

# DOCK LEVELLER WITH A HINGED LIP

LOGISTIC  
SOLUTIONS



STANDARD UNI EN 1398



## ASSEMBLY, USE AND MAINTENANCE MANUAL

# EC DECLARATION OF CONFORMITY

(Machine Directives 2006/42/EC, Enclosure II part A)

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**AS THE MANUFACTURER KOPRON DECLARE THAT THE NEW EQUIPMENT DESCRIBED HEREIN AS:**

Electro-hydraulic ramp with a hinged lip

|                     |       |
|---------------------|-------|
| model               | ..... |
| order/serial number | ..... |
| quantity supplied   | ..... |
| year of manufacture | ..... |

**IS IN COMPLIANCE WITH THE FOLLOWING EC DIRECTIVES:**

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)  
Directive 2014/30/EC of the European Parliament and of the Council of 26 February 2014 on the approximation of the laws of the Member States relating to electromagnetic.  
Directive 2014/35/EC of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

**THEY ALSO DECLARE THAT**

The ramps above mentioned are manufactured according to harmonized standards  
**UNI EN 1398 -2009**

- UNI EN ISO 12100- 2010, Safety of machinery
- EN 60204-1-2006, Safety of machinery, electrical equipment of machines.

The person authorized to draw up technical instructions is Mr Diego Vergani- resident at Carugate (Milan)- in Via Cesare Battisti 138. These technical instructions shall be kept at Kopron Spa a- Gorgonzola (Milan), in Via Primo Maggio sn.

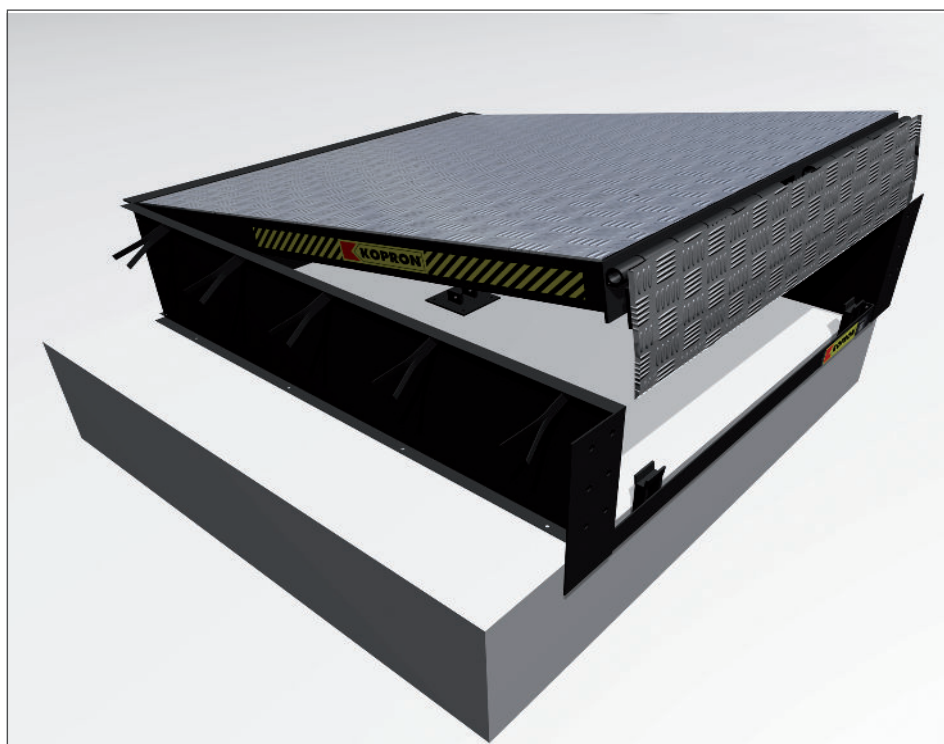
Gorgonzola .....

The Chairman  
Paolo Luigi Vergani

.....



## DOCK LEVELLER WITH A HINGED LIP



**EC DECLARATION OF CONFORMITY**  
(Machine Directives 2006/42/EC, Enclosure II part A)

## EC STANDARDS

### LIST OF SAFETY REQUIREMENTS AND OF THE STANDARDS APPLIED

| REQUIREMENTS                                         | EN STANDARDS                                           |
|------------------------------------------------------|--------------------------------------------------------|
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| 1.1.3 MACHINE DESIGN FOR TRANSPORT                   | EN 292.1- EN 292.2- EN 294                             |
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| 1.3.4 RISK OF CRUSHING                               | EN 292.1 (4.2.1) EN 292.2 (3.2) EN 349 - EN 294        |
| 1.3.5 RISK OF CUTTING                                | N 292.1 (4.2.1-4.2.2)- EN 292.2 (3.2) EN 349 - EN 294  |
| 1.3.6 RISK OF ENTRAPPING                             | EN 292.1 (4.2.1-4.2.2)- EN 292.2 (3.2) EN 349 - EN 294 |
| 1.3.7 RISKS DUE TO SURFACE AND EDGES                 | EN 292.1 (4.2.)- EN 349 - EN 294                       |
| 1.3.8 PREVENTION AGAINST MOVING ELEMENTS             | EN 292.1 ( 4.2.2) EN 292.2 (3.8) EN 349 EN 294         |
| 1.3.9 CHOICE OF A PREVENTION AGAINST MOVING ELEMENTS | EN 292.1 ( 4.2.2) EN 292.2 (3.8) EN 349 - EN 294       |

## EC STANDARDS

### 1.4 EC STANDARDS REQUIREMENTS FOR PROTECTION

|       |                     |                                             |
|-------|---------------------|---------------------------------------------|
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|-------|---------------------|---------------------------------------------|

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| 1.5.2 | LIQUID LEAKAGE                                 | EN 292.2 (4.2.1)- EN 294                                 |
| 1.5.4 | HEALTH RISKS OF NOISE EXPOSURE                 | EN 292.1 ( 4.5)-EN 292.2 ( 3.6.3)<br>EN 23741-EN 23742   |
| 1.5.5 | RISKS DUE TO WRONG HUMAN<br>MANOEUVRES         | EN 292.1 ( 4.9)- EN 292.2 ( 3.6.3)<br>EN 418 -EN 60204/1 |
| 1.5.6 | RISKS DUE TO TEMPORARY LACK OF<br>SAFETY MEANS | EN 292.1 ( 3.22)- EN 292.2 ( 4.2)<br>EN 294              |
| 1.5.8 | RISK OF FALL, SLIPPING OR TRIPPING             | EN 292.1 (4.2.3)- EN 292.2 (6.2.4 )<br>EN 349 -EN 457    |

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## EQUIPMENT IDENTIFICATION

name Electro-hydraulic ramp with a hinged lip

model KRL-I

model with mould



nominal load

power supply

capacity installed

type of lip ☐ standard ☐ with flap

serial number

year of construction

manufacturer

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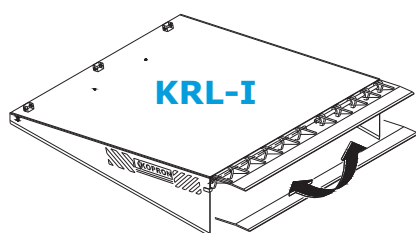
customer

destination

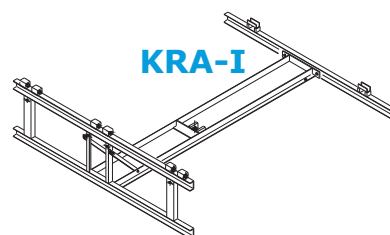
This present assembly, use and maintenance manual refers to model and serial number above mentioned.



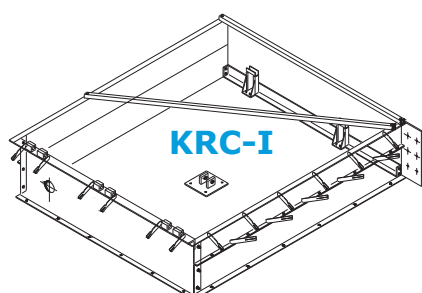
Ramp KRL-I data entry E.P. 01 .doc



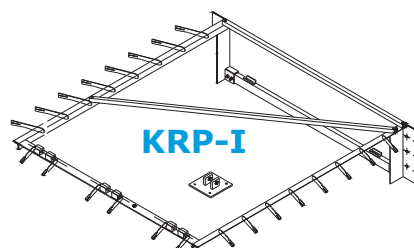
**DOCK LEVELLER**



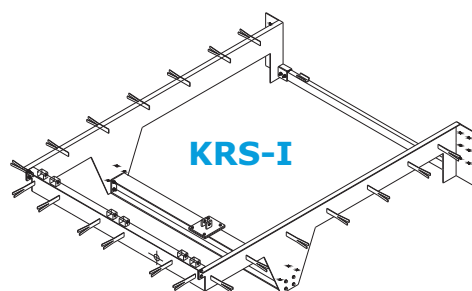
**FRAME FOR EMBEDDED VERSION**



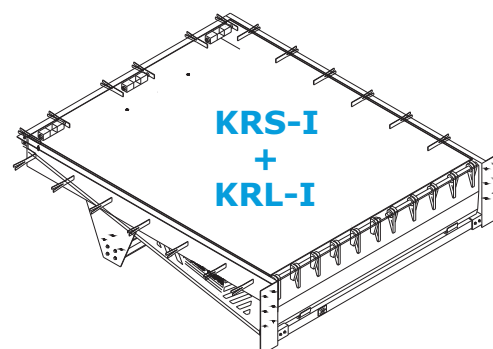
**MOULD**



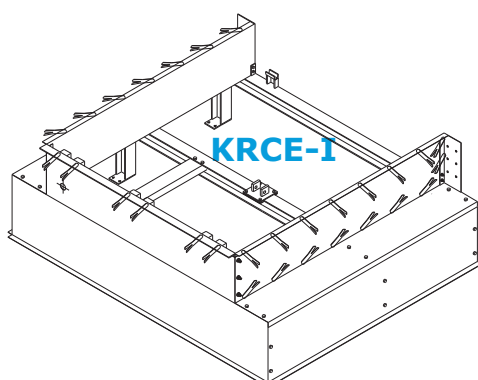
**PROFILE**



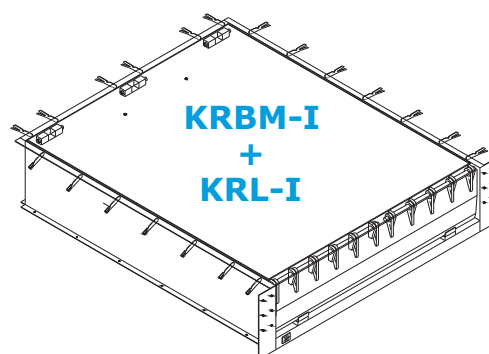
**SUSPENDED FRAME**



**DOCK LEVELLER MOUNTED ONTO  
SUSPENDED FRAME**



**HIGH MOULD**



**DOCK LEVELLER ASSEMBLED ON  
BOX MODEL**

**INTRODUCTION**

**UNIT I                      DESCRIPTION AND MAIN DATA**

**UNIT II                     OPERATION DESCRIPTION**

**UNIT III                   INSTRUCTIONS**

**UNIT IV                   ENVIRONMENT POLLUTION**

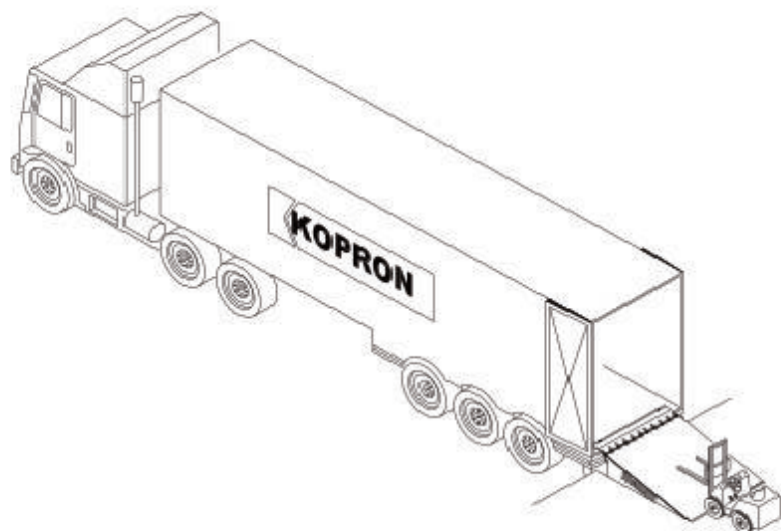
**UNIT V                    SPARE PARTS**

**UNIT VI                   SERVICE / GUARANTEE**

**UNIT VII                  DRAWINGS**

THIS MANUAL IS MADE IN TWO PARTS- PART I AND PART II DEDICATED TO THE CONTROL BOX. THESE PARTS MUST BE STRICTLY KEPT TOGETHER AND CONSIDERED AS ONE AS FAR AS DECLARATION OF CONFORMITY AND APPLICABLE STANDARDS ARE CONCERNED.

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| - DIMENSIONS FOR LAYING PROFILE MOD. KRP-I                                 | drwg. n° 01 KRP-I   |
| - DIMENSIONS FOR LAYING SUSPENDED FRAME MOD. KRS-I                         | drwg. n° 01 KRS-I   |
| - DIMENSIONS FOR LAYING DOCK LEVELLER ASSEMBLED ON SUSPENDED FRAME KRS-I   | drwg. n° 01 KRS-I-S |
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| - DIMENSIONS FOR DOCK LEVELLER ASSEMBLED ON BOX MODEL KRBM-I               | drwg. n° 01 KRBM-I  |

In case of ramps with special characteristics, additional enclosures regarding the equipment used will be included along with the manual. We recommend to carefully follow both the manual plus additional instructions, in order to ensure safety due to a correct use of the product.

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All drawings and technical characteristics may be subject to changes at any time, should this occur Kopron shall provide to update the manual as soon as possible

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## INTRODUCTION

This manual is a guide for installers, users and maintenance personnel as well as containing information on EC directives and being useful for preventing accidents during life cycle of the equipment from installation to dismantling.

In case instructions are not clear or should particular problems arise and are not mentioned herein, please apply to our service department.

Do not take personal initiatives for interventions if instructions are not fully understood.

Buyer and personnel involved in installation and operation should read this manual of assembly, use and maintenance before using the equipment. We would suggest to keep a copy of this manual handy in a place where it can be easily consulted.

The equipment has been manufactured in compliance with the European standards and specifically to the Declaration of Conformity, copies of which have enclosed at pages 2 and 3 of this manual.

Originals along with the identification sheet shown at page 6 are directly sent to Customer by registered mail.

The loading ramp has been manufactured in compliance with the European standard, Type C, **UNI EN 1398** and to all the other standards listed at page 4 and 5.

Assembly and installation must be carried out by qualified personnel adequately equipped to operate in absolute safety condition. A dedicated chapter on **Other Risks** will face the matter in detail.

Preventive maintenance for solving anomalies must be programmed according to standard EN 292.2 ART 5.5.1. which require only **specialized personnel** to carry out interventions.

**We need to highlight that whenever any maintenance intervention is required, it is of utmost importance to engage only very qualified personnel, which may operate strictly in compliance with the instructions contained in this manual and have been duly trained accordingly.**

This in conformance to European Directives regarding safety when using the product.

To have another copy of the manual you may contact our service department at the following address, specifying the serial number and year of construction of the product.

A marking plate is positioned on the front part of the framework (see Chap. 1.3 - Unit I) which contains all the necessary data Kopron needs:



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**KOPRON S.p.A.** have the right to update or improve the manual without affecting the validity of this version.

Some important points have been highlighted by using symbols explained on next page.

## INTRODUCTION

### SYMBOLS

---



#### **DANGER - NOTICE**

This sign indicates serious danger which must not be underestimated in order not to risk people's health and safety.



#### **CAUTION**

This sign indicates the requirement to be careful on how to move and act in order not to risk people's health and safety and cause economical damages



#### **IMPORTANT**

This sign indicates technical information and important regulations to pay attention to.



#### **ECOLOGY**

Remarks regarding ecology



#### **PROHIBITION**

If instructions contained in this manual are not strictly followed and original spare parts are not used, or in case ordinary maintenance or non authorized interventions are carried out Buyer will take his own responsibilities and guarantee will no longer be valid

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## CHAPTER 1

## DESCRIPTION AND MAIN DATA

**1.1 FIELD OF APPLICATION**

The ramp has been designed and manufactured with the aim to create a movable bridge between the loading/unloading area and the surface of a vehicle, levelling out differences in height.

The ramp enables the transit of forklifts or manual lifting devices up to its maximum capacity according to the established nominal load.

The nominal load for each type of ramp is stated on the EC marking plate permanently positioned on the front frame (as shown in UNIT 1 chapt. 1.3) and also in the identification sheet of the machine which is sent by registered mail along with the Declaration of Conformity.



The ramp cannot be used for any different purpose besides the one described herein.

Should Customer require a different use of the ramp he must inform Kopron Spa who in case of approval will provide Customer with new instructions.

**1.2 IMPROPER USE**

The ramp must always be operated within its maximum capacity according to the established nominal load and never exceed it.

The capacity refers to when the lip is positioned on the truck surface or in resting position.

**Never carry out loading/unloading operations when the dock leveller is in resting position.**

**It is absolutely forbidden to cross the ramp along the width.**

Nominal loads for ramps exceeding widths of 1,25 m, like the KOPRON ramps, consist in the total load weighing on two surfaces contacting each other of 150 mm x 150 mm with a center point established at 1 mt, that means the weight on the front tyres of a fork lift.

The load carried by forklift transiting on the ramps must be well balanced and stable. Besides the forklifts must avoid abrupt movements like quick lifting or lowering of the material, excessive speed or sudden brakings.

Forklifts must go at man's walking speed (40 mt/1).

Controls have been designed in order to prevent wrong manoeuvres dangerous for both operator and ramp.

This provided that no changes have been made to the to the electric plant or any protection has been removed.

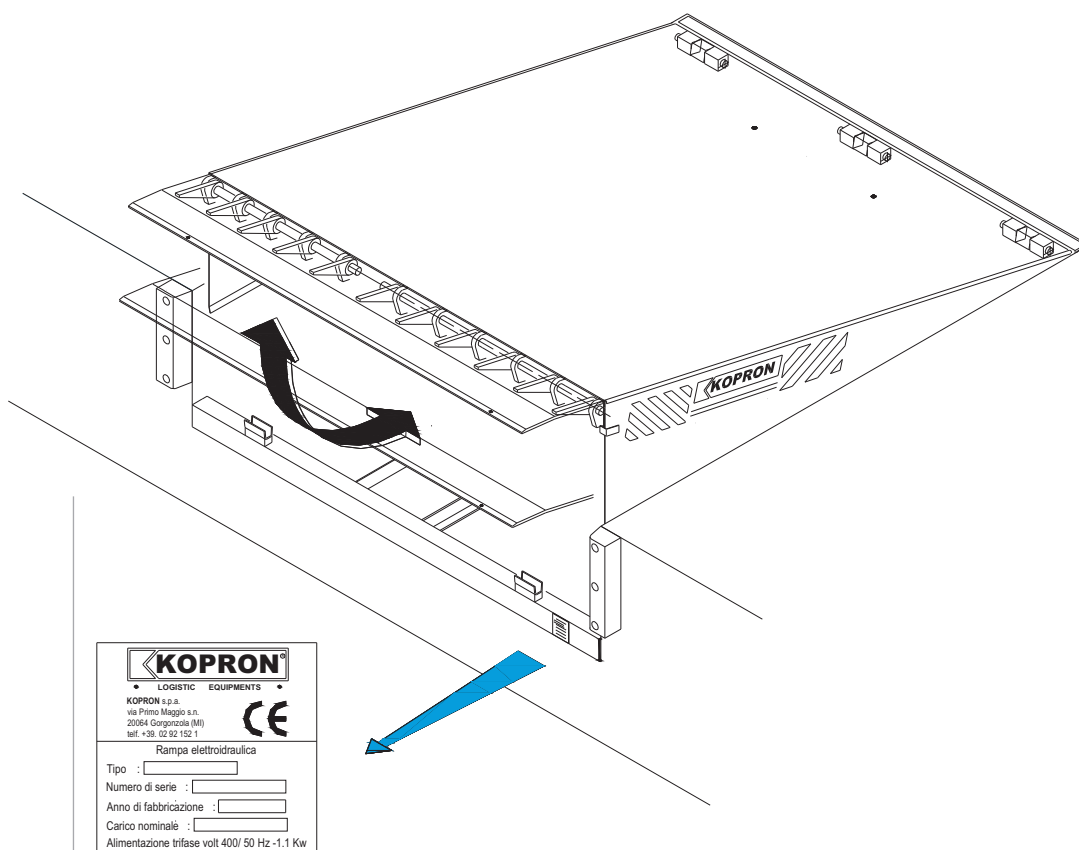


**Improper use, and ignoring the instructions contained in this manual will imply Buyer to take his own responsibilities and guarantee will no longer be valid.**

**1.3 “CE” MARKING PLATE**

A “CE” marking plate is placed permanently on the front part of the ramp frame. The data on identification plate must always be kept clean and legible. Should it be damaged and become no longer legible it must be replaced in compliance with the EC Machine Directives.

In the request you must mention the model, year of manufacturing and serial number, data which can be easily found in the documents delivered along with the dock leveller.

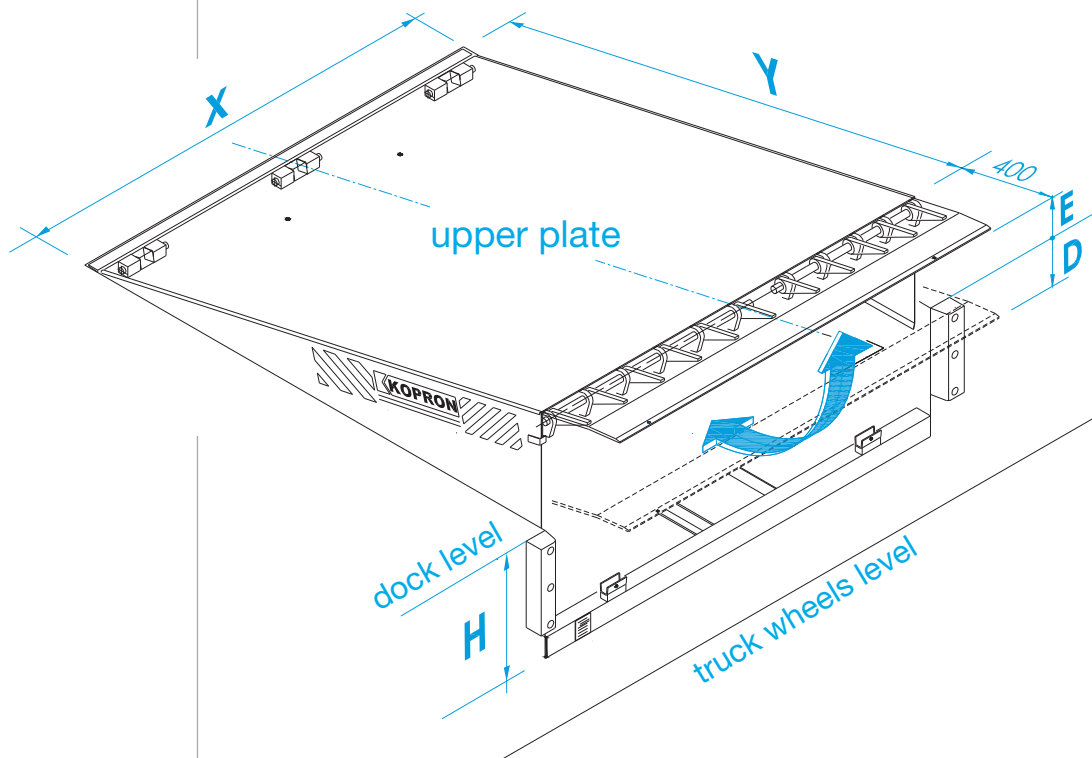


## CHAPTER 2

## DESCRIPTION AND MAIN DATA

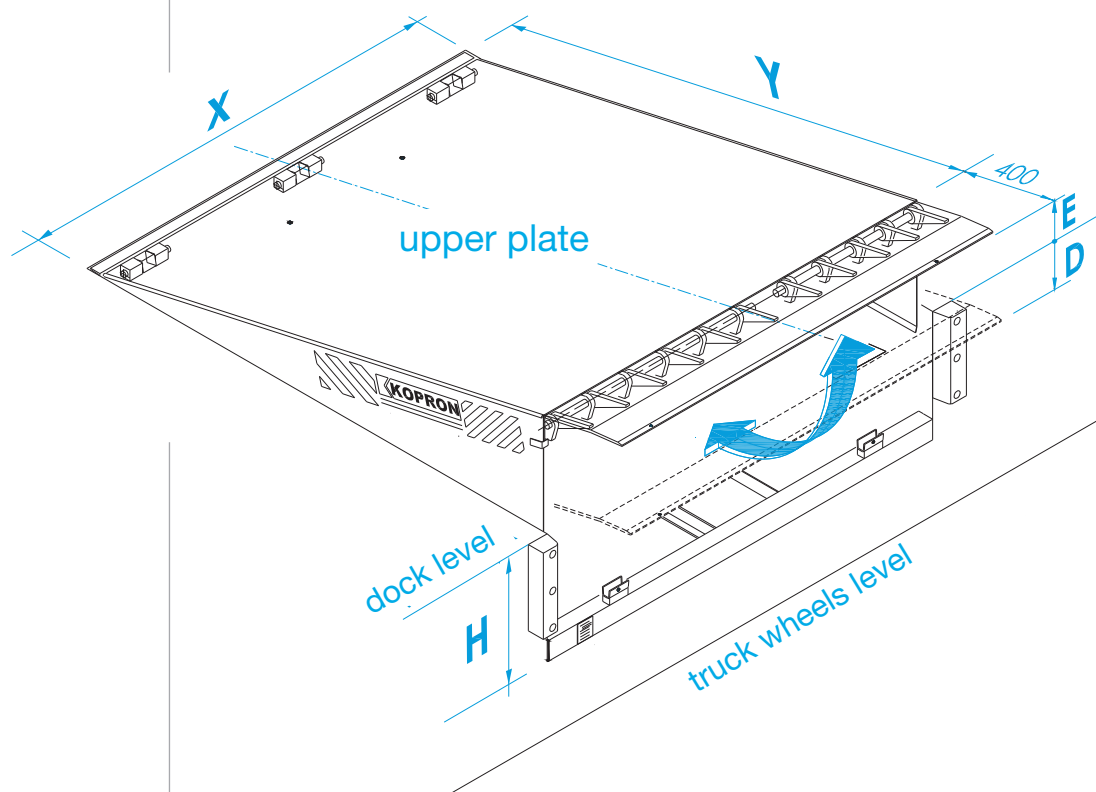
## 2.1 TECHNICAL DATA

Main characteristics of the ramp besides the nominal load, are the width, length, height of the pit and the positive and negative lip range.



## SERIES SPECIAL

| Dock leveller model | Width X | Length Y | Dock leveller height H | positive range E % of Y+400 | Escurs. nega D % of Y+400 |
|---------------------|---------|----------|------------------------|-----------------------------|---------------------------|
| KRL-I. 180.200      | 1800    | 2000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 200.200      | 2000    | 2000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.200      | 2200    | 2000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 180.250      | 1800    | 2500     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 200.250      | 2000    | 2500     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.250      | 2200    | 2500     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 180.300      | 1800    | 3000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 200.300      | 2000    | 3000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.300      | 2200    | 3000     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 180.400      | 1800    | 4000     | 800                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 200.400      | 2000    | 4000     | 800                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.400      | 2200    | 4000     | 800                    | +12,5 %                     | -12,5 %                   |



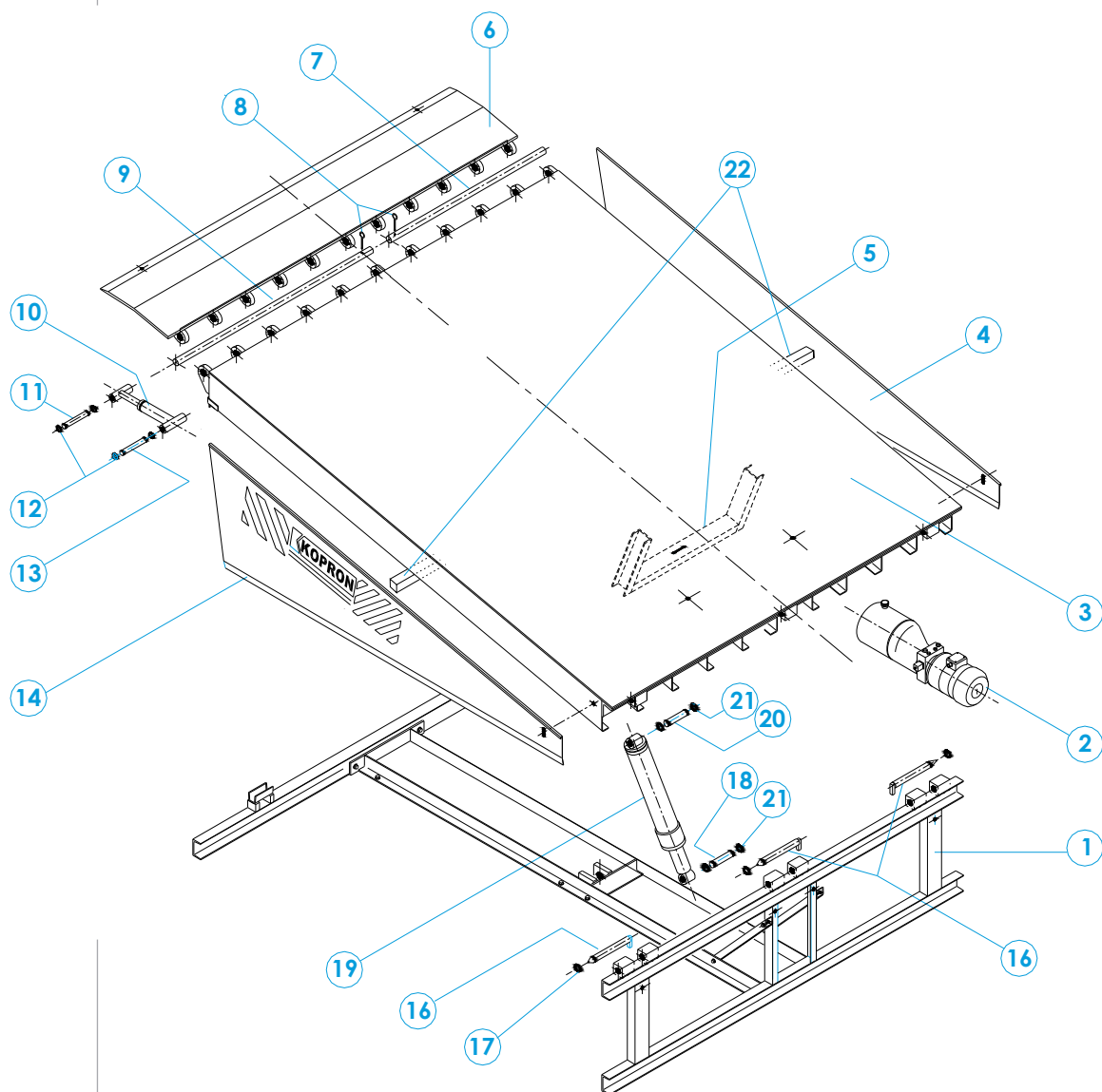
## SERIES OPTIMA

| Dock leveller model | Width X | Length Y | Dock leveller height H | positive range E % of Y+400 | Escurs. nega D % of Y+400 |
|---------------------|---------|----------|------------------------|-----------------------------|---------------------------|
| KRL-I. 200.235      | 2000    | 2350     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.235      | 2200    | 2350     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 200.290      | 2000    | 2900     | 550                    | +12,5 %                     | -12,5 %                   |
| KRL-I. 220.290      | 2200    | 2900     | 550                    | +12,5 %                     | -12,5 %                   |

Data in common with all the dock levellers:

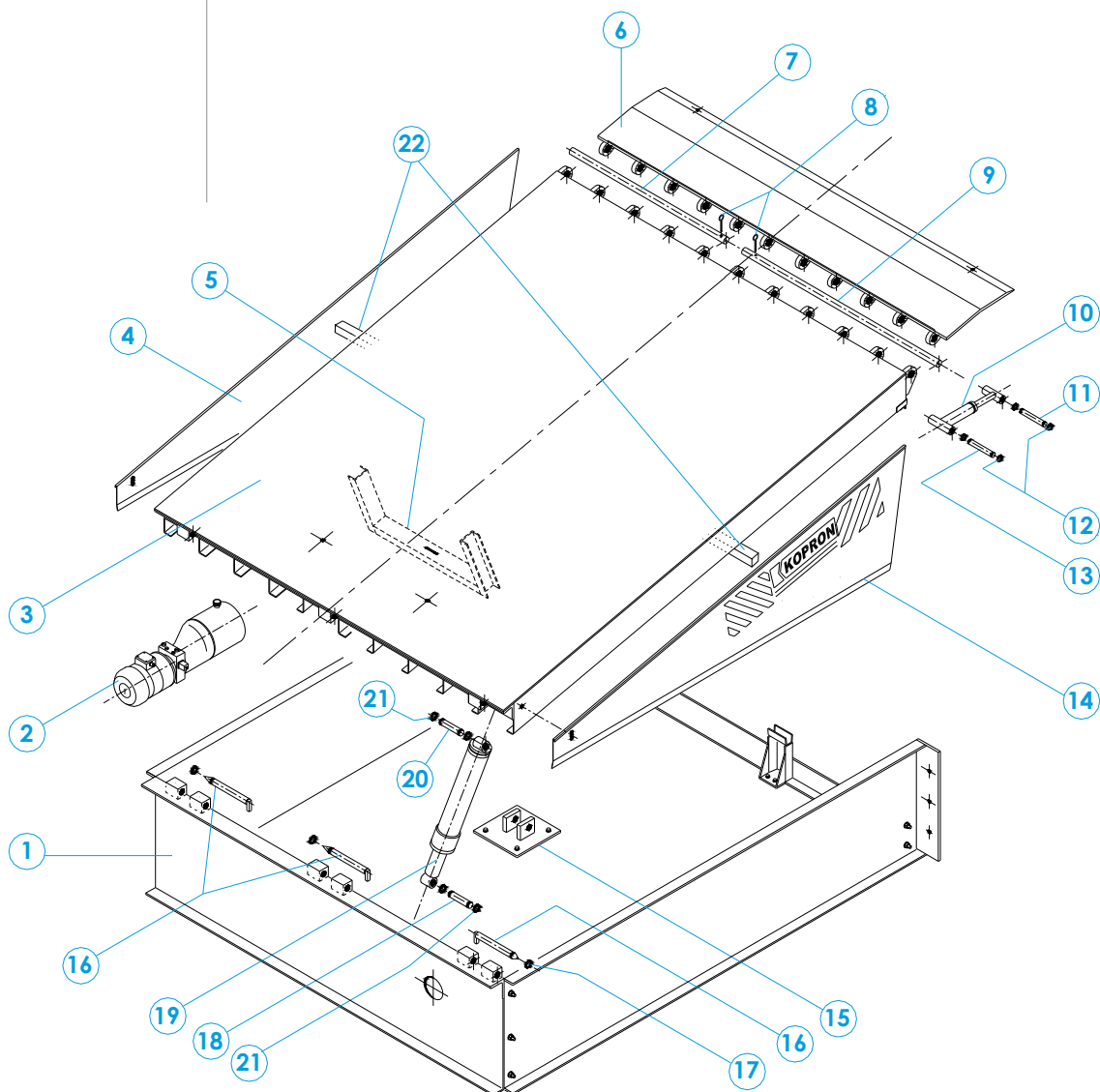
- Motor oil-pressure control unit 230 / 400V -1.1 kW, 50Hz, 2poli
- Working Pressure 120 Bar
- Three-phase voltage supply 230 / 400 Volt - 50Hz / 60 Hz
- Auxiliary circuit voltage 24 Volt c.a. / 24 volt d.c.

