

VCN VERTICAL

Air Cooled Condensing Units

VCN 3 - 25 Ton Series

GENERAL

All models 3-25 tons ship fully assembled and factory wired. Units include “Scroll” type hermetic compressor(s), aluminum fin/copper tube condenser coil, condenser fan motor, and all necessary controls. Units are shipped with a Nitrogen holding charge only. All models are designed for free-standing mounting on the floor, or on a field fabricated structural steel stand.

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 3, 4 and 5 ton units have a single refrigeration circuit. The 8 - 20 ton units feature two independent refrigeration circuits. The 25 ton unit is triple compressor unit with three 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 AND 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 bearing. All blowers are belt driven. Variable-pitch motor sheaves allow for field adjustment of blower rpm. Motors 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.

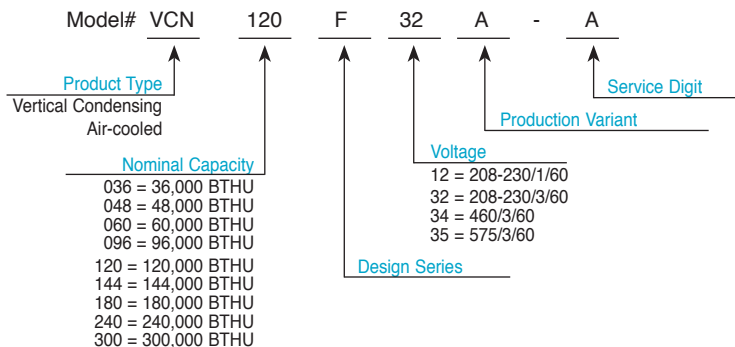
ELECTRICAL/CONTROLS

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.

Model	VCN036F	VCN048F	VCN060F	VCN096F	VCN120F	VCN144F	VCN180F	VCN240F	VCN300F
Nominal Cooling (Tons)	3	4	5	8	10	12	15	20	25
Cooling Performance									
Gross Cooling Capacity (Btuh)	39,000	45,200	58,000	90,300	114,800	143,800	175,000	226,000	288,000
Condensing Unit CFM	2400	2600	3200	4700	5500	6600	7500	10200	11500
SEER/EER	13.40	12.87	12.03	12.70	12.10	11.98	11.15	11.06	10.75
Compressor - Qty./Type									
Capacity Steps (%)	100/0	100/0	100/0	100/50/0	100/50/0	100/50/0	100/50/0	100/50/0	100/66/33/0
Refrigerant Circuits									
Number of Refrigerant Circuits	1	1	1	2	2	2	2	2	3
Suction Line OD (in)	7/8	7/8	7/8	7/8	7/8	1 1/8	1 1/8	1 3/8	1 1/8
Liquid Line OD (in)	1/2	1/2	1/2	1/2	1/2	1/2	5/8	5/8	5/8
Refrigerant Type	R-22 (NOTE: All units are shipped with Nitrogen holding charge only)								
Condenser Coil-Type									
Face Area (sq. ft.)	Enhanced Copper Tubes, Enhanced Aluminum Fins								
Rows/FPI	4/16	4/16	4/16	4/14	4/14	4/14	4/14	4/14	4/14
Condenser Fan-Type									
Number Used	Centrifugal, Forward Curved								
Diameter x Width (in.)	12x15	12x15	12x15	12x11	12x11	15x15	15x15	18x13	18x13
Drive	Adjustable Belt								
Motor HP (Standard)	1	1	1.5	2	3	3	5	7.5	7.5
Weight									
Operating	385	400	435	660	695	870	965	1125	1250
Shipping	425	440	475	700	735	915	1010	1170	1300

Note: Cooling performance is rated at 45°F saturated suction temperature. Gross capacity does not include the effect of suction line loss.
 Units 3 through 10 tons rated in accordance with ARI Standard 210/240. Units 12 through 25 tons rated in accordance with ARI Standard 365.

