BRAASS®
REGALANLAGEN GMBH

SL100
heavy duty shelf

Assembly and operating instructions

EN BAUHAUS edition
English

SHELF ASSEMBLY

LOADING THE SHELVES

MAINTENANCE

After assembly, keep these instructions for later use

Issued: 01.2023 – We reserve the right to make changes based on technical advances

GENERAL INFORMATION

Dear customer,

With the SL100 heavy duty shelf, you have chosen a high-quality and flexible storage system, designed for the simple and safe handling of Euro-pallets and other heavy storage goods.

The SL100 heavy duty shelf may only be assembled and used in accordance with these assembly and operating instructions. Therefore, your fitters, forklift drivers and warehouse staff must be instructed according to these instructions. We accept no liability whatsoever for any damage or injury resulting from improper assembly or misuse.

Regulations for shelving systems

- Find out in advance about the building regulations for shelving applicable in your country.
- DIN EN 15635 and DGUV (German Social Accident Insurance) regulation no. 108-007 (formerly BGR 234) regulate the mounting and handling of shelving units. This includes the requirement for carrying out an **annual shelf inspection** (see page 28).
- **Questions relating to fire protection** should be clarified with your local fire service or a specialist company for operational safety and fire protection (e.g. when using sprinkler systems: use water-permeable removable shelves made of perforated elements or wire grid shelves; observe spacing for double-sided shelves, see page 8).

Assembly instructions for the SL100 heavy duty shelf

- **Load-bearing substrate:** The warehouse operator must ensure that the floor in the installation location can safely support all loads applied (net weight + load). **Concrete substrates** must be at least of grade C20/25 quality and must have a compressive strength of 235 N/mm^2. The pallet racks must **always be anchored to the floor;** we supply building authority-approved fasteners for cracked and non-cracked concrete in accordance with the regulations. For floors with underfloor heating, the manufacturer's instructions must be observed. On **substrates with low strength** (e.g. asphalt, composite stone paving), load distributors and pegs can be used for fixing the shelves in accordance with BGI/GUV-I 5166. The operator is responsible for carrying out a regular check as part of a risk assessment. For more information about ground anchoring, see page 11.
- The shelves must be vertical and set up **within the specified tolerances** (page 10).
- **Tilt protection:** End stands must be at least 50 cm taller than the top edge of the top shelf.
- **Load capacity stickers** must be affixed to the shelves so that your staff can see the permissible load limits everywhere (page 23). Observe the load limits when loading.
- Brass Regalanlagen GmbH only supplies ready-assembled shelving stands (side frames). For this reason, no assembly instructions are provided.
- Fork-lift passages and passageways must have a clear height of at least 200 cm (for higher industrial trucks, equipment height + at least 20 cm). The top shelf must be adequately covered (e.g. with gratings), to prevent accidents caused by falling stored goods.
- **Traffic routes in shelving plants** must be at least 125 cm wide, side aisles at least 75 cm. The safety distance to industrial trucks must be at least 50 cm on both sides.
- Roof structures may only be installed by trained specialist staff.

The loads and information provided in these assembly and operating instructions do not apply to earthquake zones or outdoor areas where the shelves have to be able to withstand wind and snow or other loads. These areas require the static dimensions of the components to be designed differently, and therefore must be discussed with us beforehand.

- **Existing shelves may only be converted in the unloaded state** by suitable, trained staff. These assembly and operating instructions also apply to conversions.
- **If a shelf partition and/or position is changed,** the existing load capacity stickers must be checked for validity. If the load capacity stickers are no longer valid, ask us for new stickers.

Special case: promotional tables

Tables at presentation level (e.g. promotional table, height 1,280 mm) are not regarded as shelving units. One pair of cross members per bay is sufficient if they are fastened to the ground and secured with a collision guard on all free corners. The maximum permissible load is 2,000 kg (page 9).

Correct use

The SL100 heavy duty shelf may only be used in accordance with these operating instructions. Incorrect use is not permitted. We accept no liability for any damage or injury resulting therefrom.

- The pallets or loading units must be stacked so that the shift in the centre of gravity of the load relative to the centre of the shelf does not exceed 50 mm. In all cases, care must be taken to ensure that the pallets or loading units are still fully supported on the cross members.
- Pallets or loading units must not be displaced on the cross members or heavily placed down on them.
- Load the shelves where possible from bottom to top. Make sure that there is enough space next to and above the pallets (page 17).
- The specified evenly distributed **max. shelf and bay loads** must not be exceeded. Examples of loads that are not evenly distributed can be found on page 19.
- If a vehicle bumps into the shelving, this can affect its stability and safety. If the shelf has been damaged, appropriate measures must be taken (pages 29 and 30). Inform the employee responsible for shelf safety.
- You are not permitted to drill your own **holes to attach other elements** without consulting the manufacturer. Use existing slots/holes on the shelf stands, cable ties, clamps or other non-destructive fastening methods.
- **Stepping or climbing on the shelves and leaning on ladders is strictly forbidden!**

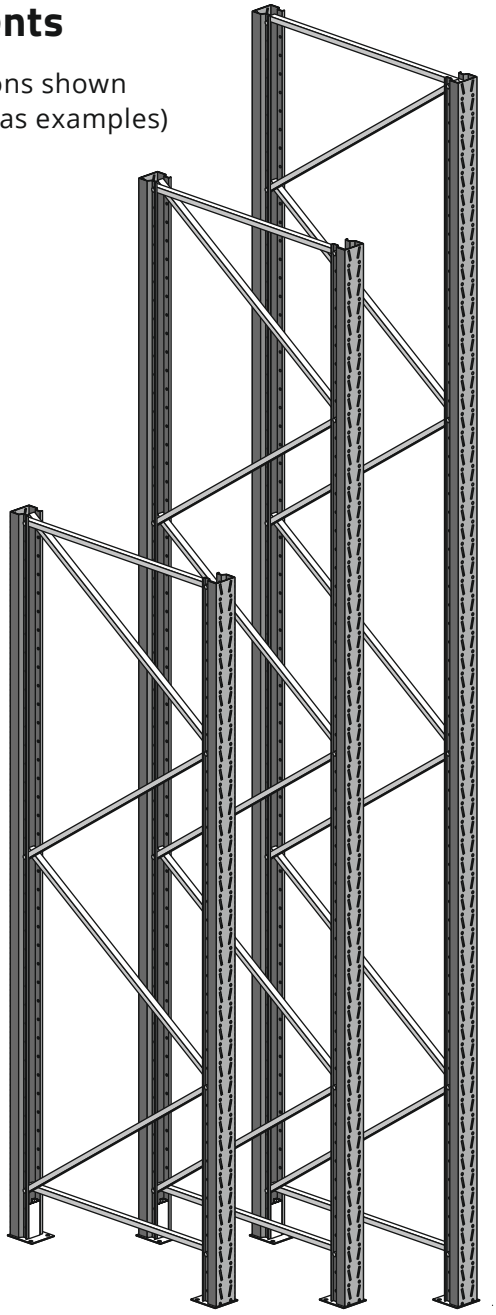
Repairing the shelves

Damaged components may only be repaired by the manufacturer. Brass offers a repair service for slightly damaged elements. Please tell us about the extent of the damage and we will gladly make you an offer.

SHELF ASSEMBLY

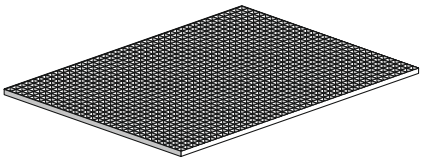
Components

(the dimensions shown
are provided as examples)

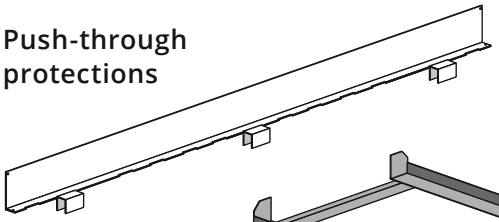


**Shelf stands
(side frames)**

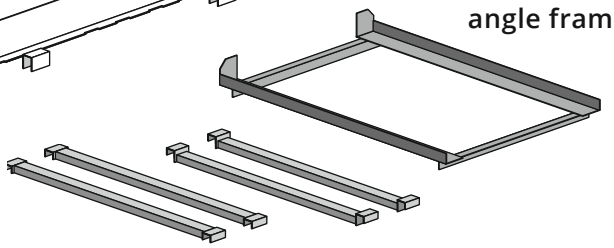
**Shelves with
steel grating**



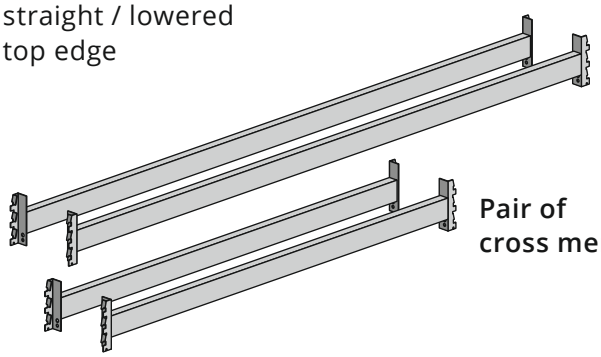
**Push-through
protections**



**Depth
angle frames**



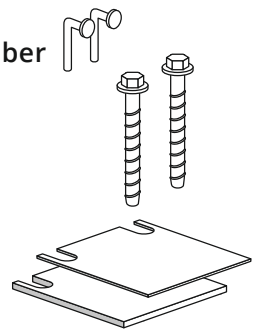
Cross member
straight / lowered
top edge



**Pair of
cross members**

**Collision guard
L-shape**

Mounting accessories



- **2 securing pins per cross member**
  for inserting (supplied)
- **2 ground mountings per side frame:** Screw anchor 10x100 galvanised (supplied)
- **if required: Base plates**
  to level out uneven floors
- **Load capacity stickers**
  (supplied)

Tools

- **Tape measure and spirit level**
  for aligning the shelf components
- **Chalk or pencil** for marking the floor
- **Drill Ø 10 and size 15 wrench**
  for attaching to the floor

Shelf stands (side frames)

Standard sizes

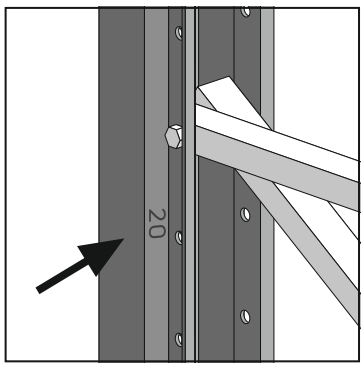
Height	Depth [mm]	
3010 mm	750	1100
4000 mm	750	1100
4550 mm	750	1100
5530 mm	750	1100
6020 mm	750	1100
6800 mm	750	1100

Individual heights (1,260 to 12,040 mm) and depths according to requirements

Material thickness

The plate thickness of the stand profile is important for the shelf's bearing capacity (page 20 – 22). It is indicated by an embossing in the profile.

SL100/2: "20" = material thickness 2.0 mm
SL100/3: "30" = material thickness 3.0 mm

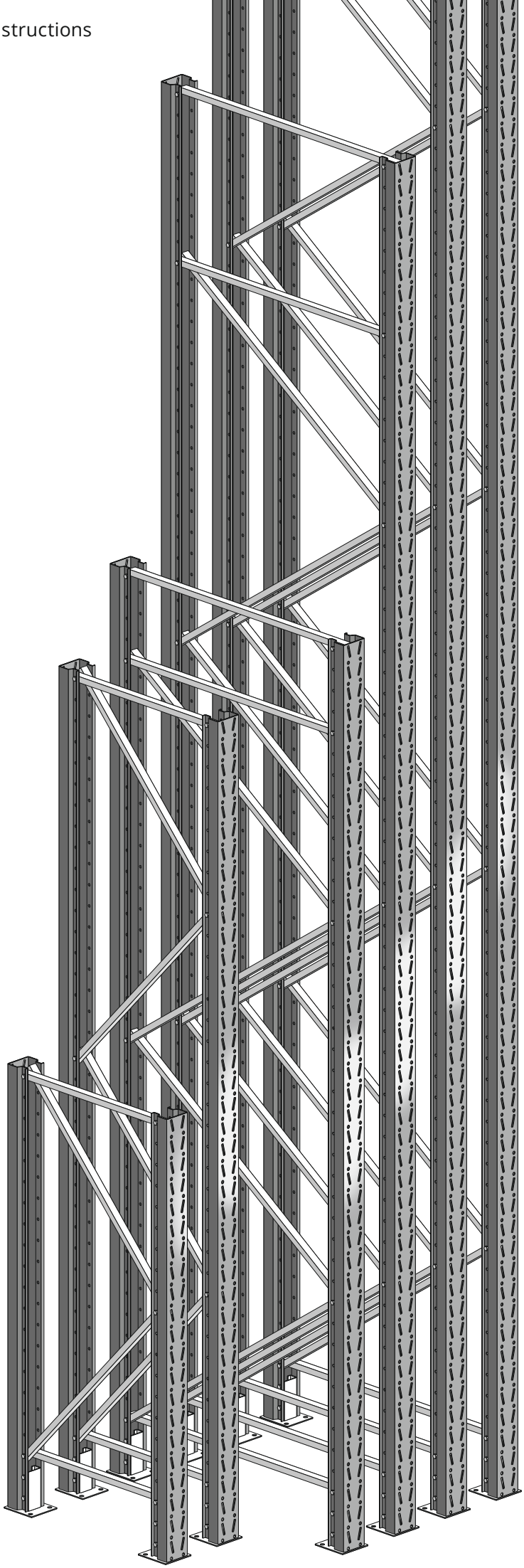


The material thickness is indicated on the inside of the stand profile

Individual parts

The side frames of the SL100 shelving system are supplied pre-assembled. If slightly damaged, individual parts can be reordered. Please ask for our spare parts catalogue.

Heavily damaged side frames must be completely replaced for safety reasons (page 29).



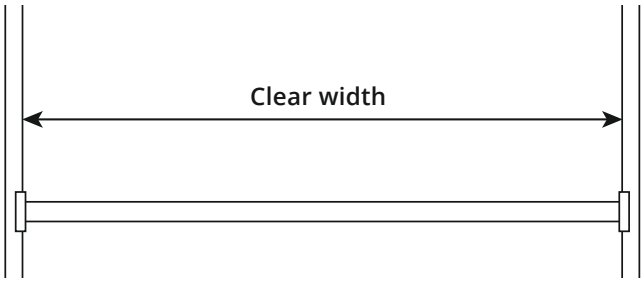
Cross members

Types of cross member

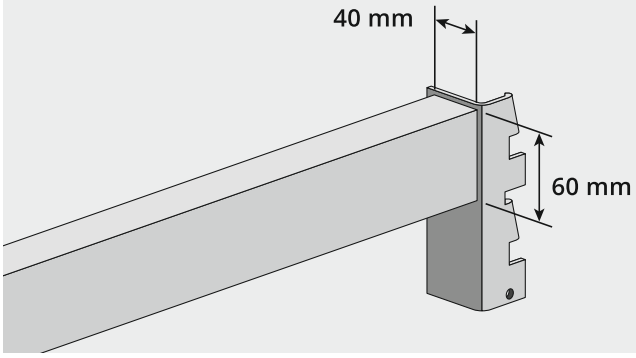
Profile	W x H [mm]	Plate thickness [mm]	Standard lengths [mm]					
RT60	40 x 60	2	1400	1800	2400	2540	2700	3600
RT100	40 x 100	2	1400	1800	2400	2540	2700	3600
RT120	40 x 120	2,5	1400	1800	2400	2540	2700	3600
RTS120	40 x 120	4	1400	1800	2400	2540	2700	3600
RP104 (with angle)	34 x 55 + 15	2	1400	1800	2400	2540	2700	3600

Customised lengths

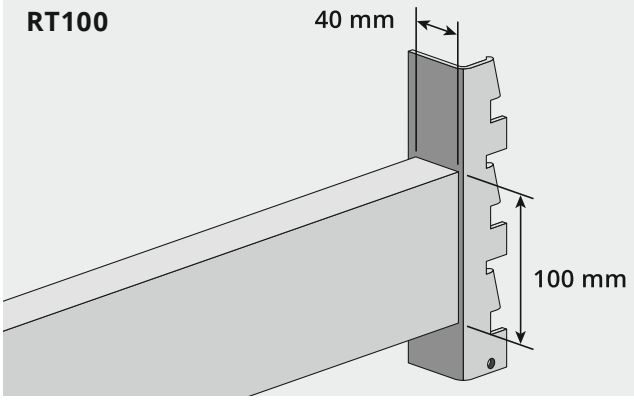
When ordering customised lengths, please specify the **clear width as the length dimension**: the distance between the stand profiles on which the cross member is to be fitted.



