

Thermo-Plate PAC

Indirect Fired Storage Water Heater



RECO
Commercial Systems

a **nudyne** company

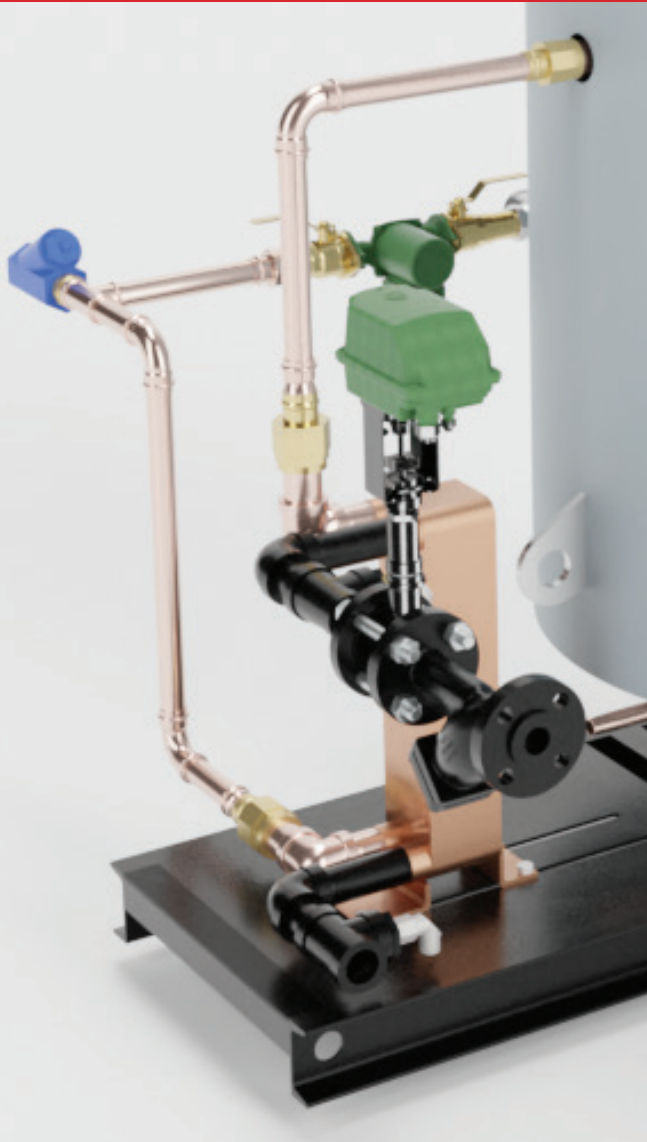


We are RECO Commercial Systems

The Water Heater and Pressure Vessel Experts

We are recognized as one of the country's leading suppliers of water heaters and pressure vessels for the commercial, institutional, industrial, pulp and paper, power generation and chemical industries. In fact, it is hard to find an industry, market, or application today that doesn't rely on the quality, safety, and convenience that RECO Commercial Systems brings to their most critical services and processes.

The RECO Thermo-PlatePAC



The Thermo-PlatePAC is a fully packaged indirect-fired water heater that uses boiler water from a condensing boiler as the heating source for heating potable water.

By utilizing a plate type heat exchanger, the system can provide efficient heat transfer at boiler water temperatures below the capabilities of traditional U-tube bundles. The entire package is designed to be a reliable and long-lasting source of hot water. Each component is carefully selected to ensure high performance in even the most demanding applications. All components on the potable water side will be constructed with non-ferrous material. Whether you are heating potable water in a commercial building or process water for an industrial application, you can select a RECO Thermo-PlatePAC to do the job. When you specify and install a RECO water heater, you will be provided with a quality product that is a long lasting and trouble-free source of hot water.

Applications

Schools, industrial facilities, office buildings, nursing homes, sports venues, hospitals, hotels, heat recovery systems

KEY FEATURES

Safety, Quality, Reliability

- Complies with NSF/ANSI 61 Annex G, NSF/ANSI 372 and conforms with lead content requirements for “lead-free” plumbing as defined in the U.S. Safe Drinking Water Act.
- Temperature interlocked controls with secondary over-temperature protection.
- Replaceable brazed plate or serviceable plate and frame heat exchanger.
- Heavy duty construction withstands demanding commercial/industrial use.

Packaged System

- Factory selected and sized controls, valves and pipework ensure optimum performance.

