

**User Manual**  
**Pallet dispenser PD1**  
Version 1.1 - 08/11/2018

Qimarox  
Nobelstraat 43  
3846 CE Harderwijk  
The Netherlands

Tel: +31 341 436 700  
Fax: +31 341 436 701  
E-mail: [info@qimarox.com](mailto:info@qimarox.com)  
Internet: [www.qimarox.com](http://www.qimarox.com)

Copyright © Qimarox B.V.

All rights reserved. No part of this publication may be reproduced, stored in a computer database or published in any form or in any way electronically, mechanically, by means of photocopying, recordings or in any manner without prior written permission from Qimarox.

# Table of contents

<b>1</b>	<b>About this manual</b>	<b>4</b>
1.1	Introduction .....	4
1.2	Product documentation .....	4
1.3	Source language .....	4
1.4	Symbols used in the manual .....	5
1.5	Terminology list .....	5
1.6	Further support and information .....	5
<b>2</b>	<b>General</b>	<b>6</b>
2.1	Machine identification .....	6
2.2	Machine layout drawing and specifications .....	6
2.3	Warranty .....	7
2.4	Liability .....	7
2.5	CE Declaration of Conformity .....	7
<b>3</b>	<b>Safety</b>	<b>8</b>
3.1	Intended use of the machine .....	8
3.2	User types and qualifications .....	8
3.3	Safety instructions .....	8
3.4	Safety provisions .....	11
3.5	Potential risks .....	12
3.6	Machine end of life and disposal .....	12
<b>4</b>	<b>Description</b>	<b>13</b>
4.1	General overview .....	13
4.2	Sensors .....	14
4.3	Connection unit .....	15
4.4	Machine in a conveyor system .....	16
4.5	Specifications .....	19
<b>5</b>	<b>Installation</b>	<b>20</b>
5.1	Delivery .....	20
5.2	Unpacking .....	20
5.3	Location .....	20
5.4	On-site transport .....	20
5.5	Preparations for a Qimarox installation (optional) .....	21
5.6	Installing the machine .....	22
<b>6</b>	<b>Maintenance</b>	<b>24</b>
6.1	Specific safety regulations .....	24
6.2	Preventive maintenance schedule .....	25
6.3	Cleaning .....	26
<b>7</b>	<b>Troubleshooting</b>	<b>27</b>
<b>8</b>	<b>Electrical drawings</b>	<b>28</b>
<b>9</b>	<b>Pneumatic circuit diagram</b>	<b>29</b>

# 1 About this manual

## 1.1 Introduction

This manual provides information about the Pallet dispenser PD1 machine, that is used for stacking empty pallets awaiting to be used in a pallet conveyor system. Henceforth the Pallet dispenser PD1 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 <sup>1</sup>	UM Pallet dispenser PD1 v1.0 EN
Machine layout drawing <sup>2</sup>	Layout drawing [serial number]
Specification sheet <sup>2</sup>	Specifications [serial number]
Electrical drawings <sup>1</sup>	Electrical drawing [serial number]
OEM parts of the machine	

## 1.3 Source language

This manual was originally written in the English language.

---

<sup>1</sup> Generic information

<sup>2</sup> 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	The Pallet dispenser PD1
Transportation surface	A non-driven surface intended for transportation of products. For example: a roller deck
Palletising system	Combination of machines that is used for palletising
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:

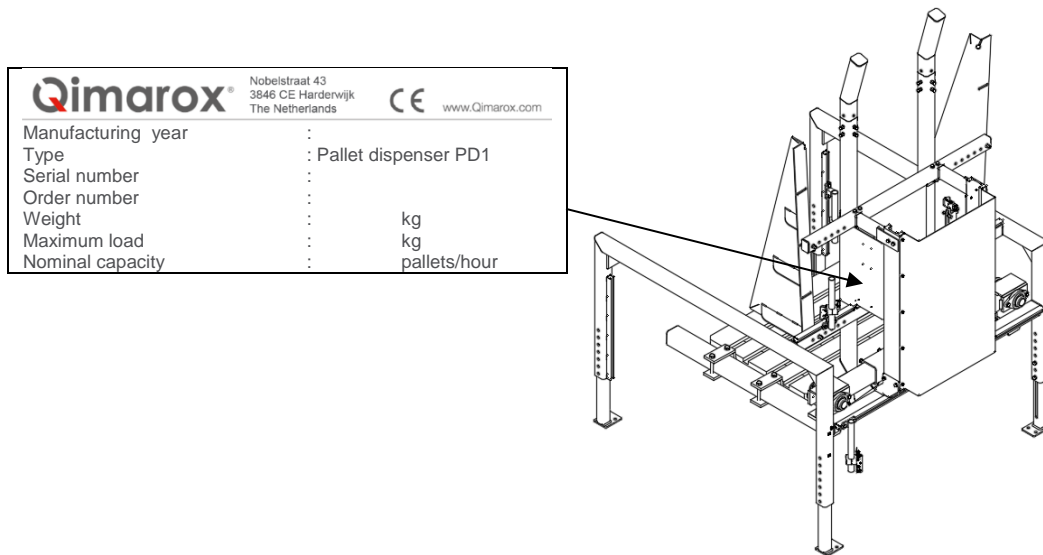
- Training
- Global support
- Service contracts

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 at the back of the machine on one of the side plates of the frame. Refer to the specification sheet of this serial number, for specifications of this machine and applicable pallets.



### 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
- Pallet dimensions and mass
- Machine dimensions and mass
- Machine configuration
- Machine capacity

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

For the CE declaration of conformity, refer to the specification sheet.

## 3 Safety

### 3.1 Intended use of the machine

The machine is exclusively intended for the stacking of empty pallets described in this manual. Refer to chapter 4 for a detailed description of the specifications of use.

