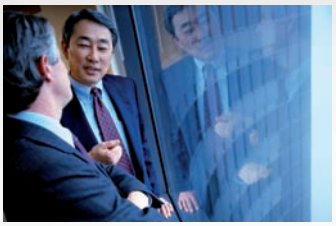
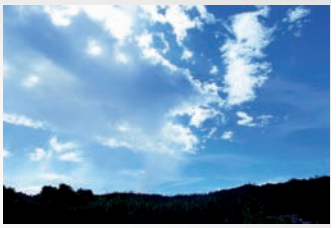
# FALCON

Rooftop Units
ACPSJ 60Hz
Cooling Capacity : 183 to 1596 MBH (54 to 468 kW)
Heating Capacity : 181 to 1654 MBH (53 to 485 kW)






R410A

Intertek

DUNHAM-BUSH®

Products that perform...By people who care

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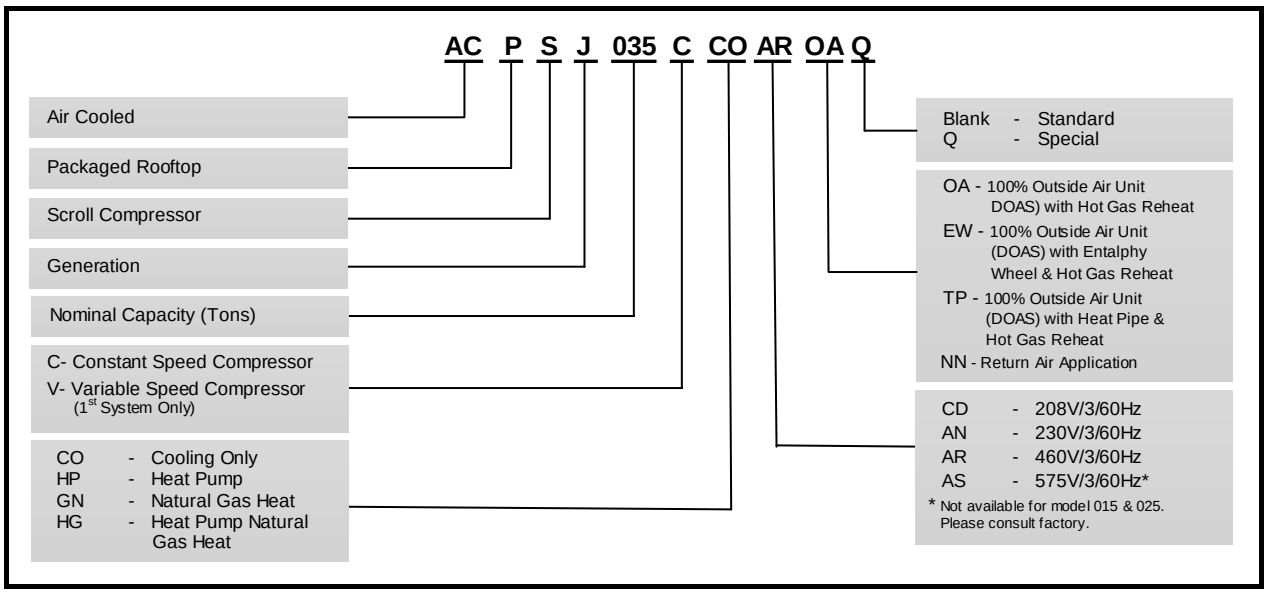
# INTRODUCTION

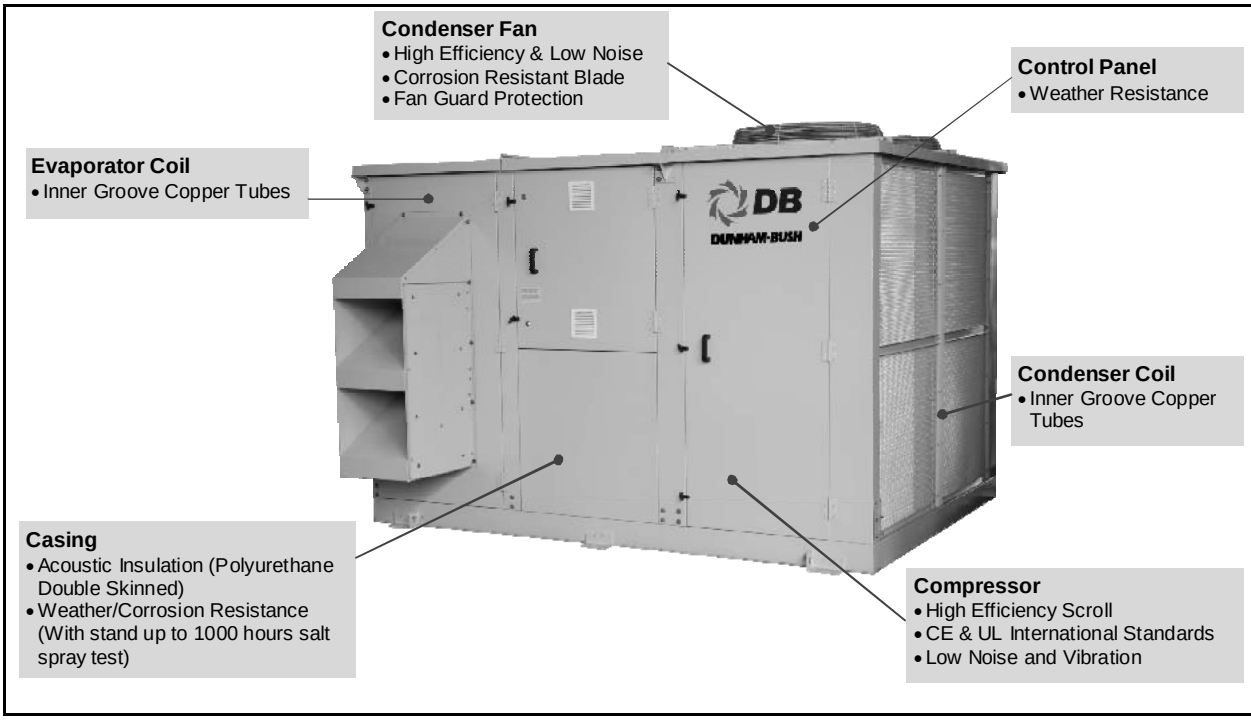
The ACPSJ series are specially designed and manufactured to makes Dunham-Bush packaged rooftop unit to perform at the highest efficiency possible and operate in a wide ambient temperature range 66°F [18.9°C] to 115°F [46.0°C]it is built specifically for outdoor installation. This series is using R410A refrigerant with cooling capacity range of 183 to 1596 MBH [54 to 468 kW] and heating capacity range of 181 to 1654 MBH [53 to 485 kW] (capacity for Dedicated Outside Air System, DOAS unit will have slightly different). The units are rated in accordance with AHRI standards 340/360.

The ACPSJ series with new features is suitable for hotel, office, hospital, school, factory and supermarket applications. The low noise and compact series are completely leak tested, evacuated, dehydrated and charged with refrigerant prior to shipment (except for unit which evaporator and condenser section is shipped out loosely, refrigerant is charged at field).

# NOMENCLATURE



# COMPONENTS




# STANDARD FEATURES

## GENERAL

- 9 models from 183 to 1596 MBH (Cooling) and 181 to 1654 MBH (Heating) with nominal air flow up to 46000 CFM.
- Multiple compressors units provide redundancy and part load operation by cycling off compressor operation to match building load (except for model 015).
- No total shut down when servicing compressor for units with two or more refrigerant systems design.
- Unit design to allowed continuous operation up to 115 °F [46 °C].

## COMPRESSOR(S)

- Most reliable hermetic compact scroll
- No contact scroll design that minimizes friction, increases volumetric efficiency and reduces vibration, thus longer service life.
- Suction gas cooled motor.
- Compact and light with minimum wear and tear.
- Unique ability to handle slight liquid refrigerant.
- Built-in thermal protectors to prevent motor overheating, loss of phase and low refrigerant or oil charge.
- High EER.
- Crankcase heater is supplied as standard offering to minimize liquid refrigerant migration to compressor during off cycle.

# STANDARD FEATURES

## EVAPORATOR SECTION

### Efficient Evaporator Coil

- Evaporator coil is constructed with seamless inner-grooved copper tubes expanded into die-formed aluminum fins (except for model 015 and 025 are using hydrophilic fin as standard) in staggered configuration.
- Factory leak and pressure tested at 650psig [45 bar].
- Independent thermal expansion valve with external equalizer for better refrigerant control and wider load condition.

### Blowers and Drive Package

- All evaporator fans are single-inlet-single-width (SISW), plenum with backward curved blades to provide more efficient, quieter, and experience less vibration.
- Direct driven transmission blowers with variable speed drives that improve the system efficiency grades and reduce maintenance costs.

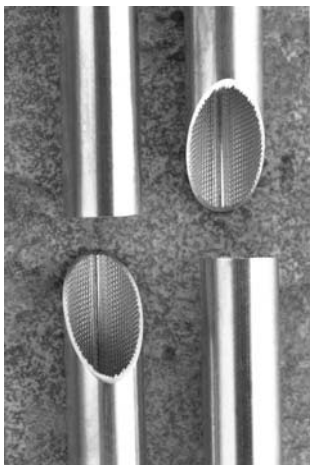
- All fans are statically and dynamically balanced to ensure smooth performance.
- Dedicated downflow configuration and horizontal as options.
- Direct driven blowers are driven by external rotor motor for model 015 and 025 (EC Fan/ Blower), internal rotor motor for model 035 to 130 (AC Fan/ Blower), IP55 enclosure rating with class F insulation motor.

*The motor efficiency for model 015 and 025 is surpassing NEMA Premium Efficiency class and for model 035 to 130, motor efficiency is equivalent to NEMA Premium Efficiency class.

## CONDENSER SECTION

### Efficient Condenser Coil

- Condenser coils are manufactured of staggered row of 3/8”OD inner groove seamless cooper tube.



- 25 to 30% more surface areas which guarantee better heat transfer.
- Mechanically expanded into die-formed corrugated bonded to aluminum fins.
- Factory leak and pressure tested at 650psig [45 bar].

### Condenser Fans

- Motor with minimum Class “F” Insulation permits higher operating ambient temperature conditions.
- Low motor speed at 1140 rpm delivers quiet condenser fan operation and superior sound level.

## FILTER SECTION

- High efficiency disposable type MERV 8 filter.
- 2” thick filter with (more than 90%) average arrestance efficiency.

## CASING

- Casing is constructed from heavy gauge galvanized steel.
- Epoxy painted finishing, offers excellent corrosion resistance for outdoor applications, which withstand up to 1000 hours salt spray test in accordance to ASTM B-117.
- Wide ample access doors are provided for easy service and maintenance of unit internal parts.
- Double skinned 1” (25mm) thick in fill panel construction from pressure injected polyurethane foam (PU) insulation, heavy density for thermal insulation and sound attenuation.

## ELECTRICAL AND CONTROLS

- High and low pressure switch is provided to each of the refrigerant system as standard safety feature.
- These safety switches prevents compressors to be operated at unsafe conditions.
- Built-in IEC DOL starter package and control package.

# OPTIONAL ACCESSORIES

- Inverter Compressor
- Gas Heating
- Hot Gas Bypass
- Hot Water Heating Coil
- Discharge / Suction / Liquid Service Valves
- Alternative Fin Material for Evaporator Coil
- Alternative Fin Material for Condenser Coil
- Stainless Steel Drain Pan
- Replaceable Core Filter Drier
- Electronic Expansion Valve (EEV)
- Liquid Line Solenoid Valve (LLSV)
- Condenser Coil Guard
- Suction accumulator (only applicable for cooling only models)
- High and Low Pressure Gauges
- 4-Inch Filter on top of standard 2" Filter (2+4" Filter)
- 0-30% Outside Air Intake (consult factory for unit layout) (not applicable for DOAS unit)
- Economizer (not applicable for DOAS unit)
- Barometric Relief (consult factory for unit layout) (not applicable for DOAS unit)
- Exhaust/Return Fan System (consult factory for unit layout) (not applicable for DOAS unit)
- EC Evaporator Fan
- EC Condenser Axial Fan
- Modulating Hot Gas Reheat (not applicable for DOAS unit)
- Electric Heater
- Electric Heater Starter
- Door interlock Main Incoming Isolator
- Indicating Lights
- UVR/Phase Failure Protect
- Interface Module
- Lock Out Stop
- Differential Pressure Switch for Evaporator Blower
- Voltmeter
- Ammeter
- Compressor Soft Start
- VFD for Base Condenser Motor
- $CO_2$ Sensor
- 24VAC fire relay with transformer
- Supply Duct Static Pressure Sensor
- Building Pressurization Sensor
- Convenience Outlet
- Dual Point Incoming Power
- Heat Recovery Wheel Frost Control (for DOAS unit type EW only)
- Return Air Damper and Filter Set (for DOAS unit type EW only)

# COOLING & HEATING PORTFOLIO

## ACPSJ-NN

| Model | Cooling | | Heating | |
|---|---|---|---|---|
| | EER | Capacity MBH | COP | Capacity MBH |
| **ACPSJ015-NN** | 11.6 | 182.9 | 3.5 | 181.1 |
| **ACPSJ025-NN** | 10.8 | 302.3 | 3.5 | 298.8 |
| **ACPSJ035-NN** | 10.2 | 423.5 | 3.2 | 423.6 |
| **ACPSJ045-NN** | 10.1 | 554.2 | 3.1 | 546.6 |
| **ACPSJ055-NN** | 10.0 | 661.7 | 3.2 | 666.5 |
| **ACPSJ080-NN** | 10.4 | 955.2 | 3.3 | 963.4 |
| **ACPSJ100-NN** | 10.9 | 1205.2 | 3.5 | 1238.8 |
| **ACPSJ115-NN** | 10.6 | 1402.0 | 3.5 | 1447.4 |
| **ACPSJ130-NN** | 10.4 | 1584.8 | 3.4 | 1654.4 |

Notes: 1) Cooling Mode: At 80˚F (DB), 67˚F (WB) air on evaporator and 95˚F ambient air temperature on condenser.
2) Heating Mode: At 70˚F (DB) air on evaporator and 47˚F ambient air temperature on condenser.
3) Ratings are gross capacities. For net cooling capacity, deduct evaporator blower motor heat. Add evaporator blower motor heat for net heating capacity.
4) EER & COP published as above is gross EER & COP.

## ACPSJ-OA/EW/TP

| Model | Cooling | | Heating | |
|---|---|---|---|---|
| | EER | Capacity MBH | COP | Capacity MBH |
| **ACPSJ015CCO-OA/EW/TP** | 11.6 | 184.4 | 3.4 | 183.6 |
| **ACPSJ025CCO-OA/EW/TP** | 10.8 | 304.6 | 3.4 | 305.4 |
| **ACPSJ035CCO-OA/EW/TP** | 10.1 | 438.4 | 3.0 | 456.9 |
| **ACPSJ045CCO-OA/EW/TP** | 10.6 | 540.5 | 3.3 | 541.0 |
| **ACPSJ055CCO-OA/EW/TP** | 10.1 | 674.8 | 3.2 | 685.7 |
| **ACPSJ080CCO-OA/EW/TP** | 10.2 | 976.8 | 3.1 | 1037.3 |
| **ACPSJ100CCO-OA/EW/TP** | 11.0 | 1203.3 | 3.4 | 1220.5 |
| **ACPSJ115CCO-OA/EW/TP** | 10.7 | 1391.9 | 3.4 | 1411.0 |
| **ACPSJ130CCO-OA/EW/TP** | 10.9 | 1595.8 | 3.3 | 1622.7 |

Notes: 1) Cooling Mode: At 95˚F (DB), 78˚F (WB) air on evaporator and 95˚F ambient air temperature on condenser.
2) Heating Mode: At 47˚F (DB) air on evaporator and 47˚F (DB), 43˚F (WB) ambient air temperature on condenser.
3) Ratings are gross capacities. For net cooling capacity, deduct evaporator blower motor heat. Add evaporator blower motor heat for net heating capacity.
4) EER & COP published as above is gross EER & COP.

# PHYSICAL SPECIFICATIONS

## Cooling Only (ACPSJ-NN)

| Model | EER | Compressor | | Condenser Coil | | Condenser Fan | | Evaporator Blower (Plenum SWSI) | | | Evaporator Coil | | R410A Charge | Approx. Unit Weight Lbs | Sound Pressure Level ±2 dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | No. of Refrigerant Circuit | Face Area $ft^2$ | Row/ FPI | Size in inches (Qty) | Motor HP (Qty) | Standard Size mm | Nominal HP | Nominal Airflow CFM | Face Area $ft^2$ | Row/ FPI | Lbs Per System (Qty) | | |
| ACPSJ 015-CO-NN | 11.6 | 1 | 1 | 34.0 | 3/16 | 28(2) | 1-1/2 (2) | 450 | 6.7 | 4,800 | 14.0 | 5/12 | 38.5 (1) | 2,969 | 66 |
| ACPSJ 025-CO-NN | 10.8 | 2 | 2 | 31.2 | 5/12 | 28(2) | 1-1/2 (2) | 500 | 7.6 | 7,800 | 20.0 | 5/14 | 29.2 (2) | 3,322 | 68 |
| ACPSJ 035-CO-NN | 10.2 | 4 | 2 | 41.6 | 5/12 | 31.7(2) | 2-2/3 (2) | 630 | 10.0 | 11,000 | 29.2 | 4/14 | 31.4 (2) | 5,236 | 79 |
| ACPSJ 045C-CO-NN | 10.1 | 4 | 2 | 58.3 | 4/16 | 28(4) | 1-1/2 (4) | 710 | 15.0 | 14,000 | 29.2 | 5/14 | 43.4 (2) | 6,250 | 73 |
| ACPSJ 055-CO-NN | 10.0 | 4 | 2 | 89.2 | 3/12 | 31.7(4) | 2-2/3 (4) | 800 | 15.0 | 18,000 | 40.0 | 4/14 | 52.4 (2) | 8,455 | 79 |
| ACPSJ 080-CO-NN | 10.4 | 8 | 4 | 102.0 | 5/12 | 31.7(4) | 2-2/3 (4) | 1000 | 20.0 | 25,000 | 60.4 | 4/14 | 38.2 (4) | 10,708 | 80 |
| ACPSJ 100-CO-NN | 10.9 | 6 | 3 | 164.3 | 4/16 | 31.7(6) | 2-2/3 (6) | 1120 | 30.0 | 35,000 | 86.1 | 4/14 | 85.5 (3) | 14,522 | 80 |
| ACPSJ 115-CO-NN | 10.6 | 7 | 4 | 191.6 | 4/16 | 28(2) / 31.7(6) | 1-1/2 (2)/ 2-2/3 (6) | 1120 | 40.0 | 42,000 | 91.5 | 4/14 | 84.3 (3) 42.1 (1) | 15,968 | 80 |
| ACPSJ 130-CO-NN | 10.4 | 8 | 4 | 219.0 | 4/16 | 31.7(8) | 2-2/3 (8) | 1120 | 50.0 | 46,000 | 107.6 | 4/14 | 84.5 (4) | 16,925 | 82 |

Notes:
1. Ratings are based on nominal airflow with on evaporator dry/wet bulb temperatures of 80/67°F [27/19.4°C] and condenser entering air temperature of 95°F [35°C].
2. Ratings are gross capacities. For net capacity deduct evaporator blower motor heat.
3. EER published as above is gross EER.
4. Evaporator blower motor's nominal HP is based on 1in WG ESP (external static pressure) for model 015 to 115 and 1.5 in WG for model 130.
5. For supply voltage 208/230/460V/3/60Hz, condenser fan diameter is 31.7" and condenser motor hp is 2-2/3hp.
6. For supply voltage 575V/3/60Hz, condenser fan diameter is 31.5" and condenser motor hp is 2hp.
7. Sound Pressure Level is calculated based on nominal airflow at external static pressure of 1in WG (for model 015 to 115) and 1.5in WG (for model 130). Rated at 3m [10ft] distance away from unit at free field. Unit supply and return are assumed to be entirely insulated. The actual sound at field could be affected by the supply and return duct break out noise.

## Heat Pump (ACPSJ-NN)

| Model | COP | Compressor | | Condenser Coil | | Condenser Fan | | Evaporator Blower (Plenum SWSI) | | | Evaporator Coil | | R410A Charge | Approx. Unit Weight Lbs | Sound Pressure Level ±2 dB(A) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | No. of Refrigerant Circuit | Face Area $ft^2$ | Row/ FPI | Size in inches (Qty) | Motor HP (Qty) | Standard Size (mm) | Nominal HP | Nominal Airflow CFM | Face Area $ft^2$ | Row/ FPI | Lbs Per System (Qty) | | |
| ACPSJ 015-HP-NN | 3.5 | 1 | 1 | 34.0 | 4/12 | 28 (2) | 1-1/2 (2) | 450 | 6.7 | 4,800 | 14.0 | 5/12 | 50.1 (1) | 3,039 | 66 |
| ACPSJ 025-HP-NN | 3.5 | 2 | 2 | 31.2 | 5/12 | 28 (2) | 1-1/2 (2) | 500 | 7.6 | 7,800 | 20.0 | 5/14 | 29.2 (2) | 3,390 | 68 |
| ACPSJ 035-HP-NN | 3.2 | 4 | 2 | 41.6 | 5/12 | 31.7 (2) | 2-2/3 (2) | 630 | 10.0 | 11,000 | 29.2 | 4/14 | 31.4 (2) | 5,337 | 79 |
| ACPSJ 045-HP-NN | 3.1 | 4 | 2 | 58.3 | 5/12 | 28 (4) | 1-1/2 (4) | 710 | 15.0 | 14,000 | 29.2 | 5/14 | 53.1 (2) | 6,372 | 73 |
| ACPSJ 055-HP-NN | 3.2 | 4 | 2 | 89.2 | 3/12 | 31.7 (4) | 2-2/3 (4) | 800 | 15.0 | 18,000 | 40.0 | 4/14 | 52.4 (2) | 8,624 | 79 |
| ACPSJ 080-HP-NN | 3.3 | 8 | 4 | 102.0 | 5/12 | 31.7 (4) | 2-2/3 (4) | 1000 | 20.0 | 25,000 | 60.4 | 4/14 | 38.2 (4) | 10,917 | 80 |
| ACPSJ 100-HP-NN | 3.5 | 6 | 3 | 164.3 | 5/12 | 31.7 (6) | 2-2/3 (6) | 1120 | 30.0 | 35,000 | 86.1 | 4/14 | 103.4 (3) | 14,812 | 80 |
| ACPSJ 115-HP-NN | 3.5 | 7 | 4 | 191.6 | 5/12 | 28 (2) / 31.7 (6) | 1-1/2 (2) / 2-2/3 (6) | 1120 | 40.0 | 42,000 | 91.5 | 4/14 | 103.0 (3) 51.5 (1) | 16,287 | 80 |
| ACPSJ 130-HP-NN | 3.4 | 8 | 4 | 219.0 | 5/12 | 31.7 (8) | 2-2/3 (8) | 1120 | 50.0 | 46,000 | 107.6 | 4/14 | 103.2 (4) | 17,263 | 82 |

Notes:
1. Heat Pump models' cooling capacity is identical with Cooling Only models' cooling capacity.
2. Heating mode ratings are based on nominal airflow with on evaporator dry bulb temperatures of 70°F [21.1°C] and condenser entering air temperature of 47°F[8.3°C].
3. Ratings are gross capacities. For net cooling capacity deduct evaporator blower motor heat, net heating capacity to add blower motor heat.
4. COP published as above are gross COP.
5. Evaporator blower motor's nominal HP is based on 1in WG ESP (external static pressure) for model 015 to 115 and 1.5 in WG for model 130.
6. For supply voltage 208/230/460V/3/60Hz, condenser fan diameter is 31.7" and condenser motor hp is 2-2/3hp.
7. For supply voltage 575V/3/60Hz, condenser fan diameter is 31.5" and condenser motor hp is 2hp.
8. Sound Pressure Level is calculated based on nominal airflow at external static pressure of 1in WG (for model 015 to 115) and 1.5in WG (for model 130). Rated at 3m [10ft] distance away from unit at free field. Unit supply and return are assumed to be entirely insulated. The actual sound at field could be affected by the supply and return duct break out noise.

# PHYSICAL SPECIFICATIONS

## COOLING ONLY - DOAS UNIT

| Model | EER | Compressor | | Condenser Coil | | Condenser Fan | | Evaporator Blower (Plenum SWSI) | | | | Evaporator Coil | | R410A Charge | Estimated Unit Weight (For ACPSJ-OA) | | Sound Pressure Level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | No. of Refrigerant Circuit | Face Area $ft^2$ | Row/ FPI | Size in inches (Qty) | Motor Hp (Qty) | Standard Size (mm) | Nominal HP | Nominal Airflow CFM | Nominal Airflow $m^3/hr$ | Face Area $ft^2$ | Row/ FPI | Lbs Per System (Qty) | kg | lbs | ±2 dB(A) |
| ACPSJ015CCO-OA/EW/TP | 11.6 | 1 | 1 | 34.0 | 3/16 | 28" (2) | 1-1/2 (2) | 450 | 6.7 | 2,300 | 3,908 | 9.3 | 5/12 | 45.4 (1) | 1,320 | 2,911 | 66 |
| ACPSJ025CCO-OA/EW/TP | 10.8 | 2 | 2 | 31.2 | 5/12 | 28" (2) | 1-1/2 (2) | 500 | 7.6 | 3,800 | 6,456 | 13.3 | 6/12 | 39.4 (1)<br>29.2 (1) | 1,521 | 3,354 | 68 |
| ACPSJ035CCO-OA/EW/TP | 10.1 | 4 | 2 | 41.6 | 5/12 | 31.7" (2) | 2-2/3 (2) | 560 | 7.5 | 5,300 | 9,005 | 14.7 | 6/12 | 40.5 (1)<br>31.4 (1) | 2,203 | 4,857 | 79 |
| ACPSJ045CCO-OA/EW/TP | 10.6 | 4 | 2 | 58.3 | 4/16 | 28" (4) | 1-1/2 (4) | 560 | 7.5 | 6,900 | 11,723 | 20.2 | 6/12 | 59.0 (1)<br>43.4 (1) | 2,519 | 5,553 | 73 |
| ACPSJ055CCO-OA/EW/TP | 10.1 | 4 | 2 | 89.2 | 3/12 | 31.7" (4) | 2-2/3 (4) | 630 | 10.0 | 8,300 | 14,102 | 25.2 | 6/12 | 72.3 (1)<br>52.4 (1) | 3,059 | 6,743 | 79 |
| ACPSJ080CCO-OA/EW/TP | 10.2 | 8 | 4 | 102.0 | 5/12 | 31.7" (4) | 2-2/3 (4) | 710 | 10.0 | 12,000 | 20,388 | 34.4 | 6/12 | 59.2 (1)<br>38.2 (3) | 4,136 | 9,119 | 80 |
| ACPSJ100CCO-OA/EW/TP | 11.0 | 6 | 3 | 164.3 | 4/16 | 31.7" (6) | 2-2/3 (6) | 800 | 15.0 | 15,000 | 25,485 | 46.9 | 6/12 | 123.1 (1)<br>85.5 (2) | 6,192 | 13,651 | 80 |
| ACPSJ115CCO-OA/EW/TP | 10.7 | 7 | 4 | 191.6 | 4/16 | 28" (2) / 31.7" (6) | 1-1/2 (2) / 2-2/3 (6) | 900 | 20.0 | 17,300 | 29,393 | 54.7 | 6/12 | 128.1 (1)<br>84.3 (2)<br>42.1 (1) | 7,058 | 15,560 | 80 |
| ACPSJ130CCO-OA/EW/TP | 10.9 | 8 | 4 | 219.0 | 4/16 | 31.7" (8) | 2-2/3 (8) | 900 | 20.0 | 19,500 | 33,131 | 59.9 | 6/12 | 132.7 (1)<br>84.5 (3) | 7,585 | 16,721 | 82 |

Notes: 1. Ratings are based on nominal airflow with on evaporator dry/wet bulb temperatures of 95/78°F (35/25.6°C) and condenser entering air temperature of 95°F (35°C).
2. Ratings are gross capacities. For net capacity deduct evaporator blower motor heat.
3. Evaporator blower motor's nominal HP is based on 1in WG ESP (external static pressure).
4. EER published as above is gross EER.
5. Sound Pressure Level is calculated based on nominal airflow at external static pressure of 1in WG. Rated at 3m (10ft) distance away from unit at free field. Unit supply and return are assumed to be entirely insulated. The actual sound at field could be affected by the supply and return duct break out noise.

## HEAT PUMP - DOAS UNIT

| Model | COP | Compressor | | Condenser Coil | | Condenser Fan | | Evaporator Blower (Plenum SWSI) | | | | Evaporator Coil | | R410A Charge | Estimated Unit Weight | | Sound Pressure Level |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | No. of Refrigerant Circuit | Face Area $ft^2$ | Row/ FPI | Size in inches (Qty) | Motor hp (Qty) | Standard Size mm | Nominal HP | Nominal Airflow CFM | Nominal Airflow $m^3/hr$ | Face Area $ft^2$ | Row/ FPI | Lbs Per System (Qty) | kg | lbs | ±2 dB(A) |
| ACPSJ015CHP-OA/EW/TP | 3.4 | 1 | 1 | 34.0 | 4/12 | 28 (2) | 1-1/2 (2) | 450 | 6.7 | 2,300 | 3,908 | 9.3 | 5/12 | 59.1 (1) | 1,347 | 2,969 | 66 |
| ACPSJ025CHP-OA/EW/TP | 3.4 | 2 | 2 | 31.2 | 5/12 | 28 (2) | 1-1/2 (2) | 500 | 7.6 | 3,800 | 6,456 | 13.3 | 6/12 | 39.4 (1)<br>29.2 (1) | 1,552 | 3,421 | 68 |
| ACPSJ035CHP-OA/EW/TP | 3.0 | 4 | 2 | 41.6 | 5/12 | 31.7 (2) | 2-2/3 (2) | 560 | 7.5 | 5,300 | 9,005 | 14.7 | 6/12 | 40.5 (1)<br>31.4 (1) | 2,247 | 4,954 | 79 |
| ACPSJ045CHP-OA/EW/TP | 3.3 | 4 | 2 | 58.3 | 5/12 | 28 (4) | 1-1/2 (4) | 560 | 7.5 | 6,900 | 11,723 | 20.2 | 6/12 | 72.2 (1)<br>53.1 (1) | 2,569 | 5,664 | 73 |
| ACPSJ055CHP-OA/EW/TP | 3.2 | 4 | 2 | 89.2 | 3/12 | 31.7 (4) | 2-2/3 (4) | 630 | 10.0 | 8,300 | 14,102 | 25.2 | 6/12 | 72.3 (1)<br>52.4 (1) | 3,120 | 6,878 | 79 |
| ACPSJ080CHP-OA/EW/TP | 3.1 | 8 | 4 | 102.0 | 5/12 | 31.7 (4) | 2-2/3 (4) | 710 | 10.0 | 12,000 | 20,388 | 34.4 | 6/12 | 59.2 (1)<br>38.2 (3) | 4,219 | 9,301 | 80 |
| ACPSJ100CHP-OA/EW/TP | 3.4 | 6 | 3 | 164.3 | 5/12 | 31.7 (6) | 2-2/3 (6) | 800 | 15.0 | 15,000 | 25,485 | 46.9 | 6/12 | 148.9 (1)<br>103.4 (2) | 6,316 | 13,924 | 80 |
| ACPSJ115CHP-OA/EW/TP | 3.4 | 7 | 4 | 191.6 | 5/12 | 28 (2)/ 31.7 (6) | 1-1/2 (2) / 2-2/3 (6) | 900 | 20.0 | 17,300 | 29,393 | 54.7 | 6/12 | 156.6 (1)<br>103.0 (2)<br>51.5 (1) | 7,199 | 15,871 | 80 |
| ACPSJ130CHP-OA/EW/TP | 3.3 | 8 | 4 | 219.0 | 5/12 | 31.7 (8) | 2-2/3 (8) | 900 | 20.0 | 19,500 | 33,131 | 59.9 | 6/12 | 162.0 (1)<br>103.2 (3) | 7,736 | 17,055 | 82 |

Notes: 1. Heat Pump models' cooling capacity is identical with Cooling Only models' cooling capacity.
2. Heating mode ratings are based on nominal airflow with on evaporator dry bulb temperatures of 47°F (8.3°C) and condenser entering air temperature of 47°F (8.3°C).
3. Ratings are gross capacities. For net cooling capacity deduct evaporator blower motor heat, net heating capacity to add blower motor heat.
4. COP published as above are gross COP..
5. Sound Pressure Level is calculated based on nominal airflow at external static pressure of 1in WG. Rated at 3m (10ft) distance away from unit at free field. Unit supply and return are assumed to be entirely insulated. The actual sound at field could be affected by the supply and return duct break out noise.

# GAS HEAT / ELECTRIC HEAT DATA

## GAS HEATING CAPACITY

| Model | | | ACPSJ015 | ACPSJ025 | ACPSJ035 | ACPSJ045 | ACPSJ055 | ACPSJ080 | ACPSJ100 | ACPSJ115 | ACPSJ130 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Type of Gas | | | Natural Gas | | | | | | | | |
| Nominal Airflow, ft³/min | | | 4,800 | 7,800 | 11,000 | 14,000 | 18,000 | 25,000 | 35,000 | 42,000 | 46,000 |
| Gas Heater Input, MBH | | Low Heat | N/A | 250 | 350 | 350 | 400 | 600 | N/A | N/A | N/A |
| | | High Heat | 250 | 400 | 700 | 700 | 800 | 1200 | 1200 | 1200 | 1200 |
| Gas Heater Output, MBH | | Low Heat | N/A | 200 | 280 | 280 | 320 | 480 | N/A | N/A | N/A |
| | | High Heat | 200 | 320 | 560 | 560 | 640 | 960 | 960 | 960 | 960 |
| Steady State Efficiency, % | | | 80 | | | | | | | | |
| Turndown Ratio (Modulating) | | Low Heat | N/A | 5 to 1 | 5 to 1 | 5 to 1 | 10 to 1 | 10 to 1 | N/A | N/A | N/A |
| | | High Heat | 5 to 1 | 10 to 1 | 10 to 1 | 10 to 1 | 10 to 1 | 10 to 1 | 10 to 1 | 10 to 1 | 10 to 1 |
| Min Airflow Permissible, ft³/min | | Low Heat | N/A | 3,122 | 4,351 | 4,351 | 4,966 | 7,423 | N/A | N/A | N/A |
| | | High Heat | 3,122 | 4,966 | 8,652 | 8,652 | 9,881 | 14,797 | 14,797 | 14,797 | 14,797 |
| Natural Gas Inlet Pressure, inwg | Low Heat | Minimum | N/A | 5 | 5 | 5 | 5 | 6 | N/A | N/A | N/A |
| | | Maximum | N/A | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | N/A | N/A | N/A |
| | High Heat | Minimum | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 6 |
| | | Maximum | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 | 13.5 |
| Gas connection, inch (quantity) | | Low Heat | N/A | 3/4" MNPT (1) | 3/4" MNPT (1) | 3/4" MNPT (1) | 3/4" MNPT (1) | 1" MNPT (1) | N/A | N/A | N/A |
| | | High Heat | 3/4" MNPT (1) | 3/4" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) | 2" MNPT (1) |
| Air Pressure Drop Across Heater (for model -NN), inwg | | Low Heat | N/A | 0.60 | 0.13 | 0.21 | 0.37 | 0.50 | N/A | N/A | N/A |
| | | High Heat | 0.25 | 0.37 | 0.04 | 0.06 | 0.10 | 0.29 | 0.53 | 0.75 | 0.89 |
| Air Pressure Drop Across Heater (for model -OA/EW/TP), inwg | | Low Heat | N/A | 0.03 | 0.06 | 0.11 | 0.18 | 0.49 | N/A | N/A | N/A |
| | | High Heat | 0.02 | 0.04 | 0.02 | 0.03 | 0.05 | 0.14 | 0.25 | 0.32 | 0.40 |
| Total Amps @120V | | Low Heat | N/A | 4 | 4 | 4 | 4 | 5 | N/A | N/A | N/A |
| | | High Heat | 4 | 4 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

Notes: 1) Gas heat performance data is based on entering air (on heater) condition 70°F temperature and 29.92"Hg barometric pressure (standard air density).
2) For gas heater installed at elevation more than 2000 ft, heating capacity deration of 4% per 1000 ft elevation shall be applied.
3) For gas heater installed at elevation more than 6000 ft, please consult factory.
4) Max temperature rise across heater = 60°F ; Min temperature rise across heater = 20°F
5) 'Minimum airflow permissible' calculation is based on gas heater full load/fire at 60°F temp rise

## ELECTRIC HEATING CAPACITY

| Model | | ACPSJ015 | ACPSJ025 | ACPSJ035 | ACPSJ045 | ACPSJ055 | ACPSJ080 | ACPSJ100 | ACPSJ115 | ACPSJ130 |
|---|---|---|---|---|---|---|---|---|---|---|
| Nominal Airflow, ft³/min | | 4,800 | 7,800 | 11,000 | 14,000 | 18,000 | 25,000 | 35,000 | 42,000 | 46,000 |
| Stages | | 3 | | | | | 4 | | 5 | |
| Heating Capacity | kW | 24 | 30 | 36 | 45 | 54 | 72 | 84 | 105 | 105 |
| | MBH | 82 | 102 | 123 | 154 | 184 | 246 | 287 | 359 | 359 |
| Delta T* (°F) | | 15.7 | 12.1 | 10.3 | 10.1 | 9.4 | 9.1 | 7.6 | 7.9 | 7.2 |
| Pressure drop (for model -NN), inwg | | 0.10 | 0.11 | 0.18 | 0.20 | 0.25 | 0.28 | 0.29 | 0.30 | 0.30 |
| Pressure drop (for model -OA/EW/TP), inwg | | 0.05 | 0.06 | 0.13 | 0.15 | 0.20 | 0.23 | 0.24 | 0.25 | 0.25 |

