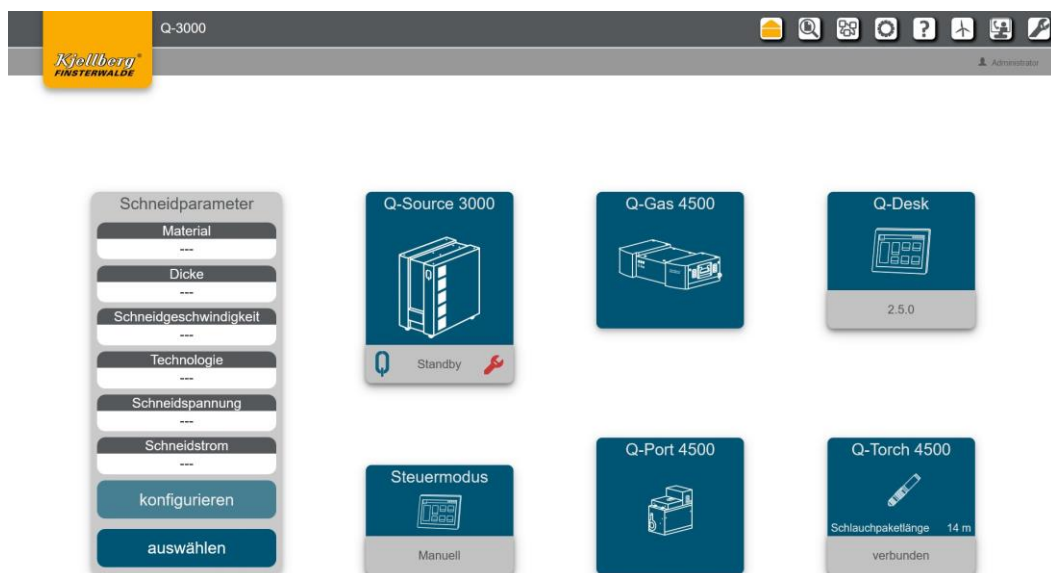


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Short Description



Q-Desk
the Human Machine Interface (HMI)
for plasma cutting units of the Q-series

Rev.-No.: 2.0 - 15.10.2020

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1 Q-Desk

the Human Machine Interface (HMI) for plasma cutting units of the Q-series

1.1 Terms

Terminal

Notebook, PC or tablet with Ethernet connection or WLAN capability

CNC

Control of the guiding system

HMI

Human Machine Interface is the user interface for the interaction with the plasma cutting systems of the Q series.

The HMI is hereinafter called Q-Desk, see definition Q-Desk.

Q 3000 / Q-Source

Power source of the Q series

The name Q 3000/ Q-Source is hereinafter used representative of all types of the Q series.

Q-Desk

Is the name for the HMI of the plasma cutting systems of the Q series, see definition HMI

The Q-Desk is accessible through a web browser.

Q-Gas

Gas console of the plasma cutting systems of the Q series, hereinafter called Q-Gas

Q-Port

Plasma torch connection unit (PBA) of the plasma cutting systems of the Q series, hereinafter called Q-Port

Q-Torch

Plasma torch of the plasma cutting systems of the Q series, hereinafter called Q-Torch

1.2 Figures

All figures are exemplary and show a possible configuration of the Q-Desk.

1.3 Commissioning Q-Desk

INFORMATION



The activities described in the following should be carried out by a suitably qualified person, e.g. a network administrator.

To access the Q-Desk, connect a terminal with RJ45 Ethernet connection to the rear port X306 of your Q-Source.

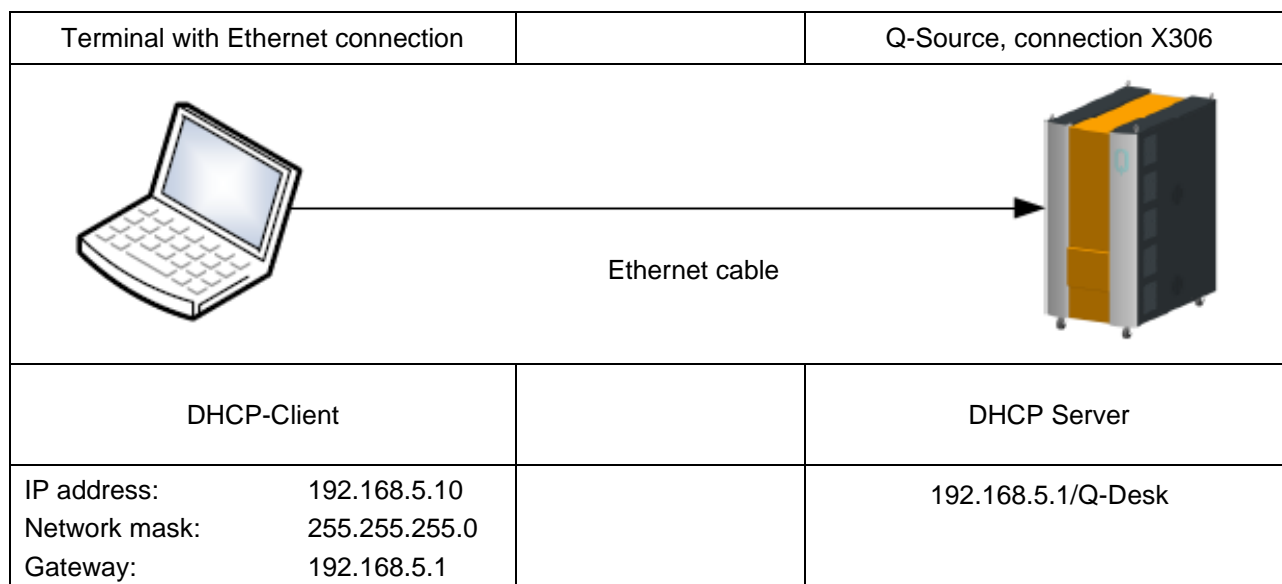


Fig. 1: Internal operating mode

Make sure that your terminal has not already been connected to another network but is exclusively connected to the Q-Source.

Select from the network configuration of your terminal: Obtain IP address automatically (DHCP).
Your terminal is now assigned an IP address from the range between 192.168.5.10 and 192.168.5.30.

If your terminal does not obtain an IP address, carry out the following network configuration on your terminal:

