

PALLET RACK 85-110

installation, use and maintenance instructions



Shelving made entirely of first grade certified steel sheet and cold-profiled steel with galvanized steel according to SENDZIMIR process (except for bases which are protected with zinc plating). The painting is carried out in the oven with epoxy powder (after phosphodegreasing treatment).

The design and construction were carried out according to UNI standards and have passed the tests at the highest level. Available in two versions with different capacities.

The reference standards of the theoretical calculation are:

ACAI (single text 28/06/00 updated on 28/06/02)

C.N.R. 10011/97 - C.N.R. 10022/84 and Leg. Decree. 81/08.

The reference standards for materials are:

UNI EN 10025 - UNI EN 10326.

Side panels, battens and accessories: **galvanized**.

Bumpers: yellow colour **RAL 1021**.

RISKS ASSOCIATED WITH THE INSTALLATION OF THE SYSTEM

BEFORE ASSEMBLING the system check the floors and floor slabs, they must be in good condition, without holes and accentuated unevenness and must have an appropriate consistency for the capacity of the shelves and the load of the uprights. In the case of installation to be carried out on a mezzanine floor or asphalted square it is essential to consult a specialist in order to assess the resistance and the capacity of the floor. It is recommended to install on reinforced concrete floors.

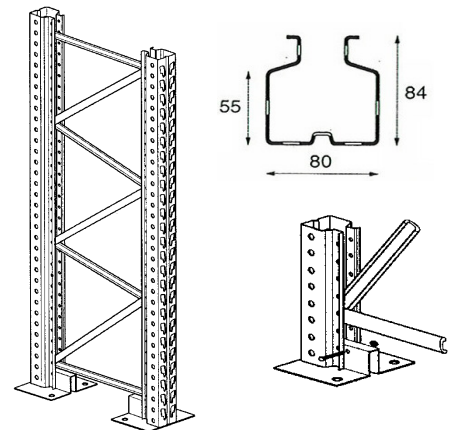
UNLOADING AND STORAGE OF MATERIALS. Must be carried out at a predefined location, away from the risks arising from any everyday work and contemporary installation of other systems (electricity, water, air conditioning, etc.). The staff must be informed about the interim storage program, the approach of the material to the area of installation and realization of the system itself.

ASSEMBLY AND INSTALLATION OF THE SYSTEM. The staff responsible for this processing must be equipped with **helmet, protective gloves, shoes with imperforable sole** and, in the case of use of electric screwdrivers, **ear plugs or headphones**. During the operation of anchoring the dowels to the floor, staff will be equipped with face **masks with filter**. The personnel managers must coordinate all phases of movement and installation and ensure that all applicable standards regarding the health and safety of workers are applied. The internal means of transport and lifting must be suitable for the movement of specific material and equipped with safety accessories for positioning, at height, the persons engaged in the assembly.

BEFORE BEGINNING THE ASSEMBLY READ CAREFULLY THE CHAPTER "USE AND MAINTENANCE STANDARDS"

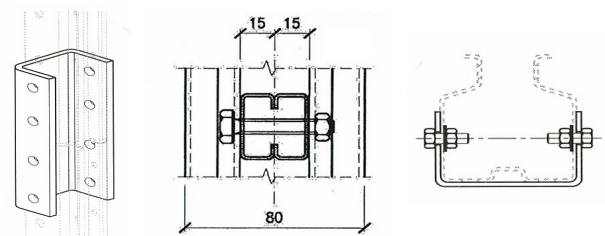
MOUNTING SEQUENCE

- 1 ASSEMBLY OF SIDES.** Position the two uprights with the open side to the inside, insert the 1st cross bar in the second hole from the bottom, fixing it from one part with the spacer and from the other with the diagonal (the open sides must be facing one another). Continue with the other diagonals until the penultimate hole at the top, insert the second cross bar, fixing it from one part to the last diagonal and to the spacer from the other. Insert the bases diagonally and use force, rotating, to facilitate the introduction into the uprights, then fix them in the first hole at the bottom. For all fastenings, the screws TE 8x45 with nut are used.



- 2 UNION JOINTS.** They are used to overlap two sides. Two units are required for each pair of sides and are assembled with a total of 16 TE 10x25 screws with nuts and 32 washers, half of which are positioned in the lower uprights and half in the upper uprights.

