



Eco-King

Indirect Water Heaters, Storage / Buffer Tanks



King 42, 52, 66, 80, 119

King 66 Crawl

King 80 Plus, 119 Plus

King SBT 21, SBT 52, SBT 80, SBT 119

CAUTION

The heat transfer medium must be water or other nontoxic fluid having a toxicity rating or Class of 1, as listed in Clinical Toxicology of Commercial Products, 5th edition.

The pressure of the heat transfer medium must be maintained below or limited to the maximum operating pressure of the heat source by an approved pressure limiting valve.

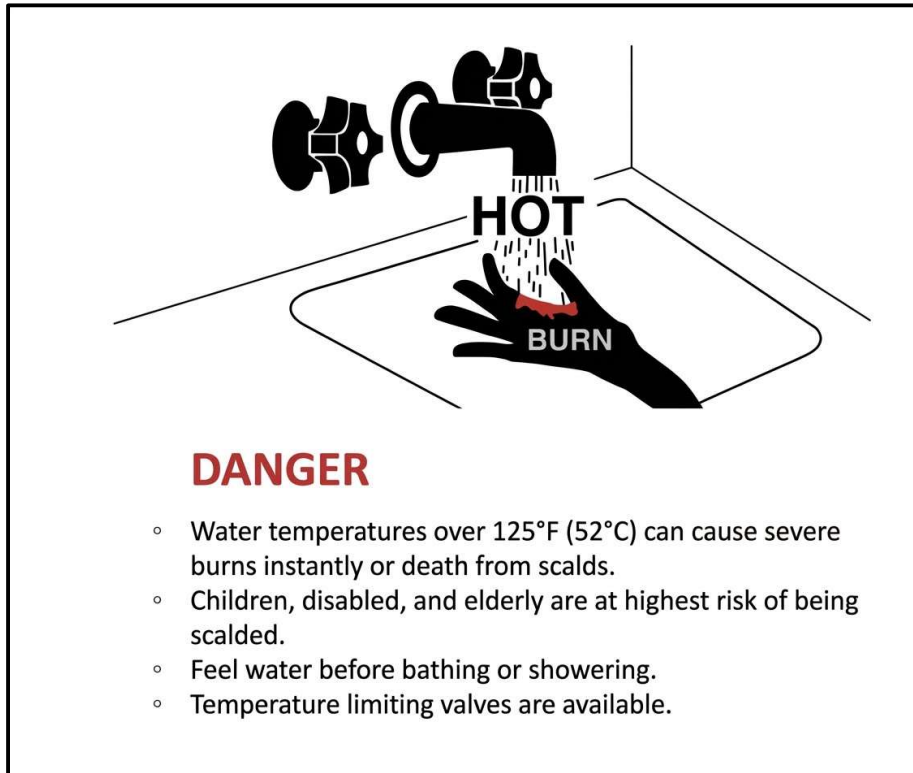
Important safety instructions

Failure to read and comply with all instructions and applicable national and local codes may result in hazardous conditions that could result in property damage and injury to occupants, and in extreme cases to death. Keep instructions near the appliance for future reference.

When using electrical appliances, follow safety precautions to reduce the risk of fire, electric shock, or injury to people, including:

- Install or locate the water heater only in accordance with the provided installation instructions.
- Use the Indirect Water Heater and / or Storage / Buffer Tank only for its intended use as described in this manual.
- As with any appliance, close supervision is necessary when used by children.
- Do not operate the indirect water heater if it is not working properly, or if it has been damaged or dropped.
- Installation, start-up and servicing of King Heating products must be done with care and attention, and should only be performed by competent, qualified, licensed and trained plumbing and heating technicians.

Safety Information



Hot Water can cause severe burns in just a few seconds.

120°F (49°C) - More than 5 minutes

125°F (52°C) - 1 1/2 to 2 minutes

130°F (54°C) - About 30 seconds

135°F (57°C) - About 10 seconds

140°F (60°C) - Less than 5 seconds

Caution

Avoid Legionella and other bacteria growth in the water heater by storing hot water at a minimum temperature of 140F (60C). It's recommended to install a thermostatic mixing valve rated for domestic hot water to reduce the outlet water temperature to ~120F (48C).

