

User Manual
Belt conveyor BC1
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Qimarox
Nobelstraat 43
3846 CE Harderwijk
The Netherlands

Tel: +31 341 436 700
Fax: +31 341 436 701
E-mail: info@qimarox.com
Internet: www.qimarox.com

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1 About this manual

1.1 Introduction

This manual provides information about the Belt conveyor BC1 machine, that is used to:

- Transport products horizontally.
- Transport products inclined.
- Dosing products.
- Reducing thrust in product flow.
- Separating products in product flow.

Henceforth the Belt conveyor BC1 will be referred to as the 'machine'.

This manual is intended for:

- Retailers/Original Equipment Manufacturers (OEM), project engineers and mechanics.
- Operators, installation and maintenance engineers and other users.

It is important to carefully read this manual as soon as possible after purchase of the machine. Before operating the machine this manual should be read by all users. This is necessary to make sure that all new users are familiar with the content of this manual.

System integrators/OEMs

This manual explains machine configurations that can be used to set up the machine. It also provides instructions on how to add or change the machine technical components.

Users

The machine may be supplied pre-assembled, if so, some chapters in this manual will not be applicable. To integrate the machine within a system, Qimarox advises you to refer to documentation provided by the OEM of the system.

1.2 Product documentation

Document	Reference
Machine manual ¹	UM Belt conveyor BC1 v1.1 EN
Machine layout drawing ²	Layout drawing [serial number]
Specification sheet ²	Specifications [serial number]
Electrical drawings ¹	Electrical drawing [serial number]
OEM parts of the machine	

1.3 Source language

This manual was originally written in the English language.

¹ Generic information

² Machine specific information

1.4 Symbols used in the manual

The following symbols are used in this manual.



WARNING

Risk of serious injury to the user if the instructions are not accurately followed.



CAUTION

Risk of damage to the machine if the instructions are not accurately followed.



Note

To provide additional information to the user about a task or issue.

1.5 Terminology list

The table below explains common terms used in this manual.

Term	Definition
Machine	Belt conveyor BC1
Transport system	Combination of machines that is used for transporting products
Fenced area	Area around the machine that unauthorized personnel cannot enter for safety reasons.

1.6 Further support and information

Qimarox can supply additional expertise and support services, for:


- Training
- Global support
- Service contracts

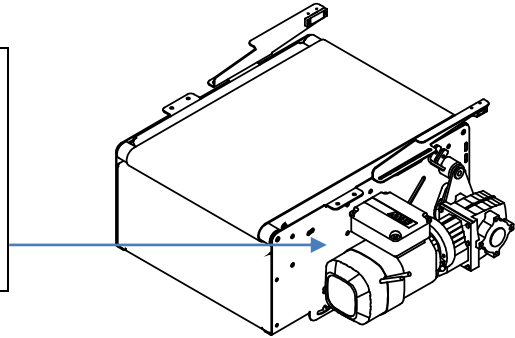
For more information please contact Qimarox.

2 General

2.1 Machine identification

The machine identification is given on the type plate. The type plate is located on the side of the machine next to the gearmotor. Refer to the specification sheet of this serial number, for specifications of this machine and applicable products.

	CE	www.Qimarox.com
Manufacturing year	:	
Type	:	Belt conveyor BC1
Serial number	:	
Order number	:	
Power supply	:	
Nominal power	:	kW
Weight	:	kg
Maximum load	:	kg
Nominal capacity	:	products/hour



2.2 Machine layout drawing and specifications

After a machine order is placed, a machine drawing and specification sheet is sent for approval. After approval the machine drawing and specification sheet are sent as a reference for this manual. The machine drawing and specification sheet include:

- Machine serial number
- Product dimensions and mass
- Machine dimensions and mass
- Machine configuration
- Machine speed and capacity
- Motor specifications

The machine can only be used according to the specifications given in this manual, the machine layout drawing and the specifications sheet. If you want to use the machine outside these specifications, you must contact Qimarox to check if this is possible. Inappropriate and/or modified use of the machine can result in dangerous safety issues and/or damage. You must obtain written confirmation from Qimarox before using the machine in a modified or unspecified manner. Qimarox cannot be held liable for any accidents and/or damages that may occur through inappropriate unauthorized use of the machine.

2.3 Warranty

The scope and duration of the warranty is agreed upon when an order is placed for the machine. The warranty only applies if the machine is used according to the specifications and if the user and maintenance instructions are observed. The warranty does not cover wear of the parts.

The machine warranty is null and void in cases of:

- Unskilled use.
- Inadequate maintenance.
- Unskilled maintenance.
- Modifications made to the machine without prior written permission from Qimarox.

