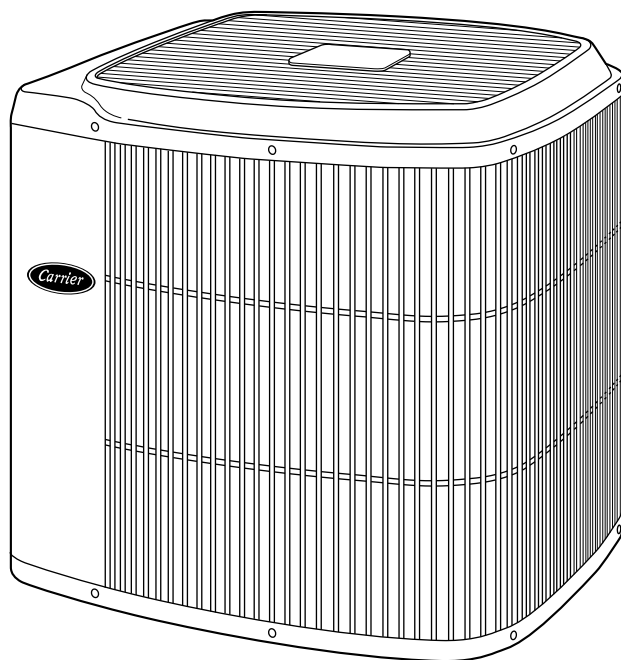




Product Data

38YSA (60 Hz) Heat Pump

Sizes 024 thru 042



The 38YSA Outdoor Sections of high efficiency Split-System Heat Pumps are designed for quiet, reliable heating during the winter and cooling during the summer. These heat pump systems provide economy of operation through energy conservation. They recover heat for indoor comfort from outdoor air during the heating season and, by automatically reversing the refrigerant system, remove indoor heat and excess humidity during the cooling season. All models are 208/230v, single phase, 60 hertz, and are listed with ARI, UL, and c-UL.

CARRIER'S TECH2000 SILENCER SYSTEM

The Silencer System features the InViroFlow design, energy-efficient fan and motor, sound hood, and discharge muffler.

InViroFlow Design — improves airflow pattern and requires less energy.

Energy-Efficient Fan and Fan Motor — adds to quiet operation while moving air more efficiently.

Sound Hood — muffles noise from operation.

Discharge Muffler — minimizes low frequency sound and pressure pulsation generated by compressor discharge gas.

FEATURES/BENEFITS

Compressor — This unit features a scroll compressor which is significantly more efficient than

conventional compressors, especially in the heating mode at low-ambient temperatures. Its simple design offers improved reliability. Each compressor is mounted on rubber isolators for additional sound reduction. The scroll compressor will start under most system loads, thus eliminating the need for start assistance components. For improved serviceability, all models are equipped with a compressor terminal plug. Continuous operation is approved down to -30°F (-34.4°C) in the heating mode and down to 55°F (12.8°C) in the cooling mode. (See heating and cooling performance tables.) The scroll compressor is covered with a standard 10-year limited warranty.

Built-In-Reliability Components — Includes a suction accumulator that keeps liquid refrigerant from reaching the compressor; a discharge thermostat to protect the scroll compressor from excessive internal discharge temperatures under extreme operating conditions, i.e. loss of charge, failure of evaporator fan; high-pressure switch for high-pressure protection; low-pressure switch for loss of

charge protection; TXV for heating operation; and a compressor sound shield.

Defrost Control Board — Incorporates a defrost relay, defrost timer, and low-voltage terminal board. The defrost control is a time/temperature initiation/termination control which includes 3 field-selectable time periods of 30, 50, and 90 minutes; and compressor short-cycle protection.

Thermostatic Expansion Valve (TXV) — In addition to the TXV on the outdoor section, this unit must be installed with a TXV on the indoor coil. The FC4 and FK4 indoor fan coils come factory equipped with a bi-flow TXV. When installed in this application, no further change is required. If any other indoor fan coil or furnace coil is used, an accessory bi-flow TXV must be installed. See accessory list in this publication for correct part number. **Use only approved coil combinations listed in this publication.**

Weather-Protective Cabinet — Steel is protected with a galvanized coating, then treated with a layer of zinc phosphate to which a coat of modified polyester powder coating is applied

and baked-on. This provides each unit with a hard, smooth finish that will last for many years.

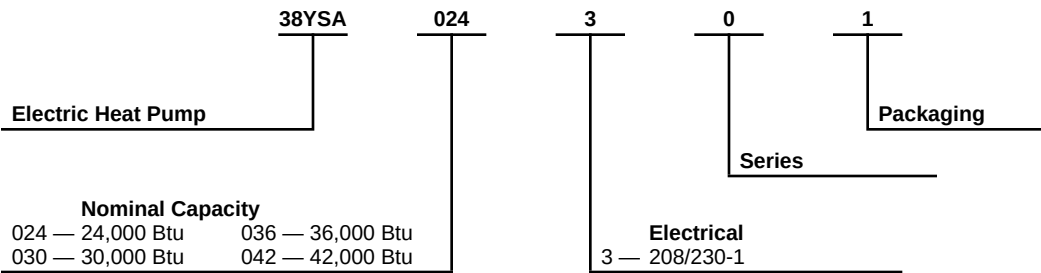
All screws on cabinet exterior are coated for a long-lasting, rust-resistant, quality appearance.

Unit Design — All units are equipped with totally enclosed fan motors for greater reliability under rain and snow conditions. The large, wraparound coil uses copper tube and enhanced sine wave aluminum fin and is designed for optimum heat transfer during heating and cooling. The vertical air discharge carries the sound and air up and away from adjacent patio areas and foliage. Rows of composite coils can be cleaned with a common garden hose.

External Service Valves — Both service valves are brass, back seating type with sweat connections. Each valve has a service port for ease of checking operating refrigerant pressures. The suction service port provides for ease of checking operating pressure in the heating mode.

Limited Warranty — Standard 1 year on all parts, with an additional 9 years on the compressor.

Model number nomenclature





CERTIFICATION APPLIES ONLY WHEN THE COMPLETE SYSTEM IS LISTED WITH ARI.



APPROVALS
ISO 9001
EN 29001
BS 5750 PART 1
ANSI/ASQC Q91



SAVING THE EARTH. SAVING YOUR MONEY.

CERTIFICATE NO. FM 28768

CERTIFICATION OF MANUFACTURING SITE

As an ENERGY STARSM Partner, Carrier Corporation has determined that this product meets the ENERGY STAR guidelines for energy efficiency.

Physical data

MODEL 38YSA	024-30	030-30	036-30	042-30
OPERATING WT (Lb)	205	233	223	243
REFRIGERANT Control Charge (Lb)	7.51	10.88	10.88	10.88
COND FAN Air Discharge Air Qty (CFM) Motor Rpm (60 hz)	22 TXV (Cooling & Heating) Propeller Type, Direct Drive Vertical 2400 825			
COND COIL Face Area (Sq Ft)	15.15	18.18		
CONNECT (In. ID) Vapor Liquid	5/8	Sweat 3/4 3/8		
REFRIG TUBES* (In. OD) Vapor Liquid	5/8	3/4 3/8		

* Tube sizes are for runs up to 50 ft. For tube set over 50 ft, consult Long-Line Application Guideline.

NOTE: See unit Installation Instructions for proper installation.

