Marvair®
AIRXCEL®, Inc.
ISO 9001 2000 REGISTERED COMPANY

GPac
PRODUCT DATA SHEET
Models AVG24-30-36-42-48-60

GPac™ Wall Mounted Air Conditioners with Gas Heat

General Description

The GPac wall mounted air conditioner with gas heat is designed for use on a variety of applications including modular classrooms, relocatable offices and a multitude a permanent buildings. The GPac unit is manufactured in two cabinets with nominal cooling capacities of 2, 2-1/2, 3, 3-1/2, 4, and 5 tons and heating capacities of 45,000; 67,000; 75,000; 90,000; 100,000 and 125,000 BTUHs. The unit is available with a number of factory and field installed options and accessories that permit the user to optimize the unit for specific applications.

All cooling ratings are in accordance with the Air Conditioning and Refrigeration Institute (ARI) Standard 390 for Single Package Vertical Units (SPVU's) and by the Gas Appliance Manufacturer's Association (GAMA) for heating performance and efficiency. The unit is listed by ETL for safety and tested to American National Std/CSA Std for Gas Fired Central Furnaces; ANSI Z 21.47-2003 4th Ed, Addendum "A" to the 4th Ed.

ARI Standard 390

Standard Features

Ease of Installation
- Built-in mounting flanges eliminate need for side brackets.
- Sloped top sheds water, minimizes chance of water leaks and eliminates the need for a rainhood.
- Top flashing piece and bottom mounting bracket provided on all units.
- Electrical knockouts on back and side.
- Gas connection on the right side.
- Power disconnect.

Protection of Refrigeration System Components
- High and low pressure switches.
- Compressor time delay.

Low Ambient Operation in Cooling Mode.
- Condenser fan cycles allowing cooling down to 20°F (-7°C).

Economical Gas Heat
- Factory set up for natural gas with easy conversion in field to propane.
- Natural gas high altitude pressure switch kit allows operation in sites from 6,000 to 10,000 ft. (1,830 m to 3,050 m).
- Propane high altitude pressure switch kit allows operation in sites from 6,000 to 10,000 ft. (1,830 m to 3,050 m).
- Vertical vent pipe kits

Patented Tubular Heat Exchanger with Integral Formed Dimple Turbulator
- Enhanced heat transfer for optimum efficiency
- Quiet – eliminates noise caused by expansion and contraction of internal baffles.

Patented Inshot Gas Burners
- Quiet, clean burning gas inshot burners fire in a direct line with the orifice and the tube.
- Unique carryover design (cross lighting from one burner to another) for immediate lighting.
- Optional stainless steel burner

Standard Features (cont'd)

Direct Spark Ignition Control System with LED Flash Fault Indicator

- Thirty second purge of heat exchanger prior to ignition.
- Three ignition trials before lockout.
- Sixty second post purge at end of operating cycle prevents nusaince trips of rollout switch.
- One hour automatic reset after lockout – eliminates need to manually recycle on lockout.
- LED identifies operating status and simplifies service by flashing fault code.

Ease of Service

- Compressor and electrical box are easily accessible.
- Refrigerant access values allow quick check of refrigerant pressures
- Easily accessible filter.
- LED identifies operating status and simplifies service by flashing fault code in heating mode.

Copper tube, aluminum fin evaporator and condenser coils.

Ventilation Options

- Manual damper capable of up to 15% of rated airflow of outside air; field adjustable, no pressure relief.
- Manual damper capable of 0 to 450 cfm (maximum of 40% of rated airflow) of outside air; field adjustable, no pressure relief.
- Manual damper capable of 0 to 450 cfm (maximum of 40% of rated airflow) of outside air; field adjustable, includes pressure relief.
- Motorized, two position damper (open and closed) capable of 0 to 450 cfm (maximum of 40% of rated airflow) of outside air; includes pressure relief. A 24-volt actuated motor controls the damper from an external input such as: a time clock, CO2 sensor, energy management system or manual switch.
- GreenWheel® total energy recovery ventilator that can recover both sensible and latent heat with efficiencies up to 75%.

