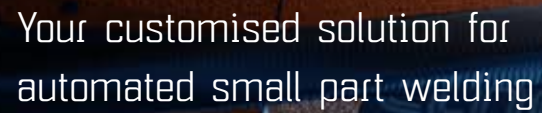


The CLOOS logo is rendered in a white, stylized, outlined font. It is positioned in the upper right corner of the image, set against a dark blue background that is part of a semi-transparent circular graphic overlay.

CLOOS

The text 'QIROX COMPACT CELLS' is written in a white, bold, sans-serif font. It is centered horizontally and placed within a semi-transparent circular graphic overlay that covers the left and center portions of the image.

QIROX COMPACT CELLS

The text 'Your customised solution for automated small part welding' is written in a white, sans-serif font. It is positioned on the left side of the image, partially overlapping the semi-transparent circular graphic and the robotic arm.

Your customised solution for
automated small part welding

The text 'CONNECT WITH US!' is written in a white, bold, sans-serif font. It is located in the bottom right corner of the image, set against the dark blue background of the semi-transparent circular graphic.

CONNECT WITH US!

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An orange industrial robotic arm is shown in a factory setting, working on a metal assembly. The arm is positioned vertically, and its gripper is holding a component. The background features a large orange metal cabinet and various industrial components. The text "CONNECT WITH US!" is overlaid in white on the right side of the image.

CONNECT WITH US!

WE CREATE CONNECTIONS

The CLOOS Group is an international company with its headquarters in Haiger. With over 1000 employees worldwide, CLOOS supplies welding know-how for industrial applications with the highest demands on durability and quality in efficiency-driven industries

As a global product and solution brand, CLOOS combines specialised knowledge from welding applications, robotics, automation and software in customised solutions for medium-sized companies as well as for large international automotive, commercial vehicle and agricultural machinery manufacturers

In doing so, CLOOS not only provides the decisive technical production advantage in order to produce competitively in the long term, but also faces the challenges of tomorrow as a problem solver together with its customers today.

With 10 production sites and more than 60 sales and service centres worldwide - including North and South America, Asia and Australia - customers worldwide rely on solutions from CLOOS.

ABOUT **CLOOS**

KEY FACTS

CLOOS in facts and figures

More than
100 years
of experience
(founded: 1919)

Engineered in
GERMANY

(Headquarters in
Haiger, Germany)

1,000 employees
(550 employees in
Germany)

10
Production sites on 3
continents

229 million €
Group revenue
(2023)

