



## CLOOS open Day, Poland

**NexT: new excellent Technology  
in welding, automatization and digitalization**

Jan P. Pitzer  
Application department

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**CLOOS**

Weld your way.

[www.cloos.de](http://www.cloos.de)

# Agenda

- Cloos Qineo NexT: new excellent Technology
- Cloos Automatization: Examples of automated welding systems
- Cloos Gateway: The gate into our data world



# Qineo NexT

- NexT is the synonym for „New excellent Technology“
- inverter power source
- for automated applications as well as for manual welding
- start with 450A power source
- basis for new product family



# news

- main news:
  1. best serviceability and new diagnose masks
  2. compensation of up to 4 external welding circuits possible
  3. weld monitoring (SD) integrated on the main board
  4. new welding processes integrated

DIAGNOSE		
<b>Software - Versionen</b>		
System - Logbuch		
Steuerung		
Regelung		
Leistungsteil		
QWD		
Kühlmodul		
Roboter		
Puls 4-Takt	V 0.0	
1.2 mm Fe	A 0	
82% Argon 18% Co <sub>2</sub>		

Konfig - Kompensation		Speichern in 1
Schweißkreis 1		
Widerstand	R [mOhm]	6.7
Induktivität	L [wH]	14.4
Schweißkreis 2		
Widerstand	R [mOhm]	5.4
Induktivität	L [wH]	12.3
Schweißkreis 3		
Widerstand	R [mOhm]	7.1
Induktivität	L [wH]	15.5
Schweißkreis 4		
Widerstand	R [mOhm]	0.0
Induktivität	L [wH]	0.0
Speichern in 2		Speichern in 2
Speichern in 3		Speichern in 3
Speichern in 4		Speichern in 4

# Manual welding



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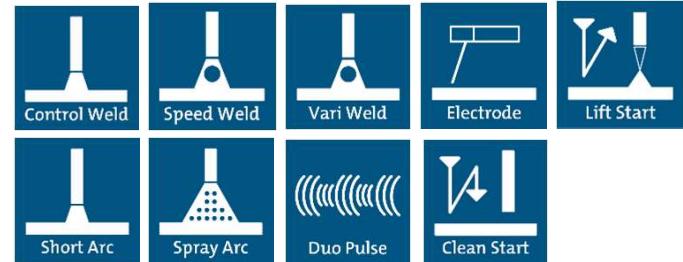
qineo

**CLOOS**

# QINEO – NexT – Welding processes

## DC-Power source - STANDARD

- Control Weld
- Speed Weld
- Vari Weld
- Elektrode
- WIG (DC) Lift-Arc



## DC-Power Source – extended STANDARD

- RPC
- Rapid Weld
- Rapid Pulse



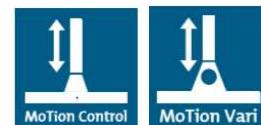
## OPTION AC-Module (coming soon)

- Cold Weld (AC-Technologie)



## OPTION Motion-Drive-System

- Motion Control Weld
- Motion Vari Weld





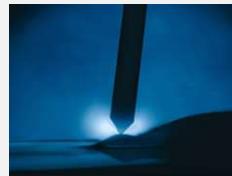
Manuell



Automatisiert

# QINEO – NexT – Welding processes

Control Weld



MIG/MAG Standard Lichtbogen (ohne Puls)  
*Kurz-, Übergangs-, Sprühlichtbogen*

Kurzlichtbogen: Dünblech, Zwangslagen  
Sprühlichtbogen: dicke Materialien

Speed Weld



MIG/MAG Impuls Lichtbogen  
*Spannungsgeregelt U/I*

Für alle Materialien: Al, Fe, CrNi  
Sehr hohe Lichtbogenstabilität auch bei hohen  
Schweißgeschwindigkeiten und bei Aluminium.  
Nahtsuchen bei Stahl & CrNi möglich

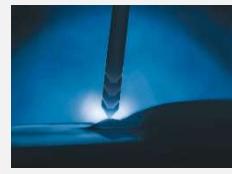
Vari Weld



MIG/MAG Impuls Lichtbogen  
*Stromgeregelt I/I*

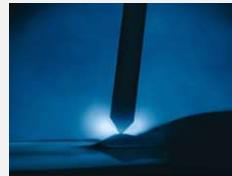
Für alle Materialien: Al, Fe, CrNi  
Gute Regeleigenschaften der Lichtbogenlänge  
im unteren Leistungsbereich (Dünblech).  
Sehr gute Tropfenablösung durch digitale  
Regelungstechnik.

Motion Control Weld



MIG/MAG Lichtbogen (ohne Puls)  
*Energiereduzierter Prozess durch reversierenden  
Drahtvorschub für Al, Fe, CrNi*  
Speziell für sehr Dünne Werkstoffe und  
Zwangssituationen & beschichtete Werkstoffe.  
Minimierte Spritzerbildung bei sehr hohen  
Prozessgeschwindigkeiten.

RPC



MIG/MAG Standard Lichtbogen (ohne Puls)  
*Gesteuerter Kurzlichtbogen*

Speziell für Wurzelschweißungen im Stahl- und  
Behälterbau  
V-Naht Wurzel auch in Fallnaht ohne  
Pendelbewegung sicher zu beherrschen  
Gute Spaltüberbrückbarkeit

Rapid Weld  
Rapid Puls

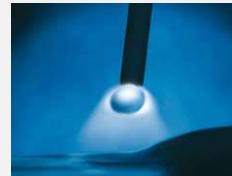


MIG/MAG Lichtbogen

*Rapid Weld: Fokussierter Sprühlichtbogen*

*Rapid Puls: Fokussierter Impulslichtbogen (III)*  
Sehr tiefer Einbrand bei reduziertem Drahtvorschub  
durch extrem fokussierten Lichtbogen. (Fe, CrNi)  
Rapid Puls ist weniger empfindlich bei  
Abstandsänderungen

Cold Weld

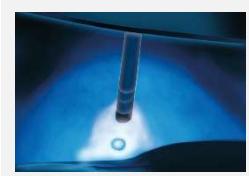


MIG/MAG Wechselstrom Impulslichtbogen (AC)

*Energiereduzierter Prozess speziell für Aluminium.*  
Weniger Energie im Grundwerkstoff da nach jedem  
Impuls eine negative Pulsphase erfolgt und somit  
die elektrische Energie primär in den Draht  
eingekoppelt wird.