IP-address: 192.168.5.10
Network mask: 255.255.255.0
Gateway: 192.168.5.1

Open the following link in your web browser: <http://192.168.5.1>

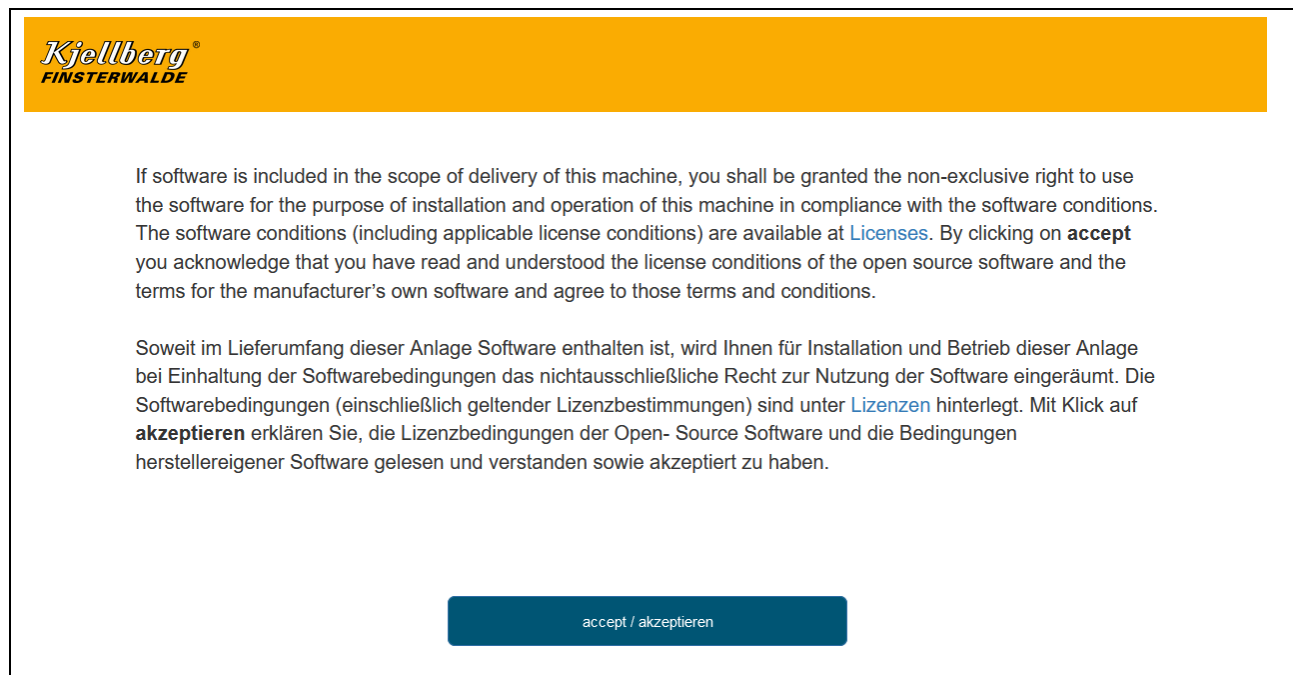
(This is the default address of the service network of Q-Source. It can only be accessed by connecting directly to the Service USB/ETH port (X303/305) under the front flap.)

The Q-Desk is tested with the following browsers:

- Firefox 61.0
- Google Chrome 74
- (further browsers to follow)

Please use a Firefox version higher than 61.0 or Google Chrome version higher than 74.

1.4 License conditions



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If software is included in the scope of delivery of this machine, you shall be granted the non-exclusive right to use the software for the purpose of installation and operation of this machine in compliance with the software conditions. The software conditions (including applicable license conditions) are available at [Licenses](#). By clicking on **accept** you acknowledge that you have read and understood the license conditions of the open source software and the terms for the manufacturer's own software and agree to those terms and conditions.


Soweit im Lieferumfang dieser Anlage Software enthalten ist, wird Ihnen für Installation und Betrieb dieser Anlage bei Einhaltung der Softwarebedingungen das nichtausschließliche Recht zur Nutzung der Software eingeräumt. Die Softwarebedingungen (einschließlich geltender Lizenzbestimmungen) sind unter [Lizenzen](#) hinterlegt. Mit Klick auf **akzeptieren** erklären Sie, die Lizenzbedingungen der Open- Source Software und die Bedingungen herstellereigener Software gelesen und verstanden sowie akzeptiert zu haben.

accept / akzeptieren









Fig. 2: License conditions Q-Desk

By clicking on „accept/akzeptieren“ you acknowledge that you have read and understood the license conditions of the open source software and the terms for the manufacturer's own software and agree to those terms and conditions. You are then taken to the "Settings" page for network setup.

The Q-Desk “settings page” appears:



Q-3000

admin

Settings

Complex name

configure

Complex name: **Q-3000**

control mode

configure

control mode: **manually**

Network

configure

reload

network configuration:	extern-dhcp
IP address:	172.17.10.35/16
MAC address:	00:05:B6:06:B0:68

Security

configure

To renew the security certificate, click on confirm.

hostname:	IP Address: 192.168.5.1, IP Address: 172.17.10.35
expiration date:	10/26/2021, 11:15:28 AM

After changing the network configuration or assigning a new IP address to the cutting system, a new certificate has to be created.
For your browser to permanently trust certificates from Kjellberg Finsterwalde, click -CA Download and Import Certificate the certificate as a certification authority in your browser.

download CA certificate

System time

configure

26.10.2020 13:08:11 Europe/Berlin

Fig. 3: settings page of Q-Desk

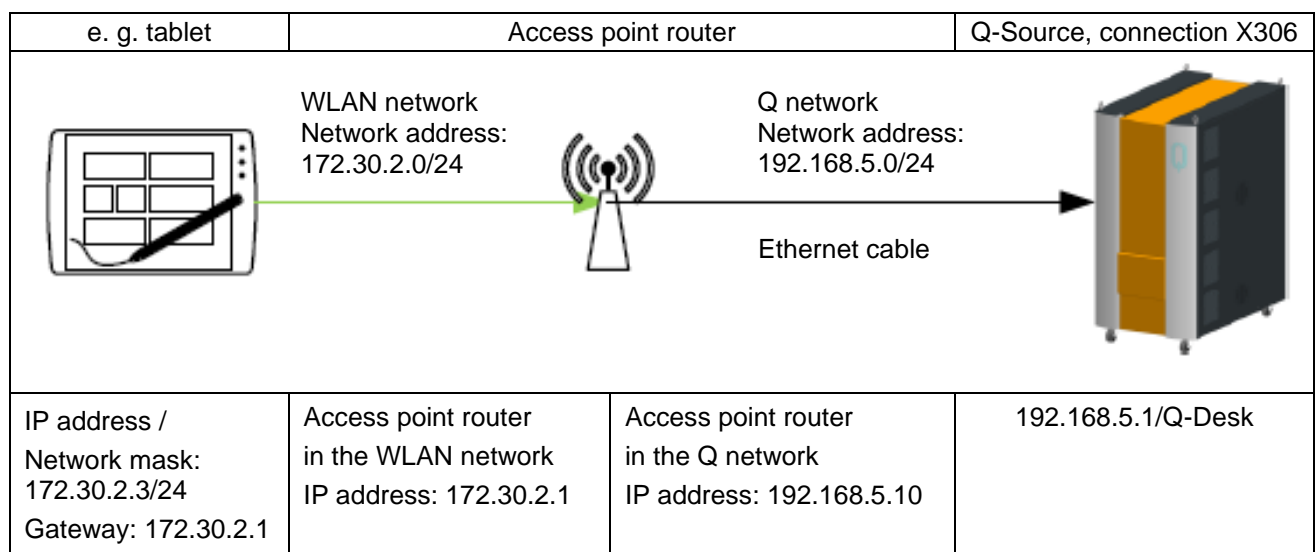
1.5 Access of the Q-Desk via WLAN

To access the Q-Desk from a terminal with WLAN capability you will additionally need a standard access point router.

Connect the router to the Q-Source as described in the previous section and carry out the same settings.

Configure the WLAN network as follows:

The access point router creates an additional network, e.g. 172.30.2.0/24, via which the terminal connects itself.



Please make sure that the access point router does not create one of the following networks:

192.168.5.0/24

These networks are reserved by the Q-Source.

