

# EVAPORATIVE CONDENSERS

## PHC-E

### PARALLEL HYBRID CONDENSER



Available with Optional



Available in Capacities from 84 to 2,120 Ammonia Tons!



IARW International Association of Refrigerated Warehouses

Member of  
iicar  
International Institute of Ammonia Refrigeration  
www.iicar.org

AHRI Air-Conditioning, Heating, and Refrigeration Institute

# PHC-E Design Features

Proven Performance and Design Flexibility



## About EVAPCO

Evapco is the global innovator in heat transfer solutions. Our pledge is to make everyday life easier, more comfortable, more reliable, and more sustainable for people everywhere. With manufacturing facilities and sales offices in more than 50 countries and 48 active US patents —we are the team that engineers and contractors know they can count on for life.

## Contact

your local Evapco Representative  
or visit [evapco.com](http://evapco.com) to learn more.

## Proven Performance and Design Flexibility

The PHC-E Parallel Hybrid Condenser offers more system design and layout flexibility than ever before. This Induced Draft condenser design enhances EVAPCO's already extensive line of evaporative condensing technology. The PHC-E offers more selections for large industrial refrigeration projects: more capacity with a smaller plan area, fewer motors, less weight and lower refrigerant charge. More equipment choices and more design flexibility mean greater value for the End-User.

The PHC-E combines high efficiency PVC crossflow fill with EVAPCO's patented coil designs featuring the exclusive **CROSSCOOL™** tube enhancement for superior induced draft, parallel flow, hybrid condenser performance. The PHC-E evaporative condenser was designed in EVAPCO's state-of-the-art research and development center as part of the company's ongoing product development program. The PHC-E has undergone extensive thermal testing to ensure each condenser will perform as specified. As with all EVAPCO products, each PHC-E condenser is supplied with a written Thermal Performance Guarantee.



PHC-E – S Models

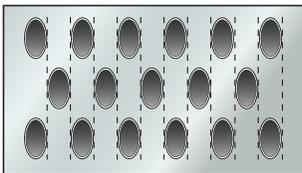


PHC-E – D Models

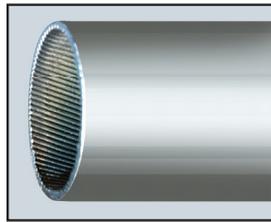
# PHC-E Design Features

## Coil Technology

The PHC-E incorporates EVAPCO's latest high efficiency heat transfer coils featuring EVAPCO'S exclusive **CROSSCOOL™** internal tube enhancement! Many of the units utilize EVAPCO's patented **Sensi-Coil®** technology which features EVAPCO's elliptical tubes assembled in a high density coil tube arrangement. The combination of these coil technologies with **CROSSCOOL™** tube enhancement provides more internal and external heat transfer surface area as well as greater air and water loading over the coil versus other designs. The result is superior heat transfer performance in parallel-flow heat transfer!



Sensi-Coil®  
(US Patent #7,296,620)



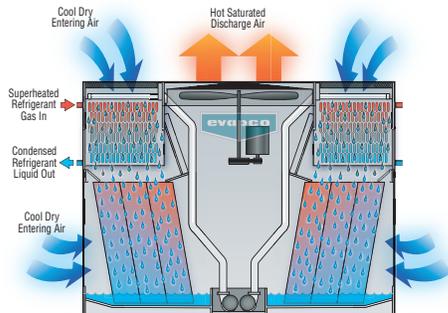
CROSSCOOL™

## Principle of Operation

Hot gas discharged from the compressor enters the condenser coil inlet(s) at the top of the unit. Cooled water from the unit basin is pumped through spray distribution nozzles and floods over the condenser coil(s). Ambient air is simultaneously drawn into the unit at the top in parallel flow with the water through the coil. A portion of the recirculated water evaporates into the air stream. This evaporation process and the cooled water flowing over the tubes removes heat from the refrigerant causing it to condense. The saturated refrigerant liquid drains out of the sloped coil tubes into a receiver for return to the system.

The recirculated water that was not evaporated falls through a crossflow fill section located below the coil. Air is drawn through the side of the unit and fill section removing additional heat from the water through evaporation. The cooled water collects in the basin for recirculation over the coil.

The hot, saturated air from both the coil and fill sections pass through internal drift eliminators to strip water droplets entrained in the air stream. The unit fan(s) then discharge the saturated air out of the top of the unit at a high velocity, where it dissipates into the atmosphere.



Principle of Operation

## Condensing Coil

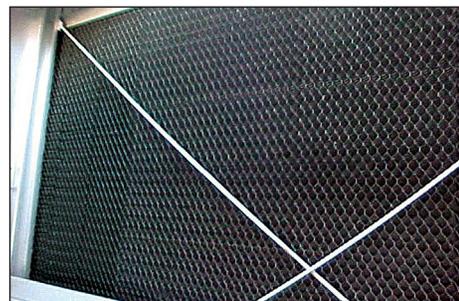
The coils are manufactured from high quality carbon steel tubing following the most stringent quality control procedures and in accordance with the ANSI/ASME B31.5 Refrigerant Piping Code. Each circuit is inspected to assure the material quality and then tested before being assembled into a coil. Each circuit is then assembled into a complete coil with a design pressure of 300 psig (optional design pressure of 400 psig is available). Finally, the assembled coil is strength tested in accordance with ASME B31.5 and subsequently leak tested using air under water. To protect the coil against corrosion, it is placed in a heavy-duty steel frame and the entire assembly is dipped in molten zinc (hot dip galvanized) at a temperature of approximately 800°F.



## Crossflow Fill

The PVC crossflow fill used in the PHC-E Evaporative Condenser is specially designed and manufactured by EVAPCO to induce highly turbulent mixing of the air and water for superior heat transfer. The fill is constructed of inert polyvinyl chloride. It will not rot or decay and is formulated to withstand water temperatures of 120°F (48.9°C).

The individual crossflow fill sheets are bonded together and supported at the bottom to enhance the structural integrity of the fill section. The assembled fill sheets form an integral inlet louver to prevent debris from entering the heat transfer fill. Each fill sheet has an integral multi-pass drift eliminator to strip the entrained water droplets from the discharge air. The fill material selected for the PHC-E Evaporative Condenser are self-extinguishing and have a flame spread of less than 25 under ASTM E84.



# PHC-E Design and Construction Features – S Models

The PHC-E line of evaporative condensers reflect EVAPCO's commitment to product development. The advanced design provides owners with many operational and performance advantages. These parallel-flow hybrid condensers are designed for easy maintenance and long, trouble-free operation.

## Sun~Blocker System (optional)

- Blocks sun light to minimize potential algae formation
- Prevents debris from entering the unit
- Eliminates water splash out



## PVC Spray Distribution Header with ZM® II Nozzles

- Large orifice nozzles prevent clogging (no moving parts)
- Designed for superior water distribution
- Threaded nozzles eliminate troublesome grommets
- Fixed position nozzles require zero maintenance
- Threaded end caps for ease of cleaning
- Guaranteed for life

## CROSScool™ Coil Design

- Internally enhanced coil for maximum heat transfer
- Low refrigerant charge
- Unique header design for free drainage
- ASME B31.5 compliant
- Design pressure of 300 psig

## Unit Access

- Oversized access door for enhanced accessibility
- Internal walkway for safe and easy basin access (not available on 7' box sizes)

## Double-Brake Flange Joints

- Stronger than single brake designs
- Minimizes water leaks at field joints
- Greater structural rigidity

## Totally Enclosed Pump Motors

- Help assure long, trouble-free operation

## Stainless Steel Strainer

- Resists corrosion better than other materials



## G-235 Mill Hot-Dip Galvanized Steel Construction

(Stainless steel available as affordable option)

## Drive System

- Totally enclosed fan motors assures long life
- Power-Band belts for better lateral rigidity
- Aluminum fan blades
- Non-corroding cast aluminum sheaves
- Heavy-Duty fan shaft bearings with L-10 life of 75,000 - 135,000 hrs.
- All other components are of corrosion resistant materials
- All components covered by 5 year warranty



## Easy Rig Field Seam

- Self guiding channels improve the quality of the field seam to eliminate leaks
- Easy to install
- Lower installation cost

## External Platform w/Ladder (optional)

- Safety cage
- Self supporting
- Modular design for easy field installation



## Unique Fill Material

- Cross fluted PVC bonded block fill
- Superior heat transfer
- Impervious to rot and decay

## Other PHC-S-E Options

- Internal ladder
- EVAPCO Water Systems
- Low Sound Fan
- Super Low Sound Fan



# PHC-E Design and Construction Features – D Models



## PVC Spray Distribution Header with ZM® II Nozzles

- Large orifice nozzles prevent clogging (no moving parts)
- Designed for superior water distribution
- Threaded nozzles eliminate troublesome grommets
- Fixed position nozzles require zero maintenance
- Threaded end caps for ease of cleaning
- Guaranteed for life

## Efficient Drift Eliminators

- Patented design reduces drift rate
- Made from corrosion resistant PVC for long life

U.S. Patent No. 6315804



## CROSScool™ Coil Design

- Low refrigerant charge
- Unique header design for free drainage
- ASME B31.5 compliant
- Design pressure of 300 psig

## Double-Brake Flange Joints

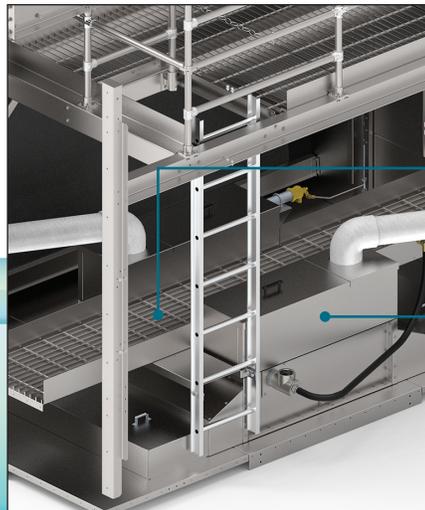
- Stronger than single brake design
- Minimizes water leaks at field joints
- Greater structural rigidity

## Internal Walkway

- For safe easy access to entire basin

## Pump House Access

- Easy access to pump and pump motor
- Oversized for easy addition of accessories, i.e. pan heaters



## Large Access Door

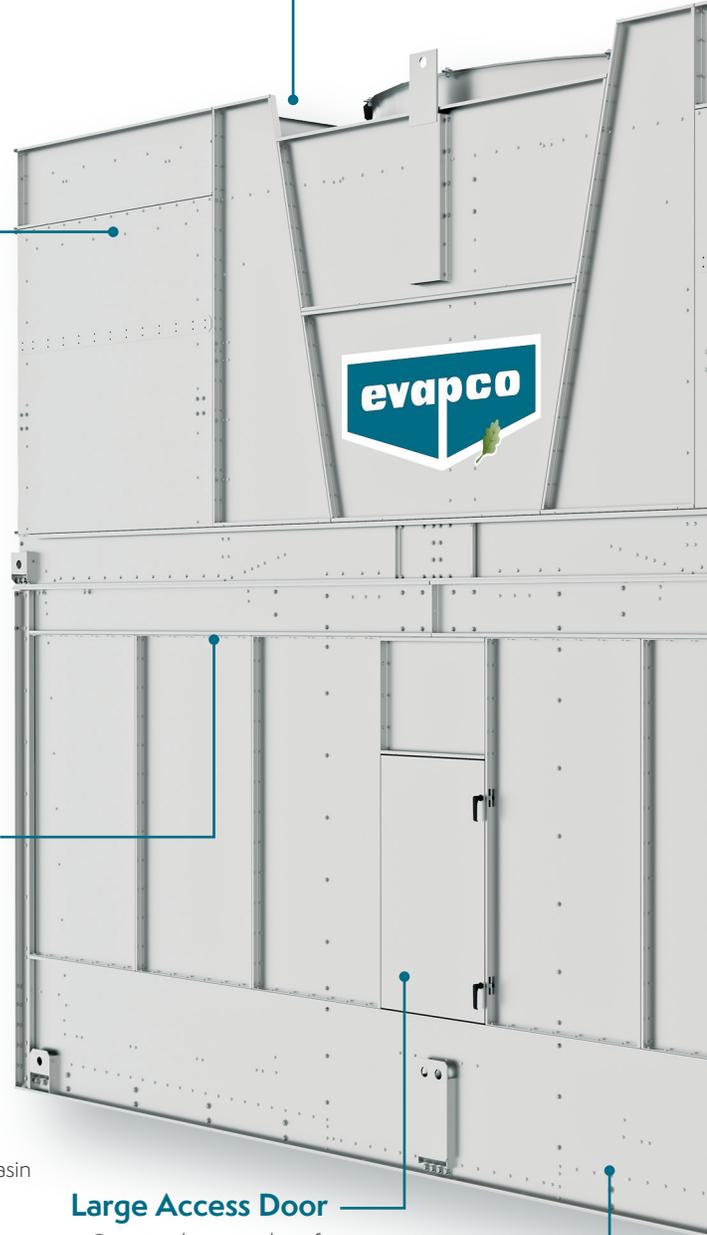
- Oversized access door for enhanced accessibility
- Standard on all models

## Stainless Steel Strainer

- Resists corrosion better than other materials

## Totally Enclosed Pump Motors

- Long, trouble-free operation



## G-235 Mill Hot-Dip Galvanized Steel Construction

(Stainless steel available as affordable option)



### Unique Fill Material

- Superior heat transfer
- Crossflow PVC bonded fill
- Greater structural integrity
- Impervious to rot and decay

## Advanced Design Smooth Flow Fan System

- Totally enclosed fan motors assures long life
- Power-Band belts for better lateral rigidity
- Advanced Design aluminum fan blades
- Non-corroding cast aluminum sheaves
- Heavy-Duty fan shaft bearings with L-10 life of 75,000 - 135,000 hrs.
- All other components are of corrosion resistant materials
- All components covered by 5 year warranty



### Sun-Blocker System (optional)

- Blocks sun light to minimize potential algae formation
- Prevents debris from entering the unit
- Eliminates water splash out

### Easy Rig Field Seam

- Self guiding channels improve the quality of the field seam to eliminate leaks
- Easy to install
- Lower installation cost

### External Service Platform w/Ladder (optional)

- Safe access to coil
- Self supporting
- Modular design for easy field installation



### Other PHC-D-E Options

- Internal motor davit
- Internal upper access ladder & platform
- Low Sound Fan
- Super Low Sound Fan



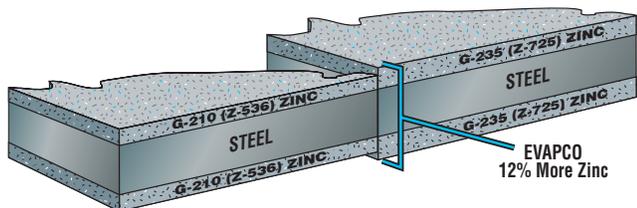
# PHC-E Construction Features

## PHC-E Construction Features

EVAPCO, known for superior product quality and the use of premium materials, has developed the ultimate system for corrosion protection in galvanized steel construction – the EVAPCOAT Corrosion Protection System. Marrying corrosion resistant materials with heavy gauge mill hot-dip galvanized steel construction to provide the longest life product with the best value.

