

Dunkirk Boiler VX 399 Submittal

Engineer: _____

Project Name: _____

Project Location: _____

Contractor: _____



APPLICATION:

Gas fired hot water heating boiler for indoor installations. Approved for closet or alcove installations. For use with natural or liquefied petroleum gases (LP/propane - No conversion kit needed. Floor mounted. All boilers are factory assembled with controls and wiring, and are test fired to ensure dependable performance.

CERTIFICATION AND APPROVALS:

The stainless steel coil heat exchanger is manufactured and tested in accordance with American Society of Mechanical Engineers Standards (ASME) and certified by Canadian Standards Association (CSA) in the US. The stainless steel coil heat exchanger is tested for a maximum allowable working pressure of 150 PSIG (pounds per square inch gauge) in accordance with ASME boiler and pressure vessel code, section IV, rules for construction of heating boilers. A 50 PSIG safety relief valve is shipped standard.

BOILERS INCLUDE:

- Boiler Control Module. This boiler incorporates an integrated modulating control. The control senses supply water, return water and outside air temperatures and adjusts the firing rate to deliver the amount of heat needed to the structure.
- Replaceable fuse /extra spare fuse shipped with the control.
- Individual relays for Boiler Loop pump, CH pump, and DHW pump.
- User interface with LCD screen display English text—boiler status indication.
- Function Programming Keys - Reset, Menu, Enter and arrow s (+ -).
- Central Heating CH and Domestic Hot Water DHW setpoints. Domestic hot water priority with programmable maximum priority time.
- Outdoor air sensor. Programmable reset curves and warm weather shutdown or fixed water temperature operation.
- Boost function temperature setting and adjustable boost time.
- Maximum power function to restrict firing rate in heat mode, but allow full power in DHW mode.
- Integral multiple boiler control capability up to 16 boilers. Requires an optional system sensor
- Service reminder status.
- Error codes and Diagnostics displayed on User Interface.

ECR International, Inc.

2201 Dwyer Avenue, Utica NY 13501

Tel: 1-315-797-1310

web site: www.Dunkirk.com

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Boiler Combustion System

- ▶ Premix modulating gas valve and blower. Fully Modulating with a 5:1 turn down ratio.
- ▶ Stainless Steel Fiber Mesh Burner
- ▶ Line voltage/intermittent direct spark ignition and separate flame sensing rod.

Heat Exchanger Assembly

- ▶ Vertically mounted single piece helical fin tube coil. Manufactured out of 316L stainless steel tubing with 444 stainless steel fins welded onto the coil with a laser automated process.
- ▶ Non-metallic flue gas collector with built in condensate drain trap.

Other

- ▶ Electrical 120 Volts AC, 60 hertz, 1 phase less than 12 amp
- ▶ Low voltage terminal strip.
- ▶ Boiler is CSD-1 Compliant**.
 - ◇ UL listed manual reset probe type low water cutoff with status indicator lights and test feature.
 - ◇ Manual Reset High Limit function.

OPTIONAL EQUIPMENT:

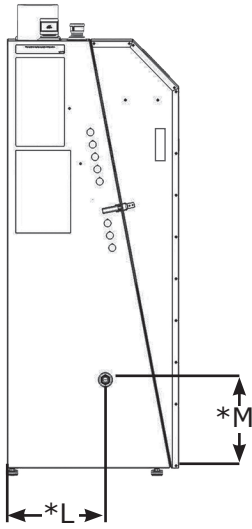
- ▶ 4" concentric vent kit
- ▶ Multiple boiler system sensor
- ▶ Boiler Loop Pump - Optional Factory Supplied Boiler loop pumps at 30°F ΔT
- ▶ External Manual Reset Limit Control
- ▶ High Altitude Kit

General Boiler Pump Sizing Chart		
System ΔT	Flow, GPM	Feet Head
20	38	41
Optional Factory Boiler Loop Pump 30	25	18
40	19	12
50	15	8
60	12	5

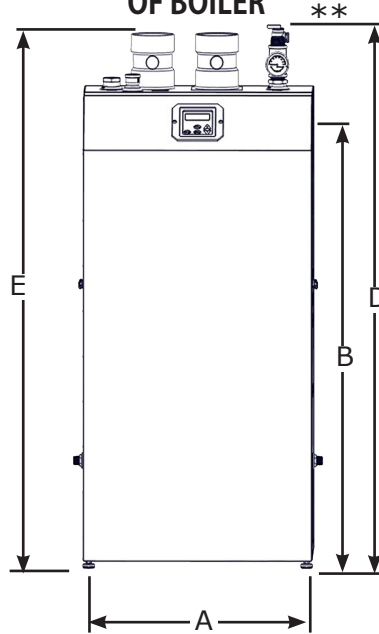
** CSD-1 Compliant - listing based on manufacturer's interpretation of CSD-1 requirements. Consult authority having jurisdiction prior to installation.

