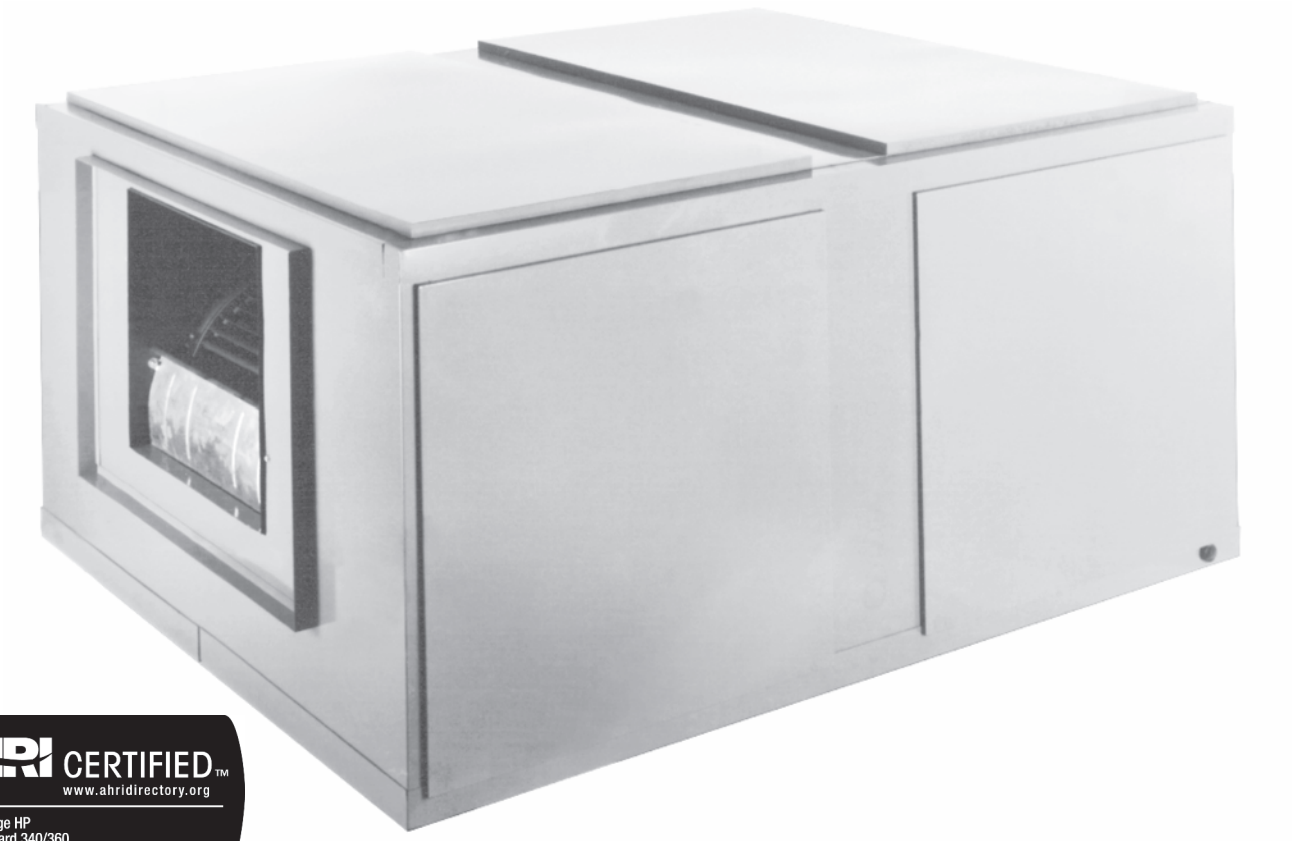
INSTALLATION INSTRUCTIONS

RHGM COMMERCIAL AIR HANDLERS
NOMINAL 7.5 AND 10 TON AIR CONDITIONING FEATURING EARTH-FRIENDLY R-410A REFRIGERANT



AHRI CERTIFIED™ www.ahridirectory.org
Unitary Large HP
AHRI Standard 340/360
Certification applies only when the complete system is listed with AHRI.

AHRI CERTIFIED™ www.ahridirectory.org
Unitary Large AC
AHRI Standard 340/360
Certification applies only when the complete system is listed with AHRI.

c UL us LISTED

UL listing and CSA certification on some models is in process.
Contact your distributor for available models.

Accredited by the RvA
ABS Quality Evaluations, Inc. Management System Certification
ANAB ACCREDITED
ISO 9001:2008
Certificate Number: 30164

⚠ Recognize this symbol as an indication of Important Safety Information!

DO NOT DESTROY
PLEASE READ CAREFULLY AND KEEP IN A SAFE PLACE FOR FUTURE REFERENCE.

⚠ WARNING

THESE INSTRUCTIONS ARE INTENDED AS AN AID TO QUALIFIED, LICENSED SERVICE PERSONNEL FOR PROPER INSTALLATION, ADJUSTMENT AND OPERATION OF THIS UNIT. READ THESE INSTRUCTIONS THOROUGHLY BEFORE ATTEMPTING INSTALLATION OR OPERATION. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN IMPROPER INSTALLATION, ADJUSTMENT, SERVICE OR MAINTENANCE POSSIBLY RESULTING IN FIRE, ELECTRICAL SHOCK, PROPERTY DAMAGE, PERSONAL INJURY OR DEATH.

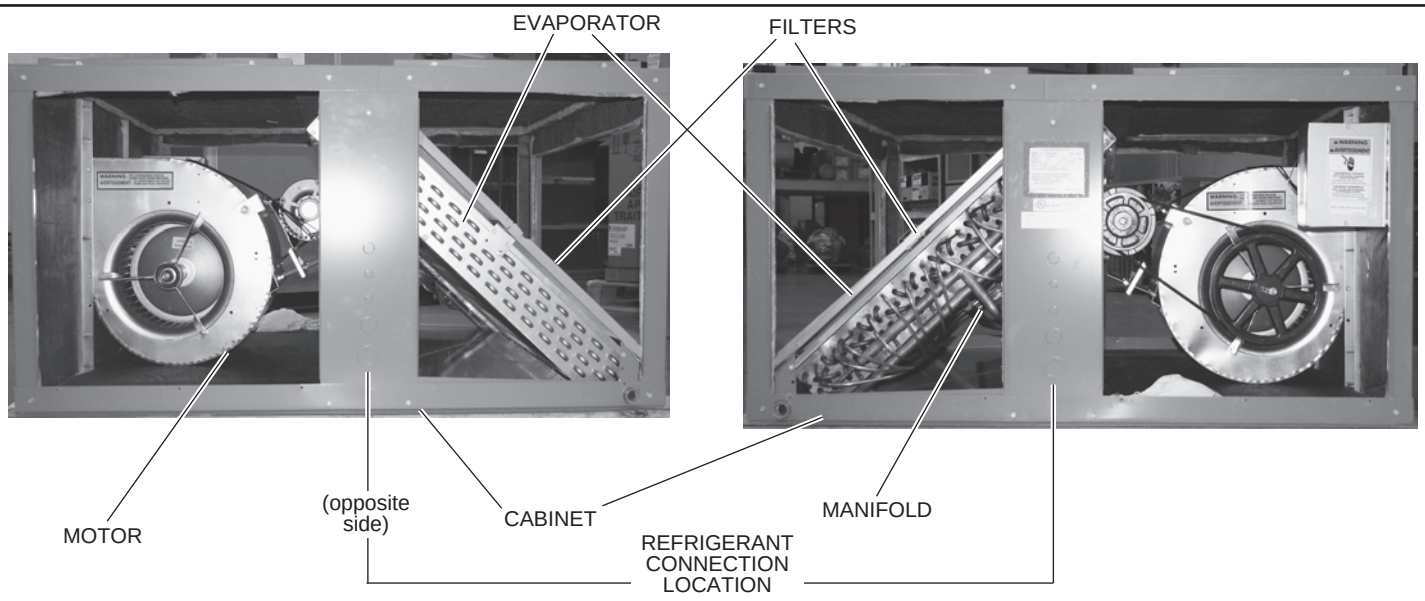
92-103192-01-03
SUPERSEDES 92-103192-01-02

