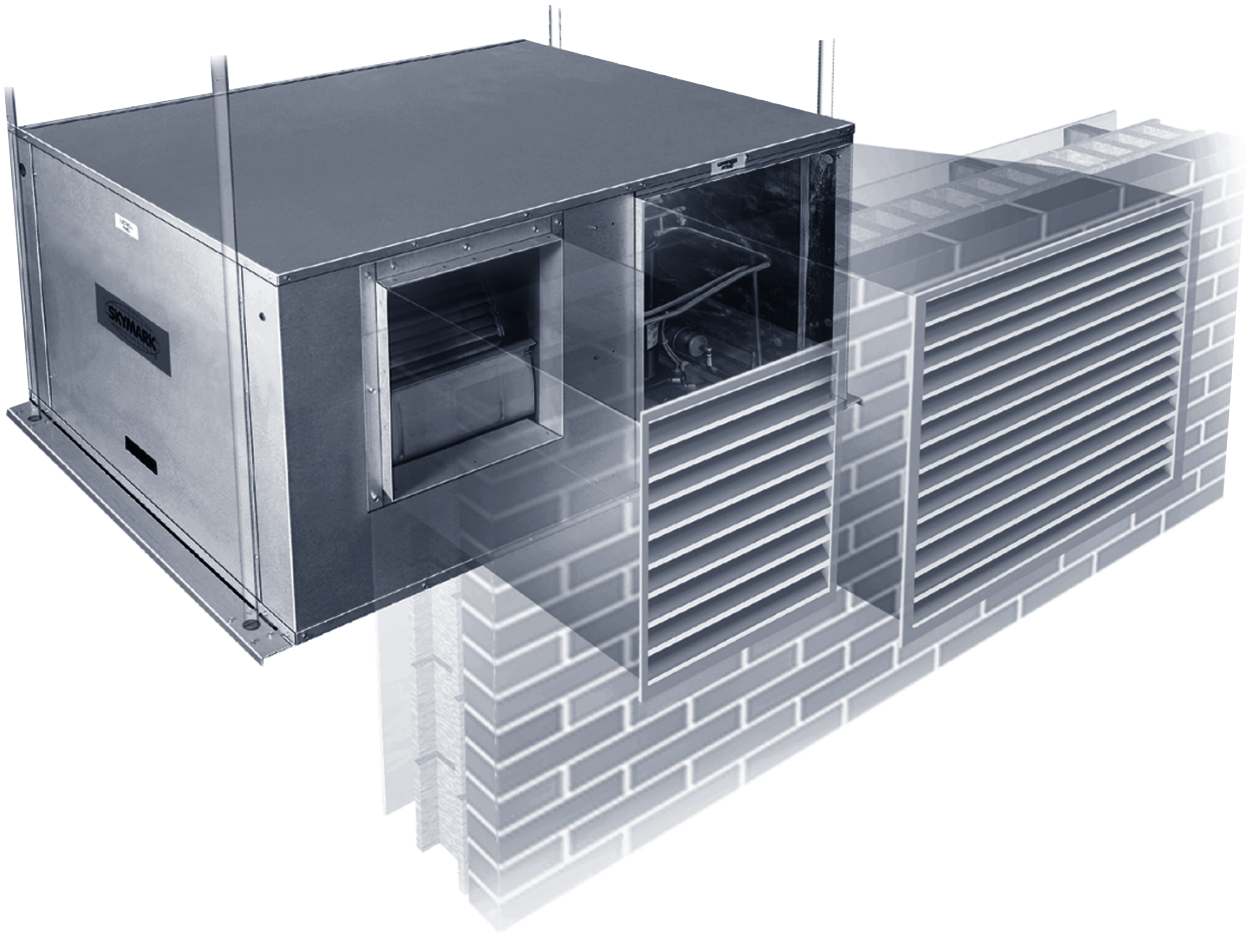
SKYMARK
INTERNATIONAL



CN HORIZONTAL

Air Cooled Condensing Units

CN 2 - 15 Ton Series

GENERAL MECHANICAL SPECIFICATIONS

GENERAL

All models 2-15 tons ship fully assembled and factory wired. Units include “Scroll” type hermetic compressor(s), aluminum fin/copper tube condenser coil, condenser fan and motor, and all necessary controls. Units are shipped with a Nitrogen holding charge only. All models are designed for suspended mounting via integral structural channels.

CABINET

All cabinets are completely constructed of heavy gauge galvanized steel. The unit interior is insulated with 1/2” thick, 2 lb. density insulation. Service panels are equipped with lifting handles for ease of removal and handling. Duct flanges for condenser discharge and condenser intake are provided with the unit for field installation.

REFRIGERANT CIRCUITS

All models utilize “Scroll” type hermetic compressors. Compressors are mounted on rubber isolators to minimize vibration transmission. Internal overload protection is provided. External high pressure and low pressure cutout switches are included in each compressor control circuit. Crankcase heaters are standard on all models. The 2-5 ton units have single refrigeration circuit. The 8-15 ton units feature two independent refrigeration circuits. Each refrigeration circuit includes a liquid line filter drier and service gauge ports.

CONDENSER COILS

The condenser coil is constructed of internally enhanced copper tubes mechanically bonded to rippled aluminum plate fins. Coils are employed in a draw-thru configuration.

CONDENSER FAN & MOTOR

Forward curved, double inlet and double width centrifugal blowers are used for condenser air movement. Blower wheels are fabricated of galvanized steel. Blowers employ solid steel shafts, supported in permanently lubricated ball bearings. All blowers are belt driven. Variable-pitch motor sheaves allow for field adjustment of blower rpm. Motor shall be 1800 RPM, open drip proof design. Three-phase motors are provided with external, manual reset overload protection. Single-phase motors feature auto reset internal overloads.

ELECTRICAL/CONTROLS

All units are completely factory wired with all necessary controls. A manual reset circuit is provided on each compressor control circuit in the event of high/low pressure cutout. A 24 volt control circuit, with oversize transformer, is provided for field connection.

