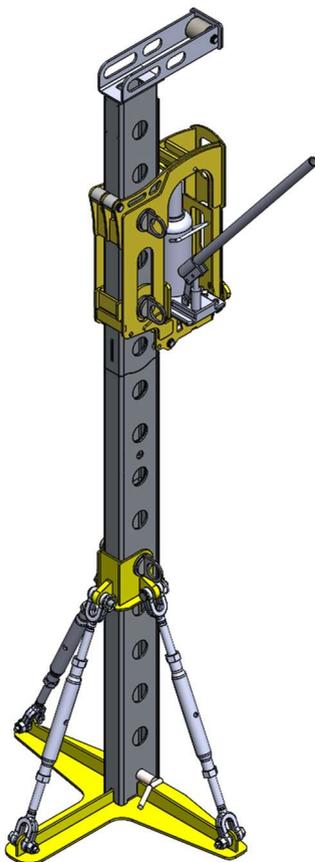


# Operation, maintenance and inspection manual

Container lifting device

CFU 30



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## **1 Declaration of conformity**

## 2 For the user

With this manual, you will learn to handle, operate, and maintain the container lifting device CFU 30. General lifting instructions are also provided.

This manual describes following items:

- Instruction for safe lifting of loads
- General information regarding the lifting device
- Handling and operation of the lifting device
- Maintenance and inspection of the lifting device
- Spare parts

NOTE! Familiarize yourself with the information given here before using the lifting device. Always adhere to the given instructions as well as all local applicable laws and regulatory provisions.

## 3 Safety instructions

### 3.1 General safety instruction

Lifting device refers to a component or equipment which are mobile or movable and designed to operate under the load, whether operated singularly or in multiples to partially or totally raise and lower loads or vehicles at one or more lifting points (excluding the lifting of persons) where working under the raised load is not permitted unless additional means of securing the load in position are in place.

The structural requirements for lifting devices are specified in the Machinery Directive (2006/42/EC).

The Machinery Directive requires that the manufacturer of the lifting device must prepare and provide a Declaration of Conformity and affix the CE marking.

## 3.2 Basic instructions

- User shall read, understand and work in accordance with this operation manual
- Only allowed to be used by trained personnel
- Only persons participating in the lift operations are allowed in the area during the operation
- Always wear suitable work clothes and personal protective e.g. safety shoes and gloves
- Before starting work make sure that the lifting device is in good working order. Never use a lifting device with defects or faults.

## 3.3 Lifting safety instructions

- Plan the lift operation in advance
- If you do not know the weight of the container, do not lift it
- Before starting a lift, ensure that the site is unobstructed, and ground is sturdy enough
- Ensure the balance of the container
- Ensure that the container is not obstructed during lift operations
- No person shall be under the load during or after lift operations
- Always warn other persons around the area of operation before starting the lift.
- If the rated load markings of the lifting device wear out, it must not be used until it has been checked for load capacity and new markings are attached
- When operating the lifting device, always keep the four supports in sight. If necessary, ask another person to guide you
- Before lifting ensure that:
  - The container has been unlocked from the trailer
  - Lifting devices have been mounted as instructed in **section 5.1**
  - Lifting devices are straight (perpendicular to the ground)

## 4 Technical specification and intended use

### 4.1 Applications

The container lifting device is suitable for lifting standard ISO 10 to 45 foot containers with maximum weight of 30 t

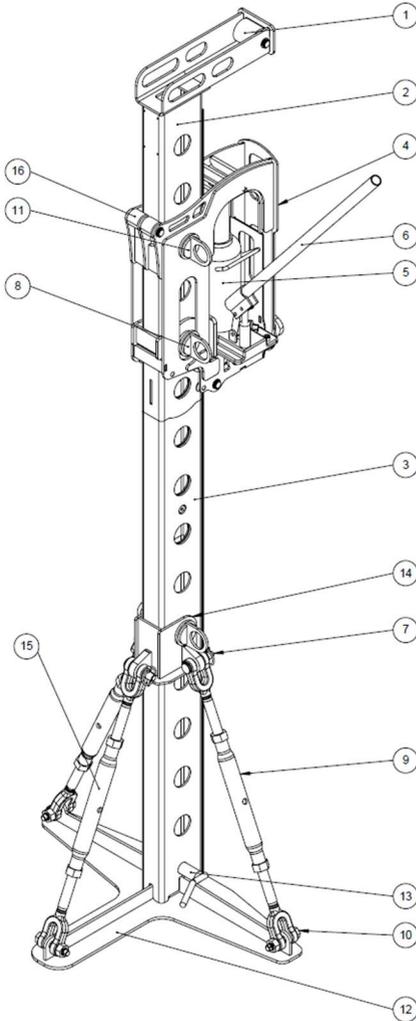
### 4.2 Technical Specification

The container lifting device has been designed according to requirements of the Machinery Directive 2006/42/EC and following national and international standards:

