

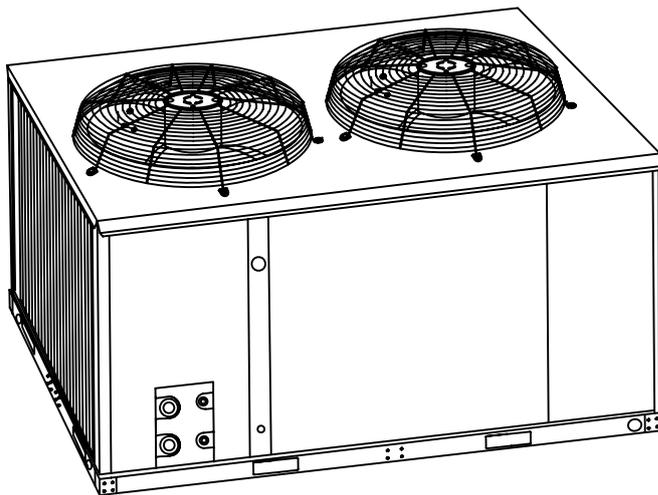
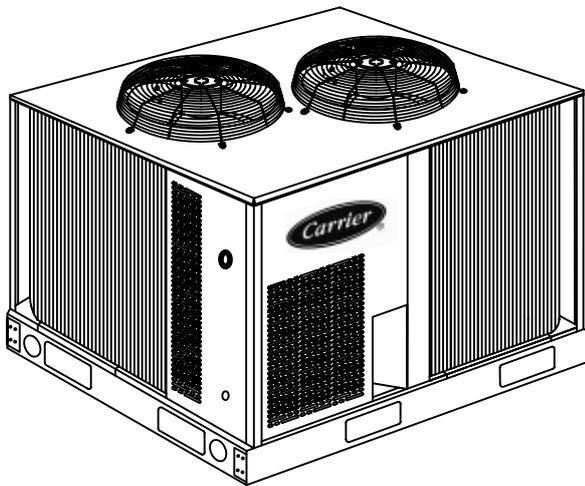
38ARZ/ARD
Commercial Air-Cooled Split
Sizes 007 - 028
With 40RM007-028
5-24 Nominal Tons - 50Hz



Turn to the Experts.™

Product Data

The 38ARZ/ARD condensing units with scroll compressors match Carrier's 40RM indoor-air handlers for a wide selection of dependable commercial cooling solutions.



Carrier's air-cooled split systems:

- provide a logical solution for commercial needs
- have a rugged, dependable construction

Features/Benefits

These dependable split systems match Carrier's indoor-air handlers and direct-expansion coils with outdoor condensing units for a wide selection of commercial cooling solutions.

Up to 11.0 EER

The high efficiency split commercial split system combining the 38ARZ/ARD outdoor condensing unit with 40RM air handling unit can save 20-27% of energy consumption.

Constructed for long life

The 38ARZ (single circuit, scroll compressor) and 38ARD (dual circuit, scroll compressor) models are designed and built to last. The copper tube-aluminum fin outdoor coil construction provides years of trouble-free operation. Where conditions require, a range of *Enviro-Shield™* coil protection options are available. Cabinets are constructed of prepainted galvanized steel, delivering unparalleled protection from the environment. Inside and outside surfaces are protected to ensure long life, good looks, and reliable operation. Safety controls are used for enhanced system protection and reliability.



38AR-03 PD 50Hz CKAC 2010

Efficient operation

Building owners will appreciate the high unit EERs (Energy Efficiency Ratios) offered by the 38AR units. These units provide greater efficiency than similar units in the marketplace, which translates into year-round operating savings.

Controls for performance dependability

The 38AR condensing units offer the building owner operating controls and components designed for performance dependability. The highly efficient compressors are engineered for long life and durability. The compressors include overload protection and vibration isolation for quiet operation. The high pressure switch protects the entire refrigeration system from abnormally high operating pressures. A low pressure switch protects the system from loss of charge.

The 38ARD014-028 units feature 2 compressors and 2 refrigerant circuits that provide continuous air conditioning and design flexibility.

All units include a crankcase heater to eliminate liquid slugging at start-up. The latest safety standards for 38AR units are UL, compliant.

Innovative Carrier 40RM packaged air handlers are custom matched to 38AR condensing units

The 40RM Series has excellent fan performance, efficient direct-expansion (DX) coils, a unique combination of indoor-air quality options, and is easy to install. Its versatility and state-of-the art features help to ensure economical performance of the split system both now and in the future.

Indoor-air quality (IAQ) features —

The unique combination of IAQ features in the 40RM Series air handlers help to ensure that only clean, fresh, conditioned air is delivered to the occupied space.

Direct-expansion (DX) cooling coils prevent the build-up of humidity in the room, even during part-load conditions. Unit sizes of 10 tons and larger feature dual-circuit coils for improved temperature control.

Standard 1-in. aluminum washable filters remove dust and airborne particles from the occupied space for cleaner air.

The pitched, non-corroding drain pan can be adjusted for a right-hand or left-hand connection to suit many applications and provide positive drainage and prevent standing condensate.

Economy — The 40RM Series packaged air handlers have low initial costs, and provide reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multipoise design. Units can be installed in either the horizontal or vertical configuration without modifications. Fan motors and contactors are prewired and thermostatic expansion valves (TXVs) are factory-installed on all 40RM models.

High efficiency, precision-balanced fans minimize air turbulence, surging, and unbalanced operation, cutting operation expenses.

Rugged dependability — The 40RM series units are made to last. The die-formed galvanized steel panels ensure structural integrity under all operating conditions. Galvanized steel fan housings are securely mounted to a galvanized steel fan deck. Rugged pillow-block bearings (40RM014-034) are securely fastened to the solid steel fan shaft with split collets and clamp locking devices. Smaller unit sizes have spider-type bearings.

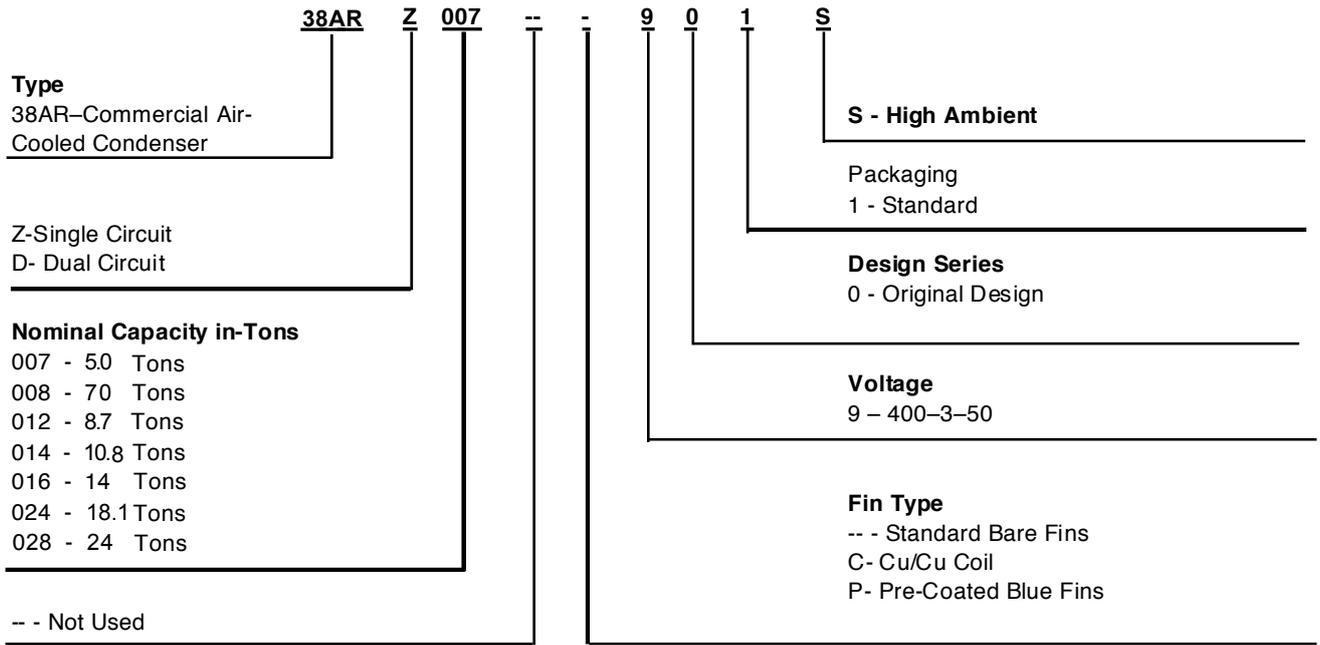
Coil flexibility — Model 40RM directexpansion coils have galvanized steel casings; inlet and outlet connections are on the same end. The coils are designed for use with R-22 refrigerant and have 3/8-in. diameter copper tubes mechanically bonded to aluminum sine-wave fins.

The coils include matched, factoryinstalled thermostatic expansion valves (TXVs) with matching distributor nozzles.

Easier installation and service —

The multipoise design and component layout ensures quick unit installation and operation. Units can be converted from horizontal to vertical operation by simply repositioning the unit. Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are all easily accessed by removing side panels.

Model number nomenclature



Approvals:
ISO 9001 : 2000
EN ISO 9001 : 2000
ANSI/ASQC Q9001 : 2000

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Physical Data – English

UNIT 38AR	ARZ			ARD			
	007	008	012	014	016	024	028
NOMINAL CAPACITY (Tons)	5.0	7.0	9.3	10.8	14	18.1	24
OPERATING WEIGHT (lb)							
Aluminium Coils (Standard)	300	383	430	676	740	764	1279
Cooper Coils (Optional)	352	484	531	822	886	904	1532
COMPRESSOR	Scroll						
Qty							
Oil Charge (oz)	88	90	110	60(ea)	85(ea)	110(ea)	111(ea)
REFRIGERANT TYPE *	R22						
Operating Charge, Typical (lb) **	12	20	22	11.5/circuit		14/circuit	17.97/circuit
Shipping Charge (lb)		2.0			3.1		
FINISH	Gray						
CONDENSER FAN	Propeller Type						
Qty...RPM	2...700	2...920		2...900		2...900	
Diameter		22 in		26 in		30 in	
Nominal Air Flow (Total CFM)	5000	5800		9210		13000	
Motor HP-Shaft	2x1/8	2x1/4		2x1/2		2x1	
CONDENSER COIL (Qty)	2						
Face Area (sq ft Total))		29.2		29.2		50.4	
Rows...Fins/in.	1...17	2...17		3...15		3...16	
Storage Capacity (lb)***	17.3	34.2		48		-	
CONTROLS							
Pressurerestart Settings (psig)							
High Cutout		428 ± 10		428 ± 10		428 ± 10	
Cut-in		320 ± 20		320 ± 20		320 ± 20	
Low Cutout		27 ± 3		27 ± 4		27 ± 4	
Cut-in		44 ± 5		44 ± 7		44 ± 7	
DISCHARGE GAS THERMOSTAT (°F)							
Cutout	---	270 ± 9		---		---	
Cut-in		190 ± 13					
PRESSURE RELIEF							
Location	Suction Line			Liquid Line			Liquid Line
Temperature	200			200			200
PIPING CONNECTION							
Qty...Suction	1...1 1/8	1...1 1/8	1...1 3/8	2...1 3/8		2...1 3/8	
Qty...Liquid	1... 3/8	1... 3/8	1... 1/2	2... 1/2		2... 5/8	
Hot Gas Stub				3/8		-	

UNIT 38AR	ARZ			ARD			
	007	008	012	014	016	024	028
SHIPPING DIMENSIONS (in) (W X H X D)	(59.2X45.5X39)			(72.6X44.25X41.7)		(96.5X49.6 X54.3)	

*Unit is factory-supplied with holding charge only.

**Typical operating charge with 25 ft of interconnecting piping.

***Storage capacity of condenser coil with coil 80% full of liquid R-22 at 95 F.

Capacity ratings 50 Hz

CONDENSING UNIT	AIR HANDLER/ INDOOR COIL	SYSTEM GROSS CAPACITY		CONDENSING UNIT ONLY GROSS CAPACITY	
		kW*	Btuh†	kW**	Btuh††
38ARZ007	40RM007	18.4	62,200	18.0	60,300
	40RM008	19.0	64,300		
38ARZ008	40RM007	23.3	78,700	25.0	83,900
	40RM008	24.0	81,400		
	40RM012	25.4	86,100		
38ARZ012	40RM008	30.1	102,000	33.2	112,000
	40RM012	31.9	108,000		
	40RM014	33.4	113,000		
38ARD014	40RM014	40.4	138,000	41.6	142,000
38ARD016	40RM016	56.3	192,000	57.8	197,200
38ARD024	40RM024	63.0	215,000	64.6	218,000
38ARD028	40RM028	81.1	276,600	84.0	286,700

LEGEND

db — Dry Bulb

wb — Wet Bulb

SST — Saturated Suction Temperature

*System gross capacities are rated according to indoor unit airflow, 35 C air temperature entering condenser, and 20 C wb air temperature entering evaporator.

†System gross capacities are rated according to indoor unit airflow, 95 F air temperature entering condenser, and 67 F wb air temperature entering evaporator.

**Condensing unit gross capacity based on 36 C air temperature entering condenser and 8 C SST.

††Condensing unit gross capacity based on 95 F air temperature entering condenser and 45 F SST.

SOUND LEVELS, dB — 38AR UNITS

UNIT 38AR	SOUND RATING dB (A)	OCTAVE BANDS							
		63	125	250	500	1000	2000	4000	8000
Z007	80.0	71.5	76.8	75.3	74.0	73.9	74.1	73.5	64.0
Z008	84.0	84.1	84.5	80.4	78.6	77.2	76.9	78.8	72.5
Z012	85.0	88.7	85.4	81.7	80.9	82.1	76.2	73.6	67.1
D014	86.9	—	90.9	86.1	83.1	84.0	73.5	71.7	66.7
D016	87.5	—	90.9	86.1	83.4	84.5	76.6	73.2	63.5
D024	88.0	—	90.9	86.1	83.8	84.5	79.2	74.3	65.5
D028	94.8	—	91.4	88.1	85.8	86.4	81.5	75.2	67.4

NOTES:

1. 38ARZ unit is in accordance with ARI 270-95 Sound Rating of Unitary Equipment.

2. Estimated sound power levels, dB re 1 Picowatt. 38ARD014-024 and 38AKS data is based upon a limited amount of actual testing with the estimated sound power data being generated from this data in accordance with ARI Standard 370 for large outdoor refrigerating and air-conditioning equipment. Since this data is estimated, the sound power levels should not be guaranteed or certified as being the actual sound power levels.

3. The acoustic center of the unit is located at the geometric center of the unit.

ESTIMATED SOUND POWER LEVELS (L_w) — 40RM007-028

UNIT	CFM	dB(A)	OCTAVE BAND CENTER FREQUENCY						
			63	125	250	500	1000	2000	4000
40RM007	2400	86.3	93.2	89.2	85.2	84.2	80.2	78.2	74.2
40RM008	3000	88.3	95.3	91.3	87.3	86.3	82.3	80.3	76.3
40RM012	4000	91.6	98.6	94.6	90.6	89.6	85.6	83.6	79.6
40RM014	5000	91.1	97.3	93.3	89.3	90.3	84.3	82.3	78.3
40RM016	6000	92.7	98.9	94.9	90.9	91.9	85.9	83.9	79.9
40RM024	8000	96.4	102.6	98.6	94.6	95.6	89.6	87.6	83.6
40RM028	10000	96.2	102.5	98.5	94.5	95.5	89.5	87.5	83.5

Options and accessories

38AR, options

Enviro-Shield™ condenser options offer pre-coated coils that provide protection in mild coastal environments. Several options are available to match coil protection to site conditions for optimum durability. See table below. Consult your Carrier representative for further information.

Non-fused disconnect switch to remove power locally at the condensing unit. This switch also includes a power lockout capability to protect the service person. This lockout switch saves the service person time and effort because there is no need to access a distant disconnect switch while servicing the unit.

Carrier's line of thermostats provide both programmable and non-programmable capability with the new **Debonair®** line of commercial programmable thermostats. The **Commercial Electronic** thermostats provide 7-day programmable capability for economical applications.

PremierLink™ Controller is a field retrofit split system control compatible with the Carrier Comfort Network (CCN) and other building automation systems (BAS). This control is designed to allow users the access and ability to change factory-defined settings thus expanding the function of the standard unit.

CONDENSER COIL OPTIONS

COPPER-TUBE COILS WITH ENVIRO-SHIELD OPTION	ENVIRONMENT		
	Standard	Mild Coastal	Moderate Coastal
Al Fins (Standard Coils)	X		
Cu Fins			X
Al Fins, Pre-Coated		X	

LEGEND

Al — Aluminum

Cu — Copper

Electrical data

UNIT SIZE 38AR	NOMINAL VOLTAGE V-Ph-Hz	VOLTAGE RANGE*		COMPRESSOR 1		COMPRESSOR 2		FAN MOTORS (Qty 2)		POWER SUPPLY	
		MIN	MAX	RLA	LRA	RLA	LRA	FLA (ea)	LRA (ea)	MCA	MOCP
Z007	400-3-50	360	440	9.6	82	--	--	0.5	0.9	12.4	20
Z008	400-3-50	360	440	13.5	95	--	--	0.8	1.6	17.9	30
Z012	400-3-50	360	440	20.7	130	--	--	0.8	1.6	26.9	45
D014	400-3-50	360	440	9.6	82	9.6	82	1.7	--	27.8	30
D016	400-3-50	360	440	13.5	95	13.5	95	1.7	--	38.0	45
D024	400-3-50	360	440	20.7	130	20.7	130	1.7	7.5	56.0	70
D028	400-3-50	360	440	22.9	145	22.9	145	3.0	--	63.3	80

LEGEND

FLA — Full Load Amps

LRA — Locked Rotor Amps

MCA — Minimum Circuit Amps per NEC, Section 430-24

MOCP — Maximum Overcurrent Protection (amps)

RLA — Rated Load Amps (compressor)

*Units are suitable for use on electrical systems where voltage supplied to the unit terminals is not below or above the listed limits.

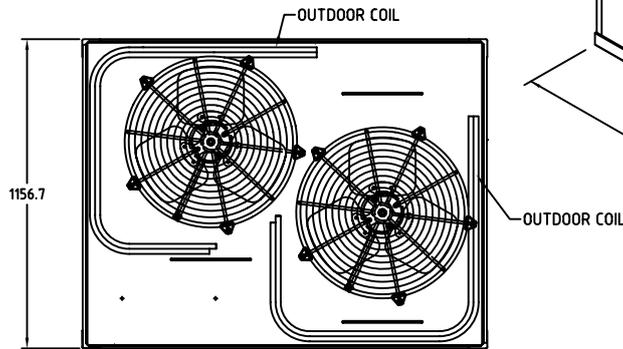
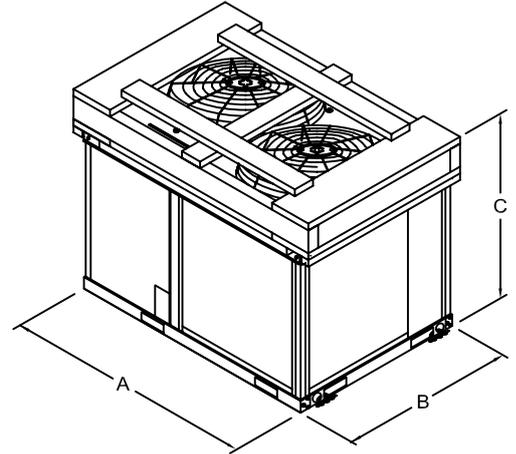
NOTES:

1. The MCA and MOCP values are calculated in accordance with the National Electrical Code (NEC), Article 440.

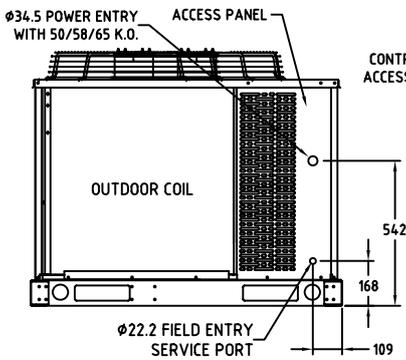
2. Motor RLA and LRA values are established in accordance with Underwriters' Laboratories (UL), Standard 1995.

Base Unit Dimensions – 38ARZ 007 – 012

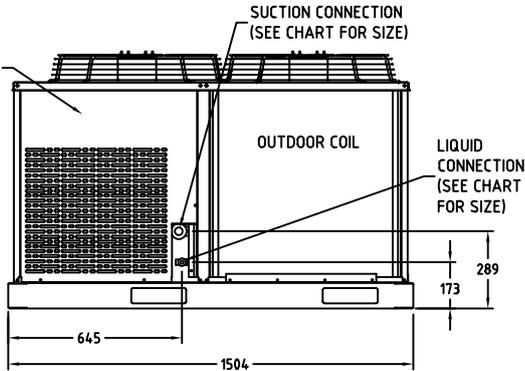
38ARZ Size	Approximate Shipping Weight				Approx. Shipping Dimensions (A x B x C)	
	With Standard Al/Cu Coil	With Optional Cu/Cu Coil	KG	LB	mm	inch
007	154	339	178	392	(1504X1157X992)	(59.2X45.5X39)
008	192	422	238	524		
012	213	467	259	570		



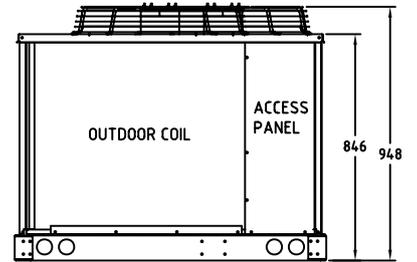
TOP VIEW



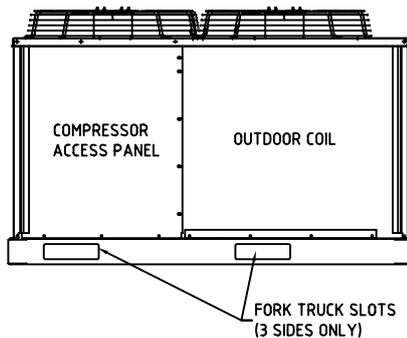
LEFT SIDE VIEW



FRONT VIEW



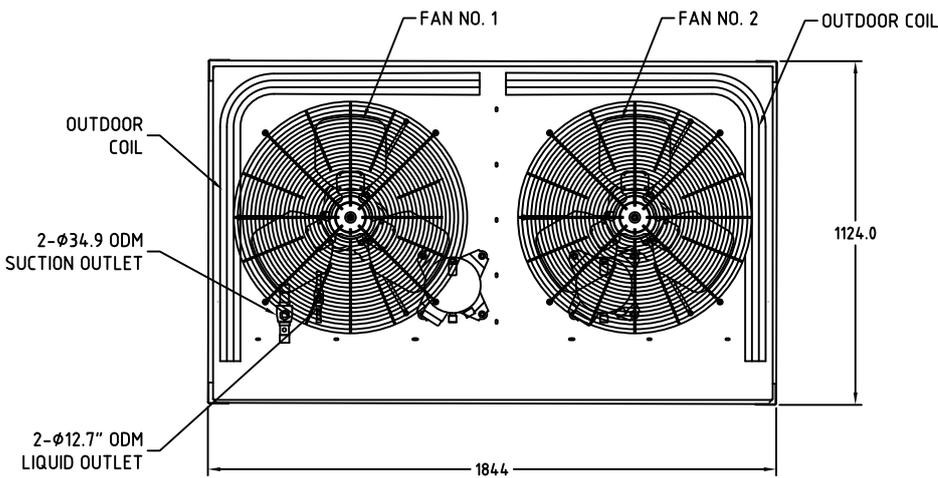
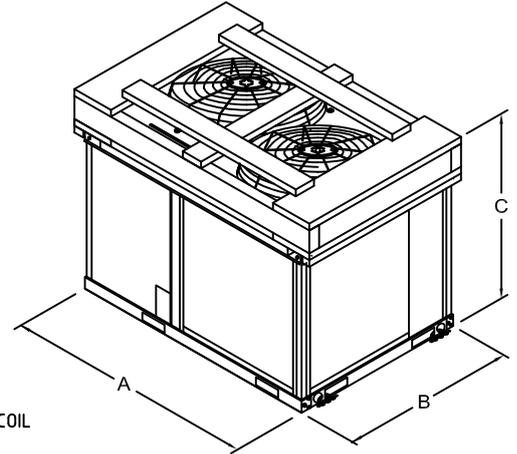
RIGHT SIDE VIEW



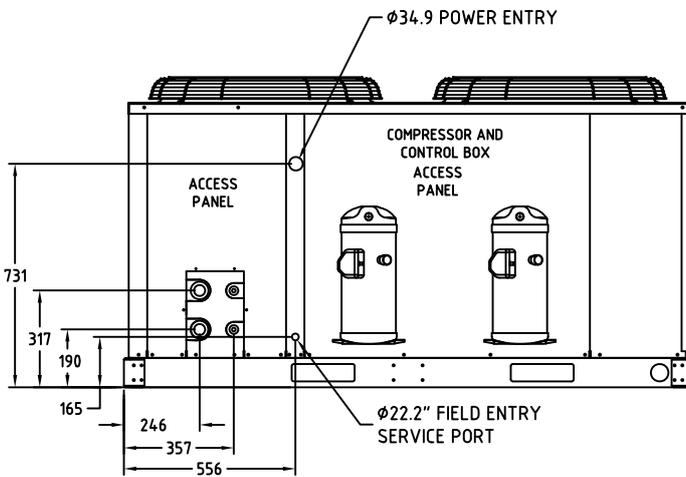
REAR VIEW

Base Unit Dimensions – 38ARD 014 – 024

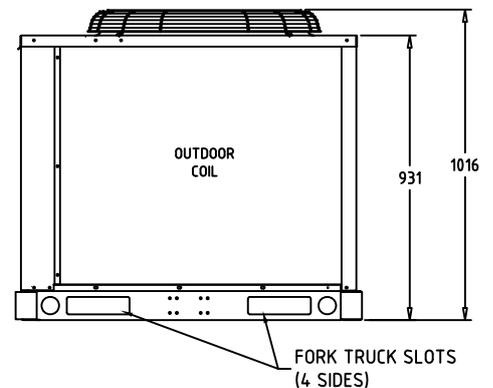
38ARD Size	Approximate Shipping Weight				Approx. Shipping Dimensions (A x B x C)	
	With Standard Al/Cu Coil		With Optional Cu/Cu Coil		mm	inch
014	357	785	423	931	(1844X1124X1058)	(72.6X44.25X41.7)
016	386	849	452	994		
024	397	873	461	1014		



