A7AC22V

Variable Capacity | Omniguard® Coil | R-454B | 60Hz

RESIDENTIAL PRODUCT SPECIFICATIONS

2 to 5 Tons
SEER2 up to 22.9
Cooling Capacity | 23,400 to 56,000 Btuh





Comfort Sync® A3 Smart Wi-Fi Communicating Thermostat (Not Furnished)

MODEL NUMBER IDENTIFICATION

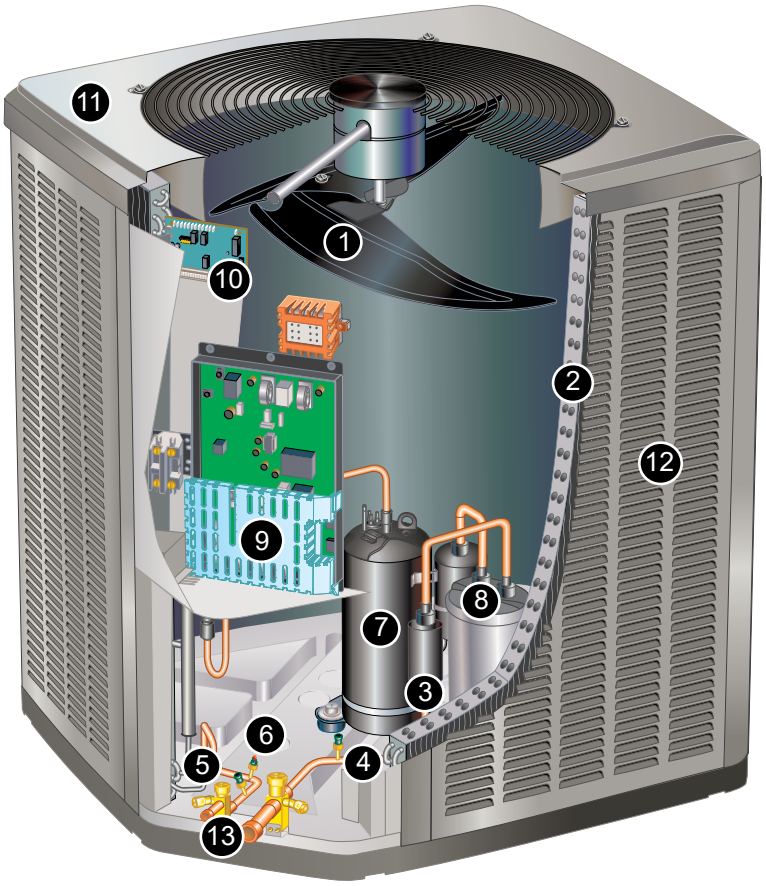
A 7 AC 22 V 36 P C - ** A

- **BRAND** — A = AirEase | Armstrong Air
- **REFRIGERANT** — 7 = R-454B
- **PRODUCT TYPE** — AC = Air Conditioner; HP = Heat Pump; CP = Cold Climate Heat Pump
- **SEER2** — Min. 13, 14; Up to 19, 21, 22
- **COMPRESSOR** — F = Fixed Speed; V = Variable Speed
- **CAPACITY** — 24 = 2 ton; 36 = 3 ton; 48 = 4 ton; 60 = 5 ton
- **VOLTAGE** — P = 208-230V/60Hz/1PH
- **CONTROL** — - = 24V; C = Comfort Sync ® A3 or 24V
- **MAJOR REVISION CODE**
- **MINOR REVISION CODE**

Form Number A7AC22V-100 | May 2024
Supersedes all previous versions

FEATURE HIGHLIGHTS

1. Outdoor Coil Fan
2. Omniguard® Coil
3. High Capacity Suction Line Drier
4. Low Pressure Transducer
5. High Pressure Transducer
6. High Pressure Switch
7. Variable Capacity Compressor
8. Accumulator
9. DC Inverter Control
10. Communicating Control
11. Composite Unit Top and Base
12. Louvered Steel Coil Protection
13. Refrigerant Line Connections and Access



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APPROVALS AND WARRANTY

APPROVALS

- AHRI Standard 210-240-2023 certified
- AHRI Certified system match-ups and expanded ratings, visit www.alliedratings.com

NOTE - AHRI certified ratings are based on the following control conditions:

A Comfort Sync® A3 Communicating thermostat matched with a “communicating” indoor unit.