METERING DEVICE

UNIT SIZE	SERIES	OUTDOOR TXV	INDOOR TXV*
024	30	Standard	KHATX1001HSO
030	30	Standard	KHATX1101HSO
036	30	Standard	KHATX1201HSO
042	30	Standard	KHATX1201HSO

* TXV must be ordered separately when indoor coil is not equipped with a TXV. TXV listed is for any approved coil combination. All TXVs are bi-flow, hard shutoff.

Accessories

ORDERING NUMBER	DESCRIPTION
KAATD0101TDR	Time-Delay Relay
KSALA0101AAA	Low-Ambient Controller*
KAAFT0101AAA	Evaporator Freeze Thermostat‡
KHAIR0101AAA	Isolation Relay‡
Standard	Cycle Protector
N/A	Start Capacitor and Relay
KAACH1201AAA	Crankcase Heater
Standard	Sound Blanket
KHAOT0301FST	Outdoor Thermostat
KHAOT0201SEC	Secondary Outdoor Thermostat
KHASA0101AAA	Service Alarm†
KHAIC0101AAA	Interface Control (Optimizer II)
KHATX1001HSO	Bi-flow TXV (Hard Shutoff) — Size 024**
KHATX1101HSO	Bi-flow TXV (Hard Shutoff) — Size 030**
KHATX1201HSO	Bi-flow TXV (Hard Shutoff) — Sizes 036, 042**
Standard	Low-Pressure Switch
Standard	High-Pressure Switch
P504-8083S	Filter-Drier — Bi-flow
KHALS0101LLS	Liquid Solenoid Valve
KSASF0101AAA	Support Feet — 4 in.
KHASS0206MPK	Snow Rack
32LT660004 (RCD)††	Motor Master
HC38GE230 (RCD)	Ball Bearing Fan Motor
KFAEH2201H10	Smart Heat Electric Heater
KFAEH2301H15	Smart Heat Electric Heater
KFAEH2401H20	Smart Heat Electric Heater

* Isolation relay required.

† For indicator light function, thermostat specified must be used and wired according to service alarm Installation Instructions.

‡ Consult low-ambient Installation Instructions for application.

** Must be applied on coils not equipped with TXV.

†† Fan Motor with ball bearings required.

N/A — Not Applicable in this application.

THERMOSTAT PKG	DESCRIPTION
TSTATCCNHP01-A	Thermostat, Auto Changeover, Non-Programmable, °F/°C, 2-Stage Heat, 1-Stage Cool
TSTATCCPHP01-A	Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, 2-Stage Heat, 1-Stage Cool
--HH--07AT-215	Thermostat, Manual Changeover, Non-Programmable, °F, 2-Stage Heat, 1-Stage Cool
TSTATCCSEN01	Outdoor Sensor
TSTATCCPDF01-A	Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, Dual Fuel Thermostat, Must be used with Outdoor Sensor (TSTATCCSEN01)
TSTATCCP2S01-A	Thermostat, Auto Changeover, 7-Day Programmable, °F/°C, 2-Stage Heat/2-Stage Cool in AC Mode, 3-Stage Heat/2-Stage Cool in HP Mode (For Use with the FK Smart Heat Option)

Accessory description and usage (Listed alphabetically)

- 1. Crankcase Heater**
An electric resistance heater which mounts to the base of the compressor to keep the lubricant warm during off cycles. Improves compressor lubrication on restart and minimizes chance of refrigerant slugging. May or may not include a thermostat control.
SUGGESTED USE: When interconnecting tube length exceeds 50 ft.
When unit will be operated below 55°F (12.8°C) outdoor air temperature. (Use with low-ambient controller.)
All commercial installations.
- 2. Evaporator Freeze Thermostat**
An SPST temperature actuated switch which stops unit operation when evaporator reaches freeze-up conditions.
SUGGESTED USE: With low-ambient controller (Item 7).
- 3. Filter Drier — Bi-flow**
A device for removing contaminants from refrigerant circulating in a heat pump system; 2-direction flow for heat pumps.
SUGGESTED USE: Split-system heat pumps.
- 4. Interface Control**
An electric control for controlling a heat pump and gas or oil furnace system for maximum energy savings. It allows heat pump to operate down to a predetermined economic balance point temperature, then switches to allow furnace operation only below that temperature. KHAIC0101AAA requires outdoor thermostat to be adjusted for economic balance point temperature.
SUGGESTED USE: Required for all heat pump and gas- or oil-fired furnace combination systems, unless dual fuel thermostat is used.
- 5. Isolation Relay**
An SPDT relay which switches the low-ambient controller out of the outdoor fan motor circuit when the heat pump switches to heating mode.
SUGGESTED USE: All heat pumps where low-ambient controller (Item 7) has been added.
- 6. Liquid Solenoid Valve (LSV)**
An electrically operated shutoff valve to be installed at the outdoor or indoor unit (depending on tubing configuration) and which stops and starts refrigerant liquid flow in response to compressor operation. Maintains a column of refrigerant liquid ready for action at next compressor operation cycle.
SUGGESTED USE: In certain long-line applications (refer to Long-Line Application Guideline).
- 7. Low-Ambient Controller**
This solid-state head pressure controller is a fan control device activated by a temperature sensor. It is specifically designed to control outdoor fan motor cycle in response to saturated condensing temperature. For outdoor air temperatures between 55°F and 0°F (12.8°C and -17.8°C), it maintains condensing temperature of 110°F ± 10°F (43.3°C ± 5°C).
SUGGESTED USE: Cooling operation at outdoor temperatures below 55°F (12.8°C).
All commercial installations.
- 8. Motor Master**
A fan speed control device activated by a temperature sensor. Designed to control condenser fan motor speed in response to the saturated, condensing temperature during operation in cooling mode only. For outdoor temperatures down to -20°F, it maintains condensing temperature at 100°F ± 10°F.
SUGGESTED USE: Cooling operation at outdoor temperatures below 55°F.
All commercial installations.
- 9. Outdoor Thermostat**
An SPDT temperature actuated switch which turns on supplemental electric heaters when outdoor air temperature drops below set point.
SUGGESTED USE: Heat pump installations with multiple-stage supplemental heaters.
- 10. Secondary Outdoor Thermostat**
An SPDT temperature actuated switch which turns on third stage of supplemental electric heaters when outdoor air temperature drops below the second-stage set point.
SUGGESTED USE: Heat pump installations where 3-stage operation of supplemental heaters is desired.
- 11. Service Alarm**
A current-sensing lockout relay which provides immediate notification that compressor is not operating during a call for heating or cooling. Used with proper room thermostat, the thermostat light is turned on signifying service is required. This can minimize electrical cost increase due to operation of supplemental heaters only.
SUGGESTED USE: As a feature to notify owner immediately when the system is not operating most efficiently.
- 12. Snow Rack**
Coated wire rack which supports unit 18 in. above mounting pad to allow for drainage from unit base.
SUGGESTED USE: Heat pump installations in heavy snowfall areas.
Heat pump installations in snowdrift locations.
Heat pump installations in areas of prolonged subfreezing temperatures.
All commercial installations.
- 13. Support Feet**
Four stick-on plastic feet which raise the unit 4 in. above the mounting pad. This allows sand, dirt, and other debris to be flushed from the unit base; minimizes corrosion.
SUGGESTED USE: Coastal installations.
Windy areas or where debris is normally circulating.
Rooftop installations.
- 14. Thermostatic Expansion Valve (TXV) Kits**
A modulating flow-control valve which meters refrigerant liquid flow rate into the evaporator in response to the superheat of the refrigerant gas leaving the evaporator. Kit includes valve, adapter tubes, external equalizer tube.
SUGGESTED USE: Required for proper system performance. (Refer to ARI Unitary Directory.)
- 15. Time-Delay Relay**
An SPST delay relay which briefly continues operation of the indoor blower motor to provide additional cooling after the compressor cycles off.
SUGGESTED USE: For improved efficiency ratings for certain combinations of indoor and outdoor units. (Refer to ARI Unitary Directory.)