2.4 Liability

Qimarox believes to the best of its knowledge that the information in this user manual is accurate. In the event that technical or typographical errors exist, Qimarox reserves the right to make changes to subsequent editions of this user manual without prior notice to holders of this edition. The reader should consult Qimarox if errors are suspected. In no event shall Qimarox be liable for any damages arising out of or related to this user manual or the information contained in it. Except as specified herein, Qimarox makes no warranties, express or implied, and expressly disclaims any warranty of non-infringement, merchantability or fitness for a particular purpose. Customer's right to recover damages caused by fault or negligence on the part of Qimarox shall be limited to the amount paid to Qimarox by the customer. Qimarox shall not be liable for damages resulting from loss of data, profits, use of products, or incidental or consequential damages, even if advised of the possibility thereof. This limitation of liability of Qimarox will apply regardless of the form of action, whether in contract or tort, including negligence. Any action against Qimarox must be brought within one (1) year after that cause of action accrues. Qimarox is not liable for damages, accidents, unsafe conditions, defects, malfunctions, or service failures caused by the following:

- Owner's or user's failure to follow Qimarox's installation, operation and maintenance instructions, including but not limited to neglecting warnings or regulations as shown on the machine or in this manual.
- Usage of the machine for other applications, or under other circumstances than indicated in this user manual. This includes abuse, misuse or negligent acts.
- Modifications of any kind to the machine. This includes the replacement of parts with parts that are not specified in this manual.
- Insufficient or improper maintenance.

2.5 CE Declaration of Conformity

If the machine is part of a transport system, the CE declaration can be found in the User manual of the complete system. This manual is provided by the system integrator.

If the machine is bought as a standalone component, refer to the specification sheet for the CE declaration of conformity

3 Safety

3.1 Intended use of the machine

The machine is exclusively intended to:

- Transport products horizontally.
- Transport products inclined.
- Dosing products.
- Reducing thrust in product flow.
- Separating products in product flow.

The machine is always set up within a larger transport system in which products are automatically loaded on and off the machine.



WARNING

Any other use of the machine is strictly forbidden.

3.2 User types and qualifications

The following user types are referred to in this manual:

- The operator
- The mechanical installer
- The electrical installer
- The maintenance engineer

The maintenance engineer must be familiar with the full content of this manual.

Before any person operates, sets up, electrically installs or maintains the machine, permission to carry out these tasks must be obtained from Qimarox. Qimarox determines if the person is qualified for carrying out the given task. The machine should only be operated by qualified personnel.

An electrical installer is only qualified if a person has attended appropriate training and/or attained appropriate industry standard recognized qualifications. Qimarox can provide training if required.

Qimarox can also give advice about actions and tasks to be carried out on the machine.

3.3 Safety instructions

3.3.1 General

- Comply with the safety regulations given in this manual. Deviation from these regulations can lead to unacceptable risks.
- Never close doors (if present) in the fenced area of the machine, when a person is inside this area.
- Switch off the machine and secure the main power supply switch in the off position with a padlock to prevent the machine from being switched on while personnel is working within the fenced area.
- Comply with all relevant local legislation and regulations

3.3.2 Set up

- Connect the machine in accordance with the local laws and regulations concerning health and safety.
- Before putting the machine into use, check if the machine has been set up in accordance with the instructions in this manual and with the layout drawing.
- Make sure that the transport system complies with all relevant health and safety directives and regulations.

3.3.3 Starting the machine

- Do not switch the main power supply on when persons are in contact with the machine.
- Do not start the machine when persons are in contact with the machine.
- Do not start the machine when persons are present in the fenced area of the machine.
- Before the machine is put into operation, all machine parts must comply with all relevant health and safety directives and regulations.

3.3.4 During machine operation

- Keep your hands and feet away from danger zones.
- Make sure you do not wear loose clothing and secure long or loose hair.
- Make sure that no persons or objects are within the range of any moving parts of the machine.
- Make sure that users know and observe all safety rules with regard to the machine and the environment in which it operates.

3.3.5 Maintenance and repair

- Turn off the power supply to the machine with the main power supply switch before starting any maintenance or repair tasks. Secure the main power supply switch in the off position with a padlock.
- Replace damaged or defective parts before putting the machine back into operation.
- Changes and modifications that may affect the safety of the machine can only be carried out when these changes and modifications comply with the relevant regulations, legislation, directives and recognized industry standards.
- If changes and modifications are outside the scope of specifications given by Qimarox in this manual and Qimarox has not granted permission changes and modifications, then the changes and modifications will entirely be the responsibility of those persons responsible for carrying out the changes and modifications.
- Electrical installation tasks must only be carried out by qualified personnel.