85%
International sales

>>> 5

8.0%
R&D rate

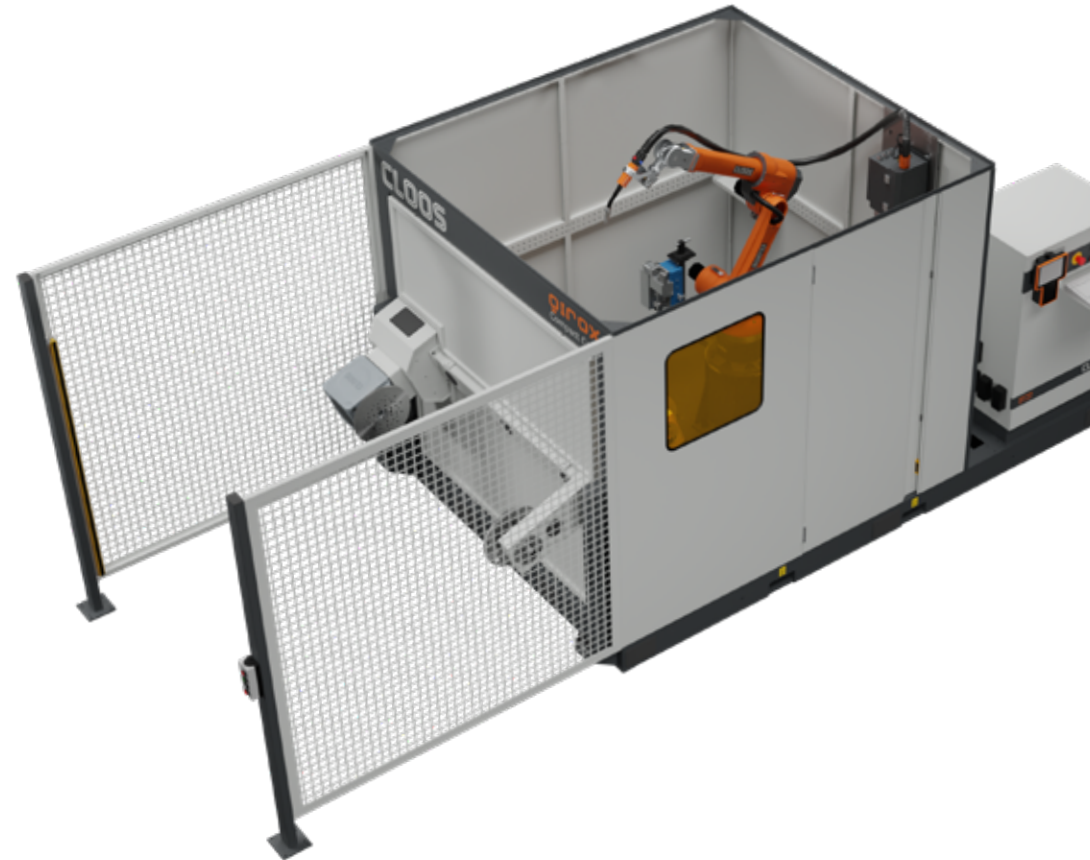


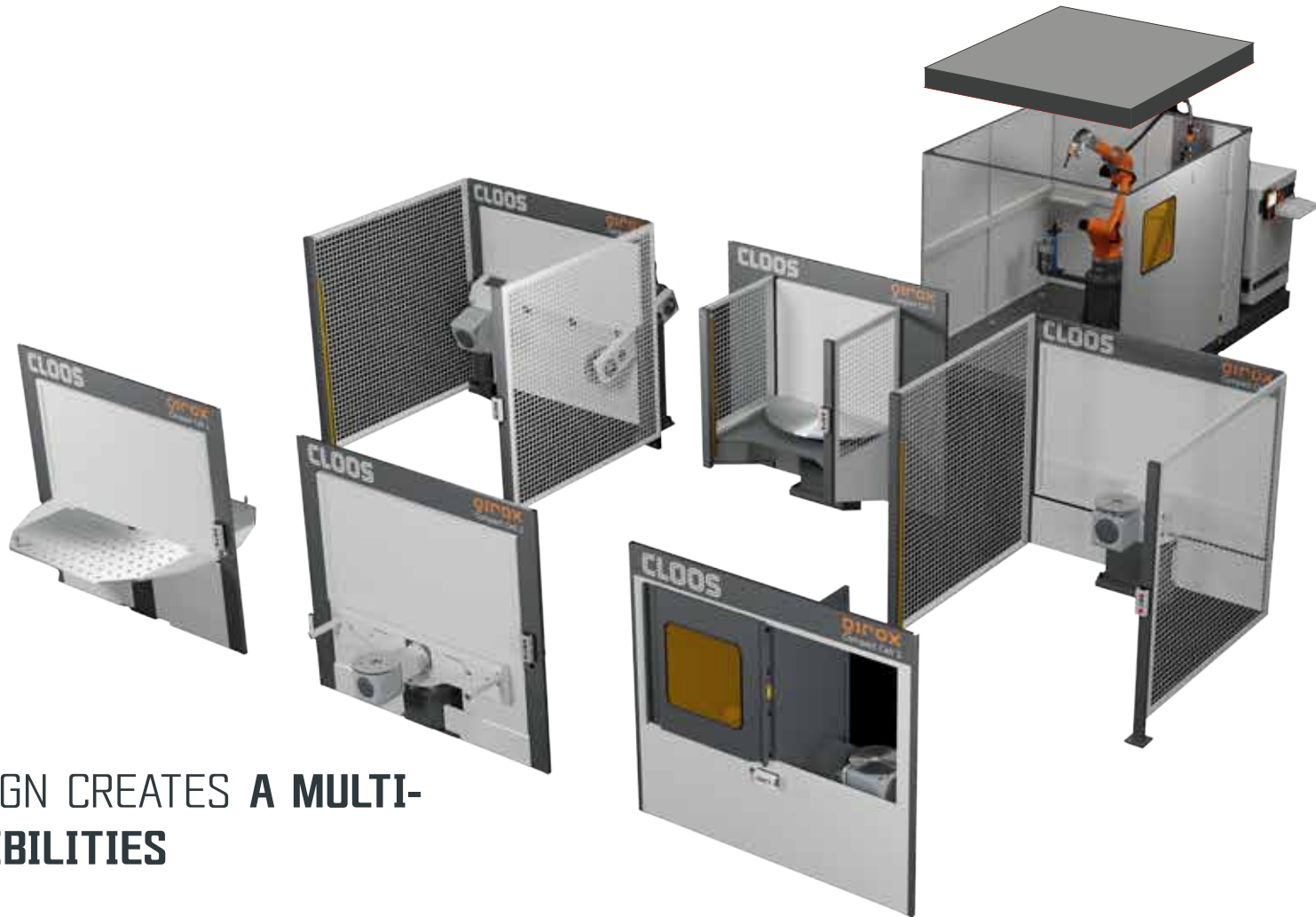
ADVANTAGES

for more productivity

In order to achieve optimum and economic welding of any workpiece, CLOOS has developed an extensive range of compact cells. They do not require much space and can be easily integrated into any production. From sensors to controller each compact cell or compact system is a tailor-made unit with components which match each other perfectly. With their large variety of welding processes, extensive options and complementary services, CLOOS can offer you the perfect solution for all requirements of automated series production.

- > **Compact:** Just integrate the cells into your production – the compact design facilitates transportation and saves production area
- > **Plug & Weld:** Benefit from simplified installation and maintenance – our compact cells are available ready to weld and are completely pre-installed.
- > **Flexible:** Use the compact cells for numerous applications and realise individual extensions and retrofits at any time – the modular design makes it possible.
- > **Premium quality:** Get the best weld quality – with innovative welding processes and the optimally matched QINEO welding equipment.
- > **Powerful:** Achieve a fast payback due to the high productivity with an optimal price-performance ratio – the compact cells are characterised by the highest duty cycle.
- > **User-friendly:** Use our comfortable operating panels - we guarantee easy, precise and intuitive handling.
- > **Reliable:** Trust in "Made in Germany" – as technology leader we guarantee maximum performance in proven CLOOS quality.





MODULAR DESIGN CREATES A MULTI-TUDE OF POSSIBILITIES

Our QIROX Compact cells have a modular design which makes it possible to add individual enhancements and upgrades – easily, quickly and with minimum expenditure. Thus you can upgrade your QR-CC-1, for example, to a more efficient QR-CC-4 at any time. Benefit from a maximum production flexibility!



COMPACT CELL **CC 1**

Premium compact cell with manual two-station positioner with horizontal station change and a clamping plate for 1.25 kN component weight per station

>>> 9



COMPACT CELL **CC 4**

Premium compact cell with two-station positioner with horizontal station change, workpiece positioner with turning and swivelling movement

>>> 12



COMPACT CELL **CC 2**

Premium compact cell with manual two-station positioner with horizontal station change and a rotational positioner for 1.25 kN component weight per station

>>> 10



COMPACT CELL **CC 5**

Premium compact cell with two-station positioner with vertical station change, workpiece positioner with vertical rotation and counter bearing for 5 kN component weight per station

>>> 13



COMPACT CELL **CC 3**

Premium compact cell with two-station positioner with horizontal station change and a clamping plate for 2.5 kN component weight per station

>>> 11



COMPACT CELL **CC 6**

Premium compact cell with two 5 kN positioner with horizontal station change, workpiece positioner with turning and swivelling movement for 5 kN component weight per station

>>> 14

QIROX COMPACT CELL QR-CC-1

"Ready to weld" system for welding small parts up to a weight of 1.25 kN

The powerful compact cell QR-CC-1 offers you an easy entry into automated welding of small parts that can be welded without component movement. It has a manual two-station turning table and the station change is carried out by a horizontal rotation. A pneumatic indexing fixes the turning table and ensures repeatable positioning of the components to be welded.

