

STANDARD EFFICIENCY PACKAGE GAS / ELECTRIC UNIT – 50 Hz. 52.8 – 87.9 kW (15 to 25 Tons)

FEATURES / BENEFITS

- Designed for durability in any climate, the weather-resistant cabinets are constructed of galvanized steel, bonderized, and all exterior panels are coated with a prepainted baked enamel finish.
- All units fit one size roof curb.
- All units feature base rail design with forklift slots and rigging holes for easier maneuvering.
- The units can be easily converted from a vertical to a horizontal discharge configuration by using the horizontal supply/return adapter roof curbs.
- Dual, electrically and mechanically independent refrigerant circuits.
- Scroll compressors on each circuit.
- TXV refrigerant metering devices.
- Pre-painted galvanized steel cabinet for long life and quality appearance.
- Non-corrosive, sloped condensate drain pans meet ASHRAE 62-99.
- Fifty-one mm (2-in.) air filters
- Totally enclosed condenser-fan motors and permanently lubricated bearings provide additional unit dependability.
- Tubular, dimpled gas heat exchangers optimize heat transfer for improved efficiency.



UNIT PERFORMANCE DATA (400V-3Ph-50Hz)

Model Number *	COOLING	HEATING		Unit Dimensions Inches (mm) H X W X L	Operating Weight lbs (kg)
	Nominal Capacity Ton (kW)	Input kW (Btuh) Stage 2 / Stage 1*	Efficiency (Steady State) (AFUE) Std.		
PGS180Z261A	15 (52.8)	76.5 / 47.5 (261,000 / 162,000)	81	47-1/4" x 86-1/8" x 87-3/8" (1200 x 2188 x 2218)	1710 (776)
PGS240Z308A	20 (70.3)	90.3 / 58.6 (308,000 / 200,000)	81	47-1/4" x 86-1/8" x 87-3/8" (1200 x 2188 x 2218)	1950 (885)
PGS300Z308A	25 (87.9)	90.3 / 58.6 (308,000 / 200,000)	81	47-1/4" x 86-1/8" x 87-3/8" (1200 x 2188 x 2218)	2100 (953)

* All units are 2 stage heat

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MODEL NUMBER IDENTIFICATION GUIDE							
MODEL NUMBER	P	G	S	180	Z	261	A
PRODUCT FAMILY Package Units							Sales Code
TYPE H = Heat Pump A = Air Conditioner		G = Gas/Electric					GAS HEATING OPTIONS (BTUH) 261 = 261,000 308 = 308,000
DESIGN SERIES S = Standard Efficiency						Z = 400-3-50	VOLTAGE / PHASE / HERTZ
							COOLING CAPACITY (NOMINAL BTUH) 180 = 15 Ton 240 = 20 Ton 300 = 25 Ton

UNIT SPECIFICATIONS – MODELS			
COOLING	PGS180Z	PGS240Z	PGS300Z
ARI Rated Capacity Btuh (Net)	180,000	240,000	300,000
Nominal Tons	15	20	25
Standard CFM	6,000	8,000	10,000
Base Unit Operating Weights (lbs)	1710	1950	2100
ELECTRICAL			
Volts/ 3 Phase/ 50Hertz	400		
Voltage Range Min/Max	360 / 440		
Power Supply MCA	47 / 52	63 / 68	72 / 77
Power Supply MOCP*	60	80	90 / 100
COMPRESSOR		SCROLL	
(Quantity)...Model	(2)...ZR108KC	(1)...ZR16M3, (1) ZR125KC	(1)...ZR19M3, (1) ZR16M3
No. of Circuits	2		
RLA / LRA	Circuit #1	15.5 / 111	21.8 / 167
	Circuit #2	15.5 / 111	17.2 / 118
Oil (Oz.) per circuit	106	136, 106	136
REFRIGERATION TYPE		R-22	
Expansion Device	TXV		
Operating Charge (lb. oz.) **	CKT 1 = 10-10 CKT 2 = 10-10	CKT 1 = 14-14 CKT 2 = 12-10	CKT 1 = 20-0 CKT 2 = 13-5
CONDENSER FAN		Propeller Type	
Nominal CFM	14,200		
Quantity..Diameter (in.)	2...30		
Motor Hp...RPM (each)	1...1075		
Watts Input (Total)	3400		
FLA	3.4		
CONDENSER COIL		Cross Hatched 3/8 in. Copper Tubes, Aluminum Lanced, Aluminum Pre-Coated, or Copper Plate Fins	
Rows...Fin/In.	2...17	3...15	4...15
Total Face Area (Sq. Ft.)	21.7		
EVAPORATOR COIL		Cross Hatch 3/8 in. Copper Tubes, Aluminum Lanced, or Copper Plate Fins, Face Split	
Rows...Fin/In.	2...17	3...15	4...15
Total Face Area (sq. ft.)	17.5		
EVAPORATOR FAN		Centrifugal Type	
Quantity...Size (in.)	2...10 x 10	2...12 x 12	
Type Drive	Belt		
Nominal CFM	6000	8000	10,000
Motor Hp, RPM, Max. Continuous Bhp	3.7, 1438, 4.25	7.5, 1455, 10.3	10, 1450, 13.3
FLA (Each)	5.4	12.1	14.0
Motor Frame Size	56H	213T	215T
Fan RPM Range	743-983	769-909	888-1069
Motor Bearing	Ball		Ball
Maximum Allowable RPM	1550		
Motor Pulley Pitch / Diameter Min/Max. (in.)	3.1-4.1	5.5-6.5	4.9-5.9
Motor Shaft Diameter (in.)	7/8	1-3/8	
Fan Pulley Pitch Diam (in)	6.0	10.4	8.0
Belt, Quantity...Type... Length (in.)	1.BX.42	1.BX.54	2.BX.50
Pulley Center Line Distance (in)	13.5-15.5	14.6-15.4	
Speed Change per Full Turn of Movable Pulley Flange (RPM)	48	28	36
Pulley Max. full Turns From Closed Postion	5		
Factory Setting	3.5	3	
Factory Speed Setting RPM	815	825	960
Nominal Fan Shaft Diam.	13/16		1-1/16
SEE LEGENDS AND NOTES ON FOLLOWING PAGES			

UNIT SPECIFICATIONS (CONT)		MODELS		
FURNACE SECTION		PGS180Z	PGS240Z	PGS300Z
Rollout Switch Cutout Temp (°F) +		190		
Burner Orifice Diameter (in. .drill size) Natural Gas		0.1285...30/0.136...29		
Thermostat Heat Anticipator Setting (amps)				
400 v	Stage 1	0.8		
400 v	Stage 2	0.44		
Gas Input (Btuh)				
Stage 2 / Stage 1		261,000 / 162,000	308,000 / 200,000	
Output Capacity (Btuh)		210,000	247,900	
Efficiency (Steady State) (%) AFUE		81		
Temperature Rise Range °C (°F)		17-33 (30-60)	11-28 (20-50)	11-28 (20-50)
Manifold Pressure (in. wg)				
Natural Gas		2.7		
Gas Valve Quantity		1		
Gas Valve Pressure Range		0.199-0.487		
	Psig			
	in. wg	5.5-13.5		
Field Gas Connection Size (in.)		3/4		
HIGH-PRESSURE SWITCH (psig)				
Internal Relief (Differential) Cutout		426		
Reset (Auto.)		320		
LOSS-OF-CHARGE SWITCH (psig) (LOW-PRESS.)				
Cutout		27		
Reset (Auto.)		44		
FREEZE PROTECTION THERMOSTAT (°F)				
Opens		30 +/- 5		
Closes		45 +/- 5		
RETURN-AIR FILTERS (THROWAWAY)				
Quantity...Size (in.)		4...20 x 20 x 2		
		4...16 x 20 x 2		

LEGEND

Bhp = Brake Horsepower
 TXV = Thermostatic Expansion Valve
 Bels - Sound Levels
 EER - Energy Efficiency Ratio
 IPLV - Integrated Part Load Values
 MCA - Minimum Circuit Amps
 MOCP - Maximum Over-current Protection
 FLA - Full Load Amps
 LRA - Locked Rotor Amps
 RLA - Rated Load Amps

* Fuse or HACR circuit breaker

**Circuit 1 uses the lower portion of the condenser coil and lower portion of the evaporator coils; and Circuit 2 uses the upper portion of both coils. +Rollout switch is manual reset.

NOTE: The PGS180-240 units have a low-pressure switch (standard) located on the suction side.

NOTE: Minimum allowable temperature of mixed-air entering the heat exchanger during first-stage heating is 45° F. There is no minimum mixed-air temperature limitation during second-stage heating. For entering-air temperatures below 45° F both stages of heat must be energized together to minimize condensation issues and ensure proper unit operation.

NOTES:

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

2. Unbalanced 3-Phase Supply Voltage

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

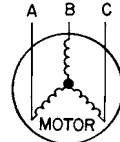
% Voltage Imbalance

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

LEGENDS AND NOTES

NOTES: 1. Rated in accordance with ARI Standards 210/240, latest revision (for sizes 090 & 120) or 360, latest revision (for size 150).
 2. ARI ratings are net values, reflecting the effects of circulating fan heat.
 3. Ratings are based on:
 Cooling Standard: 80° F db, 67° F wb indoor entering air temperature and 95° F db air entering outdoor unit.
 IPLV Standard: 80° F db, 67F wb indoor entering air temperature and 80° F db entering air temperature.

