BRAASS®
REGALANLAGEN GMBH

# LPR wide span shelf

## Assembly and operating instructions

EN BAUHAUS edition
English

# GENERAL INFORMATION

Dear customer,

With the LPR wide span shelf, you have chosen a high-quality and flexible storage system which enables a range of individual solutions thanks to its comprehensive accessories.

**The LPR wide span shelf may only be assembled and used in accordance with these assembly and operating instructions.** Therefore, your fitters 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.

## LPR shelving rack

- The LPR shelving rack is supported by shelf stands (side frames) with a grid profile. The stands are available in heights of 960 to 5,520mm and depths of 475 to 750 mm. As the stands are pre-assembled, no assembly instructions are provided at this point.
- The cross members are hooked into the 40-mm plug-in grid, at the ends of which there are matching claws (hook clips). Assembly is carried out without tools. Bay widths of 920 to 2,540 mm are possible according to the length of the cross members.
- Brass offers a wide range of special expansion elements for the LPR shelving system. This manual is limited to the standard rack; information about the accessories is available on request.

## Substrate requirements

- 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.
- For static reasons, the shelves must **always be anchored to the floor.**

## Correct use

- **The shelf is stationary and may only be loaded manually!**
- Load the shelves where possible from bottom to top. Ensure even distribution of the load.
- **Load capacity stickers** must be affixed to the shelves so that your staff can see the permissible load limits everywhere (page 9). Observe the load limits when loading.
- **Stepping or climbing on the shelves and leaning on ladders is strictly forbidden!**
- **Existing shelves may only be converted** in the unloaded state by suitable, trained staff. These assembly and operating instructions also apply to conversions.

## Regulations for shelving systems

- 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 10).
- **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. water-permeable removable shelves when using sprinkler systems).

**After assembly, keep these instructions for later use**

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

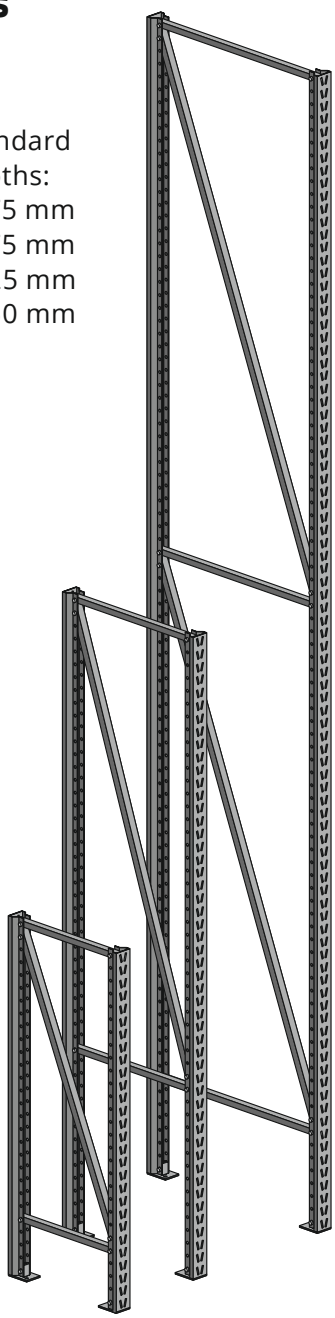
# SHELF ASSEMBLY

## Components

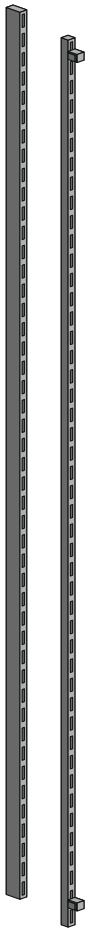
**Shelf stands (side frames)**

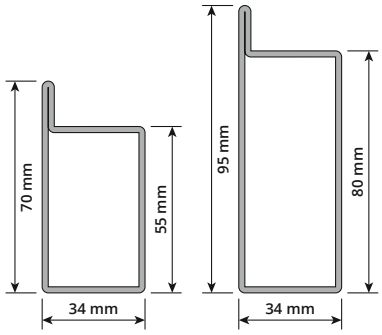
Standard heights:
- 960 mm
- 1120 mm
- 1280 mm
- 1440 mm
- 1680 mm
- 2000 mm
- 2800 mm
- 3600 mm
- 4200 mm
- 4520 mm
- 5520 mm

