QUINTO – understanding and achieving customers’ expectations

It is our objective to meet consistently the requirements and wishes of our customers. With the new generation of QUINTO pulsed arc power sources a high level of technical benefits have been developed which will fulfill your tasks.

Special features of the GLC 403 QUINTO and GLC 603 QUINTO welding machines are simplicity and ease of use, flexibility and efficiency. The outstanding weld properties are evident in all industrial applications.

Change your ideas!

The new QUINTO pulsed arc welding machines with their array of special features provide all key functions for high quality and efficient production.
Intelligent solutions,
which make welding easier

To provide the right solution it is important to “listen” to your customers’ requirements and develop products to achieve new standards and benefits.
This is the way to achieve a new quality.
Outstanding features of the QUINTO are:

- Greater weld integrity – irrespective of material
- Weld parameters are easy to set via single knob operation, and each weld parameter can also be set individually
- Weld parameters can be entered while the QUINTO is welding, but only by an authorized and identified operator (multi-tasking)
- The welding process is monitored by the integrated, self learning weld data monitoring quality control system
- An electronic personal access key determines who can operate the QUINTO, for what and for how long
- Repeatability and transfer of data to other machines is guaranteed
- Open Access - the QUINTO allows access to all data – whenever you want.

As you can see: Welding knowledge and technical expertise combined with customer feedback allow CLOOS to provide a world leading product – the new QUINTO.
Are you ready for the new QUINTO?

Use it to give you a competitive advantage

Combine the enthusiasm for developing new products with the experience of a market leader and the result is the QUINTO high capacity pulsed arc technology. We have found suitable creative solutions to keep you competitive even in the future. No matter what material, plate thickness or welding task, optimum results are achieved with the QUINTO.

Examples:
- TANDEM or strip welding – no problem for the QUINTO.
- Do you consider the future? We do – laser hybrid welding.
Design innovation

combined with functional perfection at the right place

Complex tasks can only be successfully solved by expertise, innovation and knowledge. As for example with the QUINTO.

<table>
<thead>
<tr>
<th>Outstanding weld appearance and integrity</th>
<th>AluPlus – the modulation of weld parameters for visually perfect seam surfaces. The new functions improve penetration, and heat input and distortion are reduced. This now applies to all materials.</th>
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<tbody>
<tr>
<td>See the difference</td>
<td>The SPAZ function (low spatter ignition) guarantees soft arc and reliable ignition for all MSG welding processes – this has been available from CLOOS for the last ten years.</td>
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<tr>
<td>Down to the last drop</td>
<td>Precise wire deposition and heat control ensure reliable re-ignition of the arc. This is available on all CLOOS pulsed arc welding machines.</td>
</tr>
<tr>
<td>Optimal performance</td>
<td>The QUINTO welding operation: Perfected by digital regulation for any conceivable process, material or gas combination.</td>
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CLOOS

SCHWEISSTECHNIK
In the near future production systems will have their own information highway. Innovative developments are required to get an intelligent power source on the right track. This includes a modular control concept, which provides openness and communication facilities via bus systems. Modern production systems communicate via field bus. The QUINTO has an internal CAN bus and is coupled via Variable Bus Connection (VBC) to any bus system. This guarantees highest flexibility and data security with a minimum of wiring work.
Modern digital technology — integrated in a power source

Highly developed diagnostics, intelligent information systems, integrated controls and large, clear displays increase convenience, reliability and security.

Plug And Weld
Automatic setting and configuration of all CLOOS units connected, such as DUO-DRIVE or remote control, including automatic validation check of the software versions.

Hand in Hand
Three micro-controllers and a digital signal processor (DSP) together take over the input, control and setting of the welding process. The complete digitisation of the QUINTO provides the utmost precision and reproducibility.

Dynamic wire feed control
The highly dynamic, digital wire regulation operates with an extremely high setting accuracy of 0.05 m/min. This allows — in combination with a CLOOS-DUO-DRIVE (CDD II) — an extremely precise wire retract to adjust the free wire end. In addition, a unique sensor recognises any slippage between wire electrode and wire drive roller.

A self diagnostic machine
The system control permanently monitors the operating status of all modules. If limit values are exceeded, error messages are displayed and stored in the QUINTO’s system logbook, thus enabling an optimum error analysis.