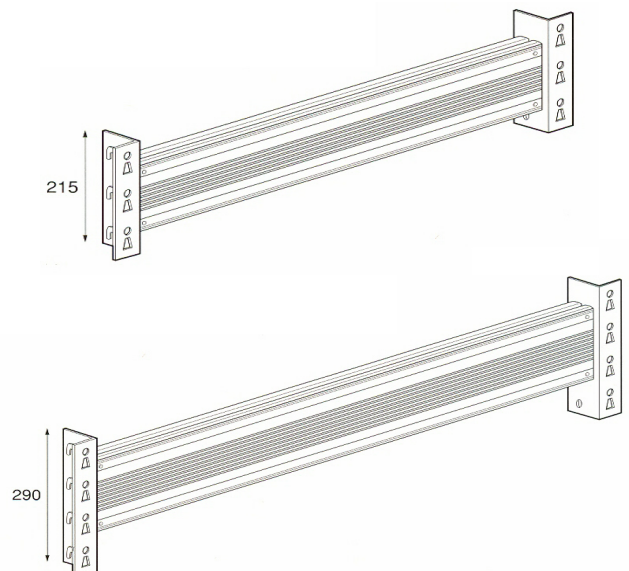
The sides over to the joints must have at least 2 loading levels and the capacity will be reduced to 4000 Kg for the "85" series and 5000 Kg for the "110" series.



- 3 GROUND TRACKING** of the dimensions of the system on the pavement. To determine the minimum width of the passages it is necessary to calculate the spaces allocated for pedestrians, forklifts and emergency routes.

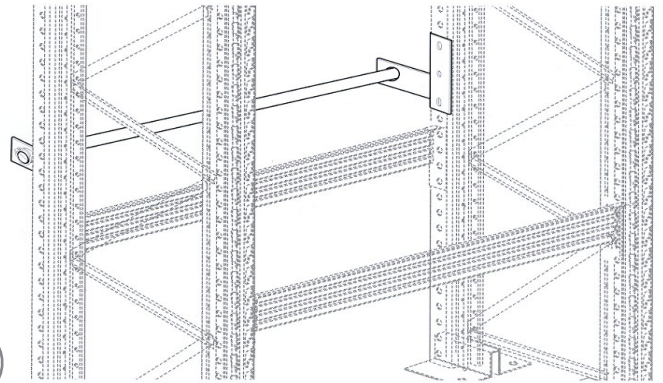
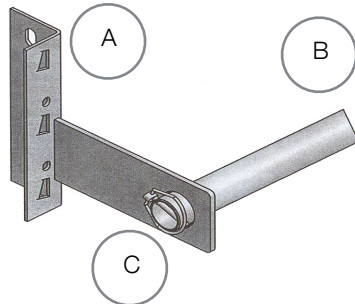
- 4 BATTENS.** Verticalize the 1st and the 2nd side and start the mounting of the battens, starting from the bottom. Lock the uprights by joining the plates, using a hard rubber mallet.

- **Bolt the uprights with 2 screws TE 10x25** with flange nut and 2 washers and fully tighten them.
- **In the presence of bumpers, the first pair of battens must be positioned at a height not less than 550 mm from the ground, above beam.**
- **In the presence of a pallet stopper the last couple of battens can be mounted 275 mm from the top.**



5 PALLET STOPPER. They are mounted directly above the batten

- Attach the 2 shelves "A", 1 right and 1 left, to the upright and secure with 4 screws TE 10x25, nut and washer (2 per side).
- Insert pallet stopper pipe "B" of diam. 33 in the 2 holes of the shelves.
- Insert, at the ends of the tube, 2 pins "C", inserting the pin and rotating to lock the pipe.

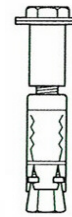


6 ALIGN the structure in length, depth and height, shimming the sides if necessary.

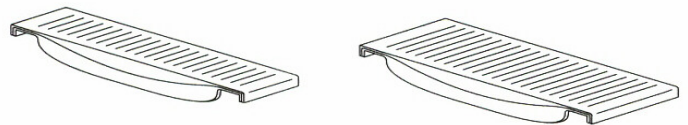
Consider a maximum tolerance of 1 mm. for each metre of height and +/- 5 mm per row of shelves in longitudinal and transverse direction.