Standard depths:
- 475 mm
- 575 mm
- 625 mm
- 750 mm



**Centre brackets**
**Wall brackets**



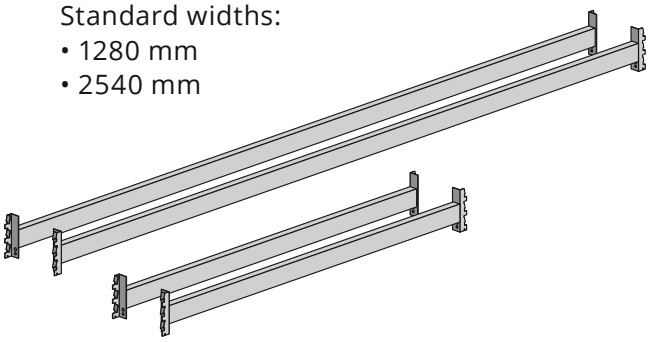


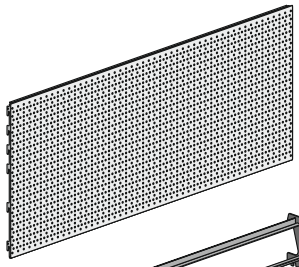

Profile RP104

Profile RP116

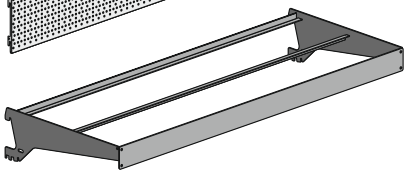
**Cross members**

Standard widths:
- 1280 mm
- 2540 mm





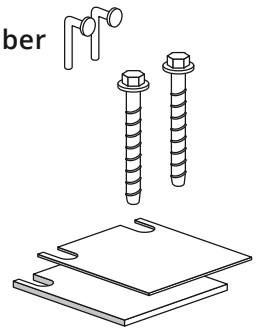
**Rear walls**



**Shelving rack frames**

## Mounting accessories

- **2 securing pins per cross member** for inserting (supplied)
- **2 ground mountings per side frame:** Screw anchor 10x70 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

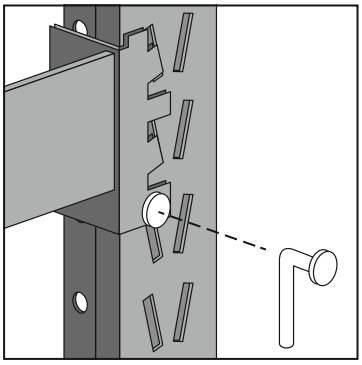
## Setting up the shelf

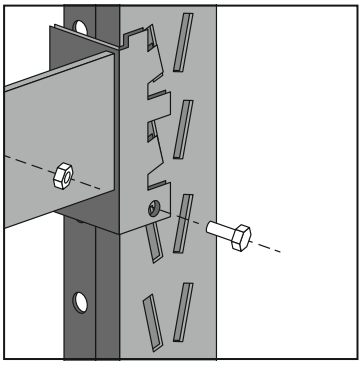
- Align the first two side frames. To stabilise, hook the lowest pair of cross members in place (or at least two rear cross members) and insert the locking pins immediately.

⚠ Cross members must be secured with 2 locking pins. According to BGI/GUV-I 5166, a screw connection is also permitted.

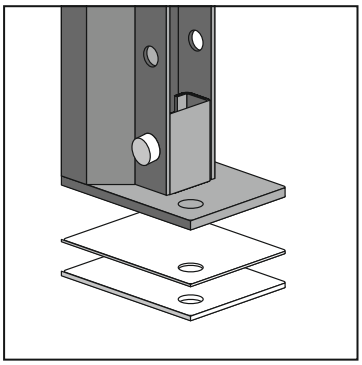
- Fit further cross members in place and secure. **At least 2 pairs of cross members** must be fitted into each shelf bay.
- Do not forget to attach the **load capacity stickers** to the finished shelf (page 9).

ℹ Many customers cut the removable shelves to size themselves, e.g. shelves made of OSB or MDF boards. Upon request, we will be pleased to supply you with shelf panels in various qualities.