SKYMARK MODEL # NOMENCLATURE CODE



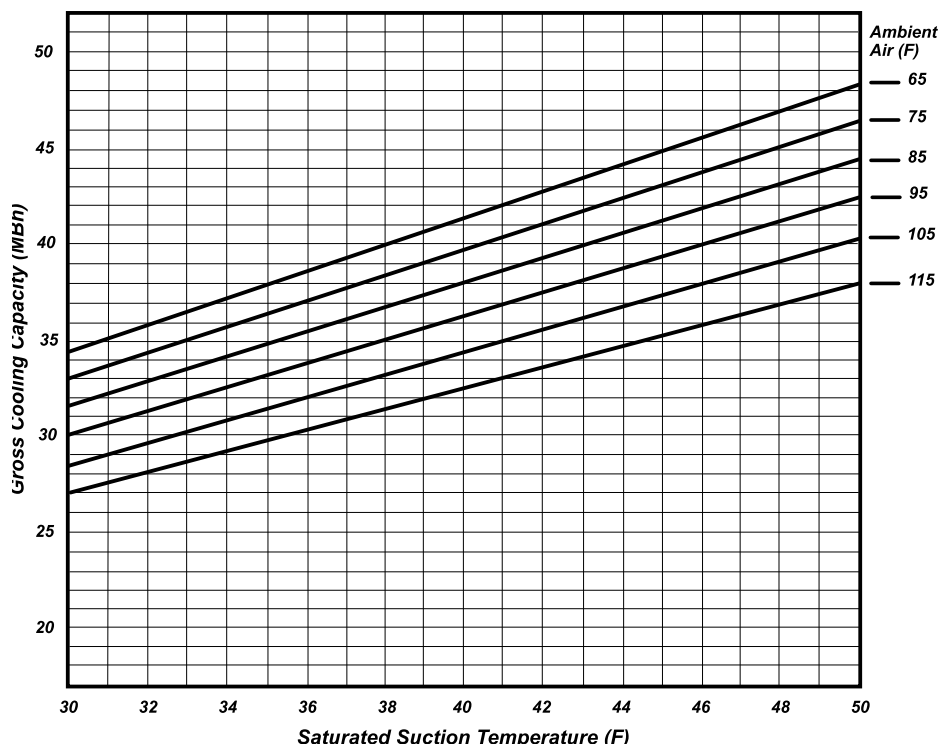
ELECTRICAL DATA



Model #	Voltage	Compressor			Condenser Fan			Min. Cct. Ampacity	Max Fuse/ Cct.Bkr.Amp
		QTY	RLA	LRA	HP	FLA	RPM		
VCN036F12	208-230/1/60	1 @	17.9	88.0	1.00	7.4	1800	29.78	45
VCN036F32	208-230/3/60	1 @	11.4	77.0	1.00	3.1	1800	17.35	25
VCN036F34	460/3/60	1 @	5.7	39.0	1.00	1.4	1800	8.53	15
VCN036F35	575/3/60	1 @	4.7	31.0	1.00	1.1	1800	6.99	15
VCN048F12	208-230/1/60	1 @	20.4	109.0	1.00	7.4	1800	32.90	50
VCN048F32	208-230/3/60	1 @	15.0	88.0	1.00	3.1	1800	20.48	35
VCN048F34	460/3/60	1 @	7.1	44.0	1.00	1.4	1800	10.33	15
VCN048F35	575/3/60	1 @	5.4	34.0	1.00	1.1	1800	7.79	15
VCN060F32	208-230/3/60	1 @	19.3	123.0	1.50	4.5	1800	28.63	45
VCN060F34	460/3/60	1 @	7.5	49.5	1.50	2.1	1800	11.48	15
VCN060F35	575/3/60	1 @	6.4	40.0	1.50	1.7	1800	9.70	15
VCN096F32	208-230/3/60	2 @	13.9	88.0	2.00	5.9	1800	37.18	50
VCN096F34	460/3/60	2 @	7.1	44.0	2.00	2.8	1800	18.87	25
VCN096F35	575/3/60	2 @	5.4	34.0	2.00	2.2	1800	14.24	15
VCN120F32	208-230/3/60	2 @	19.3	123.0	3.00	8.7	1800	52.13	70
VCN120F34	460/3/60	2 @	7.5	49.5	3.00	4.0	1800	20.88	25
VCN120F35	575/3/60	2 @	6.4	40.0	3.00	3.2	1800	17.60	20
VCN144F32	208-230/3/60	2 @	20.7	156.0	3.00	8.7	1800	55.28	70
VCN144F34	460/3/60	2 @	10.0	75.0	3.00	4.0	1800	26.50	35
VCN144F35	575/3/60	2 @	8.2	54.0	3.00	3.2	1800	21.65	25
VCN180F32	208-230/3/60	2 @	28.6	196.0	5.00	13.7	1800	78.05	100
VCN180F34	460/3/60	2 @	14.2	100.0	5.00	6.6	1800	38.55	50
VCN180F35	575/3/60	2 @	9.7	90.0	5.00	5.3	1800	27.13	35
VCN240F32	208-230/3/60	2 @	33.6	225.0	7.50	22.2	1800	97.80	125
VCN240F34	460/3/60	2 @	17.3	114.0	7.50	10.8	1800	49.73	60
VCN240F35	575/3/60	2 @	13.5	80.0	7.50	8.2	1800	38.58	50
VCN300F32	208-230/3/60	3 @	32.1	195.0	7.50	22.2	1800	126.53	150
VCN300F34	460/3/60	3 @	16.4	95.0	7.50	10.8	1800	64.10	80
VCN300F35	575/3/60	3 @	12.0	80.0	7.50	8.2	1800	47.20	50

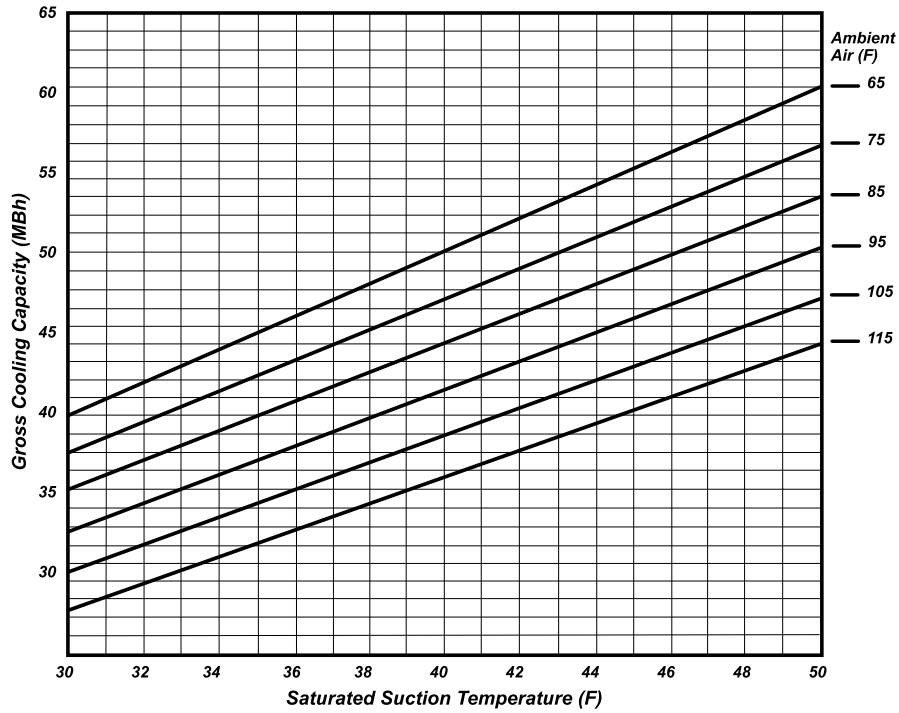
Model #	Outdoor CFM	External Static Pressure - Inches W.C.											
		0.2		0.4		0.6		0.8		1.0		1.2	
		RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP	RPM	BHP
VCN036F	2400	623	0.43	714	0.53	800	0.63	887	0.74	963	0.87	1038	1.00
VCN048F	2600	655	0.52	741	0.63	823	0.74	894	0.88	964	1.00	-	-
VCN060F	3200	767	0.89	839	1.03	908	1.17	973	1.31	1035	1.46	-	-
VCN096F	4700	669	1.19	811	1.38	882	1.59	951	1.82	1017	2.07	-	-
VCN120F	5500	816	1.71	873	1.94	941	2.19	1008	2.46	1073	2.75	1136	3.06
VCN144F	6600	722	1.77	735	2.06	792	2.46	848	2.60	900	3.00	-	-
VCN180F	7500	796	2.35	780	2.67	834	3.01	886	3.37	936	3.76	983	4.18
VCN240F	10200	704	3.72	700	4.12	741	4.50	781	4.91	820	5.32	857	5.73
VCN300F	11500	804	4.76	728	5.20	767	5.64	805	6.09	841	6.52	876	6.97

