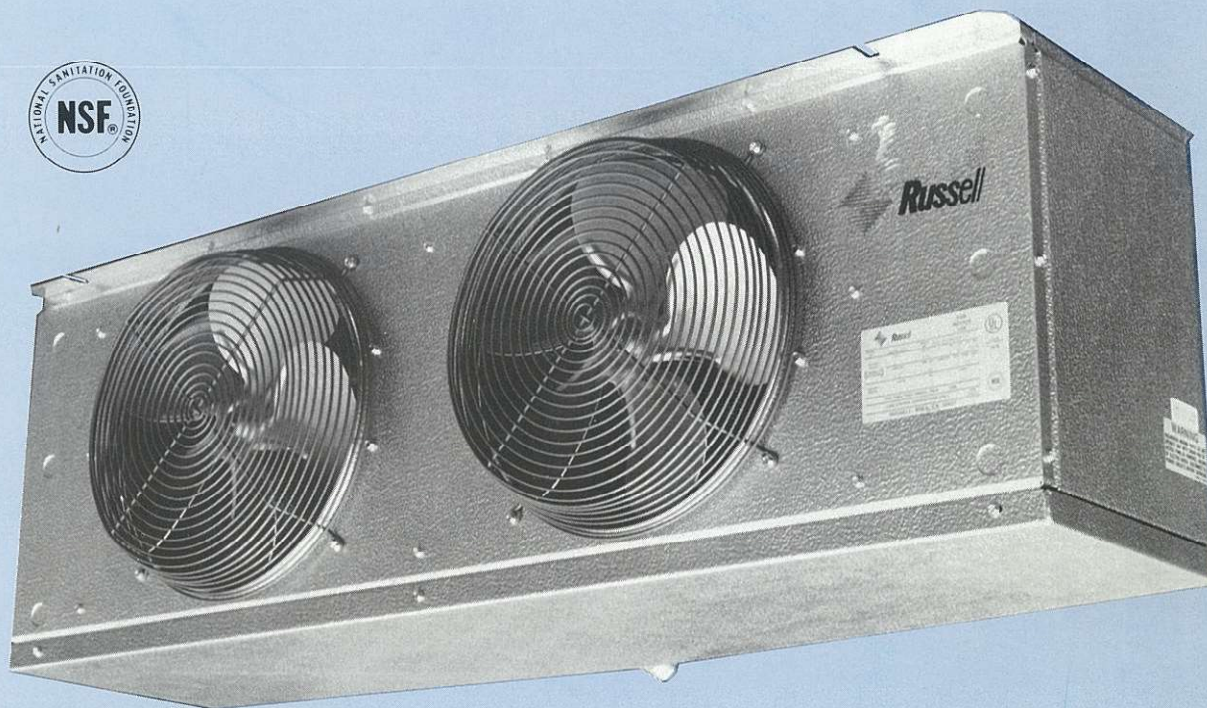


Low Profile Unit Cooler

Technical Bulletin No. 100.6
October 1991



FOR WALK – IN COOLERS AND FREEZERS 3,400 TO 39,000 BTUH

STANDARD FEATURES

- Available in Air, Electric and Hot Gas models.
- Flush to the ceiling mounting, meets NSF standards.
- Slotted hangers provided for easy installation.
- Heavy gauge, rust-free Aluminum housing.
- Coated wire fan guards for optimum air circulation.
- Angled drain fitting is sloped to reduce loss of useful storage space taken up by drain lines.
- Computerized coil circuiting is used to enhance the performance for varying applications.
- Staggered copper tubes are expanded into corrugated aluminum fins for increased heat transfer.
- Internal placement of the defrost heaters allows for extremely rapid defrost.
- Separate defrost termination thermostat and fan delay thermostat, allowing ideal location for each function.
- Heater safety control, preventing over-heating of coil.
- Screw type terminal blocks are provided for easy wiring.

OPTIONAL FEATURES

- High efficiency PSC fan motors.
- 460 volt motors and heaters.
- Coated aluminum fins or copper fins.
- Baked white enamel housing.
- High throw plastic fan guard may be substituted in lieu of the wire fan guard for up to 50 foot air throw.
- Reheat kits (not UL).
- Factory mounted Expansion valves.

