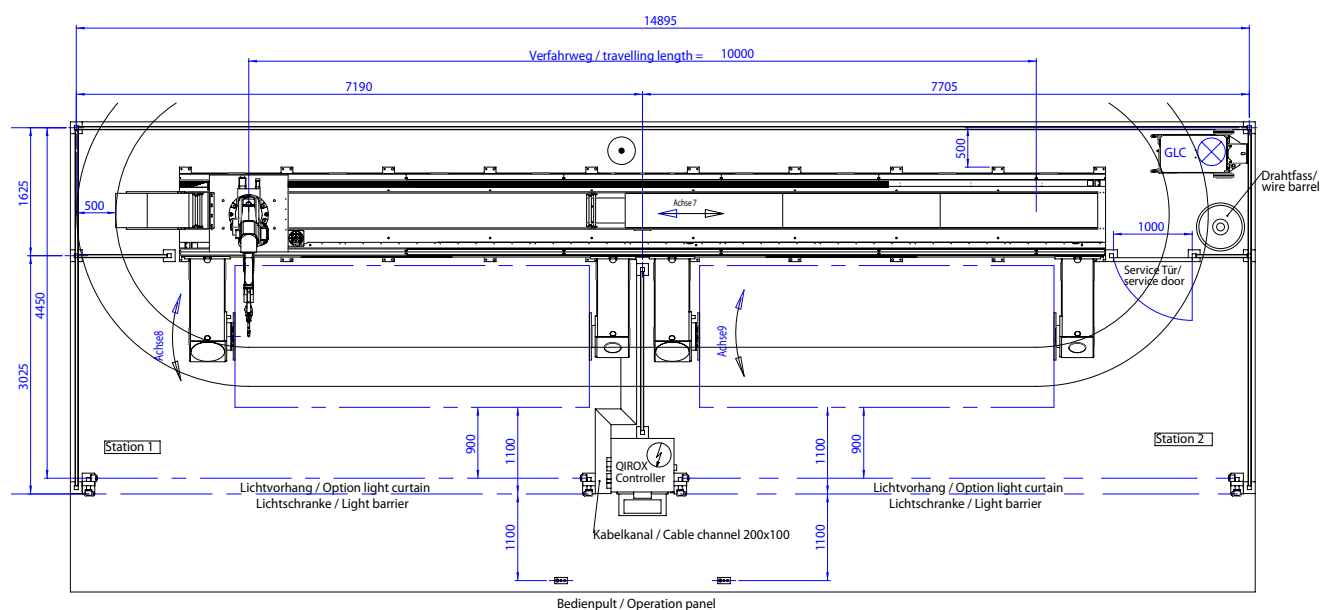
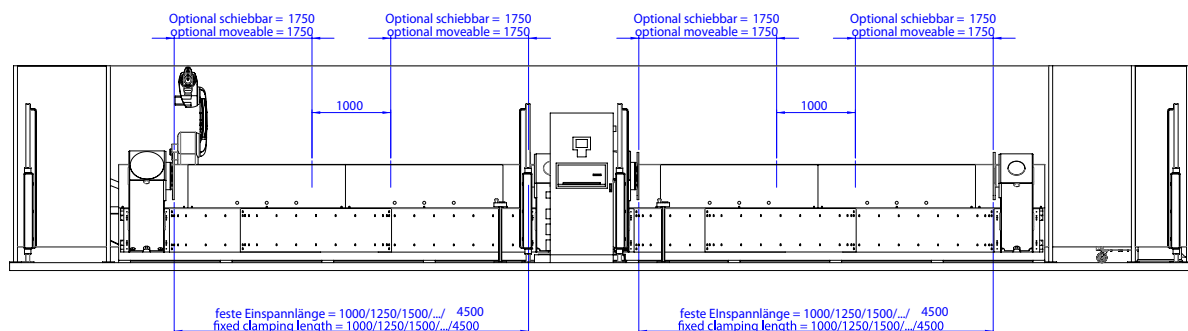
Compact system QR-CS-80 Flex

Two workpiece positioners with vertical rotation and counter bearing



Description

The QIROX Compact system QR-CS-80 Flex is suitable for components up to 1000 kg. The robot is mounted on the workpiece positioner and can move in linear direction.



