



RIDG-U-RAK



Pallet Rack Storage Systems



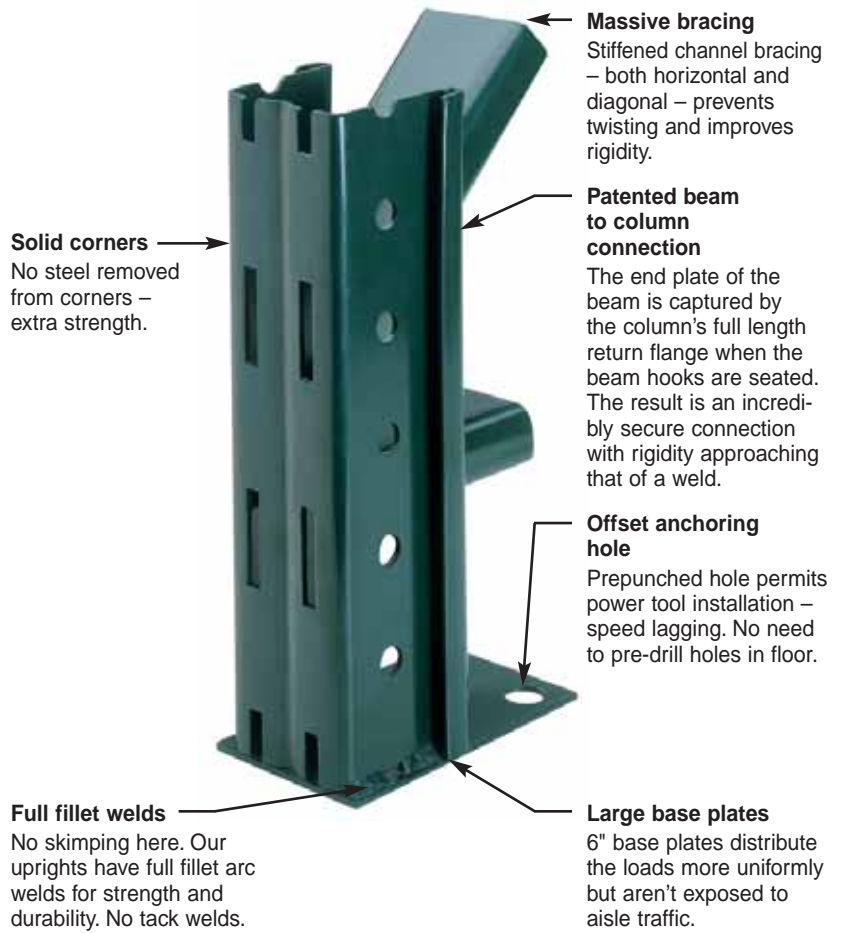
High Performance Ridg-U-Rak Pallet Rack

High performance Ridg-U-Rak sets the industry standard for rigidity, strength and durability. This most common rack storage method permits immediate accessibility.

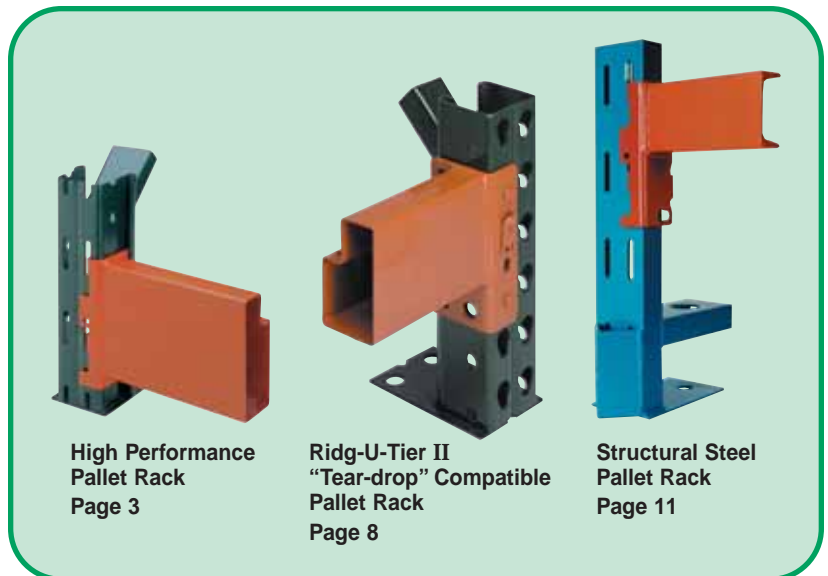
High performance Ridg-U-Rak is available in a virtually unlimited selection of sizes and capabilities.



Superior design Superior value



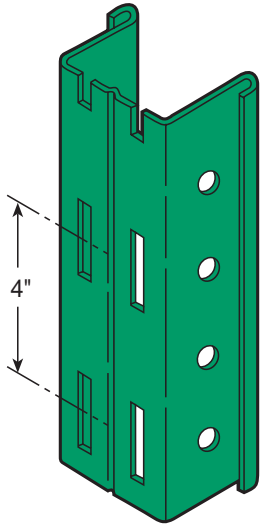
Ridg-U-Rak pallet rack storage systems





High Performance Column Identification

32 pallet rack



Designation for column configuration

C

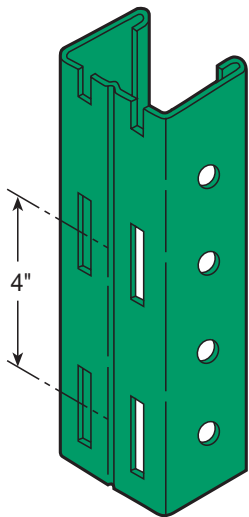
Type of lock: PP-500 pinch pins or CBL - 3/4" clips

Punching pattern: Beam slots in face on 4" centers

Column size: 3" x 2-1/4"



33 and 43 pallet rack



Designation for column configuration

C

Type of lock: PP-500 pinch pins or CBL - 3/4" clips

Punching pattern: Beam slots in face on 4" centers

Column size: 3" x 2-3/4" also (4" x 2-3/4")



Frame capacity

The Frame Capacity Chart gives allowable loads based on the specified **unsupported length** of the column.

