SUPER 4/5/6

PATENTED MODULAR RACKING

METALSISTEM®

SISTEMI E STRUTTURE PER IL MAGAZZINO

SAFETY STANDARDS AND CALCULATION ASSUMPTIONS

The correct use of a product, distinguishes both the Customer and the Manufacturer.
METALSISTEM recommends that Customers make use of their product in strict conformity with the design characteristics given and standards of best practice.
The design and assembly of the racking systems must be carried out by qualified personnel.
METALSISTEM is not responsible for any improper or inappropriate use of its product.

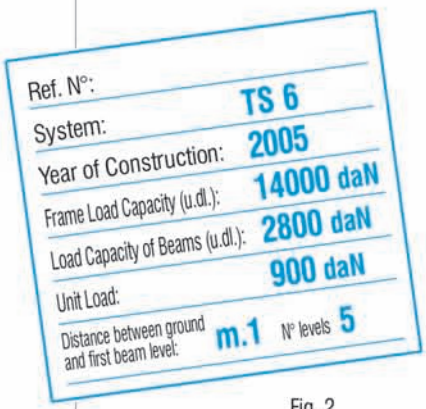


Fig. 2

a) Floor slab loading.
Prior to installation of the product, check that the floor slab is of adequate load capacity.

b) Site installation.
The site installation of racking systems must be carried out by expert personnel following the assembly criteria and specifications tabled in the Technical Handbook of the SUPER 4-5-6 series. Site personnel must ensure that all frame bolts have been tightened and all safety elements have been installed.

c) Rack alignment.
While assembling the racking system, the verticality of the frames must be checked for both the "X" and "Z" directions. Unless more restrictive standards have been specified, the deviation off both the "X" and "Z" planes must not exceed ± 10 mm or 1/350 of the height (ie max deviation = H/350), whichever is greater (fig. 1).
For more detailed information on verticality tolerances refer to the Technical Handbook "SUPER 4-5-6" and the Operating Instructions Assembly of Super 4-5-6 Racking; Document; MUM 01.

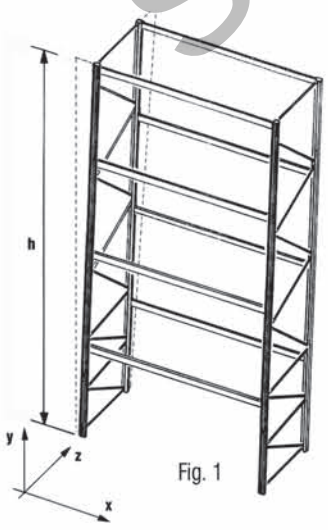


Fig. 1

d) Load bearing capacity plate
Load bearing capacity plates must be fastened in a clearly visible position nominating the model type, year of assembly, load bearing capacity of the frames, load bearing capacity per pair of beams or per shelf (expressed as a uniformly distributed load), the load unit applied, the height of the first level from ground and the total number of levels (fig.2).

e) Rack safety standard.
Rack structures must be fastened to the floor slab via two anchor bolts for every upright.
In case where the height of the frame is:
- more than 5 times the depth, for single entry racking;
- or, more than 10 times the depth, for double entry racking;
that structure must be connected via top ties.
The racking structure must also be supplied complete with column and/or frame protectors.

f) Reference Standards.
The theoretical calculation is based on the following reference standards:
- C.N.R. 10011/88
- C.N.R. 10022/84
Reference standards for the materials are:
- EN 10142
- EN 10147
- EN 10204

g) Software references.
The theoretical calculations of finished elements were elaborated with the SICS program. Guide lines followed as the basis for the calculations are those of the organization CISI (Costruttori Italiani Scaffalature Industriali).

h) Frame load bearing capacity.
The frame load bearing capacity graph in the Technical Handbook of the SUPER 4-5-6 series shows the load bearing capacity of frames used for pallet racking systems. The load capacity is expressed as a function of the height, from ground, of the first pair of beams. The following underlying assumptions apply when interpreting the graph. The racking has:
- a minimum of 4 consecutive bays of equal length;
- a minimum of 3 levels divided equally in height;
- an equal and uniformly distributed load has been applied to all levels.
Given that the load bearing capacity of the rack may depend on other elements such as, the number of levels, the proportion between height and depth, installation in seismic areas etc., contact the METALSISTEM Technical Department for consultation should there be doubts about any aspects of the installation.

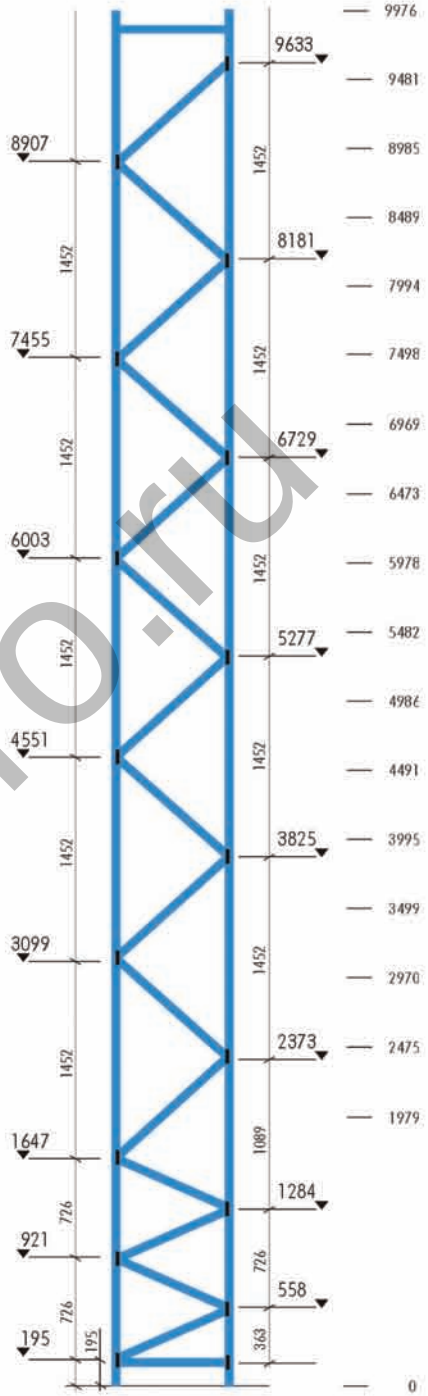
i) Load bearing capacity of beam pairs.
The load bearing capacities of the beam pairs indicated in the Technical Handbook of SUPER 4-5-6 series were calculated with the following assumptions:
- loads are uniformly distributed;
- admissible tensile stress of the material;
- deflection 1/200.
It is mandatory to place beam retaining security clips on either side of all beams.

l) Custom built applications.
The METALSISTEM Technical Department is at the disposal of its customers for any specific calculations or custom built applications.

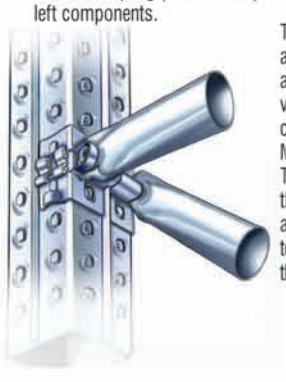
METALSISTEM reserves the right to modify the technical characteristics of its products at any time as it sees fit.
Technical data, dimensions and characteristics given in this document are indicative only.

ASSEMBLY DIAGRAM SUPER 4-5-6 Frames

Frame depth: from 600 to 1500 mm.



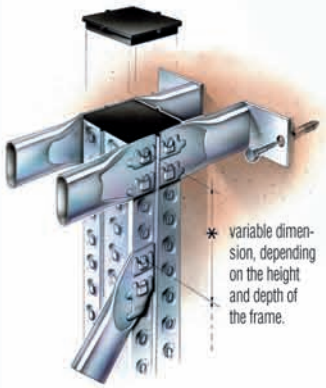
The union between the uprights and the frame bracing components is made via the frame bracket coupling. The frame must always be closed at the top and bottom with a horizontal spacer bar. The bottom area of the frame is made from 4 short diagonal spacer bars and long diagonal spacer bars to follow, up to the top. The bracing elements are sandwiched between the TS bracket coupling (code 08004) which come as right and left components.



These are always to be assembled in pairs and lock into position via the tightening of a centrally located bolt M8x70 (code 08011). The upright face with the seaming must always be oriented towards the centre of the frame.

SUPER 4/5/6 is made from certified steel and carries the approval mark of TÜV PRODUCT SERVICE GmbH.

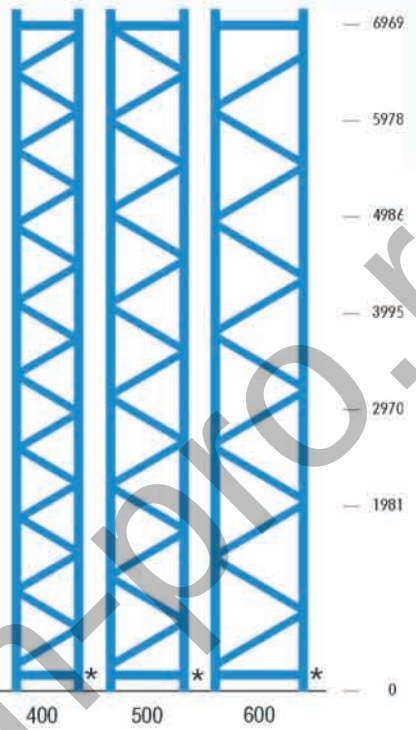
TÜV PRODUCT SERVICE
Production monitored
Safety tested

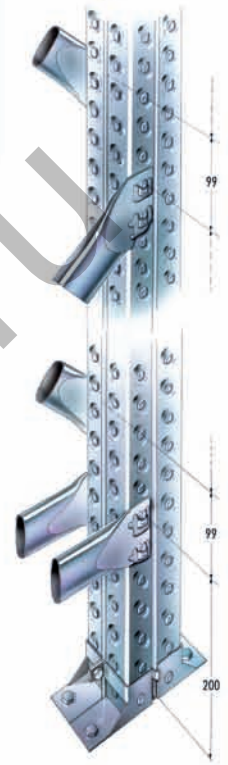


* variable dimension, depending on the height and depth of the frame.

