

10AC DIPLOMAT™ SERIES CONDENSING UNITS RFC II™ SYSTEMS 10.05 to 10.30 SEER

*12,300 to 62,500 Btuh Cooling Capacity
(1 thru 5 Nominal Tons)

*ARI and DOE Certified Ratings

Bulletin No. 480194
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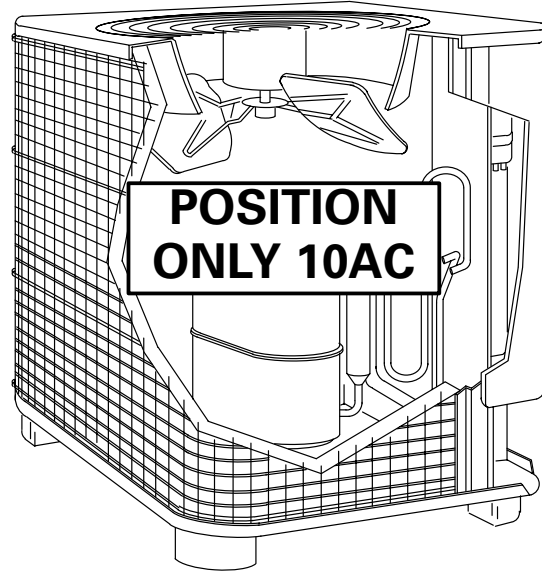
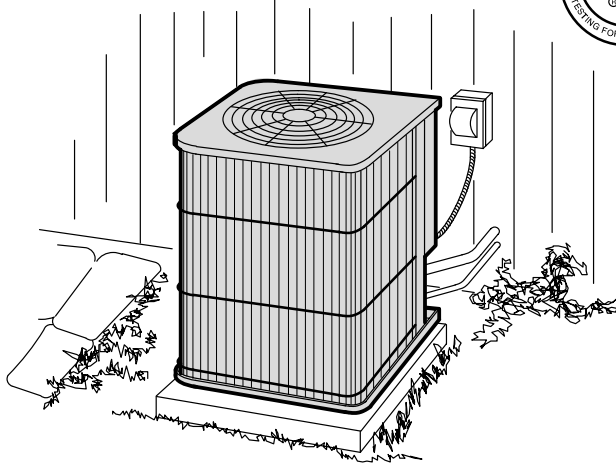
CERTIFICATION APPLIES ONLY
WHEN THE COMPLETE
SYSTEM IS LISTED
WITH ARI



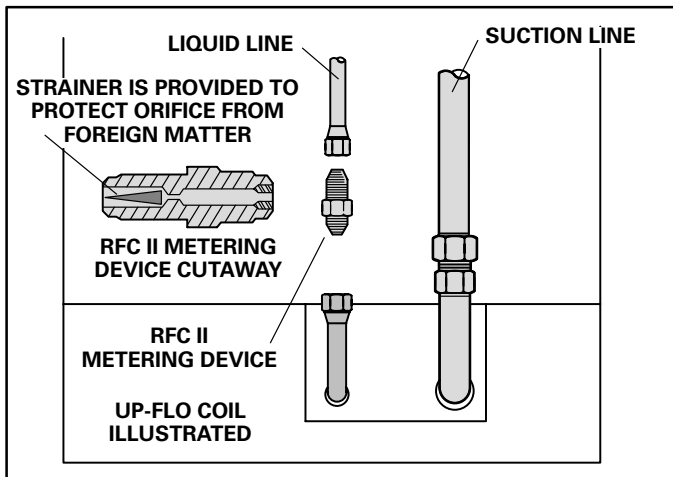
CERTIFICATION APPLIES ONLY
WHEN USED WITH PROPER
COMPONENTS AS LISTED
WITH ARI



Typical Application



FEATURES



Refrigerant Flow Control II (RFC II) — RFC II is a very accurate means of metering refrigerant in a system. Refrigerant metering control is accomplished by the exact sizing of a RFC II refrigerant metering device. The whole principle of the RFC system involves the matching evaporator coil, and the proper bore sizing of the orifices (primary and secondary) within the metering device. RFC II metering device is furnished with the condensing unit. RFC II system equalizes pressure almost instantly after the compressor stops. Therefore, unit starts unloaded, eliminating the need for any additional controls.

