General Information

BEACON/MORRIS TUBULAR DESIGN

GAS FIRED UNIT HEATER

The Beacon/Morris Tubular gas-fired unit heaters offer a highly efficient, extremely durable alternative to the traditional clam shell design. These units combine the latest tubular heat exchanger and inshot burner technology with the quality and reliability you have come to know from Beacon/Morris.

HIGH EFFICIENCY

Standard energy saving features like the direct spark ignition and power venting reduce standby losses and offer improved seasonal efficiencies. Tubular units certified by ETL as providing 83% thermal (combustion) efficiency.

TUBULAR HEAT EXCHANGER

The Beacon/Morris tubular heat exchanger has been designed to provide maximum and uniform heat transfer. The low pressure drop associated with this design enables heated air to be evenly distributed to the conditioned space. This curved, non-welded serpentine design experiences less thermally induced stress making it highly durable for significantly longer service life. All Beacon/Morris tubular heat exchangers are constructed of heavy duty 20-gauge aluminized steel. Optional 409 stainless steel heat exchangers are also available.

DIRECT SPARK IGNITION SYSTEM

Beacon/Morris Tubular units utilize a direct spark pilotless ignition of the burner, providing fast heat delivery. This highly reliable and efficient ignition system incorporates an integrated electronic control board to regulate the system sequence of operation, including an onboard LED indicator for simple troubleshooting.

VENTING

The Beacon/Morris Tubular unit heaters are ETL certified in accordance with categories I and III venting requirements. This certification allows units to be vented both vertically and horizontally using either single wall or double wall venting materials. This venting flexibility of the unit heater makes installation easier and more cost effective by allowing the installer to utilize existing venting components.

CONTROL ACCESSIBILITY

Designed with the service person in mind, every component of the Beacon/Morris unit heaters is easily accessible. Ignition and fan controls are located in one centrally located control panel. The access door provides control isolation as well as a pleasing exterior appearance.

10-YEAR WARRANTY

Beacon/Morris warranties the heat exchanger, flue collector and burners of each unit heater to be free from defects in materials and workmanship for a period of 10 years from the date of manufacture.

SEPARATED COMBUSTION - BSF/BSC SERIES

The BSF/BSC series heater “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 products to the outside. The burners, pilot and flue system are enclosed within the unit; thus, the entire combustion process is unaffected by the atmosphere in the space where the heater is located. Separated combustion units are designed to be installed where dusty, dirty or mildly corrosive conditions exist or where high humidity or slightly negative pressure prevail.
BRT Series — Low Profile Unit Heater

RESIDENTIAL AND COMMERCIAL CERTIFICATIONS
The Beacon/Morris “BRT” Series unit heater conforms with the latest ETL certification standards. Design certified under ANSI Z83.8 for Industrial/Commercial use and the more demanding requirements of CSA 10.96 USA (2nd ed.) “Unit Heaters for Residential Installation”, make this low profile unit heater the ideal selection.

STANDARD FEATURES
- 82+% Thermal Efficiency
- Redundant Single-Stage Gas Valve
- Residential Certification
- 120/24V Control Transformer
- OSHA Fan Guard
- 115/1/60 Fan Motor with Internal Overload Protection
- Direct Spark Ignition
- 20-Gauge Cabinet with Baked Enamel Finish
- 10 Year Heat Exchanger Warranty
- Right Hand Control Access - Field Convertible to Left Hand
- High Limit Switch
- Air Pressure Switch
- Natural or Propane Gas
- Gas Conversion Kit Included
- Field Convertible to Separated Combustion
- Easy Access Control Panel
- 321 Stainless Steel Burner Box
- 20-Gauge Aluminized Heat Exchanger
- Power Vented

OPTIONAL FEATURES
- 409 Stainless Steel Heat Exchanger
- Two-Stage Gas Control (Sizes 60-120 Only)
- Stainless Steel Flue Collector
- Supply Voltage (Field Mounted Transformers):
  - 208/1/60
  - 230/1/60
  - 208/3/60
  - 230/3/60
  - 460/3/60
  - 575/3/60
- Vent Caps
  - Totally Enclosed Motors (Sizes 60-120 Only)
  - Pressure Regulator (1/2 – 2 psi)
  - Single & Two-Stage Mercury Free Thermostats
- Line Volt Thermostat
- Locking Thermostat Cover
- 24V SPST Relay
- Concentric Vent Kits (For All Separated Combustion Installations)

Unit Number Description

<table>
<thead>
<tr>
<th>Digit</th>
<th>G</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
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<tr>
<td>Item</td>
<td>UT</td>
<td>CA</td>
<td>FT</td>
<td>FM</td>
<td>SV</td>
<td>MT</td>
<td>DL</td>
<td>AS</td>
<td></td>
<td></td>
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<td></td>
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</table>

1 - Unit Type [UT]
BRT - Residential Low Profile Tubular Propeller
Note: Field conversion to Separated Combustion requires a Concentric Vent Kit. See Accessory Options X7-4 and X7-5 for proper unit selection.

3, 4, 5 - Capacity [CA]
030 - 30,000 BTU/HR
045 - 45,000 BTU/HR
060 - 60,000 BTU/HR
075 - 75,000 BTU/HR
090 - 90,000 BTU/HR
105 - 105,000 BTU/HR
120 - 120,000 BTU/HR

6 - Furnace Type [FT]
A - Right Hand Access

7 - Furnace Material [FM]*
1 - Standard (Aluminized) Steel
2 - 409 Stainless Steel
*Heat exchanger tube material only.

8 - Gas Type [GT]
N - Natural Gas
P - Propane (LP) Gas

9 - Altitude [AL]
P - Canadian High Altitude 2,000-4,500 ft.
S - 0-4,999 ft.
T - 5,000-11,999 ft.
Note: Installations over 2,000 ft. require gas input deration in the field. Refer to unit installation instructions.

10 - Gas Control [GC]
A - Single Stage (Standard)
B - Two Stage (Capacities [CA] 060 through 120 only)

11 - 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 - Other
Note: Supply Voltage [SV] 2-7 include field mounted step down transformer.

12 - Motor Type [MT]
1 - Open Drip Proof (Standard)
2 - Totally Enclosed (Capacities [CA] 060 through 120 only)

13 - Development Level [DL]
C - Production Onset

14, 15+ - Accessories [AS]

FACTORY INSTALLED
S3 - Stainless Steel Flue Collector
Z1 - Special
All Field Installed Accessories are to be entered as a separate line item using catalog number which places “AS” as a prefix, i.e.: AY becomes AS-A7.