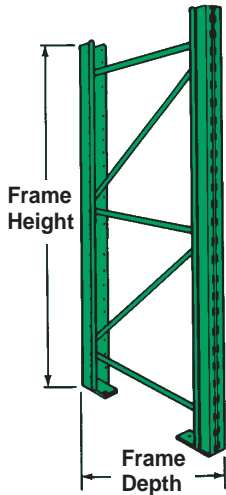
The loads on upright frames accumulate from top to bottom; therefore, the **unsupported length** and the column load below each beam level should be checked to determine the worst case combination.

Connection capacity

Regardless of the beam or upright capacity, loads per level must be limited according to the following chart, based upon the upright/hook interface:

Upright Frame	Beam Capacity
Model UFS	9,000 lbs. per pair
Model UFM	12,000 lbs. per pair
Model UFH	15,000 lbs. per pair

High Performance Upright Frames



Ridg-U-Rak high modulus columns

Ridg-U-Rak high modulus columns give you the perfect combination of massive load carrying capability at economical cost.

You can store heavier loads at greater heights on more levels. You get better rack damage control at lower cost than any other rack on the market. Ridg-U-Rak masters them all.

What's more, Ridg-U-Rak columns are versatile - choose hook connections, bolted connections, or both. Select the right column for the job and save material costs.

No matter how difficult the storage problem, Ridg-U-Rak can carry the load.

- Frames available in any height or depth
- Available in many different column configurations
- Extremely cost-effective material selection
- Ideal for seismic storage applications
- Features patented return flange column connection
- Ribbed column face design for added strength
- Laboratory tested for loading capacity

UF32
Series
3" x 2 1/4"

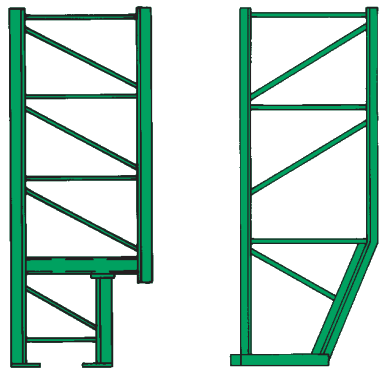
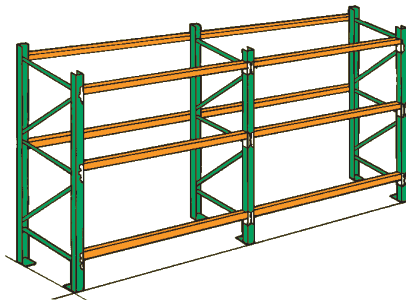
UF33
Series
3" x 2 3/4"

Upright frame numbering system

Example:

UF - S - 33C - 12.00 - 36

Upright frame - Material code - Column size - Column configuration - Height in feet - Frame depth in inches



Set-back™ Frames **Slant-back™ Frames**

Isolates the column from aisle traffic without a sacrifice in capacity.

Frame capacity chart

Maximum Vertical Beam Spacing	32C			33C			43C
	S	M	H	S	M	H	M
36"	24,000	29,800	36,400	29,100	40,500	49,100	51,700
44"	22,500	27,900	34,100	26,900	37,100	45,000	49,400
48"	21,600	26,900	32,800	25,600	35,300	42,700	48,000
52"	20,700	25,700	31,300	24,300	33,300	40,400	46,600
60"	18,600	23,200	28,200	21,500	29,300	35,400	43,400
72"	15,400	19,100	23,200	17,300	23,300	28,100	38,100
84"	12,200	15,200	18,500	13,500	17,900	21,600	32,600
96"	9,800	12,300	14,800	10,700	14,100	17,000	27,200
108"	8,000	10,000	12,100	8,700	11,400	13,700	22,200

Vertical beam to beam spacing greater than 108" consult factory

Notes:

1. All capacities are listed in pounds per frame.
2. Standard baseplates can be used for 32 series frames up to a capacity of 31,100 pounds per frame, and 33, 43 series frames up to a capacity of 39,900 pounds per frame. Consult with factory for baseplate requirements for greater capacities.
3. Frames must be anchored as required based on the height-to-depth ratio as follows:

Frame Height-to-Depth Ratio* between...	Anchor Requirements
0 and 6.6 to 1	A minimum of (1) 1/2" diameter anchor is required in each baseplate. Note: This is based on 2-1/4" minimum embedment and 3,000 p.s.i. concrete.
6.6 and 9.4 to 1	A minimum of (1) 5/8" diameter anchor is required in each baseplate. Note: This is based on 2-3/4" minimum embedment and 3,000 p.s.i. concrete.
Above 9.4 to 1	A minimum of (1) 1/2" diameter anchor is required in each baseplate, plus cross-aisle ties or wall ties.

* Measuring to the topmost beam position.

- In the absence of required engineering data, i.e. minimum anchor embedment depth and concrete strength, any rack over an 8:1 ratio requires cross-aisle ties or wall ties.
4. Frame depths greater than 60" may require special bracing. Consult with factory.



Column Sentry II™ Reinforcing for High Performance Upright Frames

Accidental lift truck impact damage is inevitable, but unique Column Sentry II reinforcing keeps it to an absolute minimum.

Ridg-U-Rak's Column Sentry II reinforcing is a double-thick, double-strength diaphragmed box section that provides exceptional resistance to impact damage of upright rack storage columns.

Column Sentry II reinforcing helps guard against rack failure, collapse, and local buckling; and, at the same time, it increases column load carrying strength.

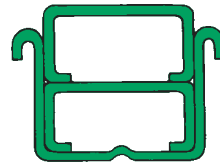
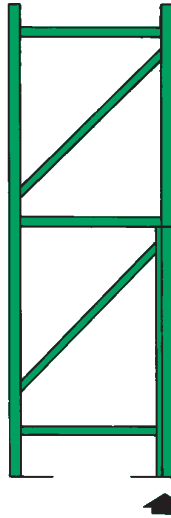
And that's not all. Column Sentry II reinforcing is compact, thereby saving critical aisle space. No more space is required than our standard column, and it need be applied only in critical areas such as the first column level on the aisle.

No other reinforcing method offers the protection, strength, and economy of Column Sentry II.