Sehr Richtungsstabil, Wärme gut steuerbar,  
reduziert Porosität bei Al. speziell bei Al-Guß

Motion Vari Weld



MIG/MAG Lichtbogen (Puls I/I)

*Energiereduzierter Prozess durch reversierenden  
Drahtvorschub für Al, Fe, CrNi*

Speziell für sehr Dünne Werkstoffe und  
Zwangssituationen & beschichtete Werkstoffe  
Präzise Wärmesteuerung bei exzellenter  
Prozessstabilität.

# QINEO – NexT – modules

## Modulare design

- Power source with inverter technology
  - DC – Modul / digital power unit up to 200 kHz
- Wire feeder
  - QWD - metal, automatizatin, Motion-Drive, CDD
- MIG/MAG – Alternating current
  - AC – Modul
- Controlling / Operation modules
  - Master-Plus, Premium, remote control RC,
- Water cooled
  - Cooler module with pump and tank as plugin module
- Modular stackable
  - Stackable to various closed units
- Trolleys / brackets for compl. unit
  - Wandhalter, diversWall holder, various carriages, pallet base for stacking
- Compact design



# QINEO – NexT – platform based equipment



# QINEO – NexT – operation panels

## Master Plus

- Intuitive operation for manual welding (also automation)
- Fast memory for recurring tasks
- User management as an option
- Plain text display of all parameters and messages



## Premium

- Sophisticated automation tasks (also manually)
- Diagnostics and configuration menus
- Welding Data - Monitoring & Documentation
- User administration, plain text display



## RC Plus / RPU

- Ideal supplement for manual welding - manipulated variables close to the torch
- Ext. Operation Module (RPU)



# QINEO – NexT – platform based equipment

- well known wire drives
- same cable hose and torches
- back to Harting connectors
- well known spare and wear parts
- Premium and Master Plus with new masks
- no new learning or training required
- SD integrated on board (one Job/one Ethernet IP)
- external profinet module/ internal in preparation



## QINEO – NexT – technology

- high precision regulation (actual values reading with 200kHz)
- best ignite-/ and welding properties
- high quality standard
- flexible concept
- interface between control board and power control unit
- modular system
- energy management
- high efficiency (close to 90%)

# QINEO – NexT – technology

## Standard Tools

- Bootloader for Updates - One interface for all components
- USB interface on board - For data backup and upload
- Multi Voltage - different mains voltages possible
- Ethernet
- Memory for different characteristic curve data sets
- Clean Start - process-safe ignition with reversing wire
- Duo Pulse - Superimposed pulse up to 10 Hz
- Compensation welding circle - Up to 4 different circles, e.g. for different device structures

## OPTIONEN

- Welding data monitoring - integrated on board
- Expert Mode - single parameter operation for special welding tasks
- Operating data acquisition - e.g. for post calculation and traceability
- WLAN module - communication with QDM software for welding data monitoring and documentation
- User management - Welding approval only by authorized welders
- Search for seams - digital signals and digital evaluation
- Interfaces – Profibus, Profinet, OMI

# QINEO – NexT – process technology

- **new welding process**

- **processes + wire buffer**

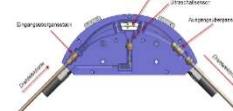
- welding process MoTion Control/Vari Weld (wire forward/backwards movement with up to 120Hz)
- wire buffer compensation for wire movement

**the main components are:**

**Cloos MoTion Drive  
with welding torch**



**MoTion Control  
Unit**



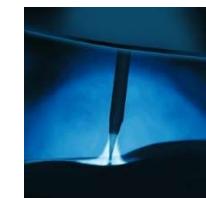
**wire-  
drive**



**power-  
source**



**welding  
process**



**patent-  
registration  
done**

**patent-  
registration  
done**

# Motion Control Weld & Motion Vari Weld



# Motion Vari Weld: LAM generated plates

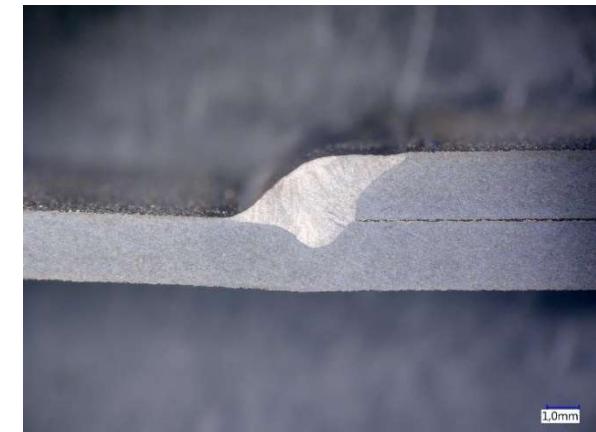


# Motion Vari Weld: LAM generated sheets

- Process suitable for very thin to medium sheets
- For both thin and medium metal sheets you get visually appealing seams
- The LAM sheets ( $t = 2 \text{ mm}$ ) were welded with the following parameters:

*Lapp seam LAM in cross section*

• wire feed Speed	4,0 m/min
• Welding speed	60 cm/min
• voltage	15,2 V
• current	85 A
• Heat input	1,62 kJ /cm
• Filler metal	1.4430, Ø 1,0 mm
• Shielding gas	97,5 % Ar, 2,5 % CO <sub>2</sub>



