BINAR HANDLING
Beyond Gravity

DOCUMENTATION

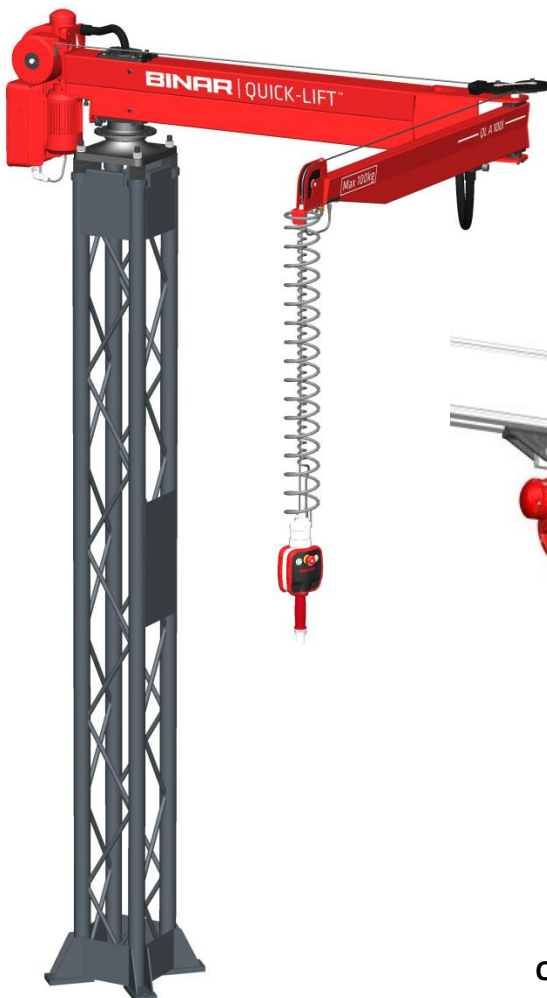*User Guide in original*
Version 7.04
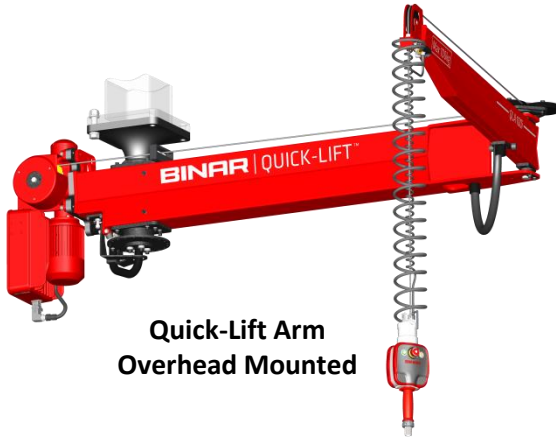
Quick-Lift Arm 50i-300i

Quick-Lift Rail 50i-300i

Quick-Lift Arm Torque 350S
Quick-Lift Rail Torque 350S

Quick-Lift Arm, Overhead Mounted, 50i-200i

Generation 3

**Quick-Lift Arm
Overhead Mounted**

Quick-Lift Arm

Quick-Lift Rail

Quick-Lift Arm Torque

BINAR HANDLING

Beyond Gravity

Binar Handling AB

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Terminology/Designations

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Electric and Air swivel

Emergency stop

Upper right pushbutton
with yellow LED
(can be perceived as orange)

Upper left pushbutton
with green LED

Lower left pushbutton
with green LED
Grip/Release

Lower right pushbutton
with red LED
Grip/Release

Manoeuvre Handle for
up/down movement

Control box

Electric and Air swivel

External handle

Emergency stop

Upper left pushbutton
with green LED

Upper right pushbutton
with yellow LED
(can be perceived as orange)

Lower left pushbutton
with green LED
Grip/Release

Lower right pushbutton
with red LED
Grip/Release

Manoeuvre Handle for
up/down movement

1. Delivery specification

General	
Serial number lifting device:	**Delivery week (year-week):**

Lifting device	

101100 QLA 50i (Max lifting weight 50 kg, Arm length 3 m) 61090 Wire rope 7.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101101 QLA 50i** (Max lifting weight 50 kg, Arm length 4 m) 61087 Wire rope 8.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101102 QLA 100i (Max lifting weight 100 kg, Arm length 3 m) 61090 Wire rope 7.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101103 QLA 100i** (Max lifting weight 100 kg, Arm length 4 m) 60187 Wire rope 8.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101104 QLA 100i (Max lifting weight 100 kg, Arm length 5 m) 61092 Wire rope 9.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101105 QLA 200i** **(Max lifting weight 200 kg, Arm length 3 m)** 61090 Wire rope 7.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101106 QLA 200i **(Max lifting weight 200 kg, Arm length 4 m)** 60187 Wire rope 8.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101107 QLA 200i** **(Max lifting weight 200 kg, Arm length 5 m)** 61092 Wire rope 9.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101108 QLA 300i **(Max lifting weight 300 kg, Arm length 3 m)** 61090 Wire rope 7.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101109 QLA 300i** **(Max lifting weight 300 kg, Arm length 4 m)** 60187 Wire rope 8.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101200 QLR 50i **(Max lifting weight 50 kg)** 60188 Wire rope 4.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101201 QLR 125i** **(Max lifting weight 125 kg)** 60188 Wire rope 4.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard
101202 QLR 200i **(Max lifting weight 200 kg)** 60188 Wire rope 4.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard	**101203 QLR 300i** **(Max lifting weight 300 kg)** 60188 Wire rope 4.5 m 011637 Spiral cable 600 mm 23051 Spiral hose, air 16 turns With deviation from standard

101120 QLA 50i, Overhead Mounted (Max lifting weight 50 kg, Arm length 3 m)	**101122 QLA 100i, Overhead Mounted (Max lifting weight 100 kg, Arm length 3 m)**
61090 Wire rope 7.5 m	61090 Wire rope 7.5 m
011637 Spiral cable 600 mm	011637 Spiral cable 600 mm
23051 Spiral hose, air 16 turns	23051 Spiral hose, air 16 turns
With deviation from standard	With deviation from standard
101123 QLA 100i, Overhead Mounted (Max lifting weight 100 kg, Arm length 4 m)	**101124 QLA 100i, Overhead Mounted (Max lyftvikt 100 kg, Armlängd 5 m)**
60187 Wire rope 8.5 m	61092 Vajer 9.5 m
011637 Spiral cable 600 mm	011637 Spiral cable 600 mm
23051 Spiral hose, air 16 turns	23051 Spiral hose, air 16 turns
With deviation from standard	With deviation from standard

101125 QLA 200i, Overhead Mounted
(Max lyftvikt 200 kg, Armlängd 3 m)
61090 Wire rope 7.5 m
011637 Spiral cable 600 mm
23051 Spiral hose, air 16 turns
With deviation from standard

101130 QLAT 350S (Max lifting weight is depending on load case)

_____ Wire rope, L= ___ m	102097 Arm L1_____ L2_____ mm
013132 Cable, L= ___ m	102076 Torque unit L3_____ mm
23014 Hose, L= ___ m	ID256 Parameter Max load _____ kg

101230 QLRT 350S (Max lifting weight is depending on load case)

_____ Wire rope, L= ___ m	102076 Torque unit L3_____ mm
013132 Cable, L= ___ m	ID256 Parameter Max load_____ kg
23014 Hose, L= ___ m	

Delivery specification continues on the next page

Options Quick-Lift Arm

| ☐ Middle link | ☐ Pneumatic brakes |

Options Quick-Lift Rail

| ☐ Laser beam, distance sensor | ☐ Pneumatic brakes |

Suspension

☐ Without suspension

QLA 50i, QLA 100i, QLA 200i (3 m), QLAT 350S
☐ 013811 Pillar, length 3000 mm
☐ 013812 Pillar, special length: _____mm

QLA 200i (4 m and 5 m), QLA 300i
☐ 013814 Pillar, length 3000 mm
☐ 013815 Pillar, special length: _____mm

QLR 50i, QLR 125i
☐ Suspension for rail system Ø16 mm
☐ Suspension for rail system Ø20 mm

QLR 200i, QLR 300i
☐ Suspension for rail system Ø20 mm

Deviation from standard

Wire rope	☐ _____ L=_____ m	
Spiral cable	☐ 011973 300 mm ☐ 011972 400 mm ☐ 011638 800 mm	☐ 011639 1000 mm ☐ 011640 1200 mm ☐ 013030 L=_____mm
Spiral hose, air	☐ _____pcs. Turns	

Miscellaneous

Control handle, Part No.

☐	1014000420	L=420 mm	Control handle, for mechanical grippers
	1014000575	L=575 mm	Control handle, for mechanical grippers
	1014000875	L=875 mm	Control handle, for mechanical grippers
	1014030420	L=420 mm	Control handle, with vacuum ejector
	1014030575	L=575 mm	Control handle, with vacuum ejector
	1014030875	L=875 mm	Control handle, with vacuum ejector
	101402	L=420 mm	Control handle, with pneumatic cylinder
	1014010420	L=420 mm	Control handle, with pneumatic 5/2 valve
	1014010575	L=575 mm	Control handle, with pneumatic 5/2 valve
	1014010875	L=875 mm	Control handle, with pneumatic 5/2 valve

Control box, Part No.

☐	101420	Control box, for mechanical grippers
	101421	Control box with pneumatic 5/2 valve
	101422	Control box for external pneumatics

External handle, Part No.

☐	1014100245	External handle, L = 245
	1014100400	External handle, L = 400
	1014100700	External handle, L = 700

Delivery specification continues on the next page

Project Handle (with deviation from standard)		

This documentation as well as a USB memory stick containing the iLab 3 program is included in the delivery of a lifting device from Binar Handling AB. The USB memory stick can be found at the back of this documentation.

2. Warranty

Binar Handling AB provides a 24-month warranty, at a maximum of two working shifts.

The warranty on new spare parts is for 12 months.

The warranty does not apply to wear parts. See chapter 9.
The warranty is void if the equipment is damaged in conjunction with opening of the covers. Binar Handling AB determines all warranty matters.

The lifting device contains many safety critical and ESD sensitive components, and for this reason anyone performing maintenance and refurbishment must possess the requisite knowledge.

3. General safety instructions

> **Persons operating the lifting device must study and adhere to this documentation.**

In order to use the lifting device the following general safety instructions apply:

- Prior to operating the lifting device for the first time, personnel with good knowledge of the lifting device must demonstrate how it works.
- The lifting device must not be used to lift people.
- The lifting device must not be driven towards another person as this can pose a risk of injury.
- Do not walk under suspended loads, nor shall any part of the body be under a suspended load or in an area where the suspended load can tip over.
- Protective footwear must be worn.
- The lifting device must not be used for lifting where a falling load could damage/destroy pipes or wiring that could cause the discharge of flammable, toxic, hot, corrosive gases or liquids.
- The lifting device must not be used to lift molten and hot liquid loads.
- The lifting device must not be used to lift objects, including the gripper, that weigh more than the lifting device's maximum capacity, see "Delivery specification" (chapter 1).
- No body parts should be inserted between the wire rope, cable harness or air hose. Nor should they be wrapped around a body part.
- The lifting device may only be used for vertical lifting, horizontal movement is performed after lifting. It is not permitted to pull or drag objects horizontally by means of the lifting device.
- The lifting device must not be used to lift objects that are secured.
- Avoid knocking/bumping a raised object.
- Never leave the lifting device unattended with a suspended load.
- The gripper or control handle must not be raised by hand; this is to ensure that the wire-rope does not become slack which can result in the wire rope becoming tangled.
- Be aware of any abnormal noise emanating from the lifting device. In the event of noise contact qualified service personnel.
- Maintenance must be performed at the recommended intervals, see "Maintenance of the lifting device" (chapter 10).
- The lifting device is designed for indoor use.
- The area that the lifting device serves must have adequate lighting.
- The area that lifting device serves must be free of objects on the floor that give rise to a risk of tripping.
- The maximum angle between the wire rope and the swivel's centre line is 5 degrees.
- The control handle/external handle must not be released so that it swings in towards something, this can damage e.g. the emergency stop button.
- Before any cover on the lifting device is opened, the power suply supply must be switched off.
- The lifting device contains many safety critical and ESD sensitive components and for this reason anyone performing maintenance must possess the requisite knowledge.
- The arms on the lifting device must not be buckled or damaged. If the arms show significant damage, Binar Handling AB must be contacted for advice on whether the arms must be replaced to ensure that continued safe functionality is retained.

3.1 Safety features – lifting device

- Anti-drop brake - the lifting device has integrated an anti-drop brake. In the event of a power failure the load will not fall, but is held safely in place. All functionality returns once the power to the lifting device is restored.
- Dead man's handle - this function means that as soon as the operator releases the manoeuvre handle, the lifting device stops in position by itself.
- Emergency stop - the lifting device has an emergency stop mounted on the control handle or on the external handle.

- Programmed stop - the lifting device has programmable stops for the top and bottom positions.
- Mechanical stop - the lifting device has a mechanical end position stop, which means the wire rope cannot be completely wound off the wire rope drum. There is also a stop in the other direction to prevent too much wire rope being wound onto the wire rope drum. The lifting device stops completely and after a run loose procedure it is possible to operate normally again (see chapter 11.3).
- Control - it is possible to control the lifting device's functions via PLC in the supplied PC software iLab 3 for increased functionality and safety.
- The lifting device must not be subjected to lurching movements. If this occurs, the lifting device will enter power save mode, which is logged.

4. Operating description

4.1 Control handle/External handle

Upper left pushbutton with green LED

Electric and Air swivel

Emergency stop

Upper right pushbutton with yellow LED (can be perceived as orange)

Lower left pushbutton with green LED

Lower right pushbutton with red LED

Manoeuvre Handle for

Example – control handle with four pushbuttons

4.2 Emergency stop

In the event of possible danger, the operator can use the emergency stop on the control handle/external handle to immediately stop the lifting device.

Any external movements, such as rotation or tilting, must have a "hold-to-run" function, according to EN 13155+A2:2009. For correct connection, see chapter 7.8.2.

Turn the emergency stop button on the control handle or external handle to reset. The lifting device then automatically performs a brake test before returning to normal mode.

4.3 Function in handle mode

The manoeuvre handle detects the force from the hand and converts the signal to a lifting speed in the wire rope. Only minimal operating force is required irrespective of the size of the load.

When the grip on the manoeuvre handle is released the lifting device stops its vertical motion. The horizontal movement slows. Avoid jerky movements.

4.4 Function in full auto-balance mode

The lifting device can serve as a balance lift in so-called auto-balance mode. Both hands can then be used to manoeuvre the load, both vertically and horizontally.

In auto-balance mode the lifting device's load cell detects the weight of the lift object; when the operator lifts the lift object with his hands, the lifting device interprets this as an up signal and lifts up the lift object and vice versa when the operator presses the lift object down.

The function can be activated and deactivated by pressing and holding the top right button for two seconds.

A yellow LED around the button lights when auto-balance mode is active.
The lifting device's load cell needs to detect a stable weight for about one second in order to activate auto-balance.
It is important that you do not touch the lift object during weight measurement.

If you touch the manoeuvre handle, the lifting device immediately switches to handle mode.

Full auto-balance mode is recommended primarily when the lifting device has to lift parts that do not require as much precision in the deposit position.

4.5 Function – lifting device in limited auto-balance mode

This function works in the same way as the full auto-balance mode described above, but has an inherent limitation.
This limitation requires the lifting device to detect the balanced weight for 150 milliseconds before it can reverse direction from up to down and vice versa. If this condition is not met, the speed is limited to 3 mm/s, which is often perceived as being stationary.

This limitation makes it easier for example to position the lift object in a hole without the lift object bouncing up if alignment is not precise.
This limitation makes it even easier to e.g. fit a lift object on horizontal studs without the lifting device tending to jerk the lift object.

In iLab 3, you can choose between Full and Limited auto-balance modes. See "iLab 3" chapter 7.4.4

Limited auto-balance mode is recommended, for example, when the lifting device is to be used for assembling parts.

4.6 Before start

The lifting device must be checked once a day, ideally at the beginning of the shift. This is to ensure the integrity and safety of the lifting device. Once you have checked the four points, fill in the report for daily inspection, see "Appendices" in chapter 18. If no faults are detected, the lifting device is ready to be used. If any faults are detected, notify your supervisor immediately.

The points to be checked are:
- That the wire rope is undamaged.
- That the control handle or the control box and external handle are undamaged.
- That the spiral cable and compressed air hose are undamaged.
- No noise occurs when running up and down respectively. Be extremely attentive to creaking sounds, which could be a sign of wire rope tangle on the wire rope drum.

4.7 When starting

- If the power suply to the lifting device has been switched off, wait at least 10 seconds before turning the power suply back on.
- The green LED next to the top left pushbutton will flash if the lifting device has entered power save mode. You then need to activate the lifting device. Do this by pressing the top left button. The lifting device then releases the anti-fall brake and performs a brake test. The LED then switches to a fixed green light.
- Start-up time following power saving mode is about 3 seconds.
- Start-up time following emergency stop is about 10 seconds.
- The start-up time after a power failure is about 25 seconds.
- NOTE! If the lifting device does not start, see "Troubleshooting", chapter 11.
- If the lifting device has been stopped via the emergency stop, a yellow LED flashes.

4.8 Performing a lift operation

- Check that the wire rope is not slack.
- The control handle or gripper must never be lifted by hand so that the wire rope is slack.
- Check the grip on the lift object is secure.
- Slowly lift up the object from its position.
- Move the lift object to the designated position. Perform the movement at a speed where control of the lifting device and gripper/load is maintained.
- Avoid quick, jerky movements during the entire lift operation.

NOTE! During up or down run commands towards the top or bottom position for more than 10 seconds, the lift shuts down itself.

4.9 The LEDs functions on different types of control handles/external handles

4.9.1 Control handle for mechanical grippers

On a control handle of the type Control handle for mechanical grippers there are two LEDs around the buttons.

Around the upper left button there is a green LED that normally has the following function:

Function	Description
Short flashes	The lifting device is in power save mode.
Unlit	The lifting device is not powered up, has been stopped via the emergency stop or it has a fault. For application software V3.00.99 or older, it is off as the lifting device is shut down by the monitoring functions.
Fixed light	The lifting device is in normal mode.
Very rapid flashing	The lifting device is busy initializing (start-up).

Around the upper right button there is a yellow LED that normally has the following function:

Function	Description
Unlit	The lifting device is in handle mode.
Fixed light	The lifting device is in auto-balance mode and is balanced (LED is off while the lifting device detects the load). See also "Steady light with intermittent interruptions every two seconds"
Slow single flashing	Emergency stop activated.
Constant single flashing	The lifting device has a basic fault, See "Troubleshooting"
Constant double flashing	The lifting device has a serious fault, chapter 11.2.1
A single flash	The lifting device is set to low speed.
A double flash	The lifting device is set to high speed.
Very rapid flashing	CAN traffic stopped (possibly by the monitoring functions).
Steady light with intermittent interruptions every two seconds.	Parking brake on. Note! Even if the lifting device is in auto balance mode, the light indicator for "Parking brake on" is still displayed next to the top right-hand button.

Both the upper green LED and the yellow LED may flash or be lit simultaneously:

Function	Description
Quick flashing on both green and yellow LEDs	The lifting device is in a mode to automatically set the "Minimum pulling force" and "Weight limit for grip/release". Do not touch the lifting device in this mode. Also see "iLab 3" chapter 7.4.5

Fixed green LED and quick flashing yellow LED	The lifting device has an error, but it can be run in a limited way to solve the problem. Examples of errors: • Gripper has moved outside of the specified working range on the vertical axis. Moving back to the work area is permitted. • The lifting device is overloaded. Only running down is permitted to unload the gripper.

4.9.2 Valve handle, Vacuum handle, Cylinder handle and all external handles

On a control handle of the type Valve handle, Vacuum handle, Cylinder handle and all external handles there are four LEDs around the buttons.

Around the upper left button there is a green LED that normally has the following function:

Function	Description
Short flashes	The lifting device is in power save mode.
Unlit	The lifting device is not powered up, has been stopped via the emergency stop or it has a fault.
Fixed light	The lifting device is in normal mode.

Around the upper right button there is a yellow LED that normally has the following function:

Function	Description
Unlit	The lifting device is in handle mode.
Fixed light	The lifting device is in auto-balance mode and is balanced (LED is off while the lifting device detects the load). See also "Steady light with intermittent interruptions every two seconds"
Slow single flashing	Emergency stop activated.
Constant single flashing	The lifting device has a basic fault, See "Troubleshooting"
Constant double flashing	The lifting device has a serious fault, chapter 11.2.1
A single flash	The lifting device is set to low speed.
A double flash	The lifting device is set to high speed.
Steady light with intermittent interruptions every two seconds.	Parking brake on. Note! Even if the lifting device is in auto balance mode, the light indicator for "Parking brake on" is still displayed next to the top right-hand button.

Both the upper green LED and the yellow LED may flash or be lit simultaneously:

Function	Description
Quick flashing on both green and yellow LEDs	The lifting device is in a mode to automatically set the "Minimum pulling force" and "Weight limit for grip/release". Do not touch the lifting device in this mode. Also see "iLab 3" chapter 7.4.5

Fixed green LED and quick flashing yellow LED	The lifting device has an error, but it can be run in a limited way to solve the problem. Examples of errors: • Gripper has moved outside of the specified working range on the vertical axis. Moving back to the work area is permitted. • The lifting device is overloaded. Only running down is permitted to unload the gripper.

Around the lower left button there is a green LED that normally has the following function:

Function	Description
Unlit	Grip or release not permitted.
Fixed light	Grip or release permitted.

Around the lower right button there is a red LED that normally has the following function:

Function	Description
Unlit	The gripper on the lift object is OK, this assumes that the "Stop-up" function is used. See chapter 7.7.4
Constant single flashing (pneumatic gripper)	Warning for incorrect grip by the pneumatic gripper with connected sensor for stop-up function. Accompanied by an audio signal.
Constant single flashing (vacuum gripper)	Warning for incorrect grip by the vacuum gripper with connected sensor for low vacuum level. Accompanied by an audio signal.
Constant single flashing (magnetic gripper)	Warning that the magnet is not turned around fully to the grip position. Accompanied by an audio signal. Used when the function "Magnet sequence" is used in combination with sensor for the position of the magnet.
Fixed light (magnetic gripper)	Warning that the magnet is activated.

4.10 The buttons' functions on different types of control handles/external handles

4.10.1 Control handle for mechanical grippers
On a control handle of the type Control handle for mechanical grippers there are two buttons.
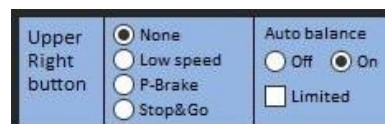
The upper left button normally has the following function:

Function	Possible sub-function	Description
A short press		Switches between power save mode and operating mode
Press and hold the button for more than 10 seconds		Activates top and bottom position setting. (Also see chapter 7.3.5).
The lifting speed is	A short press	Set top position.

temporarily reduced during this handling.	A short press	Set bottom position.

The upper right button normally has the following function:

Function	Description
A short press (The "None"option is selected in iLab 3)	No function is activated.
A short press (The "Low Speed" option is selected in iLab 3)	Switching between the two speeds of 100% and 55% of the maximum speed set in iLab 3.
A short press (The "P-Brake" option is selected in iLab 3)	Parking brake on/off alternately.
Press and hold the button for more than 2 seconds	Switches between handle mode and fully auto balance mode, or switches between handle mode and limited auto-balance mode. See also "iLab 3" chapter 7.4.4

Both the upper left button and the upper right button together have the following function:

Function	Description
Press and hold both buttons simultaneously for longer than 10 seconds	The lifting device enters a mode to automatically set the "Minimum pulling force" and "Weight limit for grip/release". Do not touch the lifting device in this mode. (LEDs flash). **The gripper must hang freely in the air without lifting object when using this function.** This function can be switched off in iLab 3. See "iLab 3" chapter 7.4.6

4.10.2 Valve handle, Vacuum handle, Cylinder handle and all external handles

On a control handle of the type Valve handle, Vacuum handle, Cylinder handle and all external handles there are four buttons.
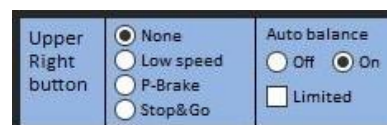
The upper left button normally has the following function:

Function	Possible sub-function	Description
A short press		Switches between power save mode and operating mode
Press and hold the button for more than 10 seconds		Activates top and bottom position setting.
	A short press	Set top position.
	A short press	Set bottom position.

The upper right button normally has the following function:

Function	Description

A short press (The "None"option is selected in iLab 3)	No function is activated.
A short press (The "Low Speed"option is selected in iLab 3)	Switching between the two speeds of 100% and 55% of the maximum speed set in iLab 3.
A short press (The "P-Brake" option is selected in iLab 3)	Parking brake on/off alternately.
Press and hold the button for more than 2 seconds	Switches between handle mode and fully auto balance mode, or switches between handle mode and limited auto-balance mode. See also "iLab 3" chapter 7.4.4

Both the upper left button and the upper right button together have the following function:

Function	Description
Press and hold both buttons simultaneously for longer than 10 seconds	The lifting device enters a mode to automatically set the "Minimum pulling force" and "Weight limit for grip/release". Do not touch the lifting device in this mode. **The gripper must hang freely in the air without lift object when using this function.** This function can be switched off in iLab 3. See "iLab 3" chapter 7.4.6

The lower left button normally has the following function:

Function	Description
A short press (With fixed green light)	Performs grip or release of the lift objects.

The lower right button normally has the following function:

Function	Description
A short press (With fixed green light, on the left button)	Performs grip or release of the lift objects.

