

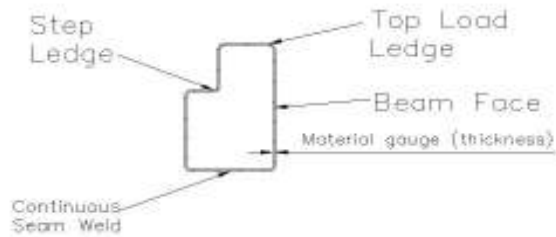
How to Select Pallet Rack Beams

Part One

Choosing beams for selective pallet rack might seem to be a simple decision, but there are many things that are often overlooked. Choosing the wrong beams or failing to identify a problem in the field can present a risk of property damage and serious or fatal injury.

While there are several styles of pallet racks and beams, this article will focus on the common style known as “step” or “offset” beam.

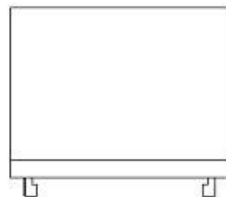
COMMON STEP BEAM SECTION



Ledge Loading

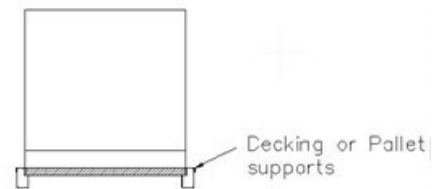
The most common loading of a step beam is where it “ledge loaded”: this is where the pallet rests on both the front and rear beams without any additional support between the beams. Pallets should overhang the front and rear beams to prevent pallets from falling through. The amount of overhang should not be less than 2” (both front and back) otherwise pallet supports or wire decking is recommended.

Ledge Load



Pallet is supported only by beams. Pallet overhangs min. 2” on each side.

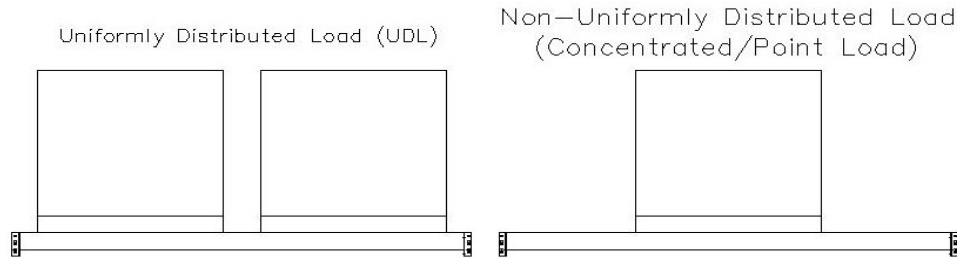
Deck Load



When pallet overhang is less than 2” or may not rest on the front or rear beams decking and pallet supports should be used (note load is uniformly distributed along the decking or pallet supports in picture).

Uniformly Distributed Load

Beam capacity is always based on pairs of beams and on a uniformly distributed load. As a result, loads should be spread evenly across the length of the beams. When loads are not uniformly distributed this is considered “point loading”. In other words, the weight is not spread evenly over the length of the beams but instead is concentrated over certain points along the beams. With “point load” situations capacity charts are not valid and the manufacturer should be consulted for proper selection of components.



Each manufacturer is different so be sure to use the correct Capacity Chart when designing your system

It is important to understand that manufacturers’ beam capacity charts are valid only for uniformly distributed load (UDL) conditions. Once you have the load weights and dimensions and how long you want the beams to be, you can find the model beam required on the beam capacity chart to support your load. Capacities are typically listed per shelf (pair of beams). Also be sure to pay attention to the footnotes in the charts that detail additional requirements for properly using the beams.

Example Beam Capacity Chart								
Beam Span								
Beam Model	48"	60"	72"	84"	96"	108"	120"	144"
2.5	4,300	3,400	2,600	2,000	1,600	1,300	1,100	800
3.0	6,900	5,800	5,000	4,500	4,000	3,000	2,300	1,400
4.0	8,500	7,000	6,400	5,600	5,000	3,900	3,000	2,000
4.5	9,990	8,500	7,900	6,800	6,000	5,200	4,300	2,900
5.0	12,000	10,000	9,300	8,100	7,100	5,900	5,500	3,900
5.5	14,000	11,600	10,800	9,300	8,200	7,300	6,600	5,000
6.0	15,000	13,100	12,000	10,400	9,100	8,200	7,400	6,000

Chart Footnotes:

- Capacities are in lbs per pair of beams and based on uniformly distributed loads.
- Capacities listed are for non-seismic conditions.
- Beams over 90" that support decking must be tied together to prevent spreading.
- Beams over 108" should utilize one pallet support located mid span.
- These capacities assume that all components are manufactured by ABC Co., are in good condition, and properly maintained.

