

SEV & SEH COMMERCIAL ELECTRIC WATER HEATERS

SEV - 150A through 2500A

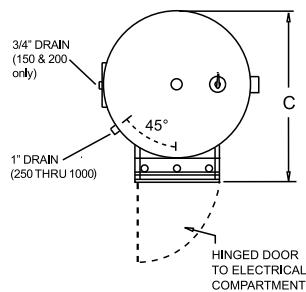
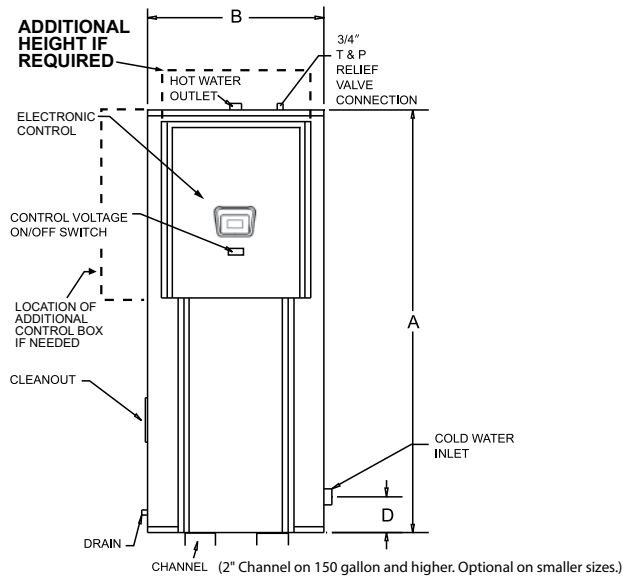
SEH - 150A through 2500A

- State's new propriety advanced electronic water heater control, provides precise + or - 1°F temperature control, that is ideal for industrial and food service applications where accurate hot water temperatures are needed.
- Animated icons display detailed operational and diagnostic information. Fault or alert messages appear if an operational issue occurs.
- Factory standard on board low water cut-off uses a remote electronic immersion type probe to prevent energizing of the elements in the event of low water condition and eliminates accidental dry firing.
- Progressive modulating matches number of elements to current load conditions. Rotates and lead lags element loads to provide long life and equal wear.
- Control system automatically lowers the operating set point by a programmed value during user defined time periods. Seven-day clock may be programmed for night set back and or weekend shutdown to reduce operating cost and save money.
- Modbus/BACnet compatible with optional Gateway interface.
- Standard Permaglas glass lining. Exclusive process provides superior protection against corrosion in varying water conditions. Optional cement and epoxy linings.
- All models are constructed to the requirements of ASME and are available in 125, 150 and 160 psi working pressures (125 psi working pressure - standard). Consult factory for ASME code tanks with greater or lesser working pressures and special configurations or materials.
- Heavy-duty elements have incoloy sheathing: provide excellent protection against oxidation and scaling. The input ranges from 15kW to 900kW (see accompanying chart).
- Control and power circuit fusing to meet N.E.C.
- Meets the standby loss requirements of the U.S. Department of Energy, NRCAN and current edition of ASHRAE/IES 90.1.
- Heavy duty UL rated for 100,000 cycles.
- Color-coded circuitry for easier servicing
- Anode rods for maximum corrosion protection
- Standard voltages include 208, 240, 380, 400, 415, 480, 600 volt single or three phase
- International voltages available (consult factory)
- Factory-installed terminal block(s)
- Temperature and pressure relief valve, supplied but not installed
- Provides emergency back up energy source or winter/summer boiler operation. Can be specified with optional water to water or steam to water heat exchangers. Both single and double-wall heat exchangers are available. Complete control packages can be factory-installed for hook-up and run capability.