4.11 Other functions

- Floor detection
  The lifting device stops wire rope run-out when the gripper, with or without a load, is set down on a surface.

- Wire rope run-in.
  During normal use the lifting device always attempts to keep the wire rope taut. This is achieved by using a program setting in iLab 3 for parameter "Minimum pulling force" (ID 257). See chapter 7.4.5.
  The wire rope must be taut in all positions when running up and down.
  The lifting device then ensures that the gripper does not tip over when unloading takes place onto a surface.

- Side acceleration (tilting).
  This function prevents accidental run-out of the wire rope if the gripper is tilted or accelerates laterally more than permitted. The sensitivity can be set in iLab 3 (parameter with ID210), see chapter 7.4.5.

4.12 Installation instructions when replacing the gripper

4.12.1 Replacing the mechanical gripper in quick coupling

In these cases, the gripper is equipped with a quick coupling peg and is replaced with a control handle with quick coupling. See the example on the image below.
In this case, the power suply supply to the lifting device does not need to be switched off. Nor does the electrical connection to the control handle need to be disconnected.

NOTE! If using a high and/or heavy gripper, the parameter "Minimum pulling force" ID 257) should be set to a value greater than 2 kg. This means that you must activate the emergency stop prior to replacing the gripper otherwise the lifting device will creep upwards.
In very special cases, the setting of other parameters after gripper replacement may be required. This applies in cases where there is a significant difference in weight and/or height between the grippers being replaced. But most importantly, parameter ID 257 must be correctly set.To set the parameters, see chapter 4.12.3 and 7.

NOTE!
Activate the emergency stop before replacing the gripper!

Control handle — Quick coupling peg — Swivel, fastening wire-rope and electrical connection — Manoeuvre handle — Gripper — Quick coupling peg
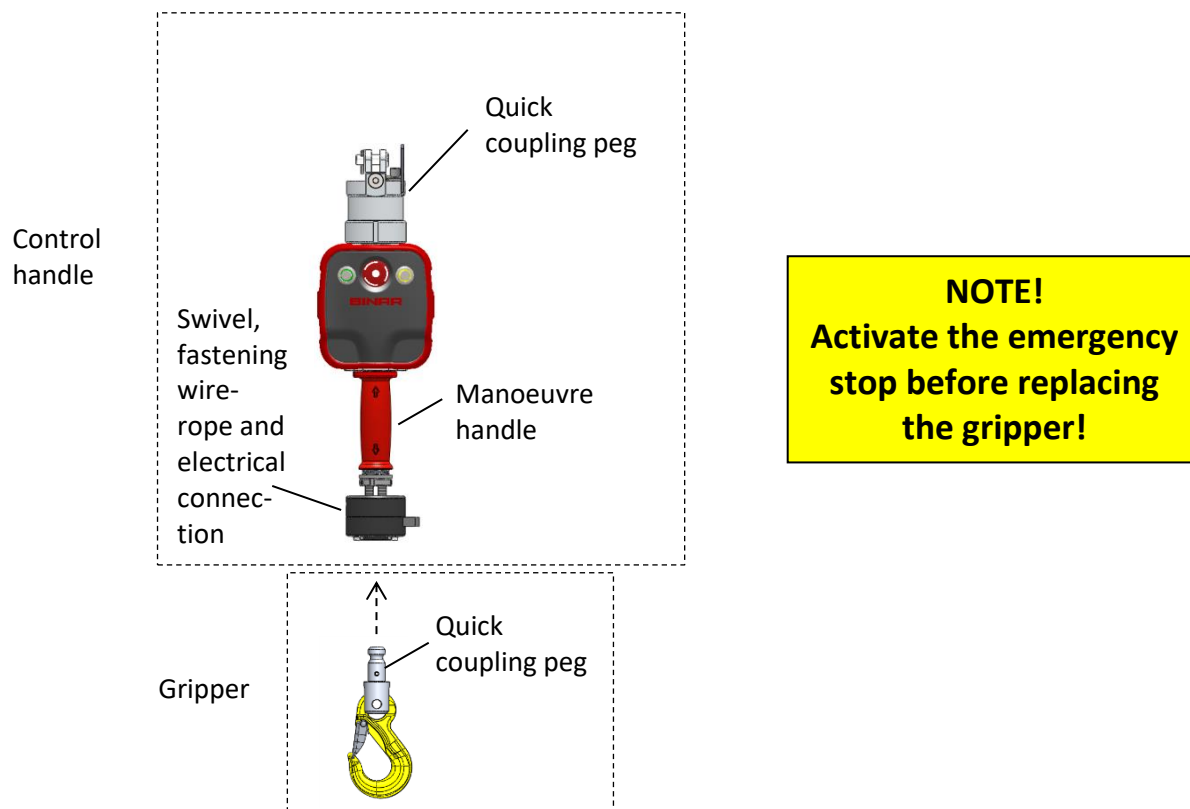
Example – Control handle with quick coupling and gripper with quick coupling peg.

Replacing with another gripper/Start-up after gripper replacement

- Activate the emergency stop, see description above.
- Disconnect the gripper from the quick coupling.
- Connect another gripper to the quick coupling.
- If the emergency stop is not activated and no parameters need to be set, the lifting device is ready to be used again.
- If the emergency stop is activated, turn the emergency stop button on the control handle. The lifting device will then perform an automatic brake test before resuming normal operation. The lifting device is in power save mode.

NOTE! The wire-rope must not be slack as this increases the risk of tangling.
If parameter setting is required, see the description in chapter 4.12.3.Keep the lift in emergency stop mode or power save mode during parameter setting.

4.12.2 Replacing the gripper at the wire-rope end

(pneumatic, vacuum or magnetic gripper or, alternatively, a mechanical gripper)

Replacement of the gripper can also be done at the wire-rope end of the lifting device. The gripper includes a control handle or a control box and one or more external handles. In this case, it is required that the power suply or any air supply to the lifting device is switched off. Disconnection and reconnection of electrical and any air connectors is also required when replacing grippers. Refer to the gripper examples below.

Important!
Note that the parameter "Position" (ID 034) is stored in the lifting device's motor unit and other parameters are stored in the control handle or control box. To set the parameters, see chapter 4.12.3.

Swivel with fastener for the wire-rope as well as electrical and air connection.

Control box

External handle

Manoeuvre handle

Control handle

Manoeuvre handle

Examples – two different grippers
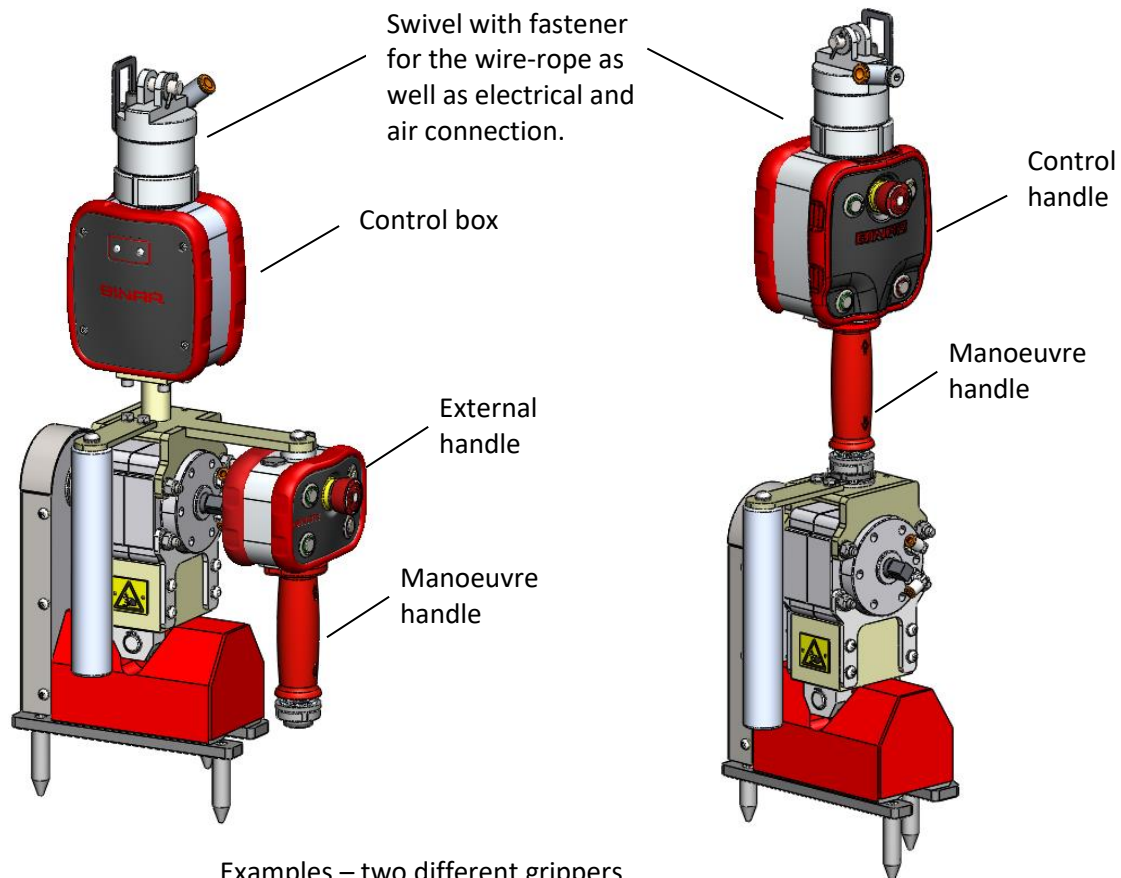
> **NOTE!**
> **Make sure the power suply supply to the lifting device is switched off when replacing the gripper!**

Replacing with another gripper/Start-up after gripper replacement

- Switch off the power supply (230V) and any air supply to the lifting device.
- Disconnect the existing gripper (electrical and air connectors as well as the wire-rope mechanical connector).
- Connect the new gripper (electrical and air connectors as well as the wire-rope mechanical connector).
- Activate the power suply (230V) and any air supply.
- Activate the lifting device by pressing the top left pushbutton on the control handle or external handle. The lifting device with gripper is now ready for use provided all necessary settings have been done.

To set the parameters, see the description in chapter 4.12.3.

4.12.3 Parameter setting in the lifting device to simplify gripper replacement

Connect the power suply and any air supply to the lifting device and connect a computer via USB (in the control handle or control box). Start the program in iLab and click on "Go Online". The iLab program is described in full in chapter 7.

Important!
Note that the parameter "Position" (ID 034) is stored in the lifting device's motor unit and other parameters are stored in the control handle in wire or control box.

Setting the motor unit

1	Activate the lifting device by pressing the top left pushbutton on the control handle or external handle.
2	Grip the manoeuvre handle and run the lifting device to the desired height to determine the zero position e.g. wire-rope eye 1,500 mm above the floor or another easily identifiable height. The selected zero position must be recorded under section 9.5.4 to facilitate future wire-rope replacement.
3	Continue to run the lifting device in power save mode by briefly pressing the top left pushbutton on the control handle/external handle. The LED around the button indicates the power save mode by flashing briefly.
4	Perform a "Set zero point" by clicking the "Set zero point" button in the tool field to the left (iLab 3). A "Set zero point" sets the value for the parameter "Position" to "0" but the lifting device performs an automatic brake test in conjunction with "Set zero point", which results in the gripper rising a few millimetres whereupon the value for the parameter "Position" will show "-1" after "Set zero point". NOTE! The location for the zero position is saved in the motor unit.

NOTE! "Set zero point" should normally only need to be performed once. The only time a new "Set zero point" will be required is after wire-rope replacement.

Setting each gripper (can also be done in power save mode and emergency stop mode)

5	Specify a value for the parameter ID 021 – "Lower limit position" to confirm how low the gripper may operate.
6	Then specify a value for the parameter ID 022 – "Upper limit position" to confirm how high up the gripper may operate.

The parameters in section 5 and 6 can also be set via the buttons on the control handle or external handle. See quick start guide in chapter 18. If setting the parameters via the buttons is not required, this can be interlocked via iLab 3 by specifying "ON" for parameter ID 140.

7   Specify a value for parameter "Minimum pulling force" (ID 257).

    a.   For control handles with quick coupling together with small grippers e.g. a hook, this parameter is set to 2kg.

    b.   For all other grippers (including high grippers in quick coupling), this parameter is set to approx. 70 % of the gripper's weight including control handle/control box and external handle. This is done to reduce the risk of the gripper falling onto the operator when run toward the floor and to keep the wire-rope as taut as possible. NOTE! If "Minimum pulling force" is set according to this, a quick coupling-only control handle will creep upwards if it does not have a gripper. Therefore, for gripper replacement in quick coupling, the lifting device's emergency stop must be activated.

8   Specify a value for the parameter "Weight limit for grip/release" (ID 255) which is equivalent to 3-8kg more than the weight of the gripper.

The parameters in section 7 and 8 above can also be set by using the buttons on the control handle or external handle. See quick start guide in chapter 18. If this is not required, this can be interlocked via iLab 3. See also 4.10.1.

9   Specify "OFF" for the parameter "Permit auto balancing" (ID 122) to switch of "auto balancing".

10   IMPORTANT! Click on "Save parameter permanently" in the tool field to the left.

NOTE! Parameter setting according to sections 5-10 above should only need to be done once for each gripper. All parameters other than the position are stored in the control handle or control box.

Repeat the procedure in sections 5-10 above for all grippers to be replaced in the lifting device.

NOTE!For the replacement of mechanical grippers in control handles with quick coupling, any necessary parameter setting must be done for each gripper replacement, as the settings are stored in the control handles which serve multiple grippers.

Start-up after parameter setting

Click on "Go Offline" in the tool field to the left (iLab 3). Disconnect the USB cable. Activate the lifting device by pressing the top left pushbutton on the control handle or external handle. The lifting device releases the anti-fall brake and performs a brake test. The lifting device is now ready for use.

5. Lifting device, general description

The lifting device generally consists either of a lifting unit and a control handle or
a lifting unit, a control box and one to three external handles.
When the user activates the manoeuvre handle, a signal is generated that starts the lifting device's movement.

Feedback to the control system occurs via pulses from an encoder mounted on the lifting unit and a load cell plate mounted in the control handle, or in the control box.
The units are electrically interconnected via a signal cable that supplies the control handle or the control box with a 24 V power supply and signal transfer via CANBUS.
In instances with a separate control box and external handle, these communicate with each other with CANBUS.
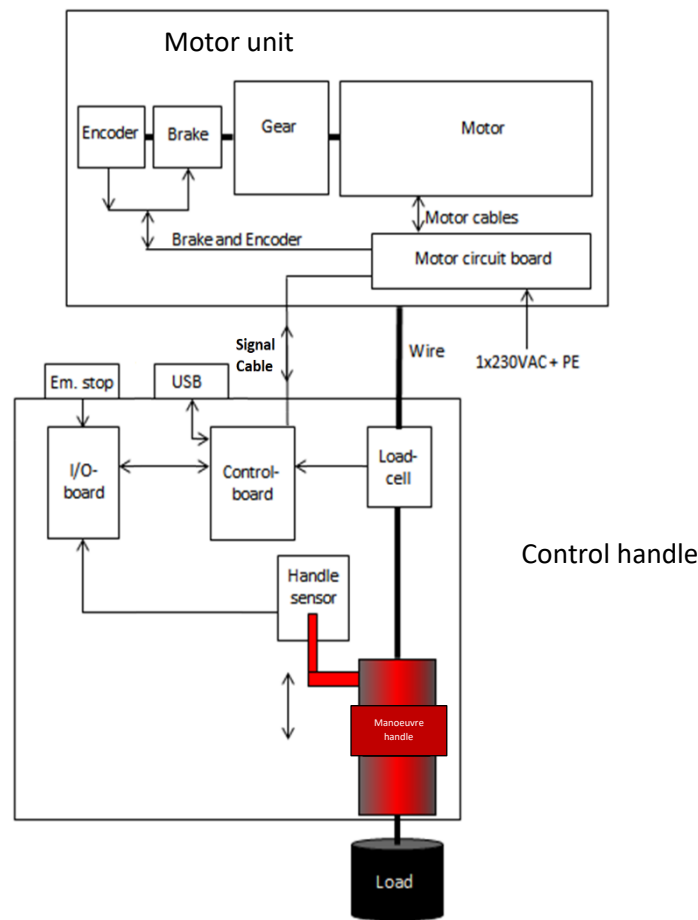
Name	Description
Encoder	Counts pulses - to keep track of the position
Brake	Parking brake to secure the load when the lifting device is shut off; it also slows the lifting device on activation of the emergency stop.
Gear	Worm gear - transfers the force from the motor to the shaft with a wire rope drum.
Motor	Electronically controlled induction motor – forms the power source in the lifting device.
Motor board	Receives and processes signals from the control board to control the motor unit.
Control board	Controls the lifting device. Consists of two boards
I/O board	Communicates with emergency stops, sensors, cylinders, etc.
Load cell plate	Weighs the load.
Handle sensor	Gives up/down signals to control the lifting device
Emergency stop	See chapter 4.2.
USB port	Used to connect the computer.

6. Variants of Quick-Lift Arm/Quick-Lift Rail/Quick-Lift Arm Torque

This manual describes Quick-Lift Arm, QLA, Quick-Lift Rail, QLR and Quick-Lift Arm Torque, QLAT. These are available in several different weight classes.

Max lifting weight	QLA	QLR	QLAT 350S
50 kg (incl. gripper)	QLA 50i	QLR 50i	
100 kg (incl. gripper)	QLA 100i		
125 kg (incl. gripper)		QLR 125i	
200 kg (incl. gripper)	QLA 200i	QLR 200i	
300 kg (incl. gripper)	QLA 300i	QLR 300i	
Depending on load case			QLAT 350S

To see which QLA/QLR/QLAT you have, refer to the "Delivery specification" (chapter 1).

6.1 QLA

QLA is based on a jib arm, which is placed on a suspension. The wire is connected to the motor that powers the load's up and down movement.

Pillar
(QLA 100i illustrated)

6.2 QLR

QLR works in the same way as QLA but instead of a jib arm the lifting device is suspended from a rail system (rail systems not included as standard).

(QLR 125i illustrated)

7. Advanced use / iLab 3 program

7.1 General

iLab 3 is a program used to make parameter settings in the lifting device.
It is installed on a computer. The iLab 3 program can be found on the USB memory stick supplied with
the documentation.
The computer and lifting device are connected via
a USB cable, with USB-A in one end and USB-B in the other.
The USB-B connection is behind a little screwed cap on the front of
the control box or on the back of the control handle.
On the back of the control box the little screwed cap is equipped
with a torx screw with a spike.

7.1.1 System requirements:

Microsoft Windows 7 and 10, 32-bit or 64-bit
iLab 3 can be run on other operating systems, but this is not supported by Binar Handling AB.

7.1.2 Installation of iLab 3

Close all programs before starting the installation.
The lifting device must not be connected to the computer when the installation is carried out.
Start the installation program "ilabSetup_xxxxxx.exe" and follow the instructions. Do not forget to restart the computer after the installation.

7.1.3 Compatibility of iLab 3
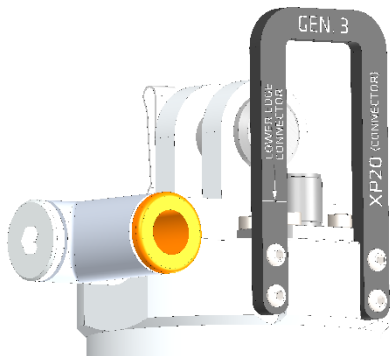
The computer program iLab 3 is designed for Control handles/Control boxes of **Generation 3**. They are recognized by having a **Black coloured protection bar** at the swivel. See picture above.
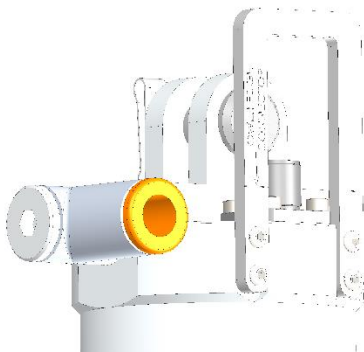
The computer program iLab 3 also supports Control handles/Control boxes of Generation 2. They are recognized by having a Silver coloured protection bar at the swivel. See picture above.

7.1.4 USB drivers.

Once the computer has been restarted, it should be connected to the lifting device to install the USB-hardware. After part two is complete, iLab 3 should have contact with the lifting device. Make sure the lifting device is switched on and connect it to the computer via the USB-cable. Install the program with the help of the Wizard. When the installation is complete, iLab 3 will start. If the Windows firewall is running, open the "Windows Security Alert" dialog, and select UNBLOCK.

7.2 Program window

The window consists of a Menu bar and four different parameter windows: SETTINGS, STATUS, IN/OUT and ADVANCED. This manual details a limited number of parameters; for more information you can click on each parameter name and read under "PARAMETER INFO".

Menu bar   Parameter window

7.3 Menu bar

The menu bar consists of a number of buttons for different actions and choices. Selectable buttons depend on the specific security level when you are connected "Online" to the the lifting device. See "Authorization", chapter 7.3.1

Setting of security levels. See chapter 7.3.1
Operator, Maintenance, Dealer, Binar Handling AB

Switches between Offline and Online to the connected lifting device. See chapter 7.3.2

For setting the date and time

Language selection

Saves the entered parameter settings.

Load an existing parameter file.

Saves the parameter settings to a separate parameter file, see chapter 7.3.3.

Saves the event log to a separate parameter file, see chapter 7.3.4.

Resets ACTIVE FAULT in the STATUS window, see chapter 7.5.3.

Setting of the gripper's zero position in the work area, see chapter 7.3.5.

The handle's up/down signal can be reset if required, see chapter 7.3.6. Important! Switch off the power suply to the lifting device for at least 10 seconds after calibration. Note: The handla sensor is automatically calibrated

Resets the cycle counter in the SETTINGS window (ID 003).

Resets the counter for remaning time for changing the wire rope.

Run loose, to be used if the wire-rope guide is stuck, see chapter 11.3.

Finish, close the iLab 3 program.

7.3.1 Authorization

The iLab 3 program is divided into different security levels. When the program starts, the "Operator" security level is automatically activated. This is the lowest level. The higher the security level the more parameters and settings that can be changed.

In order to change the security level just click on the "Authorization" button and enter a password. The passwords are unique to different security levels.

7.3.2 Offline and Online modes.

Press to activate or deactivate iLab 3 to the lifting device.
When iLab 3 starts without being connected to a lifting device the program is in Offline mode. This is seen clearly as the entire menu bar in the iLab 3 window is grey and "OFFLINE" is displayed.
No settings are possible in this mode.
iLab 3 can be used in "online mode" by connecting the computer to a lifting device using a USB cable. The menu bar then turns red and the text "ONLINE" appears. In this mode it is possible make settings directly on the lifting device, depending on the security level.

1. Make sure the lifting device is switched on.
2. Start the iLab 3 program.
3. Connect a USB cable between the computer and the lifting device.
4. Click the "Go Online" button.
   NOTE! Do not use the lifting device when "Online mode" is initiated.
5. Wait while the iLab 3 program searches for and loads the lifting device's settings.

7.3.3 Save and load parameter file

If the new settings are made in the parameter window and are to be applicable in the future, they must be saved before you log out of iLab 3, this is done by clicking the "Save parameter permanently" button.
NOTE! New settings replace the existing settings if the lifting device is powered down before you have clicked "Save parameter permanently".
You can also load predefined parameter settings from a separate parameter file. This can be performed in both Offline mode and Online mode.
Saving parameters to a file can only be performed in Online mode.
In order to save to or load from a file, click on the "Save parameter to file" button or the "Load parameter from file" button.
A new window opens. Choose where to save the file or the file to load into the iLab 3 program.

7.3.4 Save the event log

An event log is shown in the "STATUS" parameter window.
When necessary it is possible to save the event log to an external file.
Click on the "Save event log" button and enter a filename. Now click "Save".
The event log is saved in the format "csv" and can be open using a standard text editor.

7.3.5 Set zero point, and setting the work area

The lifting device can only work between the set top and bottom positions, which are set according to parameters ID021 and ID022, see chapter 7.4.5. These parameters determine the height of work area. The work area must never exceed 2700 mm.

Setting the work area
The work can be set using the handle buttons, see chapter 4.10.1.
- Grab the manoeuvre handle and run the gripper to a suitable upper limit.
- Set the upper left button in the function mode for "Activate top and bottom position settings", by pressing and holding the button for more than 10 seconds (speed is reduced in this mode).
- Release the button, which now gives a constant green single flashing light.
- Press the button briefly again, to determine the upper position. After you press the button, the

single flashing light switches to a constant green double flashing light.
- Lower the gripper to an appropriate lower limit position and press the upper left button again. The button's double flashing stops and changes to a fixed green light. The lifting speed returns to the set speed value.
- The top and bottom positions of the work area are now set.

The current position can be seen in iLab 3 in the "SETTINGS", Information, parameter window (ID 034).

Set zero point
In some situations, the current position will be outside of this range, for example, when changing the control handle, replacing the wire rope, etc.
The Set zero point button on the menu bar allows you to quickly move to a new work area, where the lifting device's current position ends up in the centre of the work area, position zero.

NOTE! Set zero point can only be carried out with the lifting device in power save mode see chapter 4.10.
NOTE! Set zero point does not affect the stroke top or stroke bottom in application program higher then version 03.02.16.
Pressing the button sets the current position to position zero.
NOTE!
After Set zero point, the lifting device is reactivated and the upper and lower limit positions are checked and finely adjusted using the control handle's/external handle's upper left button function "Activate top and bottom position settings", see the description above "Setting the work area", it can also be set via iLab parameter ID 021 and ID 022.
NOTE! Remember not to set the top position or parameter ID 022 so high that the spiral cable is completely compressed, to avoid damaging the spiral cable.
NOTE! If the set top and bottom positions give a larger work area than previously set on delivery or if incorrect positions from the wire rope outlet are set, the lifting device's wire rope drum may hit a built-in mechanical safety stop. See pictures below, on the wire rope guide's mechanical outer positions.
The recommended measurements must be maintained as set out in the appendices for "Installation Drawings" to avoid this.

