

RETRACTABLE WAREHOUSES

LOGISTIC
SOLUTIONS



WAREHOUSES FROM A 10 TO 24 MT SPAN



ASSEMBLY, USE AND MAINTENANCE MANUAL

MACHINERY IDENTIFICATION

structure	
model	
version	
serial number	
year of construction	
manufacturer	KOPRON S. p. A. via I° Maggio, s.n. Gorgonzola – Milan - Italy ☎ +39 02 92 152 753 📠 +39 02 92 152 923
customer	
destination	

LEGISLATIVE STANDARDS REGARDING THE STRUCTURE

The structure is made according to the following standards in force:

- Law 05/NOVEMBER/1971 N 1086 - Standard regulating the use of reinforced concrete, either normal or prestressed and with metal structure.
- D.M.LL.PP. 14/FEBRUARY/1992 - Technical standards regulating the works carried out in reinforced concrete and prestressed and for metal structure.
- D.M.LL.PP. 09/JANUARY/1996 - Technical standards for calculations, works and testing of the structures in reinforced concrete normal and prestressed and for metal structures.
- D.M.LL.PP. 16/JANUARY/1996- Technical standards regarding 'general criteria for safety checks on constructions and loads and overloads'.
- MINISTERIAL MEMORANDUM LL.PP. 04/JULY/1996 N 156AA.GG./STC - Instructions on how to apply the technical standards Istruzioni regarding 'general criteria for safety checks on constructions and loads and overloads' as mentioned above.
- CNR - UNI - 10011 JUNE 1988 - Steel Costruction - Instructions for calculation, construction, testing and maintenance.

In addition if required:

- D.M.LL.PP. 16/JANUARY/1996 - Technical standards for building in earthquake zones.
- LAW 02/FEBRUARY/1974 N 64 - Detailed provisions for building in earthquake zones.

Regulations for specific needs of the zone of construction issued by local authorities must be considered.

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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 the life cycle of the equipment from installation to dismantling.

In case instructions are not clear or should particular problems arise and 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.

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 planned according to EEC standards which require only specialized personnel to carry out interventions.

Personnel handling the structure must have full knowledge on how to operate it, on improper use and on particular risks and protection measures.(see dedicated chapter to risks)

Safety requirements are met when regular maintenance is carried out on behalf of qualified personnel which operates according to instructions contained in this manual and has duly been trained on 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 II) which contains all the necessary data Kopron needs:

 **S. p. A.**

via Primo Maggio s.n.

20064 Gorgonzola – (MI)

 +39-02 – 921 52 753

 +39-02 – 921 52 923

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

Kopron S.p.A...

CHAPTER 1

DESCRIPTION

1.1 DESCRIPTION OF THE STRUCTURE

A retractable warehouse consists of metal profiles covered with a fabric, and is designed to cover areas for different purposes in compliance with standards regulating the use of this type of warehouse.

The main characteristic of this type of structure is that it is not permanent, but retractable, in other words it can be extended over the area it has been created for, and then be folded back to closed position.

The structure is built with either square or rectangular steel tubes which go through hot galvanization process to resist against the effects of weather.

It can therefore be installed in any all areas also with difficult weather and also near sea sites, resisting against corrosion.

The structure is made of different parts assembled together either by bolting or electrowelding the joints. Both ways are effective and give the required stiffness to the structure.

The work is carried out either in workshops or in building yards.

The retractable structure, made of several frames connected to one another, is mounted on wheels sliding on tracks.

1.2 IMPROPER USE

The retractable structure can be used for many purposes.

It is easy and quick to assemble, it can be used on working sites where you need to shelter machinery and equipment.

The structure must not be used for purposes different from the ones indicated.



In case the buyer needs to use the structure in a special way he will have to first inform Kopron S.p.A. who must authorize such a use and suggest actions to undertake.

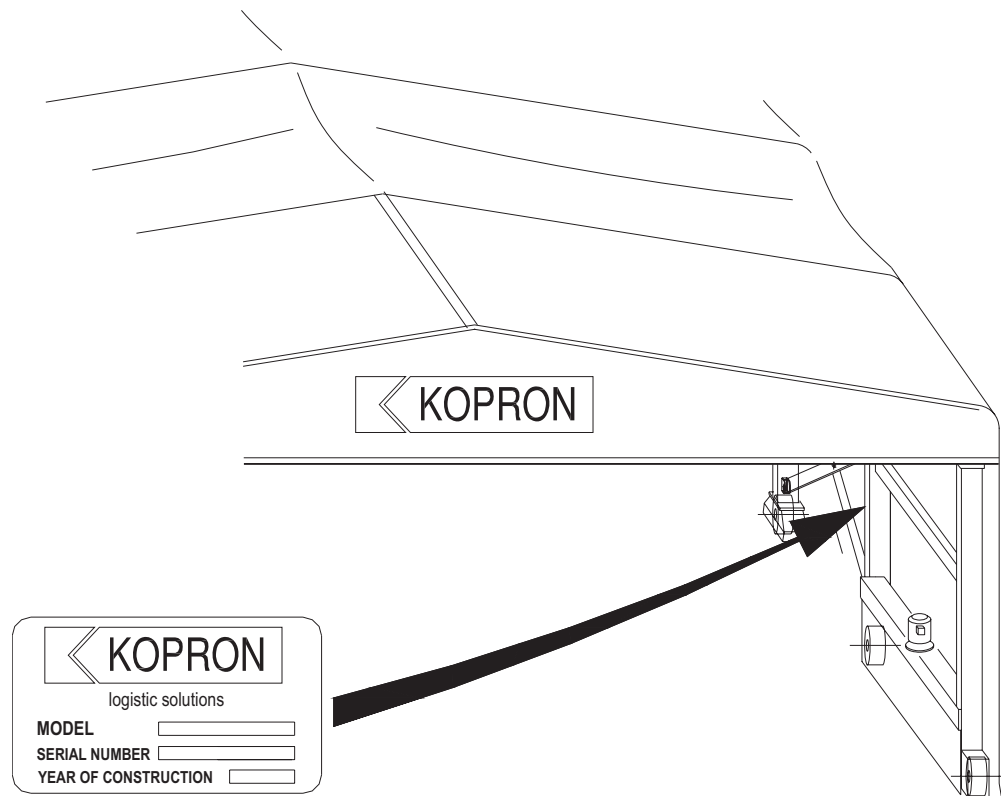


The location where the structure will be placed is of utmost importance to determine the type of structure necessary according to the climate or to other environmental conditions. In case buyer makes an improper use of the structure he will totally take his own responsibilities and guarantee will no longer be valid.

1.3 MARKING PLATE



Marking plate of the product is permanently placed near the second post on the right. The data in the marking plate must be legible, and must be often cleaned. In case it gets damaged or becomes no longer legible, it must be replaced in compliance with the EC Machines Directives. For requesting another plate please mention the data contained in the documents which accompany the goods.



CHAPTER 1**IDENTIFICATION AND CONTROL OF THE MATERIAL****1.1 INTRODUCTIONS**

Warehouses with span from 10 to 24 mt are delivered with arches disassembled and posts already provided with wheels.

The arch is the carrying structure of the warehouse made of two trusses, a connecting boom and, if necessary, of the vertical and diagonal ties.

The whole structure is assembled with anchoring bolts and all components are perforated before being galvanized.

Pantograph bars connect the arches to one another and are supplied already assembled on the posts.

The covering consists of a special fabric. For instructions regarding assembly of the cover please go to Unit IV.

Unit IV also describes the assembly of sliding curtains, if any, in the front and rear part of the warehouse.

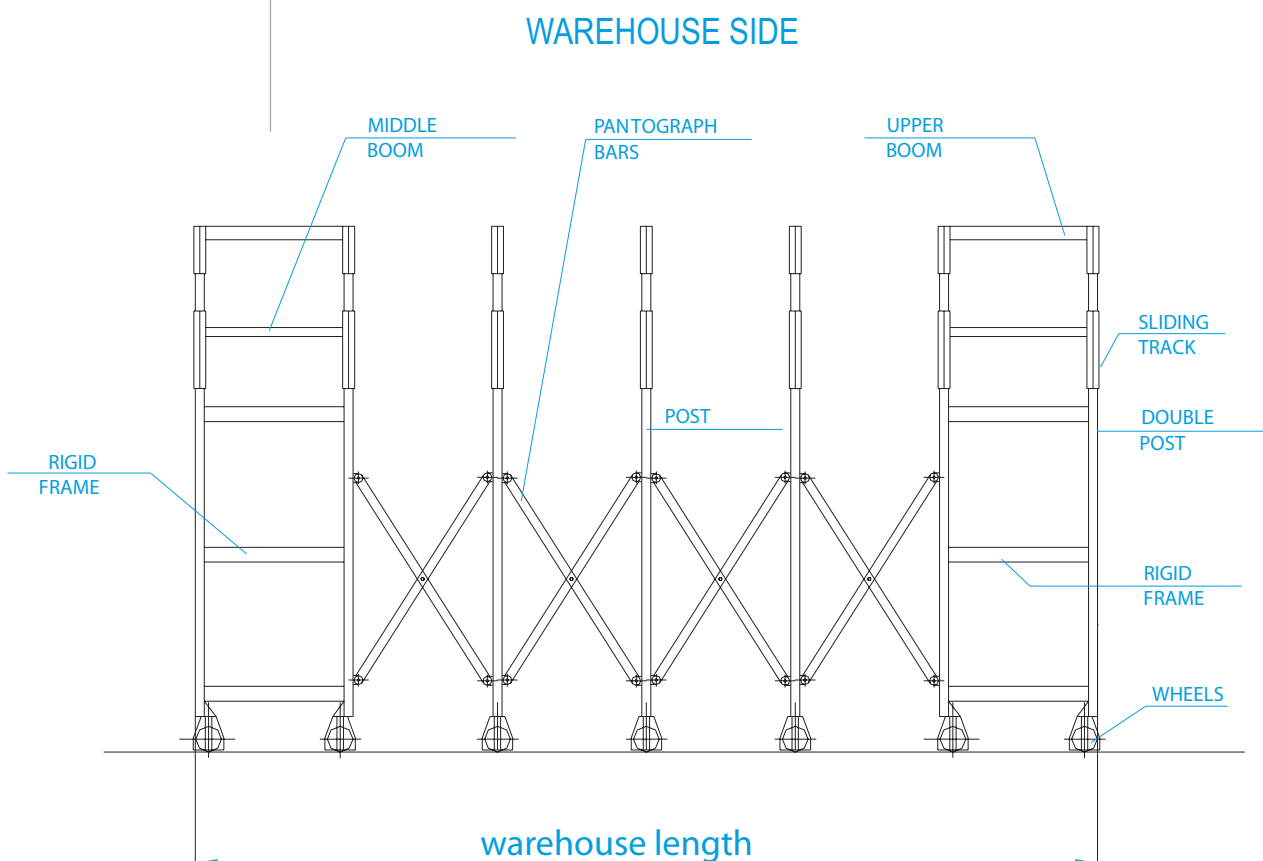
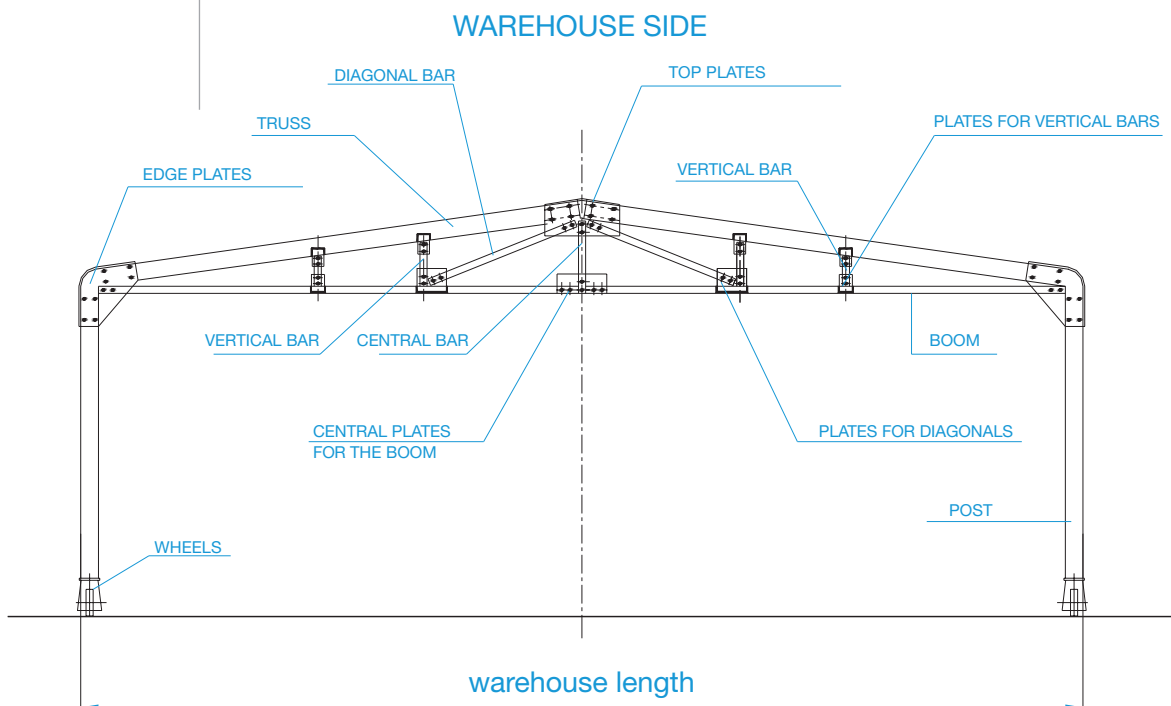
1.2 IDENTIFICATION AND CONTROL OF THE MATERIAL

Along with delivery, besides transport documents, you may also find:

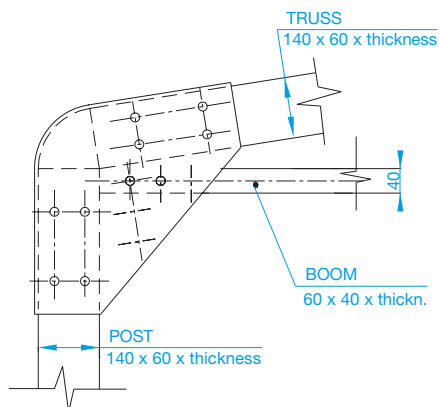
- packing list including the number of bolts necessary for assembly.
- data regarding the warehouse such as width, length, height ecc.
- drawings of the structure.
- drawings of the fabric detailing the colour and the positioning of the writings.
- drawings of the sliding curtains for the front a rear part of the warehouse.
- drawings for the laying of the tracks.



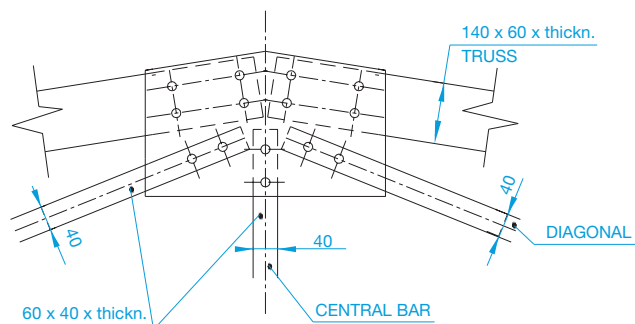
Upon receipt material must be inspected, in case of missing or damaged material, you must inform Kopron S.p.A. in writing, within seven days from receipt of material. Drawings can help you to identify the components.



