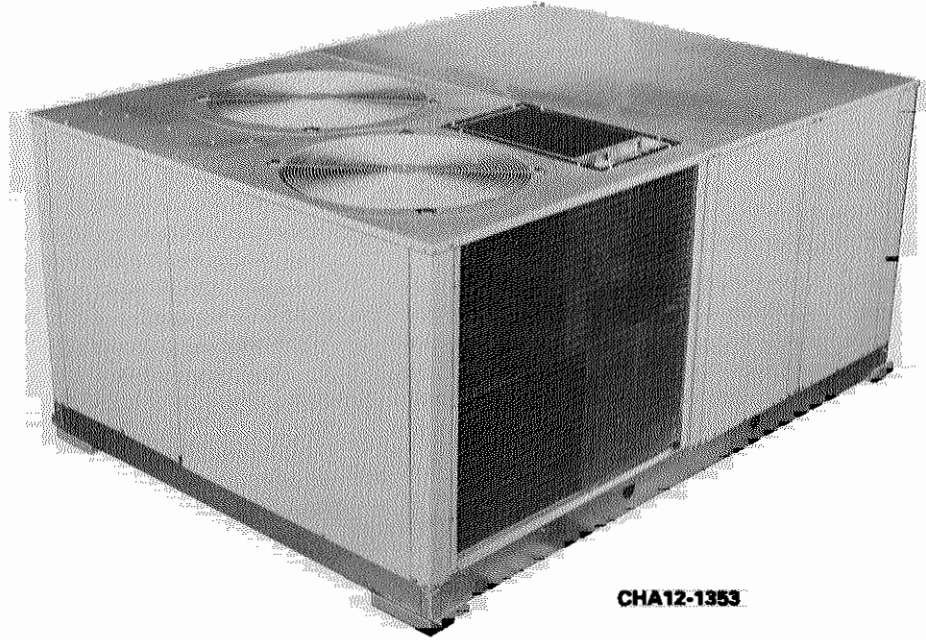


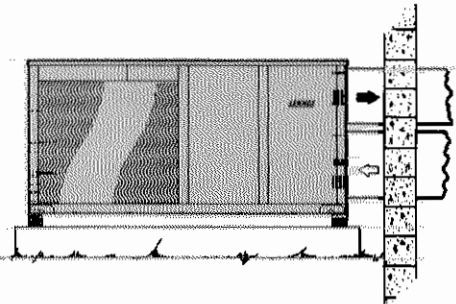


SINGLE PACKAGE AIR CONDITIONERS — 60 Hz
CHA12-953 & CHA12-1353 — HORIZONTAL
 *27.8 to 37.5 kW (95 000 to 128 000 Btuh) Cooling Capacity
 11.3 to 60.0 kW (38 600 to 204 700 Btuh) Optional Electric Heat
 *At ARI Standard 210 Test Conditions

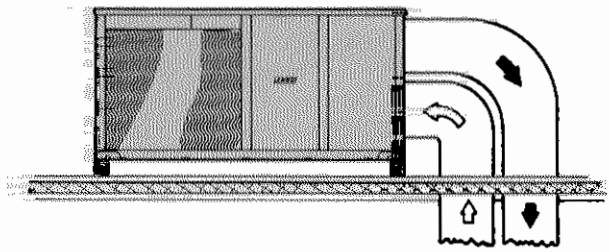


CHA12-1353

AIR PATTERN



Ground Level Slab Installation



Rooftop Installation

High Efficiency Single Package Air Conditioners Feature Application Flexibility and Energy Saving Operation.

The CHA12 series single package DX air conditioning units are designed for installation on a slab at grade level or on a rooftop minimizing installation costs and saving floor space within the building. End handling of supply and return air provides ease of duct connections. Top discharge of condenser air results in reduced operational sound level and eliminates possibility of recirculation. The choice of supply blower motor horsepower provides a wide range of blower performance to meet all application requirements. Units are available for cooling only or cooling with electric heat. Optional electric heaters are available factory or field installed and are located downstream from the supply air blower within the unit cabinet. The insulated cabinet is constructed of heavy gauge galvanized steel with a durable baked-on outdoor enamel finish for maximum protection from the weather. The compact cabinet houses highly efficient air cooled DX cooling components, powerful belt drive blower, air filters and heating option. The factory sealed DX

cooling consists of two independent refrigeration systems including separate compressors and their independent condenser coil and fan with a separate circuit in the single evaporator coil, refrigerant lines connected and a full refrigerant charge. Lennox augments its reliable operating components with a full complement of standard comfort and safety controls for both the cooling system and heating option. A deluxe wall mounted heating-cooling Celsius thermostat is furnished as standard with the unit. The CHA12 units have been thoroughly tested and rated in the Lennox Research Laboratory environmental test room at ARI Standard 210 test conditions. Additionally, the units have been tested in the Lennox sound test room according to ARI Standard 270. Units and components within are bonded for grounding to meet safety standards for servicing required by Underwriters Laboratory (U.L.) and U.S. National Electrical Code (NEC). Units are shipped factory assembled, piped and wired. In addition, each unit is test operated at the factory.