ASSEMBLY DIAGRAM SUPER 4-5-6

INTERLOCKING FRAMES
FRAME DEPTH: 400-500-600 MM

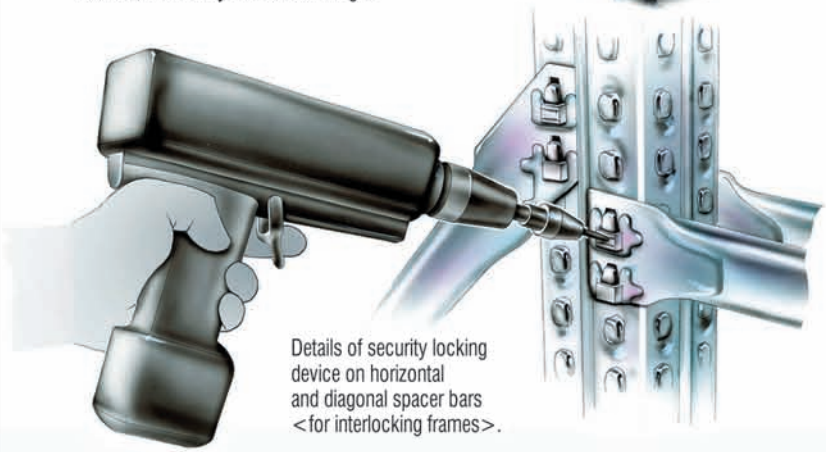




* at the base: double horizontal spacer bars (one internal and one external).
* at the top: the frame has to be closed with one horizontal spacer bar.

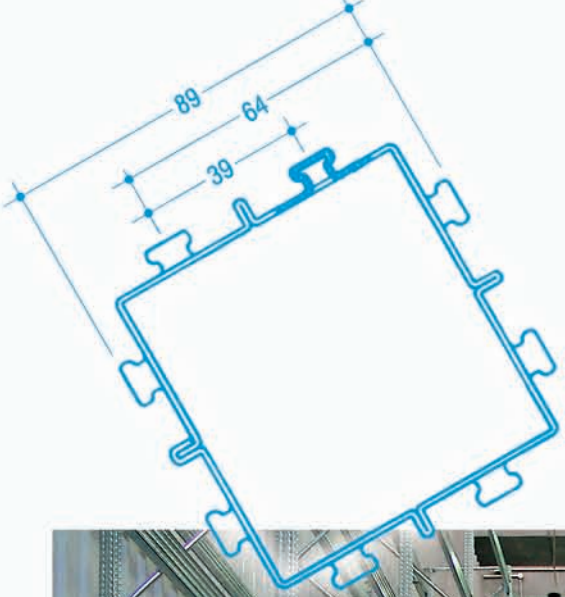
Interlocking frames are made from 50x25 mm oval tubes which are located directly onto the joint buttons of the uprights.
Super 4-5-6 interlocking frames are available in 400/500/600 mm depths only. For wider frame depths refer to the frame version assembled with bracket coupling and respective assembly diagram, at left.
Interlocking frames must be closed at the top with one horizontal spacer bar. For the correct assembly of interlocking frames refer to the SUPER 4-5-6 Technical Handbook. Horizontal and diagonal spacer bars for interlocking frames are to be fastened using the safety locking device. The fastening of all locking devices is essential/**mandatory**. See sketch at right.

The joint buttons of the upright have a vertical orientation. The wider portion of the joint buttons must be positioned towards the base of the upright.



Details of security locking device on horizontal and diagonal spacer bars <for interlocking frames>.


METALSISTEM

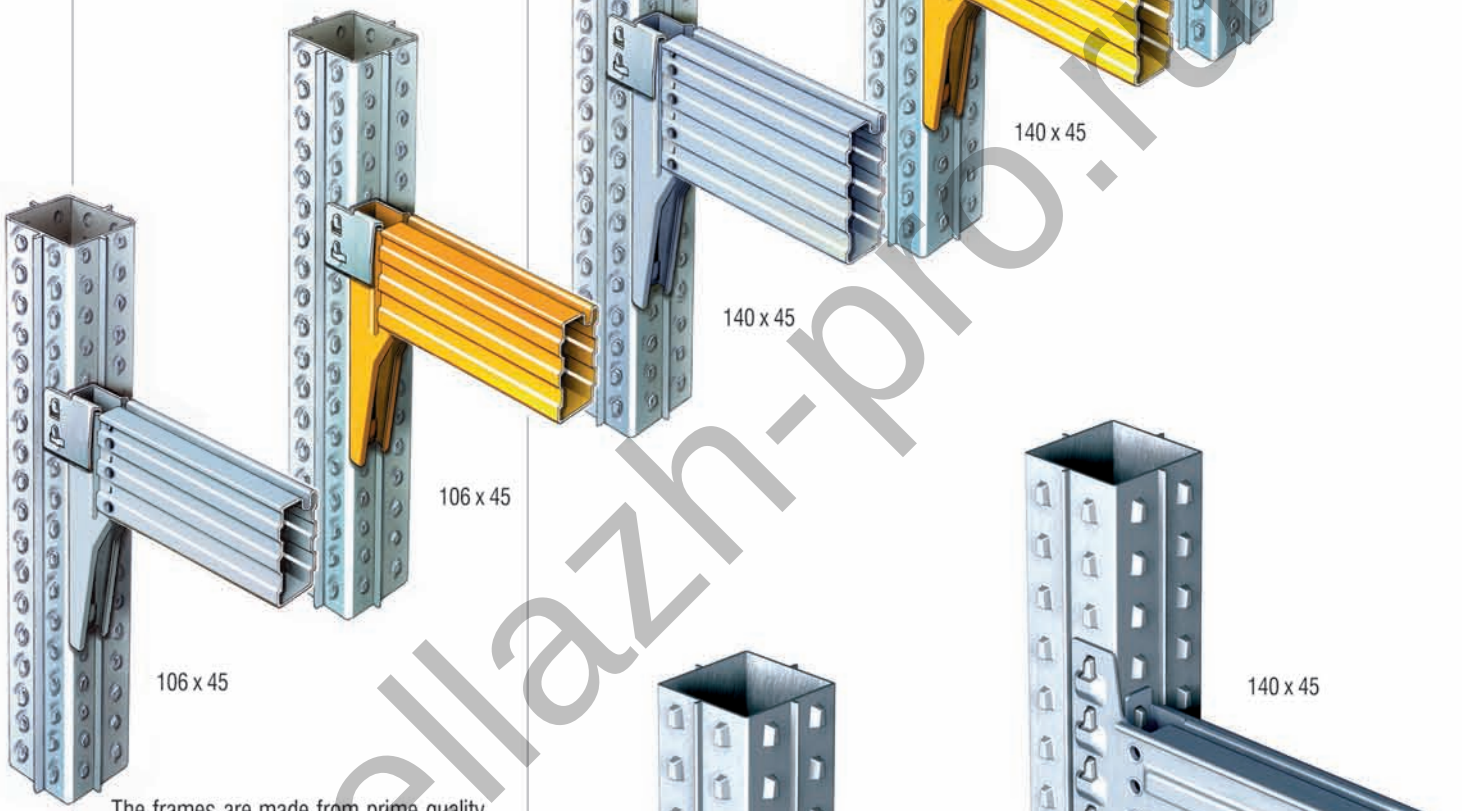


THE PRODUCT

The versatility of METALSISTEM installations make them suitable for a wide range of applications not illustrated here. METALSISTEM offers innovative products of the highest quality, providing highly technical solutions to the most important racking problems, such as rapid assembly, extreme stability and strength and utmost cost efficiency.

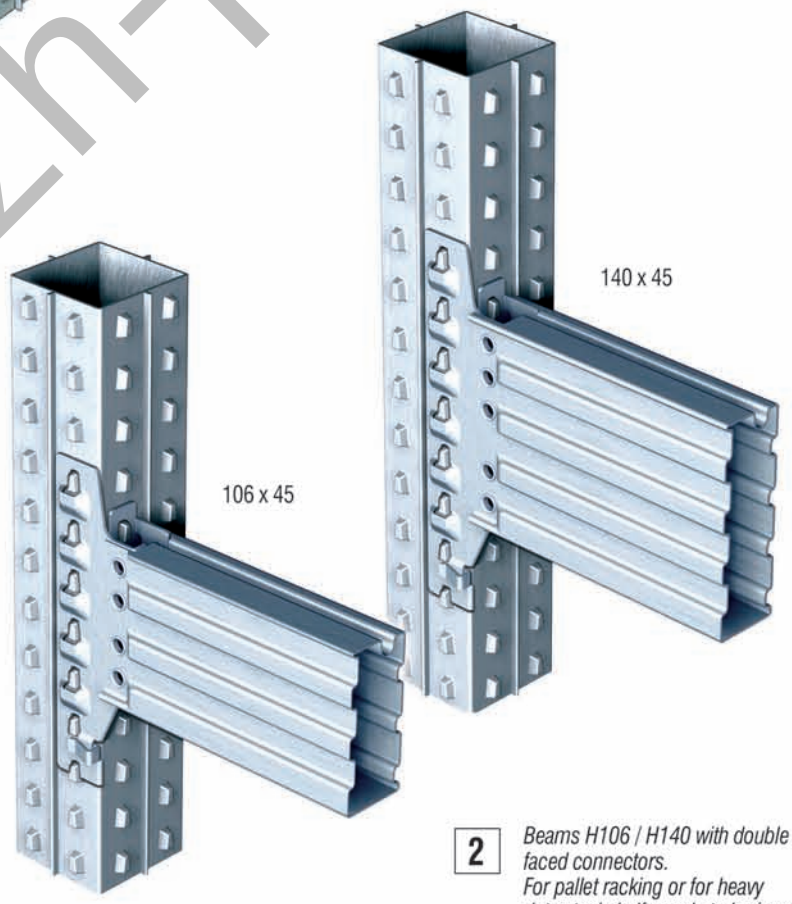
MAIN STRUCTURAL COMPONENTS

The design of the various components is the result of rigorous technical testing and the highly specialized knowledge developed over years of experience in the field of metal processing.
This experience has enabled METALSISTEM to offer innovative products of the highest quality, highly competitively priced, and to produce a highly technical solution to the most important shelving problems, such as rapid assembly, stability and strength, low cost and load bearing capacity. The components are subjected to regular and rigorous technical tests.

