

# OPTUM



## HIGH EFFICIENCY CONDENSING UNIT HEATER

Optum brings leading edge condensing heat exchanger technology to Beacon Morris' successful unit heater product offering.

Beacon Morris' Optum gas-fired unit heaters brings tomorrow's technologies to today's products. Engineered for performance Optum incorporates leading edge control and combustion technologies to customers across North America.

Optum's tri-metal condensing heat exchanger, state-of-the-art control platform and proprietary fully modulating pre-mix burner design safely provide industry leading operating efficiencies of up to 99%!

Available in 6 sizes - 50, 100, 150, 200, 300 and 400 MBH, in both natural gas and LP gas, Optum can be vented through PVC and CPVC for application flexibility. All units are field convertible to separated combustion.

### STATE-OF-THE-ART CONTROL PLATFORM

- 3:1 Turndown - Self Modulating
- Outdoor/Indoor Reset Settings
- BMS Communication (2-10 VCD/4-20 mA Input)
- Modbus Standard
- LED Diagnostic Lights (External)
- Single Thermostat or Outdoor Sensor can Control Multiple Units

### APPLICATION FLEXIBILITY

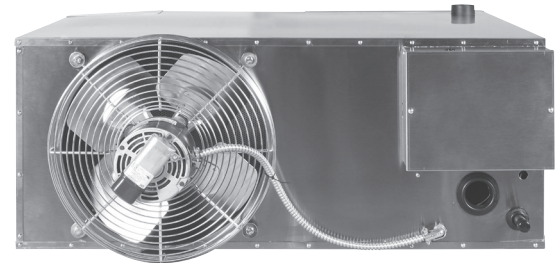
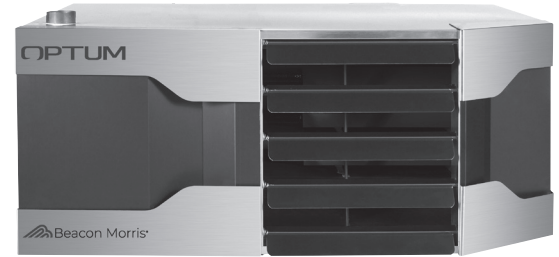
- NG/LP Single Orifice Field Conversion
- PVC/CPVC Vent Compatible
- Field Convertible to Separated Combustion
- Multiple Voltage Configurations
- OSHA Fan Guards
- Durable Brushed Stainless Steel Cabinet
- Condensate Float Switch and Trap Standard
- Optional Condensate Pump and Condensate Neutralizer
- Single or 2-Stage Capable Gas Valve
- Residentially Certified for use as a Utility Heater

### ELECTRONICALLY AIR/FUEL COUPLED

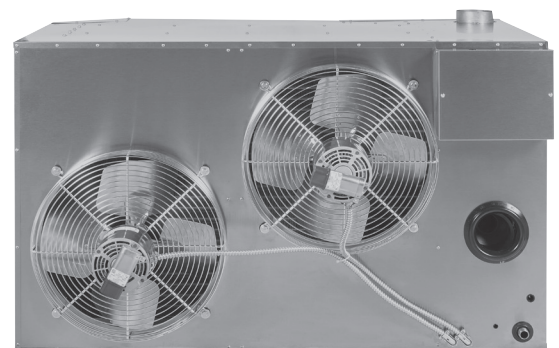
- Proprietary Design for Optimal Efficiency
- Unique Premix Burner Technology
- 3:1 Full Turndown Modulation
- Maximum Efficiency through Precision Modulation
- SafeSense Blocked Inlet and Flue Sensing Technology
- Auto-adjusts for Altitude Requiring no Field Modifications
- Maintains Fuel/Air Ratio with Partial Blockage without Decreasing Performance until Safety Trip

### TRI-METAL HYBRID HEAT EXCHANGER

- Full Condensing Efficiencies at all Firing Rates
- Up to 99% Maximum Efficiency (Full Modulation)
- 95% Efficiency (Full Input)
- All Stainless Steel Tube for Enhanced Corrosion Protection
- Brass and Aluminum Fins for Improved Thermal Heat Transfer