TOP VIEW



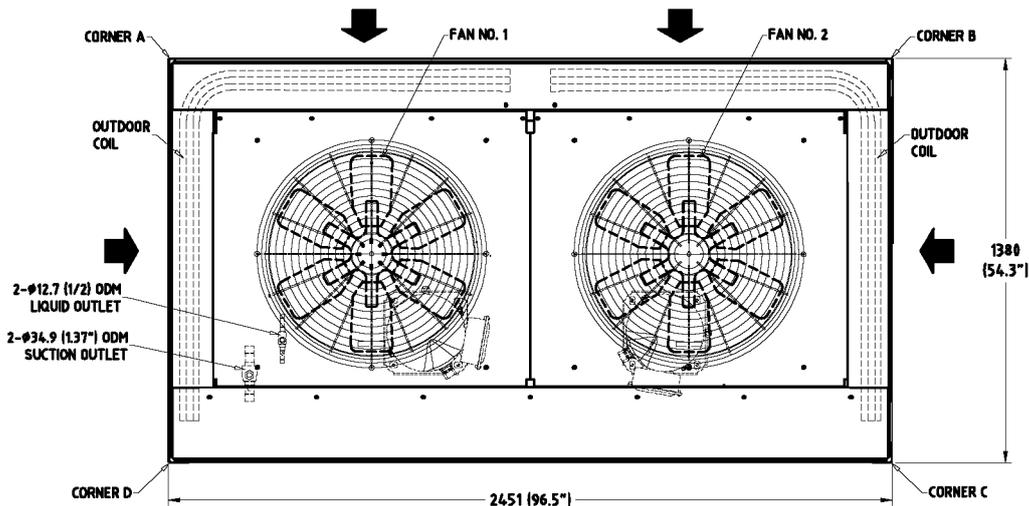
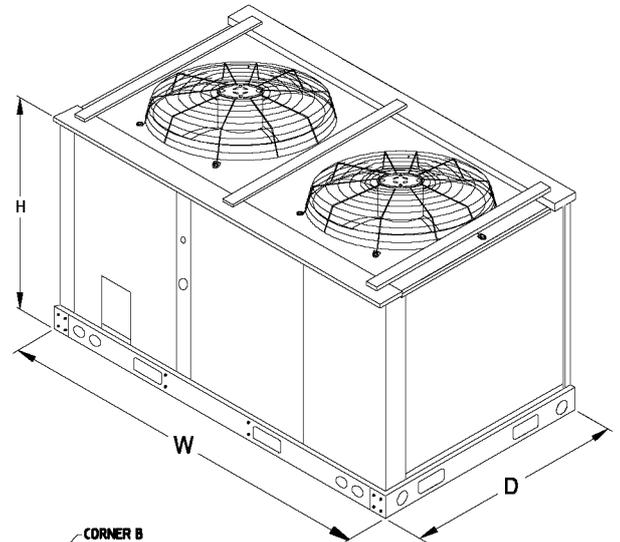
FRONT VIEW



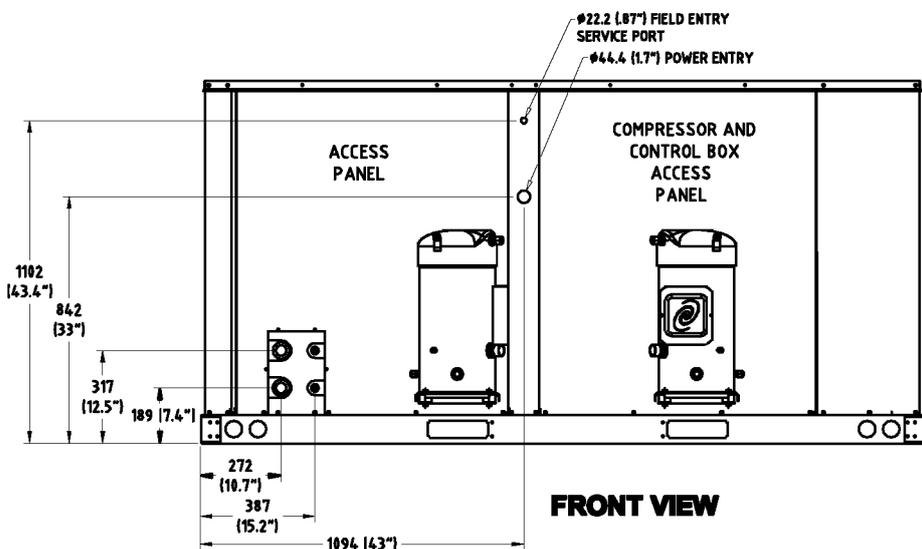
SIDE VIEW

Base Unit Dimensions – 38ARD 028

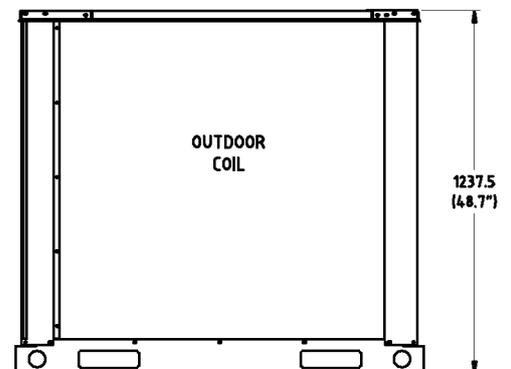
38ARD Size	Approximate Shipping Weight				Approx. Shipping Dimensions (W x D x H)	
	With Standard Al/Cu Coil		With Optional Cu/Cu Coil		mm	inch
	KG	LB	KG	LB		
028	1279	580	1532	695	[2451x1380x1260]	[96.5x54.3x49.6]



TOP VIEW



FRONT VIEW



SIDE VIEW

CONDENSING UNIT RATINGS – ENGLISH

38ARZ007							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	105	115
25	TC	44.80	43.60	41.20	40.00	38.80	36.90
	kW	3.50	3.72	4.15	4.39	4.63	5.12
	SDT	99.8	105.0	115.0	120.0	124.0	134.0
30	TC	49.40	48.20	45.60	44.30	43.00	40.40
	kW	3.56	3.78	4.20	4.45	4.69	5.18
	SDT	101.0	106.0	116.0	121.0	125.0	135.0
35	TC	54.30	52.90	50.30	48.90	47.50	44.70
	kW	3.63	3.85	4.28	4.52	4.77	5.25
	SDT	102.0	107.0	117.0	122.0	127.0	136.0
40	TC	59.50	58.00	55.10	53.70	52.20	49.20
	kW	3.71	3.93	4.36	4.60	4.85	5.34
	SDT	104.0	109.0	118.0	123.0	128.0	138.0
45	TC	65.00	63.40	60.30	58.70	57.10	54.00
	kW	3.81	4.02	4.45	4.70	4.94	5.44
	SDT	106.0	110.0	120.0	125.0	130.0	139.0
50	TC	70.70	69.10	65.80	64.10	62.40	59.00
	kW	3.91	4.12	4.56	4.80	5.05	5.54
	SDT	108.0	112.0	122.0	127.0	131.0	141.0

38ARZ008							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	105	115
25	TC	61.30	59.40	55.50	53.40	51.40	47.10
	kW	4.79	5.07	5.65	5.96	6.27	6.93
	SDT	98.5	103.0	113.0	118.0	123.0	133.0
30	TC	68.30	66.40	62.30	60.20	58.00	53.60
	kW	4.81	5.09	5.68	5.99	6.31	6.99
	SDT	98.8	104.0	114.0	119.0	123.0	133.0
35	TC	75.50	73.50	69.30	67.10	64.90	60.30
	kW	4.88	5.15	5.74	6.06	6.38	7.06
	SDT	99.9	105.0	114.0	119.0	124.0	134.0
40	TC	83.00	80.80	76.40	74.10	71.80	67.00
	kW	4.97	5.24	5.84	6.16	6.48	7.17
	SDT	101.0	106.0	116.0	121.0	125.0	135.0
45	TC	90.90	88.60	83.90	81.50	79.10	74.10
	kW	5.06	5.34	5.94	6.27	6.59	7.29
	SDT	103.0	108.0	117.0	122.0	127.0	136.0
50	TC	99.20	96.80	91.80	89.20	86.70	81.40
	kW	5.17	5.45	6.06	6.39	6.72	7.43
	SDT	105.0	110.0	119.0	124.0	128.0	138.0

38ARZ012							
SST (F)		Air Temperature Entering Condenser (F)					
		80	85	95	100	105	115
25	TC	85.00	82.70	77.90	75.50	73.10	67.90
	kW	6.64	6.94	7.57	7.90	8.25	8.98
	SDT	101.0	106.0	116.0	121.0	126.0	136.0
30	TC	93.30	90.90	85.80	83.20	80.50	75.10
	kW	6.81	7.09	7.69	8.01	8.35	9.06
	SDT	102.0	107.0	116.0	121.0	126.0	136.0
35	TC	102.00	99.50	94.00	91.20	88.40	82.60
	kW	7.01	7.29	7.87	8.18	8.50	9.18
	SDT	103.0	108.0	117.0	122.0	127.0	136.0
40	TC	111.00	108.00	103.00	99.70	96.70	90.40
	kW	7.24	7.52	8.11	8.41	8.72	9.37
	SDT	104.0	109.0	119.0	123.0	128.0	138.0
45	TC	121.00	118.00	112.00	109.00	105.00	98.70
	kW	7.49	7.78	8.37	8.67	8.98	9.61
	SDT	106.0	111.0	120.0	125.0	130.0	139.0
50	TC	130.00	128.00	121.00	118.00	115.00	107.00
	kW	7.76	8.06	8.66	8.96	9.27	9.90
	SDT	108.0	113.0	122.0	127.0	131.0	140.0

38ARD028							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	115	125
28	TC	238.98	232.12	217.96	199.02	181.25	175.41
	kW	17.97	18.76	18.98	23.38	26.92	27.99
	SDT	105.80	111.20	118.40	125.60	137.30	141.80
30	TC	251.31	244.32	229.73	212.47	192.37	186.35
	kW	18.12	18.87	20.22	23.58	27.15	28.26
	SDT	106.70	111.20	118.40	125.60	137.75	141.80
35	TC	263.65	256.51	241.50	225.91	203.49	197.28
	kW	18.27	18.98	21.45	23.77	27.39	28.52
	SDT	107.60	111.20	118.40	125.60	138.20	141.80
40	TC	289.54	282.07	266.17	249.69	225.24	217.62
	kW	18.61	19.28	21.84	24.20	27.93	29.14
	SDT	109.40	113.00	120.20	122.00	135.50	143.60
45	TC	318.31	309.33	286.68	274.90	249.40	243.45
	kW	19.01	20.05	22.25	24.66	28.71	29.63
	SDT	111.20	114.80	122.00	131.00	141.80	147.20
50	TC	344.71	338.71	320.76	302.17	271.24	262.86
	kW	19.44	20.47	22.71	25.11	29.36	30.10
	SDT	111.20	116.60	123.80	129.20	142.70	149.00

38ARD014							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	105	115
25	TC	120.3	117.1	110.3	102.0	96.7	321.1
	kW	7.6	7.93	8.02	9.88	10.93	11.38
	SDT	109	115	122	129	138	142
30	TC	126.3	123.1	116.3	108.6	102.3	99.6
	kW	7.67	7.98	8.55	9.97	11.02	11.48
	SDT	110	116	123	130	138	142
35	TC	132.4	129.0	122.3	115.2	107.9	358.5
	kW	7.73	8.02	9.07	10.05	11.1	11.58
	SDT	111	117	124	131	138	143
40	TC	145.0	141.6	134.4	126.9	119.2	115.8
	kW	7.87	8.15	9.22	10.23	11.29	11.80
	SDT	113	117	124	131	140	145
45	TC	159.1	155.0	142.1	139.2	130.4	127.7
	kW	8.04	8.48	9.41	10.43	11.74	12.135
	SDT	115	118	126	135	142	147
50	TC	172.1	169.4	161.1	152.6	142.4	138.5
	kW	8.22	8.66	9.6	10.61	12.1	12.415
	SDT	117	120	127	133	142	148

38ARD016							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	105	115
25	TC	165.1	160.8	151.4	140.3	133.2	129.6
	kW	10.21	10.66	10.78	13.28	14.69	15.30
	SDT	109	113	122	129	138	142
30	TC	173.3	168.9	159.7	149.3	140.8	137.1
	kW	10.30	10.72	11.49	13.39	14.80	15.43
	SDT	110	114	122	130	138	142
35	TC	181.6	177.1	167.9	158.3	148.4	144.6
	kW	10.38	10.78	12.19	13.5	14.91	15.56
	SDT	111	115	122	131	138	143
40	TC	199.0	194.2	184.5	174.3	163.9	543.4
	kW	10.57	10.95	12.39	13.75	15.17	15.86
	SDT	113	117	124	131	138	144
45	TC	218.2	212.6	197.2	191.2	179.3	175.6
	kW	10.8	11.39	12.64	14.01	15.78	16.31
	SDT	113	118	126	135	140	146
50	TC	236.0	232.3	221.1	209.5	195.7	190.4
	kW	11.04	11.63	12.9	14.26	16.25	16.68
	SDT	115	120	127	133	142	148

38ARD024							
SST		Air Temperature Entering Condenser (F)					
(F)		80	85	95	100	115	125
25	TC	177.00	165.00	156.00	151.00	137.00	123.00
	kW	12.70	14.00	15.60	16.30	18.40	19.40
	SDT	95.9	110.0	120.0	125.0	139.0	148.0
30	TC	193.00	180.00	170.00	165.00	150.00	138.00
	kW	13.20	14.80	16.00	16.70	18.80	20.00
	SDT	97.7	112.0	121.0	126.0	140.0	150.0
35	TC	210.00	195.00	185.00	179.00	163.00	151.00
	kW	13.70	15.30	16.50	17.10	19.10	20.50
	SDT	99.8	114.0	123.0	128.0	142.0	151.0
40	TC	227.00	212.00	201.00	195.00	177.00	165.00
	kW	14.20	15.90	17.00	17.60	19.60	21.00
	SDT	102.0	116.0	125.0	130.0	143.0	153.0
45	TC	246.00	230.00	218.00	211.00	192.00	179.00
	kW	14.80	16.50	17.60	18.20	20.10	21.50
	SDT	104.0	118.0	127.0	132.0	145.0	154.0
50	TC	265.00	248.00	235.00	229.00	208.00	194.00
	kW	15.40	17.10	18.30	18.90	20.80	22.10
	SDT	107.0	121.0	130.0	134.0	147.0	156.0

kW – Compressor Power
 SDT – Saturated Discharge Temperature (F)
 SST – Saturated Suction Temperature (F)
 TC – Gross Cooling Capacity (1000 Btu/h)

Performance data 50Hz – Cont.

COMBINATION RATINGS – ENGLISH

38ARZ007/40RM007		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		1800				2400				3000			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	57.2	58.5	63.1	68.4	61.8	61.9	65.6	70.9	65.1	65.1	67.3	72.5
	SHC	57.20	54.50	45.40	35.80	61.80	61.80	52.30	40.00	65.10	65.10	58.50	44.00
	kW	3.67	3.69	3.77	3.86	3.75	3.75	3.81	3.90	3.80	3.80	3.84	3.93
85	TC	56.4	57.5	62.0	67.3	60.9	61.0	64.5	69.7	64.1	64.1	66.1	71.2
	SHC	56.40	54.00	45.00	35.40	60.90	60.90	51.90	39.60	64.10	64.10	58.00	43.60
	kW	3.90	3.92	3.99	4.09	3.97	3.98	4.03	4.13	4.03	4.03	4.06	4.16
95	TC	54.8	55.7	59.9	65.1	59.2	59.2	62.2	67.3	62.1	62.2	63.8	68.7
	SHC	54.80	53.00	44.20	34.60	59.20	59.20	51.00	38.80	62.10	62.20	57.00	42.80
	kW	4.35	4.36	4.44	4.54	4.43	4.43	4.48	4.58	4.48	4.48	4.51	4.61
100	TC	54.0	54.7	58.8	63.9	58.2	58.2	61.0	66.0	61.1	61.1	62.6	67.4
	SHC	54.00	52.50	43.70	34.10	58.20	58.20	50.50	38.40	61.10	61.10	56.50	42.40
	kW	4.61	4.62	4.70	4.79	4.68	4.68	4.74	4.83	4.74	4.74	4.77	4.86
105	TC	53.1	53.7	57.7	62.6	57.2	57.2	59.9	64.7	60.1	60.1	61.4	66.1
	SHC	53.10	51.90	43.30	33.70	57.20	57.20	50.00	38.00	60.10	60.10	55.90	42.00
	kW	4.86	4.87	4.95	5.05	4.94	4.94	4.99	5.09	5.00	5.00	5.02	5.12
115	TC	51.4	51.7	55.5	60.2	55.3	55.3	57.5	62.1	58.0	58.0	58.9	63.4
	SHC	51.40	50.80	42.40	32.90	55.30	55.30	49.10	37.10	58.00	58.00	54.90	41.10
	kW	5.38	5.38	5.46	5.56	5.46	5.46	5.50	5.60	5.52	5.51	5.53	5.63
118.4	TC	50.89	51.10	54.84	59.48	54.73	54.73	56.78	61.32	57.37	57.37	58.15	62.59
	SHC	50.89	50.47	42.13	32.66	54.73	54.73	48.83	36.83	57.37	57.37	54.60	40.83
	kW	5.54	5.53	5.61	5.71	5.62	5.62	5.65	5.75	5.68	5.66	5.68	5.78

38ARZ007/40RM008		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		2250				3000				3750			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	61.3	61.5	65.5	70.9	65.6	65.6	67.8	73.0	68.6	68.6	69.4	74.2
	SHC	61.30	60.90	51.10	39.3	65.60	65.6	59.0	44.4	68.6	68.6	65.6	49.2
	kW	3.74	3.74	3.81	3.90	3.81	3.81	3.85	3.94	3.86	3.86	3.88	3.96
85	TC	60.4	60.6	64.4	69.7	64.7	64.7	66.6	71.7	67.5	67.5	68.3	72.9
	SHC	60.40	60.10	50.60	38.9	64.70	64.7	58.5	44.0	67.50	67.50	65.00	48.80
	kW	3.96	3.97	4.03	4.13	4.04	4.04	4.07	4.16	4.09	4.09	4.10	4.19
95	TC	58.7	58.7	62.1	67.3	62.7	62.7	64.3	69.2	65.4	65.4	65.9	70.3
	SHC	58.70	58.70	49.80	38.1	62.70	62.7	57.6	43.2	65.4	65.4	63.8	47.9
	kW	4.42	4.42	4.48	4.58	4.49	4.49	4.52	4.62	4.55	4.54	4.55	4.64
100	TC	57.7	57.7	61.0	66.0	61.6	61.6	63.0	67.8	64.3	64.3	64.7	68.9
	SHC	57.70	57.70	49.30	37.7	61.60	61.6	57.0	42.8	64.3	64.3	63.0	47.5
	kW	4.67	4.68	4.74	4.84	4.75	4.75	4.78	4.87	4.80	4.80	4.81	4.89
105	TC	56.7	56.8	59.8	64.7	60.6	60.6	61.8	66.5	63.2	63.2	63.4	67.5
	SHC	56.70	56.80	48.80	37.2	60.60	60.6	56.5	42.3	63.2	63.2	62.3	47.1
	kW	4.93	4.93	4.99	5.09	5.01	5.01	5.03	5.13	5.06	5.06	5.06	5.15
115	TC	54.8	54.8	57.4	62.1	58.5	58.5	59.3	63.8	61.0	61.0	61.0	64.8
	SHC	54.80	54.80	47.90	36.4	58.50	58.5	55.4	41.5	61.0	61.0	60.8	46.2
	kW	5.44	5.44	5.50	5.61	5.53	5.52	5.54	5.64	5.58	5.58	5.57	5.66
118.4	TC	54.23	54.20	56.68	61.32	57.87	57.87	58.55	62.99	60.34	60.34	60.28	63.99
	SHC	54.23	54.20	47.63	36.16	57.87	57.87	55.07	41.26	60.34	60.34	60.35	45.93
	kW	5.57	5.57	5.63	5.74	5.66	5.65	5.67	5.77	5.71	5.71	5.70	5.79

38ARZ008/40RM007		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		1800				2400				3000			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	68.3	72.6	79.0	85.7	74.9	76.8	82.9	89.6	79.4	80.0	85.5	92.1
	SHC	68.30	61.50	52.00	42.20	74.90	70.80	59.00	46.50	79.40	78.30	65.50	50.40
	kW	4.81	4.85	4.92	5.00	4.88	4.89	4.96	5.05	4.93	4.93	5.00	5.08
85	TC	67.4	71.4	77.7	84.3	73.8	75.5	81.5	88.1	78.2	78.7	84.0	90.5
	SHC	67.40	60.90	51.40	41.70	73.80	70.20	58.40	46.00	78.20	77.40	64.90	49.80
	kW	5.11	5.15	5.22	5.30	5.17	5.19	5.27	5.35	5.23	5.23	5.30	5.38
95	TC	65.4	68.9	75.0	81.5	71.6	72.9	78.7	85.1	75.9	76.1	81.0	87.4
	SHC	65.40	59.70	50.30	40.60	71.60	68.80	57.30	44.90	75.90	75.60	63.80	48.80
	kW	5.71	5.74	5.82	5.91	5.77	5.79	5.87	5.96	5.83	5.83	5.90	5.99
100	TC	64.4	67.6	73.6	80.0	70.4	71.6	77.1	83.5	74.6	74.7	79.4	85.7
	SHC	64.40	59.10	49.70	40.00	70.40	68.10	56.70	44.30	74.60	74.50	63.10	48.20
	kW	6.03	6.07	6.15	6.25	6.11	6.12	6.20	6.30	6.17	6.17	6.24	6.34
105	TC	63.3	66.2	72.2	78.5	69.2	70.2	75.6	81.9	73.3	73.3	77.8	84.1
	SHC	63.30	58.40	49.10	39.50	69.20	67.30	56.10	43.80	73.30	73.30	62.50	47.70
	kW	6.36	6.40	6.49	6.59	6.44	6.46	6.54	6.64	6.50	6.50	6.57	6.68
115	TC	61.2	63.6	69.3	75.5	66.8	67.4	72.4	78.7	70.7	70.6	74.5	80.7
	SHC	61.20	57.10	47.90	38.30	66.80	65.80	54.90	42.60	70.70	70.60	61.30	46.50
	kW	7.01	7.06	7.15	7.27	7.11	7.12	7.21	7.33	7.17	7.17	7.25	7.36
118.4	TC	60.57	62.82	68.43	74.60	66.08	66.56	71.44	77.74	69.92	69.79	73.51	79.68
	SHC	60.57	56.71	47.54	37.94	66.08	65.35	54.54	42.24	69.92	69.79	60.94	46.14
	kW	7.17	7.23	7.32	7.44	7.28	7.29	7.38	7.50	7.34	7.34	7.42	7.53

38ARZ008/40RM008		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		2250				3000				3750			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	74.1	76.4	82.5	89.1	80.2	80.6	85.7	92.3	84.3	84.3	88.0	94.4
	SHC	74.10	69.40	57.90	45.80	80.20	79.10	66.10	50.80	84.30	84.30	73.70	55.40
	kW	4.87	4.89	4.96	5.04	4.93	4.94	5.00	5.08	4.98	4.98	5.03	5.11
85	TC	73.0	75.1	81.1	87.6	79.0	79.3	84.3	90.8	83.1	83.0	86.4	92.8
	SHC	73.00	68.70	57.30	45.20	79.00	78.20	65.60	50.30	83.10	83.00	73.10	54.90
	kW	5.17	5.19	5.26	5.34	5.23	5.24	5.30	5.39	5.29	5.28	5.33	5.41
95	TC	70.9	72.6	78.3	84.8	76.6	76.7	81.4	87.8	80.5	80.5	83.4	89.6
	SHC	70.90	67.40	56.20	44.20	76.60	76.40	64.50	49.30	80.50	80.50	71.90	53.90
	kW	5.76	5.78	5.86	5.96	5.84	5.84	5.91	6.00	5.90	5.89	5.94	6.03
100	TC	69.7	71.2	76.8	83.2	75.3	75.4	79.8	86.1	79.2	79.1	81.8	87.8
	SHC	69.70	66.70	55.60	43.60	75.30	75.20	63.90	48.70	79.20	79.10	71.20	53.30
	kW	6.10	6.11	6.20	6.30	6.17	6.18	6.25	6.34	6.23	6.23	6.27	6.37
105	TC	68.6	69.8	75.3	81.6	74.0	74.1	78.2	84.4	77.8	77.7	80.1	86.1
	SHC	68.60	66.00	55.00	43.00	74.00	74.10	63.30	48.10	77.80	77.70	70.50	52.80
	kW	6.43	6.45	6.53	6.64	6.51	6.51	6.58	6.68	6.57	6.57	6.61	6.71
115	TC	66.3	67.1	72.3	78.4	71.5	71.4	75.0	80.9	75.0	75.0	76.9	82.6
	SHC	66.30	64.60	53.80	41.90	71.50	71.40	62.10	46.90	75.00	75.00	69.20	51.70
	kW	7.09	7.11	7.21	7.32	7.19	7.19	7.26	7.36	7.25	7.25	7.29	7.39
118.4	TC	65.61	66.29	71.40	77.44	70.75	70.59	74.04	79.85	74.16	74.19	75.94	81.55
	SHC	65.61	64.18	53.44	41.57	70.75	70.59	61.74	46.54	74.16	74.19	68.81	51.37
	kW	7.29	7.31	7.41	7.52	7.39	7.39	7.46	7.56	7.45	7.45	7.49	7.59

38ARZ008/40RM012		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		3000				4000				5000			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	82.4	82.7	87.9	94.6	87.9	87.9	90.8	97.2	91.7	91.7	92.9	98.8
	SHC	82.40	81.60	8.20	52.30	87.90	87.90	78.50	58.80	91.70	91.70	87.10	64.90
	kW	4.96	4.96	5.03	5.11	5.03	5.03	5.06	5.14	5.07	5.07	5.09	5.16
85	TC	81.1	81.4	86.3	93.0	86.6	86.6	89.2	95.5	90.3	90.2	91.3	97.1
	SHC	81.10	80.60	67.60	51.70	86.60	86.60	77.90	58.30	90.30	90.20	86.40	64.30
	kW	5.26	5.26	5.33	5.42	5.33	5.33	5.37	5.45	5.38	5.38	5.39	5.47
95	TC	78.7	78.7	83.3	89.8	83.8	83.8	86.1	92.2	87.4	87.3	88.1	93.7
	SHC	78.70	78.60	66.40	50.60	83.80	83.80	76.60	57.30	87.40	87.30	84.80	63.30
	kW	5.87	5.87	5.93	6.03	5.94	5.94	5.98	6.07	5.99	5.99	6.01	6.09
100	TC	77.3	77.3	81.6	88.0	82.4	82.4	84.3	90.3	85.8	85.8	86.4	91.7
	SHC	77.30	77.30	65.08	50.10	82.40	82.40	75.90	56.60	85.80	85.80	83.80	62.70
	kW	6.21	6.21	6.27	6.37	6.28	6.28	6.32	6.41	6.34	6.34	6.35	6.43
105	TC	75.9	76.0	79.9	86.3	80.9	80.9	82.6	88.5	84.3	84.2	84.7	89.8
	SHC	75.90	76.00	65.10	49.50	80.90	80.90	75.20	56.00	84.30	84.20	82.80	62.10
	kW	6.54	6.55	6.61	6.71	6.62	6.63	6.66	6.75	6.68	6.68	6.69	6.77
115	TC	73.2	73.2	76.6	82.7	78.0	78.0	79.2	84.7	81.2	81.1	81.3	86.0
	SHC	73.20	73.20	63.80	48.30	78.00	78.00	73.70	54.80	81.20	81.10	80.80	60.90
	kW	7.22	7.22	7.28	7.40	7.31	7.31	7.34	7.43	7.37	7.37	7.37	7.46

38ARZ012/40RM008		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		2250				3000				3750			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	88.7	94.4	102.0	110.0	96.6	99.8	107.0	115.0	102.0	104.0	110.0	118.0
	SHC	88.40	78.50	66.30	54.00	96.60	90.10	74.90	59.20	102.00	99.60	82.80	63.90
	kW	6.71	6.83	7.01	7.22	6.88	6.96	7.14	7.35	7.02	7.04	7.22	7.43
85	TC	87.4	92.9	101.0	109.0	95.2	98.1	105.0	113.0	101.0	102.0	109.0	116.0
	SHC	87.20	77.80	65.60	53.30	95.20	89.30	74.20	58.50	101.00	98.50	82.10	63.30
	kW	7.04	7.15	7.33	7.54	7.20	7.27	7.45	7.67	7.34	7.36	7.53	7.75
95	TC	84.8	89.8	97.3	105.0	92.5	94.8	102.0	110.0	97.8	98.5	105.0	113.0
	SHC	84.80	76.30	64.20	51.90	92.50	87.60	72.80	57.20	97.80	96.50	80.70	61.90
	kW	7.68	7.78	7.96	8.17	7.84	7.89	8.09	8.31	7.97	7.99	8.16	8.39
100	TC	83.5	88.1	95.4	103.0	91.0	93.0	99.9	108.0	96.1	96.6	103.0	110.0
	SHC	83.50	75.40	63.40	51.20	91.00	86.60	72.00	56.40	96.10	95.20	79.80	61.10
	kW	8.03	8.12	8.29	8.51	8.19	8.23	8.42	8.65	8.32	8.33	8.50	8.73
105	TC	82.2	86.4	93.6	101.0	89.4	91.1	97.8	105.0	94.5	94.8	101.0	108.0
	SHC	82.20	74.50	62.60	50.40	89.40	85.60	71.20	55.60	94.50	94.00	79.00	60.30
	kW	8.38	8.46	8.63	8.84	8.53	8.57	8.75	8.98	8.66	8.67	8.83	9.06
115	TC	79.5	83.0	89.8	97.1	86.4	87.5	93.8	101.0	91.1	91.1	96.3	104.0
	SHC	79.50	72.80	61.00	48.80	86.40	83.70	69.50	54.10	91.10	91.10	77.30	58.80
	kW	9.07	9.14	9.31	9.51	9.22	9.25	9.42	9.66	9.34	9.34	9.50	9.73
118.4	TC	78.69	81.98	88.66	95.93	85.50	86.42	92.60	99.80	90.08	89.99	94.89	102.80
	SHC	78.69	72.29	60.52	48.32	85.50	83.13	68.99	53.65	90.08	90.23	76.79	58.35
	kW	9.24	9.31	9.48	9.68	9.39	9.42	9.59	9.83	9.51	9.51	9.67	9.90

Performance data 50Hz – Cont.