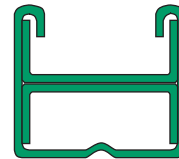
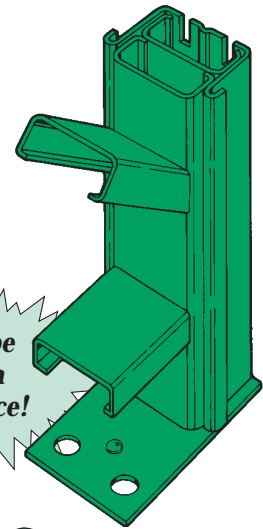
Structural Rack Column **Column Sentry II**

When subjected to the same impact force, Column Sentry II shows a dramatically better resistance to impact damage.



Column Sentry II reinforcing creates diaphragmed box section with double-wall thickness and more steel in corners.

the tube with a difference!



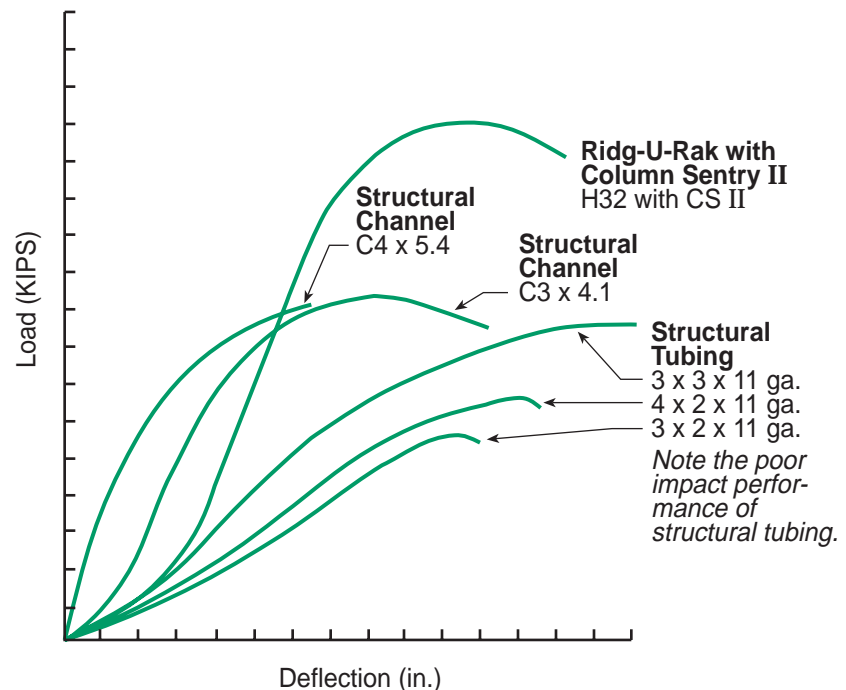
Column Sentry II reinforcing can be applied cost-effectively where it's needed most – such as lower leg of front upright column. No need for heavy, inflexible, expensive structural components in areas where damage is unlikely to occur.

Column Sentry II
33C 3 x 2-3/4
43C 4 x 2-3/4

Upright column strength comparison after equal impact

Laboratory tests were conducted to determine the axial load carrying capability of different column sections after an equal impact load was applied. After impact, each column section was placed in a testing

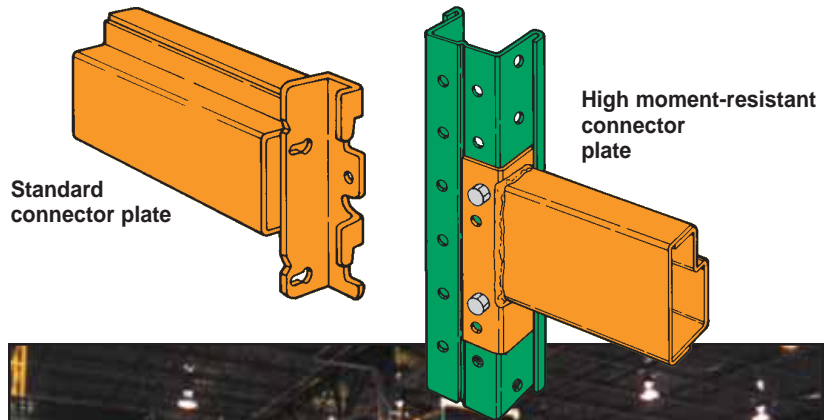
machine where controlled compressive force was applied. The deflection was measured and recorded at increasing load increments and then plotted logically.



High Performance Beams

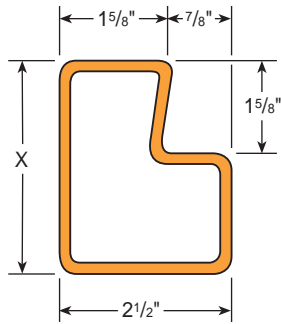
Ridg-U-Rak offers many standard beam models in virtually any length with capacities to 22,500 lbs. per pair.

- Beams have a safety factor of 1.67 based on minimum yield of steel.
- All beams are painted Safety Orange as standard. Special finishes such as non-standard colors or galvanizing are available on special order.
- Beam welding is full penetration continuous welds to the end plate - not spot or tack welds.
- Electrostatically coated Safety Orange paint finish on Ridg-U-Rak beams gives your operators added visual assistance in loading or unloading racks.
- All beam capacities are calculated based on the requirements of the 1997 RMI specification. Deflection is limited to not exceed length/180 in all instances.
- Beams listed here represent popular sizes and only a portion of the thousands of sizes available. Ridg-U-Rak beams are available in any height or length you need.
- All capacities are based on **uniformly distributed loads** on a pair of beams. Other loading conditions can greatly reduce the carrying capacities of the beams. For unusual loading requirements, call your local Ridg-U-Rak distributor.