The machine is always set up within a larger transport system in which empty pallets are 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, secure the main power supply switch in the off position with a padlock and make sure that the air service unit is switched off to prevent the machine from being switched on while personnel is working within the fenced area. After making sure that the machine is completely switched off, it is necessary to vent all cylinders in order to create a safe environment to work in (see chapter **3.3.5 Maintenance and repair**).
- 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

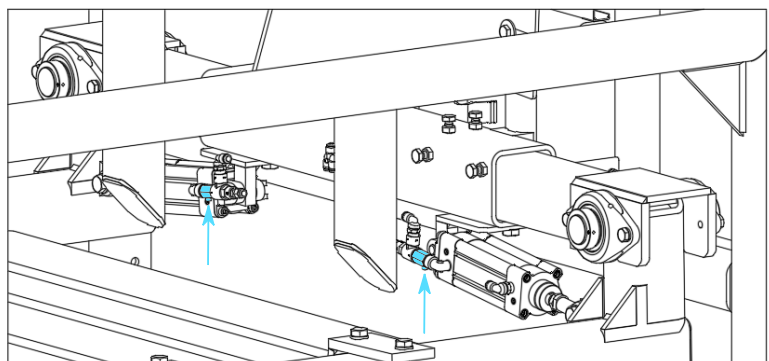
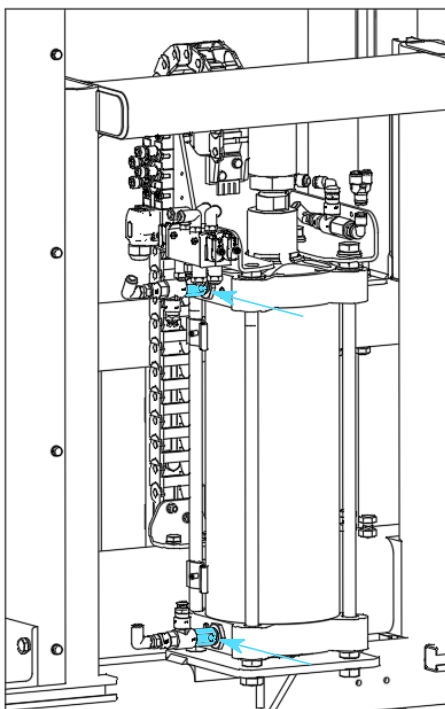
- Do not switch the main power supply on when persons are in contact with the machine.
- Do not switch the air service unit on when persons are in contact with the machine.
- Do not start the machine when persons are in contact with the machine.
- Do not start the machine when persons are present in 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

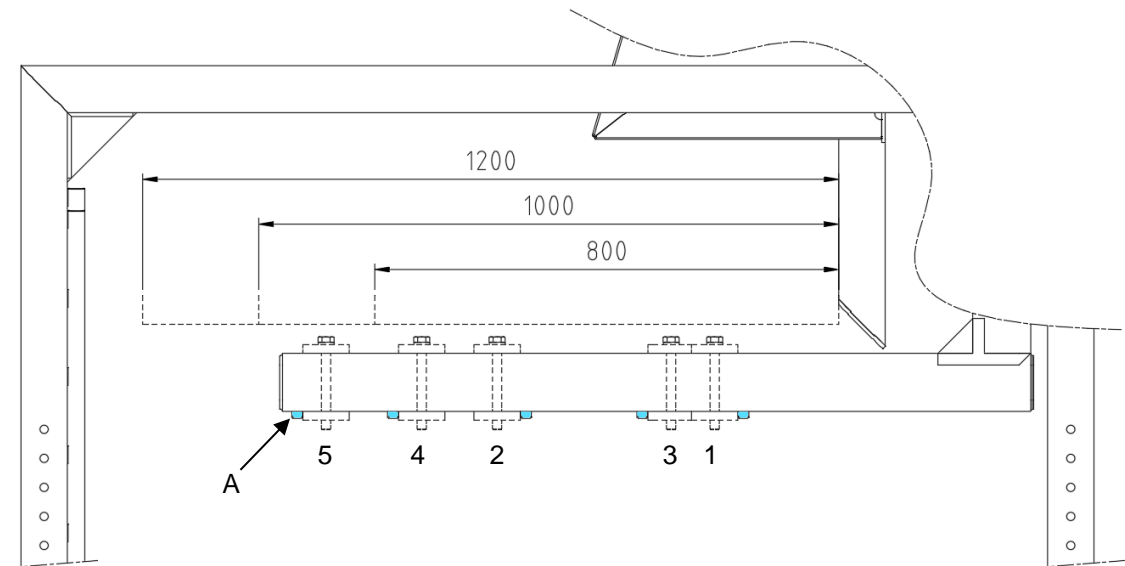
- Turn off the power supply to the machine with the main power supply switch before starting any maintenance or repair tasks. Secure the main power supply switch in the off position with a padlock.
- Switch off air service unit before starting any maintenance or repair tasks. After the air service unit is switched off, it is necessary to vent all cylinders (see both figures below).



- 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.

### 3.3.6 Lift finger adjustment

To ensure that the pallets are stacked and de-stacked safely, the lift fingers must be adjusted according to the size of the pallet. Five bolt heads (A) underneath each lift arm, used as a stop for the lift fingers, make it easy to adjust the lift fingers to the right position depending on the size of pallet used in the machine. See figure and table underneath for the right lift finger position.



Pallet width	Position lift fingers
800mm	1 + 2
1000mm	3 + 4
1200mm	3 + 5

Contact Qimarox with any deviation of pallet sizes for the required lift finger position to match that specific pallet size!

## 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:

- 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, air supply and the control current of the machine are switched off immediately.