## 2.2 EXPLODED VIEW OF THE DOCK LEVELLER OF FRAME mod. KRA-I



- |           |                             |           |                                      |
|-----------|-----------------------------|-----------|--------------------------------------|
| <b>1</b>  | Frame                       | <b>12</b> | Seeger straight pins of the lip      |
| <b>2</b>  | Hydraulic control unit      | <b>13</b> | Straight pin body of the lip         |
| <b>3</b>  | Upper plate                 | <b>14</b> | Left foot guard                      |
| <b>4</b>  | Right foot guard            | <b>15</b> |                                      |
| <b>5</b>  | Control unit support        | <b>16</b> | Upper plate rotation pivot           |
| <b>6</b>  | Hinged lip                  | <b>17</b> | Seeger upper plate rotation pivot    |
| <b>7</b>  | Short shaft                 | <b>18</b> | Straight pin body of the upper plate |
| <b>8</b>  | Shaft fixing pins           | <b>19</b> | Upper plate cylinder                 |
| <b>9</b>  | Long shaft                  | <b>20</b> | Upper plate cylinder shaft pin       |
| <b>10</b> | Lip cylinder                | <b>21</b> | Seeger upper plate cylinder pins     |
| <b>11</b> | Pin of the lip cylinder rod | <b>22</b> | Removable stoppers                   |

### 2.3 EXPLODED VIEW OF A DOCK LEVELLER WITH MOULD model KRC-I



- |                                       |                                                |
|---------------------------------------|------------------------------------------------|
| <b>1</b> Mould                        | <b>12</b> Seeger straight pins of the lip      |
| <b>2</b> Hydraulic control unit       | <b>13</b> Straight pin body of the lip         |
| <b>3</b> Upper plate                  | <b>14</b> Right foot guard                     |
| <b>4</b> Left foot guard              | <b>15</b> Flange fixing - upper plate cylinder |
| <b>5</b> Control unit support         | <b>16</b> Upper plate rotation pivot           |
| <b>6</b> Hinged lip                   | <b>17</b> Seeger upper plate rotation pivot    |
| <b>7</b> Left short shaft             | <b>18</b> Straight pin body of the upper plate |
| <b>8</b> Shaft fixing pins            | <b>19</b> Upper plate cylinder                 |
| <b>9</b> Right long shaft             | <b>20</b> Upper plate cylinder shaft pin       |
| <b>10</b> Cylinder of the lip         | <b>21</b> Seeger upper plate cylinder pins     |
| <b>11</b> Pin of the lip cylinder rod | <b>22</b> Removable stoppers                   |

## CHAPTER 3

## DESCRIPTION AND MAIN DATA

## 3.1 INFORMATION ON APPLICATION

Dock levellers are used in warehouses in loading/unloading areas for bridging the gap and levelling the height between the floor and the lorry surface allowing the transit of forklifts or similar devices used for lifting material.

Kopron KRL-I dock levellers are controlled by a hydraulic system which by means of a single-acting cylinder which operates either the lifting or the lowering of the upper plate, also the lip is operated by a single-acting cylinder.

Once the dock leveller is connected to the truck surface by means of the lip, it can easily follow the up-and-down movements of the vehicle due to the different weight of the load, and tolerate eventual lateral torsions for same reason.



KRL-I dock levellers are provided with a safety system which prevents a sudden fall of the upper plate in case of unexpected movements of the truck.

## 3.2 NOTES ON CONSTRUCTION

**Carpentry**

The upper plate is made of steel sheets electrowelded to the anti-skid sheets 6 mm thick plus rib height.

The lip is in anti-skid 14mm thick plus rib height, with final part bent and milled. in order to allow the best adhesion to the loading surface of the truck.

The support frame is made of hot rolled profiles and electrowelded steel sheets and has welded hinges for the connection to the upper plate and the oil-pressure cylinder connection.

The frame of the dock levellers with a mould consists of another mould, while the connection of the oil-pressure cylinder for the ramp lifting is made of a hinge support to fix at the bottom of the pit. The whole manufacture is made in carbon steel.

**Hydraulic system for starting up**

The hydraulic circuit is characterized by a single-acting cylinder which lifts the upper plate and by another single-acting cylinder for the operating the lip.

The hydraulic control unit is a box consisting of a gear pump, a group of valves and an oil tank. The control unit is activated by a three-phase motor 230/400V -1.1 kW, 50 / 60 Hz, 2 poles.

**Finishing**

The dock leveller is supplied pre-painted with anti rust paint, then finished with grey colour RAL 7016.

The parallel feet guards are in galvanized metal sheet with safety yellow/black adhesive stripes.

**Electric panel**

The type of electric panel can be different according to the country where the ramp is installed. A separate part of the manual will be dedicated to the electric panel, with details on the controls on power supply, on correct positioning, the electric system on the ramp, and than to connect it with the equipment.

**CHAPTER 1****OPERATING DESCRIPTION****1.1 OPERATING A DOCK LEVELLER WITH A STANDARD LIP****Lifting phase**

When you switch on the motor of the control unit, the pump pushes oil into the circuit pressure and increases and opens the first valve which lets the oil flow towards the cylinder that lifts the upper plate. When the cylinder reaches the end of the travel, pressure increases again and opens a second valve which allows oil to flow towards the cylinder that rotates the lip upwards till it is perfectly aligned with the upper plate.

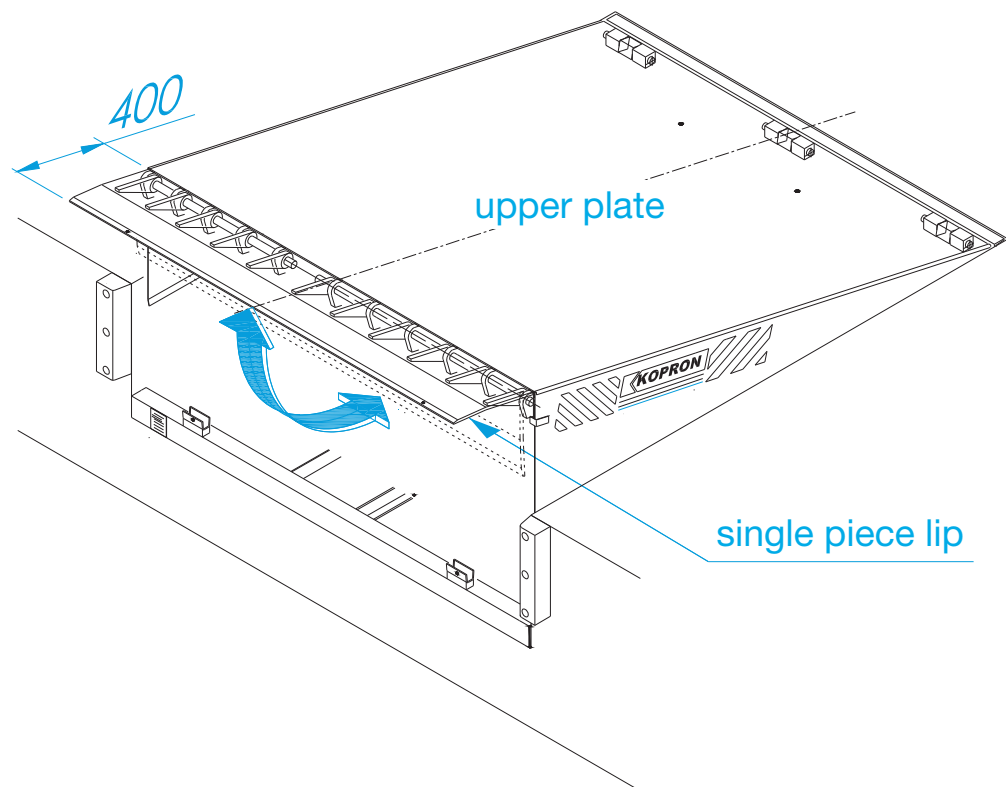
**Lowering phase**

When you stop the motor, the first valve gets back to resting position lowering the upper plate with the lip open. When lifting cylinder ends its travel by positioning the upper plate on the truck loading surface, the pressure of circuit stops causing the lip to turn downwards and lean on the loading surface as well.

In this position the upper plate can easily move following the swinging of the truck surface due to different kind of loads.

**Closing phase**

The dock leveller returns to resting mode when switching on the motor again, the upper plate goes upwards and the lip starts closing. When the lip is completely closed, the dock leveller returns to starting position ready for next manoeuvre.



**1.2 OPERATION OF DOCK LEVELLER WITH LIP WITH SIDE FLAPS**

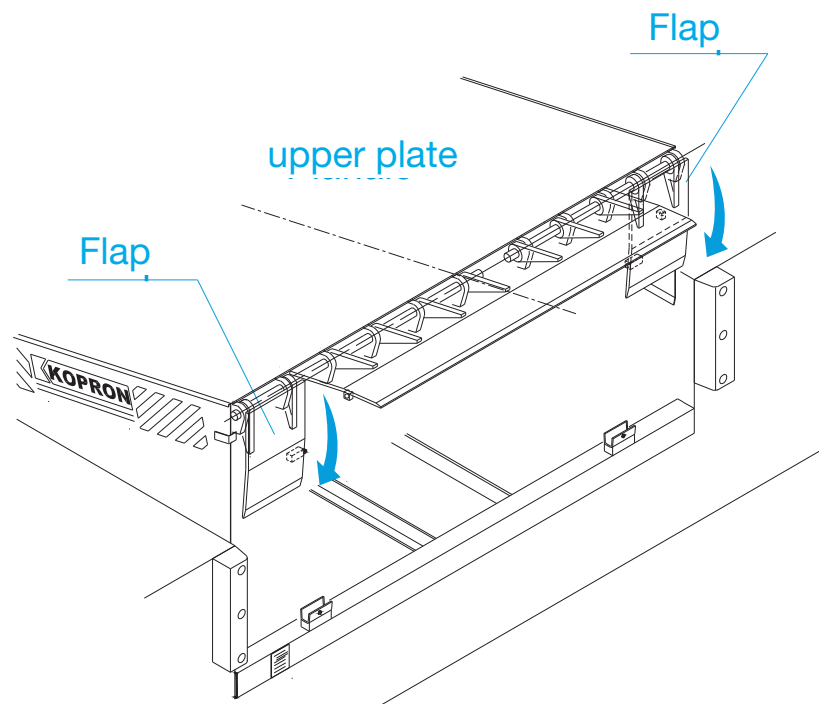
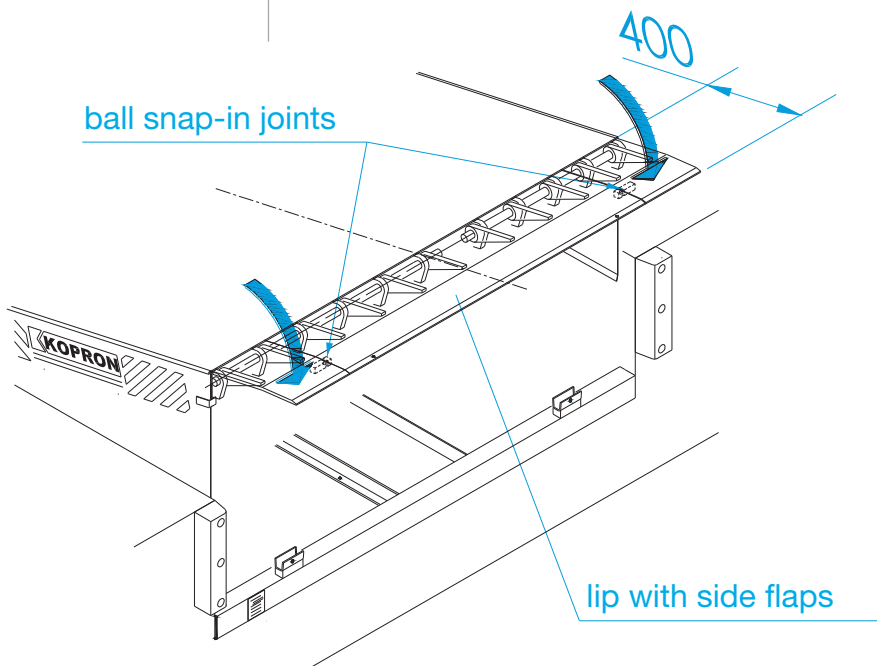
Basically, the dock leveller with lip with side flaps works in the same way as the one piece version.

The difference stands in the manufacturing of the lip which is provided, for each movable flap, of ball joints activated by compressed springs.

Ball joints also enable to fix the flaps to the central body of the lip which becomes a whole piece when it rotates upwards to reach the upper plate level.

Once the lip is aligned with the upper plate, the flaps touching the sides of the truck surface automatically lower to allow the lip to suit the size of the truck surface.

Once loading/unloading operations are over side flaps lift again to make a unique body with the lip which rotates downwards this time, and platform returns to its original position before being used again.



## CHAPTER 1

### INSTRUCTIONS FOR TRANSPORT

---



#### 1.1 GENERAL NOTES

The handling of the dock leveller, must be assigned to trained personnel such as crane operators and sling operators.

Safety measures must be undertaken to guarantee the stability of the machine and of the material.

The slinging of the material must be properly done in order to prevent the material to slide or fall.

Should the operator be unable to control the way during handling of goods another person he must be put beside and give help.

Necessary conditions for lifting material is the perfect balancing of the goods.

Since the dock leveller is moved without packing, lifting and moving must be very carefully carried out.

Periodically lifting machinery must be submitted to inspection and maintenance.



## INSTRUCTIONS

### 1.2 LIFTING

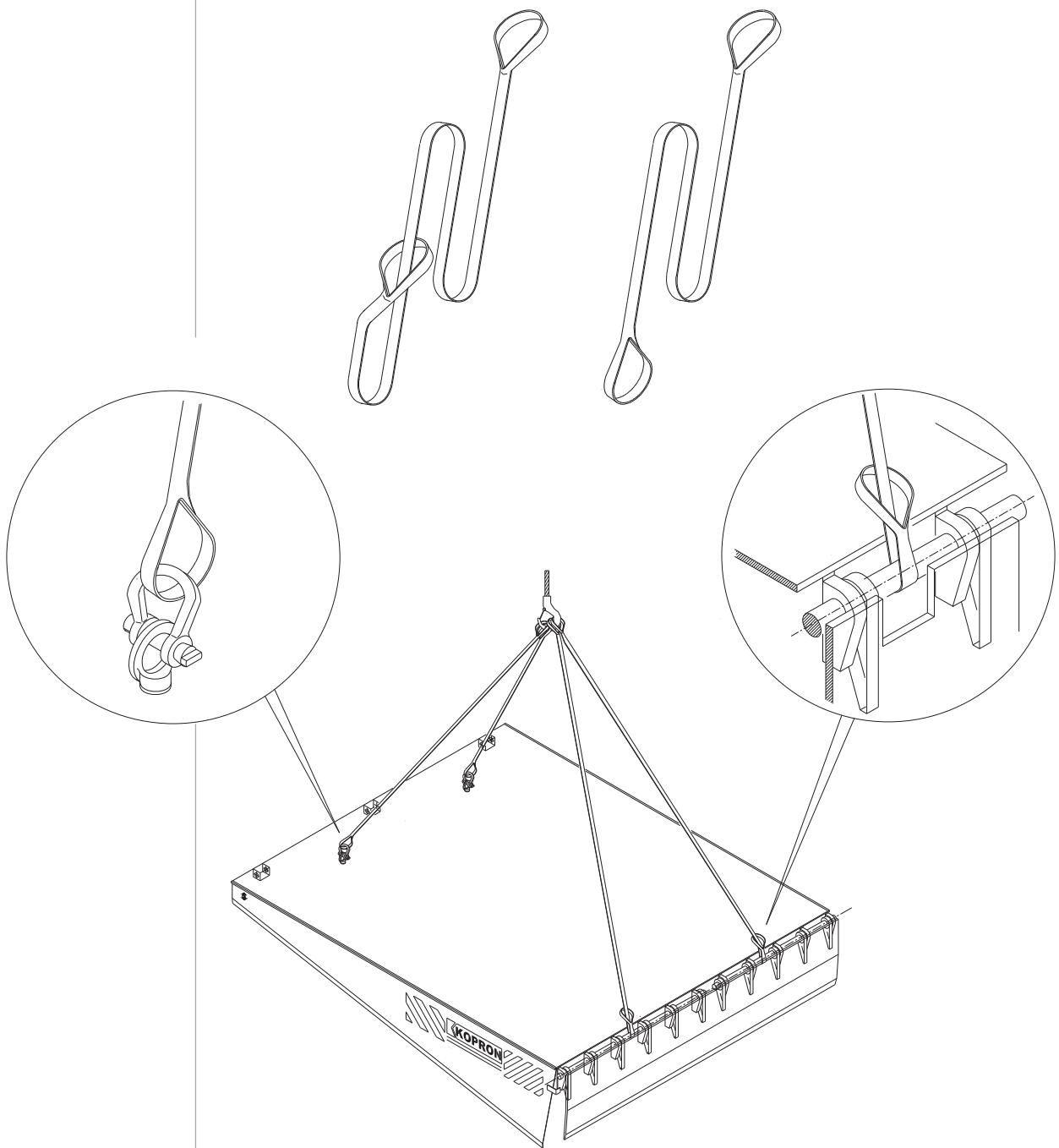


The only lifting devices allowed are bridge cranes and mobile cranes.  
Only specialized personnel can sling the material and operate the cranes.  
No forklifts must be used, forks could seriously damage the hydraulic system (control unit, valves, cylinders and tubes)

Goods must be perfectly balanced before being lifted.

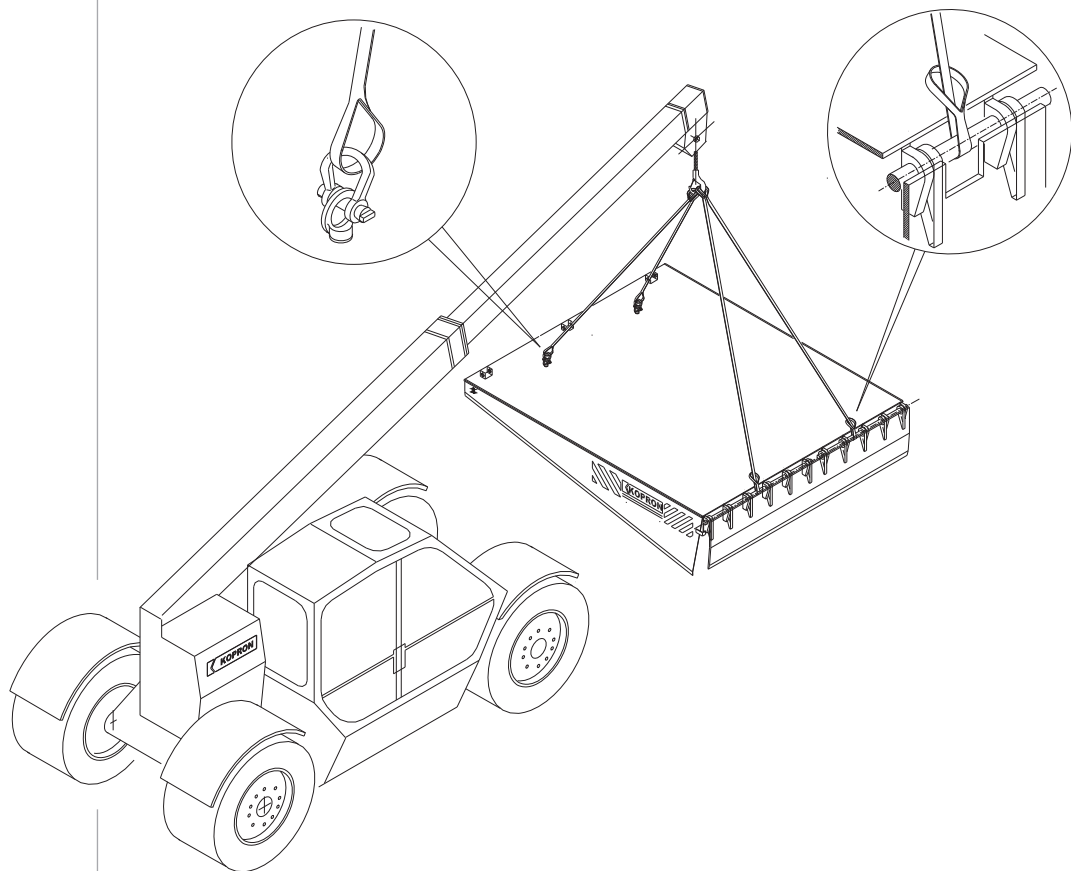
Carry out slinging as shown in the following drawing by using a grab with four straps, width 50 mm and 2 meters long.

Two straps will have a loop at the end.



**1.3 INSTRUCTIONS ON HANDLING**

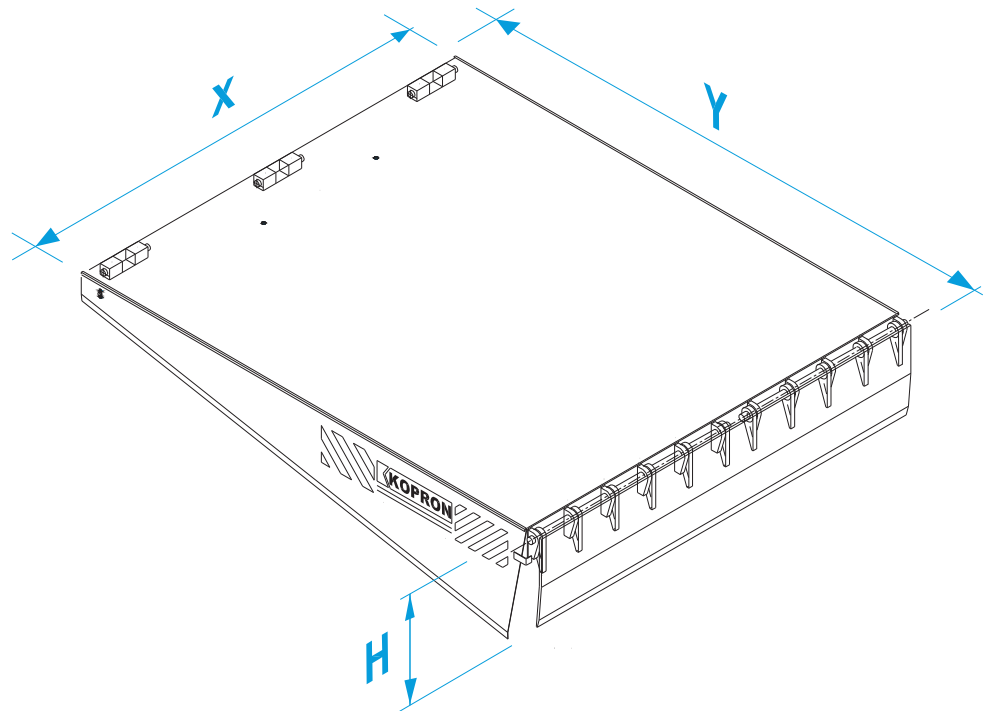
Handling must be carried out only by specialized operators in mobile cranes. Before using the crane, verify the efficiency of the brakes and end travel devices. Avoid any swinging of the goods. Provide evacuating personnel in case the goods must be moved above their heads. Do not leave the crane with suspended goods. Sling the material as indicated in the following drawing by using by using a grab with four straps, width 50 mm and 2 meters long. Two straps will have a loop at the end. Since the equipment is moved without packaging, lifting operations must be carried out with extreme care.



In you have to lift the dock leveller on suspended frame or box model, follow instructions in chapter 2.5.1. and 2.7.1.

**1.4 DIMENSIONS AND WEIGHTS OF DOCK LEVELLER KRL-I**

The following are the sizes and weights for different models of dock levellers:

**SPECIAL SERIES**

| Model<br>KRL-I | 180.200 | 200.200 | 220.200 | 180.250 | 200.250 | 220.250 | 180.300 | 200.300 | 220.300 | 180.400 | 200.400 | 220.400 |
|----------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| X              | 1800    | 2000    | 2200    | 1800    | 2000    | 2200    | 1800    | 2000    | 2200    | 1800    | 2000    | 2200    |
| Y              | 2000    | 2000    | 2000    | 2500    | 2500    | 2500    | 3000    | 3000    | 3000    | 4000    | 4000    | 4000    |
| H              | 450     | 450     | 450     | 450     | 450     | 450     | 450     | 450     | 450     | 700     | 700     | 700     |
| Weight Kg      | 525     | 550     | 600     | 600     | 625     | 700     | 675     | 725     | 800     | 850     | 800     | 1000    |

**SERIES OPTIMA**

| Model<br>KRL-I | 200.235 | 220.235 | 200.290 | 220.290 |
|----------------|---------|---------|---------|---------|
| X              | 2000    | 2200    | 2000    | 2200    |
| Y              | 2350    | 2350    | 2900    | 2900    |
| H              | 450     | 450     | 450     | 450     |
| Weight Kg      | 600     | 675     | 700     | 775     |

**CHAPTER 2****INSTRUCTIONS FOR INSTALLATION****2.1 FRAME FOR EMBEDDED VERSION KRA-I****2.1.1 ASSEMBLY FRAME FOR EMBEDDED VERSION KRA-I**

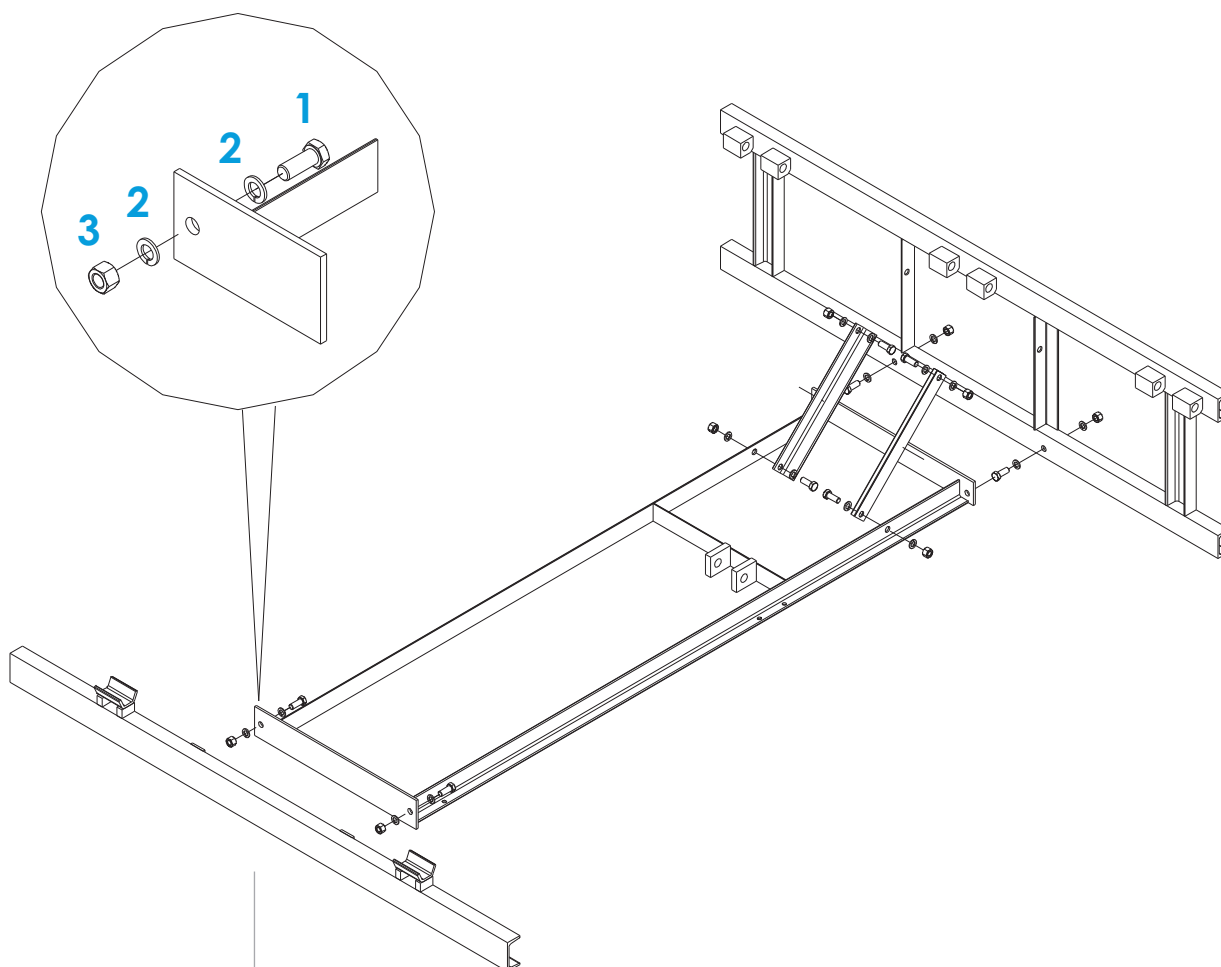
Assemble the frame for embedded version following the drawing indicating the holes and bolts already provided with the supply.