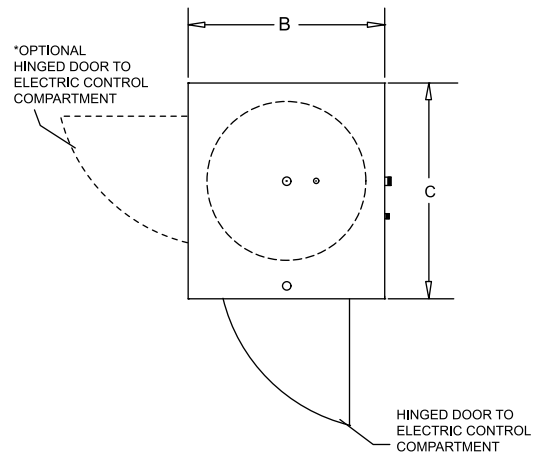
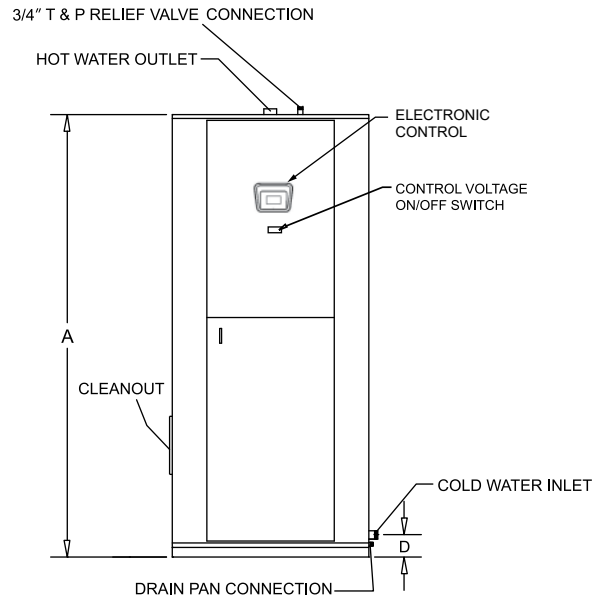
SAMPLE SPECIFICATION

The heater(s) shall be State Commercial Electric Model Number _____ or an approved equal. Heater(s) shall be rated at _____ kW, _____ V, _____ phase, 60 cycle AC. The heater shall be for (vertical/horizontal) installation with lifting lug access and channel skid base not on every tank. Vessel shall be constructed to Section IV of the ASME Code for 125 psi working pressure. Vessel shall be glass-lined with anodic protection. Entire vessel and electrical controls are to be encased in a sheet metal enclosure with baked enamel finish. Tank to be insulated with fiberglass insulation. Enclosure to have hinged locking door over electric controls. There shall be _____ individually replaceable heavy duty Incoloy sheathed heating elements each complete with pre-wired terminal leads. These elements will be switched by magnetic contactors which are operated by a 120V fused control circuit protected by manual reset high limit. Control circuit is activated by a master pilot switch and electronic low water cutoff. This control shall prevent the entire electrical load from being switched on instantaneously. The control shall have even load progressive sequencing which utilizes the "first on, first off" principle thereby equalizing the operating time of heating elements and contactors. Each magnetic contactor and heating element circuit will be protected by a maximum of 60 amp cartridge type fuses with a minimum of 100,000 amp interrupting capacity. The entire water heating package shall be prewired to solderless terminal lugs, factory tested, complete with a CSA Certified and ASME Rated T&P relief valve and bear the Underwriters' Laboratories label. Heater(s) shall have a 3-year limited warranty as outlined in the written warranty. Fully illustrated instruction manual included. Water heater unit(s) shall be compatible with building management systems using Modbus or BACnet with factory supplied gateway.

