QIROX Weld Automation Set

Easy entry to automated welding technology

CLOOS

Weld your way.

www.cloos.de

QIROX Weld Automation Set

Entry package for automated welding

With the QIROX Weld Auotmation Set, CLOOS offers you a basic solution for the quick and easy entry to automated welding technology. The package includes all important components, a 6-axis articulated arm robot with a load of 6 kgs and the complete welding equipment with gas-cooled welding torch. The QIROX QC2 ECO robot controller was particularly developed to control the components. The QIROX Operating System offers you all important functions for a quick and efficient programming. The QINEO StarT welding power source is part of the package and provides several welding processes. Enter the requested welding current and the setting of all other parameters is made automatically via the synergy characteristic curves. So you get professional welds from the very beginning. A multitude of options allows you expanding the entry package to meet your requirements. Create your individual package to fulfill your welding tasks efficiently..

1. **Cheap entry to automated welding technology:** Maximum ROI and minimum risk
2. **Easy commissioning:** Quick production start
3. **Low space:** Compact design saves production area
4. **Four welding processes:** Excellent welding results from the very beginning
5. **Single source supply:** Perfectly matched components without interface difficulties

QIROX QRH-290-6 Robot: The entry model

QIROX QRH-290-6

The QIROX QRH-290-6 is a 6-axis articulated arm robot. It is mounted on a base in upright position. The robot has a hollow wrist where gas-cooled welding torches with a weight of up to 6 kg can be mounted.

Overview of the characteristics

1. **Flexibility:** Perfectly adapted to individual production requirements
2. **Dynamics:** Higher dynamics and weight reduction due to a leaner product design with rounded ergonomic forms
3. **Speed:** High axis speeds for reduced cycle times
4. **Floor space:** Very low space needed at a large range
5. **Quality:** Repeatability, long service life and maintenance intervals

Technical details

Swivelling range	
- Axis 1	+170° / -170°
- Axis 2	+155° / -90°
- Axis 3	+85° / -150°
- Axis 4	+170° / -170°
- Axis 5	+180° / -180°
- Axis 6	+360° / -360°
Swivelling speed	
- Axis 1	200 °/sec
- Axis 2	200 °/sec
- Axis 3	250 °/sec
- Axis 4	430 °/sec
- Axis 5	400 °/sec
- Axis 6	630 °/sec
Working area	Ø 3880 mm
Operating range Axis 5 +90°	Ø 2890 mm
Operating range height	2210 mm
Pay load	6.00 kg
Repeatability	+/- 0.07 mm
Collision radius	282 mm
Floor space	344 mm x 344 mm
Weight	170 kg

QIROX
Controller QC2 Eco

QIROX Controller QC2 Eco

The QIROX Controller QC2 Eco is particularly designed to meet the requirements of welding technology within the entry package. Our development of the QC2 Eco was particularly focused on a compact design and a low weight. The components are clearly arranged in a robust system cabinet where they are protected from dirt. They are easily accessible thus contributing to a high reliability and a low maintenance expenditure. The QC2 Eco can control a maximum of nine robot axes. The integrated industrial PC is the heart of the controller where the QIROX Operating System is installed. That is based on a CLOOS standard operating system which is used in all CLOOS robot controllers. So you have a wide range of software functions at your disposal which are easy to be programmed. The QC2 Eco robot controller is equipped with many details for automated welding demands. The intuitive programming takes you quickly to your goal.

Overview of your benefits

1. **High end distributed computing power:** Dynamic movement and a high path accuracy of the robot
2. **Absolute reliability:** Clear dirt-protected arrangement of all components in the robust system cabinet
3. **Intuitive programming:** Thus you quickly reach your goal
4. **Space-saving:** Compact design and low weight
5. **Flexible use:** Easy transport with overhead crane, pallet or forklift truck

Technical data

QIROX QC2 Eco

Temperature:	0° - 45°
Type of protection:	IP 54
Internal axes:	6
External axes:	max 3
LAN	1 x
RS232C:	2 x
Digital & analogue I/O	15 Inputs / 23 Outputs
Connection capacity:	up to 4.0 kVa
L/W/H:	550 mm x 580 mm x 750 mm
Weight:	140 kg

QINEO
StarT-406-Premium

QINEO StarT-406-Premium for automated welding

Simply weld better with the QINEO StarT:The welding power source offers you an easy entry into the world of automated welding. Use the advantages of the five available CLOOS welding processes in addition to the standard processes. This allows you to start welding immediately – without a long parameter search. With the QINEO StarT 406 you can use the energy-reduced, current-controlled MIG/MAG short arc process Fine Weld. Due to the minimised spatter formation, Fine Weld is suitable particularly for thin, coated plates and fine visible weld seams. Benefit from numerous optional components and functions. This makes the QINEO StarT your individual power source - exactly as you need it for your automated welding tasks.