DIMENSIONS

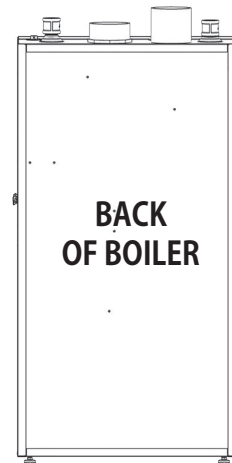
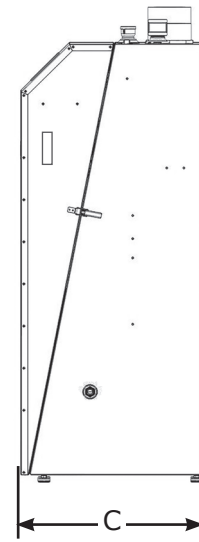
LEFT SIDE OF BOILER



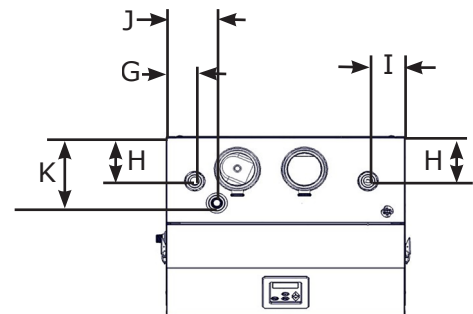
FRONT OF BOILER



RIGHT SIDE OF BOILER



Physical Data			
Location		Inches	mm
A	Width	27 1/8	688
B	Height - Unit only	52	1320
C	Depth	21 1/8	537
D**	Height unit w/ Optional Kit L-4006	66 1/4	1683
E	Height unit w/vent	56 1/4	1439
G/H	Return Water from System 1 1/4" NPT	Location (G)	3 1/4 83
		Location (H)	5 1/8 130
H/I	Supply Water to System 1 1/4" NPT	Location (H)	5 1/8 130
		Location (I)	4 1/4 108
J/K	Gas Connection 1" NPT	Location (J)	9 1/2 241
		Location (K)	8 9/16 217
*L/*M	Condensate Drain Connection 3/4" NPT	Location (L)	12 1/16 316
		Location (M)	11 7/16 281
Weight		Shipping	290 lbs 132kg
		Unit	265 lbs 121kg
Vent Connector		4	102



TOP FRONT OF BOILER

* Note - Alternate Condensate Drain Connection on Right Side of Boiler.

