BOOKLET 2

DOCK LEVELLER WITH A TELESCOPIC LIP

LOGISTIC SOLUTIONS

KOPRON®

CONTROL BOX
NEW REV. 3.1

ED. 2014

STANDARD UNI EN 1398-2009

ASSEMBLY, USE AND MAINTENANCE MANUAL

SUMMARY

This manual has been made in two parts: Part I is dedicated to the assembly of the dock leveller, Part II to the Control Box. These two parts must be considered as one for declaration of conformity, applicable standards and for safety.

KOPRON S.p.A

You may find in text the following symbols:

SYMBOLS:

DANGER– WARNING

The 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.

IMPORTANT

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

ECOLOGY

Remarks regarding environment protection

PROHIBITIONS

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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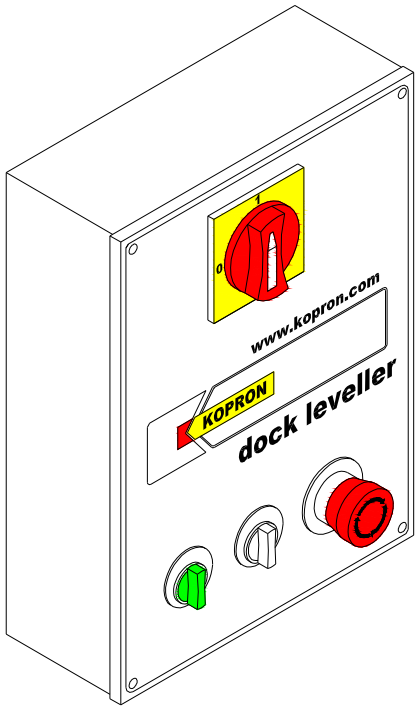
DESCRIPTION AND TECHNICAL DATA OF THE CONTROL BOX

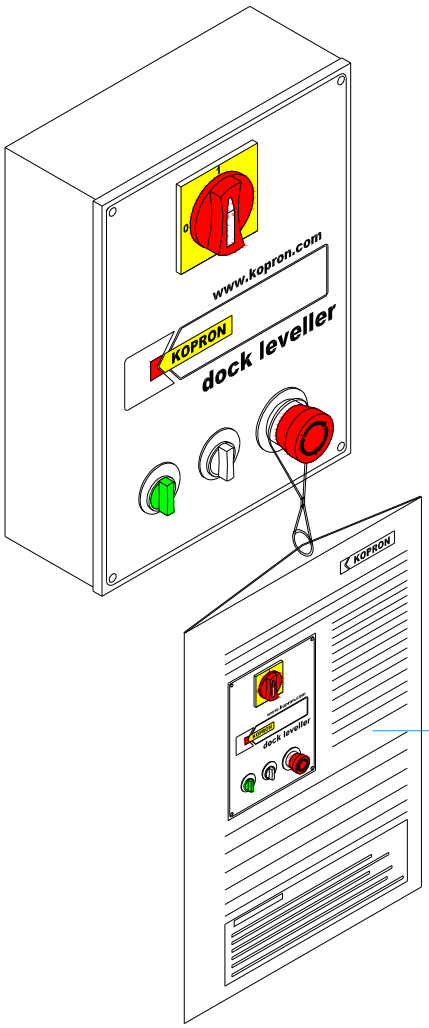
The control box consists of a main switch with a door with a lock and mushroom-head, latching emergency stop button.
Both the control box and electric system have been made according to European
Standard N.60947-1.This equipment is according to standard UNI EN 1398-2009, Type C.

Three-phase supply	230/400V 50 Hz - 265/460V 60 Hz
Auxiliary feed tension	24 V.a.c. / 24 V d.c.
Total power	1,5 Kw
Temperature	- 20° C / + 55° C
Protection level	IP 65
Accessories to connect	Proximity switch kit and interlocking card for Sectional doors
Sizes	250 x 200 x 90 mm
Control box identification	Ramp new Rev. 3.1



A USEFUL ADVICE

When you start using the dock leveller we suggest to hang on the emergency button a note in a plastic cover as shown in the drawing, reminding operators of the main functions and indications on safety. Information is given at page 6, you only have to photocopy the page and slip it in a plastic cover.

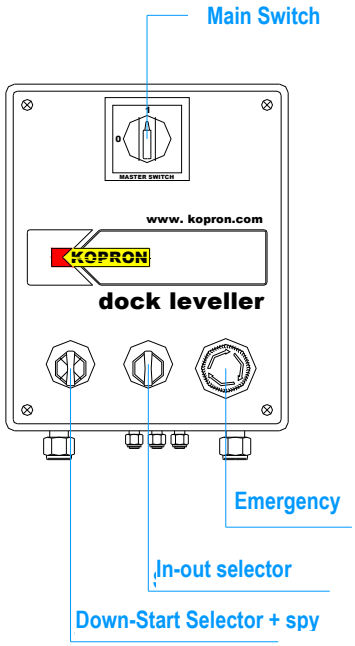


Control functioning instructions as
Shown at page 6

The dock leveller must be carried out by skilled and specifically trained personnel, which must be duly informed about any improper use, particular risks and safety measures. The assembly, use and maintenance manual is a fundamental requirement for the use of the product.