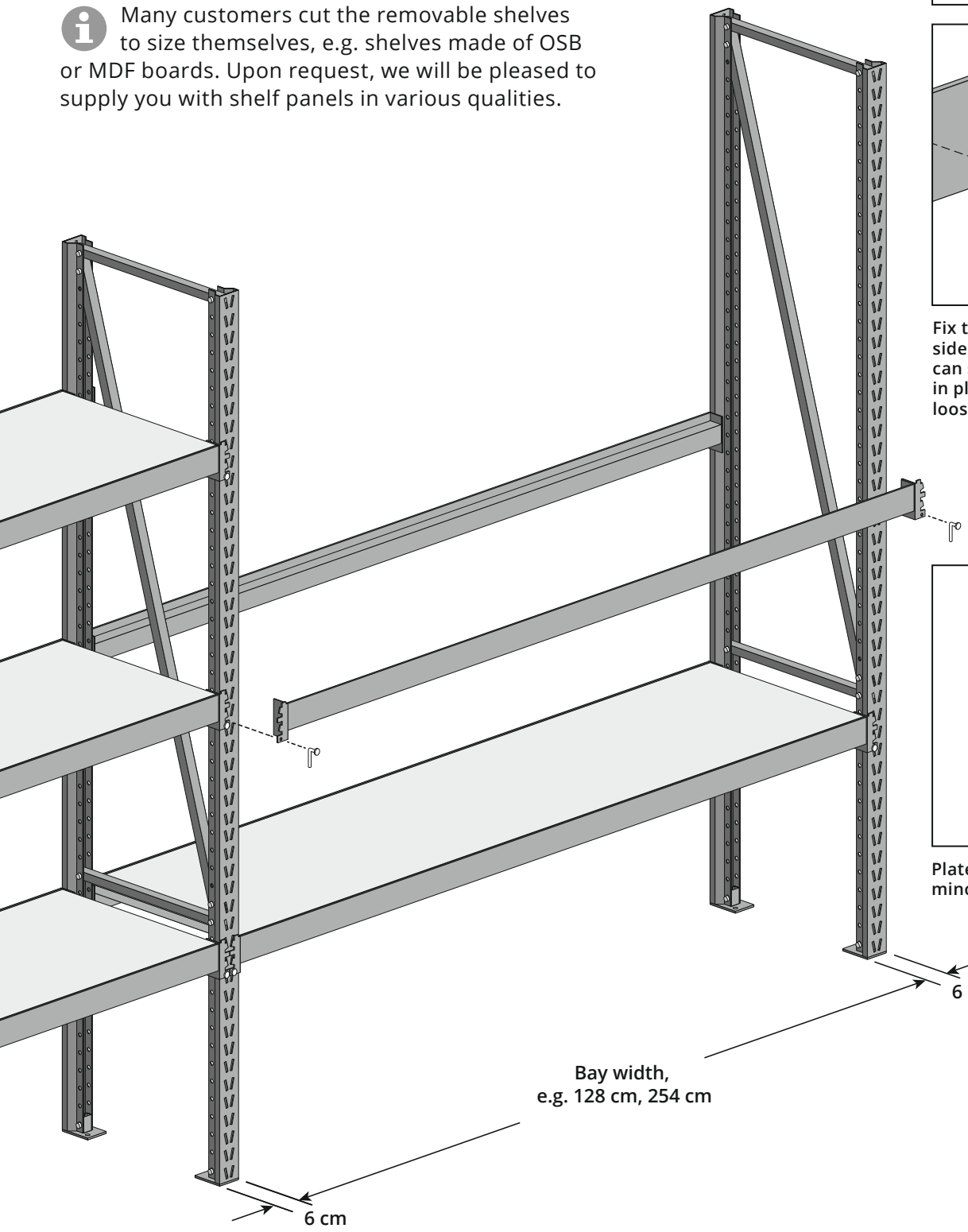


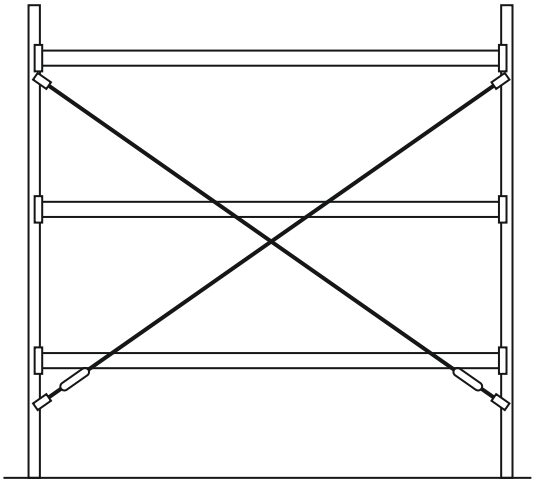


**Fix the cross members on both sides with locking pins. You can screw the cross members in place to prevent unwanted loosening of the pins.**