OPTIONAL ACCESSORIES

FACTORY INSTALLED

Corrosion Resistant Coatings

Condenser coil shall receive a 1-mil thickness of a cathodic epoxy type electro-deposition coating, applied in a multiple dip and brake process.

Hot Gas Bypass

Adjustable hot gas regulator factory piped to compressor discharge line. Includes desuperheating expansion value for hot gas injection to suction line. No external hot gas piping is required. Bypass regulator shall be sized for a minimum of 50% of compressor capacity. Bypass installed on lead compressor circuit only. The bypass valve opens at a suction pressure to prevent coil freeze-up at light evaporator load, or low airflow conditions.

Note: Condensing unit must be on the same level as, or below, evaporating unit.

Anti-Short Cycle Timer

Time delay relay will be provided for each compressor circuit. Compressor will be locked out for 5 minutes when Thermostat contacts open, or there is a momentary power outage.

FIELD INSTALLED

Low Ambient Control

Head pressure control damper kit will allow unit operation down to 0^{o}F ambient. Damper assembly fits over condenser air intake. The kit includes damper actuator, and low pressure switch bypass timer(s).

AIR-COOLED CONDENSING GENERAL DATA

Model	CN024F	CN036F	CN048F	CN060F	CN096F	CN120F	CN144F	CN180F
Nominal Cooling (Tons)	2	3	4	5	8	10	12	15
Cooling Performance								
Gross Cooling Capacity (Btuh)	23,700	35,800	44,900	57,400	88,700	112,300	141,200	173,300
Condensing Unit CFM	1400	1950	2550	3300	4000	4600	5600	6900
SEER/EER	12.30	11.56	12.45	11.34	11.93	11.17	10.95	10.74
Compressor - Qty/Type	1/Scroll	1/Scroll	1/Scroll	1/Scroll	2/Scroll	2/Scroll	2/Scroll	2/Scroll
Capacity Steps	100/0	100/0	100/0	100/0	100/50/0	100/50/0	100/50/0	100/50/0
Refrigerant Circuits								
Number of Refrigerant Circuits	1	1	1	1	2	2	2	2
Suction Line OD (in)	3/4	3/4	7/8	7/8	7/8	7/8	1 1/8	1 1/8
Liquid Line OD (in)	3/8	3/8	1/2	1/2	1/2	1/2	1/2	5/8
Refrigerant Type	R-22 (NOTE: All units are shipped with Nitrogen holding charge only)							
Condenser Coil-Type	Enhanced Copper Tubes, Enhanced Aluminum Fins							
Face Area (sq. ft.)	3.75	3.75	6.46	6.46	9.03	9.43	13.61	15.07
Rows/FPI	3/12	3/12	3/12	3/12	5/14	5/14	5/14	5/14
Condenser Fan-Type	Centrifugal, Forward Curved							
Quantity	1	1	1	1	1	1	1	1
Diameter x Width (in)	10x10	10x10	12x11	12x11	15x15	15x15	15x15	18x18
Drive	Adjustable Belt							
Motor HP (Standard)	0.5	1.0	1.0	2.0	3.0	3.0	5.0	5.0
Weight								
Operating	310	325	455	470	740	760	930	1070
Shipping	345	360	485	500	785	805	1045	1185

Note: Cooling performance is rated at 45^{o}F saturated suction temperature, 95^{o}F outdoor ambient. Gross capacity does not include the effect of suction line loss.
Units 2 through 10 tons rated in accordance with ARI Standard 210/240. Units 12 through 15 tons rated in accordance with ARI Standard 365.

Skymark Model # Nomenclature Code

Model# CN 024 F 12 A - A

- CN — Product Type: Condensing Horizontal Air-cooled
- 024 — Nominal Capacity:
  - 024 = 24,000 BTHU
  - 036 = 36,000 BTHU
  - 048 = 48,000 BTHU
  - 060 = 60,000 BTHU
  - 096 = 96,000 BTHU
  - 120 = 120,000 BTHU
  - 144 = 144,000 BTHU
  - 180 = 180,000 BTHU
- F — Design Series
- 12 — Voltage:
  - 12 = 208-230/1/60
  - 32 = 208-230/3/60
  - 34 = 460/3/60
  - 35 = 575/3/60
- A — Production Variant
- A — Service Digit

ELECTRICAL DATA/ BLOWER PERFORMANCE

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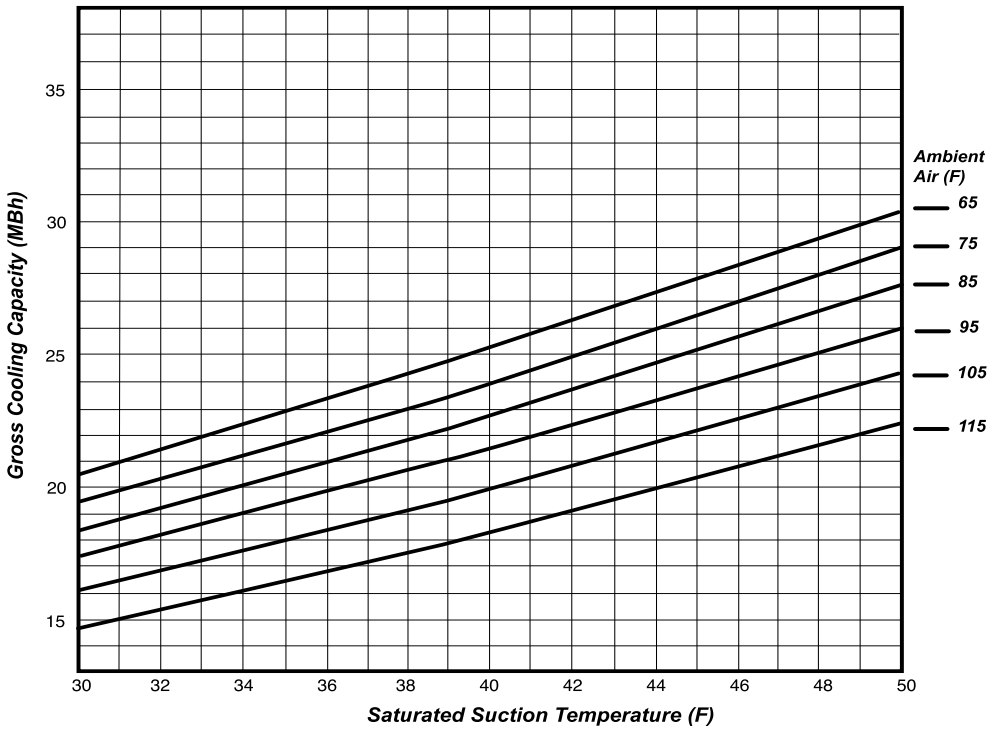
CN Air-cooled Condensing Units Electrical Data