Technical data

Nominative load capacity	500 - 1000 kg	Total weight	max. 4500 kg
Height	2500 mm	Clamping length (2 Stat.)	1000/1250/.../3500 or 1000-3500 movable
Component size	Ø 1500 x 3500 mm	Clamping length (3 Stat.)	2000/2250/2500/2750 or 2000-2750 movable

Components

Standard design

QIROX Welding robot

Robot mechanics with classic wrist:

- Less wear and improved, more user-friendly operation via optimised cables, plugs and motor
- Higher dynamics and weight reduction due to a leaner product design with rounded ergonomic forms
- Best processing quality due to a high repeatability
- Digital AC drives
- Absolute path measuring system



QIROX Controller

The QIROX Controller is the central core of the compact system:

- Digital drive system with high end distributed computing power
- Modular design due to the use of standard components
- Programming unit with touch-sensitive operating surface
- Software particularly adapted to welding technology
- Simultaneous control of all internal and external axes



QIROX Workpiece positioner

Mature combination of different movement devices

- Welding of complex contours without interruption
- Improved accessibility of nearly all weld seams on the workpiece
- Very high system availability with long operating life
- Exact path accuracy and high repeatability



QINEO Pulse welding power source

Variety and precision: these are the crucial conditions for successful pulsed arc welding. Whatever the capacity class.

- Powerful and versatile: Three capacity classes with five different welding processes
- Precision by technology: Two independent fine adjustments for the perfect arc
- Best quality: Optimum ignition and welding characteristics



Wire feed distance

Safe wire feed for perfect welding results:

- Powerful 4 roller drive
- Slip- and abrasion-free wire feed
- Low maintenance



Welding torch with anti-collision sensor

Powerful welding torch for robot application:

- Liquid cooled
- Very high capacity class 400 A at 100% duty cycle
- Robust and compact design



Torch cleaning unit

Automated removal of weld spatters:

- Guaranteed constant weld quality
- Productivity of the robot system is increased by reduction of the downtimes



Sensors

Quality assurance due to precise welding procedures:

- Considerably improved weld quality
- Reduction of manual effort:
 - minimum rework



Safety technology

The standard safety devices ensure a safe handling of the compact systems.

- Workplace protection via light barrier and swing doors
- Maintenance door
- Start preselection panel with emergency stop button
- DIN EN ISO 13850
- EU Machinery Directive 2006/42/EG
- DIN EN ISO 10218-1
- DIN EN ISO 10218-2



Options

QIROX Welding robot with 7th axis

- Working space extension by 7th axis
- Improved accessibility and simple programming
- Less wear and improved, more user-friendly operation via optimised cables, plugs and motor
- Higher dynamics and weight reduction due to a leaner product design
- Best processing quality due to a high repeatability
- Digital AC drives
- Absolute path measuring system
- Integrated coordinate system



Robot technology Hardware/Controller software

Robot technology Hardware

- Input/output extension
 - Control cabinet extension
 - 16 inputs/outputs to be plugged at the control cabinet
- Compressed air connection on the faceplate

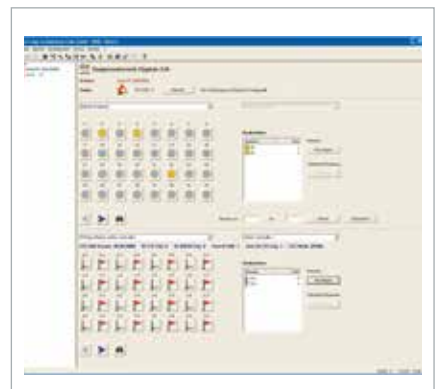
Controller software

- Parameter interpolation
- Multi-layer technology
- Programmable weaving patterns
- Transformation and Mirroring



PC-Software

- | | |
|--|--|
| <ul style="list-style-type: none"> ■ ROBOPLAN <ul style="list-style-type: none"> - Generation of geometric basic structures - Rotate and mirror paths, divide and join paths - Movement simulation robot and external axes - Collision testing | <ul style="list-style-type: none"> ■ CAROLA EDI <ul style="list-style-type: none"> - Processing of robot program texts on a PC - PC as background memory - Central administration of all robot programs |
|--|--|



Welding technology accessories

- Wire cutter
- External gas nozzle cleaning
- Pressure intensifier
- Additional drive TYPE: CDD II
- Wire drum accessories



