

ASA16**S1



LE Series

Featured Highlights

- Outdoor Coil Fan
- High Capacity Liquid Line Drier
- High Pressure Switch
- Low Pressure Switch
- Scroll Compressor
- Heavy Gauge Steel Cabinet
- Refrigerant Line Connections and Access

Applications

- 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

Approvals

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

SPLIT AIR CONDITIONER SYSTEM

Minimum Efficiency:
14.3 SEER2



Intertek



For the latest AHRI system matches,
please visit www.marsdeliversratings.com
or AHRIdirectory.org

Comfort-Aire®

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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
- Sleeve bearings
- Inherently protected
- Motor rain shield
- Louvered steel fan guard

Condenser Coil

- Proprietary coil 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
- Drier traps moisture or dirt that could contaminate the 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

Optional Accessories

Expansion Valve Kits

- Factory installed with R-454B on all indoor units
- 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



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

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

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

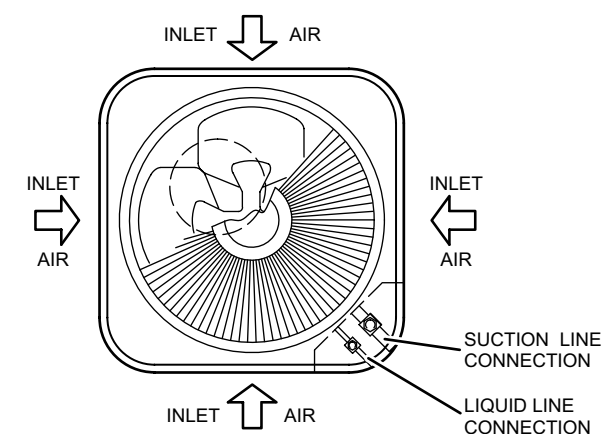
- Units can accommodate braze-free or press fittings for installation versatility.



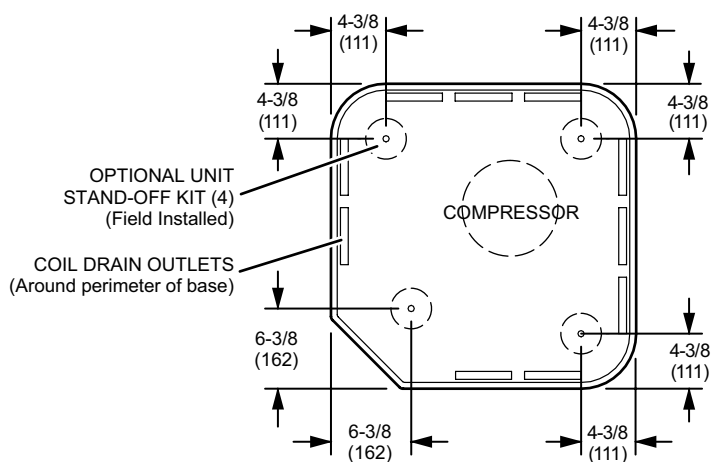
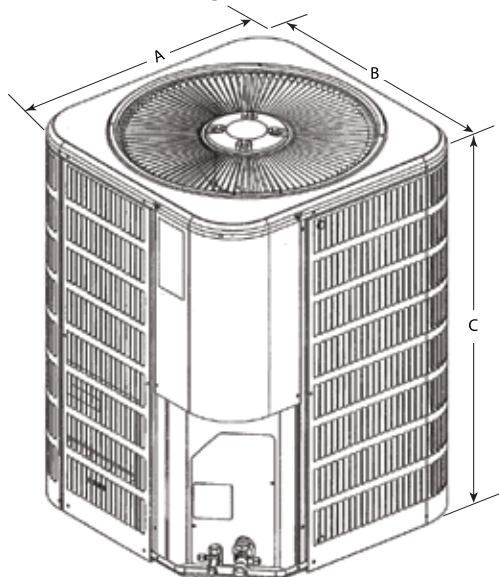
The logo for Comfort-Cire, featuring the brand name in a stylized, cursive script font. The 'C' is large and loops around the 'omfort' part. The 'ire' is written in a more fluid, connected style. A registered trademark symbol (®) is located at the end of the word 'Cire'.

MODEL NUMBER GUIDE

A	S	A	16	36	S	1	A
Air Conditioner	Residential Split	R-454B	Minimum SEER2	Capacity BTUH x 1000	Single Stage	Power 1 = 208/230-1-60	Revision Level



TOP VIEW



TOP VIEW BASE SECTION

UNIT DIMENSIONS

Model	Dimensions (inch)			Shipping Weight (Lbs.)
	A - Width	B - Depth	C - Height	
ASA1618S1	28-1/4	28-1/4	29-1/4	155
ASA1624S1	28-1/4	28-1/4	37-1/4	170
ASA1630S1	28-1/4	28-1/4	29-1/4	180
ASA1636S1	28-1/4	28-1/4	37-1/4	200
ASA1641S1	32-1/4	32-1/4	33-1/4	225
ASA1647S1	32-1/4	32-1/4	33-1/4	225

Note: Dimensions listed are unit sizes w/o packaging

SOUND DATA

Size	Octave Band Sound Power Levels dBA, re 10 ⁻¹² Watts Center Frequency - HZ							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
047	61	66	72	71	66.5	63	63.5	76	69	64	58	55	44

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.

