

Equipment Racks

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This Guide is designed to help you understand the difference between Newton Instrument Company's equipment racks. There are several factors to consider when ordering an Equipment rack. Sizes, Design characteristics, Aperture, Hole Pattern and seismic capabilities are just a few.

Channel rack, relay rack, equipment rack, network bay, unequal flange rack. Whatever you call them, they basically do the same thing, provide a housing for some kind of equipment.

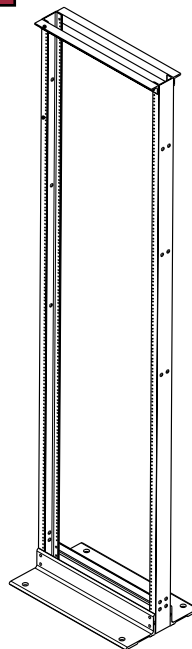
Types Of Racks

There are several types of rack that can be used for this purpose, going from a two-post channel rack all the way up to a seismically rated four-post frame.

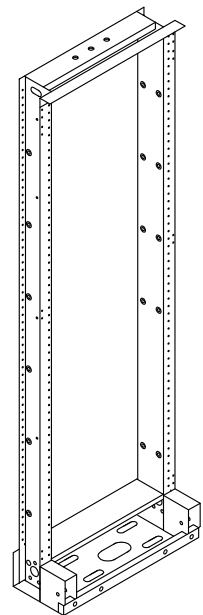
Generally speaking, channel racks are used in a data center environment (computer rooms, data closets etc) where welded unequal flange racks are used in regulated telecommunication central offices, huts and local exchanges.

So, what are the differences and why so many different names?

There are many different philosophies and approaches when it comes to mounting equipment, managing cable, securing the racks to the floor and so on. One philosophy uses spacer panels between racks for cabling the other uses a gated cable manager. Neither is more correct than the other is but the style of rack will dictate what fits where.



Channel



Unequal Flange

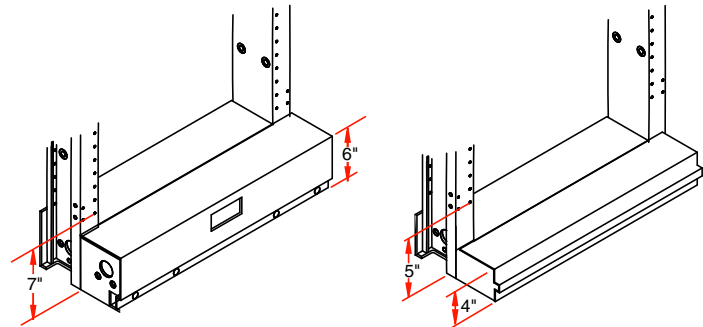
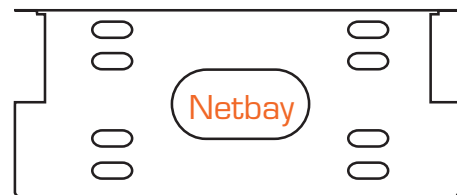
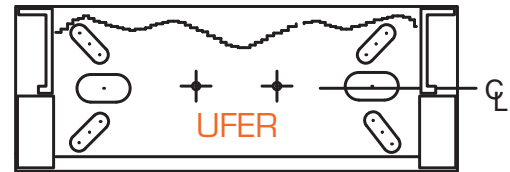
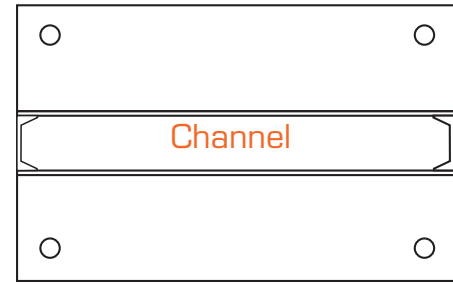
Base assemblies

Let's start at the bottom and work upwards. The base of a channel rack is "L" shaped, it will normally stick out about 6.0" from the uprights at both the front and rear to make the rack symmetric, add the 3.0" wide upright to this and the overall depth of the base is 15". The base is used to both stabilize the tall uprights and also mount the rack to the floor.

Unequal flange rack bases are not symmetric in nearly all cases, the base (or guard box as it is known) will stick out in front of the upright but not at the rear, this gives the rack a long "L" shape.

Duct.