INDEX

Introduction 3
Checking Product Received 3
Standard Unit Features 3
Unit Dimensions 4
Performance Data 5
Physical Data Table 6
Drive Package Data 6
Indoor Blower Performance 7-8
Low Voltage Connection 10
Branch Circuit Conductor Data 10
Field Installed Mixing Box Accessory 11
Field-Installed Mixing Box Dimensions 12
Inspection, Location, Installation 13
Refrigerant Piping 13
Typical Piping Recommendations 14
Condensate Drain Piping 14
Motor, Sheave, Fan Pulley Mounting & Adjustment 15
Fan Belt Alignment & Adjustment 15
Pre-Start Check List 15
Operating Instructions 16
Service & Maintenance 16
Lubrication 16

R H G M — 090 H K

- TRADEBRAND
- AIR HANDLER
- HORIZONTAL/VERTICAL, DIRECT EXPANSION
- DESIGN SERIES
  - M = R410A
- COOLING CAPACITY (NOMINAL)
  - 090 = 90,000 BTU/HR (7½ TONS)
  - 120 = 120,000 BTU/HR (10 TONS)
  - 180 = 180,000 BTU/HR (15 TONS)
  - 240 = 240,000 BTU/HR (20 TONS)
- ELECTRICAL DESIGNATION
  - H = 115/208-230V, 1PH, 60HZ (7½ & 10 TON ONLY)
  - Z = 208/230/460V, 3PH, 60HZ
  - Y = 575V, 3PH, 60HZ
  - P = 200/220V, 3PH, 50HZ
  - N = 380/415V, 3PH, 50HZ
- DRIVE PACKAGE
  - K = STANDARD
  - L = OPTIONAL
  - M = OPTIONAL
  - N = OPTIONAL
  - O = OPTIONAL



7.5-10 nominal-tons [26-35 kW] unit
with side panel removed for coil connections & air filter access.

INTRODUCTION

Recognize this symbol as an indication of Important Safety Information!

⚠ WARNING

PROPOSITION 65: THIS APPLIANCE CONTAINS FIBERGLASS INSULATION. RESPIRABLE PARTICLES OF FIBERGLASS ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER.

⚠ WARNING

THE MANUFACTURER'S WARRANTY DOES NOT COVER ANY DAMAGE OR DEFECT TO THE AIR HANDLER CAUSED BY THE ATTACHMENT OR USE OF ANY COMPONENTS, ACCESSORIES OR DEVICES (OTHER THAN THOSE AUTHORIZED BY THE MANUFACTURER) INTO, ONTO OR IN CONJUNCTION WITH THE AIR HANDLER. YOU SHOULD BE AWARE THAT THE USE OF UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES MAY ADVERSELY AFFECT THE OPERATION OF THE AIR HANDLER AND MAY ALSO ENDANGER LIFE AND PROPERTY. THE MANUFACTURER DISCLAIMS ANY RESPONSIBILITY FOR SUCH LOSS OR INJURY RESULTING FROM THE USE OF SUCH UNAUTHORIZED COMPONENTS, ACCESSORIES OR DEVICES.

This booklet contains the installation and operating instructions for your air handler. There are a few precautions that should be taken to derive maximum satisfaction from it. Improper installation can result in unsatisfactory operation or dangerous conditions.

Read this booklet and any instructions packaged with separate equipment required to make up the system prior to installation. Give this booklet to the owner and explain its provisions. The owner should retain this booklet for future reference.

CHECKING PRODUCT RECEIVED

Upon receiving the unit, inspect it for any damage from shipment. Claims for damage, either shipping or concealed, should be filed immediately with the shipping company. Check the unit model number and electrical characteristics to determine if they are correct.

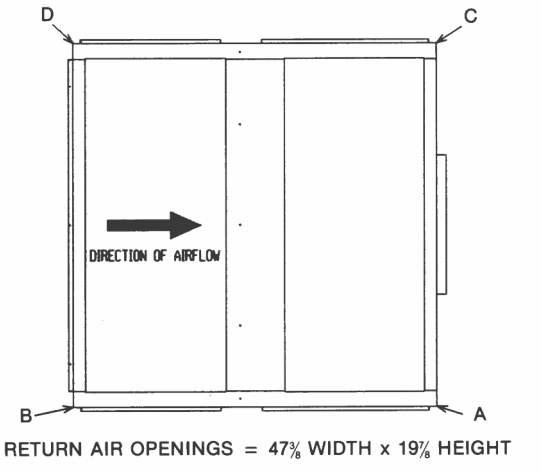
STANDARD UNIT FEATURES

HORIZONTAL OR VERTICAL—All models are designed for either application and can be installed in either position as supplied from the factory.

MANIFOLD—All models are furnished with dual circuit manifolds for dual condensing unit application. The circuitry is so arranged to provide full face coil operation from each unit. Fittings are provided with each unit for single condensing unit application. The fittings may be installed for either right or left hand tubing connections.

DRAIN PAN (not visible)—The zinc coated steel drain pan is designed to trap condensate in either vertical or horizontal installations. All pans are insulated with fiberglass insulation between the bottom of the pan and the unit and may be connected for either right or left hand drains. If unit is to be installed over a finished ceiling and in an unconditioned space, it is recommended an auxiliary drain pan be placed under the entire unit.

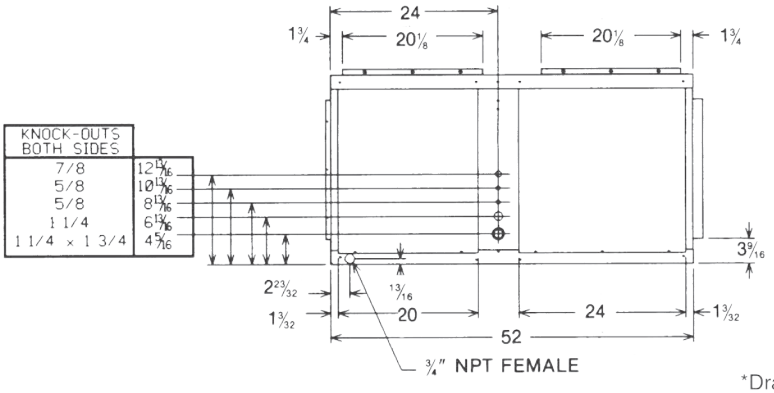
PRODUCT SUITABLE FOR INDOOR USE ONLY.

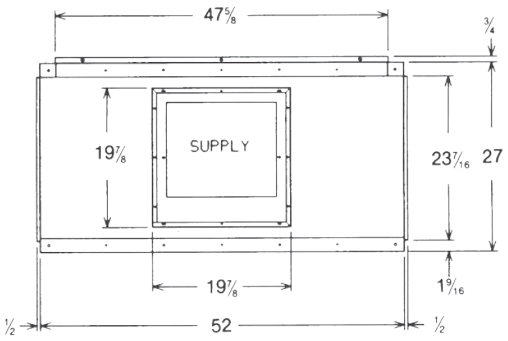


RETURN AIR OPENINGS = 47⅜ WIDTH x 19⅞ HEIGHT

UNIT DIMENSIONS
7.5 AND 10 NOMINAL TONS

MODEL	CORNER WEIGHTS, LBS [kg]				TOTAL WEIGHT
	A	B	C	D	
7.5 TON [26 kW]	98 [44]	86 [40]	97 [44]	84 [38]	365 [166]
10 TON [35 kW]	100 [45]	88 [40]	97 [44]	87 [40]	372 [169]





*Drain connections are provided on both sides of the drain pan. The drain can be connected to either side of the drain pan, but not both. The drain must be trapped.

	REFRIGERANT STUB SIZES			
MODEL	DUAL LIQUID	DUAL SUCTION	SINGLE LIQUID	SINGLE SUCTION
090	½, ½	⅞, ⅞	½	1⅛
120	½, ½	⅞, ⅞	⅝	1⅜

Performance Data @ ARI Standard Conditions

Note: Only these combinations of indoor/outdoor units are approved and any other combination should not be used.