NOTE — Specifications, Ratings, and Dimensions subject to change without notice.

FEATURES — 60 Hz

Durable Cabinet — Rugged leaktight cabinet is constructed of heavy gauge galvanized steel. Cabinet is subject to a five station zinc phosphate metal wash process resulting in a perfect bonding surface for a paint finish of baked-on outdoor enamel. Long lasting enamel finish provides maximum protection from the weather. Large removable panels allow complete service access. Electrical inlets are provided in the cabinet for wiring entry. Wiring junction box and control boxes with all controls factory installed are conveniently located for service access. Specially designed lifting brackets are furnished on each corner of the base for ease of handling and rigging. Drainage holes in base rails provide moisture removal.

Cabinet Insulation — Base section and cabinet panels exposed to conditioned air are lined with thick fiberglass insulation. This results in quiet and efficient operation due to the excellent acoustical and insulating qualities of fiberglass. The cabinet panels have 76 mm (3 inch) thick 8 kg/m³ (1/2 lb/ft³) density fiberglass insulation and the base 13 mm (1/2 inch) thick 96 kg/m³ (6 lb/ft³) density. Insulation is sandwiched between the cabinet panel and a galvanized steel panel liner protecting the insulation indefinitely. It will never erode or tear away from a panel to clog or impair unit operation.

Refrigeration System — Complete factory sealed refrigerant system consists of compressors, condenser coils and direct drive fans, evaporator (dual circuits) and blower, expansion valves, high and low pressure switches, refrigerant lines connected and a full operating charge of refrigerant. Dual independent refrigerant circuits provide staging control to fit varying cooling load requirements and increase operating efficiency.

Hi-Capacity Drier — Furnished as standard and factory installed. Drier traps any moisture or dirt that could contaminate the refrigerant system.

Lennox Evaporator and Condenser Coils — Extra large surface area and circuiting of Lennox designed coils provide maximum cooling efficiency, excellent heat transfer and low air resistance. Lennox fabricated coils are constructed of precisely spaced ripple-edged aluminum fins fitted to durable copper tubes. Fins are equipped with collars that grip tubing for maximum contact area. Flared shoulder tubing connections and silver soldering provide tight, leakproof joints. Long life copper tubing is easy to field service. Coil is thoroughly factory tested under high pressure to insure leakproof construction. The evaporator coil is face split with two separate circuits. Each circuit has its separate expansion valve, condensing coil, fan, compressor and refrigerant charge.

Drain Pan — Deep, corrosion resistant evaporator coil drain pan is constructed of heavy gauge galvanized steel. Equipped with dual drain pipes.

Dependable, Quiet Compressors — Reliable, dual compressors are hermetically sealed and provide trouble free operation and long service life. Built in protection devices assure protection from excessive current and temperature. Suction cooled, overload protected and equipped with internal pressure relief. The entire running gear assembly is spring mounted within the sealed housing and the compressor is installed in the unit on resilient rubber mounts assuring quiet and vibration free operation.

Compressor Crankcase Heater — Furnished and factory installed. Prevents migration of liquid refrigerant into the compressor and ensures proper compressor lubrication at all times.

Efficient Condenser Fans — Two direct drive fans draw large air volumes uniformly through dual condenser coils and discharges it vertically, up and away from building. Fan orifice design and low fan tip speed keeps operating sound level at a minimum. Uniform air flow through the coils result in high refrigerant cooling capacity. Permanently lubricated, overload protected, ball bearing fan motor is totally enclosed for maximum protection from rain, dust and corrosion. A rain shield on the motor provides additional protection from moisture. Motor is resiliently mounted. Corrosion resistant PVC coated steel wire fan guards are furnished.

Powerful Supply Air Blower — Belt drive centrifugal blower delivers large air volume efficiently and with minimum power consumption. Blower assembly is mounted to rugged angle iron frame with the entire blower and frame assembly vibration isolated on rubber mounts. Ball bearings are permanently sealed and lubricated. Blower wheel is statically and dynamically balanced. Design of motor mounting base permits quick and simple motor changeover, belt tension adjustment or belt changing. A choice of motor horsepower and drives is available. Adjustable motor pulley allows for variable speed adjustments. Motor is overload protected.

Air Filters — 25 mm (1 in.) thick frame type throwaway filters are furnished as standard. Fiberglass media is oil impregnated for increased efficiency. Filters are easily accessible for quick and simple replacement. Filter rack will also hold optional 51 mm (2 in.) thick fiberglass throwaway filters which are available for field installation.

Optional Electric Heat — Available factory or field installed. Helix wound nichrome heating elements are exposed directly in the air stream resulting in instant heat transfer, lower coil temperatures and long service life. Elements are accurately located and insulated from the heavy gauge steel support frame by high quality insulators. Elements are equipped with discharge air limit control and backup replaceable limits providing positive protection in case of overheating. The larger heaters are two stage controlled with each stage being energized only when required.

Thermostat (Furnished) — A deluxe wall mounted combination heating-cooling Celsius thermostat and switching subbase is furnished as standard equipment. Thermostat is two stage cooling and two stage heating. It is equipped with a temperature setting dial, system selector switch (OFF — HEAT — AUTO — COOL) and fan switch (AUTO — ON). Fan switch provides a choice of intermittent (AUTO) or continuous (ON) blower operation.

