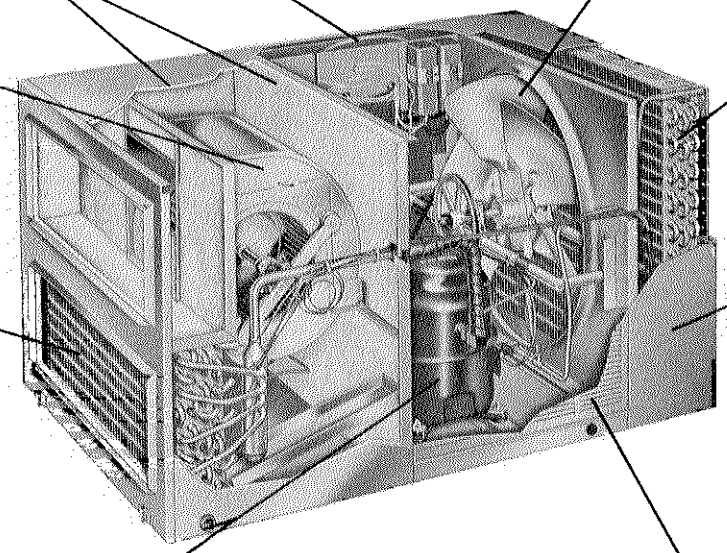
LENNOX® HERMETIC AIR CONDITIONERS—AIR-COOLED—CHA4 SERIES—HORIZONTAL

CERTIFICATION APPLIES ONLY WHEN UNIT WITH PROPER COMPONENTS AS DESIGNATED BY MANUFACTURER



CONTROL PANEL
Easily accessible controls mounted and pre-wired.

FIBERGLASS INSULATION
1½ lb. density. Insulates cabinet and deadens air noises.

CENTRIFUGAL BLOWER
All moving parts resiliently mounted to reduce vibration. Moves rated air with minimum noise and power consumption.

EVAPORATOR COIL
Almost one square foot of face area per ton of rated capacity. Aluminum fins flat bonded to seamless copper tubes.

SUCTION COOLED HERMETIC COMPRESSOR
Resiliently mounted. Five year warranty. Accessible gauge ports. Ambient compensated overload protection.

AXIAL FLOW FAN (POWER PROP®)
Lennox designed and fabricated. Rugged welded steel. Delivers large air volumes quietly and economically. Designed specifically for the CHA Series units.

LARGE CONDENSER COIL
Almost two square feet of face area per ton capacity. Aluminum fins flat bonded to seamless copper tubes.

WEATHERPROOF CABINET
Heavy gage zinc coated steel protected with thermo-setting acrylic enamel. Incorporates built-in drain pans with ¾" threaded pipe connections. Easily removed service panels.

WEATHERPROOF LOUVERS
Heavy gage steel protected with baked on thermo-setting acrylic enamel.

MAJOR FEATURES

Application

Lennox CHA4 units are complete central air conditioners in one package. Evaporator supply air and return air openings are both at the same end of the cabinet. Condenser air inlet is at the opposite end. Condenser air can be exhausted out either side, both sides or top of unit. Ratings are different for each choice of condenser air exhaust, see specification and rating table. Unit is primarily designed for residential and small business or commercial establishments. However, multiple units can be installed to satisfy requirements of larger buildings.

Installation

Unit is very versatile and can be installed in most any location. Can be installed through a wall in a utility room, attic space or crawl space. Can also be installed on a slab at grade level or on a rooftop. Unit is shipped completely charged with refrigerant-22 and is completely assembled in one package, controls are factory wired. Installer has only to locate unit, make duct connections and connect power supply. Each unit is test operated at the factory before shipment.

Air Pattern Characteristics

Both the condenser coil and evaporator coil employ pull-through method of air handling. Evaporator supply air is pulled through the coil, turned 180° and discharged out the same side it entered. Condenser supply air is pulled through the condenser coil and discharged out either side, both sides or top of unit.

