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.

Ref. no:	
System:	SUPERBUILD 145
Year of Construction:	1998
Frame Load Capacity:	12500 Kg
Load Capacity of Beams:	2500 kg
Weight of Load Unit:	800 kg
Distance between ground and first level:	m.1
N° levels:	5

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 this catalogue and in the SUPERBUILD Technical Reference Book. 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 of 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 (figure 1).

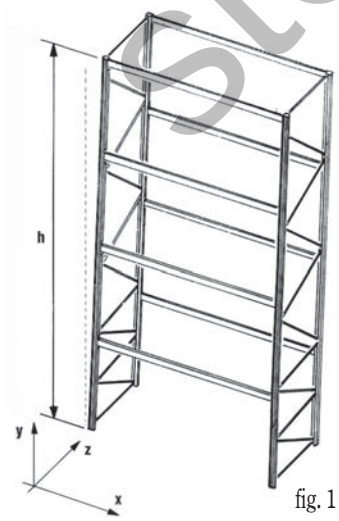


fig. 1

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 number of levels (figure 2).

e) Rack safety standard.
Rack structures must be fastened to the floor slab via two anchor bolts for every upright.
In cases where the height of the frame is:
- more than 5 times the depth, for single-sided racking;
- or, more than 10 times the depth, for double-sided 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

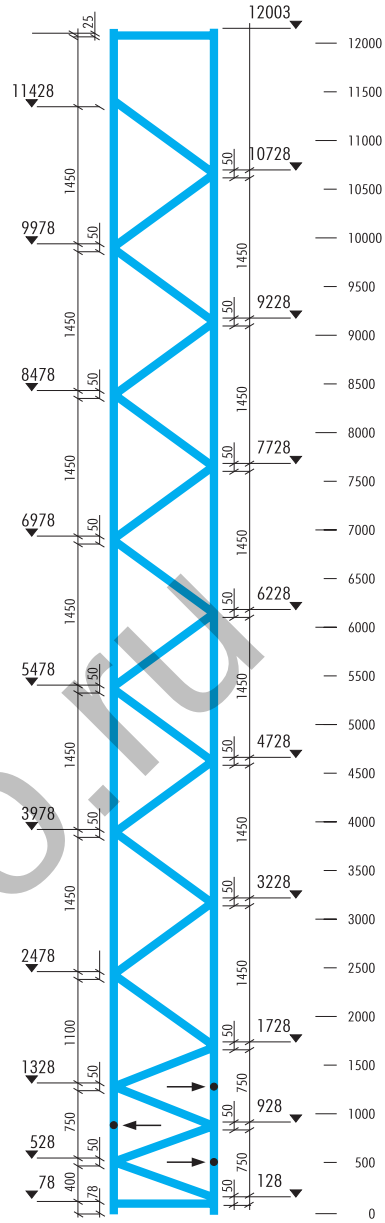
g) Software references.
The theoretical calculations of finished elements were elaborated with the SICS program. Guide lines followed as the basis for the calculations are those of the organisation CISI (Association of Italian Manufacturers of Industrial Shelving).

h) Frame load bearing capacity.
The load bearing capacity graph (Graph 1) in the SUPERBUILD Technical Reference Book shows the load bearing capacity of frames used for pallet racking systems. These are 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 capacity of the beam pairs 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.



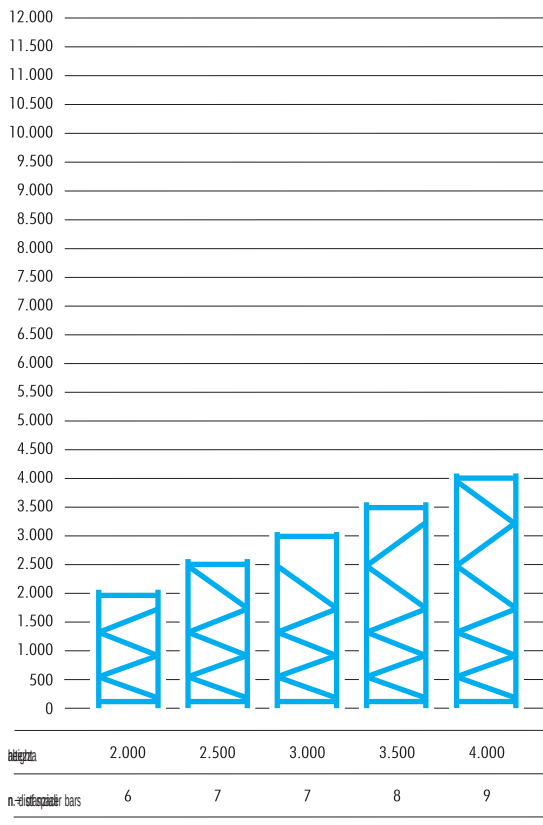
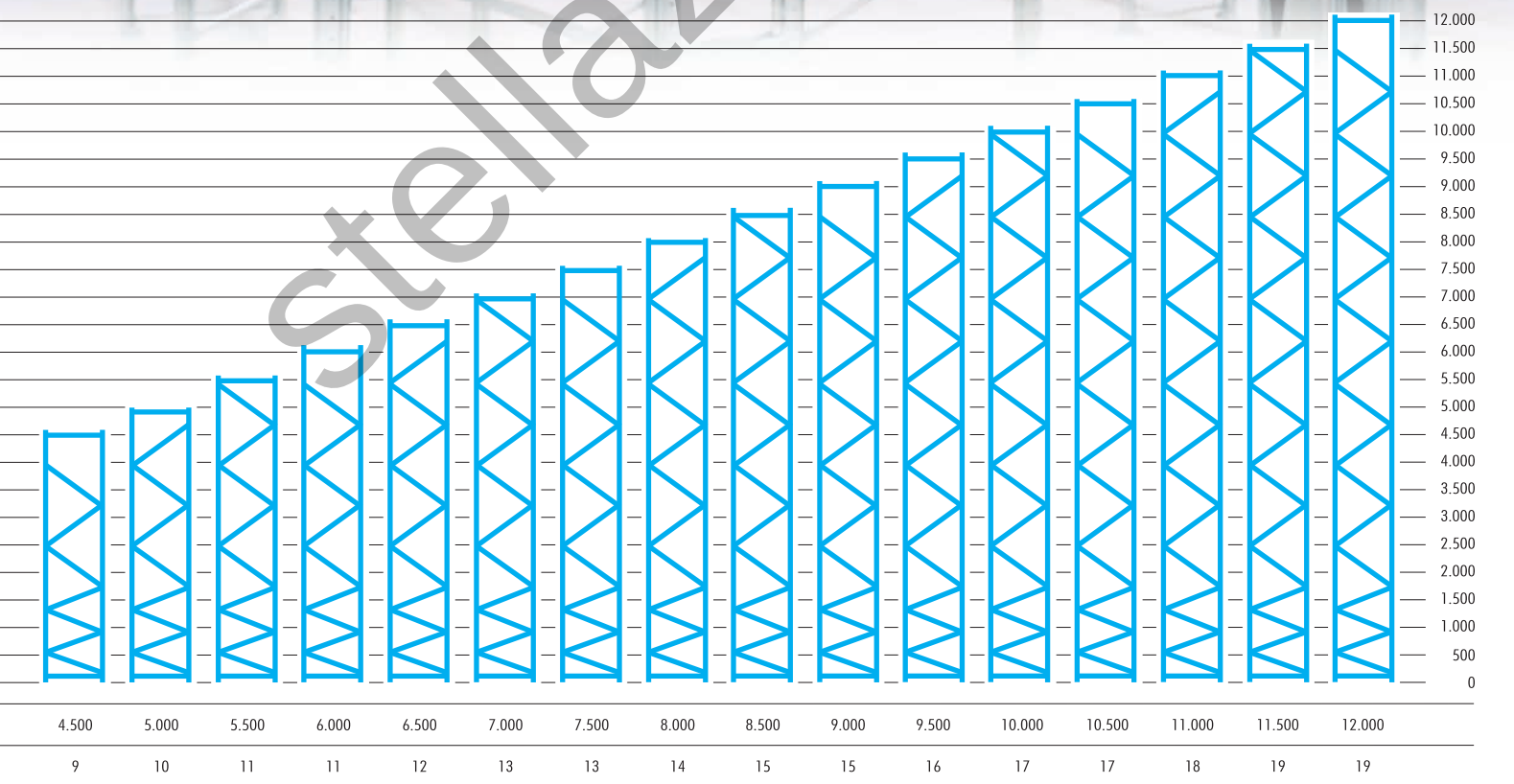