VCN036F Condensing Unit Performance

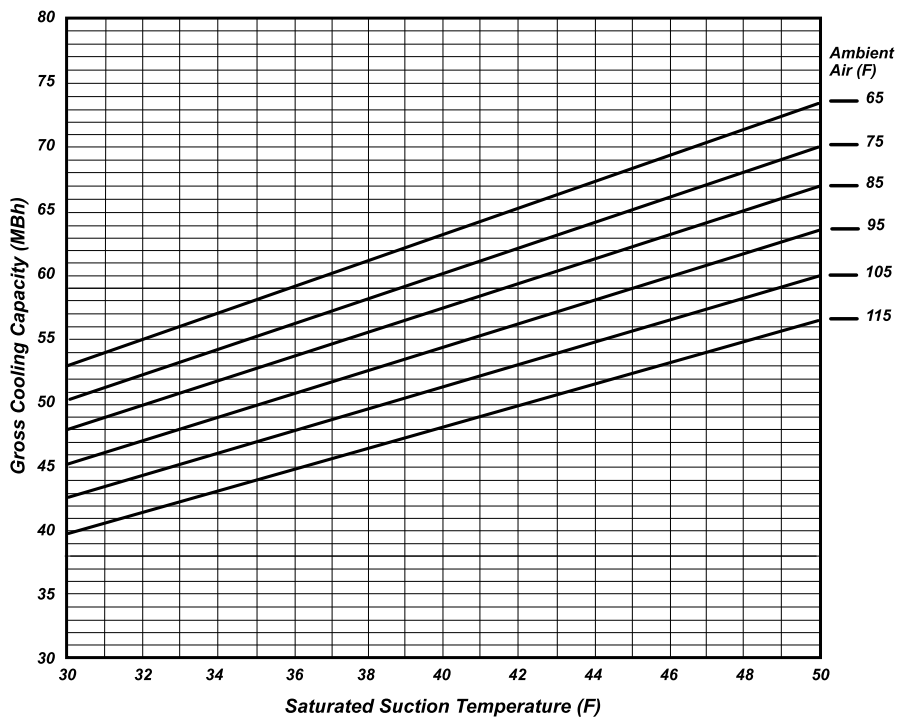


NOTE: Performance data calculated at 15°F subcooling and 20°F superheat and does not include capacity loss due to refrigerant drop.

VCN048F Condensing Unit Performance

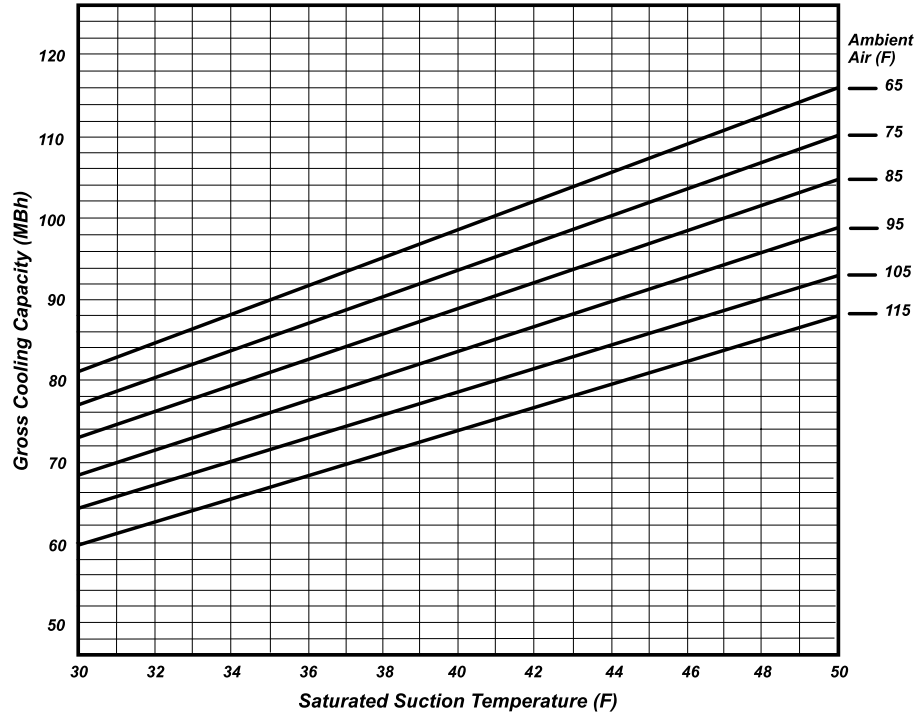


VCN060F Condensing Unit Performance

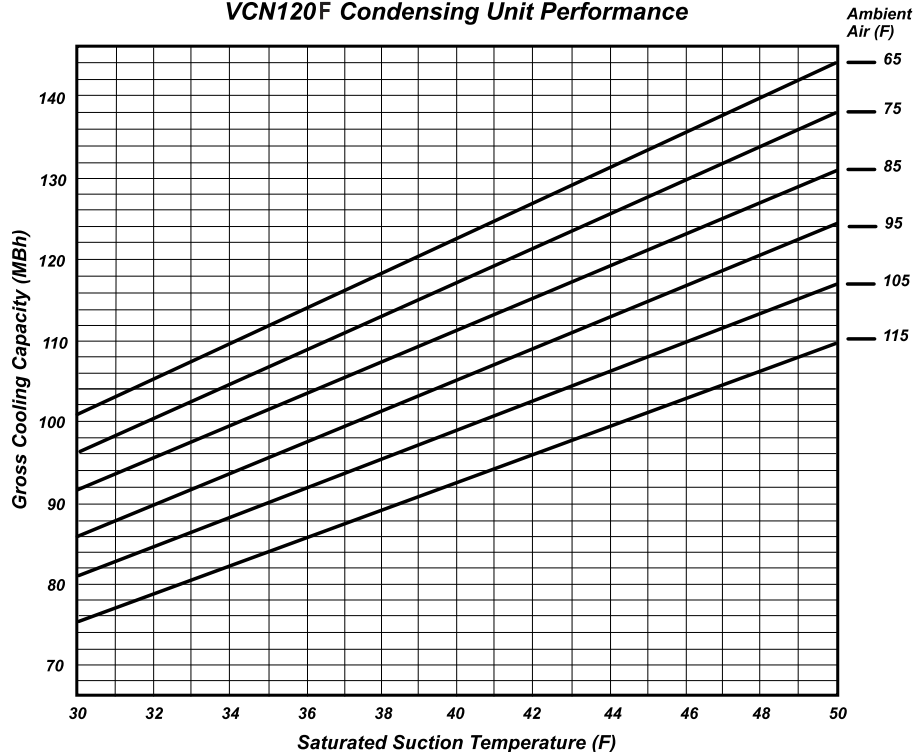


NOTE: Performance data calculated at 15°F subcooling and 20°F superheat and does not include capacity loss due to refrigerant drop.

