

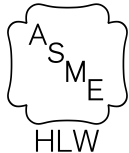


SEV & SEH COMMERCIAL ELECTRIC WATER HEATERS

SEV - 150A through 2500A

SEH - 150A through 2500A

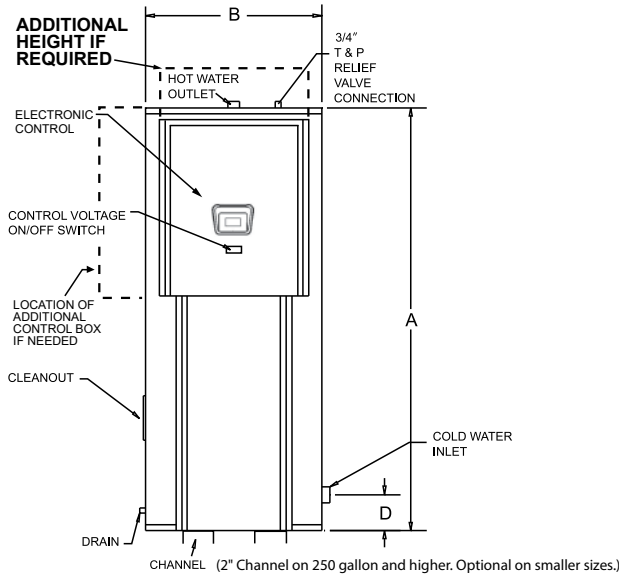
- State's new propriety advanced electronic water heater control, provides precise + or - 1°F temperature control, that is ideal for industrial and food service applications where accurate hot water temperatures are needed.
- Animated icons display detailed operational and diagnostic information. Fault or alert messages appear if an operational issue occurs.
- Factory standard 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 stage control 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.
- Exclusive glass lining process provides superior protection against corrosion in varying water conditions.
- 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).
- inspection/clean out opening of 3 x 4 inch is standard on vertical tanks, 4 x 6 inch is standard on horizontal tanks. Man hole is optional on tanks above 200 gallons
- 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 meets N.E.C.
- Meets the standby loss requirements of the U.S. Department of Energy, NRC and current edition of ASHRAE/IES 90.1.
- Contactors: heavy duty UL rated for 100,000 cycles.
- Color-coded circuitry for easier servicing
- Magnesium anode rods for corrosion protection
- Standard voltages include 208, 240, 380, 400, 415, 480, 600 volt single or three phase
- Standard factory installed terminal block. High performance heaters (above 180 kW) will have two or more terminal blocks suitable for 500 MCM power supply cables.
- Temperature and pressure relief valve, supplied but not installed
- 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.



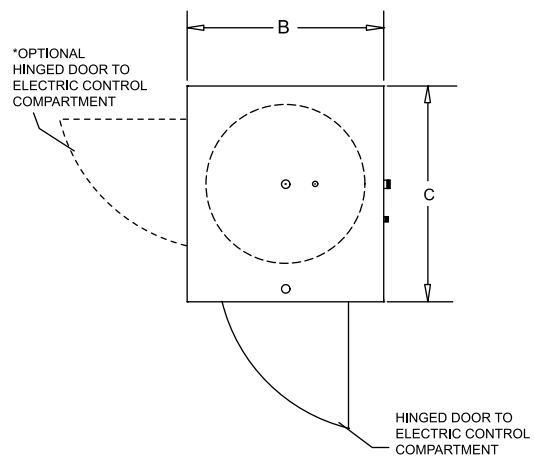
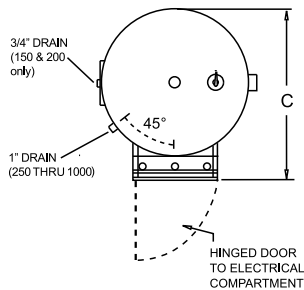
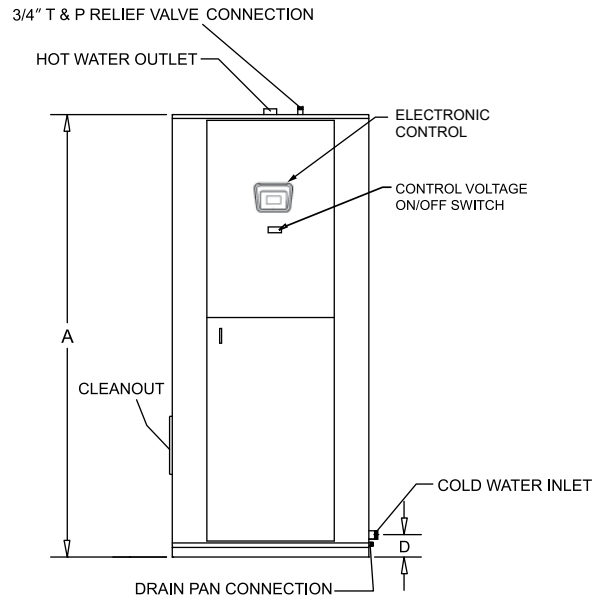
SAMPLE SPECIFICATION