1.6 Add the Q-Source to a network

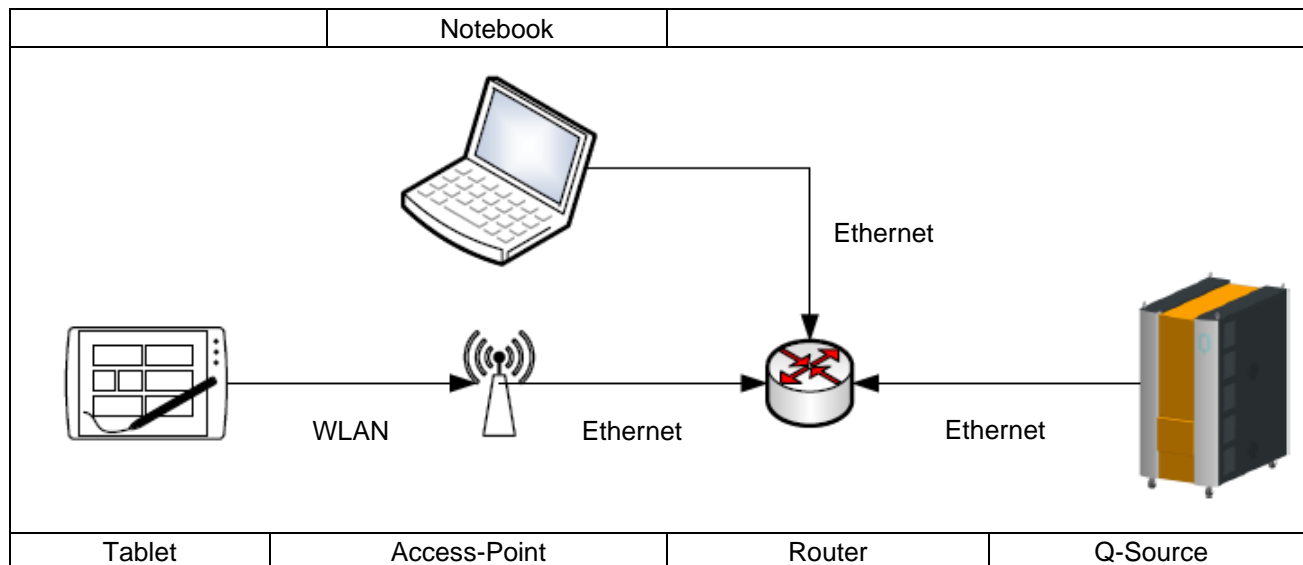



Fig. 4: Integration of the cutting system in an existing network

Please make sure that your DHCP server does not assign IP addresses in the 192.168.2.0 and 192.168.5.0 network, otherwise the system may have problems accessing the network.

Connect the power source at the rear connection X307 with your router. When delivered, the cutting system determines the network configuration via DHCP client at system startup. This requires that your network has a DHCP server.

Set a connection to the Q-Desk (192.168.5.1) with a connected terminal at the rear port (X306) and open the page settings via the icon .

Under the section Network, you will find the determined network settings, where you can reach the plasma power source at your network. If you see an IPv6 address there, the router could not obtain an IPv4 address from the DHCP server.

If the plasma cutting system does not obtain an IP address, make the network settings manually. When changing the setting from static IP address to a DHCP address, the machine must be restarted.

You can reach the Q-Desk via the Q-Source assigned IP address:

Network	
configure	network configuration: extem-dhcp
reload	IP address: 172.17.10.35/16
	MAC address: 00 05 B6 06 B0 68

Fig. 5: Network settings e. g. Retrieve the Q-Desk

2 Start Page

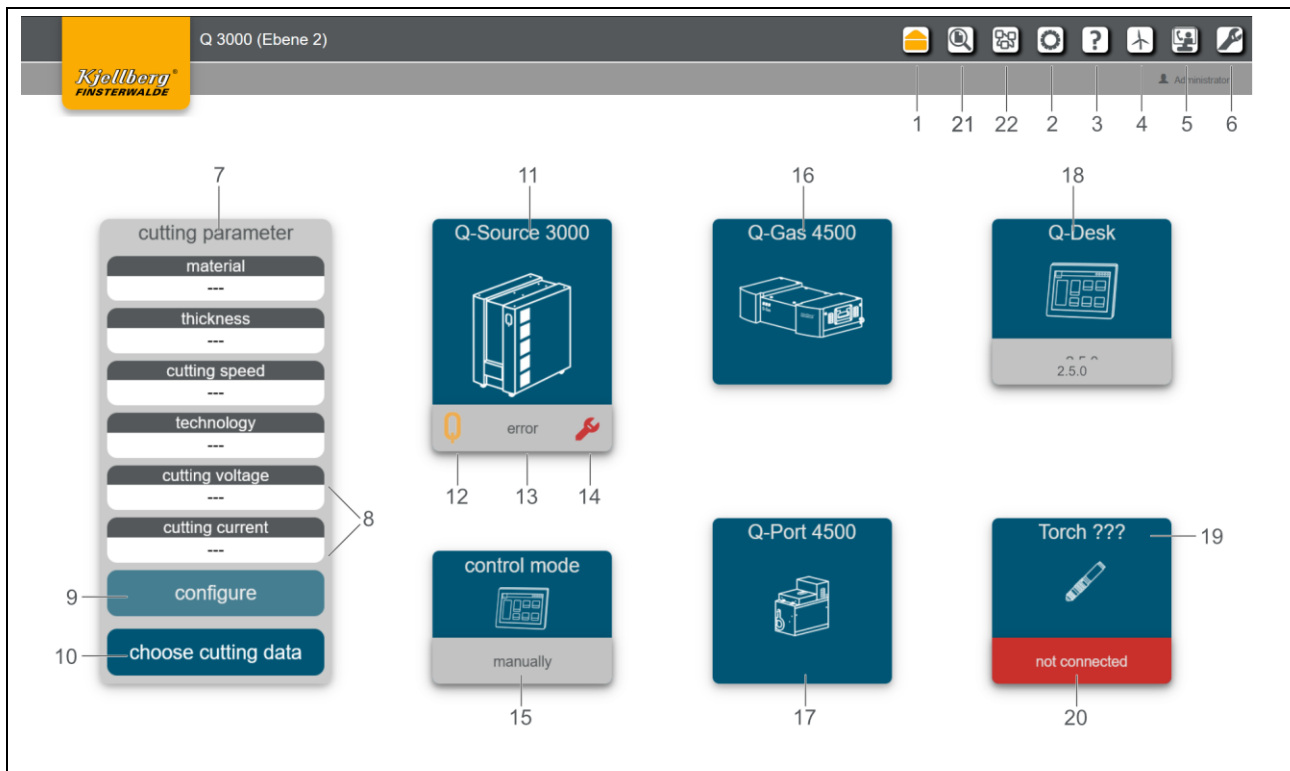
























Fig. 6: Start Page

1	Start page					
2	Settings: network, system time					
3	Help: FAQ, maintenance instructions, white papers					
4	Energy efficiency: electrical energy, process gases					
5	Service: software update, remote maintenance					
6	Maintenance information, gas pressure test					
7	Overview of the currently selected cutting parameters					
8	Set value display for cutting voltage and cutting current					
9	Link to detailed cutting parameters, set of consumables and cutting data finder					
10	Cutting data finder: Selection of cutting data, cutting history					
11	Link to detailed information of Q-Source			power source		
12	colored status indicator	 Standby 	 Ready 	 Error 	 Danger 	
13	verbal status display of the component	 Loading 	 Maintenance 	 Initialization 	 Cutting 	
		 Dataset Wait 				
14	colored display of the maintenance status and link to the detailed maintenance information					
		no maintenance required		maintenance soon due		maintenance required
15	Link to detailed information of CNC			guiding system		
16	Link to detailed information of Q-Gas			plasma gas console		
17	Link to detailed information of Q-Port			plasma torch connection unit		
18	Link to detailed information of Q-Desk			Tablet or laptop or PC connected to the power source via Wi-Fi or LAN		
19	Link to detailed information of Q-Torch			plasma torch		
20	Display via connection to the torch					
21	Cutting data finder (Selection of cutting data sets and selection of cutting database version)					
22	Detailed information (Link to detailed information of components)					

2.1 Detailed Information about the components

Q-Source 3000



- Status >
- Technical Data v
- Manual v
- Machine Information v
- Log v

danger

Fig. 7: Detailed information, display example: power source Q-Source

Status		Q-Source
last error		E-118 no door switch - Q-Port
cutting current		0 A
cutting voltage		0 V
conductor voltage		0 V
coolant fill level		fill up !
coolant temperature		-25 °C
coolant_flow		0.0 l/min
fan 1		standby
fan 2		standby
operation mode		manually
CAN		error
Ethernet		ok

