SPACE INVADER
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SpaceInvader user manual

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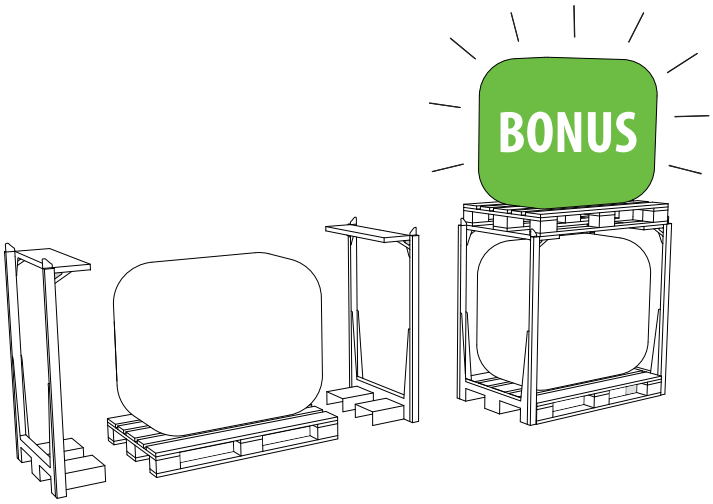
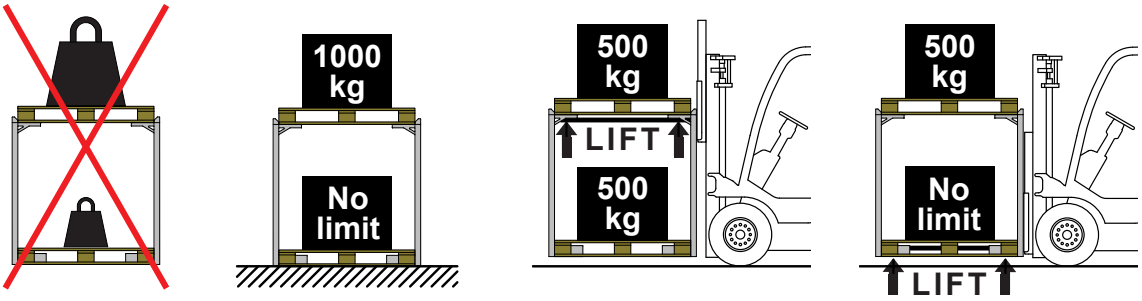


Product description

A tool consisting of two identical racks which combined enable stacking, lifting, transportation and storage of loaded pallets in two levels.

Load bearing capacity

Max load	On floor	Forklift top	Forklift bottom
Upper pallet	1.000 kg	500 kg	500 kg
Bottom pallet	No limit	500 kg	No limit

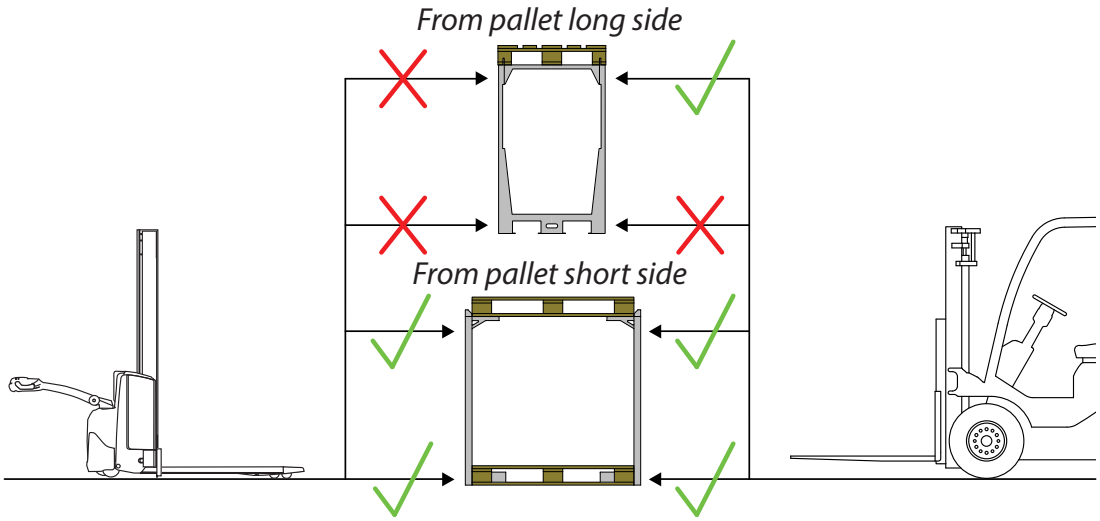


The load of the top pallet may never exceed that of the bottom pallet. It is a precondition that the specifications and condition of pallets allow the above-mentioned loads.