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 foam or 3 inch fiberglass blanket meeting or exceeding current ASHRAE standard for energy efficiency. Enclosure to have hinged locking door over electric controls. There shall be _____ individually replaceable heavy duty Incoloy sheathed heating elements each complete with prewired 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.

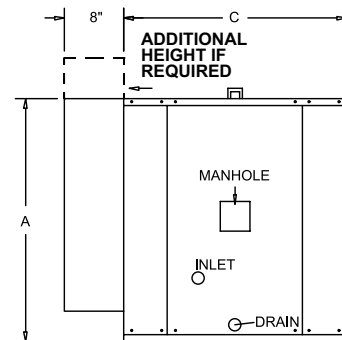
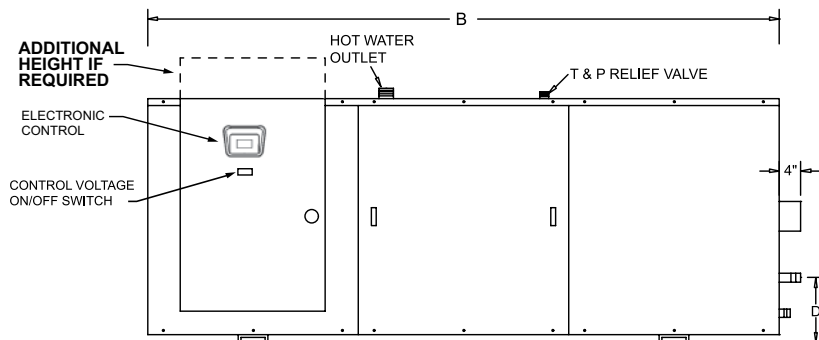
Vertical round models 150-1000



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 | 324 | 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-530A | 396 | 530 | 90 | 52 | 60-3/4 | 24-1/4 | 2 | 2 | 1,900 |
| 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 | 432 | 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 | 225 | 250 | 39 | 90-1/4 | 36-1/4 | 13 | 2 | 2 | 1,450 |
| SEH-300A | 270 | 300 | 45 | 78-1/4 | 42-1/4 | 14-3/4 | 2 | 2 | 1,530 |
| SEH-400A | 324 | 400 | 52 | 78-1/4 | 48-1/4 | 16 | 2 | 2 | 1,750 |
| SEH-500A | 450 | 500 | 52 | 90-3/4 | 48-1/4 | 16 | 2 | 2 | 1,860 |
| SEH-600A | 540 | 600 | 58 | 90-3/4 | 54-1/4 | 13-1/2 | 2-1/2 | 2 | 2,340 |
| SEH-800A | 720 | 750 | 58 | 102-1/4 | 54-1/4 | 13-1/2 | 2-1/2 | 2 | 2,850 |
| SEH-1000A | 900 | 950 | 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 |

Tank lining options

- Cement: a special formulation of cement providing excellent corrosion protection. Available on 250 and 300 gallon 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

- 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.
- Factory-installed dial-type pressure gauge
- BACnet or MODBUS interface for remote monitoring of status, faults and temperatures. Available for ethernet or serial connection.

