

# 16 SEER SINGLE STAGE AIR CONDITIONER WITH OBSERVER™ COMMUNICATING CONTROL SYSTEM

1½ THRU 5 TONS SPLIT SYSTEM — 208 / 230 Volt, 1-phase, 60 Hz

## REFRIGERATION CIRCUIT

- Copeland Scroll® compressors on all models
- Filter-drier supplied with every unit for field installation
- External high and low refrigerant service ports
- Copper tube / aluminum fin coil

## PERFORMANCE

- Communicating, self-configuring operation when used with Observer Wall Control (TSTAT0201CW)
- Outdoor temperature sensor factory installed
- Compressor sound blanket standard
- Isolation compressor grommets

## EASY TO INSTALL AND SERVICE

- Text based diagnostics with Observer Communicating Wall Control
- Easy access service valves on all models
- Innovative control box design
- High and low pressure switches
- Only two screws to access control panel
- Factory charged with R-410A refrigerant

## BUILT TO LAST

- High gloss, baked-on powder coat finish over galv. steel
- Post-painted (black) coil fins
- Coated, weather-resistant cabinet screws
- Coated inlet grille with 3/8" (10mm) spacing for extra protection
- Corner posts for extra strength and style

## LIMITED WARRANTY\*

- 5-year No Hassle Replacement™ limited warranty
- 5-year parts limited warranty (include compressor & coil)
  - With timely registration, an additional 5-year parts limited warranty (including compressor and coil)

\* For owner occupied, residential applications only. See warranty certificate for complete details and restrictions, including warranty coverage for other applications.



TSTAT0201CW  
Recommended  
(sold separately)