3.4 Safety provisions

3.4.1 Safety equipment

- You must not disassemble, bypass or disable any safety equipment on the machine.
- The machine may not be started and must be immediately taken out of operation if even a single item of machine safety equipment is defective.
- After maintenance tasks are complete, always replace all safety equipment that has been removed from the machine.

The machine has been equipped with the following safety equipment:

- Covers
- Labels

**Note**

Replace labels on the machine if they become unreadable or damaged.

Qimarox requires a protection fenced area around the machine. Any access doors must be secured with (interlock) door switches. These switches must be included in the emergency stop and safety circuit. Refer to section 3.4.2 for information about how to set up the fenced area.

In case of non-compliance with the required safety measures, the CE Declaration of Conformity will become null and void.

3.4.2 Safety fence

The fenced area must comply with EN ISO 13857 and EN 619 standards.

Openings in the fenced area must be designed such that they protect persons against reaching the danger zone. When this is not possible, these openings must be equipped with a light curtain.

Make sure that the fenced area complies with local law and rules for protection against danger. If the fenced area is fitted with a door, it must have a safety switch to shut down the system when opened.

If Qimarox supplies the safety fencing, the specifications will be included in the machine layout drawing.

3.4.3 Safety controls

The provisions must be designed according to a so-called Performance Level (PL) corresponding with the current standard for safety functions of a machine or a machine control in compliance with EN ISO 13849-1:2008. To the machine a PL d applies, in which d indicates that the risk must be substantially reduced.

Emergency stop circuit

The machine must have an emergency stop circuit. When one of the emergency stop buttons is pressed, the main power and the control current of the machine are switched off immediately.

Motor protection relay

Motor protection devices must be set to the nominal motor current. A relay set too low prevents optimum use of the motor. A relay set too high does not guarantee full thermal protection.

Thermistor protection (TF contact)

For motors that are frequently started and stopped, intermittently operated, use a high switching frequency or power controller, it is essential to use a motor protection relay and thermistor protection. This is to avoid prematurely switching the motor protection relay or overheating of the motor winding in these operational conditions.

Check continuously moving of products

It is necessary to check if the products are continuously moving during transport by means of time monitoring in the software. When the time is exceeded, the machine must immediately stop to avoid damage.

3.5 Potential risks

The machine is intended to be integrated into a palletising system. Qimarox has attempted to protect against as many hazards as possible. The following potential risks should be addressed before machine and assembled parts are put into operation:

- Risk of injury caused by rotation rollers.
- Risk of injury caused by moving belt.
- Hazards occurring at places where the machine connects to other parts of a transport system.

3.6 Machine end of life and disposal

Proper use and maintenance of the machine will not involve any environmental risks. When the machine is no longer useable, the machine should be dismantled and disposed of in an environmentally responsible manner.



WARNING

Observe all relevant legislation, regulations, instructions and precautions with regard to health and safety when dismantling the machine.

Observe all relevant legislation, regulations, instructions and precautions with regard to the disposal of products in the environment.

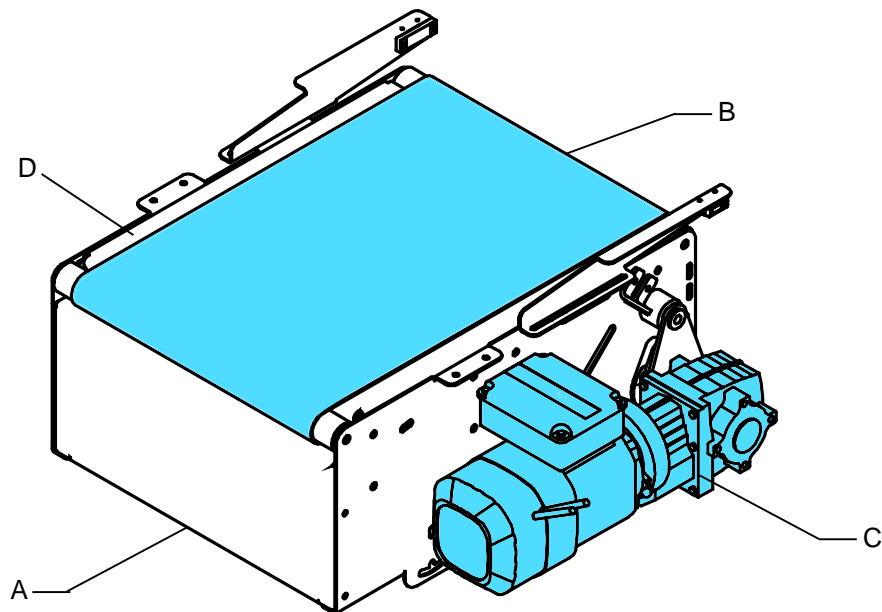
4 Description

The machine is designed to:

- Transport products horizontally.
- Transport products inclined.
- Dosing products.
- Reducing thrust in product flow.
- Separating products in product flow.