RAMP CONTROLS FUNCTIONING HANDLING

Make sure of the following before starting any operation: the width of the dock leveller must comply with the width of the platform of the lorry, the door above must be open, the lorry must be correctly positioned in the middle of the dock leveller and lean against the rubber bumpers with rear doors open. At this point you may operate as follows:



- Switch main switch on.
- Turn the 'Down – Start' selector in 'Start' position keeping it there until the ramp is over the height of the truck surface where it will eventually land.
- Turn the 'In –Out' selector in 'Out' position to move telescopic lip until it is completely out.
- Turn the 'Down – Start' selector in 'Down' position to lower the ramp until the lip lays on the truck surface.
- During this phase the spy is green.
- Leave selector in 'Down' position for all the time during loading/unloading activities.

To bring the ramp back to idle position operate as follows:

- Turn 'Down – Start' selector in 'Start' position keeping it there until the ramp lifts from the truck surface.
- Turn the 'In-Out' selector to 'In' position to move the lip inwards till it is completely back .
- Turn 'Down – Start' selector in 'Down' position to lower the ramp to idle position. When operation is over selector can be brought back to central position.

Loading/unloading activities must be carried out only when green light is on.

During operations for safety reasons you can push the safety/emergency button, this will immediately stop any activity.

INSTRUCTIONS FOR SAFETY

- WHEN EMERGENCY BUTTON IS ACTIVATED THE DOCK LEVELLER MUST NEVER BE TRANSITED.
- YOU MUST NEVER CARRY OUT LOADING/UNLOADING OPERATIONS WITH DOCK LEVELLER IN RESTING POSITION.
- THE LIP OF THE DOCK LEVELLER DURING LOADING/UNLOADING OPERATIONS MUST NECESSARILY BE POSITIONED ON THE PLATFORM OF THE TRUCK.
- OPERATOR MUST HAVE FULL VISIBILITY OVER THE DOCK LEVELLER MOVEMENTS.
- TRANSIT SPEED OF THE CARRYING MACHINES ON THE DOCK LEVELLER MUST NOT EXCEED MAN'S PACE.
- NEVER EXCEED THE ESTABLISHED CAPACITY.

In case you need assistance you may contact Kopron Service tel. 02.92152751

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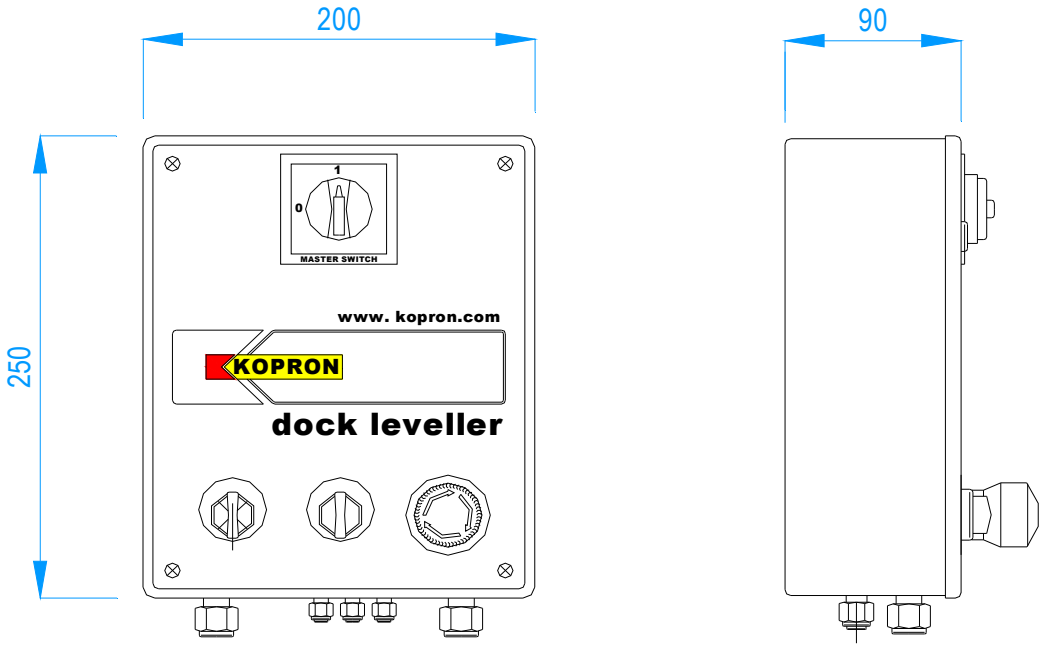
CHAPTER 1- ELECTRIC CONNECTION

1.1 CONTROL BOX POSITIONING

The control box must always be placed inside the room and positioned in order to allow operator to have full visibility over the dock leveller for safety reasons.
When deciding the positioning of the control box you must remember that the length of connecting cables to the electric equipment of the dock leveller (motor control unit and electrovalves) is of 8 meters.

