



## AUDS Series 60Hz

Air Cooled Scroll Compressor Condensing Unit  
Cooling Capacity: 10 to 180 TR (35 to 633 kW)



**R410A**

**DUNHAM-BUSH**

Products that perform...By people who care

# INTRODUCTION

For more than 100 years, Dunham-Bush has focused on innovative product development. Today, we provide a full portfolio of HVAC/R products from Fan Coil Units to large centrifugal chillers as well as many other innovative green solutions. Our commitment to innovation, matched with an aggressive attitude toward growth, makes Dunham-Bush a leader in global markets. Our product development is tailored to meet the specific needs of customers, building-by-building, country-by-country and region-by-region. No other HVAC/R manufacturer takes this approach to meeting your performance expectations.

AUDS, Air Cooled Scroll Compressor Condensing Units, have a cooling capacity range from 10 to 180 TR [35 to 633 kW] in 60Hz version using environmentally sound HFC-410A refrigerant. The entire product line features energy efficiency, installation ease, control flexibility, high reliability, compact footprint and advanced controls.

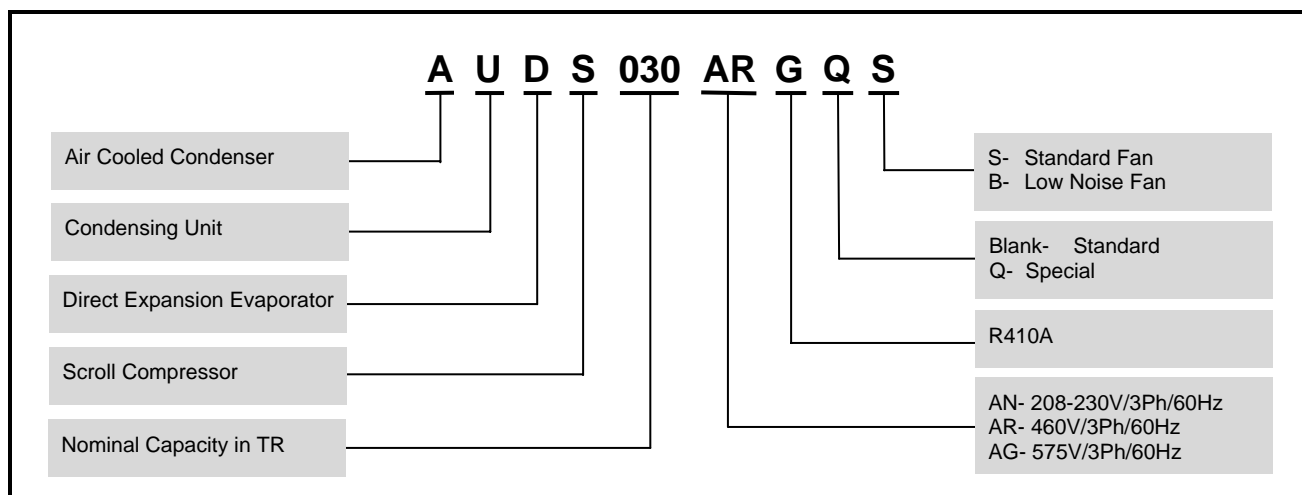
Scroll Compressors are designed for Commercial/Industrial Applications and provide the same high quality and efficiency as Reciprocating or Screw Compressors. They have been developed specifically for use in Packaged Chillers and Condensing Unit products.

Upon shipment, the new AUDS R410A unit is installation-ready with a compact size, reduced weight, and complete factory piping and wiring. The unit is shipped without refrigerant. However, Nitrogen is charged in as a holding charge.

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# NOMENCLATURE



# STANDARD FEATURES & BENEFITS

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## COMPRESSOR

- ✿ Reliable Tandem or Trio scroll compressors
- ✿ Compressor lead-lag configuration on all models

## CONDENSER

- ✿ Copper tubes with aluminum fins
- ✿ Sub-cooling enhancement for efficiency
- ✿ Low noise direct driven propeller fans
- ✿ IP 54 motor construction

## ELECTRICAL/CONTROL

- ✿ Wide range of optional items are available
- ✿ Sizes 10 to 70 TR use electromechanical controller for ease of operation
- ✿ Proactive full function PC Windows® based microcomputer controller, Vision 2020i for sizes 80 to 180 TR
- ✿ Separate power and control panels
- ✿ High/ low pressure limiting function ability

## QUIET OPERATION

- ✿ Quiet scroll compressors on standard unit
- ✿ Ultra-quiet operation with compressor acoustic enclosure available as option

# UNIT FEATURES

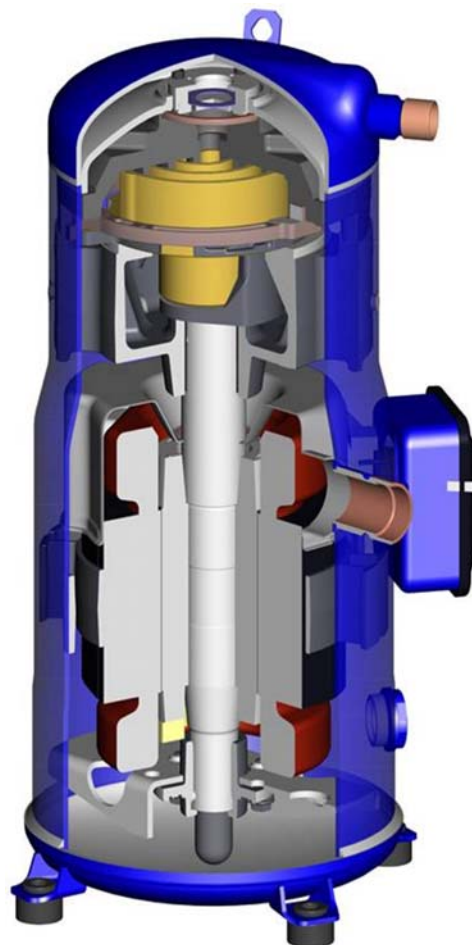
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## SCROLL COMPRESSOR

In a scroll compressor, the compression is performed by two scroll elements located in the upper part of the compressor.

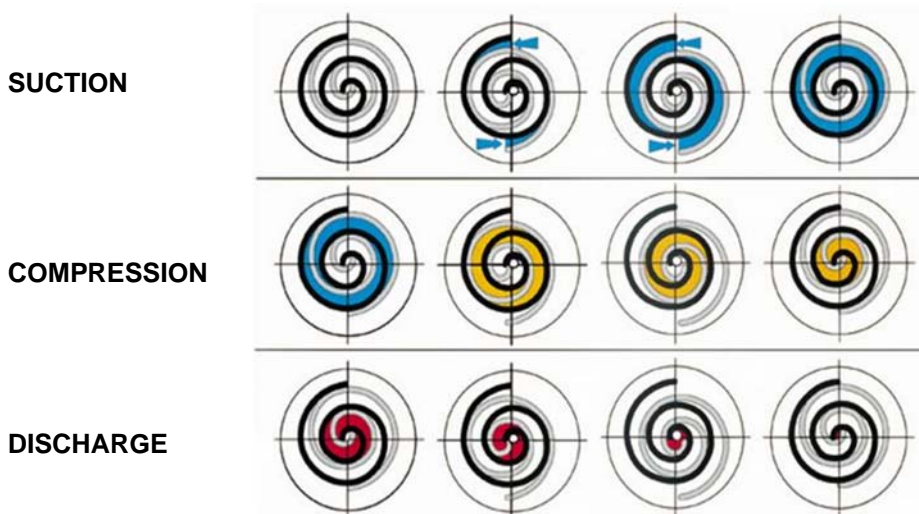
Suction gas enters the compressor at the suction connection. The motor is suction gas cooled, oil droplets separate and fall into the oil sump. After exiting the electrical motor, the gas enters the scroll elements where compression takes place. The refrigerant gas leaves the compressor through the discharge port.

The principle of scroll compression is shown on next page. The centre of the orbiting scroll (in grey) traces a circular path around the centre of the fixed scroll (in black). This movement creates symmetrical compression pockets between the two scroll elements. Low-pressure suction gas is trapped within each crescent-shaped pocket as it gets formed; continuous motion of the orbiting scroll serves to seal the pocket, which decreases in volume as the pocket moves towards the centre of the scroll set increasing the gas pressure. Maximum compression is achieved once a pocket reaches the centre where the discharge port is located; this stage occurs after three complete orbits. Compression is a continuous process: the scroll movement is suction, compression and discharge all at the same time.



# UNIT FEATURES

## Principle Of Scroll Compression



## AIR SIDE CONDENSER

All units have direct drive propeller fans and motors. Close blade tip clearance with the fan venturis assure smooth, quiet operation.

All air-cooled condensers are formed of 3/8 inches [9.5mm] diameter copper tubes mechanically expanded into aluminum fins for maximum efficiency of heat transfer between the circulating refrigerant and air. The fins have full-spacing collars which completely cover each tube. The staggered tube design improves the thermal efficiency of the coil and eliminates bypassing of air around the tubes. The return bends, headers and nipples are all copper, sized for minimum pressure drop, brazed with inert gas in the tubes and tested after fabrication to 650 psig [44.8 bar].

A separate subcooling circuit is standard on all units to maximize energy efficiency.

Fan cycling control is supplied as a standard. This lowers the minimum ambient temperature at which the package equipment will effectively start and operate. For lower ambient requirements than standard, variable speed options are available.

## ELECTRICAL / CONTROL

### STARTER/CONTROL PANELS

The starter/control panels provided on these units are some of the finest available in our industry. Panel enclosures are made of heavy gauge steel. Wires and terminal strips are numbered to simplify installation, maintenance and service. Wires are bundled together with plastic wire ties and all wires

are cut to length, without any doubling-back or extraneous wire.

The starter-control panel is furnished completely with all starting equipment, safety controls and automatic controls factory mounted, prewired and set. Control voltage is 115 volts on all units. All power components are prewired to a single terminal block sized for copper conductors. Multiple source power connections on remote wired starters are not required.

### POWER PANEL

Factory wire DOL starters for compressor(s), condenser fan motor(s), with indicating lights.

Anti-recycling timer will be provided to prevent compressor short cycling. DOL starters are mounted in the units. Reduced voltage starter available.

### SAFETY CONTROLS

#### 3 Phase Starters With Thermal Overload Protection

These devices react quickly to an overload condition giving prompt protection to each compressor. They are manually reset.

#### High Low Pressure Switch (10-70TR)

A high-low pressure switch is provided with every refrigerant circuit. The high pressure is sensing condensing pressure, with a manual reset. It opens the compressor run circuit. The low pressure senses evaporating pressure. If there is a danger of fluid freeze-up, depending on the cooling fluid used in the building system, the machine will shut down, with a manual reset required.