Any conventional non-communicating thermostat matched with a conventional “non-communicating” indoor unit.

- ENERGY STAR® Certified
- Sound rated to AHRI Standard 270-2008 test conditions
- Rated According to U.S. Department of Energy (DOE) test procedures
- Unit and components ETL, NEC and CEC bonded for grounding to meet safety standards for servicing
- ETL certified (U.S. and Canada)
- ISO 9001 Registered Manufacturing Quality System

WARRANTY

10-year limited warranty on all parts,extended warranty available.

Warranty provides for a total of 10-years of limited warranty.

Coverage (Standard 5-year limited parts warranty plus an additional 5-year limited extended parts warranty).

Warranty must be registered online within 60 days of installation to qualify for 10-year coverage.

Unregistered equipment defaults to 5-year coverage.

See full warranty at www.alliedair.com for terms, conditions, and exclusions.

FEATURES

APPLICATIONS

- 2 through 5 tons
- Sound levels as low as 60 dBA
- Single-phase power supply
- Vertical air discharge
- Applicable to indoor air handlers or gas furnaces with indoor add-on coils
- Shipped completely factory assembled, piped and wired
- Factory test operated

REFRIGERATION SYSTEM

R-454B Refrigerant

- Low GWP (Global Warming Potential)
- Zero ODP (Ozone Depletion Potential)
- Low Toxicity/Lower Flammability - A2L
- Unit is factory pre-charged

NOTE - Total system refrigerant charge is dependent on outdoor unit size, indoor unit size and refrigerant line length.

NOTE - Refer to the unit-mounted charging sticker to determine correct amount of charge required.

1 **Outdoor Coil Fan**

- Direct drive fan
- ECM motor
- Vertical air discharge
- Totally enclosed fan motor
- Ball bearings
- Inherently protected
- PVC (polyvinyl chloride) coated steel fan guard

2 **Omniguard® Coil**

- Enhanced aluminum alloy tube/enhanced fin coil
- Superior corrosion resistance
- Ripple-edged aluminum fins
- Aluminum tube construction
- Lanced fins for maximum fin surface exposure
- Fin collars grip tubing for maximum contact area
- Flared shoulder tubing connections
- Factory tested under high pressure
- Entire coil is accessible for cleaning

3 **High Capacity Suction Line Drier**

- Factory installed in the suction line
- Drier traps moisture or dirt that could contaminate the system.
- 100% molecular-sieve, bead type, one-way drier

FEATURES

REFRIGERATION SYSTEM (continued)

4 Low Pressure Transducer
- Shuts off unit if suction pressure falls below setting
- Provides loss of charge and freeze-up protection
- Thread-on pressure transducers for simple, quick service

5 High Pressure Transducer
- Measures pressure in the liquid line
- Pressure readings are used to calculate subcooling values to assist with charging
- Thread-on pressure transducers for simple, quick service

6 High Pressure Switch
- Protects the system from high pressure conditions that can be a result of fan failure or a blocked/dirty coil.
- Automatic reset

Optional Accessories

Expansion Valve Kits
- Field installed on indoor units (if required)
- See TXV Usage table
- Chatleff-style fitting

Freezestat
- Senses suction line temperature
- Cycles compressor off when suction line temperature falls below freezestat setpoint
- Opens at 29°F and closes at 58°F
- Installs on or near the discharge line of the evaporator or on the suction line

Loss of Charge Switch Kit
- Protects compressor from damage from low refrigerant charge conditions
- SPST, normally-closed
- Automatic reset

INDOOR REFRIGERANT DETECTION SYSTEM (RDS)

- Complies with UL 60335-2-40 approved standard
- Required for all systems using R-454B refrigerant
- Factory or field installed on all indoor units
- Consists of a RDS sensor and a RDS control in the indoor unit
- If a refrigerant is detected the refrigerant detection system will prevent compressor and heating operation until a refrigerant is no longer detected
- Refrigeration detection system also energizes the blower if a refrigerant is detected to dissipate any concentrations of refrigerant from the conditioned space
- Refer to indoor unit Product Specifications documents for additional details

7 Variable Capacity Rotary Compressor
- High volumetric efficiency
- Uniform suction flow
- Constant discharge flow
- Quiet operation
- Low gas pulses during compression reduces operational sound levels
- Compressor motor is internally protected from excessive current and temperature
- Compressor is installed in the unit on resilient rubber mounts for vibration free operation

