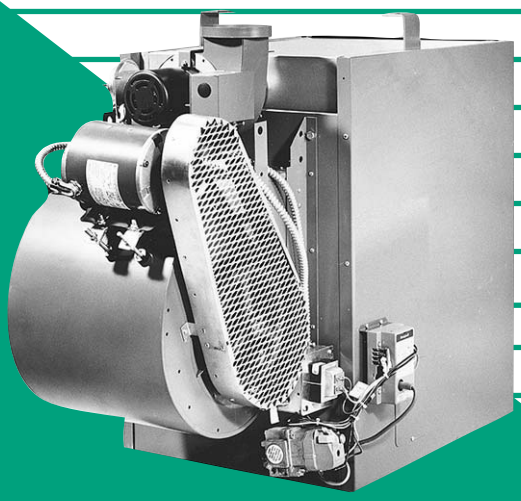
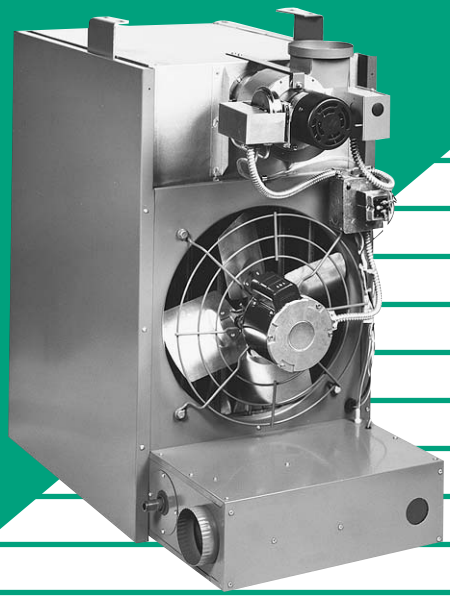
BGUH-5



GAS-FIRED INDOOR HEATING EQUIPMENT

Beacon/Morris®



GAS FIRED UNIT HEATERS AND DUCT FURNACES

Beacon-Morris Unit Heaters, offered in both propeller and blower-type models, are a complete heat generating and distributing plant, equipped with automatic controls, and packaged in an attractive streamlined housing. Designed for ceiling mounting, they provide a convenient, low-cost method of heating stores, factories, warehouses and other large open areas comfortably.

The Beacon-Morris Gas Fired Unit Heater becomes the industry standard bearer by providing a winning combination of money saving features and many other customer benefits. Its innovative design provides 80% combustion efficiency without costly equipment modification, or derating. The Beacon-Morris propeller fan, which utilizes a powerful motor, increases airflow through the unit - resulting in approximately 10% more CFM. Summer air circulation for added comfort is featured on all units with factory installed relay and wiring. All units are approved for use in California when equipped with spark ignition.

Removing just two screws permits ready access to burners for inspection and servicing.
Unique **burner shade** prevents scale of foreign matter from plugging burner ports and hindering efficiency.

All Beacon-Morris Unit Heaters are **factory test-fired** to assure proper operation.

10-Year Warranty on burners, heat exchanger and draft hood. Certified by C.S.A. International.

Another industry leader are the Beacon-Morris high efficiency units. This advanced gas unit heater greatly improves seasonal efficiency through integral power venting and a sealed flue collector. Its standard fuel efficient spark ignition saves even more. The pilot only operates when required. Horizontal power venting allows less costly side wall venting, smaller openings and single walled vent pipe. It's designed to provide annual fuel savings up to 25% over conventional unit heaters.

Reduced heat loss, improved efficiencies and higher CFM often allow lower equipment and installation costs as well. And because Beacon-Morris has a full line of heaters, customers can order the exact unit they need and avoid money-wasting oversizing. The complete heat exchanger, draft hood assembly and burners of the propeller and blower of the Beacon-Morris Unit Heaters are warranted to be free from defects in materials and workmanship for a period of 10 years from the date of manufacture.

CATALOG CONTENTS

Unless otherwise specified, the following conversions may be used for calculating SI unit measurements:
1 cubic foot = 0.028 m^3
1 foot = 0.305 m
1 inch = 25.4 mm
1 psig = 6.894 kPa
1000 Btu per hour = 0.293 kW
1 inch water column = 0.249 kPa

1 gallon = 3.785 L
1000 Btu/Cu. Ft. = 37.5 MJ/m^3
1 pound = 0.453 kg
meter/second = FPM ÷ 196.8
litre/second = CFM x 0.472

"BMF" PROPELLER TYPE GAS-FIRED UNIT HEATERS

The Beacon-Morris Gas-Fired Unit Heater is a complete heat generating and distributing plant equipped with automatic safety controls all packaged in a modern streamlined, space saving casing for mounting near the ceiling. Propeller units are low static pressure appliances. At no time should ductwork or 5-way nozzles be used with propeller units.

80% THERMAL EFFICIENCY
The designs are certified by CSA International as providing 80% combustion efficiency. Approved for use in California when equipped with spark ignition.

10-YEAR WARRANTY
The complete heat exchanger, draft hood assembly and burners are warranted by Beacon-Morris to be free from defects in materials and workmanship for a period of ten (10) years from the date of manufacture.

QUIET OPERATION
Beacon-Morris Unit Heaters incorporate an exceptional balance of motor and blower to insure **quiet operation** and still maintain CFM delivery to provide comfort heating where required.

HEAT EXCHANGERS
Beacon-Morris heat exchangers are available in 3 types of 20 gauge steel:
- Aluminized Steel (Standard) (All units)
- 409 Grade Stainless Steel (Optional) (BMF-30-400)
- 321 Grade Stainless Steel (Optional) (BMF-100-400)

BURNERS
All sizes 30,000 thru 400,000 BTU/HR (8.8 thru 117.1 kW) input are equipped with a proven design, pressed steel burner having a unique "burner shade" protective device to prevent scale or foreign matter from plugging the burner ports. This burner is available in both aluminized and 409 stainless steel.

LP/NATURAL OPERATION
All units are available for operation on either natural or LP gas from our factory.

YEAR ROUND COMFORT
Controls are factory-wired to permit continuous air circulation for summer comfort.

24 VOLT SYSTEM
All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment.

FAN TIME DELAY
The fan time delay switch is mounted at the factory as standard equipment on all unit heaters. This feature eliminates an initial blast of cold air by allowing the unit to fire for a short period of time before actuating the fan motor. After the thermostat is satisfied (with burners off) the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger, an added economy feature.

PACKAGE VALVE
On units 30,000 thru 400,000 BTU/HR (8.8 thru 117.1 kW) input, Beacon-Morris supplies a combination type gas valve which has a pressure regulator, shut off valve and main gas valve combined into one single valve. It also incorporates an automatic pilot safety switch and a blocked vent (spill) switch for use on all gases. Approved for use on all gases.

ENERGY SAVING IGNITION CONTROL (Optional)
Spark ignition is available as an optional extra. The pilot burner is ignited only during each cycle of operation, thereby **conserving energy** during the off cycle. Required for installation in California.

ACCESS FOR MAINTENANCE
All Beacon-Morris Unit Heaters are so designed that the bottom pan can be dropped to expose the burners, pilot and orifices. Burners are individually removable for inspection and servicing. Pilot is also accessible through side panel access door on 100 thru 400 models.

TEST FIRE
All Beacon-Morris Unit Heaters are test fired at the factory to insure proper operation at time of installation.

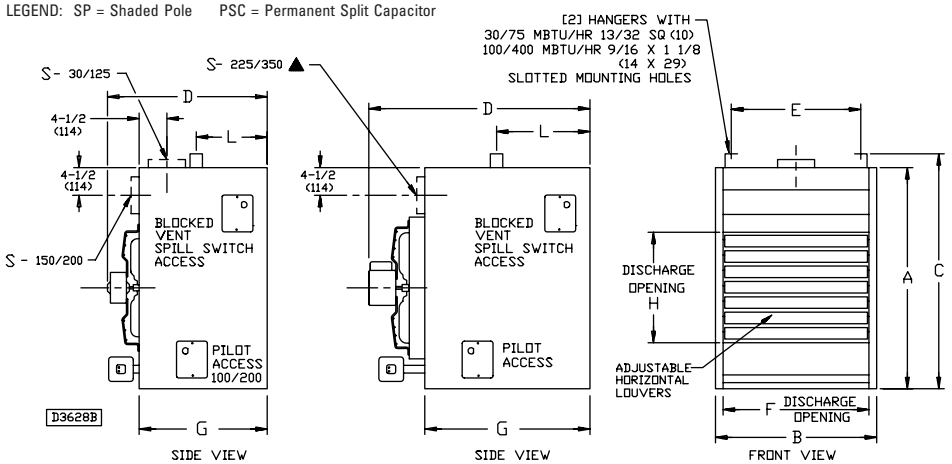
BMF – PERFORMANCE AND DIMENSIONAL DATA

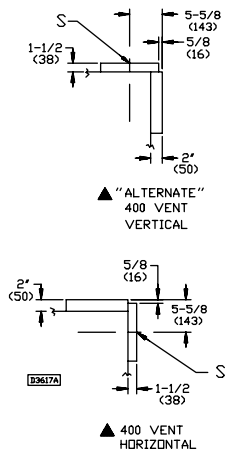
Model BMF Unit Size	30	45	60	75	100	125	150	175	200	225	250	300	350	400
PERFORMANCE DATA ‡														
Input BTU/Hr	30,000	45,000	60,000	75,000	100,000	125,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
(kW)	(8.8)	(13.2)	(17.6)	(22.0)	(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(65.9)	(73.2)	(87.8)	(102.5)	(117.1)
Output BTU/Hr	24,300	36,450	48,600	60,750	80,000	100,000	120,000	140,000	160,000	180,000	200,000	240,000	280,000	320,000
(kW)	(7.1)	(10.7)	(14.2)	(17.8)	(23.4)	(29.3)	(35.1)	(41.0)	(46.9)	(52.7)	(58.6)	(70.3)	(82.0)	(93.7)
Thermal Efficiency %	81	81	81	81	80	80	80	80	80	80	80	80	80	80
Free Air Delivery CFM	700	800	1050	1100	1480	1650	2200	2530	2640	2700	3100	4400	5000	5300
(cu. m/s)	(0.330)	(0.378)	(0.496)	(0.519)	(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	30	42	42	50	50	56	50	51	56	61	60	50	52	56
(Deg. C)	(17)	(23)	(23)	(28)	(28)	(31)	(28)	(28)	(31)	(34)	(33)	(28)	(29)	(31)
Outlet Velocity FPM	700	750	640	672	950	900	1045	1070	1000	950	980	1100	1150	1050
(m/s)	(3.6)	(3.8)	(3.3)	(3.4)	(4.8)	(4.6)	(5.3)	(5.4)	(5.1)	(4.8)	(5.0)	(5.6)	(5.8)	(5.3)
Sound Ratings (See Page 22)	II	II	II	II	II	II	II	III	III	III	IV	IV	IV	IV
Full Load Amps at 115V **	2.1	2.1	2.1	2.1	3.4	3.6	4.8	5.8	5.8	5.8	5.8	8.8	10.8	10.8
MOTOR DATA : Motor HP	1/30	1/30	1/30	1/30	1/20	1/10	1/4	1/3	1/3	1/3	1/3	(2) 1/4	(2) 1/3	(2) 1/3
Motor (kW)	(0.025)	(0.025)	(0.025)	(0.025)	(0.037)	(0.075)	(0.186)	(0.249)	(0.249)	(0.249)	(0.249)	(0.186)	(0.249)	(0.249)
Motor Type	SP	SP	SP	SP	SP	SP	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
R.P.M.	1,050	1,050	1,050	1,050	1,050	1,050	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
Amps @ 115V	1.3	1.3	1.3	1.3	2.6	2.8	4.0	4.5	4.5	4.5	4.5	8.0	9.0	9.0
DIMENSIONAL DATA in. (mm)														
"A" Height to Top of Unit	25-3/4	25-3/4	25-3/4	25-3/4	31-1/4	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(654)	(654)	(654)	(654)	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Width of Unit	14	14	17-1/2	17-1/2	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(356)	(356)	(444)	(444)	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"C" Height to Top of Hanger	27-1/2	27-1/2	27-1/2	27-1/2	33-1/4	33-1/4	38-1/4	38-1/4	38-1/4	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8
	(698)	(698)	(698)	(698)	(845)	(845)	(972)	(972)	(972)	(994)	(994)	(994)	(994)	(994)
"D" Depth to Rear of Housing	27-5/8	27-5/8	27-5/8	27-5/8	32-1/2	32-1/2	36	36	36	38-1/4	38-1/4	37-3/4	38-1/4	38-1/4
	(702)	(702)	(702)	(702)	(826)	(826)	(914)	(914)	(914)	(972)	(972)	(959)	(972)	(972)
"E" Hanging Distance Width	8-5/8	8-5/8	14-1/8	14-1/8	14-3/4	17-1/2	17-1/2	20-1/4	23	25-1/2	28-1/4	33-3/4	39-1/4	44-3/4
	(219)	(219)	(359)	(359)	(375)	(444)	(444)	(514)	(584)	(648)	(718)	(857)	(997)	(1137)
"F" Discharge Opening Width	10	10	15-1/2	15-1/2	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(254)	(254)	(394)	(394)	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"G" Depth to Unit Side Jacket	19-3/8	19-3/8	19-3/8	19-3/8	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4
	(492)	(492)	(492)	(492)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)
"H" Discharge Opening Height	16-1/4	16-1/4	16-1/4	16-1/4	18	18	18	18	18	18	18	18	18	18
	(413)	(413)	(413)	(413)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)
"L" Hanger Location	11-7/8	11-7/8	11-1/2	11-1/2	15-1/8	15-1/8	15-1/8	15-1/8	15-1/8	16-1/4	16-1/4	16-1/4	16-1/4	16-1/4
	(302)	(302)	(292)	(292)	(384)	(384)	(384)	(384)	(384)	(413)	(413)	(413)	(413)	(413)
"S" Flue Size Dia.-in.*	4	4	5	5	6	6	7	7	8	8	8	10	10	12
(Dia-mm)	(102)	(102)	(127)	(127)	(152)	(152)	(178)	(178)	(203)	(203)	(203)	(254)	(254)	(305)
Flue Type *	R,V	R,V	R,V	R,V	R,V	R,V	R,H	R,H	R,H	R,H	R,H	OV,H	OV,H	OV▲
Fan Diameter-in.	12	12	14	14	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	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	1/2	1/2	1/2	←		1/2 OR 3/4		→
Approx. Shipping Wt. lb.	72	82	98	104	178	200	209	232	242	279	301	356	415	451
(kg)	(33)	(37)	(44)	(47)	(81)	(91)	(95)	(105)	(110)	(127)	(137)	(161)	(188)	(205)
Net Unit Weight lb.	59	69	84	90	148	168	175	196	216	239	261	304	340	376
(kg)	(27)	(31)	(38)	(41)	(67)	(76)	(79)	(89)	(98)	(108)	(118)	(138)	(154)	(171)

▲ See Special Details below for BMF-400 Venting. *R = Round; OV = Oval; H = Horizontal; V = Vertical **These amps are based on standing pilot units.

‡ 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: SP = Shaded Pole PSC = Permanent Split Capacitor





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

"BMB" BLOWER TYPE GAS-FIRED UNIT HEATERS

Blower type unit heaters are ideal for commercial and institutional applications where a lower noise level is desired. Beacon-Morris's blower type unit heaters, which operate at static pressure up to .2'' W.C., are extremely quiet.

Beacon-Morris Blower Type Gas-Fired Unit Heaters should be selected for applications where ductwork or discharge nozzles are to be used.

Belt drive with adjustable pitch motor pulley provides considerable latitude in CFM and static pressure.

80% THERMAL EFFICIENCY
The designs are certified by CSA International providing a minimum 80% combustion efficiency. Approved for use in California when equipped with spark ignition.

10-YEAR WARRANTY
The complete heat exchanger, draft diverter assembly and burners are warranted by Beacon-Morris to be free from defects in materials and workmanship for a period of ten (10) years from the date of manufacture.

QUIET OPERATION
Beacon-Morris Unit Heaters incorporate an exceptional balance of motor and blower to insure **quiet operation** and still maintain CFM delivery to provide comfort heating where required.

HEAT EXCHANGERS
Beacon-Morris heat exchangers are available in 3 types of 20 gauge steel:
- Aluminized Steel (Standard)
- 409 Grade Stainless Steel (Optional)
- 321 Grade Stainless Steel (Optional)

MOTORS
Standard motors are single speed, operate on 115 volt, single phase, 60 Hertz current with ample capacity to operate at high static pressure. All motors are either open drip proof or totally enclosed with built-in thermal protection, and are factory mounted and wired. Three phase motors are available from 1/3 to 2 H.P.

LP/NATURAL OPERATION
All units are available for operation on either natural or LP gas from our factory.

YEAR ROUND COMFORT
Controls are factory wired to permit continuous air circulation for summer comfort.

FAN TIME DELAY
The fan time delay switch is mounted at the factory as standard equipment on all unit heaters. This feature eliminates an initial blast of cold air by allowing the unit to fire for a short period of time before actuating the fan motor. After the thermostat is satisfied (with burners off) the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger, an added economy feature.

ENERGY SAVING IGNITION CONTROL (Optional)
Spark ignition is available as an optional extra. The pilot burner is ignited only during each cycle of operation, thereby **conserving energy** during the off cycle. Spark ignition is required for installation in California.

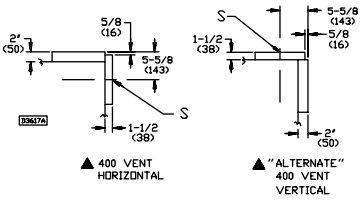
DISCHARGE DUCT FLANGE ASSEMBLY
Used in lieu of louvers on blower heaters for incorporating field duct work. Factory mounted at no additional charge.

TEST FIRE
All Beacon-Morris Unit Heaters are test fired at the factory to insure proper operation at time of installation.

