Frick®
INDUSTRIAL REFRIGERATION

Form 140.010-SED (JUL 2017)
SPECIFICATIONS - ENGINEERING DATA - DIMENSIONS

File: EQUIPMENT MANUAL - Section 140
Replaces: 140.010-SED (SEP 2016)
Dist: 1, 1a, 1b, 1c, 4, 4b, 4c

IDSC/ECOSS™ Evaporative Condensers

The New Choice In Evaporative Cooling

Table of Contents

OVERVIEW

IDSC/ECOSS™ Stainless Steel Evaporative Condensers utilize precisely controlled axial fans to deliver maximized thermal performance over a wide range of heat rejection and temperature requirements for various refrigerants. IDSC/ECOSS™ units satisfy today's dynamic needs including environmental responsibility, reliability and redundancy, and demonstrate our ecological commitment to environmental and industry concerns.

Unique features provide the contractor with ease of installation and the end user with a long service life. With lower maintenance and operating costs, lighter structure and increased longevity, the IDSC/ECOSS™ evaporative condenser is a product that delivers on our goal of exceeding the expectations of facility owners.

Stainless or Galvanized?

Galvanized coatings for evaporative condensers and coolers have been used in the industry since the 1950s. Source water availability and cost (including discharge) are becoming a major consideration for investors when making decisions about where to invest or locate facilities. More stringent environmental discharge concerns have led to the reduction or elimination of effective chemicals in both the galvanizing process and in water treatment programs. Facility owners need to consider water usage restrictions, source water quality, discharge permits and which chemicals they are willing to allow at their prospective location prior to making any decision. The IDSC/ECOSS™ all stainless steel evaporative condensers make this decision a lot easier.

Corrosive damage to galvanized steel condensers has been increasing dramatically in recent decades. Chromates have nearly been eliminated and zinc treatments are restricted in many locations today. White rust damage to evaporative condensers and, more specifically, galvanized steel condenser coils is almost five times more damaging than it was 15 years ago. Galvanized steel surfaces must be passivated at start up, requiring valuable man hours and the associated costs. Improper or no passivation at start up can destroy a galvanized steel condenser within a year. However, stainless steel coils and surfaces are self-passivating!

The IDSC/ECOSS™ eco-friendly design minimizes water treatment requirements and allows for operation at higher cycles of concentration with reduced blow down and lower make up water requirements. The stainless steel coil and casing nullify any zinc or lead in the blow down, no white or red rust and vastly reduced chemical usage. Scale build up on the smooth walled stainless steel tubes is minimized, due to 304 stainless steel's low propensity to scale. Galvanizing issues are eliminated and water treatment costs are significantly reduced.

Frame Considerations

IDSC/ECOSS™ units use a modular frame design ensuring the coil section and basin remain perfectly intact during transportation and are not subject to buckling or bending. The box sections allow for perfect alignment during assembly, significantly reducing the man hours and access requirements associated with rigging and assembly. The frame profile and panels fit tightly together with a structural interlocking design ensuring the correct alignment and preventing water leakage at these seams. With this system, neither drift pins nor sealer tape is required to align the upper and lower sections during assembly.

Combining the benefits of our scalable stainless steel frame design and stainless steel tube technology allows us to provide an economic advantage of up to 70% versus the competition.

Fans and Motors

IDSC/ECOSS™ units use smaller diameter direct drive fans reducing overall sound emissions. Electronically commutated (EC) motors are standard offerings. Direct drive EC motors with our state of the art motor management controller provide superior performance and efficiency when compared to premium efficient motors coupled with a variable frequency drive (VFD). In addition, EC motors remove some of the headaches associated with VFD installations such as location (cable lengths), harmonics, frequency settings, output filters and cable requirements. Direct drive fans eliminate any belt tensioning requirements and the regular greasing of pillow block bearings.

Hinged fan nozzles, a service walkway located within the fan deck compartment, optimized perimeter access and a stepped basin design located on the side of the unit are just some of the features which make the IDSC/ECOSS™ evaporative condenser the top choice when considering service and maintenance.

Performance Tested

Our modern, state of the art environmental test chamber is fully equipped with the latest computerized and automated data acquisition systems. The thermal performance ratings for all evaporative condensers have been tested in accordance with the CTI's ATC - 106. This warrants that all products selected will maximize system efficiencies with guaranteed performance ratings.

Application Considerations

Location, source make-up water chemistry, climate and environmental conditions are all factors when selecting the appropriate product for heat rejection applications. These factors are critical when considering the preferred materials of construction. IDSC/ECOSS™ stainless steel evaporative condensers deliver these requirements with a product that the competition has not been able to offer competitively.

Realizing the availability and cost of service manpower in today's market has allowed us to focus on reducing the maintenance requirements associated with evaporative condensers. Environmental factors such as the elimination of chromates in the galvanizing process, water scarcity and make-up water chemistry make the IDSC/ECOSS™ stainless steel coil and casing construction a very simple decision for the facility owner.

BENEFITS

LOW OPERATING COST

Energy Savings

- **IDSC/ECOSS™ Direct Drive Fan Systems** do not experience the power losses associated with belt drive systems, which can be as high as 20%.
- **Motor Efficiency** – EC fans are variable speed and seamlessly operate at lower speeds without reducing motor efficiency. There are no power losses at 100% operation and no resonance speeds that need to be avoided.
- **Low Scaling Propensity** – The smooth surface of our 316L stainless steel has a low propensity to scale, minimizing the heat transfer penalties associated with scaling.

Water Savings

- **The 304L Stainless Steel Construction** and 316L stainless steel tube bundles allow for operation at higher cycles of concentration therefore minimizing blow-down, make-up water requirements, chemical treatments and environmental impact.

LOWER MAINTENANCE COST

- **No Routine Passivation** is required as stainless steel is self-passivating, therefore reducing labor, water treatment requirements, and environmental impact associated with G-235 galvanized steel construction.
- **Operation At Higher Cycles Of Concentration** reduces blow-down, water makeup, and chemical treatment.
- **Direct Drive Fans** eliminate a number of routine maintenance requirements associated with belt drive systems:
  - NO belt adjustments or belt replacements.
  - NO greasing of bearings or replacement of bearings.
  - NO belt sheaves to align or replace.
  - NO replacement of drive shafts.

LOWER INSTALLED COST

- **Lower Weight** – The 304L stainless steel IDSC/ECOSS™ construction weighs 50% less than G-235 galvanized, requiring less support structure and a smaller crane to assemble.
- **Coil-Fan/Basin Section Assembly** – The upper and lower sections utilize a unique "building block" seam connection for field assembly, eliminating the use of drift pins, sealer tape, screw tappers, chain come-alongs and associated labor for field assembly.
- **Fan Wiring** – All direct drive fans are wired (power and control) to a common junction box, eliminating associated field wiring.
- **Motor Management Controller** – Factory wired to all direct drive EC motors for controlling speed and control set point (pressure or temperature), eliminating material and labor costs associated with VFDs.

LONG SERVICE LIFE

All IDSC/ECOSS™ Evaporative cooling products are constructed with 304L stainless steel and 316L stainless steel tube bundles.

- **Self-Passivating Stainless Steel** provides a minimum product life of two times that of G-235.
- **Welded Stainless Steel Basin** – All factory seams in the basin are fully welded to ensure watertight assembly and are fully warranted against leaks.
- **ASME Certified Serpentine Coil** is constructed and fabricated with ANSI rated materials, in compliance with ASME Section VIII, BPV Code. Fabrication to this stringent standard translates into higher reliability overall.
- **EC Fan 10+ Year MTBF** – EC FANS are specially constructed with stainless steel shaft and bearings with an epoxy coated body. The EC fan design provides variable speed operation, soft start, and low motor heat, with a Mean Time Between Failures of 10 or more years.

MODEL NUMBER EXPLANATION

Example: ..... ID S C 1012-06-10-5-EC

Air Flow Generation
- ID – Induced Draft
- FD – Forced Draft

Material/Composition
- S – Stainless Steel

Product Type
- C – Condenser
- F – Fluid Cooler

Box Size

Number of Rows

Total Fan Shaft Output HP (nominal)

Total Pump HP

Motor Type
- EC – Electronically Commutated

GENERAL FEATURES & SPECIFICATIONS

DIRECT DRIVE EC FAN MOTORS

All EC model fan motors are brushless DC, electronically commutated (EC) type incorporating an external rotor design. The unit includes statically balanced, heavy-duty, axial type impellers. The motors have a maximum moisture protection F4-2 for evaporative condenser applications; complete with stainless steel shaft and bearings, and corrosion protection painting (KTL, UDS). All EC motors are UL / CSA approved.

All EC motors will use precise motor management control – factory installed and wired, and are wired to a terminal rail within a common junction box.

EC Motors allow for variable motor speed with no efficiency losses and additional equipment requirements (VFDs, filters or inverter duty motors). The direct-drive EC motor with integrated electronics is an all-inclusive solution, eliminating the components required to speed control a typical AC motor.

While VFDs require filters for EMI / RFI, a supply voltage for an external sensor, a motor protection switch, filters to prevent common mode currents from damaging the motor bearings or use of an inverter duty rated AC motor -- none of these are required with an EC motor. Motor speed control is achieved without a noise penalty.

EC motor control provides real-time diagnostics (measured process value, motor speed, operating hours, power consumption, and motor temperatures). Integrated phase failure protection, power factor correction, harmonics filters, locked rotor and over-temperature protection are all part of the package.

Soft start keeps the startup current below FLA reducing the load on power supply components. And lower EC motor temperature rise at reduced speed results in longer motor bearing life.

There are no resonant frequency harmonics or vibrations to avoid; no location, or lead length constraints; no shielded cables; and redundant resolution for fan motor/s.

Maintenance is further reduced as there is no belt tensioning.

- **Motor Management Controller** is factory wired with all direct drive EC motors for controlling speed and control set point (pressure or temperature). Settings are preconfigured for each application allowing for plug and play parameters for each EC fan.

  All direct drive fans are wired [power and control] to a common junction box, reducing the cost associated with field wiring.

  Pressure or temperature transducers are an option, however it is also possible to provide either a 0 - 10V or 4 – 20mA feed to the controller.

Shaft output power versus nominal efficiency

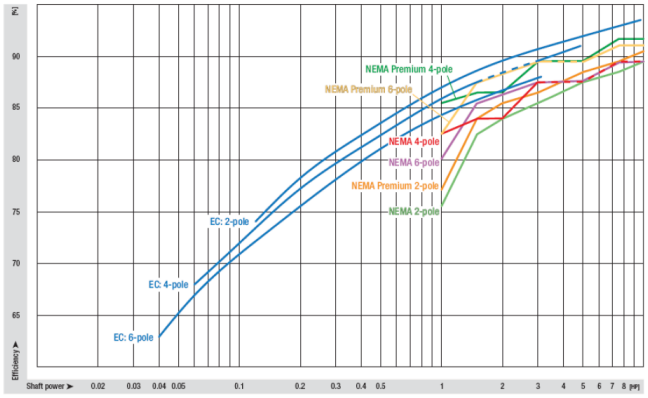


Figure 1. EC Motors with integrated electronics vs. NEMA motors without speed controller

*When a VFD is applied to a NEMA motor these efficiencies will be considerably reduced

Motor Access

Motors are easily accessible from the top of the condenser.

EC motors are a "one-piece" design which includes the mounting arms, motor and the impeller. The mounting arms are bolted to the flange on the fan orifice and allow for a quick and simple removal if required. EC Motors can be lifted and removed by one person – no motor davits required.

Double sealed bearings for motors require no maintenance.

ALL STAINLESS STEEL CONSTRUCTION

IDSC/ECOSS™ evaporative condensers are constructed with all 304L stainless steel structural members, panels and basin with 316L stainless steel tube bundles. Using the latest technologies all seams within the basin are plasma arc and fusion welded to mitigate any potential water leaks.

The condensers are thoroughly constructed for industrial applications and will provide many years of trouble-free operation. Precise unit selection, accurate rigging and assembly, and regular scheduled maintenance are essential to ensuring a long operational life of the product.

Frame Construction

Interior and exterior panels, fully welded unit basin and structural elements are constructed of 304L stainless steel providing a corrosion advantage and 50% lighter construction versus G-235 galvanized. Frame design provides cost effective stainless steel solution, as there is no buckling as with galvanized construction. This ensures accurate fit dimensions, and no field leaks.

Stainless steel is self-passivating in normal service. No startup passivation is required, and there is no need for ongoing monitoring or periodic passivation. There will be no zinc or lead in blow down.

Cold Water Basin

Unit basin is constructed of fully welded 304L stainless steel using plasma-arc technology, and is purposefully engineered to minimize water volume (reducing overall weight). Using this special welding process and a step/funnel design, all seams are high-quality assuring no leaks or warping of material. All basins are leak tested prior to shipment to ensure leak-free operation.

The basin is dual sloped, and funneled into a depressed trough to allow water to be completely drained from the basin, inhibiting sediment accumulation and standing water. And the design allows the strainer and pump inlet to be easily accessed at the condenser side.

Standard basin accessories include overflow, drain, 304L stainless steel strainer, and a brass, float actuated, make up water valve with a plastic float.

Condenser Coil

The condenser coil is constructed of fully welded, ASME Section VIII Compliant 316L stainless steel tubing (3/4″ OD). The coil(s) is supported within 304L stainless steel tube sheets and all tubes are pitched to ensure complete drainage of the condensed refrigerant. All coils are pressure tested underwater to 494 psig, and are also CRN certified for the Canadian market.

Additionally, all headers and connections are 304L stainless steel.

- **ASME Code Compliant** – All IDSC/ECOSS™ serpentine coils are manufactured in compliance with ASME Section VIII, BPV Code. Complying to this standard requires consistent oversight of pressure testing procedures, materials specifications & traceability, and welding procedures. Additionally, the serpentine coil uses a unique tube-sheet design that mechanically spaces tube circuits for optimal heat transfer and thermodynamic performance.

  All coils are also CRN certified.

- **IDSC/ECOSS™ Coil Advantages** – Stainless steel holds a corrosion advantage and extended coil life over G-235 zinc coated steel tubing. Tube cleanliness is greater with stainless steel (and higher cycles of concentration).