Outside Air Ventilation Schedule

Designator*	Outside Air	Pressure Relief	Damper
N	15% of rated air flow	No	Manual
Y	0 to 450 cfm	No	Manual
Z	0 to 450 cfm	Yes	Manual
B	0 to 450 cfm	Yes	Motorized
H	0 to 450 cfm	Yes	GreenWheel® ERV

*See Model Identification Chart.

Factory Installed Economizer

The economizer reduces the cost of air conditioning by using outside air when acceptable to cool the room. The factory installed Marvair economizer has integral pressure relief. On a signal from a thermostat that cooling is required, either mechanical cooling with the compressor or free cooling with the economizer is provided. The Marvair economizer is capable of bringing in outside air equal to 100% of the rated air flow of the unit and has integral pressure relief.

An internal enthalpy controller determines whether the outside air is sufficiently cool and dry to be used for cooling. If suitable, the compressor is de-energized and the economizer damper opens to bring in outside air. The temperature at which the economizer opens is adjustable from 53°F at 50% RH to 78° F at 50 % RH. If the outside air becomes too hot or humid, the economizer damper closes completely or to a minimum position and mechanical cooling is activated. When used with minimum position potentiometer (optional), the Marvair economizer can meet requirements of ASHRAE 62-1999.

Accessories

Grilles for the AVG24-30-36

Supply Grille	28" x 8"	P/N 80675
Return Grille	28" x 14"	P/N 80678
Return Filter Grille*	28" x 14"	P/N 80672

Grilles for the AVG42-48-60

Supply Grille	30" x 10"	P/N 80676
Return Grille	30" x 16"	P/N 80679
Return Filter Grille*	30" x 16"	P/N 80673

*Used when filter is accessed and changed from inside the interior.

Model Identification

AVG ● **AC** ● ●● ●

Air Source
Vertical
Gas

Nominal Cooling
24 = 24,000 BTUH
30 = 30,000 BTUH
36 = 36,000 BTUH
42 = 42,500 BTUH
48 = 48,000 BTUH
60 = 57,000 BTUH

System Type
Air Conditioner

Power Supply
A = 208/230V, 1ø, 60Hz
C = 208/230V, 3ø, 60Hz
D = 460V, 3ø, 60Hz

Heating Input (MBTUH)
045 = 45,000 BTUH
067 = 67,000 BTUH
090 - 90,000 BTUH
075 = 75,000 BTUH
100 = 100,000 BTUH
125 = 125,000 BTUH

Ventilation Configuration
N = 0-15% fresh air with manual damper, no pressure relief.
Y = 0 to 450 cfm of outside air, field adjustable, manual damper, no pressure relief.
Z = 0 to 450 cfm of outside air, field adjustable, manual damper, includes pressure relief.
B = Motorized two position damper (open & closed) capable of 0 to 450 cfm of outside air, includes pressure relief.
C = Economizer; capable of 100% of rated cooling capacity using outside air.
H = GreenWheel® energy recovery ventilator

Heating Capacity Inputs Available

MODEL	Available Heating Inputs
AVG24	45,000 BTUH; 67,000 BTUH; 90,000 BTUH
AVG30	45,000 BTUH; 67,000 BTUH; 90,000 BTUH
AVG36	45,000 BTUH; 67,000 BTUH; 90,000 BTUH
AVG42	75,000 BTUH; 100,000 BTUH; 125,000 BTUH
AVG48	75,000 BTUH; 100,000 BTUH; 125,000 BTUH
AVP60	75,000 BTUH; 100,000 BTUH; 125,000 BTUH

Certified Cooling Efficiency and Capacity Ratings in accordance with ARI Standard 390*

Model	AVG24AC	AVG30AC	AVG36AC	AVG42AC	AVG48AC	AVG60AC
Cooling BTUH	24,000	29,400	36,000	42,500	48,000	57,000
EER	9.00	9.00	10.00	9.20	9.50	9.20
Rated Air Flow (CFM)	840	1000	1050	1550	1600	1650
ESP (inches H_20)	0.15	0.15	0.20	0.15	0.20	0.20
*Ratings at 80°F DB/67°F WB and 95°F outdoor air (26.5°C DB/19.4°C WB and 35°C outdoor)						