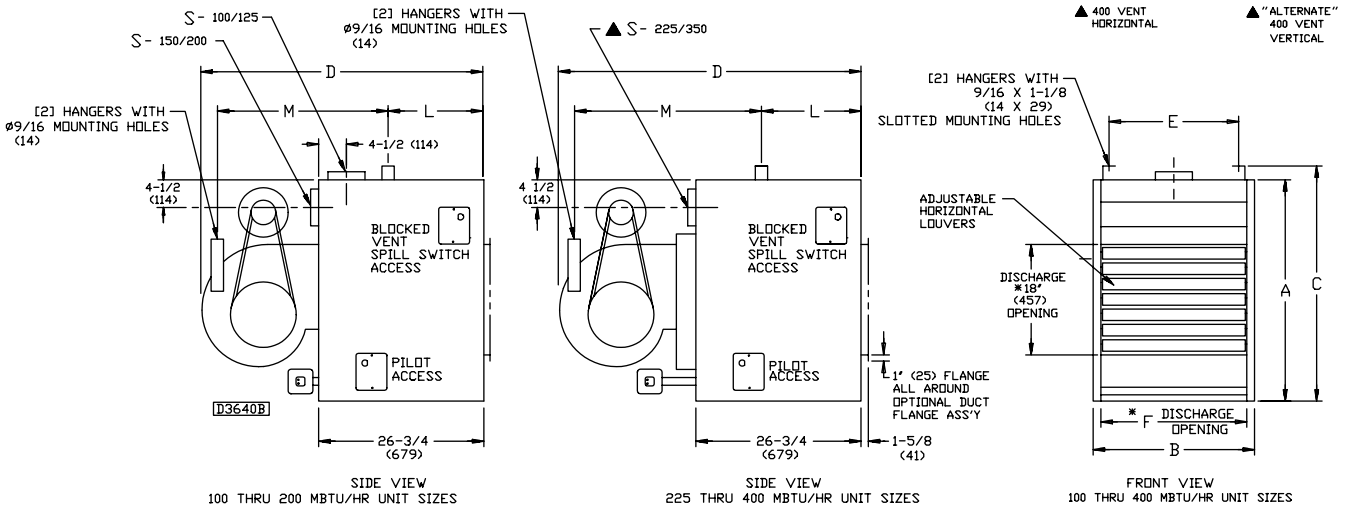
BMB – PERFORMANCE AND DIMENSIONAL DATA

Model BMB 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	1,200	1,575	1,975	2,300	2,400	2,600	2,850	3,950	4,600	4,800
(cu. m/s)	(0.566)	(0.743)	(0.932)	(1.086)	(1.133)	(1.227)	(1.345)	(1.864)	(2.171)	(2.266)
Air Temperature Rise Deg. F	62	59	56	56	62	64	65	56	56	62
(Deg. C)	(34)	(33)	(31)	(31)	(34)	(36)	(36)	(31)	(31)	(34)
Outlet Velocity FPM	880	950	1030	1045	965	935	930	1080	1090	1000
(m/s)	(4.47)	(4.83)	(5.23)	(5.31)	(4.90)	(4.75)	(4.72)	(5.49)	(5.54)	(5.08)
Full Load Amps at 115V ***	5.9	7.4	8.2	8.2	12.8	12.8	12.8	12.8	16.2	16.2
MOTOR DATA : Motor HP	1/4	1/3	1/2	1/2	3/4	3/4	3/4	3/4	1	1
Motor (kW)	(0.19)	(0.25)	(0.37)	(0.37)	(0.56)	(0.56)	(0.56)	(0.56)	(0.75)	(0.75)
Motor Type	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	cap.start	cap.start
R.P.M.	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
Amps @ 115V	5.1	6.6	7.4	7.4	12.0	12.0	12.0	12.0	15.4	15.4
DIMENSIONAL DATA in. (mm)										
"A" Height to Top of Unit	31-1/4	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Width of Unit	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"C" Height to Top of Hanger	33-1/4	33-1/4	38-1/4	38-1/4	38-1/4	38-1/4	38-1/4	38-1/4	38-1/4	38-1/4
	(845)	(845)	(972)	(972)	(972)	(972)	(972)	(972)	(972)	(972)
"D" Depth to Rear of Housing	42-5/8	44-1/4	44-1/4	47	47	51	51	48-1/4	51	51
	(1083)	(1124)	(1124)	(1194)	(1194)	(1295)	(1295)	(1226)	(1295)	(1295)
"E" Hanging Distance Width	14-3/4	17-1/2	17-1/2	20-1/4	23-	25-1/2	28-1/4	33-3/4	39-1/4	44-3/4
	(375)	(444)	(444)	(514)	(584)	(648)	(718)	(857)	(997)	(1137)
"F" Discharge Opening Width	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"L" Hanger Location	15-1/8	15-1/8	15-1/8	15-1/8	15-1/8	16-1/4	16-1/4	16-1/4	16-1/4	16-1/4
	(384)	(384)	(384)	(384)	(384)	(413)	(413)	(413)	(413)	(413)
M" Hanging Distance Depth	24-5/8	25-7/8	17-1/2	19	19	21-7/8	21-7/8	27-7/8	28-7/8	28-7/8
	(625)	(657)	(444)	(483)	(483)	(556)	(556)	(708)	(733)	(733)
"S" Flue Size Dia.-in.**	6	6	7	7	8	8	8	10	10	12
(Dia-mm)	(152)	(152)	(178)	(178)	(203)	(203)	(203)	(254)	(254)	(305)
Flue Type **	R,V	R,V	R,H	R,H	R,H	R,H	R,H	OV,H	OV,H	OV▲
Blower Size-in.	9	10	10	12	12	12	12	‡10	‡12	‡12
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.	253	270	315	335	351	396	415	459	550	582
(kg)	(115)	(122)	(143)	(152)	(159)	(180)	(188)	(208)	(249)	(264)

▲ See Special Details for BMB-400 Venting. **R = Round; OV = Oval; H = Horizontal; V = Vertical ***These amps are based on standing pilot units.
‡ 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 CAP. START = Capacitor Start



▲ 400 VENT HORIZONTAL ▲ "ALTERNATE" 400 VENT VERTICAL



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

*DISCHARGE OPENING FOR OPTIONAL 'DUCT FLANGE ASSY'

"BMEF" HIGH EFFICIENCY PROPELLER TYPE GAS-FIRED UNIT HEATERS

OUR MOST ENERGY EFFICIENT INDOOR POWER VENTED GAS-FIRED UNIT HEATER

The Beacon-Morris High Efficiency Propeller Type Unit Heaters achieve 80% thermal efficiency and annual fuel savings of 20 to 25% over conventional gravity vented heaters. The units feature a factory installed power venter and sealed flue collector that controls combustion and excess air during the on-cycle.

Heated air no longer escapes through a draft diverter opening during the off-cycle. Energy saving spark ignition reduces gas losses; the pilot only operates when required.

Horizontal power venting allows side wall venting, smaller openings and single walled vent pipe, reducing heat loss. Higher efficiencies can reduce equipment and material costs as well as installation time. Certified by CSA International and approved for installation in California.

10-YEAR WARRANTY

The complete heat exchanger, flue collector and burners are warranted by Beacon-Morris to be free from defects in materials and workmanship for a period of ten (10) years from the date of manufacture.

QUIET OPERATION

Beacon-Morris Unit Heaters incorporate exceptionally balanced fan blades to insure **quiet operation** and added heat throw.

HEAT EXCHANGERS

All Beacon-Morris 20 gauge heat exchangers are available in 3 types of:

- Aluminized Steel (Standard)
- 409 Grade Stainless Steel (Optional) (BMEF-30-400)
- 321 Grade Stainless Steel (Optional) (BMEF-100-400)

BURNERS

All sizes 30,000 thru 400,000 BTU/HR (8.8 thru 117.1 kW) input are equipped with a proven design pressed steel burner having a unique "burner shade" protective device to maximize combustion efficiencies by preventing scale or foreign matter from plugging the burner ports.

LP/NATURAL OPERATION

All units are available for operation on either natural or LP gas from our factory.

YEAR ROUND COMFORT

Controls are factory wired permitting continuous air circulation for summer comfort.

24 VOLT SYSTEM

All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment.

FAN TIME DELAY

The fan time delay is mounted at the factory as standard equipment. This feature eliminates an initial blast of cold air by allowing the unit to fire for a short period of time before actuating the fan motor. After the thermostat is satisfied (with burners off), the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger.

ENERGY SAVING IGNITION CONTROL (Standard)

The pilot burner is ignited only during each cycle of operation, thereby **conserving energy** during the off-cycle.

EASY ACCESS FOR MAINTENANCE

All Beacon-Morris Unit Heaters are so designed that the burner access panel is removed with just two screws. Burners are individually removable for inspection and servicing. Pilot is also accessible through side panel access door, on 100 thru 400 models.

TEST FIRE

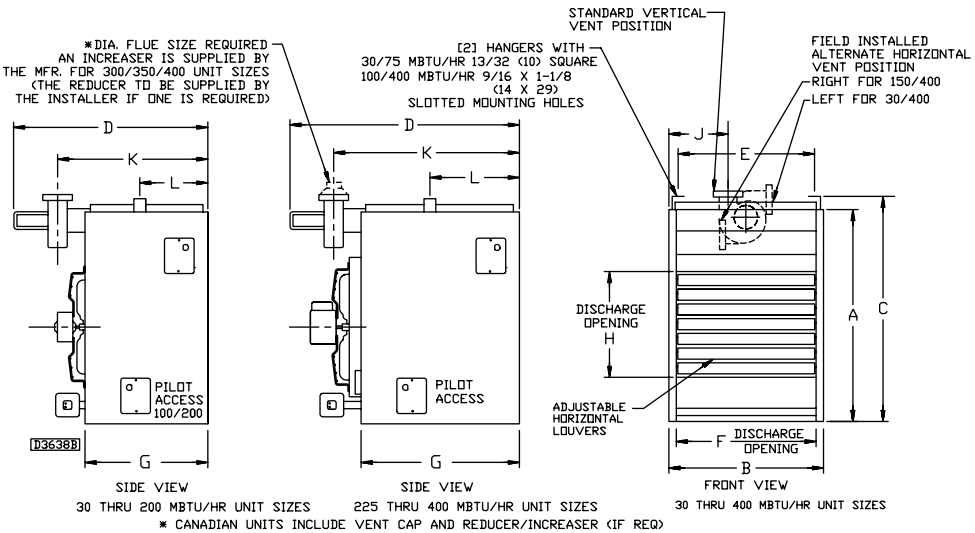
All Beacon-Morris Unit Heaters are test fired to insure proper operation.

BMEF – PERFORMANCE AND DIMENSIONAL DATA

Model BMEF Unit Size	30	45	60	75	100	125	150	175	200	225	250	300	350	400
PERFORMANCE DATA ‡														
Input BTU/Hr	30,000	45,000	60,000	75,000	100,000	125,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
(kW)	(8.8)	(13.2)	(17.6)	(22.0)	(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(65.9)	(73.2)	(87.8)	(102.5)	(117.1)
Output BTU/Hr	24,000	36,000	48,000	60,000	80,000	100,000	120,000	140,000	160,000	180,000	200,000	240,000	280,000	320,000
(kW)	(7.0)	(10.5)	(14.1)	(17.6)	(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	80	80	80	80
Free Air Delivery CFM	750	800	1,050	1,100	1,480	1,650	2,200	2,530	2,640	2,700	3,100	4,400	5,000	5,300
(cu. m/s)	(0.354)	(0.378)	(0.496)	(0.519)	(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	30	42	42	50	50	56	50	51	56	61	60	50	52	56
(Deg. C)	(17)	(23)	(23)	(28)	(28)	(31)	(28)	(28)	(31)	(34)	(33)	(28)	(29)	(31)
Outlet Velocity FPM	680	720	610	640	775	910	1,045	1,070	1,010	950	980	1,100	1,150	1,050
(m/s)	(3.45)	(3.66)	(3.10)	(3.25)	(3.94)	(4.62)	(5.31)	(5.44)	(5.13)	(4.83)	(4.98)	(5.59)	(5.84)	(5.33)
Sound Ratings (See Page 22)	II	II	II	II	II	II	II	III	III	III	IV	IV	IV	IV
Full Load Amps at 115V	4.5	4.5	4.5	4.5	5.8	6	7.2	8.2	8.2	8.2	8.2	11.2	13.2	13.2
MOTOR DATA : Motor HP	1/30	1/30	1/30	1/30	1/20	1/10	1/4	1/3	1/3	1/3	1/3	(2) 1/4	(2) 1/3	(2) 1/3
Motor (kW)	(0.025)	(0.025)	(0.025)	(0.025)	(0.037)	(0.075)	(0.186)	(0.249)	(0.249)	(0.249)	(0.249)	(0.186)	(0.249)	(0.249)
Motor Type	SP	SP	SP	SP	SP	SP	PSC	PSC	PSC	PSC	PSC	PSC	PSC	PSC
R.P.M.	1,050	1,050	1,050	1,050	1,050	1,050	1,140	1,140	1,140	1,140	1,140	1,140	1,140	1,140
Amps @ 115V	1.3	1.3	1.3	1.3	2.6	2.8	4.0	4.5	4.5	4.5	4.5	8.0	9.0	9.0
DIMENSIONAL DATA in. (mm)														
"A" Height to Top of Unit	25-3/4	25-3/4	25-3/4	25-3/4	31-1/4	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(654)	(654)	(654)	(654)	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Width of Unit	14	14	17-1/2	17-1/2	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(356)	(356)	(444)	(444)	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"C" Height to Top of Hanger	27-1/2	27-1/2	27-1/2	27-1/2	34-1/8	34-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8
	(698)	(698)	(698)	(698)	(867)	(867)	(994)	(994)	(994)	(994)	(994)	(994)	(994)	(994)
"D" Depth to Rear of Housing	30-3/8	30-3/8	30-3/8	30-3/8	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2	37-1/2
	(772)	(772)	(772)	(772)	(952)	(952)	(952)	(952)	(952)	(952)	(952)	(952)	(952)	(952)
"E" Hanging Distance Width	11	11	16-1/2	16-1/2	14-1/2	17-1/4	17-1/4	20	22-3/4	25-1/2	28-1/4	33-3/4	39-1/4	44-3/4
	(279)	(279)	(419)	(419)	(368)	(438)	(438)	(508)	(578)	(648)	(718)	(857)	(997)	(1137)
"F" Discharge Opening Width	10	10	15-1/2	15-1/2	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(254)	(254)	(394)	(394)	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"G" Depth to Unit Side Jacket	19-3/8	19-3/8	19-3/8	19-3/8	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4	26-3/4
	(492)	(492)	(492)	(492)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)	(679)
"H" Discharge Opening Height	16-1/4	16-1/4	16-1/4	16-1/4	18	18	18	18	18	18	18	18	18	18
	(413)	(413)	(413)	(413)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)	(457)
"J" to Centerline of Flue	4	4	5-3/4	5-3/4	5-7/8	7-1/4	7-1/4	8-5/8	10	11-1/4	12-3/4	15-1/2	18-1/4	21
	(102)	(102)	(146)	(146)	(149)	(184)	(184)	(219)	(254)	(286)	(324)	(394)	(464)	(533)
"K" Depth to Centerline of Flue	23-5/8	23-5/8	23-5/8	23-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8	30-5/8
	(600)	(600)	(600)	(600)	(778)	(778)	(778)	(778)	(778)	(778)	(778)	(778)	(778)	(778)
"L" Hanger Location	13-3/4	13-3/4	13-1/2	13-1/2	16-1/4	16-3/4	16-3/8	16-3/8	16-3/8	16-3/4	16-3/4	16-3/4	16-3/4	16-3/4
	(349)	(349)	(343)	(343)	(413)	(425)	(416)	(416)	(416)	(425)	(425)	(425)	(425)	(425)
Flue Size Dia.-in. *	4	4	4	4	4	4	4	4	5	5	5	6	6	6
(Dia.-mm)	(102)	(102)	(102)	(102)	(102)	(102)	(102)	(102)	(127)	(127)	(127)	(152)	(152)	(152)
Fan Diameter-in.	12	12	14	14	14	16	16	18	18	18	18	(2) 16	(2) 18	(2) 18
Gas Inlet-Natural Gas-in.	1/2	1/2	1/2	1/2	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	1/2	1/2	1/2	←		1/2 OR 3/4		→
Approx. Shipping Wt lb.	79	94	109	119	174	197	219	238	249	275	305	350	414	461
(kg)	(36)	(43)	(49)	(54)	(79)	(89)	(99)	(108)	(113)	(125)	(138)	(159)	(188)	(209)

‡ Ratings shown are for unit installations at elevations between 0 and 2000 ft. (610m) above sea level. 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: SP = SHADED POLE
PSC = PERMANENT SPLIT CAPACITOR



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

"BMEB" HIGH EFFICIENCY BLOWER TYPE GAS-FIRED UNIT HEATERS

The advanced Beacon-Morris High Efficiency Blower Type Unit Heater keeps energy costs down. The design advances achieve 80% thermal efficiency and annual fuel savings of up to 25% over conventional gravity vented heaters.

The Beacon-Morris Energy Efficient Blower Type Unit Heaters features integral power venting (factory installed) and sealed flue collector for optimum combustion. Electronic spark ignition reduces pilot gas losses, and the power venter allows for horizontal venting through side walls. It all adds up to higher seasonal efficiencies and lower installation time. Certified by CSA International and approved for use in California.

TEN-YEAR WARRANTY
The complete heat exchanger, flue collector and burner are warranted by Beacon-Morris to be free from defects in materials and workmanship for a period of ten (10) years from the date of manufacture.

QUIET OPERATION
Beacon-Morris Unit Heaters incorporate an exceptional balanced centrifugal blower to insure **quiet operation**.

HEAT EXCHANGERS
All Beacon-Morris 20 gauge heat exchangers are available in 3 types of steel:
- Aluminized Steel (Standard)
- 409 Grade Stainless Steel (Optional)
- 321 Grade Stainless Steel (Optional)

BURNERS
All sizes 100,000 thru 400,000 BTU/HR (29.3 thru 117.1 kW) input are equipped with a proven design pressed steel burner having a unique "burner shade" protective device to prevent scale or foreign matter from plugging the burner ports.

LP/NATURAL OPERATION
All units are available for operation on either natural or LP gas from our factory.

YEAR ROUND COMFORT
Controls are factory wired to permit continuous air circulation for summer comfort.

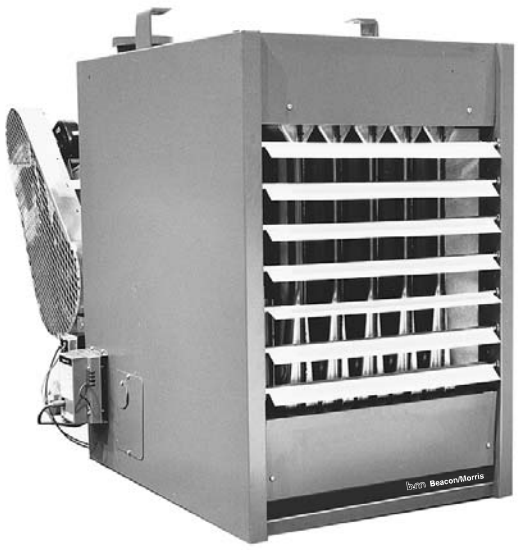
24 VOLT SYSTEM
All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment.