*CrNi-sheet*



*LAM-sheet*

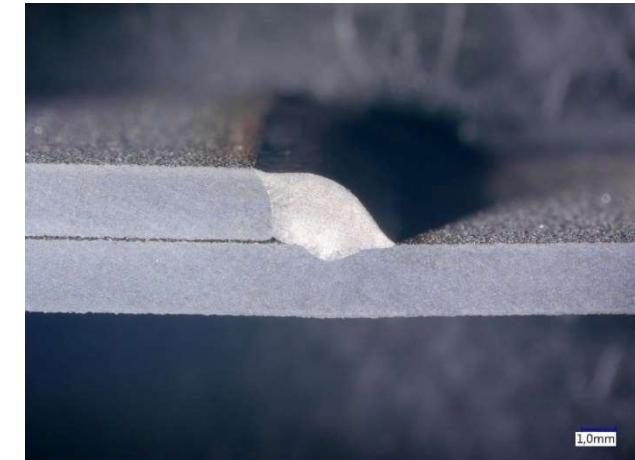
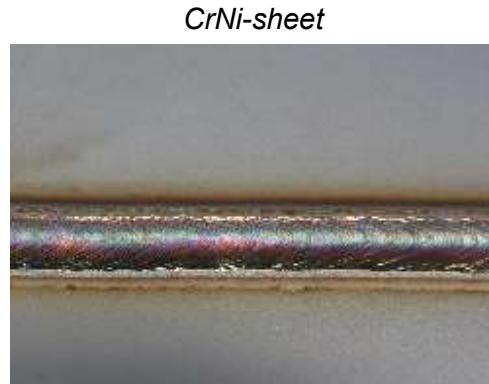


# Motion Control Weld: LAM generated sheets

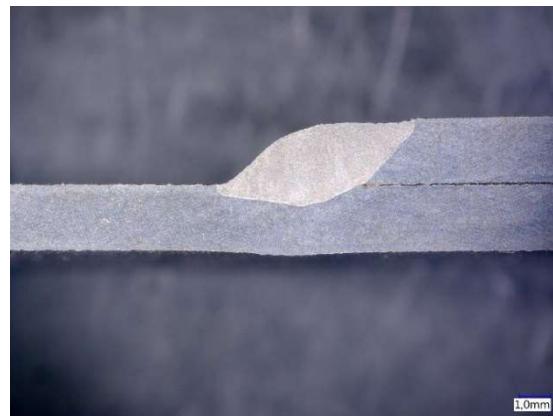
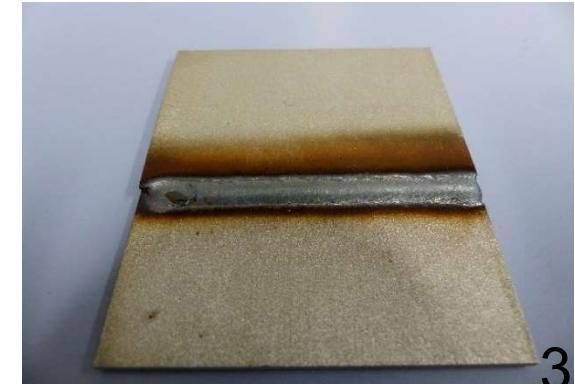
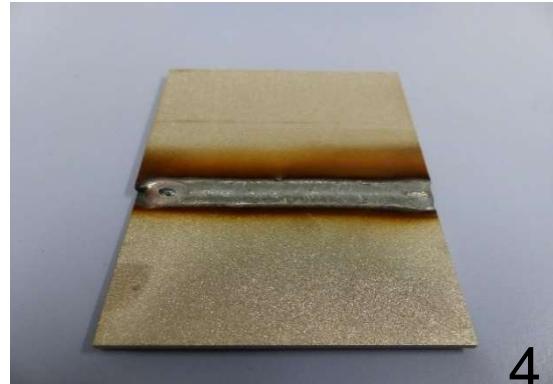
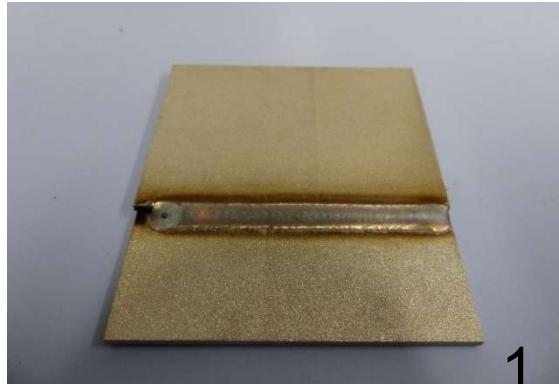
- Process suitable for very thin sheets
- For thin sheets (> approx. 1.5 mm), a convex, raised seam is created
- The LAM sheets ( $t = 2$  mm) were welded with the following parameters:

• Wire feed speed	18,5 m/min
• Welding speed	35 cm/min
• Filler metal	1.4430, Ø 1,0 mm
• Shielding gas	97,5 % Ar, 2,5 % CO <sub>2</sub>