## UNIT FEATURES

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### **Compressor Motor Protection**

Scroll compressors have a motor protection system consisting of an external electronic control module connected to a chain of embedded PTC (Positive Temperature Coefficient) sensors. The sensors are calibrated for proper motor protection in case of motor overheating caused by overload, low refrigerant flow, incorrect motor rotation, etc. The module has 30 minutes time delay before reset in the event of protector trip.

### **AUTOMATIC CONTROLS**

#### **Multi-Step Operating Control**

This device controls the operation of the compressor(s) by a precise solid-state controller providing smooth and repeatable operation.

#### **Anti-Recycle Timer**

Each compressor has an anti-recycle timer built in the controller, which prevents restart for five minutes after a start. The purpose of this device is to avoid excessive motor winding temperature rise and impose undue wear on starters and is fitted as standard.

### **Fan Pressure Switch (Automatic)**

This switch is used to stage condenser fans “on” or “off” for maintaining adequate discharge pressures for proper system operation by controlling air flow across the control coil.

### **Timer Between Compressors**

The timer does not allow multiple compressors on a unit to start at the same time. This minimizes electrical demand and wiring cost.

### **UNIT CASING**

All GI steel panels are powder coated paint which gives excellent finishing, weather and corrosion resistance. Before ED (Electrophoresis Deposition) coating, the part undergoes a complete pre-treatment process which involves degreasing, phosphating and rinsing with deionized fluid. It increases the effect of paint adhesion and rust preventing to obtain high quality paint film. Powder coating is the best painting system which can even coat inaccessible places like the edges, joints or interior surface of hollow sections.

## UNIT OPTIONS / ACCESSORIES

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Options are installed at the factory. Accessories are shipped loose.

### **OPTIONS**

#### **Low Noise Fan (LN)**

For applications where reduced sound levels are required. Provide the quietest operating refrigeration equipment possible.

#### **Compressor Acoustic Jacket (LN2)**

Compressor acoustic jackets have been developed to meet specific extra-low noise requirements. They are made from high performing sound proof material and offer excellent high and low frequency attenuation.

#### **Low Ambient Control (LA1) Minimum ambient 30°F [-1.1°C]**

Units use standard fan cycling in conjunction with coil solenoid control to operate down to 30°F [-1.1°C].

#### **Low Ambient Control (LA2) Minimum Ambient 0°F [-17.8°C]**

The incorporation of both variable frequency drive for the condenser motor(s) and coil solenoid control will enable the chiller to operate down to 0°F [-17.8°C].

#### **Extra Low Ambient Control (LA3) Minimum Ambient -20°F [-28.9°C]**

Includes LA2 and EEV (Electronic Expansion Valve(s)) options and requires the use of 50% glycol and at least 50% load available at starting. Heater tape is available as well. Glycol is recommended for additional protection.

#### **Desuperheaters (DES)**

A desuperheater is simply a refrigerant-to-water heat exchanger installed between the compressor and condenser. It is used to reclaim the readily available superheat energy which would otherwise be rejected through the condenser. The desuperheater is a way of obtaining ‘free’ heat from the chiller.

## UNIT OPTIONS / ACCESSORIES

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### **Copper Fin Condenser (COP)**

Copper fin and tube condenser.

### **Poly Fin Condenser (HYD)**

The material is a polyester coating baked onto the aluminum fin stock prior to final manufacture, rather than material applied to the assembly after formation of the coils. The pre-coated fin material has been tested for salt spray corrosion resistance using ASTM B117 specification.

### **Convenience Outlet (CON)**

Dual 3-pin ground fault receptacle powered from a dedicated transformer and fused for 15 amps.

### **Hot Gas Bypass (HGBP)**

To maintain units on-line when the minimum load is below the mechanical unloading range. This minimizes compressor cycling and extends component life, on extra low load conditions.

### **Weather Proof Alarm Bell (WPA)**

Mounted and wired to indicate a common alarm fault.

### **Gauges (GAG)**

Includes suction and discharge pressure gauges for all unit models. The microcomputer where fitted also displays discharge and suction pressure.

### **Over and Under Voltage Protection Relay (UVR)**

Combined relay offering protects against high and low supply voltage conditions as well as single phasing, phase reversal and phase imbalance by interrupting the control circuit. It is an automatic reset device, but the microcomputer can be set up for manual reset to prevent unwanted restarts.

### **Unit Ground Fault Interrupt (GFI)**

This takes the unit off line if a ground fault is detected.

### **Optional full length painted steel louvers (LUV)**

For the maximum protection of condenser fins and mechanical components.

### **Low Ambient Lock-Out (LAL)**

Uses an ambient sensor and requires a lock-out set point entered into the microcomputer controller.

### **3-Phase Voltmeter With Selection Switch (VM3)**

Single analog voltmeter installed with a 3 phase selector switch for indication, located inside the control panel.

### **3-Phase Amperage Meter With Selection Switch (AM3)**

Single analog ammeter with a 3 phase selector switch for indication, located inside the control panel.

### **VISION 2020i - optional for sizes 10- 70TR (V2C)**

Vision 2020i is a flexible and advance programmable electronic controller designed specifically for the applications and precise control of Dunham-Bush chillers.

### **System Voltage Measurement (VOLT)**

A voltage transducer is added to display the system voltage on the unit microprocessor. This options is only applicable for units with Vision 2020i controller only.

### **DB Director (DBD)**

DB Director is a full function microcomputer with Windows® based PC interface. All information is displayed using common terms that are easy to understand. The alphanumeric liquid crystal display (LCD) utilizes easy to understand menu-driven software. DB Director is the optional controller offered for all the models.

### **IP55 Control Panel (IP55)**

A fully enclosed electrical control panel built in accordance with IP55 construction.

### **Demand Limiting (AMPL)**

Requires a remote analogue input signal that is used to cycle compressors to limit electrical demand.

## ACCESSORIES

### **Rubber-in-shear Isolators (RIS)**

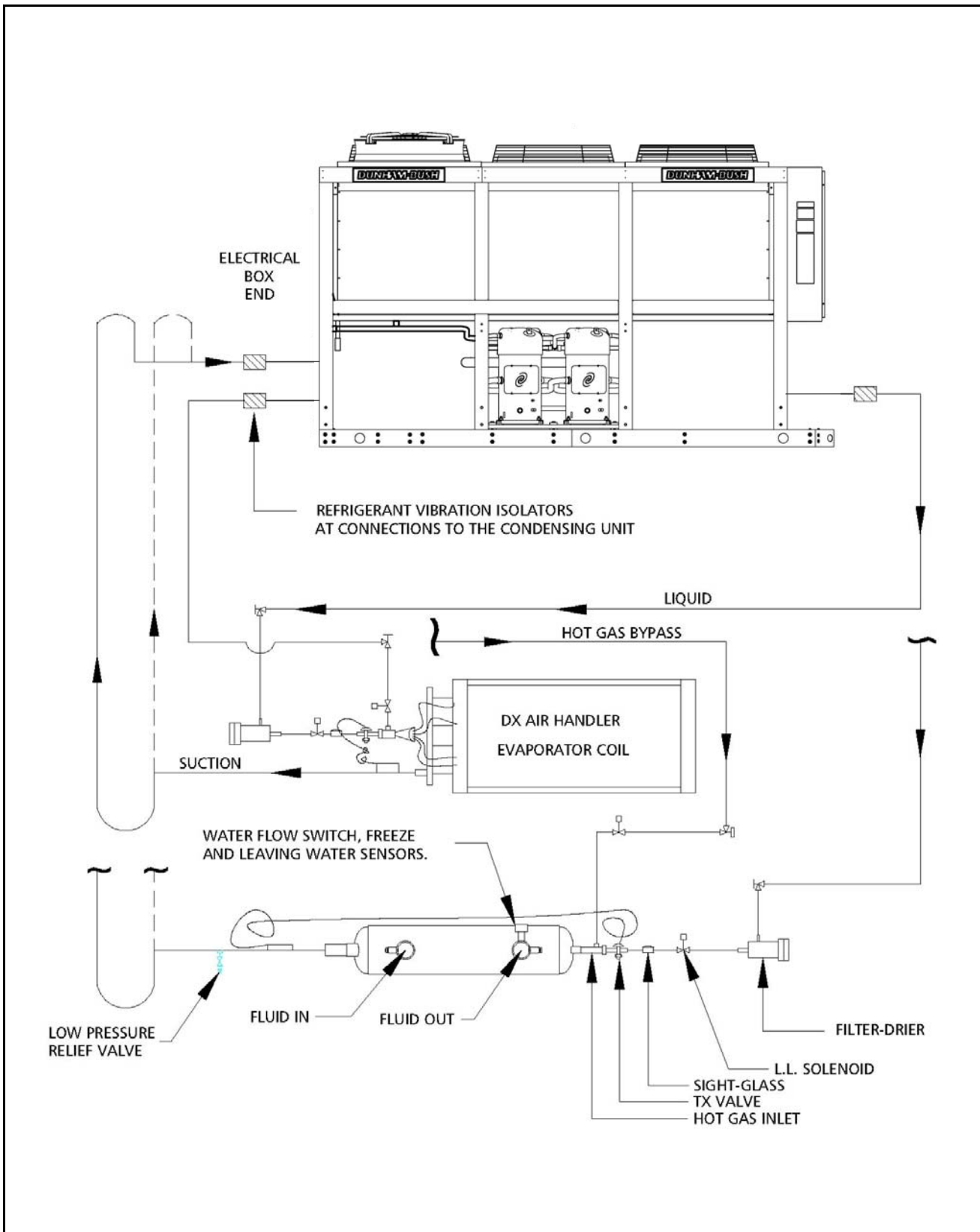
Designed for ease of installation, these rubber, one piece, molded isolators have slip resistant base plates. Applicable for most installations.

### **Spring Isolators (SPG)**

Designed for 1" [25.4mm] deflection, these enclosed spring assemblies have a neoprene friction pad on the bottom to help prevent the transmission of noise and a lock bolt for leveling. Neoprene inserts prevent contact between the steel upper and lower housings. Suitable for more critical applications than RIS isolators.