Optional SP11 Remote Status Panel — The operation of the unit can be checked at a glance on the Remote Status Panel (25C91) conveniently located within the conditioned area. Signal lights on the panel indicate "Cool Mode", "Heat Mode", "Compressor 1", "Compressor 2", "No Heat" and "Filter". The cool mode signal light is green when lit and indicates cooling operation. Heat Mode light is green when lit and reflects heating operation. Compressor 1 and Compressor 2 lights are green when operating and will turn red if there is an operational malfunction. The No Heat and Filter lights are red when lit and indicate a requirement for service. Additional field installed controls are required for use with the Status Panel and must be specified when ordering. Filter switch kit (59C95) is used in conjunction with the Filter light. Units with electric heat require a current sensing relay (59C94) for operation of No Heat light. The Status Panel is 70 mm (2-3/4 in.) wide by 114 mm (4-1/2 in.) high with mounting holes.

Optional Night Setback Controls — Time clock (55C12) is available for field installation in the unit. 24 hour skip day clock with carryover automatically program the unit for night setback operation. Two manual nite setback control kits are available to control nite setback operation or to override the timeclock: a manual nite setback switch and stainless steel mounting plate (BM-4762) or a manual set 12 hour nite setback timer and stainless steel mounting plate (BM-4761). A Celsius nite thermostat (62A97) is available.

Optional Low Ambient Control Kit — System will operate satisfactorily down to 2°C (35°F) outdoor air temperature without additional controls. If air conditioning operation is required below 2°C (35°F) a field installed low ambient control kit (34C24) can be added enabling the unit to operate down to minus 18°C (0°F).

Optional Disconnect Mounting Kit — Field installed kit (56C78) provides a suitable mounting location outside of unit for a remote disconnect switch.

SPECIFICATIONS — 60 Hz

Model No.		CHA12-953	CHA12-1353
★ARI Standard 270 Sound Rating Number (SRN)		21	22
Total capacity — kW (Btuh)		28.7 (95 000)	37.5 (128 000)
*Cooling Capacity @ARI Standard 210 Conditions	Total power input — kW	11.9	16.0
	Coefficient of Performance (Output/Input)	2.3	2.3
	Energy Efficiency Ratio (Btuh/Watt)	8.0	8.0
	Dehumidifying capacity	28%	28%
Refrigerant (R-22) charge		6.9 kg (15 lbs. 2 oz.)	10.0 kg (22 lbs.)
Blower wheel nominal diameter x width — mm (in.)		(1) 381 x 229 (15 x 9)	(1) 381 x 381 (15 x 15)
Blower motor output — kW (hp)	Minimum	1.5 (2)	2.2 (3)
	Maximum	2.2 (3)	3.7 (5)
Condenser Coil	Net face area — m ² (sq. ft.)	1.4 (14.6)	1.8 (19.8)
	Tube diam. — mm (in.) & No. of rows	10 (3/8) — 3	10 (3/8) — 3
	Fins/m (fins per inch)	787 (20)	787 (20)
Condenser Fans	Diameter — mm (in.) & No. of blades	(2) 508 (20) — 4	(2) 610 (24) — 4
	Air volume — m ³ /s (cfm)	2.83 (6000)	4.01 (8500)
	Motor output — watts (hp)	(2) 249 (1/3)	(2) 373 (1/2)
	Motor input — watts (total)	850	1150
Evaporator Coil	Net face area — m ² (sq. ft.)	0.77 (8.3)	1.1 (12.0)
	Tube diam. — mm (in.) & No. of rows	13 (1/2) — 3	13 (1/2) — 3
	Fins/m (fins per inch)	591 (15)	591 (15)
**No. & Size of filters	mm	(3) 406 x 508 x 25	(4) 406 x 508 x 25
	inches	(3) 16 x 20 x 1	(4) 16 x 20 x 1
Condensate drain — female pipe thread — mm (in.)		19 (3/4)	19 (3/4)
Net weight of basic unit — kg (lb.) (1 package)		545 (1200)	716 (1580)

★Rated in accordance with Air-Conditioning and Refrigeration Institute (ARI) Standard 270.

*Rated at Air-Conditioning and Refrigeration Institute (ARI) Standard 210 conditions: 80 L/s evaporator air volume per kW of cooling (450 cfm per ton), 35°C (95°F) outdoor air temperature, 26.7°C (80°F) dry bulb and 19.4°C (67°F) wet bulb entering evaporator air.

