

BA714S

Single-Stage | R-454B | 60Hz

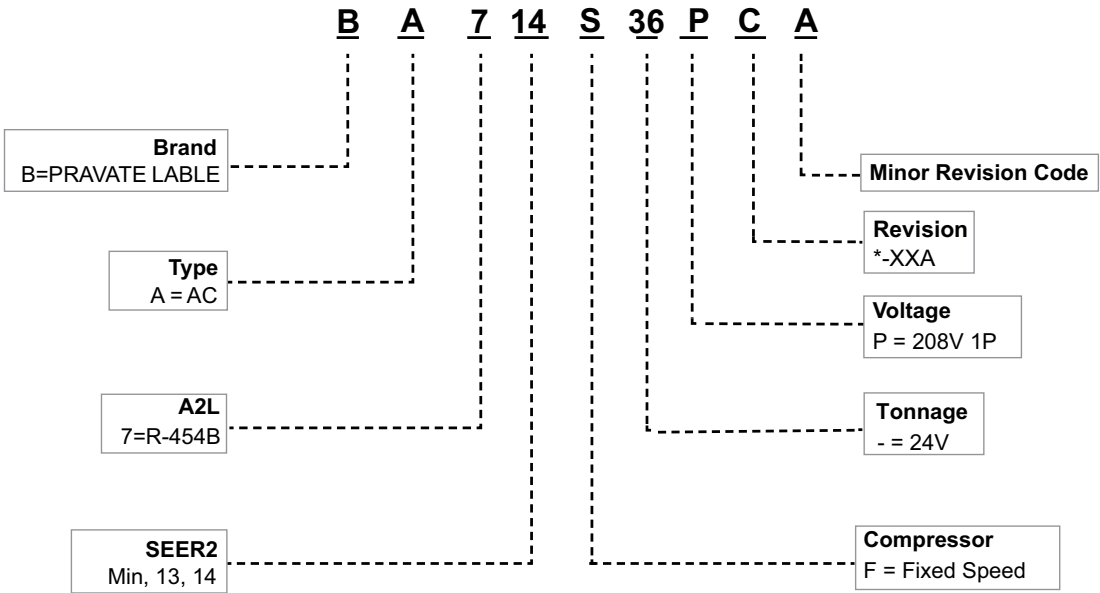
RESIDENTIAL
PRODUCT SPECIFICATIONS

SEER2 13.8 to 16.0

Cooling Capacity | 1.5 to 5 Tons



MODEL NUMBER IDENTIFICATION



FEATURE HIGHLIGHTS

- Outdoor Coil Fan
- Outdoor Coil
- High Capacity Liquid Line Drier
- High Pressure Switch
- Low Pressure Switch
- Scroll Compressor
- Heavy Gauge Steel Cabinet
- 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
- ENERGY STAR® Certified
- Sound rated to AHRI Standard 270-2008 test conditions
- Rated According to U.S. Department of Energy (DOE) test procedures
- Region specific models meet the minimum efficiency requirements for U.S. DOE Federal Regional Standards in that area
- 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-years limited warranty on all parts, extended warranty available.

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

- 1.5 through 5 tons
- Sound levels as low as 73 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)
- Unit is factory pre-charged

Outdoor Coil Fan

- Direct drive fan
- Vertical air discharge
- Totally enclosed fan motor
- Ball bearings
- Inherently protected
- Motor rain shield
- Louvered steel fan guard

Outdoor Coil

- Proprietary design
- 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

High Capacity Liquid Line Drier

- Furnished with unit for field installation
- Traps any moisture or dirt that could contaminate the refrigerant system
- 100% molecular-sieve, bead type, drier

High Pressure Switch

- Protects the system from high pressure conditions that can be a result of fan failure or a blocked/dirty coil
- Manual reset

Low Pressure Switch

- Shuts off unit if suction pressure falls below setting
- Provides loss of charge and freeze-up protection
- Automatic reset

FEATURES

REFRIGERATION SYSTEM (Continued)

Optional Accessories

Expansion Valve Kits

- Factory installed with R-454B on all Indoor units
- 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 refrigerant detection sensor and an independent RDS control
- If refrigerant is detected the refrigerant detection system will prevent compressor and heating operation until refrigerant is no longer detected
- Refrigeration detection system also energizes the blower if refrigerant is detected to dissipate any concentrations of refrigerant from the space
- Refer to indoor unit Product Specifications documents for additional details