### G-235 Mill Hot-Dip Galvanized Steel Construction

Mill hot-dip galvanized steel has been successfully used for over 40 years for the protection of evaporative condensers against corrosion. There are various grades of mill galvanized steel each with differing amounts of zinc protection. EVAPCO has been a leader in the industry in developing heavier galvanizing, and was the first to standardize on G-235 mill hot-dip galvanized steel. G-235 designation means there is a minimum of 2.35 ounces of zinc per square foot of surface area as measured in a triple spot test. G-235 is the heaviest level of galvanizing suitable for manufacturing evaporative condensers and has a minimum of 12% more zinc protection than competitive designs using G-210 steel.



During fabrication, all panel edges are coated with a 95% pure zinc-rich compound for extended corrosion resistance.



ZM® II Nozzle

### ZM® II Spray Nozzle Water Distribution System

Uniform and constant water distribution are paramount for reliable, scale-free evaporative condensing. EVAPCO'S Zero Maintenance ZM® II Spray Nozzle remains clog-free under the toughest conditions.

The heavy-duty ABS ZM® II Spray Nozzles have a 1-1/4" diameter opening and a 1-1/4" splash plate clearance. The fixed position ZM® II Spray Nozzles are mounted in corrosion-free PVC water distribution

pipes that have threaded end caps. Together, these elements combine to provide enhanced water dispersion over the coil resulting in superior thermal performance and a virtually maintenance free water distribution system.

### Fewer Fasteners Lower Installed Cost

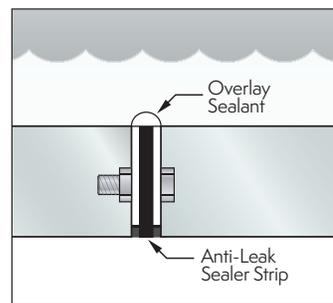
The PHC-E condensers feature a field seam design which ensures easier assembly and fewer field seam leaks. The field seam incorporates self-guiding channels which direct the coil casing section into position at the proper location on the bottom section of the condenser. In addition, the new design eliminates up to 85% of the fasteners typically used to join condenser sections in the field. This significantly reduces the amount of contractor labor cost to install the condenser.

### Type 304 Stainless Steel Strainers

Subjected to excessive wear and corrosion, the sump strainer is critical to the successful operation of the condenser. EVAPCO uses only Type 304 Stainless Steel for this very important component.

### Unique Seam Design—Eliminate Field Leaks

The PHC-E features EVAPCO's unique pan construction which includes a special butyl tape sealer. Each joint is then backed with a secondary caulking compound and encased in a double-brake flange for added strength and structural integrity. This unique sealing system has been proven effective in laboratory tests and years of field application.



### Efficient Water Drift Eliminators

An efficient drift eliminator system removes entrained water droplets from the air stream to limit the drift loss from the condenser. With a low drift rate, EVAPCO condensers save valuable water and water treatment chemicals. The drift eliminators are constructed of an inert polyvinyl chloride (PVC) plastic material which effectively eliminates corrosion of these vital components. They are assembled in sections to facilitate easy removal for inspection of the coil.

# PHC-E Construction Features/ Optional Equipment

## Mechanical Drive System

**Fan Motors** – All PHC-E condensers utilize a Totally Enclosed Air Over (TEAO) fan motor designed specifically for evaporator cooling applications. Inverter duty fan motors are standard on all PHC-E condensers.

**PHC-E S & D Fan Motor Mount** – Units are equipped with TEAO motor mount assembly on each fan offering redundancy as compared to tandem arrangement. Routine maintenance is easily performed.

**Power-Band Drive Belt:** The Power-Band is a solid-back, multigroove belt system that has high lateral rigidity. The belt is constructed of neoprene with polyester cords. The drive belt is designed for minimum 150% of the motor nameplate horsepower for long life and durability.

**Fan Shaft Bearings:** The fan shaft bearings in PHC-E units are specially selected for long, trouble-free life. They are rated for an L-10 life of 75,000 to 135,000 hours and are the heaviest pillow block bearing available.

**Aluminum Alloy Sheaves:** Fan sheaves are constructed of corrosion resistant aluminum for long life, eliminating the corrosion that exists on cast steel sheaves, thereby extending belt life.

**Five Year Drive Warranty:** All drive components on PHC-E units are covered by Evapco's exclusive 5 year drive warranty -including fan motors and belts!



## Maintenance Access

### Large Access Door

For enhanced basin accessibility that enables maintenance personnel to quickly and easily enter the basin for float valve adjustment and unit inspection. This is provided standard on all PHC-E models.



### Internal Walkway

Once inside the PHC-E condensers, maintenance personnel can safely move throughout the unit by way of a non-slip walkway. This walkway is standard on double coil units, and is standard on 12' box size single coil units.

## Optional Equipment

### Self Supporting External Service Platforms

PHC-E Condensers are available with self-supporting service platforms that include access ladders which are designed



PHC-S Model Shown

for easy field installation. This option offers significant savings in comparison to field constructed, externally supported catwalks. The Evapco service platform option is for the air inlet end(s) of the unit.

### Stainless Steel Basin and Casing

In addition to the EVAPCOAT Corrosion Protection System, EVAPCO offers optional Type 304 or Type 316 stainless steel construction for superior corrosion resistance. EVAPCO induced draft condensers have a modular design which allows for specific areas to be enhanced for increased corrosion protection. The basin area of a condenser is often subjected to high concentrations of impurities and silt. EVAPCO's stainless steel basin option includes welded seam construction as standard. For particularly corrosive environments, stainless steel construction is also available for the coil casing / fan section.

**PHC-S-E Dual Pump Option:** On 12'x18' PHC-S-E models, an option for dual 50% spray water pumps is available. Using two smaller pumps as compared to one larger pump provides increased water loading on the coil and increased condensing capacity, while maintaining total pump HP.

### TITAN Coils – Stainless Steel Construction

The heat exchanger coil is the heart of the evaporative condenser. For this critical component, EVAPCO offers the option of Type 304L and Type 316L stainless steel construction for the condensing coil. Highly efficient heat transfer coils with the ultimate corrosion protection.



### ASME Coils

Evaporative condensers can be furnished with condensing coils manufactured in accordance with the ASME Pressure Vessel Code Section VIII, Division I. Coils built with this option will bear a U-stamp indicating their compliance with the ASME code.

### Coil, Air Inlet & Sump Sun-Blocker System

EVAPCO's Sun-Blocker System is designed to prevent sunlight from entering the condenser at the coil inlet, at the fill/air intake, and through the fan cylinder. As standard, these areas are open and exposed to sunlight which may promote algae growth. The Sun-Blocker System will help minimize algae, water splash out, and may reduce water treatment chemistry costs.

# Optional Equipment Water Treatment Solutions

## Water Treatment Solutions

### Pulse~Pure® Non-Chemical Water Treatment System



EVAPCO's Pulse~Pure® water treatment system utilizes pulsed electric field technology to provide an environmentally responsible alternative for the treatment of water in evaporative cooled equipment. The Pulse~Pure® system delivers short, high-frequency bursts of low energy electromagnetic fields to the recirculating water in the PHC-E.



- EVAPCO guarantees that total bacterial counts will not exceed 10,000 CFU/ml in the cooling water
- Controls scale, corrosion, and microbiological growth with absolutely no chemicals required
- Compact design with no moving parts and low energy consumption

### Smart Shield® Solid Chemical Water Treatment System

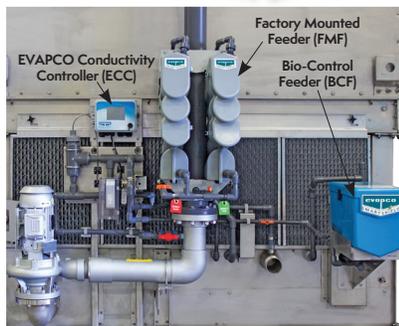


EVAPCO's Smart Shield® system

utilizes proven solid chemistry delivered via our revolutionary feed system.

Patented controlled a release scale and corrosion inhibitor is fed whenever your spray water pump is energized, keeping your system protected anytime the spray water pump is operating.

Smart Shield® is a complete water treatment package that:

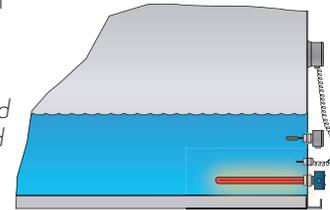


- Utilizes 'Bag in Bag' no touch chemical replenishments, making reloads easier and safer
- Creates reduced packaging, shipping and handling providing a reduced carbon footprint compared to liquid chemicals
- Eliminates the hazards associated with liquid chemicals, potential for liquid spills and the need for expensive feed pumps making it the easiest and safest chemical water treatment system available today

## Basin Heater Package

Electric basin heater packages are available to help prevent freeze-up of the basin water. The packages include electric heater elements, thermostat and low water cutoff.

*Note: External pumps should be heat traced and insulated in the field to prevent freezing.*



	Heater Sizes (kW)			
	Box Size	0°F	-20°F	-40°F
<b>S Models</b>	7x9	6	8	(2) 6
	7x12	8	(2) 6	(2) 8
	7x18	(2) 6	(2) 8	(3) 8
	12x12	(2) 5	(2) 8	(2) 10
	12x18	(2) 7	(2) 12	(3) 10
	12x24-2C	(4) 5	(4) 8	(4) 10
<b>D Models</b>	12x36-2C	(4) 7	(4) 12	(6) 10
	12x24	(2) 12	(4) 9	(4) 12
	14x26	(2) 15	(4) 10	(4) 15
	24x24	(4) 12	(8) 9	(8) 12
	28x26	(4) 15	(8) 10	(8) 15

## Electric Water Level Control

EVAPCO evaporative condensers are available with an optional electric water level control system in place of the standard mechanical makeup valve and float assembly. This package provides very accurate control of the basin water level and does not require field adjustment, even under varying operating conditions.

# Optional Equipment/ Steel Support

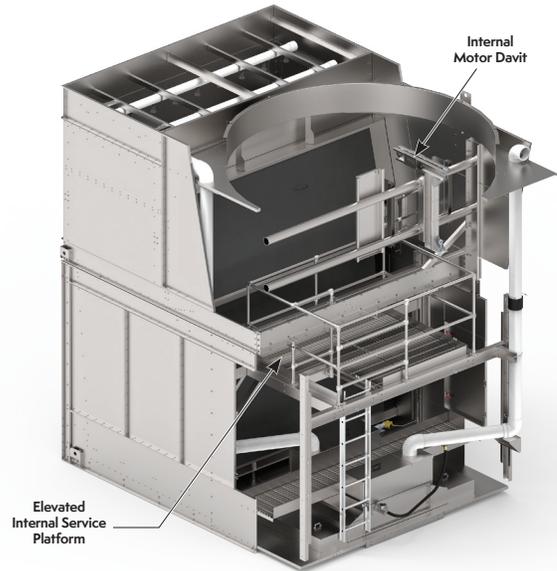
## Optional Equipment (cont.)

### Elevated Internal Service Platform

An elevated internal service platform option can be provided on the 12' PHC-S-E models and the PHC-D-E models to provide easy access to the unit drive components. The elevated internal service platform system provides an aluminum ladder that extends from the walkway to the service platform located directly below the drive system. The service platform is constructed of galvanized steel and provides easy access to lubricate fan bearings and service the motor and drive components.

### Internal Motor Davit

In order to provide for easy motor removal, the PHC-D-E models can be provided with an internal motor davit system. The internal motor davit is constructed of galvanized steel and provides an easy method to lower the fan motor to the basin of the unit for removal through the side access door.