Cooling Efficiency and Capacity Ratings in accordance with ARI Standard 210*

Model	AVG24AC	AVG30AC	AVG36AC	AVG42AC	AVG48AC	AVG60AC
Cooling BTUH	24,000	29,400	36,000	42,500	48,000	57,000
SEER	10.10	10.20	11.40	10.25	10.40	10.25
Rated Air Flow (CFM)	840	1000	1050	1550	1600	1650
ESP (inches H_20)	0.15	0.15	0.20	0.15	0.20	0.20
*Ratings at 80°F DB/67°F WB and 95°F outdoor air (26.5°C DB/19.4°C WB and 35°C outdoor)						

Heating Efficiency and Capacity Ratings*

Input	45,000 BTUH	67,500 BTUH	90,000 BTUH	75,000 BTUH	100,000 BTUH	125,000 BTUH
Output	36,000 BTUH	54,000 BTUH	72,000 BTUH	60,000 BTUH	80,000 BTUH	100,000 BTUH
AFUE	80.0	80.0	80.0	80.0	80.0	80.0
Temperature Rise Range (°F)	25 to 55	40 to 70	50 to 80	25 to 55	40 to 70	50 to 80
Mid Range Air Flow (CFM)	840	1000	1220	1450	1450	1450
Acceptable Air Flow Range (CFM)	650 to 1050	750 to 1250	1000 to 1500	925 to 1750	1060 to 1750	1150 to 1750
*Heating ratings in accordance with GAMA Efficiency Certification Program. Temperature rise (°F) at .035" Water Gauge External Static Pressure.						

Natural Gas Heating Capacity by Altitude (ft.)

NATURAL GAS DERATE CAPACITIES - Btu/Hr											
AVG Rated Input	Altitude (Feet)										
	Sea Level	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
40,500	40,500	39,204	37,908	36,612	35,640	34,992	34,182	33,696	33,048	32,643	32,076
45,000	45,000	43,560	42,120	40,680	39,600	38,880	37,980	37,440	36,720	36,270	35,640
60,750	60,750	58,806	56,862	54,918	53,460	52,488	51,273	50,544	49,572	48,965	48,114
67,500	67,500	65,340	63,180	61,020	59,400	58,320	56,970	56,160	55,080	54,405	53,460
75,000	75,000	72,600	70,200	67,800	66,000	64,800	63,300	62,400	61,200	60,450	59,400
81,000	81,000	78,408	75,816	73,224	71,280	69,984	68,364	67,392	66,096	65,286	64,152
90,000	90,000	87,120	84,240	81,360	79,200	77,760	75,960	74,880	73,440	72,540	71,280
100,000	100,000	96,800	93,600	90,400	88,000	86,400	84,400	83,200	81,600	80,600	79,200
112,500	112,500	108,900	105,300	101,700	99,000	97,200	94,950	93,600	91,800	90,675	89,100
125,000	125,000	121,000	117,000	113,000	110,000	108,000	105,500	104,000	102,000	100,750	99,000

Propane (LP) Heating Capacity by Altitude (ft.)

PROPANE (LP GAS) DERATE CAPACITIES - Btu/Hr											
AVG Rated Input	Altitude (Feet)										
	Sea Level	1,000	2,000	3,000	4,000	5,000	6,000	7,000	8,000	9,000	10,000
40,500	40,500	39,852	39,528	39,204	38,556	38,232	37,584	36,612	35,640	34,344	32,724
45,000	45,000	44,280	43,920	43,560	42,840	42,480	41,760	40,680	39,600	38,160	36,360
60,750	60,750	59,778	59,292	58,806	57,834	57,348	56,376	54,918	53,460	51,516	49,086
67,500	67,500	66,420	65,880	65,340	64,260	63,720	62,640	61,020	59,400	57,240	54,540
75,000	75,000	73,800	73,200	72,600	71,400	70,800	69,600	67,800	66,000	63,600	60,600
81,000	81,000	79,704	79,056	78,408	77,112	76,464	75,168	73,224	71,280	68,688	65,448
90,000	90,000	88,560	87,840	87,120	85,680	84,960	83,520	81,360	79,200	76,320	72,720
100,000	100,000	98,400	97,600	96,800	95,200	94,400	92,800	90,400	88,000	84,800	80,800
112,500	112,500	110,700	109,800	108,900	107,100	106,200	104,400	101,700	99,000	95,400	90,900
125,000	125,000	123,000	122,000	121,000	119,000	118,000	116,000	113,000	110,000	106,000	101,000