The bolting of the frame is carried out with the following:

- 1 n° 8 hexagonal screws M 16 x 40
- 2 n° 16 A16 washers
- 3 n° 8 M16 hexagonal nuts

When assembling the frame it must be perfectly squared.

The squaring of the frame is of utmost importance for the correcting functioning of the dock leveller, and must always be checked by measuring the diagonals which must be equal.

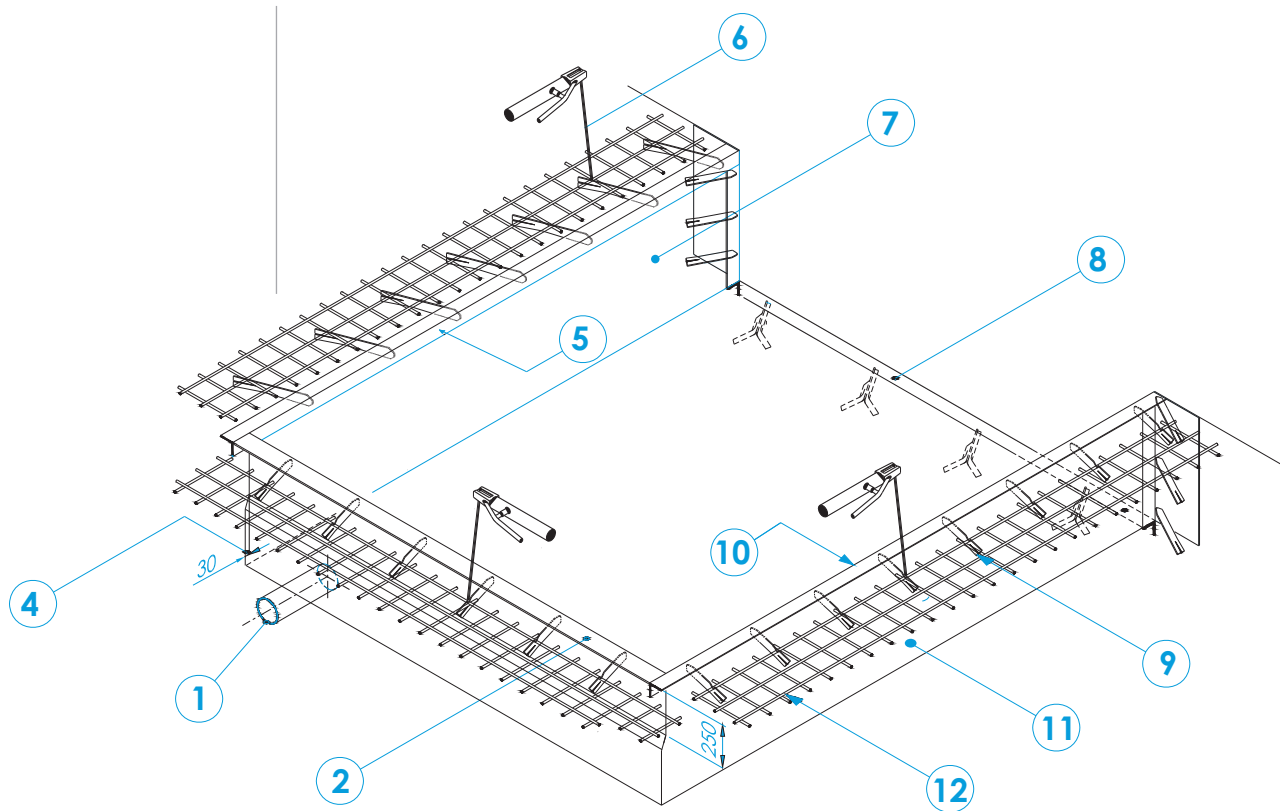


**2.1.2 LAYING AND GROUTING OF PROFILES OF KRA-I**

The laying and grouting of the profiles, where the frame for embedded will be fixed, is of fundamental importance and must be carried out by qualified people and according to the following instructions.

- For masonry work strictly keep to the sizes mentioned in the drawing..... with a  $- 0 + 5$  mm range of tolerance.
- When positioning the profiles make sure they are perfectly squared.  
The squaring can be checked by measuring the diagonals which must be equal.
- Position the profiles making sure they are perfectly levelled in the two axis transversal and longitudinal.  
The upper part of the profiles determines the height of the loading bay.
- The back sidewall of the pit, faced towards the bay must be 30mm behind the line of profile positioned above.
- The sidewalls of the pit must be perpendicular.  
The bottom of the pit must be wider than the profiles positioned above, in order to allow the dock leveller to be easily positioned inside.
- A  $\varnothing 80$  mm cable duct must be positioned at the back wall of the pit as indicated in the drawing on the right of the central line of the pit.
- The profiles as shown in the drawing must be well fitted inside the vertical and horizontal sides of the pit in order not to interfere with the movements of both dock leveller and forklifts.
- All the clamps of the back profile 80x 80x8 Ref. 2, of the side profiles 60x60x5 Ref. 5 and 9, must be welded to the rebar of the floor or to the steel parts of the frame-hosting the dock leveller.



**LEGEND**

- 1** Cable duct Ø 80 mm
- 2** Back profile 80 x 80 x 8
- 4** Back wall behind the line of profile by 30 mm
- 5** Right side profile 60 x 60 x 5
- 6** Welding of all the clamps of the profiles to the floor rebar.
- 7** Right side wall
- 8** Front profile 60 x 60 x 5
- 9** Profile anchoring clamps
- 10** Left side profile 60 x 60 x 5
- 11** Left side wall
- 12** Floor rebar

In case of misunderstanding or should any unexpected problems occur, please contact our offices at the following numbers:

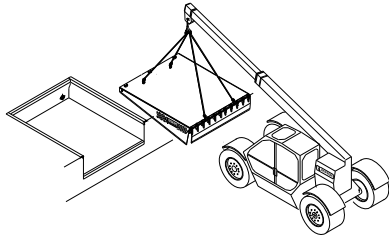
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 ☎ +39 - 02 - 921 52 751 📠 +39 - 02 - 921 52 923

**2.1.3 ASSEMBLY OF THE DOCK LEVELLER ON PROFILES FOR KRA-I**

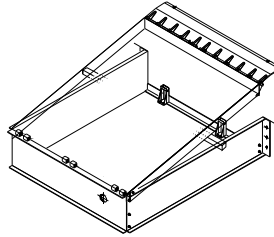
The installation of the dock leveller must be carried out by specialized and skilled personnel according to EN 292.2 art. 5.5.1.

Personnel must be duly informed before on the work to be done and on possible risks taking safety measures and using proper tools.

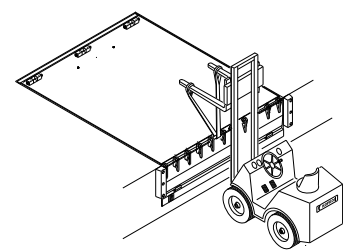
The following drawings show the most important manoeuvres for assembling the dock levellers.



**Positioning of the dock leveller**



**Blocking of the upper plate**



**Lifting of the upper plate**

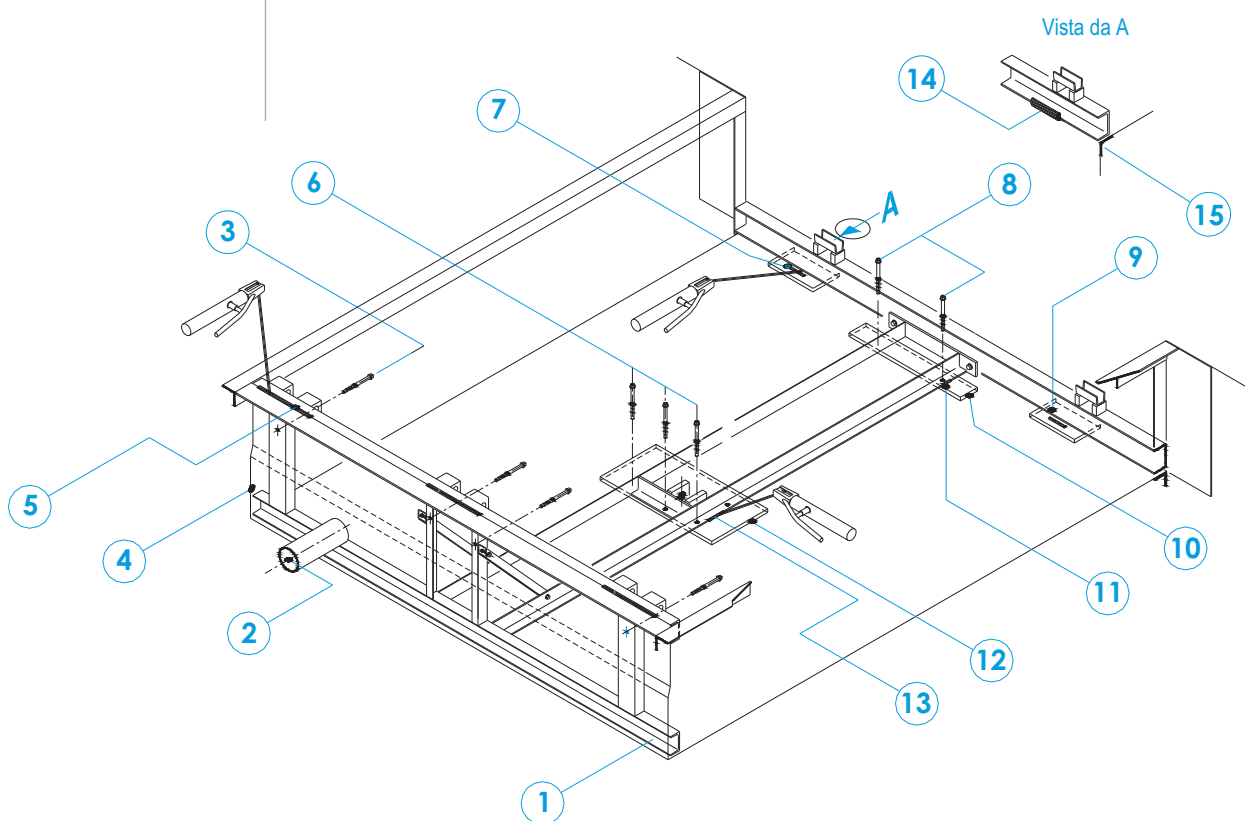
Before positioning the self-carrying frame verify the sizes of the pit and make sure the fixing of the profiles has been carried out correctly as indicated in drawing .....I enclosed, then procede as follows:

- Verify the squaring of the grouted profiles by measuring the diagonals which must be equal.
- Clean the pit from dirt which could interfere with the positioning of the frame.
- Position the frame for embedded version inside the pit making sure it is perfectly centered and leaning against the back wall for a perfect fixing.
- In order to level the frame for embedded version with the ground, place supports under the frame.
- The supporting plates must be four to placed two under the front profiles, one at the hinging point of the lifting hydraulic cylinder and one at the front part of the frame.



The height of the supporting plates must be kept between 10 ÷ 15 mm and permanently welded to one another and then directly to the frame.

- Fix the dock leveller to the pit with Fischer type anchor bolts FH II 15/10 H, M10 x 110 in the 8 holes the frame is already provided with.
- Weld the upper part of the frame to the back profile of the pit.
- Weld the bottom part of the front profile to the profile placed in front of the hosting frame.



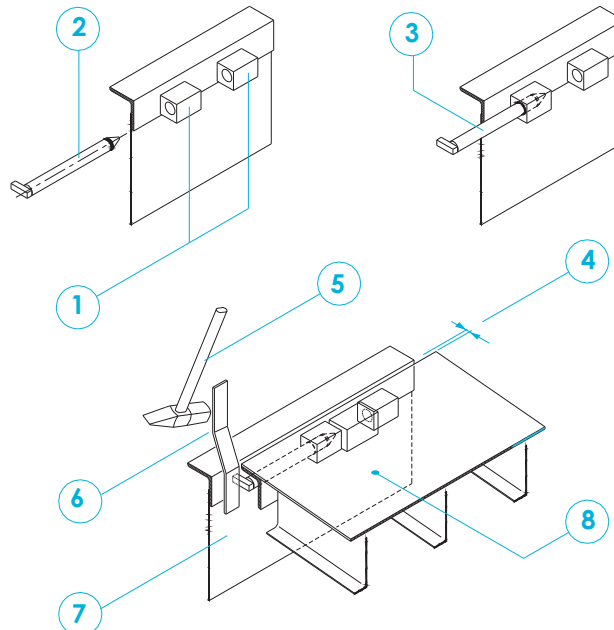
### LEGEND

- 1** Dock leveller frame
- 2** Ø 80 mm cable duct
- 3** n° 4 t Fischer type anchor bolts FH II 15/10 H. For fixing the back part of the frame
- 4** Back wall behind the line of profile by 30 mm
- 5** Welding of the upper part of the frame. Welding points must non be shorter than 300mm and must be put near the hinges.
- 6** n° 3 Fischer type anchor bolts FH II 15/10. For fixing the hinge of the upper plate lifting hydraulic cylinder.
- 7** Welding of the front tubes of the frames to eventual levelling plates.
- 8** n° 2 Fischer type anchoring bolts FH II 15/10 H. For fixing the front part of the frame.
- 9** Plates for levelling with the front tubes.
- 10** Front levelling plates
- 11** Welding points of the front levelling plate.
- 12** Levelling plate of the hinge of the upper plate lifting hydraulic cylinder.
- 13** Welding points of the levelling plates of the hydraulic cylinder hinge.
- 14** Welding of the front bar to the profile of the pit 60 x 60 x 8
- 15** Front profile of the pit 60 x 60 x 8

Position the dock leveller within the frame for embedded version in order to make the hinges easily meet.

To facilitate the insertion of the first pivot in the central hinge, with the help of a crane tilt the dock leveller slightly downwards on the lip side.

This position widens the opening (see point 4 of the drawing) and facilitates the insertion of the pivot.



#### LEGEND

- 1 Central hinge of the mould
- 2 Rotation pivot of the upper plate
- 3 Insert the pivot half a way the hinge and check the smooth sliding with some grease
- 4 Tilt the ramp downwards to widen the opening for the pivot
- 5 Push the pivot inside the hinge with a hammer
- 6 Inclined device to facilitate the insertion of the pivot
- 7 Bottom metal sheet of the mould
- 8 Upper plate of the dock leveller

Lift the upper plate and lock it in safety by turning the bracket which is under the upper plate.

- Carry on by inserting the other pivots, grease them with Molykote grease and stop them with Seeger pins. Only once all three pivots have been assembled and fixed with Seeger pins it will be possible to unhook the upper plate from the crane.

For any operation which requires a man under the dock leveller, make sure it is locked in safety by means of the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.

The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

While carrying out the positioning of the dock leveller, with the aid of a grommet make the wires connecting the hydraulic control unit to the electric panel pass through the Ø 80 cable duct.

Cables are prepared by supplier and are 8 meters long and have two end connectors.

The positioning of the dock leveller must be carried out in compliance with safety requirements and must not interfere with getaways provided by emergency plans..

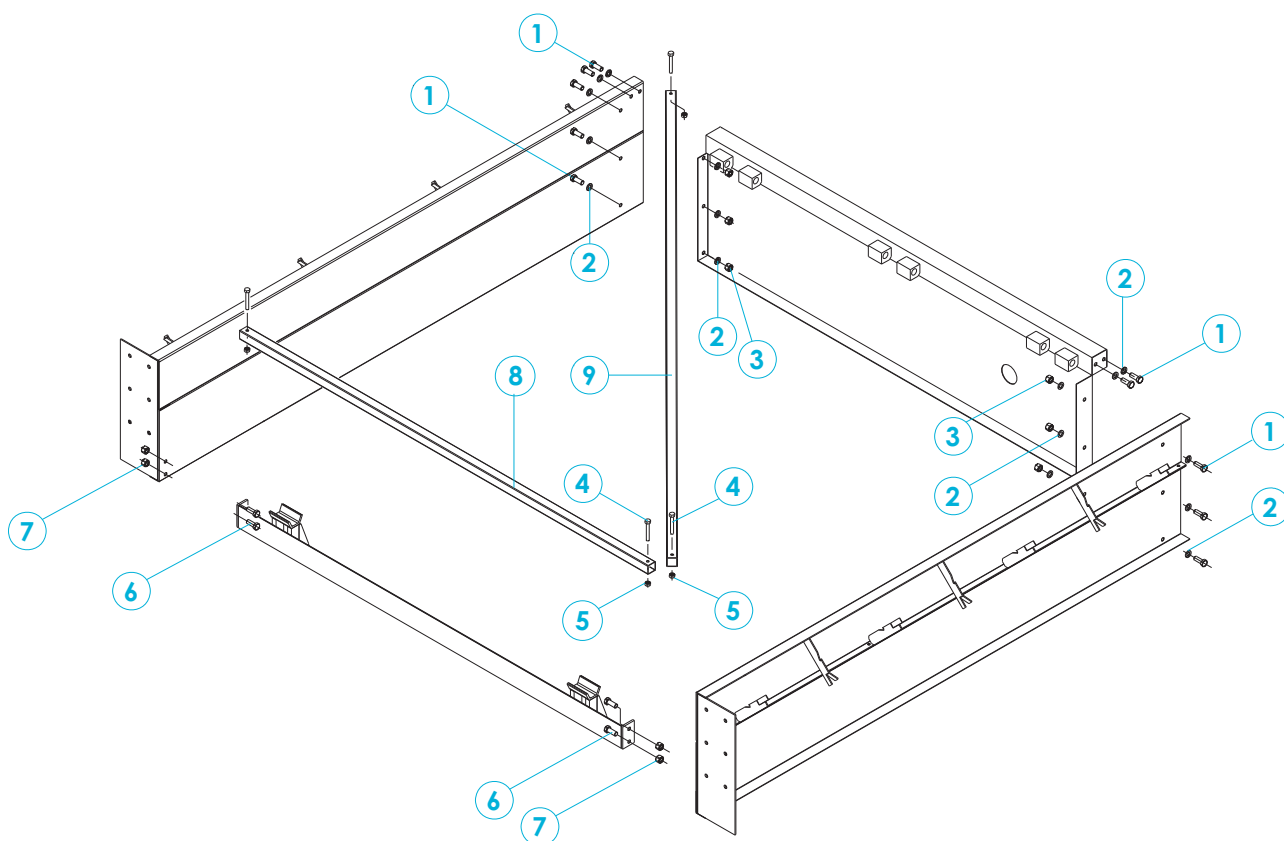


**2.2 MOULD KRC-I****2.2.1 ASSEMBLY OF MOULD KRC-I**

Assemble the mould with the aid of the following drawing and use screws and holes the mould is already provided with.

Use the 40x40 tubes shown at point 8 and 9, supplied to guarantee a perfect squaring. The squaring of the mould is of utmost importance for a correct functioning of the dock leveller and must be always checked before laying concrete.

A control can be carried out by measuring the diagonals which must be equal.

**LEGEND**

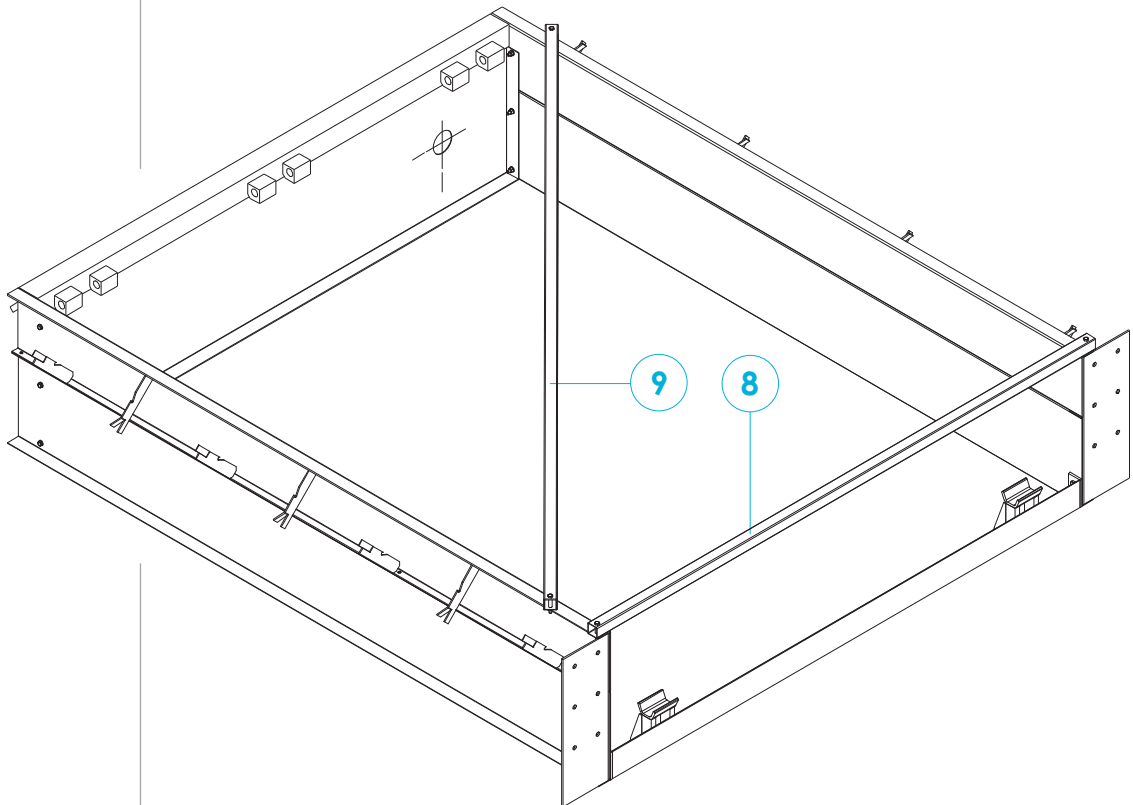
- 1** Hexagonal head screw M 8 x 25
- 2** Elastic washer Ø 9 x 17
- 3** Hexagonal nut M 8
- 4** Hexagonal head screw M 10 x 55
- 5** Hexagonal nut M 8
- 6** Hexagonal head screw M 12 x 30
- 7** Hexagonal nut M 12
- 8** Tubes 40 x 40 for squaring
- 9** Tubes 40 x 40 for squaring

**2.2.2 LAYING AND GROUTING OF MOULD MODEL KRC-I**

The laying and grouting of the mould is of fundamental importance and must be carried out by qualified people and according to the following instructions. Once the mould has been correctly positioned on the platform you can proceed with grouting.

Strictly keep to the dimensions indicated in the drawing.....with a  $-0 + 5$  mm range of tolerance.

The  $\varnothing 80$ mm cable duct for electric wires must run along the bottom sidewall of the mould as shown in the drawing.

**LEGEND**

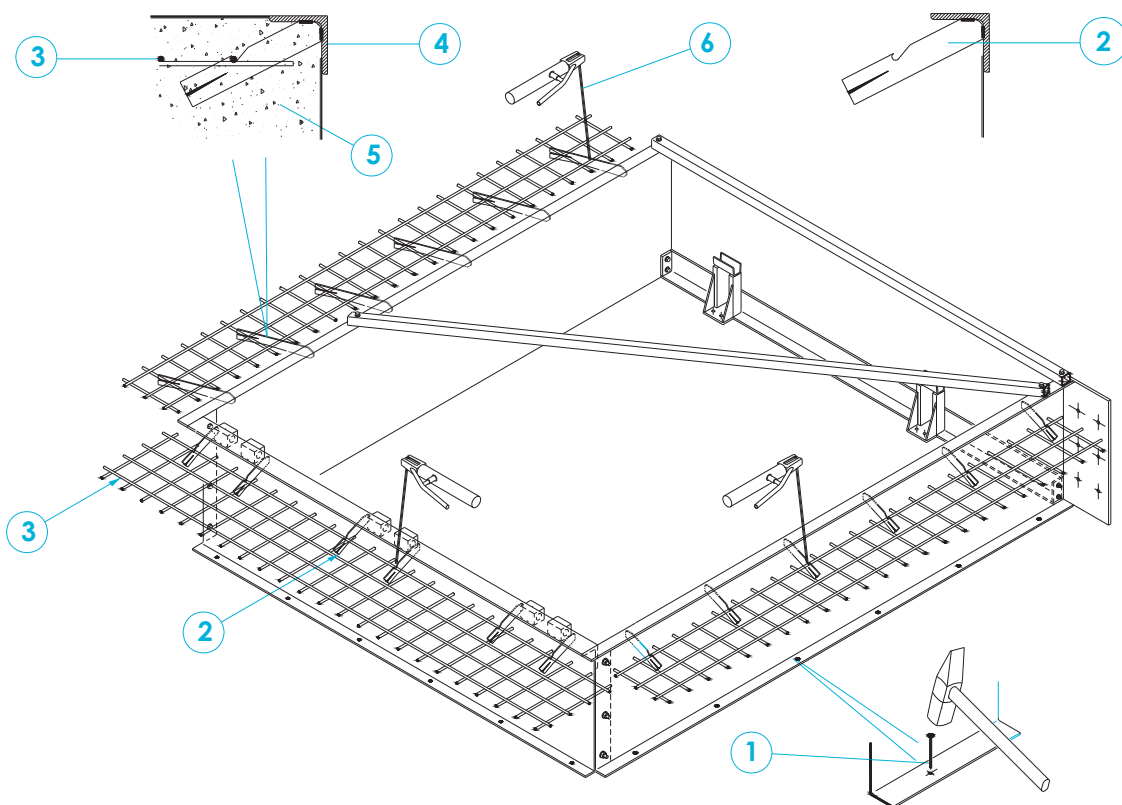
- 8** Tubes 40 x 40 for squaring
- 9** Tubes 40 x 40 for squaring



- Position the mould on the foundation and make sure it is perfectly levelled in the two axis transversal and longitudinal. The upper part of the frame determines the height of the loading bay.
- Weld the clamps of the mould to the floor rebar in concrete or to the metal cage. The clamps have been specially designed to ease the operation.
- Nail the borders of the mould to prevent concrete to infiltrate the dock leveller space.
- Reinforce the mould with metal plates and wood in order to prevent straining during the lay of concrete.  
Should the mould get deformed this would jeopardize the assembly of the dock leveller.



Lay concrete carefully avoiding to strain the metal plate of the mould.



### LEGEND

- 1 Nailing of the borders of the mould
- 2 Clamps to weld to the floor rebar
- 3 Concrete floor rebar
- 4 Steel angle hinge support 80 x 80 x 8
- 5 Floor concrete
- 6 Welding of all the clamps to the floor rebar

Should there be any misunderstanding or need for information regarding aspects not detailed in this manual please apply to our offices, without undertaking personal initiatives:

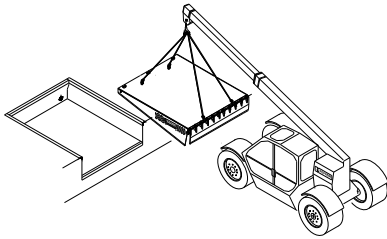
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 ☎ +39-02 – 921 52 751 📠 +39-02 – 921 52 923

**2.2.3 ASSEMBLY OF THE DOCK LEVELLER ON MOULD KRC-I**

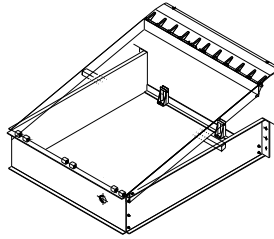
The installation of the dock leveller must be carried out by specialized and skilled personnel according to EN 292.2 art. 5.5.1.

Personnel must be duly informed before on the work to be done and on possible risks taking safety measures and using proper tools.

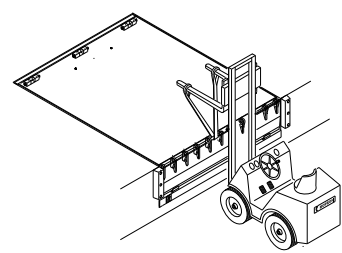
The following drawings show the most important manoeuvres for assembling the dock levellers.



**Dock leveller positioning**



**upper plate locking**



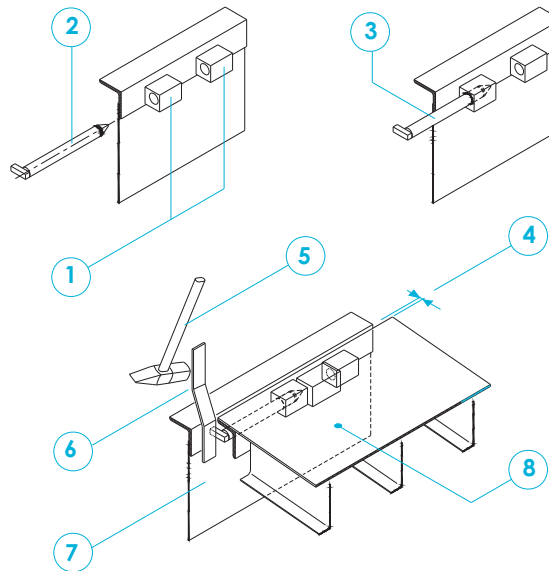
**upper plate lifting**



Before positioning the dock leveller make sure the mould has been correctly layed according to drawing 01 KRC-I enclosed, and then procede as follows:

- Verify the squaring of the mould measuring the diagonals which must be equal.
- You can take off the 40 x 40 tubes used for the squaring of the mould only after the concrete is dry.
- Clean the pit from dirt or rubble which could interfere with the positioning of the dock leveller.

Position the dock leveller within the mould in order to make the hinges easily meet. To facilitate the insertion of the first pivot in the central hinge, with the help of a crane tilt the dock leveller slightly downwards on the lip side. This position widens the opening (see point 4 of the drawing) and facilitates the insertion of the pivot.



### LEGEND

- 1 Central hinge of the mould
- 2 Rotation pivot of the upper plate
- 3 Insert the pivot half a way the hinge and check the smooth sliding with some grease
- 4 Tilt the ramp downwards to widen the opening for the pivot
- 5 Push the pivot inside the hinge with a hammer
- 6 Inclined device to facilitate the insertion of the pivot
- 7 Bottom metal sheet of the mould
- 8 Upper plate of the dock leveller

Lift the upper plate and lock it in safety by extracting the removable stoppers below the foot bars on the right and on the left.

- Carry on by inserting the other pivots, grease them with Molykote grease and stop them with Seeger pins. Only once all three pivots have been assembled and fixed with Seeger pins it will be possible to unhook the upper plate from the crane.