Application — 10AC series RFC II model condensing units feature high efficiency with minimum operating sound levels. Extra large condensing coil, coil circuiting and high condenser air volume result in high SEER's. Units are applicable to RFC II systems only and may be installed at ground level or on a roof. Units match up to a variety of blower powered or add-on evaporators for a wide selection of cooling capacities for selective sizing and application versatility. For evaporator unit data, see tab Coils — Blower Coil Units in this section. Units are shipped completely assembled, piped and wired. Each unit is test operated at the factory to insure proper operation. Installer has only to set unit in desired location, connect refrigerant lines and make electrical connections to complete a low cost installation.

Approvals — Condensing units have been tested and rated according to U.S. Department of Energy (DOE) test procedures and in accordance with ARI Standard 210/240-89. Units have been sound rated in a reverberant sound test room in accordance with ARI Standard 270-84. Condensing units and components within are bonded for grounding to meet safety standards for servicing required by U.L. and N.E.C. Units are also U.L. listed.

Equipment Warranty — Compressor has a limited warranty for five years. All other components have a limited warranty for one year. Refer to the Equipment Limited Warranty certificate included with the unit for details.

Weather Resistant Cabinet and Base Section — Heavy gauge galvanized steel cabinet and base section are subjected to a five station metal wash process prior to a finish coat application of baked-on outdoor enamel. Attractive enamel finish provides the cabinet and base section with long lasting protection from rust and corrosion. Drainage holes are provided in the base section for moisture removal. High density polyethylene base supports raise the unit off of the mounting surface away from damaging moisture.

Accessible Control Box — Conveniently located for easy access. All controls are pre-wired at the factory.

Copper Tube/Enhanced Fin Coil — Condenser coil is constructed of precisely spaced ripple-edged aluminum fins machine fitted to seamless copper tubes. Four-sided wrap-around coil configuration provides extra large surface area with low air resistance. Lanced fins provide maximum exposure of the fin surface to air stream resulting in excellent heat transfer. Fins are equipped with collars that grip the tubing for maximum contact area. Precise circuiting provides uniform refrigerant distribution for high efficiency. Flared shoulder tubing connections and silver soldering result in tight, leakproof joints. Long-life copper tubing is corrosion-resistant and easy to field service. Coil is factory tested under high pressure to insure leakproof construction. Entire coil is accessible for cleaning. Corrosion-resistant PVC (polyvinyl chloride) coated steel wire condenser coil guard is furnished as standard.

Refrigerant Line Connections, Electrical Inlets and Service Valves — Suction and liquid line connections are located outside of the unit cabinet and are made with sweat connections. Fully serviceable brass service valves prevent corrosion and provide easy access to refrigerant system. Suction valve can be fully shut off, while the liquid valve may be backseated to manage refrigerant charge while servicing the system. Field installed thermometer well is furnished for installation in the liquid line. Valves and gauge ports are accessible outside of the unit cabinet. See dimension drawing.

FEATURES (Continued)

Dependable and Quiet Compressor — Compressor is hermetically sealed and provides trouble-free operation and long service life. Built-in protection devices assure protection from excessive current and temperatures. Refrigeration cooled and overload protected. 10AC12 is equipped with a rotary compressor. 10AC42, 10AC48 and 10AC60 models are furnished with a crankcase heater as standard equipment to ensure proper compressor lubrication. Heater is temperature actuated to operate only when required. The compressor components are spring mounted within the sealed housing. In addition, the compressor is installed in the unit on resilient rubber mounts for quiet and vibration free operation. Muffler, factory installed in discharge line, reduces operating sound levels on 10AC36, 10AC42, 10AC48 and 10AC60 models.

OPTIONAL EQUIPMENT (Must Be Ordered Extra)

Crankcase Heater (Optional) — Available for 10AC18 thru 10AC42 models. Crankcase heaters P-8-8852 (68887) are not furnished and must be ordered extra. Heater prevents migration of liquid refrigerant into the compressor and ensures proper compressor lubrication. 10AC42, 10AC48 and 10AC60 model compressors are equipped with crankcase heaters furnished as standard.