VCN096F Condensing Unit Performance

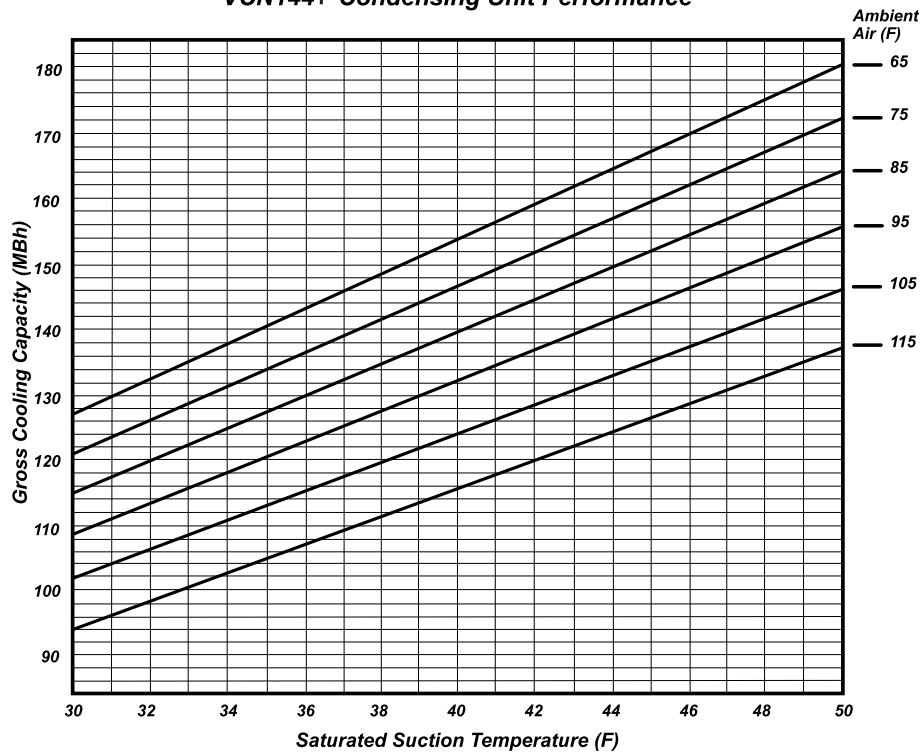


VCN120F Condensing Unit Performance

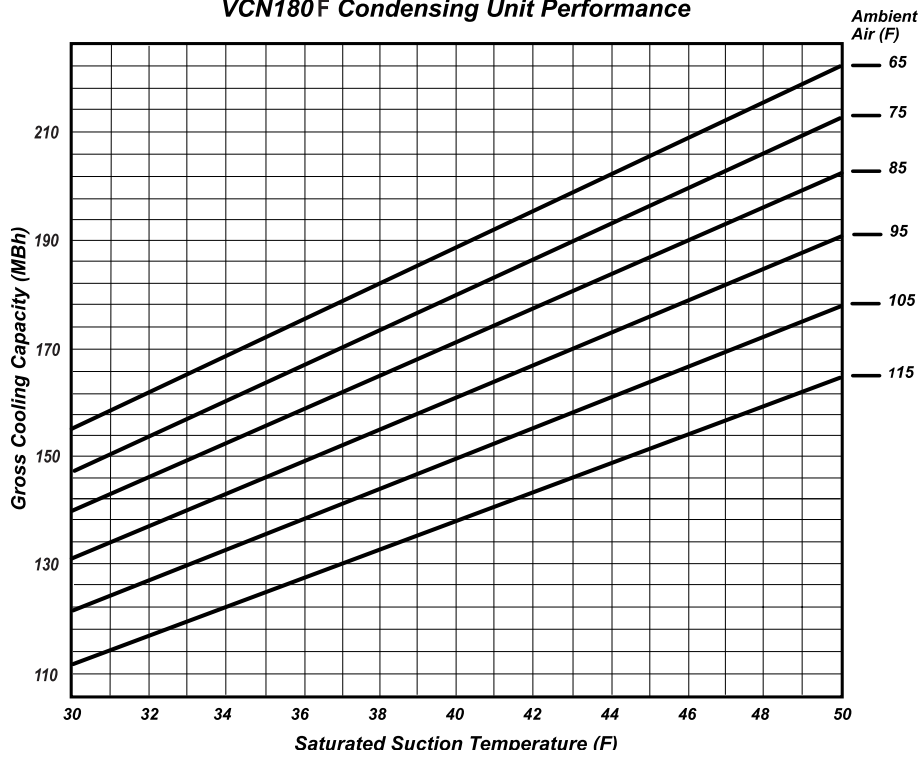


NOTE: Performance data calculated at 15°F subcooling and 20°F superheat and does not include capacity loss due to refrigerant drop.