Model Numbers		ARI Cooling Performance						ARI Heating Performance (70°F [21°C] Indoor)			
		80°F [26.5°C] DB / 67°F [19.5°C] WB Indoor Air 95°F [35°C] DB Outdoor Air						Outdoor Air 47°F [8.5°C] DB 43°F [6°C] WB DOE High Temp.		Outdoor Air 17°F [8-.5°C] DB 15°F [-9.5°C] WB DOE Low Temp.	
Outdoor Unit RPWL-	Indoor Coil and/or Air Handler	Total Capacity BTU/H [kW]	Net Sensible BTU/H [kW]	Net Latent BTU/H [kW]	EER	Sound Rating dB	Indoor CFM [L/s]	BTU/H [kW]	COP	BTU/H [kW]	COP
Revised 6/3/2009											
090CAZ	RHGM-090Z#	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZK	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZL	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZM	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
090DAZ	RHGM-090Z #	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZK	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZL	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
	RHGM-090ZM	86000 [25.2]	67400 [19.7]	18600 [5.4]	11	82	3000	90000 [1416]	3.3 [26.4]	55000	2.2 [16.1]
120CAZ	RHGM-120Z #	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZK	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZL	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZM	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
120DAZ	RHGM-120Z #	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZK	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZL	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]
	RHGM-120ZM	116000 [34.0]	87100 [25.5]	28900 [8.5]	11	88	3750	120000 [1770]	3.3 [35.2]	68000	2.2 [19.9]

PHYSICAL DATA TABLE

		MODEL NO. RHGM-	
Cooling Size		090	120
Nominal Size (tons)		7.5	10
Nominal CFM @ Rated E.S.P.		3000 @ .25"	4000 @ .30"
MOTOR HORSEPOWER	Standard— 3450 RPM 1 phase 1750 RPM 3 phase	 2 HP 1½ HP	 2 HP 1½ HP
	Optional— 1750 RPM 3 phase	 2 HP, 3 HP	 2 HP, 3 HP
Blower Size—diameter x width		12 x 12	12 x 12
Blower Shaft Diameter		¾	¾
Blower Sheave Diameter (Std.)		10	10
Motor Sheave Size Adjustment (Std.)	3450 RPM 1 phase 1750 RPM 3 phase	1.9-2.9 3.4-4.4	2.4-3.2 4.4-5.0
Belt Type & Size Std.		A-53	A-53
Coil Face Area (sq. ft.)		10.2	10.2
Coil Tube Dia.		⅜	⅜
Coil, Rows Deep-Fins Per Inch		4/15	4/15
T.X. Valve Refrigerant Control		(2) CBBIZE-5-GA	(2) CBBIZE-6-GA
Filter Size (std.)* No. Req'd		(4) 16 x 25 x 1	(4) 16 x 25 x 1
CABINET: Finish		 Powder Paint	 Powder Paint
Sheet Metal		Galvanized	Galvanized
Gauge; Top		18	18
Sides		16	16
Bottom		18	18
Doors and Covers		20 min.	20 min.
UNIT WEIGHTS: Operating		 365	 372
Shipping		411	418
OPTIONAL ACCESSORIES WEIGHTS: Hot Water Coils		 200	 200
Steam Heating Coils		200	200

*Unit will accept 2" filters.

DRIVE PACKAGE DATA

NOMINAL TONS	3 PH DRIVE	SHEAVE SELECTIONS*		MOTOR	APPROXIMATE BLOWER RPM @ MOTOR SHEAVE TURNS OPEN						
		MOTOR	BLOWER	HP / PH	0	1	2	3	4	5	6
7.5 & 10	K	4.0-5.0	9.75	1 1/2 / 3	885	855	825	795	760	730	
	L	4.6-5.6	9.75	2 / 3	995	960	930	895	860	825	
	M	5.2-6.2	9.75	3 / 3	1100	1060	1020	985	945	905	
	N◊	4.7-5.7	8.75	3 / 3	1225	1190	1150	1110	1070	1030	
	0□	5.7-6.7	8.75	3 / 3	1280	1250	1220	1185	1150	1115	
NOMINAL TONS	**1 PH DRIVE**	**SHEAVE SELECTIONS***		**MOTOR**	**APPROXIMATE BLOWER RPM @ MOTOR SHEAVE TURNS OPEN**						
		MOTOR	**BLOWER**	**HP / PH**	**0**	**1**	**2**	**3**	**4**	**5**	**6**
7.5 & 10	K	1.9-2.9	8.75	2 / 1	1140	1070	995	920	845	770	

*Actual pitch diameter in inches. Minimum and maximum pitch diameter shown for adjustable motor sheave.
◇ Field supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ100, Belt: A-50, Motor: 2 HP, 4 Pole, 3)
◊ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ80, Belt: A-50)
□ Field Supplied (Motor Sheave: Browning IVP75, Blower Sheave: Browning AZ90, Belt: A-54)
Field Supplied (Motor Sheave: Browning IVP65, Blower Sheave: Browning BK110, Belt: B-50)

INDOOR BLOWER PERFORMANCE 7.5 AND 10 TON (DRY COIL)

90 Z & 120 Z

DRIVE PKG	STD CFM	E.S.P. INCHES OF WATER																																	
		.1		.2		.3		.4		.5		.6		.7		.8		.9		1.0		1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
		RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W	RPM	W
K L M N O	3000							730	880	755	940	790	1005	825	1065	855	1130	885	1190	920	1290	955	1380	980	1425	1010	1500	1035	1620	1065	1690	1100	1750	1110	1800	1140	1880	1160	1920	1185	1980
	3200					730	950	750	1005	785	1080	815	1150	850	1225	880	1285	910	1390	950	1470	975	1540	1010	1620	1030	1740	1065	1820	1095	1880	1095	1890	1125	1985	1155	2045	1175	2090	1190	2160
	3400					745	1090	780	1160	810	1240	845	1320	910	1500	945	1590	970	1650	995	1725	1025	1860	1055	1940	1055	1900	1080	1975	1110	2095	1140	2185	1165	2245	1180	2270	1200	2315		
	3600			745	1175	780	1250	810	1340	845	1435	875	1510	905	1620	45	1715	960	1780	990	1855	1020	1995	1050	2080	1080	2160	1080	2165	1105	2225	1135	2325	1155	2400	1175	2460	1195	2510	1220	2575
	3800	745	1265	780	1350	810	1455	840	1550	875	1630	903	1740	940	1840	955	1905	990	2050	1025	2145	1045	2225	1075	2315	1075	2270	1100	2390	1130	2495	1150	2590	1170	2650	1190	2710	1220	2770	1265	2895
	4000	780	1465	810	1575	850	1690	880	1780	910	1880	940	2010	970	2110	990	2180	1020	2300	1050	2400	1075	2490	1075	2445	1100	2570	1130	2690	1145	2785	1170	2855	1185	2920	1215	2985	1260	3090	1275	3165
	4200	825	1750	855	1840	885	1925	920	2060	940	2160	965	2260	995	2365	1025	2470	1050	2560	1080	2680	1080	2685	1100	2795	1130	2890	1150	3000	1165	3080	1190	3145								
	4400	845	1925	905	2100	925	2195	950	2320	970	2430	995	2550	1030	2650	1050	2755	1055	2760	1085	2855	1100	2985	1130	3115														
	4600	915	2225	930	2375	955	2495	980	2620	1010	2750	1030	2840	1035	2950	1055	2960	1080	3070																				
	4800	930	2555	960	2680	985	2810	1015	2940	1035	3040	1035	3045	1055	3180																								
	5000	960	2870	990	3010	1020	3135																																

K=IVP56, AZ100, 1½HP
L=IVP68, AZ100, 2 HP
M=IVP68, AZ100, 3 HP
N=[IVP65, AZ80, 3 HP] Field Supplied
O=[IVP75, AZ90, 3 HP] Field Supplied