Installation

Location:

- Install the water heater or storage / buffer tank in a location that will not cause property damage if water leaks from the tank.
- Place a drain pan under the water heater or storage / buffer tank and pipe the drain pan to an appropriate, safe location.
- The water heater is very heavy when fill with water, ensure the supporting structure will support the weight.

Expansion Tank:

- Install an adequately sized expansion tank on the cold-water supply to the tank.
- Charge the expansion tank with air pressure equal to the operating pressure of the tank.
 - Include an isolation valve and a drain valve between the cold-water piping and the expansion tank for servicing.
 - Support the expansion tank independently from the piping system.
- If required by code, secure the tank to the structure to prevent tipping over in an earthquake.

Pressure Relief Valve:

- The pressure relief valve must be piped to a safe location that will not cause property damage or injury.

Drain Pan:

- The tank should only be installed in a location, that if water escapes from the tank, it will not cause any property damage.
- A tank drain pan should be installed below the tank and piped to an appropriate location to allow the water to safely drain away.

Chilled Water:

- Although these tanks are typically used to generate or store domestic hot water, all King Indirect Water Heaters and Storage/Buffer Tanks are also rated for use with chilled water.

Attention

The maximum heat transfer through the coil (heat input) of the King Indirect water heaters at 240 °F boiler supply temperature and 210 °F potable water temperature are as follows:

Models King 42 through King 80 single coil units are less than 89,000 BTU/HR.

Models King 119, King 80 Plus and King 119 Plus are less than 181,000 BTU/HR.

Potable water temperature is limited to below 210 °F and nominal water containing capacity is below 120 gallons for all King Indirect water heater models. Accordingly, per Part HLW---101.2, Section IV of the ASME Boiler and Pressure Vessel Code, all King series indirect water heater products are exempt from compliance with the code.

Check with local codes for applicability.

King Model	CSA Rating Btu/hr	Recommended Relief Valve
King 42	105,000	Watts ¾" 100XL or XL8, or equivalent
King 52	105,000	Watts ¾" 100XL or XL8, or equivalent
King 66	105,000	Watts ¾" 100XL or XL8, or equivalent
King 66 Crawl	105,000	Watts ¾" 100XL or XL8, or equivalent
King 80	105,000	Watts ¾" 100XL or XL8, or equivalent
King 119	205,000	Watts ¾" 40XL-5, or equivalent
King 80 Plus	205,000	Watts ¾" 40XL-5, or equivalent
King 119 Plus	205,000	Watts ¾" 40XL-5, or equivalent

Minimum Relief Valve (CSA Rating)

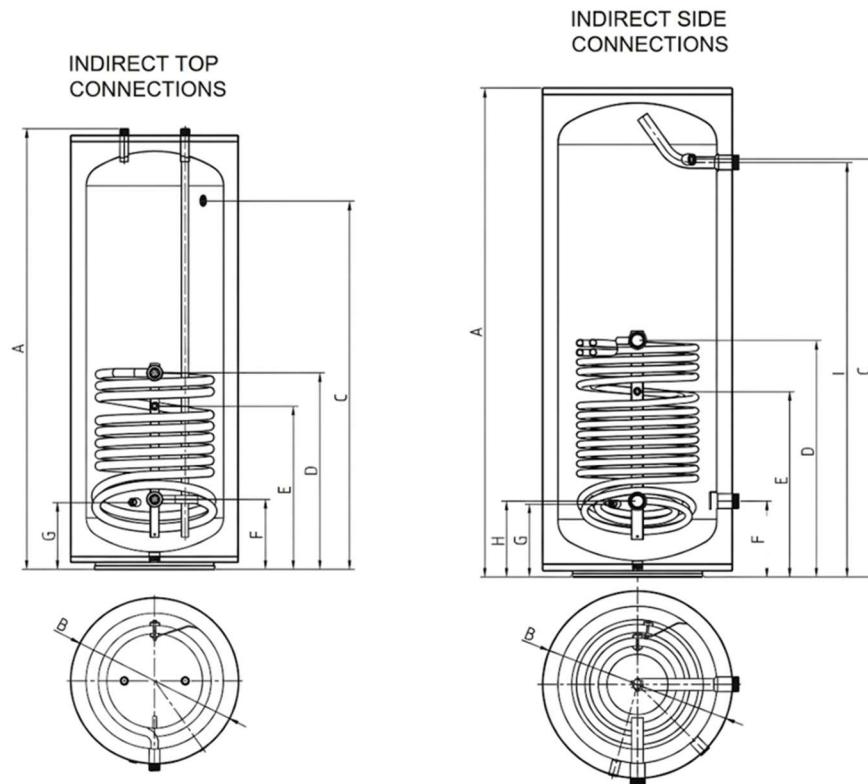
All King Indirect Water Heater and Storage / Buffer Tanks are built to comply with the appropriate CSA and NSF standards.