Data transfer
All settings and features, such as the synergic characteristic curves, weld parameters, weld properties and even the language and user-defined help texts etc., are stored on a Compact Flash with 32 MB and can be easily copied.
The design of the QUINTO, which has been developed taking ergonomics into account, facilitates and simplifies operation considerably. The weld data can be input in only a few stages. An intuitive, user friendly and simple operator guide with clear text information on a large and well arranged display facilitates data input. Help texts are available for every function and error message. The highlight: you can write help texts yourself directly on the PC and store them in the QUINTO. All settings can be easily copied using the built-in disk drive.
The first turn precise, the second perfect …

… then store, copy and forward.

The QUINTO concept symbolises ease of operator use based on modular software principles.

**Simple logic**

Before you have read the manual you will be able to operate the QUINTO: you turn a knob and get an optimum welding result; you have your own knowledge and would like to change the AluPlus frequency in the end crater program; you copy a synergic characteristic from one QUINTO to the other. No matter on which access level you are working with the QUINTO, a clear and simple menu structure will always bring you success.

**Precision control**

The VSM (Variable Synergy Mode) is available to help you input your weld parameters. You can change your weld parameters in the synergy mode via single-button operation according to a pre-programmed characteristic and at the same time adjust each weld parameter separately.

**Edit offline**

The Online/Offline Editing (OOE) enables new weld parameters to be input offline while the QUINTO is welding by using the multitasking capability of the QUINTO.

**The key function**

The individual access key for your QUINTO: With the “Personal Access Key” the QUINTO recognises the welder and clears access rights for authorised personnel only in steps which can be individually selected.
The QUINTO pulsed arc power source has an extensive monitoring system that monitors all temperature-critical modules and releases an alarm when the limit values are exceeded. The robot communication is also controlled by the monitoring system. Another option is to fit a weld data monitoring system to the QUINTO (SD version). The QUINTO controls a total of 9 process characteristics and writes a protocol in a logbook when unacceptable deviations occur. The logbook listing can contain a component allocation and an error time which enables the unacceptable deviation to be accurately located. The welding speed of a carriage or robot can be monitored, for example in combination with the Open Machine Interface (OMI), via another two free monitoring channels.
Quality monitoring concepts –
for improved production quality and reliability

The QUINTO monitoring system provides extensive information on the current status during welding. You can decide what information you wish to have.

Control is better

• Robot communication
• Torch cooling (temperature and flow)
• Power supply
• Cooling air inlet and outlet temperature
• Notification when limit values are exceeded

under supervision...

• Self-learning function for monitoring weld profiles
• 9 monitored weld parameters
• Plus two analogue, freely available monitoring channels
• SD logbook with complete documentation:
  – component counter
  – allocation of component name
  – seam counter
  – error time and other new functions
• High scanning rate during data monitoring (50 ms)
• Weld Condition Monitoring (WCM): monitoring of increased risk of porosity

... even production costs

The Cost Calculation Module (CCM) when combined with the SD version enables welding production costs to be accurately determined.
Tuned for maximum performance
When welding, performance means added value

TANDEM welding, strip welding and MSG single wire welding are all very efficient high-performance processes. High-performance welding however requires power sources with special capabilities:

The new QUINTO pulsed arc machine series meets all the requirements for high-performance welding and is available in two capacity versions: 400 Amp or 600 Amp with 60 % duty cycle. With both types single-wire and TANDEM high-performance welding are possible. The 400 Amp version in particular is suitable for wire speeds of up to approx. 25 m/min (G3 Si1 Ø 1.2 mm). Above this, the 600 Amp power source has to be used and this can also be used to weld with steel strip electrodes. The deposition rates of the high-performance processes single wire, TANDEM and strip welding reach up to 25 kg/h when welding steel. Aluminium TANDEM welding with wire speeds > 15 m/min. is also possible with both power sources, thus reducing welding production costs considerably without losing quality.