Electrical data

OUTDOOR UNIT	V/PH	OPER VOLTS*		COMPR		FAN FLA	MCA	MIN WIRE SIZE** 60°C/75°C	MAX LENGTH (FT)‡ 60°C/75°C	MAX FUSE† OR HACR TYPE CKT BKR AMPS
		Max	Min	LRA	RLA					
024-30	208/230-1	253	187	62.5	11.5	0.9	15.3	14/14	49/47	25
030-30				76.0	15.1	0.9	19.8	14/14	39/37	30
036-30				90.5	17.9	0.9	23.3	12/12	52/50	40
042-30				107.0	19.9	0.9	25.8	10/10	77/73	45

* Permissible limits of the voltage range at which unit will operate satisfactorily. Operation outside these limits may result in unit failure.

† Time-delay fuse.

‡ Length shown is as measured 1 way along the wire path between the unit and the service panel for maximum 2% voltage drop. If other than uncoated (non-plated), 60° or 75°C (140° or 167°F) insulation, cop-per wire (solid wire for 10 AWG and smaller, stranded wire for larger than 10 AWG) is used, consult applicable tables of the NEC (ANSI/NFPA 70).

** If wire is applied at ambient greater than 30°C (86°F), consult Table 310-16 of the NEC (ANSI/NFPA 70).

The ampacity of nonmetallic-sheathed cable (NM), trade name ROMEX, shall be that of 60°C (140°F) conductors, per the NEC (ANSI/NFPA 70) Article 336-30.

FLA — Full Load Amps
HACR — Heating, Air Conditioning, Refrigeration
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps
RLA — Rated Load Amps

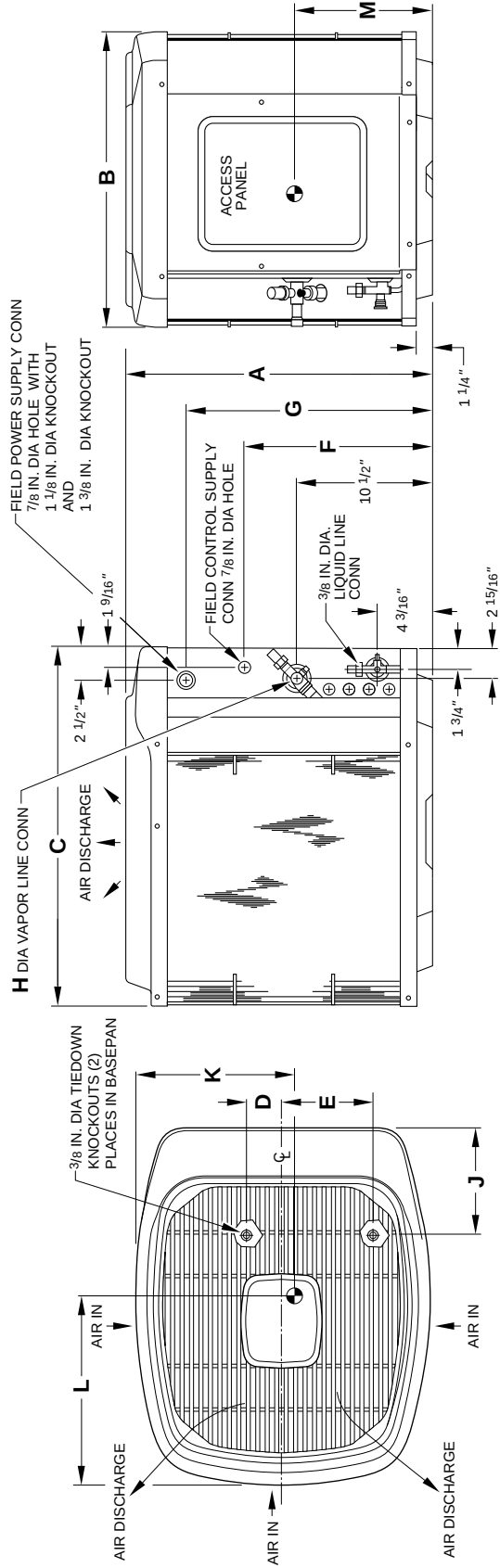
NOTES:

1. Control circuit is 24v on all units and requires external power source.
2. Copper wire must be used from service disconnect to unit.
3. All motors/compressors contain internal overload protection.

Dimensions

NOTES:

1. Allow 30 in. clearance to service side of unit, 48 in. above unit, 6 in. on one side, 12 in. on remaining side, and 24 in. between units for proper airflow.
2. Minimum outdoor operating ambient in cooling mode is 55°F (unless low ambient control is used) max 125°F.
3. Maximum outdoor operating ambient in heating mode is 66°F.
4. Series designation is the 13th position of the unit model number.
5. Center of gravity .



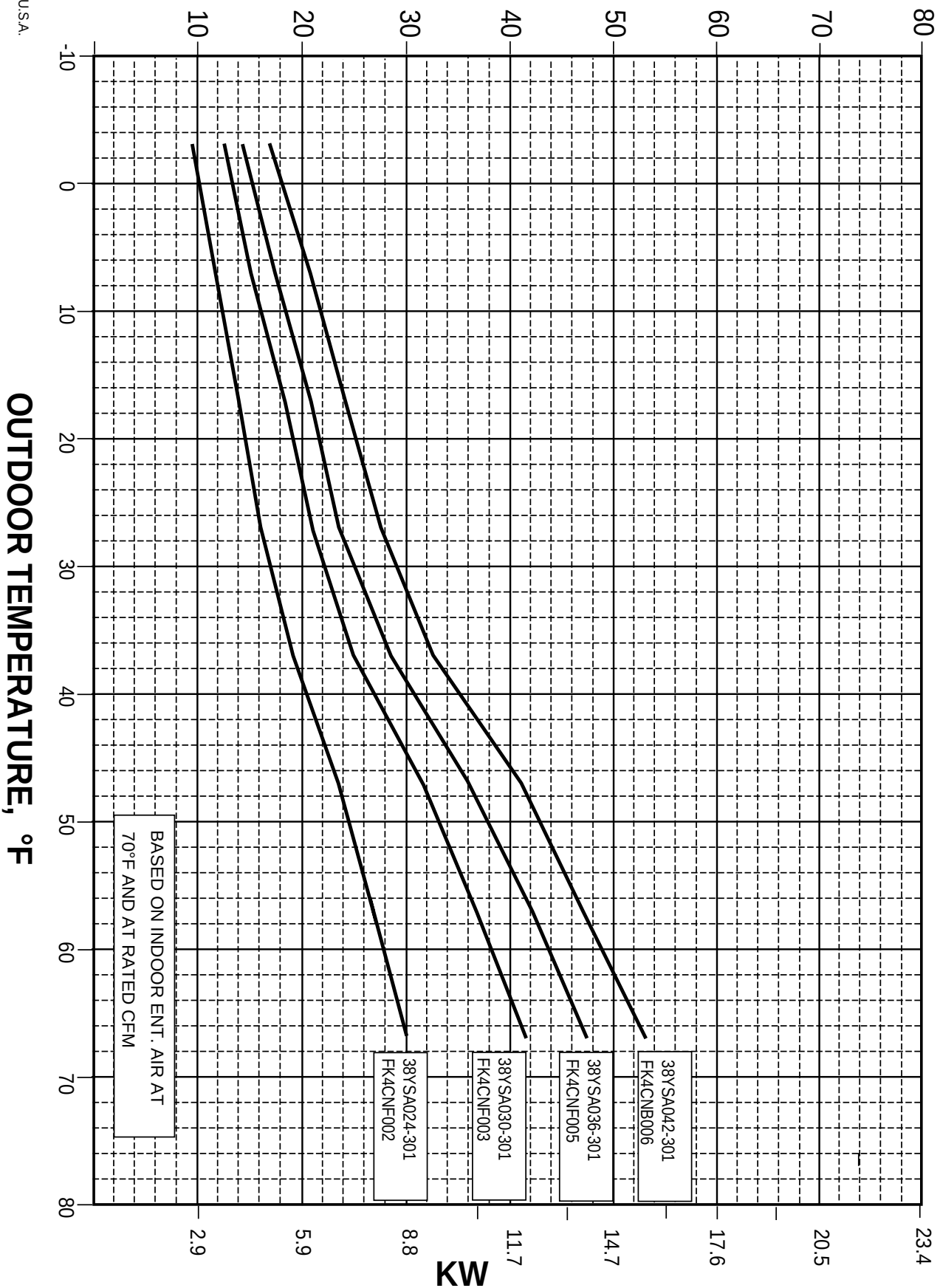
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DIMENSIONS (IN.)

