

INSTRUCTION of ASSEMBLY



UNIMONDIAL



www.rosss.it

UNIMONDIAL SHELVING

Presentation of the company

Our company, thanks to a wide experience in the engineering industry and to a technologically modern production, is able to offer safe and rational solutions for any storage requirements. Our modular structures meet the strongest loading requirements but, at the same time, they present the maximum assembly practicality and an extraordinary functional agility. ROSSS is the first Italian company to have obtained the certification of its own Quality System in field of the designing and manufacturing of metal shelving and racking systems; precisely ROSSS obtained the following certification:

- Certification of quality system N. 087-A, issued the 12/04/1996 by CERMET according to the UNI EN ISO 9001
- Certification of the Environmental system N. 087-E, issued the 28/06/2002 by CERMET according to UNI EN ISO 14001-96
- Certification of EMAS Registration N° I-000258 issued the 10/11/2004
- Certification for the system of Social Responsibility Management SA8000:2001 number BE04/3368SA issued the 30/12/2004.

The certifications above have been issued for the following activities:

Research, Designing, Manufacturing and installation of metallic structures in order to manage industrial and commercial spaces: light shelving systems (painted and galvanized), Pallet racks, Drive-in, Gravity systems, mobile bases for archiving, mezzanine floors, automatic warehouses and checkouts.

From several years we take part of "A.C.A.I." (Associazione Costruttori Acciaio Italiani) Racking and Shelving system Section which produces a series of rules for a safe designing.

ROSSS S.p.A. is one of the companies whose passed the examination to get "CISI Qualità Sicurezza" (Costruttori Italiani Scaffalature Industriali) brand.

For the designing and manufacturing of our products we follow technical specifications produced by "A.C.A.I." sezione "Scaffalature Industriali". The technical specifications above are referred to the norms listed below.

- D.M. 9 gennaio 1996 "Norme tecniche per il calcolo, l'esecuzione ed il collaudo delle strutture in cemento armato, normale e precompresso e per le strutture metalliche"
- CNR 10011/97. Costruzioni di acciaio. Istruzioni per il calcolo, l'esecuzione, il collaudo e la manutenzione.
- CNR 10022/84. Profilati formati a freddo. Istruzione per l'impiego nelle costruzioni.

Moreover we refer also to F.E.M. codes (Federation Europeenne de la Manutention-Section X) :

- UNI ENV 1993 1-1 (EUROCODICE3) "Progettazione di strutture in acciaio"
- F.E.M. 10.2.02 "The design of static steel pallet racking"
- F.E.M. 10.2.03 "Guidelines for the safe provision of static steel racking and shelving"

SYSTEM N° _____ **YEAR OF CONSTRUCTION** _____

(Please quote the number of delivery note/year)

UTILIZATION LIMITS OF THE RACKING

It is not allowed to position on the racking neither horizontal loads nor dynamic loads both vertical and/or horizontal.

It is not allowed to bump against or to lean to the racking with fork lift trucks or whatever equipment.

It is not allowed to use the racking in a different way from the one described in this manual.

The racking is designed for a specific use. Possible changes of the geometry may be produced only under authorization of our Technical Department.

WARNING

The instructions contained in this manual are significant for some details.

Such instructions are exhaustive for the aims of the present manual: correct assembly, use and maintenance.

The exact dimensional features can be deduced from the delivery note.

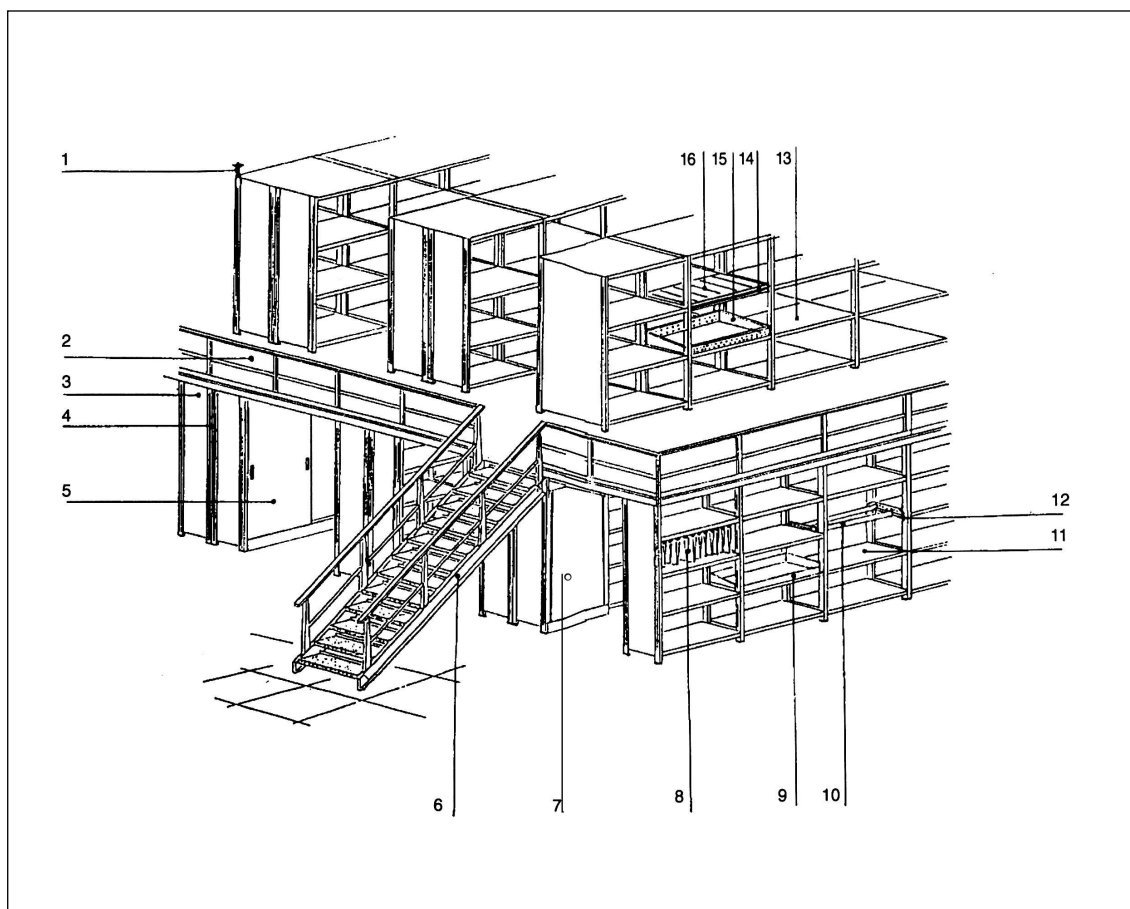
The drawings listed in this manual are produced for a commercial didactic purpose.

**In case of customer takes care of assembling,
ROSSS declines any responsibility for
damages to things and person caused
by this activity.**

***Our production is under guarantee by
ASSICURAZIONI GENERALI
with Insurance policy n. 989455770
“Risk products policy” e “Civil liability”
with coverage up to € 1.549.370.***

GENERAL WARNINGS

- 1) Assembly sequence for Unimondial shelving
 - Assembly of frames
 - Assembly of shelves
 - Assembly of cross bracings
 - Assembly of fittings (containers, back sheets, doors, etc.)
 - Assembly of mezzanine floor and staircases
- 2) The assembly team must be provided with all the equipments required to prevent job accidents, according to the specific assembly operations (Helmet, gloves, accident prevention shoes, safety belts, etc.)
- 3) The shelving is designed for a specific use. Possible changes of the geomtry may be produced only under authorisation of our Technical Department
- 4) Inspections should be carried out in order to identify possible anomalies not found during the normal use of the shelving. By carrying out a planned main tenance of the system, it is possible to avoid dangerous situations that may cause accidents. It is important to replace possible damaged elements as to obtain the full operation of the system.
- 5) **We suggest reading carefully all the following instructions before starting the assembly.**

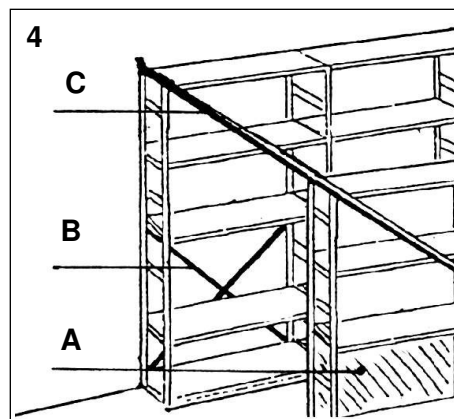
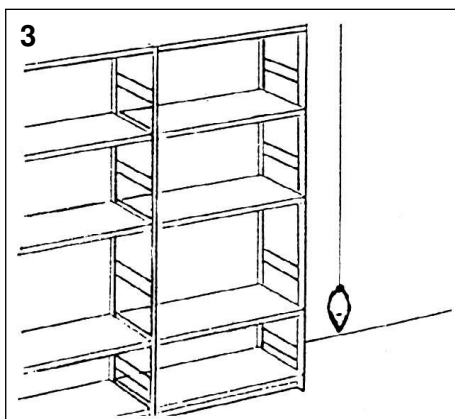
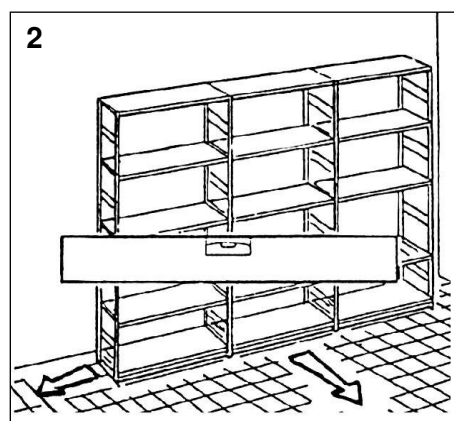
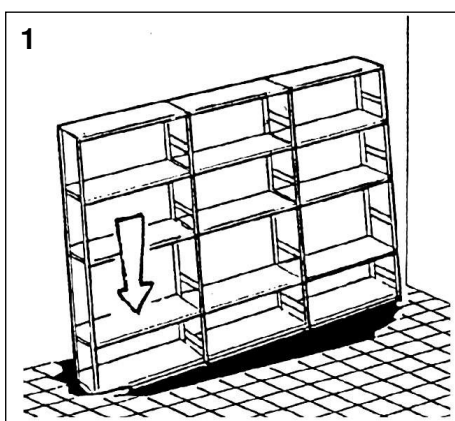