Timed-Off Control (Optional)— Timed-Off Control LB-50709BA (32F21) is available for field installation. Prevents compressor short-cycling and also allows time for suction and discharge pressure to equalize, permitting the compressor to start in an unloaded condition. Automatic reset control provides a time delay between compressor shutoff and start-up. Furnished as standard with 10AC60 model.

Thermostat (Optional) — Thermostat is not furnished with the unit and must be ordered extra. See Thermostats bulletin in Accessories Section.

Powerful Condenser Fan — Efficient direct drive fan moves large air volumes uniformly through the entire condenser coil resulting in high refrigerant cooling capacity. Vertical discharge of air minimizes operating sounds and eliminates hot air damage to lawn and shrubs. Fan motor is inherently protected and totally enclosed for maximum protection from weather, dust and corrosion. Rain shield on motor provides additional protection from moisture. Fan service access is provided by removal of the fan guard. Corrosion-resistant PVC (polyvinyl chloride) coated steel wire fan guard is furnished as standard with unit.

Mounting Base (Optional) — Mounting base provides a permanent foundation for condensing units. High density polyethylene structural material is lightweight, sturdy, sound absorbing and will withstand the effects of sun, heat, cold, moisture, oil and refrigerant. Will not mildew or decompose. Can be shipped singly or in packages of six to a carton. Use MB1-24 (78H50) 32" x 34" x 3", shipping weight 15 lbs. each.

Refrigerant Line Kits (Optional) — Lines are available in several lengths. See Refrigerant Line Kit table. Lines (suction and liquid) are shipped refrigeration clean. Lines are cleaned, dried and pressurized and sealed at the factory. Suction line is fully insulated. Lines are furnished with a flare fitting (evaporator unit connection) at one end and stubbed (no fitting) at the opposite end for connection to condensing unit.

SPECIFICATIONS

Model No.		10AC12	10AC18	10AC24	10AC30	
Condenser Coil	Net face area (sq. ft.)	Outer coil	12.60	12.60	12.60	14.70
		Inner coil	----	----	----	----
	Tube diameter (in.) & no. of rows		3/8 — 1	3/8 — 1	3/8 — 1	3/8 — 1
	Fins per inch		20	20	20	20
Condenser Fan	Diameter (in.) & no. of blades		20 — 3	20 — 3	20 — 3	20 — 3
	Motor hp		1/6	1/6	1/6	1/6
	Cfm		2500	2500	2500	2700
	Rpm		850	850	850	850
	Watts		200	200	200	205
*Refrigerant — 22 charge furnished		4 lbs. 4 oz.	4 lbs. 12 oz.	5 lbs. 5 oz.	5 lbs. 9 oz.	
Liquid line (o.d. in.) connection (sweat)		**3/8	***3/8	***3/8	3/8	
Suction line (o.d. in.) connection (sweat)		1/2	5/8	5/8	3/4	
Shipping weight (lbs.) 1 package		121	153	154	168	

*Refrigerant charge sufficient for 20 ft. length of refrigerant lines.

**Furnished with 3/8" x 1/4" reducer adaptor for refrigerant line connections.

***Furnished with 3/8" x 5/16" reducer adaptor for refrigerant line connections.

SPECIFICATIONS

Model No.		10AC36	10AC42	10AC48	10AC60	
Condenser Coil	Net face area (sq. ft.)	Outer coil	14.70	14.70	20.00	20.00
		Inner coil	----	9.80	----	15.40
	Tube diameter (in.) & no. of rows		3/8 — 1	3/8 — 1.67	3/8 — 1	3/8 — 1.77
	Fins per inch		20	20	20	20
Condenser Fan	Diameter (in.) & no. of blades		20 — 3	20 — 3	24 — 4	24 — 4
	Motor hp		1/6	1/6	1/4	1/4
	Cfm		2700	2450	3900	4000
	Rpm		840	840	835	830
	Watts		205	210	340	355
*Refrigerant — 22 charge furnished		5 lbs. 12 oz.	9 lbs. 3 oz.	8 lbs. 13 oz.	11 lbs. 2 oz.	
Liquid line (o.d. in.) connection (sweat)		3/8	3/8	3/8	3/8	
Suction line (o.d. in.) connection (sweat)		3/4	7/8	7/8	1-1/8	
Shipping weight (lbs.) 1 package		182	223	238	271	

*Refrigerant charge sufficient for 20 ft. length of refrigerant lines.

