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HDU-C-SERIES STORAGE RACKS

INSTRUCTION MANUAL



Receiving instructions:

After delivery, IMMEDIATELY remove the packaging from the product in a manner that preserves the packaging and maintains the orientation of the product in the packaging; then inspect the product closely to determine whether it sustained damage during transport. **If damage is discovered during the inspection, immediately record a complete description of the damage on the bill of lading.** If the product is undamaged, discard the packaging.

NOTES:

- 1) Compliance with laws, regulations, codes, and non-voluntary standards enforced in the location where the product is *used* is exclusively the responsibility of the owner/end-user.
- 2) VESTIL is **not liable** for any injury or property damage that occurs as a consequence of failing to apply either:
 - a) Instructions in this manual; or b) information provided on labels affixed to the product. Neither is Vestil responsible for *any* consequential damages sustained as a result of failing to exercise sound judgment while assembling, installing, using or maintaining this product.

Table of Contents

Hazard identification: explanation of signal words.....	2
Safety Guidelines.....	2
Product Specifications by Model.....	3
FIG. 1A: MDU-C exploded parts diagram.....	4
FIG. 1B: Upright posts.....	4
MDU-C-6 & MDU-C-8 bills of materials.....	5
MDU-C-10 bill of materials.....	6
Assembly instructions.....	6-8
Maintenance.....	8
Limited warranty.....	9

Hazard Identification--Explanation of SIGNAL WORDS

This manual uses SIGNAL WORDS to indicate the likelihood of personal injuries, as well as the probable seriousness of those injuries, if the product is misused in the ways described. Other signal words call attention to uses of the product likely cause property damage.

The signal words used appear below along with the meaning of each word:



Identifies a hazardous situation which, if not avoided, **WILL** result in **DEATH** or **SERIOUS INJURY**. Use of this signal word is limited to the most extreme situations.



Identifies a hazardous situation which, if not avoided, **COULD** result in **DEATH** or **SERIOUS INJURY**.



Indicates a hazardous situation which, if not avoided, **COULD** result in **MINOR** or **MODERATE** injury.



Identifies practices likely to result in product/property damage, such as operation that might damage the product.

Each person who assembles, installs, uses, or maintains this product should read the entire manual **in advance and fully understand the directions**. **If after reading the manual you do not understand an instruction, ask your supervisor or employer for clarification, because failure to adhere to the directions in this manual might result in serious personal injury.**

SAFETY GUIDELINES

Vestil diligently strives to identify foreseeable hazards associated with the use of its products. However, material handling is inherently dangerous and no manual can address every conceivable risk. The end-user ultimately is responsible for exercising sound judgment at all times.



Electrocution might result if any part of the rack system or items or materials placed on the rack contacts electrified wires. Reduce the likelihood of electrocution by applying **common sense**:

➤ **DO NOT install the rack in a location where contact with electrified wires will occur.**



If this product is used or assembled improperly or carelessly, people in the area might sustain serious personal injuries or even be killed. **ALWAYS** use the product properly:

- **Failure to read and understand the entire manual before assembling, installing, loading or servicing the product constitutes misuse.** Read the manual to refresh your understanding of proper use and maintenance procedures as necessary.

- **DO NOT** exceed the maximum rated load.

- Inspect the rack periodically (AT LEAST once per month). **DO NOT** continue to use the rack if the inspection reveals structural damage. Examples of structural damage include: 1) warped, deformed, or damaged posts (uprights) or beams; 2) cracked welds; 3) enlargement of openings that receive beam studs; 4) corrosion, severe wear, or other condition that affects the ability of the product to support applied weight; 6) damaged, deformed or cracked cross-supports. Immediately tag out the rack, unload it completely, and replace each part that fails to pass an inspection. **DO NOT** use the product until it is fully restored to normal condition. **ONLY** use manufacturer-approved replacement parts.

- **DO NOT** use the product if any unusual noise or movement is observed. If a malfunction occurs, remove the unit from service and notify your supervisor or maintenance personnel about the issue.

- All loads stored on the rack must fit within the dimensions of the rack. **DO NOT** store any load that hangs over the rack.

- **DO NOT** use the pallet rack **UNLESS** it is securely anchored to the ground.

- **ALWAYS** evenly distribute and center the load on the rack.

- **ONLY** use this rack on even, level surfaces.

- **DO NOT** remove or obscure any label. All product labels must be readable and undamaged.

- **DO NOT** climb or sit on the rack.

- **DO NOT** modify the rack in any way. **Unauthorized modifications automatically void the limited warranty (see p. 6) and might make the rack unsafe to use.**



Proper maintenance is essential for this product to function properly and to last as long as possible.

- Always use this product in accordance with the instructions in this manual and consistent with any training relevant to the storage of materials on racks.

- Keep the rack clean & dry.