Orifice and Altitude Selection Tables for Factory Standard Input Models

HMG 22,500 BTUH/ Burner (Used with AVG24- AVG 36 Heat Exchangers)				
	Orifice- Natural		Orifice- Propane	
Altitude	Drill Size	Dia.	Drill Size	Dia.
0-1999 ft	#43	0.089	#54	0.055
2000-2999 ft	2.2	0.0866	1.35	0.531
3000-3999 ft	2.15	0.0846	#55	0.052
4000-4999 ft	2.1	0.0827	1.3	0.0511
5000-5999 ft	#45	0.082	1.25	0.0492
6000-6999 ft	2.05	0.087	1.2	0.0472

HMG 25,000 BTUH/ Burner (Used with AVG42- AVG 60 Heat Exchangers)				
	Orifice- Natural		Orifice- Propane	
Altitude	Drill Size	Dia.	Drill Size	Dia.
0-1999 ft	2.30	0.0906	1.5	0.0591
2000-2999 ft	#43	0.0890	#54	0.0550
3000-3999 ft	2.20	0.0866	1.35	0.0531
4000-4999 ft	2.15	0.0846	#55	0.0520
5000-5999 ft	2.10	0.0827	1.30	0.0511
6000-6999 ft	#45	0.0820	1.25	0.0492

Burner Input	Number of Orifices
40,500	2
45,000	2
60,750	3
67,500	3
75,000	3
81,000	4
90,000	4
100,000	4
112,500	5
125,000	5

Orifice Size (mm)	Orifice Diameter	Orifice Size (mm)	Orifice Diameter
2.10	0.0826	2.45	0.0964
2.15	0.0846	2.50	0.0984
2.20	0.0866	2.60	0.1024
2.25	0.0885	2.70	0.1063
2.30	0.0905	2.75	0.1082
2.35	0.0925	2.80	0.1102
2.40	0.0945	2.90	0.1142

Summary Ratings (Wire Sizing) - Scroll Compressor

CIRCUIT #1	BASIC MODEL - AVG																	
	24ACA	30ACA	36ACA	42ACA	48ACA	60ACA	24ACC	30ACC	36ACC	42ACC	48ACC	60ACC	24ACD	30ACD	36ACD	42ACD	48ACD	60ACD
MCA	18.2	21.1	24.3	28.3	29.9	37.2	12.5	16.3	17.1	21.4	24.3	27.5	6.2	7.8	8.5	10.2	11.7	12.2
MFS	30	30	40	45	45	60	20	25	25	30	35	40	15	15	15	15	15	20

The above chart should be used as a general guideline for estimating conductor size and overcurrent protection for the unit models listed. For specific requirements, refer to the data label attached to the unit cabinet. MCA and MFS calculated at 240V for ACA and ACC models and at 480V for ACD models.

MCA = Minimum Circuit Ampacity (Wiring Size Amps) MFS = Maximum External Fuse or External HACR Circuit Breaker Size.

Unit Load Amps

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)	
		TOTAL	INDOOR BLOWER
AVG24ACA	208-230/1/60	14.0	1.4
AVG30ACA	208-230/1/60	18.0	2.5
AVG36ACA	208-230/1/60	20.4	2.5
AVG42ACA	208-230/1/60	23.8	3.1
AVG48ACA	208-230/1/60	25.1	3.1
AVG60ACA	208-230/1/60	30.9	3.1

