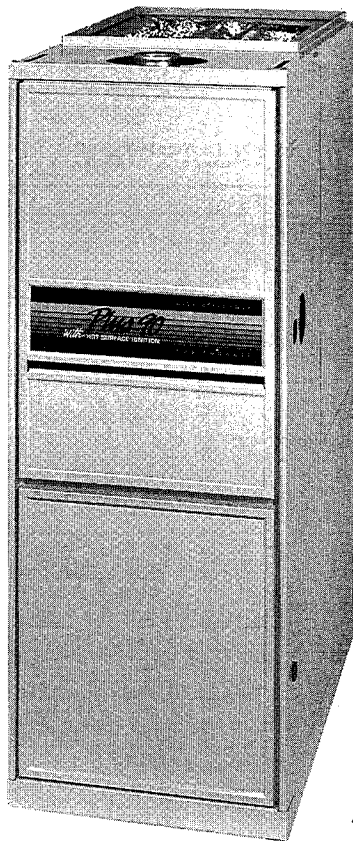


bryant**Bryant**
Air ConditioningIndianapolis, IN
City of Industry, CA**DELUXE GAS-FIRED
CONDENSING
FURNACE****Model 398AAV**
Sizes 040 through 120
Series A

A91104

Using advanced technology and craftsmanship, BDP has reached its goal of developing a gas-fired condensing furnace second to none in the market place.

The Model 398AAV Deluxe Gas-Fired Condensing Furnace is the result of an extensive, systematic, research and development project to build an affordable condensing furnace that exceeds a rating of 90% Annual Fuel Utilization Efficiency (AFUE). The 398AAV is designed for reliability, high efficiency, and quiet operation. Its unique arrangement of gas controls, sealed combustion system, and direct venting, make this furnace an industry pacesetter.

FEATURES

SEALED COMBUSTION (DIRECT VENT) SYSTEM—Enclosed burner assembly isolates operating noise without the expense of sound deadening devices. The sealed combustion (direct vent) system brings outdoor air directly into the combustion chamber, cutting cold air infiltration into the structure and reducing heat loss. As an added benefit, the sealed combustion (direct vent) system protects the furnace from corrosive chloride fumes given off by laundry products and other household chemicals inside the structure.

MONOPORT INSHOT BURNERS—produce precise air-to-gas mixture which gives a clean burn.

The large monoport on the inshot (or injection-type) burners seldom, if ever, needs cleaning.

FOUR-PASS HEAT EXCHANGERS—This design accelerates heat transfer and extracts heat that conventional heat exchangers waste up the flue. The primary heat exchanger is made of aluminized steel for corrosion resistance.

The Everlastic™ condensing heat exchanger also has a four-pass design. The galvanized sheet metal cells are laminated with polypropylene for greater resistance to corrosion. This breakthrough in heating technology (Patent No. 4,738,307) helps extend the life of the furnace for years of trouble-free Plus 90 performance. The heat exchanger is positioned in the furnace to extract additional heat from the combustion products as they move through its four passes.

WARRANTY—Limited Lifetime Warranty on the heat exchangers for the lifetime of the original owner in single family residence; 20 years in other residential and commercial applications. Your dealer has details. Three year warranty on microprocessor control.

COMBUSTION AIR AND VENTILATION—The 398AAV advanced design allows schedule 40 PVC, PVC-DWV, SDR-21 PVC, SDR-26 PVC (not approved in Canada), ABS-DWV, or ABS-F628 schedule 40 pipe to bring outdoor air into the furnace for combustion. The extracted heat lowers the temperature of the combustion products (typically below 115°F) to a point that PVC pipe can also be used for venting combustion products outside the structure. The combustion air and vent pipes can terminate through a side wall or through the roof when using our approved vent termination kit.

SAFETY—The 398AAV has three exclusive safety control features: (1) a self-checking draft control circuit that must reset before another burner cycle can begin, (2) a negative pressure condensate trap system that prevents combustion products from entering the drain system when the trap is not primed, (3) 100% shutoff of main burner gas by microprocessor control if established flame is not sensed after 4 ignition attempts.

