HVAC Guide Specifications
Inverter Driven, Direct Expansion (DX), Air-Cooled Heat Pump Split System

Section 15700 – Mechanical HVAC

Size Range:
0.75 to 2 TONS NOMINAL

Daikin HP Model Number:

ODU	IDU
RXP09AVJU9	FDMA09AVJU9
RXP12AVJU9	FDMA12AVJU9
RXP15AVJU9	FDMA15AVJU9
RXP18AVJU9	FDMA18AVJU9
RXP24AVJU9	FDMA24AVJU9

Part 1- GENERAL

SINGLE SPLIT AIR CONDITIONING
SPECIFICATION – Heat Pump

1.01 SYSTEM DESCRIPTION

The variable capacity, heat pump system shall be a Daikin Inverter Driven series (heat/cool model) split system. The system shall consist of a ducted concealed evaporator model, operable with R32 refrigerant, equipped with refrigerant leak sensor, FDMA09AVJU9 exclusively matched to outdoor model RXP09AVJU9, FDMA12AVJU9 exclusively matched to outdoor model RXP12AVJU9, FDMA15AVJU9 exclusively matched to outdoor model RXP15AVJU9, FDMA18AVJU9 exclusively matched to outdoor model RXP18AVJU9, and FDMA24AVJU9 exclusively matched to outdoor model RXP24AVJU9 direct expansion (DX), air-cooled, Daikin swing, variable speed, inverter driven compressor using R32 refrigerant. The outdoor unit is a horizontal discharge, variable speed, single fan unit using a single-phase power supply. The system shall have a self-diagnostic function, 3-minute delay mechanism and have a factory pre-charge of R32 adequate for 49 feet of total line set length. The system shall have automatic restart capability after a power failure has occurred and a low voltage cut-off feature to prevent stalling during power supply issues.

1.02 QUALITY ASSURANCE

A. The units shall be tested by a Nationally Recognized Testing Laboratory (NRTL), in accordance with ANSI/UL C22.2 No. 60335-2-40– Heating and Cooling Equipment and bear the Listed Mark.
B. All wiring shall be in accordance with the National Electric Code (NEC).
C. Each combination shall be rated in accordance with Air Conditioning Refrigeration Institute's (ARI) Standard 210/240 and bear the ARI label.
D. The system will be produced in an ISO 9001 and ISO 14001 facility, which are standards set by the International Standard Organization (ISO). The system shall be factory tested for safety and function.
E. The outdoor unit will be factory charged for a line set length of 49 feet of refrigerant with R32 refrigerant.
F. A holding charge of dry nitrogen shall be provided in the evaporator.
G. System Efficiency shall meet or exceed 16.0 SEER2, 10.0 EER2 and 9.0 HSPF2.

1.03 DELIVERY, STORAGE AND HANDLING

A. Unit shall be stored and handled according to the manufacturer's recommendations.

Part 2 – WARRANTY

2.01 LIMITED WARRANTY

Complete warranty details are available from your local Daikin representative or at www.daikincomfort.com
This warranty is provided to you by Daikin Comfort Technologies Manufacturing, L.P. ("Daikin"), which warrants all parts of this heating or air conditioning unit, as described below.

A. Owner-Occupied Residential Installations**:** This warranty applies to heating and air conditioning units installed in residences occupied by the owner and covers defects in materials and workmanship that occur under normal use and maintenance. Warranty coverage begins on the "installation date," which is one of the following: (1) the date the owner purchases the residence from the builder for newly constructed homes, (2) the date the unit is originally installed in existing homes, or (3) if neither date can be verified, the installation date is three months after the manufacture date noted on the unit (except for California residents). Registration is not required to obtain warranty coverage, but registration entitles the owner to the Registered Additional Term Warranty described in the following paragraph. If the unit is not registered, the warranty lasts for a period of up to 5 YEARS (the "Initial Term Warranty")

B. Non-Owner Occupied Residential Installations: This warranty applies to heating and air conditioning units installed in residences not occupied by the owner and covers defects in materials and workmanship that appear under normal use and maintenance. Warranty coverage begins on the “installation date”. The installation date is one of two dates: (1) The installation date is the date that the unit is originally installed. (2) If the date the unit is originally installed cannot be verified, the installation date is three months after the manufacture date. Registration is not required to obtain warranty coverage, but registration entitles the owner to the Registered Additional Term Warranty described in the following paragraph. If the unit is not registered, the warranty lasts for a period up to 5 YEARS (the “Initial Term Warranty”).
C. Commercial Installations: This warranty applies to heating and air conditioning units installed in buildings other than residences and covers defects in materials and workmanship that appear under normal use and maintenance. Warranty coverage begins on the “installation date”. The installation date is one of two dates: (1) The installation date is the date that the unit is originally installed. (2) If the date the unit is originally installed cannot be verified, the installation date is three months after the manufacture date. The warranty lasts for a period of up to 5 YEARS.