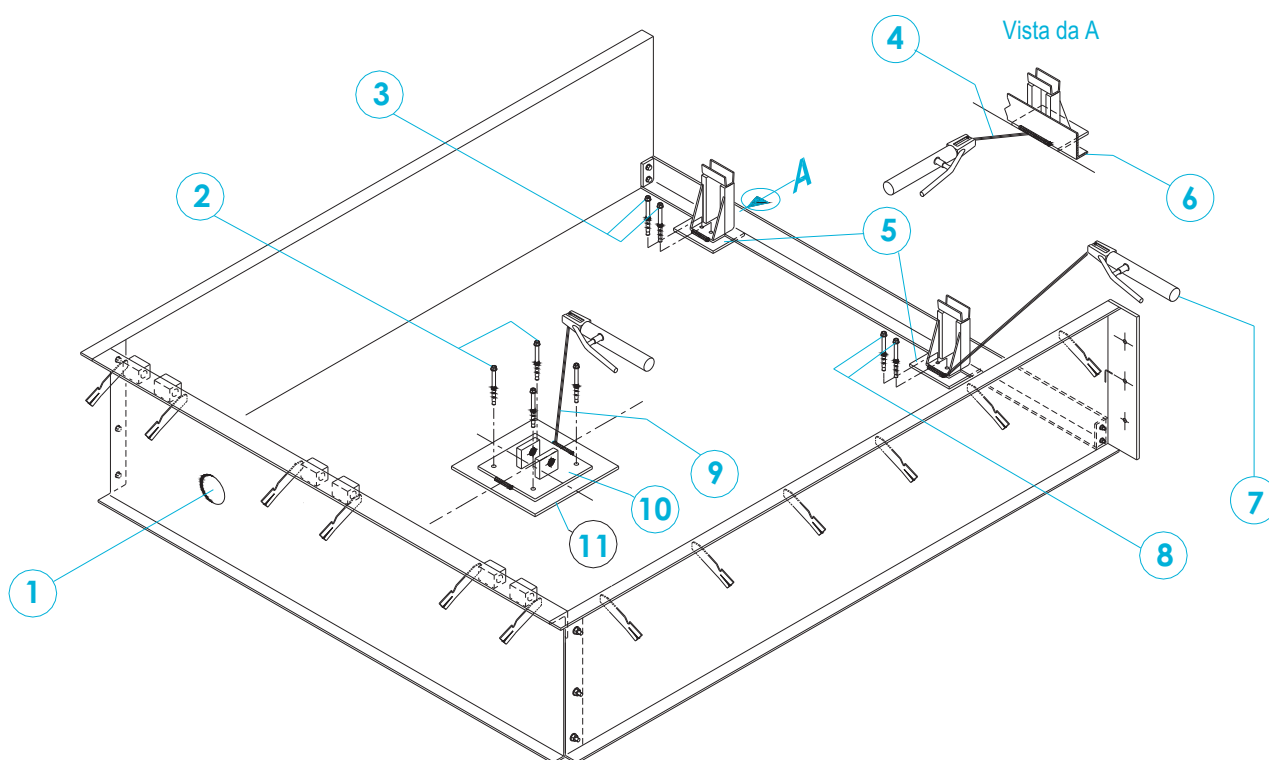
For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.

The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

- Level the lifting cylinder support hinge and the front supports of the lip.
- Once they are levelled fix them with 8 anchor bolts -Fischer type FHA16/20-H, M10 x 110.
- Keep the height of the supporting plates between 10 ÷ 15 mm and permanently weld them to hinge support and lip supports.
- Assemble the lifting cylinder by fixing the Seeger hinging pins and restore the hydraulic circuit
- With the aid of a grommet make the wires, connecting the hydraulic control unit to the electric panel, pass through the Ø 80 cable duct.  
Cables are prepared by supplier and are 8 meters long and have two end connectors.



The positioning of the dock leveller must be carried out in compliance with safety requirements and must not interfere with getaways provided by emergency plans.



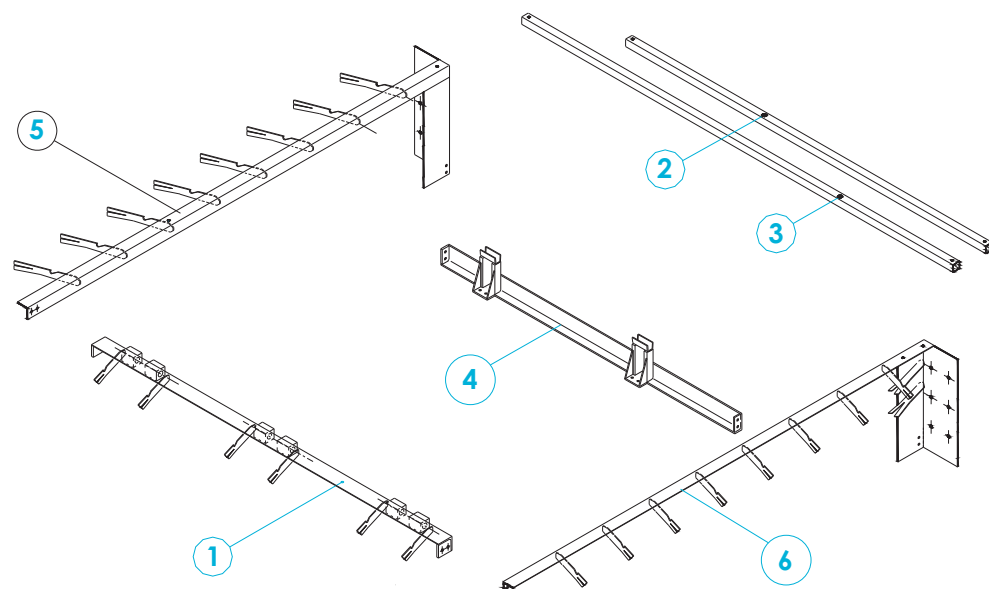
### LEGEND

- 1 Cable duct opening for passing wires
- 2 N° 4 anchor bolts- Fischer FH II 15/10 H. Fixing of the lifting cylinder hinge
- 3 N° 2 anchor bolts- Fischer FH II 15/10 H. Fixing of the lip support
- 4 Welding of the lip supporting profile and eventual levelling plates
- 5 Levelling plates for the lip support profiles.
- 6 Steel angle 100x50x5, for lip support.
- 7 Welding of the levelling plate to the lifting cylinder hinge
- 8 N° 2 anchor bolts - Fischer FH II 15/10 H. Fixing of the lip support
- 9 Welding of the levelling plate to the lifting cylinder hinge
- 10 Lifting cylinder hinge.
- 11 Levelling plate of the lifting cylinder hinge

**2.3 PROFILE KRP-I****2.3.1 ASSEMBLY OF PROFILE KRP-I**

The profile is supplied complete as shown in the following drawing with front crossbar ref. 4, two 40x40 tubes ref. 2,3 and bolts for assembly.

See list herebelow.

**LEGEND**

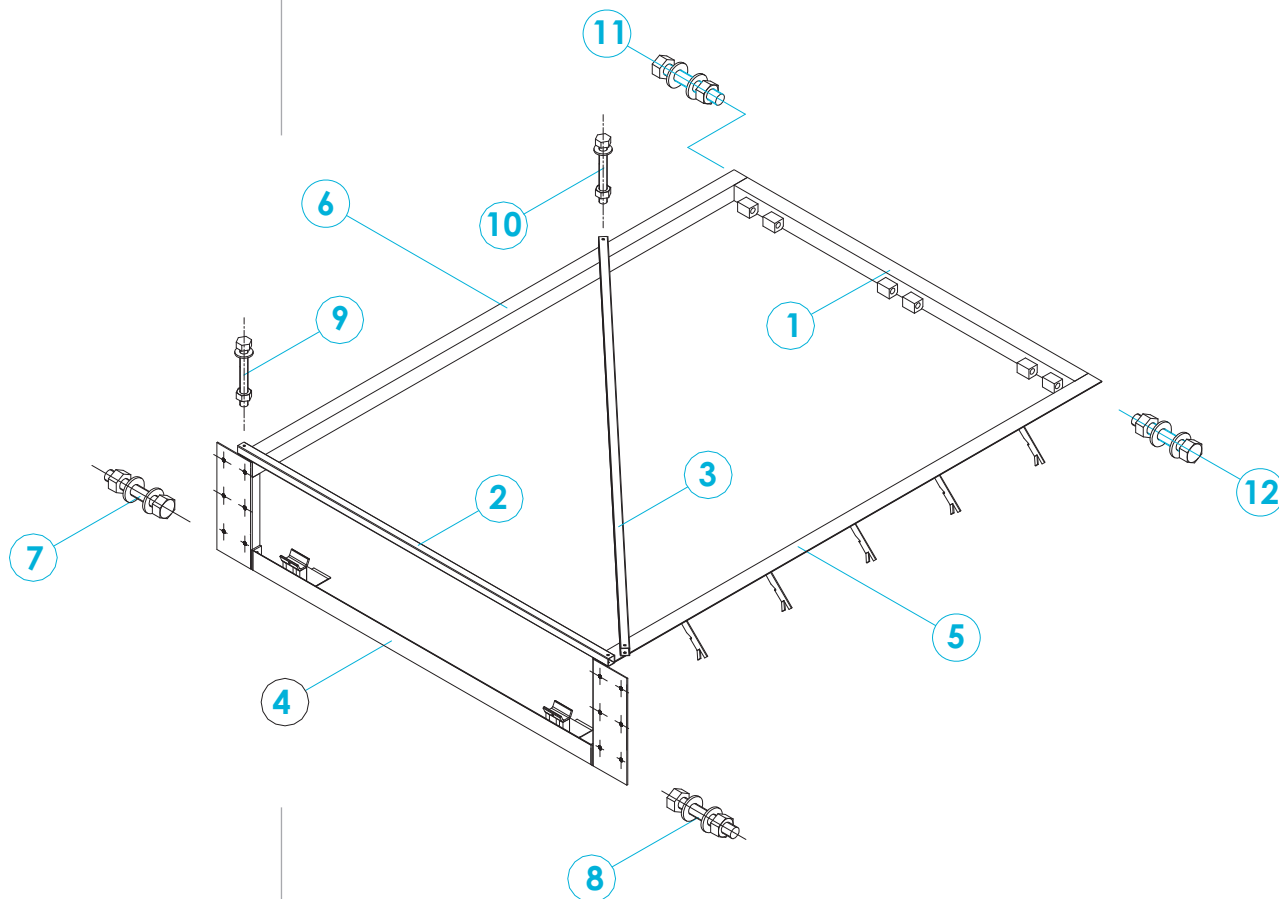
- 1** Hinges support back profile
- 2** 40 x 40 tubes for frame squaring.
- 3** 40 x 40 tubes for frame squaring.
- 4** Front crossbar
- 5** Side profile
- 6** Side profile

Assemble the profile according to following drawing using holes and screws already included.

Use the 40x40 tubes (ref. 2-3) to create a perfect squaring.

The squaring of the profile is of utmost importance for the correct positioning of the dock leveller and must always be checked before laying concrete.

Control can be carried out by measuring the diagonals which must be equal.



#### LEGEND

- 1** Hinges support back profile
- 2** 40 x 40 tubes for frame squaring.
- 3** 40 x 40 tubes for frame squaring.
- 4** Front crossbar
- 5** Side profile
- 6** Side profile
- 7** N° 2 bolts 30 complete with elastic washer and nut
- 8** N° 2 bolts 30 complete with elastic washer and nut
- 9** N° 2 bolts M10 x 55 complete with elastic washer and nut
- 10** N° 2 bolts M10 x 55 complete with elastic washer and nut
- 11** N° 2 bolts M8 x 25 complete with elastic washer and nut
- 12** N° 2 bolts M8 x 25 complete with elastic washer and nut

**2.3.2 LAYING AND GROUTING OF PROFILE MODEL KRP-I**

The laying and grouting of the of the profiles of the mould is of fundamental importance and must be carried out by qualified people and according to the following instructions.

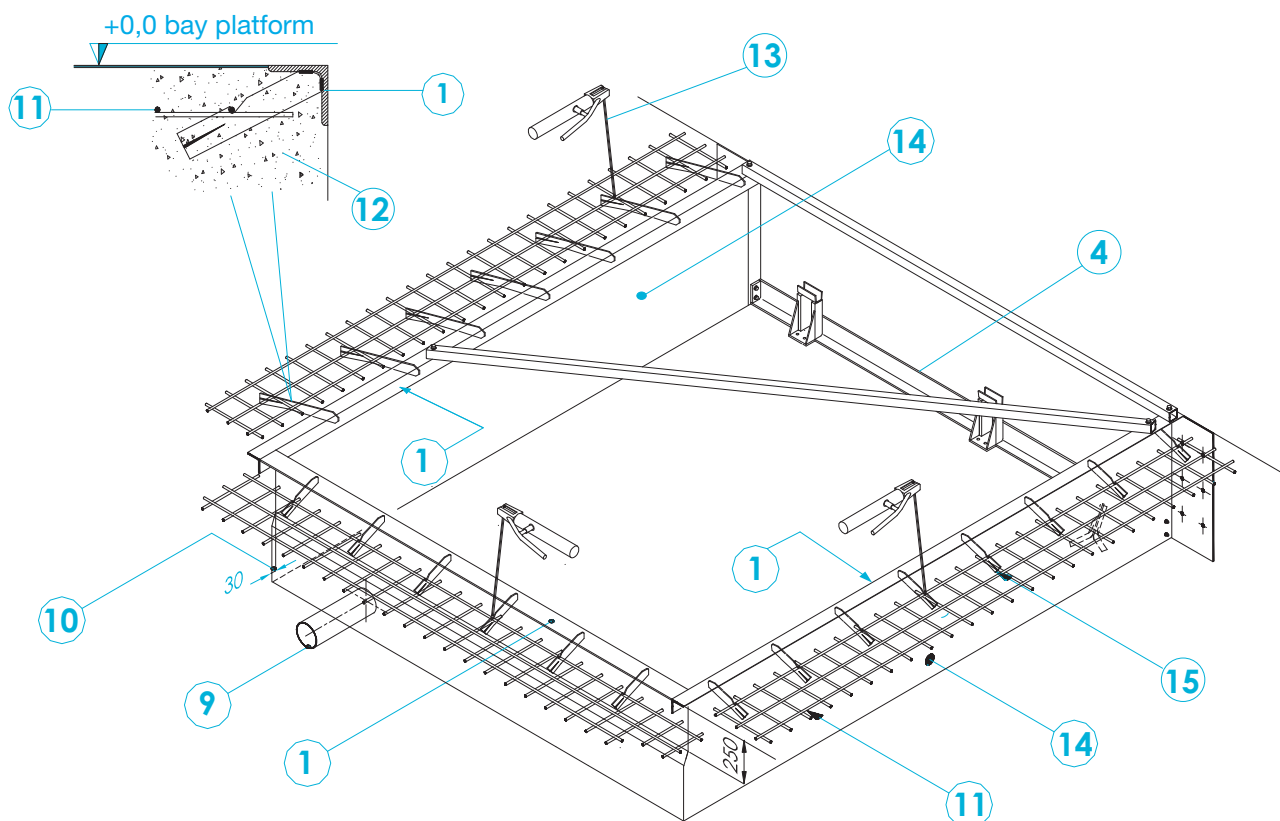
Strictly keep to the dimensions indicated in the drawing..... with a  $-0 + 5$  mm range of tolerance.

The  $\varnothing 80$ mm cable duct for electric wires must run along the bottom sidewall of the mould as shown in the drawing.

- Make sure the frame is perfectly levelled in the two axis transversal and longitudinal.  
The upper part of the frame determines the height of the loading bay.
- The back sidewall of the pit, faced towards the bay must be 30 mm behind the line of profile positioned above.
- The sidewalls of the pit (ref.14) hosting the frame must be perpendicular.  
The bottom of the pit must be wider than the frame in order to allow the dock leveller to be easily positioned inside.
- The profiles, as shown in the drawing must be well fitted around the pit in order not to interfere with the dock leveller movements.
- All the clamps of the profiles must be welded to the floor rebar.
- Reinforce the pit of the dock leveller with metal plates and wood.
- Lay concrete gently avoiding strong impact against the profiles.



Any damages to the profile would jeopardize the assembly of the dock leveller.



### LEGEND

- 1** Profile steel angles frame
- 4** Front crossbar
- 9** Ø 80 mm cable duct
- 10** Back sidewall 30 mm behind the line of the profile
- 11** Floor rebar
- 12** Floor concrete
- 13** Welding of all the clamps to the floor rebar
- 14** Sidewalls of the pit
- 15** Profile anchoring clamps

In case any particular problem arise or if instructions are not completely understood do not take personal initiatives and contact our technical offices at:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola – Milan - Italy

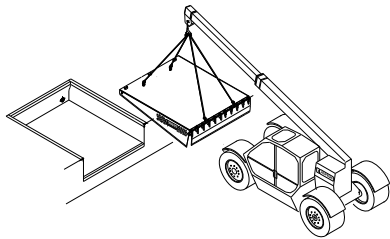
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**2.3.3 ASSEMBLY OF RAMP ON PROFILE KRP-I**

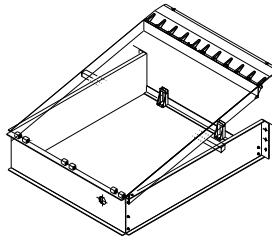
The installation of the dock leveller must be carried out by specialized and skilled personnel according to EN 292.2 art. 5.5.1.

Personnel must be duly informed before on the work to be done and on possible risks taking safety measures and using proper tools.

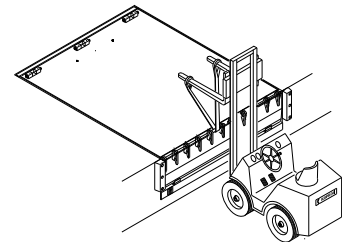
The following drawings show the most important manoeuvres for assembling the dock levellers.



**Dock leveller positioning**



**upper plate locking**



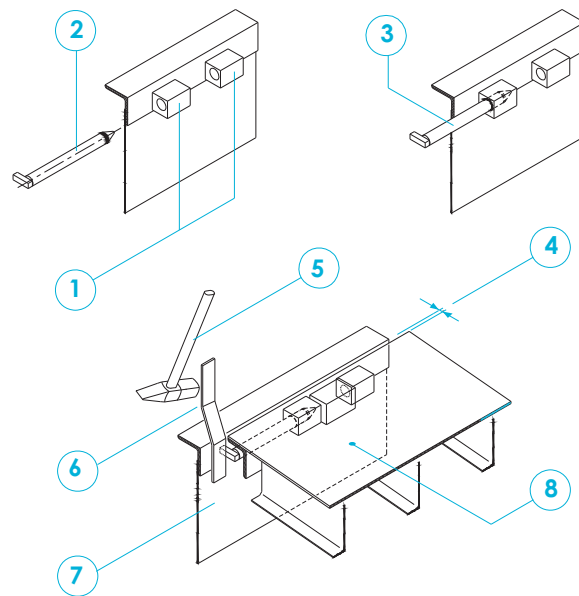
**upper plate lifting**



Before positioning the dock leveller make sure the mould has been correctly layed according to drawing 01 KRP-I enclosed, and then procede as follows:

- Verify the squaring of the mould measuring the diagonals which must be equal.
- You can take off the 40 x 40 tubes used for the squaring of the mould only after the concrete is dry.
- Clean the pit from dirt or rubble which could interfere with the positioning of the dock leveller.

Position the dock leveller within the mould in order to make the hinges easily meet. To facilitate the insertion of the first pivot in the central hinge, with the help of a crane tilt the dock leveller slightly downwards on the lip side. This position widens the opening (see point 4 of the drawing) and facilitates the insertion of the pivot.



#### LEGEND

- 1** Central hinge of the mould
- 2** Rotation pivot of the upper plate
- 3** Insert the pivot half a way the hinge and check the smooth sliding with some grease
- 4** Tilt the ramp downwards to widen the opening for the pivot
- 5** Push the pivot inside the hinge with a hammer
- 6** Inclined device to facilitate the insertion of the pivot
- 7** Bottom metal sheet of the mould
- 8** Upper plate of the dock leveller

Lift the upper plate and lock it in safety by extracting the removable stoppers below the foot bars on the right and on the left

- Carry on by inserting the other pivots, grease them with Molykote grease and stop them with Seeger pins. Only once all three pivots have been assembled and fixed with Seeger pins it will be possible to unhook the upper plate from the crane.



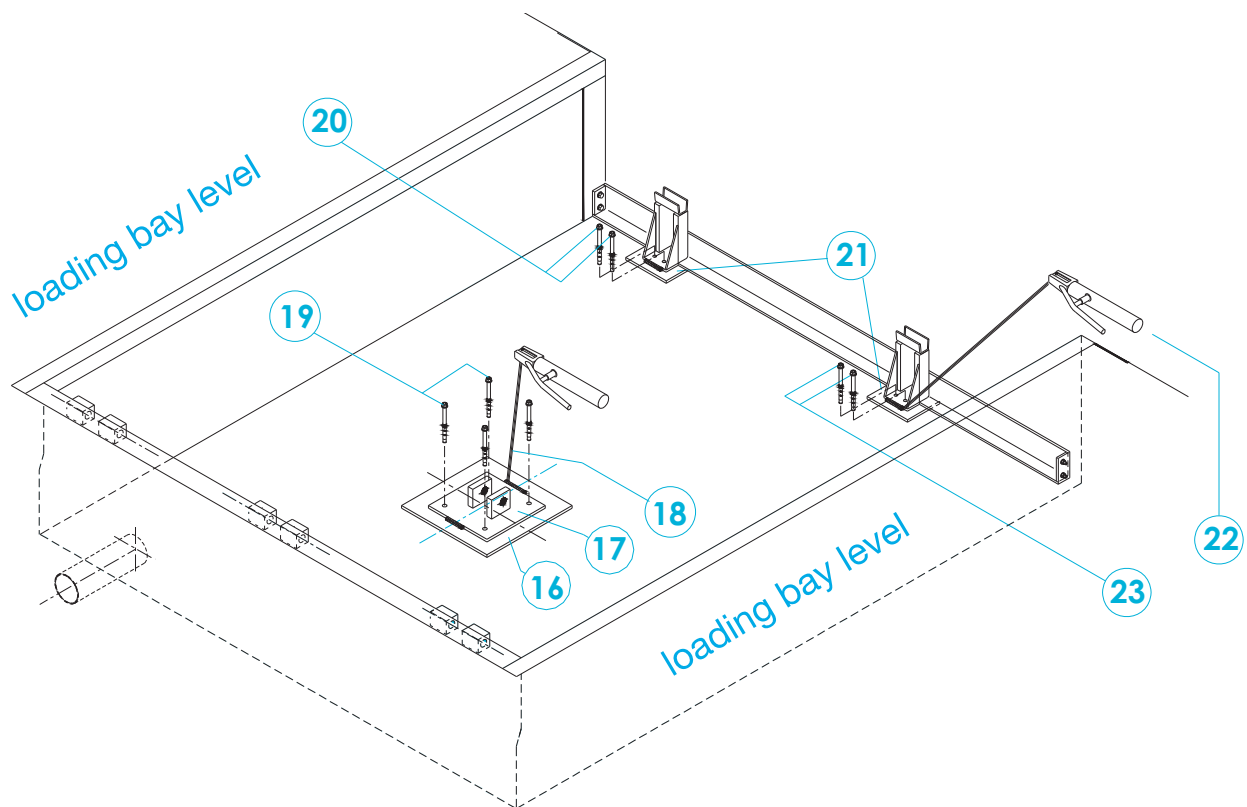
For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.

The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

- Level the lifting cylinder support hinge and the front supports of the lip.
- Once they are levelled fix them with 8 anchor bolts -Fischer type FHA16/20-H, M10 x 110.
- Keep the height of the supporting plates between 10 ÷ 15 mm and permanently weld them to hinge support and lip supports.
- Assemble the lifting cylinder by fixing the Seeger hinging pins and restore the hydraulic circuit.
- Make the wires connecting the hydraulic control unit to the electric panel pass through the Ø 80 cable duct.  
Cables are prepared by supplier and are 8 meters long and have two end connectors.



The positioning of the dock leveller must be carried out in compliance with safety requirements and must not interfere with getaways provided by emergency plans.



### LEGEND

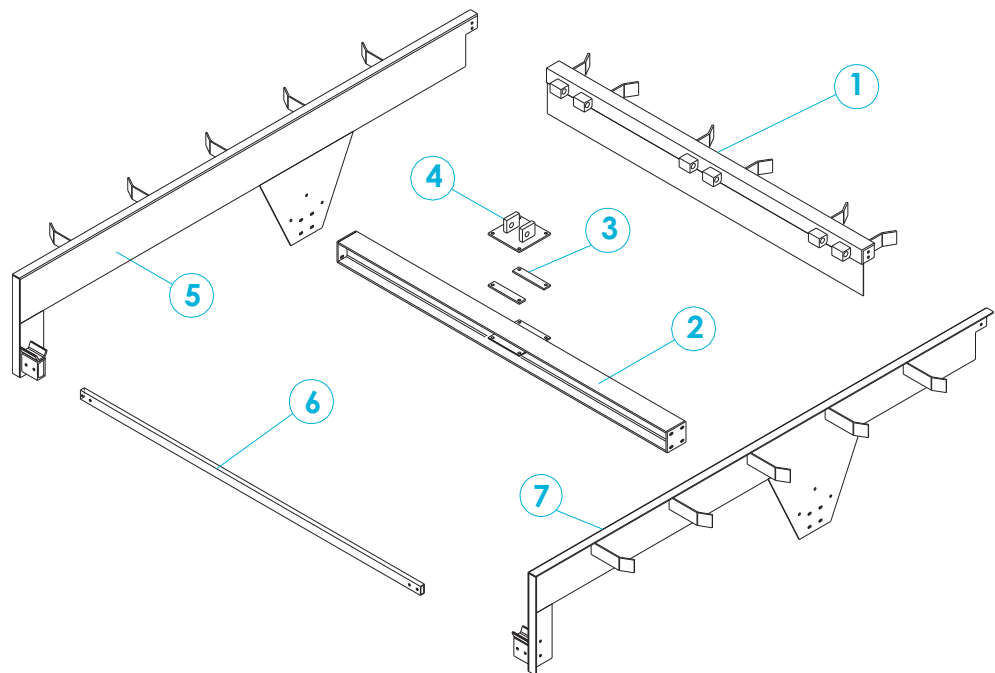
- 16** Levelling plate of the lifting cylinder hinge
- 17** Lifting cylinder hinge
- 18** Welding of the levelling plate to the lifting cylinder hinge
- 19** N° 4 anchor bolts- Fischer FH II 15/10 H. Fixing of the lifting cylinder hinge
- 20** N° 2 anchor bolts- Fischer FH II 15/10 H. Fixing of the lifting cylinder hinge
- 21** Levelling plates of front crossbar
- 22** Welding of Levelling plates to front crossbar
- 23** N° 2 anchor bolts- Fischer FH II 15/10 H. Fixing of the lifting cylinder hinge

**2.4 SUSPENDED FRAME KRS-I****2.4.1 ASSEMBLY SUSPENDED FRAME KRS-I**

The suspended frame is supplied as shown in the drawing complete with screws for assembly.

Upon receipt you must check if all the parts are complete, in case of damages, you must send within 7 days from delivery a written notice to Kopron S.p.A.

Refer to drawing for identifying the parts.

**LEGEND**

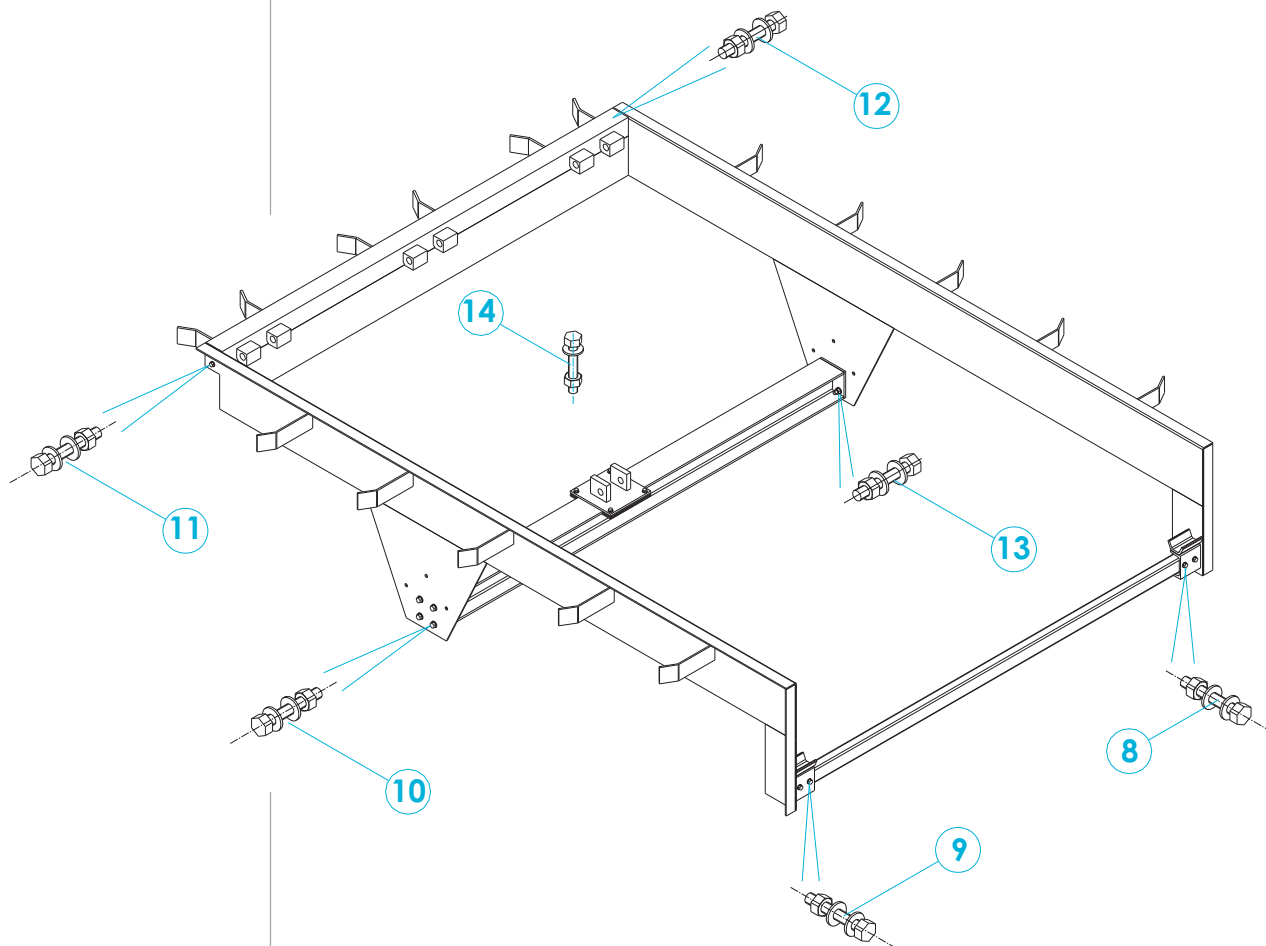
- 1** Hinges support back profile
- 2** Lifting cylinder support bar
- 3** Hinges levelling plates
- 4** Lifting cylinder hinge
- 5** Right side metal sheet
- 6** Front tube
- 7** Left side metal sheet



Assemble the frame with the aid of the following drawing and use screws and holes the mould is already provided with.

Check the perfect squaring of the frame. The squaring of the frame is of utmost importance for a correct functioning of the dock leveller and must be always checked before laying concrete.

A control can be carried out by measuring the diagonals which must be equal.