SOLID-STATE BLOWER CONTROL OFF-TIMING ADJUSTABLE—Timed blower operation stops annoying, recycling thermally-activated blower controls. The off timing can be adjusted by moving a wire.

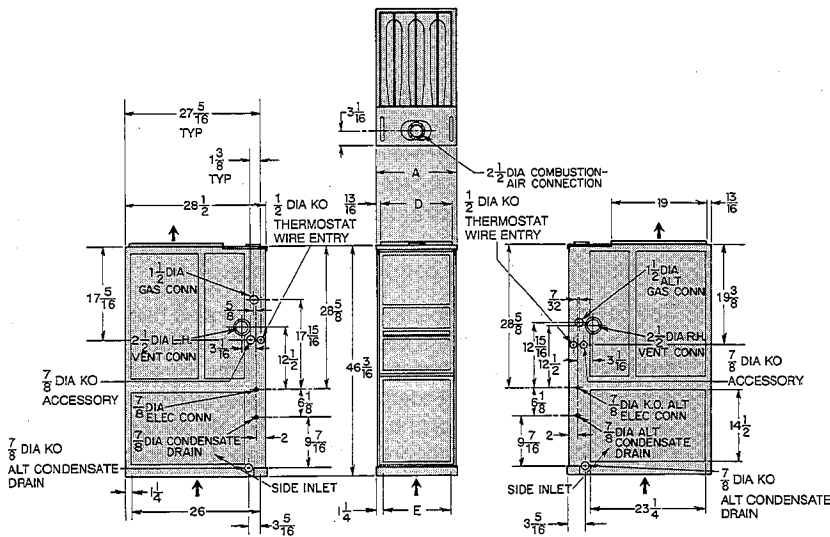
MICROPROCESSOR CONTROL CENTER—The printed-circuit board and all internal wiring are factory installed. Screw terminals permit quick-connecting of a thermostat, a humidifier, an air cleaner, and air conditioning control circuits.

FULLY-INSULATED CASING—Foil-faced insulation in the heat exchanger section cuts the heat loss, and insulation in the blower section reduces noise levels. The casing also has the required openings for left- or right-side connection of gas, electric, drain, and vent connections.

OLD FURNACE REPLACEMENT—The 46-3/16-inch casing height makes the Model 398AAV Furnace ideal for replacement applications.

CERTIFICATIONS—The 398AAV units are A.G.A. and C.G.A. design certified for use with natural and propane gases (030040 A.G.A. certified for natural gas only), as well as GAMA efficiency rating certified. The Model 398AAV exceeds California minimum seasonal efficiency requirements by a wide margin, and meets the oxides of nitrogen (NO_x) emission levels set by South Coast and Bay Area Air Quality Management Districts in California.

Form No. PDS 398A.40.7B



A91099

DIMENSIONS (In Inches)

SIZE	A	D	E	SHIPPING WT
030040	17-1/2	15-7/8	15	217
036040	17-1/2	15-7/8	15	170
036060	17-1/2	15-7/8	15	177
036080	17-1/2	15-7/8	15	190
048080	17-1/2	15-7/8	15	195
048100	21	19-3/8	18-1/2	221
060100	21	19-3/8	18-1/2	228
060120	24-1/2	22-7/8	22	263

CLEARANCES (In Inches)

SIZE	040 through 120
Sides	0
Back	0
Top of Plenum	1
Vent Connector	0
Front—Casing Ventilation Service	30