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)	
		TOTAL	INDOOR BLOWER
AVG24ACC	208-230/3/60	9.8	1.4
AVG30ACC	208-230/3/60	13.3	2.5
AVG36ACC	208-230/3/60	14.5	2.5
AVG42ACC	208-230/3/60	18.3	3.1
AVG48ACC	208-230/3/60	20.6	3.1
AVG60ACC	208-230/3/60	23.2	3.1

BASIC MODEL	VOLTS/ PH/HZ	CURRENT (AMPS)	
		TOTAL	INDOOR BLOWER
AVG24ACD	460/3/60	5.1	0.7
AVG30ACD	460/3/60	6.6	1.3
AVG36ACD	460/3/60	6.6	1.3
AVG42ACD	460/3/60	8.8	1.6
AVG48ACD	460/3/60	10.0	1.6
AVG60ACD	460/3/60	10.4	1.6

NOTE: Three phase equipment (HPC and HPD models) contain single-phase motor loads. Values shown are maximum phase loads. Loads are not equally balanced on each phase.

Electrical Characteristics

BASIC MODEL							OUTDOOR FAN MOTOR					INDOOR FAN MOTOR				
	Type	VOLTS	Hz/Ph	RLA	LRA	MCC	VOLTS	Hz/Ph	RPM	FLA	HP	VOLTS	Hz/Ph	RPM	FLA	HP
AVG24ACA	Scroll	208-230/1/60	60/1	12.2	61.0	19.0	208/230	60/1	1075	1.5	1/5	208/230	60/1	1075	1.4	1/4
AVG30ACA	Scroll	208-230/1/60	60/1	13.4	73.0	21.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG36ACA	Scroll	208-230/1/60	60/1	16.0	88.0	25.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG42ACA	Scroll	208-230/1/60	60/1	17.9	104.0	28.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG48ACA	Scroll	208-230/1/60	60/1	19.2	137.0	30.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG60ACA	Scroll	208-230/1/60	60/1	25.0	148.0	39.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG24ACC	Scroll	208-230/3/60	60/3	7.7	55.0	12.0	208/230	60/1	1075	1.5	1/5	208/230	60/1	1075	1.4	1/4
AVG30ACC	Scroll	208-230/3/60	60/3	9.6	63.0	15.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG36ACC	Scroll	208-230/3/60	60/3	10.2	77.0	16.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG42ACC	Scroll	208-230/3/60	60/3	12.4	88.0	19.4	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG48ACC	Scroll	208-230/3/60	60/3	14.7	91.0	23.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG60ACC	Scroll	208-230/3/60	60/3	17.3	123.0	27.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG24ACD	Scroll	460/3/60	60/3	3.8	27.0	6.0	208/230	60/1	1075	1.5	1/5	208/230	60/1	1075	1.4	1/4
AVG30ACD	Scroll	460/3/60	60/3	4.5	31.0	7.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG36ACD	Scroll	460/3/60	60/3	5.1	39.0	8.0	208/230	60/1	1075	1.8	1/4	208/230	60/1	1050	2.5	1/4
AVG42ACD	Scroll	460/3/60	60/3	5.8	44.0	9.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG48ACD	Scroll	460/3/60	60/3	7.0	50.0	11.0	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2
AVG60ACD	Scroll	460/3/60	60/3	7.4	49.5	11.5	208/230	60/1	825	2.8	1/3	208/230	60/1	1075	3.1	1/2

RLA = Rated Load Amps LRA = Locked Rotor Amps MCC = Maximum Continuous Current FLA = Full Load Amps

Cooling Performance Chart (BTUH)

MODEL	OUTDOOR AMBIENT DRY BULB TEMPERATURES								
	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°F
24	27,100	26,500	25,600	24,700	24,000	23,400	21,800	20,700	19,500
30	33,500	32,600	31,700	30,800	29,400	28,600	26,200	24,800	23,200
36	38,300	37,400	37,000	36,200	36,000	33,900	32,200	30,500	29,100
42	45,900	45,,400	43,800	43,000	42,500	39,500	37,600	35,700	34,100
48	54,900	54200	53,100	51,800	48,000	47,900	44,900	42,700	40,800
60	63,800	63,000	61,300	58,300	57,000	54,800	53,600	51,600	48,500

Rated indoor air flow at 80°F DB/67°F WB cooling.