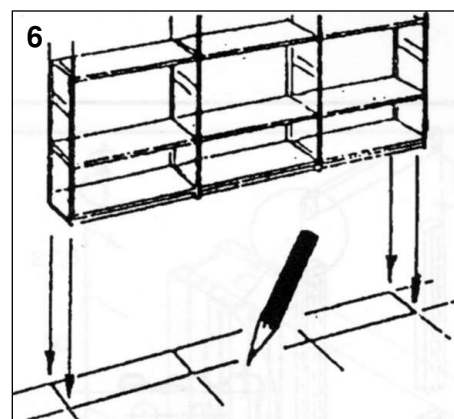
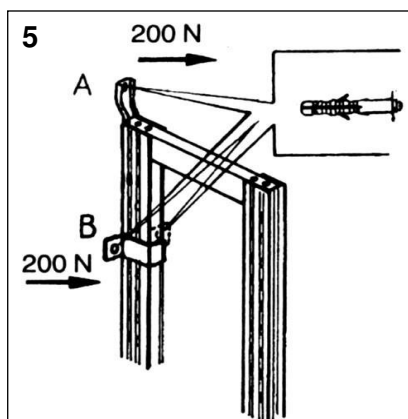
LEGEND

- | | |
|----------------------------|------------------|
| 1) Roof fixing | 10) Hanging rail |
| 2) Mezzanine floor | 11) Shelf |
| 3) Frame | 12) Shelf clip |
| 4) Frames connection clip | 13) Shelf |
| 5) Sliding doors | 14) Beam |
| 6) Staircase | 15) Container |
| 7) Doors | 16) Shelf panel |
| 8) Hanging folders profile | |
| 9) Container | |

PREPARATIONS FOR THE ASSEMBLY

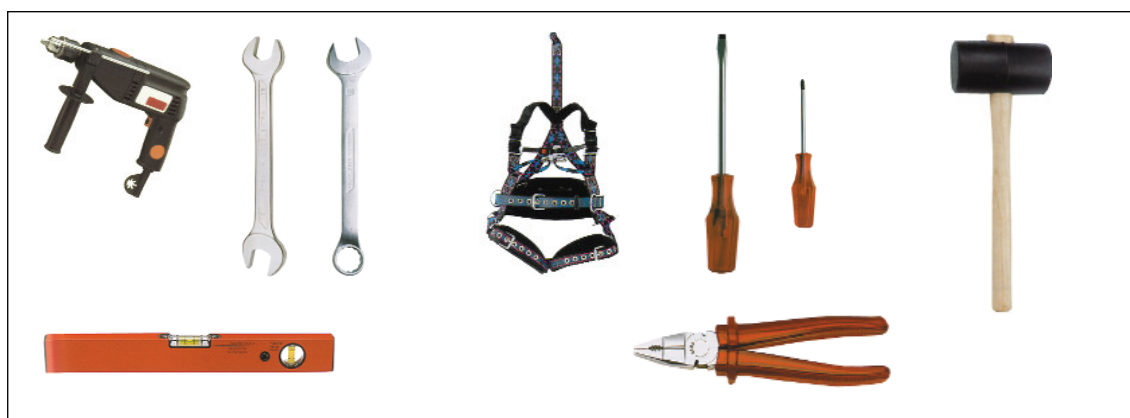
- 1) Check the capacity of the floor
- 2) Check the levelling of the floor
- 3) The shelving must be assembled vertically
- 4) Block the structures, where necessary, with stiffening elements (A), cross bracings (B) and corner elements (C)





5) Minimum extension strength of the anchoring 200 N (20 kg): use the bracket type B for shelving systems higher than 3.000 mm

6) Mark out the exact position of the shelving on the floor



ASSEMBLY TOOLS

Set of spanners

Screwdriver

Gum-hammer

Pliers

Power drill

Level

Jemmy

Plumb line

Optical level

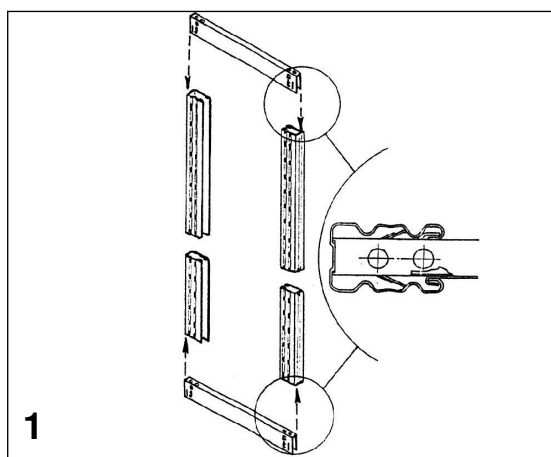
Safety belts

WARNING

The assembly team must be provided with all the equipments required to prevent job accidents, according to the specific assembly operations (helmet, gloves, accident prevention shoes, safety belts, etc.)

UNIMONDIAL FRAME

The Unimondial frames are supplied, as standard, dismantled. If frames have to be assembled, follow accurately the next steps:



ASSEMBLY OF FRAMES

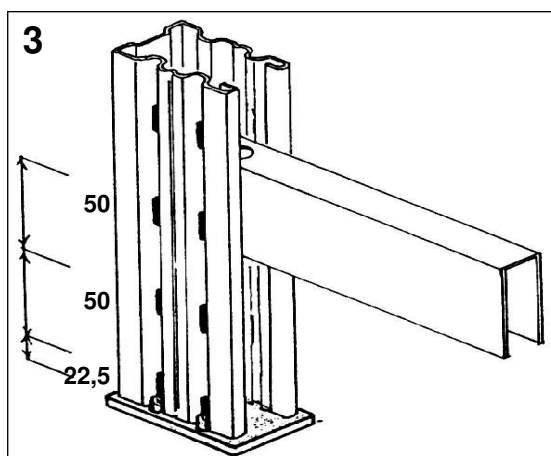
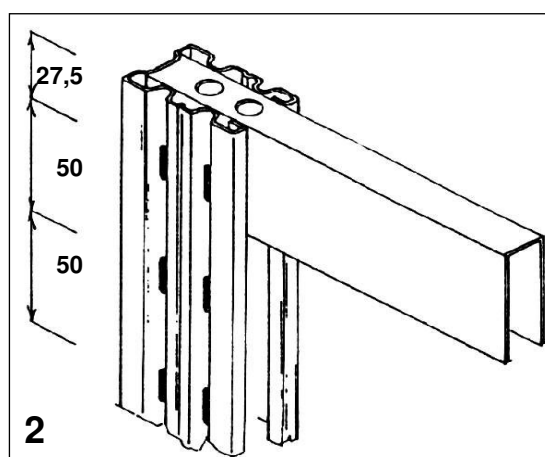
Position the uprights side by side: they should be placed at a useful distance as to insert the bracings (Fig. 1).

The upper extremity of the upright can be identified through the slots positioned at 27,5 mm from the end of the profile (Fig. 2).

The lower extremity of the upright can be identified through the slots positioned at the end of the profile (Fig. 3).

ASSEMBLY OF UPPER BRACING TO THE UPRIGHT

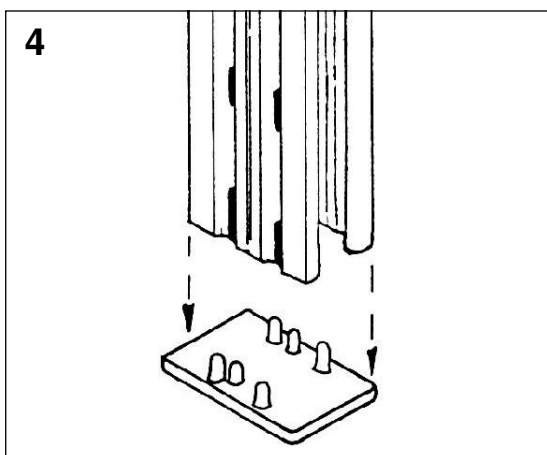
The slots of the bracing should coincide with the final slots of the upright. (Dimensions corresponding to the upper extremity of the slots).
Check if the tangs of the bracing are correctly inserted inside the upright profile, as from the detail of Fig. 1.