ARI RATINGS

Condensing Unit Model No. *ARI Standard 270 SRN (bels)	●ARI Standard 210/240 Ratings				Evaporator Unit		
	SEER (Btuh/Watts)	EER (Btuh/Watts)	Cooling Capacity (Btuh)	Total Unit Watts	Up-Flo	Down-Flo	Horizontal
10AC12 (7.4)	10.30	10.00	12,300	1230	**CB18-21	----	**CBS18-21
	10.30	10.00	12,400	1230	C16-21FF/FC	CR16-21FF	----
	10.30	10.20	12,600	1235	----	----	CH16-21FF
10AC18 (7.6)	10.05	9.85	18,600	1890	C16-21FF/FC	CR16-21FF	----
	10.05	10.15	19,000	1870	**CB18-21	----	**CBS18-21
	10.05	10.00	19,000	1895	----	----	CH16-21FF
10AC24 (7.6)	10.05	9.35	23,600	2520	**CB18-26	----	**CBS18-26
	10.05	9.50	23,800	2505	C16-31FF/FC, C16-31WFF/FC	CR16-31FF	CH16-31FF
	10.05	9.50	24,000	2520	C16-28FF/FC, C16-28WFF/FC	----	----
10AC30 (7.6)	10.05	9.40	28,600	3050	C16-31FF/FC, C16-31WFF/FC	CR16-31FF	----
	10.05	9.45	29,000	3065	C16-28FF/FC, C16-28WFF/FC	----	----
	10.05	9.50	29,200	3070	----	----	CH16-31FF
	10.05	9.60	29,400	3060	**CB18-31	----	**CBS18-31
10AC36 (7.6)	10.05	9.60	36,000	3740	C16-41FF/FC, C16-41WFF/FC	CR16-41FF	----
	10.05	9.65	36,200	3750	**CB18-41	----	**CBS18-41
	10.05	9.80	37,000	3780	----	----	CH16-41FF
10AC42 (8.0)	10.05	9.40	41,500	4410	C16-41FF/FC, C16-41WFF/FC	CR16-41FF	----
	10.05	9.55	41,500	4345	**CB18-41	----	**CBS18-41
	10.05	9.45	42,000	4435	C16-46FF/FC, C16-46WFF/FC	----	----
	10.05	9.55	42,500	4455	----	----	CH16-41FF
10AC48 (8.0)	10.05	9.00	48,500	5405	C16-51FF/FC	CR16-51FF	----
	10.05	9.10	49,500	5440	**CB18-51	----	**CBS18-51
	10.05	9.15	50,000	5470	----	----	CH20-51
10AC60 (8.2)	10.05	9.45	60,000	6345	C16-65, C16-65FC	CR16-65	----
	10.05	9.60	62,000	6410	**CB18-65	----	**CBS18-65
	10.05	9.70	62,500	6445	----	----	CH20-65

● Rated in accordance with ARI Standard 210/240 and DOE; 95°F outdoor air temperature, 80°F db / 67°F wb entering evaporator air with 20 ft. of connecting refrigerant lines.

* Sound Rating Number in accordance with ARI Standard 270.

** Blower powered evaporator.

REFRIGERANT LINE KITS

Condensing Unit Model No.	Line Set Model No.	Length of Suct. & Liq. lines (ft.)	Liquid Line (o.d. in.)	Suction Line (o.d. in.)
**10AC12	*Not available	----	**3/8	1/2
**10AC18 **10AC24	L10-21-20	20	**3/8	5/8
	L10-21-25	25	**3/8	5/8
	L10-21-35	35	**3/8	5/8
	L10-21-50	50	**3/8	5/8
10AC30 10AC36	L10-41-20	20	3/8	3/4
	L10-41-30	30	3/8	3/4
	L10-41-40	40	3/8	3/4
	L10-41-50	50	3/8	3/4
10AC42 10AC48	L10-65-30	30	3/8	7/8
	L10-65-40	40	3/8	7/8
	L10-65-50	50	3/8	7/8
10AC60	*Not available	----	3/8	1-1/8

*Field fabricate.