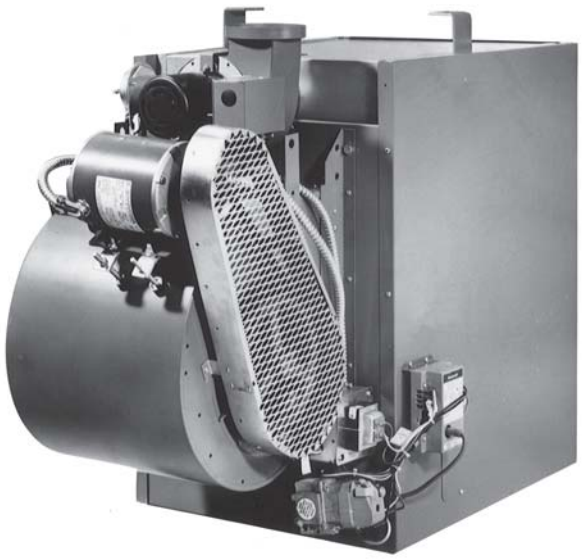
FAN TIME DELAY
The fan time delay switch is mounted at the factory as standard equipment. This feature eliminates an initial blast of cold air by allowing the unit to fire for a short period of time before actuating the fan motor. After the thermostat is satisfied (with burners off) the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger.

ENERGY SAVING IGNITION CONTROL (Standard)
The pilot burner is ignited only during each cycle of operation, thereby **conserving energy** during the off-cycle.

EASY ACCESS FOR MAINTENANCE
All Beacon-Morris Unit Heaters are so designed that the burner access panel may be removed for inspection and servicing. Pilot is also accessible through side panel access door.

TEST FIRE
All Beacon-Morris Unit Heaters are test fired to insure proper operation.



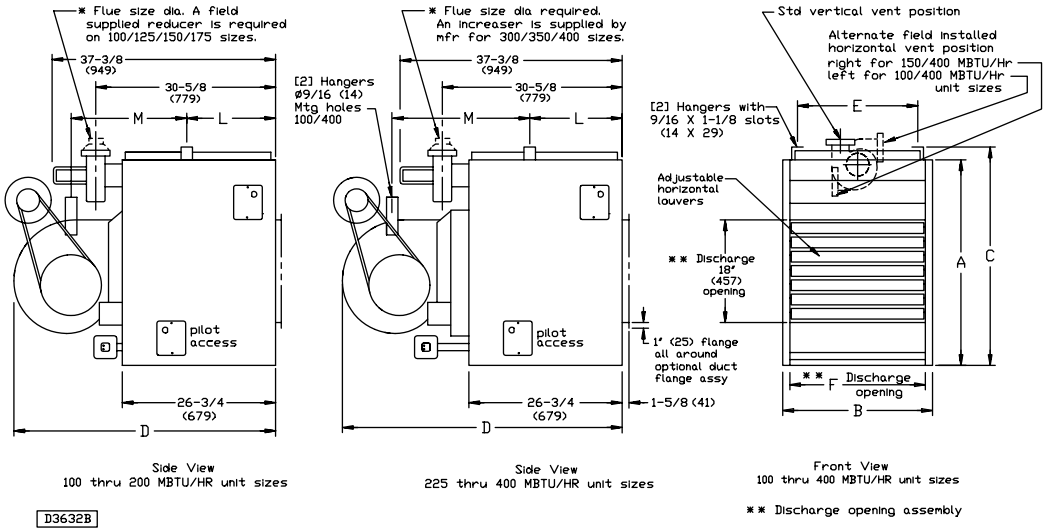


BMEB – PERFORMANCE AND DIMENSIONAL DATA

Model BMEB 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	1,200	1,575	1,975	2,300	2,400	2,600	2,850	3,950	4,600	4,800
(cu. m/s)	(0.566)	(0.743)	(0.932)	(1.086)	(1.133)	(1.227)	(1.345)	(1.864)	(2.171)	(2.266)
Air Temperature Rise Deg. F	62	59	56	56	62	64	65	56	56	62
(Deg. C)	(34)	(33)	(31)	(31)	(34)	(36)	(36)	(31)	(31)	(34)
Outlet Velocity FPM	880	950	1,030	1,045	965	935	930	1,080	1,090	1,000
(m/s)	(4.47)	(4.83)	(5.23)	(5.31)	(4.90)	(4.75)	(4.72)	(5.49)	(5.54)	(5.08)
Full Load Amps at 115V	8.3	9.8	10.6	10.6	15.2	15.2	15.2	15.2	18.6	18.6
MOTOR DATA : Motor HP	1/4	1/3	1/2	1/2	3/4	3/4	3/4	3/4	1	1
Motor (kW)	(0.19)	(0.25)	(0.37)	(0.37)	(0.56)	(0.56)	(0.56)	(0.56)	(0.75)	(0.75)
Motor Type	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	cap.start	cap.start
R.P.M.	1,725	1,725	1,725	1,725	1,725	1,725	1,725	1,725	1,725	1,725
Amps @ 115V	5.1	6.6	7.4	7.4	12.0	12.0	12.0	12.0	15.4	15.4
DIMENSIONAL DATA in. (mm)										
"A" Height to Top of Unit	31-1/4	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Width of Unit	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"C" Height to Top of Hanger	34-1/8	34-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8	39-1/8
	(867)	(867)	(994)	(994)	(994)	(994)	(994)	(994)	(994)	(994)
"D" Depth to Rear of Housing	42-5/8	44-1/4	44-1/4	47	47	51	51	48-1/4	51	51
	(1083)	(1124)	(1124)	(1194)	(1194)	(1295)	(1295)	(1226)	(1295)	(1295)
"E" Hanging Distance Width	14-1/2	17-1/4	17-1/4	20	22-3/4	25-1/2	28-1/4	33-3/4	39-1/4	44-3/4
	(368)	(438)	(438)	(508)	(578)	(648)	(718)	(857)	(997)	(1137)
"F" Discharge Opening Width	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"J" to Centerline of Flue	5-7/8	7-1/4	7-1/4	8-5/8	10	11-1/4	12-3/4	15-1/2	18-1/4	21
	(149)	(184)	(184)	(219)	(254)	(286)	(324)	(394)	(464)	(533)
"L" Hanger Location	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8	16-3/8
	(416)	(416)	(416)	(416)	(416)	(416)	(416)	(416)	(416)	(416)
"M" Hanging Distance Depth	16-3/8	16-3/8	16-3/8	17-7/8	17-7/8	21-7/8	21-7/8	21-7/8	21-7/8	21-7/8
	(416)	(416)	(416)	(454)	(454)	(556)	(556)	(556)	(556)	(556)
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)
Blower Size-in.	9	10	10	12	12	12	12	(2) 10	(2) 12	(2) 12
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.	262	279	314	336	363	408	427	471	561	594
(kg)	(119)	(127)	(142)	(152)	(165)	(185)	(194)	(214)	(254)	(269)

‡ 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
CAP. START = CAPACITOR START



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

* Canadian units include a vent cap, and reducer/increaser if req.

"BMSF" SEPARATED COMBUSTION PROPELLER TYPE UNIT HEATER

The Beacon-Morris Separated Combustion Propeller Type Unit Heater keeps energy costs down by offering 80% thermal efficiencies. With model inputs available from 100 thru 400 MBH, they are designed to be installed in mildly hostile environments where dusty, dirty and mildly corrosives exist or high humidity or slightly negative pressures prevail.

The Beacon-Morris model BMSF propeller unit separates 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 gas products to the outside. The burners, pilot and flue system are enclosed within the unit. The entire combustion process is literally unaffected by the atmosphere in the space where the unit is located.

Combustion and exhaust air may be piped horizontally through side walls, or vertically through the roof via our standard 2 pipe venting arrangement or optional concentric vent kit which utilizes one 8" side wall or rooftop penetration for both the combustion and exhaust air. Both venting systems are CSA International certified.

TYPICAL INSTALLATIONS

- Industrial work areas with wood or textile dust
- Non-explosive contaminated environments
- Non-chlorine process areas
- Automotive and truck garages
- Greenhouses

HEAT EXCHANGERS

All heat exchangers feature 20 gauge tubes and 18 gauge headers and are available in 3 types of steel:

- Aluminized Steel (Standard)
- 409 Grade Steel Stainless Steel (Optional)
- 321 Grade Stainless Steel (Optional)

BURNERS

All sizes 100,000 thru 400,000 BTU/HR (29.3 thru 117.1 kW) input are equipped with a proven design pressed steel burner having a unique "shaded port" protective device to prevent scale and debris from plugging the burner ports.

LP/NATURAL OPERATION

All units are available for operation on either natural or LP gas from our factory.

24 VOLT SYSTEM

All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment.

FAN TIME DELAY

The fan time delay switch is mounted at the factory as standard equipment. This feature eliminates the initial blast of cold air by allowing the unit to fire for a short period of time prior to the actuating the fan motor. After the thermostat is satisfied (with burners off) the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger.

EASY ACCESS FOR MAINTENANCE

The Beacon-Morris Separated Combustion Units are designed so that the bottom hinged access panel drops down for quick and easy burner inspection and removal.

TEST FIRE

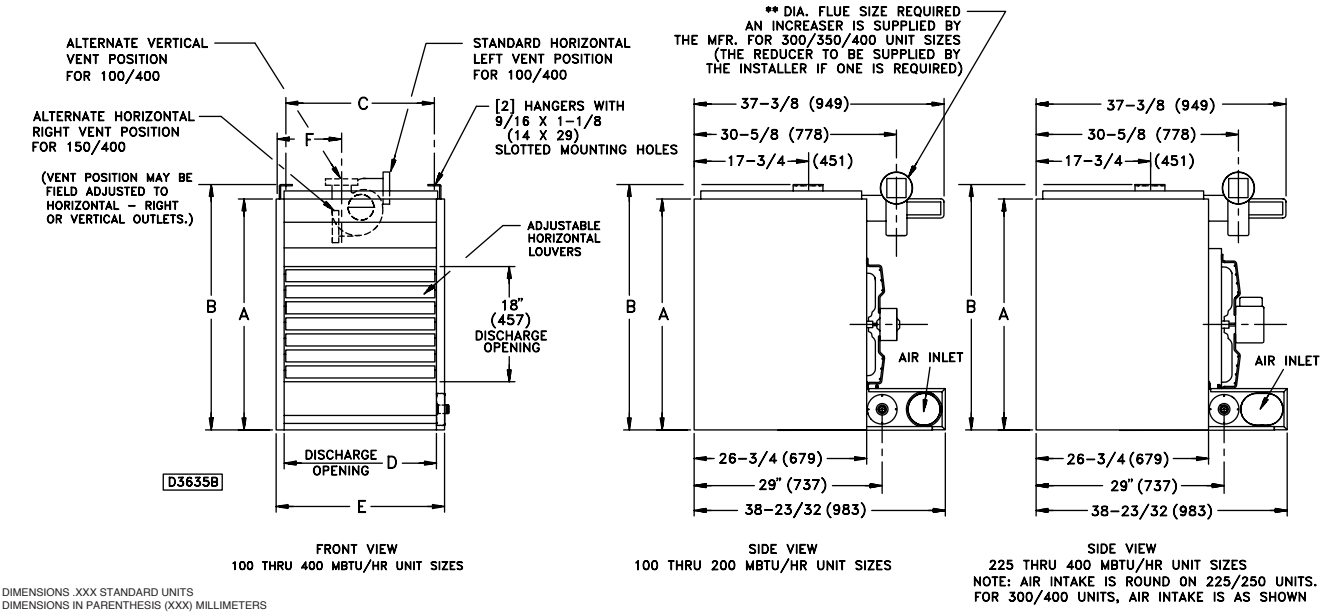
All Beacon-Morris Unit Heaters are test fired to insure proper operation.

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	2200	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	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Height to Top of Hanger	34-1/16	34-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16
	(865)	(865)	(992)	(992)	(992)	(992)	(992)	(992)	(992)	(992)
"C" Hanging Distance Width	14-3/4	17-1/2	17-1/2	20-1/4	23	25-3/4	28-1/2	34	39-1/2	45
	(375)	(445)	(445)	(514)	(584)	(654)	(724)	(864)	(1003)	(1143)
"D" Discharge Opening Width	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"E" Width of Unit	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"F" to Centerline of Flue	5-7/8	7-1/4	7-1/4	8-5/8	10	11-1/4	12-3/4	15-1/2	18-1/4	21
	(149)	(184)	(184)	(219)	(254)	(286)	(324)	(394)	(464)	(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 INCUDE A VENT CAP, AND REDUCER/INCREASER (IF REQ'D)

"BMSB" SEPARATED COMBUSTION BLOWER TYPE UNIT HEATER

The Beacon-Morris Separated Combustion Blower Type Unit Heater keeps energy costs down by offering 80% thermal efficiencies. With model inputs available from 100 thru 400 MBH they are designed to be installed in midly hostile environments where dusty, dirty and mildly corrosives exist or high humidity or slightly negative pressures prevail. The BMSB operates at a static pressure up to .2" W.C. and is available with a (standard) louvered or (optional) flanged outlet when discharge duct work is desired.

The Beacon-Morris model BMSB blower unit separates 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 gas products to the outside. The burners, pilot and flue system are enclosed within the unit. The entire combustion process is literally unaffected by the atmosphere in the space where the unit is located.

Combustion and exhaust air may be piped horizontally through side walls, or vertically through the roof via our standard 2 pipe venting arrangement or optional concentric vent kit which utilizes one 8" side wall or rooftop penetration for both the combustion and exhaust air. Both venting systems are CSA International certified.

TYPICAL INSTALLATIONS

- Industrial work areas with wood or textile dust
- Non-explosive contaminated environments
- Non-chlorine process areas
- Automotive and truck garages
- Greenhouses

HEAT EXCHANGERS

All heat exchangers feature 20 gauge tubes and 18 gauge headers and are available in 3 types of steel:

- Aluminized Steel (Standard)
- 409 Grade Steel Stainless Steel (Optional)
- 321 Grade Stainless Steel (Optional)

BURNERS

All sizes 100,000 thru 400,000 BTU/HR (29.3 thru 117.1 kW) input are equipped with a proven design pressed steel burner having a unique "shaded port" protective device to prevent scale and debris from plugging the burner ports.

LP/NATURAL OPERATION

All units are available for operation on either natural or LP gas from our factory.

24 VOLT SYSTEM

All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment.

FAN TIME DELAY

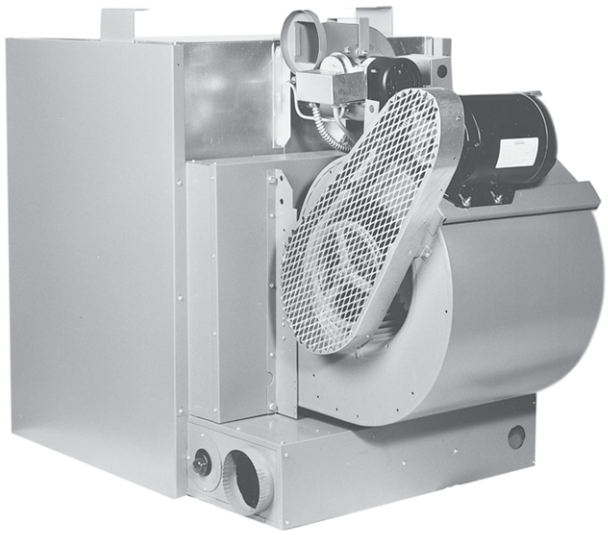
The fan time delay switch is mounted at the factory as standard equipment. This feature eliminates the initial blast of cold air by allowing the unit to fire for a short period of time prior to the actuating the fan motor. After the thermostat is satisfied (with burners off) the fan continues to operate for approximately 1 minute, removing residual heat from the heat exchanger.

EASY ACCESS FOR MAINTENANCE

The Beacon-Morris Separated Combustion Units are designed so that the bottom hinged access panel drops down for quick and easy burner inspection and removal.

TEST FIRE

All Beacon-Morris Unit Heaters are test fired to insure proper operation.