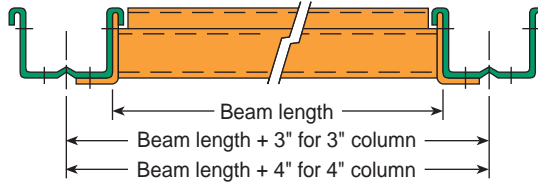
Beam Dimensions



Beam dimensions for column sizes 32, 33, 43

Part Number	X
RB-L-**300	3.00
RB-L-**355	3.55
RB-S-**355	3.55
RB-L-**410	4.10
RB-S-**450	4.50
RB-L-**465	4.65
RB-S-**500	5.00
RB-S-**600	6.00

** Fill in 32P or 33C.



Beams for column sizes 32, 33, 43

Max. capacities in pounds per pair of beams - *no values exceed L/180 deflection.*
 Many other beam capacities and sizes available - *consult factory.*

Part Number	Beam Lengths								
	048"	060"	072"	084"	096"	108"	120"	132"	144"
300 L	6440	5130	4200	3070	2340	1850	1490	1230	1030
355 L	8350	6650	5520	4630	3530	2780	2250	1850	1550
355 S	9590	7640	6340	5250	4010	3150	2550	2100	1760
410 L	10490	8360	6940	5930	5060	3990	3220	2650	2220
450 S			10250	8760	7640	6260	5060	4170	3490
465 L			8480	7250	6320	5480	4420	3650	3060
500 S			11940	10200	8900	7890	6580	5420	4550
600 S			14750	12600	10990	9750	8750	7940	6670

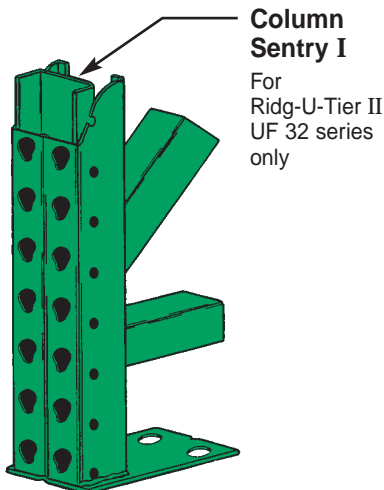
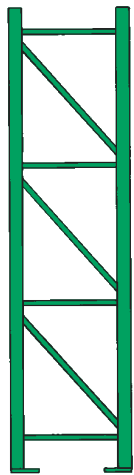
Notes:

- All capacities are based on uniformly distributed loads on a pair of beams. Other loading conditions can greatly reduce the carrying capacity of the beams.
- Beams have been designed for a 2-pallet-wide application. For single pallet wide applications, multiply the beams listed capacity by 0.9.
- For beams in excess of 115" in length, a flanged crossbar must be installed at mid-span.
- Capacities are determined based on limiting deflection to length divided by 180. Consult the factory for applications requiring less deflection.

Ridg-U-Tier II Pallet Racks

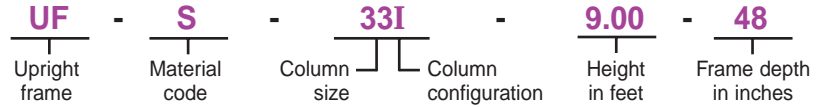
Ridg-U-Tier II is the only rack offering you this unique combination of features.

- Larger foot pad
- Tear-drop design
- Forest green finish
- Heavier bracing
- Bigger columns than others
- Optional 3-pin connection
- Complete range of rack accessories
- Unique center reinforcing rib
- Economical one-piece beams
- Adjustable in 2 inch increments
- Impact reinforcing available

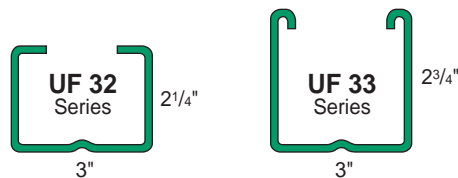


Upright frame numbering system

Example:



Upright frame capacities



Note: The deeper column sections add extra impact resistance and capacity.

Frame capacity

The Frame Capacity Chart gives allowable loads based on the specified **unsupported length** of the column.

The loads on upright frames accumulate from top to bottom; therefore, the **unsupported length** and the column load below each beam level should be checked to determine the worst-case combination.

Frame capacity chart

Maximum Vertical Beam Spacing	32I	33I			43I
	S	S	M	H	M
36"	23,100	27,900	38,800	47,000	47,900
44"	21,300	25,700	35,600	43,000	45,700
48"	20,300	24,600	33,800	40,900	44,500
52"	19,200	23,300	31,900	38,600	43,100
60"	17,000	20,700	28,100	33,900	40,200
72"	13,500	16,600	22,300	26,800	35,300
84"	10,400	12,900	17,200	20,700	30,200
96"	8,300	10,300	13,500	16,300	25,200
108"	6,700	8,300	10,900	13,100	20,500

Vertical beam to beam spacing greater than 108" consult factory

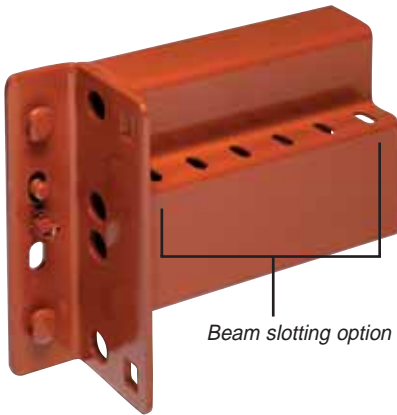


Ridg-U-Tier II Beams

Ridg-U-Rak offers many standard beam models, in virtually any length, with capacities to 22,500 lbs. per pair plus interchangeability. Tie into many existing systems, both old and new designs.

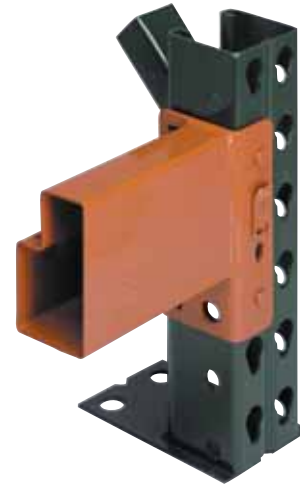
Beams have a safety factor of 1.67 based on minimum yield of steel. All beams are painted Safety Orange as standard. Special finishes, such as non-standard colors or galvanizing, are available on special order.

Beam welding is full penetration continuous welds to the end plate - not spot or tack welds.



Electrostatically coated Safety Orange paint finish on Ridg-U-Rak beams gives your operators added visual assistance in loading or unloading racks.