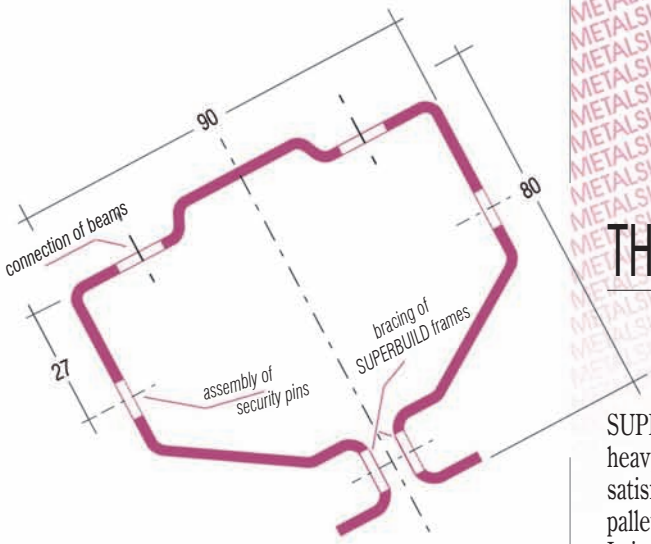
DIAGRAM FOR ASSEMBLING BRACING OF SUPERBUILD FRAMES

SUPERBUILD systems are made from high tensile steel, certified according to EN 10204 3.1B and carry the approval mark of TÜV PRODUCT SERVICE GmbH.



4.500	5.000	5.500	6.000	6.500	7.000	7.500	8.000	8.500	9.000	9.500	10.000	10.500	11.000	11.500	12.000
9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19

To achieve the stated frame load bearing capacities, frames should be built in strict accordance with the assembly diagram above. Three bolts 8x20 mm should be placed opposite to the short diagonal crossings, respectively at the height of 528, 928 and 1328 mm, as shown on the left.

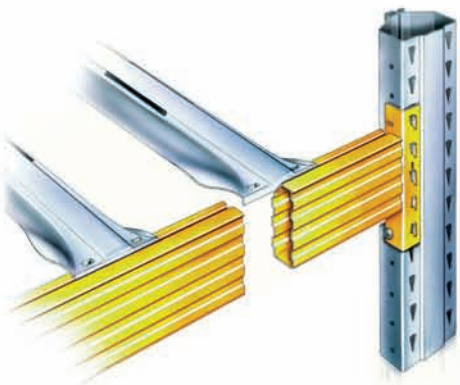


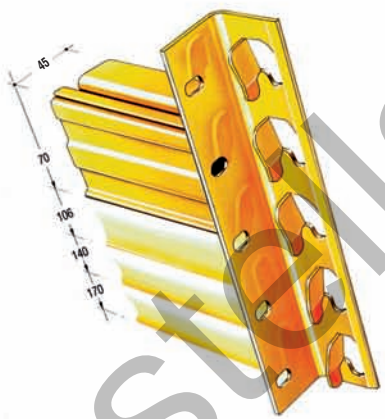
THE PRODUCT

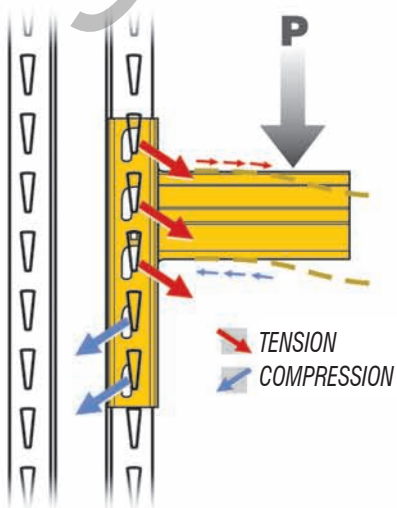
SUPERBUILD is interchangeable with the UNIBUILD heavy duty pallet racking and has been designed to satisfy all the requirements of medium to heavy duty pallet storage.
It is available in three different frame load options, varying from 7.5 up to 15 tons.
The closed design of the frame upright provides a stronger section than that of the standard open "C" profiles used by other manufacturers.
The frames are made from prime quality, certified, high tensile hot dipped galvanised steel (procedure SENDZIMIR) , thus ensuring a high level of durability.
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 palletised or special goods.
The welded beam end connector has five anchor points, three of them operating in tension and two in compression, providing a better connection to the upright with increased load capability.
The adjustment of beams at intervals of 50 mm facilitates optimum use of space available.
The beams are painted in yellow RAL 1004 (standard colour) according to the following procedure:

- hot wash degreasing and iron phosphate pretreatment;
- application of thermosetting powder paint.
- curing at a temperature of approx. 240°C in a force ventilated air circulation oven.

The design of the various components is the result of rigorous technical testing and the highly specialised 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, low cost and load bearing capacity.

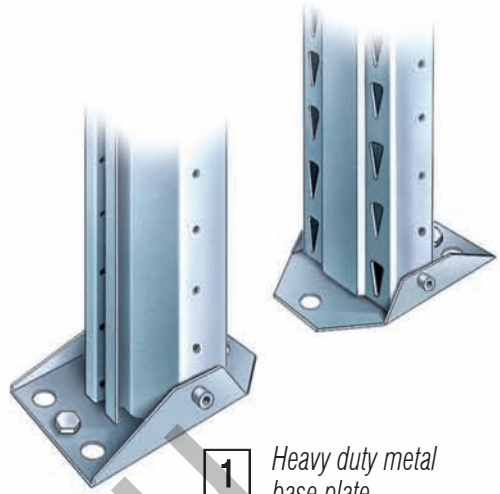




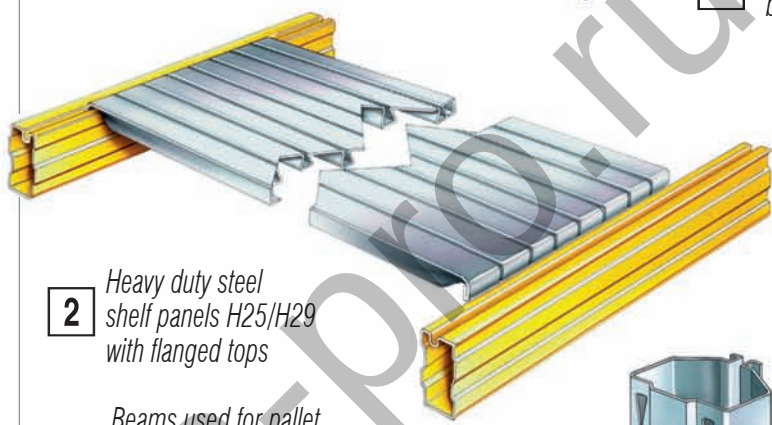


MAIN STRUCTURAL COMPONENTS

The design of the various components is the result of rigorous technical testing and the highly specialised knowledge developed over years of experience in the field of metal processing.
The components are subjected to regular and rigorous technical tests.
The safety and the quality of the product have always been a primary aim of METALSISTEM and are recognised by TÜV PRODUCT SERVICE in Munich, one of the most rigorous E.C. commissions in the field of quality and safety certification.
The versatility of METALSISTEM installations makes 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.