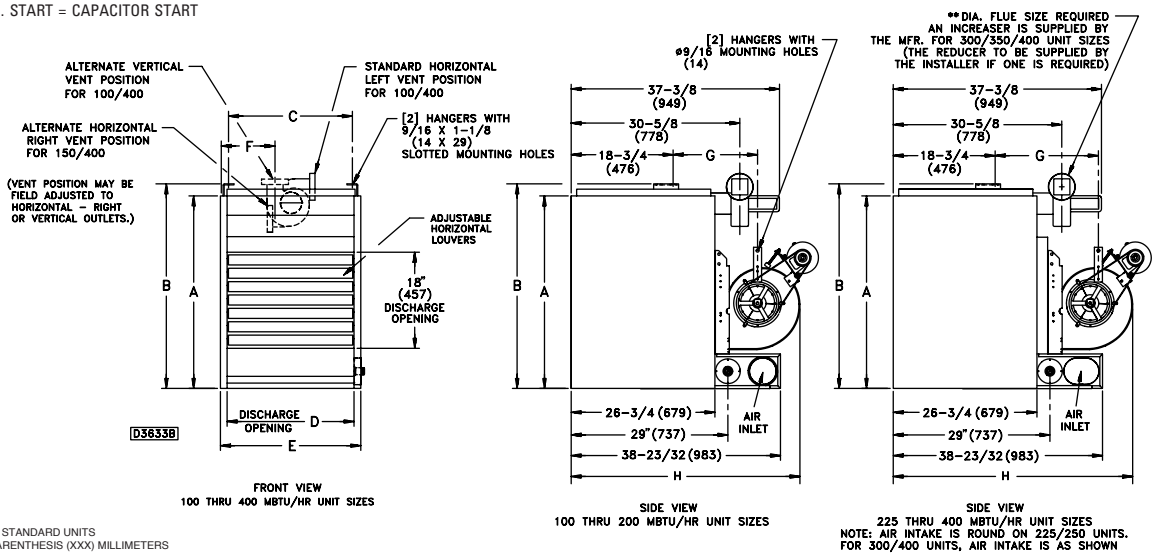


BMSB – PERFORMANCE AND DIMENSIONAL DATA

Model BMSB 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	1,200	1,575	1,975	2,300	2,400	2,600	2,850	3,950	4,600	4,800
(cu. m/s)	(0.566)	(0.743)	(0.932)	(1.086)	(1.133)	(1.227)	(1.345)	(1.864)	(2.171)	(2.266)
Air Temperature Rise Deg. F.	62	59	56	56	62	64	65	56	56	62
(Deg. C)	(34)	(33)	(31)	(31)	(34)	(36)	(36)	(31)	(31)	(34)
Outlet Velocity FPM	880	950	1030	1045	965	935	930	1080	1090	1000
(m/s)	(4.47)	(4.83)	(5.23)	(5.31)	(4.90)	(4.75)	(4.72)	(5.49)	(5.54)	(5.08)
Full Load Amps at 115V	8.3	9.8	10.6	10.6	15.2	15.2	15.2	15.2	18.6	18.6
MOTOR DATA: Motor HP	1/4	1/3	1/2	1/2	3/4	3/4	3/4	3/4	1	1
Motor (kW)	(0.19)	(0.25)	(0.37)	(0.37)	(0.56)	(0.56)	(0.56)	(0.56)	(0.75)	(0.75)
Motor Type	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH	cap.start	cap.start
R.P.M.	1725	1725	1725	1725	1725	1725	1725	1725	1725	1725
Amps @ 115V	5.1	6.6	7.4	7.4	12.0	12.0	12.0	12.0	15.4	15.4
DIMENSIONAL DATA in. (mm)										
"A" Height to Top of Unit	31-1/4	31-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4	36-1/4
	(794)	(794)	(921)	(921)	(921)	(921)	(921)	(921)	(921)	(921)
"B" Height to Top of Hanger	34-1/16	34-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16	39-1/16
	(865)	(865)	(992)	(992)	(992)	(992)	(992)	(992)	(992)	(992)
"C" Hanging Distance Width	14-3/4	17-1/2	17-1/2	20-1/4	23	25-3/4	28-1/2	34	39-1/2	45
	(375)	(444)	(444)	(514)	(584)	(654)	(724)	(864)	(1003)	(1143)
"D" Discharge Opening Width	15-3/8	18-1/8	18-1/8	20-7/8	23-5/8	26-3/8	29-1/8	34-5/8	40-1/8	45-5/8
	(391)	(460)	(460)	(530)	(600)	(670)	(740)	(879)	(1019)	(1159)
"E" Width of Unit	17-7/8	20-5/8	20-5/8	23-3/8	26-1/8	28-7/8	31-5/8	37-1/8	42-5/8	48-1/8
	(454)	(524)	(524)	(594)	(664)	(733)	(803)	(943)	(1083)	(1222)
"F" to Centerline of Flue	5-7/8	7-1/4	7-1/4	8-5/8	10	11-1/4	12-3/4	15-1/2	18-1/4	21
	(149)	(184)	(184)	(219)	(254)	(286)	(324)	(394)	(464)	(533)
"G" Hanging Distance Depth	18-1/2	18-1/2	18-1/2	20	20	23	23	23	23	23
	(470)	(470)	(470)	(508)	(508)	(584)	(584)	(584)	(584)	(584)
"H" Depth to Rear of Housing	42-3/4	44-3/8	44-3/8	47-3/16	47-3/16	50-7/8	48	50-7/8	50-7/8	51
	(1086)	(1127)	(1127)	(1199)	(1199)	(1292)	(1219)	(1292)	(1292)	(1295)
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)
Blower Size-in.	9	10	10	12	12	12	12	(2)10	(2)12	(2)12
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.	298	330	362	394	426	458	490	558	618	678
(kg)	(135)	(150)	(164)	(179)	(193)	(208)	(222)	(253)	(280)	(308)

‡ 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
CAP. START = CAPACITOR START



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

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

INDOOR DUCT FURNACE

Beacon-Morris Indoor Duct Furnaces are 80% efficient and are designed for ducted air applications. These are typically built up systems using a separate air moving device and may be heating only or heating and air conditioning applications. All Beacon-Morris duct furnaces are CSA International certified for installation upstream or downstream from cooling coils **(stainless steel heat exchangers are recommended).**

HEAT EXCHANGERS

All heat exchangers feature 20 gauge tubes and 18 gauge headers and are available in 3 types of steel:

- Aluminized Steel (Standard)
- 409 Grade Stainless Steel (Optional)
- 321 Grade Stainless Steel (Optional)

We recommend stainless steel for applications where entering air is below 40° F. (4.4° C.) and/or duct furnaces are located downstream from cooling coils.

AVAILABLE MODELS

All models are offered in 10 capacities from 100,000 to 400,000 BTU/HR (29.3 thr 117.1 kW). All models are test fired at our factory, may be ordered equipped for LP or natural gas, are tested to operate against 2.0 inches (0.5 kPa) water column pressure and may be ordered with right (std.) or left hand (opt.) control access.

MODEL BMD

Includes standing pilot, combination gas valve, high limit control, and 115/24 volt transformer. Model BMD offers bottom access for burner servicing.

MODEL BMED

Similar to model BMD, the BMED features integral power venting, sealed flue collecter and electronic spark ignition. Annual fuel savings and seasonal efficiency are increased while reducing installation time. Certified by CSA International and approved for use in California.

MODEL BMS

Similar to model BMD except that the BMS offers a side access burner drawer which slides out for servicing, reducing bottom clearance requirements.

MODELS BMES

Combine the BMED features with a side access burner drawer in lieu of bottom access.

ENERGY SAVING OPTIONS

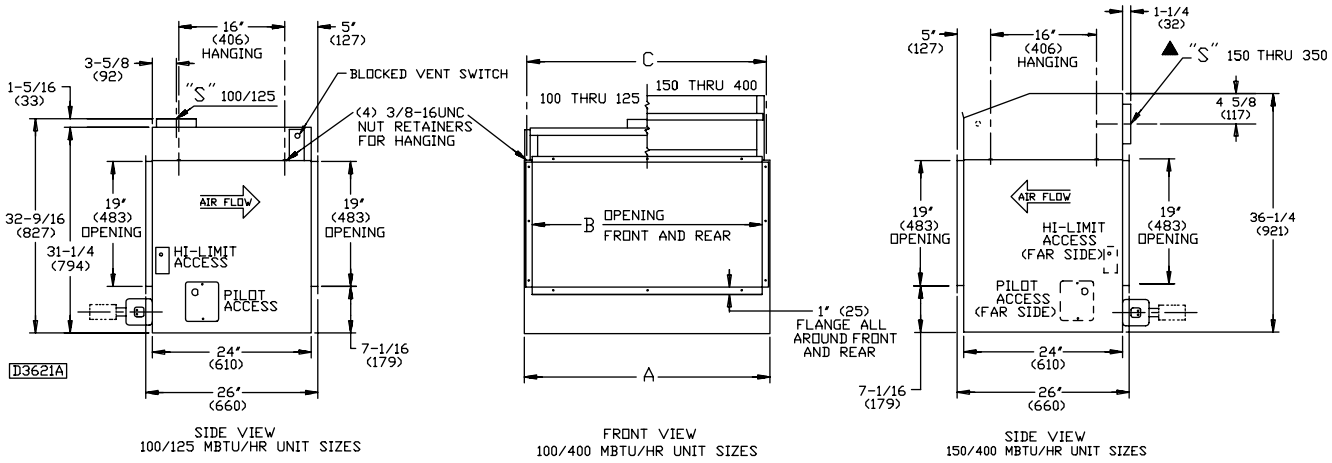
Models BMD/BMS may be ordered with electronic spark ignition (factory installed) and a draftor may be field installed. Models BMD/BMS equipped with electronic spark ignition are approved for use in California.

MODEL BMD

MODEL BMES

DETAILS AND DIMENSIONS

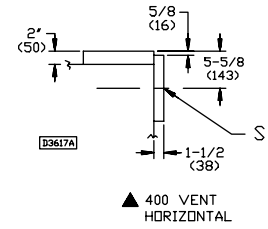
BMD Standard Duct Furnace (Natural Vent) — Bottom Service Access



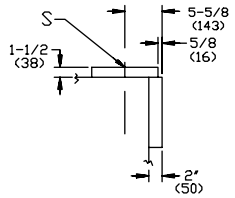
Natural Vent Duct Furnace (BMD/BMS)

UNIT SIZE	A in. (mm)	B in. (mm)	C in. (mm)	F in. (mm)	S in. (mm)	GAS INLET in. NAT.	GAS INLET in. LP	WEIGHT lb. (kg)
100	17-7/8 (454)	15-1/2 (394)	17-1/8 (435)	23-7/8 (606)	6 RV (152) RV	1/2	1/2	162 (73)
125	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	26-5/8 (676)	6 RV (152) RV	1/2	1/2	175 (79)
150	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	26-5/8 (676)	7 RH (178) RH	1/2	1/2	186 (84)
175	23-3/8 (594)	21 (533)	22-5/8 (575)	29-3/8 (746)	7 RH (178) RH	1/2	1/2	205 (93)
200	26-1/8 (664)	23-3/4 (603)	25-3/8 (645)	32-1/8 (816)	8 RH (203) RH	1/2	1/2	221 (100)
225	28-7/8 (733)	26-1/2 (673)	28-1/8 (714)	34-7/8 (886)	8 RH (203) RH	3/4	1/2 OR 3/4	243 (110)
250	31-5/8 (803)	29-1/4 (743)	30-7/8 (784)	37-5/8 (956)	8 RH (203) RH	3/4	1/2 OR 3/4	252 (114)
300	37-1/8 (943)	34-3/4 (883)	36-3/8 (924)	43-1/8 (1095)	10 OV, H (254) OV, H	3/4	1/2 OR 3/4	301 (137)
350	42-5/8 (1083)	40-1/4 (1022)	41-7/8 (1064)	48-5/8 (1235)	10 OV, H (254) OV, H	3/4	1/2 OR 3/4	378 (171)
400	48-1/8 (1222)	45-3/4 (1162)	47-3/8 (1203)	54-1/8 (1375)	12 OV▲ (305) OV▲	3/4	1/2 OR 3/4	392 (178)

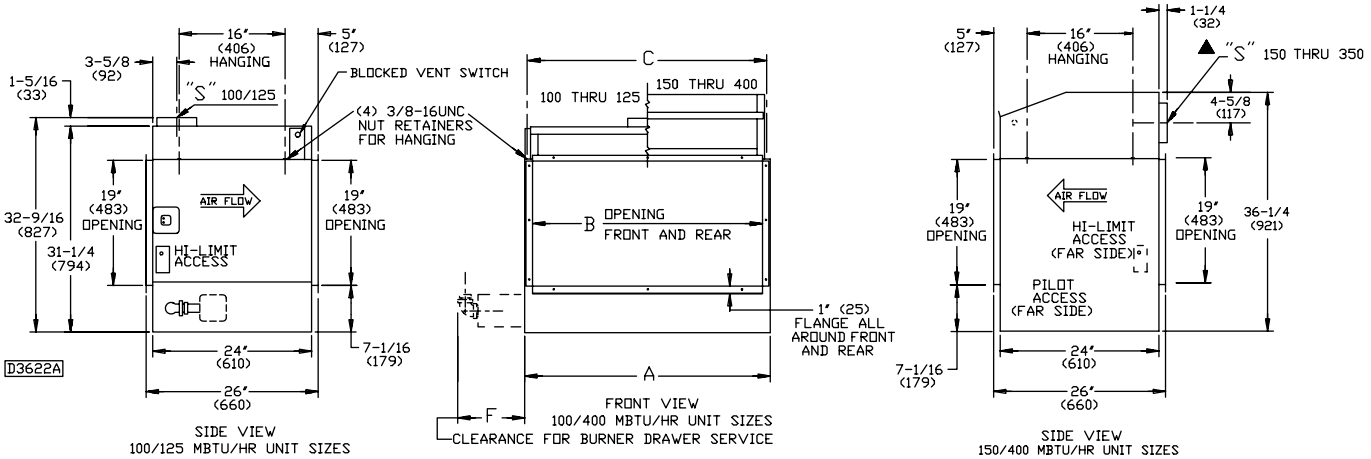
R = Round, H = Horizontal, OV = Oval, V = Vertical



DIMENSIONS XX″ STANDARD UNITS
DIMENSIONS IN PARENTHESIS (XX) MILLIMETERS

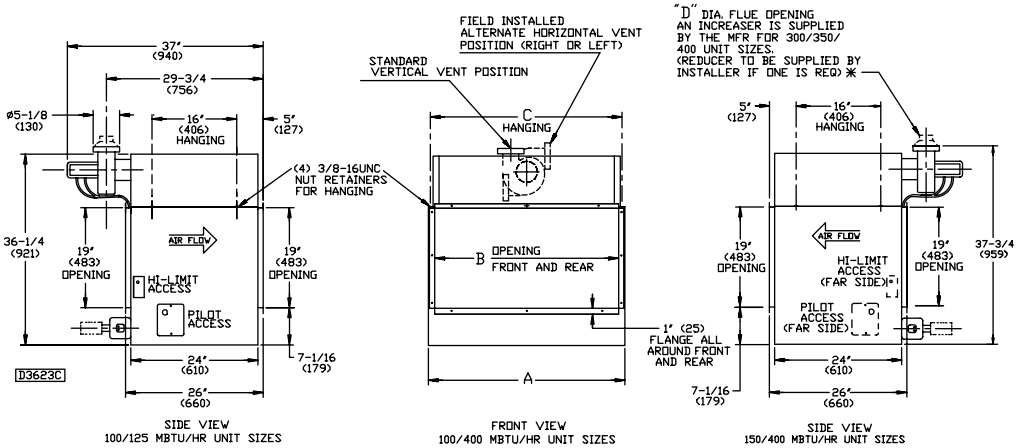


BMS Side Service Access Duct Furnace (Natural Vent)



DETAILS AND DIMENSIONS

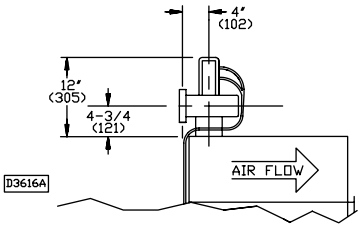
BMED Power Vented Furnace — Bottom Service Acccess



* CANADIAN UNITS INCLUDE VENT CAP AND REDUCER (IF REQ'D).
REAR VENT POSITION SHOWN SEE DETAIL G FOR OPTIONAL TOP VENT POSITION

Power Vented Duct Furnace (BMED/BMES)

UNIT SIZE	A in. (mm)	B in. (mm)	C in. (mm)	D (Dia)* in. (mm)	F in. (mm)	GAS INLET in. NAT.	GAS INLET in. LP	WEIGHT lb. (kg)
100	17-7/8 (454)	15-1/2 (394)	17-1/8 (435)	4 (102)	23-7/8 (606)	1/2	1/2	173 (78)
125	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	4 (102)	25-5/8 (651)	1/2	1/2	186 (84)
150	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	4 (102)	26-5/8 (676)	1/2	1/2	197 (89)
175	23-3/8 (594)	21 (533)	22-5/8 (575)	4 (102)	29-3/8 (746)	1/2	1/2	216 (98)
200	26-1/8 (664)	23-3/4 (603)	25-3/8 (645)	5 (127)	32-1/8 (816)	1/2	1/2	232 (105)
225	28-7/8 (733)	26-1/2 (673)	28-1/8 (714)	5 (127)	34-7/8 (886)	3/4	1/2 OR 3/4	254 (115)
250	31-5/8 (803)	29-1/4 (743)	30-7/8 (784)	5 (127)	37-5/8 (956)	3/4	1/2 OR 3/4	263 (119)
300	37-1/8 (943)	34-3/4 (883)	36-3/8 (924)	6 (152)	43-1/8 (1095)	3/4	1/2 OR 3/4	312 (142)
350	42-5/8 (1083)	40-1/4 (1022)	41-7/8 (1064)	6 (152)	48-5/8 (1235)	3/4	1/2 OR 3/4	389 (176)
400	48-1/8 (1222)	45-3/4 (1162)	47-3/8 (1203)	6 (152)	54-1/8 (1375)	3/4	1/2 OR 3/4	403 (183)

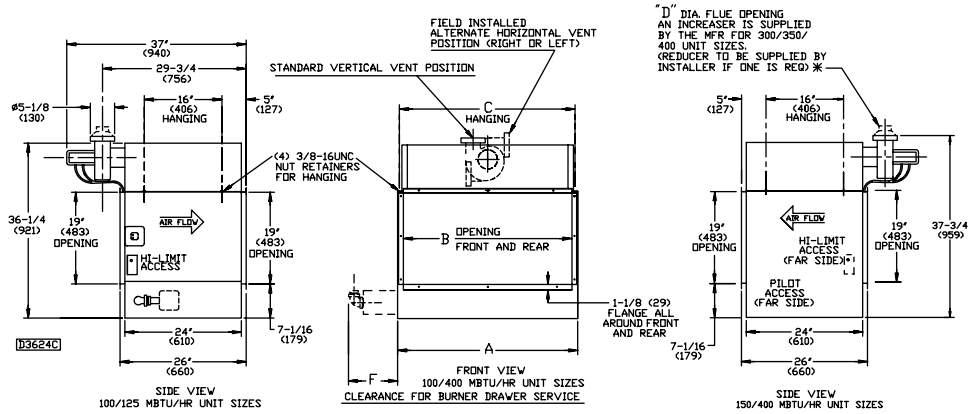


DETAIL G

POSITIONS - FRONT - REAR - RIGHT - LEFT

DIMENSIONS XX" STANDARD UNITS
DIMENSIONS IN PARENTHESIS (XX) MILLIMETERS

BMES Power Vented Duct Furnace — Side Service Access



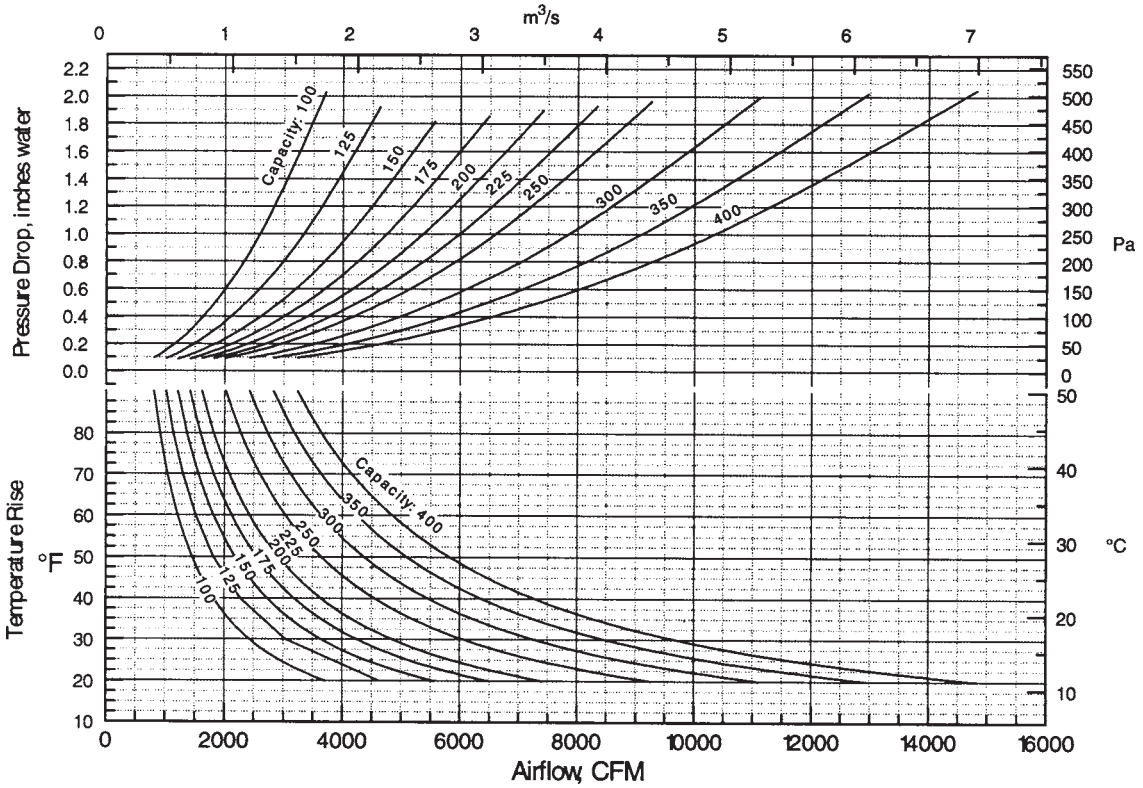
* CANADIAN UNITS INCLUDE VENT CAP AND REDUCER (IF REQ'D).
REAR VENT POSITION SHOWN SEE DETAIL G FOR OPTIONAL TOP VENT POSITION

