



Rigging & Assembly Instructions



DRY,
ADIABATIC
AND SPRAY
FLUID COOLERS
& CONDENSERS



Mr. GoodTower®

Bulletin EA24RIG - Metric 11/25

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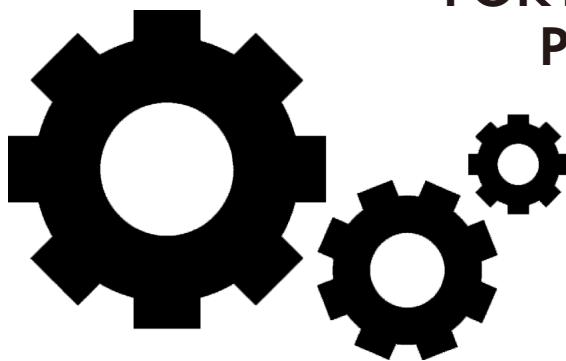


Review these instructions in detail prior to lifting any units or sections. Lifting incorrectly may cause permanent damage to the equipment and/or serious injury to nearby personnel.

EVAPCO's eco-Air units should be rigged and assembled using the instructions and recommendations outlined in this bulletin.

All personnel should review these procedures, as well as the latest industry-approved installation practices, prior to rigging and assembly. The information in this bulletin is for informational purposes only. These instructions do not purport to cover all variations and possible contingencies in connection with installation. Additionally, the procedures described herein are subject to change without prior notice, due to EVAPCO's ongoing research and development.

EVAPCO makes no representations or warranties with respect to these instructions or the products described herein. Nor shall EVAPCO be responsible for any loss or damage (direct, indirect, consequential, or other) during installation or handling of equipment after shipment. For a full description of EVAPCO's liability policy, please visit www.evapcoasia.com to access our Terms and Conditions.



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Introduction

Thank you for purchasing your EVAPCO eco-Air Series closed circuit cooler or condenser. This manual will provide detailed instructions for rigging and installation of the unit(s). If any questions arise during the installation, please contact your local EVAPCO representative.

eco-Air Product Lines

Throughout this manual, the terms "Flat Coil," "V-Coil," and "Double Stack" are used. Below is a list of EVAPCO eco-Air Series products covered by this rigging manual and their associated terminology.

The eco-Air Series includes the following product models:

■ Dry Products

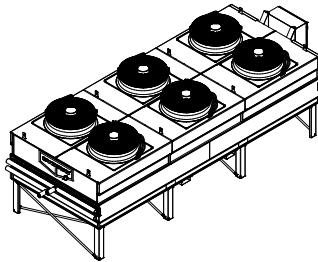
- EAW-FD/EAFWD: Flat Coil Dry Fluid Cooler
- EAW-VD/EAVWD: V-Coil Dry Fluid Cooler
- EAW-DD/EADWD: Double Stack Dry Fluid Cooler
- EAFCD: Flat Coil Dry Condenser
- EAVCD: V-Coil Dry Condenser

■ Dry Products with Air Pre-Cooling Systems

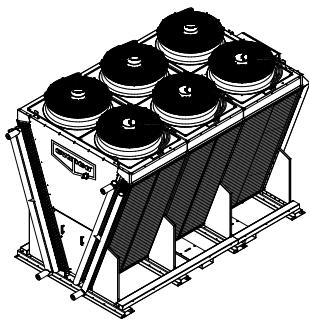
- EAW-VA/EAWWA: V-Coil Adiabatic Fluid Cooler
- EAW-VS/EAVWS: V-Coil Spray Fluid Cooler
- EAW-DA/EADWA: Double Stack Adiabatic Fluid Cooler
- EAVCA: V-Coil Adiabatic Condenser
- EAVCS: V-Coil Spray Condenser

Method of Shipment

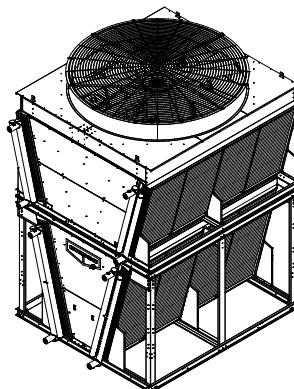
EVAPCO's eco-Air products are available in Flat Coil, V-Coil, and Double Stack configurations.



Flat Coil Units



V-Coil Units



Double Stack Units

The Flat Coil and V-Coil units will ship as a single section, and will require little to no assembly on site, except for external piping, electrical connections, and optional accessories as selected.

The Double Stack units will ship in two sections, each of which will have mating double break flanges that will be bolted together during rigging. Adiabatic pad modules, if supplied, will be crated separately for field assembly to the unit. Miscellaneous items such as rigging hardware (if applicable) and other required materials and documentation are packaged in a rigging box which is placed inside the unit for shipment.

Receiving

Carefully inspect all units, sections, and accessories upon arrival to verify that no damage has occurred during shipment. If any units have been damaged during transit, immediately notify the carrier and file a claim with that carrier.

The coils on all EVAPCO eco-Air Series fluid coolers and condensers are shipped from the factory with a low-pressure nitrogen charge. Maintain the nitrogen charge until connecting each unit to the system piping.

Each coil is shipped with a pressure gauge to verify the nitrogen charge in the coil. A coil without the factory nitrogen charge may indicate damage occurred during shipment. In this case, coil(s) should be pressure tested with dry nitrogen gas to assure that it is leak free prior to installation. Please notify your EVAPCO representative before installing any unit that has lost the factory nitrogen charge during shipment. Once the nitrogen charge is verified, release the nitrogen charge by opening the valve located on the outlet coil connection.

Offloading Requirements

All eco-Air Series air cooled units covered in this manual are designed to be removed from the truck via crane. Aside from the Double Stack product line, smaller units that are less than 19' (5850mm) in length also have provisions for removal from the truck via forklift. All units can be installed onto acceptably sized and level support structure via crane.

Ensure that the crane operator and/or the truck driver lift the unit securely. Always consider the weight of the unit with regard to crane or forklift.

Tubes, return bends, coil connections and headers are never to be used for lifting.

Remove any packaging material and verify that no damage has occurred. Slightly bent fins can be repaired easily using a fin comb.

Damaged tubes are only to be repaired by a qualified welder. If the damaged tubes cannot be repaired by a qualified welder, contact your local EVAPCO representative to arrange for inspection and/or repairs.

Support Structure

eco-Air units can be mounted on structural steel "I" beams, concrete pads, concrete piers, or another similar acceptably sized and level support structure. It is recommended that you contact your local EVAPCO representative if you have any questions about the support requirements.

EVAPCO's recommendations are related to structural steel support, however the information below, along with any external accessory dimensions and unit weight from the factory submittal can be used to size alternative support structures, such as a concrete pad.

Two structural "I" beams running the length of the unit are shown below for supporting the eco-Air series units. These beams should be located underneath the outer flanges of the unit as shown in Figure 1.

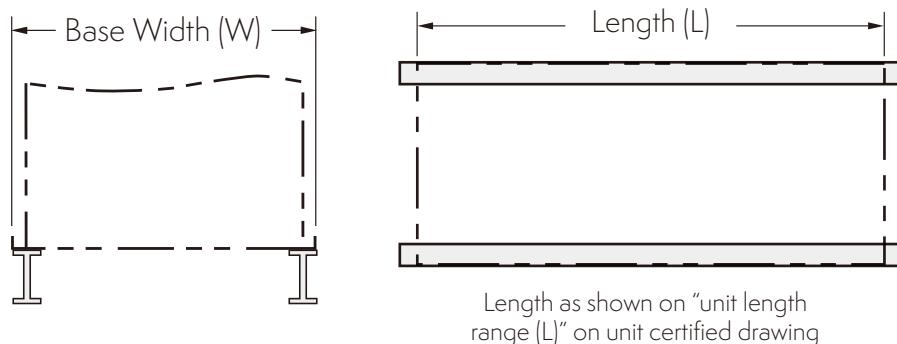


Figure 1 – Supporting Steel Diagram

See Table 1 for Steel Support Dimensions. Mounting holes, 3/4" (19mm) in diameter, are provided for bolting the unit to the structural steel. Refer to the recommended structural steel support drawing and certified print in the factory submittal for exact bolt hole location.

eco-Air Series Supporting Steel Dimensions		
V Models	Dry & Spray Unit Base Width (W)	Adiabatic Unit Base Width (W)
4' (1.3m) Wide	4' 2" (1270mm)	5' 10" (1778mm)
7' (2.2m) Wide	7' 2-1/2" (2197mm)	8' 9-1/2" (2680mm)
8' (2.4m) Wide	7' 3-3/4" (2229mm)	9' 3/4" (2762mm)
Double Stack Models	Dry Unit Base Width (W)	Adiabatic Unit Base Width (W)
12' (3.6m) Wide	11' 10-1/2" (3620mm)	13' 5-5/8" (4105mm)
F Models	Base Width (W)	-
6' (1.8m) Wide	5' 7-5/16" (1710mm)	-
7' (2.2m) Wide	6' 11-1/8" (2111mm)	-
8' (2.4m) Wide	7' 7" (2311mm)	-

Table 1 – eco-Air Series Supporting Steel Dimensions

Beams should be sized in accordance with accepted structural practices. Maximum deflection of the beam under the unit should be 1/360 of the unit length, not to exceed 1/2" (13mm). The supporting "I" beams should be level before setting the unit in place. Do not level the unit by shimming between it and the beams as this will not provide proper longitudinal support.

Support beams/structure and anchor bolts are to be provided by others.

Flat Coil Configuration Products

Flat coil units are typically shipped with legs attached. However there could be instances when flat coil units are strapped to a wooden pallet or enclosed in an open slatted or fully enclosed crate. To avoid handling damage, EVAPCO recommends that the product is offloaded from the vehicle while still attached to its pallet or in its crate if provided.

When flat units are shipped crated with the legs removed, the legs will need to be attached before placing the unit on the acceptably sized and level support structure. Below is a drawing showing proper attachment of the legs.

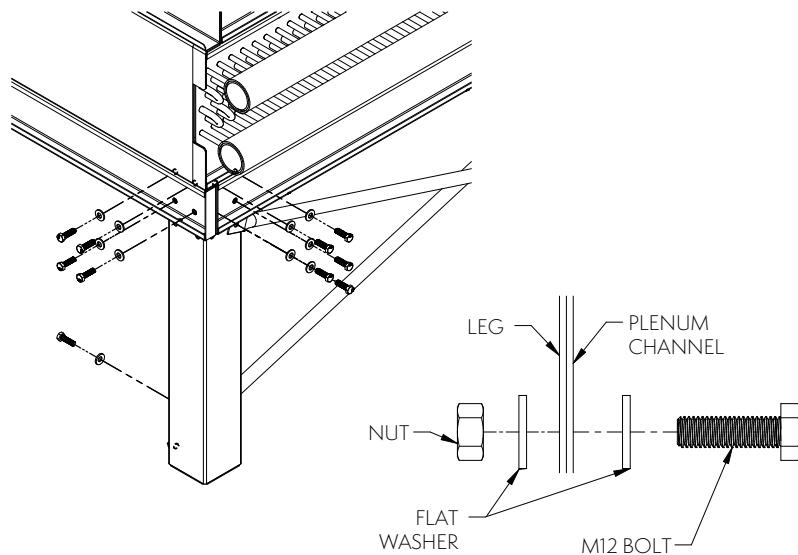


Figure 2 – Flat Coil Unit Leg Attachment

Forklift Requirements

Ensure that the forklift truck is large enough to handle the size and weight of the product required to be offloaded. Unit weights can be found on the unit certified drawing. Units with a length less than 19' (5850mm) are provided with standard EVAPCO steel forklift channels positioned under the unit. Forklift channels will be identified by a label on the unit. If labels and forklift channels are not present, **STOP!** The unit will need to be lifted via a crane. Forklift channels are only provided on units that are capable of being lifted via forklift. Larger units will need to be lifted via a crane or else unit and coil damage may occur.