Controls

All controls are prewired at the factory. Unit has been test run at the factory insuring continuity of controls and wiring. Due to the many different types of applications possible with this versatile unit, a thermostat is not furnished.

Approvals

Units are tested and rated according to ARI Standard 210-58. CSA approved and U.L. listed.

Accessories

Evaporator air should be filtered. Lennox has available as optional equipment two types of filter boxes, ceiling type filter box with a built in return air grille (CHA1-C23) or a duct type filter box (CHA1-D23). See photographs on page 2.

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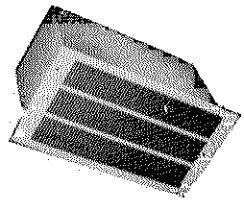
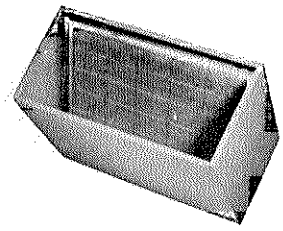
SPECIFICATIONS AND RATINGS
(subject to change without notice)

Unit Number		CHA4-201	CHA4-300
Btuh total cooling capacity @ ARI St'd 210-58 with condenser air outlet—on both sides		23,000	36,000
on compressor side		21,000	34,000
on control box side		18,000	33,000
at top		21,000	33,000
Dehumidifying capacity, nominal		30%	30%
Total Watts at ARI Std. 210-58 with condenser air outlet—on both sides		3230	4570
on compressor side		3255	4688
on control box side		3275	4770
at top		3255	4770
Compressor	Rpm	1725	1725
Horsepower, nominal		2	3
Refrigerant		R-22	R-22
Refrigerant Charge		4 lbs., 1 oz.	6 lbs., 13 oz.
Condenser	Net face area (sq. ft.)	3.75	5.93
	Tube dia. (in.) & No. of rows	1/2-3	1/2-3
	Fins per inch	10	10
	Power Prop. dia. (in.) & No. of blades	18"—6 Blades	24"—6 Blades
	Power Prop pulley bore & dia. (in.)	Direct Drive	3/4 x 8
	Power Prop motor horsepower	*1/3	1/3
	Power Prop motor pulley bore & dia. (in.)	Direct Drive	1/2 x 4 1/8
	Power Prop belt length (in.)	Direct Drive	45
	Power Prop cfm (factory set) with condenser outlet on both sides	1872	3380
	on compressor side	1666	3060
	on control box side	1419	2840
	at top	1675	2840
	Power Prop Rpm (factory set) with condenser outlet on both sides	1080	805
	on compressor side	1074	799
	on control box side	1066	797
	at top	1075	797
Normal evaporator air volume, cfm		800	1200
Evaporator Coil	Net face area (sq. ft.)	1.87	2.69
	Tube dia. (in.) & No. of rows	1/2-4	1/2-4
	Tube spacing c. to c. (in.)	1-1/4	1-1/4
	Fins per inch	10	10
	Condensate drain (FPT-in.)	3/4	3/4
Evaporator Blower	Wheel nom. dia. & width (in.)	9 1/8 x 5	11 1/8 x 10 5/8
	Motor horsepower & Rpm	*1/3	1/4
	Pulley bore & dia. (in.)	Direct Drive	3/4 x 7
	Motor pulley bore & dia. (in.)	Direct Drive	1/2 x 4 1/8
	Rpm range with drive furnished	Direct Drive	718-909
	Belt length	Direct Drive	30
Approximate shipping weight & No. of packages		450	650

* CHA4-201 Uses a single 1/3 horsepower motor with double shaft for both condenser power prop and evaporator blower.