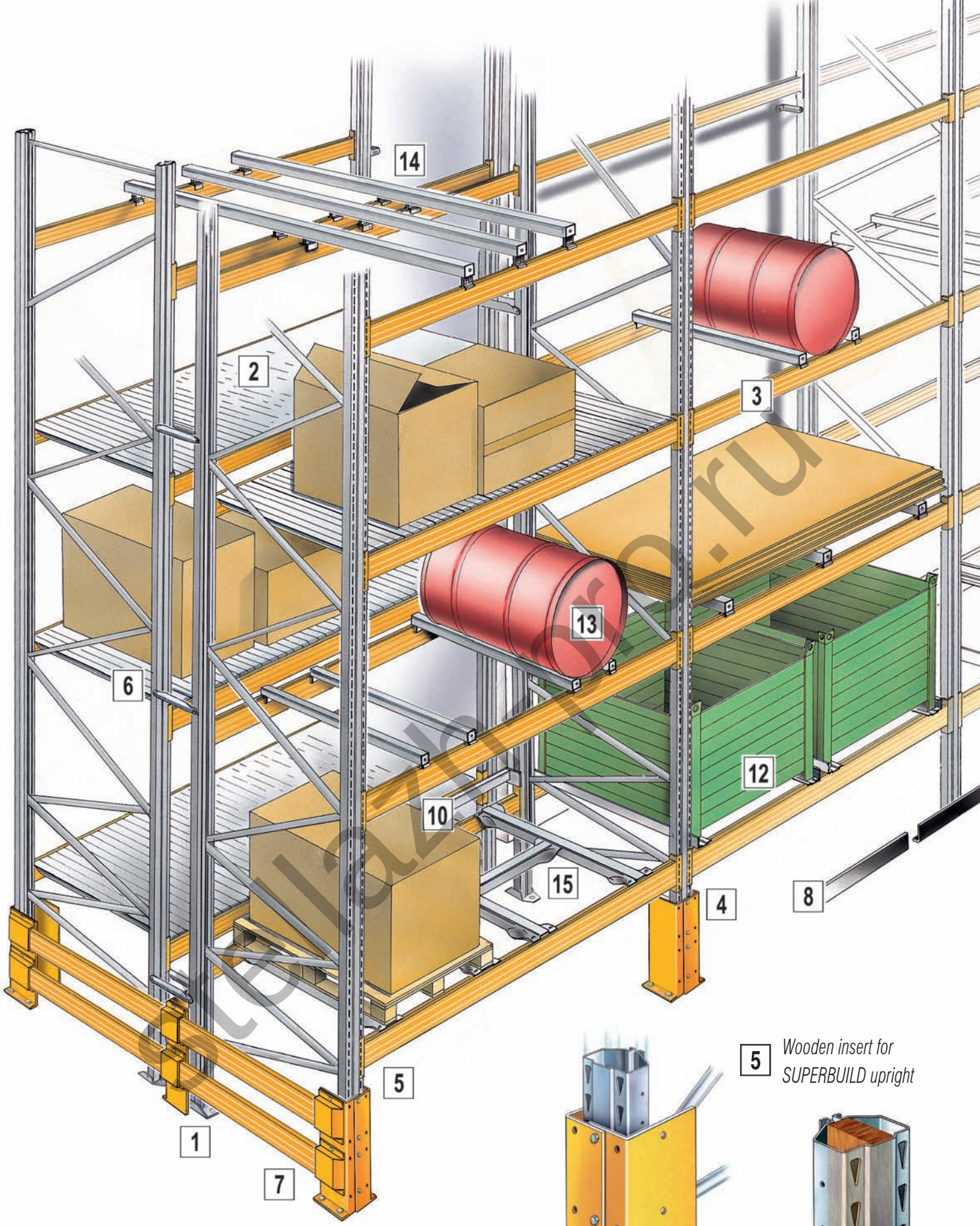
1 *Heavy duty metal base plate*



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

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

Locking pins for beams



Regarding technical data, characteristics and dimensions, customers should refer to the Technical Reference Book of the SUPERBUILD series.

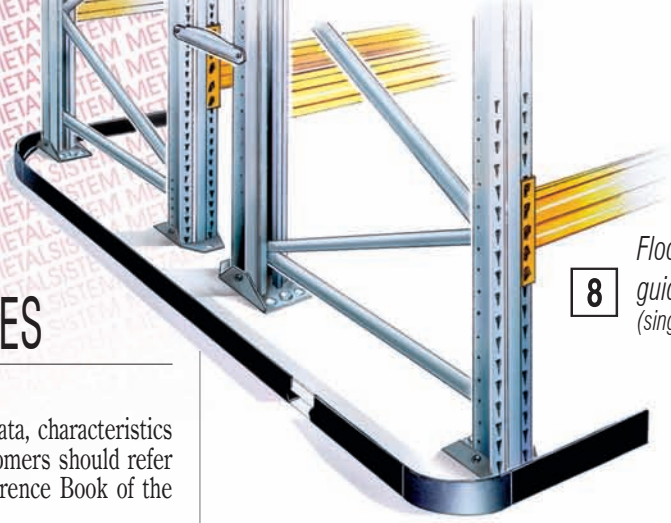
4

Column protector

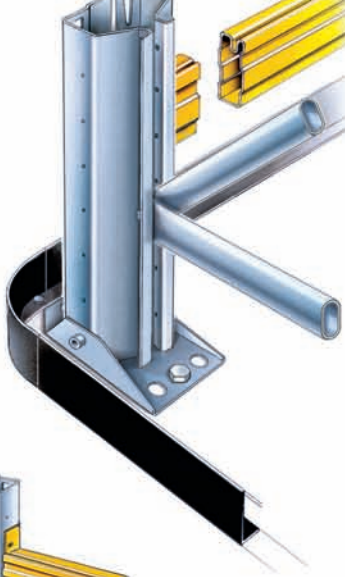
5 *Wooden insert for SUPERBUILD upright*

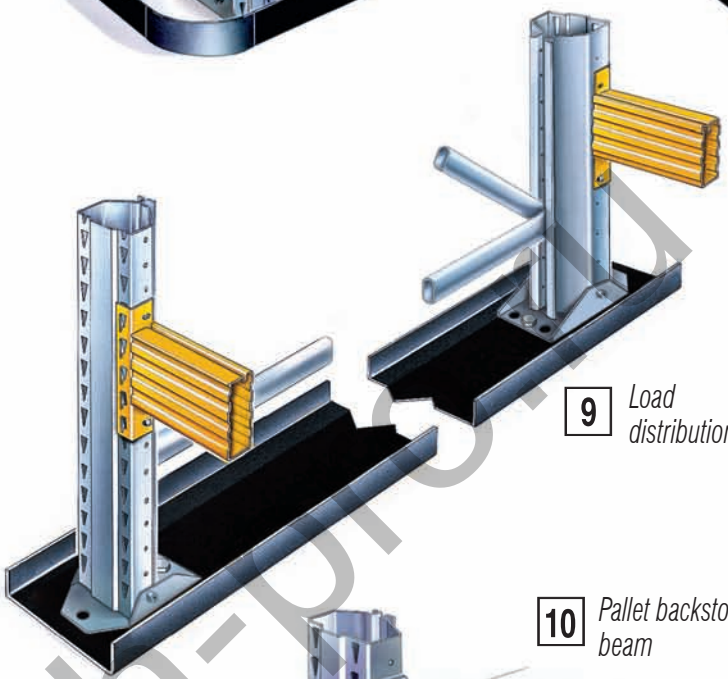
ACCESSORIES

Regarding technical data, characteristics and dimensions, customers should refer to the Technical Reference Book of the SUPERBUILD series.



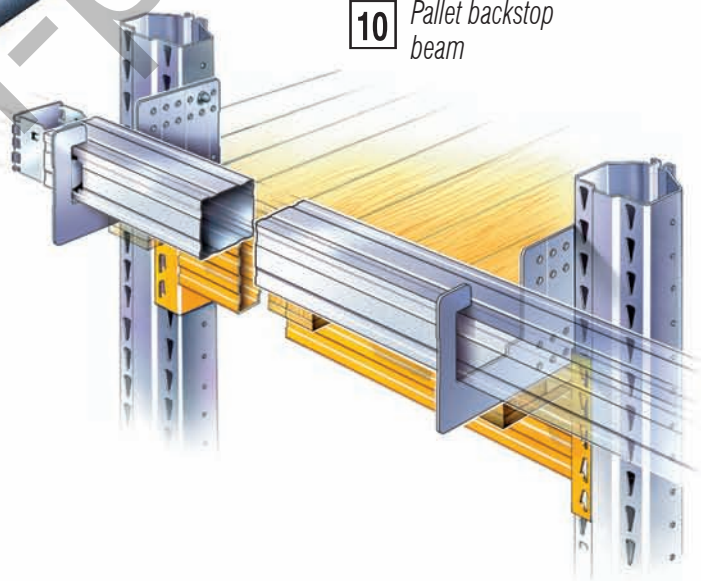
8 *Floor mounted guide rail (single and double-sided)*