Alternative setting of the work area.
You can also specify appropriate upper and lower limit positions directly under "SETTINGS", General.
Move the gripper to the correct top position, read ID 034, and enter this value in ID 022 "Upper limit position".
Move the gripper to the correct bottom position, read ID 034, and enter this value in ID 021 "Lower limit position". Note whether the value is positive or negative.

Click the "Save parameter permanently" button on the menu bar, chapter 7.3, when the work area is set.

The wire rope guide's mechanical outer positions

Max. permitted. 49mm

Min. permitted 8 mm

The position of the wire rope guide
with retracted wire rope

The position of the wire rope guide
with extended wire rope
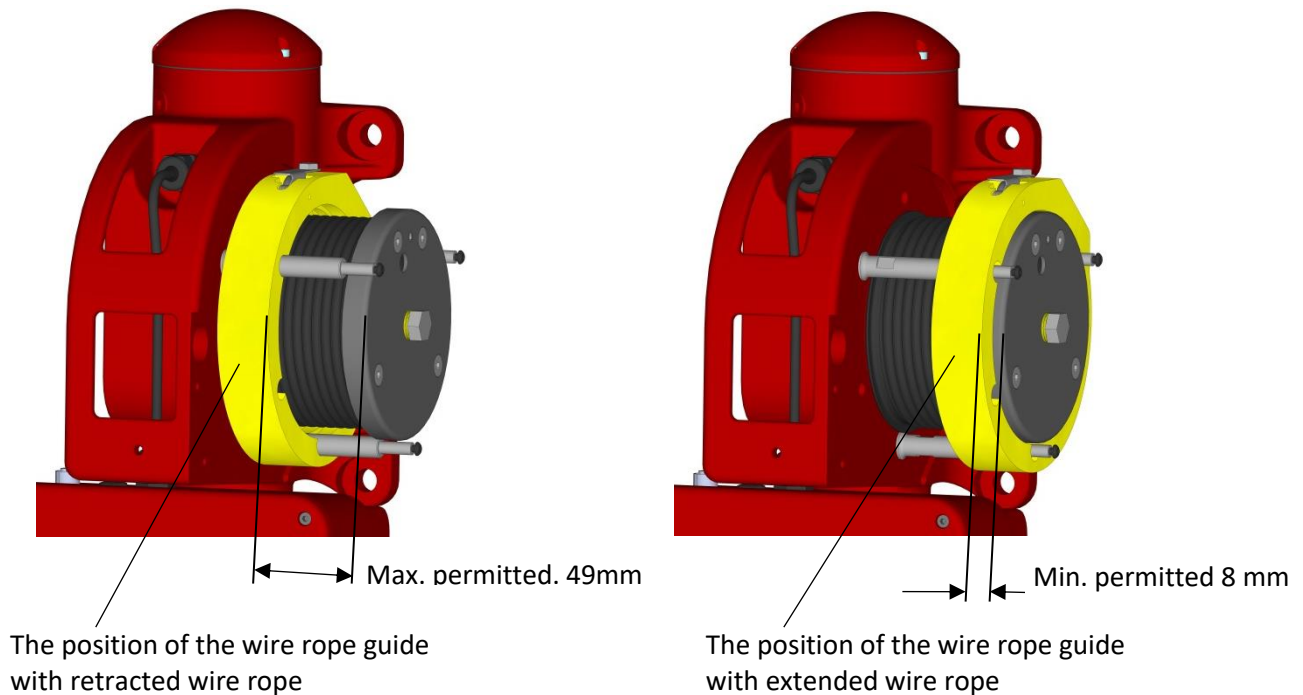
See Troubleshooting chapter 11.3, if the lift motor wire-rope drum jams.

7.3.6 Calibrate handle sensors

The handle sensor calibrates at startup when the 230 v power suply is turned on. Do not touch the manouvre handle during the startup phase. The startup phase is indicated by the upper right LED blinking fast.

This button resets the manoeuvre handle's up/down signal.
When you move the manoeuvre handle up or down a signal is generated to actuate the lift motor, this signal can be seen in the parameter window "SETTINGS", Information ID 037. See chapter 7.4. Downward movement generates a negative value, upward positive. If this parameter shows a signal other than 0 with a non-actuated manoeuvre handle, this can be calibrated.
Make sure that the control handle/gripper is completely still; do not touch the manoeuvre handle and then press the calibration button.
The handle signal is set to 0.
Important! Switch off the Power suply to the lifting device for at least 10 seconds after calibration otherwise the monitoring function will interpret this as a fault and shut down the lifting device completely.

7.3.7 Remaining wire rope life

In order to give one more indication of when its time for changing the wire rope there is a function that can estimate the remaning wire rope life.
The estimation is done depending on the actual load that affects the loadcell and the wire rope and also the number of cycles that has been performed since the last time the remaning wire rope life calculator has been reset.
Note! The actual wire rope life is always a responsibility of the operator of the manipulator and has to be checked daily as described in chapter 4.6.

7.4 Parameter window, "SETTINGS"

The window is divided into a number of smaller menu windows. When connecting the lifting device and starting iLab 3 you are logged in automatically as the "operator". On this security level you can only see the "INFORMATION" window which shows a limited selection of current parameters.

An information box is displayed when the cursor is held over a parameter. This contains information about how to edit or display the parameter value.

7.4.1 Settings, "PARAMETER INFO"

This window displays information about parameters that appear in all windows. Click once on a parameter name or number, to display the meaning and which values are possible to state.

Each parameter is identified by an ID number before its name. It is advisable to use this number when making e.g. support calls.

7.4.2 Show and edit parameters

You must log-in as "maintenance" or a higher security level to be able to change parameters.
The text on the parameters is either black or blue.

- Black text indicates that it is possible to change the parameter value.

- Blue indicates that the parameter is only information and cannot be changed.

There are also different background colours in the value column.

- Green = State TRUE

- Beige = Value can be overridden by a PLC function (in the parameter window "Advanced")

- Grey = Value is overridden by a PLC function (in the parameter window "Advanced")

- Red = Warning! For example, the value is outside of the limit positions or Fatal error.

You can display a parameter in a separate magnified, monitoring window by using the mouse to double-click on the parameter name. The monitoring window appears on the right.
Several parameters can be displayed simultaneously, the parameter name is shown above the value.
Close the parameter display by clicking on the "X". Close all displays using the "Close all" button.

The iLab 3 program must be set to Online mode in order to change parameters. Change a parameter by double clicking the parameter value or by selecting the row and pressing "Enter".
Input the new value in the window displayed, and then click "OK" to close the window. The window will close automatically after 10 seconds.

Parameter values need to be saved permanently before exiting the iLab 3 program. Click the "Save parameter permanently" button on the menu bar. See chapter 7.3.3

7.4.3 Settings, "HANDLE MODE"

Shows different parameter settings to control the effect of handle signals on operation.
For example, max. speeds for unloaded and loaded gripper.
The control handle also has button functions to switch between set values for max. speeds and a preset limited speed, see chapter 4.10.
Click on each parameter name for more information and what applies for other parameters under "PARAMETER INFO".

7.4.4 Settings, "AUTO-BALANCE MODE".

Possibility to determine whether auto-balance should be "OFF" or "ON".
"Limited auto-balance" can also be selected. See chapter 4.4-4.5.
Auto-balance mode can be switched on and off using the control handle's/external handle's right button, see chapter 4.10.
See under "PARAMETER INFO" for more information and what applies for other parameters.

7.4.5 Settings "GENERAL"

Shows a number of different parameters, depending on the log-in level.

- ID 021-022. Lower and upper limit positions.
  See chapter 7.3.5 "Alternative setting of the work area".
- ID 140. Interlock of automatic setting of top and bottom positions.
  Closes or opens this function on the control handle's/external handle's upper left button, see chapter 4.10.1.
- **ID 210. Stop when the gripper is tilted.**
  Used primarily with a light gripper. Sets the sensitivity of the stop function on the downward movement, with horizontal movement of the gripper. 0% fully turned off, the sensitivity increases at higher percentages, max. 100. If you have a gripper that tilts the sensitivity must be reduced.
- ID 257. Minimum pulling force. (Also see "Function of buttons" chapter 4.10)
  During normal use the lifting device always attempts to keep the wire rope taut. This parameter sets the minimum force that the lifting device pulls with.
  This is so grippers with a high centre of gravity do not bend on landing and reduces the risk of the wire rope tangling on the wire rope drum should the lifting device be misused.
  The appropriate level is a few kilos below the gripper weight.
  Minimum pulling force cannot be set less than 1 kg.
- **ID 256. Max load.**
   In special circumstances, the lifting capacity can be limited with this parameter. This is a project-specific assessment that only Binar Handling AB can make.
  It is used, among other things, in conjunction with torque-stabilised lifting devices (QLAT) to maximise the permitted arm lengths.

See under "PARAMETER INFO" for more information and what applies for other parameters.

7.4.6 Settings "SAFETY"

Parameter settings for the lifting device's operating functions, with a safety aspect.

- **ID 139. Automatic interlock of the minimum pulling force and weight limit settings for grip/release.**
  Closes or opens this function on both of the control handle's/external handle's upper top buttons, see chapter 4.10.1.
- ID 255. Weight limit for grip/release.(Also see "Function of buttons" chapter 4.10)
  The lifting device is equipped with a safety function that ensures that the operator cannot release the load if it is suspended freely in the air. This parameter sets a weight limit that the load in the load cell (ID 045) must be lighter than in order for the lifting device to permit the load to be released. Suitable value is 3-8 kg above the unloaded gripper weight, depending on the weight of the lift object.

7.4.7 Settings "PROJECT SPECIFIC"

These parameters relate to special functions in projects where additional modules are used.
See the separate project documentation for an explanation of these specific parameters.
This parameter is not normally used.

7.5 Parameter window, "STATUS".

The window is divided into a number of smaller menu windows. You can also see the "PARAMETER INFO" window here. Click once on a parameter name or number to display the meaning.

7.5.1 Status, "ABOUT"

The program versions used in the lifting device can be seen here.
Contact information for Binar Handling AB is located under "publisher".
Tool tip text for mouse can be switched on or off under "Settings", "Show help text".

7.5.2 Status, "INFORMATION"

- Information about the current and max. temperatures on the lift-motor board and its driver. The maximum temperatures can be reset on the "Menu bar", see chapter 7.3.
- ID 100 Serious fault. If value = ON.
  The lifting device has detected a serious fault. Serious fault is always activated in conjunction with any other fault, which clearly specifies the cause of the fault.
  A serious fault requires resetting via iLab 3. See "Menu Bar" in chapter 7.3.
- ID 128 Emergency stop activated. If value = ON.
  Emergency stop activated.
- ID 129 CAN-bus OK: If value = ON.
  CAN communication between the units is ok.

7.5.3 Status, "EVENT LOG" and "ACTIVE FAULT"

Shows logs for different events and any active faults.
The event log can be saved and reset, see chapter 7.3.4.
Active faults must be rectified and then reset via iLab 3, see Menu bar chapter 7.3.
Indicate events or faults in the log; see under "PARAMETER INFO" for more information.
Also see "Troubleshooting via iLab 3" chapter 11.2.

7.6 Parameter window, "IN/OUT".

All the I/O boards connected to the gripper are presented here.
The inputs and outputs that are "ON" and "OFF" can be seen for each board.
In total, five boards can be shown and connected. See example in chapter 7.8.

7.7 Parameter window "ADVANCED".

Depending on the current gripper functionality, the opportunity is given here to define conditions
and which logical requirements the gripper must fulfil in order for a certain "action" to be performed.
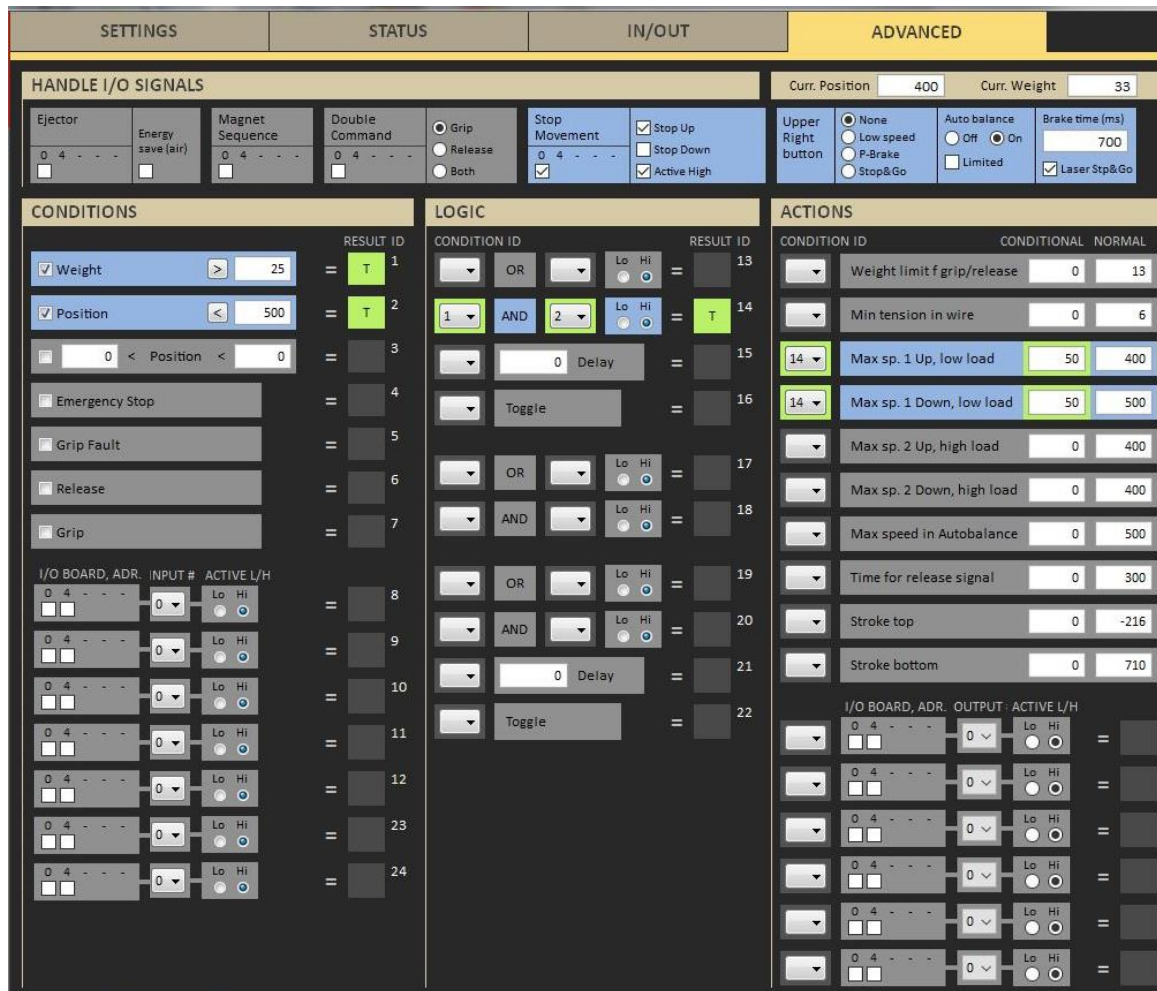
7.7.1 Advanced "Conditions".

Here are 12 conditions that can be used.

Conditions 1-7 are programmed in terms of weight, position, conditions, emergency stop, wrong grip, release, grip.

Conditions 8-12, give the possibility to use up to five connected I/O boards and state specific inputs 0-6 on each board, set active signals or not (Lo/Hi).

These conditions generate the identification numbers 1 - 12, which can be used either for additional logical requirements under "Logic" or to directly determine different actions under "Action".

7.7.2 Advanced "Logic".

Here there is an opportunity to set up to 6 logical requirements, 2 time delays and 2 for TRUE/FALSE interactions on the conditions.

The condition and/or logic number that applies to a specific logic is set on each drop-down menu; this in turn generates an identification number 13–22 in order to directly determine different actions under "Action".

- Only condition numbers 1–12 can be selected in the drop-down menu for logic numbers 13–16.
- Condition numbers 1–12 and the above logic numbers 13–16 can be selected in the drop-down menu for logic numbers 17–18.
- Condition numbers 1–12 and the above logic numbers 13-18 can be selected in the drop-down menu for logic numbers 19-22.

7.7.3 Advanced "Action"

Here it is possible to set up to 10 different pre-programmed actions.

The condition and/or logic number (1–22) to apply to a specific action is set on each drop-down menu.

A conditional value is set to the right of each action that must distinguish itself in some way from the displayed standard value.

Under "Action" there is also the possibility to use up to four extra connected I/O boards and set the action on each output (0-2) to determine whether signals are active or not (Lo/Hi).

7.7.4 Advanced "I/O SIGNALS HANDLE"

Here are preprogrammed actions:
- Ejector, for gripper with vacuum, too low vacuum, use of power save function (air save)
- Magnet sequence, for gripper with magnet, warning for magnet on.
- Double command, for gripper with integrated safety solution for grip. Requires signal from input 0 on the I/O board to grip. An extra pushbutton is required for grip.
  To obtain the grip function, both the external and ordinary grip/release buttons need to be pressed within 0-500 ms. In software version HA1.00.10 and older, the external button must be pressed first.
- Interlocked operation, for gripper with integrated safety solution. Requires signal from input 2 on the I/O board, where an external sensor can be connected. Interlocking of up and/or down movement can be chosen.
- Auto balance
- Parking Brake
- Stop and Go

7.7.5 Advanced, example of program setting.

In this example there are two active I/O boards, where board number 1 has an external sensor connected that can detect the lift object so that a correct grip is taken.

Under "IO SIGNALS HANDLE" board number 1 is marked for the "Stop up" function, what should apply with the signal is also stated here.
Under "ADVANCED", the example marking "Stop up" and "Active" signal from the sensor is shown. This means the upward lift movement is stopped, if there is no signal from the external sensor, after the grip has been pressed. Only the downward movement works. The signal from the sensor is required after grip, in order for the lift upward movement to work.

The example below also shows two set conditions with one logic requirement to obtain two results (under action) in the form of speed change 1 up and down.

I/O board number 1 marked for preprogrammed STOP UP function

Here you can see the current position of the gripper and the indicated weight on the wire.

Normal values according to "SETTINGS"

Indicated weight must be more than 25 kg. Lifting position must be lower than 500

Logic requirement that both conditions 1 and 2 must be true

New value when logic requirement 14 is true.

If conditions or logic are true, a green symbol is shown.

If conditions or logic are false, a grey symbol is shown.

If conditions or logic are not used, an empty grey symbol is shown.

7.8   I/O board, connection principle

NOTE! The lifting device **contains many safety critical and ESD sensitive components, and for this reason anyone performing maintenance and refurbishment must possess the requisite knowledge.** To minimise the risk of cables/parts being crushed during assembly, the following order of assembly is recommended for covers on control handles, control boxes or external handles. First reattach the cover with I/O board. Then reattach the other covers.

7.8.1   I/O board, wiring principle for inputs and outputs.

Each connected I/O can be seen in the iLab 3 parameter window "IN/OUT". Every board has seven inputs available, i.e. 0–6, and three outputs available, i.e. 0–2; output 3 is the default output for power supply to e.g. an external valve (the power is shut off if an emergency stop is activated). Also see the wiring diagram for more information.

If the I/O board is <u>not</u> connected to an emergency stop, these four pins must have a jumper.

If the I/O board is <u>not</u> connected to another I/O board, these six pins must have a jumper.

CAN connections to control board and/or I/O board

Dipswitch ***)

Spring-loaded terminals "Push-IN" For 0.2–0.5 mm^2
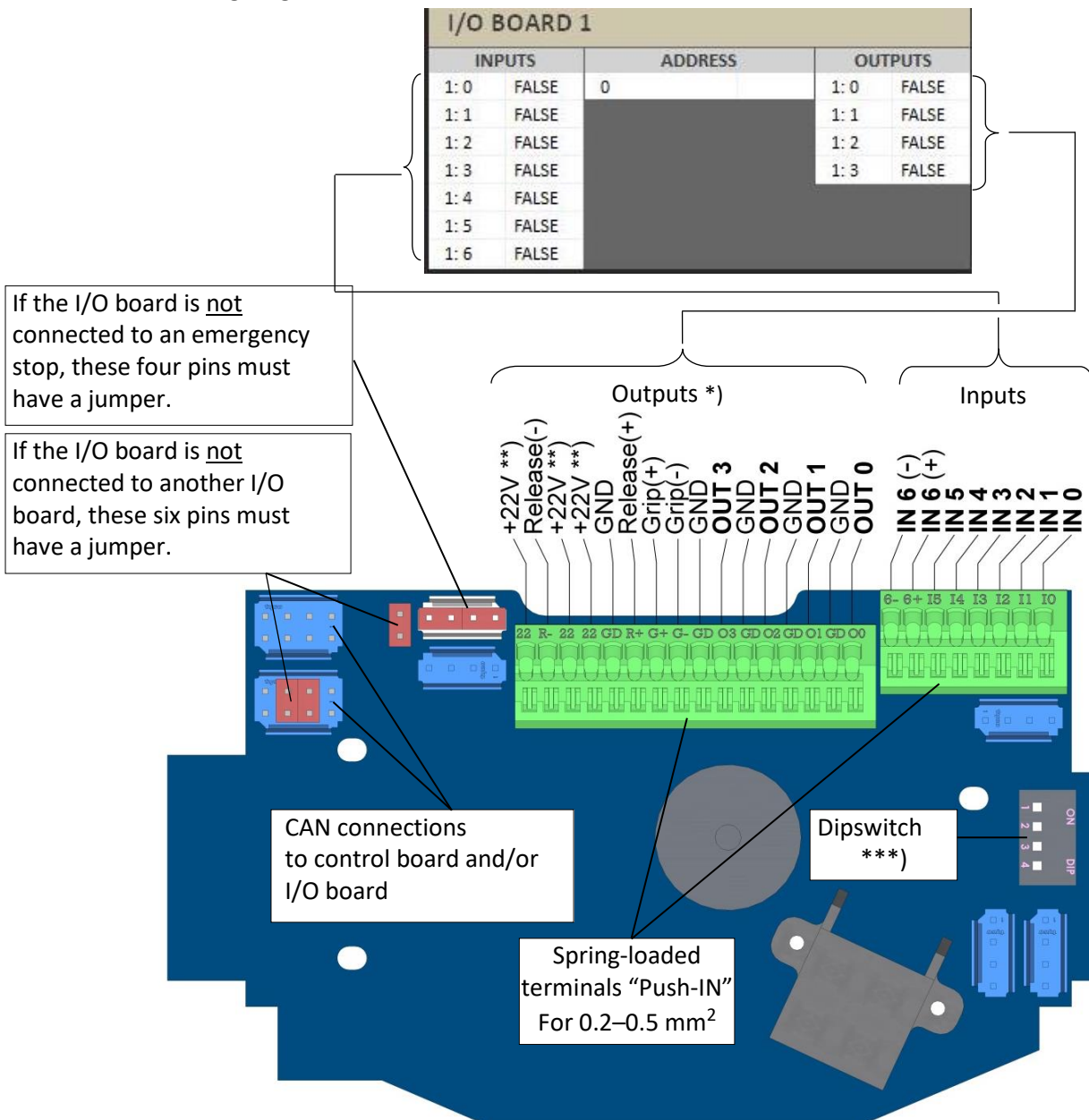
*) Here there are also predetermined outputs for earth, +24 V, grip and release.
Release = release grip. NC= not connected.
**) Outputs marked 24V; the voltage varies between 18 and 24 V.
***) Using a "dipswitch", you can set a unique address (0–15) in the form of a binary value for each connected I/O board. I/O boards connected to a control handle/external handle must always have the address 0, 1 or 2. The default address for a control box with I/O board is 3.
Separate extra I/O boards are normally set to 0 and therefore need to be changed to new unique addresses 6, 7, 8 and so on.

7.8.2 I/O board, example of predetermined gripper inputs and outputs.

Also see "Function of LEDs" chapter 4.9.

Standard vacuum gripper

IN 1 – Vacuum indication OK. Vacuum trip off, too low level.

IN 3 – Power save level is achieved. Vacuum trip off with level for power saving.

OUT 0 – Control of vacuum pump.

OUT 1 – Indication of low vacuum.

OUT 2 – Control of free blowing valve in order to obtain atmospheric pressure.

When these inputs and outputs are connected,

"Ejector" in the iLab 3 parameter window "Advanced" will be ticked, see chapter 7.7.4

Standard magnetic gripper

IN 2 – The sensor must indicate high when the magnet is fully activated.

The response from the magnetic gripper's sensor is connected to input 2 on a suitable I/O board. When this input is connected,

"Magnet sequence" in the iLab 3 parameter window "Advanced" will be ticked, see chapter 7.7.4

Other preprogrammed functions for inputs and outputs

IN 0 – Preprogrammed in order to be used for double command for "Grip/Release".

IN 2 – Preprogrammed for "Incorrect grip warning". This function can also be used for the "Stop up" function and/or "Stop down" function.

IN 6 – Optically isolated input, allows for connection of an external signal from another system.

If IN 6(-) is connected to GND (earth), IN 6(+) can serve as an ordinary input.