Elevated Internal Service Platform & Internal Motor Davit

## Steel Support

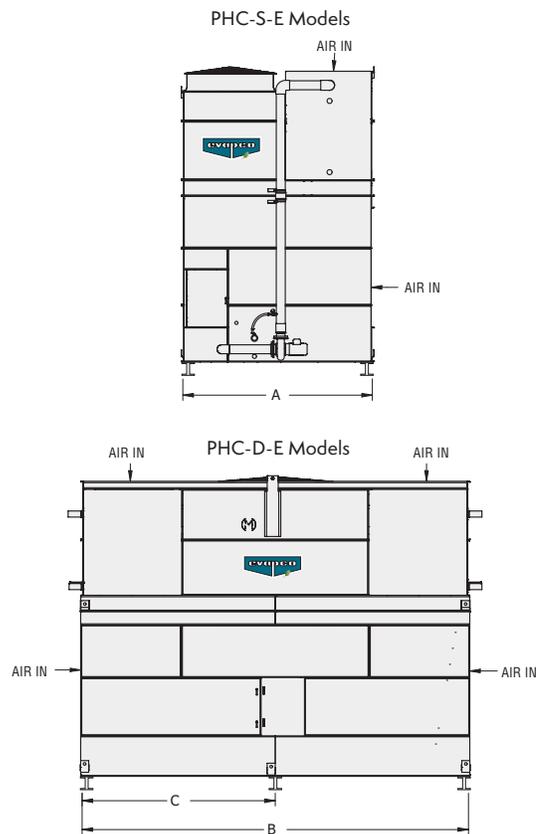
EVAPCO PHC-E condensers are designed to be supported with structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes, 3/4" in diameter are located in the bottom channels of the pan section to provide for bolting to the structural steel. (Refer to certified drawings from the factory for bolt hole locations.)

Beams should be level to within 1/8" in 6' before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.

**Consult IBC for required steel support layout and structural design**

	PHC-E Pan Footprint Dimensions			
	Box Size	A	B	C
<b>S Models</b>	7x9	86	-	-
	7x12	86	-	-
	7x18	86	-	-
	12x12	142	-	-
	12x18	142	-	-
	12x24	142	-	-
<b>D Models</b>	12x36	142	-	-
	12x24	-	288	144
	14x26	-	288	144
	24x24	-	312	156
	28x26	-	312	156

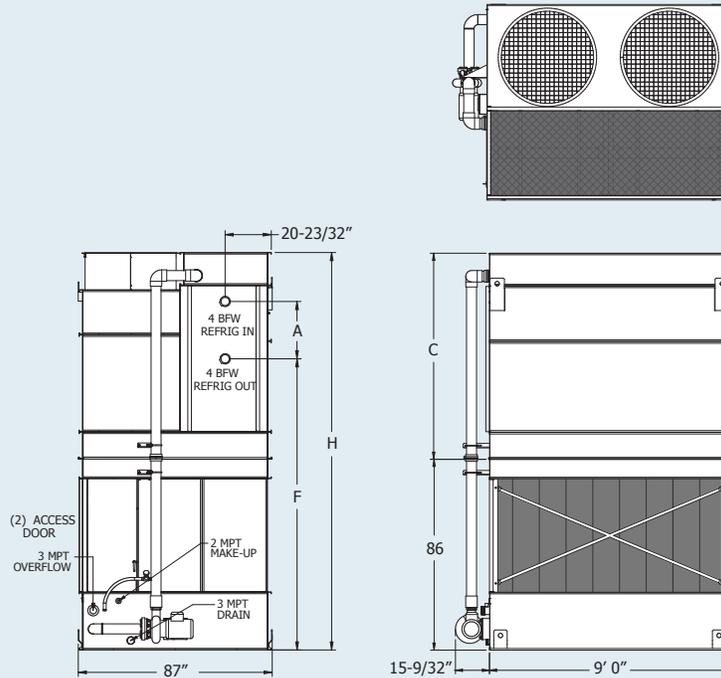
Note: Unit dimensions shown for reference only. Consult the PHC-E unit steel support drawings for specific beam dimensions and bolt locations.



Typical Steel Support

# Engineering Dimensions & Data

## Models PHC-S79-84E to 161E



**Table 1 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump			Dimensions (in)			
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S79-84E	84	(2) 3	33,300	7,430	10,440	4,700	60	8	3	300	360	(1) 8	9,350	25-3/4	130-5/8	92-1/2	180-1/8
PHC-S79-94E	94	(2) 3	32,900	8,080	11,110	5,350	80	11	3	300	360	(1) 8	10,020	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S79-101E	101	(2) 3	31,700	8,540	11,590	5,810	100	14	3	300	360	(1) 8	10,500	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-107E	107	(2) 3	31,200	8,710	11,780	5,980	120	16	3	300	360	(1) 8	10,690	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-114E	114	(2) 3	31,900	9,130	12,220	6,400	140	19	3	300	360	(1) 8	11,130	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-119E	119	(2) 3	31,500	9,350	12,460	6,620	160	22	3	300	360	(1) 8	11,370	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-96E	96	(2) 5	39,500	7,460	10,470	4,730	60	8	3	300	360	(1) 8	9,380	25-3/4	130-5/8	92-1/2	180-1/8
PHC-S79-106E	106	(2) 5	39,000	8,110	11,140	5,380	80	11	3	300	360	(1) 8	10,050	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S79-115E	115	(2) 5	37,600	8,570	11,620	5,840	100	14	3	300	360	(1) 8	10,530	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-122E	122	(2) 5	36,900	8,740	11,810	6,010	120	16	3	300	360	(1) 8	10,720	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-130E	130	(2) 5	37,800	9,160	12,250	6,430	140	19	3	300	360	(1) 8	11,160	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-135E	135	(2) 5	37,400	9,380	12,490	6,650	160	22	3	300	360	(1) 8	11,400	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-117E	117	(2) 7.5	44,600	8,080	11,110	5,350	80	11	3	300	360	(1) 8	10,020	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S79-126E	126	(2) 7.5	43,100	8,540	11,590	5,810	100	14	3	300	360	(1) 8	10,500	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-137E	137	(2) 7.5	42,300	8,710	11,780	5,980	120	16	3	300	360	(1) 8	10,690	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-144E	144	(2) 7.5	43,200	9,130	12,220	6,400	140	19	3	300	360	(1) 8	11,130	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-150E	150	(2) 7.5	42,800	9,350	12,460	6,620	160	22	3	300	360	(1) 8	11,370	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-136E	136	(2) 10	48,000	8,550	11,600	5,820	100	14	3	300	360	(1) 8	10,510	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-146E	146	(2) 10	47,100	8,720	11,790	5,990	120	16	3	300	360	(1) 8	10,700	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S79-154E	154	(2) 10	47,600	9,140	12,230	6,410	140	19	3	300	360	(1) 8	11,140	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S79-161E	161	(2) 10	47,100	9,360	12,470	6,630	160	22	3	300	360	(1) 8	11,380	52-3/4	103-5/8	92-1/2	180-1/8

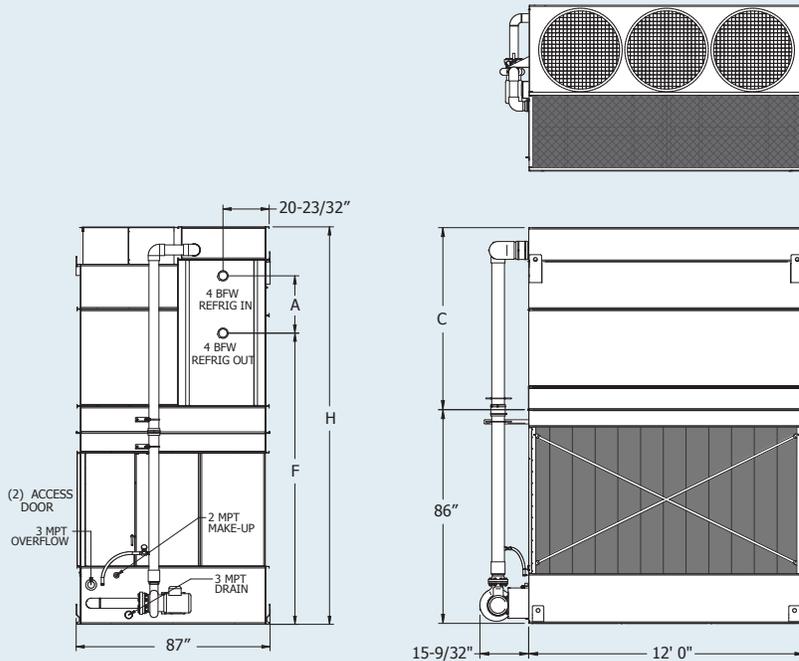
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S712-117E to 210E



**Table 2 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S712-117E	117	(3) 3	50,000	9,560	13,760	6,200	80	11	5	560	480	(1) 10	12,270	25-3/4	130-5/8	92-1/2	180-1/8
PHC-S712-130E	130	(3) 3	49,300	10,120	14,350	6,760	110	15	5	560	480	(1) 10	12,860	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S712-140E	140	(3) 3	47,600	10,690	14,940	7,330	130	18	5	560	480	(1) 10	13,450	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-151E	151	(3) 3	46,700	10,990	15,260	7,630	150	21	5	560	480	(1) 10	13,770	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-160E	160	(3) 3	47,800	11,540	15,840	8,180	180	25	5	560	480	(1) 10	14,350	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S712-167E	167	(3) 3	47,300	11,900	16,240	8,540	220	30	5	560	480	(1) 10	14,750	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S712-148E	148	(3) 5	58,400	10,170	14,400	6,810	110	15	5	560	480	(1) 10	12,910	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S712-159E	159	(3) 5	56,500	10,740	14,990	7,380	130	18	5	560	480	(1) 10	13,500	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-171E	171	(3) 5	55,400	11,040	15,310	7,680	150	21	5	560	480	(1) 10	13,820	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-182E	182	(3) 5	56,700	11,590	15,890	8,230	180	25	5	560	480	(1) 10	14,400	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S712-189E	189	(3) 5	56,100	11,950	16,290	8,590	220	30	5	560	480	(1) 10	14,800	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S712-177E	177	(3) 7.5	64,600	10,690	14,940	7,330	130	18	5	560	480	(1) 10	13,450	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-188E	188	(3) 7.5	63,400	10,990	15,260	7,630	150	21	5	560	480	(1) 10	13,770	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S712-201E	201	(3) 7.5	64,900	11,540	15,840	8,180	180	25	5	560	480	(1) 10	14,350	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S712-210E	210	(3) 7.5	64,200	11,900	16,240	8,540	220	30	5	560	480	(1) 10	14,750	52-3/4	103-5/8	92-1/2	180-1/8

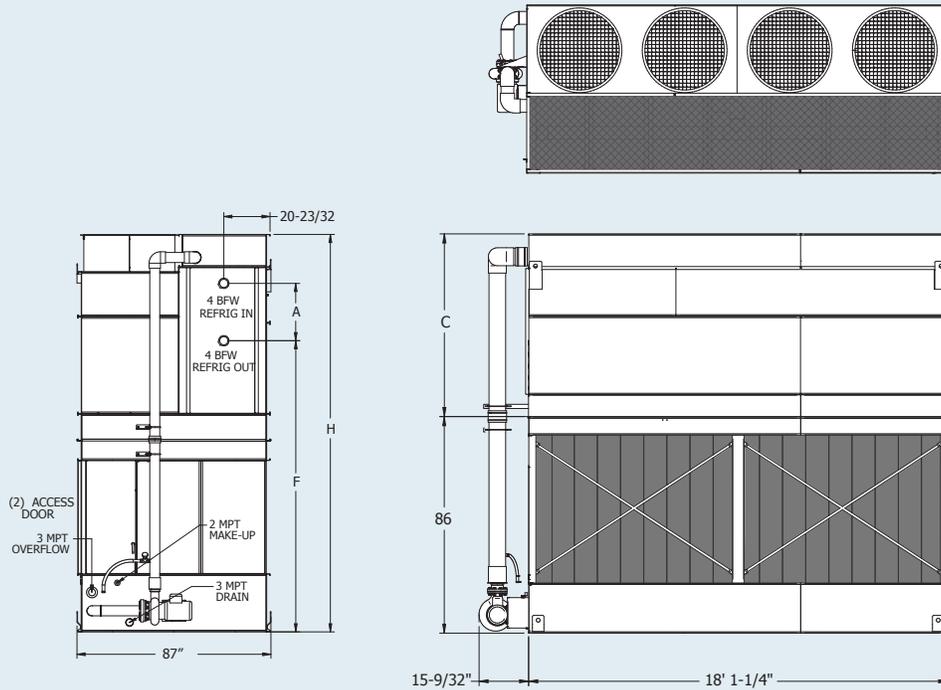
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S718-173E to 335E



**Table 3 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump			Dimensions (in)			
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S718-173E	173	(4) 3	66,600	13,580	19,840	8,770	130	17	7.5	740	720	(1) 10	17,680	25-3/4	130-5/8	92-1/2	180-1/8
PHC-S718-194E	194	(4) 3	65,700	14,410	20,700	9,600	160	22	7.5	740	720	(1) 10	18,540	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S718-210E	210	(4) 3	63,500	15,270	21,610	10,460	210	28	7.5	740	720	(1) 10	19,450	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-224E	224	(4) 3	62,300	15,820	22,190	11,010	240	32	7.5	740	720	(1) 10	20,030	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-237E	237	(4) 3	63,700	16,660	23,070	11,850	280	38	7.5	740	720	(1) 10	20,910	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-248E	248	(4) 3	63,100	17,150	23,610	12,340	330	45	7.5	740	720	(1) 10	21,450	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-198E	198	(4) 5	79,000	13,640	19,900	8,830	130	17	7.5	740	720	(1) 10	17,740	25-3/4	130-5/8	92-1/2	180-1/8
PHC-S718-220E	220	(4) 5	77,900	14,470	20,760	9,660	160	22	7.5	740	720	(1) 10	18,600	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S718-236E	236	(4) 5	75,300	15,330	21,670	10,520	210	28	7.5	740	720	(1) 10	19,510	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-254E	254	(4) 5	73,900	15,880	22,250	11,070	240	32	7.5	740	720	(1) 10	20,090	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-270E	270	(4) 5	75,500	16,720	23,130	11,910	280	38	7.5	740	720	(1) 10	20,970	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-282E	282	(4) 5	74,800	17,210	23,670	12,400	330	45	7.5	740	720	(1) 10	21,510	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-244E	244	(4) 7.5	89,200	14,410	20,700	9,600	160	22	7.5	740	720	(1) 10	18,540	34-3/4	121-5/8	92-1/2	180-1/8
PHC-S718-263E	263	(4) 7.5	86,200	15,270	21,610	10,460	210	28	7.5	740	720	(1) 10	19,450	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-281E	281	(4) 7.5	84,600	15,820	22,190	11,010	240	32	7.5	740	720	(1) 10	20,030	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-299E	299	(4) 7.5	86,500	16,660	23,070	11,850	280	38	7.5	740	720	(1) 10	20,910	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-312E	312	(4) 7.5	85,600	17,150	23,610	12,340	330	45	7.5	740	720	(1) 10	21,450	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-283E	283	(4) 10	96,000	15,290	21,630	10,480	210	28	7.5	740	720	(1) 10	19,470	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-303E	303	(4) 10	94,200	15,840	22,210	11,030	240	32	7.5	740	720	(1) 10	20,050	43-3/4	112-5/8	92-1/2	180-1/8
PHC-S718-321E	321	(4) 10	95,200	16,680	23,090	11,870	280	38	7.5	740	720	(1) 10	20,930	52-3/4	103-5/8	92-1/2	180-1/8
PHC-S718-335E	335	(4) 10	94,200	17,170	23,630	12,360	330	45	7.5	740	720	(1) 10	21,470	52-3/4	103-5/8	92-1/2	180-1/8