CHA1-C23 Ceiling Filter Box
28" x 13 1/2" x 18 1/2" deep

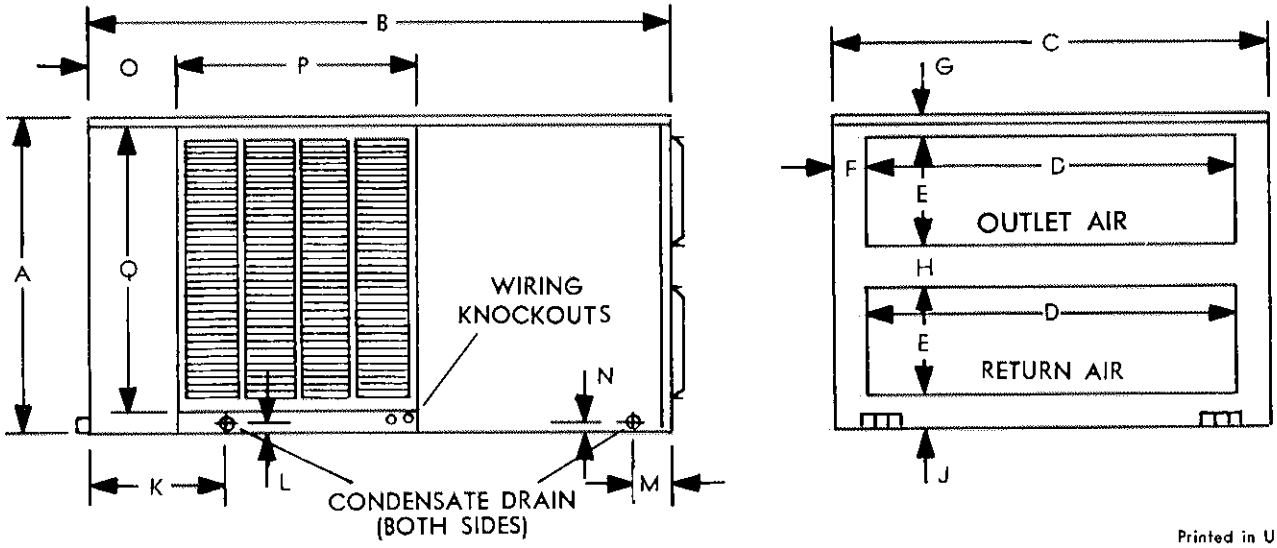


CHA1-D23 Duct Filter Box
28" x 18" x 12 3/4" deep

DIMENSIONS (inches)

	CHA4-201	CHA4-300
A	22	28
B	42	51 13/16
C	30 5/8	35
D	23 3/4	29 3/4
E	7 3/4	9 3/4
F	3 7/16	2 15/16
G	1 3/4	1 3/4
H	1 15/16	3 3/4
J	2 13/16	3
K	17	12 5/16
L	7/8	7/8
M	3 9/16	3 15/16
N	7/8	7/8
O	9	9
P	15 1/8	20 7/8
Q	20	25 7/8

DIMENSIONS (inches)



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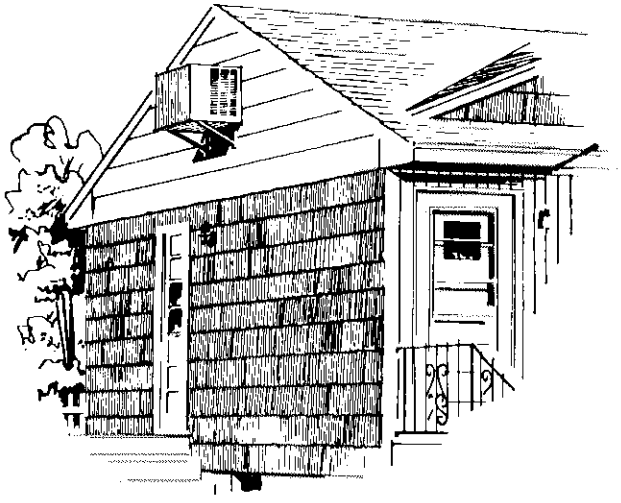
TYPICAL APPLICATIONS



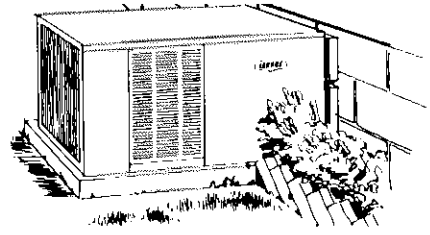
The whole house is cooled by this Stowaway in the attic. End of unit, containing the air-cooled condenser, projects outdoors. The other end connects to ducts which distribute cool air to all rooms.