ASSEMBLY OF LOWER BRACING

The slots of the bracing should coincide with the third slot on the upright (dimensions corresponding to the upper extremity of the slots).

Check if the tangs of the bracing are correctly inserted inside the upright profile, as from the detail of Fig. 1.

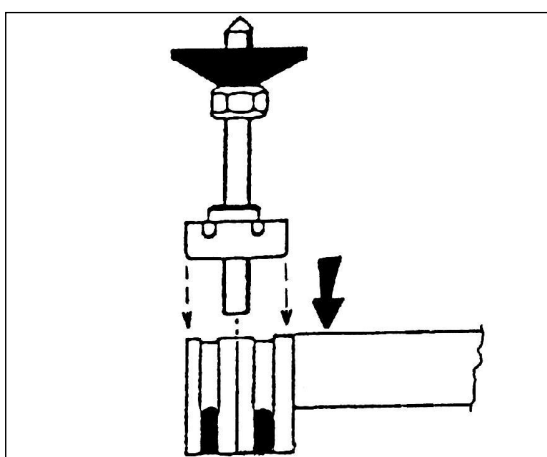
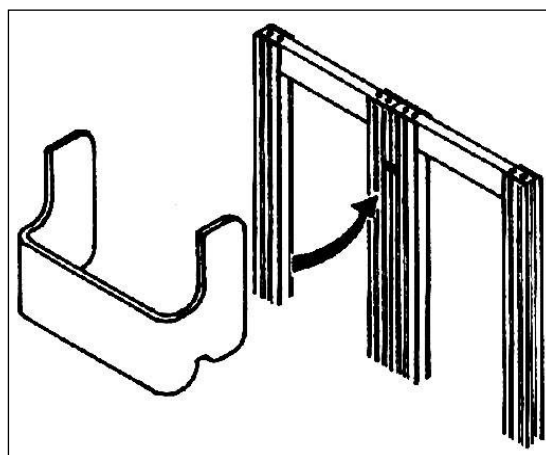


ASSEMBLY OF BASE PLATE

Insert the base plate in the upright, in order the central pins would result inside the profile.

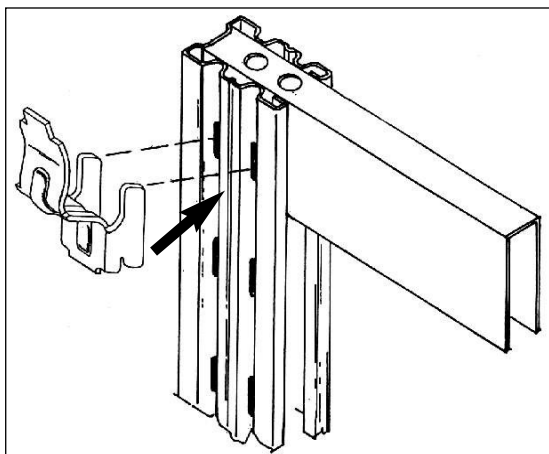
FRAME CONNECTION CLIP

Insert the clips in the external slots of the two uprights, each 1.000 mm, starting from the sixth slot from the floor.



ASSEMBLY OF ROOF FIXING

Lower the bracing as to insert the roof fixing.



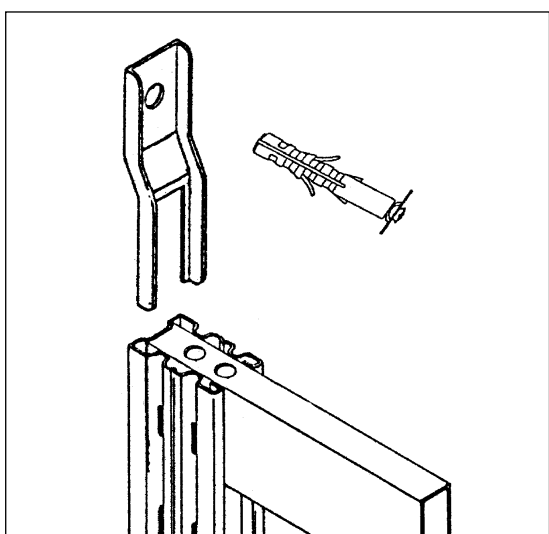
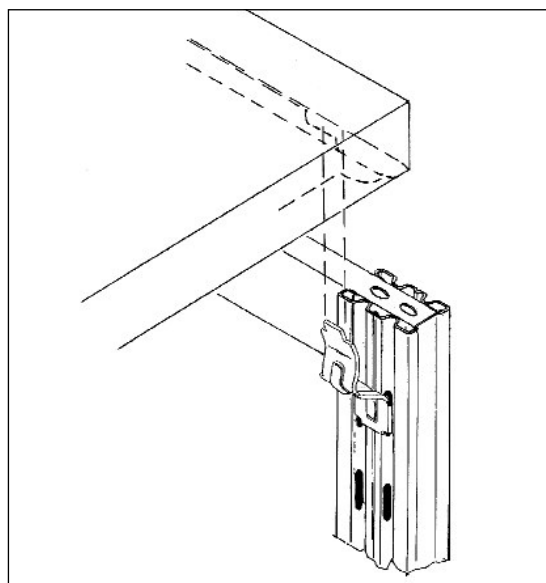
HOOKING TO THE UPRIGHT

Insert the clip fins in the upright slots.

ASSEMBLY OF SHELF

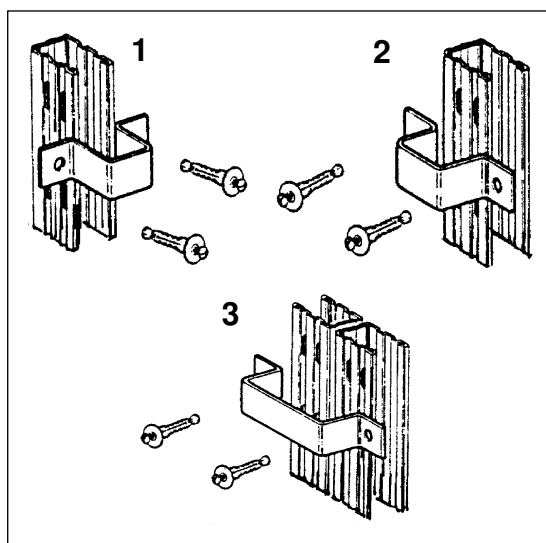
We suggest making a manual pressure only on the corners of the shelf.

Do not use the hammer to assemble the shelf.



ASSEMBLY OF FIXING BRACKETS

The shelving systems positioned against the wall must be anchored to the wall with fixing brackets and screw anchors.

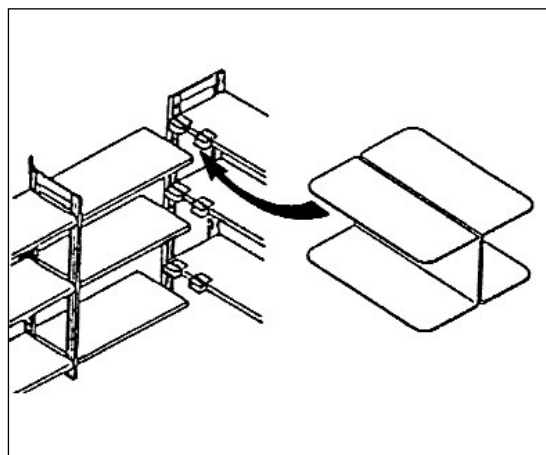


ASSEMBLY OF BRACKETS TYPE 1-2-3

In order to have more stability of the system, it is possible to fix the frames to the wall with brackets type 1-2-3 and the respective screw anchors.