**Optional 51mm (2 in.) thick throwaway filters are available for field installation.

ELECTRICAL DATA — 60 Hz

Model No.		CHA12-953				CHA12-1353			
Line voltage (60 Hz — 3 phase)		208/230V		460V		208/230V		460V	
Voltage range (min. — max.)		187 - 253V		414 - 506V		187 - 253V		414 - 506V	
Compressor No.1	Rated load (A)	14.1		7.1		19.0		9.2	
	Locked rotor (A)	76.0		37.0		132.0		66.0	
Compressor No.2	Rated load (A)	14.1		7.1		20.0		9.5	
	Locked rotor (A)	76.0		37.0		132.0		66.0	
Condenser	Full load (A)	(2) 2.1		(2) 1.1		(2) 3.5		(2) 1.5	
	Locked rotor (A)	(2) 4.6		(2) 2.3		(2) 6.2		(2) 2.8	
Fan Motors (1 phase)	Output — kW (hp)	1.5 (2)	2.2 (3)	1.5 (2)	2.2 (3)	2.2 (3)	3.7 (5)	2.2 (3)	3.7 (6)
	Full load (A)	7.5	10.6	3.4	4.8	10.8	18.7	4.8	7.6
	Locked rotor (A)	46.0	56.0	23.0	28.0	56.0	90.0	28.0	45.0
Unit power factor		0.89	0.88	0.89	0.88	0.89	0.88	0.89	0.88
*Minimum Circuit Ampacity (A)		43.4	46.5	21.6	23.0	61.6	67.7	28.9	31.7
*Maximum Fuse Size (A)		50	60	25	30	80	80	35	40

*Determined in accordance with the U.S. National Electrical Code. Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 75°C (167°F).

CHA12-953 OPTIONAL ELECTRIC HEAT DATA — 60 Hz

Electric Heat Model No. & Shipping Wt.	No. of Elements & (Steps)	Volts Input	Heating Capacity		1.5 kW (2 hp)		2.2 kW (3 hp)	
			kW	Btuh	*Minimum Circuit Ampacity(A)	*Maximum Fuse Size(A)	*Minimum Circuit Ampacity(A)	*Maximum Fuse Size(A)
ECH12-95-15 24 kg (52 lbs.)	1 (1)	208	11.3	38 600	47.3	60	51.6	60
		220	12.6	43 000				
		230	13.8	47 100				
		240	15.0	51 200				
ECH12-95-15 24 kg (52 lbs.)	1 (1)	440	12.6	43 000	25.8	30	27.9	30
		460	13.8	47 100				
		480	15.0	51 200				
		208	22.5	76 800				
220	25.2	86 000						
230	27.6	94 200						
240	30.0	102 400						
ECH12-95-30 24 kg (54 lbs.)	2 (1)	440	25.2	86 000	47.4	50	49.5	50
		460	27.6	94 200				
		480	30.0	102 400				
		208	33.8	115 300				
220	37.8	129 000						
230	41.3	140 900						
240	45.0	153 600						
†ECH12-95-45 27 kg (59 lbs.)	3 (3)	440	37.8	129 000	69	80	71.1	80
		460	41.3	140 900				
		480	45.0	153 600				
		208	45.1	153 900				
220	50.4	172 000						
230	55.1	188 000						
240	60.0	204 700						
†ECH12-95-60 29 kg (64 lbs.)	4 (4)	440	50.4	172 000	90.6	100	92.8	100
		460	55.1	188 000				
		480	60.0	204 700				
		208	45.1	153 900				

*Determined in accordance with the U.S. National Electrical Code. Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 75°C (167°F).

†Two stage control.

CHA12-1353 OPTIONAL ELECTRIC HEAT DATA — 60 Hz

Electric Heat Model No. & Shipping Wt.	No. of Elements & (Steps)	Volts Input	Heating Capacity		2.2 kW (3 hp)		3.7 kW (5 hp)	
			kW	Btuh	*Minimum Circuit Ampacity(A)	*Maximum Fuse Size(A)	*Minimum Circuit Ampacity(A)	*Maximum Fuse Size(A)
ECH12-135-15 24 kg (52 lbs.)	1 (1)	208	11.3	38 600	61	80	65.6	80
		220	12.6	43 000				
		230	13.8	47 100				
		240	15.0	51 200				
ECH12-135-15 24 kg (52 lbs.)	1 (1)	440	12.6	43 000	30.5	40	33.3	40
		460	13.8	47 100				
		480	15.0	51 200				
		208	22.5	76 800				
†ECH12-135-30 25 kg (56 lbs.)	2 (2)	220	25.2	86 000	99	100	104.8	110
		230	27.6	94 200				
		240	30.0	102 400				
		440	25.2	86 000				
ECH12-135-30 24 kg (54 lbs.)	2 (1)	460	27.6	94 200	49.3	50	52.8	60
		480	30.0	102 400				
		208	33.8	115 300				
		220	37.8	129 000				
†ECH12-135-45 27 kg (59 lbs.)	3 (3)	230	41.3	140 900	129.8	150	135.5	150
		240	45.0	153 600				
		440	37.8	129 000				
		460	41.3	140 900				
†ECH12-135-45 26 kg (58 lbs.)	3 (2)	480	45.0	153 600	70.9	80	74.4	80
		208	45.1	153 900				
		220	50.4	172 000				
		230	55.1	188 000				
†ECH12-135-80 29 kg (64 lbs.)	4 (4)	240	60.0	204 700	168.9	190	174.6	200
		440	50.4	172 000				
		460	55.1	188 000				
		480	60.0	204 700				
†ECH12-135-80 29 kg (64 lbs.)	4 (2)	440	50.4	172 000	92.5	100	96.0	100
		460	55.1	188 000				
		480	60.0	204 700				

†Two stage control.