ELECTRICAL DATA

(Subject to change without notice)

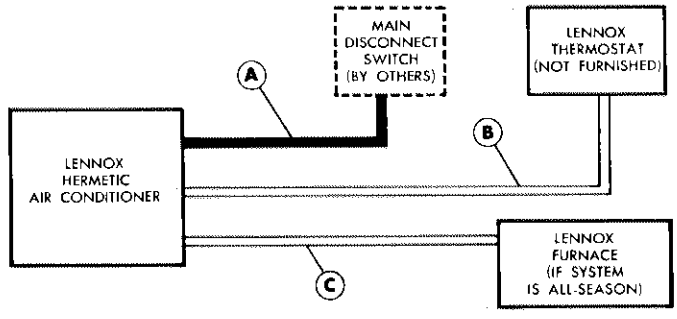
Unit Number		CHA4-201	CHA4-301	CHA4-303
Line Voltage Data		230 V. 60 cy. 1ø	230 V. 60 cy. 1ø	208-220 60 cy. 3ø
Compressor (condenser air outlet on both sides)	Nameplate Amps	11.6	21.0	15.2
	Running Amps	12.4	17.8	11.6
	Power Factor	.89	.92	.85
	Locked Rotor Amps	50.0	78.0	75.0
Condenser Power Prop (condenser air outlet on both sides)	Running Amps	*2.4	2.25-2.6	2.25-2.6
	Locked Rotor Amps	*7.4	14.0-15.5	14.0-15.5
Max. unit amps		14.8	22.6	16.4
Evaporator Blower	Running Amps	*2.4	1.92-2.2	1.92-12.5
	Locked Rotor Amps	*7.4	11.5-12.5	11.5-12.5
AWG Wire Size for Various Lengths of Run	10'	12	10	10
	50'	12	10	10
	100'	12	10	10
	200'	10	8	8
Disconnect Size		30	30	30
Fusetron Size		20	30	20

*Same motor is used on condenser blower and evaporator blower.



A home with basement or crawl space can be cooled automatically in this manner. Stowaway connects to ducts under floor.

*FIELD WIRING



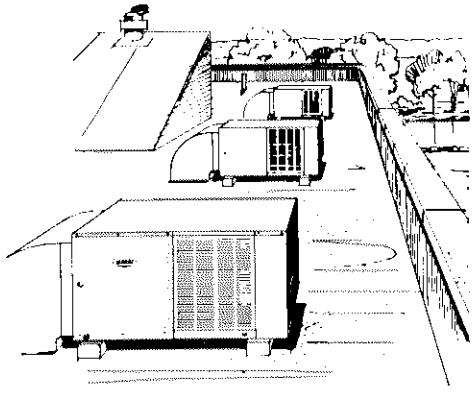
A—Two Wire Power—Single Phase
Three Wire Power—Three Phase
See electrical data table for size of wire.

B—†Three Wire Low Voltage—18 ga. min.—for cooling only installations
†Four Wire Low Voltage—18 ga. min.—for all-season installations

C—†Two Wire Low Voltage—18 ga. min.—for all-season installations

*All wiring must conform to NEC.

†May be class II wiring if local codes permit.



These Stowaways on rooftop cool a large building. They provide zoned comfort, take no interior space. Insulated ducts carry air through roof. Sturdy cabinets are designed to withstand weather.