GENERAL

Welded carbon steel vessel designed and built-in strict accordance with the ASME Code Section VIII and stamped, certified, and registered with the National Board of Boiler and Pressure Vessel Inspectors

All internal tank surfaces are lined with a minimum 5/8" thick cement for superior protection and tank longevity

Factory sized and installed heat exchanger with a generous heating surface designed to ensure reliable operation.

Operating controls are factory selected, sized, piped and tested to ensure reliable operation

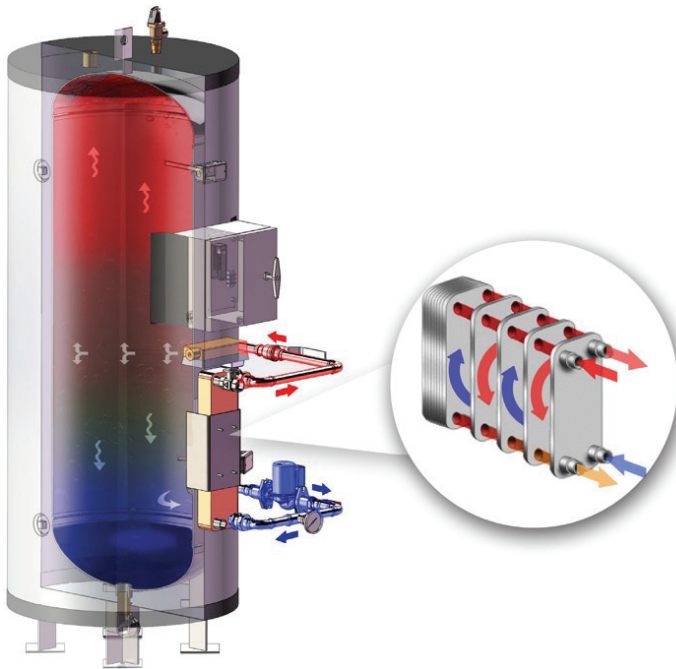
Modulating control valve (Specify: 2-way or 3-way) to regulate the flow of boiler water through the heat exchanger

ASME rated combination T&P relief valve set at the tank working pressure and 210°F

Heavy duty insulation and jacketing for maximum operating efficiency and minimal stand-by heat loss

Full five (5) year tank warranty and a one (1) year component warranty

RECO ThermoMaster Thermo Plate-PAC



HOW IT WORKS

- 1 Domestic cold water and building recirculation enters storage tank.
- 2 Cold domestic water exits storage tank to pass through heat exchanger.
- 3 Boiler water flow through heat exchanger plates.
- 4 Integrally packaged pump circulates domestic water between storage tank and heat exchanger.
- 5 Domestic water enters and exits heat exchanger in cross counter flow pattern to achieve crossing outlet temperatures.
- 6 Heated domestic water returns from heat exchanger and enters tank.
- 7 Domestic hot water exits the storage tank to building.

| Model | Orientation | Rating (vessel) | Diameter (vessel) | Height/Length (vessel) | Vessel Lining/ Material | Heat Exchanger | Wall Type | Controls Type | Heating Medium |
|--------------------------------|--|--------------------------|-------------------|------------------------|---|----------------|--|---|-------------------------|
| TP = Thermo-PlatePAC | V = Vertical H = Horizontal | 150 = ASME 150 | Inches | Inches | CM = Cement Lined SS = Stainless Steel DS = Duplex | Model Number | S = Single Wall D = Double Wall | EL = Electric PN = Pneumatic | W = Boiler Water |

Example

TPV150-48072CM-140SS-DELW

Thermo-PlatePAC, Vertical, ASME 150, 48" OD x 72" OAH carbon steel vessel, cement lined, model 140SS heat exchanger, double wall stainless steel plates, electrically operated control valve.

Note: All optional equipment for a water heater must be called out in the written specifications. A model number in and of itself does not reflect any optional equipment selected. Optional equipment may impact overall dimensions and weight. Please request submittal drawing from factory.