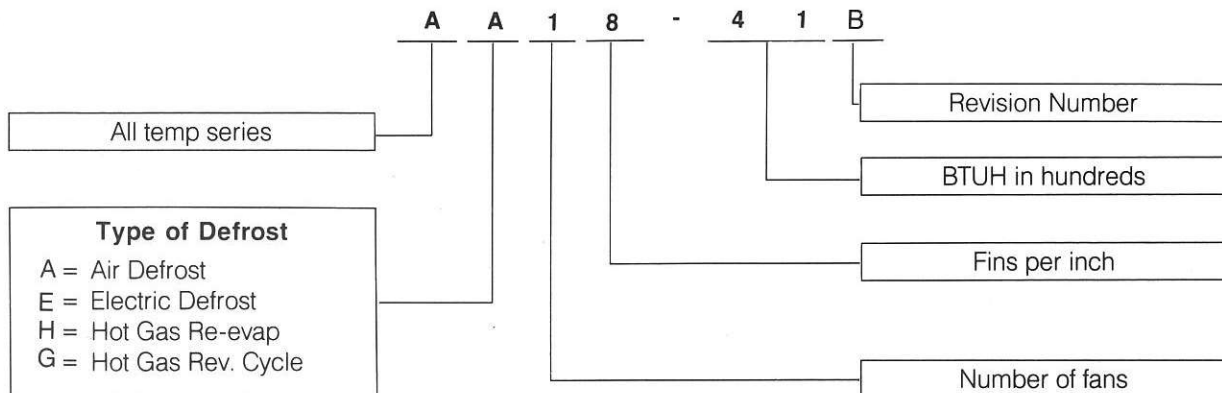
Air Defrost/Specifications

	Model Number	BTUH Capacity @ 20° S.T.		CFM	Total Fan Motor AMPS - 1 Phase				
		10° TD	12° TD		Standard Motor			Optional PSC Motor	
					115V	230V	460V	115V	230V
8 FPI	AA18-41 B	4100	4900	800	2.0	1.0	0.5	1.0	0.5
	AA18-53 B	5300	6400	770	2.0	1.0	0.5	1.0	0.5
	AA18-66 B	6600	7900	740	2.0	1.0	0.5	1.0	0.5
	AA28-76 B	7600	9100	1460	4.0	2.0	1.0	2.0	1.0
	AA28-97 B	9700	11600	1420	4.0	2.0	1.0	2.0	1.0
	AA28-106 B	10600	12700	1540	4.0	2.0	1.0	2.0	1.0
	AA28-122 B	12200	14600	1380	4.0	2.0	1.0	2.0	1.0
	AA28-134 B	13400	16100	1480	4.0	2.0	1.0	2.0	1.0
	AA38-160 B	16000	19200	2310	6.0	3.0	1.5	3.0	1.5
	AA38-195 B	19500	23400	2220	6.0	3.0	1.5	3.0	1.5
	AA48-212 B	21200	25400	3080	8.0	4.0	2.0	4.0	2.0
	AA48-264 B	26400	31700	2960	8.0	4.0	2.0	4.0	2.0
6 FPI	AA58-275 B	27500	33000	3850	10.0	5.0	2.5	5.0	2.5
	AA68-318 B	31800	38200	4620	12.0	6.0	3.0	6.0	3.0
	AA68-390 B	39000	46800	4440	12.0	6.0	3.0	6.0	3.0
	AA16-39 B	3900	4700	830	2.0	1.0	0.5	1.0	0.5
	AA16-48 B	4800	5800	800	2.0	1.0	0.5	1.0	0.5
	AA16-58 B	5800	7000	780	2.0	1.0	0.5	1.0	0.5
	AA26-70 B	7000	8400	1540	4.0	2.0	1.0	2.0	1.0
	AA26-87 B	8700	10400	1500	4.0	2.0	1.0	2.0	1.0
	AA26-115 B	11500	13800	1560	4.0	2.0	1.0	2.0	1.0
	AA36-145 B	14500	17400	2400	6.0	3.0	1.5	3.0	1.5
	AA36-170 B	17000	20400	2340	6.0	3.0	1.5	3.0	1.5
	AA46-192 B	19200	23000	3200	8.0	4.0	2.0	4.0	2.0
4 FPI	AA46-230 B	23000	27600	3120	8.0	4.0	2.0	4.0	2.0
	AA56-245 B	24500	29400	4000	10.0	5.0	2.5	5.0	2.5
	AA66-295 B	29500	35400	4800	12.0	6.0	3.0	6.0	3.0
	AA66-345 B	34500	41400	4680	12.0	6.0	3.0	6.0	3.0
	AA14-42 B	4200	5000	830	2.0	1.0	0.5	1.0	0.5
	AA24-84 B	8400	10100	1660	4.0	2.0	1.0	2.0	1.0
	AA24-105 B	10500	12600	1620	4.0	2.0	1.0	2.0	1.0
	AA34-130 B	13000	15600	2490	6.0	3.0	1.5	3.0	1.5
AA44-170 B	17000	20400	3320	8.0	4.0	2.0	4.0	2.0	
AA54-215 B	21500	25800	4150	10.0	5.0	2.5	5.0	2.5	
AA64-255 B	25500	30600	4980	12.0	6.0	3.0	6.0	3.0	