Product Specifications by Model:

Model	Height	Base support length	Capacity	Arm model	Net Weight
HDU-C-8-18	8ft.	34in.	49,400 lb. (~22,454.5kg)	HSA-C-18 or HIA-C-18	275 lb. (125kg)
HDU-C-8-24	8ft.	46in.	43,000 lb. (~19,545.5kg)	HSA-C-24 or HIA-C-24	307 lb. (139.5kg)
HDU-C-8-36	8ft.	58in.	36,600 lb. (~16,636.4kg) OR 32,000 lb. (~14,545.5kg)	HSA-C-30; HIA-C-30 OR HSA-C-36; HIA-C-36; HD SA-C-36; or XHDSA-C-36	350 lb. (159.1kg)
HDU-C-8-48	8ft.	82in.	28,400 lb. (~12,909.1kg) OR 25,600 lb. (~11,636.4kg)	HSA-C-42; HIA-C-42; HD SA-C-42; or XHDSA-C-42 OR HSA-C-48; HIA-C-48; HD SA-C-48; HD SA-C-48M; XH DSA-C-48	390 lb. (177.3kg)
HDU-C-10-18	10ft.	34in.	49,200 lb. (~22,363.6kg)	HSA-C-18 or HIA-C-18	300 lb. (136.4kg)
HDU-C-10-24	10ft.	46in.	42,600 lb. (~19,363.6kg)	HSA-C-24 or HIA-C-24	335 lb. (152.3kg)
HDU-C-10-36	10ft.	58in.	36,400 lb. (~16,545.5kg) OR 36,400 lb. (~16,545.5kg)	HSA-C-30; HIA-C-30 OR HSA-C-36; HIA-C-36; HD SA-C-36; or XHDSA-C-36	386 lb. (175.5kg)
HDU-C-10-48	10ft.	82in.	28,200 lb. (~12,818.2kg) OR 25,200 lb. (~11,454.5kg)	HSA-C-42; HIA-C-42; HD SA-C-42; or XHDSA-C-42 OR HSA-C-48; HIA-C-48; HD SA-C-48; HD SA-C-48M; XH DSA-C-48	418 lb. (190kg)
HDU-C-12-18	12ft.	34in.	48,800 lb. (~22,181.8kg)	HSA-C-18 or HIA-C-18	350 lb. (159.1kg)
HDU-C-12-24	12ft.	46in.	41,800 lb. (~19,000kg)	HSA-C-24 or HIA-C-24	385 lb. (175kg)
HDU-C-12-36	12ft.	58in.	35,600 lb. (~16,181.8kg) OR 31,200 lb. (~14,181.8kg)	HSA-C-30; HIA-C-30 OR HSA-C-36; HIA-C-36; HD SA-C-36; or XHDSA-C-36	430 lb. (195.5kg)
HDU-C-12-48	12ft.	82in.	27,800 lb. (~12,636.4kg) OR 25,000 lb. (~11,363.6kg)	HSA-C-42; HIA-C-42; HD SA-C-42; or XHDSA-C-42 OR HSA-C-48; HIA-C-48; HD SA-C-48; HD SA-C-48M; XH DSA-C-48	470 lb. (213.6kg)
HDU-C-14-18	14ft.	34in.	46,800 lb. (~21,272.7kg)	HSA-C-18 or HIA-C-18	390 lb. (177.3kg)
HDU-C-14-24	14ft.	46in.	40,400 lb. (~18,363.6kg)	HSA-C-24 or HIA-C-24	426 lb. (193.6kg)
HDU-C-14-36	14ft.	58in.	35,200 lb. (~16,000kg) OR 30,800 lb. (~14,000kg)	HSA-C-30; HIA-C-30 OR HSA-C-36; HIA-C-36; HD SA-C-36; or XHDSA-C-36	468 lb. (212.7kg)
HDU-C-14-48	14ft.	82in.	27,400 lb. (~12,454.5kg) OR 24,800 lb. (~11,272.7kg)	HSA-C-42; HIA-C-42; HD SA-C-42; or XHDSA-C-42 OR HSA-C-48; HIA-C-48; HD SA-C-48; HD SA-C-48M; XH DSA-C-48	510 lb. (231.8kg)

Straight arms

Model	Arm length	Capacity	Net weight
HSA-C-18	18in. 45.7cm	2,500 lb. 1,136.4kg	16 lb. 7.3kg
HSA-C-24	24in. ~61cm	2,000 lb. 909.1kg	19 lb. 8.6kg
HSA-C-30	30in. 76.2cm	1,500 lb. 681.8kg	21 lb. 9.5kg
HSA-C-36	36in. 91.4cm	1,200 lb. 545.5kg	24 lb. 10.9kg
HSA-C-42	42in. (106.7cm)	1,100 lb. 500kg	27 lb. 12.3kg
HAS-C-48	48in. (121.9cm)	1,000 lb. 454.5kg	30 lb. 13.6kg

Inclined arms

Model	Arm length	Capacity	Net weight
HIA-C-18	18in. 45.7cm	2,500 lb. 1,136.4kg	16 lb. 7.3kg
HIA-C-24	24in. ~61cm	2,000 lb. 909.1kg	19 lb. 8.6kg
HIA-C-30	30in. 76.2cm	1,500 lb. 681.8kg	21 lb. 9.5kg
HIA-C-36	36in. 91.4cm	1,200 lb. 545.5kg	24 lb. 10.9kg
HIA-C-42	42in. 106.7cm	1,100 lb. 500kg	27 lb. 12.3kg
HIA-C-48	48in. 121.9cm	1,000 lb. 454.5kg	30 lb. 13.6kg