7 FLOOR MOUNTING THE SIDES. It is essential to floor mount the sides with 4 expansion anchors of diam. 13x100 (screw M10).



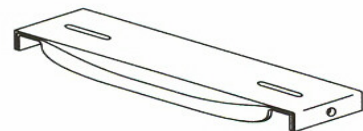
8 FITTING THE SHELVES. They are inserted directly in the hollow parts of the battens until completely filling the shelf.



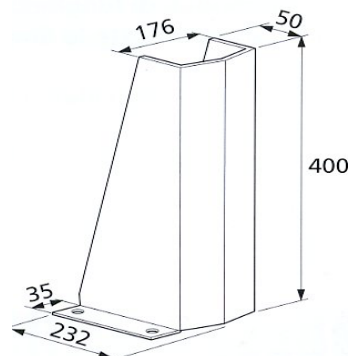
9 FITTING THE CROSS-PIECE. They are placed directly on the battens and serve as support for the pallets and to stiffen the structure.

In this case the shelves are not fitted.

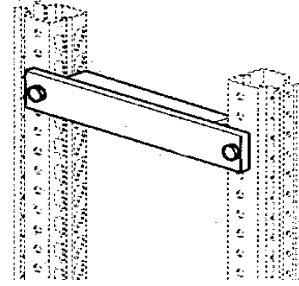
It is also possible to lock them to the batten with 1 self-drilling screw using the front hole.



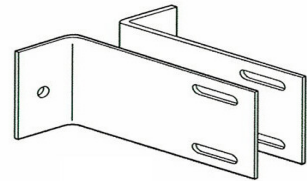
10 BUMPERS FOR UPRIGHTS. They are fixed to the floor with 4 expansion anchors of diam. 13x100 (screw M10).



- 11 SPACERS FOR DOUBLE-SIDED SHELVES.** It takes two for each side, positioned 1200 mm from the ground and 300 mm from the top. They are each fastened with 2 screws TE 10x25 with nuts and washers.
In case of overlapping of the sides it is necessary to add two spacers at the same distances.



- 12 BRACKETS FOR WALL MOUNT.** Composed of 2 adjustable elements with holes of diam. 13 mm, they are attached in the side holes of the uprights with 4 screws TE 10x25 with nuts and washers.
 There are 3 types:
 - from 30 mm to 70 mm
 - from 130 mm to 170 mm (in presence of pallet)
 - from 180 mm to 200 mm (in presence of pallet stopper)



- 13 PLAQUES.** For each row of shelves, a plaque indicating the maximum capacities of the sides, the pair of battens and shelves must be placed in a visible position.

SCAFFALATURA PORTAPALLET			
PORTATA FIANCATA	kg		
ALTEZZA DEL 1° CORRENTE DA TERRA	mm		
DISTANZA TRA I LIVELLI DI CARICO	mm		
LIVELLI DI CARICO IN ALTEZZA	N°		
PORTATA PER COPPIA DI CORRENTI CON CARICO UNIFORMEMENTE DISTRIBUITO	kg		
ART. _____ DA mm _____	-kg		kg
ART. _____ DA mm _____	-kg		kg
LA SOMMA DELLA PORTATA DEI LIVELLI DEVE ESSERE PARI O INFERIORE ALLA PORTATA DELLA FIANCATA			
PORTATA DEI PIANETTI SUI CORRENTI CON CARICO UNIFORMEMENTE DISTRIBUITO	kg		
ANNO DI COSTRUZIONE _____			

plaque

CAPACITIES AND DIMENSIONS

The table shows the capacity of the sides as a function of the distance from the ground to the top edge of the first pair of battens or higher spacing if greater than the 1st level. The indicated capacities are for shelves with a **minimum of 3 consecutive spans and 2 equidistant levels** with the same evenly distributed load. If the number of spans is less than 3 the capacity is reduced by 15%.