Sensible to Total Ratio @ 95°F Dry Bulb Outside Air

MODEL	24	30	36	42	48	60
TOTAL CAPACITY (BTUH)	24,000	30,000	36,000	42,500	48,000	57,000
SENSIBLE HEAT RATIO	0.755	0.775	0.760	0.800	0.800	0.795
SENSIBLE CAPACITY (BTUH)	18,120	23,250	27,400	34,000	40,000	45,300
Sensible ratios based on ARI Standard 210 Indoor Conditions of 80°F DB/67°F WB..						

Air Flow: CFM vs. ESP (Wet Coil)

MODEL	0.10	0.20	0.25	0.30	0.40	0.50
AVG24	860	810	740	670		
AVG30	1100	1000	960	920	810	
AVG36	1310	1220	1185	1150	1060	
AVG42	1550	1525	1500	1470	1420	1370
AVG48		1600	1535	1470	1400	1310
AVG60		1650	1585	1520	1450	1360

Shipping Weight (pounds)

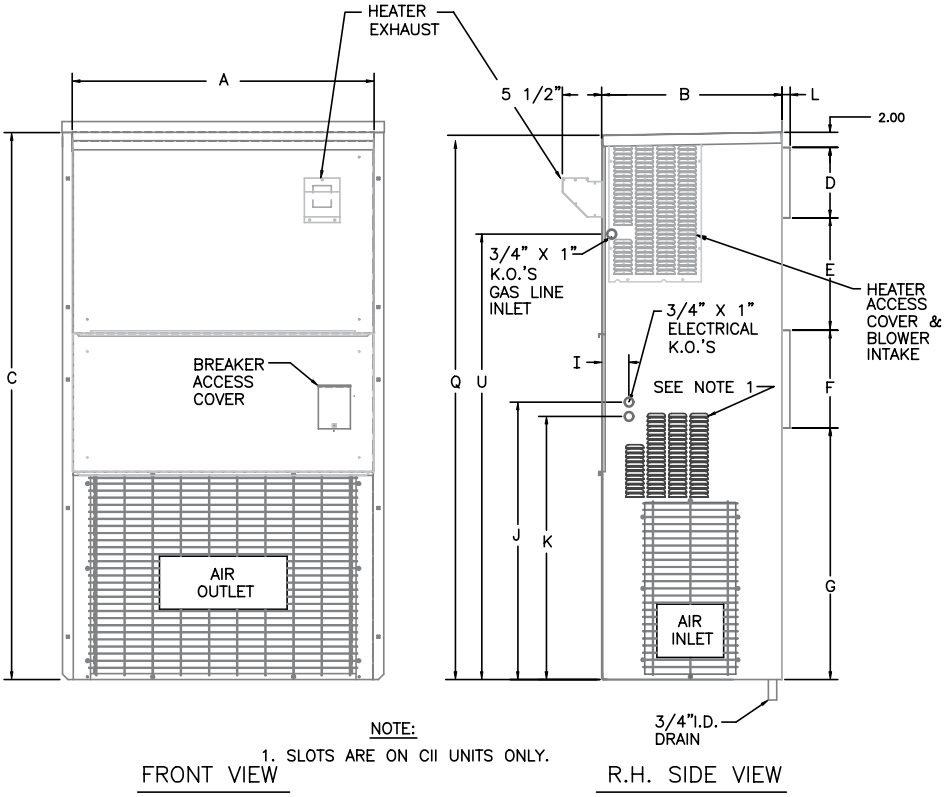
BASIC MODEL	AVG24	AVG30	AVG36	AVG42	AVG48	AVG60
SHIP WEIGHT	335	415	415	555	580	595