FIELD INSTALLED (AS-____
A7 - Pressure Regulator 1/2-2 psi
G1 - 1-Stage T87K Mercury Free Thermostat w/Subbase Kit
G2 - 1-Stage T87K Mercury Free Thermostat w/TS511A Guard Kit
G3 - 1-Stage T814N Mercury Free Thermostat/Fan Switch
G4 - 2-Stage TH12200 Mercury Free Thermostat w/Subbase
G6 - Locking Thermostat Cover
G8 - 1-Stage T6169C Line Voltage Thermostat w/Subbase
G9 - 1-Stage T822K Mercury Free Thermostat
P5 - 24V SPST Relay-Specify Purpose
VC4 - 4” Vent Cap
X7-4 - Convection Vent Kit (Capacities [CA] 030-075)
X7-5 - Convection Vent Kit (Capacities [CA] 090-120)
## BRT Series — Low Profile Unit Heater
### Performance and Dimensional Data

<table>
<thead>
<tr>
<th>UNIT CAPACITY (MBH)</th>
<th>30</th>
<th>45</th>
<th>60</th>
<th>75</th>
<th>90</th>
<th>105</th>
<th>120</th>
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<td><strong>PERFORMANCE DATA†</strong></td>
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<tr>
<td>Input - BTU/Hr (kW)</td>
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<td>45,000</td>
<td>60,000</td>
<td>75,000</td>
<td>90,000</td>
<td>105,000</td>
<td>120,000</td>
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<td>Output - BTU/Hr (kW)</td>
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<td>37,350</td>
<td>49,800</td>
<td>61,500</td>
<td>73,800</td>
<td>86,100</td>
<td>98,400</td>
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<td>Thermal Efficiency - %</td>
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<td>83</td>
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<td>82</td>
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<tr>
<td>Free Air Delivery - CFM (cu. m/s)</td>
<td>370</td>
<td>550</td>
<td>740</td>
<td>920</td>
<td>1,100</td>
<td>1,300</td>
<td>1,475</td>
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<td>Air Temperature Rise - °F (°C)</td>
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<td>Full Load Amps at 120V</td>
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<td>3.0</td>
<td>4.1</td>
<td>4.1</td>
<td>6.4</td>
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<tr>
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<td>4.8</td>
<td>4.8</td>
<td>7.5</td>
<td>7.5</td>
<td>7.5</td>
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</table>

### MOTOR DATA:
- **Motor HP (kW)**: 1/20 (0.04), 1/20 (0.04), 1/12 (0.06), 1/12 (0.06), 1/10 (0.075), 1/10 (0.075), 1/10 (0.075)
- **Motor RPM**: 1650, 1650, 1050, 1050, 1050, 1050, 1050
- **Motor Amps @ 115V**: 1.9, 1.9, 2.6, 2.6, 4.2, 4.2, 4.2

### DIMENSIONAL DATA — Inches (mm)
- **B** Overall Height: 13-1/4 (337), 13-1/4 (337), 16-13/16 (427), 16-13/16 (427), 23-9/16 (598), 23-9/16 (598), 23-9/16 (598)
- **D1** Center Line Height of Flue*: 8-1/2 (216), 8-1/2 (216), 10-3/8 (263), 10-3/8 (263), 13-5/8 (346), 13-5/8 (346), 13-5/8 (346)
- **D2** Center Line Height of Air Intake: 8-1/2 (216), 8-1/2 (216), 8 (203), 8 (203), 8-5/8 (219), 8-5/8 (219), 8-5/8 (219)
- **E** Fan Diameter: 10 (254), 10 (254), 14 (356), 14 (356), 16 (406), 16 (406), 16 (406)
- **F** Discharge Opening Height: 10-13/16 (275), 10-13/16 (275), 14-7/16 (367), 14-7/16 (367), 21-3/16 (538), 21-3/16 (538), 21-3/16 (538)
- **G** Vent Connection Diameter: 4 (102), 4 (102), 4 (102), 4 (102), 4 (102), 4 (102), 4 (102)
- **H1** Center Line of Flue Connection From Side: 7-1/4 (184), 7-1/4 (184), 7-1/4 (184), 7-1/4 (184), 7-3/4 (197), 7-3/4 (197), 7-3/4 (197)

### VENT SIZE REQUIREMENTS — STANDARD COMBUSTION
- **Category III Horizontal - Inches (mm)**: 4, 4, 4, 4, 4, 4, 4
- **Category I & III Vertical - Inches (mm)**: 4, 4, 4, 4, 4, 4, 4

### VENT SIZE REQUIREMENTS — SEPARATED COMBUSTION
- **Exhaust Diameter***: Inches (mm): 4, 4, 4, 4, 5, 5, 5
- **Intake Air Diameter - Inches (mm)**: 4, 4, 4, 4, 5, 5, 5

### Unit Weight - Lbs (kgs)
- 60 (27), 65 (29), 80 (36), 85 (39), 95 (43), 105 (48), 110 (50)

### Shipping Weight - Lbs (kgs)
- 70 (32), 75 (34), 90 (41), 95 (43), 110 (50), 115 (52), 120 (54)

*For all installations, the flue collar is included with the unit and should be field installed per the instructions included with the unit.

**4-5” reducer supplied where required.

† Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610m). For unit installations in USA above 2,000 ft (610m), the unit input must be derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA No. 54).

For installations in Canada, any reference to deration at altitudes in excess of 2,000 ft. (610m) are to be ignored. At altitudes of 2,000 ft to 4,500 ft (610 to 1372m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with the ETL certification.
BRT Series — Low Profile Unit Heater
Dimensional Data

"27-5/16" (694 mm) Maximum Hanger Spacing
24" (610 mm) Hanger Spacing
16" (406 mm) Hanger Spacing
20-3/4" (527 mm) Hanger Spacing

Top View

"G" Vent Connections
"E" Fan

Rear View

4" (102 mm) Gas Connection
1/2 N.P.T.
(Natural & Propane)

8" (203 mm) Electrical Connection

Dimensional Data

DIMENSIONS XXX STANDARD UNITS
DIMENSIONS IN PARENTHESIS (XXX) MILLIMETERS
BTU/BTC Series — Tubular Unit Heater

STANDARD FEATURES
- In-Shot Burner Design
- 20-Gauge Steel Jacket with Baked Enamel Finish
- Main Control Panel
- 115/1/60 Supply Voltage
- Direct Spark Ignition
- Redundant Single-Stage Gas Valve
- 115/24 Volt Control Transformer
- Individually Adjustable and Removable Louvers
- Power Ventilated
- 115/1/60 Volt Motor with Internal Overload Protection
- 10 Year Heat Exchanger, Flue Collector and Burner Warranty
- 82+% Thermal Efficiency

OPTIONAL FEATURES
- Stainless Steel Heat Exchanger, Burners and/or Flue Collector
- Supply Voltages: 208 & 230/1/60 and 230, 460, 575/3/60
- Premium Efficiency Blower Motors in ODP and TE Types
- Two-Stage and Various Electronic Modulation Gas Controls
- Discharge Nozzles (30°, 60° & 90°) or Duct Flange Assembly

Unit Number Description

<table>
<thead>
<tr>
<th>Digit Item</th>
<th>BTU Series</th>
<th></th>
<th>1 2 3 4 5 6 7 8 9 10 11 12 13 +</th>
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<tbody>
<tr>
<td>T X X X</td>
<td>UT CA FT</td>
<td>FM GT AL GC SV MT  AS</td>
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<table>
<thead>
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<th>Digit Item</th>
<th>BTC Series</th>
<th></th>
<th>1 2 3 4 5 6 7 8 9 10 11 12 13 14 +</th>
</tr>
</thead>
<tbody>
<tr>
<td>T X X X</td>
<td>UT CA FT</td>
<td>FM GT AL GC SV MT  AS</td>
<td></td>
</tr>
</tbody>
</table>

1, 2 - Unit Type [UT]

BTU - Tubular Propeller
BTC - Tubular Blower

3, 4, 5 - Capacity [CA]

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

6 - Furnace Type [FT]

A - Right Side Access

7 - Heat Exchanger Construction Material [FM]

1 - Standard (Aluminumized) Steel
2 - 409 Stainless Steel

8 - Gas Type [GT]

N - Natural Gas
P - Propane Gas (LP)

9 - Altitude [AL]

P - Canadian High Altitude 2,000–4,500 ft.
S - 4,000–9,999 ft.
T - 5,000–11,999 ft.
Note: Installations over 2,000 ft. require gas input denotation in the field. Refer to unit installation instructions.

