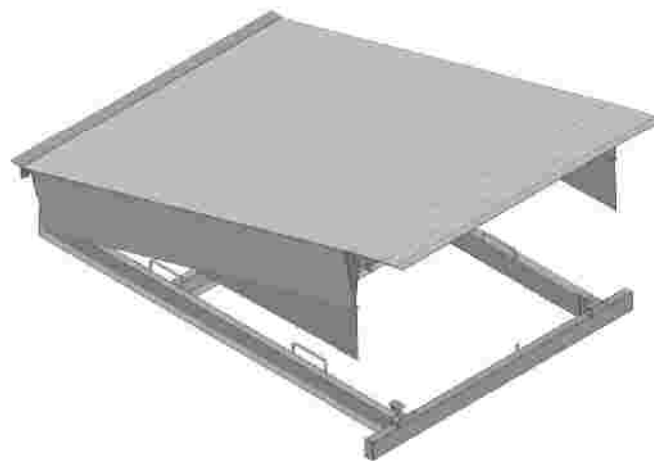


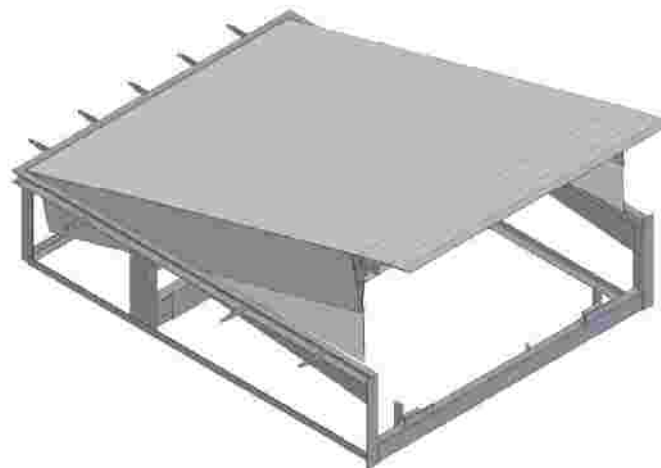
***Inkema Sistemas, S.L***



*Instruction manual*  
Dock leveller mod. **RH11 and RH12**  
**Embedded and self supporting Type**



RH11



RH12

# Index



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## 02 – Introduction

This manual is a guide for the correct use and maintenance of the dock leveller **RH11 and RH12**.

Compliance with these instructions ensures a long lifetime for the machine and respecting the safety rules prevents the most common accidents that can occur during work or maintenance.

The instructions in this manual alone cannot ensure work is safe and do not obviate the need for the operator to observe the safety code and the local or national laws, rules and regulations.

The service standard represented in this manual is exclusively valid for the mobile dock levellers, for loading and unloading trucks.

If you lose the instruction and maintenance manual, please order another copy, as it is specific to the machine. It is obligatory that you always keep the manual with the machine, so you can consult it at any moment, should you have any doubts about its use.

The manufacturer has no direct control over the operations, location or handling of the machine. Good safety and maintenance practices are the responsibility of the operator.

It is the responsibility of the operator to read and understand this manual before using the machine.

Using the machine with caution and after suitable training not only protects the operator, but also the people that depend on his or her work.

The information in this manual is valid at the time of publication.

The photographs and drawings are generic. Consequently, this information may vary due to the constant research and development by **INKEMA SISTEMAS S.L.**

Consult the Technical Department if you find discrepancies.

The manual is an integral part of the machine and must be included if it is sold.

### 03 – EC Declaration



#### **DECLARATION OF CONFORMITY**

**INKEMA SISTEMAS S.L.** declares, assuming full responsibility, that the dock levellers:

Make: **INKEMA**

Model: **RH11** and **RH12** with a capacity of **6000 kg<sup>(\*)</sup>**

Year of manufacture: **2009**

Conform with the essential requirements of the following directives:

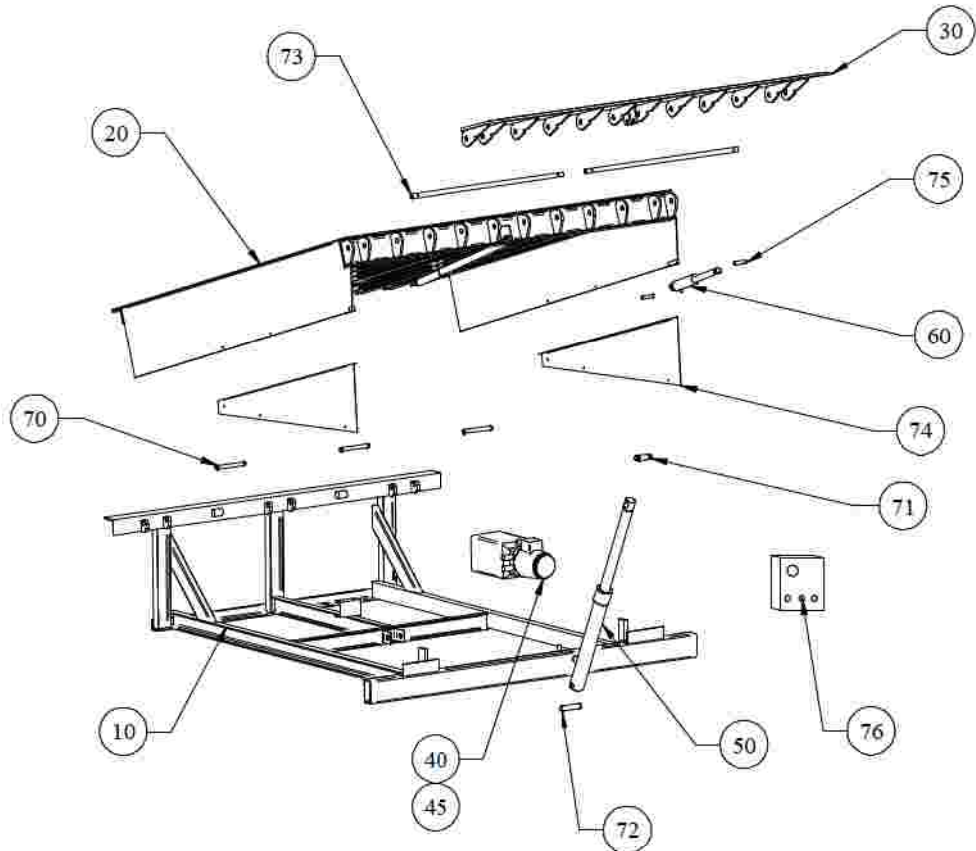
<b>D 98 / 37 / EEC</b>	Machine safety
<b>D 89 / 336 / EEC</b>	Electromagnetic compatibility
<b>D 73 / 23 / EEC</b>	Low voltage

And have been calculated and designed according to the following European standards:

<b>EN 1398:1998</b>	Dock levellers
<b>EN 292-2:1991</b>	Machine safety. Basic concepts. General design principles
<b>EN 61000-6-2:2001</b>	Electromagnetic compatibility. Generic standards - Immunity for industrial environments
<b>EN 61000-6-4:2001</b>	Electromagnetic compatibility. Generic standards - Emission standard for industrial environments
<b>EN 60204-1:1997</b>	Safety of machinery. Electrical equipment of machines. General requirements

*(\*) Should the capacity not be 6000kg, please attach the corresponding EC certification to this manual.*

## 04 – Assemblies and parts of the machine



Item	Part code	Description
10	20.0002 ... (*)	Base structure 6t RH (*)
20	20.0001 ... (*)	Upper Structure 6t RH (*)
30	20.0003 ... (*)	Hinged lip 6t RH (*)
40	20.0017.0001	Hydraulic unit RH (Complete)
40	30.0015.0005	Motor 400/230V 3F 1.1HP 3000rpm
40	30.0011.0007	Hydraulic pump body for RH1 of 1.7CC/V
40	30.0011.0008	Plastic tank 7 Lit. for hydraulic unit for RH1
40	30.0011.0009	Second electrovalve rail for unit for RH1
40	30.0011.0010	Second electrovalve coil for unit for RH1
40	30.0011.0011	Electrovalves coil electric connector
45	30.0011.0001	Metal bonded washer 3/8"
45	30.0011.0002	M/M threaded connector 3/8" zinc-coated
45	30.0011.0014	Reducer M/M connector 3/8" to 1/4"
45	30.0011.0003	Hydr. hose 2 straight outputs 3/8" Gas L=700
45	30.0011.0004	Hydr. hose 1 straight output + 1 90° output 1/4" Gas L=1700
45	30.0011.0006	Hydraulic oil
45	30.0012.0009	Spring lock washer M10 DIN-7980
45	30.0012.0010	Bolt M10x20 DIN-933
50	30.0010 ... (**)	Single-acting cylinder, machine elevation
60	30.0010.0002	Single-acting cylinder Ø30 between shaft centres=260 stroke=105 for lip
70	30.0006.0007	Rear hinge axle Ø19x175
70	30.0012.0034	Seeger ring DIN-471 for axle of Ø19/Ø17.5
71	30.0006.0059	Axle for mounting hole Ø30x103 zinc-coated
72	30.0006.0011	Axle for cylinder Ø25x120
72	30.0012.0040	Fin fastener Ø5x40 DIN-94
73	30.0006 ... (*)	Lip axle (*)
73	30.0012.0040	Fin fastener Ø5x40 DIN-94
74	30.0008 ... (*)	Galv. mobile flap