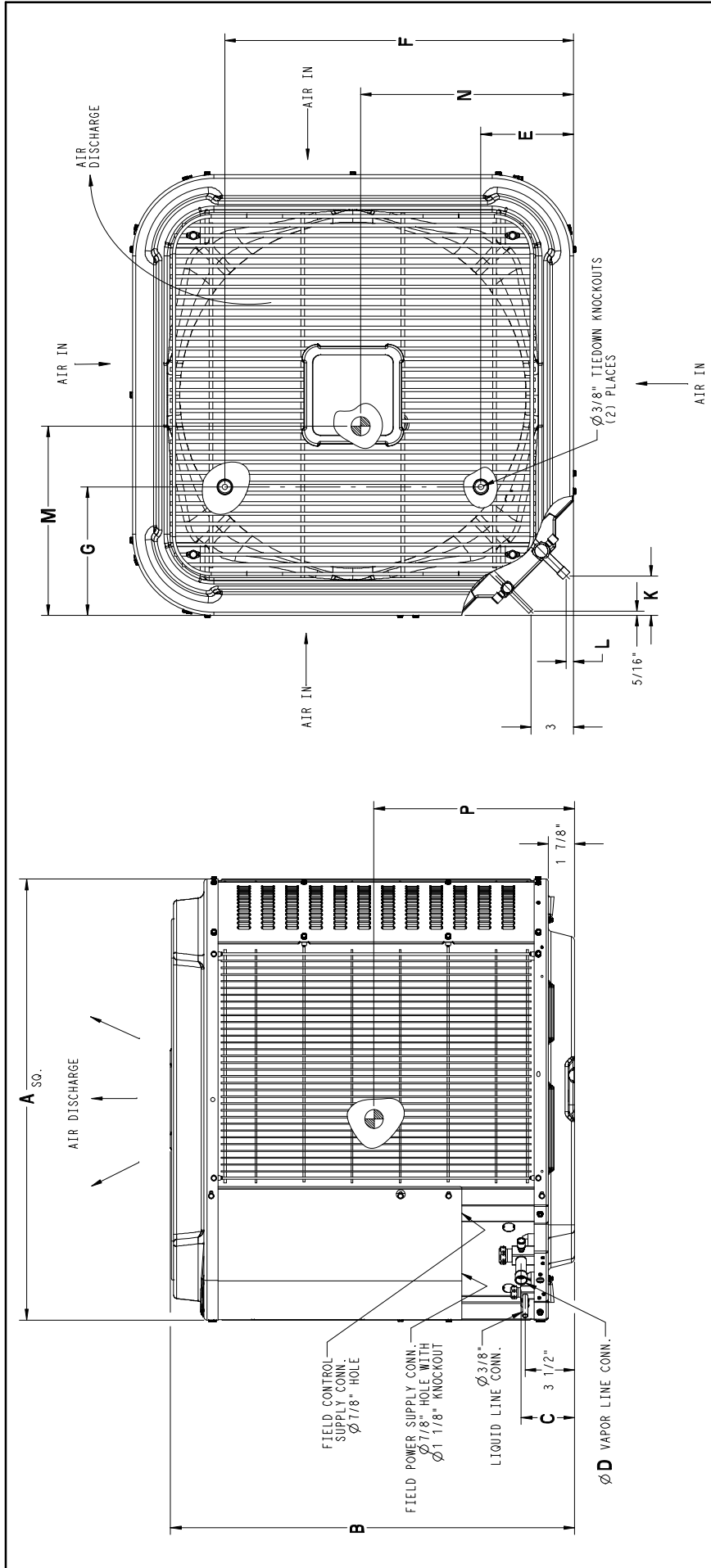


Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to [www.ahridirectory.org](http://www.ahridirectory.org).

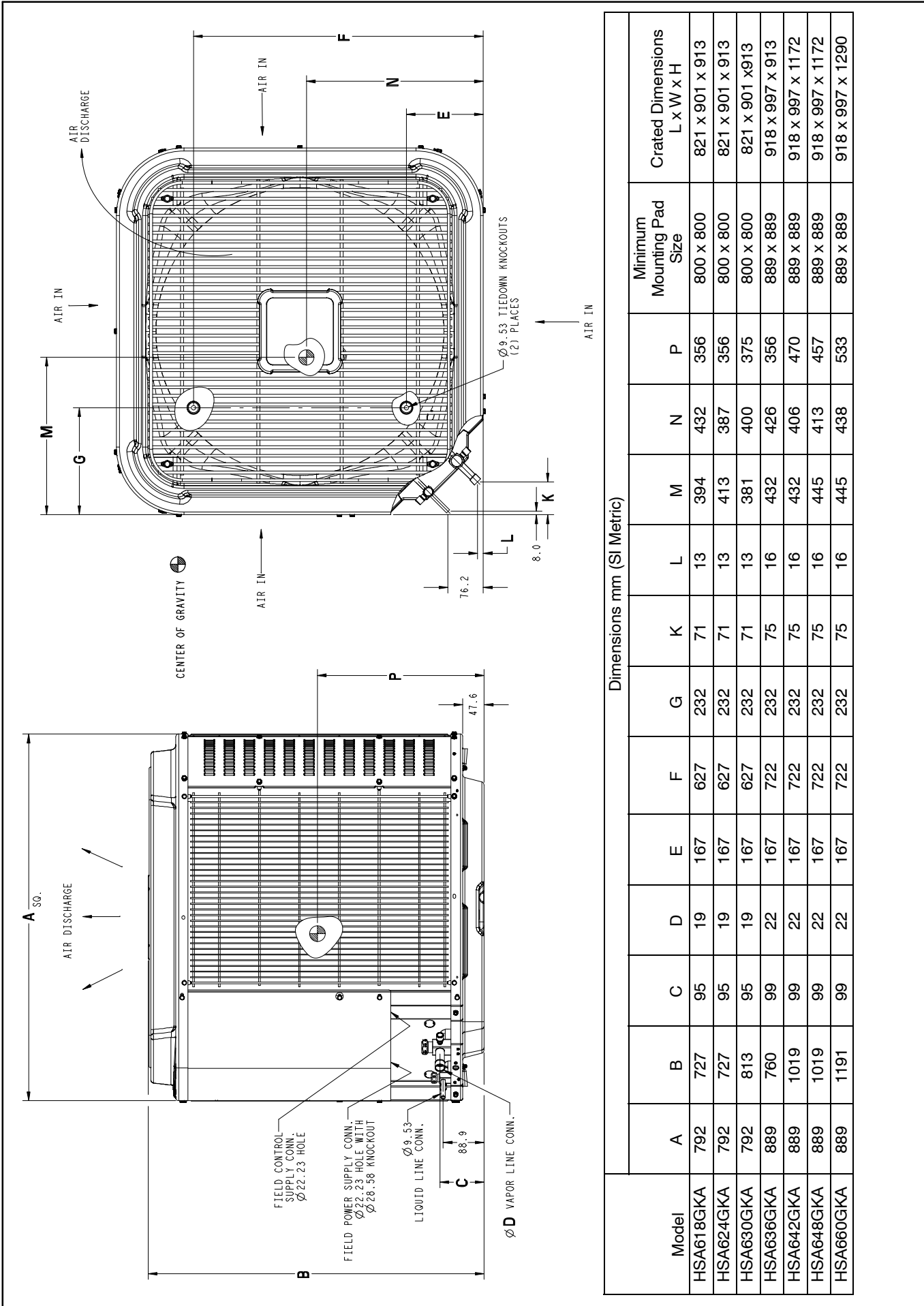
Model Number	Size (tons)	Nominal Btu/hr	Min. Circuit Ampacity	Max. Fuse or Breaker	Operating Dimensions height x width x depth in. (mm)	Ship / Operating Weight lbs. (kg)
HSA618GKA	1½	18,000	11.8	20	28-9/16 x 31-3/16 x 31-3/16 (726 x 792 x 792)	213 / 176 (96 / 80)
HSA624GKA	2	24,000	17.6	25	28-9/16 x 31-3/16 x 31-3/16 (726 x 792 x 792)	212 / 176 (96 / 80)
HSA630GKA	2½	30,000	16.7	25	32 x 31-3/16 x 31-3/16 (813 x 792 x 792)	223 / 187 (101 / 85)
HSA636GKA	3	36,000	18.1	30	29-7/8 x 35 x 35 (760 x 889 x 889)	243 / 200 (110 / 91)
HSA642GKA	3½	42,000	23.6	40	40-1/8 x 35 x 35 (1019 x 889 x 889)	297 / 253 (135 / 115)
HSA648GKA	4	48,000	26.1	40	40-1/8 x 35 x 35 (1019 x 889 x 889)	340 / 295 (155 / 114)
HSA660GKA	5	60,000	28.0	40	46-7/8 x 35 x 35 (1191 x 889 x 889)	374 / 327 (169 / 148)