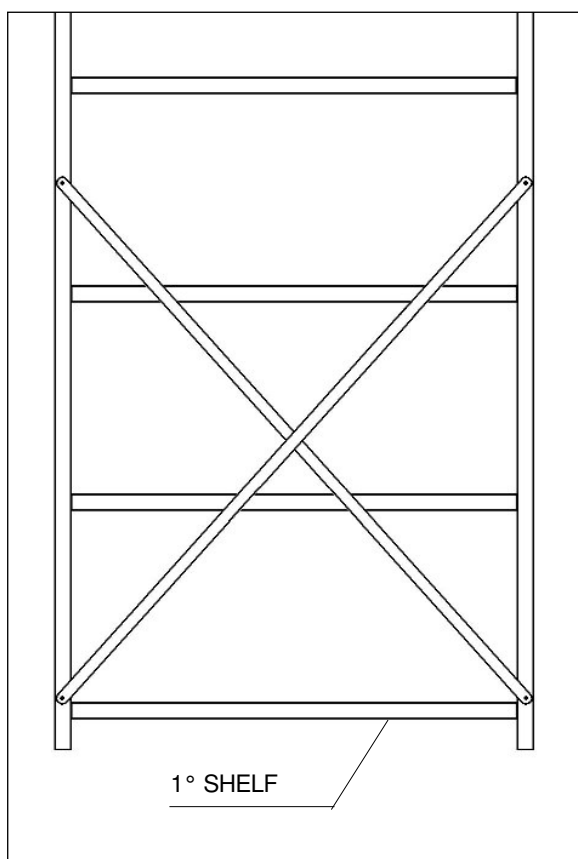
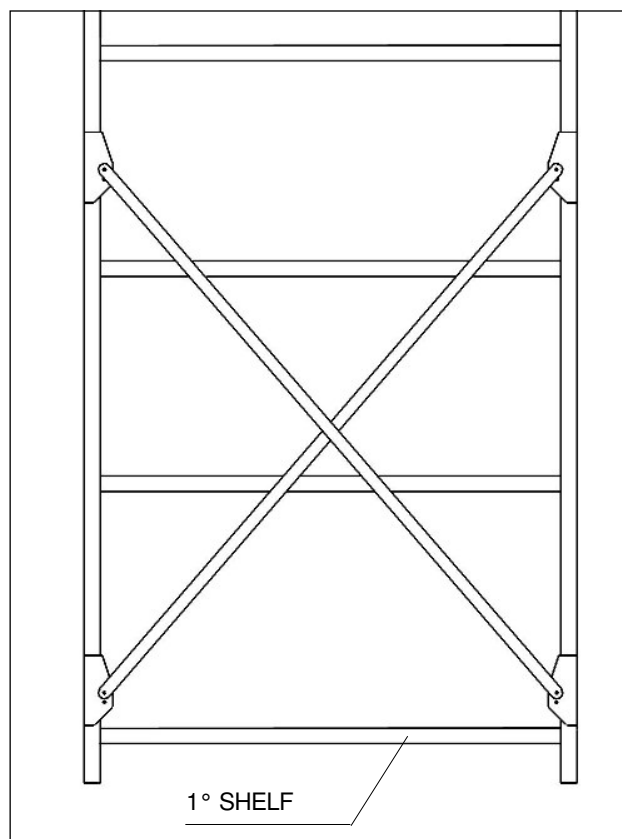
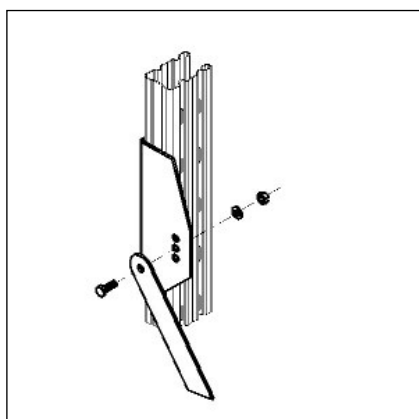
ASSEMBLY OF ELEMENTS TO SUPPORT THE SHEVES POSITIONED AT THE COR- NERS

In order to support the shelves positioned at the corners, insert two supports for each coupling.



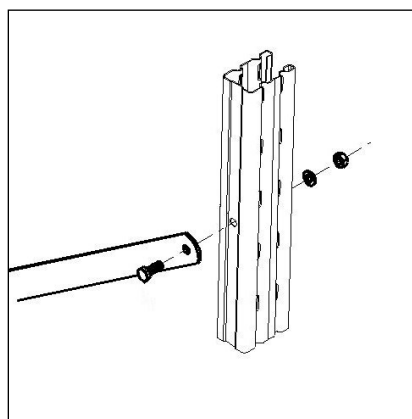
CROSS- BRACINGS FOR BAY WITH BRACKETS

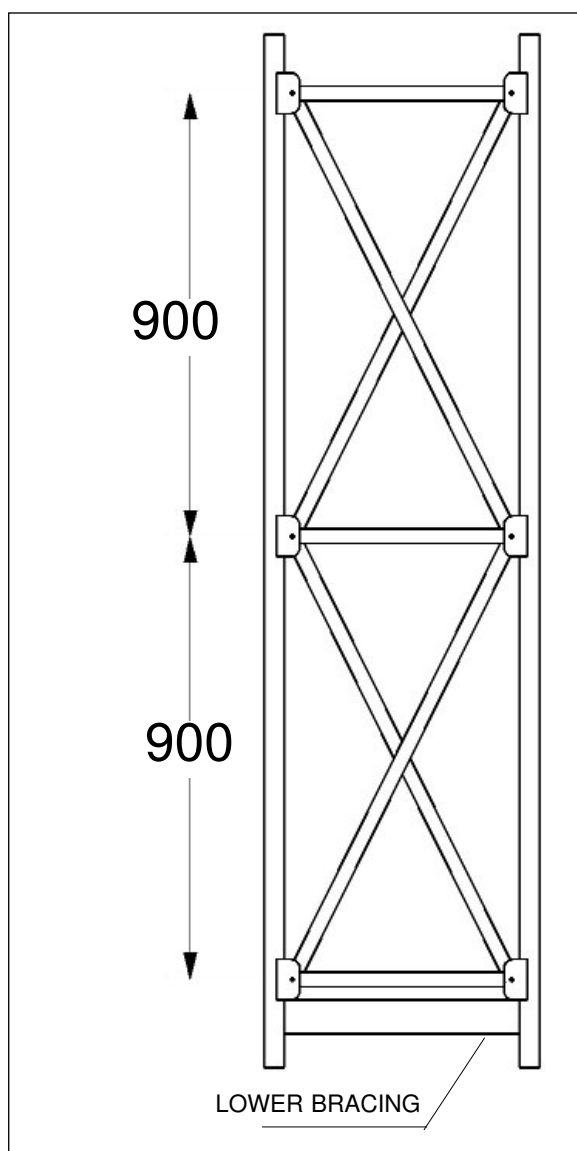
Insert the brackets in the upright, setting the lower brackets as close as possible to the first shelf.
Then fix the diagonals with 2 screw M6x16 + nut and washer



CROSS- BRACINGS FOR BAY WITHOUT BRACKETS

Make four holes on the uprights with a 7mm drill, so that the lower holes are about 15 mm up from the first shelf.
Then fix the diagonals with 2 screw M6x16 + nut and washer



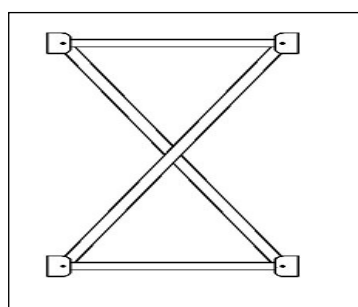
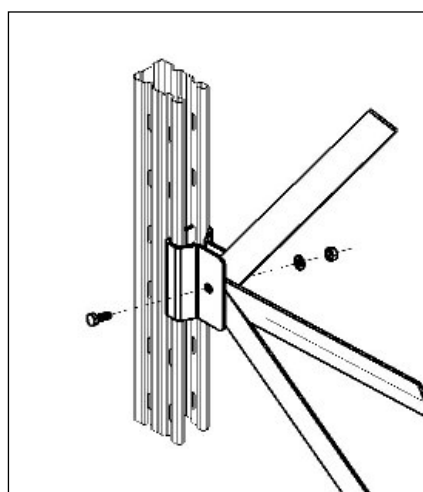


CROSS- BRACINGS FOR FRAME

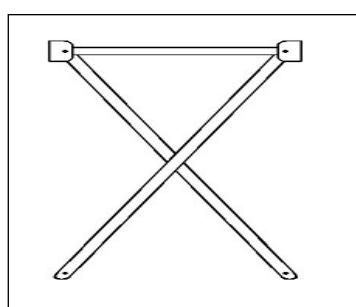
Insert the brackets in the upright at 900 mm distance between them, setting the lower brackets as close as possible to the lower bracing.

Then fix the diagonal and the cross bar to the brackets with a screw M6x20 + nut and washer.

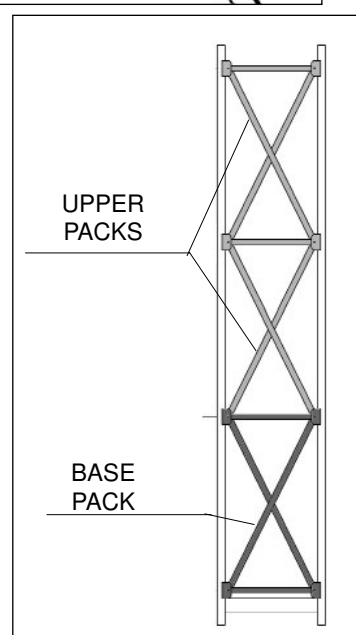
The Base Pakc includes 2 cross bars, 2 diagonals and 8 brackets, the Upper Pack 1 cross bar, 2 diagonals and 4 brackets

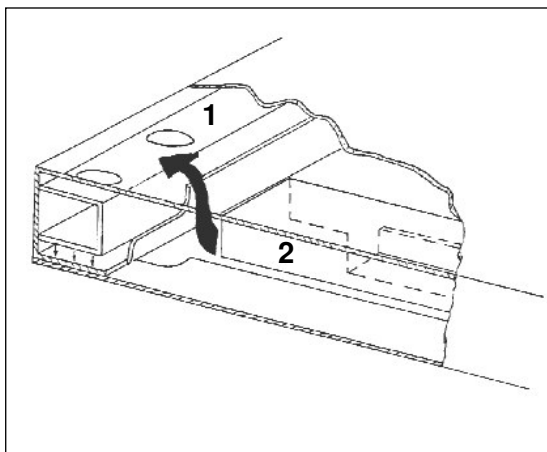


BASE
PACK



UPPER
PACK

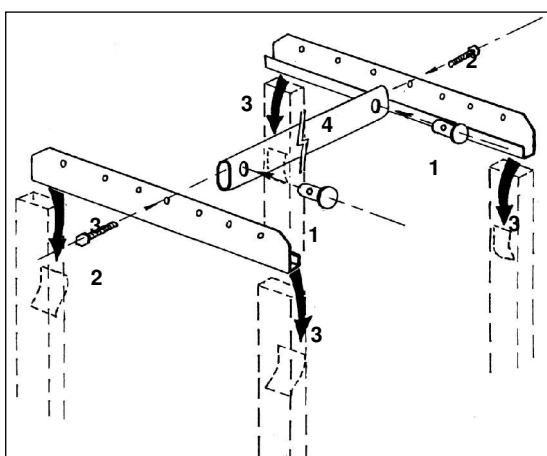




ASSEMBLY OF HANGING FOLDERS PROFILE

A) Insert the galvanized reinforcing bars (1) in the smaller (lower) sides of the shelf (under the side of the shelf).

