



WHOLE HOUSE ELECTRIC TANKLESS ELECTRICAL PRE-INSTALLATION CHECKLIST

The Seisco tankless water heater is a flow-through electric tankless water heater that generally requires more power (kW) to while operating than an electric storage tank heater, but LESS TOTAL ENERGY. And unlike a tank, you NEVER RUN OUT OF HOT WATER.

SEISCO ELECTRICAL RATINGS (240V)

Model	kW	VAC	Amps	Circuits	Breakers	Breaker Size
RA-14	14	240	58	1	1	60
RA-16	16	240	67	1	1	70
RA-18	18	240	75	2	2	40
RA-22	22	240	91	2	2	50
RA-28	28	240	116	2	2	60
RA-32	32	240	134	2	2	70

Electrical Service:

The Seisco heater is considered a **non-continuous heating appliance** according to the definitions in the National Electric Code, sections NEC 410 and 411. An appliance load that is not continuous for 3 hours or more is considered non-continuous. The Seisco heater, when used for standard domestic hot water applications, is considered a non-continuous heating appliance. Due to the diversity of water heating in a home, the load (amps) contribution of the Seisco heater to the overall service load of the home or building can be calculated using the optional methods of National Electrical Code, sections NEC 220-30 or 220-31. The methods and rules for calculating these loads can be found in the Seisco Product Guide under **B. National Electric Code Rules — Load Calculations.**

For new dwellings, the service load should be calculated using NEC 220-30. For existing dwellings, the service load should be calculated using NEC 220-31. By both calculation methods, the Seisco load is generally added to the service load at **40% of it's maximum nameplate rating.** For instance, the maximum rating of the RA-28 is 116 amps and 40% is 47 amps. As a result, the Seisco Model RA-28 thru 32 will fit in most homes up to 3000 square feet that have a 200 amp whole-house electrical service. Typical 1500-2000 square foot homes can often accommodate the RA-28 on a 150-amp service. *Where the total load would exceed the available electrical service, an inexpensive **interlock relay** is available to prevent simultaneous heating and water heating loads avoiding an expensive service upgrade. Contact Seisco for more information.*

Power/Voltage Modulation:

Seisco operates differently than other electric tankless. It uses temperature to detect flow and patented power sharing to spread the workload across all elements (and electrical circuits). Unlike other electric tankless that turn on a single element (circuit) at full power as soon as they sense flow, the Seisco senses temperature, then only adds the necessary power and spreads that load across all of the elements of the heater, balancing the workload reducing the stress on all the components.

A QUALIFIED AND LICENSED CONTRACTOR MUST PERFORM THIS INSTALLATION.

Refer to your local electrical and plumbing codes for additional information

SEISCO ELECTRICAL PRE-INSTALLATION CHECKLIST (CONT.)

During operation, the Seisco heater is designed to use only the power necessary to heat the water for various combinations of temperature rise and flow rate. Also, it is designed to distribute the power evenly to its heating elements. This is called the "Power Sharing" technology and is patented by Seisco.

The on-board microprocessor control of the Seisco determines the temperature rise and flow rate through its temperature sensors mounted on the heating chamber. The control then staggers the application of power to the heating elements using voltage modulation. The result is a smooth and efficient use of power to heat the water. This advanced control technology is extremely important in ***eliminating light flicker and fluctuations*** within the home or building. Also, the Seisco heater will *use only about 40 to 60% of its power rating for most domestic water heating applications* in a home, such as a standard shower, bath or kitchen sink. The Seisco heater may use more power in short bursts when heating water for multiple simultaneous tasks or for higher flow faucets, such as filling a bathtub or using multiple head showers.

Disconnects and Sub-panels:

Electrical disconnect devices may be required by the NEC for appliances with multiple circuits in commercial applications. Some models require multiple circuits and circuit breakers. A disconnect may be required for the Seisco in commercial applications.

Electrical **sub-panels**, containing circuit breakers, may be used with appliances such as the Seisco water heater in residential and commercial applications. Particularly for the models requiring multiple circuits, which are models RA-18, RA-22, RA-28 and RA-32.

In new residential construction, there are generally enough breaker spaces in the main electrical panel to accommodate circuit breakers for the Seisco heater. However, in existing homes, the main electrical panel may be nearly full with circuit breakers serving existing load. In these cases, a single large breaker, rated for the entire load of the Seisco heater, can be installed at the main panel. From the main panel, a single circuit or sub-feed is installed to a sub-panel where the appropriate number of circuit breakers can be installed for the Seisco heater. Often this can be less expensive to the homeowner than multiple runs back to the main panel.

Branch Circuits and Breakers:

As a non-continuous heating appliance, the branch circuit wires and breakers must be sized to 100% of the maximum ampere rating of the appliance (125% for Canada). It is recommended that the wire and breakers of the branch circuits and sub-feeds be rated for at least 75°C. This is particularly important to avoid overheating of the wires at the connections to the breakers. Overheating at the breaker connections may cause nuisance or premature breaker trips. Refer to the Seisco Product Guide for further detail and explanation.

Wiring Connections:



All whole house models are installed with the plumbing connections at the top and the electrical wiring connections at the right of the cabinet. Refer to the relevant specification sheet or owners manual for dimensions and specifications. Specification sheets are available for download from Seisco.com or by mail directly from Seisco.