90 & 120 HK

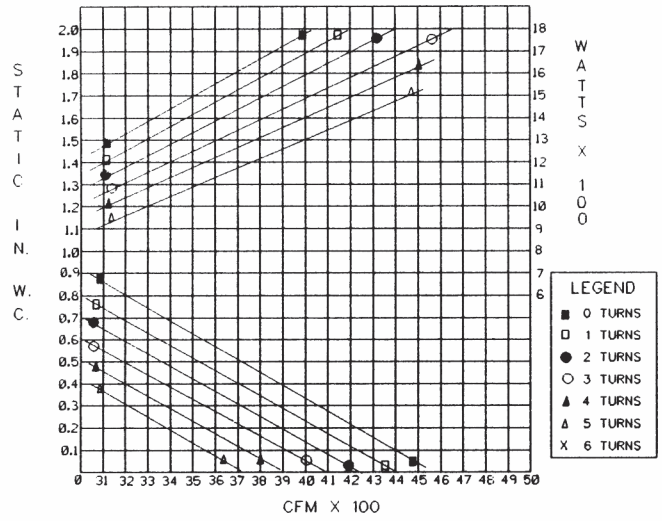
DRIVE PKG	STD CFM	E.S.P. INCHES OF WATER																																	
		.1		.2		.3		.4		.5		.6		.7		.8		.9		1.0		1.1		1.2		1.3		1.4		1.5		1.6		1.7		1.8		1.9		2.0	
		RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W	RPM T.O.	W
K	3000							775 5	1065	810 4.6	1125	845 4.1	1180	880 3.7	1250	905 3.3	1310	930 3	1370	960 2.3	1455	990 2.1	1490	1020 1.7	1550	1050 1.2	1610	1090 .8	1700	1110 .5	1780	1135 .1	1850								
	3200					775 5	1180	810 4.6	1240	840 4.2	1300	870 3.8	1365	900 3.4	1435	925 3	1500	960 2.5	1565	985 2.1	1625	1020 1.7	1700	1050 1.3	1775	1080 1	1825	1110 .5	1930	1130 .1	2020								
	3400			775 5	1300	810 4.6	1360	835 4.2	1430	870 3.8	1500	900 3.4	1570	925 3	1640	955 2.5	1700	980 2.1	1775	1015 1.7	1855	1040 1.3	1930	1070 1	1990	1110 .6	2095	1125 .2	2200										
	3600	700 5	1430	810 4.5	1500	840 4.1	1575	880 3.7	1655	900 3.3	1715	920 3	1775	955 2.5	1860	975 2.1	1935	1010 1.7	2010	1040 1.3	2085	1070 1	2150	1095 .5	2275														
	3800	810 4.5	1645	835 4.1	1720	880 3.6	1800	900 3.2	1875	930 2.8	1950	950 2.4	2030	985 2	2110	1010 1.6	2190	1040 1.2	2265	1065 1	2320																		
	4000	840 4	1880	880 3.5	1965	905 3.1	2050	930 2.7	2130	960 2.2	2215	990 1.8	2295																										
	4200	880 3.4	2130	905 3	2220	940 2.5	2320																																
	4400																																						
	4600																																						
	4800																																						

K=IVP34, AZ90, 2 HP 1
NOTE: T.O. = Turns Open

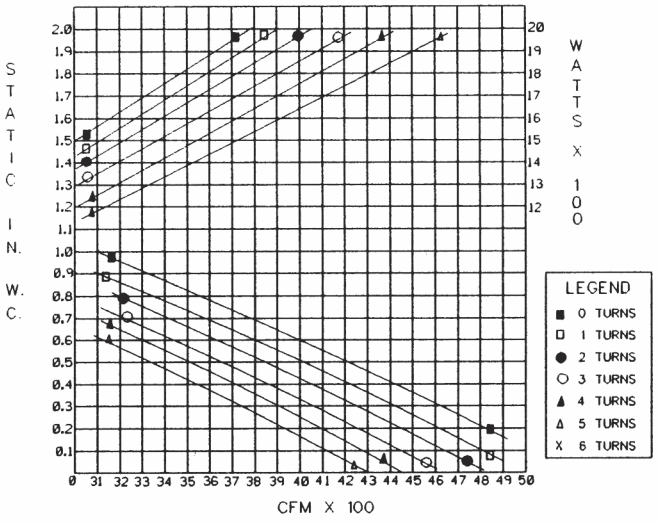
NOTES:
1. Standard Air @ .075 Lbs./Ft.^{3}
2. Operation below heavy lines require optional L drive.
3. Motor efficiency = .85
4. BHP = $\frac{\text{Watts x Motor Efficiency}}{746}$

5. Code:
BHP = Brake Horsepower
RPM = Blower Speed

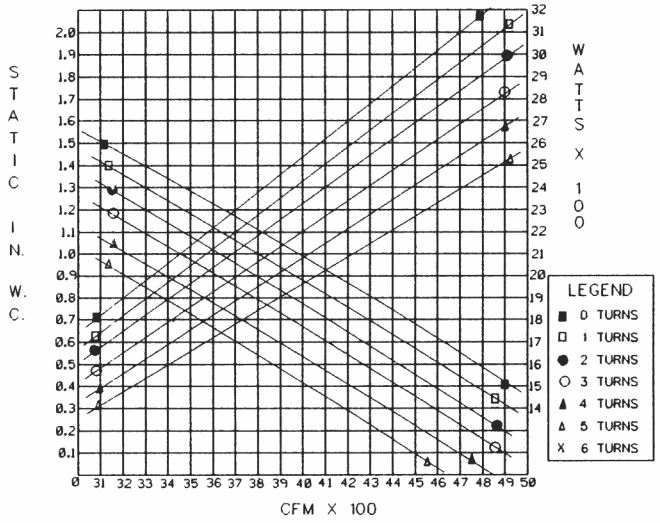
7.5 & 10 TON
K DRIVE (WET COIL)



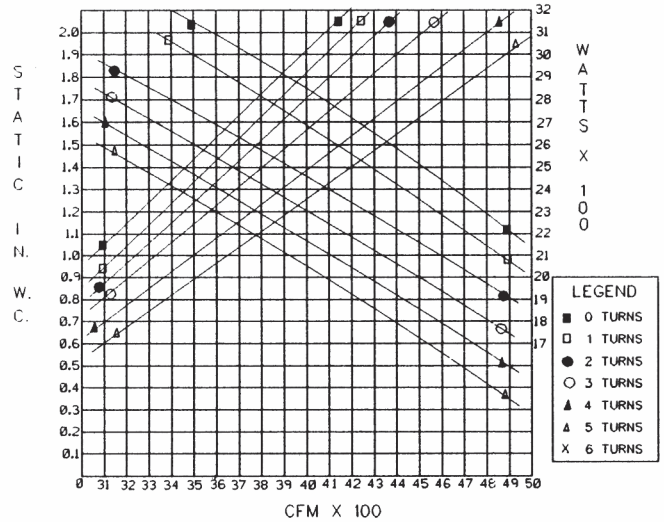
7.5 & 10 TON
L DRIVE (WET COIL)



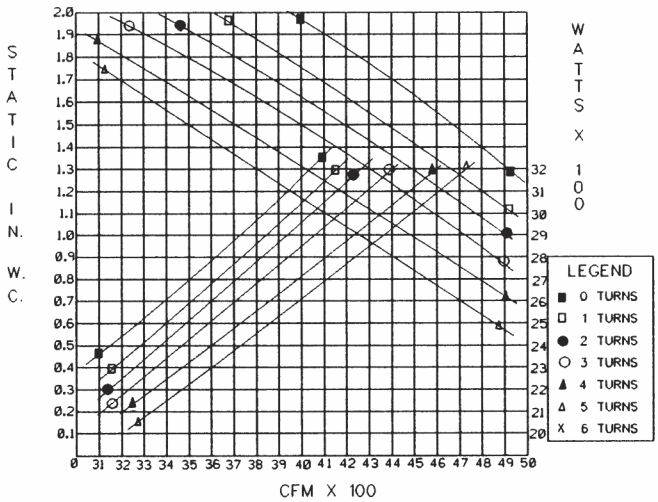
7.5 & 10 TON
M DRIVE (WET COIL)