Field of application

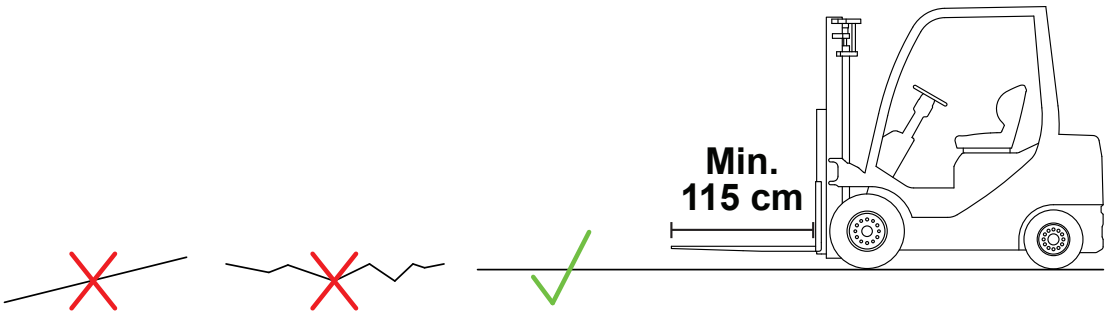
The rack can be used in lorries, warehouses and factories. The rack is designed and tested for use with EUR-pallets measuring 120x80 cm (alternative pallet types may be used, specifically as the top pallet). The rack can be forklifted from the bottom by the shortside of the pallet, and from the top by both the shortside and longside of the pallet.

Using a regular forklift is recommended for lifting from the top. An electric pallet lifter and stacker is recommended for lifting from the bottom.



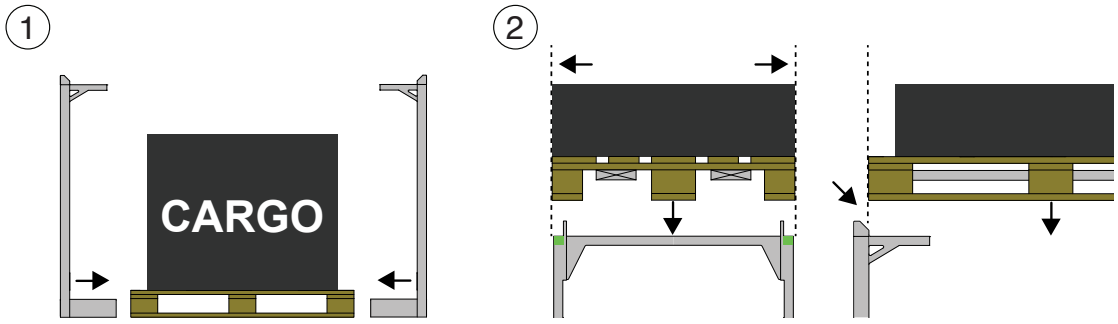
Conditions of use

– Floor and surface must be solid, flat and aligned.
– Fork length of forklift must be 115 cm or longer.
– Condition and specifications of pallets must allow the intended load.
– Goods must be securely fastened to the pallet.
– Visibly damaged pallets may not be used.
– Lifting equipment must be approved, and may not be bent or damaged.

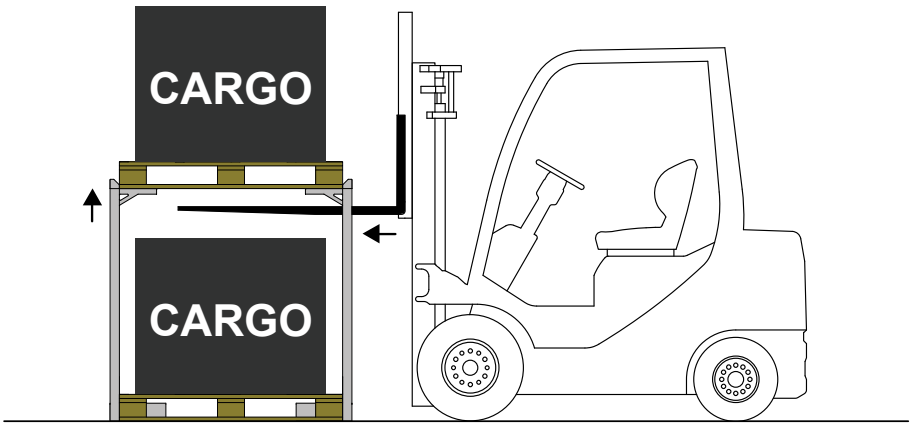


User guide

1. Push each rack all the way into both sides of the bottom pallet's fork openings.
2. Place upper pallet by forklift on top of the two racks. Use the width of the racks as aiming lines to place the pallet. The guiding fins will steer the pallet length-wise.