Below is a diagram representing the location of the forklift channels on flat units.

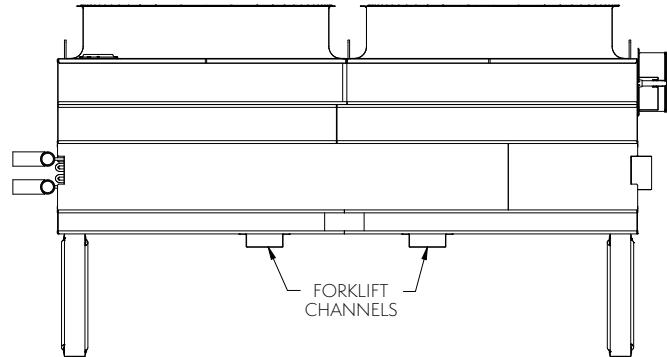


Figure 3 – Flat Coil Unit Forklift Channel Locations

The forks must be long enough to protrude at least 12" (30cm) beyond the width of the product.



Figure 4 – Flat Coil Unit Forklift Lifting Requirements

Under no circumstances, even if forklift channels are fitted, should 'short forks' be used as this will result in damage to the unit casing and/or coil of the unit. Ensure that the weight is evenly distributed before attempting to lift the product. Follow industry standard forklift recommendations and guidelines.

Crane Lift Requirements

Ensure that the crane operator uses adequate straps, chains, adjustable/spreader lifting beam ect., to safely and securely handle the weight of the product. The minimum angles for lifting by crane, when viewed from the unit end, must **NEVER** be less than a 60° angle from horizontal as shown in Figure 5. When viewed from the side of the unit, the lifting angle must **ALWAYS** be 90° (perpendicular) to the fan deck of the unit.

To achieve a minimum 60° angle, the chains attached to the lifting device must be a minimum dimension "H" above the unit casing to prevent undue strain on the lifting ears. See Table 2 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the unit.

NOTE: A system of adjustable/spreader lifting beams can be utilized in lieu of a single beam which runs the entire unit length, provided the unit is supported along its entire length and all requirements are followed.

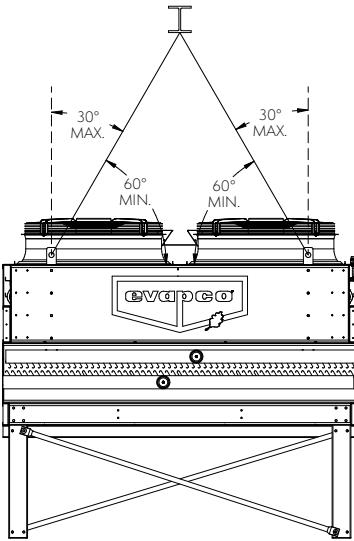


Figure 5 – Minimum Crane Lifting Requirements

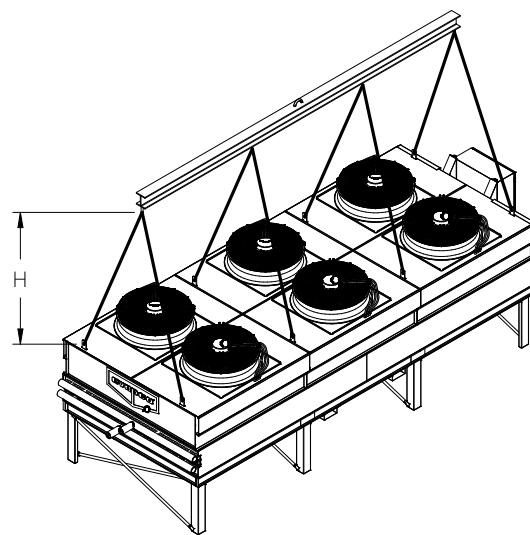


Figure 6 – Rigging Beam Height Requirements

Unit Width	Minimum Height (H) Dimension
5' (1.8m)	3.5' (1.1m)
7' (2.2m)	5.0' (1.6m)
8' (2.4m)	5.0' (1.6m)

Table 2 – Minimum "H" Dimensions

Carefully and securely attach chains to unit lifting ears based on the below information. Lifting ears are provided on the top of the fan sections for lifting the unit into final position. The unit will only be supplied with the lifting ears required, **THEREFORE USE ALL LIFTING EARS THAT ARE PROVIDED**. The lifting ear requirements vary depending on incremental fin length, or distance between tube sheets and lifting ears, therefore you will need to refer to the unit model number to accurately determine which of the below details describes your unit.

The 12th character in the model number depicts incremental fin length. For example in the model number:

EAVCD-15S2ZKxxxxx-xxxxxxxxx the **K** depicts the incremental fin length. Possible incremental fin length characters are **B**, **K**, and **I**. This can be further broken down by the type of fans.

On the next page is a table for a quick reference guide, showing which unit type applies to which lifting ear requirement figure.

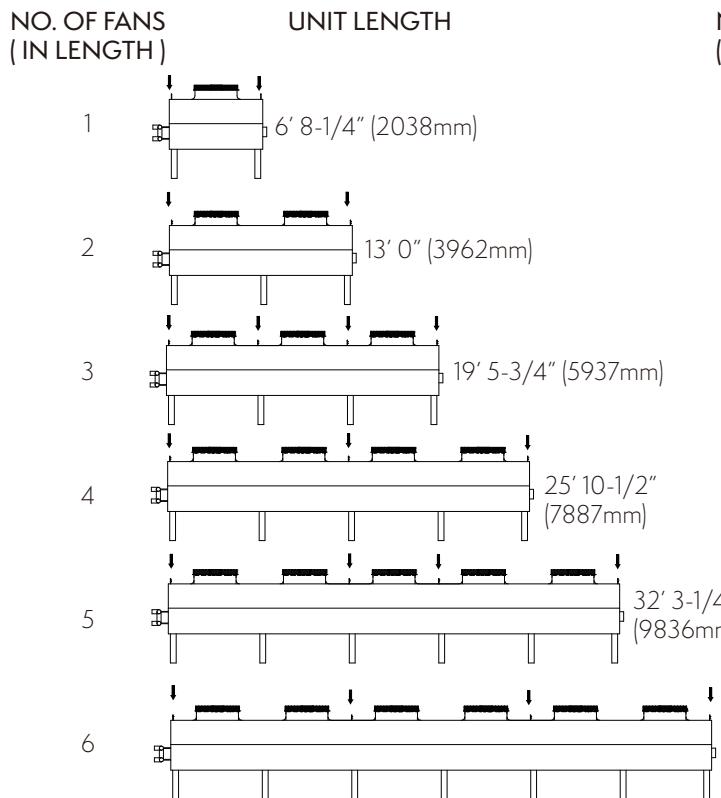
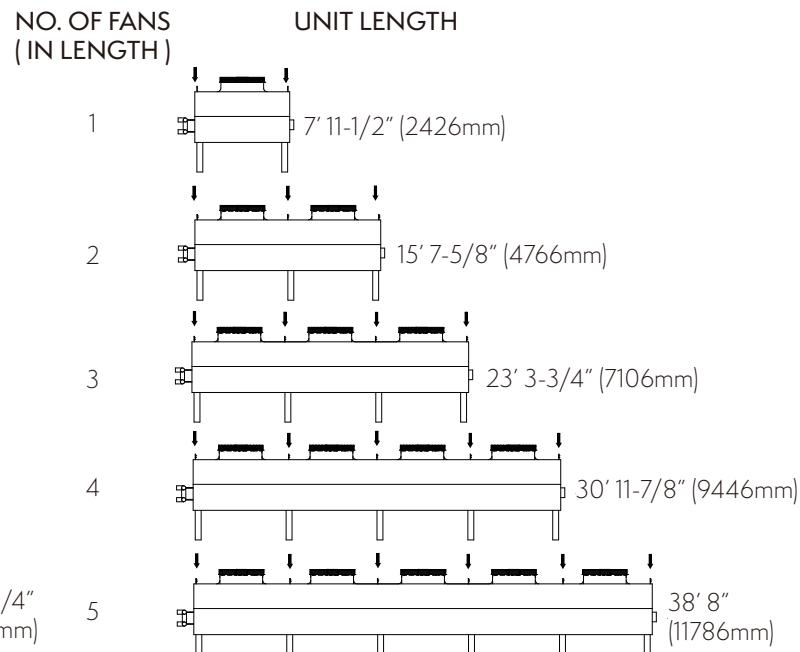
Incremental Fin Length Designator	Incremental Fin Length	Fan Type	Figure Number
B	5' 9" (1755mm)	EC	N/A
		NEMA/AC	9
K	6' 4" (1950mm)	EC	7
		NEMA/AC	9
I	7' 8" (2340mm)	EC	8
		NEMA/AC	10

Table 3 – Lifting Ear Requirements - Flat Coil Units

Lifting Requirements – Flat Coil Configuration EC Motor Models

Units with EC motors will have either a **K** (6' 4" [1950mm]), or **I** (7' 8" [2340mm]) incremental fin length designator. Below are the lifting requirements for these units.

The arrows shown on the unit drawings below indicate two (2) lifting ears per arrow.

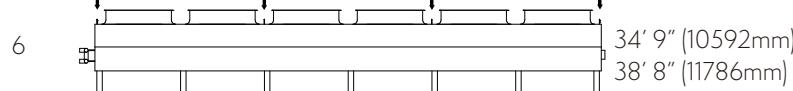
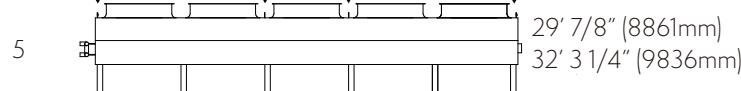
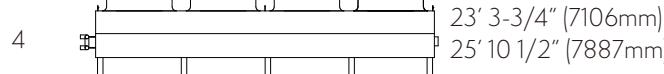
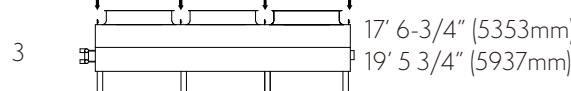
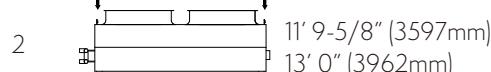
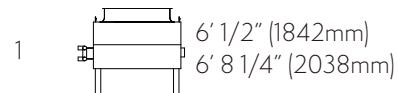
**Figure 7** – Lifting Ear Requirements for 6' 4" (1950mm) Incremental Fin Length**Figure 8** – Lifting Ear Requirements for 7' 8" (2340mm) Incremental Fin Length

Lifting Requirements – Flat Coil Configuration NEMA/AC Motor Models

Units with NEMA/AC motors will have either a **B** (5' 9" [1755mm]), **K** (6' 4" [1950mm]) or **L** (7'8" [2340mm]) incremental fin length designator. Below are the lifting requirements for these units.