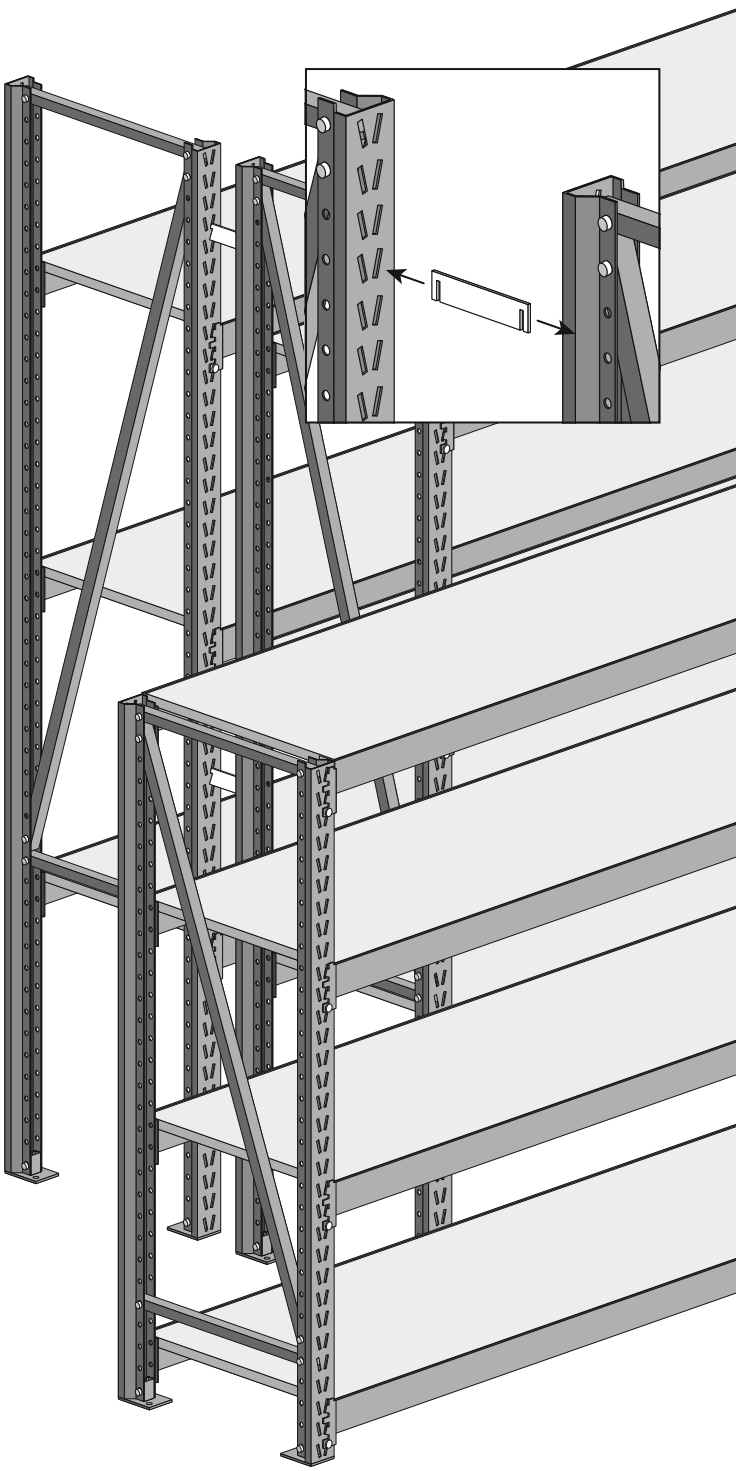


**Plates can be used to level out minor irregularities of the floor.**





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



## Double shelves

- Rows of shelves standing one behind the other are assembled with spacers which ensure even spacing of 100 mm (see detailed diagram). They should be fitted in place every 120 to 150 cm in height.
- They are secured to the ground every 100 mm when anchoring the stands.

## Low shelf units

Brass offers short side frames for low shelf units, e.g. in standard heights of 96, 112 and 128 cm. For static reasons, at least 2 pairs of cross members must also be used here.

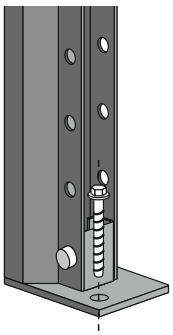
## Ground anchoring

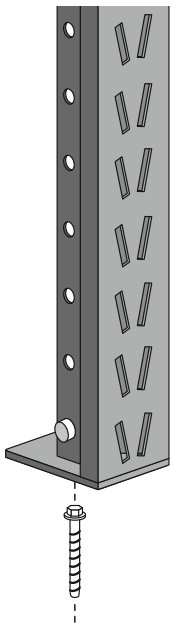
The LPR shelving system must always be anchored to the floor.

- Use the stud anchors (ground anchors) supplied (e.g. Hilti HSA M12x115) or equivalent products. **Always use 1 ground anchor per base plate.** On request we will be pleased to send you the data sheet for the screw anchors.

⚠ **The anchoring must be designed for a tensile force of at least 3.0 kN.**

⚠ Observe the **requirements for the floor** specified on page 2. Asphalt floors and stone paving are not suitable!

