

48HC*D
Single Package Rooftop
Gas Heating/Electric Cooling Unit
with Puron® (R-410A) Refrigerant
Sizes: 20, 24, 28



Electrical Data Supplement

NOTE: Read the entire instruction manual before starting the installation

This supplement only applies to 48HC*D size 20, 24 & 28 units when the 10th digit of the Model Number is either a 2, 3, 6, or 7 as shown in the Model Number Nomenclature diagram below. Check the Unit Nameplate (see Figs. 1 & 2). If the digit in the 10th position is not either a 2, 3, 6, or 7 discard this document.

MODEL NUMBER NOMENCLATURE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	8	H	C	D	D	2	4	A	2	A	6	-	0	A	0	A	0

Unit Heat Type

48 = Gas Heat
 Packaged Rooftop

Model Series - WeatherMaster

HC = High Efficiency

Heat Size

D = Low Gas Heat
 E = Medium Gas Heat
 F = High Gas Heat
 S = Low Stainless Gas Heat
 R = Medium Stainless Gas Heat
 T = High Stainless Gas Heat

Refrig. Systems Options

D = Two Stage Cooling Models

Cooling Tons

17 = 15 ton
 20 = 17.5 ton
 24 = 20 ton
 28 = 25 ton

Indoor Fan Options & Air Flow Configuration:

17.5, 20 & 25 Ton Models Only

1 = Standard Static / Vertical Supply, Return Air Flow
 2 = Medium Static / Vertical Supply, Return Air Flow
 3 = High Static / Vertical Supply, Return Air Flow

5 = Standard Static / Horizontal Supply, Return Air Flow
 6 = Medium Static / Horizontal Supply, Return Air Flow
 7 = High Static / Horizontal Supply, Return Air Flow


Sensor Options

A = None
 B = RA Smoke Detector
 C = SA Smoke Detector
 D = RA + SA Smoke Detector
 E = CO2
 F = RA Smoke Detector and CO2
 G = SA Smoke Detector and CO2
 H = RA + SA Smoke Detector and CO2

SAFETY CONSIDERATIONS

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock or other conditions which may cause personal injury or property damage. Consult a qualified installer, service agency, or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses and work gloves. Use quenching cloths for brazing operations and have a fire extinguisher available. Read these instructions thoroughly and follow all warnings or cautions attached to the unit. Consult local building codes and appropriate national electrical codes (in USA, ANSI/NFPA70, National Electrical Code (NEC); in Canada, CSA C22.1) for special requirements.

It is important to recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, CAUTION, and NOTE. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies hazards which **could** result in personal injury or death. CAUTION is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Nameplate Location