### LEGEND

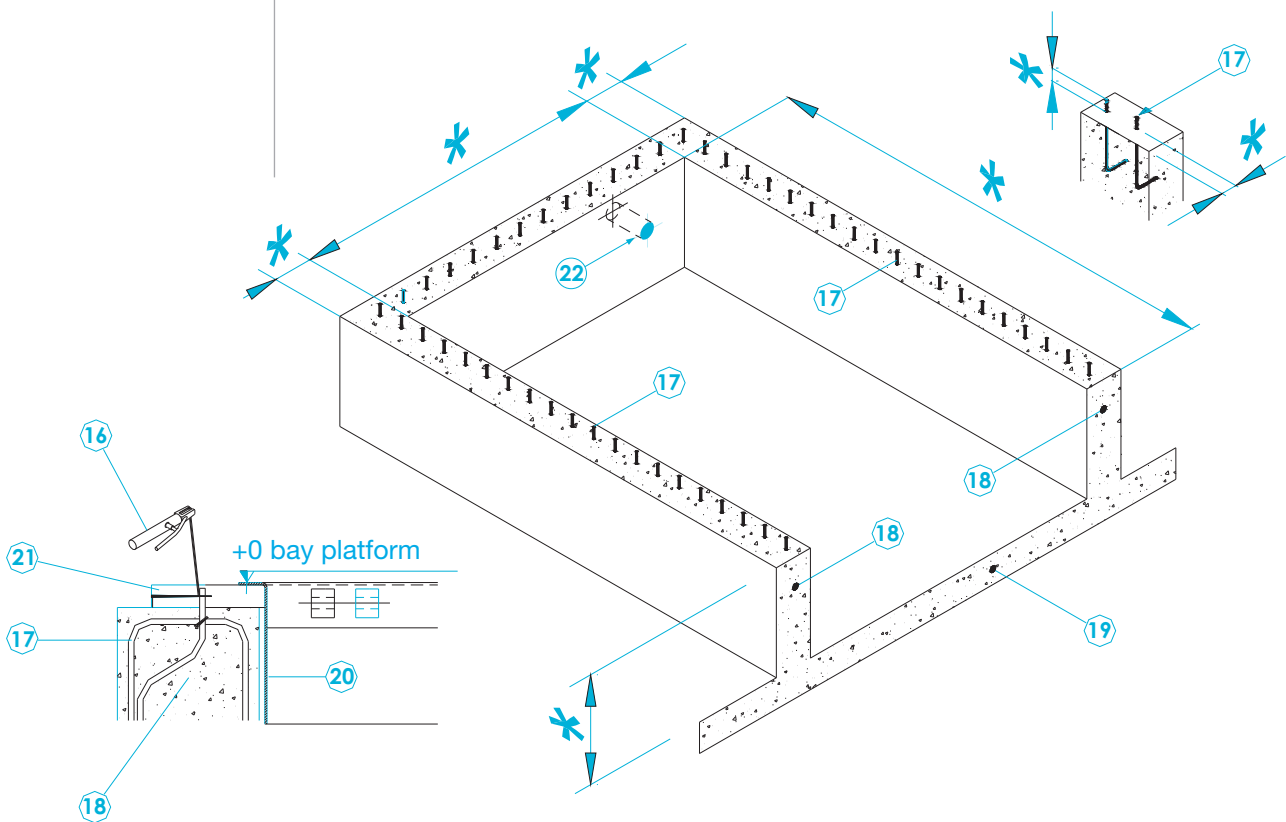
- 8** N° 2 bolts M10 x 60 complete with double elastic washer + nut
- 9** N° 2 bolts M10 x 60 complete with double elastic washer + nut
- 10** N° 4 bolts M12 x 40 complete with double elastic washer + nut
- 11** N° 2 bolts M10 x 30 complete with double elastic washer + nut
- 12** N° 2 bolts M10 x 30 complete with double elastic washer + nut
- 13** N° 4 bolts M12 x 40 complete with double elastic washer + nut
- 14** N° 4 bolts M12 x 40 complete with double elastic washer + nut

### 2.4.2 LAYING AND GROUTING OF THE SUSPENDED FRAME KRS-I



The laying and grouting of the mould is of fundamental importance and must be carried out by qualified people and according to the following instructions. Once the mould has been correctly positioned you can proceed with grouting. Strictly keep to the dimensions indicated in the drawing with a  $-0 + 5$  mm range of tolerance.

- Position the mould on the foundation and make sure it is perfectly levelled in the two axis transversal and longitudinal. Positioning it on the clamps above the walls in concrete.
- The upper part of the frame defines the height of the loading bay.
- The  $\varnothing 80$  cable duct must be positioned in order to be adjusted into the hole of same diameter at the back side of the frame.
- The sidewalls of the box hosting the frame must be perpendicular.



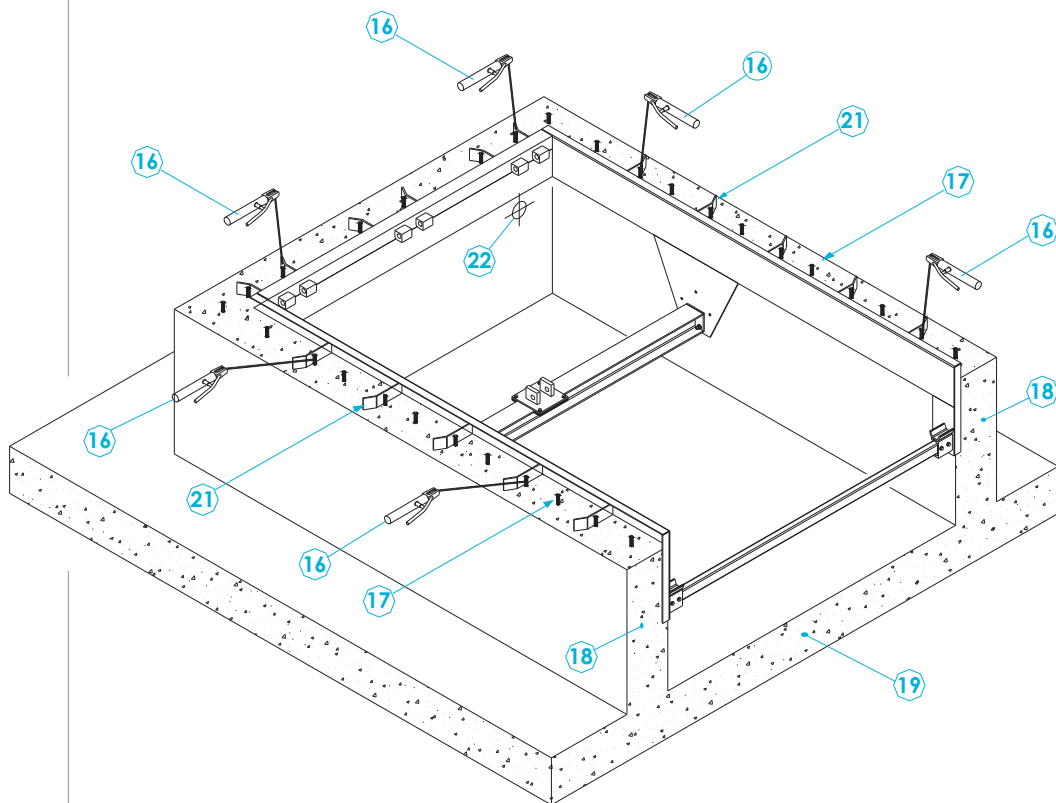
#### LEGEND

\* Dimensions to verify for each dock leveller model.

- 16 Welding of the clamps to the iron parts of the mould
- 17 Iron parts of the mould
- 18 Walls in concrete where to lay
- 19 Platform
- 20 Mould frame
- 21 Mould frame clamps
- 22  $\varnothing 80$  mm hole for cable duct

## INSTRUCTIONS

- Once the frame is positioned over the concrete walls weld the clamps to the iron parts of the mould.
- After having welded the clamps, check the planarity and the squaring of the frame.
- Lay concrete gently avoiding strong impact against the profiles.



## LEGEND

- 16** Welding of the clamps to the iron parts of the mould
- 17** Iron parts of the mould
- 18** Walls in concrete where to lay the frame
- 19** Platform
- 21** Welding of the clamps to the iron parts of the mould
- 22** Ø 80 mm hole for cable duct

In case any particular problem arise or if instructions are not completely understood do not take personal initiatives and contact our technical offices at:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola - Milan - Italy  
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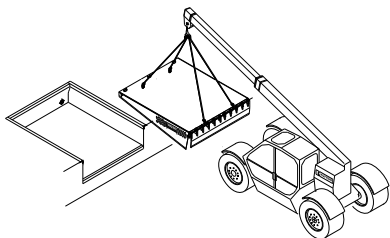
## INSTRUCTIONS

### 2.4.3 ASSEMBLY DOCK LEVELLER ON SUSPENDED FRAME KRS-I

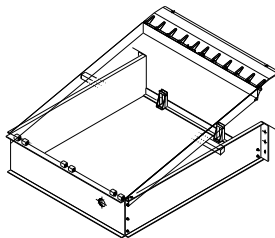
The installation of the dock leveller must be carried out by specialized and skilled personnel according to EN 292.2 art. 5.5.1.

Personnel must be duly informed before on the work to be done and on possible risks taking safety measures and using proper tools.

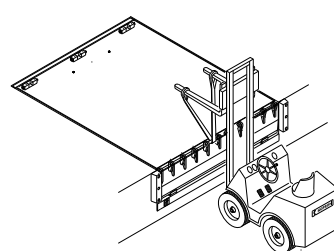
The following drawings show the most important manoeuvres for assembling the dock levellers.



**Dock leveller positioning**



**upper plate locking**

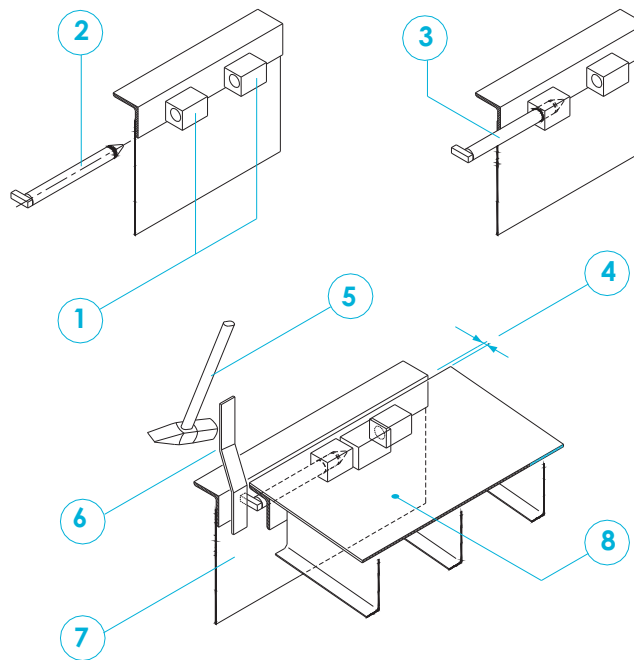


**upper plate lifting**



Before positioning the dock leveller make sure the mould has been correctly layed according to drawing 01 KRS-I enclosed, and then procede as follows:

- Verify the squaring of the mould measuring the diagonals which must be equal.
- Clean the pit from dirt or rubble which could interfere with the positioning of the dock leveller.
- POSITION THE DOCK LEVELLER inside the mould in order to make the hinges easily meet. To facilitate the insertion of the first pivot in the central hinge, with the help of a crane tilt the dock leveller slightly downwards on the lip side. This position widens the opening (see point 4 of the drawing) and facilitates the insertion of the pivot. Instructions on how to insert the first pivot are shown in the following drawing.



### LEGEND

- 1** Central hinge of the mould
- 2** Rotation pivot of the upper plate
- 3** Insert the pivot half a way the hinge and check the smooth sliding with some grease
- 4** Tilt the ramp downwards to widen the opening for the pivot
- 5** Push the pivot inside the hinge with a hammer
- 6** Inclined device to facilitate the insertion of the pivot
- 7** Bottom metal sheet of the mould
- 8** Upper plate of the dock leveller

- Lift the upper plate and lock it in safety by extracting the removable stoppers below the foot bars on the right and on the left.
- Carry on by inserting the other pivots, grease them with Molykote grease and stop them with Seeger pins. Only once all three pivots have been assembled and fixed with Seeger pins it will be possible to unhook the upper plate from the crane.



For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor. Do not operate under the upper plate without locking it before. The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

- Assembly the lifting cylinder by fixing the hinging pins with Seeger type pins.
- Make the wires connecting the hydraulic control unit to the electric panel pass through the Ø 80 cable duct.  
Cables are prepared by supplier and are 8 meters long and have two end connectors.



The positioning of the dock leveller must be carried out in compliance with safety requirements and must not interfere with getaways provided by emergency plans.

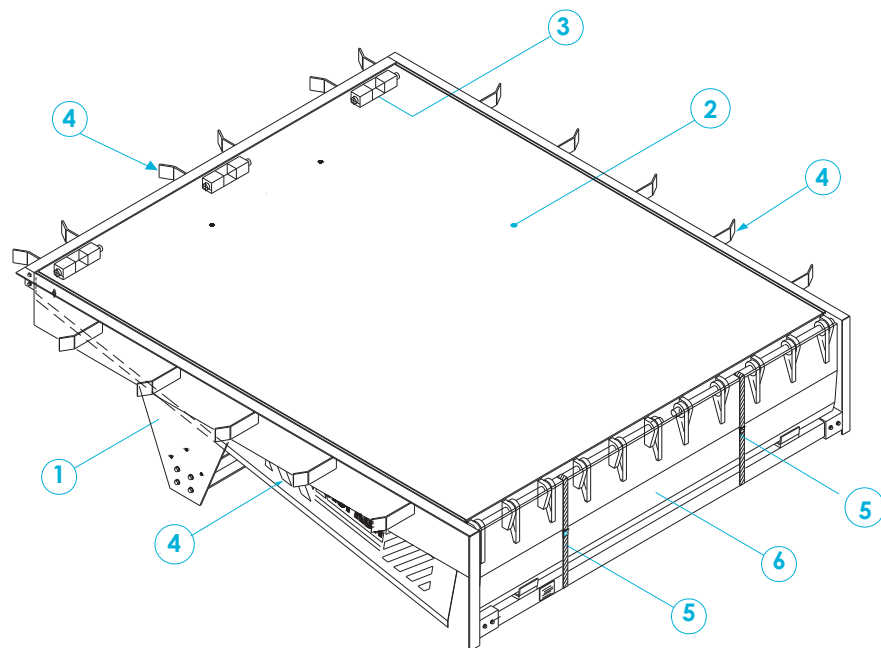
**2.5 DOCK LEVELLER ASSEMBLED ON SUSPENDED FRAME KRS-I****2.5.1 LAYING AND GROUTING OF THE SUSPENDED FRAME WITH DOCK LEVELLER INCORPORATED mod. KRS-I**

The dock leveller with dock leveller incorporated, avoids other assembly work and guarantees grouting in perfect squaring.

Electric cables connecting the hydraulic control unit to the electric panel are in a  $\varnothing$  80 cable duct passing through a hole in the bottom sidewall.

Cables connecting the electric panel to the control unit are prepared by supplier and are 8 meters long and have two end connectors.

The suspended frame with dock leveller incorporated is supplied as shown in the following drawing.

**LEGEND**

- 1** Suspended frame with dock leveller assembled on it.
- 2** Upper plate
- 3** Upper plate hinge
- 4** Grouting clamps
- 5** Supports for blocking the upper plate
- 6** Dock leveller hinged lip



The dock leveller must be positioned according to safety standards and must not interfere with getaways provided by emergency plans.

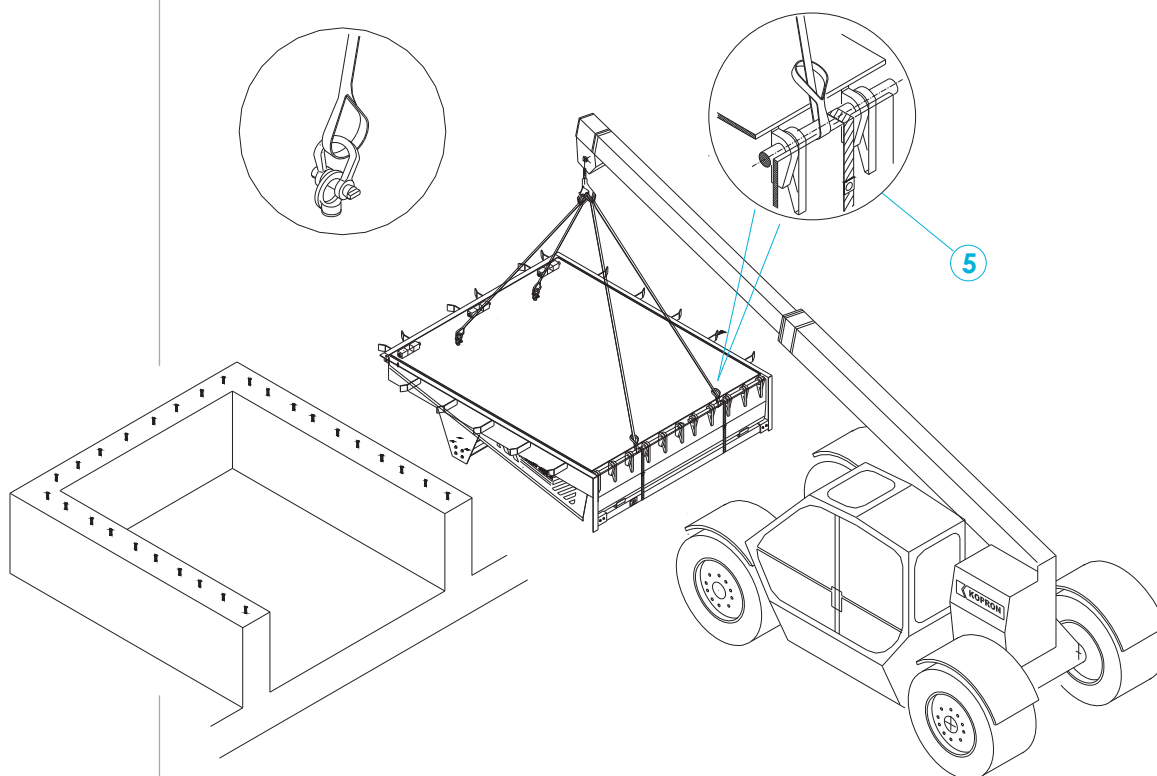


Position the suspended frame with dock leveller incorporated, by means a four strap grab 50mm large and long at least 2 meters.

Two straps will have a loop.

Good handling requires a perfect balancing of the load.

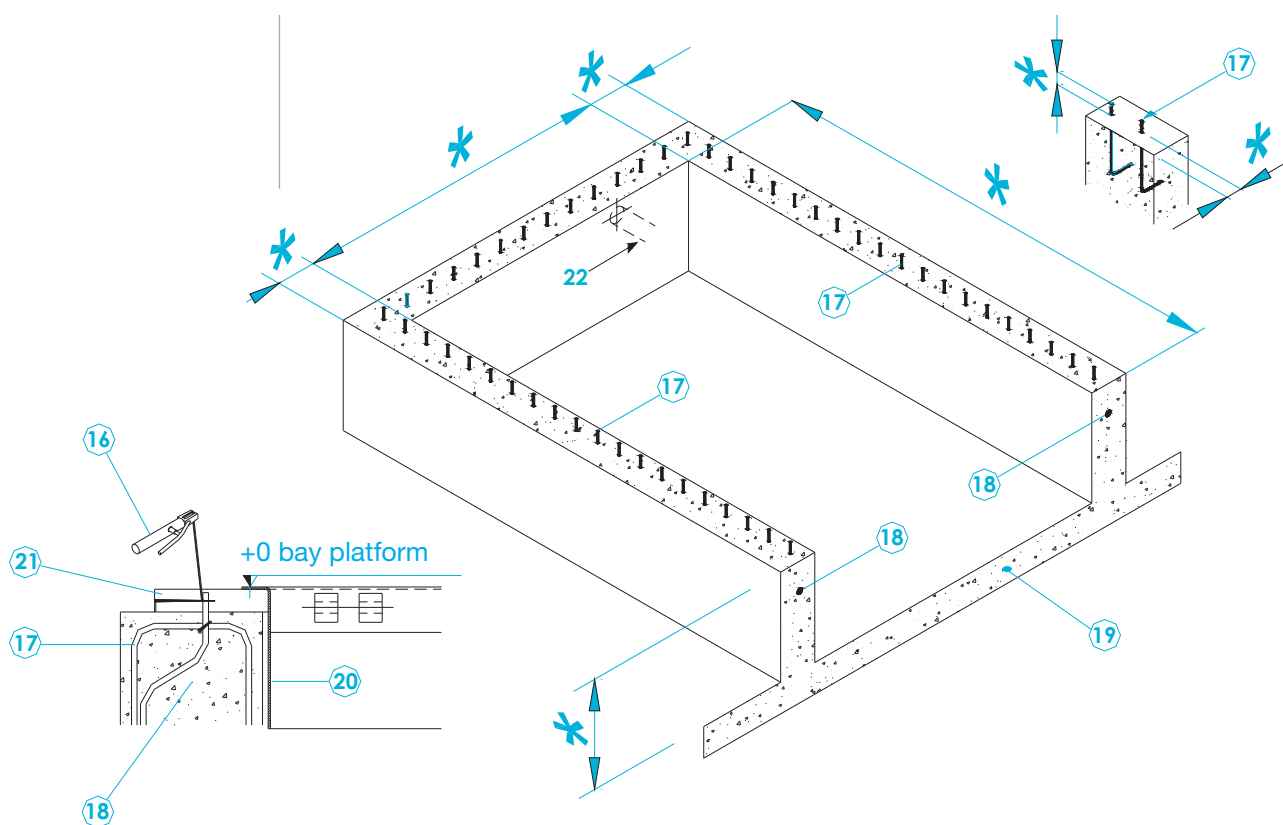
Make sure the supports which block the upper plate to the frame (ref. 5) are complete and not damaged.



The laying and grouting of the frame with incorporated dock leveller is of utmost importance for a good functioning of the dock leveller, therefore the work must be done by qualified and skilled personnel and according to instructions herein.

Strictly keep to the dimensions indicated in drawing..... with a  $- 0 + 5$  mm tolerance.

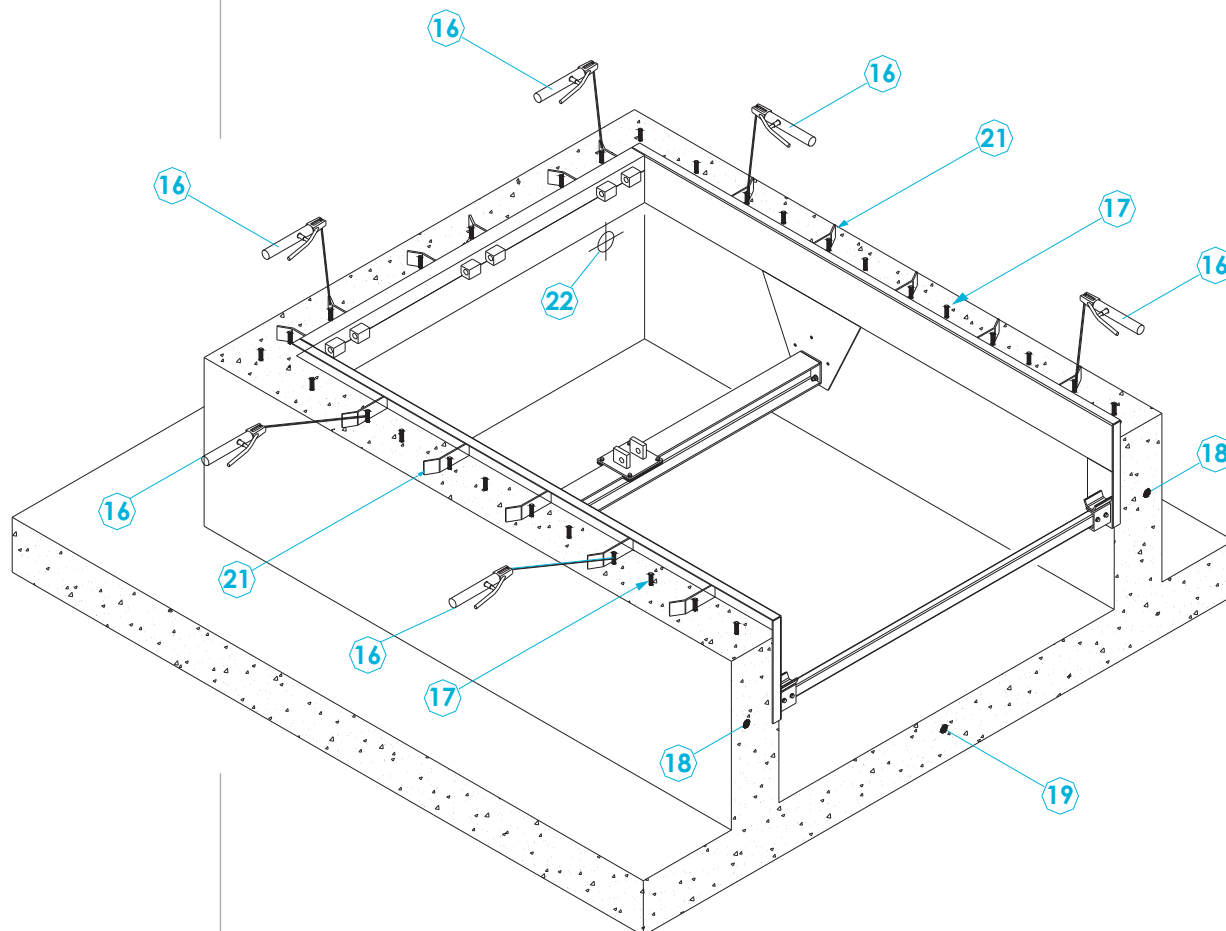
- Position the mould on the foundation and make sure it is perfectly levelled in the two axis transversal and longitudinal. Positioning it on the clamps above the walls in concrete.
- The upper plate defines the height of the loading bay.
- The  $\varnothing 80$  cable duct must be positioned in order to be adjusted into the hole of same diameter at the back side of the frame.
- The sidewalls of the box hosting the frame must be perpendicular.

**LEGEND**

\* Dimensions according to the model of dock leveller.

- 16** Welding of the clamps to the iron parts of the mould
- 17** Iron parts of the mould
- 18** Walls in concrete where to lay the frame
- 19** Platform
- 20** Mould frame
- 21** Mould frame clamps
- 22** Ø 80 mm hole for cable duct

- Once the frame is positioned over the concrete walls weld the clamps to the iron parts of the mould.
- After having welded the clamps, check the planarity and the squaring of the frame.
- Lay concrete gently avoiding strong impact against the profiles.



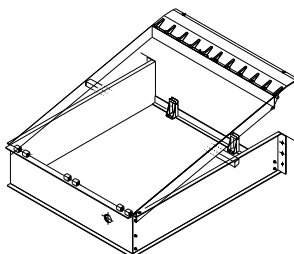
### LEGEND

- 16** Welding of the clamps to the iron parts of the mould
- 17** Iron parts of the mould
- 18** Walls in concrete where to lay the frame
- 19** Platform
- 21** Welding of the clamps to the iron parts of the mould

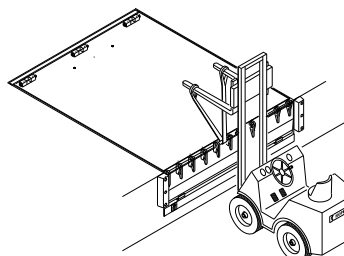
Whenever it is necessary to operate under the dock leveller you must lift the upper plate as indicated in the drawing and block it with the bracket placed under the upper plate.

Before lifting the upper plate do not forget to put the brackets back to their former position under the plate.

The following drawings show how to carry out these two important manoeuvres.



**Blocking of the upper plate**



**lifting of the upper plate**



For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided.

The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.

Do not operate under the upper plate without locking it before.

The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

In case any particular problem arise or if instructions are not completely understood do not take personal initiatives and contact our technical offices at:

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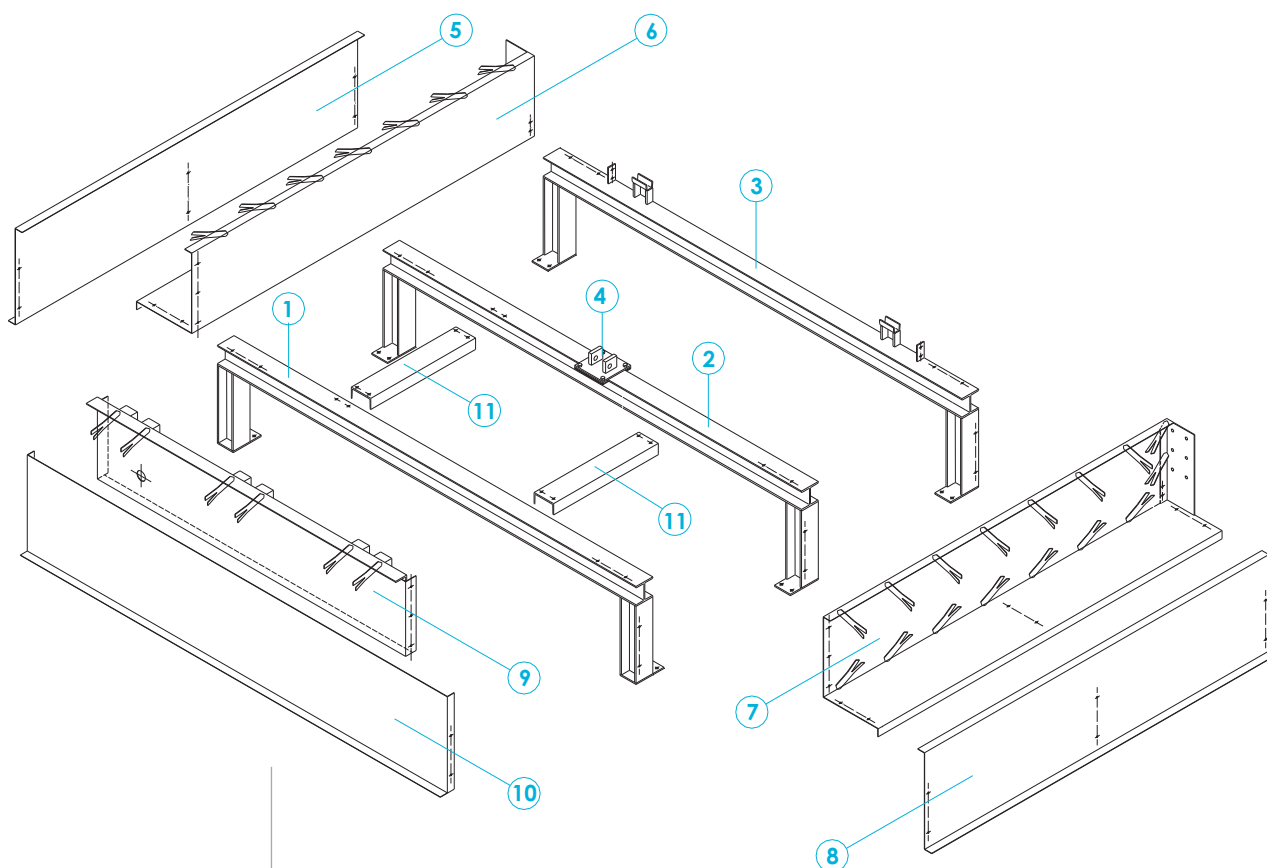
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**2.6 HIGH MOULD KRCE-I****2.6.1 ASSEMBLY OF HIGH MOULD mod. KRCE-I**

The high mould is supplied as shown in the following drawing complete with bolts for assembly and anchor bolts for fixing to the platform.