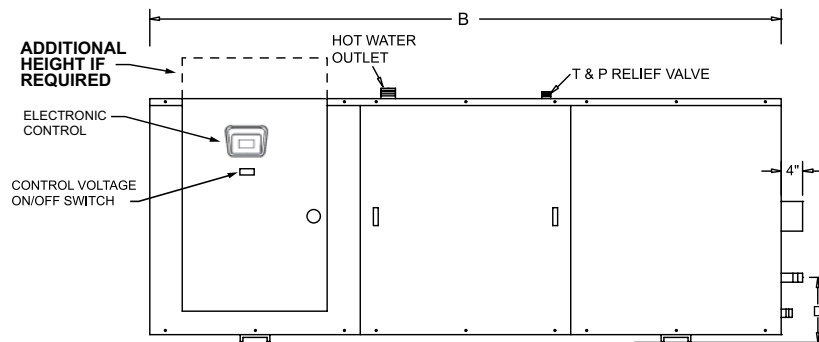
Vertical round models 150-1000



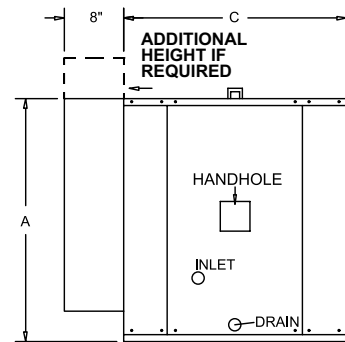
Vertical square models 1250-2500



Horizontal models



A & D ELEVATION FROM FINISHED FLOOR



END VIEW

EXTRA PANEL BOX MAY BE NECESSARY FOR INPUTS HIGHER THAN 72KW. CONSULT FACTORY

Model number	Max. kW	Gallon capacity	Dimensions in inches				Water connection		Shipping weight (lbs)
			A	B	C	D	Inlet openings	Outlet openings	
Vertical round electric storage heater									
SEV-150A	144	150	65-1/2	32	38-3/4	11-3/4	1-1/2	1-1/2	650
SEV-200A	180	200	78	32	38-3/4	11-3/4	1-1/2	1-1/2	750
SEV-250A	216	250	92	34	40-3/4	19-1/4	1-1/2	1-1/2	1,165
SEV-300A	270	300	80	40	46-3/4	20-3/4	2	2	1,350
SEV-400A	360	400	80	46	52-3/4	22-1/4	2	2	1,590
SEV-500A	396	500	92	46	52-3/4	22-1/4	2	2	1,700
SEV-600A	396	600	92	52	60-3/4	24-1/4	2-1/2	2-1/2	2,010
SEV-800A	396	750	104	52	60-3/4	24-1/4	2-1/2	2-1/2	2,450
SEV-1000A	396	950	128	52	60-3/4	24-1/4	2-1/2	2-1/2	3,160
Vertical square electric storage heater									
SEV-1250A	900	1,250	132-1/2	52	61-1/2	23-1/4	3	3	3,560
SEV-1500A	900	1,500	128-1/2	70-1/2	70-1/2	25-1/4	3	3	4,120
SEV-2000A	900	2,000	124-1/2	78-1/2	78-1/2	27	3	3	4,350
SEV-2500A	900	2,500	146-1/2	82-1/2	82-1/2	29	3	3	5,750
Horizontal square electric storage heater									
SEH-150A	144	150	37	68-1/2	34-1/4	12	2	2	1,180
SEH-200A	180	200	37	78	34-1/4	12	2	2	1,370
SEH-250A	216	250	39	90-1/4	36-1/4	13	2	2	1,450
SEH-300A	270	3600	45	78-1/4	42-1/4	14-3/4	2	2	1,530
SEH-400A	360	400	52	78-1/4	48-1/4	16	2	2	1,750
SEH-500A	396	500	52	90-3/4	48-1/4	16	2	2	1,860
SEH-600A	396	600	58	90-3/4	54-1/4	13-1/2	2-1/2	2	2,340
SEH-800A	396	800	58	102-1/4	54-1/4	13-1/2	2-1/2	2	2,850
SEH-1000A	396	1,000	58	126-1/4	54-1/4	13-1/2	2-1/2	2	3,040
SEH-1250A	900	1,250	64	130-1/4	60-1/4	15	3	3	3,750
SEH-1500A	900	1,500	70	126-1/4	66-1/4	16	3	3	4,340
SEH-2000A	900	2,000	82	123-1/4	78-1/4	14	3	3	4,580
SEH-2500A	900	2,500	82	144-1/4	78-1/4	16-1/2	3	3	6,060