OUTDOOR UNIT MODEL NUMBER IDENTIFICATION GUIDE (single phase)											
Digit Position:	1	2	3	4	5, 6	7	8	9	10	11	12
Example Part Number:	<b>H</b>	<b>S</b>	<b>A</b>	<b>6</b>	<b>18</b>	<b>G</b>	<b>K</b>	<b>A</b>	<b>1</b>	<b>0</b>	<b>0</b>
H = Arcoaire Mainline N = Arcoaire Entry <b>BRANDING</b> S = Single Stage Communicating <b>KEY CHARACTERISTIC</b> A = Air Conditioner H = Heat Pump <b>TYPE</b> 3 = 13 SEER 4 = 14 SEER 5 = 15 SEER 6 = 16 SEER 7 = 17 SEER 8 = 18 SEER <b>NOMINAL EFFICIENCY</b> 18 = 18,000 BTUH = 1½ tons 24 = 24,000 BTUH = 2 tons 30 = 30,000 BTUH = 2½ tons 36 = 36,000 BTUH = 3 tons 42 = 42,000 BTUH = 3½ tons 48 = 48,000 BTUH = 4 tons 60 = 60,000 BTUH = 5 tons <b>NOMINAL CAPACITY</b> A = Standard Grille G = Coil Guard Grille C = Coastal <b>FEATURES</b> K = 208/230-1-60 <b>VOLTAGE</b> Sales Code Engineering Revision Extra Digit Extra Digit											

ACCESSORIES PART NUMBER IDENTIFICATION GUIDE									
Digit Position:	1	2	3	4	5	6, 7	8, 9	10, 11	
Example Part Number:	<b>N</b>	<b>A</b>	<b>S</b>	<b>A</b>	<b>0</b>	<b>01</b>	<b>01</b>	<b>CH</b>	
N = Non-Branded A = Accessory <b>PRODUCT GROUP</b> S = Split System (AC & HP) <b>KIT USAGE</b> A = Original B = 2nd Generation <b>MAJOR SERIES</b> 0 = Generic or Not Applicable 2 = R-22 4 = R-410A <b>REFRIGERANT</b> Product Identifier Number Package Quantity Type of Kit (Example: CH = Crankcase Heater)									