74	30.0012.0002	Ridged Allen bolt M6x16 ISO-7380 zinc-coated
74	30.0012.0003	Self-locking nut M6 DIN-985 zinc-coated
75	30.0006.0008	Axle Ø16x70 zinc-coated
75	30.0012.0039	Fin fastener Ø5x28 DIN-94
76	20.0018.0001	Control panel for RH (standard)
76	30.0015.0104	Plastic IP-55 box for control panel 240x190x95
76	30.0013.0005	Control panel front for doors
76	30.0015.0090	Green open contact button Telemecanique XB7-EA1P
76	30.0015.0097	Green LED warning light Telemecanique XB7-EV0.MP
76	30.0015.0088	Three phase switch Telemecanique VN12
76	30.0015.0089	Three phase switch lever or control Telemecanique VN12
76	30.0015.0085	Electronics plate for doors
76	30.0015.0103	Automatic circuit breaker Telemecanique GV2ME08 2.5-4A
76	30.0015.0101	Glass fuse Ø5x20 of 1A 230V
76	30.0015.0001	Electric cable 4x1.5 black/ brown/grey class 5 or 6
76	30.0015.0002	Black electric wire 2x1 Aceflex AG
76	30.0015.0003	Conduit BGR M25 PG-9 with two sleeves

(\*) Specify the part code and description, and the model, dimensions and load of the machine.

(\*\*) Specify the part code, and the model and dimensions of the machine and dimensions of the cylinder.

## 05 – Assembly

### 05.01 – Positioning in the pit

**VERY IMPORTANT:** When working with the dock leveller, you must always observe the law on occupational risk prevention and the regulations on health, safety and hygiene at work.

The dock leveller must be placed in the pit using a crane or similar and chains, slings or similar must be used for lifting it, with a load capacity greater than the weight of the dock leveller.

Now unroll the electric cable and pass it through the conduit centred in the back of the pit. Once the cable has come right out of the other end of the conduit, place the dock leveller correctly in the pit.

### 05.02 – Fixing

#### 05.02.01 – Fixing of embedded levellers

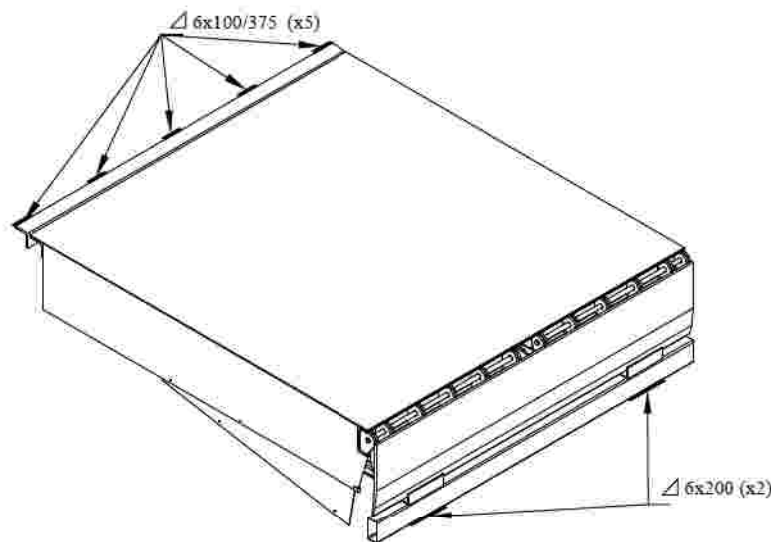
Once the dock leveller is positioned in the pit, verify the following points:

The distance between the sides of the dock leveller and the pit must be exactly equal at the front.

If there is any discrepancy in the pit, this must be at the back.

The welding areas are indicated in the following diagram:

- 2 weld beads, 6mm wide and 200mm long that coincide with the support points of the lip on the front of the machine.
- 5 weld beads, 6mm wide and 100mm long spaced out by 375mm at the back.