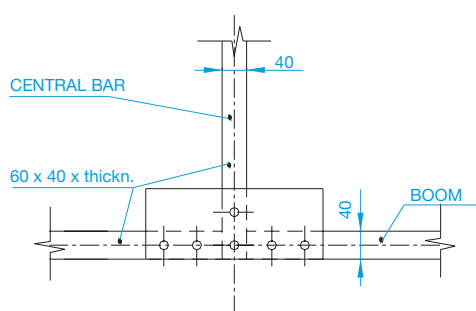
EDGE PLATES



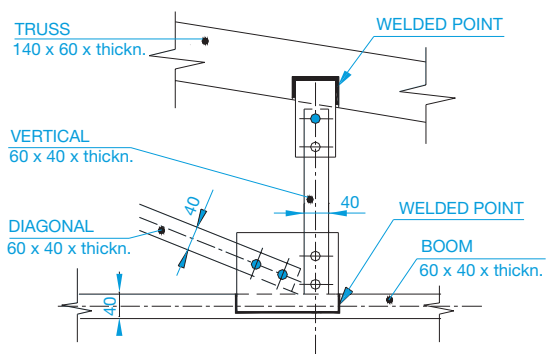
TOP PLATES



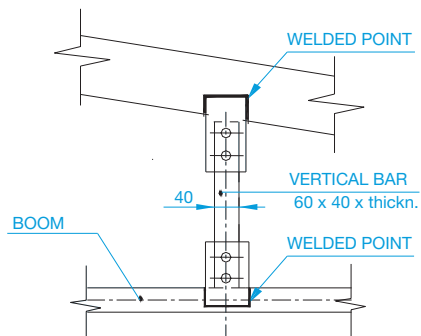
CENTRAL PLATES



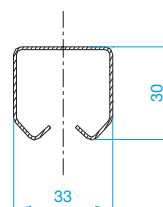
PLATES FOR DIAGONALS



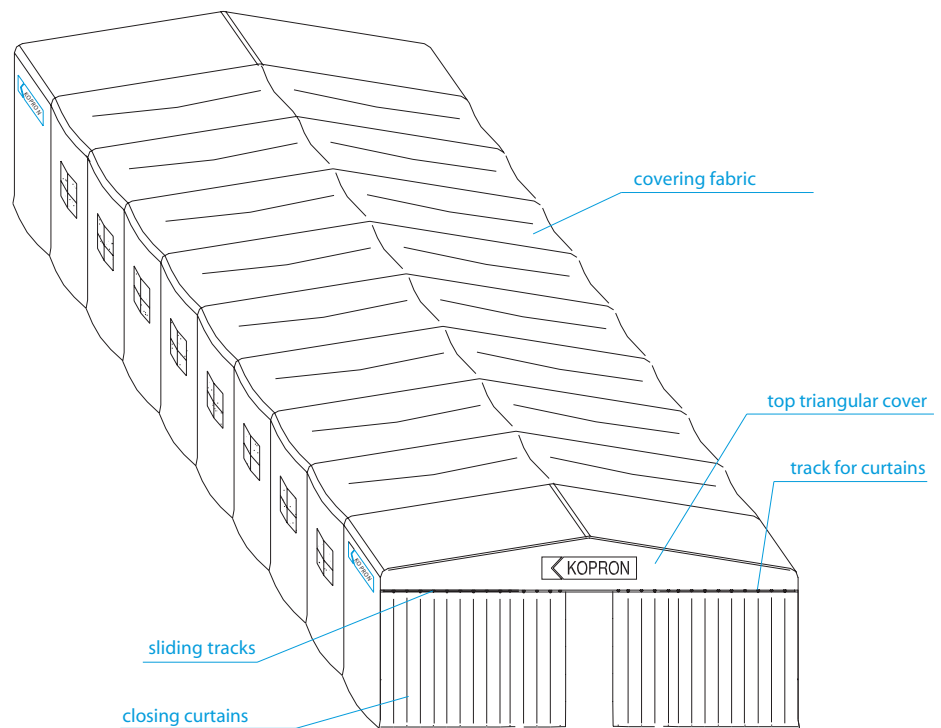
PLATES FOR VERTICAL



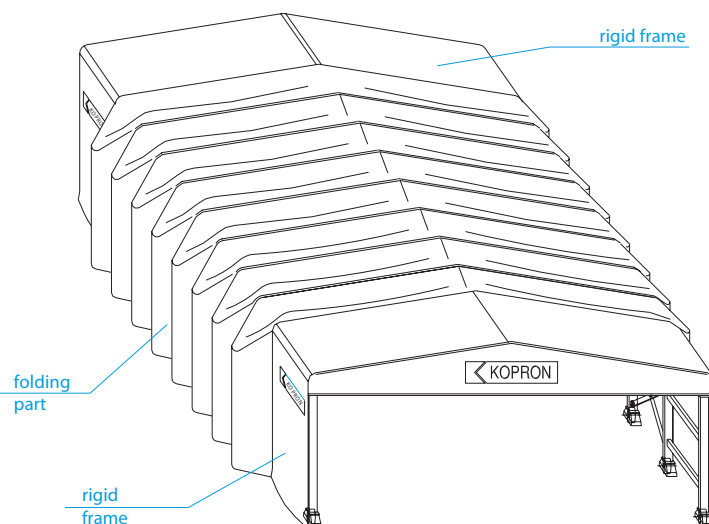
CURTAIN SLIDING TRACK



assembled warehouse



folded warehouse



CHAPTER 1

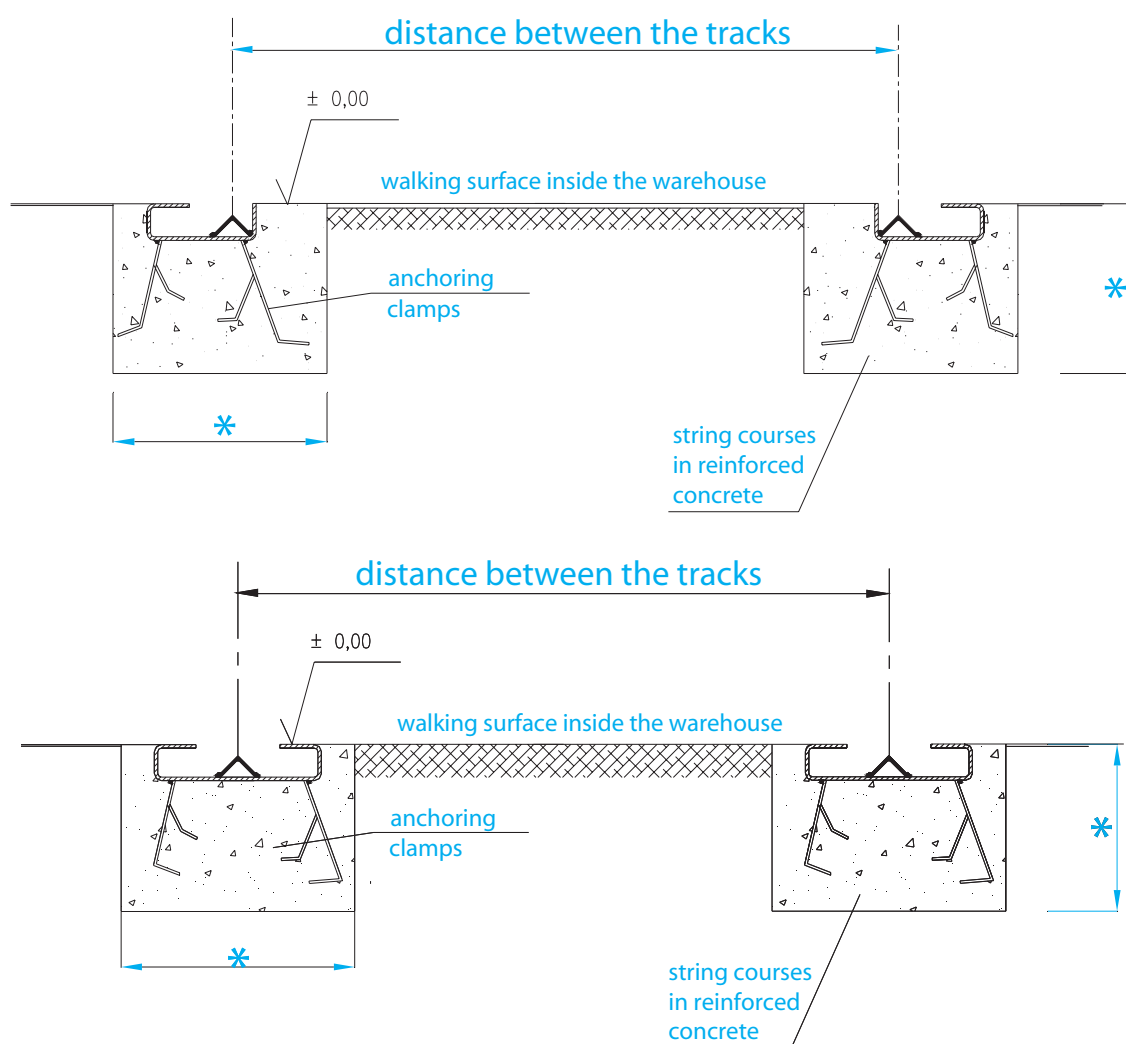
MASONRY WORK

1.1 MASONRY WORK

Before starting assembly make sure masonry work for the laying of the tracks has been done correctly.

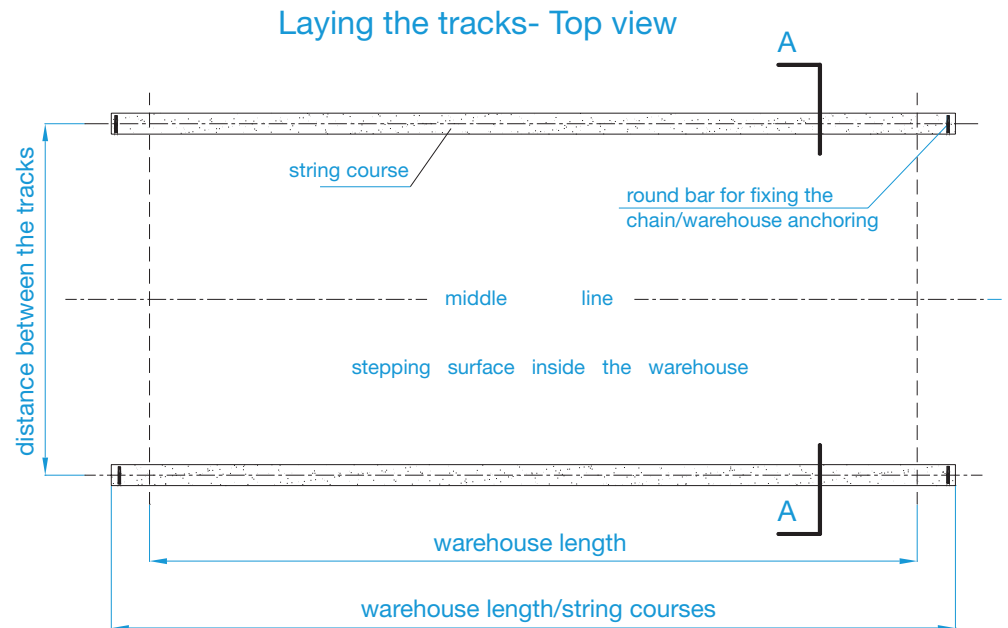
You can refer to the drawing which is supplied along with the material, see unit II Chap. 1.2. 'Identification and control of the material'

section A-A



The following must be checked:

- the distance between the tracks
- the tracks must be parallel, you can check by measuring the two diagonals which must be equal.
- the tracks must be perfectly levelled all along the length.
- Level between the two tracks and walking surface must be the same.



Should any faults be found before starting assembly, you must contact Kopron S.p.A.

Customer will provide personally to make the string courses according to sizes calculated by qualified person who will consider the weight to carry and the characteristics of the ground.

However for any doubt or information, do not hesitate to contact Service Dpt in Kopron S.p.A. ☎ +39-02 – 92 152 753 - 📠 +39-02 – 92 152 923, indicating the model, the serial number, year of construction, these data can be found on the label (see Unit I Chapt. 1.3)



1.2 ANCHORING TO THE NEARBY STRUCTURES

Retractable warehouses can be anchored also to masonry walls of nearby structures.

Indications for a correct fixing of the warehouse is shown in drawings which are supplied along with other documents (see Unit II Chapt. 1.2)

Verify if the structure carrying the warehouse has the proper characteristics to bear stress.

Verifications must be carried out by qualified personnel.

Should any doubt arise do not hesitate to contact the Service Dpt in Kopron S.p.A. ☎ +39-02 – 92 152 753 - 📠 +39-02 – 92 152 923, indicating the model, the serial number, year of construction, these data can be found on the label (see Unit I Chapt. 1.3)



CHAPTER 1**INSTRUCTIONS FOR TRANSPORT**

1.1 GENERAL NOTES

The handling of the warehouse, must be assigned to trained personnel such as crane 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 must be put beside and give help.

A necessary condition for lifting material is the perfect balancing of the goods.

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

For safety reasons, all lifting machinery must be suitable to the weights and bulks to carry.

**1.2 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 swinging the goods.

Provide evacuating personnel in case the goods must be moved over the heads.

Do not leave the crane with suspended goods.

Use a ladder to reach the slings to loosen them.

**1.3 LIFTING**

Lifting machinery allowed : bridge cranes or mobile cranes.

Personnel requested: crane and sling operators.

Important note: it is forbidden to use forklifts for handling structural elements like posts, chains, trusses, etc.

Use a grab with four straps at least 3 meters long.

Material must be perfectly balanced before being lifted.



CHAPTER 2

INSTALLATION AND ASSEMBLY

2.1 BEFORE STARTING

Delivery of the material shall always be accompanied by an envelope containing specific drawings of the warehouse to be assembled.

The envelope contains in detail:

- bill of material complete with complete the number of bolts necessary for assembly.
- Data of the warehouse: length, width, height, etc...
- Specific drawings of the warehouse.
- Drawing of the covering fabric indicating colour and positioning of the writings.
- Drawings of the closing curtains.
- Drawing for the laying of the tracks.

The bill of material containing the list of bolts for assembly is important since it also indicates their positioning.



The envelope can contain both information regarding the positioning of the warehouse and technical agreements between Kopron S.p.A. and customer. Please do not proceed without having previewed the contents of the envelope.

The assembly of the structure must be carried out as requested by the European standard EN 292.2 art. 5.5.1 by qualified and skilled personnel.

Personnel must be informed in advance on the job to be done and have the expertise to perform it. It must also be informed on the risks, on safety measures to be undertaken and on necessary tools to use.

.



For safety reasons, the assembly of the structure must be assembled in days without wind.

1.2 ASSEMBLY OF THE STRUCTURE

Verify the archs which are delivered already assembled are without damages caused by transport and unloading operations.

In case of doubts in assembly you put the archs down on the floor laying them on wooden bars, making sure to fasten the bolts only when you are sure the arch is straight, levelled and width is perfectly within the distance of the tracks.

Instructions for assembly along with length and diameter of the bolts to use are indicated in the enclosed drawings of this manual.

The drawings show for each single part to assemble the exact diameter and length of the bolts to use and it is of utmost importance to keep to such instructions in order to avoid waste of time.

Drawings are divided according to the width of the warehouse to assemble.

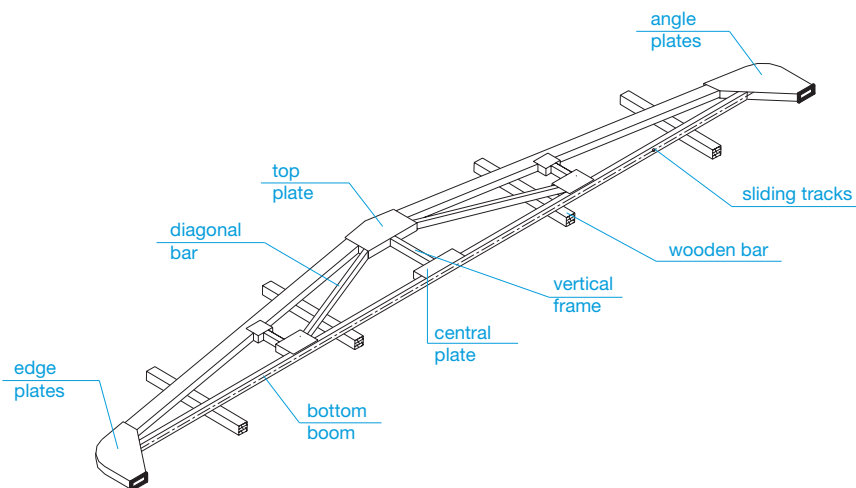
Drawings have been divided as follows:

- | | |
|--|--------------|
| ■ warehouse with a 10 to 14 mt opening | dwg. n° 0100 |
| ■ warehouse with a 14 to 16 mt opening | dwg n° 0110 |
| ■ warehouse with a 16 to 20 mt opening | dwg n° 0120 |
| ■ warehouse with a 20 to 24 mt opening | dwg n° 0130 |

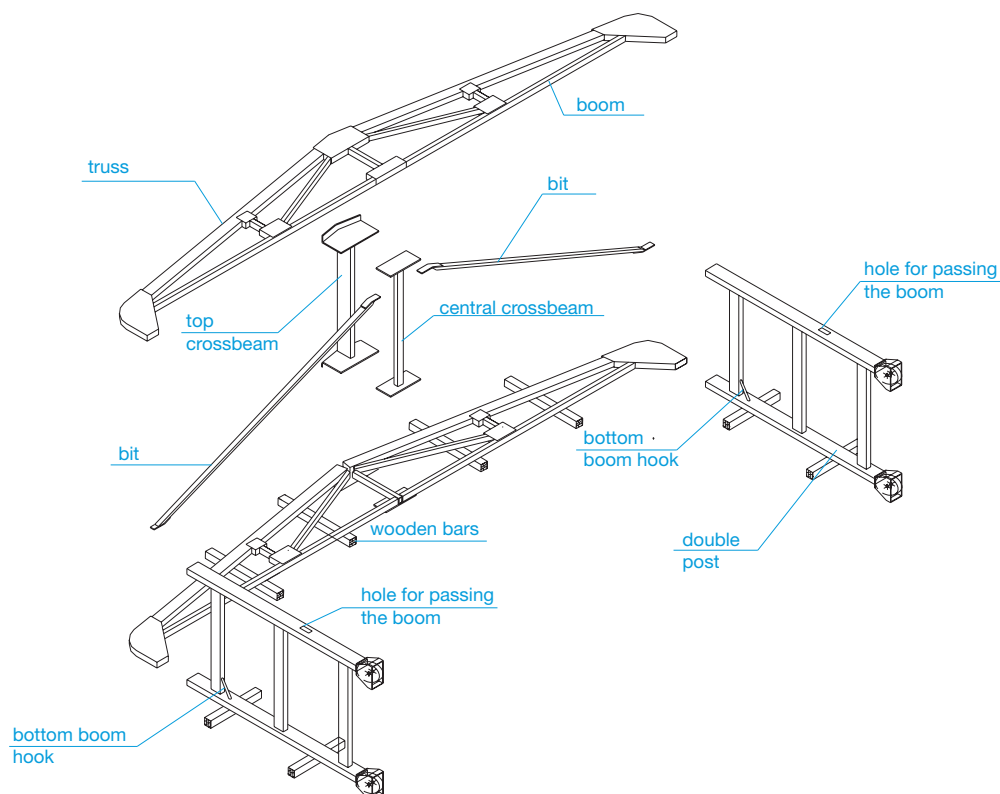


The structure to assemble is in hot galvanized steel therefore when assembling all operations which could scratch off the coating must be avoided, such as welding, drilling or special grinding.

In case the protective coating is damaged this could cause corrosion.