Dimensions Inches (English)														
Model	A	B	C	D	E	F	G	K	L	M	N	P	Minimum Mounting Pad Size	Crated Dimensions L x W x H
HSA618GKA	31-3/16	28-9/16	3-3/4	3/4	6-9/16	24-11/16	9-1/8	2-13/16	1/2	15-1/2	17	14	31-1/2 x 31-1/2	32-5/16 x 35-1/2 x 36
HSA624GKA	31-3/16	28-9/16	3-3/4	3/4	6-9/16	24-11/16	9-1/8	2-13/16	1/2	16-1/4	15-1/4	14	31-1/2 x 31-1/2	32-5/16 x 35-1/2 x 36
HSA630GKA	31-3/16	32	3-3/4	3/4	6-9/16	24-11/16	9-1/8	2-13/16	1/2	15	15-3/4	14-3/4	31-1/2 x 31-1/2	32-5/16 x 35-1/2 x 39-3/8
HSA636GKA	35	29-7/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17	16-3/4	14	35 x 35	36-1/8 x 39-1/4 x 36
HSA642GKA	35	40-1/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17	16	18-1/2	35 x 35	36-1/8 x 39-1/4 x 46-1/8
HSA648GKA	35	40-1/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17-1/2	16-1/4	18	35 x 35	36-1/8 x 39-1/4 x 46-1/8
HSA660GKA	35	46-7/8	3-7/8	7/8	6-9/16	28-7/16	9-1/8	2-15/16	5/8	17-1/2	17-1/4	21	35 x 35	36-1/8 x 39-1/4 x 50-13/16



Dimensions mm (SI Metric)

Model	A	B	C	D	E	F	G	K	L	M	N	P	Minimum Mounting Pad Size	Crated Dimensions L x W x H
HSA618GKA	792	727	95	19	167	627	232	71	13	394	432	356	800 x 800	821 x 901 x 913
HSA624GKA	792	727	95	19	167	627	232	71	13	413	387	356	800 x 800	821 x 901 x 913
HSA630GKA	792	813	95	19	167	627	232	71	13	381	400	375	800 x 800	821 x 901 x 913
HSA636GKA	889	760	99	22	167	722	232	75	16	432	426	356	889 x 889	918 x 997 x 913
HSA642GKA	889	1019	99	22	167	722	232	75	16	432	406	470	889 x 889	918 x 997 x 1172
HSA648GKA	889	1019	99	22	167	722	232	75	16	445	413	457	889 x 889	918 x 997 x 1172
HSA660GKA	889	1191	99	22	167	722	232	75	16	445	438	533	889 x 889	918 x 997 x 1290

PHYSICAL DATA							
Model Size	18	24	30	36	42	48	60
Compressor Type	Scroll						
REFRIGERANT	R-410A						
Control	TXV (R-410A Hard shutoff)						
Charge lb (Kg)	5.25 (2.38)	6.00 (2.72)	6.81 (3.09)	6.75 (3.06)	8.62 (3.91)	13.00 (5.9)	14.50 (6.58)
COND FAN	Propeller Type, Direct Drive						
Air Discharge	Vertical						
Air Qty (CFM)	2233	2614	2614	3223	3810	4046	4046
Motor HP	1/12	1/10	1/10	1/12	1/5	1/4	1/4
Motor RPM	800	800	800	800	800	800	800
COND COIL							
Face Area (Sq ft)	15.07	15.07	17.22	17.58	25.12	25.12	30.14
Fins per In.	25	25	25	25	25	20	20
Rows	1	1	1	1	1	2	2
Circuits	3	4	4	4	6	7	8
VALVE CONNECT. (In. ID)							
Vapor	3/4	3/4	3/4	7/8	7/8	7/8	7/8
Liquid	3/8	3/8	3/8	3/8	3/8	3/8	3/8
REFRIGERANT TUBES (In. OD)							
Rated Vapor*	3/4			7/8			1-1/8
Max Liquid Line	3/8"						

\* Units are rated with 25 ft (7.6 m) of lineset length. See Vapor Line Sizing and Cooling Capacity Loss table when using other sizes and lengths of lineset.