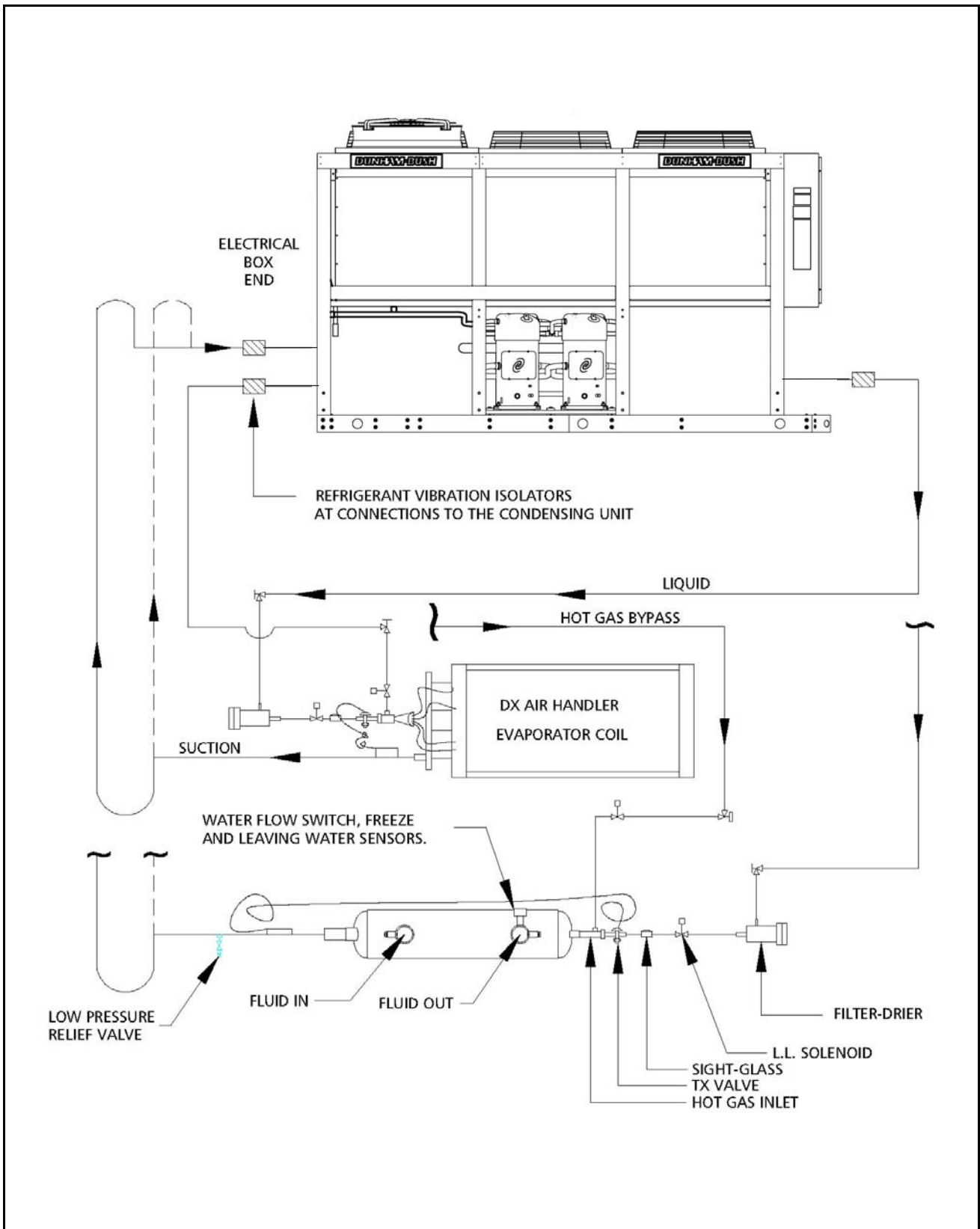
# APPLICATION DATA

## 1.) Typical Piping For Condensing Unit Above Evaporator



# APPLICATION DATA

## 2.) Typical Piping For Condensing Unit Below Evaporator







# PHYSICAL SPECIFICATIONS

Model AUDS		010	020	030	040	050	060	070	080
Unit Nominal Capacity	TR[kW]	10.0[35.2]	21.2[74.6]	26.7[94.0]	42.8[150.4]	53.2[187.0]	62.1[218.4]	68.3[240.2]	81.4[286.3]
Unit Nominal Power Input	kW	12.3	25.9	32.0	51.7	65.0	76.8	85.6	101.8
<b>COMPRESSOR</b>									
RPM		3500	3500	3500	3500	3500	3500	3500	3500
Min. % Unit Capacity		50%	50%	50%	25%	25%	25%	25%	25%
No. Of Refrigerant Circuit		1	1	1	2	2	2	2	2
<b>CONDENSER</b>									
Coil Rows Deep/ Total Face Area	ft <sup>2</sup> [m <sup>2</sup> ]	3/ 20.0[1.9]	3/ 40.6[3.8]	4/ 47.1[4.4]	3/ 94.1[8.7]	3/ 94.1[8.7]	4/ 94.1[8.7]	4/ 94.1[8.7]	4/ 133.0[12.4]
Total Air Flow	cfm[m <sup>3</sup> /hr]	10150 [17247]	24740 [42038]	24570 [41749]	51940 [88256]	50380 [85605]	49940 [84858]	48280 [82037]	71400 [121323]
No Of Fan		1	2	2	4	4	4	4	6
Fan Diameter	inches[mm]	30.0[762]	31.5[800]	31.5[800]	31.5[800]	31.5[800]	31.5[800]	31.5[800]	31.5[800.0]
Motor kW <sup>1</sup> (Qty)		1.41 (1)	1.85 (2)	1.85 (2)	1.85 (4)	1.85 (4)	1.85 (4)	1.85 (4)	1.85 (6)
Fan FLA , Amp (Qty)		2.7 (1)	3.4 (2)	3.4 (4)	3.4 (4)	3.4 (4)	3.4 (4)	3.4 (4)	3.4 (6)
Min. Operating Ambient	°F[°C]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]
<b>ELECTRICAL</b>									
Nominal Voltage		460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
RLA/ Compressor (Qty), AMPS		12 (2)	21 (2)	27 (2)	21 (4)	27 (4)	27 (2)36 (2)	36 (4)	36 (2)46 (2)
Unit Max. Inrush, AMPS		102	175	221	224	275	319	337	398
<b>GENERAL</b>									
Unit Length	inches[mm]	50 1/4[1276]	90[2288]	90[2288]	112 1/4[2849]	112 1/4[2849]	112 1/4[2849]	112 1/4[2849]	147 1/2[3747]
Unit Width	inches[mm]	43[1092]	48 1/2[1232]	52[1321]	88[2235]	88[2235]	88[2235]	88[2235]	88[2235]
Unit Height	inches[mm]	53 1/4[1353]	69 3/4[1772]	84 3/4[2154]	82 1/2[2095]	82 1/2[2095]	82 1/2[2095]	82 1/2[2095]	88[2235]
Shipping Weight	lbs[kg]	899[408]	1600[726]	2336[1060]	2897[1314]	3343[1516]	3481[1579]	3566[1618]	4639[2104]
Operating Weight	lbs[kg]	904[410]	1608[729]	2348[1065]	2912[1321]	3360[1524]	3498[1587]	3584[1626]	4662[2115]

Model AUDS		090	100	120	135	150	165	180
Unit Nominal Capacity	TR[kW]	89.8[315.8]	100.8[354.5]	108.4[381.2]	125.4[441.0]	138.5[487.1]	153.0[538.1]	163.7[575.7]
Unit Nominal Power Input	kW	114.8	123.5	133.5	149.3	168.5	182.6	198.7
<b>COMPRESSOR</b>								
RPM		3500	3500	3500	3500	3500	3500	3500
Min. % Unit Capacity		25%	25%	25%	16.7%	16.7%	16.7%	16.7%
No. Of Refrigerant Circuit		2	2	2	2	2	2	2
<b>CONDENSER</b>								
Coil Rows Deep/ Total Face Area	ft <sup>2</sup> [m <sup>2</sup> ]	4/ 133.0[12.4]	4/ 177.3[16.5]	4/ 177.3[16.5]	4/ 235.6[21.9]	4/ 235.6[21.9]	4/ 282.6[26.3]	4/ 282.6[26.3]
Total Air Flow	cfm[m <sup>3</sup> /hr]	71400 [121323]	96960 [164754]	95200 [161764]	124140 [210939]	122850 [208747]	147420 [250496]	147420 [250496]
No Of Fan		8	8	8	10	10	12	12
Fan Diameter	inches[mm]	31.5[800.0]	31.5[800.0]	31.5[800.0]	31.5[800.0]	31.5[800.0]	31.5[800.0]	31.5[800.0]
Motor kW <sup>1</sup> (Qty)		1.85 (8)	1.85 (8)	1.85 (8)	1.85 (10)	1.85 (10)	1.85 (12)	1.85 (12)
Fan FLA , Amp (Qty)		3.4 (8)	3.4 (8)	3.4 (8)	3.4 (10)	3.4 (10)	3.4 (12)	3.4 (12)
Min. Operating Ambient	°F[°C]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]	45 [7.2]
<b>ELECTRICAL</b>								
Nominal Voltage		460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60	460/3/60
RLA/ Compressor (Qty), AMPS		46 (4)	46 (2) 56 (2)	56 (4)	36 (3) 46 (3)	46 (6)	46 (3) 56 (3)	56 (6)
Unit Max. Inrush, AMPS		425	495	515	494	524	611	641
<b>GENERAL</b>								
Unit Length	inches[mm]	147 1/2[3747]	189[4801]	189[4801]	225 1/2[5728]	225 1/2[5728]	267 1/2[6795]	267 1/2[6795]
Unit Width	inches[mm]	88[2235]	88[2235]	88[2235]	88[2235]	88[2235]	88[2235]	88[2235]
Unit Height	inches[mm]	88[2235]	88[2235]	88[2235]	93[2362]	93[2362]	93[2362]	93[2362]
Shipping Weight	lbs[kg]	4979[2258]	5912[2682]	6010[2726]	6856[3110]	7403[3358]	8587[3895]	9204[4175]
Operating Weight	lbs[kg]	5004[2270]	5942[2695]	6040[2740]	6890[3125]	7440[3375]	8630[3915]	9250[4196]

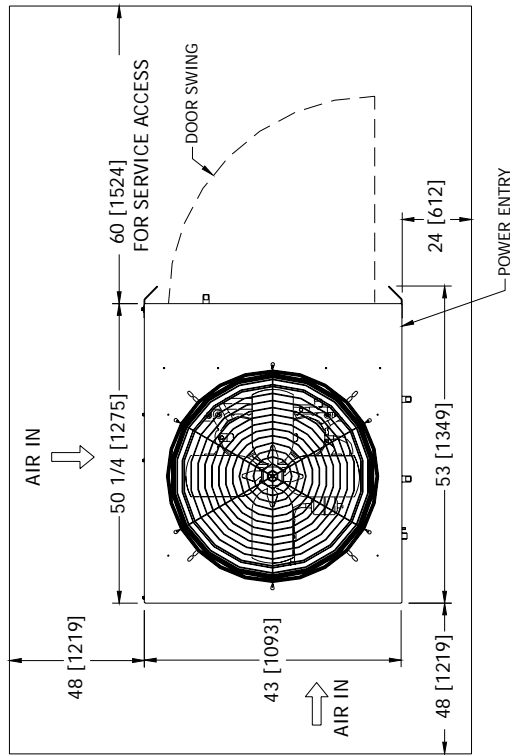
Note: Nominal data is based on Saturated Section Temp (SST) 37°F measured at the suction port of the compressors. and condenser ambient 95°F, actual capacity depends on the specified operating conditions.