10 - Direct Spark Gas Control [GC]

1 - Single Stage
2 - Two Stage
3 - Electronic Modulation w/Room Sensing
4 - Electronic Modulation w/Duct Sensing
5 - Electronic Modulation w/Duct Sensing & Room Ovrd. Stat
6 - Electronic Modulation w/External 4–20 mA Input
7 - Electronic Modulation w/External 0–10 VDC Input

11 - Supply Voltage [SV]

1 - 115/1/60
2 - 208/1/60
3 - 230/1/60
4 - 230/3/60
5 - 230/6/0
6 - 460/3/60
7 - 575/3/60
8 - 575/6/0
9 - Special
Note: Supply Voltages [SV] 2–7 include step down transformer. Field mounted for propeller units, factory mounted for blower units.

12 - Motor Type [MT]

1 - Open Drop-Proof (Standard)
2 - Totally Enclosed
3 - Premium Efficiency, Open Drop-Proof (Blowers only)
4 - Premium Efficiency, Totally Enclosed (Blowers only)

13 - Blower Motor Sizes [MS]**

A - 1/4 HP w/Contactor
B - 1/2 HP w/Contactor
C - 1/2 HP w/Contactor
D - 3/4 HP w/Contactor
E - 1 HP w/Contactor
F - 1 HP w/Contactor
G - 1-1/2 HP w/Contactor
H - 2 HP w/Contactor
J - 1-1/2 HP
J - 2 HP
J - 4 HP
J - 6 HP
J - 8 HP
J - 10 HP
J - 12 HP
J - 14 HP

**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 3/4 HP, motor or higher [MS = A, B, C, D, E, F].
3. [MS] options L, M only available with [SV] option 115/1/60.

13/14 - Accessories [AS]

FACTORY INSTALLED

M6 - OSHA Type Fan Guard (Propellers only)
M8 - Discharge Duct Flange Assembly (Blowers only)
P4 - Terminal Block Wiring
P6 - Summer/Winter Switch
S3 - 409 Stainless Steel Flue Collector
S5 - 304L Stainless Steel Burners

+ FIELD INSTALLED (AS-____)

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

A7 - Pressure Regulator 1/2-2 psi
F1 - 1-Stage T875A Ductstat
F2 - 2-Stage T878A Ductstat
G1 - 1-Stage T87K Mercury Free Thermostat w/Subbase Kit
G2 - 1-Stage T87K Mercury Free Thermostat w/T8511A Guard Kit
G3 - 1-Stage T8314N Mercury Free Thermostat/Fan Switch
G5 - 2-Stage TH5220D Mercury Thermostat w/Subbase
G6 - Locking Thermostat Cover
G8 - 1-Stage T6169C Line Voltage Stat w/Subbase
G9 - 1-Stage T822K Mercury Free Thermostat

M2-2 - Vent Caps (5") (Unit Capacity 100–250)
M2-3 - Vent Caps (6") (Unit Capacity 300–400)
P5 - 24V SPST Relay-Specify Purpose
X2 - 30 Degree Downturn Nozzle
X3 - 60 Degree Downturn Nozzle
X4 - 90 Degree Downturn Nozzle
X5 - Vertical Louver Kit
### PERFORMANCE DATA

<table>
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<tr>
<th>UNIT CAPACITY (MBH)</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>175</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
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<tbody>
<tr>
<td>Input - BTU/Hr</td>
<td>100,000</td>
<td>125,000</td>
<td>150,000</td>
<td>175,000</td>
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<td>250,000</td>
<td>300,000</td>
<td>350,000</td>
<td>400,000</td>
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<tr>
<td>(kW)</td>
<td>(29.3)</td>
<td>(36.6)</td>
<td>(43.9)</td>
<td>(51.2)</td>
<td>(58.6)</td>
<td>(73.2)</td>
<td>(87.8)</td>
<td>(102.5)</td>
<td>(117.1)</td>
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<td>145,250</td>
<td>166,000</td>
<td>207,500</td>
<td>249,000</td>
<td>290,500</td>
<td>332,000</td>
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<td>(kW)</td>
<td>(24.3)</td>
<td>(30.4)</td>
<td>(36.4)</td>
<td>(42.5)</td>
<td>(48.6)</td>
<td>(60.7)</td>
<td>(72.9)</td>
<td>(85.1)</td>
<td>(97.2)</td>
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#### Thermal Efficiency - %
- 83
- 83
- 83
- 83
- 83
- 83
- 83
- 83
- 83

#### Free Air Delivery - CFM
- 1,600
- 2,200
- 2,850
- 3,200
- 3,450
- 5,000
- 5,600
- 5,800
- 6,600

#### Air Temperature Rise - °F
- 47
- 47
- 47
- 47
- 47
- 47
- 47
- 47
- 47

#### Full Load Amps at 120V
- 5.3
- 5.8
- 8.0
- 8.0
- 8.0
- 11.3
- 13.5
- 13.5
- 13.5

#### MOTOR DATA:
- Motor HP (Qty.)
  - 1/10
  - 1/4
  - 1/4
  - 1/3
  - 1/3
  - 1/3
  - 1/4
  - 1/3
  - 1/3

- Motor kW
  - (0.080)
  - (0.19)
  - (0.19)
  - (0.25)
  - (0.25)
  - (0.25)
  - (0.19)
  - (0.25)
  - (0.25)

- Motor Type**
  - SP
  - PSC
  - PSC
  - PSC
  - PSC
  - PSC
  - PSC
  - PSC
  - PSC

- RPM
  - 1,150
  - 1,140
  - 1,140
  - 1,140
  - 1,140
  - 1,140
  - 1,140
  - 1,140
  - 1,140

- Amps @ 115V
  - 4.7
  - 4.7
  - 5.8
  - 5.8
  - 5.8
  - 9.4
  - 11.6
  - 11.6
  - 11.6

#### DIMENSIONAL DATA - Inches (mm)

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<td>11</td>
<td>12-1/4</td>
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<td>&quot;G&quot; Depth to CL Flue</td>
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<td>5-1/8</td>
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<td>&quot;H&quot; Discharge Opening Height</td>
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#### Flue Size Diameter - Inches (mm)