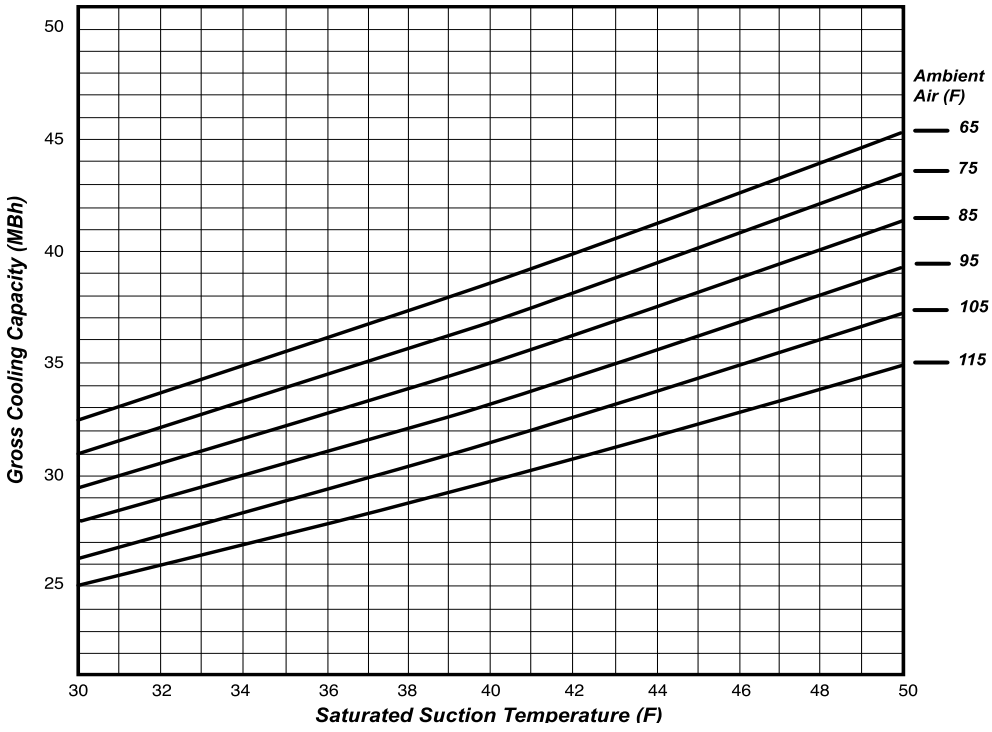
Model #	Supply Voltage	Compressor			Condenser Fan			Min. Cct. Ampacity	Max Fuse/ Cct. Bkr. Amp
		QTY	RLA	LRA	HP	FLA	RPM		
CN024F12	208-230/1/60	1 @	13.6	61.0	0.50	4.4	1800	21.40	35
CN024F32	208-230/3/60	1 @	8.6	55.0	0.50	2.1	1800	12.85	20
CN036F12	208-230/1/60	1 @	17.9	88.0	1.00	7.4	1800	29.78	45
CN036F32	208-230/3/60	1 @	11.4	77.0	1.00	3.7	1800	17.95	25
CN036F34	460/3/60	1 @	5.7	39.0	1.00	1.7	1800	8.83	15
CN036F35	575/3/60	1 @	4.7	31.0	1.00	1.3	1800	7.18	15
CN048F12	208-230/1/60	1 @	20.4	109.0	1.00	7.4	1800	32.90	50
CN048F32	208-230/3/60	1 @	13.9	88.0	1.00	3.1	1800	20.48	30
CN048F34	460/3/60	1 @	7.1	44.0	1.00	1.4	1800	10.33	15
CN048F35	575/3/60	1 @	5.4	34.0	1.00	1.1	1800	7.79	15
CN060F32	208-230/3/60	1 @	19.3	123.0	2.00	5.9	1800	30.03	45
CN060F34	460/3/60	1 @	7.5	49.5	2.00	2.8	1800	12.18	15
CN060F35	575/3/60	1 @	6.4	40.0	2.00	2.2	1800	10.20	15
CN096F32	208-230/3/60	2 @	13.9	88.0	3.00	8.7	1800	39.98	50
CN096F34	460/3/60	2 @	7.1	44.0	3.00	4.0	1800	20.07	25
CN096F35	575/3/60	2 @	5.4	34.0	3.00	3.2	1800	15.24	20
CN120F32	208-230/3/60	2 @	19.3	123.0	3.00	8.7	1800	52.13	70
CN120F34	460/3/60	2 @	7.5	49.5	3.00	4.0	1800	20.88	25
CN120F35	575/3/60	2 @	6.4	40.0	3.00	3.2	1800	17.60	20
CN144F32	208-230/3/60	2 @	20.7	156.0	5.00	13.7	1800	60.28	80
CN144F34	460/3/60	2 @	10.0	75.0	5.00	6.6	1800	29.10	35
CN144F35	575/3/60	2 @	8.2	54.0	5.00	5.3	1800	23.75	30
CN180F32	208-230/3/60	2 @	28.6	196.0	5.00	13.7	1800	78.05	100
CN180F34	460/3/60	2 @	14.2	100.0	5.00	6.6	1800	38.55	50
CN180F35	575/3/60	2 @	9.7	90.0	5.00	5.3	1800	27.13	35