# DIMENSIONAL DATA

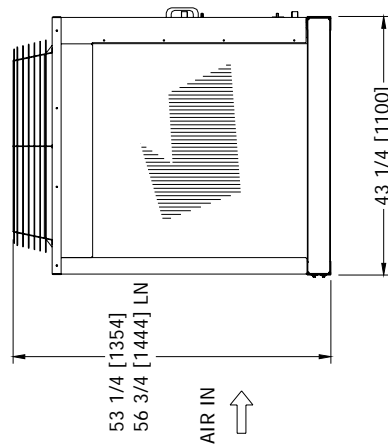
## AUDS 010

**NOTES:**

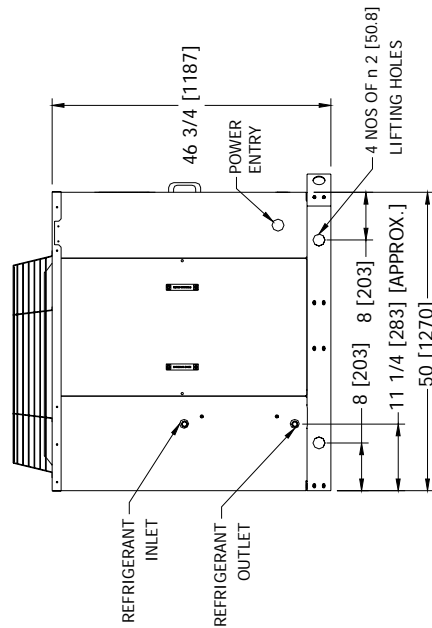
1. ALL DIMENSIONS ARE IN INCHES AND MILLIMETERS.
2. ALLOW 60in [1524mm] CLEARANCE AT CONTROL PANEL END OF UNIT FOR SERVICE.
3. USE MINIMUM 3/4in [19.1mm] FLEXIBLE CONDUIT TO CONTROL BOX TO ISOLATE UNIT.
4. WATER PIPING TO BE SUPPORTED TO MINIMIZE LOAD ON UNIT.
5. TOTAL UNIT HEIGHT FOR LN OPTION.



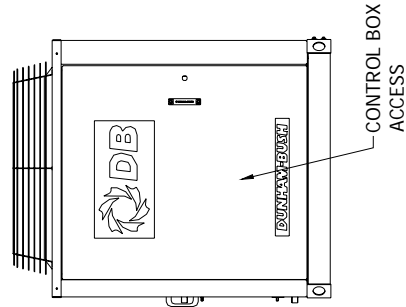
TOP VIEW



REAR VIEW



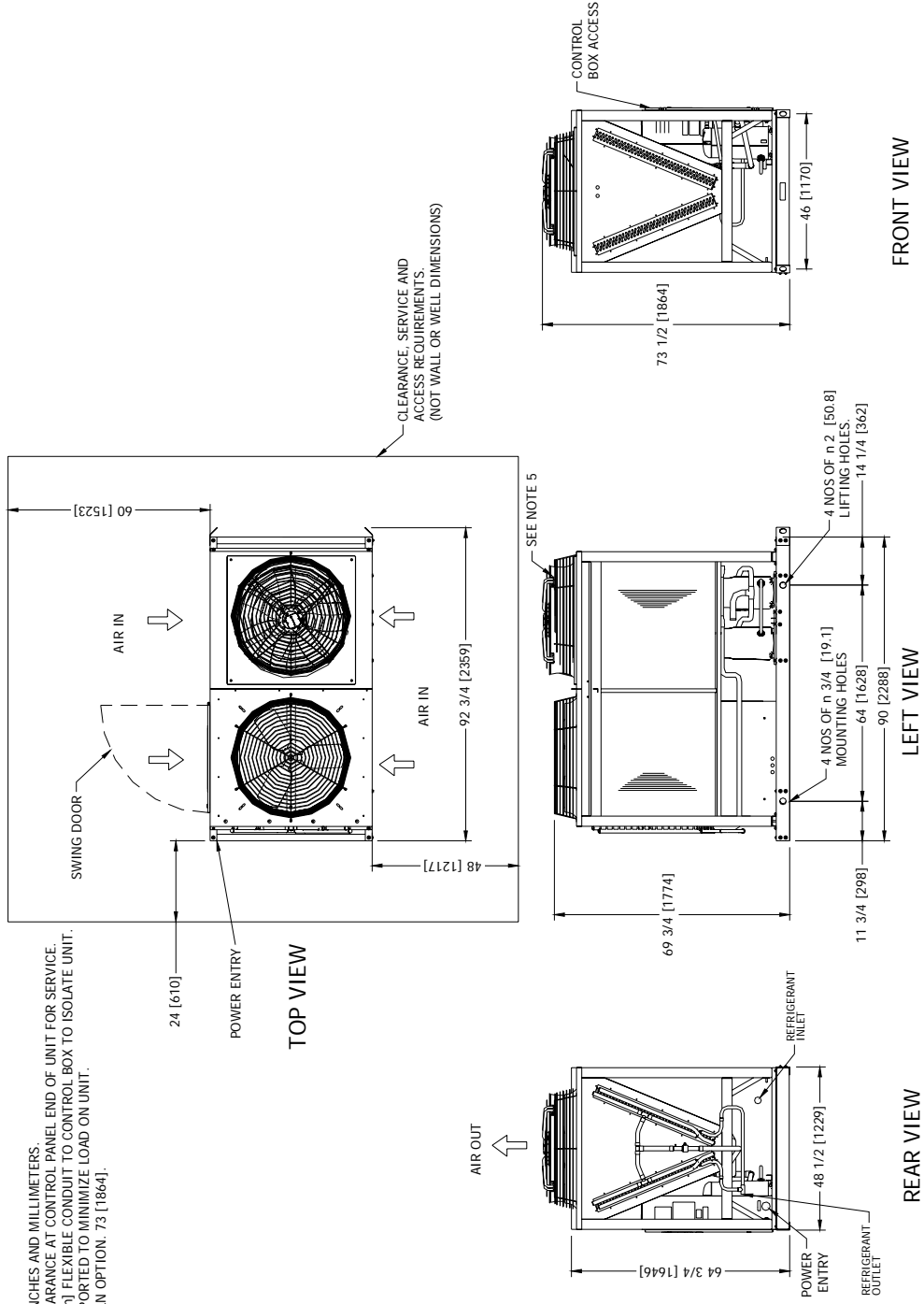
LEFT VIEW



FRONT VIEW

# DIMENSIONAL DATA

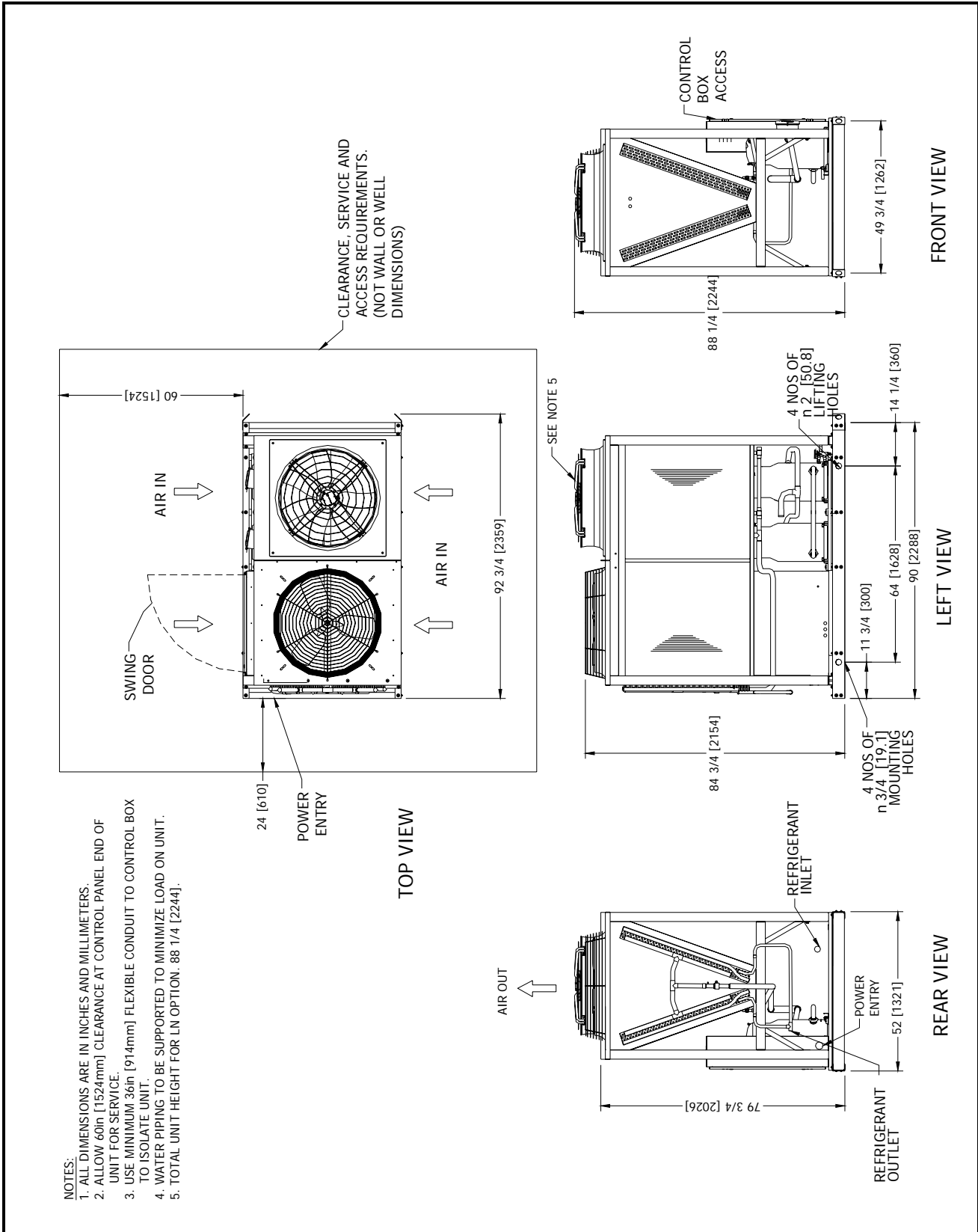
## AUDS 020



- NOTES:**
1. ALL DIMENSIONS ARE IN INCHES AND MILLIMETERS.
  2. ALLOW 60in [1524mm] CLEARANCE AT CONTROL PANEL END OF UNIT FOR SERVICE.
  3. USE MINIMUM 36in [914mm] FLEXIBLE CONDUIT TO CONTROL BOX TO ISOLATE UNIT.
  4. WATER PIPING TO BE SUPPORTED TO MINIMIZE LOAD ON UNIT.
  5. TOTAL UNIT HEIGHT FOR LN OPTION: 73 [1864].