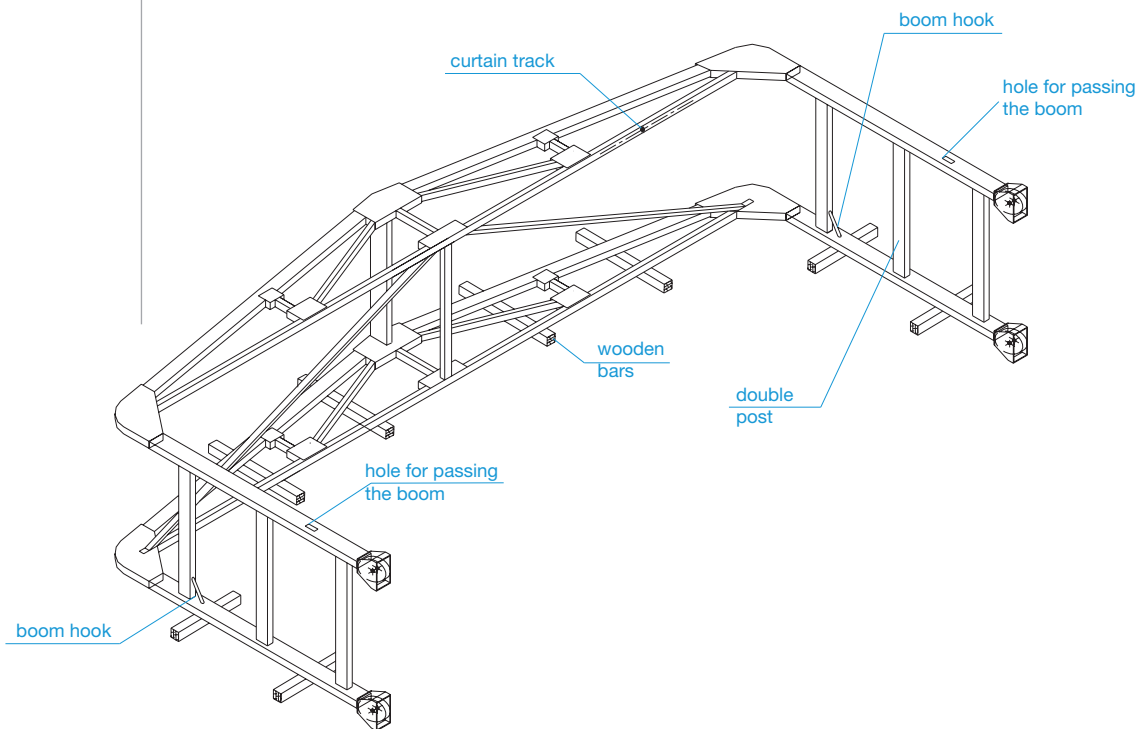


After having assembled on ground the two arches of the front part, assemble them to the double jambs and before tightening them verify if the wheels and their distance are perfectly parallel. This can be checked by measuring the diagonals which must be equal.





Make sure the bottom boom equipped with sliding track for the front curtains is positioned towards the outside of the structure, while the hook for the bottom boom is towards inside. (See Unit IV Chap. 2.3)



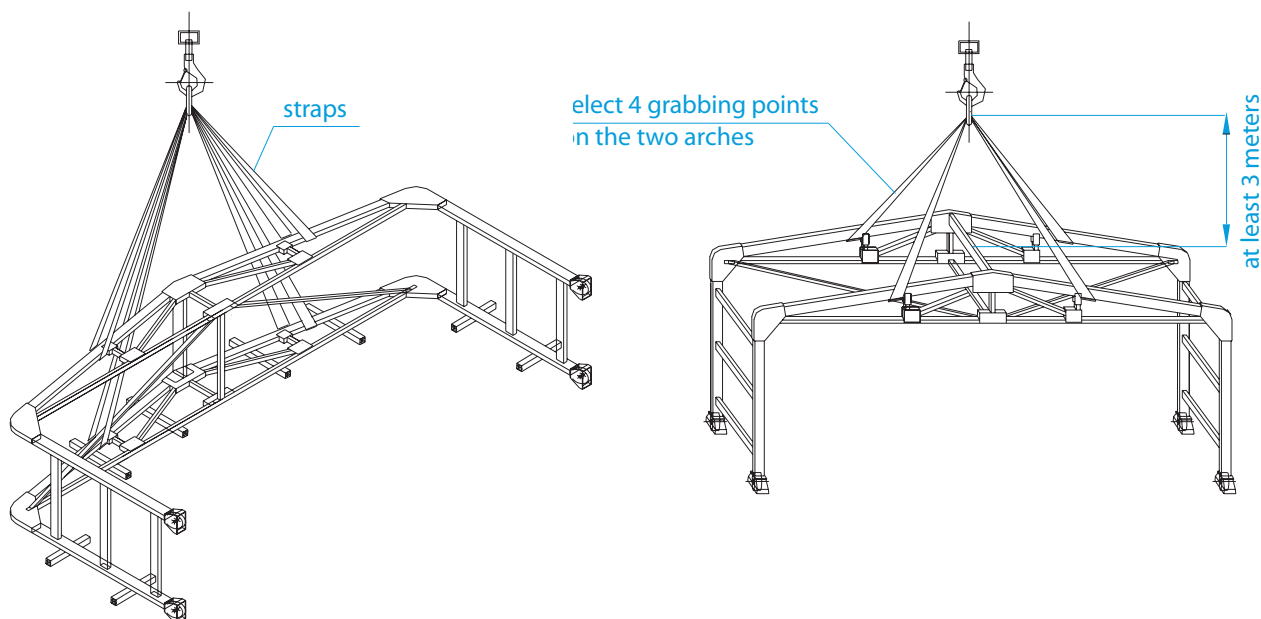
Wind proof brackets assembled on the wheels must be taken off for the time being and then put on again once the structure is completely lifted. See Unit IV chapt. 2.3. Lift the structure and position it on the tracks with the aid of straps as shown in the drawing.

This operation must be carried out very carefully.

Straps must be applied over the first plate by the diagonals in order to allow an equal distribution of weight on the trusses.



The length of the straps must enable the grab to operate at a height of at least three meters from the trusses, in order to avoid loading the structure in a wrong way.

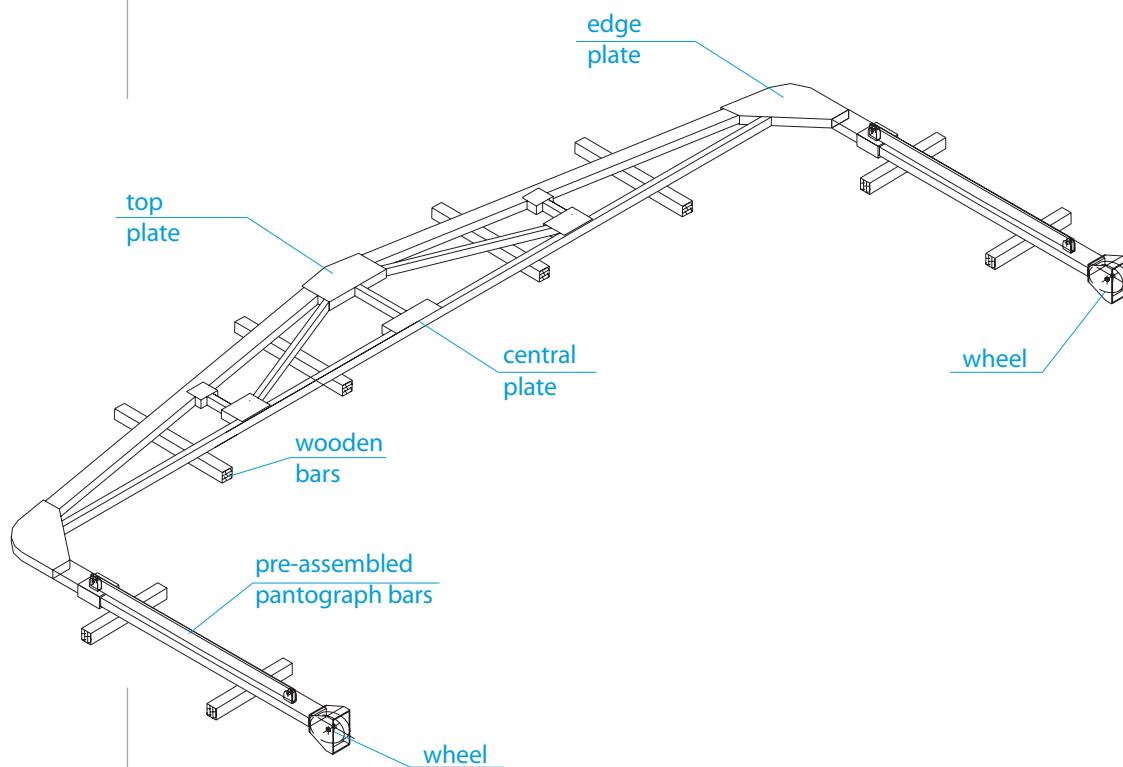


Assemble the central arches to the posts and lay them on wooden bars, and before tightening them check if the posts are parallel and also compare both the distance between the wheels and between the tracks.

The assembly of the posts on the arches must be carried out properly in order to have the ears carrying the pantograph bars positioned correctly.

Take off the wind-proof brackets from wheels for the time being, then put them on again once the structure is completely lifted.

See Unit IV Chapt. 2.3 fig. 2.



The position of the ears on the posts must be as indicated in fig. 1.

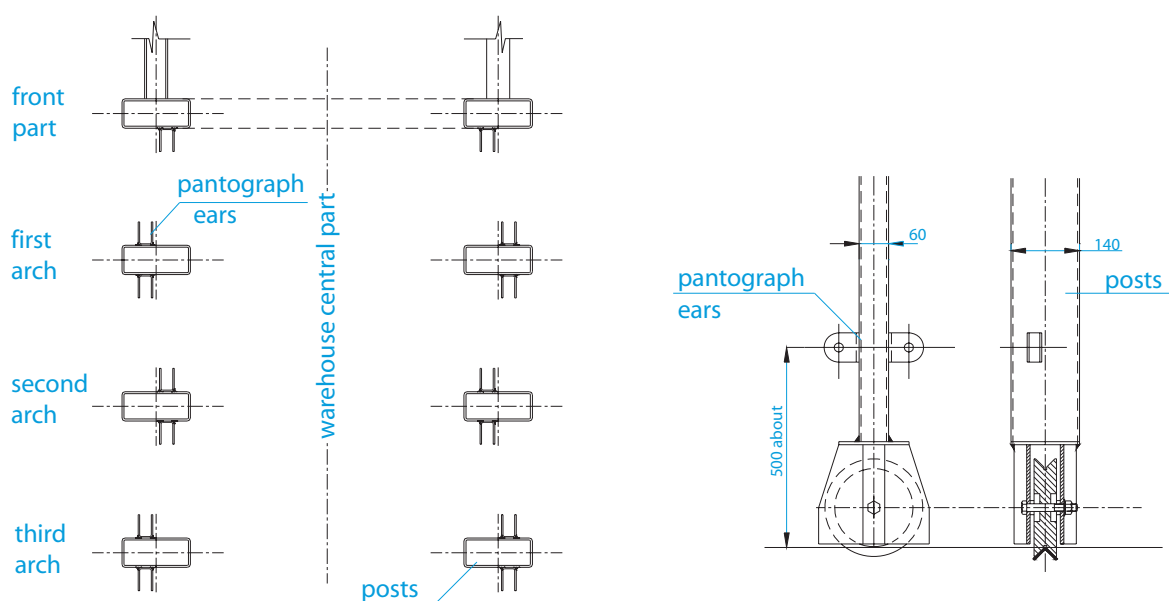
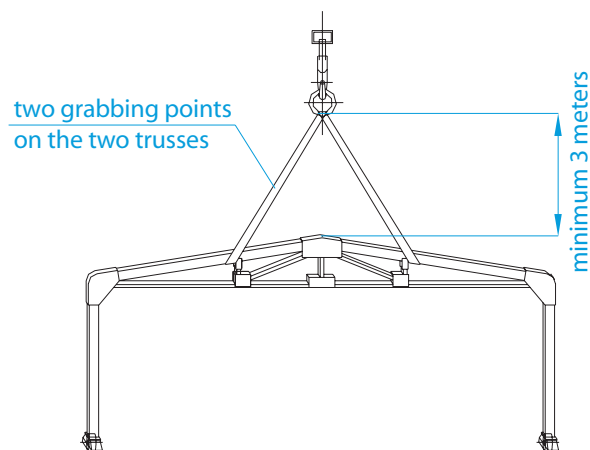
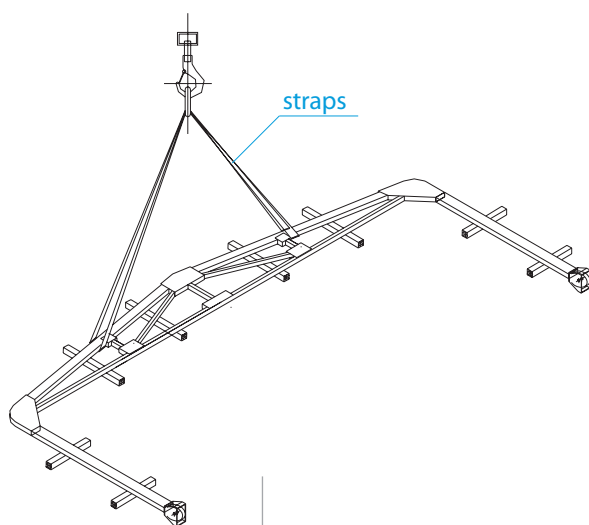


fig. 1

Lift and position the arches on the tracks slinging them with straps as indicated in the drawings.

The lifting on the arches is a delicate operation and must be carried out with care. The straps must be placed at over half the length of the truss in order to guarantee a correct distribution of weight.

The length of the straps must allow the lifting hook to operate from a height which must not be less than three meters in order to avoid incorrect loading of the structure.

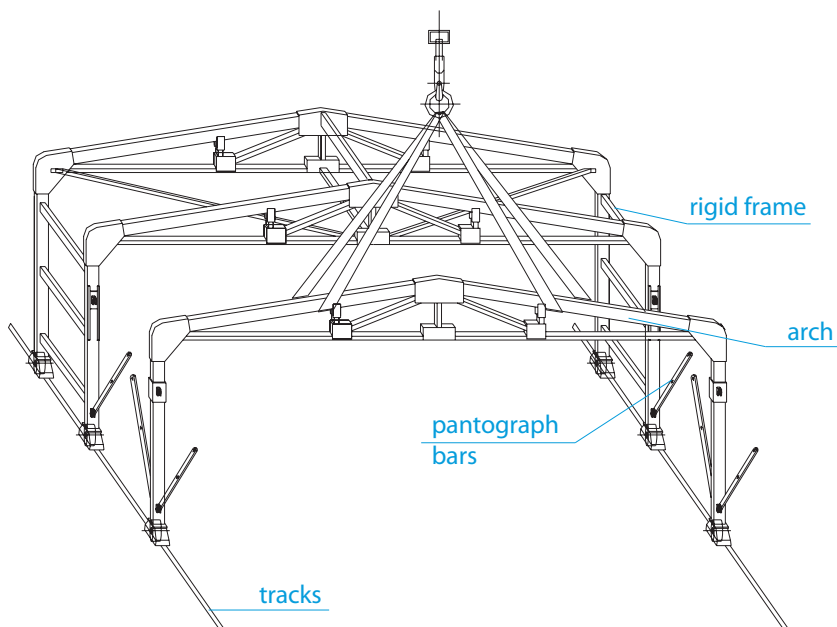




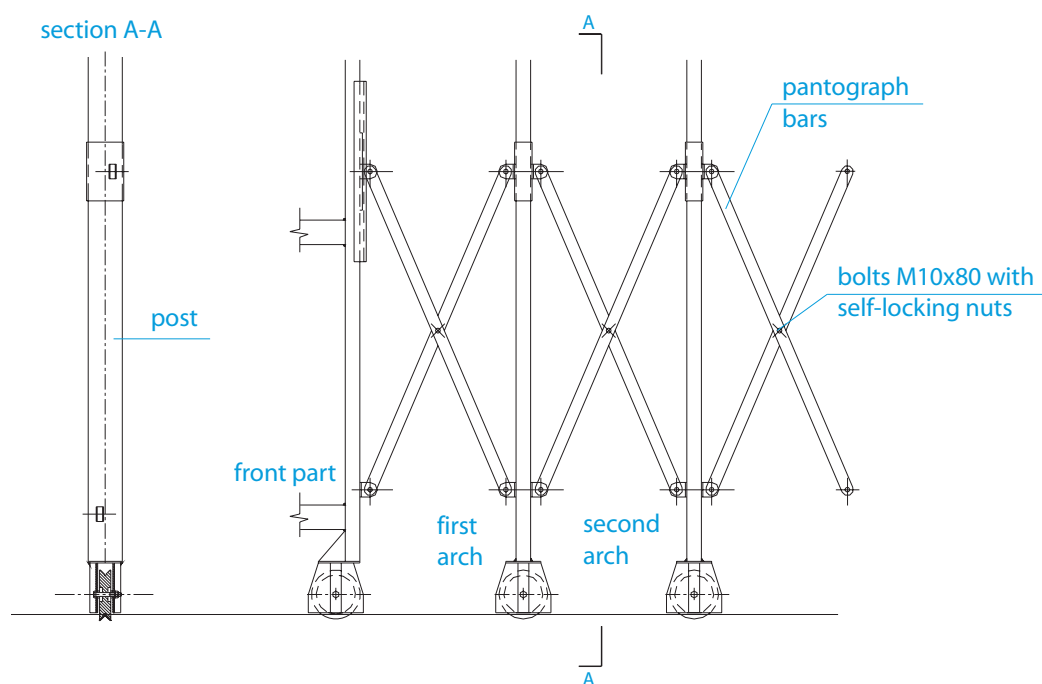
Start joining the central arches, one after the other, to one of the front parts them to by means of pantograph bars.

For determining the correct sequence of the archs see the position of the ears as shown in fig. 1.

During joining operations keep the arch hooked to the lifting machine.



For assembling the pantograph bars use self-locking bolts in order to allow the bar joints to move.



2.3 ANCHORING OF THE STRUCTURE

After having assembled the structure it must be tightened and anchored to the tracks as follows: re-assemble the wind-proof brackets, taken off previously, on the wheels as shown in the drawing.