Model #	Supply CFM	External Static Pressure - Inches W.C.															
		0.2		0.4		0.6		0.8		1.0		1.2		1.4		1.6	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
CN024F	1400	731	0.23	842	0.32	947	0.38	1043	0.43	1125	0.50	-	-	-	-	-	-
CN036F	1950	941	0.54	1024	0.63	1104	0.71	1183	0.80	1258	0.89	1319	1.04	-	-	-	-
CN048F	2550	691	0.61	765	0.71	838	0.82	910	0.94	979	1.08	979	1.08	-	-	-	-
CN060F	3300	830	1.18	890	1.31	949	1.44	1007	1.58	1065	1.72	1065	1.72	1122	1.87	-	-
CN096F	4000	714	1.25	770	1.42	822	1.59	872	1.76	921	1.95	968	2.15	1014	2.37	1059	2.61
CN120F	4600	798	1.81	847	2.00	895	2.19	940	2.39	984	2.59	1027	2.80	1071	3.02	-	-
CN144F	5600	726	2.13	776	2.33	825	2.54	872	2.76	916	2.98	959	3.20	1000	3.43	1040	3.66
CN180F	6900	673	2.90	716	3.20	757	3.50	796	3.80	834	4.11	871	4.43	906	4.75	940	5.07

CN024F Condensing Unit Performance



CN036F Condensing Unit Performance



Performance data calculated at 15^0F subcooling and 20^0F superheat and does not included capacity loss due to refrigerant line pressure drop.

CONDENSING UNIT PERFORMANCE

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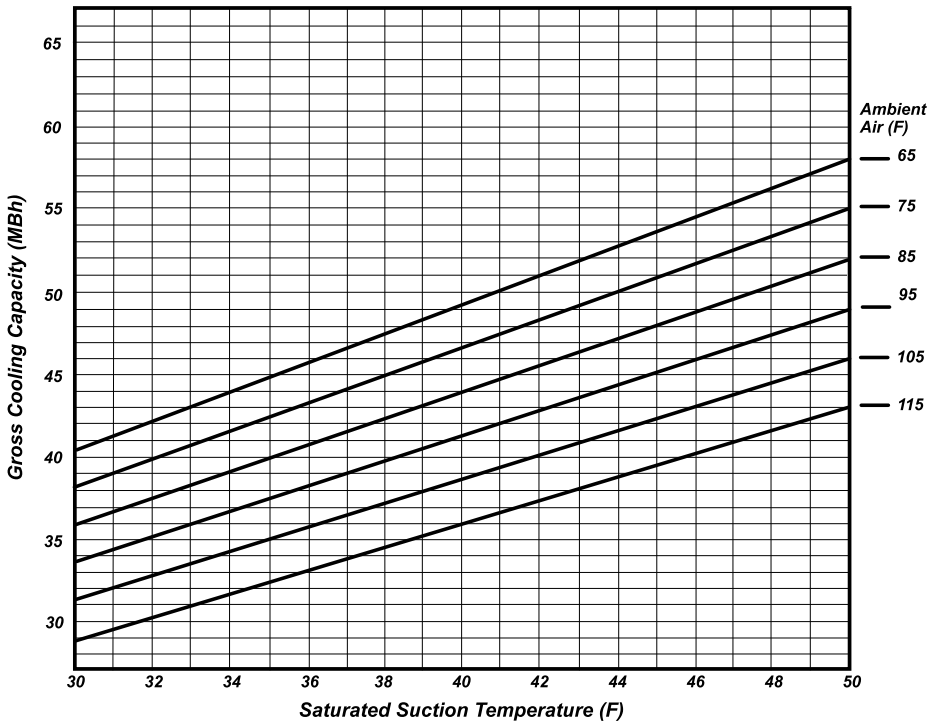
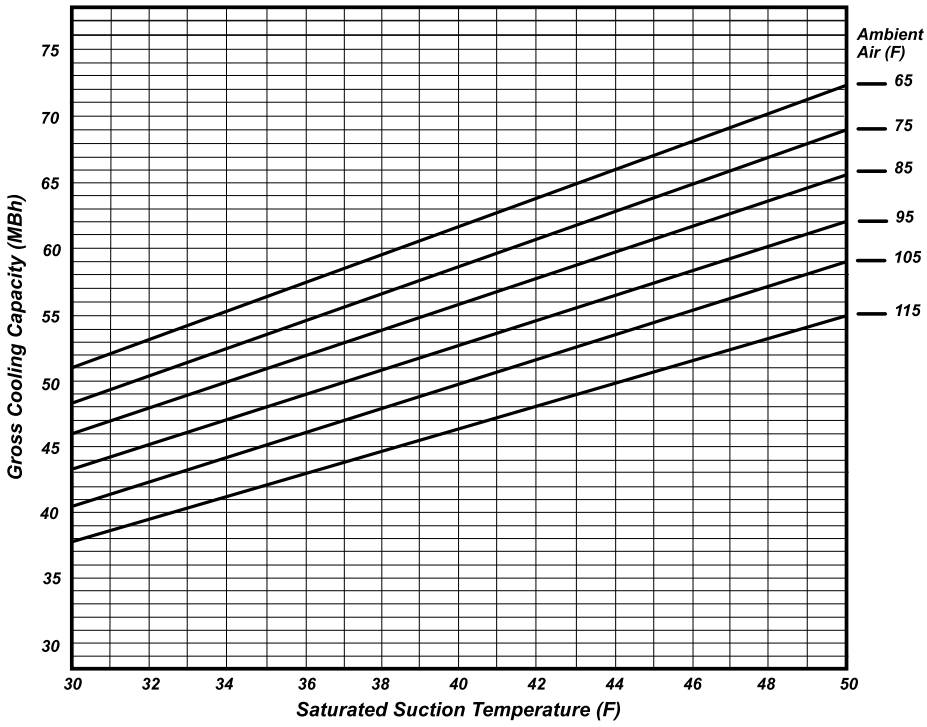
CN048F Condensing Unit Performance