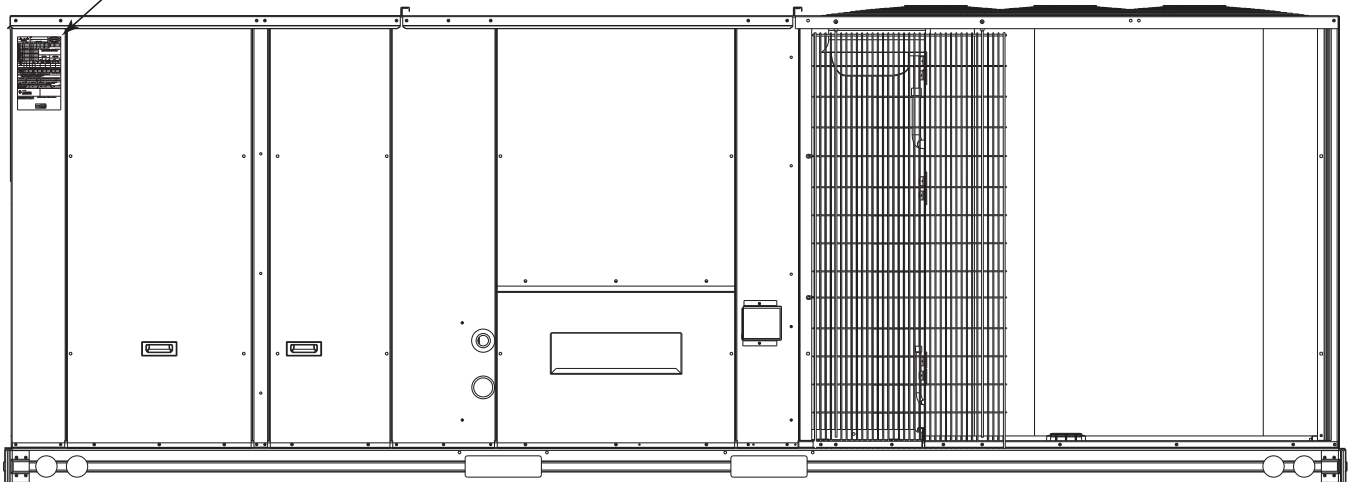


Fig. 1 - Location of Unit Nameplate

CAUTION

ELECTRICAL HAZARD

Failure to follow this caution may result in personal injury or product and property damage.

The electrical data contained in this document is only for use with 48HC size 20, 24 and 28 units which display either a 2, 3, 6, or 7 in the 10th position of the 18 digit model number as displayed on the unit's nameplate.

See Fig. 1 for location of the unit's nameplate.

See Fig. 2 for details of the 18 digit model number.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury or death.

Before performing service or maintenance operations on unit, always turn off main power switch to unit and install lockout tag. Unit may have more than one power switch.

Carrier Corporation 7310 WEST MORRIS STREET INDIANAPOLIS IN 46231 USA		MODEL 48HCDD24A2A6-0A0A0		SERIAL		FACTORY CHARGED						
QTY	VOLTS AC	PH	HZ	RLA	LRA	REF. SYSTEM R-410A		TEST PRESSURE GAGE				
COMPR A						LBS	kg	HI	PSI	kPa		
COMPR B						LBS	kg	LO	PSI	kPa		
COMPR C						LBS	kg					
FAN MTR	QTY	VOLTS AC	PH	HZ	FLA	CHARGE SYSTEM PER INSTALLATION INSTRUCTIONS FOR OUTDOOR INSTALLATION ONLY COMBINATION COOLING AND HEATING UNIT						
OUTDOOR												
INDOOR												
PWR EXHAUST												
ERV SUPPLY												
ERV EXHAUST												
ERV WHEEL						POWER SUPPLY			PERMISSIBLE VOLTAGE TO UNIT			
COMBUST												
CONV. OUTLET						VOLTS		PH		HZ	MAX	MIN
ACCESSORY PWR EXHAUST MODEL NUMBER	VOLTS	PH	HZ	ACC. PWR. EXH. FLA	MIN. CKT AMPS	MAX. FUSE OR HACR BREAKER PER NEC	MAXIMUM OVERCURRENT PROTECTION DEVICE	MIN UNIT DISCONNECT				
NONE								FLA	LRA			
MINIMUM CLEARANCES TO COMBUSTIBLE MATERIALS												
TOP			BOTTOM *			SIDES			FLUE SIDE **			
DOWN SUPPLY	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM		
SIDE SUPPLY	IN.	MM	IN.	MM	IN.	MM	IN.	MM	IN.	MM		
* FOR INSTALLATION ON COMBUSTIBLE FLOORING OR CLASS A, B, OR C ROOFING MATERIAL												
** 18 INCHES (457mm) WITH ACCESSORY FLUE DISCHARGE DEFLECTOR												
DEVICE CERTIFIED AS A FORCED AIR FURNACE WITH COOLING UNIT APPROVED FOR NON-RESIDENTIAL USE TO -40°F AMBIENT												
AIR TEMP RISE		MAX EXTERNAL STATIC PRESSURE				DESIGNED MAXIMUM OUTLET AIR TEMPERATURE						
F		W.C.				F						
C		KPa				C						
BTU/HR	INPUT MIN	INPUT MAX	OUTPUT CAP	THERMAL EFFICIENCY	EQUIPPED FOR USE WITH							
KW				%	GAS							
GAS SUPPLY PRESSURE		W.C.		KPa	MAX	W.C.		KPa	MIN			
MANIFOLD PRESSURE		W.C.		KPa								
				ETL LISTED COOLING PORTION CONFORMS TO UL-1995 HEATING PORTION CONFORMS TO ANSI Z21.47, CSA 2.3 (2007)								
THIS EQUIPMENT COMPLIES WITH THE 2004 REQUIREMENTS OF ASHREA 90.1				ENGINEERED IN USA, ASSEMBLED IN MEXICO								