Warranty: For Warranty details, see KingHeatingProducts.com

Water Chemistry Requirements: For this warranty to remain valid, the hydronic system water and domestic water, must be maintained within the following limits:

- **pH Level:** Between 7.0 and 8.5
- **Hardness:** Less than 12 grains per gallon
- **Chlorine:** Less than 150 ppm
- **Electrical conductivity (EC) @25C:** <750 µS / cm
- **Saturation Index (LSI) @80C:** >-1.0 / <0.8

Dimensions

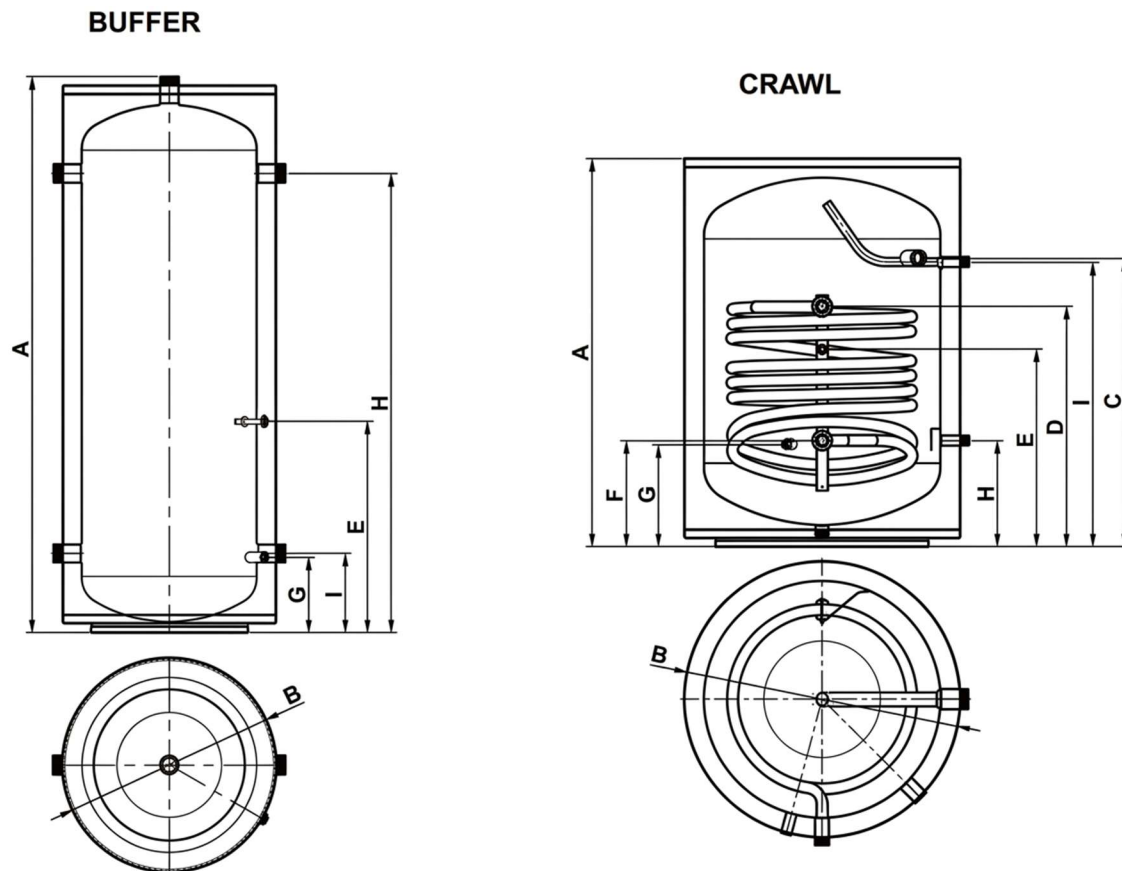


Indirect Tanks: King 42 to 80 – Top Water Connections

	A	B	C	D	E	F	G
	Height	Diameter	Relief to Floor	Coil Supply to Floor	Sensor to Floor	Coil Return to Floor	Drain to Floor
King 42	46.1"	21.7"	36.6"	22.8"	18.6"	9.2"	8.8"
King 52	57.7"	21.7"	48.3"	25.7"	21.4"	9.2"	8.8"
King 66	55.1"	24.4"	44.8"	29.6"	20.8"	10.0"	9.6"
King 80	65.0"	24.4"	54.7"	32.6"	21.0"	10.0"	9.6"

Indirect Tanks: 119, 80 Plus, 119 Plus – Side Water Connections

	A	B	C	D	E	H	G	F	I
	Height	Diameter	Relief to Floor	Coil Supply to Floor	Sensor to Floor	Coil Return to Floor	Drain to Floor	Cold Water to Floor	Hot Water to Floor
King 119	65.7"	28.0"	55.5"	33.5"	24.3"	10.7"	10.4"	10.7"	55.1"
King 80 Plus	64.0"	24.4"	54.7"	33.2"	23.9"	10.0"	9.6"	10.0"	54.3"
King 119 Plus	65.7"	28.0"	55.5"	31.6"	24.3"	10.7"	10.4"	10.7"	55.1"