Features:

- > Manual rotary positioner
- > Standard system bore holes (with either 22 or 28 mm diameter) on the faceplate
- > Option: automated station change (semi-automatic) without additional safety technology

Technical data

System floor space	QR-CC-1-1.25 kN
Depth	4,400 mm
Width	2,240 mm
Height	2,200 mm
Load per station	1.25 kN
Max. component length	1,400 mm
Max. component depth	750 mm
Max. component height	750 mm



QIROX COMPACT CELL QR-CC-2

"Ready to weld" system for welding small parts up to a weight of 1.25 kN

The powerful compact cell QR-CC-2 offers you an easy entry into automated welding of small parts that can be welded with a rotating movement. It has a manual two-station turning table and the station change is carried out by a horizontal rotation. A pneumatic indexing fixes the turning table and ensures repeatable positioning of the components to be welded. The clamping tools for holding the components can be easily mounted on the faceplates of the positioners.

Features:

- > Manual rotary positioner
- > Assembly of the rotary positioner either in horizontal, diagonal or vertical position
- > Option: automated station change (semi-automatic) without additional safety technology

Technical data

System floor space	QR-CC-2-1.25 kN
Depth	4,400 mm
Width	2,200 mm
Height	2,200 mm
Load per station	1.25 kN
Max. component length	800 mm
Max. component diameter	800 mm



QIROX COMPACT CELL QR-CC-3

"Ready to weld" system for welding small parts up to a weight of 2.5 kN

The powerful compact cell QR-CC-3 offers an easy entry into automated welding of complex small parts that must be welded or positioned with a turning and tilting movement. It has two adjacent stations. The clamping tools for holding the components can be easily mounted on the faceplates of the positioners. The turning and tilting movement allows the component to be positioned in an optimal position for welding. The movements of the robot and positioning axes work synchronously, enable the welding of contour seams and guarantee excellent weld seam quality.

Features:

- > One turn-tilt positioner per station
- > Very little floor space
- > Welding of compact, cubic workpieces
- > Quick station change

Technical data

System floor space	QR-CC-3-2.5 kN
Depth	3,600 mm
Width	2,200 mm
Height	2,200 mm
Load per station	2.50 kN
Max. component length	800 mm
Max. component diameter	800 mm



QIROX COMPACT CELL QR-CC-4

"Ready to weld" system for welding small parts up to a weight of 5 kN

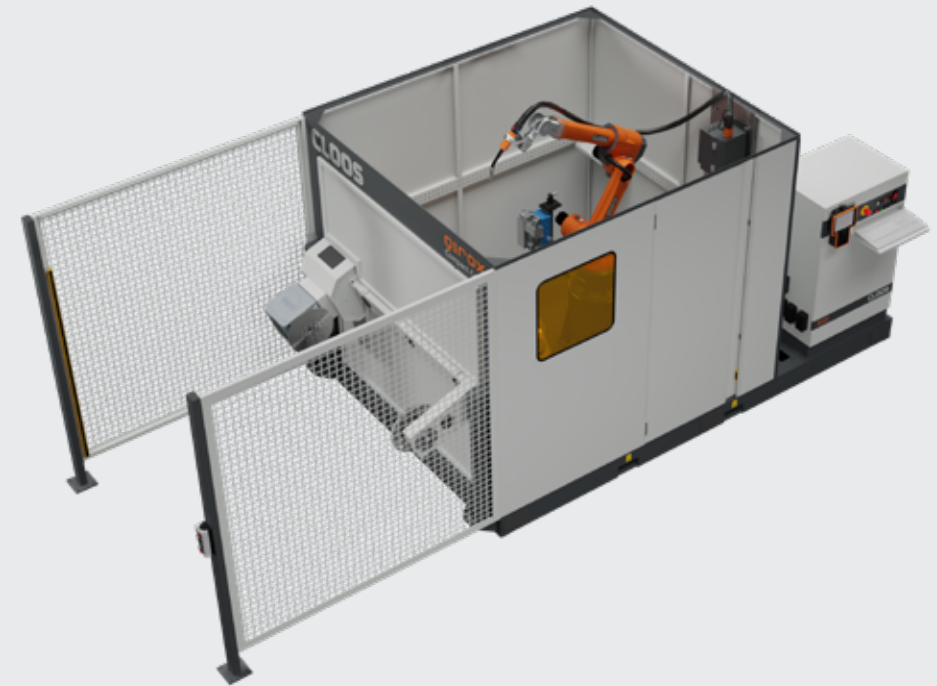
The powerful compact cell QR-CC-4 offers you an easy entry into automated welding of elongated small parts that must be welded or positioned with a vertical rotating movement. It has a two-station turning table and the station change is carried out by a vertical rotation. The movements of the robot and positioning axes work synchronously and enable the welding of contour seams and guarantee excellent weld seam quality.