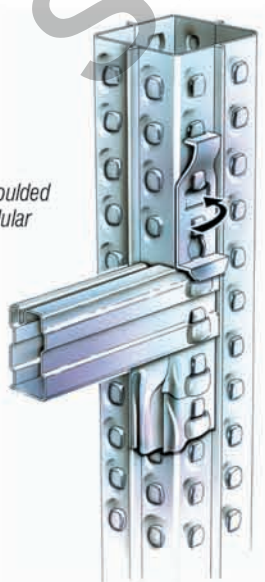


The frames are made from prime quality, certified, high tensile, hot dipped galvanized steel (SENDZIMIR procedure), thus ensuring a high level of durability.

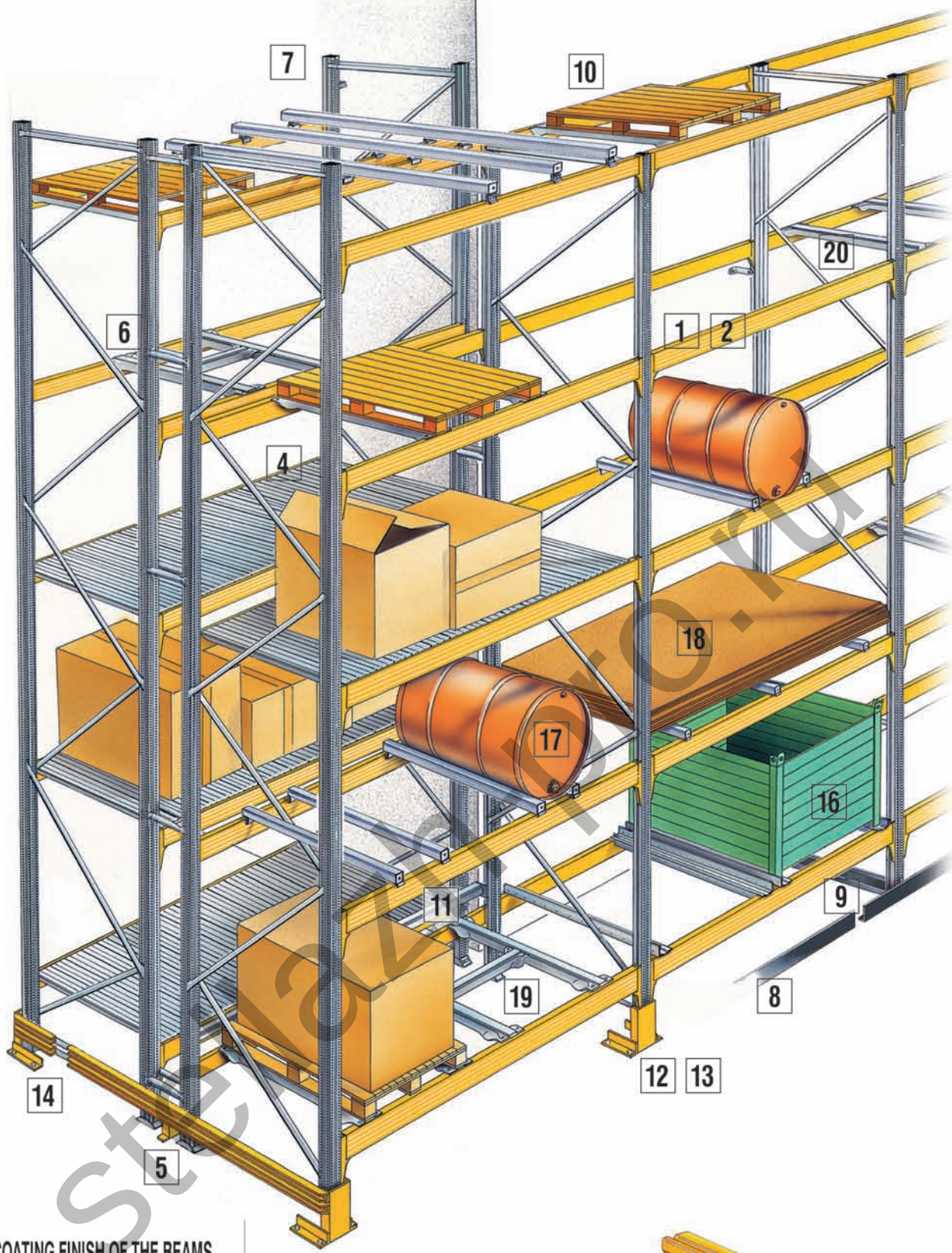
1 *Beams used for pallet racking or for heavy duty steel shelf panels to be inset.*



2 *Beams H106 / H140 with double faced connectors. For pallet racking or for heavy duty steel shelf panels to be inset.*

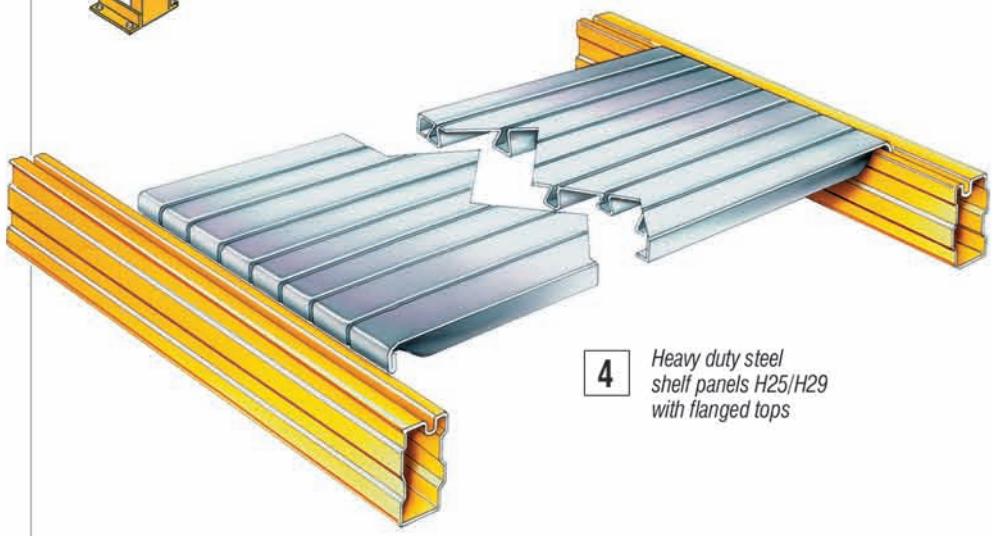


3 *Beams H70 with moulded connectors for modular steel shelf panels*



POWDER COATING FINISH OF THE BEAMS
Standard colour: yellow, RAL 1004.

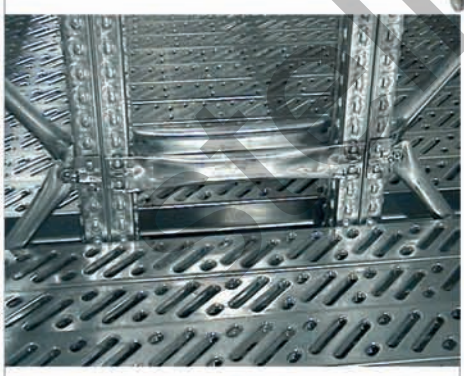
- Hot wash degreasing and iron phosphate pre treatment.
- Application of thermosetting powder paint.
- Curing at a temperature of approx. 240°C in a force ventilated air circulation oven.

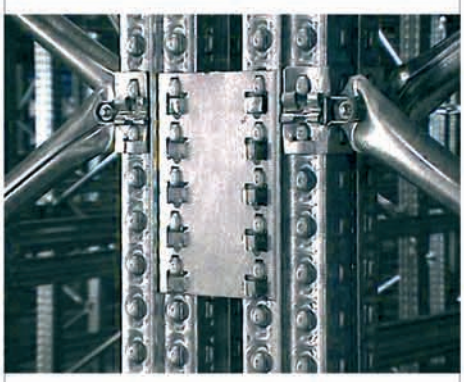


4 *Heavy duty steel shelf panels H25/H29 with flanged tops*

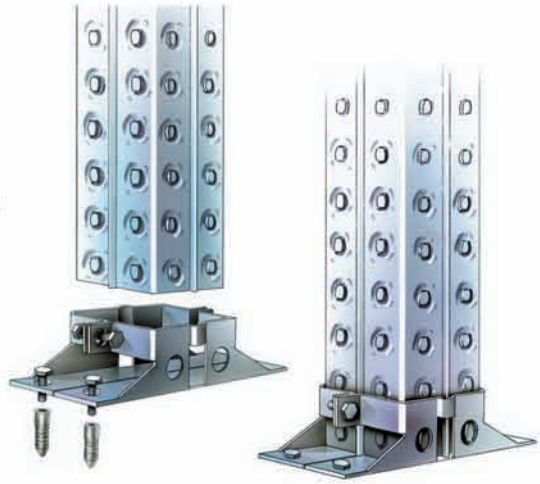
All the structural components are made from high tensile steel, certified according to EN 10204 3.1B. The beams are profiled sections with quadruple flange thickness at points of maximum stress for high loading capability. The grooves on top of the beams are used to locate modular heavy duty steel shelf panels, pallet support bars and drum cradles for the storage of non palletized or special goods.