The type, weight and size of the products is defined in the specification sheet.

4.1 General overview



- A Frame
- B Belt (default: Flexam EX 10/2 0+ A32 AS Black)
- C Gearmotor
- D Sliding plate

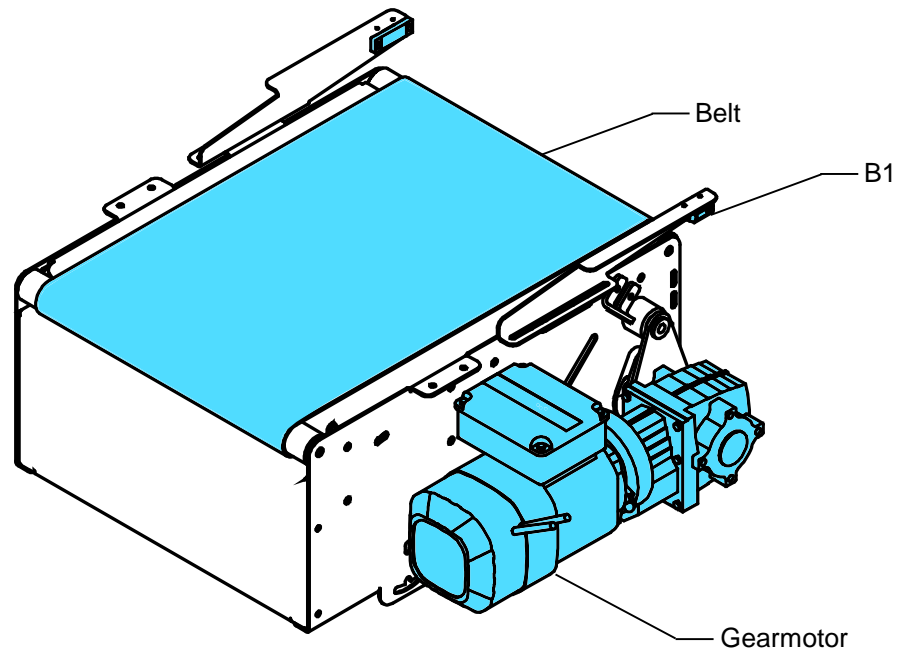
The machine consists of a frame in which rollers and a sliding plate are mounted. A belt, driven by a gearmotor runs over the rollers and the sliding plate.



Note

When using another type of belt properties like environmental specifications and belt tension can change.

4.2 Working principle of the machine



Processing a product

When the machine receives a signal from the next component in the transport system, the gearmotor starts, moving the belt and the machine is ready to process products. The function of sensor B1 depends on the function of the machine. Sensor B1 can be used to:

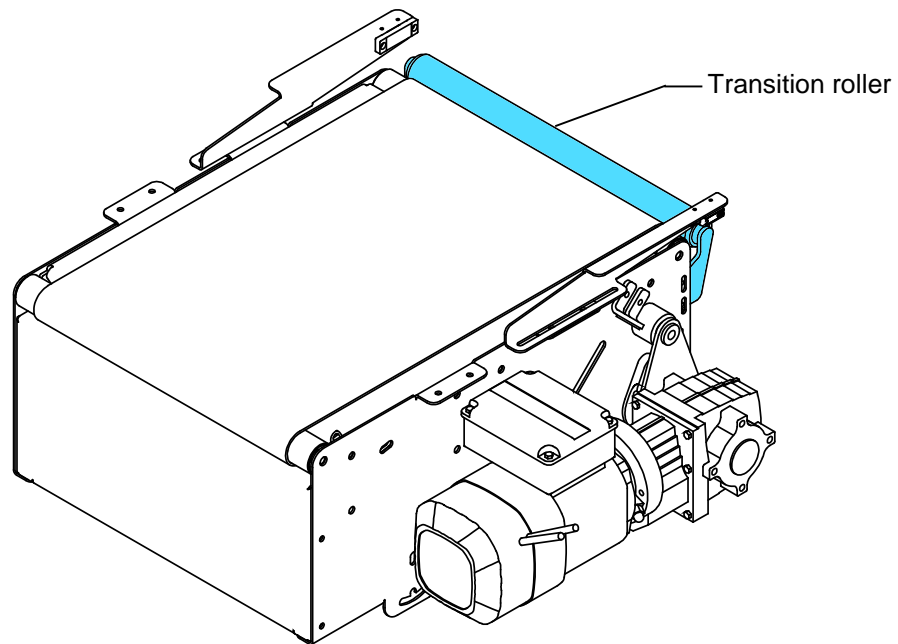
- Detect if a product is present on the machine
- Detect a gap between products
- Count the number of products passing the machine