Features:

- > One rotary positioner with counter bearing per station
- > Cylindric workpieces with a clamping length of up to 2,000 mm
- > Quick station change
- > Easy tool change
- > High rotation speed allows welding of pipes with small radii

Technical data

System floor space	QR-CC-4-2.5 kN	QR-CC-4-5 kN
Depth	5,700 mm	5,700 mm
Width	2,200 mm	2,950 mm
Height	2,200 mm	2,200 mm
Load per station	2.50 kN	5.00 kN
Max. component length	1250 / 1550 / 2000 mm	1550 / 1950 / 2000 mm
Max. component diameter	800 mm	800 mm



QIROX COMPACT CELL QR-CC-5

"Ready to weld" system for welding small parts up to a weight of 2.5 kN

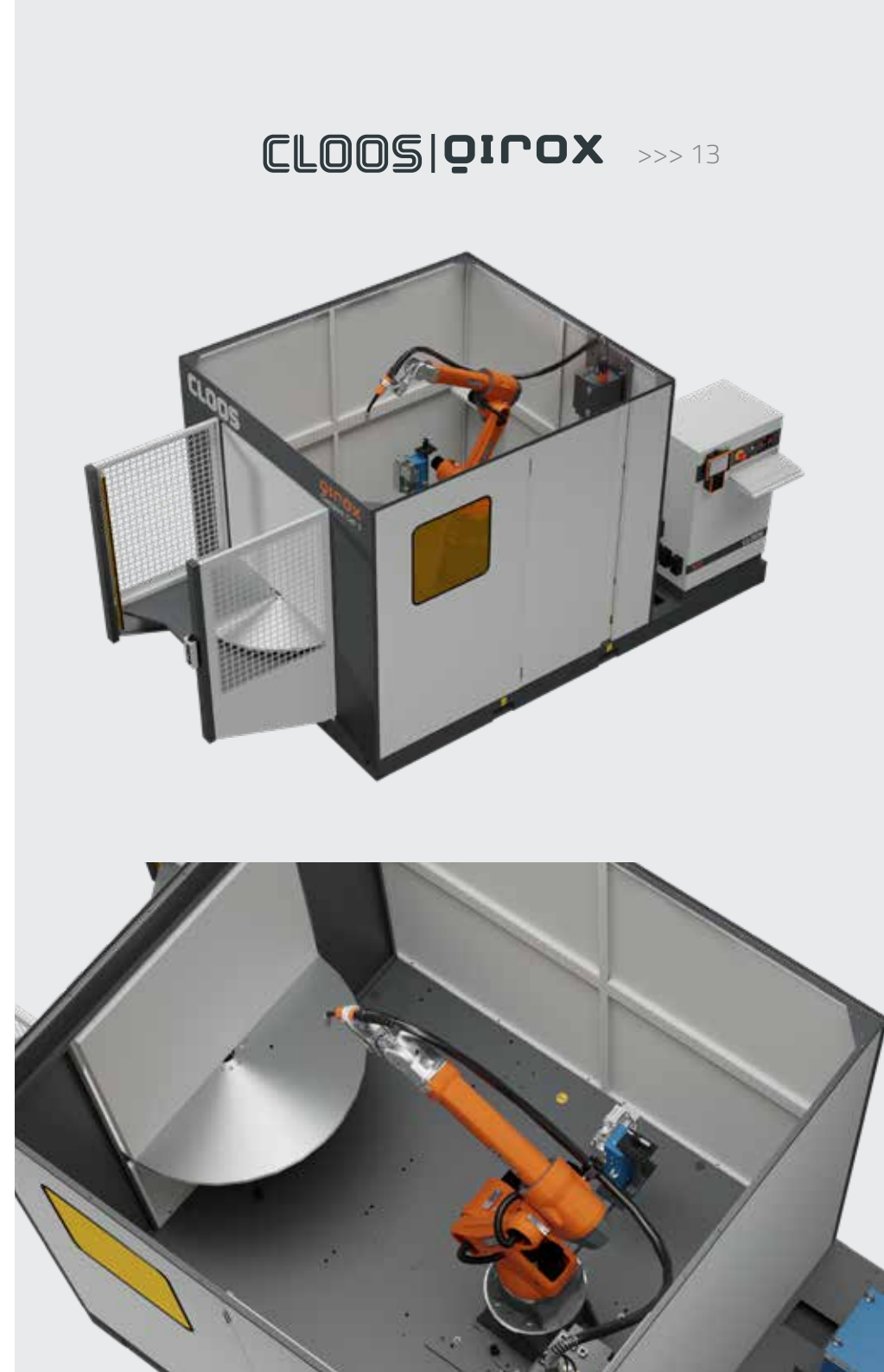
The powerful compact cell QR-CC-5 offers an easy entry into automated welding of small parts that can be welded without component movement. The compact cell QR-CC-5 has a two-station turning table and the station change is carried out by a horizontal rotation. The clamping tools for holding the components can be easily mounted on the faceplate of the positioner.

Features:

- > Automatic horizontal turning table
- > Quick station change
- > Option: Standard system bore holes on (22/28 diameter) faceplate

Technical data

System floor space	QR-CC-5-2.5 kN
Depth	4,400 mm
Width	2,240 mm
Height	2,200 mm
Load per station	2.5 kN
Max. component length	1,400 mm
Max. component depth	750 mm
Max. component height	750 mm