EXAMPLE: Supply voltage is 460-3-60.



AB = 452 v Average Voltage = $\frac{452 + 464 + 455}{3}$
 BC = 464 v
 AC = 455 v
 = $\frac{1371}{3}$
 = 457

Determine maximum deviation from average voltage.

(AB) 457 - 452 = 5 V

(BC) 464 - 457 = 7 V

(AB) 457 - 455 = 2 V

Maximum deviation is 7 v.

Determine percent voltage imbalance.

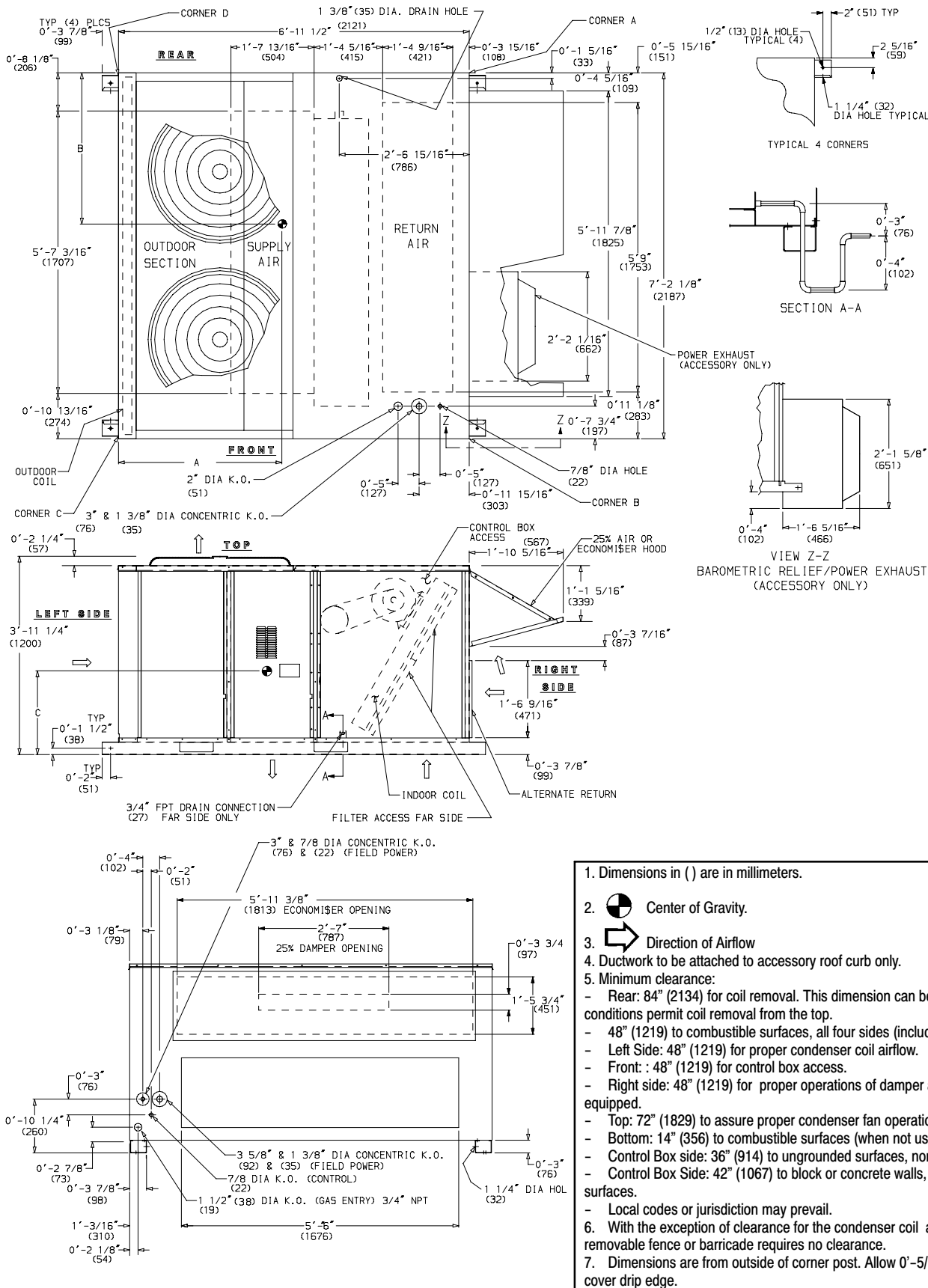
% Voltage Imbalance = $100 \times \frac{7}{457} = 1.53\%$

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

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

PGS180Z BASE UNIT DIMENSIONS

Unit	Unit Weight		Economizer		Corner A		Corner B		Corner C		Corner D		Dim. A		Dim. B		Dim. C	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	ft-in	mm	ft-in	mm	ft-in	mm
PGS180Z	1710	776	110	50	414	188	380	172	438	199	479	217	3-3	991	3-6	1067	1-8	508



1. Dimensions in () are in millimeters.
2. Center of Gravity.
3. Direction of Airflow
4. Ductwork to be attached to accessory roof curb only.
5. Minimum clearance:
 - Rear: 84" (2134) for coil removal. This dimension can be reduced to 48" (1219) if conditions permit coil removal from the top.
 - Left Side: 48" (1219) for proper condenser coil airflow.
 - Front: 48" (1219) for control box access.
 - Right side: 48" (1219) for proper operations of damper and power exhaust if so equipped.
 - Top: 72" (1829) to assure proper condenser fan operation.
 - Bottom: 14" (356) to combustible surfaces (when not using curb).
 - Control Box side: 36" (914) to ungrounded surfaces, non-combustible
 - Control Box Side: 42" (1067) to block or concrete walls, or other grounded surfaces.
 - Local codes or jurisdiction may prevail.
6. With the exception of clearance for the condenser coil as stated in Note 5, a removable fence or barricade requires no clearance.
7. Dimensions are from outside of corner post. Allow 0'-5/16" on each side for top cover drip edge.

EXPANDED PERFORMANCE DATA (COOLING) 15 TON – PGS180Z261A

Temp (°F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm / BF														
		4500/0.12			5250/0.14			6000/0.15			6750/0.17			7500/0.18		
		Evaporator Air — Ewb (°F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
	TC	167	182	200	172	188	206	177	193	209	180	195	211	184	197	213
75	SHC	142	121	98	154	129	104	162	137	109	171	147	118	180	154	125
	kW	11.3	11.7	13.3	11.5	11.9	13.4	11.6	12.0	13.5	11.7	12.0	13.6	11.7	12.1	13.6
	TC	162	177	193	167	182	198	171	186	204	175	189	206	178	191	209
85	SHC	139	118	96	150	126	101	159	134	107	168	141	113	176	151	116
	kW	12.7	13.0	14.7	12.8	13.2	14.9	12.9	13.3	15.0	13.0	13.4	15.1	13.1	13.5	15.2
	TC	157	171	188	162	176	193	165	180	197	169	182	200	172	186	202
95	SHC	137	115	94	147	124	99	157	131	103	166	139	108	172	146	113
	kW	14.1	14.5	16.3	14.3	14.6	16.5	14.4	14.7	16.6	14.5	14.9	16.7	14.6	15.0	16.8
	TC	148	162	177	153	166	180	156	169	184	159	172	188	163	174	189
105	SHC	130	111	89	140	119	94	150	126	99	158	133	103	163	140	107
	kW	15.7	16.2	18.1	15.9	16.3	18.3	16.0	16.4	18.4	16.1	16.5	18.5	16.2	16.6	18.6
	TC	139	152	166	143	155	170	146	158	173	150	161	174	153	163	177
115	SHC	125	106	85	135	113	90	144	121	94	150	127	98	154	134	104
	kW	17.4	17.9	18.4	17.6	18.0	18.6	17.7	18.1	18.7	17.9	18.3	18.7	18.0	18.3	18.8
	TC	133	145	159	136	148	163	140	151	165	143	154	166	147	155	169
120	SHC	121	102	82	131	110	86	139	117	91	144	124	95	148	129	101
	kW	18.4	18.9	19.4	18.5	19.0	19.6	18.7	19.1	19.8	18.8	19.2	19.8	18.9	19.3	19.8
	TC	127	138	151	130	141	—	134	144	—	137	146	—	140	148	—
125	SHC	117	99	81	126	106	—	134	113	—	138	119	—	142	125	—
	kW	19.3	19.7	20.3	19.4	19.9	—	19.6	20.1	—	19.7	20.1	—	19.9	20.1	—

LEGEND

- BF — Bypass Factor
- Edb — Entering Dry Bulb Temperature (F)
- Ewb — Entering Wet Bulb Temperature (F)
- kW — Compressor Motor Power Input
- SHC — Sensible Heat Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 80 F db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

$$\text{Corrected SHC}_{\text{Btuh}} = \text{SHC} + [1.10 \times (1 - \text{BF}) \times (\text{F}_{\text{db}} - 80) \times \text{cfm}]$$

Observe the rule of sign. Above 80 F, SHC correction will be positive; add it to SHC. Below 80 F, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{F}_{\text{fdb}} = \text{F}_{\text{edb}} - \frac{\text{SHC}_{\text{Btuh}}}{1.09 \times \text{cfm}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{Lwb}).

$$h_{\text{Lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{Btuh}}}{4.50 \times \text{cfm}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (Btu/lb).

