



208, 240,  
277 and 480  
Voltages

Surface Mounted  
and Immersion  
Thermostat  
Models



(With Optional  
Seal Kit)



## Available in 50, 85 and 120 Gallon Tank-Type Models

### ► 6 KW thru 81 KW

Rheem-Ruud Electric Commercial Water Heaters are suitable for general commercial hot water applications and are also ideal for point-of-use installations. A single unit can be used as a booster heater to satisfy the hot water requirements of commercial dishwashers. A single temperature storage unit, when installed with a mixing valve, will supply two temperatures in food service establishments.

### Construction Features:

- **System Sentinel** – immersion thermostat models employ an element diagnostic panel, utilizing light emitting diodes (L.E.D.), corresponding to the number and location of each heating element. This system monitors the on-off function of the electric heating elements.
- **Long life ASME tank design** – proprietary steel formulation with high temperature porcelain enamel to maximize corrosion resistance resulting in a superior tank design.
- **LIFEGUARD heating elements** – separate screw-in type elements feature a stainless steel outer sheath of INCO-LOY 840, surrounding a Nichrome wire filament, to resist water chemical corrosion and burn-out even in air or sediment...for long element life and long life performance.
- **Elements** are directly immersed in the water for maximum recovery efficiency (98%) and are easily changed by simply screwing new ones into the tank. LIFEGUARD elements feature a three (3) year limited warranty.
- **Full port, full flow brass drain valve**
- **Minimal heat loss design** – 85% of the tank surface area on all Rheem-Ruud Commercial Electric products are insulated with 3" of rigid polyurethane foam insulation providing superior insulating qualities. Unlike other designs, Rheem-Ruud Commercial Electrics can achieve 85% because of the unique compact layout of the heating elements. **This results in heat losses less than the energy used by a 100 watt light bulb during a 48 hour standby period!**

### Certifications and Ratings:

- **Efficiency** – in accordance with ANSI test procedures, these models tested below the maximum allowable standby loss levels of current ASHRAE standards. (Part of the Federally mandated Energy Policy Act (EPAct)). Also exceeds energy efficiency codes of all states including California Energy Commission (CEC).
- **Safety and construction** – These products are design certified by Underwriters Laboratories (UL) to meet UL standard 1453 as electric booster and commercial storage tank water heaters. All models are North Carolina code compliant. **CERTIFIED FOR A 150 PSI MAXIMUM WORKING PRESSURE (160 PSI FOR ASME MODELS).**
- **Optional construction** – ASME construction is available on immersion thermostat models.

<b>ELECTRICAL CHARACTERISTICS</b>																
INPUT KW	NO. OF ELEM-ENTS	ELE-MENT WAT-TAGE	FULL LOAD CURRENT IN AMPERES						SURFACE MOUNTED			IMMERSION THERMOSTATS				
			208V		240V		277V		480V		No. of T'Stats	Number of Fuses	Number of Contactors	Number of Fuses	Staged T'Stats	
			Phase		Phase		Phase		Phase						No. of T'Stats	KW Step Size
			1	3	1	3	1	1	3							
6	3	2000	29	17	25	14	22	13	7	1	6	2	6	N/A ONE T'STAT STD.	6	
9	3	3000	43	25	38	22	33	19	11	1	6	2	6		9	
12	3	4000	58	33	50	29	43	25	15	1	6	2	6		12	
15	3	5000	72	42	63	36	54	31	18	1	6	2	6		15	
18	3	6000	-	-	75	43	65	38	22	1	6	2	6		18	
18	6	3000	87	50	-	-	-	-	-	1	12	4	12	2	9	
24	6	4000	116	67	100	58	87	50	29	1	12	4	12	2	12	
27	6	4500	130	75	113	65	98	56	33	1	12	4	12	2	13.5	
30	6	5000	144	84	125	73	108	63	36	1	12	4	12	2	15	
36	6	6000	-	-	150	87	130	75	43	1	12	4	12	2	18	
36	9	4000	173	100	-	-	-	-	-	1	18	6	18	3	12	
45	9	5000	217	125	188	109	163	94	54	1	18	6	18	3	15	
54	9	6000	260	150	225	130	195	113	65	1	18	6	18	3	18	
81	9	9000	-	-	-	-	-	169	98	-	-	-	18	3	27	

**Thermostat Staging –**  
 On all immersion thermostat models, 24 kW and above (18kW for 208V), additional thermostats can be provided so that the maximum element input will not exceed 18kW - 27 kW per step. Temperature differential between steps can be set as desired.