DUCT FURNACE – PERFORMANCE DATA

UNIT SIZE	INPUT (MAX) MBH (kW)	INPUT (MIN) MBH (kW)	OUTPUT MBH (kW)	MIN. CFM (cu. m/s)	Temp. Rise Deg. F. (Deg. C.)	P.D. in. of W.C. (kPa)	MAX. CFM (cu. m/s)	Temp. Rise Deg. F. (Deg. C.)	P.D. in. of W.C. (kPa)
100	100	50	80	929	80	0.12	2469	30	0.90
	(29.3)	(14.6)	(23.4)	(0.438)	(44)	(0.03)	(1.165)	(17)	(0.22)
125	125	62.5	100	1157	80	0.13	3086	30	0.80
	(36.6)	(18.3)	(29.3)	(0.546)	(44)	(0.03)	(1.457)	(17)	(0.20)
150	150	75	120	1389	80	0.15	3704	30	0.75
	(43.9)	(22.0)	(35.1)	(0.656)	(44)	(0.04)	(1.748)	(17)	(0.19)
175	175	87.5	140	1620	80	0.14	4321	30	0.75
	(51.2)	(25.6)	(41.0)	(0.765)	(44)	(0.03)	(2.040)	(17)	(0.19)
200	200	100	160	1852	80	0.14	4938	30	0.75
	(58.6)	(29.3)	(46.9)	(0.874)	(44)	(0.03)	(2.331)	(17)	(0.19)
225	225	112.5	180	2083	80	0.14	5556	30	0.75
	(65.9)	(32.9)	(52.7)	(0.983)	(44)	(0.03)	(2.622)	(17)	(0.19)
250	250	125	200	2315	80	0.14	6173	30	0.80
	(73.2)	(36.6)	(58.6)	(1.093)	(44)	(0.03)	(2.914)	(17)	(0.20)
300	300	150	240	2778	80	0.13	7407	30	0.90
	(87.8)	(43.9)	(70.3)	(1.311)	(44)	(0.03)	(3.496)	(17)	(0.22)
350	350	175	280	3241	80	0.13	8642	30	0.90
	(102.5)	(51.2)	(82.0)	(1.530)	(44)	(0.03)	(4.079)	(17)	(0.22)
400	400	200	320	3704	80	0.14	9877	30	0.90
	(117.1)	(58.6)	(93.7)	(1.748)	(44)	(0.03)	(4.662)	(17)	(0.22)

NOTE: 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.

TEMPERATURE RISE AND PRESSURE DROP GRAPH



SEPARATED COMBUSTION INDOOR DUCT FURNACE

The Beacon-Morris Separated Combustion Indoor Duct Furnace is the newest addition to the Beacon-Morris 80% efficient indoor product line. Designed for installation in mildly hostile environments, the Separated Combustion Duct Furnace is available in sizes ranging from 100 to 400 MBTU (29.3 to 117.1 kW) inputs and offers a variety of optional equipment.

APPLICATIONS

The Beacon-Morris model BMSD Separated Combustion Duct Furnace is designed to be installed in dusty, dirty or mildly corrosive environments, or where high humidity or slightly negative pressures exists. Ideal applications include HVAC equipment rooms, manufacturing facilities, automotive garages and greenhouses.

DESCRIPTION

The BMSD Combustion Duct Furnace "separates" the combustion process from the environment where the unit is installed. A power venting system draws a controlled amount of combustion air from outside of the building. The same system exhausts the flue gases to the outside. The burners, pilot and flue system are totally enclosed within the unit, thus the entire combustion process is literally unaffected by the atmosphere in the space where the Duct Furnace is located.

ADDITIONAL FEATURES

- CSA International certified as 80% efficient.
- Unit's interior components fully accessible via bottom access door.
- Factory equipped with an electronic spark ignition system.
- Rugged 20 gauge heat exchanger and jacketry.
- 2 styles of CSA International approved venting systems: two pipe or concentric. The two pipe system allows for two (4", 5" or 6") individual building terminations. The concentric adapter kit utilizes on 8" termination in which both the flue gas and combustion air passes.

SPECIFICATION GUIDE - MODEL BMSD

Beacon-Morris Model BMSD Separated Combustion Duct Furnaces are completely factory assembled, piped, wired and test fired. All models are CSA international certified as having 80% thermal efficiency. This certification includes operation on either natural or LP (propane) gas. All models conform to latest ANSI Standards for safe operation.

Casings are die-formed 20-gauge bonderized steel, finished in baked enamel. Heat exchangers consists of 20-gauge tubes and 18-gauge headers. Heat exchangers are available in aluminized steel, 409 stainless steel and type 321 stainless steel. Burners are individually removable, die-formed and feature stainless steel port protectors. Burners are available in aluminized or type 409 stainless steel.

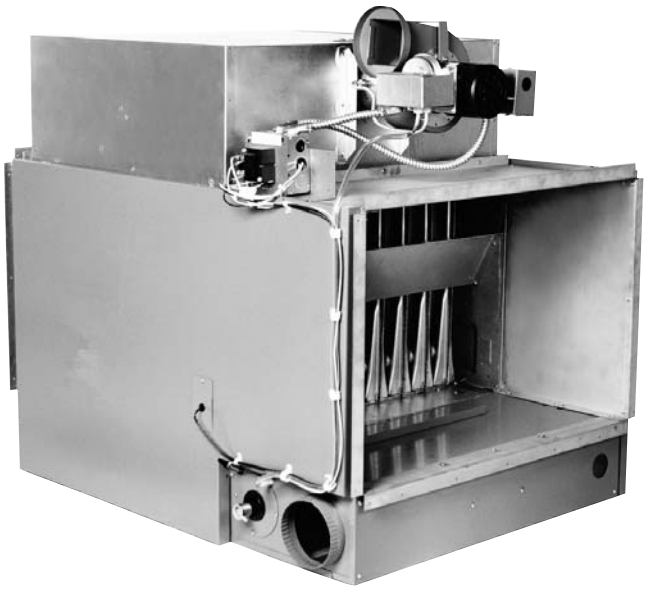
All models are equipped with electronic spark ignition (100% safety shutoff on LP models), 115 volt power, vent system pressure switch, high limit switch and 24 volt control transformer.

All models are factory assembled with a horizontal flue discharge position. A vertical flue position may be altered in the field

All models must be vented utilizing our certified standard two-pipe method or optional concentric adapter kit.

CAUTIONS

- Combustion air and vent systems must be installed in accordance with the current National Fuel Gas Code or Installation Code for Natural Gas Burning Appliances and Equipment (Canada).
- Local and State authorities should also be consulted to determine their requirements.
- Units should not be installed where negative pressures are significant.
- Units should not be installed where vapors containing chlorine or fluorine may be present. Care should be taken not to draw combustion air from or near a contaminated environment.
- Units should not be installed in areas classified as "hazardous".



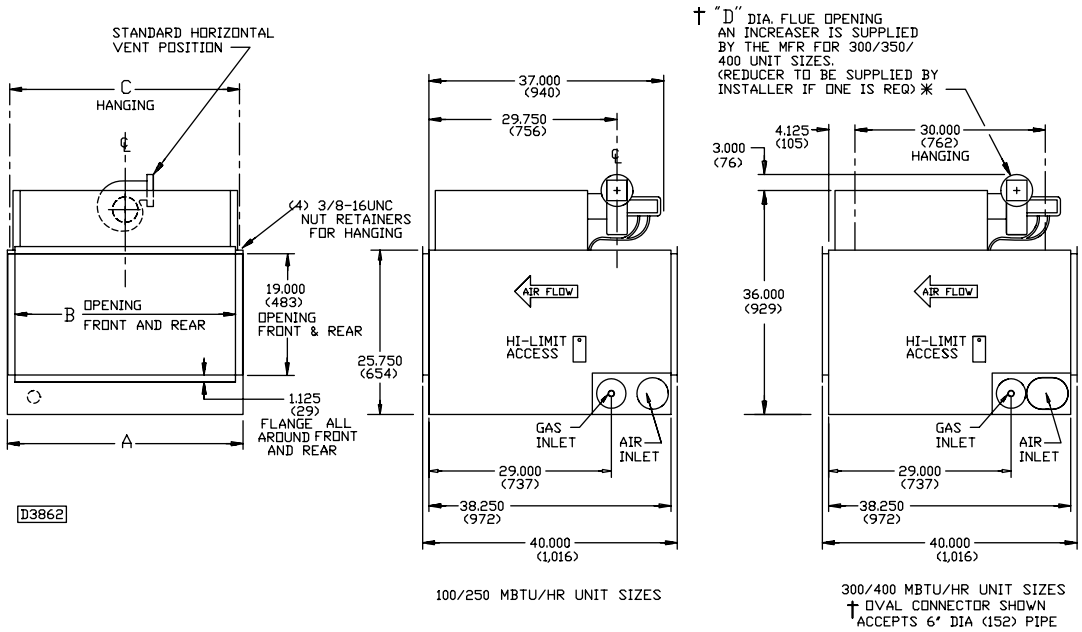
DETAILS AND DIMENSIONS

Separated Combustion Indoor Duct Furnace (BMSD)

UNIT SIZE	A in. (mm)	B in. (mm)	C in. (mm)	D (Dia)*† in. (mm)	GAS INLET in. NAT.	GAS INLET in. LP	WEIGHT lb. (kg)
100	17-7/8 (454)	15-1/2 (394)	17-1/8 (435)	4 (102)	1/2	1/2	161 (73)
125	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	4 (102)	1/2	1/2	180 (82)
150	20-5/8 (524)	18-1/4 (464)	19-7/8 (505)	4 (102)	1/2	1/2	188 (85)
175	23-3/8 (594)	21 (533)	22-5/8 (575)	4 (102)	1/2	1/2	207 (93)
200	26-1/8 (664)	23-3/4 (603)	25-3/8 (645)	5 (127)	1/2	1/2	227 (103)
225	28-7/8 (733)	26-1/2 (673)	28-1/8 (714)	5 (127)	3/4	1/2 OR 3/4	246 (116)
250	31-5/8 (803)	29-1/4 (743)	30-7/8 (784)	5 (127)	3/4	1/2 OR 3/4	266 (121)
300	37-1/8 (943)	34-3/4 (883)	36-3/8 (924)	6 (152)	3/4	1/2 OR 3/4	305 (138)
350	42-5/8 (1083)	40-1/4 (1022)	41-7/8 (1064)	6 (152)	3/4	1/2 OR 3/4	344 (156)
400	48-1/8 (1222)	45-3/4 (1162)	47-3/8 (1203)	6 (152)	3/4	1/2 OR 3/4	383 (174)

†NOTE: "D" diameter equals the air inlet opening and the flue discharge opening.

BMSD Separated Combustion Duct Furnace — Bottom Service Access Only



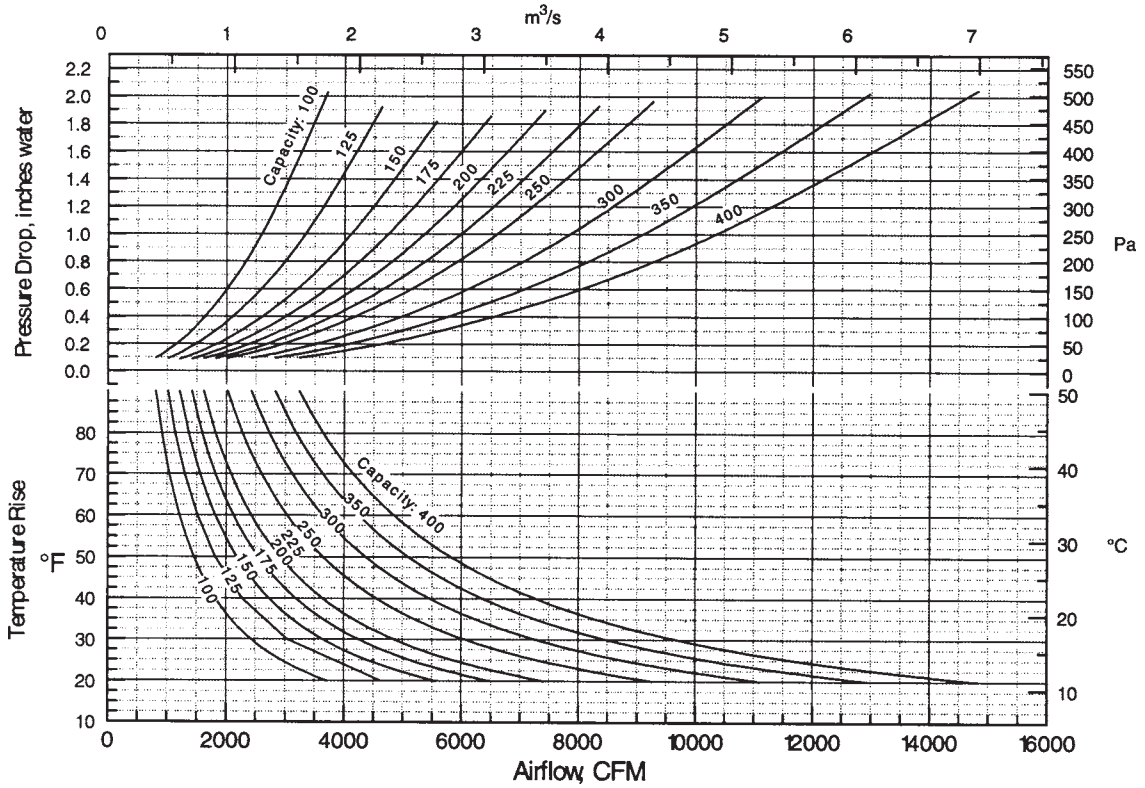
*CANADIAN UNITS INCLUDE VENT CAP AND REDUCER (IF REQ'D)
DIMENSIONS XXX STANDARD UNITS
DIMENSIONS IN PARENTHESIS (XXX) MILLIMETERS

SEPARATED COMBUSTION DUCT FURNACE – PERFORMANCE DATA

UNIT SIZE	INPUT (MAX) MBH (kW)	INPUT (MIN) MBH (kW)	OUTPUT MBH (kW)	MIN. CFM (cu. m/s)	Temp. Rise Deg. F. (Deg. C.)	P.D. in. of W.C. (kPa)	MAX. CFM (cu. m/s)	Temp. Rise Deg. F. (Deg. C.)	P.D. in. of W.C. (kPa)
100	100	50	80	822	90	0.10	3700	20	2.03
	(29.3)	(14.6)	(23.4)	(0.388)	(50)	(0.02)	(1.746)	(11)	(0.51)
125	125	62.5	100	1028	90	0.09	4625	20	1.92
	(36.6)	(18.3)	(29.3)	(0.485)	(50)	(0.02)	(2.183)	(11)	(0.48)
150	150	75	120	1233	90	0.09	5550	20	1.81
	(43.9)	(22.0)	(35.1)	(0.582)	(50)	(0.02)	(2.620)	(11)	(0.45)
175	175	87.5	140	1439	90	0.09	6475	20	1.86
	(51.2)	(25.6)	(41.0)	(0.679)	(50)	(0.02)	(3.056)	(11)	(0.46)
200	200	100	160	1645	90	0.09	7401	20	1.90
	(58.6)	(29.3)	(46.9)	(0.776)	(50)	(0.02)	(3.493)	(11)	(0.47)
225	225	112.5	180	1850	90	0.09	8326	20	1.93
	(65.9)	(32.9)	(52.7)	(0.873)	(50)	(0.02)	(3.930)	(11)	(0.48)
250	250	125	200	2056	90	0.09	9251	20	1.96
	(73.2)	(36.6)	(58.6)	(0.970)	(50)	(0.02)	(4.366)	(11)	(0.49)
300	300	150	240	2467	90	0.10	11,101	20	2.00
	(87.8)	(43.9)	(70.3)	(1.164)	(50)	(0.02)	(5.240)	(11)	(0.50)
350	350	175	280	2878	90	0.10	12,951	20	2.02
	(102.5)	(51.2)	(82.0)	(1.358)	(50)	(0.02)	(6.113)	(17)	(0.51)
400	400	200	320	3289	90	0.10	14,801	20	2.05
	(117.1)	(58.6)	(93.7)	(1.552)	(50)	(0.02)	(6.986)	(11)	(0.51)

NOTE:
Ratings are shown for elevations up to 2,000 feet (610m) above sea level. Above 2,000 ft. (610m), input must be derated 4% for each 1,000 feet (305m) above sea level. When units are installed in Canada, any reference to derations at altitudes in excess of 2,000 feet (610m) are to be ignored. At altitudes of 2,000 to 4,500 feet (610 to 1372m), the units must be orificed to 90% of the normal altitude rating, and be so marked in accordance with the CSA certification.

