



User's Manual

Scope of Responsibility

Wireway/Husky is a member of the Rack Manufacturers Institute of the USA. Wireway/Husky fully endorses the 'Specification for the Design, Testing, and Utilization of Industrial Steel Storage Racks - 2003 Edition'. Wireway/Husky requires all of its equipment be used within the parameters of the above stated specification.

It is the responsibility of any user of this manual to ensure that their unique and specific design application corresponds in the first instance to this specification, and to any other local or national codes and/or regulations that may be applicable. The descriptive guidelines offered at various points in this manual are just that—guidelines. They are only offered as a starting point for the general education of any user of this manual. Any user applying these guidelines without reference to both the specification and full knowledge of the individual application, national/local codes, and all applicable regulations do so at their own risk.

Support Contact

It is the intent of Wireway Husky Corp. that any product received by our Customers fully meets their expectations.

Wireway Husky product is Marketed and Distributed by a number of pre-qualified Distributor organizations around the world. If you have any questions about the application or installation of your product or, in the event that this product is received by you in a form you believe to be sub-standard or below expectations, please contact the Distributor responsible for specifying and supplying your product.

If for some unforeseen circumstance the particular Distributor is unavailable or unresponsive, we then encourage you to call Wireway Husky Technical Support or (detailed to the right) contact us at productinfo@wirewayhusky.com.

| Corporate Headquarters | |
|---|----------------------------------|
| Phone / E-Mail | |
| For technical installation and/or support, please contact your distributor or supplier. | |
| Engineering Support End-User Assistance Installation Inquiries | 800.438.5629 Fax 704.483.1911 |

www.huskyrack.com

Statement of Usability

The information contained in this manual is intended for use when installing Wireway/Husky Corp. equipment only. Any reproduction of the content or images used in this manual is strictly prohibited. Wireway/Husky Corp. is not responsible for the misinterpretation or mis-use of the content. Please contact Wireway/Husky Corp. with any questions regarding the use of this publication.



Putting Together A Rack Job

*Please first see Scope of Responsibility on page 1.

Step 1. Find out everything there is to know about the item you are handling/storing. Find out the three-dimensional size and weight of every load and pallet going to any location. Remember that the pallet may not be exactly the same size as the load, there may be overhang one way or the other. Also be careful to ask about the quality of the bottom of the pallets and whether or not they are capable of resting on just beams. If they are broken or rotted, they might require wire deck to safely support them.

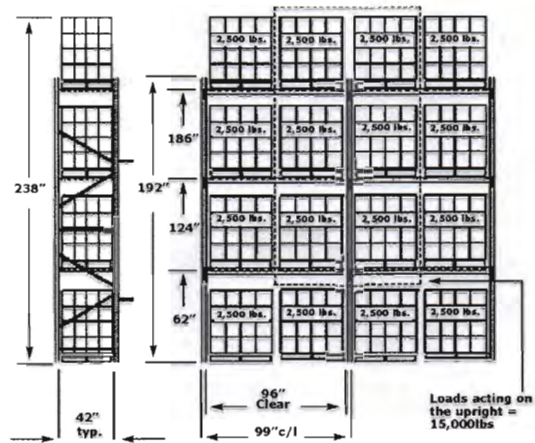
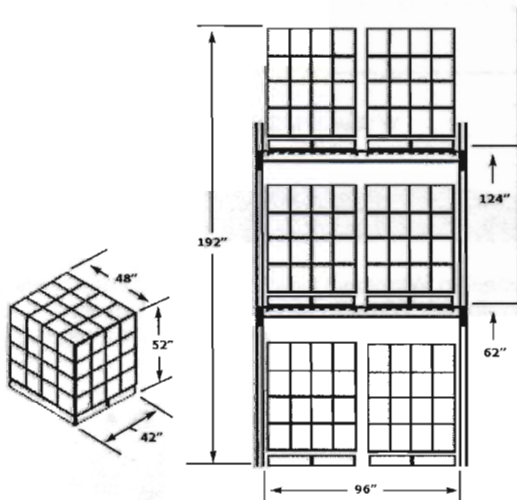
Step 2. Find out everything there is to know about the area that the rack is going to be installed. Start with the physical dimensions of the available space. Next the floor condition, its load bearing capacity and any slope. Find out about the available clear headroom and the presence of any overhead or other obstructions. Find out if there are any access-ways that the rack must not obstruct. Column centerlines and size are also important for flue space specification and layout information.