*Lapp seam LAM in cross section*



# Motion Vari Weld: LAM generated sheets



- Filler metal: 1.4430
- $V_D = 4,0\text{m/min}$
- $V_S = 60\text{cm/min}$

- Filler metal : G4Si1
- $V_D = 4,0\text{m/min}$
- $V_S = 50\text{cm/min}$

- Filler metal: X90
- $V_D = 4,0\text{m/min}$
- $V_S = 50\text{cm/min}$

# Motion Weld

MoTion Control Weld

*Aluminium, wire-Ø 1,2 mm*



MoTion Vari Weld

*Aluminium, wire-Ø 1,2 mm*



MoTion Control Weld

*Stahl, wire-Ø 1,0 mm*

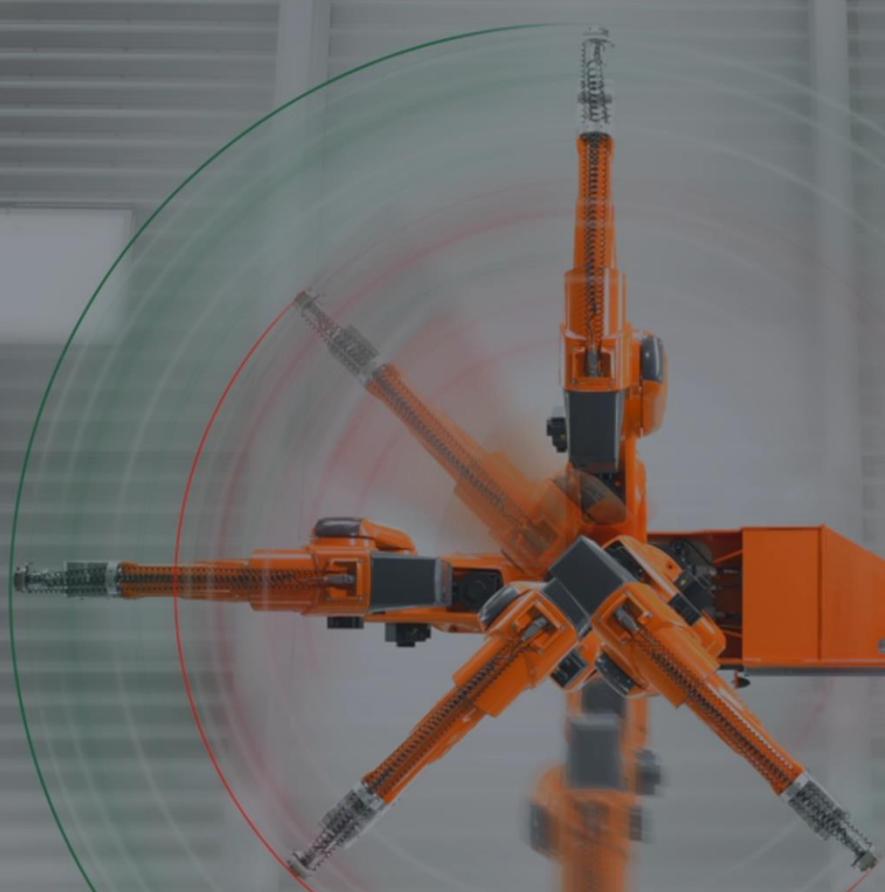


# Agenda

- Cloos Qineo NexT: new excellent Technology
- Cloos Automation: Examples of automated welding systems
- Cloos Gateway: The gate into our data world



# Bicycle stand



**CLOOS**  
Weld your way.



Komm-Nr.: 304 665      **OIROX®**

The advertisement features a large orange robotic welding arm with a green circular motion blur effect, positioned next to a Cloos advertisement. The Cloos ad includes the company logo, the slogan "Weld your way.", a photo of a worker operating a yellow robotic welding station, and product codes.

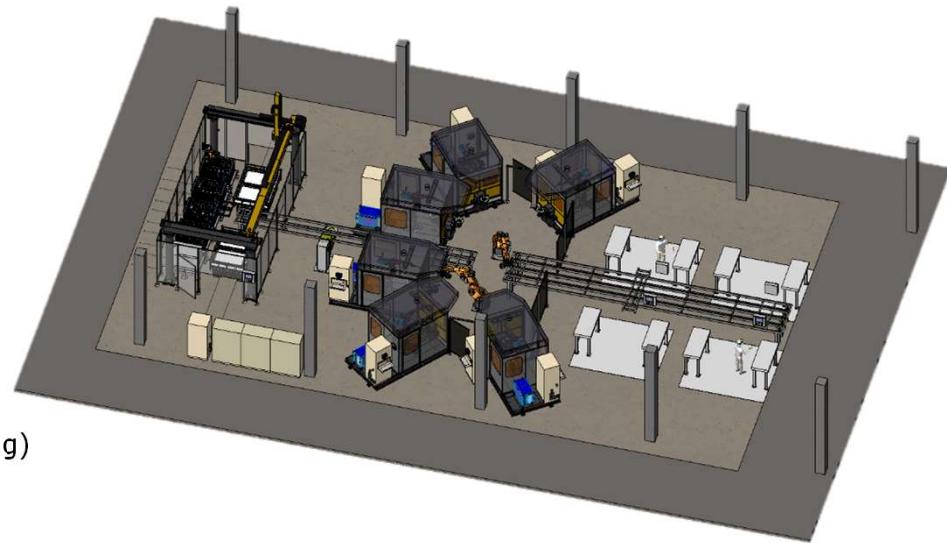
**CLOOS**

# Truck components

**Production line with 6 compact cells CC-6, re-designed base frame and transportation system with workpiece positioner and loading/unloading system for trailing-axle-support**

Scope of supply:

- QRH 280
- QINEO Pulse 600
- QR-RP-S-3kN
- QR-WP-DH-TS-2,5kN
- RFID evaluation unit
- RFID read/write module
- Marking unit PM micro AS LL
- PLC control (übergeordnete Steuerung)
- Brennerreinigung CMR 8-C
- Arc sensor
- QDM Software
- Carola EDI Software
- PDM Software

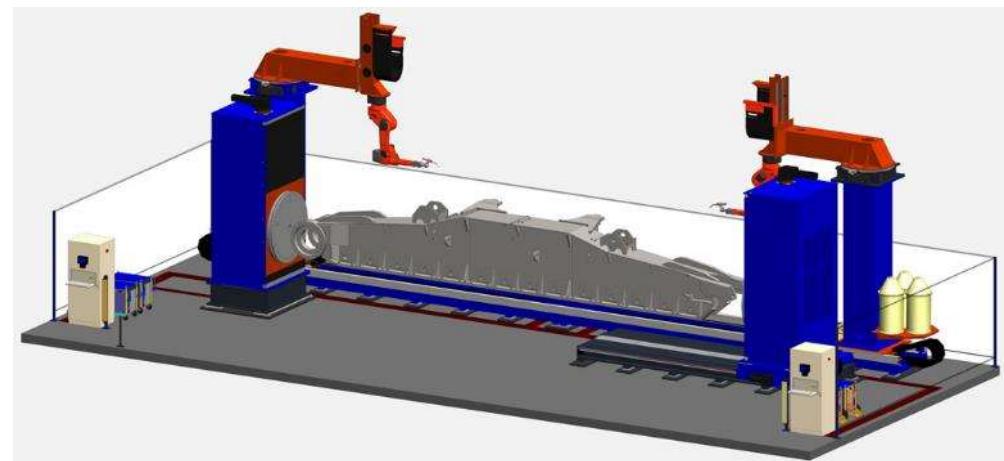


# Mobile cranes

## Robot system for welding parts of cranes

Short description of the system :