# DIMENSIONAL DATA

## AUDS 030

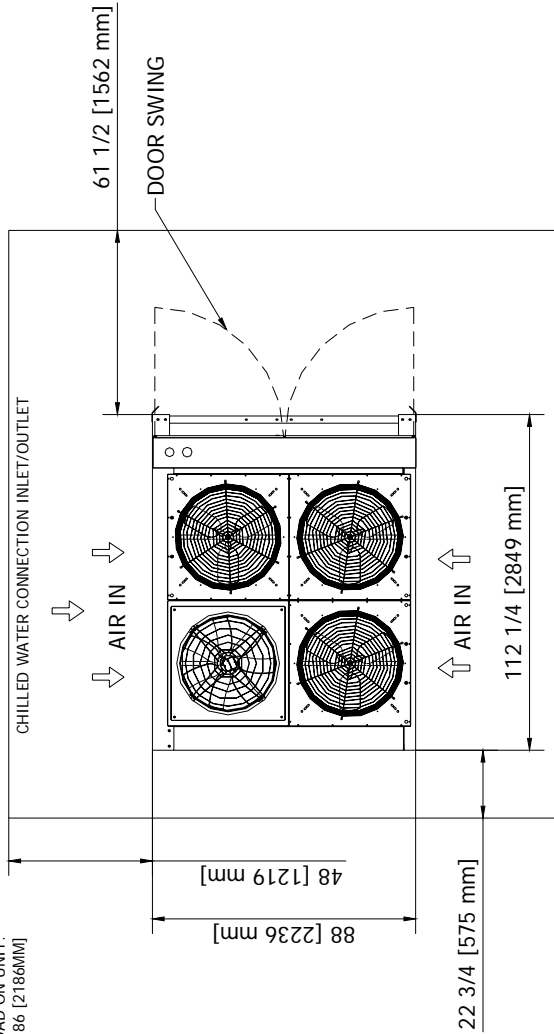


# DIMENSIONAL DATA

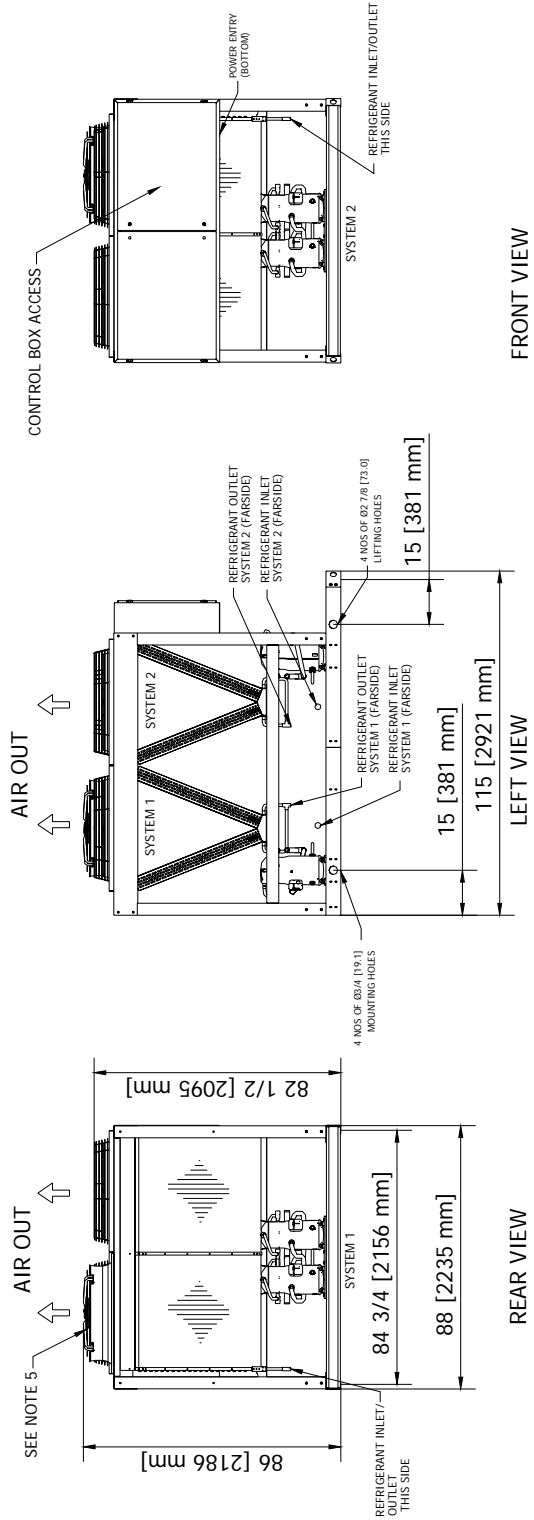
## AUDS 040

**NOTES:**

1. ALL DIMENSIONS ARE IN INCHES AND MILLIMETERS.
2. ALLOW 60 [1524] CLEARANCE AT CONTROL PANEL END OF UNIT FOR SERVICES.
3. USE MINIMUM 36 [914] FLEXIBLE CONDUIT TO CONTROL BOX TO ISOLATOR UNIT.
4. WATER PIPING TO BE SUPPORTED TO MINIMIZE LOAD ON UNIT.
5. TOTAL UNIT HEIGHT FOR LOW NOISE FAN OPTION 86 [2186mm]