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.

| kW input | LPH 50°C rise | GPH 90°F rise | Max. no. of elements | No. of control steps | No. of contractors | Amperage draw | | | | |
|----------|---------------|---------------|----------------------|----------------------|--------------------|---------------|-----------|-----------|------------|----------|
| | | | | | | 240V/3ph | 380V/3 ph | 400V/3 ph | 415 V/3 ph | 480V/3ph |
| 15 | 258 | 69 | 1 | 1 | 1 | 36 | 23 | 22 | 21 | 18 |
| 18 | 310 | 83 | 1 | 1 | 1 | 43 | 27 | 26 | 25 | 22 |
| 30 | 517 | 138 | 2 | 1 | 1 | 72 | 46 | 43 | 42 | 36 |
| 36 | 620 | 166 | 2 | 2 | 2 | 87 | 55 | 52 | 50 | 43 |
| 45 | 775 | 207 | 3 | 2 | 2 | 108 | 68 | 65 | 63 | 54 |
| 54 | 930 | 248 | 3 | 2 | 2 | 130 | 82 | 78 | 75 | 65 |
| 60 | 1.033 | 276 | 4 | 2 | 2 | 144 | 91 | 87 | 83 | 72 |
| 72 | 1.240 | 331 | 4 | 3 | 3 | | 109 | 104 | 100 | 87 |
| 90 | 1.550 | 414 | 5 | 3 | 3 | | 137 | 130 | 125 | 108 |
| 108 | 1.860 | 497 | 6 | 4 | 4 | | 164 | 156 | 150 | 130 |
| 120 | 2.066 | 552 | 8 | 4 | 4 | | 182 | 173 | 167 | 144 |
| 135 | 2.325 | 621 | 9 | 5 | 5 | | 205 | 195 | 188 | 162 |
| 144 | 2.480 | 662 | 8 | 5 | 5 | | 219 | 208 | 200 | 173 |
| 162 | 2.790 | 745 | 9 | 6 | 6 | | 246 | 234 | 225 | 195 |
| 180 | 3.100 | 828 | 10 | 6 | 6 | | 273 | 260 | 250 | 217 |
| 216 | 3.720 | 994 | 12 | 8 | 8 | | 328 | 312 | 301 | 260 |
| 234 | 4.029 | 1.076 | 13 | 8 | 8 | | 356 | 338 | 326 | 281 |
| 252 | 4.339 | 1.159 | 14 | 9 | 9 | | 383 | 364 | 351 | 303 |
| 270 | 4.649 | 1.242 | 15 | 9 | 9 | | 410 | 390 | 376 | 325 |
| 288 | 4.959 | 1.325 | 16 | 10 | 10 | | 438 | 416 | 401 | 346 |
| 306 | 5.269 | 1.408 | 17 | 11 | 11 | | 465 | 442 | 426 | 368 |
| 324 | 5.579 | 1.490 | 18 | 11 | 11 | | 492 | 468 | 451 | 390 |
| 342 | 5.889 | 1.573 | 19 | 12 | 12 | | 520 | 494 | 476 | 411 |
| 360 | 6.199 | 1.656 | 20 | 12 | 12 | | 547 | 520 | 501 | 433 |
| 378 | 6.509 | 1.739 | 21 | 13 | 13 | | 574 | 546 | 526 | 455 |
| 396 | 6.819 | 1.822 | 22 | 14 | 14 | | 602 | 572 | 551 | 476 |
| 414 | 7.129 | 1.904 | 23 | 14 | 14 | | 629 | 598 | 576 | 498 |
| 432 | 7.439 | 1.987 | 24 | 15 | 15 | | 656 | 624 | 601 | 520 |

Note: for kW above 198 kW, multiple terminal blocks will be factory installed.
 For kW above 432, please contact factory