Date: _____   Job: _____   Location: _____

Equipment Tags: _____   Engineer: _____   Contractor: _____

Model: _____   Notes: _____

Prepared by: _____   Indoor ☐ Outdoor ☐   Gas Type: Natural Gas ☐ Propane ☐

Versa IC® controller with LCD display

Soft Start, electronic modulation, up to 10:1 turndown

LCD status display with full diagnostics and fault memory

3-in-1 Vent adapter (PVC/CPVC - Duravent® polypro - SS)

Meets 2012 NOx requirements (< 14 ng/J (< 55 PPM NOx))

Minimum inlet water temp 50ºF (10ºC)

Maximum outlet water temperature: 195ºF (90.6°C)

Maximum system temperature: 190ºF (87.8°C)

Limited 20-year thermal shock warranty

Limited 10-year closed-loop heat exchanger warranty

Modbus RTU RS485 port

Wall-mounted design

Proudly assembled in the USA

*Configured for PVC vent standard. Maximum inlet temperature of 170ºF (76.7ºC) for PVC vent.

Features and Options

Heat Exchanger

Headers

- All stainless steel construction
- Gasketless heat exchanger design
- ASME H stamped; 80 PSIG MAWP
- National board registered
- ASME Pressure relief valve 30 PSIG
- T&P Gauge (shipped loose)

Power

- 120V, 60Hz, 1Ø Power supply

Control

- VERSA IC® LCD display
- Outdoor reset with indirect priority
- 0-10 VDC input for BMS
- Cascade up to 8 boilers
- Direct Spark Ignition (DSI)
- Remote flame sensor
- High limit, manual reset, fixed, 200°F (93.3°C)
- Alarm dry contact connection
- On/off power switch
- Blocked vent pressure switch
- Boiler, DHW & system pump contacts
- Water temperature sensors (4) 10kΩ (2 shipped loose)
- Outdoor air sensor (1) 10kΩ (shipped loose)
- Modbus RTU BMS Port (Up to 115K Baud,
  - ☐ B-85 – BMS Gateway – BACnet MS/TP, BACnet IP, N2 Metasys or Modbus TCP
  - ☐ B-86 – BMS Gateway – LonWorks

Burner

- Ultra-Low NOx: less than 14 ng/J (<20 ppm)

Gas Train

- Fuel
  - ☐ Natural gas
  - ☐ Propane (minimum grade HD-5)
- Dual-seat combination valve
- Electronic modulating firing mode (H7)

Construction

- Indoor construction only
- Front controls enclosed
- PolyTuf powder coat finish
- Bottom connections (gas,water)

- Top connections (combustion air, vent, PRV)
- Design Certified ANSI Z21.13/ CSA 4.9
- Condensate trap
- Elevation
  - ☐ 0-2,000 feet
  - ☐ 5,000-9,999 feet

Venting (all shipped separately)

- ☐ D-11 - Outdoor SS vent termination
- ☐ D-91 Polypro elbow termination
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
  - ☐ Centrotherm 4" (model 398A only)
- ☐ D-92 - Polypro reducer (88AR & 398A only)
  - ☐ Duravent 3" to 2" (model 88A only)
  - ☐ Duravent 4" to 3" (model 398A only)
  - ☐ Centrotherm 3" to 2" (model 88A only)
  - ☐ Centrotherm 4" to 3" (model 398A only)
- ☐ D-94 - Horizontal twin pipe polypro
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
- ☐ D-95 - Horizontal concentric termination, polypro
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
  - ☐ Centrotherm 4" (model 398A only)
- ☐ D-96 - Vertical concentric termination, polypro
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
  - ☐ Centrotherm 4" (model 398A only)
- ☐ D-103 SS vertical/horizontal termination
  - ☐ Duravent 3" (models 88A to 398A)
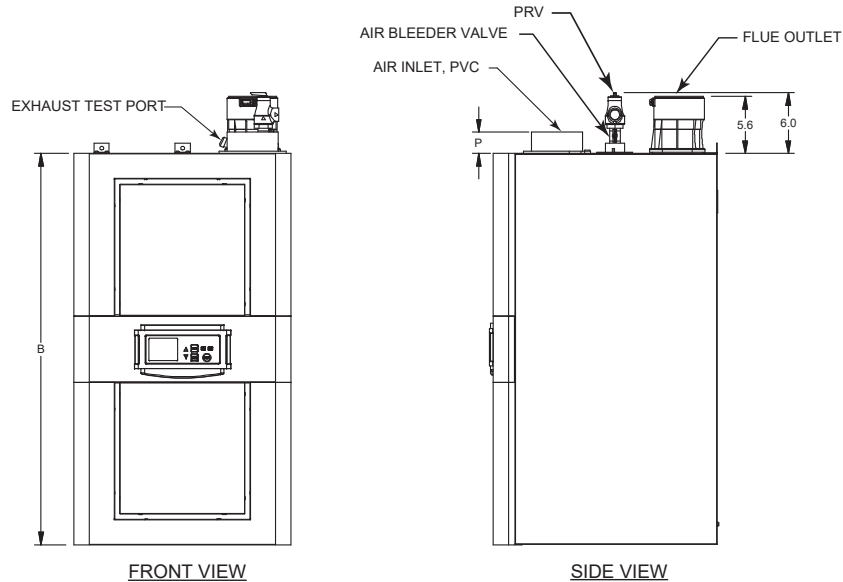 - ☐ Duravent 4" (model 398A only)