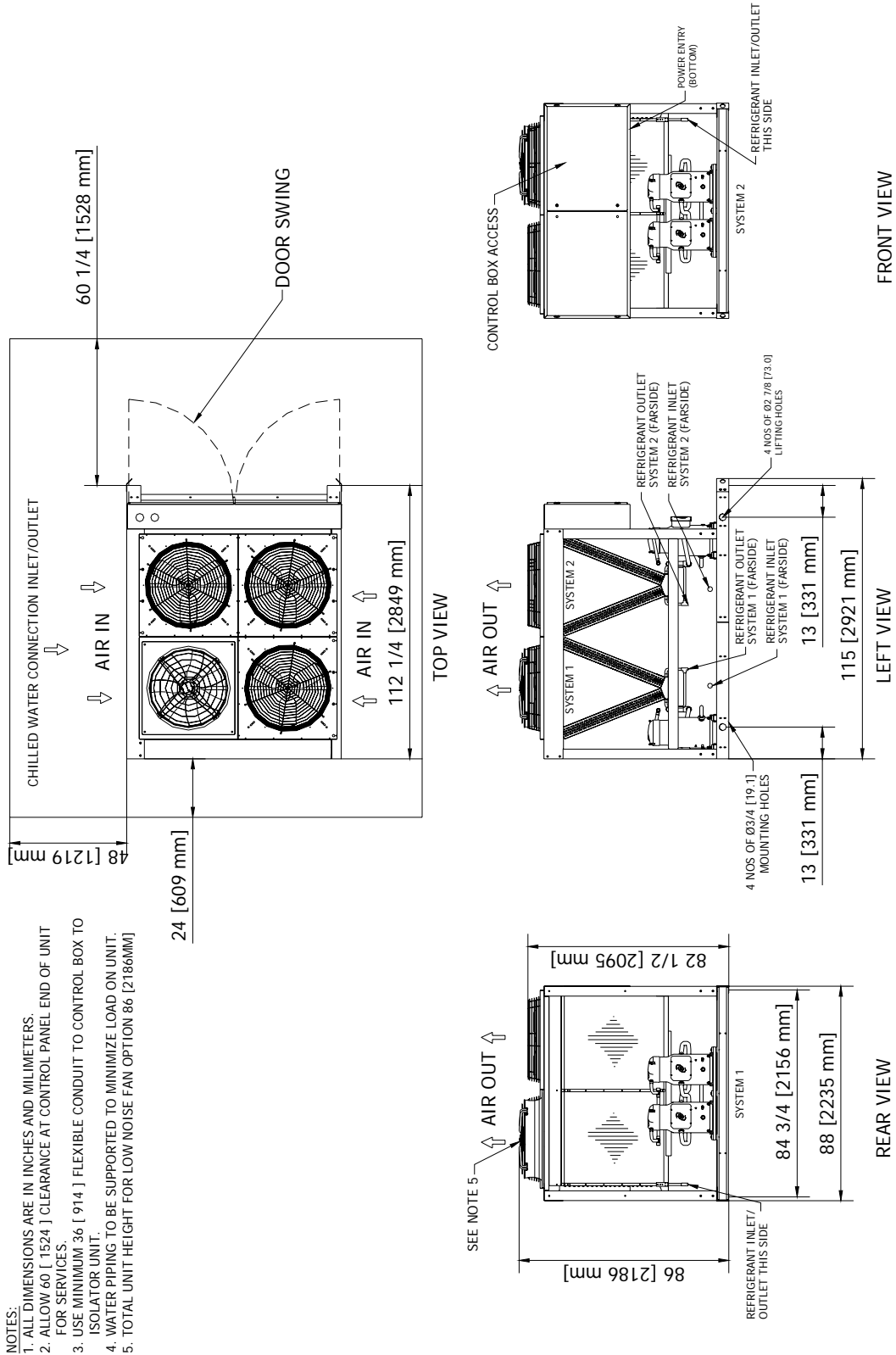


TOP VIEW



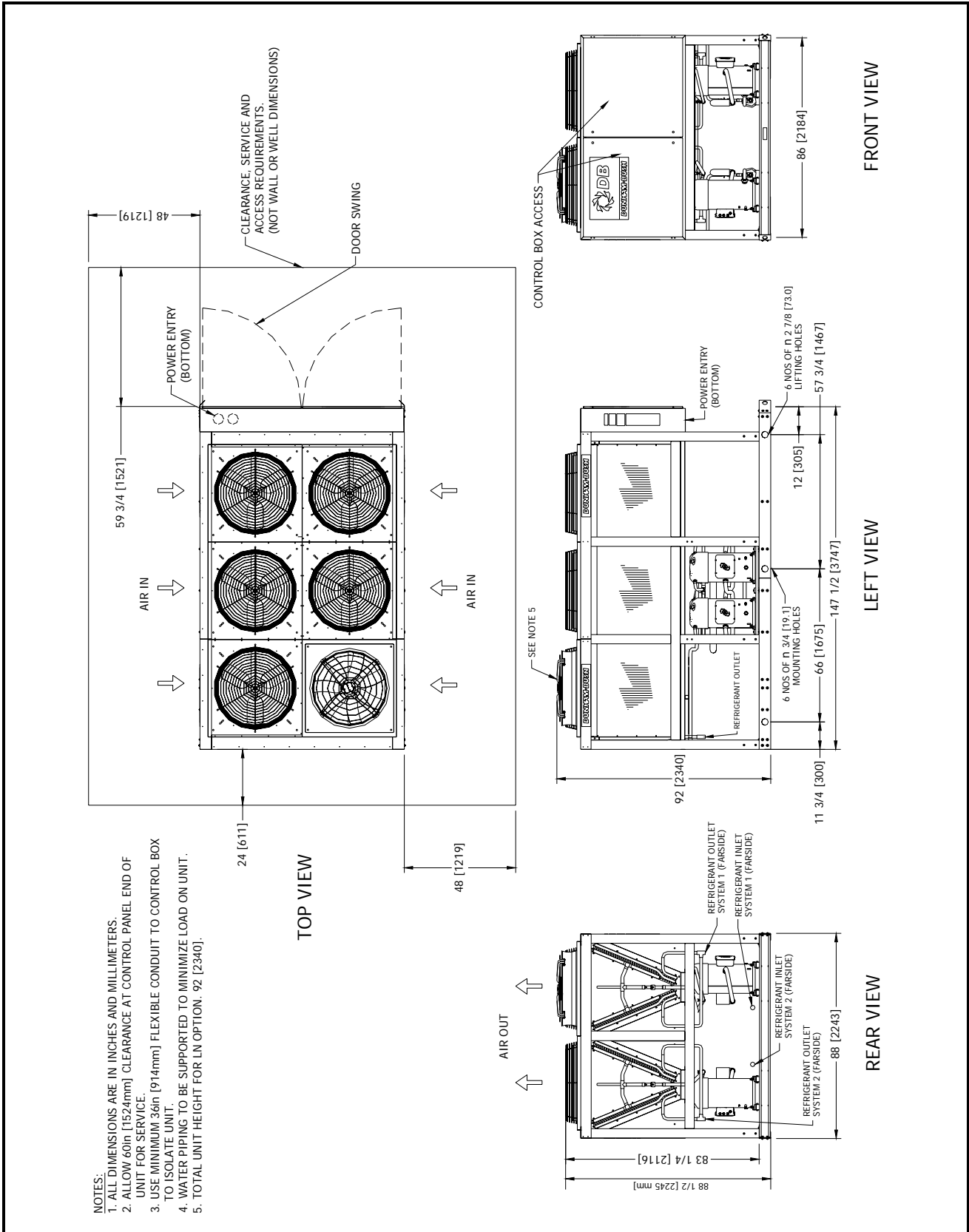
# DIMENSIONAL DATA

AUDS 050, 060, 070



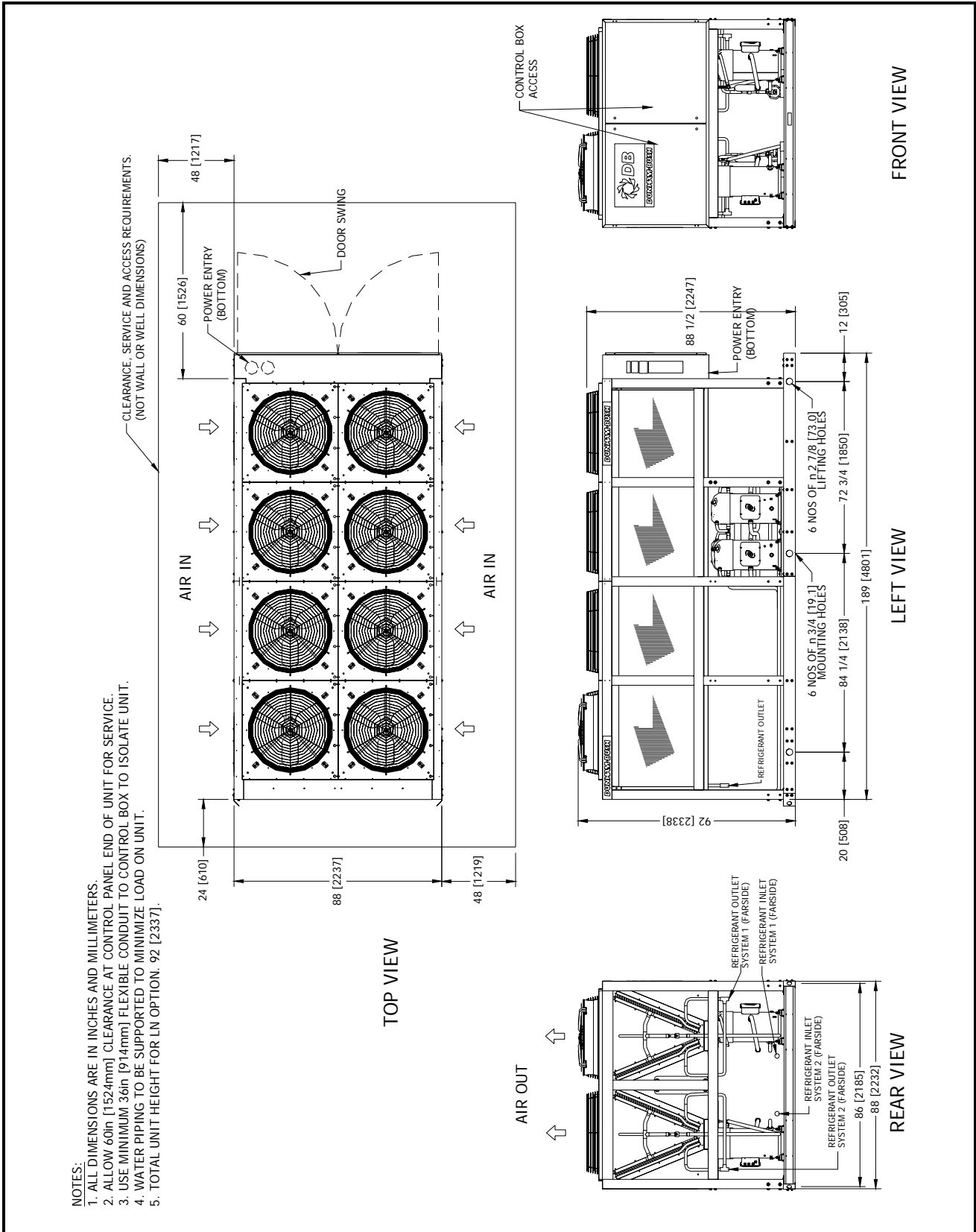
# DIMENSIONAL DATA

AUDS 080, 090



# DIMENSIONAL DATA

## AUDS 100, 120





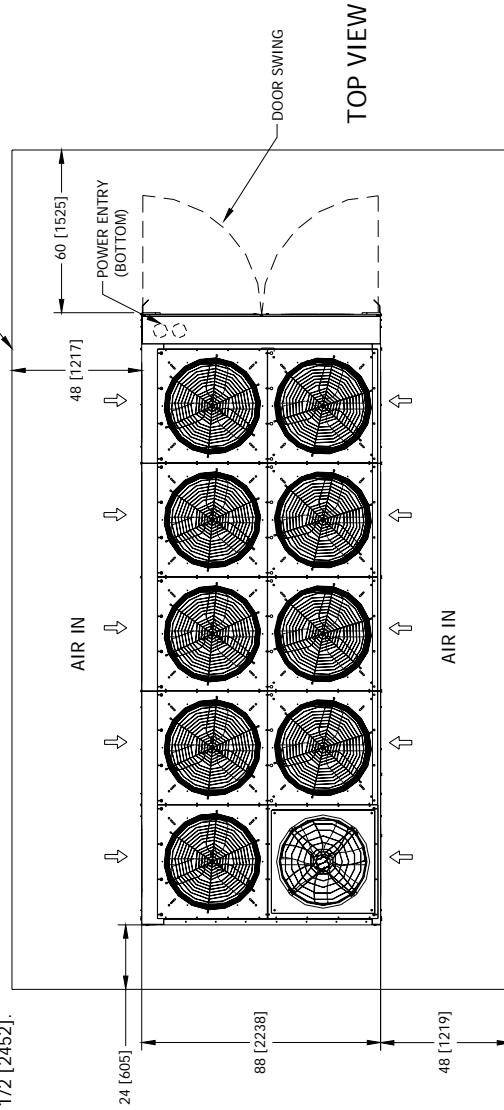
# DIMENSIONAL DATA

## AUDS 135, 150

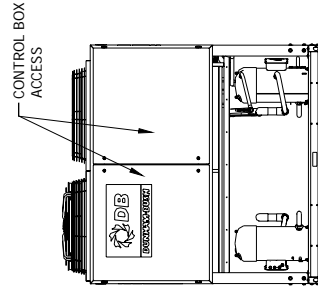
**NOTES:**

1. ALL DIMENSIONS ARE IN INCHES AND MILLIMETERS.
2. ALLOW 60in [1524mm] CLEARANCE AT CONTROL PANEL END OF UNIT FOR SERVICE.
3. USE MINIMUM 3/4in [19.1mm] FLEXIBLE CONDUIT TO CONTROL BOX TO ISOLATE UNIT.
4. WATER PIPING TO BE SUPPORTED TO MINIMIZE LOAD ON UNIT.
5. TOTAL UNIT HEIGHT FOR LN OPTION. 96 1/2 [2452].

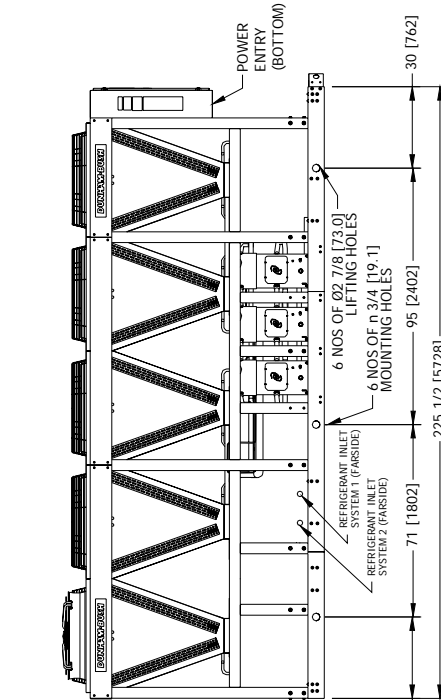
CLEARANCE, SERVICE AND ACCESS REQUIREMENTS. (NOT WALL OR WELL DIMENSIONS)