B) Insert the hanging folders profile (2), positioning it between the projections of the profile.



ASSEMBLY OF HANGING RAIL

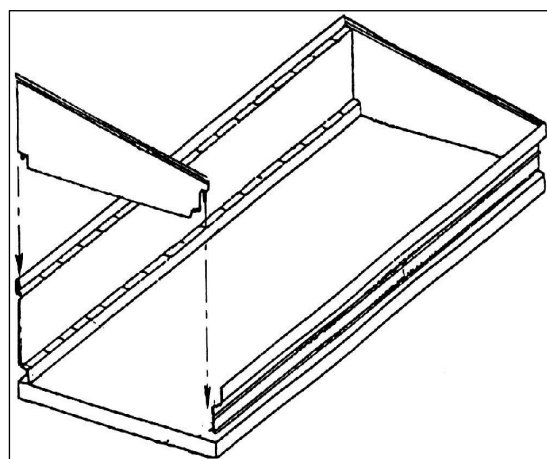
A) Insert the bushing (1) into the hanging rail tube (4).

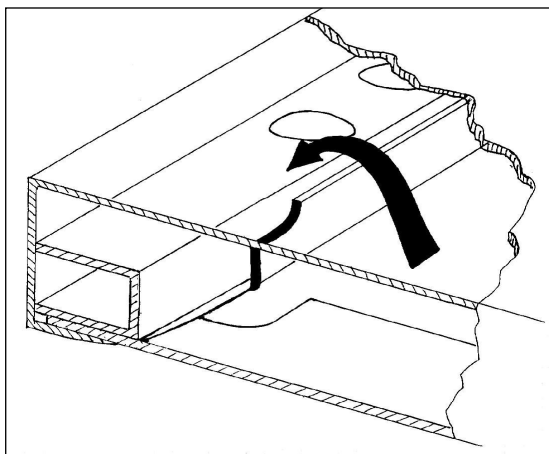
B) Fix the tube to the bar with a bolt (2) type M 6x25.

C) Position the hanging rail on the hooks (3) of the upright.

ASSEMBLY OF CONTAINER ON THE SHELF

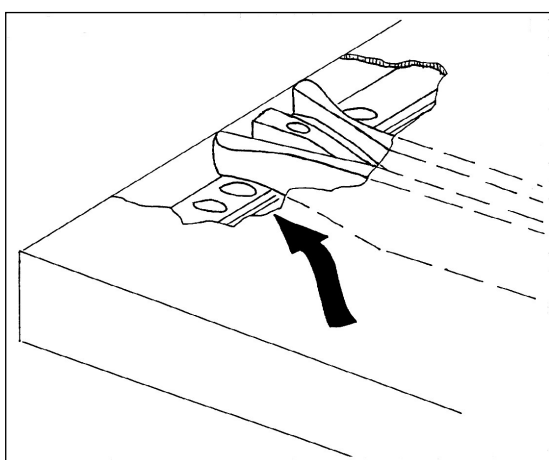
Position the front and back dividing side element on the shelf sides. Insert the shelf divider in the internal slots of the dividing side elements. The upper lip of the shelf divider must be placed outwards.





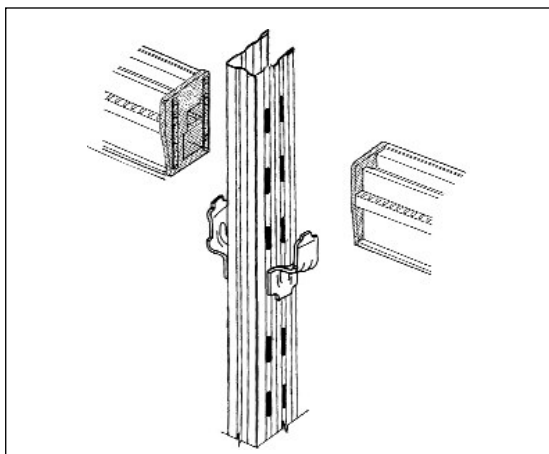
ASSEMBLY OF REINFORCING BARI

Insert the galvanized reinforcing bars in the lower (smaller) sides of the shelf, by this way the protrusions are positioned upward.



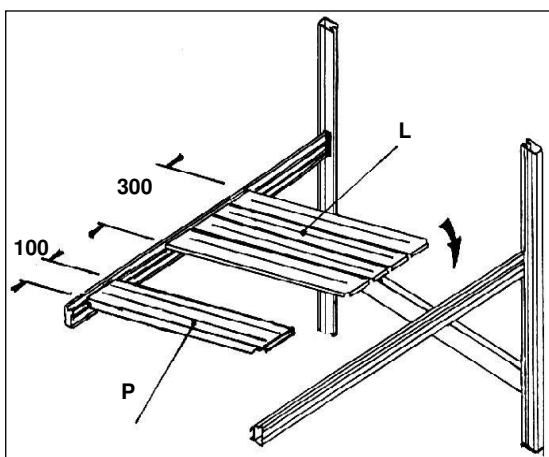
ASSEMBLY OF GALVANIZED SHELF REINFORCEMENT

Insert the shelf reinforcement between the protrusions, positioned above the reinforcing bar, against the internal surface of the shelf.



ASSEMBLY OF BEAMS

Insert the slot, positioned in the lower part of the beam, in the hook of the upright.

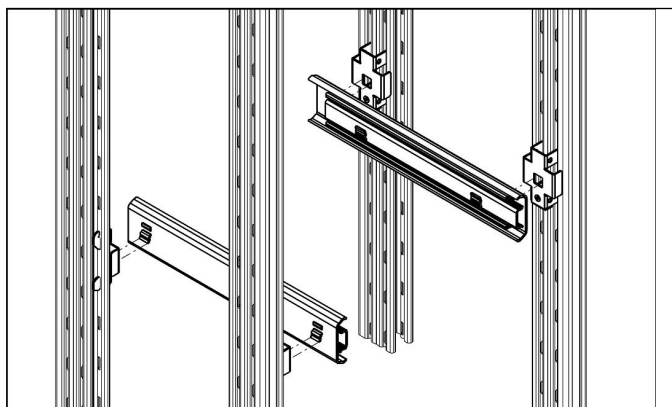
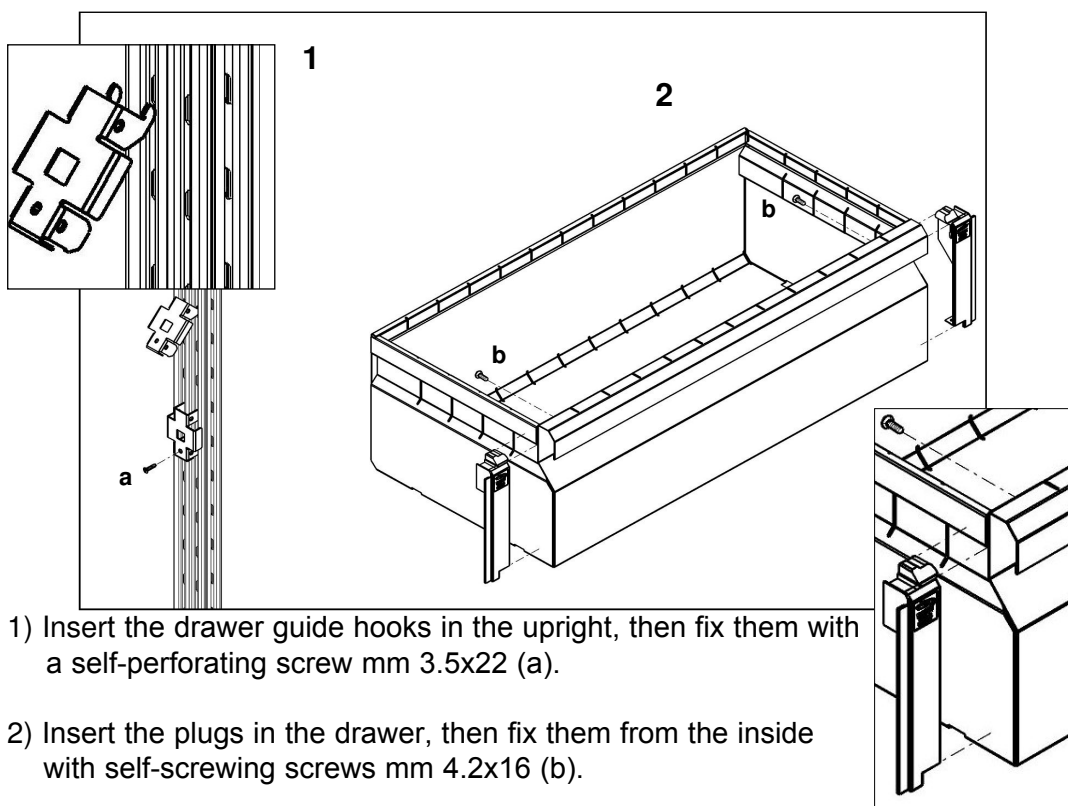


ASSEMBLY OF SHELF PANELS TYPE P-L

Insert the galvanized shelf panels in the groove of the beam with a light manual pressure.