- SFS-EN ISO 12100
- SFS-EN 1494

**WLL:** 30 000 kg with four lifting devices, 7 500 kg / lifting device

**Self-weight:** 67 kg (consists of several pieces, individual piece weight under 25 kg)



- 1 Roller
- 2 Upper main tube
- 3 Lower main tube
- 4 Climber unit
- 5 Bottle jack
- 6 Handle
- 7 Locking pin 1 + linch pin
- 8 Main locking pin 2
- 9 Side support
  
- 10 Locking pin 2
- 11 Main locking pin
- 12 Support leg assembly
- 13 Support leg locking pin
- 14 Support leg bracket
- 15 Back support
- 16 Roller 2

Figure 1. Container lifting unit parts

## 5 Operation of the container lifting device

### 5.1 Attaching the lifting unit to container

1. Bring support leg assembly next to the corner casting
2. Attach the climber unit to the corner casting by inserting it horizontally into the hole and then pivoting the unit to vertical (**Figure 3**)
3. Insert lower main tube through the climber unit to the support leg assembly and fasten with a main locking pin (**Figure 4**). Make sure that the main tube is completely perpendicular to the ground to avoid the climber getting stuck during the lifting or lowering! (**Figure 2**)
4. Insert support leg bracket to the lower main tube and fasten with a locking pin through the fifth hole from bottom, see **Figure 4**. If container is on the ground perform steps 6 to 11 to lift the container high enough to install support leg bracket
5. Attach support leg assemblies (3 pcs, 2 x side support and 1 x back support) to the support leg bracket with locking pins (**Figure 4**). If needed adjust supports length by rotating them
6. Insert upper main tube to the lower main tube (**Figure 4**)
7. Lift the climber to a place where you can insert a pin into the climber's bottle jack frame hole locking (**Figure 1. Container lifting unit parts, part 11**)
8. Perform the previous steps on all four corners
9. Release the container's trailer locking
10. Insert the handle to the bottle jack and crank the container up from the trailer. **Make sure that all corners are lifted evenly to avoid overloading a single CFU-leg!**
11. If the container is not high enough, see **section 5.2** Lowering and lifting the container
12. After the container has been lifted from the trailer on all four corners the trailer can be carefully driven away from underneath the container
13. Removal of the lifting unit is done in the opposite order

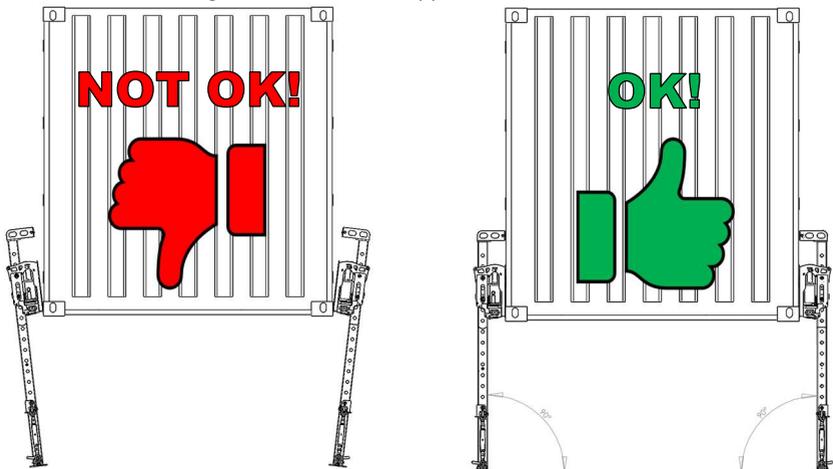


Figure 2 The correct installation of a CFU-leg

## 5.2 Lowering and lifting the container

1. Make sure that the valve on the bottle jack is closed
2. Use the bottle jack to lift the load off from climber unit locking pin. **Make sure that all corners are lifted evenly to avoid overloading a single CFU-leg!** If a single CFU-leg is overloaded, the bottle jack stops working.
3. Either lift or lower the climbing unit together with the container so that the climber unit and tube holes line up
4. Insert locking pin through the climber unit and tube, see **Figure 5 & 6** for reference
5. Use the bottle jack to lower the load on to the climber unit locking pin
6. Remove bottle jack frame locking pin and reposition bottle jack by inserting the locking pin to a new hole
7. Go back to step 2 until desired height is achieved

	<p><b>WARNING!</b></p> <p>Make sure that all corners are lifted evenly to avoid overloading a single CFU-leg! If a single CFU-leg is overloaded, the bottle jack stops working.</p>
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**NOTE!** When lowering the container support leg bracket and side supports must be removed when climber reaches the support leg bracket.

**NOTE!** Always attach support leg assembly to the support leg bracket and use side supports when container is 580 mm or higher from the ground!