**10AC12, 10AC18 & 10AC24 units will accept 3/8" liquid lines. Adaptors are furnished with condensing units allowing use with 1/4" liquid line (10AC12) and 5/16" liquid line (10AC18 & 10AC24).

ELECTRICAL DATA

Model No.		10AC12	10AC18	10AC24	10AC30
Line voltage data		208/230v 60hz-1ph	208/230v 60hz-1ph	208/230v 60hz-1ph	208/230v 60hz-1ph
Compressor	Rated load amps	5.0	8.6	9.8	12.2
	Power factor	.97	.97	.96	.99
	Locked rotor amps	26.3	49.0	56.0	71.0
Condenser Coil Fan Motor	Full load amps	1.1	1.1	1.1	1.1
	Locked rotor amps	1.7	1.7	1.7	1.7
Rec. max. fuse or circuit breaker size (amps)		15	20	20	25
*Minimum circuit ampacity		7.4	12.0	13.4	16.4

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

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

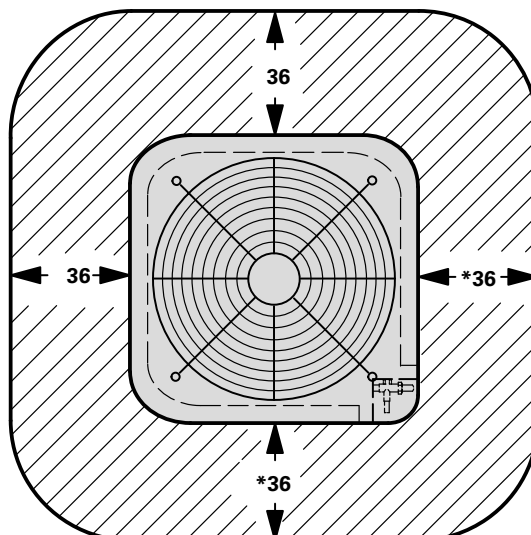
ELECTRICAL DATA

Model No.		10AC36	10AC42	10AC48	10AC60
Line voltage data — 60 hz		208/230v 60hz-1ph	208/230v 1ph	208/230v 1ph	208/230v 1ph
Compressor	Rated load amps	16.3	22.0	22.5	30.8
	Power factor	.99	.99	.97	.98
	Locked rotor amps	86.7	105.0	110.0	147.0
Condenser Coil Fan Motor	Full load amps	1.1	1.1	1.7	1.7
	Locked rotor amps	1.7	1.7	3.1	3.1
Rec. max. fuse or circuit breaker size (amps)		35	50	50	60
*Minimum circuit ampacity		21.5	28.6	30.0	40.2

*Refer to National Electrical Code manual to determine wire, fuse and disconnect size requirements.

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

INSTALLATION CLEARANCES (inches)

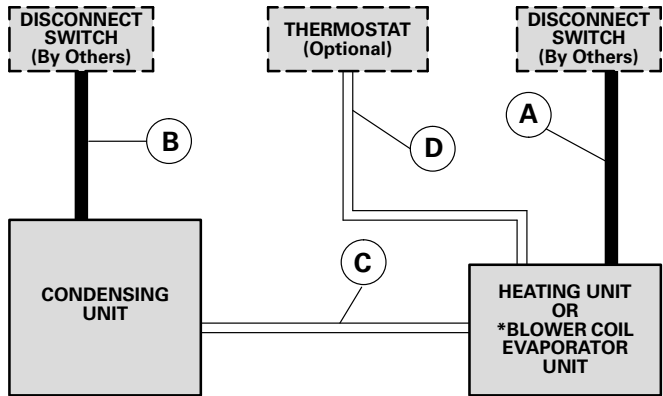


NOTE—48 inch clearance required on top of unit.

*NOTE—One side must be 36 inches for service.

Two of the remaining three sides may be 12 inches.