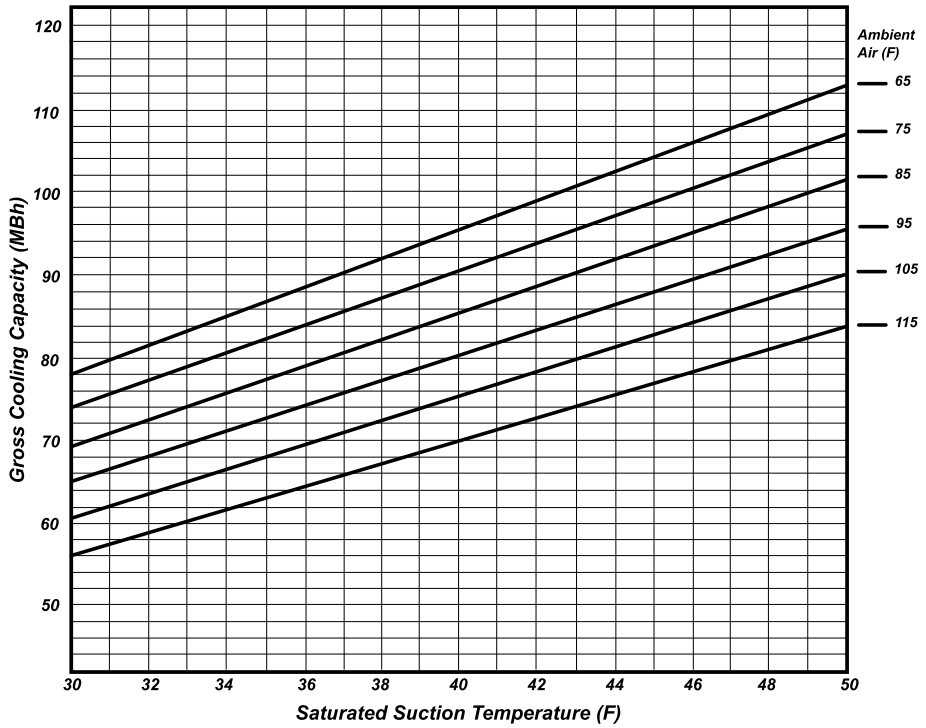


CN060F Condensing Unit Performance

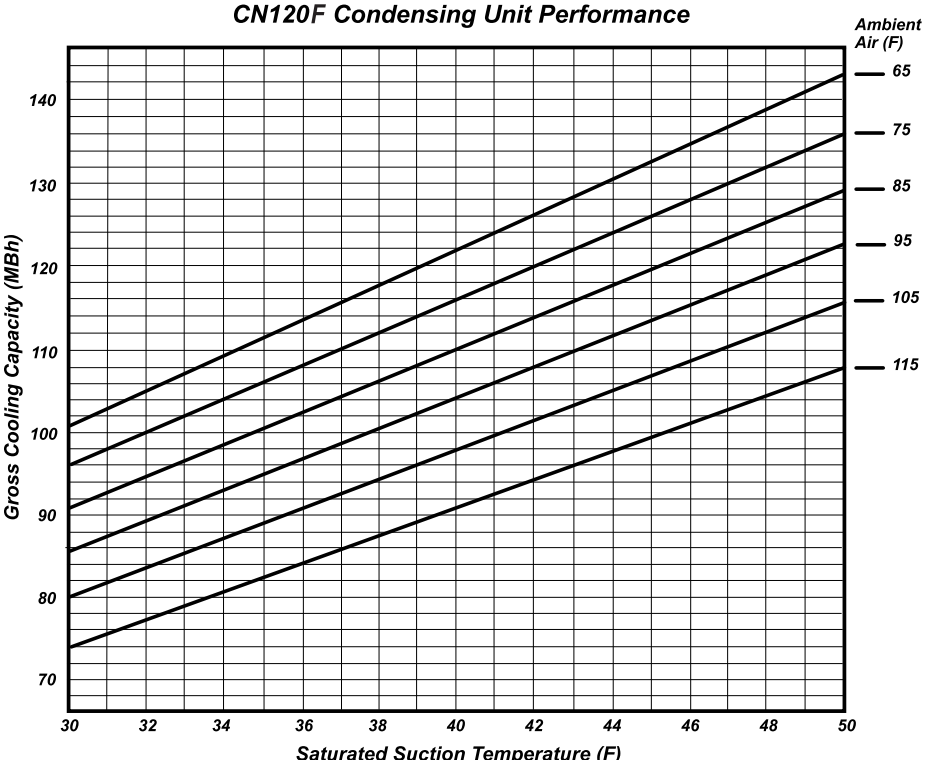


Performance data calculated at 15^0F subcooling and 20^0F superheat and does not included capacity loss due to refrigerant line pressure drop.

CN096F Condensing Unit Performance



CN120F Condensing Unit Performance



Performance data calculated at 15^0F subcooling and 20^0F superheat and does not included capacity loss due to refrigerant line pressure drop.

