

BEACON/MORRIS BMSF SEPARATED COMBUSTION PROPELLER UNIT HEATER

BVSF-5

DESCRIPTION

The BMSF Separated Combustion Unit Heater is the latest addition to Beacon/Morris' 80% efficient indoor product line. BMSF models are available in 100,000 thru 400,000 Btu/Hr inputs (29.3 thru 117.1 kW). Separated combustion units are designed to be installed where dusty, dirty or mildly corrosive conditions exist or where high humidity or slightly negative pressures prevail.

CERTIFICATION

The BMSF unit is certified by CSA International to provide a minimum of 80% efficiency.

BASIC OPERATION

Beacon/Morris Model BMSF Propeller Unit Heaters "separate" the combustion process from the environment where the unit is installed. A power venting system draws a controlled quantity of combustion air from outside the building. The same system exhausts flue products to the outside. The burners, pilot and flue system are enclosed within the unit; thus, the entire combustion process is literally unaffected by the atmosphere in the space where the heater is located.

STANDARD FEATURES AND BENEFITS INCLUDE:

- 100% Welded, 20-gauge Aluminized Steel Heat Exchanger
- Power Venter
- Combustion Air Pressure Switch
- Spark-ignited Intermittent Safety Pilot with Electronic Flame Supervision
- Fan Time Delay
- 115/24V Transformer
- 115/1/60 TEFC Fan Motor
- Redundant Single-stage Gas Valve
- High Limit Switch
- Combustion air and flue may be piped horizontally through sidewall or vertically through the roof

FACTORY INSTALLED OPTIONS

- OSHA Fan Guard
- 409 or 321 Stainless Steel Heat Exchanger
- 409 Stainless Steel Burners
- Vertical Louvers
- 2 Stage Gas Valves
- 115/1/60 TEFC Motor

FIELD INSTALLED OPTIONS

- Summer/Winter Switch
- Discharge Nozzle: 30, 45, 60, 90 Degree, 5-Way and Y-Splitter
- Thermostats
- 5" to 4" Venter Decrease Adaptor to Flue Pipe
- 4", 5" and 6" Vent Termination Cap

CAUTIONS

Combustion air and vent systems must be installed in accordance with current National Fuel Gas Code or Installation Code, Installation Code for Natural Gas Burning Appliances and Equipment (Canada) and any local and state codes. Units should not be installed where negative pressures are significant, where vapor-containing chlorine or fluorine may be present or in any areas classified as "HAZARDOUS."