VCN144F Condensing Unit Performance

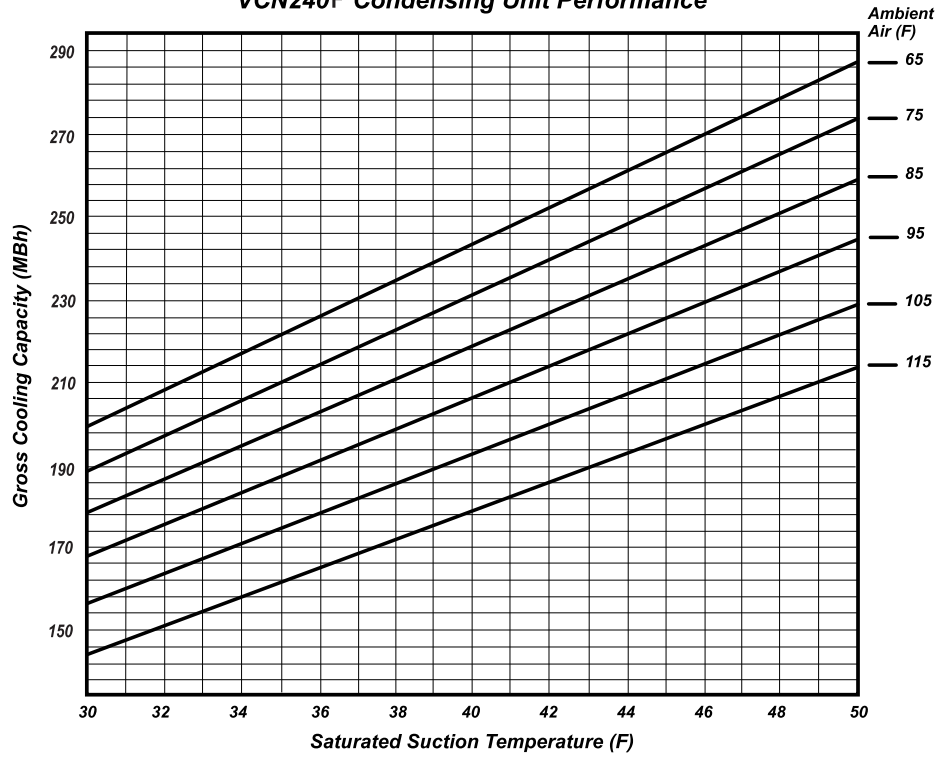


VCN180F Condensing Unit Performance

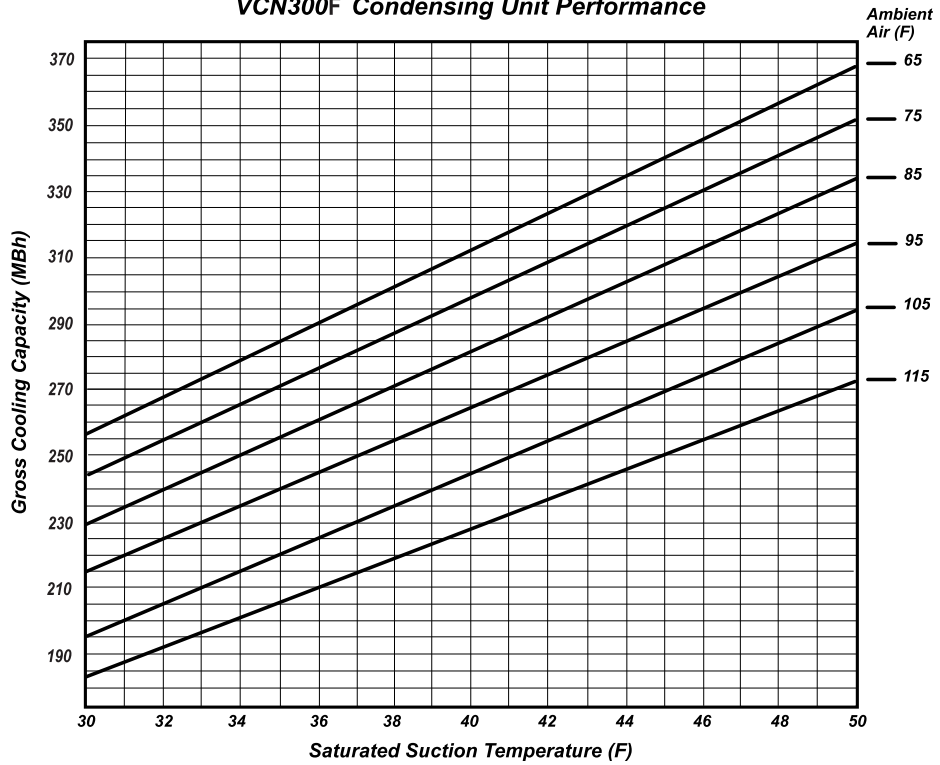


NOTE: Performance data calculated at 15°F subcooling and 20°F superheat and does not include capacity loss due to refrigerant drop.

VCN240F Condensing Unit Performance

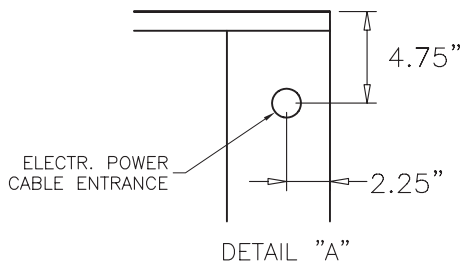
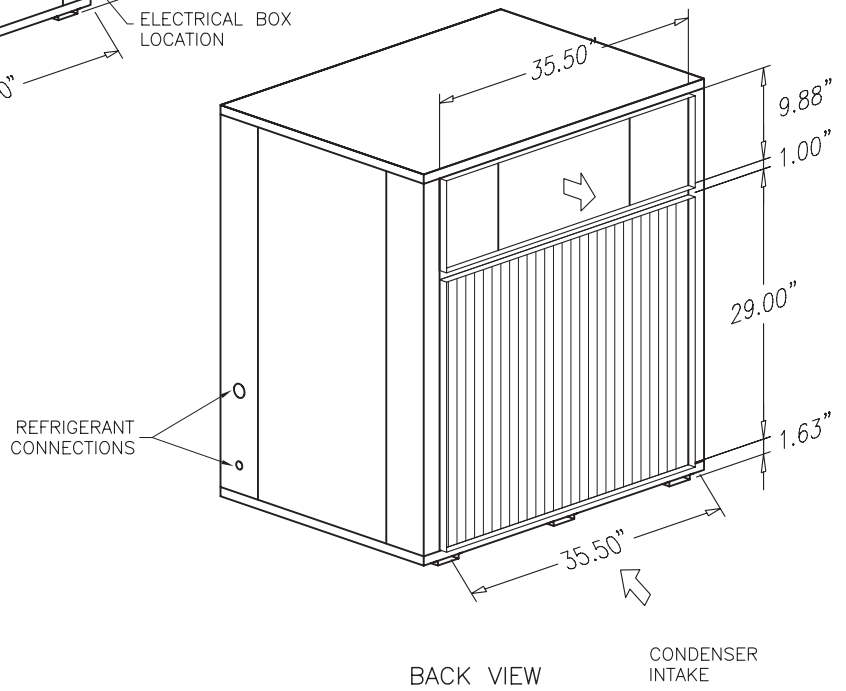
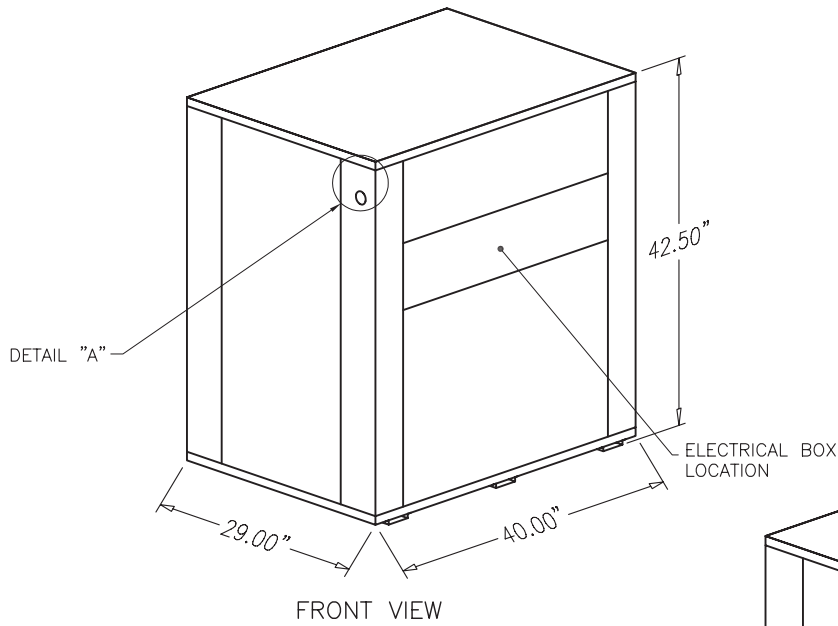