ELECTRICAL DATA												
UNIT SIZE	V/PH/Hz	Operating Volts*		Compressor		Fan	MCA	Min-Wire Size†	Min-Wire Size†	Max Length ft (m)‡	Max Length ft (m)‡	Max Fuse** or Ckt Brk AMPS
		Max	Min	LRA	RLA	FLA		60° C	75° C	60° C	75° C	
18	208-230/1/60	253	197	48.0	9.0	0.5	11.8	14	14	66 (20.12)	62 (18.90)	20
24				58.3	13.5	0.7	17.6	14	14	44 (13.41)	42 (12.80)	25
30				64.0	12.8	0.5	16.7	14	14	46 (14.02)	44 (13.41)	25
36				77.0	14.1	0.5	18.1	14	14	44 (13.41)	42 (12.80)	30
42				112.0	17.9	1.2	23.6	12	12	52 (15.85)	50 (15.24)	40
48				109.0	19.9	1.2	26.1	10	10	77 (23.47)	73 (22.25)	40
60				135.0	21.4	1.2	28.0	10	10	71 (21.64)	68 (20.73)	40

\* Permissible limits of the voltage range at which the unit will operate satisfactorily

† If wire is applied at ambient greater than 30°C, consult table 310-16 of the NEC (NFPA 70). The ampacity of non-metallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C conditions, per the NEC (NFPA 70) Article 336-26. If other than uncoated (no-plated), 60 or 75°C insulation, copper wire (solid wire for 10 AWG or smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (NFPA 70).

‡ Length shown is as measured one way along wire path between unit and service panel for voltage drop not to exceed 2%.

\*\* Time-Delay fuse.

FLA - Full Load Amps

LRA - Locked Rotor Amps

MCA - Minimum Circuit Amps

RLA - Rated Load Amps

NOTE: Control circuit is 24-V on all units and requires external power source. Copper wire must be used from service disconnect to unit.

All motors/compressors contain internal overload protection.

Complies with 2007 requirements of ASHRAE Standards 90.1

A-WEIGHTED SOUND POWER (dBA)								
UNIT SIZE - SERIES	STANDARD RATING	TYPICAL OCTAVE BAND SPECTRUM (without tone adjustment)						
		125	250	500	1000	2000	4000	8000
18	69	53.0	58.0	62.5	63.0	60.5	58.0	48.5
24	69	49.0	57.0	62.5	62.5	59.0	56.5	49.5
30	70	53.5	56.0	62.5	64.5	62.0	57.0	49.5
36	70	54.5	64.5	69.5	70.0	68.0	65.5	60.0
42	72	61.0	67.5	72.5	73.5	71.0	67.5	62.0
48	72	56.5	60.0	63.5	64.5	61.0	58.5	51.0
60	72	55.0	63.0	67.5	71.5	68.0	64.0	60.5

NOTE: Tested in accordance with AHRI Standard 270-08 (not listed in AHRI).

**CHARGING SUBCOOLING (TXV-TYPE EXPANSION DEVICE)**

UNIT SIZE-SERIES	REQUIRED SUBCOOLING °F (°C)
18	10 (5.6)
24	10 (5.6)
30	10 (5.6)
36	10 (5.6)
42	9 (5.0)
48	10 (5.6)
60	9 (5.0)

**REFRIGERANT CHARGE ADJUSTMENTS**

Liquid Line Size	R-410A Charge oz/ft
3/8	0.60 (Factory charge for lineset = 9 oz)
5/16	0.40
1/4	0.27

Units are factory charged for 15 ft (4.6 m) of 3/8" liquid line. The factory charge for 3/8" lineset 9 oz. When using other length or diameter liquid lines, charge adjustments are required per the chart above.