  IDSC/ECOSS™ provides a high safety factor for operating pressures, and an extended operating pressure range. With a ¾″ tube diameter the refrigerant charge is reduced. The unit is transcritical CO2 ready.

  There are no post galvanizing leaks, and NO buckling of the tubes (as with post-galvanized condenser coils) which often create liquid traps in the coil, and incomplete drainage. With IDSC/ECOSS™ coils, the pitch of the coil is designed to ensure complete drainage of condensed refrigerant.

OTHER SYSTEM COMPONENTS

Water Spray Distribution System

The water spray distribution system is designed with a stainless steel strainer and water distribution box, utilizing a low pressure, large orifice, clog-resistant spray nozzle. The increased nozzle diameter (1¼″ diameter) prevents orifice blockage and maintains continuous, uniform (distribution of water) flow despite debris from airborne particulates.

With oversized spray patterns, the number of nozzles is reduced (making routine inspections easier) while optimizing the water distribution over the entire coil surface area. Additionally, the riser pipe from the pump is positioned within the casing to prevent breakage.

All water distribution piping is PVC (schedule 40) from the discharge of the pump to the inlet of the stainless steel water distribution box. Branch piping is also sch. 40 PVC with a 4″ diameter and removable from the distribution box for cleaning.

Pump

Spray water recirculation pump is a close–coupled centrifugal unit with ductile iron housing, closed impeller, and mechanical seal TEFC motor. The unit is self-draining and includes a quality, solid brass impeller. A vertical alignment reduces the installation footprint, and a 30% reduction in flow rate results in reduced energy consumption. A bleed line, complete with regulating valve, will be positioned off the pipe riser and connected to the overflow pipe.

Drift Eliminators

Located in the air discharge stream, the aerodynamically optimized eliminators have a robust, UV resistant, non-corroding PVC construction. The eliminators are located within a 304L stainless steel frame grid and are removable for access to the nozzles.

The eliminator design incorporates three air directional changes to ensure efficient, complete removal of entrained moisture in the air stream leaving the condenser coil. This limits the drift rate to an almost negligible value of the water recirculation rate.

Inlet Louvers

Inlet louvers are aerodynamically optimized, and have a robust, UV resistant, non-corroding PVC construction. The inlet louver design incorporates three air directional changes to ensure zero line of sight into the basin section. Biological and/or plant growth is minimized as direct sunlight is prevented from entering basin. The louvers are easily removable for access to the basin, while also prevent any water from splashing out the basin. Units are water tight, UV resistant, corrosion resistant and provide a low pressure loss.

Internal Walkway

All condensers incorporate an internal walkway positioned beneath the fan panels. From this walkway, access to drift eliminators and spray nozzles is made simple and safe. Additionally, hinged fan panels are easily lifted and locked in place for service work.

Hinged Fan Panels

Hinged fan panels provide generous access to the motors, water spray distribution nozzles, water spray branches, and drift eliminators. Fan panels are 304L stainless steel. Additionally, a service walkway is positioned beneath the fan panels to allowing greater access to drift eliminators and water spray nozzles.

TRANSPORTATION AND ASSEMBLY

Transportation Skid

Both the basin and coil sections are shipped on a steel shipping base provided with lifting ears. Units are vacuum wrapped with heavy duty plastic for protection while in transit.

Unit Field Assembly

The upper and lower sections utilize a unique building block connection which allows for quick and easy simplified field assembly. This eliminates the use of drift pins, sealer tape, screw tappers, chain come-alongs, and all associated labor.

Jobsite assistance at time of rigging and assembly can be provided, as well as an additional inspection after one year's operation.

Refrigerant Piping

Condenser piping should be designed and installed in accordance with generally accepted condenser piping good engineering practice.

All field piping external to the IDSC/ECOSS™ evaporative condenser must be supported and anchored separately. External loads must not be placed on the condenser connections. Piping supports must not be anchored to any part of the evaporative condenser's panels or frame.

When condensers are installed on vibration rails or springs, the field piping must incorporate compensators to prevent vibration transmission to the external piping.

RECIRCULATED WATER SYSTEM

The evaporation of water as it passes over the condenser coil ultimately determines the rate of vapor condensation and has a major influence on the overall performance of the evaporative condenser.

Depending on the location, impurities within the air (chemicals in an industrial environment, or salt laden air when close to the ocean) are also absorbed by the water and can result in a corrosive solution. Therefore it is critical to the longevity of the condenser that these impurities are bled from the unit at a rate which is at least equal to that which is evaporated. This continual bleed and replacement with fresh source water will determine the concentration of dissolved solids within the system and must be maintained at an acceptable level. The rate of evaporation will not only be dependent on the heat load, but also the location and associated climatic conditions, and the methodology behind the capacity control of the evaporative condenser.

IDSC/ECOSS™ evaporative condensers with full stainless steel construction, including the condenser coil, allow for operation at higher cycles of concentration when compared to a galvanized coil and casing construction. This means less overall water consumption, and an extreme reduction in scaling and / or corrosion.

A cycle of concentration occurs when the water balance of evaporation, makeup water and other losses concentrate the basin water's solids by a multiple of the makeup water. Increasing the cycles of concentration to optimize the water use is the most practical water conservation measure for evaporative condensers.

Determining the optimum number of cycles of concentration is a balancing act between the reduced chemical, water, and sewage costs at higher cycles of concentration versus the increased risk of scale formation. However, for galvanized coils the propensity for scaling is significantly increased with an increase in the cycles of concentration. This is not the case with stainless steel, thereby creating an appreciable benefit over galvanized condenser coil construction. The forgiving nature of stainless steel versus any unforeseen circumstances or irregular cleaning methods that can severely damage zinc surfaces provide an extra level of security to the facility owner.

Increasing the cycles of concentration in the condenser from 2 to 4 will result in water savings of up to 33.5%. This reduction in makeup water equates to less chemical treatment requirements resulting in a significantly lower chemical costs and a further reduction of operating costs.

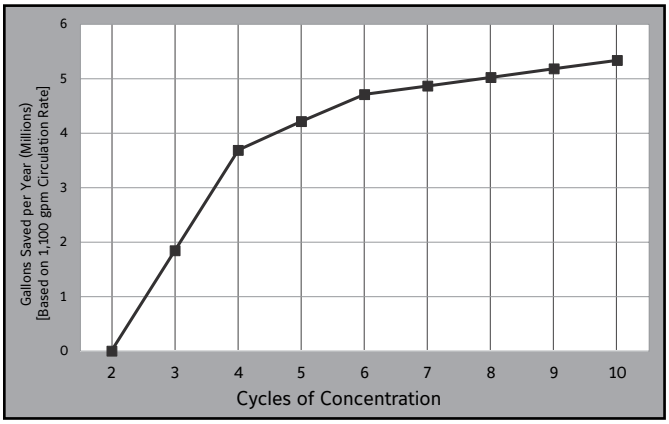


Figure 2. Makeup Water Savings at Varying COC

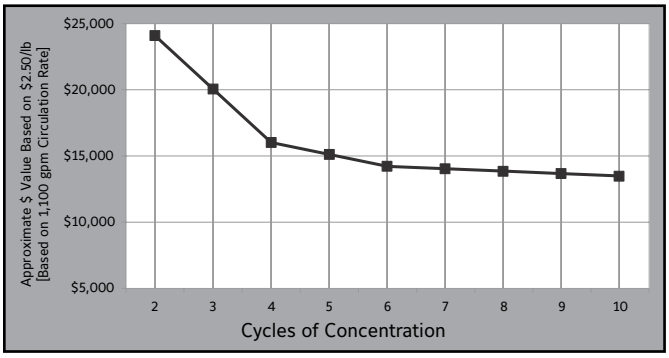


Figure 3. Chemical Costs at Varying COC

All evaporative condensers supplied with a factory fitted pump are furnished with a clear water bleed line and a flow regulating valve. Units supplied for remote sump applications must have a bleed line and flow regulating valve installed at the pump discharge. The all stainless steel construction of the IDSC/ECOSS™ evaporative condenser has zero zinc and / or lead in the blow down.

Biological contamination of the water must be regularly monitored and treated accordingly when detected. Untreated, this biological contamination can lead to sludge, slime, continuous algae growth and other possible harmful micro-organisms, such as Legionella. As such, all internal surfaces, inlet louvers and drift eliminators must be kept clean at all times.

Evaporative cooling equipment generates an ideal location favorable to the formation of algae, slime and micro-organisms, due to the warm, humid and oxygen rich setting. Blow down, typically regulated to maintain specific cycles of concentration, will not restrain this biological growth. It is therefore essential that there is an ongoing water treatment program in place to monitor, analyze and maintain the water quality being recirculated through the unit.

The risk of Legionella from biological contamination is always a possibility, making a properly planned and implemented water treatment program critically important. This should only be carried out by a suitably qualified water treatment company who can devise a program specific to the location, source water quality (could be multiple) and the unit materials of construction.

Property	316L Stainless Steel (Standard Tube Material)	304L Stainless Steel
Passivation Treatment	Not Required	Not Required
Total Bacteria (cfu/ml)	< 10,000	
pH	6.0 - 9.5	
Chlorides as Cl	< 2,000 ppm	< 500 ppm
Sulfates as SO_4^{2-}	< 750 ppm	< 300 ppm
Silica	< 150 ppm	
Hardness as $CaCO_3$	< 750 ppm	< 600 ppm
Alkalinity as $CaCO_3$	< 600 ppm	
Total Dissolved Solids	< 2,500 ppm	< 2,000 ppm
Total Suspended Solids	< 40 ppm	
Conductivity (micromhos)	< 4,000	< 3,200

OPTIONS AND ACCESSORIES

WATER LEVEL CONTROL

1. Mechanical Float Valve

Figure 4. Mechanical Float Valve

2. Electronic Water Level Controller

The electronic water level controller is designed to fit in a standardized, PVC, external standpipe assembly that features a bottom clean out plug with a manual ball shut off valve in the lower line. Both the float assembly and sensor probe assembly can be easily removed, cleaned, inspected and easily installed as required.

Figure 5. EWLC External Standpipe

Both the mechanical float valve and the electronic water level controller work with a slow closing valve installed in the supply water line to prevent water hammer. The electronic water level controller can be factory fitted and supplied for onsite installation or added later without the need for field modification or basin welding.

The sensor probe assembly can be provided with control points for fill start and stop, with high and low water level alarms plus low water level heater cut off.

Basin Heaters

Evaporative condensers exposed to below freezing ambient temperatures require protection to prevent freezing of the water in the cold water basin when the unit is idle. Factory-installed electric immersion heaters, which maintain 40°F (4.4°C) water temperature, are a simple and inexpensive way of providing such protection.

The immersion heater is sized for each condenser model to maintain approximately 40° F basin water temperature with the fans off, coinciding to ambient air temperatures of -20° F.

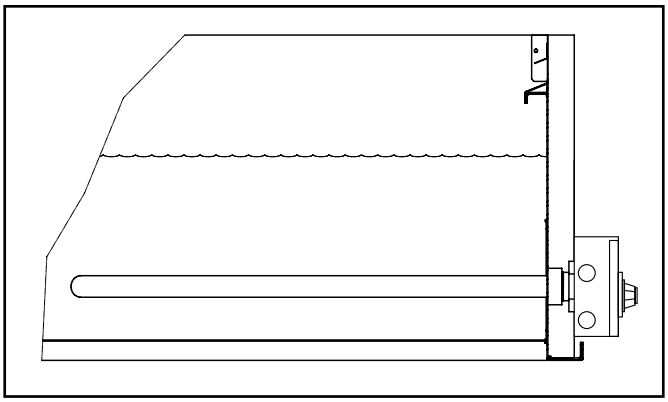


Figure 4. Electric Basin Heater With External Adjustment

All basin heaters will be supplied with built in self limiting thermostat. Basin heaters can be supplied with either the mechanical float valve or electronic water level controller option.

Heater Elements Relative To Unit Size -20°F Ambient Heaters			
MODEL WIDTH	**MODEL RANGE**	**HEATER QTY**	**POWER PER HEATER**
8.5'	IDSC 0812-06-16 to -12-30	1	16 KW
	IDSC 0824-06-32 to -12-60	2	
10'	IDSC 1012-06-10 to -12-30	1	
	IDSC 1018-06-15 to -12-40	2	
	IDSC 1024-06-20 to -12-60	2	
	IDSC 1036-06-20 to -12-80	4	
12'	IDSC 1212-08-15 to -12-40	1	
	IDSC 1218-08-20 to -12-50	2	
	IDSC 1224-08-30 to -12-80	2	
	IDSC 1236-06-60 to -12-100	4	
16'	IDSC 1612-06-32 to -12-60	2	
24'	IDSC 2412-08-30 to -12-80	2	
	IDSC 2418-06-60 to -12-100	4	
	IDSC 2424-10-60 to -12-160	4	
	IDSC 2436-08-80 to -12-200	8	

* Note: Based on 460V/3Ph/60Hz power supply

REMOTE SUMP

For colder climates, a remote sump is available, and recommended. This option is provided without a water distribution pump, pump suction strainer and the applicable piping.

ELECTRICAL OPTIONS

Motor Protection is provided in the form of MSPs for each motor. A motor control panel can be included in the offering complete with non-fused disconnects, MSPs and starters when required. All control panels produced in the factory are UL 508C and CSA / CUL.

ACCESS PACKAGE

The access package is a modular system designed specifically for each box width and length. All support material and walkway framing is stainless steel, the exterior walkway is an industrial grade fiberglass grid – the same as the internal walkway.

All perimeter railing is made up of sections of stainless steel toe board angles mounted directly to the top of the casing panels. The access ladder is constructed from aluminum with the base tied into the support columns of the basin section for rigidity. A self-closing gate and cage complete the package.

The structure and materials of construction all meet the OSHA and IBC codes.