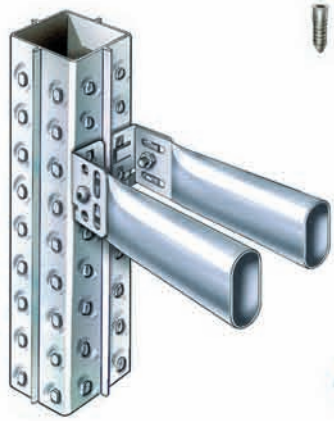
The uprights are closed boxed sections, without holes or cut-outs. They provide eight location points on four sides for connecting unidirectional beams or bracing elements.



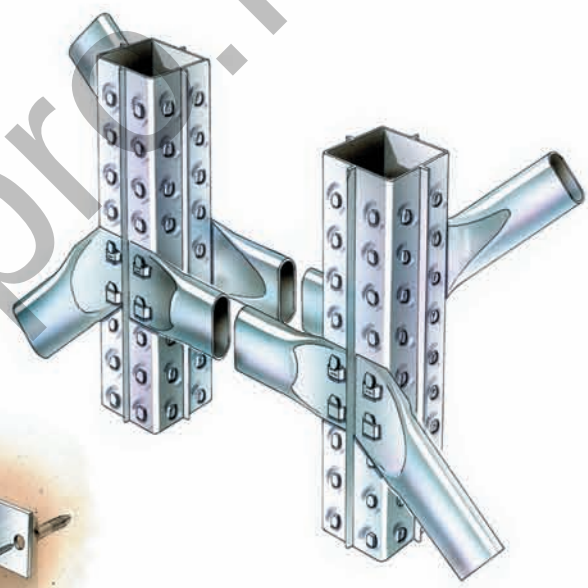


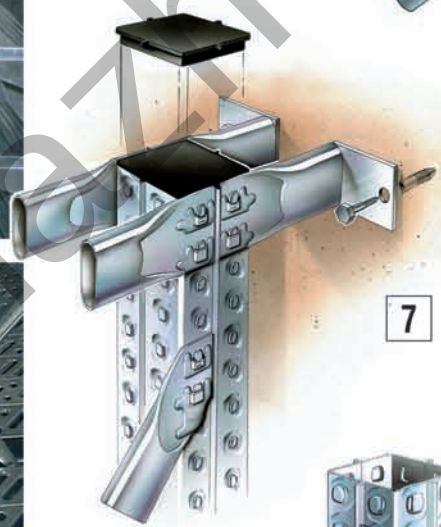
5 *Heavy duty metal base plate*



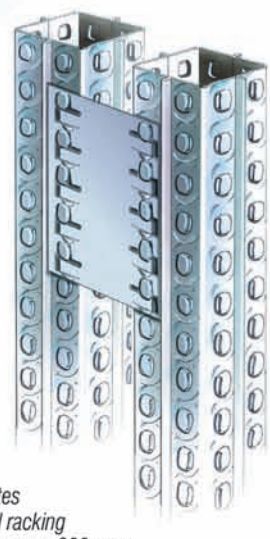


6 *Row spacers*

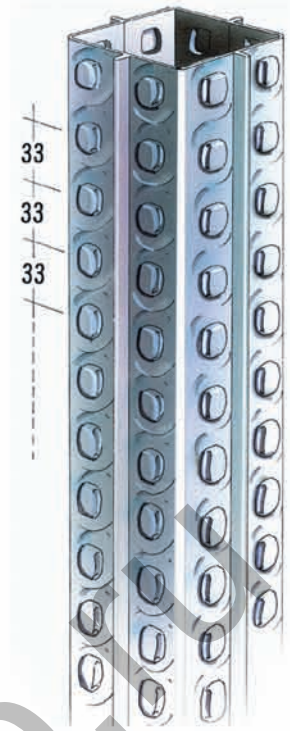




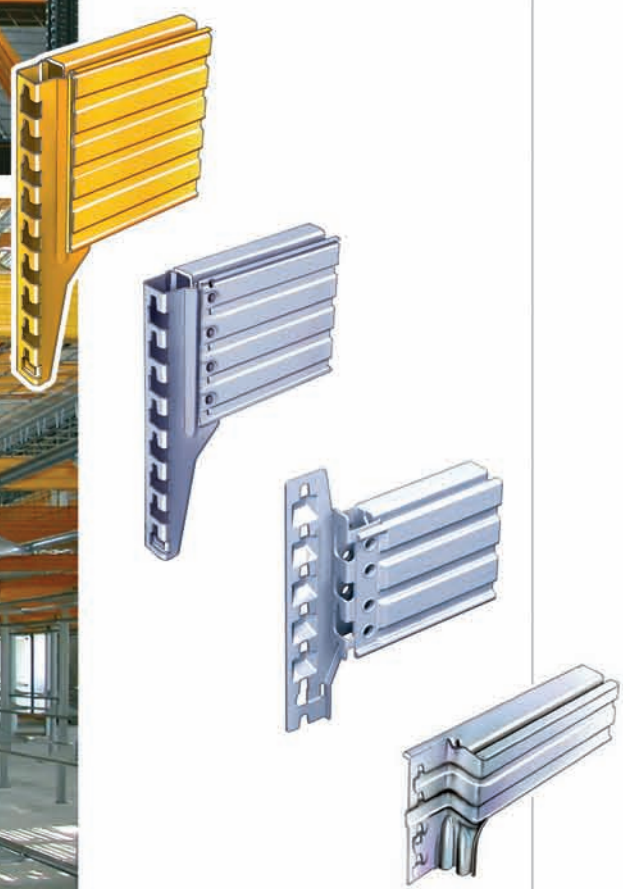
7 *Wall ties*



6a *Row spacer plates*
for double sided racking
50 mm < net span < 200 mm

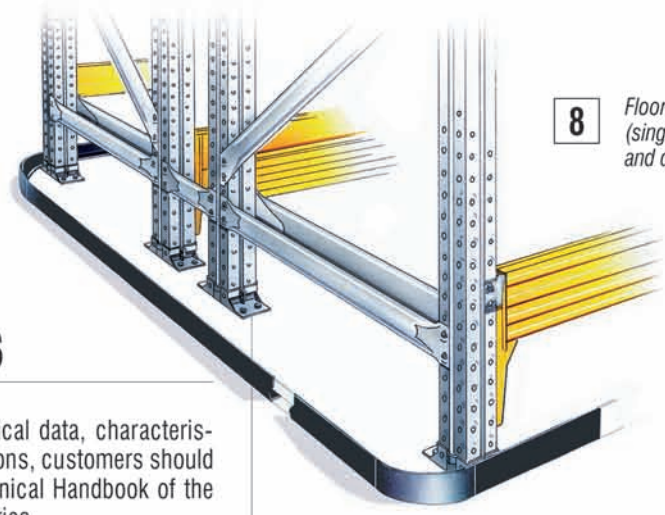


Frames allow four beams to be fitted in parallel, at the same height. This extraordinary versatility enables the product to be highly suitable for the easy construction of both platforms and pallet racking.
The safety and the quality of the product have always been a primary aim of METALSISTEM and are recognized by TÜV PRODUCT SERVICE in Munich, one of the most rigorous E.C. commissions in the field of quality and safety certification.

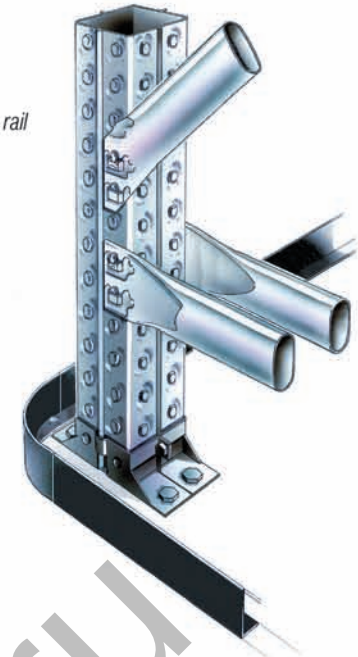


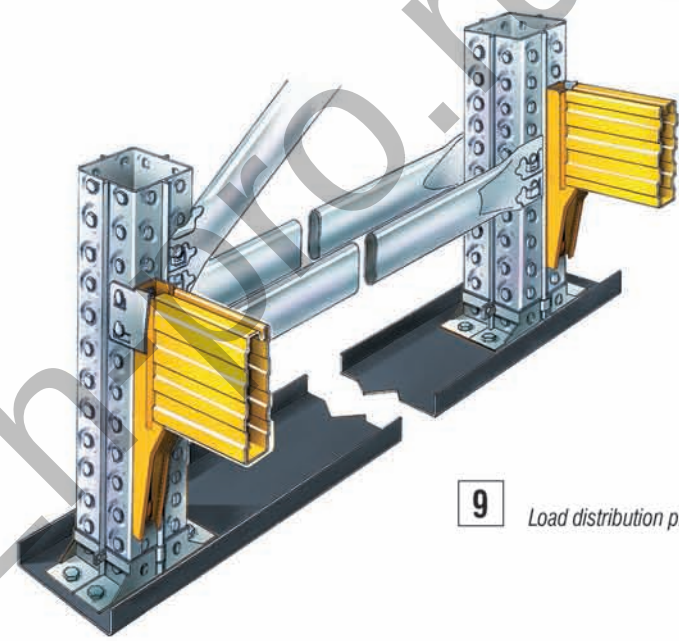
ACCESSORIES

Regarding technical data, characteristics and dimensions, customers should refer to the Technical Handbook of the SUPER 4-5-6 series.

