24ABB3 Comfort™13 Air Conditioner with Puron® Refrigerant 1-1/2 to 5 Nominal Tons



Product Data







Carrier's Air Conditioners with Puron® refrigerant provide a collection of features unmatched by any other family of equipment. The 24ABB has been designed utilizing Carrier's non-ozone depleting Puron refrigerant.

NOTE: Ratings contained in this document are subject to change at any time. Always refer to the AHRI directory (www.ahridirectory.org) for the most up-to-date ratings information.

INDUSTRY LEADING FEATURES / BENEFITS

Efficiency

- 13 SEER/ up to 11 EER (based on tested combinations)
- Microtube Technology [™] refrigeration system
- Indoor air quality accessories available

Sound

Sound level as low as 71 dBA

Comfort

 System supports Edge® Thermidistat[™] or standard thermostat controls

Reliability

- Non-ozone depleting Puron® refrigerant
- Scroll compressor
- Internal pressure relief valve
- Internal thermal overload
- Filter drier
- Balanced refrigeration system for maximum reliability

Durability

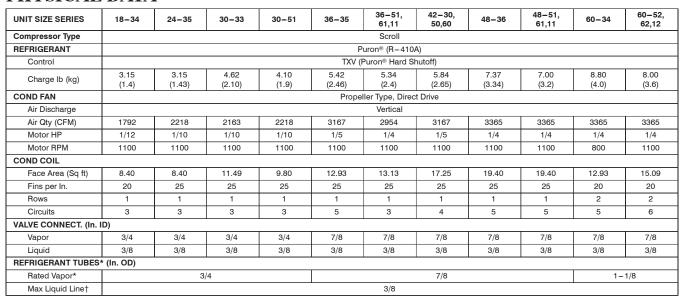
WeatherArmor™ protection package:

- Solid, durable sheet metal construction
- Dense wire coil guard
- Baked-on, complete outer coverage, powder paint

Applications

- Long-line up to 250 feet (76.20 m) total equivalent length, up to 200 feet (60.96 m) condenser above evaporator, or up to 80 ft. (24.38 m) evaporator above condenser (See Longline Guide for more information.)
- Low ambient (down to -20°F/-28.9°C)) with accessory kit

PHYSICAL DATA



^{*} 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. **Note**: See unit Installation Instruction for proper installation.

OUTDOOR UNIT CONNECTED TO A FACTORY APPROVED INDOOR UNIT

Check piston size shipped with indoor unit to see if it matches required indoor piston size. If it does not match, replace indoor piston with correct piston size in table below:

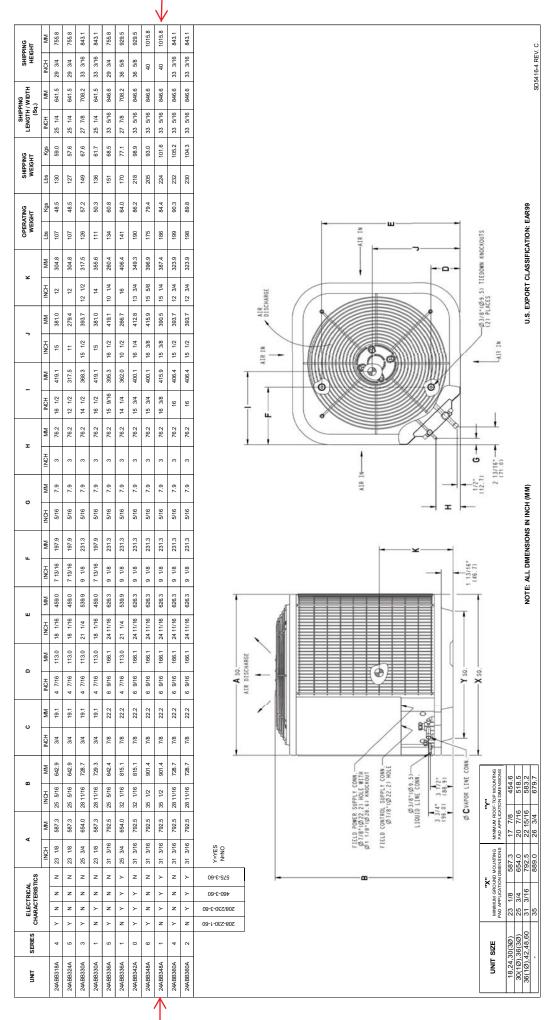
OUTDOOR UNIT SIZE - SERIES	FAN COIL	PISTON SIZE BY OUTDOOR MODEL
18-34	FB4CNF*	49
24-35	FB4CNF*	55
30-33	FB4CNF*	61
30-51	FB4CNF*	59
36-35	FB4CNF*	-
36-51, 61, 11	FB4CNF*	67
42-30, 50, 60	FB4CNF*	73
48-36	FB4CNF*	78
48-51, 61, 11	FB4CNF*	76