Fig. 8: Detailed information, display example: power source Q-Source – “Status“

Technical Data	Q-Source
mains voltage	3~ +PE 380-400 V ±10 %, 50/60 Hz
max. connecting load	72 kVA (100% ED)
fuse slow	T 125 A
cutting current	5 - 300 A
marking current	5 - 50 A
arc voltage (100%)	82 - 200 V
duty cycle X	100 % at 300 A
weight m	297 Kg
dimensions (l x w x h)	1100 x 690 x 1430 mm (with undercarriage "castors and wheels")

Fig. 9: Detailed information, display example: power source Q-Source – “Technical Data”


Manual	Q-Source
Q-Unit 3000	

Fig. 10: Detailed information, display example: power source Q-Source – “Link to instruction manual”

Machine Information			Q-Source
	hardware version	software version	serial number
Q-Source 3000	2.1	1.0.17	XXXXX/XX
M2MI	2.4	1.0.4	
GUIDE	1.1	1.0.4	
Router	3.4	4/G	17510461
power module 1	2.0	6.36.1	
power module 2	2.0	6.36.2	

Fig. 11: Detailed information, display example: power source Q-Source – “Machine Information”

Log			Q-Source
	error code	error description	
2020-10-26 07:04:12	118	no door switch - Q-Port	
2020-10-23 13:28:40	120	emergency stop	
2020-10-23 06:57:46	118	no door switch - Q-Port	
2020-10-22 15:47:50	120	emergency stop	
2020-10-22 07:07:47	118	no door switch - Q-Port	
2020-10-21 16:24:09	120	emergency stop	
2020-10-21 06:23:00	118	no door switch - Q-Port	
2020-10-20 17:04:26	120	emergency stop	
2020-10-20 12:25:59	118	no door switch - Q-Port	
2020-10-20 12:13:34	118	no door switch - Q-Port	

Log entries with error codes, error description, date, time

Fig. 12: Detailed information, display example: power source Q-Source – “Log”

3 Settings

On this page you can make settings for your power source.

Q-3000

Settings

Complex name
configure
Complex name: **Q-3000**

control mode
configure
control mode: **manually**

Network
configure
reload

network configuration:		extern-dhcp
IP address:	172.17.10.35/16	
MAC address:	00:05:B6:06:B0:68	

Security
configure

To renew the security certificate, click on confirm.

hostname:	IP Address: 192.168.5.1, IP Address: 172.17.10.35
expiration date:	10/26/2021, 11:15:28 AM

After changing the network configuration or assigning a new IP address to the cutting system, a new certificate has to be created.
For your browser to permanently trust certificates from Kjellberg Finsterwalde, click -CA Download and Import Certificate the certificate as a certification authority in your browser.

download
CA certificate

System time
configure
26.10.2020 13:51:31 Europe/Berlin

Fig. 13: Overview of the page “Settings”

Settings

3.1 Complex name

You can identify the plasma cutting machine by the complex name in the network. You can change the complex name, when you click the button “configure” at the setting page and enter your desired complex name in the dialog box.



Complex name

cancel

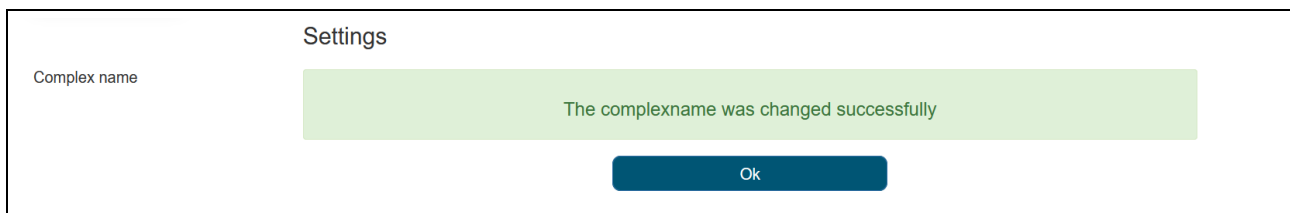
confirm

Please insert a new complex name

Q-3000

Fig. 14: Selection of the complex name

Then click on “confirm” and wait until the settings are accepted.



Settings

Complex name

The complexname was changed successfully

Ok

Fig. 15: successful accepting of the complex name

3.2 CNC control mode

Configure the CNC control mode to your cutting system under the following setting.
Click “configure” to choose between the 2 control modes.

control mode

configure

control mode: manually

Fig. 16: current CNC control mode: manual

control mode	description
manual	Control of the CNC via the interfaces X302/X304
EtherCAT	Control of the CNC via the interfaces X308/X309

control mode

cancel

Please select the control mode.

manually

EtherCAT

Fig. 17: Selection of operating mode

The settings of the control mode are made after restart of the cutting system.

Control mode EtherCAT

For the operation of the EtherCAT control mode, make the settings to the parameter **explicit device id** or **configured station alias**.

control mode

cancel

confirm

Make the appropriate EtherCAT settings

Parameter	value
explicit device id	0x1
configured station alias	0x1

Fig. 18: EtherCAT-parameter settings

Then click on “confirm”. The changes take effect after the cutting system has been restarted.

Settings

3.3 Network settings

Under the section "Network" you will find the current configuration of the network setting at connection X306 of your cutting system. This connection allows you to integrate your cutting system into an Ethernet-network.

The screenshot shows a 'Network' configuration window. On the left, there are two buttons: 'configure' and 'reload'. The main area is titled 'network configuration:' and shows 'extern-dhcp' as the selected mode. Below this, it displays the 'IP address:' as '172.17.10.35/16' and the 'MAC address:' as '00:05:B6:06:B0:68'.

Fig. 19: Network settings: extern-DHCP, Display of the IP and MAC address

Click on "configure" to choose between the following settings:

extern-DHCP	The cutting system determines the network settings using a DHCP server. Make sure your network is capable of doing that.								
extern-static	<p>Make the network settings for IP address, network mask, gateway and DNS server manually.</p> <p>The screenshot shows a 'Network' configuration window for 'extern-static'. It has 'cancel' and 'confirm' buttons. The main area is titled 'Make the following network settings:' and contains a table with the following values:</p> <table border="1"> <tr> <td>ip-address</td> <td>192.168.77.9</td> </tr> <tr> <td>netmask (CIDR Suffix)</td> <td>/16</td> </tr> <tr> <td>gateway</td> <td>192.168.77.1</td> </tr> <tr> <td>DNS</td> <td>8.8.8.8</td> </tr> </table>	ip-address	192.168.77.9	netmask (CIDR Suffix)	/16	gateway	192.168.77.1	DNS	8.8.8.8
ip-address	192.168.77.9								
netmask (CIDR Suffix)	/16								
gateway	192.168.77.1								
DNS	8.8.8.8								

After clicking on "confirm" the configurations are made. Wait for the process to complete. If you select the extern-DHCP configuration, the cutting system must be restarted.

3.3.1 Remote maintenance

The cutting system can establish a VPN connection to Kjellberg customer support via the connection X306 with an existing internet connection. To set up the connection, the following settings are required on your firewall.

Direction	Protocol	Port	Service
OUTPUT	UDP	2392	OpenVPN channel
OUTPUT	ICMP		Ping Connection Test to DNS 8.8.8.8

Please ensure that ping requests are not blocked by your IT department.

Network security

An encrypted communication between the Q-Desk and your terminal allows the call.

Security

configure

To renew the security certificate, click on confirm.

hostname:	IP Address: 192.168.5.1, IP Address: 172.17.10.35
expiration date:	10/26/2021, 11:15:28 AM

After changing the network configuration or assigning a new IP address to the cutting system, a new certificate has to be created.
For your browser to permanently trust certificates from Kjellberg Finsterwalde, click -CA Download and Import Certificate the certificate as a certification authority in your browser.

download
CA certificate

Fig. 20: settings network security

In order to download a valid certificate, you must first click on the "configure" button and then click on the "reissue" button in the "security" tab. This will create a new certificate with a validity of one year. Afterwards you can save it on your client by clicking on the button "Download CA certificate". Restart the system.