UNIT SIZE	SERIES	UNIT DIMENSIONS											MINIMUM MOUNTING PAD DIMENSIONS		
		A	B	C	D	E	F	G	H	J	K	L	M	Support Feet	Snow Stand
024	0	33-13/16	30	34-15/16	4	9-3/4	21-1/2	27-7/8	5/8	8-3/16	16-13/16	20-1/2	14	26 x 32	31 x 35
030	0	39-13/16	30	34-15/16	4	9-3/4	27-1/2	33-7/8	3/4	8-3/16	16-1/2	20-3/8	15	26 x 32	31 x 35
036	0	39-13/16	30	34-15/16	4	9-3/4	27-1/2	33-7/8	3/4	8-3/16	16-1/2	20-3/8	16	26 x 32	31 x 35
042	0	39-13/16	30	34-15/16	4	9-3/4	27-1/2	33-7/8	7/8	8-3/16	16-1/2	20-3/8	15	26 x 32	31 x 35

38YSA BALANCE POINT WORKSHEET

BUILDING HEAT LOSS, 1000 BTU/HR
UNIT INTEGRATED HEATING CAPACITY, 1000 BTU/HR



A96429

Printed in U.S.A.

Combination ratings

UNIT SIZE-SERIES	INDOOR UNIT	ARI STANDARD RATINGS†								Seasonal Efficiency HSPF	Sound Rating (dBA)	
		Cooling				Heating						
		TC	Seasonal Efficiency SEER			High-Temp		Low-Temp				
			Factory-Supplied Enhance-ment	Standard Rating	Field-Supplied Accessory‡							
						TXV	TXV & TDR	TC	COP	TC	COP	
024-30	*FK4CNF002	23,200	TDR&TXV	13.80	—	—	23,600	3.50	15,400	2.52	8.80	74
	FK4CNF001	23,000	TDR&TXV	13.70	—	—	23,600	3.42	15,300	2.46	8.70	74
	FK4CNF003	23,400	TDR&TXV	14.00	—	—	23,600	3.52	15,300	2.52	8.90	74
	CJ5A/CK5A/CK5BA036	22,400	NONE	—	—	12.20	24,000	3.34	16,000	2.36	8.30	74
	CJ5A/CK5A/CK5BW036	22,400	NONE	—	—	12.20	24,000	3.34	16,000	2.36	8.30	74
	CK3BA036	22,400	NONE	—	—	12.20	24,000	3.34	16,000	2.36	8.30	74
030-30	*FK4CNF003	30,200	TDR&TXV	15.00	—	—	31,800	3.54	19,800	2.60	8.70	74
	FK4CNF002	30,000	TDR&TXV	14.50	—	—	32,000	3.52	20,000	2.58	8.70	74
	FK4CNF005	30,600	TDR&TXV	15.50	—	—	32,000	3.72	19,900	2.70	9.00	74
	CJ5A/CK5A/CK5BA042	30,000	NONE	—	—	13.50	32,000	3.44	20,800	2.46	8.20	74
	CJ5A/CK5A/CK5BN042	30,000	NONE	—	—	13.50	32,000	3.44	20,800	2.46	8.20	74
	CK3BA042	30,000	NONE	—	—	13.50	32,000	3.44	20,800	2.46	8.20	74
036-30	*FK4CNF005	35,200	TDR&TXV	14.50	—	—	36,000	3.74	22,800	2.70	8.80	74
	FK4CNB006	35,400	TDR&TXV	14.70	—	—	35,800	3.92	22,600	2.84	8.90	74
	CJ5A/CK5A/CK5BN060	35,000	NONE	—	—	13.00	36,400	3.42	23,800	2.32	8.00	74
	CJ5A/CK5A/CK5BX060	35,000	NONE	—	—	13.00	36,400	3.42	23,800	2.32	8.00	74
042-30	*FK4CNB006	40,500	TDR&TXV	13.70	—	—	41,000	3.92	26,000	2.72	8.60	74
	FB4ANB070	40,500	TDR	12.00	12.00	—	43,000	3.74	27,000	2.56	8.40	74
	FC4BNB054	40,000	TDR&TXV	12.45	—	—	42,000	3.78	26,800	2.58	8.50	74
	FC4BNB070	40,500	TDR&TXV	12.00	—	—	43,000	3.74	27,000	2.56	8.40	74
	FK4CNF005	40,000	TDR&TXV	13.40	—	—	42,000	3.66	26,200	2.54	8.40	74
	CJ5AX060	40,000	NONE	—	—	12.00	43,000	3.30	27,200	2.02	7.20	74

* Outdoor section/indoor section combination tested in accordance with DOE test procedures for heat pumps. Ratings for other combinations are determined under DOE computer simulation procedures.

† Ratings are net values reflecting the effects of circulating fan heat. Supplemental electric heat is not included. Ratings are based on:

Cooling Standard: 80°F (27°C) db 67°F (19°C) wb indoor entering air temperature and 95°F (35°C) db air entering outdoor unit.

High-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 47°F (8°C) db 43°F (6°C) wb air entering outdoor unit.

Low-Temp Heating Standard: 70°F (21°C) db indoor entering air temperature and 17°F (–9°C) db 15°F (–10°C) wb air entering outdoor unit.

‡ In most cases, only 1 method should be used to achieve TDR function. Using more than 1 method in a system may cause degradation in performance. Use either the accessory Time-Delay Relay KAATD0101TDR or a furnace equipped with TDR. All Carrier furnaces are equipped with TDR except for the 58GFA. Requires hard shutoff TXV; based on computer simulation.