Upon receipt of the material completeness of it must be verified, in case of missing or damaged parts, written notice within seven days must be sent to Kopron. S.p.A.

See following drawing to identify parts indicated in the list here below.

**LEGEND**

- 1** Back crossbar
- 2** Intermediate crossbar
- 3** Front crossbar
- 4** Lifting cylinder joint support
- 5** right bottom side metal sheet
- 6** right upper side metal sheet
- 7** left upper side metal sheet
- 8** left bottom side metal sheet
- 9** Upper back metal sheet with hinges
- 10** Lower back metal sheet
- 11** Reinforcing connection between crossbars

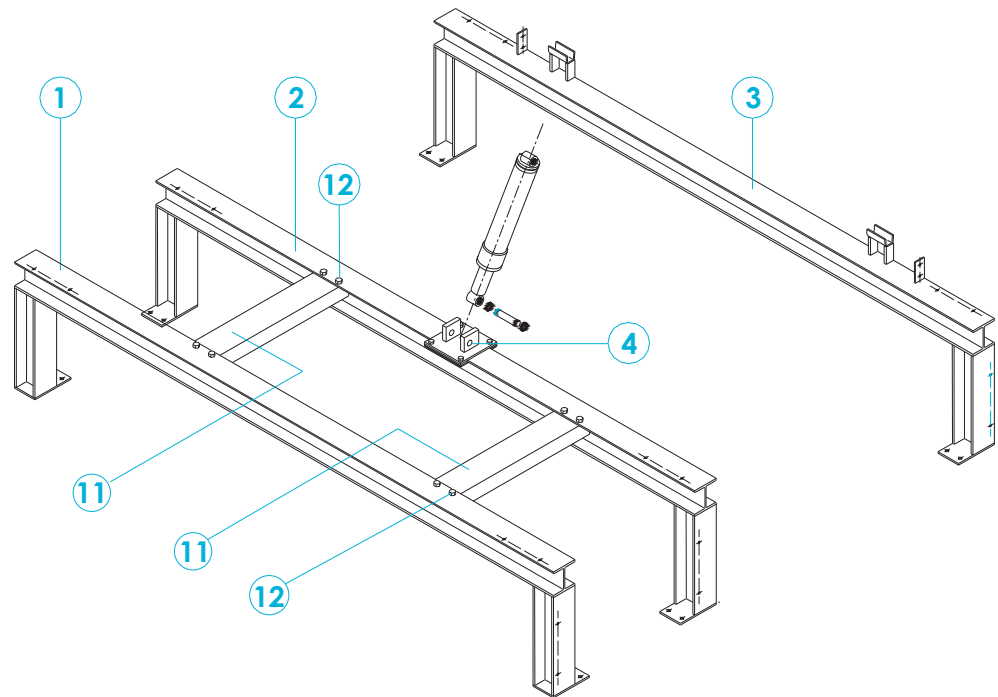


## INSTRUCTIONS

The positioning of the dock leveller must be carried out in compliance with safety requirements and must not interfere with getaways provided by emergency plans..

Follow the drawing for assembly mould which must be perfectly squared. The squaring of the mould is of utmost importance for a correct functioning of the dock leveller and can be checked by measuring the diagonals which must be equal.

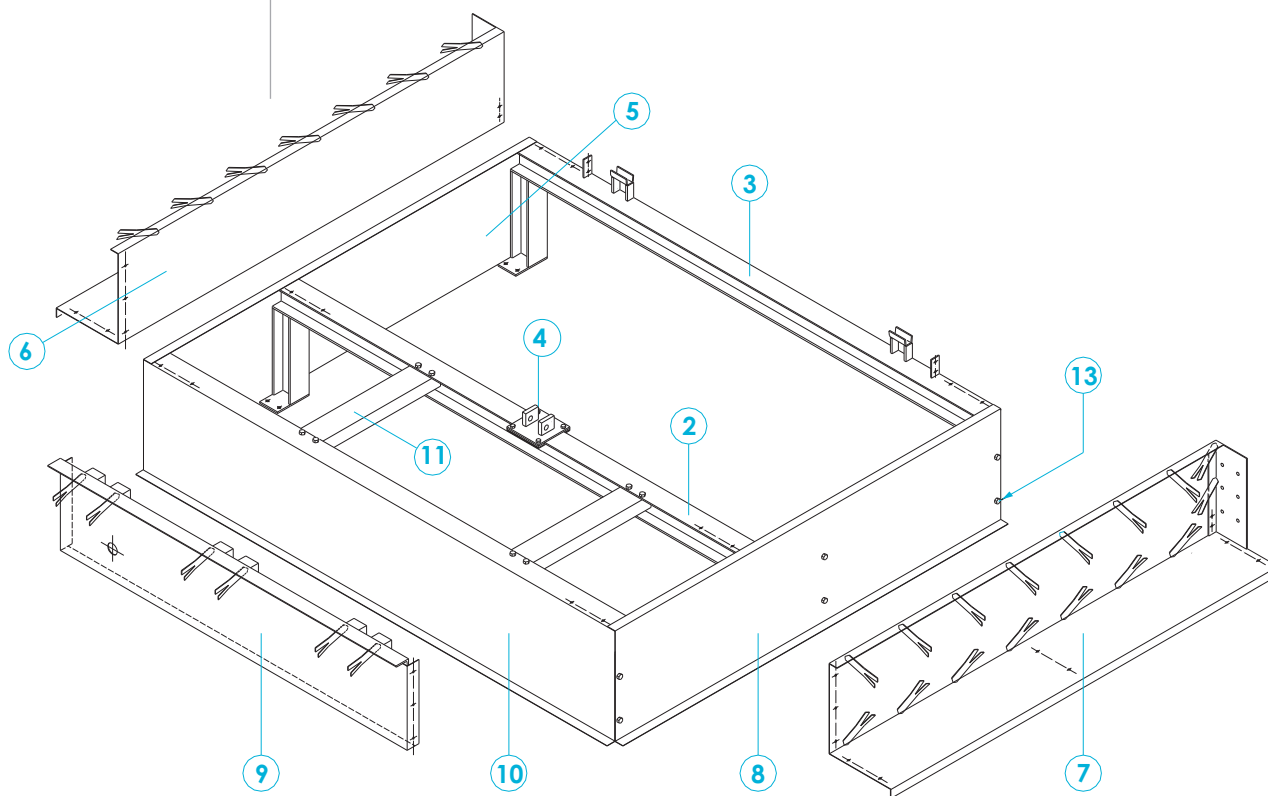
- In the first phase assemble connections 11 of the two crossbars 1 and 2.



## LEGEND

- 1** Back crossbar
- 2** Intermediate crossbar
- 3** Front crossbar
- 4** lifting cylinder central support
- 11** Crossbars connections
- 12** N° 8 bolts M12 x 100 complete with double elastic washer and nut

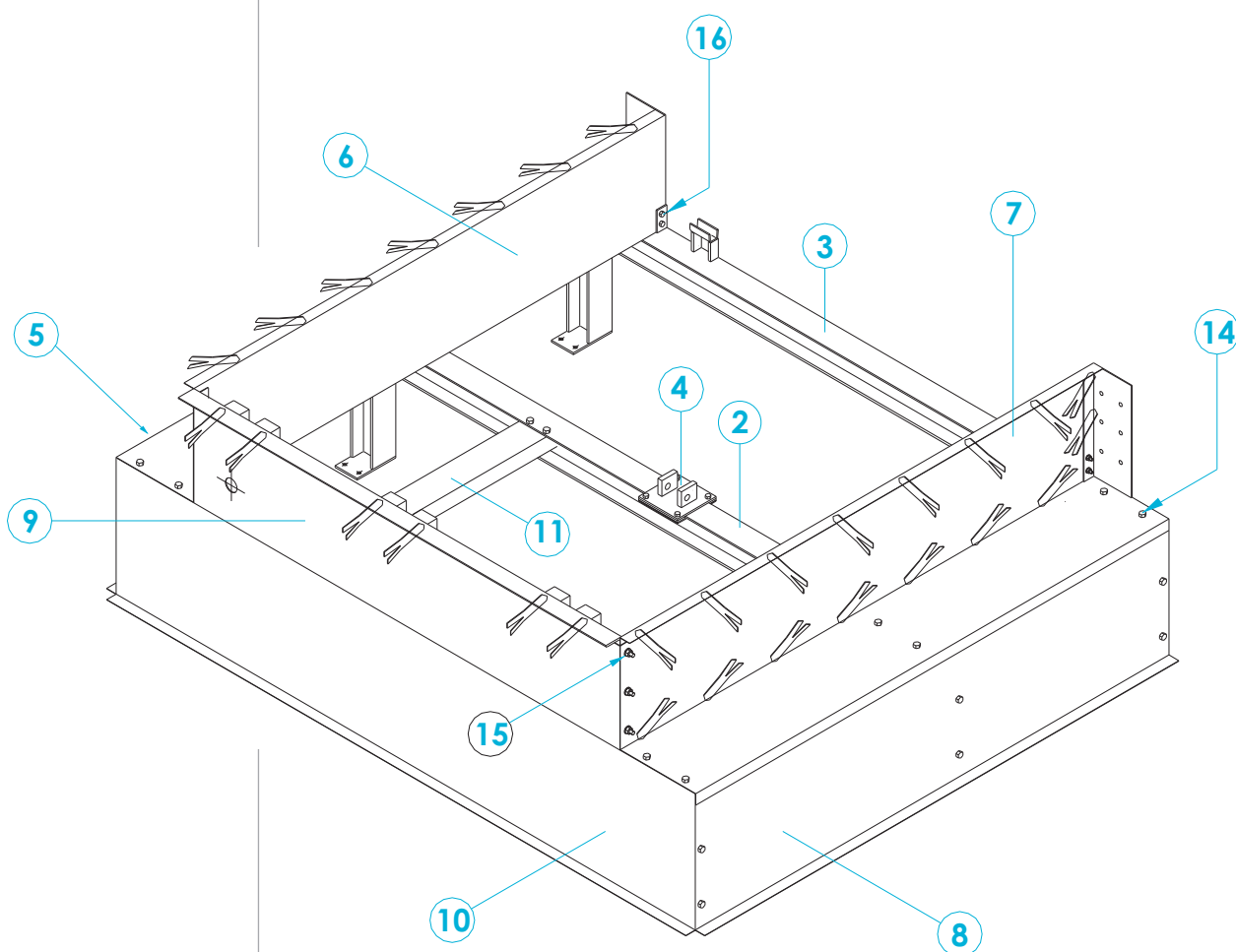
- Carry on by positioning the covering metal sheets in the bottom part of the mould.



### LEGEND

- 2** Intermediate crossbar
- 3** Front crossbar
- 4** Lifting cylinder central support
- 5** right bottom side metal sheet
- 6** right upper side metal sheet
- 7** left upper side metal sheet
- 8** left bottom side metal sheet
- 9** Upper back metal sheet with hinges
- 10** Lower back metal sheet
- 11** Reinforcing connection between crossbars
- 13** N° 12 bolts M10 x 30 complete with double elastic washer and nut

Finish the mould by assembling the upper coveing metal sheets.


**LEGEND**

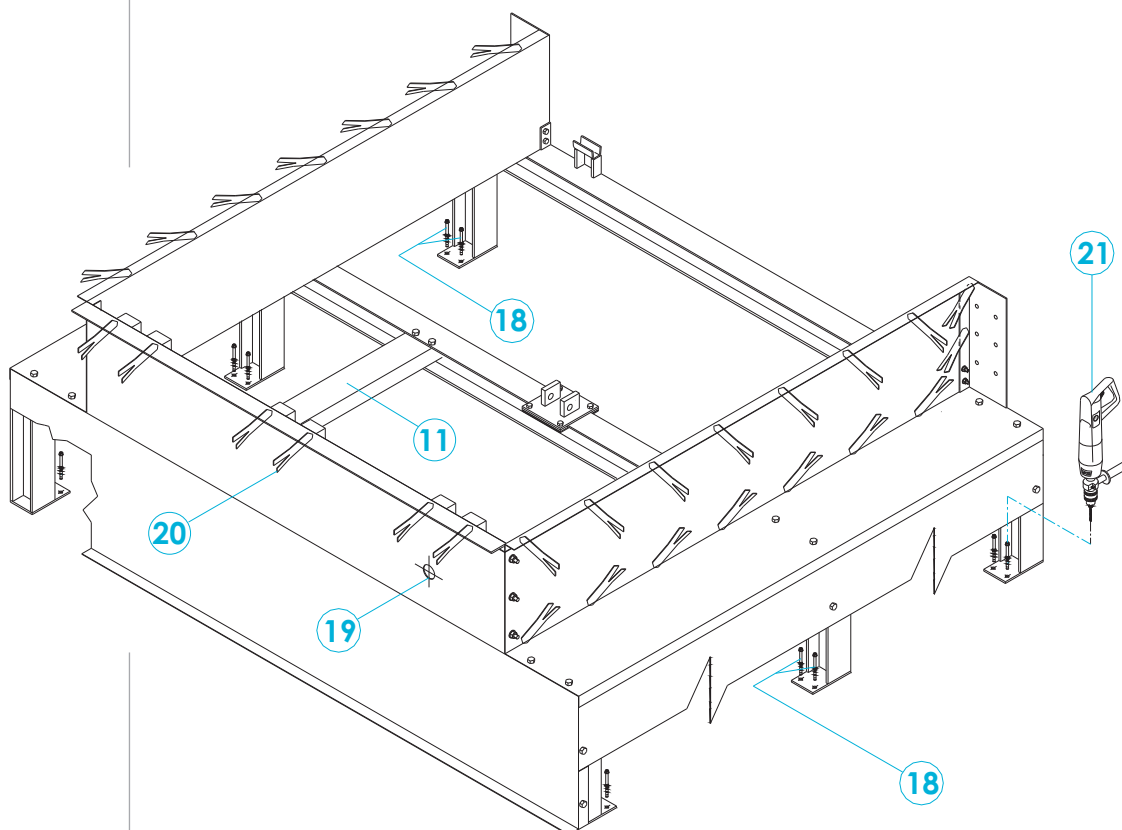
- 2** Intermediate crossbar
- 3** Front crossbar
- 4** Lifting cylinder central support
- 5** right bottom side metal sheet
- 6** right upper side metal sheet
- 7** left upper side metal sheet
- 8** left bottom side metal sheet
- 9** Upper back metal sheet with hinges
- 10** Lower back metal sheet
- 11** Reinforcing connection between crossbars
- 13** N° 12 bolts M10 x 30 complete with double elastic washer and nut
- 15** N° 6 bolts M 8 x 25 complete with double elastic washer and nut
- 16** N° 4 bolts M 10 x 30 complete with double elastic washer and nut

**2.6.2 LAYING AND GROUTING MOULD mod. KRCE-I**

The laying and grouting of the mould is of fundamental importance and must be carried out by qualified people and according to the following instructions. Strictly keep to the dimensions indicated in drawing ..... with a  $-0 + 5$  mm range of tolerance.

Once the mould has been correctly positioned on you can procede with grouting.

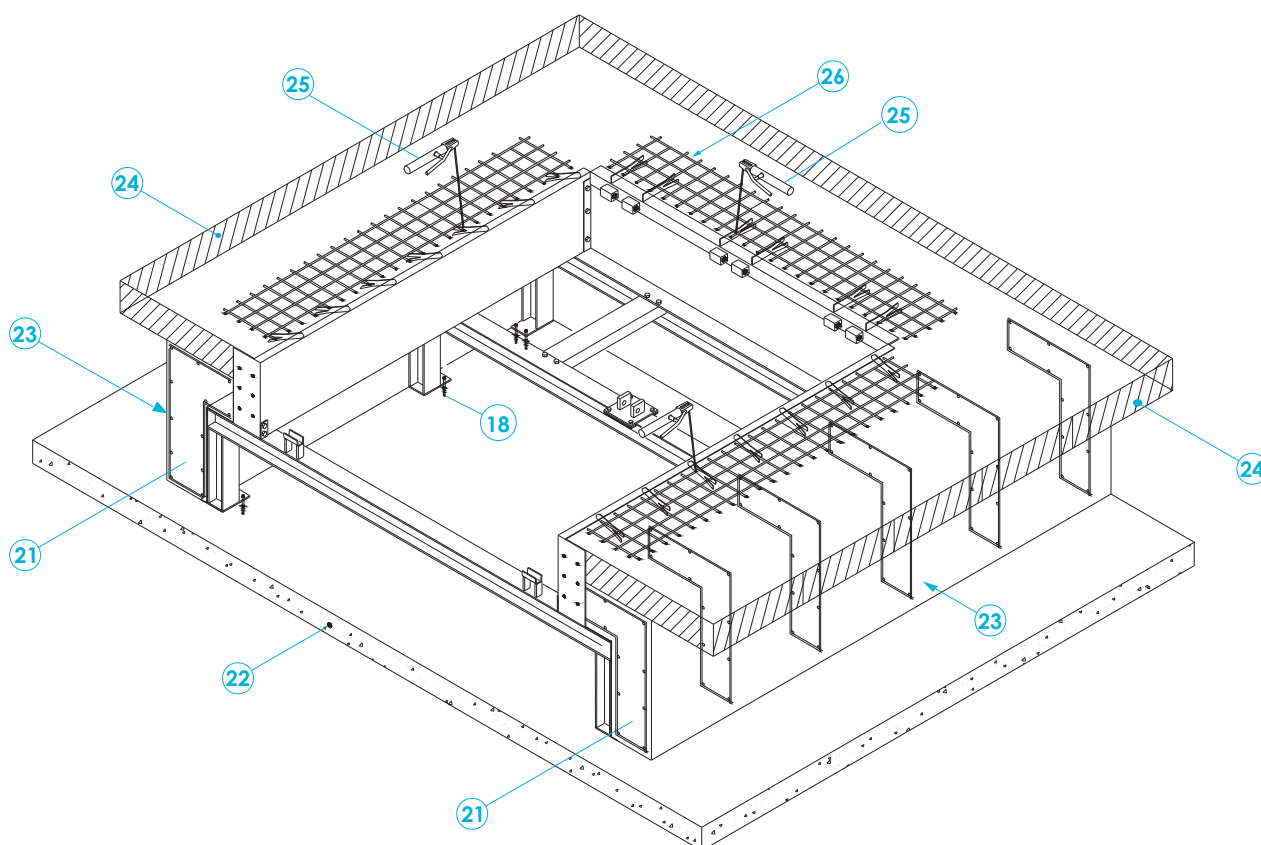
- Position the mould on the foundation and make sure it is perfectly levelled in the two axis transversal and longitudinal.  
The upper part of the frame determines the height of the loading bay.
- Once they are levelled fix them with 12 anchor bolts -Fischer type FHA16/20-H, M10 x 110.  
The hole for anchoring the bolts must be  $\varnothing 15$  and deep 100 mm.

**LEGEND**

- 11** Reinforced connection of the crossbars
- 18** n° 12 anchor bolts Fischer FH II 15/10 H
- 19** Hole for per cable duct  $\varnothing 80$  mm
- 20** Anchoring clamps
- 21**  $\varnothing 15$  hole, depth 100 mm

- Carry on by welding all the clamps of the mould to floor rebar or to the iron parts of the mould. The clamps are made according to a special design to facilitate operations.
- The edges containing the mould must be made in reinforced concrete.
- ø 80 mm cable duct must be positioned at the back wall of the mould as indicated in the drawing on the right of the central line.
- Reinforce with metal brackets and wood the mould to prevent deformations during the laying of concrete. Any deformation would jeopardize the assembly of the dock leveller.

Lay the concrete gently avoiding strong impacts on the metal sheets of the mould.



### LEGEND

- 18** n° 12 anchor bolts Fischer FH II 15/10 H
- 21** Edges in reinforced concrete
- 22** Platform
- 23** Mould edges
- 24** Floor in concrete
- 25** Welding of the clamps
- 26** Floor rebar



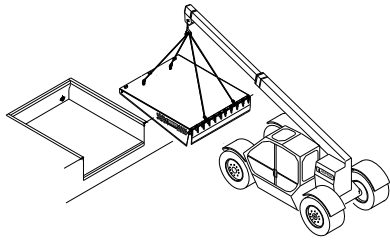
The dock leveller must be positioned according to safety standards and must not interfere with getaways provided by emergency plans.

**2.6.3 ASSEMBLY OF DOCK LEVELLER ON HIGH MOULD MOD. KRCE- I**

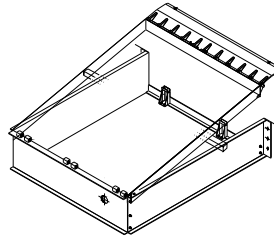
The installation of the dock leveller must be carried out by specialized and skilled personnel according to EN 292.2 art. 5.5.1.

Personnel must be duly informed before on the work to be done and on possible risks taking safety measures and using proper tools.

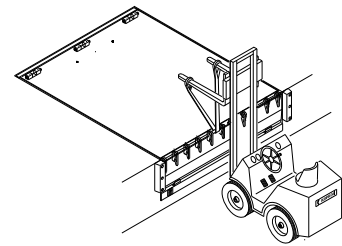
The following drawings show the most important manoeuvres for assembling the dock levellers.



**Position the dock leveller**



**Block the upper plate**



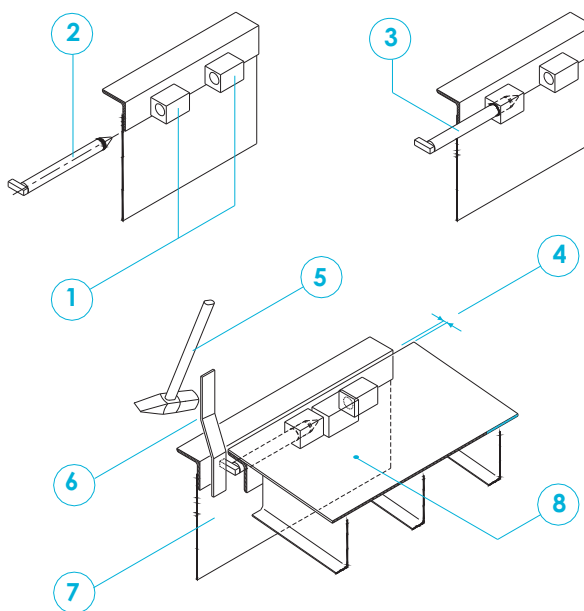
**Lift the upper plate**

Before positioning the dock leveller make sure the mould has been correctly layed according to drawing..... enclosed, and then procede as follows:



- Verify the squaring of the mould measuring the diagonals which must be equal.
- Clean the pit from dirt or rubble which could interfere with the positioning of the dock leveller.
- POSITION THE DOCK LEVELLER inside the mould in order to make the hinges easily meet. To facilitate the insertion of the first pivot in the central hinge, with the help of a crane tilt the dock leveller slightly downwards on the lip side. This position widens the opening (see point 4 of the drawing) and facilitates the insertion of the pivot. Instructions on how to insert the first pivot are shown in the following drawing.

## INSTRUCTIONS



### LEGEND

- 1** Central hinge of the mould
  - 2** Rotation pivot of the upper plate
  - 3** Insert the pivot half a way the hinge and check the smooth sliding with some grease
  - 4** Tilt the ramp downwards to widen the opening for the pivot
  - 5** Push the pivot inside the hinge with a hammer
  - 6** Inclined device to facilitate the insertion of the pivot
  - 7** Bottom metal sheet of the mould
  - 8** Upper plate of the dock leveller
- Lift the upper plate and lock it in safety by extracting the removable stoppers below the foot bars on the right and on the left.
  - Carry on by inserting the other pivots, grease them with Molykote grease and stop them with Seeger pins.  
Only once all three pivots have been assembled and fixed with Seeger pins it will be possible to unhook the upper plate from the crane.



For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.

The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

- Assemble the lifting cylinder by fixing the Seeger hinging pins and restore the hydraulic circuit
- Make the wires connecting the hydraulic control unit to the electric panel pass through the Ø 80 cable duct. Cables are prepared by supplier and are 8 meters long and have two end connectors.

In case any particular problem arise or if instructions are not completely understood do not take personal initiatives and contact our technical offices at:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola – Milan - Italy  
 ☎ +39-02 – 921 52 751 📠 +39-02 – 921 52 923

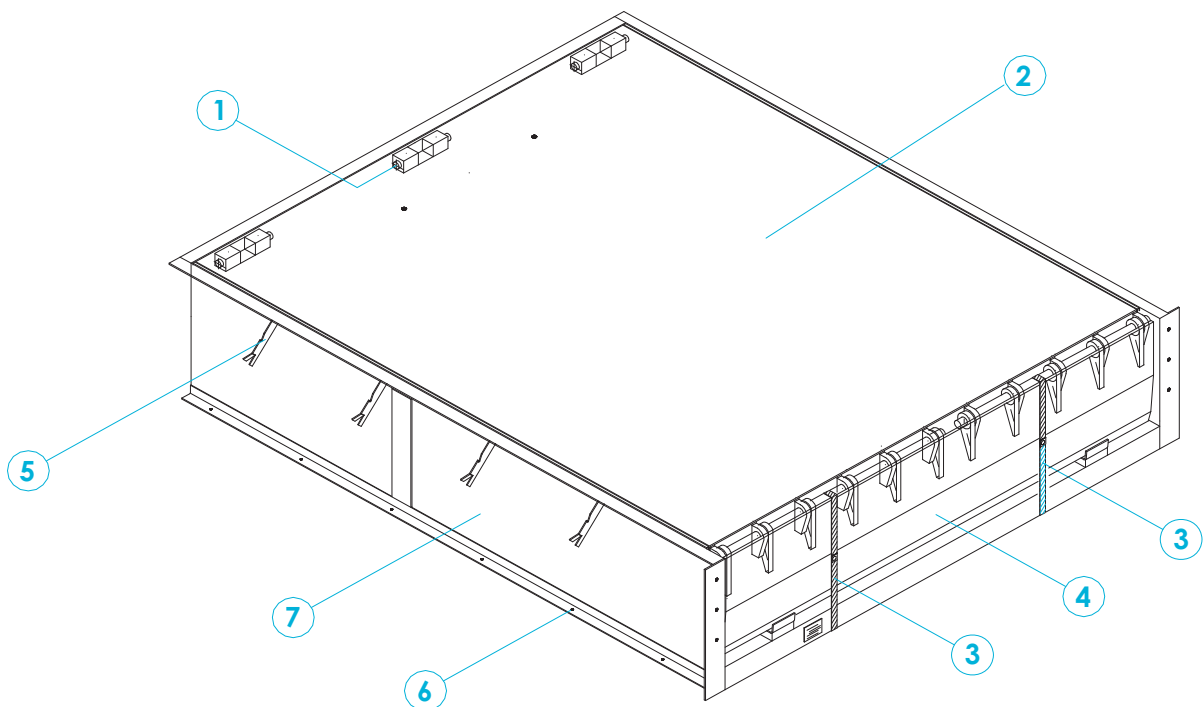
**2.7 DOCK LEVELLER ASSEMBLED ON BOX MODEL mod. KRBM-I****2.7.1 LAYING AND GROUTING OF THE DOCK LEVELLER ASSEMBLED ON BOX MODEL mod. KRBM-I**

The dock leveller assembled on Box Model, avoids other assembly work and guarantees grouting in perfect squaring.

Electric cables connecting the hydraulic control unit to the electric panel are in a  $\varnothing$  80 cable duct passing through a hole in the bottom sidewall.

Cables connecting the electric panel to the control unit are prepared by supplier and are 8 meters long and have two end connectors.

The suspended frame with dock leveller incorporated is supplied as shown in the following drawing.

**LEGEND**

- 1** Upper plate hinge
- 2** Upper plate
- 3** Supports for blocking the upper plate
- 4** Dock leveller hinged lip
- 5** Grouting clamps
- 6** Mould nail holes
- 7** Box model with dock leveller assembled



The dock leveller must be positioned according to safety standards and must not interfere with getaways provided by emergency plans..

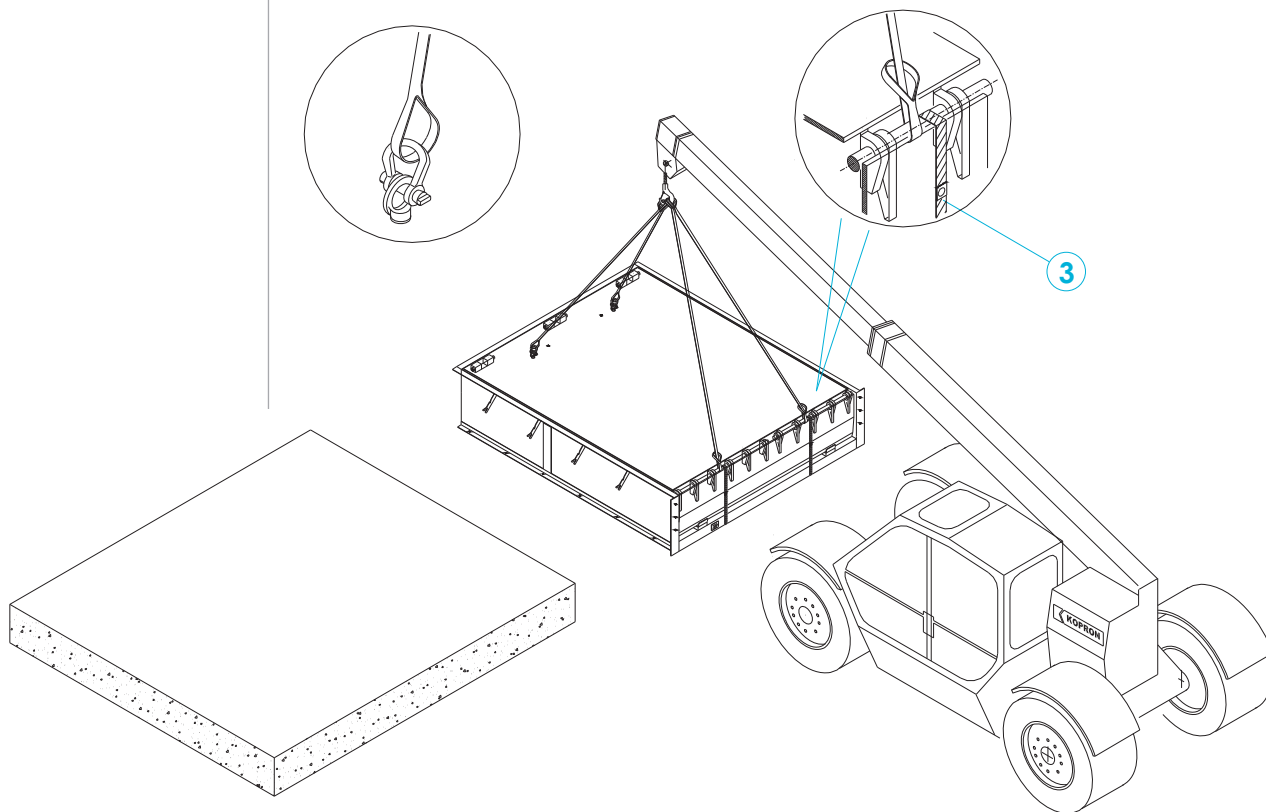


Position the box model, by means a four strap grab 50 mm large and long at least 2 meters.

Two straps will have a loop.

Good handling requires a perfect balancing of the load.

Make sure the supports which block the upper plate to the frame (ref. 3) are complete and not damaged.