- QRC 350
- GLC 403/603 Quinto II SD
- QR-MD-WS torch changing system
- Tandem/single wire
- CTV-5kN
- FL-50kN, 15m
- QR-WP-TVV-150kN
- PDM Software
- Gas nozzle sensor HS700K
- Arc sensor



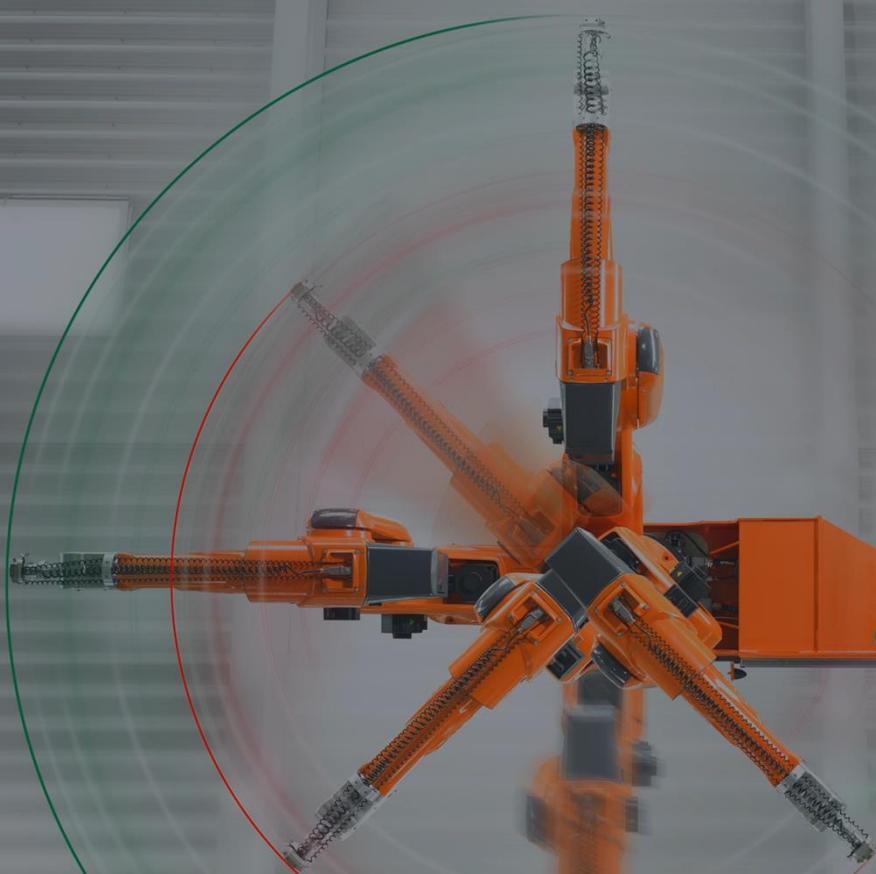
# automatic heavy load high bay warehouse

**CLOOS**  
Weld your way.



Komm-Nr.: 305 097

 Speed Weld    DIROX®

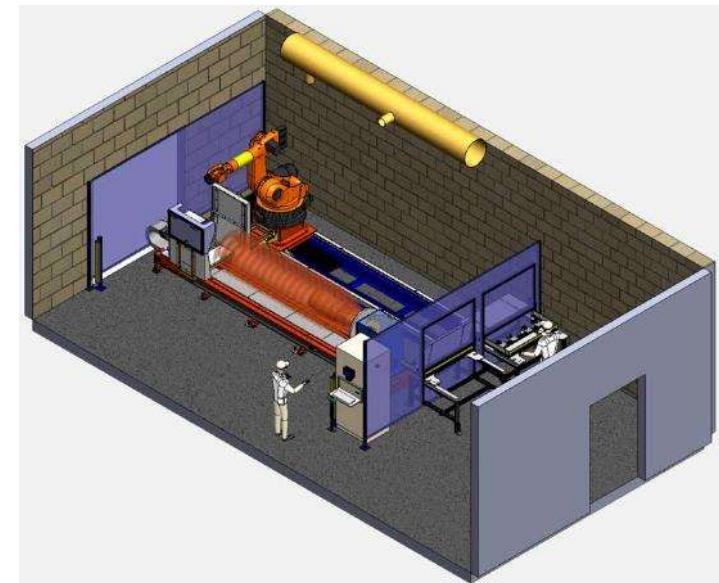


# grinding

## **Special purpose system for grinding Conveying screws for the food industry**

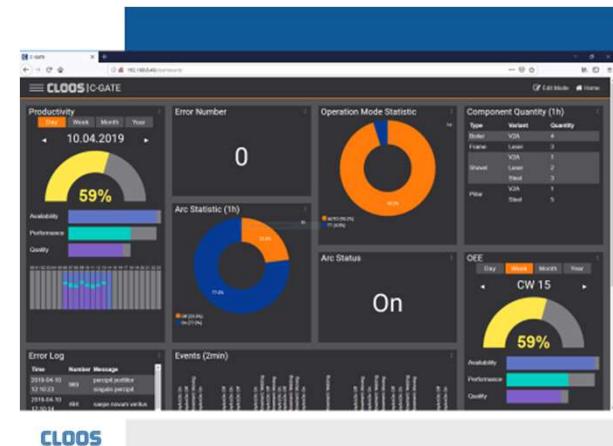
Short description:

- Romat 520/120
- Grinding- Equipment
- FL 20kN
- TC-20kN-E
- WPG-PSE-20kN



# Agenda

- Cloos Qineo NexT: new excellent Technology
- Cloos Automatization: Examples of automated welding systems
- **Cloos Gateway: The gate into our data world**