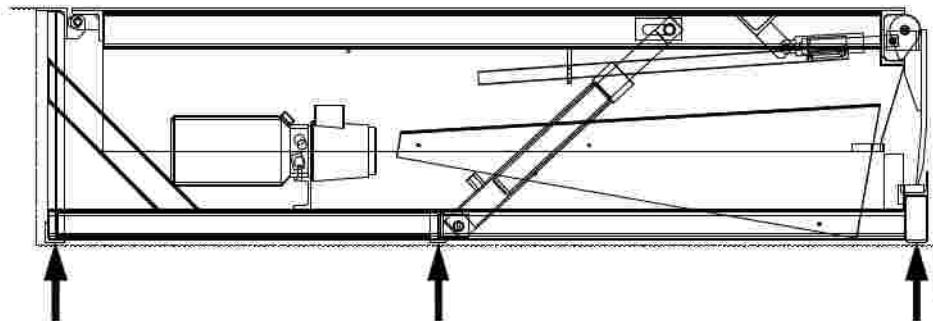


Taking into account that the height of the pit is usually 10mm greater than the height of the dock leveller, it is essential to supplement the base of the dock leveller with plates or similar to line up the dock leveller and the loading platform. The support points are indicated with arrows in the following diagram:

Place at least the following levelling plates:

- 2 at the front of the dock leveller (coinciding with the weld beads)
- 3 at the back of the dock leveller
- 1 at the application point of each cylinder

Later, weld the plates to the dock leveller and weld the dock leveller to the embedded pre-frame, as indicated:



#### **05.02.02 – Fitting of self supporting levellers**

Once the dock leveller is positioned in the pit, verify the following points:

The distance between the sides of the dock leveller and the pit must be exactly equal at the front.

If there is any discrepancy in the pit, this must be at the back.

The dock leveller has spacers between the platform and the side profiles of the bedplate. It is very important that they are not mislaid while transporting the dock leveller. If they are not there, place 15mm thick iron plates or similar instead.

These spacers have the aim of not letting the sides of the inferior structure close in on the mobile dock leveller, pushed by the pressure exerted by the concrete when paving the building. If this happens, it causes serious problems on the operation of the machine.

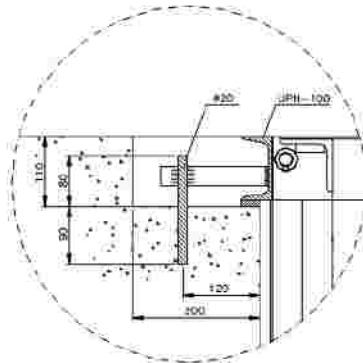
You will find the anchoring fish tails in a package supplied with the machine.

Distribute 5 fish tails at the back, 3 or 4 on each side, depending on the length of the machine, and 2 in each frontal lowering profile.

Weld at one end to the inferior structure and at the other end to await the reinforced concrete.



After welding all the fish tails, the platform is ready for pouring the definitive paving of the loading platform.



### 05.03 – Connecting the dock leveller

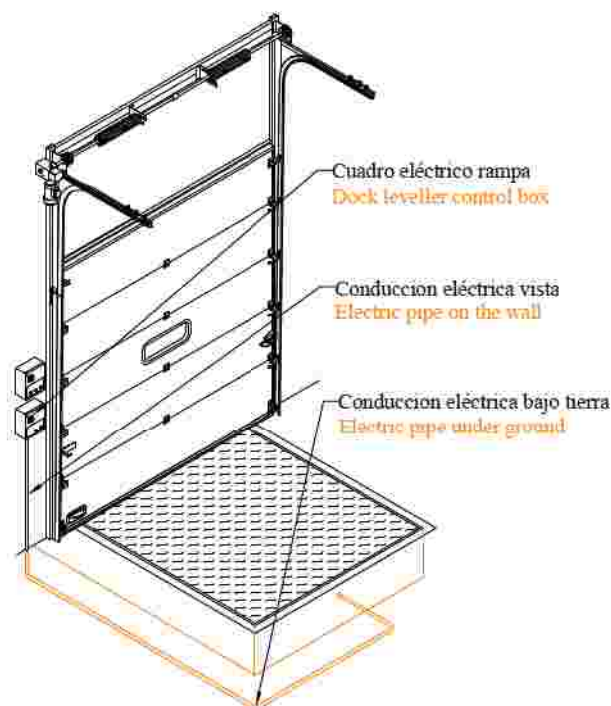
The control panel on the wall must be on the truck driver's side, so that the dock leveller operator can see and speak directly to the driver, if necessary (see the following diagram).

Fasten the electric panel box to the wall, at the desired height and perfectly aligned with the cables coming from the dock leveller.

Adjust the tube where the electrical cables run through to the distance between the electric panel and the ground.