QIROX COMPACT CELL QR-CC-6

"Ready to weld" system for welding small parts up to a weight of 5 kN

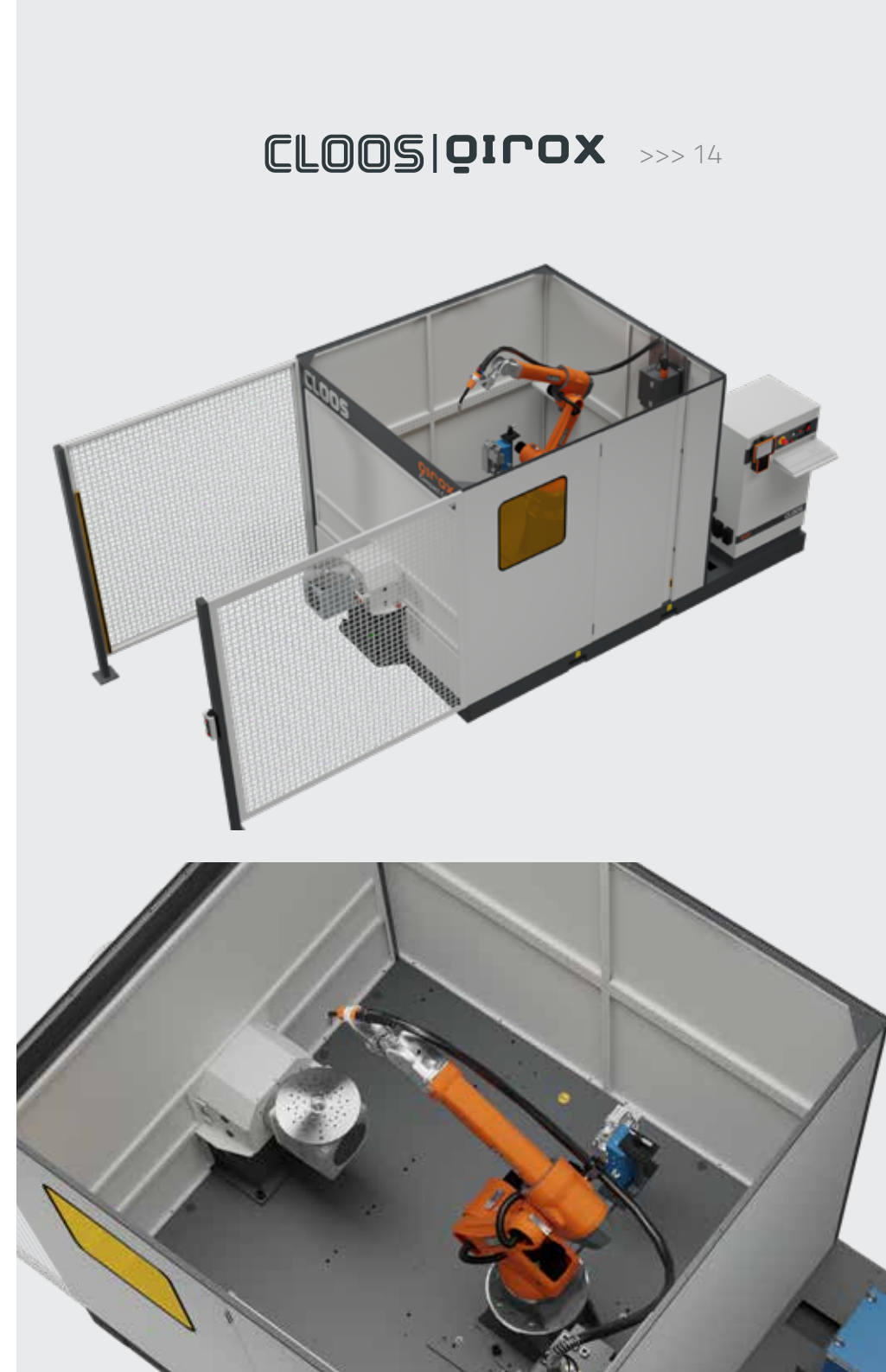
The powerful compact cell QR-CC-6 offers an entry into automated welding of complex small parts that must be welded or positioned with a turning and swivelling movement. It has a two-station turning table and the station change is carried out by a horizontal rotation. The clamping tools for holding the components can be easily mounted on the faceplates of the positioners. The movements of the robot and positioning axes work synchronously and guarantee excellent weld seam quality.

Features:

- > Quick station change
- > High rotating speed of the positioners allows welding of contours on complex cubic workpieces

Technical data

System floor space	QR-CC-6-2.5 kN	QR-CC-6-5 kN
Depth	5,700 mm	5,700 mm
Width	2,200 mm	2,950 mm
Height	2,200 mm	2,200 mm
Load per station	2.50 kN	5.00 kN
Max. component length	900 mm	900 mm
Max. component diameter	1000 / 1250 mm	1000 mm