COMPRESSOR

Single-Stage Scroll Compressor

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



Scroll Compressor Operation

- Two involute spiral scrolls matched together generate a series of crescent-shaped gas pockets between them
- During compression, one scroll remains stationary while the other scroll orbits around it
- Gas is drawn into the outer pocket, the pocket is sealed as the scroll rotates
- As the spiral movement continues, gas pockets are pushed to the center of the scrolls. Volume between the pockets is simultaneously reduced
- When the pocket reaches the center, gas is now at high pressure and is forced out of a port located in the center of the fixed scrolls
- During compression, several pockets are compressed simultaneously resulting in a smooth continuous compression cycle
- Continuous flank contact, maintained by centrifugal force, minimizes gas leakage and maximizes efficiency
- Compressor is tolerant to the effects of slugging and contaminants. If this occurs, scrolls separate, allowing liquid or contaminants to be worked toward the center and discharged

Compressor Crankcase Heater (041, 042, 047, 048, 059 and 060 Models)

- Prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

Optional Accessories

Compressor Crankcase Heater (018, 024, 030, 036 Models)

- Prevents migration of liquid refrigerant into compressor and ensures proper compressor lubrication

Compressor Sound Cover

- Polymer outer shell
- 1/2 inch thick polyester fiber insulation
- All open edges are sealed with a one-inch wide hook and loop fastening tape

FEATURES

COMPRESSOR (continued)

Optional Accessories (continued)

Compressor Hard Start Kit

- Single-phase units are equipped with a PSC compressor motor
- This type of motor normally does not need a potential relay and start capacitor
- For conditions such as low voltage, kit may be required to increase the compressor starting torque

Compressor Low Ambient Cut-Off Switch

- Non-adjustable switch (low ambient cut-out)
- Prevents compressor operation when outdoor temperature is below 35°F

Compressor Time-Off Control

- Kit prevents compressor short-cycling
- Allows time for suction and discharge pressure to equalize.
- Permits compressor start-up in an unloaded condition.
- Automatic reset with 5 minute delay between compressor shut-off and start-up

Indoor Blower Off Delay Relay

- Delays the indoor blower-off time during the cooling cycle

Low Ambient Kit

- Air conditioners can operate down to 45°F outdoor air temperature without additional controls
- Allows unit to operate properly down to 30°F

NOTE - Crankcase heater and freezestat should be installed on compressors equipped with a low ambient kit.

NOTE - A compressor lock-out thermostat should be added to terminate compressor operation below recommended operation conditions.

CABINET

- Heavy gauge steel construction
- Louvered heavy gauge steel panels surround unit on all four sides
- Pre-painted cabinet finish
- 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

Refrigerant Line Connections, Electrical Inlets, 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

Braze-Free/Press Fitting Flexibility

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

SPECIFICATIONS			ALL REGIONS				
Size			018	024	030	036	041
Nominal Tonnage			1.5	2	2.5	3	3.5
Sound Rating Number		dBa	76	75	72	73	74
Connections	Liquid line (OD) - in.		3/8	3/8	3/8	3/8	3/8
(Sweat)	Suction line (OD) - in.		3/4	3/4	3/4	7/8	7/8
Compressor Type			1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll
Refrigerant		¹ R-454B charge furnished	4 lbs. 14 oz.	4 lbs. 14 oz.	5 lbs. 10 oz.	6 lbs. 13 oz.	7 lbs. 7oz.
Indoor Unit Expansion Valve (TXV)			26Z70	26Z70	26Z70	26Z70	26Z71
Outdoor	Net face area - ft. ²	Outer coil	16.33	21.00	16.33	21.00	22.17
Coil		Inner coil	-	-	15.75	20.25	21.33
		Tube diameter - in.	5/16	5/16	5/16	5/16	5/16
		Rows	1	1	2	2	2
		Fins - in.	26	26	22	22	22
Outdoor		HP	1/8	1/8	1/8	1/6	1/3
Fan		Diameter - in.	22	22	22	22	26
		Blades	2	3	3	3	3
		Cfm	2610	2990	2820	3040	3920
		Rpm	825	825	825	825	825
		Watts	160	160	160	190	180
Shipping Data - lbs.			155	170	180	200	225
ELECTRICAL DATA							
	Line voltage data (Volts-Phase-Hz)		208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
	² Maximum overcurrent protection (MOCP) amps		15	20	25	30	30
	³ Minimum circuit ampacity (MCA)		11.2	13.6	16.6	21.8	21
Compressor		Rated load amps	8.3	10.3	12.7	16.7	14.7
		Locked rotor amps	45	60.2	75.6	93.5	109
Fan Motor		Full load amps	0.74	0.74	0.74	1	2.6
		Locked rotor amps	1.65	1.65	1.65	1.9	3.2
OPTIONAL ACCESSORIES - ORDER SEPARATELY							
Compressor	Copeland	27V63	•	•	•	•	Factory Installed
Crankcase Heater	LG	27U16	•	•	•	•	
Compressor Hard	Copeland	63W22	•				
Start Kit		10J42		•	•	•	•
	LG	10J42	•	•	•	•	•
		88M91					
Compressor Low Ambient Cut-Off Switch		47J27	•	•	•	•	•
Compressor Timed-Off Control		47J35	•	•	•	•	•
Freezestat		93G35	•	•	•	•	•
Indoor Blower Off Delay Relay		58M81	•	•	•	•	•
Loss of Charge Switch Kit		84M23	•	•	•	•	•
⁴ Low Ambient Kit (Fan Cycling)		34M72	•	•	•	•	•