EXPANDED PERFORMANCE DATA (COOLING) 20 TON – PGS240Z308A

Temp (°F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm / BF														
		6000/0.075			7000/0.085			8000/0.10			9000/0.11			10,000/0.12		
		Evaporator Air — Ewb (°F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
	TC	219.5	242.0	262.6	224.9	248.0	268.8	229.2	252.8	274.0	233.3	256.1	277.5	238.0	258.8	280.5
75	SHC	188.0	158.6	125.9	203.2	169.6	132.7	217.0	180.7	139.3	229.5	191.1	146.1	237.6	201.7	152.0
	KW	15.1	15.6	16.5	15.2	15.8	16.7	15.4	15.9	16.9	15.5	16.0	17.0	15.7	16.1	17.1
	TC	211.9	233.6	253.5	217.1	239.6	259.8	221.4	243.8	264.6	225.2	246.8	267.9	231.3	249.5	270.6
85	SHC	184.5	154.9	122.7	199.3	166.7	129.6	212.9	177.0	136.1	224.0	187.2	142.3	230.7	197.6	148.5
	KW	16.7	17.2	18.2	16.9	17.4	18.5	17.0	17.6	18.6	17.2	17.7	18.7	17.4	17.8	18.8
	TC	204.1	224.9	244.2	208.8	229.9	249.8	213.0	234.0	253.9	217.6	236.8	256.9	222.9	239.1	259.7
95	SHC	180.8	151.7	119.4	194.9	162.7	126.3	208.3	173.2	132.7	217.2	183.0	138.7	222.4	193.4	144.8
	KW	18.5	19.0	20.1	18.7	19.2	20.3	18.8	19.3	20.4	19.0	19.4	20.5	19.1	19.5	20.6
	TC	194.5	215.0	233.7	199.5	219.8	238.9	203.8	223.0	242.7	209.6	225.6	245.5	214.3	227.6	248.0
105	SHC	176.2	147.8	115.7	190.4	158.7	122.5	202.5	168.7	128.8	209.3	179.6	134.9	213.8	189.0	141.0
	KW	20.3	20.8	22.0	20.5	21.0	22.2	20.6	21.1	22.3	20.8	21.2	22.4	21.0	21.3	22.6
	TC	185.1	204.6	222.6	189.8	208.9	227.3	194.8	211.8	230.6	200.4	214.0	233.2	204.6	215.8	235.2
115	SHC	171.5	143.3	111.9	185.2	154.7	118.5	194.3	164.9	124.5	199.9	174.3	130.7	204.2	183.3	136.6
	KW	22.1	22.7	23.9	22.3	22.8	24.1	22.5	23.0	24.2	22.7	23.1	24.3	22.9	23.2	24.4
	TC	174.9	193.1	—	179.9	196.7	—	185.3	199.5	—	190.6	201.4	—	194.7	202.8	—
125	SHC	166.2	138.7	—	178.5	149.5	—	184.9	160.3	—	190.2	169.4	—	194.0	177.7	—
	KW	24.0	24.6	—	24.2	24.7	—	24.4	24.9	—	24.6	25.0	—	24.8	25.0	—

LEGEND

- BF — Bypass Factor
- Edb — Entering Dry Bulb Temperature (F)
- Ewb — Entering Wet Bulb Temperature (F)
- KW — Compressor Motor Power Input
- SHC — Sensible Heat Capacity (1000 Btuh)
- TC — Total Capacity (1000 Btuh)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 80 F db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

Corrected SHC_{Btuh}
 = SHC + [1.10 x (1 - BF) x (F_{db} - 80) x cfm]

Observe the rule of sign. Above 80 F, SHC correction will be positive; add it to SHC. Below 80 F, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$F_{kdb} = F_{edb} - \frac{SHC_{Btuh}}{1.09 \times cfm}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{lwb}).

$$h_{lwb} = h_{ewb} - \frac{TC_{Btuh}}{4.50 \times cfm}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (Btu/lb).

EXPANDED PERFORMANCE DATA (COOLING) 25 TON – PGS300Z308A

Temp (° F) Air Entering Condenser (Edb)		Evaporator Air Quantity — Cfm/BF														
		7000/0.05			8000/0.06			9000/0.07			10,000/0.08			11,250/0.09		
		Evaporator Air — Ewb (° F)														
		62	67	72	62	67	72	62	67	72	62	67	72	62	67	72
75	TC	270.9	298.9	329.5	277.1	305.7	336.5	282.2	310.5	342.2	286.2	313.6	346.8	292.5	318.6	350.0
	SHC	231.2	195.1	158.8	247.7	207.1	165.1	264.4	219.8	174.6	278.8	234.5	181.9	292.1	247.9	194.1
	kW	20.1	20.8	21.6	20.3	21.0	21.8	20.4	21.2	22.0	20.6	21.3	22.2	20.8	21.5	22.3
85	TC	261.5	288.5	317.7	267.1	295.0	324.2	272.5	300.2	329.8	276.5	304.2	334.8	283.5	308.4	338.2
	SHC	226.8	190.8	153.6	243.1	202.9	161.9	257.9	214.6	168.8	272.2	226.7	176.0	283.3	240.5	185.9
	kW	22.2	23.0	23.8	22.4	23.2	24.0	22.6	23.4	24.2	22.8	23.5	24.4	23.0	23.7	24.5
95	TC	251.5	277.2	305.1	256.6	283.3	311.0	261.9	287.3	316.5	266.4	291.9	320.8	274.0	295.4	325.0
	SHC	221.8	186.4	150.1	237.9	198.3	157.1	252.7	211.0	164.2	265.2	221.3	171.0	273.7	235.0	181.0
	kW	24.6	25.3	26.1	24.7	25.5	26.3	24.9	25.7	26.5	25.1	25.8	26.7	25.4	26.0	26.9
105	TC	240.6	265.7	291.4	245.5	270.5	297.8	250.7	274.6	302.2	256.0	277.9	305.7	263.4	281.4	308.6
	SHC	215.9	181.8	145.2	231.9	192.9	152.5	245.8	205.0	159.2	255.9	216.1	166.5	263.2	229.5	176.0
	kW	27.0	27.8	28.6	27.2	28.0	28.8	27.4	28.1	29.0	27.6	28.3	29.2	27.9	28.4	29.3
115	TC	229.0	252.4	277.3	233.5	256.9	281.5	239.0	260.6	285.4	245.2	263.7	—	252.0	267.0	—
	SHC	211.2	176.8	140.0	225.9	187.6	147.1	238.3	199.4	153.4	245.0	210.6	—	251.9	223.2	—
	kW	29.5	30.3	31.1	29.7	30.5	31.3	30.0	30.7	31.5	30.2	30.8	—	30.5	31.0	—
118	TC	225.6	248.0	—	230.0	252.3	—	235.1	255.3	—	240.9	257.5	—	247.2	—	—
	SHC	209.6	175.1	—	223.9	186.0	—	234.7	197.4	—	240.5	208.6	—	247.1	—	—
	kW	30.3	31.1	—	30.5	31.2	—	30.7	31.4	—	31.0	31.5	—	31.2	—	—
120	TC	222.6	—	—	227.4	—	—	233.6	—	—	239.0	—	—	—	—	—
	SHC	208.0	—	—	222.5	—	—	233.3	—	—	239.0	—	—	—	—	—
	kW	30.8	—	—	31.0	—	—	31.3	—	—	31.5	—	—	—	—	—

LEGEND

- BF** — Bypass Factor
- Edb** — Entering Dry Bulb Temperature (F)
- Ewb** — Entering Wet Bulb Temperature (F)
- kW** — Compressor Motor Power Input
- SHC** — Sensible Heat Capacity (1000 Btuh)
- TC** — Total Capacity (1000 Btuh)

NOTES:

1. Ratings are gross, and do not account for the effects of the evaporator-fan motor power and heat.
2. Direct interpolation is permissible. Do not extrapolate.
3. SHC is based on 80 F db temperature of air entering the unit. At any other temperature, correct the SHC read from the table of cooling capacities as follows:

$$\text{Corrected SHC}_{\text{Btuh}} = \text{SHC} + [1.10 \times (1 - \text{BF}) \times (\text{F}_{\text{db}} - 80) \times \text{cfm}]$$

Observe the rule of sign. Above 80 F, SHC correction will be positive; add it to SHC. Below 80 F, SHC correction will be negative; subtract it from SHC.

4. Formulas:

$$\text{F}_{\text{ldb}} = \text{F}_{\text{edb}} - \frac{\text{SHC}_{\text{Btuh}}}{1.09 \times \text{cfm}}$$

Leaving wet bulb = wet bulb temperature corresponding to enthalpy of air leaving coil (h_{Lwb}).

$$h_{\text{Lwb}} = h_{\text{ewb}} - \frac{\text{TC}_{\text{Btuh}}}{4.50 \times \text{cfm}}$$

Where h_{ewb} is enthalpy of air entering evaporator coil (Btu/lb).