RT60

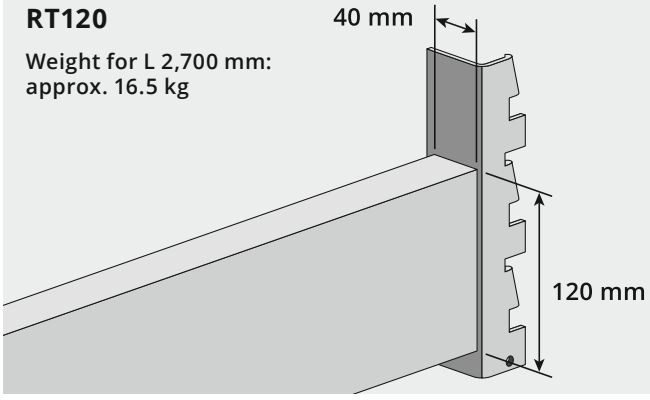


RT100



RT120

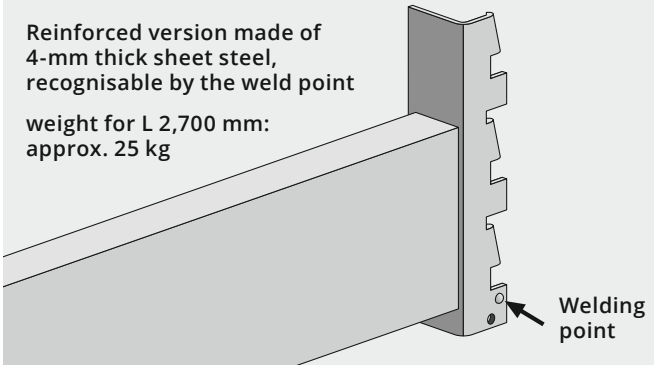
Weight for L 2,700 mm: approx. 16.5 kg



RTS120

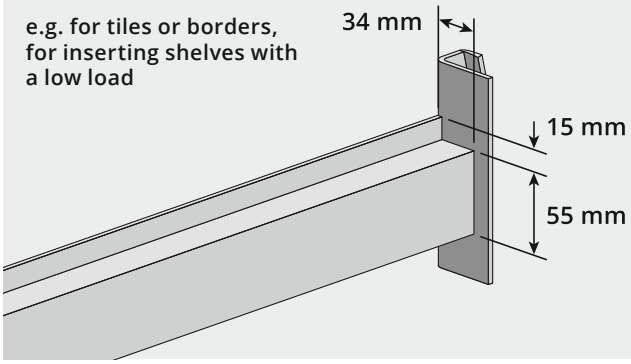
Reinforced version made of 4-mm thick sheet steel, recognisable by the weld point

weight for L 2,700 mm: approx. 25 kg



RP104

e.g. for tiles or borders, for inserting shelves with a low load



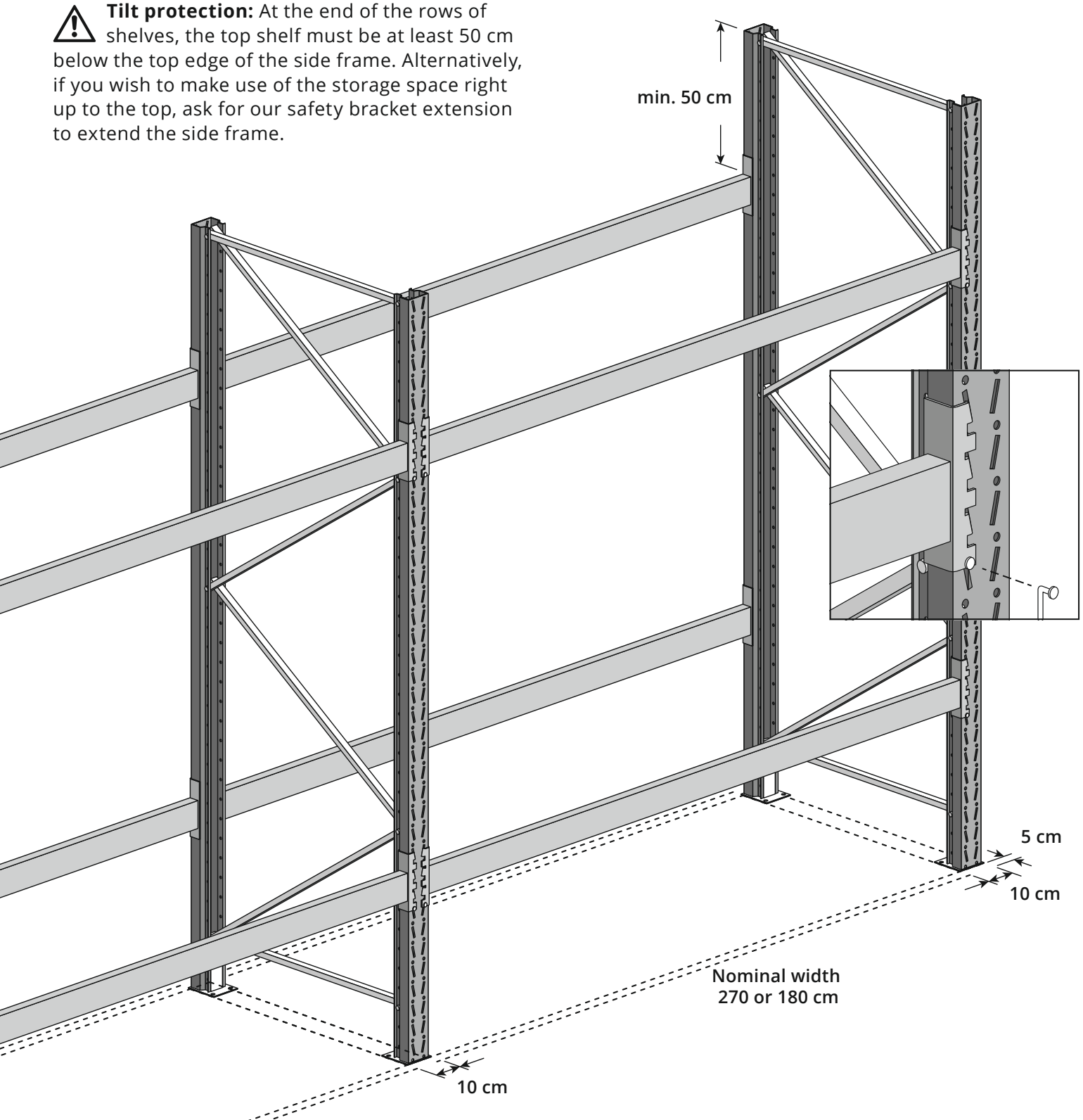
Setting up the shelves

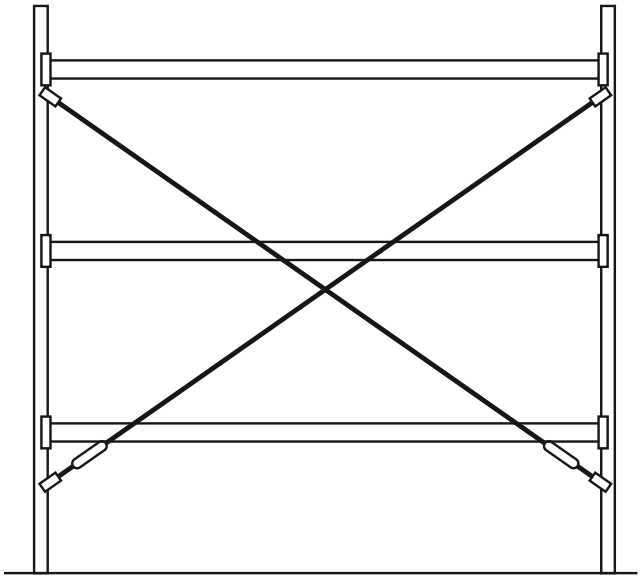
- Mark the position on the floor using a tape measure and chalk. Also take the pallet protrusions into account: 5 cm on both sides.
- Erect the first two side frames, fit the lowest pair of cross members and insert the locking pins immediately. According to BGI/GUV-I 5166, a screw connection is also permitted. Then fit the further cross members in place and secure.
- **At least 2 pairs of cross members must be fitted into each shelf bay.**
- Do not forget to affix the **load capacity stickers** to the finished shelf (page 23).

⚠ **Tilt protection:** At the end of the rows of shelves, the top shelf must be at least 50 cm below the top edge of the side frame. Alternatively, if you wish to make use of the storage space right up to the top, ask for our safety bracket extension to extend the side frame.

ℹ **The working aisle between two shelves** must be wide enough to allow a forklift truck loaded with a pallet to safely drive through and turn in the aisle without knocking against the shelves or their load (taking protrusions into account).

ℹ The direction of the inclined struts in the stands (bracing) has no impact on stability. We recommend aligning the stands in the same way for optical reasons.





Individual shelf bays (e.g. end shelving units) should be stabilised with a cross brace (cross clamp)

Promotional tables

Presentation tables with just one pair of cross members are an exceptional case; they are not considered to be shelving systems. Pre-requisite: reinforced cross members RTS120, length 270 cm and supporting frame profile at least SL100/2.

- The tables can be set up individually or connected together lengthwise.
- It is assumed that the promotional tables will be set up on a level and stable floor so that the base plates will lie firmly on the floor.

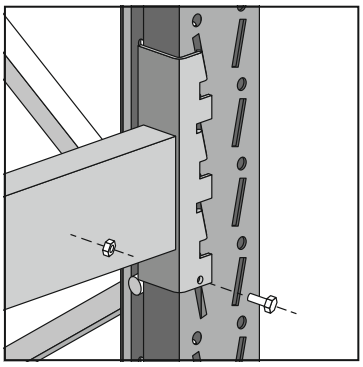
The operator must ensure that stability is guaranteed by carrying out regular checks as part of a risk assessment.

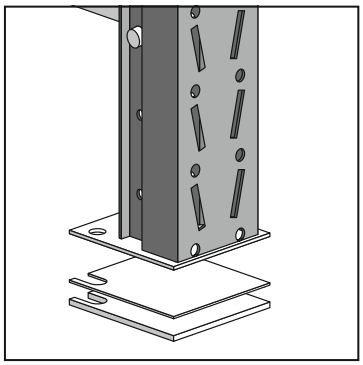
Loading: The maximum permissible table load is 2,000 kg with an even load distribution

Load distributors improve stability in the case of loose substrates (page 11)

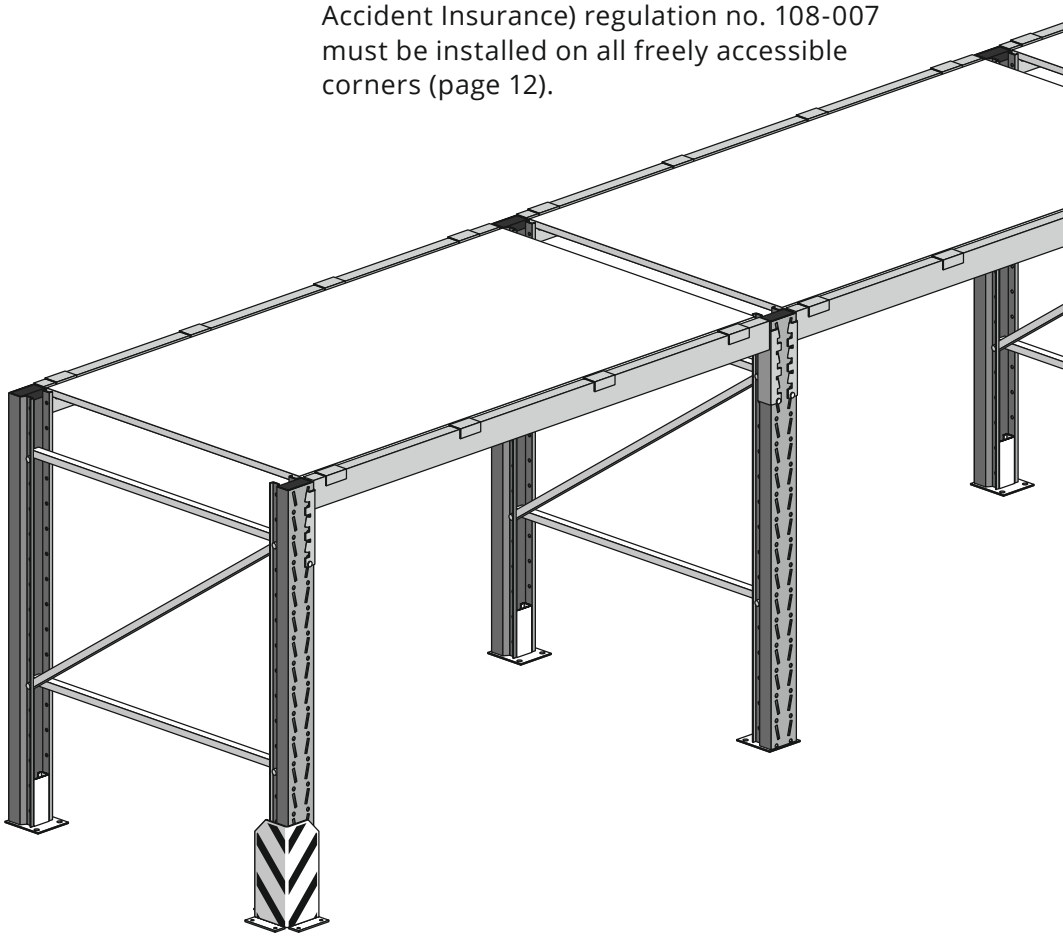
A collision with the supports, e.g. by forklift truck, must be prevented by the customer. A collision guard according to DGUV (German Social Accident Insurance) regulation no. 108-007 must be installed on all freely accessible corners (page 12).

Fix the cross members on both sides with locking pins. You can screw the cross members in place to prevent unwanted loosening of the pins.