Rotary Compressor Operation
- Rotary compressor has a cylindrical chamber
- A roller is mounted to the motor shaft and is offset to rotate in the center of the chamber
- Two spring-loaded vanes sweep the sides of the chamber as the roller rotates
- Roller touches the chamber at a point between the intake and the discharge ports as the roller rotates
- While rotating, the roller draws vapor into the chamber through the intake port
- Vapor is trapped in the space between the chamber wall, the vane, and the point of contact between the roller and the chamber
- As the next vane passes the contact point vapor is compressed
- The space becomes smaller compressing the vapor as the roller rotates
- Vapor is discharged through the discharge port

FEATURES

8 Accumulator

- Standard in all models

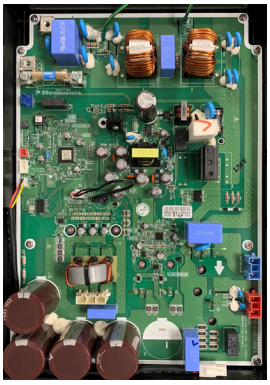
Compressor Crankcase Heater

- Crankcase heater prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication
- Factory Installed

Compressor Sound Dampening System

- Polyethylene compressor cover
- 2-inch thick batt fiberglass insulation
- All open edges sealed with one-inch wide hook and loop fastening tape

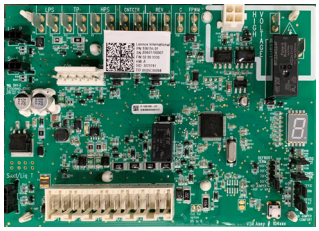
9 DC Inverter Control



- Converts AC line voltage into filtered variable DC voltage
- Provides continuous compressor operation, while adjusting the capacity according to indoor temperature
- Adjusts compressor output in increments as small as 1%
- The accurate sensing of cooling load prevents frequent changes in capacity and ensures efficient, economical operation
- Power Factor Correction (PFC) circuit monitors the DC bus for high, low and abnormal voltage conditions to protect the compressor
- Two LEDS (red and green) indicate inverter operating status and aid in troubleshooting
- Noise filter reduces unwanted electromagnetic interference (EMI)
- Integrated on the Communicating Control for 024 and 036 models,
- Separate external inverter control for 048 and 060 models
- The inverter reactor (mounted separately) adds inductance to the line between the inverter and the compressor to limit current rise and protect the compressor

CONTROLS

10 Communicating Control



- Advanced control communicates information about various operating parameters in the air conditioner to the Communicating Thermostat to constantly maintain the highest level of comfort, performance and efficiency available
- **Auto Configuration** - On start-up the control automatically sends a description of the unit to the Communicating Thermostat to automatically configure the features available
- Control also features:
  - **Seven-Segment Display** - Shows information about outdoor unit type and capacity and also displays alerts for common fault conditions (electrical and mechanical)
  - **Low Voltage Protection** - Prevents compressor operation when voltage is not within the specified range
  - High and low pressure transducer monitoring with provisions for lockout
  - Five-Strike lockout protection protects compressor
  - Liquid line temperature and ambient sensor monitoring
  - EEPROM storage of all local configurations
  - Non-volatile memory storage of 100 alarm codes with display of last 10 codes for troubleshooting
  - Built-in low-ambient control

NOTE - Two RAST connectors for a conventional heating/cooling thermostat are also provided for connection to the control. A two-stage or single-stage thermostat can be used.

Low Ambient Operation

- Air conditioner can operate down to 0°F outdoor air temperature

NOTE - A freezestat is recommended for extra protection during low ambient operation.

NOTE -When in non-communicating mode, the A7AC22V can operate in one of three modes which are chosen by modifying the Operation Mode Jumper on the OD control board.(See installation instructions for details).These modes are:

- Comfort: Provides highest dehumidification
- Normal
- Efficiency: Provides the highest efficiency

The factory default setting is the efficiency mode.

FEATURES

CONTROLS (continued)

NOTE - The A7AC22V Air Conditioner can be used with a branded Communicating Thermostat matched with a “communicating” indoor unit, or a conventional non-communicating thermostat matched with a “non-communicating” indoor unit.