### Capacity

<table>
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<tr>
<th>Constant current (100 % duty cycle)</th>
<th>GLC 403: 310 Amp / 30 volts</th>
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<tbody>
<tr>
<td>GLC 603:</td>
<td>500 Amp / 39 volts</td>
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<table>
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<tr>
<th>Max. pulse current:</th>
<th>GLC 403: 800 Amp</th>
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<tr>
<td>GLC 603:</td>
<td>1,200 Amp</td>
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| Dynamics: Current increase speeds:                  | 1,500 – 2,000 Amp/ms         |

CLOOS SCHWEISSTECHNIK
More than 80 years experience in welding technology has helped CLOOS develop innovative power source designs. The result is a large variety of solutions and high quality of world beating products. Even the basic machine in the QUINTO range has everything on board needed to solve extremely demanding welding tasks. Other customer specific requirements and options are available with no change in machine.
Machine standards...

- **Technology**
  Automatic adjustment of all connected CLOOS machines via Plug and Weld (PAW), compatibility monitoring with Software Versions Management (SVM).

- **Digital**
  Several micro-controllers and one DSP monitor input, control and regulation of the welding process.

- **Wire drive**
  Digital and extremely precise. Outstanding dynamics and reliable wire feed due to the DUO-DRIVE (CDD II).

- **Capacity**
  400 Amp and 600 Amp capacity steps (60 % duty cycle) with high, dynamic reserve capacities, e. g. for ignition.

- **Speed**
  CLOOS switch control technology with cycle rates up to 100 kHz.

- **Efficiency**
  Electric efficiency of about 90 % (f), capacity factor (cos φ) > 0.97

- **Memory**
  Large compact flash memory (CF) with 32 MB for 20,000 welding lists in total!

- **Compact Flash**
  All information and settings on the QUINTO are stored on the CF. Copy the CF on the PC – and you have a complete duplication of the QUINTO!

- **Welding process**
  A new high performance process with the wire electrode in the form of a strip.

- **Strip**
  With new functions, now also used for welding steel materials. Improved penetration, finer seam surface, lower heat input and less distortion.

- **AluPlus**
  Spot-free ignition for all materials

- **SPAZ**
  Always the same free wire length after welding and always a pointed wire end for reliable re-ignition.

- **Wire distance**
  U/I or I/I modulation freely selectable.

- **Pulsed arc welding**
  Adaptive, digital length control to prevent short circuits. Additional length control for I/I modulation.

- **Pulse geometry**
  10 pre-assigned pulse characteristics which can be individually changed.

- **Pulse synchronisation**
  Smallest affect of two arcs when welding one component.
- **Operation**
  Start, main and end crater parameters separately adjustable.

**Ergonomics:**
Modern design for ease of operation.

**Operation:**
User friendly, self-explanatory operator guide. All information is displayed in full text.

**Help:**
A help menu is integrated in the QUINTO for all functions and error messages. Help menus are freely expandable per Disc-drive On Board (DOB)!

**Languages:**
All languages can be freely selected!

**Info text:**
An individual info text can be created for each welding list and called up on the QUINTO, e.g. information about the material, preparations etc.

**DOB:**
All data (welding lists, languages, help menus, info lists, ...) can be transferred via 3.5" disks onto a PC where they can be processed with an ASCII editor, e.g. Word, WordPad or similar.

**VSM:**
Synergic or single parameter operation can be freely selected at any time.

**OOE:**
Offline editing allows input and saving of data during welding.

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... and options without limitation:

**SD version:**
Integrated online quality monitoring of the actual values from process and power source. Up to 11 monitored values with separately adjustable warning and limit values. Separately adjustable reaction to errors. Log book.

**CDD II:**
Fully digital twin motor DUO-DRIVE wire drive system with high-precision wire feed. Minimum loading of the wire due to the compensation control.

**FBB II:**
Welding torch with integrated remote control. Program selection or power adjustment can be carried out directly at the welder’s torch.

**TANDEM:**
Designed for TANDEM welding process with extremely high welding speeds.

**CCM:**
Online calculation of welding production costs, e.g. a seam, a component or a series of components, is carried out via the Cost Calculation Mode (CCM).

**PAK:**
The individual access key for your QUINTO machine. The QUINTO recognises the welder by means of the ‘Personal Access Key’ and clears the access rights for authorised personnel only in steps which can be individually selected.

**VBC:**
The “Variable Bus Connection” allows the bus coupling of external components for every field bus. Maximum data security with minimum wiring.
The leading technology in welding equipment