Security

reissue

cancel

ip address:

192.168.5.1, 172.17.10.35

FQDN:

Fig. 21: settings network security

Settings

In order for your browser to trust Kjellberg cutting machines, download the Kjellberg-CA certificate and import it as a certification authority in your browser.

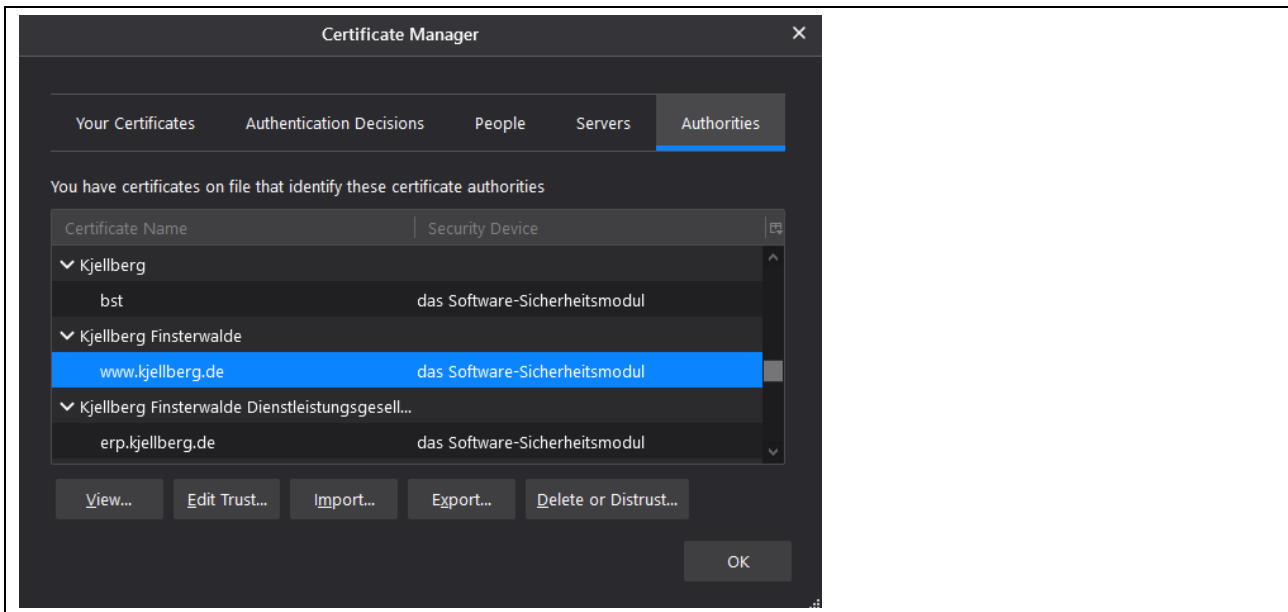


Fig. 22: Import the CA certificate in the Firefox browser

After calling up the Q-Desk with the https protocol (e.g. <https://192.168.12.6>) again, the encryption symbol with a green lock appears in the address bar of your browser.

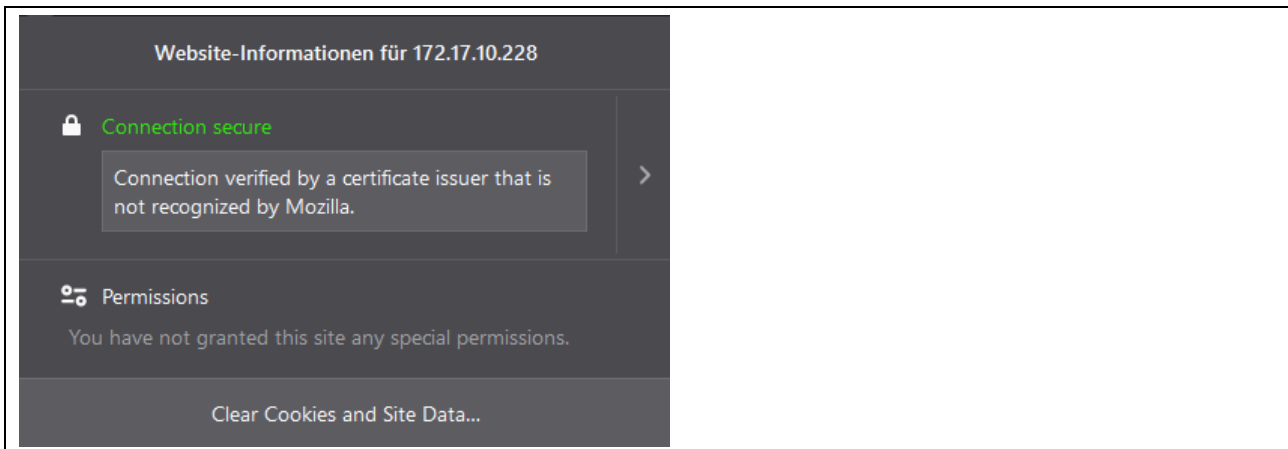


Fig. 23: Import the CA certificate in the Firefox browser

3.4 Time

A correctly set time and time zone is required to operate the Q-Desk.

System time

Configure

26.10.2020 14:12:55 Europe/Berlin

Fig. 24: Setting system time, display of time and time zone

Click "configure" and continue by clicking on "time zone" to change the time zone, or by clicking on "Date/Time" to set the date and time.

System time

Cancel

Please select if you want to change the time or the time zone.

date und time

time zone

Fig. 25: Setting system time, date / time selection or time zone

The settings of the control mode are made after restart of the cutting system.

Time zone:

Please select your time zone on the system time setup page.

System time

Cancel

Back

Confirm

Please choose your time zone.

Europe

Amsterdam	Andorra	Athens	Belfast	Belgrade	Berlin	Bratislava	Brussels	Bucharest	Budapest
Copenhagen	Dublin	Gibraltar	Helsinki	Istanbul	Kaliningrad	Kiev	Kirov	Lisbon	Ljubljana
London	Luxembourg	Madrid	Malta	Minsk	Monaco	Moscow	Nicosia	Oslo	Paris
Prague	Riga	Rome	Sarajevo	Simferopol	Skopje	Sofia	Stockholm	Tallinn	Tirane
Tiraspol	Vaduz	Vatican	Vienna	Vilnius	Volgograd	Warsaw	Zagreb	Zurich	

Fig. 26: Setting system time, time zone selection

Then press the "confirm" button. The changes take effect after the cutting system has been restarted.

Date/Time:

Please set the date on the setting page system time.

Settings

System time

1/2

Please select todays date.

2019 2020 2021
Sep Oct Nov

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40	28	29	30	1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	23	24	25
44	26	27	28	29	30	31	1
45	2	3	4	5	6	7	8

10/26/2020

Fig. 27: setting system time, selection of the date

After selecting the "next" button, you can set the time.

System time

2/2

Please select the current time.

hour minute second

14 15 45

Fig. 28: Setting system time, setting the time

After pressing the "confirm" button, your selection will be accepted.

4 Cutting parameter

4.1 Process parameter

You will receive a detailed view of the selected cutting data set and the required consumables by clicking the "configure" button on the start page. If the button is deactivated, no record is loaded. Then select a data record with the help of the cutting data finder.

