

## I-Series Combi Boiler Specifications

### A.) Features

1. The boiler shall have the following features:
  - a. AFUE of 95%+
  - b. Simultaneous central heating and domestic hot water
  - c. Precise domestic hot water temperature control
  - d. Integrated domestic hot water recirculation features
  - e. Integrated 2 zone pump relay
  - f. Multiple venting solutions

### B.) Performance detail

Model	Turndown Ratio		Minimum Input Rate		Maximum Input Rate		AHRI Certified Heating Capacity
	CH	DHW	CH	DHW	CH	DHW	
i060C	4:1	10.7:1	15,000		60,000	160,000	57,000
i090C	6:1				90,000		84,000
i120C	8:1				120,000		199,000

### C.) Certifications

1. The boiler shall have an ASME “H” stamp on the heat exchanger and be listed with the National Board.
2. The boiler shall be certified by CSA to the latest standard of the ANSI Z21.13 test standard.
3. The boiler shall have a CRN for applicable Canadian provinces.
4. The boiler shall have an AHRI certified AFUE of at least 95%.

### D.) Product Specifications

1. Enclosure, Mounting, and Connections
  - a. The product shall have weight and dimensions of:

Model	i060C	i090C	i120C
Dimensions – WxHxD in (mm)	18.5x26.4x11.45 (471x671x290)		
Weight lb (kg)	73.0 (33)		76.1 (34.5)

- b. The material enclosure shall be of powder covered galvanized steel.
- c. The boiler shall be able to mount on a supplied mounting bracket or directly to a wall.
- d. The boiler connections shall be:

Connection	Connection Size
Gas	3/4in NPT
DHW Inlet (Cold Inlet)	
DHW Outlet (Hot Outlet)	
CH In (CH Return)	1in NPT
CH Out (CH Supply)	
Condensate Outlet	1/2in NPT

- e. The boiler shall have venting connections options directly off the boiler of 2in nominal PVC/CPVC/Polypropylene or 3in/5in concentric.
- f. The boiler shall have top and bottom brackets that may be used to affix the boiler to the wall. The boiler shall also come with a wall mounting bracket that the top bracket may insert into for easier installation.
- g. The boiler shall have the following water content and acceptable water pressure ranges:

	i060C	i090C	i120C
Water Content CH (gal)	0.75		0.88
Water Content DHW (gal)	0.05		
Water Pressure CH	13-45 PSI (10-1,034 kPa) Recommended 17-26 PSI (117-180 kPa)		
Included Pressure Relief Valve for CH	30 PSI (207 kPa)		
DHW	Minimum: 20 PSI (138 kPa)/Maximum: 150 PSI (1,034 kPa) (Recommend 30-80 PSI for maximum performance)		

2. Gas train

- a. The boiler shall have a fan modulating range of \_\_\_\_\_
- b. The boiler shall be equipped with a negative venturi
- c. The boiler shall be equipped with a natural gas orifice that can be converted to liquid propane with its included gas orifice.
- d. The boiler shall be equipped with an integral exhaust check valve.
- e. The boiler shall operate on inlet gas pressures on natural gas of 3.5" W.C. to 10.5" W.C. or liquid propane of 8.0" W.C. to 13.5" W.C.
- f. The boiler shall be natural gas from the factory, but field convertible with the included conversion kit to liquid propane.

3. Burner

- a. The boiler shall be equipped with a stainless-steel wire mesh burner assembly.

