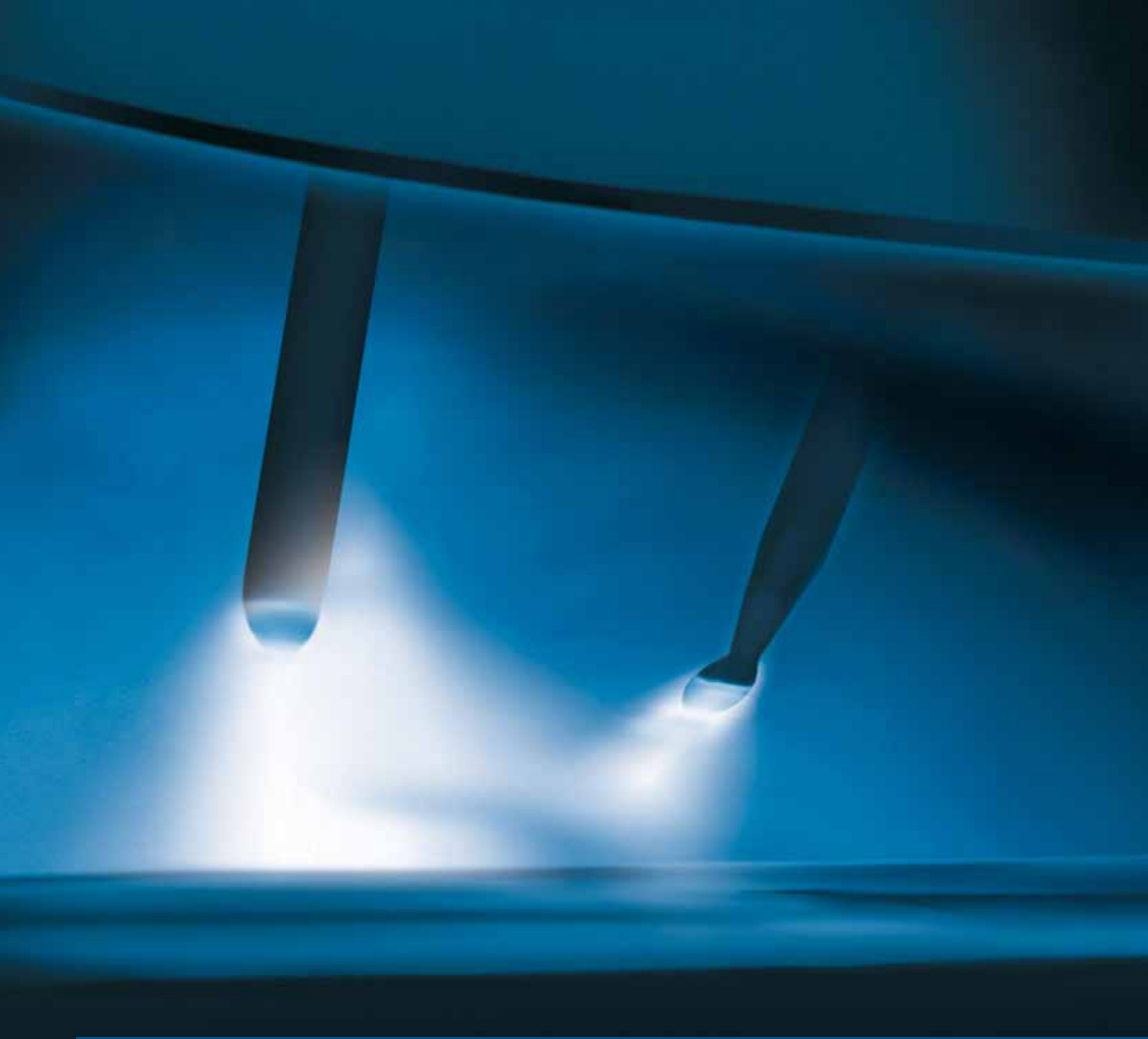


Tandem Weld

Combination of two synchronised MIG/MAG arcs for double capacity

CLOOS

Weld your way.

www.cloos.de

Content

More about
Tandem Weld
at cloos.de


CLOOS
CLOOS

Tandem Synergy Pro
Powerful welding times two

The Tandem process is the further development of the double wire process. In the tandem process, two electrically independent arcs burn in a common molten pool. The high deposition rate results in weld speed or volume filling. Different process combinations are reached by the electrical separation of the wire electrodes. On the one hand you can select the electrical parameters independently from each other, on the other hand different wire diameters and materials can be used. This possibility opens up entirely new combinations and results in enormous deposition rates of up to 25 kg/h. Weld speeds of up to 4.5 m/min. can be realised when welding thin plates.