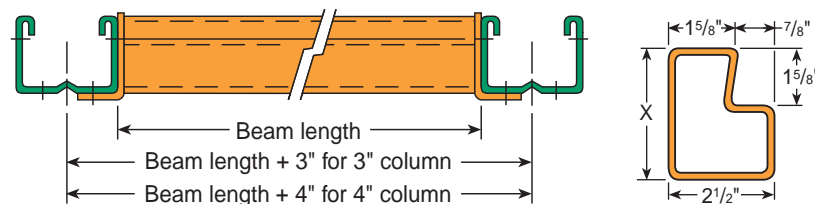
- All beam capacities are calculated based on the requirements of the 1997 RMI specification. Deflection is limited to not exceed length/180 in all instances.
- Beams listed here represent popular sizes and only a portion of the thousands of sizes available. Ridg-U-Rak beams are available in any height or length you need.
- All capacities are based on **uniformly distributed loads** on a pair of beams. Other loading conditions can greatly reduce the carrying capacities of the beams. For unusual loading requirements, call your local Ridg-U-Rak distributor.



Beam dimensions

Part Number	X
RB-L-32I-300	3.00
RB-L-32I-355	3.55
RB-S-32I-355	3.55
RB-L-32I-410	4.10
RB-S-32I-450	4.50
RB-L-32I-465	4.65
RB-S-32I-500	5.00
RB-S-32I-600	6.00

Beam length determination

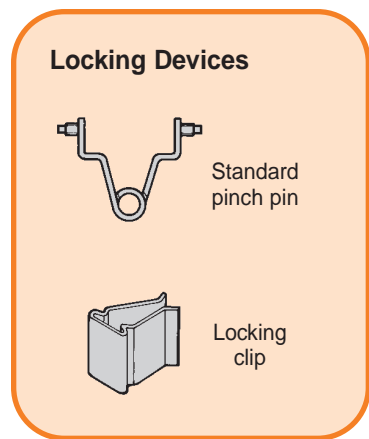
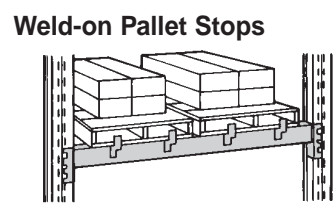
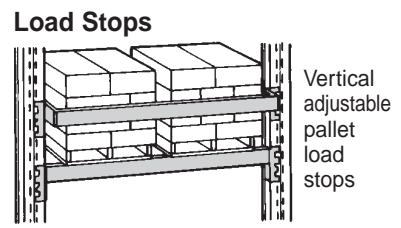
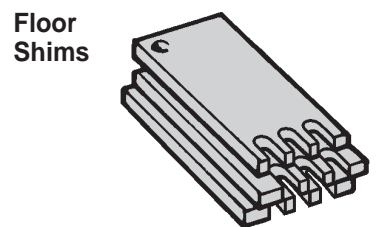
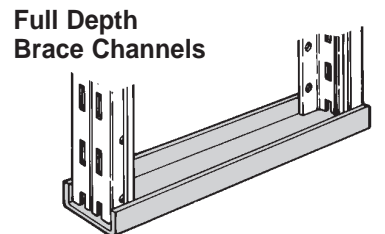
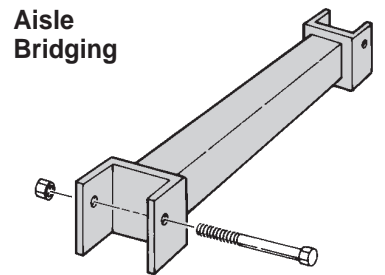
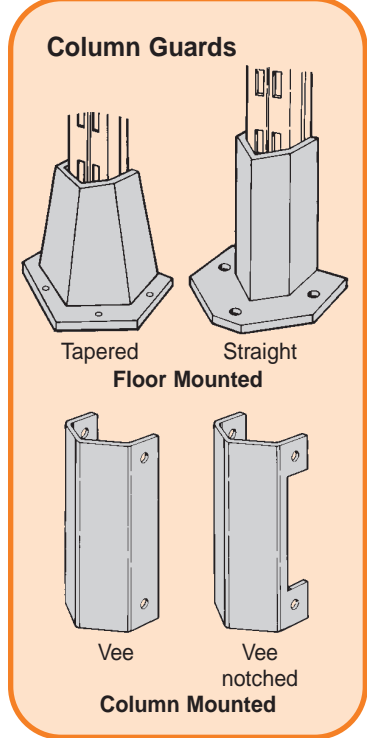
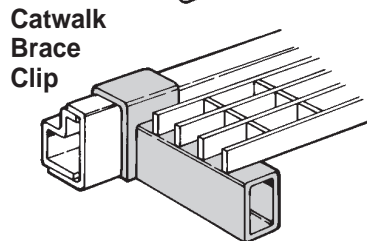
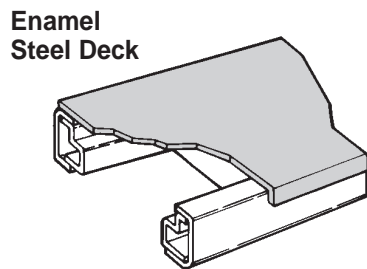
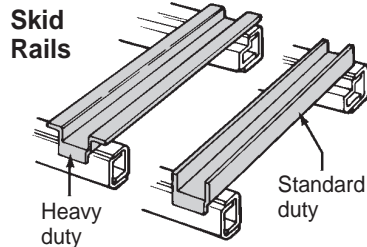
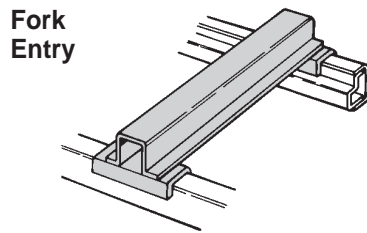
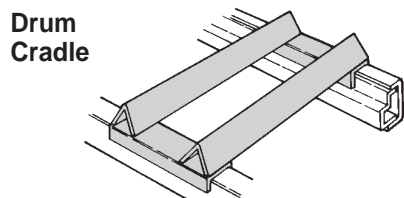
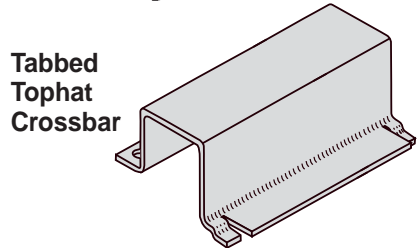
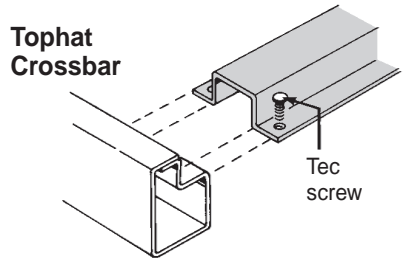
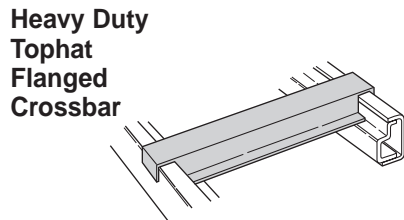
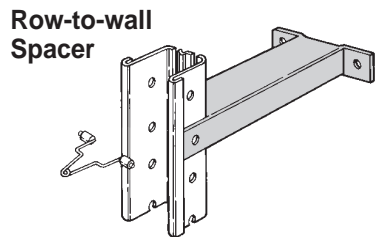
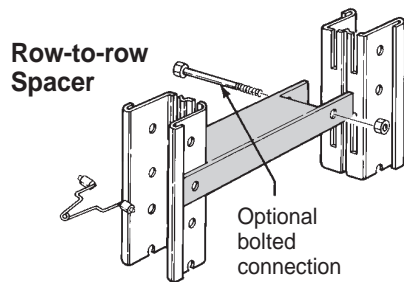