Ordering Information Required

- (1) Model number
- (2) Voltage, frequency and phase of motors and heaters (when applicable)
- (3) Refrigerant type
- (4) Evaporator temperature
- (5) Evaporator T.D.

Model Numbering System



Features

The Russell All-Temp²B is the original low profile unit-cooler that has established an industry standard as being the all purpose design for walk-in coolers, freezers and other applications. It is an air draw-through design featuring air, electric and hot gas defrost models.

■ Sizes

There are 35 sizes available, ranging from 3,700 to 39,000 BTUH at 10° TD, ranging from 740 to 4,980 cfm. One through six fan models are available.

■ Housing

Rust-free, heavy gauge, textured aluminum casing is light weight yet durable. Each fan section is baffled to prevent short cycling of the air. The unit is designed to mount flush to the ceiling and meets all NSF requirements. Slotted hangers are provided for easy installation. Drain fittings are installed in the horizontal position to gain more usable headroom in low ceiling application. Optional expansion valves can be conveniently installed inside the cabinet.

■ Coil

Seamless copper tubes are staggered and mechanically expanded into corrugated aluminum fins and heavy gauge tube sheets to achieve maximum heat transfer and strength. Die formed fin collars provide even fin spacing. Fin spacings available are 4, 6 and 8 fins per inch.

■ Motors

All motors are 1/20 HP, permanently lubricated, ball bearing, with thermal overload protection. Available in 115V, 208/230V and optional 460V, single phase. Optional high efficiency PSC motors are also available in 115V and 230V.

■ Fans

Heavy duty 12" aluminum fans are balanced to provide vibration-free operation. The standard wire fan guard is ideal for even air distribution for up to 25 feet and is corrosion protected with a baked on powder coating. Optional high air throw plastic fan guards are also available for applications that require air throw up to 50 feet.

■ Electrical

Available in 115V, 208/230V and 460V (see page 4). All components are factory wired to convenient screw-type terminal strips. A large compartment is supplied internal to the unit for all electrical components and, is easily accessible by removing the end panel. All models are UL listed.

■ Air Defrost

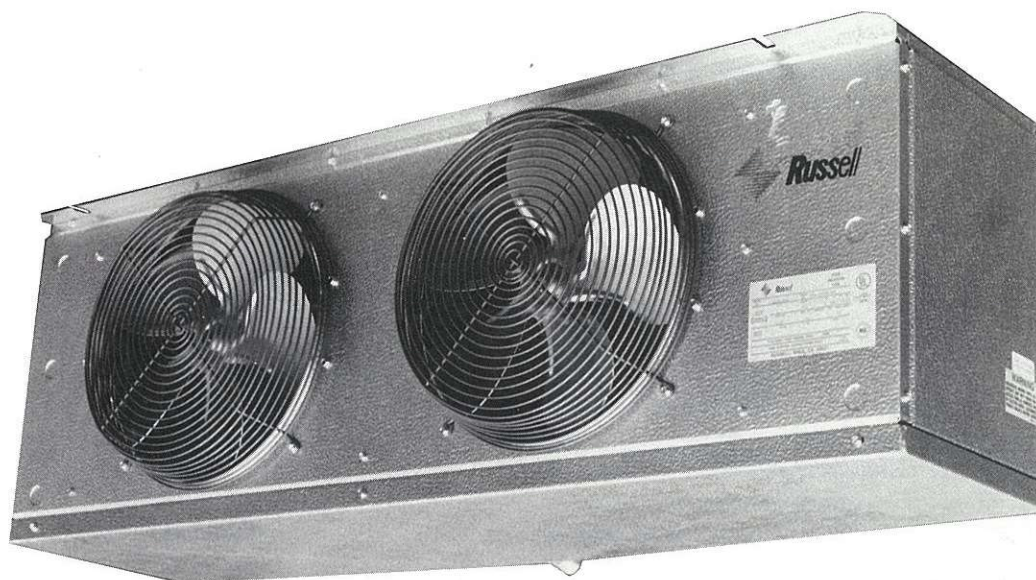
All models with the prefix "AA" are designed for use in coolers of 35°F and warmer. Complete air defrost systems for off-cycle or timed air defrost are available from Russell.