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</tbody>
</table>

### Notes
- Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610 m). For unit installations in USA above 2,000 ft (610m), the unit input must be derated 4% for each 1,000 ft. (305m) above sea level, refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA No. 54).
- For installations in Canada, any reference to deration at altitudes above 2,000 ft. (610m) are to be ignored. At altitudes of 2,000 ft. to 4,500 ft. (610 to 1372m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with the ETL certification.
- Flue collar is factory supplied with unit; to be field installed per included instructions. ** LEGEND: SP = SHADED POLE PSC = PERMANENT SPLIT CAPACITOR
### BTC Series — Tubular Blower Unit Heater

#### Performance and Dimensional Data

<table>
<thead>
<tr>
<th>UNIT CAPACITY (MBH)</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>175</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
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<tr>
<td><strong>PERFORMANCE DATA</strong></td>
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<tr>
<td>Input - BTU/Hr (kW)</td>
<td>100,000</td>
<td>125,000</td>
<td>150,000</td>
<td>175,000</td>
<td>200,000</td>
<td>250,000</td>
<td>300,000</td>
<td>350,000</td>
<td>400,000</td>
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<tr>
<td>Output - BTU/Hr (kW)</td>
<td>83,000</td>
<td>103,750</td>
<td>124,500</td>
<td>145,250</td>
<td>166,000</td>
<td>207,500</td>
<td>246,000</td>
<td>290,500</td>
<td>332,000</td>
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<tr>
<td>Motor HP</td>
<td>(29.3)</td>
<td>(36.6)</td>
<td>(44.0)</td>
<td>(51.3)</td>
<td>(58.6)</td>
<td>(73.3)</td>
<td>(87.9)</td>
<td>(102.6)</td>
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<td>RPM</td>
<td>(24.3)</td>
<td>(30.4)</td>
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<td>(48.6)</td>
<td>(68.0)</td>
<td>(72.1)</td>
<td>(85.1)</td>
<td>(97.3)</td>
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<td><strong>DIMENSIONAL DATA - Inches (mm)</strong></td>
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<tr>
<td><strong>C</strong> Width to Centerline Flue</td>
<td>12-1/4</td>
<td>12-1/4</td>
<td>12-1/4</td>
<td>12-1/4</td>
<td>12-1/4</td>
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<td><strong>D</strong> Depth to Front Hanger</td>
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<td><strong>H</strong> Depth to Centerline Flue</td>
<td>4-3/4</td>
<td>4-3/4</td>
<td>4-3/4</td>
<td>4-3/4</td>
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<td><strong>L</strong> Discharge Opening Height</td>
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<td><strong>Vent Size Diameter - Inches</strong></td>
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<td><strong>Blower Size - Inches (Cyl)</strong></td>
<td>9</td>
<td>10</td>
<td>10</td>
<td>12</td>
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<tr>
<td><strong>Gas Inlet, Natural Gas - Inches</strong></td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
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<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
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<tr>
<td><strong>Gas Inlet, LP Gas - Inches</strong></td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
<td>1/2</td>
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<td>1/2</td>
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<tr>
<td><strong>Approximate Unit Weight - Lbs (kg)</strong></td>
<td>171</td>
<td>175</td>
<td>202</td>
<td>245</td>
<td>264</td>
<td>289</td>
<td>370</td>
<td>390</td>
<td>429</td>
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<tr>
<td><strong>Approximate Ship Weight - Lbs (kg)</strong></td>
<td>256</td>
<td>261</td>
<td>289</td>
<td>313</td>
<td>360</td>
<td>425</td>
<td>520</td>
<td>547</td>
<td>595</td>
</tr>
</tbody>
</table>

**VERIFIED INTERTEK**

For installations in Canada, any reference to deration at altitudes in excess of 2,000 ft. (610 m) are to be ignored. At altitudes of 2,000 ft. to 4,500 ft. (610 to 1,372 m), the unit must be derated to 90% of the normal altitude rating, and be so marked in accordance with the ETL certification.

For installations in USA above 610 m (2,000 ft.), the unit input must be derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA No. 54).

**Electrical Control Panel**

**Gas Valve**

**Flue**

**Rear View**

**Side View**

**Front View**
### BTC Series — Tubular Blower Unit Heater Performance Data

<table>
<thead>
<tr>
<th>Unit</th>
<th>Temp.Rise °F (°C)</th>
<th>CFM (cu. m/s)</th>
<th>External Static Pressure Inches WP (kPa)</th>
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<tr>
<td>BTC100</td>
<td>50 (10)</td>
<td>1535 (0.724)</td>
<td>804 1/2 (0.37)</td>
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<td>60 (15.5)</td>
<td>1279 (0.603)</td>
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<td>70 (21.1)</td>
<td>1096 (0.517)</td>
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<td>80 (26.6)</td>
<td>959 (0.452)</td>
<td>591 1/4 (0.19)</td>
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<td>BTC125</td>
<td>50 (10)</td>
<td>1919 (0.905)</td>
<td>703 1/2 (0.37)</td>
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<td></td>
<td>60 (15.5)</td>
<td>1599 (0.750)</td>
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<td>70 (21.1)</td>
<td>1371 (0.647)</td>
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<td>580 1/2 (0.37)</td>
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<td>BTC150</td>
<td>50 (10)</td>
<td>2303 (1.087)</td>
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<td>1919 (0.905)</td>
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<td>70 (21.1)</td>
<td>1645 (0.776)</td>
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<td>1439 (0.679)</td>
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<td>BTC175</td>
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<td>2687 (1.260)</td>
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<td>2239 (1.050)</td>
<td>468 3/4 (0.56)</td>
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<td>1697 (0.8)</td>
<td>402 3/4 (0.56)</td>
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<td>BTC200</td>
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<td>3071 (1.444)</td>
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<td>2559 (1.203)</td>
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<td>BTC250</td>
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<td>70 (21.1)</td>
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<td>BTC300</td>
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<td>70 (21.1)</td>
<td>3259 (1.53)</td>
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<td>BTC350</td>
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<td>5374 (2.54)</td>
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<td>60 (15.5)</td>
<td>4478 (2.11)</td>
<td>484 1/2 (1.11)</td>
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<td>70 (21.1)</td>
<td>3839 (1.81)</td>
<td>451 1/2 (1.11)</td>
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<td>80 (26.6)</td>
<td>3359 (1.59)</td>
<td>408 1/2 (1.11)</td>
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<td>BTC400</td>
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<td>6142 (2.9)</td>
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<td>70 (21.1)</td>
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<td>80 (26.6)</td>
<td>3839 (1.81)</td>
<td>437 1/2 (1.11)</td>
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BSF/BSC Series — Separated Combustion Unit Heater

STANDARD FEATURES
• Enclosed Combustion System
• 20-Gauge Aluminized Steel Tubular Heat Exchanger
• 115/24 Volt Control Transformer
• 83% Thermal Efficiency
• Combustion Air Pressure Switch
• ODP Motor (with Overload Protection)
• Redundant Single-Stage Gas Valve
• 20-Gauge Steel Cabinetry with Baked Enamel Finish
• Direct Spark Ignition System
• 115/1/60 Supply Voltage
• Rear Burner Access
• Power Vented
• Individually Adjustable and Removable Horizontal Louvers
• Complete Belt/Fan Guard
• Main Control Panel
• 10 Year Heat Exchanger, Flue Collector and Burner Warranty