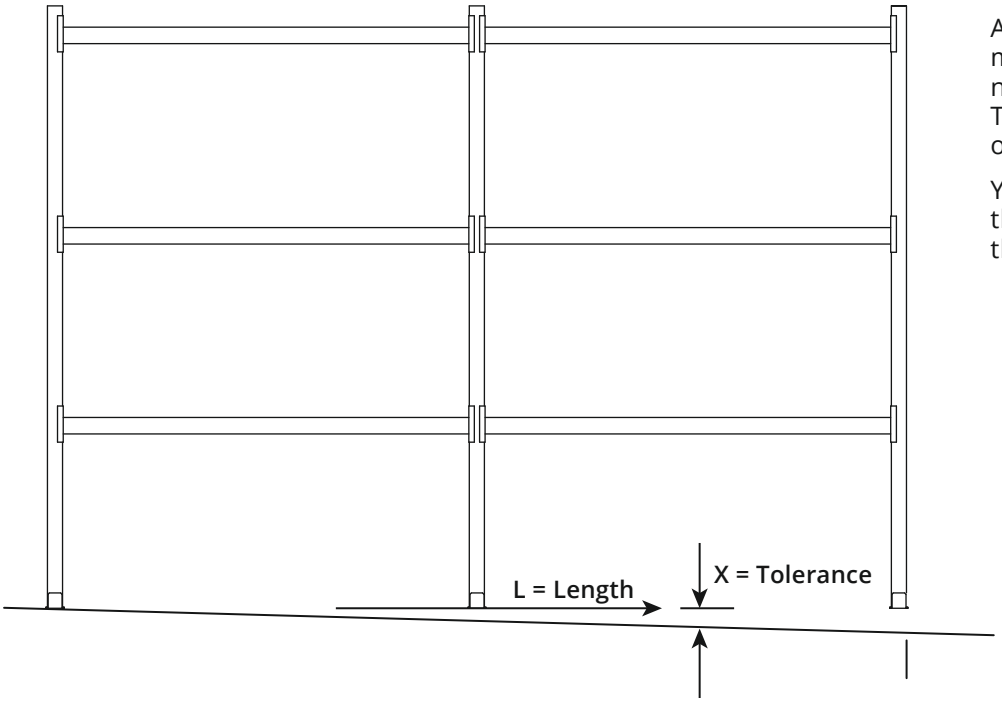
Plates can be used to level out minor irregularities of the floor.



Construction tolerances

To guarantee the stability and safety of your shelving, the specified tolerances must not be exceeded:

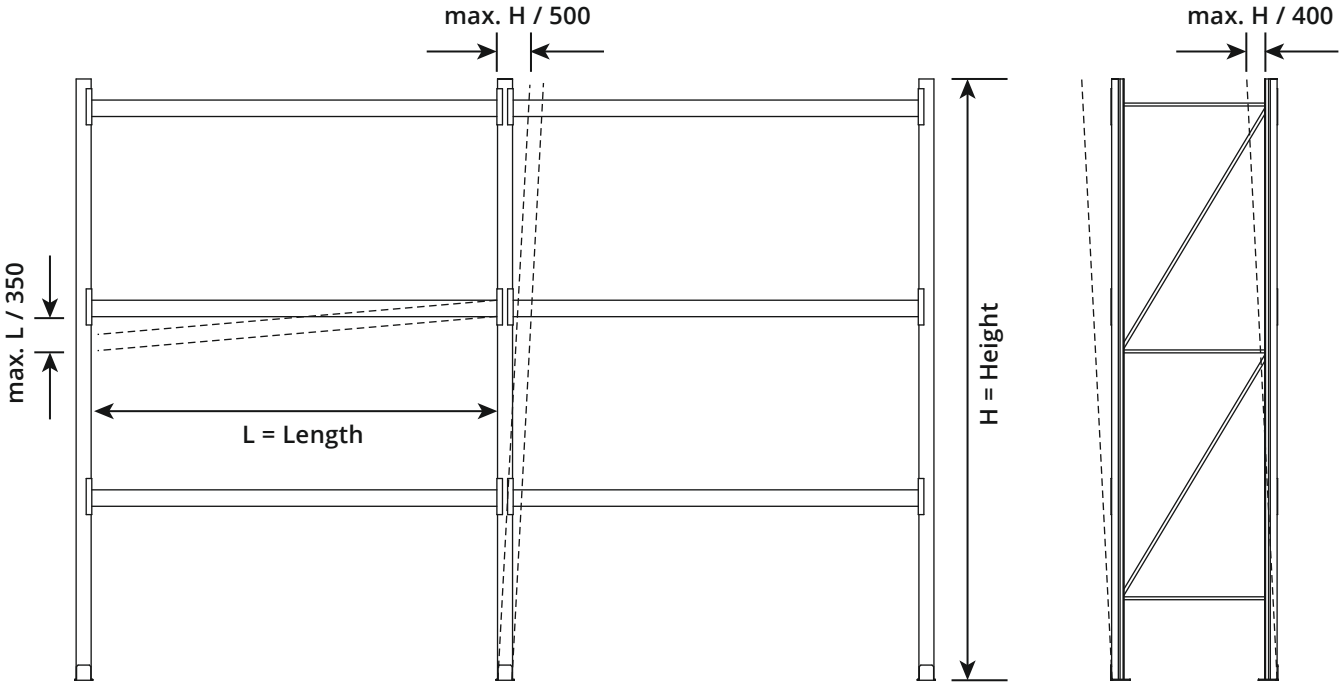
Uneven floors



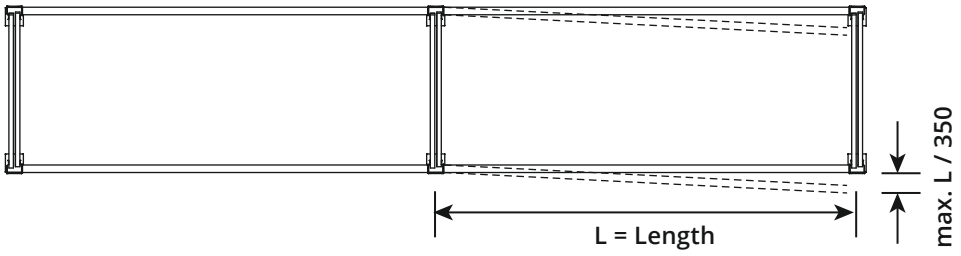
According to DIN EN 15620, the maximum permitted floor unevenness (X) is 2.5 mm per shelf metre. This applies up to a height of 8 m of the top cross member.

You can use the base plates of the SL100 shelving system to level the floor.

Construction tolerances of the shelf components



Deviations in shelf alignment

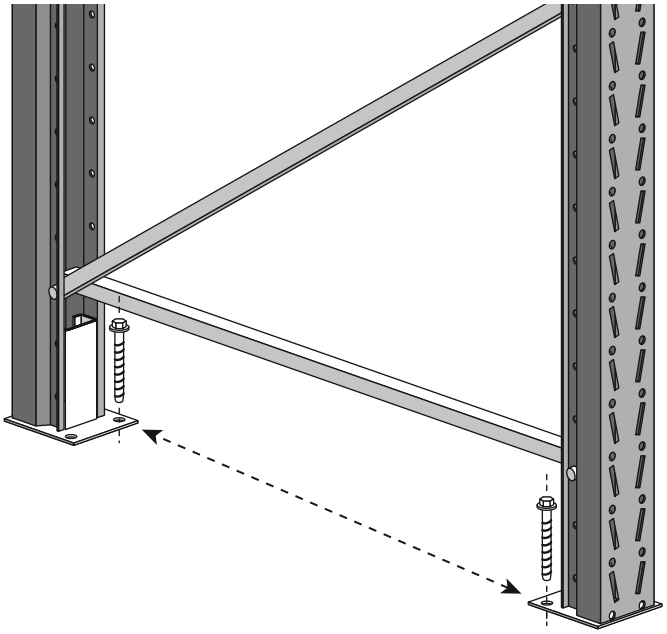


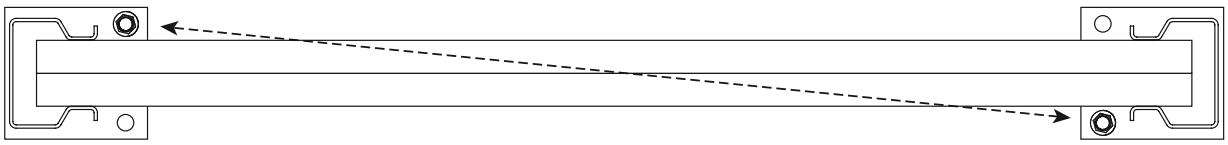
Ground anchoring

The SL100 heavy duty shelf must always be anchored to the floor. If the shelves are not anchored, there is a risk that the suspension claws of the cross members will become deformed in the event of a collision with the stand frames.

- Use the fasteners supplied. **1 screw per base plate,** preferably offset front / rear. On request we will be pleased to send you the data sheet for the screw anchors.

⚠ Observe the **requirements for the floor** specified on page 3.





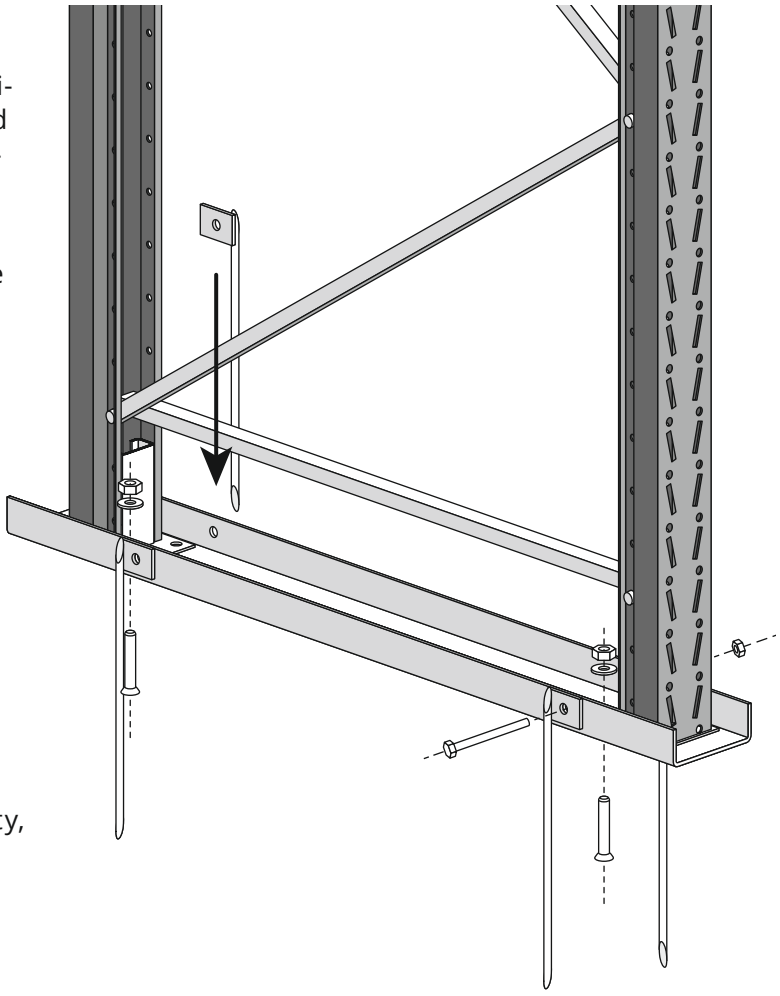
Load distributor

On asphalt, composite stone paving, gravel or similar substrate there is a risk that the supports could sink and that the shelving system could tilt. To distribute the weight evenly, install load distributors under the stands.

- Screw the load distributor to the foot of the side sections (diagonally, with the supplied countersunk head screws M12/70) in advance, then set up and position, attach cross members.
- Once the shelf is in the required position, knock pegs into the ground next to the holes of the load distributor, and screw them to the load distributor.
- Height corrector: Loosen the nuts above the foot, lift the stand slightly and underpin it with washers, then tighten the nuts back up again.

ℹ The load distributors are also available in a long version for double-sided shelves.

⚠ If shelving systems are installed on a substructure with a low load-bearing capacity, the operator is responsible for ensuring that a **regular check** is carried out as part of a risk assessment.

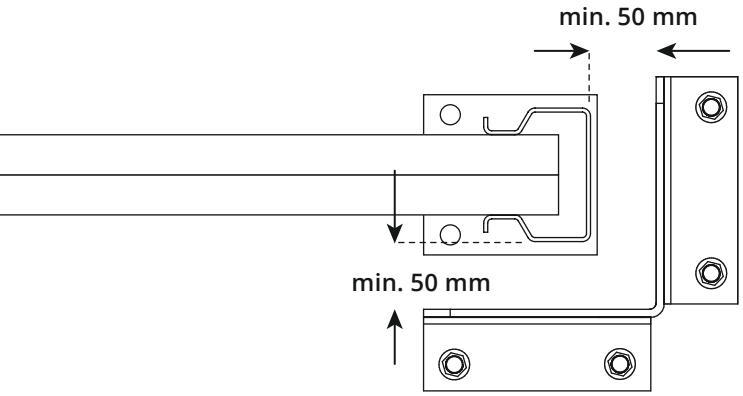


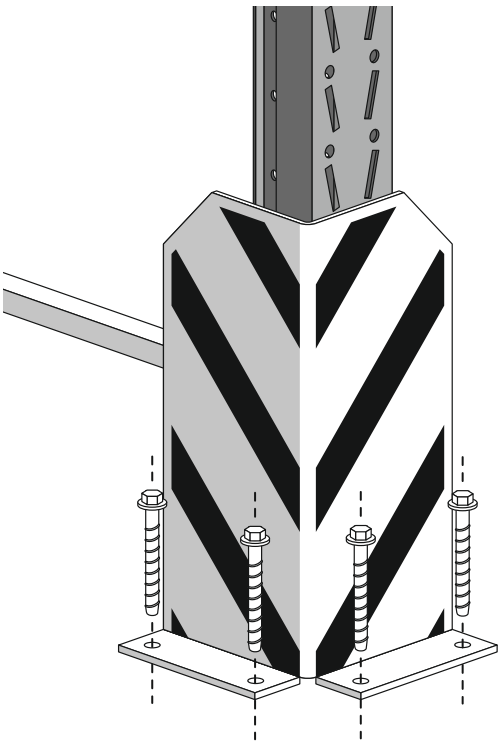
Collision protection

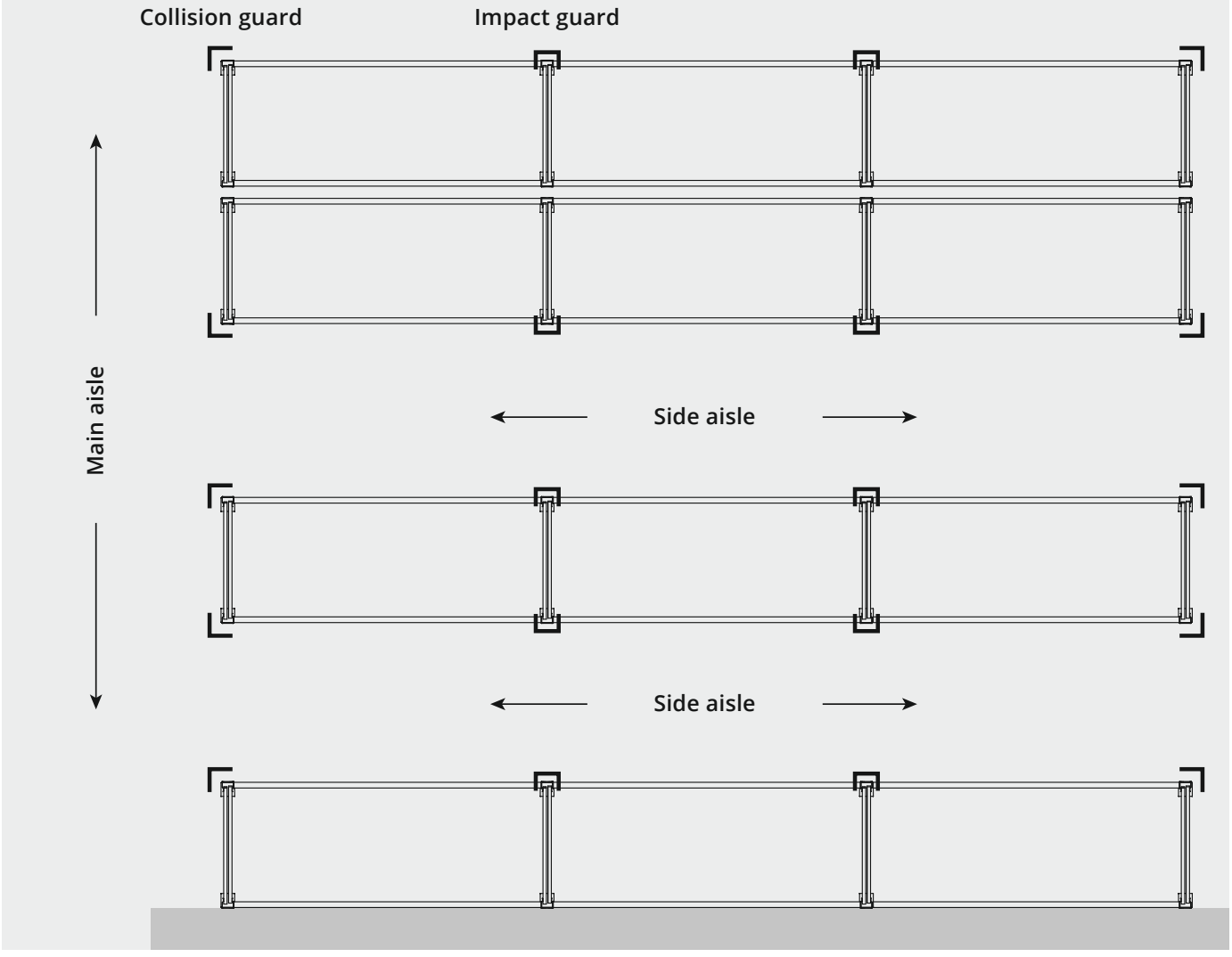
Stationary shelving must be secured against impact. Use an L-shaped collision guard on the free-standing corners at the end of the rows of shelves, with at least one collision guard in between.