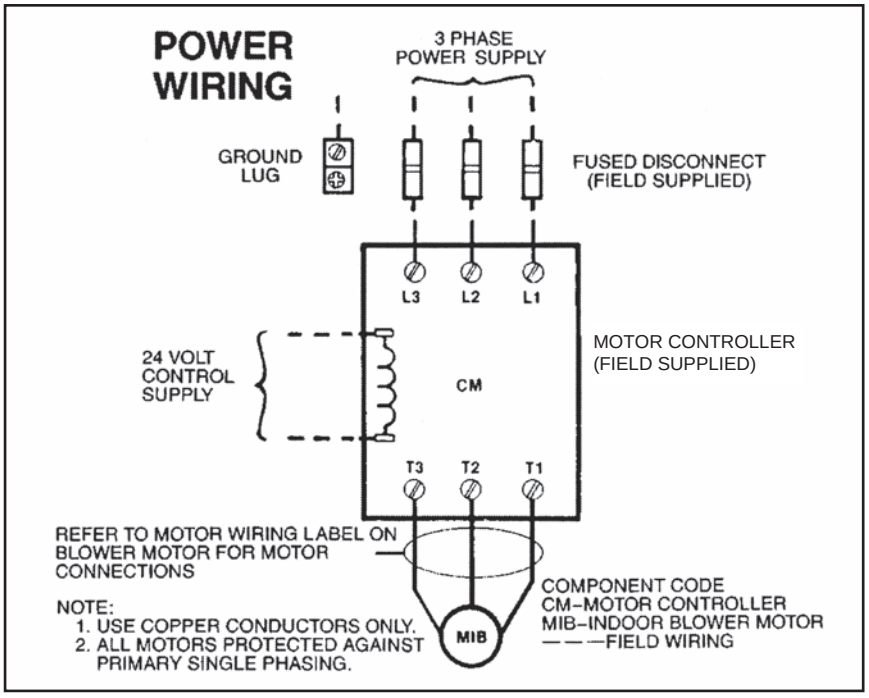


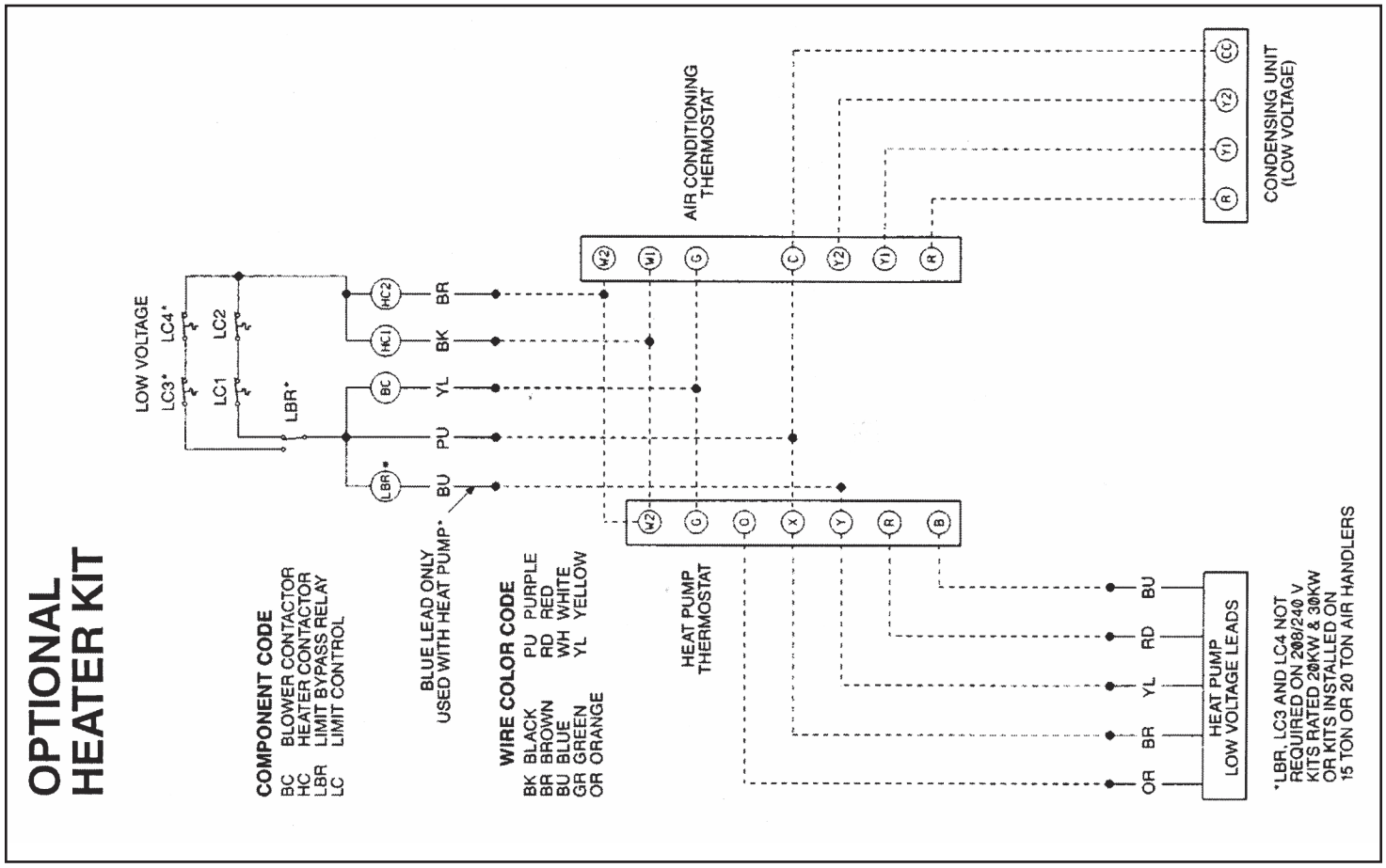
7.5 & 10 TON
N DRIVE (WET COIL)



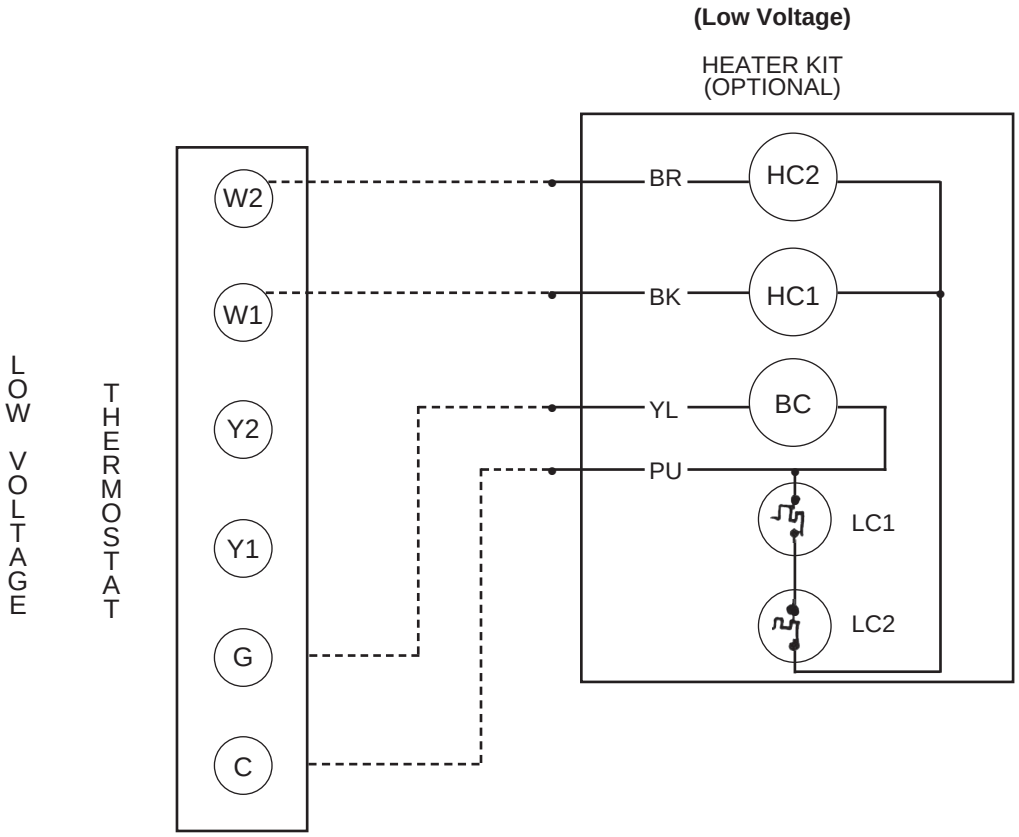
7.5 & 10 TON
O DRIVE (WET COIL)




