



**High Efficiency
Heating Equipment**



Efficient Heating Solutions for all Applications

Beacon Morris unit heaters provide efficient heating solutions for all residential and commercial applications. Choose from several model configurations using the latest high efficiency tubular heat exchangers in both propeller and blower models with capacities from 30 MBH to 400 MBH.

Our complete line of unit heaters allows customers to order the exact size and options needed to ensure optimum energy saving performance. From residential and commercial garages and workshops to warehouses, factories, shipping areas and public buildings, Beacon Morris has the perfect-fit unit heater solution for all applications.

Heat Exchanger Technology

Beacon Morris' high efficiency heat exchangers surpass the competition in every facet. From composition to performance Beacon Morris heat exchangers are designed to be the most reliable and energy efficient on the market. From our standard 20-gauge stainless steel tubular heat exchangers to our Optum ultra-high efficiency tri-metal heat exchangers, Beacon Morris is the industry leader in cutting-edge technology.

Ease of Service and Installation

All Beacon Morris unit heaters are designed for ease of installation, service and annual maintenance. All components are easily accessed to save time and money on all maintenance calls.

Warranty and Factory Assurance

All unit heaters are covered by a full 10-year warranty (unless otherwise noted) covering the heat exchanger, flue collector and burners. Each unit is factory fire-tested to ensure proper operation at the time of installation.



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Optum

Industry Leading Thermal Efficiency, State-of-the-Art Control Platform

Optum is a high efficiency condensing unit heater with advanced tri-metal heat exchanger technology, proprietary pre-mix burner design and fully modulating control configurations. Available in 6 sizes (50-400 MBH) in either natural gas or LP gas, field convertible to separated combustion, and compatible with PVC or CPVC venting, Optum offers unparalleled application flexibility.

STANDARD FEATURES

- 2-Stage, Modulating with Room Sensing, and Outdoor/Indoor Reset Self Modulating Settings
- Modbus Communication to Building Automation System
- NG/LP Single Orifice Field Conversion (Kit Included with Every Unit)
- Electronically Air/Fuel Coupled for Optimal Efficiency
- 3:1 Full Modulation
- Auto-Adjusts for Altitude
- SafeSense Blocked Inlet and Flue Sensing Technology
- Operate as Single-Unit, Multi-Unit Network, or Linked to Building Management System
- 95%+ Efficiency at Full Input
- Condensate Float Switch and Trap
- Durable Brushed Stainless Steel Cabinet



Model BRT

Low-Profile, Residential Garage and Commercial Certified

The BRUT II heater is a tubular design propeller type unit heater that utilizes a single orifice burner. Its low profile design and sizes ranging from 30-120 MBH make it ideal for all applications.

STANDARD FEATURES

- 20-Gauge Tubular Aluminized Steel Heat Exchangers
- 7 Sizes Ranging from 30 to 120 MBH
- Single Orifice Burner
- Direct Spark Ignition System
- 20-Gauge Jacket Panels w/Baked Enamel Finish
- Easy Access Control Panel
- Certified for Category I and III Venting
- 82+% Thermal Efficiency
- ETL Certified
- OSHA Type Fan Guard
- Field Convertible to Separated Combustion with Combustion Air Inlet Kit (Optional)



BXF/BXC Series

Convertible Venting Type Tubular

The “BXF/BXC” Series units are highly efficient, extremely durable and designed so they can be installed in either standard or separated combustion venting configurations without requiring modification to the unit itself.

STANDARD FEATURES

- Standard or Separated Combustion All-In-One Units
- 20-Gauge Aluminized Steel Tubular Heat Exchanger
- 83% Thermal Efficiency
- Power Venter
- 20-Gauge Steel Cabinetry with Baked Enamel Finish
- Direct Spark Ignition System
- Redundant Single Stage Gas Valve
- Rear Burner Access for Ease of Service
- Individually Adjustable and Removable Horizontal Louvers
- 10-Year Heat Exchanger, Flue Collector and Burner Warranty



BMOF Series

BMOF Series oil-fired unit heater is designed to operate on number 1 & 2 fuel oils. Available in seven sizes ranging from 70 – 560 MBH (.50 to 4.00 GPH) all units are factory assembled and ready to install.

STANDARD FEATURES

- Heavy Duty 18-Gauge Heat Exchanger
- Energy Efficient Flame Retention Beckett Burner
- Adjustable Discharge Louvers
- Fan/Limit Control
- Four Point Suspension
- CAD Cell Burner Safeguard Control
- 115/1/60
- 5-Year Pro-rated Heat Exchanger Warranty



HB Series

Header Type and Serpentine Type Models are Ideal for Hot Water Installations

HB Series horizontal unit heaters are ideal for hot water installations. A wide range of outputs and airflows allows virtually unlimited flexibility in job design. Beacon Morris horizontal unit heaters are available in both serpentine and header type units. Serpentine units offer outputs from 8,030 to 35,900 BTU's and are ideal for hot water installations with limited clearances. Header type horizontal units range from 18,000 to 360,000 and can operate with either hot water or steam. Both units are furnished with totally enclosed motors as standard equipment, explosion proof motors are optional.

STANDARD FEATURES

- Horizontal Louvers Standard
- Thermostats Feature 'Off-Auto' and 'Auto-Fan-Off'
- Copper/Aluminum Coils
- ETL Certified
- Strap-On Water Control (Optional)
- Steam Pressure Control (Optional)
- Vertical Louvers (Optional)
- 1-Year Warranty



VB Series

Vertical Unit Heater

VB Series vertical unit heaters are designed for installations requiring down flow air delivery. Offered in 15 sizes ranging from 41,300 to 705,000 BTU units are field convertible to low output (increased airflow) for high ceiling applications. All units are compatible with Steam or Hot Water operation.