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

¹ Refrigerant charge is 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 Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

SPECIFICATIONS				ALL REGIONS			
Size			042	047	048	059	060
Nominal Tonnage			3.5	4	4	5	5
Sound Rating Number		dBA	76	74	75	73	75
Connections (Sweat)		Liquid line (OD) - in.	3/8	3/8	3/8	3/8	3/8
		Suction line (OD) - in.	7/8	7/8	7/8	7/8	1-1/8
Compressor Type			1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll	1-Stage Scroll
Refrigerant		¹ R-454B charge furnished	7 lbs. 2 oz.	7 lbs. 13 oz.	8 lbs. 14 oz.	9 lbs. 8 oz.	8 lbs. 14 oz.
Indoor Unit Expansion Valve (TXV)			26Z71	26Z71	26Z71	26Z72	26Z72
Outdoor Coil		Net face area - ft. ² Outer coil	22.17	22.17	24.93	29.09	29.09
		Inner coil	21.33	21.33	24.13	28.16	28.16
		Tube diameter - in.	5/16	5/16	5/16	5/16	5/16
		Rows	2	2	2	2	2
		Fins - in.	22	22	22	22	22
Outdoor Fan		HP	1/4	1/3	1/4	1/3	1/4
		Diameter - in.	26	26	22	26	26
		Blades	3	3	4	4	4
		Cfm	4060	3920	3700	4050	4180
		Rpm	825	825	825	825	825
		Watts	260	180	290	220	290
Shipping Data - lbs.			225	225	235	260	260
ELECTRICAL DATA							
Line voltage data (Volts-Phase-Hz)			208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60	208/230-1-60
² Maximum overcurrent protection (MOCP) amps			35	40	45	55	50
³ Minimum circuit ampacity (MCA)			23	25.2	29.7	31.8	31
Compressor		Rated load amps	17.3	18.1	22.4	23.3	23.7
		Locked rotor amps	123	126	126	143	157
Fan Motor		Full load amps	1.4	2.6	1.7	2.6	1.4
		Locked rotor amps	3.2	--	3.2	--	--
OPTIONAL ACCESSORIES - ORDER SEPARATELY							
Compressor		Copeland	27V63	Factory Installed	Factory Installed	Factory Installed	Factory Installed
Crankcase Heater		LG	27U16				
Compressor Hard Start Kit		Copeland	63W22				
			10J42	•	•	•	•
		LG	10J42	•			
			88M91		•	•	•
Compressor Low Ambient Cut-Off Switch			47J27	•	•	•	•
Compressor Timed-Off Control			47J35	•	•	•	•
Freezestat		3/8 in.	93G35	•	•	•	•
Indoor Blower Off Delay Relay			58M81	•	•	•	•
Loss of Charge Switch Kit			84M23	•	•	•	•
⁴ Low Ambient Kit (Fan Cycling)			34M72	•	•	•	•