POWER WIRING
3 PHASE POWER SUPPLY
GROUND LUG
FUSED DISCONNECT (FIELD SUPPLIED)
L3
L2
L1
24 VOLT CONTROL SUPPLY
CM
MOTOR CONTROLLER (FIELD SUPPLIED)
T3
T2
T1
REFER TO MOTOR WIRING LABEL ON BLOWER MOTOR FOR MOTOR CONNECTIONS
NOTE:
1. USE COPPER CONDUCTORS ONLY.
2. ALL MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASING.
MIB
COMPONENT CODE
CM–MOTOR CONTROLLER
MIB–INDOOR BLOWER MOTOR
———FIELD WIRING


OPTIONAL HEATER KIT
LOW VOLTAGE
LC3*
LC4*
LC1
LC2
LBR*
HC2
HC1
BC
(LBR)*
BR
BK
YL
PU
BU
BLUE LEAD ONLY USED WITH HEAT PUMP*
AIR CONDITIONING THERMOSTAT
W2
W1
G
C
Y2
Y1
R
CC
CONDENSING UNIT (LOW VOLTAGE)
HEAT PUMP THERMOSTAT
O
X
Y
B
HEAT PUMP LOW VOLTAGE LEADS
OR
BR
YL
RD
BU
COMPONENT CODE
BC BLOWER CONTACTOR
HC HEATER CONTACTOR
LBR LIMIT BYPASS RELAY
LC LIMIT CONTROL
WIRE COLOR CODE
BK BLACK PU PURPLE
BR BROWN RD RED
BU BLUE WH WHITE
GR GREEN YL YELLOW
OR ORANGE
*LBR, LC3 AND LC4 NOT REQUIRED ON 208/240 V KITS RATED 20KW & 30KW OR KITS INSTALLED ON 15 TON OR 20 TON AIR HANDLERS

TYPICAL LOW VOLTAGE CONNECTIONS



BRANCH CIRCUIT CONDUCTOR DATA (HIGH VOLTAGE)

Air Handler Motor Horsepower, Volts, Ø	Rating Plate Amps	Motor LRA	Minimum Circuit Ampacity	Recommended Minimum Cu Wire Size/Max Run in Feet	Max Fuse or Breakers
1, 208/230, 3 ø 1, 460, 3 ø 1, 115/230, 1 ø	4.0/3.6 1.8 16/8	23.9/21.6 10.8 96/48	15 15 20/15	#14/240 #14/400 #12/120/#14/180	15 15 20/15
1½, 208/230, 3 ø 1½, 460, 3 ø	5.7/5.2 2.6	34.5/31.2 15.6	15 15	#14/230 #14/300	15 15
2, 208/230, 3 2, 460, 3 ø 2, 115/230, 1 ø	7.5/6/8 3.4 24/12	45.1/40.8 20.4 144/72	15 15 30/15	#14/165 #14/275 #10/140 #14/120	15 15 30/15
3, 208/230, 3 ø 3, 460, 3 ø	10.6/9.6 4.8	64.1/58 26.8	15 15	#14/135 #14/230	15 15

FIELD INSTALLED MIXING BOX ACCESSORY
71/2 AND 10 ACCESSORY MODEL RXHM-BC74H

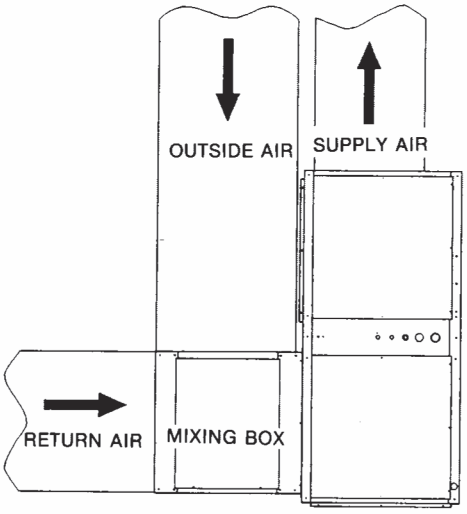
COOLING SEASON—Thermostat set at "Cool" and "Fan Auto," outside air damper goes to "minimum fresh air" position when cooling thermostat closes, energizing mechanical cooling. When cooling thermostat is satisfied, mechanical cooling is de-energized, and outside air damper closes.

INTERMEDIATE SEASON—Same as for cooling season, except that cooling thermostat closes, starting indoor blower motor, the enthalpy control, mounted on outside air, determines if "free" cooling or mechanical cooling should be utilized. If outside air conditions are suitable for cooling, the mechanical cooling remains off and the mixed air controller modulates the damper motor to assume the proper damper position to maintain mixed air setting. If outside conditions are not suitable for cooling, then the dampers go to "minimum fresh air" position and mechanical cooling is energized.

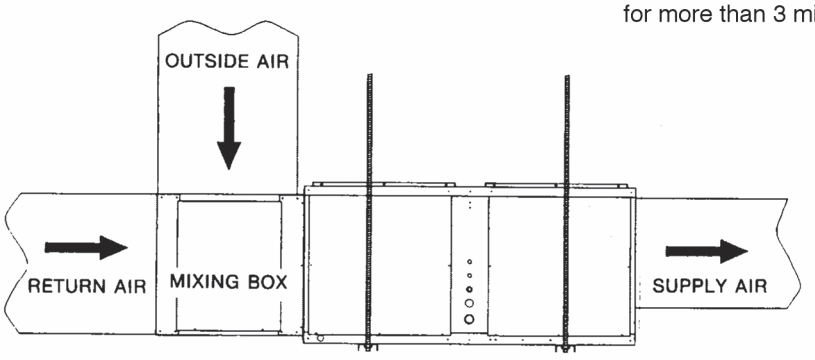
HEATING SEASON—Damper always stays at "minimum fresh air" position while fan motor is operating. Outside air damper closes when blower motor is off. "Minimum fresh air" position must not allow mixed air temperatures to air handler below 50°F. during heating seasons.

CAUTION: Because of the possibility of freeze damage, it is not recommended that hot water or steam coils be used with the mixing box accessory, unless provision is made to shut-off the outside air duct 100% during freezing conditions.

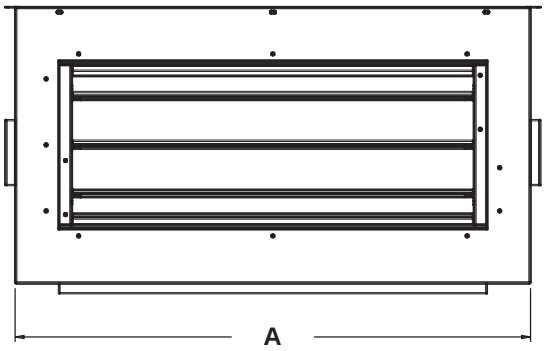
Another possible system enhancement would be to install an air proving switch in the air handler supply duct wired in series with the compressor contactor coil (24V) which would lock out the compressor in the event of air flow failure.



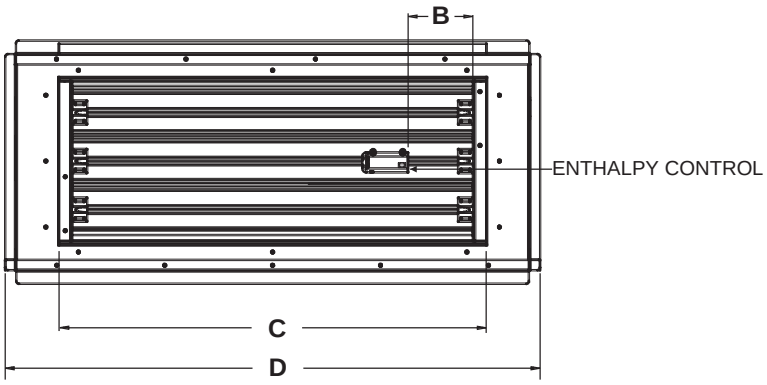
NOTE:
The bottom of the air handler should be sloped in two planes that pitch the condensate to the drain connection. The drain pan shall not leave puddles larger than 2 inches in diameter and 1/8 inch deep for more than 3 minutes.