**NOTE!** When using bottle jack make sure locking pin goes through the bottle jack frame and that climber frame locking pin is removed!

**NOTE!** Never leave load on bottle jack! When lifting / lowering is done make sure to insert main locking pin through climber unit's top hole! See Figure 6, picture 3.

Lifting jack cannot be overloaded by jacking but it can be broken if instructions are not followed! Make sure that the weight of container do not exceed 30 tons!

See for main locking pin user instructions. Always make sure locking mechanism is activated and pin cannot be pulled off without rotating it.

Height of the lifting device can be increased by adding strong, stable and wide spacer underneath the support leg assembly. Spacer must be wider than the support leg assembly!

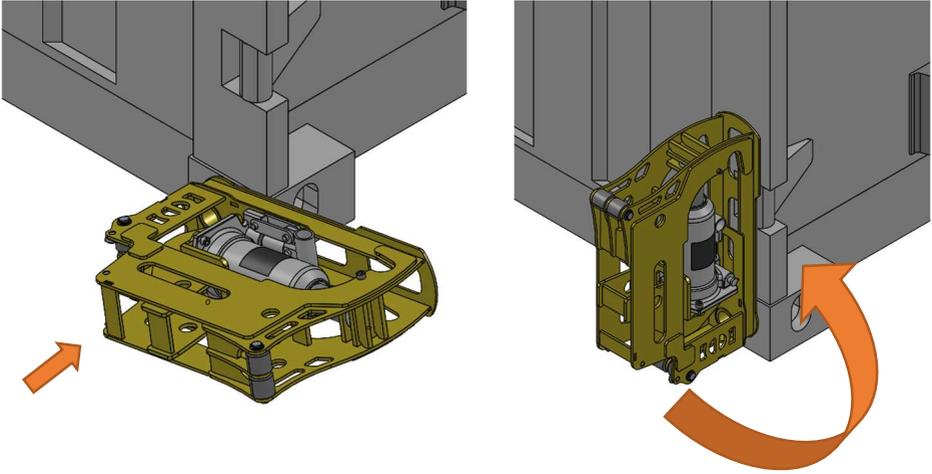


Figure 3 Mounting of climber unit.

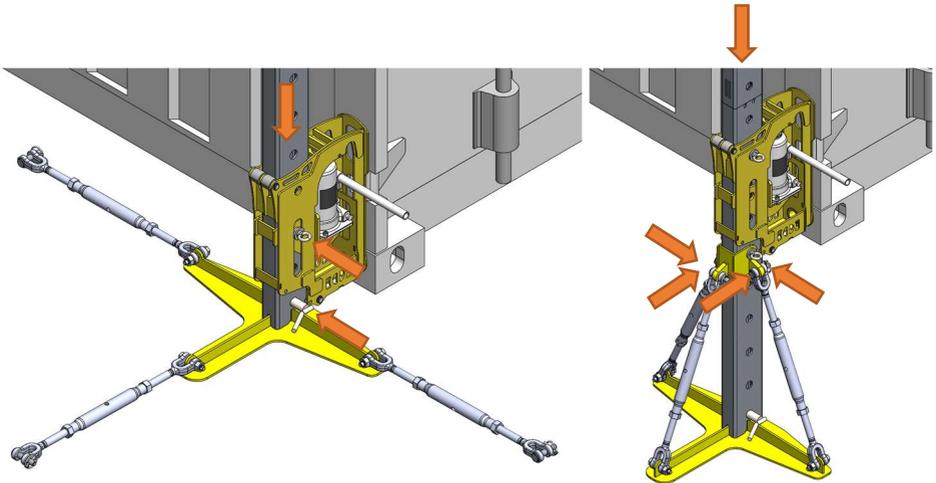


Figure 4 Mounting of climber unit, support leg assembly, lower main tube, support leg bracket and side and back supports.

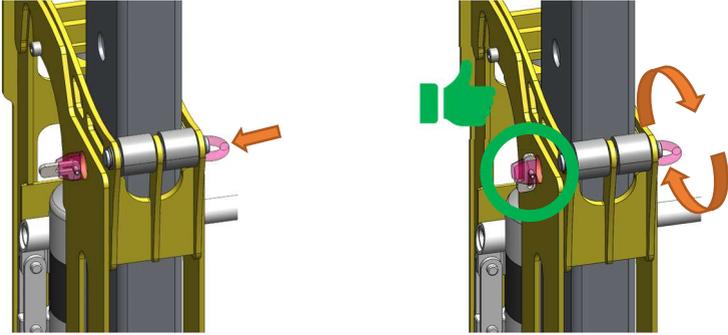


Figure 5 Fastening the locking pin.