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

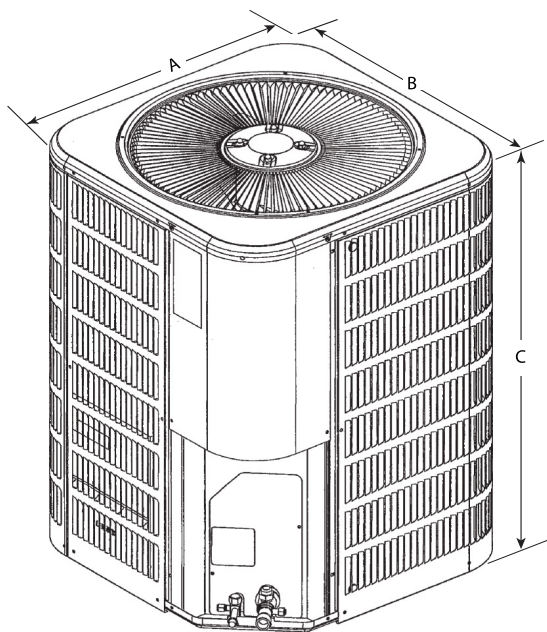
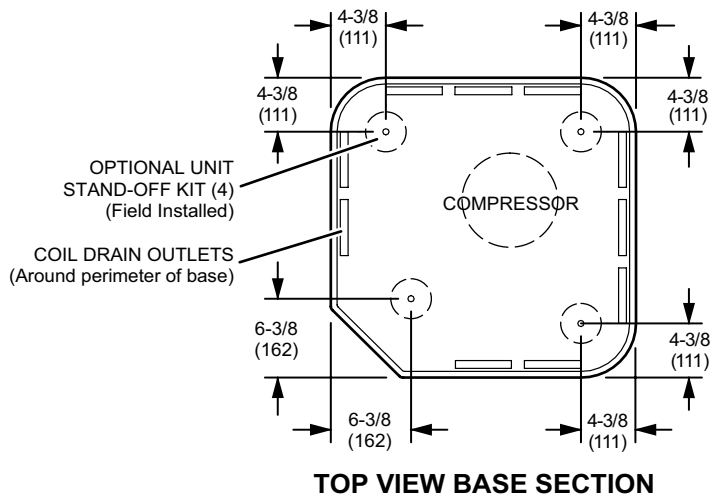
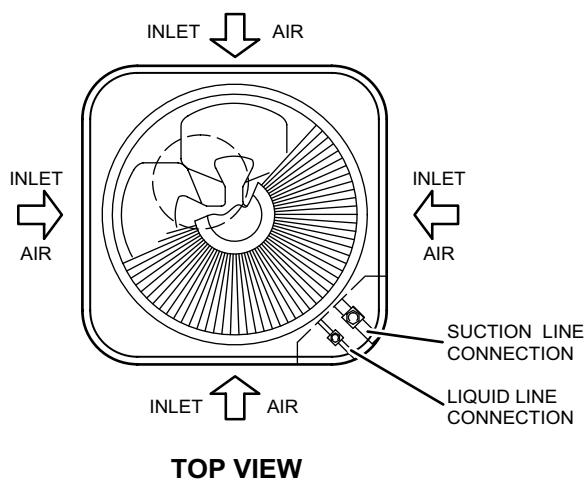
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² HACR type breaker or fuse.

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

⁴ Crankcase Heater and Freezestat are recommended with Low Ambient Kit.

DIMENSIONS - UNIT



Size	A, B Width and Depth		C Height	
	inches	mm	inches	mm
018	28-1/4	718	29-1/4	743
024	28-1/4	718	37-1/4	946
030	28-1/4	718	29-1/4	743
036	28-1/4	718	37-1/4	946
041	32-1/4	819	33-1/4	845
042	32-1/4	819	33-1/4	845
047	32-1/4	819	33-1/4	845
048	28-1/4	718	43-1/4	1099
059	32-1/4	819	43-1/4	1099
060	32-1/4	819	43-1/4	1099