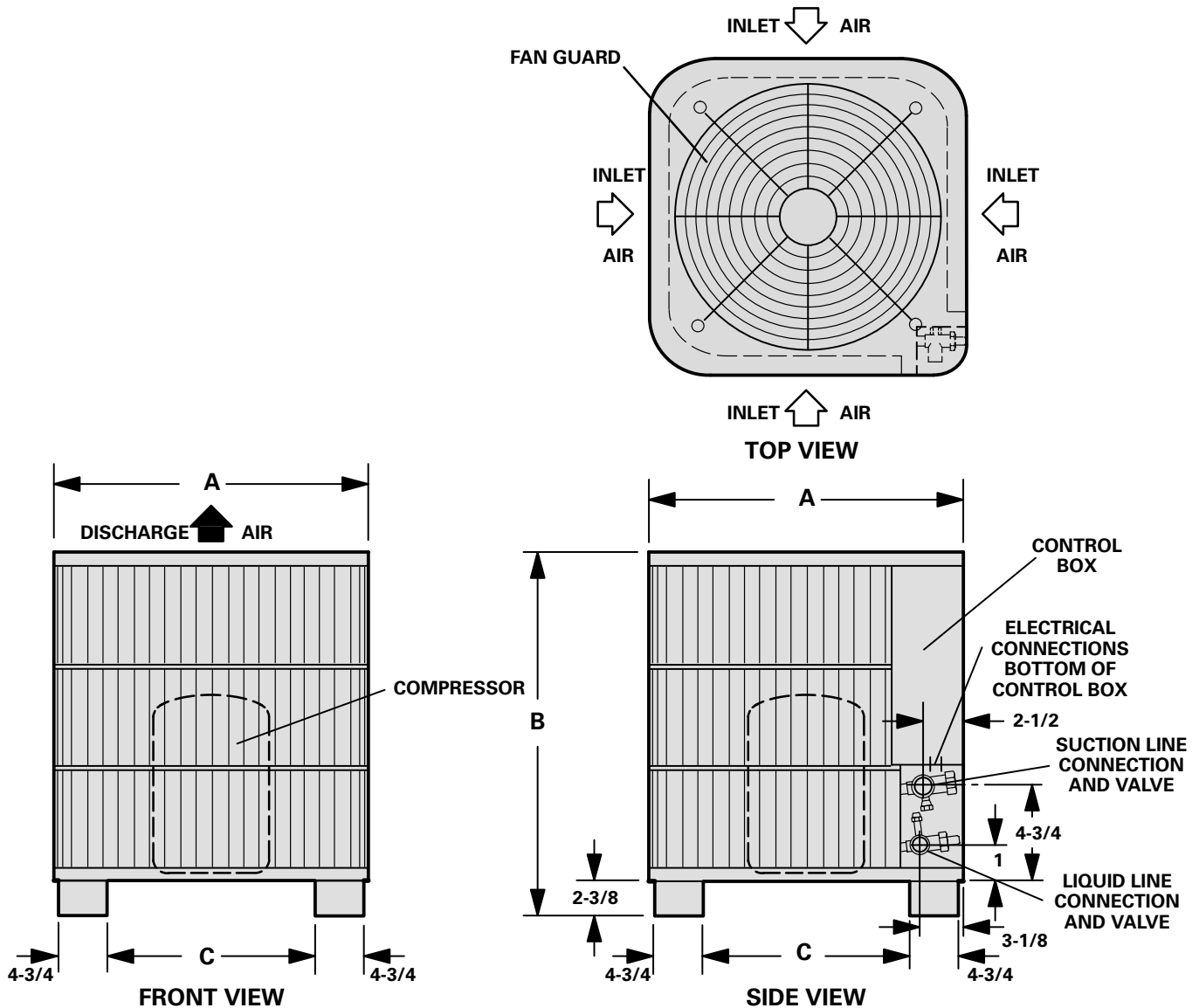
FIELD WIRING



- A — Two Wire Power (not furnished)
- B — Two or Three Wire Power (not furnished) — See Electrical Data
- C — Two Wire Low Voltage (not furnished) — 18 ga. minimum
- D — Four Wire Low Voltage (not furnished) — 18 ga. minimum

All wiring must conform to NEC and local electrical codes.

DIMENSIONS (inches)



Model No.	A	B	C
10AC12, 10AC18, 10AC24	26-3/8	26-3/8	16-7/8
10AC30, 10AC36	26-3/8	30-3/8	16-7/8
10AC42, 10AC48, 10AC60	31-5/16	34-3/8	21-3/16

RATINGS

NOTE — To determine Sensible Capacity, Leaving Wet and Dry Bulb temperatures not shown in the tables, see Miscellaneous Engineering Data section, page 9.