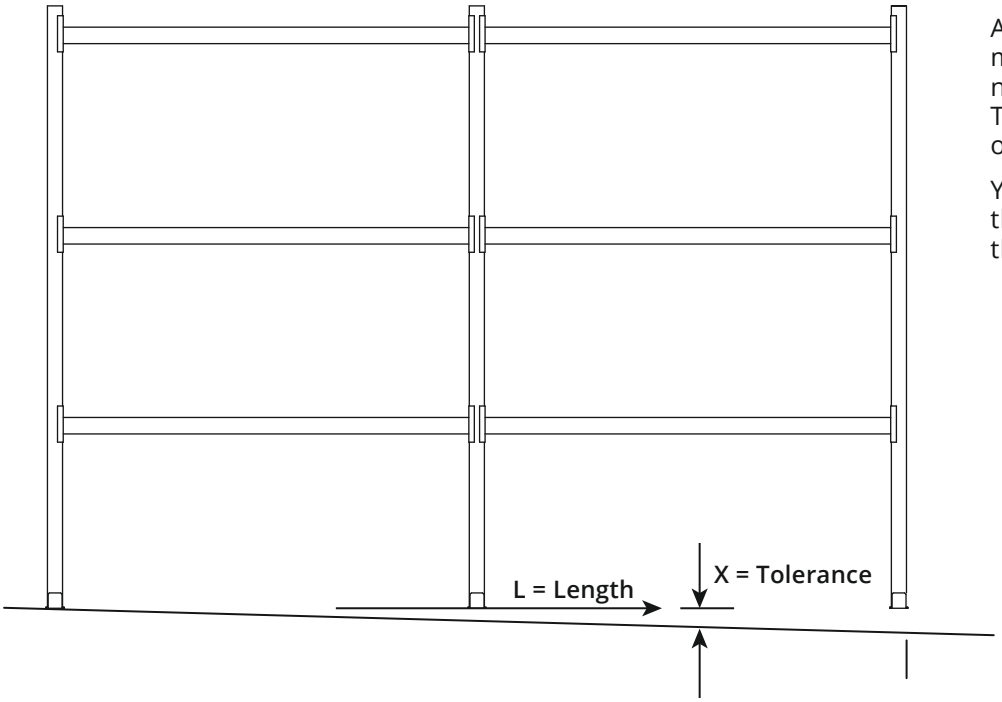




# Construction tolerances

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

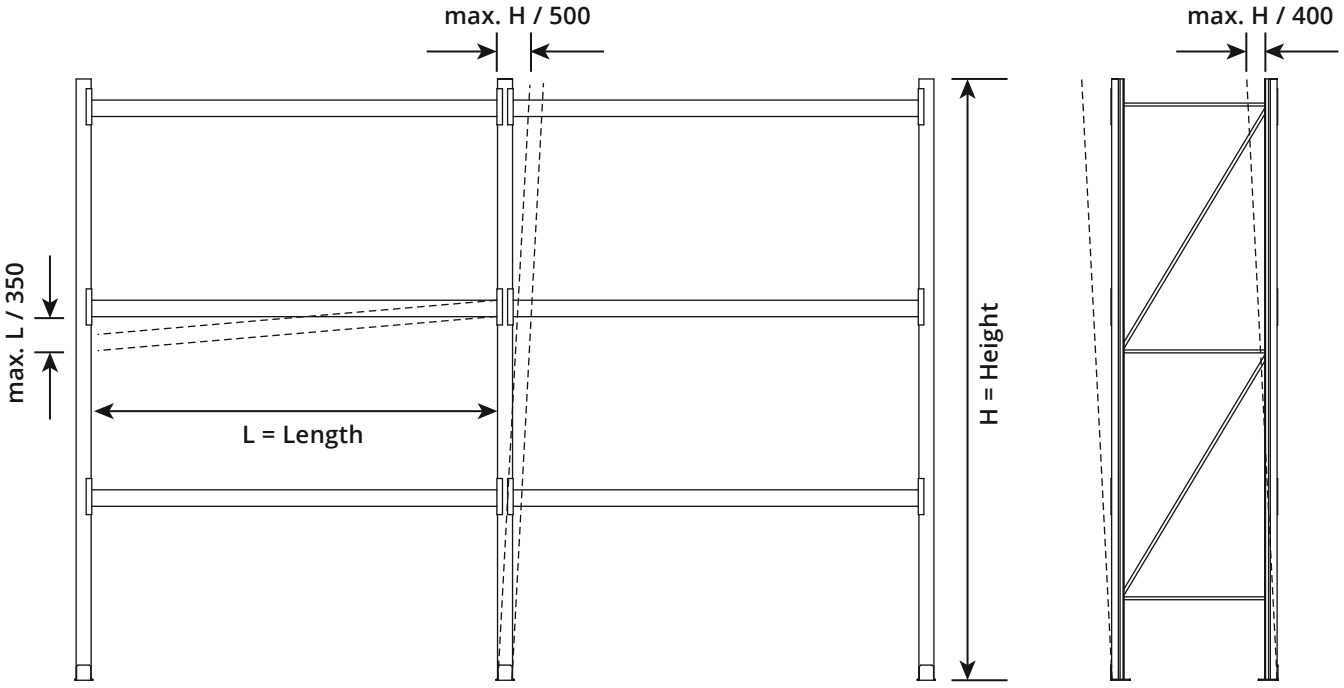
### Uneven floors



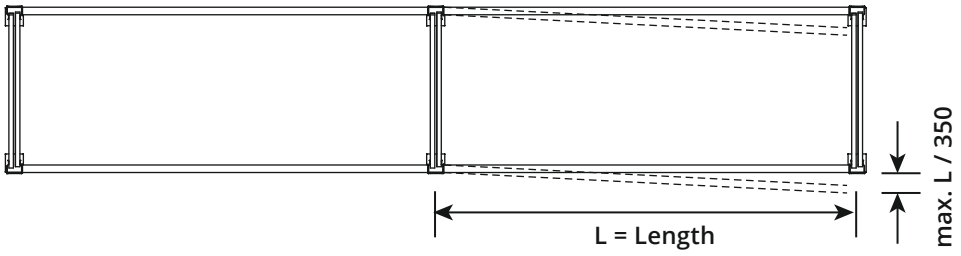

According to DIN EN 15620, the maximum permitted floor unevenness (X) is 2.5 mm per shelf metre. This applies up to a height of 8 m of the top cross member.