Heavy-duty & Extra heavy-duty arms

Model	Arm length	Capacity	Net weight
HDSA-C-36	36in. 91.4cm	2,175 lb. 988.6kg	26 lb. 11.8kg
XHDSA-C-36	36in. 91.4cm	3,400 lb. 1,545.5kg	30 lb. 13.6kg
HDSA-C-42	42in. 106.7cm	1,865 lb. 847.7kg	29 lb. 13.2kg
XHDSA-C-42	42in. 106.7cm	2,900 lb. 1,318.2kg	33 lb. 15kg
HDSA-C-48	48in. 121.9cm	1,630 lb. 740.9kg	31 lb. 14.1kg
HDSA-C-48M	48in. 121.9cm	2,000 lb. 909.1kg	33 lb. 15kg
XHDSA-C-48	48in. 121.9cm	2,500 lb. 1,136.4kg	36 lb. 16.4kg

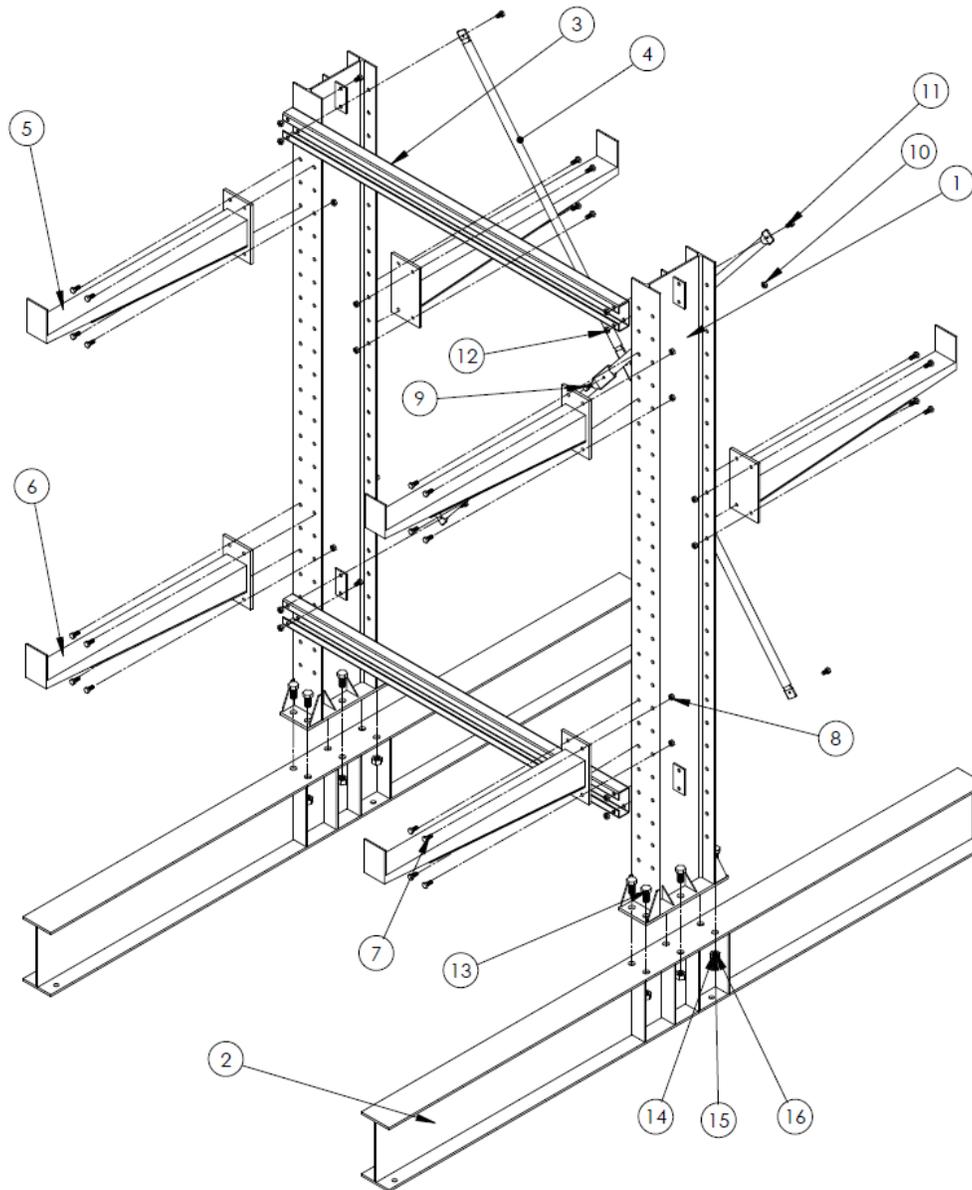
Brace sets (of 2)

Model	Arm length	Length	Net weight
HB-C-8-3	96in. – 120in. 243.8cm – 304.8cm	36in. 91.4cm	29 lb. 13.2kg
HB-C-8-4	96in. – 120in. 243.8cm – 304.8cm	48in. 121.9cm	35 lb. 15.9kg
HB-C-8-5	96in. – 120in. 243.8cm – 304.8cm	60in. 152.4cm	42 lb. 19.1kg
HB-C-8-6	96in. – 120in. 243.8cm – 304.8cm	72in. 182.9cm	54 lb. 24.5kg