	DETAILS	STANDARD	OPTION	PRICE ADJ.
Electrical	EC Motor with Motor Managment Controller	✔		N
	Wired to Common Junction Box (1)	✔		N
	Motor Protection/Control Panel (UL)	✔		N
	· FRP Enclosure	✔		N
	· Stainless Steel Enclosure		✔	Y
	· Motor Starter Protector's (MSP)	✔		N
	· Disconnects	✔		N
	Pump Protection/Control Panel (UL)		✔	Y
	· FRP Enclosure		✔	Y
	· Stainless Steel Enclosure		✔	Y
	· Starter		✔	Y
	· Disconnect		✔	Y
	Basin Heater, Electrical (2)		✔	Y
	Heater Control Panel (FRP) (3)		✔	Y
	· Low Level Cutout Switch		✔	Y
Coil	ASME U Stamp		✔	Y
	Black Steel Connections (Copper for HFC's)	✔		N
	316L Stainless Steel Headers		✔	Y
Construction	Fully Welded Stainless Steel Basin	✔		N
	316L Stainless Steel Coil	✔		N
	Stainless Steel Frame	✔		N
	PVC Inlet Louvers (Vertical)	✔		N
	PVC Drift Eliminators	✔		N
	Galvanized Casing		✔	Y (7)
	Access Walkway (Beneath Fan Guards)	✔		N
	Removable Spray Nozzles	✔		N
	Stainless Steel Strainer - Anti-Vortex Design	✔		N
	1 1/4" Spray Nozzles	✔		N
	UV Resistant PVC Drift Eliminators	✔		N
	PVC Water Spray Branches	✔		N
	Stainless Steel Water Distribution Box	✔		N
	Remote Sump (4)		✔	Y (7)
	316 Stainless Steel Basin		✔	Y
	Basin Sweeper System		✔	Y
	Fully Drainable Basin	✔		N
	Service Platforms (5)	✔		N
	Perimeter Railing (5)	✔		N
	Access Ladder (5)	✔		N
Water Level Controls	Mechanical Float Valve	✔		N
	Electronic Water Level Controller (6)		✔	Y
	Bleed Line Complete With Reg. Valve at Pump Discharge	✔		N
	Overflow Connection	✔		N
	Drain Connection	✔		N

Figure 6. Standard Features And Options Quick Reference

NOTES:
1. Individual connection at terminal strip.
2. Factory mounted. All heaters have built-in thermostat.
3. Weather proof enclosure.
4. No pump, strainer and connecting piping. Includes oversized bottom outlet.
5. OSHA compliant.
6. Includes low/high water level alarms and low water level cutout.
7. Adjustment is a price reduction.

IDSC/ECOSS™ CONFIGURATIONS AND AIR INLET & BASIN HEIGHTS

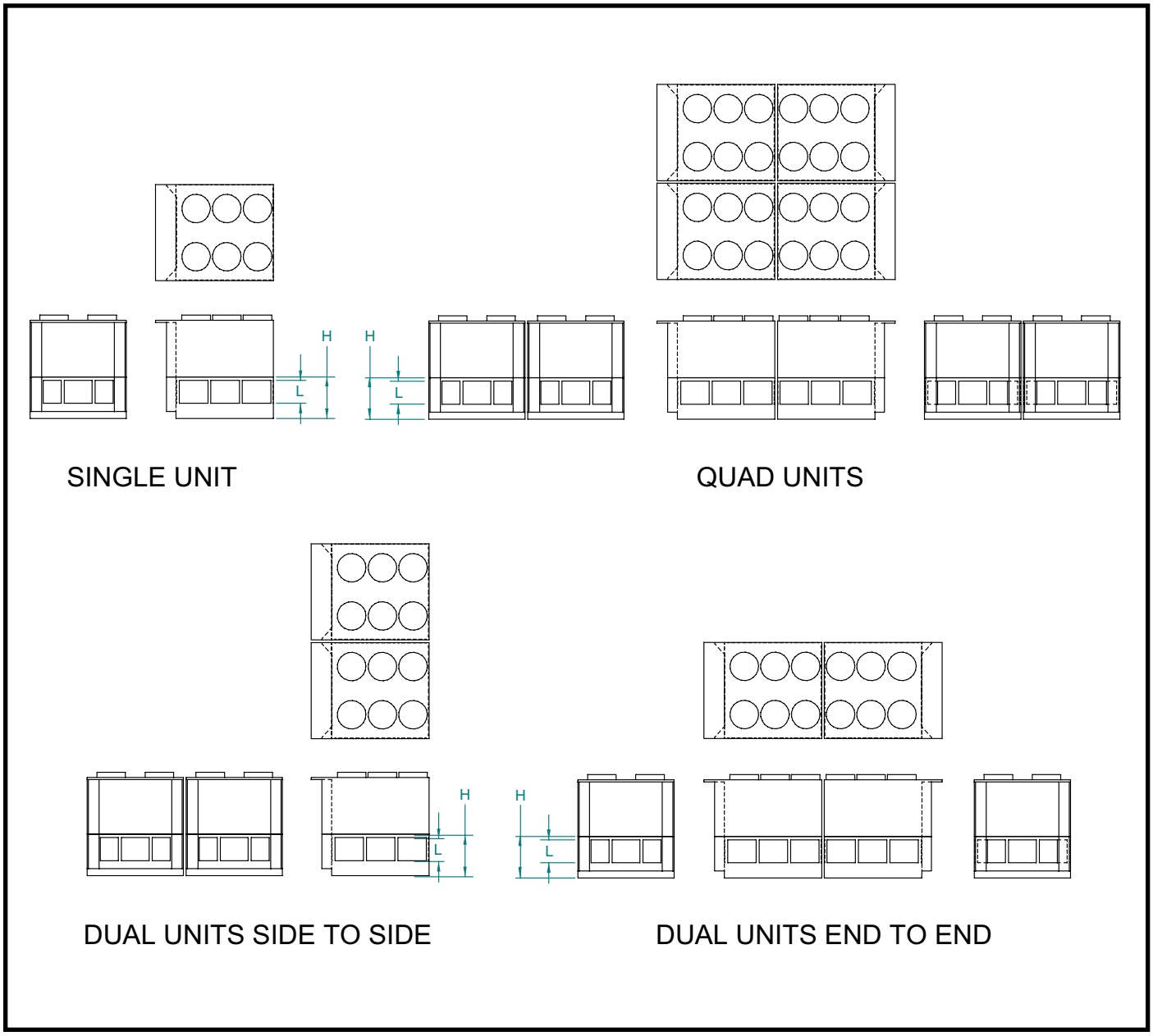


Figure 7. Unit Configurations And Air Inlet & Basin Heights

IDSC/ECOSS™ CONFIGURATIONS AND AIR INLET & BASIN HEIGHTS								
Unit Size	Single Unit		Dual End to End		Dual Side by Side		Quad Unit	
	Inlet Louver Height (L)	Basin Height (H)	Inlet Louver Height (L)	Basin Height (H)	Inlet Louver Height (L)	Basin Height (H)	Inlet Louver Height (L)	Basin Height (H)
8.5′ x 12′	30″	57.5″	30″	57.5″	30″	57.5″	N/A	N/A
10′ x 12′	36″	63.5″	48″	75.5″	N/A	N/A	N/A	N/A
12′ x 12′	36″	63.5″	48″	75.5″	78″	105.5″	78″	105.5″
10′ x 18′	48″	75.5″	48″	75.5″	N/A	N/A	N/A	N/A
12′ x 18′	48″	75.5″	78″	105.5″	78″	105.5″	78″	105.5″

NOTE: Dimensions in inches as noted, based on assembly shown above. Consult Factory for additional information. For reference only, use certified drawings for design purposes.

EC MOTOR FAN SPEEDS AND SOUND LEVELS

Fig.	EC MODEL	Fan			Sound Pressure		
		RPM	HP	Qty	5ft	50ft	Pwr Level
A1	IDSC 0812-06-16-3-EC	1,309	16	4	76	67	100
	IDSC 0812-06-20-3-EC	1,410	20	4	78	69	102
	IDSC 0812-08-16-3-EC	1,309	16	4	76	67	100
	IDSC 0812-08-20-3-EC	1,410	20	4	78	69	102
	IDSC 0812-10-16-3-EC	1,309	16	4	76	67	100
	IDSC 0812-10-20-3-EC	1,410	20	4	78	69	102
	IDSC 0812-12-16-3-EC	1,309	16	4	76	67	100
	IDSC 0812-12-20-3-EC	1,410	20	4	78	69	102
B1	IDSC 0812-06-24-3-EC	1,309	24	6	77	67	101
	IDSC 0812-06-30-3-EC	1,410	30	6	78	69	104
	IDSC 0812-08-24-3-EC	1,309	24	6	77	67	101
	IDSC 0812-08-30-3-EC	1,410	30	6	78	69	104
	IDSC 0812-10-24-3-EC	1,309	24	6	77	67	101
	IDSC 0812-10-30-3-EC	1,410	30	6	78	69	104
	IDSC 0812-12-24-3-EC	1,309	24	6	77	67	101
	IDSC 0812-12-30-3-EC	1,410	30	6	78	69	104
C1	IDSC 1012-06-10-5-EC	863	10	6	75	63	94
	IDSC 1012-06-18-5-EC	1,050	18	6	76	65	98
	IDSC 1012-06-20-5-EC	1,232	20	6	76	66	99
	IDSC 1012-06-24-5-EC	1,309	24	6	77	67	101
	IDSC 1012-06-30-5-EC	1,410	30	6	78	69	104
	IDSC 1012-08-15-5-EC	988	15	6	75	64	97
	IDSC 1012-08-20-5-EC	1,232	20	6	76	66	99
	IDSC 1012-08-24-5-EC	1,309	24	6	77	67	101
	IDSC 1012-08-30-5-EC	1,410	30	6	78	69	104
	IDSC 1012-10-24-5-EC	1,309	24	6	77	67	101
	IDSC 1012-10-30-5-EC	1,410	30	6	78	69	104
	IDSC 1012-12-30-5-EC	1,410	30	6	78	69	104
D1	IDSC 1212-08-20-5-EC	1,232	20	6	77	66	99
	IDSC 1212-08-24-5-EC	1,309	24	6	77	67	101
	IDSC 1212-08-30-5-EC	1,410	30	6	78	69	104
	IDSC 1212-10-20-5-EC	1,232	20	6	77	66	99
	IDSC 1212-10-24-5-EC	1,309	24	6	77	67	101
	IDSC 1212-10-30-5-EC	1,410	30	6	78	69	104
	IDSC 1212-12-20-5-EC	1,232	20	6	77	66	99
	IDSC 1212-12-24-5-EC	1,309	24	6	77	67	101
	IDSC 1212-12-30-5-EC	1,410	30	6	78	69	104
E1	IDSC 1018-08-20-7.5-EC	917	20	10	77	65	97
	IDSC 1018-08-25-7.5-EC	988	25	10	77	66	98
	IDSC 1018-08-30-7.5-EC	1,050	30	10	78	67	100
	IDSC 1018-08-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1018-08-50-7.5-EC	1,410	50	10	80	71	106
	IDSC 1018-10-20-7.5-EC	917	20	10	77	65	97
	IDSC 1018-10-25-7.5-EC	988	25	10	77	66	98
	IDSC 1018-10-30-7.5-EC	1,050	30	10	78	67	100
	IDSC 1018-10-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1018-10-50-7.5-EC	1,410	50	10	80	71	106
	IDSC 1018-12-25-7.5-EC	988	25	10	77	66	98
	IDSC 1018-12-30-7.5-EC	1,050	30	10	78	67	100
	IDSC 1018-12-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1018-12-50-7.5-EC	1,410	50	10	80	71	106

Fig.	EC MODEL	Fan			Sound Pressure		
		RPM	HP	Qty	5ft	50ft	Pwr Level
F1	IDSC 1218-08-20-7.5-EC	917	20	10	77	66	97
	IDSC 1218-08-25-7.5-EC	988	25	10	78	67	99
	IDSC 1218-08-30-7.5-EC	1,050	30	10	78	68	100
	IDSC 1218-08-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1218-08-50-7.5-EC	1,410	50	10	80	71	106
	IDSC 1218-10-25-7.5-EC	988	25	10	78	67	99
	IDSC 1218-10-30-7.5-EC	1,050	30	10	78	68	100
	IDSC 1218-10-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1218-10-50-7.5-EC	1,410	50	10	80	71	106
	IDSC 1218-12-30-7.5-EC	1,050	30	10	78	68	100
	IDSC 1218-12-40-7.5-EC	1,309	40	10	79	69	103
	IDSC 1218-12-50-7.5-EC	1,410	50	10	80	71	106
A2	IDSC 0824-06-32-6-EC	1,309	32	8	79	69	102
	IDSC 0824-06-40-6-EC	1,410	40	8	80	71	105
	IDSC 0824-08-32-6-EC	1,309	32	8	79	69	102
	IDSC 0824-08-40-6-EC	1,410	40	8	80	71	105
	IDSC 0824-10-32-6-EC	1,309	32	8	79	69	102
	IDSC 0824-10-40-6-EC	1,410	40	8	80	71	105
	IDSC 0824-12-32-6-EC	1,309	32	8	79	69	102
	IDSC 0824-12-40-6-EC	1,410	40	8	80	71	105
B2	IDSC 0824-06-48-6-EC	1,309	48	12	80	70	103
	IDSC 0824-06-60-6-EC	1,410	60	12	81	72	106
	IDSC 0824-08-48-6-EC	1,309	48	12	80	70	103
	IDSC 0824-08-60-6-EC	1,410	60	12	81	72	106
	IDSC 0824-10-48-6-EC	1,309	48	12	80	70	103
	IDSC 0824-10-60-6-EC	1,410	60	12	81	72	106
	IDSC 0824-12-48-6-EC	1,309	48	12	80	70	103
	IDSC 0824-12-60-6-EC	1,410	60	12	81	72	106
C2	IDSC 1024-06-20-10-EC	863	20	12	78	66	97
	IDSC 1024-06-48-10-EC	1,309	48	12	80	70	103
	IDSC 1024-08-20-10-EC	863	20	12	78	66	97
	IDSC 1024-08-40-10-EC	1,232	40	12	79	69	101
	IDSC 1024-08-48-10-EC	1,309	48	12	80	70	103
	IDSC 1024-08-60-10-EC	1,410	60	12	81	72	106
	IDSC 1024-10-20-10-EC	863	20	12	78	66	97
	IDSC 1024-10-48-10-EC	1,309	48	12	80	70	103
	IDSC 1024-10-60-10-EC	1,410	60	12	81	72	106
	IDSC 1024-12-20-10-EC	863	20	12	78	66	97
	IDSC 1024-12-48-10-EC	1,309	48	12	80	70	103
	IDSC 1024-12-60-10-EC	1,410	60	12	81	72	106
D2	IDSC 1224-08-30-10-EC	988	30	12	79	68	100
	IDSC 1224-08-40-10-EC	1,232	40	12	80	69	102
	IDSC 1224-08-48-10-EC	1,309	48	12	80	70	104
	IDSC 1224-08-60-10-EC	1,410	60	12	81	72	106
	IDSC 1224-10-40-10-EC	1,232	40	12	80	69	102
	IDSC 1224-10-48-10-EC	1,309	48	12	80	70	104
	IDSC 1224-10-60-10-EC	1,410	60	12	81	72	106
	IDSC 1224-12-30-10-EC	988	30	12	79	68	100
	IDSC 1224-12-48-10-EC	1,309	48	12	80	70	104
	IDSC 1224-12-60-10-EC	1,410	60	12	81	72	106