PGS SERIES EVAPORATOR FAN PERFORMANCE

PGS180Z (15 TONS) (LOW HEAT UNITS)

Air-flow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	809	1.53	1317	906	1.74	1502	994	1.96	1690	1078	2.18	1882	1156	2.41	2077	1230	2.64	2275
4800	850	1.76	1516	942	1.98	1706	1027	2.20	1899	1107	2.43	2094	1183	2.66	2293	1255	2.89	2495
5100	892	2.01	1733	979	2.24	1928	1061	2.46	2125	1138	2.70	2325	1211	2.93	2528	1281	3.17	2733
5400	934	2.28	1970	1017	2.52	2169	1096	2.75	2371	1170	2.99	2575	1241	3.22	2781	1309	3.47	2990
5700	976	2.58	2225	1058	2.82	2429	1132	3.06	2635	1204	3.30	2843	1272	3.54	3053	1338	3.79	3266
6000	1019	2.90	2500	1096	3.14	2709	1168	3.38	2919	1238	3.63	3131	1304	3.88	3345	1368	4.13	3562
6300	1063	3.24	2795	1136	3.49	3008	1206	3.74	3223	1273	3.99	3439	1337	4.24	3657	—	—	—
6600	1106	3.61	3111	1177	3.86	3329	1244	4.11	3547	1309	4.37	3767	—	—	—	—	—	—
6900	1150	4.00	3448	1218	4.26	3670	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

PGS180Z (15 TONS) (LOW HEAT UNITS) (cont)

Air-flow (cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1301	2.87	2477	1369	3.11	2683	1434	3.35	2891	1497	3.47	2997	1497	3.60	3103
4800	1324	3.13	2700	1390	3.37	2909	1454	3.62	3120	1515	3.74	3226	1515	3.87	3334
5100	1349	3.41	2942	1413	3.66	3153	1475	3.90	3367	1535	4.03	3475	1535	4.16	3584
5400	1374	3.71	3202	1437	3.96	3416	1498	4.21	3633	—	—	—	—	—	—
5700	1402	4.04	3481	1463	4.29	3699	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

See Legend and Notes below.

PGS180Z (15 TONS) (HIGH HEAT UNITS)

Air-flow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watt s	Rpm	Bhp	Watt s	Rpm	Bhp	Watt s	Rpm	Bhp	Watt s	Rpm	Bhp	Watt s	Rpm	Bhp	Watt s
4500	819	1.55	1335	914	1.76	1518	1001	1.98	1705	1083	2.20	1894	1160	2.42	2088	1234	2.65	2284
4800	861	1.78	1538	951	2.00	1726	1035	2.22	1916	1113	2.45	2110	1188	2.68	2307	1259	2.91	2507
5100	904	2.04	1759	989	2.26	1952	1069	2.49	2147	1145	2.72	2345	1218	2.95	2545	1287	3.17	2749
5400	947	2.32	1999	1028	2.55	2197	1105	2.78	2396	1179	3.01	2598	1248	3.25	2802	1315	3.49	3009
5700	990	2.62	2259	1068	2.85	2461	1142	3.09	2665	1213	3.33	2871	1280	3.57	3079	1345	3.81	3289
6000	1034	2.94	2539	1109	3.18	2745	1180	3.42	2953	1248	3.67	3163	1313	3.91	3375	1376	4.16	3589
6300	1078	3.29	2840	1150	3.54	3050	1218	3.78	3262	1284	4.03	3476	1348	4.28	3692	—	—	—
6600	1123	3.67	3161	1192	3.91	3376	1258	4.16	3592	—	—	—	—	—	—	—	—	—
6900	1167	4.06	3504	1234	4.32	3723	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

PGS180Z(15 TONS) (HIGH HEAT UNITS) (cont)

Air-flow (cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
4500	1304	2.88	2484	1371	3.12	2688	1435	3.36	2895	1467	3.48	2999	1497	3.60	3104
4800	1327	3.14	2711	1393	3.38	2917	1456	3.62	3126	1486	3.75	3232	1517	3.87	3338
5100	1353	3.43	2955	1417	3.67	3165	1478	3.92	3377	1508	4.04	3484	1537	4.16	3582
5400	1380	3.73	3219	1442	3.98	3432	1502	4.23	3646	1531	4.35	3755	—	—	—
5700	1408	4.06	3503	1468	4.31	3718	—	—	—	—	—	—	—	—	—
6000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6300	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6600	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
6900	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7200	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
7500	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

FIOF — Factory—Installed Option

Watts — Input Watts to Motor

*Standard drive range for Low—Medium static drive on PGS180Z is 743 to 983 rpm. Standard drive range for the High static drive on the PGS180Z is 1023 to 1300 rpm. Other rpms require a field—supplied drive.

NOTES:

1. Maximum continuous bhp is 4.25. The maximum continuous watts is 3775. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
2. Static pressure losses (i.e., economizer) must be added to external static pressure before entering fan performance table.
3. Interpolation is permissible. Do not extrapolate.
4. Fan performance is based on wet coils, clean filters, and casing losses. See page 32 for accessory/FIOF static pressure information.
5. Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
6. Use of a field—supplied motor may affect wiring size. Contact your representative for details.

PGS240Z (20 TONS) (LOW HEAT UNITS)

Air-flow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	755	2.27	1908	831	2.58	2171	901	2.91	2443	968	3.24	2723	1031	3.58	3009	1091	3.93	3302
6,000	810	2.72	2287	881	3.04	2556	947	3.37	2833	1010	3.71	3116	1070	4.05	3406	1127	4.40	3702
6,500	866	3.22	2710	932	3.55	2985	994	3.88	3266	1054	4.23	3554	1111	4.57	3847	1166	4.93	4146
7,000	923	3.78	3177	985	4.11	3458	1044	4.45	3744	1100	4.80	4036	1155	5.15	4333	1207	5.51	4635
7,500	980	4.39	3690	1038	4.73	3976	1094	5.07	4267	1148	5.43	4564	1200	5.78	4864	1250	6.15	5170
8,000	1038	5.06	4251	1093	5.40	4542	1146	5.75	4838	1197	6.11	5138	1246	6.47	5443	1294	6.84	5752
8,500	1096	5.78	4859	1148	6.13	5156	1198	6.49	5456	1247	6.85	5761	1294	7.22	6070	1340	7.59	6382
9,000	1154	6.56	5517	1204	6.92	5818	1251	7.28	6123	1298	7.65	6432	1343	8.02	6745	1388	8.40	7062
9,500	1213	7.40	6224	1260	7.77	6531	1306	8.13	6840	1350	8.51	7154	1394	8.88	7471	1436	9.26	7791
10,000	1272	8.30	6983	1317	8.67	7294	1360	9.05	7608	1403	9.43	7926	1445	9.81	8247	1486	10.19	8570

PGS240Z (20 TONS) (LOW HEAT UNITS) (cont)

Air-flow (cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	1149	4.28	3602	1204	4.65	3907	1258	5.02	4217	1284	5.20	4375	1309	5.39	4533
6,000	1183	4.76	4003	1236	5.13	4310	1288	5.50	4622	1313	5.68	4780	1337	5.87	4939
6,500	1219	5.29	4450	1270	5.66	4759	1320	6.03	5073	1344	6.22	5232	1368	6.41	5391
7,000	1258	5.88	4942	1307	6.25	5253	1355	6.62	5569	1378	6.81	5729	1402	7.00	5890
7,500	1299	6.52	5480	1346	6.89	5794	1392	7.27	6113	1415	7.46	6273	1437	7.65	6435
8,000	1341	7.21	6065	1387	7.59	6383	1392	7.97	6704	1453	8.16	6866	1475	8.36	7028
8,500	1385	7.97	6699	1429	8.35	7019	1472	8.73	7343	1493	8.93	7506	1514	9.12	7670
9,000	1431	8.78	7382	1473	9.15	7705	1515	9.55	8032	1535	9.75	8196	—	—	—
9,500	1478	9.65	8114	1519	10.04	8441	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

See Legend and Notes below.

