



SPIDERfire® is a family of ultra high efficiency commercial gas water heaters with up to a 97 percent thermal efficiency

Features & Benefits

The advanced line of 80 and 100-gallon Ruud SPIDERfire condensing water heaters offers breakthrough technology. It provides up to 97% thermal efficiency. The patented heat transfer system dramatically cuts fuel costs and is built to last. Models are available that range from 130,000-399,900 Btu/h, with a maximum temperature setting of 185 degrees.

Faster, Less Costly Venting

All models vent with standard -2", -3", -4", or -6" diameter PVC plastic pipe. SPIDERfire's built-in exhaust riser vents at the top and eliminates the need to construct a side riser.

Smart LCD Control System

The new diagnostic system is standard on all SPIDERfire models. It enables installers and service technicians to monitor key functions and components. It includes a scrollable, operational history.



Innovative Technology

The heart of the SPIDERfire is its patented multi-leg, triple pass heat exchanger. The system is engineered as a 'wet base' design wherein the entire heat exchanger is submerged. That eliminates hot spots found in some other fully condensing water heaters. When hot spots are eliminated, the life of the product is extended and efficiency is maximized. These products are built to last.



Power or Power Direct Vent

It can be installed as a power-vented product; or as a power direct-vented product – the latter for negative air pressure or if indoor air quality is a concern.

Corrosion Protection

Three-pass heat exchanger tubes are coated inside and out with a specially formulated porcelain enamel designed to protect against condensation.

Multiple Water Connections

Hot and cold water Inlets and outlets on both sides of the unit; 2" NPT high-flow connections.

Full-port, Full-flow Drain Valve

Factory installed brass drain valve allows for faster draining and servicing.

Advanced Burner Design

Latest models have increased burner surface area for ultra smooth ignition and quiet operation

Direct Spark Ignition System

Energy saving ignition that ignites pilot only when there is a call for heat.

Altitude Certification

Certified up to 8,999 feet

CSA/ASME Rated T&P Valve

Factory installed relief valve

Warranty

3-Year limited tank warranty, upgradeable to 5 years

See Commercial Warranty Certificate for complete information.

Efficiency | All models tested according to ANSI test procedures, and meet or exceed the thermal efficiency and standby loss requirements of ASHRAE standard (EPact). Also exceeds energy efficiency codes of all states including California Energy Commission (CEC).

Safety and Construction | Design certified by CSA: For operation at 185 degrees; meets all safety and construction requirement of ANSI Z21.10.3; as an automatic storage or instantaneous water heater; as an automatic circulating tank water heater; and for operation on combustible floors and in alcove installations. **Certified for 150 PSI maximum working pressure (160 PSI for ASME models).**

Optional Construction | ASME construction is available on designated models. UL Sanitation (NSF5) compliant models are available when equipped with optional seal kit (Part No. AS42690).



80 & 100
GALLON MODELS
NOW AVAILABLE

Ruud SPIDERfire
80 and 100-Gallon Capacities
130,000-399,900 Btu/h
Sealed Combustion System
Ultra Low NOx
Natural and LP Gas



With
Optional Kit



Low Lead
Compliant



RECOVERY CAPACITIES

Recovery in U.S. Gallons/Hr. (GPH) and Liters/Hr. (LPH) at Various Temperature Rises

MODEL NUMBER	INPUT (BTU/H) NAT. & LP	THERMAL EFFICIENCY	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)
GHE80ES-130(A)	130,000	97%	GPH	382	306	255	218	191	170	153	139	127	118	109
			LPH	1448	1160	966	826	724	644	580	527	481	447	413
GHE80ES-150(A)	150,000	94%	GPH	427	342	285	244	214	190	171	155	142	131	122
			LPH	1618	1296	1080	925	811	720	648	587	538	496	462
GHE80ES-200(A)	199,000	94%	GPH	569	456	380	325	285	253	228	207	190	175	163
			LPH	2157	1728	1440	1232	1080	959	864	785	720	663	618
GHE80ES-250(A)	250,000	95%	GPH	720	576	480	411	360	320	288	262	240	221	206
			LPH	2725	2180	1816	1555	1363	1211	1090	992	908	837	780
GHE80ES-300(A)	300,000	94%	GPH	855	684	570	488	427	380	342	311	285	263	244
			LPH	3237	2589	2158	1847	1616	1438	1295	1177	1079	996	924
GHE100ES-130(A)	130,000	95%	GPH	374	299	249	214	187	166	150	136	125	115	107
			LPH	1418	1135	946	811	709	630	567	516	473	446	405
GHE100ES-160(A)	160,000	95%	GPH	461	368	307	263	230	205	184	167	154	142	132
			LPH	1746	1397	1164	998	873	776	698	635	582	537	499
GHE100ES-200(A)	199,000	95%	GPH	573	458	382	327	286	255	229	208	191	176	164
			LPH	2171	1737	1447	1241	1086	965	868	790	724	668	620
GHE100ES-250(A)	250,000	95%	GPH	713	569	475	407	356	317	285	259	238	219	204
			LPH	2699	2154	1798	1541	1348	1200	1079	980	901	829	772
GHE100ES-300(A)	300,000	94%	GPH	845	676	564	483	423	376	338	307	282	260	242
			LPH	3204	2563	2136	1831	1602	1424	1282	1165	1068	986	916
GHE100ES-350(A)	350,000	94%	GPH	997	798	665	570	498	443	399	363	332	307	285
			LPH	3774	3021	2517	2158	1885	1677	1510	1374	1256	1162	1079
GHE100ES-400(A)	399,900	94%	GPH	1139	912	760	651	570	506	456	414	380	351	326
			LPH	4312	3452	2877	2464	2158	1915	1726	1567	1438	1329	1234