The arrows shown on the unit drawings below indicate two (2) lifting ears per arrow.

NO. OF FANS (IN LENGTH)



NO. OF FANS (IN LENGTH)

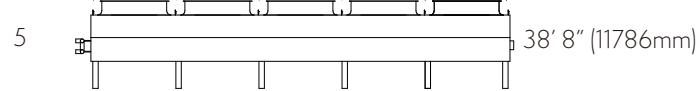


Figure 9 – Lifting Ear Requirements for
5' 9" (1755mm) and 6'4" (1950mm) Incremental Fin Length

Figure 10 – Lifting Ear Requirements for
7'8" (2340mm) Incremental Fin Length

V-Coil Configuration Products

EVAPCO eco-Air V-Coil units utilize a skidless design allowing for ease of installation and transportation.

Forklift Requirements

Ensure that the forklift truck is large enough to handle the size and weight of the product required to be offloaded. Unit weights can be found on the unit certified drawing.

Units with a length less than 19' (5850mm) are provided with standard EVAPCO steel forklift channels positioned under the unit. Forklift channels will be identified by a label on the unit. If labels and forklift channels are not present, **STOP!** The unit will need to be lifted via a crane. Forklift channels are provided on all units that are capable of being lifted via forklift. Larger units will need to be lifted via a crane or unit and coil damage may occur.

See Figure 11 for a diagram representing the location of the forklift channels on V-Coil units.

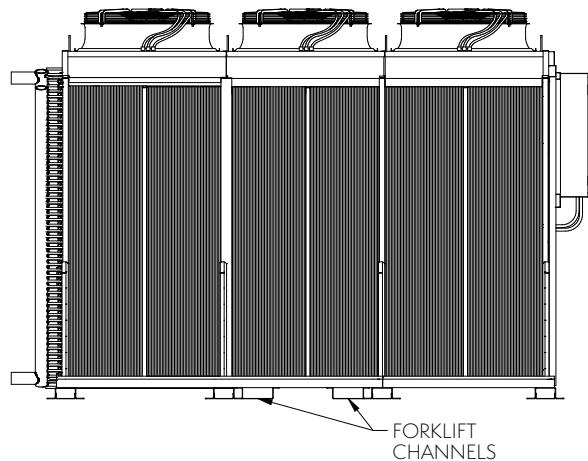


Figure 11 – V-Coil Unit Forklift Channel Locations



Figure 12 – V-Coil Unit Forklift Lifting Requirements

The forks must be long enough to protrude at least 12" (30cm) beyond the width of the product.

Under no circumstances, even using forklift channels, should 'short forks' be used as this will result in damage to either the unit casing or coil of the unit.

Ensure that the weight is evenly distributed before attempting to lift the product. Follow industry standard forklift recommendations and guidelines.

Crane Lift Requirements

Ensure that the crane operator uses adequate lifting straps, chains, adjustable/spreader lifting beam etc., to safely and securely handle the weight of the product. The minimum angles for lifting by crane when viewed from the unit end, must **NEVER** be less than a 60° angle from horizontal as shown in Figure 13. When viewed from the side of the unit, the lifting angle must **ALWAYS** be 90° (perpendicular) to the fan deck of the unit.

To achieve a minimum 60° angle, the chains attached to the lifting device must be a minimum dimension "H" above the unit casing to prevent undue strain on the lifting ears. See Table 4 for the minimum "H" dimension. These lifting devices should not be used for extended lifts or where any hazard exists unless safety slings are employed under the unit.

NOTE: A system of adjustable/spreader lifting beams can be utilized in lieu of a single beam which runs the entire unit length, provided the unit is supported along its entire length and the below requirements are followed.

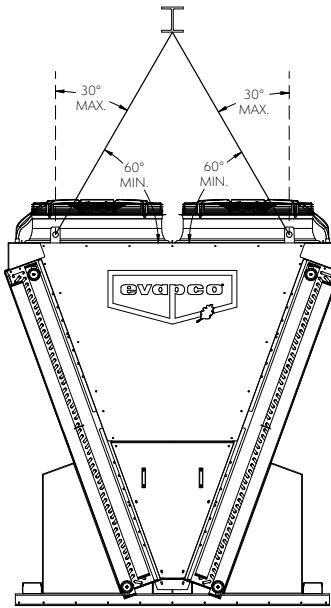


Figure 13 – Minimum Crane Lifting Requirements

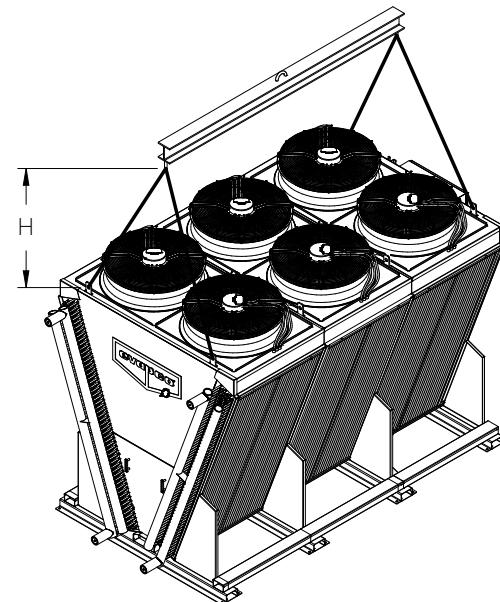


Figure 14 – Rigging Beam Height Requirements

Unit Width	Minimum Height (H) Dimension
4' (1.2m)	2.5' (0.8m)
7' (2.2m)	5.0' (1.6m)
8' (2.4m)	5.0' (1.6m)

Table 4 – Minimum "H" Dimensions

Carefully and securely attach chains to unit lifting ears based on the below information. Lifting ears are provided on the top of the fan sections for lifting the unit into final position. Unit will only be supplied with the lifting ears required, **THEREFORE USE ALL LIFTING EARS THAT ARE PROVIDED**. The lifting ear requirements vary depending on incremental fin length, or distance between tube sheets and lifting ears, therefore you will need to refer to the unit model number to accurately determine which of the below details describes your unit.

The 12th character in the model number depicts incremental fin length. For example in the model number:

EAVCD-15S2ZKxxxxx-xxxxxxxx the **K** depicts the incremental fin length. Possible incremental fin length characters are **A, J, B, K, and I**. This can be further broken down by the type of fans.

Below is a table for a quick reference guide, showing which unit type applies to which lifting ear requirement figure.

Incremental Fin Length Designator	Incremental Fin Length	Fan Type	Figure Number
A	3' 10" (1170mm)	EC	15
J	4' 3" (1300mm)	EC	15
K	6' 4" (1950mm)	EC	16
B	5' 9" (1755mm)	NEMA/AC	17
K	6' 4" (1950mm)	NEMA/AC	17
I	7' 8" (2340mm)	NEMA/AC	18

Table 5 – Lifting Ear Requirements - V-Coil Units

Lifting Requirements – V-Coil Configuration EC Motor Models

Units with EC motor assemblies will have either an **A** (3' 10" [1170mm]), **J** (4' 3" [1300mm]), or **K** (6' 4" [1950mm]) incremental fin length designator. Below are the lifting requirements for units with **A** (3' 10" [1170mm]) and **J** (4' 3" [1300mm]) incremental fin lengths.

The arrows shown on the unit drawings below indicate two (2) lifting ears per arrow.

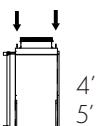
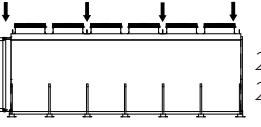
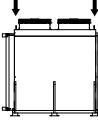
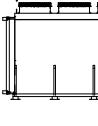
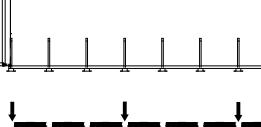
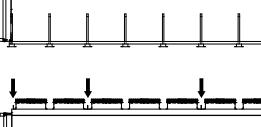
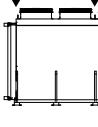
NO. OF FANS (IN LENGTH)	UNIT LENGTH	NO. OF FANS (IN LENGTH)	UNIT LENGTH
1	 4' 10-3/8" (1483mm) 5' 3-3/8" (1610mm)	6	 24' 5/8" (7331mm) 26' 7-3/8" (8112mm)
2	 8' 8-3/8" (2651mm) 9' 6-5/8" (2911mm)	7	 27' 10-3/4" (8503mm) 30' 10-1/2" (9411mm)
3	 12' 6-1/2" (3823mm) 13' 9-3/4" (4210mm)	8	 31' 8-3/4" (9671mm) 35' 1-3/4" (10712mm)
4	 16' 4-1/2" (4991mm) 18' 0" (5486mm)	9	 35' 6-7/8" (10843mm) 39' 4-7/8" (12011mm)
5	 20' 2-5/8" (6163mm) 22' 4-1/8" (6810mm)	10	 39' 4-7/8" (12011mm)

Figure 15 – Lifting Ear Requirements for 3' 10" (1170mm) and 4' 3" (1300mm) Incremental Fin Lengths

Below are the lifting requirements for units with **K** (6' 4" [1950mm]) incremental fin lengths.

The arrows shown on the unit drawings below indicate two (2) lifting ears per arrow.

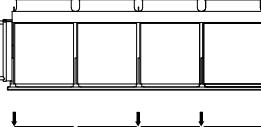
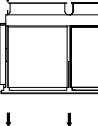
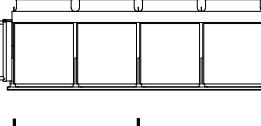
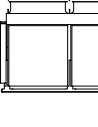
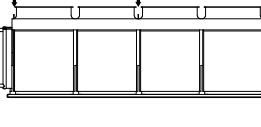
NO. OF FANS (IN LENGTH)	UNIT LENGTH	NO. OF FANS (IN LENGTH)	UNIT LENGTH
1	 6' 9-3/8" (2067mm) 7' 5" (2261mm)	4	 24' 5/8" (7331mm) 26' 7-3/8" (8112mm)
2	 12' 6-1/2" (3823mm) 13' 9-7/8" (4210mm)	5	 29' 9-3/4" (9087mm) 33' 1/8" (10062mm)
3	 18' 3-1/2" (5575mm) 20' 2-5/8" (6163mm)	6	 35' 6-7/8" (10843mm) 39' 4-7/8" (12011mm)

Figure 16 – Lifting Ear Requirements for 6' 4" (1950mm) Incremental Fin Lengths

Lifting Requirements – V-Coil Configuration NEMA/AC Motor Models

Units with NEMA/AC motors will have either a **B** (5' 9" [1755mm]), **K** (6' 4" [1950mm]), or **I** (7' 8" [2340mm]) incremental fin length designator.

The arrows shown on the unit drawings below indicate two (2) lifting ears per arrow.

Below are the lifting requirements for these units.