The size of the control box is the following:

CONTROL BOX - mod. Rev 3.1



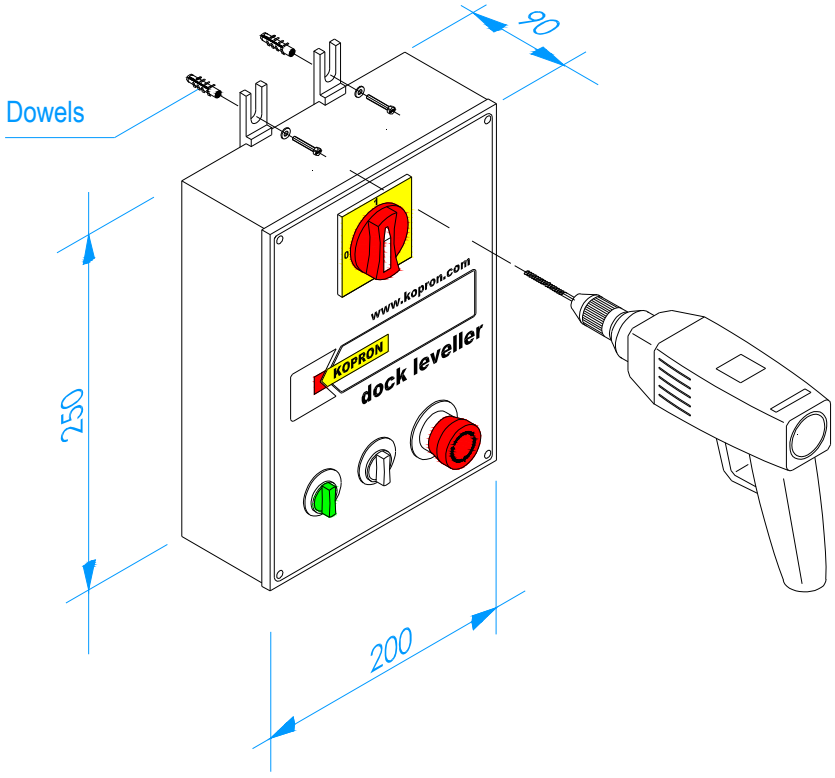
Fix the control box to the wall with the plastic brackets you find with the supply.
The control box has holes at the back, brackets must be fixed in with screws you find in the plastic bag containing the brackets.

Make sure not to damage the equipment inside the box by accidentally perforating it, this would jeopardize protection level IP 65.

BACK SIDE OF THE CONTROL BOX

Holes

Brackets



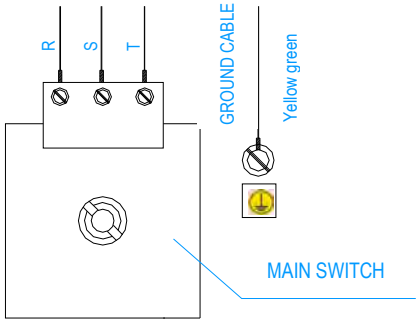
1.2 CONTROL BOX POWER SUPPLY

Before any electric connection, check the voltage of the line which must correspond to the voltage of the equipment. Voltage sudden changes must not exceed 10%
The equipment can be supplied at 50/60 Hz
Connecting wires must have a nominal section according to their length, in order to bear the absorbed amperes. See details as follows:

	Three-phase supply 230 V	Three-phase supply 400 v
Hydraulic motor 1.1 kW		
Absorption	3.2 A	2.2 A
Supply cable FLOR 450/ 750V	4G of 2.5 mm²	4G of 1.5 mm²

For the connection of three-phase voltage connect the line directly to terminals of main switch.
Ground wire connection is carried out by connecting it to the right terminal and positioning it near the main switch.
Before carrying out any connection, power supply must be deactivated.
Keep an eye on the power supply switch for all the time necessary for carrying out connection operations.

CONTROL BOX CONNECTION



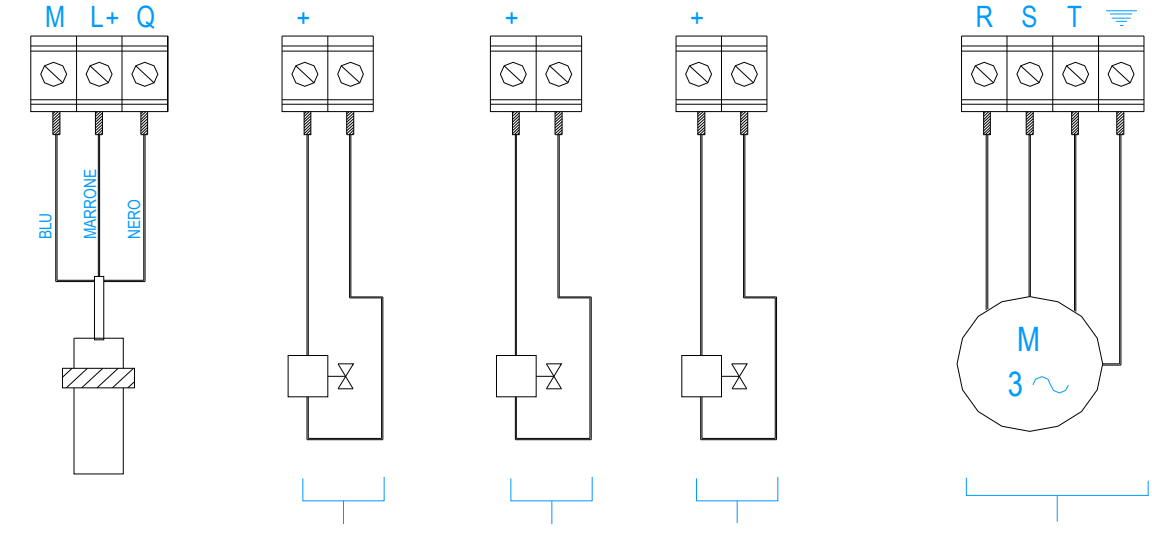
The control box must be connected to its own dedicated electric supply line provided with a circuit breaker with programmable in-rush current limiting (10% more than the nominal value of absorption).
The power supply line must also be provided with a residual current device set at 30Ma (milliamperes).
Make sure that the ground cable of the control box is correctly connected to electric ground system of the plant. This check must be carried out with technicians of buyer and **with utmost care.**
Power supply cables must be put in casing with minimum protection IP54.
Control box connections must be carried out by specialized and skilled personnel as according to standards EN 292.2 art. 5.5.1.