CONDENSING UNIT PERFORMANCE

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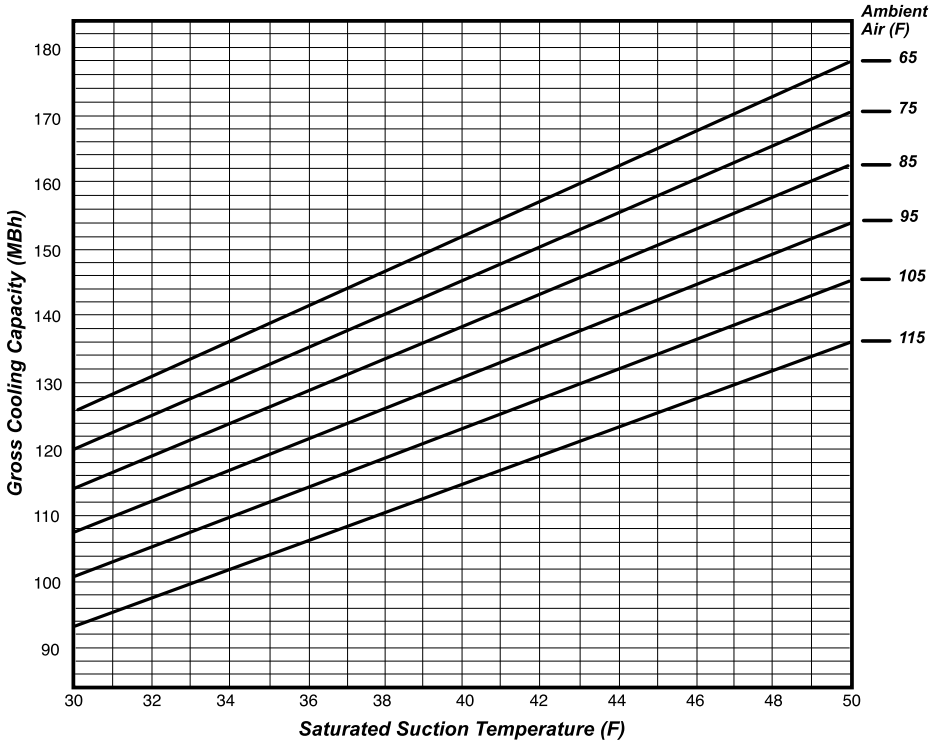
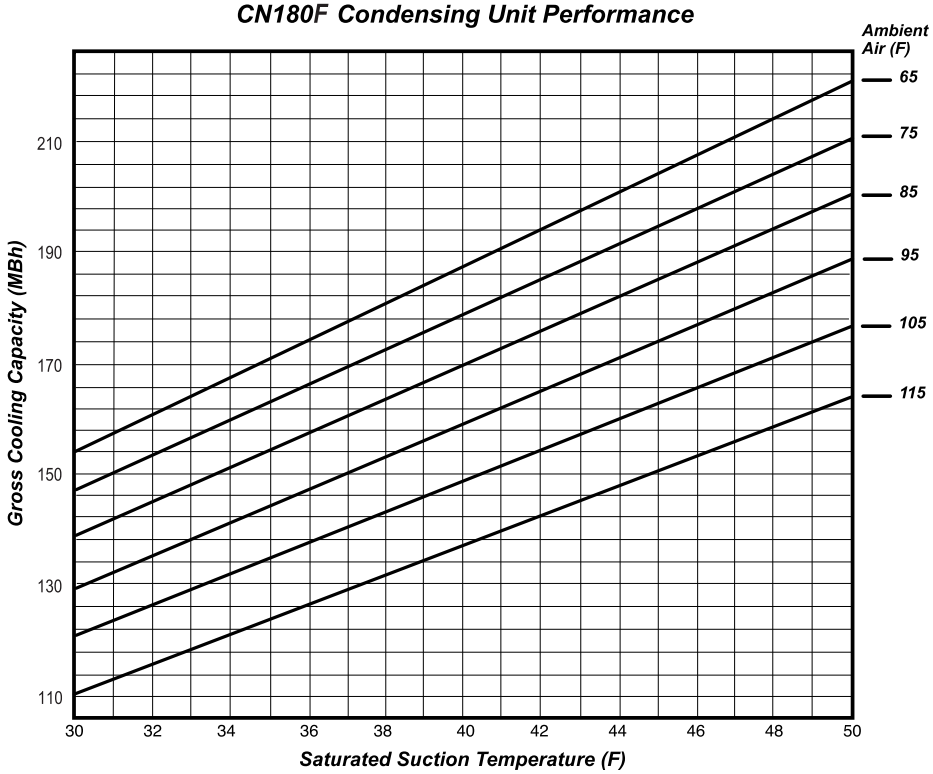
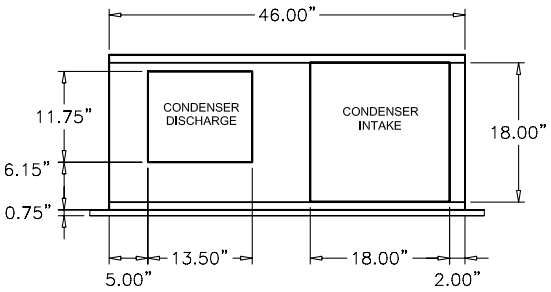
CN144F Condensing Unit Performance



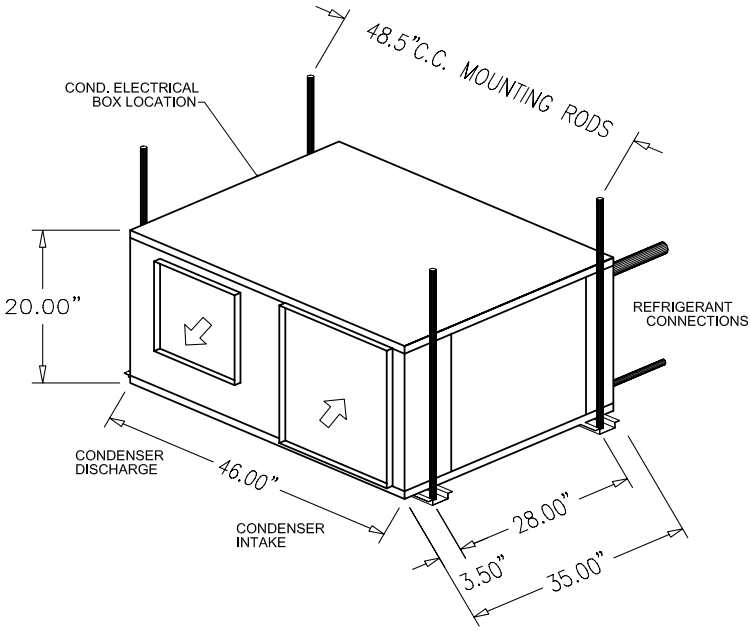
CN180F Condensing Unit Performance



Performance data calculated at 15^0F subcooling and 20^0F superheat and does not included capacity loss due to refrigerant line pressure drop.