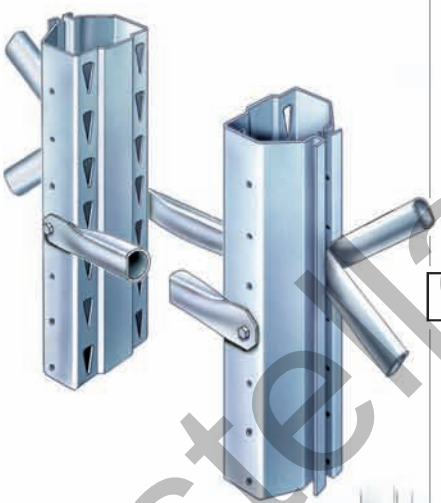




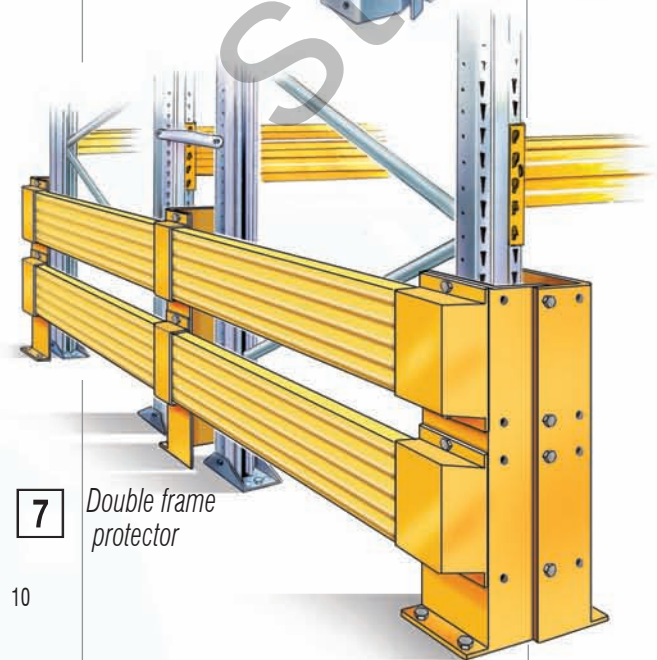
9 *Load distribution plate*

10 *Pallet backstop beam*



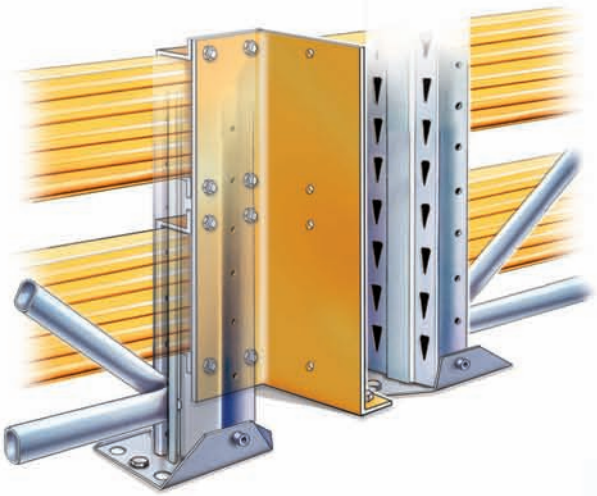


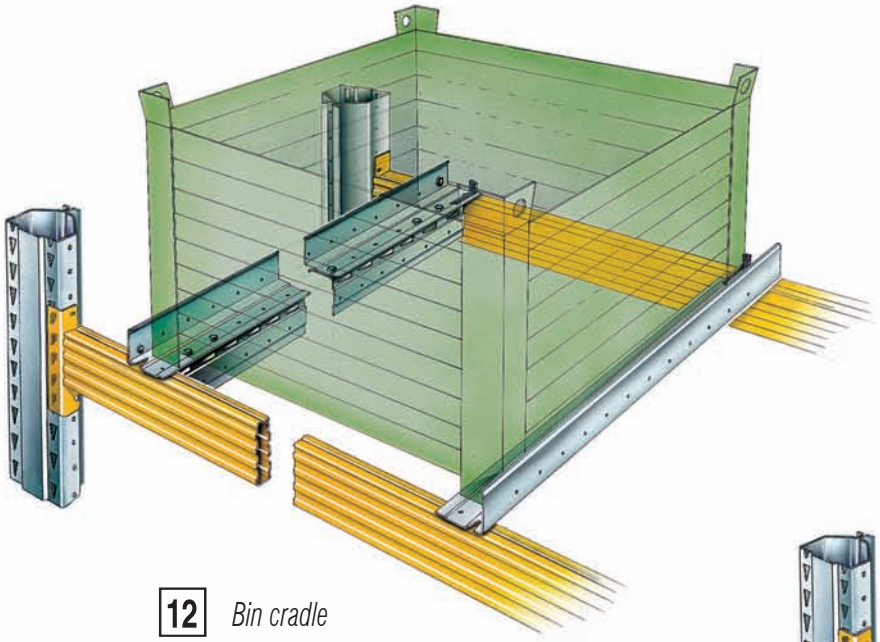
6 *Row spacers*



7 *Double frame protector*

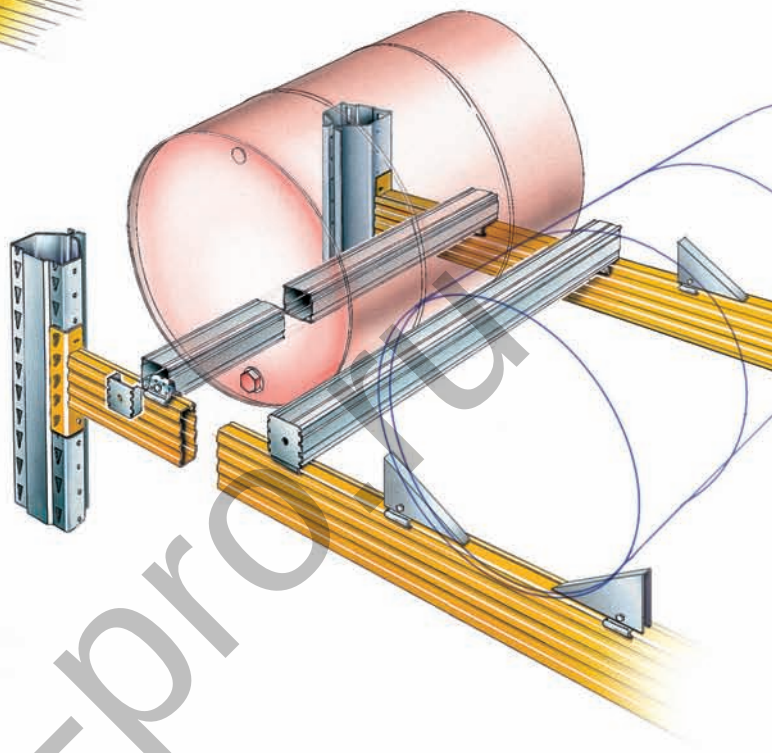
11 *Double frame protector (detail)*