Optimum welding results
thanks to simple operation and quick parameter finding

Easy integration
of the QINEO Tandem equipment into the sequence control of the QIROX robot system due to the QIROX Technology Interface

Reduced programming times
because of the new input mask for an intuitive operation

Reduced programming expenditure
due to automatic recognition of the welding torch position and the welding direction (Wire Orientation Vector)

Highest weld quality
by using arc sensors

QINEO
Welding equipment

QINEO Tandem welding systems
optimised for perfect welding results

- **Power sources QINEO Pulse & QINEO Champ**
  - 2 x 600 A top capacity
  - Tandem Synergy Pro
  - 2 x 10 synergy characteristic curves
- **Safe wire drive**
  for optimum welding quality at permanently high capacity
- **Tandem torch ZMW 850 evo**
  - optimised torch cooling
  - high level of stability

More about
Tandem Synergy Pro
also on video

QIROX
Operating System

CLOOS Robot systems

innovative technology, flexible and reliable

- **Integrated QINEO Tandem equipment**
- **QIROX Operating System**
  short programming times and downtimes
- **QIROX Technology Interface (QTI)**
  - Tandem Synergie Pro - Expert Mode
  - Wire orientation vector (WOV)
  - automatic compensation
  - automatic recognition of the direction

CLOOS
Expertise

CLOOS Tandem experience since 1996

our knowledge for your optimum solution

- **Comprehensive process expertise**
  continuous development for more than 20 years
- **Technology leader**
  with many successful customer solutions
- **Individual solutions**
  customer-oriented optimisation and implementation of every task

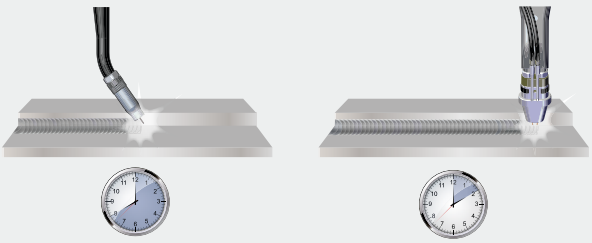
Tandem Weld

The perfect basis for your success

Maximum capacity meets the highest demands

Maximum welding speed

due to the high deposition rate



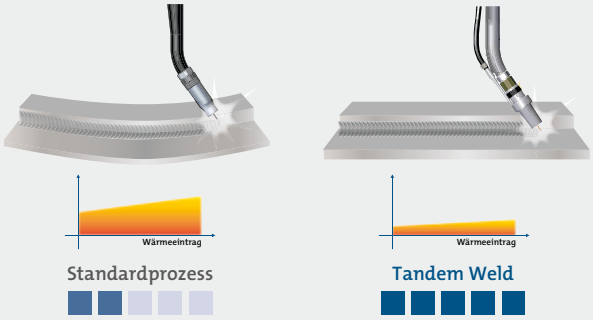
The welding speed during Tandem Weld is significantly higher than during single wire welding.

- Cycle time reduction
- Reduced welding times per component
- High system utilisation

Efficient

Reduced component distortion

due to low heat input



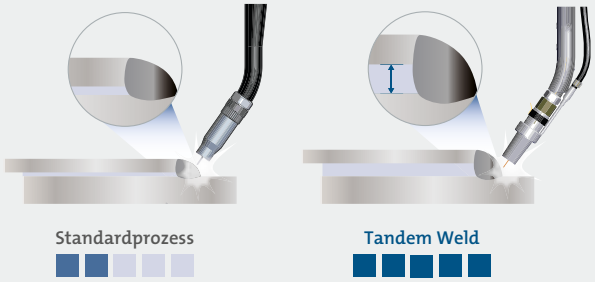
Due to less heat input the possible component distortion is considerably reduced.

- Less rework
- Less defective parts
- Quality increase

Economic

Compensation of component tolerances

because of a good gap bridging ability



Component tolerances are compensated better due to the good gap bridging ability

- Less preparation
- Better results in the case of high tolerances

Quality

Wide range of applications

due to universal application possibilities

With Tandem Weld you increase the flexibility and thus the utilisation of your robot system to a maximum. You weld different materials, changing component thicknesses and weld shapes with one process.