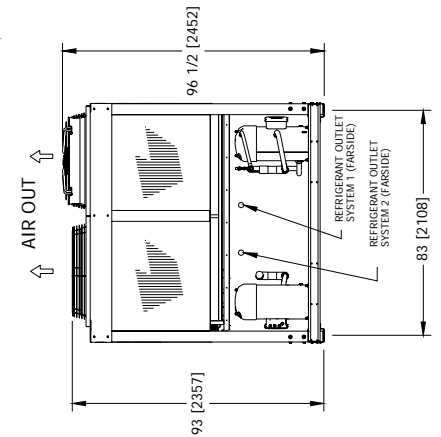
TOP VIEW



FRONT VIEW



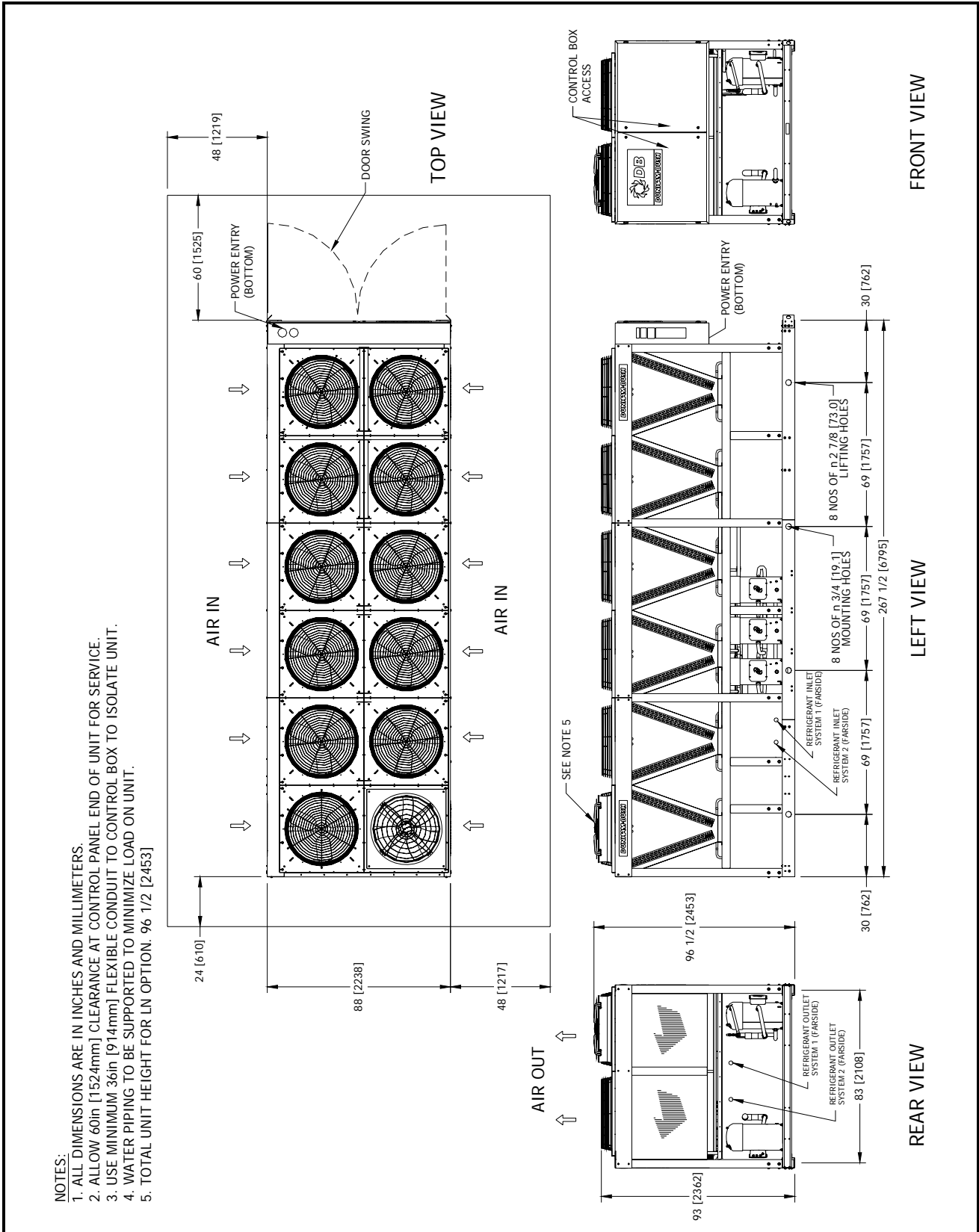
LEFT VIEW



REAR VIEW

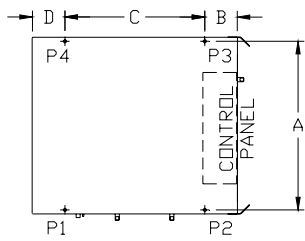
# DIMENSIONAL DATA

AUDS 165, 180

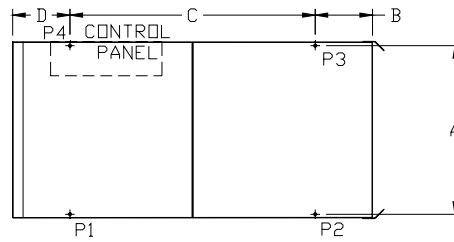


# FLOOR LOADING DIAGRAM

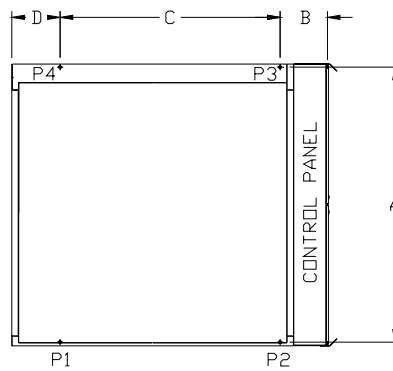
**AUDS 010**



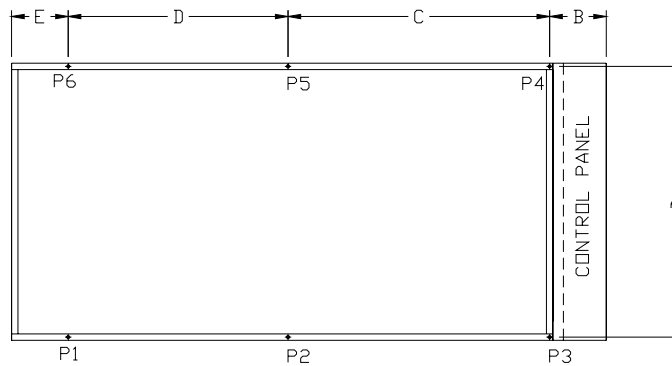
**AUDS 020, 030**



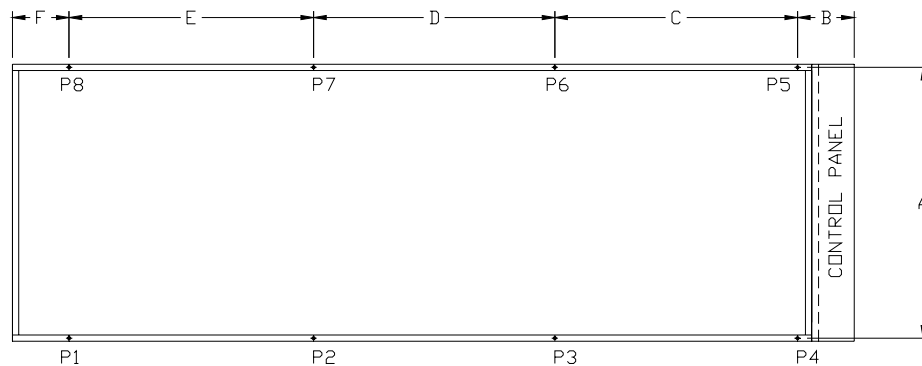
**AUDS 040, 050, 060, 070**



**AUDS 080, 090, 100, 120, 135, 150**



**AUDS 165, 180**





# FLOOR LOADING DIAGRAM

## POINT LOAD LOCATION

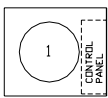
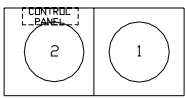
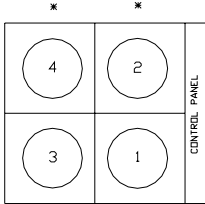
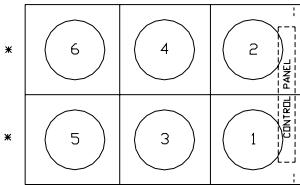
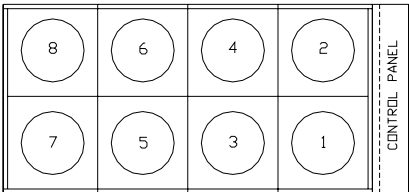
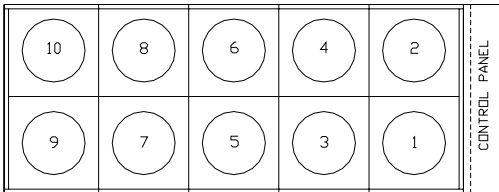
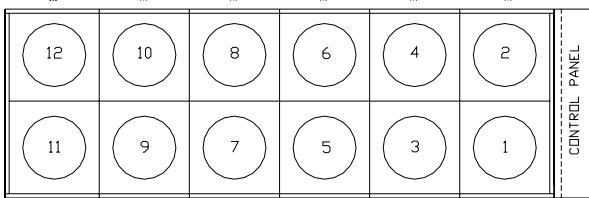
MODEL AUDS	Dimensions – inches [mm]					
	A	B	C	D	E	F
010	40 3/4 [1035]	8 [203]	34 1/4 [870]	8 [203]	-	-
020	46 [1168]	14 1/4 [362]	64 [1628]	11 3/4 [300]	-	-
030	49 3/4 [1262]	14 1/4 [362]	64 [1628]	11 3/4 [300]	-	-
040	84 3/4 (2156)	15 1/2 (393)	68 3/4 (1747)	15 (381)	-	-
050	84 3/4 (2156)	15 1/2 (393)	68 3/4 (1747)	15 (381)	-	-
060	84 3/4 (2156)	15 1/2 (393)	68 3/4 (1747)	15 (381)	-	-
070	84 3/4 (2156)	15 1/2 (393)	68 3/4 (1747)	15 (381)	-	-
080	86 [2184]	12 [305]	57 3/4 [1467]	66 [1675]	11 3/4 [300]	-
090	86 [2184]	12 [305]	57 3/4 [1467]	66 [1675]	11 3/4 [300]	-
100	86 [2184]	12 [305]	73 [1850]	84 [2138]	20 [508]	-
120	86 [2184]	12 [305]	73 [1850]	84 [2138]	20 [508]	-
135	83 [2108]	30 [762]	95 [2402]	71 [1802]	30 [762]	-
150	83 [2108]	30 [762]	95 [2402]	71 [1802]	30 [762]	-
165	83 [2108]	30 [762]	69 [1757]	69 [1757]	69 [1757]	30 [762]
180	83 [2108]	30 [762]	69 [1757]	69 [1757]	69 [1757]	30 [762]

## POINT LOAD DATA

MODEL AUDS	Loads - lbs [kg]								Total Operating Weight lbs [kg]
	P1	P2	P3	P4	P5	P6	P7	P8	
010	167 [76]	250 [113]	278 [126]	209 [95]	-	-	-	-	904 [410]
020	303 [137]	373 [169]	549 [249]	383 [174]	-	-	-	-	1608 [729]
030	435 [197]	633 [287]	818 [371]	462 [210]	-	-	-	-	2348 [1065]
040	744 [337]	712 [323]	712 [323]	744 [337]	-	-	-	-	2912 [1321]
050	899 [408]	781 [354]	781 [354]	899 [408]	-	-	-	-	3360 [1524]
060	943 [428]	806 [366]	806 [366]	943 [428]	-	-	-	-	3498 [1587]
070	969 [440]	823 [373]	823 [373]	969 [440]	-	-	-	-	3584 [1626]
080	756 [343]	778 [353]	797 [362]	797 [362]	778 [353]	756 [343]	-	-	4662 [2115]
090	819 [371]	835 [379]	848 [385]	848 [385]	835 [379]	819 [371]	-	-	5004 [2270]
100	925 [420]	986 [447]	1060 [481]	1060 [481]	986 [447]	925 [420]	-	-	5942 [2695]
120	941 [427]	1002 [455]	1077 [489]	1077 [489]	1002 [455]	941 [427]	-	-	6040 [2740]
135	960 [435]	1148 [521]	1337 [606]	1337 [606]	1148 [521]	960 [435]	-	-	6890 [3125]
150	1048 [475]	1240 [562]	1432 [650]	1432 [650]	1240 [562]	1048 [475]	-	-	7440 [3375]
165	962 [436]	1040 [472]	1118 [507]	1195 [542]	1195 [542]	1118 [507]	1040 [472]	962 [436]	8630 [3915]
180	1044 [474]	1119 [508]	1194 [542]	1268 [575]	1268 [575]	1194 [542]	1119 [508]	1044 [474]	9250 [4196]

