

# Sandblaster®

## Immersion thermostats -

### CSB-IFE series

# COMMERCIAL ELECTRIC

# WATER HEATERS

## CSB - 82/120



Designed for use as a recovery heater having its own storage tank.

- Meets the standby loss requirements of the U.S. Department of Energy and current edition of AHRAE/IES 90.1.
- Plain English text and animated icons display detailed operational and diagnostic information. Fault or Alert messages appear if an operational issue occurs.
- Immersion temperature control adjustable through a range of 90°F to 190°F.
- Control system automatically lowers the Operating Set Point by a programmed value during user-defined time periods. Helps reduce operating costs during unoccupied or off - peak demand periods.
- Linear sequencing. Banks of heating elements (3 elements per bank) are energized according to adjustable (1 to 20°F) differential set points for each bank. First bank on is the last bank off. Helps reduce current surge and provides accurate water temperature control.
- All CSB models ship standard with industrial grade low watt density incoloy elements, providing life with superior scaling resistance.
- Glass-lined tank. Two sizes; 270 and 400 litre capacity. Tank interior is coated with glass specially developed by State for water heater use. Foam insulation reduces costly heat loss. ASME (optional) maximum working pressure is 160 psi.
- Power circuit fusing. Protects elements and contactors from short circuits, overloading or line surges. Meets National Electric Code requirements (fusing required when current draw exceeds 48 amps).
- Terminal block. Factory installed. Allows for easy service connection to block.
- Magnetic contactors. Heavy duty; UL rated 100,000 cycles.
- Immersion style thermostat.
- Simplified circuitry, color coded for ease of service
- Hinged control compartment door for quick, easy access.
- Two anode rods for maximum corrosion protection.
- Cabinet has bonderized undercoat with baked enamel finish.
- Top outlet, side inlet and relief valve openings.
- CSA certified and ASME rated T&P relief valve.