Note

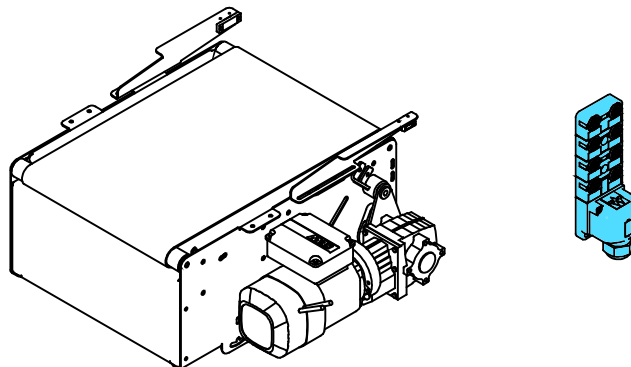
When using the machine to reduce thrust of a transport system it is recommended to use a machine with a length of $\frac{1}{4}$ to $\frac{1}{3}$ of the leading conveyor.

4.2.1 Transition roller (optional)



The machine can be equipped with a transition roller to ensure a smooth transition to the next machine in the transport system.

4.3 Connection unit



If the machine is delivered as a part of transport system supplied by Qimarox the sensors are wired to a connection unit. Refer to User manual of the transport system for the exact mounting locations.

If the machine is delivered as a standalone component the connection unit is not supplied and the sensors need to be connected individually.

4.4 Specifications

The general specifications of the machine are listed in this manual. For machine specific information, refer to the machine layout drawing, the specification sheet and the type plate.

Adjustments to the machine to accommodate other products, different speeds or travels may only be carried out by Qimarox or after written permission from Qimarox has been obtained.

4.4.1 Environmental specifications

The surrounding area of the machine must comply to the following specifications:

Property	Description
General	Covered and normally clean for operation. There must be sufficient space around the machine for carrying out maintenance and other activities on the machine.
Relative air humidity	Maximum 80%
Temperature	Between +5°C (41 F) and 40°C (104 F).

When the specifications for the surrounding area deviate from the table above, the machine must be adjusted to this. Such adjustments shall always be carried out by Qimarox or after written permission from Qimarox.

4.4.2 Electrical specifications

Refer to the electrical circuit diagrams and the type plate.

Motor

The motor safety relays must meet EN-IEC 60204-1 specifications. The setting range depends on the motor specifications.



Note

The machine can be controlled with a frequency inverter combined with motion control to ensure a smooth start stop movement and accurate positioning.

5 Installation

This chapter describes installation instructions. Refer to the user manual of the complete palletising system for installation instructions of the machine within the palletising system.

5.1 Delivery

The machine will be delivered fully assembled.

5.2 Unpacking

1. Check the packing list when unpacking the machine.
2. Immediately report damaged or missing parts to Qimarox.

5.3 Location

Refer to the machine layout drawing for detailed information about the location of the machine.

5.4 On-site transport

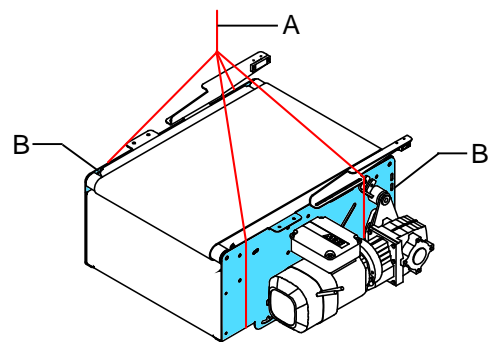
The machine must be moved in a horizontal position with the belt at the top.

General preparation include:

1. Check the floor load of the floor on which the machine will be placed.
2. Check the floor load of the floor on which the hoisting system is placed.
3. Make sure that the floor on which the machine will be placed, is level and clean.
4. Block the working area to ensure a safe environment during hoisting.

Lifting the frame

1. Check the type plate for the exact weight of the machine.
2. Use a suitable hoisting system that complies with local regulations.
3. Attach a suitable hoisting belt or hoisting chain (A) to the frame (B).
4. Fix the machine to the supports before removing the hoisting belt or the hoisting chain. Refer to section 5.6.



CAUTION

Do not attach the hoisting belt or hoisting chain to/around the gearmotor. Detach detection brackets if necessary.

5.5 Preparations for a Qimarox installation (optional)

The preparations given below will need to be done before Qimarox can assemble the machine on site. All equipment listed below must be present before and during assembly.