EXPANDED SOUND DATA

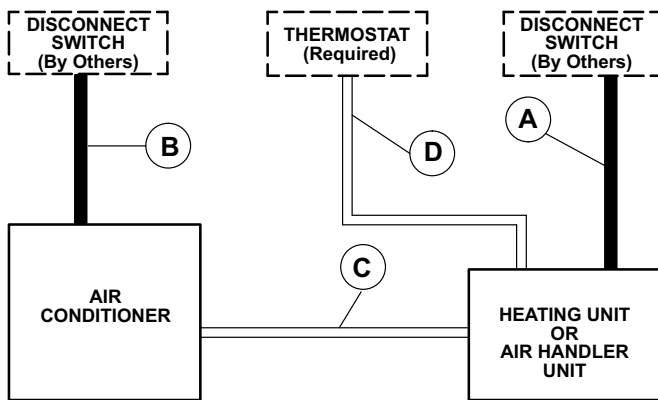
Size	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts Center Frequency - HZ							¹ Sound Rating Number (dBA)	² Estimated Sound Pressure Level at Distance From Unit (dBA at distance in ft.)				
	125	250	500	1000	2000	4000	8000		3	5	10	15	50
018	55.5	64.5	69	67.5	65	61	56	73	66	61	55	52	41
024	61.5	64	70	69.5	66	62.5	54.5	75	68	63	57	54	43
030	60	67	72	70.5	67.5	62.5	56	76	69	64	58	55	44
036	58	67.5	72.5	71.5	66.5	62	54.5	76	69	64	58	55	44
041	63	66.5	69	69.5	66.5	61	54	75	68	63	57	54	43
042	59.5	67.5	71.5	70	69	63.5	57.5	76	69	64	58	55	44
047	61	66	72	71	66.5	63	63.5	76	69	64	58	55	44
048	60	70.5	73.5	72.5	70.5	67	60.5	78	71	66	60	57	46
059	63	69.5	73.5	71.5	69.5	64.5	56.5	78	71	66	60	57	46
060	63.5	69.5	75	75	73	68	62.5	80	73	68	62	59	48

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

¹ Tested according to AHRI Standard 270-2008 test conditions.

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



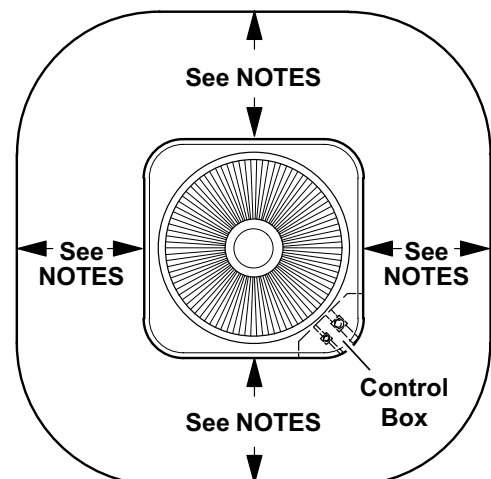
- A - Two Wire Power (not furnished). See Indoor Unit Electrical Data
- B - Two Wire Power (not furnished). See Electrical Data
- C - Four Wire Low Voltage (not furnished). 18 ga. minimum
- D - Five Wire Low Voltage (not furnished). 18 ga. minimum

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

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



TXV USAGE

All Allied 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
018	26Z70
024	26Z70
030	26Z70
036	26Z70
041	26Z71
042	26Z71
047	26Z71
048	26Z71
059	26Z72
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 TXV Furnished	Indoor TXV Replacement
Size	Tons	Size	Tons		
018	1.5	42	3.5	26Z71	26Z70
018	1.5	48	4	26Z71	26Z70
018	1.5	49	4	26Z71	26Z70
018	1.5	50/60	4/5	26Z71	26Z70
018	1.5	51/61	4/5	26Z71	26Z70
018	1.5	60	5	26Z72	26Z70
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
030	2.5	42	3.5	26Z71	26Z70
030	2.5	48	4	26Z71	26Z70
030	2.5	49	4	26Z71	26Z70
030	2.5	50/60	4/5	26Z71	26Z70
030	2.5	51/61	4/5	26Z71	26Z70
030	2.5	60	5	26Z71	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	4/5	26Z71	26Z70
036	3	60	5	26Z72	26Z70
042	3.5	24	2	26Z70	26Z71
042	3.5	30	2.5	26Z70	26Z71
042	3.5	30/36	2.5/3	26Z70	26Z71
042	3.5	36	3	26Z70	26Z71
042	3.5	60	5	26Z72	26Z71
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 on to 4 ton (048) and down to 3.5 ton (042) systems.

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



NOTE - Due to our 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.