38ARZ012/40RM012		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		3000				4000				5000			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	99.3	102.0	110.0	118.0	107.0	108.0	114.0	122.0	112.0	112.0	117.0	125.0
	SHC	99.30	92.70	77.20	60.80	107.0	106.0	88.10	67.50	112.00	112.0	98.20	73.70
	kW	6.94	7.01	7.21	7.43	7.13	7.15	7.31	7.54	7.27	7.27	7.39	7.60
85	TC	97.9	101.0	108.0	116.0	105.0	106.0	112.0	120.0	111.0	110.0	115.0	123.0
	SHC	97.90	91.90	76.40	60.10	105.0	104.0	87.40	66.80	111.00	110.0	97.30	73.00
	kW	7.26	7.33	7.52	7.75	7.45	7.46	7.63	7.85	7.59	7.59	7.70	7.92
95	TC	95.0	97.1	104.0	112.0	102.0	102.0	108.0	116.0	107.0	107.0	111.0	118.0
	SHC	95.00	90.10	74.90	58.70	102.0	102.0	85.90	65.40	107.00	107.0	95.60	71.60
	kW	7.90	7.95	8.15	8.39	8.09	8.09	8.26	8.49	8.23	8.23	8.34	8.57
100	TC	93.4	95.2	102.0	110.0	100.0	100.0	106.0	114.0	105.0	105.0	108.0	116.0
	SHC	93.40	89.10	74.00	57.90	100.0	100.0	85.00	64.60	105.00	105.0	94.70	70.80
	kW	8.25	8.29	8.48	8.72	8.43	8.43	8.59	8.83	8.57	8.57	8.67	8.90
105	TC	91.8	93.3	100.0	108.0	98.6	98.5	104.0	111.0	103.0	103.0	106.0	113.0
	SHC	91.80	88.10	73.20	57.10	98.60	98.50	84.10	63.80	103.00	103.0	93.70	69.90
	kW	8.59	8.63	8.81	9.05	8.78	8.77	8.93	9.16	8.91	8.91	9.00	9.23
115	TC	88.5	89.5	95.8	103.0	95.0	94.7	99.2	107.0	99.2	99.2	101.0	109.0
	SHC	88.50	86.10	71.40	55.40	95.00	94.70	82.40	62.10	99.20	99.20	91.70	68.30
	kW	9.28	9.30	9.47	9.71	9.46	9.44	9.59	9.83	9.59	9.58	9.66	9.90
118.4	TC	87.51	88.36	94.54	101.50	93.92	93.56	97.76	105.80	98.06	98.06	99.50	107.80
	SHC	87.51	85.50	70.86	54.89	93.92	93.56	81.89	61.59	98.06	98.06	91.10	67.82
	kW	9.49	9.50	9.67	9.91	9.66	9.64	9.79	10.03	9.79	9.78	9.86	10.10

38ARZ012/40RM014		Evaporator Air – Cfm											
Temp (F) Air Entering Condenser (Edb)		3750				5000				6250			
		Evaporator Air – Ewb (F)											
		57	62	67	72	57	62	67	72	57	62	67	72
80	TC	106.0	108.0	116.0	124.0	114.0	114.0	120.0	128.0	119.0	119.0	122.0	130.0
	SHC	106.00	103.00	85.10	66.10	114.00	114.00	97.60	73.70	119.00	119.00	108.00	80.70
	kW	7.12	7.16	7.36	7.59	7.32	7.32	7.46	7.70	7.45	7.45	7.53	7.76
85	TC	105.0	106.0	114.0	122.0	112.0	112.0	117.0	126.0	117.0	117.0	120.0	128.0
	SHC	105.00	101.00	84.30	65.40	112.00	112.00	96.70	73.00	117.00	117.00	108.00	80.00
	kW	7.43	7.47	7.67	7.91	7.63	7.63	7.78	8.02	7.77	7.77	7.85	8.08
95	TC	101.0	102.0	110.0	118.0	109.0	109.0	113.0	121.0	113.0	113.0	116.0	124.0
	SHC	101.00	99.40	82.70	63.90	109.0	109.0	95.10	71.50	113.00	113.0	106.0	78.50
	kW	8.07	8.10	8.30	8.55	8.27	8.27	8.41	8.66	8.42	8.41	8.48	8.72
100	TC	99.6	100.0	107.0	115.0	107.0	107.0	111.0	119.0	111.0	111.0	113.0	121.0
	SHC	99.60	98.10	81.70	63.00	107.00	107.00	94.10	70.60	111.00	111.00	104.00	77.60
	kW	8.41	8.43	8.63	8.88	8.61	8.61	8.74	8.99	8.75	8.75	8.81	9.06
105	TC	97.8	98.3	105.0	113.0	105.0	105.0	108.0	116.0	109.0	109.0	111.0	118.0
	SHC	97.80	96.80	80.80	62.10	105.00	105.00	93.10	69.70	109.00	109.00	103.00	76.80
	kW	8.75	8.77	8.96	9.21	8.95	8.95	9.07	9.32	9.09	9.09	9.14	9.39
115	TC	94.1	94.2	100.0	108.0	100.0	100.0	103.0	111.0	105.0	105.0	106.0	113.0
	SHC	94.10	94.20	78.90	60.30	100.00	100.00	91.10	68.00	105.00	105.00	101.00	75.10
	kW	9.42	9.43	9.61	9.87	9.63	9.63	9.73	9.98	9.77	9.77	9.80	10.10

38ARD014/40RM014		Evaporator Air – Cfm									
Temp (F) Air Entering Condenser (Edb)		3750			5000			6250			
		Evaporator Air – Ewb (F)									
		62	67	72	62	67	72	62	67	72	
80	TC	126	136	149	133	142.5	155	140	147	159	
	SHC	112	93.1	73.8	127	106.6	82.4	135	120	90.4	
	kW	7.68	7.73	7.81	7.71	7.762	7.84	7.77	7.78	7.87	
85	TC	124	134	147	131	140.4	153	138	144	156	
	SHC	111	92.2	73	126	105.6	81.7	133	119	89.6	
	kW	8.16	8.21	8.29	8.19	8.229	8.31	8.23	8.25	8.34	
95	TC	120	130	141	127	138.0	148	134	139	151	
	SHC	109	90.5	71.4	122	100.0	79.9	129	117	87.9	
	kW	9.18	9.23	9.28	9.22	9.3	9.31	9.25	9.26	9.34	
100	TC	116	127	138	124	131.8	143	131	135	146	
	SHC	106	89.1	70.2	119	99.98	78.7	126	115	86.5	
	kW	9.73	9.73	9.82	9.73	9.824	9.82	9.82	9.82	9.92	
105	TC	114	124	136	122	128.7	140	129	133	144	
	SHC	105	88.2	69.3	117	99.01	77.8	124	114	85.6	
	kW	10.3	10.3	10.4	10.3	10.31	10.4	10.4	10.4	10.41	
115	TC	110	119	130	117	123.6	135	124	127	138.0	
	SHC	103	86.2	67.5	113	97.09	75.9	119	111	83.7	
	kW	11.5	11.6	11.6	11.6	11.57	11.7	11.6	11.6	11.67	
118.4	TC	107.9	116.4	127.0	114.9	120.9	131.6	121.4	124.0	134.6	
	SHC	101.5	85.3	66.5	110.9	95.0	74.9	116.9	109.7	82.7	
	kW	12.1	12.2	12.2	12.2	12.2	12.3	12.2	12.2	12.3	
122	TC	105	113	123	112	117.2	127	118	120	130	
	SHC	99.6	84	65.2	108	92.24	73.6	114	108	81.3	
	kW	12.8	12.9	12.9	12.9	12.94	13	12.9	12.9	13.03	

38ARD016/40RM016										
Temp (F) Air Entering Condenser (Edb)		Evaporator Air – Cfm								
		4500			6000			7500		
		Evaporator Air – Ewb (F)								
		62	67	72	62	67	72	62	67	72
80	TC	177	191.5	207	187	199.4	215	195	205	221
	SHC	149	125.1	99.9	172	135.9	111	184	160	120.8
	kW	10.6	10.87	11.3	10.8	11.06	11.3	11	11.2	11.44
85	TC	175	188.2	204	184	196	212	193	202	217
	SHC	148	124	98.7	170	134.9	109	182	158	119.8
	kW	11.1	11.35	11.7	11.3	11.54	11.8	11.4	11.6	12.02
95	TC	168	181.4	197	177	192.0	204	186	194	208
	SHC	145	120.8	96	165	131.0	107	176	155	117.7
	kW	12	12.31	12.7	12.2	12.50	12.9	12.4	12.6	12.98
100	TC	163	175.2	191	172	182.9	197	181	187	202
	SHC	142	119.1	94.1	162	130.2	105	172	153	114.9
	kW	12.5	12.88	13.2	12.8	12.98	13.4	13	13.2	13.46
105	TC	159	171.8	186	169	178.5	193	176	183	197
	SHC	141	117	92.7	159	128.2	104	168	151	113.9
	kW	13.1	13.37	13.8	13.3	13.56	13.9	13.5	13.7	14.04
115	TC	152	163	177	161	169.6	183	169	174	187
	SHC	137	113.9	89.5	153	125.2	100	160	148	111
	kW	14.1	14.42	14.8	14.3	14.62	15	14.6	14.7	15.10
118.4	TC	148.1	159.0	172.3	156.7	165.1	177.9	164.7	168.9	182.3
	SHC	134.9	112.3	88.0	149.6	123.6	98.6	156.6	145.9	109.3
	kW	14.6	14.9	15.3	14.8	15.1	15.5	15.1	15.2	15.6
122	TC	143	153.6	166	151	159.1	171	159	162	176
	SHC	132	110.1	85.9	145	121.5	96.7	152	143	107.0
	kW	15.2	15.48	15.9	15.5	15.67	16.1	15.7	15.8	16.15

38ARD024/40RM024										
Temp (F) Air Entering Condenser (Edb)		Evaporator Air – Cfm								
		6,000			7000			8000		
		Evaporator Air – Ewb (F)								
		62	67	72	62	67	72	62	67	72
80	TC	204.0	219.0	237.0	209.5	223.5	241.0	215.0	228.0	245.0
	SHC	175.5	146.2	115.1	187.8	156.6	121.7	200.0	167.0	128.3
	kW	13.9	14.4	14.9	14.1	14.5	15.1	14.2	14.7	15.2
85	TC	200.0	216.0	233.0	205.5	220.0	237.0	211.0	224.0	241.0
	SHC	173.6	144.4	114.2	185.4	155.2	120.8	197.2	166.1	127.4
	kW	14.5	14.9	15.5	14.6	15.1	15.6	14.8	15.2	15.8
95	TC	193.0	207.0	224.0	198.0	211.0	227.5	203.0	215.0	231.0
	SHC	169.8	141.5	110.4	180.7	151.9	117.0	191.5	162.3	123.6
	kW	15.7	16.2	16.7	15.8	16.3	16.9	16.0	16.4	17.0
100	TC	189.0	203.0	219.0	194.5	206.5	222.5	200.0	210.0	226.0
	SHC	167.9	139.6	109.4	178.3	150.0	116.0	188.7	160.4	122.7
	kW	16.3	16.8	17.4	16.5	16.9	17.5	16.6	17.0	17.6
105	TC	185.0	198.0	214.0	190.5	201.5	217.5	196.0	205.0	221.0
	SHC	166.1	137.7	107.6	175.5	148.1	114.2	184.9	158.5	120.8
	kW	17.0	17.4	17.9	17.1	17.5	18.1	17.3	17.7	18.2
115	TC	177.0	189.0	204.0	182.5	187.6	207.0	188.0	196.0	210.0
	SHC	161.3	134.9	103.8	169.4	140.5	110.4	177.4	154.7	117.0
	kW	18.3	18.8	19.2	18.5	20.0	19.4	18.7	19.0	19.5
118.4	TC	173.6	185.1	199.7	179.1	184.4	202.5	184.6	191.7	205.3
	SHC	159.3	133.3	102.6	166.7	138.9	109.2	174.1	153.1	115.8
	kW	18.9	19.4	19.8	19.1	20.5	20.0	19.3	19.6	20.1
122	TC	169.0	180.0	194.0	174.5	180.2	196.5	180.0	186.0	199.0
	SHC	156.6	131.1	101.0	163.2	136.8	107.6	169.8	151.0	114.2
	kW	19.7	20.2	20.6	19.9	21.1	20.8	20.2	20.4	20.9

38ARD028/40RM028										
Temp (F) Air Entering Condenser (Edb)		Evaporator Air – Cfm								
		7000			8,000			9,000		
		Evaporator Air – Ewb (F)								
		62	67	72	62	67	72	62	67	72
80	TC	273.6	291.9	314.7	276.6	293.3	315.2	282.4	296.6	318.4
	SHC	260.5	217.3	168.9	268.7	224.3	172.3	276.3	237.6	180.6
	kW	18.8	19.5	20.2	19.0	19.6	20.3	19.2	19.7	20.4
85	TC	268.4	287.3	309.5	271.5	288.2	310.1	277.9	291.4	313.3
	SHC	257.2	215.3	167.6	264.9	223.0	171.1	272.5	235.7	179.3
	kW	19.6	20.2	21.0	19.7	20.3	21.1	20.0	20.5	21.2
95	TC	258.6	275.5	297.1	261.2	276.6	297.2	267.6	279.8	300.4
	SHC	252.4	210.8	162.3	257.3	218.0	166.0	263.6	230.6	174.2
	kW	20.6	21.0	22.0	20.7	21.1	22.1	21.0	21.3	22.2
100	TC	254	269.7	290.6	257.3	270.2	290.8	263.1	273.4	294
	SHC	247.4	208.1	161	253.5	215.4	164.7	259.2	228.1	173.0
	kW	22.1	22.6	23.4	22.2	22.7	23.5	22.5	22.8	23.6
105	TC	248.8	263.1	284.0	252.2	263.7	284.3	258.0	267.0	286.9
	SHC	243.5	205.5	158.4	248.4	212.9	162.2	254.1	225.6	170.4
	kW	23.0	23.5	24.2	23.1	23.6	24.3	23.3	23.7	24.5
115	TC	243.1	256.4	275.7	246.7	257.2	275.6	252.0	259.8	278.2
	SHC	239.7	192.7	153.1	243	199.3	157.1	248.2	210.8	165.3
	kW	24.8	25.3	26.0	25.0	25.3	26.1	25.1	25.5	26.2
118.4	TC	239.5	252.0	270.8	243.2	252.6	270.5	248.2	255.2	273.1
	SHC	237.0	191.3	152.2	239.5	196.9	156.1	244.5	209.3	164.1
	kW	25.6	26.1	26.8	25.9	26.1	26.9	26.0	26.3	27.0
122	TC	234.7	246.1	264.3	238.5	246.5	263.7	243.2	249.1	266.4
	SHC	233.3	189.5	151.1	234.9	193.8	154.8	239.5	207.4	162.5
	kW	26.7	27.2	27.8	27.0	27.2	28.0	27.1	27.3	28.0

LEGEND

Edb – Entering Dry Bulb

Ewb – Entering Wet Bulb

kW – Compressor Motor Power Input

SHC – Sensible Heat Capacity (kW) Gross

TC – Total Capacity (kW) Gross

Application data

Operating limits – SI (English)

Maximum Outdoor Temperature	52 C (125 F)
Minimum Outdoor Ambient	See Minimum Outdoor-Air Operating Temperature table below.
Minimum Return-Air Temperature	13 C (55 F)
Maximum Return-Air Temperature	35 C (95 F)
Normal Acceptable Saturation Suction Temperature Range	-4 to 13 C (25 to 55 F)
Maximum Discharge Temperature	135 C (275 F)
Minimum Discharge Superheat	16 C (60 F)

NOTES:

- Select air handler at no less than 40 L/s per kW (300 cfm/ton) (nominal condensing unit capacity).
- Total combined draw of the field-supplied liquid line solenoid valve and air handler fan contactor must not exceed 22 va. If the specified va must be exceeded, use a remote relay to control the load.

Liquid line

For applications with liquid lift greater than 6 m (20 ft), use 1/2-in. liquid line where 3/8 in. is shown; use 5/8-in. liquid line where 1/2 in. is shown. The maximum liquid lift is 18 m (60 ft).

MAXIMUM REFRIGERANT CHARGE

UNIT 38AR	R-22	
	lb	kg
Z007	17.3	7.7
Z008	34.2	15.5
Z012	34.2	15.5
D014	(2)17.3	(2)7.7
D016	(2)34.2	(2)15.5
D024	(2)34.2	(2)15.5
D028	(2)27.5	(2)12.5

MINIMUM OUTDOOR-AIR OPERATING TEMPERATURE

UNIT 38AR	COND TEMP C (F)	MINIMUM OUTDOOR TEMP C (F)
		Std
38ARZ007-012 38ARD014-024	32 (90)	10 (50)
38ARD028	32 (90)	15 (59)

LIQUID LINE DATA — 38ARD014-028 UNITS

UNIT 38AR	MAX ALLOW. LIFT m(ft)	LIQUID LINE	
		Max Allow. Pressure Drop kPa (psi)	Max Allow. Temp Loss C(°F)
38ARZ007-012 38ARD014-028	18.2 (60)	48.8 (7)	1.1 (2)

Refrigerant piping

IMPORTANT: Do not bury refrigerant piping underground.

It is recommended that the refrigerant piping for all commercial split systems include a liquid line solenoid valve, a liquid line filter drier and a sight glass.

For refrigerant lines longer than 75 lineal ft, a liquid line solenoid valve installed at the **indoor** unit and a suction accumulator are required. Refer to the Refrigerant Specialties Part Numbers table.

REFRIGERANT PIPING SIZES

UNIT 38AR	LINEAR LENGTH OF PIPING — M (FT)							
	0-7.6(0-25)		7.6-15.2(25-50)		15.2-22.4(50-75)		22.4-30.5(75-100)	
	Line Size (in. OD)							
	L	S	L	S	L	S	L	S
Z007	3/8	1 1/8	3/8	1 1/8	3/8	1 1/8	3/8	1 1/8
Z008	3/8	1 1/8	1/2	1 1/8	1/2	1 1/8	1/2	1 3/8
Z012	1/2	1 3/8	1/2	1 3/8	1/2	1 3/8	1/2	1 3/8
D014	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8	1/2	1 1/8
D016	1/2	1 3/8	1/2	1 3/8	1/2	1 3/8	5/8	1 3/8
D024	1/2	1 3/8	1/2	1 3/8	5/8	1 3/8	5/8	1 3/8

UNIT 38AR	LINEAR LENGTH OF PIPING — M (FT)							
	0-4 (0-13.1)		4-10 (13.1-32.8)		10-22 (32.8-72.2)		22-30.5(72.2-100)	
	Line Size (in. OD)							
	L	S	L	S	L	S	L	S
D028	5/8	1 3/8	5/8	1 5/8	5/8	1 5/8	7/8	1 5/8

LEGEND

L — Liquid Line **S** — Suction Line

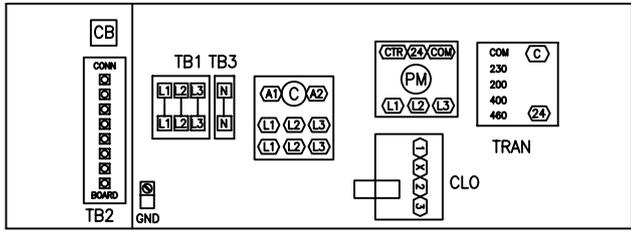
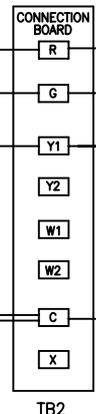
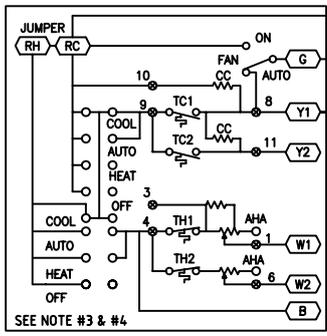
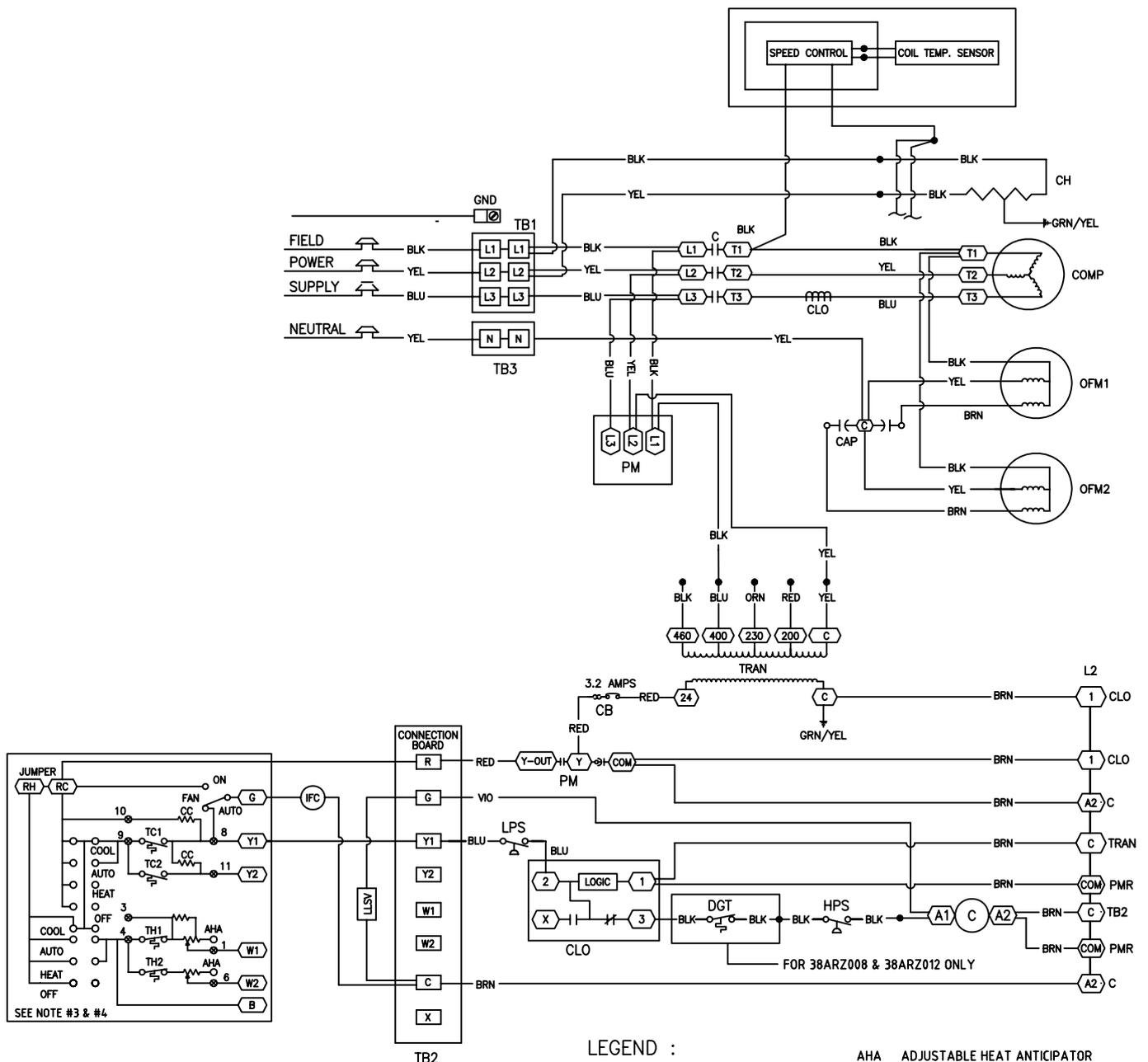
NOTES:

- Pipe sizes are based on a 2° F loss for liquid and suction lines.
- Pipe sizes are based on the maximum linear length, shown for each column, plus a 50% allowance for fittings.
- Charge units with R-22 refrigerant in accordance with unit installation instructions.