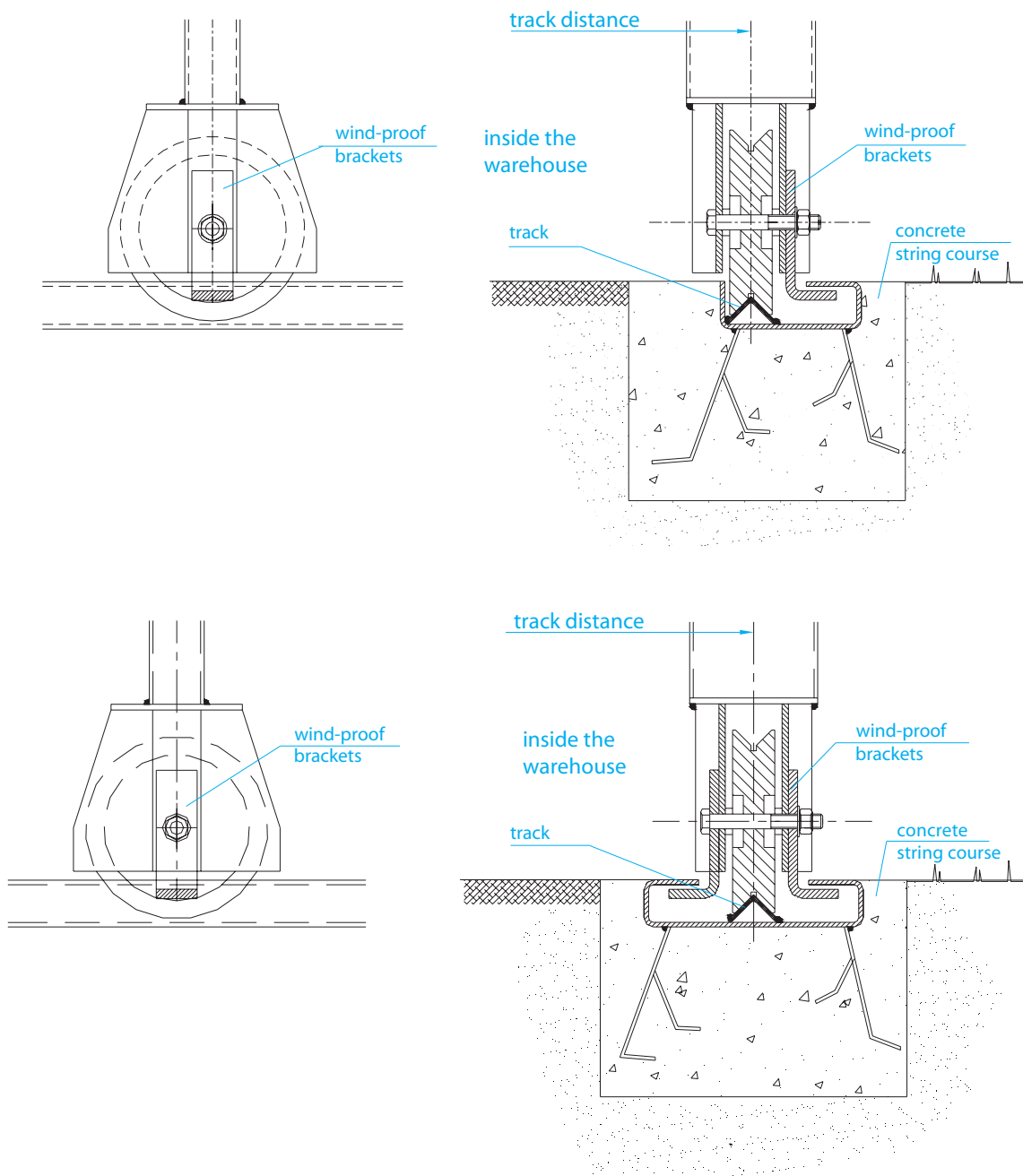
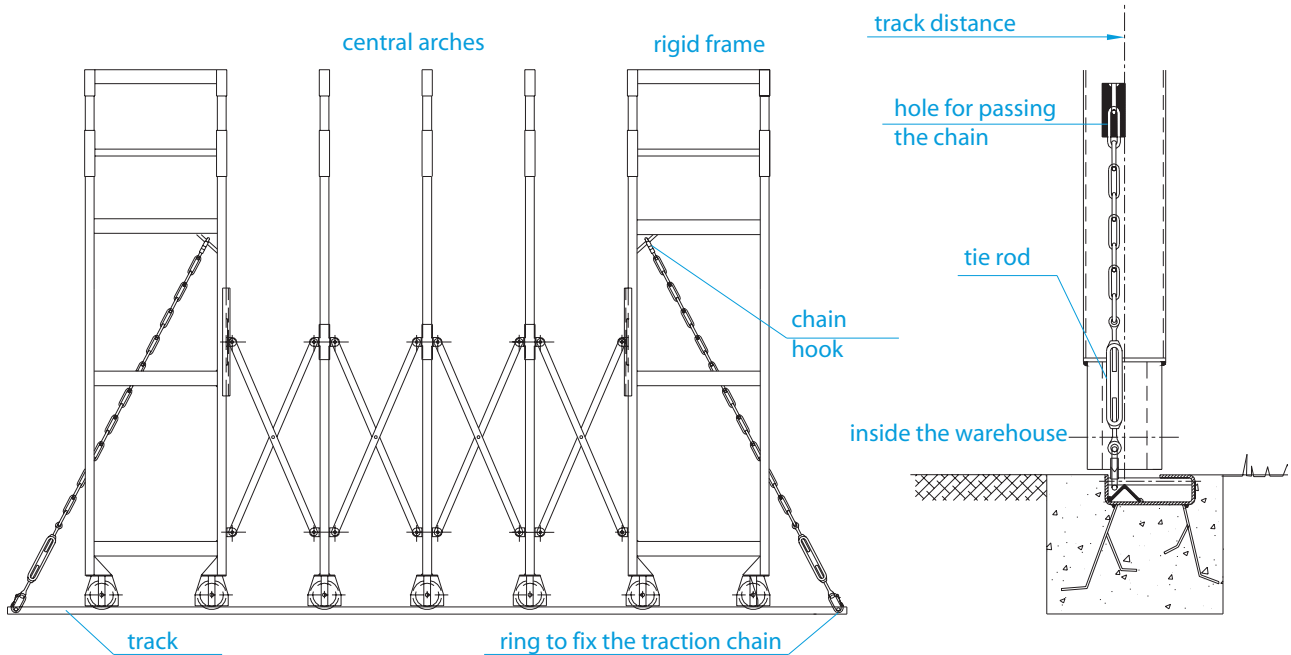


fig. 2

Only after having assembled the wind-proof brackets you can proceed tightening the structure.

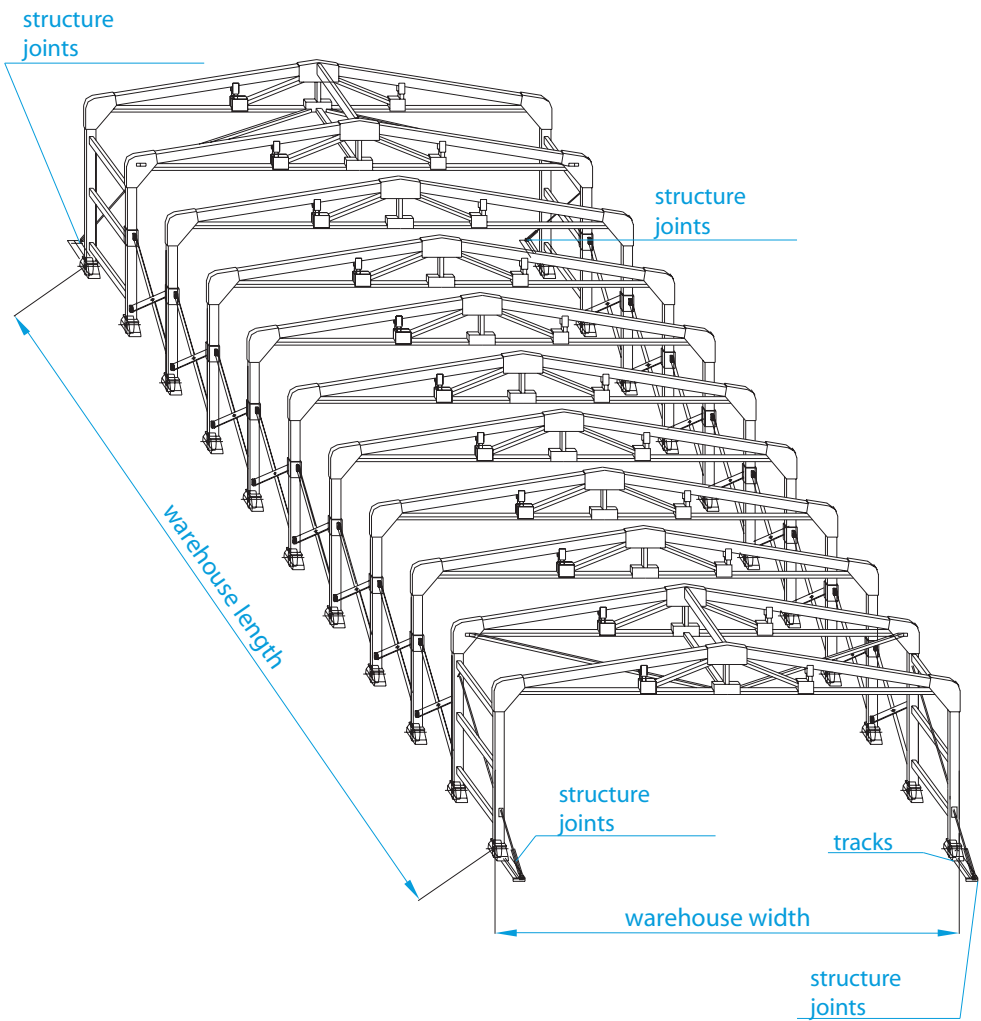


Assemble the 4 chains at the 4 corners of the warehouse connecting them with a shackle at the sides of the two front parts near the tallest cross member where a ring is welded on.

Pass the chains through the holes of the jambs.

Fix to the rings welded at the edges of the tracks, the tie rods placed at the heads of the chains with shackles, and start tensioning the structure.

Stretch it until you reach the total length, which is indicated on the specific drawings of the warehouse (see Unit I Chapt. 1.2 'Identification and control of the material').



2.4 ASSEMBLY OF THE COVERING FABRIC

After having anchored and tightened the structure as described in Unit III, you may start assembling the covering fabric.

The assembly of the fabric must be carried out during days without strong wind. In the envelope containing documents for assembly you may also find the drawing of the fabric (see chapt. 1.2 'Identification and control of the material')

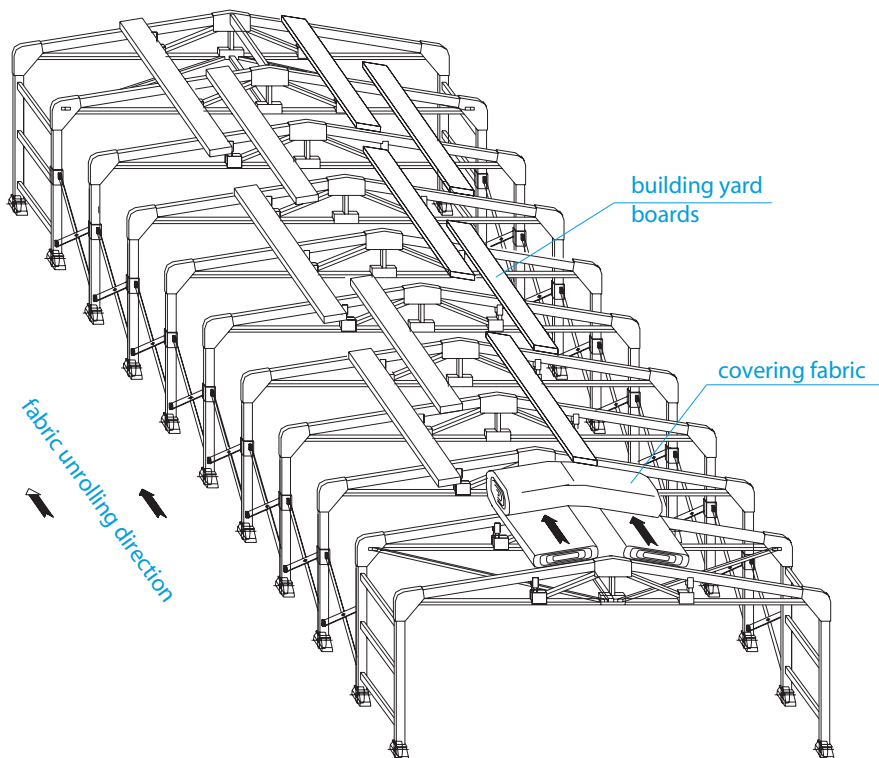
This drawing must contain useful information regarding the total height, the length of the pitches and of the parts of the warehouse, plus the number and position of the belts.

To obtain good results when stretching the fabric, you must position it properly on the structure, making sure that the highest point of both the fabric and the structure perfectly match.

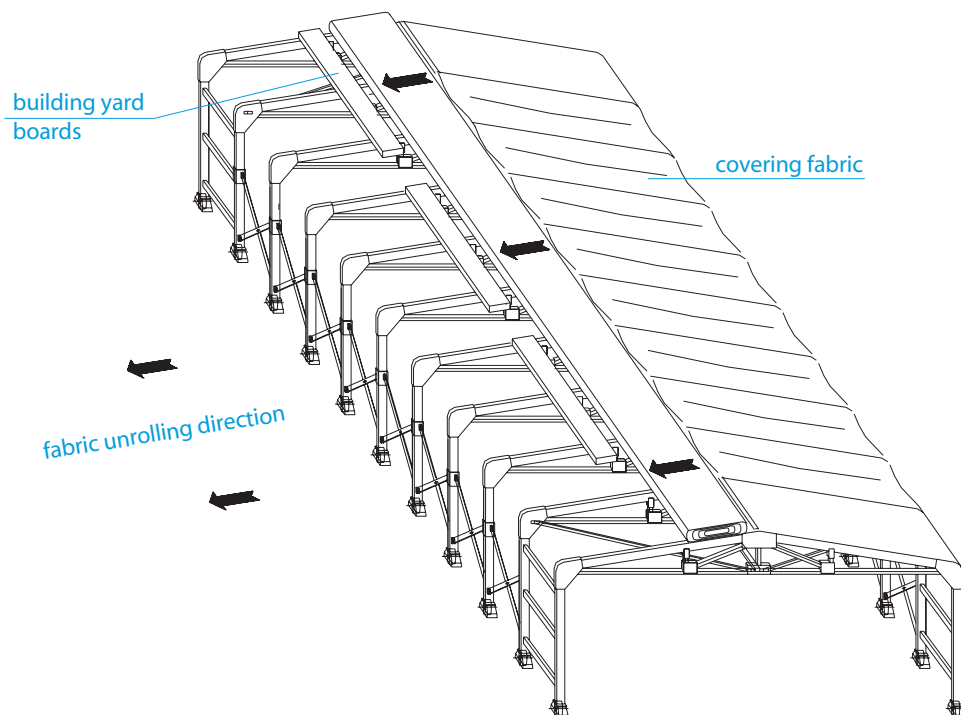
This will enable an even covering of the fabric all around the sides and pitches of the warehouse, and the correct positioning of the belts.

Along with the goods there is a drawing showing how to unroll the fabric correctly once positioned on the structure.

Position the fabric over either the front or rear part.

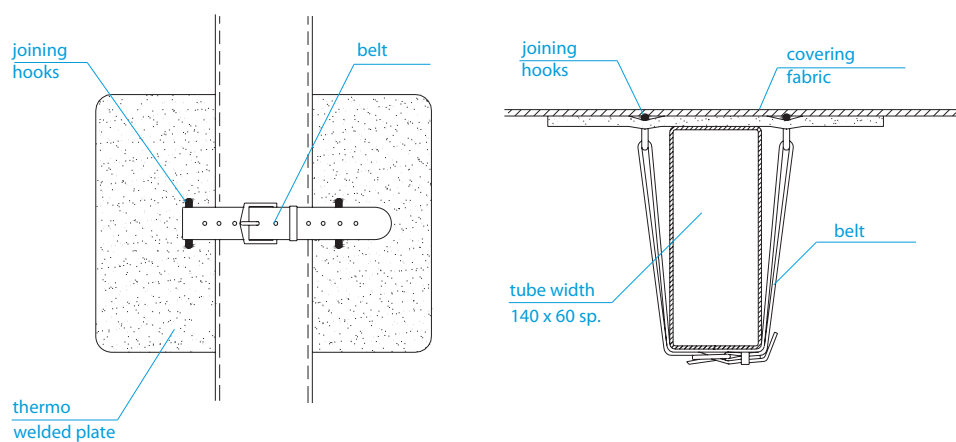


While you unroll the fabric from one front part to the other, with the aid of boards as shown in the drawing, tie the belts around the upper plates.

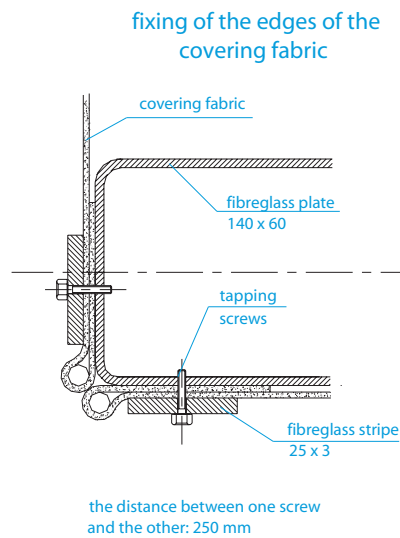


After having stretched the fabric and verified the warehouse sides are evenly covered, tie the belts starting from above the trusses downwards.