MAXIMUM DELIVERY

In U.S. Gallons and Liters (Includes useable storage and recovery for indicated times)

MODEL NUMBER	GAL.	LITERS	INPUT (BTU/H) NAT. & LP	TEMP. RISE	UNITS	5 MIN.	10 MIN.	15 MIN.	20 MIN.	30 MIN.	45 MIN.	1 HR.	2 HR.	3 HR.	MIN. TO RECOVER CONTENTS
GHE80ES-130(A)	80	303	130,000	100 F	GAL.	69	82	94	107	132	171	209	362	515	31
				56°C	LTR.	262	311	356	406	500	648	792	1372	1952	
GHE80ES-150(A)	80	303	150,000	100°F	GAL.	70	85	99	113	142	184	227	398	569	28
				56°C	LTR.	265	322	375	428	538	697	860	1508	2157	
GHE80ES-200(A)	80	303	199,000	100°F	GAL.	75	94	113	132	170	227	284	512	739	21
				56°C	LTR.	284	356	428	500	644	860	1076	1940	2801	
GHE80ES-250(A)	80	303	250,000	100°F	GAL.	80	104	128	152	200	272	344	632	920	17
				56 C	LTR.	303	394	485	575	757	1030	1302	2392	3482	
GHE80ES-300(A)	80	303	300,000	100°F	GAL.	85	113	142	170	227	312	398	740	1082	14
				56 C	LTR.	322	428	538	644	859	1181	1507	2801	4096	
GHE100ES-130(A)	100	379	130,000	100°F	GAL.	83	95	107	120	145	185	220	369	519	39
				56°C	LTR.	313	360	407	454	549	700	833	1400	1967	
GHE100ES-160(A)	100	379	160,000	100°F	GAL.	85	101	116	131	162	208	254	438	623	33
				56°C	LTR.	323	382	440	498	614	789	964	1662	2360	
GHE100ES-200(A)	100	379	199,000	100°F	GAL.	89	108	127	146	185	242	299	528	757	26
				56°C	LTR.	338	410	482	555	700	917	1134	2002	2871	
GHE100ES-250(A)	100	379	250,000	100°F	GAL.	95	118	142	166	214	286	358	646	934	21
				56°C	LTR.	360	447	538	628	810	1083	1355	2445	3535	
GHE100ES-300(A)	100	379	300,000	100°F	GAL.	99	127	156	184	241	326	412	754	1096	18
				56°C	LTR.	375	481	591	697	912	1234	1560	2854	4149	
GHE100ES-350(A)	100	379	350,000	100°F	GAL.	103	137	170	203	269	369	469	868	1266	15
				56°C	LTR.	389	518	644	768	1018	1397	1775	3286	4792	
GHE100ES-400(A)	100	379	399,900	100°F	GAL.	108	146	184	222	298	412	526	982	1437	13
				56°C	LTR.	409	553	696	840	1128	1560	1991	3717	5440	

All models have a maximum setpoint of 185°F.

VENTING OPTIONS

Power Direct Vent

MODEL NUMBER	PIPE DIAMETER			
	2"	3"	4"	6"
	MAX. VENT LENGTH FOR INLET OR OUTLET (FT.)			
GHE80ES-130 GHE100ES-130	20	60	120	—
GHE80ES-160 GHE100ES-160	20	60	120	—
GHE80ES-200 GHE100ES-200	20	60	120	—
GHE80ES-250 GHE100ES-250	—	50	120	—
GHE80ES-300 GHE100ES-300	—	50	120	120
GHE100ES-350	—	50	70	120
GHE100ES-400	—	50	70	120

For each 90° elbow, reduce pipe length by five (5) feet.

For each 45° elbow, reduce pipe length by two and a half (2.5) feet.

Note: Vent pipe size should not be mixed for venting these units.

Use same diameter pipe for all venting of the unit.