■ Electric Defrost

Available on all models with the prefix "AE". Designed for use where electric heat is used to defrost. Placement of the heaters internal to the coil allow for an extremely rapid and efficient defrost. This arrangement enables the heat to be conducted through the fins from the center out for an even defrost pattern. All heaters are wired to a terminal strip to allow a quick field change-over from single phase to three phase, 230V to 460V and vice versa. A lower heater is installed close to the drain pan for fast, reliable drainage. A defrost termination thermostat (DT) terminates the defrost cycle when the temperature is satisfied. A heater safety thermostat is installed to prevent heaters from overheating above 75° in case of DT failure. All heaters are flexible and can be easily replaced within 12 inches of the end of the unit. A fan delay thermostat is supplied to allow the warm coil to cool after a defrost cycle prior to the fans turning on. Complete electric defrost refrigeration systems are available from Russell.

■ Hot Gas Defrost

Two types available — Re-Evap models with the prefix "AH" and reverse cycle with the prefix "AG". All models include a fixed DTFD factory wired and a hot gas drain pan circuit to defrost the drain pan. On all hot models, the drain fitting is located on the left-hand rear of the unit when facing the fan guards. Re-Evap models include a Heat Exchanger/Re-Evaporator shipped together with unit for field installation. Complete Re-Evap Refrigeration Systems are available from Russell. Refer to the current HG Technical Bulletin for piping information.



Electric Defrost Kits

Model	1 Unit Cooler Per System		2 Unit Coolers Per System		3 Unit Coolers Per System	
	230V	460V	230V	460V	230V	460V
AE 16-36B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 16-41B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 16-46B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 26-60B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 26-75B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 26-92B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 36-120B	ED-10	ED-12	ED-20	ED-22	ED-33	ED-32
AE 36-140B	ED-10	ED-12	ED-20	ED-22	ED-33	ED-32
AE 46-164B	ED-10	ED-12	ED-23	ED-22	ED-35	ED-32
AE 46-185B	ED-10	ED-12	ED-23	ED-22	ED-35	ED-32
AE 56-210B	ED-11	ED-12	ED-23	ED-22	ED-35	ED-34
AE 66-245B	ED-11	ED-12	ED-23	ED-22	ED-35	ED-34
AE 66-280B	ED-11	ED-12	ED-23	ED-22	ED-35	ED-34
AE 14-37B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 24-72B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 24-85B	ED-10	ED-12	ED-20	ED-22	ED-30	ED-32
AE 34-105B	ED-10	ED-12	ED-20	ED-22	ED-33	ED-32
AE 44-140B	ED-10	ED-12	ED-23	ED-22	ED-35	ED-32
AE 54-180B	ED-11	ED-12	ED-23	ED-22	ED-35	ED-34
AE 64-215B	ED-11	ED-12	ED-23	ED-22	ED-35	ED-34

Electric defrost kits consist of components that are necessary to control the defrost cycle. The optional kits are available as parts for field installation or as a factory installed option when ordered with a Russell condensing unit. The contents of these kits are described below along with the function of each component.