OUT 3 – External valves can be connected to this input so that the valve can have an emergency stop function. Power suply is switched off during emergency stop and power save mode.

7.8.3 Example 1 – External handle and control box

The control box only contains a "control board". The external handle has an I/O board connected for communication with the control box's control board; see functions of LEDs and buttons in chapter 4.9-10.

This example shows a gripper that only has mechanical gripping functions. Pushbuttons for Grip/Release are not important here, just the connected CAN communication between units.

Control box with just a "control board"

Connection cable for CAN communication
This is available in different standard lengths

External handle with "I/O board"

Dipswitch Address 0

See chapter 7.8.1 for the connection/jumper principle.
For this example it is not necessary to reset the "dipswitch" or jumpers.
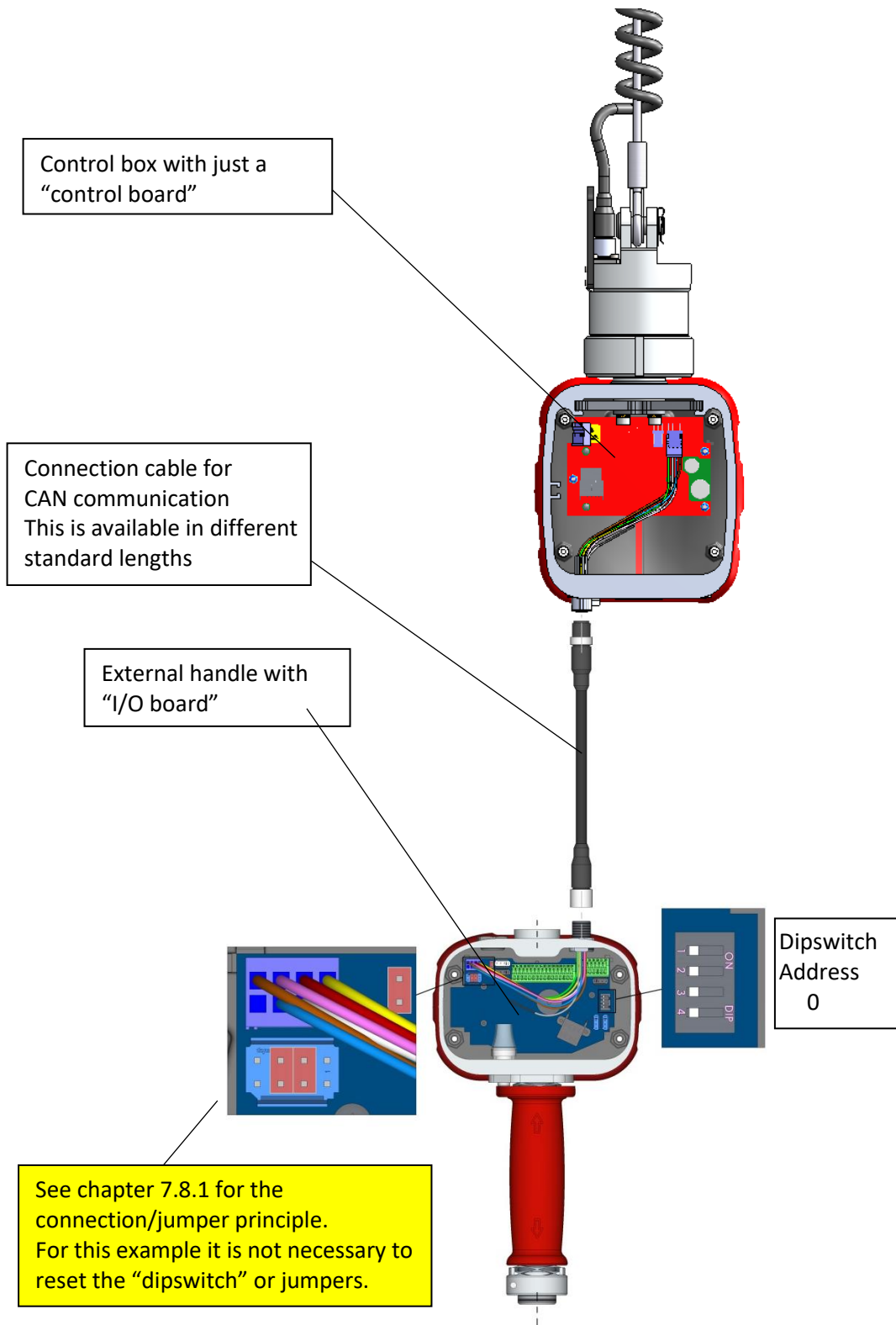
7.8.4   Example 2 – External handle and control box with air valve

The control box contains a "control board" and an I/O board to which the internally power-operated 5/2 air valve is connected. The external handle has an I/O board connected for communication with the control box; see functions of LEDs and buttons in chapter 4.9-10.

In this example, the idea is that the 5/2 air valve controls the grip/release function via a theoretical compressed air cylinder. There is also a theoretical sensor positioned on the gripper for lift object indication; the gripper must have a safety function that stops the upward lifting motion if the correct grip is not achieved.
See chapter 7.8.1 and the wiring diagram for correct connection of extra components for the I/O boards' inputs and outputs.

Control box with "control board" and one I/O board

Internal 5/2 air valve

Dipswitches, unique address allocated to every I/O board

Address 3

Existing plug (M16x1.5) Replaced with suitable cable entry

Connection cable for CAN communication This is available in different standard lengths

A sensor can be connected to the control box's and/or the external handle's I/O board. This depends on the most suitable cable run for the gripper.

Address 0

See chapter 7.8.1 for the connection/jumper principle. For this example it is not necessary to reset the "dipswitch" or jumpers.

7.8.5 Example 3 – External handle, control box and extra electrical cabinets

The picture shows an example of the maximum connected I/O boards on a theoretical gripper with control box and external handle. A gripper may include a maximum of three external handles.

Control box with only one "control board"

5 I/O boards, one of which is in the external handle

Dipswitches, unique addresses must be allocated to every I/O board

Address 6

Male

Female

Limit for extra electrical cabinet

5 connection cables for CAN communication between units.
These are available in various standard lengths

Address 0

Existing plug (M16x1.5) is replaced with panel socket 012934; the cable is connected to a 8-pin connector as illustrated.

Every I/O board for which the emergency stop is not connected must have these two jumpers

Address 7

8-pin connector, for panel socket 012933

8-pin connector, for panel socket 012934

Address 8

Last I/O board in a series, must have three extra jumpers.

Address 9

8. Spare parts

8.1 Spare parts, lifting device

Position	Name	Part number	Comments
1	Wire rope drum cover	71551	
2	Wire rope guide complete (guide nut)	71521	
3	Wire rope drum complete	71530	
4	Guide pins	71511*	
5	230-volts connector – female complete	71600	
6	Spiral cable	See delivery specification (chapter 1)	Worn part
7	Wire rope with thimble Ø5 mm	See delivery specification (chapter 1)	Worn part
8	Spiral hose air	See delivery specification (chapter 1) cut as needed	Worn part
9	Wire rope guide complete (holder) QLR	71540	
10	Cable strain relief QLR	011966	
11	Cable strain relief QLA	012156	
12	Nose wheel complete QLA	013740	Worn part
13	Nose wheel complete QLAT	011488	
14	Return pulley complete with holder QLA 50i and QLA 100i	013744	
15	Return pulley complete with holder QLA 200i and QLA 300i	013882	Worn part
16	Return pulley complete with holder QLAT	012214	Worn part
17	Arm cable harness complete 7.5 m QLA	012141	Worn part
18	Encoder 3620	012483	
19	Brake	011412	Worn part
-	Oil spray for wire rope	62000	
-	Motor unit for QLA 50i	1020010502**	
-	Motor unit for QLR 50i	1020010501**	
-	Motor unit for QLA 100i	1020011002**	
-	Motor unit for QLAT 350S	1020011252**	
-	Motor unit for QLA 200i	1020022002**	
-	Motor unit for QLA 300i	1020023002**	
-	Motor unit for QLR 125i and QLAT 350S	1020011251**	
-	Motor unit for QLR 200i	1020022001**	
-	Motor unit for QLR 300i	1020023001**	

*For QLA 300i and QLR 300i the part number is 71512

** Exclusive position 1, 2, 3 and 4

8.2   Spare parts, control handle/external handle/control box

Position	Name	Part number	Comments
20	Emergency stop	012941	
21	Pushbutton, green	012938	
22	Pushbutton, red	012937	
23	Pushbutton, yellow	012936	
-	I/O board, kit	33500	Including parts 013975 and 013976
-	Service kit, ESD protection	39600	
-	Ejector (included in vacuum handle)	013284	
-	Valve (included in valve handle)	22009	
-	PC cable USB	39801	

When ordering spare parts from Binar Handling AB ALWAYS *state the part number and the lifting device's serial number. You will find the lifting device's serial number at the top of the delivery specification (chapter 1).*

- There is also a spare part kit available to order, for more information contact Binar Handling AB.
- There are exploded views on the next page to identify spare parts.

8.3 Exploded view – Spare parts

Motor unit
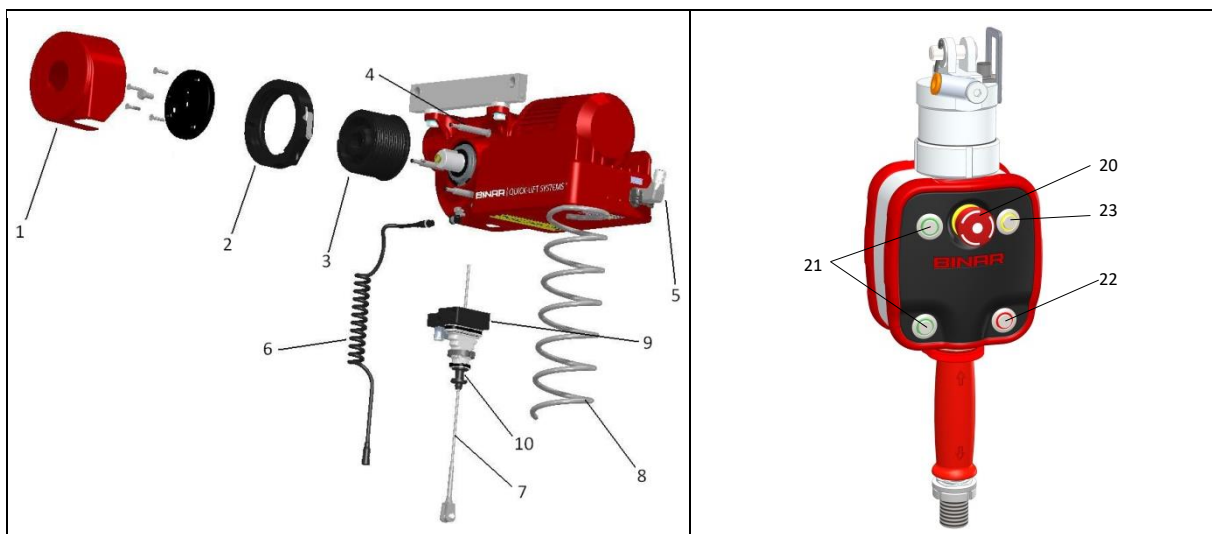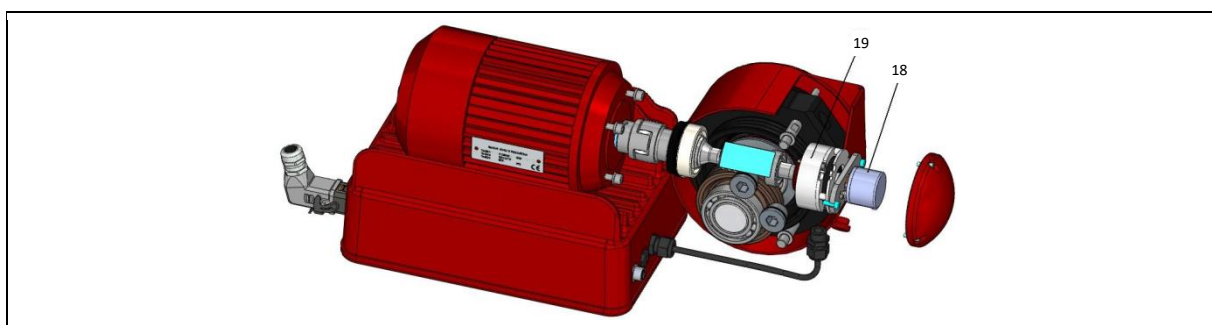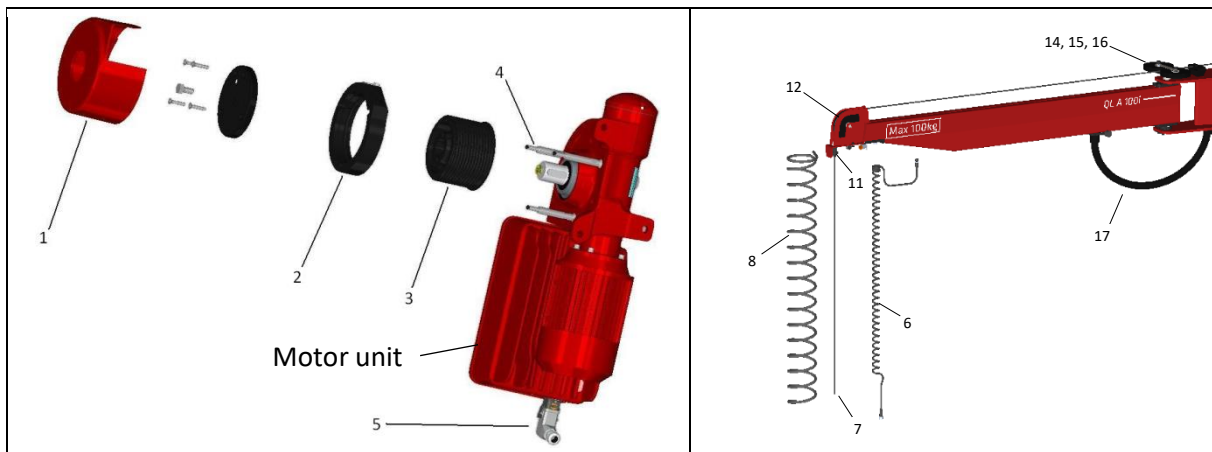
9. Instructions for installing spare parts

9.1 Safety instructions when working on the lifting device

- Make sure that the power supply and any compressed air supply are turned off when working on the lifting device.
- If the work takes place at height, ensure appropriate precautions are taken. Work platform recommended. If ladders are used these must be secured.

9.2 Installation of the cable drum guard

9.2.1 Component parts

- 1 wire-rope drum guard
- 3 screws, K6S-M4×8

9.2.2 Tools

- Allen key size 2.5 mm.

9.2.3 Instructions

1. Switch off the power and any compressed air supply to the Quick-Lift.
2. Remove the old guard by unscrewing the 3 screws and lift off the guard.
3. Fit the new guard. Align the holes against the 3 guide pins.
4. Fit all 3 screws.
5. Adjust so the guard sits correctly and tighten the screws.

9.3 Cutting the wire rope

When cutting off the wire rope, the position where the cut is to be made must be soldered before cutting to prevent the strands from spreading.
Cutting is easiest using an angle grinder. After cutting, the wire rope ends must be smoothed and rounded off.

9.4 Replacement of the spiral cable

In order to replace the spiral cable you need to access the nose of the jib arm (QLA) or the underside of QLR. Work using a work platform if possible or a ladder. Secure the ladder if used.

9.4.1 Instructions

1. Switch off the power and any compressed air supply to the lifting device. Ensure that the compressed air hose is no longer pressurised.
2. Disconnect the spiral cable from the control handle/gripper.
3. Unwind the spiral cable from the wire rope.
4. Disconnect the old spiral cable from the nose on the jib arm/underside of QLR and fit the new cable.
5. Wind the spiral cable around the wire rope all the way.
6. Now reconnect the spiral cable in the control handle/gripper.
7. Fit the spiral hose for air, if used, and connect it.
8. Switch on the power and any compressed air supply.
9. Carefully test run up and down a few times.

9.5 Replacement of the wire rope

The easiest way to perform wire rope replacement is when the whole drum has been dismantled and wire rope replacement is carried out on a bench. It is also possible to perform wire rope replacement up on the lifting device, but it is recommended then to use a working platform.

9.5.1 Tools
- Allen key, size 2.5 mm, 3 mm, 4 mm (QLR also 5 mm)
- Ring spanner, size 10 mm, 17 mm

9.5.2 Dismantling the complete wire rope drum

1.	Feed out as much wire rope as possible using the manoeuvre handle.		
2.	Switch off the power and any compressed air supply.		
3.	Ensure that the compressed air hose is no longer pressurised.		
4.	Disconnect the control handle/gripper.		

QLA		QLR	
5	Dismantle the guard, 3 screws, Allen key size 2.5 mm.	5	Dismantle the guard, 3 screws, Allen key size 2.5 mm.
		6a	Loosen the signal cable and any hose for incoming compressed air at the rear of the cable harness bracket.
		6b	Unscrew the cable harness bracket, 2 screws, Allen key, size 5 mm.

7.	Loosen the centre screw on the wire rope drum and remove the whole wire rope drum. If, for one reason or another, it is immovable, see "Troubleshooting" (chapter 10).
8.	Lift down the entire package onto a worktable.

9.5.3 Dismantling the wire rope.

1.	Place the wire rope drum on a table beside the lift.
2.	Loosen the screw on the pressure roller a few turns.
3.	Hold the yellow wire rope guide, grasp the wire rope, and pull it out. Pull out as much of the wire rope as possible. See figure 1.
4.	Loosen the locking screw for the wire rope. Allen key, size 3 mm.
5.	Loosen the cover on the wire rope drum by unscrewing the 4 screws using an Allen key size 4 mm.
6.	Carefully pull out more wire rope, until it stops or that the whole wire rope is fed out. NOTE! IMPORTANT! Hold the end of the wire rope so that it does not jump out of the slot it is sitting in. If this should happen, see "Troubleshooting" (chapter10) to help rectify the problem.
7.	Remove the old wire rope.

Bild 1

Screw on the pressure roller.
Locking screw for the wire rope.
Wire rope guide.
Cover.
Fastening screws for the cover (4 pcs)
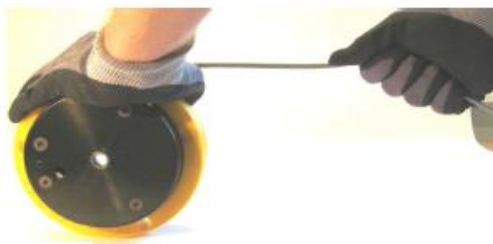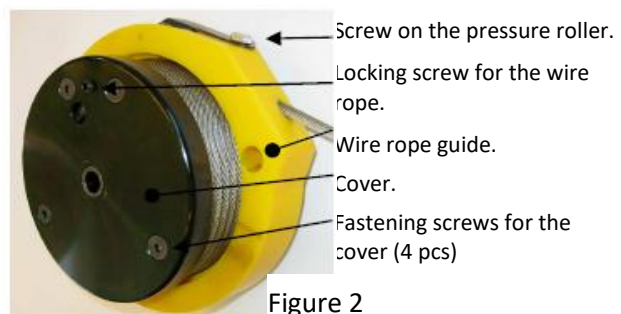
Figure 2

9.5.4   Instructions for assembly of new wire rope and wire rope drum.

Select zero position:

	NOTE! If an old wire rope must be replaced, check that the new wire rope is the same length.
1.	Position the wire rope guide so that the hole for the wire rope aligns with the slot where the wire rope is attached to the drum, see the line in figure 3 below.
2.	Rotate the nut 1 turn clockwise.
3.	Protect the new wire rope from dirt by placing it in a box. Allow the wire rope to remain in the box during assembly.

QLA		QLR	
4.	Insert the new wire rope through the signal cable harness and onward up over the nose wheel. Continue along the jib arm through the return pulleys and plastic guides on the middle.	4.	Insert the new wire rope through the signal cable harness and onward up through the cable harness bracket.
4a.	Pull through as much wire rope as possible and drop this on the floor. NOTE! Make sure the wire rope does not get dirty. Place the wire rope in a bag or box if the floor is dirty.		
4b.	Pull the wire rope through the return pulley that is lifted down.		

5.	Continue into the hole in the wire rope guide and insert the end of the wire rope into the wire rope drum's slot.
6.	Check that approximately 3-4 cm of the wire rope protrudes beyond the slot, towards the centre of the wire rope drum. See the line in figure 3.
7.	Tighten the screw on the pressure roller.
8.	While the wire rope is held in place in the slot, turn the wire rope drum slowly so that the wire rope is fed in on the wire rope drum. Continue to feed in the wire rope until the wire rope guide is fully screwed in on the wire rope drum, about 5 turns.
9.	Position the cover, exercise care to ensure the wire rope remains in its slot.
10.	Secure the cover with the screws. Tightening torque 6.5 Nm.
11.	Tighten the wire rope locking screw, until the top of the locking screw is flush with the cover.

QLA		QLR	
12.	Replace the wire rope drum on the lifting device and refit the arm's return pulley. Rotate the wire rope drum so that its keyway aligns with the key on the lifting device's shaft. Push in the wire rope drum so the cover rests against the shaft on the lifting device.	12.	Refit the wire rope drum on the lifting device. Rotate the wire rope drum so that its keyway aligns with the key on the lifting device's shaft. Press in the wire rope drum so that the cover lies against the shaft on the lifting device.
13.	Tighten the centre screw. Do not forget the lock washer.	13.	Tighten the centre screw. Do not forget the lock washer.
14.	Check that the wire rope is positioned correctly over the nose wheel and through all of the other return pulleys on the arm.	14.	Attach the cable harness bracket.

15.	Connect the control handle/gripper.
16.	Connect the compressed air, if required. Turn on the power supply to the lifting device.
17.	Carefully test run up and down a few times.
18.	Perform a new "Set zero point", see chapter 7.3.5
19.	Reset the remaining wire rope function in iLab, see chapter 7.3

Wire rope guide

Wire rope drum

3-4cm

Dashed area shows the holes in the wire guide
And groove in the wire rope drum.
The line symbolises the wire rope.
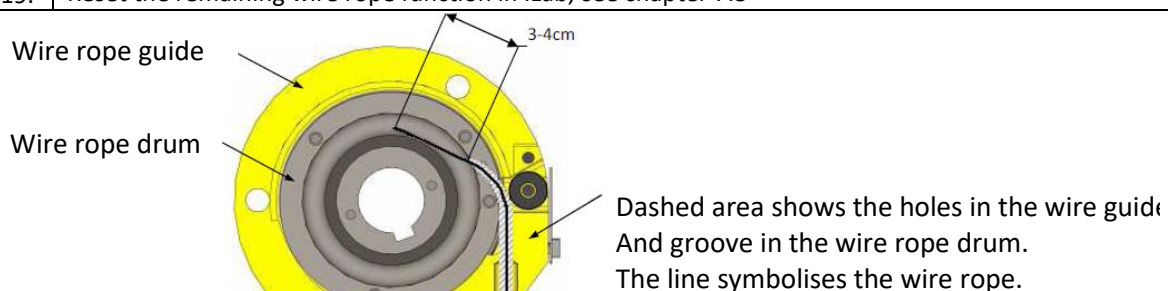
Bild 3

10. Maintenance of the lifting device

10.1 Safety instructions when working on the lifting device

- Make sure that the power supply and any compressed air supply are turned off when working on the lifting device.
- If the work takes place at height, ensure appropriate precautions are taken. Work platform recommended. If ladders are used these must be secured.
- A report must be completed and signed with all inspection and maintenance, see "Appendices".

10.2 Skills requirements for maintenance personnel

10.2.1 Electricity and electronics

Personnel with the necessary knowledge and qualifications must perform work on the installation's electrical and electronic systems. Applicable and relevant safety requirements must be observed. The lifting device contains many safety critical and ESD sensitive components and for this reason anyone performing maintenance must possess the requisite knowledge.

10.2.2 Mechanics

Personnel with relevant knowledge and experience must perform work on the mechanical systems. Applicable and relevant safety requirements must be observed.

10.3 Daily inspection

In order to see what needs to be checked on a daily basis, see "Operation description, before start" (section 4.6).

10.4 One month after installation

Check-tighten the fastening points for the floor (or ceiling or roof), to ensure that they are correctly tightened.
(See "Installation" chapter 12)
Do not forget to complete the maintenance report, see "appendices".

10.5 Quarterly maintenance

Area	What – description of the measures	Materials and Tools
Wire rope	Check the whole wire rope closely, especially the part that winds on/off the wire rope drum and parts that run via the return pulleys. Look for wire rope breakage, rust, deformation and other damage.	Ladder or Lift
Wire rope	Lubricate the wire rope	Ladder of lift, lubricate, Brilube 30 recommended, see "Spare parts" (chapter 8)
Motor unit	Check the gearbox for oil leakage. Contact Binar Handling AB if discovered.	None
Cable harnesses	Check that the nose connector is undamaged.	None
Spiral cable	Check that the spiral cable is intact, if not must be replaced.	None
Compressed air hose	Check that the spiral cable hangs freely and is free from damage.	None
Swivel	Check that the gripper can rotate freely in both directions.	None
Arms	Inspect visually to make sure the arms are not cracked, buckled or damaged in any other way	None

The maintenance report must be completed, see "appendices"

10.6 Maintenance every twelve months

Area	What – description of the measures	Materials and Tools
Arm (Only QLA)	Check that the return pulley is intact and runs freely	Ladder or Lift
Arm (Only QLA)	Make sure all parts are undamaged.	Ladder or Lift
General	Make sure the upper and lower limit values are correct	Computer with iLab 3
Control handle/Gripper	Check that the swivel hole for the wire rope pin is round and free from damage.	None
Motor unit	Check that the cooling flanges are clean and that the motor fan works	None
Air supply	Check that all coupling points on the air supply are free from leakage.	Ladder or Lift
Suspension on pillar and floor	QLA: Check the anchor points in the floor (wall/ceiling) so they are tightened (80 Nm/120Nm) and undamaged and the anchor points for the arm (385 Nm, M20) on the pillar (wall bracket/ceiling bracket). QLR: Make sure that the pins that hold the QLR in the rail system are undamaged and secured.	Ladder or Lift
Suspension	Check that there is no damage.	Ladder or Lift

The maintenance report must be completed, see "appendices"

10.7 Replacement of the wire rope

How frequently a wire rope needs to be changed depends on how much it is used and the weight lifted. The schedule below is a recommendation. It is important to check the wire rope regularly and if any damage is discovered, the wire rope must be replaced. There is also a indication in iLab 3 about an estimated remaning life of the wire rope see 7.3.7.