2.02 EXTENDED WARRANTY –

A. Owner-Occupied Residential Installations: If the unit is properly registered online within 60 days after the installation date, an additional warranty (the “Registered Additional Term Warranty”) is provided and lasts for as long as the original registered owner or their spouse (“registered owner”) owns and resides in the residence in which the unit was originally installed, for a period up to 12 YEARS after the installation date. The limitation of Registered Additional Term Warranty coverage to the original registered owner does not apply to any owner of a unit installed in a state that requires warranty transfer upon conveyance of the property containing the unit.
B. Non-Owner Occupied Residential Installations: If the unit is properly registered online within 60 days after the installation date, an additional warranty (the “Registered Additional Term Warranty”) is provided and lasts for as long as the original registered owner (“registered owner”) owns the residence in which the unit was originally installed, for a period up to 12 YEARS after the installation date. The limitation of Registered Additional Term Warranty coverage to the original registered owner does not apply to any owner of a one, two, three, or four-family residence, or a residential unit in a multiunit structure in which title to an individual residential unit is transferred to the owner of the residential unit under a condominium or cooperative system, located in Texas.

Neither the limited or extended warranties continue after the unit is removed from the location where it was originally installed. The replacement of a part under this warranty does not extend the warranty period. In other words, Daikin warrants a replacement part only for the period remaining in the applicable warranty that commenced on the installation date.

2.03 INSTALLATION REQUIREMENTS
Installation must comply with installation manual. It is recommended the system be installed by a contractor/dealer who has been through Daikin training programs.

Part 3 - PERFORMANCE

3.01 The system performance shall be in accordance with AHRI 210/240 test conditions as shown in the performance table below.

ODU	IDU	Cooling Capacity Rated (Min. ~ Max.)	Heating Capacity Rated (Min. ~ Max.)	SEER2	EER2	HSPF2
RXP09AVJU9	FDMA09AVJU9	9,000 (4,400 – 9,400)	10,900 (4,400 – 12,800)	16.0	11.1	9.0
RXP12AVJU9	FDMA12AVJU9	10,800 (4,400 – 12,400)	13,600 (4,400 – 17,000)	16.0	10.0	9.0
RXP15AVJU9	FDMA15AVJU9	14,400 (9,000 – 15,700)	18,000 (9,000 – 18,500)	18.0	11.8	9.2
RXP18AVJU9	FDMA18AVJU9	17,600 (9,000– 19,600)	21,600 (9,000– 25,000)	18.0	11.6	9.2
RXP24AVJU9	FDMA24AVJU9	21,800 (9,000 – 23,000)	24,000 (9,000 – 27,600)	18.3	10.3	9.2

The cooling performance is based on 80°F DB / 67°F WB for the indoor unit and 95°F DB / 75°F WB for the outdoor unit and 25 feet of piping. The heating performance is based on 70°F DB / 60°F WB for the indoor unit and 47°F DB / 43°F WB for the outdoor unit and 25 feet of piping.

3.02 The operating range in cooling will be 50°F DB ~ 115°F DB, and down to -4°F DB when optional wind baffle used and Jumper is cut on ODU.

3.03 The operating range in heating will be 13°F WB ~ 65°F WB.

3.04 The system shall be capable of maximum refrigerant piping as follows. For the 9k btu and 12k btu a max of 65-5/8 feet, with 49-1/4 feet vertical difference. For the 15k btu ,18k btu and the 24k btu a max of 98-1/2 feet, with 65-5/8 feet maximum vertical difference, without any oil traps or additional components.

Part 4 – PRODUCTS

4.01 INDOOR UNIT

General:

The indoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls. Both liquid and suction lines must be individually insulated between the outdoor and indoor units.

A. Unit Cabinet:
   1. The indoor unit shall be constructed of heavy gauge galvanized steel.
   2. The unit shall be internally insulated and shall be capable of installation in indoor environments up to 80% relative humidity without requiring additional field installed insulation.
   3. The drain and refrigerant piping shall be accessible from the right side.
   4. The cabinet shall have a factory rear return air position with the ability to convert to bottom return.
   5. The cabinet shall include a drain pan inspection port on the right side to observe drain pan conditions.
   6. The indoor unit shall have a factory installed refrigerant leak sensor-built in. If a leak is detected, the unit shall go into circulation mode and provide full airflow.

B. Fan:
   1. The evaporator fan shall be an assembly consisting of a direct-driven fan by a single motor.
   2. The fan shall be statically and dynamically balanced and operate on a motor with permanent lubricated bearings.
   3. The indoor fan shall offer a choice of three speeds, plus quiet setting.
   4. The fan shall have a delayed start when initially put into HEAT operation, giving time for the evaporator coil to heat up and preventing a cold draft from entering the room.
   5. The fan motor shall be capable of delivering the following:

Model Number	Fan ESP (in. w.g)	CFM Range
FDMA09AVJU9	0.12 – 0.60	279- 401
FDMA12AVJU9	0.12 – 0.60	299 - 440
FDMA15AVJU9	0.20 – 0.60	284 - 471
FDMA18AVJU9	0.20 – 0.60	373 - 609
FDMA24AVJU9	0.20 – 0.60	426 - 666

   6. The unit shall be equipped with internal controls to allow the fan motor to be manually adjusted, via field setting, to deliver airflow at a variety of external static pressures. Models FDMA09AVJU9 through FDMA12AVJU9 shall have 13 available fan curves. Models FDMA15AVJU9 through FDMA24AVJU9 shall have 11 available fan curves.