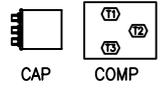
REFRIGERANT SPECIALTIES PART NUMBERS

UNIT	LIQUID LINE SIZE (in.)	LIQUID LINE SOLENOID VALVE (LLSV)	LLSV COIL	SIGHT GLASS	FILTER DRIER	SUCTION LINE ACCUMULATOR
38ARZ007	3/8	200RB5T4M	AMG-24/50-60	AMI1TT3	P502-8304S	S-7063S
38ARZ008	3/8	200RB5T4M	AMG-24/50-60	AMI1TT3	P502-8304S	S-7063S
	1/2	200RB5T4M	AMG-24/50-60	AMI1TT4	P502-8304S	S-7063S
38ARZ012	1/2	200RB6T4M	AMG-24/50-60	AMI1TT4	P502-8307S	S-7063
38ARD014	1/2	200RB5T4M Qty 2	AMG-24/50-60 Qty 2	AMI1TT4 Qty 2	P502-8304S Qty 2	S-7063S Qty 2
38ARD016	1/2	200RB5T4M Qty 2	AMG-24/50-60 Qty 2	AMI1TT4 Qty 2	P502-8304S Qty 2	S-7063S Qty 2
	5/8	200RB5T5M Qty 2	AMG-24/50-60 Qty 2	AMI1TT5 Qty 2	P502-8304S Qty 2	S-7063S Qty 2
38ARD024	1/2	200RB6T4M Qty 2	AMG-24/50-60 Qty 2	AMI1TT5 Qty 2	P502-8307S* Qty 2	S-7063S Qty 2
	5/8	200RB6T5M Qty 2	AMG-24/50-60 Qty 2	AMI1TT5 Qty 2	P502-8307S* Qty 2	S-7063S Qty 2
38ARD028	5/8	200RB6T5M Qty 2	AMG-24/50-60 Qty 2	AMI1TT5 Qty 2	P502-8307S* Qty 2	S-7063S Qty 2

Typical wiring schematic 38ARZ 400V



COMPONENT ARRANGEMENT



LEGEND :

- FIELD SPLICE
- TERMINAL (MARKED)
- TERMINAL (UNMARKED)
- TERMINAL BLOCK
- SPLICE
- FACTORY WIRING
- FIELD WIRING
- ACCESSORY WIRING
- OPTIONAL WIRING
- TO INDICATE COMMON
- POTENTIAL ONLY:
- NOT TO REPRESENT WIRING

- AHA ADJUSTABLE HEAT ANTICIPATOR
- C CONTACTOR, COMPRESSOR
- CAP CAPACITOR
- CB CIRCUIT BREAKER
- CC COOLING COMPENSATOR
- CH CRANK CASE HEATER
- CLO COMPRESSOR LOCKOUT
- COMP COMPRESSOR MOTOR
- DGT DISCHARGE GAS THERMOSTAT
- GND GROUND
- HPS HIGH PRESSURE SWITCH
- IFC INDOOR FAN CONTACTOR
- LLSV LIQUID LINE SOLENOID VALVE
- LPS LOW PRESSURE SWITCH
- OFM OUTDOOR FAN MOTOR
- TB TERMINAL BLOCK
- TC THERMOSTAT-COOLING
- TH THERMOSTAT-HEATING
- TRAN TRANSFORMER
- PM PHASE MONITOR

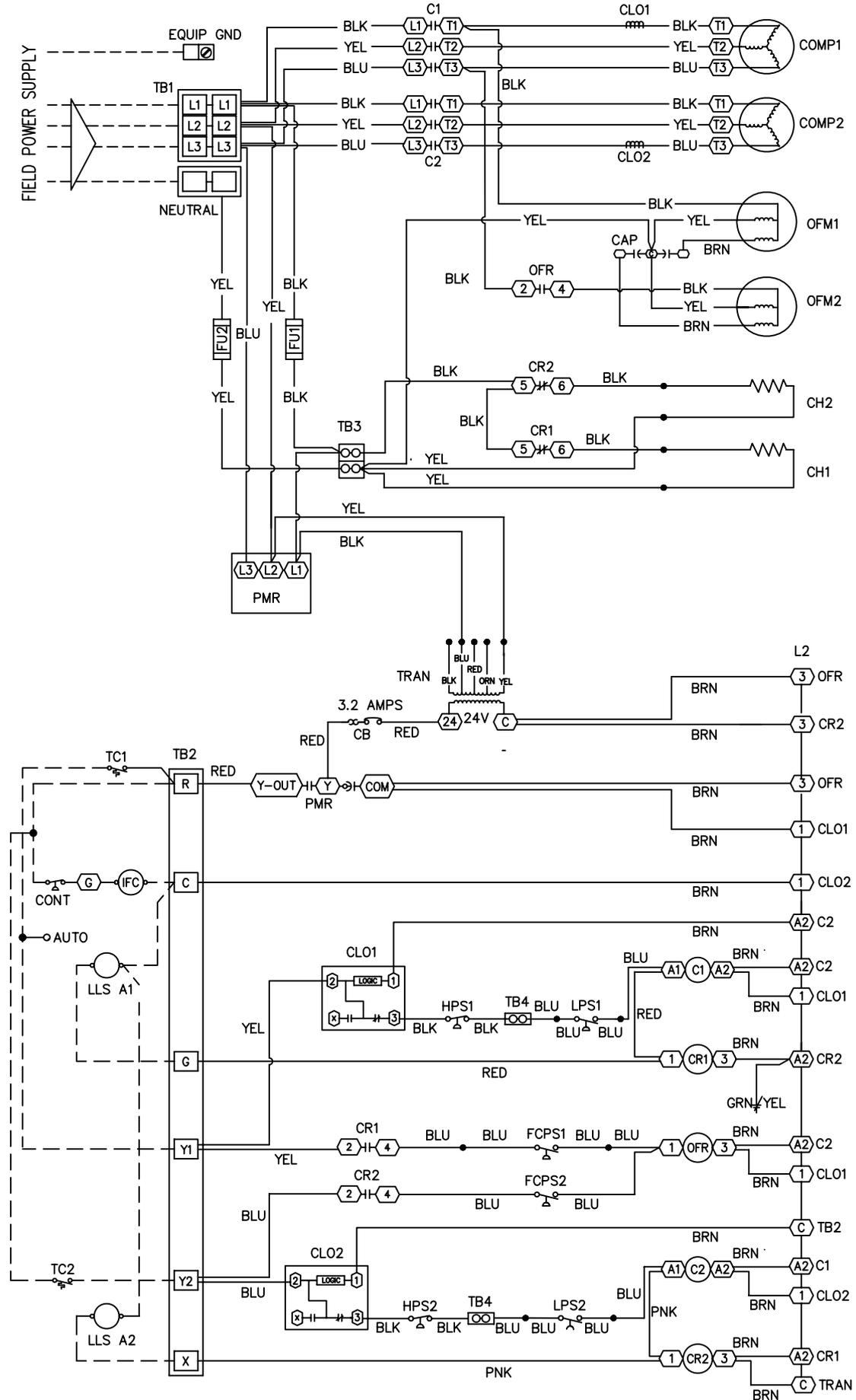
NOTES :

1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90 C WIRE OR ITS EQUIVALENT.
2. THREE PHASE MOTORS ARE PROTECTED UNDER PRIMARY SINGLE PHASING CONDITIONS.
3. THERMOSTAT: HH07AT170, 172, 174 & P272-2783
SUBBASE: HH93AZ176, 178 & P272-1882, 1883
4. SET HEAT ANTICIPATOR AT 1 AMP.
5. USE COPPER CONDUCTORS ONLY.
6. USE COPPER, COPPER CLAD ALUMINUM OR ALUMINUM CONDUCTORS.

Typical wiring schematic

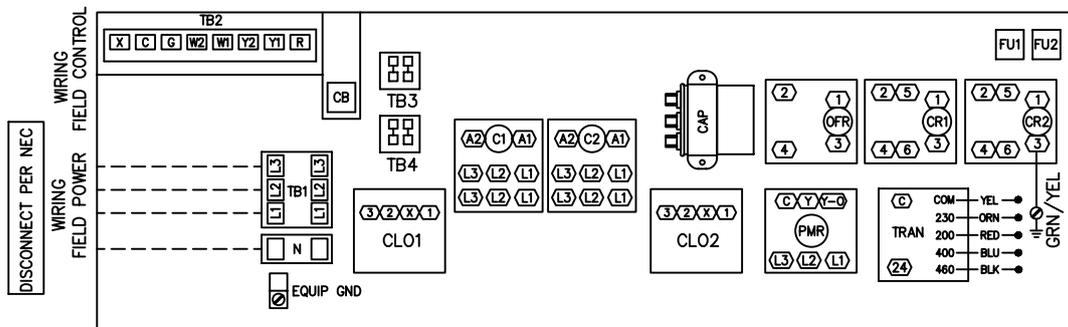
38ARD 400V

SCHEMATIC



Typical wiring schematic 38ARD (Cont.)

Component Arrangement Control Box



LEGEND :

- TERMINAL (MARKED)
- TERMINAL (UNMARKED)
- TERMINAL BLOCK
- SPLICE

- FACTORY WIRING
- FIELD WIRING
- OPTION/ACCESSORY WIRING

ONLY:

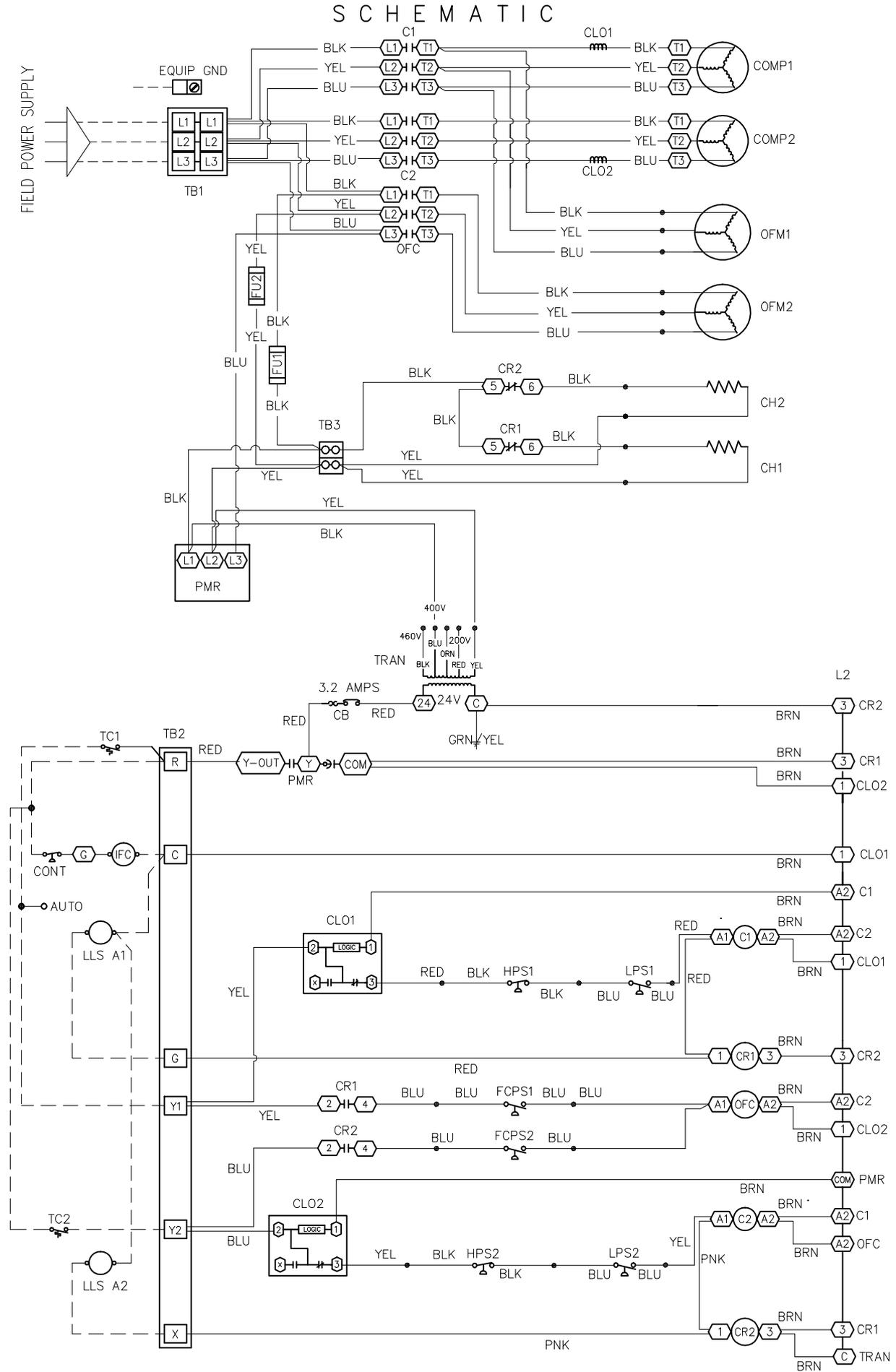
C	CONTACTOR, COMPRESSOR
CB	CIRCUIT BREAKER
CAP	CAPACITOR
CH	CRANK CASE HEATER
CLO	COMPRESSOR LOCKOUT
COMP	COMPRESSOR MOTOR
CR	CONTROL RELAY
FCPS	FAN CYCLING PRESSURE SWITCH
FU	FUSE
GND	GROUND
HPS	HIGH PRESSURE SWITCH
IFC	INDOOR FAN CONTACTOR
LPS	LOW PRESSURE SWITCH
N	NEUTRAL
OFR	OUTDOOR FAN RELAY
PM	PHASE MONITOR
TB	TERMINAL BLOCK
TC	THERMOSTAT COOLING
TRAN	TRANSFORMER

NOTES

1. COMPRESSOR AND/OR FAN MOTOR(S) THERMALLY PROTECTED
THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
2. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED,
IT MUST BE REPLACED WITH TYPE 90°C WIRE OR ITS EQUIVALENT.
3. THE CLO LOCKS OUT THE COMPRESSOR TO PREVENT SHORT CYCLING ON
COMPRESSOR OVERLOAD AND SAFETY DEVICES; BEFORE REPLACING CLO,
CHECK THESE DEVICES.

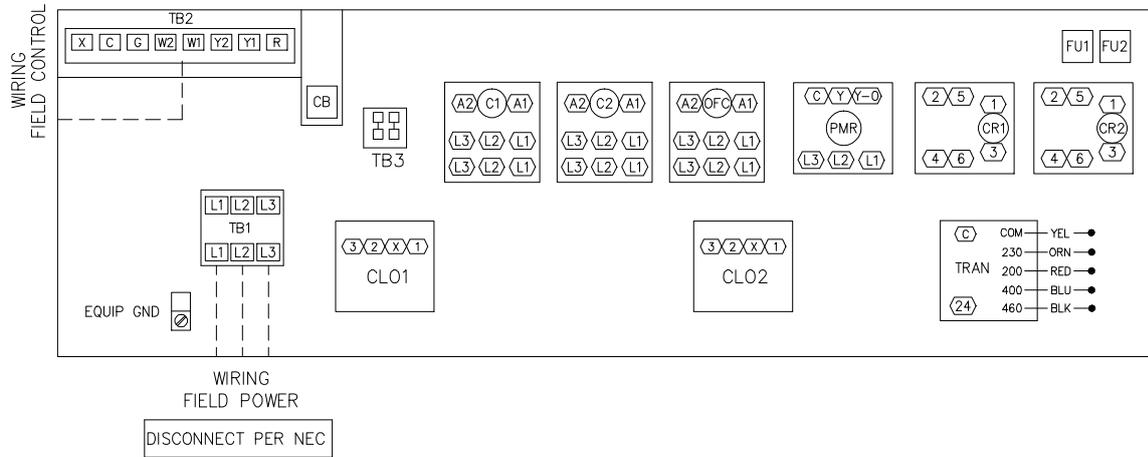
Typical wiring schematic

38ARD-028 400V



Typical wiring schematic 38ARD-028 400V (Cont.)

Component Arrangement Control Box



LEGEND :

- TERMINAL (MARKED)
- TERMINAL (UNMARKED)
- TERMINAL BLOCK
- SPLICE

- FACTORY WIRING
- FIELD WIRING
- OPTION/ACCESSORY WIRING
- TO INDICATE COMMON POTENTIAL ONLY:
NOT TO REPRESENT WIRING

C	CONTACTOR, COMPRESSOR
CB	CIRCUIT BREAKER
CH	CRANK CASE HEATER
CLO	COMPRESSOR LOCKOUT
COMP	COMPRESSOR MOTOR
CR	CONTROL RELAY
FCPS	FAN CYCLING PRESSURE SWITCH
FU	FUSE
GND	GROUND
HPS	HIGH PRESSURE SWITCH
IFC	INDOOR FAN CONTACTOR
LPS	LOW PRESSURE SWITCH
OFC	OUTDOOR FAN CONTACTOR
PMR	PHASE MONITOR RELAY
TB	TERMINAL BLOCK
TC	THERMOSTAT COOLING
TRAN	TRANSFORMER

NOTES

1. COMPRESSOR AND/OR FAN MOTOR(S) THERMALLY PROTECTED THREE PHASE MOTORS PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
2. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90°C WIRE OR ITS EQUIVALENT.
3. THE CLO LOCKS OUT THE COMPRESSOR TO PREVENT SHORT CYCLING ON COMPRESSOR OVERLOAD AND SAFETY DEVICES; BEFORE REPLACING CLO, CHECK THESE DEVICES.

40RM007-034

6-25 Nominal Tons – 50 Hz



Turn to the Experts™

Model number nomenclature - 40RM

4 0 R M - 0 1 6 S D B 5 0 1 E D

40RM Commercial Packaged Air Handler

Cooling Coil
- Direct Expansion

Nominal Capacity	Tons (kW)
007	6 (21) 016 15 (52)
008	7-1/2 (26) 024 20 (70)
012	10 (35) 028 25 (87)
014	12-1/2 (43) 034 30 (105)

S: SAMCO
D: Double Skin

Expansion Device
B Thermostatic Expansion Valves (40RM)

Voltage Designation (V-Ph-Hz)

8	230-3-50
9	400-3-50

Revision Number
0 Original Model

Factory-Installed Options

- ED** Painted, Standard Motor and Standard Drive
- FD** Painted, Standard Motor and Medium-Static Drive (Not available for 016-028 50 Hz units)
- RD** Painted, Alternate Motor and Medium-Static Drive (Available for 50 Hz sizes 016,024,028 only)
- WD** Painted, Alternate Motor and High-Static Drive

Packaging

- 1** Standard Domestic
- 3** Export

Quality Assurance



Approvals:
ISO 9001 : 2000
EN ISO 9001 : 2000
ANSI/ASQC Q9001 : 2000



Physical data (Cont.)

40RM - ENGLISH

UNIT 40RM	007SD	008SD	012SD	014SD	016SD	024SD	028SD	034SD
NOMINAL CAPACITY (Tons)	6	7 ¹ / ₂	10	12 ¹ / ₂	15	20	25	30
OPERATING WEIGHT (lb) Base Unit (Double skin) with TXV Plenum	448 97	452 97	472 97	804 140	819 140	824 140	1188 180	1198 180
FANS								
Qty...Diam. (in.)	1...15	1...15	1...15	2...15	2...15	2...15	2...18	2...18
Nominal Airflow (cfm)	2400	3000	4000	5000	6000	8000	10,000	12,000
Airflow Range (cfm)	1800-3000	2250-3750	3000-5000	3750-6250	4500-7500	6000-10,000	7500-12,500	9000-15,000
Nominal Motor Hp (Standard Motor)* 230-3-50, 400-3-50	2.4	2.4	2.9	2.9	2.9	5.0	7.5	10.0
Motor Speed (rpm) 230-3-50, 400-3-50	1425							
REFRIGERANT	R-22							
Operating charge (lb) (approx per circuit) ²	3.0	3.0	1.5/1.5	2.0/2.0	2.5/2.5	3.5/3.5	4.5/4.5	5.0/5.0
DIRECT-EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins							
Max Working Pressure (psig)	435							
Face Area (sq ft)	6.67	8.33	10.0	13.25	17.67	19.88	24.86	29.83
No. of Splits	1	1	2	2	2	2	2	2
Split Type...Percentage	-	-	-	-	-	Face...50/50	-	-
No. of Circuits per Split	12	15	9	9	12	13	15	18
Rows...Fins/in.	3...15	3...15	3...17	3...15	3...15	3...17	3...15	3...15
PIPING CONNECTIONS								
Quantity...Size (in.)								
DX Coil - Suction (ODF)	1...1 ¹ / ₈	1...1 ¹ / ₈	2...1 ³ / ₈	2...1 ³ / ₈				
DX Coil - Liquid Refrigerant (ODF)	1...5 ⁸ / ₈					2...5 ⁸ / ₈		
Condensate (PVC)	1...1 ¹ / ₄ ODM/1 IDF							
FILTERS								
Quantity...Size (in.)	4...16 x 24 x 1			Washable - Factory Supplied			4...20 x 24 x 1	
Access Location				4...16 x 20 x 1			4...20 x 25 x 1	
				4...16 x 24 x 1			Front	

LEGEND

DX - Direct Expansion
TXV - Thermostatic Expansion Valve

*Refer to alternate Fan Motor Data table, page 49, for alternate motor data.

²Units are shipped without refrigerant charge.

Options and accessories

Factory-installed options

Alternate fan motors and drives are available to provide the widest possible range of performance.

Field-installed accessories

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard. Terminal block for single-point power connection is included.

Economizer (enthalpy controlled) provides ventilation air and "free" cooling if outside ambient temperature and humidity are suitable. Can also be used with CO₂ sensors to help meet indoor air quality requirements.

Discharge plenum directs the air discharge directly into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. Accessory is available unpainted or painted. Field assembly required.

Standard units available from the factory are in Double skin.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. Accessory is available unpainted or painted.

Subbase provides a stable, raised platform and room for condensate drain trap connection for vertical floor-mounted units. Accessory is available unpainted or painted.

Over head suspension package includes necessary brackets to support units in horizontal ceiling installations.

CO₂ sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO₂ level in the space exceeds the set point. A Carrier Comfort System programmable thermostat can be used to override the sensor if the outside air temperature is too high or too low.

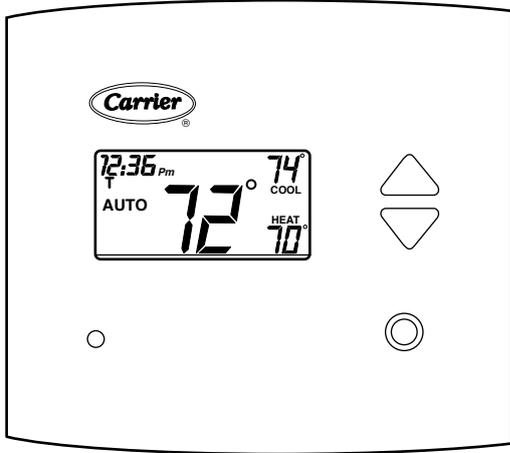
Carrier's line of thermostats provide both programmable and non-programmable capability with the new Debonair line of commercial programmable thermostats, the TEMP System controls offer communication capability with staged heating and cooling, the Commercial Electronic thermostats provide 7-day programmable capability for economical applications, while the Non-Programmable thermostats offer a multitude of staged heating and cooling subbase options.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. Kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

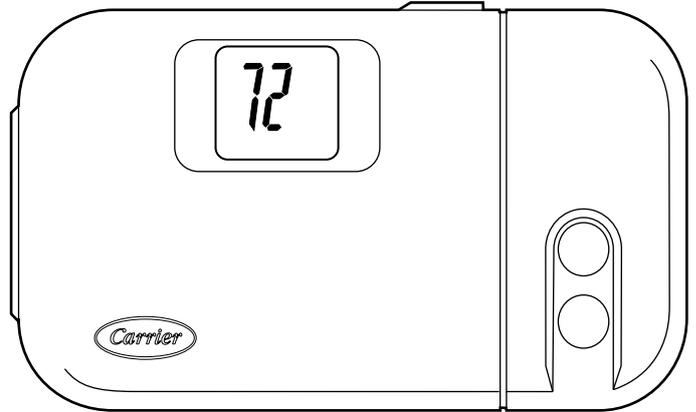
Options and accessories (cont)

CARRIER THERMOSTATS

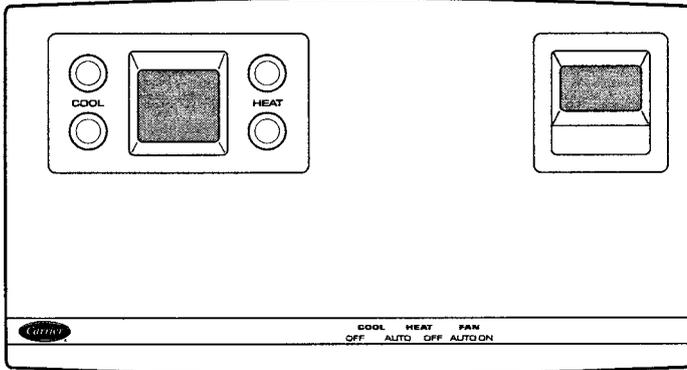
DEBONAIR COMMERCIAL PROGRAMMABLE THERMOSTAT



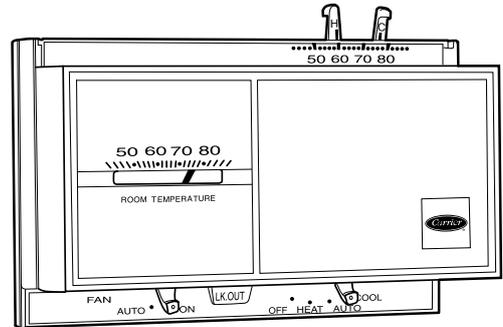
COMMERCIAL ELECTRONIC THERMOSTAT



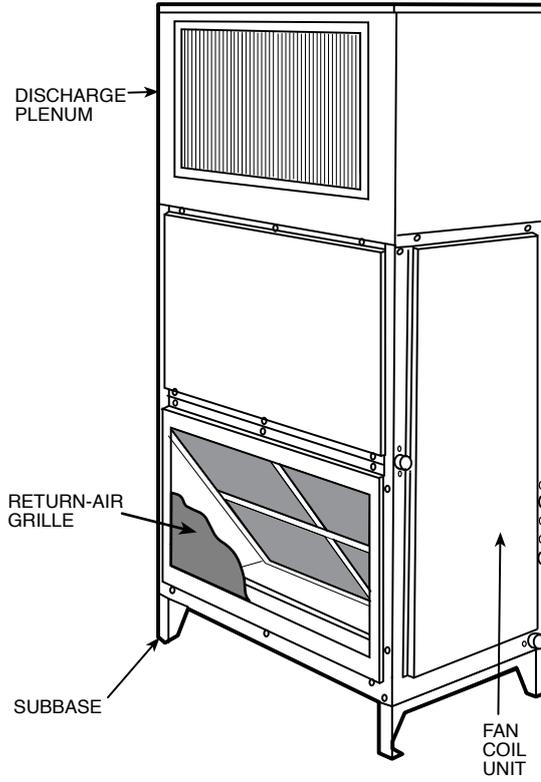
TEMP SYSTEM THERMOSTAT



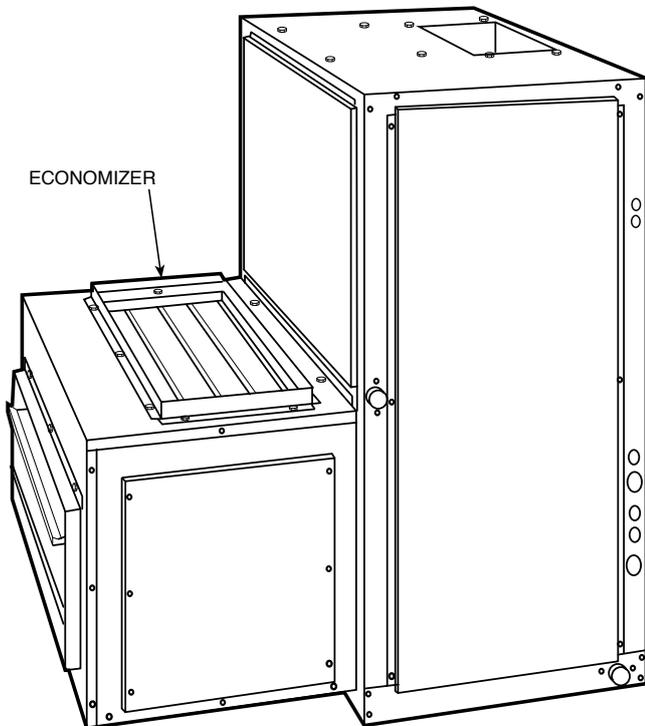
NON-PROGRAMMABLE THERMOSTAT



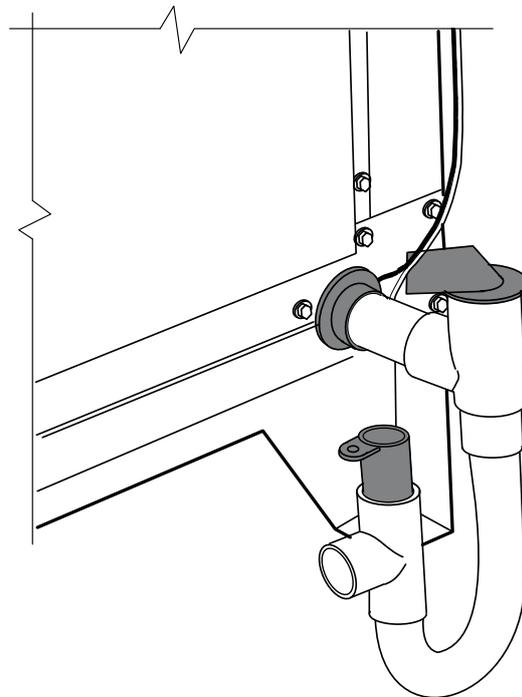
**40RM WITH DISCHARGE PLENUM,
RETURN-AIR GRILLE AND SUBBASE**