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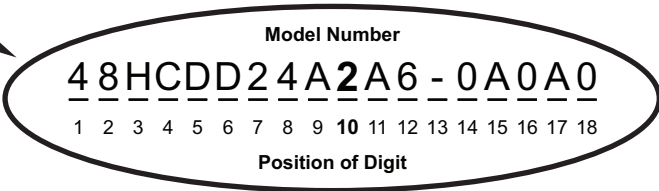


Fig. 2 - Example of Nameplate with Model Number

C101289

Table 1 – Unit Wire/Fuse or HACR Breaker Sizing Data

UNIT	NOM. V-Ph-Hz	IFM TYPE	COMBUSTION FAN MOTOR	POWER EXHAUST	NO C.O. or UNPWR C.O.									
					NO PE.				w/ P.E. (pwrdr fr/ unit)					
					FLA	FLA	MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
48HC*D20	208/230-3-60	STD			75.7	100.0	79	440	87.5	100.0	93	460		
		MED	0.52	5.9	80.5	100.0	85	449	92.3	100.0	98	469		
		HIGH			78.3	100.0	82	451	90.1	100.0	96	471		
	460-3-60	STD			36.6	45.0	38	245	42.8	50	46	257		
		MED	0.3	3.1	39.2	50.0	41	249	45.4	50.0	49	261		
		HIGH			38.2	50.0	40	250	44.4	50.0	47	262		
	575-3-60	STD			26.2	30.0	27	186	31	40	33	194		
		MED	0.24	2.4	29.0	35.0	31	200	33.8	40.0	36	208		
		HIGH			28.5	35	30	189	33.3	40	36	197		
48HC*D24	208/230-3-60	STD			88.7	100.0	93	544	100.5	125.0	107	564		
		MED	0.52	5.9	86.5	100.0	91	546	98.3	125.0	104	566		
		HIGH			93.1	110.0	98	582	104.9	125.0	112	602		
	460-3-60	STD			48.6	60.0	51	277	54.8	60	58	289		
		MED	0.3	3.1	47.6	60.0	50	278	53.8	60.0	57	290		
		HIGH			50.9	60.0	54	296	57.1	70.0	61	308		
	575-3-60	STD			35.5	45.0	37	204	40.3	50	43	212		
		MED	0.24	2.4	35.0	45.0	37	193	39.8	50.0	42	201		
		HIGH			37.7	45	40	219	42.5	50	45	227		
48HC*D28	208/230-3-60	STD			117.4	150.0	121	584	129.2	175.0	135	604		
		MED	0.52	5.9	115.2	150.0	119	586	127.0	175.0	132	606		
		HIGH			121.8	150.0	126	622	133.6	175.0	140	642		
	460-3-60	STD			54.0	60.0	57	303	60.2	70	64	315		
		MED	0.3	3.1	53.0	60.0	56	304	59.2	70.0	63	316		
		HIGH			56.3	70.0	59	322	62.5	80.0	66	334		
	575-3-60	STD			40.4	50.0	42	228	45.2	50	48	236		
		MED	0.24	2.4	39.9	50.0	42	217	44.7	50.0	47	225		
		HIGH			42.6	50	45	243	47.4	60	50	251		