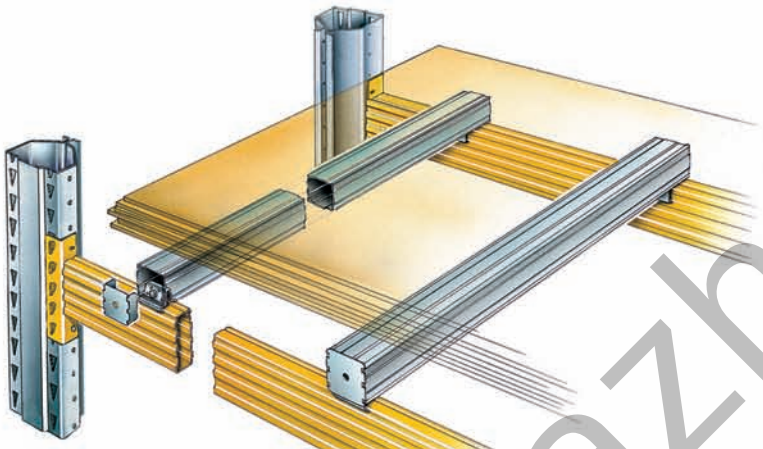




12 *Bin cradle*

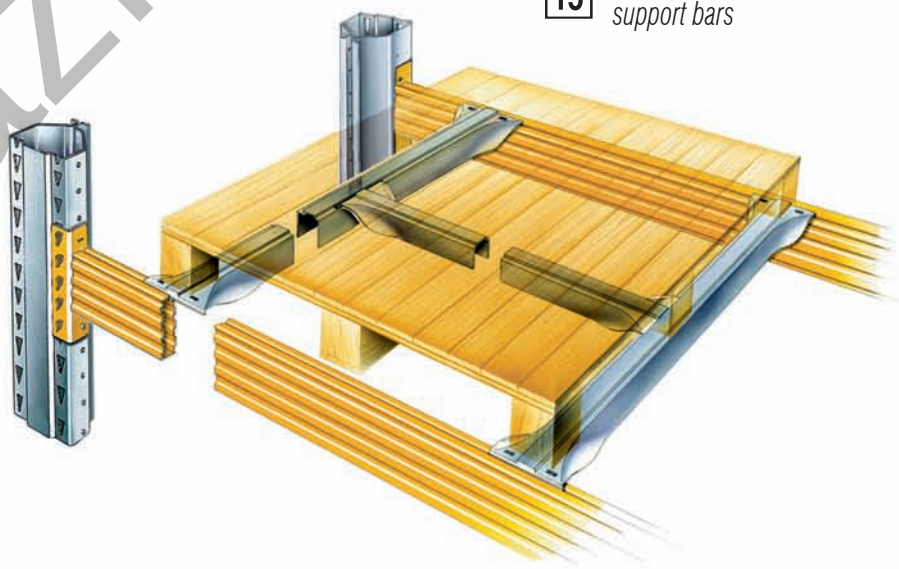
13 *Drum cradle*
Drum wedges

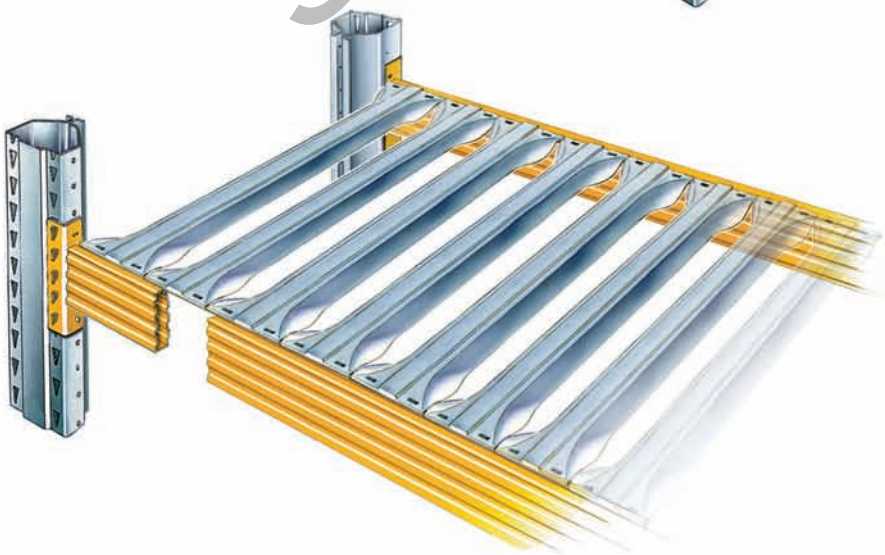




14 *Raised pallet support bar*

15 *Combined pallet support bars*



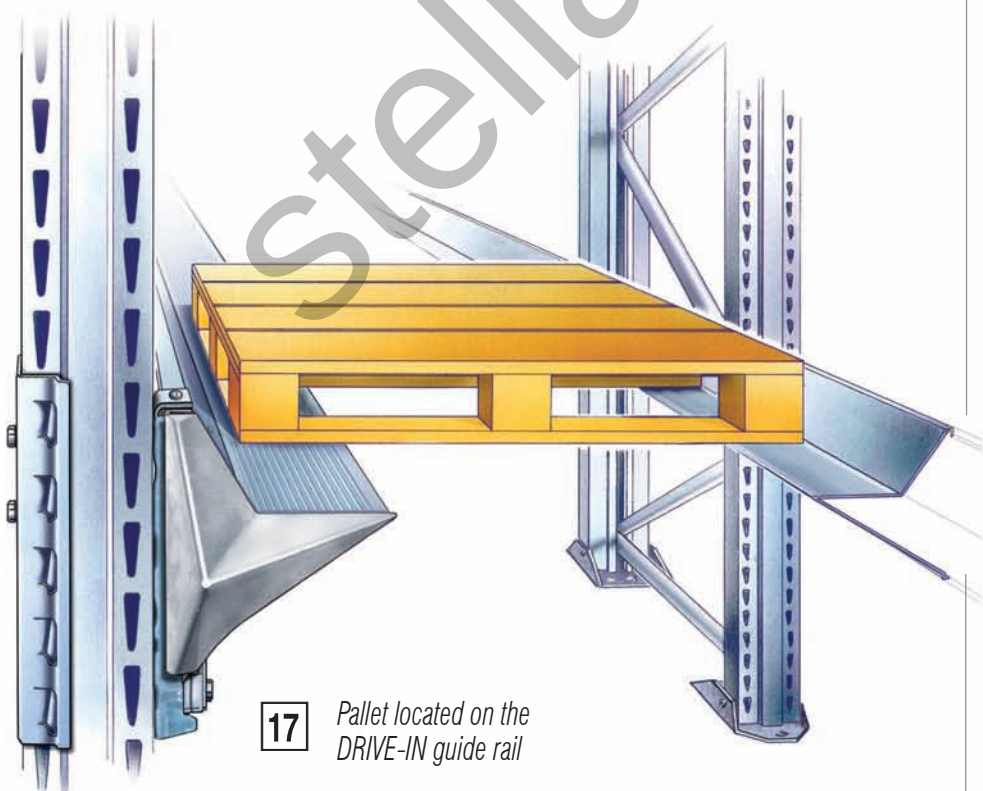


16 *Lightened secondary beams*
For use in installations equipped with sprinkler systems (shelf surface with coverage < 50%)