OPTIONAL FEATURES
• Stainless Steel Heat Exchanger, Burners, and/or Flue Collector
• Supply Voltages: 208 & 230/1/60 and 208, 230, 460, 575/3/60
• Two-Stage and Various Electronic Modulation Gas Controls
• Premium Efficiency Blower Motors in ODP & TE Types
• Discharge Nozzles (30°, 60° & 90°) or Duct Flange Assembly
• Combustion Air Inlet Kits (allows concentric venting with horizontal or vertical termination)

Unit Number Description

<table>
<thead>
<tr>
<th>Digit Item</th>
<th>T</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>UT</th>
<th>CA</th>
<th>FT</th>
<th>FM</th>
<th>GT</th>
<th>AL</th>
<th>GC</th>
<th>SV</th>
<th>MS</th>
<th>AS</th>
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</thead>
<tbody>
<tr>
<td><strong>1, 2 - Unit Type [UT]</strong></td>
<td>BSF - Separated Combustion Tubular Propeller</td>
<td><strong>3, 4, 5 - Capacity [CA]</strong></td>
<td>100 - 300,000 BTU/HR</td>
<td>208 - 1,250,000 BTU/HR</td>
<td><strong>6 - Furnace Type [FT]</strong></td>
<td>A - Right Side Access</td>
<td><strong>7 - Heat Exchanger Construction Material [FM]</strong></td>
<td>N - Natural Gas</td>
<td>P - Propane Gas (LP)</td>
<td><strong>8 - Gas Type [GT]</strong></td>
<td><strong>9 - Altitude [AL]</strong></td>
<td>P - Canadian High Altitude 2,000–4,500 ft.</td>
<td>S - 0–4,399 ft.</td>
<td>T - 5,000–11,999 ft.</td>
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<tr>
<td><strong>12 - Motor Type [MT]</strong></td>
<td>1 - Open Drip Proof (Standard)</td>
<td><strong>13 - Blower Motor Sizes [MS]</strong></td>
<td>A - 1/4 HP w/Contactor</td>
<td>C - 1/2 HP w/Contactor</td>
<td><strong>14 - Accessories [AS]</strong></td>
<td><strong>FACTORY INSTALLED</strong></td>
<td>M6 - OSHA Type Fan Guard (Propellers Only)</td>
<td>M8 - Discharge Duct Flange (Blowers Only)</td>
<td>P4 - Terminal Block Wiring</td>
<td>P6 - Summer/Winter Switch</td>
<td>P3 - 409 Stainless Steel Flue Collector</td>
<td>S5 - 304L Stainless Steel Burners</td>
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<tr>
<td><strong>15 - Motor Type [MT]</strong></td>
<td>2 - Totally Enclosed</td>
<td><strong>16 - Vertical Louver Options</strong></td>
<td><strong>1 - Single Stage</strong></td>
<td><strong>2 - Two Stage</strong></td>
<td><strong>1 - Single Stage</strong></td>
<td><strong>2 - Two Stage</strong></td>
<td><strong>3 - Electronic Modulation w/Room Sensing</strong></td>
<td><strong>4 - Electronic Modulation w/Duct Sensing</strong></td>
<td><strong>5 - Electronic Modulation w/Duct Sensing &amp; Room Dovd. Stat</strong></td>
<td><strong>6 - Electronic Modulation w/External 4-20 mA Input</strong></td>
<td><strong>7 - Electronic Modulation w/External 0-10 VDC Input</strong></td>
<td><strong>8 - Supply Voltage [SV]</strong></td>
<td><strong>9 - Vertical Louver Options</strong></td>
<td>1 - 115/1/60</td>
</tr>
</tbody>
</table>

Note: Installations over 10 feet become AS-A.

**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 1/4 HP motor or higher [MS = 0, G, S, HS].
3. (MS) options J, L only available with [SV] option 1 (115/1/60).
BSF Series — Separated Combustion Propeller
Performance and Dimensional Data

**UNIT CAPACITY (MBH)**

<table>
<thead>
<tr>
<th>Input - BTU/Hr</th>
<th>100</th>
<th>125</th>
<th>150</th>
<th>175</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>(kW)</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>29.3</td>
<td>36.6</td>
<td>43.9</td>
<td>51.2</td>
<td>58.6</td>
<td>73.2</td>
<td>87.8</td>
<td>(102.5)</td>
<td>(117.1)</td>
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**Output - BTU/Hr**

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<thead>
<tr>
<th>83,000</th>
<th>103,750</th>
<th>124,500</th>
<th>145,250</th>
<th>166,000</th>
<th>207,500</th>
<th>249,000</th>
<th>290,500</th>
<th>332,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>(kW)</td>
<td>(24.3)</td>
<td>(30.4)</td>
<td>(36.4)</td>
<td>(42.5)</td>
<td>(48.6)</td>
<td>(60.7)</td>
<td>(72.9)</td>
<td>(85.1)</td>
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</table>

**Thermal Efficiency - %**

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<th>83</th>
<th>83</th>
<th>83</th>
<th>83</th>
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</thead>
<tbody>
<tr>
<td>Free Air Delivery - CFM (cu. m/s)</td>
<td>24-1/2'</td>
<td>(622mm)</td>
<td>33'</td>
<td>(838mm)</td>
<td>1'</td>
<td>(25mm)</td>
<td>25-1/2'</td>
<td>(641mm)</td>
</tr>
<tr>
<td>250</td>
<td>32-1/2'</td>
<td>(826mm)</td>
<td>32-1/2'</td>
<td>(826mm)</td>
<td>11-5/8'</td>
<td>(295mm)</td>
<td>11-5/8'</td>
<td>(295mm)</td>
</tr>
</tbody>
</table>

**Energy Performance Verified**

**RENDEMENT ENERGETIQUE VERIFIÉ**

**DIMENSIONAL DATA - Inches (mm)**

| "D" Depth to Rear of Housing | 11' | 11' | 11' | 11' | 11' | 11' | 12-1/4' | 12-1/4' | 12-1/4' |
| "G" Depth to CL Flue | 4-3/4' | 4-3/4' | 4-3/4' | 4-3/4' | 4-3/4' | 4-3/4' | 5-1/8' | 5-1/8' | 5-1/8' |
| "Vent Size Diameter - Inches" | 5' | 5' | 5' | 5' | 5' | 5' | 5' | 5' | 5' |
| "Gas Inlet, Natural Gas - Inches" | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| "Gas Inlet, LP Gas - Inches" | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 | 1/2 |
| Approximate Unit Weight - Lbs | 135 | 147 | 157 | 194 | 204 | 214 | 311 | 325 | 339 |
| Approximate Ship Weight - Lbs | 175 | 187 | 197 | 244 | 254 | 264 | 371 | 385 | 399 |

† Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610 m). For unit installations in USA above 2,000 ft (610m), the unit input must be derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA No. 54).