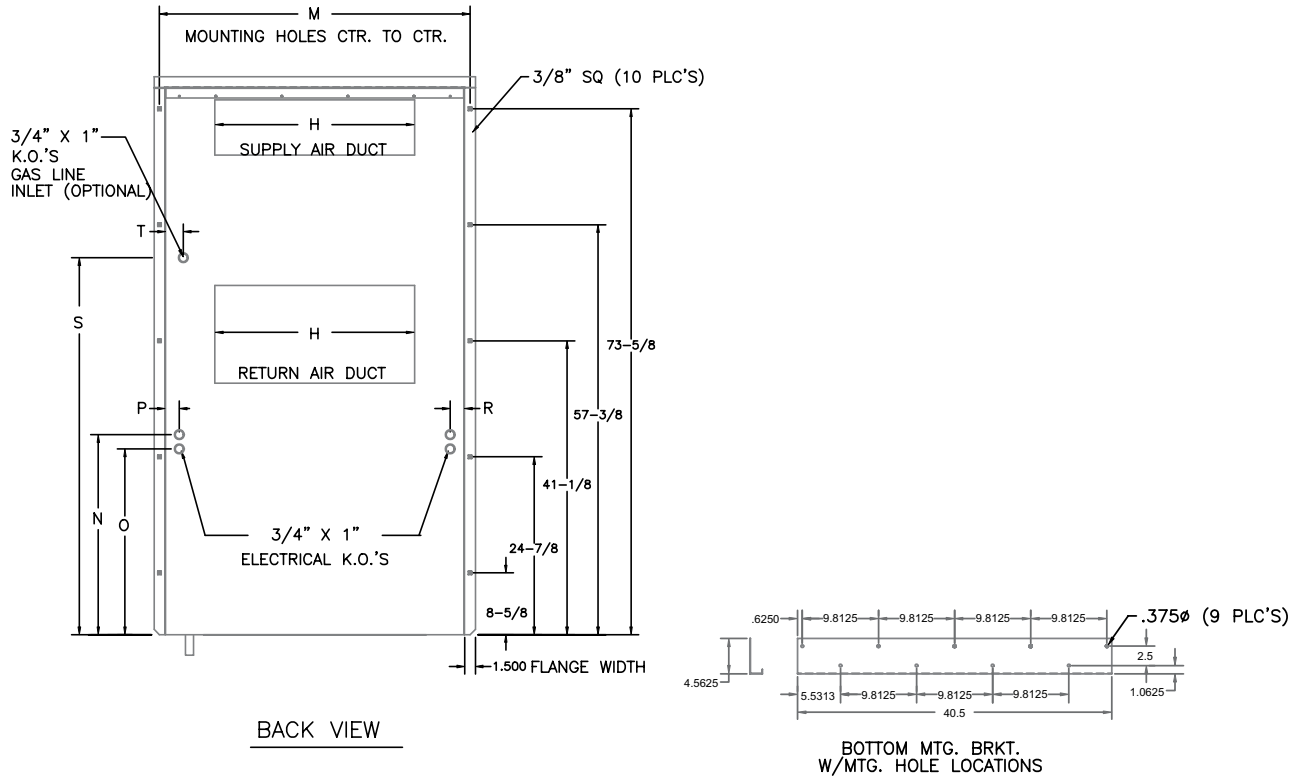
Filter Size (inches)

BASIC MODEL	AVG24	AVG30	AVG36	AVG42	AVG48	AVG60
FILTER SIZE	22” x 36.5” x 1”			18” x 24” x 1” (2 per unit)		