PGS240Z (20 TONS) (HIGH HEAT UNITS)

Air-flow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	795	2.43	2043	866	2.74	2306	934	3.07	2578	998	3.40	2856	1059	3.74	3142	1117	4.08	3434
6,000	854	2.92	2452	921	3.24	2722	984	3.57	2998	1044	3.90	3281	1102	4.25	3570	1158	4.60	3865
6,500	914	3.46	2909	977	3.79	3184	1036	4.12	3465	1093	4.46	3752	1148	4.81	4045	1201	5.16	4343
7,000	975	4.06	3414	1034	4.39	3695	1090	4.73	3981	1144	5.08	4272	1196	5.43	4569	1246	5.79	4870
7,500	1037	4.72	3969	1092	5.06	4255	1145	5.41	4546	1196	5.76	4842	1256	6.12	5142	1294	6.48	5447
8,000	1099	5.44	4575	1150	5.79	4866	1201	6.14	5162	1249	6.50	5462	1297	6.86	5766	1343	7.22	6075
8,500	1161	6.22	5232	1210	6.57	5529	1258	6.93	5829	1304	7.29	6134	1349	7.66	6443	1393	8.03	6755
9,000	1223	7.07	5943	1270	7.43	6245	1315	7.79	6550	1360	8.16	6869	1403	8.53	7171	1445	8.90	7487
9,500	1286	7.98	6708	1331	8.34	7014	1374	8.71	7324	1416	9.08	7638	1457	9.46	7954	1498	9.84	8274
10,000	1349	8.95	7528	1392	9.32	7839	1433	9.70	8154	1473	10.07	8471	—	—	—	—	—	—

PGS240Z (20 TONS) (HIGH HEAT UNITS) (cont)

Air-flow (cfm)	Available External Static Pressure (in. wg)														
	1.4			1.6			1.8			1.9			2.0		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
5,500	1173	4.44	3732	1227	4.80	4036	1279	5.17	4345	1304	5.35	4502	1329	5.54	4629
6,000	1211	4.95	4165	1263	5.32	4471	1313	5.69	4782	1337	5.87	4939	1361	6.06	5097
6,500	1252	5.53	4646	1302	5.89	4954	1350	6.26	5267	1373	6.56	5425	1396	6.64	5584
7,000	1295	6.16	5176	1343	6.52	5487	1389	6.90	5802	1412	7.09	5961	1434	7.28	6121
7,500	1340	6.85	5756	1386	7.22	6070	1431	7.60	6387	1452	7.79	6547	1474	7.98	6709
8,000	1388	7.60	6388	1431	7.97	6704	1474	8.35	7024	1495	8.54	7186	1516	8.74	7348
8,500	1436	8.41	7071	1478	8.79	7390	1520	9.17	7713	1540	9.37	7876	—	—	—
9,000	1486	9.28	7807	1527	9.67	8130	—	—	—	—	—	—	—	—	—
9,500	1538	10.2	8597	—	—	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

Bhp — Brake Horsepower

FIOP — Factory—Installed Option

Watts — Input Watts to Motor

*Standard drive range for Low—Medium static drive on PGS240Z is 769 to 909 rpm. Standard drive range for the High static drive on the PGS240Z is 994 to 1216 rpm. Other rpms require a field—supplied drive.

NOTES:

- Maximum continuous bhp is 10.30. The maximum continuous watts is 8640. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
- Static pressure losses (i.e., economizer) must be added to external static pressure before entering fan performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 32 for accessory/FIOP static pressure information.
- Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field—supplied motor may affect wiring size. Contact your representative for details.

PGS300Z (25 TONS) (LOW HEAT UNITS)

Airflow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	941	3.35	2769	1002	3.80	3140	1061	4.27	3528	1117	4.76	3934	1171	5.27	4356	1224	5.80	4794
7,500	999	4.05	3348	1057	4.53	3742	1112	5.02	4152	1166	5.54	4579	1218	6.07	5020	1268	6.63	5478
8,000	1058	4.85	4007	1113	5.35	4424	1165	5.87	4856	1216	6.41	5304	1266	6.97	5766	1314	7.55	6243
8,500	1117	5.74	4750	1169	6.28	5190	1219	6.83	5645	1268	7.40	6114	1315	7.98	6597	1361	8.58	7094
9,000	1177	6.75	5583	1226	7.31	6047	1274	7.89	6524	1320	8.48	7015	1365	9.09	7520	1410	9.72	8037
9,500	1237	7.98	6511	1284	8.46	6999	1329	9.07	7499	1374	9.69	8012	1417	10.33	8538	1459	10.98	9076
10,000	1297	9.12	7450	1342	9.74	8051	1385	10.37	8574	1428	11.02	9110	1469	11.68	9657	1510	12.36	10217
10,500	1358	10.49	8674	1400	11.14	9209	1442	11.80	9755	1483	12.47	10314	1523	13.16	10883	—	—	—
11,000	1418	12.00	9919	1459	12.67	10478	—	—	—	—	—	—	—	—	—	—	—	—
11,250	1449	12.80	10585	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

PGS300Z (25 TONS)* (LOW HEAT UNITS) (cont)

Airflow (cfm)	Available External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	1274	6.35	5248	1323	6.92	5718	1371	5.54	6204
7,500	1316	7.20	6960	1364	7.79	6437	1410	6.41	6939
8,000	1360	8.14	6734	1406	8.76	7239	1450	7.40	7759
8,500	1406	9.20	7605	1449	9.83	8129	1492	8.48	8666
9,000	1453	10.40	8568	1495	11.02	9111	1536	9.69	9667
9,500	1501	11.60	9627	1541	12.32	10190	—	—	—
10,000	—	—	—	—	—	—	—	—	—
10,500	—	—	—	—	—	—	—	—	—
11,000	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—

See Legend and Notes below.

PGS300Z (25 TONS)* (HIGH HEAT UNITS)

Airflow (cfm)	Available External Static Pressure (in. wg)																	
	0.2			0.4			0.6			0.8			1.0			1.2		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	992	4.05	3348	1051	4.44	3688	1106	4.83	3995	1160	5.24	4331	1212	5.65	4675	1262	6.08	5026
7,500	1055	4.77	3947	1110	5.17	4277	1162	5.58	4615	1214	6.00	4960	1263	6.43	5312	1311	6.86	5672
8,000	1118	5.58	4610	1170	5.99	4950	1220	6.41	5298	1268	6.84	5653	1315	7.27	6014	1361	7.72	6382
8,500	1182	6.46	5339	1231	6.88	5690	1278	7.31	6047	1324	7.75	6411	1369	8.20	6782	1413	8.66	7158
9,000	1246	7.42	6136	1292	7.86	6498	1337	8.30	6865	1381	8.75	7239	1424	9.21	7618	1466	9.68	8003
9,500	1310	8.47	7005	1354	8.92	7377	1397	9.83	7754	1439	9.84	8137	1480	10.31	8525	1520	10.79	8918
10,000	1374	9.61	7947	1416	10.07	8329	1457	10.54	8715	1497	11.02	9107	1537	11.50	9504	—	—	—
10,500	1439	10.84	8964	1479	11.32	9356	1518	11.79	9752	—	—	—	—	—	—	—	—	—
11,000	1503	12.17	10059	1542	12.65	10460	—	—	—	—	—	—	—	—	—	—	—	—
11,250	1536	12.86	10636	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Airflow (cfm)	Available External Static Pressure (in. wg)								
	1.4			1.6			1.8		
	Rpm	Bhp	Watts	Rpm	Bhp	Watts	Rpm	Bhp	Watts
7,000	1311	6.51	5385	1359	6.96	5751	1405	6.00	6124
7,500	1358	7.30	6039	1403	7.76	6412	1448	6.84	6792
8,000	1406	8.17	6767	1560	8.63	7137	1492	7.75	7524
8,500	1456	9.12	7541	1498	9.59	7929	1539	8.75	8323
9,000	1507	10.20	8393	1548	10.63	8790	—	—	—
9,500	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—
10,500	—	—	—	—	—	—	—	—	—
11,000	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—

LEGEND

- Bhp — Brake Horsepower
- FIOF — Factory—Installed Option
- Watts — Input Watts to Motor

*Standard drive range for Low—Medium static drive on PGS300Z is 888 to 1069 rpm. Standard drive range for the High static drive on the PGS300Z is 1114 to 1341 rpm. Other rpms require a field—supplied drive.

NOTES:

- Maximum continuous bhp is 13.30. The maximum continuous watts is 11,000. Do not adjust motor rpm such that motor maximum bhp and/or watts is exceeded at the maximum operating cfm.
- Static pressure losses (i.e., economizer) must be added to external static pressure before entering fan performance table.
- Interpolation is permissible. Do not extrapolate.
- Fan performance is based on wet coils, clean filters, and casing losses. See page 32 for accessory/FIOF static pressure information.
- Extensive motor and drive testing on these units ensures that the full brake horsepower and watts range of the motor can be utilized with confidence. Using your fan motors up to the watts or bhp rating shown will not result in nuisance tripping or premature motor failure. Unit warranty will not be affected.
- Use of a field—supplied motor may affect wiring size. Contact your representative for details.

EVAPORATOR FAN DATA FOR PGS180Z, 240Z, 300Z

EVAPORATOR FAN MOTOR PERFORMANCE

UNIT	UNIT RATED VOLTAGE	MAXIMUM ACCEPTABLE CONTINUOUS BHP*	MAXIMUM ACCEPTABLE CONTINUOUS BkW*	MAXIMUM ACCEPTABLE OPERATING WATTS	MAXIMUM AMP DRAW
PGS180Z	400	4.25	3.17	3,775	4.8
PGS240Z	400	10.30	7.68	8,640	13.0
PGS300Z	400	13.30	9.92	11,000	14.6

FAN RPM AT MOTOR PULLEY SETTINGS

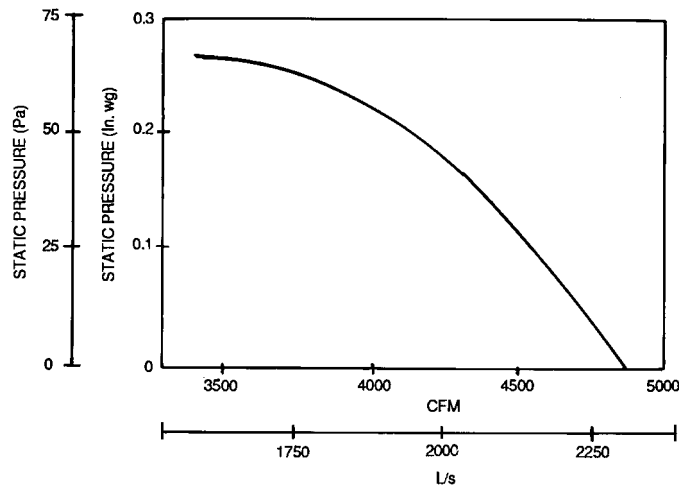
UNIT	MOTOR PULLEY TURNS OPEN*												
	0	1/2	1	1-1/2	2	2-1/2	3	3-1/2	4	4-1/2	5	5-1/2	6
PGS180Z	983	959	935	911	887	863	839	815	791	767	743	*	*
PGS240Z	909	895	881	867	853	839	825	811	797	783	769	*	*
PGS300Z	1069	1051	1033	1015	997	979	960	942	924	906	888	*	*

* Due to belt and pulley size, pulley cannot be set to this many turns open.