Fasten the conduit to the wall with at least 3 clamps. It must be perpendicular to the ground and aligned with the cables coming from the dock leveller.

The plastic conduit comes fixed to one of the sides of the dock leveller structure.



Once everything is well secured, run the cables through and connect them according to the electrical diagram found inside the control panel.

Remove the front strips that join the lip to the bedplate.

**VERY IMPORTANT:** Unfasten the side flaps, by removing the rivet that holds them and check they move and function properly.

Finally, check the dock leveller's paintwork is in good condition and retouch any defects you find (including the levelling plates).

The installation can be deemed finished when the installer authorised by **INKEMA SISTEMAS, S.L.** fills in the corresponding installation control sheet.

## 06 – Disassembly

### 06.01 – Disassembly of dock leveller with embedded structure

**VERY IMPORTANT:** When working with the dock leveller, you must always observe the law on occupational risk prevention and the regulations on health, safety and hygiene at work.

To disassemble the dock leveller, it must be in the lowered position.

Cut off the power supply and disconnect the control panel. Remove the control panel box and the electric cable conduit.

Strap the front of the dock leveller, to avoid it opening when being handled. To do this, place at least two 30x1mm steel strips.

Then cut all of the welds, securing the dock leveller to the sub-frame, at the front and the back.

After doing these tasks, remove the dock leveller from the pit.

Use a crane or similar for this task and chains, slings or similar for lifting it, with a load capacity greater than the weight of the dock leveller.

### 06.02 – Disassembly of dock leveller with self supporting structure

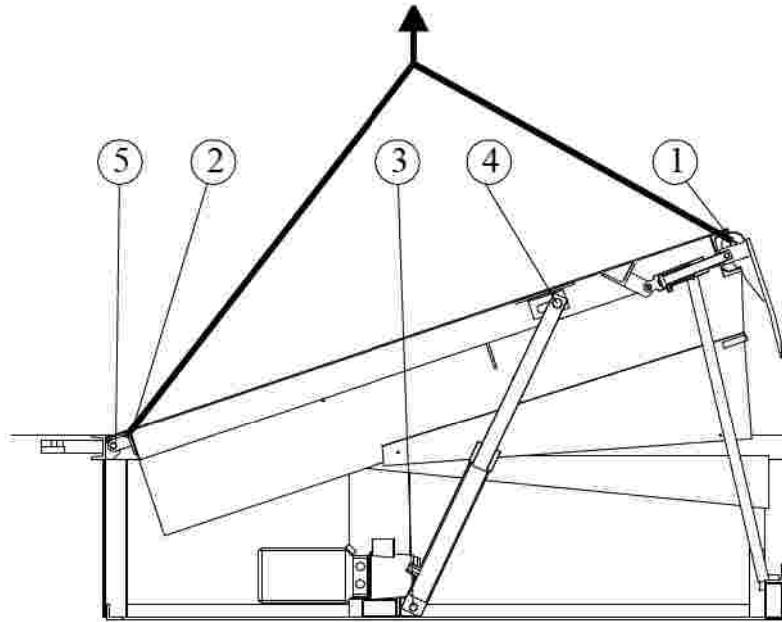
It is important to bear in mind that this dock leveller model cannot be completely disassembled, as the structure is shuttered to the paving of the loading platform.

**VERY IMPORTANT:** When working with the dock leveller, you must always observe the law on occupational risk prevention and the regulations on health, safety and hygiene at work.

Follow these steps:

- With the dock leveller in the lowered position, press the up/down button. The dock leveller rises and just before the lip starts to open, activate the emergency **STOP** by turning the switch to position (0).
- In this position, release the maintenance bar and place it in its working position.

**VERY IMPORTANT:** Verify that the maintenance bar is well positioned, as you must do disassembly work inside the machine.



As an additional safety measure, you must engage the platform as follows:

- From the ends of the lip axle (1) and clamp the rear profile (2).
- Use chains, slings or similar (with a load capacity equal to or greater than the weight of the dock leveller) and keep them taut. Take care not to raise the platform so as not to unlock the maintenance bar.
- For this task, use a crane or similar, with a load capacity equal to or greater than the weight of the dock leveller.
- Disconnect the control panel. Remove the control panel box and the electric cable conduit.
- Remove the elevation cylinders, using the pins of the inferior structure (3) and the pins of the platform (4).
- Remove the pins of the rear hinges (5).
- Once you have removed all the pins, you can hoist the platform.

## 07 – Instructions for use

### 07.01 – Before use

Visually verify that the dock leveller is in perfect condition for use.