**Charging Formula:**

$[(\text{Lineset oz/ft} \times \text{total length}) - (\text{factory charge for lineset})] = \text{charge adjustment}$

**Example 1:** System has 15 ft of line set using existing 1/4" liquid line. What charge adjustment is required?

Formula:  $(.27 \text{ oz/ft} \times 15\text{ft}) - (9 \text{ oz}) = (-4.95) \text{ oz.}$

Net result is to remove 4.95 oz of refrigerant from the system

**Example 2:** System has 45 ft of existing 5/16" liquid line. What is the charge adjustment?

Formula:  $(.40 \text{ oz/ft.} \times 45\text{ft}) - (9 \text{ oz.}) = 9 \text{ oz.}$

Net result is to add 9 oz of refrigerant to the system

**LONG LINE APPLICATIONS**

An application is considered Long Line, when the refrigerant level in the system requires the use of accessories to maintain acceptable refrigerant management for systems reliability. See Accessory Usage Guideline table for required accessories. Defining a system as long line depends on the liquid line diameter, actual length of the tubing, and vertical separation between the indoor and outdoor units. For Air Conditioner systems, the charts below shows when an application requires a TXV and long line accessories due to lineset length.

**AC with R-410A Refrigerant Long Line Description ft (m) Beyond these lengths, a TXV is required**

Total Length	Outdoor Unit Above or Below Indoor Unit
TXV required beyond 50 ft. (15.2 m)	TXV required beyond 20 ft. (6.1 m)

**AC with R-410A Refrigerant Long Line Description ft (m) (Beyond these lengths, long line accessories are required)**

Liquid Line Size	Units On Same Level	Outdoor Below Indoor	Outdoor Above Indoor
1/4 + TXV	No accessories needed within allowed lengths	No accessories needed within allowed lengths	175 (53.3)
5/16 + TXV	120 (36.6)	50 (15.2) vertical or 120 (36.6) total	120 (36.6)
3/8 + TXV	80 (24.4)	35 (10.7) vertical or 80 (24.4) total	80 (24.4)

VAPOR LINE SIZING AND COOLING CAPACITY LOSS

Acceptable vapor line diameters provide adequate oil return to the compressor while avoiding excessive capacity loss. The suction line diameters shown in the chart below are acceptable for AC systems with R-410A refrigerant:

Vapor Line Sizing and Cooling Capacity Losses — R-410A Refrigerant 1-Stage Air Conditioner Applications

Unit Nominal Size (Btuh)	Maximum Liquid Line Diameters (In. OD)	Vapor Line Diameters (In. OD)	Cooling Capacity Loss (%)								
			Total Equivalent Line Length ft. (m)								
			26-50 (7.9-15.2)	51-80 (15.5-24.4)	81-100 (24.7-30.5)	101-125 (30.8-38.1)	126-150 (38.4-45.7)	151-175 (46.0-53.3)	176-200 (53.6-61.0)	201-225 (61.3-68.6)	226-250 (68.9-76.2)
018 1 Stage AC with R-410A	3/8	1/2	1	2	3	5	6	7	8	9	11
		5/8	0	1	1	1	2	2	3	3	
		3/4	0	0	0	0	1	1	1	1	1
024 1 Stage AC with R-410A	3/8	5/8	0	1	2	2	3	3	4	5	5
		3/4	0	0	1	1	1	1	1	2	2
		7/8	0	0	0	0	0	1	1	1	1
030 1 Stage AC with R-410A	3/8	5/8	1	2	3	3	4	5	6	7	8
		3/4	0	0	1	1	1	2	2	2	3
		7/8	0	0	0	0	1	1	1	1	1
036 1 Stage AC with R-410A	3/8	5/8	1	2	4	5	6	8	9	10	12
		3/4	0	1	1	2	2	3	3	4	4
		7/8	0	0	0	1	1	1	1	2	2
042 1 Stage AC with R-410A	3/8	3/4	0	1	2	2	3	4	4	5	6
		7/8	0	0	1	1	1	2	2	2	3
		1 1/8	0	0	0	0	0	0	0	0	0
048 1 Stage AC with R-410A	3/8	3/4	0	1	2	3	4	5	5	6	7
		7/8	0	0	1	1	2	2	2	3	3
		1 1/8	0	0	0	0	0	0	0	1	1
060, 061 1 Stage AC with R-410A	3/8	3/4	1	2	4	5	6	7	9	10	11
		7/8	0	1	2	2	3	4	4	5	5
		1 1/8	0	0	0	1	1	1	1	1	1

Consult the Long Line Application Guideline document before purchasing/installing line sets.