SEER — Seasonal Energy Efficiency Ratio

COP — Coefficient of Performance

HSPF — Heating Seasonal Performance Factor

TC — Total Capacity (Btuh)

TXV — Thermostatic Expansion Valve

TDR — Time-Delay Relay

Detailed cooling capacities*

EVAP AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
CFM	EWB	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38YSA024-30 Outdoor Section With FK4CNF002 Indoor Section																			
630	72	27.1	13.4	1.56	26.0	13.0	1.73	25.0	12.6	1.91	23.8	12.2	2.12	22.5	11.7	2.36	21.4	11.3	2.62
	67	24.7	16.7	1.56	23.8	16.3	1.73	22.8	15.9	1.91	21.8	15.4	2.12	20.7	15.0	2.36	19.5	14.5	2.62
	63††	23.0	16.2	1.56	22.1	15.8	1.73	21.2	15.4	1.91	20.2	15.0	2.12	19.2	14.5	2.36	18.0	14.0	2.62
	62	22.6	19.8	1.56	21.7	19.4	1.73	20.8	19.0	1.91	19.9	18.6	2.12	19.0	18.1	2.36	18.0	17.6	2.62
	57	21.5	21.5	1.56	20.8	20.8	1.73	20.1	20.1	1.91	19.4	19.4	2.12	18.7	18.7	2.36	17.8	17.8	2.62
700	72	27.6	14.0	1.57	26.5	13.6	1.74	25.3	13.1	1.92	24.1	12.7	2.13	22.8	12.2	2.37	21.7	11.8	2.64
	67	25.2	17.5	1.57	24.2	17.1	1.74	23.2	16.7	1.93	22.2	16.3	2.14	21.0	15.8	2.37	19.7	15.3	2.63
	63††	23.5	17.0	1.57	22.5	16.6	1.74	21.6	16.2	1.93	20.6	15.8	2.13	19.5	15.3	2.37	18.3	14.8	2.63
	62	23.1	21.0	1.57	22.1	20.6	1.74	21.2	20.1	1.93	20.3	19.7	2.13	19.3	19.1	2.37	18.3	18.3	2.63
	57	22.4	22.4	1.58	21.6	21.6	1.74	20.8	20.8	1.92	20.1	20.1	2.13	19.2	19.2	2.37	18.3	18.3	2.63
805	72	28.2	14.7	1.58	26.9	14.3	1.75	25.7	13.8	1.94	24.6	13.5	2.15	23.3	13.0	2.39	22.0	12.6	2.65
	67	25.8	18.8	1.59	24.8	18.4	1.75	23.6	17.9	1.94	22.5	17.5	2.15	21.4	17.1	2.39	20.1	16.6	2.65
	63††	24.0	18.2	1.59	23.0	17.8	1.76	22.0	17.4	1.94	20.9	16.9	2.15	19.9	16.5	2.38	18.7	16.0	2.65
	62	23.7	22.7	1.59	22.8	22.2	1.76	21.8	21.7	1.94	20.9	20.9	2.15	20.0	20.0	2.38	19.0	19.0	2.65
	57	23.4	23.4	1.59	22.6	22.6	1.76	21.8	21.8	1.94	21.0	21.0	2.15	20.0	20.0	2.38	19.0	19.0	2.65

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CJ5A/CK5A/CK5BA	036	0.96	1.09	FK4CNF	001	0.99	1.00
CJ5A/CK5A/CK5BW	036	0.96	1.09		002	1.00	1.00
CK3BA	036	0.96	1.09		003	1.01	0.98

38YSA030-30 Outdoor Section With FK4CNF003 Indoor Section

788	72	35.0	17.4	1.92	33.8	17.0	2.11	32.3	16.4	2.32	31.0	15.9	2.56	29.5	15.4	2.83	28.0	14.8	3.12
	67	32.1	21.7	1.90	30.9	21.2	2.09	29.7	20.7	2.31	28.4	20.2	2.54	26.9	19.6	2.80	25.3	19.0	3.09
	63††	29.9	21.2	1.89	28.8	20.7	2.08	27.7	20.2	2.29	26.4	19.6	2.52	25.0	19.0	2.78	23.7	18.4	3.07
	62	29.4	25.9	1.88	28.3	25.4	2.08	27.1	24.9	2.29	25.9	24.3	2.52	24.6	23.7	2.78	23.3	23.0	3.07
	57	28.1	28.1	1.88	27.2	27.2	2.07	26.3	26.3	2.28	25.4	25.4	2.51	24.4	24.4	2.78	23.2	23.2	3.06
875	72	35.7	18.1	1.93	34.4	17.7	2.13	32.9	17.1	2.34	31.4	16.6	2.58	30.0	16.1	2.85	28.4	15.5	3.14
	67	32.7	22.9	1.92	31.5	22.4	2.11	30.2	21.8	2.32	28.9	21.3	2.56	27.3	20.7	2.82	25.7	20.1	3.10
	63††	30.5	22.2	1.90	29.3	21.7	2.09	28.1	21.2	2.31	26.9	20.7	2.54	25.4	20.0	2.80	24.1	19.5	3.09
	62	30.0	27.5	1.90	28.9	26.9	2.09	27.7	26.4	2.30	26.5	25.8	2.54	25.1	25.0	2.79	24.0	24.0	3.09
	57	29.1	29.1	1.90	28.2	28.2	2.09	27.2	27.2	2.30	26.2	26.2	2.54	25.1	25.1	2.79	24.0	24.0	3.09
1006	72	36.4	19.1	1.96	34.9	18.6	2.15	33.5	18.1	2.36	32.0	17.6	2.60	30.5	17.0	2.87	28.6	16.4	3.16
	67	33.4	24.5	1.94	32.2	24.0	2.13	30.7	23.4	2.34	29.3	22.9	2.58	27.8	22.3	2.84	26.2	21.7	3.13
	63††	31.2	23.8	1.93	30.0	23.3	2.12	28.7	22.7	2.33	27.3	22.1	2.56	25.9	21.5	2.82	24.5	21.0	3.11
	62	30.8	29.6	1.92	29.6	29.1	2.12	28.5	28.4	2.33	27.2	27.2	2.56	26.1	26.1	2.82	25.0	25.0	3.12
	57	30.4	30.4	1.92	29.4	29.4	2.11	28.4	28.4	2.33	27.4	27.4	2.56	26.0	26.0	2.82	25.0	25.0	3.12

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CJ5A/CK5A/CK5BA	042	0.99	1.12	FK4CNF	002	0.99	1.02
CJ5A/CK5A/CK5BN	042	0.99	1.12		003	1.00	1.00
CK3BA	042	0.99	1.12		005	1.01	1.00

See notes on pg. 11.