Notes: *Temperature difference/rise is calculated at nominal cfm

# BLOWER PERFORMANCE

## ACPSJ-NN

| Model | Airflow on Evaporator Coil | | Fan Size | Internal Static Pressure (ISP) | | External Static Pressure (ESP) | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1.00 | | | | | 1.50 | | | | | 2.00 | | | | |
| | CFM | (m³/h) | | in WG | Pa | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Max Fan Speed RPM | Installed Motor Hp |
| ACPSJ 015-NN | 4,800 | 8,155 | 450 | 0.89 | 221.7 | 1.89 | 1,861 | 2.5 | 2,600 | 6.7 | 2.39 | 1957 | 2.9 | 2,600 | 6.7 | 2.89 | 2,052 | 3.5 | 2,600 | 6.7 |
| ACPSJ 025-NN | 7,800 | 13,252 | 500 | 1.06 | 264.0 | 2.06 | 1,991 | 4.5 | 2,250 | 7.6 | 2.56 | 2059 | 5.3 | 2,250 | 7.6 | 3.06 | 2,127 | 6.1 | 2,250 | 7.6 |
| ACPSJ 035-NN | 11,000 | 18,689 | 630 | 0.93 | 231.6 | 1.93 | 1,338 | 5.4 | 2,200 | 10 | 2.43 | 1,400 | 6.3 | 2,200 | 10 | 2.93 | 1,462 | 7.3 | 2,200 | 10 |
| ACPSJ 045-NN | 14,000 | 23,786 | 710 | 1.10 | 274.0 | 2.10 | 1,206 | 7.2 | 1,940 | 15 | 2.60 | 1,261 | 8.4 | 1,940 | 15 | 3.10 | 1,316 | 9.6 | 1,940 | 15 |
| ACPSJ 055-NN | 18,000 | 30,582 | 800 | 1.06 | 264.0 | 2.06 | 1,074 | 9.1 | 1,730 | 15 | 2.56 | 1122 | 10.7 | 1,730 | 15 | 3.06 | 1,170 | 12.3 | 1,730 | 15 |
| ACPSJ 080-NN | 25,000 | 42,475 | 1000 | 1.09 | 271.5 | 2.09 | 803 | 12.0 | 1,370 | 20 | 2.59 | 847 | 14.2 | 1,370 | 25 | 3.09 | 890 | 16.6 | 1,370 | 25 |
| ACPSJ 100-NN | 35,000 | 59,465 | 1120 | 1.07 | 266.5 | 2.07 | 764 | 17.6 | 1,220 | 30 | 2.57 | 798 | 20.6 | 1,220 | 40 | 3.07 | 833 | 23.8 | 1,220 | 40 |
| ACPSJ 115-NN | 42,000 | 71,358 | 1120 | 1.20 | 298.9 | 2.20 | 871 | 25.2 | 1,220 | 40 | 2.70 | 900 | 28.5 | 1,220 | 50 | 3.20 | 929 | 32.0 | 1,220 | 50 |
| ACPSJ 130-NN | 46,000 | 78,155 | 1120 | 1.12 | 279.0 | 2.12 | 927 | 29.3 | 1,220 | 50 | 2.62 | 953 | 32.9 | 1,220 | 50 | 3.12 | 980 | 36.6 | 1,220 | 50 |

# BLOWER PERFORMANCE

## ACPSJ-OA

| Model | Airflow on Evaporator Coil | | Fan Size | Internal Static Pressure (ISP) | | External Static Pressure (ESP) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1.00 | | | | | | 1.50 | | | | | | 2.00 | | | | | |
| | CFM | ($m^3$/h) | | in WG | Pa | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp |
| ACPSJ 015-OA | 2,300 | 3,908 | 450 | 1.04 | 259.0 | 2.04 | 1,418 | 1.2 | n/a | 2,600 | 6.7 | 2.54 | 1547 | 1.6 | n/a | 2,600 | 6.7 | 3.04 | 1,667 | 1.9 | - | 2,600 | 6.7 |
| ACPSJ 025-OA | 3,800 | 6,456 | 500 | 1.20 | 298.9 | 2.20 | 1,421 | 2.1 | n/a | 2,250 | 7.6 | 2.70 | 1527 | 2.5 | n/a | 2,250 | 7.6 | 3.20 | 1,625 | 3.0 | - | 2,250 | 7.6 |
| ACPSJ 035-OA | 5,300 | 9,005 | 560 | 1.44 | 358.7 | 2.44 | 1,281 | 3.0 | 4 | 2,430 | 5 | 2.94 | 1,370 | 3.6 | 4 | 2,430 | 7.5 | 3.44 | 1,454 | 4.3 | 4 | 2,430 | 7.5 |
| ACPSJ 045-OA | 6,900 | 11,723 | 560 | 1.37 | 341.2 | 2.37 | 1,407 | 3.9 | 4 | 2,430 | 7.5 | 2.87 | 1,484 | 4.6 | 4 | 2,430 | 7.5 | 3.37 | 1,558 | 5.4 | 4 | 2,430 | 7.5 |
| ACPSJ 055-OA | 8,300 | 14,102 | 630 | 1.40 | 348.7 | 2.40 | 1,181 | 4.5 | 6 | 2,200 | 7.5 | 2.90 | 1248 | 5.3 | 4 | 2,200 | 10 | 3.40 | 1,314 | 6.2 | 4 | 2,200 | 10 |
| ACPSJ 080-OA | 12,000 | 20,388 | 710 | 1.47 | 366.1 | 2.47 | 1,126 | 6.9 | 6 | 1,940 | 10 | 2.97 | 1179 | 8.1 | 6 | 1,940 | 10 | 3.47 | 1,231 | 9.3 | 4 | 1,940 | 15 |
| ACPSJ 100-OA | 15,000 | 25,485 | 800 | 1.36 | 338.7 | 2.36 | 980 | 8.3 | 6 | 1,730 | 15 | 2.86 | 1028 | 9.7 | 6 | 1,730 | 15 | 3.36 | 1075 | 11.2 | 6 | 1,730 | 15 |
| ACPSJ 115-OA | 17,300 | 29,393 | 900 | 1.34 | 333.7 | 2.34 | 830 | 9.2 | 6 | 1,520 | 15 | 2.84 | 876 | 10.9 | 6 | 1,520 | 20 | 3.34 | 921 | 12.7 | 6 | 1,520 | 20 |
| ACPSJ 130-OA | 19,500 | 33,131 | 900 | 1.52 | 378.6 | 2.52 | 898 | 11.5 | 6 | 1,520 | 20 | 3.02 | 939 | 13.3 | 6 | 1,520 | 20 | 3.52 | 980 | 15.3 | 6 | 1,520 | 25 |

## ACPSJ-EW

| Model | Airflow on Evaporator Coil | | Fan Size | Internal Static Pressure (ISP) | | External Static Pressure (ESP) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1.00 | | | | | | 1.50 | | | | | | 2.00 | | | | | |
| | CFM | ($m^3$/h) | | in WG | Pa | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressurei n WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressurei n WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp |
| ACPSJ 015-EW | 2,300 | 3,908 | 450 | 1.62 | 403.5 | 2.62 | 1,566 | 1.6 | n/a | 2,600 | 6.7 | 3.12 | 1685 | 2.0 | n/a | 2,600 | 6.7 | 3.62 | 1,798 | 2.3 | - | 2,600 | 6.7 |
| ACPSJ 025-EW | 3,800 | 6,456 | 500 | 1.81 | 450.8 | 2.81 | 1,549 | 2.6 | n/a | 2,250 | 7.6 | 3.31 | 1646 | 3.1 | n/a | 2,250 | 7.6 | 3.81 | 1,737 | 3.6 | - | 2,250 | 7.6 |
| ACPSJ 035-EW | 5,300 | 9,005 | 560 | 2.03 | 505.6 | 3.03 | 1,385 | 3.7 | 4 | 2,430 | 7.5 | 3.53 | 1,469 | 4.4 | 4 | 2,430 | 7.5 | 4.03 | 1,549 | 5.2 | 4 | 2,430 | 7.5 |
| ACPSJ 045-EW | 6,900 | 11,723 | 560 | 2.02 | 503.1 | 3.02 | 1,507 | 4.8 | 4 | 2,430 | 7.5 | 3.52 | 1,580 | 5.6 | 4 | 2,430 | 7.5 | 4.02 | 1,652 | 6.4 | 4 | 2,430 | 10 |
| ACPSJ 055-EW | 8,300 | 14,102 | 630 | 2.20 | 547.9 | 3.20 | 1,288 | 5.8 | 4 | 2,200 | 10 | 3.70 | 1353 | 6.7 | 4 | 2,200 | 10 | 4.20 | 1,418 | 7.7 | 4 | 2,200 | 15 |
| ACPSJ 080-EW | 12,000 | 20,388 | 710 | 2.61 | 650.1 | 3.61 | 1,245 | 9.6 | 4 | 1,940 | 20 | 4.11 | 1297 | 10.8 | 4 | 1,940 | 20 | 4.61 | 1,348 | 12.1 | 4 | 1,940 | 20 |
| ACPSJ 100-EW | 15,000 | 25,485 | 800 | 2.31 | 575.3 | 3.31 | 1,071 | 11.1 | 6 | 1,730 | 15 | 3.81 | 1117 | 12.6 | 6 | 1,730 | 15 | 4.31 | 1163 | 14.2 | 6 | 1,730 | 20 |
| ACPSJ 115-EW | 17,300 | 29,393 | 900 | 2.26 | 562.9 | 3.26 | 914 | 12.4 | 6 | 1,520 | 20 | 3.76 | 959 | 14.2 | 6 | 1,520 | 20 | 4.26 | 1003 | 16.2 | 6 | 1,520 | 25 |
| ACPSJ 130-EW | 19,500 | 33,131 | 900 | 2.57 | 640.1 | 3.57 | 984 | 15.4 | 6 | 1,520 | 25 | 4.07 | 1,024 | 17.4 | 6 | 1,520 | 25 | 4.57 | 1064 | 19.6 | 6 | 1,520 | 25 |

## ACPSJ-TP

| Model | Airflow on Evaporator Coil | | Fan Size | Internal Static Pressure (ISP) | | External Static Pressure (ESP) | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | 1.00 | | | | | | 1.50 | | | | | | 2.00 | | | | | |
| | CFM | ($m^3$/h) | | in WG | Pa | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp | Total Static Pressure in WG | Fan Speed RPM | Brake Horse Power BHP | Motor No. of Poles | Max Fan Speed RPM | Installed Motor Hp |
| ACPSJ 015-TP | 2,300 | 3,908 | 450 | 1.40 | 348.7 | 2.40 | 1,512 | 1.5 | n/a | 2,600 | 6.7 | 2.90 | 1634 | 1.8 | n/a | 2,600 | 6.7 | 3.40 | 1,749 | 2.1 | - | 2,600 | 6.7 |
| ACPSJ 025-TP | 3,800 | 6,456 | 500 | 1.68 | 418.4 | 2.68 | 1,523 | 2.5 | n/a | 2,250 | 7.6 | 3.18 | 1621 | 2.9 | n/a | 2,250 | 7.6 | 3.68 | 1,713 | 3.5 | - | 2,250 | 7.6 |
| ACPSJ 035-TP | 5,300 | 9,005 | 560 | 2.02 | 503.1 | 3.02 | 1,383 | 3.7 | 4 | 2,430 | 7.5 | 3.52 | 1,467 | 4.4 | 4 | 2,430 | 7.5 | 4.02 | 1,547 | 5.1 | 4 | 2,430 | 7.5 |
| ACPSJ 045-TP | 6,900 | 11,723 | 560 | 1.97 | 490.7 | 2.97 | 1,499 | 4.8 | 4 | 2,430 | 7.5 | 3.47 | 1,573 | 5.5 | 4 | 2,430 | 7.5 | 3.97 | 1,645 | 6.3 | 4 | 2,430 | 10 |
| ACPSJ 055-TP | 8,300 | 14,102 | 630 | 2.00 | 498.1 | 3.00 | 1,261 | 5.5 | 4 | 2,200 | 10 | 3.50 | 1327 | 6.4 | 4 | 2,200 | 10 | 4.00 | 1,392 | 7.3 | 4 | 2,200 | 15 |
| ACPSJ 080-TP | 12,000 | 20,388 | 710 | 2.09 | 520.5 | 3.09 | 1,191 | 8.3 | 6 | 1,940 | 10 | 3.59 | 1243 | 9.5 | 4 | 1,940 | 20 | 4.09 | 1,295 | 10.8 | 4 | 1,940 | 20 |
| ACPSJ 100-TP | 15,000 | 25,485 | 800 | 2.04 | 508.1 | 3.04 | 1,045 | 10.2 | 6 | 1,730 | 15 | 3.54 | 1092 | 11.7 | 6 | 1,730 | 15 | 4.04 | 1138 | 13.3 | 6 | 1,730 | 20 |
| ACPSJ 115-TP | 17,300 | 29,393 | 900 | 2.02 | 503.1 | 3.02 | 892 | 11.5 | 6 | 1,520 | 20 | 3.52 | 937 | 13.3 | 6 | 1,520 | 20 | 4.02 | 981 | 15.3 | 6 | 1,520 | 25 |
| ACPSJ 130-TP | 19,500 | 33,131 | 900 | 2.20 | 547.9 | 3.20 | 953 | 14.1 | 6 | 1,520 | 20 | 3.70 | 994 | 16.0 | 6 | 1,520 | 25 | 4.20 | 1034 | 18.0 | 6 | 1,520 | 25 |

Notes: 1) Model 015 and 025 are using EC (Electronically Commutated) plenum fan.
2) For model 015 and 025, the stated "Brake Horse Power" information is "Power Input" information.
3) Internal static pressure (ISP) includes pressure drops through evaporator coil, standard filter and unit casing.
4) Please consult factory for shaded area and ESP exceeds what has been specified in the above table.

# AIRFLOW RANGE

### ACPSJ-NN

| Model | Min Airflow ft³/min | Nominal Airflow ft³/min | Max Airflow ft³/min |
|---|---|---|---|
| ACPSJ015-NN | 3,600 | 4,800 | 5,700 |
| ACPSJ025-NN | 6,000 | 7,800 | 8,500 |
| ACPSJ035-NN | 8,800 | 11,000 | 16,000 |
| ACPSJ045-NN | 9,000 | 14,000 | 16,500 |
| ACPSJ055-NN | 12,000 | 18,000 | 22,000 |
| ACPSJ080-NN | 18,200 | 25,000 | 31,500 |
| ACPSJ100-NN | 25,900 | 35,000 | 47,300 |
| ACPSJ115-NN | 27,500 | 42,000 | 50,300 |
| ACPSJ130-NN | 32,300 | 46,000 | 59,200 |

### ACPSJ- OA/EW/TP

| Model | Min Airflow, ft³/min | Nominal Airflow, ft³/min | Max Airflow, ft³/min |
|---|---|---|---|
| ACPSJ015-OA/EW/TP | 2,000 | 2,300 | 3,400 |
| ACPSJ025-OA/EW/TP | 3,300 | 3,800 | 5,700 |
| ACPSJ035-OA/EW/TP | 4,600 | 5,300 | 7,000 |
| ACPSJ045-OA/EW/TP | 5,900 | 6,900 | 9,900 |
| ACPSJ055-OA/EW/TP | 7,200 | 8,300 | 12,100 |
| ACPSJ080-OA/EW/TP | 10,400 | 12,000 | 16,800 |
| ACPSJ100-OA/EW/TP | 13,000 | 15,000 | 23,000 |
| ACPSJ115-OA/EW/TP | 15,000 | 17,300 | 26,400 |
| ACPSJ130-OA/EW/TP | 16,900 | 19,500 | 29,900 |

### Minimum Airflow Required for Heat Pump Unit when Running near Max On Coil Temperature

| Model | Min Airflow, ft³/min |
|---|---|
| ACPSJ015-HP-OA/EW/TP | 2600 |
| ACPSJ025-HP-OA/EW/TP | 4300 |
| ACPSJ035-HP-OA/EW/TP | 6000 |
| ACPSJ045-HP-OA/EW/TP | 7700 |
| ACPSJ055-HP-OA/EW/TP | 9400 |
| ACPSJ080-HP-OA/EW/TP | 13600 |
| ACPSJ100-HP-OA/EW/TP | 17000 |
| ACPSJ115-HP-OA/EW/TP | 19600 |
| ACPSJ130-HP-OA/EW/TP | 22100 |

Note: Maximum On Coil Temperature is 60°F (DB), 50°F (WB) when unit.

# LIMITS AND CORRECTION FACTORS

## OPERATING LIMITS

### COOLING (AIR TEMPERATURE °F)

| | | DB | WB |
|---|---|---|---|
| OUTDOOR | MAX. | 115 | - |
| | MIN. | 66 | - |

Note: For inverter compressor, maximum ambient temperature is 110°F.

### HEATING (AIR TEMPERATURE °F)

| | | DB | WB |
|---|---|---|---|
| OUTDOOR | MAX. | 75 / 60* | - |
| | MIN. | 15 / 17* | - |

*For ACPSJ-OA/EW/TP

## CORRECTION FACTORS

### TO CORRECT FOR VARIATION IN AIR FLOW, USE THIS MULTIPLIER

| AIR FLOW VARIATION | TOTAL CAPACITY | SENSIBLE CAPACITY |
|---|---|---|
| 0.9 | 0.980 | 0.950 |
| 1.0 | 1.000 | 1.000 |
| 1.1 | 1.015 | 1.045 |

### TO CORRECT FOR ALTITUDE, USE THIS MULTIPLIER

| AIR ABOVE SEA LEVEL - FT | COOLING CAPACITY |
|---|---|
| 0 | 1 |
| 2000 | 0.98 |
| 3000 | 0.97 |
| 4000 | 0.96 |
| 5000 | 0.95 |
| 6000 | 0.93 |

# ELECTRICAL DATA

## 208V/3Ph/60Hz

| Model | Sys | Compressor | | Compressor Rating | | | Condenser Fan | | | Evaporator Blower (Std.) | | | | Unit Rating (Std.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | Power Supply | MRA (Each) | NRA (Each) | LRA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | LRA (Each) | FLA | MCA | MFS |
| ACPSJ015 | 1 | 1 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | 2 | 1.5 | 4.3 | 1 | 7.3 | 17.2 | - | 75.0 | 87.3 | 150.0 |
| ACPSJ025 | 1 | 1 | 200-230V/3PH/60Hz | 55.0 | 43.7 | 245 | 2 | 1.5 | 4.3 | 1 | 8.2 | 19.9 | - | 115.9 | 126.8 | 175.0 |
| | 2 | 1 | 200-230V/3PH/60Hz | 55.0 | 43.7 | 245 | | | | | | | | | | |
| ACPSJ035 | 1 | 2 | 200-230V/3PH/60Hz | 35.5 | 31.3 | 240 | 2 | 2.7 | 7.5 | 1 | 10.0 | 25.7 | 179.2 | 165.8 | 173.6 | 225.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 35.5 | 31.3 | 240 | | | | | | | | | | |
| ACPSJ045 | 1 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | 4 | 1.5 | 4.3 | 1 | 15.0 | 38.3 | 256.7 | 197.4 | 207.0 | 250.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| ACPSJ055 | 1 | 2 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | 4 | 2.7 | 7.5 | 1 | 15.0 | 40.9 | 256.7 | 267.8 | 280.1 | 350.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | | | | | | | | | | |
| ACPSJ080 | 1 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | 4 | 2.7 | 7.5 | 1 | 20.0 | 54.2 | 320.8 | 368.0 | 381.6 | 450.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| | 4 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| ACPSJ100 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 6 | 2.7 | 7.5 | 1 | 30.0 | 83.0 | 481.2 | 486.8 | 507.5 | 600.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| ACPSJ115 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 2 | 1.5 | 4.3 | 1 | 40.0 | 102.9 | 641.6 | 575.1 | 600.8 | 800.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 6 | 2.7 | 7.5 | | | | | | | |
| | 4 | 1 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| ACPSJ130 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 8 | 2.7 | 7.5 | 1 | 50.0 | 128.8 | 802.0 | 667.2 | 699.4 | 1000.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 4 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |

Note: Consult factory for electrical data if the above does not match the unit requirement.

## 230V/3Ph/60Hz

| Model | Sys | Compressor | | Compressor Rating | | | Condenser Fan | | | Evaporator Blower (Std.) | | | | Unit Rating (Std.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | Power Supply | MRA (Each) | NRA (Each) | LRA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | LRA (Each) | FLA | MCA | MFS |
| ACPSJ015 | 1 | 1 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | 2 | 1.5 | 4.2 | 1 | 7.3 | 16.6 | - | 74.2 | 86.5 | 150.0 |
| ACPSJ025 | 1 | 1 | 200-230V/3PH/60Hz | 55.0 | 43.7 | 245 | 2 | 1.5 | 4.2 | 1 | 8.2 | 18.6 | - | 114.4 | 125.3 | 175.0 |
| | 2 | 1 | 200-230V/3PH/60Hz | 55.0 | 43.7 | 245 | | | | | | | | | | |
| ACPSJ035 | 1 | 2 | 200-230V/3PH/60Hz | 35.5 | 31.3 | 240 | 2 | 2.7 | 7.1 | 1 | 10.0 | 23.2 | 162.0 | 162.5 | 170.3 | 225.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 35.5 | 31.3 | 240 | | | | | | | | | | |
| ACPSJ045 | 1 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | 4 | 1.5 | 4.2 | 1 | 15.0 | 34.6 | 232.0 | 193.3 | 202.2 | 250.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| ACPSJ055 | 1 | 2 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | 4 | 2.7 | 7.1 | 1 | 15.0 | 37.0 | 232.0 | 262.3 | 274.6 | 350.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 59.0 | 49.2 | 300 | | | | | | | | | | |
| ACPSJ080 | 1 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | 4 | 2.7 | 7.1 | 1 | 20.0 | 49.0 | 290.0 | 361.2 | 373.5 | 450.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| | 4 | 2 | 200-230V/3PH/60Hz | 40.5 | 35.5 | 240 | | | | | | | | | | |
| ACPSJ100 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 6 | 2.7 | 7.1 | 1 | 30.0 | 75.0 | 435.0 | 476.4 | 495.2 | 600.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| ACPSJ115 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 2 | 1.5 | 4.2 | 1 | 40.0 | 93.0 | 580.0 | 562.6 | 585.9 | 700.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 6 | 2.7 | 7.1 | | | | | | | |
| | 4 | 1 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| ACPSJ130 | 1 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | 8 | 2.7 | 7.1 | 1 | 50.0 | 116.4 | 725.0 | 651.6 | 680.7 | 800.0 |
| | 2 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 3 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |
| | 4 | 2 | 200-230V/3PH/60Hz | 74.0 | 59.8 | 340 | | | | | | | | | | |

Note: Consult factory for electrical data if the above does not match the unit requirement.

# ELECTRICAL DATA

## 460V/3PH/60Hz

| Model | Sys | Compressor | | Compressor Rating | | | Condenser Fan | | | Evaporator Blower (Std.) | | | | Unit Rating (Std.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | Power Supply | MRA (Each) | NRA (Each) | LRA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | LRA (Each) | FLA | MCA | MFS |
| **ACPSJ015** | 1 | 1 | 460V/3PH/60Hz | 31.0 | 23.9 | 150 | 2 | 1.5 | 2.2 | 1 | 6.7 | 7.8 | - | 36.1 | 42.0 | 70.0 |
| **ACPSJ025** | 1 | 1 | 460V/3PH/60Hz | 25.0 | 20.7 | 125 | 2 | 1.5 | 2.2 | 1 | 7.6 | 9.0 | - | 54.8 | 60.0 | 90.0 |
| | 2 | 1 | 460V/3PH/60Hz | 25.0 | 20.7 | 125 | | | | | | | | | | |
| **ACPSJ035** | 1 | 2 | 460V/3PH/60Hz | 18.2 | 16.6 | 130 | 2 | 2.7 | 4.0 | 1 | 10.0 | 11.6 | 81.0 | 85.8 | 90.0 | 110.0 |
| | 2 | 2 | 460V/3PH/60Hz | 18.2 | 16.6 | 130 | | | | | | | | | | |
| **ACPSJ045** | 1 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | 4 | 1.5 | 2.2 | 1 | 15.0 | 17.3 | 116.0 | 103.6 | 108.5 | 150.0 |
| | 2 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | | | | | | | | | | |
| **ACPSJ055** | 1 | 2 | 460V/3PH/60Hz | 31.0 | 23.9 | 150 | 4 | 2.7 | 4.0 | 1 | 15.0 | 18.5 | 116.0 | 130.0 | 135.9 | 175.0 |
| | 2 | 2 | 460V/3PH/60Hz | 31.0 | 23.9 | 150 | | | | | | | | | | |
| **ACPSJ080** | 1 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | 4 | 2.7 | 4.0 | 1 | 20.0 | 24.5 | 145.0 | 195.5 | 201.6 | 250.0 |
| | 2 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | | | | | | | | | | |
| | 3 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | | | | | | | | | | |
| | 4 | 2 | 460V/3PH/60Hz | 21.6 | 19.4 | 140 | | | | | | | | | | |
| **ACPSJ100** | 1 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | 6 | 2.7 | 4.0 | 1 | 30.0 | 37.5 | 217.5 | 243.0 | 252.3 | 300.0 |
| | 2 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| | 3 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| **ACPSJ115** | 1 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | 2 | 1.5 | 2.2 | 1 | 40.0 | 46.5 | 290.0 | 286.6 | 298.2 | 350.0 |
| | 2 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| | 3 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | 6 | 2.7 | 4.0 | | | | | | | |
| | 4 | 1 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| **ACPSJ130** | 1 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | 8 | 2.7 | 4.0 | 1 | 50.0 | 58.2 | 362.5 | 332.2 | 346.7 | 450.0 |
| | 2 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| | 3 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |
| | 4 | 2 | 460V/3PH/60Hz | 34.0 | 30.2 | 179 | | | | | | | | | | |

Note: Consult factory for electrical data if the above does not match the unit requirement.

## 575V/3PH/60Hz

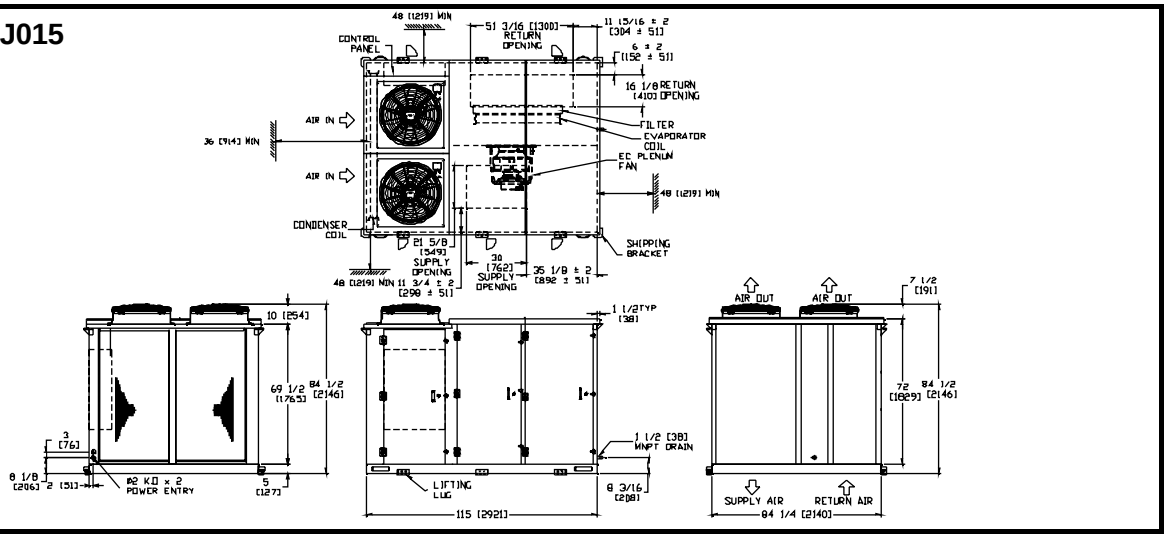
| Model | Sys | Compressor | | Compressor Rating | | | Condenser Fan | | | Evaporator Blower (Std.) | | | | Unit Rating (Std.) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Qty | Power Supply | MRA (Each) | NRA (Each) | LRA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | Qty | Mtr. HP (Each) | FLA (Each) | LRA (Each) | FLA | MCA | MFS |
| ACPSJ035 | 1 | 2 | 575V/3PH/60Hz | 14.0 | 12.7 | 93.7 | 2 | 2.7 | 3.2 | 1 | 10.0 | 9.3 | 64.8 | 66.3 | 69.4 | 90.0 |
| | 2 | 2 | 575V/3PH/60Hz | 14.0 | 12.7 | 93.7 | | | | | | | | | | |
| ACPSJ045 | 1 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | 4 | 1.5 | 1.8 | 1 | 15.0 | 13.8 | 92.8 | 80.6 | 84.3 | 110.0 |
| | 2 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | | | | | | | | | | |
| ACPSJ055 | 1 | 2 | 575V/3PH/60Hz | 24.0 | 21.3 | 109 | 4 | 2.7 | 3.2 | 1 | 15.0 | 14.8 | 92.8 | 112.9 | 118.3 | 150.0 |
| | 2 | 2 | 575V/3PH/60Hz | 24.0 | 21.3 | 109 | | | | | | | | | | |
| ACPSJ080 | 1 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | 4 | 2.7 | 3.2 | 1 | 20.0 | 19.6 | 116.0 | 151.5 | 156.4 | 200.0 |
| | 2 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | | | | | | | | | | |
| | 3 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | | | | | | | | | | |
| | 4 | 2 | 575V/3PH/60Hz | 16.7 | 14.9 | 107.6 | | | | | | | | | | |
| ACPSJ100 | 1 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | 6 | 2.7 | 3.2 | 1 | 30.0 | 30.0 | 174.0 | 197.6 | 205.1 | 250.0 |
| | 2 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| | 3 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| ACPSJ115 | 1 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | 2 | 1.5 | 1.8 | 1 | 40.0 | 37.2 | 232.0 | 233.1 | 242.4 | 300.0 |
| | 2 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| | 3 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | 6 | 2.7 | 3.2 | | | | | | | |
| | 4 | 1 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| ACPSJ130 | 1 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | 8 | 2.7 | 3.2 | 1 | 50.0 | 46.6 | 290.0 | 270.0 | 281.6 | 350.0 |
| | 2 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| | 3 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |
| | 4 | 2 | 575V/3PH/60Hz | 27.0 | 24.7 | 132 | | | | | | | | | | |

Note: Consult factory for electrical data if the above does not match the unit requirement.