STANDARD FEATURES

- Copper/Aluminum Coils
- Totally Enclosed Motor
- Thermostats Feature 'Off-Auto' and 'Auto-Fan-Off'
- Strap-On Water Control (Optional)
- Steam Pressure Control (Optional)
- OSHA Fan Guard (Optional)
- Explosion-Proof Motors (Optional)
- 1-Year Warranty



BTB Series

Tubular Duct Furnace

The BTB duct furnace is designed with ease of service in mind, and provides the efficiency and durability of Beacon's tubular heat exchanger. The BTB offers left side access and is field convertible to right hand access.

STANDARD FEATURES

- 20-gauge Aluminized Steel Tubular Heat Exchanger
- 7 Sizes Ranging from 100 to 400 MBH
- In-shot Burner Technology
- Direct Spark Ignition
- 20 Gauge Jacket Panels with Double Wall Construction and Baked Enamel Finish
- Power Vented
- Easy Access Control Panel
- Certified for Category III Venting
- Terminal Strip Low Voltage Wiring
- 82% Thermal Efficiency
- ETL Certified
- 10-Year Heat Exchanger, Flue Collector & Burner Warranty
- Single Stage Gas Valve
- 2-Stage and Modulating Gas Valve (Optional)
- Stainless Steel Tubular Heat Exchanger (Optional)
- Field Convertible to Separated Combustion with Air Inlet Kit (Optional)



BMED/BMES Series

Power Vented Duct Furnaces

BMED and BMES are power vented indoor duct furnaces. Model BMED offers bottom burner access and is typically ceiling suspended. The model BMES offers side access and is typically mounted on a non-combustible floor and includes factory installed power vent and sealed flue collector that controls combustion and excess air during on cycles.

STANDARD FEATURES

- ETL Certified for 80% Efficiencies
- 7 Sizes Ranging from 100-400 MBH
- Aluminized Steel Heat Exchanger - 20-Gauge
- Optional 409 and 321 Stainless Steel Heat Exchangers
- Single Stage Gas Valve
- Spark Ignition
- Natural or LP Gas Available
- Easy Burner Access with Individual Removable Burners
- 2-Stage and Modulating Gas Valves (Optional)
- 1-Year Warranty



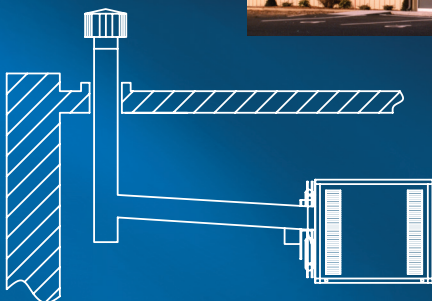
BMSD Series

Separated Combustion for Mildly Hostile Environments

BMSD separated combustion indoor duct furnace is designed to be installed in mildly hostile environments where dusty, dirty, and mildly corrosive conditions exist or high humidity or slightly negative pressures prevail. 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.

STANDARD FEATURES

- ETL Certified for 80% Efficiencies
- 7 Sizes Ranging from 100-400 MBH
- Aluminized Steel Heat Exchanger - 20-Gauge
- Single Stage Gas Valve
- Spark Ignition
- Natural or LP Gas Available
- Easy Burner Access with Individual Removable Burners
- 409 and 321 Stainless Steel Heat Exchangers (Optional)
- 2-Stage and Modulating Gas Valves (Optional)
- 1-Year Warranty



Vent Pipe Sizes

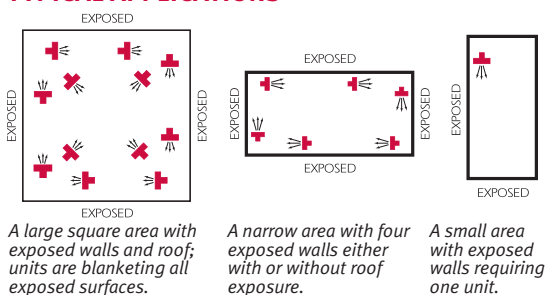
Model	Sizes	Vent Pipe Diameter
STANDARD VENTING		
OPTUM	050-150	2"
	200	3"
	300-400	4"
BRT	030-120	4"
BXF/BXC	100-250	5"
	300-400	6"
BTD	100-200	5"
	250-400	6"
BMED, BMES	100-150	4"
	200-250	5"
	300-400	6"
SEPARATED COMBUSTION		
OPTUM	050-150	2"
	200	3"
	300-400	4"
BRT	030-120	4"
	090-120	5"
BTD	100-200	5"
	250-400	6"
BMSD	100-150	4"
	200-250	5"
	300-400	6"
BXF/BXC	100-250	5"
	300-400	6"

Applications

UNIT HEATER PLACEMENT

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



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 —

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

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 ¹ / ₂ -inch gypsum board	0.36
w/1-inch insulation board	0.20
Gypsum slab/ 3" /	
(un-insulated) w/1 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

ALSO AVAILABLE FROM BEACON MORRIS:

- Cabinet Unit Heaters
- Convector
- Twin-Pak Finned Tube
- Panel Radiators
- Towel Warmers
- Twin-Flo Kickspace Heaters



Beacon Morris

260 NORTH ELM ST. WESTFIELD, MA 01085

(413) 562-5423 • FAX: (413) 572-3764

www.beacon-morris.com



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