COMPARISON OF COMPACT CELLS



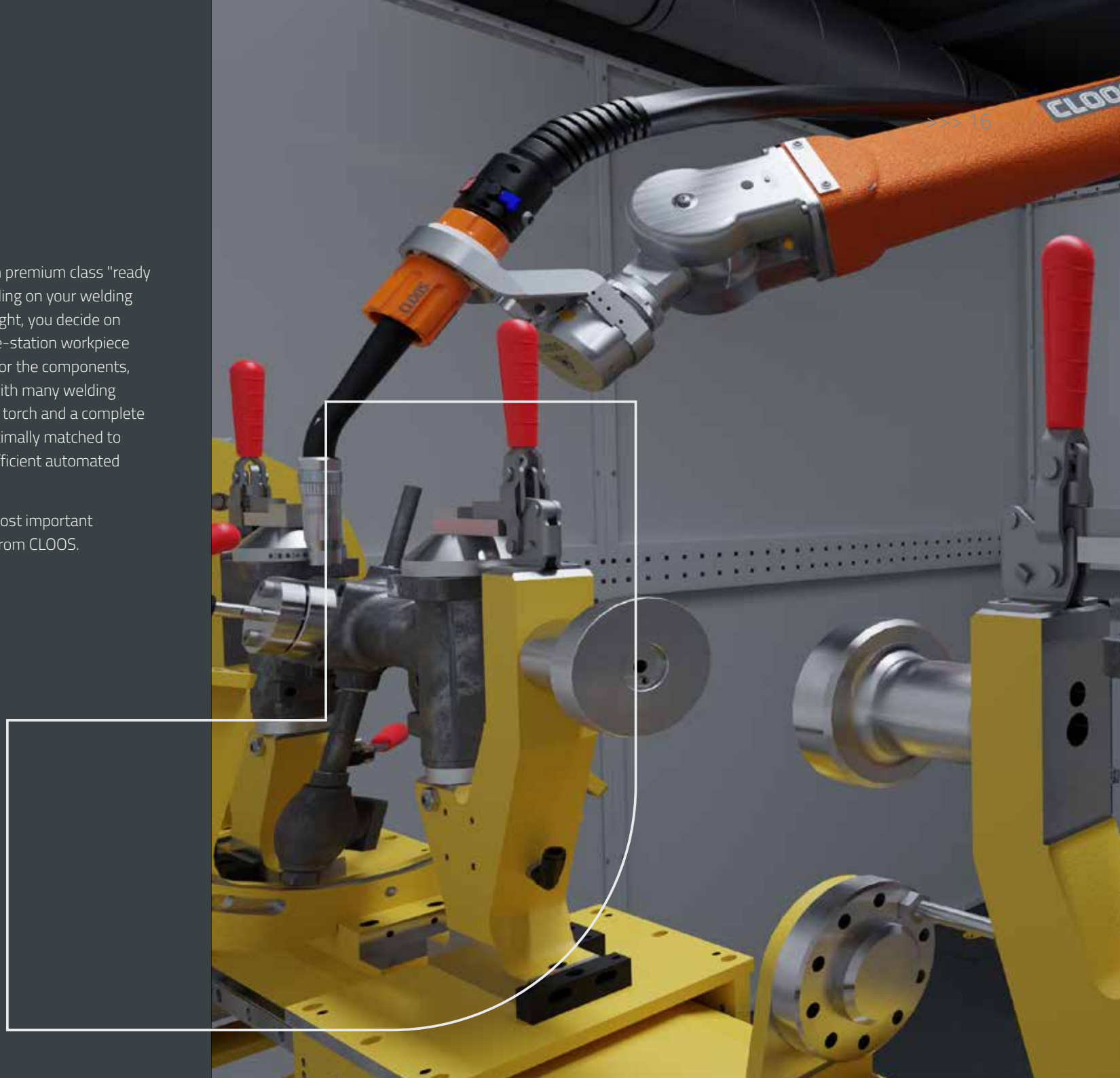
	QR-CC-1	QR-CC-2	QR-CC-3	QR-CC-4	QR-CC-5	QR-CC-6
Max. component length [mm]	1,400 mm	800 mm	800 mm	2.5 kN 1250 / 1550 / 2000 mm 5 kN: 1550 / 1950 / 2000 mm	1,400 mm	900 mm
Max. component diameter [mm]		ø 800 mm	ø 800 mm	ø 800 mm		2.5 kN: ø 1000 / 1250 mm 5 kN: ø 1000 mm
Max. component depth [mm]	750 mm				750 mm	
Max. component height [mm]	750 mm				750 mm	
Max. component weight [kN]	1.25 kN	1.25 kN	2.5 kN	2.5 kN / 5 kN	2.5 kN	2.5 kN / 5 kN

QIROX COMPACT CELL

BASIC EQUIPMENT:

The QIROX compact cells provide you with premium class "ready to weld" robotic welding systems. Depending on your welding task, component size and component weight, you decide on one of the versions. This includes a double-station workpiece positioner for holding the clamping tools for the components, complete MIG/MAG welding equipment with many welding processes, a robot for guiding the welding torch and a complete safety equipment. All components are optimally matched to each other and ensure trouble-free and efficient automated welding.

On the following pages you will find the most important components of the QIROX compact cells from CLOOS.



BASIC EQUIPMENT OF A COMPACT CELL

Sensors

Mechanical torch cleaning

Robot mechanics

Safety technology

Workpiece positioner

Window

Load carrying frame

Welding torch with anti-collision sensor

Wire drive unit

QIROX Controller



SAFETY TECHNOLOGY

The standard safety devices ensure a safe handling of the cells.

- > DIN EN ISO 10218-1
- > DIN EN ISO 10218-2
- > DIN EN ISO 13850:



LOAD CARRYING FRAME

Base frame with integrated forklift pockets and attachment points for jack rings allow a fast commissioning of the cell

- > Easy change of the location
- > PLUG & WELD



CONTROL CENTRE OF THE QIROX ROBOT SYSTEMS

- > **High end distributed computing power:** Dynamic movement and a high path accuracy of the robot
- > **Absolute reliability:** Clear dirt-protected arrangement and easy change of all components in the robust system cabinet
- > **Numerous extra functions:** Many optional combinations with the RoboPlan offline programming software



OPTIMUM "MAN-MACHINE" IN- TERFACE

- > **Intuitive programming:**
Quick and easy for reduced programming times
- > **Efficient interfaces:**
Integration of all process-managing devices and sensors into the programming of the QOS
- > **C-Gate:**
Interface to the world of Industry 4.0



QIROX WORKPIECE POSITIONERS

The two-station workpiece positioners of the compact cells are designed for parallel work of the system operator and the robot.

The station change is made by a vertical or a horizontal rotation as soon as the loading and unloading operations

have been completed and the robot has finished processing the workpiece. The two-station positioners are designed for small to medium-sized, light to medium-weight workpieces and ensure a high throughput of the robot system.

Mature combination of different movement devices

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



QIROX ROBOT MECHANICS WM SERIES

MIG/MAG



DuoDrive

Standard



TIG



Sensors





QINEO **NexT PREMIUM**

for automated welding

The QINEO NexT Premium has all important components and functions "on board" so that you are perfectly prepared for the future. The heart of the QINEO NexT is an inverter power unit developed by CLOOS which clocks with a high frequency. This allows an even better arc control for excellent results: The unique welding characteristics enable you to solve complex welding tasks perfectly.

A multitude of optional components and functions make the QINEO NexT to be your individual power source – exactly how you need it for your tasks of automated welding.