*Determined in accordance with the U.S. National Electrical Code. Refer to local electrical codes to determine wire, fuse and disconnect size requirements. Use wires suitable for at least 76°C (167°F).

DIMENSIONS — mm (inches)

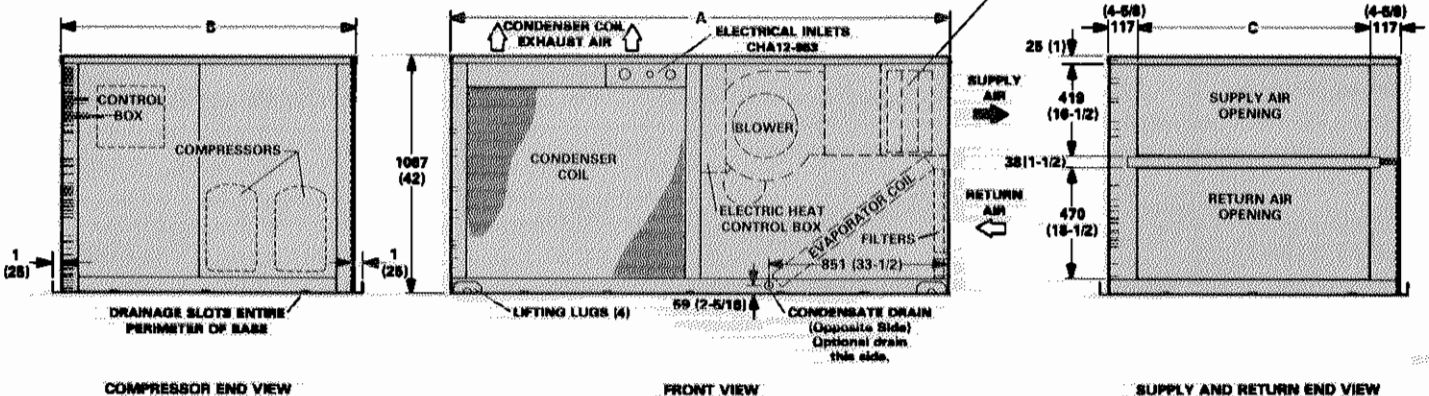
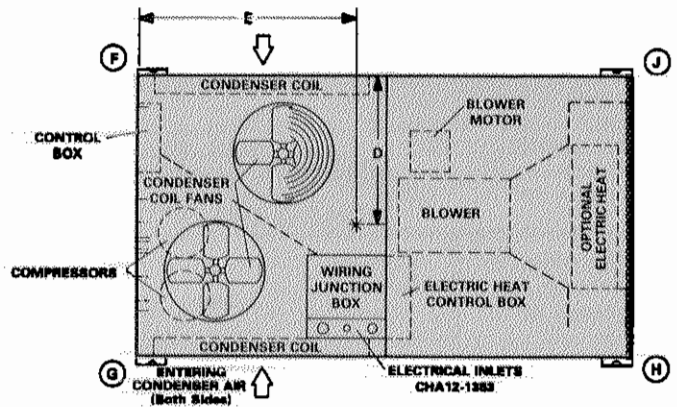
CHA12-953 AND CHA12-1353

CENTER OF GRAVITY

Model No.	D		E	
	mm	in.	mm	in.
CHA12-953	648	25-1/2	946	37-1/4
CHA12-1353	876	34-1/2	1064	41-7/8

CORNER WEIGHTS

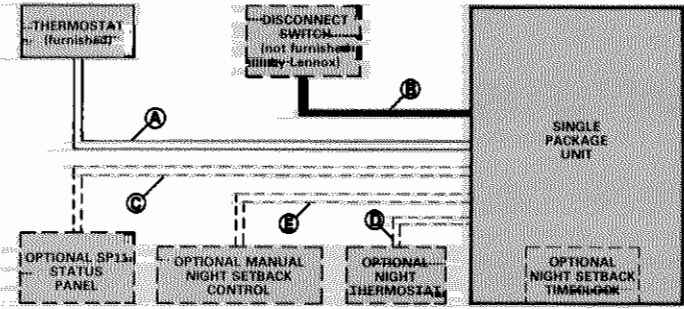
Model No.	F		G		H		J	
	kg	lbs.	kg	lbs.	kg	lbs.	kg	lbs.
CHA12-953	152	335	162	357	119	263	112	245
CHA12-1353	196	432	199	440	162	357	159	351



Model No.	A		B		C	
	mm	in.	mm	in.	mm	in.
CHA12-953	2232	87-7/8	1270	50	1035	40-3/4
CHA12-1353	2372	93-3/8	1727	68	1492	58-3/4