Brace sets (of 2) continued

HB-C-8-7	96in. – 120in. 243.8cm – 304.8cm	84in. 213.4cm	61 lb. 27.7kg
HB-C-8-8	96in. – 120in. 243.8cm – 304.8cm	96in. 243.8cm	69 lb. 31.4kg
HB-C-14-3	144in. – 168in. 365.8cm – 426.7cm	36in. 91.4cm	44 lb. 20kg
HB-C-14-4	144in. – 168in. 365.8cm – 426.7cm	48in. 121.9cm	54 lb. 24.5kg
HB-C-14-5	144in. – 168in. 365.8cm – 426.7cm	60in. 152.4cm	64 lb. 29.1kg
HB-C-14-6	144in. – 168in. 365.8cm – 426.7cm	72in. 182.9cm	84 lb. 38.2kg
HB-C-14-7	144in. – 168in. 365.8cm – 426.7cm	84in. 213.4cm	95 lb. 43.2kg
HB-C-14-8	144in. – 168in. 365.8cm – 426.7cm	96in. 243.8cm	107 lb. 48.6kg

FIG. 1: MDU-C exploded parts diagram (bills of materials appear on p. 3 & 4)



HDU-C-8 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	HDU-1-UR-8	8ft. double-sided upright post	2
2	HDU-2-DB-8	Double-sided base	2
3	HDU-3-BB	Back brace	2
4	HDU-4-CB	Cross bar	2
5	HSA	Straight arm	as ordered
	HIA	Inclined arm	as ordered
	HDSA	Heavy duty straight arm	as ordered
	XHDSA	Extra-heavy duty straight arm	as ordered
7	HDU-7-BOLT	M24-2.0 x 40mm bolt	4 per arm
8	HDU-8-WA	M24-2.0 lock nut	4 per arm
9	HDU-9-LW	M17-1.5 x 30mm bolt	9
10	HDU-10-HN	M17-1.5 hex lock nut	9
11	HDU-11-BOLT	M17-1.5 x 30mm bolt	9
12	HDU-12-LN	M17-1.5 lock nut	9
13	HDU-13-BOLT	M30-2.5 x 40mm bolt	12
14	HDU-14-LN	M30 lock washer	12
15	HDU-15-BOLT	M30 flat washer	12
16	HDU-16-WA	M30-2.5 hex nut	12

HDU-C-10 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	HDU-1-UR-10	8ft. double-sided upright post	2
2	HDU-2-DB-10	Double-sided base	2
3	HDU-3-BB	Back brace	2
4	HDU-4-CB	Cross bar	2
5	HSA	Heavy duty straight arm	as ordered
	HIA	Heavy duty inclined arm	as ordered
	HDSA	Heavy duty straight arm	as ordered
	XHDSA	Extra-heavy duty straight arm	as ordered
6	HDU-6-BOLT	M24-2.0 x 40mm bolt	4 per arm
7	HDU-7-WA	M24-2.0 lock nut`	4 per arm
8	HDU-8-LW	M17-1.5 x 30mm bolt	9
9	HDU-9-HN	M17-1.5 hex lock nut	9
10	HDU-10-BOLT	M17-1.5 x 30mm bolt	9
11	HDU-11-LN	M17-1.5 lock nut	9
12	HDU-12-BOLT	M30-2.5 x 40mm bolt	12
13	HDU-13-LN	M30 lock washer	12
14	HDU-14-BOLT	M30 flat washer	12
15	HDU-15-WA	M30-2.5 hex nut	12

HDU-C-12 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

Item no.	Part no.	Description	Quantity
1	HDU-1-UR-12	12 ft. double-sided upright	2
2	HDU-2-DB-12	Double-sided base	2
3	HDU-3-BB	Back brace	3
4	HDU-4-CB	Cross bar	4
5	HSA-C-8	Straight arm	as ordered
	HIA-C-8	Inclined arm	as ordered
	HDSA	Heavy-duty straight arm	as ordered
	XHDSA	Extra heavy duty straight arm	as ordered
6	HDU-6-BOLT	M24-2.0 x 40mm bolt	4 per arm
7	HDU-7-WA	M24 flat washer	4 per arm
8	HDU-8-LW	M24 lock washer	4 per arm
9	HDU-9-HN	M24-2.0 hex nut	4 per arm
10	HDU-10-BOLT	M17-1.5 x 32mm bolt	14
11	HDU-11-LN	M17-1.5 lock nut	14
12	HDU-12-BOLT	M17-1.5 x 32mm bolt	14
13	HDU-13-LN	M17-1.5 lock nut	14
14	HDU-14-BOLT	M30-2.5 x 40mm bolt	12
15	HDU-15-WA	M30 flat washer	12
16	HDU-16-LW	M30 lock washer	12
17	HDU-17-HN	M30-2.5 hex nut	12

HDU-C-14 bill of materials

NOTE: You will receive straight and/or inclined arms as per your order.