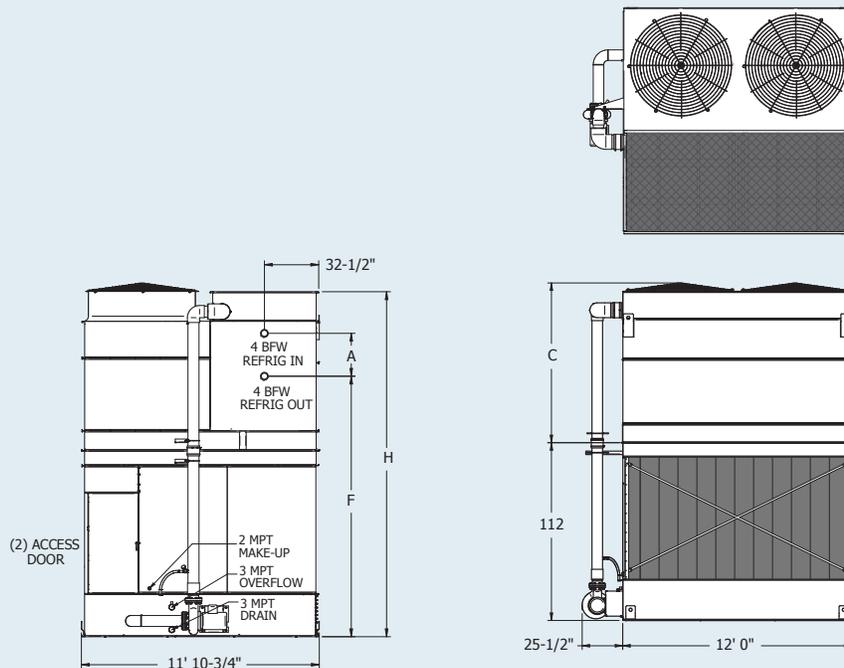
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S1212-221E to 422E



**Table 4 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump			Dimensions (in)			
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S1212-221E	221	(2) 5	69,800	12,740	18,050	7,480	140	19	7.5	800	610	(1) 10	16,040	25-3/4	156-1/2	95-1/2	212-1/4
PHC-S1212-247E	247	(2) 5	68,800	13,630	18,980	8,370	180	25	7.5	800	610	(1) 10	16,970	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1212-267E	267	(2) 5	66,500	14,540	19,950	9,280	240	32	7.5	800	610	(1) 10	17,940	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-282E	282	(2) 5	65,200	15,110	20,540	9,850	260	36	7.5	800	610	(1) 10	18,530	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-300E	300	(2) 5	64,000	16,050	21,540	10,790	320	43	7.5	800	610	(1) 10	19,530	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1212-313E	313	(2) 5	62,800	17,120	22,660	11,860	370	50	7.5	800	610	(1) 10	20,650	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1212-319E	319	(2) 5	62,300	18,260	23,860	13,000	430	58	7.5	800	610	(1) 10	21,850	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1212-240E	240	(2) 7.5	79,900	12,710	18,020	7,450	140	19	7.5	800	610	(1) 10	16,010	25-3/4	156-1/2	95-1/2	212-1/4
PHC-S1212-268E	268	(2) 7.5	78,700	13,600	18,950	8,340	180	25	7.5	800	610	(1) 10	16,940	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1212-289E	289	(2) 7.5	76,000	14,510	19,920	9,250	240	32	7.5	800	610	(1) 10	17,910	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-305E	305	(2) 7.5	74,700	15,080	20,510	9,820	260	36	7.5	800	610	(1) 10	18,500	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-326E	326	(2) 7.5	73,300	16,020	21,510	10,760	320	43	7.5	800	610	(1) 10	19,500	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1212-339E	339	(2) 7.5	71,800	17,090	22,630	11,830	370	50	7.5	800	610	(1) 10	20,620	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1212-347E	347	(2) 7.5	71,300	18,230	23,830	12,970	430	58	7.5	800	610	(1) 10	21,820	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1212-284E	284	(2) 10	86,500	13,610	18,960	8,350	180	25	7.5	800	610	(1) 10	16,950	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1212-306E	306	(2) 10	83,600	14,520	19,930	9,260	240	32	7.5	800	610	(1) 10	17,920	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-323E	323	(2) 10	82,200	15,090	20,520	9,830	260	36	7.5	800	610	(1) 10	18,510	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-345E	345	(2) 10	80,600	16,030	21,520	10,770	320	43	7.5	800	610	(1) 10	19,510	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1212-360E	360	(2) 10	79,000	17,100	22,640	11,840	370	50	7.5	800	610	(1) 10	20,630	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1212-367E	367	(2) 10	78,400	18,240	23,840	12,980	430	58	7.5	800	610	(1) 10	21,830	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1212-352E	352	(2) 15	94,200	15,220	20,650	9,960	260	36	7.5	800	610	(1) 10	18,640	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1212-373E	373	(2) 15	92,100	16,160	21,650	10,900	320	43	7.5	800	610	(1) 10	19,640	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1212-389E	389	(2) 15	90,300	17,230	22,770	11,970	370	50	7.5	800	610	(1) 10	20,760	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1212-398E	398	(2) 15	89,600	18,370	23,970	13,110	430	58	7.5	800	610	(1) 10	21,960	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1212-396E	396	(2) 20	101,400	16,700	22,190	11,440	320	43	7.5	800	610	(1) 10	20,410	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1212-413E	413	(2) 20	98,700	17,770	23,310	12,510	370	50	7.5	800	610	(1) 10	21,530	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1212-422E	422	(2) 20	97,900	18,910	24,510	13,650	430	58	7.5	800	610	(1) 10	22,730	70-3/4	129-1/2	113-1/2	230-1/4

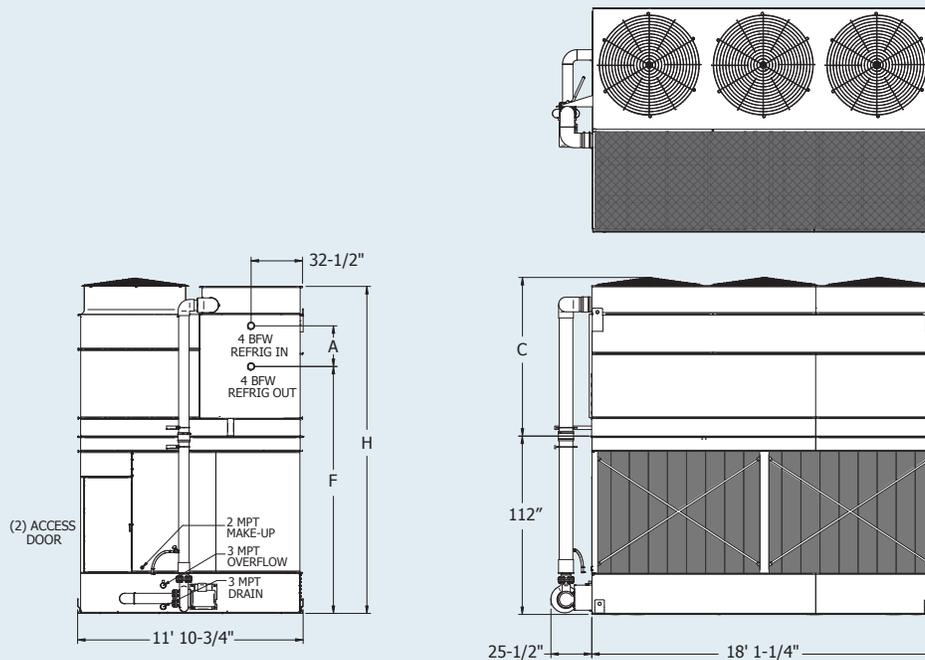
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models *PHC-S1218-363E to 616E*



**Table 5 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S1218-363E	363	(3) 5	104,200	19,900	27,970	12,270	280	38	10	1025	950	(1) 12	24,920	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-393E	393	(3) 5	100,700	21,260	29,400	13,630	350	48	10	1025	950	(1) 12	26,350	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-414E	414	(3) 5	99,000	22,230	30,420	14,600	400	54	10	1025	950	(1) 12	27,370	43 3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-438E	438	(3) 5	96,900	23,640	31,910	16,010	480	65	10	1025	950	(1) 12	28,860	52 3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-456E	456	(3) 5	95,100	25,010	33,360	17,380	560	76	10	1025	950	(1) 12	30,310	61 3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-467E	467	(3) 5	94,400	26,620	35,050	18,990	640	87	10	1025	950	(1) 12	32,000	70 3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-394E	394	(3) 7.5	119,100	19,850	27,920	12,220	280	38	10	1025	950	(1) 12	24,870	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-426E	426	(3) 7.5	115,100	21,210	29,350	13,580	350	48	10	1025	950	(1) 12	26,300	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-448E	448	(3) 7.5	113,300	22,180	30,370	14,550	400	54	10	1025	950	(1) 12	27,320	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-476E	476	(3) 7.5	111,000	23,590	31,860	15,960	480	65	10	1025	950	(1) 12	28,810	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-495E	495	(3) 7.5	108,700	24,960	33,310	17,330	560	76	10	1025	950	(1) 12	30,260	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-506E	506	(3) 7.5	107,900	26,570	35,000	18,940	640	87	10	1025	950	(1) 12	31,950	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-417E	417	(3) 10	130,900	19,870	27,940	12,240	280	38	10	1025	950	(1) 12	24,890	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-450E	450	(3) 10	126,500	21,230	29,370	13,600	350	48	10	1025	950	(1) 12	26,320	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-474E	474	(3) 10	124,600	22,200	30,390	14,570	400	54	10	1025	950	(1) 12	27,340	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-503E	503	(3) 10	122,000	23,610	31,880	15,980	480	65	10	1025	950	(1) 12	28,830	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-524E	524	(3) 10	119,600	24,980	33,330	17,350	560	76	10	1025	950	(1) 12	30,280	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-536E	536	(3) 10	118,600	26,590	35,020	18,960	640	87	10	1025	950	(1) 12	31,970	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-515E	515	(3) 15	142,400	22,390	30,580	14,760	400	54	10	1025	950	(1) 12	27,530	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-546E	546	(3) 15	139,500	23,800	32,070	16,170	480	65	10	1025	950	(1) 12	29,020	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-568E	568	(3) 15	136,900	25,170	33,520	17,540	560	76	10	1025	950	(1) 12	30,470	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-582E	582	(3) 15	135,800	26,780	35,210	19,150	640	87	10	1025	950	(1) 12	32,160	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-578E	578	(3) 20	153,500	24,620	32,890	16,990	480	65	10	1025	950	(1) 12	30,190	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-603E	603	(3) 20	150,600	25,990	34,340	18,360	560	76	10	1025	950	(1) 12	31,640	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-616E	616	(3) 20	149,500	27,600	36,030	19,970	640	87	10	1025	950	(1) 12	33,330	70-3/4	129-1/2	113-1/2	230-1/4

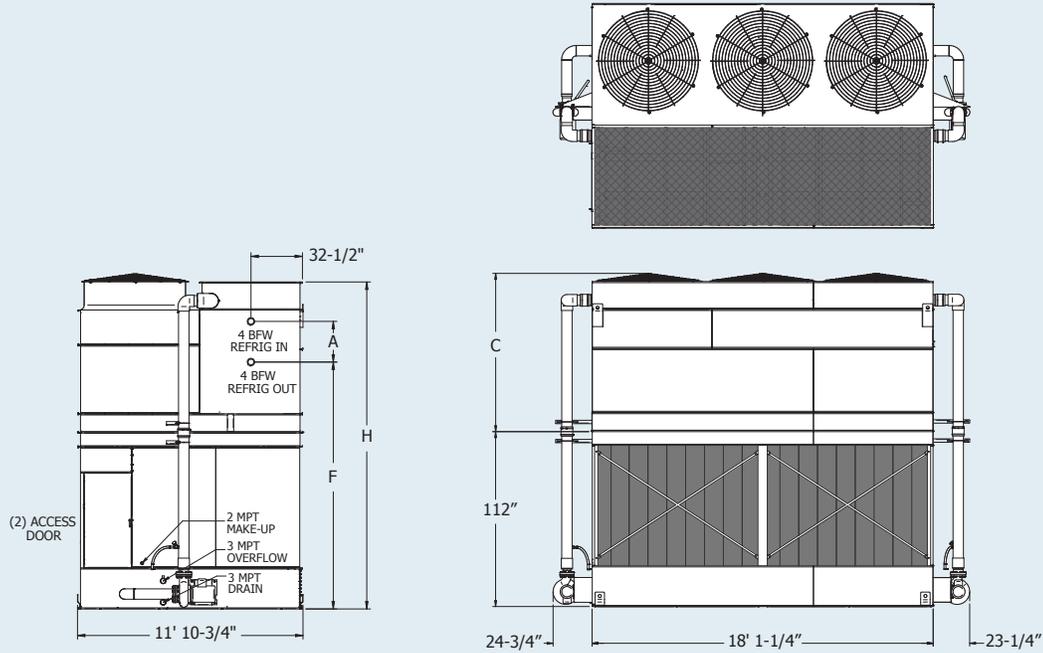
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S1218-383E-2P to 652E-2P