Overview of your benefits

1. High-quality components with price/performance and excellent welding characteristics
2. Extremely low-spatter Fine Weld process ensures exellent results with thin plates and Fine Welds
3. Faster to the target with the preset parameters of 5 CLOOS welding processes
4. Simple, quick and intuitive operation with the MasterPlus Compact operating modul
5. Prepared for many commonly used standard interface
6. Modularer design and exensive accessories for flexible application possibilities adapted to individual requirements

Technical data

QINEO StarT-406 Premium

Welding current	20 A / 15 V - 400 A / 34 V
Welding current at 60 % duty cycle	400 A
Welding current at 100 % duty cycle	350 A
Open circuit voltage	78,7 V 3 x 400 V 74,6 V 3 x 380 V
Mains voltage	380 V - 400 V / 3-phases
Connection cable	4 x 6 mm²
Mains fuse / 400V slow-acting	32 A
Type of protection	IP 23
Insulation class	F
Type of cooling	F
Dimensions L/W/H	720 x 340 x 500 mm

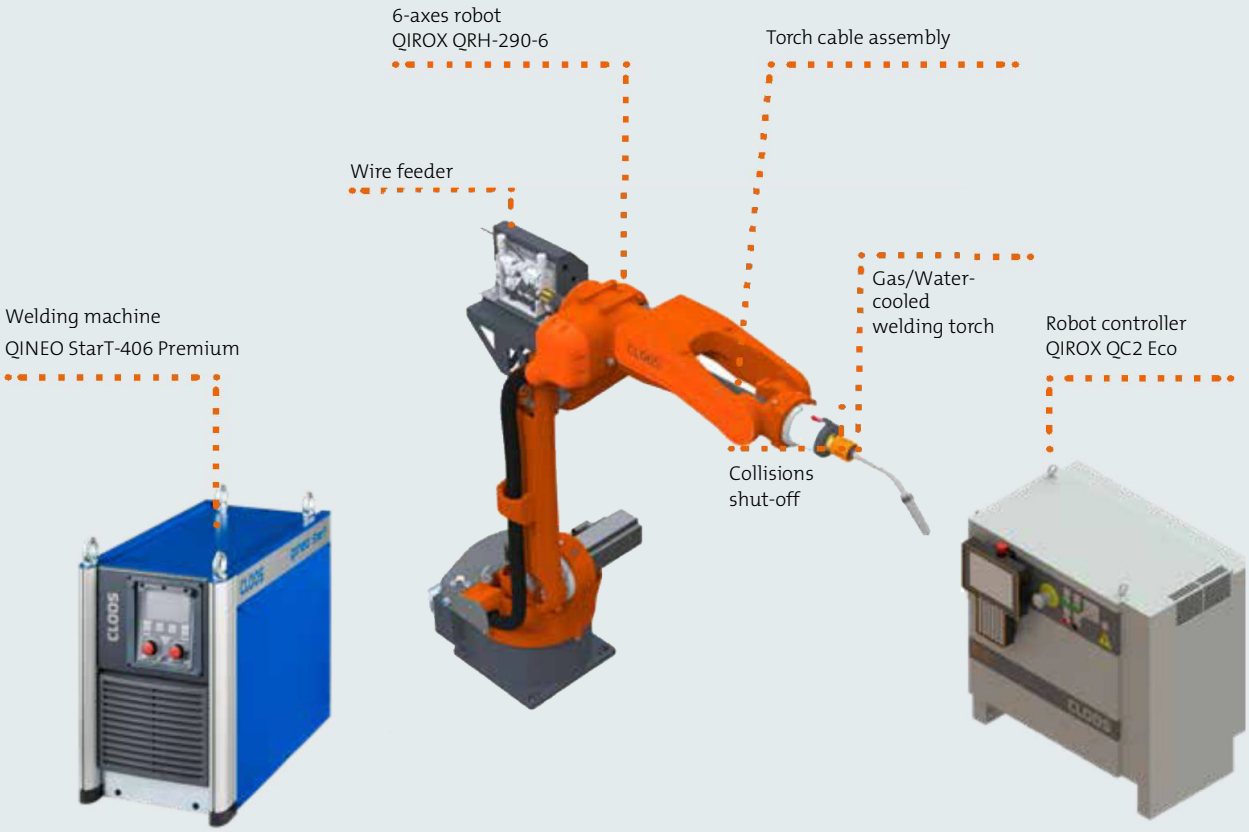
Wire drive unit QWD-R1 Eco

Wire feed speed	max. 30 m / min
Dimensions L/W/H	250 x 190 x 200 mm
Weight	12.5 kg
Wire diameter	0.8 to 2.0 mm

QIROX Weld Automation Set

The QIROX Weld Automation Set - Everything for automated welding

The standard set includes all components being necessary for automated welding, matched to each other and easy to mount. Everything for an easy start into the world of automated welding.



Note: The entry package is supplied without the safety technology which is necessary for operation. The company being responsible for commissioning takes care that the robot system is used according to the customary local safety regulations.

Capacity increase QINEO StarT to 500 ampere

Increase the capacity range of the QINEO StarT by 100 ampere to a maximum welding current of 500 ampere. So you can weld thick workpieces.

- Larger welding range:Wider workpiece range
- Maximum welding current of 500 ampere: Reduce the cycle time by means of a higher welding speed

Additional digital inputs/outputs expand the contacts to the outside world

The digital inputs and outputs allow the signal exchange between robot controller and functions in the surrounding area. For example, you can query whether all components are inserted in the fixture or you can directly approach the tool clamps. Just combine the external function with the robot movements in the user program.