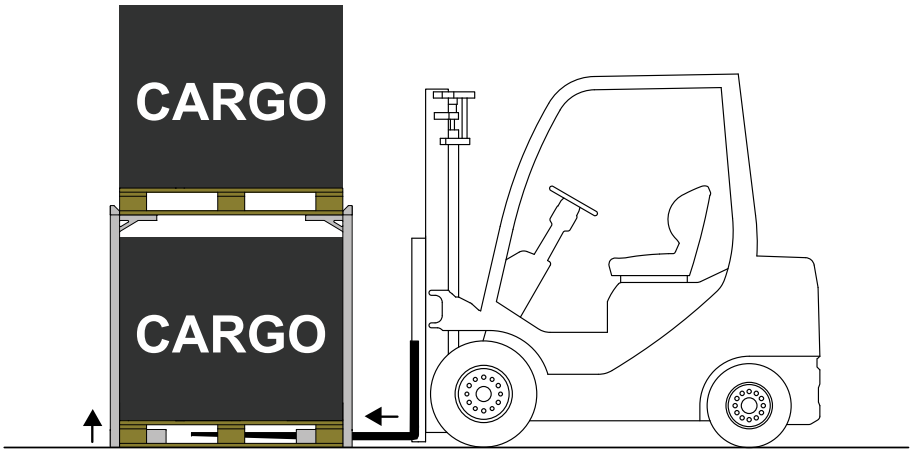


Top lift – *Suitable for use with regular forklift*



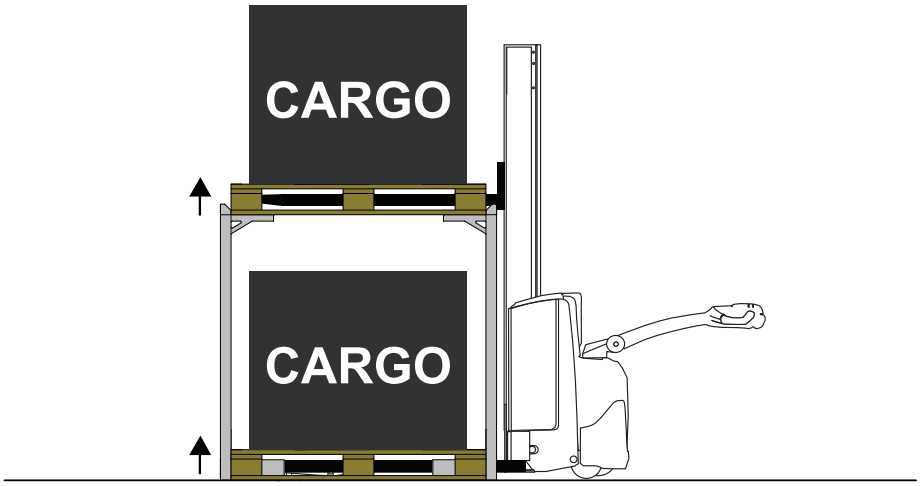
1. Ensure sufficient space for forks between goods and the load-bearing shelves.
2. Insert forks all the way in underneath load-bearing shelves.
3. Lift and drive. If operating with forks that allow tilting, make sure the tilt is adjusted to the load, so forks and pallets are kept level.
4. Lower forks and put down the rack.
5. Remove forks in a straight line and ensure they exit clear of the rack.

Bottom lift – *Suitable when top lift is not possible*



1. Ensure the operating surface is flat and the lifting equipment's dimensions and condition allow free movement of the forks in the bottom of the rack.
2. Insert the forks in a straight line and all the way into the bottom of the rack.
3. Lift and go. If operating with forks that allow tilting, make sure the tilt is adjusted to the load, so forks and pallets are kept level.
4. Lower forks and put down the rack.
5. Remove forks in a straight line, and ensure they exit clear of the rack. Please keep in mind that the incline of the surface in front of the rack may impede the complete exit of the forks.