Number of hours Weight	40 hours/week	80 hours/week	168 hours/week
Up to 50 kg (including gripper)	Once every 48 months*	Once every 24 months*	Once every 12 months*
Up to 100 kg (including gripper)	Once every 24 months*	Once every 12 months*	Once every 6 months*
Up to 200 kg (including gripper)	Once every 16 months**	Once every 8 months**	Once every 4 months**
Up to 300 kg (including gripper)	Once every 24 months***	Once every 12 months***	Once every 6 months***

*Based on a cycle time of 1 minute (i.e. 60 lifts per hour)
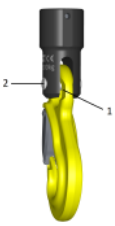
** Based on a cycle time of 2 minutes (i.e. 30 lifts per hour)

***Based on a cycle time of 5 minutes (i.e. 12 lifts per hour)

*The maintenance report must be completed, see "**appendices**"*

10.8 End effectors and adaptors

End effectors must be maintained according to their specific documentation. The table below describes end effectors/adaptors that are fixed installed to the control box/control handle and don't have any specific documentation.

Area	What – description of the measures	Frequency	Materials and Tools
General	Inspect visually to make sure there are no cracks, wear or any other damage	Every 3 months	None
Fixed hook, 013850	Check the cylindrical pin through the slot in the hook, see Figure below. Replace the cylindrical pin if the wear is more than 2 mm or after 1,000,000 lift cycles, whichever comes first.	Every 3 months	None
Canister hook, 101550	Discard and replace the canister hook.	After 1,000,000 lift cycles	None
Adaptor, 012903	Discard and replace the adaptor.	After 1,000,000 lift cycles	None

11. Troubleshooting

11.1 Troubleshooting – for operators

11.1.1 The lifting device does not start

- Check that the green light on the lid of the motor unit is lit, this indicates that the motor board has 230 V power suply and is generating 24 V out.
- Check that the power has been switched on.
  Action if switched off: Switch on the power.
- Check the top left button on the control handle/external handle.
  Action if it is flashes green: Press the button to exit power save mode.
- Check the emergency stop.
  If the upper right button on the control handle/external handle flashes a slow yellow single light, the emergency stop is activated.
  Measure if activated: Investigate why the emergency stop is activated. If no fault is found, turn the emergency stop button clockwise to release the emergency stop. Wait until the lifting device restarts, about 10 seconds.
- Check the top right button on the control handle/external handle.
  Action if it is flashes single yellow light: Contact maintenance personnel.
  Action if it is flashes double yellow light: Contact maintenance personnel.
- Check that the signal cable is intact.
  Action if faulty: Contact maintenance personnel.
- Other.
  Action: Contact maintenance personnel.

11.1.2 The gripper moves by itself on the vertical axis

Grip the manoeuvre handle and run the lifting device up and down. Now release the manoeuvre handle.
Action with continued fault: Switch off the power to the lifting device or activate the emergency stop. Then contact maintenance personnel. See chapter 11.2.1

11.2 Troubleshooting - Via iLab 3 and the control handle's/external handle's LEDs

The control handle/external handle has a minimum of two pushbuttons with integrated LEDs. See the function descriptions, chapter 4.9 - 4.10

11.2.1 Common checkpoints

1. The distance between the upper surface of the maneuver handle and the plate above shall be 1.4 to 1.6 mm. The easiest way to check this is to use a 1,5 mm allen key and use it as a feeler gauge.

2. Check that the O-ring on the connector is there. Without the O-ring the female part can move and cause interruptions and permanently damaged connectors with other following faults.
3. Check that the 8-pole cables are tightly screwed all the way.
4. Check that all 8-pole contacts are undamaged.

11.2.2 The gripper moves by itself on the vertical axis

If the gripper continues to move on the vertical axis after it has been run up and down and stopped, the following action should be taken:

1. Release any lift object, run the gripper up so that it hangs freely on the wire rope and press the emergency stop.
2. Check the handle signal for the up/down movement via iLab 3 – Settings – Information, parameter ID 037. This value must be ±20 % when the gripper is non-actuated; if another value is shown, the handle sensor must be calibrated using iLab 3 with the "Calibrate handle sensors" button. See chapter 7.3 "Menu bar".
   Important! Switch off the power suply to the lifting device for at least 10 seconds after calibration otherwise the monitoring function will interpret this as a fault and shut down the lifting device completely.
3. Check and if necessary correct the value of "Minimum pulling force" (ID 257); see chapter 7.4.5.
4. Restart the lifting device; if the fault persists, contact Binar Handling AB.

11.2.3 Upper right button flashes yellow

For some reason the lifting device does not work as designed.
(First check whether the emergency stop is activated.)

A constant single flashing yellow light
- Go to the "STATUS" parameter window, and study the lifting device's event log and any active faults. Indicate events or faults in the log; see under "PARAMETER INFO" for more information.
- Rectify external faults, go to the "MENU BAR" (see chapter 7.3) and click "Reset fault".
- Close iLab 3 and lifting device.
- Restart the lifting device; if the fault persists, contact Binar Handling AB.

A constant double flashing yellow light
Major fault.
Perform the same steps as for a single flashing light
If the problem persists, contact Binar Handling AB.

Pushbutton with Yellow LED

Tools
- Computer with the iLab 3 program
- USB cable
- Access to the security level "maintenance" in the iLab 3 program.

11.2.4 Fixed green LED and quick flashing yellow LED

The lifting device has an error, but it can be run in a limited way to solve the problem.
Examples of errors:
- Gripper has moved outside of the specified working range on the vertical axis.
   Moving back to the work area is permitted.
- The lifting device is overloaded. Only running down is permitted to unload the gripper.

11.2.5 All LEDs off

This indicates one or more of the following:
- There is no power suply to the lifting device (230 v).
- The monitoring function has detected a fault on e.g. the load cell or handle sensor.
  This can mean that the handle sensor was calibrated without the power suply having been turned off (see 7.3.6).
  When the monitoring function detects a fault, CAN traffic is also switched off and, as a result, error code 1014 in iLab will be displayed which indicates a fault in CAN traffic.

11.3 The wire rope guide has run against the mechanical stop and has jammed.

11.3.1 Solution

Connecting a computer with iLab 3 to the lifting device and using a special run loose function can solve the problem.

11.3.2 Tools

- Allen key size 2.5 mm, 3 mm
- Computer with the iLab 3 program
- USB cable
- Access to the security level "maintenance" in the iLab 3 program.

11.3.3 Instructions

1. Check in which direction the wire rope guide has jammed. In the event of uncertainty, switch off the power to the lifting device, unscrew the wire rope drum's guard and check the position of the wire rope guide. See pictures.
2. Ensure that no one is near the wire rope drum and the wire rope guide, then reconnect the lifting device.
3. Connect the computer to the lifting device and start the iLab 3 program.
4. Change the security level to "maintenance".
5. Select the "Run loose" check box on the "Menu bar", see chapter 7.3

6. Was the fixed operation performed when you ran the gripper down? (wire rope is fed out)
   This is also visible by the wire rope guide being at the outer edge of the wire rope drum.
   In this case the button indicates "UP";　　⬆
   the lift motor then pulls from the outer stop and feeds in the wire rope.

   Was the fixed operation performed when you ran the gripper up? (wire rope is fed in)
   This is also visible by the wire rope guide being at the inner edge of the wire rope drum, against the motor gear.
   In this case the button indicates "DOWN";　⬇
    the lift motor then pulls from the inner stop and feeds out the wire rope.

7. Click repeatedly until the wire rope guide releases. Each click of the button means the motor runs for a short while.

8. If this does not help, the wire rope drum must be dismantled.
9. Remove the check mark "Run loose".
   If this is not done, the lifting device cannot be run using the manoeuvre handle.

Wire rope guide extended. Press "UP" to run loose

iLab 3: Check box for the run loose function

Wire rope guide retracted. Press "DOWN" to run loose
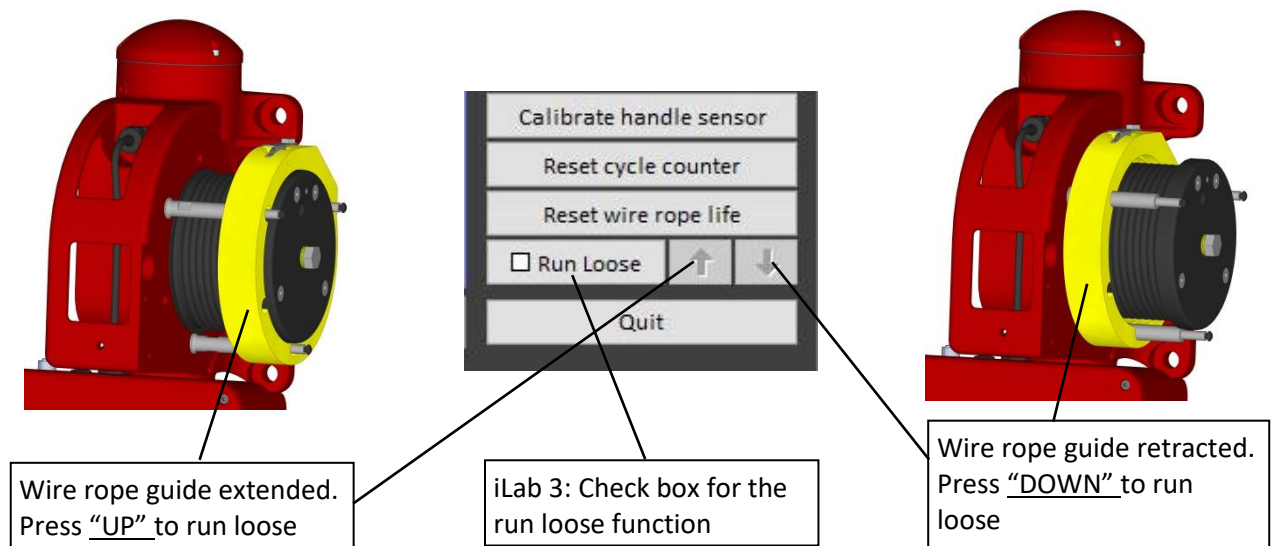
11.4 Wire rope drum is jammed

The wire rope drum is jammed when attempting to dismantle it. This can happen when the wire rope becomes worn and torn strands of wire rope are wedged between the wire rope guide and the wire rope drum.

11.4.1 Solution

Use a puller to remove the wire rope drum.

11.4.2 Tools

- Puller, double-armed for external grip Ø 160, depth 90 mm
- MCS M10×60

11.4.3 Instruction

1. Switch off the power and any compressed air supply to the lifting device.
2. Dismantle the wire rope drum guard if this has not already been done.
3. Unscrew the existing centre bolt.
4. Screw in a MCS M10×60 in the centre hole.
5. Place the puller arms under the edge of the wire rope guide.
6. Place the tightening screw against the centre bolt.
7. Carefully start to pull off the wire rope drum with the help of the puller.

11.5 Wire rope jams when assembling a new wire rope

The wire rope has become misaligned after which it wedges fast. The wire rope has probably wedged between the wire rope guide and the wire rope drum.

11.5.1 Solution

Push/knock the wire rope back into the right position. Exercise extreme care during this procedure to ensure that the wire rope drum is not damaged.

11.5.2 Tools

- Plastic or wooden pin, about Ø 4-5 mm
- Plastic mallet

11.5.3 Instruction

1. Locate the point where the wire rope is wedged.
2. Use the pin and try to press the wire rope into the wire rope drum's slot again. It is important to press at the right angle in towards the centre of the slot.

> **NOTE! Exercise care, risk of damaging the slot edges on the wire rope drum**

3. If necessary, use a plastic mallet and knock the pin to force the wire rope into the slot.
4. Once the wire rope has been pressed into the slot, align the wire rope on the wire rope drum.
5. Turn the drum slowly while the wire rope is pulled out completely from the drum.
   Carefully, so that the wire rope does not jam again.
6. Dismantle the wire rope.
7. Unscrew the wire rope guide and inspect both the wire rope drum and the wire rope guide.
8. If there is damage, for example, sharp broken edges on the wire rope drum's slot, these must be rectified.

12. Installation QLA

12.1 Lifting instructions

12.1.1 Goods handling

QLA (including pillar/suspension) supplied in a wooden packing. The weight of the goods varies depending on the type of lifting device and type of suspension. A forklift or pallet truck is recommended to lift the goods.

12.1.2 Lifting of pillars

A forklift should be used to lift the suspension device. It is advisable to use lifting slings to minimise damage to the paint finish. Attach the lifting slings around the suspension device's centre of gravity.

12.1.3 Lifting QLA

When lifting QLA, a forklift and lifting slings should be used. See the figure below for the placement of the lifting slings.
NOTE! Lifting slings must not be placed around both the inner and outer arm when lifting. Only the inner arm may be loaded.

Inner arm   Lifting slings

Secure the outer arm against the inner arm when lifting
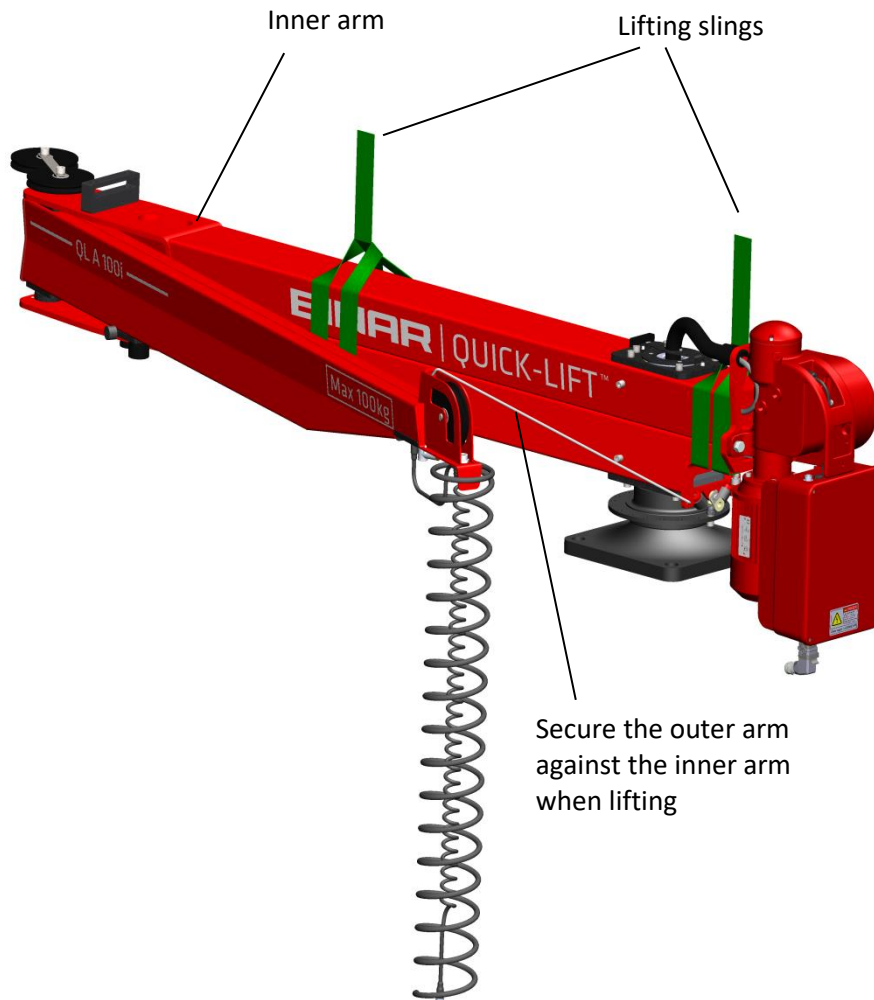
QLA 100i illustrated

12.2 Rotation stops and mechanical end stops

On delivery, the QLA is equipped with a rotary stop and two mechanical end stops The mechanical end stops can be used to limit the movement of the arms so they do not hit a wall or pillar for example.
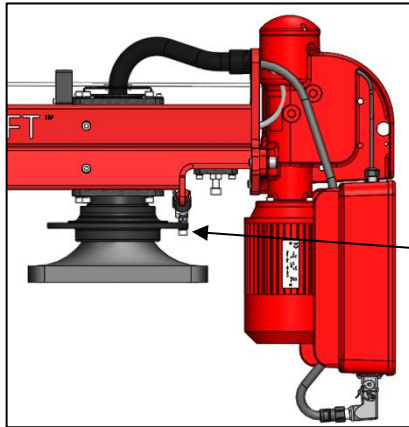
A rotation stop and two mechanical end stops are fitted on the QLA on delivery.

NOTE!
There must <u>always</u> be at least <u>one</u> mechanical end stop on the QLA. Permitted rotation for the QLA is <360°.

Also ensure that mechanical end stops are fitted on a QLA outside normal work areas, so that work can occur without the QLA constantly hitting the end stop.

Rotation stop

Mechanical end stop
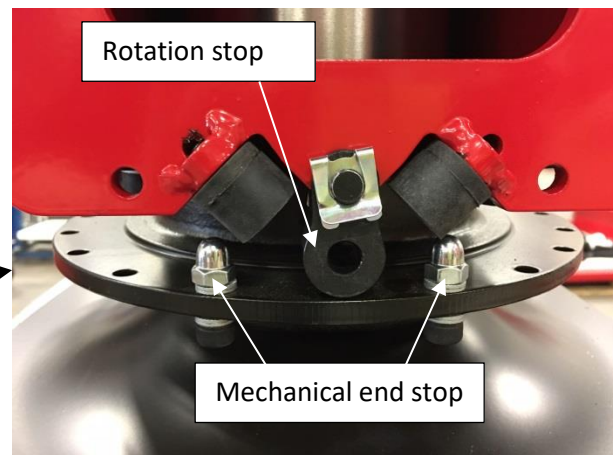
12.3 Concrete requirements

The concrete in the floor, wall, ceiling or pillar where QLA is mounted must at a minimum be of the quality C20/25 (K25), not cracked. The minimum concrete thickness requirements are given in the table below.

	3 m	4 m	5 m
QLA 50i	160 mm	160 mm	
QLA 100i	160 mm	160 mm	160 mm
QLA 200i	160 mm	200 mm	200 mm
QLA 300i	200 mm	200 mm	

A casting of concrete on the existing floor cannot be included in the thickness/strength.

12.4 Installing the pillar.

NOTE! Study the installation drawings for QLA before installation, see section 12.9.

When installing the pillar on a concrete floor, use 4 HILTI safety expansion anchors HSL-3-B-M12/25 or HSL-3-B-M16/25 depending on the pillar type.
Some countries have local regulations that prescribe e.g. DICT-approved fasteners, the responsible installation company must then produce a tailored installation instruction.

12.4.1 Tools
- Concrete drill
- Concrete drill bit
- Spirit level
- Blow pump or vacuum cleaner and bottle brush
- Sledgehammer
- Ring spanner 24 mm/30 mm

12.4.2 Instruction
1. Make sure the floor is flat and horizontal.
2. Two or more people can raise the pillar by hand. A single person should use lifting device to lift the pillar.
3. Position the pillar and drill holes with the concrete drill, use the pillar as a drilling template. The hole configuration can be seen in the images on the next page.
4. The requisite hole depth for the safety expansion anchor HSL-3-B-M12/25 is 110 mm and for HSL-3-B-M16/25 is 125 mm.
5. Check using a spirit level that the pillar is vertical.
6. Use shims if necessary to get the pillar to stand straight.
7. Clean the holes carefully from dust and dirt using a blow pump or vacuum cleaner and bottle brush.
8. Knock down the safety expansion anchors with the sledgehammer.
9. Tighten the expansion anchors to the correct torque. The safety expansion anchors are equipped with a "safety stop". This means that a torque wrench is not needed in order to tighten it to the correct torque. The red "hat" releases at the right torque.
10. Re-tighten the bolts after 1 month of use. Tightening torque:
    80 Nm (For safety expansion anchor HSL-3-B-M12/25)
    120 Nm (For safety expansion anchor HSL-3-B-M16/25).

12.5 Pillar types

> **NOTE!**
> A Quick-Lift Arm with steel jib arm (regardless of lifting capacity)
> may **NEVER** be mounted on an old pillar (*)!

*An old pillar can be recognised by the fact the adjustment screws have M20 threads at both ends.

Adjustment screws
(old pillars)

Adjustment
screws
(new pillars)
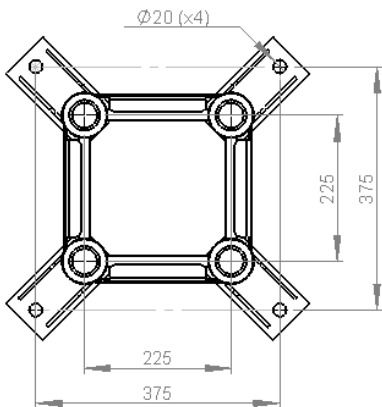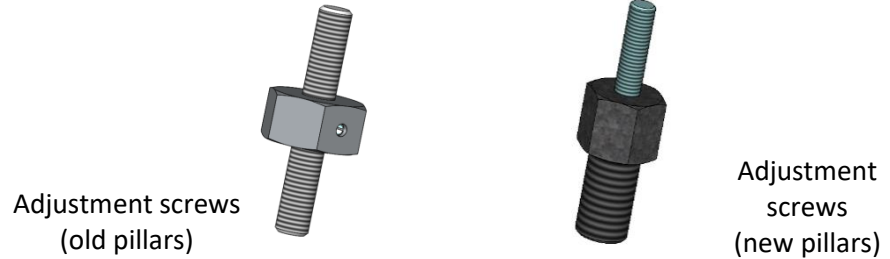
	3 m	4 m	5 m
QLA 50i	X	X	
QLA 100i	X	X	X
QLA 200i*	X		

Use HILTI safety expansion anchor HSL-3-B-M12/25.
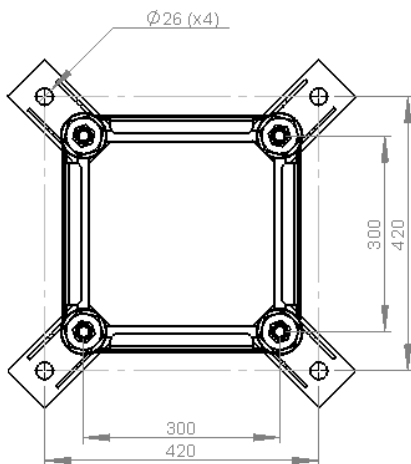
	L=depending on load case
QLAT 350S	X

	3 m	4 m	5 m
QLA 200i		X	X
QLA 300i	X	X	

Use HILTI safety expansion anchor HSL-3-B-M16/25.

12.6   Installation of QLA on pillars

Mounting a QLA on pillars requires adjustment of the pillar's adjustment screws.

12.6.1 Tools
- Forklift
- Lifting slings, 2 pcs.
- Ring spanner 30 mm
- Torque wrench for 385 Nm
- Digital spirit level

> **NOTE! The transport guard between the inner and outer arm must remain in place while mounting the arm on the pillar.**

Before installing QLA on pillars:
When the pillar is firmly anchored to the floor, it is time to lift up QLA into place. Use a forklift and slings. Attach the slings according to the lifting instructions for QLA, see "Lifting instructions (section 12.1). One of the slings may need to be shortened to allow the arms to hang level.

1. Upon delivery, the adjustment screws are fully screwed in. Measure which adjustment screw is highest.
2. Adjust the three remaining adjustment screws so that all the adjustment screws end up at the same height. A digital spirit level should preferably be used.
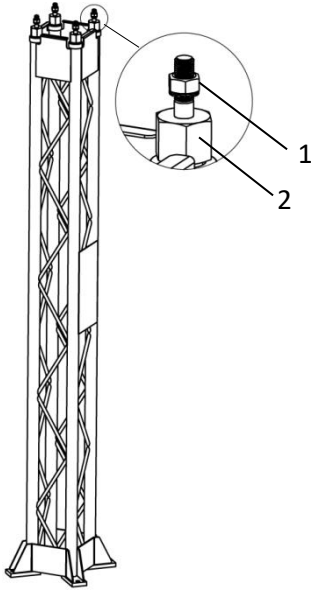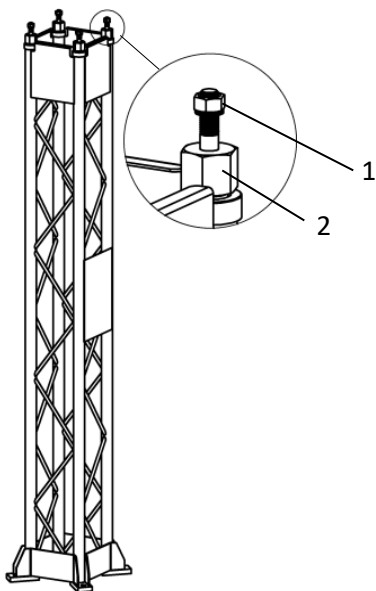
With pillars for QLA 50i, QLA 100i and QLA 200i (3 m):
0.1° angle deviation requires an adjustment of approx. 0.5 mm, which corresponds to turning the adjustment screw approx. 90°.