- For the anchoring, use 4 screw anchors in the floor plates.

⚠ There must be a distance of at least 50 mm between the frame and the L-shape collision guard







Cross bars (support bars)

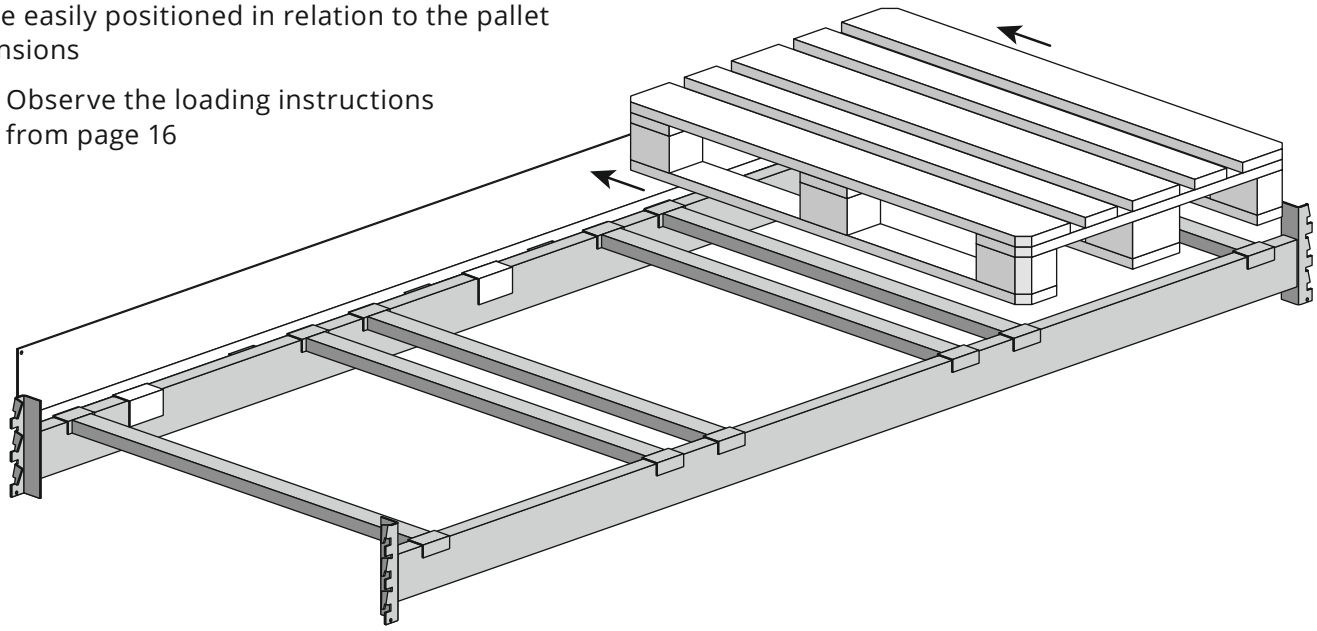
Cross bars distribute the load on both cross members and secure the load.

- The cross bars are simply inserted into the cross members

⚠ When storing pallets, make sure that the cross bars are always under the outer skids

ℹ Our push-through protection devices have suitable recesses with which the cross bars can be easily positioned in relation to the pallet dimensions

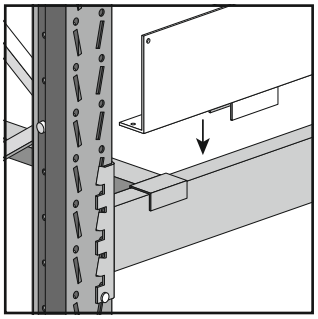
ℹ Observe the loading instructions from page 16

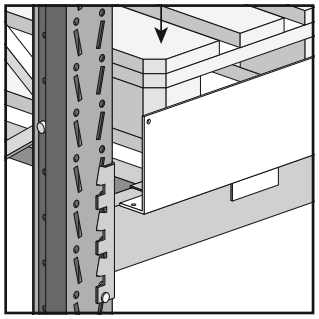


Push-through protections

Push-through protections prevent loading units from being pushed across the cross members and beyond the limits of the storage compartment as a result of improper use.

- The push-through protections sit directly on the cross members.
- Cross bars can be inserted into the recesses (both for crosswise and lengthwise alignment of the pallets).





⚠ Do not use push-through protections as pallet stops

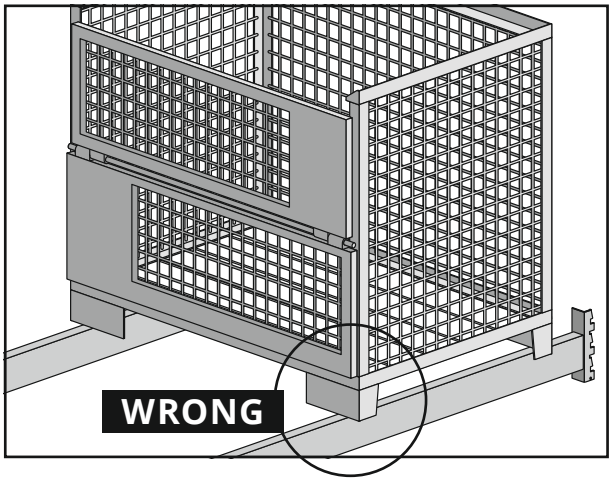
⚠ When storing, the fork ends must not protrude beyond the pallet

Depth angle frames

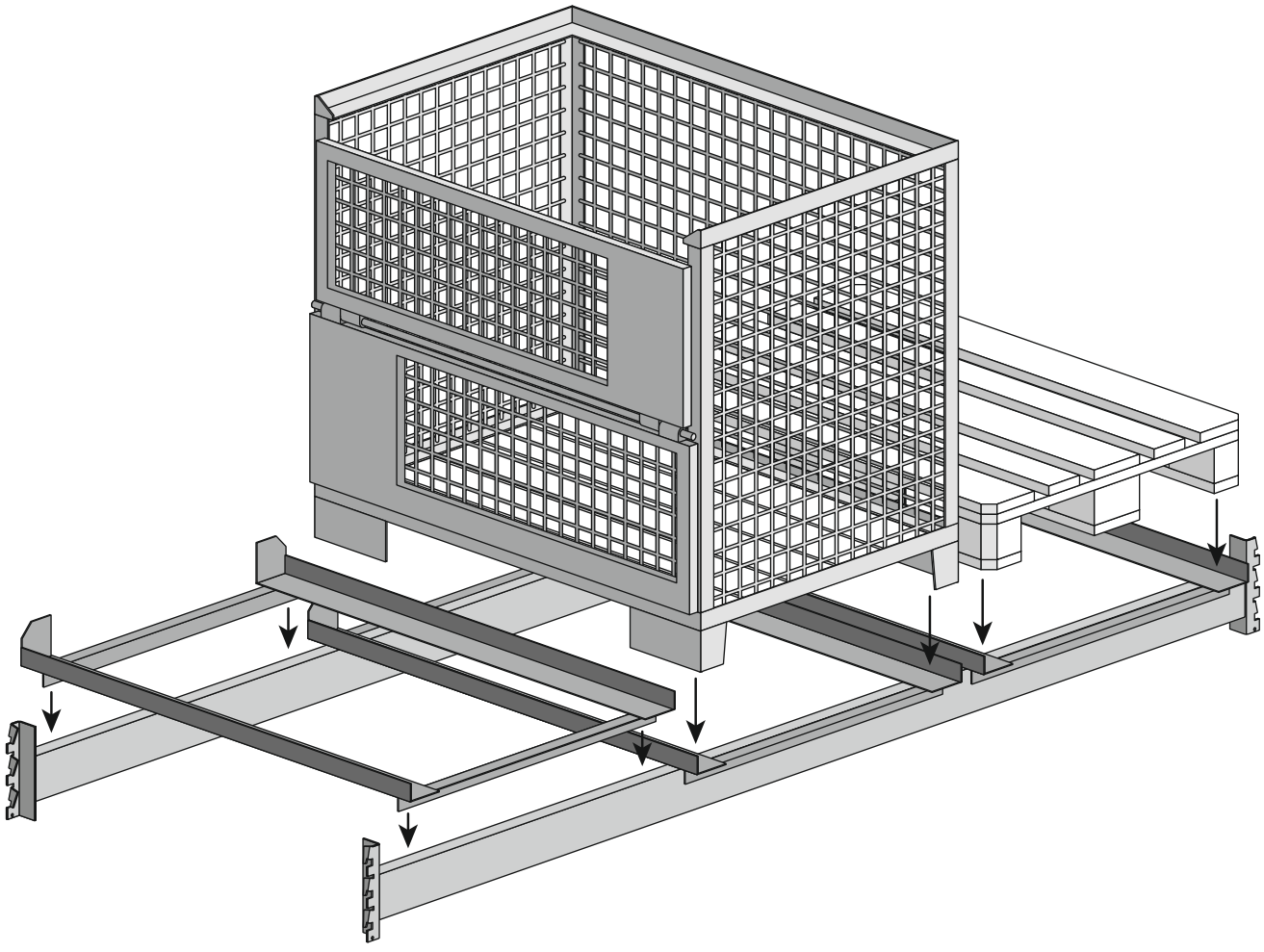
Depth angle frames with their guide rails and depth stop form a complete storage space for a pallet cage or Euro-pallet. They are available in versions for lengthwise and crosswise storage (shelf depth 110 or 75 cm).

- The frame is set on the cross members and can then be moved freely back and forth.

⚠ **Depth angle frames are required for pallet cages and other metal containers,** as these must not be placed directly on the cross members (danger of slipping).



Do not place pallet cages directly on the cross members, instead, use depth angle frames!



Shelves with steel grating

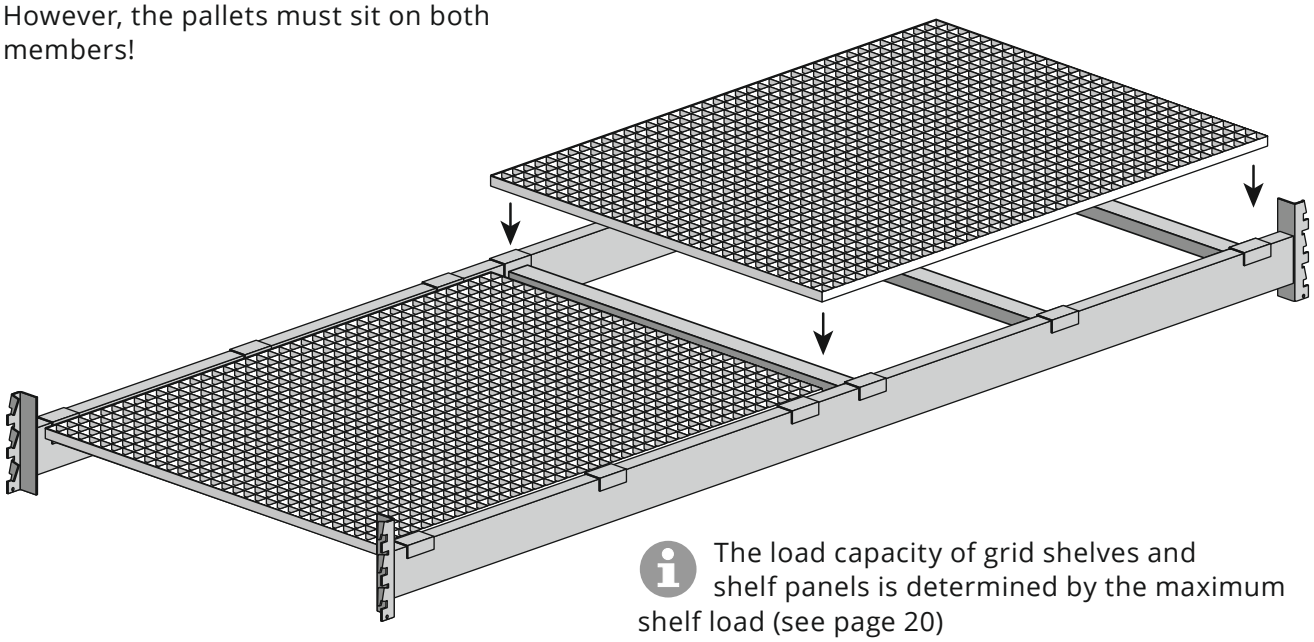
Shelves with steel grating are not load-bearing elements. Due to their open design, they are suitable for sprinkler systems (water permeable).

- Grid shelves are placed on lowered cross bars to create one continual level.

⚠ Make sure that the gratings rest on cross bars on both sides. The remaining cross bars are evenly distributed.

⚠ The maximum permissible load is 400 kg/m²

⚠ Pallets may be stored on grid shelves. However, the pallets must sit on both cross members!