**Table 6 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S1218-383E-2P	383	(3) 5	104,200	20,090	28,160	12,270	280	38	(2) 5	1250	1030	(1) 12	25,050	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-413E-2P	413	(3) 5	100,700	21,450	29,590	13,630	350	48	(2) 5	1250	1030	(1) 12	26,480	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-438E-2P	438	(3) 5	99,000	22,420	30,610	14,600	400	54	(2) 5	1250	1030	(1) 12	27,500	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-464E-2P	464	(3) 5	96,900	23,830	32,100	16,010	480	65	(2) 5	1250	1030	(1) 12	28,990	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-484E-2P	484	(3) 5	95,100	25,200	33,550	17,380	560	76	(2) 5	1250	1030	(1) 12	30,440	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-495E-2P	495	(3) 5	94,400	26,810	35,240	18,990	640	87	(2) 5	1250	1030	(1) 12	32,130	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-414E-2P	414	(3) 7.5	119,100	20,040	28,110	12,220	280	38	(2) 5	1250	1030	(1) 12	25,000	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-448E-2P	448	(3) 7.5	115,100	21,400	29,540	13,580	350	48	(2) 5	1250	1030	(1) 12	26,430	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-474E-2P	474	(3) 7.5	113,300	22,370	30,560	14,550	400	54	(2) 5	1250	1030	(1) 12	27,450	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-503E-2P	503	(3) 7.5	111,000	23,780	32,050	15,960	480	65	(2) 5	1250	1030	(1) 12	28,940	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-524E-2P	524	(3) 7.5	108,700	25,150	33,500	17,330	560	76	(2) 5	1250	1030	(1) 12	30,390	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-536E-2P	536	(3) 7.5	107,900	26,760	35,190	18,940	640	87	(2) 5	1250	1030	(1) 12	32,080	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-439E-2P	439	(3) 10	130,900	20,060	28,130	12,240	280	38	(2) 5	1250	1030	(1) 12	25,020	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1218-476E-2P	476	(3) 10	126,500	21,420	29,560	13,600	350	48	(2) 5	1250	1030	(1) 12	26,450	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-501E-2P	501	(3) 10	124,600	22,390	30,580	14,570	400	54	(2) 5	1250	1030	(1) 12	27,470	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-533E-2P	533	(3) 10	122,000	23,800	32,070	15,980	480	65	(2) 5	1250	1030	(1) 12	28,960	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-555E-2P	555	(3) 10	119,600	25,170	33,520	17,350	560	76	(2) 5	1250	1030	(1) 12	30,410	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-568E-2P	568	(3) 10	118,600	26,780	35,210	18,960	640	87	(2) 5	1250	1030	(1) 12	32,100	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-545E-2P	545	(3) 15	142,400	22,580	30,770	14,760	400	54	(2) 5	1250	1030	(1) 12	27,660	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1218-578E-2P	578	(3) 15	139,500	23,990	32,260	16,170	480	65	(2) 5	1250	1030	(1) 12	29,150	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-602E-2P	602	(3) 15	136,900	25,360	33,710	17,540	560	76	(2) 5	1250	1030	(1) 12	30,600	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-616E-2P	616	(3) 15	135,800	26,970	35,400	19,150	640	87	(2) 5	1250	1030	(1) 12	32,290	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1218-612E-2P	612	(3) 20	153,500	24,810	33,080	16,990	480	65	(2) 5	1250	1030	(1) 12	30,310	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1218-638E-2P	638	(3) 20	150,600	26,180	34,530	18,360	560	76	(2) 5	1250	1030	(1) 12	31,760	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1218-652E-2P	652	(3) 20	149,500	27,790	36,220	19,970	640	87	(2) 5	1250	1030	(1) 12	33,450	70-3/4	129-1/2	113-1/2	230-1/4

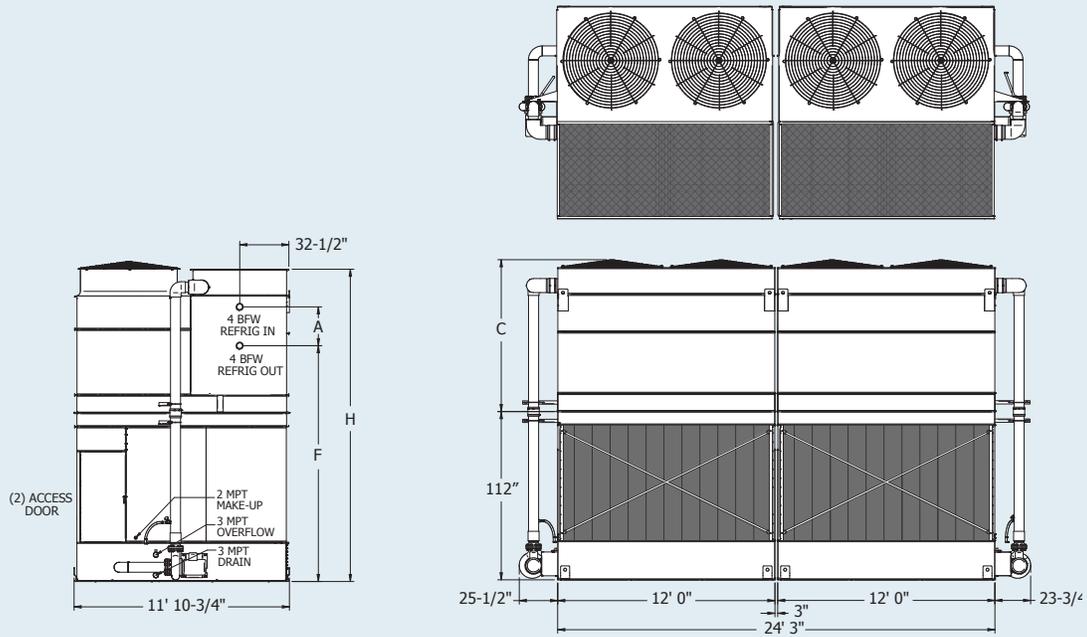
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S1224-442E to 844E



**Table 7 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S1224-442E	442	(4) 5	139,600	25,480	36,100	7,480	280	38	(2) 7.5	1600	1220	(2) 10	32,080	25-3/4	156-1/2	95-1/2	212-1/4
PHC-S1224-494E	494	(4) 5	137,600	27,260	37,960	8,370	360	50	(2) 7.5	1600	1220	(2) 10	33,940	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1224-534E	534	(4) 5	133,000	29,080	39,900	9,280	480	64	(2) 7.5	1600	1220	(2) 10	35,880	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-565E	565	(4) 5	130,400	30,220	41,080	9,850	520	72	(2) 7.5	1600	1220	(2) 10	37,060	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-600E	600	(4) 5	128,000	32,100	43,080	10,790	640	86	(2) 7.5	1600	1220	(2) 10	39,060	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1224-626E	626	(4) 5	125,600	34,240	45,320	11,860	740	100	(2) 7.5	1600	1220	(2) 10	41,300	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1224-638E	638	(4) 5	124,600	36,520	47,720	13,000	860	116	(2) 7.5	1600	1220	(2) 10	43,700	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1224-480E	480	(4) 7.5	159,800	25,420	36,040	7,450	280	38	(2) 7.5	1600	1220	(2) 10	32,020	25-3/4	156-1/2	95-1/2	212-1/4
PHC-S1224-536E	536	(4) 7.5	157,400	27,200	37,900	8,340	360	50	(2) 7.5	1600	1220	(2) 10	33,880	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1224-578E	578	(4) 7.5	152,000	29,020	39,840	9,250	480	64	(2) 7.5	1600	1220	(2) 10	35,820	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-611E	611	(4) 7.5	149,400	30,160	41,020	9,820	520	72	(2) 7.5	1600	1220	(2) 10	37,000	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-651E	651	(4) 7.5	146,600	32,040	43,020	10,760	640	86	(2) 7.5	1600	1220	(2) 10	39,000	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1224-678E	678	(4) 7.5	143,600	34,180	45,260	11,830	740	100	(2) 7.5	1600	1220	(2) 10	41,240	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1224-694E	694	(4) 7.5	142,600	36,460	47,660	12,970	860	116	(2) 7.5	1600	1220	(2) 10	43,640	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1224-568E	568	(4) 10	173,000	27,220	37,920	8,350	360	50	(2) 7.5	1600	1220	(2) 10	33,900	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1224-612E	612	(4) 10	167,200	29,040	39,860	9,260	480	64	(2) 7.5	1600	1220	(2) 10	35,840	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-647E	647	(4) 10	164,400	30,180	41,040	9,830	520	72	(2) 7.5	1600	1220	(2) 10	37,020	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-690E	690	(4) 10	161,200	32,060	43,040	10,770	640	86	(2) 7.5	1600	1220	(2) 10	39,020	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1224-720E	720	(4) 10	158,000	34,200	45,280	11,840	740	100	(2) 7.5	1600	1220	(2) 10	41,260	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1224-734E	734	(4) 10	156,800	36,480	47,680	12,980	860	116	(2) 7.5	1600	1220	(2) 10	43,660	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1224-704E	704	(4) 15	188,400	30,440	41,300	9,960	520	72	(2) 7.5	1600	1220	(2) 10	37,280	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1224-746E	746	(4) 15	184,200	32,320	43,300	10,900	640	86	(2) 7.5	1600	1220	(2) 10	39,280	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1224-778E	778	(4) 15	180,600	34,460	45,540	11,970	740	100	(2) 7.5	1600	1220	(2) 10	41,520	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1224-796E	796	(4) 15	179,200	36,740	47,940	13,110	860	116	(2) 7.5	1600	1220	(2) 10	43,920	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1224-792E	792	(4) 20	202,800	33,400	44,380	11,440	640	86	(2) 7.5	1600	1220	(2) 10	40,820	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1224-826E	826	(4) 20	197,400	35,540	46,620	12,510	740	100	(2) 7.5	1600	1220	(2) 10	43,060	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1224-844E	844	(4) 20	195,800	37,820	49,020	13,650	860	116	(2) 7.5	1600	1220	(2) 10	45,460	70-3/4	129-1/2	113-1/2	230-1/4

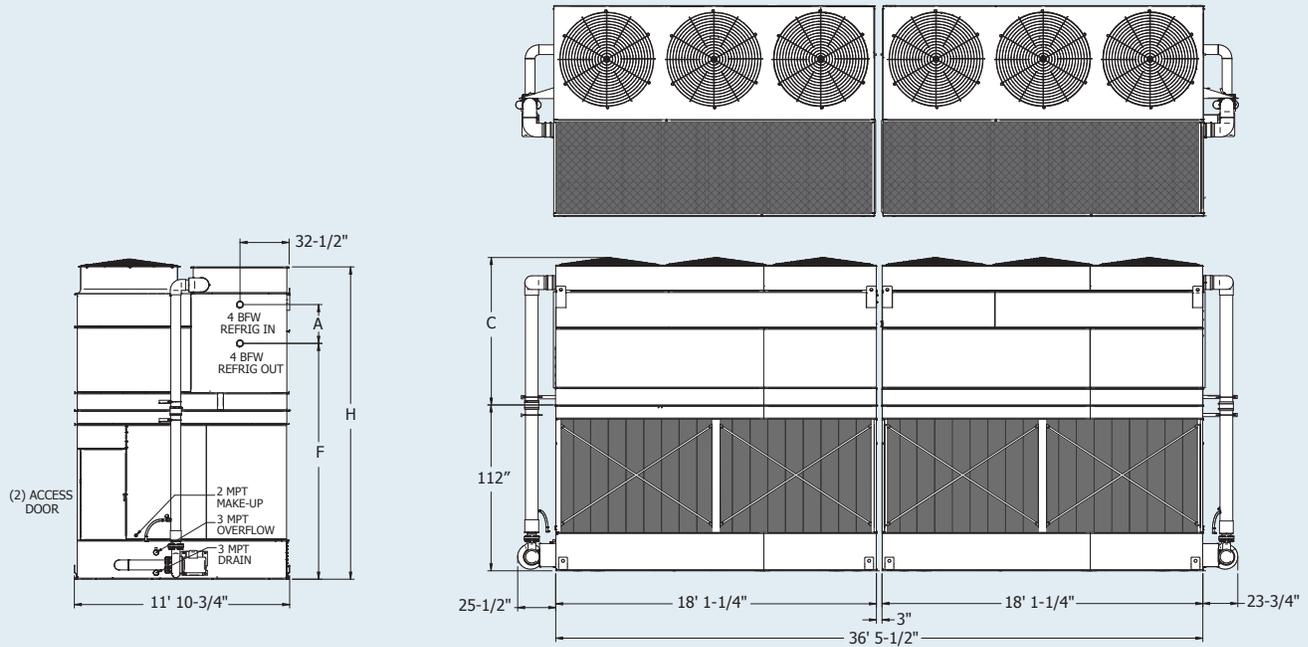
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-S1236-726E to 1232E