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

* Flue collar is factory supplied with unit; to be field installed per included instructions.

** LEGEND:  SP = SHADED POLE  PSC = PERMANENT SPLIT CAPACITOR**
BSC Series — Separated Combustion Blower Performance and Dimensional Data

### UNIT CAPACITY (MBH)

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<tr>
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<th>100</th>
<th>125</th>
<th>150</th>
<th>175</th>
<th>200</th>
<th>250</th>
<th>300</th>
<th>350</th>
<th>400</th>
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<tr>
<td><strong>Input - BTU/Hr</strong> (kW)</td>
<td>29.3</td>
<td>36.6</td>
<td>44.0</td>
<td>51.3</td>
<td>58.6</td>
<td>73.3</td>
<td>87.9</td>
<td>102.6</td>
<td>117.3</td>
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<tr>
<td><strong>Output - BTU/Hr</strong> (kW)</td>
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<td>30.4</td>
<td>36.5</td>
<td>42.6</td>
<td>48.6</td>
<td>60.8</td>
<td>72.1</td>
<td>85.1</td>
<td>97.3</td>
</tr>
</tbody>
</table>

### DIMENSIONAL DATA - Inches (mm)

#### **A** Height of Top of Flue

- **33-3/4** (857)
- **33-3/4** (857)
- **33-3/4** (857)

#### **B** Jacket Width of Unit

- **30-3/4** (781)
- **32-3/4** (832)
- **33-3/4** (832)

#### **C** Centerline Flue Width

- **13-3/8** (340)
- **13-3/8** (340)
- **13-3/8** (340)

#### **D** Depth to Front Hanger

- **11-11/64** (297)
- **11-11/64** (297)
- **11-11/64** (297)

#### **E** Hanging Distance Width

- **18-5/8** (473)
- **18-5/8** (473)
- **18-5/8** (473)

#### **F** Hanging Distance Depth

- **21-25/32** (553)
- **22-11/32** (560)
- **22-11/32** (560)

#### **G** Discharge Opening Width

- **18-3/4** (476)
- **18-3/4** (476)
- **18-3/4** (476)

#### **H** Depth to Centerline Flue

- **4-3/4** (121)
- **4-3/4** (121)
- **4-3/4** (121)

#### **M** Overall Unit Width

- **25-1/4** (641)
- **25-1/4** (641)
- **25-1/4** (641)

#### **P** Overall Unit Depth

- **52-3/4** (1340)
- **53-3/16** (1352)
- **53-3/16** (1352)

#### **Vent Size Diameter - Inches (mm)**

- **5** (127)
- **5** (127)
- **5** (127)

#### Gas Inlet, Natural Gas - Inches

- **1/2** (127)
- **1/2** (127)
- **1/2** (127)

#### Gas Inlet, LP Gas - Inches

- **1/2** (127)
- **1/2** (127)
- **1/2** (127)

#### Approximate Unit Weight - Lbs

- **173** (78)
- **177** (78)
- **177** (78)

#### Approximate Ship Weight - Lbs

- **258** (117)
- **263** (117)
- **263** (117)

### PERFORMANCE DATA

#### Thermal Efficiency - %

- **83**
- **83**
- **83**

#### Free Air Delivery - CFM

- **1,181**
- **1,476**
- **1,771**

#### Air Temperature Rise - °F

- **65**
- **65**
- **65**

#### Outlet Velocity - FPM

- **(1,879)**
- **(2,351)**
- **(2,819)**

#### Full Load Amps at 115V

- **7.4**
- **10.5**
- **13.8**

#### Maximum Circuit Ampacity

- **1.7**
- **1.7**
- **1.7**

### MOTOR DATA:

#### Motor HP

- **1.4**
- **1.4**
- **1.4**

#### Motor kW

- **0.19**
- **0.37**
- **0.56**

#### Motor Type**

- **SPH**
- **SPH**
- **SPH**

#### RPM

- **1,725**
- **1,725**
- **1,725**

### **D** intertek performance certification

- **VERIFIED**
- **ENERGY**
- **VERIFIE

### Notes:

- Ratings shown are for unit installations at elevations between 0 and 2,000 ft (0 to 610m). For unit installations in USA above 2,000 ft. (610m), the unit input must be derated 4% for each 1,000 ft. (305m) above sea level; refer to local codes, or in absence of local codes, refer to the latest edition of the National Fuel Gas Code, ANSI Standard Z223.1 (NFPA No. 54).

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

- Flue collar is factory supplied with unit; to be field installed per included instructions.

** LEGEND: SPH = SPLIT PHASE CAP. START = CAPACITOR START
## BSC Series — Separated Combustion Blower

### Performance Data

<table>
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<tr>
<th>Unit</th>
<th>Temp.Rise °F (°C)</th>
<th>CMF (cu. m/s)</th>
<th>0.1&quot; (0.25) (kPa)</th>
<th>0.2&quot; (0.5) (kPa)</th>
<th>0.3&quot; (0.75) (kPa)</th>
<th>0.4&quot; (1.0) (kPa)</th>
<th>0.5&quot; (1.25) (kPa)</th>
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<td></td>
<td>RPM HP (kW)</td>
<td>RPM HP (kW)</td>
<td>RPM HP (kW)</td>
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<td>700 (0.37)</td>
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<td>959 (0.452)</td>
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</tbody>
</table>

**Notes:**
- RPM stands for revolutions per minute.
- HP represents horsepower.
- The table details performance metrics for different temperature rises and units.
Accessories [AC]

**FACTORY INSTALLED**

M6 - OSHA TYPE FAN GUARD
Series BTC, BSC
Factory Installed
Factory installed available on series BTU and BSF only, required on series BRT. Required for installations that must conform to OSHA standards. Also known as fingerproof fan guards.

M8 - DISCHARGE DUCT FLANGE ASSEMBLY
Series BTC, BSC
Factory Installed
Field Installed
Single pole, double throw.

P4 - TERMINAL BLOCK WIRING
Series BTC, BSC
Factory Installed
Field Installed
Provides specific terminal designation for field wiring.

P6 - SUMMER/WINTER SWITCH
Series BTC, BSC
Factory Installed
Field Installed
Allows operation of fan or blower for ventilating purposes during hot summer months (manually operated).

S3 - STAINLESS STEEL FLUE COLLECTOR
All Series and Sizes
Factory Installed
Field Installed
409 Stainless steel flue collector in lieu of standard aluminized steel collector.

S5 - STAINLESS STEEL BURNERS
Series BTC, BSC
Factory Installed
Field Installed
304L Stainless steel in-shot burners in lieu of the standard aluminized steel in-shot burners.

**FIELD INSTALLED**

A7 - PRESSURE REGULATOR 1/2-2 PSI
All Series & Sizes
Field Installed
Required where main line pressure exceeds 14” WC (1/2 psig), must specify incoming pressure when ordered. One regulator per unit required, shipped separately.

F1 - ONE STAGE DUCTSTAT
Series BTC, BSC
Field Installed
Single pole, double throw. 55-175°F setpoint range.