NOTE: See page 6 for table legend and notes

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Table 1 — Unit Wire/Fuse or HACR Breaker Sizing Data (cont)

UNIT	NOM. V-Ph-Hz	IFM TYPE	COMBUSTION FAN MOTOR	POWER EXHAUST	w/ PWRD C.O.									
					NO P.E.				w/ P.E. (pwrd fr/ unit)					
					FLA	FLA	MCA	FUSE or HACR BRKR	DISC. SIZE		MCA	FUSE or HACR BRKR	DISC. SIZE	
									FLA	LRA			FLA	LRA
48HC*D20	208/230-3-60	STD			80.5	100.0	85	445	92.3	100.0	98	465		
		MED	0.52	5.9	85.3	100.0	90	454	97.1	110.0	104	474		
		HIGH			83.1	100.0	88	456	94.9	110.0	101	476		
	460-3-60	STD			38.8	50	41	247	45	50	48	259		
		MED	0.3	3.1	41.4	50.0	44	251	47.6	60.0	51	263		
		HIGH			40.4	50.0	43	252	46.6	50.0	50	264		
	575-3-60	STD			27.9	35	29	188	32.7	40	35	196		
		MED	0.24	2.4	30.7	40.0	33	202	35.5	45.0	38	210		
		HIGH			30.2	35	32	191	35	40	37	199		
48HC*D24	208/230-3-60	STD			93.5	110.0	99	549	105.3	125.0	112	569		
		MED	0.52	5.9	91.3	100.0	96	551	103.1	125.0	110	571		
		HIGH			97.9	125.0	104	587	109.7	125.0	118	607		
	460-3-60	STD			50.8	60	54	279	57	70	61	291		
		MED	0.3	3.1	49.8	60.0	52	280	56.0	70.0	60	292		
		HIGH			53.1	60.0	56	298	59.3	70.0	63	310		
	575-3-60	STD			37.2	45	39	206	42	50	45	214		
		MED	0.24	2.4	36.7	45.0	39	195	41.5	50.0	44	203		
		HIGH			39.4	50	42	221	44.2	50	47	229		
48HC*D28	208/230-3-60	STD			122.2	150.0	127	589	134.0	175.0	140	609		
		MED	0.52	5.9	120.0	150.0	124	591	131.8	175.0	138	611		
		HIGH			126.6	150.0	132	627	138.4	175.0	145	647		
	460-3-60	STD			56.2	70	59	305	62.4	80	66	317		
		MED	0.3	3.1	55.2	60.0	58	306	61.4	70.0	65	318		
		HIGH			58.5	70.0	62	324	64.7	80.0	69	336		
	575-3-60	STD			42.1	50	44	230	46.9	60	50	238		
		MED	0.24	2.4	41.6	50.0	44	219	46.4	60.0	49	227		
		HIGH			44.3	50	47	245	49.1	60	52	253		

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NOTE: See page 6 for table legend and notes

Legend and Notes for Table 1

LEGEND:

BRKR	-	Circuit breaker
CO	-	Convenient outlet
DISC	-	Disconnect
FLA	-	Full load amps
LRA	-	Locked rotor amps
MCA	-	Minimum circuit amps
PE	-	Power exhaust
PWRD CO	-	Powered convenient outlet
UNPWR CO	-	Unpowered convenient outlet



NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.

2. Unbalanced 3-Phase Supply Voltage

Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224 v
BC = 231 v
AC = 226 v

$$\begin{aligned} \text{Average Voltage} &= \frac{(224 + 231 + 226)}{3} = \frac{681}{3} \\ &= 227 \end{aligned}$$

Determine maximum deviation from average voltage.

$$(AB) 227 - 224 = 3 \text{ v}$$

$$(BC) 231 - 227 = 4 \text{ v}$$

$$(AC) 227 - 226 = 1 \text{ v}$$

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{4}{227} \\ &= 1.76\% \end{aligned}$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.