**Note:** Thermostat staging recommended on 81kW models.

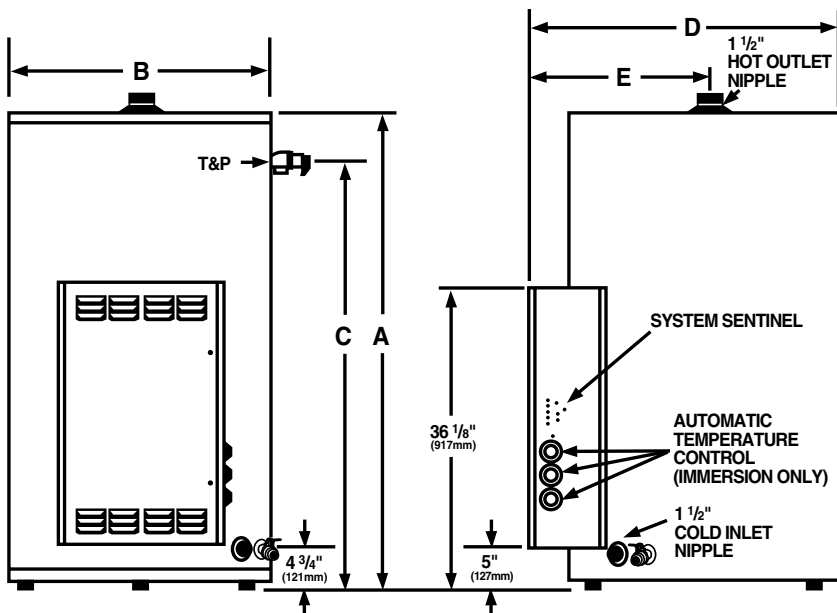
<b>WATER TEMPERATURE RATINGS</b>						
Model Number	Tank Capacity		Thermostat Type	Minimum Delivered Temperature	Maximum Delivered Temperature	High Temperature Limit
	Gallons	Liters				
ES50	50	189	Surface	90°F	160°F	180°F
				32.2°C	71.1°C	82.2°C
ES85	85	322	Surface	120°F	160°F	190°F
				48.8°C	71.1°C	87.8°C
ES120	119.9	454	Surface	120°F	160°F	190°F
				48.8°C	71.1°C	87.8°C
E50	50	189	Immersion	90°F	190°F	200°F
				32.2°C	87.8°C	93.3°C
E85	85	322	Immersion	90°F	190°F	200°F
				32.2°C	87.8°C	93.3°C
E120	119.9	454	Immersion	90°F	190°F	200°F
				32.2°C	87.8°C	93.3°C