- ☐ D-104 Bird guard
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
  - ☐ Centrotherm 4" (model 398A only)
- ☐ D-105 Locking band
  - ☐ Duravent 2" (model 88A only)
  - ☐ Duravent 3" (models 88A to 398A)
  - ☐ Duravent 4" (model 398A only)
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
  - ☐ Centrotherm 4" (model 398A only)
- ☐ D-107 Appliance adapter
  - ☐ Centrotherm 2" (model 88A only)
  - ☐ Centrotherm 3" (models 88A to 398A)
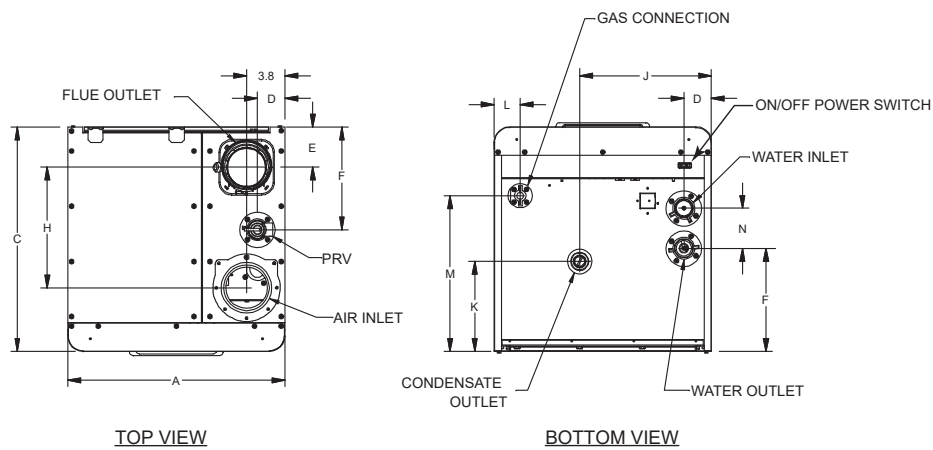 - ☐ Centrotherm 4" (model 398A only)

Options

- ☐ B-36   2-4 Heaters
- ☐ B-37   5-10 Heaters
- ☐ B-38   11-16 Heaters
- ☐ B-39*   EMS 4-20mA remote setpoint interface module
- ☐ B-62*   BACnet MS/TP interface
  (*Must be used with B-36 to B-38)
- ☐ E-5 Boiler alarm with buzzer
- ☐ F-1 Flow Switch – (Loose)
- ☐ F-10 Low water cut-off, manual reset (standard on model 398A)
- ☐ L-1 Propane gas conversion (models 198A-398A only)
- ☐ L-2 Natural gas conversion (models 198A-398A only)
- ☐ P___   Pump:_____HP, 120V, 1Ø, 60Hz
  - ☐ Cast iron   ☐ Stainless steel
- ☐ S-1/S-2 High and low gas pressure switches manual reset
- ☐ Z-12 Condensate treatment kit

Additional options or accessories

☐ ___   _____

Job:_____

FRONT VIEW

SIDE VIEW

For mounting data,
see the manual.