**CLOOS** Weld your way

DEUTSCH ▾ MENÜ ☰

**Fertigungs-Planung**  
Maßgeschneiderte Lösungen

**Material-Wirtschaft**  
Perfektes Logistik Know-How

**Qualitäts-Management**  
Wirtschaftlich handeln

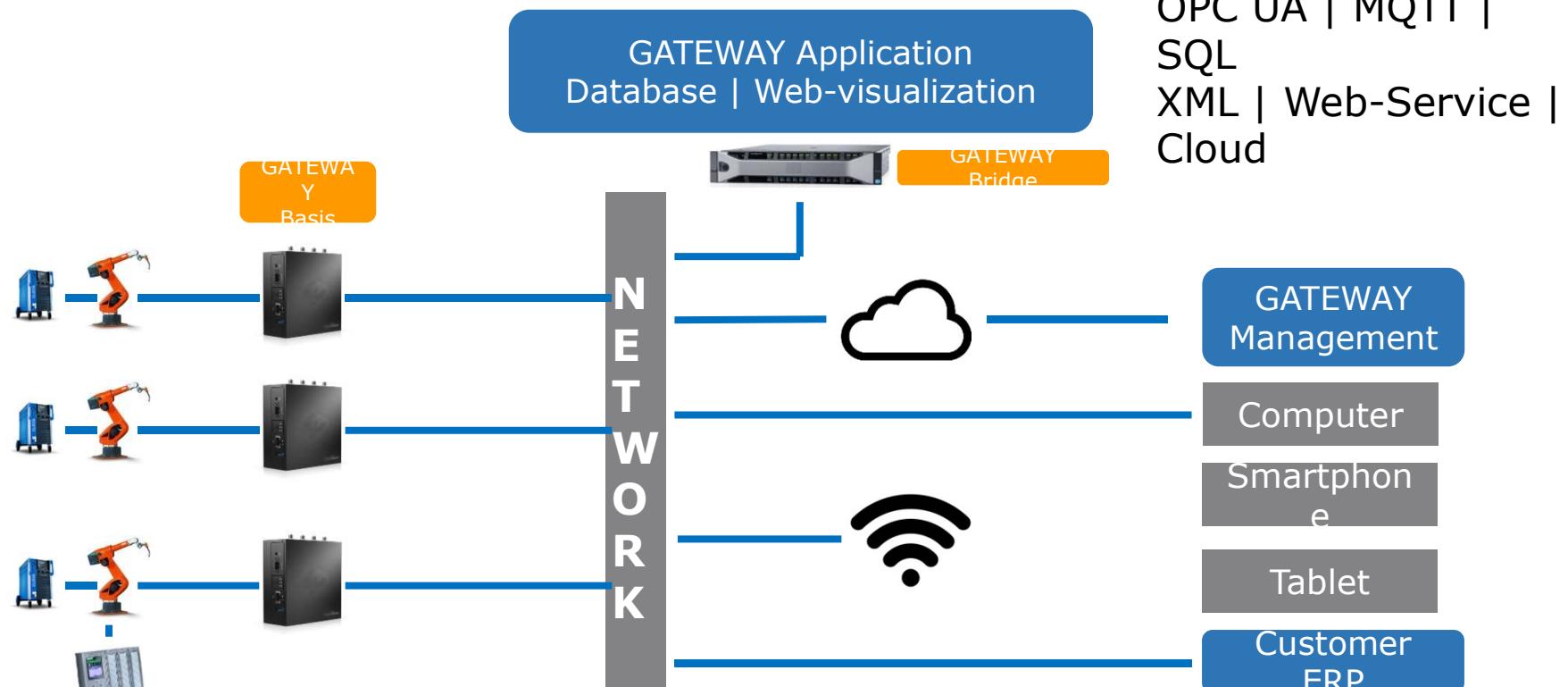
**Wartung und Service**  
Sicherheit durch Kompetenz

**CLOOS-Management**  
Erfolgreich handeln

Mehr erfahren →   Mehr erfahren →   Mehr erfahren →   Mehr erfahren →   Mehr erfahren →