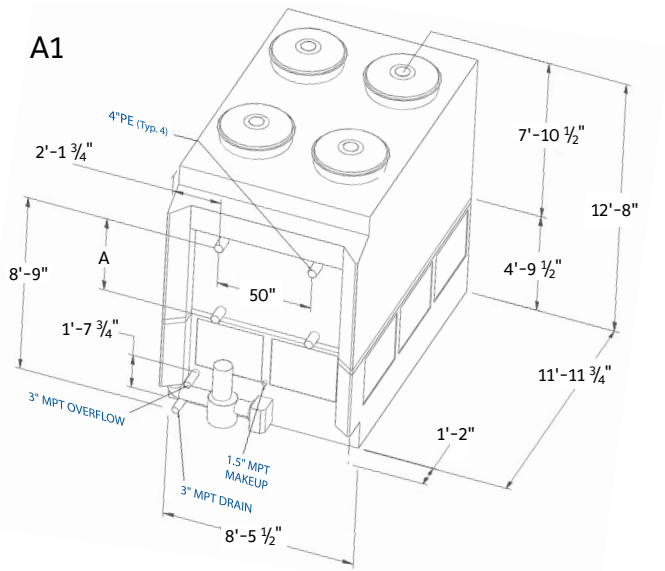
EC MOTOR FAN SPEEDS AND SOUND LEVELS

Fig.	EC MODEL	Fan			Sound Pressure		
		RPM	HP	Qty	5ft	50ft	Pwr Level
E2	IDSC 1036-06-20-15-EC	728	20	20	79	66	96
	IDSC 1036-06-50-15-EC	988	50	20	80	69	101
	IDSC 1036-06-60-15-EC	1,050	60	20	81	70	102
	IDSC 1036-08-20-15-EC	728	20	20	79	66	96
	IDSC 1036-08-30-15-EC	833	30	20	79	67	98
	IDSC 1036-08-50-15-EC	988	50	20	80	69	101
	IDSC 1036-08-60-15-EC	1,050	60	20	81	70	102
	IDSC 1036-08-80-15-EC	1,309	80	20	82	72	105
	IDSC 1036-08-100-15-EC	1,410	100	20	83	74	108
	IDSC 1036-10-20-15-EC	728	20	20	79	66	96
	IDSC 1036-10-30-15-EC	833	30	20	79	67	98
	IDSC 1036-10-60-15-EC	1,050	60	20	81	70	102
	IDSC 1036-10-80-15-EC	1,309	80	20	82	72	105
	IDSC 1036-10-100-15-EC	1,410	100	20	83	74	108
	IDSC 1036-12-40-15-EC	917	40	20	80	68	99
	IDSC 1036-12-60-15-EC	1,050	60	20	81	70	102
	IDSC 1036-12-80-15-EC	1,309	80	20	82	72	105
	IDSC 1036-12-100-15-EC	1,410	100	20	83	74	108
F2	IDSC 1236-08-40-15-EC	917	40	20	80	69	100
	IDSC 1236-08-50-15-EC	988	50	20	81	70	101
	IDSC 1236-08-60-15-EC	1,050	60	20	81	71	103
	IDSC 1236-08-100-15-EC	1,410	100	20	83	74	108
	IDSC 1236-10-50-15-EC	988	50	20	81	70	101
	IDSC 1236-10-60-15-EC	1,050	60	20	81	71	103
	IDSC 1236-10-80-15-EC	1,309	80	20	82	72	105
	IDSC 1236-10-100-15-EC	1,410	100	20	83	74	108
	IDSC 1236-12-80-15-EC	1,309	80	20	82	72	105
	IDSC 1236-12-100-15-EC	1,410	100	20	83	74	108
A3	IDSC 1612-06-32-6-EC	1309	32	8	79	70	102
	IDSC 1612-06-40-6-EC	1410	40	8	81	72	105
	IDSC 1612-08-32-6-EC	1309	32	8	79	70	102
	IDSC 1612-08-40-6-EC	1410	40	8	81	72	105
	IDSC 1612-10-32-6-EC	1309	32	8	79	70	102
	IDSC 1612-10-40-6-EC	1410	40	8	81	72	105
	IDSC 1612-12-32-6-EC	1309	32	8	79	70	102
	IDSC 1612-12-40-6-EC	1410	40	8	81	72	105
B3	IDSC 1612-06-48-6-EC	1309	48	12	79	70	103
	IDSC 1612-06-60-6-EC	1410	60	12	81	72	106
	IDSC 1612-08-48-6-EC	1309	48	12	79	70	103
	IDSC 1612-08-60-6-EC	1410	60	12	81	72	106
	IDSC 1612-10-48-6-EC	1309	48	12	79	70	103
	IDSC 1612-10-60-6-EC	1410	60	12	81	72	106
	IDSC 1612-12-48-6-EC	1309	48	12	79	70	103
	IDSC 1612-12-60-6-EC	1410	60	12	81	72	106

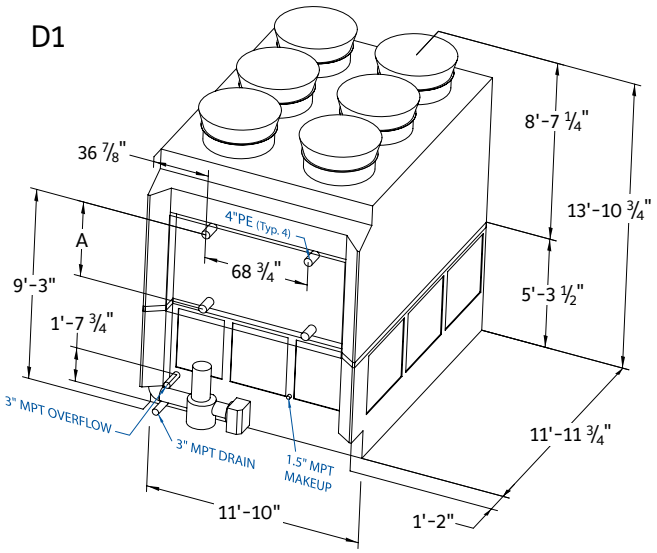
Fig.	EC MODEL	Fan			Sound Pressure		
		RPM	HP	Qty	5ft	50ft	Pwr Level
D3	IDSC 2412-08-30-10-EC	988	30	12	79	68	100
	IDSC 2412-08-40-10-EC	1,232	40	12	80	69	102
	IDSC 2412-08-60-10-EC	1,410	60	12	81	72	106
	IDSC 2412-10-40-10-EC	1,232	40	12	80	69	102
	IDSC 2412-10-48-10-EC	1,309	48	12	80	70	104
	IDSC 2412-10-60-10-EC	1,410	60	12	81	72	106
	IDSC 2412-12-30-10-EC	988	30	12	79	68	100
	IDSC 2412-12-48-10-EC	1,309	48	12	80	70	104
	IDSC 2412-12-60-10-EC	1,410	60	12	81	72	106
F3	IDSC 2418-08-40-15-EC	917	40	20	80	68	100
	IDSC 2418-08-50-15-EC	988	50	20	80	69	101
	IDSC 2418-08-60-15-EC	1,050	60	20	81	70	103
	IDSC 2418-08-100-15-EC	1,410	100	20	82	73	108
	IDSC 2418-10-50-15-EC	988	50	20	80	69	101
	IDSC 2418-10-60-15-EC	1,050	60	20	81	70	103
	IDSC 2418-10-80-15-EC	1,309	80	20	81	71	105
	IDSC 2418-10-100-15-EC	1,410	100	20	82	73	108
	IDSC 2418-12-80-15-EC	1,309	80	20	81	71	105
	IDSC 2418-12-100-15-EC	1,410	100	20	82	73	108
D4	IDSC 2424-10-60-20-EC	988	60	24	81	70	102
	IDSC 2424-10-80-20-EC	1,232	80	24	82	71	104
	IDSC 2424-10-96-20-EC	1,309	96	24	82	72	106
	IDSC 2424-10-120-20-EC	1,410	120	24	83	73	109
	IDSC 2424-12-96-20-EC	1,309	96	24	82	72	106
	IDSC 2424-12-120-20-EC	1,410	120	24	83	73	109
F4	IDSC 2436-08-80-30-EC	917	80	40	83	71	102
	IDSC 2436-08-100-30-EC	988	100	40	83	72	104
	IDSC 2436-08-120-30-EC	1,050	120	40	83	72	105
	IDSC 2436-08-200-30-EC	1,410	200	40	85	75	111
	IDSC 2436-10-100-30-EC	988	100	40	83	72	104
	IDSC 2436-10-120-30-EC	1,050	120	40	83	72	105
	IDSC 2436-10-160-30-EC	1,309	160	40	84	74	108
	IDSC 2436-10-200-30-EC	1,410	200	40	85	75	111
	IDSC 2436-12-160-30-EC	1,309	160	40	84	74	108
	IDSC 2436-12-200-30-EC	1,410	200	40	85	75	111