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

### Construction tolerances of the shelf components




### Deviations in shelf alignment



## Extending the shelves

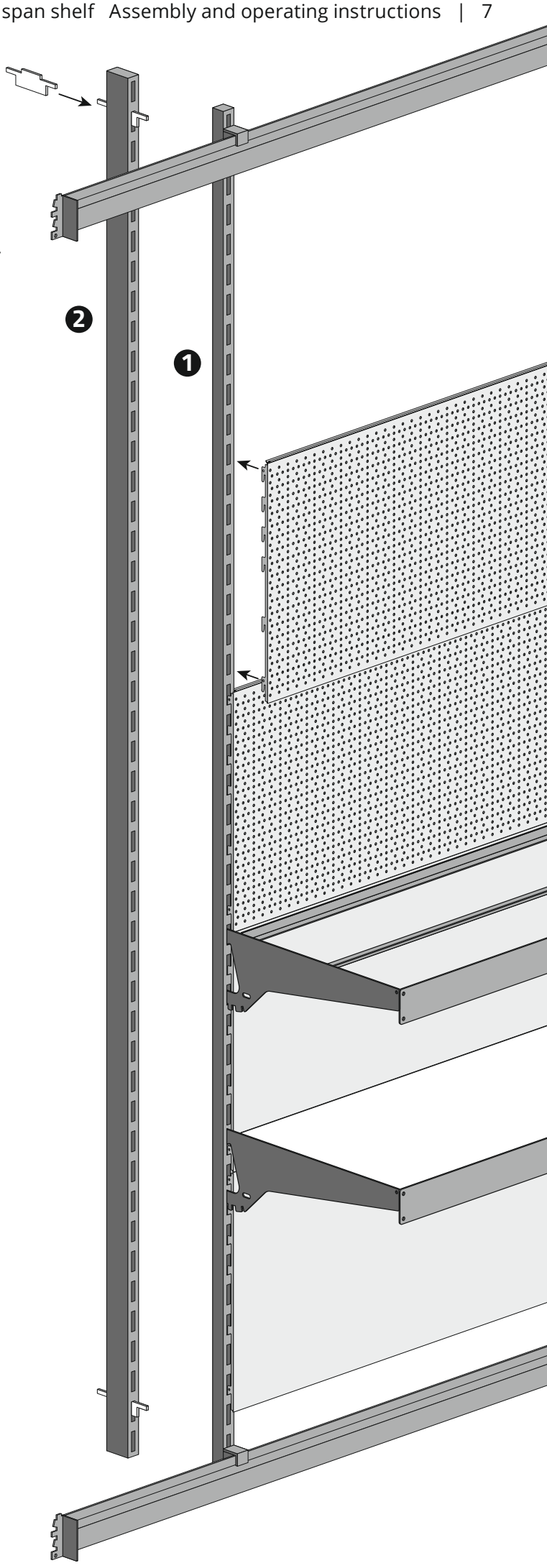
The LPR shelves can, of course, be used as a pure storage system. However, Brass also offers a variety of expansion modules to expand the LPR shelves into a presentation system for the most diverse product systems.

The expansion elements described on this page offer versatile possibilities and can accommodate many other, even more specific brackets. Further information is available on request.

## Brackets

1. **Wall brackets** are fitted into the cross members at the back of the shelves. Their 60 mm-grid profile offers space e.g. for rear panels, shelving rack frames or further brackets.
2. **Centre brackets** are designed for the space between double shelves. They can be used from both sides.

The holes in the bracket profile are wide enough to accommodate the claws of two adjacent rear walls and two shelving rack frames.




## Rear walls

Used to visually separate and present your goods. They are available in a smooth design as well as with Euro perforations for mounting goods display units.

## Shelving rack frames

Can be used in various applications thanks to the three inclination positions and the possibility of removing or replacing the shelf panels.
Upon request, we will be pleased to supply you with perforated sheet panels or insertion plates in various qualities.

The front frame trim is designed to accommodate price tags.

# 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.

⚠ **The shelf may only be loaded manually!** The LPR shelving system is not designed for loading with fork lift trucks.

## max. shelf load

The load capacity of the cross members is always specified per pair (shelf load).

| **max. shelf load** | width 128 cm | width 254 cm |
|---|---|---|
| cross members RP104 | **1,150 kg** | **540 kg** |
| cross members RP116 | **2,000 kg** | **1,100 kg** |

All load specifications are to be understood as evenly distributed loads!

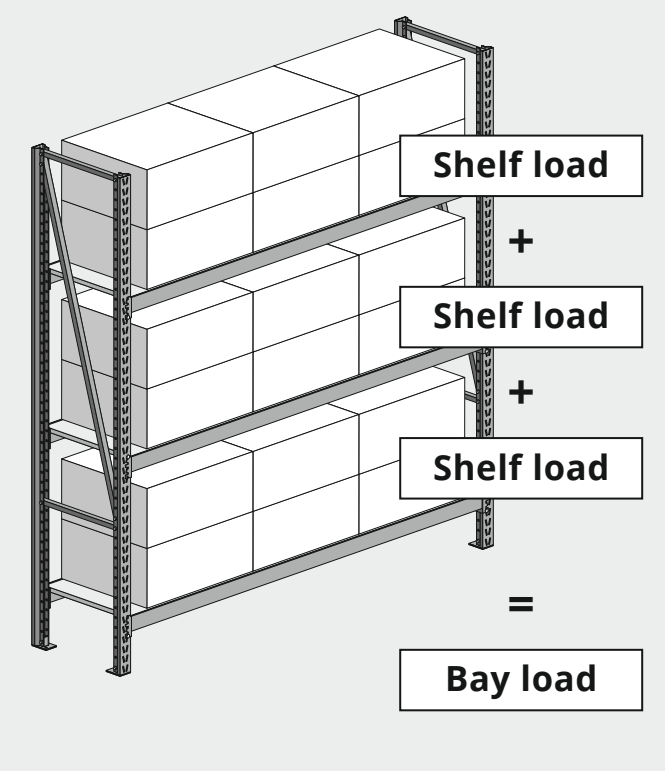
⚠ The maximum permitted deflection per cross member is L / 200

## 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 maximum bay load on the LPR shelf system is 2,500 kg.** This standard bay load (specified on the load capacity stickers) refers to shelf systems with at least 4 bays.