1. Indicate the contact person to whom the mechanic of Qimarox must report when arriving or leaving before and after the installation.
2. Make sure that the mechanic of Qimarox is assisted by qualified mechanics of the client. Refer to chapter 3.
3. Make sure that the place where the assembly takes place:
 - is accessible, has sufficient light and is at room temperature.
 - has been laid out such that the mechanics can work safely and without interruptions.
 - is suitable for drilling and/or grinding, if necessary.
4. Provide hoisting equipment:
 - preferably a bridge crane, minimum carrying capacity 1.5 x the weight of the machine.
 - or a fork-lift truck combined with a hoist with a minimum capacity of 2 x the weight of the machine at a lifting height with a minimum height of the machine plus 2 meters.
5. Provide electric power (230 V AC) at a maximum of 5 metres from the place of assembly of the machine.
6. Provide the correct safety provisions:
 - Moveable scaffolding or an aerial work platform.
 - Personal protection equipment.

5.6 Installing the machine



WARNING

The machine may only be set up by qualified personnel. Refer to chapter 3.

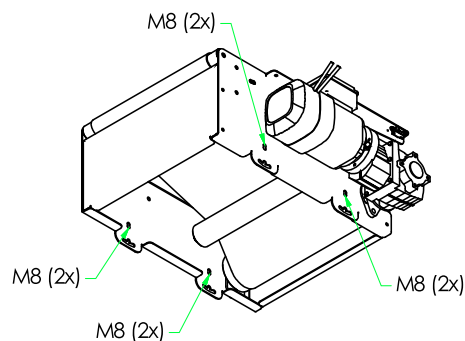
If the machine is part of a transport system, the machine can be mounted on the supports of the system.

If the machine is bought as a standalone component, it comes with its own supports.

5.6.1 Installing the machine in a transport system

Preparation

- Make sure that a hoisting system above the machine is available. Refer to section 5.4.
- Make sure that the surface is level and meets the requirements for carrying the total weight of the transport system. Refer to the machine layout drawing.



1. Position the machine using a hoisting system. Refer to section 5.4.
2. Mount the machine on the system using the fixation points M8 present at the bottom of the frame.

3. Adjust the angle of the machine to suit the transport system.
4. Disconnect the hoisting system.

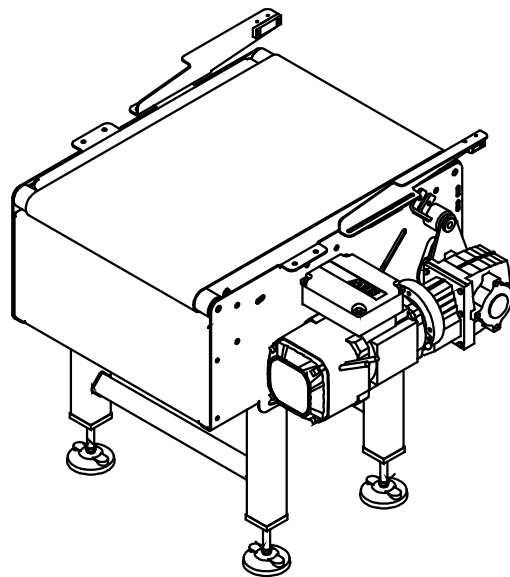
**Note**

When installing the machine within a Qimarox palletising system the fixation points M8 are used to mount supports and brackets to fix the machine to the palletising system.

5.6.2 Installing the machine as a standalone component

Preparation

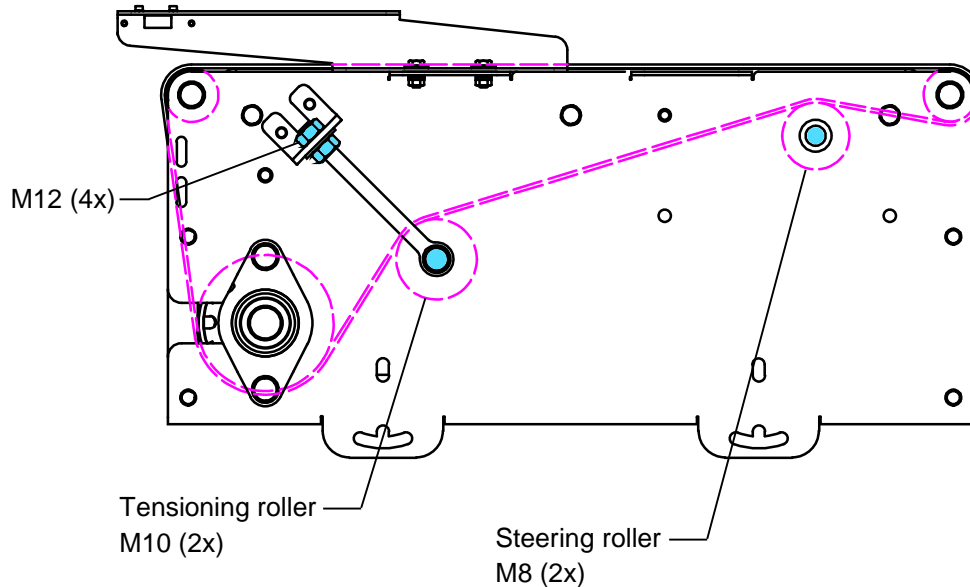
- Make sure that a hoisting system above the machine is available. Refer to section 5.4.
- Make sure that the surface is level and meets the requirements for carrying the total weight of the transport system. Refer to the machine layout drawing.