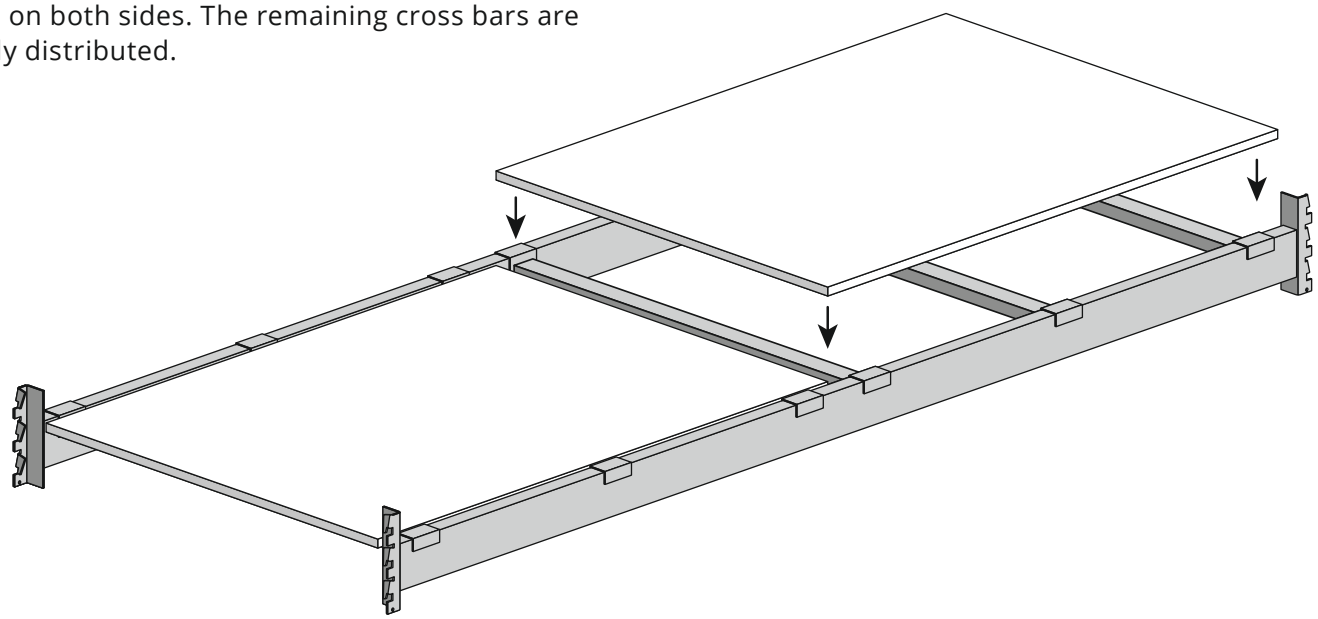


The load capacity of grid shelves and shelf panels is determined by the maximum shelf load (see page 20)

Shelf panels

You can also insert your own shelves e.g. OSB or chipboard on the lowered cross bars.
With shelf panels that are 19-mm thick, this results in a consistent, even surface.

⚠ Make sure that the panels rest on cross bars on both sides. The remaining cross bars are evenly distributed.



LOADING THE SHELVES

Loading procedure

- **Heavier loads at the bottom.** Load the shelves as evenly as possible, from bottom to top. Store heavy loads as far down as possible with lighter goods further up.
- **Careful handling:** Align the pallet laterally, drive straight into the storage bay and place the load down vertically on the cross beam
- If you wish to **correct the position of a pallet at a later stage,** lift it up beforehand. Do not try to displace the pallets when positioned on the cross members!

⚠ The shelf must be manoeuvred with a forklift truck and a suitable lifting device operated by trained warehouse personnel!

⚠ **Set down the pallets and/or lift them again very carefully.** Setting them down suddenly could cause the pallets to break!

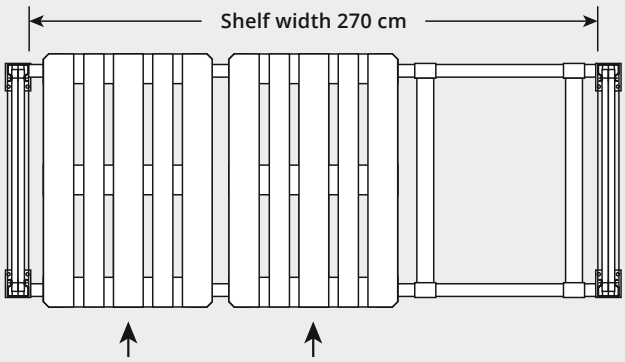
⚠ Only use undamaged pallets; defective pallets can break!

Storing pallets

Shelf depth 110 cm

Pallets are usually stored in the depth direction in order to distribute the load optimally and prevent the stored goods from tipping over. The SL100 heavy duty shelf therefore has a standard depth of 110 cm, Euro-pallets with a length of 120 cm protrude by 5 cm on both sides.

ℹ Based on many years of experience, and for safety reasons, we recommend using cross bars in combination with our push-through protection devices (page 13).

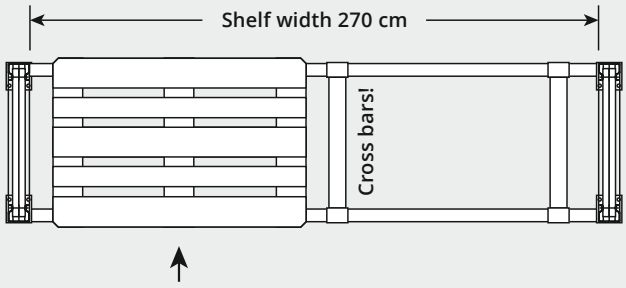


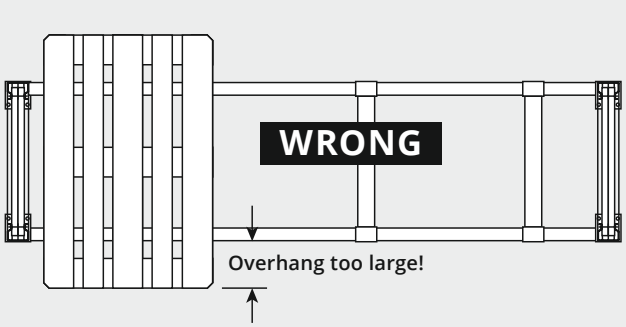
Shelf depth 75 cm

For crosswise storage, we also offer the SL100 heavy duty shelf with a depth of 75 cm.

⚠ In the case of crosswise storage, the pallet skids run parallel with the cross members. To prevent the pallets from breaking **at least 2 cross bars must be placed under each pallet.**

⚠ Lengthwise storage of pallets results in an overhang that is too large. Therefore, this is not permitted!



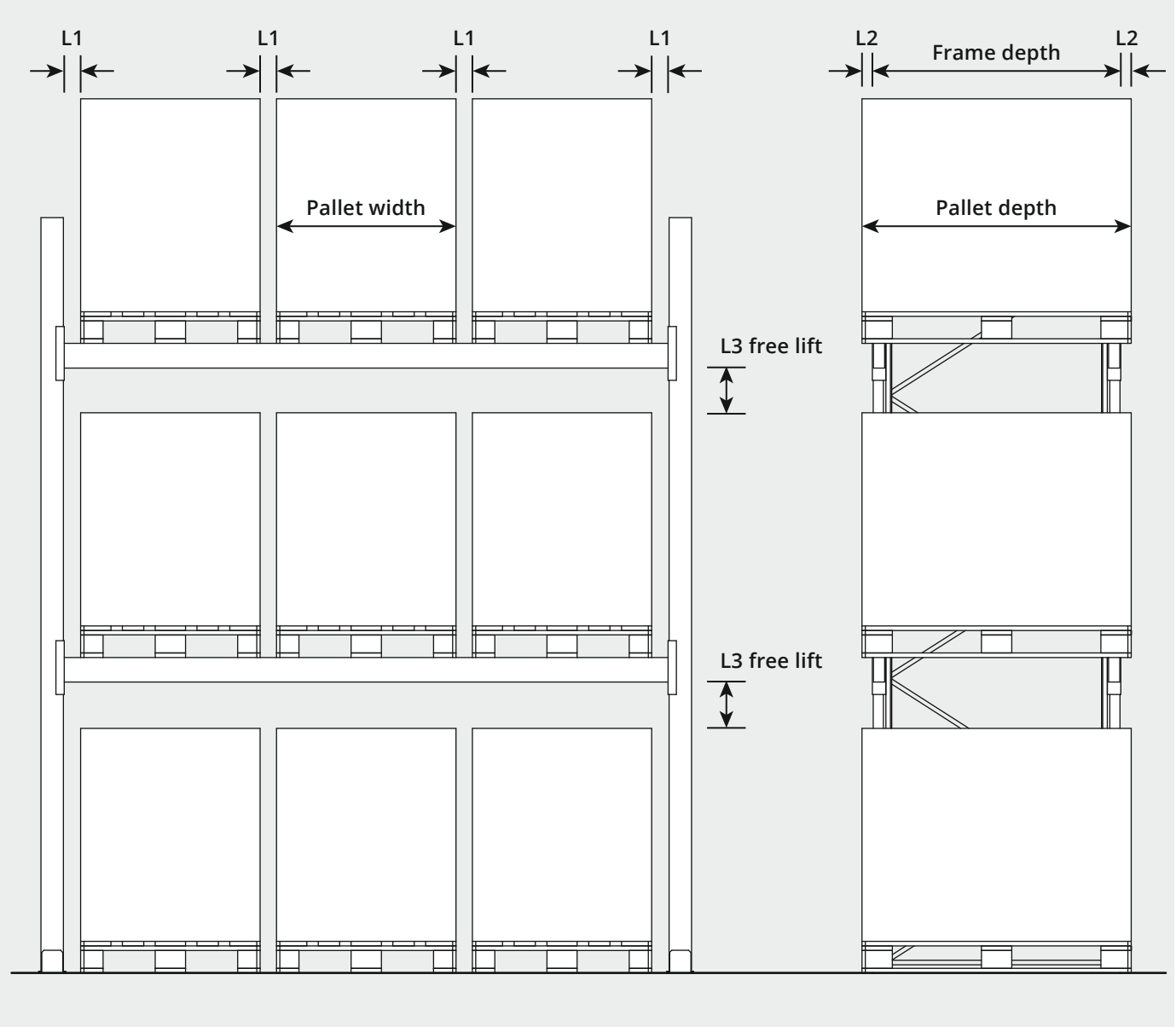


Distances when loading

To ensure that the pallets are stored and unloaded without any problems or accidents, make sure they are evenly spaced at all times and that there is sufficient distance and room for manoeuvre:

- **min. 10 cm free lift (L3)** above the pallets
- **even projection** at front and rear of the pallets over the cross members
- **as even side distances as possible** next to the pallets:

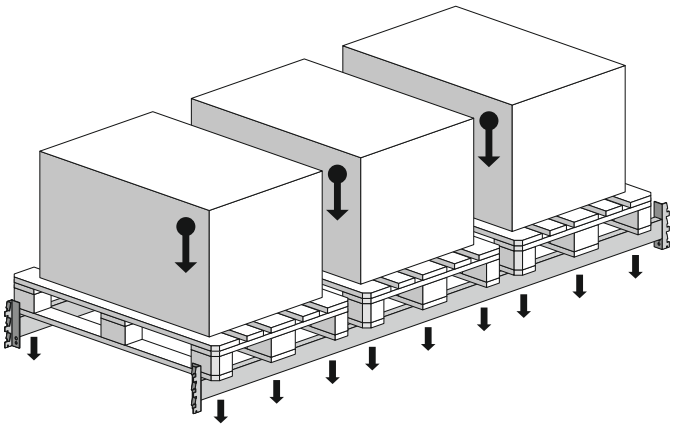
Shelf width	180 cm	270 cm
Euro-pallets 80 x 120 cm (lengthwise storage)	2 units	3 units
Side distance L1	66 mm	75 mm



Even load distribution

When storing products on the shelves, the loads must be distributed as evenly as possible, especially within a shelf bay and on each individual pallet.

- In the loading example shown, the shelf load is distributed over a total of 18 points. Make sure that all pallets are loaded as evenly as possible and that the centre of gravity is in the middle of the pallet.



Evenly distributed load with a shelf width of 270 cm

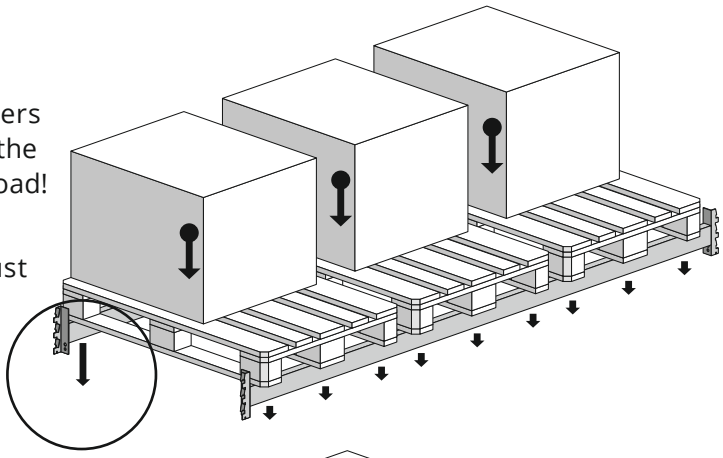
Unevenly distributed loads

Unevenly distributed loads can lead to dangerous point loading. Below are a few examples of **loads that are supposed to be correct** but which are actually unevenly distributed. If you require such applications in your warehouse, please contact us to determine the correct shelf configuration (e.g. stronger cross members).

• Load not centred

If the pallets are loaded unevenly, the cross members are loaded on one side. In the example on the right, the rear cross member has to support 90% of the shelf load!

⚠ The load must be evenly distributed on the pallet. The centre of gravity of the weight must not deviate by more than 50 mm from the centre.

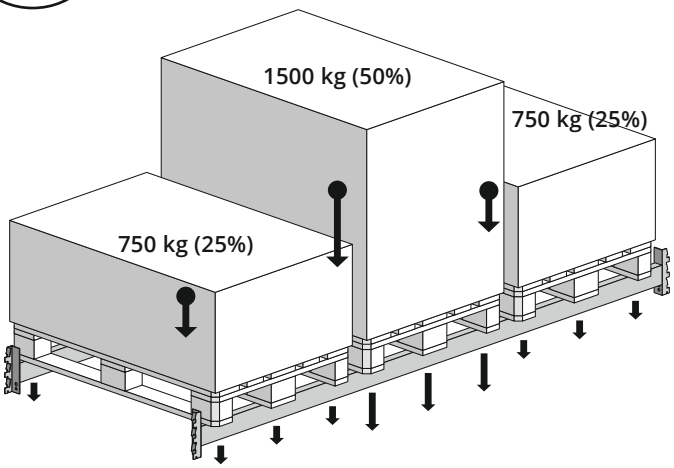


WRONG **The main load is supported by one cross beam!**

• Uneven pallet weights in one bay

In the example on the right, 50% of the bay load is supported by the middle pallet – this puts a particular load on the cross members at the point where they already bend the most.

⚠ Heavily loaded pallets should always be stored towards the outside, not in the middle!

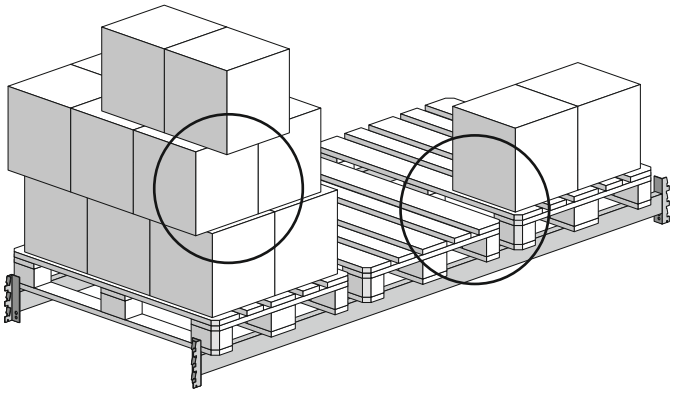


WRONG **Most of the load is in the middle!**

• Differently loaded pallets

When pallets are loaded unevenly, it is not only point loading that occurs, but there is also a risk that the load will fall off the pallet!