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NOTE: Pistons shipped with outdoor units are only qualified and approved with the above listed fan coils. The piston included with the FFMANP* and FPMAN* fan coils are unique to those products and CANNOT be replaced with the piston shipped with outdoor unit. Refer to the AHRI directory (www.ahridirectory.org) to check if your combination can use a piston or requires an accessory TXV.

[†] See Liquid Line Sizing For Cooling Only Systems with Puron Refrigerant tables.

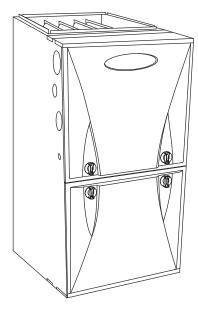
DIMENSIONS - ENGLISH



59SP5A
Performance™ Boost, Single-Stage
4-Way Multipoise
Condensing Gas Furnace
Series 1 and 2



Product Data



A11263

The 59SP5A Multipoise Performance™ Boost Condensing Gas Furnace features SEER-boosting year-round electrical efficiency when paired with a compatible condensing unit. Energy efficiency is at the heart of this furnace with up to 96.5% AFUE gas efficiency and the electrically-efficient basic ECM blower motor. This gas furnace also features 4-way multipoise installation flexibility, and is available in nine model sizes. All sizes except the 26,000 BTUH model can be vented for direct vent/two-pipe, ventilated combustion air, or single-pipe applications. The 26,000 BTUH model can use the same 2-pipe venting system using outside air for combustion, but is not considered direct-vent. All units meet California Air Quality Management District emission requirements, are design certified in Canada, and are certified for mobile/manufactured home use.

STANDARD FEATURES

- Quiet operation. Compare for yourself at HVACpartners.com.
- All sizes meet ENERGY STAR® Version 4.1 criteria for gas furnaces: 95+ AFUE; ECM blower motor; 2% or less cabinet airflow leakage.
- High-efficiency basic ECM multiple-speed blower motor for electrically efficient operation all year long in heating, cooling and continuous fan operation.

- Humidistat[™] Control compatible; dehumidification input for better comfort.
- SmartEvap[™] technology helps control humidity levels in the home when used with a compatible humidity control system.
- ComfortFan[™] technology allows control of continuous fan speed from a compatible thermostat.
- Ideal height 35" (889 mm) cabinet: short enough for taller coils, but still allows enough room for service.
- Silicon Nitride Power Heat™ Hot Surface Igniter.
- External Media Filter Cabinet included.
- 4-way multipoise design for upflow, downflow or horizontal installation, with unique vent elbow and optional venting through-the-cabinet downflow venting capability.
- Single-speed inducer motor, and single-stage gas valve.
- Self diagnostics with SuperBrite LED.
- Approved for Twinning applications with accessory kit (060-12 through 120-22 models, only).
- Approved for Manufactured Housing/Mobile Home applications with MH accessory kit. (40–10 through 120–22 models, only).
- Adjustable blower speed for heating, cooling and continuous fan
- Aluminized-steel primary heat exchanger.
- Stainless-steel condensing secondary heat exchanger.
- Propane convertible (see Accessory list).
- Factory-configured ready for upflow applications.
- Fully-insulated casing including blower section.
- Convenient Air Purifier and Humidifier connections.
- Direct-vent/sealed combustion, single-pipe venting or ventilated combustion air.
- Installation flexibility: (sidewall or vertical vent).
- Residential installations may be eligible for consumer financing through the Retail Credit Program.
- Certified to leak 2% or less of nominal air conditioning CFM delivered when pressurized to 1-in. water column with all present air inlets, air outlets, and condensate drain port(s) sealed.