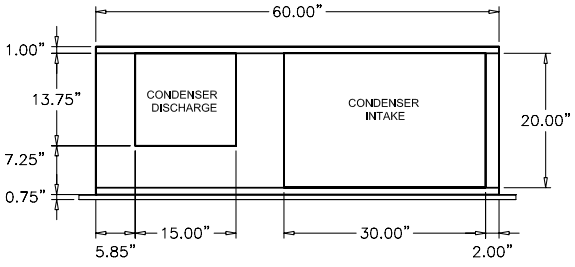


CONDENSER OPENINGS

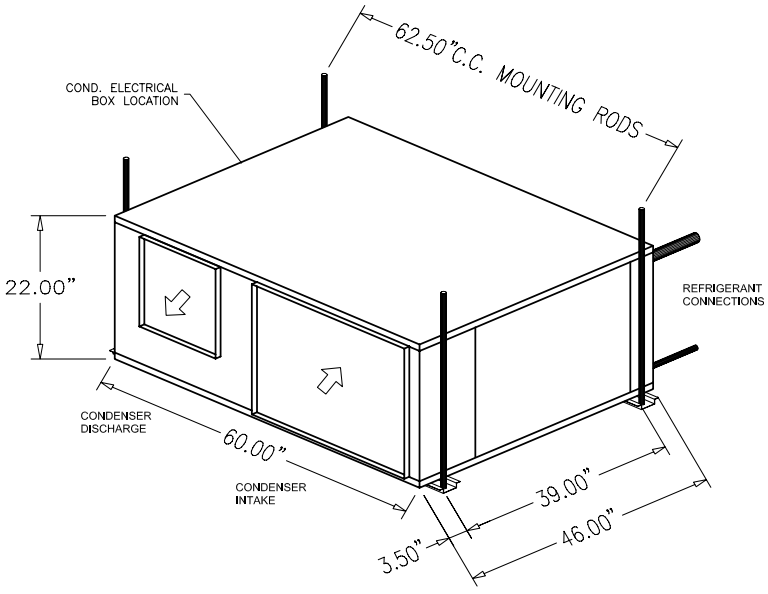


OVERALL & MOUNTING DIMENSIONS

2 & 3 TON

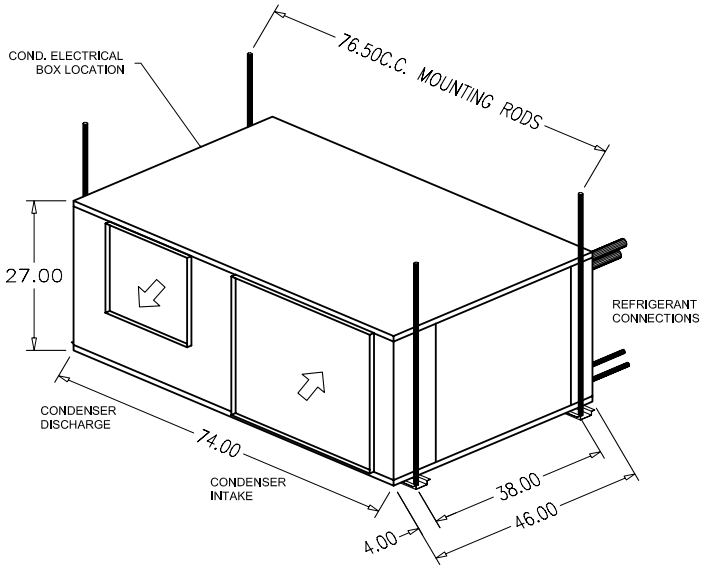


CONDENSER OPENINGS

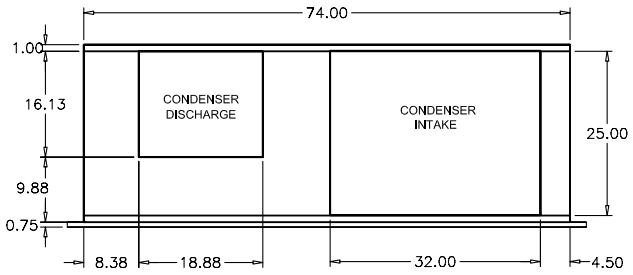


OVERALL & MOUNTING DIMENSIONS

4 & 5 TON

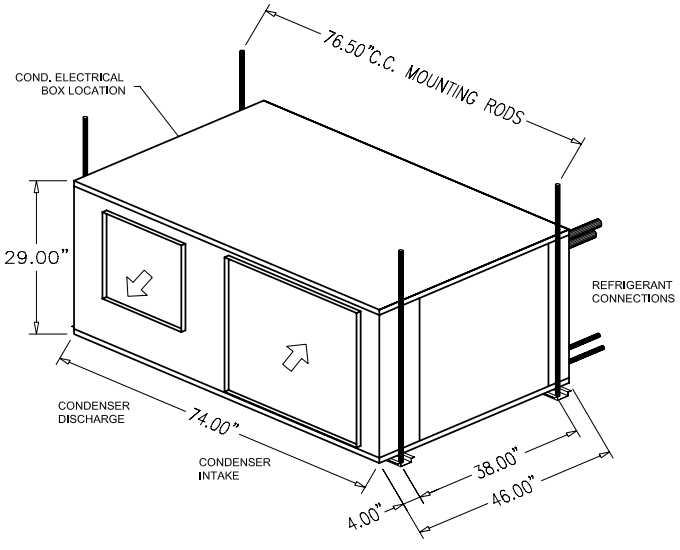


OVERALL & MOUNTING DIMENSIONS

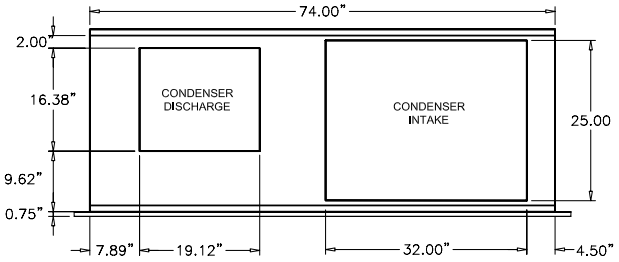


CONDENSER OPENINGS

8 TON

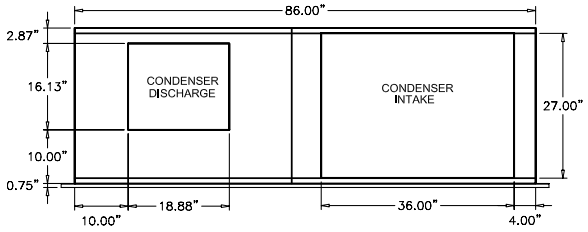


OVERALL & MOUNTING DIMENSIONS



CONDENSER OPENINGS

10 TON



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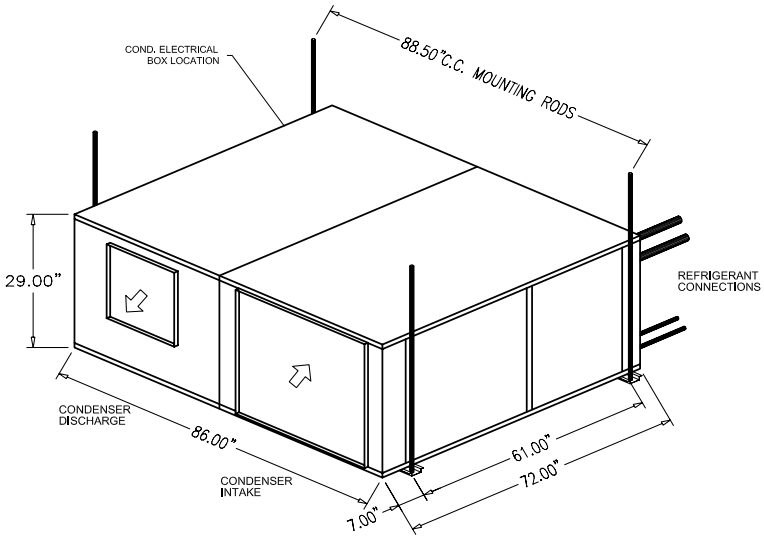
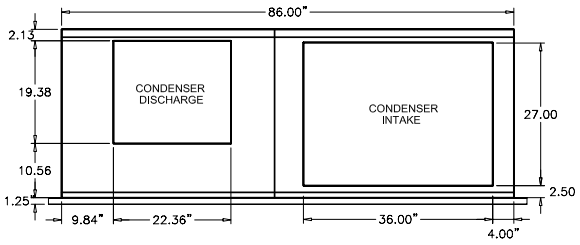
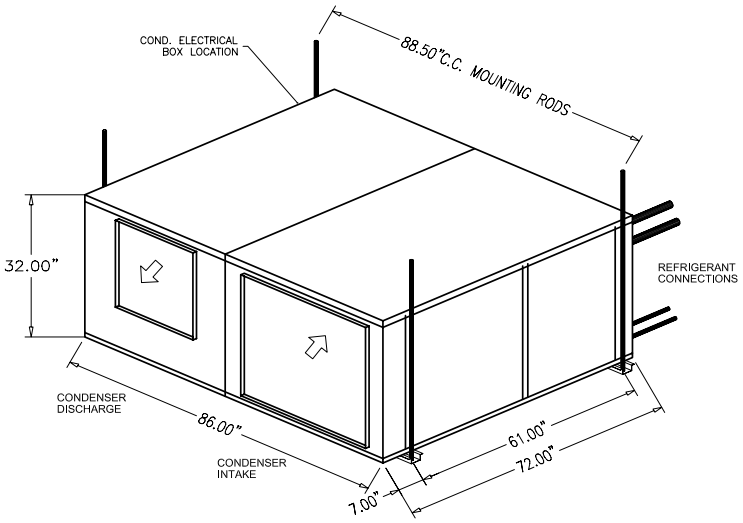


OVERALL & MOUNTING DIMENSIONS

12 TON



CONDENSER OPENINGS



OVERALL & MOUNTING DIMENSIONS

15 TON

SKYMARK PRODUCT WARRANTY

Skymark International warrants to the original owner/user of the Skymark International unit identified above to be free of original defects in material or workmanship for a period of one year from the effective date of this warranty.

This warranty extends to twelve (12) months from the date of start-up, but no longer than eighteen (18) months from the date of shipment. The warranty does not include the filter.

This warranty on the unit obligates Skymark International to repair or replace, free of charge, any part or parts that show evidence of being defective in material and workmanship and are so deemed so defective by authorized personnel of Skymark International. The part must be returned for replacement with the proper information when requested.