F2 - TWO STAGE DUCTSTAT
Series BTC, BSC
Field Installed
Single pole, double throw. 55-175°F setpoint range.

G1 - ONE STAGE T87K (MERCURY-FREE) THERMOSTAT WITH SUBBASE
All Series and Sizes
Field Installed
Single stage heating thermostat with subbase. Includes fan switching relay. Standard round styling suitable for any decor. 40-90°F range.

G2 - ONE STAGE T87K (MERCURY-FREE) THERMOSTAT WITH TG511A GUARD
All Series and Sizes
Field Installed
Single stage heating thermostat with fan switch. Manufactured exclusively for Beacon/Morris with a “Beacon/Morris” logo face plate. 50-90°F range.

G3 - ONE STAGE T834N (MERCURY-FREE) THERMOSTAT WITH FAN SWITCH
All Series and Sizes
Field Installed
Single stage heating thermostat with fan switch. Same features as “G1” except a tamper proof guard is included.

G5 - TWO STAGE TH5220D (MERCURY-FREE) THERMOSTAT WITH SUBBASE
All Series and Sizes
Field Installed
Two stage heating and two stage cooling with system and fan switching and built in 10°F heating/cooling differential. Includes fan relay. Heating 40-90°F range, Cooling 50-99°F.

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

G8 - ONE STAGE T6169C LINE VOLTAGE STAT WITH SUBBASE
All Series and Sizes
Field Installed
Single stage heating only thermostat. 115 volt operation, 44-86°F range

G9 - ONE STAGE T822X (MERCURY-FREE) THERMOSTAT
All Series and Sizes
Field Installed
Single stage heating only thermostat with subbase. 24 volt operation, 50-90°F range.

M2 - 2, 3 - VENT CAP
Series BTC, BSC
Field Installed
5 or 6 inch vent cap for use with series BTU, BTC, BSF, BSC. Must indicate unit size when ordered.

P5 - 24 VOLT RELAY
All Series and Sizes
Field Installed
Specify purpose. 24 volt SPST relay.

VC - 4 VENT CAP
Series BRT
Field Installed
4” vent cap for use with series BRT.

X2 - 30° NOZZLE
All Series and Sizes
Field Installed
Directs the discharge air at a 30° angle. Air can be directed up to 60° by adjusting the horizontal louver. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge. Must indicate unit size when ordered.

X3 - 60° NOZZLE
All Series and Sizes
Field Installed
Directs the discharge air at a 60° angle. Air can be directed up to 90° by adjusting the horizontal louver. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge. Must indicate unit size when ordered.

X4 - 90° NOZZLE
All Series and Sizes
Field Installed
Directs the discharge air at a 90° angle. Louvers are supplied with the unit heater and must be reinstalled in the nozzle discharge. Must indicate unit size when ordered.

X5 - VERTICAL LOUVER KIT
Series BTC, BSC
Field Installed
Vertical Louvers to provide 4 way air deflection. Must indicate unit size when ordered.

X7 - 4, 5 CONCENTRIC VENT KIT
Series BRT
Field Installed
Allows for one 6 or 8” vent/combustion air opening through a structure. One kit permits for either horizontal or vertical applications. Kit required for converting a series BRT to separated combustion.

X7 - H5, H6 HORIZONTAL COMBUSTION AIR INLET KIT
Series BSF, BSC
Field Installed
Allows for one 8 or 10” horizontal vent/combustion air opening through a structure. Must indicate unit size when ordered.

X7 - V5, V6 VERTICAL COMBUSTION AIR INLET KIT
Series BSF, BSC
Field Installed
Allows for one 8 or 10” vertical vent/combustion air opening through a structure. Must indicate unit size when ordered.
# Heat Throw Data

## STANDARD UNIT HEATER APPLICATIONS

<table>
<thead>
<tr>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
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<td>30,000 (8.8)</td>
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<td>15 (4.6)</td>
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<td>400,000 (117.1)</td>
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</tbody>
</table>

**NOTES:**
1. All throw data figures are approximations. Allowances should be made for optimum performance, altitude, etc.
2. “NR” - Units not recommended at these mounting heights.
3. 30°, 60° and 90° nozzles are shipped unassembled.

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**30° NOZZLE**

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# Heat Throw Data

## 60° NOZZLE

<table>
<thead>
<tr>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (2.4)</td>
<td>30,000 (8.8)</td>
<td>90,000 (26.4)</td>
</tr>
<tr>
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<td>45,000 (13.2)</td>
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<td>60,000 (17.6)</td>
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<tr>
<td>15 (4.6)</td>
<td>75,000 (22.0)</td>
<td>150,000 (43.9)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (2.4)</td>
<td>90,000 (26.4)</td>
<td>175,000 (51.2)</td>
</tr>
<tr>
<td>10 (3.0)</td>
<td>100,000 (29.3)</td>
<td>200,000 (58.6)</td>
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<tr>
<td>12 (3.7)</td>
<td>125,000 (36.6)</td>
<td>250,000 (73.2)</td>
</tr>
<tr>
<td>15 (4.6)</td>
<td>150,000 (39.2)</td>
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<tr>
<td>20 (6.1)</td>
<td>175,000 (51.2)</td>
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</table>

## 90° NOZZLE*

<table>
<thead>
<tr>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (2.4)</td>
<td>30,000 (8.8)</td>
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</tr>
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<td>20 (6.1)</td>
<td>90,000 (26.4)</td>
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</table>

<table>
<thead>
<tr>
<th>Distance From Floor to Bottom of Unit “H” (Ft. (m))</th>
<th>Approximate Distance of Heat Throw - Feet (Meters)</th>
<th>UNIT SIZE BTU/HR (kW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 (2.4)</td>
<td>90,000 (26.4)</td>
<td>29.3</td>
</tr>
<tr>
<td>10 (3.0)</td>
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<td>125,000 (36.6)</td>
<td>43.9</td>
</tr>
<tr>
<td>15 (4.6)</td>
<td>150,000 (43.9)</td>
<td></td>
</tr>
<tr>
<td>20 (6.1)</td>
<td>175,000 (51.2)</td>
<td></td>
</tr>
</tbody>
</table>

*It is not recommended to mount a unit with a 90° nozzle at 10 feet or less. Heat Throw data for BRT Series units with a 90° nozzle installed is not currently available.
**Nozzle Dimensions**