40RM WITH ECONOMIZER



40RM WITH CONDENSATE TRAP

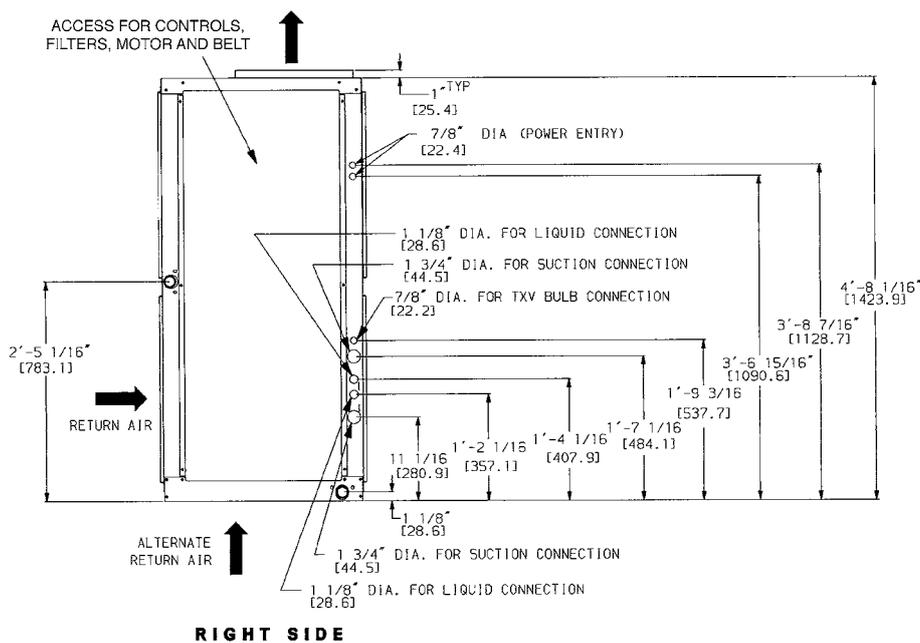
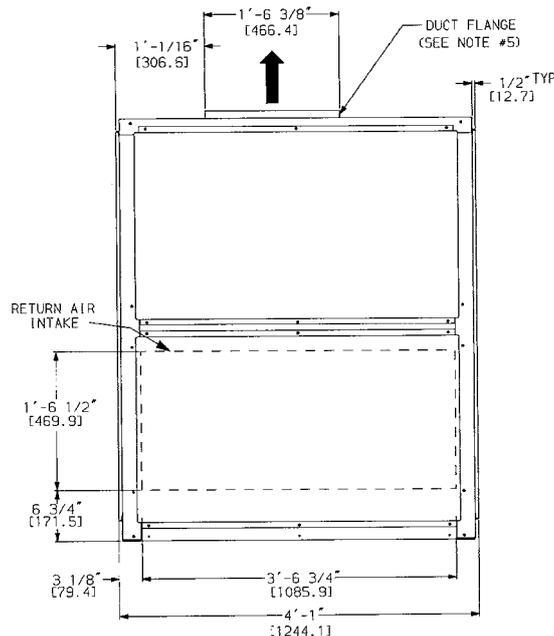
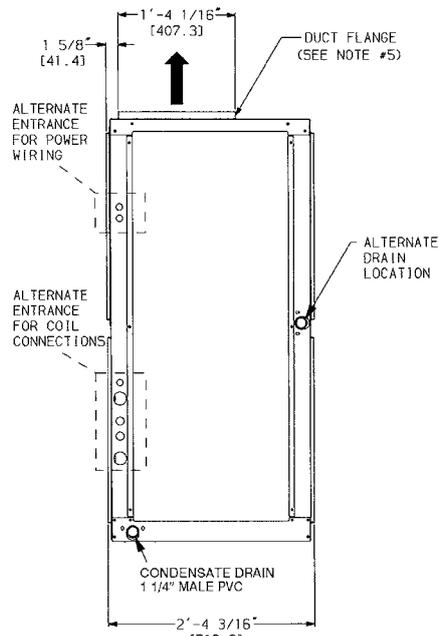
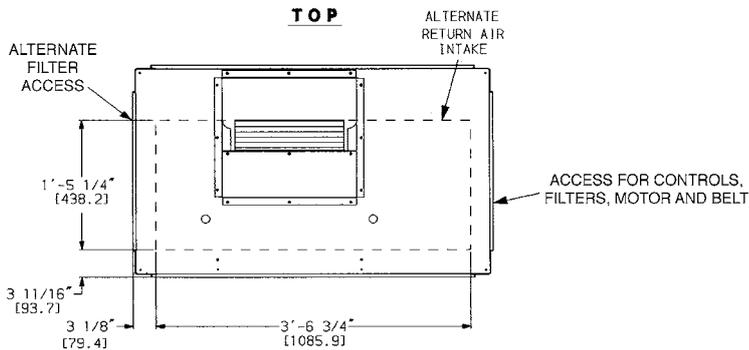


Dimensions

40RM007SD-012SD

UNIT	UNIT WEIGHT lb (kg)
40RM007SD	448 (203)
40RM008SD	452 (205)
40RM012SD	472 (214)

All the above mentioned weights are for double skin units.



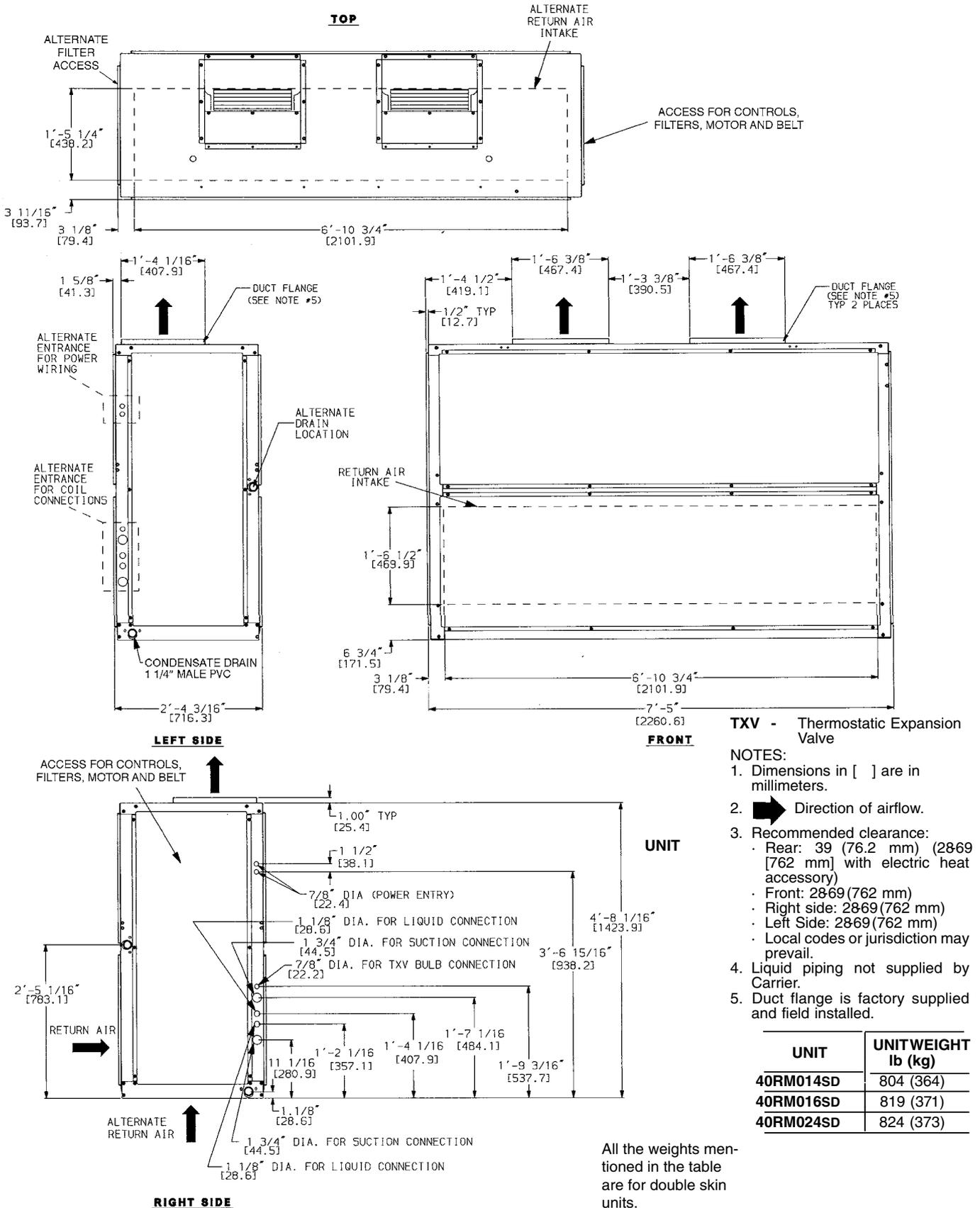
TXV - Thermostatic Expansion Valve

NOTES:

- Dimensions in [] are in millimeters.
- Direction of airflow.
- Recommended clearance:
 - Rear: 39(76.2 mm) (2869(762 mm) with electric heat accessory)
 - Front: 28-69 (762 mm)
 - Right side: 28-69 (762 mm)
 - Left Side: 28-69 (762 mm)
 - Local codes or jurisdiction may prevail.
- Liquid piping not supplied by Carrier.
- Duct flange is factory supplied and field installed.

Dimensions (cont)

40RM014SD-024SD

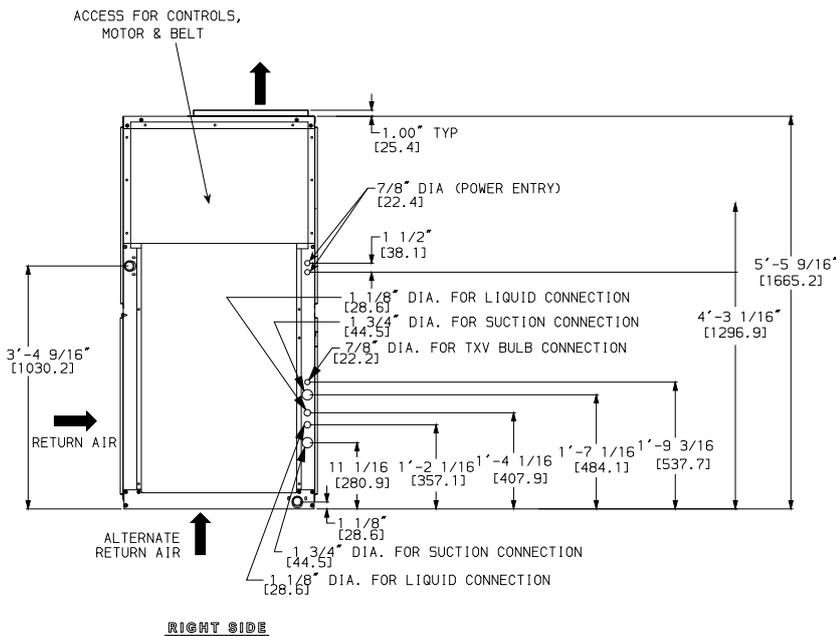
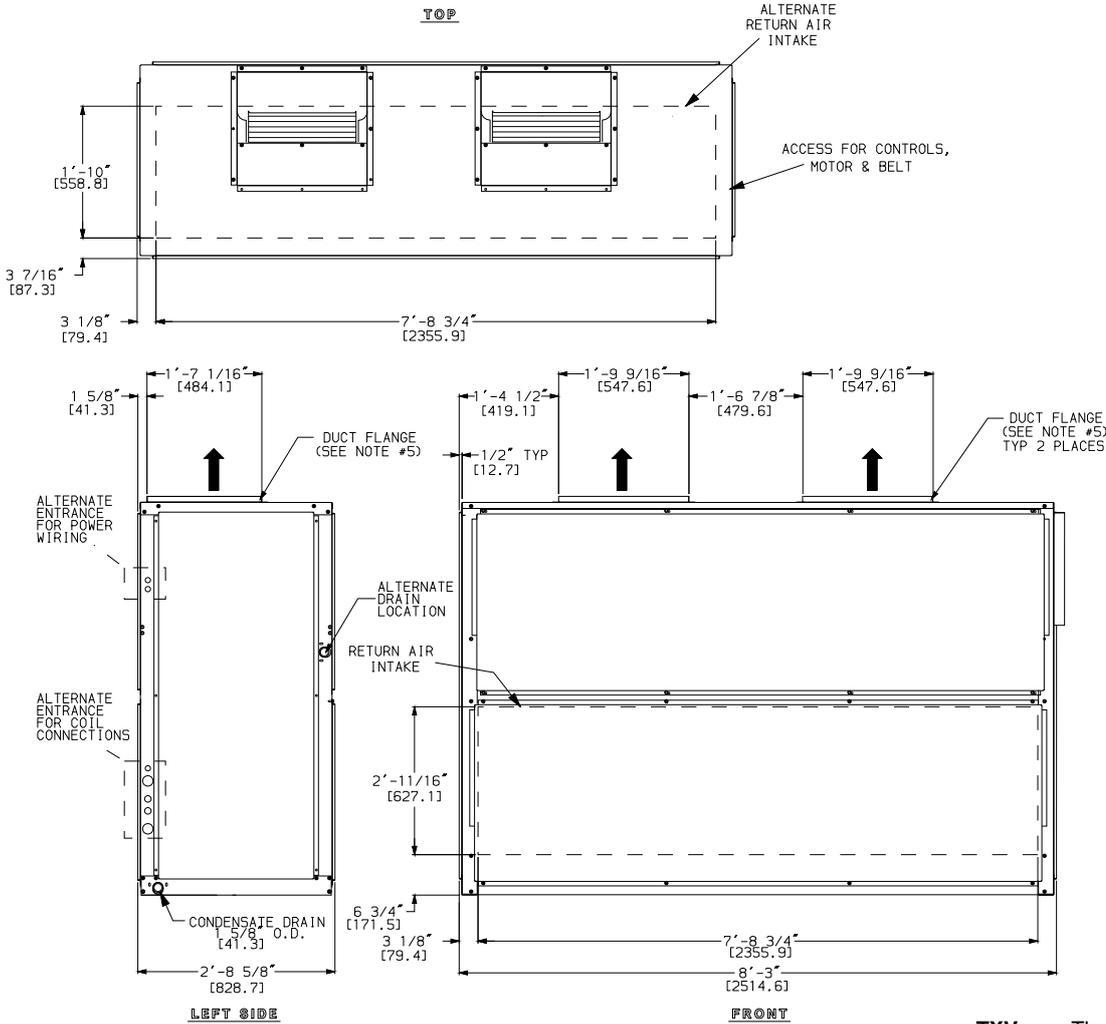


UNIT	UNIT WEIGHT lb (kg)
40RM014SD	804 (364)
40RM016SD	819 (371)
40RM024SD	824 (373)

All the weights mentioned in the table are for double skin units.

Dimensions (cont)

40RM028SD,034SD



TXV - Thermostatic Expansion Valve

NOTES:

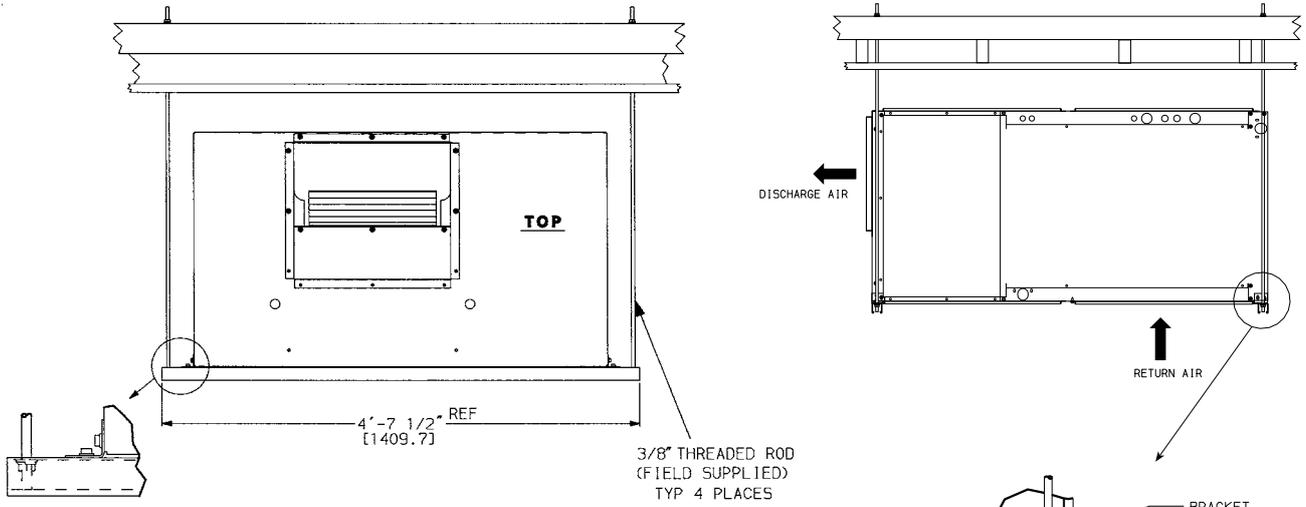
- Dimensions in [] are in millimeters.
- Direction of airflow.
- Recommended clearance:
 - Rear: 39 (76.2 mm)
 - Front: 28-69 (762 mm)
 - Right side: 28-69 (762 mm)
 - Left Side: 28-69 (762 mm)
 - Local codes or jurisdiction may prevail.
- Liquid piping not supplied by Carrier.
- Duct flange is factory supplied and field installed.

UNIT	UNIT WEIGHT lb (kg)
40RM028SD	1188 (538)
40RM034SD	1198 (542)

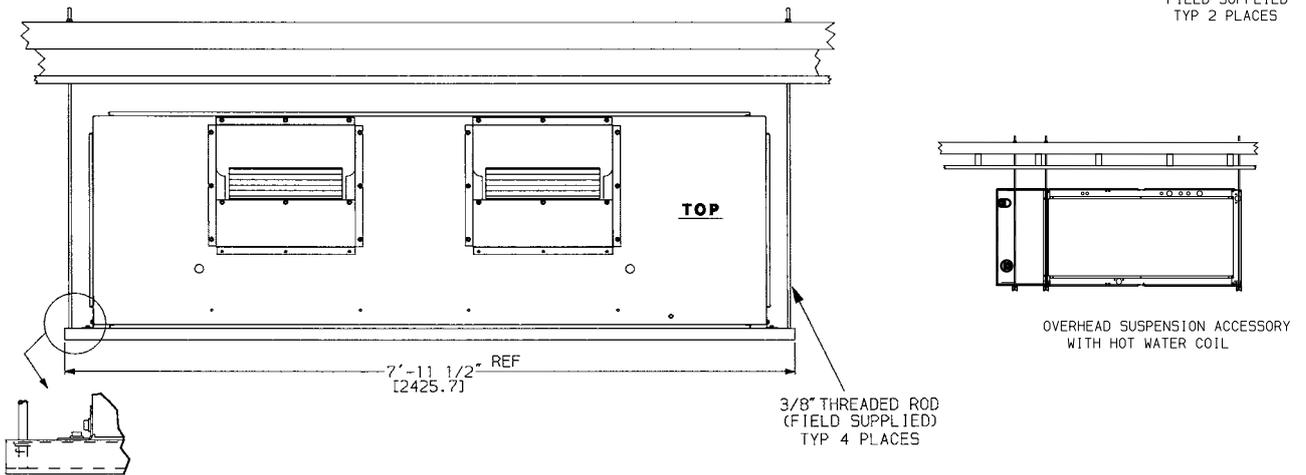
All the above mentioned weights are for double skin units.

OVERHEAD SUSPENSION ACCESSORY

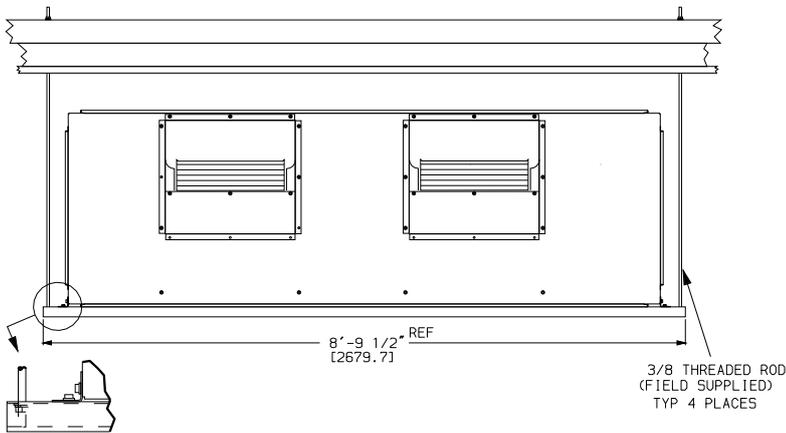
UNIT SIZES 007-012



UNIT SIZES 014-024



UNIT SIZES 028,034

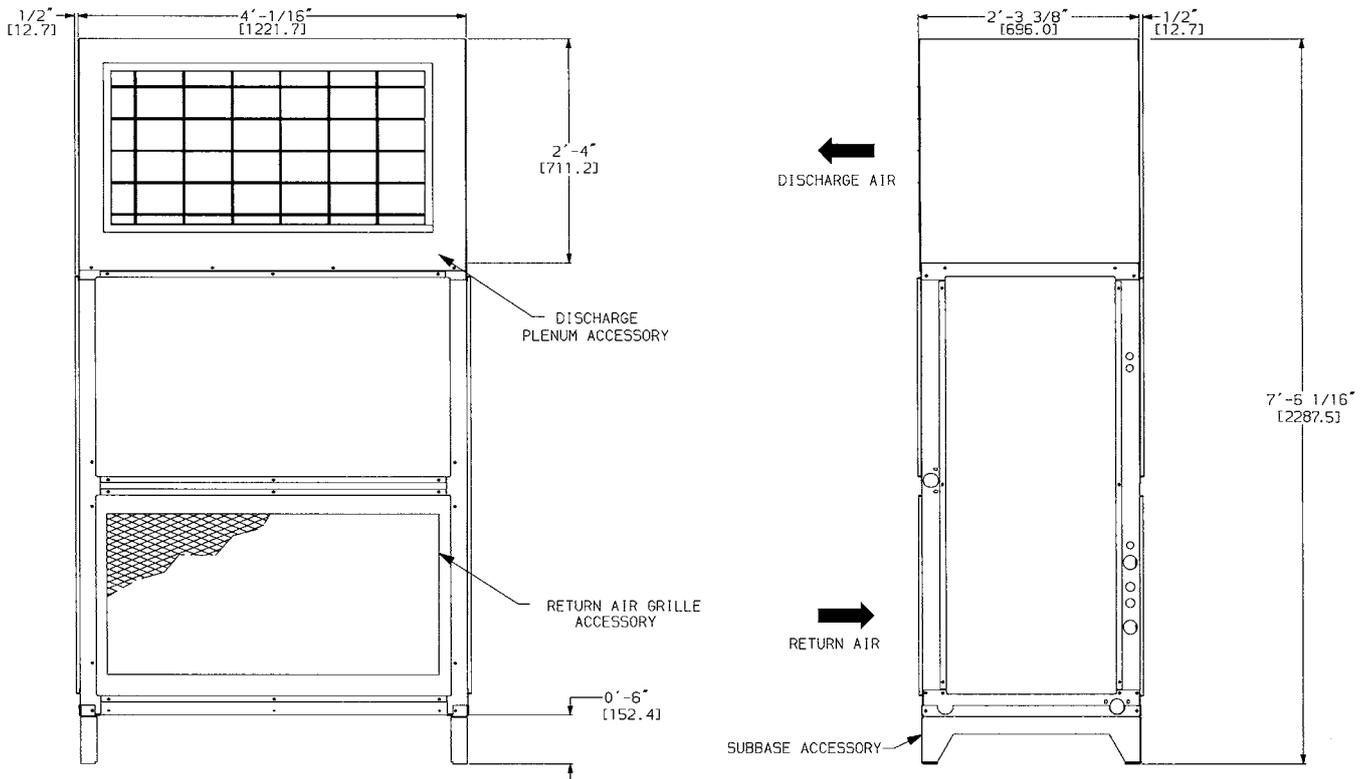


NOTE: Dimensions in [] are millimeters.