SPECIFICATIONS

Size	ASA1618S1	ASA1624S1	ASA1630S1	ASA1636S1	ASA1641S1	ASA1647S1
Nominal Tonnage	1.5	2	2.5	3	3.5	4
Sound Rating Number dBA	76	75	72	73	74	74
Connections (Sweat)						
Liquid line (OD) - in.	3/8	3/8	3/8	3/8	3/8	3/8
Suction line (OD) - in.	3/4	3/4	3/4	7/8	7/8	7/8
Compressor Type	1-Stage Scroll	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.	7 lbs. 13 oz.
Indoor Unit Expansion Valve (TXV)	26Z70	26Z70	26Z70	26Z70	26Z71	26Z71
Outdoor Coil Net face area - ft. ² Outer Coil	16.33	21.00	16.33	21.00	22.17	22.17
Inner Coil	-	-	15.75	20.25	21.33	21.33
Tube diameter - in.	5/16	5/16	5/16	5/16	5/16	5/16
Rows	1	1	2	2	2	2
Fins - in.	26	26	22	22	22	22
Outdoor Fan HP	1/8	1/8	1/8	1/6	1/3	1/3
Diameter - in.	22	22	22	22	26	26
Blades	2	3	3	3	3	3
Cfm	2610	2990	2820	3040	3920	3920
Rpm	825	825	825	825	825	825
Watts	160	160	160	190	180	180
Shipping Data - lbs.	155	170	180	200	225	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	208/230-1-60
² Maximum overcurrent protection (MOCP) amps	15	20	25	30	30	40
³ Minimum circuit ampacity (MCA)	11.2	13.6	16.6	21.8	21	25.2
Compressor Rated load amps	8.3	10.3	12.7	16.7	14.7	18.1
Locked rotor amps	45	60.2	75.6	93.5	109	126
Fan Motor full load amps	0.74	0.74	0.74	1	2.6	2.6
Locked rotor amps	1.65	1.65	1.65	1.9	3.2	--
OPTIONAL ACCESSORIES - ORDER SEPARATELY						
Compressor Hard Start Kit Copeland 27V63	•	•	•	•	Factory Installed	Factory Installed
Crankcase Heater LG 27U16	•	•	•	•		
Compressor Hard Start Kit Copeland 63W22	•					
10J42		•	•	•	•	•
LG 10J42	•	•	•	•		
LG 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.

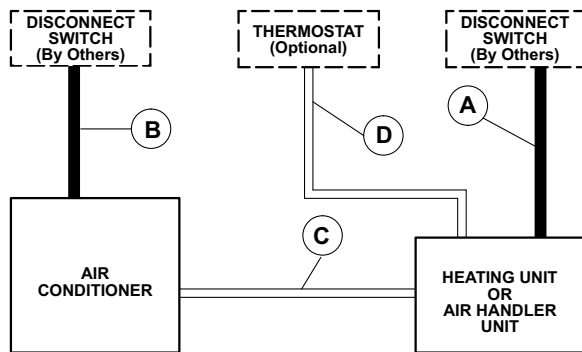
¹ Refrigerant charge is sufficient for 15 ft. length of refrigerant lines. For longer line set requirements see the Installation Instructions for information about line set length and additional refrigerant charge required.

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.

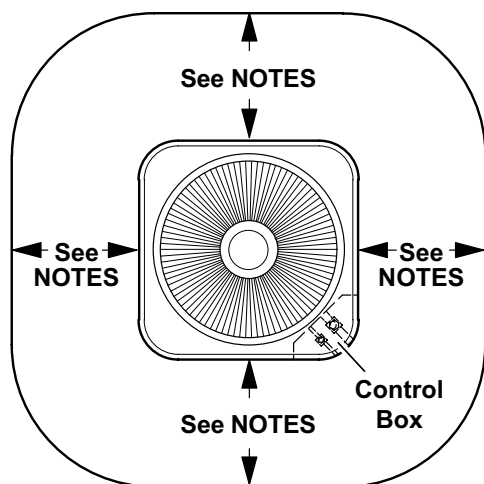
FIELD WIRING



- 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) must be maintained on one of the sides adjacent to the control box
- Clearance to one of other three sides must be 36 in. (914 mm).
- Clearance to one of the remaining two sides may be 12 in. (305 mm), and the final side may be 6 in. (152 mm).
- A clearance of 24 in. must be maintained between two

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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
041	3.5	24	2	26Z70	26Z71
041	3.5	30	2.5	26Z70	26Z71
041	3.5	30/36	2.5/3	26Z70	26Z71
041	3.5	36	3	26Z70	26Z71
041	3.5	60	5	26Z72	26Z71
047	4	30/36	2.5/3	26Z70	26Z71
047	4	36	3	26Z70	26Z71
047	4	60	5	26Z72	26Z71

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.

ASA16**S1

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Due to ongoing product improvements, specifications and dimensions are subject to change and correction without notice or incurring obligations. Determining the application and suitability for use of any product is the responsibility of the installer. Additionally, the installer is responsible for verifying dimensional data on the actual product prior to beginning any installation preparations. Third party incentive and rebate programs have precise requirements as to product performance and certification. All products meet applicable regulations in effect on date of manufacture; however, certifications are not necessarily granted for the life of a product. Therefore, it is the responsibility of the applicant to determine whether a specific model qualifies for these incentive/rebate programs.

"This product complies with all California product labeling laws including, but not limited to, the Safe Drinking Water and Toxic Enforcement Act of 1986, more commonly known as Proposition 65."