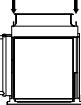
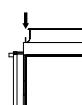
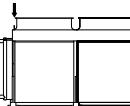
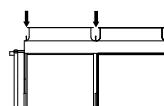
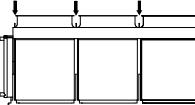
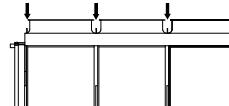
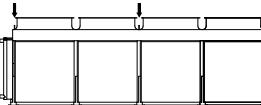
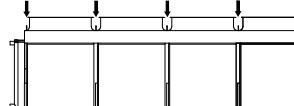
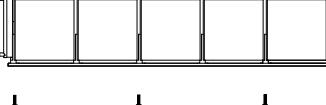
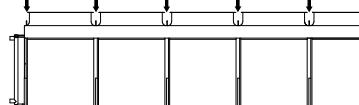
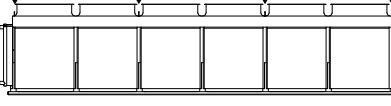
NO. OF FANS (IN LENGTH)	UNIT LENGTH	NO. OF FANS (IN LENGTH)	UNIT LENGTH
1	 6' 9-3/8" (2067mm) 7' 5" (2261mm)	1	 8' 8-3/8" (2651mm)
2	 12' 6-1/2" (3823mm) 13' 9-7/8" (4213mm)	2	 16' 4-1/2" (4991mm)
3	 18' 3-1/2" (5575mm) 20' 2-5/8" (6163mm)	3	 24' 5/8" (7331mm)
4	 24' 5/8" (7331mm) 26' 7-3/8" (8112mm)	4	 31' 8-3/4" (9671mm)
5	 29' 9-3/4" (9087mm) 33' 1/8" (10062mm)	5	 39' 4-7/8" (12011mm)
6	 35' 6-7/8" (10843mm) 39' 4-7/8" (12011mm)		

Figure 17 – Lifting Ear Requirements
for 5' 9" (1755mm) and 6' 4" (1950mm)
Incremental Fin Lengths

Figure 18 – Lifting Ear Requirements
for 7' 8" (2340mm) Incremental Fin Lengths

Double Stack Configuration Products

EVAPCO eco-Air Double Stack units ship in a minimum of two (2) sections. If equipped with adiabatic pad modules or accessories like external service platforms, those components will ship separately and require assembly in the field.

Lower Section Lifting Requirements - Double Stack Base Dry Units

1. Use lifting ears on top of the lower section. An adjustable/spreader lifting beam is required to be used along the entire unit length. Refer to the factory submittal for section weights.
- NOTE:** A system of adjustable/spreader lifting beam can be utilized in lieu of a single beam which runs the entire unit length, provided the unit is supported along its entire length and the below requirements are followed.
2. Use shackles (or other appropriate lifting devices) large enough to span the lifting ear and C-channel located on the unit ends as shown in Detail A below. Shackle/lifting device jaw opening must be greater than 2-1/2" (64mm). Pin diameter must be less than 1-1/2" (40mm), see Detail B. The anchor shackle length must be greater than 2-1/2" (64mm).

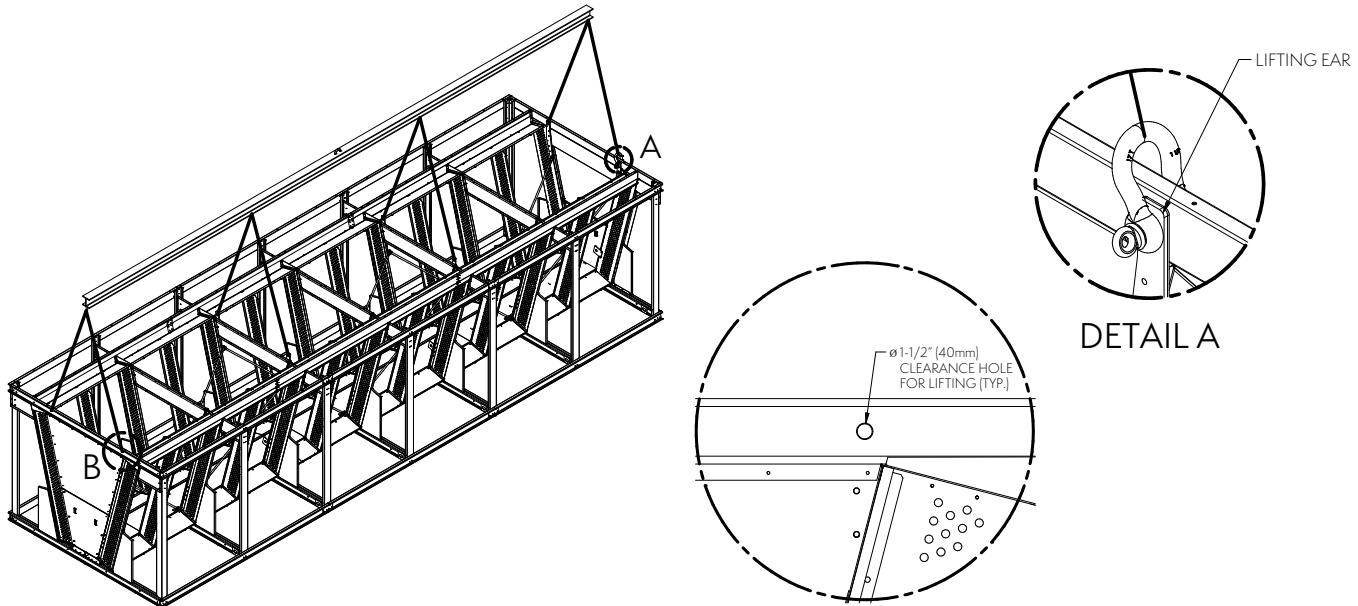


Figure 19 – Lower Section Rigging – Base Dry Unit

3. Care must be taken to ensure that the 'H' dimension for the crane lift is greater than or equal to 6' (1.8m) from the lifting ears as shown in Figure 20.1. When viewed from the side, the lifting angle must **ALWAYS** be 90° (perpendicular) to the top of the unit, as shown in Figure 20.2. The centerline distance between the lower section lifting ears on the end elevation view is 5' 5-3/4" (1670mm).

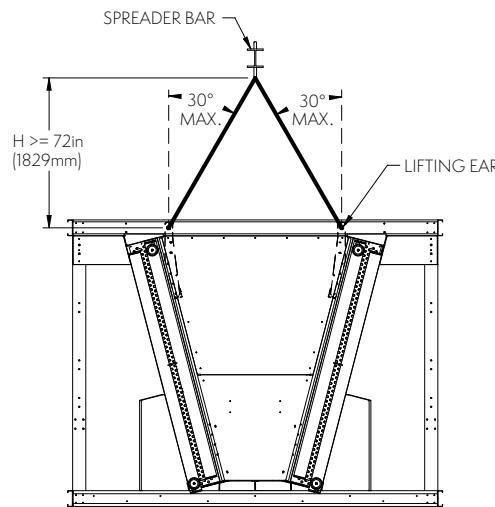


Figure 20.1 – Lower Section End Elevation View

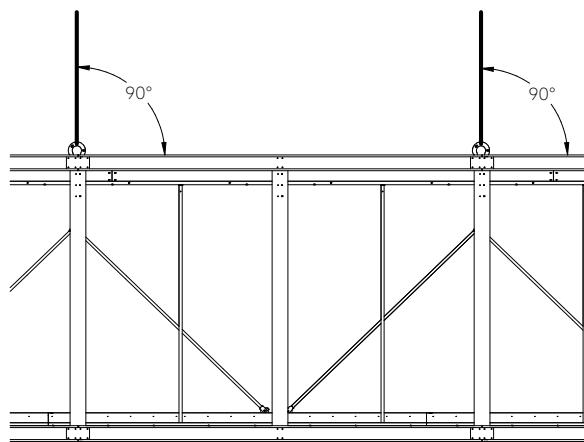


Figure 20.2 – Lower Section Side Elevation View

4. Once the section is lifted off the truck, place section onto staging area (riggers yard) or support structure (e.g., steel support, concrete pad, frame). If mounted to support structure, fasten using anchor hardware (by others) - size & quantity shown on 'Recommended Steel Support Arrangement' drawing in the factory submittal.

Upper Section Lifting Requirements - Double Stack Base Dry Units

1. Use lifting ears on top of the upper section as shown in Figure 21. An adjustable/spreader lifting beam is required to be used along the entire unit length. Refer to factory submittal for section weights.

NOTE: A system of adjustable/spreader lifting beams can be utilized in lieu of a single beam which runs the entire unit length, provided the unit is supported along its entire length and the below requirements are followed.

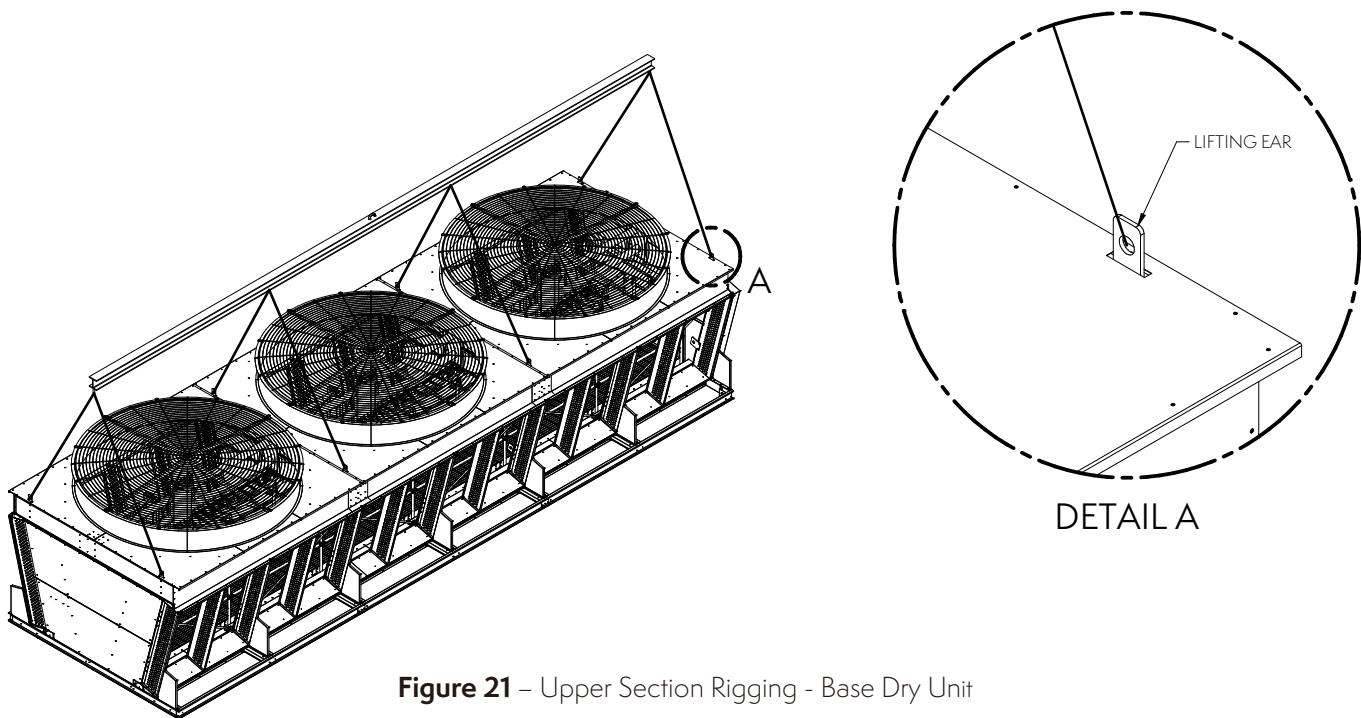
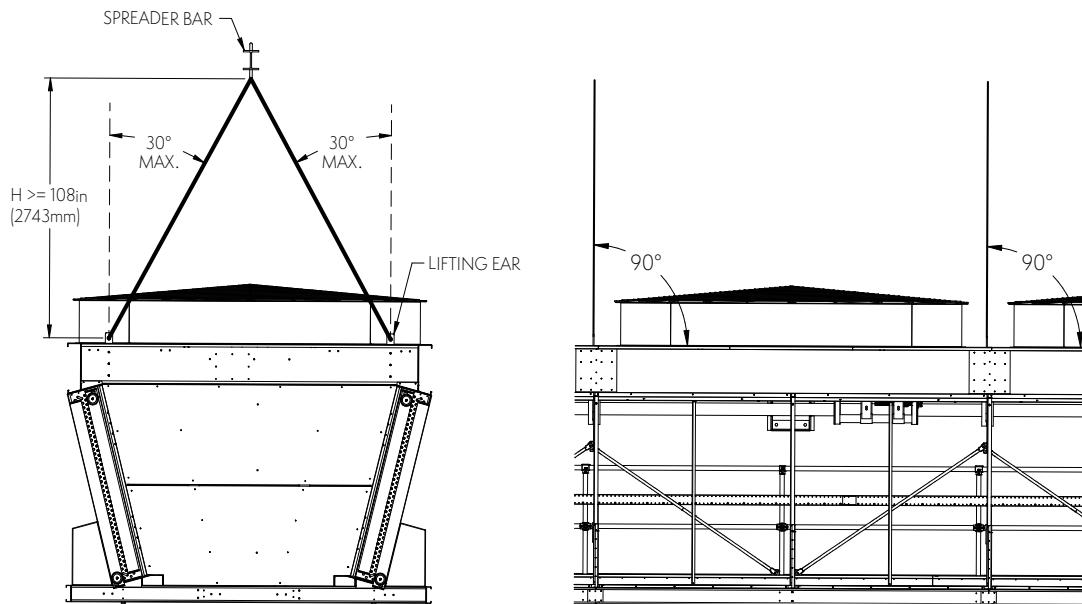