TOP VIEW

BOTTOM VIEW

										Dimensions in (mm)								
Model	A	B	C	D	E	F	H	J	K	L	M	N	P	Vent	Air Inlet	Water Conn. (NPT)	Gas Conn. (NPT)
☐ 88AR	16.4 (417)	35.8 (909)	16.5 (419)	2.1 (53)	2.7 (69)	6.3 (160)	7.8 (198)	9.5 (241)	5.5 (140)	1.5 (38)	4.6 (117)	2.8 (71)	2.3 (58)	2 (51)/ 3 (102) (1)	2 (51)/ 3 (102) (1)	1 (25)	1/2 (13)
☐ 108AR	16.4 (417)	35.8 (909)	16.5 (419)	2.1 (53)	2.7 (69)	6.3 (160)	7.8 (198)	9.5 (241)	5.5 (140)	1.5 (38)	4.6 (117)	2.8 (71)	2.3 (58)	3 (76)	3 (76)	1 (25)	1/2 (13)
☐ 198AR	18.6 (472)	36.2 (919)	19.4 (493)	2 (51)	3.1 (79)	8.2 (208)	10 (254)	11.3 (287)	7.1 (180)	1.7 (43)	11.5 (76.7)	3.6 (91)	2.3 (58)	3 (76)	3 (76)	1-1/4 (32)	3/4 (19)
☐ 278AR	18.6 (472)	36.2 (919)	19.4 (493)	2 (51)	3.1 (79)	8.2 (208)	10 (254)	11.3 (287)	7.1 (180)	1.7 (43)	11.5 (76.7)	3.6 (91)	2.3 (58)	3 (76)	3 (76)	1-1/4 (32)	3/4 (19)
☐ 398A	21.4 (544)	38.6 (980)	22.1 (561)	2.7 (69)	4 (102)	10.1 (257)	12 (305)	13 (330)	8.9 (226)	2.6 (66)	15.3 (389)	4 (102)	2.1 (53)	3 (76)/ 4 (102) (2)	3 (76)/ 4 (102) (2)	1-1/2 (38)	3/4 (19)

1. Model 88AR collar is 3" standard but can be reduced to 2" with shorter run. See the manual.
2. Model 398A collar is 4" standard but can be reduced to 3" with shorter run. See the manual.

Model	Input MBH (kW)			Minimum Operating Input (MBH)	Amps	Operating Weight
	Min	**Max**	**AFUE Rating %**			
☐ 88AR	17 (5)	85 (25)	95	12 (4)		126 (57.1)
☐ 108AR	22 (6)	110 (32)	95	13 (4)		128 (58)
☐ 198AR	39.8 (12)	199 (58)	95	28.4 (8)	5	187 (84.8)
☐ 278AR	55 (16)	275 (81)	95	36.6 (11)		186 (84.4)
☐ 398A	39.9 (12)	399 (117)	96	39.9 (12)		262 (118.8)

RATES OF FLOW AND PRESSURE DROPS												
Model	**30ºF ΔT**		**40ºF ΔT**		**50ºF ΔT**		**Minimum Flow**			**Maximum Flow**		
	GPM (L/min)	ΔP ft (m)	GPM (L/min)	ΔP ft (m)	GPM (L/min)	ΔP ft (m)	GPM (L/min)	ΔP ft (m)	ΔT ºF (ºC)	GPM (L/min)	ΔP ft (m)	ΔT ºF (ºC)
☐ H7-88AR	5.4 (20)	3.3 (1)	4 (15)	2.3 (0.7)	3.2 (12)	1.8 (0.5)	2.7 (10)	1.4 (0.4)	60 (33)	8.1 (31)	1.4 (0.4)	20 (11)
☐ H7-108AR	7.0 (27)	4.5 (1.4)	5.2 (20)	3.2 (1)	4.2 (16)	2.4 (0.7)	3.5 (13)	2 (0.6)	60 (33)	10.5 (40)	3 (0.6)	20 (11)
☐ H7-198AR	12.6 (48)	6.2 (1.9)	9.5 (36)	4.3 (1.3)	7.6 (29)	3.5 (1.1)	6.3 (24)	3 (0.9)	60 (33)	18.9 (72)	4 (0.9)	20 (11)
☐ H7-278AR	17.4 (66)	10.1 (3.1)	13.1 (50)	6.5 (2)	10.5 (40)	4.9 (1.5)	8.7 (33)	4 (1.2)	60 (33)	26.1 (99)	5 (1.2)	20 (11)
☐ H7-398A	25.5 (97)	7.4 (2.3)	19.2 (73)	5 (1.5)	15.3 (58)	4 (1.2)	12.8 (49)	3.4 (1)	60 (33)	38.3 (145)	3.4 (1)	20 (11)

Model No.	Standard Boiler Pump *	
	Pump	**HP**
☐ H7-88AR	Taco 007	1/25
☐ H7-108AR	Taco 007	1/25
☐ H7-198AR	Taco 0010	1/8
☐ H7-278AR	Taco 0012	1/8
☐ H7-398A	Taco 0012	1/8

*Pump selection based on 30ºF ΔT with up to 50 eq. ft. of tubing