4. Heat exchanger construction

- a. Material
- b. Flame rod/electrode
- c. Primary stainless-steel heat exchanger
- d. Secondary stainless-steel heat exchanger
- e. Stainless steel flat plate heat exchanger for domestic hot water

5. Venting

- a. The boiler shall be approved for the following vent options:

Vent Type	Vent Diameter	Maximum Equivalent Vent Length
Concentric	2 in x 4 in	65ft (20m)
	3 in x 5 in	150ft (46m)
Twin Pipe	2in	65ft (20m)

	3in	150ft (46m)
Room Air	2in	65ft (20m)
	3in	150ft (46m)
	2in Ubbink Flex	50ft (15m)

- b. The boiler shall be approved for the following vent manufacturers/materials:

Manufacturer	Vent Material
Ubbink	PVC (Outer Vent), Polypropylene (Inner Vent)
	Polypropylene Flex
Centrotherm	Polypropylene
Heat-Fab	Metal
Metal-Fab	Metal
IPEX	PVC/CPVC
DuraVent	Polypropylene
Royal	PVC
ECCO Manufacturing	Polypropylene
DiversiTech	PVC/CPVC

- c. The boiler shall be approved for: concentric, two-pipe parallel, two-pipe unbalanced zones, and room air vent configurations.

6. Domestic hot water

- a. The boiler shall have domestic hot water provided via an integrated stainless-steel flat plate heat exchanger
- b. The boiler shall have domestic hot water performance of:

	i060C	i090C	i120C
Minimum Activation Flow Rate	0.4 GPM (1.5 L/min)		
Minimum Operation Flow Rate	0.26 GPM (1.0 L/min)		
Maximum Flow Rate	7.9 GPM (30 L/min)	9.8 GPM (37 L/min)	
Flow Rate at (70°F) temperature rise	4.1 GPM (15 L/min)	5.1 GPM (19 L/min)	

- c. The boiler shall be equipped with an internal proportional valve that will permit simultaneous operation of domestic hot water with water for central heating.
- d. The boiler shall be equipped with internal controls to enable the domestic hot water output to be within +/-2°F of the setpoint temperature.
- e. The boiler shall be able to control a domestic hot water recirculation loop.

7. Controls

- a. The boiler shall be equipped with an LCD screen that will display the target temperature for central heating, the domestic hot water setpoint, the current system pressure, whether an outdoor reset controller is present, when freeze protection is in place, and if the boiler is in operation.
- b. The boiler shall be able to operate in selectable domestic priority mode or in simultaneous domestic hot water and central heating

- c. The boiler PCB shall have connections available to control up to two zones of central heating. One of these zones may be used to alternately control a domestic hot water recirculation loop.
  - d. The boiler central heating output shall have an operating range of 86°F to 180°F dependent on the outdoor reset curve selection and the current outdoor temperature.
  - e. The boiler shall have domestic hot temperature output selection range of 98°F to 140°F. The boiler shall have an accessory option for supplemental domestic hot water temperature controllers.
  - f. The boiler shall have selectable controls to enable either dedicated or crossover type domestic hot water recirculation. The boiler PCB shall have connections available to control an external 24V timer for domestic hot water. Domestic hot water controls shall be included in the logic of the boiler to turn on/off a domestic hot water recirculation pump.
  - g. The boiler shall have means to adjust the altitude settings between 0-10,200ft (0-3,109m) in elevation.
  - h. The boiler shall have controls in place to permit high temperature exhaust vent applications.
    - i. The boiler shall be equipped with freeze protection for the boiler.
    - j. The boiler shall have a deaeration process to enable air to be safely removed from the piping upon installation or service.
  - k. The boiler shall come equipped with a pressure sensor that will in stages alert the user of a low or high pressure issue or lock out the boiler from operation. The boiler shall also have a connection on the PCB to connect a field supplied LWCO if needed.
  - l. The boiler shall have selectable options for the duration of domestic hot water priority or to have it be able to operate without restriction.
  - m. The boiler shall be operable with an included outdoor temperature sensor.
8. Electrical details
- a. Boiler shall have electrical requirements of 120V AC, 10 amps.
  - b. The boiler shall have a three-prong cord for its electrical connection.

E.) Warranty Information

- 1. The boiler heat exchanger assembly shall have a 12 year heat exchanger warranty in residential applications and a 5 year warranty in commercial applications.

F.) Available Literature

- 1. The boiler shall have included English and French versions of the Installation and Operation Manual, User Manual, and Conversion Manual. The boiler shall have a Key Points for Successful Installation sheet taped to the front panel of the boiler.