Example of Venting for 2" Power Direct Vent Setup:

Refer to the chart above, "Power Direct Vent", for actual length allowed on each model.

NUMBER OF 90° ELBOWS EXCLUDING VENT TERMINALS		NUMBER OF 45° ELBOWS	MINIMUM VENT PIPE LENGTH IN FEET	MAXIMUM VENT PIPE LENGTH IN FEET
INLET VENT	OUTLET VENT			
None	None	None	5.0	20.0
One (1)	One (1)	None	—	15.0
One (1)	One (1)	One (1)	—	12.5
Two (2)	Two (2)	None	—	10.0
Two (2)	Two (2)	One (1)	—	7.5
Three (3)	Three (3)	None	—	5.0
Three (3)	Three (3)	One (1)	—	2.5

Example of Venting for 4" Power Direct Vent Setup (GHE100ES-130):

Refer to the chart above, "Power Direct Vent", for actual length allowed on each model. The 3" venting will follow the same format.

See allowable lengths above.

NUMBER OF 90° ELBOWS EXCLUDING VENT TERMINALS		NUMBER OF 45° ELBOWS	MINIMUM VENT PIPE LENGTH IN FEET	MAXIMUM VENT PIPE LENGTH IN FEET
INLET VENT	OUTLET VENT			
None	None	None	5.0	120.0
One (1)	One (1)	None	—	115.0
One (1)	One (1)	One (1)	—	112.5
Two (2)	Two (2)	None	—	110.0
Two (2)	Two (2)	One (1)	—	107.5
Three (3)	Three (3)	None	—	105.0
Three (3)	Three (3)	One (1)	—	102.5
Four (4)	Four (4)	None	—	100.0
Four (4)	Four (4)	One (1)	—	97.5
Five (5)	Five (5)	None	—	95.0

Power Vent

MODEL NUMBER	PIPE DIAMETER			
	2"	3"	4"	6"
	MAX. VENT LENGTH FOR OUTLET (FT.)			
GHE80ES-130 GHE100ES-130	20	120	170	—
GHE80ES-160 GHE100ES-160	20	120	170	—
GHE80ES-200 GHE100ES-200	20	120	170	—
GHE80ES-250 GHE100ES-250	—	80	130	—
GHE80ES-300 GHE100ES-300	—	80	130	120
GHE100ES-350	—	50	100	120
GHE100ES-400	—	50	100	120

For each 90° elbow, reduce pipe length by five (5) feet.

For each 45° elbow, reduce pipe length by two and a half (2.5) feet.

Note: Vent pipe size should not be mixed for venting these units.

Use same diameter pipe for all venting of the unit.

Example of Venting for 2" Power Vent Setup:

Refer to the chart above, "Power Vent", for actual length allowed on each model.

NUMBER OF 90° ELBOWS EXCLUDING VENT TERMINALS		NUMBER OF 45° ELBOWS	MINIMUM VENT PIPE LENGTH IN FEET	MAXIMUM VENT PIPE LENGTH IN FEET
INLET VENT	OUTLET VENT			
None	None	None	5.0	20.0
One (1)	One (1)	None	—	15.0
One (1)	One (1)	One (1)	—	12.5
Two (2)	Two (2)	None	—	10.0
Two (2)	Two (2)	One (1)	—	7.5
Three (3)	Three (3)	None	—	5.0
Three (3)	Three (3)	One (1)	—	2.5

Example of Venting for 4" Power Vent Setup (GHE100ES-130):

Refer to the chart above, "Power Vent", for actual length allowed on each model. The 3" venting will follow the same format. See allowable lengths above.

NUMBER OF 90° ELBOWS EXCLUDING VENT TERMINALS		NUMBER OF 45° ELBOWS	MINIMUM VENT PIPE LENGTH IN FEET	MAXIMUM VENT PIPE LENGTH IN FEET
INLET VENT	OUTLET VENT			
None	None	None	5.0	170.0
One (1)	One (1)	None	—	165.0
One (1)	One (1)	One (1)	—	162.5
Two (2)	Two (2)	None	—	160.0
Two (2)	Two (2)	One (1)	—	157.5
Three (3)	Three (3)	None	—	155.0
Three (3)	Three (3)	One (1)	—	152.5
Four (4)	Four (4)	None	—	150.0
Four (4)	Four (4)	One (1)	—	147.5
Five (5)	Five (5)	None	—	145.0