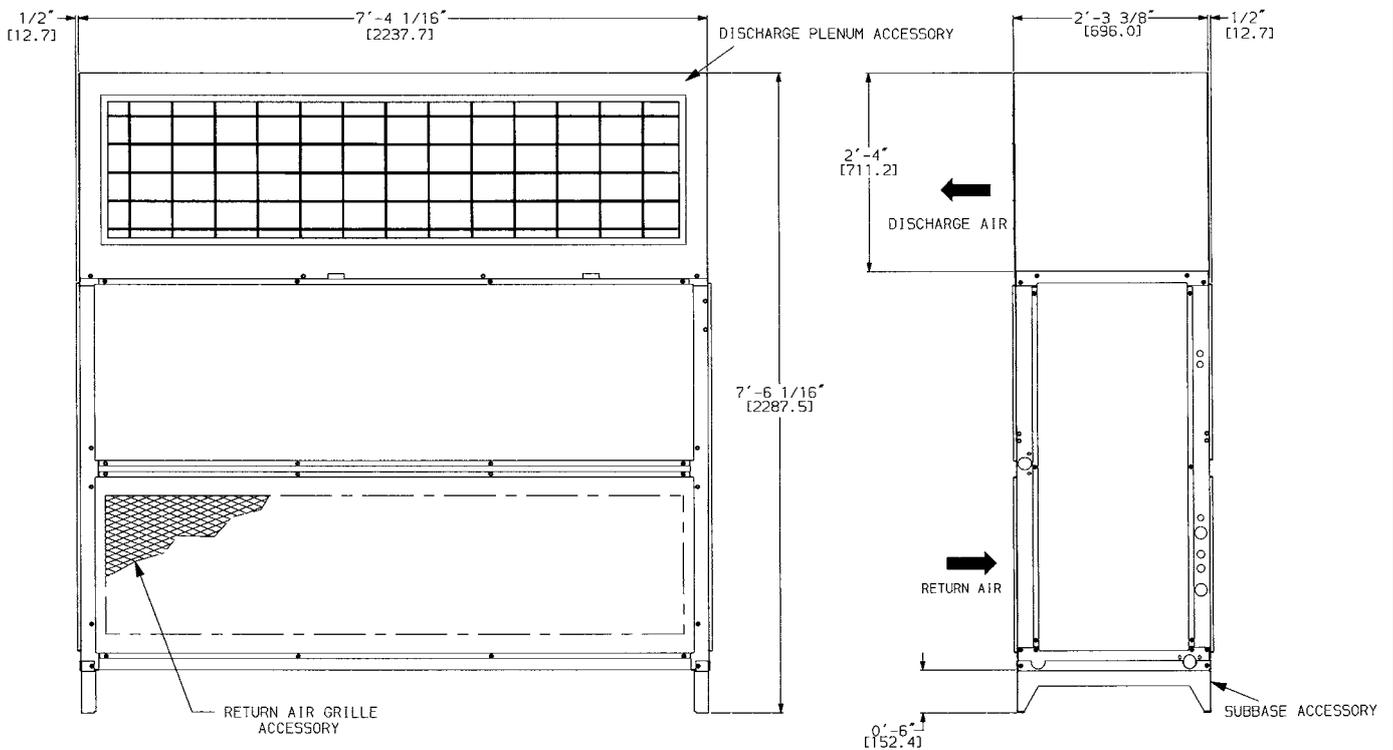
Dimensions (cont)

PLENUM, RETURN-AIR GRILLE, AND SUBBASE ACCESSORIES

UNIT SIZES 007-012



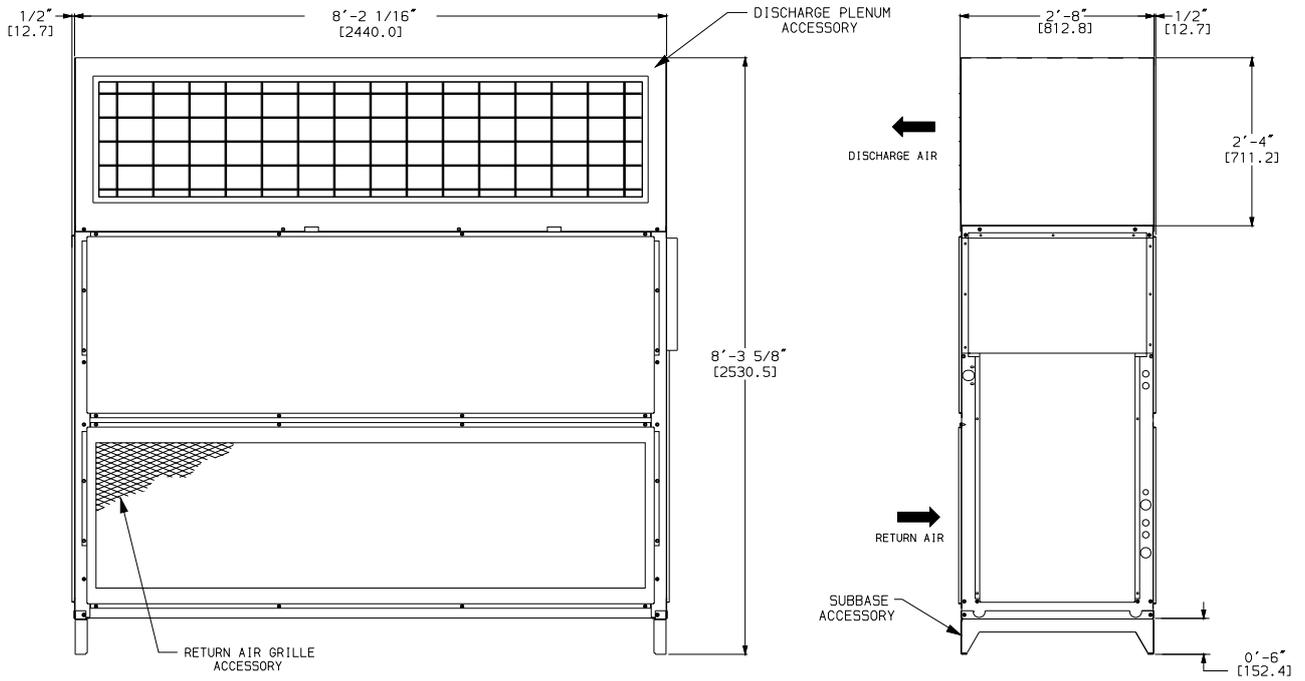
UNIT SIZES 014-024



NOTE: Dimensions in [] are millimeters.

PLENUM, RETURN-AIR GRILLE, AND SUBBASE ACCESSORIES (cont)

UNIT SIZES 028,034

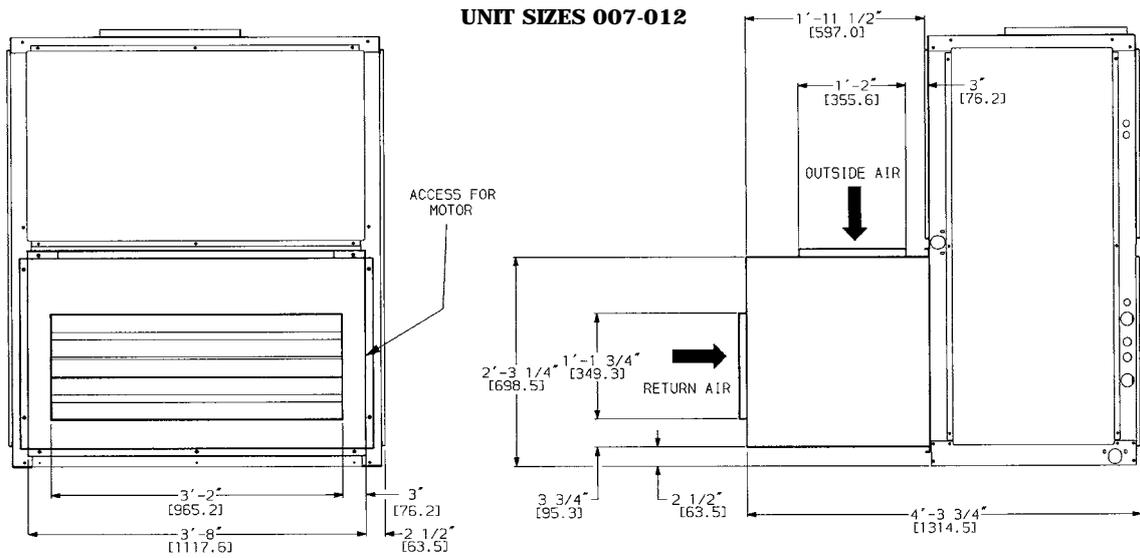


NOTE: Dimensions in [] are millimeters.

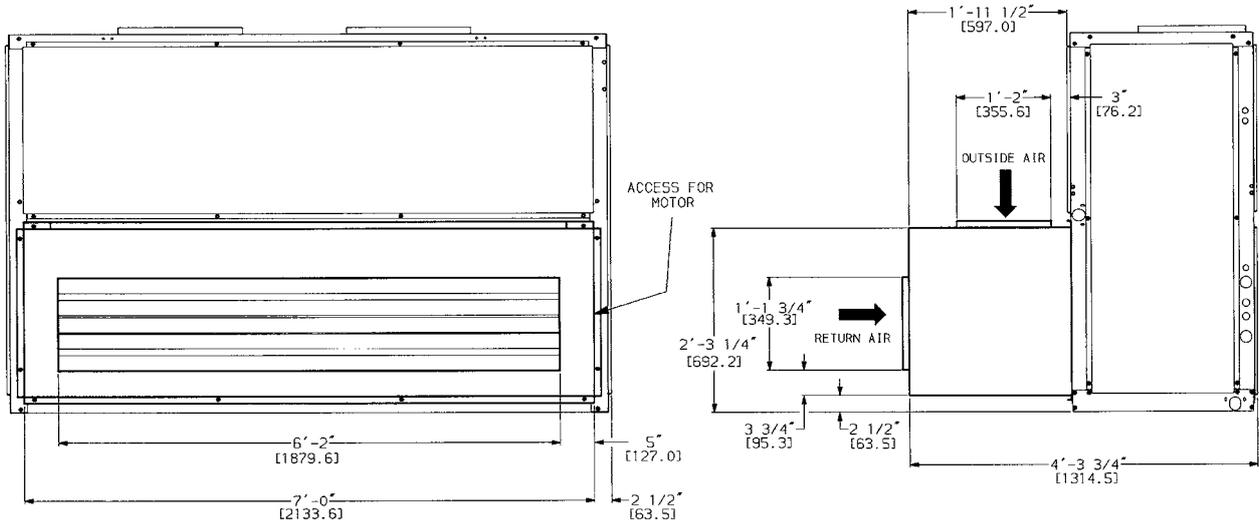
Dimensions (cont)

ECONOMIZER ACCESSORY

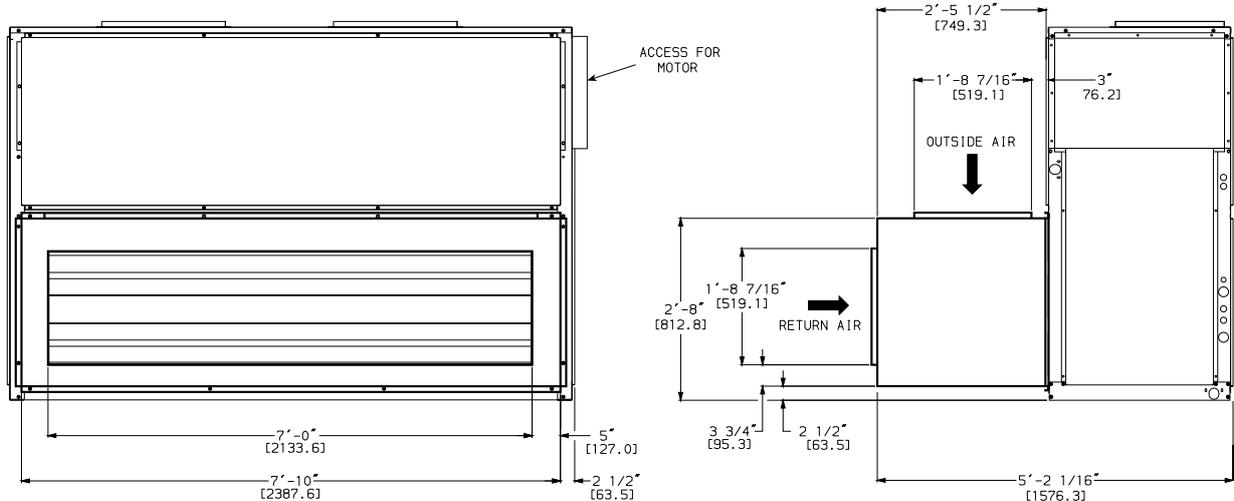
UNIT SIZES 007-012



UNIT SIZES 014-024



UNIT SIZES 028,034

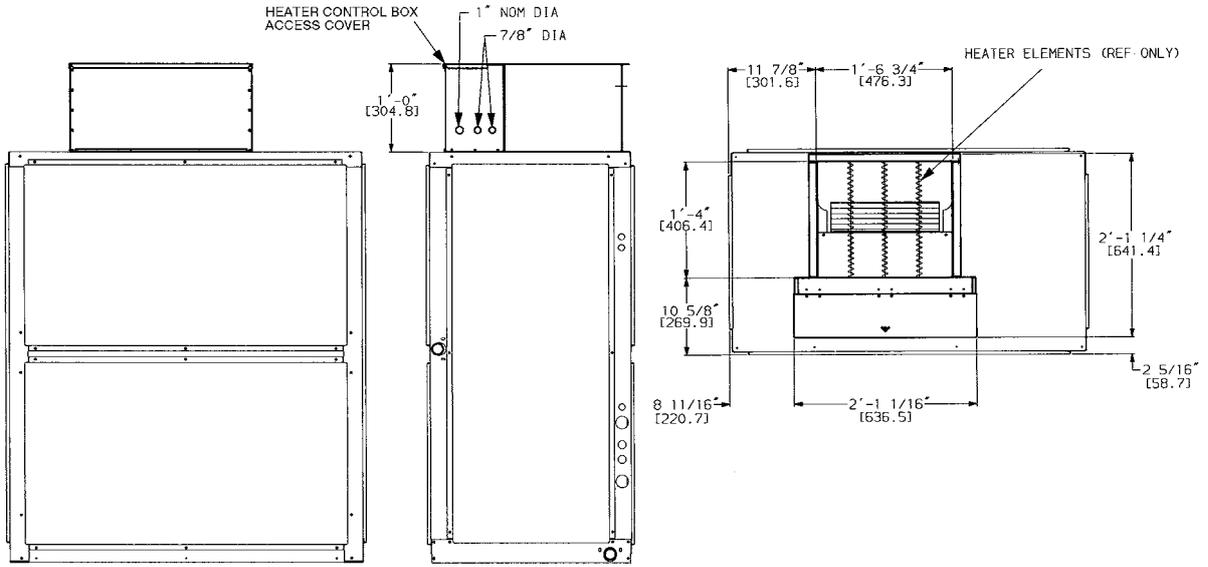


NOTES:

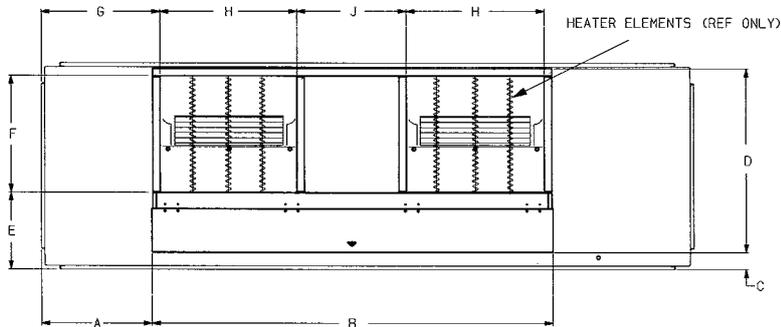
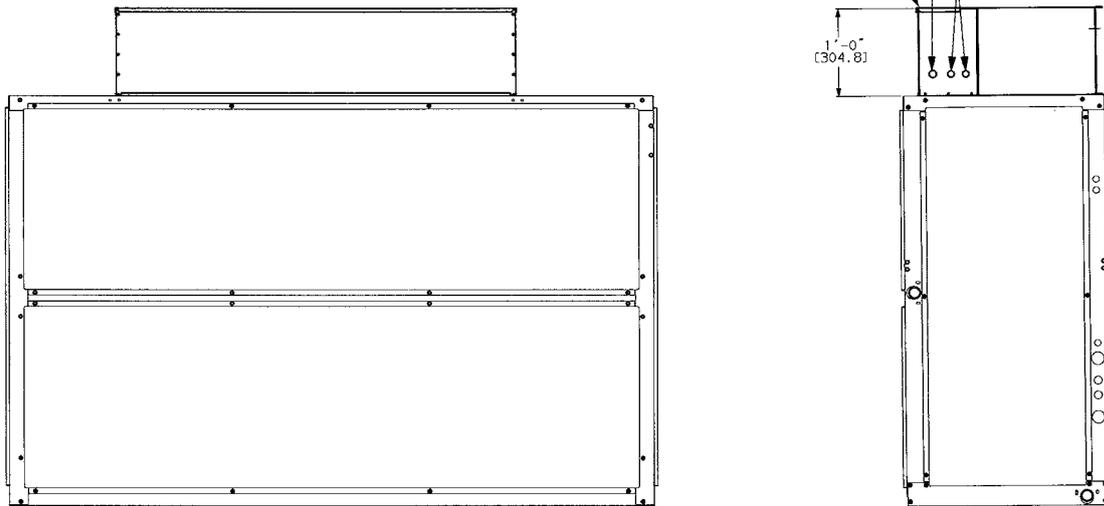
1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.
2. Dimensions in [] are millimeters.

ELECTRIC HEAT ACCESSORY

UNIT SIZES 007-012



UNIT SIZES 014-034



UNIT SIZE	A	B	C	D	E	F	G	H	J
014-024	1 -3/4 [387.4]	4 -63/8 [1381.1]	2 9/16 [58.7]	2 -1/4 [641.4]	10 9/8 [269.9]	1 -4 [406.4]	1 -45/16 [414.3]	1 -63/4 [476.3]	1 -7/8 [327.0]
028,034	1 -33/8 [390.5]	5 -47/16 [1636.8]	2 1/16 [26.9]	2 -63/16 [766.8]	1 -1/4 [311.2]	1 -7 [482.6]	1 -45/16 [414.0]	1 -10 [558.8]	1 -47/16 [417.1]

NOTE: Dimensions in [] are millimeters.

FAN PERFORMANCE DATA — 0.0-1.2 in. wg ESP — 50 HZ, ENGLISH

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.2		0.4		0.6		0.8		1.0		1.2	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RM 007	1,800	320	0.22	442	0.32	534	0.42	611	0.52	678	0.61	739	0.70	795	0.80
	2,100	373	0.31	483	0.42	569	0.53	642	0.63	708	0.73	767	0.82	821	0.92
	2,400	427	0.42	526	0.53	606	0.64	676	0.75	739	0.86	796	0.96	849	1.06
	2,700	480	0.54	570	0.67	646	0.78	712	0.89	773	1.00	828	1.11	880	1.21
	3,000	533	0.69	616	0.82	687	0.94	750	1.05	808	1.16	862	1.28	912	1.39
40RM 008	2,250	359	0.32	472	0.44	560	0.55	634	0.65	700	0.75	759	0.86	814	0.96
	2,600	415	0.45	516	0.57	599	0.68	669	0.79	732	0.90	790	1.01	843	1.11
	3,000	478	0.62	569	0.75	645	0.86	712	0.98	773	1.09	828	1.20	879	1.32
	3,400	542	0.82	624	0.95	695	1.08	758	1.20	815	1.31	869	1.43	918	1.55
	3,750	598	1.03	673	1.17	740	1.29	800	1.42	855	1.60	906	1.66	954	1.78
40RM 012	3,000	444	0.58	541	0.71	621	0.83	691	0.94	753	1.05	809	1.17	862	1.28
	3,500	518	0.82	604	0.95	677	1.08	742	1.20	801	1.32	855	1.44	906	1.56
	4,000	592	1.11	669	1.25	736	1.38	797	1.51	853	1.63	904	1.75	953	1.88
	4,500	666	1.44	735	1.59	797	1.72	854	1.86	907	1.99	956	2.12	1003	2.24
	5,000	740	1.83	803	1.98	861	2.12	914	2.26	964	2.39	1010	2.53	1055	2.66
40RM 014	3,750	363	0.37	475	0.58	566	0.80	645	1.02	715	1.24	779	1.47	839	1.69
	4,300	416	0.53	517	0.78	601	1.02	676	1.26	743	1.50	805	1.74	862	1.99
	5,000	484	0.81	573	1.08	650	1.35	719	1.62	782	1.89	841	2.16	896	2.44
	5,700	552	1.17	631	1.47	702	1.76	766	2.06	826	2.36	881	2.66	934	2.96
	6,250	605	1.51	678	1.83	744	2.15	805	2.47	862	2.79	915	3.11	966	3.43
40RM 016	4,500	391	0.51	495	0.75	581	1.00	657	1.25	725	1.50	787	1.76	845	2.02
	5,300	460	0.80	551	1.08	629	1.35	700	1.63	764	1.91	823	2.20	878	2.48
	6,000	521	1.13	602	1.43	675	1.73	741	2.04	801	2.34	858	2.65	911	2.96
	6,800	590	1.60	663	1.93	730	2.26	791	2.59	847	2.92	901	3.26	951	3.60
	7,500	651	2.10	718	2.45	779	2.81	837	3.16	890	3.52	941	3.88	990	4.24
40RM 024	6,000	503	1.07	587	1.37	661	1.67	727	1.97	789	2.28	846	2.59	900	2.90
	7,000	586	1.64	660	1.98	726	2.31	787	2.65	844	2.99	898	3.33	948	3.67
	8,000	670	2.37	735	2.74	795	3.12	851	3.49	904	3.86	954	4.23	1001	4.61
	9,000	754	3.28	812	3.69	867	4.09	918	4.50	967	4.90	1014	5.31	1059	5.72
	10,000	838	4.39	891	4.83	941	5.27	988	5.70	1034	6.14	1077	6.85	1120	7.02
40RM 028	7,500	412	1.15	492	1.53	568	2.00	640	2.56	710	3.22	776	3.98	840	4.83
	8,750	481	1.76	550	2.17	616	2.66	680	3.22	742	3.86	802	4.58	860	5.38
	10,000	549	2.55	610	2.99	669	3.50	726	4.07	782	4.70	836	5.40	889	6.17
	11,250	618	3.52	672	4.00	725	4.53	777	5.12	827	5.76	876	6.45	925	7.21
	12,500	687	4.71	735	5.22	783	5.78	830	6.38	876	7.04	922	7.74	966	8.49
40RM 034	9,000	471	1.78	539	2.17	604	2.63	667	3.17	728	3.78	788	4.46	845	5.22
	10,500	550	2.72	608	3.15	665	3.64	720	4.18	774	4.79	827	5.45	878	6.18
	12,000	628	3.93	679	4.40	730	4.92	779	5.48	827	6.09	874	6.76	921	7.47
	13,500	707	5.44	752	5.94	797	6.49	841	7.08	885	7.71	928	8.38	970	9.10
	15,000	785	7.27	826	7.81	867	8.39	907	9.01	947	9.66	986	10.35	1024	11.07

See Legend and Notes on page 47.

Performance data (cont)

FAN PERFORMANCE DATA — 1.4-2.4 in. wg ESP — 50 Hz, ENGLISH

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)											
		1.4		1.6		1.8		2.0		2.2		2.4	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RM 007	1,800	847	0.89	896	0.98	942	1.07	986	1.16	1027	1.25	—	—
	2,100	872	1.02	920	1.11	965	1.21	1008	1.30	1050	1.40	—	—
	2,400	899	1.16	946	1.26	990	1.36	1033	1.46	1073	1.55	—	—
	2,700	928	1.32	974	1.42	1018	1.52	1059	1.63	1099	1.73	—	—
	3,000	959	1.49	1004	1.60	1046	1.71	1087	1.81	1126	1.92	—	—
40RM 008	2,250	865	1.06	913	1.16	958	1.27	1001	1.37	1042	1.47	—	—
	2,600	893	1.22	940	1.33	984	1.43	1027	1.54	1067	1.65	—	—
	3,000	928	1.43	973	1.54	1017	1.65	1058	1.76	1098	1.87	—	—
	3,400	965	1.66	1010	1.78	1052	1.89	1092	2.00	1131	2.12	—	—
	3,750	1000	1.90	1043	2.02	1084	2.13	1124	2.25	1162	2.37	—	—
40RM 012	3,000	911	1.39	958	1.50	1002	1.61	1044	1.72	1084	1.83	1123	1.94
	3,500	953	1.67	998	1.79	1041	1.90	1082	2.02	1122	2.13	1159	2.25
	4,000	999	2.00	1042	2.12	1084	2.24	1124	2.36	1162	2.48	1199	2.60
	4,500	1047	2.37	1089	2.50	1129	2.62	1168	2.74	—	—	—	—
	5,000	1097	2.79	1138	2.92	1177	3.05	—	—	—	—	—	—
40RM 014	3,750	894	1.91	947	2.14	996	2.37	1044	2.60	1089	2.83	—	—
	4,300	916	2.23	967	2.48	1016	2.73	1062	2.98	1107	3.24	—	—
	5,000	948	2.71	997	2.98	1044	3.26	1089	3.53	1133	3.81	—	—
	5,700	984	3.25	1031	3.55	1076	3.86	1120	4.16	1162	4.46	—	—
	6,250	1014	3.75	1060	4.07	1104	4.39	1147	4.71	1188	5.03	—	—
40RM 016	4,500	899	2.29	951	2.56	999	2.84	1046	3.12	1091	3.41	1133	3.70
	5,300	930	2.78	980	3.08	1027	3.38	1072	3.68	1116	3.99	1157	4.30
	6,000	961	3.28	1009	3.60	1055	3.92	1098	4.24	1141	4.57	1181	4.91
	6,800	999	3.94	1045	4.28	1089	4.63	1132	4.98	1173	5.33	—	—
	7,500	1036	4.60	1080	4.97	1123	5.34	1164	5.71	—	—	—	—
40RM 024	6,000	950	3.21	999	3.53	1045	3.85	1089	4.17	1131	4.50	1172	4.83
	7,000	996	4.02	1042	4.37	1086	4.72	1129	5.07	1169	5.43	—	—
	8,000	1047	4.99	1091	5.37	1133	5.75	1173	6.13	—	—	—	—
	9,000	1102	6.13	1143	6.54	1183	6.96	—	—	—	—	—	—
	10,000	1160	7.46	1200	7.91	—	—	—	—	—	—	—	—
40RM 028	7,500	903	5.79	963	6.83	1021	7.98	1078	9.21	—	—	—	—
	8,750	917	6.26	972	7.22	1025	8.26	1078	9.38	—	—	—	—
	10,000	941	7.01	991	7.91	1040	8.89	1089	9.93	—	—	—	—
	11,250	972	8.02	1019	8.89	1064	9.83	—	—	—	—	—	—
	12,500	1010	9.29	1053	10.15	1095	11.05	—	—	—	—	—	—
40RM 034	9,000	901	6.07	955	6.98	1008	7.98	1060	9.05	—	—	—	—
	10,500	928	6.98	978	7.84	1026	8.76	1073	9.74	—	—	—	—
	12,000	966	8.24	1011	9.07	1055	9.95	1098	10.88	—	—	—	—
	13,500	1011	9.86	1052	10.67	1092	11.52	—	—	—	—	—	—
	15,000	1062	11.84	—	—	—	—	—	—	—	—	—	—

See Legend and Notes on page 47.

LEGEND

Bhp - Brake Horsepower Input to Fan
ESP - External Static Pressure

Bold indicates field supplied drive is required.

Plain type indicates standard motor and standard drive.

Underline indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables, pages 57-59, to complete selection.

NOTES:

1. Maximum allowable fan speed is 1100 rpm for unit sizes 028 and 034; 1200 rpm for all other sizes.
2. Fan performance is based on deductions for wet coil, clean 1-in. filters, and unit casing. See table at right for factory-supplied filter pressure drop.
3. For 50 Hz units, the medium-static drive and standard motor combination is not available for 016-028 sizes. Use alternate motor if medium-static drive is required for these sizes.