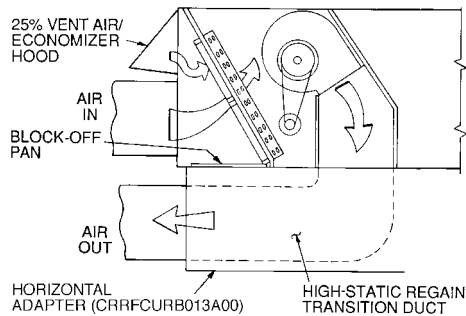
EVAPORATOR FAN MOTOR EFFICIENCY

UNIT PGS	Motor Efficiency
PGS180Z	85.8
PGS240Z	88.5
PGS300Z	89.5

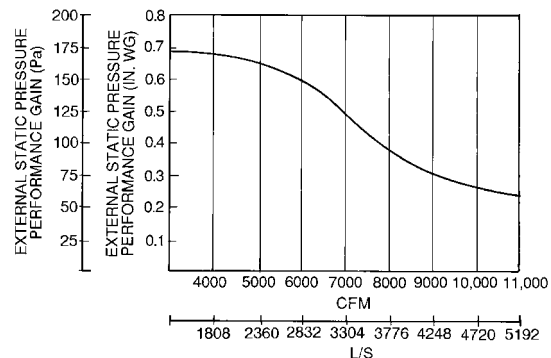
FAN PERFORMANCE USING ACCESSORY POWER EXHAUST



HORIZONTAL SUPPLY/RETURN FAN PERFORMANCE WITH CRRFCURB013A00 HIGH-STATIC REGAIN ADAPTER



NOTE: The CRRFCURB013A00 high-static regain adapter accessory may be used to provide horizontal supply/return.



NOTE: The CRRFCURB013A00 horizontal supply and return adapter accessory improves the PGS fan performance by increasing external static pressure by amount shown above

ALTITUDE COMPENSATION* — PGS180-300Z

ELEVATION		NATURAL GAS ORIFICE SIZE†			
		Low Heat		High Heat	
m	ft	mm	in. ...drill size	mm	in. ...drill size
0-914	0-3,000	3.26	0.1285...30	3.45	0.1360...29
914-2134	3,000-7,000	3.05	0.1200...31	3.26	0.1285...30
2134-2743	7,000-9,000	2.95	0.1160...32	3.05	0.1200...31
2743-3048	9,000-10,000	2.87	0.1130...33	3.05	0.1200...31
above 3048	above 10,000	2.79	0.1100...35	2.95	0.1160...32

*Includes a 4% input reduction per each 304.8 m (1,000 feet).

†Orifices available through your Dealer.

ALTITUDE DERATING FACTOR* — PGS180-300Z

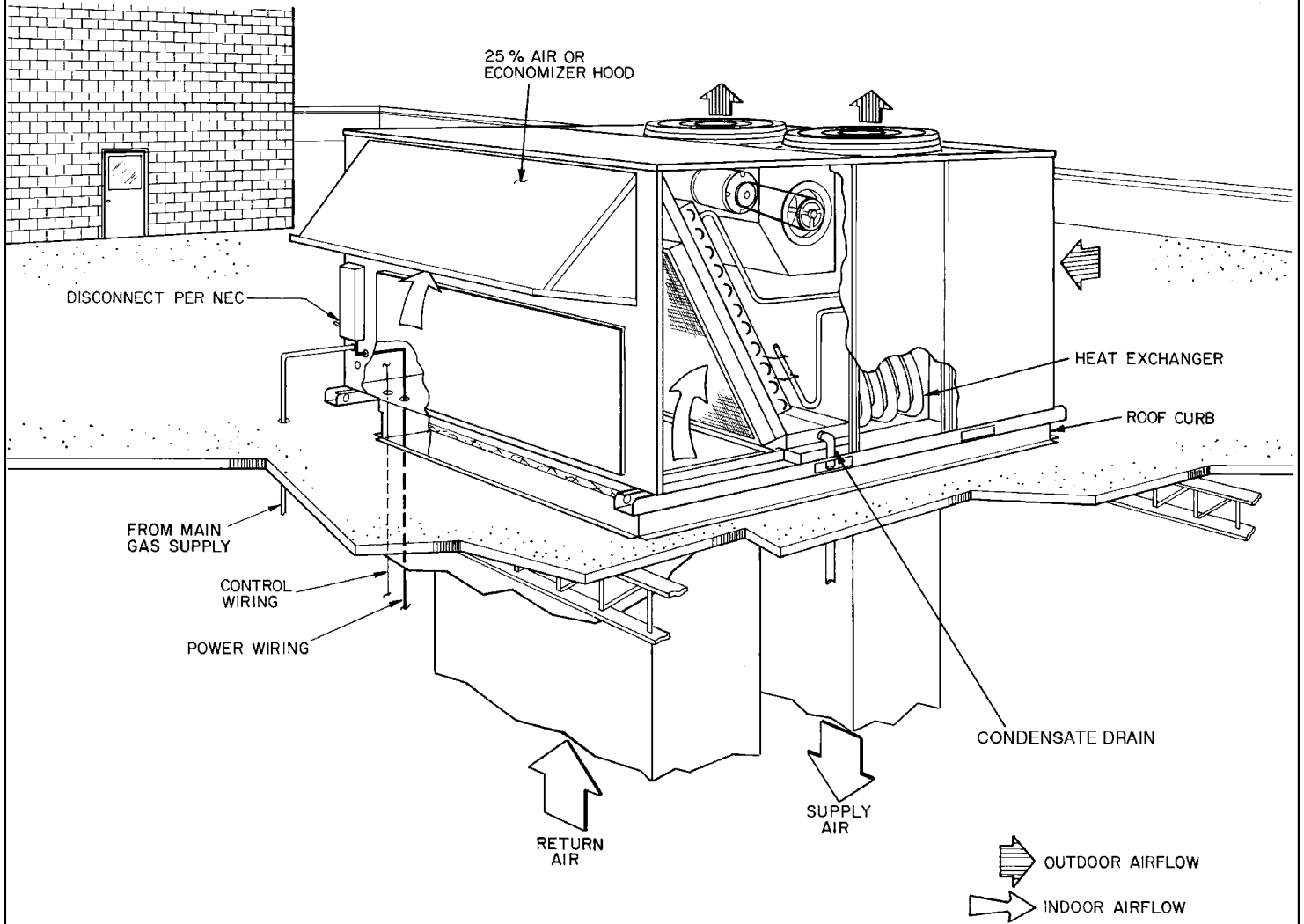
ELEVATION		MAXIMUM HEATING VALUE	
m	ft	MJ/m ³	Btu/ft ³
0-610	0-2,000	40.98	1,100
610-914	2,001-3,000	39.12	1,050
914-1219	3,001-4,000	37.26	1,000
1219-1524	4,001-5,000	35.4	950
1524-1829	5,001-6,000	33.53	900

*Derating of the unit is not required unless the heating value of the gas exceeds the values listed in the table above, or the elevation exceeds 1829 m (6,000 ft). Derating conditions must be 4% per thousand m (ft) above sea level. For example, at 1219 m (4,000 ft), if the heating value of the gas exceeds 37.26 MJ/m³ (1000 Btu/ft³), the unit will require a 16% derating. For elevations above 1829 m (6,000 ft), the same formula applies. For example, at 2134 m (7,000 ft), the unit will require a 28% derating of the maximum heating value per the National Fuel Gas Code (U.S.A. Standard).