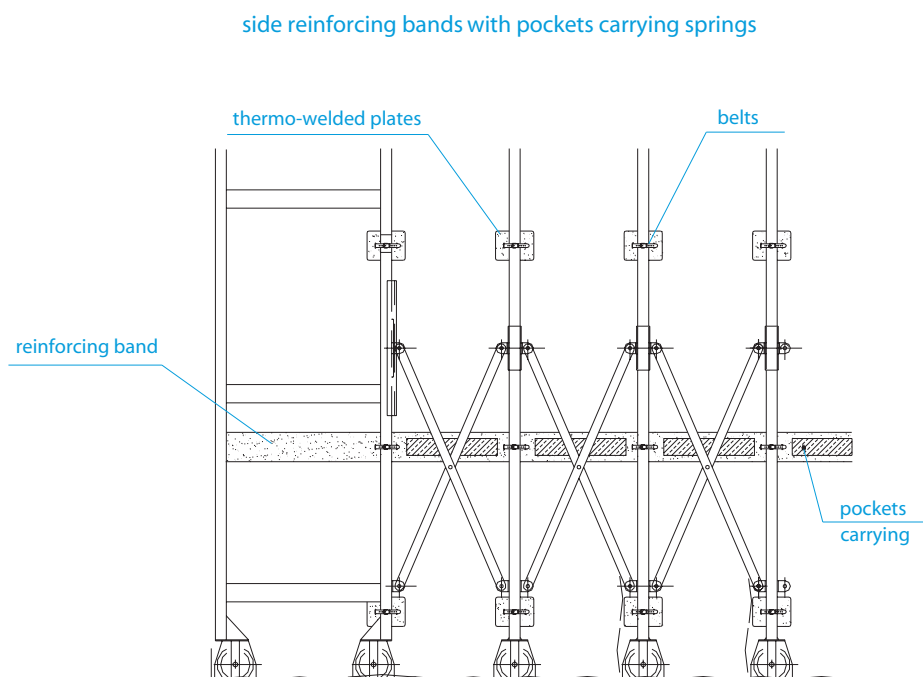
fixing of the fabric with the belts



Fix outside the edges of the fabric to the bars with the aid of fiber-glass stripes and tapping screws which are supplied along with the material. Distance between screws must not exceed 250 mm.

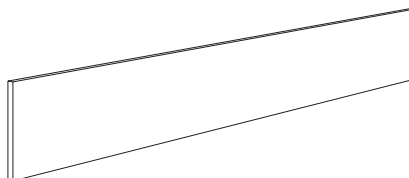


The assembly of the fabric must be completed by also positioning the springs which allow the folding/unfolding movements of the warehouse sides. The sides of the warehouse all along the length have reinforcing bands, equipped with inside pockets containing the springs.



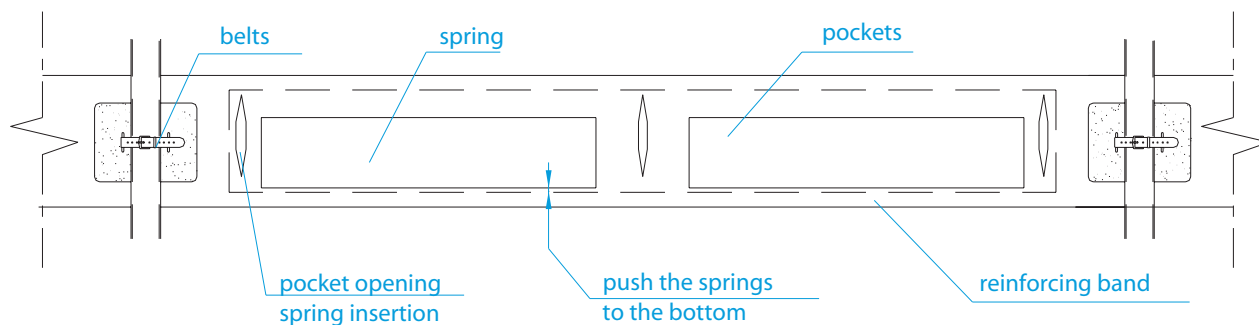
The springs consist of a band in plastic 100 mm long, and are cut without the plastic protection edges.
These are then assembled as shown in the drawing.

plastic springs



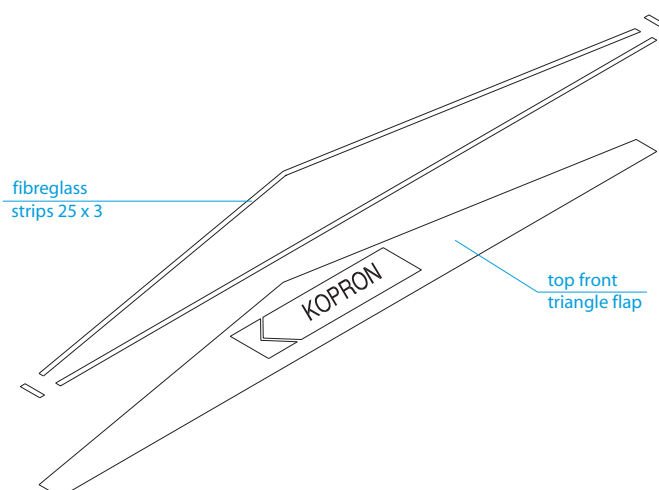
Introduce the springs with protection edges inside the pockets through the three openings they have.
Once the springs are inside the pocket they must be pushed to the bottom as shown in the drawing.

positioning of the springs in the pockets



Provide assembling the top front triangle flap with the fibreglass strips and tapping screws which are supplied along with the material.
The distance between one screw and the other must not exceed 250 mm.

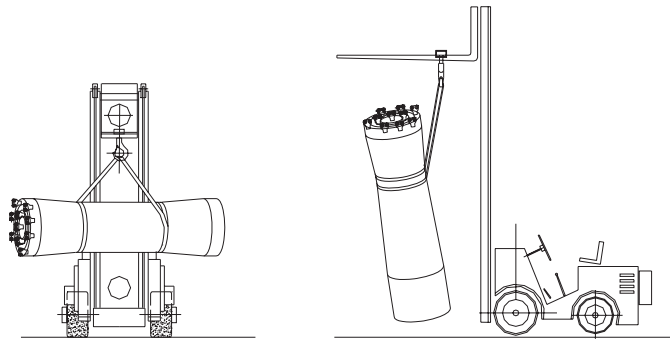
top front triangle flap assembly



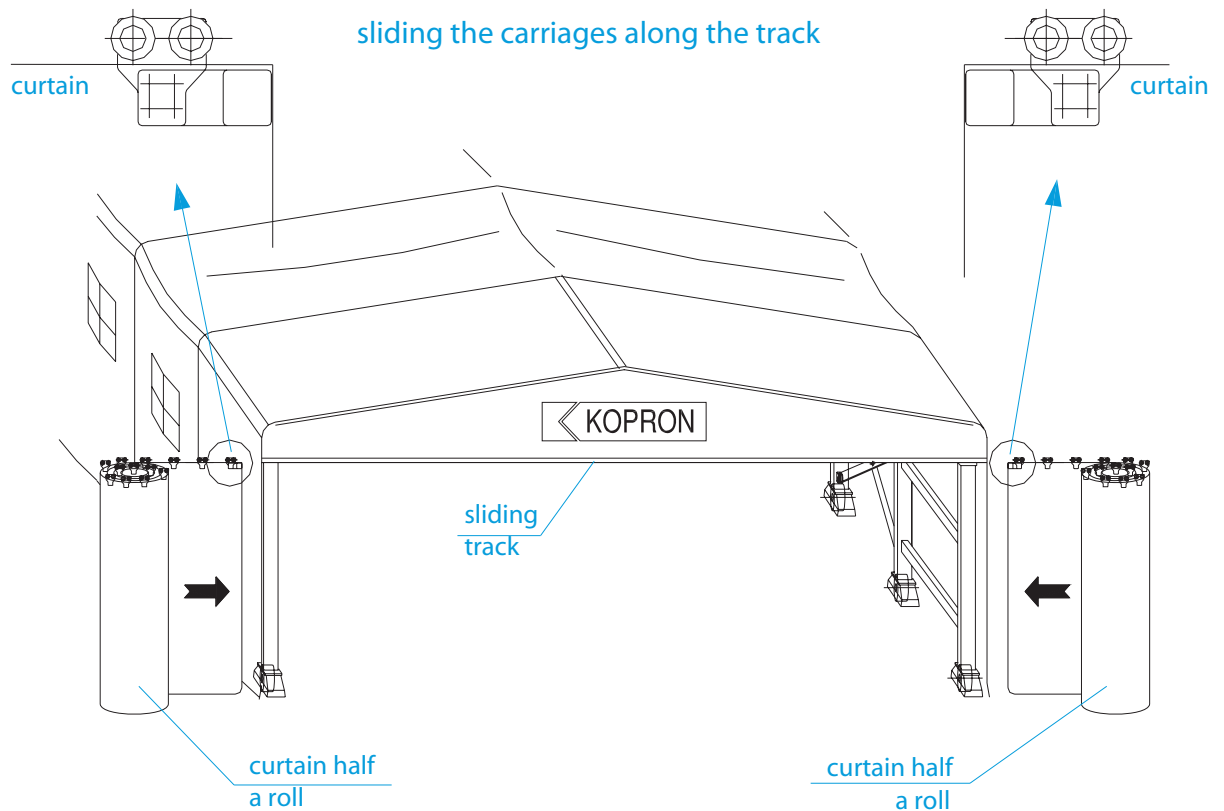
2.5 ASSEMBLY OF THE CURTAINS FOR CLOSING THE FRONT AND REAR PART

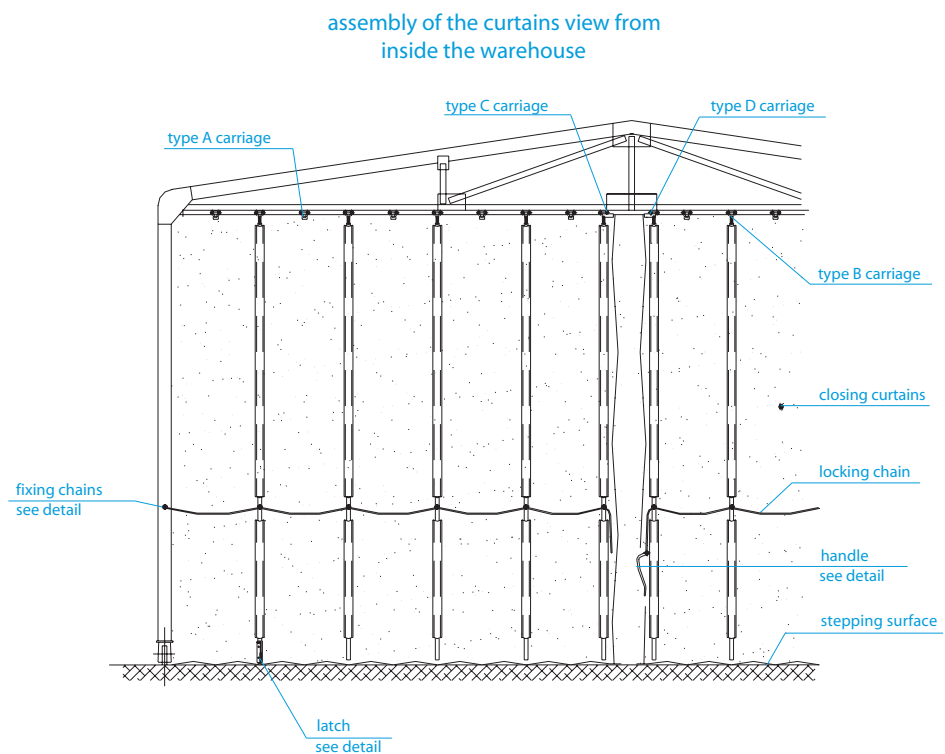
Curtains are supplied in rolls, each roll consists of half a curtain, first operation consists in unrolling partially the curtain to identify the ends.

moving and lifting half a curtain



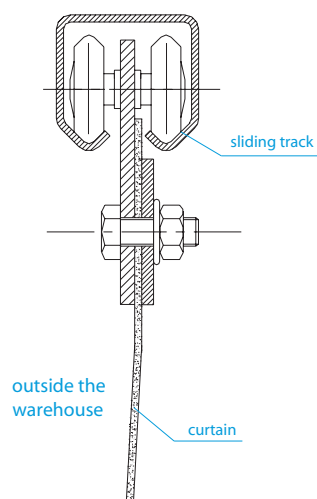
Once the end with carriages has been identified, start sliding them along the track.



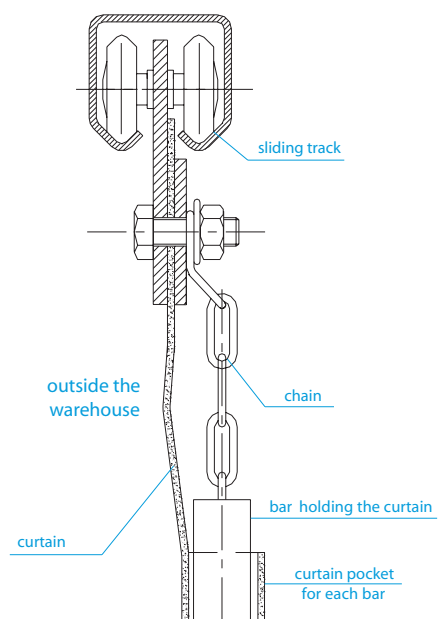


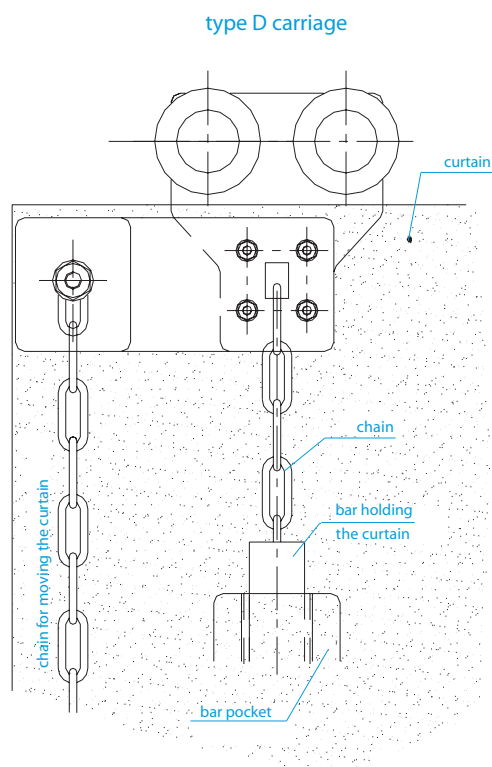
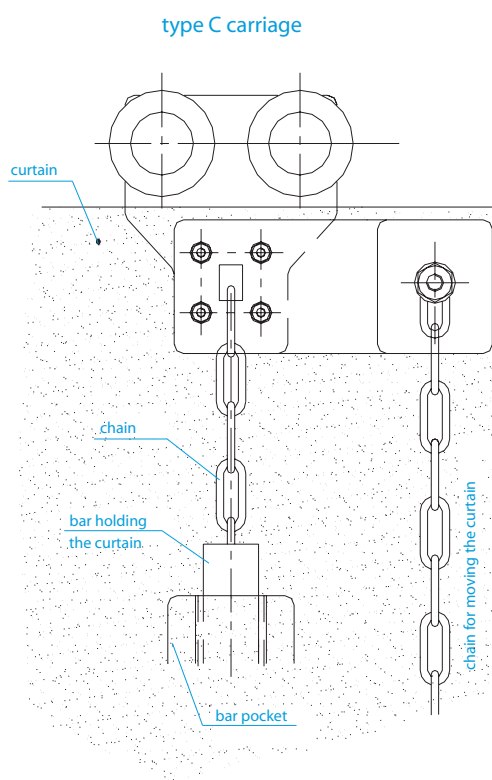
In order to avoid mistakes during assembly, make sure the bars holding the curtains are turning towards inside the warehouse.

type A carriage
curtain support



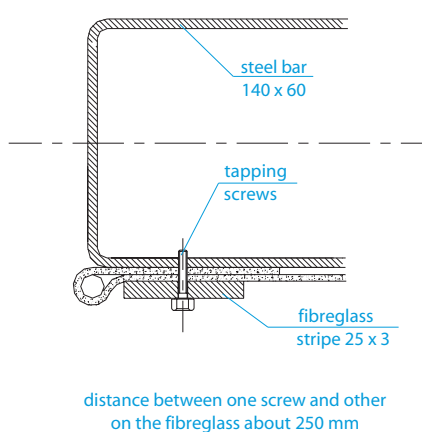
type B carriage curtain support
and bar holding the curtain





Once the two half curtains have been assembled shut them towards the centre, then fix the external edge of the curtain to the bars with a fibreglass plate and tapping screws.

fixing of the external edge of the curtain



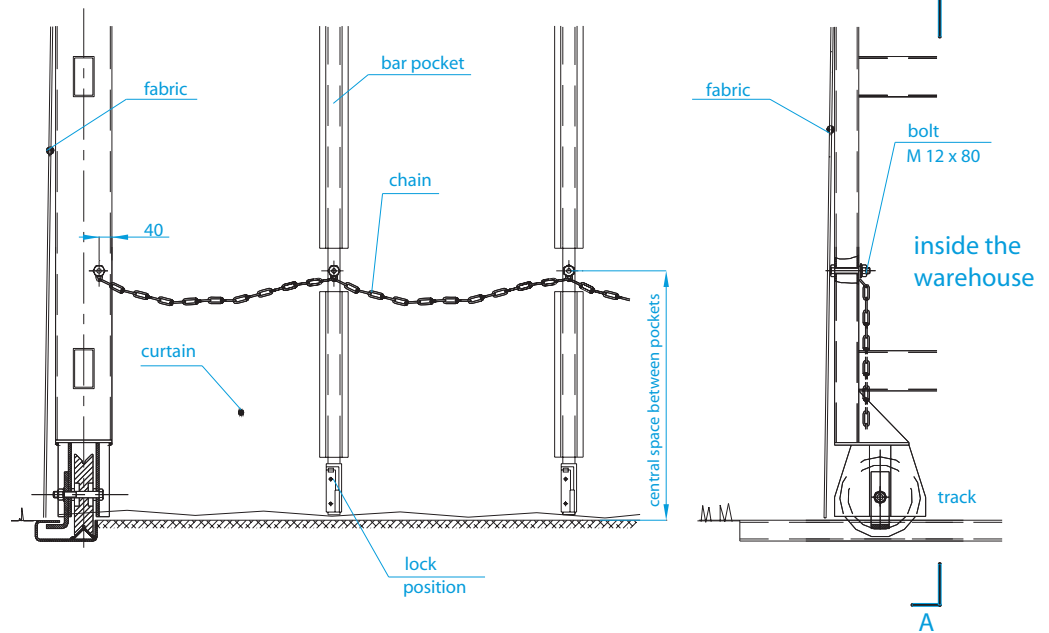
Lock the ends of the sliding track in order to avoid the carriages to run off during the opening of the curtain.
Then assemble the locking system which can be chosen among the following:

CHAIN LOCKING

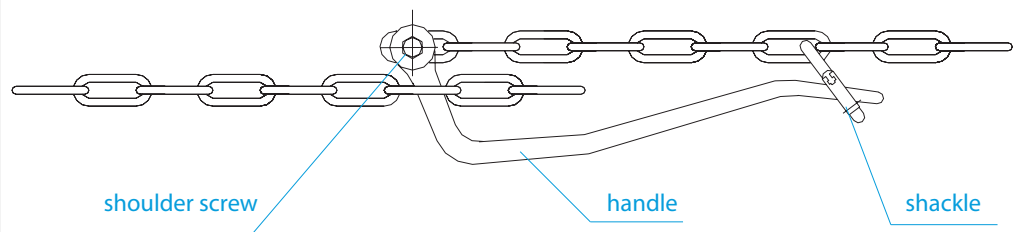
Fix one end of the chain to the right post making a hole and using a bolt M 12 x 80.
Stretch the chain and fix it with bolts to the curtain bars on the right.
Repeat the operation for the left side.
At one end of the chain assemble the locking handle.

assembly of chain and locks in detail

section A - A



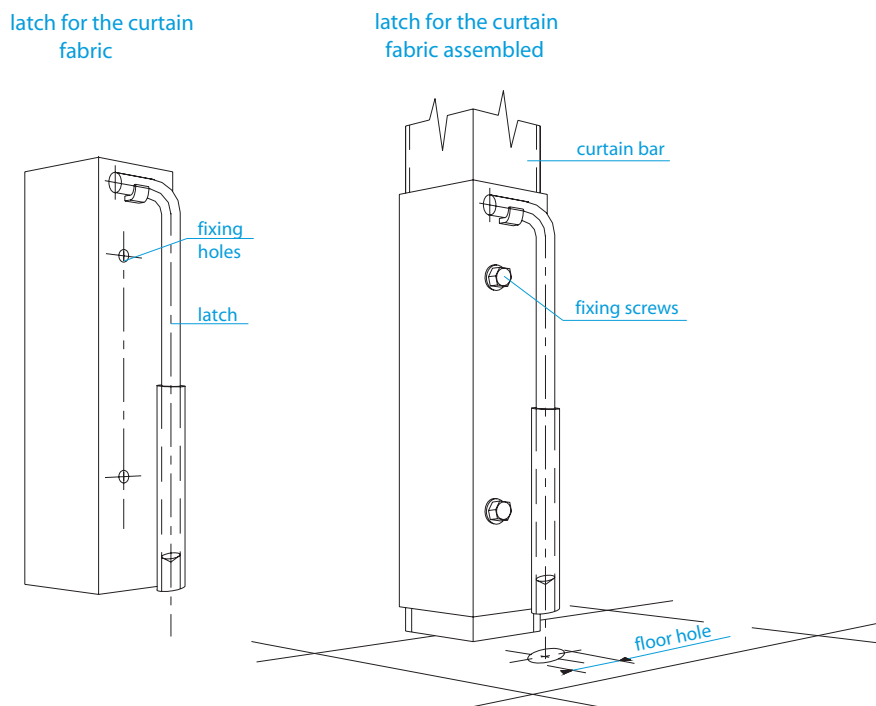
detail of the handle and curtain closing chain



LATCH CLOSING

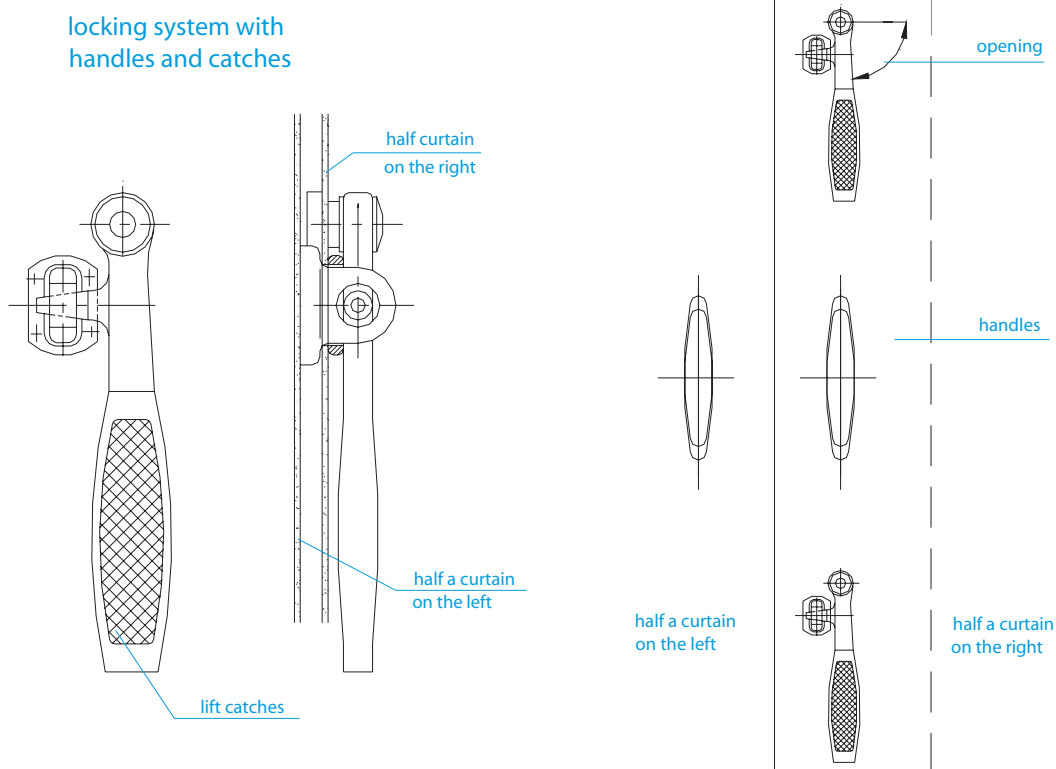
For each bar holding the curtain you may have a lock to be assembled by fastening two bolts.

Once the two half curtains closed at the center, mark the holes to be done on the floor then perforate.



LOCKING SYSTEM WITH HANDLES AND CATCHES

The following drawing shows a type of lifting catch and double handle. Catches and handles can be different from the one shown in the drawing. This locking system can be either positioned inside or outside the curtain.



2.6 LIST OF TOOLS AND EQUIPMENT

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



- Aerial platform
- Plumb line, wire for tracing, pencils, laser level, level and ruler of about 2 m
- Laser level
- Churn drill complete with inserts for reinforced concrete.
- Drill complete with metal inserts.
- 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 220 V and three phase 380 V.
- mobile trestle
- Fixed ladder 2.5 m long with adding elements to reach a total extension of 9 meters.
- Tool box with keys, screwdrivers, pliers, hammers, etc...
- Electrician bag complete with tester and ampere meter
- Portable welding machines for electrodes diameter 3mm
- Safety tools,safety belts, goggles, helmets, protection gloves against cuts and scratches, safety shoes, opto-isolators.
- First aid box
- Cabling must be provided by Buyer



Tools must be all according to EC safety standards.

**2.7 ENVIRONMENT CONDITIONS**

In case of strong wind you must not move the warehouse, in order to avoid big damages not only to the structure.



Also in case of snow deposited on the covering fabric the structure must not be moved. Before moving the structure provide removing the snow.

CHAPTER 3

START UP

3.1 START UP

Verify that the wheels move freely, that the assembly operations haven't created any damages and remove dirt from the wheel cases.

It is of utmost importance to remove material obstructing the tracks and interfering with a correct sliding of the wheels.



Do not lubricate the tracks.

Verify there are no obstacles on the sides of the warehouse which could prevent a correct folding of the fabric.

3.2 MAINTENANCE AND CORRECT USE



Strictly keep to the following instructions for a correct maintenance and use of the retractable structure.

- In case of wind, if there are front curtains, these must be carefully shut from the inside with the chain well tightened. The locks must be fitted into the ground and the curtains well hooked to one another.

In case personnel is not present (at night or during weekends), the front curtains must be closed.



- In case of strong wind or snow make sure the anchoring chains are not loose and tighten them. It is forbidden under these weather conditions to move the structure in order to avoid big damages.



- The belts must be time to time checked. These belts besides fixing the fabric to the steel parts are of utmost importance for keeping the trusses firm and still. In case of damages the belts must be immediately replaced.

For safety reasons we suggest to replace the belts completely every two years.



- In case of damages or accidental ripping of the fabric, you must immediately repair it through vulcanization, in order to avoid wind to widen the hole jeopardizing the stability of the structure.



- The structure is calculated according to UNI Standards which regulate this kind of covering, in order to keep it from falling due to wind thrust and/or snow load. Therefore it is of the Buyer's interest to make sure the structure is always in perfect order, by checking time to time the jambs, trusses, chains, and tie rods, in case they have been accidentally damaged by lorries, forklifts and so on. In case of damages these parts must immediately be replaced. Particular attention must be given to both chains and posts, in case they are not perfectly straight this could seriously impact the stability of the structure and cause a fall under great stress.



- The covering fabric, when correctly stretched over the structure must not show any slackening parts inside which could retain water. As time goes by the characteristics of the fabric deteriorate due to pollution which may cause the slackening of it, in this case the fabric must be replaced.



According to standards regarding Safety, the tools to be used must be:

- a) Correctly installed according the manufacturer's instructions.
- b) Used correctly.
- c) Go regularly through maintenance

In case of improper use of the product the guarantee will no longer be valid and Customer will be liable for any damage caused to people or things.

CHAPTER 4

Use

4.1 INSTRUCTIONS FOR USE

The opening/closing movements of the warehouse can cause risks for personnel operating nearby, therefore it is important to engage only qualified people. Personnel operating the warehouse must be perfectly aware of the instructions contained in this manual, and duly trained.

Before moving the warehouse, anchoring devices, like chains, tie rods etc. must be removed, and you must make sure that the tracks are clean and free as explained in Unit IV Chapt. 3 'Start up'.

In case there are curtains on the front part, they must be opened and fixed to the posts in order to avoid any interference to movements.

Verify there is no material or objects interfering with the folding movements of the fabric.



Besides it must also be checked that around or inside the warehouse there are no people exposed to risks during moving operations. In case of strong wind you must not move the warehouse, the structure could incur in very serious damages.



Do not move the structure in case of snow deposited on the fabric. Snow should be removed before any operation.

4.2 PARTICULAR RISKS AND SAFETY MEASURES

The opening/closing movements of the warehouse can cause risks for personnel operating nearby.

Personnel must be informed about other risks they could run in case standing too near to the structure while it is moving.

The management of the Company must recommend personnel to strictly keep to safety measures.

Personnel must have full visibility of the sides of the structure without interference of any machinery or material.



INSTRUCTIONS

For safety reasons personnel must always wear leather gloves, safety shoes, helmets and working clothes as required by EC standards.

4.3 FIRE PREVENTION

The warehouse does not necessarily have to be build in an area with particular fire prevention measures.

CHAPTER 5

MAINTENANCE AND REPAIR

5.1 INSPECTION PLANNING

The following inspections must be planned when opening/closing movements of the warehouse are carried out daily. In case the use is less frequent inspections can be planned differently, in any case inspection must be carried out before each manoeuvre.

Weekly inspection



- Verify the wheels move freely, and there is no dirt in the wheel casing.
- Verify that the sliding tracks and the restraining profiles are clean. (do not lubricate the tracks)
- Verify that the belts fixing the fabric to the structure are in good order, in case they are damaged you must provide immediately to replace them.
We suggest to totally replace belts every two years for safety reasons.

5.2 PREVENTIVE MAINTENANCE

Weekly inspection



- Free the tracks and restraining profiles from material interfering with the sliding of the wheels.
This operation can be carried out whenever it is necessary.
Do not lubricate the tracks.

Quarterly inspection

- Grease the hinging points of the pantograph bars with molykote grease.

Annual inspection

- Checking and fastening of all the bolts of the warehouse.
- Checking and fastening of anchoring bolts used for assembly.
- Grease the parts subject to oxidation. (Do not lubricate the tracks)



Biennial inspection

- The belts fixing the fabric to the structure operate on plates which are thermo-welded to the fabric.
The breaking strength of the belts is of 350 kg., and their integrity must be checked weekly, in case of damages they must be immediately replaced.
To increase safety of the structure, belts should be replaced every two years.



Retractable warehouses, do not require special cleaning, water and soap are sufficient to preserve the fabric.



Inspections and interventions to remove anomalies must be carried out, according to Standard EN 292.2 art. 5.5.1, by skilled and qualified personnel. Please refer to Chapt. 6.3 on how to operate come operare attenersi a quanto specificato nella cap. 6.3 'Notes on maintenance'.

5.3 INSTRUCTIONS FOR LUBRICATION

Quarterly inspection

- Greasing of the hinged points and sliding points of the pantograph bars with molykote grease.

5.4 NOTES ON TOOLS TO BE USED

Normal workshop tools can be used to carry out maintenance and repair operations. No special tools are required.



For all operations to be carried out at a certain height use safety stairs, trestles, aerial platforms and safety belts.

CHAPTER 6**INSTRUCTIONS REGARDING SAFETY**

6.1 GENERAL NOTES

Opening and closing movements of the warehouse can create risks for safety.

Operators must be informed about the risks .

The management of the Company must recommend personnel to strictly keep to safety measures.

Personnel must have full visibility of the sides of the structure without interference of any machinery or material.

When moving the structure, operators must avoid unstable positions, and watch out when the joints are moving.

Maintenance of the structure must be entrusted to skilled and qualified personnel as required by standard EN 292.2 art. 5.5.1.

The warehouse must carry warning signs n. 1833, 1835 and 1831 according to Standard DPR 524 DEL 8.6.82 EEC 79/640.

6.2 SAFETY ZONE NEAR THE WAREHOUSE

There are no particular dangerous zones around the warehouse when it is still, and personnel can move freely around it.

Restrictions and instructions on how to move must be issued by the company owning the structure, based upon what is being explained in this manual.

The warehouse must carry warning signs n. 1833, 1835 and 1831 according to Standard DPR 524 DEL 8.6.82 EEC 79/640.

6.3 NOTES ON MAINTENANCE

Preventive maintenance must be carried out according to standard EN 292.2 art. 5.5.1.

by skilled and qualified personnel, which must know the instructions contained in this manual.

Notes regarding preventive maintenance are described in the following page.

Mechanical maintenance interventions do not create dangerous conditions.

For operations to be carried out at a certain height use either an aerial platform or a trestle to position near the working spot.

The operator must be equipped with all the safety devices according to Standards and undertake actions which guarantee his safety.

During work the technician must keep people away from dangerous areas.



6.4 OTHER RISKS

Main operation	Transport
Secondary operation	Lifting and handling.
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. Squeeze hands or feet. Manual handling of bulky or heavy material.
Prevention	Personal protection wear, gloves, safety shoes, helmets. Proper use of Lifting machines. Qualified personnel Follow specific operating instructions.
Main operation	Assembly
Secondary operation	
Danger connected	Mechanical danger due to handling circumstances.
Other risks	Bruises, fractures, falls, cuts and abrasions.
Prevention	Personal protection wear, gloves, safety shoes, helmets, goggles, protection mask for welding and grinding operations. Safety ladder, aerial platforms, scaffolds, safety slings for operation from a height for working at a height. Limit the working area with a ribbon. Qualified personnel. Follow safety measures established by the Company purchasing the product. Follow specific instructions on operations. Use lifting machinery according to EC standards.

Main operation	I n s t a l l a t i o n
Secondary operation	
Danger connected	Mechanical danger due to movements of the equipment.
Other risks	Bruises, fractures, falls, dropping material.
Prevention	Personal protection wear, gloves, safety shoes, helmets, goggles, protection mask for welding and grinding operations. Safety ladder, aerial platforms, scaffolds, safety slings for operation from a height for working at a height. Limit the working area with a ribbon. Qualified personnel. Follow specific instructions on operations. Use of proper tools.
Main operation	S t a r t u p
Secondary operation	Inspection and cleaning
Danger connected	Mechanical and electrical danger. Danger one can incur if inspection is carried out under difficult conditions.
Other risks	Bruises, fractures, electric shock, falls.
Prevention	Personal protection wear, gloves, safety shoes, helmets. Safety gloves against electric shock. Safety ladder, aerial platforms, scaffolds, slings for working at heights. Tools according to EC standards. Qualified personnel Follow specific instructions on operations.

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	Squeezing, cutting, bruises, fractures, falls, entrapment and dragging of people transiting in risk zones.
Prevention	Operators must be aware of the dangerous zones while operating. Use of qualified and trained personnel. Planning of preventive maintenance Warning signs must be used. Use of safety gloves, shoes and helmets. Follow operating instructions.
Main operation	Maintenance and repair
Secondary operation	
Danger connected	Mechanical danger during maintenance operations. Danger during maintenance operations carried out under difficult conditions. Falls, and dropping of material.
Other risks	Bruises, fractures, falls
Prevention	Personal protection wear, gloves, safety shoes, helmets, goggles, protection mask for welding and grinding operations. Proper tools. Limit the working area with a ribbon. Safety ladder, aerial platforms, scaffolds, safety slings for operation from a height for working at a height. Qualified personnel. Follow specific instructions on operations.