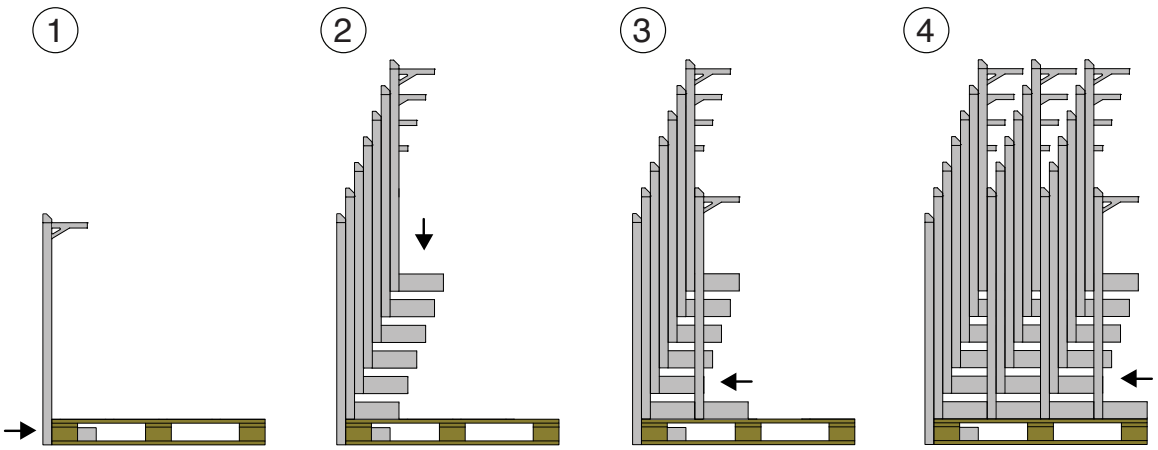
Use of stacker with initial lift – *the most efficient method of handling*



1. Let the stacker's upper forks stay in the upper pallet after insertion.
2. Lift from the bottom using the stacker's initial lift.

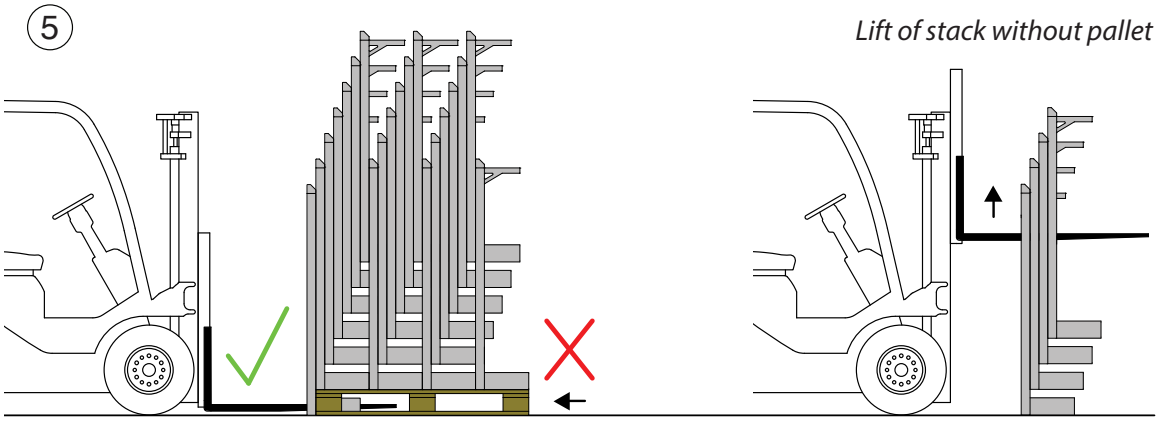
Handling and storage

When finished, the rack is withdrawn from the pallet in the upright position for easy removal. When the racks are not in use, they can be stacked and transported on a EUR-pallet. A maximum of 20 racks can fit on one pallet.



1+6+6+6+1
= 20

1. Push the first rack into the fork openings of the pallet.
2. Place the second rack on top of the pallet, hanging on the first rack. Repeat procedure with an additional 5 racks, leaving 6 racks on top of the pallet (7 in total).
3. Arrange the next rack on the pallet. Push it underneath the extrusions of the first row, so the row doesn't tip over.
4. Repeat and continue until another 2 rows of 6 racks is completed. To complete, place the final 20th. rack on the pallet in front of the three rows.
5. The stack can now be lifted by fork through the first rack placed in the pallet.