Centre the vehicle against the rubber stops of the dock leveller.

Check that the vehicle is completely immobilised and locked (stop the engine, apply the parking brake and chock the wheels).

To raise the dock leveller up to the level of the loading surface, connect the control circuit by turning the red breaker switch. Now the green light will light up.

To raise the dock leveller and open the lip, press the up button continuously.

If you stop pressing the up button, the dock leveller will be lowered by its own weight at a controlled speed.

Lift the dock leveller until the lip starts to open. Once the lip is completely open, release the up button.

Let the dock leveller descend in a controlled manner and rest on the loading surface of the truck.



Check that the lip is supported all along its width, on the loading surface of the vehicle by NOT less than 130mm.

### 07.02 – During use

The dock leveller will simply rest on the loading surface (truck). The hydraulic cylinders are NOT blocked so that the dock leveller can be adapted to the loading surface (which will vary depending on the truck's suspension).

Ensure the emergency stop is NOT activated and the dock leveller is supplied with electricity.

#### **VERY IMPORTANT:**

**It is strictly forbidden to load and unload with the emergency stop activated or while the dock leveller is not supplied with electricity.**

Never exceed the maximum nominal load (see the leveller's characteristics plate).

Watch out while moving the load, that the dock leveller does not slip off the loading surface. If this happens, immediately press the emergency stop.

Transpallets must be driven carefully. The maximum transit speed calculated for the dock leveller is 10km/hour.

#### **07.03 – After use**

Lift the dock leveller and close the lip before the truck leaves the loading position. To do this, press the up button, which raises the dock leveller enough to release the truck.

Release the button and wait until the dock leveller descends at a regulated speed and rests, with the lip closed, on the front of the inferior structure.

#### **07.04 – Precautions on use**

Ensure the emergency stop is not activated.

Never exceed the maximum nominal load (see the table's characteristics plate).

Before each operation, verify that there is nobody in the working area.

Check that the dock leveller is well supported on the loading surface of the truck, with the whole lip touching a surface of approximately 130mm along the whole width.

The single function of the hydraulic motor is to make the necessary movements for operating the dock leveller only. **It must never be used to support and/or raise loads.**

Before raising the dock leveller, ensure that its movement will not be obstructed by other equipment (doors, etc. )

When finishing the operation, verify that the lip has settled well into its final closed position.

## **08 – Technical data**

Dock leveller designed complying with the standard **UNE-EN 1398**

Calculated for a maximum nominal load of: (see the dock leveller's characteristics plate).

It consists of the following groups or assemblies:

### **08.01 – Platform:**

- Upper tear plate (5/7mm thick), quality ST-37
- 10 Cold-rolled profiles
- 2 Cold-rolled side profiles (non-shearing safety flaps)
- Front set of hinges (lip hinge)
- Rear set of hinges (platform hinge)
- Safety bar for maintenance work

### **08.02 – Lip:**

- Tear plate (13/15mm thick), quality ST-37
- Folded 5° at 150mm from the end (to adjust to the truck perfectly)
- Milled at the end (to ease the passage of the transpallets)

### **08.03 – Bedplate:**

- Rear assembly (head) composed of rolled profiles
- Front assembly with profiles to support lip
- Side profiles to join front assembly with rear assembly

The platform and lip are moved by means of an electro-hydraulic unit.

### **08.04 – Hydraulic unit:**

- Electric motor of 1.0HP 230/400V 3F 50Hz
- Hydraulic pump with flow of 5 litres/minute
- Tank of 7 litres with oil level window
- Logicblock where all the elements are incorporated (including electrovalve at 24V)
- Ø50mm rod cylinder for platform elevation, with parachute safety valve
- One Ø30mm rod cylinder for lip elevation
- Hoses, connectors, etc.

### **08.05 – Control panel:**

- Transformer for switching circuit at 24V AC.
- Green start up light
- Emergency stop/switch
- Thermal relay
- Fuses
- Connector strip
- Box (with IP-55 protection)

### **08.06 – Safety system**

- Power supply failure and/or emergency electrovalve
- Emergency stop/switch
- Safety valve in elevation cylinder
- Side flaps
- Non-slip surface

## **09 – Maintenance**

The correct operation and long lifetime of the dock leveller depends largely on the preventive maintenance you perform.

The advanced maintenance can only be performed by **INKEMA SISTEMAS S.L.**'s Technical Service or approved personnel.

This maintenance is performed to preserve the safety and usage characteristics the product has at the moment it is installed.