### 3.5 Potential risks

The machine is intended to be integrated into a palletising and/or pallet conveyor 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 up and down moving carrier.
- Risk of injury caused by moving lift arms.
- Risk of injury caused by falling pallets due to incorrect stacking.
- Risk of injury caused by possible constriction in machine on account of release of trapped air in cylinders.

### 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**

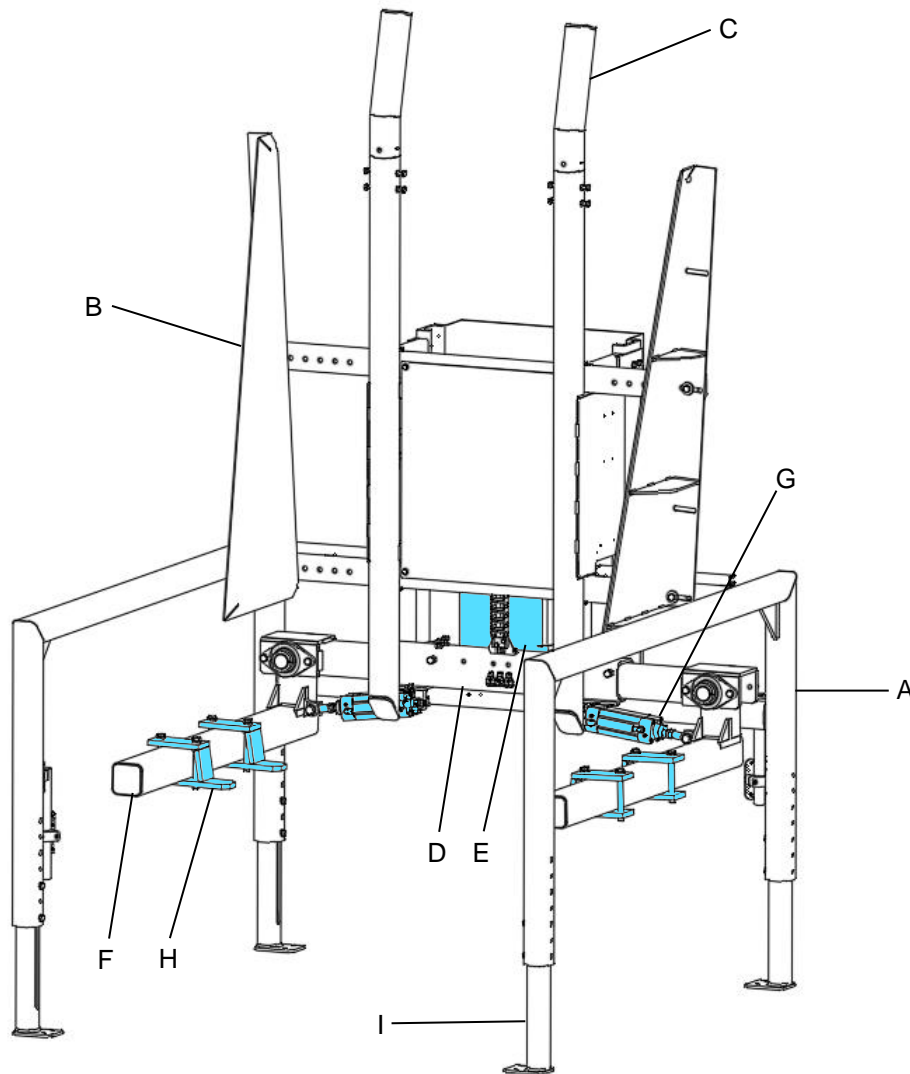
Observe all relevant legislation, regulations, instructions and precautions with regard to health and safety when dismantling the machine.

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 stack empty pallets and feed/supply these empty pallets on to a pallet conveyor system or collect them from a pallet conveyor system.

### 4.1 General overview



The machine consists of the following components:

- A Frame
- B Side restraints
- C Back restraints
- D Carrier
- E Cylinder (for lifting the carrier)
- F Lifting arms
- G Cylinders (for opening and closing the lifting arms)
- H Forks
- I Support legs