TEMPERATURE RISE AND PRESSURE DROP GRAPH



DRAFTOR (OPTIONAL)

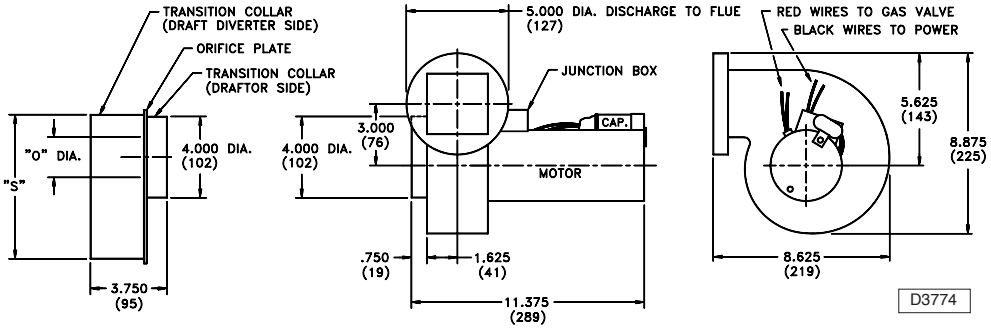
A draftor may be used in lieu of, or in conjunction with, a chimney. Where chimneys of sufficient height are impractical, or where distances of heaters to chimney are so great that sufficient draft cannot be created, a mechanical draftor will help vent the products of combustion from the heater.

The Beacon-Morris induced draftor is a rugged, well designed air handling exhaust fan. Combined with the proper inlet orifice size for each unit, it provides correct venting and allows use of minimum diameter vent flue.

Normally it is started and stopped by the room thermostat and provides prepurge and post-purge of the products of combustion. A centrifugal switch in the draftor motor operates the gas valve. When used on a duct furnace the draftor can operate the gas valve and also control the system fan motor usually through a magnetic starter.

Only one size draftor is required for units up to; 400,000 BTU (117.1 kW) input. Not CSA International listed.

DRAFTOR



TRANSITION

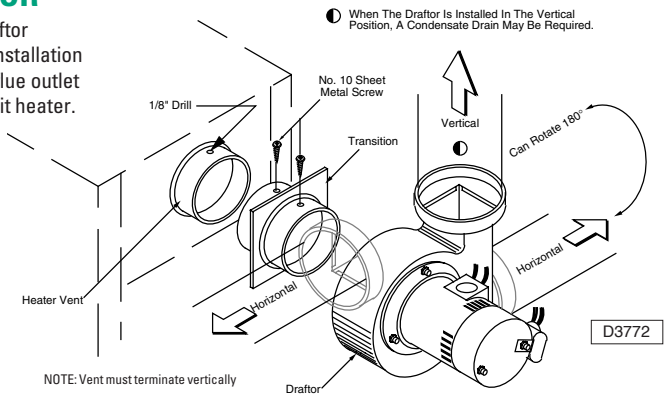
NOTE: Motor position horizontal only.

†Draftor Number	030	030	060	060	100	125	150	175	200	225	250	300	350	400
Heater Input BTU/Hr	30,000	45,000	60,000	75,000	100,000	125,000	150,000	175,000	200,000	225,000	250,000	300,000	350,000	400,000
(kW)	(8.8)	(13.2)	(17.6)	(22.0)	(29.3)	(36.6)	(43.9)	(51.2)	(58.6)	(65.9)	(73.2)	(87.8)	(102.5)	(117.1)
Draftor	1-1/4	1-1/4	1-3/4	1-3/4	2-1/8	2-15/16	2-1/2	3	3-1/4	3-1/2	3-3/4	4	4	4
Orifice Size "0"	(32)	(32)	(44)	(44)	(54)	(75)	(64)	(76)	(83)	(89)	(95)	(102)	(102)	(102)
Normal Heater	4	4	5	5	6	6	7	7	8	8	8	10	10	12
Flue Size "S"	(102)	(102)	(127)	(127)	(152)	(152)	(178)	(178)	(203)	(203)	(203)	(254)	(254)	(305)
Type: R-Round, OV-Oval	R	R	R	R	R	R	R	R	R	R	R	OV	OV	OV
Recommended Flue	3	4	4	4	4	4	4	4	5	5	5	5	5	6
Pipe Diameter	(76)	(102)	(102)	(102)	(102)	(102)	(102)	(102)	(127)	(127)	(127)	(127)	(127)	(152)
Maximum Length of Run	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Ft. (m)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)	(30.5)

*Installer may choose to use 5" (127mm) pipe where 4" (102mm) pipe is shown.
**Runs should be reduced as follows for listed accessories —
Each 90° elbow-10 Ft. (3.05m), each 45° elbow-5 Ft. (152.5m), vent cap-10 Ft. (3.05m).

DRAFTOR

Typical draftor assembly installation method to flue outlet collar of unit heater.



ELECTRICAL DATA

†DRAFTOR NUMBER	MOTOR	CONTROL & ROOM THERMOSTAT VOLT.
AS-M1-XXX	115-1-60	24
AS-M12-XXX	208-1-60	24
AS-M13-XXX	230-1-60	24

†*XXX = Unit Capacity*

NET WEIGHT	7#
SHIPPING WEIGHT	9#

GENERAL INFORMATION

SOUND RATINGS

The individual unit's Performance Data includes sound ratings. The ratings provide a guide in determining the acceptable degree of loudness in particular occupancy situations.

Certain general rules apply to specific selection of unit heaters with regard to degree of quietness (or loudness):

- The greater the fan diameter, the higher the sound level.
- The higher the motor RPM, the higher the sound level. Note that on most units the lower the speed mode results in lowering the sound rating one increment.
- Selecting a larger number of smaller units generally results in lower overall noise levels than fewer large units

All Beacon-Morris unit heater motors are isolated from the mechanical mount by resilient isolators. This mounting along with four balanced fan blades and excellent overall construction integrity, assures you the utmost in quiet operation.

The following table outlines sound rating for various application. The lower the number, the quieter the unit and lower the sound requirement.

CATEGORY OF AREA	SOUND RATING
Apartments, assembly hall, classrooms, churches, courtrooms, executives offices, hospitals, libraries, museums, theatres.	I
Dining rooms, general office, Recreations areas, small retail stores.	II
Restaurants, banks, cafeterias, departments stores, public buildings, service stations.	III
Gymnasiums, health clubs laundromats, supermarkets.	IV
Garages, small machine shops, light manufacturing.	V
Factories, foundries, steel mills	III-VII**

**Depending on specific use in these facilities, size of operation, etc.

CORRECTION FACTORS FOR HIGH ALTITUDE INSTALLATIONS*

Altitude Above Sea Level Ft. (m)	0	2000' (610m)	3000' (915m)	4000' (1220m)	5000' (1525m)	6000' (1830m)	7000' (2135m)
Gas Heating Input (Actual)	1.00	0.92	0.88	0.84	0.80	0.76	0.72
Blower RPM (Req'd)	1.00	1.04	1.08	1.09	1.12	1.15	1.19
Blower BHP (Req'd)	1.00	1.07	1.12	1.18	1.25	1.33	1.41

*Multiply standard unit by correction factor to get actual input and required RPM and HP.
In Canada derate 10% for altitudes 2000 to 4500 feet (610 to 1372m).

GAS HEATING VALUE

The standard gross heating value for natural gas is 1075 BTU/HR per cubic foot (40.1 MJ/m^3). Propane gas has a gross heating value of 2500 BTU/HR per cubic foot (93.1 MJ/m^3). When selecting equipment, you should take into account, variations from standard values (heat content varies by type and location).

To account for variations in gross heating values (of fuel) you should adjust the total heat input required and select the equipment based on the adjusted load with the following formula.

ADJUSTED LOAD =

$$\frac{\text{Calculated Load x Standard Gross Ht. Value [(BTU/HR)/Cu. Ft.]}}{\text{Actual Gross Ht. Value [(BTU/HR) Cu.Ft.]}}$$

DUCT FURNACES

The duct furnace design is certified by the CSA International agencies for use with natural and LP (propane) gases. ANSI and NFPA Standards referred to in this manual are the ones that were applicable at the time the design was certified. In addition, the duct furnaces may be installed on the downstream side of a cooling unit, without need of a bypass duct. **(Stainless steel heat exchangers are recommended.)**

UNIT HEATERS AND DUCT FURNACES

(U.S.A. Installations)
The installation must conform with local building codes or, in absence of local codes, with the National Fuel Gas Code, ANSI Z223.1-1999 (NFPA No. 54) or latest edition of.

Installation in aircraft hangars must be in accordance with current ANSI/NFPA no. 409, Standard for aircraft Hangars. Those in repair garages should be in accordance with current ANSI/NFPA no. 88A, Standard for Parking Structure or with current ANSI/NFPA no. 88B, Standard for Parking Structure or with ANSI/NFPA no. 88B, Standard for Repair Garages.

*If the unit is to be installed at an altitude exceeding 2,000 feet (610m) above sea level, derate the input by 4% for each 1,000 foot (305m) rise above sea level. Special orifices are required for installation above 2,000 feet (610m).

(Canadian Installations)
Units installed in Canada must conform with local building codes, or in absence of local building codes, with CGA-B149.1 "Installation Codes for Natural Gas Burning Appliances and Equipment" or CGA-B149.2 "Installation Codes for Propane Gas Burning Appliances and Equipment." These units have been designed and certified to comply with CGA 2.6.

For installations in Canada, any references to deration at altitudes in excess of 2,000 feet (610m) are to be ignored. At altitudes of 2,000 to 4,500 feet (610 to 1372m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with CSA certification.

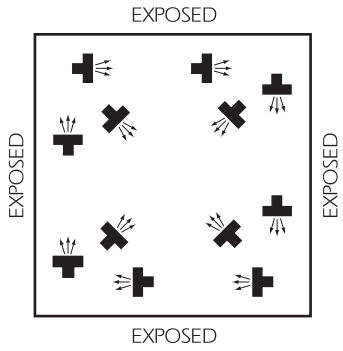
APPLICATIONS

UNIT HEATER PLACEMENTS

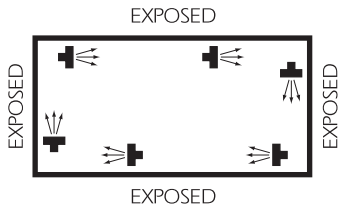
Gas-fired unit heaters are used primarily in commercial and industrial buildings such as warehouses, manufacturing areas, garages, showrooms, lobbies, etc.

Placement is typically determined by air distribution requirements. Proper distributions should have air directed toward areas of greatest heat loss. Multiple units may be used to greatest effect by positioning units around the perimeter. Several units near the center and with air discharging toward outside walls may also satisfy the heating requirements. Direct air discharge on occupants should be avoided.

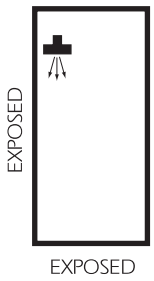
TYPICAL APPLICATIONS



A large square area with exposed walls and roof; units are blanketing all exposed surfaces.



A narrow area with four exposed walls either with or without roof exposure.



A small area with exposed walls requiring one unit.

HOW TO CALCULATE HEAT LOSS

It is suggested that when calculating heat loss for a building, reference be made to procedures outlined in the **ASHRAE Handbook.** As an easy reference, however, the following abbreviated method may be used with a good degree of reliability.

1. Determine inside temperature to be maintained and the design outside temperature for your locality. The difference between these two figures is the design temperature difference.
2. Calculate net areas in square feet of glass, wall, floor, and roof exposed to outside temperature or unheated spaces. Calculate door as all glass.
3. Select heat-transfer coefficients from the table below (or the **ASHRAE Handbook**) and compute the heat-transmission loss for each area in BTU/HR by multiplying each area by the heat-transfer coefficient and the temperature difference.
4. Add 10% to the heat-loss figures for areas exposed to prevailing winds.
5. Calculate the volume of the room or area in cubic feet and multiply by the estimated number of air changes per hour due to infiltration (usually from one to two). Determine the number of cubic feet per hour of air exhausted by ventilating fans or industrial processes. Substitute the larger of these two figures in the formula to determine the heat required to raise the air from outside to room temperature —

$$\text{BTU/HR} = \frac{\text{cubic feet per hour} \times \text{temperature difference}}{55}$$

6. The totals of BTU/HR losses from 3, 4 and 5 (above) will give the total BTU/HR to be supplied by unit heaters. (Note: If processes performed in the room liberate considerable amounts of heat, this may be determined as accurately as possible and subtracted from the total).

Building Material	"U" Factor
WALLS	
Poured concrete 80#/cu. ft.	
8-inch	0.25
12-inch	0.18
Concrete Block, hollow cinder aggregate	
8-inch	0.39
12-inch	0.36
Gravel aggregate	
8-inch	0.52
12-inch	0.47
Concrete Block, w/4-inch facebrick	
Gravel, 8-inch	0.41
Cinder, 8-inch	0.33
Metal	
(un-insulated)	1.17
w/1-inch blanket insulation	0.22
w/3-inch blanket insulation	0.08
ROOFING	
Corrugated Metal (un-insulated)	1.50
w/1-inch bolt or blanket	0.23
w/1 1/2-inch bolt or blanket	0.16
w/3-inch bolt or blanket	0.08
Flat Metal	
w/ 3/8-inch built-up roofing	0.90
w/1-inch blanket insulation under deck	0.21
w/2-inch blanket insulation under deck	0.12
Wood/ 1" /	
(un-insulated) w/ 3/8-inch built-up roofing	0.48
w/1-inch blanket insulation	0.17
Wood/ 2" /	
(un-insulated) w/ 3/8-inch built-up roofing	0.32
w/1-inch blanket insulation	0.15
Concrete slab/ 2" /	
(un-insulated) w/ 3/8-inch built-up roofing	0.30
w/1-inch insulation board	0.16
Concrete slab/ 3" /	
(un-insulated) w/ 3/8-inch built-up roofing	0.23
w/1-inch insulation board	0.14
Gypsum slab/ 2" /	
(un-insulated) w/ 1/2-inch gypsum board	0.36
w/1-inch insulation board	0.20
Gypsum slab/ 3" /	
(Un-insulated) w/ 1/2-inch gypsum board	0.30
w/1-inch insulation board	0.18
WINDOWS	
Vertical, single-glass	1.13
Vertical, double-glass, 3/16- inch air space	0.69
Horizontal, single-glass (sky light)	1.40
DOORS	
Metal — single sheet	1.20
Wood, 1-inch	0.64
2-inch	0.43

HEAT THROW DATA

STANDARD UNIT HEATER APPLICATIONS

Distance From Floor to Bottom of Unit "H" ft. (m)	UNIT SIZE BTU/Hr (kW)													
	30,000 (8.8)	45,000 (13.2)	60,000 (17.6)	75,000 (22.0)	100,000 (29.3)	125,000 (36.6)	150,000 (43.9)	175,000 (51.2)	200,000 (58.6)	225,000 (65.9)	250,000 (73.2)	300,000 (87.8)	350,000 (102.5)	400,000 (117.1)
	Approximate Distance of Heat Throw - Feet (Meters)													
8 (2.4)	33 (10.1)	33 (10.1)	33 (10.1)	40 (12.2)	60 (18.3)	65 (19.8)	70 (21.3)	75 (22.9)	80 (24.4)	85 (25.9)	90 (27.4)	105 (32.0)	110 (33.5)	120 (36.6)
10 (3.0)	28 (8.5)	28 (8.5)	28 (8.5)	35 (10.7)	54 (16.5)	56 (17.1)	60 (18.3)	64 (19.5)	68 (20.7)	72 (21.9)	78 (23.8)	90 (27.4)	95 (29.0)	100 (30.5)
12 (3.7)	NR	NR	NR	NR	44 (13.4)	46 (14.0)	49 (14.9)	57 (17.4)	61 (18.6)	65 (19.8)	68 (20.7)	80 (24.4)	84 (25.6)	90 (27.4)
15 (4.6)	NR	NR	NR	NR	NR	NR	45 (13.7)	49 (14.9)	52 (15.8)	56 (17.1)	60 (18.3)	70 (21.3)	74 (22.6)	80 (24.4)
20 (6.1)	NR	NR	NR	NR	NR	NR	NR	NR	46 (14.0)	50 (15.2)	54 (16.5)	63 (19.2)	66 (20.1)	70 (21.3)

30° NOZZLE

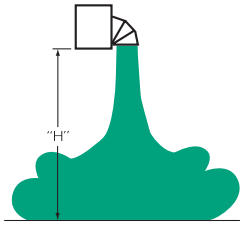
Distance From Floor to Bottom of Unit "H" ft. (m)	UNIT SIZE BTU/Hr (kW)									
	100,000 (29.3)	125,000 (36.6)	150,000 (43.9)	175,000 (51.2)	200,000 (58.6)	225,000 (65.9)	250,000 (73.2)	300,000 (87.8)	350,000 (102.5)	400,000 (117.1)
	Approximate Distance of Heat Throw - Feet (Meters)									
8 (2.4)	65 (19.8)	70 (21.3)	75 (22.9)	80 (24.4)	85 (25.9)	90 (27.4)	95 (29.0)	115 (35.1)	120 (36.6)	125 (38.1)
10 (3.0)	57 (17.4)	60 (18.3)	64 (19.5)	68 (20.7)	72 (21.9)	78 (23.8)	86 (26.2)	99 (30.2)	105 (32.0)	110 (33.5)
12 (3.7)	50 (15.2)	54 (16.5)	57 (17.4)	60 (18.3)	64 (19.5)	70 (21.3)	77 (23.5)	88 (26.8)	94 (28.7)	100 (30.5)
15 (4.6)	NR	45 (13.7)	48 (14.6)	50 (15.2)	53 (16.2)	59 (18.0)	64 (19.5)	74 (22.6)	79 (24.1)	84 (25.6)
20 (6.1)	NR	NR	NR	44 (13.4)	47 (14.3)	53 (16.2)	58 (17.7)	66 (20.1)	71 (21.6)	75 (22.9)