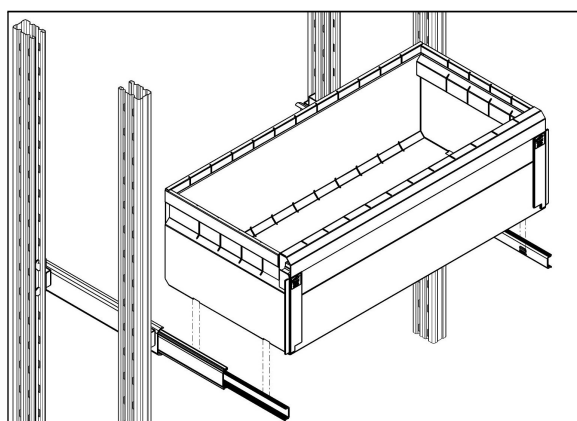
Do not use the hammer to assemble the shelf.

ASSEMBLY OF REMOVING DRAWERS

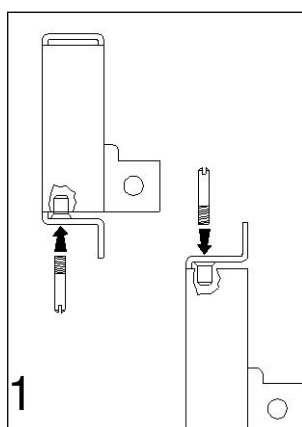


Apply the rail
on the hooks.

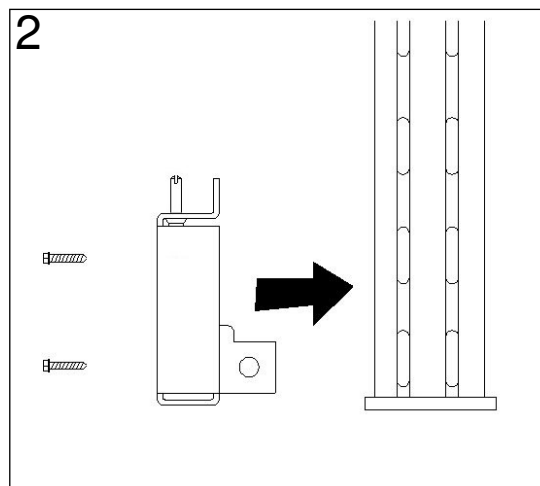
At last extend completely the
extensible rails, then put on the
drawer.



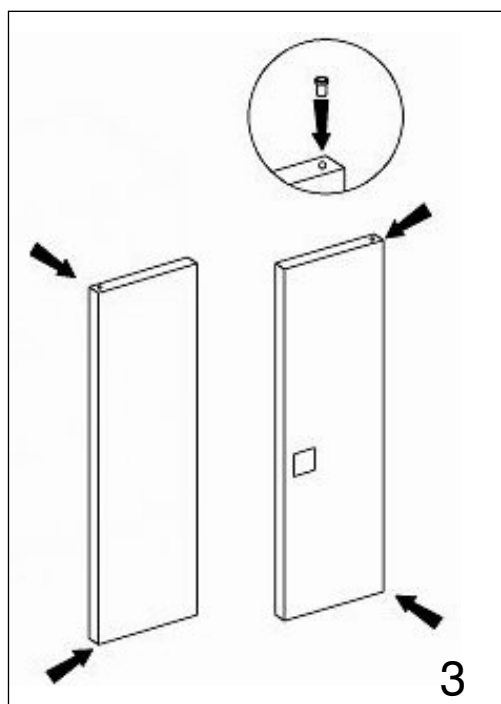
ASSEMBLY OF DOORS



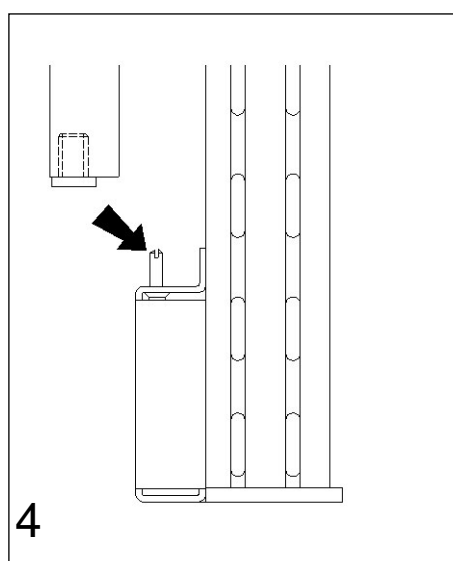
1) Screw pins into the bottom part of the upper and lower door's backplate



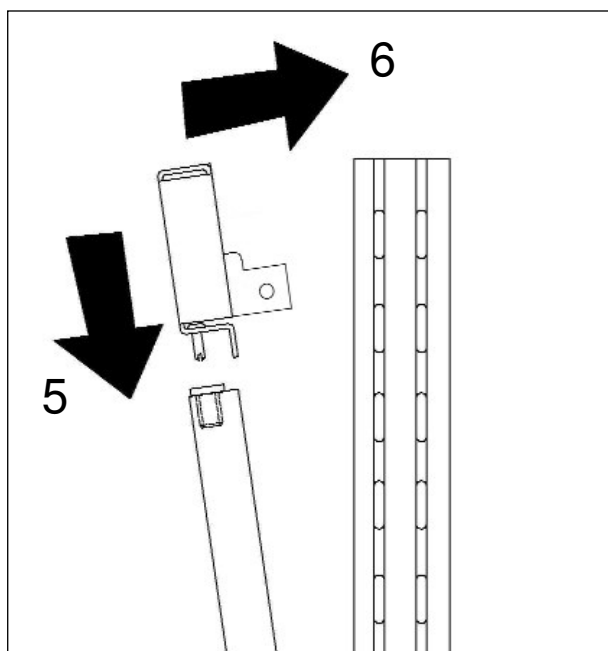
2) Put the lower door's back plate matching with the base of the shelving system, with the tongues between the uprights. Drill the uprights matching with the holes of the plate and fix with self-screwing screw M 5,5 x 16 in the tongue hole and selfscrewing screw M3.9x16 on the front. Then close the frontal holes with black plastic pins.



3) Insert brass screws into the holes to the end of the doors.



4) Insert the doors in the pins of the lower door's back plate.

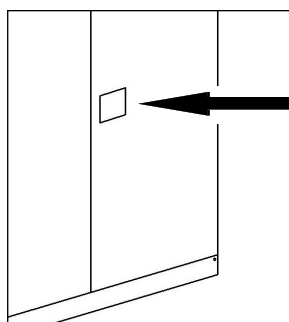


5) Insert the upper door's back plate, thanks to the pins, into the brass holes.

6) Lean doors and plate to the upright and fixing them by self screwing screw (M 4,8 x 9,5) to the front of upper plate. Then fix the internal tongue to the upright by self screwing screw M 5.5 x 16. Then close the frontal holes with black plastic pins. At the end put the 4 thickness on the corners of the doors, in the leaning point with upper and lower door's back plate.

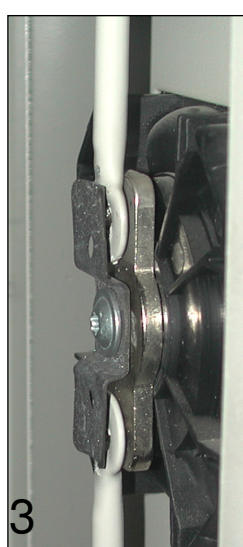
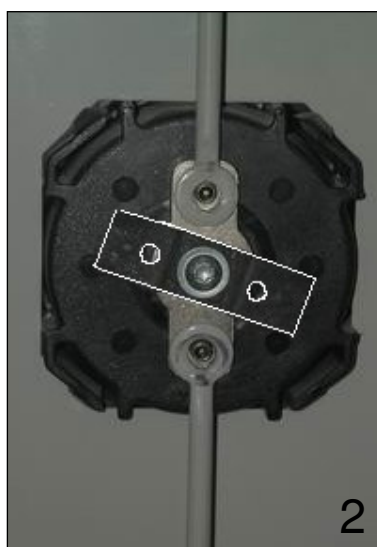
In case of double door, firstly assembly the lower doors (with the central and lower door's back plate) and then the upper door with upper door's back plate.

ASSEMBLY OF LOCKING DEVICE



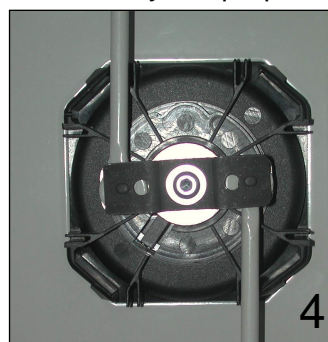
1) Insert the locking device into the proper hole in the door..