With pillars for QLA 200i (4 m/5 m) QLA 300i:
0.1° angle deviation requires an adjustment of approx. 0.6 mm, which corresponds to turning the adjustment screw approx. 110°.

3. Loosen the lock nut and one washer on each adjuster screw.
4. Add washers and tighten the lock nuts, tightening torque 385 Nm (M20).
5. Carefully manoeuvre the arm over the pillar so that the 4 adjuster screws can be fitted.
6. Ensure that the arm is horizontal. Use the height adjustment if necessary.
7. Check that the inner shaft has been adjusted correctly by placing the spirit level on the inner arm and rotating the inner arm full circle if possible. The outer arm must be straight out in relation to the inner arm. In this test, the inner arm must have the same tilt throughout its full circle.
8. Place one or two mechanical end stops to restrict the rotation of the inner arm.
   NOTE: the inner arm must never be able to rotate more than 360 degrees.
9. Fasten the harness in the wire cable tray. The harness must not be stretched between the inner shaft and the pillar's wire cable tray; it must hang in a gentle curve.

Pillar for QLA 50i, QLA 100i and QLA 200i (3 m)	Pillar for QLA 200i (4 m/5 m) and QLA 300i
1. Nut M20, fastening	1. Nut M20, fastening
2. Adjustment screw, height adjustment	2. Adjustment screw, height adjustment

After installing QLA on pillars:

Check the mounted Quick-Lift Arm to ensure the inner arm angle to the horizontal plane is equal in four different rotation positions, as per numbers 1–4 in the below image. Hold the outer arm in the same position in relation to the inner arm for all measurements.

NOTE! In order for rotation of the arm to work well, the maximum angle difference must be 0.1°.

Check each position 1–4 using a digital spirit level.
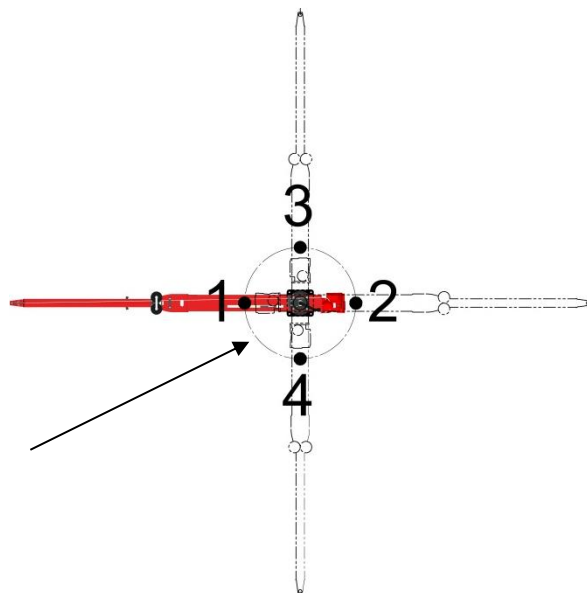
Calculate the maximum angle difference between numbers 1 and 2 and between 3 and 4.
NOTE! Take note of whether the angle is positive or negative.
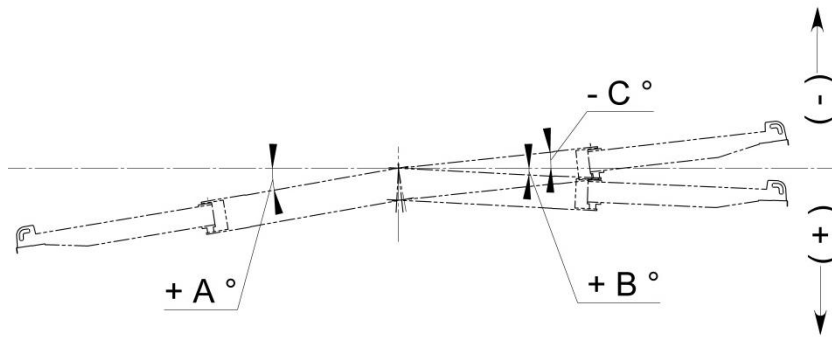
Example

Measured angle for number 1 (or +A°) = +0.1°
Measured angle for number 2 (or +B°) = +0.3°
→ the angle difference is: (+0.3°) - (+0.1°) = 0.2° → Adjustment screws are rotated approx. 90–110° (see table below)

Measured angle for number 3 (or +A°) = +0.1°
Measured angle for number 4 (or -C°) = -0.1°
→ the angle difference is: (+0.1°) - (-0.1°) = 0.2° → Adjustment screws are rotated approx. 90–110° (see table below)

Example of measured angle difference A-B, or A-(-C)	Rotation of adjustment screws on pillars	
	QLA 50i, QLA 100i and QLA 200i (3 m)	QLA 200i (4 m/5 m) QLA 300i
0.10°	approx. 45°	approx. 55°
0.20°	approx. 90°	approx. 110°
0.30°	approx. 130°	approx. 165°
0.40°	approx. 170°	approx. 220°
0.50°	approx. 215°	approx. 275°

12.7 Installation of electricity, pneumatics and software QLA

12.7.1 Electrical cable recommendations:

Recommended for the power supply:

- Cable for fixed installation of the type SE-N07VA5VV-U (EKLK) 3G1. 5
- Cable for flexible installation of the type H07RN-F (RDOE) 3G1.5.

12.7.2 Connection electricity

QLA is powered by 1x230 VAC (±10 %) + PE 50-60 Hz. The main fuse must be 10 A type C. A safety switch must always be installed. Install the device in a suitable place in the vicinity of the work area for the appropriate QLA at a height of 0.6--1.9 m from the floor. If possible, the safety switch should preferably be installed on the installation plate on the pillar.

> Important!
> Qualified personnel must install the safety switch. It must conform to the requirements set out in EN60204-32, section 5.3.2 a-c and 5.3.3 with reference to IEC60947.

PE, Earth

L1

N

Connection
1x230 VAC + PE

Pillars supplied by Binar Handling AB are fitted with a wire cable tray for securing the harness to the arm.
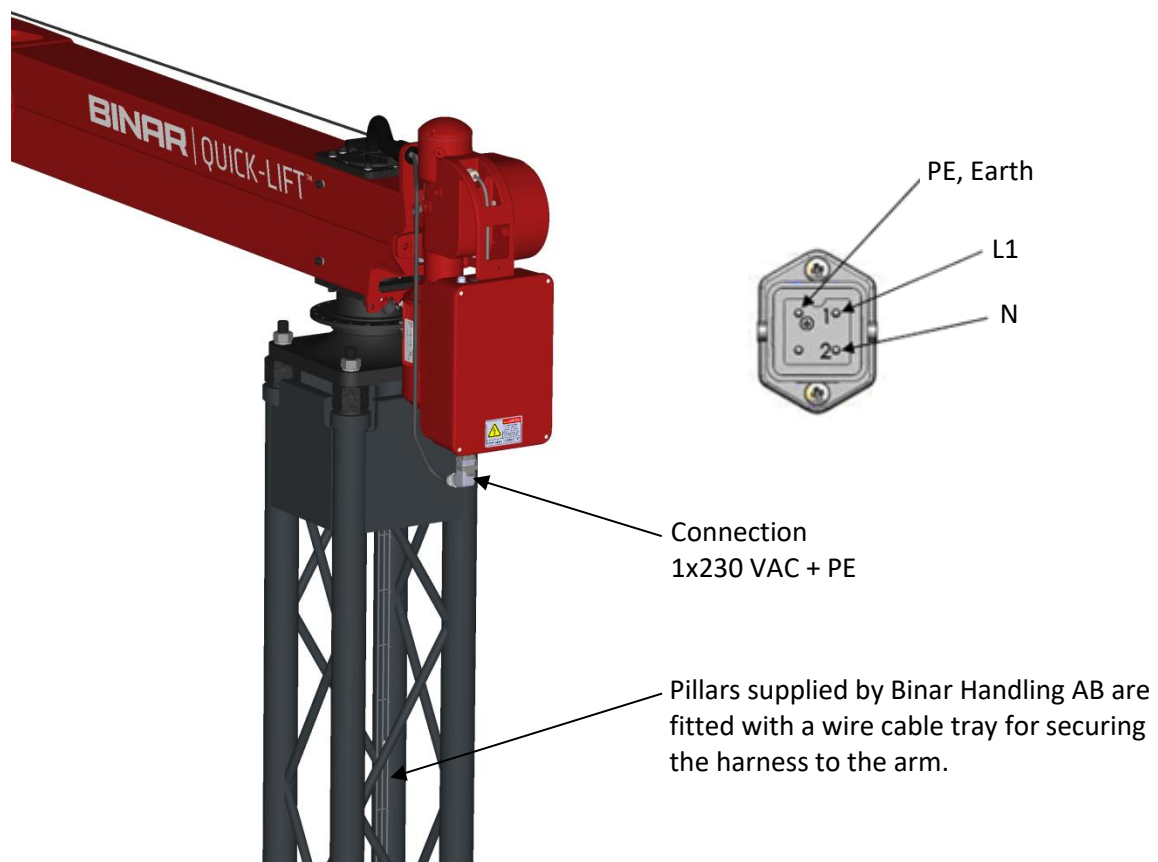
12.7.3 Pneumatic connection

QLA is equipped with a plastic hose of the dimension Ø10 mm. If pneumatics are needed to power gripper functions, the hose can be connected to an external compressed air system.
The air must be clean, filtered 5 micron, and dry with a pressure of 6-8 bar. The connection point should be equipped with a self-venting ball valve for future service and maintenance work.

12.7.4 Program

On delivery the control handle/control box is loaded with standard parameters. These may need to be adjusted in order for the lifting device to work optimally. Different parameters can be adjusted using the iLab 3 program to optimise movements. These settings are made during the installation via a computer, connected via the USB connection on the back of the control handle or on the front of the control box, see illustration.

NOTE! Personnel with the appropriate expertise may only make these settings.

For installation and use of the iLab 3 program, see the "iLab 3" (chapter 7).

The USB-B connection port is behind a little screwed cap on the back of the control handle or on the front of the control box. Use a 2 mm Allen key.

12.8 Adjusting friction brakes

12.8.1 Adjusting friction breaks at the jib arm inner joints (on inner shaft)

1. Ensure that screw (a) is loose (not tightened) and the arm rotates easily around the jib arm inner joint.
2. Tighten the screw (a) until you achieve the desired friction.
3. Tighten the nut (b) to secure the screw in position.

The screw (a) is normally loose on delivery (not tightened). The tighter the screw, the higher the friction in the joint. The function for friction braking assumes that the Quick-Lift Arm is correctly installed (see chapter 12 – Installation of QLA).
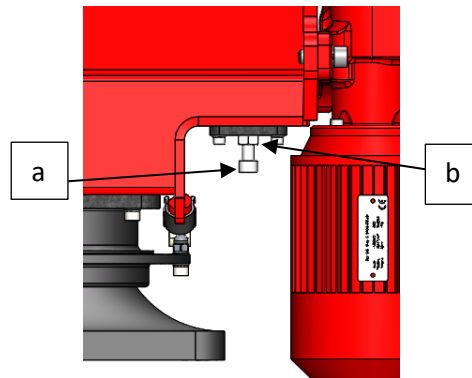
12.8.2 Adjusting friction braking at the jib arm outer joints

1. Ensure that screws (a+b) are loose (not tightened) and the arm rotates easily around the jib arm outer joint.
2. Tighten the screws (a+b) until sufficient friction is achieved. Both screws must be tightened equally. Spring washers are placed between the screws and brake plate to fix the screws in place.

The screws (a+b) are normally loose on delivery (not tightened). The function for friction braking assumes that the Quick-Lift Arm is correctly installed (see chapter 12 – Installation of QLA).

12.9 Installation drawing QLA

Stroke length : max.2,7m

Max. load, incl. handle :
Fs : Static
Fd : Dynamic
Fp : Possible temporary peak load
        at unauthorized operation

Min. 700

H5

H6

H7

H4

H3

Hcg1

Lcg1

L1

L2

L3

L4

100

H1

H2

450

1350

3000 (+10/-5)

Hcg2

Hcg3

A

B

A

Minimum clearance required
for installation

Lw
Standard wire lenght
(Wire lenght on drum : max. 3,8m)

CG1
Centre of gravity
Arm cpl.(without pillar)

CG2
Centre of gravity
Standard Pillar 3m

Mounting plate
for disconnector

Hc
Min. thickness of concrete member
Type C20/25

Fa
Max. Anchor tension force

Mp
Max. Pillar moment

C

DETAIL C

4xM20
Tightening torque, oiled: 385Nm

Max adjustment, 15 mm

DETAIL B

Anchor bolt (4x)

P4
P5
⌀P6

SECTION A-A

⌀P7

□P1
□P2
□P3

Recommended working area 360°

R1
R2

QLA product	QLA 50i -3m	QLA 50i -4m	QLA 100i -3m	QLA 100i -4m	QLA 100i -5m	QLA 200i -3m	QLA 200i -4m	QLA 200i -5m	QLA 300i -3m	QLA 300i -4m
QLA art.no	101100	101101	101102	101103	101104	101105	101106	101107	101108	101109
Pillar art.no	13811						13814			
Lw (mm)	7500	8500	7500	8500	9500	7500	8500	9500	7500	8500
Standard art.no	61090	60187	61090	60187	61092	61090	60187	61092	61090	60187
Fs (max. kN)	0,49	0,49	0,98	0,98	0,98	1,96	1,96	1,96	2,94	2,94
Fd (max. kN)	0,66	0,66	1,33	1,33	1,33	2,65	2,65	2,65	3,97	3,97
Fp (max. kN)	0,93	0,93	1,86	1,86	1,86	3,24	3,24	3,24	4,80	4,80
Fa (max. kN)	4,02	5,66	7,94	11,18	14,29	13,58	17,12	21,83	18,16	24,59
with middle link 200mm	4,27	5,94	8,40	11,68	14,78	14,44	17,89	22,60	19,31	25,74
Mp (max. kNm)	3,04	4,30	5,98	8,45	10,80	10,26	14,30	18,23	15,17	20,54
with middle link 200mm	3,23	4,49	6,35	8,82	11,17	10,91	14,95	18,88	16,13	21,50
CG1 (kg)	77 kg	120 kg	97 kg	147 kg	157 kg	148 kg	225 kg	240 kg	210 kg	225 kg
with middle link 200mm	84 kg	129 kg	105 kg	157 kg	167 kg	159 kg	240 kg	255 kg	225 kg	240 kg
CG2 (kg)	113 kg	113 kg	113 kg	113 kg	113 kg	113 kg	121kg	121kg	121kg	121kg
L1 (mm) standard	3000	4000	3000	4000	5000	3000	4000	5000	3000	4000
with middle link 200mm	3200	4200	3200	4200	5200	3200	4200	5200	3200	4200
L2 (mm)	1500	2000	1500	2000	2500	1500	2000	2500	1500	2000
L3 (mm)	426	426	426	435	435	470	484	484	484	484
L4 (mm)	min.460	min.460	min.460	min.470	min.470	min.500	min.520	min.520	min.520	min.520
LCG1 (mm)	329	686	377	678	943	374	611	866	381	611
with middle link 200mm	454	823	493	803	1080	478	725	991	479	725
HCG2 (mm)	1444	1444	1444	1444	1444	1444	1450	1450	1450	1450
HCG1 (mm)	140	133	193	230	233	225	305	309	301	305
with middle link 200mm	148	128	200	235	238	230	311	314	307	311
H1 (mm)	410	487	487	539	539	546	702	702	702	702
H2 (mm)	138	140	60	9	9	50	-105	-105	-105	-150
H3 (mm)	142	142	142	143	143	143	159	159	159	159
H4 (mm)	334	412	412	462	462	462	618	618	618	618
H5 (mm)	137	222	222	257	260	253	344	347	341	344
H6 (mm)	328	407	407	459	462	455	615	618	612	615
H7 (mm)	max.60	max.100	max.100	max.100	max.100	max.100	max.100	max.100	max.100	max.100
Hc (mm)	160						200			
R1 (mm) Recommended	2700	3700	2700	3700	4700	2700	3700	4700	2700	3700
R1 (mm) Teoretical	3000	4000	3000	4000	5000	3000	4000	5000	3000	4000
R2 (mm) Recommended	800	1000	500	1000	1200	1300	1400	1600	1300	1500
R2 (mm) Teoretical	742	875	471	875	1094	659	799	999	604	799
P1 (mm)	225						300			
P2 (mm)	375						420			
P3 (mm)	467						533			
P4 (mm)	20						25			
P5 (drill depht, mm)	110						125			
P6 (drill hole, mm) *)	18						24			
P7 (mm)	20						26			
P8 Max thickness shim (mm)	5						0			
Anchor bolt *)	HILTI HSL-3-B M12/25						HILTI HSL-3-B M16/25			
Tightening torque *)	80 Nm						120 Nm			

*) NOTE !
   Some countries have local regulations that prescribe e.g. DICT-approved fasteners,
   the responsible installation company must then produce a tailored installation instruction.

13. Installation of QLA Overhead Mounted

13.1 Lifting instructions

A Quick-Lift Arm Overhead Mounted is installed on a special pallet on delivery. This must be used during installation. After releasing the transport fixings attaching the special pallet to the wooden crate, you can lift out the special pallet with the Quick-Lift Arm and place it freestanding on the floor.

> **NOTE!**
> **Fix special pallets with Quick-Lift Arm Overhead Mounted to truck forks before lifting.**

Full Quick-Lift Arm Overhead Mounted on a special pallet.

Quick-lift Arm is fixed to the special pallet with four screws and a packaging strap. NOTE! The fixings are only loosened once secure ceiling mounting has been completed, see installation drawing in section 13.7.

Place truck forks here. Secure them to the special pallet before lifting.

Full special pallet

> **NOTE!**
> **Fix special pallets with Quick-Lift Arm Overhead Mounted to truck forks before lifting.**

13.2 Rotation stops and mechanical end stops

See description in section 12.2.

A rotation stop and two mechanical end stops are fitted on the QLA Overhead Mounted on delivery.
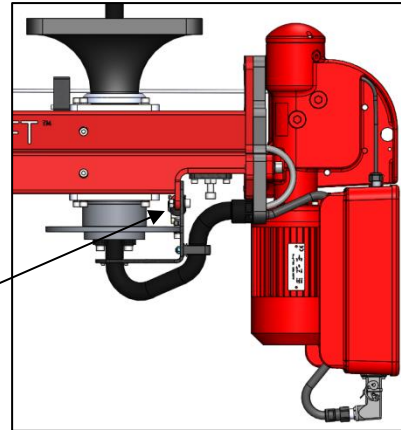
13.3 Fastening requirements

Quick-Lift Arm Overhead Mounted may require shims for adjustment to the designated fixing plane.

NOTE! We do <u>not</u> recommend setting Quick-Lift Arm Overhead Mounted in concrete.

<u>Before installing</u> Quick-Lift Arm Overhead Mounted check that the fixing plane meets the requirements in the installation drawing in section 13.7, detail D.
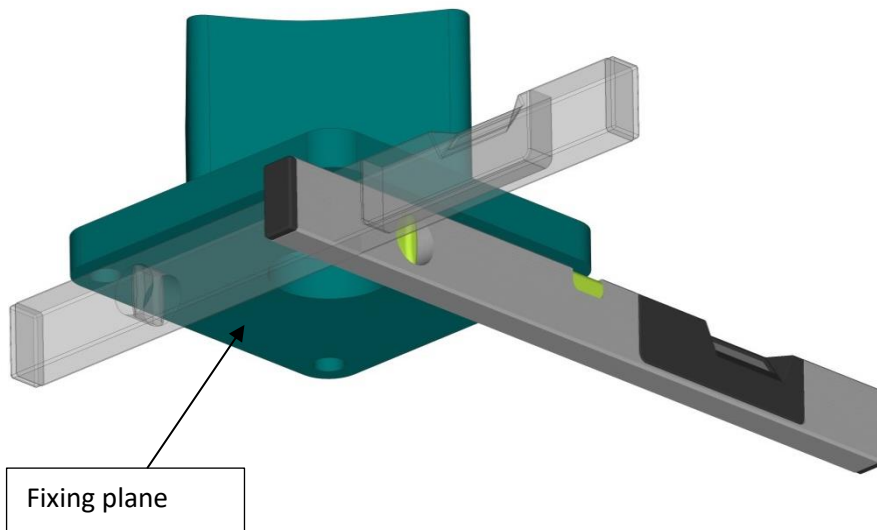
Fixing plane

Check the angle difference between all fixing holes, also diagonally, shim as necessary following the examples in the table below.

NOTE! We recommend using a digital spirit level.

Example of measured angle differences in the fixing plane (horizontal)	Shim requirement
0.03°	0.15 mm
0.05°	0.25 mm
0.10°	0.50 mm
0.08°	0.25 + 0.15 mm
0.13°	0.50 + 0.15 mm
0.16°	0.50 + 0.25 mm

13.4 Mounting QLA Overhead Mounted

13.4.1 Tools
- Forklift
- Strap x2
- Ring spanner 30 mm
- Torque wrench for 385 Nm
- Fasteners for fixing, see guidelines on the installation drawing in section 13.7
- Digital spirit level

NOTE! The transport guard between the inner and outer arm must remain in place while mounting the arm on the pillar.

Once the fixing plane is prepared, it is time to lift the QLA Overhead Mounted into place. Use a forklift and straps. Secure the QLA Overhead Mounted and special pallet to the truck forks before lifting, see "Lifting instructions QLA Overhead Mounted" (section 13.1).

1. Carefully manoeuvre the QLA Overhead Mounted towards the fixing plane.
2. Tighten the lifting screw to torque 385 Nm (M20).

When the QLA Overhead Mounted is correctly installed, you can remove the special pallet.

3. Place one or two mechanical end stops to restrict the rotation of the inner arm.
   NOTE: the inner arm must never be able to rotate more than 360 degrees.
4. Mount cables according to the guidelines in the installation drawing in section 13.7, detail A.

After installing Quick-Lift Arm Overhead Mounted:
Check the mounted Quick-Lift Arm to ensure the inner arm angle to the horizontal plane is equal in four different rotation positions, as per numbers 1–4 in the below image. Hold the outer arm in the same position in relation to the inner arm for all measurements.

NOTE! In order for rotation of the arm to work well, the maximum angle difference must be 0.1°.

Check each position 1–4 using a digital spirit level.
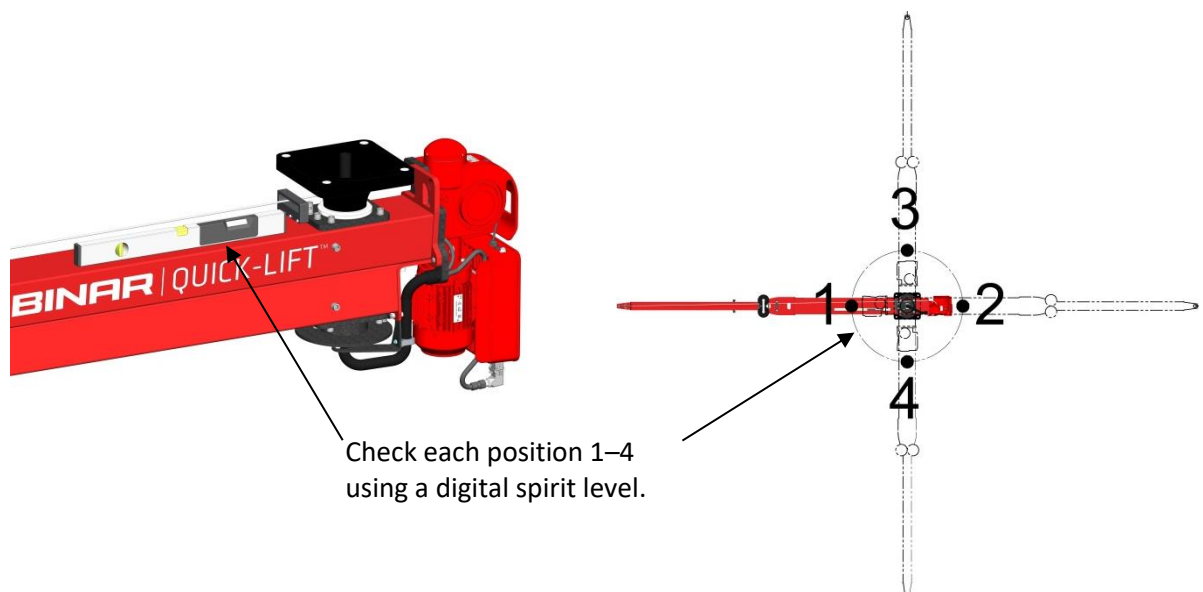
Calculate the maximum angle difference between nos. 1 and 2 and between 3 and 4.
NOTE! Take note of whether the angle is positive or negative.
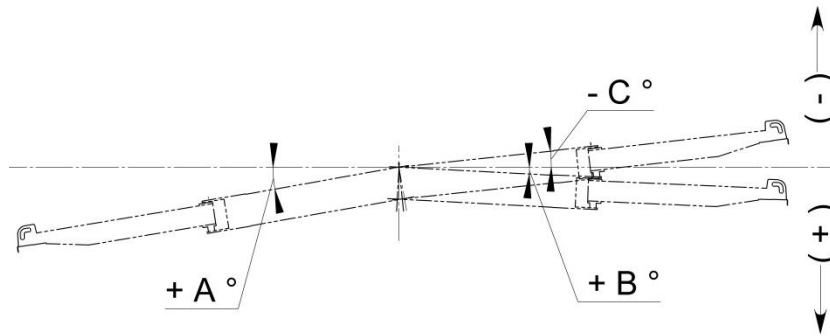
Example

Measured angle for no. 1 (or +A°) = +0.1°
Measured angle for no. 2 (or +B°) = +0.3°
→ the angle difference is: (+0.3°) - (+0.1°) = 0.2° → shim requirement approx. 0.5 mm (see table below)

Measured angle for no. 3 (or +A°) = +0.1°
Measured angle for no. 4 (or -C°) = -0.1°
→ the angle difference is: (+0.1°) - (-0.1°) = 0.2° → shim requirement approx. 0.5 mm (see table below)

Example of measured angle difference A-B or A-(-C)	Shim requirement
0.06°	0.15 mm
0.10°	0.25 mm
0.21°	0.50 mm
0.17°	0.25 + 0.15 mm
0.27°	0.50 + 0.15 mm
0.31°	0.50 + 0.25 mm

Check the HF$_s$ measurement with half or maximum load to check the steel has sufficient bending rigidity.
See installation drawing in section 13.7.