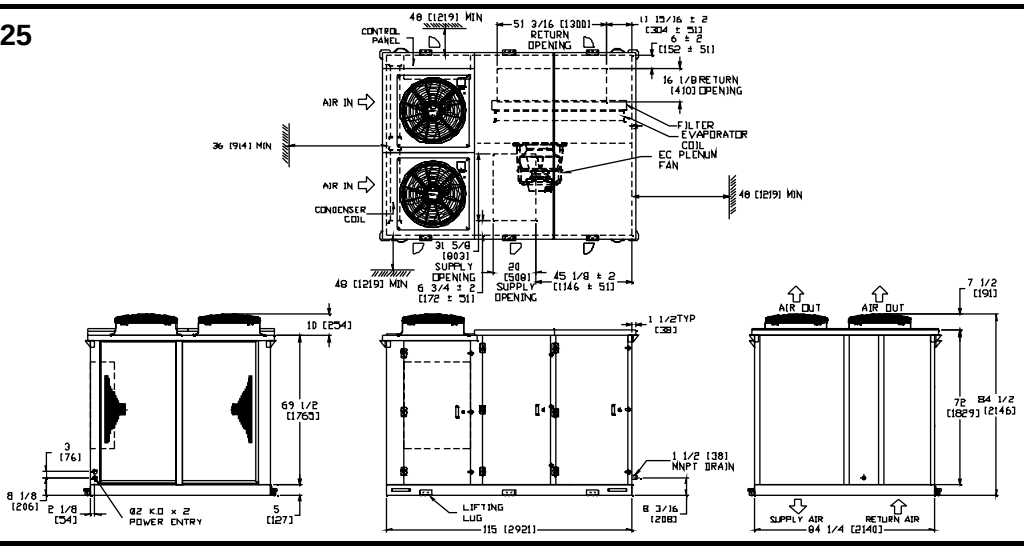
# DIMENSIONAL DATA

## 1. BASIC UNIT ACPSJ-NN

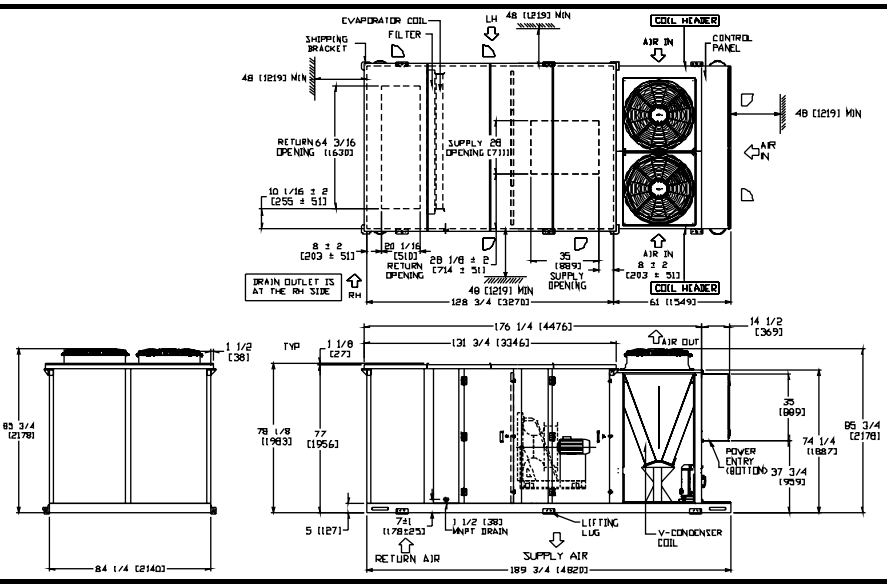
### ACPSJ015




### ACPSJ025



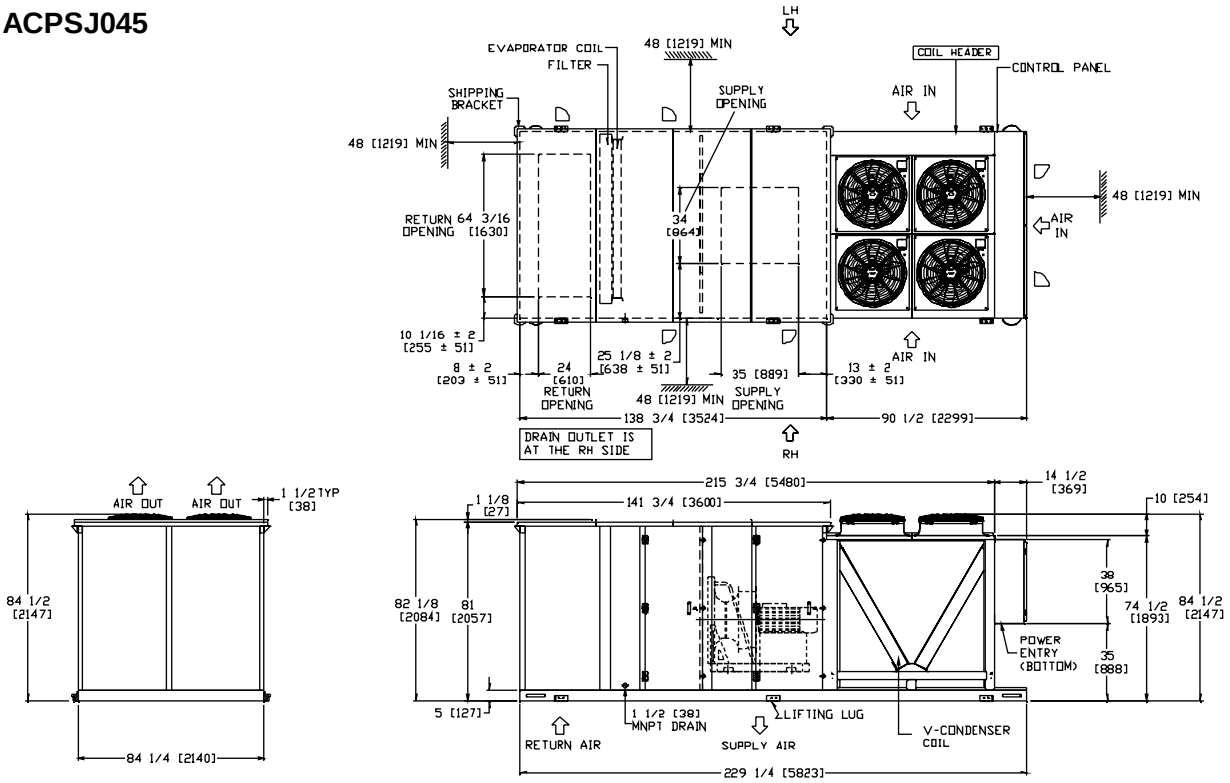

### ACPSJ035



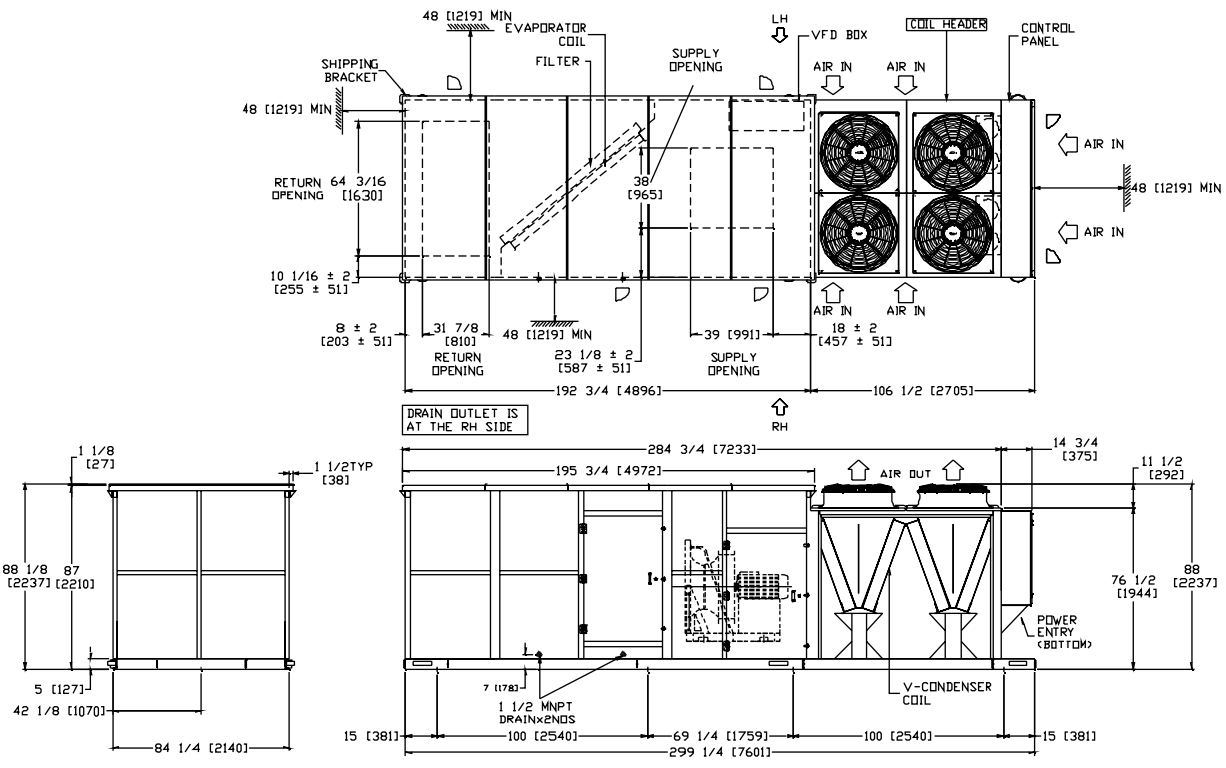

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



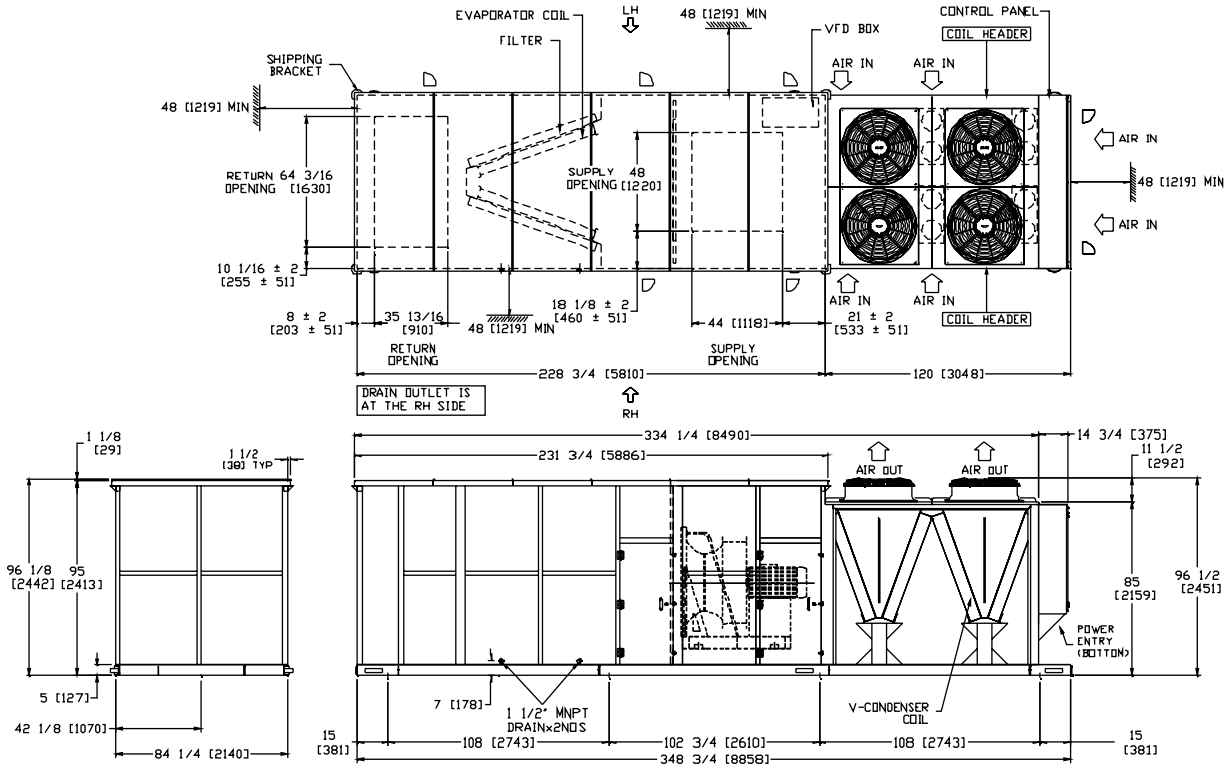

## ACPSJ055



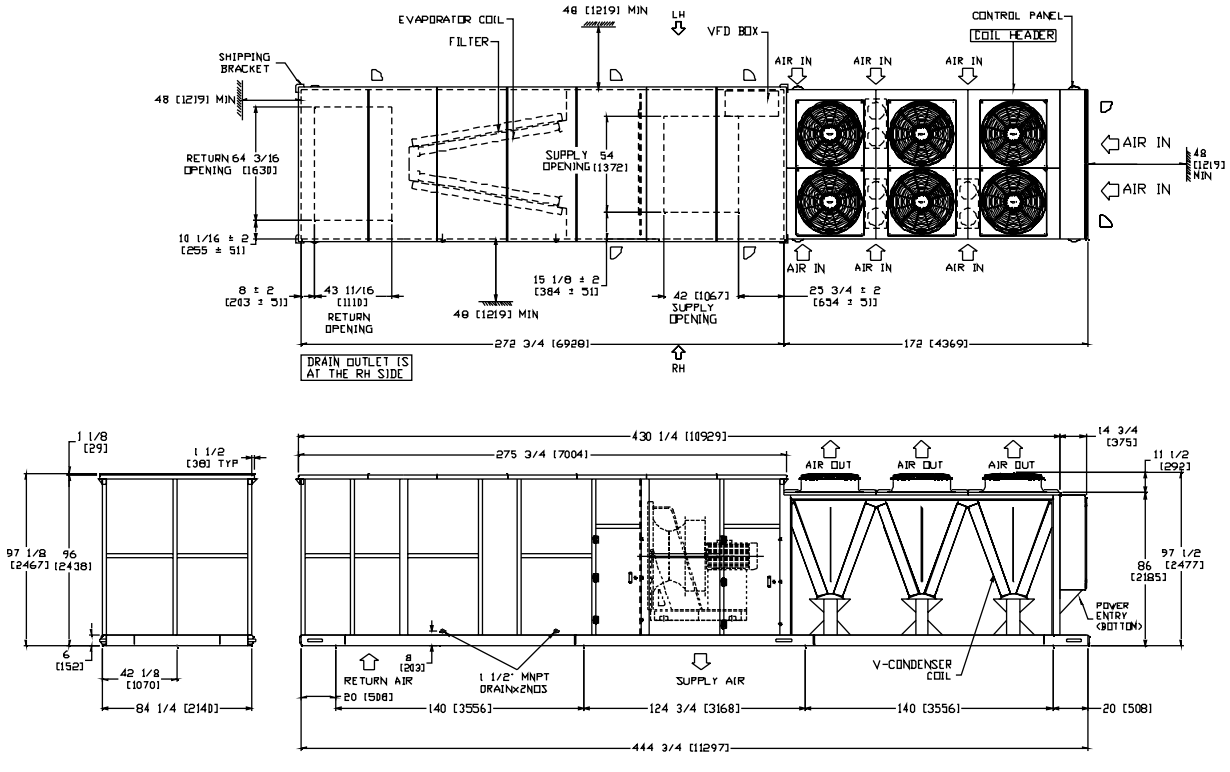

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



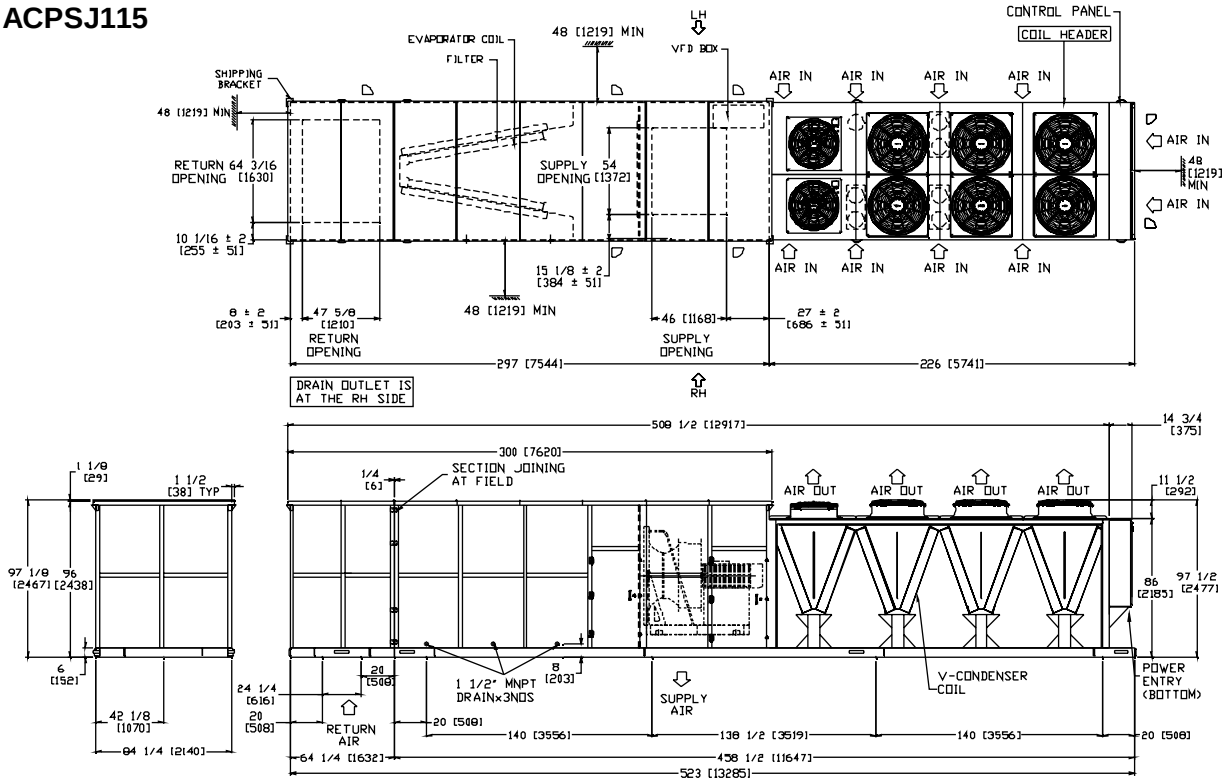

## ACPSJ100




Note: All dimensions are in inches [mm].

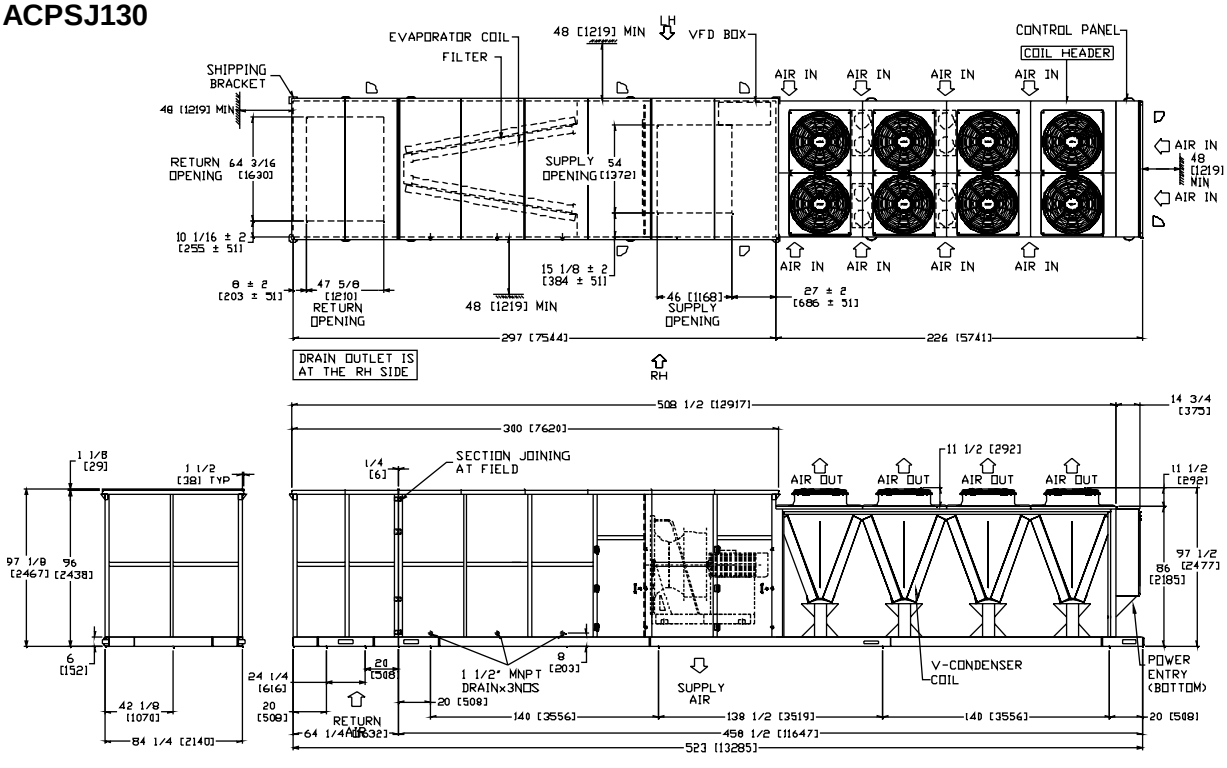
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



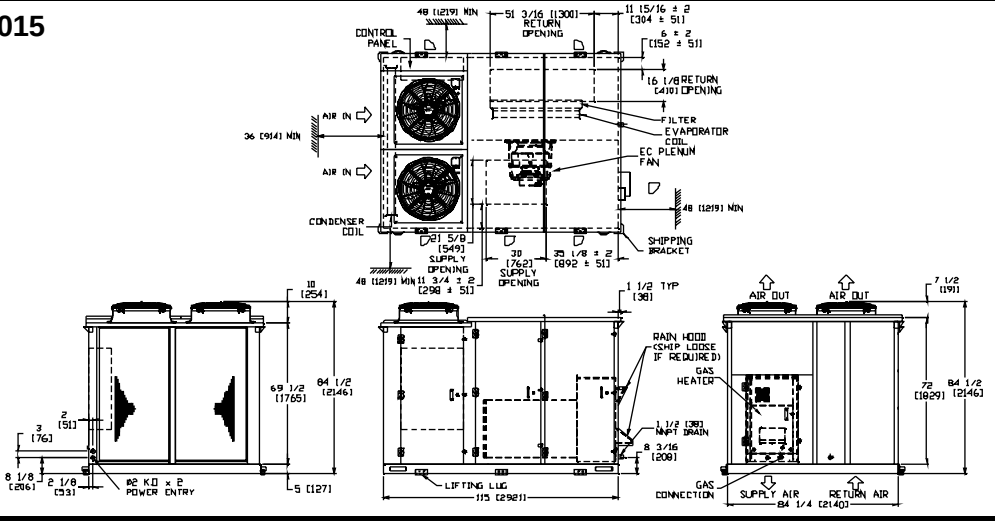

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

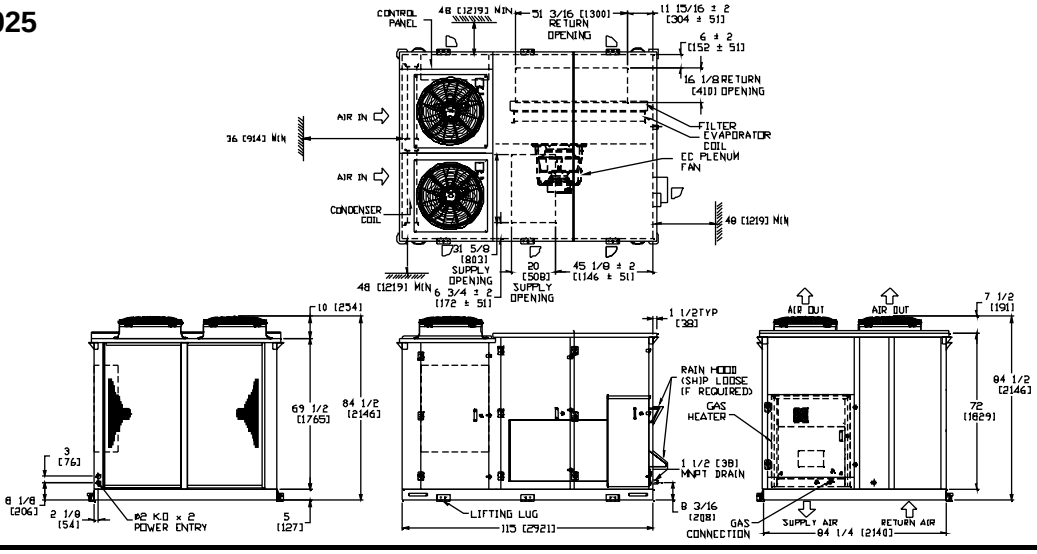
# DIMENSIONAL DATA

## 2. BASIC UNIT ACPSJ-NN WITH GAS HEATING MODELS

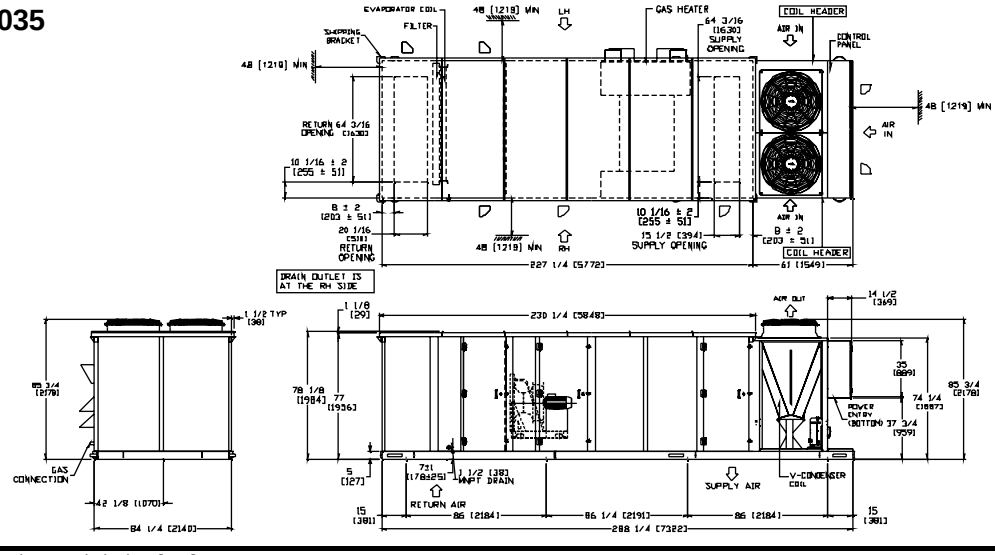
**ACPSJ015**




**ACPSJ025**



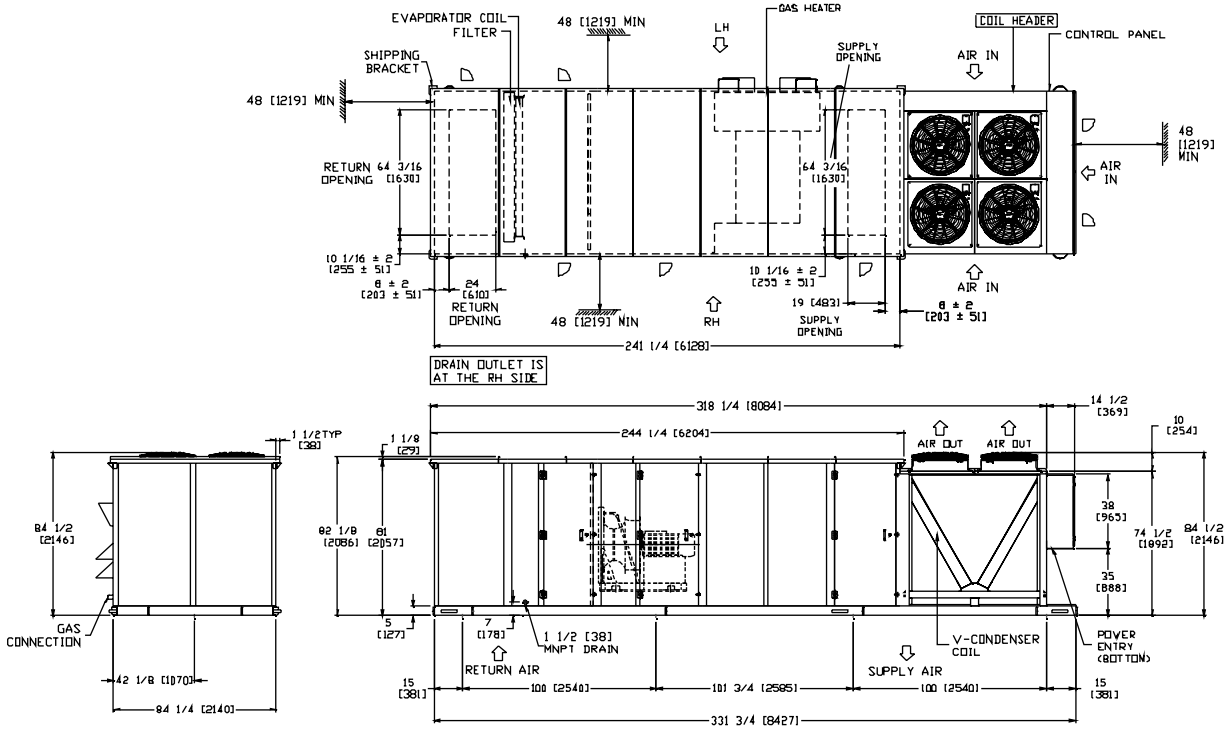

**ACPSJ035**



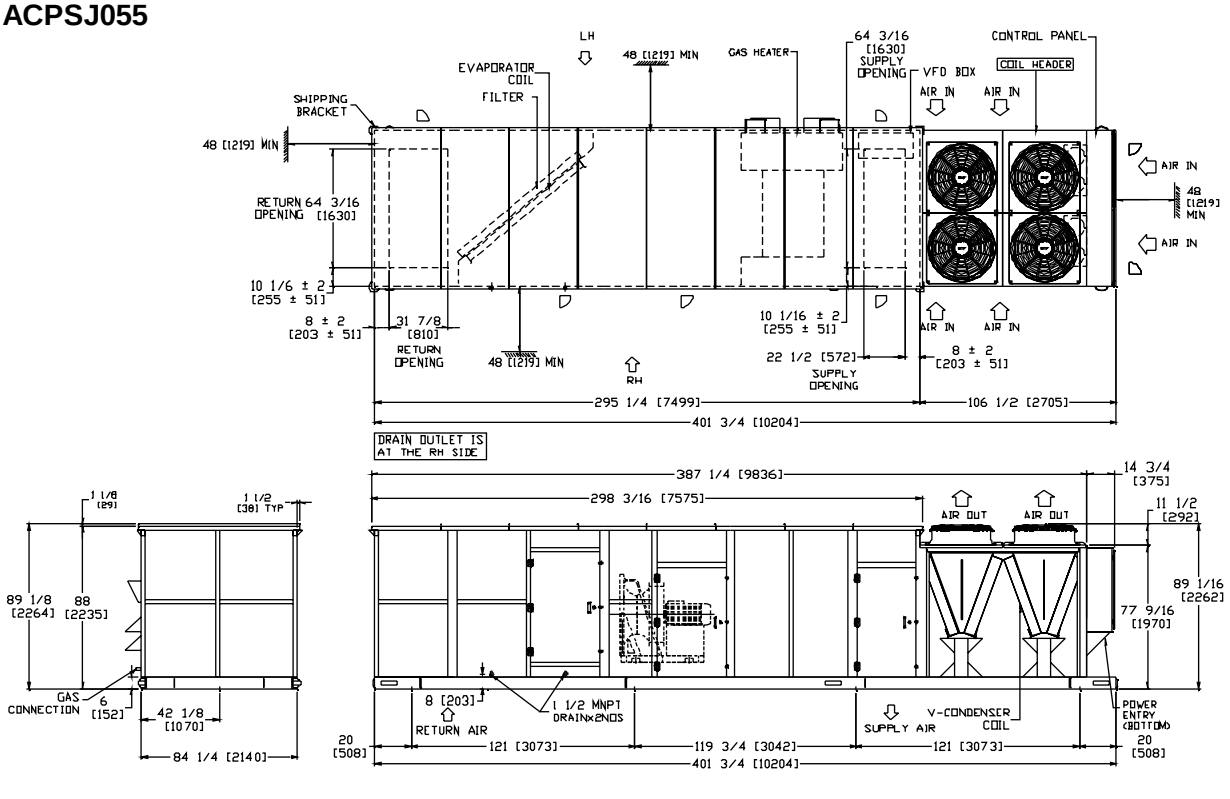

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



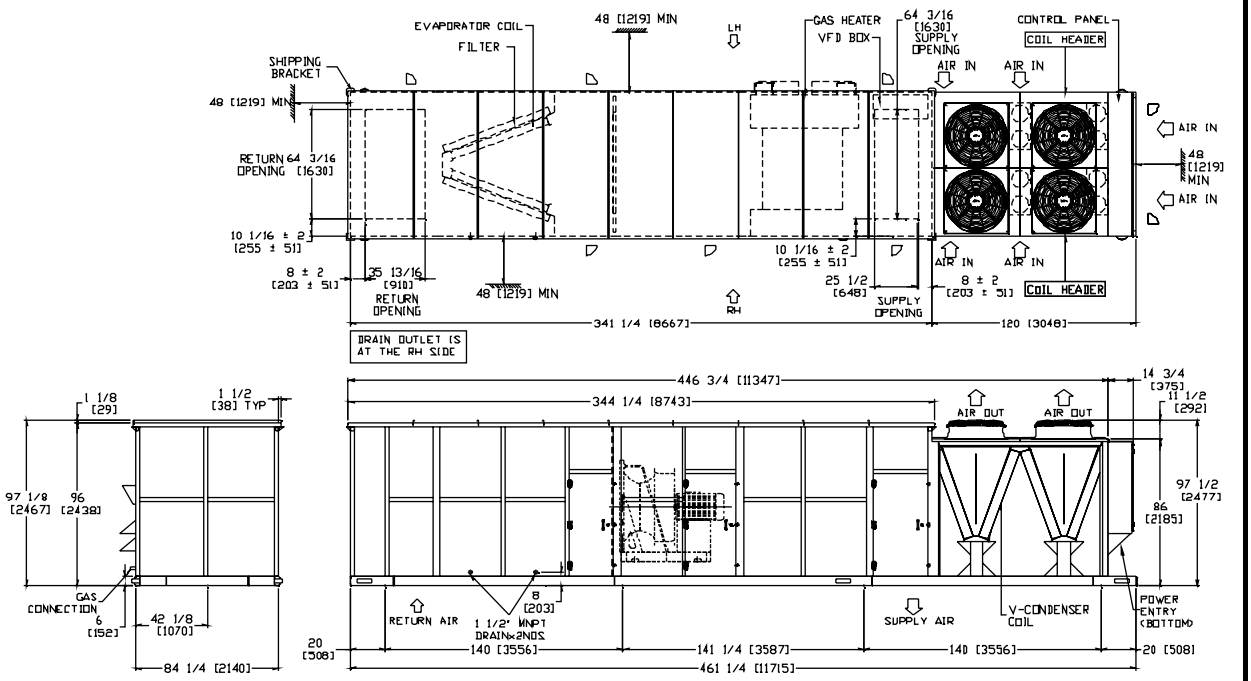

## ACPSJ055



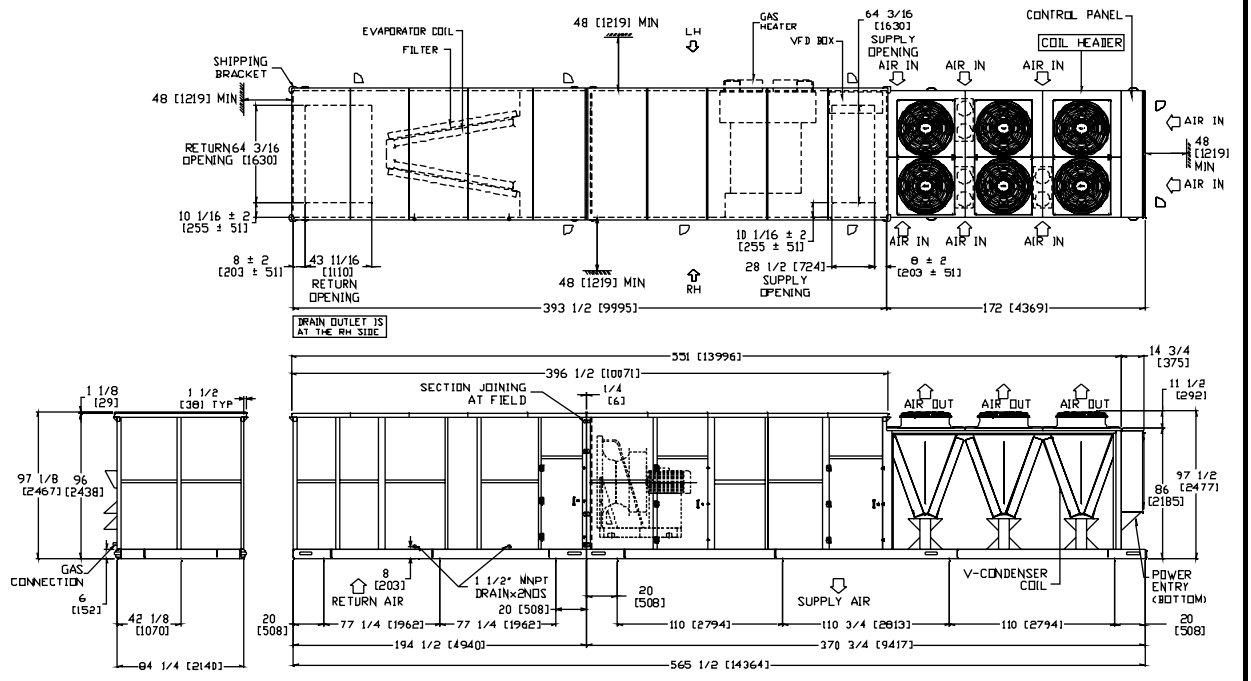

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080




## ACPSJ100

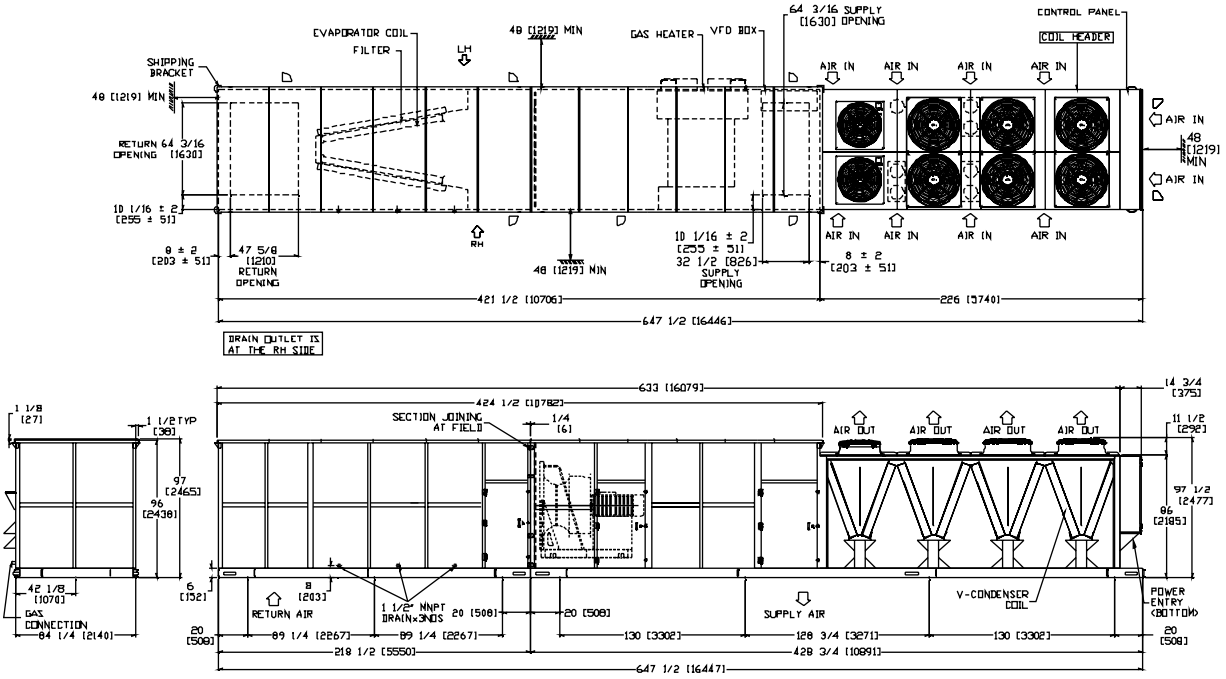



Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

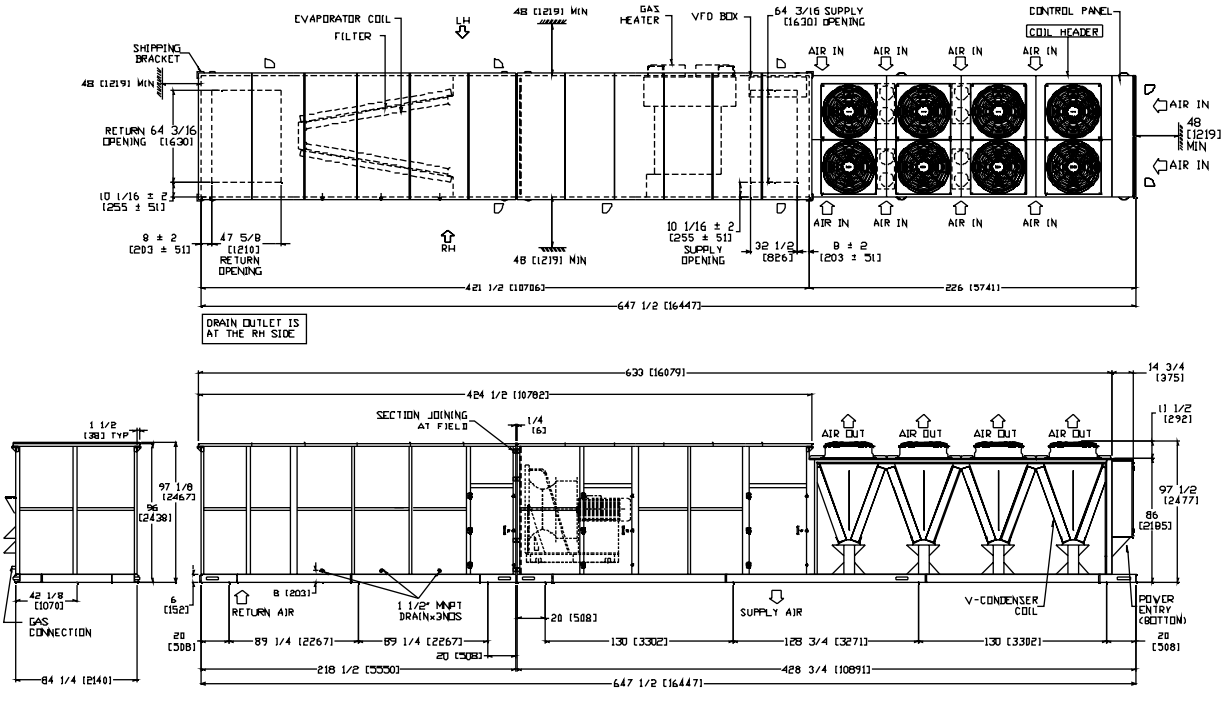
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