Thermostat	Model No.	Indoor Unit Type
Communicating	A3	Communicating
Non-Communicating	Conventional thermostat	Non-Communicating

Optional Accessories

Comfort Sync® A3 Ultra-Smart Communicating Thermostat

- Recognizes and connects to all branded Communicating products to automatically configure and control the heating/cooling system (based on user-specified settings) for the highest level of comfort, performance and efficiency



- Recognizes model and serial number information for branded Communicating products to simplify system setup
- Smart Room Sensors can be added to the system
- Smart home automation compatible with Amazon Alexa®, Google Assistant.
- Sends service alerts and reminders
- Thermostat App features Wi-Fi remote temperature monitoring and adjustment through a home wireless network apps for smartphones or tablets
- Technician App allows installer to manage systems in the home
- Simple easy-to-use touchscreen allows complete system configuration
- Scheduled maintenance alerts, system warnings and troubleshooting are also displayed on thermostat screen
- Easy to read 7 inch high definition color display (measured diagonally)
- Conventional outdoor units (not Communicating) can easily be added and controlled by the A3 Thermostat
- Installer setup screens allow quick and simple system configuration without a manual, Installer can also run tests on complete system or individual components for easy maintenance and troubleshooting
- Serial communications bus (RSBus), with less wiring than a conventional heating/cooling system, allows system communication
- Uses standard 4-wire unshielded thermostat wiring
- High Definition Color Display with Subbase and wall plate furnished for easy installation

CABINET

11
- Composite unit base and top resists corrosion and reduce sound
- Louvered steel panels surround unit on all four sides
- Pre-painted finish for all metal surfaces
- Control box is conveniently located with all controls factory wired
- Corner patch plate allows access to compressor components
- Drainage holes are provided in base section for moisture removal
- Composite base raises the unit off of the mounting surface, away from damaging moisture

12 **Louvered Coil Protection**

- Steel louvered panels provides complete coil protection
- Lift-off panels are easily removed to allow easy cleaning and servicing of coils

Refrigerant Line Connections, Electrical Inlets and Service Valves

- Sweat connection suction and liquid lines
- Located on corner of unit cabinet
- Suction valve can be fully shut off, while liquid valve may be front seated to manage refrigerant charge while servicing system
- Refrigerant line connections and field wiring inlets are located in one central area of the cabinet
- See dimension drawing

13 **Braze-Free/Press Fitting Flexibility**

- Units can accommodate braze-free or press fittings for installation versatility

Optional Accessories

Stand-Off Guard-Edge Raiser Kit

- High density polyethylene feet raise unit off of mounting surface
- Available in 3 in. (76 mm) and 6 in. (152 mm) heights
- Four feet are furnished per order number

SPECIFICATIONS — ALL REGIONS

Size			024	036	048	060
Nominal Tonnage			2	3	4	5
Sound Rating Number Range		dBA	60-68	61-73	62-76	63-75
Connections (Sweat)		Liquid line (OD) - in.	3/8	3/8	3/8	3/8
		Suction line (OD) - in.	3/4	7/8	7/8	1-1/8
Compressor Type			Variable Rotary	Variable Rotary	Variable Rotary	Variable Rotary
Refrigerant	[1] R-454B charge furnished		6 lbs. 10 ozs.	6 lbs. 11 ozs.	10 Lbs .3 Ozs.	10 Lbs. 7 Ozs.
Indoor Unit Expansion Valve (TXV)			**26Z70**	**26Z70**	**26Z71**	**26Z72**
Outdoor Coil	Net face area - ft.[2]	Outer coil	26.24	26.24	26.24	26.24
		Inner coil	- - -	- - -	25.49	25.49
		Tube diameter - in.	5/16	5/16	5/16	5/16
		Rows	1	1	2	2
		Fins - in.	22	22	22	22
Outdoor Fan		HP	1/3 (ECM)	1/3 (ECM)	1/3 (ECM)	1/3 (ECM)
		Diameter - in.	28	28	28	28
		Blades	2	2	2	2
		Cfm - minimum speed	1630	1952	2216	3017
		maximum speed	2900	4042	3556	4274
		Rpm - minimum speed	275	334	372	495
		maximum speed	492	672	577	715
		Watts - minimum speed	14	22	30	60
		maximum speed	55	113	84	141
Shipping Data - lbs.			230	230	283	283