Step 3. Find out the method to be used for storing and retrieving loads in the rack (often Fork Truck or Pallet Jack). Can it carry the proposed load? What is its width and right angle turn dimension? What is its maximum lift height? Remember you must subtract from this number, usually 6", for most pallets to be lifted clear of the beam. Take note of anything else that might impede on its safe interaction with the rack.

Step 4. Select the beam. First decide how many loads should be on each beam level. The length of the beam can be determined by adding three inches to either side of the pallet, (or load, whichever is largest), and multiplying by all the loads on the beam. For example, a load/pallet of 42" width, two to a beam = $42" + 3" + 3"$, multiply by 2 and this comes to a 96" beam. The 3" additions are to give adequate side clearance for loading and unloading. The model of beam should then be selected from the 'Beam Selection Chart' below, making sure that the loads do not exceed the maximum capacity. If the beams are longer than 120" they should be tied across the middle to prevent beam spread. If loose decking is to be used, any pair of beams over 90" in length should be tied across the middle for the same reason.

Step 5. At this point **ALWAYS** start a sketch of each individual bay, no matter how small the job.

Step 6. Figure out how many beam levels you will have in any bay. Are the first pallets/loads going to sit on the floor, or on a set of beams? To calculate the number of levels add together the pallet and load height plus 6" for clearance. Add the face/height of the beam you just selected for the overall total. Fit as many levels as possible in the height available remembering to make sure the fork truck is able to lift the pallet off the top beam with its maximum fork height capabilities. It usually needs an additional 6-8" of lift height over the top beam. Finally make sure there is enough clearance for any sprinkler requirements.



Step 7. A. Find out the frame capacity necessary. Add up all of the beam loads acting on the frame, then work out the largest pallet opening on the frame (usually floor to first beam, but occasionally beam to beam above that). Loads on either side of the frame up to the center points of the beams, act upon the frames. Note that in the illustration below there is 15,000 lbs. acting on the middle frame. Now, using the capacity chart shown above, select the appropriate frame model. **B.** Figure out how high the frame needs to be to reach the top of the top beam. In most applications you should then add between 6" and 18" (up to the next standard frame size) to allow for flexibility in installation. If the customer wants the frame flush with the top of the top beam, be very sure to check the load dimensions again very carefully and check the floor for the possibility of slope in both the 'cross-aisle' and 'down-aisle' directions. **C.** Figure out how deep the frame needs to be. The dimension of the pallet determines this. In most applications an overhang of 3" on either side of the pallet is desirable (if the pallet is 48" deep the frame should be 42"). If the application demands that the pallets be flush with the front and back faces of the rack bay, cross supports from beam to beam **MUST** be used. The cross supports may be crossbars or wire deck.

Step 8. Now put together your final sketch showing all the bays that go together to make up a row, and count up all the beams and frames you need for the system.

Step 9. Is your system a single row? Or will it be installed 'back-to-back' with another row of rack? If it is back-to-back, it should be tied across the 'flue space' in the middle with row spacers. You should always use a minimum of two row spacers no matter the height. You should also ensure there is not a gap greater than 10' in height between row spacers, adding a third or fourth one if necessary.

Step 10. You must now check to see whether your system is stable or not. First, check the height compared to the depth for overturning stability. To do this, find the height from the floor to the top of the very topmost beam. Now, divide that figure by either, the depth of the frame (if this is a single row); or, the depth of both frames plus the row spacers (if this is a back-to back row). Is the answer to your division sum larger than 6.0? If so you will need to call your Husky representative for assistance, as the system is unstable. Second, check for rotational stability. Do you have only a single beam level between frames in a bay anywhere? If so you will need to call your Husky representative for assistance, as this system also is unstable.

General. General Pallet rack installations are structurally engineered systems that carry heavy loads. The steps above give a guideline for the safe specification of components for simple cases where conditions are perfect. They are written with regard to RMI 2001 which is the guiding industry specification at time of publication. If, in the future, this specification is revised or overridden; or, if you have any doubt or confusion whatsoever about any of the steps above, please contact your Husky representative for assistance.

Final. Please remember that your system should be shimmed level and anchored to the floor (one anchor per leg).