▶   □

## Vision

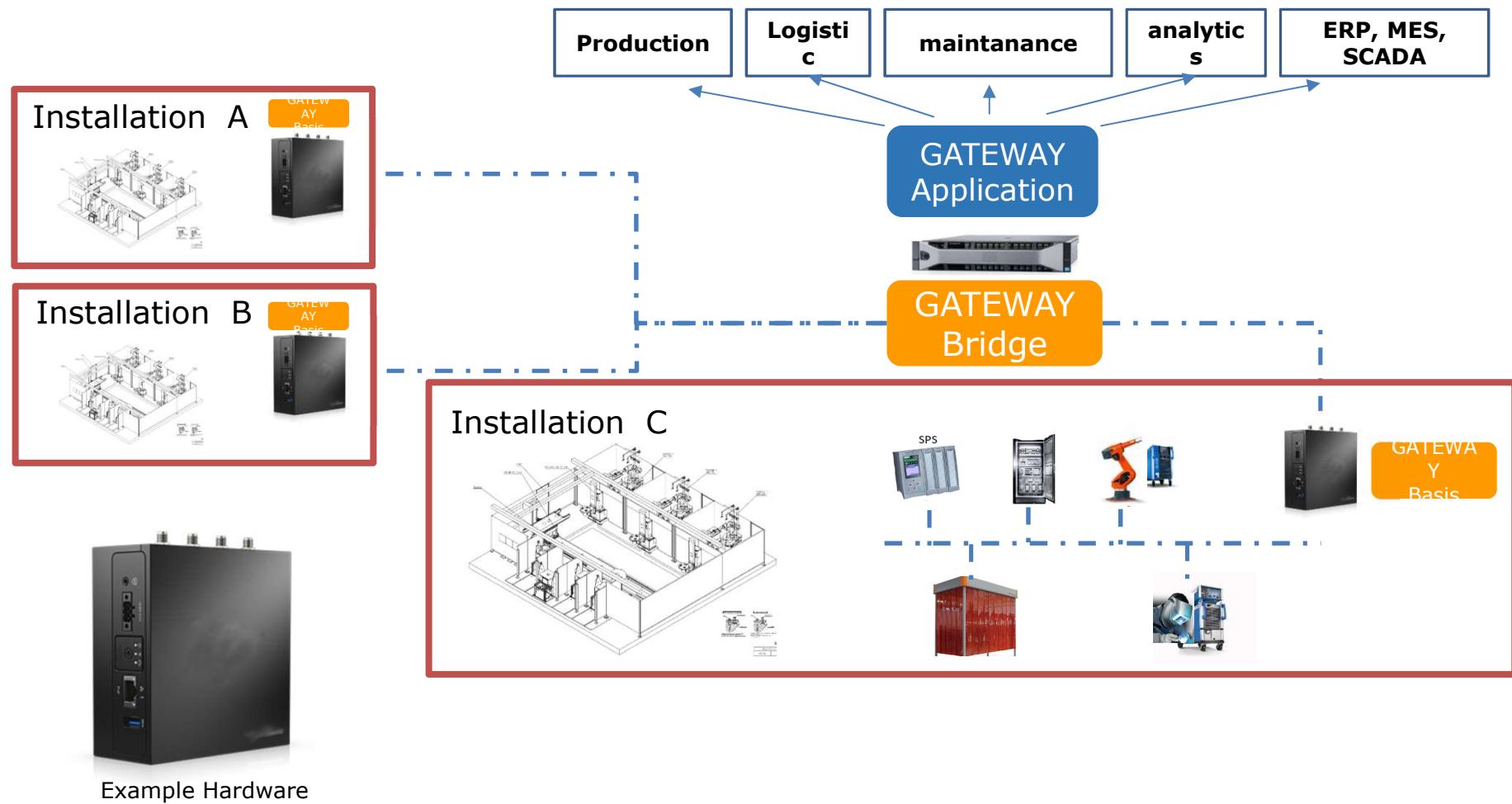


## Interfaces

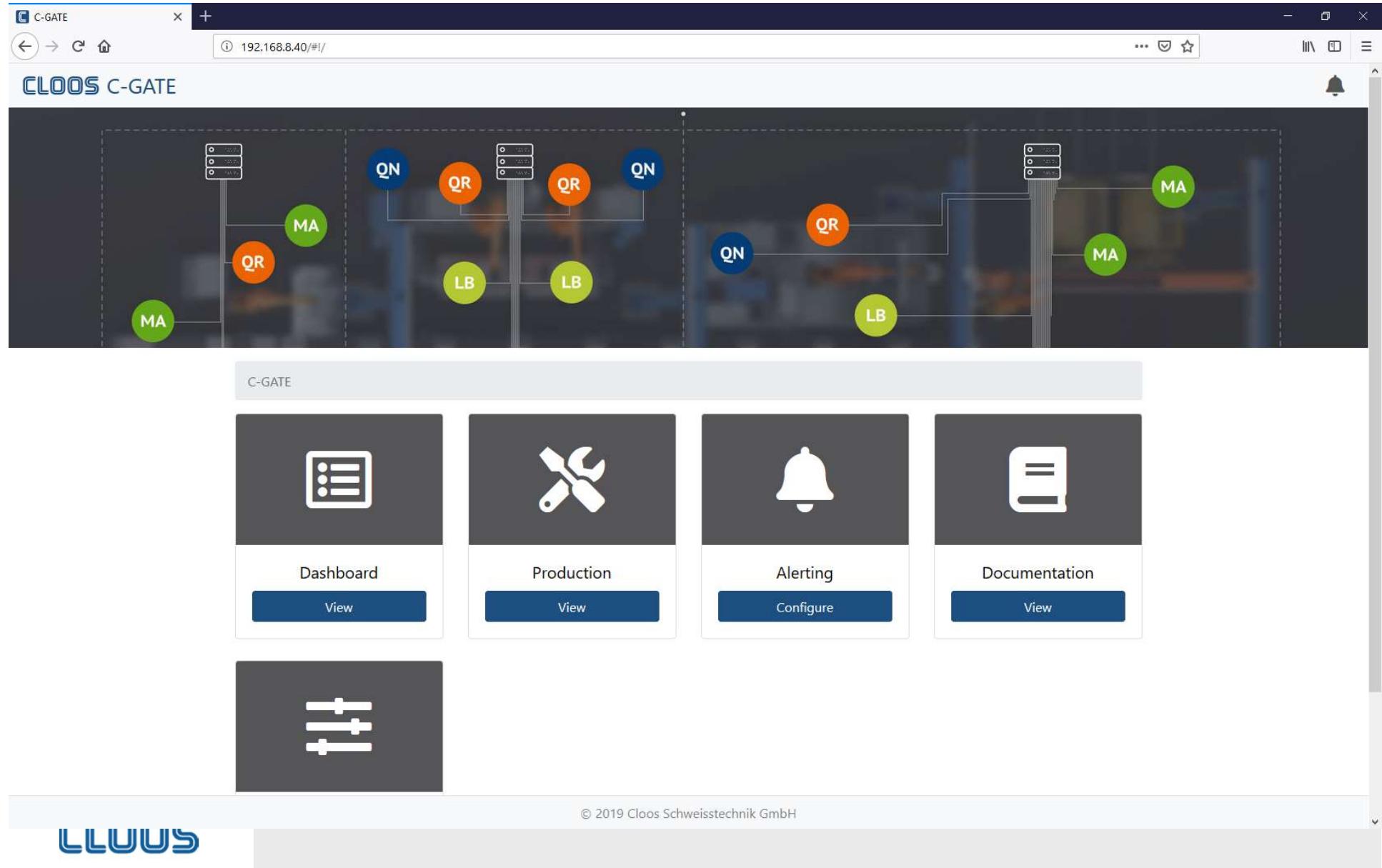
OPC UA | MQTT |  
SQL  
XML | Web-Service |  
Cloud