13.5 Installation of electricity, pneumatics and software QLA Overhead Mounted

See "Installation of electricity, pneumatics and software QLA" (section 12.7).

13.6 Adjusting friction brakes

See the description in section 12.8

13.7 Installation drawing QLA Overhead Mounted

Stroke length : max. 2,7m

Max.load.incl.handle:
Fs : Static
Fd : Dynamic
Fp : Possible temporary peak load
at unauthorized operation

Min. 700

H5
H6
L1
H7
H4
H3
L2
ØD1
L4
L3
H2

BINAR QUICK-LIFT

H CG1
L CG1

Standard wire lenght
(Wire lenght on drum : max. 3,8m)
Lw

Minimum space for
rotation movement
H1

Centre of gravity
(Arm cpl. unloaded)
CG1

R1
R2

Rekommended working area 360°

110 (Recommended lenght of screw at min. clamping lenght)

Horizontal corrections by shims. Part.no 014097

NOTE ! Minimum clamping lenght min.80

8x TBRB M20, 21x36x6

4x M6S M20, fzb 8.8 Tightening torque, oiled 385 Nm

4x M6M M20 Lock nut, fzb 8

H8

DETAIL C SCALE 1 : 2.5

NOTE ! Not allowed arrangement

DETAIL D Attachment flange example.

Tolerances including shims. Part.no 014097

0.2

// 0.2   Horizontal plane

E

E

Min. Ø50

Min. free space in steel attachment for power cable and air tube

Ø24(4x)

□225

□275

SECTION E-E SCALE 1 :5

Additional lenght of power cable and air tube, L= 3m

min. 500   Lowest fix point for air tube and protecton hose with power cable, in centre of the attachment flange

Max. α °
Max. permissible theoretical bending angle of steel structure, difference between unloaded arm and max, static bending moment for arm (Ms)

See Detail D , attachment flange example.

Min distance to any structure for assemly of fixing bolts

min. 200

B

C

B

DETAIL A SCALE 1:5

Mp, Max.bending moment, for arm, at load Fp (Possible temporary peak load at unauthorized operation)

Ms, Max.bending moment, for arm, at static load Fs

+/- Md, Max.bending moment, for arm, at dynamic load Fd

NOTE ! The steel structure can be affected by a negative bending moment (+/- Md) , when rotating the arm.

Control dimension, at straight arm

max. HFs

Max. resulting deflection at static testloads included correct attachment steel

+

-
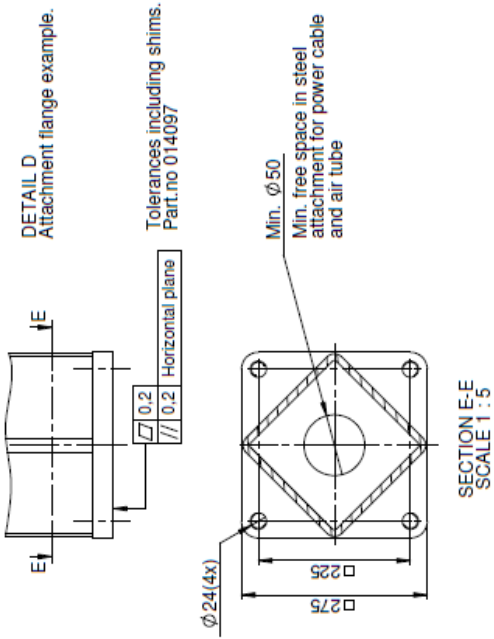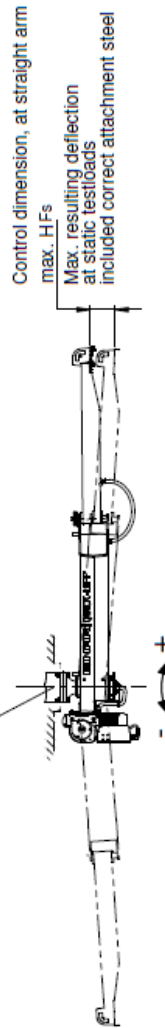
QLA, Overhead Mounted product	QLA 50i -3m *)	QLA 100i -3m *)	QLA 100i -4m *)	QLA 100i -5m *)	QLA 200i -3m *)
QLA, Overhead Mounted part no.	013644	013645	013646	013647	013648
Lw (mm) Standard part.no	7500 61090	7500 61090	8500 60187	9500 61092	7500 61090
Fs (max. kN)	0,49	0,98	0,98	0,98	1,96
Fd (max. kN)	0,66	1,33	1,33	1,33	2,65
Fp (max. kN)	0,93	1,86	1,86	1,86	3,24
Ms (max. kNm)	1,71	3,29	4,89	6,35	6,41
with middle link 200mm	1,94	3,65	5,37	6,89	7,02
Md (max. kNm)	+/- 2,22	+/- 4,34	+/- 6,29	+/- 8,10	+/- 8,48
with middle link 200mm	+/- 2,49	+/- 4,77	+/- 6,84	+/- 8,71	+/- 9,23
Mp (max. kNm)	3,03	5,93	8,41	10,75	10,25
with middle link 200mm	3,35	6,46	9,07	11,47	11,12
CG_1 (kg)	82 kg	103 kg	153 kg	164 kg	155 kg
with middle link 200mm	89 kg	111 kg	165 kg	175 kg	166 kg
L1 (mm) standard	3000	3000	4000	5000	3000
with middle link 200mm	3200	3200	4200	5200	3200
L2 (mm)	1500	1500	2000	2500	1500
L3 (mm)	445	445	454	454	489
L4 (mm)	min.500	min.500	min.510	min.510	min.540
L_{CG1} (mm)	302	351	645	903	351
with middle link 200mm	429	470	775	1046	459
D1 (mm)	max. $\varnothing$430	max. $\varnothing$430	max. $\varnothing$450	max. $\varnothing$450	max. $\varnothing$450
H_{CG1} (mm)	212	228	242	242	247
with middle link 200mm	210	227	241	241	246
H1 (mm)	min. 30	min. 30	min. 20	min. 20	min. 30
H2 (mm)	643	637	636	636	680
H3 (mm)	278	352	399	399	399
H4 (mm)	80	76	73	73	74
H5 (mm)	282	270	280	276	284
H6 (mm)	91	86	78	75	82
H7 (mm)	max.480	max.600	max.640	max.640	max.640
H8 (mm)	25	25	35	35	35
HFs (mm) / at Test-load (kg) Max resulting deflection, for control at straight arm, included correct attachment steel.	29mm / 50kg 15mm / 25kg	26mm / 100kg 13mm / 50kg	22mm / 100kg 11mm / 50kg	36mm / 100kg 18mm / 50kg	20mm / 200kg 10mm / 100kg
Max. α ° Permissible theoretical bending angle of steel structure, difference between unloaded arm and max, static bending moment for arm (Ms)	0,10°	0,15°	0,10°	0,13°	0,15°
R1 (mm) Recommended	2700	2700	3700	4700	2700
(mm) Teoretical	3000	3000	4000	5000	3000
R2 (mm) Recommended	800	500	1000	1200	1300
(mm) Teoretical	742	471	875	1094	659

14. Installation QLR

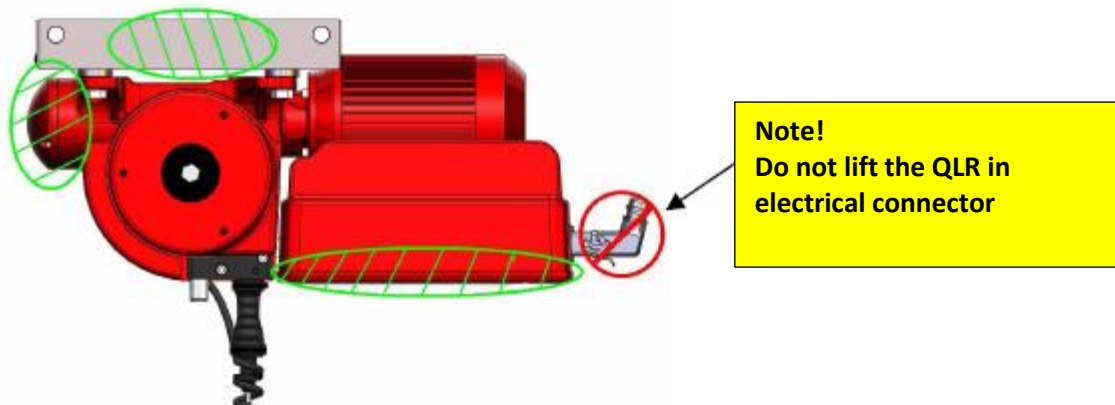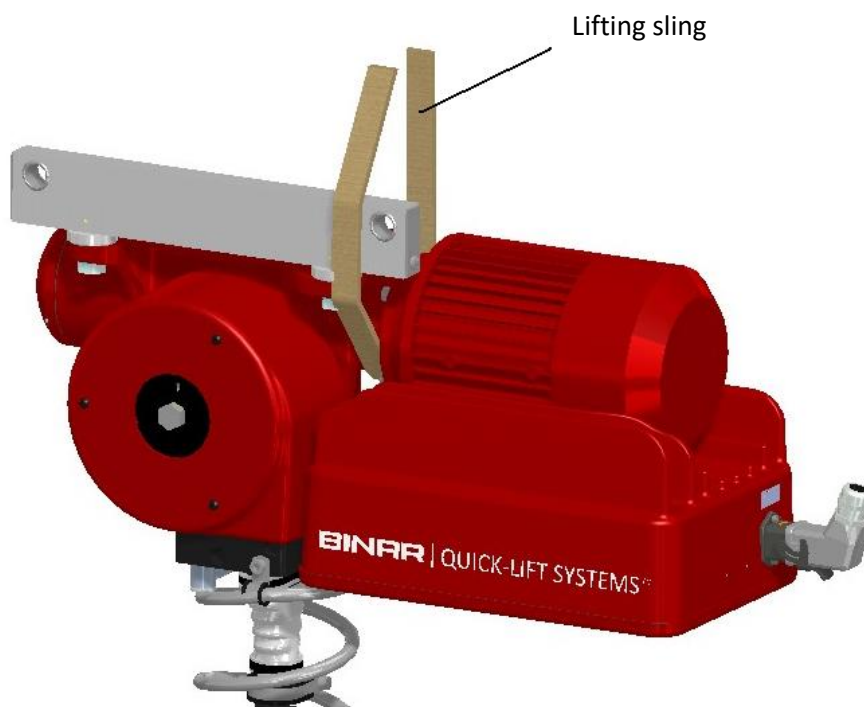### 14.1 Lifting instructions

14.1.1 Goods handling

QLR delivered in a crate. The weight of the goods is about 35 kg.

14.1.2 Lift of QLA

When lifting QLR by hand, hands should be positioned in these areas:

Note!
Do not lift the QLR in electrical connector

When lifting the motor unit with lifting slings, placed these between the motor and gearbox, see figure below:

Lifting sling

14.2 Assembly

<table>
<tr><td>NOTE!
Study the installation drawings before installation, see "Installation drawings" (section 13.6)</td></tr>
</table>

QLR is designed to be installed directly on the customer's existing rail system.
The rail system must be installed according to its supplier's instructions.

<table>
<tr><td>NOTE!
Ensure that the rail system is designed to withstand the lifting device and its maximum load.</td></tr>
</table>

It is assumed hydraulic end stops are used against the carriages on the rail system in order not to damage QLR. All pins between QLR and carriages on the rail system must be locked and secured. As standard QLR is mounted on the rail system with pins diameter Ø16mm. Pins with a diameter of Ø20mm can also be used, but only if the lifting device is ordered in this variant.

14.3 Installation height

The lifting device is prepared for an installation height of between 3.5 - 4.5 metres. However, the height of the gripper must be taken into account when the rail's height above the floor is determined, see the figure further down on this page! When you have made the simple calculation and the height is between 3500 - 4500 mm no adjustment is necessary.
NOTE! For different heights contact Binar Handling AB or your local dealer for adaptation!

H =	Installation height	G =	Height between linchpin (on swivel) and the underside of the gripper.
L=	950mm	S =	Required stroke length (max 2700 mm)

The installation height is calculated as follows: H= L+G+S

The height of the rail system is not taken into account. All height measurements are calculated from the fastening point in the rail system's carriages.

Rail system

Quick-Lift Rail

L

Height between linchpin (on swivel) and the underside of the gripper

H

G

S

Floor plan
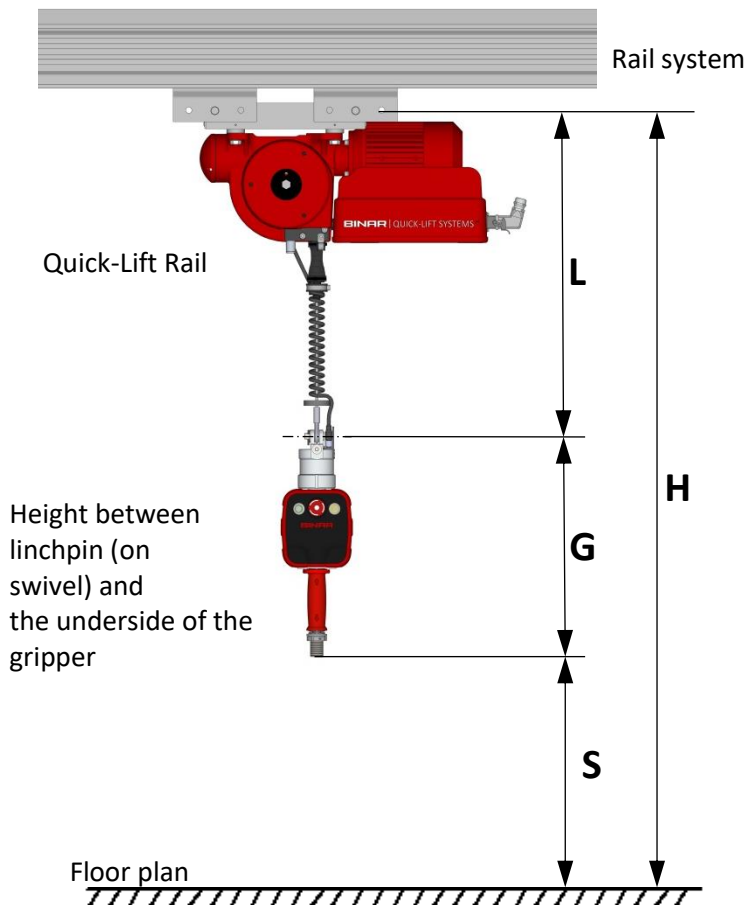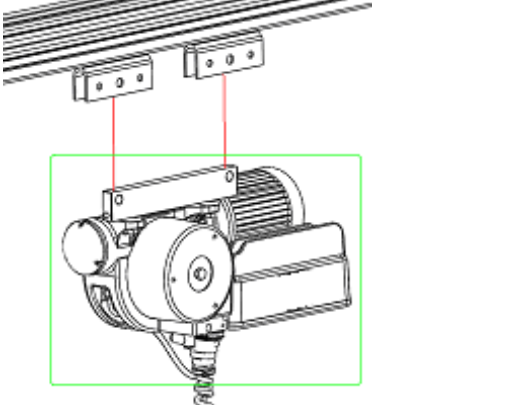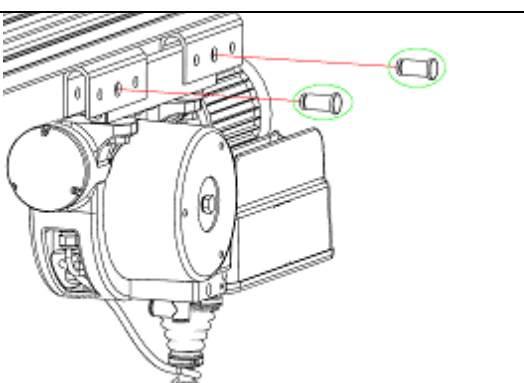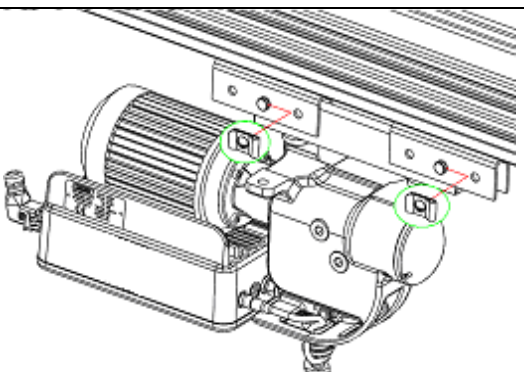
14.4 Suspension in the rail system

14.4.1 Safety

As the installation of QLR is performed at a high height, it is recommended that the work be carried out using a work platform or the like. Suitable safety equipment must be used. Make sure that no unauthorised persons are in the work area during installation.

14.4.2 Installation in the rail system

QLR must be installed using 2 carriages in the rail system. The joint between the carriage and QLR is a pin, secured appropriately. The pin and its locking device are not supplied with QLR but must be included in the rail system.

1. Lift up QLR and align in the fork mount on the carriages in the rail system.	
2. Fit the pins. Make sure they go through the whole fork mount.	
3. Install the locking device on the pins. Check that the locking devices are installed correctly.	

14.5 Installation of electricity, pneumatics and software QLA

14.5.1 Electrical cable recommendations:
See "Installation of electricity, pneumatics and software QLA" (section 12.7.1).

14.5.2 Connection of electricity
See "Installation of electricity, pneumatics and software QLA" (section 12.7.2).

Connection
1x230 VAC + PE

PE, Earth

L1

N
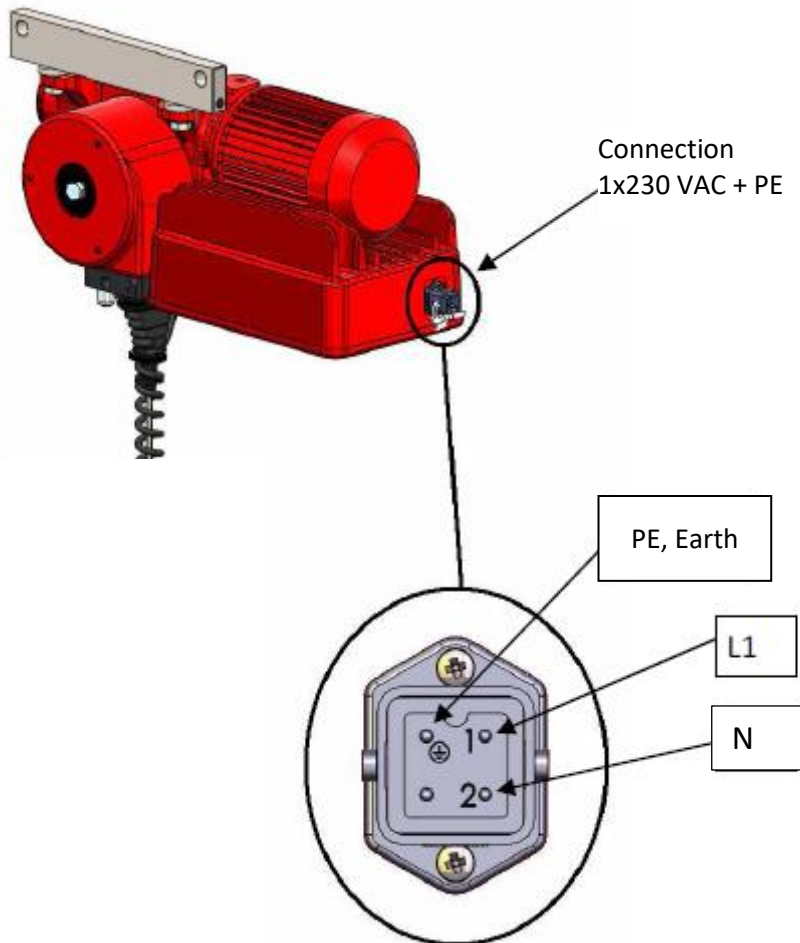
14.5.3 Pneumatic connection
See "Installation of electricity, pneumatics and software QLA" (section 12.7.3).
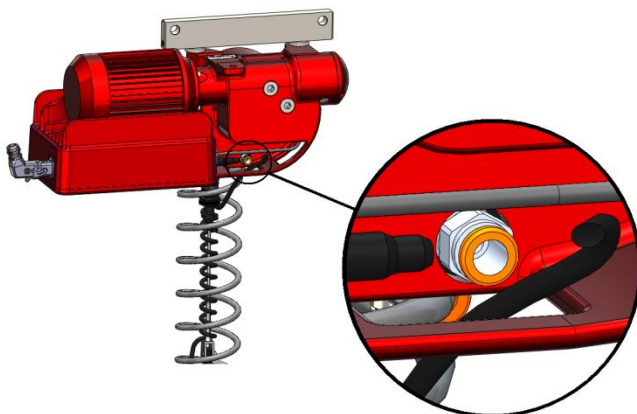
14.5.4 Program
See "Installation of electricity, pneumatics and software QLA" (section 12.7.4).