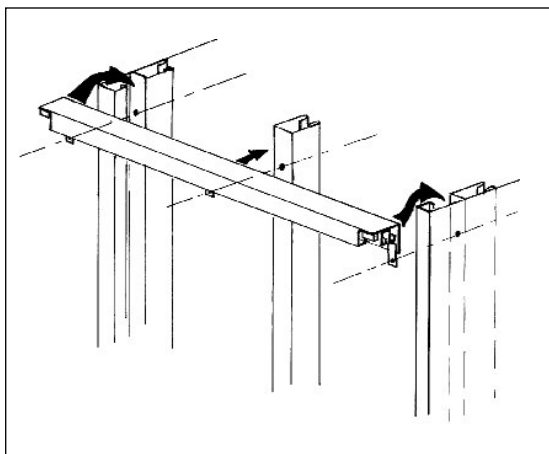
2) Insert the clips into the lower and upper holes of the door, close the door itself and insert the staff into the holes of the upper and lower door's back plate.



3) Insert the eyes of staff into the pins of the locking device, and block ones rotating little tongue.

4) Rotating the locking system in order to verify the proper use.



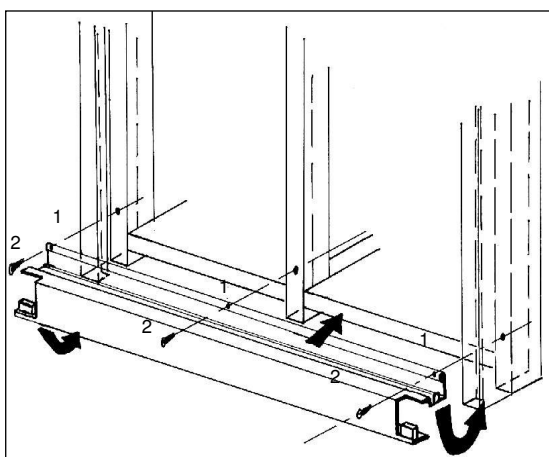


ASSEMBLY OF UPPER GUIDE FOR SLIDING DOORS

A) Insert the upper guide on the shelving inside the side sheet.

B) Make some holes of Ø 7 in the upright corresponding to the plate welded to the guide.

C) Tighten with allen screws type 6x30 TS..

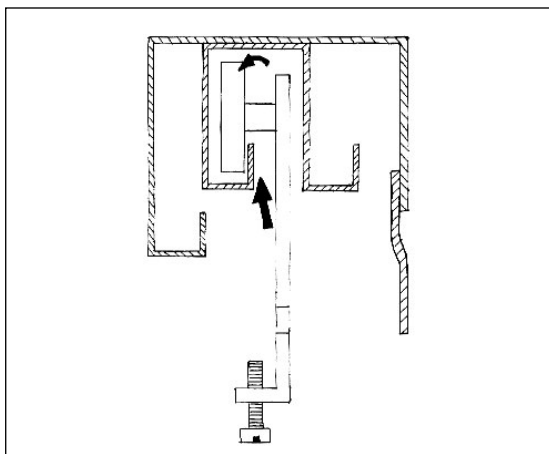


ASSEMBLY OF LOWER GUIDE FOR SLIDING DOORS

Insert the lower guide in the shelving from the bottom to the top.

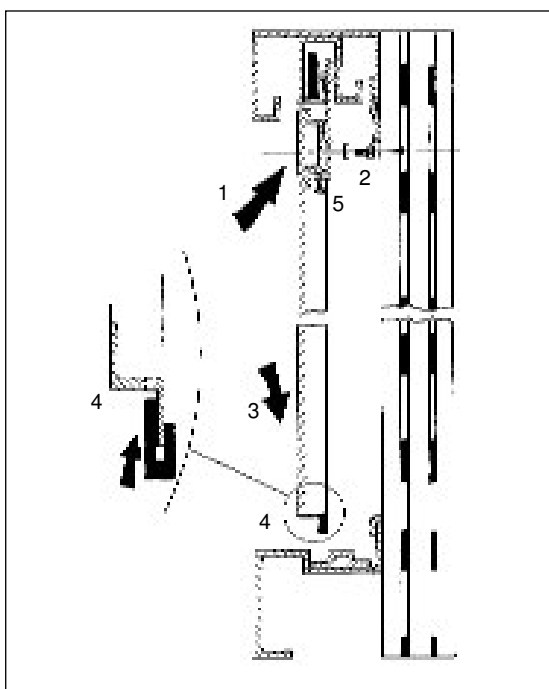
Make one hole **(1)** of Ø 3 corresponding to the upright and to the guide.

Tighten with self-tapping screw **(2)** type M 3,9x16.



ASSEMBLY OF BEARING INSIDE THE UPPER GUIDE

Insert the (ball) bearing inside the upper guide.



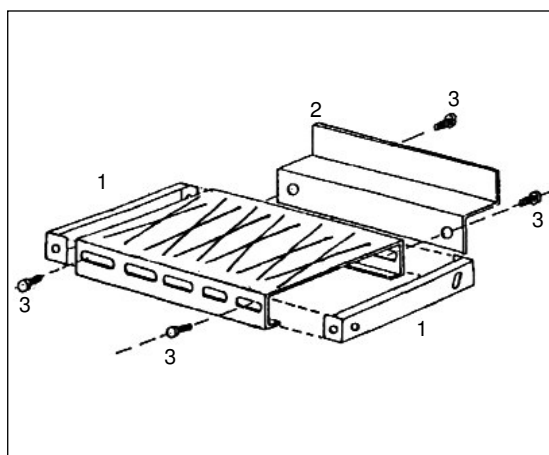
ASSEMBLY OF SLIDING DOORS

A) Insert the plastic guide (4) in the lower part of the door.

B) Tighten the door on the bearing (2) with screw type M 5 + screw nut + washer, in the upper part (1).

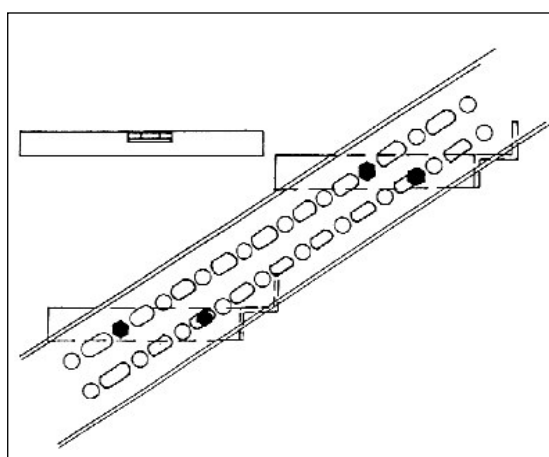
C) Insert the lower part of the door inside the lower guide (3).

D) Adjust the height of the door with screw (5) of the bearing , as to obtain an optimal sliding.



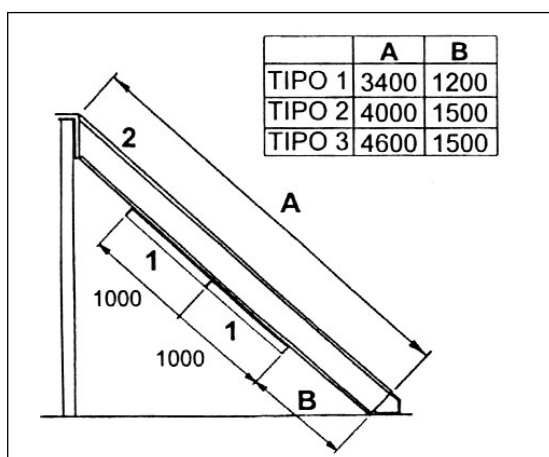
ASSEMBLY OF STEP

Insert the right and left reinforcing bars (1), then put the railing base plate (2) and tighten everything with bolts type M 8x20 + screw nut + washer.



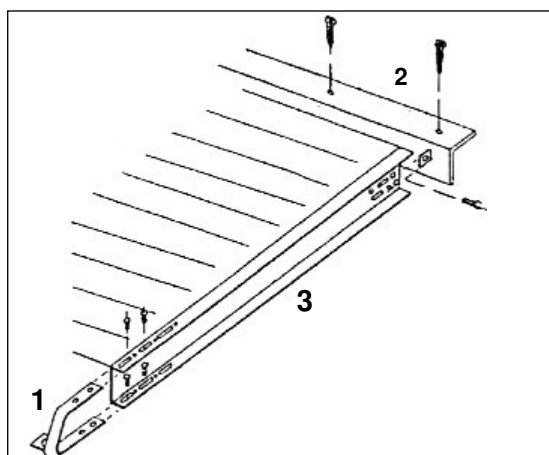
ASSEMBLY OF STEPS TO (ON) THE STAIRCASE PROFILE

Between the two steps there is a distance of 6 slots.
Check the levelling of the steps with a level, then tighten with bolts type M 10x20 + screw nut + washer.



MASSEMBLY OF PANELS FOR BRACING

The panels for bracing (1) must be fixed under the staircase profile (2) with six screws type M 8x20 + screw nut + washer, starting from the bottom of the staircase.