- Combination of the robot movements with external functions: Extend the variety of the robot system
- Higher degree of automation: Increase of efficiency and flexibility

Interface

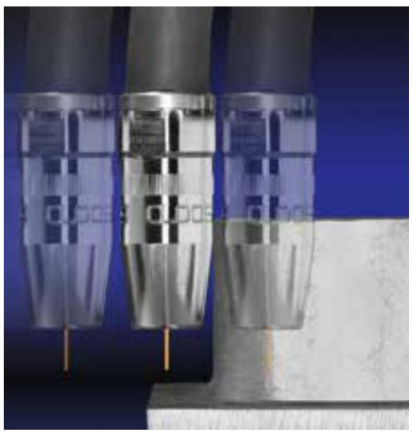
- With the integrated interface of the robot controller it is possible to communicate with higher-level controllers (e.g. PLC) via standard field buses (provided by the customer).

Options QIROX Weld Automation Set

Find the exact start and/or end position

In practice, there are deviations to the programmed points because of workpiece tolerances. To enable these deviations to be quickly and accurately compensated for, the tactile gas nozzle sensor checks the start and/or end positions and corrects the programmed welding path correspondingly to the measured deviation.

- Recognition of workpiece tolerances: Considerable improvement of the weld quality
- Direct integration into the user program: Quick and easy programming
- No interference from attached parts: Perfect accessibility



Correction signals from the arc

The CLOOS arc sensor uses the arc to simultaneously weld and measure the joint position on the workpiece. The welding torch oscillates along the joint scanning the edges of the weld seam preparation. If the measured values are not the same on both sides, the weld seam position deviates from the programmed path. The computer-based robot controller adjusts the welding head position so that the seam is placed exactly in the centre of the joint. In addition, this procedure corrects the distance of the welding torch to the workpiece. Loss of time is minimised because measuring and welding take place simultaneously with the arc sensor. At the same time, workpiece distortion, e.g. due to thermal expansion, is directly compensated for. The CLOOS arc sensor thus combines productivity with optised quality

- Minimum time expenditure: Measurement of the joint position of the workpice during welding
- Excellent weld seam quality: Direct compensation of workpiece tolarances

Extension of the robot axes up to three external axes

You can choose whether you wish to extend the robot up to three additional rotary axes. We supply the drive units with capacities of 1.25 kN, 2.5 kN, 5.0 kN and 10 kN. The suitable faceplate and the necessary welding current transmission can be delivered on demand. The external axes can be programmed like the robot axes and are integrated in the movement control.