100 MBH



400 MBH



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PROJECT: \_\_\_\_\_

UNIT TAG: \_\_\_\_\_

# BEACON MORRIS OPTUM CONDENSING UNIT HEATER



Unit Capacity (MBH)		50	100	150	200	300	400
<b>PERFORMANCE DATA†</b>							
Input -	BTU/Hr. (kW)	50,000 (14.6)	100,000 (29.3)	150,000 (43.9)	200,000 (58.6)	300,000 (87.9)	400,000 (117.2)
Output -	BTU/Hr. (kW)	48,600 (14.2)	96,000 (28.1)	143,000 (41.8)	192,000 (56.3)	285,000 (83.5)	384,000 (112.5)
Thermal Efficiency	(%)	97	96	95	96	95	96
Turn Down Ratio		3:1	3:1	3:1	3:1	3:1	3:1
Modulating Control		YES	YES	YES	YES	YES	YES
Free Air Delivery -	CFM (cu. m/s)	790 (0.373)	1,616 (0.763)	2,661 (1.255)	3,232 (1.525)	4,848 (2.288)	6,464 (3.050)
Outlet Velocity	FPM	697	977	928	1,127	1,101	1,114
Air Temperature Rise -	Deg. F (Deg C.)	57 (31.7)	55 (30.6)	50 (21.8)	55 (30.6)	55 (30.6)	55 (30.6)
Heat Throw @ 20 ft. Mounting Height	ft.	N/A	150	N/A	150	150	150
Condensate Trap		YES	YES	YES	YES	YES	YES
Condensate Discharge Size	in.	3/4	3/4	3/4	3/4	3/4	3/4
Condensate Production	gph	0.41	0.73	1.06	1.38	1.71	3.0
Full Load Amps at 120V		10.8	10.3	17.6	17.6	31.2	31.2
Minimum Circuit Amps at 120V		11.5	11.8	19.1	19.1	33.9	33.9
Max Overcurrent Protection at 120V		14.1	17.8	25.1	25.1	44.9	44.9
<b>MOTOR DATA:</b>	Motor HP (Qty)	1/14 (2)	1/2	1/2 (2)	1/2 (2)	1 (2)	1 (2)
	Motor kW	0.05	0.37	0.37	0.37	0.74	0.74
	Motor Type, ODP	SP	PSC	PSC	PSC	PSC	PSC
	RPM	1,500	1,500	1,500	1,500	1,625	1,625
	Amps @ 115V	5.2	6.0	12.0	12.0	22.0	22.0
<b>VENTING &amp; GAS CONNECTIONS</b>							
Combustion Air Inlet Pipe Dia. -	in. (mm)	2 (51)	2 (51)	2 (51)	3 (76)	4 (102)	4 (102)
Combustion Air Intake Material		PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC
* Flue Pipe Dia. -	in. (mm)	2 (51)	2 (51)	2 (51)	3 (76)	4 (102)	4 (102)
Flue Material		PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC	PVC/CPVC
Venting Category		IV	IV	IV	IV	IV	IV
Fuel Type		NG/LP	NG/LP	NG/LP	NG/LP	NG/LP	NG/LP
Gas inlet -	in.	1/2	1/2	1/2	1/2	3/4	3/4
Min. Gas Pressure Natural	in. W.C.	5	5	5	5	5	5
Min. Gas Pressure LP	in. W.C.	8	8	8	8	8	8
Max. Gas Pressure Natural / LP	in. W.C.	14	14	14	14	14	14
<b>CLEARANCES FOR SERVICE/COMBUSTIBLES</b>							
Air Intake Side (Inch)		18	18	18	18	36	36
Access Side (Inch)		18	18	18	18	18	18
Non access side (Inch)		2	6	6	6	6	6
Top (Inch)		2	6	6	6	6	6
Bottom (Inch)		2	6	6	6	6	6

† Ratings shown are for unit installations at elevations between 0 and 2,000 feet (0 to 610m). For unit installations in U.S.A. above 2,000 feet (610m), the unit input must be field derated 4% for each 1,000 feet (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 feet (610m) are to be ignored. At altitudes of 2,000 feet to 4,500 feet (610 to 1372m), the unit must be field derated and be so marked in accordance with the ETL certification. See HIGH ALTITUDE DERATION section of the installation and operation manual for deration information.