Detailed cooling capacities* continued

EVAP AIR		CONDENSER ENTERING AIR TEMPERATURES °F																	
		75			85			95			105			115			125		
CFM	EWB	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**	Capacity MBtuh†		Total Sys Kw**
		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡		Total	Sens‡	
38YSA036-30 Outdoor Section With FK4CNF005 Indoor Section																			
945	72	40.9	20.4	2.31	39.5	19.9	2.56	37.8	19.2	2.83	36.0	18.6	3.12	34.1	17.9	3.44	32.1	17.2	3.79
	67	37.6	25.5	2.28	36.3	25.0	2.53	34.7	24.3	2.80	33.1	23.7	3.09	31.3	23.0	3.41	29.5	22.2	3.75
	63††	35.1	24.9	2.26	33.9	24.4	2.51	32.5	23.7	2.77	30.9	23.0	3.06	29.4	22.4	3.38	27.7	21.6	3.73
	62	34.6	30.6	2.26	33.3	30.0	2.50	31.9	29.3	2.77	30.4	28.6	3.06	28.8	27.8	3.37	27.4	27.1	3.72
	57	33.2	33.2	2.25	32.2	32.2	2.49	31.0	31.0	2.76	29.8	29.8	3.05	28.5	28.5	3.37	27.1	27.1	3.72
1050	72	41.8	21.3	2.34	40.1	20.6	2.58	38.3	20.0	2.85	36.4	19.3	3.14	34.5	18.7	3.47	32.4	17.9	3.82
	67	38.4	26.9	2.31	36.9	26.3	2.55	35.2	25.6	2.82	33.5	24.9	3.11	31.9	24.3	3.43	30.0	23.6	3.78
	63††	35.9	26.3	2.29	34.5	25.6	2.53	32.9	24.9	2.79	31.5	24.3	3.09	29.8	23.6	3.41	28.0	22.8	3.75
	62	35.4	32.5	2.28	34.0	31.8	2.52	32.5	31.1	2.79	31.1	30.4	3.08	29.6	29.5	3.40	28.1	28.1	3.75
	57	34.3	34.3	2.27	33.3	33.3	2.52	32.1	32.1	2.78	30.8	30.8	3.08	29.4	29.4	3.40	27.9	27.9	3.75
1208	72	42.5	22.4	2.37	40.7	21.8	2.61	38.9	21.1	2.88	36.9	20.5	3.17	34.9	19.8	3.50	32.8	19.1	3.85
	67	39.2	28.9	2.34	37.5	28.2	2.58	35.8	27.5	2.85	34.2	26.9	3.14	32.5	26.2	3.47	30.6	25.5	3.81
	63††	36.7	28.1	2.32	35.0	27.4	2.56	33.7	26.8	2.83	32.1	26.1	3.12	30.2	25.3	3.44	28.4	24.6	3.78
	62	36.3	35.1	2.32	34.8	34.3	2.55	33.3	33.3	2.82	32.2	32.2	3.12	30.7	30.7	3.44	29.1	29.1	3.79
	57	35.9	35.9	2.31	34.6	34.6	2.55	33.3	33.3	2.82	31.9	31.9	3.12	30.7	30.7	3.44	29.1	29.1	3.79

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CJ5A/CK5A/CK5BN	060	0.99	1.11	FK4CNB	006	1.01	0.99
CJ5A/CK5A/CK5BX	060	0.99	1.11	FK4CNF	005	1.00	1.00

38YSA042-30 Outdoor Section With FK4CNB006 Indoor Section

1102	72	47.2	23.5	2.81	45.3	22.8	3.11	43.2	22.1	3.44	41.1	21.3	3.80	39.1	20.6	4.19	37.1	19.9	4.62
	67	43.3	29.5	2.76	41.8	28.8	3.06	39.9	28.1	3.39	38.0	27.3	3.75	35.9	26.5	4.13	33.7	25.6	4.55
	63††	40.5	28.8	2.73	39.1	28.1	3.03	37.4	27.4	3.35	35.5	26.5	3.71	33.5	25.7	4.09	31.6	24.9	4.51
	62	39.8	35.3	2.72	38.4	34.6	3.02	36.7	33.8	3.34	34.9	33.0	3.70	33.0	32.1	4.08	31.3	31.2	4.50
	57	38.3	38.3	2.70	36.9	36.9	3.00	35.7	35.7	3.33	34.5	34.5	3.69	32.9	32.9	4.08	31.4	31.4	4.50
1225	72	47.9	24.4	2.84	45.9	23.7	3.14	43.8	23.0	3.46	41.9	22.3	3.83	39.8	21.6	4.23	37.5	20.8	4.65
	67	44.0	31.0	2.79	42.4	30.4	3.09	40.5	29.6	3.42	38.5	28.8	3.78	36.3	27.9	4.16	34.0	27.1	4.58
	63††	41.2	30.2	2.76	39.7	29.6	3.06	37.9	28.8	3.38	35.9	27.9	3.73	34.2	27.2	4.12	32.3	26.4	4.54
	62	40.5	37.4	2.75	39.1	36.7	3.05	37.3	35.9	3.37	35.6	35.0	3.73	33.9	33.9	4.12	32.4	32.4	4.54
	57	39.6	39.6	2.74	38.4	38.4	3.04	36.9	36.9	3.37	35.6	35.6	3.73	34.0	34.0	4.12	32.3	32.3	4.54
1409	72	48.7	25.8	2.88	46.6	25.0	3.17	44.4	24.3	3.50	42.6	23.6	3.87	40.5	22.9	4.27	37.9	22.1	4.69
	67	44.8	33.2	2.83	43.2	32.6	3.13	41.2	31.8	3.46	39.1	31.0	3.81	36.8	30.1	4.20	34.8	29.3	4.63
	63††	42.0	32.3	2.79	40.4	31.6	3.09	38.5	30.8	3.42	36.8	30.1	3.78	34.9	29.3	4.17	32.9	28.5	4.59
	62	41.7	40.5	2.79	40.0	39.6	3.09	38.4	38.4	3.42	36.7	36.7	3.78	35.3	35.3	4.18	33.4	33.4	4.60
	57	41.2	41.2	2.79	40.0	40.0	3.09	38.4	38.4	3.42	37.0	37.0	3.78	35.3	35.3	4.17	33.4	33.4	4.60

Multipliers for Determining the Performance With Other Indoor Sections

Indoor Section	Size	Cooling		Indoor Section	Size	Cooling	
		Capacity	Power			Capacity	Power
CJ5A/CK5A/CK5BN	060	1.00	1.11	FC4BNB	054	0.99	1.11
CJ5A/CK5A/CK5BX	060	1.00	1.11		070	1.00	1.13
FB4ANB	070	1.00	1.13	FK4CNB	006	1.00	1.00
	—	—	—	FK4CNF	005	0.99	1.02

* Detailed cooling capacities are based on indoor and outdoor unit at the same elevation per ARI standard 210/240-89. If additional tubing length and/or indoor unit is located above outdoor unit, a slight variation in capacity may occur.

† Total and sensible capacities are net capacities. Blower motor heat has been subtracted.

‡ Sensible capacities shown are based on 80°F (27°C) entering air at the indoor coil. For sensible capacities at other than 80°F (27°C), deduct 835 Btuh (245 kw) per 1000 CFM (480 L/S) of indoor coil air for each degree below 80°F (27°C), or add 835 Btuh (245 kw) per 1000 CFM (480 L/S) of indoor coil air per degree above 80°F (27°C).

** System kw is total of indoor and outdoor unit kilowatts.

†† At TVA rating indoor condition (75°F edb/63°F ewb). All other indoor air temperatures are at 80°F edb.

EWB — Entering Wet Bulb.