14.6 Installation drawings

14.6.1 Installation drawing QLR 50i/QLR 125i
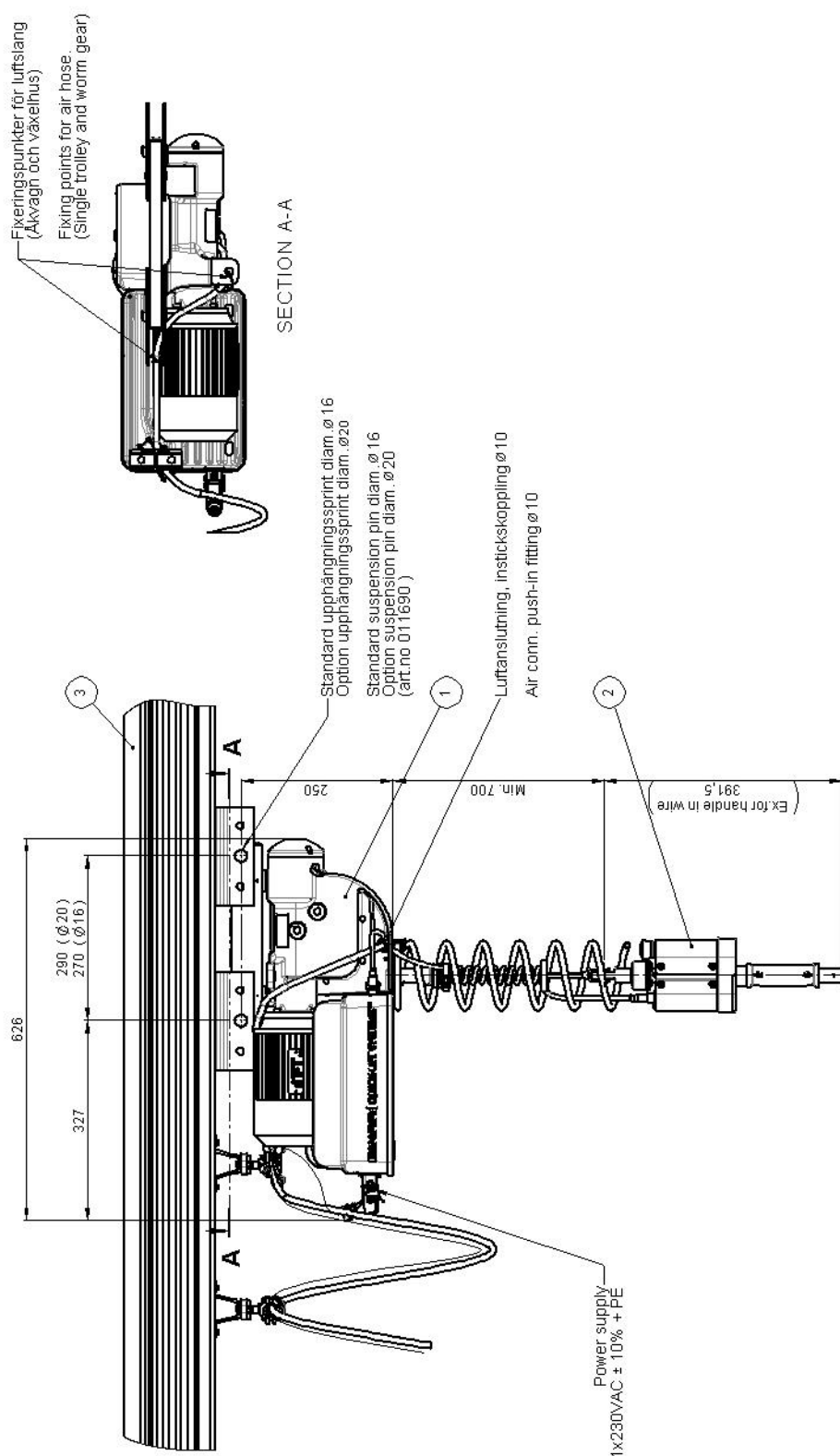
Position	Name
1.	QLR 50i/QLR 125i
2.	The gripper including the control handle/control box and external handle.
3.	Rail system

14.6.2 Installation drawing QLR 300i
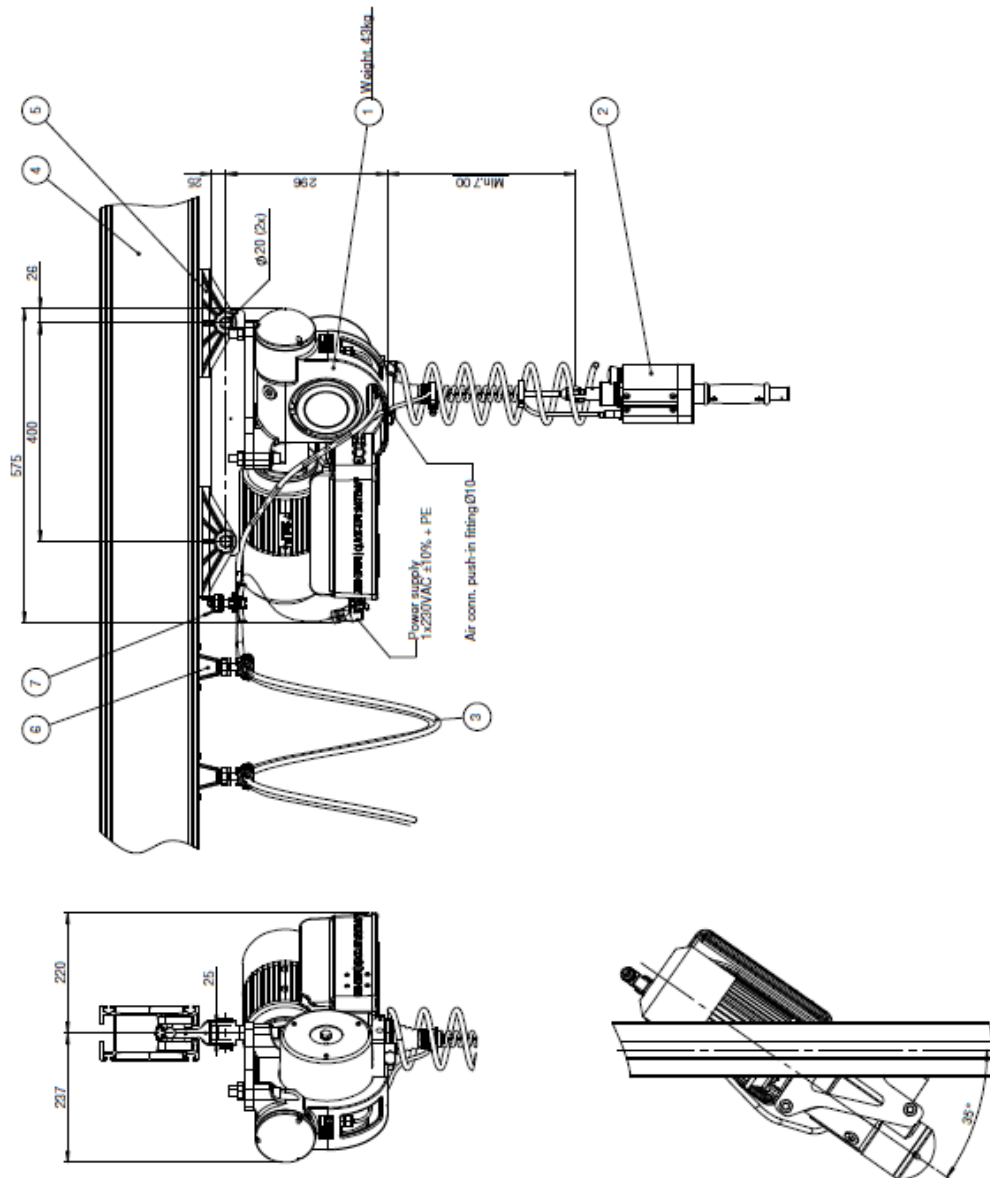
Position	Name
1.	QLR 300i
2.	The gripper including the control handle/control box and external handle.
3.	Spiral hose, air
4.	Rail system

15. Assembly instructions for parts

15.1 Assembly of control box on gripper

Recommended fastening on gripper when using flange with part no. 013281. Alternatives 1 and 2.

□36 □50

MC6S M6x30 8.8 (4x) *)
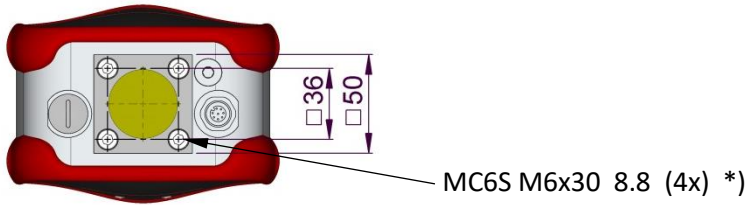
Max. angle between the wire rope and the swivel's centre line (chapter 3).

5°

MF6S M16x60   10.9   *)

Alternative 1
Flange part no. 013281-1
(For screw mounting)

12

(49,5)
45

∅18   22   Countersinking (∅18)

M16   32   Min thread length

∅3   For locking pin FRP 3

∅35   Max. dimension
for fixing on gripper.
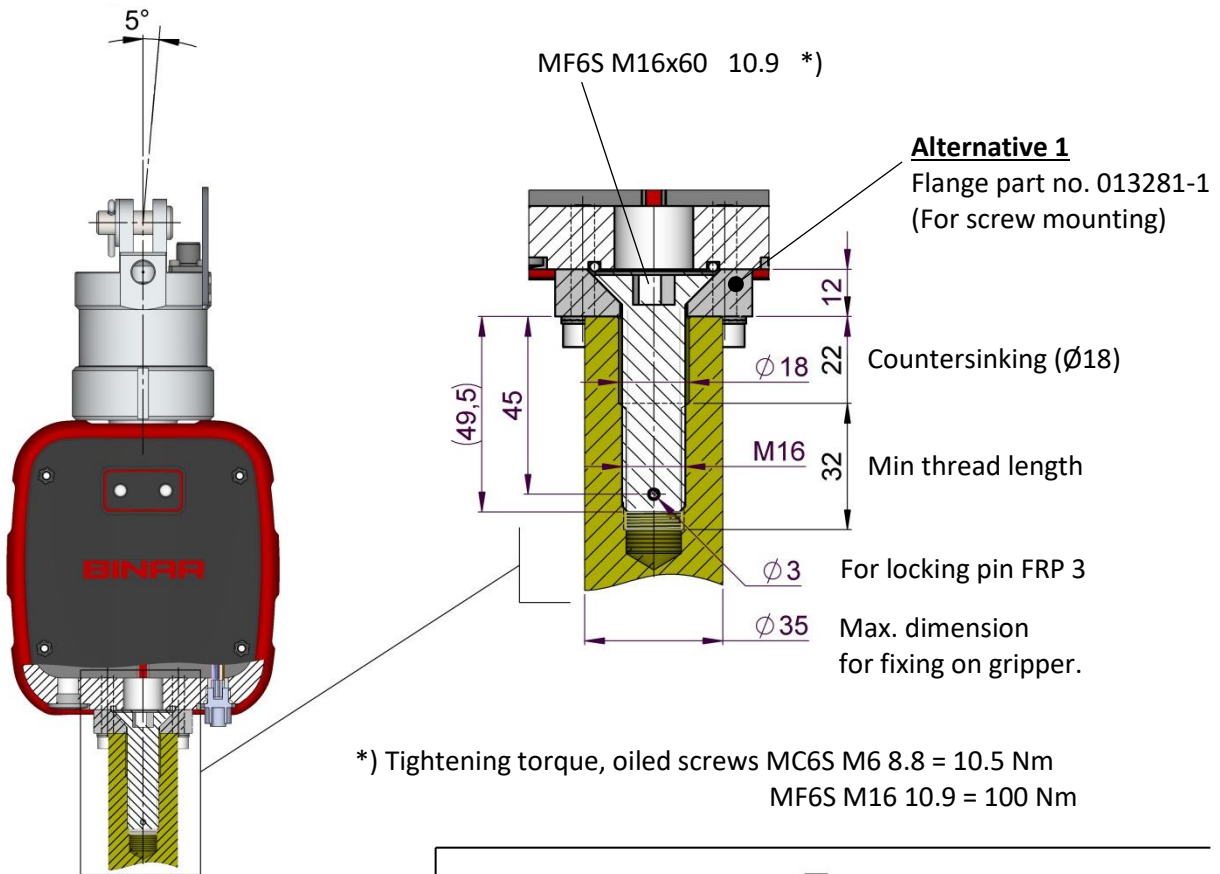
*) Tightening torque, oiled screws MC6S M6 8.8 = 10.5 Nm
MF6S M16 10.9 = 100 Nm

NOTE!
If the above angle is too large,
a hinge may be needed for the
fastening to the gripper.

s4 ⟨ B

Alternative 2
Flange part no. 013281-2
(For welding, ∅30)

12

a2,5 ⟨ B

∅20
∅30

15.2 Fitting the wire rope to the swivel

There is a swivel on the control handle or on a gripper for connection to the wire rope.
Standard for Binar Handling AB gripper, is a combined electrical and air swivel which is mounted on the wire rope using a thimble.
Ensure that the swivel pin and its lock are installed properly.

Retaining clip
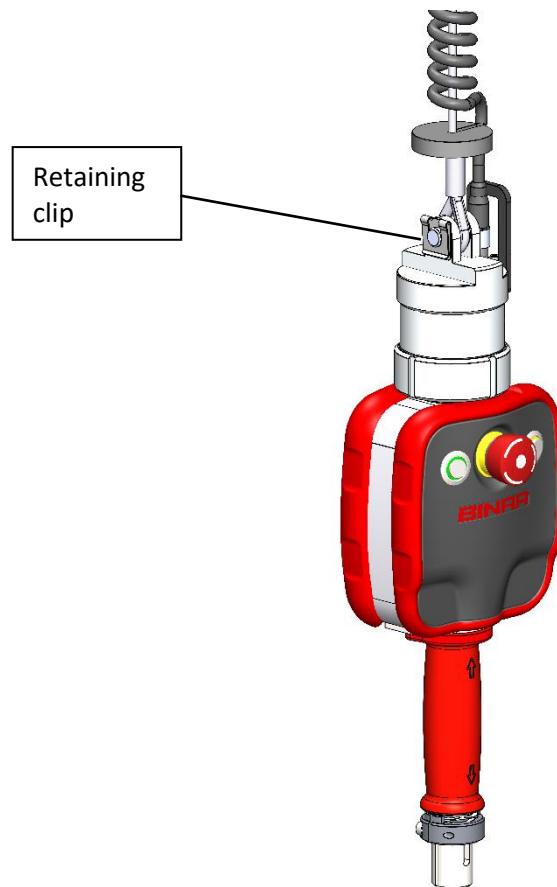
16. Technical data

Parameter	QLA 50i		QLA 100i		
Arm length	3m	4m	3m	4m	5m
Horizontal recommended working area	R2.7m max 360°	R3.7m max 360°	R2.7m max	R3.7m max 360°	R4.7m max 360°
Total weight (excluding suspension)	80 kg	120 kg	105 kg	150 kg	160 kg
Max lifting weight (incl. gripper)	50 kg		100 kg		
Lifting force	491 N		981 N		
Max Lifting speed without load	500mm/s		500mm/s		
Max Lifting speed at full load	500mm/s		300mm/s		
Max acceleration	500mm/s2		500mm/s2		
Vertical working area, stroke length	2700 mm		2700 mm		
Ultimate strength for the wire rope	14800 N		14800 N		
Load cell, integrated in control handle or control box	Yes		Yes		
Load manoeuvring	Yes		Yes		
Lifting speed can be programmed	Yes		Yes		
Max/Min lifting position can be programmed	Yes		Yes		
Safety interlock for the gripper (grip/release)	Yes		Yes		
Programmable inputs/outputs	Yes		Yes		
Handling varying loads	Yes		Yes		
Colour	Red - RAL 3002				
Horizontal speed at full load	Manual movement				
Power failure	The lifting device keeps the load in position, it returns to normal operation when the power is reconnected, and start-up is performed.				
Dead man's handle	Standard – when the operator releases the red handle the lifting device stops.				
Emergency stop	Emergency stop placed on the manoeuvre handle or gripper.				
Ambient operating temperature	0°C — +40°C				
Humidity	20 —80 %				
Transport/storage temperature	-20°C — +55°C				
Noise level (dBA)	< 70 db				
Supply	1x230 VAC +PE +/-10%				
Max power	1.9 kW				
Power supply gripper (total)	24 V / 1.5 A				
Power supply gripper (per output)	24 V / 0,6 A				
Main fuse	10 A type C				
Communication port	USB type B				
Standard classification	CE marked according to the Machinery Directive 2006/42/EC and AFS 2008:3				
Protection class (lifting unit)	IP54				
Machinery grouping according to FEM 9.511	2m				
Duty Cycle	H5				

Deviations from the aforementioned technical data are possible

Parameter		QLA 200i			QLA 300i	
Arm length		3m	4m	5m	3m	4m
Horizontal recommended working area		R2.7m max 360°	R3.7m max 360°	R4.7m max 360°	R2.7m max 360°	R3.7m max 360°
Total weight (excluding suspension)		155 kg	230 kg	245 kg	215 kg	230 kg
Max lifting weight (incl. gripper)		200 kg			300 kg	
Lifting force		1962 N			2943 N	
Max Lifting speed without load		300mm/s			300mm/s	
Max Lifting speed at full load		265mm/s			265mm/s	
Max acceleration		265mm/s2			265mm/s2	
Vertical working area, stroke length		2700 mm			2700 mm	
Ultimate strength for the wire rope		14800 N			14800 N	
Load cell, integrated in control handle or control box		Yes			Yes	
Load manoeuvring		Yes			Yes	
Lifting speed can be programmed		Yes			Yes	
Max/Min lifting position can be programmed		Yes			Yes	
Safety interlock for the gripper (grip/release)		Yes			Yes	
Programmable inputs/outputs		Yes			Yes	
Handling varying loads		Yes			Yes	
Colour		Red - RAL 3002				
Horizontal speed at full load		Manual movement				
Power failure		The lifting device keeps the load in position, it returns to normal operation when the power is reconnected, and start-up is performed.				
Dead man's handle		Standard – when the operator releases the red handle the lifting device stops.				
Emergency stop		Emergency stop placed on the manoeuvre handle or gripper.				
Ambient operating temperature		0°C — +40°C				
Humidity		20 —80 %				
Transport/storage temperature		-20°C — +55°C				
Noise level (dBA)		< 70 db				
Supply		1x230 VAC +PE +/-10%				
Max power		2.2 kW				
Power supply gripper (total)		24 V / 1.5 A				
Power supply gripper (per output)		24 V / 0,6 A				
Main fuse		10 A type C				
Communication port		USB type B				
Standard classification		CE marked according to the Machinery Directive 2006/42/EC and AFS 2008:3				
Protection class (lifting unit)		IP54				
Machinery grouping according to FEM 9.511		2m				
Duty Cycle		H5				

Deviations from the aforementioned technical data are possible

Parameter	QLR 50i	QLR 125i	QLR 200i	QLR 300i
Total weight (excluding suspension)	28 kg	28 kg	40 kg	40 kg
Max lifting weight (incl. gripper)	50 kg	125 kg	200 kg	300 kg
Lifting force	491 N	1226 N	1962 N	2943 N
Max Lifting speed without load	500mm/s	500mm/s	300mm/s	300mm/s
Max Lifting speed at full load	500mm/s	300mm/s	265mm/s	265mm/s
Max acceleration	500mm/s2	500mm/s2	265mm/s2	265mm/s2
Vertical working area, stroke length	2700 mm			
Horizontal recommended working area	Depending on the rail system			
Ultimate strength for the wire rope	14800 N			
Load cell, integrated in control handle or control box	Yes			
Load manoeuvring	Yes			
Lifting speed can be programmed	Yes			
Max/Min lifting position can be programmed	Yes			
Safety interlock for the gripper (grip/release)	Yes			
Programmable inputs/outputs	Yes			
Handling varying loads	Yes			
Colour	Red - RAL 3002			
Horizontal speed at full load	Manual movement			
Power failure	The lifting device keeps the load in position, it returns to normal operation when the power is reconnected, and start-up is performed.			
Dead man's handle	Standard – when the operator releases the red handle the lifting device stops.			
Emergency stop	Emergency stop placed on the manoeuvre handle or gripper.			
Ambient operating temperature	0°C — +40°C			
Humidity	20 —80 %			
Transport/storage temperature	-20°C — +55°C			
Noise level (dBA)	< 70 db			
Supply	1x230 VAC +PE +/-10%			
Max power	1.9 kW	1.9 kW	2.2 kW	2.2 kW
Power supply gripper (total)	24 V / 1.5 A			
Power supply gripper (per output)	24 V / 0,6 A			
Main fuse	10 A type C			
Communication port	USB type B			
Standard classification	CE marked according to the Machinery Directive 2006/42/EC and AFS 2008:3			
Protection class (lifting unit)	IP54			
Machinery grouping according to FEM 9.511	2m			
Duty Cycle	H5			

Deviations from the aforementioned technical data are possible

17. Declaration

Declaration of conformity

According to EU Directive 2006/42/EC, Appendix 2A.
Directive 2014/30/EU, with standards EN61000-6-4:2007/A1:2011, EN61000-6-2:2005.

Manufacturer: **Binar Handling AB**
Hedekullevägen 24
SE-461 38 TROLLHÄTTAN, SWEDEN
Tel: +46 (0)520 47 40 00

Hereby declares that this machine:

Quick-Lift Arm 50i
Quick-Lift Arm 100i
Quick-Lift Arm 200i
Quick-Lift Arm 300i
Quick-Lift Rail 50i
Quick-Lift Rail 125i
Quick-Lift Rail 200i
Quick-Lift Rail 300i
Quick-Lift Arm Torque 350S
Quick-Lift Rail Torque 350S
Quick-Lift Arm 50i Overhead Mounted
Quick-Lift Arm 100i Overhead Mounted
Quick-Lift Arm 200i Overhead Mounted

Applied standards:
EN ISO 12100: 2010
Safety of machinery - General principles for design - Risk assessment and risk reduction

EN 14492-2:2006+A1:2009/AC:2010
Cranes- Power driven winches and hoists - Part 2: Power driven hoists

EN 13155+ A2: 2009
Cranes- Safety- Non-fixed load lifting attachments

Authorized to prepare technical documentation
Binar Handling AB
Niclas Johansson
Hedekullevägen 24
SE-461 38 TROLLHÄTTAN
Sweden

The declaration is invalidated by every modification to the delivered parts that is not authorized in writing by Binar Handling AB.

TROLLHÄTTAN, 2019-06-04

Mattias Lindh
MD Binar Handling AB

18. Appendices

18.1 Register wiring diagram

Control handle	Wiring diagram	Comments	Chapter
1014000420 1014000575 1014000875	1010500100	Control handle, basic design	18.2
1014010420 1014010575 1014010875	1010500200	Control handle, with 5/2 valve	18.2
101402	1010500600	Control handle, with compressed air cylinder	18.2
1014030420 1014030575 1014030875	1010500300	Control handle, with vacuum ejector	18.2

Control box	Wiring diagram	Comments	Chapter
101420	1010500400	Control box with 5/2 valve and external handle	18.2
101421	1010500500	Control box, basic design and external handle	18.2

18.2 Wiring diagram – see separate Appendix

18.3 Inspection and maintenance reports

18.3.1   Daily inspection report for the lifting device

In order to see what needs to be done at each inspection point, see "Operation description, before start" (section 4.6).

Lifting device serial number:		Unit:		Week:	

Daily Inspection

Inspection point	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Wire rope							
Control handle, control box and external handle							
Spiral hose and compressed air hose							
No abnormal noise							
Signature:							

Inspection points above are marked:

OK if lifting device satisfies functional requirements.

X if it does not; the supervisor is notified at the same time.

The operator performs the inspection and initials the implemented checks.

18.3.2 Inspection report for the lifting device one month after installation

To check what must be done, see "Maintenance of lifting device one month after installation" (section 10.4)

Lifting device serial number:		Unit:		Date:	

Inspection point	One month after installation
The fastening points to floor, ceiling or wall	
Signature:	

Inspection points above are marked:

OK if lifting device satisfies functional requirements.

X if it does not; the lifting device supervisor is notified at the same time. Take measures to rectify the fault.

The maintenance personnel perform the inspection and initial the implemented checks.

18.3.3 Quarterly maintenance report for the lifting device

To see what needs to be done at each inspection point, see "Maintenance of lifting device, quarterly maintenance" (section 10.5)

Lifting device serial number:		Unit:		Year:	

Quarterly

Inspection point	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Check Wire rope												
Lubricated wire rope												
Check motor unit												
Check the nose connector												
Check spiral cable												
Check Compressed air hose												
Check the swivel												
Inspect visually to make sure the arms are not cracked, buckled or damaged in any other way.												
Signature:												

Inspection points above are marked:

OK if lifting device satisfies functional requirements.

X if it does not; the lifting device supervisor is notified at the same time. Take measures to rectify the fault.

The maintenance personnel perform the inspection and initial the implemented checks.

18.3.4 Yearly maintenance report for the lifting device

In order to see what needs to be done at each inspection point, see "Maintenance of lifting device, yearly maintenance" (section 10.6)

Lifting device serial number:		Unit:		Start year:	

Every twelve months

Inspection point	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Arm - Return pulley										
Arm - No damage										
General – Positions										
Control handle or Gripper – Swivel hole										
Motor unit – Fan										
Motor unit – Fastenings										
Air supply – No leakage										
Suspension – Fastenings										
Suspension – No damage										
Signature:										

Inspection points above are marked:

OK if lifting device satisfies functional requirements.

X if it does not; the lifting device supervisor is notified at the same time. Take measures to rectify the fault.

The maintenance personnel perform the inspection and initial the implemented checks.

18.3.5 TPM report for maintenance of the lifting device, wire-rope replacement

See "Maintenance of lifting device, Replacing the wire-rope" (section 10.7)

Replacement of the wire rope	**Lifting device serial number:**	

Year:_____

	January	**February**	**March**
Signature:			
	April	**May**	**June**
Signature:			
	July	**August**	**September**
Signature:			
	October	**November**	**December**
Signature:			

NOTE! Also note wire rope replacement that occurs over and above the recommended interval.

Year:_____

	January	**February**	**March**
Signature:			
	April	**May**	**June**
Signature:			
	July	**August**	**September**
Signature:			
	October	**November**	**December**
Signature:			

NOTE! Also note wire rope replacement that occurs over and above the recommended interval.

Year:_____

	January	**February**	**March**
Signature:			
	April	**May**	**June**
Signature:			
	July	**August**	**September**
Signature:			
	October	**November**	**December**
Signature:			

NOTE! Also note wire rope replacement that occurs over and above the recommended interval.

Maintenance personnel perform the replacement and sign the report after completing the replacement.

19. Quick Start Guide

The assumption is that the lifting device is installed correctly with the gripper fitted.

1. Switch on the power and compressed air, if used; make sure that the emergency stop button is not actuated.
2. Briefly press the upper left pushbutton, which flashes green

3. Check the upper - and lower limit positions, adjust if necessary.
4. Adjustments:
- Activates the top and bottom position setting.
  by holding and pressing the upper left pushbutton for more than 10 seconds
- Run the gripper to the upper limit position and briefly press the same button again
- Run the gripper to the lower limit position and press the same button again.
- The work area is now set.

Upper limit position

Working area

Lower limit position, position
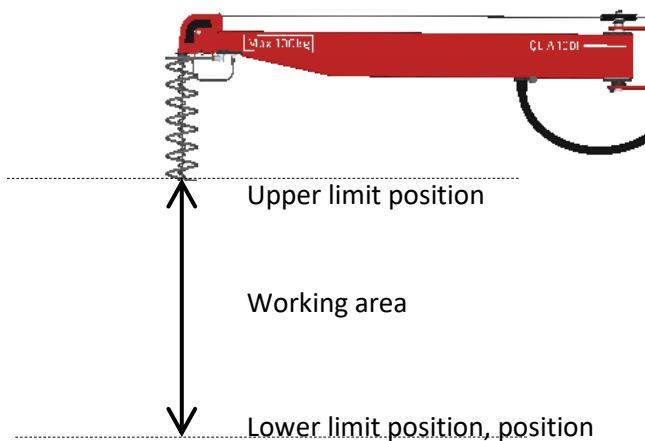
5. Set the parameters "ID257, Min tension in wire" and "ID 255, Weight limit for Grip/Release". (The weight limit has no significance on control handles or external handles without the grip/release function)

- Ensure that there is no lift object in the gripper and that the gripper hangs still and free in the lifting wire rope.
- Activate automatic setting, by holding and pressing both the upper buttons for more than 10 seconds.
  The green and yellow LEDs flash quickly. Release the manoeuvre handle.
- Do not touch the gripper in this position.
  Setting is complete when the flashing lights stop.

6. Test run the gripper a lift object, check
   that Grip/Release work with an offloaded gripper.
   NOTE! The lower left green LED should not be lit when you have lifted a lift object.

   NOTE! These quick settings do not work on all grippers,
   for detailed instructions read the whole manual.