SPECIFICATIONS

SIZE	030040	036040	036060	036080	048080	048100	060100	060120
RATINGS AND PERFORMANCE								
Input Btuh*	41,000	44,000	66,000	88,000	88,000	110,000	110,000	132,000
Output Capacity†	Nonweatherized (ICS)‡		40,000	41,000	61,000	81,000	81,000	102,000
AFUE%†	Nonweatherized (ICS)‡		96.6	91.5	91.5	91.5	91.5	91.5
California Seasonal Efficiencies (CSE)†	88.5	85.1	86.7	87.8	87.1	87.6	86.0	88.2
Certified Temperature Rise Range °F	15—45	20—50	35—65	45—75	35—65	45—75	35—65	45—75
Certified External Static Pressure	Heating		0.10	0.10	0.12	0.15	0.15	0.20
	Cooling		0.40	0.50	0.50	0.50	0.50	0.50
Airflow Cfm**	Heating		1315	1350	1340	1405	1650	1620
	Cooling		1265	1275	1230	1315	1535	1580
ELECTRICAL								
Units Volts—Hertz—Phase	115—60—1							
Minimum Wire Size	14				12			
Maximum Wire Length (feet)††	38	40	41	41	36	36	41	48
Maximum Unit Amps	9.4	9.1	8.7	8.7	9.9	10.1	14.2	11.9
Operating Voltage Range Min—Max††	104—127							
Maximum Fuse Size or HACR-Type Ckt Bkr Amps***	15	15	15	15	15	15	20	20
Transformer (24-V)	40VA							
External Control	Heating		12VA					
Power Available	Cooling		21VA					
Air Conditioning Blower Relay	Standard							
CONTROLS								
Limit Control	SPST							
Heating Blower Control	Solid-State Time Operation							
Burners (Monoport)	2	2	3	4	4	5	5	6
Gas Connection Size	1/2-inch NPT							
GAS CONTROLS								
Gas Valve (Redundant)	Manufacturer		White-Rodgers					
	Minimum Inlet Pressure		4.5 inches wc (Natural gas)					
	Maximum Inlet Pressure		13.6 inches wc (Natural gas)					
Ignition Device	Hot Surface							
BLOWER DATA								
Direct-Drive Motor HP—Type	1/2 PSC	1/3—PSC	1/3—PSC	1/3—PSC	1/2—PSC	1/2—PSC	3/4—PSC	3/4—PSC
Motor Full Load Amps	7.9	5.8	5.8	5.8	7.9	7.9	11.1	10.5
RPM (Nominal)—Speeds	1075—4	1075—4	1075—4	1075—4	1075—4	1075—4	1075—4	1075—4
Blower Wheel Diameter x Width	11 x 7	10 x 7	10 x 7	10 x 7	10 x 8	10 x 8	11 x 10	(2) 10 x 6
Filter Size—Permanent Washable	15-7/8 x 27-3/4 x 1				19-3/8 x 27-3/4 x 1		22-7/8 x 27-3/4 x 1	
FACTORY-AUTHORIZED AND LISTED, DEALER-INSTALLED OPTIONS								
Twinning Kit	N/A					318054-70101		
Rigid Filter Kit (6 pack)	313690-701 (Filter Size 6—16 x 25 x 1)							
Side Filter Rack (Less Filter)	316280-701 (Filter Size 16 x 25 x 1)							
Return Filter Plenum (Less Filters)	316279-701 (Filter Size 2—20 x 25 x 1)							
Vent Termination Kit (Bracket Only)	2-inch—315841-701		3-inch—315841-702					
Side-Wall Vent Termination Cover	2-inch—310355-701		3-inch—310355-702					
Gas Conversion Kit—Natural-to-Propane	N/A		315784-70301					
Gas Conversion Kit—Propane-to-Natural	N/A		315784-70401					

* Gas input ratings are certified for elevations to 2000 feet. For elevations above 2000 feet, reduce ratings 4% for each 1000 feet above sea level. In Canada, from 2000 to 4500 feet above sea level, derate the unit 10%.

† Capacity and AFUE in accordance with U.S. Government DOE test procedures. California Seasonal Efficiencies based on California-specified procedures.

‡ ICS—Isolated Combustion System.

** Air delivery above 1800 cfm requires that both sides, or a combination of one side and bottom, or bottom only, of the furnace be used for return air. A filter is required for each return-air supply.

†† Length shown is measured one way along wire path between unit and service panel for maximum 2% voltage drop.

‡‡ Permissible voltage limits for proper furnace operation.