Heat pump heating performance

INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		-3			7			17			27			37			47			57			67		
		Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr
EDB	CFM	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†
38YSA024-30 Outdoor Section With FK4CNF002 Indoor Section																									
65	630	10.6	9.77	1.62	13.0	12.0	1.67	15.5	14.1	1.72	18.0	16.0	1.79	20.8	18.9	1.85	23.7	23.7	1.92	26.7	26.7	2.00	29.7	29.7	2.09
	700	10.7	9.81	1.65	13.1	12.1	1.67	15.6	14.2	1.71	18.2	16.2	1.77	21.0	19.1	1.82	23.9	23.9	1.88	26.9	26.9	1.95	30.1	30.1	2.02
	805	10.7	9.85	1.68	13.2	12.1	1.69	15.8	14.4	1.72	18.4	16.3	1.75	21.2	19.3	1.79	24.2	24.2	1.84	27.3	27.3	1.89	30.5	30.5	1.95
70	630	10.4	9.61	1.68	12.9	11.8	1.74	15.3	13.9	1.80	17.8	15.8	1.87	20.5	18.7	1.94	23.4	23.4	2.02	26.3	26.3	2.10	29.4	29.4	2.19
	700	10.5	9.64	1.70	12.9	11.9	1.74	15.4	14.0	1.79	18.0	16.0	1.85	20.7	18.9	1.91	23.6	23.6	1.98	26.6	26.6	2.05	29.7	29.7	2.12
	805	10.5	9.68	1.73	13.0	12.0	1.76	15.6	14.2	1.79	18.2	16.1	1.83	21.0	19.1	1.88	23.9	23.9	1.93	27.0	27.0	1.99	30.1	30.1	2.05
75	630	10.3	9.44	1.74	12.7	11.6	1.81	15.1	13.7	1.88	17.6	15.6	1.96	20.3	18.4	2.04	23.1	23.1	2.12	26.0	26.0	2.21	29.0	29.0	2.31
	700	10.3	9.48	1.76	12.7	11.7	1.81	15.2	13.9	1.87	17.7	15.8	1.93	20.5	18.6	2.00	23.3	23.3	2.07	26.3	26.3	2.15	29.3	29.3	2.23
	805	10.4	9.52	1.79	12.8	11.8	1.83	15.3	14.0	1.86	17.9	15.9	1.91	20.7	18.8	1.97	23.6	23.6	2.03	26.6	26.6	2.09	29.7	29.7	2.15
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section		Size	Heating				Indoor Section		Size	Heating															
			Capacity		Power					Capacity		Power													
CJ5A/CK5A/CK5BA		036	1.02		1.06		FK4CNF		001	1.00		1.02													
CJ5A/CK5A/CK5BW		036	1.02		1.06				002	1.00		1.00													
CK3BA		036	1.02		1.06				003	1.00		0.99													
38YSA030-30 Outdoor Section With FK4CNF003 Indoor Section																									
65	788	13.7	12.6	1.98	16.6	15.3	2.04	19.9	18.1	2.15	23.5	20.9	2.27	27.5	25.1	2.41	31.9	31.9	2.57	36.6	36.6	2.74	41.6	41.6	2.92
	875	13.7	12.6	2.00	16.7	15.3	2.05	20.0	18.3	2.13	23.7	21.1	2.25	27.8	25.3	2.37	32.2	32.2	2.52	37.0	37.0	2.67	42.1	42.1	2.84
	1006	13.8	12.7	2.04	16.8	15.4	2.07	20.2	18.4	2.13	24.0	21.3	2.22	28.1	25.6	2.34	32.6	32.6	2.46	37.4	37.4	2.59	42.8	42.8	2.75
70	788	13.5	12.5	2.06	16.4	15.1	2.14	19.7	17.9	2.25	23.2	20.6	2.38	27.2	24.7	2.53	31.5	31.5	2.69	36.1	36.1	2.86	41.0	41.0	3.06
	875	13.6	12.5	2.09	16.5	15.2	2.13	19.8	18.1	2.23	23.4	20.8	2.35	27.4	25.0	2.48	31.8	31.8	2.63	36.5	36.5	2.79	41.5	41.5	2.97
	1006	13.7	12.6	2.12	16.6	15.3	2.16	20.0	18.2	2.22	23.7	21.0	2.32	27.8	25.3	2.44	32.2	32.2	2.58	37.0	37.0	2.72	42.2	42.2	2.87
75	788	13.4	12.4	2.15	16.3	15.0	2.24	19.5	17.7	2.35	23.0	20.4	2.49	26.9	24.5	2.65	31.1	31.1	2.81	35.7	35.7	3.00	40.5	40.5	3.20
	875	13.5	12.4	2.17	16.4	15.1	2.23	19.6	17.9	2.34	23.2	20.6	2.46	27.1	24.7	2.60	31.4	31.4	2.76	36.0	36.0	2.93	41.0	41.0	3.11
	1006	13.6	12.5	2.21	16.5	15.2	2.25	19.8	18.0	2.32	23.4	20.8	2.43	27.4	24.9	2.56	31.8	31.8	2.69	36.5	36.5	2.84	41.6	41.6	3.01
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section		Size	Heating				Indoor Section		Size	Heating															
			Capacity		Power					Capacity		Power													
CJ5A/CK5A/CK5BA		042	1.01		1.04		FK4CNF		002	1.01		1.02													
CJ5A/CK5A/CK5BN		042	1.01		1.04				003	1.00		1.00													
CK3BA		042	1.01		1.04				005	1.01		0.96													

See notes on pg. 13.