CASING DIMENSIONS (IN.)	RATED HEATING	AFUE		ENERGY	HEATING AIRFLOW		COOLING CFM @ 0.5	MOTOR	MEDIA CABINET			
SAP ORDERING NO.	Н	D	W	OUTPUT† BTUH	UPFLOW/ HORIZON- TAL	DOWN- FLOW	STAR®	HEATING CFM	HEATING ESP (in. W.C.)	ESP (in. W.C.)	HP SPEED	SUPPLIED (IN.)
59SP5A026E1410	35	29.5	14.2	25,000	96.0%	95.0%	YES	605	0.1	895	1/3 - 5	16
59SP5A040E1410	35	29.5	14.2	39,000	96.5%	95.0%	YES	695	0.1	925	1/2 - 5	16
59SP5A040E1712	35	29.5	17.5	39,000	96.5%	95.0%	YES	705	0.1	1085	1/2 - 5	16
59SP5A060E1412	35	29.5	14.2	58,000	95.5%	95.0%	YES	940	0.12	1090	1/2 - 5	16
59SP5A060E1714	35	29.5	17.5	58,000	96.5%	95.0%	YES	1000	0.12	1505	3/4 - 5	16
59SP5A080E1716	35	29.5	17.5	78,000	96.5%	95.0%	YES	1360	0.15	1610	3/4 - 5	16
59SP5A080E2120	35	29.5	21.0	78,000	96.5%	95.0%	YES	1360	0.15	2015	1 - 5	20
59SP5A100E2120	35	29.5	21.0	97,000	96.3%	95.0%	YES	1700	0.2	2110	1 - 5	20
59SP5A120E2422	35	29.5	24.0	117,000	96.5%	95.0%	YES	2125	0.2	2055	1 - 5	24

[†] Capacity in accordance with DOE test procedures. Ratings are position dependent. See rating plate.

FEATURES AND BENEFITS

SmartEvap™ Technology — When paired with a compatible thermostat, this dehumidification feature overrides the cooling blower off-delay when there is a call for dehumidification. By deactivating the blower off-delay, SmartEvap technology prevents condensate that remains on the coil after a dehumidification cycle from re-humidifying throughout the home. This results in reduced humidity and a more comfortable indoor environment for the homeowner.

Unlike competitive systems, SmartEvap technology only overrides the cooling blower off-delay when humidity control is needed. Once humidity is back in control, SmartEvap re-enables the energy-saving cooling blower off-delay.

ComfortFan ™ Technology —Sometimes the constant fan setting on a standard furnace system can actually reduce homeowner comfort by providing too much or too little air! Comfort Fan technology improves comfort all year long by allowing the homeowner to select the continuous fan speed of their choice using a compatible thermostat.

HYBRID HEAT® Dual Fuel System — This system can provide more control over your monthly energy bills by automatically selecting the most economical method of heating. With HYBRID HEAT components, our system automatically switches between the gas furnace and the electric heat pump as outside temperatures change to maintain greater efficiency and comfort than with any traditional single-source heating system. The heat pump also delivers high-efficiency cooling in the summer.