Parameter








choose cutting data

configure

Process parameter

material	mild steel	kerf	3.3 mm	gas	pressure
thickness	10 mm	ignition height	4.0 mm	ZG	Air
technology	Contour Cut Speed	cutting height	5.0 mm	PG1	O ₂ 6.5 bar
cutting current	300 A	pierce height	5.0 mm	WG1	O ₂ 3.0 bar
quality	B	cutting voltage	123 V	WG2	Air 7.0 bar
cutting speed	4700 mm/min	pierce time	0.4 s		
		down slope	0 ms		
		record number	55		
		version	4		

cooling tube	cathode	gas guide	nozzle	nozzle cap	swirl gas cap	protection cap
E922	E023	E1264C	E2228	E3248	E4240	E501

.11.858.421.142
.11.858.421.330
.11.858.421.1464C
.11.858.421.428
.11.858.421.1648
.11.858.421.1540
.11.858.401.131

associated cutting data

#	material	thickness	cutting current	technology	quality	cutting speed	gases	consumables
134	mild steel 1.0037 S235	-	38 A	Q-Mark	-	3000 mm/min	ZG WG ₁ Ar N ₂ 1.0 bar	cooling tube E 922 gas guide E 1264C nozzle cap E 3248 protection cap E 501 cathode E 023 nozzle E 2228 swirl gas cap E 4240
105	mild steel 1.0037 S235	-	13 A	Q-Mark	-	2000 mm/min	ZG WG ₁ N ₂ 1.0 bar	cooling tube E 922 gas guide E 1264C nozzle cap E 3248 protection cap E 501 cathode E 023 nozzle E 2228 swirl gas cap E 4240
217	mild steel 1.0037 S235	-	42 A	Q-Notch	-	3000 mm/min	ZG WG ₂ Air 0.5 bar	cooling tube E 922 gas guide E 1264C nozzle cap E 3248 protection cap E 501 cathode E 023 nozzle E 2228 swirl gas cap E 4240
227	mild steel 1.0037 S235	-	42 A	Q-Notch+	-	1500 mm/min	ZG WG ₂ Air 0.5 bar	cooling tube E 922 gas guide E 1264C nozzle cap E 3248 protection cap E 501 cathode E 023 nozzle E 2228 swirl gas cap E 4240

Fig. 29: page process parameter

For the cutting data finder, click on the "select" button or via the "Cutting data finder" icon in the menu bar, to load a new cutting data set.

Cutting parameter

By pressing the button "configure" you can edit the process parameters current and gas pressures of the currently loaded data set.

Parameter

confirm

cancel

Process parameter

material	mid steel	kerf	3.3 mm	gas	pressure
thickness	10 mm	ignition height	4.0 mm	ZG	Air
technology	Contour Cut Speed	cutting height	5.0 mm	PG1	O ₂ 6.5 bar
cutting current	300 A	pierce height	5.0 mm	WG1	O ₂ 3.0 bar
quality	B	cutting voltage	123 V	WG2	Air 7.0 bar
cutting speed	4700 mm/min	pierce time	0.4 s		
		down slope	0 ms		
		record number	55		
		version	4		

Fig. 30: configure the process parameters

Green marked cutting parameters are within valid limits. If the cutting parameters are outside the limits, these are marked in red and a transfer of the configuration is not possible. Click the "confirm" button to modify the cutting data set according to your changes. Follow the menu guidance of the record change

INFORMATION

Changes and manual loading of a cutting data set are only possible in manual-control mode.

4.2 Cutting data finder

With the help of the cutting data finder, you can choose from your cutting data sets.

Cutting Data Finder

Please choose your material to be cut. 1

Mild Steel

Stainless Steel

Aluminium

Cutting History

2

#	Material	Thickness	Cutting Current	Technology	Quality	Cutting Speed	Gases	Consumables
12	Mild Steel 1.0037 S235	12 mm	150 A	Contour Cut	A1	3100 mm/min	ZG PG, O ₂ WG, WG ₂ Air 5.5 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 005 E 2013 E 4030
68	Mild Steel 1.0037 S235	4 mm	60 A	Contour Cut	B	3700 mm/min	ZG PG, O ₂ WG, WG ₂ Air 4.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 012 E 2008 E 4020
69	Mild Steel 1.0037 S235	5 mm	60 A	Contour Cut	A1	3000 mm/min	ZG PG, O ₂ WG, WG ₂ Air 4.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 012 E 2008 E 4020
39	Mild Steel 1.0037 S235	10 mm	60 A	Contour Cut	A3	1500 mm/min	ZG PG, O ₂ WG, WG ₂ Air 4.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 012 E 2008 E 4020
9	Mild Steel 1.0037 S235	10 mm	100 A	Contour Cut	A1	2500 mm/min	ZG PG, O ₂ WG, WG ₂ Air 5.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 012 E 2008 E 4020
130	Mild Steel 1.0037 S235	-	7 A	Q-Mark	-	3000 mm/min	ZG PG, O ₂ WG, WG ₂ Air 5.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 012 E 2008 E 4020
199	Mild Steel 1.0037 S235	20 mm	200 A	Contour Cut	A1	1600 mm/min	ZG PG, O ₂ WG, WG ₂ Air 5.0 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501 Cathode Nozzle Swirl Gas Cap E 006 E 2017 E 4020

3

Fig. 31: Cutting data finder and cutting history

- 1 Selection of the cutting data set to be loaded via selection menu
- 2 Overview of the 10 last cut cutting values
- 3 The basic data set was edited by the blue marked parameters.

Selection of cutting data

Select the material to be cut.

Cutting Data Finder

Please choose your material to be cut.

Mild Steel

Stainless Steel

Aluminium

Fig. 32: Cutting data finder, selection of the material to be cut

Cutting parameter

Select the thickness of the material to be cut from the following selection.

Cutting Data Finder

Back

Material
Mild Steel

Please choose your material thickness.

0.5 mm	0.8 mm	1 mm	1.5 mm	2 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	15 mm
20 mm	25 mm	30 mm	35 mm	40 mm	50 mm	60 mm	70 mm	80 mm				

Fig. 33: Cutting data finder, selection of material thickness

Based on their selection, an overview of possible cutting technologies follows.

Cutting Data Finder

Back

Material
Mild Steel

Thickness
0.5 mm

Please choose your cutting technology.

Contour Cut Q-Mark Q-Notch Q-Notch+

Fig. 34: Cutting data finder, selection of cutting technology

After selecting the cutting technology, you will receive an overview of the possible cutting data sets as well as the required consumables.

Cutting Data Finder

Back

Confirm

Cancel

Material
Mild Steel

Thickness
0.5 mm

Technology
Contour Cut

Please choose one of the listed records

#	Material	Thickness	Cutting Current	Technology	Quality	Cutting Speed	Gases	Consumables
1	Mild Steel 1.0339 DC01	0.5 mm	20 A	Contour Cut	B	6000 mm/min	20 POL WG Ar O ₂ 5.5 bar	Cooling Tube Gas Guide Nozzle Cap Protection Cap E 902 E 1034C E 3014P E 501

Cooling Tube E902	Cathode E012	Gas Guide E1034C	Nozzle E2007	Nozzle Cap E3014P	Swirl Gas Cap E4020	Protection Cap E501
11.858.401.142	11.858.411.320	11.858.401.1434C	11.858.401.407	11.858.401.1614P	11.858.401.1520	11.858.401.131

Fig. 35: Cutting data finder, selection of the cutting data set

Click on the "confirm" button to start loading the determined cutting data set. Follow the menu.

4.3 Cutting database version

With the help of the cutting data version, you can select a cutting database version to be activated. You must confirm the change of cutting database version via a dialog.

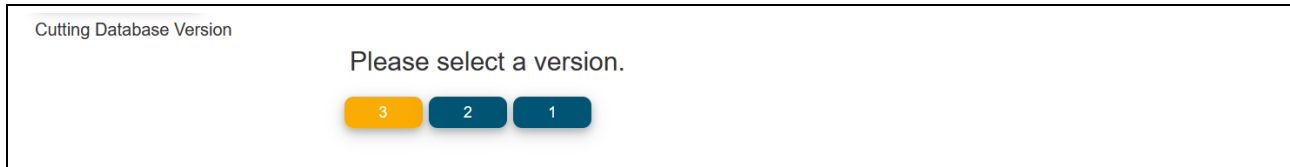


Fig. 36: Select cutting database version

5 Help

On the page "Help" you will find guides, instructions, FAQs and information about the open source licenses of your cutting system.