STANDARD DIMENSIONS – SINGLE UNIT MODELS

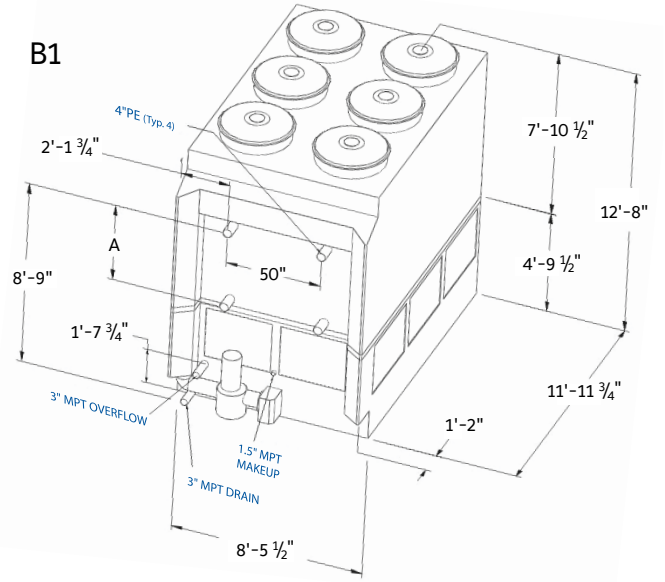
A1



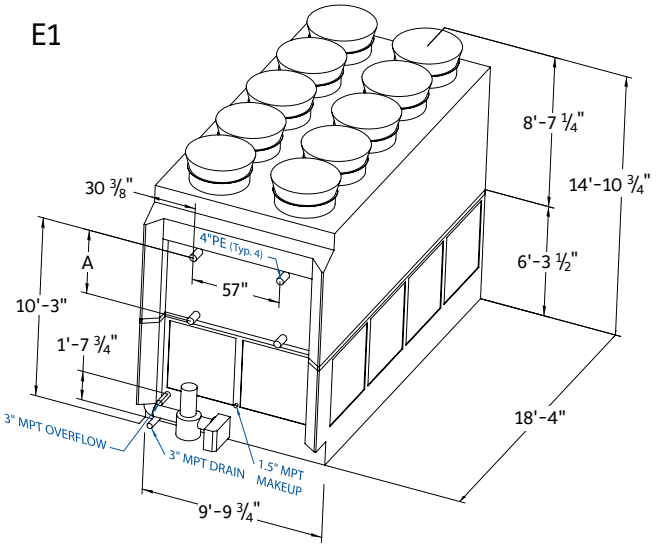
D1



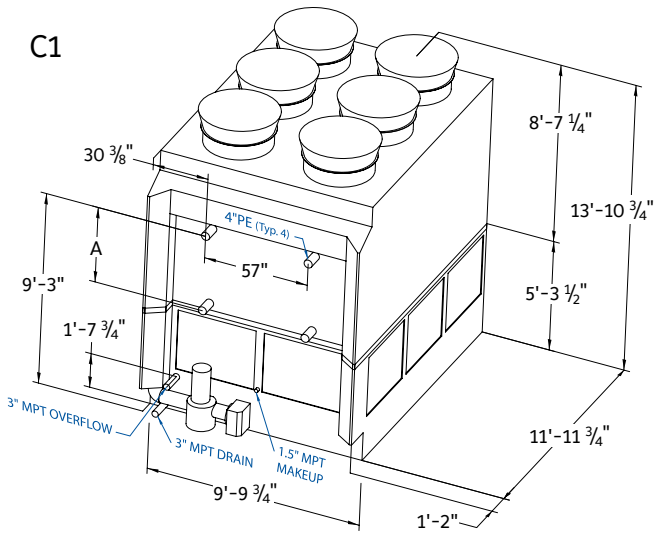
B1



E1



C1



F1

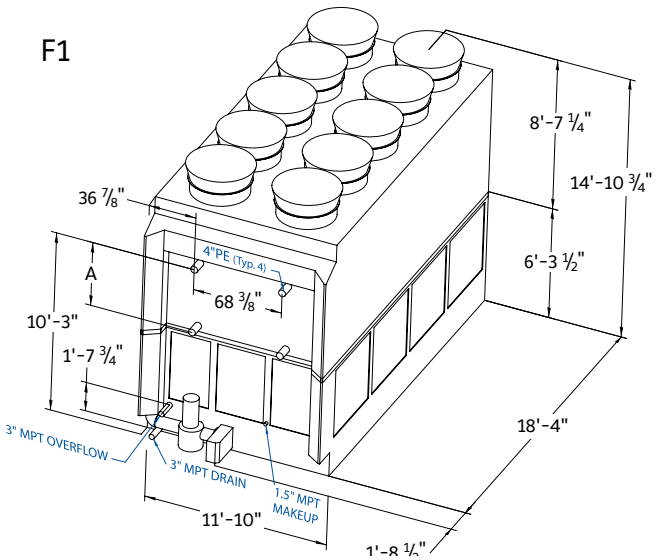


Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
A1	IDSC 0812-06-16-3-EC	16	58,917	3	435	154	23	7,488	4,864	10,775	160	12	7,679	21
	IDSC 0812-06-20-3-EC	20	62,436	3	435	154	23	7,488	4,864	10,775	160	12	7,679	21
	IDSC 0812-08-16-3-EC	16	57,201	3	435	201	30	8,058	5,434	11,336	160	12	8,241	28.5
	IDSC 0812-08-20-3-EC	20	60,617	3	435	201	30	8,058	5,434	11,336	160	12	8,241	28.5
	IDSC 0812-10-16-3-EC	16	55,535	3	435	247	36	8,628	6,004	11,953	160	12	8,857	36
	IDSC 0812-10-20-3-EC	20	58,852	3	435	247	36	8,628	6,004	11,953	160	12	8,857	36
	IDSC 0812-12-16-3-EC	16	53,775	3	435	294	43	9,199	6,575	12,570	160	12	9,474	43.5
	IDSC 0812-12-20-3-EC	20	57,129	3	435	294	43	9,199	6,575	12,570	160	12	9,474	43.5
B1	IDSC 0812-06-24-3-EC	24	66,344	3	435	154	23	7,647	5,023	10,934	160	12	7,838	21
	IDSC 0812-06-30-3-EC	30	71,461	3	435	154	23	7,647	5,023	10,934	160	12	7,838	21
	IDSC 0812-08-24-3-EC	24	64,411	3	435	201	30	8,217	5,593	11,495	160	12	8,400	28.5
	IDSC 0812-08-30-3-EC	30	69,380	3	435	201	30	8,217	5,593	11,495	160	12	8,400	28.5
	IDSC 0812-10-24-3-EC	24	62,535	3	435	247	36	8,787	6,163	12,112	160	12	9,016	36
	IDSC 0812-10-30-3-EC	30	67,359	3	435	247	36	8,787	6,163	12,112	160	12	9,016	36
	IDSC 0812-12-24-3-EC	24	59,945	3	435	294	43	9,358	6,734	12,729	160	12	9,633	43.5
	IDSC 0812-12-30-3-EC	30	64,569	3	435	294	43	9,358	6,734	12,729	160	12	9,633	43.5
C1	IDSC 1012-06-10-5-EC	10	53,110	5	586	183	27	8,123	5,222	11,185	180	12	8,582	21
	IDSC 1012-06-18-5-EC	18	60,866	5	586	183	27	8,123	5,222	11,185	180	12	8,582	21
	IDSC 1012-06-20-5-EC	20	66,986	5	586	183	27	8,123	5,222	11,185	180	12	8,582	21
	IDSC 1012-06-24-5-EC	24	71,178	5	586	183	27	8,123	5,222	11,185	180	12	8,582	21
	IDSC 1012-06-30-5-EC	30	76,669	5	586	183	27	8,123	5,222	11,185	180	12	8,582	21
	IDSC 1012-08-15-5-EC	15	59,911	5	586	238	35	8,735	5,834	11,853	180	12	9,250	28.5
	IDSC 1012-08-20-5-EC	20	65,933	5	586	238	35	8,735	5,834	11,853	180	12	9,250	28.5
	IDSC 1012-08-24-5-EC	24	70,045	5	586	238	35	8,735	5,834	11,853	180	12	9,250	28.5
	IDSC 1012-08-30-5-EC	30	75,448	5	586	238	35	8,735	5,834	11,853	180	12	9,250	28.5
	IDSC 1012-10-24-5-EC	24	69,007	5	586	293	43	9,347	6,446	12,521	180	12	9,918	36
	IDSC 1012-10-30-5-EC	30	74,330	5	586	293	43	9,347	6,446	12,521	180	12	9,918	36
	IDSC 1012-12-30-5-EC	30	73,297	5	586	348	51	9,959	7,058	13,190	180	12	10,587	43.5
D1	IDSC 1212-08-20-5-EC	20	77,703	5	708	290	43	10,024	6,748	13,273	220	12	10,757	28.5
	IDSC 1212-08-24-5-EC	24	81,751	5	708	290	43	10,024	6,748	13,273	220	12	10,757	28.5
	IDSC 1212-08-30-5-EC	30	88,063	5	708	290	43	10,024	6,748	13,273	220	12	10,757	28.5
	IDSC 1212-10-20-5-EC	20	75,502	5	708	356	53	10,756	7,479	14,071	220	12	11,555	36
	IDSC 1212-10-24-5-EC	24	79,296	5	708	356	53	10,756	7,479	14,071	220	12	11,555	36
	IDSC 1212-10-30-5-EC	30	85,413	5	708	356	53	10,756	7,479	14,071	220	12	11,555	36
	IDSC 1212-12-20-5-EC	20	71,647	5	708	423	62	11,487	8,211	14,870	220	12	12,354	43.5
	IDSC 1212-12-24-5-EC	24	76,132	5	708	423	62	11,487	8,211	14,870	220	12	12,354	43.5
	IDSC 1212-12-30-5-EC	30	82,004	5	708	423	62	11,487	8,211	14,870	220	12	12,354	43.5

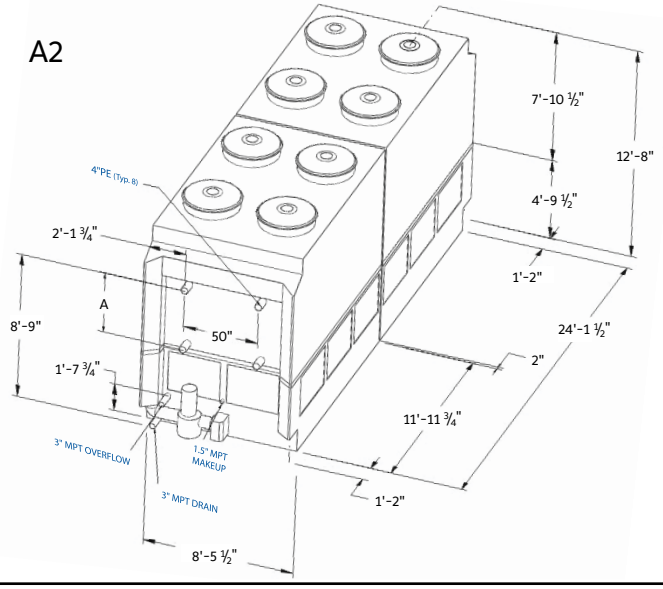
Continued on next page.

Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
E1	IDSC 1018-08-20-7.5-EC	20	88,325	7.5	903	345	51	13,624	9,059	17,213	250	12	14,203	28.5
	IDSC 1018-08-25-7.5-EC	25	95,120	7.5	903	345	51	13,624	9,059	17,213	250	12	14,203	28.5
	IDSC 1018-08-30-7.5-EC	30	101,074	7.5	903	345	51	13,624	9,059	17,213	250	12	14,203	28.5
	IDSC 1018-08-40-7.5-EC	40	111,292	7.5	903	345	51	13,624	9,059	17,213	250	12	14,203	28.5
	IDSC 1018-08-50-7.5-EC	50	119,877	7.5	903	345	51	13,624	9,059	17,213	250	12	14,203	28.5
	IDSC 1018-10-20-7.5-EC	20	86,986	7.5	903	427	63	14,509	9,944	18,180	250	12	15,170	36
	IDSC 1018-10-25-7.5-EC	25	93,780	7.5	903	427	63	14,509	9,944	18,180	250	12	15,170	36
	IDSC 1018-10-30-7.5-EC	30	99,650	7.5	903	427	63	14,509	9,944	18,180	250	12	15,170	36
	IDSC 1018-10-40-7.5-EC	40	109,665	7.5	903	427	63	14,509	9,944	18,180	250	12	15,170	36
	IDSC 1018-10-50-7.5-EC	50	118,124	7.5	903	427	63	14,509	9,944	18,180	250	12	15,170	36
	IDSC 1018-12-25-7.5-EC	25	92,344	7.5	903	509	75	15,394	10,829	19,147	250	12	16,137	43.5
	IDSC 1018-12-30-7.5-EC	30	98,125	7.5	903	509	75	15,394	10,829	19,147	250	12	16,137	43.5
	IDSC 1018-12-40-7.5-EC	40	108,038	7.5	903	509	75	15,394	10,829	19,147	250	12	16,137	43.5
	IDSC 1018-12-50-7.5-EC	50	116,372	7.5	903	509	75	15,394	10,829	19,147	250	12	16,137	43.5
F1	IDSC 1218-08-20-7.5-EC	20	105,359	7.5	1,092	420	62	15,504	10,374	19,481	300	12	16,416	28.5
	IDSC 1218-08-25-7.5-EC	25	113,301	7.5	1,092	420	62	15,504	10,374	19,481	300	12	16,416	28.5
	IDSC 1218-08-30-7.5-EC	30	120,574	7.5	1,092	420	62	15,504	10,374	19,481	300	12	16,416	28.5
	IDSC 1218-08-40-7.5-EC	40	132,696	7.5	1,092	420	62	15,504	10,374	19,481	300	12	16,416	28.5
	IDSC 1218-08-50-7.5-EC	50	142,932	7.5	1,092	420	62	15,504	10,374	19,481	300	12	16,416	28.5
	IDSC 1218-10-25-7.5-EC	25	109,952	7.5	1,092	520	77	16,582	11,452	20,659	300	12	17,594	36
	IDSC 1218-10-30-7.5-EC	30	116,842	7.5	1,092	520	77	16,582	11,452	20,659	300	12	17,594	36
	IDSC 1218-10-40-7.5-EC	40	126,890	7.5	1,092	520	77	16,582	11,452	20,659	300	12	17,594	36
	IDSC 1218-10-50-7.5-EC	50	136,678	7.5	1,092	520	77	16,582	11,452	20,659	300	12	17,594	36
	IDSC 1218-12-30-7.5-EC	30	113,301	7.5	1,092	620	91	17,660	12,530	21,837	300	12	18,772	43.5
	IDSC 1218-12-40-7.5-EC	40	122,871	7.5	1,092	620	91	17,660	12,530	21,837	300	12	18,772	43.5
	IDSC 1218-12-50-7.5-EC	50	132,349	7.5	1,092	620	91	17,660	12,530	21,237	300	12	18,172	43.5

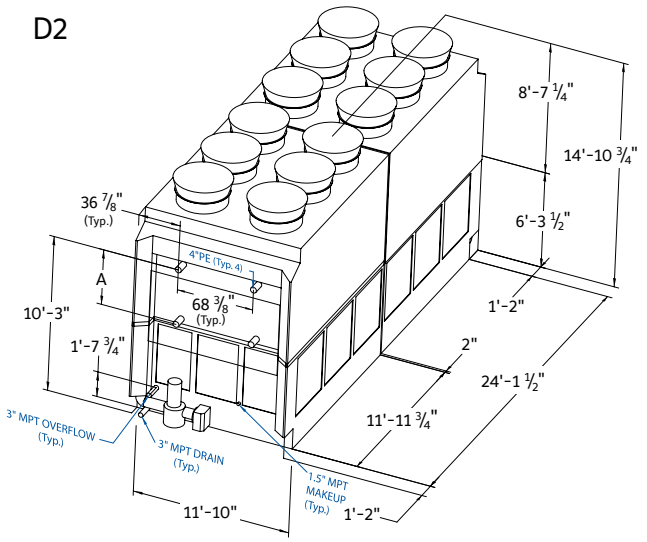
See note on page 22.