kW input	GPH 100°F rise	BTH/hr equivalent	Max. no. of elements	No. of control steps	kW per element	No. of contractors 240/480V	Suggested modulating	Amperage draw				
								Single phase		Three phase		
								208V	240V	208V	240V	480V
15	62	51,180	1	1	15	2/1		72	63	42	36	18
18	74	61,416	1	1	18	2/1		87	75	50	44	22
30	123	102,360	2	1	15	2/1		144	125	83	72	36
36	148	122,832	2	1	18	4/2	4/2	174	150	100	87	44
45	185	153,540	3	1	15	3/2	3/2	216	188	125	108	54
54	221	184,248	3	1	18	6/2	3/2	260	225	150	130	65
60	246	204,720	4	2	15	12/6	4/3	289	250	167	144	72
72	295	245,664	4	2	18	8/4	4/4	Not recommended	Not recommended	200	174	87
90	369	307,080	5	2	18	6/3	3/3			250	217	109
108	443	368,496	6	2	18	12/4	4/4			300	260	130
120	492	409,440	8	3	15	8/4	4/4			333	289	144
135	554	460,620	9	3	15	9/6	4/4			375	325	162
144	590	491,328	8	3	18	16/8	4/4			400	347	174
162	664	552,744	9	3	18	18/6	8/6			450	389	195
180	738	614,160	10	4	18	20/10	8/8			500	434	217
216	886	736,992	12	4	18	24/8	8/8			600	519	260
234	959	798,408	13	5	18	26/13	8/8			650	563	282
252	1,033	859,824	14	5	18	28/14	8/8			700	607	304
270	1,107	921,240	15	5	18	30/10	12/10			750	649	325
288	1,181	982,656	16	6	18	32/16	12/12			800	692	347
306	1,255	1,044,072	17	6	18	34/17	12/12			850	736	368
324	1,328	1,105,488	18	6	18	36/12	12/12			900	780	390
342	1,402	1,166,904	19	7	18	38/19	12/12			950	822	412
360	1,476	1,228,320	20	7	18	40/20	12/12			1,000	865	435
378	1,550	1,289,736	21	7	18	42/14	14/14			1,050	909	455
396	1,624	1,351,152	22	8	18	44/22	15/16			1,100	952	477
414	1,697	1,412,568	23	8	18	46/23	16/16			1,150	995	498
432	1,771	1,473,984	24	8	18	48/16	16/16			1,200	1,040	520

Tank lining options

- Cement: a special formulation of cement providing excellent corrosion protection. Available on 250 gallon and larger tanks.
- Epoxy: a solventless two component epoxy lining available on 250 gallon and larger tanks.

Special construction options

- "12 X 16" manhole – available on 250 gallon and above
- 150 or 160 PSI working pressure (Must be specified at time of order).

Other optional features

- Temperature and pressure relief valves for working pressures other than standard; consult factory.
- Horizontal or vertical. See specifications, most gallon capacities may be obtained in vertical or horizontal construction.
- Circulating pump and piping sized to turn over entire storage capacity of tank once each hour. Recommended to optimize available water at temperature in horizontal tanks particularly where low draw conditions are anticipated.

- Optional international voltages 380 and 415 volts three-phase.
- Factory-installed dial-type pressure gauge
- Factory-installed dial-type temperature gauge

Control options

- Hot water generating tube heat exchangers. Custom dual energy source units with heating units and control trim and can be built to design specifications on a special order basis for steam or boiler water applications. Consult factory or Hot Water Generator specification sheets for tube bundle sizing information and control options. Allows for remote connection to building demand limiter or other functions.
- Pilot lights and switches. Denotes heating stage(s) in operation. Up to one light per contactor is available. A simple means of load control allows all or part of unit input to be controlled manually. Up to one switch per contactor is available.
- Safety door interlock. Prevents opening of control panel door when heater power supply is on.
- Shunt trip circuit breaker. A safety device (circuit breaker) which disconnects power to heater in the event of over-current, high temperature or low water level, breaker must be manually reset