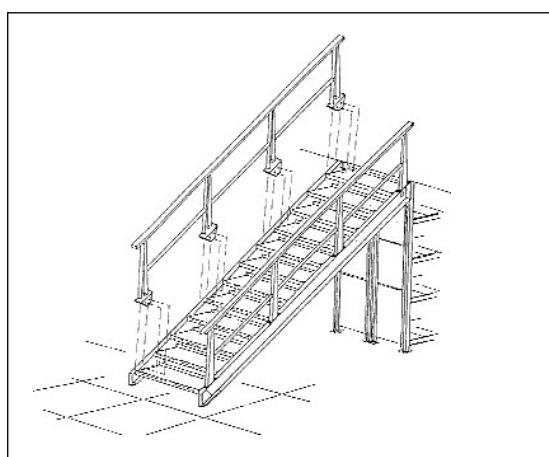


MASSEMBLY OF BASE PLATE TO THE FLOOR AND HOOKING OF THE STAIR- CASE TO THE MEZZANINE FLOOR

A) Insert the right and left base plates (1) inside the staircase profile (3) and tighten with bolts type M 10x20 + screw nut + washer.

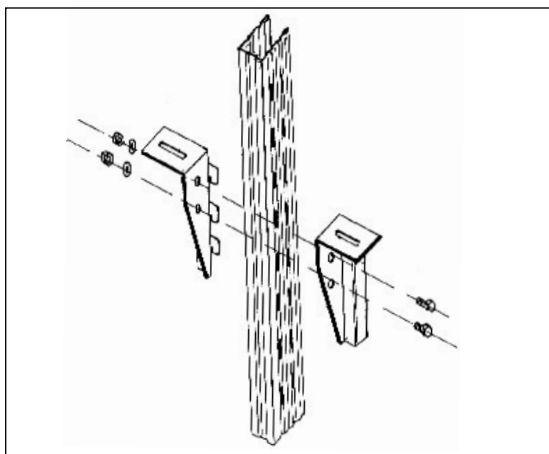
B) Fix the metal square (2) to the staircase with bolt type M 8x20 + screw nut + washer, by this way the plate of the metal square is external as regards as to the stair case profile.

C) Fix the metal square (2) to the mezzanine floor with screws type 8x30 TS.



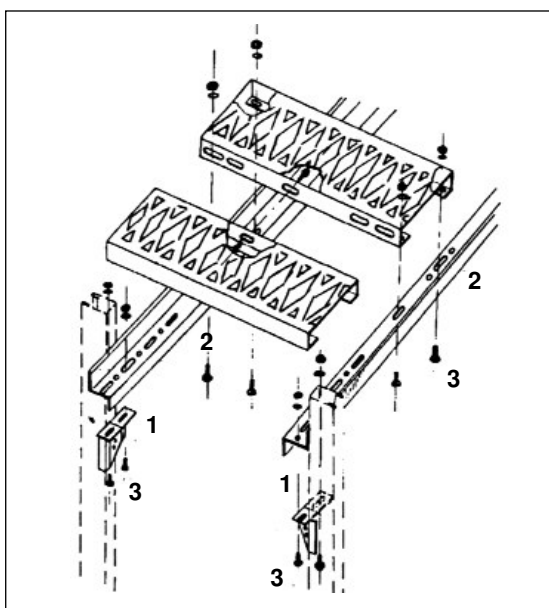
ASSEMBLY OF BANISTER

Fix the banister to the staircase with bolts type M 10x20 + screw nut + washer.



ASSEMBLY OF BRACKET FOR MEZZANINE FLOOR

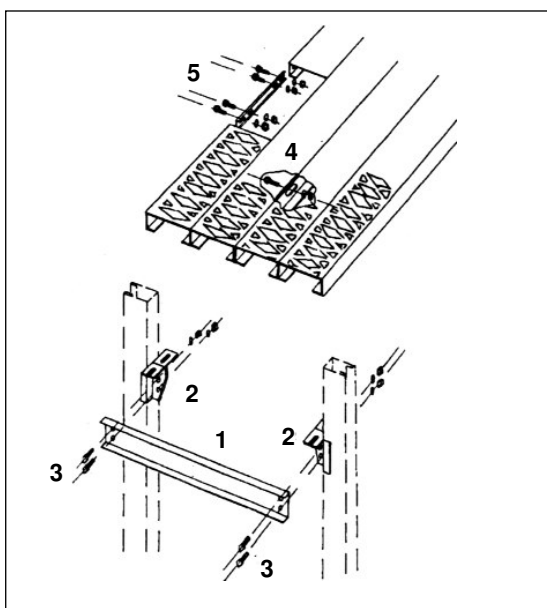
Insert the right and left brackets in the slots of the upright and tighten with bolts type M 6x16 + screw nut + washer.



ASSEMBLY OF CROSS PLANKING

A) Position the profile for cross planking (2) upon the brackets (1) and tighten with bolts (3) type M 8x20 + screw nut + washer.

B) Fix the galvanised shelf panels to the planking profile (2) at the four corners and between the shelf panels with bolts (3) type M 8x20 + screw nut + washer.

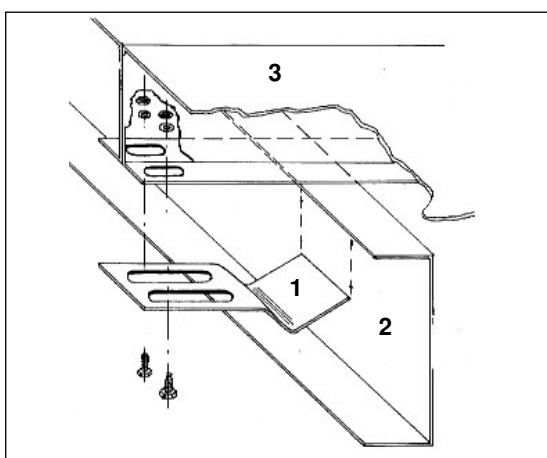


ASSEMBLY OF LONGITUDINAL PLANKING

A) Fix the "C" profile (1) to the brackets (2) with bolts (3) type M 6x16 + screw nut + washer.

B) Join the planking (5) with bolts type M 8x20 + screw nut + washer.

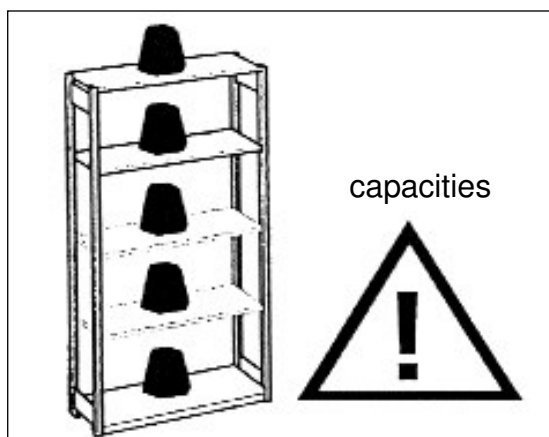
C) The planking must have at least one bolt type M 8x20 + screw nut + washer each metre (4).



DETAIL OF THE FIXING OF LONGITUDINAL PLANKING TO THE "C" PROFILE

A) Lay the planking (3) upon the "C" profile (2).

B) Tighten the bracket (1) to the planking with screws type M 8x20 + screw nut + washer.



The frames capacities are valid only for distance between beams or shelves up to 700 mm.

In case you should not respect these conditions please contact ROSSS technical department

ISTRUCTION FOR USE

- 1) Shelving systems must be rearranged only when they are empty
- 2) The prerequisite for the stability of the shelving is its proper anchoring according to the assembly instructions
- 3) The max. capacity of the shelves must not be exceeded
- 4) The capacities values are valid only when loads are uniformly distributed
- 5) Heavy objects should be unloaded carefully from the shelves
- 6) Climbing up the shelves is not allowed
- 7) Do not bump against the shelving systems with transport or handling units
- 8) Corners at side panels and aisles must be appropriately protected.

FOR DIFFERENT DISTANCIES BETWEEN SHELVES, THE MAX. DISTANCE SHOULD BE TAKEN INTO ACCOUNT

CAPACITY OF UNIMONDIAL SHELVES (Kg)

Depth	N. of stiffeners	Length				
		765	865	965	1065	1165
300	N	140	125	110	85	70
	1R	280	250	210	170	140
	2R	420	375	310	255	210
	3R	560	500	410	340	280
400	N	140	125	110	85	70
	1R	280	250	210	170	140
	2R	420	375	310	255	210
	3R	560	500	410	340	280
500	N	130	115	100	85	70
	1R	260	230	200	170	140
	2R	390	345	300	255	210
	3R	520	455	400	340	280
600	N	120	105	90	80	70
	1R	240	210	200	160	140
	2R	360*	315*	300*	240*	210*
	3R	480*	420*	400*	300*	280*
700	N	100*	90*	80*	70*	60*
	1R	220*	200*	180*	140*	120*
	2R	340*	310*	280*	230*	190*
	3R	450*	400*	350*	300*	250*

* With support for reinforcing bar

MAX. CAPACITY OF FRAMES

Shelves pitch mm	Kg
300	3.200
500	3.000
700	2.700

MAX. CAPACITY PER PAIR OF BEAMS

distance between uprights mm	Max capacity uniformly distributed Kg
900	460
1200	380
1500	300
1800	230
2100	150

MAX. CAPACITY PER SHELF PANEL OF MM 300X12H TYPE L

Shelf panel depth mm	Max capacity uniformly distributed Kg
300	110
400	95
500	84
600	70
700	55
800	42

MAX. CAPACITY PER SHELF PANEL OF MM 300X12H TYPE P

Shelf panel depth mm	Max capacity uniformly distributed Kg
600	70
700	55
800	45
900	38
1000	32
1100	25
1200	20