FACTOR Y-SUPPLIED FILTER PRESSURE DROP
 - ENGLISH

UNIT	AIRFLOW (Cfm)	PRESSURE DROP (in. wg)
40RM 007	1,800	0.05
	2,400	0.08
	3,000	0.11
40RM 008	2,250	0.07
	3,000	0.11
	3,750	0.15
40RM 012	3,000	0.11
	4,000	0.17
	5,000	0.23
40RM 014	3,750	0.06
	5,000	0.10
	6,250	0.13
40RM 016	4,500	0.08
	6,000	0.12
	7,500	0.17
40RM 024	6,000	0.12
	8,000	0.19
	10,000	0.26
40RM 028	7,500	0.15
	10,000	0.22
	12,500	0.30
40RM 034	9,000	0.19
	12,000	0.29
	15,000	0.40

ACCESSORY PLENUM AIR THROW DATA — ENGLISH
 (Ft)

UNIT	AIRFLOW (Cfm)	VANE DEFLECTION		
		Straight	21½°	45°
40RM 007	2,400	39	33	24
40RM 008	3,000	45	38	28
40RM 012	4,000	55	46	33
40RM 014	5,000	45	38	28
40RM 016	6,000	50	43	31
40RM 024	8,000	60	51	37
40RM 028	10,000	76	65	47
40RM 034	12,000	85	72	52

NOTE: Throw distances shown are for 75 fpm terminal velocity. Use the following multipliers to determine throw values for other terminal velocities.

TERMINAL VELOCITY (Fpm)	THROW FACTOR
50	X 1.50
100	X 0.75
150	X 0.50

ACCESSORY PRESSURE DROP — ENGLISH
(in. wg)

UNIT	AIRFLOW (Cfm)	DISCHARGE PLENUM	RETURN AIR GRILLE	HEATING COILS			ECONOMIZER
				Hot Water	Steam	Electric	
40RM 007	1,800	0.06	0.01	0.10	0.10	0.04	0.05
	2,400	0.10	0.01	0.16	0.16	0.06	0.07
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
40RM 008	2,250	0.09	0.01	0.15	0.15	0.06	0.06
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	3,750	0.21	0.03	0.35	0.35	0.15	0.15
40RM 012	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	4,000	0.22	0.04	0.37	0.37	0.17	0.17
	5,000	0.32	0.06	0.53	0.53	0.26	0.28
40RM 014	3,750	0.07	0.01	0.11	0.11	0.04	0.05
	5,000	0.12	0.02	0.17	0.17	0.07	0.07
	6,250	0.17	0.02	0.25	0.25	0.11	0.11
40RM 016	4,500	0.10	0.01	0.15	0.15	0.06	0.06
	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	7,500	0.23	0.03	0.33	0.33	0.15	0.15
40RM 024	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	8,000	0.26	0.04	0.37	0.37	0.17	0.17
	10,000	0.37	0.06	0.53	0.53	0.26	0.28
40RM 028	7,500	0.15	0.02	0.28	0.28	0.09	0.06
	10,000	0.24	0.03	0.44	0.44	0.16	0.09
	12,500	0.34	0.05	0.63	0.63	0.24	0.14
40RM 034	9,000	0.20	0.03	0.37	0.37	0.13	0.08
	12,000	0.32	0.05	0.59	0.59	0.22	0.14
	15,000	0.46	0.07	0.85	0.85	0.34	0.21

Electrical data

STANDARD MOTORS

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
40RM 007	230-3-50	207-253	2.4 (1.79)	5.2	6.5	15
	400-3-50	360-440	2.4 (1.79)	2.6	3.3	15
40RM 008	230-3-50	207-253	2.4 (1.79)	5.2	6.5	15
	400-3-50	360-440	2.4 (1.79)	2.6	3.3	15
40RM 012	230-3-50	207-253	2.9 (2.16)	7.5	9.4	15
	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
40RM 014	230-3-50	207-253	2.9 (2.16)	7.5	9.4	15
	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
40RM 016	230-3-50	207-253	2.9 (2.16)	7.5	9.4	15
	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
40RM 024	230-3-50	207-253	5.0 (3.73)	15.2	19.0	30
	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
40RM 028	230-3-50	207-253	7.5 (5.59)	22.8	28.5	50
	400-3-50	360-440	7.5 (5.59)	11.4	14.3	25
40RM 034	230-3-50	207-253	10.0 (7.46)	32.2	40.3	70
	400-3-50	360-440	10.0 (7.46)	16.1	20.1	30

ALTERNATE MOTORS

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
40RM 007	230-3-50	207-253	2.4 (1.79)	5.2	6.5	15
	400-3-50	360-440	2.4 (1.79)	2.6	3.3	15
40RM 008	230-3-50	207-253	2.9 (2.16)	7.5	9.4	15
	400-3-50	360-440	2.9 (2.16)	3.4	4.3	15
40RM 012	230-3-50	207-253	5.0 (3.73)	15.2	19.0	30
	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
40RM 014	230-3-50	207-253	5.0 (3.73)	15.2	19.0	30
	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
40RM 016	230-3-50	207-253	5.0 (3.73)	15.2	19.0	30
	400-3-50	360-440	5.0 (3.73)	7.6	9.5	15
40RM 024	230-3-50	207-253	7.5 (5.59)	22.8	28.5	50
	400-3-50	360-440	7.5 (5.59)	11.4	14.3	25
40RM 028	230-3-50	207-253	10.0 (7.46)	32.2	40.3	60
	400-3-50	360-440	10.0 (7.46)	16.1	20.1	30

LEGEND

FLA — Full Load Amps

MOCP — Maximum Overcurrent Protection

*Motors are designed for satisfactory operation within 10% of nominal voltages shown. Voltages should not exceed the limits shown in the Voltage Limits column.

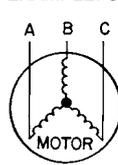
NOTES:

1. Minimum circuit amps (MCA) and MOCP values are calculated in accordance with NEC (National Electrical Code) (U.S.A. standard), Article 440.
2. Motor FLA values are established in accordance with UL (Underwriters' Laboratories) Standard 1995 (U.S.A. standard).
3. **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.

% Voltage Imbalance

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

EXAMPLE: Supply voltage is 400-3-50.



AB = 393 v
BC = 403 v
AC = 396 v

$$\text{Average Voltage} = \frac{393 + 403 + 396}{3}$$

$$= \frac{1192}{3}$$

$$= 397$$

Determine maximum deviation from average voltage.

$$\begin{aligned} \text{(AB)} & 397 - 393 = 4 \text{ v} \\ \text{(BC)} & 403 - 397 = 6 \text{ v} \\ \text{(AC)} & 397 - 396 = 1 \text{ v} \end{aligned}$$

Maximum deviation is 6 v.

Determine percent voltage imbalance.

$$\begin{aligned} \% \text{ Voltage Imbalance} &= 100 \times \frac{6}{397} \\ &= 1.5\% \end{aligned}$$

This amount of phase imbalance is satisfactory because 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.

Electrical data (cont)

ELECTRIC HEATER DATA

HEATER PART NO.	UNIT	V-PH-Hz	FAN MOTOR			ELECTRIC HEATER(S)					MCA*	MOCP*
						Nominal Capacity (kW)	Actual Capacity (kW)			FLA		
			Stage 1	Stage 2	Total							
CAELHEAT001A00	40RM007-012	240-3-50	2.4	1.79	5.2	5	5.0	—	5.0	12.0	21.5	25
			2.9	2.16	7.5	5	5.0	—	5.0	12.0	24.4	25
			5.0	3.73	15.2	5	5.0	—	5.0	12.0	34.0	40
CAELHEAT002A00		400-3-50	2.4	1.79	2.6	5	3.5	—	3.5	5.00	9.5	15
			2.9	2.16	3.4	5	3.5	—	3.5	5.00	10.5	15
			5.0	3.73	7.6	5	3.5	—	3.5	5.00	15.8	20
CAELHEAT004A00		240-3-50	2.4	1.79	5.2	10	10.0	—	10.0	24.1	36.6	40
			2.9	2.16	7.5	10	10.0	—	10.0	24.1	39.4	40
			5.0	3.73	15.2	10	10.0	—	10.0	24.1	49.1	50
CAELHEAT005A00	400-3-50	2.4	1.79	2.6	10	6.9	—	6.9	10.0	15.8	20	
		2.9	2.16	3.4	10	6.9	—	6.9	10.0	16.8	20	
		5.0	3.73	7.6	10	6.9	—	6.9	10.0	22.0	25	
CAELHEAT007A00	240-3-50	2.4	1.79	5.2	15	15.0	—	15.0	36.1	51.6	60	
		2.9	2.16	7.5	15	15.0	—	15.0	36.1	54.5	60	
		5.0	3.73	15.2	15	15.0	—	15.0	36.1	64.1	70	
CAELHEAT008A00	400-3-50	2.4	1.79	2.6	15	10.4	—	10.4	15.0	22.0	25	
		2.9	2.16	3.4	15	10.4	—	10.4	15.0	23.0	25	
		5.0	3.73	7.6	15	10.4	—	10.4	15.0	28.3	30	
CAELHEAT010A00	240-3-50	2.4	1.79	5.2	25	15.0	10.0	25.0	60.1	81.7	90	
		2.9	2.16	7.5	25	15.0	10.0	25.0	60.1	84.6	90	
		5.0	3.73	15.2	25	15.0	10.0	25.0	60.1	94.2	100	
CAELHEAT011A00	400-3-50	2.4	1.79	2.6	25	10.4	6.9	17.4	25.1	34.6	25	
		2.9	2.16	3.4	25	10.4	6.9	17.4	25.1	35.6	40	
		5.0	3.73	7.6	25	10.4	6.9	17.4	25.1	40.8	50	
CAELHEAT013A00	40RM008,012	240-3-50	2.4	1.79	5.2	35	20.0	15.0	35.0	84.2	111.7	125
			2.9	2.16	7.5	35	20.0	15.0	35.0	84.2	114.6	125
	5.0		3.73	15.2	35	20.0	15.0	35.0	84.2	124.2	125	
CAELHEAT014A00	400-3-50	2.4	1.79	2.6	35	13.9	10.4	24.3	35.1	47.1	50	
		2.9	2.16	3.4	35	13.9	10.4	24.3	35.1	48.1	50	
		5.0	3.73	7.6	35	13.9	10.4	24.3	35.1	53.4	60	
CAELHEAT016A00	40RM014-024	240-3-50	2.9	2.16	7.5	10	10.0	—	10.0	24.1	39.4	40
			5.0	3.73	15.2	10	10.0	—	10.0	24.1	49.1	50
			7.5	5.59	22.8	10	10.0	—	10.0	24.1	58.6	70
CAELHEAT017A00		400-3-50	2.9	2.16	3.4	10	6.9	—	6.9	10.0	16.8	20
			5.0	3.73	7.6	10	6.9	—	6.9	10.0	22.0	25
			7.5	5.59	11.4	10	6.9	—	6.9	10.0	26.8	35
CAELHEAT019A00		240-3-50	2.9	2.16	7.5	20	20.0	—	20.0	48.1	69.5	70
			5.0	3.73	15.2	20	20.0	—	20.0	48.1	79.1	80
			7.5	5.59	22.8	20	20.0	—	20.0	48.1	86.4	90
CAELHEAT020A00	400-3-50	2.9	2.16	3.4	20	13.9	—	13.9	20.0	29.3	30	
		5.0	3.73	7.6	20	13.9	—	13.9	20.0	45.1	50	
		7.5	5.59	11.4	20	13.9	—	13.9	20.0	49.2	50	
CAELHEAT022A00	240-3-50	2.9	2.16	7.5	30	20.0	10.0	30.0	72.2	99.6	100	
		5.0	3.73	15.2	30	20.0	10.0	30.0	72.2	109.2	110	
		7.5	5.59	22.8	30	20.0	10.0	30.0	72.2	118.7	125	
CAELHEAT023A00	400-3-50	2.9	2.16	3.4	30	13.9	6.9	20.8	30.1	41.8	50	
		5.0	3.73	7.6	30	13.9	7.9	20.8	30.1	47.1	50	
		7.5	5.59	11.4	30	13.9	7.9	20.8	30.1	51.8	60	
CAELHEAT025A00	40RM016,024	240-3-50	2.9	2.16	7.5	50	30.0	20.0	50.0	120.3	159.7	175
			5.0	3.73	15.2	50	30.0	20.0	50.0	120.3	169.4	175
	7.5		5.59	22.8	50	30.0	20.0	50.0	120.3	178.9	200	
CAELHEAT026A00	400-3-50	2.9	2.16	3.4	50	20.8	13.9	34.7	50.1	66.9	70	
		5.0	3.73	7.6	50	20.8	13.9	34.7	50.1	72.1	80	
		7.5	5.59	11.4	50	20.8	13.9	34.7	50.1	76.9	80	
CAELHEAT028A00	40RM028,034	240-3-50	7.5	5.59	22.8	20	20.0	—	20.0	48.1	88.6	90
			10.0	7.46	32.2	20	20.0	—	20.0	48.1	100.4	110
			7.5	5.59	11.4	20	13.9	—	13.9	20.0	39.3	40
CAELHEAT029A00		400-3-50	10.0	7.46	16.1	20	13.9	—	13.9	20.0	45.2	50
			7.5	5.59	22.8	40	20.0	20.0	40.0	96.2	148.8	150
			10.0	7.46	32.2	40	20.0	20.0	40.0	96.2	160.5	175
CAELHEAT031A00		240-3-50	7.5	5.59	11.4	40	13.9	13.9	27.8	40.1	64.4	70
			10.0	7.46	16.1	40	13.9	13.9	27.8	40.1	70.2	80
			7.5	5.59	22.8	50	30.0	20.0	50.0	120.3	178.9	200
CAELHEAT032A00	400-3-50	10.0	7.46	16.1	50	30.0	20.0	50.0	120.3	190.6	200	
		7.5	5.59	11.4	50	20.8	13.9	34.7	50.1	76.9	80	
		10.0	7.46	16.1	50	20.8	13.9	34.7	50.1	82.8	90	
CAELHEAT034A00	240-3-50	7.5	5.59	22.8	70	40.0	30.0	70.0	168.4	196.9	200	
		10.0	7.46	32.2	70	40.0	30.0	70.0	168.4	208.6	225	
		7.5	5.59	11.4	70	27.8	20.8	48.6	70.2	84.4	90	
CAELHEAT035A00	400-3-50	10.0	7.46	16.1	70	27.8	20.8	48.6	70.2	90.3	100	
		7.5	5.59	11.4	70	27.8	20.8	48.6	70.2	90.3	100	
		10.0	7.46	16.1	70	27.8	20.8	48.6	70.2	90.3	100	
CAELHEAT037A00	240-3-50	7.5	5.59	22.8	70	40.0	30.0	70.0	168.4	196.9	200	
		10.0	7.46	32.2	70	40.0	30.0	70.0	168.4	208.6	225	
		7.5	5.59	11.4	70	27.8	20.8	48.6	70.2	84.4	90	
CAELHEAT038A00	400-3-50	10.0	7.46	16.1	70	27.8	20.8	48.6	70.2	90.3	100	
		7.5	5.59	11.4	70	27.8	20.8	48.6	70.2	90.3	100	
		10.0	7.46	16.1	70	27.8	20.8	48.6	70.2	90.3	100	

LEGEND

- FLA** — Full Load Amps
- Hp** — Horsepower
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection (Amps)

*Values shown are for single-point connection of electric heat accessory and air handler.

†Single-phase motors. All other motors are 3-phase.

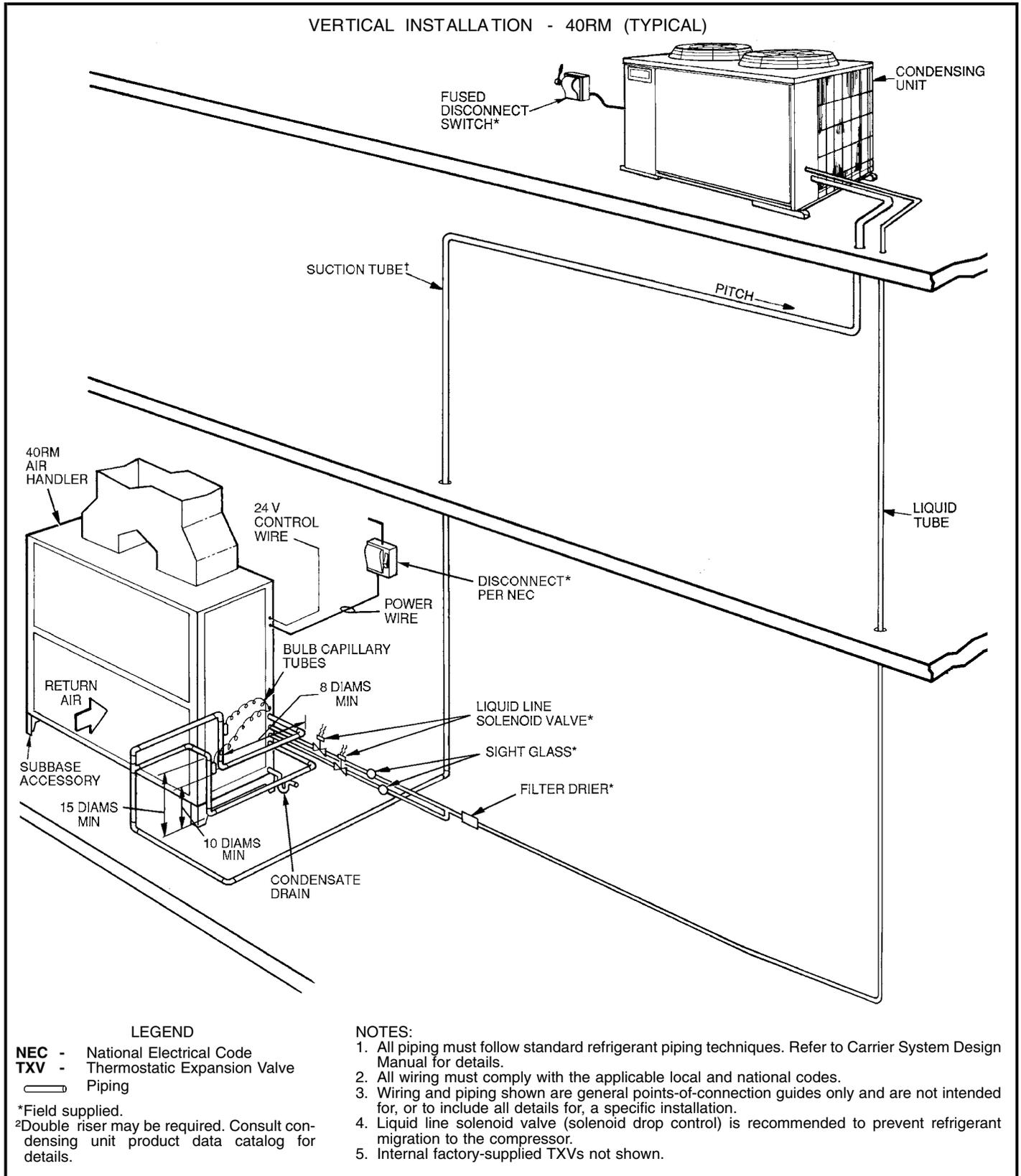
NOTES:

1. Electrical resistance heaters are rated at 240 v, 480 v, or 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.

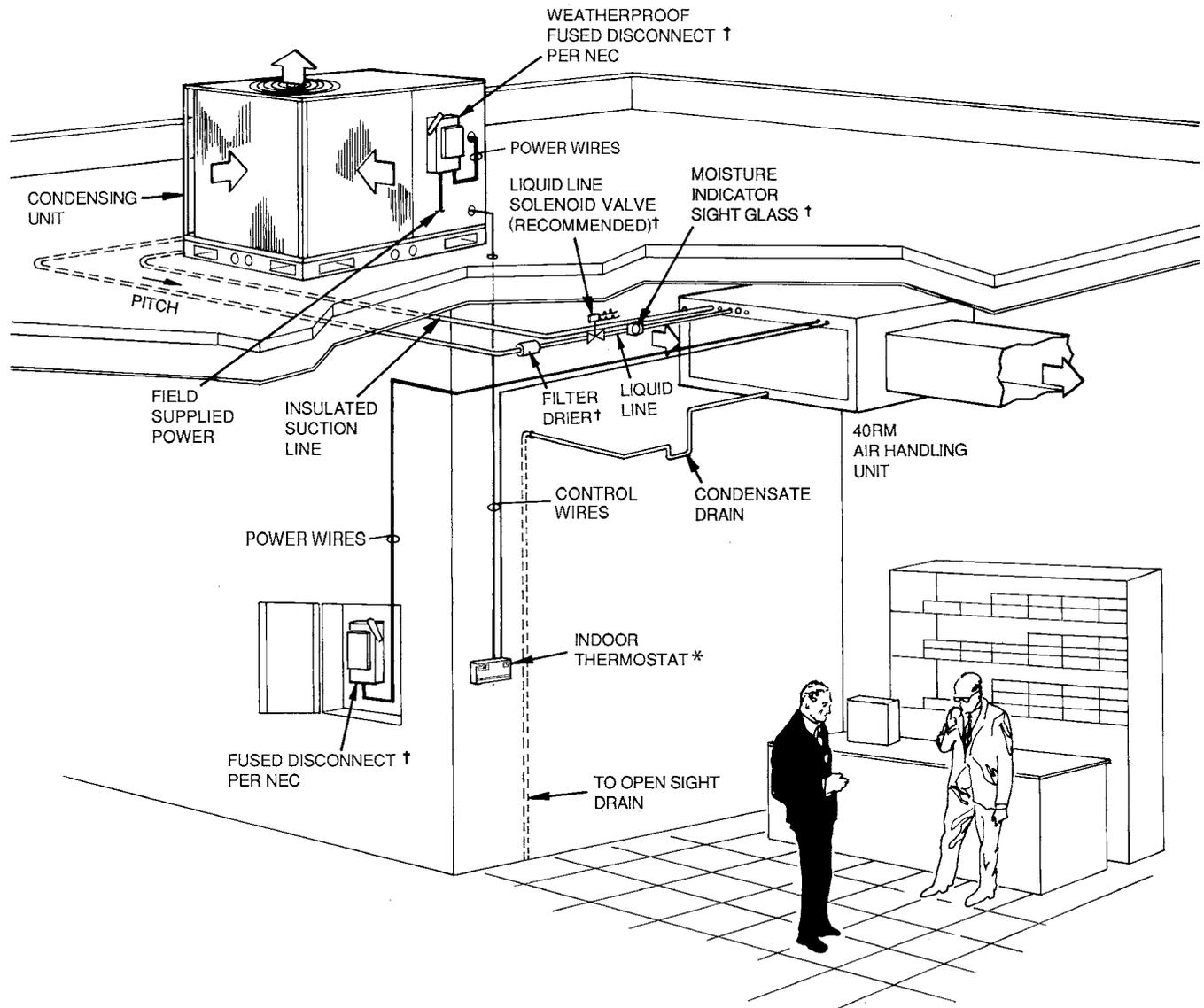
HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

2. The following equation converts kW of heat energy to Btuh:
 $kW \times 3,412 = Btuh$.
3. Heater contactor coils are 24 v and require 8 va holding current.
4. Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
5. MCA and MOCP values apply to both standard and alternate factory-supplied motors.

Typical piping and wiring



HORIZONTAL INSTALLATION - 40RM (TYPICAL)



LEGEND

NEC - National Electrical Code
 TXV - Thermostatic Expansion Valve

*Accessory item.
 †Field supplied.

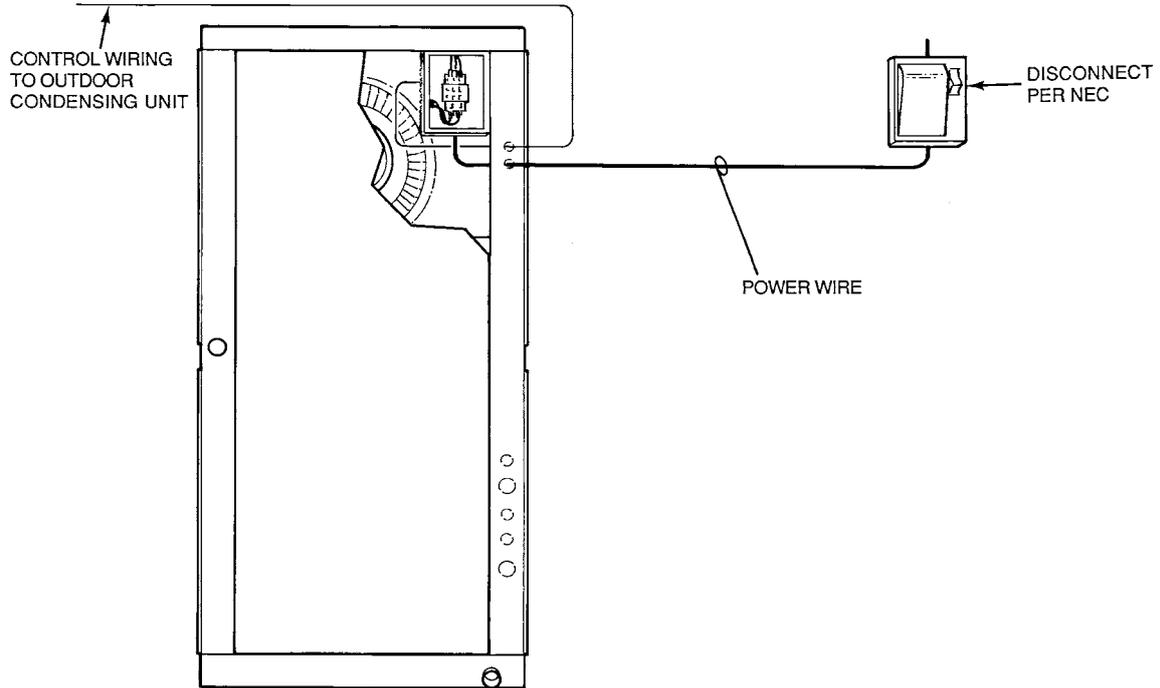
NOTES:

1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.