Beams capacities

Max. capacities in pounds per pair of beams - *no values exceed L/180 deflection.*
 Many other beam capacities and sizes available - *consult factory.*

Part Number	Beam Lengths								
	048"	060"	072"	084"	096"	108"	120"	132"	144"
300 L	6440	5130	4200	3070	2340	1850	1490	1230	1030
355 L	8350	6650	5520	4630	3530	2780	2250	1850	1550
355 S	9590	7640	6340	5250	4010	3150	2550	2100	1760
410 L	10490	8360	6940	5930	5060	3990	3220	2650	2220
450S			10250	8760	7640	6260	5060	4170	3490
465 L			8480	7250	6320	5480	4420	3650	3060
500 S			11940	10200	8900	7890	6580	5420	4550
600 S			14750	12600	10990	9750	8750	7940	6670

High Performance and Ridg-U-Tier II Accessories





Structural Steel Pallet Rack

Ridg-U-Rak structural steel storage systems are available in a virtually unlimited selection of sizes and capacities to meet your specific storage needs.

Engineered components are designed, tested and manufactured under strict guidelines to give you a rigid, secure storage system that will provide decades of trouble-free service.

Ridg-U-Rak upright frames are produced from high quality structural steel channels jig-welded for uniformity. Extensive diagonal bracing increases system rigidity, and a large, pre-drilled foot plate improves load distribution. With Ridg-U-Rak structural uprights you get a massive lower horizontal brace for added strength and a welded-on column foot protector for added safety. – all standard, at no extra cost.

And only Ridg-U-Rak offers you two types of beam connections to better meet your storage requirements.

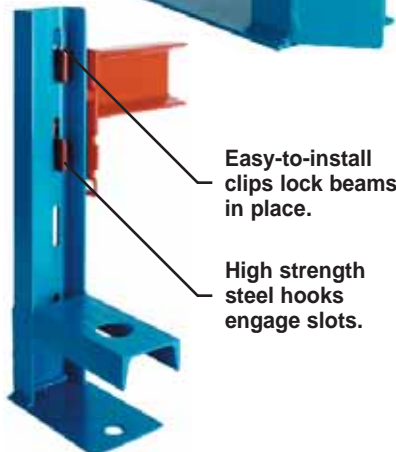


Slotted connection

Ridg-U-Rak slotted connection structural systems are vertically adjustable on 4" centers. Slotted connection racks offer some substantial economic advantages over bolted systems. Up front, there's no need for bolts which allows the system to be installed in about one-third less time.

High strength hooks on the beams engage slots in the upright columns. A simple locking clip prevents accidental disengagement. It's a rigid, secure storage system also available in a wide range of sizes and capacities.

Your local Ridg-U-Rak Distributor can help you select the structural system that's most cost-effective for you.



Easy-to-install clips lock beams in place.

High strength steel hooks engage slots.

Bolted connection

Ridg-U-Rak bolted structural systems are vertically adjustable on 2" centers. Bolted connection beams are available in a wide variety of lengths and capacities for either 3" or 4" wide channel upright. High-strength, self-locking fasteners provide a tight, secure connection between beam and upright.



Heavy-duty lower horizontal brace is standard.

Large foot plate has pre-drilled lagging hole.

Welded foot protector guard is standard.

Frame capacity

The Frame Capacity Chart gives allowable loads based on the specified **unsupported length** of the column.

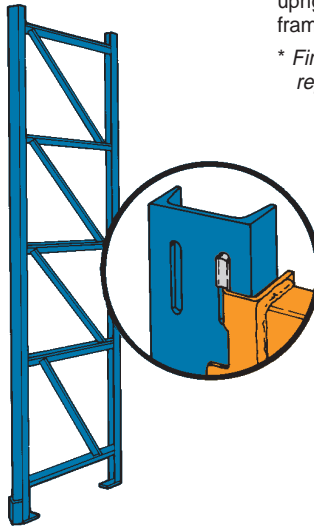
The loads on upright frames accumulate from top to bottom; therefore, the **unsupported length** and the column load below each beam level should be checked to determine the worst-case combination.

Slotted Connection Structural Rack Specifications

Upright frames

- Upright frame capacities vary according to vertical beam spacing. See chart.
- Upright columns are hot-rolled structural channel with 50,000 psi minimum yield.
- Upright frames have a safety factor of 1.92 based on minimum yield of steel.
- Slotted beams are vertically adjustable on 4" centers.
- Standard colors:
Uprights – forest green
Beams – safety orange
Other colors available on special order.
- Front column foot protector is standard.
- Heavy duty lower horizontal brace is standard.