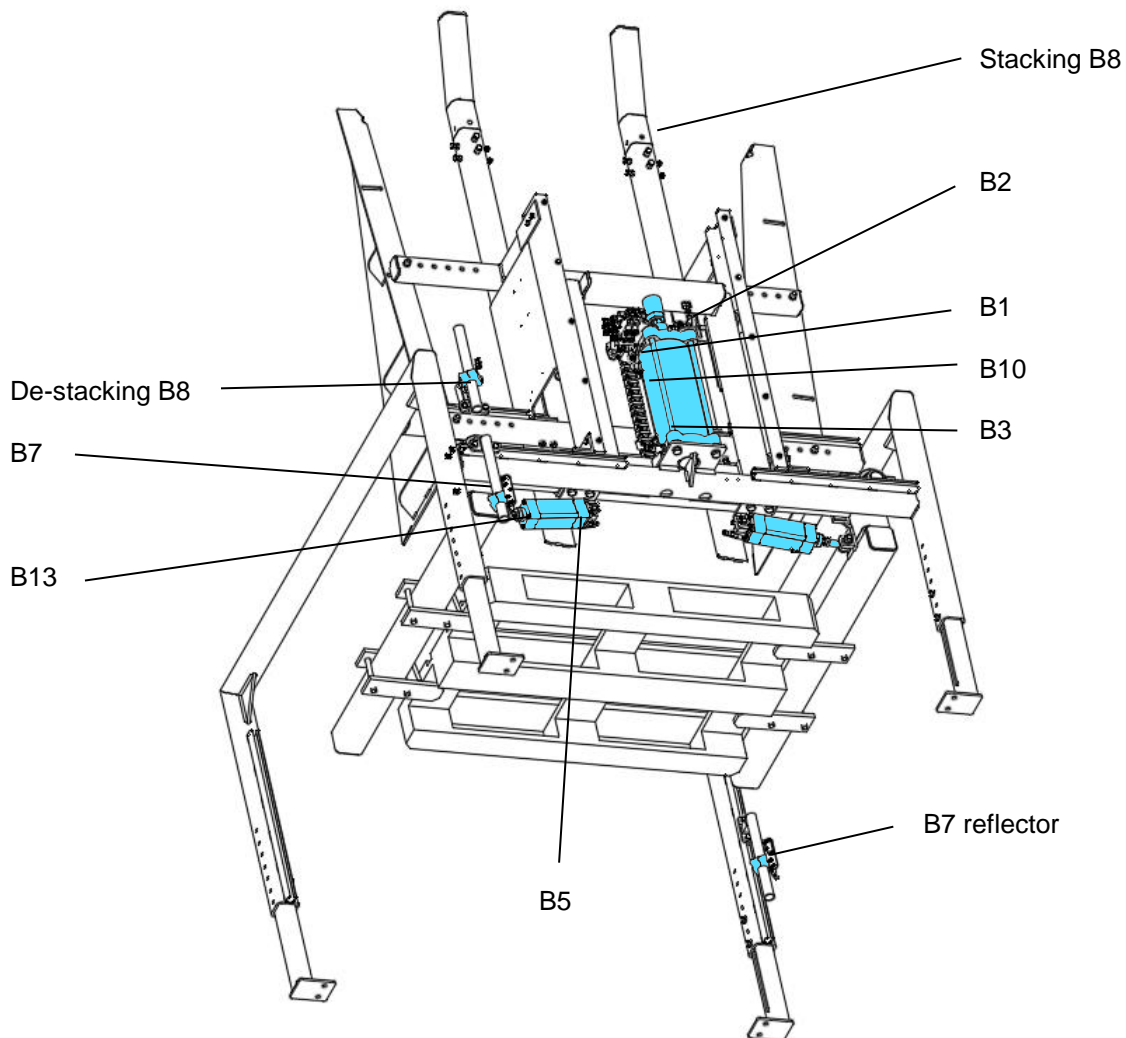
To stack or de-stack empty pallets the machine needs to lift the stack of pallets. This is done by lifting the carrier. The carrier consists of a frame (A) and four guide wheels. The carrier is lifted by a pneumatic cylinder (E) in the centre of the carrier.

The carrier frame is attached to the lifting arms (F). To open or close the lifting arms, each arm has its own cylinder (G) to move the arm to its open or close position.

Two forks (H) are mounted on each lifting arm to pick up the empty pallets. The exact location, of these forks on the lifting arms, depends on the size of the pallets being used.

## 4.2 Sensors

The following sensors are installed on the machine:



B1	Upper position
B2	Middle position single pallet
B3	Bottom position
B5	Forks in pallet stack
B7	Pallet present under pallet dispenser
B8	Pallet dispenser depot status
B10	Middle position double pallet
B13	Forks out pallet stack



**CAUTION**

When both sensors are not properly aligned or not functioning properly, it will result in serious damage to the machine and/or create an unsafe situation.

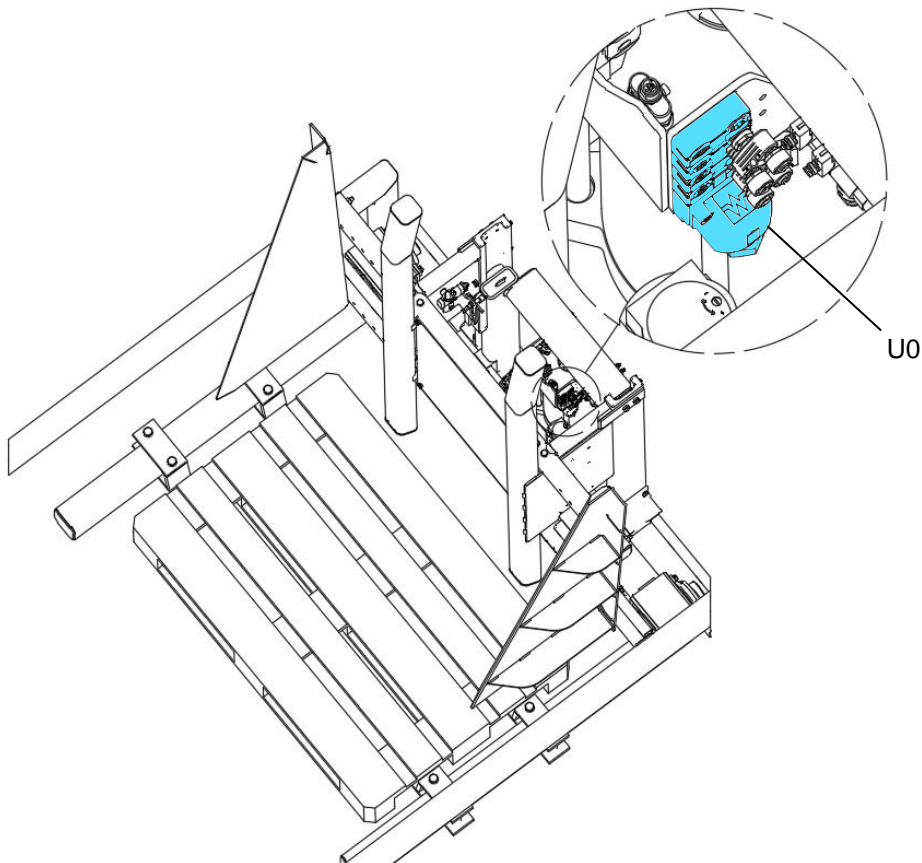


**Note**

*Dependent if the machine is used for stacking or de-stacking sensor B8 needs to be in the correct position.*