Figure 21 – Upper Section Rigging - Base Dry Unit

2. Care must be taken to ensure that the 'H' dimension for the crane lift is greater than or equal to 9' (2.7m) from the fan deck as shown in Figure 22.1. When viewed from the side, the lifting angle must **ALWAYS** be 90° (perpendicular) to the fan deck of the unit, see Figure 22.2. The centerline distance between the upper section lifting ears on the end elevation view is 9' 1-7/8" (2790mm).



Joining Upper and Lower Sections - Double Stack Base Dry Units

1. Carefully lift upper section onto lower section using drift pins in the four corners and as needed to align rigging holes in the mating double break flanges. Fasten upper section to lower section rigging seam as shown below. Units are provided with match markings on each section, as shown in Appendix A. Fasten upper section air baffle to lower section baffle. Rigging hardware is provided.

NOTE: Upper and lower sections cannot be lifted together. This will cause permanent damage to the equipment and/or serious injury to nearby personnel.

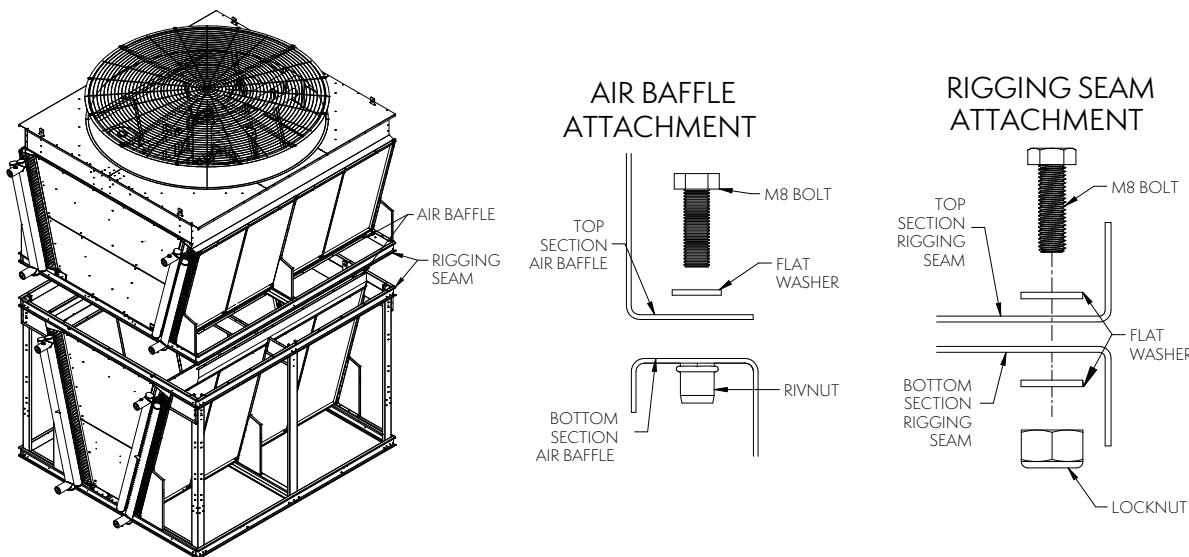


Figure 23 – Joining Upper & Lower Sections

Adiabatic Sections Rigging

The adiabatic modules for the Double Stack unit are shipped separately due to maximum shipping width restrictions – these components are crated for shipment and require field installation.

Adiabatic Module Crate Weights				
Upper Section Crate	Lower Section Crate	# of Modules per Crate	Total # of Crates per Unit	
1-cell	1360 lbs (617kg)	1940 lbs (880kg)	2	2
2-cell	2520 lbs (1143kg)	3640 lbs (1651kg)	4	
3-cell	3660 lbs (1660kg)	5340 lbs (2422kg)	6	

Table 6 – Adiabatic Module Crate Weights - Double Stack Modules

NOTE: The dry weight for each lower and upper adiabatic module is 820 lbs. (372kg) and 550 lbs. (250kg) respectively.

Follow the steps outlined below to complete installation of the adiabatic modules on the base dry unit.

INSTALLING LOWER SECTION ADIABATIC MODULES

1. Once the base dry unit is rigged, remove the adiabatic modules and associated components from the lower section crate. Install lower adiabatic module supports (Qty. (8) per 1-cell unit, (16) per 2-cell unit & (24) per 3-cell unit) on the lower section as show - Use M8 bolts. Rivnuts at these sections are factory installed.

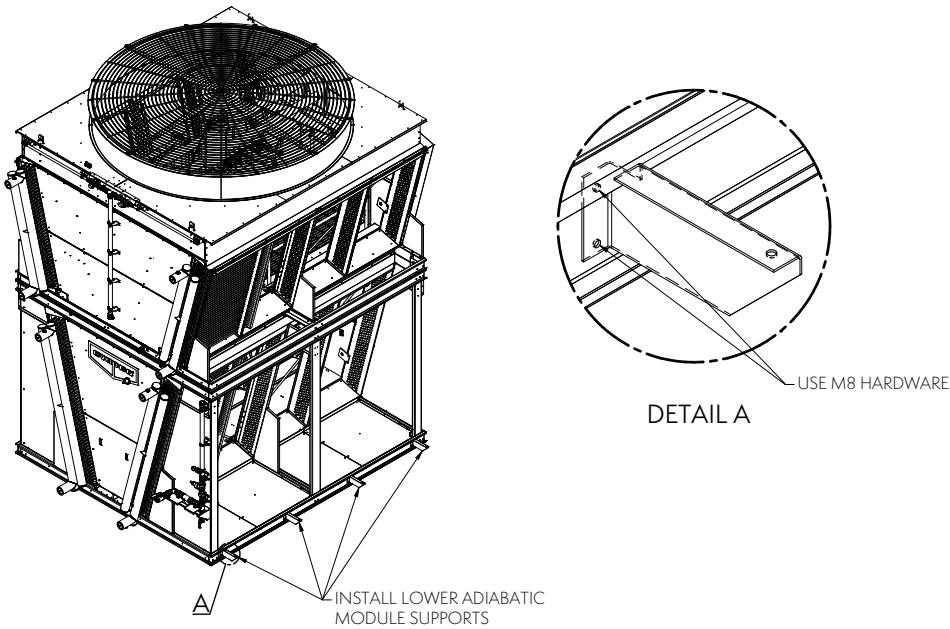


Figure 24 – Installing Lower Section Adiabatic Module Supports

2. Mount and fasten the lower frame module on the supports installed in Step 1. The lower frame module will then provide the support necessary for the sloped drain channel & adiabatic modules.

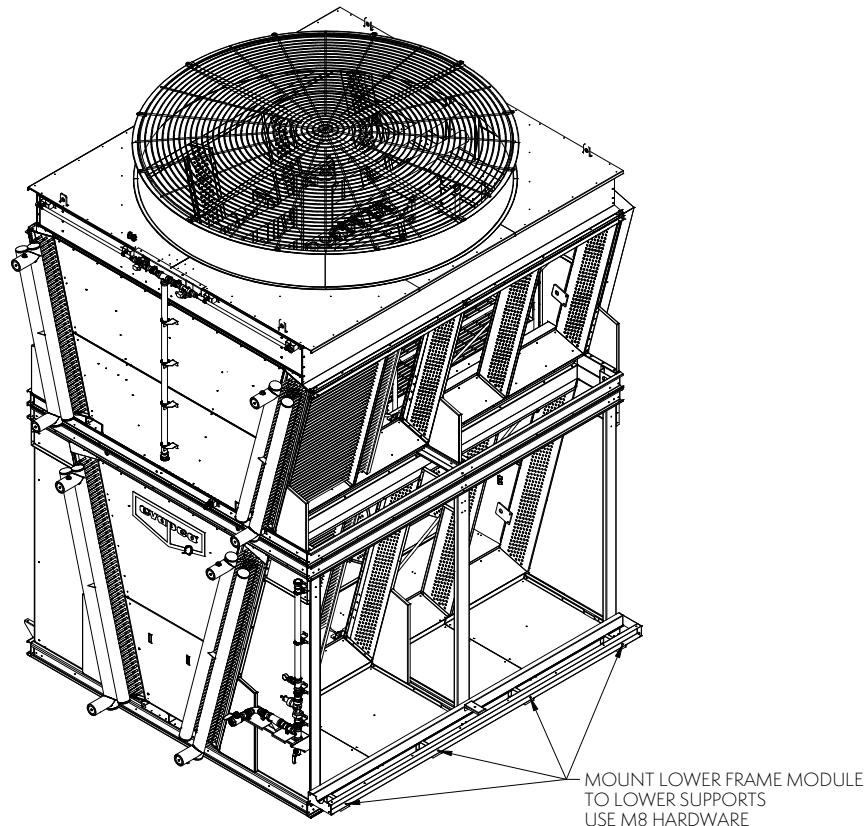


Figure 25 – Installing Lower Frame Modules

3. Once the lower frame module has been installed, place the sloped drain channel in the module, taking care to ensure that the end of the sloped drain channel (1) is flush or inside the end of the lower frame module (2) as shown in Detail A below to allow placement of the lower adiabatic module(s) in the following steps.