Any change, repair or handling of the product that does not comply with these guidelines will void the guarantee and **INKEMA SISTEMAS S.L.**'s responsibility for the product will be automatically annulled.

Greasing, painting and continuous supervision are the best way to guarantee good performance for many years.

### **09.01 - Hydraulic oil**

The hydraulic oil must be changed once every two years.

The oil must contain agents that prevent foam formation, rusting and water absorption. If the winter temperatures are very low, the oil must not be very dense and must have a stable viscosity at low temperatures.

You must never mix different oils, as the oil new may have a different resistance to rusting and alter the duration of the original oil.

It is important to check the oil level every 6 months. The oil tank must be filled until it almost overflows with the cap in the lowest position possible.

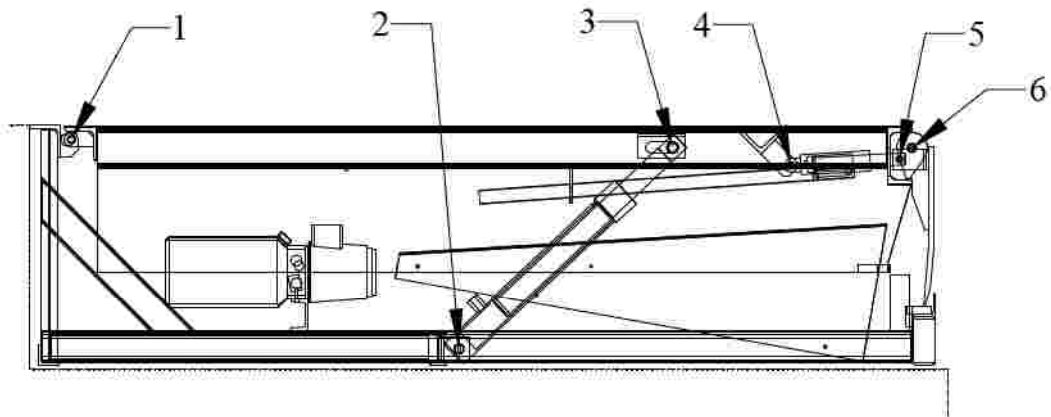
The machine is supplied with **HVI-32** oil.

The hydraulic oil for dock levellers that work in refrigerated warehouses must have the specific properties for use with low temperatures to which it is exposed. If this is the case, please inform the manufacturer of the conditions in which the machine will work, so it can be equipped with special oil.



### 09.02 - Greasing points

You must verify the lubrication points indicated in the diagram every 6 months.



### 09.03 – Setting the lowering speed of the dock leveller

The speed is regulated using the corresponding regulator (1) (see the hydraulic motor).