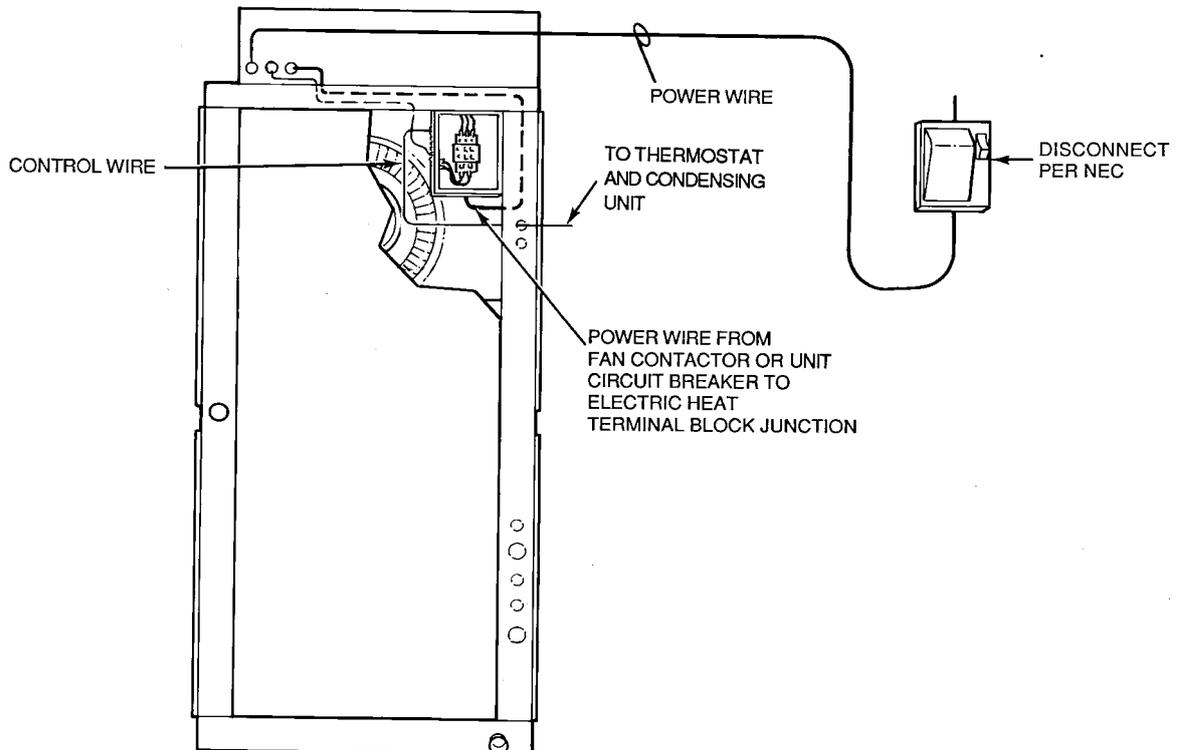
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
5. Internal factory-supplied TXVs not shown.

Typical piping and wiring (cont)

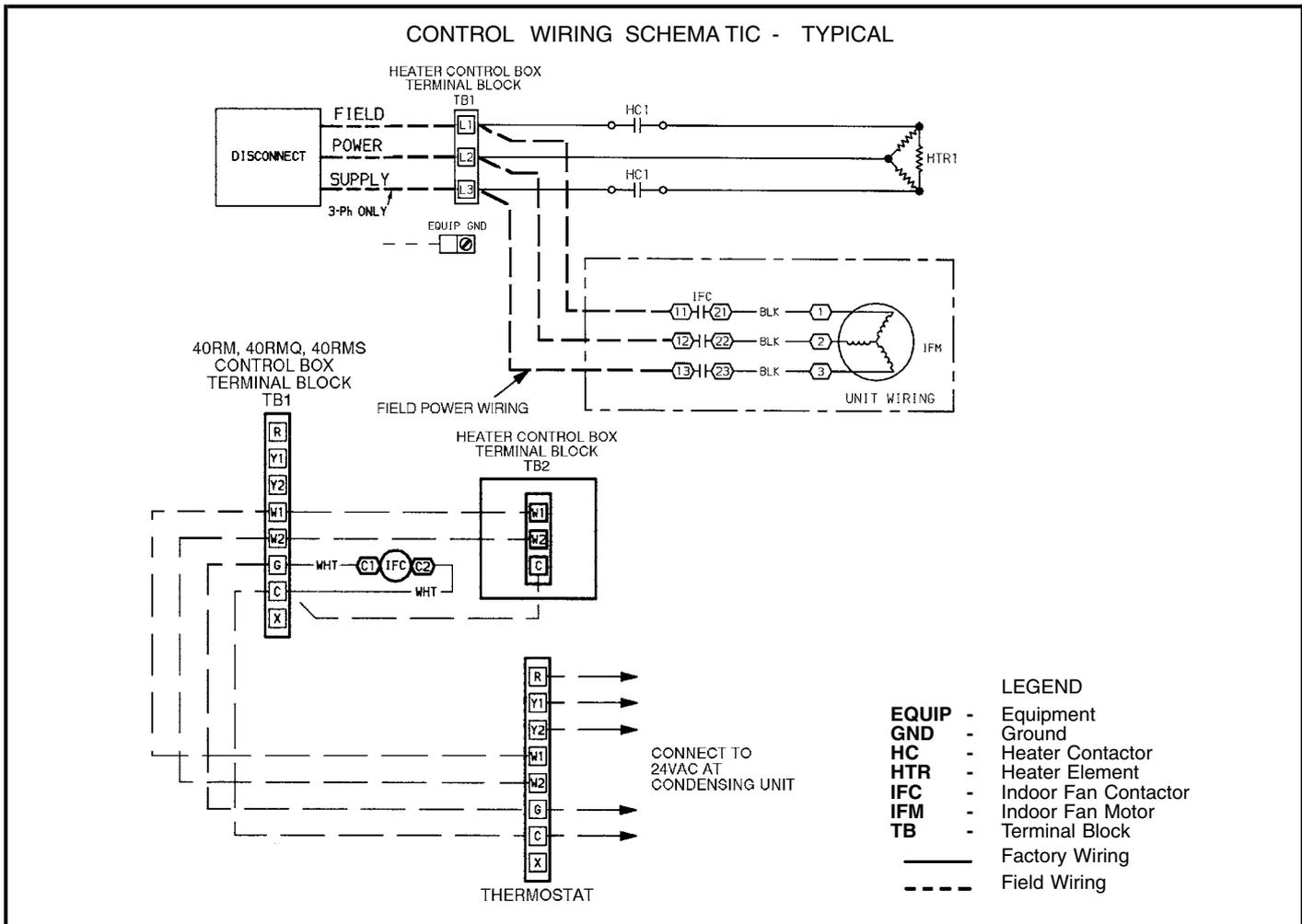
WIRE ROUTING, BASE UNIT - 40RM,



WIRE ROUTING, UNIT WITH ELECTRIC HEAT - 40RM,



NEC - National Electrical Code



Application data

Operating limits

Maximum fan speed-

40RM007-024 1200 rpm (20 r/s)

40RM028,034 1100 rpm (18.3 r/s)

General

Select equipment to match or to be slightly less than peak load. This provides better humidity control, less unit cycling, and less part-load operation. Equipment should be selected to perform at no less than 300 cfm/ton (40 L/s per kW).

The air handler fan must always be operating when the condensing unit is operating.

Ductwork should be sized according to unit size, not building load. For larger units with two fans, a split duct transition is recommended at the fan outlets, but a plenum can be used with slight reduction in external static pressure capability.

For variable air volume (VAV) systems with supply-to-return air recycling, use the equipment room as a return air plenum.

FACTOR Y-INSTALLED NOZZLE AND DISTRIBUTOR DATA

UNIT	TXV Qty...Part No.*	DISTRIBUTOR Qty...Part No.*	FEEDER TUBES PER DISTRIBUTOR Qty...Size (in.)	NOZZLE Qty...Part No.
40RM007	1...XVE-5	1...1116	12... ¹ / ₄	1...E5
40RM008	1...SVE-8	1...1126	15... ¹ / ₄	1...C6
40RM012	2...XVE-4	2...1115	9... ¹ / ₄	2...E4
40RM014	2...XVE-5	2...1115	9... ¹ / ₄	2...E5
40RM016	2...XVE-8	2...1116	12... ¹ / ₄	2...E6
40RM024	2...XVE-10	2...1116	13... ¹ / ₄	2...E8
40RM028	2...SVE-15	2...1126	15... ¹ / ₄	2...C10
40RM034	2...SVE-15	2...1126	18... ¹ / ₄	2...C12

*Sporlan Valve Co. part numbers shown.

FAN MOTOR DATA -ENGLISH

STANDARD MOTOR (230-3-50 and 400-3-50)

UNIT	40RM 007	40RM 008	40RM 012	40RM 014	40RM 016	40RM 024	40RM 028	40RM 034
Speed (rpm)	1425	1425	1425	1425	1425	1425	1425	1425
Hp	2.4	2.4	2.9	2.9	2.9	5.0	7.5	10.0
Frame (NEMA)	56Y	56Y	56Y	56Y	56Y	184T	S213T	S215T
Shaft Dia (in.)	5/8	5/8	7/8	7/8	7/8	1 1/8	1 3/8	1 3/8

ALTERNATE MOTOR (230-3-50 and 400-3-50)

UNIT	40RM 007	40RM 008	40RM 012	40RM 014	40RM 016	40RM 024	40RM 028
Speed (rpm)	1425	1425	1425	1425	1425	1425	1425
Hp	2.4	2.9	5.0	5.0	5.0	7.5	10.0
Frame (NEMA)	56Y	56Y	S184T	S184T	S184T	S213T	S215T
Shaft Dia (in.)	7/8	7/8	7/8	1 1/8	1 1/8	1 3/8	1 3/8

NEMA - National Electrical Manufacturers Association (U.S.A.)

STANDARD DRIVE DATA, 50 Hz - ENGLISH

UNIT	40RM 007	40RM 008	40RM 012	40RM 014	40RM 016	40RM 024	40RM 028	40RM 034
MOTOR DRIVE								
Motor Pulley Pitch Diameter (in.)	2.4-3.4	2.8-3.8	3.4-4.4	3.4-4.4	3.4-4.4	4.3-5.3	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	2.5	3.0	3.0	3.0
FAN DRIVE								
Pulley Pitch Dia (in.)	8.0	8.0	8.0	9.0	9.0	8.6	11.0	11.0
Pulley Bore (in.)	1	1	1	1 7/16	1 7/16	1 7/16	1 15/16	1 15/16
Belt No. - Section	1-A	1-A	1-A	1-A	1-A	1-B	2-B	2-B
Belt Pitch (in.)	39.3	39.3	40.3	42.3	42.3	41.8	43.8	43.8
FAN SPEEDS (rpm)								
Factory Setting	517	588	695	618	618	795	622	622
Range	428-606	499-677	606-784	538-697	538-697	713-878	557-687	557-687
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200	1100	1100
Change per 1/2 Turn of Moveable Motor Pulley Flange	17.8	17.8	17.8	15.9	15.9	13.8	10.8	10.8
MAX FULL TURNS FROM CLOSED POSITION								
	5	5	5	5	5	6	6	6
SHAFTS CENTER DISTANCE (in.)								
	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	9.12-10.99	6.67-9.43	6.67-9.43

MEDIUM-STATIC DRIVE DATA, 50 Hz - ENGLISH

UNIT	40RM 007	40RM 008	40RM 012	40RM 014	40RM 016	40RM 024	40RM 028	40RM 034
MOTOR DRIVE								
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.4-4.4	3.4-4.4	3.4-4.4	3.7-4.7	4.0-5.0	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	3.0	2.5	3.0	3.0
FAN DRIVE								
Pulley Pitch Dia (in.)	8.0	7.0	6.0	7.5	7.9	7.0	9.4	9.4
Pulley Bore (in.)	1	1	1	1 7/16	1 7/16	1 7/16	1 15/16	1 15/16
Belt No. - Section	1-A	1-A	1-A	1-A	1-B	2-A	2-B	2-B
Belt Pitch (in.)	40.3	41.3	37.3	39.3	39.8	36.8	39.8	39.8
FAN SPEEDS (rpm)								
Factory Setting	695	794	926	741	756	916	728	728
Range	606-784	692-896	808-1045	646-836	667-848	814-1018	652-803	652-803
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200	1100	1100
Change per 1/2 Turn of Moveable Motor Pulley Flange	17.8	20.4	23.7	19.0	15.1	20.4	12.6	12.6
MAX FULL TURNS FROM CLOSED POSITION	5	5	5	5	6	5	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32	10.44-12.32	10.44-12.32	10.44-12.32	9.16-10.99	9.16-10.99	6.67-9.43	6.67-9.43

HIGH-STATIC DRIVE DATA, 50 Hz - ENGLISH

UNIT	40RM 007	40RM 008	40RM 012	40RM 014	40RM 016	40RM 024	40RM 028	40RM 034
MOTOR DRIVE								
Motor Pulley Pitch Diameter (in.)	3.4-4.4	3.4-4.4	4.0-5.0	3.4-4.4	4.0-5.0	4.0-5.0	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	3.0	2.5	3.0	3.0	3.0	3.0
FAN DRIVE								
Pulley Pitch Dia (in.)	6.0	5.5	5.5	6.0	7.0	6.4	8.0	8.6
Pulley Bore (in.)	1	1	1	1 7/16	1 7/16	1 7/16	1 15/16	1 15/16
Belt No. - Section	1-A	1-A	1-A	2-A	2-A	2-A	2-B	2-B
Belt Pitch (in.)	37.3	37.3	36.3	36.3	39.3	34.3	36.8	37.8
FAN SPEEDS (rpm)								
Factory Setting	926	1010	1166	926	916	1002	855	795
Range	808-1045	881-1140	1036-1200*	808-1045	814-1018	891-1113	766-944	713-878
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200	1200	1100	1100
Change per 1/2 Turn of Moveable Motor Pulley Flange	23.7	25.9	21.6	23.7	17.0	18.5	14.8	13.8
MAX FULL TURNS FROM CLOSED POSITION	5	5	6	5	6	6	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32	10.44-12.32	9.16-10.99	9.16-10.99	9.16-10.99	8.16-10.02	6.67-9.43	6.67-9.43

*It is possible to adjust drive so that fan speed exceeds maximum allowable. DO NOT exceed 1200 rpm.

Guide Specifications 38ARZ007-012

Commercial Air-Cooled Condensing Units

HVAC Guide Specifications

Size Range: 6 to 10 Tons, Nominal

Carrier Model Numbers: 38ARZ, Sizes 007-012

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall consist of a reciprocating or scroll air-conditioning compressor assembly, an air-cooled coil, propeller- type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged air-handling unit.

1.02 QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standard 360-2000.

B. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.

C. Unit shall be constructed in accordance with UL 1995 standard.

D. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).

E. Air-cooled condenser coils for (38ARZ) shall be leak tested at 200 psig, and pressure tested at 428 psig.

F. Unit shall be manufactured in a facility registered to ISO 9001:2000 manufacturing quality standard.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge (R-22), and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a pre-painted baked enamel finish.

2. A heavy-gage roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

C. Fans:

1. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.

2. Fan blades shall be balanced.

3. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.

4. Condenser fan and motor shaft shall be corrosion resistant.

D. Compressor:

1. Compressor shall be of the hermetic scroll type

2. Compressor shall be mounted on rubber grommets.

3. Compressors shall include overload protection.

4. Compressors shall be equipped with a crankcase heater.

5. Compressor shall be equipped with internal high discharge temperature protection (38ARZ007 and 012 only).

E. Condenser Coil:

1. Condenser coil shall be air-cooled and circuited for integral subcooler.

2. Coil shall be constructed of aluminum fins (copper fins optional) mechanically bonded to internally grooved seamless copper tubes which are then cleaned, dehydrated, and sealed.

F. Refrigeration Components:

Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, and a holding charge of refrigerant.

G. Controls and Safeties:

1. Minimum control functions shall include:

a. Control wire terminal blocks.

b. Compressor lockout on auto-reset safety until reset from thermostat.

2. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:

a. High discharge pressure cutout.

b. Low pressure cutout.

c. High discharge temperature cutout (38ARZ008 only).

H. Operating Characteristics:

1. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of

_____ F. The power consumption at full load shall not exceed _____ kW.

2. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____ F wet bulb and _____ F dry bulb, and air entering the condensing unit at _____ F.

3. The system shall have an EER of _____ Btuh/Watt or greater at standard ARI conditions.

I. Electrical Requirements:

1. Nominal unit electrical characteristics shall be _____ v, 3-ph, 50 Hz. The unit shall be capable of satisfactory operation within voltage limits of _____ v to _____ v.

2. Unit electrical power shall be single-point connection.

3. Unit control circuit shall contain a 24-v transformer for unit control.

J. Special Features:

1. Low-Ambient Temperature Control:

A low-ambient temperature control shall be available as a field-installed accessory. This low-ambient control shall regulate speed of the condenser-fan motors in response to the saturated condensing temperature of the unit. The control shall maintain correct condensing pressure at outdoor temperatures down to -20 F.

2. Gage Panel Package:

Gage panel package shall include a suction and discharge pressure gage.

3. Optional Condenser Coil Materials:

a. Pre-Coated Aluminum-Fin Coils:

Coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal

environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

b. Copper-Fin Coils:

Coils shall be constructed of copper-fins mechanically bonded to copper-tubes and copper tube sheets. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to minimize potential for galvanic corrosion between the coil and pan. All copper construction shall provide protection in moderate coastal environments.

4. Thermostat Controls:

a. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.

b. Commercial Electronic Thermostat shall have 7-day timeclock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.

c. Carrier PremierLink™ Controller:

This control will function with CCN (Carrier Comfort Network®) and ComfortVIEW™ software. It shall also be compatible with ComfortLink™ controllers. It shall be ASHRAE 62-99 compliant and Internet ready. It shall accept a CO2 sensor in the conditioned space and be Demand Control Ventilation (DCV) ready. The communication rate must be 38.4K or faster. It shall include an integrated economizer controller.

Guide specifications— 38ARD014-028

Commercial Air-Cooled Condensing Units HVAC Guide Specifications

Size Range: 12½ to 20 Tons, Nominal

Carrier Model Number: 38ARD, Sizes 014-024

Part 1 — General

1.01 SYSTEM DESCRIPTION

Outdoor-mounted, air-cooled condensing unit suitable for on-the-ground or rooftop installation. Unit shall have 2 independent refrigeration circuits. Unit shall consist of dual scroll compressors, an aircooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall be used in a refrigeration circuit matched with a packaged airhandling unit.

1.02 QUALITY ASSURANCE

A. Unit shall be rated in accordance with ARI Standard 360-2000, and shall be certified and listed in the latest ARI directory.

B. Unit construction shall comply with ANSI/ASHRAE safety code, latest revision, and comply with NEC.

C. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label.

D. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).

E. Air-cooled condenser coils shall be leak tested at 150 psig, and pressure tested at 480 psig.

F. Unit shall be manufactured in a facility registered to ISO 9001:2000 manufacturing quality standard.

1.03 DELIVERY, STORAGE, AND HANDLING

Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER.)

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory-assembled, single piece, air-cooled condensing unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge (R-22), and special features required prior to field start-up.

B. Unit Cabinet:

Unit cabinet shall be constructed of G-90 galvanized steel, bonderized and coated with a prepainted baked enamel finish.

C. Fans:

1. Condenser fans shall be direct driven, propellertype, discharging air vertically upward.
2. Fan blades shall be balanced.

3. Condenser fan discharge openings shall be equipped with PVC-coated steel wire safety guards.

4. Condenser fan and motor shaft shall be corrosion resistant.

D. Compressor:

1. Compressors shall be of the hermetic scroll type.

2. Compressors shall be mounted on rubber grommets.

3. Compressors shall include overload protection.

4. Compressors shall be equipped with a crankcase heater.

5. Compressors shall be equipped with internal high discharge temperature protection (38ARD016 and 024 only).

E. Condenser Coil:

1. Condenser coil shall be air-cooled and circuited for integral subcooler.

2. Coil shall be constructed of aluminum fins (copper fins optional) mechanically bonded to internally grooved seamless copper tubes which are then cleaned, dehydrated, and sealed.

F. Refrigeration Components:

Refrigeration circuit components shall include high side pressure relief device, liquid line service valve, suction line service valve, a full charge of compressor oil, and a holding charge of refrigerant.

G. Controls and Safeties:

1. Minimum control functions shall include:

- a. Power and control wire terminal blocks.

- b. Compressor lockout on auto-reset safety until reset from thermostat.

- c. Recycle time delay of five minutes to prevent compressor short cycling.

2. Minimum safety devices shall include:

Automatic reset (after resetting first at thermostat):

- a. High discharge pressure cutout.

- b. Loss-of-charge cutout.

- c. Condenser fan motors to be protected against overload condition by internal overloads.

Manual reset at the unit:

Electrical overload protection through the use of define-purpose contactors and calibrated, ambient compensated, magnetic trip circuit breakers. Circuit breakers shall open all three phases in the event of an overload in any one of the phases or a single phase condition.

H. Operating Characteristics:

1. The capacity of the condensing unit shall meet or exceed _____ Btuh at a suction temperature of _____ F. The power consumption at full load shall not exceed _____ kW.

2. The combination of the condensing unit and the evaporator or fan coil unit shall have a total net cooling capacity of _____ Btuh or greater at conditions of _____ cfm entering-air temperature at the evaporator at _____ F wet bulb and _____ F dry bulb, and air entering the condensing unit at _____ F.

3. The system shall have an EER of _____ Btuh/Watt or greater at standard ARI conditions.

I. Electrical Requirements:

1. Nominal unit electrical characteristics shall be _____ v, 3-ph, 50 Hz. The unit shall be capable of satisfactory operation within voltage limits of _____ v to _____ v.

2. Unit electrical power shall be single-point connection.

3. Unit control circuit shall contain a 24-v transformer for unit control.

J. Special Features:

1. Low-Ambient Temperature Control:

A low-ambient temperature control shall be available as a factory-installed option or as a field-installed accessory. This low-ambient control shall regulate speed of the condenser-fan motors in response to the saturated condensing temperature of the unit. The control shall maintain correct condensing pressure at outdoor temperatures down to -20 F.

2. Gage Panel Package:

Gage panel package shall include a suction and discharge pressure gage.

3. Optional Condenser Coil Materials:

a. Pre-Coated Aluminum-Fin Coils:

Coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal

environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

b. Copper-Fin Coils:

Coils shall be constructed of copper-fins mechanically bonded to copper-tubes and copper tube sheets. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to minimize potential for galvanic corrosion between the coil and pan. All copper construction shall provide protection in moderate coastal environments.

4. Thermostat Controls:

a. Programmable multi-stage thermostat with 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.

b. Commercial Electronic Thermostat with 7-day timeclock, auto-changeover, multistage capability, and large LCD (liquid crystal display) temperature display.

c. Carrier PremierLink™ Controller:

This control will function with Carrier Comfort Network® (CCN) and ComfortVIEW™ software. It shall also be compatible with ComfortLink™ controllers. It shall be ASHRAE 62-99 compliant and Internet ready. It shall accept a CO₂ sensor in the conditioned space and be Demand Control Ventilation (DCV) ready. The communication rate must be 38.4K or faster. It shall include an integrated economizer controller.

Guide specifications 40RM

Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: 2,400 to 12,000 CFM (1150 to 5650 L/s),
Nominal Airflow 6 to 30 Tons (21 to
105 kW), Nominal Cooling

Carrier Model Numbers: 40RM (Direct-Expansion Coil)

Part 1 - GENERAL

1.01 SYSTEM DESCRIPTION

- A. Indoor, packaged air-handling unit for use in commercial split systems. Unit shall have a multiposition design and shall be capable of horizontal or vertical installation on a floor or in a ceiling, with or without ductwork. (Only vertical units are to be applied without ductwork.)
- B. Unit with direct-expansion coil shall be used in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 QUALITY ASSURANCE

- A. Coils shall be designed & tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration (U.S.A.), latest edition.
- B. Unit shall be constructed in accordance with ETL (U.S.A.) and ETL, Canada, standards and shall carry the ETL and ETL, Canada, labels.
- C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation.
- D. Unit shall be manufactured in a facility registered to the ISO 9002 manufacturing quality standard.
- E. Direct-expansion and chilled water coils shall be burst and leak tested at 435 psi (2999 kPa).

1.03 DELIVERY AND STORAGE

Units shall be stored and handled per manufacturer's recommendations.

Part 2 - Products

2.01 EQUIPMENT

Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of forward-curved belt-driven centrifugal fan(s), motor & drive assembly, prewired fan motor contactor, factory-installed refrigerant metering devices (direct-expansion coil units), cooling coil, 1-in. (25.4-mm) washable air filters, and condensate drain pans for vertical or horizontal configurations.

A. Base Unit (Painted):

1. Cabinet shall be constructed of zinc coated steel and polyester powder painted to protect them from corrosion in the harsh Middle Eastern climate and also to increase the colour life in high ultra-violet (UV) radiation regions.
2. Cabinet panels shall be fully insulated with 1/2 in. (12.7-mm) fire-retardant material.
3. Unit shall contain PVC condensate drain pans for both vertical and horizontal applications. Drain pans shall have connections on right and left sides of unit to facilitate field connection. Drain pans shall have the ability to be sloped toward the right or left side of the unit to prevent standing water from accumulating in pans.
4. Unit shall have factory-supplied 1-in. (25.4 mm) washable-type filters installed upstream from the cooling coil. Filter access shall be from the front of the unit.

B. Coils:

Coils shall consist of 3 rows (40RM), of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.

1. Direct-expansion coils shall feature factory-installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be capable of external adjustment. Direct-expansion heat pump coils shall have a factory-installed bypass line and check valve assembly around the TXVs to allow liquid flow from the coil to the outdoor unit during the heating mode. Coil tubing shall be internally rifled to maximize heat transfer.

C. Operating Characteristics:

Unit shall be capable of providing _____ cfm (L/s) airflow at an external static pressure of _____ in. wg (kPag).

D. Motor:

Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.

Motors rated at 1.3 through 3.7 hp (0.97 through 2.76 kW) shall have internal thermal overload protection. Motors rated at 5, 7^{1/2}, and 10 hp (3.73, 5.60, and 7.46 kW) shall be protected by a circuit breaker

E. Factory-Installed Options:

1. Alternate Motor and Drive:

An alternate motor and/or medium- or high-static drive shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.

F. Field-Installed Accessories (ordered from NAO):

1. Electric Heaters:

Heaters for nominal 240, 480, or 575-volt, 3-phase, 60 Hz; and 240, 400-volt, 3 phase, 50 Hz power supply shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be ETL (U.S.A.) and ETL, Canada, agency approved, and shall have single-point power wiring. Heater assembly shall include contactors with 24-V coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters shall not be used with air discharge plenum.

2. Air Discharge Plenum:

Plenum shall be factory supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with moveable vanes for horizontal or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit's fan deck for blow-thru air distribution. Plenum shall not be used with electric heaters.

3. Return Air Grille:

Grille shall be factory supplied for field installation on the unit's return air opening.

4. Unit Subbase:

Subbase assembly shall be factory supplied for field installation. Subbase shall elevate floor-mounted vertical units to provide access for correct condensate drain connection.

5. Economizer:

Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler. For free cooling applications, economizer shall be compatible with separate thermostat; economizer dampers shall open when outdoor air enthalpy is suitable for free cooling. Economizer shall be compatible with separate CO₂ sensor accessory; economizer dampers shall open when indoor CO₂ level rises above predetermined setpoint. Economizers shall include enthalpy control and damper actuator.

6. Thermostat Controls:

a. Debonair programmable multi-stage thermostat with 7-day clock, holiday scheduling, large Thermoglow Y display, remote sensor capability, and Title 24 compliance.

b. TEMP System programmable communicating multi-stage thermostat with fan switch, time clock, LCD display, EF/EC capability and CCN compatibility.

c. Commercial Electronic Thermostat with 7-day time clock, auto-changeover, multi-stage capability, and large LCD temperature display.

d. Non-programmable thermostat with fan switch subbase.

7. Overhead Suspension Package:

Package shall include necessary brackets to support units in a horizontal ceiling installation.

8. CO₂ Sensor:

Sensor shall provide the ability to signal the economizer to open when the space CO₂ level exceeds the predetermined set point. Sensor shall have the capability of being connected to Comfort System relay pack or to economizer using field-supplied and -installed Honeywell dc adapter no. Q769C1004.

9. Condensate Drain Trap:

Trap shall have transparent, serviceable design for easy cleaning. Kit shall include overflow shut-off switch and wiring harness for connection to an alarm if desired.



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