STANDARD DIMENSIONS – DUAL END-TO-END MODELS

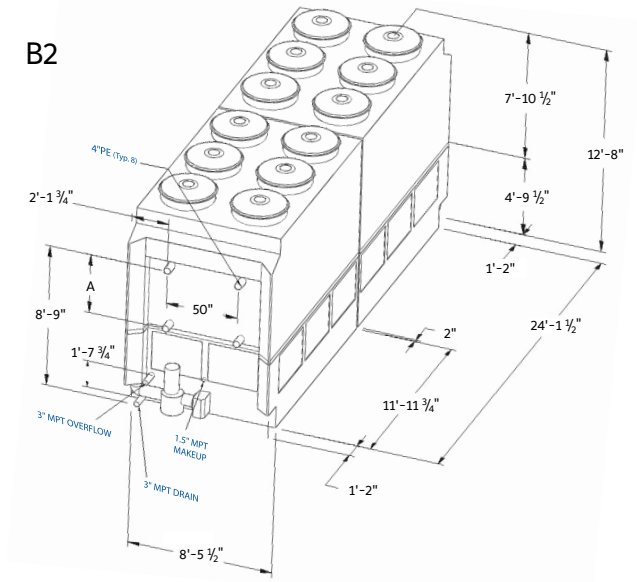
A2



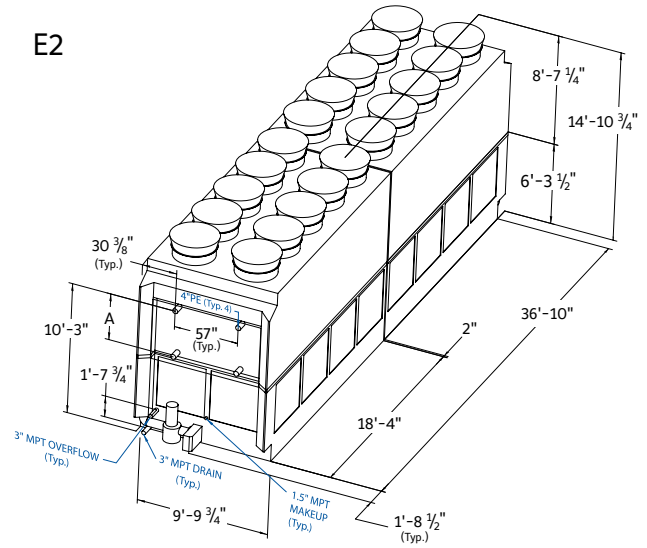
D2



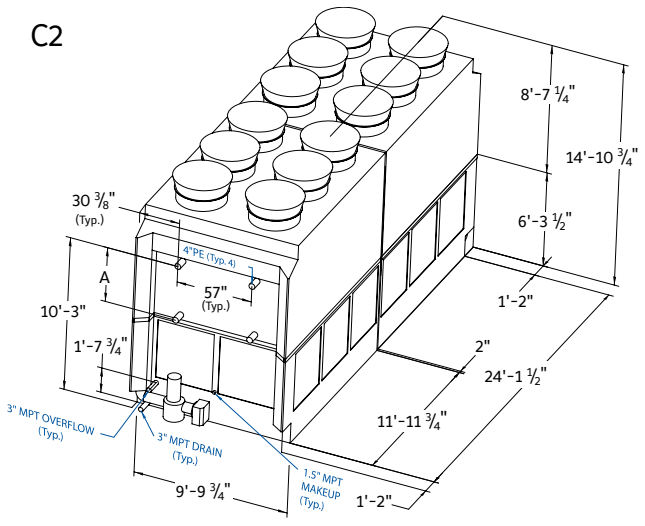
B2



E2



C2



F2

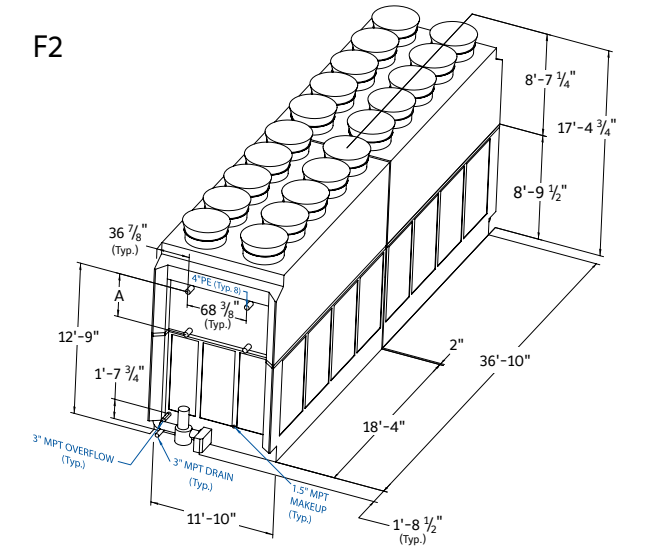


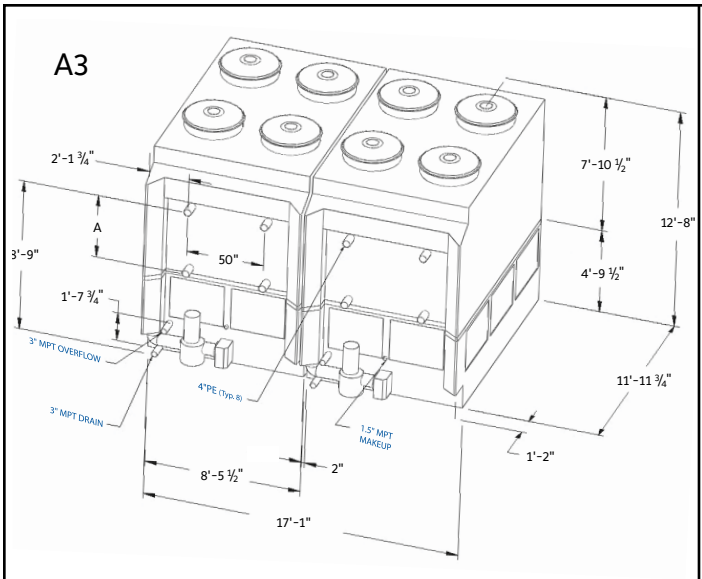
Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
A2	IDSC 0824-06-32-6-EC	32	117,834	6	870	309	46	14,975	4,864	21,550	320	12	15,359	21
	IDSC 0824-06-40-6-EC	40	124,871	6	870	309	46	14,975	4,864	21,550	320	12	15,359	21
	IDSC 0824-08-32-6-EC	32	114,402	6	870	402	59	16,116	5,434	22,673	320	12	16,481	28.5
	IDSC 0824-08-40-6-EC	40	121,234	6	870	402	59	16,116	5,434	22,673	320	12	16,481	28.5
	IDSC 0824-10-32-6-EC	32	111,070	6	870	494	73	17,257	6,004	23,906	320	12	17,715	36
	IDSC 0824-10-40-6-EC	40	117,703	6	870	494	73	17,257	6,004	23,906	320	12	17,715	36
	IDSC 0824-12-32-6-EC	32	107,550	6	870	587	86	18,398	6,575	25,140	320	12	18,948	43.5
	IDSC 0824-12-40-6-EC	40	114,258	6	870	587	86	18,398	6,575	25,140	320	12	18,948	43.5
B2	IDSC 0824-06-48-6-EC	48	132,688	6	870	309	46	15,293	5,023	21,868	320	12	15,677	21
	IDSC 0824-06-60-6-EC	60	142,923	6	870	309	46	15,293	5,023	21,868	320	12	15,677	21
	IDSC 0824-08-48-6-EC	48	128,823	6	870	402	59	16,434	5,593	22,991	320	12	16,799	28.5
	IDSC 0824-08-60-6-EC	60	138,760	6	870	402	59	16,434	5,593	22,991	320	12	16,799	28.5
	IDSC 0824-10-48-6-EC	48	125,071	6	870	494	73	17,575	6,163	24,224	320	12	18,033	36
	IDSC 0824-10-60-6-EC	60	134,718	6	870	494	73	17,575	6,163	24,224	320	12	18,033	36
	IDSC 0824-12-48-6-EC	48	119,890	6	870	587	86	18,716	6,734	25,458	320	12	19,266	43.5
	IDSC 0824-12-60-6-EC	60	129,138	6	870	587	86	18,716	6,734	25,458	320	12	19,266	43.5
C2	IDSC 1024-06-20-10-EC	20	106,220	10	1,172	366	54	16,628	5,222	22,752	360	12	17,546	21
	IDSC 1024-06-48-10-EC	48	142,356	10	1,172	366	54	16,628	5,222	22,752	360	12	17,546	21
	IDSC 1024-08-20-10-EC	20	104,689	10	1,172	476	70	17,852	5,834	24,088	360	12	18,882	28.5
	IDSC 1024-08-40-10-EC	40	131,866	10	1,172	476	70	17,852	5,834	24,088	360	12	18,882	28.5
	IDSC 1024-08-48-10-EC	48	140,090	10	1,172	476	70	17,852	5,834	24,088	360	12	18,882	28.5
	IDSC 1024-08-60-10-EC	60	150,897	10	1,172	476	70	17,852	5,834	24,088	360	12	18,882	28.5
	IDSC 1024-10-20-10-EC	20	103,158	10	1,172	586	86	19,076	6,446	25,425	360	12	20,219	36
	IDSC 1024-10-48-10-EC	48	138,014	10	1,172	586	86	19,076	6,446	25,425	360	12	20,219	36
	IDSC 1024-10-60-10-EC	60	148,660	10	1,172	586	86	19,076	6,446	25,425	360	12	20,219	36
	IDSC 1024-12-20-10-EC	20	101,627	10	1,172	696	102	20,300	7,058	26,762	360	12	21,555	43.5
	IDSC 1024-12-48-10-EC	48	136,031	10	1,172	696	102	20,300	7,058	26,762	360	12	21,555	43.5
	IDSC 1024-12-60-10-EC	60	146,524	10	1,172	696	102	20,300	7,058	26,762	360	12	21,555	43.5
D2	IDSC 1224-08-30-10-EC	30	141,244	10	1,416	580	86	20,485	6,748	26,983	440	12	21,952	28.5
	IDSC 1224-08-40-10-EC	40	155,407	10	1,416	580	86	20,485	6,748	26,983	440	12	21,952	28.5
	IDSC 1224-08-48-10-EC	48	163,502	10	1,416	580	86	20,485	6,748	26,983	440	12	21,952	28.5
	IDSC 1224-08-60-10-EC	60	176,114	10	1,416	580	86	20,485	6,748	26,983	440	12	21,952	28.5
	IDSC 1224-10-40-10-EC	40	151,005	10	1,416	712	106	21,948	7,479	28,579	440	12	23,548	36
	IDSC 1224-10-48-10-EC	48	158,593	10	1,416	712	106	21,948	7,479	28,579	440	12	23,548	36
	IDSC 1224-10-60-10-EC	60	170,826	10	1,416	712	106	21,948	7,479	28,579	440	12	23,548	36
	IDSC 1224-12-30-10-EC	30	132,919	10	1,416	846	124	23,412	8,211	30,177	440	12	25,146	43.5
	IDSC 1224-12-48-10-EC	48	152,263	10	1,416	846	124	23,412	8,211	30,177	440	12	25,146	43.5
	IDSC 1224-12-60-10-EC	60	164,008	10	1,416	846	124	23,412	8,211	30,177	440	12	25,146	43.5

Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
E2	IDSC 1036-06-20-15-EC	20	142,392	15	1,806	526	78	25,661	8,174	32,675	500	12	26,655	21
	IDSC 1036-06-50-15-EC	50	193,110	15	1,806	526	78	25,661	8,174	32,675	500	12	26,655	21
	IDSC 1036-06-60-15-EC	60	205,167	15	1,806	526	78	25,661	8,174	32,675	500	12	26,655	21
	IDSC 1036-08-20-15-EC	20	140,287	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-08-30-15-EC	30	160,574	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-08-50-15-EC	50	190,239	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-08-60-15-EC	60	202,201	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-08-80-15-EC	80	222,584	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-08-100-15-EC	100	239,753	15	1,806	690	102	27,431	9,059	34,609	500	12	28,589	28.5
	IDSC 1036-10-20-15-EC	20	138,182	15	1,806	854	126	29,201	9,944	36,543	500	12	30,523	36
	IDSC 1036-10-30-15-EC	30	158,086	15	1,806	854	126	29,201	9,944	36,543	500	12	30,523	36
	IDSC 1036-10-60-15-EC	60	199,234	15	1,806	854	126	29,201	9,944	36,543	500	12	30,523	36
	IDSC 1036-10-80-15-EC	80	219,330	15	1,806	854	126	29,201	9,944	36,543	500	12	30,523	36
	IDSC 1036-10-100-15-EC	100	236,249	15	1,806	854	126	29,201	9,944	36,543	500	12	30,523	36
	IDSC 1036-12-40-15-EC	40	171,483	15	1,806	1,018	150	30,971	10,829	38,477	500	12	32,457	43.5
	IDSC 1036-12-60-15-EC	60	196,268	15	1,806	1,018	150	30,971	10,829	38,477	500	12	32,457	43.5
	IDSC 1036-12-80-15-EC	80	216,077	15	1,806	1,018	150	30,971	10,829	38,477	500	12	32,457	43.5
	IDSC 1036-12-100-15-EC	100	232,744	15	1,806	1,018	150	30,971	10,829	38,477	500	12	32,457	43.5
F2	IDSC 1236-08-40-15-EC	40	210,718	15	2,184	840	124	32,011	10,374	39,965	600	12	33,835	28.5
	IDSC 1236-08-50-15-EC	50	226,603	15	2,184	840	124	32,011	10,374	39,965	600	12	33,835	28.5
	IDSC 1236-08-60-15-EC	60	241,148	15	2,184	840	124	32,011	10,374	39,965	600	12	33,835	28.5
	IDSC 1236-08-100-15-EC	100	285,864	15	2,184	840	124	32,011	10,374	39,965	600	12	33,835	28.5
	IDSC 1236-10-50-15-EC	50	219,904	15	2,184	1,040	154	34,167	11,452	42,321	600	12	36,191	36
	IDSC 1236-10-60-15-EC	60	233,684	15	2,184	1,040	154	34,167	11,452	42,321	600	12	36,191	36
	IDSC 1236-10-80-15-EC	80	253,780	15	2,184	1,040	154	34,167	11,452	42,321	600	12	36,191	36
	IDSC 1236-10-100-15-EC	100	273,356	15	2,184	1,040	154	34,167	11,452	42,321	600	12	36,191	36
	IDSC 1236-12-80-15-EC	80	245,742	15	2,184	1,240	182	36,323	12,530	44,677	600	12	38,547	43.5
	IDSC 1236-12-100-15-EC	100	264,697	15	2,184	1,240	182	36,323	12,530	44,677	600	12	38,547	43.5

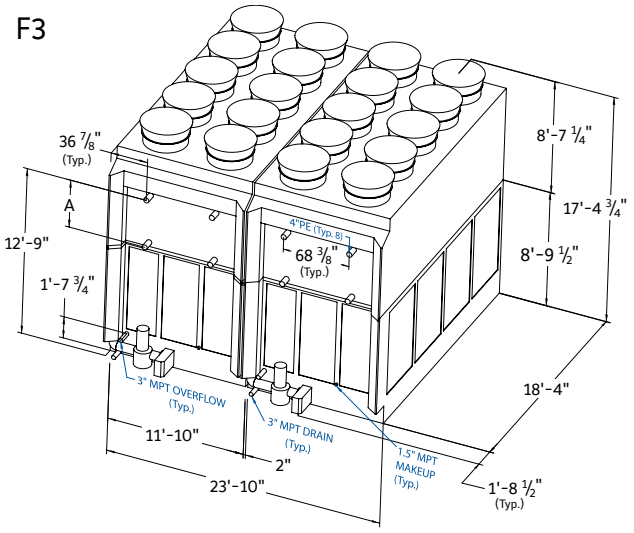
See note on page 22.