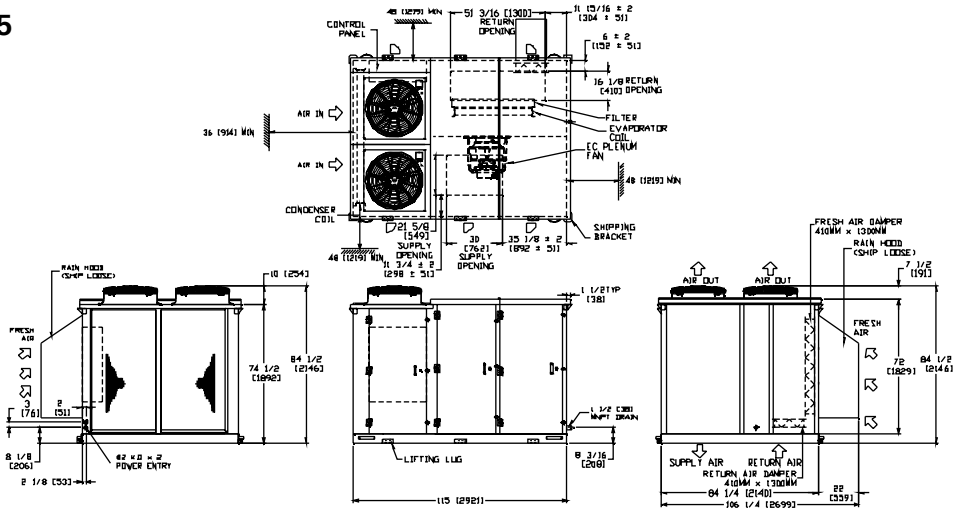

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

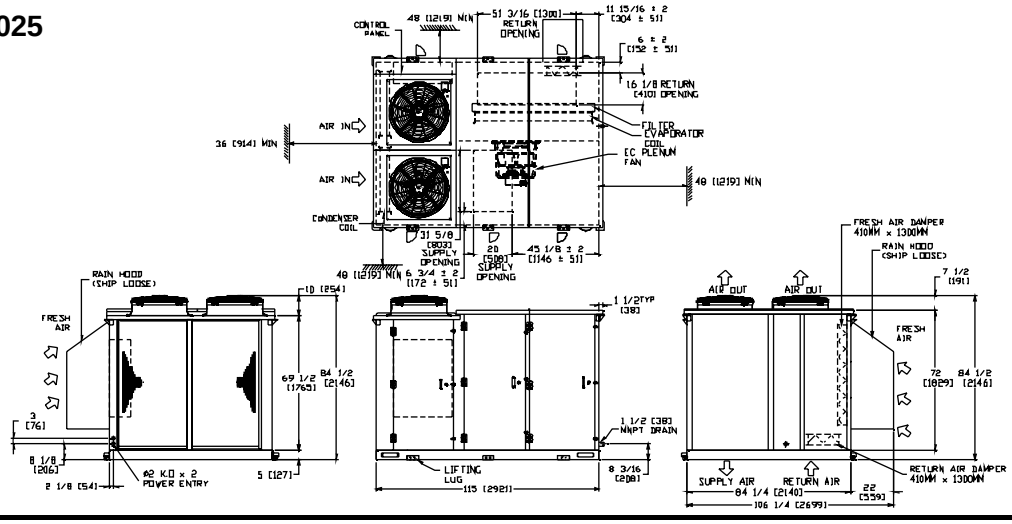
# DIMENSIONAL DATA

## 3. BASIC UNIT ACPSJ-NN WITH ECONOMIZER MODELS

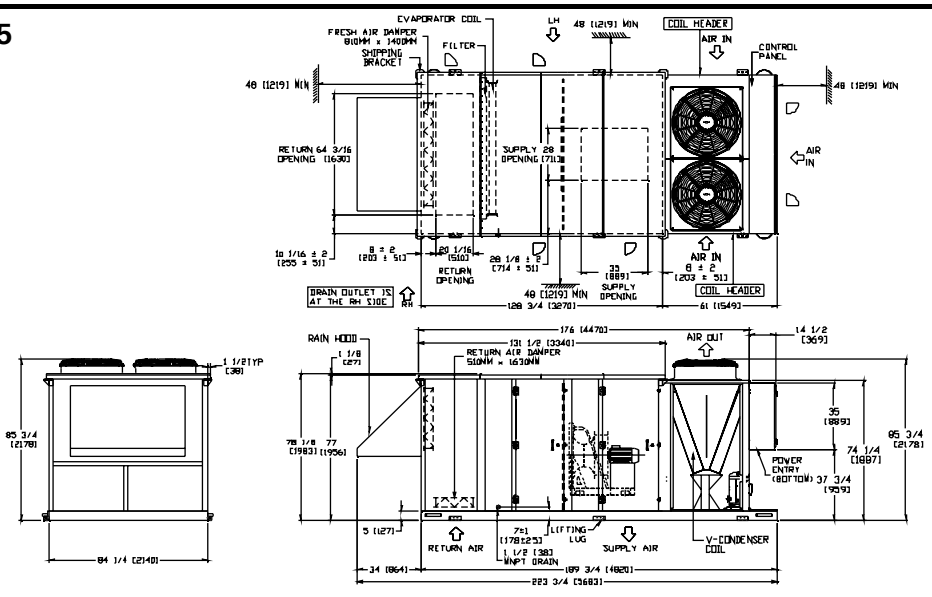
**ACPSJ015**




**ACPSJ025**



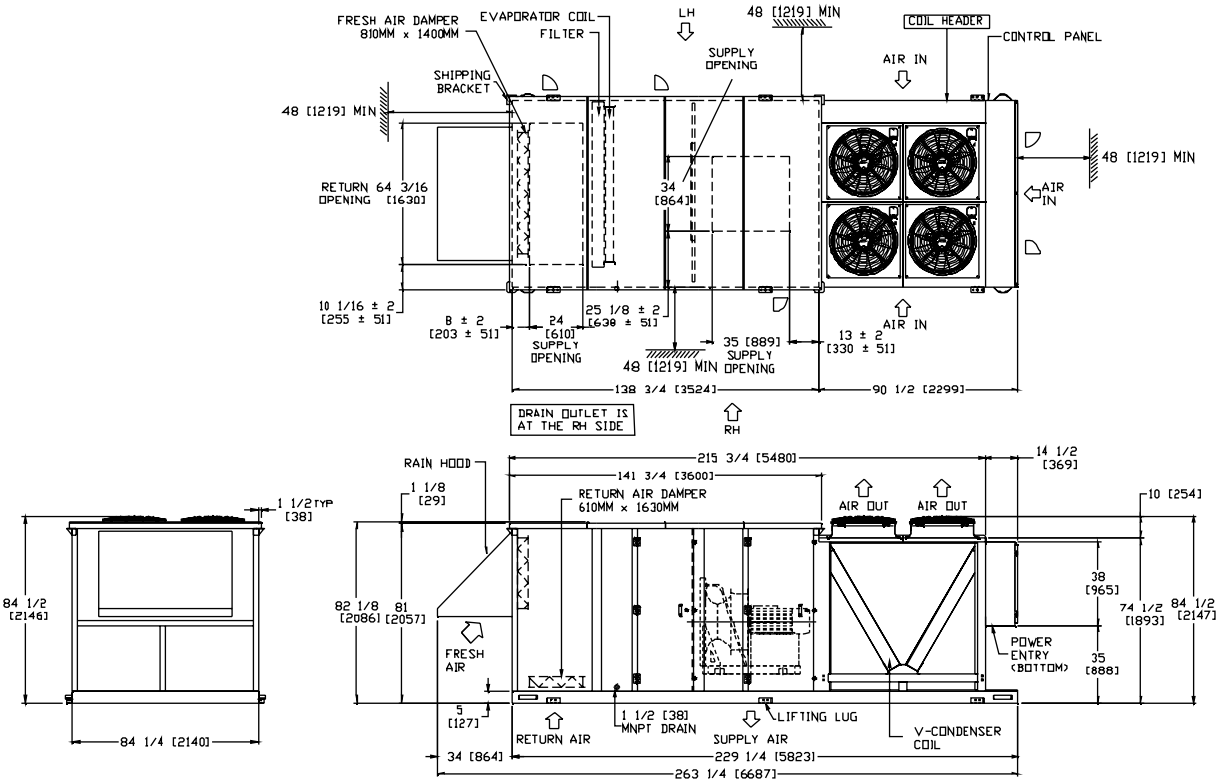

**ACPSJ035**



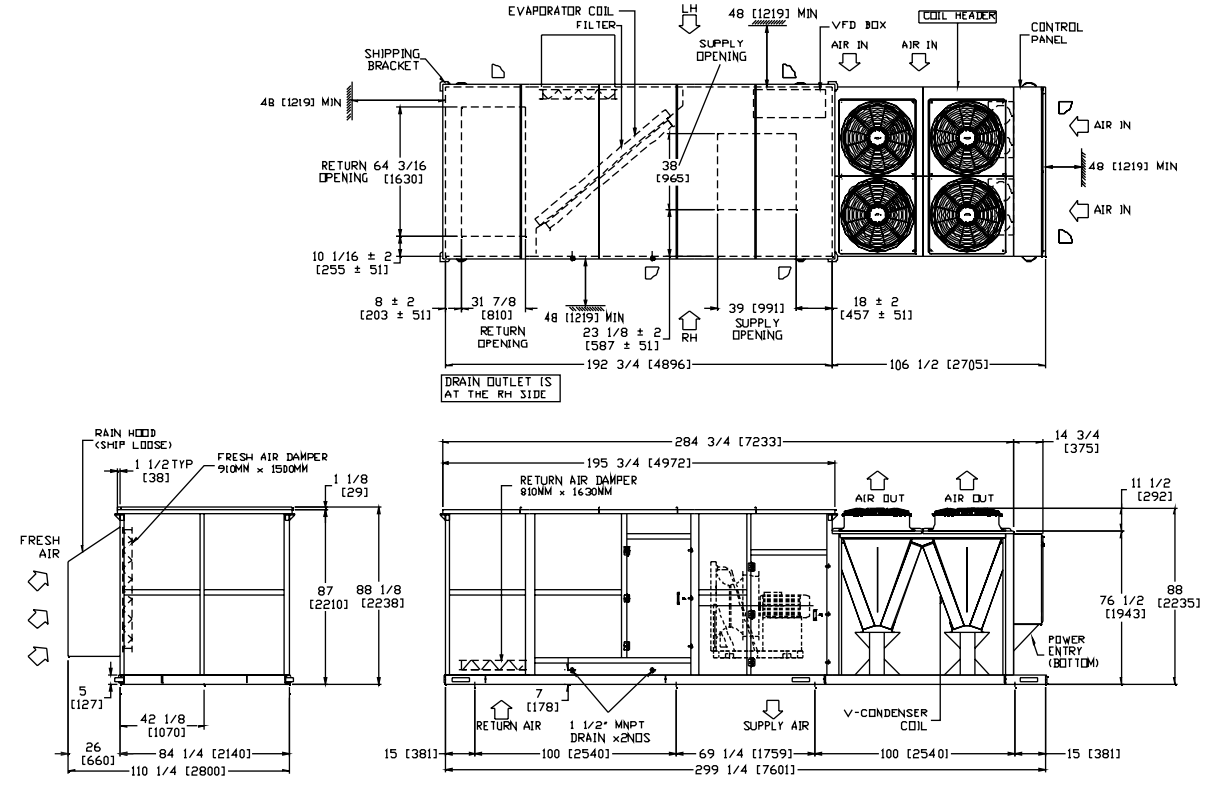

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



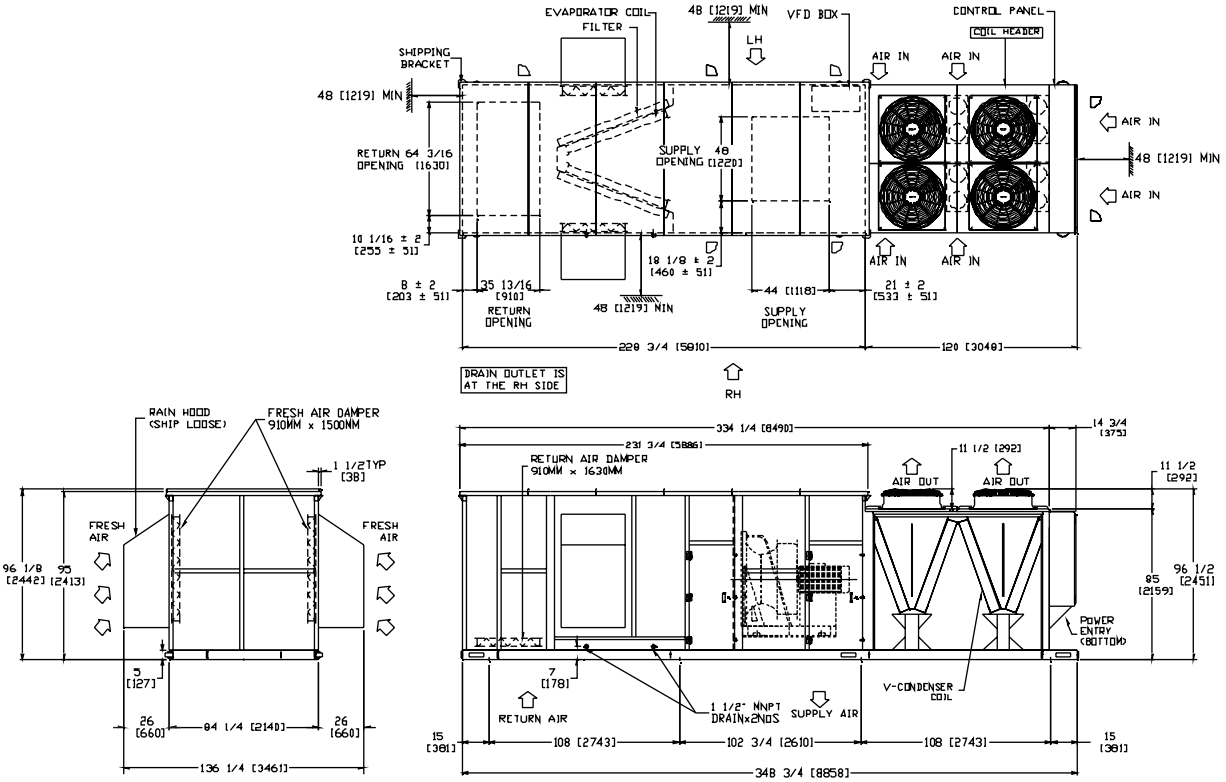

## ACPSJ055



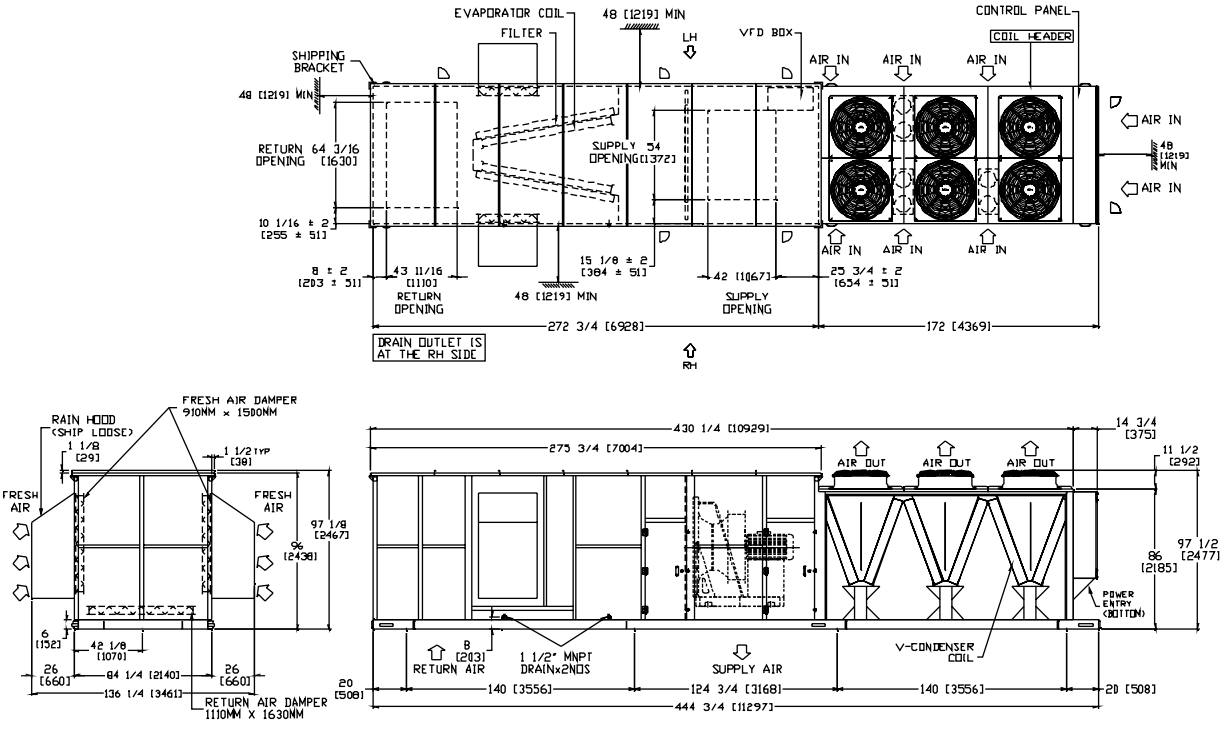

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



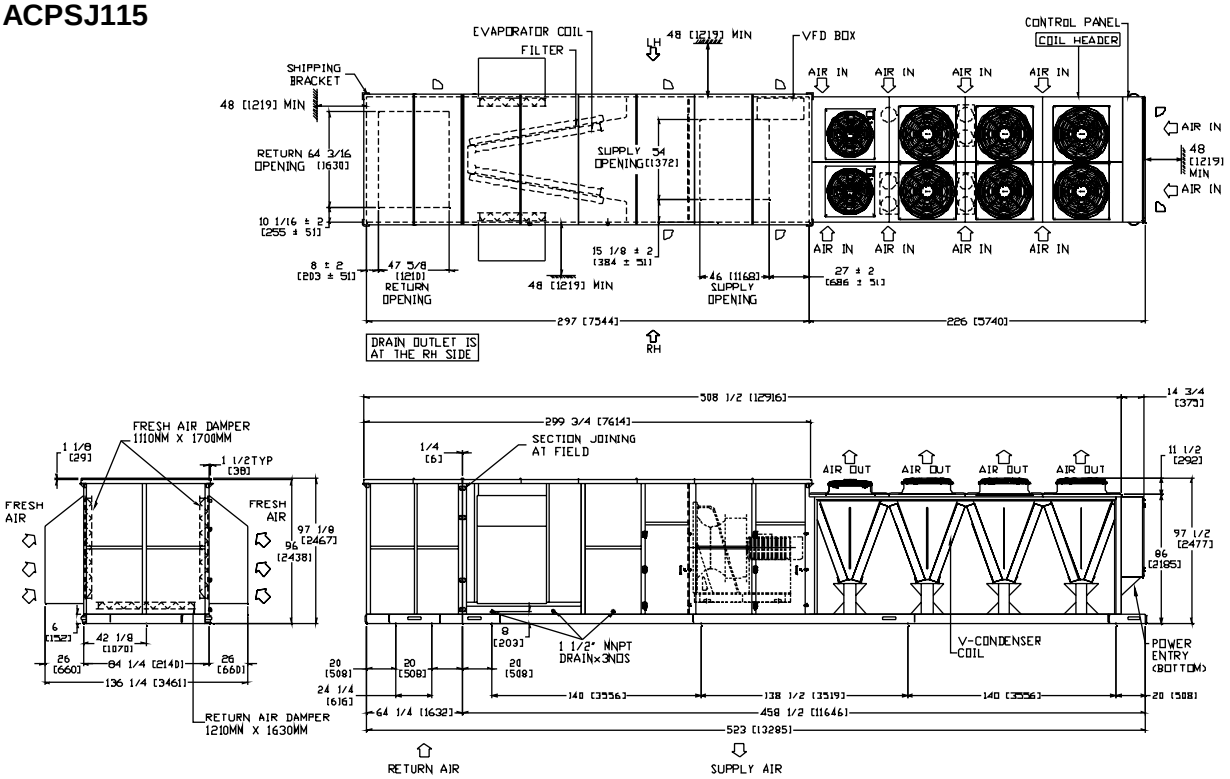

## ACPSJ100




Note: All dimensions are in inches [mm].

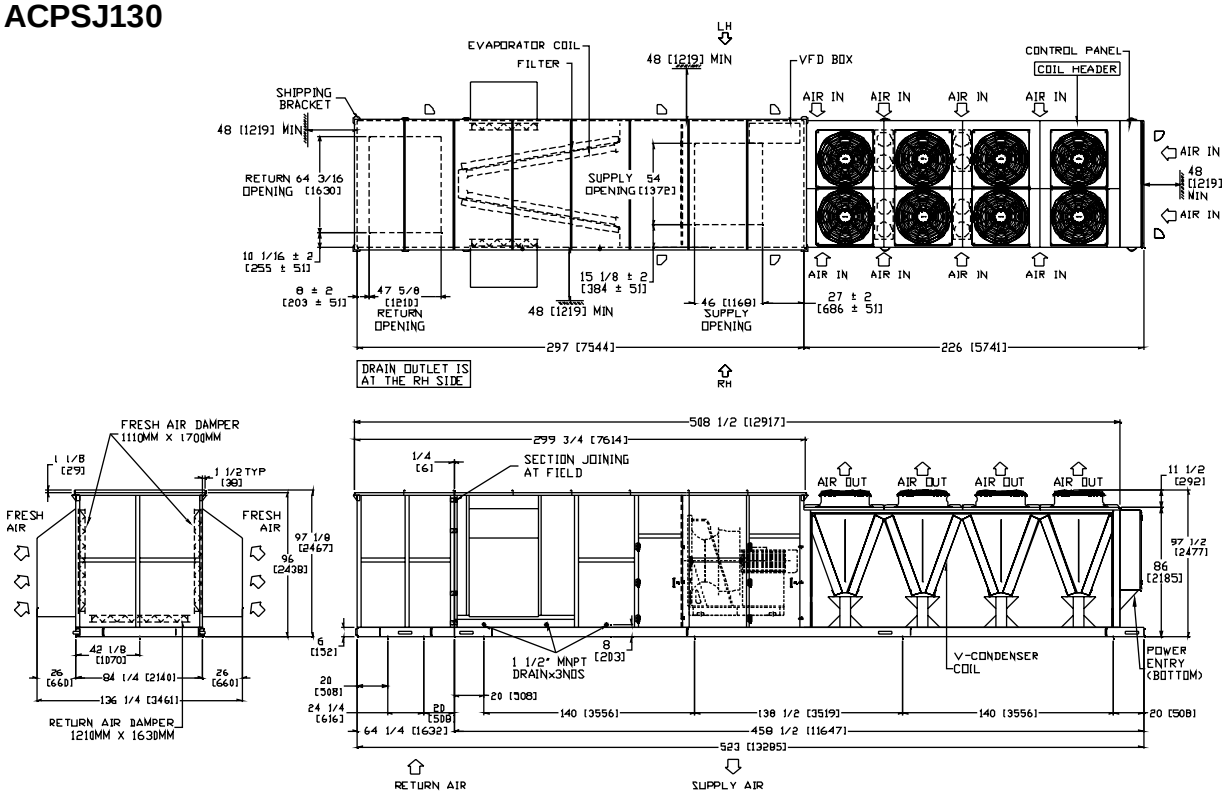
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



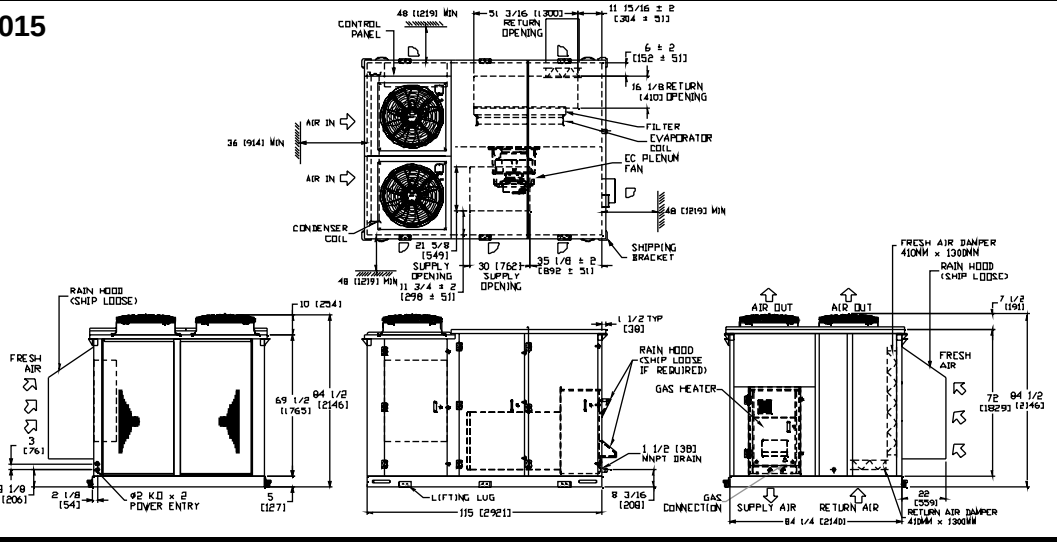

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

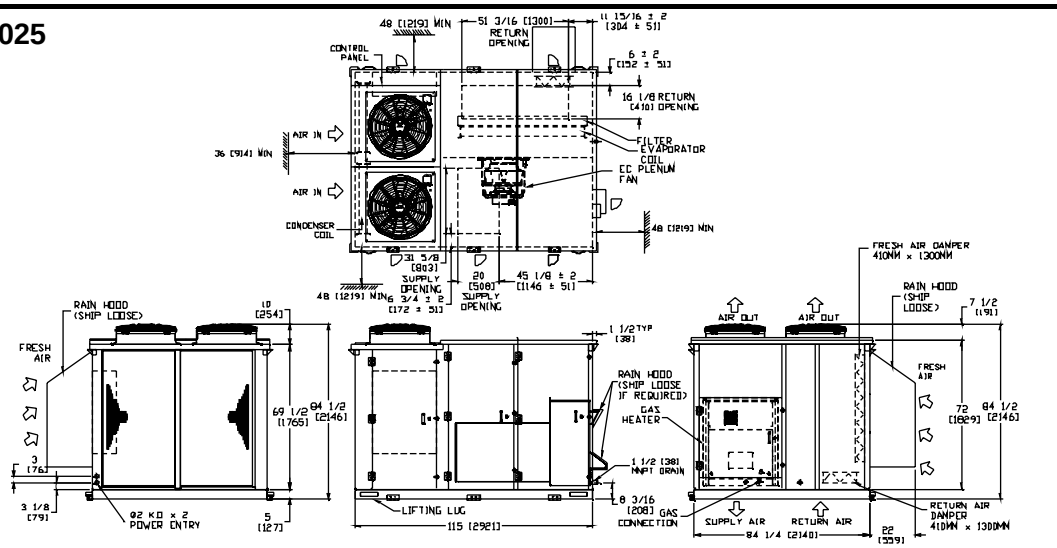
# DIMENSIONAL DATA

## 4. BASIC UNIT ACPSJ-NN WITH ECONOMIZER AND GAS HEATING MODELS

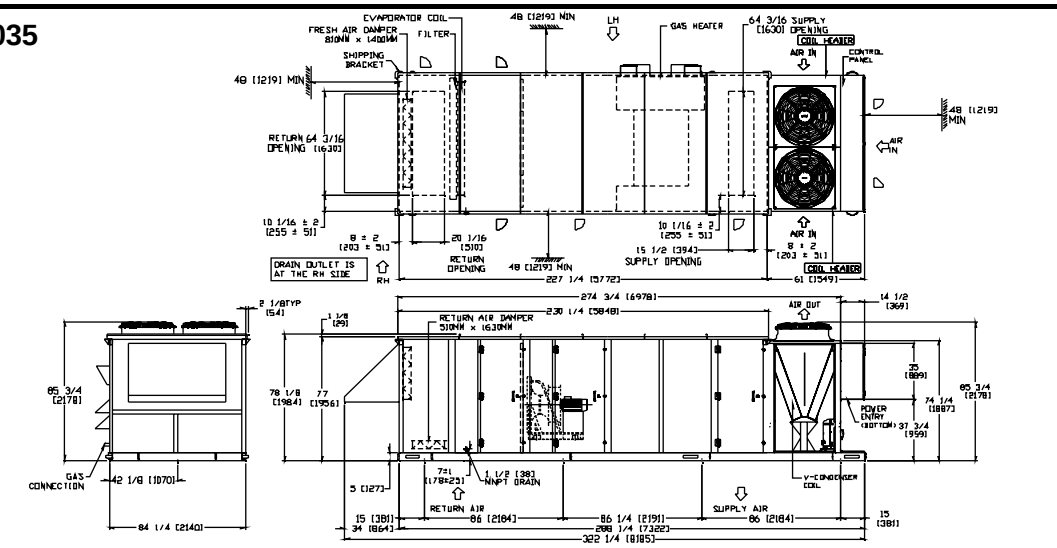
**ACPSJ015**




**ACPSJ025**



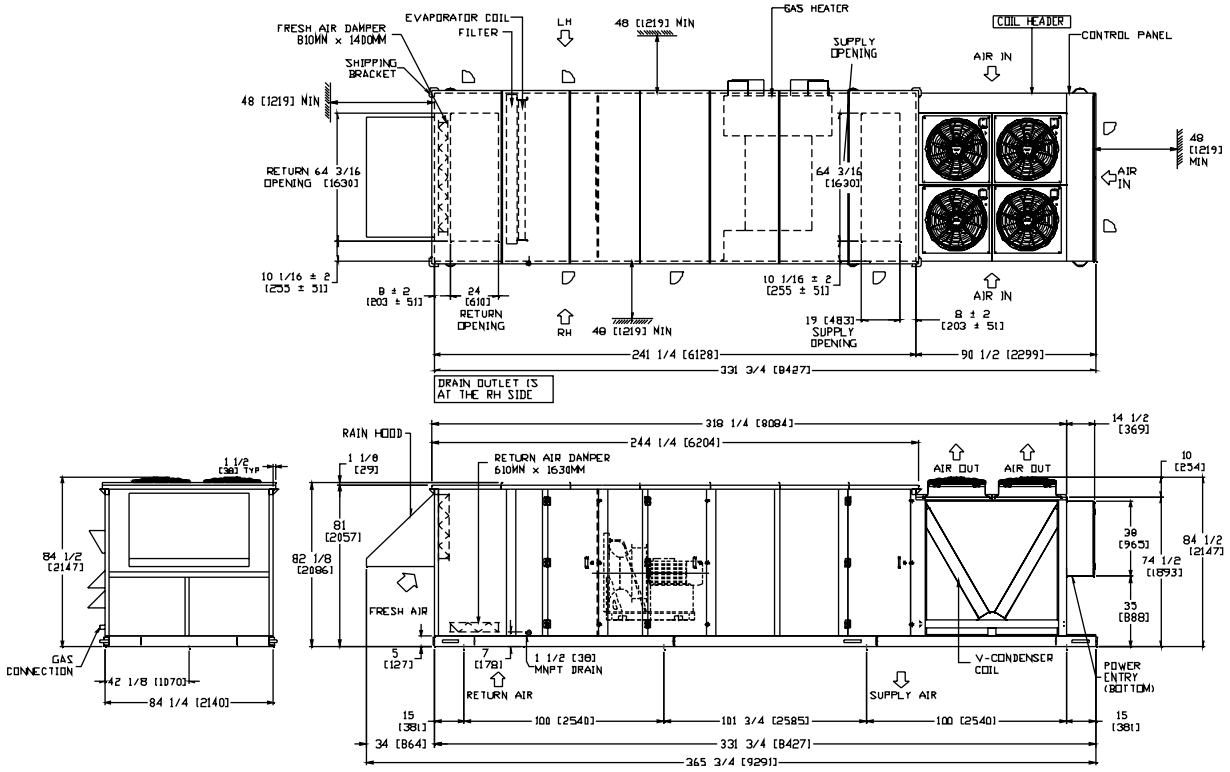

**ACPSJ035**



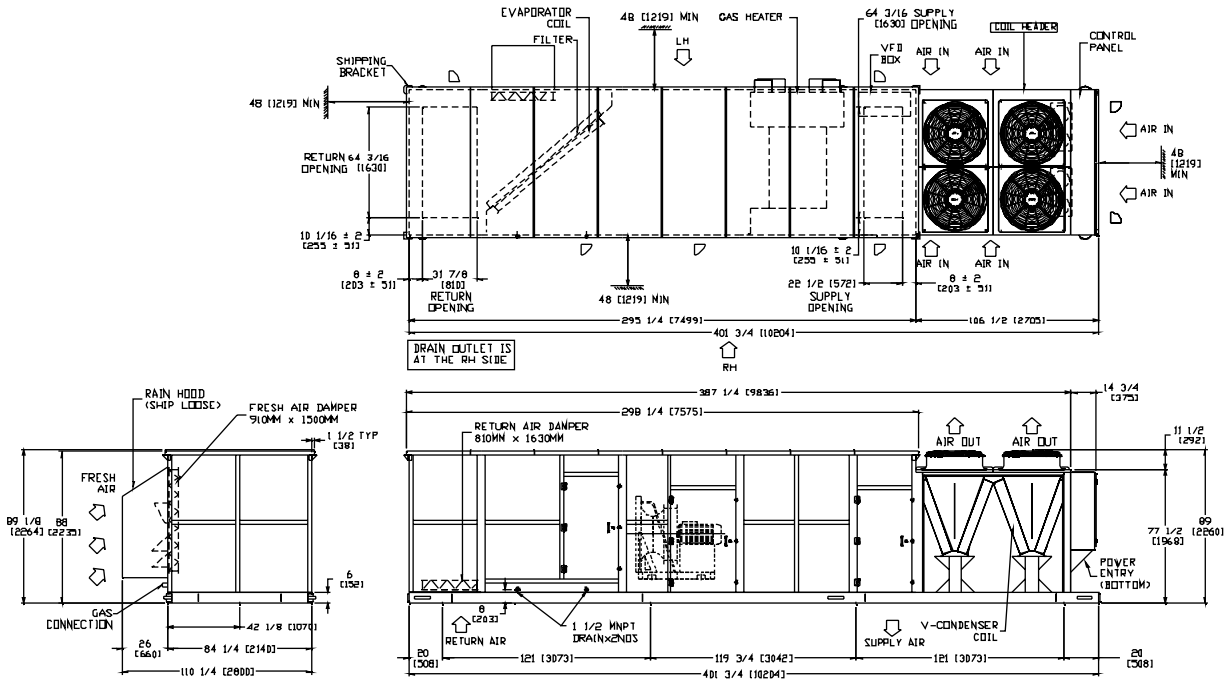

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



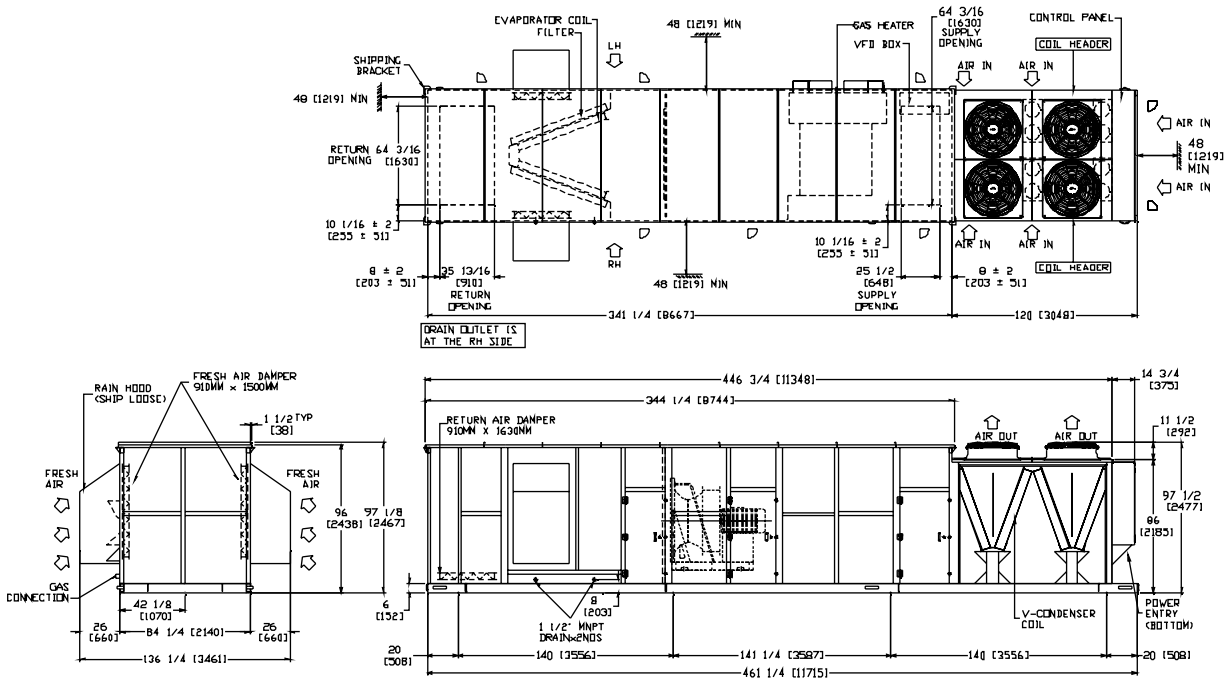

## ACPSJ055



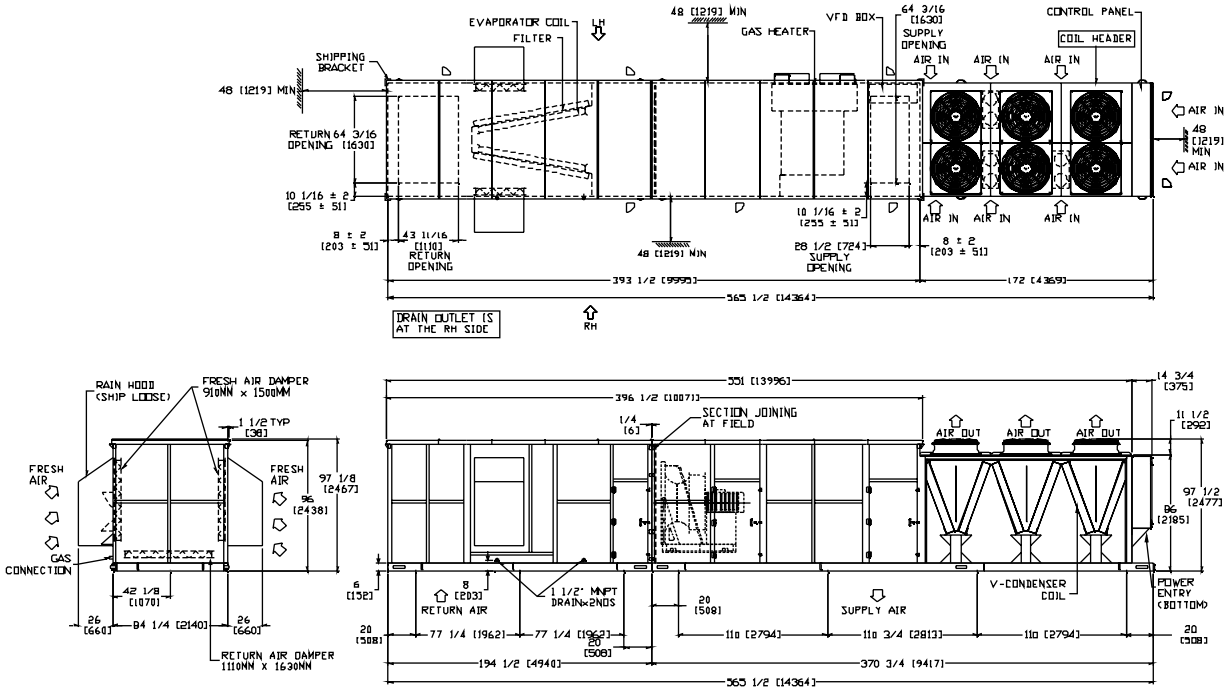

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080




## ACPSJ100

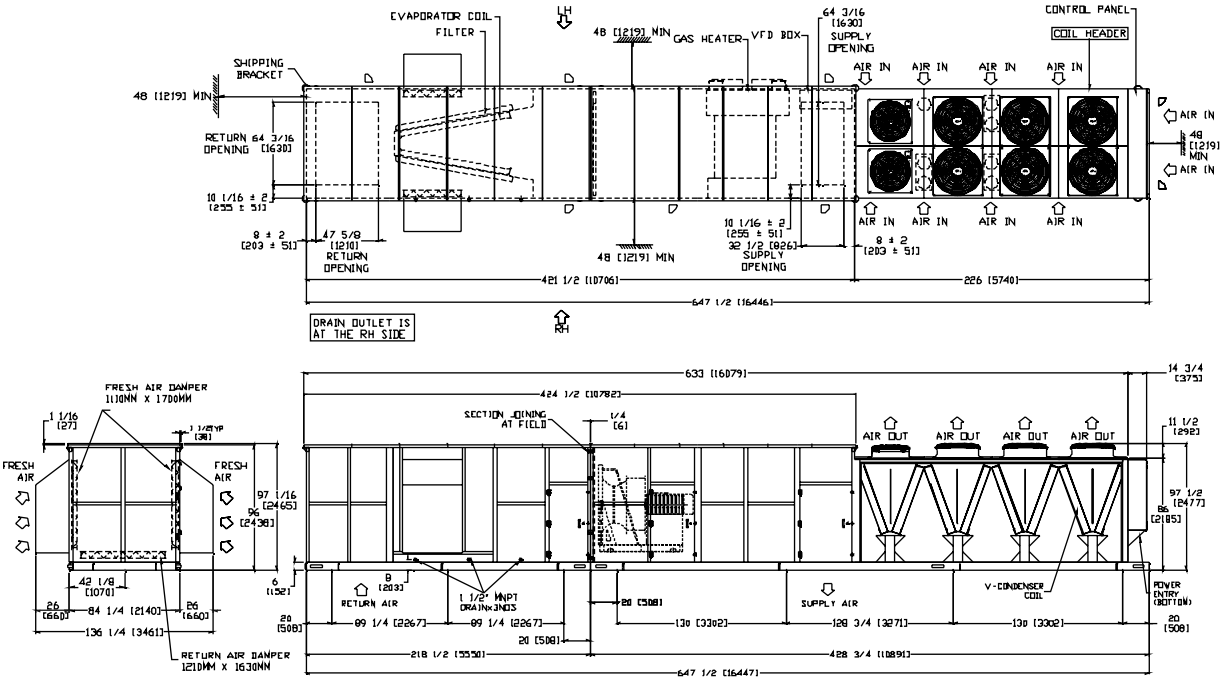



Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

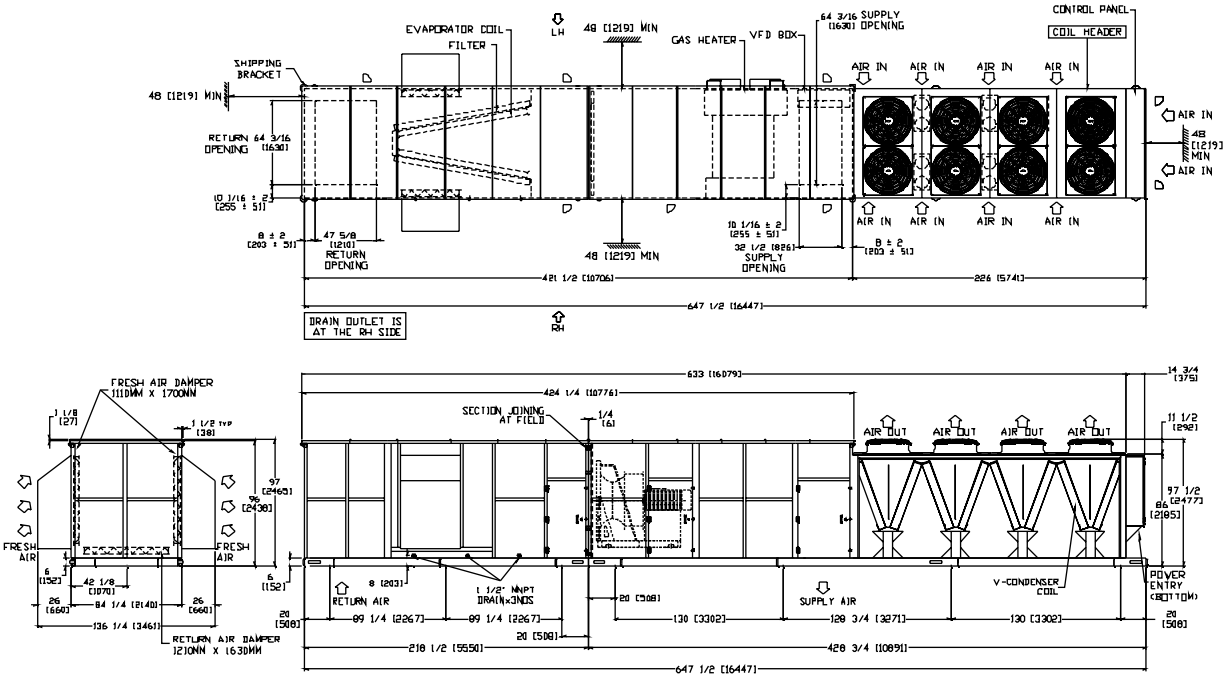
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



