

Product Claims

The Neo-Gravity Delta-T ECM Hydronic Heating Appliance™ U.S. Patent 10,690,356, Canada 2,964,131



A Modular, Designed-For-Manufacture, Application-Specific Hydronic Heating Appliance comprising over 95% installation content of a typical replacement/install.

Biomimicry inspired re-introduction of natural (gravity) hydronic convection to area heating, dramatically reducing hydronic distribution energy while providing extended heating under selective fail conditions.

Optional integrated, prioritized DHW Generation via a close-coupled Indirect Water Heater for optimal energy management while furthering extended heating attributes.

Process-optimized packaging using Premium American Components provide the Best Cost-Performance Package in the industry, bar none! Very high-mass, lowered ΔT system temperature operation for superlative fuel economy.

Our Appliance installs in hours vs. days using lesser skilled personnel while providing optimal performance. "The Appliance Advantage."

Claims:

- 1. America's first patented, fully integrated, free-standing Delta-T ECM Distribution based Hydronic Heating/Domestic Hot Water (DHW) Appliance.**
- 2. Proprietary near-boiler piping configuration optimizes natural (gravity) hydronic distribution efficiency, provides DHW prioritization and fail-safe mode operation.**
- 3. Superlative performance by aggregating Boiler AFUE with Delta-T ECM Hydronic Distribution effect upon radiation profiling efficiencies.**
- 4. A very high-mass boiler under ΔT Distribution Management significantly lowers system operating temperatures per "The $3^{\circ}\text{F}=1\%$ Efficiency Rule", further reducing "stand-by" losses for increased thermal efficiency.**
- 5. High-mass cast-iron and steel pipe construction predefines extreme durability with a projected 40 year plus service life. NO COPPER COMPONENTS USED!**
- 6. Necessarily compacted near-boiler piping and distribution components are fully contained above and within the boiler footprint plus 3" to the rear (6.15 Sq. Ft.).**

"Heating Engineers Since 1955"



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7. All service access and elements are from the front only. The appliance requires zero clearance on three sides by manufacturer specification.
8. Fully serviceable using specified Standard American Trade Components by reasonably competent personnel with common equipment.
9. Appliance advanced design feature of “Zone Purge Free Service” of all elements. Designed by a serviceman for servicemen.
10. Full Fuel Oil, Natural Gas and Propane Fuel interchangeability. Merely change the fuel burner Not the system!
11. Direct Venting Option available (no chimney) utilizing Pressure-Fired Burners.
12. No Magnetite Alleviation Systems required with the commercial-rated cast-iron, natural scavenging, very high mass Weil-McLain UO Series Boilers.
13. Similarly, no Return Water Tempering required when Taco VT2218 Delta-T ECM Distribution managed.
14. Our patented Compact Steel Hydronic Header negates the need for Circulator or Zone Valve Relays. The Taco Zone Sentry Valve logic & lamp display is inherently more intelligent and visible as configured.
15. Appliance Performance and Economic Data:
 - a. Appliance Cost: Typically \$6,700 to \$10,000, installed regionally (NH) and depending upon site location & conditions for a 100kbtuh application. Note that this has been typically 65 to 80% of a contemporary high-end, lesser performing application.
 - b. Anticipated Appliance Economic Life: 40 years at minimum (per Weil-McLain). Twice or more that of any other low-mass or condensing heating “system”.
 - c. Fuel Consumption Performance: Usually a 20% minimum improvement and up to 50% when replacing an Immersion Coil DHW application.
 - d. Distribution Power Consumption: 90% minimum reduction vs. a contemporary system. Typically uses 8 to 13 Watts, unless there is a severe zone imbalanced or deficient radiation condition. These can be readily identified for correction.
 - e. Aggregate Efficiency Advantage: Our published W/M OU Boiler AFUE of 87% is augmented by a lowered average system operating temperature and circulation profiling provided by intelligent 3250-Plus Boiler Aquastat logic.
 - f. Appliance Field Operation Data: Our multi-Beta Sites have accrued well over 60 installed years and 250,000 hours operation without a service incident.
 - g. Recommended service intervals of three (3) years with five (5) years maximum. Estimated pro-rated Annual Service Cost of \$50 per year.
16. Utilizing our Appliance and Oil Fuel Co-Op Procurement Plan we are currently (April 2023) delivering heating energy at less than \$23/MBTU to radiation. This is lower than ANY heating system or fuel, including distributed Natural Gas.

06/30/2023 P.D.M., Sr.

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