1.3 EQUIPMENT CONNECTION

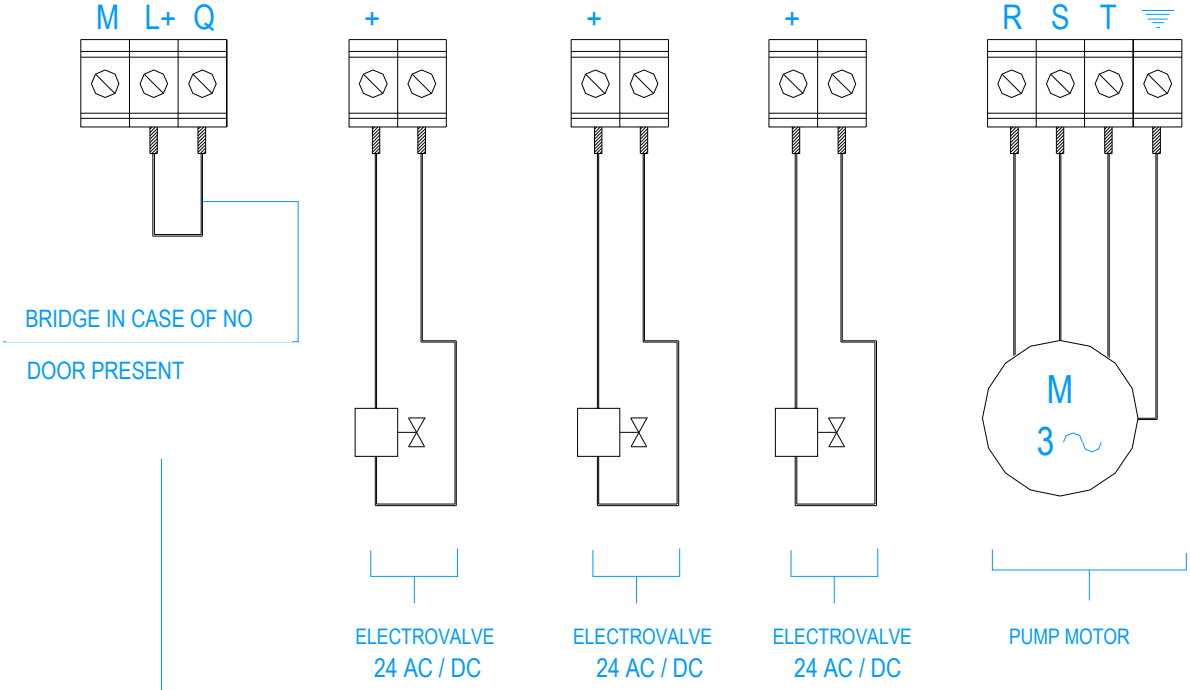
The electric system of the dock leveller has connections to the motor control unit and to the electro-valve and is supplied with cables to be directly plugged into the sockets of the control box terminals.
For control boxes used on special dock levellers which are part of complete loading bays with a door, there is an optional connection to a micro-switch which controls the opening of the door allowing the dock leveller to move only when the door is completely open.
The connection to the micro- switch can be enlarged to add other blocking controls.
The length of the connecting cables to the motor control unit and electro-valves is of 8 meters, while cables of the micro-switch regulating the door opening must be dedicated ones.
The electric system must be placed in wiring raceways to avoid damages.

The next page shows how the control box terminals must be connected either in case of door or no door present. In case of no door present you must provide a connecting bridge between terminals L+ e Q.