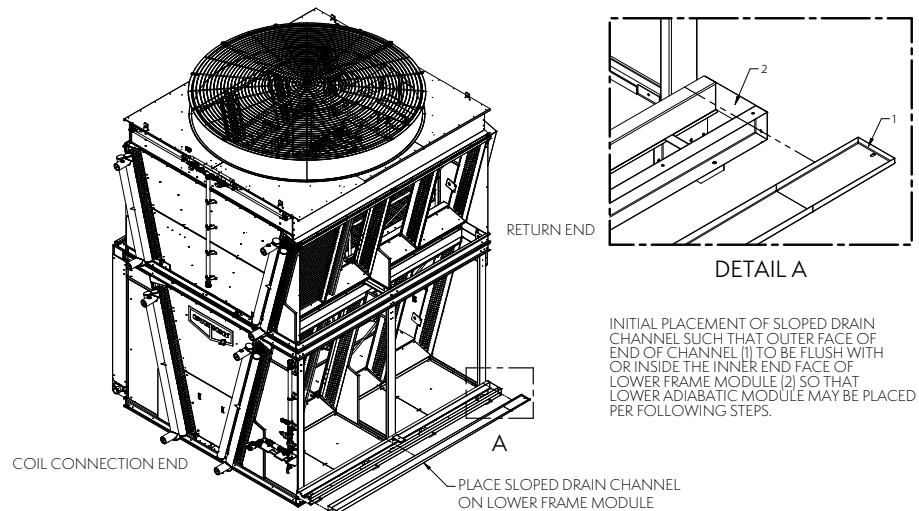


Figure 26 – Installing Sloped Drain Channel on Lower Frame Modules

4. Place lower adiabatic pad modules onto the lower frame module, starting on the connection end of the unit. Total of (1) lower adiabatic pad module per side of a 1-cell unit. Total of (3) lower modules per side of 3-cell unit. Largest 3-cell unit will require a total of (6) lower adiabatic pad modules.

5. Ensure each module is fastened before moving on to the next. In the case of a multi-cell unit, install retention brackets as shown in Detail B using M8 hardware.

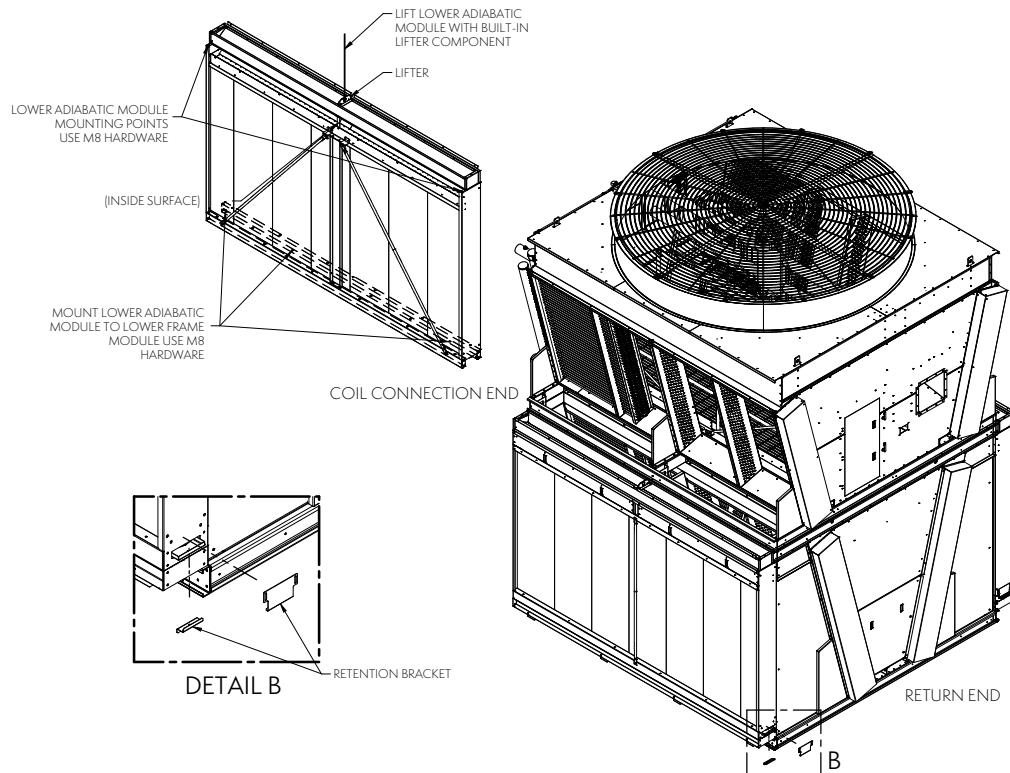


Figure 27 – Installing Lower Section Adiabatic Modules

INSTALLING UPPER SECTION ADIABATIC MODULES

- Once all adiabatic modules on both sides of the lower section are in position, install brackets for the upper modules. See Detail A below for location of bracket installation.

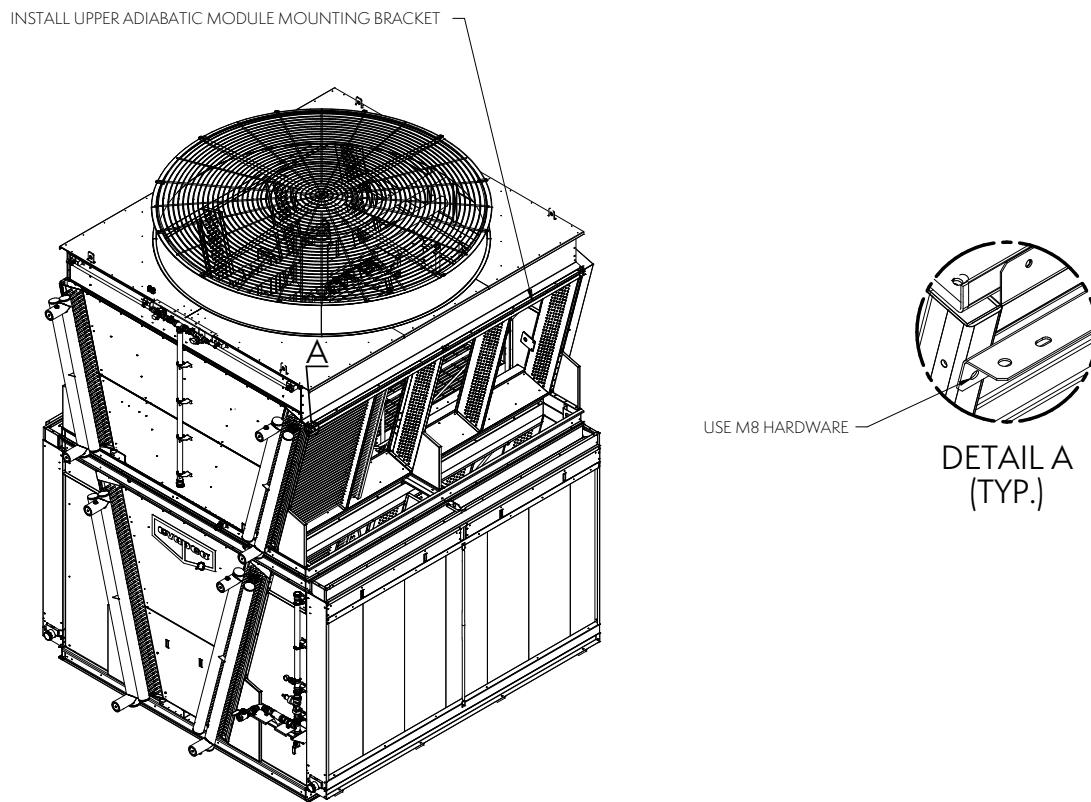


Figure 28 – Installing Mounting Brackets for Upper Section Adiabatic Modules

- Install upper adiabatic pad modules as shown below in Figure 29. Fasten each individual module, starting on the connection end, in the locations shown before moving to the next module.

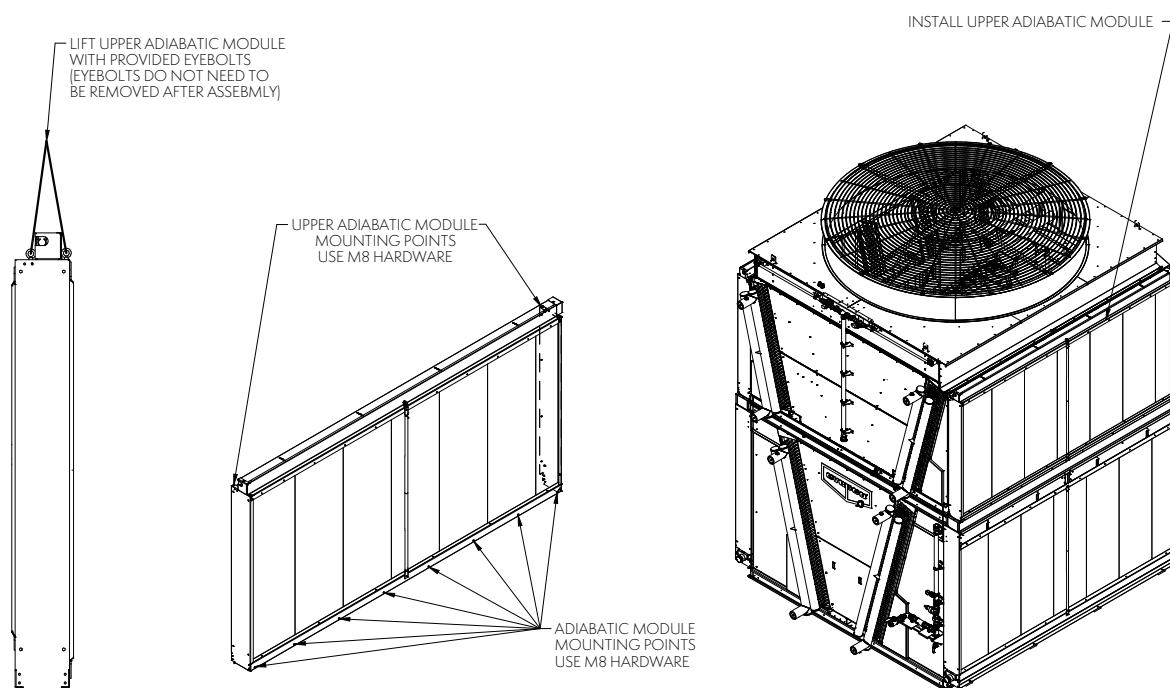


Figure 29 – Installing Upper Section Adiabatic Modules

3. Follow this step only for 2-cell or 3-cell units. 2-cell unit shown below. For 3-cell units, the below step will need to be followed twice on each side.

Install the connector piece first, as shown in Detail A, followed by the trim components on the upper and lower section as shown in Figure 30.