*** Time-delay fuse is recommended.

MAXIMUM ALLOWABLE LENGTH OF COMBUSTION-AIR AND VENT PIPE (In Feet)

ALTITUDE (FT ABOVE SEA LEVEL)	FURNACE SIZE	PIPE SIZE	NUMBER OF 90° ELBOWS					
			1	2	3	4	5	6
0 to 2000	030040	2	35	35	35	35	35	0
	036040	1-1/2	20	15	10	0	0	0
		2	70	70	70	70	70	65
	036060	1-1/2	10	10	5	0	0	0
		2	50	50	45	45	40	40
	036080 & 048080	2-1/2	70	70	70	70	70	70
3		10	10	0	0	0	0	
048100 & 060100	2-1/2	10	10	0	0	0	0	
	3	50	45	35	30	25	15	
060120	3	70	70	70	70	70	70	
	4	20	15	5	0	0	0	
2001 to 3000	030040	2	31	30	30	29	29	0
	036040	1-1/2	17	12	7	0	0	0
2		62	61	61	60	60	55	
036060	1-1/2	8	7	0	0	0	0	
	2	44	43	39	38	33	32	
036080 & 048080	2-1/2	62	61	61	60	60	59	
	3	44	39	30	24	20	10	
048100 & 060100	2-1/2	62	61	61	60	60	59	
	3	17	12	0	0	0	0	
060120	3	58	57	52	47	42	37	
	4	62	61	61	60	60	59	
3001 to 4001	030040	2	28	27	26	25	24	0
	036040	1-1/2	15	10	0	0	0	0
2		57	56	55	54	53	49	
036060	1-1/2	6	5	0	0	0	0	
	2	43	39	35	34	28	27	
036080 & 048080	2-1/2	57	56	55	54	53	52	
	3	40	36	26	20	16	0	
048100 & 060100	2-1/2	57	56	55	54	53	52	
	3	15	10	0	0	0	0	
060120	3	54	53	47	42	36	32	
	4	57	56	55	54	53	52	
4001 to 5000	030040	2	26	25	24	23	22	0
	036040	1-1/2	13	9	0	0	0	0
2		53	52	51	50	49	45	
036060	1-1/2	5	0	0	0	0	0	
	2	37	36	32	31	25	24	
036080 & 048080	2-1/2	53	52	51	50	49	48	
	3	37	33	24	18	14	0	
048100 & 060100	2-1/2	53	52	51	50	49	48	
	3	13	9	0	0	0	0	
060120	3	50	49	43	39	33	29	
	4	53	52	51	50	49	48	
5001 to 6000	030040	2	24	22	21	19	18	0
	036040	1-1/2	11	7	0	0	0	0
2		49	47	46	44	43	39	
036060	1-1/2	3	2	0	0	0	0	
	2	34	32	28	27	20	19	
048100 & 060100	2-1/2	49	47	46	44	43	41	
	3	24	22	21	19	18	0	