CONTROL SYSTEM

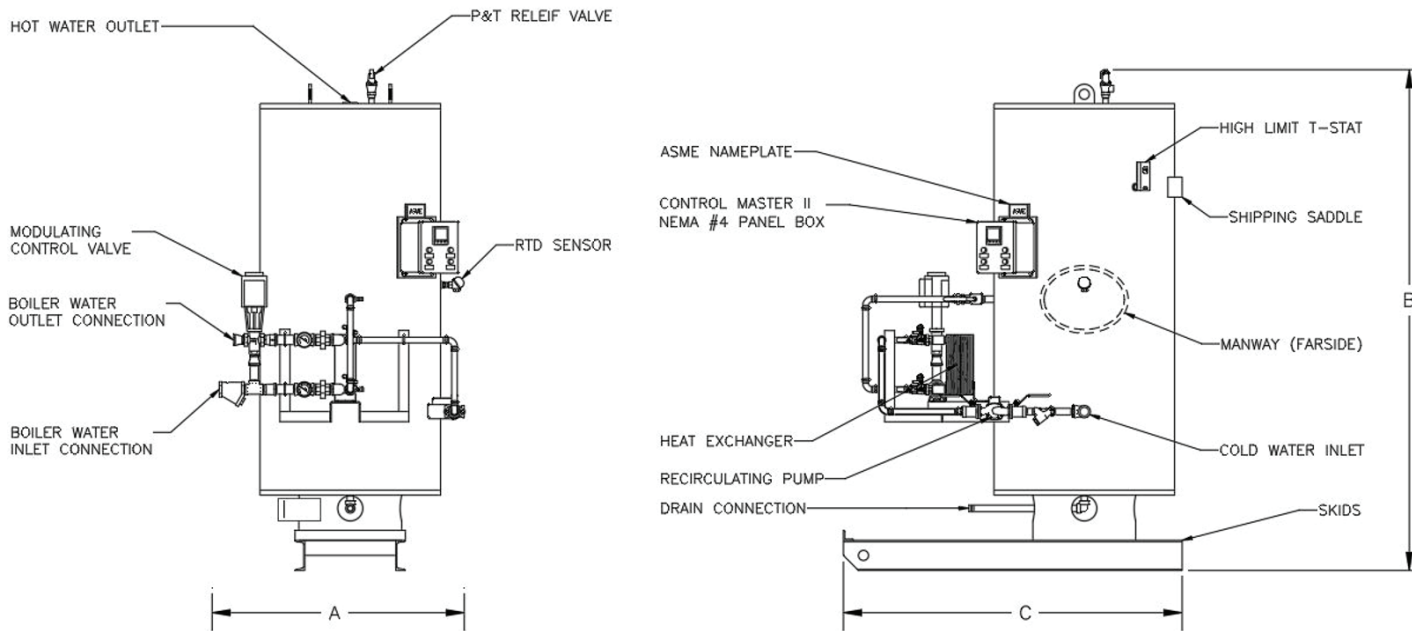
At the heart of the control system is RECO Commercial Systems' ControlMaster II panel. The panel is UL508A listed. The temperature controller utilizes a 1000-ohm platinum RTD sensor input. The primary control output is 0-10 VDC to control a proportional valve which modulates the flow of the heating boiler water. A high temperature alarm is standard. The high temperature alarm is indicated by red illuminated pilot light. The high temperature is interlocked with the output as a safety feature. A High Limit Aquastat controls an over-temperature solenoid dump valve. There is a Circulating Pump OFF/ON switch as standard. Terminals are available for connection to external devices such as dump or blow-down valves. There is a Power OFF/ON illuminated selector switch is standard. The controller is powered by a 120VAC, 1p, 7-amp service and is housed in 10x12x6, NEMA 4X Polycarbonate enclosure with a smoky window cover and swing plate. Modbus RTU communications is standard.

Optional

- BacNet IP and MS/TP
- Graphic display
- Data recording



Dimensional Drawing



Dimensions

| Capacity (actual gallons) | Overall Dimensions (Inches – approx.) | | | Vessel (Dia. x Height) (inches) | Capacity (nominal gallons) | Inlet/Outlet Size (NPT) | Weight (approx.) (lb) |
|------------------------------|--|-----|-----|---------------------------------------|-------------------------------|-------------------------------|-----------------------------|
| | A | B | C | | | | |
| 80 | 40 | 82 | 56 | 22 x 54 | 90 | 1.5 | 700 |
| 120 | 42 | 92 | 58 | 24 x 64 | 140 | 1.5 | 900 |
| 150 | 44 | 96 | 60 | 26 x 68 | 170 | 1.5 | 1100 |
| 200 | 48 | 100 | 64 | 30 x 72 | 220 | 1.5 | 1700 |
| 250 | 54 | 72 | 70 | 36 x 64 | 285 | 1.5 | 1850 |
| 300 | 54 | 106 | 70 | 36 x 78 | 345 | 1.5 | 2180 |
| 350 | 54 | 112 | 70 | 36 x 84 | 370 | 1.5 | 2500 |
| 400 | 60 | 103 | 76 | 42 x 75 | 450 | 1.5 | 2700 |
| 450 | 60 | 111 | 76 | 42 x 83 | 500 | 1.5 | 3000 |
| 500 | 66 | 100 | 82 | 48 x 72 | 565 | 2 | 3225 |
| 550 | 66 | 107 | 82 | 48 x 79 | 620 | 2 | 3400 |
| 600 | 66 | 113 | 82 | 48 x 85 | 665 | 2 | 3650 |
| 800 | 66 | 137 | 82 | 48 x 109 | 850 | 2 | 4300 |
| 1000 | 66 | 163 | 82 | 48 x 135 | 1060 | 2 | 5200 |
| 1500 | 72 | 192 | 88 | 54 x 164 | 1625 | 2 | 6000 |
| 2000 | 78 | 203 | 94 | 60 x 175 | 2145 | 3 | 8100 |
| 3000 | 90 | 215 | 106 | 72 x 187 | 3300 | 3 | 8300 |