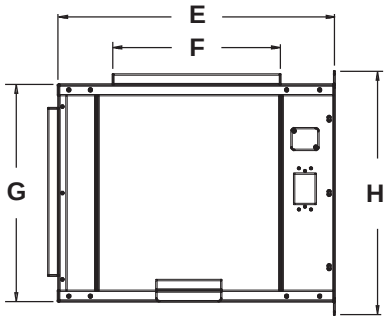
Field - Installed Mixing Box Dimensions



TOP VIEW



FRONT VIEW



SIDE VIEW

									Flanged Duct Opening	
MODEL#	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**Length**	**Width**
(-)XHM-BC74H	47 ¾	6	39 9/16	49 9/16	25 5/8	15 ½	20 1/8	22 9/16	42 1/8"	16 7/8"

ST-A1201-02-X0

INSPECTION

The complete unit should be examined thoroughly upon receipt, for either hidden or apparent damage, and if necessary, a claim should be entered at once against the last carrier. It is the responsibility of the consignee to file such a claim since the unit is shipped F.O.B. Factory.

LOCATION

The location of the unit must be determined with the following factors in mind: available electric power, plumbing facilities and ample space for arranging the refrigeration equipment, and conforming with proper duct design. In addition, provision should also be made for accessibility to service parts and for complete removal and replacement of any replaceable part.

INSTALLATION

The construction of the building must be substantial enough to support the unit. Set the air handler on a suitable foundation so that the weight is evenly distributed. After locating the unit, shim up the side opposite the drain to allow the water to drain from the pan.

If return air duct is not used, applicable installation codes may limit this cabinet to single story buildings only.

See example of both vertical and horizontal mounting.

The units may also be suspended from the ceiling.

Supply conduit to equipment must terminate at junction box located in the unit.

PRODUCT SUITABLE FOR INDOOR USE ONLY.

NOTE: When installed in horizontal position, drain end must be 1/2" lower than leaving air end.

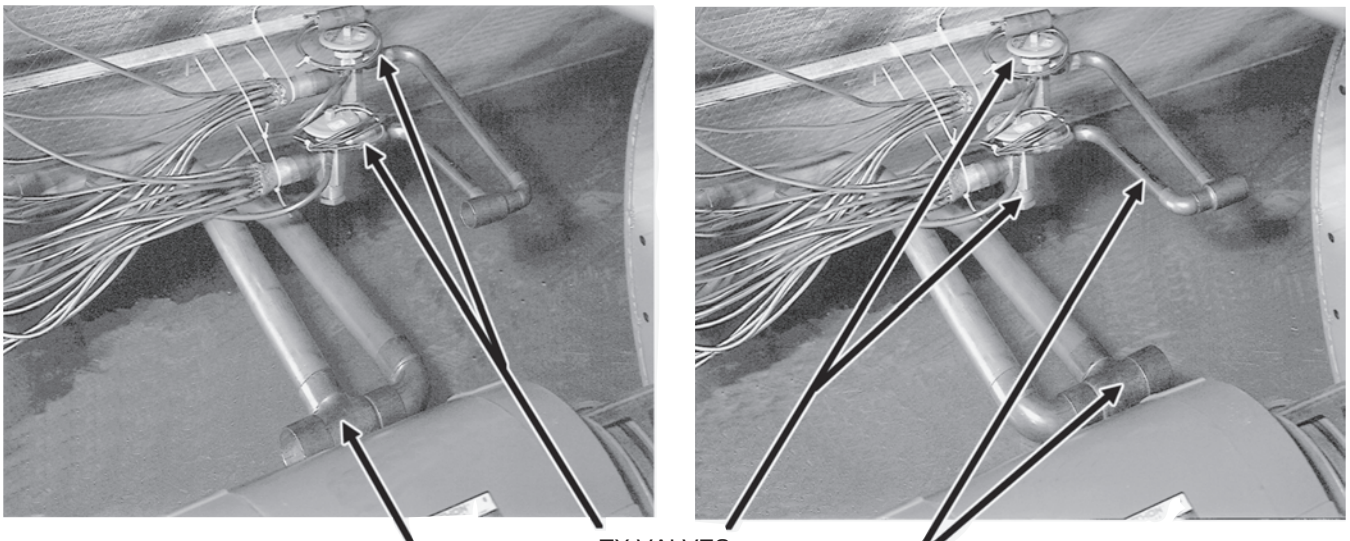
REFRIGERANT PIPING

The following will be of help in accomplishing a successful installation.

1. Size liquid line for no more than 50 PSIG pressure drop.
2. Size suction lines for no more than 2° F loss which corresponds to approximately 5 PSIG pressure drop.
3. When evaporator is installed below condensing unit, do not exceed the recommended suction line O.D. This will insure adequate velocities for proper oil return.
4. Install (optional field installed) sight glass in liquid line.
5. Pitch all horizontal suction lines downward in the direction of flow.
6. When making up refrigerant piping, take every precaution to prevent dirt and moisture from entering the piping.
7. Locate the condensing unit and evaporator(s) as close together as possible to minimize piping runs.

NOTE: Refer to suction and liquid line pressure drop charts found in condensing unit literature.

PIPING SIZES 7.5-10 TONS (INCHES)			
EQUIV. LENGTH TO EVAP. (FT.)	LIQUID LINE O.D.	SUCTION LINE O.D.	
	7.5-10	7.5	10
0-50	⅝	1⅛	1⅜
51-100	⅝	1⅜	1⅜
101-150	⅝	1⅝	1⅝

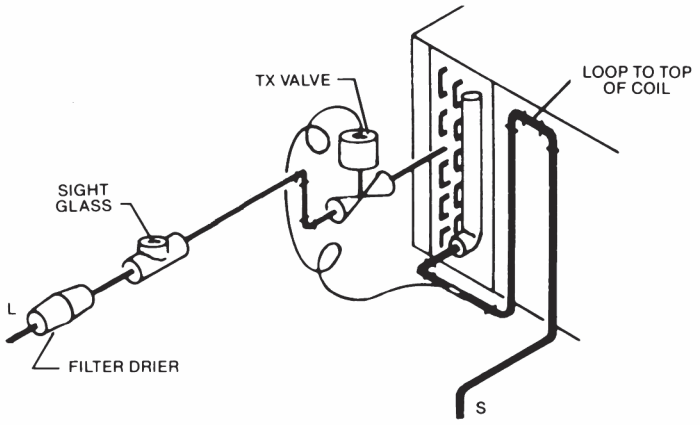


RHGM-7½-10 TON [26-35 kW]

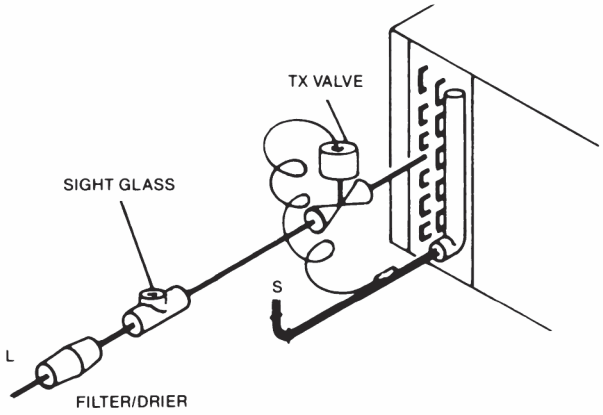
RHGM-7½-10 TON [26-35 kW]

TYPICAL PIPING RECOMMENDATIONS

COIL ABOVE CONDENSING UNIT



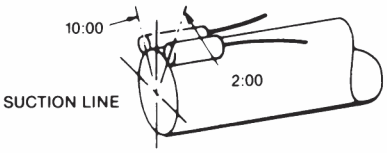
COIL BELOW CONDENSING UNIT



NOTE: PIPING ACCESSORIES SHOWN SHOULD BE MOUNTED AS CLOSE TO AIR HANDLING UNIT AS POSSIBLE.

INSTALLATION OF THE FEELER BULB OF THE EXPANSION VALVE

7.5 - 20 TON UNITS HAVE TWO (2) TX VALVES. THE FEELER BULB OF EACH VALVE SHOULD BE SECURED TO ITS CORRESPONDING SUCTION LINE INSIDE THE UNIT BETWEEN THE EQUALIZED TUBE AND THE TEE FITTING.