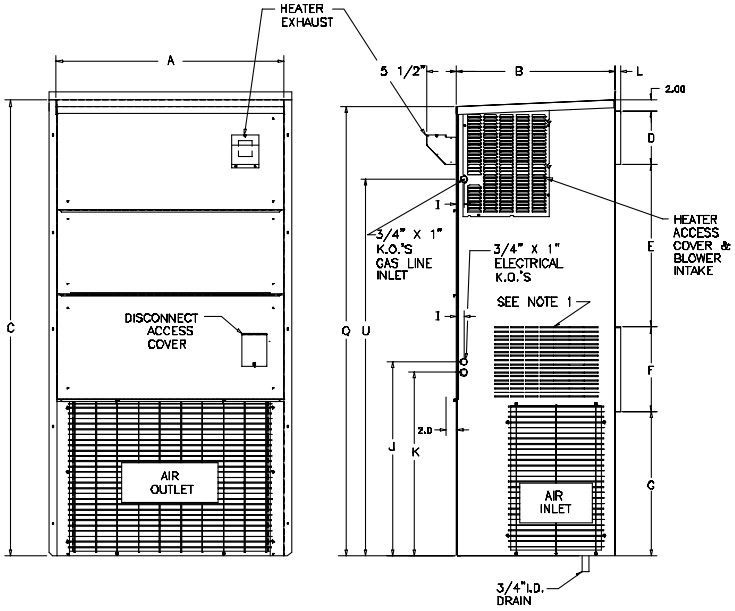
Dimensional Data - AVG24-30-36

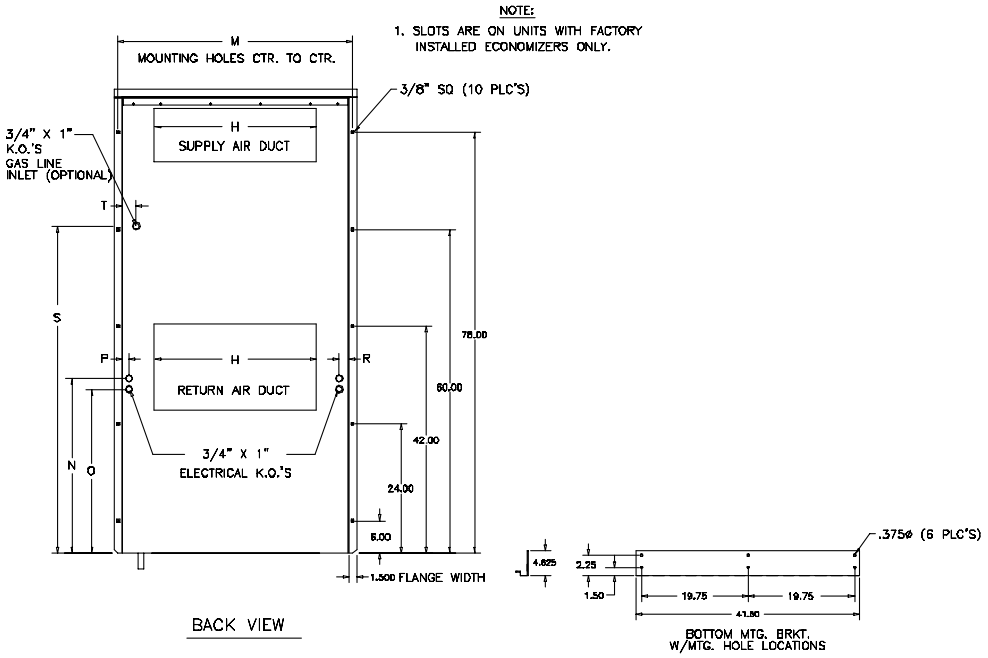
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
AVP24/30/36	41-1/2	25-5/16	76-1/2	10	18-1/4	14	35-1/8	28	3-3/8	38-7/8	36-7/8	1-1/8	43	28	26	2	76-1/4	2	52-3/4	2-9/16	62 3/8





Dimensional Data - AVG42-48-60





MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
42/48/60	42-1/8	29-3/8	84-1/2	10	30	16	26-1/2	30	1-5/16	36-15/16	34-15/16	1-1/8	43-1/2	32-3/8	30-3/8	1.250	83.30	1.725	60-11/16	2-9/16	69 3/4

Please consult the Marvair® website at www.marvair.com for the latest product literature. Complete installation instructions are in the GPac™ Air Conditioner I&O Manual. Detailed dimensional data is available upon request. A complete warranty statement can be found in each product's Installation/Operation Manual, on our website or by contacting Marvair at 229-273-3636. As part of the Marvair continuous improvement program, specifications are subject to change without notice.

Marvair® AIRXCEL®, Inc. ISO 9001 2000 REGISTERED COMPANY

P.O. Box 400 • Cordele, GA 31010
156 Seedling Drive • Cordele, GA 31015
Ph: 229-273-3636 • Fax: 229-273-5154
Email: marvair@airxcel.com • Internet: www.marvair.com

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