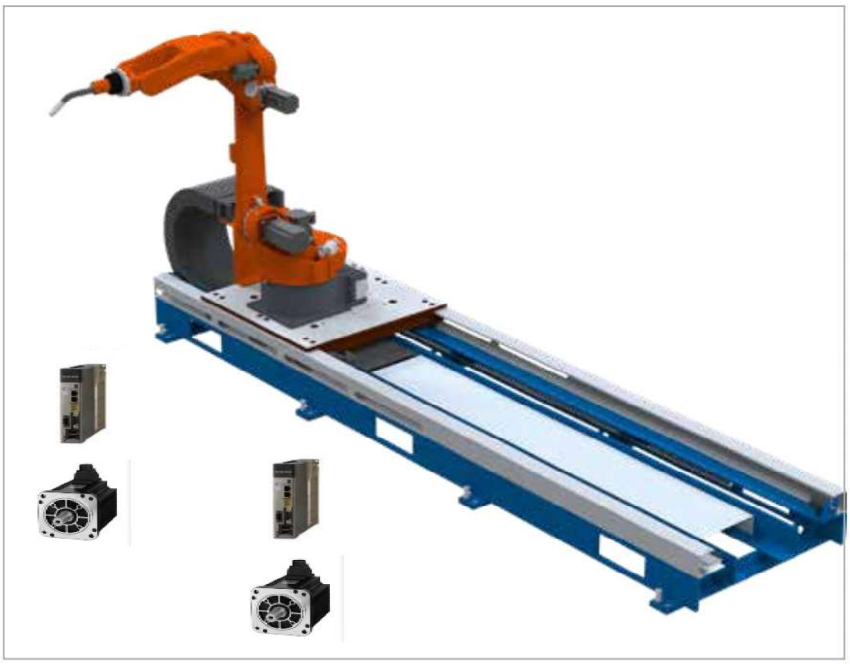
- Welding of circular seams, for example Expansion of the robot application
- Optimum weld position: Improve the welding results
- Interpolation between the movements of the robot axes with the external axes
- Simple and fast programming

Expand the application range of the QIROX Weld Automation Set by using external axes.

Bring the component into the perfect position for welding and improve the weld quality considerably. You can weld workpieces with circular seams and contours without any problem. You program the external axes like the robot axes. The synchronisation of the robot movements with the movements of the external axes is made automatically in the QIROX Controller. Here we show you three possibilities how to use the external axes.

Example 1: QRH-290-6 with rotary positioner with faceplate in vertical position

Example 2: QRH-290-6 with a combination of two rotary positioners to an L-shaped positioner



Example 3: QRH-290-6 on a floor-mounted linear track with two rotary positioner with faceplate in horizontal position

Efficiency ...