**ALTITUDE COMPENSATION — PGS180-300Z
(LP Gas Units)**

ELEVATION		NATURAL GAS ORIFICE SIZE	
		Low and High Heat	
m	ft	mm	in. ...drill size
0-610	0-2,000	2.71	0.1065...36
610	2,000	2.64	0.1040...37
914	3,000	2.58	0.1015...38
1219	4,000	2.58	0.1015...38
1524	5,000	2.53	0.0995...39
1829	6,000	2.49	0.0980...40
2134	7,000	2.44	0.0960...41
2429	8,000	2.44	0.0960...41
2743	9,000	2.37	0.0935...42
3048	10,000	2.26	0.0890...43

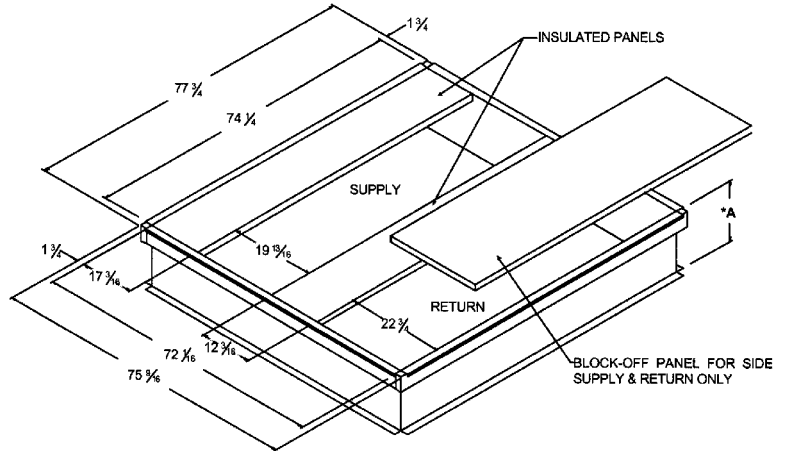
TYPICAL INSTALLATION



ACCESSORIES

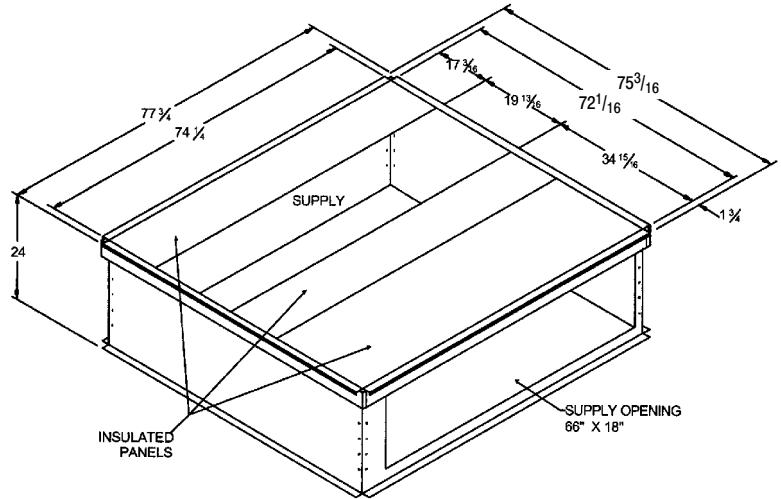
VERTICAL DISCHARGE ROOF CURBS

Description	Model Number	Where Used
14" High	AXB060CMA	180, 240, 300
24" High	AXB060CHA	180, 240, 300



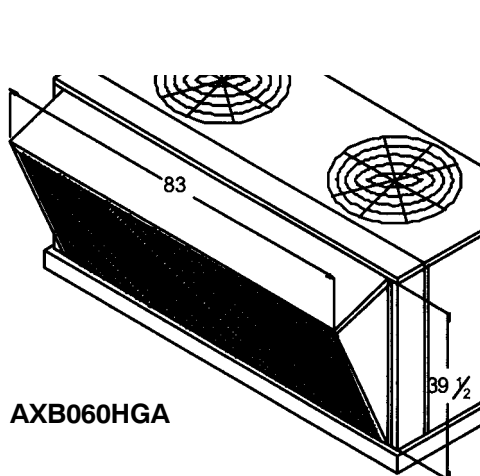
HORIZONTAL DISCHARGE ROOF CURBS

Description	Model Number	Where Used
24" High	AXB065CHA	180, 240, 300
24" High w/ Duct	AXB165CHA	180, 240, 300

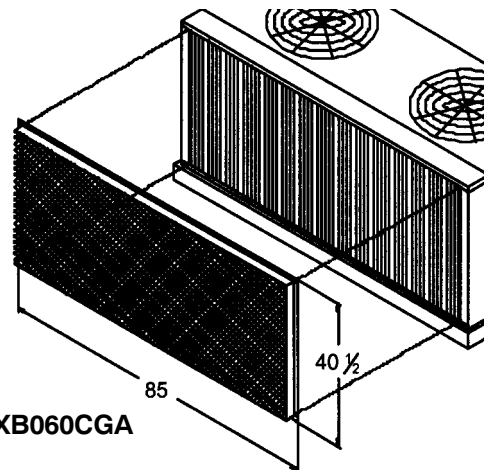


COIL PROTECTION

Description	Model Number	Where Used
Coil Guard	AXB060CGA	180, 240, 300
Hail Guard	AXB060HGA	180, 240, 300



AXB060HGA

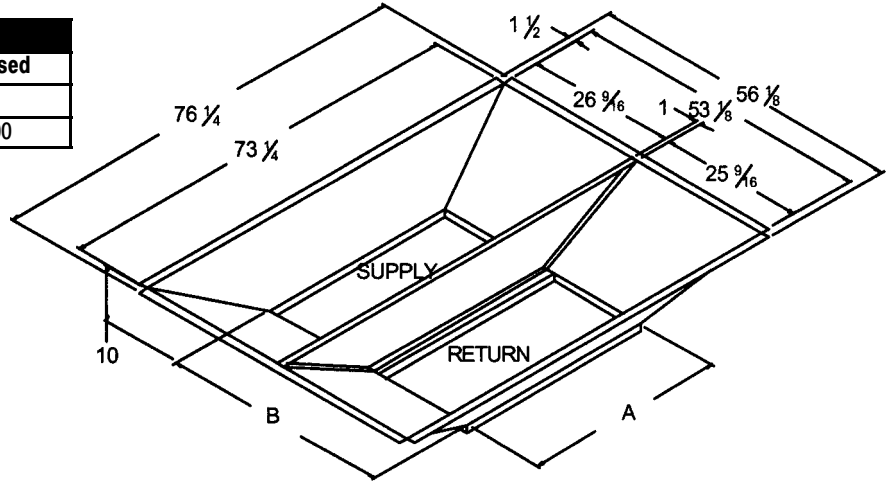


AXB060CGA

ACCESSORIES (CONT.)

CONCENTRIC DUCT KIT

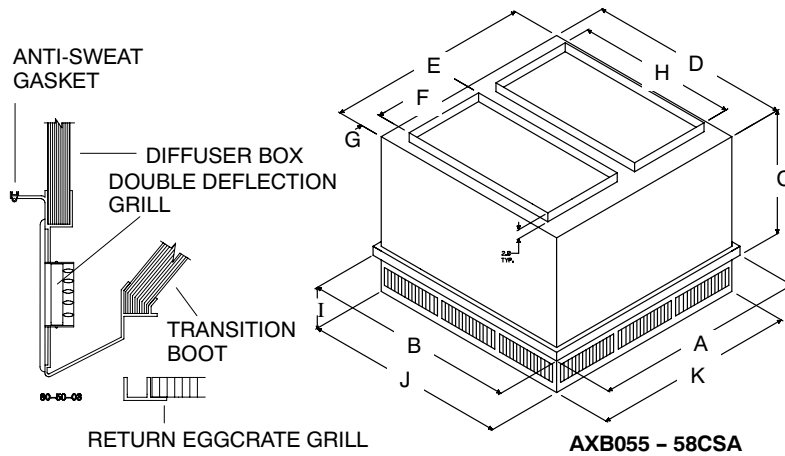
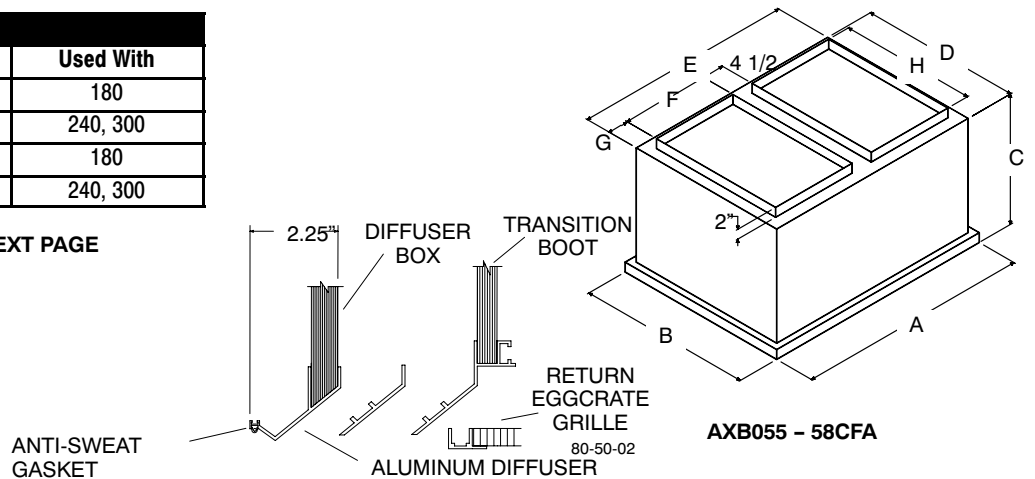
Description	Model Number	Where Used
18" x 36"	AXB160CTA	180
24" x 48"	AXB260CTA	240, 300



CONCENTRIC DIFFUSER

Description	Model Number	Used With
Flush Mount	AXB055CFA	180
Flush Mount	AXB058CFA	240, 300
Step Down	AXB055CSA	180
Step Down	AXB058CSA	240, 300

SEE PERFORMANCE DATA ON NEXT PAGE



DIMENSIONS

Model Number	A	B	C	D	E	F	G	H	I	J	K	Duct Size
AXB055CFA	47-5/8	47-5/8	29-1/4	45	45	18	2-1/4	38	N/A	N/A	N/A	18 x 36
AXB058CFA	59-5/8	59-5/8	35-1/4	57	57	24	2-1/4	48	N/A	N/A	N/A	24 x 48
AXB055CSA	47-5/8	47-5/8	24-5/8	45	45	18	2-1/2	36	10-1/8	45-1/2	45-1/2	18 x 36
AXB058CSA	59-5/8	59-5/8	30-5/8	57-1/2	57-1/2	24	2-1/2	48	11-1/8	57-1/2	57-1/2	24 x 48

ACCESSORIES (CONT.)