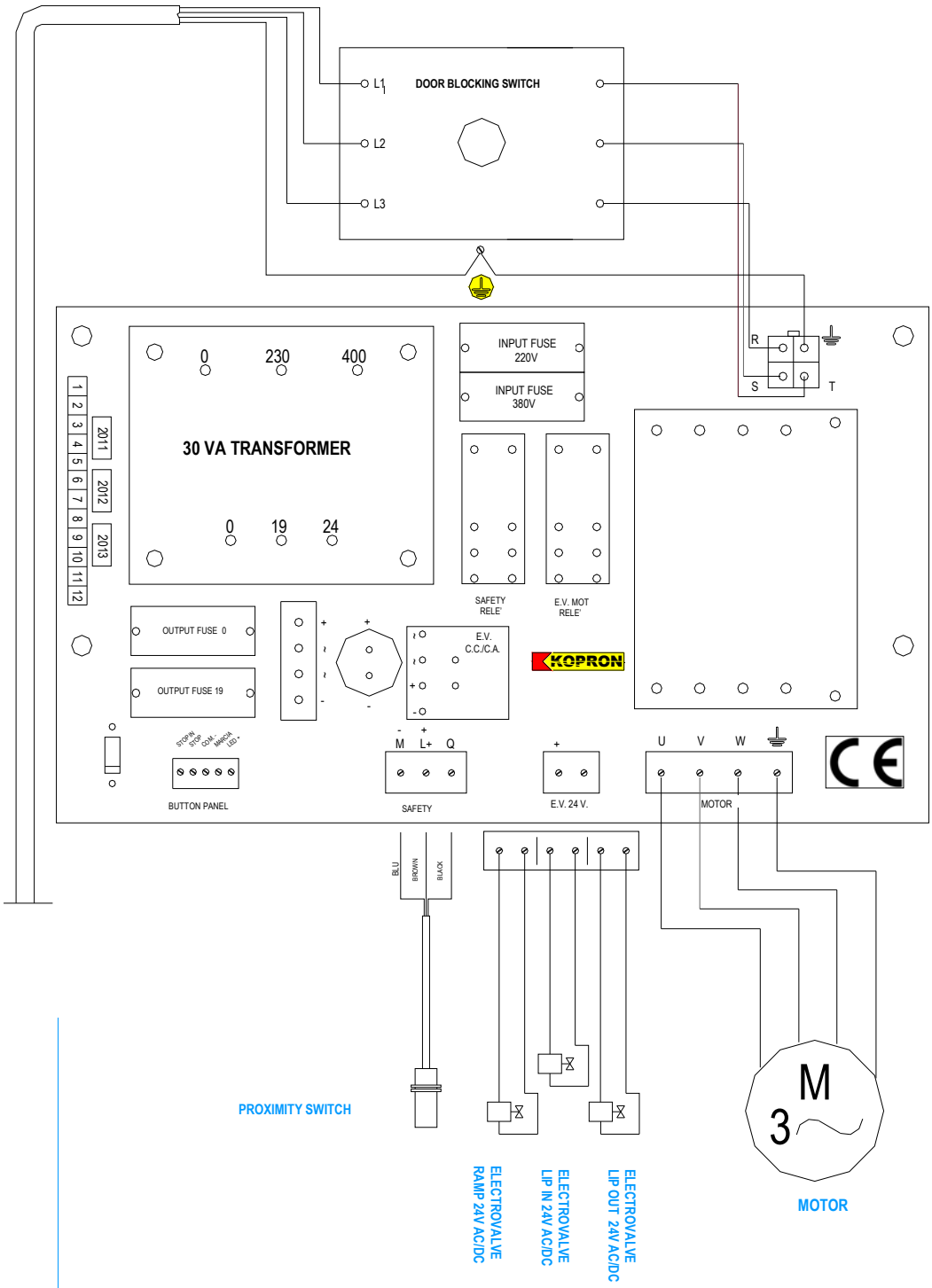
WITH DOOR



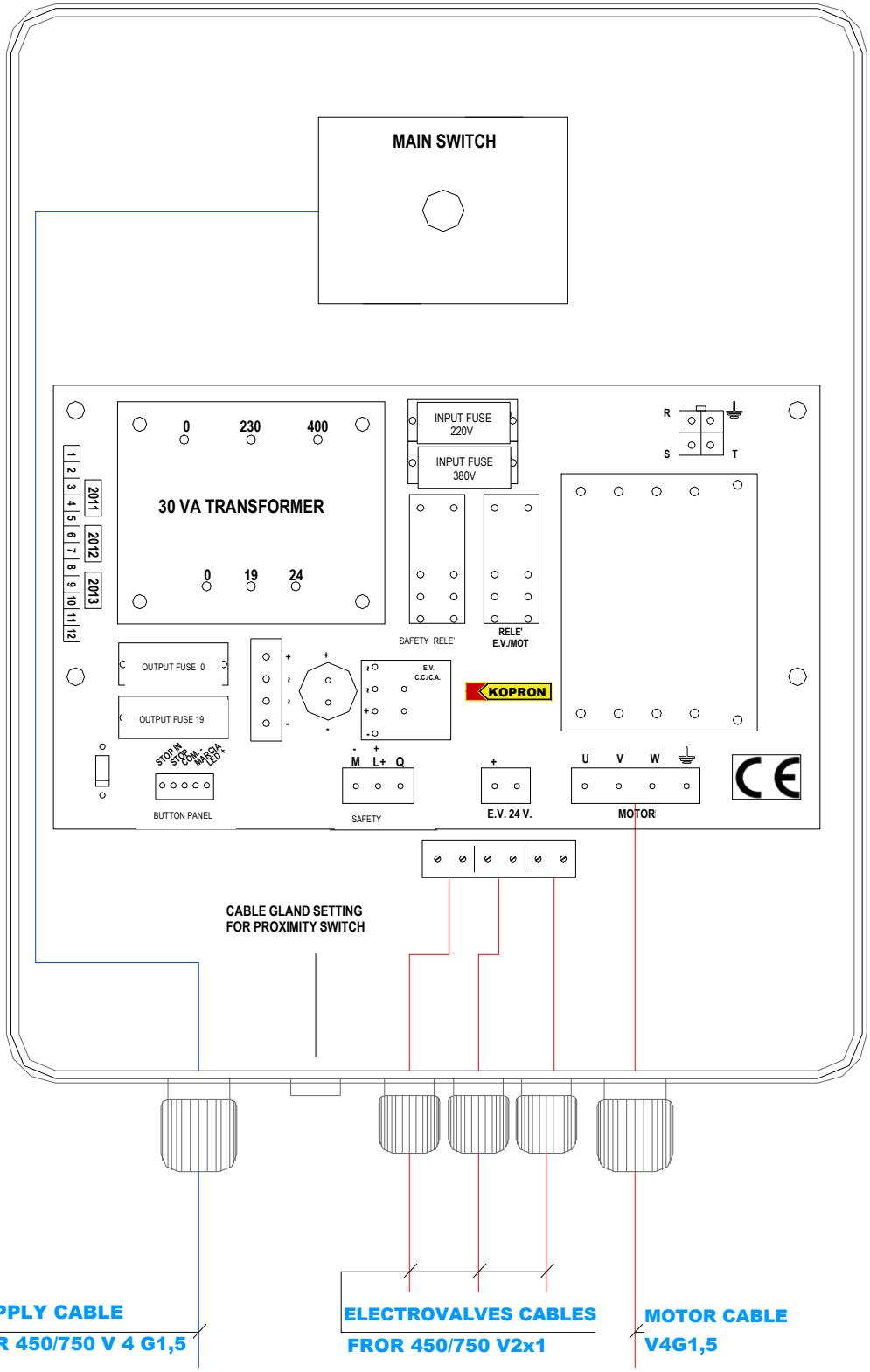
WITHOUT DOOR



EQUIPMENT CONNECTION



CABLES AND CABLE-PASSES OF THE CONTROL BOX



CHAPTER 2- INSTRUCTIONS FOR USE

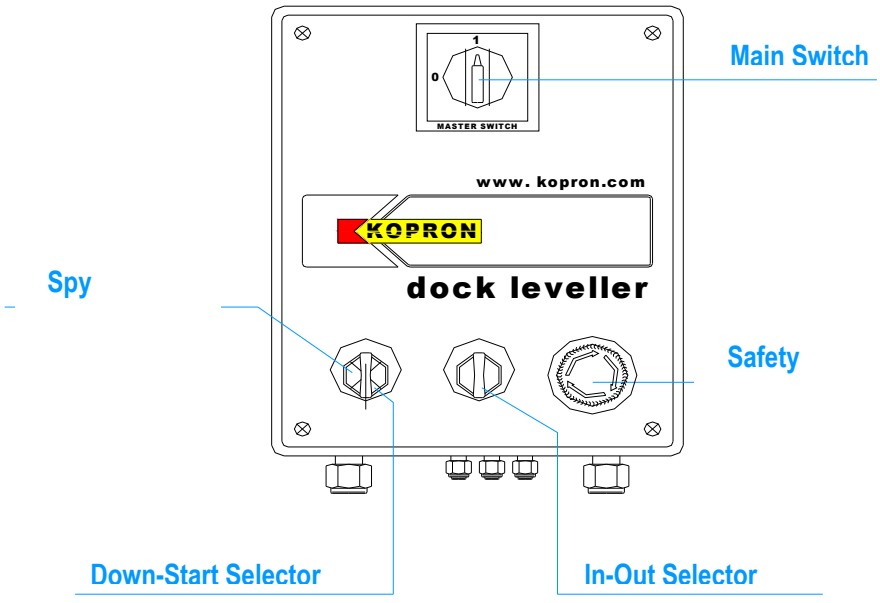
2.1 CONTROLS AND SIGNALING LIGHTS

The dock leveller controls are the following :

- Main switch which can be locked when off.
- 'In – Out' selector with 3 positions- zero in the middle. It controls the out/in movements of the telescopic lip.
- 'Down – Start' selector with 3 positions - zero in the middle with green light. It controls the up and down movements of the ramp.
- Latching emergency button immediately stops the dock leveller.

The functioning of the controls is detailed in chap. 2.2 – *How to operate-.*

The control box consists of the following



Down - Start Selector

In - Out Selector

Emergency button

Main switch with a lock

2.2 HOW TO OPERATE

Make always sure that the length of the lip complies with the length of the platform of the lorry.

Once the upper plate is completely cleared, the door if any is open, the lorry is correctly positioned in the middle of the ramp, the motor off, gear engaged and hand brakes on, operate as follows:

-Switch main switch on
-Turn the 'Down – Start' selector in 'Start' position keeping it there until the ramp is over the height of the truck surface where it will eventually land.
-Turn the 'In –Out' selector in 'Out' position to move telescopic lip until it reaches the necessary length to lay on the truck surface.
In case you use a ramp with flaps during out coming phase, when the flaps touch the truck doors they automatically withdraw.
-Turn the 'Down – Start' selector in 'Down' position to lower the ramp until the lip lays on the truck surface.
During this phase the green spy is on.
Leave selector in 'Down' position for all the time during loading/unloading activities.

Loading/unloading activities must be carried out only when green light is on.