DRIVE - IN

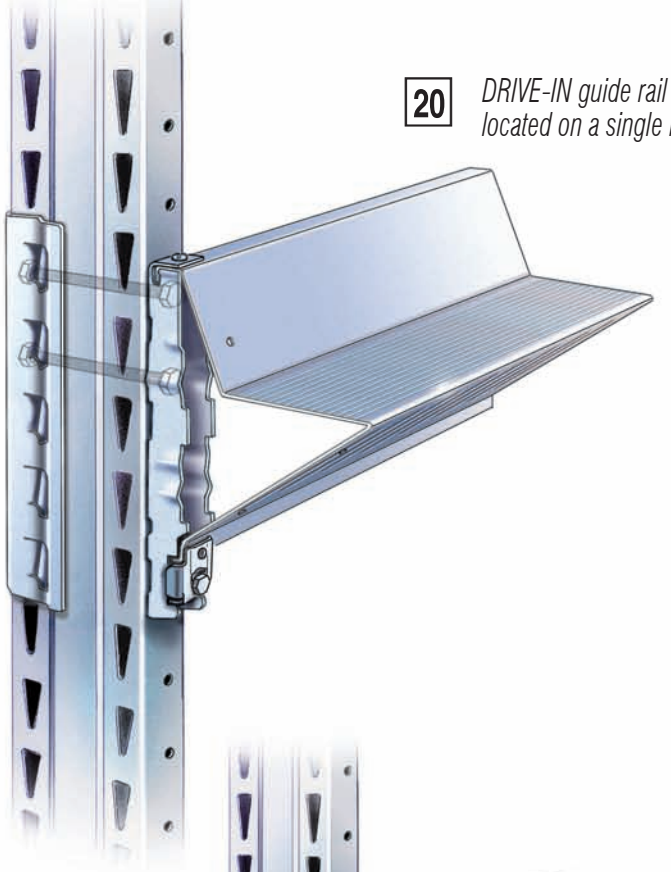
The DRIVE-IN racking system allows the maximum use of space, and volume due to the elimination of access aisles.
The storage volume is therefore more than doubled compared with standard pallet racking.
Two kinds of installation are possible: DRIVE-IN or DRIVE-THROUGH.