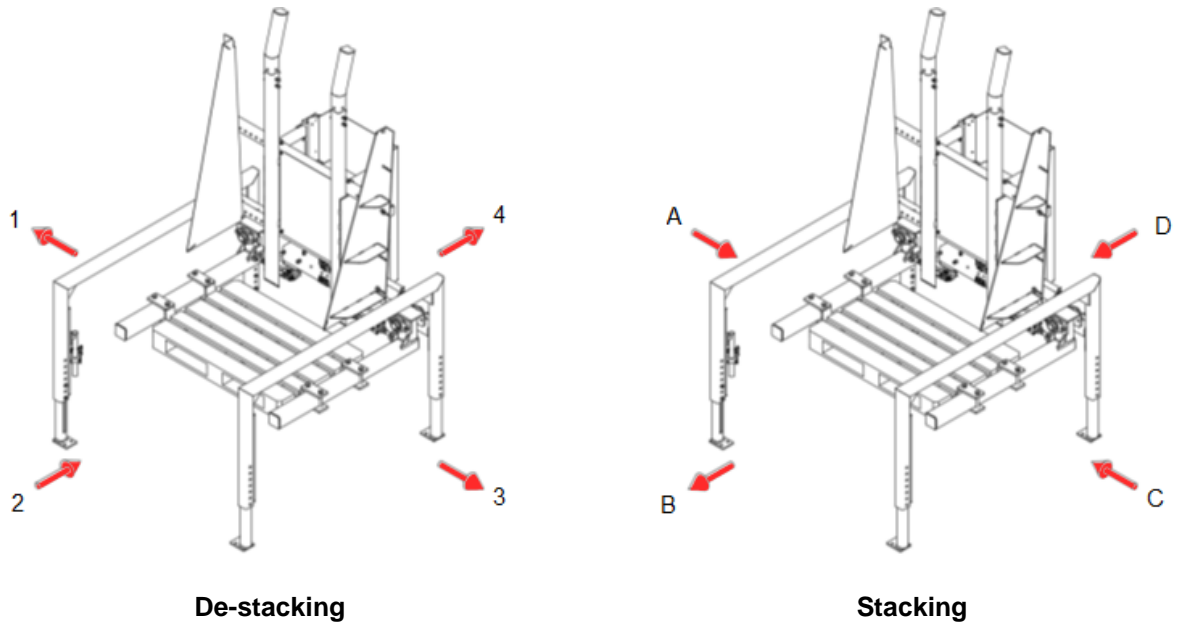
### 4.3 Connection unit

The sensors are wired to a connection unit. Refer to User manual of the palletising system for the mounting locations.



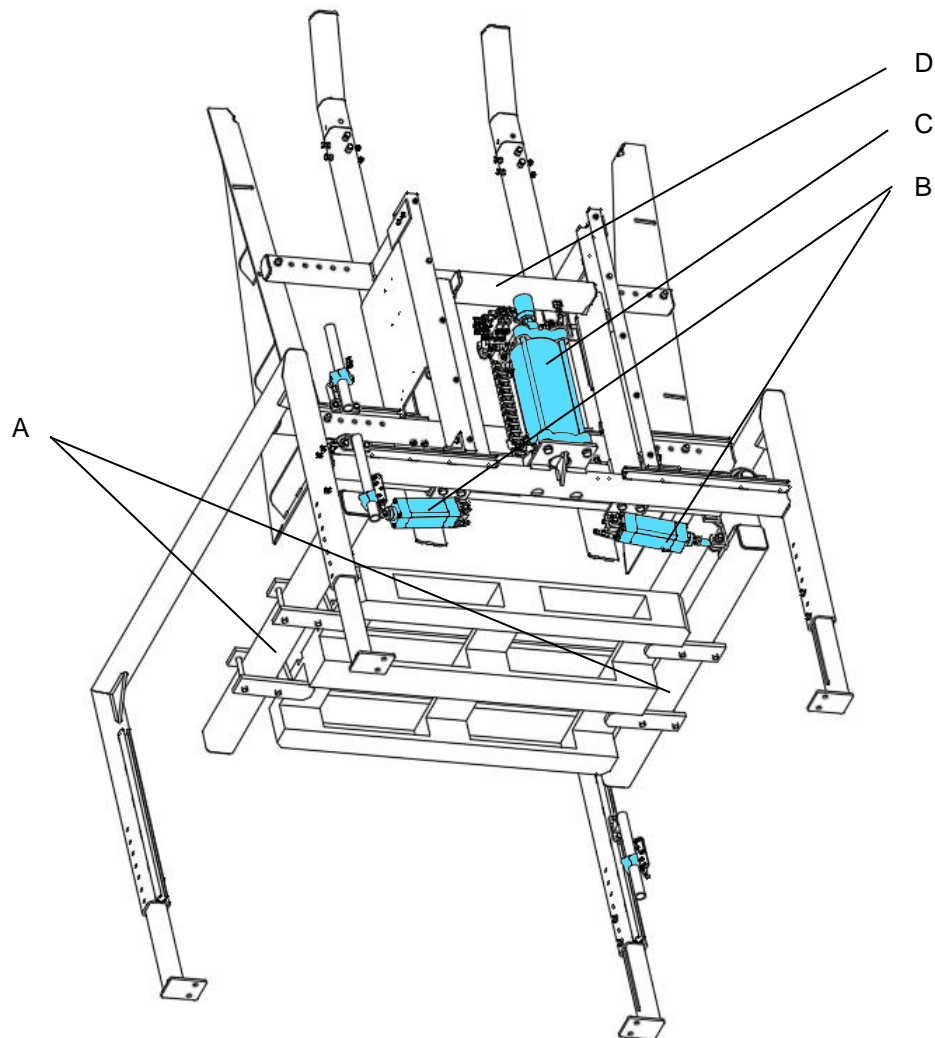
#### 4.4 Machine in a conveyor system

The machine can be used for de-stacking and stacking empty pallets on and from a pallet conveyor system. In the first figure below, the front (2) of the machine is used as infeed for a stack of empty pallets. These empty pallets can be fed on to a pallet conveyor system in the directions 1, 3 or 4. In the second figure, the front of the machine (B) is used as an outfeed for a stack of empty pallets coming out of a pallet conveyor system from the directions A, C or D.