10AC60 WITH CB18-65 OR CBS18-65 EVAPORATOR UNIT

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85			95			105			115										
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)							
				Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)							
		75	80	85			75	80	85			75	80	85			75	80	85		
63	1700	61,000	4790	.72	.85	.96	59,600	5280	.73	.86	.98	57,000	5630	.74	.88	.99	54,300	5980	.76	.90	1.00
	2000	63,200	4860	.75	.89	1.00	61,800	5360	.76	.90	1.00	59,100	5720	.78	.92	1.00	56,200	6070	.80	.95	1.00
	2300	65,100	4920	.78	.93	1.00	63,800	5420	.80	.94	1.00	60,600	5790	.81	.96	1.00	57,600	6150	.83	.98	1.00
67	1700	64,700	4910	.57	.69	.81	63,300	5420	.58	.70	.83	60,600	5790	.58	.72	.84	57,600	6140	.59	.73	.86
	2000	67,000	4980	.59	.72	.85	65,400	5500	.60	.74	.87	62,400	5870	.60	.75	.89	59,600	6240	.61	.77	.91
	2300	68,500	5040	.61	.75	.89	67,300	5560	.61	.77	.91	64,200	5940	.63	.79	.93	61,000	6310	.64	.80	.96
71	1700	68,600	5040	.44	.55	.67	67,100	5560	.44	.56	.68	64,300	5940	.44	.57	.69	61,300	6320	.44	.58	.70
	2000	70,800	5100	.44	.57	.70	69,300	5640	.45	.58	.71	66,300	6030	.45	.59	.73	63,100	6410	.45	.60	.75
	2300	72,600	5150	.45	.59	.73	71,000	5700	.46	.60	.74	67,900	6090	.46	.61	.76	64,500	6480	.46	.62	.78

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.

10AC60 WITH CH20-65 EVAPORATOR UNIT

Enter. Wet Bulb (°F)	Total Air Vol. (cfm)	Outdoor Air Temperature Entering Condenser Coil (°F)																			
		85			95			105			115										
		Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)			Total Cool. Cap. (Btuh)	Comp. Motor Watts Input	Sensible To Total Ratio (S/T)							
				Dry Bulb (°F)					Dry Bulb (°F)					Dry Bulb (°F)							
		75	80	85			75	80	85			75	80	85			75	80	85		
63	1700	62,000	4830	.71	.83	.95	60,700	5320	.72	.84	.96	58,000	5680	.73	.86	.99	55,200	6030	.74	.88	1.00
	2000	64,100	4900	.73	.87	.99	62,800	5400	.74	.88	1.00	60,000	5760	.76	.90	1.00	57,000	6120	.77	.93	1.00
	2300	65,800	4950	.76	.90	1.00	64,400	5460	.77	.92	1.00	61,400	5830	.79	.94	1.00	58,700	6190	.80	.96	1.00
67	1700	65,500	4940	.56	.68	.79	64,200	5450	.57	.69	.81	61,400	5820	.58	.70	.83	58,600	6190	.58	.72	.84
	2000	67,700	5000	.58	.71	.83	66,400	5530	.58	.72	.85	63,500	5910	.59	.73	.87	60,500	6290	.60	.75	.89
	2300	69,600	5060	.59	.73	.87	68,100	5590	.60	.75	.89	65,100	5980	.61	.76	.91	62,000	6360	.62	.78	.93
71	1700	68,800	5030	.43	.55	.66	67,500	5570	.43	.55	.67	64,700	5960	.43	.56	.68	61,800	6350	.44	.57	.69
	2000	71,100	5110	.44	.56	.68	69,800	5650	.44	.57	.69	66,800	6050	.44	.58	.71	63,700	6440	.44	.59	.72
	2300	73,000	5170	.44	.58	.71	71,500	5720	.44	.59	.72	68,500	6120	.45	.60	.74	65,200	6510	.45	.61	.76

NOTE — All values are gross capacities and do not include evaporator coil blower motor heat deduction.