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



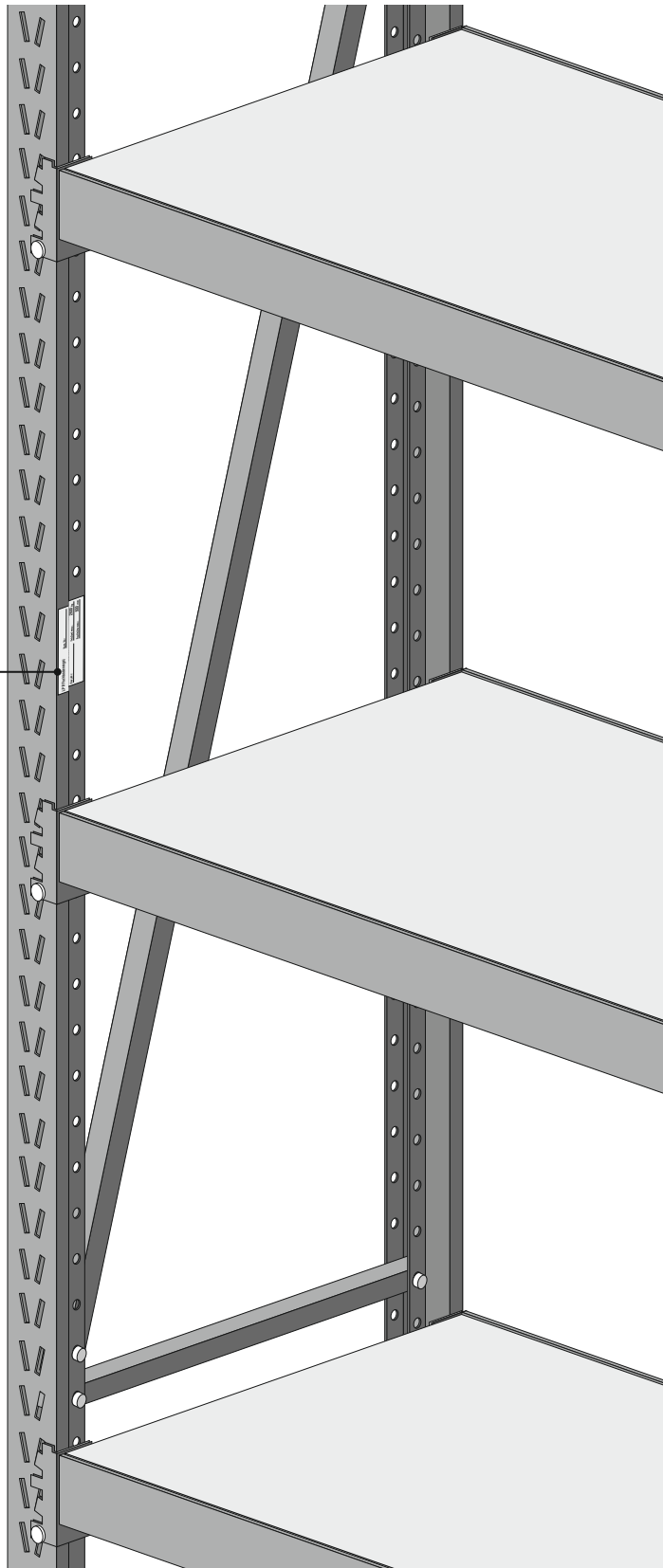
# Belastungsaufkleber

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. **Please specify the commission number** so that all information is available in the event of queries or repeat orders.
- We recommend affixing **one sticker per shelf bay**. For different cross members, the respective load capacity of the shelf compartments must be clearly visible.
- 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!**

ℹ 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)!



***LPR shelving rack***

| | |
|---|---|
| ***Cross member profile:*** ***RP104*** | ***Com. no.:*** |
| ***Supporting frame pr.:*** ***LPR60/S*** | ***Shelf length:*** ***2540 mm*** |
| ***Year of manufacture:*** | ***Max. shelf load:*** ***540 kg*** |
| | ***Max. bay load:*** ***2500 kg*** |
| | ***Max. shelf height:*** ***500 mm*** |

- Heavy duty shelving
- Shelving racks
- Cantilever racks

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## SHELF LOAD

When loading the shelves, the maximum values specified by the manufacturer must be observed. Safe use can only be guaranteed within these limits.

- **This info panel** provides simplified, general values
- **Load capacity stickers on the shelf** (at the end of each row of shelves, on the inside of the stand) indicate the specific values for each shelf
- Comprehensive tables can be found in the **assembly and operating instructions** supplied with the respective shelving system

If you have any questions, please contact your safety officer or the manufacturer.

### Heavy duty shelf system SL100 (70-mm plug-in grid)

**max. bay load: 12,000 [1] / 15,000 kg [2]**

| Cross member type | | bay width up to | max. shelf load |
|---|---|---|---|
| RT60 | H 60 mm | 2700 mm | **600 kg** |
| RT100 | H 100 mm | 2700 mm | **2000 kg** |
| RT120 | H 120 mm | 2700 mm | **3000 kg** |
| RTS120 | H 120 mm, reinforced | 2700 mm | **3600 [1] / 4200 kg [2]** |

[1] for stands SL100/2, 2 mm plate thickness [2] for stands SL100/3, 3 mm plate thickness

### Wide span shelf LPR (40-mm plug-in grid)

**max. bay load: 2500 kg** (for shelf depths up to 750 mm)

| Cross member type | | bay width up to | max. shelf load |
|---|---|---|---|
| RP104 | H 55 mm + 15 mm stop | 2540 mm | **540 kg** |
| RP116 | H 80 mm + 15 mm stop | 2540 mm | **1100 kg** |