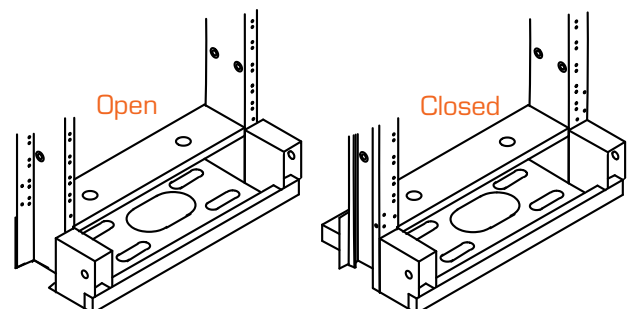
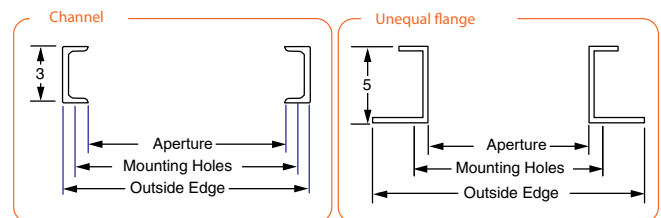
Look at it as the opening made by the two narrow flanges as the side that you can access the cable from. If you can access from the front of the rack, it's open. If the access is from the rear, it's closed. The front to rear dimension on an unequal flange rack upright is nominally 5.0".



Uprights

Uprights (the vertical supports that hold the equipment) on a channel rack have equal flanges. The front and rear faces that the equipment is mounted to are the same dimensions on both sides. The distance between these two faces is about 3.0" so the two faces plus the "rib" that joins them forms a "U" shape.

The name unequal flange rack perfectly describes the uprights; the flange on one side is almost twice the width of the flange on the other side. When placed side by side, the two wider flanges touch before the narrow sides, leaving a perfect opening for cable to be routed up or down the rack. When the wide flange is on the guard box side at the front the rack is considered closed duct, when the narrow flange is on the guard box side, this is now open

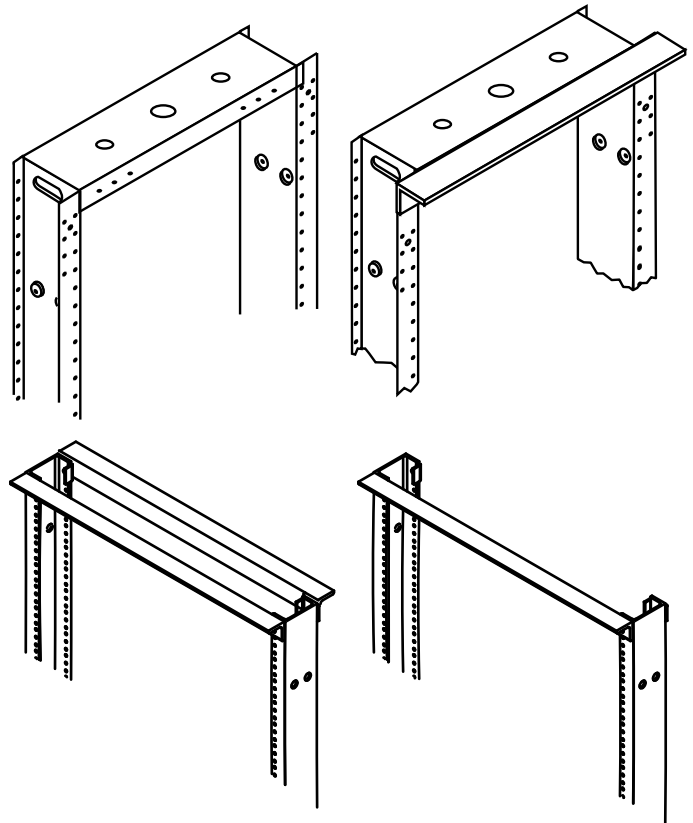


Top Channel

The top channels on both racks (the piece that joins the two uprights together at the top) are also different, they provide the same functionality but in different ways.