STANDARD DIMENSIONS – DUAL SIDE-BY-SIDE & QUAD MODELS

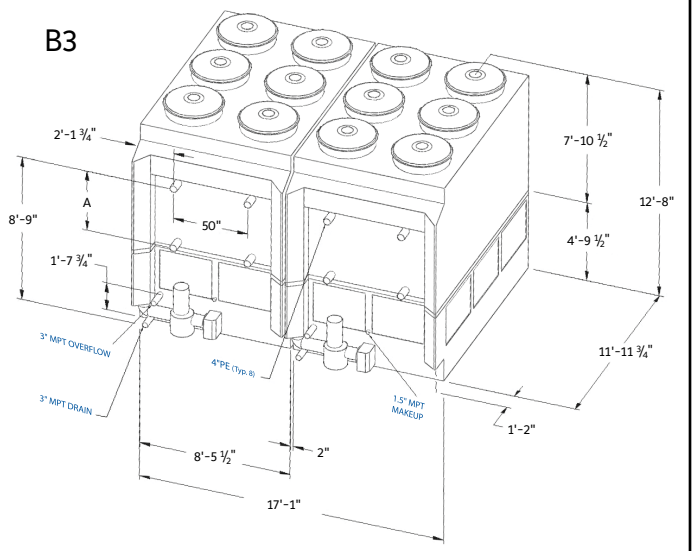
A3



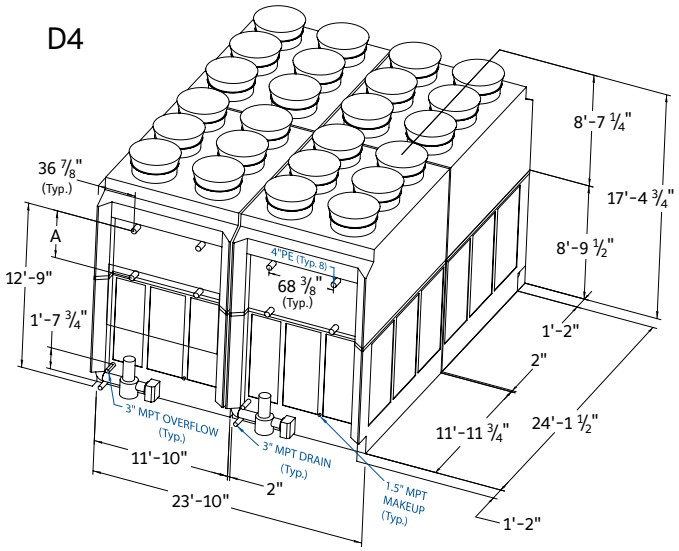
F3



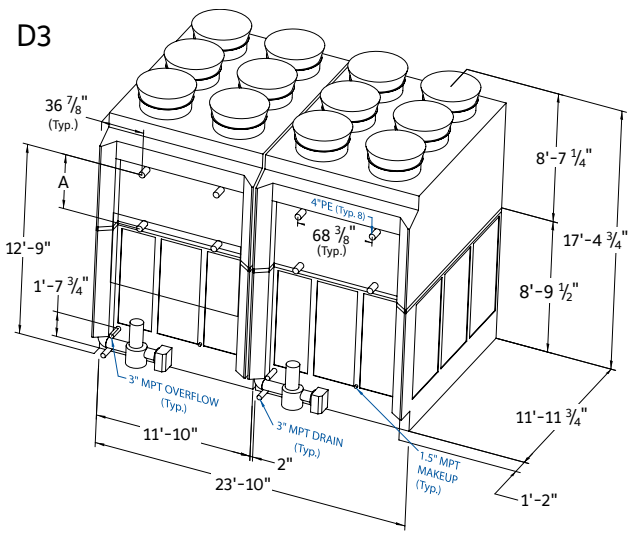
B3



D4



D3



F4

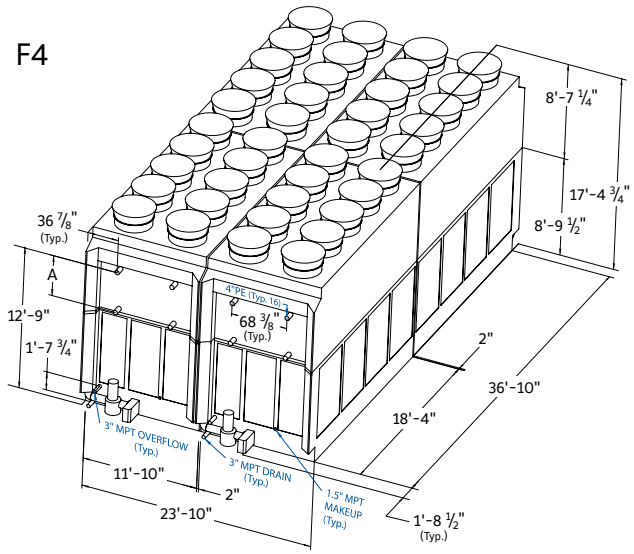


Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
A3	IDSC 1612-06-32-6-EC	32	117,834	6	870	309	46	14,975	4,864	21,550	320	12	15,359	21
	IDSC 1612-06-40-6-EC	40	124,871	6	870	309	46	14,975	4,864	21,550	320	12	15,359	21
	IDSC 1612-08-32-6-EC	32	114,402	6	870	402	59	16,116	5,434	22,673	320	12	16,481	28.5
	IDSC 1612-08-40-6-EC	40	121,234	6	870	402	59	16,116	5,434	22,673	320	12	16,481	28.5
	IDSC 1612-10-32-6-EC	32	111,070	6	870	494	73	17,257	6,004	23,906	320	12	17,715	36
	IDSC 1612-10-40-6-EC	40	117,703	6	870	494	73	17,257	6,004	23,906	320	12	17,715	36
	IDSC 1612-12-32-6-EC	32	107,550	6	870	587	86	18,398	6,575	25,140	320	12	18,948	43.5
	IDSC 1612-12-40-6-EC	40	114,258	6	870	587	86	18,398	6,575	25,140	320	12	18,948	43.5
B3	IDSC 1612-06-48-6-EC	48	132,688	6	870	309	46	15,293	5,023	21,868	320	12	15,677	21
	IDSC 1612-06-60-6-EC	60	142,923	6	870	309	46	15,293	5,023	21,868	320	12	15,677	21
	IDSC 1612-08-48-6-EC	48	128,823	6	870	402	59	16,434	5,593	22,991	320	12	16,799	28.5
	IDSC 1612-08-60-6-EC	60	138,760	6	870	402	59	16,434	5,593	22,991	320	12	16,799	28.5
	IDSC 1612-10-48-6-EC	48	125,071	6	870	494	73	17,575	6,163	24,224	320	12	18,033	36
	IDSC 1612-10-60-6-EC	60	134,718	6	870	494	73	17,575	6,163	24,224	320	12	18,033	36
	IDSC 1612-12-48-6-EC	48	119,890	6	870	587	86	18,716	6,734	25,458	320	12	19,266	43.5
	IDSC 1612-12-60-6-EC	60	129,138	6	870	587	86	18,716	6,734	25,458	320	12	19,266	43.5
D3	IDSC 2412-08-30-10-EC	30	141,244	10	1,416	580	86	20,968	6,748	27,466	440	12	22,435	28.5
	IDSC 2412-08-40-10-EC	40	155,407	10	1,416	580	86	20,968	6,748	27,466	440	12	22,435	28.5
	IDSC 2412-08-60-10-EC	60	177,872	10	1,416	580	86	20,968	6,748	27,466	440	12	22,435	28.5
	IDSC 2412-10-40-10-EC	40	151,005	10	1,416	712	106	22,431	7,479	29,062	440	12	24,031	36
	IDSC 2412-10-48-10-EC	48	158,593	10	1,416	712	106	22,431	7,479	29,062	440	12	24,031	36
	IDSC 2412-10-60-10-EC	60	170,826	10	1,416	712	106	22,431	7,479	29,062	440	12	24,031	36
	IDSC 2412-12-30-10-EC	30	132,919	10	1,416	846	124	23,894	8,211	30,660	440	12	25,629	43.5
	IDSC 2412-12-48-10-EC	48	152,263	10	1,416	846	124	23,894	8,211	30,660	440	12	25,629	43.5
	IDSC 2412-12-60-10-EC	60	164,008	10	1,416	846	124	23,894	8,211	30,660	440	12	25,629	43.5
F3	IDSC 2418-08-40-15-EC	40	210,718	15	2,184	840	124	32,220	10,374	40,174	600	12	34,045	28.5
	IDSC 2418-08-50-15-EC	50	226,603	15	2,184	840	124	32,220	10,374	40,174	600	12	34,045	28.5
	IDSC 2418-08-60-15-EC	60	241,148	15	2,184	840	124	32,220	10,374	40,174	600	12	34,045	28.5
	IDSC 2418-08-100-15-EC	100	285,864	15	2,184	840	124	32,220	10,374	40,174	600	12	34,045	28.5
	IDSC 2418-10-50-15-EC	50	219,904	15	2,184	1,040	154	34,376	11,452	42,530	600	12	36,401	36
	IDSC 2418-10-60-15-EC	60	233,684	15	2,184	1,040	154	34,376	11,452	42,530	600	12	36,401	36
	IDSC 2418-10-80-15-EC	80	253,780	15	2,184	1,040	154	34,376	11,452	42,530	600	12	36,401	36
	IDSC 2418-10-100-15-EC	100	273,356	15	2,184	1,040	154	34,376	11,452	42,530	600	12	36,401	36
	IDSC 2418-12-80-15-EC	80	245,742	15	2,184	1,240	182	36,532	12,530	44,886	600	12	38,757	43.5
	IDSC 2418-12-100-15-EC	100	264,715	15	2,184	1,240	182	36,532	12,530	44,886	600	12	38,757	43.5

Continued on next page.

Fig.	MODEL	Air Side		Water Side		Coil Data		Weights (lbs.)			Remote Sump			Dim. A
		Motor HP	CFM	Pump HP	Spray GPM	Refrig. Charge R-717 (lbs.)	Coil Vol. (ft^3)	Ship Wt	Heaviest Section	Oper. Wt (1)	Vol. Req'd (gal.)	Drain Size (in.)	Oper. Wt (lbs.)	
D4	IDSC 2424-10-60-20-EC	60	274,258	20	2,838	1,424	212	45,516	7,479	58,778	880	12	48,716	36
	IDSC 2424-10-80-20-EC	80	302,010	20	2,838	1,424	212	45,516	7,479	58,778	880	12	48,716	36
	IDSC 2424-10-96-20-EC	96	317,186	20	2,838	1,424	212	45,516	7,479	58,778	880	12	48,716	36
	IDSC 2424-10-120-20-EC	120	341,653	20	2,832	1,424	212	45,516	7,479	58,778	880	12	48,716	36
	IDSC 2424-12-96-20-EC	96	304,526	20	2,838	1,692	248	48,443	8,211	61,974	880	12	51,912	43.5
	IDSC 2424-12-120-20-EC	120	328,016	20	2,832	1,692	248	48,443	8,211	61,974	880	12	51,912	43.5
F4	IDSC 2436-08-80-30-EC	80	403,287	30	4,368	1,280	248	65,092	10,374	81,000	1,200	12	68,740	28.5
	IDSC 2436-08-100-30-EC	100	433,690	30	4,368	1,680	248	65,092	10,374	81,000	1,200	12	68,740	28.5
	IDSC 2436-08-120-30-EC	120	461,528	30	4,368	1,680	248	65,092	10,374	81,000	1,200	12	68,740	28.5
	IDSC 2436-08-200-30-EC	200	547,109	30	4,368	1,680	248	65,092	10,374	81,000	1,200	12	68,740	28.5
	IDSC 2436-10-100-30-EC	100	420,869	30	4,368	2,080	308	69,404	11,452	85,712	1,200	12	73,452	36
	IDSC 2436-10-120-30-EC	120	447,243	30	4,368	2,080	308	69,404	11,452	85,712	1,200	12	73,452	36
	IDSC 2436-10-160-30-EC	160	485,703	30	4,368	2,080	308	69,404	11,452	85,712	1,200	12	73,452	36
	IDSC 2436-10-200-30-EC	200	523,169	30	4,368	2,080	308	69,404	11,452	85,712	1,200	12	73,452	36
	IDSC 2436-12-160-30-EC	160	470,319	30	4,368	2,480	364	73,716	12,530	90,424	1,200	12	78,164	43.5
	IDSC 2436-12-200-30-EC	200	506,598	30	4,368	2,480	364	73,716	12,530	90,424	1,200	12	78,164	43.5

NOTE:

1. Operating weight is based on the total weight of: complete unit, refrigerant operating charge, and cold water basin filled to operating level.

STRUCTURAL SUPPORT

Condensers will need to be structurally supported with two parallel "I" beams traversing the entire length of the unit. (See drawing below) The support "I" beams must be level to within 1/8" over a 6' span. **Shims cannot be used** to level off the unit as this will compromise the load bearing surface.

Mounting holes (13/16" Dia.) are provided at the base of the basin section, in the side panel flanges, to enable securing each unit to the support structure. Use ¾" diameter bolts; refer to the factory certified drawing for the actual bolt hole locations.

All support beams and anchoring bolts will be provided by others and must be selected in accordance with sound structural engineering standards. When selecting the support beams each beam should be calculated with a uniform load equivalent to 2/3 (66%) of the unit's operating weight.

Data is current at time of publication, but should be reconfirmed at the time of purchase.