*Nozzles are field assembled.*

### NOZZLE DIMENSIONAL DATA CHART

<table>
<thead>
<tr>
<th>DIMENSION</th>
<th>NOZZLE TYPE</th>
<th>30, 45</th>
<th>60, 75</th>
<th>90, 105, 120</th>
<th>100, 125, 150</th>
<th>175, 200, 250</th>
<th>300, 350, 400</th>
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<td>(498)</td>
<td>(498)</td>
<td>(527)</td>
<td>(832)</td>
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<td>(498)</td>
<td>(498)</td>
<td>(527)</td>
<td>(832)</td>
<td>(1289)</td>
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<tr>
<td>HEIGHT B (In.)</td>
<td>30°</td>
<td>12-1/16</td>
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<td>(306)</td>
<td>(397)</td>
<td>(568)</td>
<td>(800)</td>
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<td>(800)</td>
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<tr>
<td></td>
<td>60°</td>
<td>12-1/16</td>
<td>15-5/8</td>
<td>22-3/8</td>
<td>31-1/2</td>
<td>31-1/2</td>
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<td>(800)</td>
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<tr>
<td></td>
<td>90°</td>
<td>12-1/16</td>
<td>15-5/8</td>
<td>22-3/8</td>
<td>31-1/2</td>
<td>31-1/2</td>
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<td>(568)</td>
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<tr>
<td>FURTHEST DEPTH C (In.)</td>
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<td>HEIGHT WITH OVERHANG D (In.)</td>
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<td>60°</td>
<td>13-5/16</td>
<td>16-7/8</td>
<td>23-5/8</td>
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<td>90°</td>
<td>15-1/4</td>
<td>18-13/16</td>
<td>25-9/16</td>
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<td>(478)</td>
<td>(649)</td>
<td>(864)</td>
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</tbody>
</table>
BRT Series
Typical Standard Specification

Furnish and install, where indicated or scheduled on plans, gas-fired unit heaters manufactured by Beacon/Morris. All heaters are to have a minimum thermal efficiency of 82%. The heat exchanger consists of aluminized steel tubes not lighter than 20-gauge. Burner system is to be of the “single-orifice burner” design. A direct spark ignition system with integrated control and redundant gas valve shall be utilized. Flame rectification shall be independent of the spark igniter, allowing true indication of complete ignition of the burner. Most cabinetry and trim pieces shall be fabricated of 20-gauge material, and finished with a baked gray enamel.

Separated combustion style units must utilize clean air from the outside of the structure for combustion purposes. A concentric type adapter must be used at the point of building termination. This adapter will allow for the outside air to enter and combustion flue gases exit through one opening.

Heaters shall be equipped with a 120/24 volt transformer; factory wiring shall permit the use of propeller fan for continuous air circulation when combined with manufacturer’s (optional) 24 volt summer/winter single stage thermostat. The control transformer and pressure switch shall be factory mounted in a main control cabinet located on the side of the unit; the side panel is removed to create easy access and all wiring information will be indicated on the inside control cabinet.

Units will be equipped with a low voltage automatic reset high temperature control, wired to de-energize the main gas valve and maintain fan operation until the high temperature control resets. Units will be equipped with 120/1/60 volt motors which include internal automatic reset thermal overload protection. Fans will be hubbed with aluminum blades and have OSHA-approved fan guard protection. Adjustable and individually removable horizontal louver blades shall be provided for directing air flow.

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

BTU/BTC Series
Typical Standard Specification

Furnish and install, where indicated or scheduled on plans, gas-fired unit heaters manufactured by Beacon/Morris. All heaters are to have a minimum thermal efficiency of 83%. The heat exchanger consists of aluminized steel tubes not lighter than 20-gauge. Burners are to be of the “in-shot” design. A direct spark ignition system with integrated control and redundant gas valve shall be utilized. Flame rectification shall be independent of the spark igniter, allowing true indication of complete ignition of the burner. Most cabinetry and trim pieces shall be fabricated of 20-gauge material and finished with a baked gray enamel.

All line voltage wiring shall be completely enclosed in flexible conduit. Heaters shall be equipped with a 120/24 volt controls transformer. Factory wiring shall permit the use of propeller fan on BTU units and blower on BTC units, for continuous air circulation when combined with manufacturer’s (optional) 24-volt summer/winter single stage thermostat. The control transformer and pressure switch shall be factory mounted in a main control panel located on the side of the unit; this panel creates easy access and all wiring information will be indicated on the inside control panel door.

Units will be equipped with a low voltage automatic reset high temperature control, wired to de-energize the main gas valve and maintain fan or blower operation until the high temperature control resets. Units will be equipped with 120/1/60 volt motors, which include internal automatic reset thermal overload protection. BTU unit fans will be hubbed with aluminum blades and have OSHA-approved fan guard protection. BTU units with inputs greater than 250,000 BTU’s shall be equipped with dual motors and fan blades for optimum air distribution. BTC units shall have centrifugal blowers with an OSHA-type belt guard. BTC units with inputs greater than 250,000 BTU’s shall be equipped with dual blowers on a single shaft for optimum air distribution. Adjustable and individually removable horizontal louver blades shall be provided on all units for directing air flow.

All units and component assemblies shall be warranted for a period of one year from the date of shipment from the factory or 18 months from the date of manufacture, whichever occurs first. All burners, heat exchangers, and flue collectors shall carry a ten year non-prorated limited warranty on materials and workmanship (subject to appropriate disclaimers).
BSF/BSC Series
Typical Standard Specification

Furnish and install, where indicated or scheduled on plans, gas-fired unit heaters manufactured by Beacon/Morris. All heaters to be designed to separate the combustion process from the environment where the units are installed; the burners, igniter and flue system will be enclosed within the unit and a power venting system will both draw in combustion air from outside the space and exhaust flue gas products to the outside. All heaters are to have a minimum thermal efficiency of 83%. The heat exchanger consists of aluminized steel tubes not lighter than 20-gauge. Burners are to be of the “in-shot” design. A direct spark ignition system with integrated control and redundant gas valve shall be utilized. Flame rectification shall be independent of the spark igniter allowing true indication of complete ignition of the burner. Most cabinetry and trim pieces shall be fabricated of 20-gauge material and finished with baked gray enamel.

All line voltage wiring shall be completely enclosed in flexible conduit. Heaters shall be equipped with a 120/24 volt controls transformer. Factory wiring shall permit the use of propeller fan on BSF units and blower on BSC units for continuous air circulation when combined with manufacturer's (optional) 24-volt summer/winter single stage thermostat. The control transformer and pressure switch shall be factory mounted in a main control panel located on the side of the unit; this panel creates easy access and all wiring information will be indicated on the inside control panel door.

Units will be equipped with a low voltage automatic reset high temperature control, wired to de-energize the main gas valve and maintain fan or blower operation until the high temperature control resets. Units will be equipped with 120/1/60 volt motors, which include internal automatic reset thermal overload protection. BSF unit fans will be hubbed with aluminum blades and have fan guard protection. BSF units with inputs greater than 250,000 BTU's shall be equipped with dual motors and fan blades on a single shaft for optimum air distribution. BSC units shall have centrifugal blowers with an OSHA-type belt guard. BSC units with inputs greater than 250,000 BTU's shall be equipped with dual blowers on a single shaft for optimum air distribution.

Adjustable and individually removable horizontal louver blades shall be provided on all units for directing air flow.

Units to be vented horizontally or vertically via standard two-pipe configuration. When necessary to vent concentrically through one wall or roof penetration, an optional combustion air inlet kit will be made available.

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

1. SERIES BRT, BTU, BTC, BSF AND BSC
   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 (1-1/2) 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. 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.

3. 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.

4. 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.

5. 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.

In the interest of product improvement, we reserve the right to make changes without notice.