Indirect Tanks: King 66 Crawl – Side Water Connections

	A	B	C	D	E	F	G	H	I
	Height	Diameter	Relief to Floor	Coil Supply to Floor	Sensor to Floor	Coil Return to Floor	Drain to Floor	Cold Water to Floor	Hot Water to Floor
King 66 Crawl	39.4"	28.0"	29.3"	24.3"	20.0"	10.7"	10.4"	10.7"	29.3"

Storage / Buffer Tanks: SBT 21 to 119

	A	B	E	G	H	I
	Height	Diameter	Sensor to Floor	Drain to Floor	Upper Connection to Floor	Lower Connection to Floor
SBT 21	31.9"	19.7"	13.6"	7.7"	22.2"	8.1"
SBT 52	56.5"	21.7"	21.4"	7.6"	46.6"	8.0"
SBT 80	64.0"	24.4"	22.2"	8.4"	53.3"	8.8"
SBT 119	65.4"	28.0"	23.0"	9.2"	53.9"	9.6"

Specifications

King Indirect Tanks

Specification	King 42	King 52	King 66	King 66 Crawl	King 80	King 119
Height - in	46.1"	57.7"	55.1"	39.4"	64.0"	65.7"
Diameter - in	21.7"	21.7"	24.4"	28.0"	24.4"	28.0"
Weight - Empty - lb	104	126	154	154	174	225
Weight - Full - Lbs	425	551	686	686	820	1135
Weight - Ship - Lbs	120	145	170	170	193	275
Volume - USG (L)	40 (160)	52 (200)	66 (250)	60 (230)	80 (300)	119 (450)
Domestic Water	3/4" M-NPT Top	3/4" M-NPT Top	3/4" M-NPT Top	3/4" M-NPT Top	1" M-NPT Top	1 1/2" M-NPT Side
Heating Coil	1" M-NPT	1" M-NPT	1" M-NPT	1" M-NPT	1" M-NPT	1 1/2" M-NPT
Drain Valve	1/2"	1/2"	1/2"	1/2"	1/2"	1/2"
Relief Valve	3/4" F-NPT	3/4" F-NPT	3/4" F-NPT	3/4" F-NPT	3/4" F-NPT	3/4" F-NPT