ELECTRICAL DATA

		Line voltage data (Volts-Phase-Hz)	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
		[2] Maximum overcurrent protection (MOCP) amps	20	35	40	50
		[3] Minimum circuit ampacity (MCA)	15	21.5	26.4	30.4
Compressor		Rated load amps	9.9	15.1	19	22.2
Fan Motor		Full load amps	2.6	2.6	2.6	2.6

OPTIONAL CONTROLS - ORDER SEPARATELY

A3 Smart Wi-Fi Thermostat		**1.841226**	•	•	•	•

OPTIONAL ACCESSORIES - ORDER SEPARATELY

[5] Freezestat	3/8 in.	**93G35**	•	•	•	•
Stand-Off Guard-Edge Raiser Kit	3 in. (76 mm)	**27X34**	•	•	•	•
	6 in. (152 mm)	**27X35**	•	•	•	•

NOTE - Extremes of operating range are plus 10% and minus 5% of line voltage.

[1] Refrigerant charge sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the Installation Instructions for information about line set length and additional refrigerant charge required.

[2] HACR type breaker or fuse.

[3] Refer to National or Canadian Electrical Code manual to determine wire, fuse and disconnect size requirements.

[4] Freezestat is recommended for low ambient operation.

EXPANDED SOUND DATA

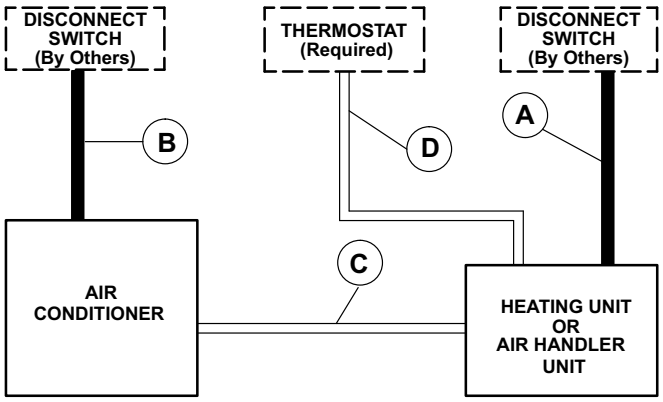
Size	Octave Band Sound Power Levels dBA, re 10^{-12} Watts Center Frequency - HZ							[1] Sound Rating Number (dBA)	[2] Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
024 Min.	52	58.5	63	58.5	63.5	59	54	68	61	56	50	47	36
024 Max.	38.5	54.5	54.5	49	53	47	53	60	53	48	42	39	28
036 Min.	56.5	64	67	66	65.5	65	57	73	66	61	55	52	41
036 Max.	42	54	55.5	49	53	47	54	61	54	49	43	40	29
048 Min.	55	66	74.5	62	65.5	65.5	56	76	69	64	58	55	44
048 Max.	50.5	58	57.5	53.5	48.5	48	50	62	55	50	44	41	30
060 Min.	56	69	69	65.5	70	67.5	57.5	75	68	63	57	54	43
060 Max.	51	58	58.5	55.5	50.5	47	50	63	56	51	45	42	31

NOTE - The octave sound power data does not include tonal correction.

[1] Tested according to AHRI Standard 270-2008 test conditions. Sound rating Number is the overall A-Weighted Sound Power Level, (LWA), dB (100 Hz to 10,000 Hz).

[2] Estimated sound pressure level at distance based on AHRI Standard 275-2010 method for equipment located on the ground, roof, or on side of building wall with no adjacent reflective surface within 9.8 feet. Sound pressure levels will increase based on changes to assumptions. For other applications, refer to AHRI Standard 275.

FIELD WIRING



A - Two Wire Power

B - Two Wire Power (see Electrical Data)

C - Comfort Sync® Thermostat:
- Four Wire, 18AWG (RSBus)

C - Conventional Thermostat:
- Four Wire Low Voltage, 18AWG

D - Comfort Sync® Thermostat:
- Four Wire, 18 to 22AWG (RSBus) standard thermostat cable for terminals (R, C, I+, I-).

D - Conventional Thermostat:
- Six Wire Low Voltage, 18AWG

NOTE - All wiring must conform to NEC or CEC and local electrical codes.