Frame part number
example



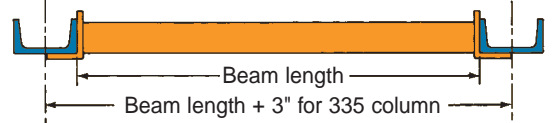
SSF - 335 - 12.33 - 42
 Structural slotted upright frame - Column channel size* - Frame height in feet - Frame depth in inches

* First digit represents column width. Remaining digits represent column weight in pounds per 10' of height.

Frame capacity chart

Unsupported Length	SSF-335
36"	34,200
48"	33,300
60"	30,000
72"	24,000
84"	18,400
96"	14,200
108"	11,300

Beam length
column center line determination



Beam part number
example

SCB - B - C3 - S - 335 - 048
 Structural Beam - Beam Style B-Standard - Column Type C3 - Slotted - Beam Type 335 - Length 048

Beam capacities - slotted connection

Unsup-ported Beam Length	335		341		445		567		682	
	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr
048"	11,880	12,050	13,280	13,280						
054"	10,180	10,690	11,590	11,780						
072"	6,800	7,840	7,930	8,620	11,420	13,510				
084"	5,360	5,740	6,310	6,310	8,690	11,540	14,840			
092"	4,460	4,770	5,250	5,250	7,150	10,510	12,330			
096"	4,080	4,380	4,810	4,810	6,530	10,050	11,280			
102"	3,600	3,870	4,260	4,260	5,740	8,890	9,940		14,130	
108"	3,200	3,450	3,790	3,790	5,090	7,920	8,830	14,750	12,520	
120"	2,580	2,790	3,060	3,060	4,080	6,390	7,100	12,880	10,030	
132"	2,120	2,300	2,520	2,520	3,340	5,270	5,840	10,640	8,220	
144"	1,780	1,930	2,120	2,120	2,790	4,420	4,880	8,940	6,870	
156"	1,510	1,640	1,800	1,800	2,360	3,760	4,150	7,620	5,820	13,330
180"	1,130	1,230	1,350	1,350	1,760	2,810	3,100	5,730	4,340	10,010

Note: Beams must be secured by beam locks against accidental upward forces. All capacities are per pair of beams based on uniformly distributed loads. Capacities are based on 1997 RMI specifications.

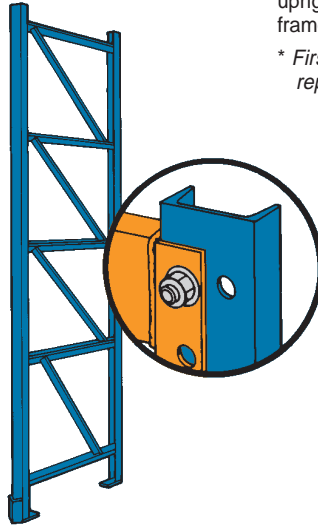


Bolted Connection Structural Rack Specifications

Upright frames

- Upright frame capacities vary according to vertical beam spacing. See chart.
- Upright columns are hot-rolled structural channel with 50,000 psi minimum yield.
- Upright frames have a safety factor of 1.92 based on minimum yield of steel.
- Bolted beams are vertically adjustable on 2" centers.
- Standard colors:
Uprights – tropic blue
Beams – brite orange
Other colors available on special order.
- Front column foot protector is standard.
- Heavy duty lower horizontal brace is standard.

Frame part number
example



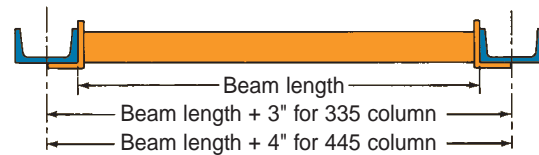
SBF - 335 - 12.33 - 42
 Structural bolted upright frame Column channel size* Frame height in feet Frame depth in inches

* First digit represents column width. Remaining digits represent column weight in pounds per 10' of height.

Frame capacity chart

Unsupported Length	SBF-335	SBF-341	SBF-445
36"	34,200	40,300	51,600
48"	33,300	39,200	50,600
60"	30,000	35,000	50,000
72"	24,000	27,600	44,500
84"	18,400	21,000	38,600
96"	14,200	16,100	32,600
108"	11,300	12,800	26,800

Beam length
column center line determination



Beam part number
example

SCB - B - C3 - B - 335 - 048
 Structural Beam Beam Style B-Standard Column Type Bolted Beam Type Length

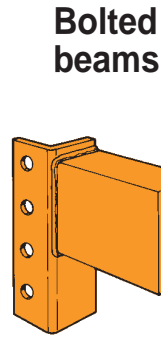
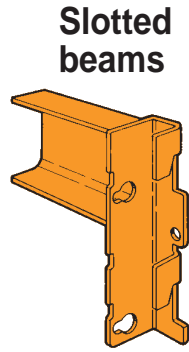
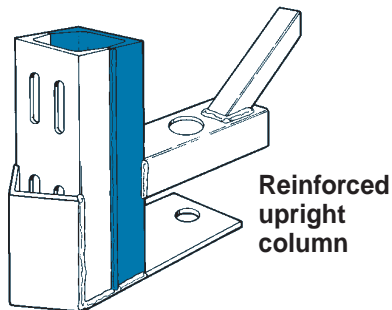
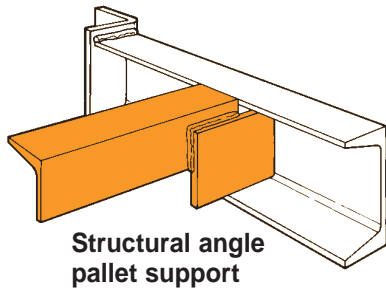
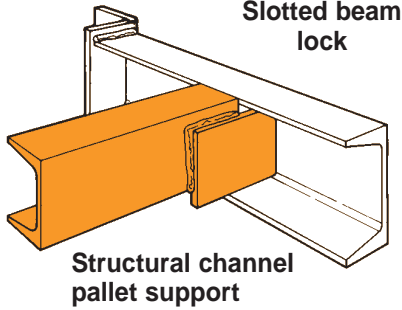
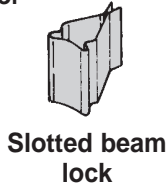
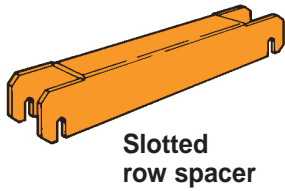
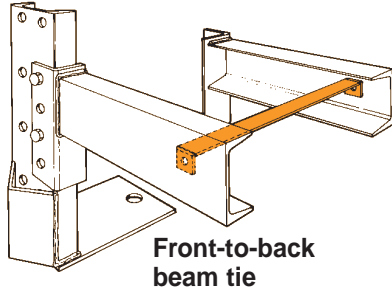
Beam capacities - bolted connection