# CONDENSER FAN

## FAN POSITION NUMBER & CYCLING SEQUENCE

<b>AUDS 010</b> 			<b>AUDS 020, 030</b> 		
Base Fans	1		Base Fans	1	
			Stage 2	2	
<b>AUDS 040, 050, 060, 070</b> 			<b>AUDS 080, 090</b> 		
				<b>System 1</b>	<b>System 2</b>
Base Fans	System 1	System 2	Base Fans	6	5
Stage 2	4	2	Stage 2	4	3
Stage 2	3	1	Stage 3	2	1
<b>AUDS 100, 120</b> 			<b>AUDS 135, 150</b> 		
			Note: Based on highest discharge pressure between 2 systems.		
				<b>System 1</b>	<b>System 2</b>
Base Fans	System 1	System 2	Base Fans	8, 10	2, 4, 6
Stage 2	6	5	Stage 2	7, 9	1, 3
Stage 3	2, 4	1, 3	Stage 3	5	2
<b>AUDS 165, 180</b> 					
				<b>System 1</b>	<b>System 2</b>
Base Fans	System 1		System 2		
Base Fans	8, 10, 12		2, 4, 6		
Stage 2	7, 11		1, 5		
Stage 3	9		3		

\* Coil Header

# SOUND PRESSURE DATA

MODEL	OCTAVE BAND (Hz)								TOTAL dB (A)
	63	125	250	500	1K	2K	4K	8K	
<b>1. FOR STANDARD UNIT</b>									
AUDS 010*GS	30	35	45	49	50	48	45	40	55
AUDS 020*GS	33	38	47	52	53	54	48	43	59
AUDS 030*GS	33	38	47	54	55	53	49	43	60
AUDS 040*GS	35	41	50	55	56	56	51	46	61
AUDS 050*GS	35	41	50	57	57	56	52	46	62
AUDS 060*GS	35	41	51	57	57	57	52	47	63
AUDS 070*GS	35	41	51	57	57	58	53	48	63
AUDS 080*GS	37	42	52	58	58	58	53	48	64
AUDS 090*GS	37	42	52	58	59	58	53	48	64
AUDS 100*GS	38	43	53	60	62	60	55	49	66
AUDS 120*GS	38	43	53	62	63	61	56	49	67
AUDS 135*GS	39	44	54	62	63	61	56	50	67
AUDS 150*GS	39	44	54	62	63	61	56	50	67
AUDS 165*GS	40	45	54	62	63	61	56	50	68
AUDS 180*GS	40	45	54	63	65	62	57	50	69
<b>2. FOR LOW NOISE FAN ONLY</b>									
AUDS 010*GF	24	37	41	45	47	45	40	34	51
AUDS 020*GF	26	40	44	48	51	52	44	37	56
AUDS 030*GF	26	40	44	52	53	51	46	39	57
AUDS 040*GF	29	43	47	50	53	55	46	40	59
AUDS 050*GF	29	43	47	54	55	54	49	42	60
AUDS 060*GF	29	43	48	55	55	56	49	44	61
AUDS 070*GF	29	43	48	55	55	57	50	45	61
AUDS 080*GF	31	44	49	55	56	57	50	44	61
AUDS 090*GF	31	44	48	55	56	56	49	43	61
AUDS 100*GF	32	45	49	59	60	59	52	43	65
AUDS 120*GF	32	45	50	61	62	60	53	44	66
AUDS 135*GF	33	46	51	61	62	60	53	46	66
AUDS 150*GF	33	46	51	61	62	60	53	46	66
AUDS 165*GF	33	47	51	62	62	60	53	46	66
AUDS 180*GF	33	47	51	62	64	61	54	46	68
<b>3. FOR COMPRESSOR JACKET ONLY</b>									
AUDS 010*GV	30	35	45	49	50	48	45	40	55
AUDS 020*GV	33	38	47	52	53	52	48	43	58
AUDS 030*GV	33	38	47	52	53	51	48	43	58
AUDS 040*GV	35	41	50	54	56	54	51	46	61
AUDS 050*GV	35	41	50	55	56	54	51	46	61
AUDS 060*GV	35	41	50	55	56	54	51	46	61
AUDS 070*GV	35	41	50	55	56	55	51	46	61
AUDS 080*GV	37	42	52	56	57	56	52	47	62
AUDS 090*GV	37	42	52	56	57	56	52	47	62
AUDS 100*GV	38	43	53	57	59	57	54	48	64
AUDS 120*GV	38	43	53	57	59	57	54	48	64
AUDS 135*GV	39	44	54	58	59	58	54	49	64
AUDS 150*GV	39	44	54	58	59	58	54	49	64
AUDS 165*GV	40	45	54	59	60	59	55	50	65
AUDS 180*GV	40	45	54	59	61	59	55	50	65
<b>4. FOR LOW NOISE FAN + COMPRESSOR JACKET</b>									
AUDS 010*GM	24	37	41	45	47	45	39	34	51
AUDS 020*GM	26	40	44	47	50	48	42	36	54
AUDS 030*GM	26	40	44	47	50	48	43	36	54
AUDS 040*GM	29	43	47	50	52	51	45	39	57
AUDS 050*GM	29	43	47	50	53	51	45	39	57
AUDS 060*GM	29	43	47	50	53	51	45	39	57
AUDS 070*GM	29	43	47	50	53	51	45	39	57
AUDS 080*GM	31	44	48	52	54	53	47	41	59
AUDS 090*GM	31	44	48	52	54	53	47	41	59
AUDS 100*GM	32	45	49	53	56	54	48	42	60
AUDS 120*GM	32	45	49	53	57	55	48	42	61
AUDS 135*GM	33	46	50	54	56	55	49	43	61
AUDS 150*GM	33	46	50	54	56	55	49	43	61
AUDS 165*GM	33	47	51	55	57	56	50	43	62
AUDS 180*GM	33	47	51	55	58	56	50	43	62

\* Refer voltage AN, AR & AG.

Note: Unit Sound Pressure Level (Lp) @ 30 FT [9m] (free field), ± 2 dB tolerance.



# ELECTRICAL DATA

MODEL	Power Supply	Standard Unit Electrical Data			Each Compressor			Condenser Fan Motors		
	V-Ph-Hz	RLA	MCA	MFS/HACR	Qty	RLA	LRA	Qty	HP	FLA/Mtr
AUDS 010	208/230-3-60	59	66	90	2	27	145	1	1.5	5.4
	460-3-60	27	30	40	2	12	87	1	1.5	2.7
	575-3-60	19	22	30	2	8.6	62	1	1.5	2.2
AUDS 020	208/230-3-60	106	118	150	2	46	304	2	2	7.2
	460-3-60	49	54	70	2	21	147	2	2	3.4
	575-3-60	43	47	60	2	19	122	2	2	2.7
AUDS 030	208/230-3-60	126	140	175	2	56	320	2	2	7.2
	460-3-60	61	68	90	2	27	180	2	2	3.4
	575-3-60	47	54	70	2	21	135	2	2	2.7
AUDS 040	208/230-3-60	213	224	250	4	46	304	4	2	7.2
	460-3-60	98	103	110	4	21	147	4	2	3.4
	575-3-60	87	92	100	4	19	122	4	2	2.7
AUDS 050	208/230-3-60	253	267	300	4	56	320	4	2	7.2
	460-3-60	122	128	150	4	27	180	4	2	3.4
	575-3-60	95	102	110	4	21	135	4	2	2.7
AUDS 060	208/230-3-60	291	310	350	2	56	320	4	2	7.2
					2	75	485			
	460-3-60	140	149	175	2	27	180	4	2	3.4
					2	36	215			
	575-3-60	111	120	125	2	21	135	4	2	2.7
					2	29	175			
AUDS 070	208/230-3-60	329	348	400	4	75	485	4	2	7.2
	460-3-60	158	167	200	4	36	215	4	2	3.4
	575-3-60	127	135	150	4	29	175	4	2	2.7
AUDS 080	208/230-3-60	381	405	450	2	75	485	6	2	7.2
					2	94	560			
	460-3-60	184	196	225	2	36	215	6	2	3.4
					2	46	260			
	575-3-60	150	160	175	2	29	175	6	2	2.7
					2	38	210			
AUDS 090	208/230-3-60	434	457	500	4	94	560	8	2	7.2
	460-3-60	211	223	250	4	46	260	8	2	3.4
	575-3-60	174	183	200	4	38	210	8	2	2.7
AUDS 100	208/230-3-60	464	491	500	2	94	560	8	2	7.2
					2	109	615			
	460-3-60	231	245	300	2	46	260	8	2	3.4
					2	56	320			
	575-3-60	184	194	225	2	38	210	8	2	2.7
					2	43	235			
AUDS 120	208/230-3-60	494	521	600	4	109	615	8	2	7.2
	460-3-60	251	265	300	4	56	320	8	2	3.4
	575-3-60	194	204	225	4	43	235	8	2	2.7
AUDS 135	208/230-3-60	579	603	700	3	75	485	10	2	7.2
					3	94	560			
	460-3-60	280	292	300	3	36	215	10	2	3.4
					3	46	260			
	575-3-60	228	238	250	3	29	175	10	2	2.7
					3	38	210			
AUDS 150	208/230-3-60	636	660	700	6	94	560	10	2	7.2
	460-3-60	310	322	350	6	46	260	10	2	3.4
	575-3-60	255	264	300	6	38	210	10	2	2.7
AUDS 165	208/230-3-60	695	723	800	3	94	560	12	2	7.2
					3	109	615			
	460-3-60	347	361	400	3	46	260	12	2	3.4
					3	56	320			
	575-3-60	275	286	300	3	38	210	12	2	2.7
					3	43	235			
AUDS 180	208/230-3-60	740	768	800	6	109	615	12	2	7.2
	460-3-60	377	391	400	6	56	320	12	2	3.4
	575-3-60	290	301	300	6	43	235	12	2	2.7

Note: MCA - Minimum Circuit Amps  
FLA - Full Load Amps

MFS - Maximum Fuse Size  
LRA - Locked Rotor Amps

RLA - Running Load Amps



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