ENVIRONMENTAL POLLUTION

CHAPTER 1

ENVIRONMENTAL POLLUTION



1.1 DISMANTELLING AND DISPOSAL

Organize the material according to type:

Main material is:

- Iron for the structure
- Plastic, covering fabric.



Material must be thrown in dedicated areas for disposing material.



1.2 REMOVING WASTE MATERIAL

From installation operations there is waste material which must not be mixed up with normal waste material of the factory.

CHAPTER 1

SPARE PARTS

1.1 SPARE PARTS



Orders for spare parts must always carry the model, serial number and year of construction of the warehouse: these data are shown on the marking label (see unit II Chapt. 1.3)

In case non original spare parts are used, this will be classified as improper use, therefore the guarantee will no longer be valid and buyer will take his own responsibilities.

CHAPTER 1

GUARANTEE

1.1 GUARANTEE STANDARDS

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 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 the economical conditions agreed upon and do not authorize interruptions or changes in payment modalities.

Should instructions contained in this manual not be followed strictly, or if negligence occur during maintenance, or repairs not be carried out properly, or should non original spare parts be used, this will be considered improper and will imply Buyer to take his own responsibilities plus the loss of guarantee.

Kopron S.p.A

CHAPTER 1

ENCLOSED DRAWINGS

1.1 DRAWINGS

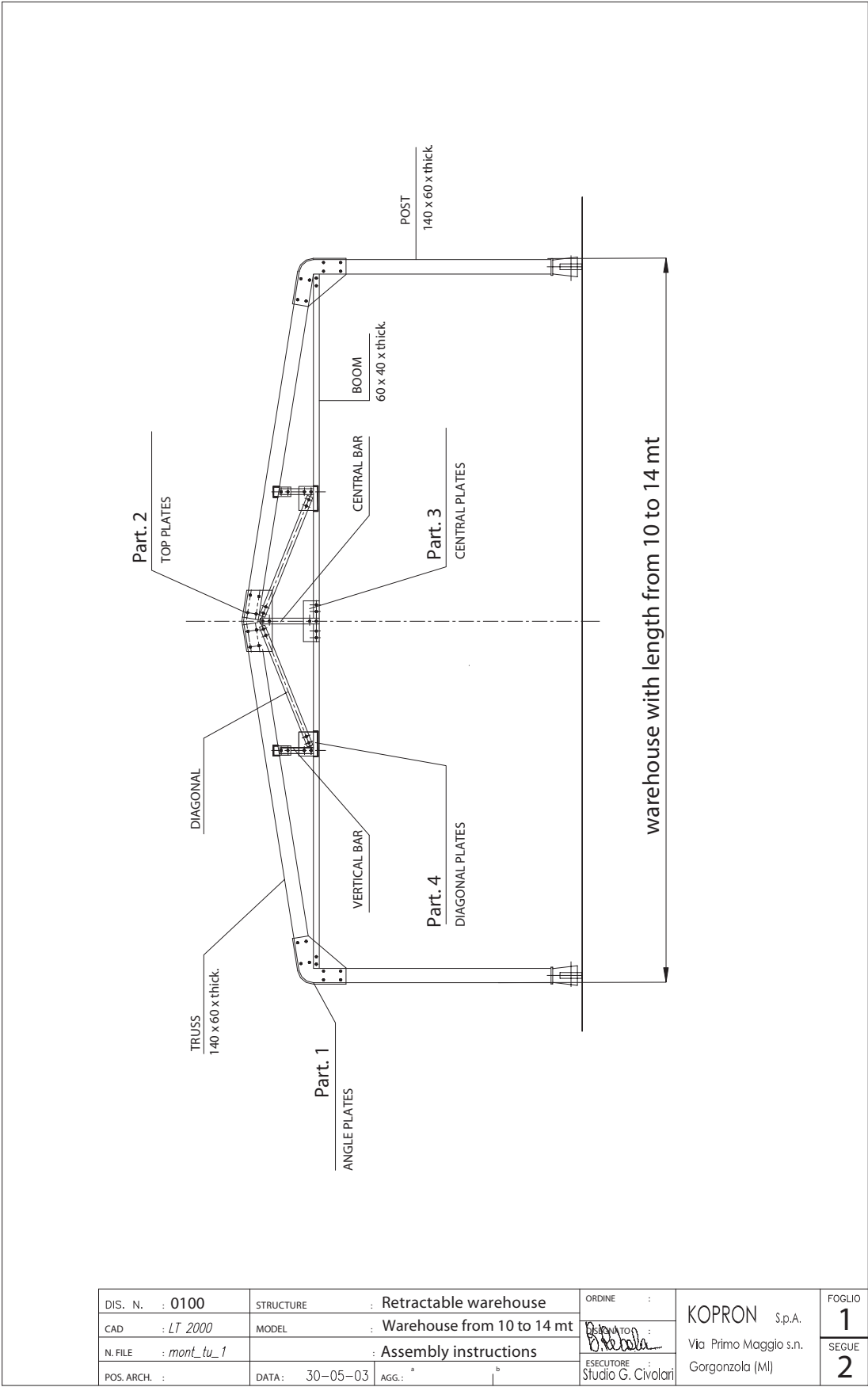
The annexed drawings refer to standard warehouses and are divided according to sizes:

■ Warehouse from 10 to 14 meters	drwg. n° 0100
■ Warehouse from 14 to 16 meters	drwg. n° 0110
■ Warehouse from 16 to 20 meters	drwg. n° 0120
■ Warehouse from 20 to 24 meters	drwg. n° 0130

Drawings show the position of the joining plates, the chain, of the diagonal and vertical tie rods in order to enable identification and assembly of the components.

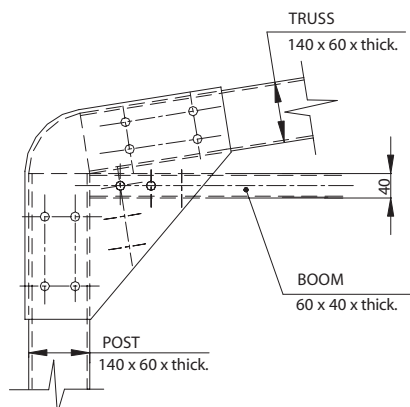
The profiles carry the width which is useful in case of order for spare parts or repairs. Drawings show for each component to assemble the exact diameter and length of the bolt to use.

It is of utmost importance to keep to instructions and avoid any waste of time.



Part. 1

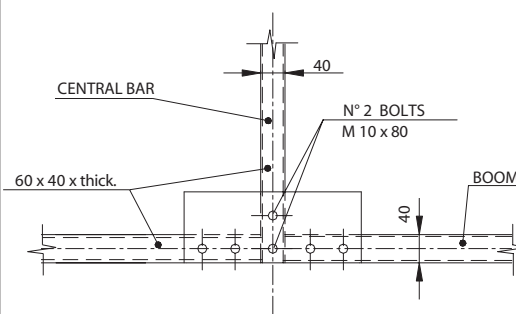
ANGLE PLATES



THE ANGLE PLATES ARE FIXED WITH
BOLTS M 12 x 80.
FOR THE BITS USE 2 BOLTS M 12 x 100

Part. 3

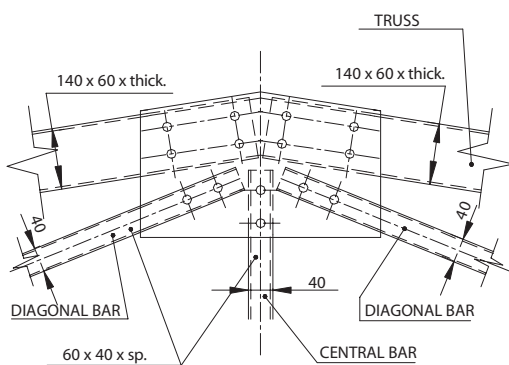
CENTRAL PLATES



THE CENTRAL PLATES MUST BE FIXED WITH
BOLTS M 12 x 80 and qty 2 M 10 x 80
FOR THE BITS 2 BOLTS M 12 x 100

Part. 2

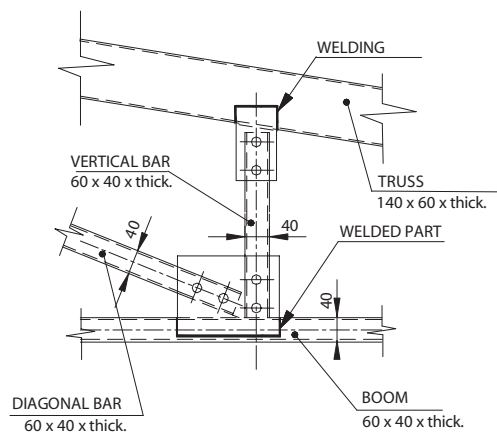
TOP PLATES



THE TOP PLATES MUST BE FIXED WITH 8 BOLTS
M 12 x 80 and 6 DA M 10 x 80.
BOLTS SIZE M 10 x 80 ARE USED TO FIX THE CENTRAL
BAR AND THE TWO DIAGONALS.

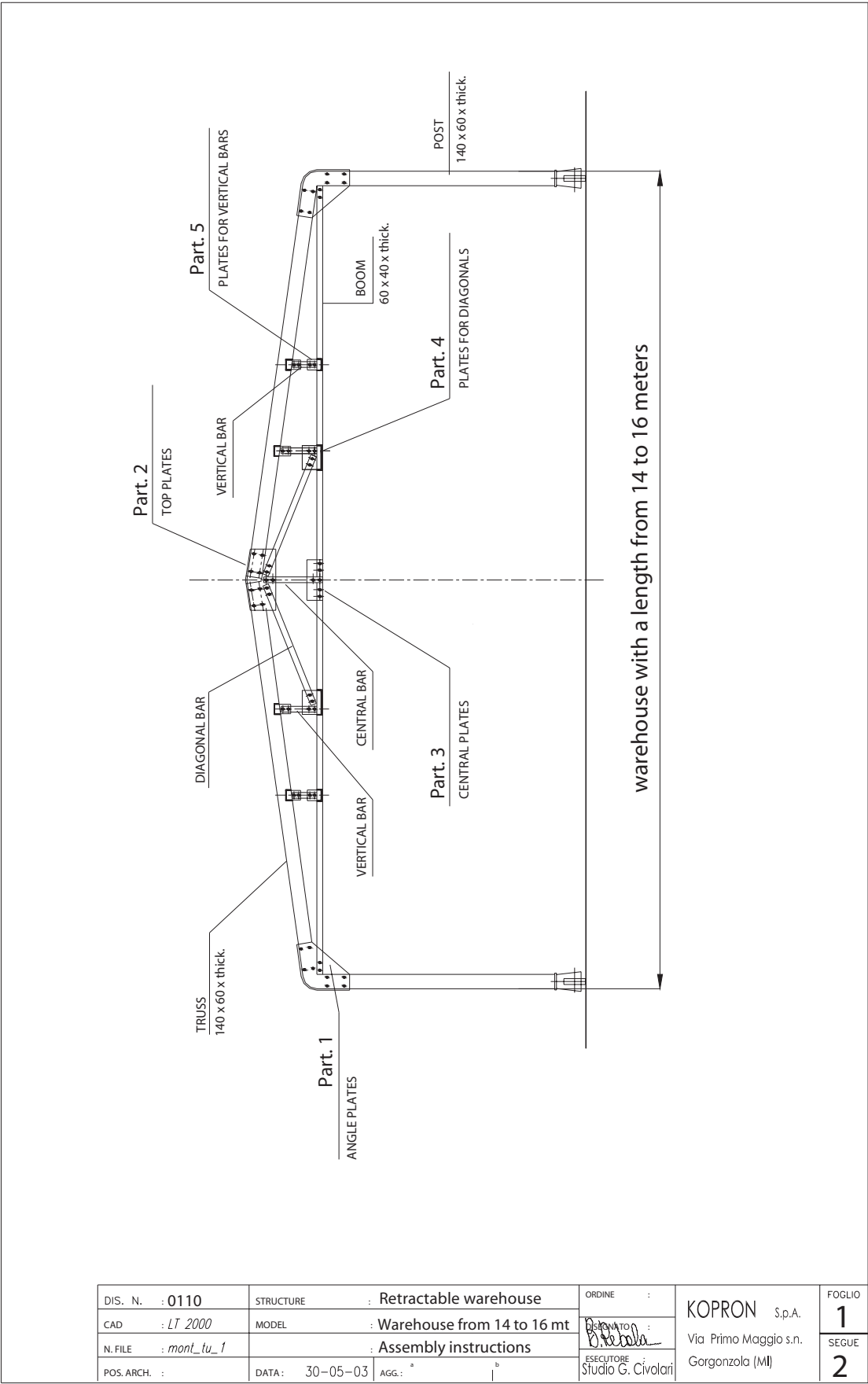
Part. 4

PLATES FOR DIAGONALS



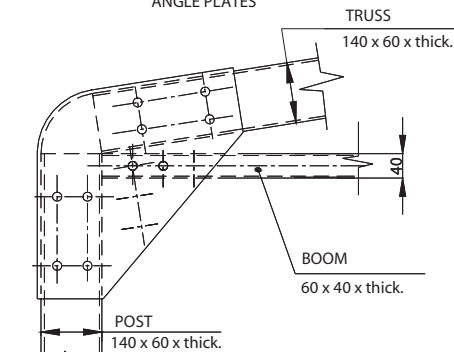
THE DIAGONALS AND VERTICAL BARS MUST BE FIXED TO THE
PLATES, WELDED TO THE BOOM AND TRUSS, WITH
6 BOLTS M 10 x 80

DIS. N. : 0100	STRUCTURE : Retractable warehouse	ORDINE :	KOPRON S.p.A. Via Primo Maggio s.n. Gorgonzola (MI)	FOGLIO
CAD : LT 2000	MODEL : warehouse from 10 to 14 mt	Disegnato da :		2
N. FILE : mont_tu_1	Assembly instructions	ESECUTORE :		SEGUE
POS. ARCH. :	DATA : 30-05-03 AGG. : a b	Studio G. Civalari		1



Part. 1

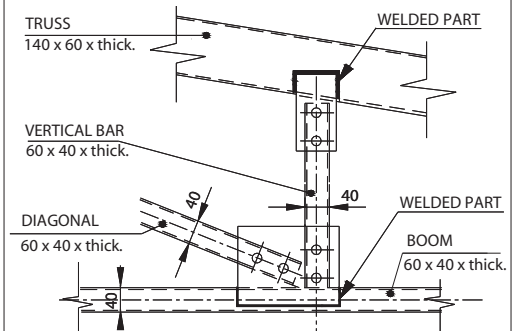
ANGLE PLATES



FIX THE ANGLE PLATE WITH BOLTS M 12 x 80.
FOR THE BITS USE 2 BOLTS M 12 x 100

Part. 4

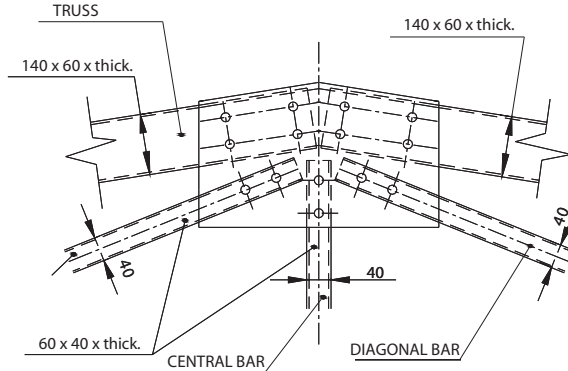
PLATES FOR DIAGONALS



VERTICAL AND DIAGONAL BARS MUST BE FIXED TO THE
RESPECTIVE PLATES, WELDED TO THE BOOM
AND TO THE TRUSS, WITH 6 BOLTS M 10 X 80

Part. 2

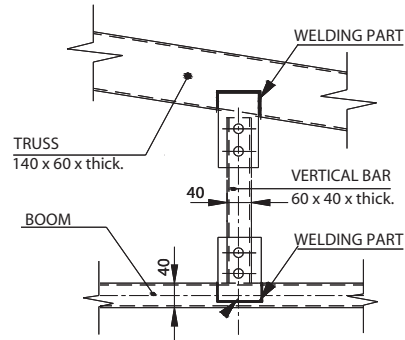
TOP PLATES



THE TOP PLATES MUST BE FIXED WITH BOLTS, Class 8.8,
STAINLESS STEEL qty 8 M 12 x 80 and qty 6 M 10 x 80 WHICH
MUST FIX THE CENTRE BAR AND THE TWO DIAGONALS.