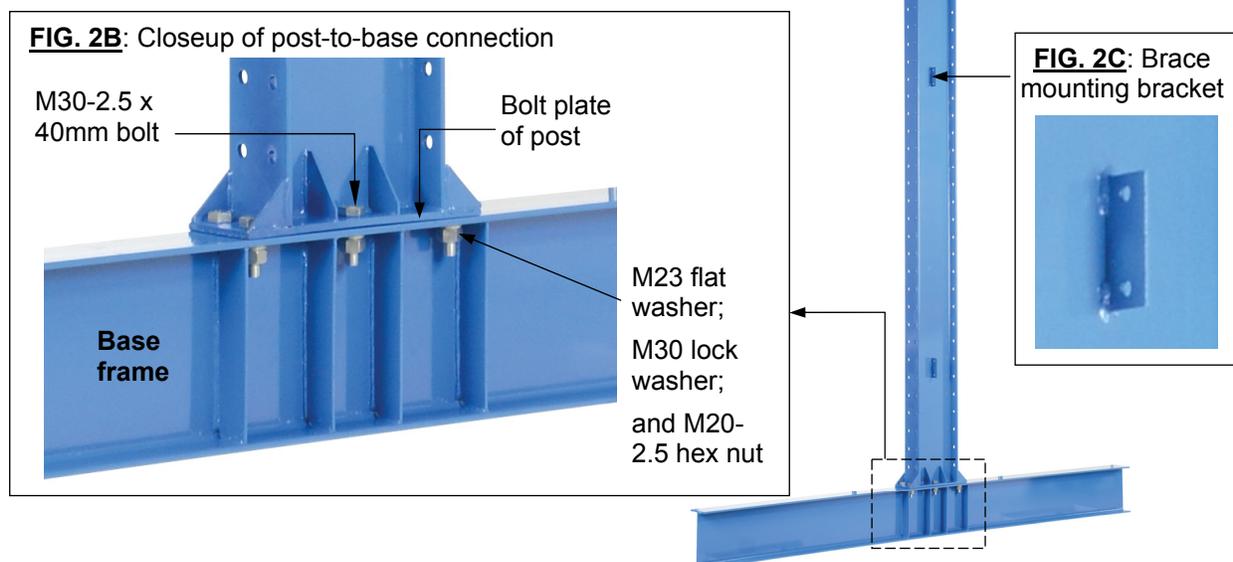
Item no.	Part no.	Description	Quantity
1	HDU-1-UR-14	14 ft. double-sided upright	2
2	HDU-2-DB-14	Double-sided base	2
3	HDU-3-BB	Back brace	3
4	HDU-4-CB	Cross bar	4
5	HSA-C-8	Heavy duty straight arm	as ordered
	HIA-C-8	Heavy duty inclined arm	as ordered
	HDSA	Heavy duty straight arm	as ordered
	XHDSA	Extra-heavy duty straight arm	as ordered
6	HDU-6-BOLT	M24-2.0 x 40mm bolt	4 per arm
7	HDU-7-WA	M24 flat washer	4 per arm
8	HDU-8-LW	M24 lock washer	4 per arm
9	HDU-9-HN	M24-2.0 hex nut	4 per arm
10	HDU-10-BOLT	M17-1.5 x 32mm bolt	14
11	HDU-11-LN	M17-1.5 lock nut	14
12	HDU-12-BOLT	M17-1.5 x 32mm bolt	14
13	HDU-13-LN	M17-1.5 lock nut	14
14	HDU-14-BOLT	M30-2.5 x 40mm bolt	12
15	HDU-15-WA	M30 flat washer	12
16	HDU-16-LW	M30 lock washer	12
17	HDU-17-HN	M30-2.5 hex nut	12