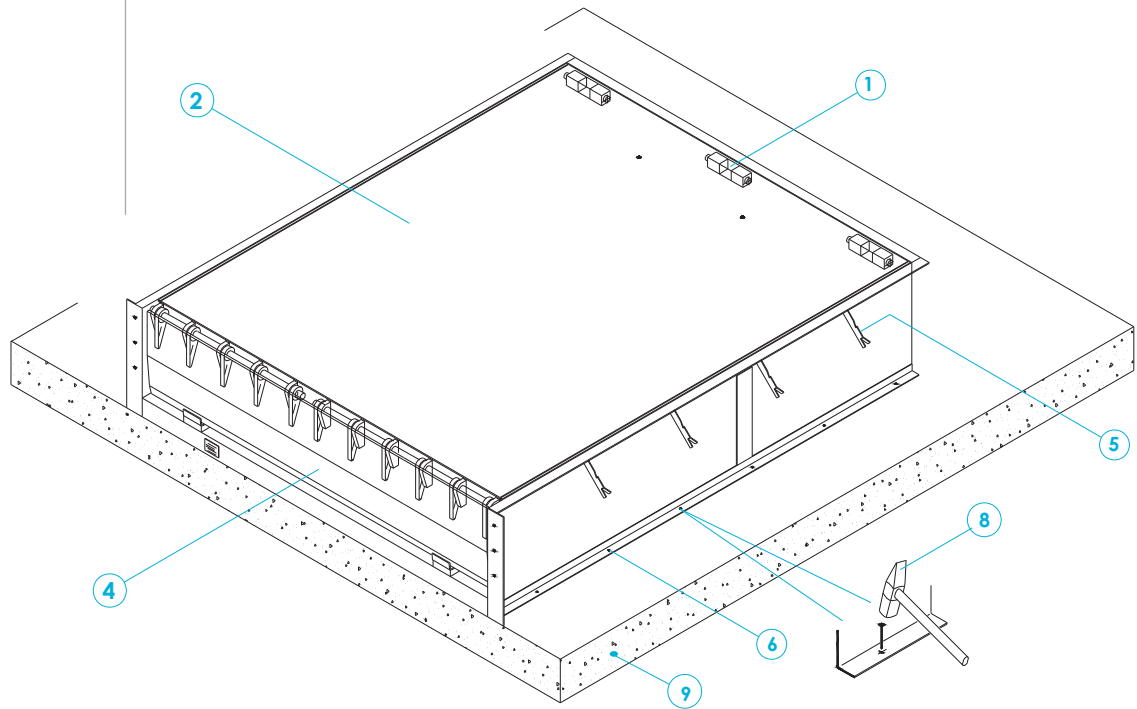


The laying and grouting of the frame with incorporated dock leveller is of utmost importance for a good functioning of the dock leveller, therefore the work must be done by qualified and skilled personnel and according to instructions herein.

Strictly keep to the dimensions indicated in drawing ..... with a  $-0 + 5$  mm tolerance.

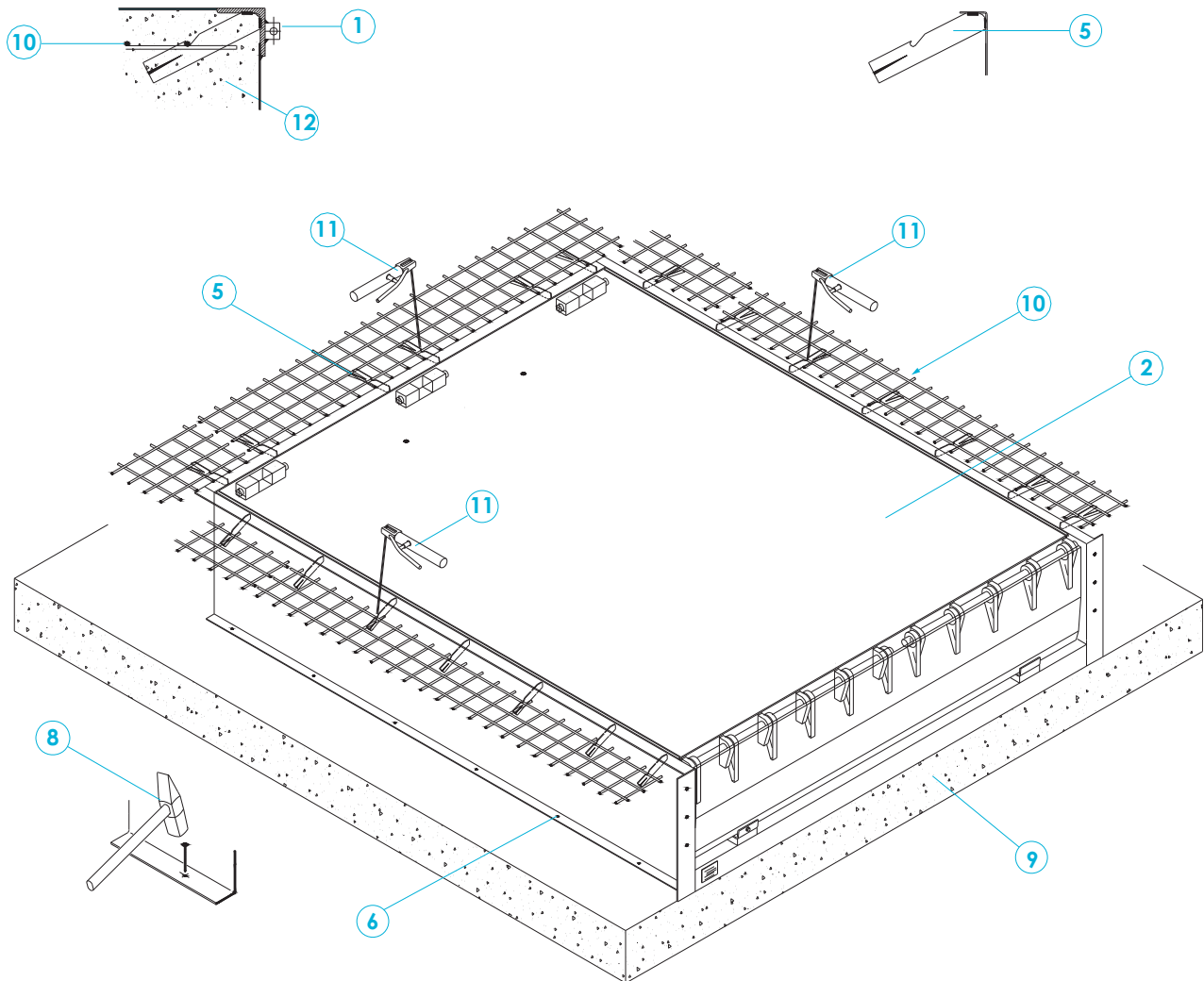
For laying and grouting operations procede as follows:

- Position the mould on the platform and make sure it is perfectly levelled in the two axis transversal and longitudinal.
- The upper part of the mould defines the height of the loading bay.
- Nail the sides of the mould in order to prevent concrete to filter inside the dock leveller space.
- The  $\varnothing$  80 cable duct must be positioned in order to be adjusted into the hole of same diameter at the back side of the frame.


**LEGEND**

- 1** Upper plate hinge
- 2** Upper plate
- 4** Dock leveller hinged lip
- 5** Grouting clamps
- 6** Mould nail holes
- 8** Nailing of the mould to the platform
- 9** Platform

- Weld all clamps to the frame of the rebar or to the steel parts. Clamps are made according to special design to ease the operation.
- Lay concrete carefully without straining the mould. Any deformation would jeopardize the assembly of the dock leveller.



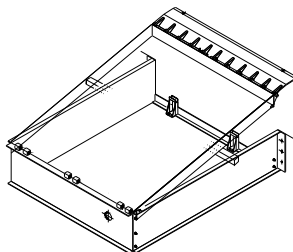
### LEGEND

- 1** Upper plate hinge
- 2** Upper plate
- 5** Grouting clamps
- 6** Mould nail holes
- 8** Nailing of the mould to the platform
- 9** Platform
- 10** Floor rebar
- 11** Welding of all the clamps to the rebar in concrete.
- 12** Floor in concrete

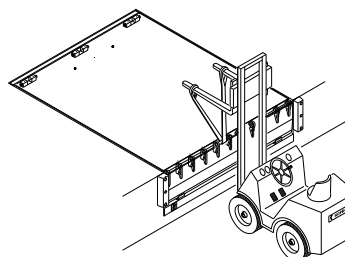
Whenever it is necessary to operate under the dock leveller you must lift the upper plate as indicated in the drawing and block with extracting the removable stoppers below the foot bars on the right and on the left.

Before lifting the upper plate do not forget to put the brackets back to their former position under the plate.

The following drawings show how to carry out these two important manoeuvres.



**Blocking of the upper plate**



**lifting of the upper plate**



For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor. Do not operate under the upper plate without locking it before. The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

In case any particular problem arise or if instructions are not completely understood do not take personal initiatives and contact our technical offices at:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola – Milan- Italy

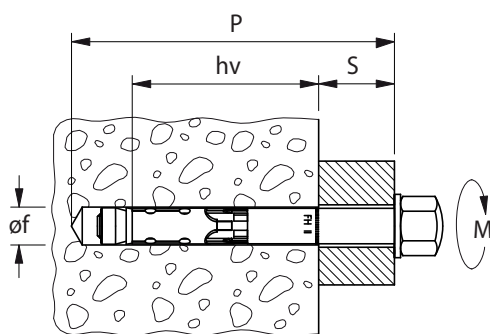
☎ +39-02 – 921 52 751 📠 +39- 02 – 921 52 923

**2.8 NOTES ON THE USE OF ANCHOR BOLTS**

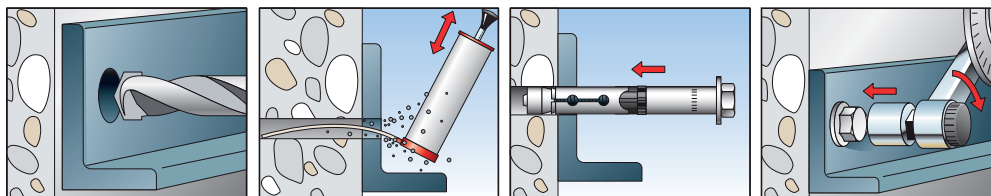
Anchor Bolt Fischer FH II 15/10H \*Class 8/8 with hexagonal nut

**TECHNICAL DATA**

| art. n. | descrizione          | Lt  | øf | P   | hv | S  | F    | Ch | M  | pz |
|---------|----------------------|-----|----|-----|----|----|------|----|----|----|
| 44908   | <b>FH II 15/10 H</b> | 113 | 15 | 100 | 70 | 10 | M 10 | 17 | 40 | 25 |



Lt = length anchoring part  
 øf = diameter points in mm  
 P = Depth hole mm  
 hv = anchoring depth  
 S = max flexible width  
 Ch = key  
 M = locking couple Nm  
 F = thread  
 ht = height head thread  
 øf = ext diameter  
 pz = pieces for packing

**ASSEMBLY**

Drill hole with insert Ø 15, depth of the hole 100 mm  
 Make sure the hole is clean before inserting the dowel

\* It could be necessary to apply to another supplier for anchor bolts which will in any case have the same technical characteristics.

**2.9 MATERIAL HANDLING FOR CORRECT POSITIONING**

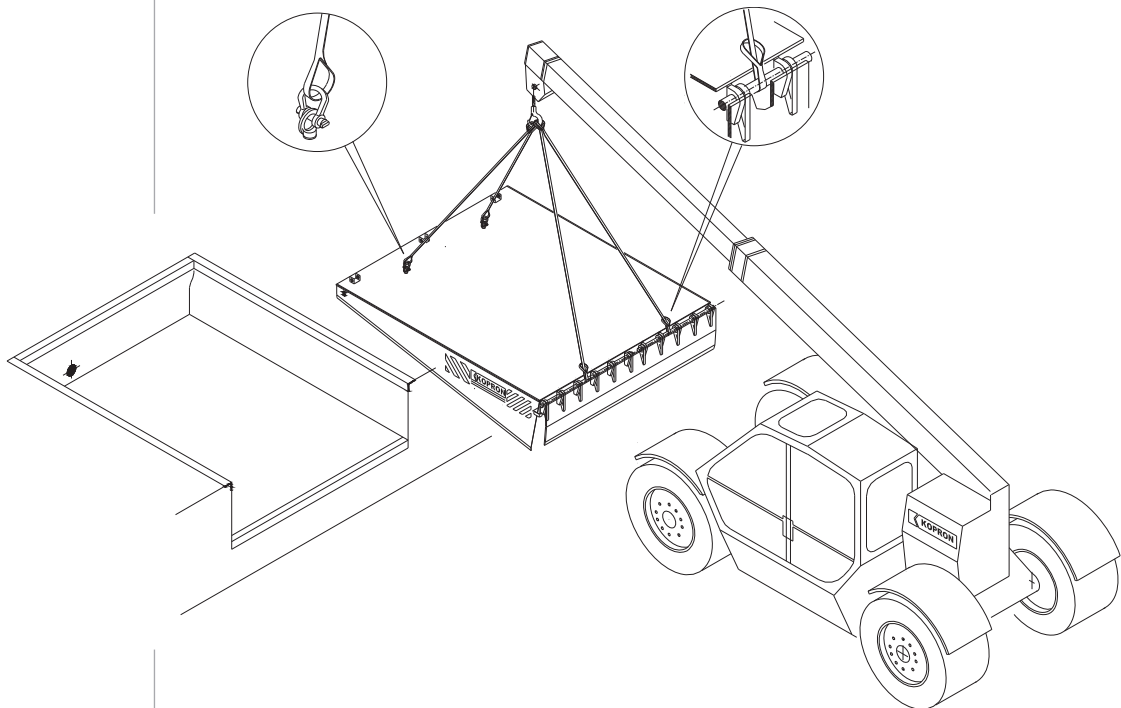
Handling must be carried out only by specialized personnel in using cranes. Before using a crane, the machine must be in good order, with brakes and end travel devices.

Necessary condition for correct moving is the perfect balancing of the goods. Avoid swinging the goods.

Commands to crane operator must be given by one person only in charge of coordinating the handling.

Sling the material as shown in the drawing with a four chain grab of a minimum length of 2 meters, the straps width is of 50mm, two of which have a loop.

Free the dock leveller from the slings only when it is safely positioned in its housing.



In case the dock leveller is lifting either on a suspended frame or on a box model, the supports which block the upper plate must be complete and in good order. See chapt. 2.5.1 and 2.7.1.

## INSTRUCTIONS

### 2.10 ELECTRIC CONNECTION

The type of electric panel can be different according to the country where the ramp is installed. A separate part of the manual will be dedicated to the electric panel. The second part will inform about the power supply, the correct positioning, the electric system on the ramp or the accessories, and then to connect it with the equipment.

This separate part is an integral part of the manual and covered by same declaration of conformity, and all standards concerning safety.

The summary of this part of the manual is the following:

#### DESCRIPTION AND TECHNICAL DATA OF THE ELECTRIC PANEL A USEFUL ADVICE

##### CHAPTER 1 CONNECTION

- 1.1 POSITIONING
- 1.2 POWER SUPPLY
- 1.3 CONNECTION TO EQUIPMENT

##### CHAPTER 2 INSTRUCTIONS FOR USE

- 2.1 CONTROLS AND WARNING LIGHTS
- 2.2 GUIDE TO CONDUCT
- 2.3 USE OF STOPPING DEVICES

##### CHAPTER 3 ANOMALIES, MAINTENANCE AND REPAIRS

- 3.1 ANOMALIES , CAUSES AND REMEDIES

##### CHAPTER 4 SPARE PARTS, ASSISTANCE AND GUARANTEE

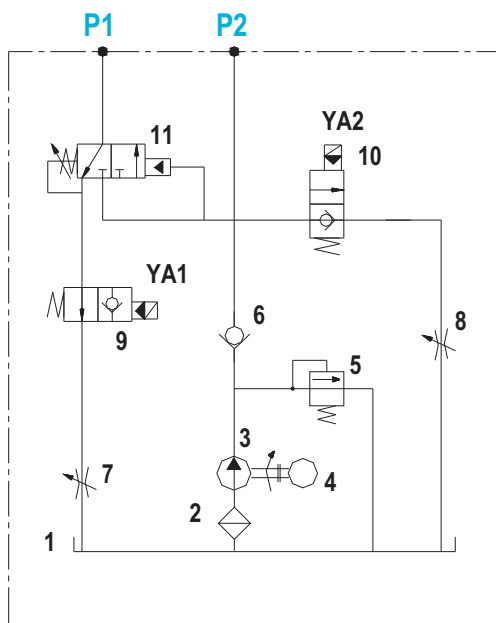
- 4.1 SPARE PARTS SUGGESTED
- 4.2 REQUEST FOR ASSISTANCE
- 4.3 GUARANTEE

### 2.11 HYDRAULIC SYSTEM

#### TECHNICAL DATA

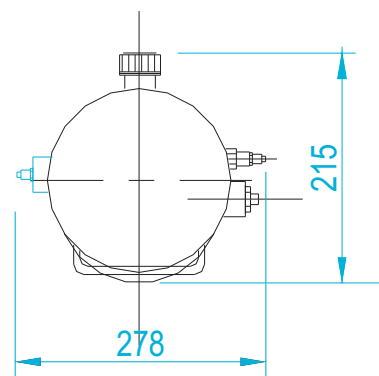
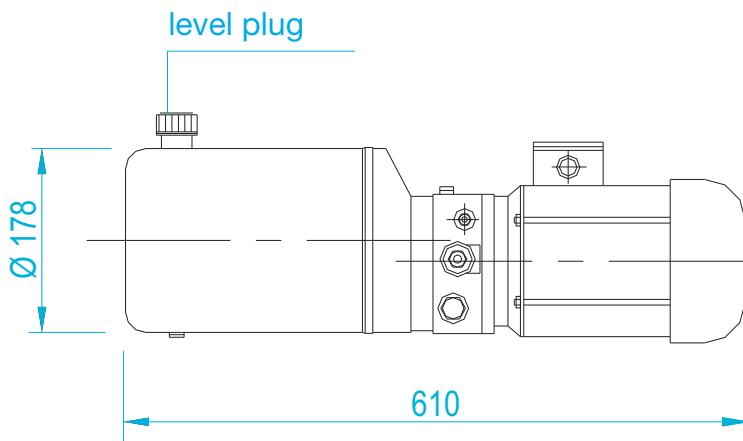
|                              |           |
|------------------------------|-----------|
| Pump discharge               | 2,1 ml/g  |
| Circuit calibration pressure | 13MPa     |
| Motor three-phase supply     | 400 V     |
| 4 poles motor                | 1400 g/1' |
| Motor power                  | 1.1 Kw    |
| Solenoid valves supply       | 24 V DC   |
| Valve sequence control       | 8 MPa     |
| Oil tank                     | 6 lt      |

#### HYDRAULIC SYSTEM



- P1 Connection to lip cylinder  
P2 Connection to upper plate cylinder  
1 Oil tank  
2 Oil filter  
3 Pump  
4 Pump motor  
5 Max relief valve  
6 Check valve  
7 Oil control valve from cylinder to lip  
8 Oil control valve from cylinder to upper plate  
9 YA1 lip cylinder solenoid valve  
10 YA2 upper plate cylinder solenoid valve  
11 Movement sequence valve

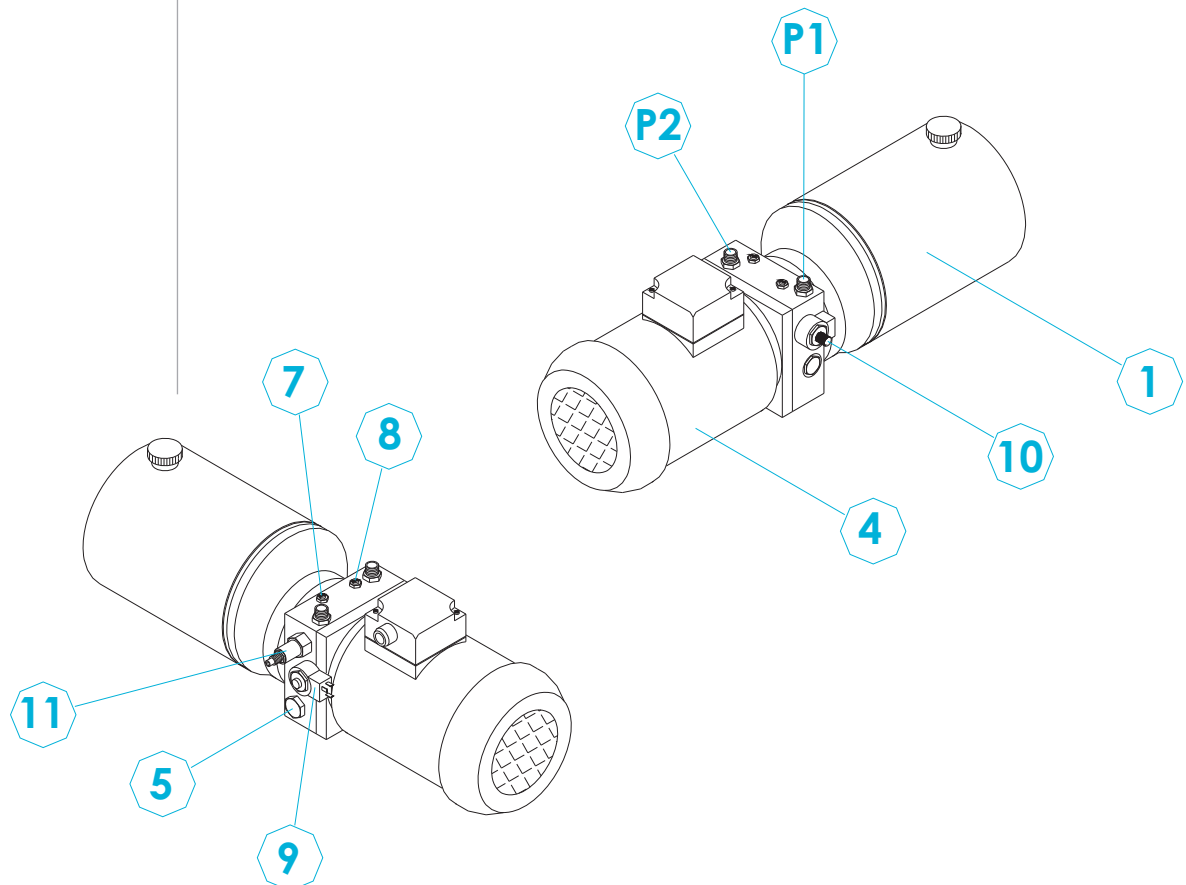
#### CONTROL UNIT GR



**2.11.2 EQUIPMENT FUNCTION AND ADJUSTMENT**

The oil-pressure control unit is calibrated when assembled on the dock leveller, and the flexible tubes which connect it to the cylinders are supplied already assembled.

The following is to explain in detail the function and adjustment of the equipment.



**P1** Flexible tube joining point for connecting the lifting cylinder of the upper plate

**P2** Flexible tube joining point for connecting the lifting cylinder of the moving lip

**1** Hydraulic oil tank, capacity 6 litres

**4** Motor pump

**5** Adjustment valve of circuit max pressure.

The adjustment screw is used by unscrewing the protection cap.

Rotating the screw clockwise pressure increases.

This action is useful when time and wear have hardened the hinges, and when the upper plate or moving lip work with difficulties.

Take care not to damage the calibration gasket during screwing and unscrewing.

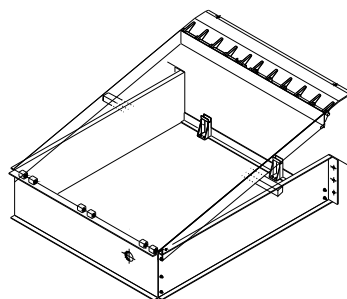


- 7** Oil control valve from lip cylinder .  
It adjusts the closing speed of the lip.  
If you rotate the screw clockwise, after having took the locking nut away, you slow down the closing, instead rotating it counterclockwise you speed up the closing.
- 8** Oil control valve from upper plate cylinder .  
It adjusts the closing speed of the upper plate. If you rotate the screw clockwise, after having took the locking nut away, you slow down the closing, instead rotating it counterclockwise you speed up the closing.  
After adjustment you must remember to fasten the nut again.
- 9** **YA1** lip cylinder solenoid valve  
It shuts the lip when operated.
- 10** **YA2** upper plate cylinder solenoid valve  
When it is operated the upper plate starts coming down.  
This electro-valve has a red button. When you push it and rotate it clockwise the upper plate comes down. This is an emergency device which must be used only when the dock leveller is damaged, and must be used only with electric panel disconnected. This for the safety of personnel as better described in Chapter 5.2 'Lowering the upper plate in case of emergency'
- 11** Movement sequence valve  
This valve determines the pressure which sends oil to the opening cylinder of the lip. When the screw is rotated clockwise lip it will advance the opening, when screwed counterclockwise it will defer the opening. After adjustment remember to fasten the nut again.

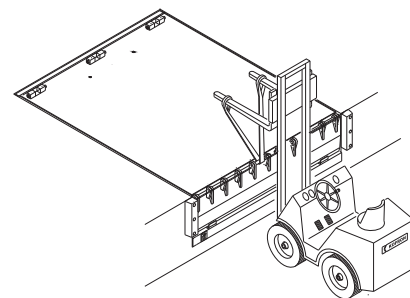
For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor. The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.

In case an intervention requires lifting or lowering of the upper plate, use a strap as indicated in the following drawing of the width of 50 mm and 2 meters long, see also chapt.6.3.

Only once the dock leveller is definitely in safe position you can take slings off.



**Blocking of the upper plate**



**Lifting of the upper plate**

## INSTRUCTIONS

### 2.11.3 REMOVING AIR FROM THE CIRCUIT

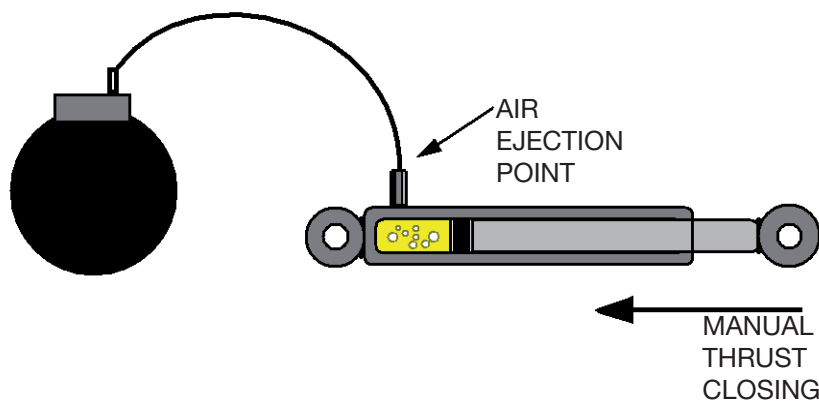
Air can get into the hydraulic circuit due to the following reasons:

- Transport and handling during installation operations create vibrations which can mix air with hydraulic oil.
- A wrong maintenance on the circuit may create air infiltrations in the circuit.
- A loss of oil from the circuit which brings oil to a critical level.

Too much air in the hydraulic circuit causes malfunction of the safety valve which halts the sudden fall of the upper plate in case the lorry accidentally moves away.

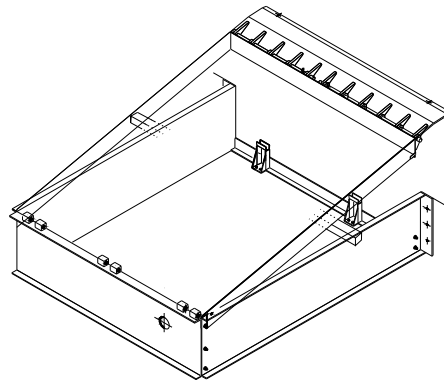
Procedure for removing air from the circuit is the following:

- Actuate the lifting of the upper plate until the lip rotates upwards and is perfectly aligned with the upper plate. Keep the button pressed until the blocking bracket is fixed.
- Lock it in safety by extracting the removable stoppers below the foot bars on the right and on the left. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.
- Lower the upper plate and wait for about one minute in order to allow the oil of the cylinder flow down.
- Release the cylinder taking off the the seeger pins and the pin which hinges it to the upper plate.
- Activate again te lifting of the upper plate until the rod of the cylinder is completely out.
- Simulate the lowering of the upper plate for about one minute to reduce the oil pressure of the cylinder, loosen the connection between the rubber tube and cylinder joint and manually retract the cylinder stem completely, this will enable air and oil to spill out from the hose.
- With the cylinder rod completely retracted fasten the connection of the rubber tube with the cylinder joint.
- Either manually or with a control move the cylinder rod in order to connect it to the upper plate hinge. Insert the pin for fixing the cylinder to the upper plate and block with seeger pins.
- Activate the lifting of the upper plate and always keeping the rod pressed remove the stoppers with which kept the upper plate blocked.
- Perform four trial cycles for opening and closing the ramp.





For any operation which requires a man under the dock leveller, make sure it is locked in safety by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor. The technician operating under the dock leveller must be controlled for safety by another person operating from the outside.



**Blocking of the upper plate**

**2.12 LIST OF TOOLS AND EQUIPMENT**

In order to carry out installation with ease and in safety the following tools and equipment may be used:

- Plumb line, wire for tracing, pencils, laser level, level and ruler of about 2 m
- Drill complete with inserts for drilling iron.
- Churn drill complete with inserts for reinforced concrete.
- Grinder
- Saw for metal with set of blades.
- Clamps
- Control panel and sockets suitable for construction sites, complete with general switch, thermal magnetic switch and differential set at 30 mA.
- Extension wires with sockets and plugs, for single phase supply 230 V and three phase 400 V.
- Fixed ladder 2.5 m long.
- Tool box with keys, screwdrivers, pliers, hammers, etc...
- Electrician bag complete with tester and ampere meter
- Portable welding machines
- Safety tools, safety belts, goggles, helmets, protection gloves against cuts and scratches, safety shoes, opto-isolators.
- First aid box



Tools must be all according to EC safety standards.

**2.13 DISPOSAL OF EXCEEDING MATERIAL**

Exceeding and waste material from assembly can be dumped along with Customer's usual waste material.

In case of accidental spilling of hydraulic liquids cover with sawdust before throwing in proper bins for oil waste.

**2.14 ENVIRONMENT CONDITIONS**

The dock levellers cannot operate in environments with risk of fire or explosion, and must not be put in places interfering with getaways provided by the emergency evacuation plan of the building.

Minimum and maximum temperatures for a correct use of the dock leveller depend on the conditions of the hydraulic liquid, therefore it must not operate under 15°C and over 40°C.

In case you must operate at temperatures under 15°C you must contact Kopron Service Dpt at the following number +39- ☎ 02 – 921 52 751 which will inform about the oil to be used and actions to be undertaken.

**CHAPTER 3****INSTRUCTIONS FOR START UP****3.1 DOCK LEVELLER START UP**

Get rid of all elements interfering with the dock leveller: strings, wires, pieces of wood previously place for protecting the parts and check if the tubes of the hydraulic circuit and other equipment have not been damaged during transport.

In case of dock levellers on suspended frame or on box model remove the supports which block the upper plate.

The position of the electric control panel must allow operator to have a complete visibility of the dock leveller in order to operate in complete safety.

Test functioning in order to verify if there are any air bubbles in the hydraulic circuit.

The dock levellers are usually supplied with oil tank already filled in.

Verify that both upper plate and lip can move without interference.

**In case the pump motor has been connected with rotation in wrong direction, which can be detected by the noise produced, interrupt electric supply and adjust the connection.**

For this operation technicians from the Buyer's company must be present to help to identify the line supply and check the sectioning group.

Verify the motor absorption of the pump motor according to the value stated on the plate.

Before starting electric testing it is of great importance to make sure that ground wire of the electric panel is correctly connected to ground.

**3.2 SPECIAL TOOLS**

The following normal workshop tools are sufficient to carry out starting up:

- Tool box with keys, screwdrivers, pliers, hammers, etc...
- Electrician bag complete with tester and ampere meter
- Safety tools, goggles, helmets, protection gloves against cuts and scratches, safety shoes.