### 09.04 – Opening speed of the lip

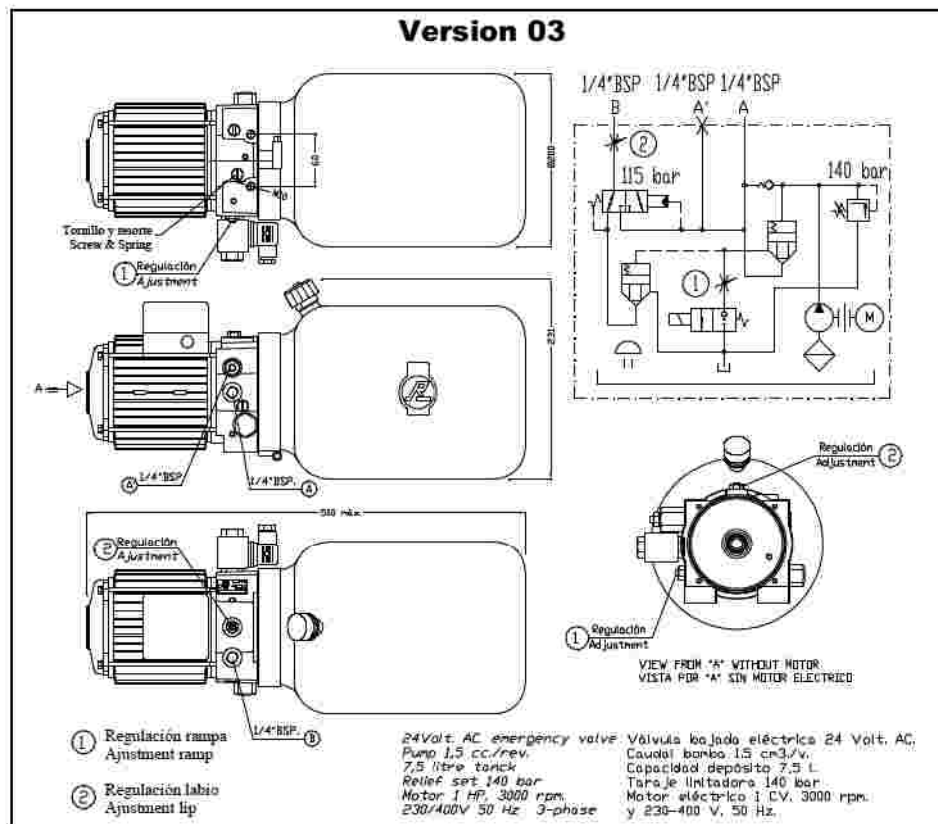
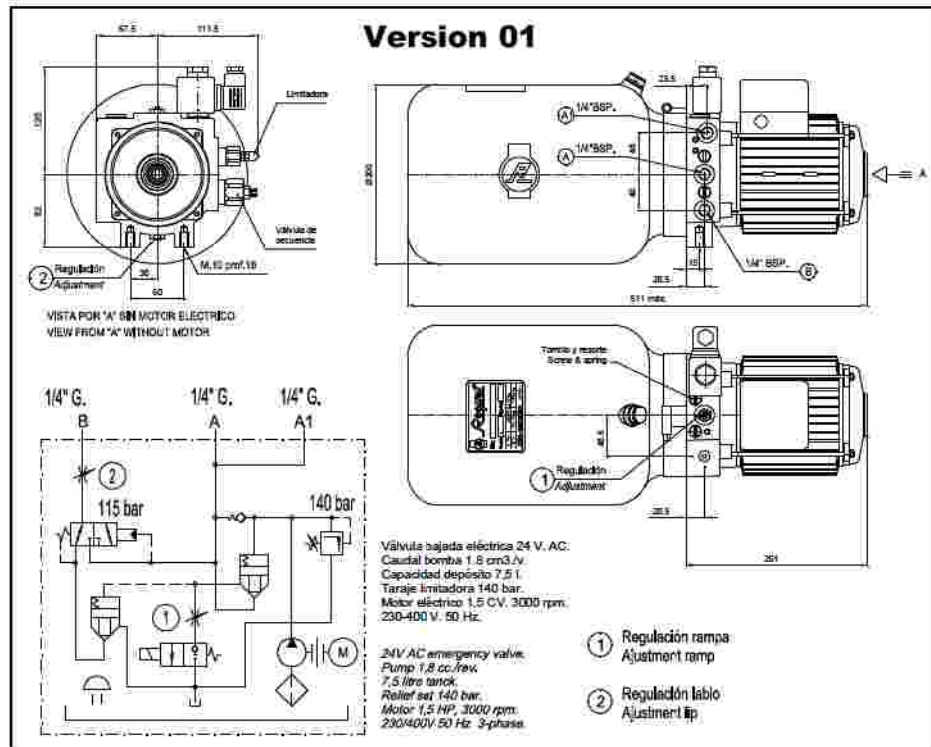
The opening/closing speed of the lip is established in the factory, but you can adjust it using the corresponding regulator (2) (see the hydraulic motor).

### 09.05 – Maintenance plan

Maintenance task	Daily	Monthly	Every 6 months	Every year	Every 2 years
Overall condition of the machine	◆	◆	◆	◆	◆
Greasing			◆	◆	◆
Hydraulic oil level			◆	◆	◆
Oil leakage inspection			◆	◆	◆
Inspection of welding				◆	◆
Inspection of shafts				◆	◆
Inspection of adhesive side strips				◆	◆
Inspection of paintwork				◆	◆
Flexible elements and connectors				◆	◆
Speed of switching				◆	◆
Check of parachute valve					◆
Change of hydraulic oil					◆

## 10 – Hydraulic unit

The machine can be supplied with either of the following versions of hydraulic units: both are equivalent and have the same function.



## **11 – Electrical connection**

The specific electrical diagram for each model is inside the control panel, supplied with the dock leveller

## **12 – Conditions and limits of use**

- Nominal load capacity 6t
- Motor electric voltage 230/400V 3F 50Hz
- Electric motor power 0.75kW
- Electric output voltage at emergency electrovalves 24V AC
- Max. working pressure of the hydraulic circuit 140kg/cm<sup>2</sup> (Bar)
- Working temperature range (-10 to +40°C)
- Level produced noise <70dB
- Max. transit speed 10km/h
- Max. slope for work 10% (7°)
- Do not work with the machine while the emergency stop is activated or the electric power supply has been cut off.

## 13 – Contact



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