**Table 8 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-S1236-726E	726	(6) 5	208,400	39,800	55,940	12,270	560	76	(2) 10	2050	1900	(2) 12	49,840	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1236-786E	786	(6) 5	201,400	42,520	58,800	13,630	700	96	(2) 10	2050	1900	(2) 12	52,700	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-828E	828	(6) 5	198,000	44,460	60,840	14,600	800	108	(2) 10	2050	1900	(2) 12	54,740	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-876E	876	(6) 5	193,800	47,280	63,820	16,010	960	130	(2) 10	2050	1900	(2) 12	57,720	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1236-912E	912	(6) 5	190,200	50,020	66,720	17,380	1120	152	(2) 10	2050	1900	(2) 12	60,620	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1236-934E	934	(6) 5	188,800	53,240	70,100	18,990	1280	174	(2) 10	2050	1900	(2) 12	64,000	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1236-788E	788	(6) 7.5	238,200	39,700	55,840	12,220	560	76	(2) 10	2050	1900	(2) 12	49,740	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1236-852E	852	(6) 7.5	230,200	42,420	58,700	13,580	700	96	(2) 10	2050	1900	(2) 12	52,600	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-896E	896	(6) 7.5	226,600	44,360	60,740	14,550	800	108	(2) 10	2050	1900	(2) 12	54,640	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-952E	952	(6) 7.5	222,000	47,180	63,720	15,960	960	130	(2) 10	2050	1900	(2) 12	57,620	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1236-992E	992	(6) 7.5	217,400	49,920	66,620	17,330	1120	152	(2) 10	2050	1900	(2) 12	60,520	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1236-1012E	1012	(6) 7.5	215,800	53,140	70,000	18,940	1280	174	(2) 10	2050	1900	(2) 12	63,900	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1236-834E	834	(6) 10	261,800	39,740	55,880	12,240	560	76	(2) 10	2050	1900	(2) 12	49,780	34-3/4	147-1/2	95-1/2	212-1/4
PHC-S1236-900E	900	(6) 10	253,000	42,460	58,740	13,600	700	96	(2) 10	2050	1900	(2) 12	52,640	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-948E	948	(6) 10	249,200	44,400	60,780	14,570	800	108	(2) 10	2050	1900	(2) 12	54,680	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-1006E	1006	(6) 10	244,000	47,220	63,760	15,980	960	130	(2) 10	2050	1900	(2) 12	57,660	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1236-1048E	1048	(6) 10	239,200	49,960	66,660	17,350	1120	152	(2) 10	2050	1900	(2) 12	60,560	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1236-1072E	1072	(6) 10	237,200	53,180	70,040	18,960	1280	174	(2) 10	2050	1900	(2) 12	63,940	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1236-1030E	1030	(6) 15	284,800	44,780	61,160	14,760	800	108	(2) 10	2050	1900	(2) 12	55,060	43-3/4	138-1/2	95-1/2	212-1/4
PHC-S1236-1092E	1092	(6) 15	279,000	47,600	64,140	16,170	960	130	(2) 10	2050	1900	(2) 12	58,040	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1236-1138E	1138	(6) 15	273,800	50,340	67,040	17,540	1120	152	(2) 10	2050	1900	(2) 12	60,940	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1236-1164E	1164	(6) 15	271,600	53,560	70,420	19,150	1280	174	(2) 10	2050	1900	(2) 12	64,320	70-3/4	129-1/2	113-1/2	230-1/4
PHC-S1236-1156E	1156	(6) 20	307,000	49,240	65,780	16,990	960	130	(2) 10	2050	1900	(2) 12	60,380	52-3/4	129-1/2	95-1/2	212-1/4
PHC-S1236-1206E	1206	(6) 20	301,200	51,980	68,680	18,360	1120	152	(2) 10	2050	1900	(2) 12	63,280	61-3/4	138-1/2	113-1/2	230-1/4
PHC-S1236-1232E	1232	(6) 20	299,000	55,200	72,060	19,970	1280	174	(2) 10	2050	1900	(2) 12	66,660	70-3/4	129-1/2	113-1/2	230-1/4

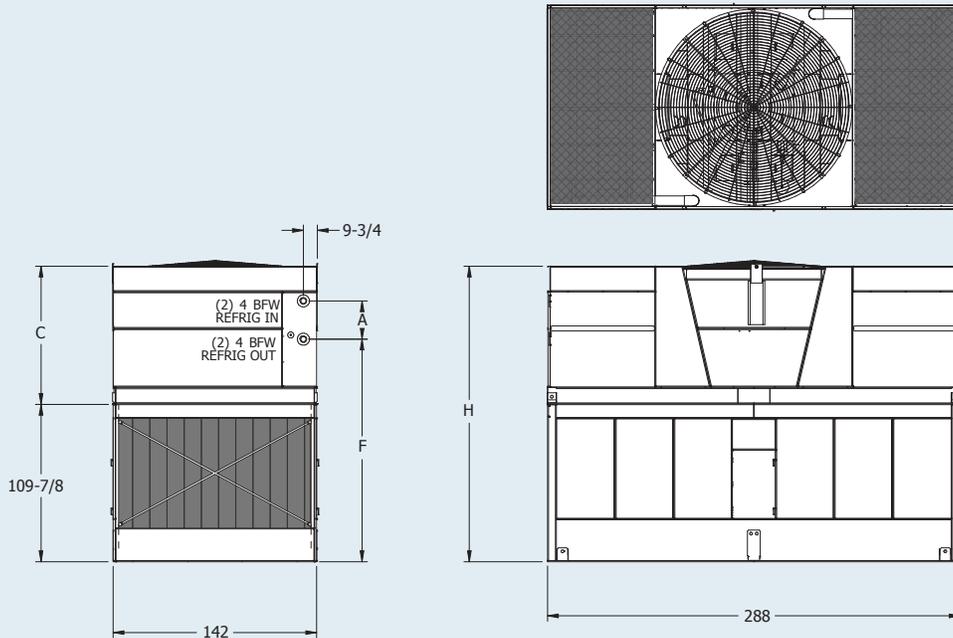
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-D1224-619E to 879E



**Table 9 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-D1224-619E	619	25	171,800	30,230	38,630	20,140	520	70	(2) 7.5	1800	1580	(1) 14	37,420	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1224-642E	642	30	182,500	30,240	38,640	20,150	520	70	(2) 7.5	1800	1580	(1) 14	37,430	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1224-679E	679	30	180,300	32,240	40,760	22,150	640	86	(2) 7.5	1800	1580	(1) 14	39,550	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-718E	718	30	177,400	34,020	42,620	23,930	720	98	(2) 7.5	1800	1580	(1) 14	41,410	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-747E	747	30	177,600	36,330	45,050	26,240	840	114	(2) 7.5	1800	1580	(1) 14	43,840	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1224-766E	766	30	172,600	38,750	47,590	28,660	960	130	(2) 7.5	1800	1580	(1) 14	46,380	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1224-680E	680	40	200,700	30,450	38,850	20,360	520	70	(2) 7.5	1800	1580	(1) 14	37,640	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1224-721E	721	40	198,300	32,450	40,970	22,360	640	86	(2) 7.5	1800	1580	(1) 14	39,760	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-760E	760	40	195,200	34,230	42,830	24,140	720	98	(2) 7.5	1800	1580	(1) 14	41,620	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-792E	792	40	191,300	36,540	45,260	26,450	840	114	(2) 7.5	1800	1580	(1) 14	44,050	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1224-810E	810	40	189,800	38,960	47,800	28,870	960	130	(2) 7.5	1800	1580	(1) 14	46,590	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1224-711E	711	50	216,000	30,460	38,860	20,370	520	70	(2) 7.5	1800	1580	(1) 14	37,650	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1224-753E	753	50	213,400	32,460	40,980	22,370	640	86	(2) 7.5	1800	1580	(1) 14	39,770	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-794E	794	50	210,200	34,240	42,840	24,150	720	98	(2) 7.5	1800	1580	(1) 14	41,630	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-829E	829	50	206,000	36,550	45,270	26,460	840	114	(2) 7.5	1800	1580	(1) 14	44,060	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1224-848E	848	50	204,300	38,970	47,810	28,880	960	130	(2) 7.5	1800	1580	(1) 14	46,600	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1224-781E	781	60	226,700	32,740	41,260	22,650	640	86	(2) 7.5	1800	1580	(1) 14	40,050	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-824E	824	60	223,200	34,520	43,120	24,430	720	98	(2) 7.5	1800	1580	(1) 14	41,910	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1224-859E	859	60	218,700	36,830	45,550	26,740	840	114	(2) 7.5	1800	1580	(1) 14	44,340	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1224-879E	879	60	217,000	39,250	48,090	29,160	960	130	(2) 7.5	1800	1580	(1) 14	46,880	71-3/4	128-3/8	117-3/4	224-1/2

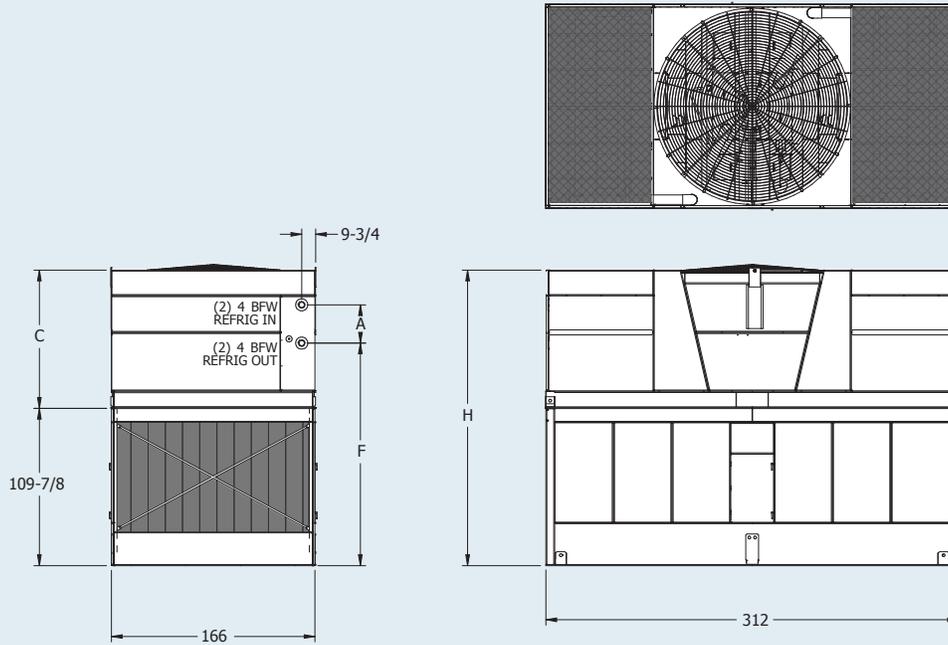
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-D1426-742E to 1060E



**Table 10 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump			Dimensions (in)			
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-D1426-742E	742	30	212,500	34,200	45,130	22,930	620	84	(2) 7.5	1800	2110	(1) 14	43,670	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1426-787E	787	30	208,100	36,520	47,570	25,250	740	100	(2) 7.5	1800	2110	(1) 14	46,110	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-828E	828	30	204,900	38,500	49,650	27,230	840	114	(2) 7.5	1800	2110	(1) 14	48,190	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-863E	863	30	200,800	41,330	52,620	30,060	980	134	(2) 7.5	1800	2110	(1) 14	51,160	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1426-882E	882	30	199,200	44,090	55,520	32,820	1120	152	(2) 7.5	1800	2110	(1) 14	54,060	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1426-786E	786	40	233,600	34,420	45,350	23,150	620	84	(2) 7.5	1800	2110	(1) 14	43,890	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1426-833E	833	40	228,800	36,740	47,790	25,470	740	100	(2) 7.5	1800	2110	(1) 14	46,330	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-877E	877	40	225,300	38,720	49,870	27,450	840	114	(2) 7.5	1800	2110	(1) 14	48,410	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-914E	914	40	220,800	41,550	52,840	30,280	980	134	(2) 7.5	1800	2110	(1) 14	51,380	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1426-934E	934	40	219,000	44,310	55,740	33,040	1120	152	(2) 7.5	1800	2110	(1) 14	54,280	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1426-822E	822	50	251,500	34,420	45,350	23,150	620	84	(2) 7.5	1800	2110	(1) 14	43,890	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1426-871E	871	50	246,300	36,740	47,790	25,470	740	100	(2) 7.5	1800	2110	(1) 14	46,330	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-917E	917	50	242,500	38,720	49,870	27,450	840	114	(2) 7.5	1800	2110	(1) 14	48,410	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-956E	956	50	237,700	41,550	52,840	30,280	980	134	(2) 7.5	1800	2110	(1) 14	51,380	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1426-978E	978	50	235,800	44,310	55,740	33,040	1120	152	(2) 7.5	1800	2110	(1) 14	54,280	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1426-852E	852	60	267,100	34,710	45,640	23,440	620	84	(2) 7.5	1800	2110	(1) 14	44,180	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D1426-903E	903	60	261,600	37,030	48,080	25,760	740	100	(2) 7.5	1800	2110	(1) 14	46,620	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-951E	951	60	257,600	39,010	50,160	27,740	840	114	(2) 7.5	1800	2110	(1) 14	48,700	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-991E	991	60	252,400	41,840	53,130	30,570	980	134	(2) 7.5	1800	2110	(1) 14	51,670	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1426-1013E	1013	60	250,400	44,600	56,030	33,330	1120	152	(2) 7.5	1800	2110	(1) 14	54,570	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D1426-944E	944	75	281,600	37,060	48,110	25,790	740	100	(2) 7.5	1800	2110	(1) 14	46,650	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-994E	994	75	277,200	39,040	50,190	27,770	840	114	(2) 7.5	1800	2110	(1) 14	48,730	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D1426-1037E	1037	75	271,700	41,870	53,160	30,600	980	134	(2) 7.5	1800	2110	(1) 14	51,700	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D1426-1060E	1060	75	269,500	44,630	56,060	33,360	1120	152	(2) 7.5	1800	2110	(1) 14	54,600	71-3/4	128-3/8	117-3/4	224-1/2