TIG Welding technology

- CLOOS TIG power source DC/AC
 - Convincing power with direct and alternating current:
 - The TIG power source for best automated welding results.
 - Optimised ignition, no material ejection at the arc strike
 - Excellent due to integrated pulser
- Cold wire accessories
 - Automated wire feed



Sensors

- | | |
|--|--|
| <ul style="list-style-type: none"> ■ Laser offline sensor <ul style="list-style-type: none"> - Contactless measurement - Flexible - Very short search intervals | <ul style="list-style-type: none"> ■ Arc sensor <ul style="list-style-type: none"> - Automated torch correction - Measurement via welding wire (wire electrode) - Seam tracking without attached parts at the torch |
|--|--|



Extraction technology

Suction hood with strips and fixing

- Gantry construction
- Strip door



Trainings

- Basic course part I
 - Users who have to edit, correct and maintain the robot programs
 - Robot programmers
- Basic course part II
 - Advanced course based on part I



Applications

AIO

CLOOS "All in one" system facilitates the production process at Atmos



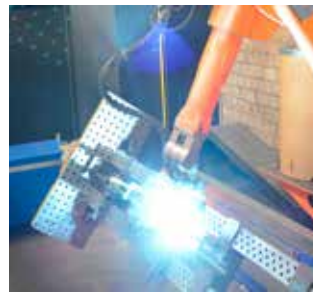
Jaroslav Cankar a syn ATMOS

- **Component:** Boiler
- **Industry:** Heating industry
- **Process:** Speed Weld

In 2015 Atmos commissioned two new "All in one" systems by CLOOS. The heart of the identical systems is the QIROX QRC-350 welding robot. The C-shaped frame with rotating extension arm positions the robot overhead. This increases the working envelope of the robot and facilitates welding of the complex boilers. The workpiece positioner with turning and swivelling movement

and vertical stroke always brings the workpieces into the perfect welding position. The special feature of the QIROX "All in one" system is that workpiece positioner, robot and robot positioner become one. The individual components are mounted and aligned on a base plate. In addition, the electrics and mechanics for the machines are pre-installed in full, making assembly and maintenance work simple. The compact systems could be integrated into the production easily and space-saving. Their modular design makes it possible to add individual enhancements and upgrades at any time.

"All in one" system with two welding stations for flexible production



Rudolf Hörmann GmbH & Co.KG

- **Component:** Balustrade
- **Industry:** Metal construction
- **Process:** Speed Weld

For more than 20 years now, Rudolf Hörmann GmbH & Co. KG with head office in Buchloe (Bavaria, Germany) has placed its trust in welding technology from CLOOS. Last year the commercial and agricultural construction and power engineering specialists began operating two new CLOOS robot systems. This has enabled the company to considerably accelerate the production

process for various components, whilst at the same time to increase quality and flexibility. Hörmann is now welding mid-sized workpieces on the new QIROX "All in one" system. All relevant components are positioned on a joint base frame. They are fixed on a base plate so that a fine adjustment is not necessary. The heart of the system is the QIROX QRC-350 welding robot. The large range of the seven-axis robot both simplifies and speeds up the welding of the partly complex workpieces. Due to the two-station design the robot is welding the components on one side, loading or unloading is carried out simultaneously on the other station. The clamping lengths can be infinitely adjusted between 2.50 und 3 m by means of the movable counter bearing.

Applications

Kuhn trusts in the new QIROX QRH-280-6 welding robot



Kuhn SA

- Component: Discs for mowers
- Industry: Agricultural machines
- Process: Vari Weld

Compact, quick and highly dynamic: For more than 30 years Kuhn S.A. has trusted in the automated welding technology of CLOOS. At its French headquarters in Saverne, the agricultural machinery specialist recently put the new QIROX QRH-280 welding robot from CLOOS into operation. As the heart of a CLOOS compact cell, the new robot has been welding different small parts for the Kuhn agricultural machines since summer 2015. The new welding robot attracts attention because of its compact design which saves production area on one hand and guarantees a very good accessibility to fix-tures. The welding robot is also particularly fast and dynamic, In total, Kuhn was able to reduce the cycle times for welding the small parts for agricultural machines by 15 percent.

Perfection...