Assembly

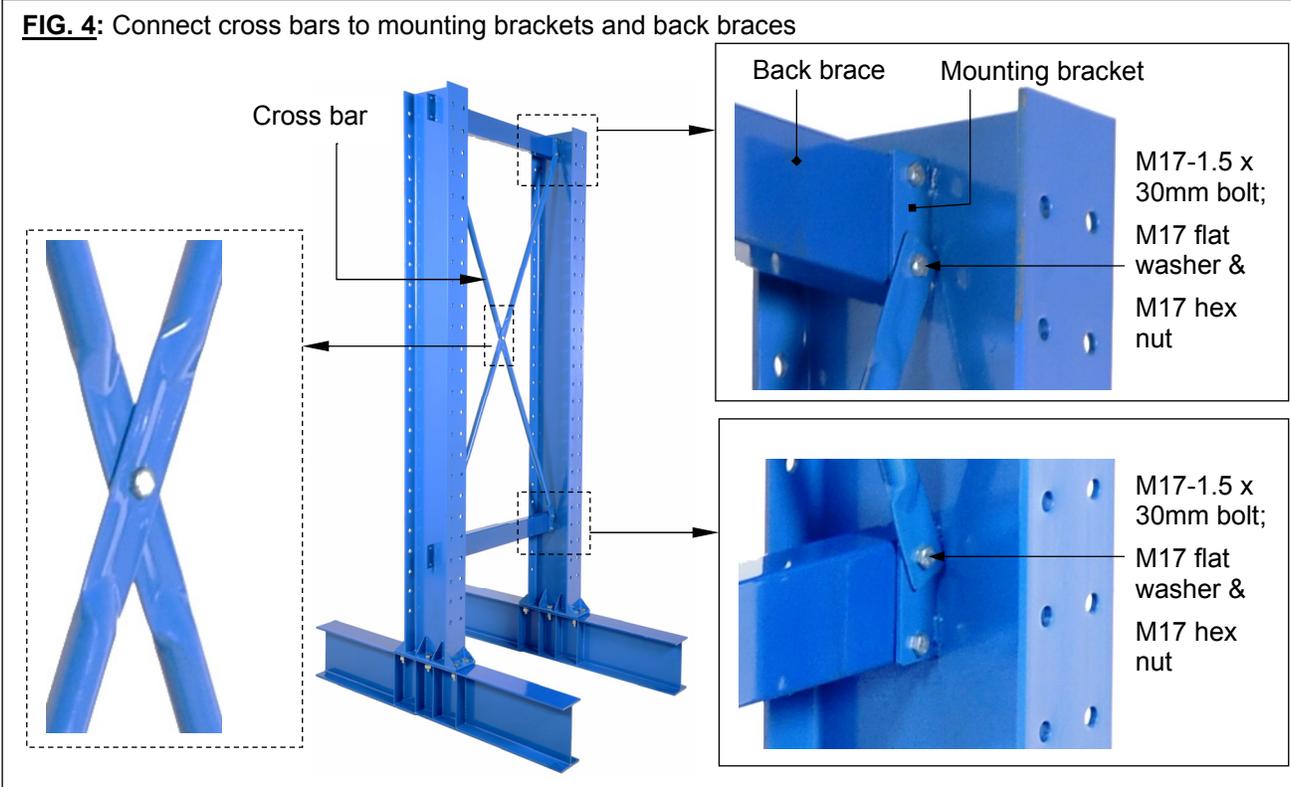
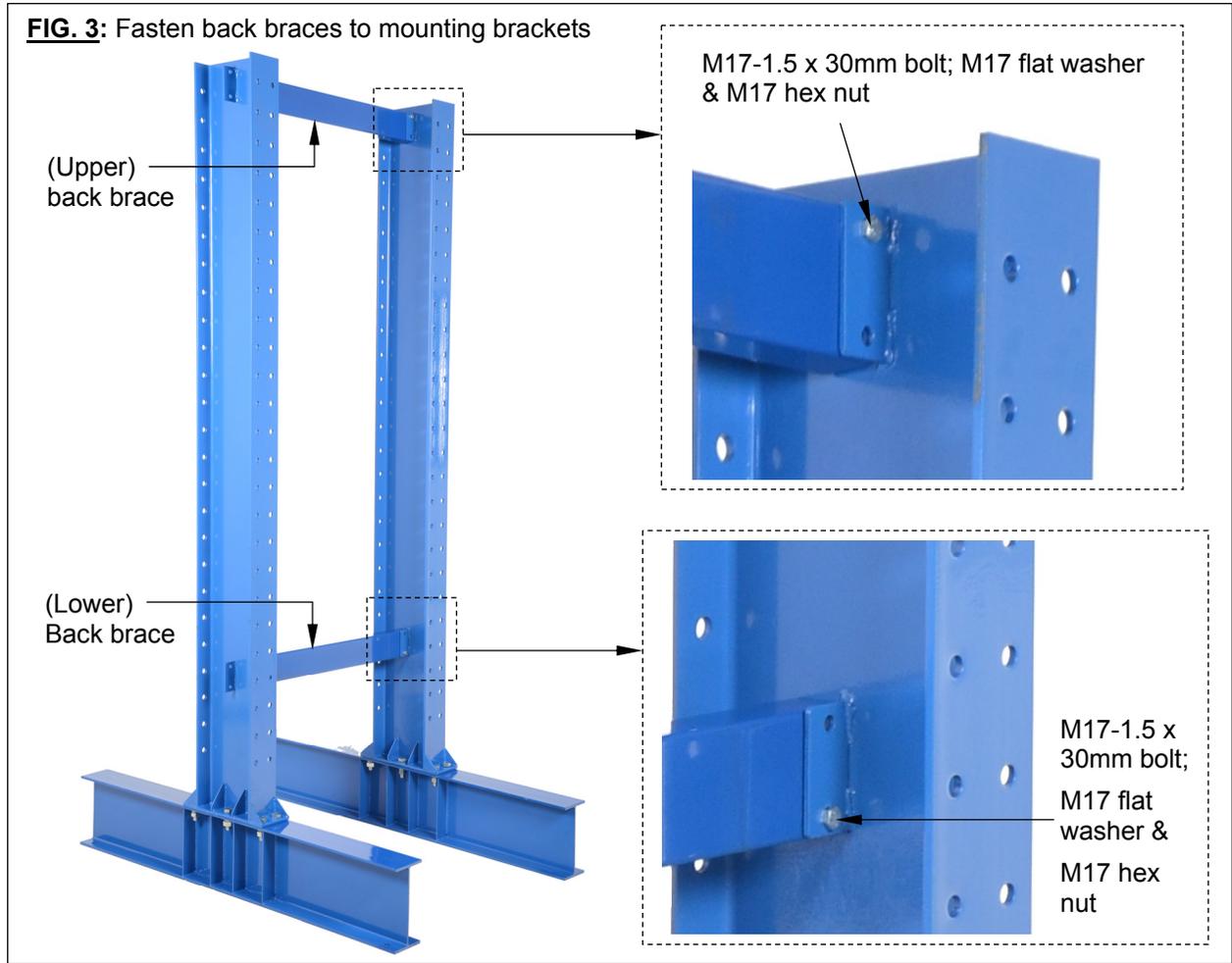
Assembly requires lifting and manipulating very heavy components. At least 3 people should work together to assemble this rack system.