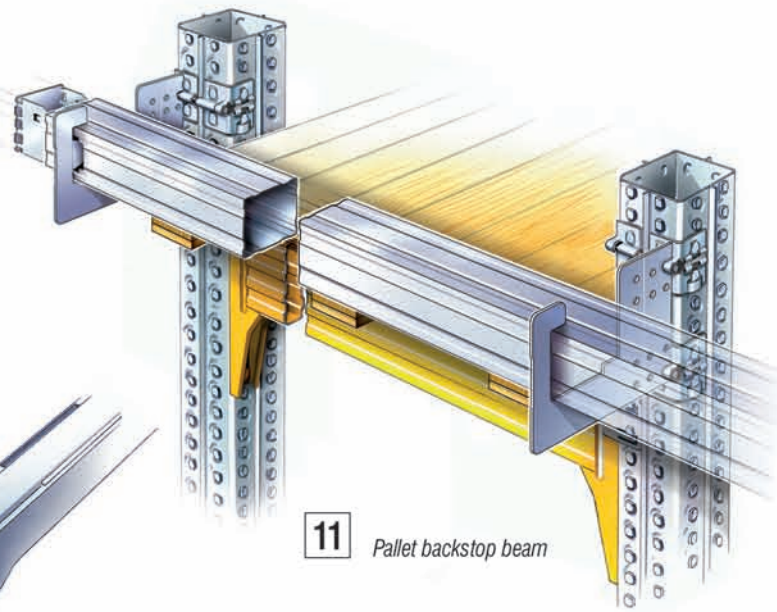


8 *Floor mounted guide rail (single-sided and double-sided)*

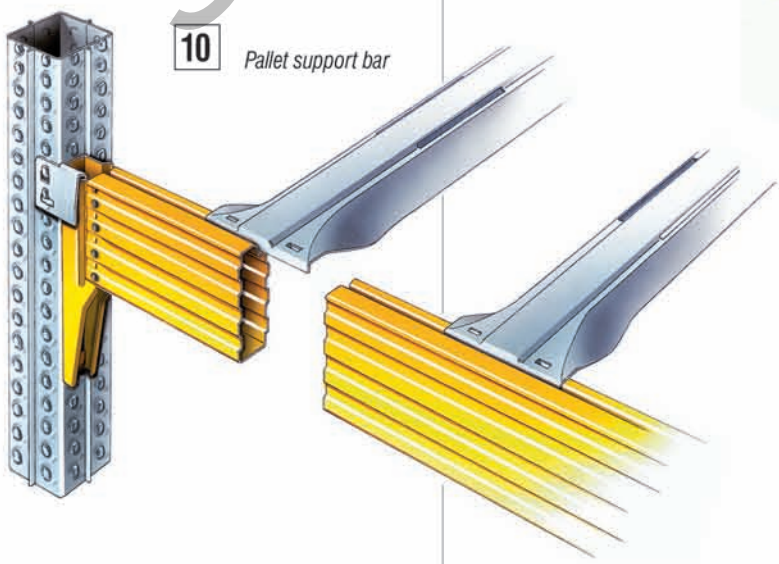




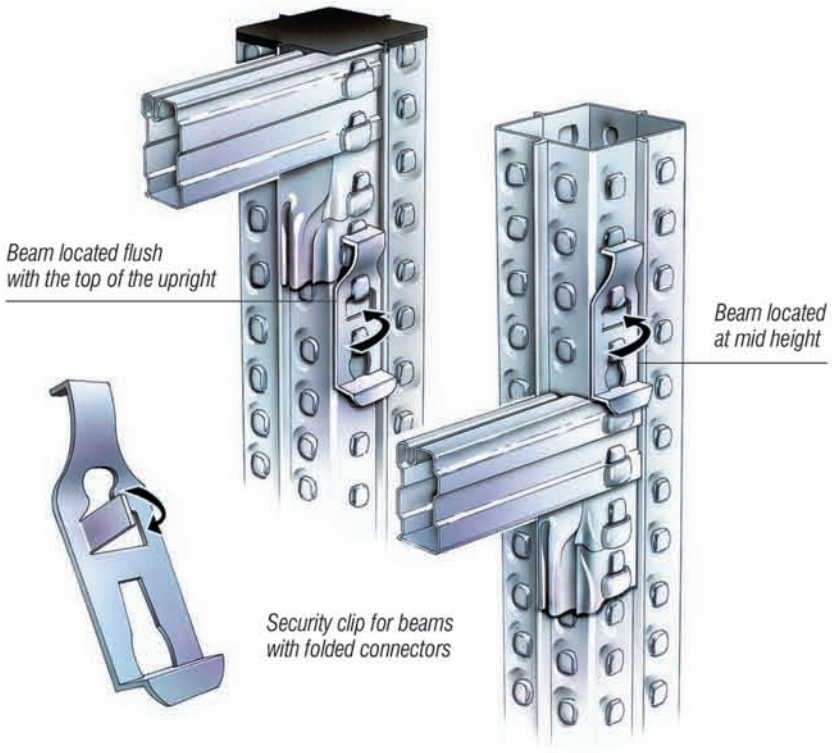
9 *Load distribution plate*



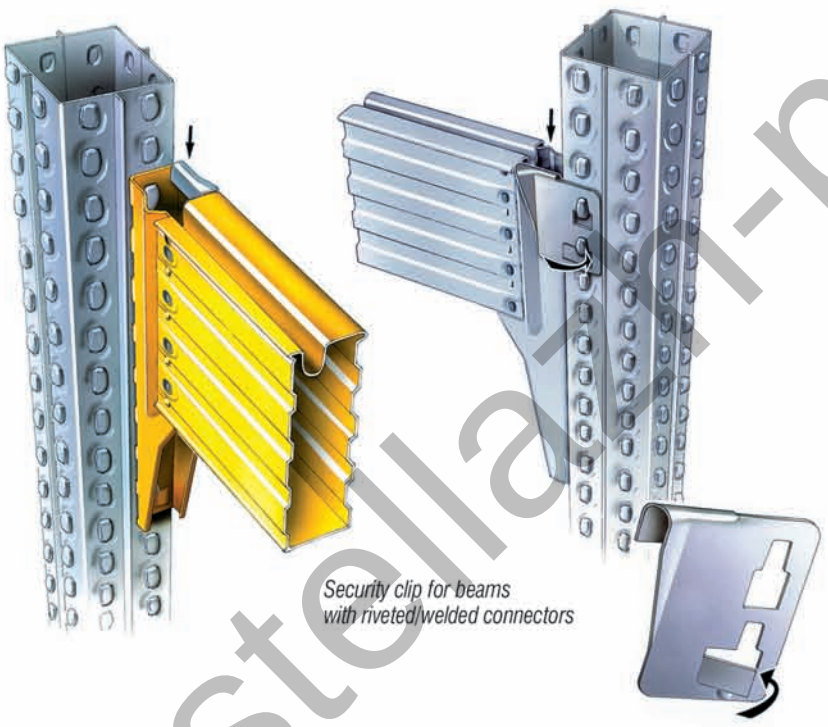
11 *Pallet backstop beam*



10 *Pallet support bar*



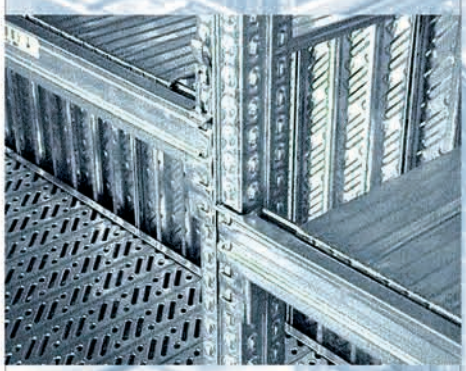
Security clip for beams with folded connectors

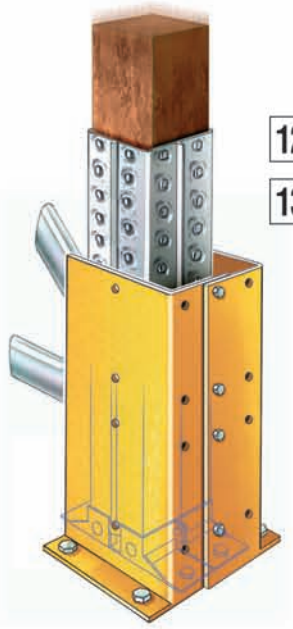


Security clip for beams with riveted/welded connectors

Security clips for beams with double faced connectors

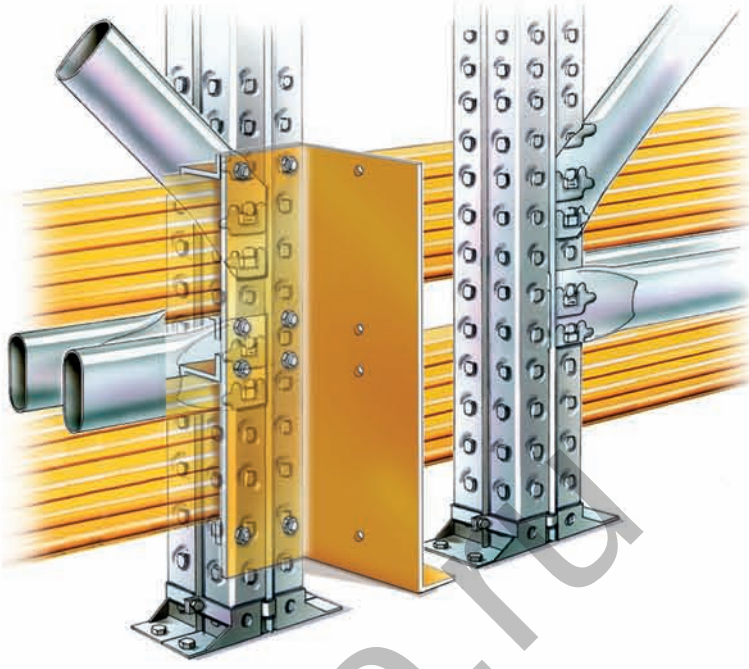
It is mandatory to locate security clips on either side of all pallet racking beams. The beam retaining clips prevent an accidental lifting of the beams off the uprights: also, in the case of beams with riveted or welded connectors, the security clips have a structural function, by further improving the efficiency of the upright/beam connection.