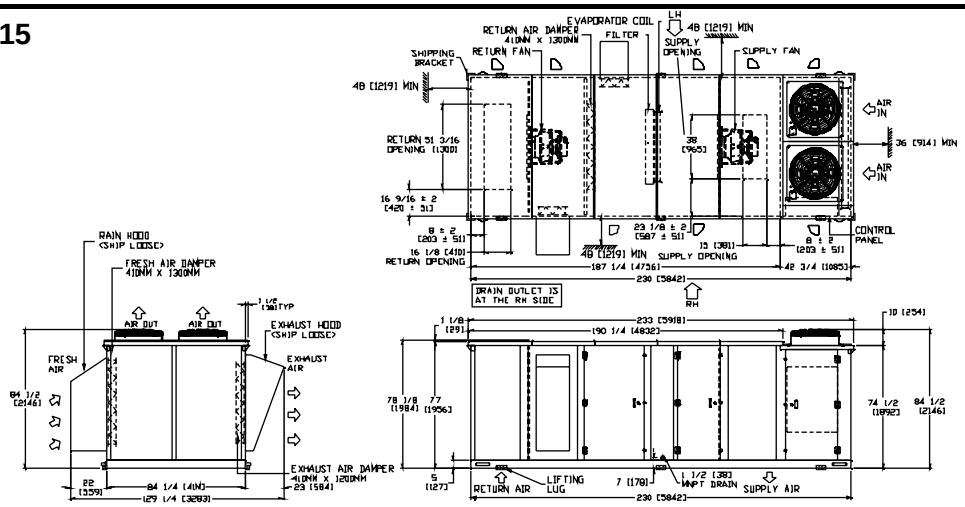

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

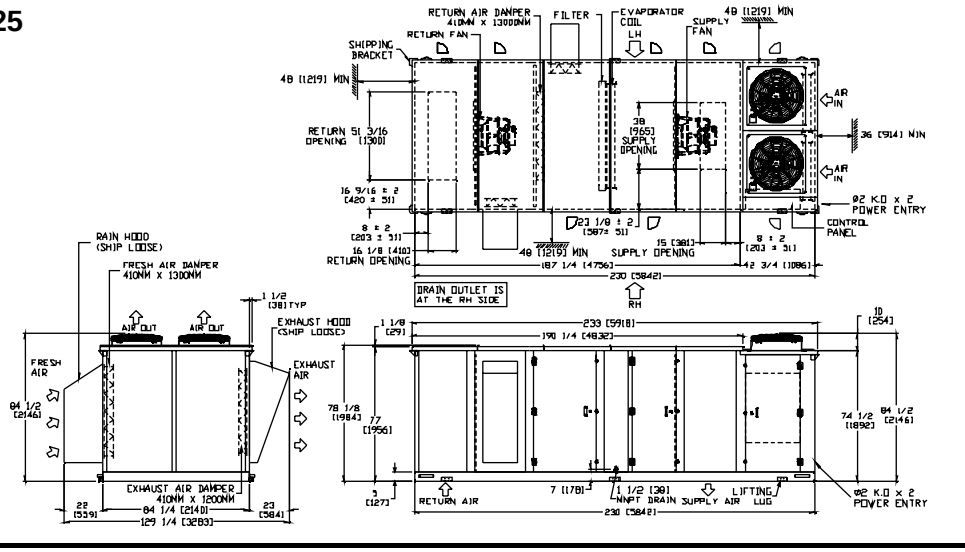
# DIMENSIONAL DATA

## 5. BASIC UNIT ACPSJ-NN WITH ECONOMIZER AND RETURN FAN MODELS

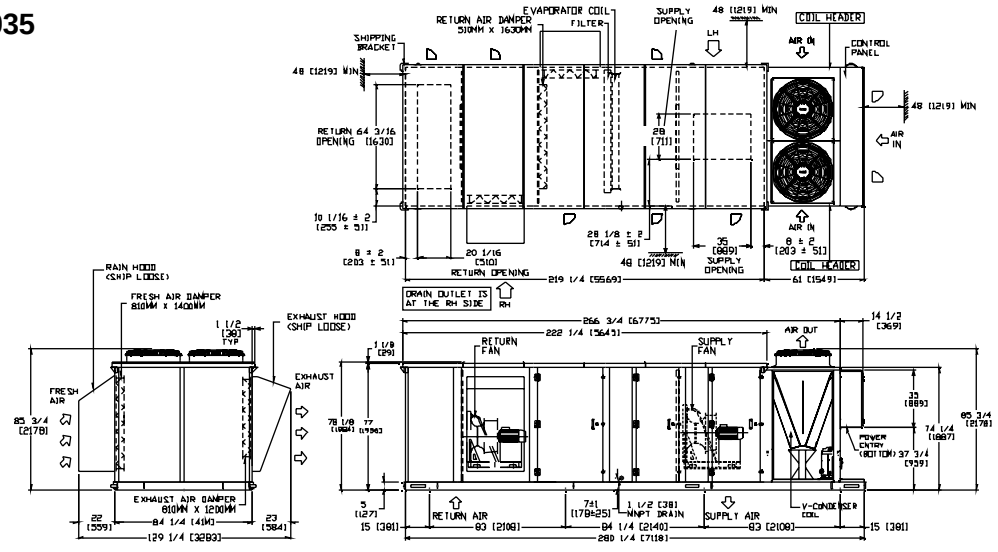
**ACPSJ015**




**ACPSJ025**



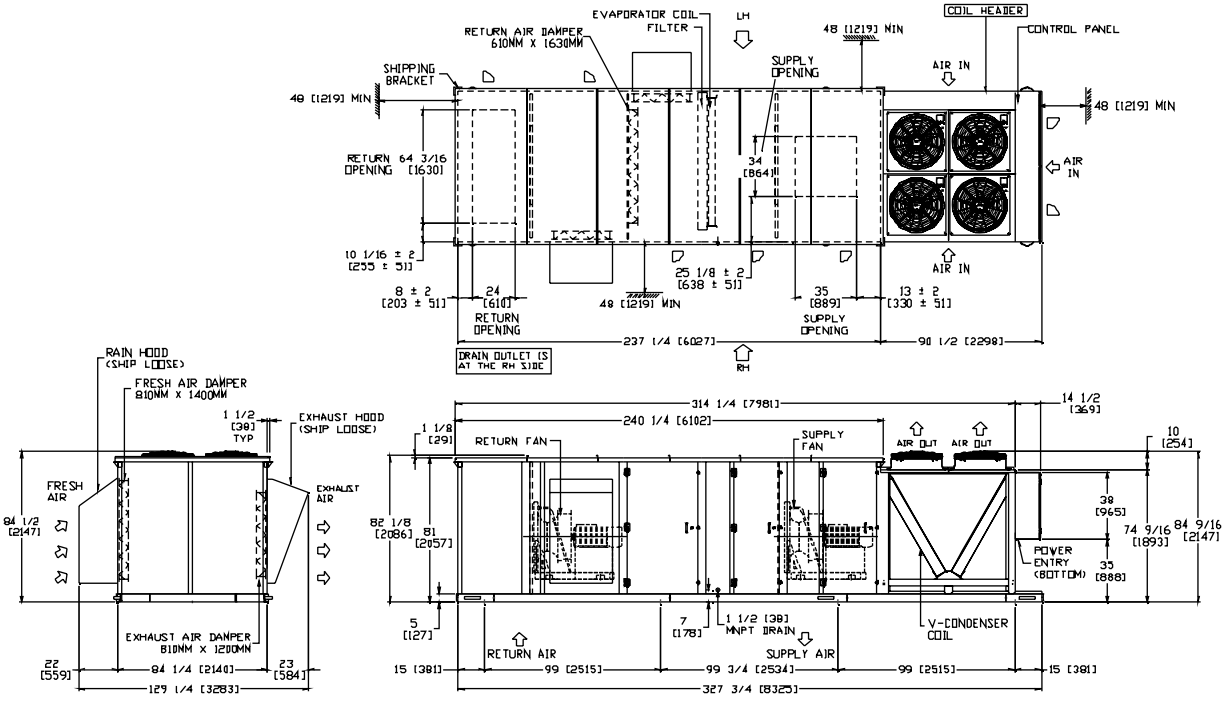

**ACPSJ035**



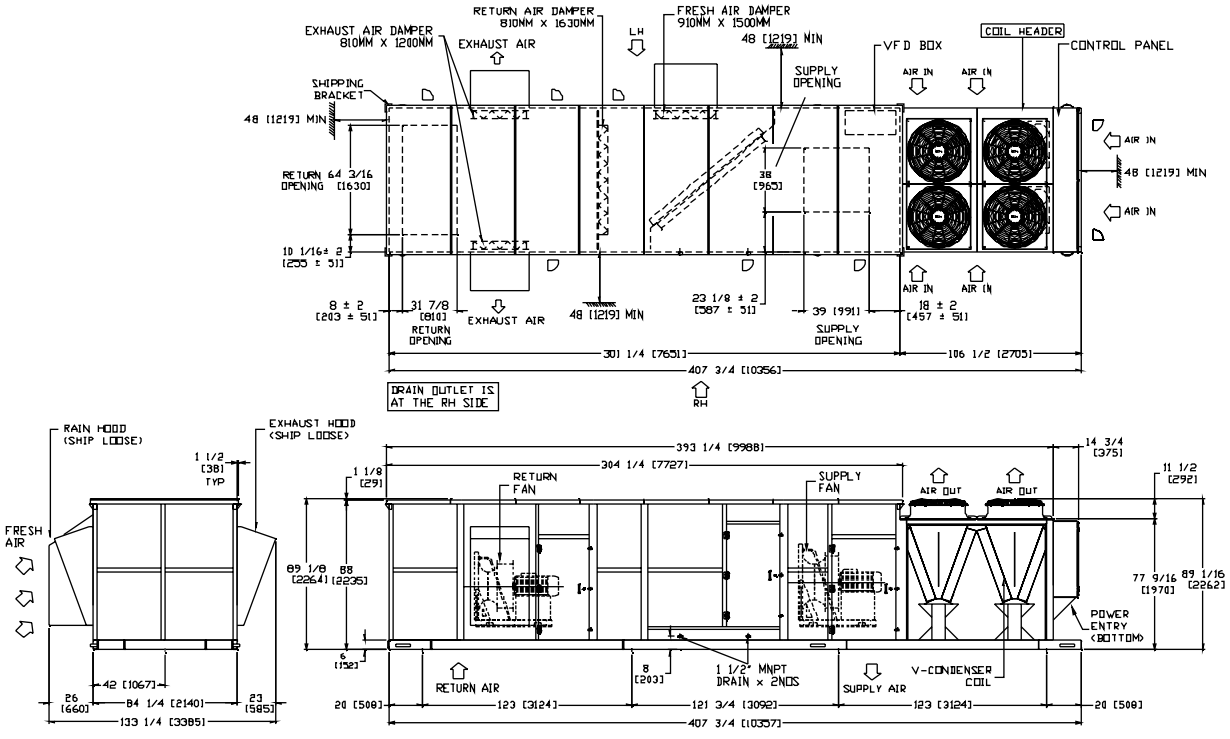

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



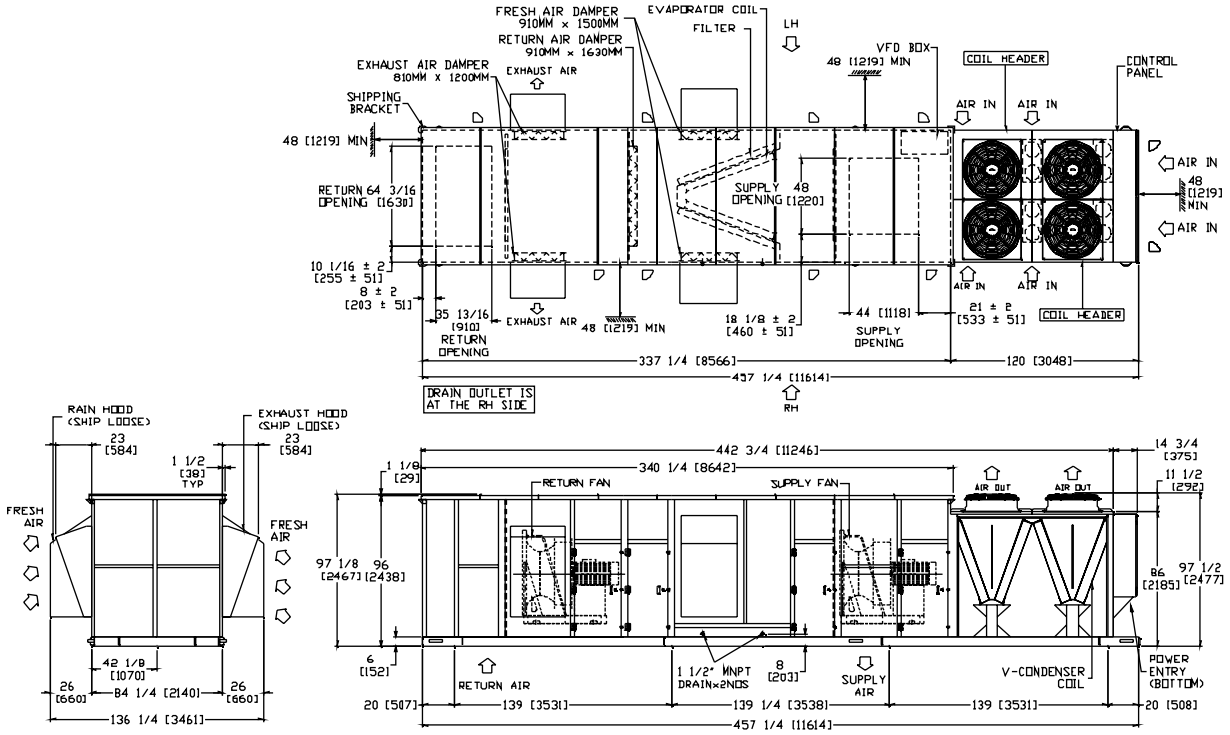

## ACPSJ055



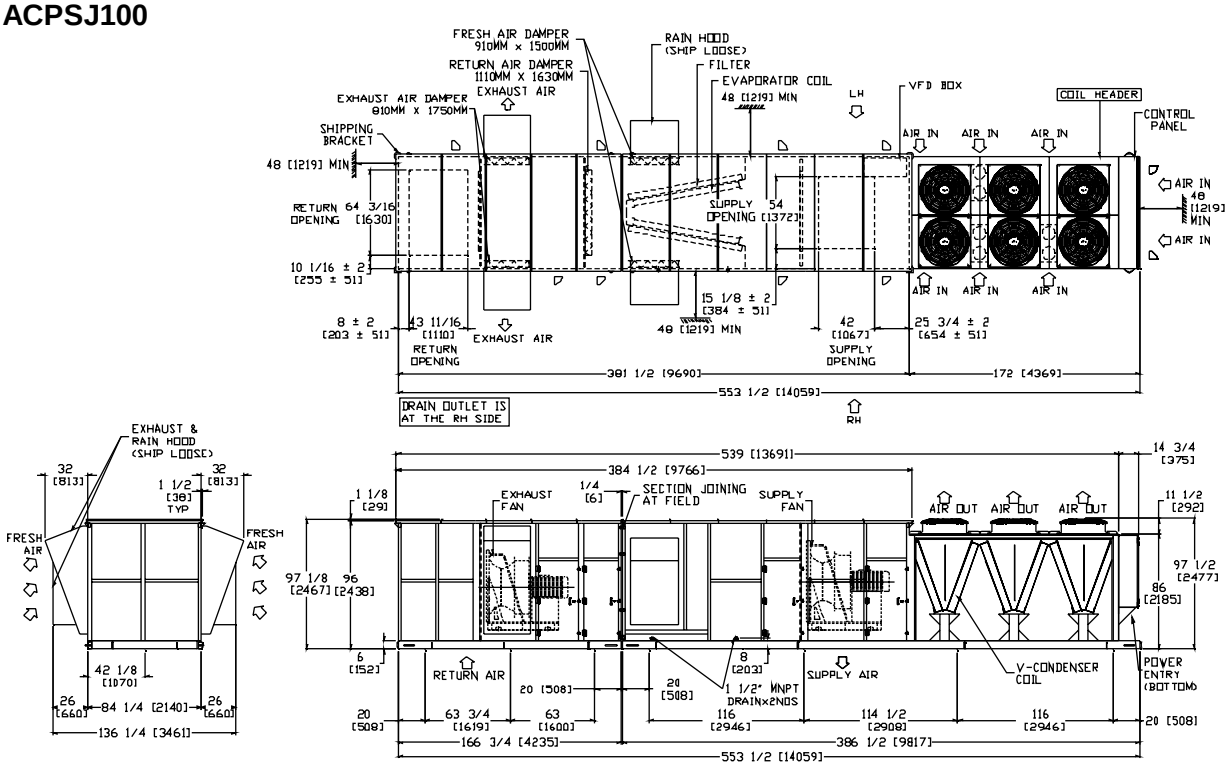

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



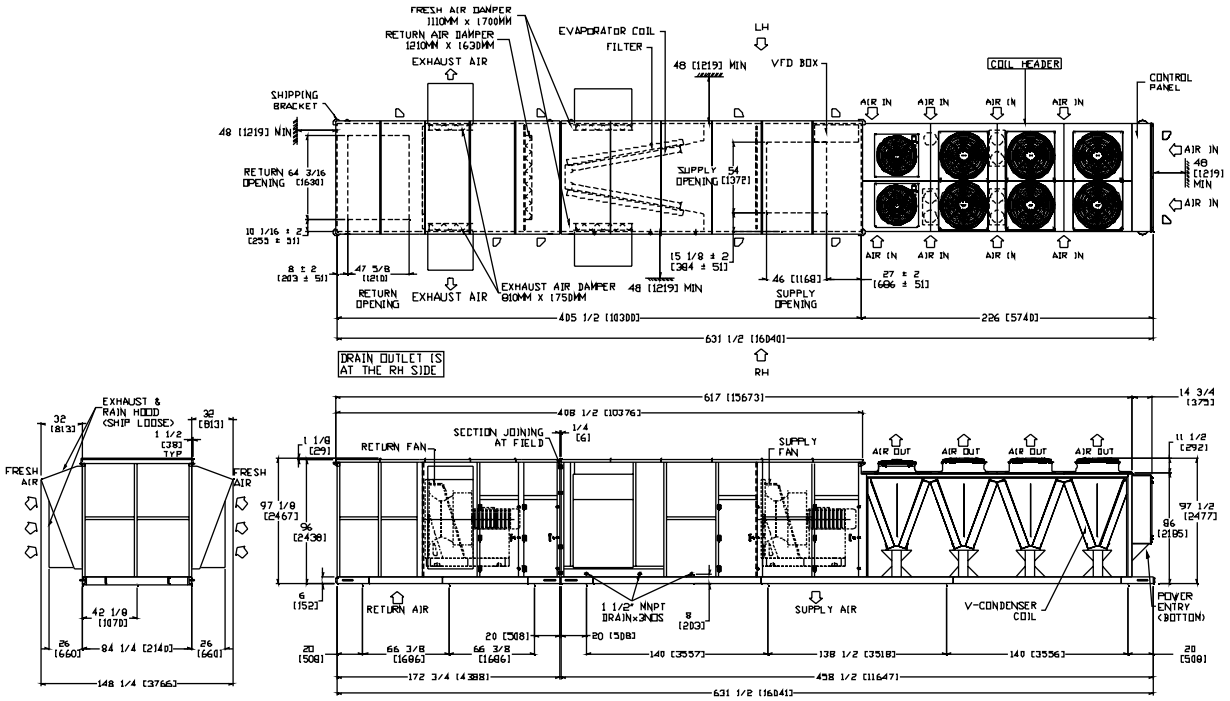

## ACPSJ100




Note: All dimensions are in inches [mm].

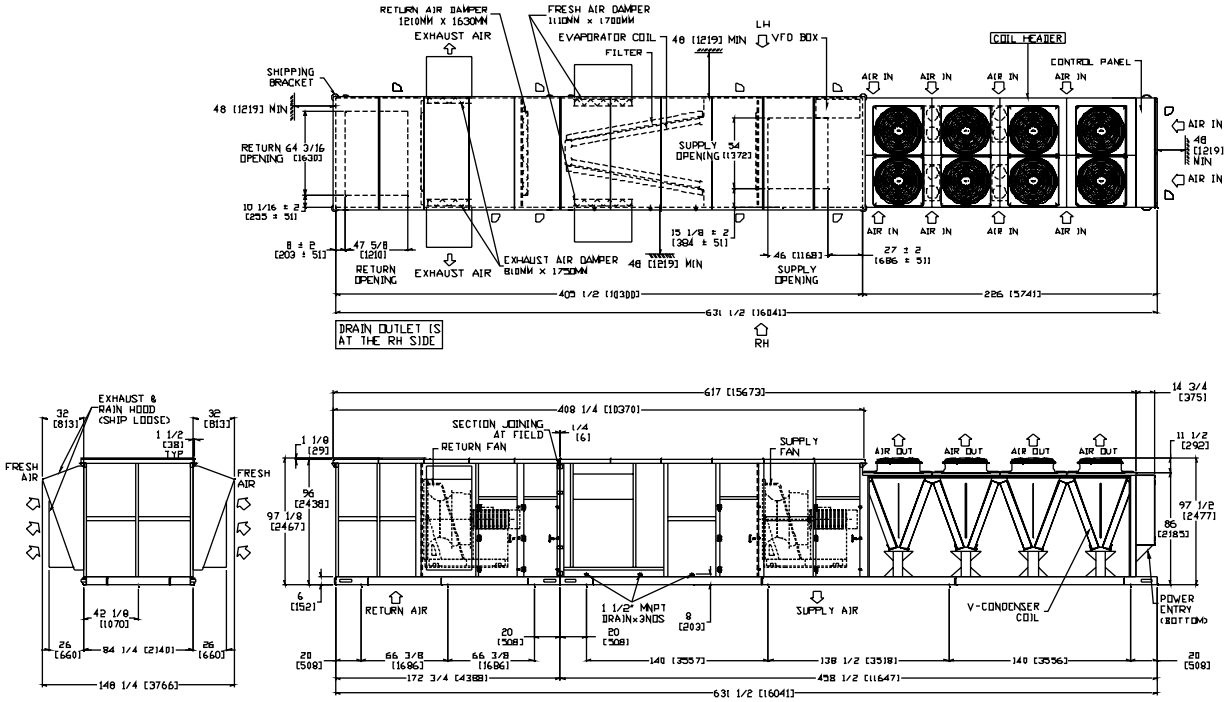
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



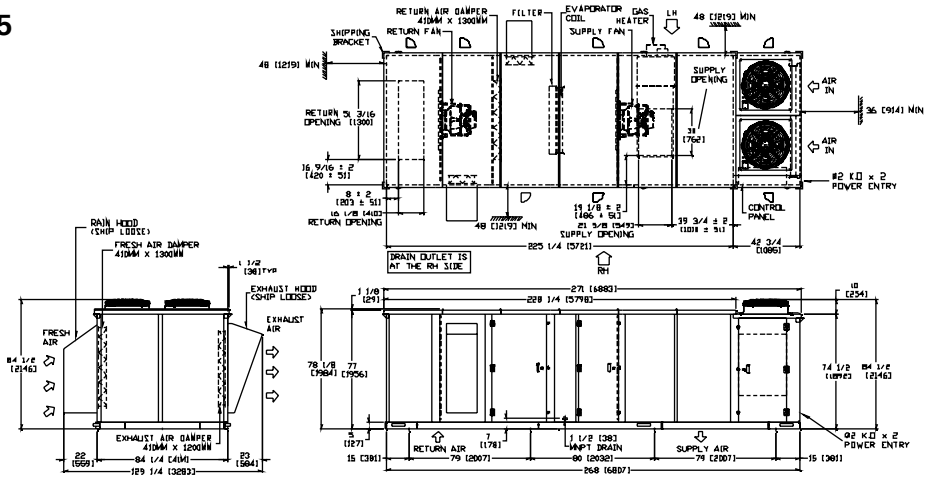

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

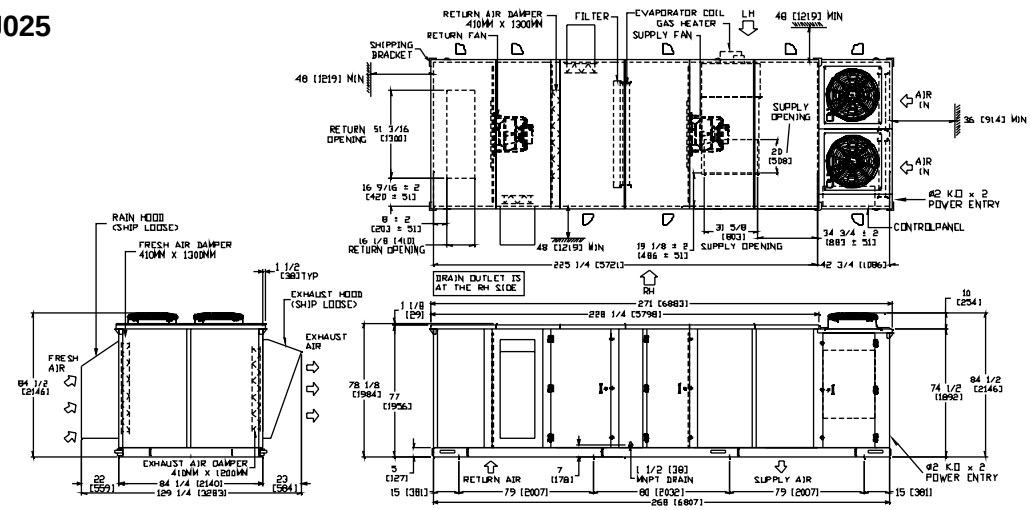
# DIMENSIONAL DATA

## 6. BASIC UNIT ACPSJ-NN WITH RETURN FAN, ECONOMIZER AND GAS HEATER MODELS

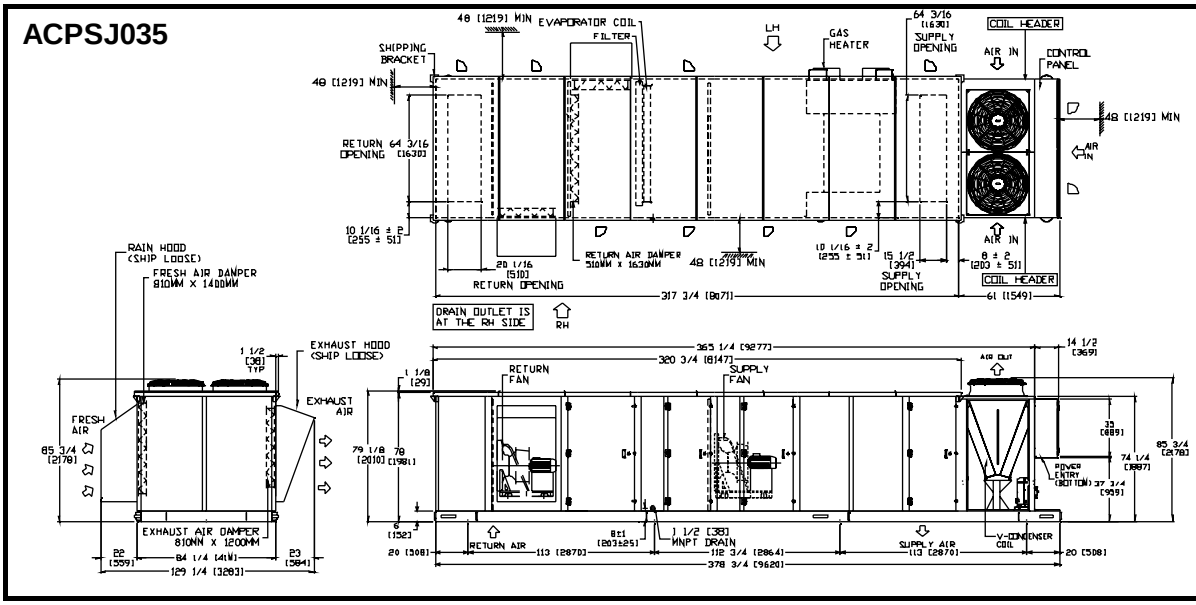
**ACPSJ015**




**ACPSJ025**



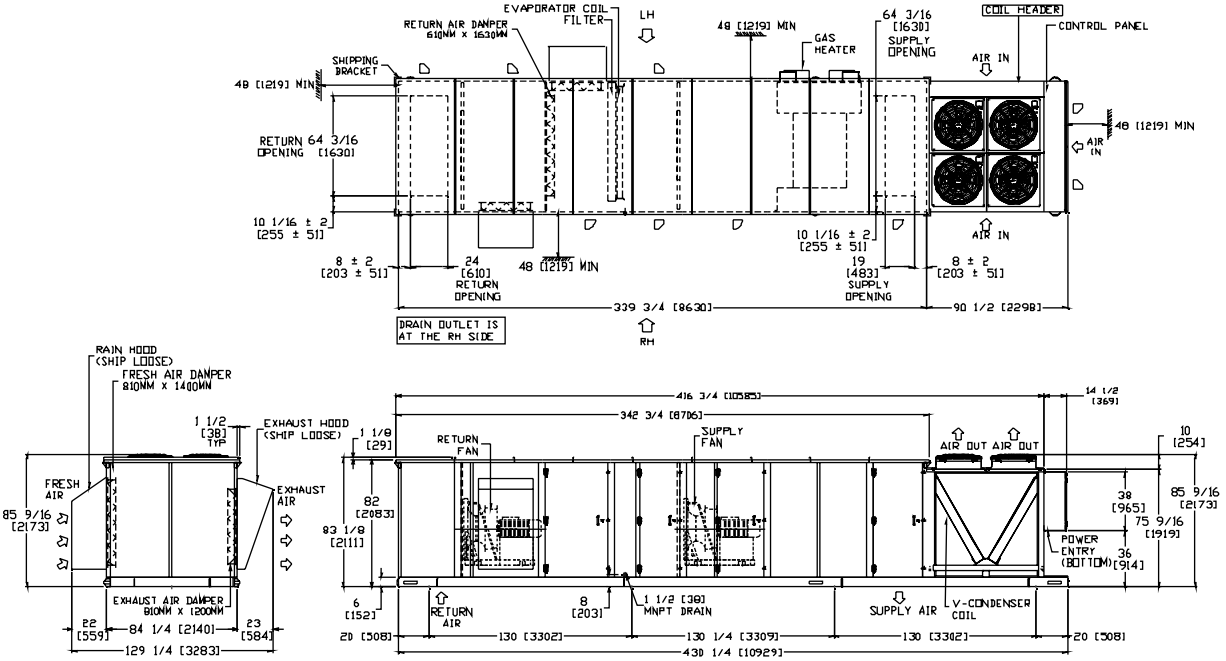

**ACPSJ035**



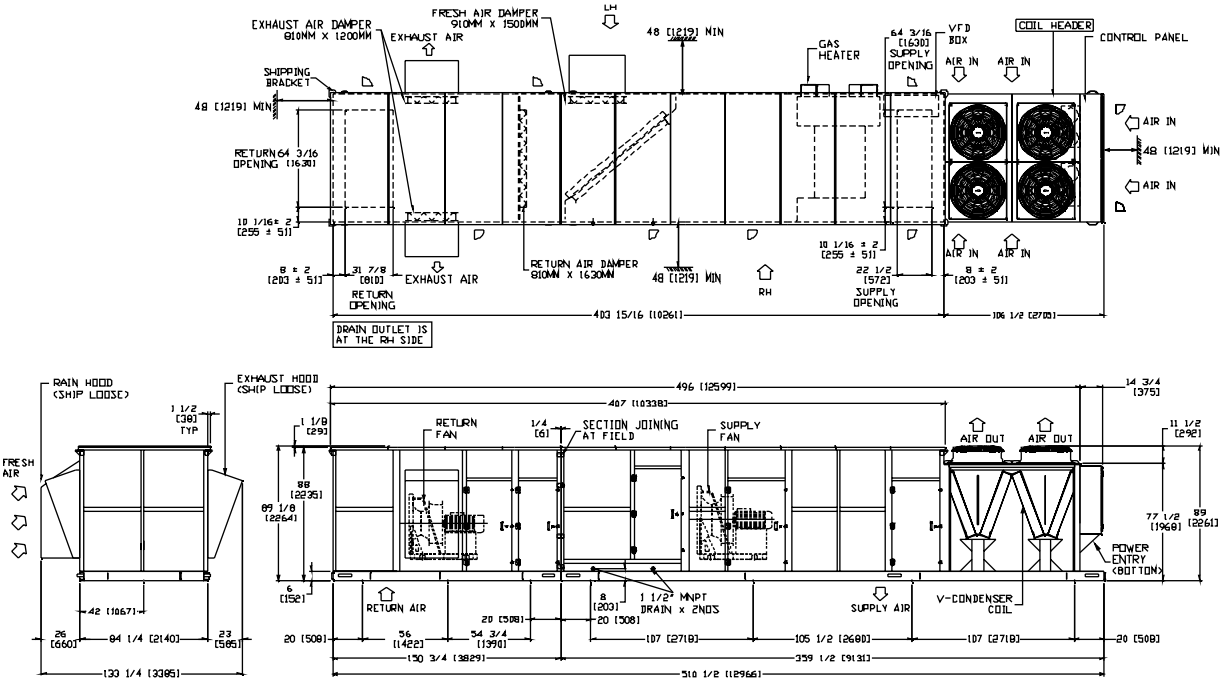

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



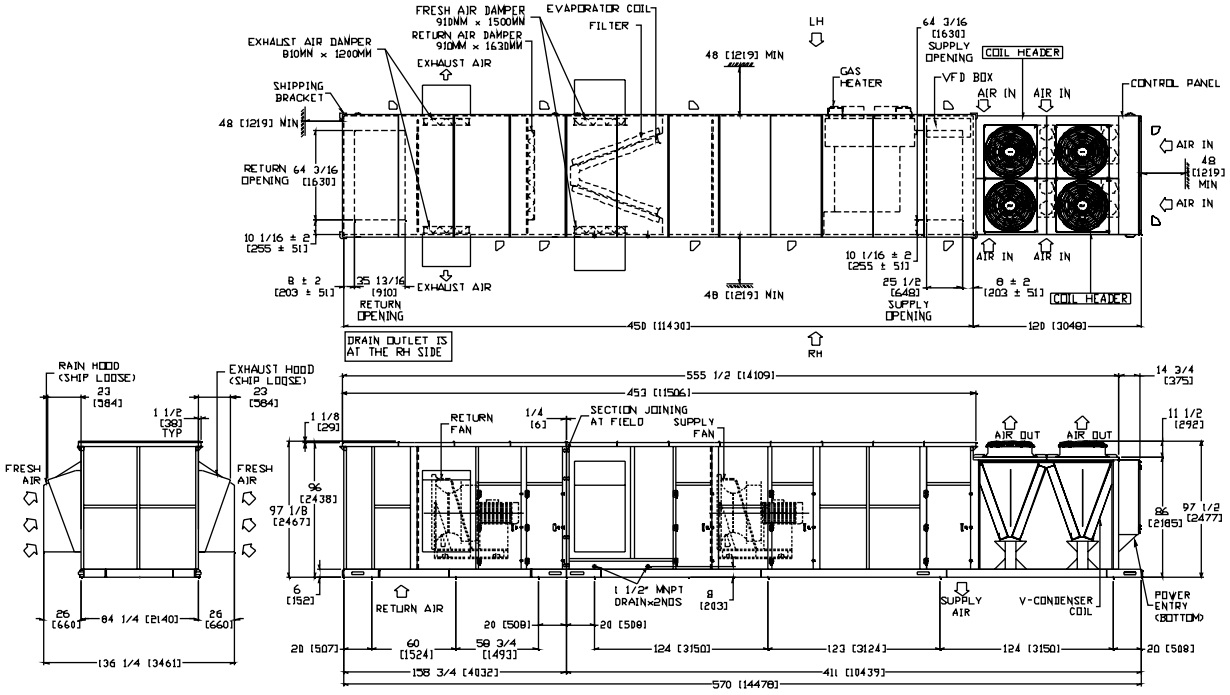

## ACPSJ055



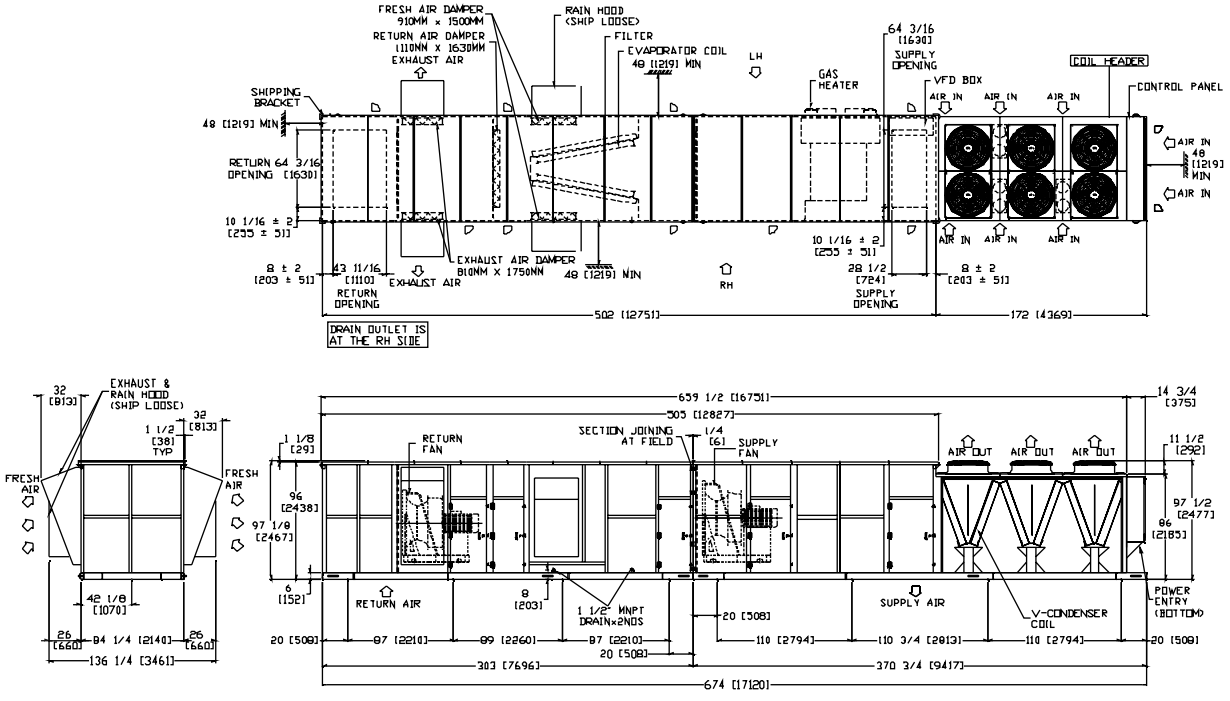

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



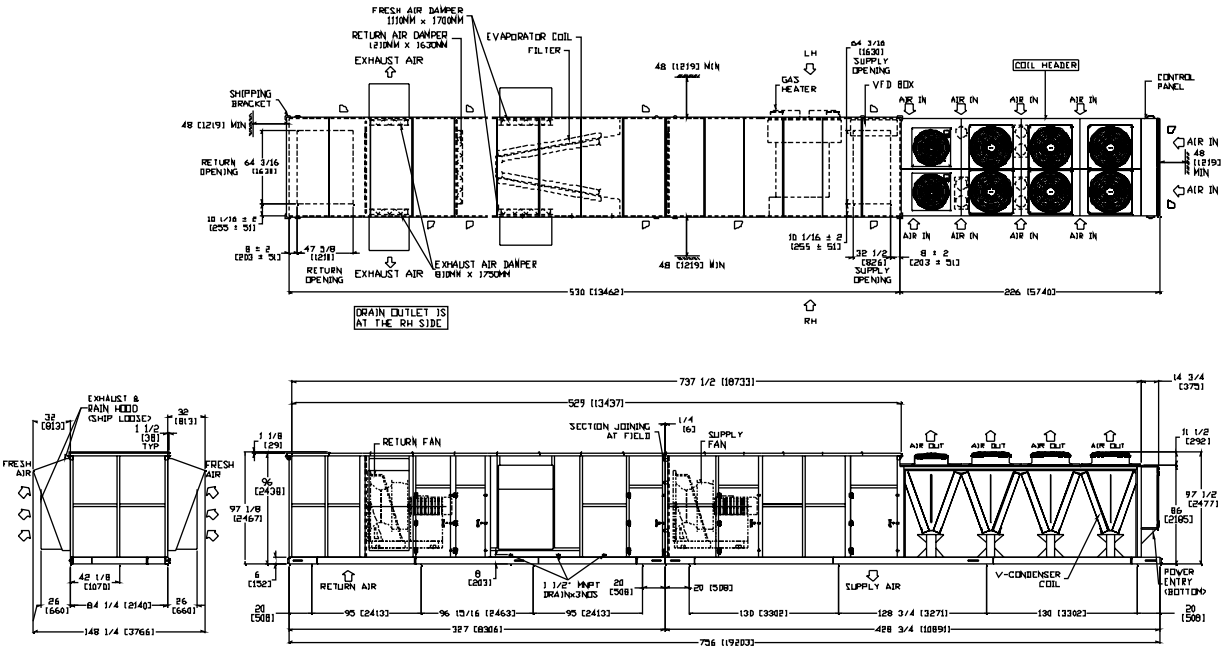

## ACPSJ100




Note: All dimensions are in inches [mm].