TYPICAL EXPANSION VALVE BULB LOCATIONS

HORIZONTAL UNITS:
LOCATE BULB BETWEEN TEN O'CLOCK AND TWO O'CLOCK ON A STRAIGHT RUN OF LINE NEAR THE EVAPORATOR.

VERTICAL UNITS:
IF THE BULB IS ATTACHED TO THE SUCTION LINE INSIDE THE UNIT, LOCATE IT BETWEEN EIGHT O'CLOCK AND TEN O'CLOCK (BACK SIDE) NEAR THE FIELD CONNECTION. ALWAYS SECURE THE BULB ON A CLEAN, SMOOTH SECTION OF PIPING AND INSULATE IT FROM THE SURROUNDING AMBIENT.

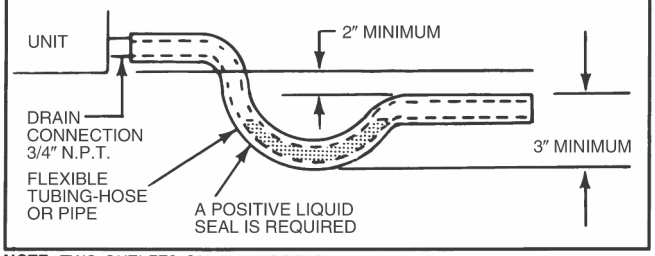
CONDENSATE DRAIN PIPING

- Two drain couplings are provided on all models. Select either one for condensate outlet and plug the other.
- Consult local codes or ordinances for specific requirements regarding condensate drain.
- Condensate drain is open to atmosphere and must be trapped. Trap must be at least 3 inches deep and made of flexible material or fabricated to prevent freeze-up.
- If air handler is installed in a non-conditioned space, it is recommended an auxiliary drain pan be fabricated and installed under entire unit.
- Pitch the drain line at least 1/4 inch per foot away from the drain pan.
- Do not reduce the drain line size from the connection size provided on the unit.
- Do not connect the drain line to a closed sewer line.

IMPORTANT

CONDENSATE DRAIN

INSTALL CONDENSATE DRAIN TRAP AS SHOWN BELOW. USE DRAIN CONNECTION SIZE OR LARGER. DO NOT OPERATE UNIT WITHOUT TRAP. UNIT MUST BE SLIGHTLY INCLINED TOWARD DRAIN.



NOTE: TWO OUTLETS ON ALL MODELS.

MOTOR MOUNTING

One of the most critical aspects of an air handler installation is the mounting of the motor, motor sheave, fan pulley and the belts, and the adjustment of these items.

The motor base for the air handlers is raised or lowered by means of the adjusting hex nuts.

MOTOR SHEAVE AND FAN PULLEY MOUNTING AND ADJUSTMENT

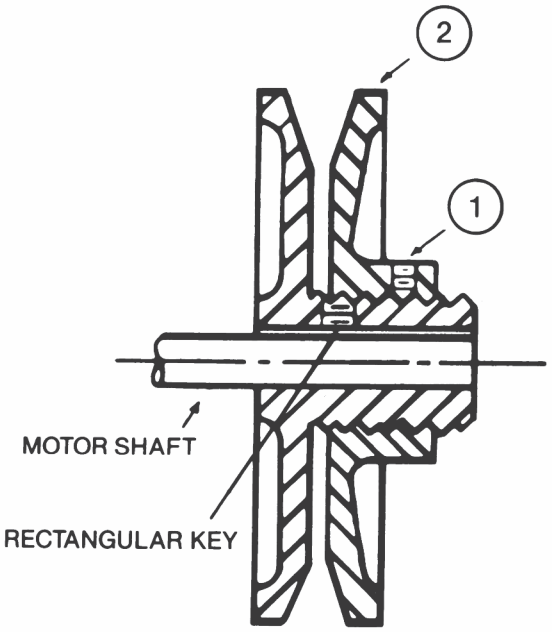
The adjustable pitch sheave which is mounted on the motor shaft controls the fan speed. To adjust the fan speed refer to figure at right, proceed as follows:

a. Loosen the set screw, item 1.

b. Rotate the adjustable sheave, item 2, to the desired position.

c. Lock the adjustable sheave in place by tightening the set screw, item 1.

NOTE: The adjustable sheave is not to be used to adjust belt tension.



WARNING

BEFORE MAKING FAN ADJUSTMENTS, BE SURE THE MAIN ELECTRICAL DISCONNECT SWITCH IS IN THE "OFF" POSITION TO PREVENT POSSIBLE INJURY DUE TO ACCIDENTAL OPERATION OF THE MOTOR.

FAN BELT ALIGNMENT AND ADJUSTMENT

Place belt on the groove of the fan pulley and motor sheave to obtain the approximate alignment and belt tension. Remove the belt and align the fan pulley and motor sheave using a straight edge. When the pulley and sheave are properly aligned, re-install belt. Do not force or pry the belt onto the pulley and sheave. With the belt in place, adjust so that all the slack is on one side of the drive. The belt should have from 3/4" to 1" of slack at 3 lbs. pressure. Adjust the belt to this tension, by raising or lowering the swing base via the adjusting rods and nuts.

PRE-START CHECK LIST

1. Leak test entire system.
2. Check motor mounting to make sure all nuts are tight.
3. Check motor sheave and fan pulley to make sure they are in proper alignment and set screws are tight.
4. Check belt tension—belts should be fairly tight for the initial "start-up".
5. Check bearing—collar set screws on fan shaft to make sure they are tight.
6. Ball type bearings are factory lubricated and do not require additional grease before starting.
7. Rotate blower shaft by hand to be sure it is free.
8. Check motor and fan rotation.
9. Check all screws, bolts, set screws and piping connections for tightness.
10. Check drain.
11. Insure that filters are in place.
12. Insure all manual valves are open.
13. Be sure that electrical controls and motors are properly wired and fused in accordance with applicable codes.
14. Check wheel position in scrolls. See Figure 1 a and b.

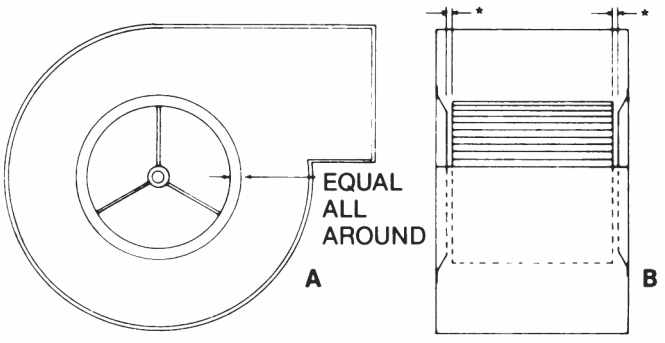


FIGURE 1 * EQUAL

OPERATING INSTRUCTIONS

1. Start fan motor—immediately observe noise level and secure fan motor if unusual sound is heard. Check bearings in particular for proper noise level and temperature. Be sure fans do not rub on scrolls.
2. Check fan RPM and adjust as necessary.
3. Check for motor overloading.
4. Check for proper CFM delivery.
5. Check all necessary items and controls for proper operation.
6. Insure that condensate is being properly discharged from drain pan.

PERIODIC SERVICE AND MAINTENANCE

1. Filters—Dirty filters reduce air flow and, in turn, the capacity of the unit. Therefore, when dirty, replace or clean, depending on the type.
2. Coils—Dirt should not be permitted to build up on the fins of the coils. An air stream or water jet can be used to remove dirt and lint.
3. Check all moving parts for wear and alignment every six (6) months.
4. Check bearing-collar set screws on fan shaft to make sure they are still tight. Do this at least every six months. THIS IS VERY IMPORTANT.

⚠ WARNING

BEFORE PERFORMING PERIODIC SERVICE AND MAINTENANCE, BE SURE THE MAIN ELECTRICAL DISCONNECT SWITCH IS IN THE "OFF" POSITION TO PREVENT POSSIBLE INJURY DUE TO ACCIDENTAL OPERATION OF THE MOTOR.

LUBRICATION

GREASING BALL BEARINGS—MOTORS

All ball bearing motors are prelubricated and do not require the addition of grease at time of installation. However, periodic cleaning out and renewal of grease in ball bearings is necessary. Please note that extreme care must be exercised to prevent foreign matter from entering the bearing.