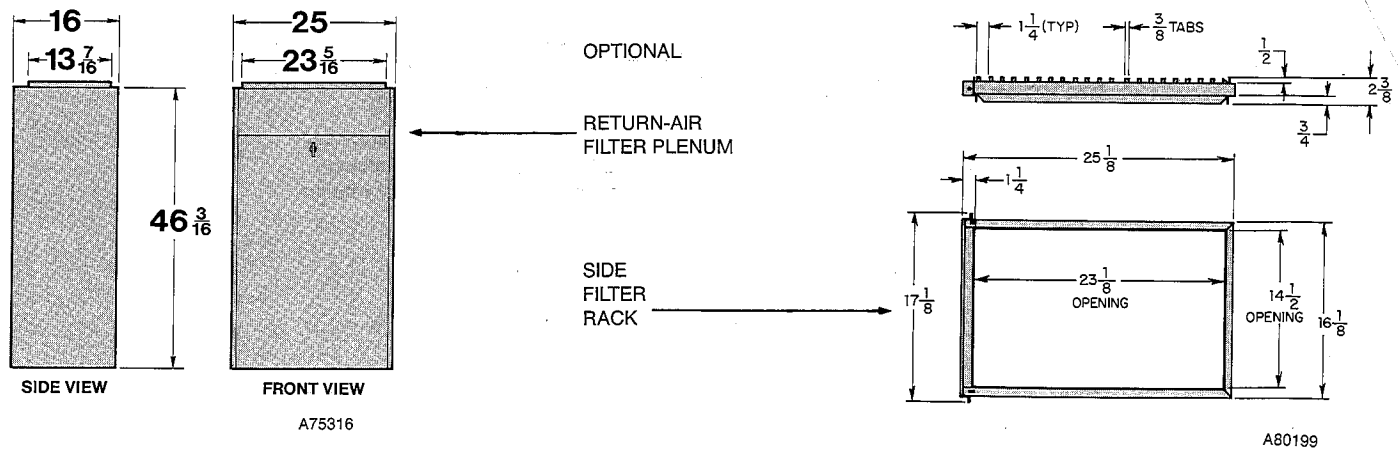
ALTITUDE (FT ABOVE SEA LEVEL)	FURNACE SIZE	PIPE SIZE	NUMBER OF 90° ELBOWS					
			1	2	3	4	5	6
5001 to 6000	036080 & 048080	2-1/2	34	30	21	14	10	0
		3	49	47	46	44	43	41
	048100 & 060100	2-1/2	11	7	0	0	0	0
		3	46	45	38	34	28	24
	060120	4	49	47	46	44	43	41
		3†	24	17	16	12	5	0
6001 to 7000	030040	2	22	20	19	17	16	0
		3	10	6	0	0	0	0
036040	1-1/2	10	6	0	0	0	0	
	2	45	43	42	40	39	35	
036060	2-1/2	31	29	26	24	18	16	
	3	45	43	42	40	39	37	
036080 & 048080	2-1/2	31	27	19	12	0	0	
	3	45	43	42	40	39	37	
048100 & 060100	2-1/2	10	6	0	0	0	0	
	3	43	43	42	40	39	37	
060120	3†	22	15	14	10	0	0	
	4	45	43	42	40	39	37	
7001 to 8000	030040	2	19	17	15	13	11	0
		3	8	0	0	0	0	0
036040	1-1/2	8	0	0	0	0	0	
	2	41	39	37	35	33	29	
036060	2-1/2	27	25	22	20	13	11	
	3	41	39	37	35	33	31	
036080 & 048080	2-1/2	27	24	15	0	0	0	
	3	41	39	37	35	33	31	
048100 & 060100	2-1/2	8	0	0	0	0	0	
	3	39	37	30	26	19	16	
060120	3†	19	12	10	7	0	0	
	4	45	43	42	40	39	37	
8001 to 9000	030040	2	17	15	13	11	9	0
		3	6	0	0	0	0	0
036040	1-1/2	6	0	0	0	0	0	
	2	36	34	32	30	28	25	
036060	2-1/2	24	22	19	17	10	8	
	3	36	34	32	30	28	26	
036080 & 048080	2-1/2	24	21	13	0	0	0	
	3	36	34	32	30	28	26	
048100 & 060100	2-1/2	6	0	0	0	0	0	
	3	35	33	26	23	16	13	
060120	3†	17	10	8	5	0	0	
	4	45	43	42	40	39	37	
9001 to 10,000	030040	2	15	12	10	7	5	0
		3	32	29	26	23	20	19
036060	2-1/2	21	18	15	13	5	0	
	3	32	29	26	23	20	17	
036080 & 048080	2-1/2	21	18	10	0	0	0	
	3	32	29	26	23	20	17	
048100 & 060100	3	31	29	21	18	11	8	
	4	32	29	26	23	20	17	
060120	3†	15	7	5	0	0	0	
	4	32	29	26	23	20	17	

* Remove one combustion-air disk for this application.

† Long radius elbows must be used for this application.