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PROJECT: _____

UNIT TAG: _____



BMSF – PERFORMANCE AND DIMENSIONAL DATA

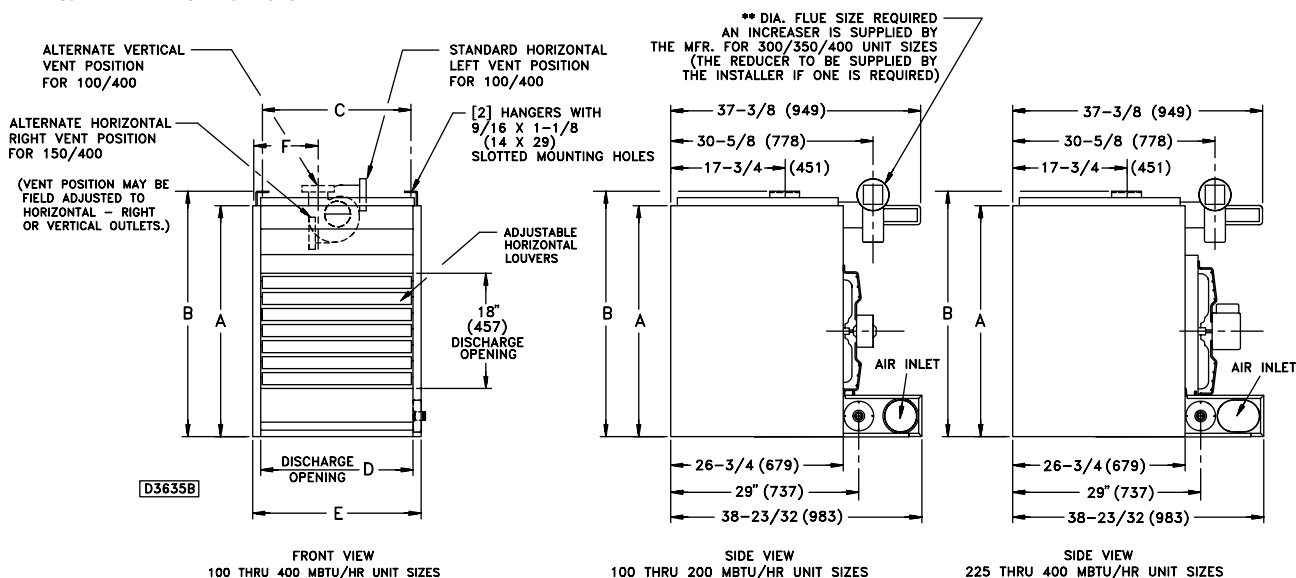
Model BMSF Unit Size	100	125	150	175	200	225	250	300	350	400
PERFORMANCE DATA ‡										
Input BTU/Hr	100,000	125,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
(kW)	(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(65.9)	(73.2)	(87.8)	(102.5)	(117.1)
Output BTU/Hr	80,000	100,000	120,000	140,000	160,000	180,000	200,000	240,000	280,000	320,000
(kW)	(23.4)	(29.3)	(35.1)	(41.0)	(46.9)	(52.7)	(58.6)	(70.3)	(82.0)	(93.7)
Thermal Efficiency (%)	80	80	80	80	80	80	80	80	80	80
Free Air Delivery CFM	1,480	1,650	2,200	2,530	2,640	2,700	3,100	4,400	5,000	5,300
(cu. m/s)	(0.699)	(0.779)	(1.038)	(1.194)	(1.246)	(1.274)	(1.463)	(2.077)	(2.360)	(2.502)
Air Temperature Rise Deg. F.	50	56	50	51	56	61	60	50	52	56
(Deg. C)	(28)	(31)	(28)	(28)	(31)	(34)	(33)	(28)	(29)	(31)
Outlet Velocity FPM	775	910	1045	1070	1000	950	980	1100	1150	1050
(m/s)	(3.9)	(4.6)	(5.3)	(5.4)	(5.1)	(4.8)	(5.0)	(5.6)	(5.8)	(5.3)
Full Load Amps at 115V	5.8	6.0	7.2	7.8	7.8	7.8	8.8	11.2	12.2	12.2
MOTOR DATA:										
Motor HP	1/20	1/10	1/4	1/3	1/3	1/3	1/2	(2)1/4	(2)1/3	(2)1/3
Motor (kW)	(0.037)	(0.075)	(0.186)	(0.249)	(0.249)	(0.249)	(0.373)	(0.186)	(0.249)	(0.249)
Motor Type	SP	SP	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
R.P.M.	1,050	1,050	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
Amps @ 115V	2.6	2.8	4.0	4.5	4.5	4.5	5.5	8.0	9.0	9.0
DIMENSIONAL DATA in. (mm)										
"A" Height to Top of Unit	31-1/4 (794)	31-1/4 (794)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)	36-1/4 (921)
"B" Height to Top of Hanger	34-1/16 (865)	34-1/16 (865)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)	39-1/16 (992)
"C" Hanging Distance Width	14-3/4 (375)	17-1/2 (445)	17-1/2 (445)	20-1/4 (514)	23 (584)	25-3/4 (654)	28-1/2 (724)	34 (864)	39-1/2 (1003)	45 (1143)
"D" Discharge Opening Width	15-3/8 (391)	18-1/8 (460)	18-1/8 (460)	20-7/8 (530)	23-5/8 (600)	26-3/8 (670)	29-1/8 (740)	34-5/8 (879)	40-1/8 (1019)	45-5/8 (1159)
"E" Width of Unit	17-7/8 (454)	20-5/8 (524)	20-5/8 (524)	23-3/8 (594)	26-1/8 (664)	28-7/8 (733)	31-5/8 (803)	37-1/8 (943)	42-5/8 (1083)	48-1/8 (1222)
"F" to Centerline of Flue	5-7/8 (149)	7-1/4 (184)	7-1/4 (184)	8-5/8 (219)	10 (254)	11-1/4 (286)	12-3/4 (324)	15-1/2 (394)	18-1/4 (464)	21 (533)
Flue Size Dia-in.**	4	4	4	4	5	5	5	6	6	6
(Dia mm)	(102)	(102)	(102)	(102)	(127)	(127)	(127)	(152)	(152)	(152)
Air Inlet Size-in.	4	4	4	4	5	5	5	6	6	6
(mm)	(102)	(102)	(102)	(102)	(127)	(127)	(127)	(152)	(152)	(152)
Fan Diameter-in.	14	16	16	18	18	18	18	16	18	18
Gas Inlet-Natural Gas-in.	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	3/4	3/4
Gas Inlet-LP Gas-in.	1/2	1/2	1/2	1/2	1/2	1/2 or 3/4				
Approx. Shipping Wt. lb.	200	228	256	284	312	340	368	432	488	545
(kg)	(91)	(103)	(116)	(129)	(142)	(154)	(167)	(196)	(221)	(247)

‡ Ratings shown are for unit installations at elevations between 0 and 2000 ft. (610m). For unit installations in USA above 2000 ft. (610m), the unit input must be derated 4% for each 1000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the National Fuel Gas Code, ANSI Standard Z223.1-1999 (N.F.P.A. No. 54), or the latest edition of.

For installations in Canada, any references to deration at altitudes in excess of 2000 ft. (610m) are to be ignored. At altitudes of 2000 to 4500 ft. (610 to 1372m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with the CSA certification.

LEGEND: SPH = SPLIT PHASE

PSC = PERMANENT SPLIT CAPACITOR



DIMENSIONS .XXX STANDARD UNITS
DIMENSIONS IN PARENTHESIS (XXX) MILLIMETERS

** CANADIAN UNITS INCLUDE A VENT CAP, AND REDUCER/INCREASER (IF REQ'D)