<b>RECOVERY CAPACITIES</b> Recovery in U.S. Gallons/Hr. (GPH) and Liters/Hr. (LPH) at Various Temperature Rises														
INPUT KW	EQUIVALENT BTU/HR.	UNITS	40°F (22°C)	50°F (28°C)	60°F (33°C)	70°F (39°C)	80°F (45°C)	90°F (50°C)	100°F (56°C)	110°F (61°C)	120°F (67°C)	130°F (72°C)	140°F (78°C)	
6	20,473	GPH	62	50	41	35	31	28	25	23	21	19	18	
		LPH	235	188	157	134	117	104	94	85	78	72	67	
9	30,709	GPH	93	74	62	53	47	41	37	34	31	29	27	
		LPH	352	282	235	201	176	157	141	128	117	108	101	
12	40,946	GPH	124	99	83	71	62	55	50	45	41	38	35	
		LPH	470	376	313	268	235	209	188	171	157	145	134	
15	51,183	GPH	155	124	103	89	78	69	62	56	52	48	44	
		LPH	587	470	391	335	294	261	235	213	196	181	168	
18	61,420	GPH	186	149	124	106	93	83	74	68	62	57	53	
		LPH	705	564	470	403	352	313	282	256	235	217	201	
24	81,893	GPH	248	199	165	142	124	110	99	90	83	76	71	
		LPH	939	751	626	537	470	417	376	342	313	289	268	
27	92,129	GPH	279	223	186	160	140	124	112	102	93	86	80	
		LPH	1057	845	705	604	528	470	423	384	352	325	302	
30	102,366	GPH	310	248	207	177	155	138	124	113	103	95	89	
		LPH	1174	939	783	671	587	522	470	427	391	361	335	
36	122,839	GPH	372	298	248	213	186	165	149	135	124	115	106	
		LPH	1409	1127	939	805	705	626	564	512	470	434	403	
45	153,549	GPH	465	372	310	266	233	207	186	169	155	143	133	
		LPH	1761	1409	1174	1006	881	783	705	640	587	542	503	
54	184,259	GPH	558	447	372	319	279	248	223	203	186	172	160	
		LPH	2114	1691	1409	1208	1057	939	845	769	705	650	604	
81	276,388	GPH	838	670	558	479	419	372	335	305	279	258	239	
		LPH	3174	2540	2116	1814	1587	1410	1270	1154	1058	977	907	

MODEL NUMBERS						
INPUT KW	SURFACE MOUNTED THERMOSTATS			IMMERSION THERMOSTATS		
	Tank Capacity In Gallons			Tank Capacity In Gallons		
	50	85	120	50	85	120
6	ES50-6-G	ES85-6-G	ES120-6-G	E50-6-G	E85-6-G	E120-6-G
9	ES50-9-G	ES85-9-G	ES120-9-G	E50-9-G	E85-9-G	E120-9-G
12	ES50-12-G	ES85-12-G	ES120-12-G	E50-12-G	E85-12-G	E120-12-G
15	ES50-15-G	ES85-15-G	ES120-15-G	E50-15-G	E85-15-G	E120-15-G
18	ES50-18-G	ES85-18-G	ES120-18-G	E50-18-G	E85-18-G	E120-18-G
24	ES50-24-G	ES85-24-G	ES120-24-G	E50-24-G	E85-24-G	E120-24-G
27	ES50-27-G	ES85-27-G	ES120-27-G	E50-27-G	E85-27-G	E120-27-G
30	ES50-30-G	ES85-30-G	ES120-30-G	E50-30-G	E85-30-G	E120-30-G
36	ES50-36-G	ES85-36-G	ES120-36-G	E50-36-G	E85-36-G	E120-36-G
45	ES50-45-G	ES85-45-G	ES120-45-G	E50-45-G	E85-45-G	E120-45-G
54	ES50-54-G	ES85-54-G	ES120-54-G	E50-54-G	E85-54-G	E120-54-G
81	N/A	N/A	N/A	N/A	E85A-81-GS	E120A-81-GS

- **Fuse type** – the “G” in the model number represents Class G fuses.
- **Thermostat staging** – E models (Immersion thermostat) 24 kW and above (18 kW for 208V), may be ordered with additional thermostat(s) for staging. Add “S” after fuse type designation. Recommended on 81kW models. Example: E85-36-G becomes E85-36-GS.
- **ASME construction** – E models (Immersion Thermostat) may be ordered with ASME certified construction. Add “A” after capacity designation. Example: E85-36-G becomes E85A-36-G.
- **UL Sanitation compliance** – all models are UL Sanitation (NSF5) compliant when equipped with the optional ring seal kits. E(S)50 – AS38355, E(S)85 – AS38356, E(S)120 – AS38357.
- **Solid state low water cut-off** – E models (Immersion Thermostat) may be ordered with probe type cut-off for field installation (AP8408).

DIMENSIONAL INFORMATION All dimensions shown in English and Metric								
MODEL NUMBER	UNITS	A	B	C	D	E	APPROX. SHIPPING WEIGHT (LBS.)	
							STD.	ASME
E(S)50	inches	43-5/8	26-1/4	36-1/4	32	17-1/4	270 lbs.	320 lbs.
	mm	1108	667	920	813	438	122 kgs.	145 kgs.
E(S)85	inches	57-11/16	28-1/4	49-1/2	34	18-1/4	350 lbs.	380 lbs.
	mm	1465	718	1258	864	464	159 kgs.	172 kgs.
E(S)120	inches	67-5/8	30-1/4	58-3/4	36	19-1/4	430 lbs.	460 lbs.
	mm	1718	768	1493	914	489	185 kgs.	209 kgs.