FIELD WIRING

CHA12-953 & CHA12-1353 COOLING AND ELECTRIC HEAT

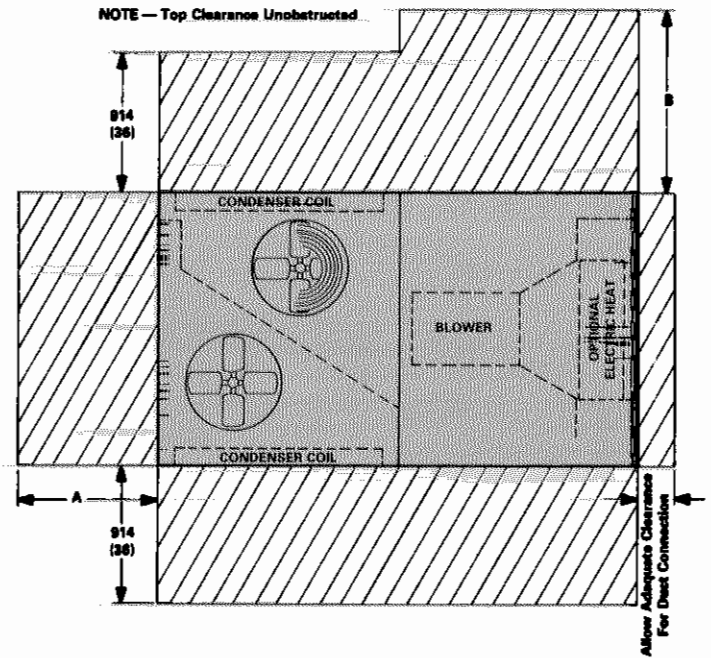


All wiring must conform to local electrical codes.
If local electrical code permits may be class 2 wiring.

- †A — Four wire 24 volt (Two Stage Cool Only)
- Five wire 24 volt (Two Stage Cool & Single Stage Heat)
- Six wire 24 volt (Two Stage Cool & Two Stage Heat)
- B — Three phase power (See Electrical Data Table)
- †C — Nine wire 24 volt.
- †D — Two wire 24 volt.
- †E — Two wire 24 volt.

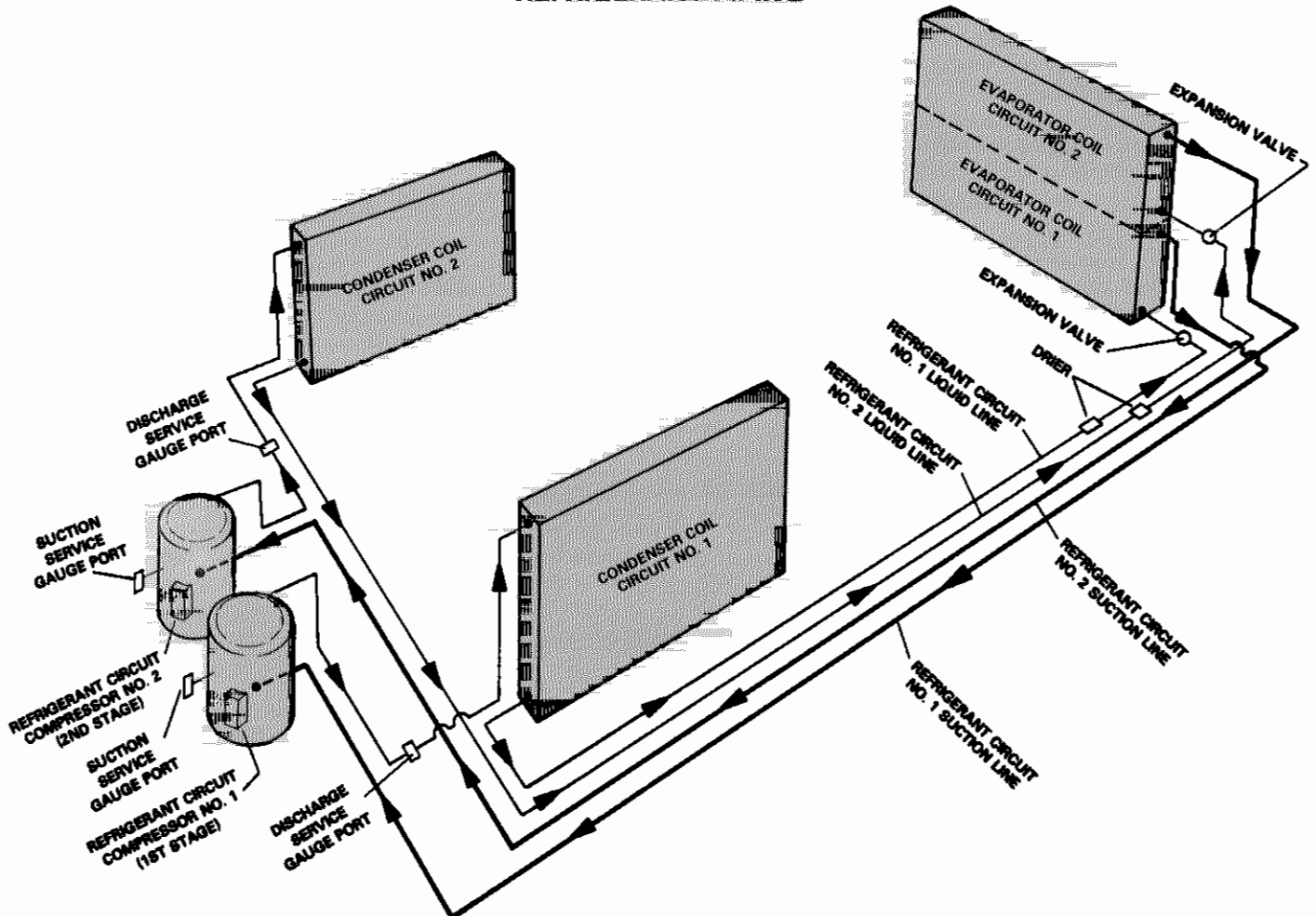
NOTE — Field wiring not furnished by Lennox.