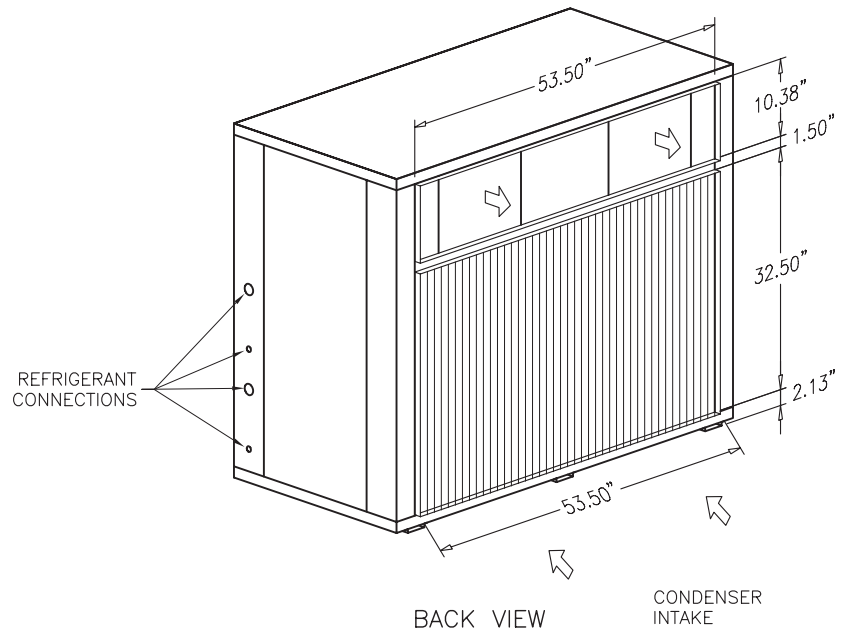
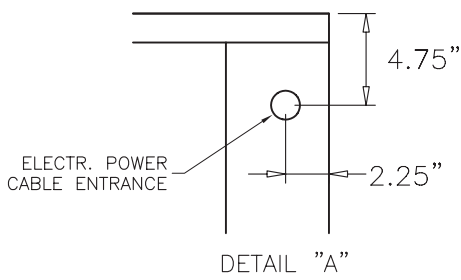
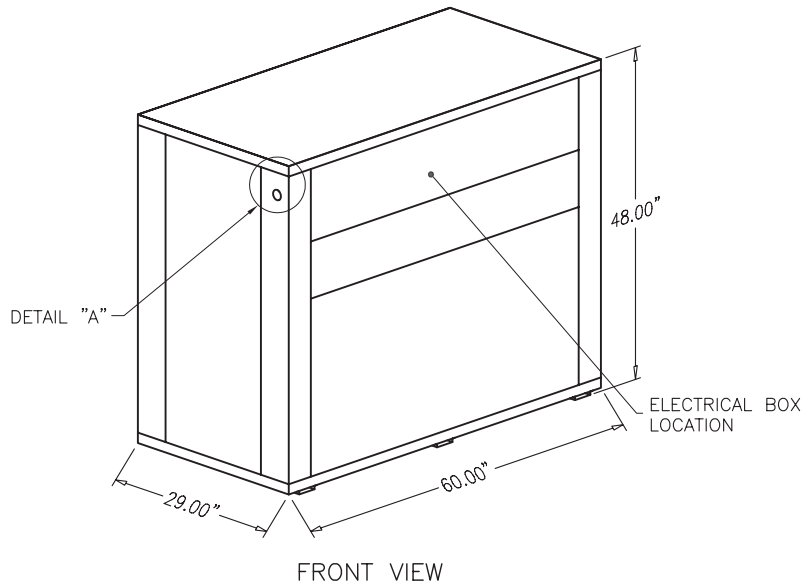
VCN300F Condensing Unit Performance