Control Weld

Reliable MIG/MAG welding process for thin and thick materials

Fine Weld

Extremely low spatter MIG/MA short arc for mixed and CO_2 applications

Vari Weld

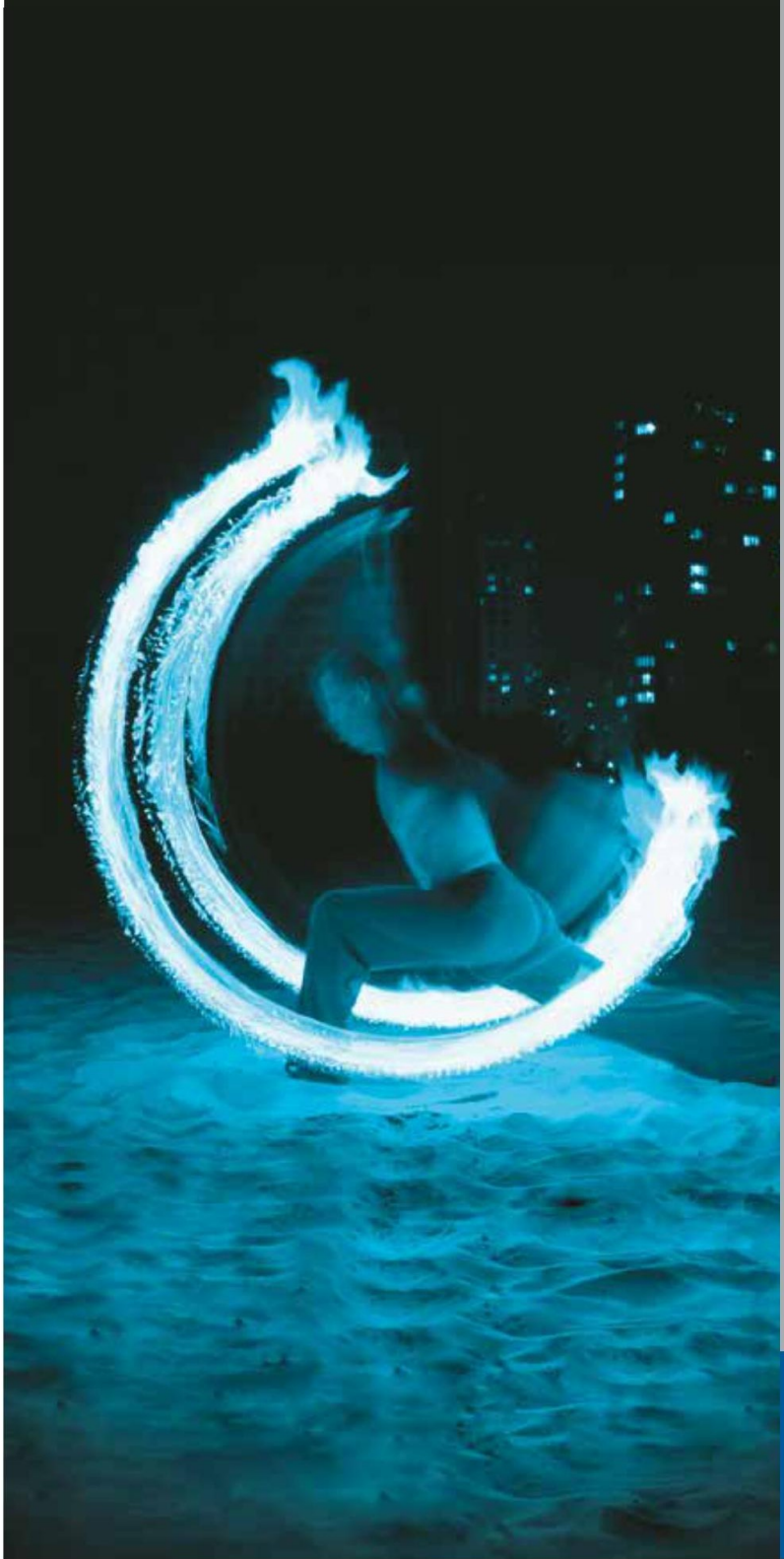
MIG/MAG pulsed arc for optimum welding results even under demanding conditions

Rapid Weld

High-capacity MIG/MAG spray arc for efficient welding

With a large range of proven and innovative welding processes we offer you solutions for the future providing excellent quality, maximum efficiency and productivity. No matter if thick or thin, steel, chrome-nickel or aluminium – here you find the right welding process for every product requirement.

...due to modern processes



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!

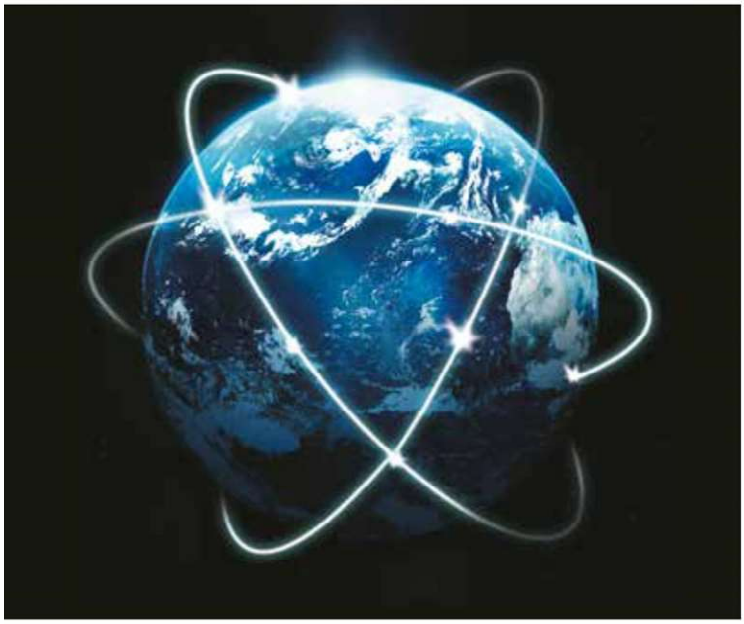
... all over the world!

... to your utter satisfaction!

... more than 100 years!

...all from a single source!

All over the world!



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