The screenshot shows the 'Help' page of the Kjellberg FINSTERWALDE system. The top bar includes the company logo, a search bar with 'Q-3000', and several utility icons. The main content is organized into four sections:

- FAQ:** Contains a list of frequently asked questions and answers.
 - Q: How to align the plasma torch correctly ?
A: The precise alignment of the plasma torch to guiding systems and robots as well as the alignment of bevel cutting heads is essential for achieving good cutting results. For this purpose Kjellberg offers a number of tools.
 - Q: How to change consumables correctly?
A: Demounting instruction for Q-Torch 4510
 - A: Mounting instruction for Q-Torch 4510
 - Q: How can error messages be corrected ?
A: Error indication: E-129 - 'Variance in main arc'
 - A: Error indication: E-136 - 'Variance in process'
- Whitepaper:** Contains a link to the 'Consumables Guide'.
- Instructions:** Contains links for 'Cleaning', 'Electrical Revision', and 'Q-Hole Calculation'.
- Licenses:** Contains links for 'Software-Conditions' and 'Open-Source Licenses'.

Fig. 37: FAQ, Whitepaper, instructions and licenses

6 Energy efficiency

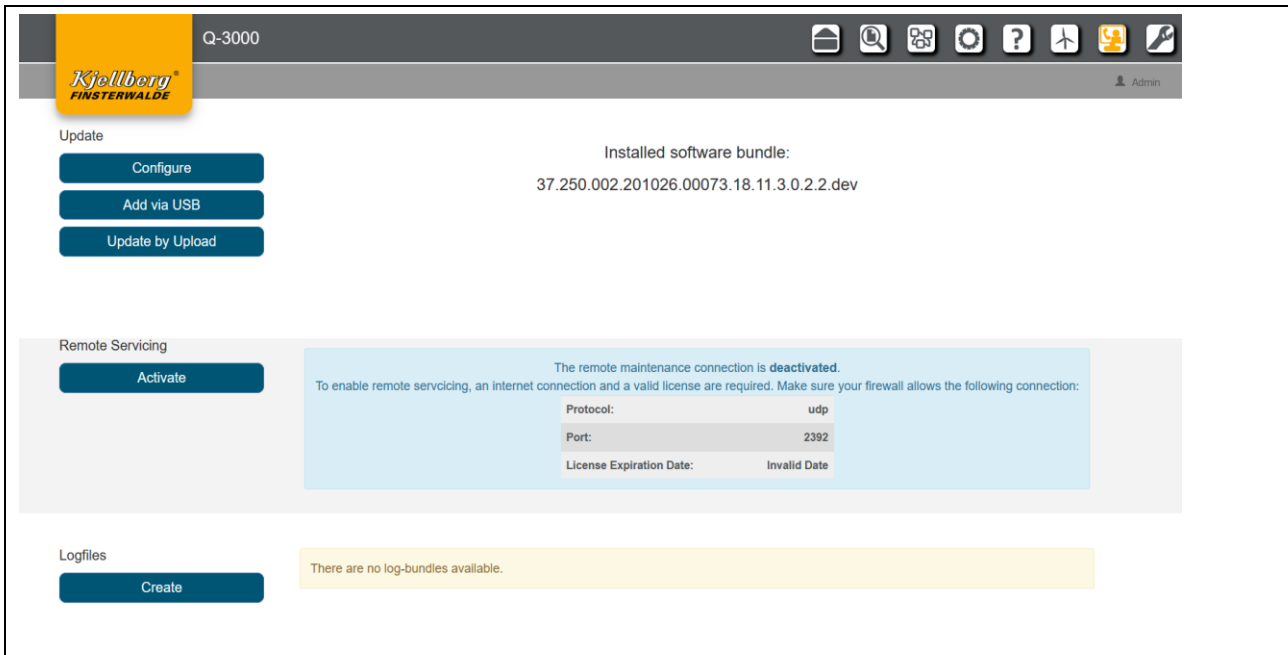


Fig. 38: Energy efficiency with electrical energy and process gases

1	Detailed display of energy consumption in kWh over the observation period														
2	Detailed display of gas consumption in NL over the observation period														
3	Summarized presentation of consumption values over the observation period														
4	Menu for selecting the period of observation														
	<table> <tr> <td> </td><td> <table> <tr><td>A)</td><td>Selection of the current day</td></tr> <tr><td>B)</td><td>Selection of the day</td></tr> <tr><td>C)</td><td>Selection of the calendar week</td></tr> <tr><td>D)</td><td>Selection of the month</td></tr> <tr><td>E)</td><td>Selection of the year</td></tr> <tr><td>F)</td><td>Navigation month / year, forward / backward</td></tr> </table> </td></tr> </table>		<table> <tr><td>A)</td><td>Selection of the current day</td></tr> <tr><td>B)</td><td>Selection of the day</td></tr> <tr><td>C)</td><td>Selection of the calendar week</td></tr> <tr><td>D)</td><td>Selection of the month</td></tr> <tr><td>E)</td><td>Selection of the year</td></tr> <tr><td>F)</td><td>Navigation month / year, forward / backward</td></tr> </table>	A)	Selection of the current day	B)	Selection of the day	C)	Selection of the calendar week	D)	Selection of the month	E)	Selection of the year	F)	Navigation month / year, forward / backward
	<table> <tr><td>A)</td><td>Selection of the current day</td></tr> <tr><td>B)</td><td>Selection of the day</td></tr> <tr><td>C)</td><td>Selection of the calendar week</td></tr> <tr><td>D)</td><td>Selection of the month</td></tr> <tr><td>E)</td><td>Selection of the year</td></tr> <tr><td>F)</td><td>Navigation month / year, forward / backward</td></tr> </table>	A)	Selection of the current day	B)	Selection of the day	C)	Selection of the calendar week	D)	Selection of the month	E)	Selection of the year	F)	Navigation month / year, forward / backward		
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B)	Selection of the day														
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D)	Selection of the month														
E)	Selection of the year														
F)	Navigation month / year, forward / backward														

7 Service

On the service page, you can install software packages and connect to Kjellberg customer support.



7.1 Update

In the Update range, the name of the installed update package of the system appears. Furthermore, new updates can be uploaded to the system here.

To install an update, the system must be switched on and all subcomponents must be connected. However, the system must not cut or mark.

After the update was successful, the system restarts.

Do not turn off the system during the update, otherwise data may be lost.

INFORMATION



If the system is not updatable, a charge animation will be displayed instead of the installed update package.

INFORMATION



Only update packages can be installed which are located on the system! The update can be copied to the system via USB stick or uploaded to the system.

7.1.1 Update via USB

You are on the "Service" page under the section "Updates".

To transfer the update package to the system, first select the "Update via USB" button. Here you will be asked to connect a USB stick with the appropriate update packages to your system, see connection X303.

Once you have connected the USB-stick to the system, click the "copy" button on the Q-Desk, then an info dialog box will open. Now all update packages are transferred from the USB-stick to the power source.

During the copying process, the USB-stick must not be disconnected from the system.

As soon as the dialog window closes automatically, the copying process is finished and the copied update packages can be installed.

INFORMATION

The update files, which are located on the USB stick, must not be stored in subfolders, but must be located in the root directory of the drive.

7.1.2 Update via Upload

You are on the "Service" page under the section "Updates".

To transfer the update package to the system, first select the "Update via Upload" button. Here you are asked to select an update file with the file extension ".kar". Once you have selected the file, the file name (e.g. 37.250.002.200724.00210.18.11.3.0.2.0.kar) is displayed. Next you can confirm by clicking the button "upload". The upload starts and shows 3 different steps (1. memory check, 2. bundle upload, 3. bundle copy). After successful completion you can select the bundle to be installed and start the update process by clicking the button "install". Then the installation process starts.

INFORMATION

The update files, which are located on the USB stick, must not be stored in subfolders, but must be located in the root directory of the drive.

7.1.3 Configure/ delete update packages

Select the button "configure". An overview of the available update packages will appear. First select an update from the list. Then the button "install" appears. After you select it, a dialog box appears to confirm the installation start.