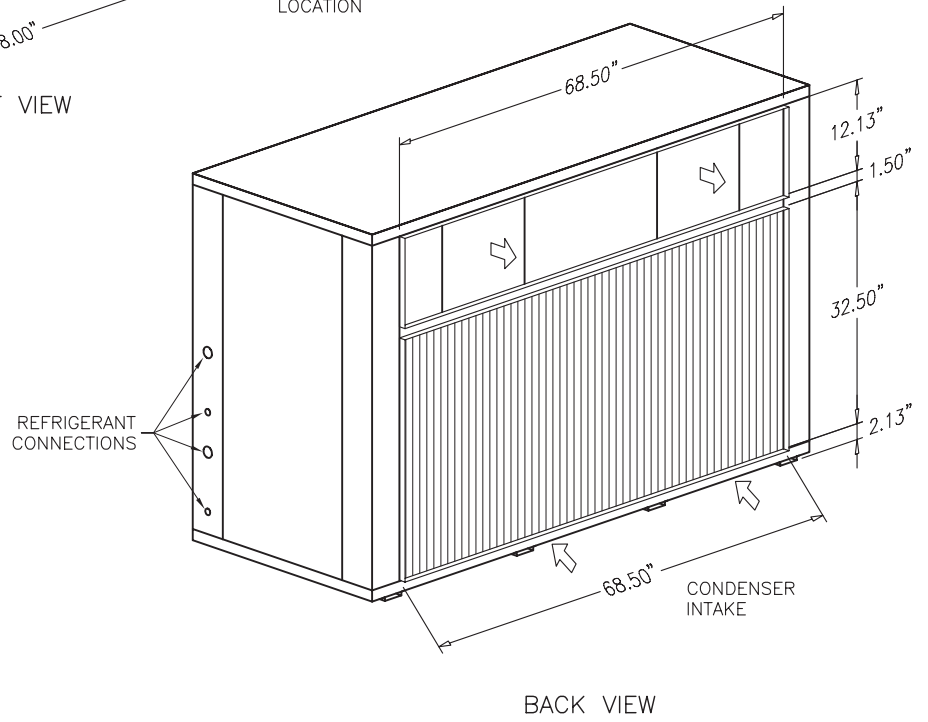
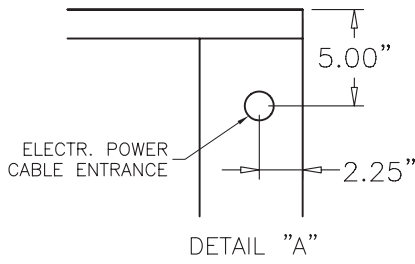
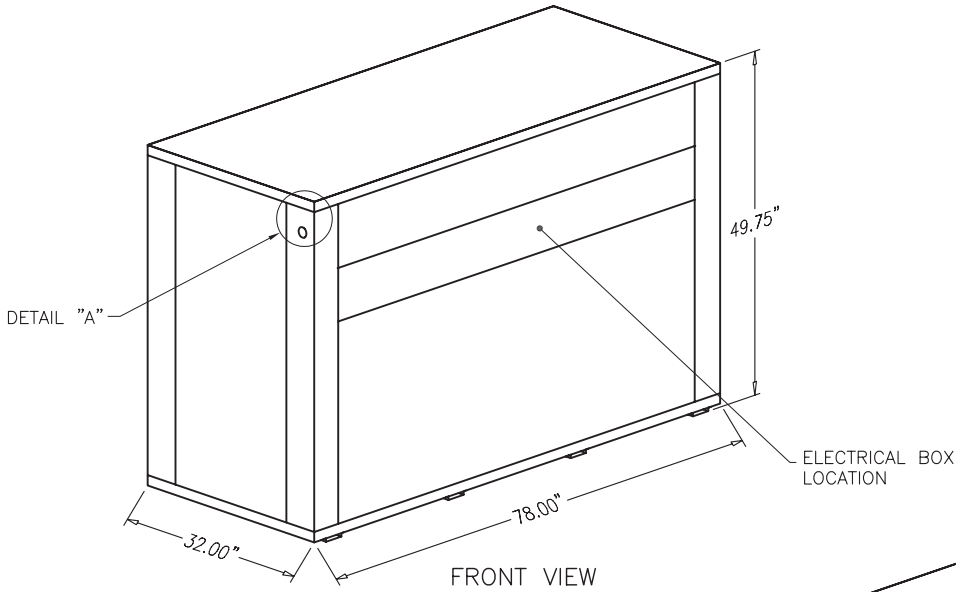
NOTE: Performance data calculated at 15°F subcooling and 20°F superheat and does not include capacity loss due to refrigerant drop.