C. Coil:
   1. The evaporator coil shall be a nonferrous, aluminum fin on copper tube heat exchanger.
   2. All tube joints shall be brazed with silver alloy or phoscopper.
   3. All coils will be factory pressure tested.
   4. A condensate pan shall be provided under the coil with a drain connection.
      i. The unit shall be equipped with a factory-integral condensate lift mechanism capable of 26-9/16 inches of lift.

D. Electrical:
   1. The outdoor unit shall be powered with 208-230 volts, 1 phase, and 60 hertz power. The indoor unit shall receive 208-230 volt, 1 phase, 60 hertz power from the outdoor unit.
   2. The allowable voltage range shall be 187 volts to 253 volts.

E. Control:
   1. The unit shall have a Wired type remote controller.
   2. The unit shall be compatible with interfacing with a BMS system via optional LonWorks or BACnet gateways.
   3. The unit shall be compatible with a Daikin Intelligent Touch Manager advanced multi-zone controller.
   4. The unit shall be compatible with a DKN Cloud Wi-Fi adapter.
   5. The controller shall be able to display two-digit fault codes extracted from the indoor unit to aid in troubleshooting.
   6. The indoor unit microprocessor has the capability to receive and process commands via return air temperature and indoor coil temperature sensors enabled by commands from the remote control.

F. Sound:
   1. Indoor unit sound levels are as follows:

Indoor Daikin Model	Cooling Mode Sound Level dB(A)	Heating Mode Sound Level dB(A)
FDMA09AVJU9	32	32
FDMA12AVJU9	33	33
FDMA15AVJU9	34	34
FDMA18AVJU9	35	35
FDMA24AVJU9	40	40

*values are measured approximately 5 feet away with fan speed on high, approximately 6.6 ft of supply duct, and 3.3 ft of return duct.

4.02 OUTDOOR UNIT

General:

The outdoor unit shall be specifically matched to the corresponding indoor unit size. The outdoor unit shall be complete factory assembled and pre-wired with all necessary electronic and refrigerant controls. The outdoor shall be controlled by a microprocessor and dedicated EEV's shall be provided for capacity control during part load of the indoor unit.

A. Unit Cabinet:

1. The outdoor unit shall be completely weatherproof and corrosion resistant. The unit shall be constructed from rust-proofed mild steel panels coated with a baked enamel finish.
2. The outdoor unit will come furnished with four (4) mounting feet, mounted across the base pan, to allow bolting to a cement pad or optionally supplied mounting bracket.

B. Fan:
1. The fan shall be a direct drive, propeller type fan.
2. The motor shall be inverter driven, permanently lubricated type bearings, inherent.
3. A fan guard is provided on the outdoor unit to prevent contact with fan operation.
4. Airflow shall be horizontal discharge.

C. Coil:
1. The outdoor coil shall be nonferrous construction with corrugated fin tube.
2. The fins are to be covered with an anti-corrosion acrylic resin and hydrophilic film type E1, rated for up to 1000 hours salt spray.
3. Refrigerant flow from the condenser will be controlled via a metering device.
4. Automatic defrost will remove any frost from the outdoor unit allowing the system to maintain heating capacity.

D. Compressor:
1. The outdoor compressor shall be a patented, variable speed Daikin swing inverter-driven compressor. The one piece action reduces noise, extends life, boasts higher efficiency and reduces energy consumption.
2. The outdoor unit shall have an accumulator and four-way reversing valve.
3. PVE Refrigerant Oil shall be used to provide improved lubrication & better chemical stability, and no hydrolysis, leading to higher product reliability.
4. The compressor shall have an internal thermal overload.
5. The outdoor unit can operate with a maximum vertical height difference of 65-5/8 feet and overall maximum length of 98-1/2 feet without any oil traps or additional components.
6. The compressor shall have a quick-warming function to prevent pumping liquid refrigerant in low-ambient conditions.

E. Electrical:
1. The electrical power requirement is 208-230 volt, 1-phase, and 60 Hz power.
2. The voltage range limitations shall be a minimum of 187 volts and a maximum of 253 volts.

F. Sound:
1. Outdoor unit sound levels shall not exceed:

Outdoor Daikin Model	**Cooling Mode Sound Level dB(A)**	**Heating Mode Sound Level dB(A)**
RXP09AVJU9	50	52

RXP12AVJU9	50	52
RXP15AVJU9	55	57
RXP18AVJU9	55	57
RXP24AVJU9	55	57

*values are based on high fan speed and are measured approximately 3 feet away.

4.03 SYSTEM DIAGNOSTICS

General:

The system shall be capable of producing 2-digit fault codes:

A. Controls
   1. Wired controller
B. D-Checker software: The D-Checker software has the ability to display error codes and values for every sensor on the system through the outdoor unit. The sensor data points shall be graphed or recorded for export to a spreadsheet. The spreadsheet can then be analyzed to troubleshoot operational issues or acknowledge proper operation.