#### 4.4.1 De-stacking



Using the machine for de-stacking empty pallets, at least one empty pallet must always remain resting on the pallet conveyor underneath the machine. This means the stack of empty pallets is not suspended in the lifting arms (A) of the machine. The lifting arms are now positioned at the second lowest pallet awaiting the signal when a new pallet is required.

When an empty pallet is required, the lifting arms close, using cylinders (B). Now that the arms are closed, the main lifting cylinder (C) lifts up the carrier (D), lifting all pallets, except for the one resting on the pallet conveyor.

After the pallet has been released in to the system, the stack of pallets in the machine are lowered on the pallet conveyor, once again released by the lifting arms and the lifting arms go back to its original starting position.

Sensor B7 detects whether there's a pallet still present or not. Sensor B8 detects whether there are enough pallets still available for the pallet conveyor system. If not, new pallets should be placed in the machine! Sensors B3 on the lifting cylinder ensures that the carrier is in its bottom position to release the pallet.

**CAUTION**

When both sensors are not properly aligned or not functioning properly, it will result in serious damage to the machine and/or create an unsafe situation.

## 4.4.2 Stacking

Using the machine for stacking empty pallets, at least one empty pallet must always remain resting on the pallet conveyor underneath the machine. This means the stack of empty pallets is not suspended in the lifting arms (A) of the machine. The lifting arms are now positioned at the lowest pallet awaiting the signal when a new pallet is needs to be added to the stack.

When an empty pallet needs to be added to the stack, the lifting arms close, using cylinders (B). Now that the arms are closed, the main lifting cylinder (C) lifts up the carrier (D), lifting all pallets. After all pallets are lifted, the new pallet can be positioned underneath the stack. The main lifting cylinder of the carrier now lowers the present stack of pallets on to the pallet which has just arrived underneath the machine on the pallet conveyor. The cylinders (B) of the lifting arms (A) are now used to open the lifting arms to clear the forks of the stack of pallets. The carrier is now lowered to its lowest position and the lifting arms close again. After this, the entire stack is brought back to its original position awaiting a new pallet.

Sensor B7 detects whether there's a pallet present so the stack above can be lowered. Make sure that the arriving pallet ends up in the center of the machine and as close as possible to the back restraint. Sensor B8 detects if the machine stack is too high. If so, the stack of pallets first needs to be removed from the machine. Sensors B3 on the lifting cylinder ensures that the carrier is in its bottom position to grab the pallet.



### CAUTION

When both sensor are not properly aligned or not functioning properly, it will result in serious damage to the machine and/or create an unsafe situation.



### CAUTION

Do not exceed total weight and height of stacked pallets on the machine, it will result in serious damage to the machine and/or create an unsafe situation. See specification sheet for maximum load and pallet height.



### Note

*Any deviation in controlling the machine is possible, but NOT without consulting Qimarox first.*

## 4.5 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 or layers, different speeds or travels may only be carried out by Qimarox or after written permission from Qimarox has been obtained.

### 4.5.1 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.

### 4.5.2 Electrical specifications

Refer to the electrical circuit diagrams and the type plate.

## 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. Make sure there's enough space behind the machine for maintenance.



#### CAUTION

If more than one machine is placed in a pallet conveyor system, make sure that the centre distance between machines is at least 190cm/75inches.

### 5.4 On-site transport

The machine must be moved in a horizontal position similar as delivered standing on its own supports.

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.

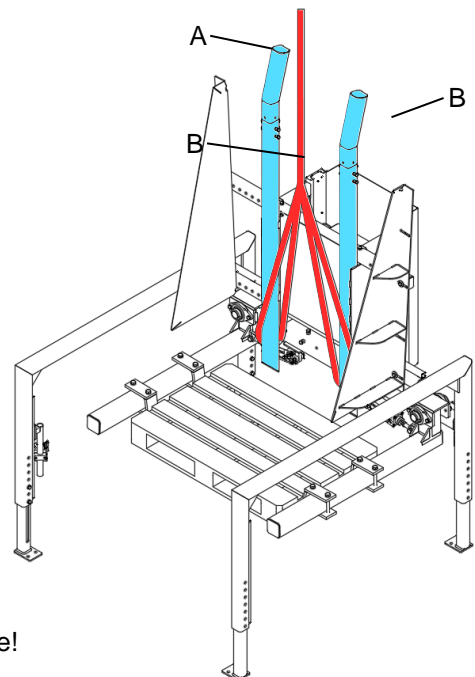
#### Lifting the frame:

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) around the lower part of the back restraints (B). The back restraints are part of the frame and closest to the centre of gravity of the machine, which makes it the best place for hoisting/lifting the machine to its destination.
4. Place the machine on its place of destination and make sure that the supports of the machine are adjusted to the correct height and the bolts of the supports are fastened properly before removing the hoisting belt or the hoisting chain.



#### CAUTION

Make sure that the machine stays in balance!