Warnings

- **Storage racks should be assembled only by trained personnel, experienced with proper rack assembly procedures.** Improper rack assembly can not only cause poor performance of your system, but can also pose a safety hazard in your facility.
- **The rack structure should be assembled and used only as shown on assembly drawings.** Changing the configuration (such as adjusting storage levels) can adversely affect the load carrying capacity and reduce the structural integrity of the rack system.
- **Do not install racks outdoors,** unless specifically designed for this purpose.
- **Allow adequate aisle spacing.**
- **Install good lighting in every rack aisle.**
- **Be cautious when intermingling new and existing parts.**
Even components produced by the same manufacturer can vary in design. These differences can adversely affect the overall performance and safety of a rack structure. Many storage rack systems have such similar designs that a rack system can be assembled using parts from more than one manufacturer. Any and all warranties and guarantees are made void if non-Wireway/Husky parts are used in conjunction with Wireway/Husky parts.
- **Do not cut, weld, or in any other way modify any component of your Wireway Husky storage rack.**
- **Never climb on racks, during or after assembly.**
Storage racks are not designed to be stepped on or climbed on. A slip or fall may result in serious injury or death. It is your responsibility to communicate this important warning to all who come into the proximity of your storage rack.

Installation

When setting up Wireway/Husky **Invincible, Reliable, TUF Rack, or Lynx** brand pallet rack, please refer to the installation instructions noted below. If you have any questions, please call 1-800-438-5629. Our company will be glad to assist you.

During installation, wear hard hats, safety glasses, and steel-toed shoes.

1. Compare material with the packing slip to make sure you received all the components in good condition.
 2. The post that has the diagonal bracing channel welded closest to the floor is the front post of the upright. In either single row or double row (back-to-back) installations, the front post should always face the aisle. In single row installations with an aisle on either side, the front should face the aisle having the most traffic.
 3. **Using help, engage one end of the beam at the desired height to the front of one upright. Next, engage the other end of the beam to the front of the 2nd upright. Repeat this procedure on the backside of the bay.**
 4. **Check the bay for level, plumb and square. The upright frames must be plumb to within 1/2" per 10 foot of height. The beams must be level to within 1/8" per 6 foot of beam length. Shims are available and should be used throughout the installation to maintain their tolerances. In addition to being plumb and level the upright bay should be square. You can check this by measuring diagonally across the bay. The two diagonal measurements must be within 1/8" of being the same.**
 5. **Subsequent bays should be installed using the same process outlined in steps 3 and 4.**
 6. **Install the next level of beams using the same procedure as in step 3. Continue to check each bay for level, plumb and square. Be sure to allow at least 6" of clearance between the top of the pallet load and the bottom of the beam on next level.**
 7. Place wall or row spacers at the top and bottom of the uprights and secure with nuts and bolts. When using row spacers, always use at least three per upright. Installation of all accessories can now be made: pallet crossbars, decking, etc..
 8. **Complete a final check to ensure all rack is level, plumb and square and anchor all uprights to an adequate concrete floor. Whenever the height to depth ratio is 6:1 or greater, please consult your supplier for additional bracing requirements.**
- Note:** Protective devices are not a substitute for regular inspections involving management personnel.
9. **WARNING - bolt beams in place if:**
 - safety clips are not engaging properly, or when
 - placing beams over aisles
 - unusual conditions such as close load clearances, tight aisle clearance or large bulky loads are present
 - beams are in positions that are difficult to inspect.Use 7/16" x 4" hex bolts and nuts with 7/16" flat washers to side bolt 3.5", 4.0" and 4.5" beams.
Use 7/16" x 4" hex bolts and nuts with 7/16" flat washers to top bolt 5.0", 5.5" and 6.0" beams.
When side top or side bolting is not possible the beams can be front bolted through the safety clip hole. Use 3/8" x 1" hex bolt and nut with 3/8" flat washers to front bolt beams.
Lateral ties are required for beams over 112.5" in length. We can provide Standard Waterfall Wire Decking or Flanged Crossbars for your lateral tie needs.
 10. Start a regular inspection procedure to check for:
 - Safety locks on boltless connections must be fully engaged through the beam connector and upright column connector holes.
 - Presence of intact and fully engaged safety clips
 - Damaged or missing safety locks
 - Overloaded beams or uprights

We recommend that this be a part of your monthly safety committee's duties. Additionally, notify all forklift operators to alert their supervisor of any rack damage. If rack deficiencies are discovered:

- Immediately unload the affected area
- Replace the damaged items.
- In the case of a safety clip problem—beams can be safely bolted in place, and are available by contacting our Customer Service Department.