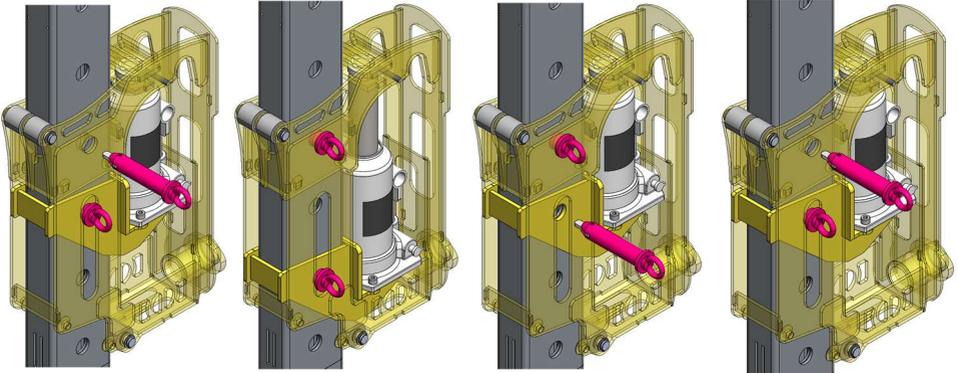


Figure 6 Climber unit pin sequence.

### 5.3 Limits of operation

- Never exceed the total working load limit of 30 000 kg or 7 500 kg / lifting device
- Only use lifting device for containers specified in 4.1 Applications
- Never use lifting device to lift people
- Always lift in a smooth manner avoiding jerking motions!
- Operating in severe conditions prohibited e.g.:
  - Operating temperature -20...+40 °C
  - Extreme climates
  - Near strong magnetic fields
  - Explosive atmospheres
  - Inside mines
  - On ships
- Handling of loads, the nature of which could lead to dangerous situations prohibited, e.g.:
  - Molten metal
  - Acids
  - Radiating materials
  - Brittle loads
  - Vibrating loads
- Storing conditions indoors
- Check bottle jack manufacturer instructions
- Allowed number of lifting operations 16 000 during life of the container lifting device
- Allowed max. 2° angle relative to ground
- Allowed max. wind speed 12 m/s

## 6 Inspection and maintenance

Container lifting device must be inspected regularly.

The inspector must be sufficiently familiar with the structure, purpose of use and inspection of the lifting device. The inspector should be capable of detecting possible defects and damages and assess their impact on occupational safety.

The inspection is done visually assessing wear caused by usage, deformation or damage to the operational safety of the lifting device. Markings are to be checked and made sure they remain as the initial ones. If needed, supplement assessment with non-destructive inspection methods shall be arranged.

An annual singular inspection is not sufficient. In addition, measures must be put in place to ensure that defective and broken tools are decommissioned. Operators may be instructed and taught the basic criteria for rejection to ensure realization of decommissioning.

The annual inspections and measurements by a qualified person are necessary because the average operator does not possess the necessary information regarding structures of lifting accessories

### 6.1 Commissioning and annual inspection

Before the deployment of a new lifting device, it must be stated that it is fully compliant and suitable for the purpose. Record of inspection must be thoroughly followed. The annual inspections shall be performed similarly.

General rejection criteria:

- Fractures, cracks, notches, deflections, plastic deformations, corrosion
- Wear cannot exceed 5% of the original measure.

Lifting accessories where deficiencies or defects have been detected cannot be used; instead, the lifting tool must be removed from operation for a thorough inspection.

### 6.2 Inspection

The table below contains a simplified guideline on inspections to be conducted for the container lifting device

*Table 1. Inspection intervals*

	Prior to first use	Continuous / daily	Annual
<b>Visual inspection of overall condition (defects or faults)</b>		X	
<b>Comprehensive recorded inspection according to manufacturer’s manual</b>	X		X

The annual inspection by an expert inspector must include at minimum the following: visual and functional testing, checking for any structural changes, cleaning and inspecting all parts, checking type plate for legibility.

### 6.3 De-commissioning

Follow local regulations and environmental standards. Steel parts can be recycled. See separate bottle jack instructions.

## 6.4 Spare parts

The user may replace the components presented in the table under the condition that the replacing components are original spare parts.

*Table 2. Spare parts*

16	Roller 2			Confoot
13	Support leg locking pin	130x25 / T0486		Confoot
10	Locking pin 2			Confoot
8 & 11	Main locking pin 1 & 2			Confoot
7	Linch pin	4,5	Zn	DIN 11203
7	Locking pin 1			Confoot
6	Bottle jack lever			Confoot
5	Bottle jack	BH4B12 modified		Confoot
1	Roller			Confoot
<b>Item</b>	<b>Description</b>	<b>Size</b>	<b>Material</b>	<b>Supplier / Standard</b>

## 7 Appendix A, bottle jack manual

A full hard copy of the bottle jack manual will be provided with the ConFoot CFU set.

The bottle jack manual can also be found online via searching 'Bahco BH4B12'.