Power Heat Migniter — Carrier's unique SiN igniter is not only physically robust but it is also electrically robust. It is capable of running at line voltage and does not require complex voltage regulators as do other brands. This unique feature further enhances the gas furnace reliability and continues Carrier's tradition of technology leadership and innovation in providing a reliable and durable product.

Performance™ ECM Blower Motor — This basic ECM, or electronically commutated motor, can provide an efficiency enhancement for select Carrier air conditioner or heat pump systems. It uses less electrical power than its PSC counterpart and also has a wider range of speeds

Reliable Heat Exchanger Design — The aluminized steel, clam shell primary heat exchanger was re-engineered to achieve greater efficiency out of a smaller size. The first two passes of the heat exchanger are based on the current 80% product, a design with more than ten years of field-proven performance and success. These innovations, paired with the continuation of a crimped, no-weld seam create an efficient, robust design for this essential component.

The condensing heat exchanger, a stainless steel fin and tube design, is positioned in the furnace to extract additional heat. Stainless steel coupling box componentry between heat exchangers

has exceptional corrosion resistance in both natural gas and propane applications.

Media Filter Cabinet — Enhanced indoor air quality in the home is made easier with our media filter cabinet—a standard accessory on all deluxe furnaces. When installed as a part of the system, this cabinet allows for easy and convenient addition of a Carrier high efficiency air filter.

4-Way Multipoise Design — One model for all applications – there is no need to stock special downflow or horizontal models when one unit will do it all. The new heat exchanger design allows these units to achieve the certified AFUE in all positions.

Direct or Single-pipe Venting, or Optional Ventilated Combustion Air — All sizes except the 26,000 BTUH model can be vented for direct vent/two-pipe, ventilated combustion air, or single-pipe applications. The 26,000 BTUH model can use the same 2-pipe venting system using outside air for combustion, but is not considered direct-vent. This provides added flexibility to meet diverse installation needs.

Sealed Combustion System — This furnace brings in combustion air from outside the furnace, which results in especially quiet operation. By sealing the entire combustion vestibule, the entire furnace can be made quieter, not just the burners.

Insulated Casing — Foil-faced insulation in the heat exchanger section of the casing minimizes heat loss. The acoustical insulation in the blower compartment reduces air and motor noise for quiet operation.

Monoport Burners — The burners are specially designed and finely tuned for smooth, quiet combustion and economical operation.

Bottom Closure — Factory-installed for side return; easily removable for bottom return. The multi-use bottom closure can also serve for roll-out protection in horizontal applications, and act as the bottom closure for the optional return air base accessory.

Blower Access Panel Switch — Automatically shuts off 115-v power to furnace whenever blower access panel is opened.

Quality Registration — Our furnaces are engineered and manufactured under an ISO 9001 registered quality system.

Certifications — This furnace is CSA (AGA and CGA) design certified for use with natural and propane gases. The furnace is factory-shipped for use with natural gas. A CSA listed gas conversion kit is required to convert furnace for use with propane gas. The efficiency is AHRI efficiency rating certified. This furnace meets California Air Quality Management District emission requirements.

[‡] Heating CFM at factory default blower motor heating tap settings.