CHA4-201 EVAPORATOR BLOWER PERFORMANCE CHART

Static Pressure	CFM	RPM
0	877	1080
.1	843	1083
.2	808	1087
.3	773	1090
.4	730	1094

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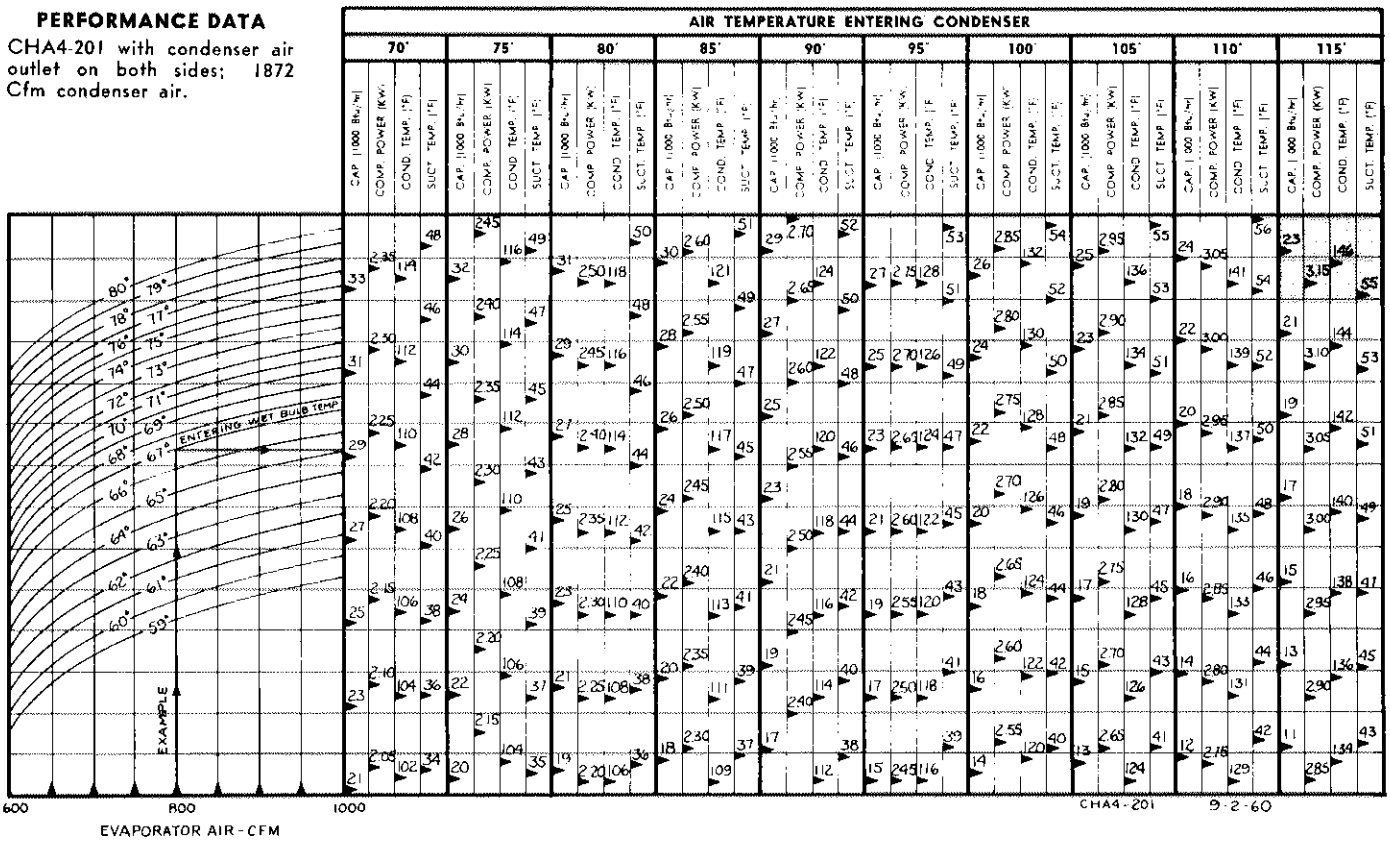
PERFORMANCE DATA

CHA4-201 with condenser air outlet on both sides; 1872 Cfm condenser air.



NOTE: Shaded area denotes inoperable conditions due to excessive condensing temperatures.