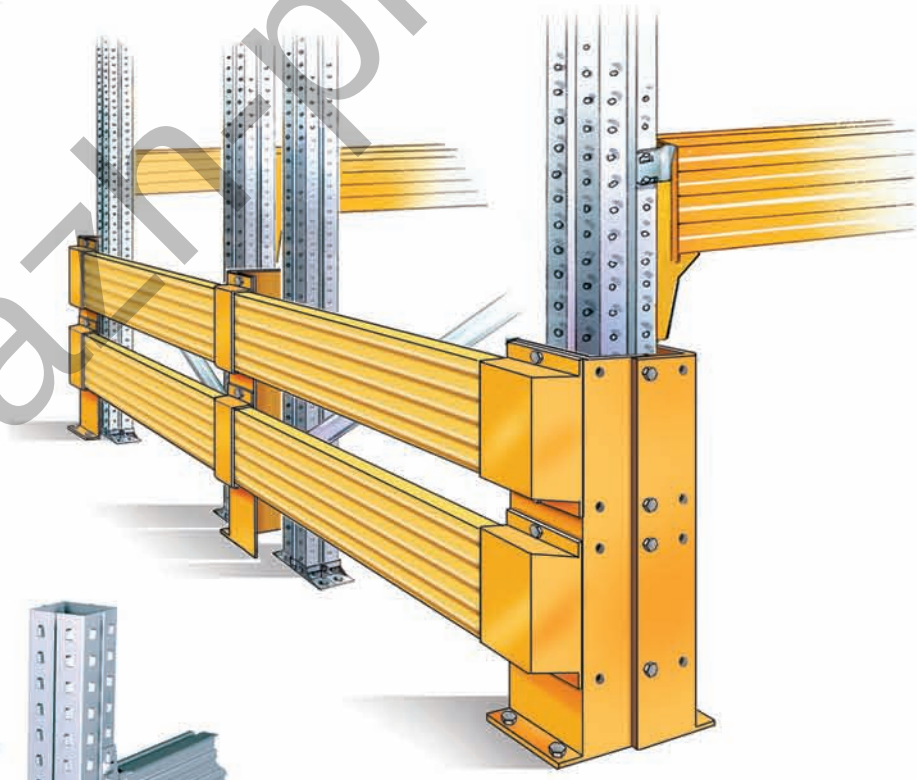
12 *Column protector*

13 *Internal wooden impact dampener*

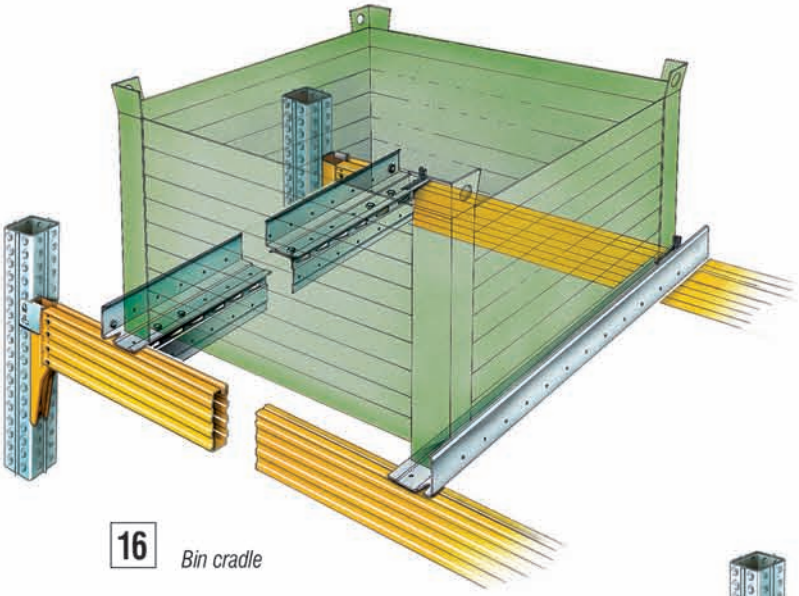


14 *Double frame protector H = 600 mm*

15 *External steel impact dampener*

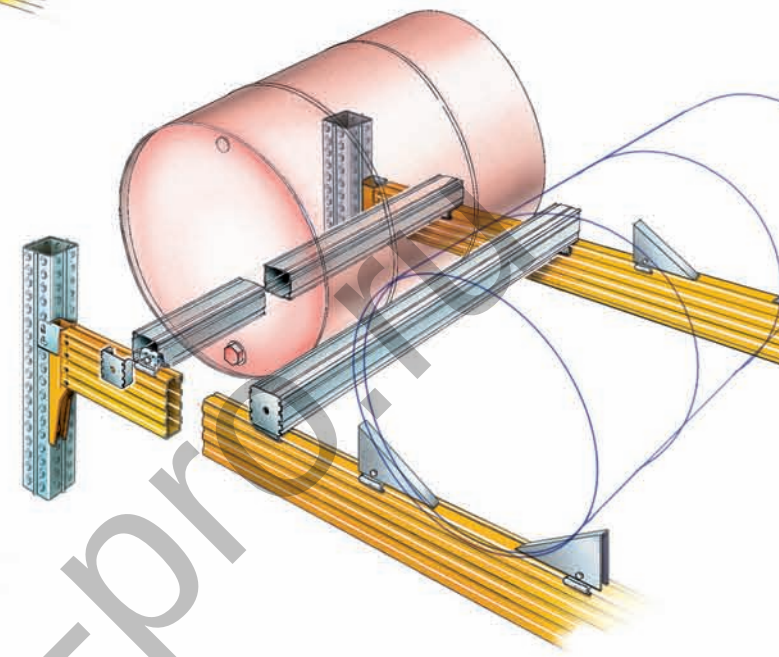


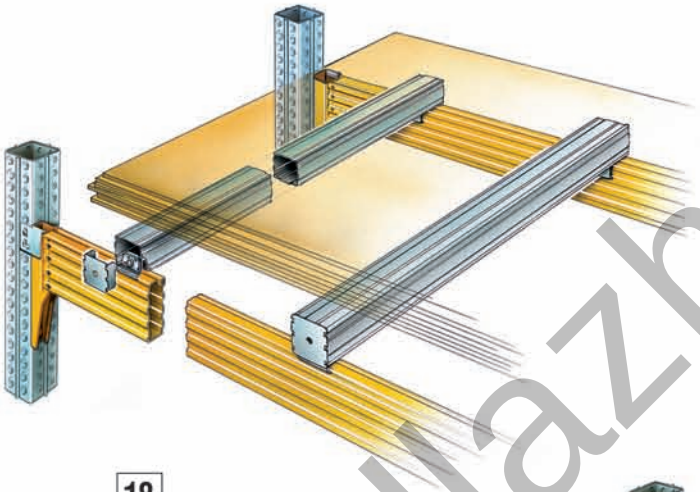
14 *Double frame protector H = 300 mm*



16 *Bin cradle*

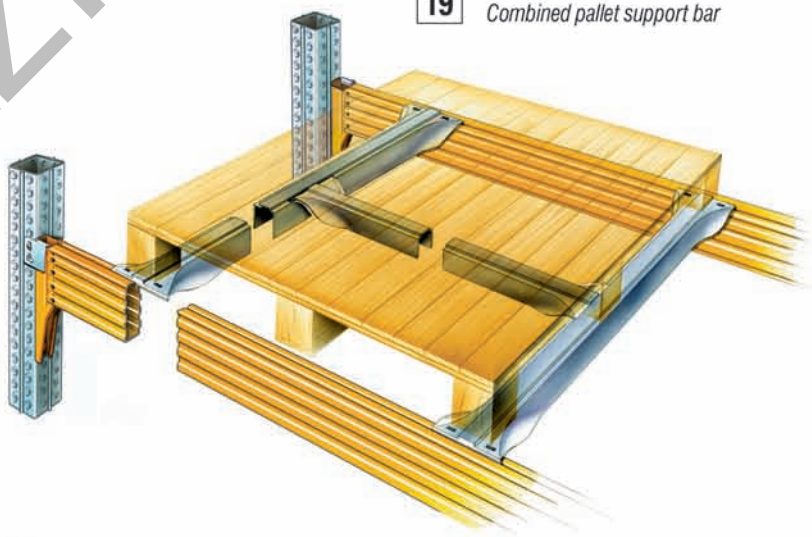
17 *Drum cradle*

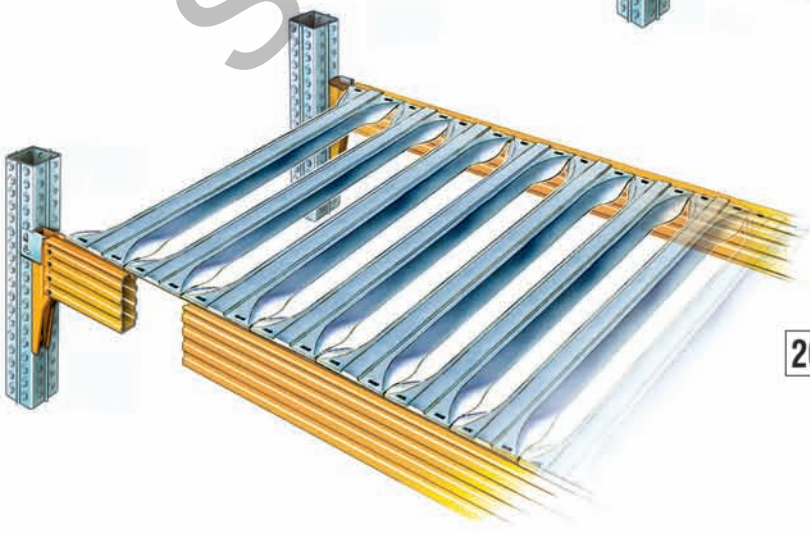




18 *Raised pallet support bar*

19 *Combined pallet support bar*



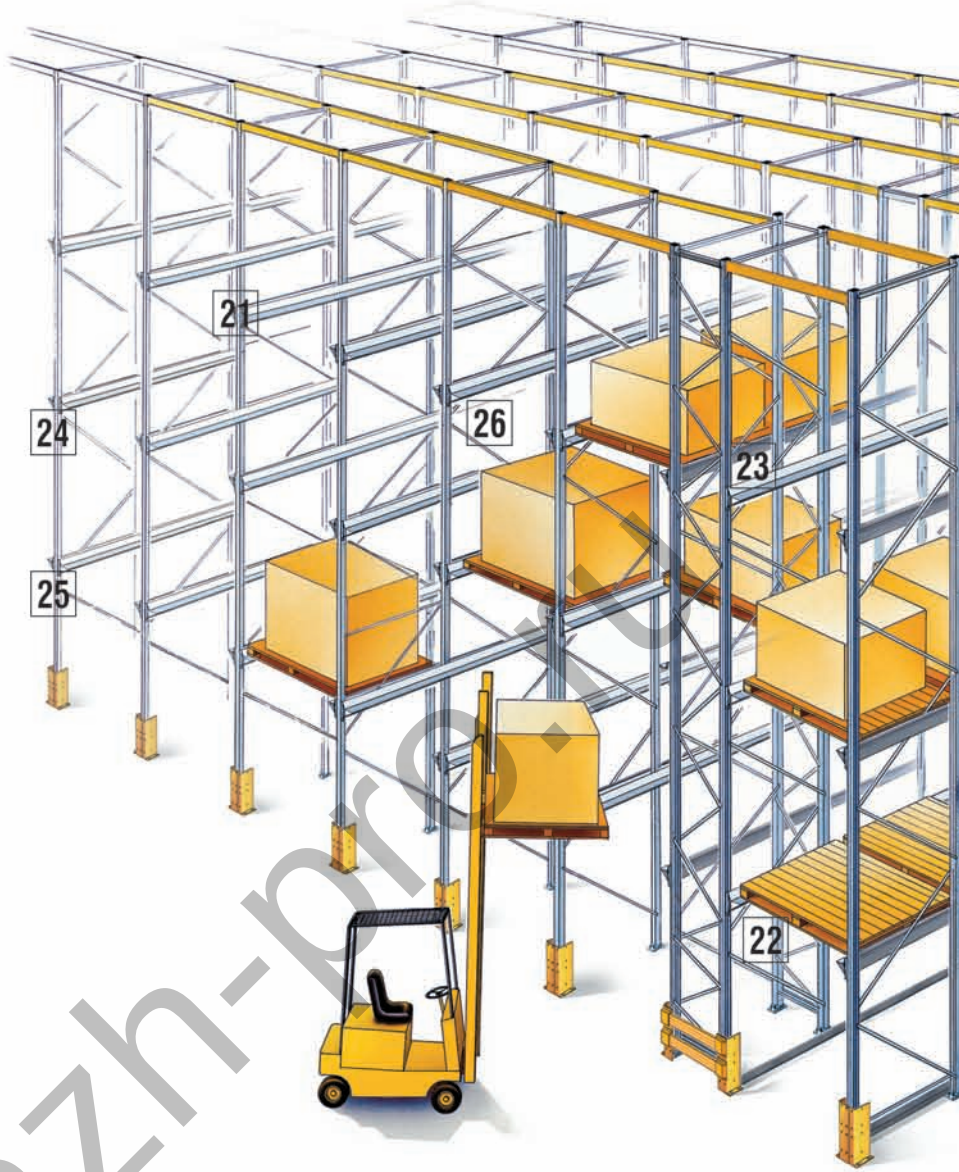


20 *Lightened secondary beams (for use in installations equipped with sprinkler system (shelf surface with coverage <50%)*

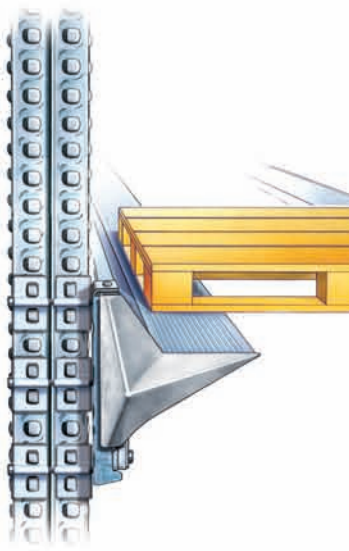
DRIVE-IN