SPIDER^{fire} Water Heaters



DIMENSIONAL INFORMATION

All dimensions shown in English and Metric

MODEL NUMBER	UNITS	A	B	C	D	E	F	G	H	VENT	WATER CONN.		APPROX. SHIP. WT. (LB)*
											INLET	OUTLET	
GHE80ES-130(A)	inches	69-5/8	26-1/4	66-1/8	12-3/4	64-5/8	64-13/16	62-13/16	66-5/8	2", 3", 4"	2" NPT	2" NPT	725
	mm	1768	667	1680	324	1641	1646	1595	1692				
GHE80ES-150(A)	inches	69-5/8	26-1/4	66-1/8	12-3/4	64-5/8	64-13/16	62-13/16	66-5/8	2", 3", 4"	2" NPT	2" NPT	725
	mm	1768	667	1680	324	1641	1646	1621	1692				
GHE80ES-200(A)	inches	69-5/8	26-1/4	66-1/8	12-3/4	64-5/8	64-13/16	62-13/16	66-5/8	2", 3", 4"	2" NPT	2" NPT	745
	mm	1768	667	1680	324	1641	1646	1621	1692				
GHE80ES-250(A)	inches	69-5/8	26-1/4	66-1/8	12-3/4	64-5/8	64-13/16	62-13/16	66-5/8	3", 4"	2" NPT	2" NPT	745
	mm	1768	667	1680	324	1641	1646	1621	1692				
GHE80ES-300(A)	inches	69-5/8	26-1/4	66-1/8	12-3/4	64-5/8	64-13/16	62-13/16	66-5/8	3", 4", 6"	2" NPT	2" NPT	745
	mm	1768	667	1680	324	1641	1646	1621	1692				
GHE100ES-130(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	2", 3", 4"	2" NPT	2" NPT	765
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-160(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	2", 3", 4"	2" NPT	2" NPT	765
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-200(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	2", 3", 4"	2" NPT	2" NPT	765
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-250(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	3", 4"	2" NPT	2" NPT	795
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-300(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	3", 4", 6"	2" NPT	2" NPT	795
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-350(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	3", 4", 6"	2" NPT	2" NPT	800
	mm	2001	667	1674	324	1873	1869	1829	1687				
GHE100ES-400(A)	inches	78-3/4	26-1/4†	66	12-3/4	73-3/4	73-5/8	72	66-7/16	3", 4", 6"	2" NPT	2" NPT	800
	mm	2001	667	1674	324	1873	1869	1829	1687				

*Weights listed are for non-ASME. Add 35 lbs. for ASME models.

† Overall width is 27-5/16" due to exhaust cover.

130,000 - 199,000 Btu/h models are certified to be installed with 2" venting.

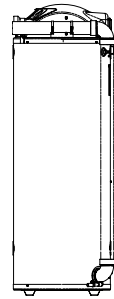
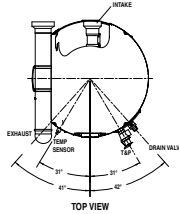
All models require a 120V power source.

Input rates 130-199: 1/2" gas inlet. Input rates 250-400: 3/4" gas inlet.

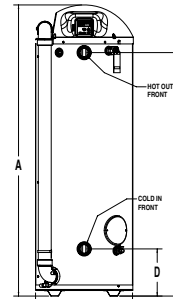
See use and care manual for venting details.

Gas Inlet (at gas valve): min. for all Nat. Gas GHE is 5.3 IN. WC and the max. is 10.5 IN WC.

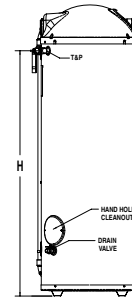
Gas Inlet (at gas valve): min. for all LP Gas GHE is 11 IN. WC and the max. is 13.3 IN WC.



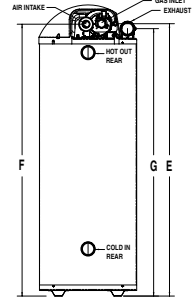
LEFT SIDE



FRONT



RIGHT SIDE



REAR

Recommended Specifications (for trade reference only)

Water heater(s) shall be SPIDER^{fire} model _____, manufactured by Ruud, having a gas input of _____ Btu/h and recovery rate of _____ GPH at a 100°F temperature rise when tested and certified at _____ thermal efficiency. Water heater(s) shall have a storage capacity of _____ gallons. Water heater(s) shall have the CSA seal of certification and supplied with a factory installed CSA/ASME rated temperature and pressure relief valve, and meet SCAQMD Rule 1146.2. Tank(s) shall be of wet-base design and furnished with U.S. Patent 7,290,503 B2 heat exchange system with two-sided coating of high temperature porcelain enamel and furnished with magnesium anode rods rigidly supported. Water heater(s) shall have 2" NPT front and rear water connections. Water heater(s) shall meet or exceed

thermal efficiency and standby loss requirements of ASHRAE. Tanks shall have a working pressure of 150 psi and shall be completely factory assembled, including a pressure regulator properly adjusted for operation on _____ gas with a down-fired burner system. Water heater(s) shall certified for schedule IV venting with power vent and powered direct vent options. Water heater(s) shall be covered by a three year limited tank 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.