- Maximum system utilisation
- Many solutions with one welding process

Flexible

Applications

Tandem welding guarantees excellent weld quality

Tandem Weld

Reduced component distortion

Schottel Werft

- **Component: Structural support tube**
- **Industry: Shipbuilding and Dockyards**
- **Welding process: Tandem Weld**

The Schottel 360° marine propulsion allows turning manoeuvres within the narrowest space or landing without tug boats are possible. One propulsion component is exposed to high forces: the structural support tube. It houses the deflection gear for the power transmission to the propeller and is the connection to the body. Here the weld quality is very important. Therefore, the structural support tube is TANDEM welded. This welding process ensures an excellent weld quality because the low heat input avoids material tensions and distortion. In the system, a 30 tonne L positioner turns and swivels the support tube into the best gravity position for welding. Furthermore, a rotating C frame with vertical stroke enlarges the robot working range and allows welding components with different dimensions.

Meiller relies on Tandem Weld by CLOOS

Compensation of component tolerances

Tandem Weld

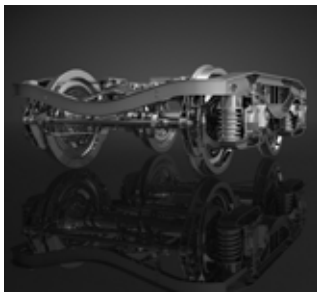
Meiller Slany s.r.o.

- **Component: Side walls for tipper bodies**
- **Industry: Industrial vehicles**
- **Welding process: Tandem Weld**

The industrial vehicle specialist Meiller has trusted in the CLOOS technology for decades. At the Czech site of Slaný Meiller operates a total of six robot systems with eight welding robots and more than 300 welding power sources by CLOOS. The new CLOOS robot systems welds rear walls for tipper bodies. The heart of the system is a 6-axis QIROX QRC-350 welding robot. The range of the robot simplifies and accelerates the welding of the complex workpieces.

Applications

Two-station robot system reduces the production times



Tandem Weld

Maximum welding speed

Tatravogonka

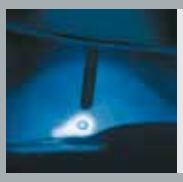
- **Component: Bogie Y25**
- **Industry: Railway vehicles**
- **Welding process: Tandem Weld**

Many of the modern 4-axes goods wagons on two-axis Y bogies travel on rails all over Europe. Container wagons, wagons to transport coils, tanks and gas containers etc., almost everything travels on Y bogies. The automation of the welding processes considerably reduces the production times. At the same time high-quality weld seams are achieved. The two-station robot system always swivels and turns the bogie frame into a perfect welding position. An overhead-mounted linear track with vertical stroke enlarges the robot working range and allows the change between the two welding stations.

Efficiency ...

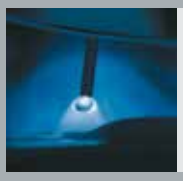
Control Weld
Reliable MIG/MAG welding process for thin and thick materials

Speed Weld
Stable MIG/MAG pulsed arc for numerous applications



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

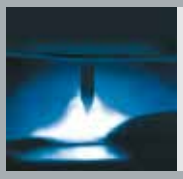
Rapid Weld
High-capacity MIG/MAG spray arc for efficient welding



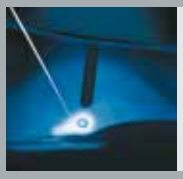
Cold Weld
Heat-reduced MIG/MAG AC pulsed arc for optimum results when welding sensitive materials

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 modern processes

Applications

Robot system for welding components for high rack warehouses

Tandem Weld

High deposition rate

SSI-Schäfer s.r.o., Czech Republic

- **Component: Storage-retrieval machine**
- **Industry: Metal construction**
- **Welding process: Tandem Weld**

SSI Schäfer commissioned a high performance CLOOS robot welding machine for its complex welded assemblies. The QRC-360-E robot is equipped with a torch changing system and two welding processes. Robot welding is made with the high-capacity Tandem Weld process and the pulsed arc Speed Weld process. An extended special welding torch and the eccentric axis integrated in the robot mechanics give the robot system the necessary working area and flexibility to weld the complex component perfectly.

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.

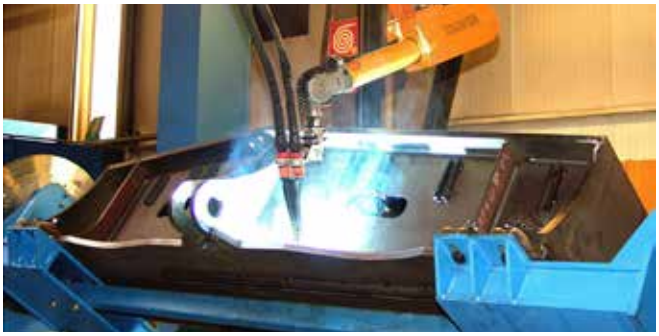
Training
We train your employees and service technicians in programming, operation and maintenance in our modern training centre

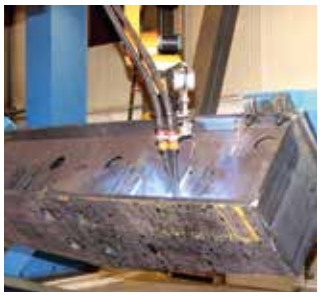
Service
Our competence team advices you on any extensions, modifications and retrofits of your existing robot and welding systems.