HOW TO USE PERFORMANCE CHART

Example:

Given—Evaporator Cfm 800; entering condenser air temperature 95°F.; entering evaporator wet bulb temperature 67°F.

Find from graph—Capacity 23,000 Btuh; compressor power 2.65 kw; condensing temperature 124°F.; suction temperature 47°F.

NOTE: Condenser blower and evaporator blower motor watts 580 (factory setting).

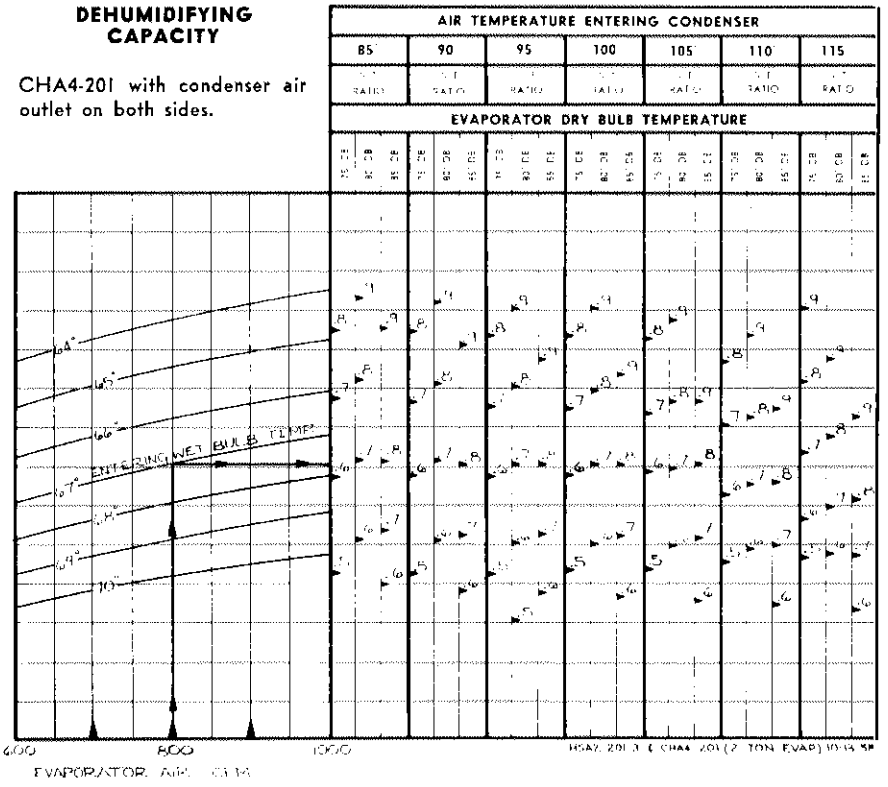
CHA4-300 EVAPORATOR BLOWER PERFORMANCE CHART

	STATIC PRESSURE EXTERNAL TO UNIT—Inches Water Gauge																			
	.1		.2		.3		.4		.5		.6		.7		.8		.9		1.0	
CFM	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
1000	560	.11	645	.15	725	.19	795	.23	860	.28	925	.33	980	.38	1035	.43	1085	.48	1135	.53
1100	600	.14	680	.18	750	.22	820	.26	885	.31	945	.36	1000	.42	1055	.47	1105	.53	1155	.58
1200	645	.17	715	.21	785	.26	845	.31	910	.36	970	.41	1025	.47	1075	.53	1125	.58	1175	.64
1300	690	.22	750	.26	815	.30	875	.35	935	.41	990	.46	1045	.52	1095	.58	1145	.64	1190	.70
1400	730	.26	790	.30	850	.35	910	.41	965	.46	1020	.52	1070	.58	1120	.64	1165	.70	1215	.77

LENNOX HERMETIC AIR CONDITIONERS—AIR-COOLED—CHA4 SERIES—HORIZONTAL

DEHUMIDIFYING CAPACITY

CHA4-201 with condenser air outlet on both sides.