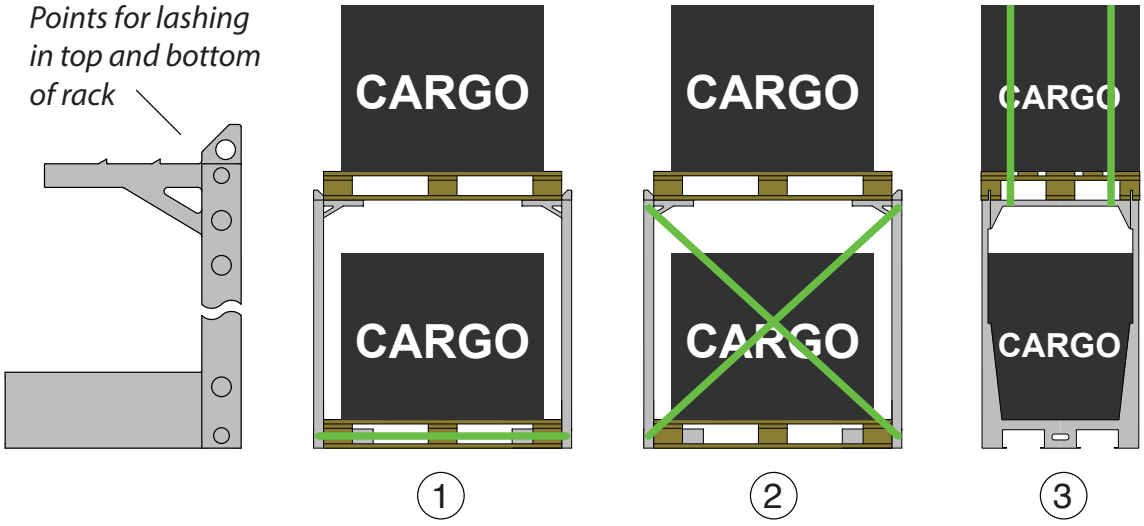
If the racks are freely stacked and placed on the floor. it is recommended for safety reasons that you do not stack more than 4 racks. The stack of racks can be moved with forklifts by lifting the top of the bottom rack. Lifts from the bottom should be done with caution due to the risk of the stack tipping over.

Stability

When loaded, the goods of the bottom pallet are the primary source of the rack's stability. Further stability is achieved from the weight of the bottom pallet, and therefore the weight of the top pallet should not exceed that of the bottom pallet. In situations where it is not possible to use the goods of the bottom pallet for stability, it is possible to increase stability by using straps secured in the rack's lashing points. Most standard straps are compatible with the rack. Contact SpaceInvader for information about straps made especially for the rack.

Examples of straps in use:

1. Lashing to avoid risk of the rack being pulled from the lower pallet.
2. Diagonal lashing for extra stability in case of a lack of support.
3. Securing goods on both pallet and rack.



Manual pallet truck

The use of a manual pallet truck should be avoided when handling a loaded rack. Nonetheless, should a manual pallet truck be used, the following conditions apply:

- The rack must be secured to avoid being pulled from the lower pallet.
- Total weight of the loaded rack cannot exceed 500 kg.
- Total height the of the loaded rack cannot exceed 225 cm.
- Goods must be secured on both pallets.
- Floor and surface must be level, even and steady.
- Fork length cannot be shorter than 115 cm.
- Visibly damaged pallets cannot be used.
- Lifting equipment must be capable of the task and must not be bent or damaged.

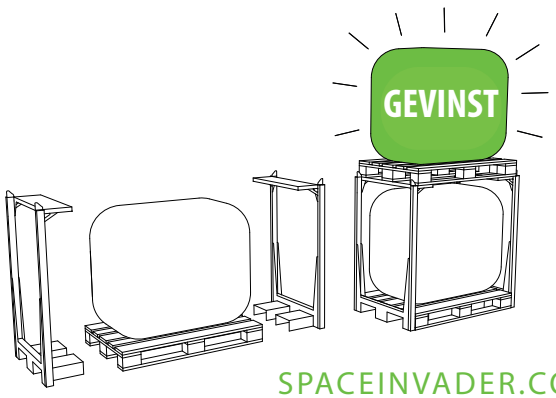
Road transport

When transported on a truck or a lorry, the loaded rack must be secured against moving forward, backward and sideways.