1. Assemble the rack on a level, even surface. Be certain to account for necessary aisle space when selecting the assembly location.
2. Position the base frame pieces (HDU-1-DB-#) in their desired locations. There are 6 bolt holes through the flange near around the center of the base piece. These bolt holes must face upwards.
3. Look at an upright post (HDU-1-UR-#) and notice the bolt plate welded to the bottom end of the post. There are six bolt holes in the bolt plate.
4. Align the bolt holes in the bolt plate (of the post) with the bolt holes in the base frame. Insert M30-2.5 x 40mm bolts through each of the 6 bolt holes; then secure them with an M30 flat washer, M30 lock washer, and M30-2.5 hex nut. (See FIGS. 2A & 2B).
5. Fasten another post to another base frame piece in the manner described in Step 4.

FIG. 2A: Post fastened to base frame

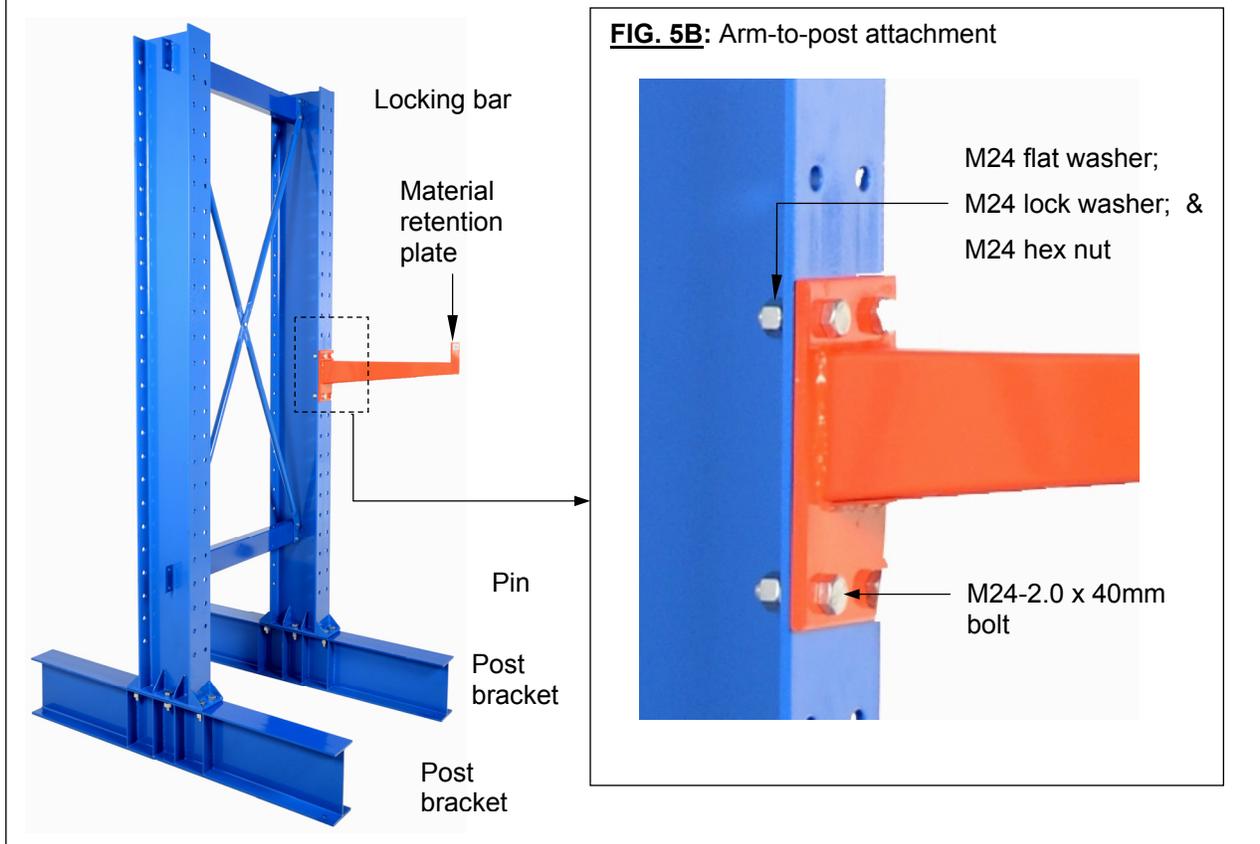


6. Attach back braces (HDU-3-BB) to the brace mounting brackets welded to the posts (see FIG. 3). Fasten the braces to the brackets with M17-1.5 x 30mm bolt, M17 flat washers, and M17 hex nuts. Fasten the upper back brace only through the top bolt holes; fasten the lower back brace only through the bottom bolt holes as shown in FIG. 3 on p. 9
7. Attach cross braces to the back braces:
 - a. As shown in FIG. 4 cross bars attach to opposite ends of the back braces. Begin by attaching one end of a cross bar to the upper back brace. Remove the lower bolts used to fasten the back brace to the mounting brackets; then
 - b. Align the bolt hole in the end of the cross bar with the lower bolt hole in the mounting bracket and back brace.
 - c. Reinstall the M17 bolt and secure it with the M17 flat washer, lock washer and hex nut.
 - d. Attach the lower end of the cross bar to the opposite side of the lower back brace. This time, remove the bolt in the upper bolt hole (used to fasten the brace to the mounting tab).
 - e. Align the bolt hole in the cross bar with the upper bolt hole in the mounting bracket (and brace), and then reinstall the hardware.
 - f. Repeat steps b-e with another cross bar.
 - g. There is a bolt hole in the flattened region in the middle of each cross bar. Align these holes in the cross bars, and fasten them together with an M17-1.5 x 30mm bolt, M17 flat washer, lock washer and hex nut.



8. Install the arms. Regardless of whether you purchased inclined or straight arms, the arms will all have a post bracket on one end and a material retention plate on the other end (see FIG. 5A). Attach the arm pieces (HSA; HIA; HDSA; or XHDSA-type) to the posts. Be sure to attach arms at the same level on both posts so that material stored on the rack will be level. To fasten an arm to a post:
- Align the 4 bolt holes in the post bracket with the appropriate bolt holes in a post. The material retention plate should point upwards.
 - Insert M24-2.0 x 40mm bolts through the post bracket and post, and attach them with M24 flat washers, M24 lock washers and M24 hex nuts (see FIG. 5B).

FIG. 5A: Complete assembly



Maintenance:

At least once per month, inspect the rack:

1. Check all hardware/fasteners to verify that all nuts, bolts and washers are in normal condition and are securely fastened together.
2. Look for damage or corrosion that might compromise the structural integrity of any beam or upright frame piece. If any structural damage is present, immediately tag the rack out of service. Replace all damaged components and do not use the rack again until it has been fully restored to normal condition.