\* Field installed PVC fittings provided with unit sizes 200-400 as follows:

- Size 200 units come with a 2" to 3" PVC reducer
- Size 300 units come with a 2" to 4" PVC reducer
- Size 400 units come with a 2" to 4" PVC drain tee fitting

Reducers/drain tee fittings are to be field installed per Venting instructions in the installation and operation manual.

LEGEND: ODP = Open Drip Proof, PSC = Permanent Split Capacitor, SP = Shaded Pole

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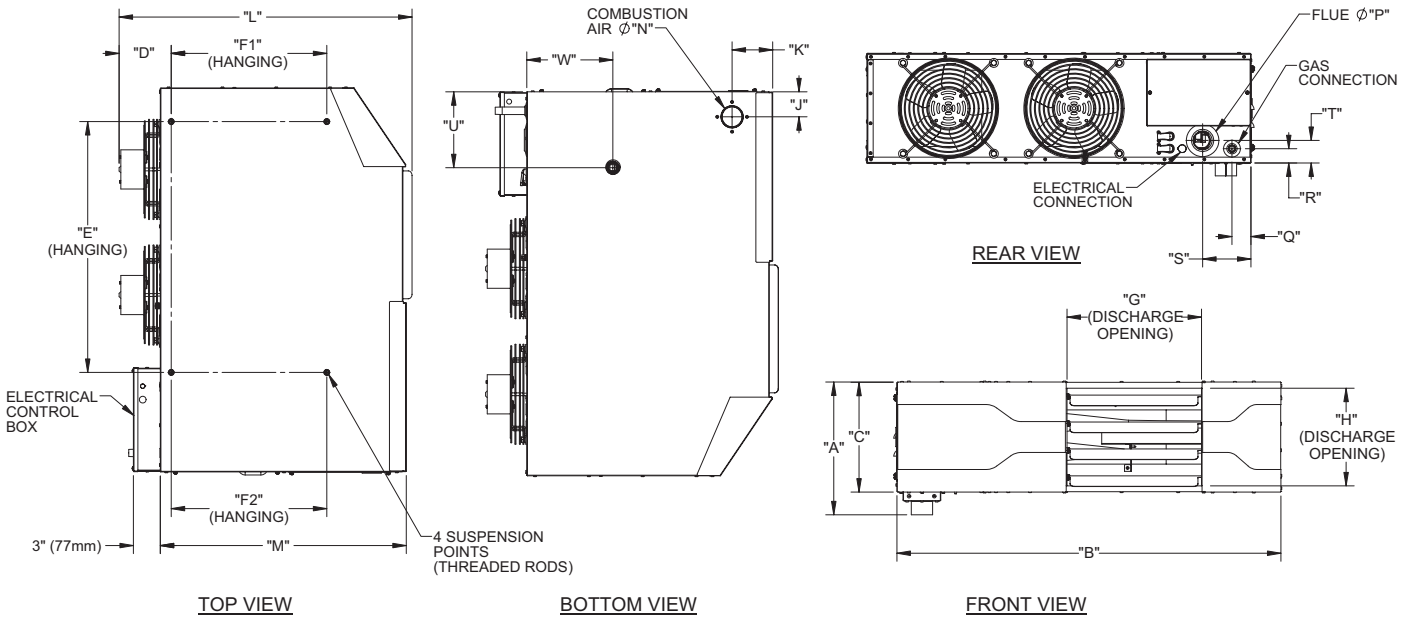