NOTES:

1. Size both the combustion-air and vent pipe independently, then use the larger diameter for both pipes.
2. Assume two 45° elbows equal one 90° elbow. Long radius elbows are desirable and may be required in some cases.
3. Elbows and pipe sections within the furnace casing and at the vent termination should not be included in vent length or elbow count.
4. The installer may use one larger pipe size than what is specified above (up to 4-in. diameter maximum).
5. The minimum pipe length is 5 ft for all applications except for the 036080 & 048080 models which have a 10 ft minimum pipe length.
6. Use 3-in. diameter vent termination kit for installations requiring 4-in. diameter pipe.



AIR DELIVERY—CFM (With Filter)*

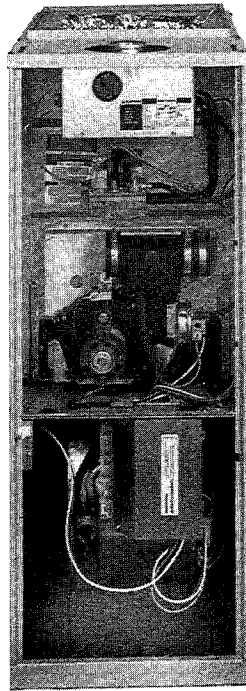
FURNACE SIZE	BLOWER MOTOR HP	SPEED	EXTERNAL STATIC PRESSURE (IN. WC)							
			0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8
030040	1/2 PSC	High	1425	1370	1320	1265	1195	1125	1060	990
		Med-High	1315	1275	1230	1180	1125	1070	1000	915
		Med-Low	1145	1115	1090	1045	1010	955	880	815
		Low	1035	1000	970	930	900	850	800	740
036040	1/3 PSC	High	1515	1465	1405	1345	1275	1210	1115	1000
		Med-High	1350	1310	1275	1220	1160	1100	995	850
		Med-Low	1155	1140	1110	1070	1020	945	825	735
		Low	975	960	945	915	870	780	710	645
036060	1/3 PSC	High	1510	1450	1380	1320	1230	1150	1045	850
		Med-High	1350	1300	1245	1190	1115	1030	945	770
		Med-Low	1165	1125	1090	1045	980	910	775	670
		Low	965	945	915	880	830	735	640	560
036080	1/3 PSC	High	1590	1530	1470	1390	1315	1225	1140	1040
		Med-High	1425	1390	1345	1285	1200	1135	1040	900
		Med-Low	1250	1220	1185	1135	1085	1010	930	835
		Low	1060	1055	1030	980	930	870	805	685
048080	1/2 PSC	High	1860	1780	1700	1625	1535	1440	1335	1215
		Med-High	1675	1625	1555	1495	1415	1340	1235	1115
		Med-Low	1445	1420	1385	1345	1300	1210	1130	1020
		Low	1260	1255	1235	1205	1160	1095	1015	900
048100	1/2 PSC	High	1910	1835	1765	1680	1580	1470	1360	1250
		Med-High	1665	1620	1580	1525	1460	1365	1290	1120
		Med-Low	1410	1400	1360	1335	1300	1255	1165	1075
		Low	1250	1230	1210	1190	1165	1100	1030	845
060100	3/4 PSC	High	2415	2360	2275	2200	2135	2050	1955	1860
		Med-High	2105	2065	2020	1975	1905	1855	1785	1710
		Med-Low	1810	1775	1750	1725	1685	1625	1580	1525
		Low	1580	1565	1540	1520	1495	1455	1425	1370
060120	3/4 PSC	High	2520	2440	2300	2240	2110	1990	1820	1530
		Med-High	2185	2115	2045	1960	1855	1740	1510	1330
		Med-Low	1955	1895	1830	1765	1700	1560	1355	1220
		Low	1730	1695	1640	1590	1505	1340	1230	1105

* Air delivery above 1800 cfm requires that both sides, or a combination of one side and bottom, or bottom only, of the furnace be used for return air. A filter is required for each return-air supply.



MEETS DOE RESIDENTIAL CONSERVATION SERVICES PROGRAM STANDARDS.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.



**Model 398AAV Deluxe Gas-Fired
Condensing Furnace**

(Component location and configuration may be different than shown in photo.)

A91100



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

UNIT MUST BE INSTALLED IN ACCORDANCE
WITH INSTALLATION INSTRUCTIONS