3. Verify that all racks are level, plumb and square.

LIMITED WARRANTY

Vestil Manufacturing Corporation (“Vestil”) warrants this product to be free of defects in material and workmanship during the warranty period. Our warranty obligation is to provide a replacement for a defective original part if the part is covered by the warranty, after we receive a proper request from the warrantee (you) for warranty service.

Who may request service?

Only a warrantee may request service. *You are a warrantee if you purchased the product from Vestil or from an authorized distributor AND Vestil has been fully paid.*

What is an “original part”?

An original part is a part used to make the product as shipped to the warrantee.

What is a “proper request”?

A request for warranty service is proper if Vestil receives: 1) a photocopy of the Customer Invoice that displays the shipping date; AND 2) a written request for warranty service including your name and phone number. Send requests by any of the following methods:

<u>Mail</u>	<u>Fax</u>	<u>Email</u>
Vestil Manufacturing Corporation 2999 North Wayne Street, PO Box 507 Angola, IN 46703	(260) 665-1339 <u>Phone</u> (260) 665-7586	sales@vestil.com

In the written request, list the parts believed to be defective and include the address where replacements should be delivered.

What is covered under the warranty?

After Vestil receives your request for warranty service, an authorized representative will contact you to determine whether your claim is covered by the warranty. Before providing warranty service, Vestil may require you to send the entire product, or just the defective part or parts, to its facility in Angola, IN. The warranty covers defects in the following original dynamic components: motors, hydraulic pumps, electronic controllers, switches and cylinders. It also covers defects in original parts that wear under normal usage conditions (“wearing parts”), such as bearings, hoses, wheels, seals, brushes, and batteries.

How long is the warranty period?

The warranty period for original components is 30 days. The warranty period begins on the date when Vestil ships the product to the warrantee. If the product was purchased from an authorized distributor, the period begins when the distributor ships the product. Vestil may extend the warranty period for products shipped from authorized distributors by *up to* 30 days to the duration necessary to account for shipping time.

If a defective part is covered by the warranty, what will Vestil do to correct the problem?

Vestil will provide an appropriate replacement for any *covered* part. An authorized representative of Vestil will contact you to discuss your claim.

What is not covered by the warranty?

1. Labor;
2. Freight;
3. Occurrence of any of the following, which automatically voids the warranty:
 - Product misuse;
 - Negligent operation or repair;
 - Corrosion or use in corrosive conditions;
 - Inadequate or improper maintenance;
 - Damage sustained during shipping;
 - Accidents involving the product;
 - Unauthorized modifications: DO NOT modify the product IN ANY WAY without first receiving written authorization from Vestil. Modification(s) might make the product unsafe to use or might cause excessive and/or abnormal wear.

Do any other warranties apply to the product?

Vestil Manufacturing Corp. makes no other express warranties. All implied warranties are disclaimed to the extent allowed by law. Any implied warranty not disclaimed is limited in scope to the terms