- > High-quality inverter technology for excellent weld quality
- > Robust housing and good user-friendly operation guarantee a high availability
- > Prepared for all commonly used standard interfaces
- > Optimal integration of all functions of QIROX controller and QINEO NexT into one unit, made possible by the bidirectional interface QTI
- > The Premium operating module is designed for the highest level of welding
- > A wide range of accessories guarantees that the NexT can be adapted to your needs

WIRE FEED DISTANCE

Safe wire feed for perfect welding results:

- > Powerful 4-roller drive
- > Slip- and abrasion-free wire feed
- > Maintenance-friendly

Flexible hose guide

Wire drive unit

Torch cable assembly

Mounting flange with integrated anti-collision sensor

Robot welding torches

Manual setting jig

Torch cleaning



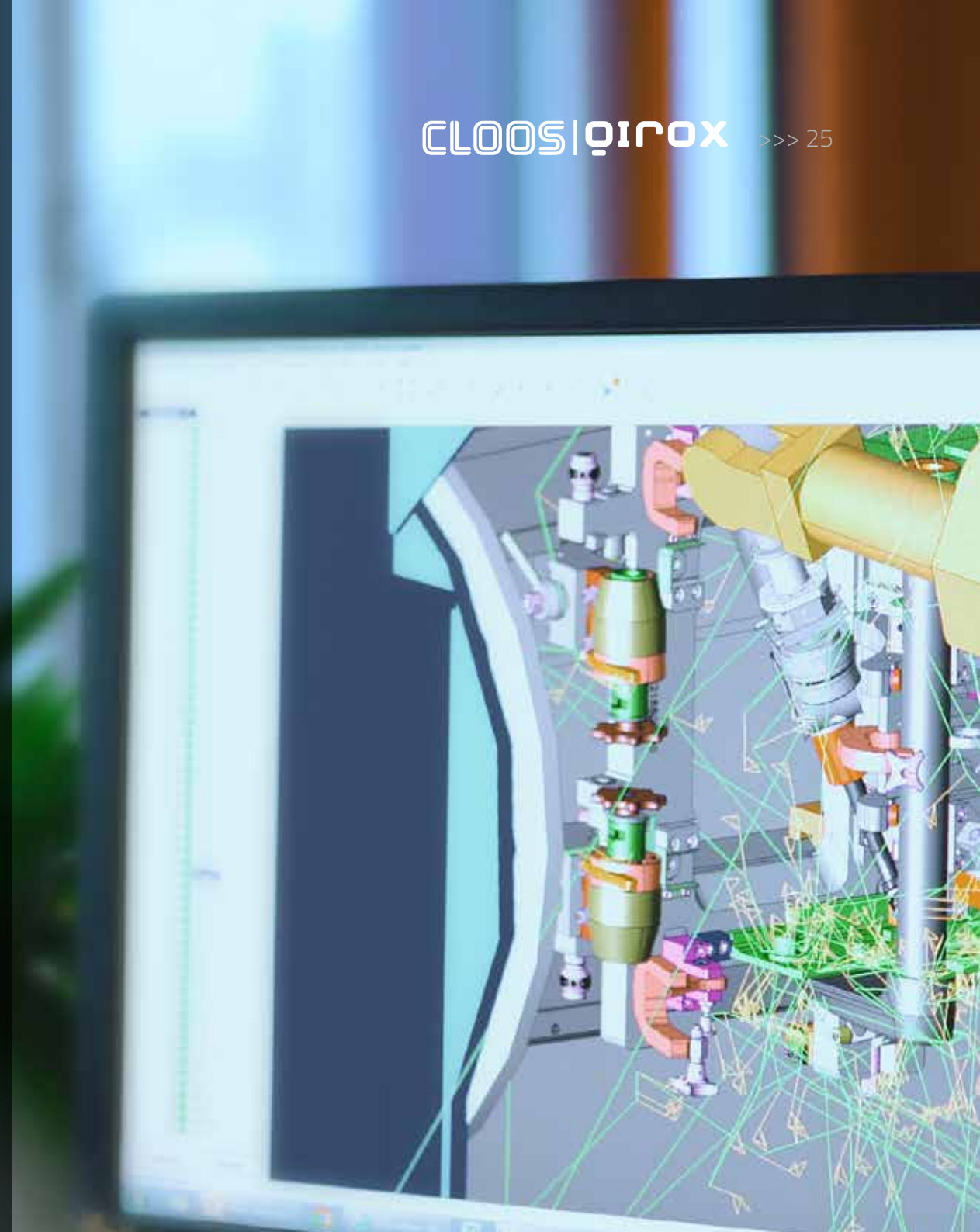
OPTIONS

CLOOS offers a comprehensive package of customised options to further increase the efficiency and range of applications of the QIROX compact cell. For example, you can benefit from the robot mechanics with hollow shaft wrist when the component is tight. In addition, our modular system with sensors for a wide range of requirements ensures weld seam quality when component tolerances occur. You can also use a wide range of other add-ons that the QIROX compact cell fulfils to meet all your production requirements.

The offline programming system QIROX RoboPlan offers an increase in the utilisation of the QIROX compact cell. Production is not interrupted for the programming of new components and production planning is simply carried out on a PC on which QIROX RoboPlan is installed. Other QIROX robot systems can be easily integrated into the offline programming system.

With the C-Gate from CLOOS, you can make the QIROX compact cell fit for Industry 4.0. Track production parameters in real time, record and archive all machining parameters in relation to the component. Many other tools support your maintenance staff in keeping the compact cell running successfully.

Please contact us for further options and additions.



SENSITIVITY FOR OPTIMUM WELDING PROCESSES

The main task of our sensor systems is to ensure quality control through precise welding procedures. The flexibility of your systems increases due to the control and compensation of tolerances between the programmed paths and the real workpieces.

For a wide range of materials and applications, you can choose from four field-proven CLOOS sensors which further perfect automated welding by intelligent control and guidance. The optimised workflow minimises rework. This allows you to work even more economically and produce high-quality products.