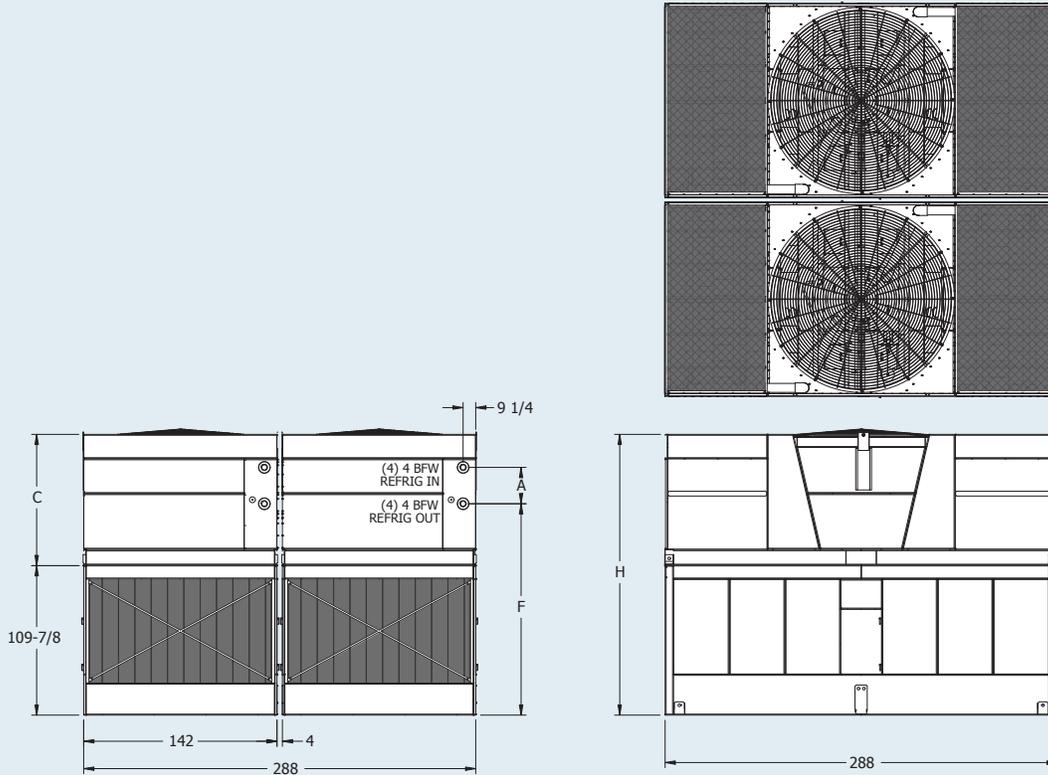
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-D2424-1238E to 1758E



**Table 11 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump		Dimensions (in)				
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-D2424-1238E	1,238	(2) 25	34,3600	60,460	77,260	20,140	1040	140	(4) 7.5	3600	3160	(2) 14	74,840	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2424-1284E	1,284	(2) 30	36,5000	60,480	77,280	20,150	1040	140	(4) 7.5	3600	3160	(2) 14	74,860	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2424-1360E	1,360	(2) 30	36,0600	64,480	81,520	22,150	1280	172	(4) 7.5	3600	3160	(2) 14	79,100	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1436E	1,436	(2) 30	35,4800	68,040	85,240	23,930	1440	196	(4) 7.5	3600	3160	(2) 14	82,820	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1495E	1,495	(2) 30	35,5200	72,660	90,100	26,240	1680	228	(4) 7.5	3600	3160	(2) 14	87,680	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2424-1532E	1,532	(2) 30	34,5200	77,500	95,180	28,660	1920	260	(4) 7.5	3600	3160	(2) 14	92,760	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2424-1359E	1,359	(2) 40	40,1400	60,900	77,700	20,360	1040	140	(4) 7.5	3600	3160	(2) 14	75,280	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2424-1442E	1,442	(2) 40	39,6600	64,900	81,940	22,360	1280	172	(4) 7.5	3600	3160	(2) 14	79,520	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1520E	1,520	(2) 40	39,0400	68,460	85,660	24,140	1440	196	(4) 7.5	3600	3160	(2) 14	83,240	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1584E	1,584	(2) 40	38,2600	73,080	90,520	26,450	1680	228	(4) 7.5	3600	3160	(2) 14	88,100	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2424-1620E	1,620	(2) 40	37,9600	77,920	95,600	28,870	1920	260	(4) 7.5	3600	3160	(2) 14	93,180	71-3/4	128-3/8	117-3/4	224-1/28
PHC-D2424-1422E	1,422	(2) 50	43,2000	60,920	77,720	20,370	1040	140	(4) 7.5	3600	3160	(2) 14	75,300	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2424-1506E	1,506	(2) 50	42,6800	64,920	81,960	22,370	1280	172	(4) 7.5	3600	3160	(2) 14	79,540	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1588E	1,588	(2) 50	42,0400	68,480	85,680	24,150	1440	196	(4) 7.5	3600	3160	(2) 14	83,260	53-3/4	128-3/8	99-3/4	20-1/2
PHC-D2424-1658E	1,658	(2) 50	41,2000	73,100	90,540	26,460	1680	228	(4) 7.5	3600	3160	(2) 14	88,120	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2424-1696E	1,696	(2) 50	40,8600	77,940	95,620	28,880	1920	260	(4) 7.5	3600	3160	(2) 14	93,200	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2424-1562E	1,562	(2) 60	45,3400	65,480	82,520	22,650	1280	172	(4) 7.5	3600	3160	(2) 14	80,100	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1648E	1,648	(2) 60	44,6400	69,040	86,240	24,430	1440	196	(4) 7.5	3600	3160	(2) 14	83,820	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2424-1718E	1,718	(2) 60	43,7400	73,660	91,100	26,740	1680	228	(4) 7.5	3600	3160	(2) 14	88,680	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2424-1758E	1,758	(2) 60	43,4000	78,500	96,180	29,160	1920	260	(4) 7.5	3600	3160	(2) 14	93,760	71-3/4	128-3/8	117-3/4	224-1/2

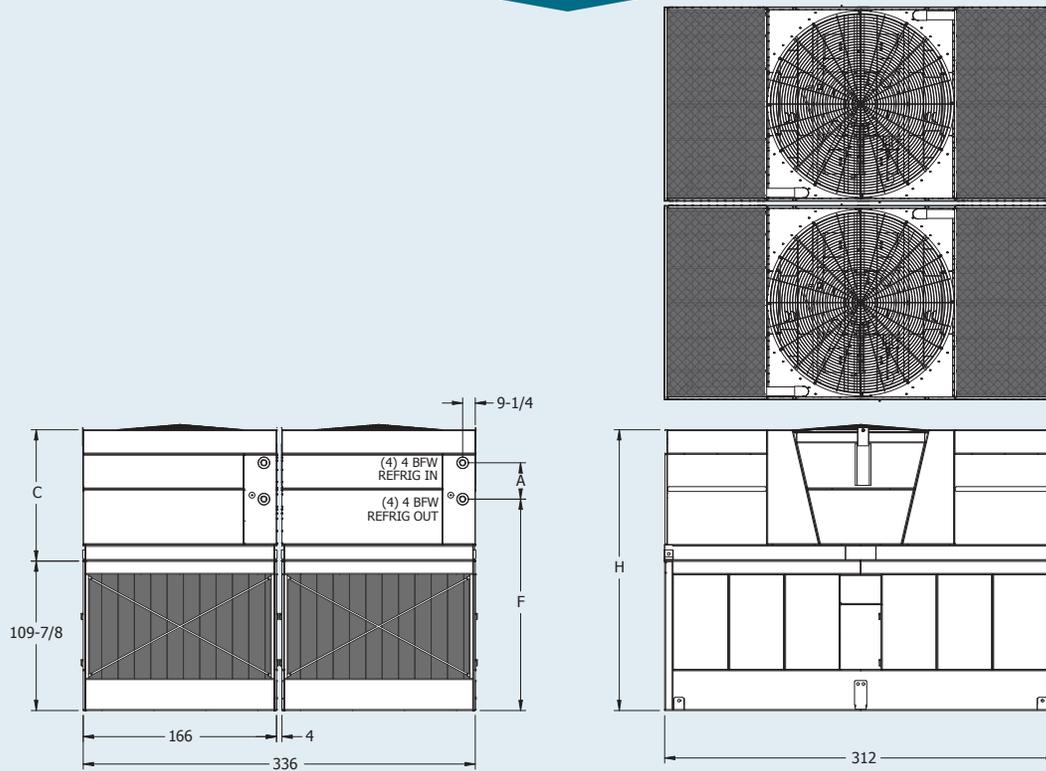
NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Engineering Dimensions & Data

## Models PHC-D2826-1484E to 2120E



**Table 12 Engineering Data**

Model No.	R-717 Tons†	Fans		Weights (lbs)			NH3 Operating Charge lbs.	Coil Volume ft <sup>3</sup>	Spray Pump		Remote Pump			Dimensions (in)			
		HP	CFM	Shipping	Operating	Heaviest Section††			HP	GPM	Gallons Req'd	Conn. Size (in)	Operating Weight	A	F	C	H
PHC-D2826-1484E	1,484	(2) 30	42,5000	68,400	90,260	22,930	1,240	168	(4) 7.5	3600	4220	(2) 14	87,340	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2826-1574E	1,574	(2) 30	41,6200	73,040	95,140	25,250	1,480	200	(4) 7.5	3600	4220	(2) 14	92,220	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1656E	1,656	(2) 30	40,9800	77,000	99,300	27,230	1,680	228	(4) 7.5	3600	4220	(2) 14	96,380	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1726E	1,726	(2) 30	40,1600	82,660	105,240	30,060	1,960	268	(4) 7.5	3600	4220	(2) 14	102,320	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2826-1764E	1,764	(2) 30	39,8400	88,180	111,040	32,820	2,240	304	(4) 7.5	3600	4220	(2) 14	108,120	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2826-1572E	1,572	(2) 40	46,7200	68,840	90,700	23,150	1,240	168	(4) 7.5	3600	4220	(2) 14	87,780	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2826-1666E	1,666	(2) 40	45,7600	73,480	95,580	25,470	1,480	200	(4) 7.5	3600	4220	(2) 14	92,660	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1754E	1,754	(2) 40	45,0600	77,440	99,740	27,450	1,680	228	(4) 7.5	3600	4220	(2) 14	96,820	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1828E	1,828	(2) 40	44,1600	83,100	105,680	30,280	1,960	268	(4) 7.5	3600	4220	(2) 14	102,760	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2826-1868E	1,868	(2) 40	43,8000	88,620	111,480	33,040	2,240	304	(4) 7.5	3600	4220	(2) 14	108,560	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2826-1644E	1,644	(2) 50	50,3000	68,840	90,700	23,150	1,240	168	(4) 7.5	3600	4220	(2) 14	87,780	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2826-1742E	1,742	(2) 50	49,2600	73,480	95,580	25,470	1,480	200	(4) 7.5	3600	4220	(2) 14	92,660	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1834E	1,834	(2) 50	48,5000	77,440	99,740	27,450	1,680	228	(4) 7.5	3600	4220	(2) 14	96,820	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1912E	1,912	(2) 50	47,5400	83,100	105,680	30,280	1,960	268	(4) 7.5	3600	4220	(2) 14	102,760	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2826-1956E	1,956	(2) 50	47,1600	88,620	111,480	33,040	2,240	304	(4) 7.5	3600	4220	(2) 14	108,560	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2826-1704E	1,704	(2) 60	53,4200	69,420	91,280	23,440	1,240	168	(4) 7.5	3600	4220	(2) 14	88,360	44-3/4	137-3/8	99-3/4	206-1/2
PHC-D2826-1806E	1,806	(2) 60	52,3200	74,060	96,160	25,760	1,480	200	(4) 7.5	3600	4220	(2) 14	93,240	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1902E	1,902	(2) 60	51,5200	78,020	100,320	27,740	1,680	228	(4) 7.5	3600	4220	(2) 14	97,400	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1982E	1,982	(2) 60	50,4800	83,680	106,260	30,570	1,960	268	(4) 7.5	3600	4220	(2) 14	103,340	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2826-2026E	2,026	(2) 60	50,0800	89,200	112,060	33,330	2,240	304	(4) 7.5	3600	4220	(2) 14	109,140	71-3/4	128-3/8	117-3/4	224-1/2
PHC-D2826-1888E	1,888	(2) 75	56,3200	74,120	96,220	25,790	1,480	200	(4) 7.5	3600	4220	(2) 14	93,300	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-1988E	1,988	(2) 75	55,4400	78,080	100,380	27,770	1,680	228	(4) 7.5	3600	4220	(2) 14	97,460	53-3/4	128-3/8	99-3/4	206-1/2
PHC-D2826-2074E	2,074	(2) 75	54,3400	83,740	106,320	30,600	1,960	268	(4) 7.5	3600	4220	(2) 14	103,400	62-3/4	137-3/8	117-3/4	224-1/2
PHC-D2826-2120E	2,120	(2) 75	53,9000	89,260	112,120	33,360	2,240	304	(4) 7.5	3600	4220	(2) 14	109,200	71-3/4	128-3/8	117-3/4	224-1/2

NOTE: Dimensions and weights are subject to change. The coil connection quantity and locations are subject to change due to refrigerant loading. Refer to project certified print drawings for specific weights, dimensions and all piping connections.