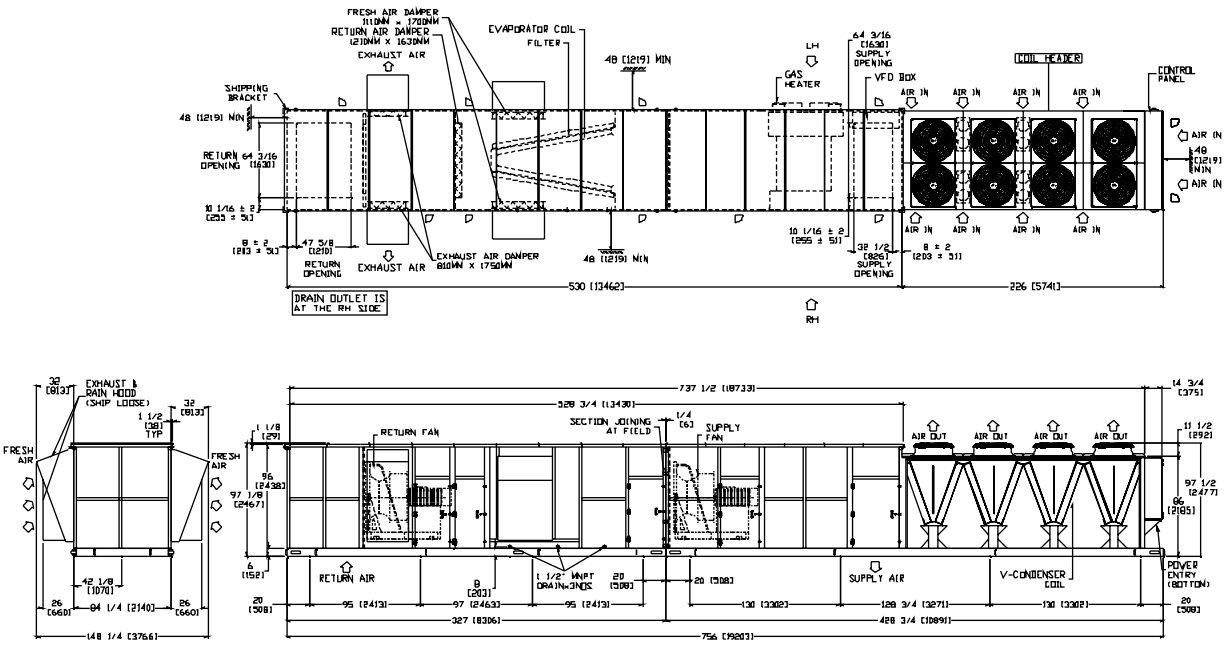
# DIMENSIONAL DATA

## ACPSJ115




Note: Evaporator and condenser section is shipped out separately and joined at field.

## ACPSJ130



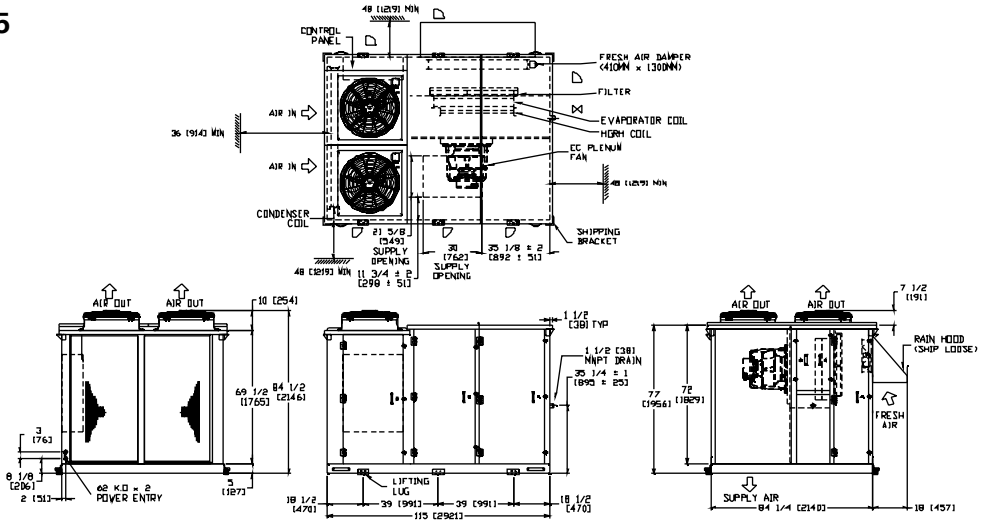

Note: Evaporator and condenser section is shipped out separately and joined at field.

Note: All dimensions are in inches [mm].

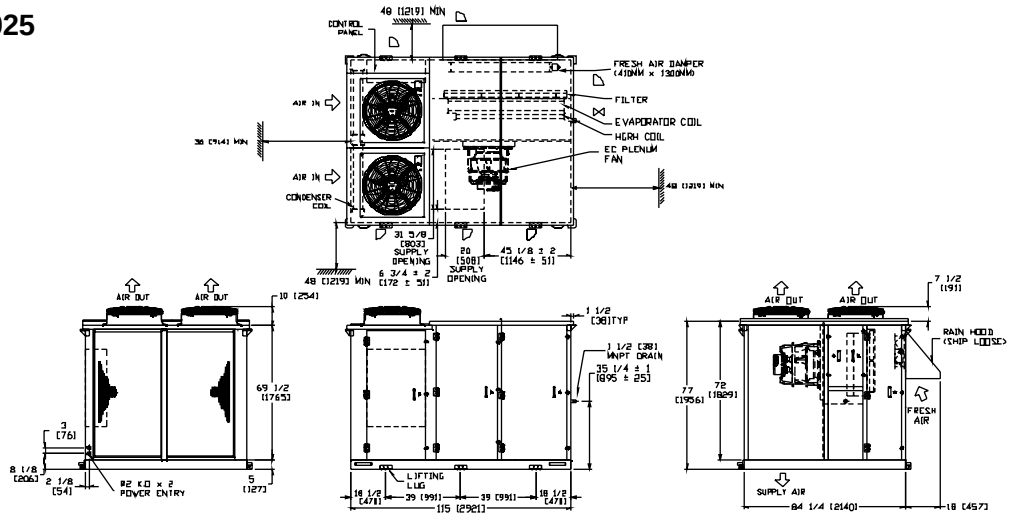
# DIMENSIONAL DATA

## 7 BASIC UNIT ACPSJ-OA MODELS

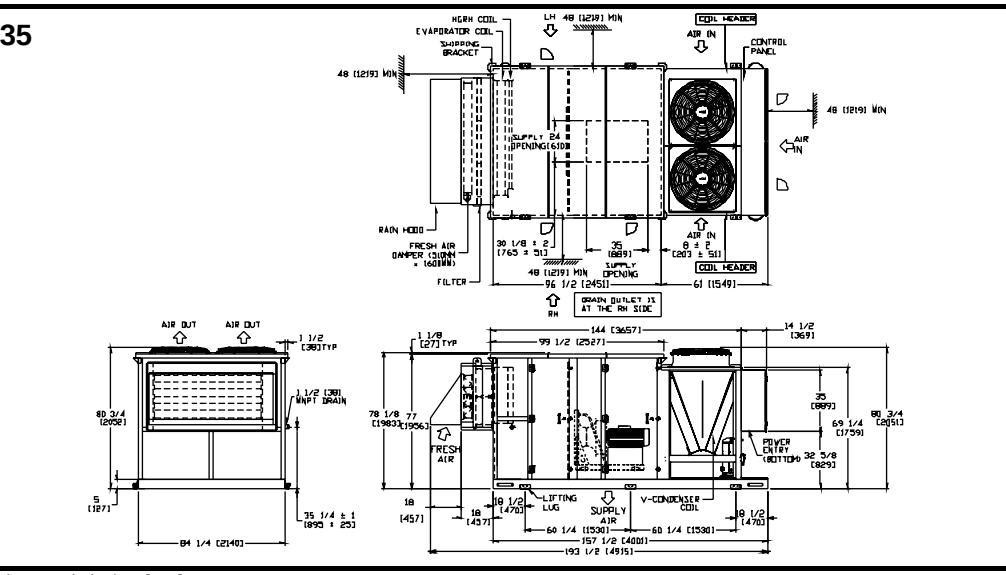
### ACPSJ015




### ACPSJ025



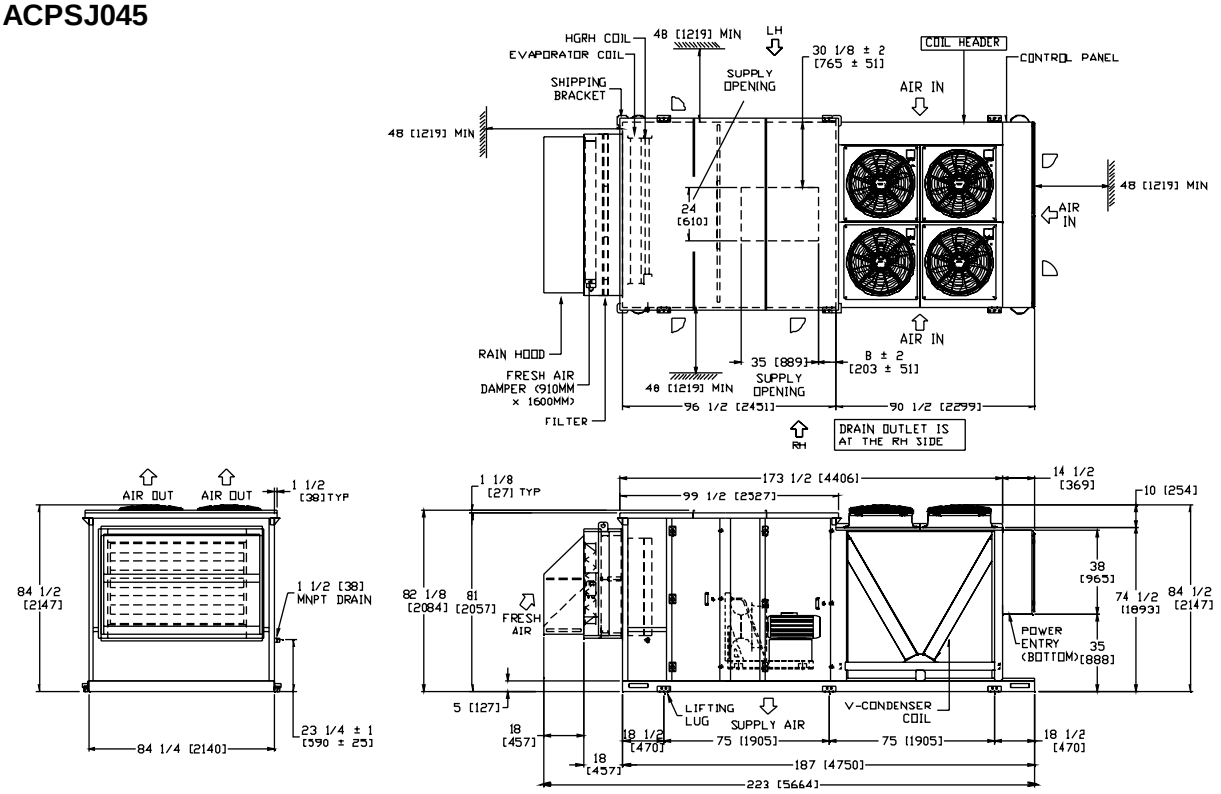

### ACPSJ035



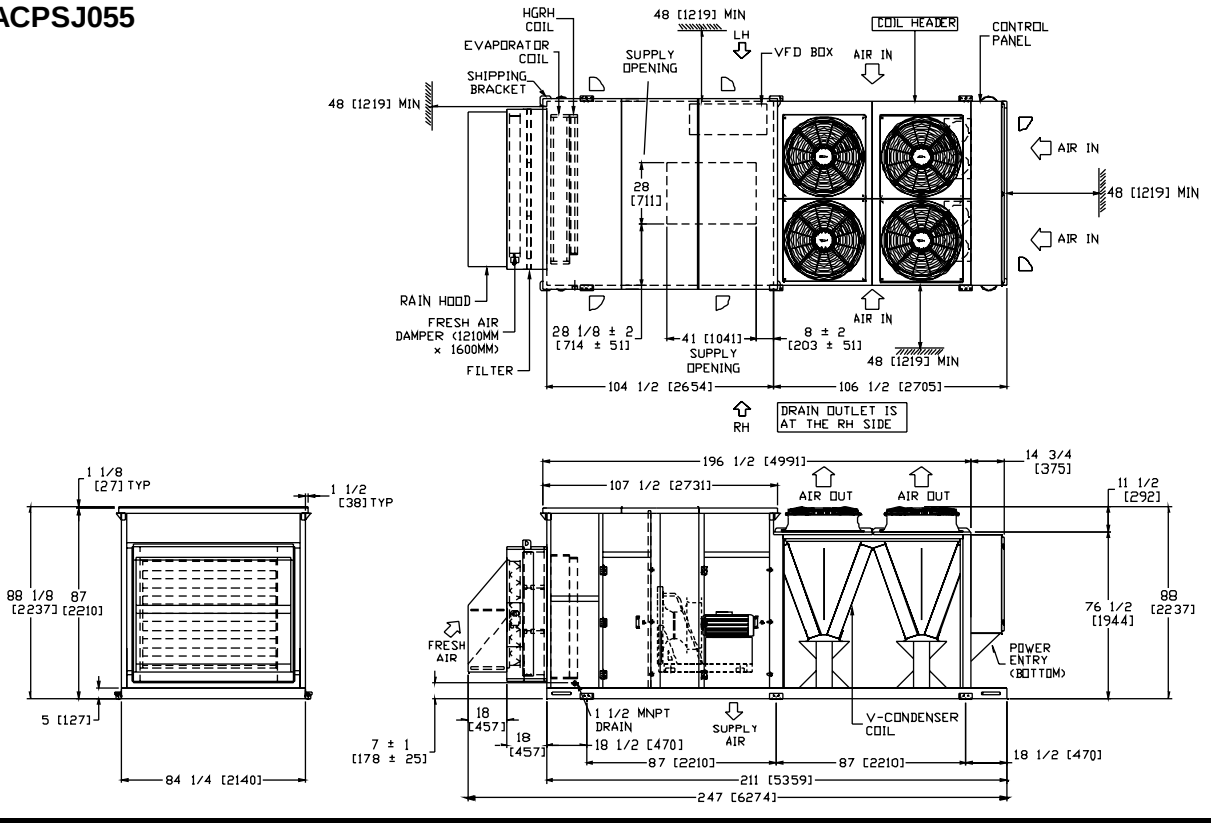

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



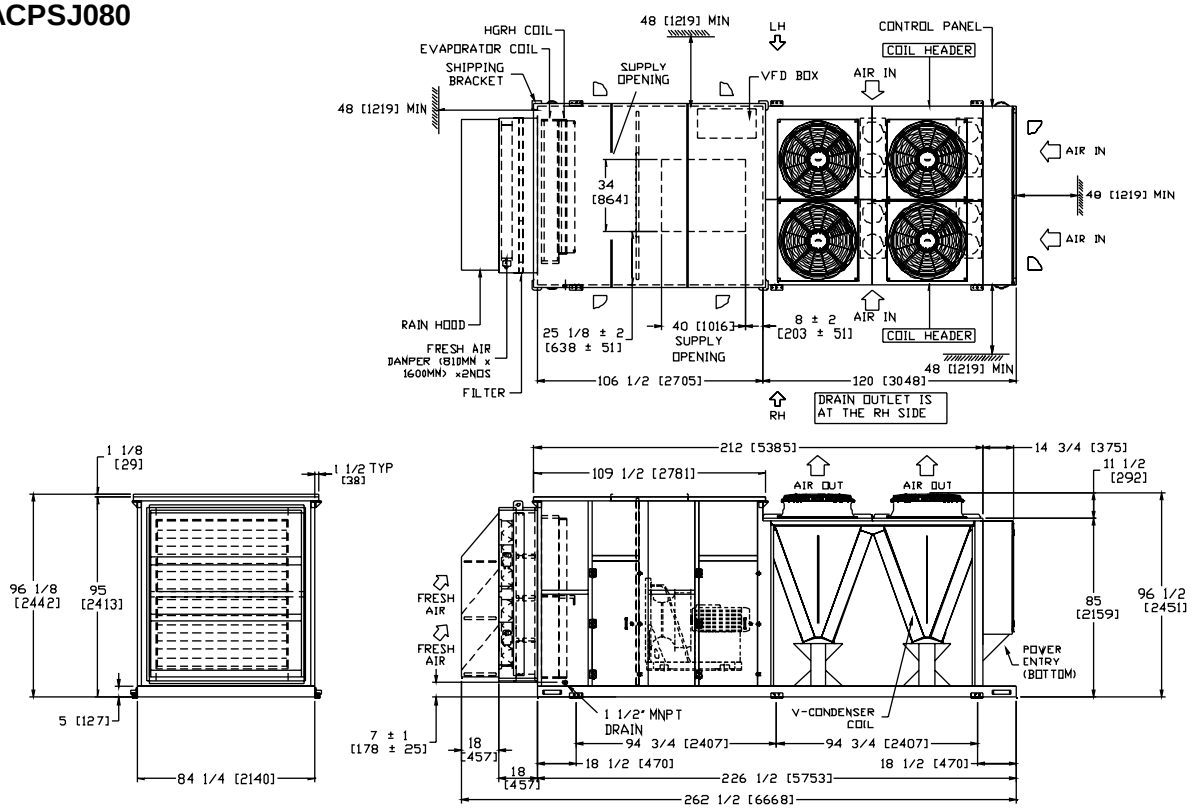

## ACPSJ055



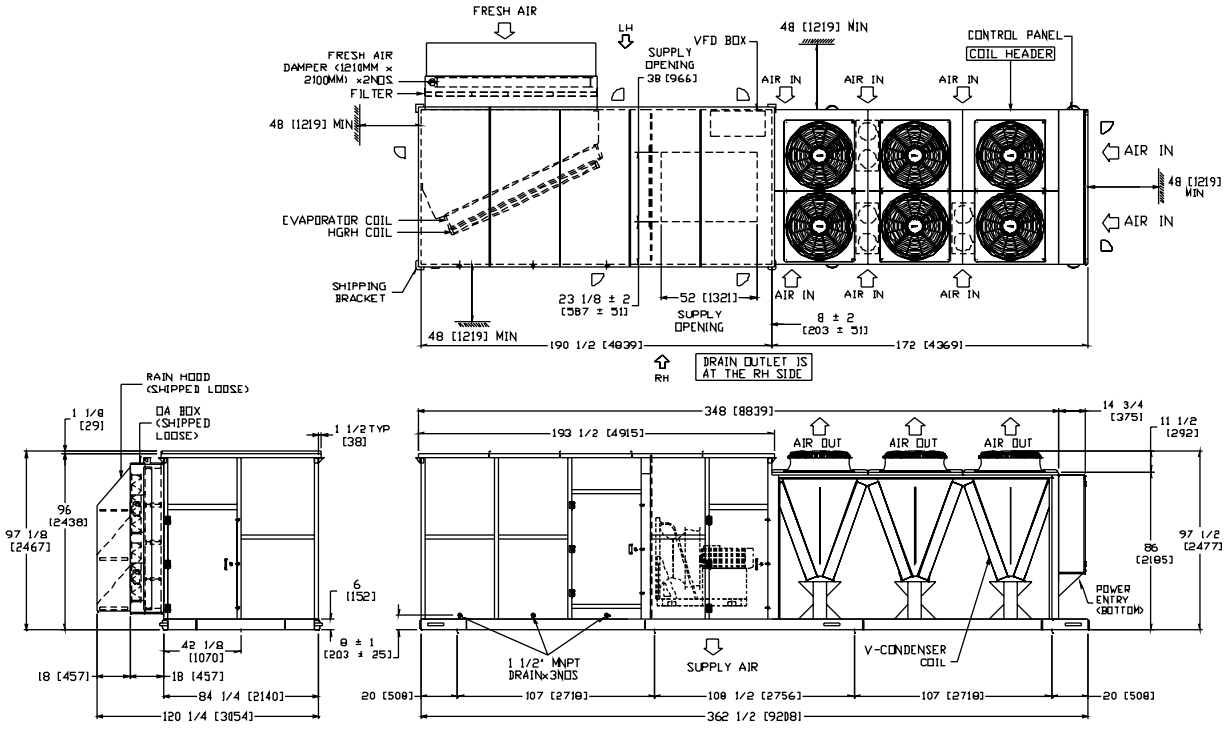

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



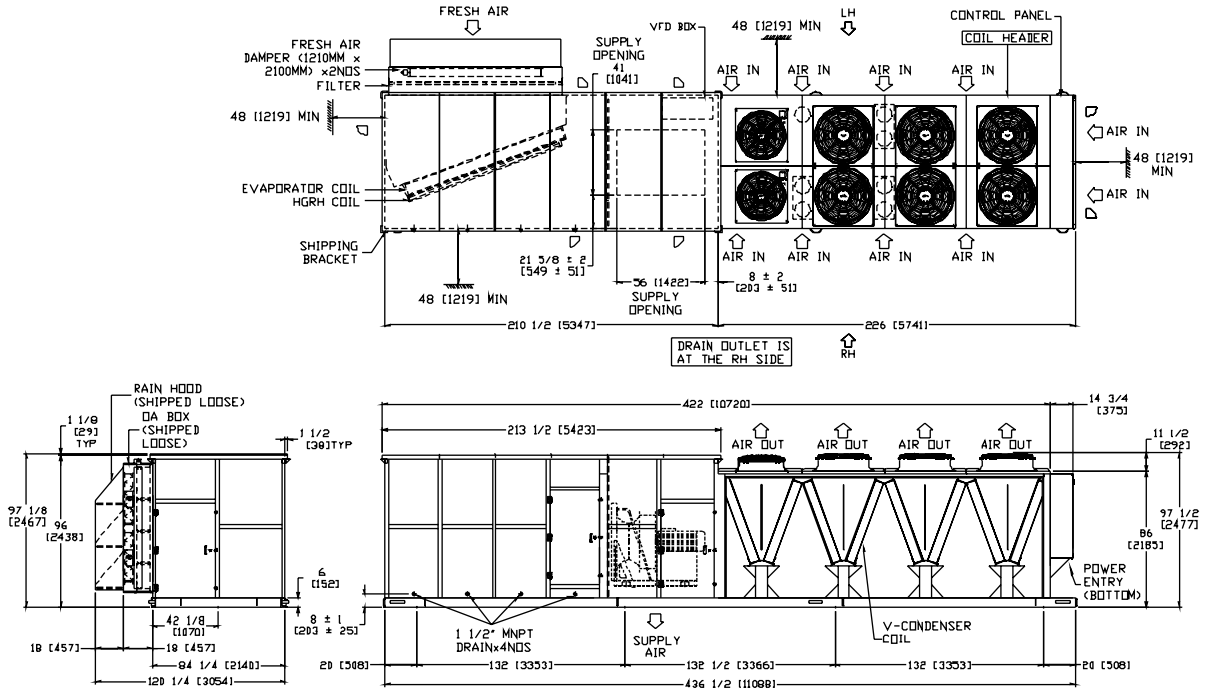

## ACPSJ100



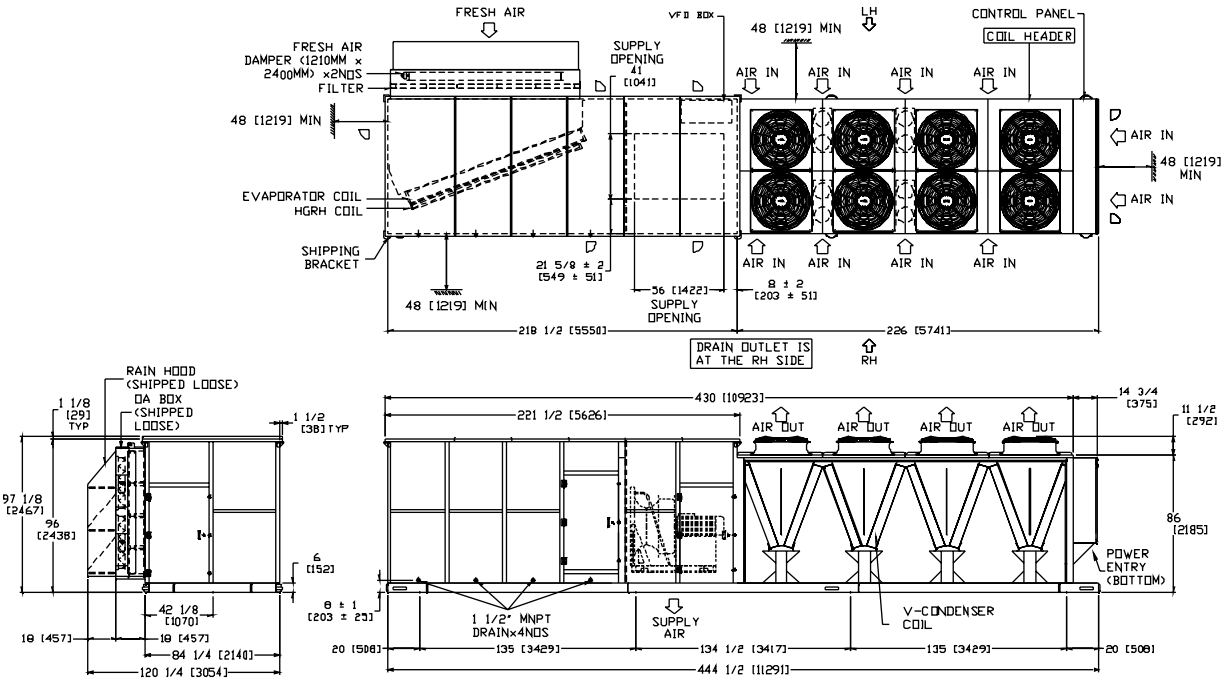

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ115




## ACPSJ130

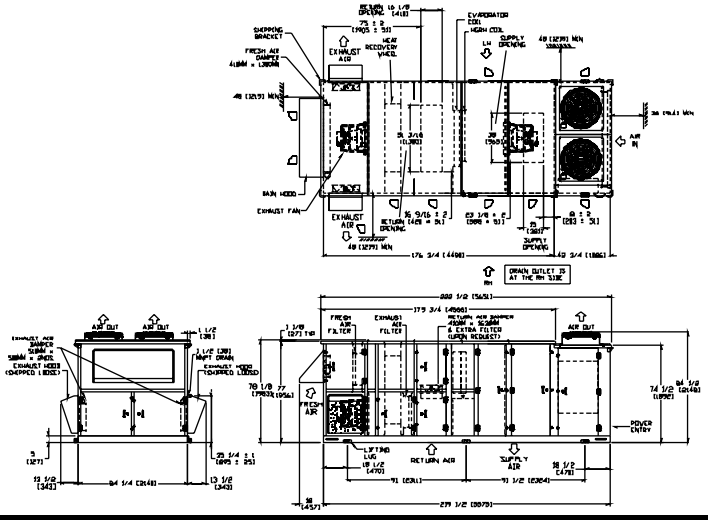



Note: All dimensions are in inches [mm].

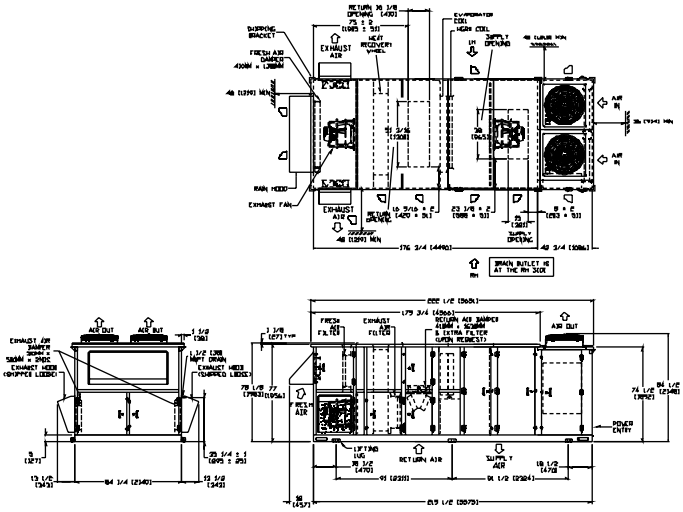
# DIMENSIONAL DATA

## 8 BASIC UNIT ACPSJ-EW MODELS

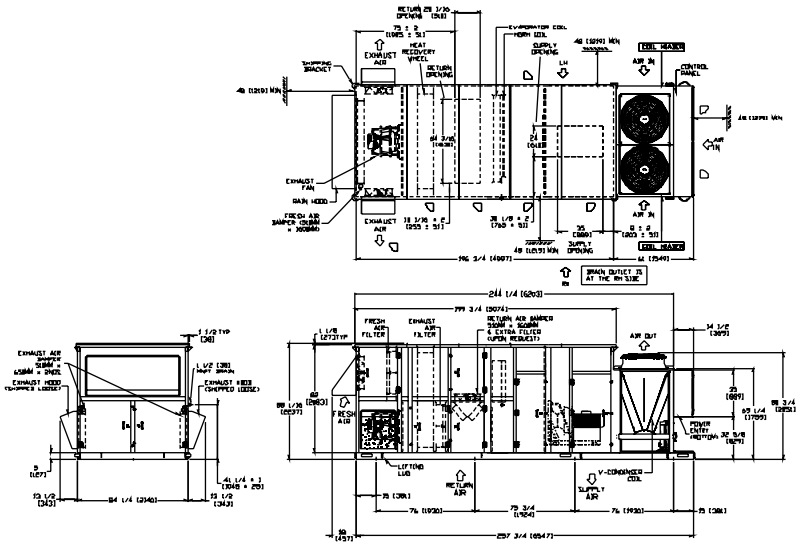
### ACPSJ015



### ACPSJ025



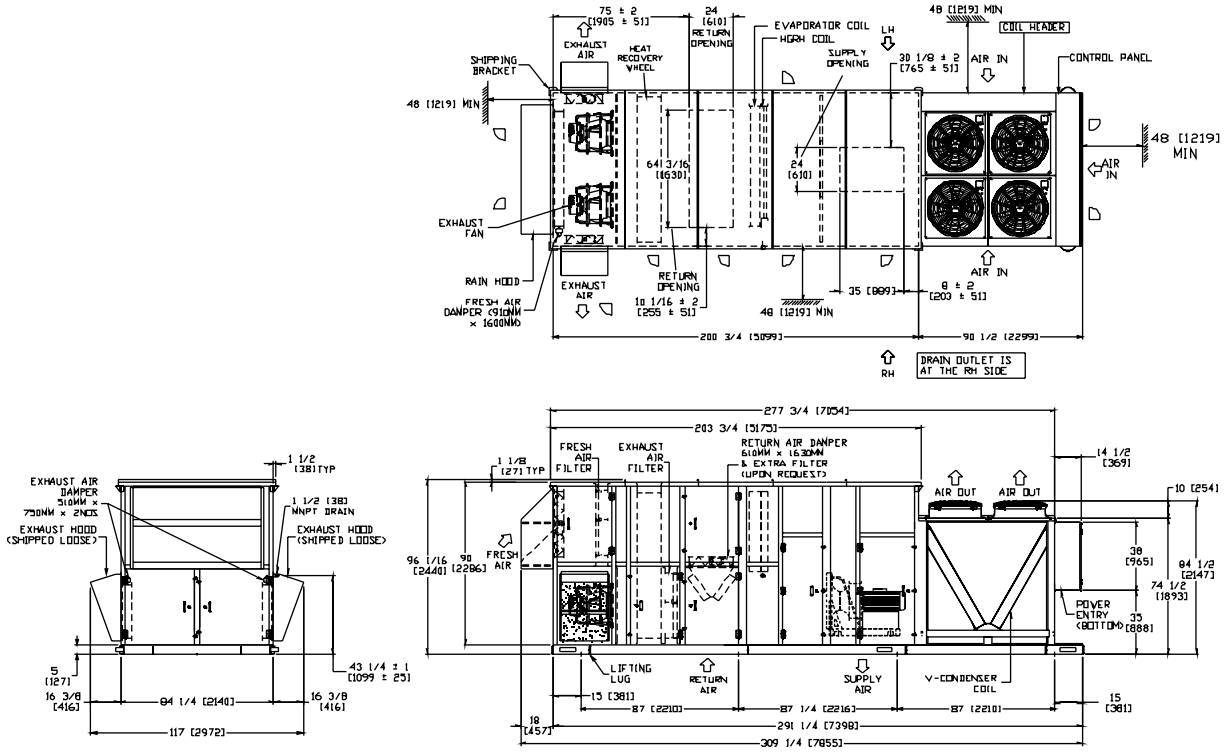
### ACPSJ035



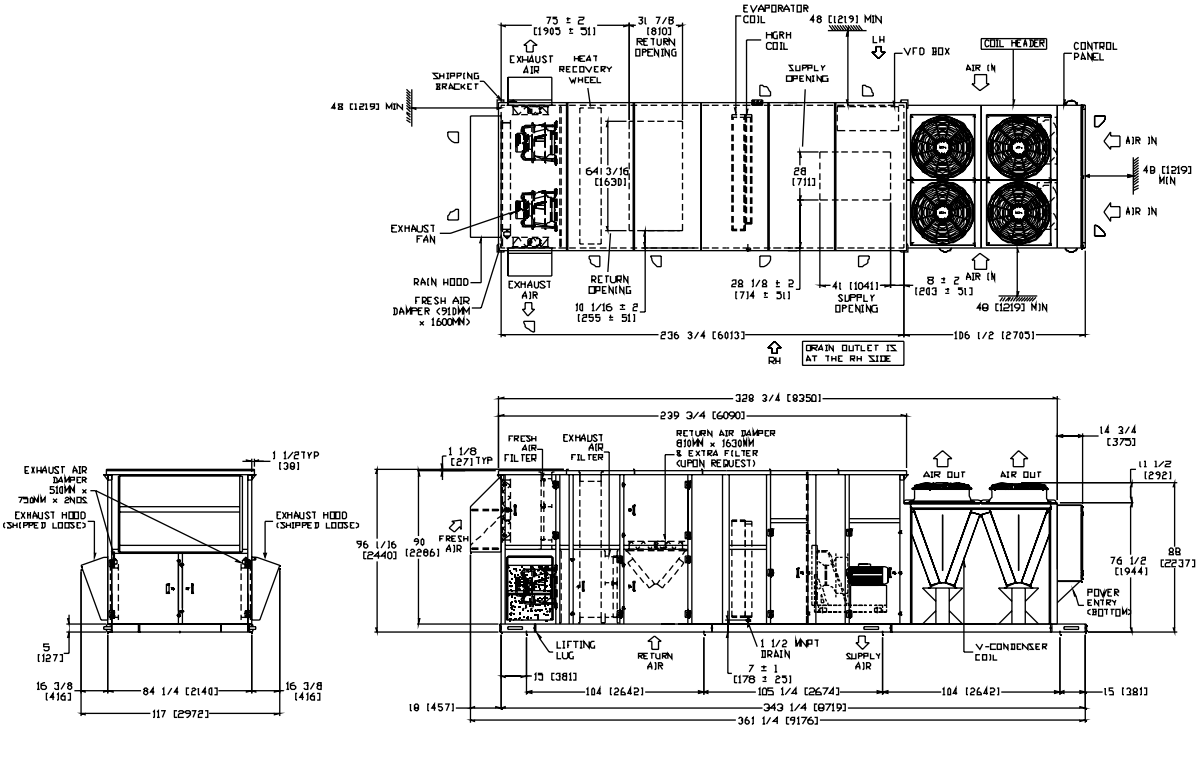
Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