Electric Defrost Kit Components

KIT NO.	TIMER	AUXILIARY SWITCH	BLOCK-OUT RELAY	DEFROST CONTACTOR	FAN CONTACTOR	SEQUENCING RELAY
ED10-230/1	1	—	1-30A	—	—	—
ED11-230/3	1	1	—	1-30A	—	—
ED12-460/3	1	1	—	1-30A	1-25A	—
ED20-230/1	1	—	1-30A	—	—	2
ED22-460/3	1	1	—	2-15A	1-25A	2
ED23-230/1	1	1	—	2-25A	—	2
ED23-230/3	1	1	—	2-25A	—	2
ED30-230/1	1	—	1-30A	—	—	3
ED32-460/3	1	1	—	3-10A	1-25A	3
ED33-230/1	1	1	—	3-16A	—	3
ED34-460/3	1	1	—	3-16A	1-25A	3
ED35-230/1	1	1	—	3-33A	—	3
ED35-230/3	1	1	—	3-33A	—	3

Timer: Initiates the defrost cycle. Also used as override protection for defrost termination.

Auxiliary Switch: Is mounted on the compressor contactor and prevents the defrost contactor from operating whenever the compressor is energized.

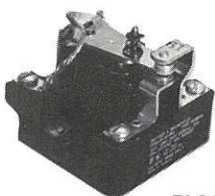
Block-Out Relay: Serves the same function as auxiliary switch. Used when defrost contactor is not required (lower wattage single phase only).

Defrost Contactor: Carries amperage load for heaters.

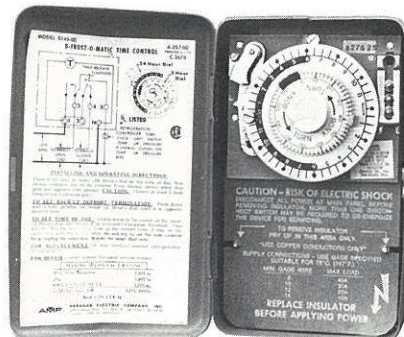
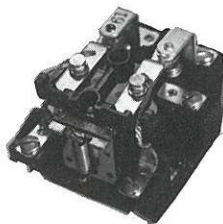
Fan Contactor: Used with 460V motors or when 230V motors are wired 3 phase./

Sequencing Relays: Provides interconnection of multiple unit coolers on a single system so that each unit cooler is allowed to individually terminate defrost on temperature.

SEQUENCING RELAY



BLOCK-OUT RELAY



TIMER



DEFROST CONTACTOR

FAN CONTACTOR



AUXILIARY SWITCH

Electric Defrost/Specifications

Model Number	BTUH Capacity @ 10° T.D. @ Evaporator Temperature				CFM	Motor Amps ¹			Heater Amps ²			Watts	
	-30°	-20°	-10°	+20°		Standard		PSC	208/230V		460V		
						230V	460V	230V	1 PH	3 PH	1 PH		
6 FPI	AE 16-36B	3400	3600	3700	3900	830	1.0	0.5	0.5	4.4	2.6	2.2	1000
	AE 16-41B	3900	4100	4300	4800	800	1.0	0.5	0.5	4.4	2.6	2.2	1000
	AE 16-46B	4400	4600	4800	5800	780	1.0	0.5	0.5	4.4	2.6	2.2	1000
	AE 26-60B	5700	6000	6200	7000	1540	2.0	1.0	1.0	7.0	6.0	3.5	1600
	AE 26-75B	7100	7500	7800	8700	1500	2.0	1.0	1.0	7.0	6.0	3.5	1600
	AE 26-92B	8700	9200	9600	11500	1560	2.0	1.0	1.0	8.7	7.5	4.4	2000
	AE 36-120B	11400	12000	12500	14500	2400	3.0	1.5	1.5	13.0	11.3	6.4	3000
	AE 36-140B	13300	14000	14600	17000	2340	3.0	1.5	1.5	13.0	11.3	6.4	3000
	AE 46-164B	15000	16400	17100	19200	3200	4.0	2.0	2.0	17.4	15.1	8.7	4000
	AE 46-185B	17600	18500	19200	23000	3120	4.0	2.0	2.0	17.4	15.1	8.7	4000
	AE 56-210B	20000	21000	21800	24500	4000	5.0	2.5	2.5	—	18.8	10.9	5000
	AE 66-245B	23300	24500	25500	29500	4800	6.0	3.0	3.0	—	22.6	13.0	6000
AE 66-280B	26600	28000	29100	34500	4680	6.0	3.0	3.0	—	22.6	13.0	6000	
4 FPI	AE 14-37B	3500	3700	3800	4200	830	1.0	0.5	0.5	4.4	2.6	2.2	1000
	AE 24-72B	6800	7200	7500	8400	1660	2.0	1.0	1.0	8.7	7.5	4.4	2000
	AE 24-85B	8100	8500	8800	10500	1620	2.0	1.0	1.0	8.7	7.5	4.4	2000
	AE 34-105B	10000	10500	10900	13000	2490	3.0	1.5	1.5	13.0	11.3	6.4	3000
	AE 44-140B	13300	14000	14600	17000	3320	4.0	2.0	2.0	17.4	15.1	8.7	4000
	AE 54-180B	17100	18000	18700	21500	4150	5.0	2.5	2.5	—	18.8	10.9	5000
	AE 64-215B	20400	21500	22400	25500	4980	6.0	3.0	3.0	—	22.6	13.0	6000

