SPECIFICATION

PACKAGED WATER HEATING SYSTEMS

I.VAR Gas-fired direct heating boiler, circulating pump, controls, piping and valving as indicated.

BOILER TRIM

I.VAR Gas burner, thermometer and pressure gauge, immersion thermostats for operating and high limit protection, 100 percent safety shut off electric gas valve with transformer electronic safety pilot and pilot burner, gas pressure regulator, manual gas shut-off low water cut off, ASME temperature and pressure relief valve, coil relief valve, automatic boiler fill and expansion tank, draft inverter.

I.VAR boiler bear the ASME "H" stamp for 160 psi working pressure and shall be national board listed. The boiler shall have a fully welded 316L stainless steel fire tube heat exchanger construction. The heat exchanger shall be designed for a single-pass water flow and will drain condensation to the bottom of the vessel. The complete heat exchanger assembly will carry a ten (2) year parts and labor warranty.

I.VAR boiler certified and listed by C.S.A. international under the latest edition of the harmonized ANSI Z21.13 test standard for the U.S and Canada. I.VAR boiler comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard and the minimum efficiency of the latest edition of AHRI BST-200 Standard. I.VAR boiler is operate at a minimum of 92% thermal efficiency at full fire as registered with AHRI all models shall operate up to 99% thermal efficiency with return water temperature at 90°F for below. I.VAR boiler is certified for indoor installation.

I.VAR boiler is constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber will be sealed and completely enclosed, independent of the outer jacket assembly so the integrity of the outer jacket does not affect a proper seal. Two burner/ flame observation ports are provided. The burner is design and constructed of high temperature stainless steel with woven metal fiber outer covering to provide modulating firing rates. I.VAR boiler will be supplied with gas valve designed with negative pressure regulation and be equipped with a variable speed blower system to precisely control the

fuel/ air mixture to provide modulating boiler firing rates for maximum efficiency. The burner flame will be ignited by direct ignition with flame monitoring via a flame sensor.

I.VAR boiler will be utilize a 24 VAC control circulation and components. The control system have a liquid crystal touch screen display for the boiler set up, boiler status, and boiler diagnostics. All components will be easily accessed and serviceable from the front and top of the jacket. The boiler will be equipped with a temperature/pressure gauge: high limit temperature control with manual reset ASME certified pressure relief valve set for 50 PSI (standard); outlet water temperature sensor return water temperature sensor, outdoor air sensor, flue temperature sensor high and low gas low pressure switches, low water cut off with manual rest, blocked drain switch and condensate trap for the heat exchanger condensate drain.

I.VAR boiler complete with a liquid crystal touch screen display password security, outdoor air reset, pump day with freeze protection, pump exercise, domestic hot water prioritization and PC port connection. I.VAR boiler have alarm contacts for any failure, runtime contacts and data logging of runtime ignition failures and modulation. I.VAR boiler have a built in "Cascade" to sequence and rotate the while maintaining modulation of up to eight boilers without utilization of an external controller. The internal "Cascade" function is capable of lead lag efficiency optimization front end loading and rotation of lead boiler every 24 hours. I.VAR boiler is capable of controlling isolation valves during heating operation and rotation of open valves in standby operation for full flow applications.

I.VAR boiler will be installed and vented with a direct vent system with horizontal sidewall termination of both the exhaust vent and combustion air. The flue will be category IV approved stainless steel sealed vent material terminating at the side wall with the manufacture's specified vent termination. A separate pipe will be combustion air directly to the boiler from the outside. The air inlet pipe must be sealed and may be other materials listed in the installation manual. The boilers total combined air intake length shall not exceed 100 equivalent feet. The boilers total combined exhaust venting length shall not exceed 100 equivalent feet. The air must terminate on the same side wall as the exhaust.

I.VAR manufacturer will verify proper operation of the burner, all controls and the heat exchanger by connection to water and venting for a factory fire test prior to shipping.

I.VAR Boiler is capable of a minimum 25:1 turn down ratio.

I.VAR having the following accessories:

a)Water connection: Brass
b)Dip tube: Brass
c)Drain valve
d)Anode: Magnesium.

Temperature and pressure relief valve: ASME labeled.

a) Certified NOx emission of < 30ppm.
b) Minimum thermal efficiency of 86% with return water temperature of 70°C
c) Variable speed fan assisted burner.
d) Second main gas valve

e) Time clock
f) Low water flow safety control.
g) Low gas pressure operation.
h) ON/OFF switch
i) Condensate neutralizing kit
j) Condensate trap with blocked drain switch.
k) Zero clearance to combustible.
l) Inlet and outlet temperature sensor
m) Temperature and pressure gauges.