- **System Sentinel** – all models employ a diagnostic panel utilizing light emitting diodes (L.E.D.), corresponding to the number and location of each heating element. L.E.D.'s are energized when the electric elements are operating. An unlit L.E.D. pinpoints the exact location of a non-functioning element, making element operation diagnosis simple and positive.

The minimum distance to provide adequate clearance for protection of combustible material is 0 inches from jacket and 18 inches from access door. However, additional clearance for accessibility to permit inspection and servicing such as removing heating elements or checking controls must be provided. All models are approved for installation on combustible flooring.

## Other Features:

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- **Integral Fusing** – all models have integral fusing for each element.
- **Anode Rods** – two (2) magnesium anodes are installed in each tank to ensure long life and corrosion resistance.
- **Temperature and Pressure Relief Valve** – AGA/ASME rated and factory installed.
- **Electrical Connections** – pre-wired, accessible control box with multiple knock-outs on side in size selections to match the National Electric Code. Sizes range from 1/2" to 2". A grounding screw is provided for attaching an equipment grounding conductor.
- **Single Panel Control Box** – with hinged door, provides immediate access to all electrical components and elements.
- **Terminal Block** – all models are equipped with U.L. listed terminal blocks for simplicity of installation. The terminal block will accept either copper or aluminum field connect wire.
- **120 Volt Control Circuit** – all units are furnished with a fused 120 volt control circuit. All controls (thermostats, high temperature limit, etc.) are operated off of this basic 120 volt control circuit. This circuit is created by an internal multi-tap transformer of unique design that has four (4) taps for the primary voltages, 208, 240, 277 and 480.
- **Water Connections** – hot outlet and cold inlet are 1-1/2" NPT dielectric nipples which prevent excessive turbulence of heated water and results in optimum tank draw.

## Recommended Specifications:

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Water heater(s) shall be model \_\_\_\_\_, manufactured by RHEEM-RUUD, having electrical input of \_\_\_\_\_ kW and a recovery rate of \_\_\_\_\_ GPH at a 100°F temperature rise. Water heater(s) shall have a storage capacity of \_\_\_\_\_ gallons. Water heater(s) shall have the UL seal of certification and be factory equipped with an AGA/ASME rated temperature and pressure relief valve. Tank(s) shall have a double coating of high temperature porcelain enamel and furnished with magnesium anode rods rigidly supported. Water heater(s) shall meet or exceed the standby loss requirements of ASHRAE. Tank(s) shall have a working pressure of 150 psi, and shall be completely assembled. Water heater(s) shall be approved-listed and constructed in accordance with UL Sanitation (NSF5). Water heater(s) shall be equipped with LIFEGUARD "screw-in" type elements featuring a stainless steel outer sheath of INCO-LOY 840 material. Tank shall be insulated with 3" of rigid polyurethane foam insulation. Water heater(s) shall be constructed with a SYSTEM SENTINEL element diagnostic panel utilizing light emitting diodes. Each LED will correspond to the number and location of the heating elements and monitor their on-off function. Water heater(s) shall be provided with internal power circuit fusing, control circuit fusing, magnetic contactors, 120 volt control circuit transformer and surface mounted thermostat or immersion thermostat(s) with manual reset high limit control. 1-1/2" inlet and outlet water connections shall be provided. Water heater(s) shall be covered by a three year limited warranty against tank leaks.

### Add for ASME construction

Water heater(s) shall be constructed in accordance with the requirements of the ASME Boiler and Pressure Vessel Code, Section IV Part HLW.

## Limited Warranty:

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This product features a three year limited warranty against tank leaks. Please refer to Commercial Warranty Information brochure for complete warranty information.



**C O M M E R C I A L  
W A T E R H E A T E R S**

*In keeping with its policy of continuous progress and product improvement, Rheem-Ruud reserves the right to make changes without notice.*

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