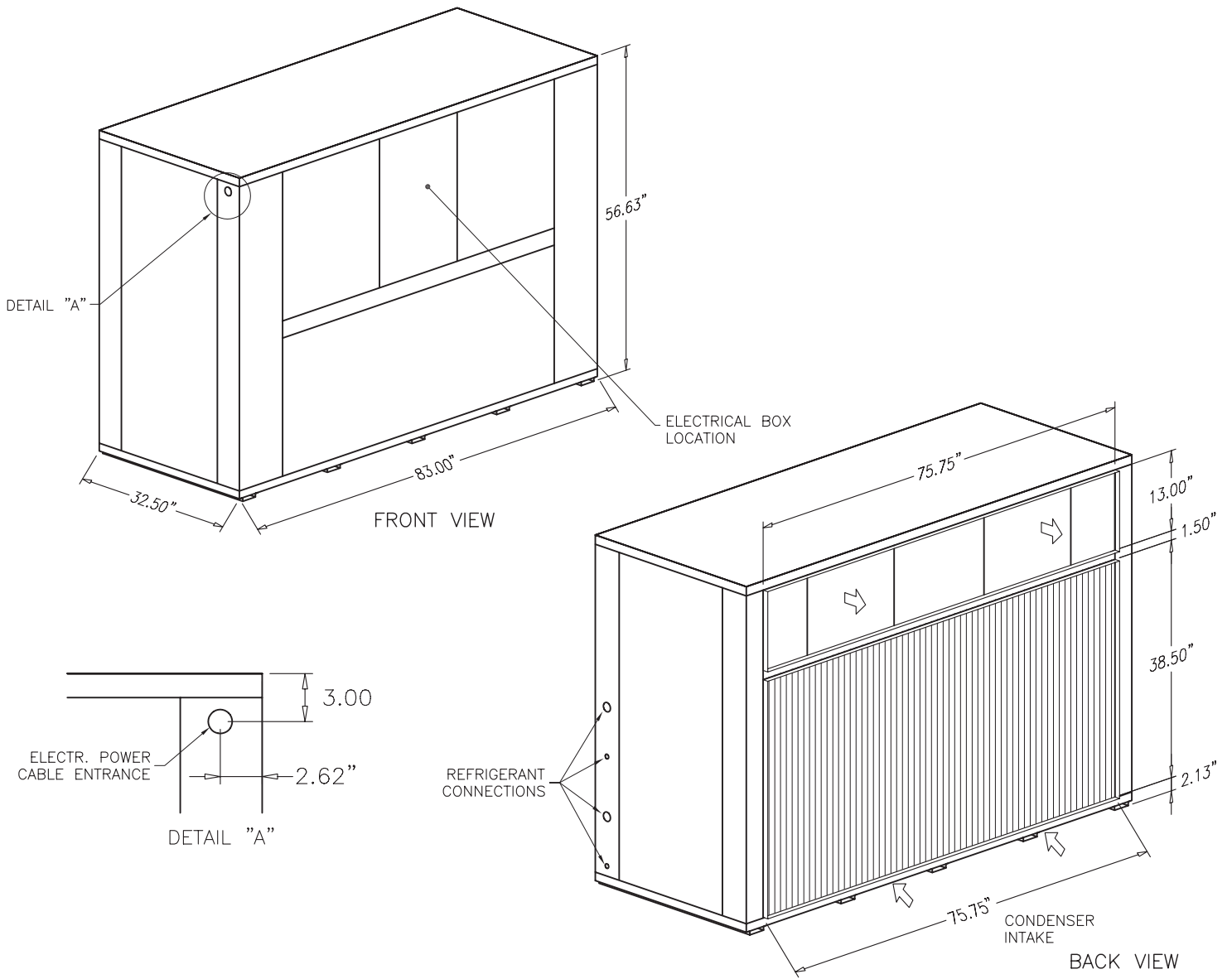
3/4/5 TON UNIT DIMENSIONS



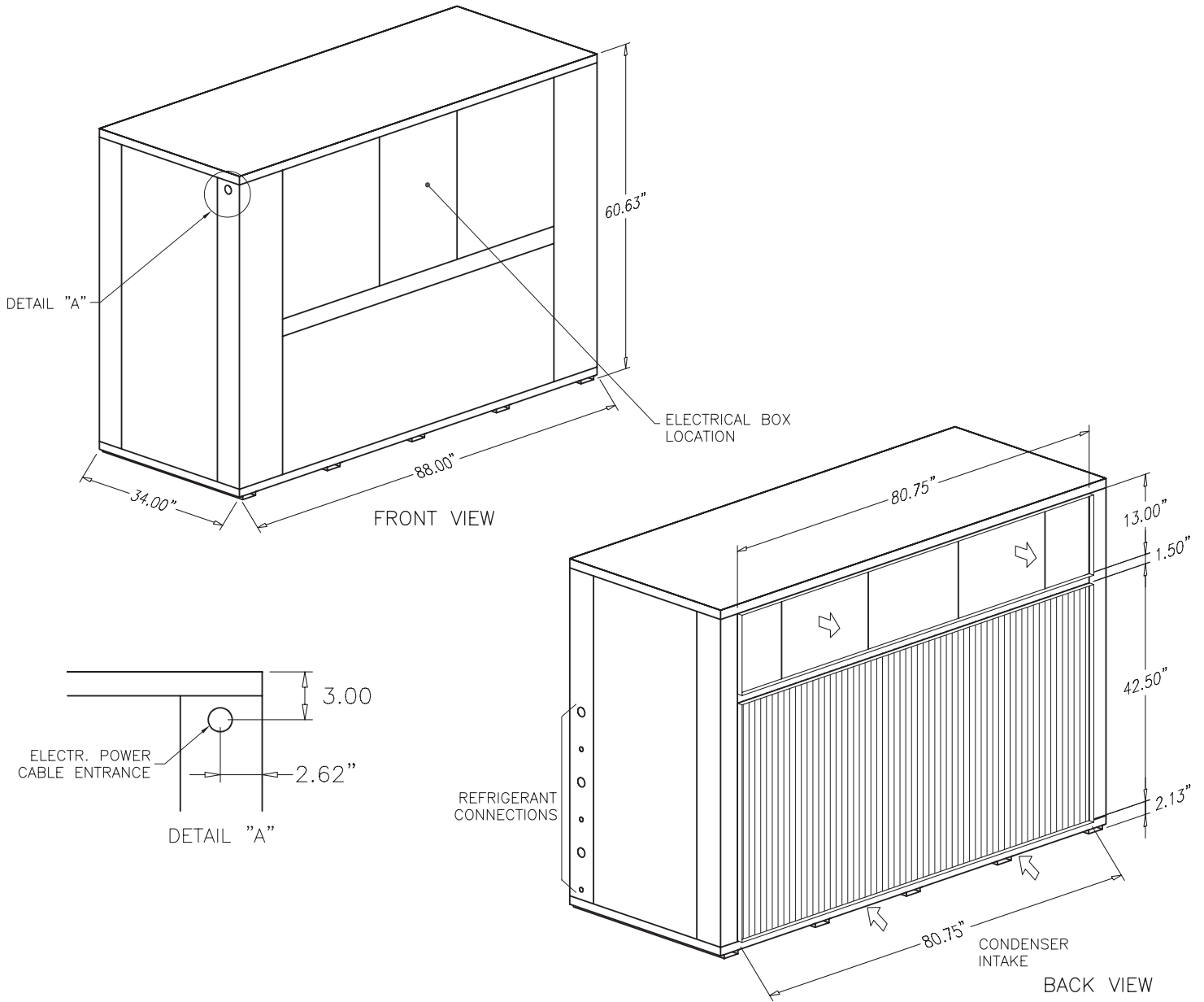


12/15 TON UNIT DIMENSIONS





25 TON UNIT DIMENSIONS



FACTORY INSTALLED

Hot Gas Bypass

Includes adjustable hot gas regulator factory piped to compressor discharge line. Hot gas outlet must be field piped to evaporator distributor inlet. 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 preset suction pressure to prevent coil freeze-up at light evaporator load, or low airflow conditions.

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.

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°F ambient. Damper assembly mounts on condenser air intake. The kit includes damper actuator and low pressure switch bypass timer(s).

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.

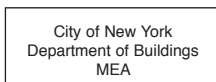
Skymark International will replace the defective part or parts within 21 days after the return to Skymark International of such defective part or parts provided notice of such defect was given by the original Owner/User within the Warranty period.

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.



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