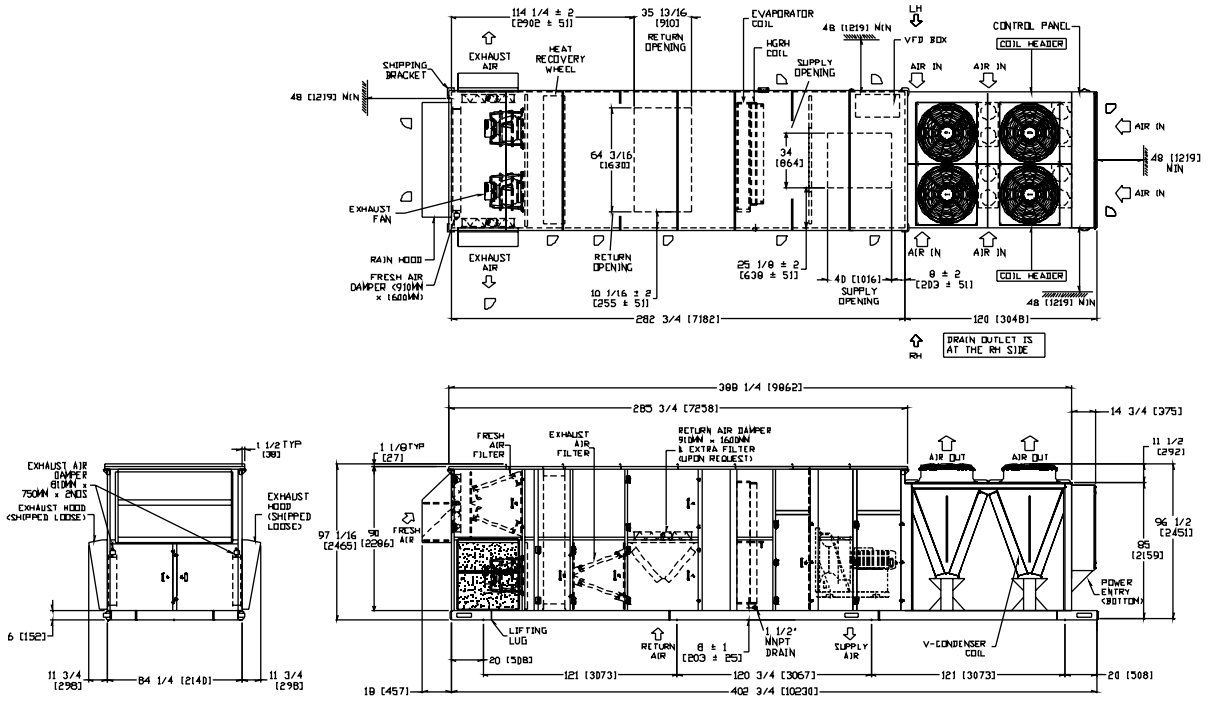

## ACPSJ055



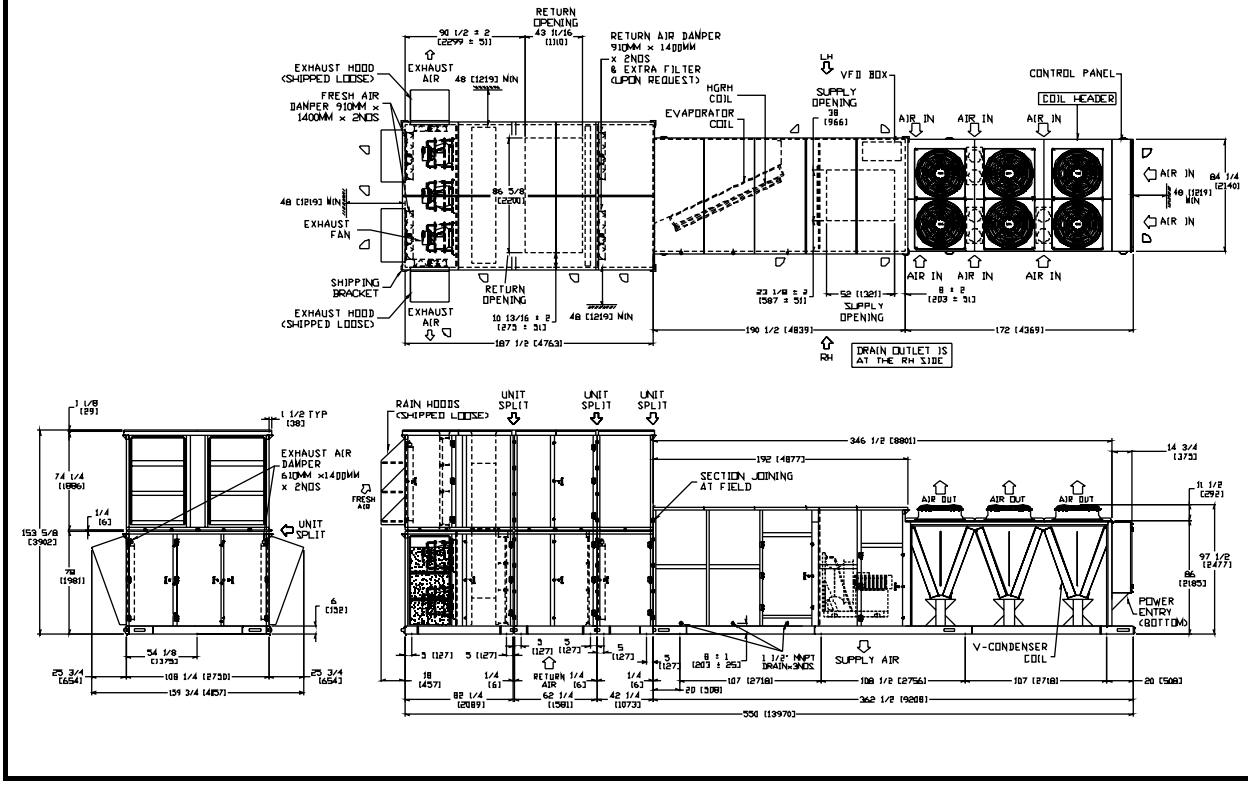

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080



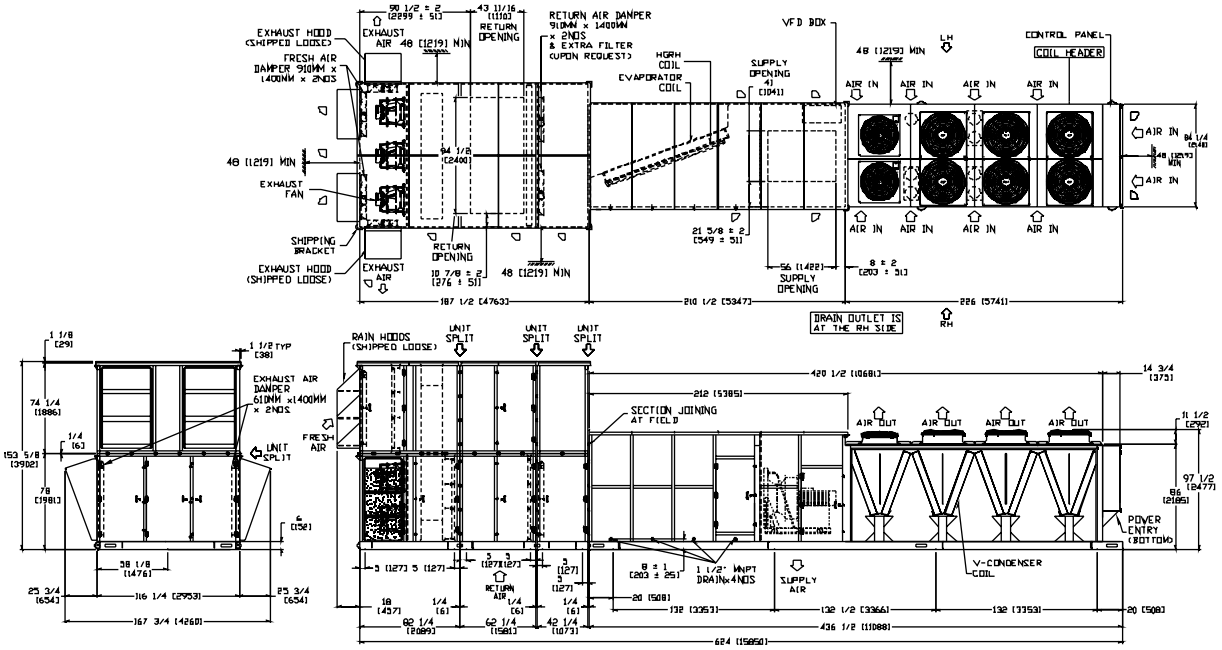

## ACPSJ100



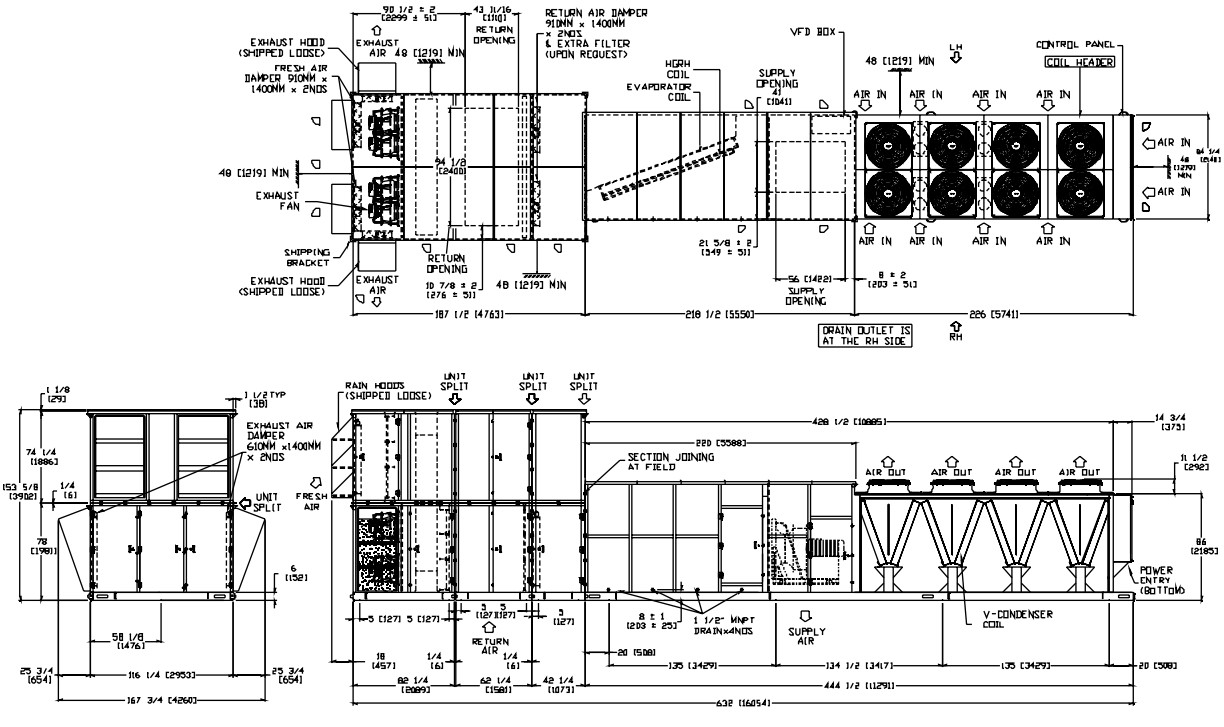

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ115




## ACPSJ130

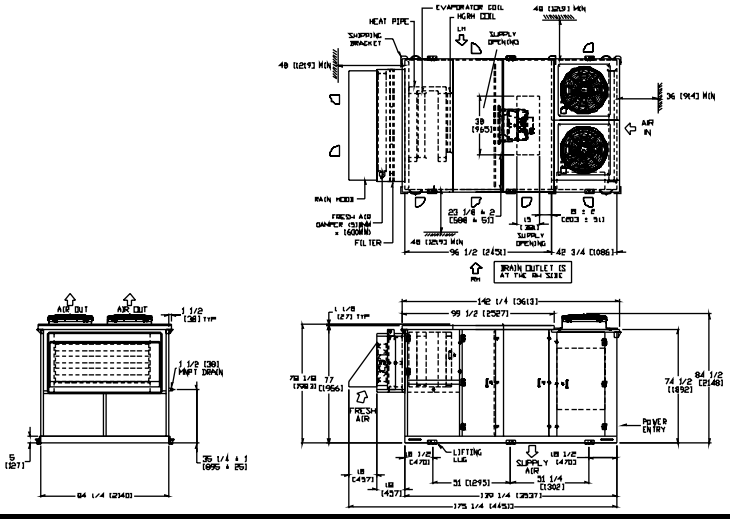



Note: All dimensions are in inches [mm].

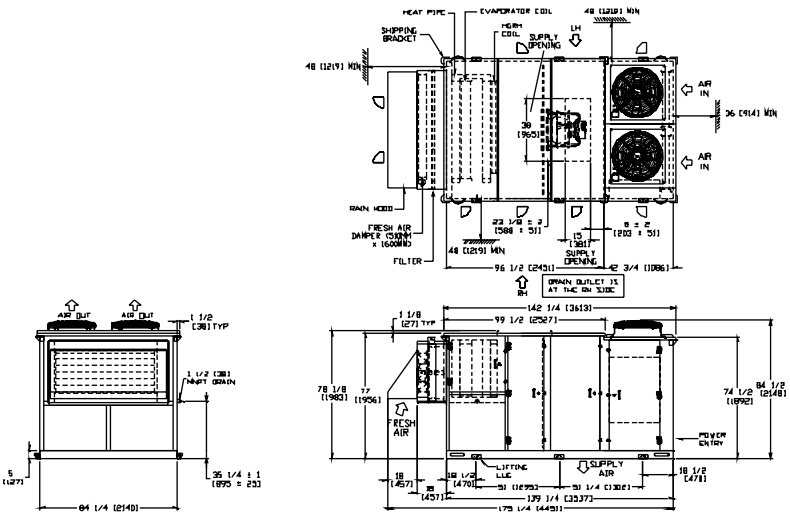
# DIMENSIONAL DATA

## 9 BASIC UNIT ACPSJ-TP MODELS

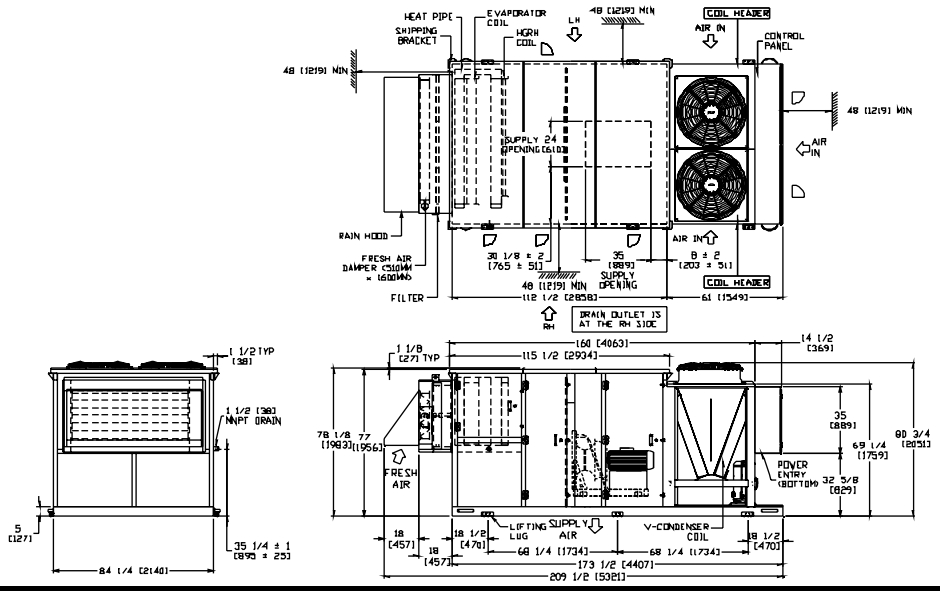
### ACPSJ015




### ACPSJ025



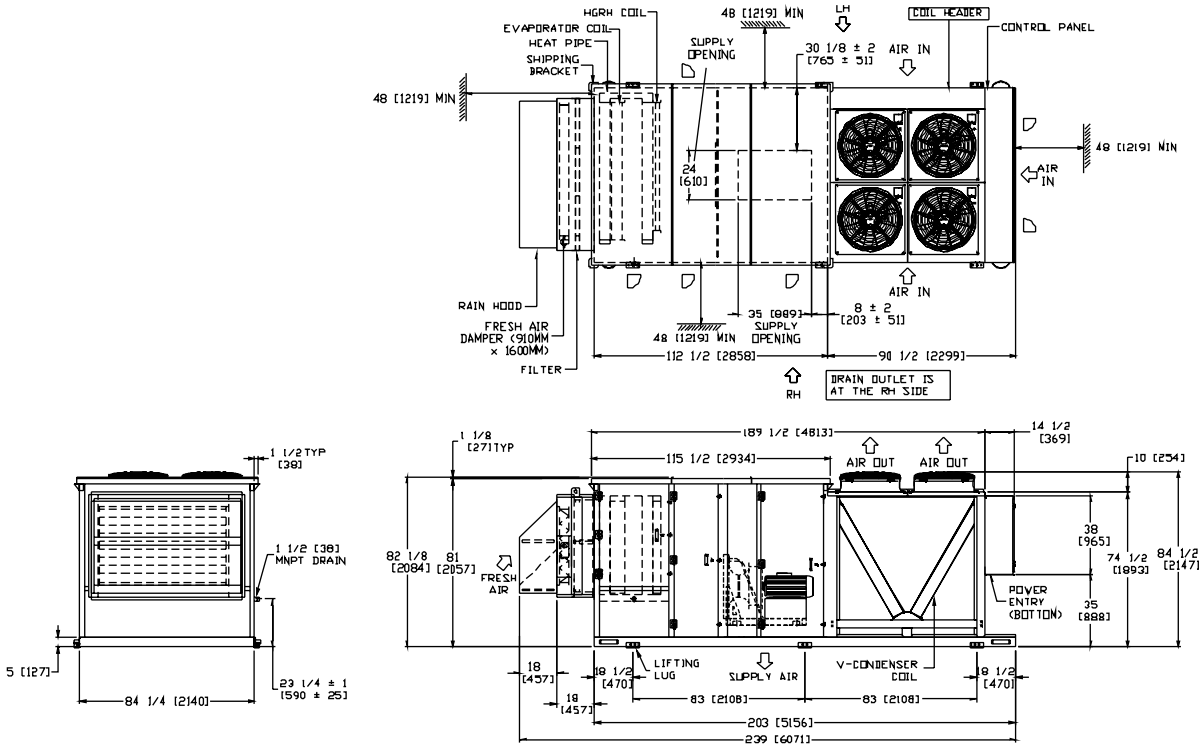

### ACPSJ035



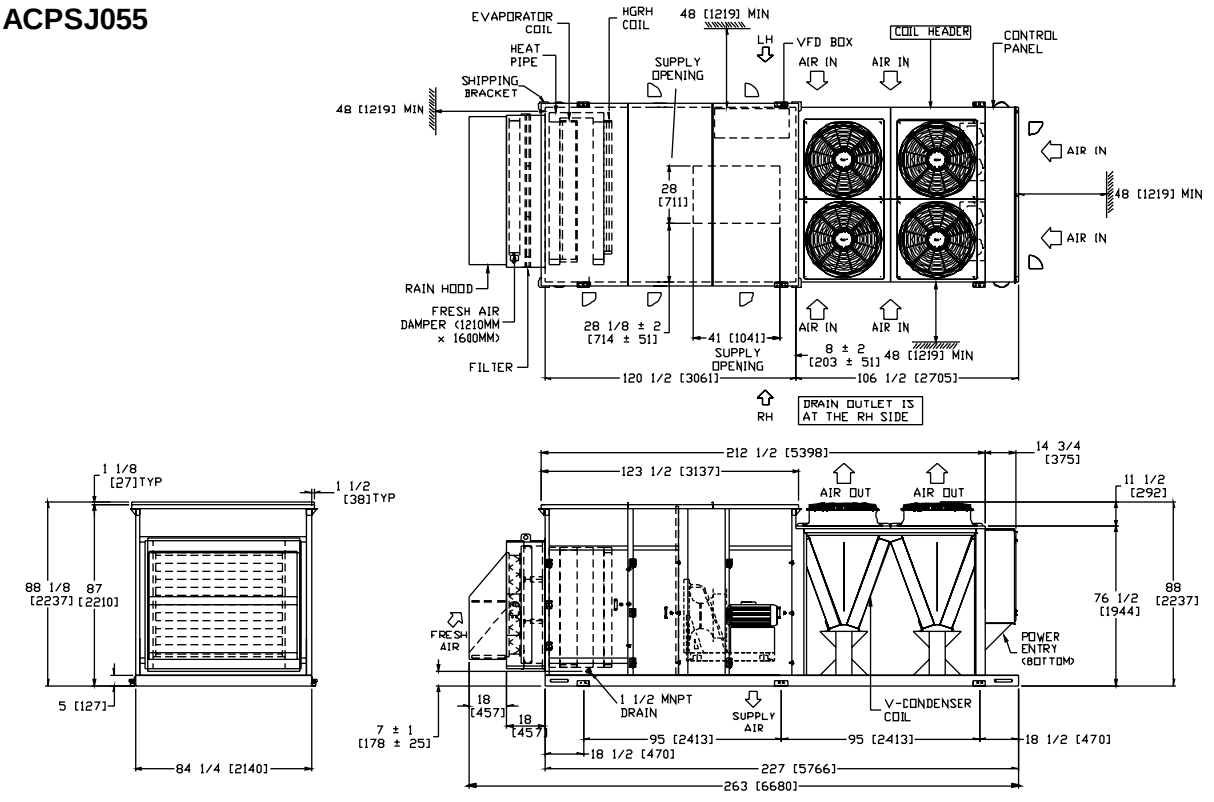

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ045



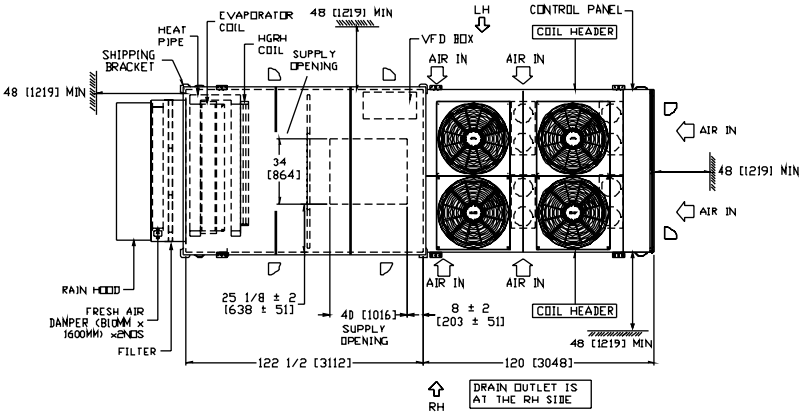

## ACPSJ055

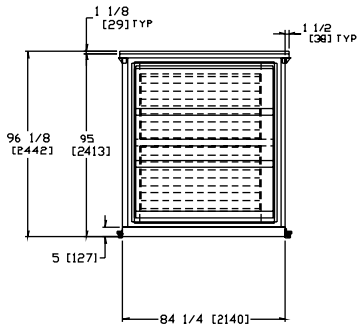


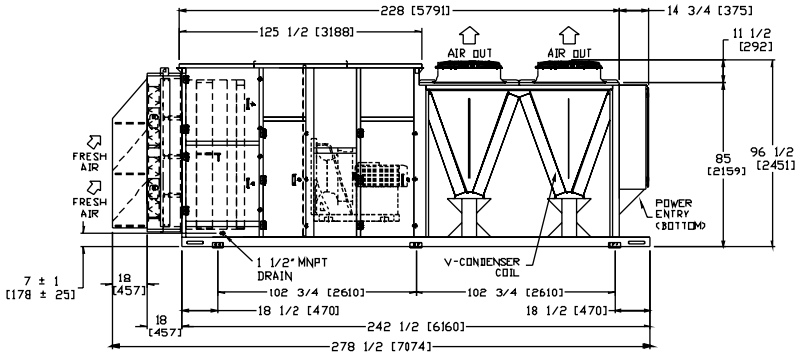

Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ080

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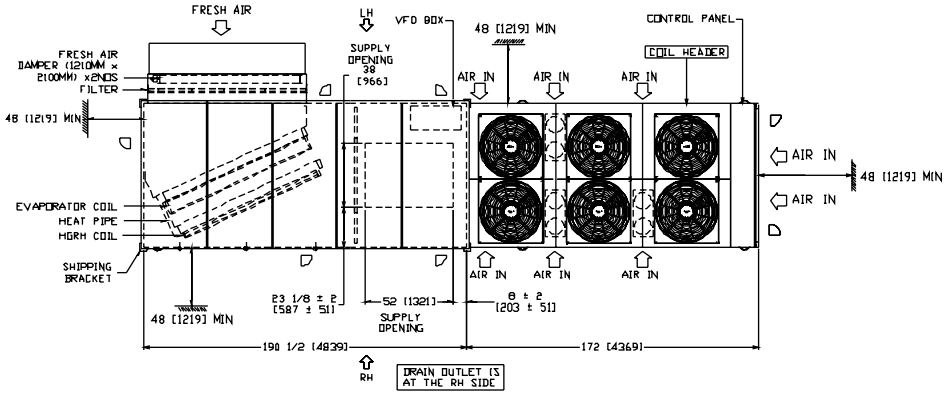
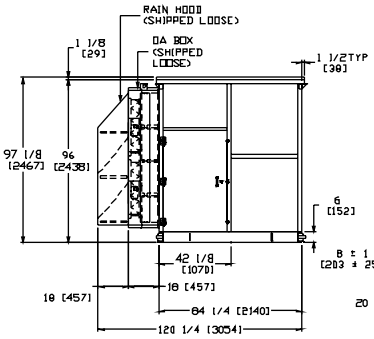
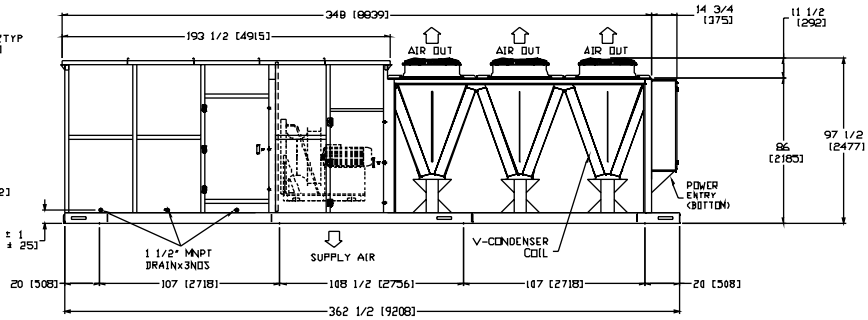


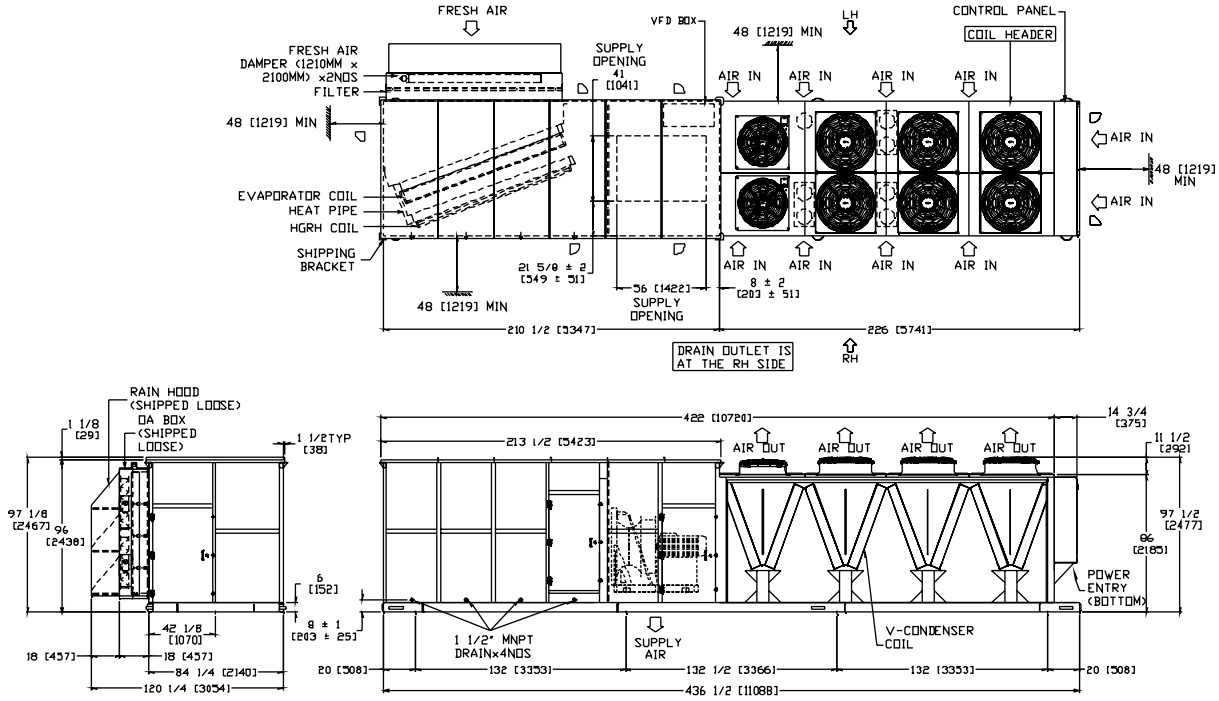




Note: All dimensions are in inches [mm].

# DIMENSIONAL DATA

## ACPSJ115

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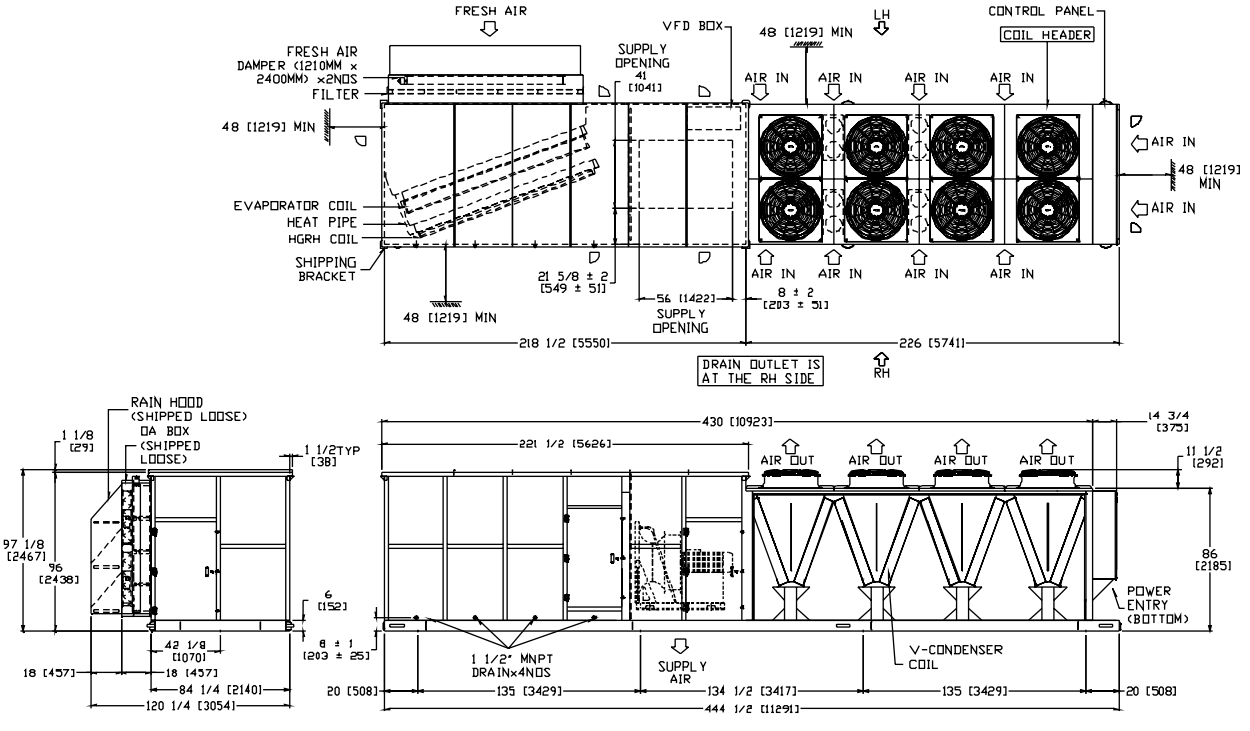
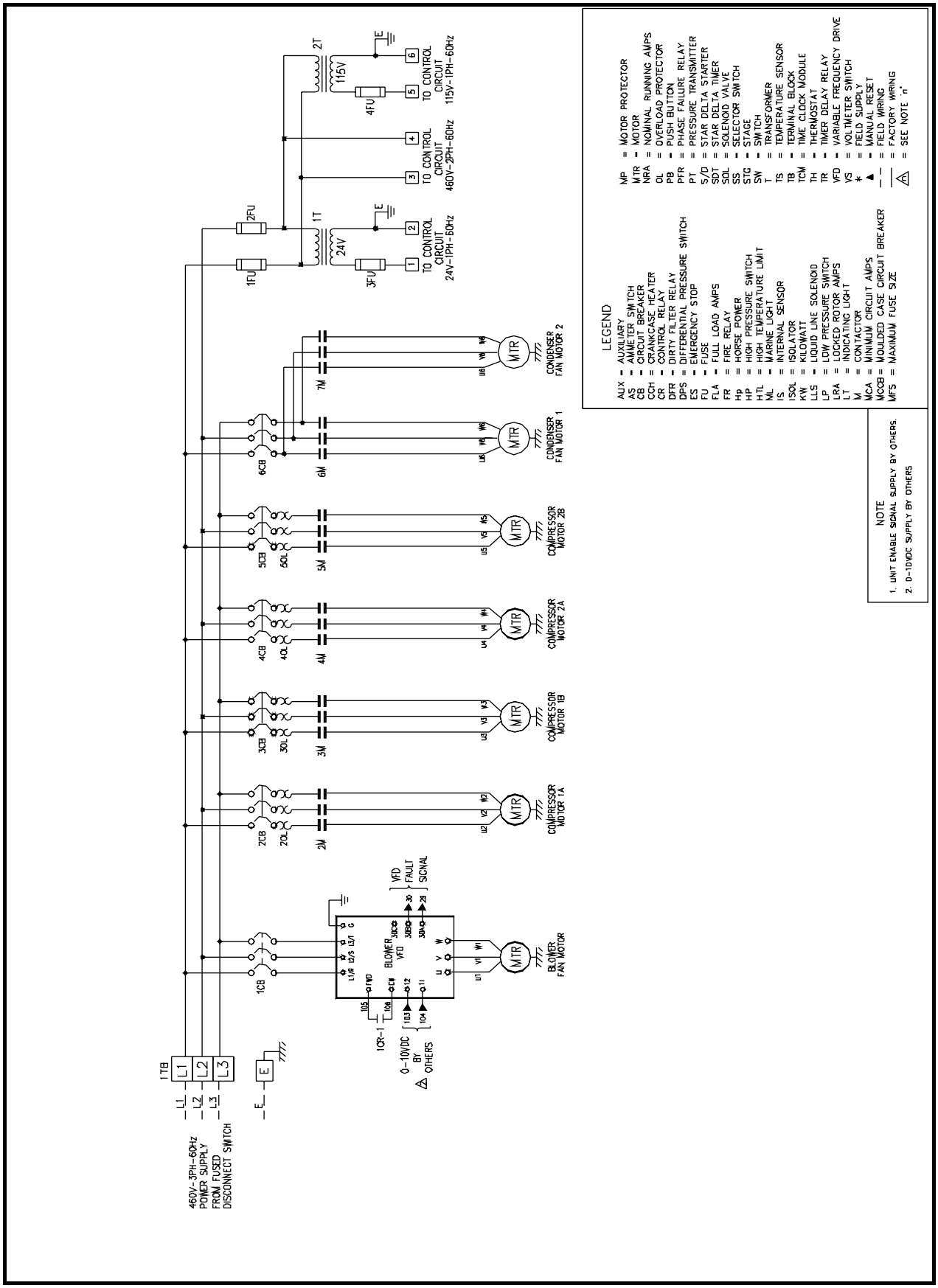



Note: All dimensions are in inches [mm].