Skymark International assumes no obligation for labor required to replace the defective part or parts nor the freight or postage required to return or to secure the part which shall be at the cost and expense of the original Owner/User.

Skymark International will replace the defective part or parts within 21 days after the return to Skymark International of such defective part or parts provided notice of such defect was given by the original Owner/User within the Warranty period.

An optional, additional four year protection plan on the compressor is available at modest cost at the time of original unit sale only. This obligates Skymark International to replace f.o.b. factory, a defective compressor of equal capacity free of charge. No responsibility is assumed by Skymark International for refrigerant, labor, or freight to and from the factory.

THIS WARRANTY IS IN LIEU OF ALL OTHER EXPRESSED WARRANTIES. ALL IMPLIED WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE LIMITED IN DURATION TO ONE (1) YEAR FROM EFFECTIVE DATE OF THIS WARRANTY. SKYMARK INTERNATIONAL IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN PART. THERE ARE NO OTHER OBLIGATIONS ON THE PART OF SKYMARK INTERNATIONAL.

WARRANTY OF FITNESS

Skymark International does not provide a warranty of fitness since, in good faith, Skymark International cannot anticipate or control the many different conditions under which Skymark International information and products may be used.

City of New York
Department of Buildings
MEA

Skymark maintains a continuous product improvement policy, therefore specifications are subject to change without notice.

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