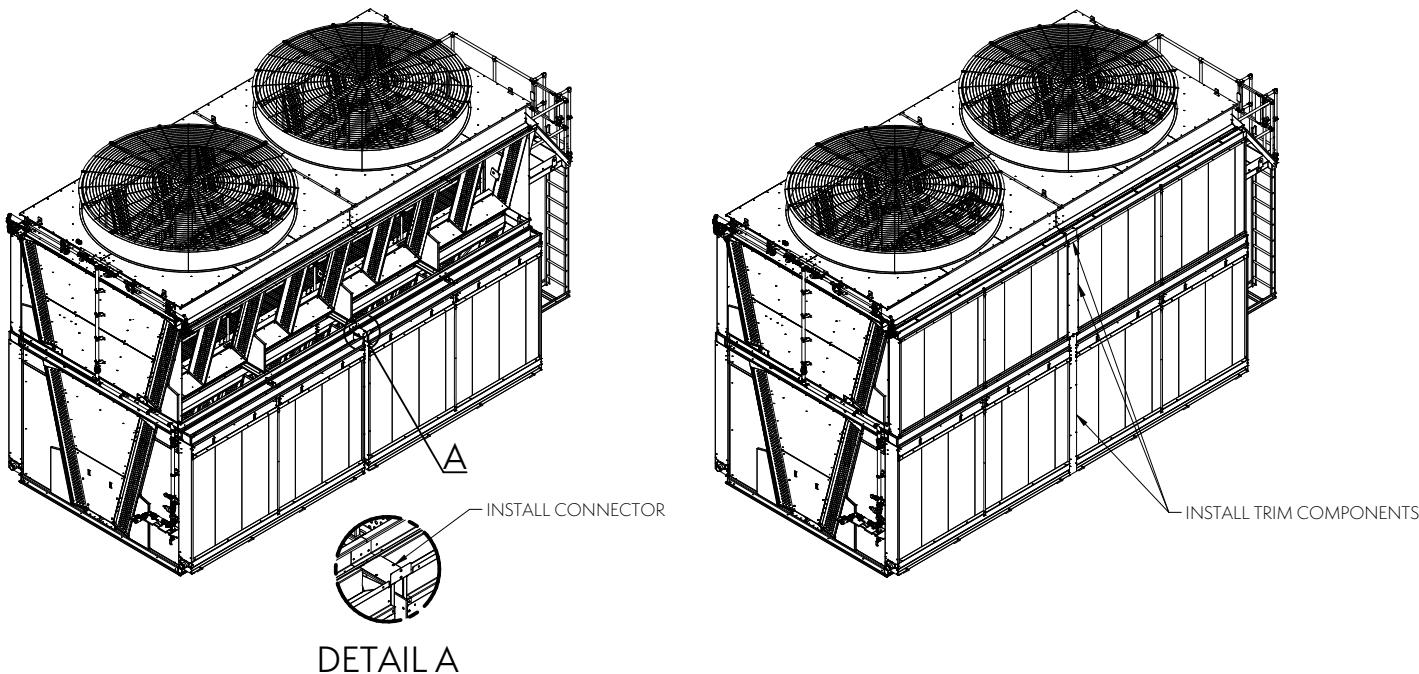


Figure 30 – Installing Trim Components in Between Cells

ADIABATIC WATER DISTRIBUTION SYSTEM FIELD ASSEMBLY INSTRUCTIONS

The supply piping for the adiabatic air pre-cooling system is partially factory installed, with some components requiring installation in the field. Much like the adiabatic modules, some sections of the water distribution system cannot ship mounted due to shipping width restrictions.

Follow the steps outlined below to complete adiabatic water distribution system assembly.

1. Once both upper and lower adiabatic modules are installed, remove all the cover panels from the water distribution tray above the upper modules.

The removed panels will expose pipe clamps which will need to be unclasped before installing the spray branches.

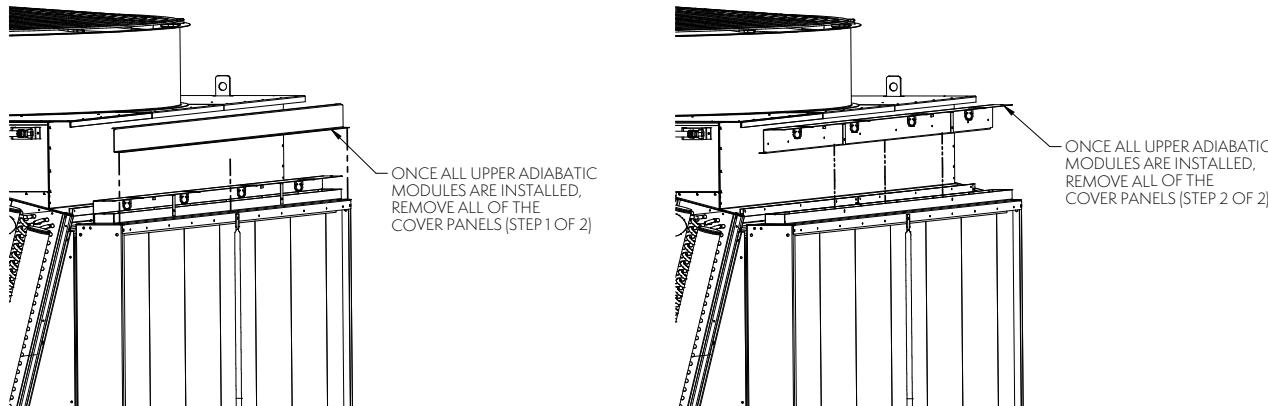


Figure 31 – Removing Cover Panels from Water Distribution Tray

2. Install the longer spray branch first as shown below. The longer spray branch is always located inboard within the distribution system. Install the shorter branch (on 2-cell & 3-cell units) next.

Reinstall cover panels when spray branch installation is complete.

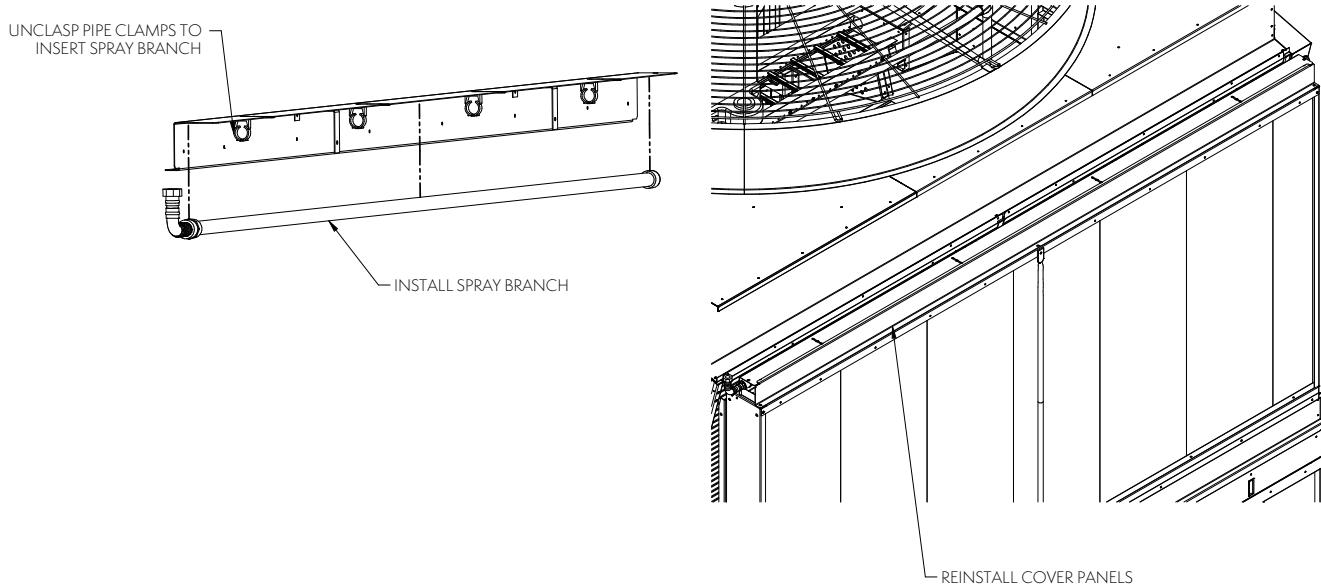


Figure 32 – Installing Spray Branches & Reinstalling Cover Panels

3. Install front and rear trim plates. The front and rear trim plates are for the upper section only. Install trim caps on water distribution trays. All components use M8 hardware. 1-cell unit shown below, typical for 3-cell unit.

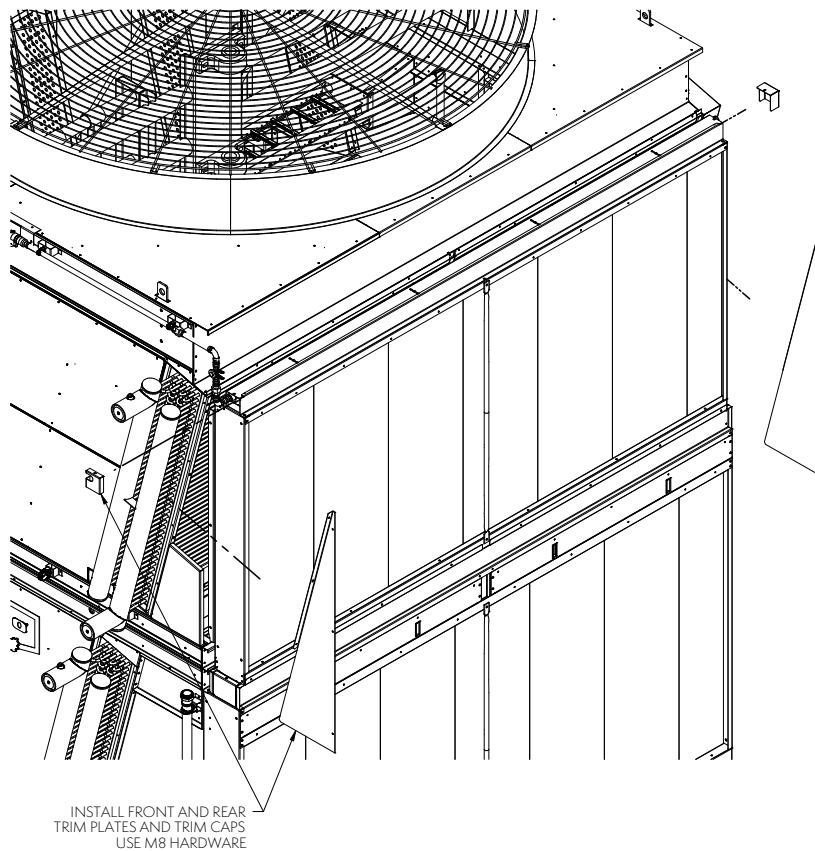


Figure 33 – Installing Front & Rear Trim Plates & Water Distribution System Trim Caps

4. Install intermediate pipe section to connect factory installed adiabatic water distribution piping on upper and lower sections as shown below. Install spray branch feed pipe sections on either side of the factory installed upper adiabatic water distribution piping as shown in Detail A below. The factory installed pipe sections ship with unions to simplify field installation. There are no PVC glue joints or soldering joints.