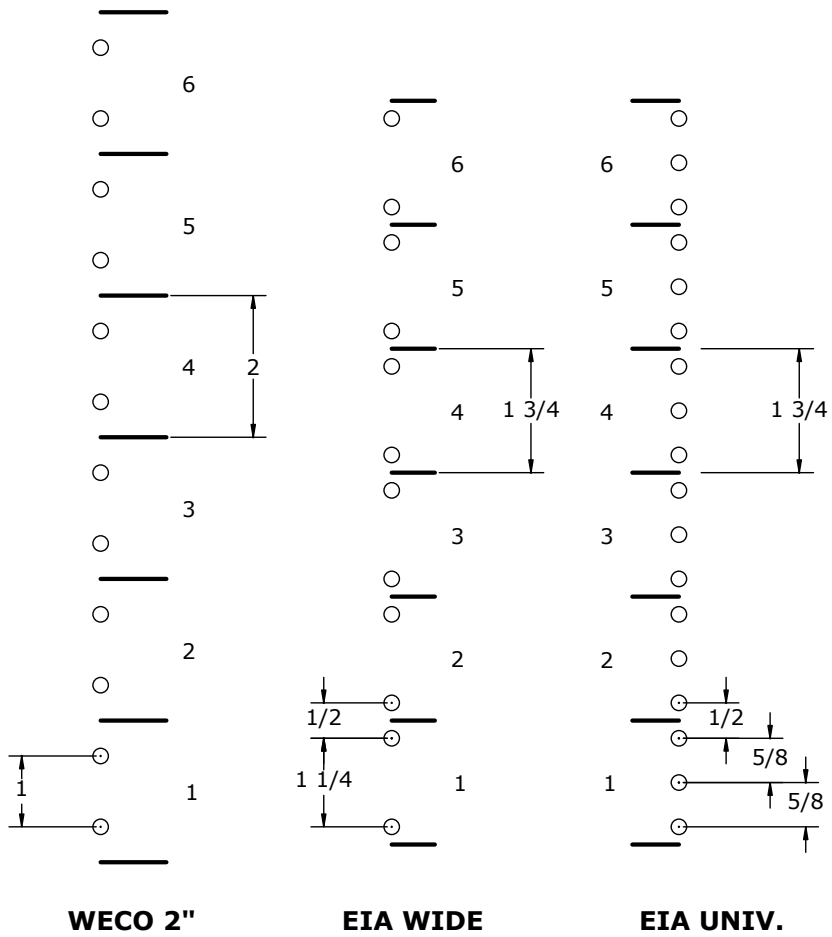
The top on a channel rack is an "L" shaped angle bracket. Some racks have just one at the designated front; others have a top angle on both the front and rear.

The top on an unequal flange rack is a little more complex, it is a formed piece of steel that again matches the profile of the upright but it has welded inserts to allow extenders and other structural supports to be attached.



Hole Pattern

The hole pattern you choose depends on the equipment that you will be mounting in the rack.



6 RU (rack units) or 6 Mounting Spaces for the three standard hole spacings.

Rack Type	Seismic	Mounting hole pattern options	First mtg hole from floor	Upright depth	Special features
UFER (Unequal flange equipment rack)	No	"1" 1 1/4"-1/2"	7.0"	5.0"	
Network Bay (Netbay)	No	"1" or 1 1/4"-1/2"	5.0"	5.0"	
Seismic UFER*	Yes	"1" 1-1/4"-1/2"	7.0"	5.0"	Meets GR-63 Zone 4 at 500 lb load.
Seismic Network Bay*	Yes	"1"	5.0"	5.0"	Meets GR-63 Zone 4 at 500 lb load.
Sym Rack*	Yes	1" 1 1/4"-1/2" 5/8"-5/8"-1/2"	5.0" or 7.0" **	5.0"	Meets GR-63 Zone 4 at 875 lb load PLUS EIA compliant 17.75" opening between uprights.
Transitional*	Yes	"1" 1-1/4"-1/2"	5.0" or 7.0" **	5.0"	Meets GR-63 Zone 4 at 500 lb load.
NGN*	Yes	1" 1 1/4"-1/2" 5/8"-5/8"-1/2"	5.0" or 7.0" **	5.0"	Meets GR-63 Zone 4 at 500 lb load PLUS EIA compliant 17.75" opening between uprights.
NDR (Newton Data Rack)	No	5/8"-5/8"-1/2" (EIA-U)	4.0"	3.0"	EIA 310 Compliant, Bolted Alum.
NFR (Newton Formed Rack)	No	1" 1 1/4"-1/2" 5/8"-5/8"-1/2"	7.0"	3.0"	EIA 310 Compliant, Bolted or Welded Steel.
Channel Rack	No	"1 1/4"-1/2" (EIA-W)	7.0"	3.0"	Bolted Steel or Alum, Welded Steel
NER (Newton Economy Rack)	NO	1 1/4"-1/2" 5/8"-5/8"-1/2"	4.0"	3.0"	EIA 310 Compliant Bolted or Welded Steel.
* Tested with weight plates to simulate equipment					
** Can be configured in either a Netbay or UFER configuration					