Heavy Duty Water Heaters

Heavy Duty Electric commercial water heaters are available in 50 through 175 gallon capacities. All models 'quick ship' from Ruud warehouses – no deposit required

Features & Benefits

- 50, 85, 120 and new 175 gallon model can be shipped to your location in just a few days, no deposit required and Ruud pays shipping charges
- Ideal for general commercial use and point-of-use applications like eyewash stations, or used as a booster
- Inputs: 3 through 108 kW
- Voltages: 208, 240, or 480 VAC in either single phase or 3-phase; 277 VAC single phase
- Element wattages: 2000, 3000, 4000, 4500, 5000 and 6000 in the four voltages; 9000 watt element at 480 VAC
- Available in 1, 3, 6, 9 or 12 element configurations for your specific kW application
- Elements are Lifeguard™ stainless steel, screw-in type that resist burn out and corrosion
- ASME construction is available on E50, E85 and E120 models and comes standard on E175 model
- Long life tank design: proprietary steel formulation with high temperature porcelain enamel to maximize corrosion resistance resulting in a superior tank design
- Two anode rods are installed to ensure long life and corrosion resistance

Efficiency

- 98% thermal efficiency
- Thick foam insulation for minimal standby heat loss

Performance

- Recovery rate: Up to 438 gallons GPH at a 100 degree rise
- Up to 190° F maximum delivered temperature for E series; 160° F for ES50; 180° F for ES85 and ES120

Capacity & Shipping Weight

- 50 Gal/270 lbs./320 lbs. ASME
- 85 Gal/350 lbs./380 lbs. ASME
- 120 Gal/430 lbs./460 lbs. ASME
- 175 Gal/700 lbs. ASME only

Easy Installation & Service

- Control box is located at the front of unit for easy wiring during installation – Multiple knockout holes accommodate a variety of conduit sizes
- **Exclusive!** System Sentinal™ provides a diagnostic panel with LEDs that correspond to the number, location and status of each element
- **Exclusive!** Full-port, full-flow, brass drain valve for faster draining
- Minimum distance to combustible is zero inches from jacket and 18 inches from access door
- All models approved for installation on combustible flooring

Plus

- Temperature and pressure relief valve at top of 175 gallon model and side on all other models
- Water connections: hot and cold water inlets are 2-1/2" NPT dielectric nipples on the 175 gallon model and 1-1/2" on all other models

Warranty

3-Year limited tank warranty, 1-year limited parts warranty

See Commercial Warranty Certificate for complete information.

Efficiency | These models have been tested according to DOE test procedures, and exceed the minimum energy factor requirements 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 | Safety and Construction: These products are design certified by Underwriters Laboratories (UL) to meet UL standard 1453 and UL/NSF 005 as electric storage tank water heaters. All models are North Carolina and Massachusetts Code compliant. **Certified for a 150 PSI Maximum Working Pressure. (160 PSI maximum for ASME models)**

Ruud Heavy Duty

50, 85, 120 & 175-Gallon Capacities
ASME Construction Option
3-Year Limited Warranty
Electric

(With Optional Seal Kit)

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ELECTRICAL CHARACTERISTICS

INPUT KW	NO. OF ELEMENTS	ELEMENT WATTAGE	FULL LOAD CURRENT IN AMPERES							SURFACE MOUNTED			IMMERSION THERMOSTATS		
			208V PHASE		240V PHASE		277V PHASE	480V PHASE		NO. OF T'STATS	NUMBER OF FUSES	NUMBER OF CONTACTORS	NUMBER OF FUSES	STAGED T'STATS	
			1	3	1	3	1	1	3					NO. OF T'STATS	KW STEP SIZE
3	1	3000	15	–	13	–	11	6	–	–	–	–	2	N/A ONE T'STAT STD.	3
6	3	2000	29	17	25	14	22	13	7	1	6	2	6		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
60	12	5000	288	166	250q	144	217	125	72	–	–	–	24	4	15
72	12	6000	–	200	–	172	260	150	87	–	–	–	24	4	18
81	9	9000	–	–	–	–	–	169	98	–	–	–	18	3	27
108*	12	9000	–	–	–	–	–	–	130	–	–	–	24	4	27

*175-Gallon model only

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

Note: Thermostat staging recommended on 81 and 108 kW models.