No special tools are needed for this operation.

For the electric part a tester and ampere meter are sufficient.

## CHAPTER 4

### INSTRUCTIONS

#### 4.1 PARTICULAR RISKS E PROTECTION DEVICES

Movements of the upper plate and of the lip during docking phase can cause danger to operators.

To reduce risks of accidents the following measures have been undertaken.

The movements of the upper plate and lip are not carried out automatically but are controlled step by step by an operator.

Controls are pushed and held for operations, but in case of release, movements stop immediately.

The distance between control panel and risky movements has been established in order to safeguard the operator.

The control panel must be placed in order to allow operator a complete visibility of the dock leveller.

Control panel has a push-and-hold emergency button which stops the dock leveller immediately.

The dock leveller is provided with side sliding feet guards which prevent danger of cutting and squashing.

Other risks can be avoided warning personnel not to get too near to the dock leveller while it is moving.

The sudden loss of electricity stops the movement immediately.

The hydraulic circuit which starts up the dock leveller is provided with a safety valve which prevents the upper plate to drop in case of unexpected detaching of the truck.



#### 4.2 FIRE PREVENTION

No fire prevention is necessary in areas where the dock levellers are assembled.

In case of fire it must be put out by means of proper substances used for electric systems which must always be kept available.

The dock leveller must not be installed in areas exposed to danger of fire or explosion.

## CHAPTER 5

### ANOMALIES, MAINTENANCE AND REPAIRS

#### 5.1 ANOMALIES, CAUSES AND REMEDIES

Please refer to the second part of the manual dedicated to the control panel at Chap.3

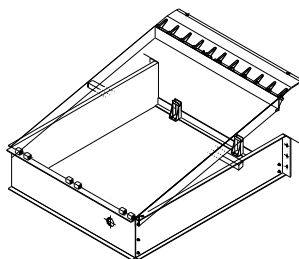
#### 5.2 BRINGING DOWN THE UPPER PLATE IN CASE OF FAULTY DOCK LEVELLER



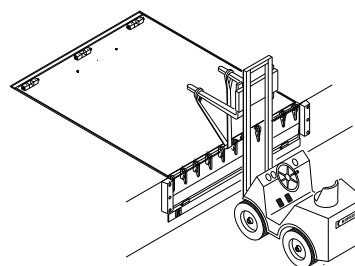
Repairs must be carried out by specialized personnel according to standards EN 292.2 art 5.5.1.

In case the dock leveller fails with the upper plate in lifted position, to bring it down you must follow this procedure:

- Interrupt electric supply switching off the general switch and disconnecting the supply connector
- Sling the upper plate as indicated in the following drawing.
- The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor.
- Only once slinging has been carried out and the stoppers, personnel can access and operate under the dock leveller.
- The technician under the dock leveller must be controlled by another from outside.



**Blocking of the upper plate**



**Lifting of the upper plate**

Carry on by intervening on the **YA2** solenoid valve of the oil-pressure control unit which controls the cylinder of the upper plate (see chapt. 2.11.2 'Equipment functioning and adjustment')

- This electro-valve has red button which pressed and rotated counterclockwise makes the upper plate come down.  
This manoeuvre is carried out in case of emergency when the dock leveller fails to come down.
- Once you get out from under the dock leveller, put the safety bracket back to original position and slowly lower the upper plate with the aid of a forklift.
- Free from slings only when the dock leveller is placed in safety.

**5.3 ROUTINE INSPECTION PLAN****Weekly Inspection**

- Verify the functioning of the emergency button.
- Check the functioning of the side feet guards
- Check status and efficiency of the hinges of the upper plate and lip.
- Check status of bumpers.
- Verify working of signalling lights.

**Quarterly Inspection.**

- Noise test of the bearings of the oil pump motor.
- Detection of possible oil leaks from the hydraulic circuit.
- Check the status and efficiency of hydraulic plant hoses.
- Check the efficiency of the tightness of the oil pump.
- Check total noise level of the equipment
- Check the status of the hinge points of the hydraulic cylinders.



For interventions which require the operator to go underneath the dock leveller please strictly apply to what is being specified in Unit III Chap. 6.3 Notes for Maintenance)

**5.4 PREVENTIVE MAINTENANCE PLAN****Weekly maintenance**

- Check Cleaning and brushing of the lip hinges.

**Monthly maintenance**

- Greasing of the hinges of the upper plate and lip with Molykote grease.
- For dock levellers with lip with side flaps lubricate the coupling balls and check the register of the springs which press the balls.
- Check the fastening of the screws of the feet guards and then verify functioning.
- Cleaning and brushing of the lip. Between one cleaning cycle and the other test the functioning of the lip.
- Cleaning of the EC marked identification plate.

**Quarterly maintenance**

- Cleaning of the housing of the dock leveller. Between one cleaning cycle and the other test the functioning of the dock leveller.
- Grease the hinges of the hydraulic cylinders with Molykote grease.
- Greasing of the rods of the hydraulic cylinders
- Checking of the oil level in the hydraulic control unit tank.

**Annual maintenance**

- Fastening of all the tube joints of the hydraulic circuit.
- Check and fasten all the nuts and bolts of the dock leveller.
- Fastening of all the fixing dowels of the dock leveller.
- Check and fasten all the fixing dowels of the hinge support of the lifting cylinder.
- Check all safety elements of the hydraulic plant (safety valve which prevents the upper plate to drop in case of sudden detachment of the truck).

**Quarterly maintenance of the electric plant**

- Check and test the ground circuit.

**Annual maintenance of the electric plant**

- Check cables and fastening of motor and electrovalve connections
- Check electric absorbing of the pump motor.
- Check status and efficiency of the emergency button.

For preventive maintenance keep to what is being specified at Chap 6.3 Unit III 'Notes on Maintenance'.

**5.5 INSTRUCTIONS ON LUBRICATON****Monthly**

- Greasing of the hinges of the upper plate and lip with Molykote grease.
- For dock levellers with lip with side flaps lubricate the coupling balls.

**Quarterly**

- Greasing of the hinges of the hydraulic cylinders with Molykote grease.
- Greasing of the rods of the hydraulic cylinders.

**5.6 HYDRAULIC SYSTEM**

- Check every three months the oil level in the tank of the hydraulic control unit.
- Replace oil every 12-15 months.
- Hydraulic oil to use must have the following qualities:
  - ISO 6743Type HM
  - FZG ( DIN 51354 ) stage 11
  - DIN 51524 part 2nd category HLP

and these other average characteristics

|                    |                   |     |
|--------------------|-------------------|-----|
| density at 20°C    | Kg/m <sup>3</sup> | 865 |
| viscosity at 40°C  | cSt               | 22  |
| viscosity at 100°C | cSt               | 4.1 |
| viscosity index    | ==                | 105 |
| Freezing           | °C                | -35 |
| inflammability COC | °C                | 210 |

- Oil quantity for replacement is of about 5 litres.

The hydraulic liquid must always be new and filtered.

Never mix different types or brands of oil, which could cause sedimentation of substances which can jeopardize the functioning of the plant.



The oil waste must be disposed according to local regulations.

In case of accidental spilling of hydraulic liquids cover with sawdust before throwing in the proper bins for oil waste.

**5.7 NOTES ON THE EQUIPMENT TO BE USED.**

The following normal workshop tools are sufficient to carry out starting up:

- Tool box with keys, screwdrivers, pliers, hammers, etc...
- Electrician bag complete with tester and ampere meter.
- Safety tools, goggles, helmets, protection gloves against cuts and scratches, safety shoes.

No special tools are needed for this operation.

For the electric part a tester and ampere meter are sufficient.

## CHAPTER 6

## INSTRUCTIONS REGARDING SAFETY

**6.1 GENERAL NOTICE**

A fundamental requirement for safety is to use the dock leveller only when vehicles are definitely in docking position and well against the bumpers.

The vehicle must be idle and with brakes on.

The dock leveller must not exceed the established capacity, even if it has a wide range of tolerance, see Chap. 1.2. Unit I - 'Improper Use'.

**All means passing over the dock leveller must never exceed the established capacity, and loading/unloading operations must never be carried out when the dock leveller is in resting position.**

Forklifts and other means must keep man's walk speed (40 mt/1').

The material they load must be well balanced and stable on the forks.

Avoid sudden brakings or accelerations and quick lifting/lowering movements of the material.

The emergency button of the control panel stops immediately the movement of the ramp.

When the button is pressed again the dock leveller remains still in the position where it had been stopped.

**When the emergency button is pressed the ramp must not be used for any reason.**

The operator while operating the dock leveller is in a position which allows him to have a complete and direct visibility of the movements and safeguards him from danger.

Personnel must be duly informed on other risks which can occur and must not be allowed to approach the dock leveller while it is moving.

The dock leveller is provided with sliding side panels which prevent danger of cutting and squashing.

There is no fire or explosion danger when operating the dock leveller.

A sudden lack of electric supply stops immediately the movements of the dock leveller.

The hydraulic circuit is provided with safety valve which stops the upper plate from dropping in case the vehicle suddenly detaches from the platform.

Only a professional operator can use the dock leveller.

Loading/unloading operations must be carried out according to regulations established by Buyer for personnel safety.

**6.2 SAFETY ZONES NEAR THE DOCK LEVELLER**

With dock leveller in resting position there is no danger around it.

Once the dock leveller is down, forklifts and other means can transit without exceeding the established capacity as indicated in Chap. 1.2. Unit I - 'Improper Use'.

When the dock leveller is moving personnel must not get too near to it.

**6.3 NOTES FOR MAINTENANCE**

Preventive maintenance as well as interventions for repair must be carried out according to EC standards EN 292.2 art. 5.5.1 by **specialized and skilled personnel**.

Before starting operations, you must apply a red/white striped ribbon all around the working area to define it, plus a no trespassing sign.

Please keep to following advice:

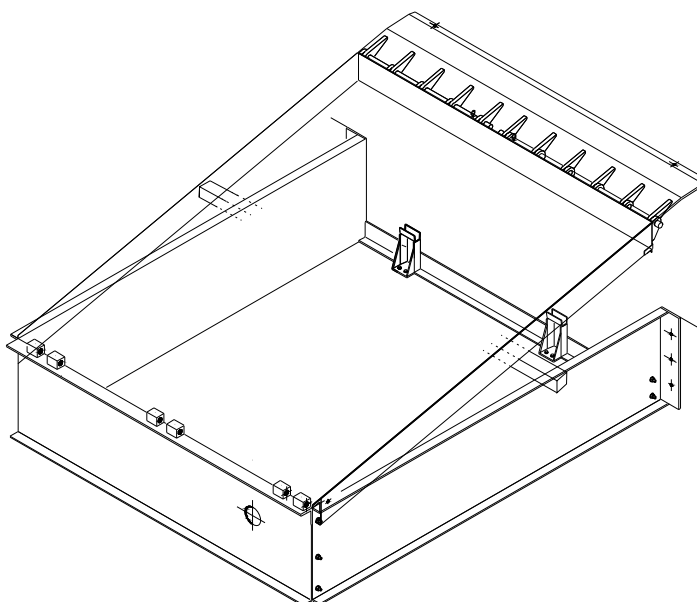
Before interventions on electric parts, interrupt electric supply and switch off the circuit breaker on the electric panel.

Use a sign reading 'CLOSED FOR MAINTENANCE', and lock the circuit breaker on the electric panel.

In case of need of electricity for carrying out inspections, two operators must be present, one at the electric panel and the other on working site. EN 292.1 (4.3), EN 292.2 ed EN 60204.1 are the safety standards which apply.

Before any mechanical intervention interrupt general electric supply witch must be locked carrying a sign 'CLOSED FOR MAINTENANCE'.

If operators must operate under the dock leveller, make sure to lock the upper plate by the relative stoppers provided. The removable stoppers are located below the foot bars on the right and on the left and should be extracted so as to rest on the floor. One operator must constantly keep an eye on the operator under the dock leveller.

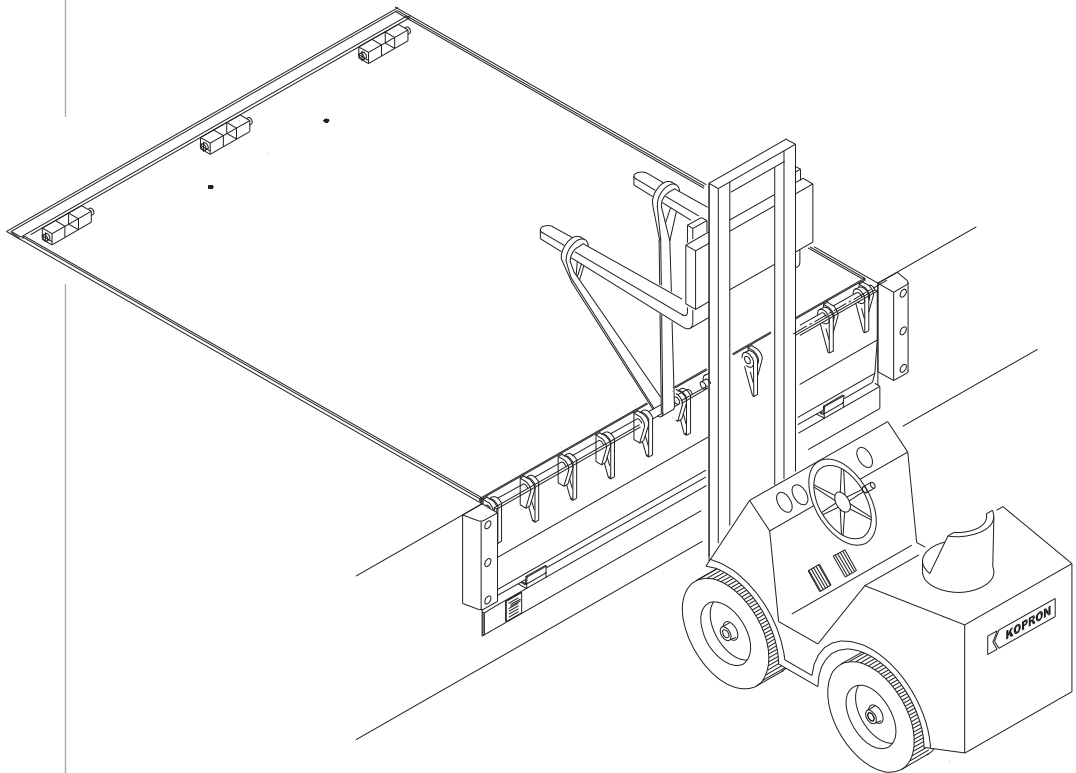


When carrying out interventions on the hydraulic system, make sure that the pressure of the equipment has been duly regulated.



In case intervention requires to either lift or lower the upper plate use a grab with a 50mm strap, at least 2 meters long.

Take slings off only once the dock leveller is placed in safety.



**6.4 OTHER RISKS**

|                     |                                                                                                                                                                                                                                                           |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main operation      | <b>Transport</b>                                                                                                                                                                                                                                          |
| Secondary operation | Lifting, handling and positioning.                                                                                                                                                                                                                        |
| Danger connected    | Mechanical danger due to either the shape of the structure or to operations carried out.                                                                                                                                                                  |
| Other risks         | The operators can get bruised or fractured.                                                                                                                                                                                                               |
| Prevention          | Personal protection wear, gloves, safety shoes.<br>Safety ladder.<br>Lifting machines in good order.<br>Lifting machines of proper size.<br>Qualified personnel.<br>Specific instructions on operations in Part III Chap.1                                |
| Main operation      | <b>Installation</b>                                                                                                                                                                                                                                       |
| Secondary operation | Connection with various devices                                                                                                                                                                                                                           |
| Danger connected    | Mechanical danger due to handling.<br>Danger from electricity.<br>Danger from connection operations carried out in difficult circumstances.                                                                                                               |
| Other risks         | Bruises, fractures, falls, falling material.                                                                                                                                                                                                              |
| Prevention          | Personal protection wear, gloves, safety shoes, helmets.<br>Special gloves for handling electric wires.<br>Safety ladder, scaffolds, safety belts for working at heights.<br>Qualified personnel.<br>Specific instructions on operations Part III Chap. 2 |
| Main operation      | <b>Starting up</b>                                                                                                                                                                                                                                        |
| Secondary operation | -                                                                                                                                                                                                                                                         |
| Danger connected    | Mechanical danger due to movements of the upper plate and of the lip of the dock leveller and danger from electricity when carrying out inspections.                                                                                                      |
| Other risks         | Bruises, fractures, electric shock.                                                                                                                                                                                                                       |
| Prevention          | Personal protection wear, gloves, safety shoes, helmets.<br>Special gloves for handling electric wires.<br>Safety ladder, scaffolds, safety belts for working at heights.<br>Qualified personnel<br>Specific instructions on operations Part III Chap. 3  |



|                     |                                                                                                                                                                                                                                                                                                                                   |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main operation      | Use                                                                                                                                                                                                                                                                                                                               |
| Secondary operation | -                                                                                                                                                                                                                                                                                                                                 |
| Danger connected    | Mechanical danger due to movements of the upper plate and of the lip of the dock leveller.                                                                                                                                                                                                                                        |
| Other risks         | Bruises, fractures                                                                                                                                                                                                                                                                                                                |
| Prevention          | <p>Personnel must not be allowed to get near moving parts.</p> <p>The position of the controls must prevent the operator to carry out dangerous operations.</p> <p>Detailed instructions on how to operate the dock leveller.</p> <p>Part III Chap. 4.4 Specific risks and protection<br/>Chap. 6.1 'General notes on safety'</p> |

*Loading and unloading operations of the truck must be carried out according to standards established by User for safeguarding operators.*

|                     |                                                                                                                                                                                                                                                                  |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Main operation      | Maintenance and repair                                                                                                                                                                                                                                           |
| Secondary operation | -                                                                                                                                                                                                                                                                |
| Danger connected    | <p>Mechanical danger due to movements of the dock leveller and lip plus danger from electricity.</p> <p>Danger from connection operations carried out under difficult circumstances.</p> <p>Accidental contact or being sprayed with the hydraulic oil.</p>      |
| Other risks         | <p>Bruises, fractures, electric shock</p> <p>Skin irritation, allergies, danger for operator's eyes.</p>                                                                                                                                                         |
| Prevention          | <p>Personal protection wear, gloves, safety shoes, helmets, goggles.</p> <p>Safety ladder, scaffolds, safety belts for working at heights.</p> <p>Qualified personnel.</p> <p>Specific instructions on operations Part III Chap. 6.3 'Notes on maintenance'.</p> |

## CHAPTER 1

### ACOUSTIC

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#### 1.1 NOISE PRODUCED

The noise produced by the equipment does not exceed 78 dB, measured with a sound level meter with an A-frequency weighting filter and a slow time weighting. The measuring has been carried out at a height of 1,6 meters and at a distance from the outside part of the dock leveller of 1 meter .

## CHAPTER 2

### ENVIRONMENTAL

---



#### 2.1 HYDRAULIC OIL DISPOSAL

Oil waste must be taken to oil waste dumps.  
In case of accidental spilling of hydraulic liquids cover with sawdust before throwing it in proper bins.



#### 2.2 DISMANTLING AND DISPOSAL

Disconnect the plant from all the energy sources of the building.  
Before dismantling the equipment this must be totally cleaned from hydraulic liquid which must be disposed as indicated in part IV Chap. 2.1 Hydraulic Oil Disposal  
Divide material to dispose according to type

The material used is mainly the following:

- Iron for the structures
- Plastic for tubes and other components
- Electric components.
- Electric wires



All material must be disposed according to local regulations.

## CHAPTER 1

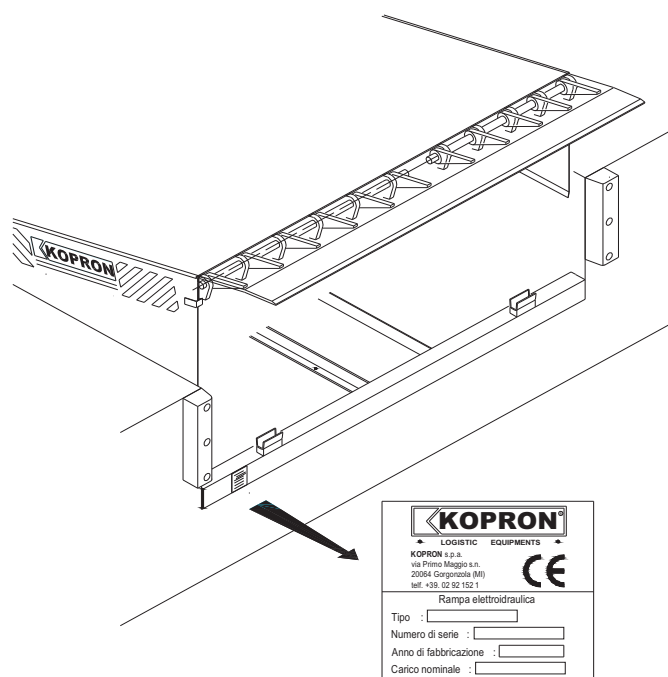
### LIST OF MATERIAL

#### 1.1 SUGGESTED SPARE PARTS

To request spare parts apply directly to our Service Dpt at the following address:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola – Milan - Italy  
 ☎ +39 -02 – 921 52 751 📠 +39-02 – 921 52 923

You need to give the serial number, year of construction which you can find on the plate positioned on the front part of the supporting frame.  
 Please refer to chap. 2.2 e 2.3 Unit I, for a correct identification of the parts.



**UNIT V****SPARE PARTS**

| Mechanical parts of the dock leveller with frame(chap. 2.3 Unità I) |                                   |      |         |
|---------------------------------------------------------------------|-----------------------------------|------|---------|
| Ref.                                                                | name                              | qty. | abbrev. |
| 3                                                                   | Upper plate                       | 1    |         |
| 4                                                                   | Left foot guard                   | 1    |         |
| 6                                                                   | Complete hinged lip               | 1    |         |
|                                                                     | Hinged lip with flaps             |      |         |
| 7                                                                   | Short shaft                       | 1    |         |
| 8                                                                   | Shaft fixing pins                 | 2    |         |
| 9                                                                   | Long shaft                        | 1    |         |
| 14                                                                  | Right foot guard                  | 1    |         |
| 16                                                                  | Upper plate rotation pivot        | 3    |         |
| 17                                                                  | Seeger upper plate rotation pivot | 3    |         |

| Hdraulic system (chap.2.2 and 2.3 part I) |                                              |      |         |
|-------------------------------------------|----------------------------------------------|------|---------|
| rif.                                      | name                                         | qty. | abbrev. |
| 2                                         | Hydraulic control unit                       | 1    |         |
| 10                                        | Lip cylinder                                 | 1    |         |
|                                           | Set of gaskets for lip cylinder              | 1    |         |
|                                           | Flexible hose for lip cylinder               | 1    |         |
| 11                                        | Rod pin for lip cylinder                     | 1    |         |
| 12                                        | Seeger pins for lip cylinder cilindro labbro | 2    |         |
| 13                                        | Body pin for lip cylinder                    | 1    |         |
| 18                                        | Body pin for upper plate cylinder            | 1    |         |
| 19                                        | Upper plate cylinder                         | 1    |         |
| 20                                        | Body pin for upper plate cylinder            | 1    |         |
|                                           | Set of gaskets for upper plate cylinder      | 1    |         |
|                                           | Flexible hose for upper plate cylinder       | 1    |         |
|                                           | Pump motor                                   | 1    |         |
|                                           | Set of gaskets for the pump                  | 1    |         |

**Electric system (see part two of the manual Control Box)**

## CHAPTER 1

### ASSISTANCE AND GUARANTEE

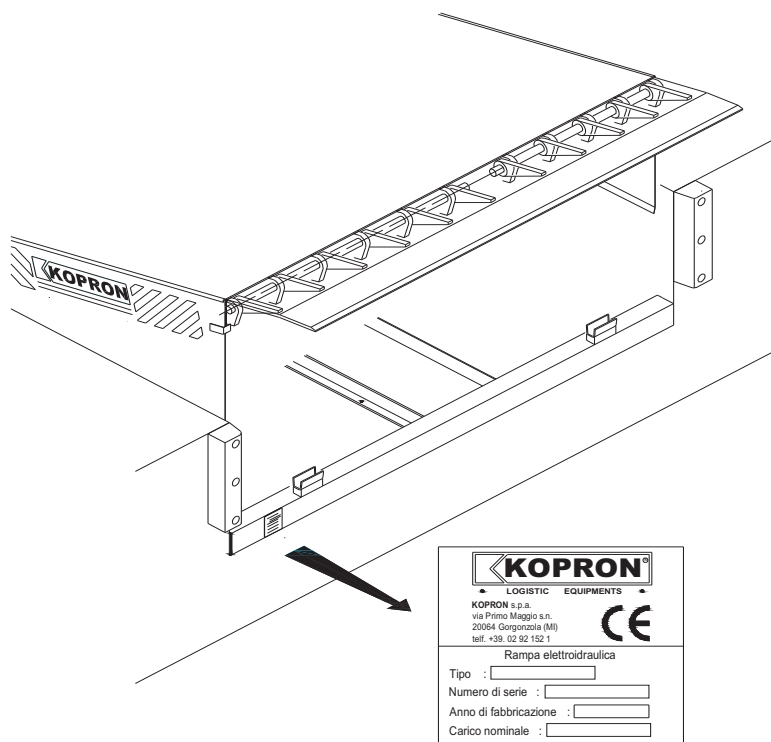
#### 1.1 HOW TO REQUEST ASSISTANCE

To request technical assistance apply directly to our Service Dpt at the following address:

**KOPRON S.p.A.** via Primo Maggio s.n. - 20064 Gorgonzola – Milan - Italy

☎ +39 -02 – 921 52 751 📠 +39-02 – 921 52 923

You need to give the serial number, year of construction which you can find on the plate positioned on the front part of the supporting frame (see chap. 1.3 Unit I).



**1.2 GUARANTEE**

- 1 - Kopron S.p.A. grant a guarantee period of 12 months from delivery date except for electric and electronic parts for which there is no guarantee, these components used for production have their own guarantee, established by the relevant suppliers, which as well does not exceed 12 months from delivery.
- 2 - Kopron S.p.A. undertake to remove any defect due to error in design or material/production faults occurring within the terms mentioned at point 1.
- 3 - For each faulty part, Buyer must give Kopron written notice within eight days. Buyer will be charged with transport costs and risks plus eventual customs expenses for faulty parts as well as for the supply of parts repaired or sent for replacement.
- 4 - Upon request of Buyer service under guarantee can be carried out locally where the dock leveller has been assembled, in this case intervention plus expenses for travel, food and lodging will be charged to customer.
- 5 - Guarantee is valid only in case equipment has been correctly used according to instructions contained in the Use and Maintenance manual.  
Guarantee will not cover faults caused by Buyer in case of maintenance or interventions not authorized by Kopron S.p.A. in writing, or due to wear and tear.  
Guarantee will not cover any damages caused directly or indirectly by tools, or due to missing production.
- 6 - Material subject to normal wear and tear is not under guarantee.
- 7 - The duration of the guaranteed does not exclude the obligation on behalf of Customer to stock up with spare parts as suggested by Kopron S.p.A. in due time.
- 8 - The obligations implied in the guarantee have nothing to do with the economical conditions agreed upon and do not authorize interruptions or changes in payment modalities.
- 9 - Guarantee covers only the mechanical functioning of the equipment, therefore Kopron S.p.A. will not be responsible for personal Customer expectations regarding quality or quantity of the product.  
Buyer must take care of the disposal of the hydraulic liquid, therefore Kopron will not be responsible in case Customer does not comply with local regulations.

## CHAPTER 1

### DRAWINGS

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- DIMENSIONS FOR LAYING THE PROFILES OF THE SELF-CARRYING FRAME MOD. KRA-I drwg. n°
- DIMENSIONS FOR LAYING MOULD MOD. KRC-I drwg. n°
- DIMENSIONS FOR LAYING PROFILE MOD. KRP-I drwg. n°
- DIMENSIONS FOR LAYING SUSPENDED FRAME MOD. KRS-I drwg. n°
- DIMENSIONS FOR LAYING DOCK LEVELLER ASSEMBLED ON SUSPENDED FRAME MOD. KRS-I drwg. n°
- DIMENSIONS FOR LAYING HIGH MOULD MOD. KRCE-I drwg. n°
- DIMENSIONS FOR LAYING DOCK LEVELLER ASSEMBLED ON BOX MODEL KRBM-I drwg. n°

| CAUSE                                  | EFFECT                                | CAUSE                                                | SOLUTION            |
|----------------------------------------|---------------------------------------|------------------------------------------------------|---------------------|
| I press the START button               | The ramp does not rise                | There is no power                                    | Reactivate          |
| I press the START button               | The ramp does not rise                | The emergency mushroom button is activated           | Deactivate          |
| I press the START button               | The ramp does not rise                | The 3-phase power system is not correctly connected. | Invert the phases   |
| I press the START button               | The ramp does not rise                | Interconnection with the door is not active          | Activate            |
| I press the START button               | The ramp does not rise                | There is no oil in the control unit                  | Add                 |
| I press the START button               | The ramp does not rise                | The hoisting piston is damaged                       | Replace             |
| I press the START button               | The ramp does not rise                | There is presence of material on the ramp            | Remove the material |
| I press the START button               | The ramp does not rise                | The control unit or oleo-dynamic plant is damaged.   | Replace             |
| The ramp platform is raised completely | The rotating beak does not open       | Foreign material in the hinges                       | Remove the material |
| The ramp platform is raised completely | The rotating beak does not open       | The valve is blocked                                 | Unblock the valve   |
| The ramp platform is raised completely | The rotating beak does not open       | The oleo-dynamic plant is damaged                    | Replace             |
| The ramp platform is raised completely | The rotating beak does not open       | The piston is damaged                                | Replace             |
| The ramp platform is raised completely | The telescopic beak does not come out | Foreign material in the hinges                       | Remove the material |
| The ramp platform is raised completely | The telescopic beak does not come out | The valve is blocked                                 | Unblock the valve   |
| The ramp platform is raised completely | The telescopic beak does not come out | The oleo-dynamic plant is damaged                    | Replace             |
| The ramp platform is raised completely | The telescopic beak does not come out | The piston is damaged                                | Replace             |

|                                                                                                                                                                                                                                                     |       |                    |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|--------------------|
| TYPE OF RAMP                                                                                                                                                                                                                                        | SERIA | CUSTOMER           |
| DIMENSIONS: WIDTH                                                                                                                                                                                                                                   |       | DIMENSIONS: LENGTH |
| ACCESSORIES INSTALLED<br><input type="checkbox"/> STANDARD BUFFERS <input type="checkbox"/> MAXI SLIDING SUPPORTS <input type="checkbox"/> <b>DOOR INTERCONNECTION</b><br><input type="checkbox"/> MAXI BUFFERS <input type="checkbox"/> SIDE FLAPS |       |                    |
| DATE OF INSTALLATION                                                                                                                                                                                                                                |       | FITTER             |

[illegible]

[illegible]

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## **VERSION MANUAL**

# **VERSION MANUAL INDEX**

- APR 2019 - SISTEMA DI BLOCCAGGIO ASTA DI SICUREZZA  
PAG. 2 AGGIORNAMENTO DIRETTIVE E CERTIFICAZIONI

OVER 35 YEARS OF SUCCESS WITH:



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Quality Management System UNI EN ISO 9001 Certified  
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Welding of Metallic Materials UNI EN ISO 3834-2 Certified  
Steel Processing Center N° 2533/13  
Applicable Standard: UNI EN 13241-1



## CERTIFICAZIONI CERTIFICATIONS

Kopron attraverso le certificazioni di qualità offre un'ulteriore garanzia sull'efficacia e l'efficienza dei propri prodotti.

*Through certifications Kopron offers a further guarantee on efficiency and quality of their products.*



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