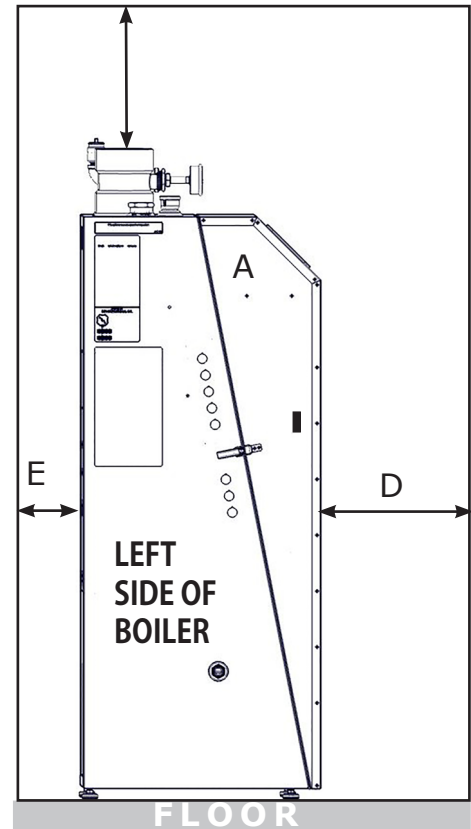
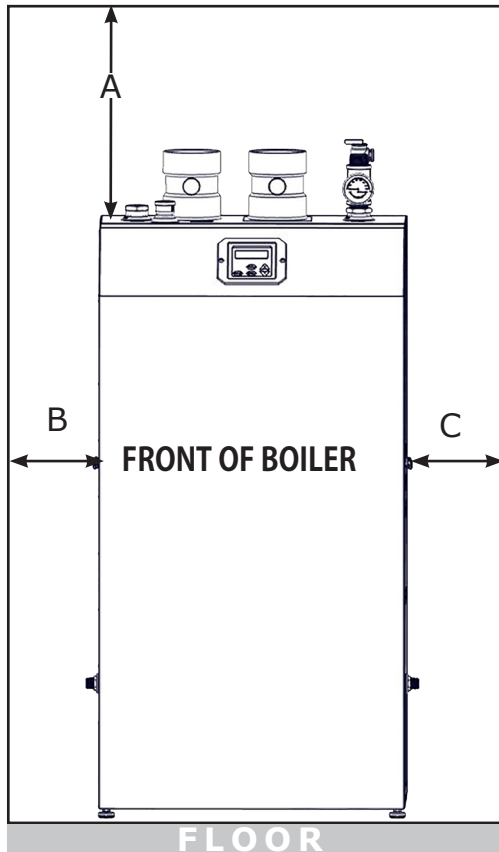
**Physical Data "D" includes optional L-4006 kit.

CLEARANCES

Dimension	Combustible Materials ⁽¹⁾	Service ⁽¹⁾⁽²⁾
Model	399	399
Top (A)	0" (0 cm)	18" (36 cm)
Left Side (B)	0" (0 cm)	6" (16 cm)
Right Side (C)	0" (0 cm)	6" (16 cm)
Front (D)	0" (0 cm)	24" (61cm)
Back (E)	0" (0 cm)	0" (0 cm)
Combustion Air/Vent Piping	0" (0 cm)	6" (16 cm)
Hot Water Piping	See Local Code	3" (7 cm)

⁽¹⁾ Required distances measured from boiler jacket.

⁽²⁾ Service, proper operation clearance recommendation.



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VENTING

Combustion Air And Vent Pipe Fittings Must Conform With The Following:

Item	Material	Standards
Vent Pipe and Fittings	PVC schedule 40	ANSI/ASTM D1785
	PVC - DWV	ANSI/ASTM D2665
	CPVC schedule 40	ANSI/ASTM D1784/ F441
	SDR-21 & SDR-26 PVC	ANSI/ASTM D2241
	ABS-DWV	ANSI/ASTM D2661
	Schedule 40ABS	ANSI/ASTM F628
	PP (Polypropylene) Pipe and Components	UL 1738 ULC S636-08
Pipe Cement/ Primer	PVC	ANSI/ASTM D2564
	CPVC	ANSI/ASTM F493
	Schedule 40 ABS	ANSI/ASTM D2235
<ul style="list-style-type: none"> • IPEX is approved vent manufacturer in Canada listed to ULC-S636. • IPEX System 636 Cements and Primers are approved in Canada listed to ULC-S636. 		
Use of cellular core PVC (ASTM F891), cellular core CPVC, or Radel® (Polyphenolsulfone) in venting systems shall be prohibited.		

Combustion Air and Vent Piping Length

Minimum/Maximum Vent Lengths	
Model	4" (102mm) Pipe
Min.	6 Ft (1.8 m)
Max.	100 Ft (30.5 m)

Equivalent Length of Venting Components

Equivalent Length of Venting Components		
Component	Feet	Meters
90° Elbow	5	1.6
45° Elbow	3 1/2	1.1
2" x 4" Adapter	0	0
3" x 4" Adapter	0	0
Concentric Vent Kit	5	1.6
Polypropylene Flexible Pipe per Foot	2 5/8	0.8

Allowed - Venting Locations

Flue Gas Location	Combustion Air Location	Flue Gas Terminals
Roof	Roof	Two Pipe
		Concentric
	Side Wall	Single Pipe
	Inside Air	Single Pipe
Side Wall	Roof	Single Pipe
	Side Wall	Two Pipe
		Concentric
	Inside Air	Single Pipe

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