RECOVERY CAPACITIES 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)
3	10,236	GPH	31	25	20	17	15	14	12	11	10	9	9
		LPH	*117*	*95*	*76*	*64*	*57*	*53*	*45*	*42*	*38*	*34*	*34*
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*
60	204,723	GPH	620	496	414	354	310	276	248	226	206	190	178
		LPH	*2347*	*1878*	*1567*	*1340*	*1173*	*1045*	*939*	*856*	*780*	*719*	*674*
72	245,678	GPH	744	596	296	426	372	330	298	270	248	230	212
		LPH	*2816*	*2256*	*1120*	*1615*	*1408*	*1249*	*1128*	*1022*	*939*	*871*	*803*
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*
108*	368,518	GPH	1094	875	730	625	547	486	438	398	365	337	313
		LPH	*4141*	*3312*	*2763*	*2366*	*2071*	*1840*	*1658*	*1507*	*1382*	*1276*	*1185*

*175-Gallon model only

WATER TEMPERATURE RATINGS

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	180°F	190°F
				48.8°C	*82.2°C*	*87.8°C*
ES120	119.9	454	Surface	120°F	180°F	190°F
				48.8°C	*82.2°C*	*87.8°C*
E50(A)	50	189	Immersion	90°F	190°F	200°F
				32.2°C	*87.8°C*	*93.3°C*
E85(A)	85	322	Immersion	90°F	190°F	200°F
				32.2°C	*87.8°C*	*93.3°C*
E120(A)	119.9	454	Immersion	90°F	190°F	200°F
				32.2°C	*87.8°C*	*93.3°C*
E175A	175	662	Immersion	90°F	190°F	200°F
				32.2°C	*87.8°C*	*93.3°C*

MODEL NUMBERS **Fast delivery from Rheem warehouses – no deposit – no shipping charges**

INPUT KW	SURFACE MOUNTED THERMOSTATS			IMMERSION THERMOSTATS			
	TANK CAPACITY IN GALLONS			TANK CAPACITY IN GALLONS			
	50	85	120	50	85	120	175
3	N/A	N/A	N/A	N/A	N/A	N/A	E175A-3-G
6	ES50-6-G	ES85-6-G	ES120-6-G	E50-6-G	E85-6-G	E120-6-G	E175A-6-G
9	ES50-9-G	ES85-9-G	ES120-9-G	E50-9-G	E85-9-G	E120-9-G	E175A-9-G
12	ES50-12-G	ES85-12-G	ES120-12-G	E50-12-G	E85-12-G	E120-12-G	E175A-12-G
15	ES50-15-G	ES85-15-G	ES120-15-G	E50-15-G	E85-15-G	E120-15-G	E175A-15-G
18	ES50-18-G	ES85-18-G	ES120-18-G	E50-18-G	E85-18-G	E120-18-G	E175A-18-G
24	ES50-24-G	ES85-24-G	ES120-24-G	E50-24-G	E85-24-G	E120-24-G	E175A-24-G
27	ES50-27-G	ES85-27-G	ES120-27-G	E50-27-G	E85-27-G	E120-27-G	E175A-27-G
30	ES50-30-G	ES85-30-G	ES120-30-G	E50-30-G	E85-30-G	E120-30-G	E175A-30-G
36	ES50-36-G	ES85-36-G	ES120-36-G	E50-36-G	E85-36-G	E120-36-G	E175A-36-G
45	ES50-45-G	ES85-45-G	ES120-45-G	E50-45-G	E85-45-G	E120-45-G	E175A-45-G
54	ES50-54-G	ES85-54-G	ES120-54-G	E50-54-G	E85-54-G	E120-54-G	E175A-54-G
60	N/A	N/A	N/A	N/A	N/A	N/A	E175A-60-G
72	N/A	N/A	N/A	N/A	N/A	N/A	E175A-72-G
81	N/A	N/A	N/A	N/A	E85A-81-GS	E120A-81-GS	E175A-81-G
108	N/A	N/A	N/A	N/A	N/A	N/A	E175A-108-G

Fuse type – "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 81 and 108 kW models. Example: E175A-81-G becomes E175A-81-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 except E175A 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).

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 – CSA/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 2-1/2". A grounding screw is provided for attaching an equipment grounding conductor.