† Tons at standard conditions for ammonia 96.3°F, 20°F suction and 78°F E.W.B.

†† Heaviest section is the casing/fan section.

# Application

## Design

EVAPCO units are heavy-duty construction and designed for long trouble-free operation. Proper equipment selection, installation and maintenance are, however, necessary to ensure good unit performance. Some of the major considerations in the application of a condenser are presented below. For additional information, contact the factory.

## Structural Steel Support

The method of support for EVAPCO condensers is two structural "I" beams located under the outer flanges and running the entire length of the unit. Mounting holes, 3/4" in diameter, are located in the bottom channels of the pan section to provide for bolting to the structural steel; refer to certified drawings from the factory for bolt hole locations.

Beams should be level to within 1/8" in 6' before setting the unit in place. Do not level the unit by shimming between it and the "I" beams as this will not provide proper longitudinal support.

**NOTE: Consult IBC for required steel support layout and structural design.**

## Air Circulation

In reviewing the system design and unit location, it is important that proper air circulation be provided. The best location is on an unobstructed roof top or on ground level away from walls and other barriers. Care must be taken when locating condensers in wells or enclosures or next to high walls. The potential for recirculation of hot, moist discharge air back into the fan intake exists. Recirculation raises the wet bulb temperature of the entering air causing the condensing pressure to rise above the design. For these cases, a discharge hood or ductwork should be provided to raise the overall unit height even with the adjacent wall, thereby reducing the chance of recirculation. Good engineering practice dictates that the evaporative condenser's discharge air not be directed or located close to, or in the vicinity of, building air intakes. Engineering assistance is available from the factory to identify potential recirculation problems and recommend solutions.

For additional information regarding layout of evaporative condensers, see EVAPCO Bulletin entitled "*Equipment Layout*".

## Piping

Condenser piping should be designed and installed in accordance with generally accepted engineering practice. All piping should be anchored by properly designed hangers and supports with allowance made for possible expansion and contraction. No external loads should be placed upon condenser connections, nor should any of the pipe supports be anchored to the unit framework. For additional information concerning refrigerant pipe sizing and layout, see EVAPCO Bulletin entitled "*Refrigerant Piping Manual*".

## Maintaining the Recirculated Water System

The heat rejection in a condenser is accomplished by the evaporation of a portion of the recirculated spray water. As this water evaporates, it leaves behind all of its mineral content and impurities. Therefore, it is important to bleed-off an amount of water equal to that which is evaporated to prevent the build-up of these impurities. If this is not done, the mineral or the acidic nature of the water will continue to increase. This will ultimately result in heavy scaling or a corrosive condition.

## Bleed-off

Each unit supplied with a pump mounted on the side is furnished with a clear bleed line for visual inspection and a valve which, when fully open, will bleed-off the proper amount of water. If the make-up water supplying the unit is relatively free of impurities, it may be possible to cut back the bleed, but the unit must be checked frequently to make sure scale is not forming. Make-up water pressure should be maintained between 20 and 50 psig.

## Water Treatment

A proper water treatment program is an essential part of routine maintenance in order to help assure proper operation and longevity of the unit. To help prevent the formation of "white rust", the interior of the unit should be passivated during start-up and monitored periodically as part of the water treatment program. For more information about white rust, please request a copy of EVAPCO Engineering Bulletin 36. A qualified water treatment company should be contacted to design a water treatment protocol specifically based on applicable location, water quality and unit materials of construction.

If acid is used for treatment, it should be accurately metered and the concentration properly controlled. **The pH of the water should be maintained between 6.5 and 8.0. Units constructed of galvanized steel operating with circulating water having a pH of 8.3 or higher will require periodic passivation of the galvanized steel to prevent the formation of "white rust"**. Batch chemical feeding is not recommended because it does not afford the proper degree of control. If acid cleaning is required, extreme caution must be exercised and only inhibited acids recommended for use with galvanized construction should be used.

**NOTE: Operating the condenser below 6.0 pH for any period of time may cause the removal of the protective zinc coating on the galvanized steel components.**

For more information see EVAPCO Bulletin entitled "*Maintenance Instructions*".

## Control of Biological Contamination

Water quality should be checked regularly for biological contamination. If biological contamination is detected, a more aggressive water treatment and mechanical cleaning program should be undertaken. The water treatment program should be performed in conjunction with a qualified water treatment company. It is important that all internal surfaces be kept clean of accumulated dirt and sludge. In addition, the drift eliminators should be maintained in good operating condition.

## Solutions for Sound Sensitive Applications

The PHC-E product line is available with two (2) equipment options to reduce the overall sound generated from the side or top of the unit. Each option provides various levels of sound reduction and can be used in combination to provide the lowest sound level. If a detailed analysis or full octave band data sheet is required for your application, please consult your EVAPCO Sales Representative.

**NOTE: Not all PHC-E models are available with low sound options. These low sound option may impact performance, installed dimensions and weight of the unit.**

## Remote Sump Installations

The PHC-E Evaporative Condenser utilizes a hybrid technology design that presents some unique features and application issues when applied on typical remote sump applications. The PHC-E Condenser design uses a combination of primary condenser coil surface with high efficiency PVC fill to achieve the design condenser capacity. (Refer to page 3 for "Principle of Operation.") The PHC-E models are most effective when supplied with an integral recirculating pump. When the PHC-E Condenser is installed with a remote sump system with multiple condensers, thermal efficiency may be reduced.

### Performance

Due to its design, the PHC-E unit performance may require additional consideration when applied in a remote sump application. The inherent performance of the PHC-E Condenser utilizes PVC fill to cool the recirculating water in combination with the prime surface condenser coil. When the PHC is installed in an existing remote sump system with multiple evaporative condensers (such as PMC-E, ATC-E, or LRC models or other PHC-E's where the fans are shut down to control capacity), the return water to the condensers may be elevated during peak design conditions. The higher recirculating water temperatures will have an adverse effect on the PHC-E Condenser performance resulting in reduced operating efficiency. These applications should be limited to ensure maximum operating efficiency.

### Piping

The traditional method of piping an evaporative condenser on a remote sump installation is to pipe the supply lines to the condenser water distribution system connection(s) located on the side of the coil casing. The remote sump drain connections are typically located in the bottom of the condenser basin to return the water to the sump tank.

The PHC-E design offers similar pipe arrangements on the PHC-S Models. However, the larger PHC-D Models offer alternate piping options for the remote sump systems.

Figure 1 – Top-End Mount Water Inlet

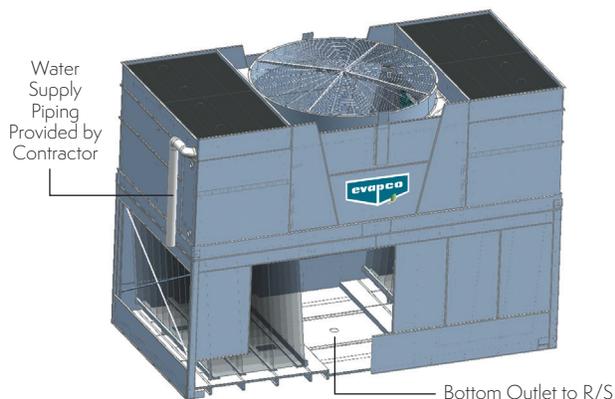
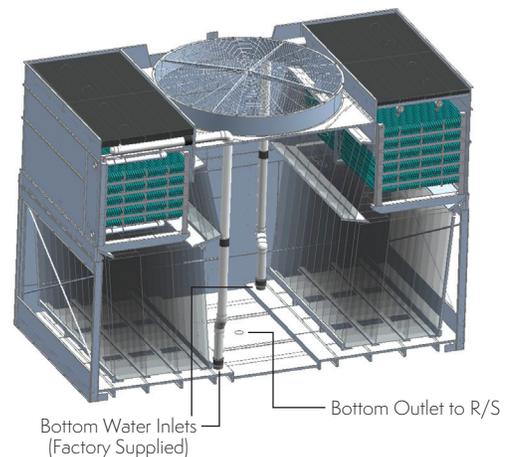


Figure 1, illustrates the water supply piping arrangement that connects to the condenser water distribution system on the top side of the casing. The PHC-D models will require two supply connections that be piped individually or piped to a manifold header.

The alternate method of piping the PHC-D Model is shown in Figure 2. Using this piping method, the water supply lines may be piped to the bottom of the condenser to connect to the water distribution system. For this piping design, two water supply lines are required to feed each cell of the PHC-D Models.

Figure 2 – Bottom Water Inlet



**Note: When individual supply lines are piped to the PHC condenser balancing valves are recommended to ensure equal flow to each side of the condenser water distribution system.**

The remote sump drain connections for the PHC-E Condenser design will typically be located on the bottom of the basin section of the condenser as standard. The PHC-S and D Models will require one connection per condenser cell.

EVAPCO will supply a detailed certified print drawing for each PHC Condenser to illustrate the unit dimensions, connection sizes, quantity and location of all water inlet and remote sump drain connections as specified on the order. Refer to the EVAPCO certified dimensional drawings to determine all piping requirements.

### Water Treatment Systems

Remote sump systems typically present many different piping designs to supply water from the sump back to the condenser(s) and are therefore a challenge for factory supplied water treatment system designs. EVAPCO's water treatment systems, Pulse-Pure® PLUS and Smart Shield®, may be adapted to operate in conjunction with remote sumps. For factory supplied, remote sump water treatment recommendations and applications, consult your local EVAPCO Sales Representative or the factory for assistance.

# PHC-E Mechanical Specifications

Furnish and install, as shown on the plans, an EVAPCO model \_\_\_\_\_ induced draft, parallel, hybrid evaporative condenser with a condensing capacity of \_\_\_\_\_ MBH total heat of rejection when operating with \_\_\_\_\_ refrigerant at \_\_\_\_\_ °F condensing temperature with a \_\_\_\_\_ °F design wet bulb temperature.

## IBC Compliance

The condenser shall be designed and constructed to meet the International Building Code (IBC) specifications for installed components per ASCE.

## Basin and Casing

The basin and casing shall be constructed of G-235 hot-dip galvanized steel for long life and durability. Standard basin accessories shall include overflow, drain, type 304 stainless steel strainers, and brass make-up valve with plastic float.

## Fan Motor

\_\_\_\_\_ horsepower totally enclosed air over ball bearing fan motor(s), with 1.15 service factor shall be furnished suitable for service on \_\_\_\_\_ volts, \_\_\_\_\_ hertz, and \_\_\_\_\_ phase. Motor(s) shall be mounted on an adjustable base which allows the motor to swing to the outside of the unit for servicing.

## Drive

The fan drive shall be a multigroove, solid back V-belt type with taper lock bushings designed for 150% of the motor nameplate horsepower. The belt material shall be neoprene reinforced with polyester cord and specifically designed for evaporative condenser service. Fan and motor sheaves shall be aluminum alloy construction. The fans and fan sheaves shall be mounted on the shaft with a specially coated bushing to provide maximum corrosion protection. Belt adjustment shall be accomplished from the interior of the unit.

## Axial Propeller Fans

Fans shall be heavy duty axial propeller type statically balanced. The fans shall be constructed of aluminum alloy blades, installed in a closely fitted cowl with venturi air inlet. Fan screens shall be galvanized steel mesh and frame, bolted to the fan cowl.

## Fan Shaft Bearings

Fan shaft bearings shall be heavy duty self-aligning ball type with grease fittings extended to the outside of the unit. Bearings shall be designed for a minimum L-10 life of 75,000 hours.

## Water Recirculation Pump

The pump(s) shall be a close-coupled, centrifugal type with mechanical seal, installed at the factory. \_\_\_\_\_ horsepower totally enclosed motor(s) shall be furnished suitable for outdoor service on \_\_\_\_\_ volts, \_\_\_\_\_ hertz, and \_\_\_\_\_ phase.

## Water Distribution System

The PVC distribution branches shall contain large diameter fixed position holes aligned by the manufacturer to eject a stream of water that efficiently collides with the opposing branch water flow. The intersecting streams of water shall create a broad scattering of water resulting in uniform water coverage of the heat transfer coil with no moving parts. The distribution branches shall be constructed of schedule 40 polyvinyl chloride pipe for corrosion resistance.

## Heat Transfer Coil & Drift Eliminators

Condensing coil(s) shall be all prime surface steel, encased in a steel framework and hot-dip galvanized after fabrication as a complete assembly. The coil(s) shall be designed with sloping tubes for free drainage. Coils shall have a design pressure of 300 psig and shall be in compliance with ANSI/ASME B31.5 Refrigerant Piping and Heat Transfer Components. The coil shall be strength tested in accordance with ANSI/ASME B31.5 and subsequently leak tested using air under water.

The eliminators shall be constructed entirely of inert polyvinyl chloride (PVC) in easily handled sections. The eliminator design shall incorporate three changes in air direction to assure complete removal of all entrained moisture from the discharge air stream. Maximum drift rate shall be less than 0.001% of the circulating water rate.

## Heat Transfer Fill & Drift Eliminators

The condenser shall be designed with a bank of heat transfer fill constructed of polyvinyl chloride (PVC) that is impervious to rot or decay. The fill sheets shall be bonded together and supported from the base to provide greater structural integrity. The support channels shall be designed to provide for easy cleaning below the fill bundles.

The fill bundle shall form an integral inlet louver to prevent debris from entering the heat transfer surface and a drift eliminator to remove water droplets from the air discharging the side of the fill.

## Finish

All basin and casing materials shall be constructed of G-235 heavy gauge mill hot-dip galvanized steel. During fabrication, all panel edges shall be coated with a 95% pure zinc-rich compound for superior protection against corrosion.





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