Part. 5

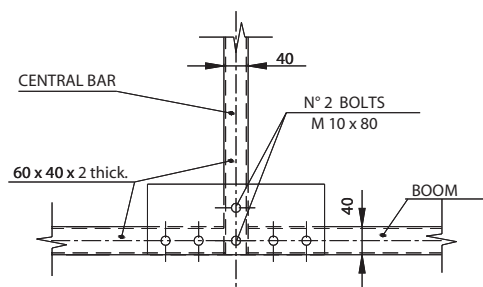
VERTICAL PLATES



THE VERTICAL BARS MUST BE FIXED TO THE PLATES,
WELDED TO THE BOOM AND TO THE TRUSS WITH 4,
BOLTS M 10 X 80 Class 8.8 Stainless steel

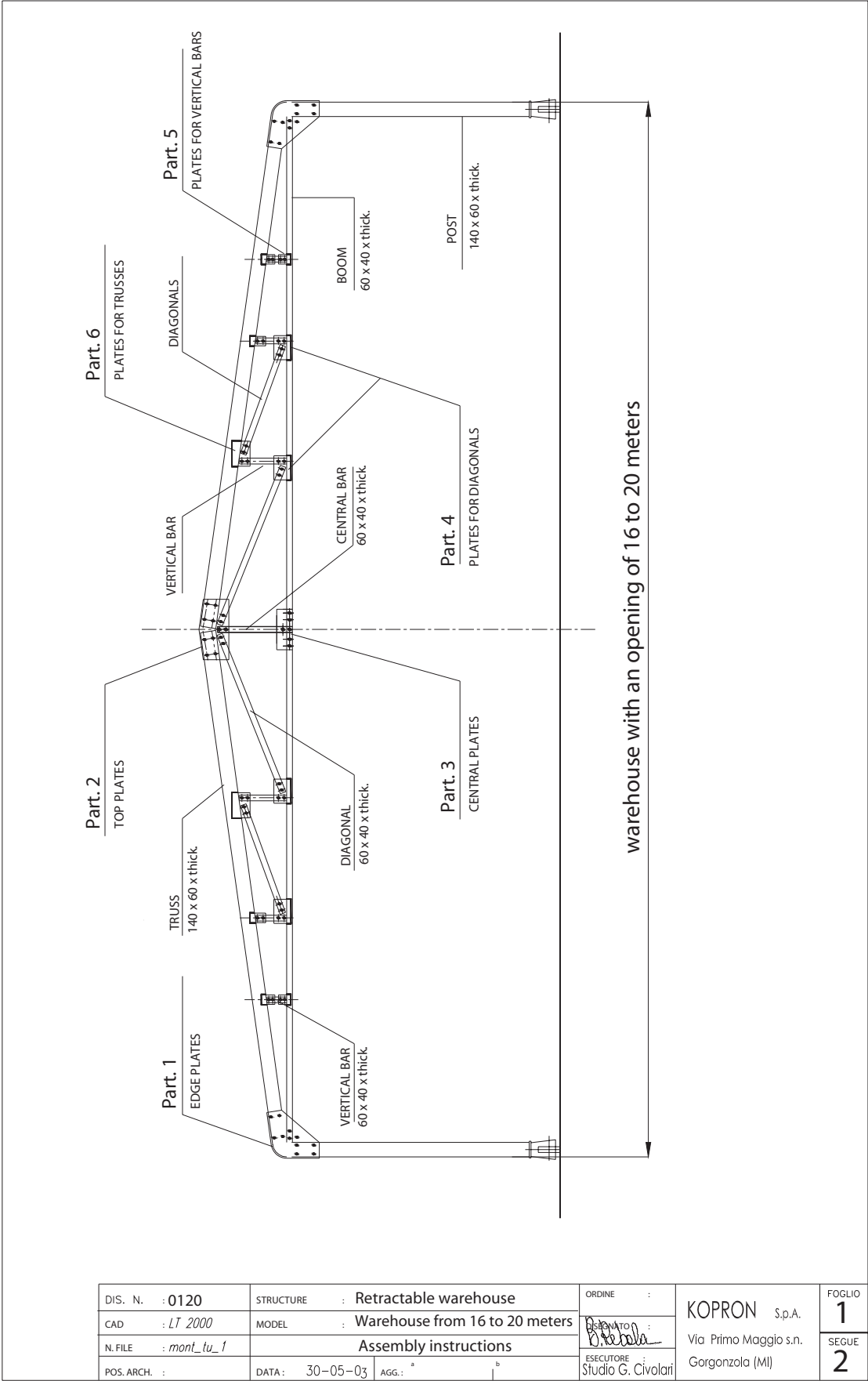
Part. 3

CENTRAL PLATES



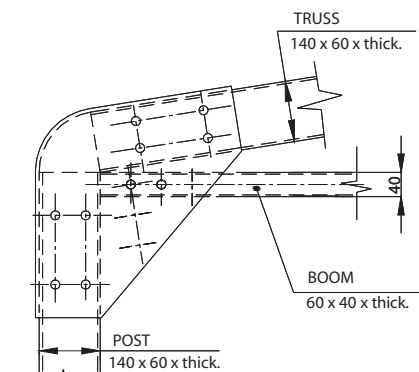
THE CENTRAL PLATES MUST BE FIXED WITH BOLTS
Class 8.8 Inox, 4 M 12 x 80 and 2 M 10 x 80 FOR THE BITS
YOU NEED 2 BOLTS M 12 x 100

DIS. N. : 0110	STRUCTURE : Retractable warehouse	ORDINE :	KOPRON S.p.A. Via Primo Maggio s.n. Gorgonzola (MI)	FOGLIO : 2
CAD : LT 2000	MODEL : Warehouse from 14 to 16 meters	PROGETTATO :		SEGUE //
N. FILE : mont_tu_1	Assembly instructions	ESECUTORE :		
POS. ARCH. :	DATA : 30-05-03 AGG. : a b	Studio G. Civalari		



Part. 1

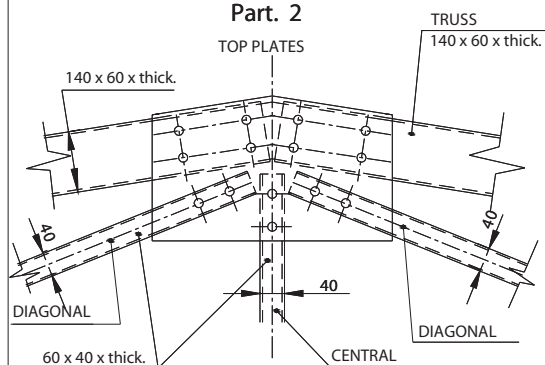
EDGE PLATES



EDGE PLATES MUST BE FIXED
WITH 10 BOLTS M 12 x 80
THE BITS WITH BOLTS M 12 x 100

Part. 2

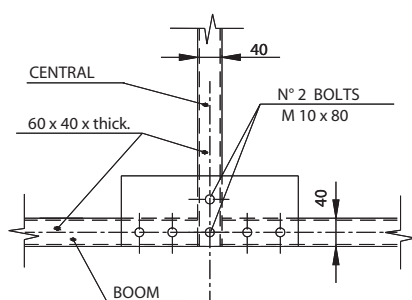
TOP PLATES



TOP PLATES MUST BE FIXED WITH 8 BOLTS M 12 x 80
and 6 BOLTS M 10 x 80. FOR FIXING THE CENTRAL BAR
AND THE DIAGONALS USE BOLTS M 10 x 80.

Part. 3

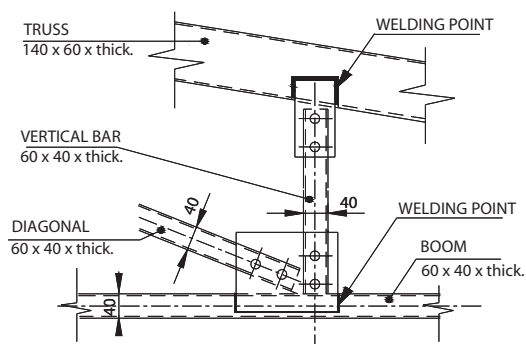
CENTRAL PLATES



THE CENTRAL PLATE MUST BE FIXED WITH
4 BOLTS M 12 x 80 and 2 BOLTS DA M 10 x 80.
FOR THE BITS USE 2 BOLTS M 12 x 100

Part. 4

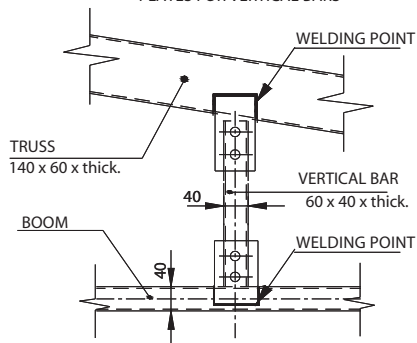
PLATES FOR DIAGONALS



DIAGONAL AND VERTICAL BARS MUST BE FIXED
TO THEIR PROPER PLATES, WELDED TO THE BOOM
AND TRUSS WITH 6 BOLTS M 10 x 80

Part. 5

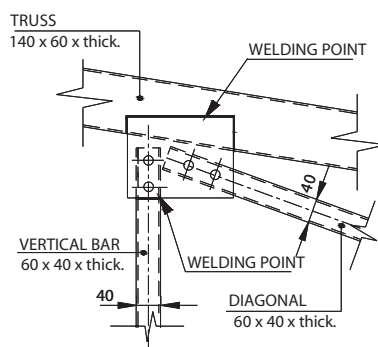
PLATES FOR VERTICAL BARS



VERTICAL BARS MUST BE FIXED TO THE PLATES,
WELDED TO THE BOOM AND TO THE TRUSS
WITH 4 BOLTS M 10 x 80

Part. 6

PLATES FOR TRUSSES

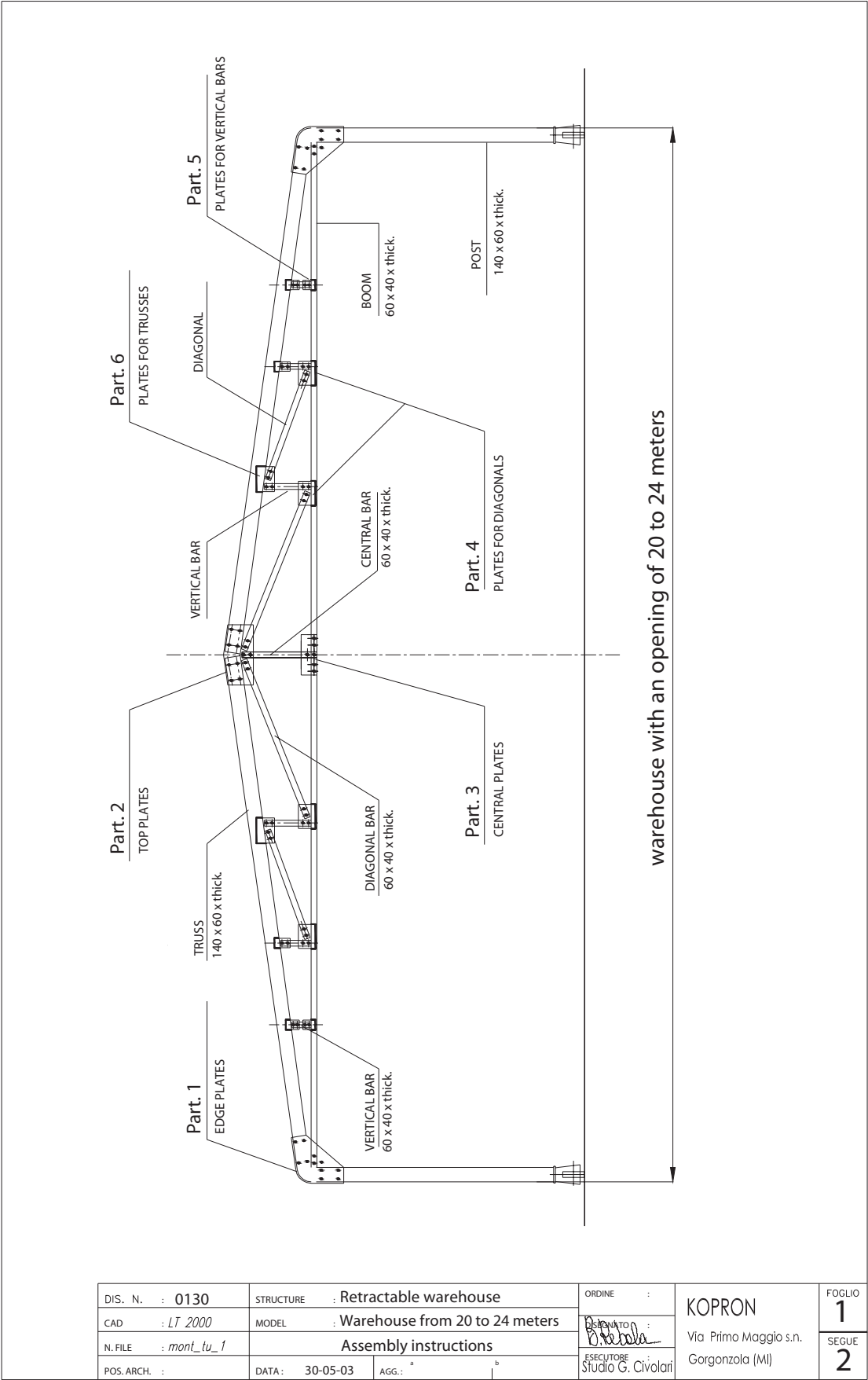


DIAGONAL AND VERTICAL BARS MUST BE FIXED
TO THE PLATES TO THE TRUSS
WITH 4 BOLTS M 10 x 80

DIS. N. : 0120	STRUCTURE : Retractable warehouse	ORDINE :
CAD : LT 2000	MODEL : Warehouse from 16 to 20 meters	DESIGNATO :
N. FILE : mont_tu_1	Assemble instructions	ESECUTORE :
POS. ARCH. :	DATA : 30-05-03 AGG. : a b	Studio G. Civalari

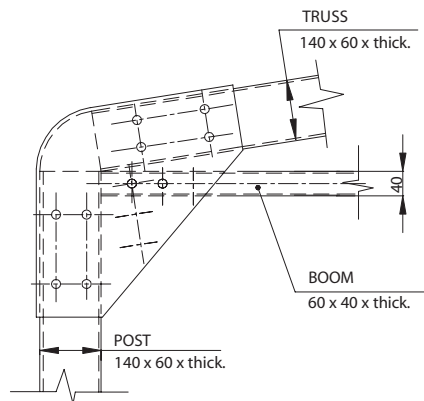
KOPRON S.p.A.
Via Primo Maggio s.n.
Gorgonzola (MI)

FOGLIO
2
SEGUE
//



Part. 1

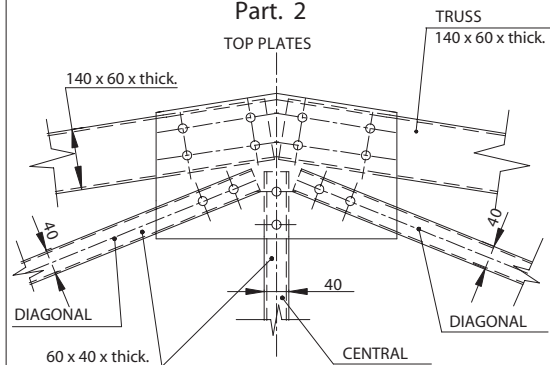
EDGE PLATES



THE EDGE PLATES MUST BE FIXED
WITH 10 BOLTS M 12 x 80
FOR THE BITS USE 2 BOLTS M 12 x 100

Part. 2

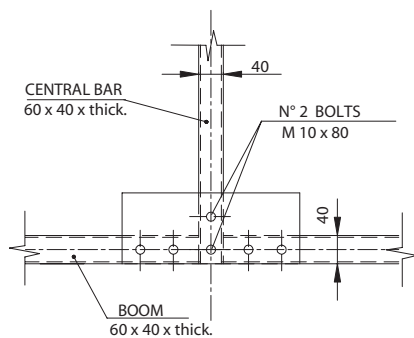
TOP PLATES



THE TOP PLATES MUST BE FIXED WITH BOLTS,
Qty 8 M 12 x 80, Qty 6 M 10 x 80. BOLTS M 10 x 80 ARE USED
FOR FIXING THE CENTRAL PLUS THE TWO DIAGONAL BARS

Part. 3

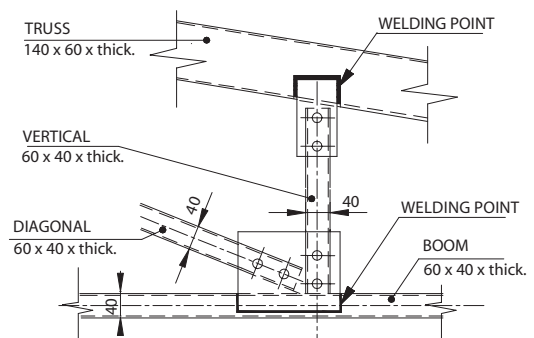
CENTRAL PLATES



THE CENTRAL PLATES MUST BE FIXED WITH BOLTS.
Qty 4 M 12 x 80 and Qty 2 M 10 x 80
FOR THE BITS USE 2 BOLTS M 12 x 100

Part. 4

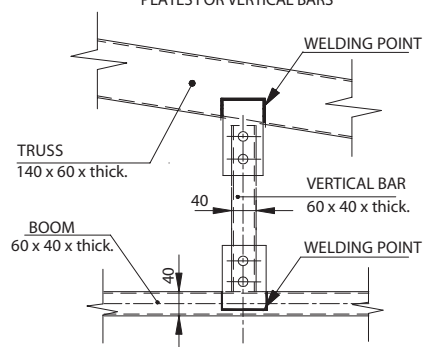
PLATES FOR DIAGONALS



DIAGONAL AND VERTICAL BAR MUST BE FIXED TO THEIR RESPECTIVE
PLATES, WELDED TO THE BOOM AND TO THE TRUSS,
WITH 6 BOLTS M 10 x 80

Part. 5

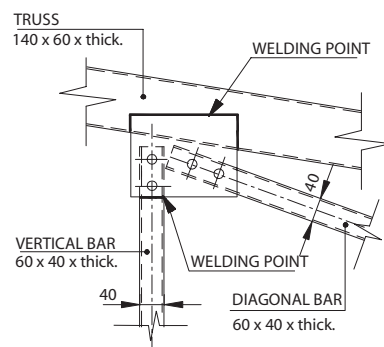
PLATES FOR VERTICAL BARS



VERTICAL BARS MUST BE FIXED TO THE PLATES
AND WELDED TO THE BOOM AND TRUSS
WITH 4 BOLTS M 10 x 80

Part. 6

PLATES FOR TRUSSES



DIAGONAL AND VERTICAL BARS MUST BE FIXED
TO THE WELDED PLATES TO THE TRUSS, WITH
4 BOLTS M 10 x 80

DIS. N. : 0130	STRUCTURE : Retractable warehouse		ORDINE :	KOPRON S.p.A. Via Primo Maggio s.n. Gorgonzola (MI)	FOGLIO 2
CAD : LT 2000	MODELLO : Warehouse from 20 to 24 meters		DESEGNATO : 		SEGUE /
N. FILE : mont_tu_1	Assembly instructions		ESECUTORE : Studio G. Civalari		
POS. ARCH. :	DATA : 30-05-03	AGG.: ^a ^b			



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.



www.kopron.com

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