Unsupported Beam Length	335		341		445		567		682	
	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr	Un-braced Cap/pr	Braced Cap/pr
048"	14,340	14,340	15,800	15,800						
054"	12,190	12,480	13,750	13,750						
072"	7,750	8,930	9,040	9,830	13,020	15,130	18,810			
084"	5,980	6,450	7,090	7,090	9,700	12,690	14,840	18,960		
092"	4,910	5,300	5,820	5,820	7,880	11,450	12,330	17,310	17,620	
096"	4,480	4,830	5,310	5,310	7,160	10,910	11,280	16,590	16,080	
102"	3,930	4,240	4,660	4,660	6,260	9,740	9,940	15,620	14,130	
108"	3,470	3,750	4,130	4,130	5,510	8,620	8,830	14,750	12,520	
120"	2,770	3,000	3,300	3,300	4,370	6,890	7,100	12,880	10,030	19,400
132"	2,260	2,450	2,690	2,690	3,550	5,630	5,840	10,640	8,220	17,640
144"	1,880	2,040	2,240	2,240	2,940	4,680	4,880	8,940	6,870	15,630
156"	1,590	1,720	1,890	1,890	2,480	3,950	4,150	7,620	5,820	13,330
180"	1,170	1,280	1,400	1,400	1,830	2,930	3,100	5,730	4,340	10,010

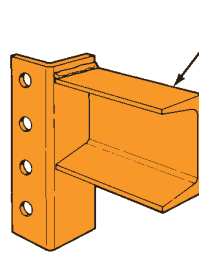
Note: All capacities are per pair of beams based on uniformly distributed loads. Tightening torque on beam bolts to be 82 ft/lbs. to obtain capacities above. Capacities are based on 1997 RMI specifications.

Structural Beam Selections

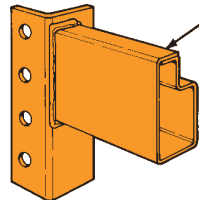
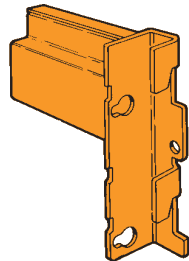
Accessories



Standard beam position
(Use part number designation - B)



Alternate beam position
(Use part number designation - A)



Roll-formed beam also available for either connection style.





Laboratory Testing

Ridg-U-Rak is one of very few manufacturers to conduct independent laboratory testing of its products to verify calculations.

Every product line has been capacity-rated using this procedure. Every kind of load-carrying component has been destructive tested.

It's an expensive and time-consuming process, but we feel it's the responsible thing to do. Don't you?



Stocking

Ridg-U-Rak has a number of stocking distributors across the country who maintain inventories of the most commonly used rack compo-

nents. If you have an urgent need, count on Ridg-U-Rak for fast service.



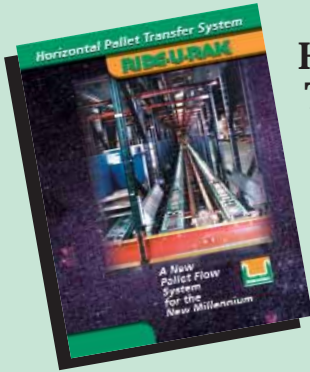
Industry Compliance

The design capacities shown in this manual are in full compliance with the 1997 specification approved by the members of the Rack Manufacturer's Institute. For a copy of the "Specification for the Design, Testing and Utilization of Industrial Steel Storage Racks" you may call RMI at 704-676-1190.

Installation Services

Ridg-U-Rak has full-time installation crews available to handle the installation of your rack system. Their experience can make for a smooth transition in both new warehousing and retrofitting.

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Horizontal Pallet Transfer System

High density, deep flow system provides smooth, positive mechanical pallet movement - eliminates the problems common to gravity flow systems. Also available are push-bak™, drive-in, mobile, double-deep and other high density storage systems.



Pick Module Storage Systems

Provides high throughput in order fulfillment and storage operations. Custom designed to meet your specific needs and available on a turnkey installation basis from Ridg-U-Rak.



Storage Systems and Capabilities

What storage method is best for your particular needs? Request Manual 25 and review over 20 different proven methods of high productivity storage. Phone or FAX today.

How to Order

To order, or for more information, call and talk to our specially trained inside sales team. Or for hometown service, call your local Ridg-U-Rak Distributor listed in the Yellow Pages.

Phone: **814-725-8751** Fax: **814-725-5659**
www.ridgurak.com



Famous for integrity for over 50 years

Proud member
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MEMBER COMPANY

Incorporated in 1945, The Material Handling Institute is a national trade association of material handling equipment manufacturers dedicated to promoting the proper and effective use of their equipment and services.

MEMBER COMPANY



RACK MANUFACTURERS INSTITUTE

The Rack Manufacturers Institute, organized in 1958, represents the majority of U.S. rack manufacturers and is dedicated to maintaining rack performance standards.



MHEDA is a professional organization dedicated to further educating, improving the proficiency and enhancing the professional image of material handling distributors nationwide.

Ridg-U-Rak is a proud member in good standing of RMI. The Storage Rack covered by this manual is in full compliance with the latest design specification approved by the members of the RACK MANUFACTURERS INSTITUTE. We believe that it is important to you that your supplier be committed to the principles of continuous improvement in both product design/application, and in the highest professional and ethical standards of performance as embodied in the mission and work conducted within RMI.