## 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

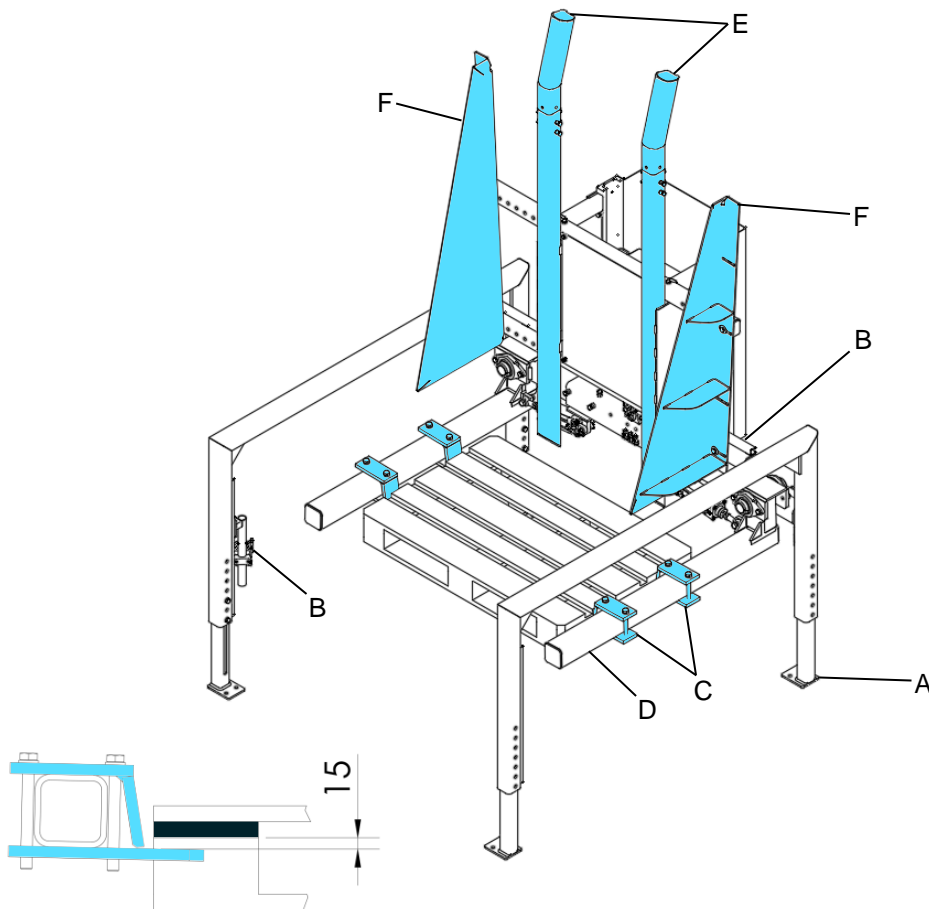


### WARNING

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

#### 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. Make sure supports (A) are mounted at the correct height for the desired pallet transport level and secure the bolts of the supports. The machine has been set up correctly if there is at least 15mm(0.6inches) of clearance between the fingers (C) and the pallet on the conveyor, with the lifting arms (D) closed and in its lowest position.
3. Check if the machine is completely level.
4. Disconnect the hoisting system.
5. Check if all sensors (B) are properly aligned.
6. Check if the fingers (C) on the lifting arm (D) are placed at the right location corresponding with the type of pallet used. If not, adjust them accordingly. Use the back restraints (E) as reference to position them correctly and symmetrical relative to the pallet.

7. Check if the lifting arms are placed at the right location. If the pallet doesn't fit between the arms, it is necessary to adjust the lifting arms. This can be done loosening the bolts on the carrier and adjust the lifting arms accordingly, symmetrical relative to the pallet. Make sure the bolts are properly secured again after adjusting the lifting arms.
8. Check if the back and side restraints (F) are at the right location in combination with the type of pallet used. There shouldn't be more than 2,5cm/1inch of play between one of the side restraints and the lowest empty pallet. If not, adjust them accordingly.

**CAUTION**

Make sure that step 6,7 and 8 are fulfilled! If not, the machine is not safe and must not be used.

**CAUTION**

If more than one machine is placed in a pallet conveyor system, make sure that the center distance between machines is at least 190cm/75inches.

**Note**

*See specification sheet for minimal and maximal pallet sizes that can be used.*

## 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.
- Switch off air service unit before starting any maintenance or repair tasks. After the air service unit is switched off, it is necessary to vent all cylinders (see chapter 3.3.5).
- 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

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
Wheels of carrier	Check for visible damage of the running surface	Replace wheels
	Check for running sounds	Replace wheels
	Check for visible dirt.	Clean the machine. Refer to section 6.3
e-Chain/cable carrier	Check e-Chain/cable carrier for broken links.	Replace complete e-Chain/cable carrier or necessary amount of links.
Cabling/tubing	Check the cables for visible damage.	Replace the cable(s)/tube(s).

### 6.2.3 Monthly maintenance

Item	Definition	Action when required by the check
Cylinders	Check connectors for leakage.	Fix leakage, if necessary replace connectors.
	Check if cylinder rods are straight.	If rods are bend, replace cylinders.
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/tubing	Check if all cables and tubes are fastened tightly.	Reconnect cables/tubes if necessary.

### 6.2.4 6-monthly maintenance

Item	Definition	Action when required by the check
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
Lift fingers	Check lift fingers for wear and tear damage.	Replace lift fingers.