HOW TO FIND DEHUMIDIFYING CAPACITY

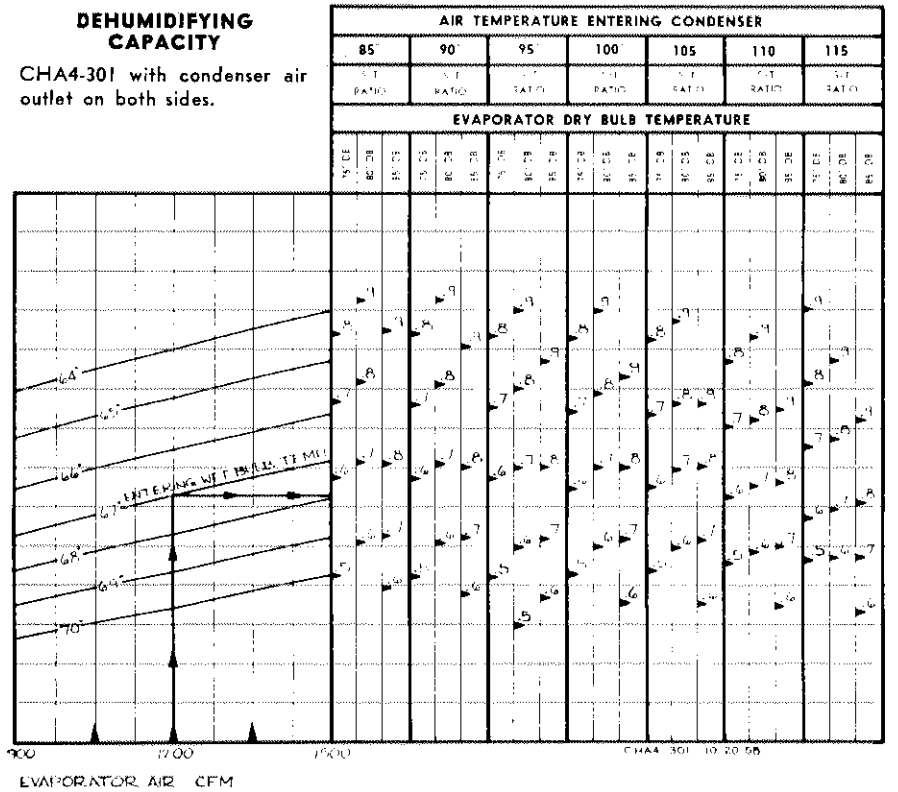
Example:

Given—Evaporator Cfm 800; entering condenser temperature 95°F.; entering evaporator wet bulb temperature 67°F.; entering evaporator air dry bulb temperature, 80°F.

Find from graph—S/T ratio: 70. Thus, dehumidifying (or latent heat removal) capacity is 30%. S/T ratio is the ratio of sensible heat removal capacity to total capacity in Btuh.

DEHUMIDIFYING CAPACITY

CHA4-301 with condenser air outlet on both sides.