Unit Capacity (MBH)	50	100	150	200	300	400	
<b>DIMENSIONAL DATA - inches (mm)</b>							
"A" Height to Top of Combustion Air Inlet	13-5/8 (346)	18-3/4 (476)	18-3/4 (476)	18-3/4 (476)	27-1/8 (689)	34-7/8 (886)	
"B" Jacket Width of Unit	42-13/16 (1087)	42-13/16 (1087)	54-13/16 (1392)	54-13/16 (1392)	54-13/16 (1392)	54-13/16 (1392)	
"C" Unit Height	12-1/4 (311)	17-1/4 (438)	17-1/4 (438)	17-1/4 (438)	25-11/16 (653)	33-7/16 (850)	
"D" Depth to Rear of Housing	5-3/4 (147)	11 (279)	10-5/16 (261)	11 (279)	10-7/8 (277)	11-1/2 (292)	
"E" Hanging Distance Width	28 (710)	27-15/16 (710)	38 (965)	38 (965)	41-3/4 (1060)	41-3/4 (1060)	
"F1" Hanging Distance Depth	17-3/8 (440)	17-1/4 (438)	21-1/8 (537)	21-1/4 (540)	20 (508)	20 (508)	
"F2" Hanging Distance Depth	17-3/8 (440)	17-1/4 (438)	21-1/8 (537)	21-1/4 (540)	26 (660)	26 (660)	
"G" Discharge Opening Width	15 (381)	15 (381)	26 (660)	26 (660)	26 (660)	26 (660)	
"H" Discharge Opening Height	10-1/8 (256)	15-7/8 (403)	15-7/8 (403)	15-7/8 (403)	24-3/8 (619)	32-1/8 (816)	
"J" Side Panel to Centerline Combustion Air	2-3/4 (70)	2-13/16 (71)	3-3/4 (95)	3-3/4 (95)	3-3/4 (95)	3-3/4 (95)	
"K" Front Panel to Centerline Combustion Air	4-1/2 (115)	4-1/2 (114)	5-5/16 (135)	5-5/16 (135)	5-5/16 (135)	5-5/16 (135)	
"L" Overall Unit Depth	32-5/8 (829)	38 (965)	41 (1040)	42 (1067)	42 (1067)	42 (1067)	
"M" Side Depth	27-7/16 (696)	27-7/16 (697)	31-1/4 (794)	31-1/4 (794)	31-1/4 (794)	31-1/4 (794)	
"N" Combustion Air Inlet Connection Dia.	2 (51)	2 (51)	2 (51)	3 (76)	4 (102)	4 (102)	
"P" Flue Connection Diameter	2 (51)	2 (51)	2 (51)	3 (76)	4 (102)	4 (102)	
"Q" Side Panel to Centerline Gas Connection	2-1/8 (54)	2-5/8 (67)	2-5/8 (67)	2-5/8 (67)	2-5/8 (67)	2-5/8 (67)	
"R" Bottom Panel to Centerline Gas Connection	1-1/2 (40)	2-1/2 (64)	2-1/2 (64)	2-1/2 (64)	2-1/2 (64)	2-1/2 (64)	
"S" Side Panel to Centerline Flue	5-3/8 (137)	5-1/8 (130)	6-1/2 (165)	6-1/16 (154)	5-3/8 (137)	5-3/8 (137)	
"T" Bottom Panel to Centerline Flue	2-1/2 (64)	4-5/8 (117)	4-5/8 (117)	4-5/8 (117)	8-1/8 (206)	13-1/8 (334)	
"U" Side to Centerline Condensate Drain Connection	8-1/2 (214)	8-1/2 (216)	9-1/2 (241)	9-1/2 (241)	9-1/2 (241)	9-1/2 (241)	
"W" Rear to Centerline Condensate Drain Connection	9-9/16 (243)	9-9/16 (243)	10-9/16 (268)	10-9/16 (268)	10-1/8 (257)	10-1/8 (257)	
Approximate Unit Weight -	lb (kg)	120 (54.4)	180 (81.6)	209 (94.8)	260 (117.9)	323 (146.5)	385 (174.6)
Approximate Ship Weight -	lb (kg)	168 (76.2)	228 (103.4)	254 (115.2)	305 (138.3)	388 (176.0)	460 (208.6)