60° NOZZLE

Distance From Floor to Bottom of Unit "H" ft. (m)	UNIT SIZE BTU/Hr (kW)									
	100,000 (29.3)	125,000 (36.6)	150,000 (43.9)	175,000 (51.2)	200,000 (58.6)	225,000 (65.9)	250,000 (73.2)	300,000 (87.8)	350,000 (102.5)	400,000 (117.1)
	Approximate Distance of Heat Throw - Feet (Meters)									
8 (2.4)	75 (22.9)	80 (24.4)	85 (25.9)	90 (27.4)	95 (29.0)	100 (30.5)	110 (33.5)	125 (38.1)	130 (39.6)	138 (42.1)
10 (3.0)	65 (19.8)	70 (21.3)	75 (22.9)	79 (24.1)	83 (25.3)	88 (26.8)	95 (29.0)	109 (33.2)	115 (35.1)	120 (36.6)
12 (3.7)	60 (18.3)	64 (19.5)	68 (20.7)	72 (21.9)	76 (23.2)	80 (24.4)	84 (25.6)	100 (30.5)	103 (31.4)	108 (32.9)
15 (4.6)	50 (15.2)	54 (16.5)	56 (17.1)	61 (18.6)	65 (19.8)	68 (20.7)	71 (21.6)	85 (25.9)	88 (26.8)	94 (28.7)
20 (6.1)	NR	49 (14.9)	52 (15.8)	55 (16.8)	59 (18.0)	61 (18.6)	65 (19.8)	77 (23.5)	81 (24.7)	85 (25.9)

HEAT THROW DATA

90° NOZZLE

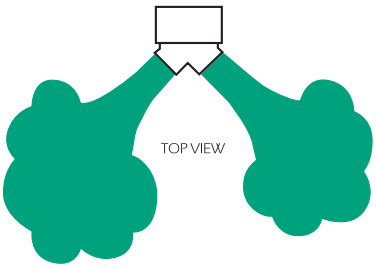


UNIT SIZE	DISTANCE FROM FLOOR TO BOTTOM OF UNIT "H"														
	10 ft. (3.0 m)	15 ft. (4.6 m)			20 ft. (6.1 m)			25 ft. (7.6 m)			30 ft. (9.1 m)				
100	NR	30 (9.1)	x	25 (7.6)	NR			NR			NR				
125	NR	35 (10.7)	x	30 (9.1)	NR			NR			NR				
150	NR	40 (12.2)	x	35 (10.7)	NR			NR			NR				
175	NR	45 (13.7)	x	40 (12.2)	NR			NR			NR				
200	NR	50 (15.2)	x	40 (12.2)	40 (12.2)	x	35 (10.7)	NR			NR				
225	NR	55 (16.8)	x	40 (12.2)	48 (14.6)	x	35 (10.7)	NR			NR				
250	NR	60 (18.3)	x	45 (13.7)	56 (17.1)	x	40 (12.2)	50 (15.2)	x	35 (10.7)	NR				
300	NR	70 (21.3)	x	45 (13.7)	65 (19.8)	x	40 (12.2)	60 (18.3)	x	35 (10.7)	55 (16.8)	x	35 (10.7)		
350	NR	80 (24.4)	x	50 (15.2)	70 (21.3)	x	45 (13.7)	65 (19.8)	x	40 (12.2)	60 (18.3)	x	35 (10.7)		
400	NR	100 (30.5)	x	50 (15.2)	80 (24.4)	x	45 (13.7)	75 (22.9)	x	40 (12.2)	65 (19.8)	x	40 (12.2)		

NOTES:

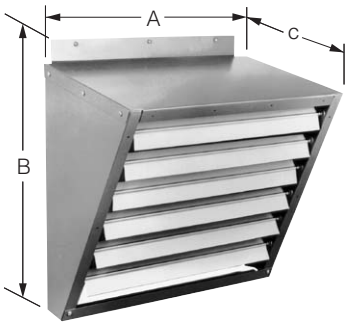
1. All throw data figures are approximations. Allowances should be made for optimum performance, altitude, etc.
2. N.R. - Units not recommended at these mounting heights.
3. Nozzles are not supplied for unit heaters below size 100.
4. Nozzles are available for BMEF/BMEB units.
5. 30°, 60° and 90° nozzles are shipped unassembled.

"Y" SPLITTER

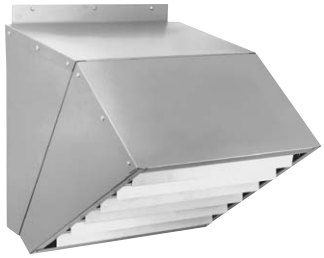


Distance From Floor to Bottom of Unit "H" ft. (m)	UNIT SIZE BTU/Hr (kW)									
	100,000 (29.3)	125,000 (36.6)	150,000 (43.9)	175,000 (51.2)	200,000 (58.6)	225,000 (65.9)	250,000 (73.2)	300,000 (87.8)	350,000 (102.5)	400,000 (117.1)
	Approximate Distance of Heat Throw - Feet (Meters)									
8 (2.4)	47 (14.3)	51 (15.5)	60 (18.3)	65 (19.8)	70 (21.3)	72 (21.9)	80 (24.4)	95 (29.0)	100 (30.5)	103 (31.4)
10 (3.0)	41 (12.5)	44 (13.4)	52 (15.8)	56 (17.1)	61 (18.6)	63 (19.2)	69 (21.0)	82 (25.0)	87 (26.5)	92 (28.0)
12 (3.7)	37 (11.3)	40 (12.2)	47 (14.3)	51 (15.5)	55 (16.8)	57 (17.4)	63 (19.2)	75 (22.9)	79 (24.1)	82 (25.0)

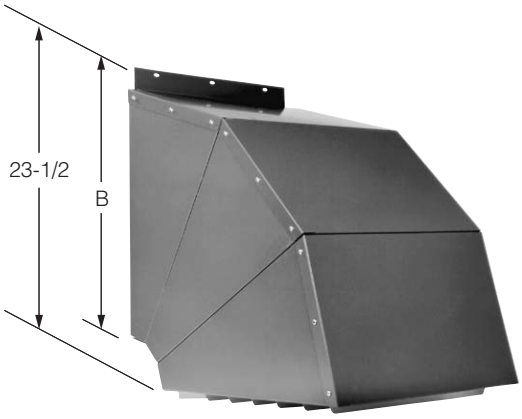
NOZZLE DIMENSIONS



30° NOZZLE*



60° NOZZLE*



90° NOZZLE*

Y-SPLITTER*

*30°, 60° and 90° Nozzles are field assembled; Y-splitter is factory assembled.

NOZZLE DIMENSIONAL DATA CHART

SYMBOL	NOZZLE TYPE	100	125	150	175	200	225	250	300	350	400
WIDTH A in. (mm)	30 DEG.	17-1/2 (444)	20-1/4 (514)	20-1/4 (514)	23 (584)	25-3/4 (654)	28-1/2 (724)	31-1/4 (794)	36-3/4 (933)	42-1/4 (1073)	47-3/4 (1213)
	60 DEG.	17-1/2 (444)	20-1/4 (514)	20-1/4 (514)	23 (584)	25-3/4 (654)	28-1/2 (724)	31-1/4 (794)	36-3/4 (933)	42-1/4 (1073)	47-3/4 (1213)
	90 DEG.	17-1/2 (444)	20-1/4 (514)	20-1/4 (514)	23 (584)	25-3/4 (654)	28-1/2 (724)	31-1/4 (794)	36-3/4 (933)	42-1/4 (1073)	47-3/4 (1213)
	Y-Splitter	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)
HEIGHT B in. (mm)	30 DEG.	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)
	60 DEG.	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)
	90 DEG.	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)	19-1/2 (495)
	Y-Splitter	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)	21-1/8 (537)
FURTHEST DEPTH C in. (mm)	30 DEG.	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)	11-1/2 (292)
	60 DEG.	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)	19-3/8 (492)
	90 DEG.	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)	22-3/8 (568)
	Y-Splitter	11 (279)	11 (279)	11 (279)	11 (279)	11 (279)	13-1/8 (333)	13-1/8 (333)	15-1/8 (384)	20-5/8 (524)	20-5/8 (524)

TYPICAL STANDARD SPECIFICATIONS

GRAVITY VENTED UNIT HEATERS - MODELS BMF & BMB

Furnish and install, where indicated or scheduled on plans, gas-fired unit heaters as made by Beacon-Morris. All models are CSA International certified as having 80% thermal efficiency and for operation on either natural or LP (propane) gas. Heat exchanger must consist of tube sections not lighter than 20 gauge and connecting plates not lighter than 18 gauge. Material should be (aluminized steel) (409 stainless steel) or (type 321 stainless steel) – (type 409 on 30,000 Btu/hr. or larger, type 321 on 100,000 Btu/hr. or larger). Burners are to be pressed steel, aluminized or type 409 stainless steel, and shall be equipped with a stainless steel burner shade. Cabinetry and trim pieces shall be fabricated from 20 gauge cold-rolled steel, finished on all four sides with gray enamel paint or prepainted stock.

All line voltage shall be completely enclosed in flexible conduit. Heaters shall be equipped with a 115/24 volt transformer. A fan time delay switch shall be provided and will be controlled by a low voltage thermostat.

Units shall be equipped with a low voltage automatic reset high temperature control, wired to shut off the main gas valve and cause the heater fan to operate until limit resets.

All units and component assemblies shall be warranted for a period of one year from date of shipment from factory or 18 months from date of manufacture, whichever occurs first. All burners, heat exchanger, and draft diverters shall carry a ten year non-prorated limited warranty on materials and workmanship (subject to appropriate disclaimers).

MODEL BMF - PROPELLER TYPE

Heaters shall be equipped for use with (natural) (propane) gas and have a (single) (two) stage gas control and (manual match – lit) (intermittent spark ignition with electronic flame supervision) (intermittent spark ignition, electronic flame supervision and timed lockout) pilot.

Units shall be equipped with 115 volt, single phase, 60 Hertz current motors including internal automatic reset thermal overload protection. Fans will be steel hubbed with aluminum blades and have complete fan-guard protection. Units with inputs greater than 250,000 Btu/hr. (73.2 kW) shall be equipped with two motors and two fans for optimum air distribution. Adjustable horizontal louvers shall be provided for directing air flow.

MODEL BMB - BLOWER TYPE

Heaters shall be equipped for use with (natural) (propane) gas and have a (single) (two) stage gas control and (manual match-lit) (intermittent spark ignition and electronic flame supervision) (intermittent spark ignition, electronic flame supervision and timed lockout) pilot.

The unit shall have centrifugal blowers with 115 volt, single phase, 60 Hertz current, open drip-proof or totally closed motors with built-in overload protection and be equipped with an OSHA – type belt guard. Adjustable horizontal louvers shall be provided for directing air flow.

HIGH EFFICIENCY POWER VENTED UNIT HEATERS - MODELS BMEF & BMEB

Furnish and install, where indicated or scheduled on plans, high efficiency gas-fired unit heaters as made by Beacon-Morris. All heaters are to have 80% thermal efficiency and designed to provide an annual fuel use improvement of up to 25%. Each unit shall have a factory installed power venter, sealed flue collector and be equipped with energy saving electric ignition having electronic flame supervision. All units shall display the CSA International seal of design compliance and be factory tested to assure field operation.

Heat exchanger must consist of tube sections not lighter than 20 gauge and connecting header plates not lighter than 18 gauge. Material shall be aluminized steel, type 409 stainless steel or type 321 stainless steel. Burners are to be of pressed steel, "aluminized", type 409 stainless steel and shall be equipped with a stainless steel burner shade. All cabinetry and trim pieces shall be fabricated from 20 gauge cold-rolled steel, finished on all four sides with gray enamel paint or prepainted stock.

All line voltage shall be completely enclosed in flexible conduit. The heaters shall be equipped with a 115/24 volt transformer. A fan time delay switch shall be provided and will be controlled by a low voltage thermostat. Units shall also be equipped with low voltage automatic reset high temperature controls wired to shut off main gas valve and cause heater fan to operate until limit resets. Gas valves shall be arranged for 100% safety shut-off of both main burner gas supply. The safety controls will include a combustion air pressure switch to verify proper venting flow prior to allowing the gas valve to operate.

All units and component assemblies shall be warranted for a period of one year from date of shipment from factory or 18 months from date of manufacture, whichever occurs first. Heat exchanger, flue collector and burners shall carry a ten year non-prorated limited warranty on materials and workmanship (subject to appropriate disclaimers).

MODEL BMEF - HIGH EFFICIENCY PROPELLER TYPE

Heaters shall be equipped for use with natural (propane) gas. Units shall be equipped with 115 volt, single phase, 60 Hertz current, including internal automatic reset thermal overload protection. Fans shall be steel-hubbed with aluminum blades and have complete fan guard protection. Units with inputs greater than 250,000 Btu/hr. (73.2 kW) shall be equipped with two motors and two fans for optimum air distribution. Adjustable horizontal louvers shall be provided for directing air flow.

MODEL BMEB - HIGH EFFICIENCY BLOWER TYPE

Heaters shall be equipped for use with natural (propane) gas. The unit shall have centrifugal blowers with 115 volt, single phase, 60 Hertz current, open drip proof or totally enclosed motors with built-in overload protection and be equipped with an OSHA – type belt guard. Adjustable horizontal louvers shall be provided for directing air flow.

TYPICAL STANDARD SPECIFICATIONS (continued)

MODELS BMD, BMS, BMED, BMES
DUCT FURNACE

Furnish and install where shown on plans, Gas-Fired Duct Furnaces as made by Beacon-Morris. Duct furnaces must have CSA certification for use downstream (cold air side) of a cooling coil and must be constructed of CSA defined corrosion resistant material with a built-in draft diverter/ flue collector. Burners shall be pressed aluminized steel or 409 stainless steel, and shall have stainless steel port protectors. Heat exchangers shall be aluminized steel, 409 stainless steel or 321 stainless steel. Tubes shall not be lighter than 20 gauge. Headers shall not be lighter than 18 gauge. Furnaces to be of neat appearance and good workmanship. All units and components are to be warranted (subject to appropriate disclaimers) from defects in material and workmanship for a period of one year from date of shipment from the factory.

All sizes have exceptionally low pressure drop, making it possible to handle large volumes of air without using an auxiliary by-pass. Beacon-Morris duct furnaces are tested to operate against 2.0 inches water column pressure.

All units are equipped with a 24 volt control system which is powered by a 115/24 volt transformer as standard equipment providing lower installation costs due to lower cost of field wiring and lower thermostat costs.

MODEL BMD

Beacon-Morris Model BMD Indoor Duct Furnaces are completely factory assembled, piped, wired and test fired. All models are certified by CSA International and approved for installation downstream (cold air side) of direct expansion air conditioning coils (stainless steel heat exchanger recommended). All models conform to the latest ANSI Standards for safe and efficient performance. Units are provided with a four-point suspension system and are available for operation on either natural or LP gas.

Casings are die-formed 20 gauge bonderized steel, finished in baked enamel. Heat exchangers are available in aluminized steel, type 409 stainless steel and type 321 stainless steel. Burners are individually removable, die formed and feature stainless steel port protectors. Burners are accessible through a removable, bottom panel.

All models are equipped with a 24 volt control system, which is powered by a factory installed 115/24 volt transformer.

MODEL BMS

Beacon-Morris Indoor Duct Furnace Model BMS incorporates all of the features of the Model BMD but provides burner access through the use of a burner drawer which slides out from the specified side access.

MODEL BMED

Beacon-Morris Indoor Duct Furnace Model BMED adds Electronic Spark Ignition and Integral Power Venting with a sealed flue collector to Model BMD.

MODEL BMES

Beacon-Morris Indoor Duct Furnace Model BMES incorporates all of the features of the Model BMED but provides burner access through the use of a burner drawer which slides out from the specified side access.

All Standard units currently manufactured by Beacon-Morris are RIGHT HAND units or have RIGHT HAND CONTROL ACCESS. The proper designation is determined as follows: WHEN YOU ARE STANDING BEHIND A UNIT AND YOU EXTEND YOUR ARM OUT IN FRONT OF YOU, YOUR ARM WILL BE POINTING IN THE DIRECTION OF AIR FLOW. From this vantage point, YOUR RIGHT HAND SIDE IS THE UNIT'S RIGHT HAND SIDE. THE NON-STANDARD UNIT IS THEN DESIGNATED AS A LEFT HAND UNIT OR HAVING LEFT HAND CONTROLS.

MODELS BMSF, BMSB
SEPARATED COMBUSTION UNIT HEATERS
MODELS BMSD
SEPARATED COMBUSTION DUCT FURNACE

Beacon-Morris Model BMSF (Propeller) and BMSB (Blower) Separated Combustion Unit Heaters, along with Model BMSD (Duct Furnace) are completely factory assembled, piped, wired and test fired. All models are certified by CSA International as having 80% thermal efficiency and for operation on either natural or LP (propane) gas. All models conform to the latest ANSI Standards for safe operation.

Casings are die-formed 20 gauge bonderized steel finished in baked enamel. Heat exchangers are 20 gauge tubes with 18 gauge headers. Heat exchangers are available in aluminized steel, type 409 stainless steel and type 321 stainless steel. Burners are individually removable, die-formed and feature stainless steel port protectors. Burners are available in aluminized or type 409 stainless steel.

All models are equipped with electronic spark ignition (100% safety shutoff on LP models), 115 volt power venter, vent system pressure switch, high limit switch, fan time delay and 24 volt control transformer.

Propeller models feature 2-point mounting while blowers are equipped with a 4-point system.

All models are factory assembled with a horizontal flue discharge position. A vertical flue position may be altered in the field.

All models must be vented utilizing our standard two-pipe method or our optional certified concentric adaptor.

SEPARATE FACTORY INSTALLED ACCESSORIES [AS]

Model Number Digit 15/+

A8 - INPUT DERATE
All Models and Sizes
Factory Installed
Unit is derated up to 50% for specific applications.

K4 - FAN TIME DELAY
Duct Furnaces
Field Installed
Thermal bi metalic type time delay is standard on all units except duct furnaces. Provides a 60 delay on and 45 second delay off for blower operation.

M6- OSHA TYPE FAN GUARD
Modes BMF, BMEF, BMSF
Factory Installed
Available on models BMF, BMEF, BMSF only. Required for installations that must conform with OSHA standards. Also known as fingerproof fan guards.

M8- DISCHARGE DUCT FLANGE ASSEMBLY
Models BMB, BMEB, BMSB
Factory Installed
(Specify - No Charge)
Used in lieu of louvers on blower heaters for incorporating field duct work.

P4 - TERMINAL BLOCK WIRING
All Ducts
Factory Installed
Provides specific terminal designation for field wiring.