ESP - External Static Pressure

SPECIFICATIONS

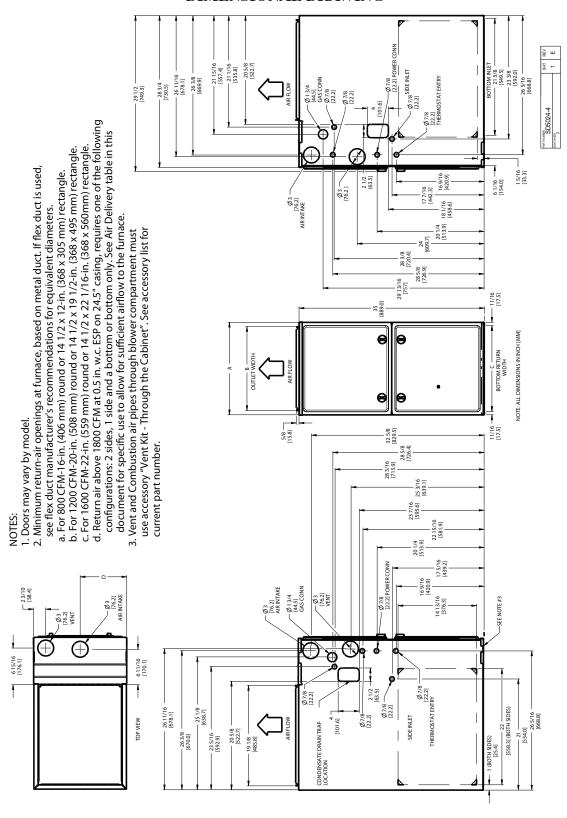
The furnace should be sized to provide 100 percent of the design heating load requirement plus any margin that occurs because of furnace model size capacity increments. None of the furnace model sizes can be used if the heating load is 12,000 BTUH or lower. Use Air Conditioning Contractors of America (Manual J and S); American Society of Heating, Refrigerating, and Air-Conditioning Engineers; or other approved engineering

method to calculate heating load estimates and select the furnace. Excessive oversizing of the furnace may cause the furnace and/or vent to fail prematurely, customer discomfort and/or vent freezing. Failure to follow these guidelines is considered faulty installation and/or misapplication of the furnace; and resulting failure, damage, or repairs may impact warranty coverage.