The DRIVE-IN racking system allows the maximum use of space and volume, due to the elimination of access aisles. The storage volume is therefore more than doubled compared with standard pallet racking.
Two kinds of installations are possible: DRIVE-IN or DRIVE-THROUGH.

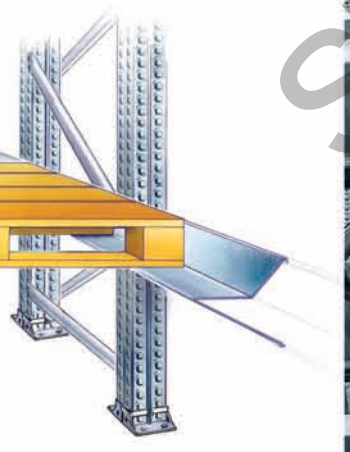
For a correct assembly of DRIVE-IN structures, customers should always refer to the assembly instructions of the SUPER 4-5-6 Technical Handbook.

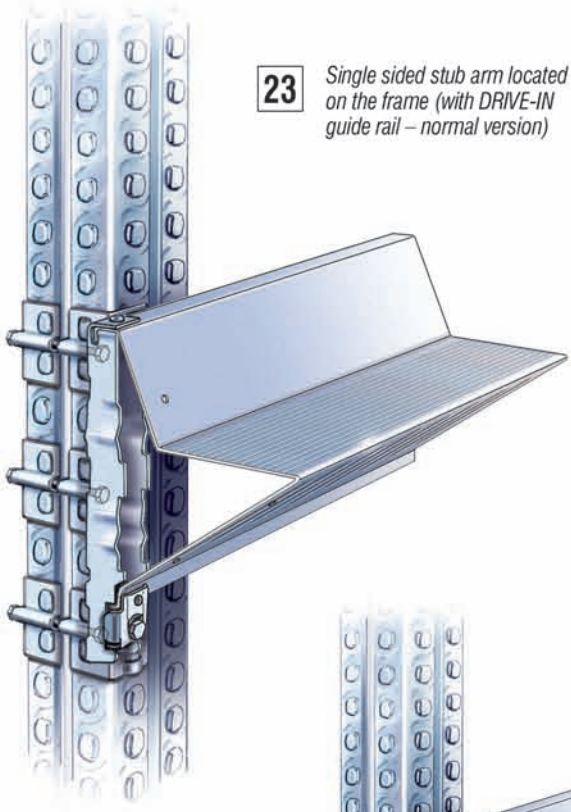


21 *Entrance crescent for DRIVE-IN guide rails*

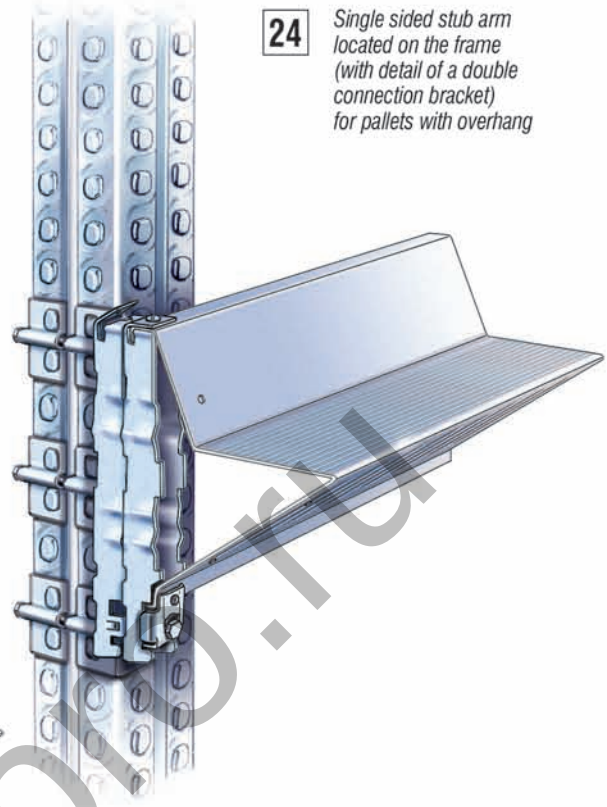


22 *Pallet located on the guide rail / stub arms*

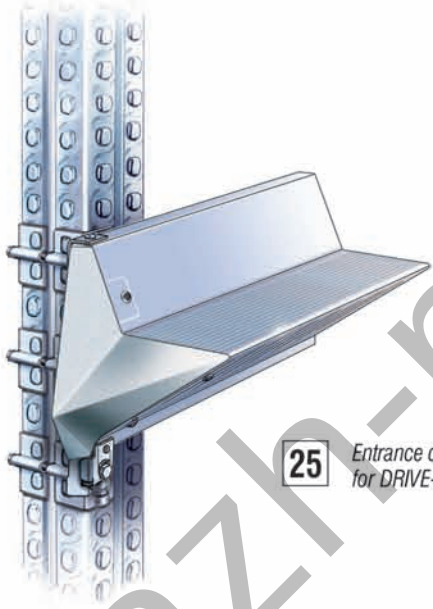




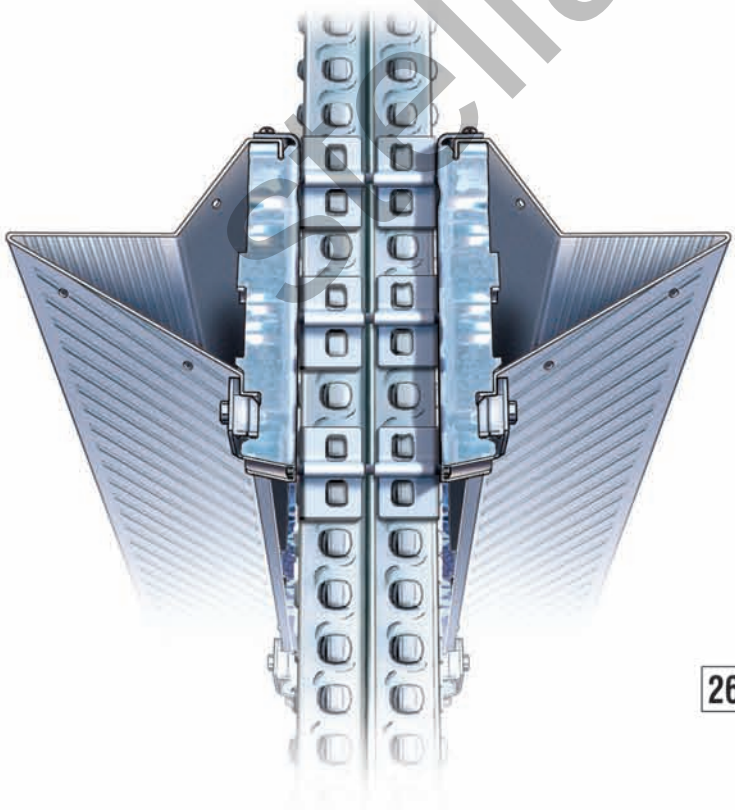
23 *Single sided stub arm located on the frame (with DRIVE-IN guide rail – normal version)*