- (1) All fan motors are wired for single phase. Standard motors are shaded pole. High efficiency PSC (Permanent Split Capacitor) motors are optional.
- (2) For 208/230 Volt models, heaters are wired as standard for single phase on 1 through 4 fan models. 5 and 6 models are wired 3 phase. 460 Volt models are only available in single phase and are compatible with all 3 phase systems.

Hot Gas Defrost/Specifications

Model Number	BTUH Capacity @ 10° T.D. @ Evaporator Temperature				CFM	Fan Motor Amps ¹					Re-Evap HEA Unmtd.		
	Re-Evap	Rev. Cycle	-30°	-20°		-10°	+20°	Standard				PSC	
								115V	230V	460V		115V	230V
6 FPI	AH 16-36B	AG 16-36B	3400	3600	3700	3900	830	2.0	1.0	0.5	1.0	0.5	1A
	AH 16-41B	AG 16-41B	3900	4100	4300	4800	800	2.0	1.0	0.5	1.0	0.5	1A
	AH 16-46B	AG 16-46B	4400	4600	4800	5800	780	2.0	1.0	0.5	1.0	0.5	1A
	AH 26-60B	AG 26-60B	5700	6000	6200	7000	1540	4.0	2.0	1.0	2.0	1.0	2A
	AH 26-75B	AG 26-75B	7100	7500	7800	8700	1500	4.0	2.0	1.0	2.0	1.0	2A
	AH 26-92B	AG 26-92B	8700	9200	9600	11500	1560	4.0	2.0	1.0	2.0	1.0	2A
	AH 36-120B	AG 36-120B	11400	12000	12500	14500	2400	6.0	3.0	1.5	3.0	1.5	3A
	AH 36-140B	AG 36-140B	13300	14000	14600	17000	2340	6.0	3.0	1.5	3.0	1.5	3A
	AH 46-164B	AG 46-164B	15600	16400	17100	19200	3200	8.0	4.0	2.0	4.0	2.0	3A
	AH 46-185B	AG 46-185B	17600	18500	19200	23000	3120	8.0	4.0	2.0	4.0	2.0	3A
	AH 56-210B	AG 56-210B	20000	21000	21800	24500	4000	10.0	5.0	2.5	5.0	2.5	3A
	AH 66-245B	AG 66-245B	23300	24500	25500	29500	4800	12.0	6.0	3.0	6.0	3.0	4A
AH 66-280B	AG 66-280B	26600	28000	29100	34500	4680	12.0	6.0	3.0	6.0	3.0	4A	
4 FPI	AH 14-37B	AG 14-37B	3500	3700	3800	4200	830	2.0	1.0	0.5	1.0	0.5	1A
	AH 24-72B	AG 24-72B	6800	7200	7500	8400	1660	4.0	2.0	1.0	2.0	1.0	2A
	AH 24-85B	AG 24-85B	8100	8500	8800	10500	1620	4.0	2.0	1.0	2.0	1.0	2A
	AH 34-105B	AG 34-105B	10000	10500	10900	13000	2490	6.0	3.0	1.5	3.0	1.5	2A
	AH 44-140B	AG 44-140B	13300	14000	14600	17000	3320	8.0	4.0	2.0	4.0	2.0	3A
	AH 54-180B	AG 54-180B	17100	18000	18700	21500	4150	10.0	5.0	2.5	5.0	2.5	3A
	AH 64-215B	AG 64-215B	20400	21500	22400	25500	4980	12.0	6.0	3.0	6.0	3.0	3A

- (1) All fan motors are wired for single phase.