Any questions on installation call 1-800-438-5629 and ask for the Engineering Department or visit our website www.huskyrack.com

BEAM & FRAME CAPACITIES

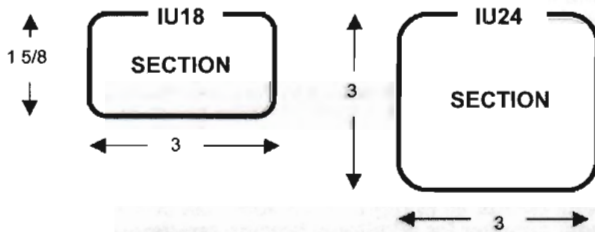
Three Punch Styles Available

| Beam Length | Beam Spacing | | | | | | | |
|-------------|--------------|--------|--------|--------|--------|--------|--------|--------|
| | IBX300 | IBX350 | IBX390 | IBX430 | IBX480 | IBN550 | IBN600 | IBH600 |
| 48" | 5,218 | 6,592 | 7,849 | 9,063 | 10,946 | 15,724 | | |
| 60" | 4,169 | 5,268 | 6,273 | 7,244 | 8,750 | 12,570 | 14,444 | |
| 72" | 3,744 | 4,871 | 5,801 | 6,700 | 8,093 | 11,628 | 13,363 | |
| 84" | 2,751 | 3,999 | 4,965 | 5,735 | 6,929 | 9,956 | 11,443 | 14,442 |
| 90" | 2,396 | 3,484 | 4,605 | 5,349 | 6,463 | 9,287 | 10,674 | 13,472 |
| 92" | 2,293 | 3,334 | 4,408 | 5,232 | 6,322 | 9,083 | 10,440 | 13,177 |
| 94" | 2,197 | 3,194 | 4,222 | 5,119 | 6,186 | 8,888 | 10,216 | 12,894 |
| 96" | 2,106 | 3,062 | 4,048 | 5,010 | 6,054 | 8,701 | 10,001 | 12,623 |
| 98" | 2,021 | 2,938 | 3,885 | 4,891 | 5,931 | 8,521 | 9,795 | 12,363 |
| 100" | 1,941 | 2,822 | 3,731 | 4,697 | 5,811 | 8,349 | 9,597 | 12,113 |
| 102" | 1,865 | 2,712 | 3,585 | 4,514 | 5,694 | 8,183 | 9,407 | 11,873 |
| 104" | 1,794 | 2,609 | 3,449 | 4,343 | 5,584 | 8,024 | 9,224 | 11,643 |
| 106" | 1,727 | 2,512 | 3,320 | 4,181 | 5,478 | 7,871 | 9,048 | 11,420 |
| 108" | 1,664 | 2,419 | 3,198 | 4,026 | 5,373 | 7,723 | 8,878 | 11,207 |
| 110" | 1,604 | 2,332 | 3,083 | 3,882 | 5,251 | 7,581 | 8,715 | 11,000 |
| 112" | 1,547 | 2,250 | 2,974 | 3,745 | 5,065 | 7,444 | 8,557 | 10,801 |
| 114" | 1,493 | 2,171 | 2,870 | 3,614 | 4,889 | 7,311 | 8,405 | 10,610 |
| 116" | 1,442 | 2,097 | 2,773 | 3,491 | 4,722 | 7,183 | 8,258 | 10,424 |
| 118" | 1,394 | 2,027 | 2,679 | 3,374 | 4,563 | 7,059 | 8,116 | 10,245 |
| 120" | 1,348 | 1,960 | 2,590 | 3,261 | 4,412 | 6,940 | 7,979 | 10,072 |
| 132" | 1,114 | 1,620 | 2,141 | 2,695 | 3,647 | 5,832 | 7,289 | 8,988 |
| 138" | 1,019 | 1,482 | 1,959 | 2,467 | 3,336 | 5,336 | 6,669 | 8,223 |
| 144" | 936 | 1,361 | 1,799 | 2,265 | 3,064 | 4,901 | 6,125 | 7,552 |
| 156" | 798 | 1,160 | 1,533 | 1,930 | 2,611 | 4,176 | 5,219 | 6,435 |
| 168" | 688 | 1,000 | 1,322 | 1,664 | 2,251 | 3,601 | 4,500 | 5,549 |