Control Weld

Reliable MIG/MAG welding process for thin and thick materials



Speed Weld

Stable MIG/MAG pulsed arc for numerous applications



Vari Weld

MIG/MAG pulsed arc for optimum welding results even under demanding conditions



Rapid Weld

High-capacity MIG/MAG spray arc for efficient welding



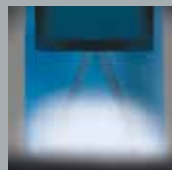
Cold Weld

Heat-reduced MIG/MAG AC pulsed arc for optimum results when welding sensitive materials



Tandem Weld

Combination of two synchronised MIG/MAG arcs for double capacity



Narrow Gap Weld

MIG/MAG process with narrow gap technology for efficient thick plate welding



TIG welding

Reliable process for clean and precise welding



Laser Hybrid Weld

Combination of laser welding and MIG/MAG arc for maximum efficiency and quality

...due to diversity

Applications

Torch changing system combines arc and stud welding at Langmatz



Langmatz GmbH

- **Component:** Manhole
- **Industry:** Electrical industry
- **Process:** Speed Weld

Langmatz GmbH develops, produces and sales technical system solutions made of plastics and metal for the energy technology, telecommunications and traffic technology industries. The system for welding the manhole covers consists of two stations and a QIROX QRC-350-E welding robot. The two-station positioner changes the station by a horizontal rotation. Each station is equipped with a horizontal turning axis and a counter bearing. The large range of the 7-axis robot simplifies and

accelerates the welding of the complex workpieces in addition. The robot is equipped with a tactile gas nozzle sensor and an arc sensor, which is used both for welding and to measure the joint position on the workpiece. This saves time as, at the same time, workpiece distortions, e.g. due to thermal expansion, are directly compensated for. The system highlight is the combination of stud and arc welding in a robot system. A torch changing system allows the flexible change between the two processes.

The way..



Advisory Service

With this comprehensive “pre-service”, we take care of your project from the beginning and transfer our integrated process expertise to your component. Thus we ensure you a decisive lead in technology.



Planning

We elaborate a solution which perfectly meets your individual requirements. We work hand-in-hand with our customers to guarantee you on-schedule project processing.



Design

From the cell to the fully-automated production line - due to the modular design of our product series we develop customised solutions which meet all your production requirements.



Production

Our production workshops are the core of our company. 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. In this way, we guarantee a smooth installation and a rapid start of production.



Training

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



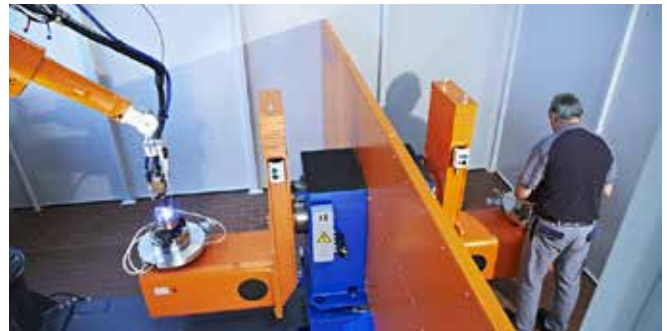
Service

Our competence team advises you on any extensions, modifications and retrofits of your existing robot and welding systems. We offer complete service packages for inspection, calibration and maintenance.

.. to your success.

Applications

Robot system for welding high-quality stainless steel pumps



Hilge GmbH & Co KG

- Component: Pump case Impeller
- Industry: Systems engineering
- Process: TIG DC

On an enclosed surface of 5600 x 4400 mm a double station workpiece positioner for a horizontal rotation is placed in the middle. Whilst the robot welds in one station, the operator removes the readily welded workpiece from station 2 and inserts a new one. Both stations have a swivelling and turning axis to perfectly place the pump components external housing, impellers and suction connections for the QIROX robot 350E.

With CLOOS you weld and cut...



... all types of metal!



... all material thicknesses from
0.5 to 300 mm!



... with innovative processes!



... manually or automated, just as
you need it!



... efficiently and individually!



... and profit from many additional
services!



... in all industries!



... all over the world!



... to your utter satisfaction!



... and benefit from more than
100 years of welding experience!

... everything from one single source!

Worldwide!



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

Tel.: +49 (0)2773 85-0
Fax: +49 (0)2773 85-275
E-Mail info@cloos.de

CLOOS

Weld your way.