- > Advantages for increased productivity
- > Four proven sensors for the most different materials, weld shapes and applications
- > Perfectly tailored to the QIROX system solution
- > Considerably improved weld quality
- > Reduction of manual effort – minimum rework
- > Opening up new application possibilities with CLOOS sensor systems

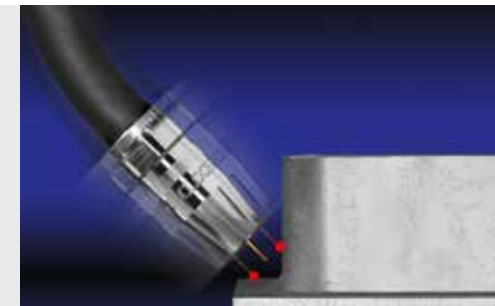
TACTILE GAS NOZZLE SENSOR

The tactile wire sensor uses electromechanical sensing technology to determine the start and end of the weld seam – deviations due to workpiece tolerances are corrected.



ARC SENSOR

During the welding, the CLOOS arc sensor measures whether the burner position actually agrees with the programmed track. In the case of deviations, for example by heat distortion, the robot recognises the real contour, tolerances are directly compensated.



WELDING TECHNOLOGY ACCESSORIES

- > Wire cutter
- > External gas nozzle cleaning
- > Pressure intensifier for blowing through the torch
- > DuoDrive additional wire drive
- > Accessories for wire drum
- > Automated torch changing system
- > Gas bottle holder



SUCTION HOOD

- > Suction hood for fume extraction system incl. system lighting
- > Fume gas filter system



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



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



REFERENCES

To give you a brief impression of the wide range of applications for QIROX compact cells, the following pages show you a selection of systems used by customers. Further information is available on our website.

We are always happy to talk to you!



COMPACT WELDING CELL SAVES SPACE AND TIME

Ihnen Stahl- und Metallbau

- > Component: Spinner supports
- > Industry: Production of energy
- > Welding process: Speed Weld



Ihnen Stahl- und Metallbau GmbH realises demanding steel construction projects all over the world. With the CC-6 compact cell standard parts are welded - in this case spinner supports for wind energy converters. Due to the compact design the welding cells can be easily integrated in every production. Their modular design makes it possible to add individual enhancements and upgrades at any time. The compact cells are completely pre-installed electrically and mechanically. This facilitates assembly and maintenance and saves time.



COMPACT ROBOT CELL FOR PROCESS SAFETY AND TOP QUALITY AT HALDER

Halder Werkzeuge GmbH & Co. KG



- > Component: Soft-faced hammer
- > Industry: Metal construction
- > Welding process: Vari Weld

The Halder family company has been producing soft-faced hammers for over 75 years and is the world leader in this product segment. Recently, the Hidden Champion has automated the entire welding process for the soft-faced hammers made at the Baden-Württemberg site in Achstetten.

The new, compact QIROX QR-CC-6 robot cell produced by CLOOS guarantees constant quality and reproducibility. It does not require much space and could be easily integrated into the production. From sensors to controller and safety technology the compact cell is a tailor-made unit with components which match each other optimally. The cell has a two-station positioner with turning/swivelling movement.





QIROX COMPACT CELL ENSURE EFFICIENT SMALL PART WELDING

Rudolf Hörmann GmbH & Co. KG



- > Component: Railing
- > Industry: Metal construction
- > Welding process: Speed Weld

The QIROX QR-CC-4 compact cell for the welding of small parts has a 2-station workpiece positioner with vertical change and vertical rotation.

By means of the rotary axis the station is turned from the loading area to the robot within three seconds. During this procedure, the loading area is protected by a light barrier and an additional lateral safety fence. There is a glare shield between the two stations. Thus the system operator is perfectly protected and can load a station while welding takes place at the other. All robot and positioner axes are fully synchronised. This provides excellent welding results, reduces the non-productive times and speeds the entire process run enormously.



CUSTOMISED SOLUTION FOR AUTOMATED SMALL PART WELDING

Thoclatic GmbH

- > Component: Bracket
- > Industry: Metal construction
- > Welding process: Speed Weld



Since spring 2016 Thoclatic has been using two new QIROX QR-CC-4.1 compact cells from CLOOS to weld small components. The robot cells have a 2-station workpiece positioner each with vertical change and vertical rotation. Whilst the robot welds at one station, the other station can be loaded again.

This accelerates the entire process enormously. All robot and positioner axes are fully synchronised. With a clamping length of up to 1,200 mm and a maximum load of 250 kg per side a wide range of components can be processed in both systems. In addition to a faster process, the robots now achieve exactly reproducible welding results, which was previously not possible with manual welding. Furthermore, the compact cells are characterised by maximum production flexibility.



PERFECTLY TAILORED

So that your production runs **at full speed**.



1 | ANALYSIS

We analyse your requirements and determine all production-relevant variables - for your optimum solution



2 | ADVICE

We provide you with consistently performance-orientated advice and develop possible solutions for your requirements.



3 | SYSTEM CONCEPT

We define a system concept that integrates seamlessly into your overall production - always focussing on maximum efficiency.



4 | CONSTRUCTION

We utilise the strengths of our modular product series to your advantage. This is how we keep investment costs low!



5 | PRODUCTION

From the smallest individual part to complex complete systems, we deliver 100% quality - including function test before delivery.



6 | COMMISSIONING

We integrate your new system seamlessly into your overall production.



7 | TRAINING

In our training centre, we provide your team with practical content on programming, handling and maintenance.



8 | SERVICE

With a strong network of representations, service centres and our high-performance production facilities, we are always just a phone call away.



9 | SUPPORT

We advise you on all expansions, modifications and overhauls of your systems.



CONNECT WITH US!



CLOOS

CARL CLOOS SCHWEISSTECHNIK GMBH

Main office: Carl-Cloos-Strasse 1
Central warehouse: Carl-Cloos-Strasse 6
35708 Haiger
Germany

Telefon +49 (0) 2773 85-0
E-Mail info@cloos.de
www.cloos.de



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