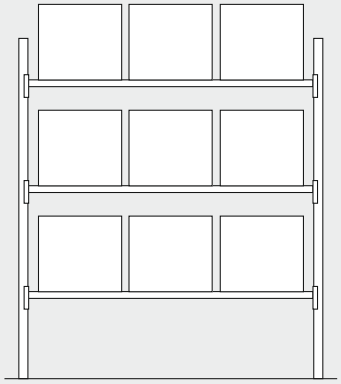
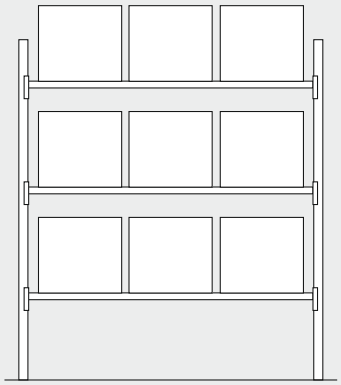
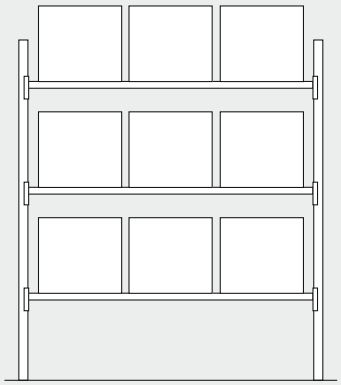
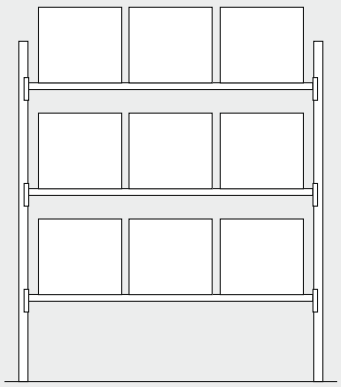
⚠ Load pallets evenly in the middle. Secure small parts and loose goods to prevent them from falling, e.g. with stretch film or steel tape.



WRONG **Centre of load is not in the middle! Danger of tipping!**

Load limits

Simplified presentation for shelf width 270 cm, shelf height up to 200 cm
These values are upper limits. Please also note the shelf and bay loads on the following pages; the lower value is decisive! The information applies to evenly distributed loads.

		Stand SL100/2 2 mm plate thickness	Stand SL100/3 3 mm plate thickness
Cross member RT60		**600 kg max. shelf load** **600 kg max. shelf load** **600 kg max. shelf load** **12,000 kg max bay load**	**600 kg max. shelf load** **600 kg max. shelf load** **600 kg max. shelf load** **15,000 kg max bay load**
Cross member RT100		**2,000 kg max. shelf load** **2,000 kg max. shelf load** **2,000 kg max. shelf load** **12,000 kg max bay load**	**2,000 kg max. shelf load** **2,000 kg max. shelf load** **2,000 kg max. shelf load** **15,000 kg max bay load**
Cross member RT120		**3,000 kg max. shelf load** **3,000 kg max. shelf load** **3,000 kg max. shelf load** **12,000 kg max bay load**	**3,000 kg max. shelf load** **3,000 kg max. shelf load** **3,000 kg max. shelf load** **15,000 kg max bay load**
Cross member RTS120		**3,600 kg max. shelf load** **3,600 kg max. shelf load** **3,600 kg max. shelf load** **12,000 kg max bay load**	**4,200 kg max. shelf load** **4,200 kg max. shelf load** **4,200 kg max. shelf load** **15,000 kg max bay load**

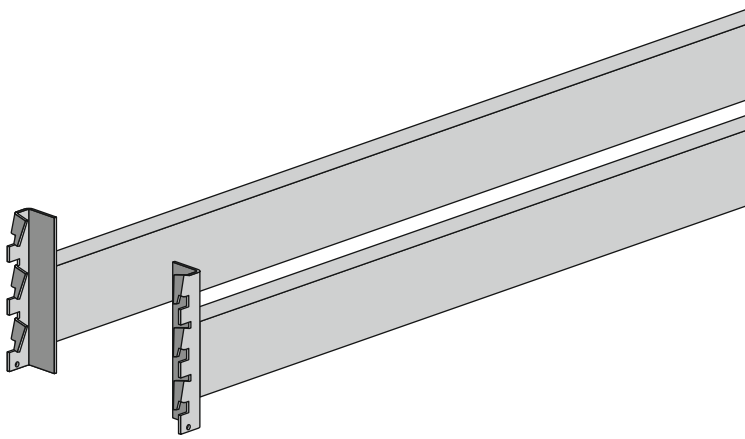
max. shelf load

The permissible load per shelf (= pair of cross members) depends on the stand frames and cross members used, and also on the bay width and shelf height. The following values apply to a shelf height of up to 200 cm.

Shelf loads for **tile display racks** can be found on pages 24 to 27.

⚠ To determine the permissible shelf loads, the values provided on page 19 and the bay loads (from the next page onwards) must also be taken into account. In each case, the smallest value is decisive!

⚠ The maximum permitted deflection per cross member is L / 200



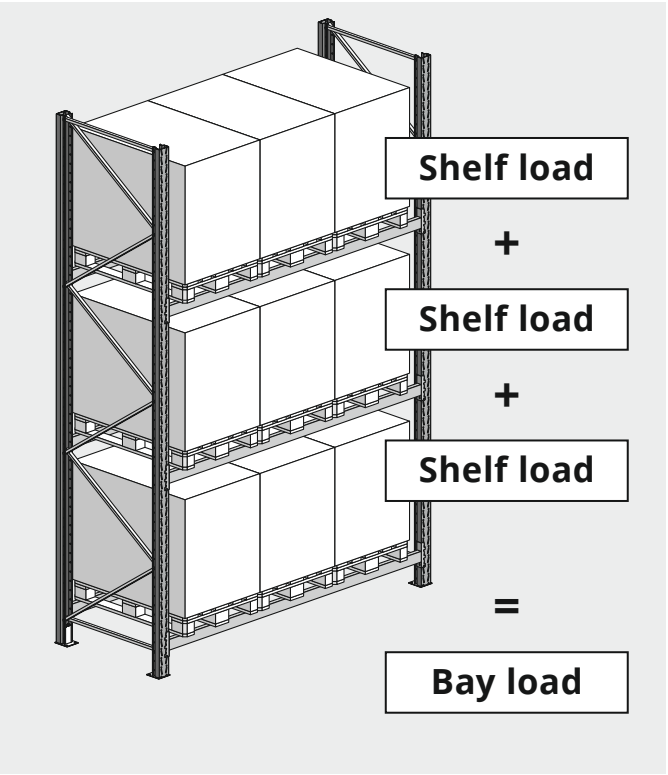
	Stand SL100/2 *				**Stand SL100/3 ***			
	Shelf load [kg] for cross members				**Shelf load [kg] for cross members**			
Bay width	**RT60**	**RT100**	**RT120**	**RTS120**	**RT60**	**RT100**	**RT120**	**RTS120**
180 cm	1349	2799	4185	5621	1325	2917	4345	5621
220 cm	996	2373	3512	4939	990	2485	3666	5104
240 cm	876	2207	3259	4569	875	2315	3410	4732
254 cm	823	2126	3147	4407	826	2232	3297	4568
270 cm	724	1980	2948	4117	743	2083	3095	4276
300 cm	609	1754	2698	3754	643	1878	2841	3910
320 cm	548	1570	2557	3549	589	1685	2698	3703
360 cm	452	1284	2162	2947	495	1383	2325	3121

* You can recognise the material thickness of the stand by the embossing in the stand profile:
Embossing 20 = 2.0 mm Plate thickness, 30 = 3,0 mm Plate thickness

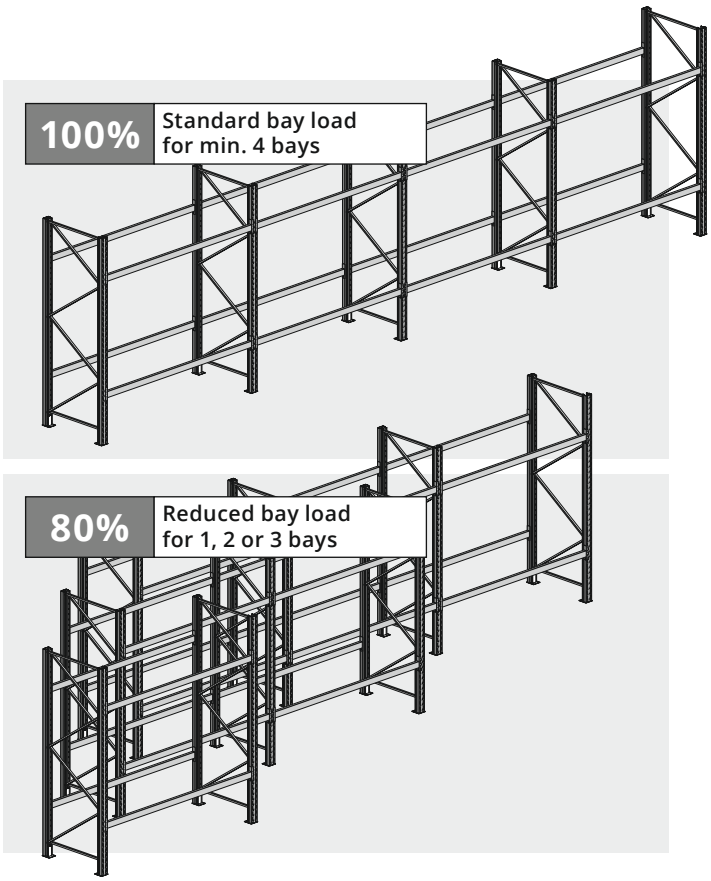
max. bay load

The permitted load is also limited by the load capacity of the side frames. The bay load is specified as the upper limit, i.e. the sum of all shelf loads between two side frames.

⚠ The overall load of all pairs of supports in a shelf bay must not exceed the maximum bay load!



⚠ The standard bay load indicated here and on the load capacity stickers refers to **shelving systems with at least 4 bays.** On smaller shelving units, the bay load is reduced to 80%.



Cross members RT100		Stand SL100/2 *				Stand SL100/3 *			
		Bay load [kg] for number of shelves				Bay load [kg] for number of shelves			
Bay width	Shelf height	2	3	4	5	2	3	4	5
180 cm	125 cm	9440	9898	9960	9842	11982	15625	15997	15731
	150 cm	9139	9455	9295		11759	15020	14656	
	175 cm	9026	8953	8761		11487	13967	13534	
	200 cm	8453	8418			11155	12876		
270 cm	125 cm	5799	8131	8617	8750	6442	9488	12342	14863
	150 cm	5740	7920	8329		6382	9324	11967	
	175 cm	5674	7891	8269		6315	9127	11491	
	200 cm	5597	7630			6238	8888		
360 cm	125 cm	3727	5521	7245	7632	4199	6228	8187	10056
	150 cm	3702	5456	7105		4170	6159	8044	
	175 cm	3673	5380	6934		4139	6080	7873	
	200 cm	3642	5291			4106	5990		

* You can recognise the material thickness of the stand by the embossing in the stand profile:
Embossing 20 = 2.0 mm Plate thickness, 30 = 3,0 mm Plate thickness

Cross members RT120		Stand SL100/2 *				Stand SL100/3 *			
		Bay load [kg] for number of shelves				Bay load [kg] for number of shelves			
Bay width	Shelf height	2	3	4	5	2	3	4	5
180 cm	125 cm	10407	10279	10158	10002	15205	15605	15973	15847
	150 cm	9803	9644	9507		15174	15588	15308	
	175 cm	9361	9190	9029		15056	14671	14339	
	200 cm	8827	8706			14152	13706		
270 cm	125 cm	8336	9028	9331	9458	10107	14689	15472	15796
	150 cm	8154	8708	8937		9985	14086	14731	
	175 cm	8202	8699	8897		9843	13647	14153	
	200 cm	8008	8395			9677	13096		
360 cm	125 cm	5744	7661	8173	8408	6417	9479	12393	14115
	150 cm	5695	7456	7888		6367	9347	12104	
	175 cm	5638	7495	7899		6311	9192	11748	
	200 cm	5574	7296			6250	9010		

Cross members RTS120		Stand SL100/2 *				Stand SL100/3 *			
		Bay load [kg] for number of shelves				Bay load [kg] for number of shelves			
Bay width	Shelf height	2	3	4	5	2	3	4	5
180 cm	125 cm	10383	10266	10137	9947	15181	15568	15929	15792
	150 cm	9802	9636	9491		15150	15622	15341	
	175 cm	9379	9188	9021		15105	14720	14390	
	200 cm	8850	8711			14215	13772		
270 cm	125 cm	9241	9657	9799	9844	12958	15515	15866	15714
	150 cm	8980	9267	9344		12746	15141	15197	
	175 cm	9006	9108	8921		12492	14586	14226	
	200 cm	8746	8624			12186	13620		
360 cm	125 cm	7365	8359	8725	8885	8046	11828	14399	15002
	150 cm	7281	8096	8383		7969	11610	13769	
	175 cm	7184	8124	8383		7881	11349	13303	
	200 cm	7071	7872			7782	11035		

* You can recognise the material thickness of the stand by the embossing in the stand profile:
Embossing 20 = 2.0 mm Plate thickness, 30 = 3,0 mm Plate thickness

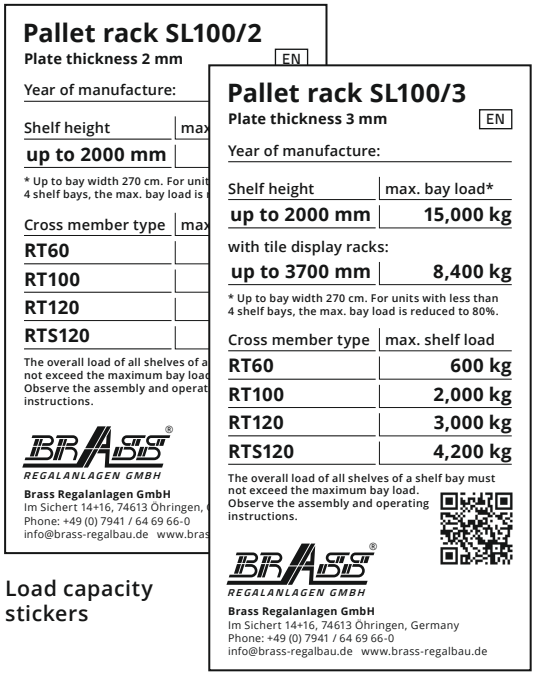
Load capacity stickers

Pursuant to DGUV (German Social Accident Insurance) regulation no. 108-007 (formerly BGR 234), load capacity stickers must be attached to fixed shelves with a shelf load of 200 kg or more or a bay load of 1,000 kg or more. These capacity load stickers should have been supplied with your shelf delivery. Please let us know if they are missing or if more stickers are needed.

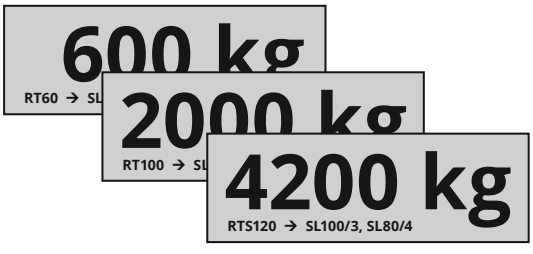
- Load capacity stickers contain the maximum permissible shelf and bay loads for your shelving system. **We recommend affixing one sticker at eye level at the end of each row of shelves.**
- The additional **cross member stickers** are only used on pallet shelves. Please note that some cross members have different load limits depending on the stands on which they are fitted!
- Thoroughly clean the adhesive areas beforehand so that the sticker remains in place for years.

⚠ Instruct your warehouse staff not to exceed the load specifications stated on the load capacity stickers when using the shelving!