King High-Capacity Indirect Tanks

Specification	King 80 Plus	King 119 Plus
Height - in	64.0"	65.7"
Diameter - in	24.4"	28.0"
Weight - Empty - lb	188	246
Weight - Full - Lbs	820	1135
Weight - Ship - Lbs	201	290
Volume - USG (L)	80 (300)	119 (450)
Domestic Water	1 1/2" M-NPT Side	1 1/2" M-NPT Side
Heating Coil	1 1/2" M-NPT	1 1/2" M-NPT
Drain Valve	1/2"	1/2"
Relief Valve	3/4" F-NPT	3/4" F-NPT

INCLUDES

- Installation manual
- Drain valve (installed)
- Tank Sensor (not installed)
- Temperature and Pressure Relief Valve (not installed)

Specifications

SBT - Storage / Buffer Tanks

Specification	SBT 21	SBT 52	SBT 80	SBT 119
Height - in	31.9"	56.5"	64.0"	65.7"
Diameter - in	19.7"	21.7"	24.4"	28.0"
Weight - Empty - lb	60	106	146	196
Weight - Full - Lbs	236	545	809	1,131
Weight - Ship - Lbs	68	121	165	240
Volume - USG (L)	21 (80)	52 (200)	80 (300)	119 (450)
Water Connections (5)	1 1/2" M-NPT	1 1/2" M-NPT	1 1/2" M-NPT	1 1/2" M-NPT
Drain Valve	1/2"	1/2"	1/2"	1/2"

INCLUDES

- Installation manual
- Drain valve (installed)
- Tank Sensor (not installed)

Indirect Tank Performance Ratings

MODEL	King 42 – (40 GAL / 160L)	
	BOILER FLOW = 14gpm / 180 °F @ 6.2 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
50,000	111	75
60,000	126	90
80,000	155	120
100,000	198	164
120,000	198	164
140,000	198	164
160,000	198	164

MODEL	King 52 – (52GAL / 200L)	
	BOILER FLOW = 14gpm / 180 °F @ 7.0 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
50,000	121	75
60,000	136	90
80,000	165	120
100,000	194	150
120,000	223	180
140,000	251	209
160,000	251	209

MODEL	King 66 – (66 GAL / 250L)	
	BOILER FLOW = 14gpm / 180 °F @ 7.5 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
50,000	131	75
60,000	145	90
80,000	174	120
100,000	204	150
120,000	233	180
140,000	262	210
160,000	311	261
180,000	311	261

MODEL	King 66 CRAWL – (60 GAL / 230L)	
	BOILER FLOW = 14gpm / 180 °F @ 7.2	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
50,000	131	75
60,000	145	90
80,000	174	120
100,000	204	150
120,000	233	180
140,000	267	215
160,000	267	215
180,000	267	215

MODEL	King 80 – (80 GAL / 300L)	
	BOILER FLOW = 14gpm / 180 °F @ 10.1 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
50,000	150	75
60,000	165	90
80,000	194	120
100,000	223	150
120,000	252	180
140,000	281	210
160,000	310	240
180,000	339	270
200,000	370	302
220,000	370	302

MODEL	King 119 – (119 GAL / 450L)	
	BOILER FLOW = 14gpm / 180 °F @ 11.0 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
100,000	257	150
120,000	286	180
140,000	315	210
160,000	344	240
180,000	373	270
200,000	402	300
220,000	431	330
240,000	460	360
250,000	475	375
300,000	519	414
350,000	519	414

MODEL	King 80 Plus – (80 GAL / 300L)	
	BOILER FLOW = 25gpm / 180 °F @ 16.7 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
200,000	372	300
220,000	401	330
240,000	431	360
250,000	446	375
300,000	519	450
350,000	592	524
380,000	636	569
400,000	666	599
420,000	695	629
440,000	695	629

MODEL	King 119 Plus – (119 GAL / 300L)	
	BOILER FLOW = 25gpm / 180 °F @ 16.7 ft	
BOILER OUTPUT (BTU/HR)	1st HOUR RATING (GAL/HR)	CONTINUOUS RATING (GAL/HR) 55 °F ENTERING COLD WATER
	135 °F	135 °F
200,000	406	300
220,000	436	330
240,000	465	360
250,000	480	375
300,000	553	450
350,000	627	524
380,000	671	569
400,000	700	599
420,000	729	629
440,000	729	629