| Beam Spacing | UPRIGHT FRAME | | | |
|--------------|---------------|--------|--------|--------|
| | IU18 | IU24 | IU29 | IU42 |
| 36" | 19,400 | 25,000 | 34,203 | 44,337 |
| 42" | 17,400 | 22,600 | 30,650 | 40,008 |
| 48" | 15,900 | 21,200 | 28,566 | 37,115 |
| 54" | 14,600 | 19,700 | 26,337 | 34,266 |
| 60" | 13,200 | 18,100 | 24,022 | 31,279 |
| 66" | 11,800 | 16,500 | 21,675 | 28,230 |
| 72" | 10,400 | 14,800 | 19,349 | 25,169 |
| 78" | 9,100 | 13,200 | 17,053 | * |
| 84" | 8,000 | 11,700 | 15,059 | * |
| 90" | 7,100 | 10,400 | 13,377 | * |
| 96" | 6,300 | 9,400 | 11,949 | * |

| DOUBLE POST & CLOSED TUBE UPRIGHTS | | | |
|------------------------------------|---------------|--------|--------|
| Beam Spacing | UPRIGHT FRAME | | |
| | IU47 | IU48 | IU58 |
| 36" | 53,583 | 49,914 | 68,406 |
| 42" | 48,044 | 45,228 | 61,300 |
| 48" | 44,502 | 42,358 | 57,132 |
| 54" | 40,930 | 39,346 | 52,674 |
| 60" | 37,215 | 36,172 | 48,044 |
| 66" | 33,452 | 32,906 | 43,350 |
| 72" | 29,710 | 29,616 | 38,698 |
| 78" | * | * | * |
| 84" | * | * | * |
| 90" | * | * | * |
| 96" | * | * | * |

*Call Factory



The tables above have been calculated in accordance with the April 15, 2003 edition of the RMI "Specification for Design, Testing and Utilization of Industrial Steel Storage Racks" and the 1996 edition of the AISI "Specification for the Design of Cold-Formed Steel Structural Members".

For vertical shelf spacing greater than 96" please contact your distributor.

Shelf spacing measured from the floor to the top of the beam or the maximum shelf spacing (whichever is greater).

Terms and Conditions

To companies having satisfactory credit ratings, terms are 1% - 10, Net 30 days. Companies placing initial orders please furnish three credit references (names of recent suppliers, NO BANKS. References are subject to approval by our credit department. To those companies not satisfactorily rated or who do not furnish credit references, our terms are cash. NO C.O.D. orders will be accepted. Orders accepted by Wireway/Husky Corp. are taken with the understanding they are not subject to cancellation for any reason without our written consent. No return, whatsoever, will be accepted on special made items. Prices are subject to change without notice. No sales tax or other taxes are included. Notwithstanding the warranty information detailed below, our responsibility ceases when goods are delivered to the carrier. Claims for damaged or shortages in transit must be made by customer against the delivering carrier. Freight Classification: Pallet Rack, Class 65; Wire Deck, Class 50; Rack Guard, Class 77.5. Upon request, we will provide pre-pay and add carrier service. The above stated conditions still apply however.

One Year Limited Warranty

Subject to standard manufacturing variations, Wireway/Husky Corp. warrants its products to be free of defects in material and workmanship according to agreed specifications and for ordinary applications for which designed. This warranty shall extend for a period of one year from the date of shipment. This warranty does not apply to parts which, through normal use, require replacement during the warranty period, and with respect to materials purchased by Wireway/Husky Corp., such warranty shall be limited to warranties given by Wireway/Husky Corp.'s suppliers of the materials, but shall not enlarge Wireway/Husky Corp.'s warranty beyond that stated herein. WIREWAY/HUSKY CORP. MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, AND SPECIFICALLY EXCLUDES ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. No claim for damages for goods that do not conform to specifications will be allowed unless Wireway/Husky Corp. is given immediate notice after delivery of goods to the first destination to which they are shipped and allowed an opportunity to inspect them. Products for which damages are claimed shall not be returned, repaired or discarded without Wireway/Husky Corp.'s written consent. Buyer's exclusive remedy against Wireway/Husky Corp., and Wireway/Husky Corp.'s sole obligation, for any and all claims, whether for breach of contract, warranty, tort (including negligence), or otherwise, shall be limited to Wireway/Husky Corp.'s repairing or replacing, at its option, goods that do not conform to specifications or, at its option refunding the purchase price. In no event shall Wireway/Husky Corp. have any liability for damages in an amount exceeding the purchase price of goods sold hereunder, nor shall Wireway/Husky Corp. have any liability for incidental or consequential damages. The provisions of this section limiting remedies to repair, refund or replacement, limiting liability and excluding consequential or incidental damages are independent provisions and any determination that any such limitation of remedies fails of its essential purpose, or any other determination that any of the aforementioned provisions is unenforceable, shall not be construed to make any other provision unenforceable.



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