Heating Capacity and Efficiency			026-10	040-10	040-12	060-12	060-14	080-16	080-20	100-20	120-22
	Lliah	Loot (DTI ILI)			40,000	60,000	60,000	80.000	80,000	100,000	120,000
Input		n Heat (BTUH) n Heat (BTUH)	26,000	40,000	1 1	· ·	,	,			
Output	Higr	Heat (BTUH)	25,000	39,000	39,000	58,000	58,000	78,000	78,000	97,000	117,000
Certified Temperature Rise Range °F (°C)		High Heat	25 - 55 (14 - 31)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	45 - 75 (25 - 42)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	40 - 70 (22 - 39)	40 - 70 (22 - 39)
Tilse Hange T (C)			(1. 0.)	(22 00)	(22 00)	(20 .2)	(22 00)	(22 00)	(22 00)	(22 00)	(22 00)
Airflow Capacity and Blower Data			026-10	040-10	040-12	060-12	060-14	080-16	080-20	100-20	120-22
Rated External Static		Heating	0.10	0.10	0.10	0.12	0.12	0.15	0.15	0.20	0.20
Pressure (in. w.c.)		Cooling	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Airflow Delivery		High Heat	605	695	705	940	1000	1360	1360	1700	2125
@ Rated ESP (CFM)		Cooling	895	925	1085	1090	1505	1610	2015	2110	2055
Cooling Capacity (tons)		CFM/ton	2	2	2.5	2.5	3.5	4	5	5	5
@ 400, 350 CFM/ton		CFM/ton	2.5	2.5	3	3	4	4.5	5.5	6	6
Direct-Drive Motor Type		,			Electro	onically C	ommutate	ed Motor	(ECM)		
Direct-Drive Motor HP			1/3	1/2	1/2	1/2	3/4	3/4	1	1	1
Motor Full Load Amps			4.4	6.8	6.8	6.8	9.9	9.3	12.3	12.6	11.1
			400 -		1	1	000	1000	1	I	I
RPM Range			1200				600 -	1200			
Speed Selections							5				
Blower Wheel Dia x Width		in.	11 x 7	11 x 7	11 x 8	11 x 7	11 x 8	11 x 8	11 x 10	11 x 10	11 x 11
Air Eiltration System		I			Fa	actory Sup	plied Me	dia Cabin	et		
Air Filtration System			Field Supplied Filter								
Filter Used for Certified Watt Data			KGAWF1506UFR								
Electrical Data			026-10	040-10	040-12	060-12	060-14	080-16	080-20	100-20	120-22
Input Voltage	Volt	s-Hertz-Phase					115-60-1				
Operating Voltage Range		Min-Max					104-127				
Maximum Input Amps		Amps	5.1	7.4	7.4	7.5	10.6	10.0	13.0	13.4	11.9
Unit Ampacity		Amps	7.3	10.3	10.3	10.4	14.2	13.5	17.2	17.7	15.8
Minimum Wire Size		AWG	14	14	14	14	14	14	12	12	12
Maximum Wire Length		Feet	51	36	36	35	26	27	33	32	36
@ Minimum Wire Size		(M)	(15.5)	(11.0)	(11.0)	(10.7)	(7.9)	(8.2)	(10.1)	(9.8)	(11.0)
Maximum Fuse/Ckt Bkr		Amps	15	15	15	15	15	15	20	20	20
(Time-Delay Type Recommended)		'									
Transfomer Capacity (24vac output)							40 VA				
External Control Power		Heating	27.9 VA								
Available Cooling			34.6 VA								
Controls			026-10	040-10	040-12	060-12	060-14	080-16	080-20	100-20	120-22
Gas Connection Size			020-10	040-10	040-12	000-12	1/2" -		000-20	100-20	120-22
Burners (Monoport)			2	2	2	3	3	4	4	5	6
Gas Valve (Redundant)		Manufacturer	_			1	nite Rodg		_ ·		
Minimum Inlet Gas pressure (in. wc)				4.5							
Maximum Inlet das pressure (in. wc)			13.6								
Manufactured (Mobile) Home Kit				See Accessory Listing							
,				Silicon Nitride							
` ,						Sil	icon Nitri	de			
Ignition Device			220	165	180				200	180	160
Ignition Device Limit Control)elav)		220	165	180 Adius	165	180	170	200	180	160
Ignition Device Limit Control Heating Blower Control (Heating Off-Device)			220	165		165 stable: 90	180 , 120, 150	170), 180 sec		180	160
Ignition Device Limit Control Heating Blower Control (Heating Off-E Cooling Blower Control (Time Delay R			220	165		165 stable: 90	180 , 120, 150 0 second	170), 180 sec		180	160
Ignition Device Limit Control Heating Blower Control (Heating Off-E Cooling Blower Control (Time Delay R Communication System			220	165	Adjus	165 stable: 90 9	180 , 120, 150 0 second <i>none</i>	170), 180 sec s	onds	180	160
Ignition Device Limit Control Heating Blower Control (Heating Off-E Cooling Blower Control (Time Delay R			220	I	Adjus	165 stable: 90	180 , 120, 150 0 second <i>none</i> W, G, Y/Y	170), 180 sec s	onds , Y1		160

^{*} See Accessory List for part numbers available.

DIMENSIONAL DRAWING



41	22	67

59SP5	Α	В	С	D	SHIP WT.
FURNACE SIZE	CABINET WIDTH	OUTLET WIDTH	BOTTOM INLET WIDTH	AIR INTAKE	LB (KG)
026-10	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	118.0 (53.5)
040-10	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	120.0 (54.5)
060-12	14-3/16 (361)	12-1/2 (319)	12-9/16 (322)	7-1/8 (181)	131.0 (59.4)
040-12			(403) 16 (406)	8-3/4 (222)	130.5 (59.2)
060-14	17-1/2 (445)	15-7/8 (403)			141.0 (64.0)
080-16					151.0 (68.6)
080-20	04 (500)	10, 0/0 (100)		10, 1/0 (007)	155.5 (70.7)
100-20	21 (533)	19-3/8 (492)	19-1/2 (495)	10-1/2 (267)	165.5 (75.2)
120-22	24-1/2 (622)	22-7/8 (581)	23 (584)	12-1/4 (311)	189.5 (86.1)