P6 - SUMMER/WINTER SWITCH
All Models and Sizes
Factory Installed
Allows operation of fan or blower for ventilating purposes during hot summer months (manually operated).

Q6 - VERTICAL LOUVERS
All Propellers and Blowers
Factory Installed
For four way air deflection on propeller and blower heaters.

Q7 - HORIZONTAL AND VERTICAL LOUVERS
All Ducts
Factory Installed
For four way deflection on duct.

S1 - 409 STAINLESS STEEL BURNERS
All Models Sizes 100-400
Factory Installed
409 stainless steel burners in lieu of the standard aluminized steel diverter.

S2 - 409 STAINLESS STEEL DIVERTER
Models BMF, BMB, BMS, BMD
Factory Installed
409 stainless steel draft diverter in lieu of the standard aluminized steel diverter.

S3 - 409 STAINLESS STEEL FLUE COLLECTOR
Models BMEF, BMEB, BMES, BMED, BMSF, BMSB, BMSD
Factory Installed
409 stainless steel flue collector in lieu of the standard aluminized steel collector.

SEPARATE FIELD INSTALLED ACCESSORIES [AS]

A7- PRESSURE REGULATOR 1/2-2 PSI
All Models & Sizes
Field Installed
Required where main line pressure exceeds 14" W.C. (psig) and not over 2 psig. One regulator per furnace required, shipped separately.

F1 - ONE STAGE T675A DUCTSTAT
All Blower and Ducts
Field Installed
Single pole double throw switching. 55-75°F. setpoint range. [2" W x 5-5/8" H x 2-7/16" D)

F2 - TWO STAGE T678A DUCTSTAT
All Blower and Ducts
Field Installed
Single pole double throw switching. 55-75°F. setpoint range. [2" W x 5-5/8" H x 2-7/16" D]

G1 - ONE STAGE T87F THERMOSTAT WITH SUBBASE
All Models and Sizes
Field Installed
Single stage heating thermostat. Subbase includes fan switching relay. Standard round styling suitable for any decor. 50-100°F. range.

G2 - ONE STAGE T87F THERMOSTAT WITH TG503A GUARD
All Models and Sizes
Field Installed
Same features as "G1" except a tamper proof guard is included.

G3 - ONE STAGE T843H THERMOSTAT WITH FAN SWITCH
All Models and Sizes
Field Installed
Single stage heating thermostat with fan switch. 55-95°F range. [3-1/2" W x 4-3/4" H x 1-3/8" D]

G5 - TWO STAGE T874F THERMOSTAT WITH SUBBASE
All Models and Sizes
Field Installed
Two stage heating and two stage cooling with system and fan switching and built in 12°F. heating/cooling differential. Includes fan and relay. 42-88°F. range. [5-5/8" W x 3-1/2" H x 2-1/8" D]

G6 - LOCKING THERMOSTAT COVER
All Models and Sizes
Field Installed
Universal locking thermostat cover for use with all thermostats listed.

G7 - ONE STAGE T87F THERMOSTAT
All Models and Sizes
Field Installed
Single stage heating thermostat only. 24 volt operation. 50-100°F. range.

G8 - ONE STAGE T6169C LINE VOLTAGE STAT/SUBBASE
All Models and Sizes
Field Installed

G9 - ONE STAGE T822D THERMOSTAT
All Models and Sizes
Field Installed
Single stage heating only thermostat with subbase. 24 volt operation.

H5- LOW AMBIENT CONTROL
All Blowers and Ducts
Field Installed
Disengages duct furnace(s) from firing in times of mild ambient temperatures.

M1- DRAFTOR
115 MOTOR/24 VOLT CONTROL
Models BMF, BMEB, BMD, BMS
Field Installed
The Beacon/Morris induced draftor is a rugged, well designed air handling exhaust fan. Combined with the proper inlet orifice size for each unit, it provides correct venting and allows use of minimum diameter vent flue. A centrifugal switch in the draftor motor operates the gas valve. Only one size power venter is required for units up to 4000,000 BTU (117.1 kW) input. Not CSA International listed.

M12- DRAFTOR
208 MOTOR/24 VOLT CONTROL
Models BMF, BMEB, BMD, BMS
Field Installed

M13- DRAFTOR
230 MOTOR/24 VOLT CONTROL
Models BMF, BMEB, BMD, BMS
Field Installed

M2-1, 2, 3 - VENT CAP
Models BMEF, BMEB, BMED, BMES, BMSF*, BMSB*, BMSD*
Field Installed
4, 5 or 6 inch vent cap for use with all power vented units. Must indicate unit size if ordered.
**(2) required per unit.*

M3-1 - ADAPTOR
Models BMEF, BMEB, BMED, BMES, BMSF, BMSB, BMSD
Field Installed
4 to 5 inch flue vent adapter for use with 30 through 175 MBH power vented units. Power vented unit capacities 300, 350 and 400 require 5 to 6 inch flue vent adaptor which is supplied with the unit as standard equipment.

SEPARATE FIELD INSTALLED ACCESSORIES [AS] *continued*

M4- VERTICAL CONCENTRIC FLUE KIT
Models BMSF, BMSB, BMSD
Field Installed
Allows for one 8 inch vent/ combustion air vertical penitration through a structure. Kit includes collection box, 5 inch flue gas vent cap and 8 inch combustion air inlet cap.

M5- HORIZONTAL CONCENTRIC FLUE KIT
Models BMSF, BMSB, BMSD
Field Installed
Allows for one 8 inch vent/ combustion air horizontal penitration through a structure. Kit includes collection box, 5 inch flue gas vent cap and 8 inch combustion air inlet cap.

M7- 2 TO 4 POINT SUSPENSION KIT
Models BMF, BMEF, BMSF
Field Installed
Kit converts standard 2 point unit heater suspension to 4 point.

P2 - ADJUSTABLE HIGH LIMIT SWITCH
All Ducts
Field Installed
Adjustable switch used in conjunction with the standard header mounted high limit switch.

P3 - ADJUSTABLE FAN SWITCH
All Ducts
Field Installed
Adjustable switch used to cycle a separate blower.

P5 - 24 VOLT RELAY
All Models and Sizes
Field Installed
Specify purpose.

Q1 - "Y" SPLITTER NOZZLE
All Propellers and Blowers
Sizes 100-400
Field Installed
Dual discharge nozzle allows the discharge air to be supplied in two directions. Horizontal and vertical louvers are included.

Q2 - 30 DEGREE NOZZLE
All Propellers and Blowers
Sizes 100-400
Field Installed
Directs the discharge air at a 30 degree angle. Air can be directed up to a 60 degrees by adjusting the horizontal louvers. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge.

Q3 - 60 DEGREE NOZZLE
All Propellers and Blowers
Sizes 100-400
Field Installed
Directs the discharge air at a 60 degree angle. Air can be directed up to a 90 degrees by adjusting the horizontal louvers. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge.

Q4 - 90 DEGREE NOZZLE
All Propellers and Blowers
Sizes 100-400
Field Installed
Directs the discharge air at a 90 degree angle. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge.

Q5 - POLY-TUBE ADAPTOR
Models QVB, QVEB, QVSB
Sizes 150-400
Field Installed
For use on models BMB, BMEB, and BMSB sizes 150 thru 400 MBH only. Adapts standard 24" poly tube to standard duct flange. Poly tube by others.

S4 - 409 STAINLESS STEEL DRAIN PAN
Models BMD, BMS, BMED, BMES
Field Installed
Condensate drain pan typically used when cooling coils are installed upstream of duct.

"BM" SERIES INDOOR GAS-FIRED UNIT
MODEL NUMBER DESCRIPTION

Digit	S	X	X	A	—	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	†
Item	Prefix					UT		CA			FT	FM	GT	IC	AL	GC	SV	MT	MS	AS	

(Internal Use Only)

Digit #1, 2 - Unit Type [UT]

BMF **(P1) -** Standard Propeller
BMEF **(P2) -** High Efficiency Propeller
BMSF **(P3) -** Seperated Combustion Propeller
BMB **(B1) -** Standard Blower
BMEB **(B2) -** High Efficiency Blower
BMSB **(B3) -** Seperated Combustion Blower
BMD **(D1) -** Standard Duct Furnace
BMED **(D2) -** High Efficiency Duct Furnace
BMSD **(D3) -** Seperated Combustion Duct Furnace
BMS **(D5) -** Side Service Duct Furnace
BMES **(D6) -** Side Service High Efficiency Duct Furnace

Digit #3, 4, 5 - Capacity [CA]

Propeller Only

30 **030 -** 30,000 BTU/HR
45 **045 -** 45,000 BTU/HR
60 **060 -** 60,000 BTU/HR
75 **075 -** 75,000 BTU/HR

100 **100 -** 100,000 BTU/HR
125 **125 -** 125,000 BTU/HR
150 **150 -** 150,000 BTU/HR
175 **175 -** 175,000 BTU/HR
200 **200 -** 200,000 BTU/HR
225 **225 -** 225,000 BTU/HR
250 **250 -** 250,000 BTU/HR
300 **300 -** 300,000 BTU/HR
350 **350 -** 350,000 BTU/HR
400 **400 -** 400,000 BTU/HR

Digit #6 - Furnace Type [FT] ††

A - Right Side Gas Connection (Standard on all models)
(Not available on BMSB & BMSD. Optional on BMSD).
B - Left Side Gas Conection
(Optional on Models BMS, BMES; Standard on Models BMSB, BMSD & BMSF)
††Note: [FT] Digit #6:
"A" = Right side access to burners is available as standard on models BMS and BMES.
"B" = Left side access to burners is optional on models BMS and BMES.
All other models have only bottom access to service the burners.

Digit #7 - Heat Exchanger Construction Material [FM]

1 - Aluminized Steel
2 - 409 Stainless Steel
3 - 321 Stainless Steel

Digit #8 - Gas Type [GT]

N - Natural Gas
P - Propane Gas (LP)
K - Natural Gas w/100% Shutoff (Spark Only)

Digit #9 - Ignition Control [IC]

1 - Standing Pilot
2 - Spark Ignition

Digit #10 - Altitude [AL]

A - 0–1,999 ft.
B - 2,000–2,999 ft.
C - 3,000–3,999 ft.
D - 4,000–4,999 ft.
F - 5,000–5,999 ft.
G - 6,000–6,999 ft.
H - 7,000–7,999 ft.
J - 8,000–8,999 ft.
K - 9,000–9,999 ft.
L - 10,000–10,999 ft.
M - 11,000–11,999 ft.
N - Local Derate
P - Canadian High Altitude 2,000–4,500 ft.

Digit #11 - Gas Control [GC]

A - Single Stage Gas (Standard)
B - Two Stage Gas
C - Mechanical Modulation (60-100)
D - Mechanical Modulation (75-200)
F - Mechanical Modulation w/Bypass & Limit (60-100) (Duct Furnaces & Blowers Only)
G - Mechanical Modulation w/Bypass & Limit (75-200) (Duct Furnaces & Blowers Only)
H - Electronic Modulation w/Room Sensing
J - Electronic Modulation w/Duct Sensing (Duct Furnaces & Blowers Only)
K - Electronic Modulation w/Duct Sensing & Room Ovrd. Stat (Duct Furnaces & Blowers Only)
L - Electronic Modulation w/External 4-20 mA Input (Duct Furnaces & Blowers Only)
N - Electronic Modulation w/External 0-10 VDC Input (Duct Furnaces & Blowers Only)

Digit #12 - Supply Voltage [SV]*

1 - 115/1/60
2 - 208/1/60
3 - 230/1/60
4 - 208/3/60
5 - 230/3/60
6 - 460/3/60
7 - 575/3/60
Z - Special

*Note: Supply voltages [SV] 2-7 include **field** mounted step down transformer.

Digit #13 - Motor Type [MT]

1 - Open Drip Proof (Standard)
2 - Totally Enclosed
3 - Premium Efficiency, Open Drip Proof
4 - Premium Efficiency, Totally Enclosed
0 - None

Digit #14 - Blower Motor Sizes [MS]**

A - 1/4 HP. w/Contactor
B - 1/3 HP. w/Contactor
C - 1/2 HP. w/Contactor
D - 3/4 HP. w/Contactor
F - 1 HP. w/Contactor
G - 1-1/2 HP. w/Contactor
H - 2 HP. w/Contactor
J - 1/4 HP.
K - 1/3 HP.
L - 1/2 HP.
M - 3/4 HP.
N - 1 HP.
0 - None

**Notes: 1. All 3-phase units [SV = 4, 5, 6, 7] include a contactor as standard.
2. All single phase units [SV = 1, 2, 3] include a contactor for units equipped with 1-1/2 HP. motor or higher [MS = G, H]

Digit #15 - Accessories [AS]

† All Field Installed Accessories are to be entered as a separate line item using new catalog number which utilizes "AS" as a prefix. i.e: A7 becomes AS-A7.

***These accessories will be ordered by new catalog number as illustrated above plus with the unit capacity (i.e. M1 for a 100 capacity becomes AS-M1-100).**

FACTORY INSTALLED

A8 - Input Derate

K4 - Fan Time Delay (Duct Furnaces)

M6 - OSHA Fan Guard
M8 - Discharge Duct Flange Assembly

P4 - Terminal Block Wiring (Duct Furnaces & Blowers)
P6 - Summer/Winter Switch

S1 - 409 Stainless Burners
S2 - 409 Stainless Draft Diverter (Standard Units Only)
S3 - 409 Stainless Flue Collector (High Eff. & Separated Combustion Only)

†FIELD INSTALLED (AS-____)

A7 - Pressure Regulator 1/2-2 psi

F1 - 1-Stage T675A Ductstat
F2 - 2-Stage T678A Ductstat

G1 - 1-Stage T87F w/Subase Kit
G2 - 1-Stage T87F w/TG503A Guard Kit
G3 - 1-Stage T834H Thermostat/Fan Switch (not available on seperated combustion)
G5 - 2-Stage T874F Thermostat w/Subbase
G6 - Locking Thermostat Cover
G7 - 1-Stage T87F
G8 - 1-Stage T6169C Line Voltage Stat
G9 - 1-Stage T822D Thermostat

H5 - Low Ambient Control

M1* - Drafter Kit, 115V 24V Control
M12* - Drafter Kit, 208V 24V Control
M13* - Drafter Kit, 230V 24V Control
M2-1 - Vent Cap (4") (Unit Capacity 030-150)
M2-2 - Vent Cap (5") (Unit Capacity 175-250)
M2-3 - Vent Cap (6") (Unit Capacity 300-400)
M3-1 - Adapters (5"-4") (Unit Capacity 030-175)
M4 - Vertical Concentric Flue Kit
M5 - Horizontal Concentric Flue Kit
M7 - 2 to 4 Point Suspension Kit

P2 - Adjustable High Limit Switch (Duct Furnaces)
P3 - Adjustable Fan Switch (Duct Furnaces)
P5 - 24V SPST Relay-Specify Purpose

Q1* - "Y" Splitter Nozzle
Q2* - 30 Degee Nozzle
Q3* - 60 Degree Nozzle
Q4* - 90 Degree Nozzle
Q5* - Poly Tube Adapter
Q6- Vertical Louvers (Propellers & Blowers)
Q7- Horizontal/Vertical Louvers (Duct Furnaces)

S4 - 409 Stainless Drip Pan (BMD, BMS, BMED & BMES Only)

WARRANTIES

LIMITED WARRANTY

BEACON-MORRIS GAS–FIRED HEATERS – MODELS BMF, BMB, BMEF, BMEB
SEPARATED COMBUSTION UNIT HEATERS – MODELS BMSF, BMSB
DUCT FURNACES – MODELS BMD, BMS, BMED, BMES

1. BEACON-MORRIS GAS FIRED UNIT HEATERS – BMF, BMB, BMEF, BMEB
Beacon-Morris ("the Manufacturer") warrants to the original owner at original installation site that the above models of Beacon-Morris Gas–Fired Heaters ("the Product") will be free from defects in material or workmanship for one (1) year from the date of shipment from the factory, or one and one–half (1½) years from the date of manufacture, whichever occurs first. Beacon-Morris further warrants that the complete heat exchanger, draft hood assembly, and burners will be free from defects in material or workmanship for a period of ten (10) years from the date of manufacture. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective.

2. BEACON-MORRIS SEPARATED COMBUSTION UNIT HEATERS – MODELS BMSF, BMSB
DUCT FURNACES – MODELS BMD, BMS, BMED, BMES, BMSD
Beacon-Morris ("the Manufacturer") warrants to the original owner at original installation site that the above models of the Beacon-Morris Separated Combustion Unit Heaters and Duct Furnaces ("the Product") will be free from defects in material or workmanship for one (1) year from the date of shipment from the factory. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective.

3. This limited warranty does not apply:
   (a) if the Product has been subjected to misuse or neglect, has been accidentally or intentionally damaged, has not been installed, maintained or operated in accordance with the furnished written instructions, or has been altered or modified in any way by any unauthorized person.
   (b) to any expenses, including labor or material, incurred during removal or reinstallation of the Product.
   (c) to any damage due to corrosion by chemicals, including halogenated hydrocarbons, precipitated in the air.
   (d) to any workmanship of the installer of the Product.

4. This limited warranty is conditional upon:
   (a) advising the installing contractor, who will in turn notify the distributor or manufacturer.
   (b) shipment to the Manufacturer of that part of the Product thought to be defective . Goods can only be returned with prior written approval of the Manufacturer. All returns must be freight prepaid.
   (c) determination in the reasonable opinion of the Manufacturer that there exists a defect in material or workmanship.

5. Repair or replacement of any part under this Limited Warranty shall not extend the duration of the warranty with respect to such repaired or replaced part beyond the stated warranty period.

6. **THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS LIMITED WARRANTY. IN NO EVENT SHALL THE MANUFACTURER BE LIABLE IN ANY WAY FOR ANY CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, OR FOR ANY AMOUNTS IN EXCESS OF THE SELLING PRICE OF THE PRODUCT OR ANY PARTS THEREOF FOUND TO BE DEFECTIVE.THIS LIMITED WARRANTY GIVES THE ORIGINAL OWNER OF THE PRODUCT SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY BY EACH JURISDICTION.**

260 NORTH ELM ST.
WESTFIELD, MA 01085
TEL: (413) 568-9571
FAX: (413) 572-3764

Beacon/Morris®

A MESTEK COMPANY
www.beacon-morris.com

5211 CREEKBANK ROAD
MISSISSAUGA, ONTARIO L4W 1R3 CANADA
TEL: (905) 625-2991
FAX: (905) 625-6610