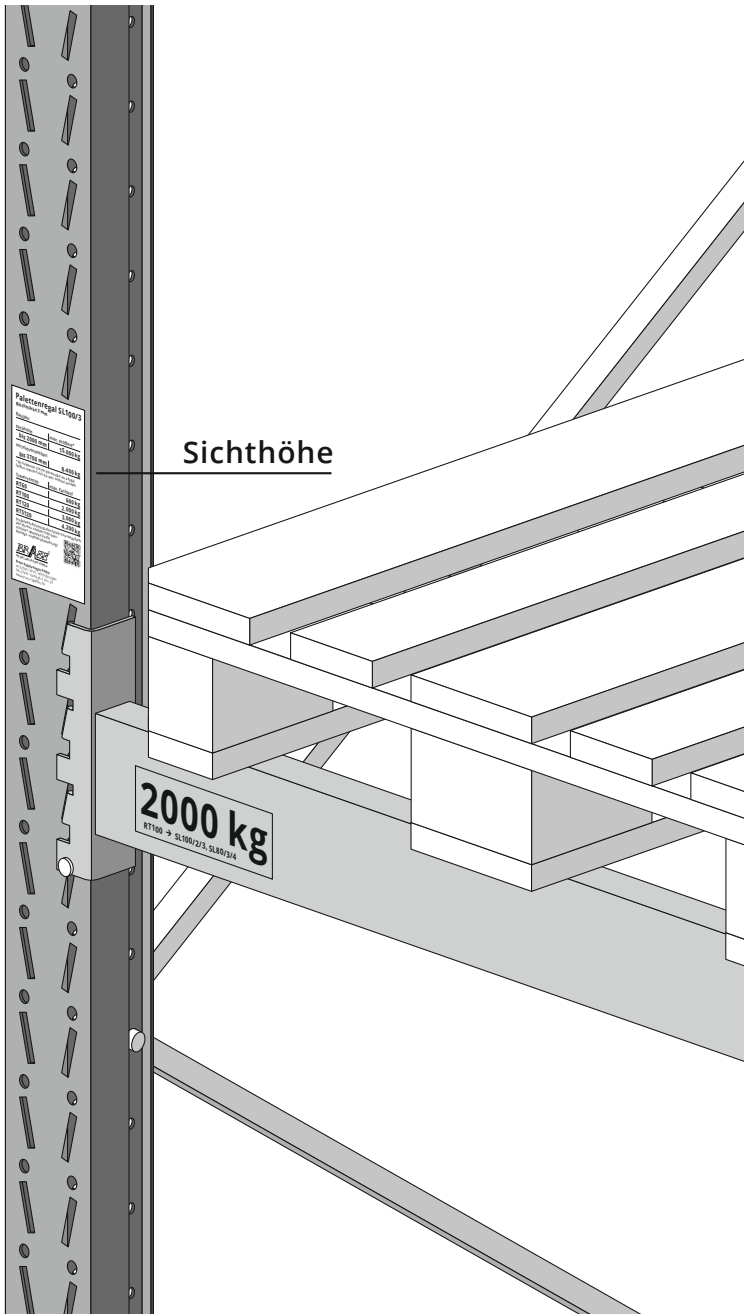
The information on the stickers may lose its validity if the shelf is converted (e.g. if the shelf heights or the number of pairs of cross members in the shelf bay changes)!



Load capacity stickers



Examples of cross member stickers (pallet shelves only)



High-bay construction/tile display racks in SL100/3, shelf height 5530 mm

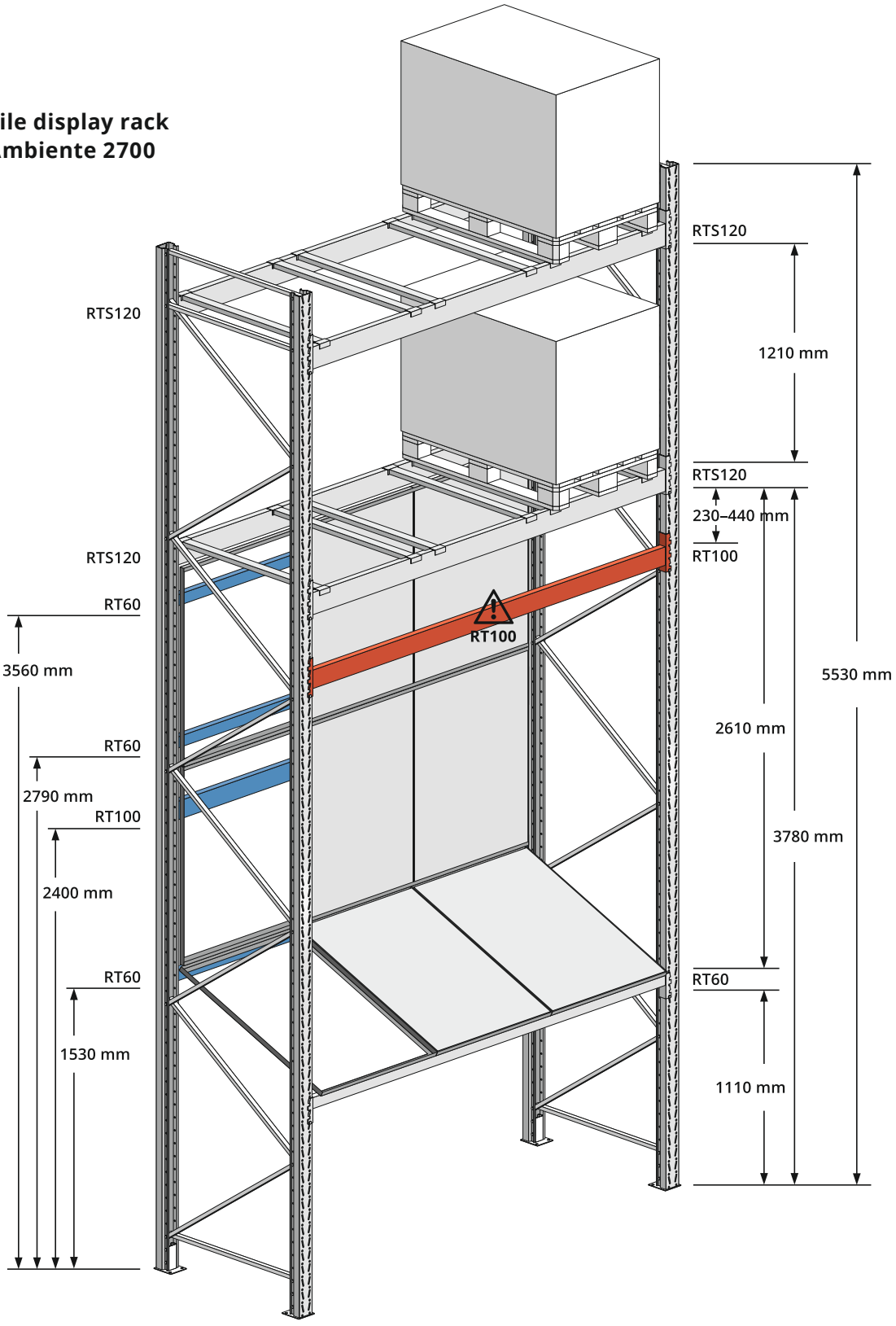
For presentation purposes (e.g. tiles, floor coverings) special shelf extension variants are available. The following safety instructions must be observed:

At least 2 storage levels must be installed per shelf bay.

For stabilization, a safety cross member must be attached to the front, at least 230 mm below the storage levels. **According to the static stability calculations, this safety cross member is indispensable!**

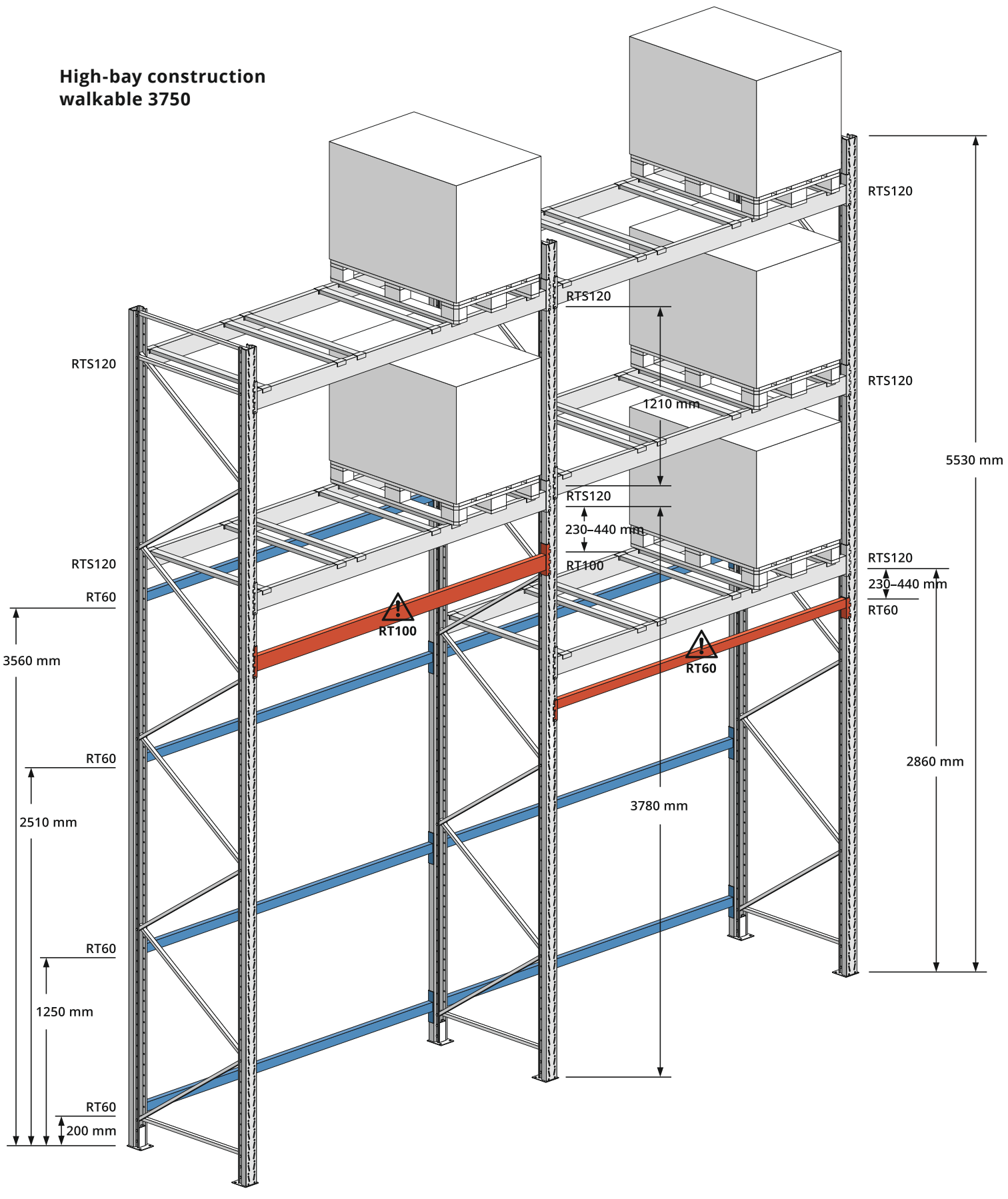
- **max. shelf load: 4,200 kg**
  Applies to 2 storage levels; for additional shelves/ storage levels, the shelf loads must be distributed.
- **max. bay load: 8,400 kg**
  Applies to systems with at least 4 shelf bays; for 1 to 3 bays, the bay load is reduced to 80%.

Tile display rack
Ambiente 2700



High-bay construction walkable 3750

High-bay construction walkable 2650



High-bay construction/tile display racks in SL100/3, shelf height 4550 mm

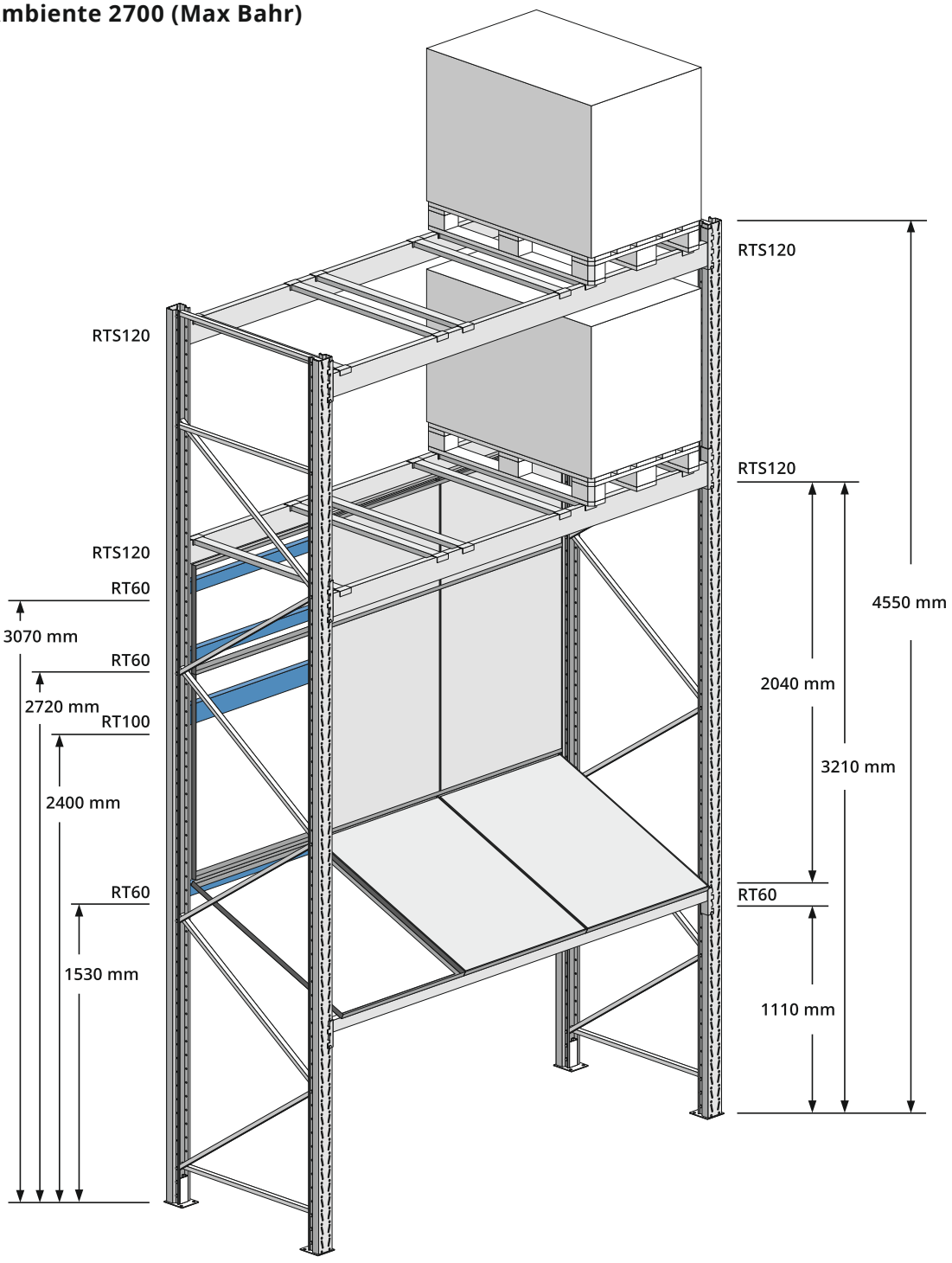
In former Max Bahr hardware stores, the shelving systems are not quite so high. However, the same safety instructions still apply:

At least 2 storage levels must be installed per shelf bay.

