HVAC Guide Specifications
Inverter Driven, Electronic expansion valve (EEV), Air-Cooled Heat Pump Split System

Section 15700 – Mechanical HVAC

Size Range:
0.75 to 2 TONS NOMINAL

Daikin HP Model Number:

ODU	IDU
RXF09BVJU9	FTXF09BVJU9
RXF12BVJU9	FTXF12BVJU9
RXF18BVJU9	FTXF18BVJU9
RXF24BVJU9	FTXF24BVJU9

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 wall mounted evaporator model FTX09AXVJU exclusively matched to outdoor model RXF09BVJU9, FTXF12BVJU9 exclusively matched to outdoor model RXF12BVJU9, FTXF18BVJU9 exclusively matched to outdoor model RXF18BVJU9, and FTXF24BVJU9 exclusively matched to outdoor model RXF24BVJU9 electronic expansion valve (EEV), air-cooled, Daikin swing, variable speed, inverter driven compressor using R-32 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 time delay mechanism and have a factory pre-charge of R-32 adequate for 49-1/4 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 49-1/4 feet of refrigerant with R-32 refrigerant.
F. A holding charge of dry nitrogen shall be provided in the evaporator.
G. System Efficiency shall meet or exceed 21 SEER2, 12.0 EER2 and 9.5 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
RXF09BVJU9	FTXF09BVJU9	9,000 (4,400 ~ 11,200)	10,900 (4,400 ~ 16,000)	21	12.5	10.2
RXF12BVJU9	FTXF12BVJU9	12,000 (4,400 ~ 14,600)	13,500 (4,400 ~ 18,000)	21	12.5	10.2
RXF18BVJU9	FTXF18BVJU9	18,000 (6,900 ~ 22,000)	21,600 (5,800 ~ 28,000)	21	12.0	9.6
RXF24BVJU9	FTXF24BVJU9	22,400 (7,000 ~ 26,400)	24,000 (6,200 ~ 32,000)	21	12.0	9.5

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 ~ 118°F DB for 9K &12K units, 50°F DB ~ 122°F DB for 18K &24K units 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 5°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 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 have a white, “wipe-clean” finish.

2. The drain and refrigerant piping shall be accessible from six (6) positions for flexible installation (right side, right back, and right bottom; and left side, left back, and left bottom.
3. The cabinet shall be supplied with a mounting plate to be installed onto a wall for securely mounting the cabinet.
4. The cabinet includes:
    i. Indoor unit ON/OFF switch, capable of being used when the remote controller is missing. When switch is used, the default setting is AUTO mode, 76°F temperature setting, and AUTO airflow rate.
    ii. OPERATION lamp that turns blue in COOL mode, yellow in FAN mode and orange in HEAT mode.
    iii. TIMER lamp that blinks when activated
    iv. A Signal Receiver that receives signals from the remote controller at a maximum distance of 23 ft. When the unit receives a signal, you will hear the following: 2 beeps – operation start, 1 beep – Setting changed, 1 long beep – Operation stop.

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. An auto-swing louver for adjustable air flow (vertically) is standard via the wireless remote control furnished with each system.
    4. The indoor fan shall offer a choice of three speeds, plus quiet and auto settings.
    5. The indoor fan shall be removable without the need to detach the heat evaporator coil or blower.
C. Filter:
    1. The return air filter provided will be a washable filter. Two titanium apatite air-purifying filters are included for additional air filtration.
D. 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 detachable condensate pan shall be provided under the coil with a drain connection.
    5. The fins are to be covered with an anti-corrosion acrylic resin and hydrophilic film, rated for up to 500 hours salt spray.
E. 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.

F. Control:
    1. The unit shall have a backlit, wireless remote infrared controller capable to operate the system. It shall have Cooling Operation, Heating Operation, Automatic Operation, Dry Operation and Fan Only Operation.
    2. The controller shall consist of an On/Off Power switch, Mode Selector, Fan Setting, Swing Louver, On/Off Timer Setting, Temperature Adjustment, °C or °F Temperature Display, Eco+ Mode, Quiet, Sleep, LED and Powerful Operation.
        i. On/Off switch powers the system on or off.
        ii. Mode selector shall operate the system in auto, cool, heat, fan, or dry operation.
        iii. Fan settings shall provide three fan speeds, plus quiet and auto settings.
        iv. Swing louver shall adjust the airflow (horizontal and vertical) blades.
            1. Vertical movement controlled via remote, horizontal movement controlled manually.
        v. On/Off timer is used for automatically switching the unit on or off at specific times during the day.
        vi. Temperature adjustment allows for the increase or decrease of the desired temperature.
        vii. Eco+ operation adjusts the operating condition to energy saving level by limiting the maximum power consumption of the air conditioner unit.
        viii. Quiet operation reduces indoor unit sound pressure level by reducing the indoor unit fan speed.
        ix. Sleep operation automatically adjusts the temperature setting 0.9°F (0.5°C) up each hour for two hours in COOL to prevent excessive cooling during sleeping hours.
        x. LED button shall change the indication display on the indoor unit.
        xi. Powerful operation allows quick cool down or heating up in the desired space to achieve maximum desired temperature in the shortest allowable time period.
    3. The controller shall be able to display two-digit fault codes extracted from the indoor unit to aid in troubleshooting.
    4. Temperature range on the remote control shall be 60°F to 86°F in COOL mode, 60°F to 86°F in HEAT mode, and 60°F to 86°F in AUTO mode. The temperature shall be controlled in 1° increments.
    5. 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.
    6. The unit shall be built in Wi-Fi capability.

G. Sound:
   1. Indoor unit sound levels shall not exceed:

Indoor Daikin Model	Cooling Mode Sound Level (H/M/L/SL) dB(A)	Heating Mode Sound Level (H/M/L/SL) dB(A)
FTXF09BVJU9	44 / 35 / 30 / 19	41 / 35 / 28 / 25
FTXF12BVJU9	46 / 37 / 31 / 19	45 / 37 / 30 / 25
FTXF18BVJU9	48 / 43 / 37 / 33	49 / 42 / 37 / 33
FTXF24BVJU9	52 / 45 / 38 / 34	49 / 43 / 38 / 34

*Values are measured approximately 3 feet away with JIS standard operating conditions.

5.02 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 unit 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.
   3. This assembly will be able to withstand a maximum rated wind pressure of 119psf Lateral, 93psf Uplift. See document TER-16-3088.

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, rated for up to 500 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 49-1/4 feet for 9k btu and 12k btu and 65-5/8 feet for 18k btu and 24k btu without any oil traps or additional components.
6. The outdoor unit can operate with an overall maximum length of 65-5/8 feet for 9k btu and 12k btu and 98-1/2 feet for 18k btu and 24k btu without any oil traps or additional components.

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)
RXF09BVJU9	49	50
RXF12BVJU9	49	52
RXF18BVJU9	54	57
RXF24BVJU9	54	57

*values are measured approximately 3 feet away with JIS standard operating conditions.

5.03 SYSTEM DIAGNOSTICS

General:

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

A. Controls
1. I/R controller
2. Wi-Fi module
3. 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.