# 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).

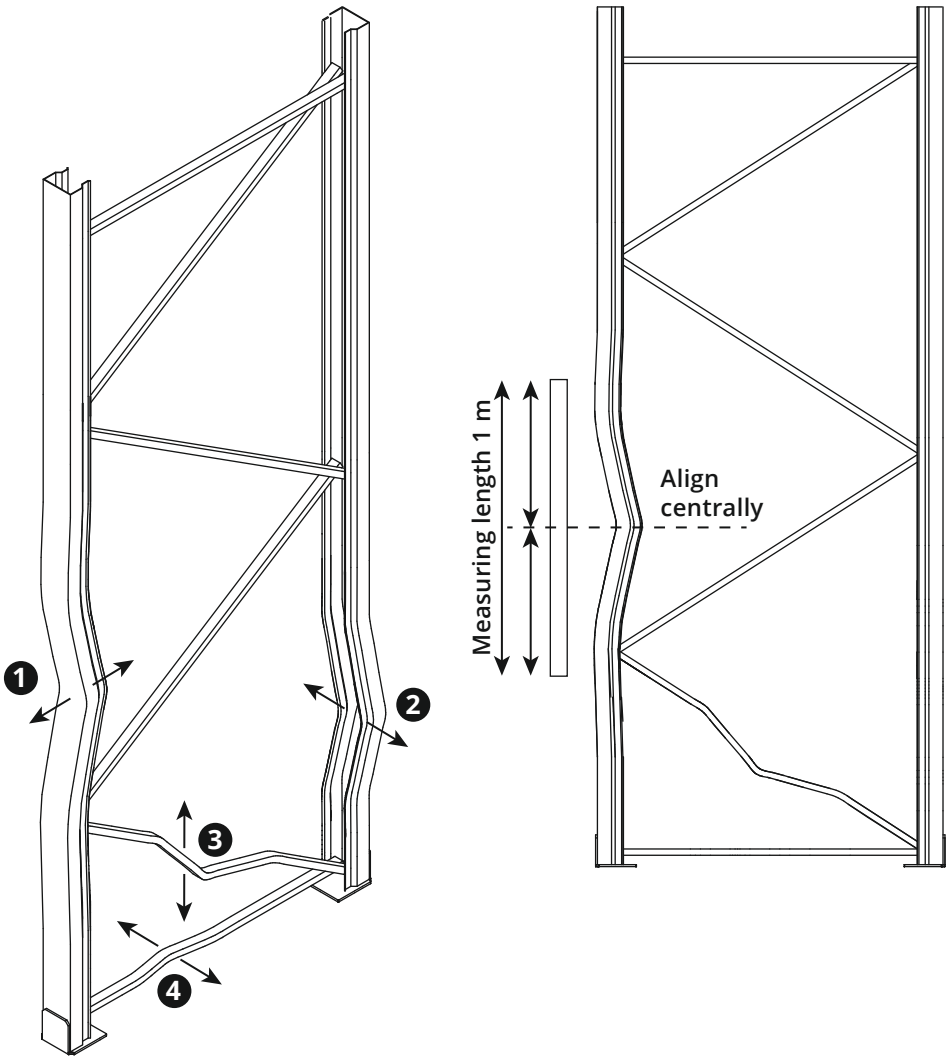
⚠ **Instruct your warehouse staff to immediately notify your manager or the person responsible for the shelving systems of any visible damage to the shelving!**

# 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.<br>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.<br>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

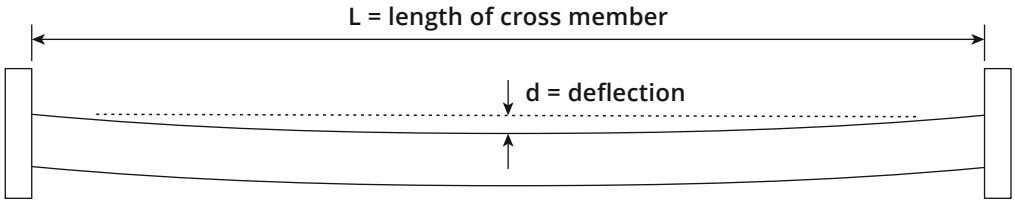
**2** Side deformation of the frame profile

**3** Vertical deformation of the struts

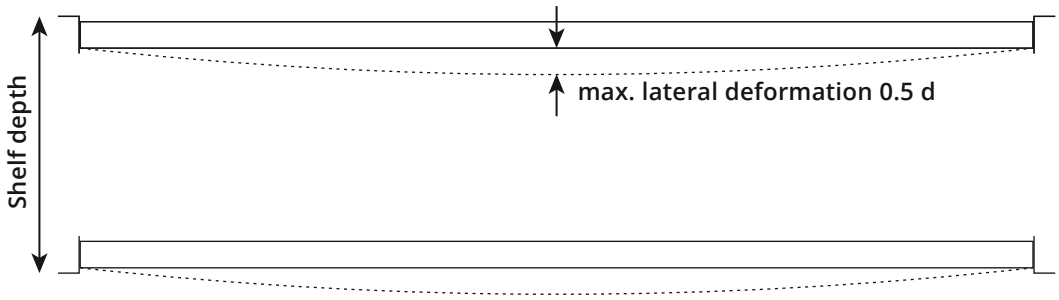
**4** Lateral deformation of the struts

## 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.

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