DISTANCE BETWEEN LEVELS (mm)	SIDE 85 CAPACITY (kg)	SIDE 110 CAPACITY (kg)
1200	8000	11100
1500	7500	10300
1800	6600	9500
2100	5000	8200
2400	4100	6600

PALLET RACK BATTENS				
ART.	DIMENSIONS (mm)	MINIMUM HEIGHT 1ST LEVEL	CAPACITY PER PAIR (kg)	CAMBER (mm)
		underbeam/above beam		
S4613	1300x50x 80	95/175	2700	4,91
S4617	1800x50x100	75/175	2700	7,34
S4623	2200x50x120	55/175	2950	9,11
S4627	2700x50x120	55/175	2400	13,54
S4629	2700x50x140	110/250	3000	11,67

SHELVES		
ART.	DIMENSIONS (mm)	CAPACITY (kg)
S4653	100x 600x28	100
S4658	100x 800x28	80
S4661	100x1000x28	80
S4662	100x1200x28	60
S4654	200x 600x28	100
S4659	200x 800x28	80
S4663	200x1000x28	80

CROSS-PIECE TH.20/10		
ART.	DIMENSIONS (mm)	CAPACITY PER PAIR (kg)
S4666	800	1700
S4671	1000	1300
S4673	1200	1100

SHELF DIMENSIONS MEASUREMENTS

Add the nominal length of the battens increased by 80 mm each span.

Add 150 mm to the total obtained to get the final dimensions including bases.

USE AND MAINTENANCE STANDARDS

- **Compositions of spans.** For each span it is necessary to use **at least 2 pairs of battens in height with minimum 3 spans**. It is also necessary to provide for the stiffening of the structure with adequate means to minimize the risk of sliding or collapse of the installation.
- **Safety.** It is essential to **floor mount the side panels** with 4 anchors. The side panels must be **protected with bumpers** placed in the corner areas and transit areas of the forklifts. **The battens must always be secured with screws**. The central flexion of the battens must not exceed the camber shown in the table (previous page). The last load shelf must be set **200 mm from the top of the shelf**.
In declared **seismic** zones any kind of wall mounting is forbidden.
- **Pallet.** For a correct use of the installation the pallet must be about 200 mm higher than the depth of the shelf. The pallet used must comply with the rules, and must not be damaged.
It is not recommended to use disposable pallets.
- **Capacities.** For each row of shelves, a plaque indicating the maximum capacities of the sides, the pair of battens and shelves must be placed in a visible position. The capacities shown are understood as always being **uniformly distributed loads** on installation installed according to our instructions and used correctly, taking care to **place the heaviest loads in the bottom part of the shelf. Avoid dimensioning the structures at the limits of capacities.**
- In case of **damage to the structures** you must immediately unload the system and replace the parts that are damaged or deformed. Carefully check that the geometry of the shelf has not been changed. In case of frequent accidents it is necessary to have adequate safety measures.
- **The warehouse manager and operators must be provided with all the information** about the technical specifications of the system and the rules for its correct use.
- **The user, as required by Law, must verify the suitability and efficiency of the structures**, planning a series of tests and inspections and preparing the dedicated report.
- **Every 6 months check that the battens fit perfectly to the uprights.** If the batten is even partially offset from the upright, proceed with due caution to removing the material and the arrangement or replacement of the defective batten.
- **Every 12 months check for any deformation** that is more or less extensive caused by accidental impact and, if necessary, replace the damaged parts.
- **Every 2 years check the tightness of the anchors and the fixing systems.**
- **Every 2 years check the verticality of the structures** longitudinally and transversally as in step "6". In case of deviations, provide with shims to restore the geometry of the shelf.
- **Every 3 years it is necessary to inspect the bolts** on 10% of the spans. If more than 5% of the bolts are not adequately tightened, proceed by checking 50% of the spans. Where more than 10% of the bolts have the same problem you must have the entire system checked. In subsequent checks, check the parts not previously examined.
- **The painting and galvanizing of all components must be checked** every 5 years for indoor normal environments and every year for environments subject to corrosion (close to the sea, chemical fumes etc.). If any items are damaged by corrosion they must be replaced.
- **It is forbidden to modify** the components of the structures by performing welding or preparing systems, attachments or other equipment of any kind.

Failure to follow the "installation, use and maintenance instructions" releases the supplier from any liability and damages to persons or property.