Note: All dimensions are approximate and subject to change. Please reference the submittal drawing for actual dimensions. The tank selections above are shown for convenience. A full selection of storage capacities is available from the factory.

* 80, 120 and 150 gallon tanks do not come equipped with a manway. Please consult factory if desired on these sizes.

Master Specification

Job Name: _____ Engineer: _____

Representative: _____ Contractor: _____

General

Provide a quantity of _____ packaged Thermo-PlatePAC indirect fired storage heater(s) Model No. _____ as manufactured by RECO Commercial Systems. The pressure vessel shall be mounted on structural supports and be suitably insulated, jacketed, painted, and provided with lifting lugs. The entire unit is to be packaged ready for service connections.

Pressure Vessel

The pressure vessel shall be all welded construction and ASME Code Section VIII stamped for a working pressure of 150 psi (Optional specification: _____ psi) and contain a minimum of _____ gallons of storage. The storage vessel shall be carbon steel and lined with seamless cement to a minimum thickness of 5/8" on all interior tank surfaces (Optional specifications: solid type 304 or 316L or duplex stainless-steel tank, solid 90/10 copper-nickel tank). Tank fittings shall be stainless steel or copper-nickel. The pressure vessel shall be insulated with a minimum 3" thick fiberglass insulation with a painted metal jacket. Insulating value shall exceed the ASHRAE standard 90.1-2019, requiring an R-value of 12.5 for stand-by heat loss by a minimum of 60%. An ASME approved automatic reseating combination temperature and pressure relief valve set at the tank WP and 210°F shall protect the vessel.

Heating Section

The heat exchanger shall be single wall brazed plate design (Optional specification: double wall brazed plate, single wall plate and frame, double wall plate and frame) shall be rated to heat _____ GPH from _____ °F to _____ °F when supplied with _____ GPM of boiler water from _____ °F to _____ °F. The domestic heating section will include an integral recirculation pump sized for the demand and T&P gauges on both the inlet and outlet of the domestic side of the heat exchanger.

Controls

The water heater controls shall be factory assembled and piped. A two-way control valve will regulate the flow of boiler water to the heat exchanger without diverting back to the boiler. (Optional specification: three-way diverting valve will regulate the flow of boiler water to the heat exchanger and divert unused boiler water back to the hydronic loop). The electronic control panel shall be UL508A listed. The temperature controller shall utilize a platinum RTD sensor input. The primary control output shall be 0-10 VDC to control a proportional valve to modulate the flow of the heating boiler water. A high temperature alarm condition shall be indicated by red illuminated pilot light. The high temperature alarm shall be interlocked with the controller output as a safety feature. A High Limit Aquastat shall control an over-temperature solenoid dump valve. There shall be a Circulating Pump OFF/ON switch as standard. Terminals shall be available for connection to external devices. There shall be a Power OFF/ON illuminated selector switch. The control panel shall be powered by a 120VAC service and shall have a NEMA 4X Polycarbonate enclosure with a window cover and swing plate. Modbus RTU communications shall be standard with BACnet as an option.

Warranty

The water heater manufacturer shall warranty all components against defects in workmanship and material for a period of one (1) year from date of start-up, and the pressure vessel for a full five (5) years (Optional specification: full ten (10) years) from date of start-up, provided that the unit is started within three (3) months of date of shipment and installed and operated within the scope of the tank design and operating capability. Each water heater shall be shipped with a complete set of installation and operating instructions, including a spare parts list and approved drawing.



To learn more, contact us or any one of our
North American sales representatives.



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