MODEL		FIGURE/SUPPORT DIM.	
		A1	B1
8.5' Wide	IDSC 0812-06-16 to -12-30	8' 5½"	11' 11¾"
		A2	B2
	IDSC 0824-06-32 to -12-60	8' 5½"	24' 1½"
		A1	B1
	IDSC 1012-06-10 to -12-30	9' 9¾"	11' 11¾"
10' Wide	IDSC 1018-06-15 to -12-30	9' 9¾"	18' 4"
		A2	B2
	IDSC 1024-06-20 to -12-60	9' 9¾"	24' 1½"
	IDSC 1036-06-20 to -12-80	9' 9¾"	36' 10"
		A1	B1
	IDSC 1212-08-15 to -12-40	11' 10"	11' 11¾"
12' Wide	IDSC 1218-08-20 to -12-50	11' 10"	18' 4"
		A2	B2
	IDSC 1224-08-30 to -12-80	11' 10"	24' 1½"
	IDSC 1236-06-60 to -12-100	11' 10"	36' 10"
16' Wide		A3	B3
	IDSC 1612-06-32 to -12-60	17' 1"	11' 11¾"
		A3	B3
	IDSC 2412-08-30 to -12-80	23' 10"	11' 11¾"
24' Wide	IDSC 2418-06-60 to -12-100	23' 10"	18' 4"
		A4	B4
	IDSC 2424-10-60 to -12-120	23' 10"	24' 1½"
	IDSC 2436-08-80 to -12-200	23' 10"	36' 10"

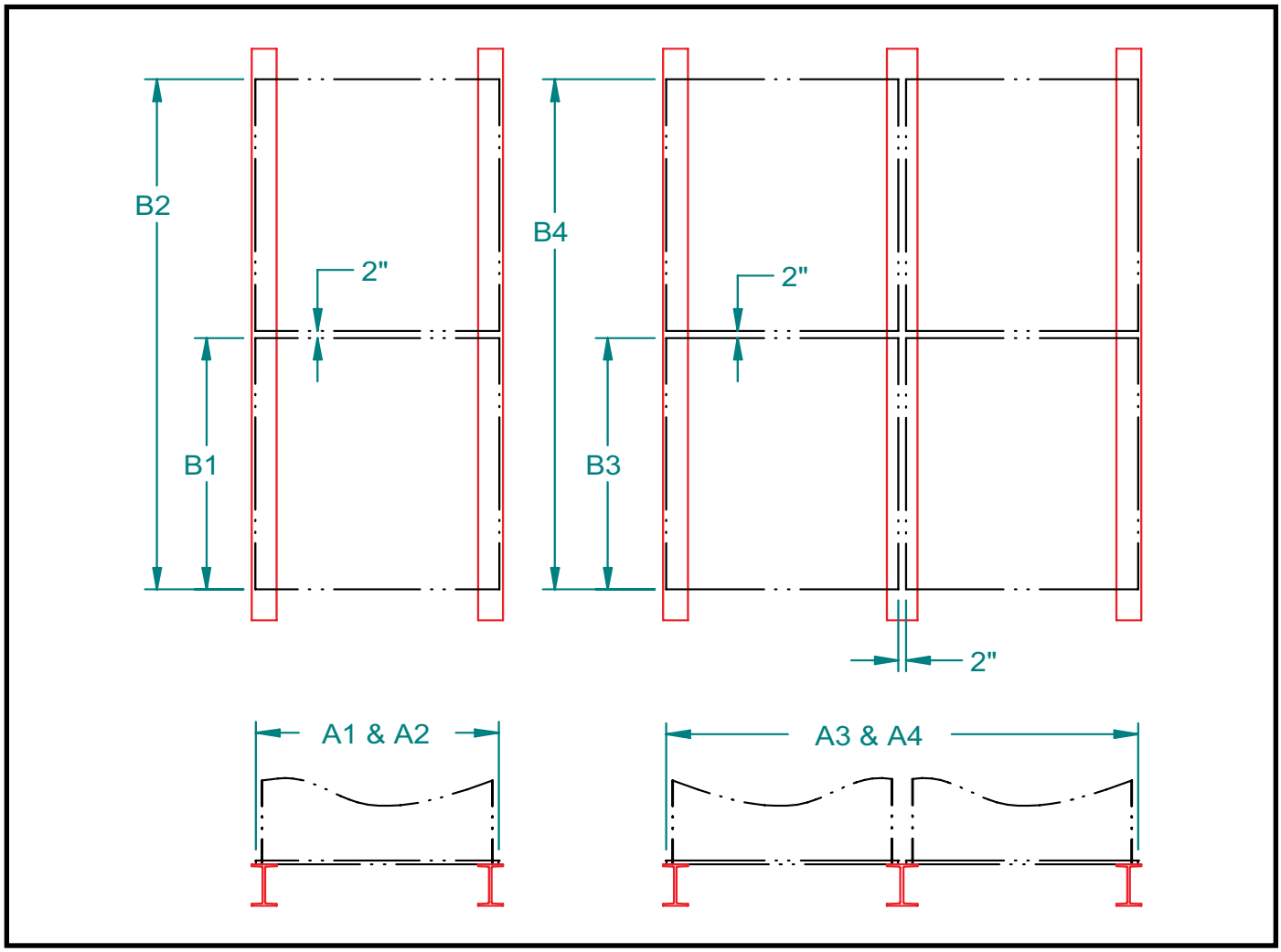


Figure 8. Support Beam Layout

IDSC/ECOSS™ LAYOUT GUIDELINES

OVERVIEW

Included are the layout guidelines for IDSC/ECOSS™ Evaporative Condensers in several situations typically encountered by designers. These guidelines represent minimum spacing requirements. If available, greater spacing should be utilized whenever possible.

Operational efficiency of evaporative cooling equipment depends upon an adequate supply of fresh, ambient air to provide design capacity. Other important considerations, such as the proximity to building air intakes or discharges, also must be taken into account when selecting and designing the equipment site.

As the size of an installation increases, the total amount of heat being rejected into the atmosphere and the volume of discharge air increase – to the point where the units can virtually create their own environment. As a result, it becomes increasingly difficult to apply a set of general guidelines to each case. In such installations, particularly those in wells or enclosures, some air will recirculate. The recirculation should be minimized or design wet bulb temperature must be adjusted to allow for the recirculation. Consequently, any job that involves four or more cells should be referred to your local Frick Representative for review.

EQUIPMENT LAYOUT

IDSC/ECOSS™ is an induced draft, counter flow, evaporative cooled product line utilizing a four-sided air entry configuration. Properly evaluating equipment location leads to a successful installation and subsequent proper operation. This manual provides recommendations for various layout scenarios including placing equipment in close proximity to an obstruction (e.g. wall). In addition, both "dual" and "quad" unit configurations are offered in which the air inlet openings are increased appropriately (in comparison to a single unit) to enable the absolute minimum clearance between units (see applicable schematic / chart).

The minimum clearance(s) listed between an obstruction and the air inlet side (or end) is a guideline only. There are always circumstances (i.e. prevailing winds, etc.) coupled with field experience which lead to alternate layouts and thus would increase a minimum clearance presented in this manual to achieve proper operation.

It is recommended to place the equipment in a free-field environment (when possible) to ensure the required ambient air flow and prevent recirculation of the saturated discharge air. Condensers located on open roof tops or at ground level with no obstructions such as walls or adjacent buildings will be the optimum location. However, in many instances this cannot be realized.

Positioning in wells, next to high walls, adjacent buildings, occupied areas or specific enclosures all pose a risk of recirculating the saturated discharge air. This will increase the wet bulb temperature of the intake air and definitely compromise the performance of the condenser, typically resulting in higher condensing temperatures. Discharge hoods or duct extensions should be used in such instances. Units that are located in a well, an enclosure or close to adjacent walls or buildings must be positioned such that the discharge of the condenser (top) is either level or higher than these adjacent obstacles.

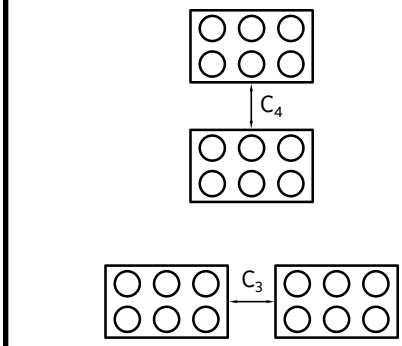
If the unit/s is to be located in occupied areas or close to adjacent buildings, it is good engineering practice that the discharge air is not in the direction of, or in close proximity to, any air intake location for the building's ventilation system.

SINGLE/MULTIPLE UNIT LAYOUTS

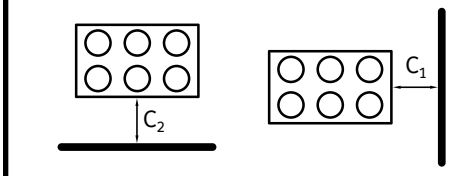
All minimum clearance values indicated (feet), C1, C2, C3, C4, etc. are for IDSC/ECOSS™ induced draft units only. In addition, overall nominal unit lengths (feet) are indicated as well. A "Unit" is a specific model number which consists of a single nominal box size (i.e. 8.5'x12', 10' x 12', 12' x 12', 10' x 18' or 12' x 18') or multiple, single boxes arranged in very close proximity. There are three different unit configurations available, single, dual and quad. For example; a "dual" unit can be quantity two (2), 12' x 12' single boxes positioned end-to-end which is designated as one model number and is considered one unit. The following lists different potential layouts in which a unit(s) may be properly located on-site.

MODEL		Schematic 1	Schematic 2	Schematic 3	Schematic 4		Schematic 5		Schematic 6	
UNIT CONFIGURATION	UNIT LENGTH	C3, C4	C1, C2	C1, C2	C1, C2	C3, C4	C5, C6, C7, C8	C3, C4	C7, C8	C3, C4
Single	12	6.5	3.5	3.5	3.5	7.0	3.5	7.0	3.5	7.0
Single	18	8.5	4.5	4.5	4.5	9.0	4.5	9.0	4.5	9.0
Dual End-to-End	All	8.5	4.5	4.5	4.5	9.0	4.5	9.0	4.5	9.0
Dual Side-by-Side	All	13.0	7.0	7.0	7.0	14.0	7.0	14.0	7.0	14.0
Quad	All	13.0	7.0	7.0	7.0	14.0	7.0	14.0	7.0	14.0

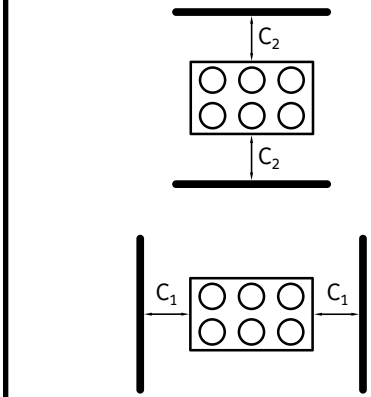
See Figure 9 for corresponding schematics.



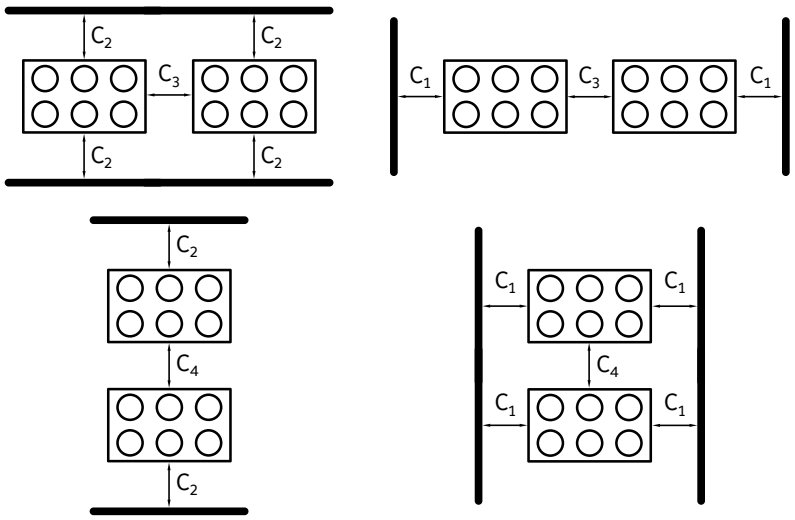
Schematic 1. No Obstructions



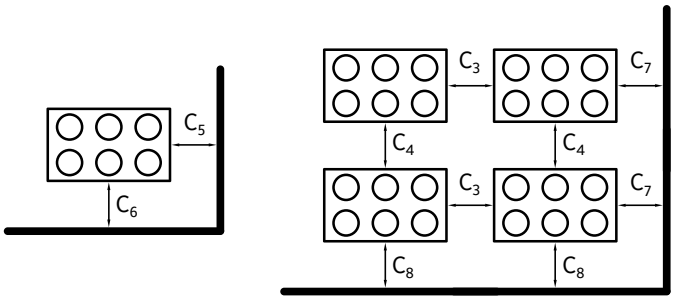
Schematic 2. One Wall / One Unit



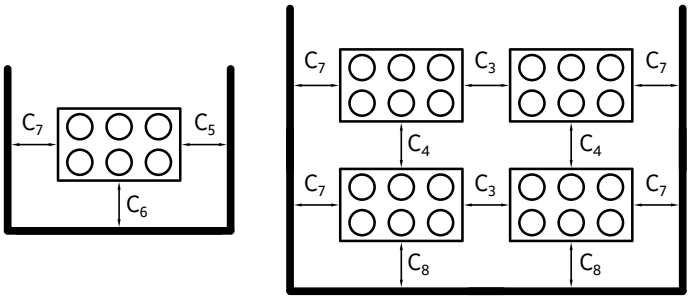
Schematic 3. Two Walls / One Unit



Schematic 4. Two Walls / Two Units



Schematic 5. Two Walls (Corner)



Schematic 6. Three Walls

Figure 9. Single/Multiple Unit Configuration Schematics

NOTES

NOTES

July 2017 Form Revisions

p.4,5– Updated 316L tubing text
p.9 – Removed irrelevant NEMA motor information
– Added heater element info for 8.5' and 16' units
p.11 – Added 8.5' unit configuration information
p.12 – Added fan and sound info for 8.5' and 16' units

– Added 8.5' and 16' unit unit information throughout

Form 140.010-SED (2017-07)
Supersedes: 140.010-SED (2016-09)
Subject to change without notice
Published in USA • 07/17 • PDF

Johnson Controls

JOHNSON CONTROLS
100 Cumberland Valley Avenue
Waynesboro, PA 17268-1206 USA
Phone: 717-762-2121 • FAX: 717-762-8624
www.johnsoncontrols.com/frick