webbased Solutions | various open interfaces

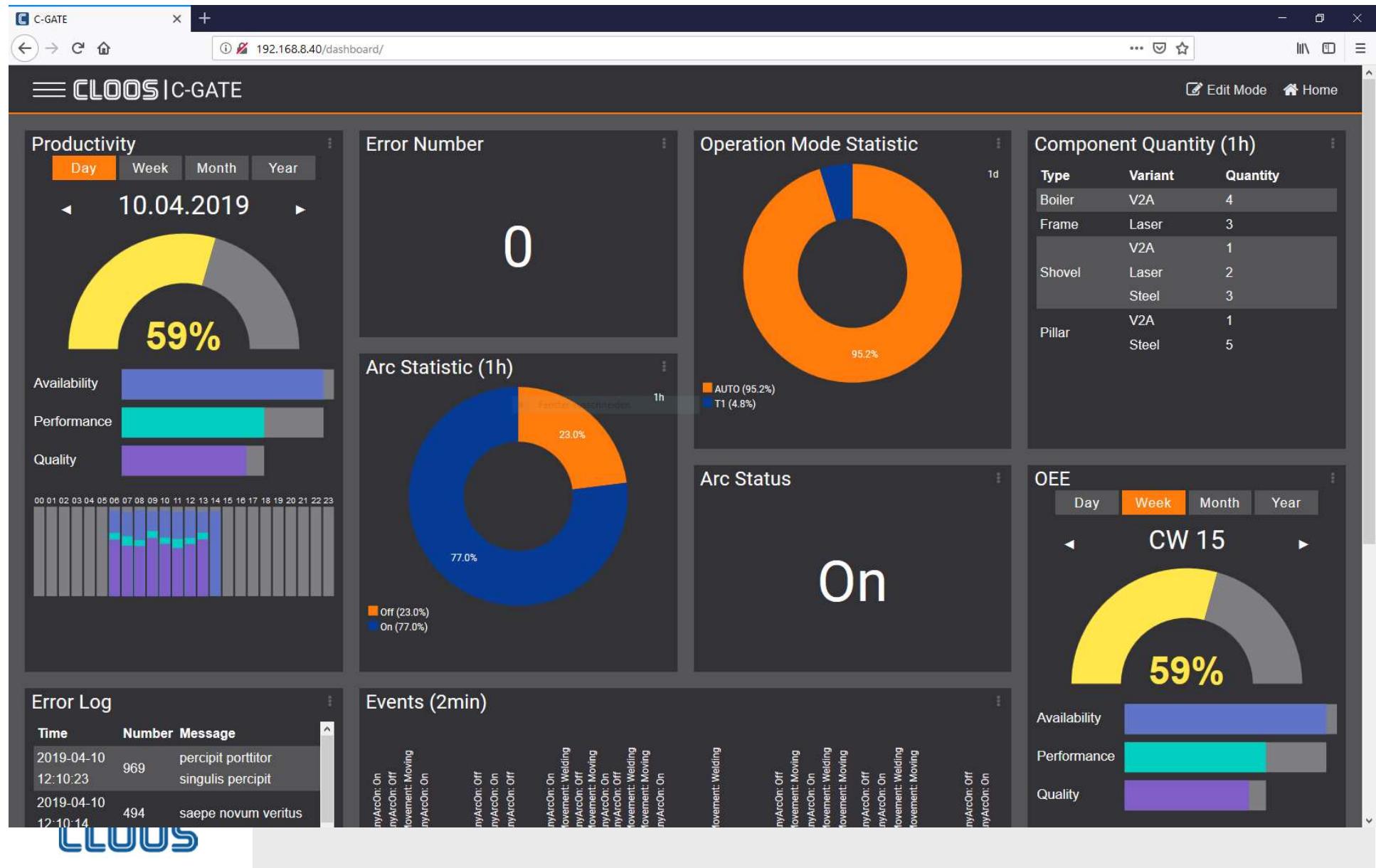
## Solution path: Gateway basis



# CLOOS Gateway



# CLOOS Gateway



# CLOOS Gateway

C-GATE x + 192.168.8.40/dashboard/ ... Edit Mode Home

# CLOOS | C-GATE

## Off

77.0%  
Off (23.0%) On (77.0%)

### Error Log

Time	Number	Message
2019-04-10 12:10:56	751	tacimates decore vis omittantur luptatum wisi
2019-04-10 12:10:53	545	adduc erat faucibus eripuit
2019-04-10 12:10:50	925	adversarium explicari duis
2019-04-10 12:10:41	98	placerat ornare libero accumsan ad
2019-04-10 12:10:35	516	homero decore commodo turpis eloquentiam salutatus
2019-04-10 12:10:23	969	percipit porttitor singulis percipit
2019-04-10 12:10:14	494	saepe novum veritus
2019-04-10 12:10:11	671	mazim leo quot verear
2019-04-10 12:10:08	545	singulis voluptatum periculis
2019-04-10 12:10:00	476	referrentur prompta

### Events (2min)

AnyArcOn: On AnyArcOn: Off Movement: Welding AnyArcOn: On Movement: Moving AnyArcOn: Off AnyArcOn: On Movement: Welding AnyArcOn: On Movement: Moving AnyArcOn: Off AnyArcOn: On Movement: Welding AnyArcOn: Off Movement: Moving

00:15 00:30 00:45 01:00 01:15 01:30 01:45 02:00 02:15 02:30 02:45 02:59

### CW 15

59%

Availability Performance Quality

Mo. Di. Mi. Do. Fr. Sa. So.

LLOOS

# CLOOS Gateway

The screenshot shows a web-based user interface for the C-GATE device. At the top, there is a banner with a blue gradient background and the text "CLOOS Gateway". Below the banner is a browser window titled "C-GATE" with the URL "192.168.8.40/#!/settings". The main content area is titled "C-GATE / Settings" and contains six configuration modules arranged in two rows of three:

- Data Sources**: Represented by a plug icon. Includes a "Configure" button.
- Network**: Represented by a network icon. Includes a "Configure" button.
- Updates**: Represented by a circular refresh icon. Includes a "Manage" button.
- System**: Represented by a wrench icon. Includes a "Configure" button.
- Notifications**: Represented by an envelope icon. Includes a "Configure" button.
- Application Log**: Represented by a log icon. Includes a "View" button.

At the bottom left of the page, there is a footer bar with the IP address "192.168.8.40/#!/settings/network" and the CLOOS logo. The footer also includes the copyright notice "© 2019 Cloos Schweißtechnik GmbH".



Thank you for your attention

**CLOOS**

Weld your way.