18 *Entrance crescent for DRIVE IN guide rail*

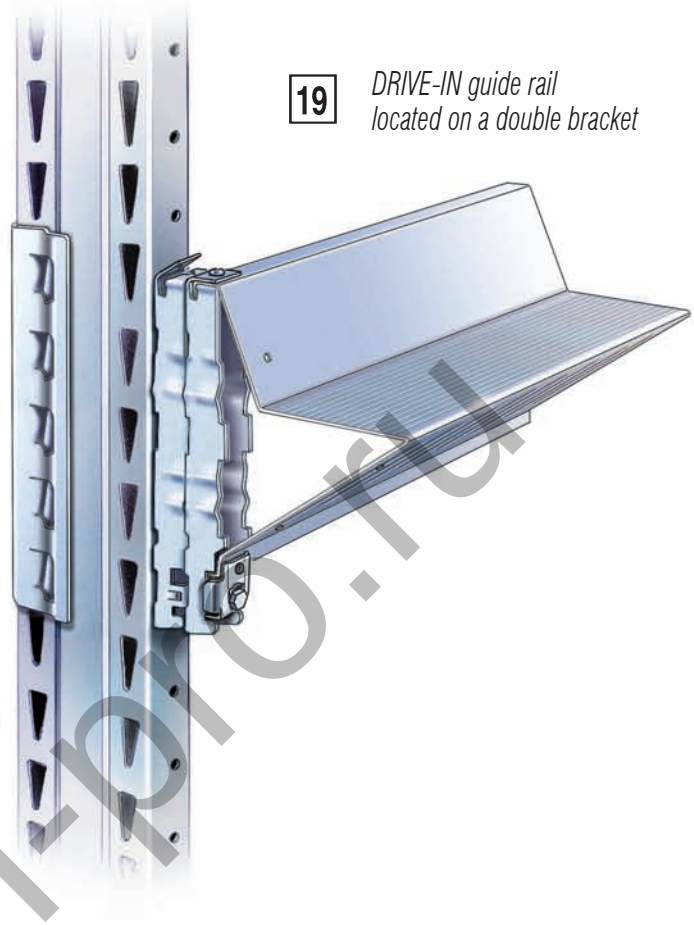


17 *Pallet located on the DRIVE-IN guide rail*

For a correct assembly of DRIVE-IN structures, customers should always refer to the DRIVE-IN Assembly Instructions.

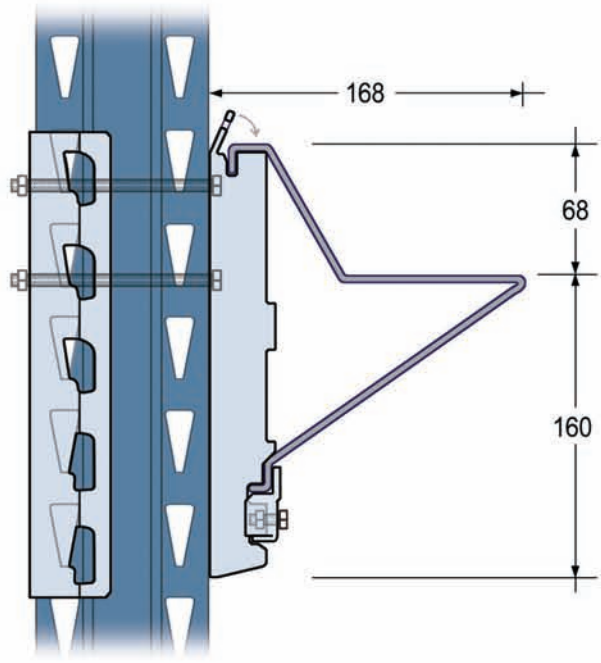


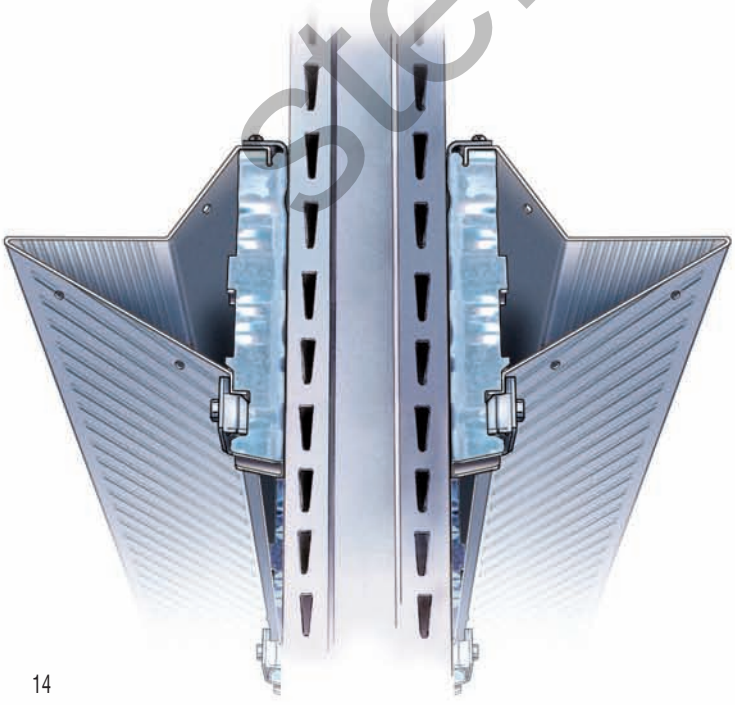
20 *DRIVE-IN guide rail located on a single bracket*



19 *DRIVE-IN guide rail located on a double bracket*

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





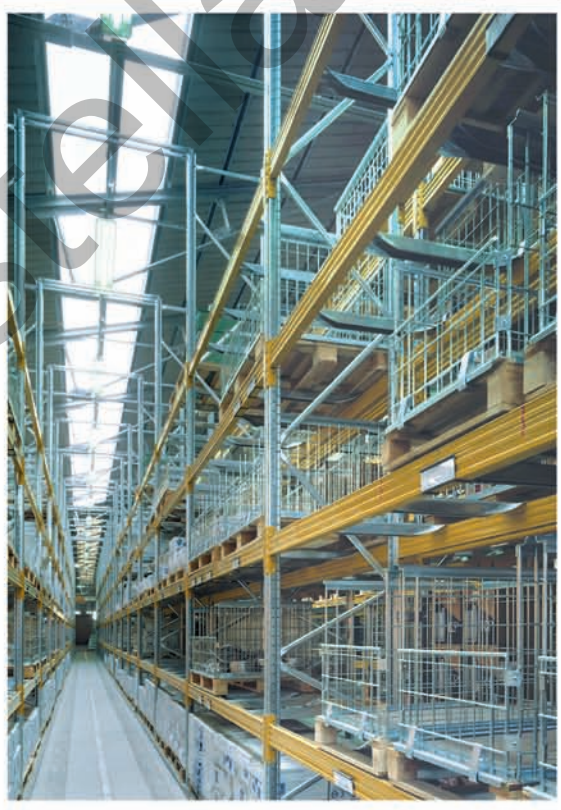
22 *Double sided DRIVE-IN guide rails located on single brackets.*

PUSH BACK

All METALSISTEM pallet racking series are perfectly suitable for PUSH-BACK installations, providing increased usage flexibility and pallet accessibility across both tunnels and storage levels in height. Stability, storage density, low maintenance cost, ease of use, are but a few of the outstanding features of PUSH-BACK installations.

SUPERBUILD

New.
Strong.
SUPER!



METALSISTEM...
we don't speak about the future... we make it.