To bring the ramp back to idle position operate as follows:

-Turn 'Down – Start' selector in 'Start' position keeping it there until the ramp lifts from the truck surface.
-Turn the 'In-Out' selector to 'In' position to move the lip inwards till it is completely back
-Turn 'Down – Start' selector in 'Down' position to lower the ramp to idle position. When operation is over selector can be brought back to central position.

Truck can leave once the ramp is idle.

The emergency button, stops the dock leveller movements immediately.
This is a latching type of button, it activates when you press it and deactivates when you pull it.

Once you press the emergency button you must for no reason transit the dock leveller.

It is of essential importance that during loading/unloading activities for safety reasons the truck must be idle with gear engaged, hand brakes on and properly leaning against the rubber bumper. The lip must be firmly positioned on the truck platform.

You must never carry out any loading/unloading operations when dock leveller is in idle position.

The dock leveller must be operated only by **trained and specialized personnel.**

2.3 HOW TO USE STOP BUTTONS

Dock leveller movements are stopped by pressing an emergency red button you find on the control box with yellow written label 'STOP' underneath.
Description of the emergency button:

- Emergency button which immediately stops the dock leveller.

This is a latching type of button, it activates when you press it and it deactivates when you pull it. However when you pull the button to deactivate, the dock leveller remains still where you stopped it.

You must never transit the dock leveller when emergency button is pressed.

CHAPTER 3 - ANOMALIES , MANTAINANCE AND REPAIRS

3.1 ANOMALIES, CAUSES AND REMEDIES

The following are anomalies which may occur with relevant causes and remedies.
Bold type numbers within the parenthesis indicate the position of the equipment inside the control box (see drawing).

ANOMALIES	CAUSES	REMEDIES
Pump motor doesn't run	Emergency button pressed Auxiliary circuit fuses Door block closed Contactor **(4)** damaged	Pull it Verify status and replace Open the door and verify the sensor. Check if other blocking systems have been placed on the line of the sensor Replace
Pump motor runs without moving the ramp	Electro.-valve anomaly- Motor turns on the wrong side Auxiliary circuit fuses No oil in the control box tank Lifting cylinder tube broken YA2 valve with red button in	Replace control solenoid valve reverse a phase See chap. 3.1 Dock leveller start up – Part I Verify status and replace Fill the tank Replace Pull the button see chap 2.12.2 Equipment Adjustment (Part I) Contact Kopron Service Dpt
Lip struggle to open or to close	Dirt or something interfering with movements No lubrication Deformation caused by damages No oil in the control box tank	Clean and remove obstacles Apply Molykote grease Adjust Fill in the tank Contact Kopron Service Dpt
The upper plate struggles either to go up or come down	Dirt or something interfering with movements No grease on the hinges No oil in the control box tank Deformation caused by damages	Clean and remove obstacles Apply Molykote grease Fill in the tank Adjust Contact Kopron Service Dpt
Safety valve malfunction	Air in the hydraulic circuit	Remove air from the hydraulic circuit chap. 2.12.3 - Air Removal from hydraulic circuit (Part I)

CHAP. 4 ASSISTANCE

Interventions on anomalies must be carried out by specialized and skilled personnel according to standard EN 292.2 art. 5.5.1.

In part I chapter 6 you can find instructions on safety when carrying out maintenance operations.

For any further information apply to our local Service Dpt.

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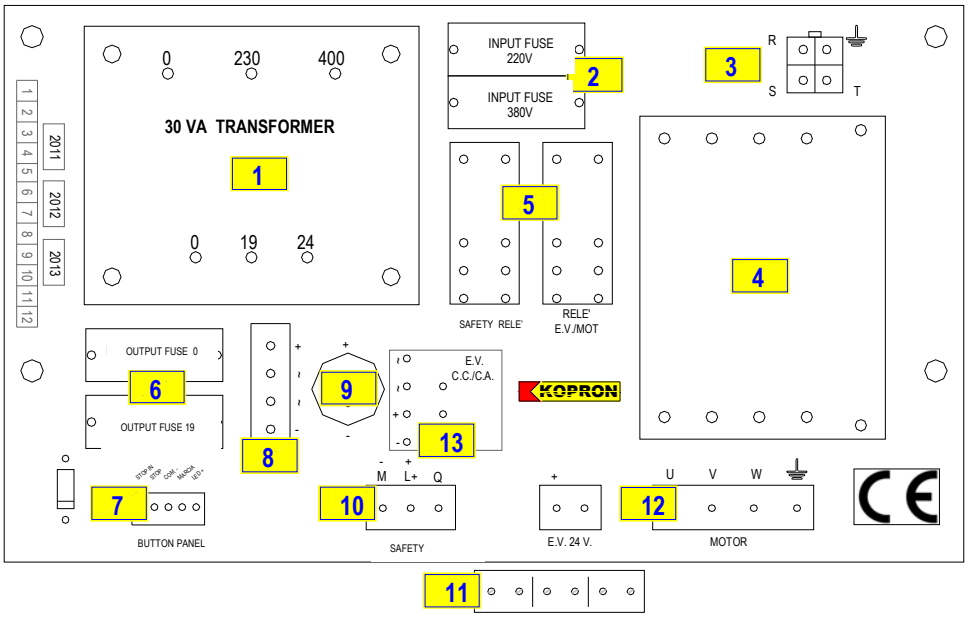
EQUIPMENT POSITION WITHIN THE CONTROL BOX