HOW TO FIND DEHUMIDIFYING CAPACITY

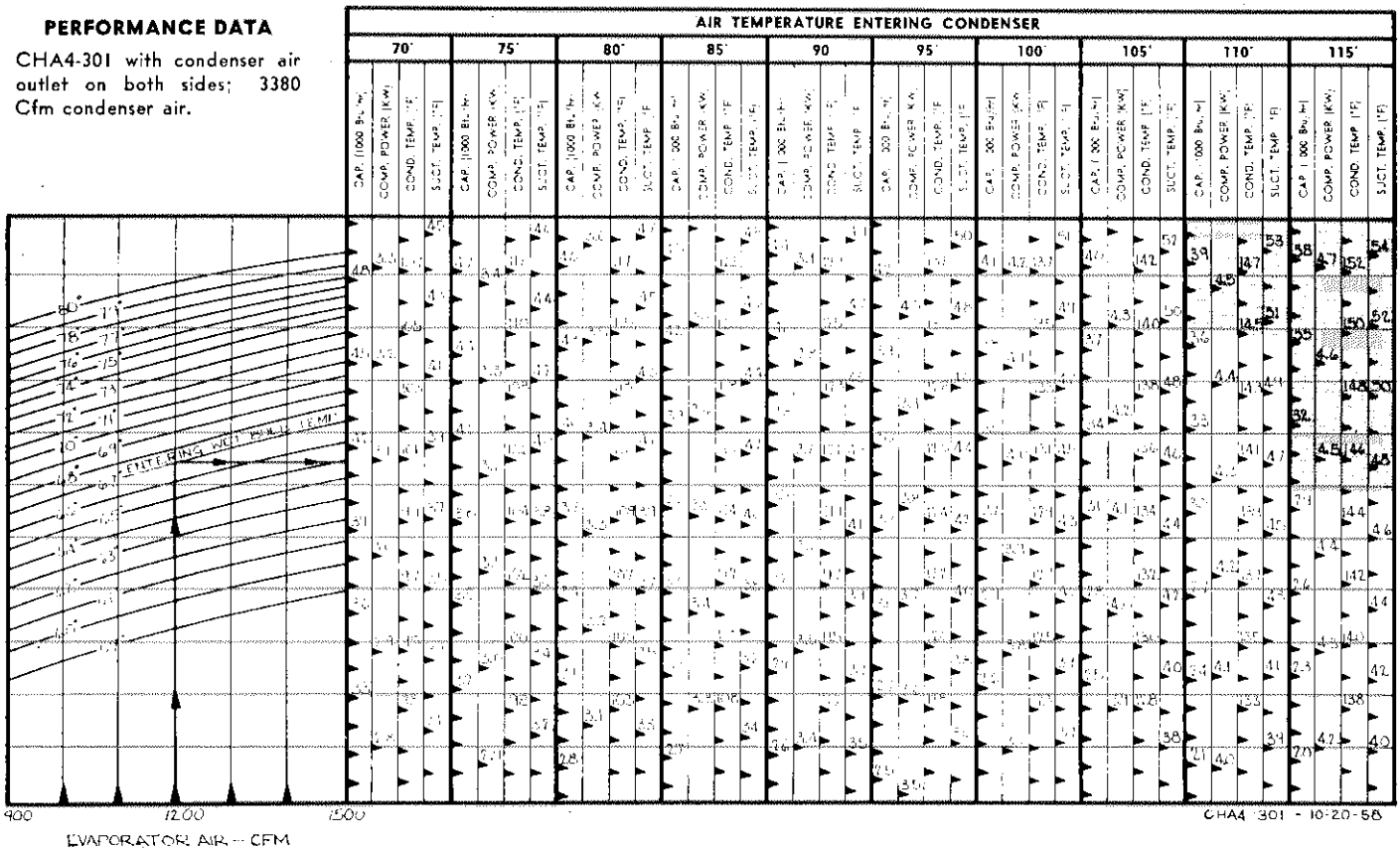
Example:

Given—Evaporator Cfm 1200; entering condenser air temperature 95°F.; entering evaporator air wet bulb temperature, 67°F.; entering evaporator air dry bulb temperature, 80°F.

Find from graph—S/T ratio: .66. Thus, dehumidifying (or latent heat removal) capacity is 34%. S/T ratio is the ratio of sensible heat removal capacity to total capacity in Btuh.

PERFORMANCE DATA

CHA4-301 with condenser air outlet on both sides; 3380 Cfm condenser air.



NOTE: Shaded area denotes inoperable conditions due to excessive condensing temperatures.

HOW TO USE PERFORMANCE CHART

Example:

Given—Evaporator Cfm 1200; entering condenser temperature 95°F.; entering evaporator wet bulb temperature 67°F.

Find from graph—Capacity 35,500 Btuh; compressor power 3.85 kw; condensing temperature 126°F.; suction temperature 44°F.

NOTE: Condenser blower motor watts 465 (factory setting). Evaporator blower motor watts 305.

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