Securing the loaded rack against moving can be achieved by placing it directly against the headbord, sideboard, sidesupports, crossbars, beams, other goods etc., so it is kept firmly in place. The supporting height must be at least 80 cm (equal the width of a pallet), in order to prevent the loaded rack from tipping over.

The shape of the rack secures the top pallet against sliding in accordance with the regulation standards set forth by EN 12195-1:2010. If the top pallet has an uncentered centre of gravity, it must be lashed to the rack to ensure against tipping.

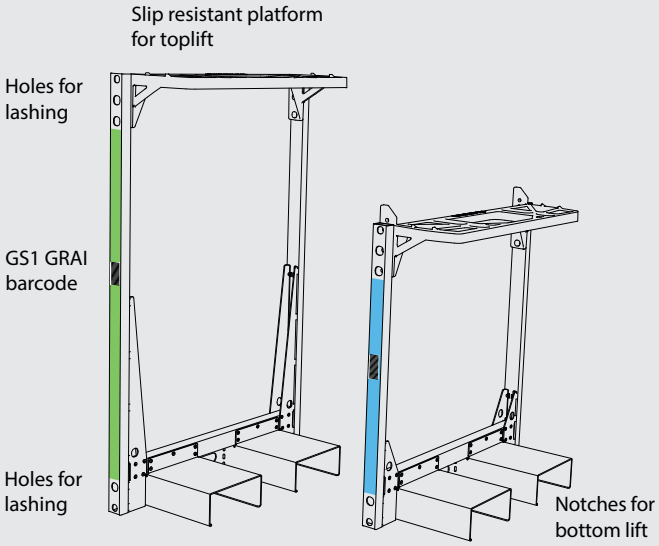
In situations where it is not possible to support the rack and where the top pallet cannot be lifted down, the loaded rack must be lashed according to standards prescribed by EN 12195-1:2010.

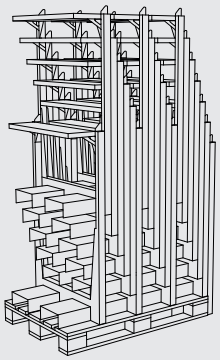


About the solution

The modular pallet rack system 'SpaceInvader' is produced by the Danish company SpaceInvader, founded 2015. With its patented design, the system delivers a greater load factor in your transport operations through easy, safe and efficient double stacking of pallet cargo. The pallet racks are available in two standard heights, 80 cm and 120 cm - and can be lifted from all four sides of the pallet. The racks are made from 100% recyclable, light and durable aluminium and traceable with GS1 barcode and RFID. SpaceInvader delivers value throughout your supply chain, improves ergonomics and reduces the climate and environmental footprint from road transport.

Specifications

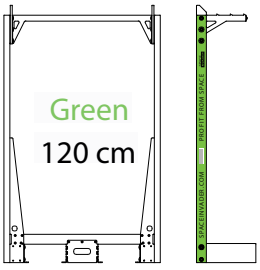


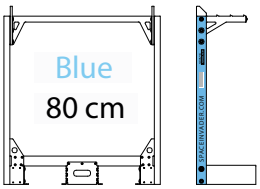


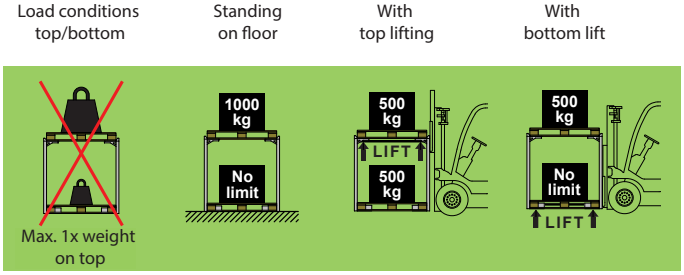
20 racks stacked on EUR pallet

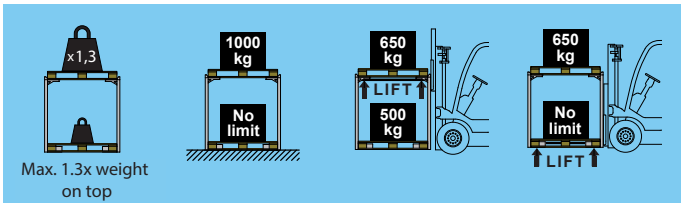
Weight	
120 cm rack	9.9 kg
80 cm rack	8.6 kg
Width	79 cm

Load limits









SpaceInvader is also available in variable heights for goods up to 150 cm height.