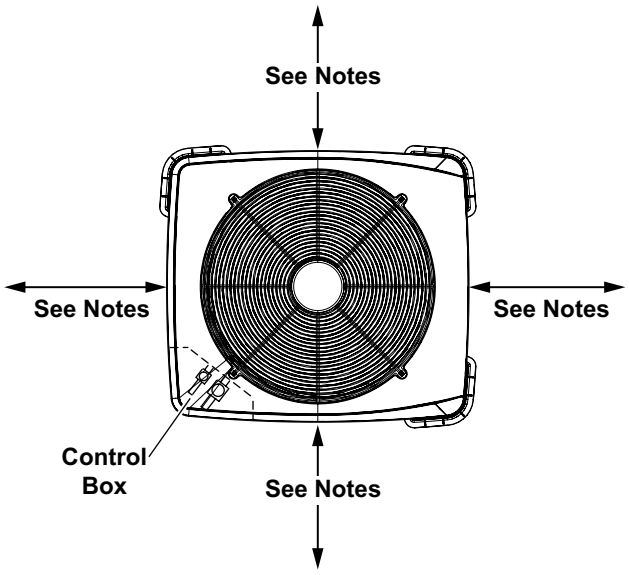
NOTE - Refer to the Comfort Sync® A3 Installation Instructions for optional wiring connections for communicating thermostats.

NOTE - Field wiring not furnished.

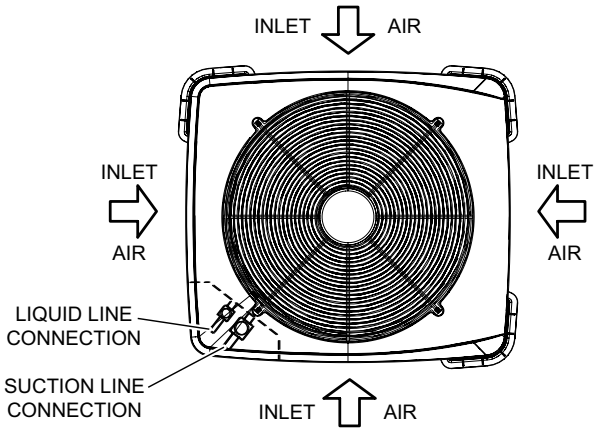
INSTALLATION CLEARANCES

NOTES:

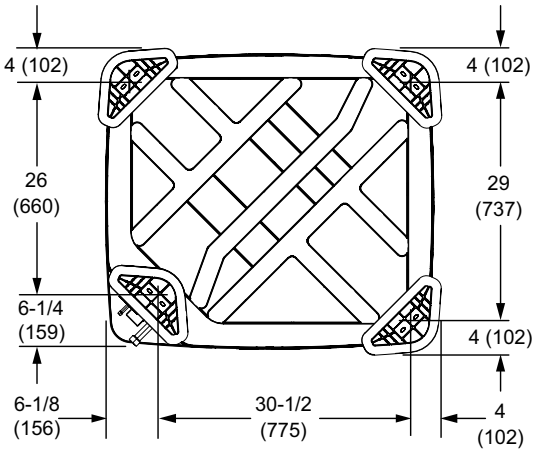
- Service Clearance − 30 in. (762 mm) on one of the sides adjacent to the Control Box.
- One of other three sides must be 36 in. (914 mm).
- One of the two remaining sides may be 12 in. (305 mm).
- The remaining side may be 6 in. (152 mm).
- 48 in. (1219 mm) clearance required on top of unit
- 24 in. (610 mm) required between two units