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.

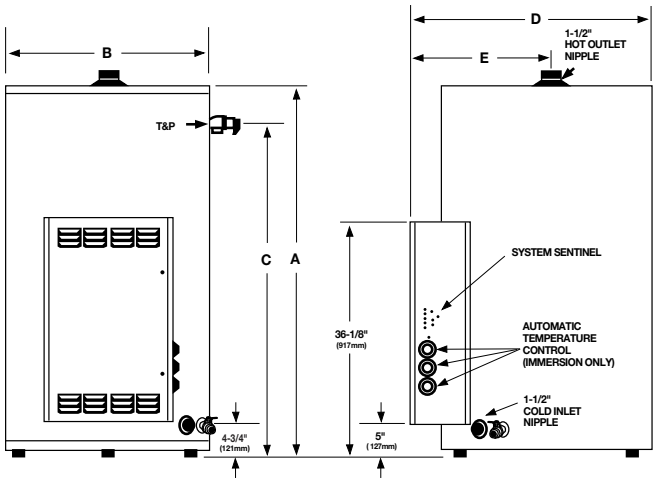
120 Volt Control Circuit – all units are furnished with a fused 120 volt control circuit. All controls (thermostats, high temperature limit, etc.) are operated off of this basic 120 volt control circuit. This circuit is created by an internal multi-tap transformer of unique design that has four (4) taps for the primary voltages, 208, 240, 277 and 480.

Water Connections – hot outlet and cold inlet for the 50-120 gallon capacity models are 1-1/2" (175 gallon models are 2-1/2") NPT dielectric nipples which prevent excessive turbulence of heated water and results in optimum tank draw.

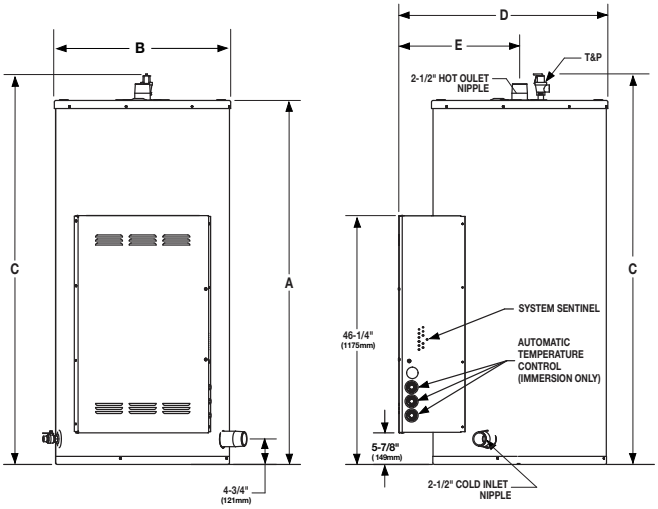
Heavy Duty Water Heaters

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(A)	inches	43-5/8	26-1/4	36-1/4	32	19	270 lbs.	320 lbs.
	mm	*1108*	*667*	*920*	*813*	*483*	*122 kgs.*	*145 kgs.*
E(S)85(A)	inches	57-11/16	28-1/4	49-1/2	34	20	350 lbs.	380 lbs.
	mm	*1465*	*718*	*1258*	*864*	*508*	*159 kgs.*	*172 kgs.*
E(S)120(A)	inches	67-5/8	30-1/4	58-3/4	36	21	430 lbs.	460 lbs.
	mm	*1718*	*768*	*1493*	*914*	*533*	*185 kgs.*	*209 kgs.*
E175A	inches	69-1/2	32-1/4	72-1/2	38-1/2	22-1/4	–	700 lbs.
	mm	*1765*	*832*	*1842*	*826*	*565*	–	*318 kgs.*



50, 85 and 120 Gallon Models



175 Gallon Model

Recommended Specifications (for trade reference only)

Water heater(s) shall be model _____, manufactured by 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 CSA/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 stainless steel “screw-in” type elements. Tank shall be insulated with thick 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 for 80 through 120 gallon models and 2-1/2" for 175 gallon units shall be provided. Water heater(s) shall be covered by a three year limited warranty against tank leaks.

When ordering ASME construction, place (A) after the model number (for trade reference only)

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

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

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