1. Position the machine using a hoisting system. Refer to section 5.4.
2. Adjust the angle and the height of the machine to suit the transport system.
3. Disconnect the hoisting system.

5.6.3 Tensioning and steering the belt

To ensure smooth running of the machine, the belt needs to be tensioned and steered.



To tension the belt:

1. Loosen the M10 bolts on both sides of the tensioning roller.
2. Loosen the M12 nuts on both sides that secure the tensioner (when tensioning loosen the bottom nuts).
3. Tighten the M12 nuts on both sides to tension the belt. The right amount of belt tension is achieved by elongating the belt between 0.3% and 0.6%.



CAUTION

Elongating the belt more than 1% will result in serious wear and tear of the machine.

Make sure to tension the belt equally on both sides to prevent steering by the tensioning roller.

4. Fasten the M12 nuts on both sides to secure the tensioner.
5. Fasten the M10 bolts at both sides of the tensioning roller.

To steer the belt:

1. Turn on the machine to observe to which side the belt is running.
2. Turn off the machine.
3. Loosen the M8 bolt of the steering roller on the side the belt needs to go.
4. Lower the roller on the side the belt needs to go.
5. Fasten the M8 bolt of the steering roller.
6. Turn on the machine to observe if the adjustment was enough.
7. Repeat step 2 to 5 until the belt runs correctly.

6 Maintenance



CAUTION

- The maintenance as described in this chapter is based on 2000 running hours per year. Adjust the maintenance frequency to the actual number of running hours per year.
- If required, Qimarox can carry out the maintenance activities.

6.1 Specific safety regulations

For the proper functioning of the machine the various machine parts must be regularly maintained. In this way defects and inaccuracies of the machine are prevented.



WARNING

- Only a qualified maintenance engineer is allowed to carry out maintenance activities on the machine. Refer to chapter 3.
- Turn off the power supply to the machine with the main switch before starting any maintenance or repair activities. Secure the main switch with a padlock.
- Do not use any corrosive and inflammable solvents or cleaning agents on the machine that contain TRI, PER, TETRA or FCHC. When you use chemical substances (cleaning agents), obey the instructions on the packaging.
- After having completed maintenance activities, always put all safety provisions that have been removed in place again.
- Make sure that the machine has always run empty before carrying out any activities. No products may be present in the machine.
- Take the appropriate measures for safely working at heights.

6.2 Preventive maintenance schedule

6.2.1 Daily maintenance

Entire machine Check for visible damage & dirt

Item	Definition	Action when required by the check
Entire machine	Check for visible damage.	Replace damaged parts.
	Check for visible dirt.	Clean the machine. Refer to section 6.3

6.2.2 Weekly maintenance

Item	Definition	Action when required by the check
Rollers	Check for visible damage to the surface and sides	Replace damaged rollers
	Make sure the rollers run freely and smoothly	
	Check for running sounds	
Belt	Check the tension	Tension belt
	Check for wear and tear	Replace belt
Cabling	Check the cables for visible damage	Replace the cable(s).

6.2.3 Monthly maintenance

Item	Definition	Action when required by the check
Gear motor	Follow the instructions in the manual of the manufacturer of the gear motor.	Follow the instructions in the manual of the manufacturer of the gear motor.
Bearings	Check for play.	Replace the bearings.
Sensors	Check for visible damage.	Replace the sensors if necessary.
	Check for loose parts	Fasten loose parts.
	Clean. Refer to section 6.3	
Cabling	Check if all cables are fastened tightly.	Reconnect cables if necessary.

6.2.4 6-monthly maintenance

Item	Definition	Action when required by the check
Gear motor	Follow the instructions in the manual of the manufacturer of the gear motor.	Follow the instructions in the manual of the manufacturer of the gear motor.
All bolt connections	Check all bolt connections.	Tighten bolts using the correct tool and torque.