Heat pump heating performance continued

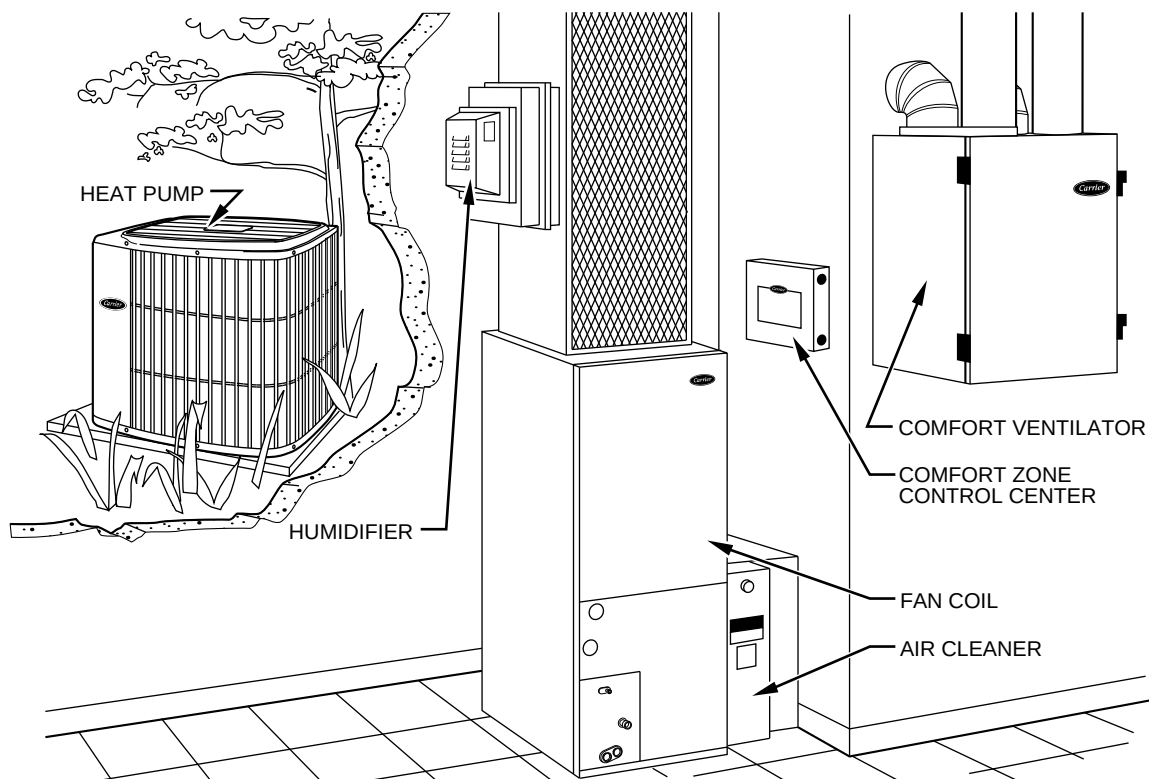
INDOOR AIR		OUTDOOR COIL ENTERING AIR TEMPERATURES °F																							
		-3			7			17			27			37			47			57			67		
		Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr	Capacity (MBtuh)		Total Pwr
EDB	CFM	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†	Total	Integ*	Kw†
38YSA036-30 Outdoor Section With FK4CNF005 Indoor Section																									
65	945	15.8	14.6	2.16	19.2	17.7	2.29	23.0	20.9	2.43	27.0	24.0	2.54	31.5	28.7	2.70	36.4	36.4	2.85	41.8	41.8	3.04	47.4	47.4	3.22
	1050	15.9	14.6	2.15	19.3	17.7	2.27	23.0	20.9	2.38	27.3	24.2	2.49	31.5	28.7	2.63	36.4	36.4	2.78	41.7	41.7	2.92	47.3	47.3	3.08
	1208	16.0	14.7	2.15	19.3	17.8	2.24	23.0	21.0	2.35	27.0	24.0	2.45	32.3	29.4	2.56	36.4	36.4	2.68	41.6	41.6	2.80	47.4	47.4	2.96
70	945	15.6	14.4	2.28	19.1	17.6	2.43	22.7	20.7	2.56	26.8	23.8	2.69	31.2	28.4	2.85	36.1	36.1	3.02	41.4	41.4	3.20	47.2	47.2	3.42
	1050	15.7	14.4	2.26	19.1	17.5	2.40	22.8	20.8	2.52	26.8	23.8	2.65	31.3	28.4	2.79	36.0	36.0	2.92	42.1	42.1	3.09	47.1	47.1	3.28
	1208	15.8	14.5	2.24	19.1	17.6	2.36	22.8	20.8	2.47	26.8	23.8	2.59	31.3	28.5	2.72	36.0	36.0	2.82	41.3	41.3	2.96	47.0	47.0	3.11
75	945	15.4	14.2	2.36	19.2	17.6	2.52	22.5	20.5	2.68	26.6	23.6	2.85	31.1	28.3	3.04	35.8	35.8	3.20	41.2	41.2	3.40	46.9	46.9	3.62
	1050	15.4	14.2	2.37	18.8	17.3	2.51	22.6	20.6	2.67	26.5	23.6	2.78	31.0	28.2	2.96	35.8	35.8	3.11	41.2	41.2	3.29	46.9	46.9	3.47
	1208	15.5	14.3	2.36	18.9	17.4	2.50	22.7	20.7	2.60	26.6	23.6	2.73	31.0	28.2	2.85	35.7	35.7	2.99	41.1	41.1	3.15	46.9	46.9	3.31
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section		Size		Heating				Indoor Section		Size		Heating													
				Capacity		Power						Capacity		Power											
CJ5A/CK5A/CK5BN		060		1.01		1.10		FK4CNB		006		0.99		0.94											
CJ5A/CK5A/CK5BX		060		1.01		1.10		FK4CNF		005		1.00		1.00											
38YSA042-30 Outdoor Section With FK4CNB006 Indoor Section																									
65	1102	18.7	17.2	2.38	22.5	20.7	2.49	26.7	24.3	2.60	31.1	27.6	2.73	36.0	32.8	2.85	41.3	41.3	2.99	47.2	47.2	3.15	53.4	53.4	3.33
	1225	18.8	17.3	2.36	23.9	21.9	2.47	26.8	24.4	2.58	31.1	27.6	2.68	36.1	32.8	2.79	41.4	41.4	2.92	47.4	47.4	3.07	53.4	53.4	3.21
	1409	18.8	17.3	2.36	22.6	20.8	2.45	26.8	24.4	2.55	31.2	27.7	2.63	36.2	32.9	2.73	41.6	41.6	2.84	47.4	47.4	2.95	53.6	53.6	3.08
70	1102	18.4	16.9	2.48	22.2	20.4	2.61	26.4	24.1	2.74	30.8	27.4	2.86	35.8	32.6	3.01	41.0	41.0	3.15	46.8	46.8	3.32	53.2	53.2	3.53
	1225	18.5	17.0	2.47	22.3	20.5	2.59	26.5	24.1	2.70	30.9	27.4	2.82	35.7	32.5	2.94	41.0	41.0	3.07	46.9	46.9	3.22	53.3	53.3	3.40
	1409	18.6	17.1	2.47	22.4	20.6	2.57	26.5	24.2	2.67	30.9	27.4	2.77	35.9	32.6	2.88	41.1	41.1	2.99	47.1	47.1	3.12	53.3	53.3	3.26
75	1102	18.1	16.7	2.59	22.0	20.2	2.73	26.2	23.9	2.88	30.5	27.1	3.02	35.4	32.3	3.17	40.8	40.8	3.34	46.6	46.6	3.52	52.7	52.7	3.71
	1225	18.2	16.8	2.58	22.0	20.3	2.71	26.2	23.9	2.84	30.6	27.1	2.97	35.5	32.3	3.10	40.7	40.7	3.24	46.5	46.5	3.39	52.6	52.6	3.56
	1409	18.3	16.9	2.58	22.1	20.3	2.69	26.3	24.0	2.81	30.6	27.2	2.91	35.5	32.3	3.03	40.8	40.8	3.15	46.5	46.5	3.27	52.6	52.6	3.42
Multipliers for Determining the Performance With Other Indoor Sections																									
Indoor Section		Size		Heating				Indoor Section		Size		Heating													
				Capacity		Power						Capacity		Power											
CJ5A/CK5A/CK5BN		060		1.03		1.13		FC4BNB		054		1.02		1.06											
CJ5A/CK5A/CK5BX		060		1.03		1.13		FC4BNB		070		1.04		1.10											
FB4ANB		070		1.04		1.10		FK4CNB		006		1.00		1.00											
		—		—		—		FK4CNF		005		1.02		1.10											

* The Btuh heating capacity values shown are net "integrated" values from which the defrost effect has been subtracted. The Btuh heating from supplement heaters should be added to those values to obtain total system capacity.

† The kw values include the compressor, outdoor fan motor, and indoor blower motor. The kw from supplement heaters should be added to these values to obtain total system kilowatts.

EDB — Entering Dry Bulb.

Matched system



A93474

System Design

1. Intended for outdoor installation with free air inlet and outlet. Outdoor fan external static pressure available is less than 0.01-in. wc.
2. Minimum outdoor operating air temperature for cooling mode without low-ambient operation accessory is 55°F (12.8°C).
3. Maximum outdoor operating air temperature for cooling mode is 125°F (51.7°C).
4. Minimum outdoor operating air temperature for heating mode is -30°F (-34.4°C).
5. Maximum outdoor operating air temperature for heating mode is 66°F (18.9°C).
6. For reliable operation, unit should be level in all horizontal planes.
7. Maximum elevation of indoor coil above or below base of outdoor unit is: indoor coil above = 50 ft, indoor coil below = 150 ft. (See items 8 and 9 following.)
8. For interconnecting refrigerant tube lengths greater than 50 ft, consult Long-Line Application Guideline available from equipment distributor.
9. Not more than 36 in. of refrigerant tube should be buried in the ground. If necessary to bury tubes under a sidewalk, provide a minimum 6-in. vertical rise to the valve connections at the unit.
10. Use only copper wire for electric connection at unit. Aluminum and clad aluminum are not acceptable for the type of connector provided.

SERVICE TRAINING

Packaged Service Training programs are an excellent way to increase your knowledge of the equipment discussed in this manual, including:

- Unit Familiarization
- Maintenance
- Installation Overview
- Operating Sequence

A large selection of product, theory, and skills programs is available, using popular video-based formats and materials. All include video and/or slides, plus companion book.

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