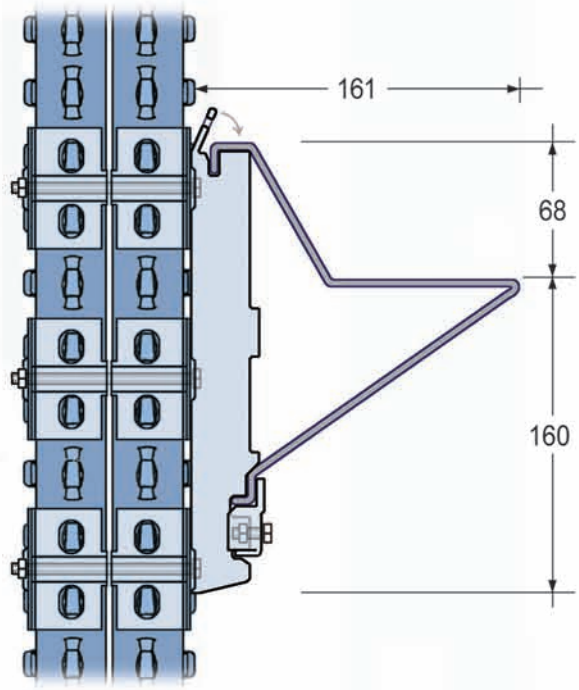


24 *Single sided stub arm located on the frame (with detail of a double connection bracket) for pallets with overhang*



25 *Entrance crescent for DRIVE-IN guide rail (detail)*



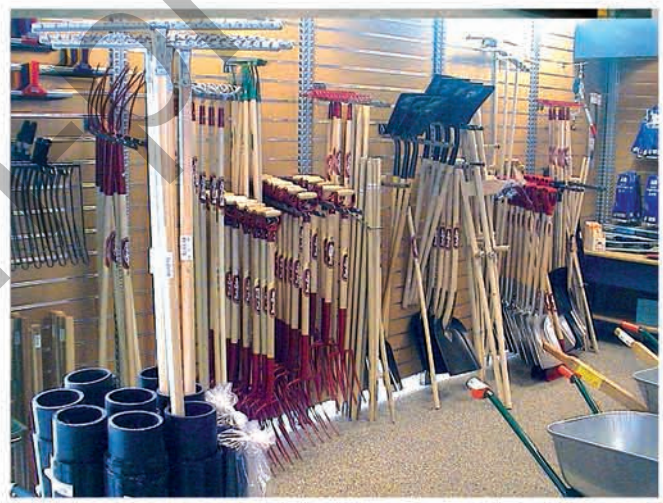
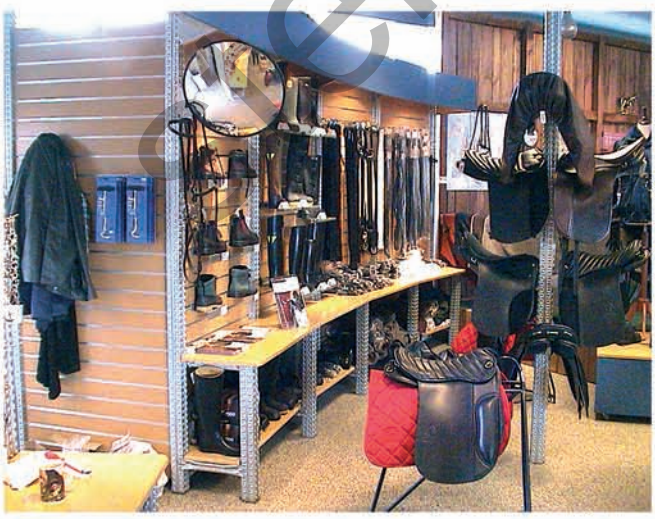


26 *Double sided stub arms located on the frame*








Thanks to its attractive high-tech design, SUPER 4-5-6 racking is pleasing to the eye and can provide excellent solutions for the retail and shopfitting sector. It is ideally suited for both the food and non-food areas within large sales surfaces.


DE CECCO


METRO
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1lb
Concentrati, Sughi,
Salse, Spezie, Funghi
Sottaceti, Sottoli
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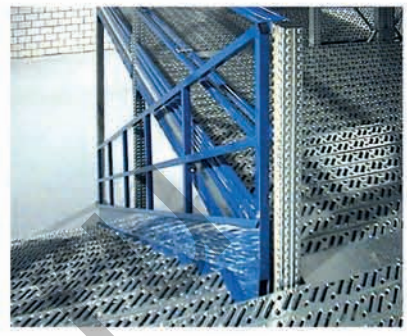
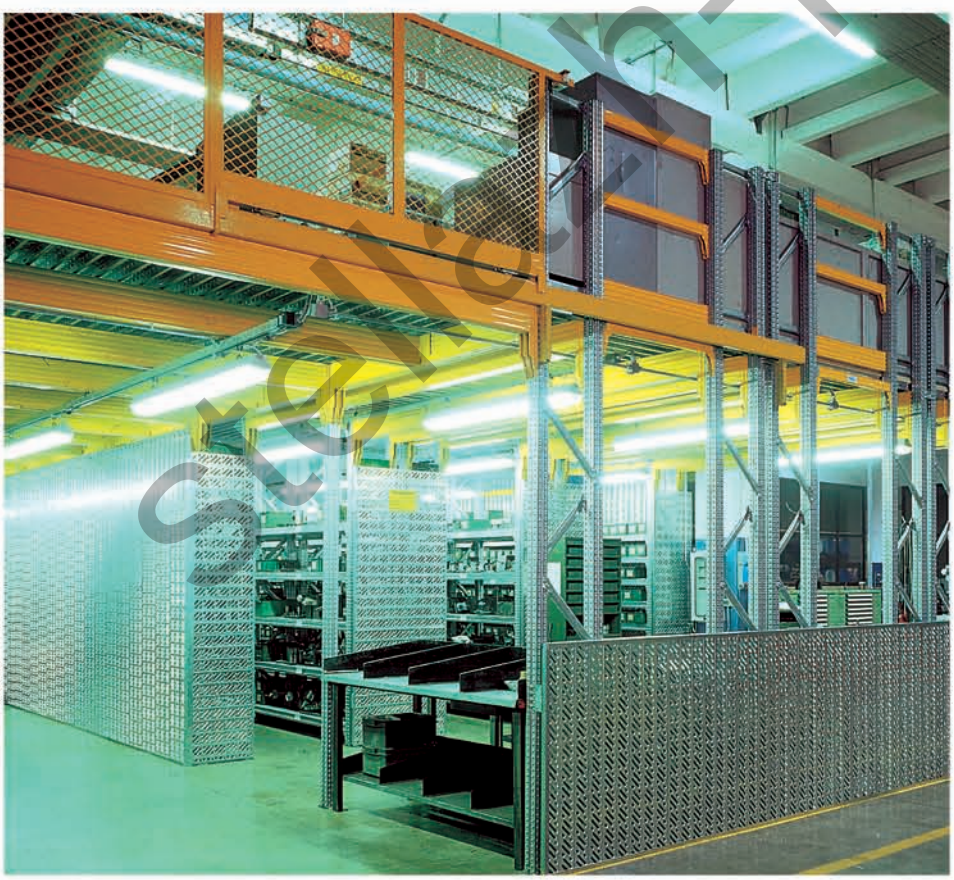
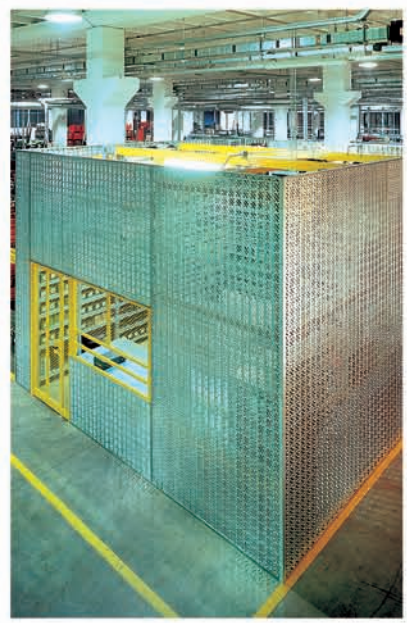
4.554
4.130







Due to the 4-sided upright design with 8 connection points along its four faces, the SUPER-6 series is ideally suited for the construction of platforms, two-tier and multi-tier installations, providing additional storage surface. SUPER-6 installations are accessorised modular structures that can be tailored to the specific requirements of the customers.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MC M. COLOMBO - ROVERETO

NR. EDIZIONE	DATA EDIZIONE	NR. REVISIONE	DATA REVISIONE	DATA STAMPA
03	08/2005	00	00	02/2008