CFA SERIES PERFORMANCE DATA						
Part No. AXB	CFM	Static Pressure In. WC	Throw Feet	Neck Velocity FPM	Jet Velocity FPM	db Sound Level
055CFA	5600	.36	28-37	1000	2082	45
	5800	.39	29-38	1036	2156	45
	6000	.42	40-50	1071	2230	45
	6200	.46	42-51	1107	2308	50
	6400	.50	43-52	1143	2379	50
	6600	.54	45-56	1179	2454	50
058CFA	7200	.39	26-35	996	2093	45
	7400	.41	28-37	1024	2151	45
	7600	.43	29-38	1051	2209	45
	7800	.47	40-50	1079	2276	45
	8000	.50	42-51	1107	2326	50
	8200	.53	43-52	1134	2384	50

CSA SERIES PERFORMANCE DATA					
Part No. AXB	CFM	Static Pressure In. WC	Throw Feet	Neck / Jet Velocity FPM	db Sound Levels
055CSA	5600	.36	39-49	920	30
	5800	.39	42-51	954	30
	6000	.42	44-54	1022	30
	6200	.46	45-55	1056	30
	6400	.50	46-55	1090	30
	6600	.54	47-56	1124	30
058CSA	7200	.39	33-38	827	25
	7400	.41	35-40	850	25
	7600	.43	36-41	873	25
	7800	.47	38-43	896	30
	8000	.50	39-44	918	30
	8200	.53	41-46	941	30

CSA/CFA NOTES:

1. All data is based on the Air Diffusion Council guidelines.
2. Throw data is based on Terminal Velocities of 75 FPM using isothermal air.
3. Throw is based on diffuser blades being directed in a straight pattern.
4. Actual sound levels are less than those shown.
5. Minimum height 9' above floor.

7 DAY PROGRAMMABLE COMMERCIAL THERMOSTAT	
Model Number	Used With
1170830	180, 240, 300

FRESH AIR DAMPERS		
Description	Model Number	Used With
35% Motorized	AXB060FMA	180, 240, 300

NATURAL TO LP CONVERSION KIT	
Model Number	Used With
AXB265LPA	180, 240, 300

LOW AMBIENT KIT	
Model Number	Used With
AXB160LAA (10°)	180
AXB260LAA (25°)	240, 300

CONTROLS

OPERATING SEQUENCE

Cooling, Units Without Economizer – When thermostat calls for cooling, terminals G and Y1 are energized. The indoor (evaporator) fan contactor (IFC) and compressor contactor no. 1 (C1) are energized, and evaporator-fan motor (IFM), compressor no. 1, and condenser fan(s) start. The condenser-fan motor(s) runs continuously while unit is cooling. When the thermostat calls for a second stage of cooling by energizing Y2, compressor contactor no. 2 (C2) is energized and compressor no. 2 starts.

Heating, Units Without Economizer

NOTE: The PGS180Z–300Z units have 2 stages of heat. When the thermostat calls for heating, power is sent to W on the IGC (integrated gas unit controller) board. An LED (light-emitting diode) on the IGC board will be on during normal operation. A check is made to ensure that the rollout switch and limit switch are closed. The induced-draft motor is then energized, and when speed is proven with the hall effect sensor on the motor, the ignition activation period begins. The burners will ignite within 5 seconds.

If the burners do not light, there is a 22-second delay before another 5-second attempt. If the burners still do not light, this sequence is repeated for 15 minutes. After the 15 minutes have elapsed, if the burners still have not lighted, heating is locked out. To reset the control, break 24-v power to the thermostat.

When ignition occurs the IGC board will continue to monitor the condition of the rollout and limit switches, the hall effect sensor, as well as the flame sensor. If the unit is controlled through a room thermostat set for fan auto., 45 seconds after ignition occurs, the indoor-fan motor will be energized. If for some reason the overtemperature limit opens prior to the start of the indoor fan blower, on the next attempt, the 45-second delay will be shortened to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once modified, the fan on delay will not change back to 45 seconds unless power is reset to the control.

When additional heat is required, W2 closes and initiates power to the second stage of the main gas valve. When the thermostat is satisfied, W1 and W2 open and the gas valve closes, interrupting the flow of gas to the main burners. If the call for W1 lasted less than 1 minute, the heating cycle will not terminate until 1 minute after W1 became active. If the unit is controlled through a room thermostat set for fan auto., the indoor-fan motor will continue to operate for an additional 45 seconds then stop. If the overtemperature limit opens after the indoor motor is stopped within 10 minutes of W1 becoming inactive, on the next cycle the time will be extended by 15 seconds. The maximum delay is 3 minutes. Once modified, the fan off delay will not change back to 45 seconds unless power is reset to the control.

A LED indicator is provided on the IGC to monitor operation. The IGC is located by removing the side panel and viewing the IGC through the view port located in the control box access panel. During normal operation, the LED is continuously on.

APPLICATION DATA

1. DUCTWORK – Ductwork should be attached to the curb on all units. Interior installation may proceed before unit is set in place on roof. If ductwork will be attached to the unit, do not drill in condensate drain pan area – leaks may result.
2. THRU-THE-CURB SERVICE CONNECTIONS – Roof curb connections allow field power wires, control wires, and gas supply to enter through the roof curb opening.
3. THERMOSTAT – Use of 2-stage cooling thermostat is recommended for all units. A 2-stage cooling thermostat is required on units with accessory economizer to provide integrated cooling.
4. HEATING-TO-COOLING CHANGEOVER – All units are automatic changeover from heating to cooling when automatic changeover thermostat and subbase are used.
5. AIRFLOW – Units are draw-thru on cooling and blow-thru on heating.
6. MAXIMUM AIRFLOW – To minimize the possibility of condensate blow-off from evaporator, airflow through units should not exceed 500 cfm/nominal ton on size 180Z–240Z and 11,250 cfm/nominal ton on size 300Z units.
7. MINIMUM AIRFLOW – The minimum airflow for cooling is 300 cfm/nominal ton on size 180Z–240Z and 280 cfm/nominal ton on size 300Z units.
8. MINIMUM AMBIENT COOLING OPERATION TEMPERATURE – Units are designed to operate at outdoor temperatures down to 40° F.
9. MAXIMUM OPERATING OUTDOOR-AIR TEMPERATURE – For cooling, this temperature is 125° F for 180Z unit, 125° F for 240Z unit, and 118° F for 300Z unit. Refer to Cooling Capacities tables.
10. HIGH ALTITUDE – A change to the gas orifice may be required at high altitudes. Refer to Altitude Compensation charts.
11. MINIMUM TEMPERATURE – Air entering the heat exchanger in heating must be a minimum of 50° F continuous and 45° F intermittent. For entering-air temperatures below 45° F both stages of heat must be energized together to minimize condensation issues and ensure proper unit operation.
12. INTERNAL UNIT DESIGN – Due to the internal unit design (draw-thru over the motor), air path, and specially designed motors, the full horsepower (maximum continuous bhp) listed in the Physical Data table and the notes following each Fan Performance table can be utilized with extreme confidence. Using motors with the values listed in the Physical and Fan Performance Data tables will not result in nuisance tripping or premature motor failure. The unit warranty will not be affected.

GUIDE SPECIFICATIONS: PGS180Z – 300Z

CONDENSER FAN:

The unit shall have a single direct drive propeller fan/motor assembly mounted directly to a vertical-discharge grille panel that is easily removable. Motors shall have permanently lubricated sleeve bearings and inherent overload protection.

EVAPORATOR BLOWER:

The units shall have a single belt driven evaporator blower. The motor shall have permanently lubricated ball bearings and internal overload protection. An adjustable motor drive sheave for matching air flow requirements shall be standard. Additionally high static accessory kits shall be available for air flows above the standard requirement.

HEATING SECTION:

The units shall have aluminized steel tubular heat exchangers located on the discharge side of the evaporator blower and equipped with a two-stage gas valve. The units shall have in-shot burners that are ignited by an electronic spark with flame proving feature and protected by both a limit switch and flame roll-out switch.

COILS:

The evaporator and condenser coils shall be fabricated with aluminum fins mechanically bonded to copper tubing. Both coils shall be pressure tested prior to assembly into the unit and electronically leak tested after assembly onto the unit. The evaporator coil shall be protected from dust and debris on the return air side by factory installed 2" air filters.

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The unit shall have a single direct drive propeller fan/motor assembly mounted directly to a vertical-discharge grille panel that is easily removable. Motors shall have permanently lubricated sleeve bearings and inherent overload protection.

EVAPORATOR BLOWER:

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