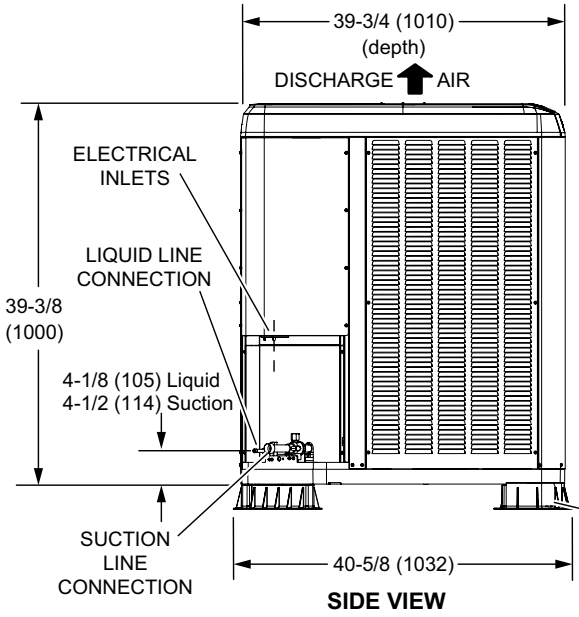
DIMENSIONS - UNIT



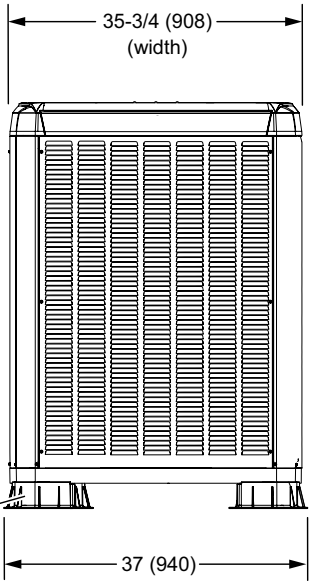
TOP VIEW



BOTTOM VIEW BASE SECTION
(With Optional Standoff Kit)



SIDE VIEW



FRONT VIEW

[1] STAND-OFF GUARD-EDGE RAISER KIT (4) (Field Installed)

[1] Adds 3 in. (76 mm) or 6 in. (152 mm) to unit height

TXV USAGE

All coils and air handlers are shipped with a factory installed TXV. In most cases, no substitution is needed.
If a different size TXV is required, it will be listed in the “TXV SUBSTITUTION” table by size. The correct TXV must be ordered separately and field installed.

Size	Order Number
024	**26Z70**
036	**26Z70**
048	**26Z71**
060	**26Z72**

AHRI STANDARD 210-240-2023

Standard Ratings relating to cooling or heating capacities shall be net values, including the effects of circulating-fan heat, but not including supplementary electric heat. Power input used for calculating efficiency shall be the Total Power.

Standard Ratings of units which do not have indoor air-circulating fans furnished as part of the model, i.e., Coil-only System, shall be established by subtracting from the total cooling capacity 1,505 Btu/h per 1,000 SCFM, and by adding the same amount to the heating capacity for non-mobile-home, non-Space Constrained units. Total Power for both heating and cooling shall be increased by 441 W per 1,000 SCFM of indoor air circulated.

TXV SUBSTITUTION - R-454B

A general guide for replacing the factory installed R-454B TXV if the indoor unit (coil/air handler) is larger or smaller than the outdoor unit.

Outdoor Unit		Indoor Unit		Indoor	Indoor
Size	Tons	Size	Tons	TXV Furnished	TXV Replacement
024	2	42	3.5	**26Z71**	**26Z70**
024	2	48	4	**26Z71**	**26Z70**
024	2	49	4	**26Z71**	**26Z70**
024	2	50/60	4/5	**26Z71**	**26Z70**
024	2	51/61	4/5	**26Z71**	**26Z70**
024	2	60	5	**26Z72**	**26Z70**
036	3	42	3.5	**26Z71**	**26Z70**
036	3	48	4	**26Z71**	**26Z70**
036	3	49	4	**26Z71**	**26Z70**
036	3	50/60	4/5	**26Z71**	**26Z70**
036	3	51/61	5	**26Z71**	**26Z72**
036	3	60	5	**26Z72**	**26Z70**
048	4	30/36	2.5/3	**26Z70**	**26Z71**
048	4	36	3	**26Z70**	**26Z71**
048	4	60	5	**26Z72**	**26Z71**
060	5	50/60	4/5	**26Z71**	**26Z72**
060	5	51/61	4/5	**26Z71**	**26Z72**

TXV Ranges:

26Z70 - 1.5 to 3 ton systems - Use on 3 ton (036) and lower systems.

26Z71 - 3.5-4 ton systems - Use down to 3.5 ton (042) systems.

26Z72 - 5 ton systems - Use on 5 ton (060) systems only.







ALLIED Air Enterprises™

Contact us at 1-800-448-5872

NOTE - Due to Allied Air's ongoing commitment to quality, Specifications, Ratings and Dimensions subject to change without notice and without incurring liability.
Improper installation, adjustment, alteration, service or maintenance can cause property damage or personal injury.
Installation and service must be performed by a qualified installer and servicing agency.

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