LIST OF COMPONENTS

1. 30 VA Transformer
2. Powerline Fuses type 5x20 mm, 400
3. 4 pin extractable terminal box for power
4. Motor contactor, 9A/AC3
5. Auxiliary relé for electrovalves, 6A
6. Auxiliary fuses, type 5x20 mm, 400A
7. 5 pin extractable terminal box for control panel
8. 8A Rectifier bridge
9. Electrolytic capacitor 1000µF
10. 3pin terminal box for connecting safety devices
11. 6pin terminal box for connecting the electrovalve
12. 4pin terminal box for motor
13. 24V-AC/DC electrovalve power supply converter

CHAPTER 4- SPARE PARTS, ASSISTANCE AND GUARANTEE

4.1 SPARE PARTS SUGGESTED

In case you need spare parts please apply to our Service Dpt.

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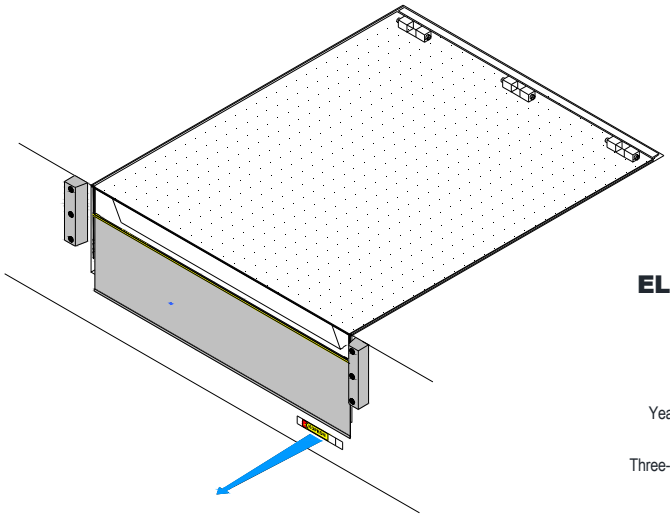
When you contact us you must give the following information: serial number and year of construction. You may take these data from the label normally positioned on front part of the dock leveller frame.



ELECTRO - HYDRAULIC DOCK LEVELLER

Type :
Serial number :
Year of construction :
Nominal load :
Three-phase power suppy :

ELECTRIC SYSTEM - SPARE PARTS SUGGESTED				
Ref.	Part number	qty		
	Contactor	1		
	Capacitor	1		
	Powerline fuses	5		
	Auxiliary circuit fuses	5		
	Auxiliary relé	1		
	Button	1		
	Emergency button	1		
	Lights	2		
	Electrovalve coil	1		

4.2 HOW TO APPLY FOR ASSISTANCE

For assistance please apply to our Service Dpt.

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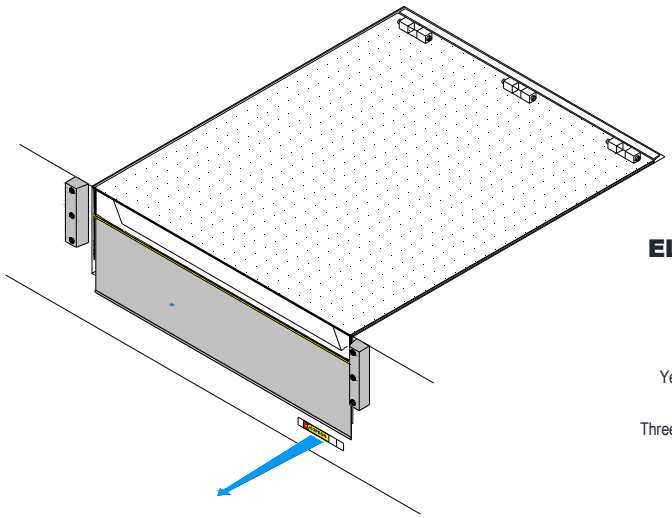
When you contact us you must give the following information: serial number and year of construction. You may take these data from the label normally positioned on front part of the dock leveller frame (see Chap. 1.3 – Part I).



ELECTRO - HYDRAULIC DOCK LEVELLER

Type :
Serial number :
Year of construction :
Nominal load :
Three-phase power suppy :

4.3 - 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 there own guarantee, established by suppliers which in any case do not exceed 12 months from delivery.

2 - Kopron S.p.A. under take to remove any defect due to error in design or material/production faults occuring within the terms mentioned at point 1..

3 - For each faulty part, Buyer must give Kopron S.p.A 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 login 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 either 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 guarantee 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 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 expectation regarding quality or quantity of the product. Buyer must take care of the disposal of the hydraulic liquid, therefore Kopron S.p.A. will not be responsible in case Customer does not comply with local regulations

LOOKING AHEAD

Quality Management System
UNI EN ISO 9001:2008 Certified
Factory Production Control
UNI EN ISO 1090
Applicable standard
UNI EN 13241-1
UNI EN 16005
UNI EN 1398
UNI EN 3834-2

CERTIFICAZIONI
CERTIFICATIONS

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

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

KOPRON LOGISTIC SOLUTIONS

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