INSTALLATION CLEARANCES — mm (inches)



Model No.	A		B	
	mm	In.	mm	In.
CHA12-953	914	36	1270	50
CHA12-1353	1118	44	1727	68

REFRIGERANT PIPING



BLOWER DATA

ACCESSORY PRESSURE DROP

Model No.	Air Volume		†Total Pressure Drop			
			51 mm (2 in.) *Filter		Electric Heat	
	m ³ /s	cfm	Pa	In. wg.	Pa	In. wg.
CHA12-953	1.25	2600	8	0.03	47	0.19
	1.30	2800	10	0.04	50	0.20
	1.40	3000	10	0.04	55	0.22
	1.50	3200	12	0.05	62	0.25
	1.60	3400	12	0.05	68	0.27
	1.70	3600	15	0.06	75	0.30
CHA12-1353	1.80	3800	17	0.07	88	0.35
	1.80	3800	10	0.04	62	0.25
	1.90	4000	10	0.04	68	0.27
	2.00	4200	12	0.05	72	0.29
	2.10	4400	12	0.05	78	0.31
	2.15	4600	12	0.05	88	0.35
	2.25	4800	15	0.06	95	0.38
	2.35	5000	15	0.06	102	0.41
	2.45	5200	17	0.07	110	0.44
	2.55	5400	17	0.07	120	0.48
2.65	5600	17	0.07	132	0.53	

†Pressure drop shown must be added to system static pressure when selecting blower speed and motor output requirements.

*NOTE — 25 mm (1 in.) frame filter resistance has been deducted from figures shown in table.

SUPPLY AIR BLOWER DRIVE SELECTION — 60 Hz

Using total air volume and system Static Pressure External to Unit requirements, determine from Blower Performance Curves rev/min and blower motor output required for job. Specify blower motor output, rev/min and electrical characteristics required when ordering. The correct motor and pulleys will be factory installed. The following table lists blower motor output and blower speed range of drives available with each motor.

Model No.	*Nominal Motor Output		Blower Speed — (rev/min) @ 1720 rev/min Motor Speed
	kW	hp	
CHA12-953	1.5	2	760 — 915
	2.2	3	760 — 965
CHA12-1353	2.2	3	680 — 860
	3.7	5	900 — 1085

*Service factor = 1.15

GUIDE SPECIFICATIONS

Prepared for the guidance of architects, consulting engineers and mechanical contractors.

General — Furnish and install a single package air to air DX mechanical cooling system complete with automatic controls. The installed weight shall not be more than (kg) (lbs.). Entire unit shall have a width of not more than (mm) (in.), a depth of not more than (mm) (in.) and an overall height of not more than (mm) (in.). The equipment shall be shipped completely factory assembled, precharged, piped and wired internally ready for field connections. In addition, manufacturer shall test operate system at the factory before shipment.

Air Distribution — Equipment shall be capable of end handling of conditioned air. All air distribution ducts shall be fiberglass or galvanized steel insulated with (mm) (in.) thick (kg/m³) (lb/ft³) density fiberglass or equivalent.

Cooling System — The total certified cooling capacity shall not be less than (kW) (Btuh) with an evaporator air volume of (m³/s) (cfm), an entering wet bulb air temperature of (°C) (°F), an entering dry bulb air temperature of (°C) (°F) and a condenser entering temperature of (°C) (°F). The compressor power input shall not exceed kW at these conditions.

The coils shall be non-ferrous construction with aluminum fins mechanically bonded to durable copper tubes. Coils shall be pressure leak tested at the factory. Coil face area shall be not less than (m²) (sq. ft.) (evaporator) and (m²) (sq. ft.) (condenser).

The compressor shall be resiliently mounted, have overload protection, internal pressure relief and crankcase heater. The refrigeration system shall have suction and discharge line service gauge ports, high pressure switch, low pressure switch and full refrigerant charge. Control option available shall consist of low ambient control.

Additive Electric Heaters — The certified total heating capacity shall be (kW) (Btuh) at volts power supply.

Optional electric heaters shall be factory or field installed. Heating elements shall be nichrome bare wire exposed directly to the air stream. Safety controls shall consist of discharge air limit control and backup replaceable limits.

Cabinet — Shall be galvanized steel with a baked-on outdoor enamel paint finish. Cabinet panels where conditioned air is handled shall be fully insulated to prevent sweating and minimize sound. Openings shall be provided for power connection entry. Base shall have drainage holes. Lifting brackets shall be provided on base for rigging.

Service Access — All components, wiring and inspection areas shall be accessible through removable panels.