# TYPICAL WIRING SCHEMATIC (ACPSJ-NN)



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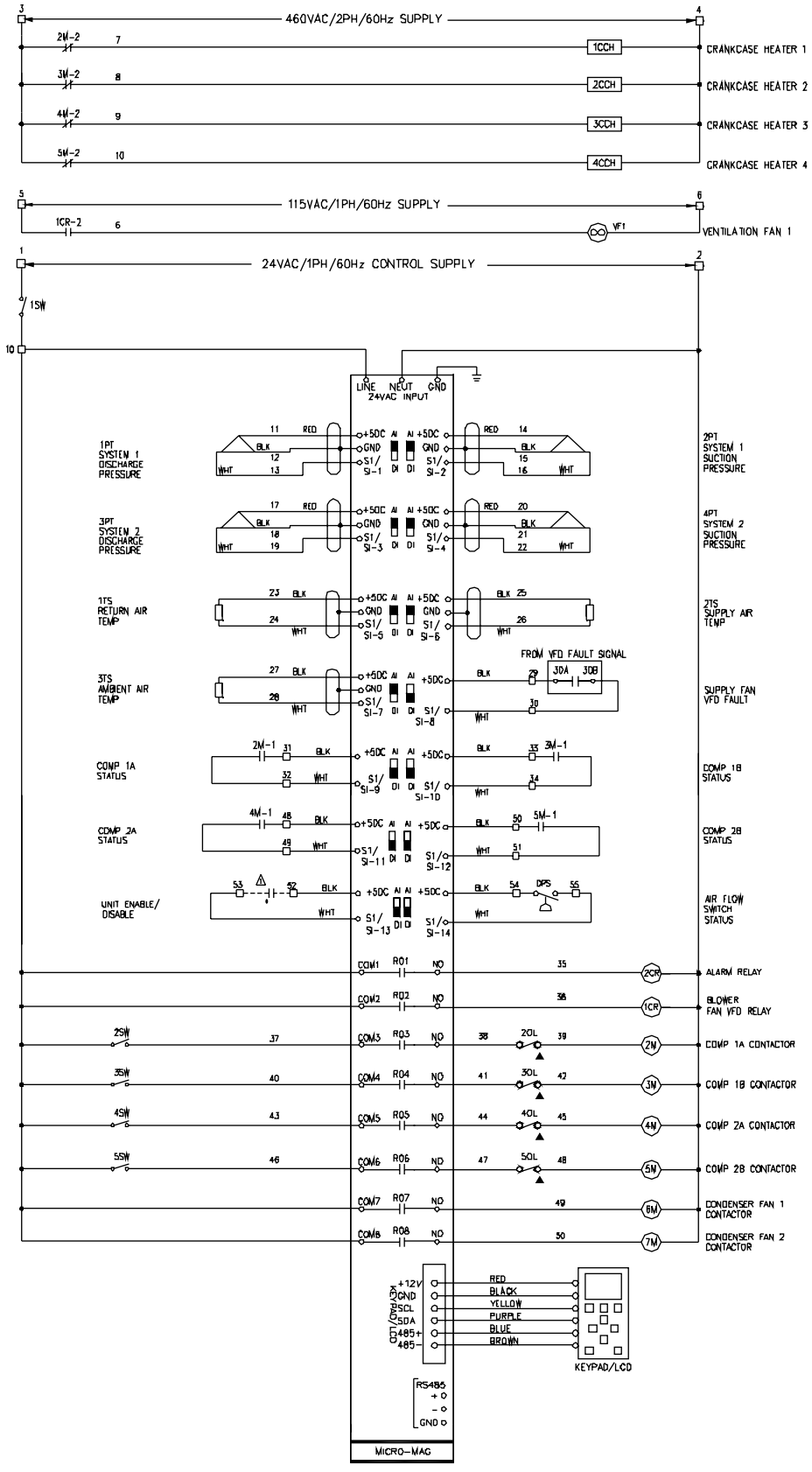

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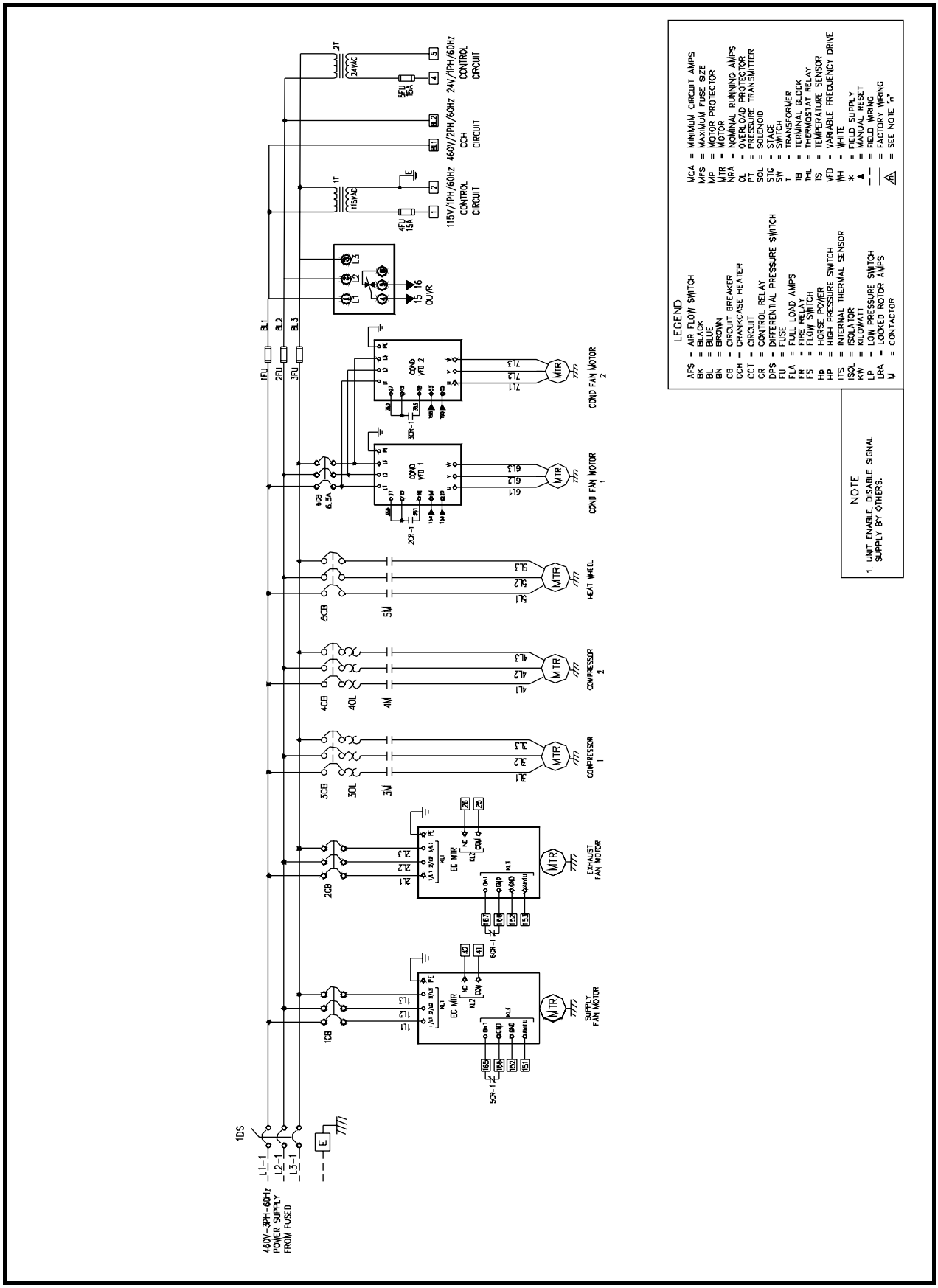

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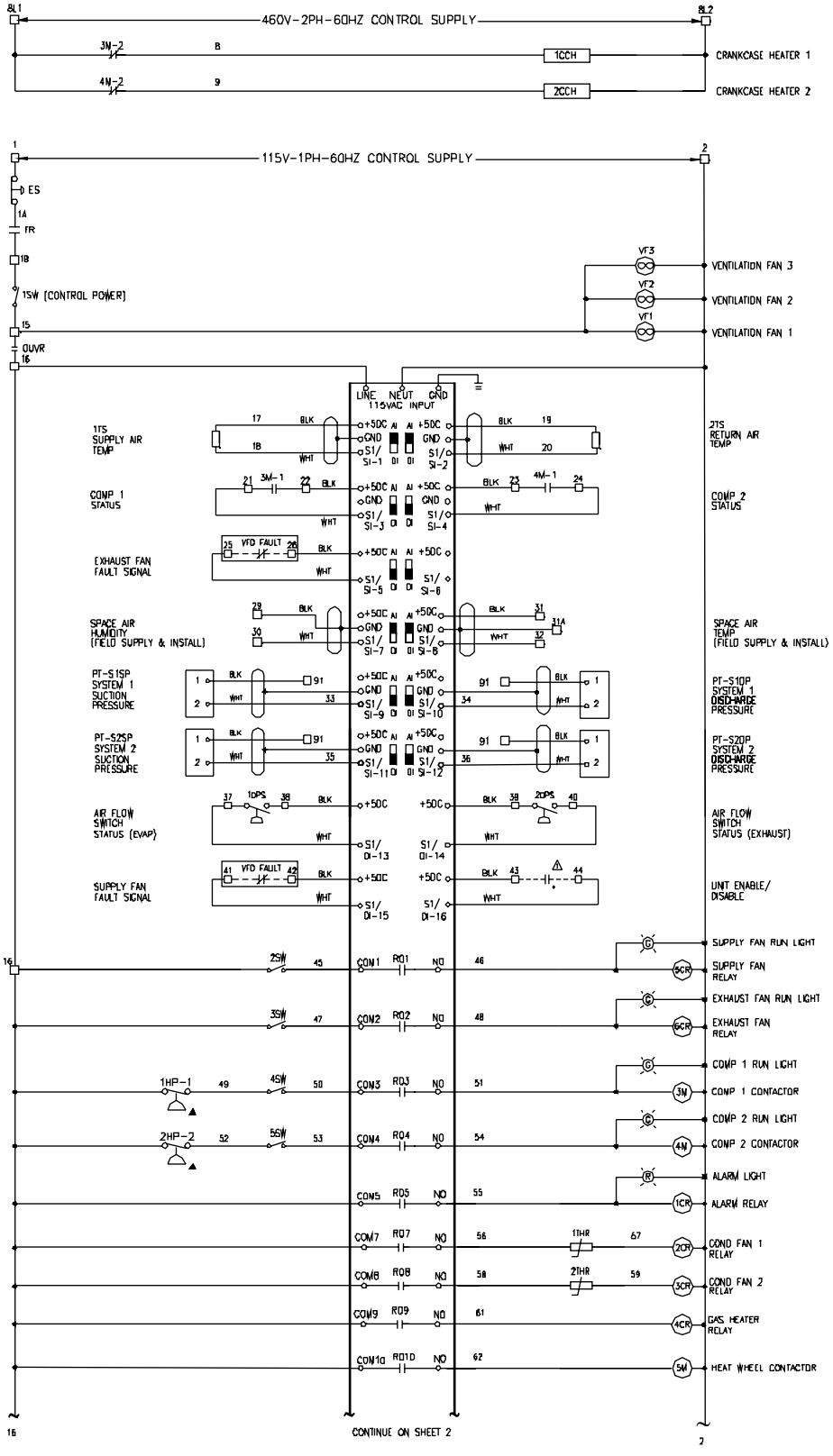

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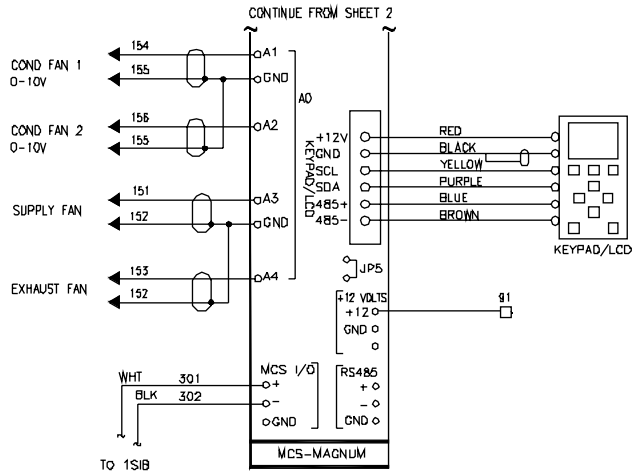
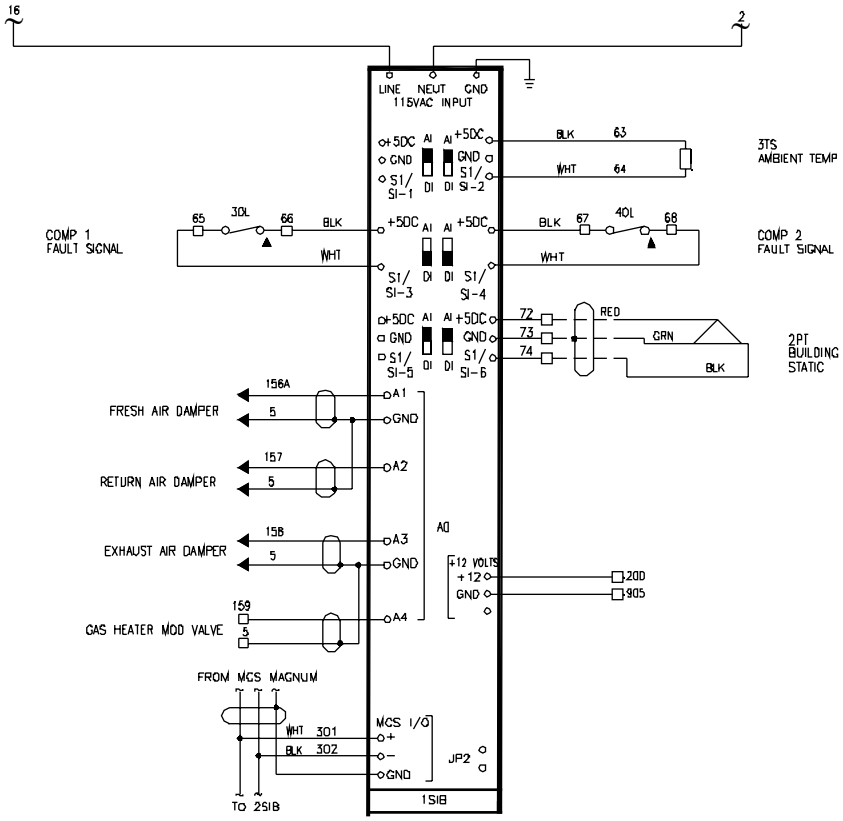
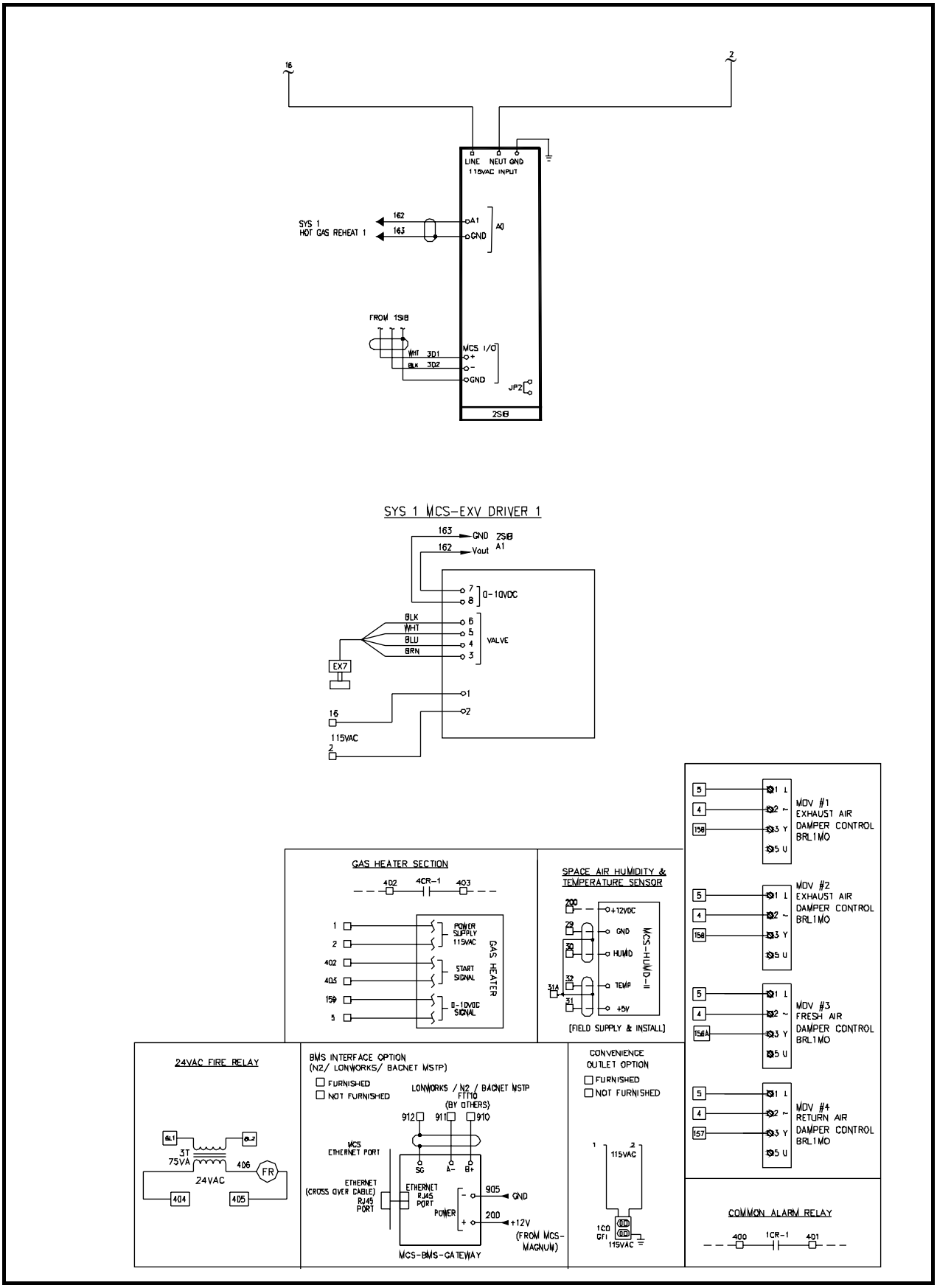


# TYPICAL WIRING SCHEMATIC (ACPSJ-EW)



# GUIDE SPECIFICATIONS

## STANDARD

### 1. GENERAL

Air cooled packaged rooftop unit (return air application – type NN) shall include compressor(s), evaporator and condenser coils with fan(s), refrigeration piping, electrical components and enclosing cabinet. While dedicated outside air system (DOAS) air cooled packaged rooftop unit (type OA, EW and TP) shall include hot gas reheat coil, outside air damper with actuator, heat recovery wheel (type EW only) and heat pipe (type TP only) apart from the components mentioned for type NN unit. DOAS unit type EW will have exhaust fan(s) included in the unit for relieving air from building. The units shall be factory assembled, internally wired, fully refrigerant charged with R410A (except for unit which evaporator section and condenser section are shipped loosely and combined at field – refrigerant charge will be field supplied and charged) and are designed for outdoor rooftop installation on a roof curb. The units shall be capable to operate up to 115$^{o}$F (46$^{o}$C) ambient temperature without failure. ***Units shall be ETL listed for North America and Canada regions.***

**Heat Recovery Wheel Model for ACPSJ-EW models**

| Model | Heat Recovery Wheel Model | Air Pressure Drop, inwg |
|---|---|---|
| **ACPSJ015-EW** | HRW-1200 | 0.58 |
| **ACPSJ025-EW** | HRW-1500 | 0.61 |
| **ACPSJ035-EW** | HRW-1700 | 0.59 |
| **ACPSJ045-EW** | HRW-1900 | 0.65 |
| **ACPSJ055-EW** | HRW-1900 | 0.80 |
| **ACPSJ080-EW** | HRW-1900 | 1.14 |
| **ACPSJ100-EW** | HRW-2400 | 0.95 |
| **ACPSJ115-EW** | HRW-2600 | 0.92 |
| **ACPSJ130-EW** | HRW-2600 | 1.05 |

**Heat Pipe Size used for ACPSJ-TP models**

| Model | Heat Pipe Size | Air Pressure Drop, inwg |
|---|---|---|
| **ACPSJ015-TP** | 3Row x 32"Fin Ht x 42" Fin Lh x 12FPI | 0.36 |
| **ACPSJ025-TP** | 3Row x 32"Fin Ht x 60" Fin Lh x 12FPI | 0.48 |
| **ACPSJ035-TP** | 3Row x 32"Fin Ht x 66" Fin Lh x 12FPI | 0.58 |
| **ACPSJ045-TP** | 3Row x 44"Fin Ht x 66" Fin Lh x 12FPI | 0.60 |
| **ACPSJ055-TP** | 3Row x 54"Fin Ht x 66" Fin Lh x 12FPI | 0.60 |
| **ACPSJ080-TP** | 3Row x 74"Fin Ht x 66" Fin Lh x 12FPI | 0.62 |
| **ACPSJ100-TP** | 3Row x 74"Fin Ht x 90" Fin Lh x 12FPI | 0.68 |
| **ACPSJ115-TP** | 3Row x 74"Fin Ht x 105" Fin Lh x 12FPI | 0.68 |
| **ACPSJ130-TP** | 3Row x 74"Fin Ht x 115" Fin Lh x 12FPI | 0.68 |

Standard design comprises flat blade aluminium damper for the air inlet and airfoil blade aluminium damper which is optional. There is also actuator option available if required.

| | |
|---|---|
| **Leakage** | Class 2 Performance according to EN 1751:2014 Ventilation for buildings: Air Terminal devices. Aerodynamic testing of damper and valves |
| **Pressure** | Up to 2000 Pa (refer to Pressure Limitations for Damper Blade Width) |
| **Velocity** | Up to 25 m/s (5000 fpm) (refer to Velocity Limitations for Damper Blade Width) |
| **Temperature Limits** | Damper Assembly: -15°C to 80°C |
| **Temperature Limits** | Blade Seals (Thermoplastic Elastomer TPE): -15°C to 80°C |

### 2. CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1 inch thick double skin panels with injected polyurethane foam insulation with density 2.5lbs/ft$^3$, sandwiched between galvanized steel. Hinged access doors shall be provided for easy service and maintenance of unit internal parts. Unit base shall be watertight with heavy gauge sheet metal or formed channels for recess and curb overhang. Unit lifting lugs shall accept chains or cables for rigging. Lifting lugs shall also serve as unit tie down points.

### 3. COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, filter dryer, sight glass, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure safety cutout as well as charging/access ports in each circuit. For type DOAS unit; there will be additional liquid receiver, check valve and hot gas reheat modulating valve added to the refrigerant piping (only for system 1). The compressors shall comply with the internationally recognized standards CE and UL.

### 4. CRANKCASE HEATERS

Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles.

### 5. EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8" or ½" OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (except for model 015 and 025 are using hydrophilic fin as standard) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) under water. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

### 6. EVAPORATOR FAN AND MOTOR WITH VARIABLE SPEED

**<u>Model 015 and 025 with EC Evaporator Fan</u>**
**(N/A for 575V/3ph/60Hz)**

High efficiency direct driven backward curved plenum fan shall be provided. The backward curved plenum fan shall be driven with

**1** electronically commutated (EC) motor. Fan speed can be stepped to requirements or continuously variable using a 0–10V DC control signal.

**Model 035 to 130 with Direct Driven Plenum Supply Fan**

Supply fan shall be single width single inlet plenum fan. Fan blades shall be backward curved manufactured in mild steel with polyester powder coating finish. Supply fan's shaft shall be made from C45 carbon steel material and coated with anti-corrosion varnish. Supply fan's bearing shall use either deep groove ball bearings with an adapter sleeve, or spherical roller bearings sealed at both sides for different duty application. Bearings shall be permanently lubricated and maintenance free. Supply fan wheel shall be statically and dynamically balanced to ISO1940 and AMCA 204 – G2.5 standard. Supply fan shall be direct driven. Entire fan assembly shall be completely isolated from unit via spring isolation. Supply fan motor shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating with class F insulation. The supply fan motor speed modulation shall be provided via factory installed variable frequency drive (VFD).

## 7. CONDENSER COIL

Condenser coil shall be air cooled, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminum fins (aluminum coated fin/hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) under water.

## 8. CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type discharging air vertically upward. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced. Condenser fan motors shall be totally enclosed air over (TEAO) enclosure, 6-poles with minimum class F insulation and wired to unit control panel. The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

## 9. FILTERS, HIGH EFFICIENCY MERV 8

Units shall be provided with 2" thick disposable high efficiency pleated filters having average dust spot efficiency of 25-35% in accordance with ASHRAE52-76.

## 10. ELECTRICAL CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Hinged and lock type access door shall be provided for easy access and security.

The control panel shall be completely factory wired and shall include standard IEC DOL with fixed speed compressor, evaporator fan motor and condenser fan motor circuit breaker and contactors, compressor and evaporator fan motor thermal overload relays, anti-recycling time delay, fuse, power and control circuit terminal blocks and features 115V or 24V controls with 460V/3Ph/60Hz, 208V/3Ph/60Hz, 230V/3Ph/60Hz or 575V/3Ph/60Hz power supply with earth. The units control panel is fully wired ready to accept the main power supply (except for unit whereby evaporator and condenser section is shipped loosely, simple wiring connection shall be fulfilled at field).

## 11. DB Director / Micro DB Director Control

The unit shall be provided with DB Director / Micro DB Director control system with the following features,

- The control algorithm and parameters shall be stored in flash memory and EPROM of the controller and shall retain even in the event of power failures, without requiring external backup battery
- User Interface with Display
- Temperature controlled
- Configurable by user
- Alarm status/display
- Analog input/output display
- Digital input/output status
- Remote start/stop input
- General alarm output
- Self-diagnostics
- Security password access with multiple access level for advanced settings
- Unit status display

**Defrost Controls**

Adaptive demand defrost shall be provided to permit defrost wherever coil icing conditions begin to significantly reduce unit capacity

**Built-in BMS Communication**

Modbus RTU / Bacnet MSTP communication protocol is built-in to the main controller and comes as a standard feature for Micro DB Director. For DB Director Controller, Bacnet IP, Modbus IP or Modbus RTU comes as a standard in built feature.

**Pressure Transducers on Suction & Discharge line**

Pressure transducers are provided as standard in suction and discharge lines of each system. The operating pressure reading will be displayed on the controller user interface.

# GUIDE SPECIFICATIONS

## OPTION

**1. Inverter Compressor**

Unit's 1st system shall be equipped with the high efficiency inverter compressor whilst fixed speed compressor(s) for the rest of the system(s). All compressors shall be scroll, hermetically sealed, refrigerant gas cooled, quiet running and supported on rubber mounts to minimize vibration.

The inverter compressor motor shall be a permanent magnet type and matched with a specially designed, variable frequency drive which modulates the speed of the compressor motor and provides several compressor protection functions.

The inverter compressor shall include electronic expansion valve (EEV) while thermal expansion valve with external equalizer for other fixed speed compressor(s). The compressors shall comply with the internationally recognized standards CE and UL.

The variable speed compressor shall be capable of speed modulation from 25Hz to a maximum of 100Hz. The unit minimum capacity shall be 25% of full load. The resident control algorithms shall make all heating, cooling, and/or ventilating decisions in response to electronic signals from sensors measuring indoor and outdoor temperatures.

The control algorithm maintains accurate temperature control, minimizes drift from set point, and provides better building comfort. A centralized control shall provide anti-short cycle timing and time delay between compressors to provide a higher level of machine protection.

**2. Gas Heating (consult factory for unit layout)**

Gas heat unit (natural gas) shall be a completely assembled system integral within unit. Gas heat unit shall be cETLus approved specifically for outdoor applications and located downstream of cooling coil. Gas heat unit shall have a tubular heat exchanger constructed of stainless steel. Heat exchanger tubes shall have integral formed dimpled restrictors to provide for an unobstructed drainage path and tubes shall be formed to provide a positive pitch to promote condensate drainage. Drainage shall be configured so that burners and burner surfaces are not exposed to condensate. Incoming gas supply connection shall be threaded NPT connection with pipe cap provided. The gas-fired unit shall be equipped for operation on a 115V/1ph/60Hz power supply. A circulation air flow switch shall be installed upstream of heating unit to prove that sufficient airflow is present. Heater high limit switch shall also be install in the gas heat section as a safety to cut off if temperature reaches unsafe point.

**3. Hot Gas Bypass**

The refrigerant circuit (applicable to 'first in last out' refrigeration system only) shall be provided with a hot gas bypass system for low room/building load application and evaporator coil freeze prevention.

**4. 1 Row Hot Water Heating Coil**

Hot water coil shall be provided for heating purpose (hot water shall be field supplied).

**5. Discharge / Suction / Liquid Line Service Valves**

Service valves shall be provided at each refrigerant lines for service convenience.

**6. Evaporator Coil Fin Materials**

In lieu of standard aluminium fin, alternative fin material and/or protective coating include,

- Hydrophilic coated aluminium fin (Only applicable to model 035 and above)
- Copper Fin
- Aluminium fin with DB-Coat (pass 1000 hour ASTM B-117 Salt Spray Test)

**7. Condenser Coil Fin Materials**

In lieu of standard aluminium fin, alternative fin material and/or protective coating include,

- Hydrophilic coated aluminium fin (only applicable for Cooling Only models)
- Copper Fin
- Aluminium fin with DB-Coat (pass 1000 hour ASTM B-117 Salt Spray Test)

**8. Stainless Steel Drain Pan**

A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

**9. Replaceable Core Filter Drier**

Replaceable filter core drier shall be provided in lieu of standard filter drier for the convenience of filter drier's core replacement.

**10. Electronic Expansion Valve (EEV)**

In lieu of standard thermal expansion valve equipped on fixed speed compressor's system, electronic expansion valve (EEV) shall be provided for precise superheat control.

**11. Liquid Line Solenoid Valve (LLSV)**

Factory fitted liquid line solenoid valve shall be provided for each refrigeration circuit.

**12. Condenser Coil Guard**

Powder coated wire mesh guard shall be provided for condenser coil protection.

**13. Suction accumulator (only applicable for cooling only models)**

Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

**14. High and Low Pressure Gauges**

Each compressor shall be provided with unit mounted pressure gauges to monitor discharge and suction line pressure.

**15. 4-Inch Filters on top of standard 2-Inch Filters (2+4" Filter)**

Optional 4 inches thick MERV14 disposable pleated filters shall be supplied on top of the standard 2 inches MERV8 filter.

# GUIDE SPECIFICATIONS

**16. Outside Air (consult factory for unit layout) (Not applicable for DOAS unit type OA, EW & TP)**

**0 to 30% Outside Air Intake**

This option shall include a low leak outside air damper (manual/hand operated - without actuator) which help to provide outside air quantities from 0% to 30% of the total system airflow (depending on the damper setting). Option is come with rain hood with moisture eliminator filters for protection against rain and external elements.

**Economizer**

The economizer brings in cold outside air for ventilation and provides "free" cooling to the building. It substantially reduces the need for mechanical cooling (cooling by running system's compressors) thus saving tremendous amount of energy.

The economizer option shall include rain hood with moisture eliminator filters for protection against rain and external elements, low leak outside air and return air damper, 0 to 100% fully modulating damper actuator (spring return type) on outside air and return air damper and dry bulb sensors.

The outside air damper (controlled via actuator) will start to operate when the dry-bulb sensor senses that the ambient/outside air temperature drop beyond a certain setpoint. The outside air damper will modulate open from 0% to 100% to maintain room temperature setpoint. In case the cooling setpoint can't be achieved by modulating the outside air damper alone, compressors will be staged on. In another word, during time when ambient temperature is low, the outside air damper will act as the first stage of cooling for energy saving.

Return air damper will be in open position as long as the outside air damper is closed. Return air damper will modulate close in correspondence to of outside air damper opening.

**17. Barometric Relief (consult factory for unit layout) (Economizer option must be selected) (Not applicable for DOAS unit type OA, EW & TP)**

Barometric relief option shall include exhaust hood with moisture eliminator filters (for protection against rain and external elements) and barometric relief damper(s) to relieve positive pressure in the return air plenum of the packaged rooftop unit. The relief process is done mechanically to prevent building over pressurization (when there is excess static pressure after deducting return duct pressure drop). Model 015-025 is capable of relieving up to 100% return air while model 035-130 is capable of relieving up to 50% return air.

**18. Exhaust/Return Fan System (consult factory for unit layout) (Not applicable for DOAS unit type OA, EW & TP)**

**Exhaust Fan System (Economizer option must be selected)**

Exhaust fan option shall include belt driven DIDW (Double Inlet Double Width) forward curved fan as the exhaust fan. The exhaust fan shall be supplied together with TEFC exhaust fan motor, belts and pulleys and VFD. Low leak return air damper and its corresponding 0 to 100% fully modulating damper actuator (spring return type) shall be supplied. The exhaust shall include a backdraft damper and exhaust hood with aluminum filters (for protection against rain and external elements). A building pressurization sensor shall be used to sense the pressure difference between indoor and outdoor ambient atmospheric pressure. The exhaust fan will automatically turn on and regulate the VFD fan speed to reduce the indoor pressure whenever necessary.

**Return Fan System (Economizer option must be selected)**

Return fan option shall include direct driven SISW (Single Inlet Single Width) backward curved plenum fan as the return fan. The return fan shall be supplied together with TEFC return fan motor and VFD. Low leak exhaust and return air damper and their corresponding 0 to 100% fully modulating damper actuator (spring return type) shall be supplied. The exhaust shall include an exhaust hood with moisture eliminator filters (for protection against rain and external elements). Return fan shall operate whenever supply fan is in operation. A building pressurization sensor shall be used to sense the pressure difference between indoor and outdoor ambient atmospheric pressure. The unit exhaust damper shall modulate to reduce the indoor pressure whenever necessary. When economizer option is selected, the return air damper shall modulate based on the economizer cooling demand. Return fan speed shall modulate accordance to duct static pressure.

**19. EC Evaporator Fan (applicable for model 035 to 130 only, N/A for 575V/3ph/60Hz)**

In lieu of standard direct driven plenum evaporator fan, motor and VFD, high efficiency direct driven backward curved plenum fan shall be provided. The backward curved plenum fan shall be driven with electronically commutated (EC) motor. Fan speed can be stepped to requirements or continuously variable using a 0–10V DC control signal. The EC backward curved plenum fan is best applicable for precise air flow control, building pressure control and energy saving purpose.

**20. EC Condenser Axial Fan (N/A for 575V/3ph/60Hz)**

In lieu of standard direct driven axial condenser fan with AC motor, a direct driven axial condenser fan with electronically commutated (EC) motor shall be provided. Fan speed can be stepped to requirements or continuously variable using a 0–10V DC control signal. The EC axial fan is best applicable for precise head pressure / low ambient control and energy saving purpose. The fan also featured a low noise behaviour.

# GUIDE SPECIFICATIONS

**21. Modulating Hot Gas Reheat (applicable for model 015 to 130 only) (Not applicable for DOAS unit type OA, EW & TP)**

Hot gas reheat coil (aluminum fin copper tube) shall be provided downstream of indoor evaporator coil for dehumidification purpose. The hot gas reheat modulating valve will control the refrigerant flow between the indoor reheat coil and the outdoor condenser coil in corresponds to the outside air temperature, humidity and supply air temperature for space dehumidification. The modulating valve is only applied to system 1 (lead system).

**22. Door Interlock Main Incoming Isolator**

Incoming Isolator shall be provided to isolate the main incoming power supply to the unit.

**23. Indicating Lights**

Indication shall be provided for Supply fan run, overload trip, compressor run high pressure trip and overload trip.

**24. UVR/Phase Failure Protect**

Phase Failure Relay shall be provided for over voltage, under voltage and phase loss protection.

**25. Interface Module**

Bacnet IP, Bacnet MSTP/ Lonworks communication protocol comes as an add on option apart from the standard available features shall be provided.

**26. Lock Out Stop**

Emergency stop switch shall be provided for Blower Fan.

**27. Differential Pressure Switch for Evaporator Blower**

Differential pressure switch shall be provided to interlock with the control circuit. It is used to sense air flow and feedback to the controller.

**28. Voltmeter**

Voltmeter and selector switch shall be provided for voltage display

**29. Ammeter**

Ammeter and selector switch provided for current display.

**30. Electric Heater**

Electric heater shall be provided for heating purpose. Electric heater is interlock with supply fan and will turn off if supply fan fails. Heater high temperature limit switch acts as a safety switch to cut off the heater in case of sensing high temperature. Please consult factory for different heater kW.

| Model | Stages | Total kW |
|---|---|---|
| ACPSJ015 | 3 | 24 |
| ACPSJ025 | 3 | 30 |
| ACPSJ035 | 3 | 36 |
| ACPSJ045 | 3 | 45 |
| ACPSJ055 | 3 | 54 |
| ACPSJ080 | 4 | 72 |
| ACPSJ100 | 4 | 84 |
| ACPSJ115 | 5 | 105 |
| ACPSJ130 | 5 | 105 |

**31. Electric Heater Starter (Electric Heater must be selected)**

Contactor and circuit breaker shall be provided for electric heater.

**32. Compressor Soft Start**

Soft-Starter shall be provided for fixed speed compressors to reduce the starting current.

**33. VFD for Base Condenser Motor**

Variable Frequency Drive (VFD) on base condenser fan motor(s) shall be provided with pressure transducer added for more accurate control at ambient down to $40^0$F.

**34. $CO_2$ Sensor**

The $CO_2$ sensor shall have the ability to monitor the concentration (parts per million, ppm) of $CO_2$ (Carbon Dioxide) in the air. As the $CO_2$ concentration changes, the outside air damper modulates. The sensor shall be duct mounted and field wired back to the unit.

**35. 24VAC fire relay with transformer**

A 24VAC fire relay shall be installed together with an isolation transformer to lock out the unit when this signal is activated.

**36. Supply Duct Static Pressure Sensor**

Duct static pressure sensor shall be supplied to be installed in the supply duct to monitor the static pressure. This sensor shall be supplied to control the supply fan VFD speed.

**37. Building Pressurization Sensor**

Building pressurization sensor shall be supplied to be installed in cooling space to monitor the room pressurization level. This sensor shall be used to on / off the exhaust fan and modulate the speed when necessary to maintain standard room pressurization level.

**38. Convenience Outlet**

**39. Dual Point**

Dual incoming shall be supplied for evaporator fan motor and compressors (or heaters). Unit runs compressors or electric heater independently (non-concurrent load). Simultaneous operating of cooling and heating cannot occur.

**40. Heat Recovery Wheel Frost Control (Applicable to DOAS unit type EW only)**

If outside air temperature is expected to drop below 15F; heat recovery wheel frost control has to be included accordingly. Heat recovery wheel's motor shall be coupled with VFD to reduce the rotating speed of the heat recovery wheel (therefore reducing the heat transfer capability of the heat recovery wheel) to prevent frosting.

**41. Return Air Damper and Filter Set (Applicable to DOAS unit type EW only)**

Return air damper (with actuator) and filter set shall be supplied accordingly if there is requirement to circulate the return air during unoccupied mode.

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