## 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 pallets on the machine.
  2. Switch off the machine.
  3. Secure the main power supply switch with a padlock.
  4. Make sure the air service unit is switched off and cylinders are vented (see 3.3.5).
  5. Remove deposit and dirt by hand.
  6. Make sure safety decals on cylinders are clean and clearly visible. If damaged, replace them before turning on machine.
  7. 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

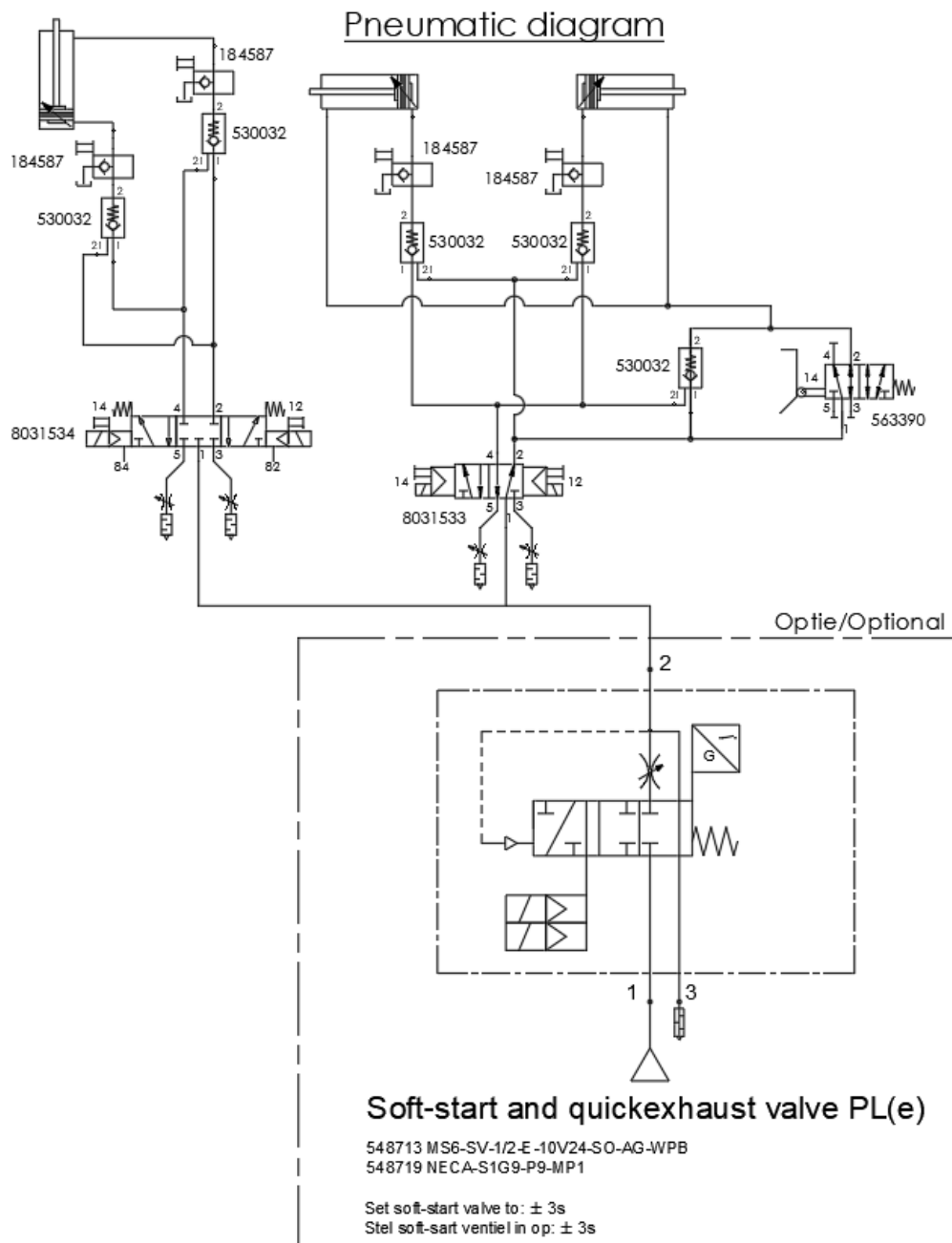
<b>Problem</b>	<b>Possible cause</b>	<b>Solution</b>
Arms do not open/close.	No air pressure.	Turn air pressure on.
	No air pressure. Connection to cylinder damaged.	Check connectors and tubing. If necessary, replace parts.
	Sensor error.	Check sensors. Adjust or replace if necessary.
Carrier doesn't go up and down.	No air pressure.	Turn air pressure on.
	No air pressure. Connection to cylinder damaged.	Check connectors and tubing. If necessary, replace parts.
	Sensor error.	Check sensors. Adjust or replace if necessary.
Pallets do not stack properly.	Lift arms and or fingers are not aligned correctly.	Adjust lift arms and or lift fingers.
	There is too much play between the pallets and side restraints.	Adjust the side restraints. There must be no more than 2,5cm/1inch of play between the pallet and side restraint.
The lifting arms/fingers do not reach the pallet on the .	Working height of machine is too high.	Adjust supports.
Pallet is stuck in machine.	Bad pallet or not properly aligned in machine.	Use manual control box to release pallet from lifting arms.

## 8 Electrical drawings

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

<https://www.qimarox-palletizers.com/index.php?pageId=328>

## 9 Pneumatic circuit diagram



Mechanical actuated valve 563390 ensures that there's no danger of possible constriction when the carrier is in its lowest position with lifting arms closed in case of lack of air pressure.

Air consumption at 6 bar with 120 pallets/hour is 20m<sup>3</sup>. With a different capacity, the air consumption can be calculated accordingly, or contact and check with Qimarox.

**CAUTION**



Safety decals regarding switching off air pressure and venting cylinders need to be present and clearly visible on all three cylinders. Do not use machine if decals aren't present.

**Qimarox**<sup>®</sup>

Nobelstraat 43  
3846 CE Harderwijk  
Tel: +31 341 436 700  
Fax: +31 341 436 701  
E-mail: [info@qimarox.com](mailto:info@qimarox.com)  
Internet: [www.qimarox.com](http://www.qimarox.com)