Physical Data

Models		TXV Type	Refrigerant Connections			No. Of Hangers	Dimensions (Inches)				Ship Wt. (lbs.)
AA	AE/AH/AG		Liquid	Suction	HG ¹		A	B	C	W	
18-41B	—	INT	1/2 FN	1/2 ODS	—	2	19	—	—	27 1/2	43
18-53B	—	INT	1/2	1/2	—	2	19	—	—	27 1/2	46
18-66B	—	INT	1/2	1/2	—	2	19	—	—	27 1/2	50
28-76B	—	EXT	1/2	1/2	—	2	33	—	—	41 1/2	64
28-97B	—	EXT	1/2	7/8	—	2	33	—	—	41 1/2	69
28-106B	—	EXT	1/2	7/8	—	2	37	—	—	45 1/2	71
28-122B	—	EXT	1/2	7/8	—	2	33	—	—	41 1/2	74
28-134B	—	EXT	1/2	7/8	—	2	37	—	—	45 1/2	77
38-160B	—	EXT	1/2	1 1/8	—	2	55	—	—	63 1/2	110
38-195B	—	EXT	1/2	1 1/8	—	2	55	—	—	63 1/2	120
48-212B	—	EXT	1/2	1 1/8	—	3	36 1/2	36 1/2	—	81 1/2	145
48-264B	—	EXT	1/2	1 1/8	—	3	36 1/2	36 1/2	—	81 1/2	160
58-275B	—	EXT	1/2	1 1/8	—	3	54 1/2	36 1/2	—	99 1/2	230
68-318B	—	EXT	1/2	1 1/8	—	4	36 1/2	36	36 1/2	117 1/2	255
68-390B	—	EXT	1/2	1 1/8	—	4	36 1/2	36	36 1/2	117 1/2	275
16-39B	16-36	INT	1/2 FN	1/2 ODS	5/8 ODS	2	19	—	—	27 1/2	41
16-48B	16-41	INT	1/2	1/2	5/8	2	19	—	—	27 1/2	44
16-58B	16-46	EXT	1/2	1/2	5/8	2	19	—	—	27 1/2	47
26-70B	26-60	EXT	1/2	7/8	5/8	2	33	—	—	41 1/2	61
26-87B	26-75	EXT	1/2	7/8	5/8	2	33	—	—	41 1/2	67
26-115B	26-92	EXT	1/2	7/8	5/8	2	37	—	—	45 1/2	74
36-145B	36-120	EXT	1/2	7/8	5/8	2	55	—	—	63 1/2	105
36-170B	36-140	EXT	1/2	1 1/8	5/8	2	55	—	—	63 1/2	115
46-192B	46-164	EXT	1/2	1 1/8	5/8	3	36 1/2	36 1/2	—	81 1/2	140
46-230B	46-185	EXT	1/2	1 1/8	5/8	3	36 1/2	36 1/2	—	81 1/2	155
56-245B	56-210	EXT	1/2	1 1/8	5/8	3	54 1/2	36 1/2	—	99 1/2	225
66-295B	66-245	EXT	1/2	1 1/8	5/8	4	36 1/2	36	36 1/2	117 1/2	250
66-345B	66-280	EXT	1/2	1 1/8	5/8	4	36 1/2	36	36 1/2	117 1/2	270
14-42B	14-37	INT	1/2 FN	1/2 ODS	5/8 ODS	2	19	—	—	27 1/2	42
24-84B	24-72	EXT	1/2	7/8	5/8	2	37	—	—	45 1/2	67
24-105B	24-85	EXT	1/2	7/8	5/8	2	37	—	—	45 1/2	72
34-130B	34-105	EXT	1/2	7/8	5/8	2	55	—	—	63 1/2	100
44-170B	44-140	EXT	1/2	7/8	5/8	3	36 1/2	36 1/2	—	81 1/2	135
54-215B	54-180	EXT	1/2	1 1/8	5/8	3	54 1/2	36 1/2	—	99 1/2	220
64-255B	64-215	EXT	1/2	1 1/8	5/8	4	36 1/2	36	36 1/2	117 1/2	245

(1) Hot gas connections only apply to the AH models

Installation Notes:

- Install 12" away from back wall.
- Drain connection on AA and AE units are centered on drain pan; and on the left end (facing air discharge) on AH and AG units.
- For small enclosures, specify the low air throw fan guard.