Applications in shaded area may have height restrictions that limit allowable total equivalent length when outdoor unit is below indoor unit.

Unit Size	Indoor Model	Furnace Model	AHRI Standard Ratings					
			Cooling 95° F (35°C)					
			Capacity	Factory Enhance	SEER			EER
Standard	W/ Field TDR	W/ Field TXV						
HSA618GKA	*EN(A,D)4X19*17**		18800	TXV		14.5		12.2
HSA624GKA	*EN(A,D)4X31*17**		23600	TXV		14.5		12
HSA630GKA	*EN(A,D)4X31*17**		28400	TXV		14.5		12
HSA636GKA	*EN(A,D)4X37*17**		34400	TXV		14.5		12
HSA642GKA	*EN(A,D)4X43*24**		42000	TXV		14.5		12
HSA648GKA	*EN(A,D)4X61*24**		46500	TXV		14.5		12.5
HSA660GKA	*EN(A,D)4X61*24**		55000	TXV		14.5		12.5

† For coils not listed with a matching furnace or blower, coil rating applies with any indoor blower device.

TESTED AHRI COMBINATION RATINGS\*

NOTE: Ratings contained in this document are subject to change at any time.

For AHRI ratings certificates, please refer to the AHRI directory. [www.ahridirectory.org](http://www.ahridirectory.org)

Additional ratings and system combinations can be accessed via the Arcoaire database:

<http://www.icpeqp.com/AHRIratings/ratings.aspx?Brand=Arcoaire>

Or scan this QR code:



**ACCESSORY USAGE GUIDELINES**

Accessory	REQUIRED FOR LOW-AMBIENT APPLICATIONS {Below 55°F (13°C)}	REQUIRED FOR LONG-LINE APPLICATIONS*
Crankcase Heater	<b>Yes</b>	<b>Yes</b>
Evaporator Freeze Thermostat	<b>Yes</b>	No
Winter Start Control	<b>Yes**</b>	No
TXV	<b>Yes</b>	<b>Yes‡</b>
Hard Start Kit (Capacitor & Relay)	<b>Yes</b>	<b>Yes</b>
Low Ambient Kit (Pressure Switch)	<b>Yes</b>	No
Support Feet, 4" (102mm) tall	Recommended	No

\* Refer to the Long Line Application Guideline document.

\*\* Can only be installed in conjunction with the Low Pressure Switch

‡ TXV required beyond 20 ft (6.1m) vertical separation or 50 ft (15.2) total length.

**ACCESSORIES**

Part Number	Description	Used On Model Size
NASA003CH	Crankcase Heater for Scroll Compressor (208/230 V)	18, 24, 30, 36
NASA001CH	Crankcase Heater for Scroll Compressor (208/230 V)	42, 48, 60*
NASA001SC	Start Component – PTC Device	ALL
NASA00201FS	Evaporator Freeze Thermostat	ALL
NASA401LS	Liquid Line Solenoid Valve, R-410A	ALL
NASA001TD	Time Delay Relay, Indoor Blower	ALL
NASA00201WS	Winter Start Control	ALL
NASA001AC	Anti-Cycle Timer (5 minute delay)	ALL
NASA014SC	Hard Start Kit (Capacitor & Relay)	ALL
NASA401LA	Low Ambient Kit (Pressure Switch), R-410A	ALL
NASA001SF	Support Feet, 4" (102mm) tall	ALL
NAEA40501TX	TXV Kit, R-410A – 2010 and later Piston Coils	18, 24, 30
NAEA40601TX	TXV Kit, R-410A – 2010 and later Piston Coils	36, 42
NAEA40701TX	TXV Kit, R-410A – 2010 and later Piston Coils	48, 60
EBAC05TXVX	TXV Kit, R-410A – 2005–2009 R-22 TXV Fancoils (air handlers)	18, 24, 30
EBAC06TXVX	TXV Kit, R-410A – 2005–2009 R-22 TXV Fancoils (air handlers)	36, 42
EBAC07TXVX	TXV Kit, R-410A – 2005–2009 R-22 TXV Fancoils (air handlers)	48, 60
TSTAT0101SC	Observer™ Self Configuring Communication Wall Control	ALL

\*Some models may be factory installed.