The info dialog provides information about the progress of the update process.

Do not switch off the system during the update process, otherwise data loss can occur.

The update may take a few minutes. After the update has been successfully installed, the system restarts automatically.

Alternatively, you can also delete an update package. To do this, press the "delete" button in the configuration menu after you have selected a package from the list of update packages. To confirm the deletion process, click on "delete" in the following dialogue. This removes the package from the system.

INFORMATION



If the update was unsuccessful, a backup is brought in after a system restart to put the system in a defined state.

INFORMATION



The update process can be forced. For this purpose, a dialog box with the corresponding button appears. The installation in this way may only be carried out by trained personnel. It is imperative and conscientious to ensure that the system does not cut or mark and all components are connected.

7.2 Remote maintenance

By clicking the "activate" button, your cutting system will establish a VPN remote maintenance connection to the Kjellberg customer support. Make the settings required in section 3.3.1 Remote maintenance.

7.3 Creating log files

In the "Log Files" section, you can create an archive for error analysis of the installation.

Logfiles

Create

There are no log-bundles available.

By pressing the button "Create" a log file archive is created. This contains all collected log files of your system. When you have clicked the button, you will see the following figure, which signals the start of the log file creation.

Logfiles

The system creates a new log-bundle. Please wait.

Wait until the creation is complete (duration: approx. 5 minutes). After the archive has been completed, you will see the following figure.

Logfiles

Create

The following log-bundle can be downloaded.

2020-10-26 14:58:20



20.1 kB

The orange card shows the created archive with timestamp and the size of the archive. If you click on this button, you can now download the archive with the log files (e.g. file name: "log_files_2020_09_25__07_48.kar") The created file (Kjellberg archive / kar) is encrypted and can be unpacked and analysed by the Kjellberg customer service. Please send it to your customer service employee.

8 Maintenance

On this page you will find information about the maintenance tasks to be performed and the wear of consumables

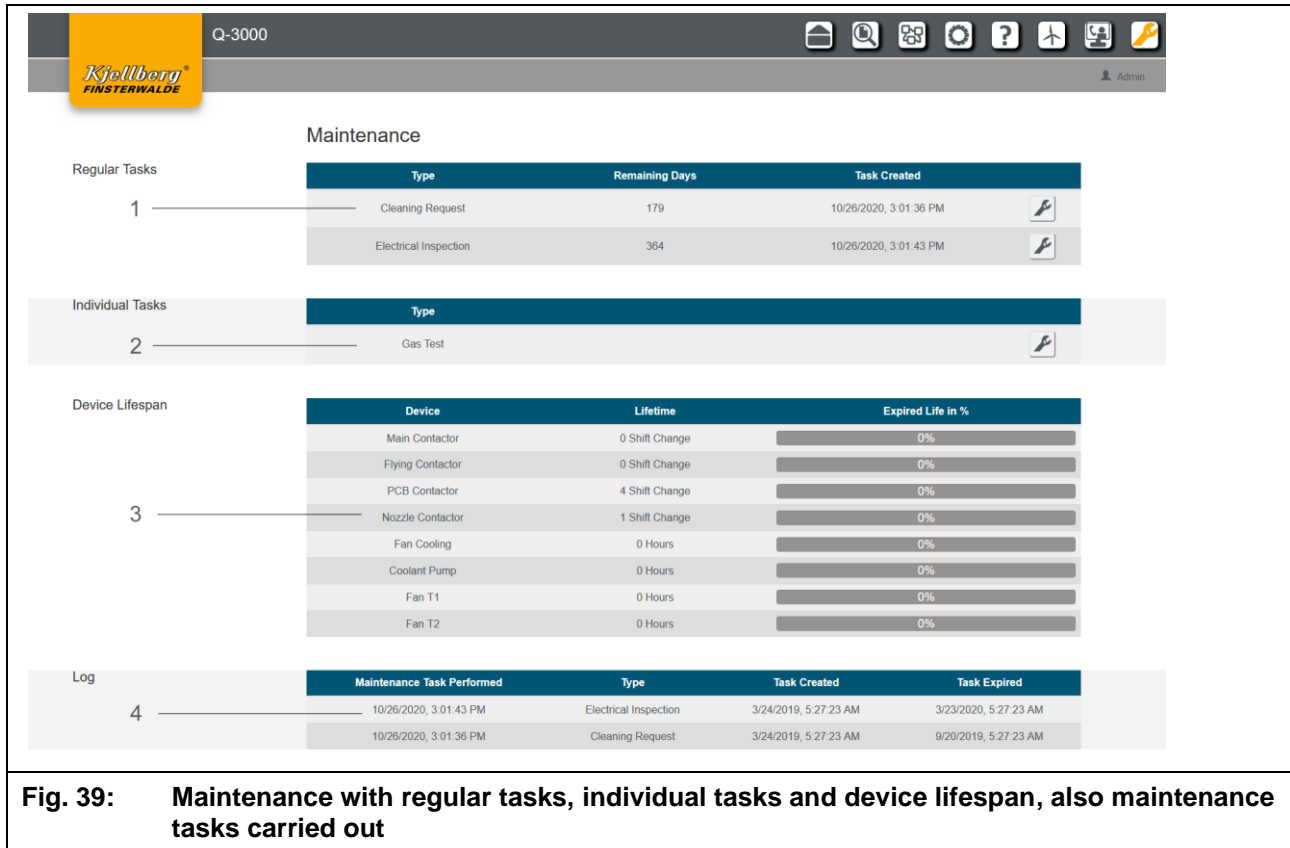











Fig. 39: Maintenance with regular tasks, individual tasks and device lifespan, also maintenance tasks carried out

1	Regular tasks												
	<ul style="list-style-type: none">Perform the maintenance task when the remaining days have expired by clicking the icon  and following the instruction. <p>red marking, The maintenance task is overdue yellow marking, The maintenance task has to be carried out in the next few days</p> <p>Regular Tasks</p> <table><tr><th>Type</th><th>Remaining Days</th><th>Task Created</th><th></th></tr><tr><td>Cleaning Request</td><td>-402</td><td>3/24/2019, 5:27:23 AM</td><td></td></tr><tr><td>Electrical Inspection</td><td>-217</td><td>3/24/2019, 5:27:23 AM</td><td></td></tr></table> <p>e. g.: The cleaning has been overdue for 5 days and the electrical inspection must be completed within 2 days at the latest.</p>	Type	Remaining Days	Task Created		Cleaning Request	-402	3/24/2019, 5:27:23 AM		Electrical Inspection	-217	3/24/2019, 5:27:23 AM	
Type	Remaining Days	Task Created											
Cleaning Request	-402	3/24/2019, 5:27:23 AM											
Electrical Inspection	-217	3/24/2019, 5:27:23 AM											
2	Individual tasks												
	<ul style="list-style-type: none">Perform the task if necessary, by clicking on the icon .The individual maintenance task – gas test - is not possible in the CNC control mode EtherCAT.												
3	Device lifespan												
	<ul style="list-style-type: none">The lifespan has expired when the percentage bar has reached 100%												
4	Maintenance tasks carried out												
	<ul style="list-style-type: none">Shows the logbook of the regularly performed maintenance tasks												

9 Quick start

Connect to a terminal via the rear connection of your cutting system.

Open the address <http://192.168.5.1> in your browser.

Open the page setting via the icon . Make the following settings:

1. Complex name:

Select an unique complex name for your cutting system, e. g. serial number

2. Control mode (manual or EtherCAT)

3. Network configuration at connection X306 (extern DHCP or extern-static)

4. System time

Select your current time zone

Switch the power source OFF. Wait about 3 minutes.

Switch the cutting system on again.

Make the following settings:

1. System time

Set the correct date and time.

2. Saftey

From the Network section, determine the IP address assigned via connection X306.

Configure the security certificate with the assigned IP address.

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