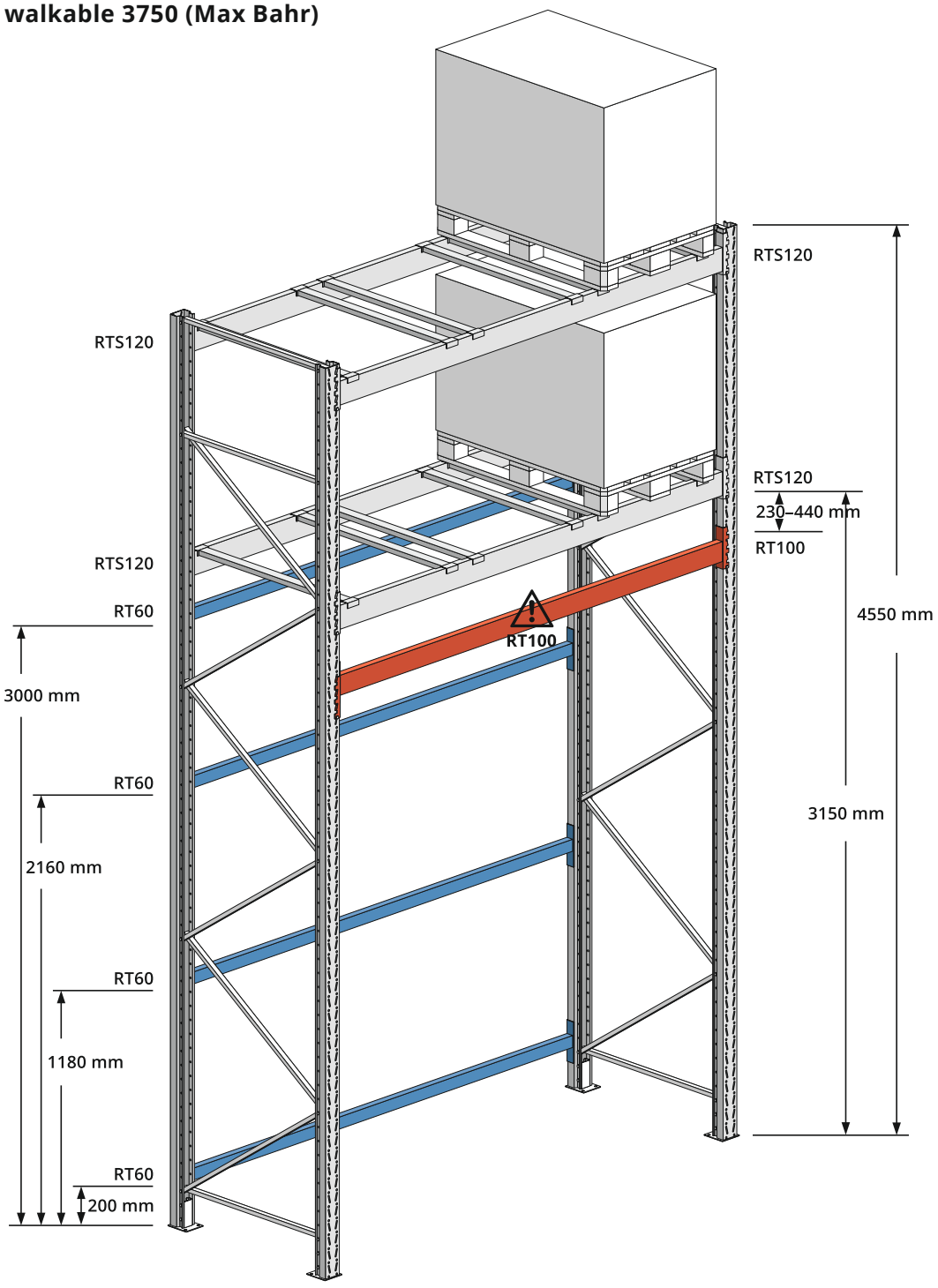
Walkable racks: For stabilization, a safety cross member must be attached to the front, at least 230 mm below the storage levels.
According to the static stability calculations, this safety cross member is indispensable!

- **max. shelf load: 4,200 kg**
- **max. bay load: 8,400 kg**
  Applies to systems with at least 4 shelf bays; for 1 to 3 bays, the bay load is reduced to 80%.

Tile display rack
Ambiente 2700 (Max Bahr)



High-bay construction walkable 3750 (Max Bahr)



MAINTENANCE

Timely detection of damage can prevent many serious accidents and keep repair costs to a minimum. A detailed analysis of the damage often reveals the causes so that preventive measures can then be taken.

Regular visual inspections

The operator (management) must ensure that the shelving systems are regularly inspected. A formal written report should be kept. The inspections must be carried out by the safety officer or another person entrusted with this task.

Annual shelf inspection

An inspection must be carried out by a competent person at intervals of not more than 12 months. Brass Regalanlagen GmbH offers you this shelf inspection done by certified shelf inspectors.

Legal bases

The European standard DIN EN 15635 and the German Ordinance on Industrial Safety and Health (BetrSichV) require warehouse operators to have their shelving systems regularly inspected by a certified shelf inspector. The BetrSichV applies to the provision of shelves by the employer and to the use of shelves by employees. Paragraph 10 of BetrSichV requires regular inspections of storage facilities. In accordance with §3, the type, scope and time limits for the necessary inspections must be determined for shelving. The scope and procedure for storage facility inspections are regulated in European standard DIN EN 15635.

What is inspected?

- General condition of the shelves
- Stability of the shelves (resistance to tilting)
- Vertical position of the shelves
- Correct assembly
- All shelf components and protective devices are checked for completeness and damage
- Assessment of loading equipment and load for suitability/arrangement
- Correct labelling of the shelves

Test report

After the inspection, the manager or person responsible for the shelving system is handed a written report with observations and suggestions for the necessary actions to be taken.

In the event of accidents

Safe use of your shelving system is only guaranteed within the specified tolerances. If parts of the shelving become deformed in an accident or for another reason, the damage must be assessed and further action must be taken if necessary (see following pages).

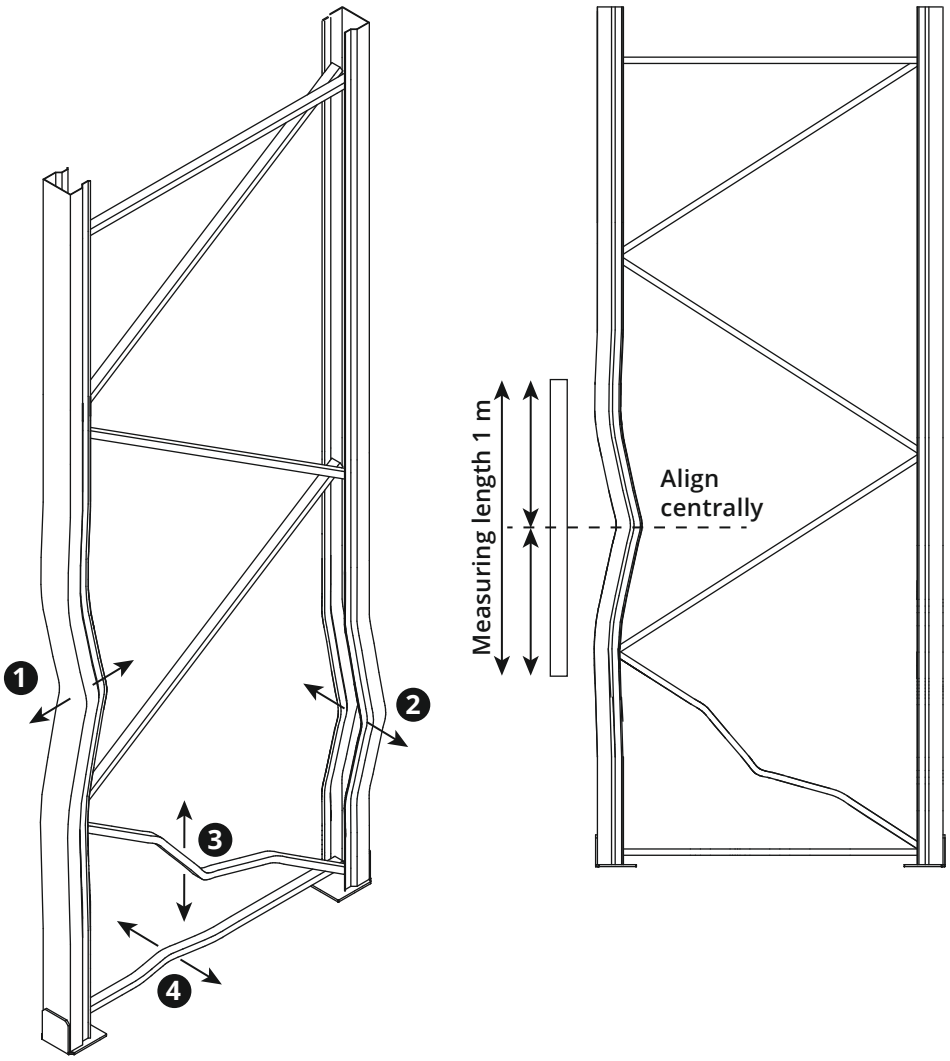
⚠ **Instruct your warehouse staff to immediately notify your manager or the person responsible for the shelving systems of any visible damage to the shelving!**

Damage to side frames

Deformations of the profile frame (usually because a fork lift truck has driven into it) must be assessed with regard to the degree of danger. After a deformation of the shelf components has become apparent, the **depth of the deformation** must be measured (centre of the measuring rod above the centre of the deformation) at the respective point with a 1,000-mm measuring rod in accordance with DIN EN 15635.

Depending on the depth of the deformation, **the measures specified below must be taken,** e.g. the shelf must be unloaded or the parts replaced. Unauthorised repairs without the manufacturer's consent or without original components are prohibited!

Deformation:	**1**	**2**	**3**	**4**	
Danger level green: Monitor!	up to 3 mm	up to 5 mm	up to 10 mm	up to 10 mm	No change in the load values, the shelf can continue to be used. Mark the damaged points for the next inspection.
Danger level orange: Act soon!	up to 5 mm	up to 9 mm	up to 19 mm	up to 19 mm	The damages must be repaired as soon as possible. Immediate unloading of the rack is not absolutely necessary but parts that have already been unloaded must not be reloaded. If the shelf has been unloaded, the operator must **mark it as barred from use** and it may only be approved for storage after the repair has been carried out.
Danger level red: Act immediately!	6 mm and more	10 mm and more	20 mm and more	20 mm and more	**The shelf must be unloaded immediately and prevented from any use whatsoever!** The manufacturer must be consulted and all affected components replaced!



1 Front deformation of the frame profile in the depth direction

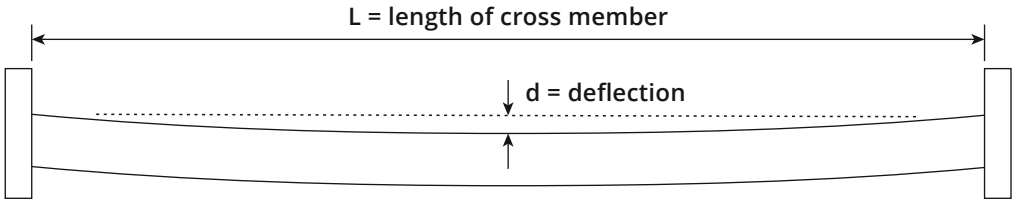
2 Side deformation of the frame profile

3 Vertical deformation of the struts

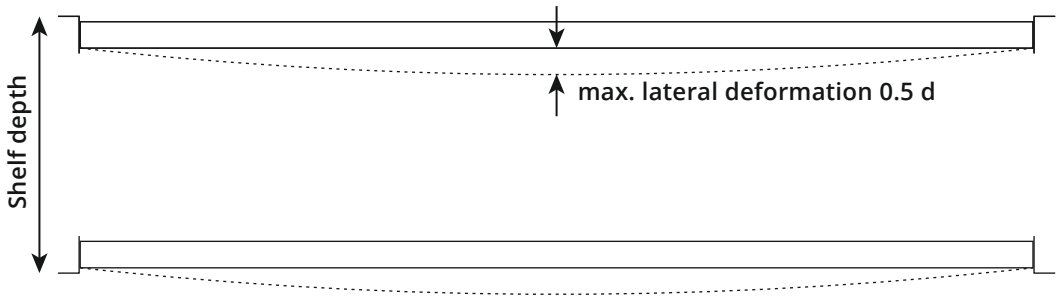
4 Lateral deformation of the struts

Damage to cross members

- When fully loaded, cross members may bend downwards (deflection) by max. 1/200 of their length (L/200). Larger deflections are not permitted. After unloading, there should be no more deflection (elasticity of the material). Cross members with **permanent deflection deformations, including when unloaded**, are defective and must be replaced!



- The **lateral deformation or torsion** of a cross member due to overload must not exceed 50% of the normal vertical deflection under full load. Cross members with larger deformations must be replaced!



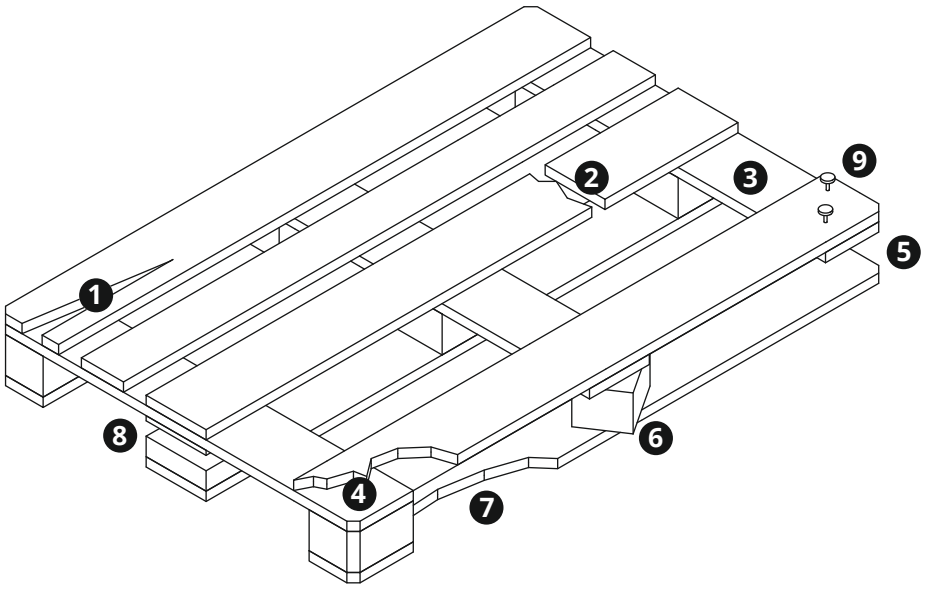
- Cross members which have been **damaged by a vehicle driving into them** and cross members with **damaged hooking claws or welded joints (cracks)** must be replaced!

If in doubt, please do not hesitate to contact us.

Damage to pallets

To avoid accidents, only perfect, undamaged pallets may be used on the shelves. Pallets with one of the types of damage listed below must be replaced immediately as otherwise the load capacity is no longer guaranteed (see also DIN EN ISO 18613).

1 **Gaps of more than half of the board length or board width**
2 **Broken board**
3 **Missing board**
4 **More than a third of the board width is missing**
5 **Block missing**
6 **Block turned by more than 30°**
7 **More than a quarter of the board width is missing between two blocks**
8 **Gaps of more than half of a block width or block height**
9 **Nails sticking out**



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