Supply Air Blower — Centrifugal supply air blower shall have permanently lubricated ball bearings, adjustable belt drive and motor mount where belt tension can be easily adjusted. The entire assembly shall be floated on resilient rubber mounts. Blower wheel shall be statically and dynamically balanced. Blower shall be capable of delivering (m³/s) (cfm) at an external static pressure of (Pa) (in. wg) requiring (kW) (hp) motor output and rev/min.

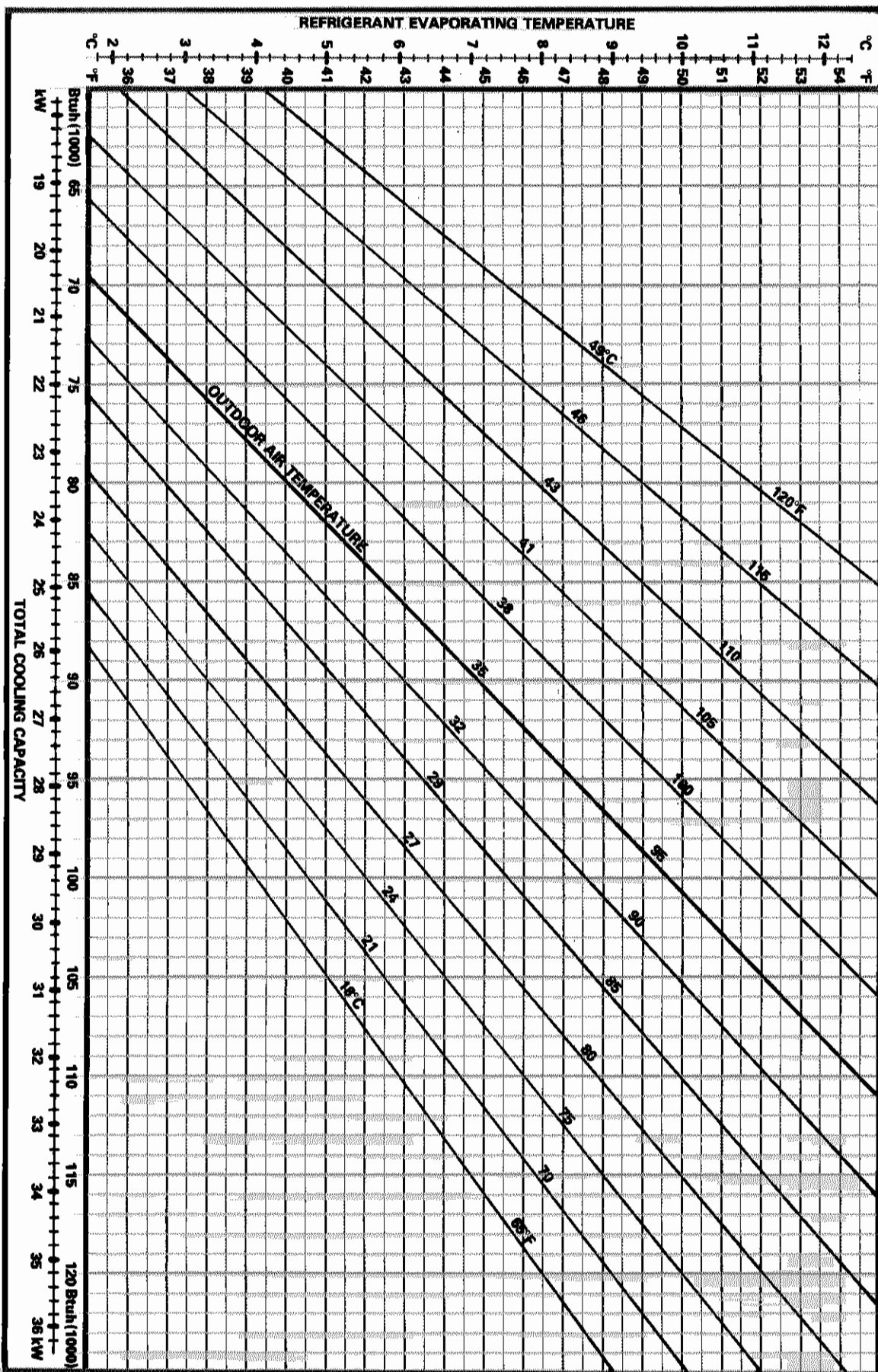
Condenser Fans — Twin propeller type condenser fans shall discharge vertically and be direct driven by a kW (hp) output motor. Fan motor shall be totally enclosed with permanently lubricated ball bearings, inherently protected and equipped with rain shield. Fan shall have a safety guard.

Air Filters — Disposable frame type fiberglass media filters shall have not less than (m²) (sq. ft.) of free area.

Night Setback Controls — Complete controls shall be available to program the equipment for day-night operation.

Remote Status Panel — Shall be available for installation within the conditioned area to observe equipment operation. The panel shall include signal lights for Cool Mode, Heat Mode, Compressor 1, Compressor 2, No Heat and Filter.

CHA12-953 60 Hz CONDENSING SECTION PERFORMANCE CURVE



CHA12-1353 60 Hz CONDENSING SECTION PERFORMANCE CURVE