6.2.5 2-yearly maintenance or after 10,000 running hours, whichever comes first

Item	Definition	Action when required by the check
Gear motor	Follow the instructions in the manual of the manufacturer of the gear motor.	Follow the instructions in the manual of the manufacturer of the gear motor.

6.3 Cleaning



WARNING

- Do not use any corrosive and inflammable solvents or cleaning agents on the machine that contain TRI, PER, TETRA or FCHC. Read the instructions on the packaging when chemical substances (cleaning agents) are used.
 - Electrical components should not make contact with water or other liquids.
 - Do not clean the machine with compressed air or water under high pressure.
 - Avoid parts made of rubber or plastic, such as cables and gaskets, from making contact with oil, solvents or other chemicals.
1. Make sure there are no products on the machine.
 2. Switch off the machine.
 3. Secure the main power supply switch with a padlock.
 4. Remove deposit and dirt by hand.
 5. Report any damage to the technically responsible person or to Qimarox and make sure that any damage is remedied before restarting the machine.

7 Troubleshooting

Problem	Possible cause	Solution
The motor does not run.	Electrical failure.	Remedy the electrical failure.
	The operation or main switch is on "OFF".	Set the operation/main switch to "ON".
	The door switch or emergency stop is active.	Release the emergency stop switch after having checked if the situation is safe.
The motor does not run and makes a humming sound.	Mechanical or electrical failure.	An authorized qualified person should disconnect the motor. Refer to chapter 3
	No full power.	Check the power cable for a break or short circuit.
	Poor contact.	Check the terminal clamps.
	Defect in the motor.	Check the connection and the motor winding.
	Blown fuse.	Replace the fuse.
	Thermal safeguard triggered.	Investigate and remedy the cause of the heating.
	Motor protection triggered by short circuit or overload.	Investigate and remedy the cause. Then reset the motor protection.
	Defective power controller.	Investigate and remedy the cause. Replace the power controller.
The motor starts with difficulty.	Electrical faults such as "The motor does not run and makes a humming sound".	Check the starting current and the nominal current. Investigate and remedy the cause of the increased use of energy.
The motor is overheated.	Voltage and/or frequency deviate from the nominal value when switching on.	Connect the motor according to the data on the type plate.
	The supply voltage deviates more than 5% from the nominal motor voltage.	Find out why it deviates and try to remedy this.
	Insufficient motor cooling.	Check the ventilation openings in the motor housing for blockage. Check the fan for damage.
The motor gets overheated and runs at a low speed.	Loose contact or broken cable in the power circuit of the motor.	Check the power circuit for loose contacts or broken cables.

	Too high use of energy.	Check the weight of the product according to the data on the type plate. Check that the motor can move freely.
	The settings of the frequency inverter are incorrect.	Adjust the settings.
The motor hums and does not run properly.	The power has been connected incorrectly.	Connect the power in the correct way.
	Short circuit in the power.	Remedy the short circuit.
	Wrong fuse (too low value).	Adjust the fuse to the nominal motor current.
	Motor protection poorly set.	Adjust the motor protection to the nominal motor current.
	Short circuit in the winding or with respect to the earth.	Dismount the motor for repair.
Use of energy (motor current) too high and higher motor temperature.	The weight of the products is too high.	Make sure the specifications for use of the machine have been observed.
Use of energy (motor current) too high and high temperature of the bearing housing.	Ball bearing or the like is blocked.	Check the ball bearing and replace if necessary.
Abnormal sounds, unusual vibrations and swinging movements.	Drive system clogged by dirt.	Check the movement of belt and remove dirt or deposit. Shorten the cleaning interval.

8 CE declaration of conformity

The CE declaration can be found in either the User manual of the complete system or the specification sheet of the standalone machine.

9 Electrical drawings

The drawings of this machine can be found in an external document. This document is provided with the machine.

Refer to the specification sheet for the required frequency and connection (star or delta) of the drive. Delta connection is used to make sure the torque of the drive does not decrease above 50 or 60Hz.



CAUTION

The machine should always be controlled by a frequency inverter. The required drive frequency can be found in the specification sheet.

9.1 Drive type: SEW 3PH

Connection main power:

<http://www.productliften.nl/media/text/240/247/680010306.pdf>

Connection TF:

<http://www.productliften.nl/media/text/240/247/681510306.pdf>

Connection BR:

<http://www.productliften.nl/media/text/240/247/69001006.pdf>

Other connection diagrams DR:

<http://www.productliften.nl/media/text/240/247/9pd0058us.pdf>



Nobelstraat 43
3846 CE Harderwijk
Tel: +31 341 436 700
Fax: +31 341 436 701
E-mail: info@qimarox.com
Internet: www.qimarox.com