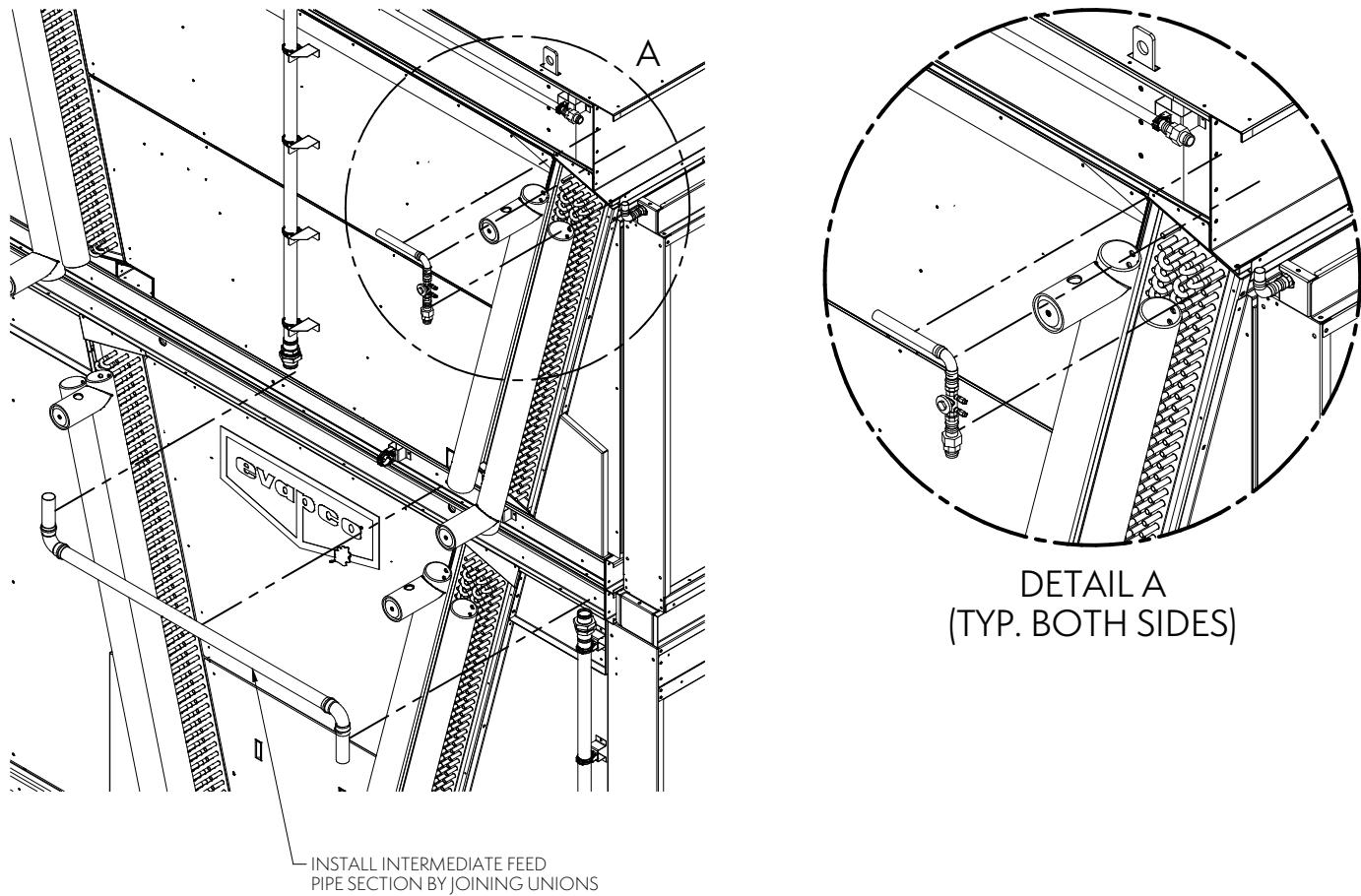


Figure 34 – Installing Intermediate Spray Feed Piping & Intermediate Spray Branch Feed Sections

External Service Platform Installation Instructions

Follow the instructions below to install the optional external service platform with a ladder on the return end of each dry or adiabatic double stack unit. The platform mounting channels are installed on the unit from the factory. Follow the instructions sequentially, starting with Detail A.

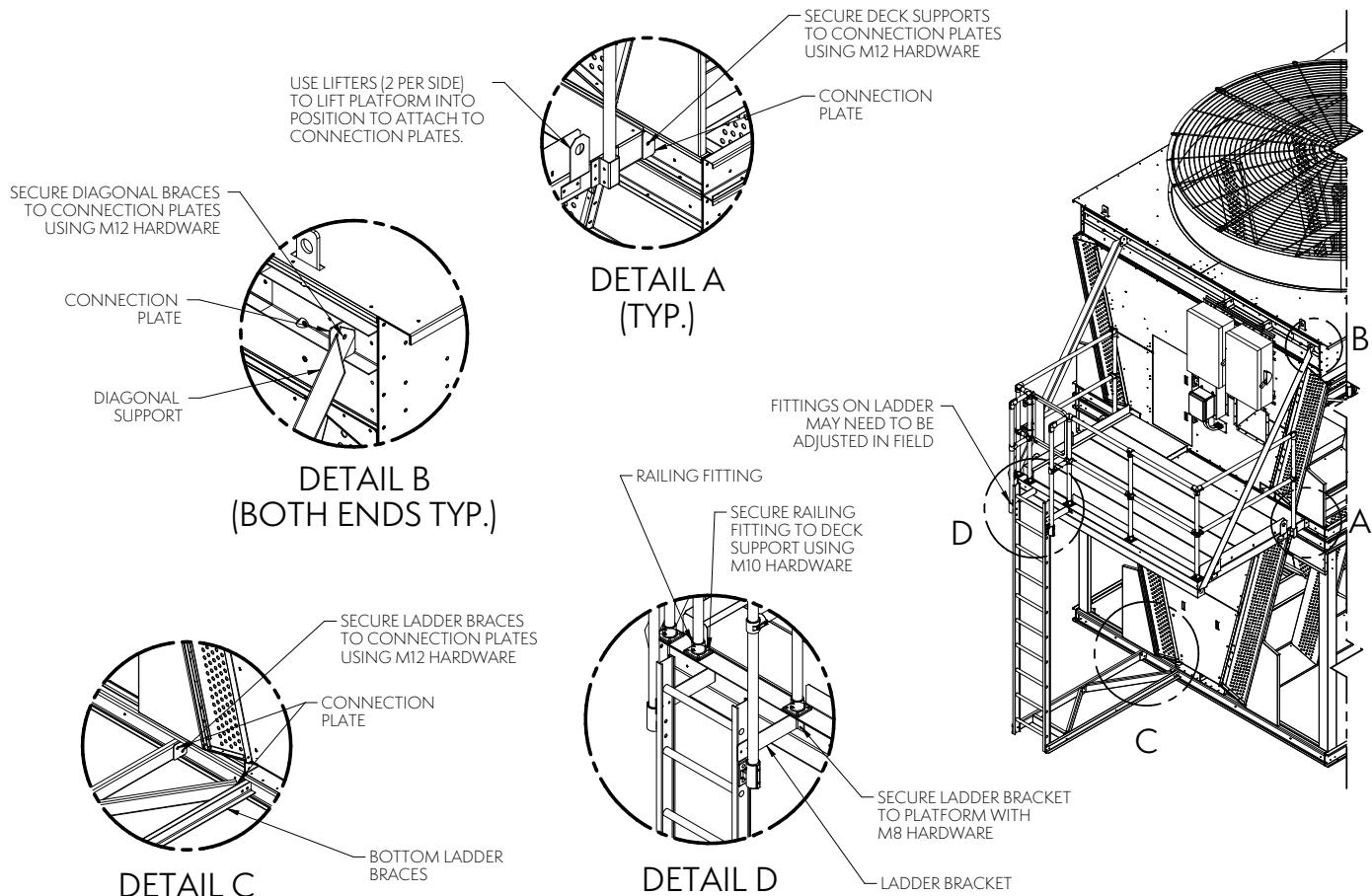


Figure 35 – External Platform Installation - Double Stack Models

Appendix A

Double Stack Units are provided with match markings on each section. Standard match marking location is at the rigging seam on the connection face. Standard match marking designation is shown below:

XX - Y
Cell Number Designator
Last 2 Digits of Serial Number

Example:

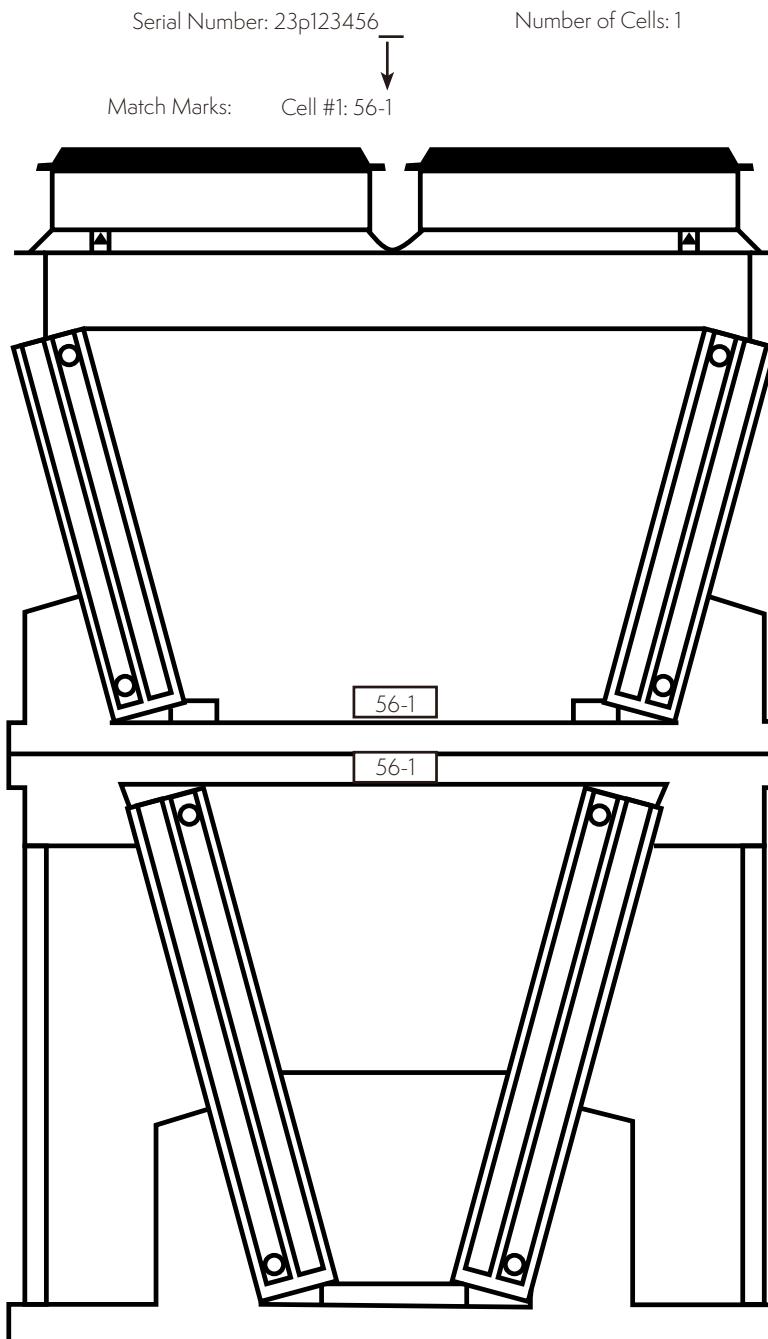


Figure 36 - Match Markings on Double Stack Unit Sections

NOTES:

NOTES:



DRY, ADIABATIC AND SPRAY FLUID COOLERS & CONDENSERS



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