... to your success.

Applications

Robot-supported two-wire welding of steel components for lifts



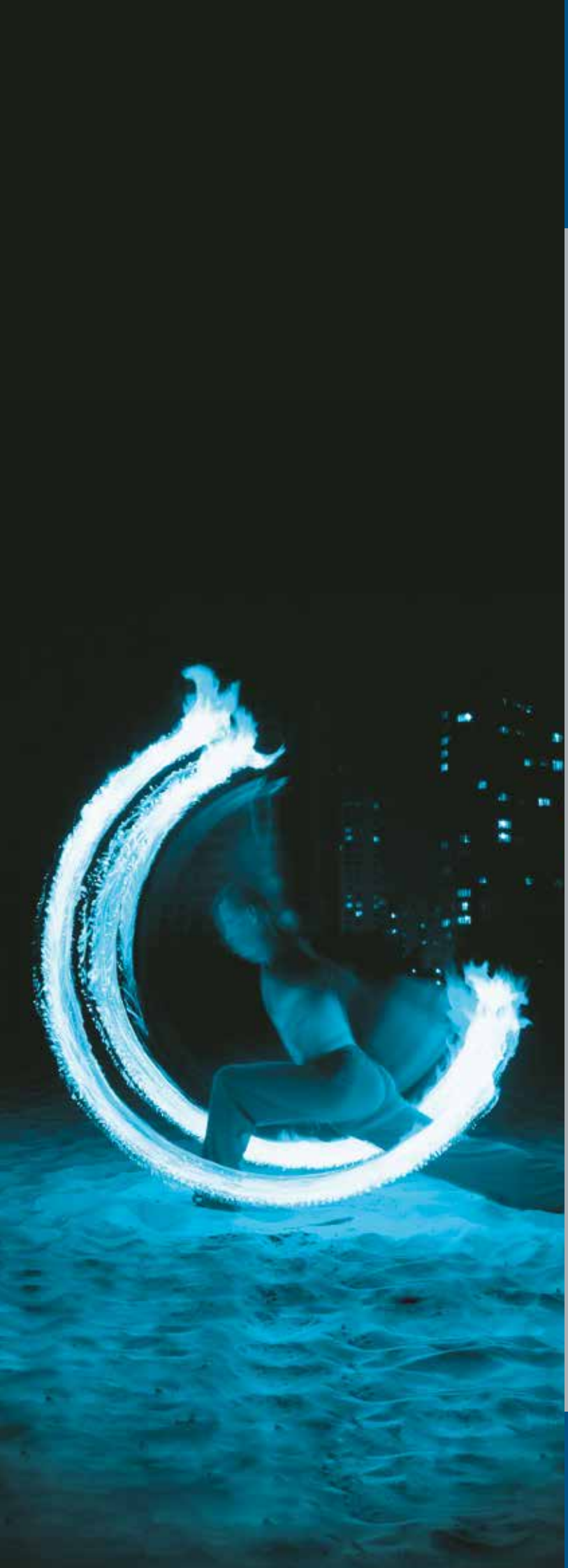


High deposition rate

Leitner AG

- **Component: Longitudinal + transverse bar**
- **Industry: Metal construction**
- **Welding process: Tandem Weld**

Leitner is one of the world's leading manufacturers of lift and ropeway systems. The CLOOS gantry welding system is the pivot point of the Leitner big part welding department and stands out due to maximum quality, productivity and efficiency. The two-station system is 15 meters, 7 meters wide and six meters high. Whilst the robot welds at one station, the operator can already adjust and load the second station. The two workpiece positioner with turning and tilting axis have a free-wheeling counter-bearing and can clamp components with a length of max. eight meters and a maximum weight of three tons. The Romat 350 with Tandem equipment uses the high-capacity GLC 603 Quinto 2 pulsed arc welding machine with amperages of up to 450 Ampere. Due to the Tandem technology, Leitner reaches nearly twice as high welding speeds as with conventional single-wire welding. The robot is fitted with an automated torch changing system which allows the combination of different production processes in one robot system.



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 almost 100 years of welding experience!

... all from a single source!

All over the world!

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