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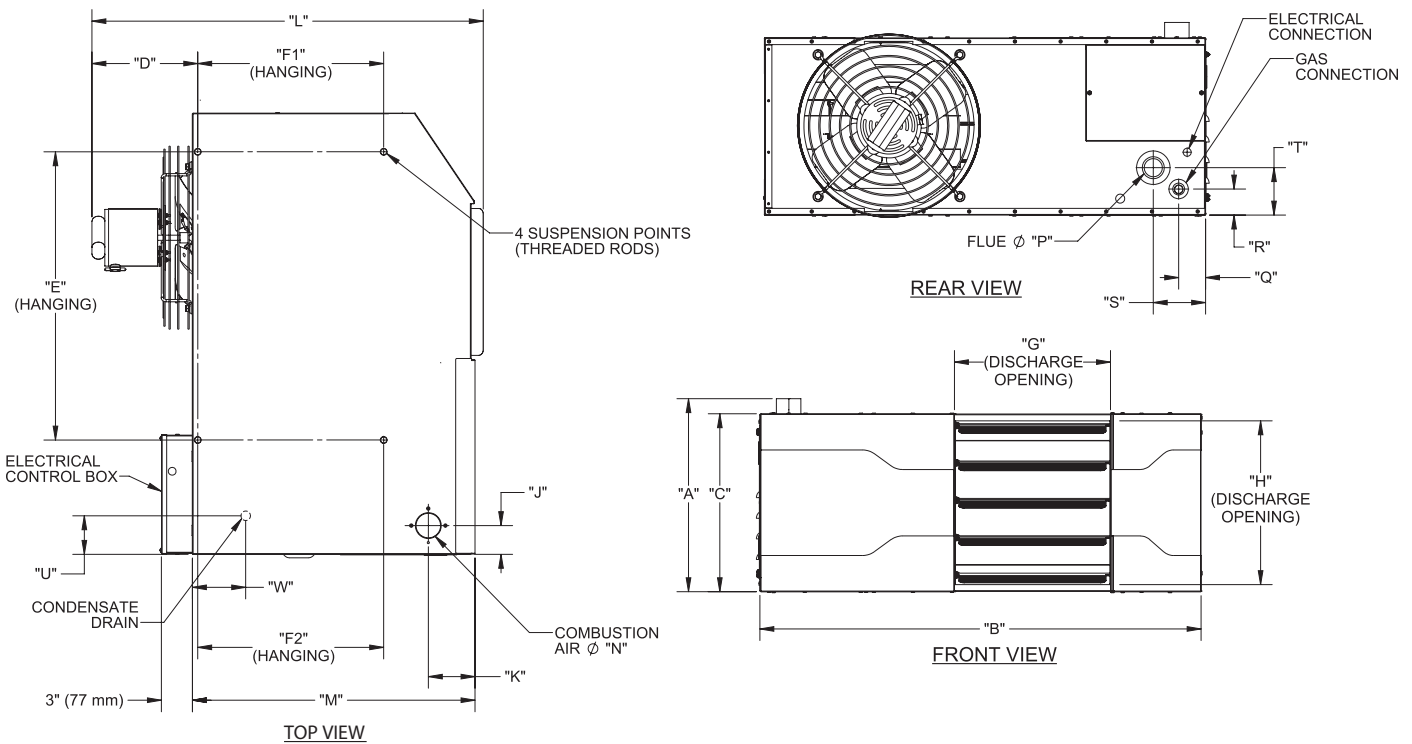


## BH050 Dimensional Data



CAT-10081D

## BH100-BH400 Dimensional Data



CAT-10081D