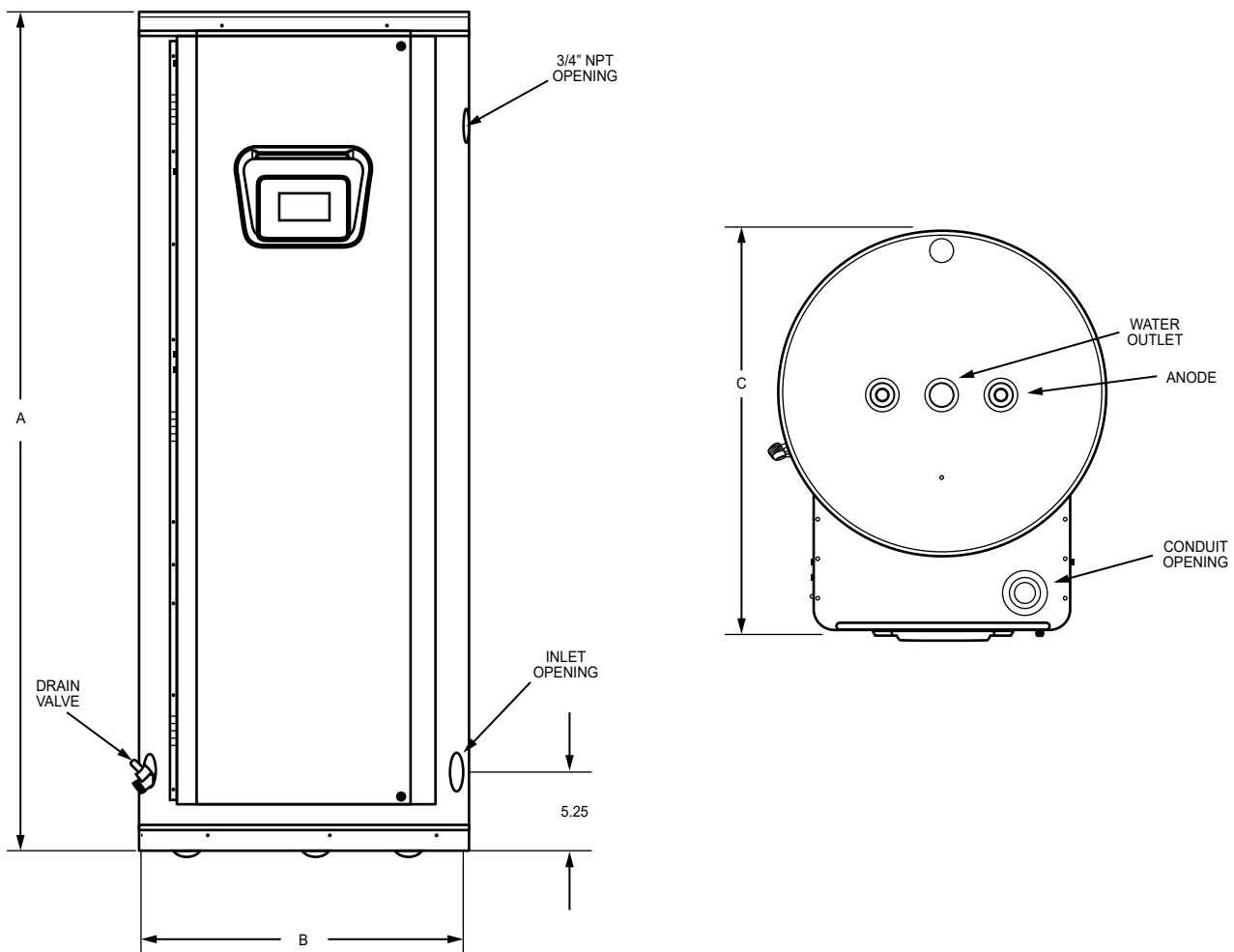


#### SAMPLE SPECIFICATION

The heater(s) shall be Sandblaster® Commercial Electric Model Number \_\_\_\_\_ -IFE(A) as manufactured by State Water Heaters or equivalent. Heater(s) shall be rated at \_\_\_\_\_ kW \_\_\_\_\_ V \_\_\_\_\_ phase, 60 cycle AC as listed by Underwriters' Laboratories. All models meet National Sanitation Foundation NSF-5 requirements. Water heater shall have LCD display with built-in diagnostic and troubleshooting information. Tank(s) shall be \_\_\_\_\_ (80 or 119) gallon capacity with \_\_\_\_\_ (150 [Std] or 160 [ASME]) psi working pressure and equipped with dual extruded high density anodes. All internal surfaces of the heater(s) exposed to water shall be glass-lined with an alkaline borosilicate composition that has been fused to steel by firing at a temperature range of 1400°F to 1600°F. Electric heating elements shall be 24K Goldenrod medium watt density screw-in type with Incoloy sheath and ceramic terminal block. Internal power circuit fusing shall be provided. Element operation shall be linear sequencing through individual magnetic contactors. Control circuit shall be factory fused and include an immersion thermistor temperature probe with built in ECO control. Control cabinet and jacket shall be of baked enamel finish and shall provide full size control and element compartment for complete service and maintenance performance through front hinged compartment door, and enclose tank with foam insulation. 1 1/4" inlet and outlet connection shall be provided. The heater tank shall have a three year limited warranty and controls and accessories shall have a one year limited warranty as outlined in the written warranty. Fully illustrated instruction manual to be included. For multiple installation, factory built manifold kits for \_\_\_\_\_ (2, 3 or 4) heater installation shall be provided. Meets or exceeds the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IES 90.1.

### Options

- ASME 160 psi (1103 kPa) tank construction.
- UL Listed conversion kits to adjust voltage and kW requirement in the field before and after installation.
- Manifold kits for multiple tank installations. Two heaters -part # 100109231, three heaters- part # 100109232 and four heaters- part # 100109233.
- International voltages – 220, 380, 400, 415, 575, and 600 volts, three phase available with Y connected elements.
- For CSB models we recommend installing expansion tank ETC 10X in cold water line. Installation of an expansion tank is required if a check valve is mounted in the cold water supply line.



Model number	Gallon capacity		Dimensions						Inlet/Outlet (NPT)	Approx. shipping weight	
			A		B		C			lbs	kg
	gal.	litre	Inches	cm	Inches	cm	Inches	cm	Inches		
CSB 82	73	275	60-1/4	153	25-1/2	64.8	31	78.7	1-1/4	280	127
CSB 120	107	405	62-1/4	158.1	29-1/2	75	35	88.9	1-1/4	390	177

For ASME Construction add "A" to the end of the model number (example: CSB 82 24 IFEA).

Standard kW input	BTU/hour	30°F	40°F	50°F	60°F	70°F	80°F	90°F	100°F	110°F	120°F	130°F	140°F
		16.7°C	22.3°C	27.8°C	33.4°C	38.9°C	44.5°C	50°C	55.6°C	61.2°C	66.7°C	72.3°C	77.8°C
9	30,708	124	93	75	62	53	47	41	37	34	31	29	27
		469	352	284	235	201	178	155	140	129	117	110	102
12	40,944	166	124	99	83	71	62	55	50	45	41	38	35
		628	469	375	314	269	235	208	189	170	155	144	132
15	51,180	207	155	124	104	89	78	69	62	56	52	48	44
		783	587	469	394	337	295	261	235	212	197	182	167
18*	61,416	248	186	149	124	106	93	83	75	68	62	57	53
		939	704	564	469	401	352	314	284	257	235	216	201
24	81,888	331	248	199	166	142	124	110	99	90	83	76	71
		1253	939	753	628	537	469	416	375	341	314	288	269
27	92,124	373	279	224	186	160	140	124	112	102	93	86	80
		1412	1056	848	704	606	530	469	424	386	352	326	303
30*	102,360	414	311	248	207	177	155	138	124	113	104	96	89
		1567	1177	939	783	670	587	522	469	428	394	363	337
36	122,832	497	373	298	248	213	186	166	149	135	124	115	106
		1881	1412	1128	939	806	704	628	564	511	469	435	401
40.5	138,186	559	419	335	279	240	210	186	168	152	140	129	120
		2116	1586	1268	1056	908	795	704	636	575	530	488	454
45	153,540	621	466	373	311	266	233	207	186	169	155	143	133
		2350	1764	1412	1177	1007	882	783	704	640	587	541	503
54	184,248	745	559	447	373	319	279	248	224	203	186	172	160
		2820	2116	1692	1412	1207	1056	939	848	768	704	651	606

Figured at 1 kW (3413 BTU) = 4.1 Gallons at 100°F temperature rise.

\* CSB 82-18 IFE and CSB 82-30 IFE are saso approved

kW input	No. of elements	Element wattage	Full load current in amperes		
			Single phase	Three phase	
			230V	380V	400/415V
9	3	3000	37,5	13,6	12,5
12	3	4000	50,0	18,2	16,7
15	3	5000	62,5	22,7	20,8
18	3	6000	75,0	27,3	25,0
24	6	4000	100,0	36,4	33,3
27	6	4500	112,5	40,9	37,5
30	6	5000	125,0	45,5	41,7
36	6	6000	150,0	54,5	50,0
40,5	9	4500	168,8	61,4	56,3
45	9	5000	187,5	68,2	62,5
54	9	6000	225,0	81,8	75,0

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