

DURA-POWER™ XI COMMERCIAL ELECTRIC

ADVANCED ELECTRONIC CONTROL

A. O. Smith's new propriety electronic water heater control, provides precise + or - 1°F temperature control, that is ideal for industrial and food service applications where exact temperatures of hot water are needed.

EASY-TO-READ TEXT

- Animated icons display detailed operational and diagnostic information. Fault or alert messages appear if an operational issue occurs.

LOW WATER CUT OFF

- 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.

ECONOMY MODE OPERATION

- 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.

ICOMM™ COMPATIBLE

- Units can be monitored from remote locations. Call 1.888.WATER02 for more information.

BMS COMPATIBLE

- Modbus/BACnet compatible with optional Gateway interface.

PERMAGLAS® ULTRA COAT™ GLASS LINING IS STANDARD

- Exclusive process provides superior protection against corrosion in varying water conditions. Cement and Epoxy linings are optional.

ASME CODE CONSTRUCTION

- All models are constructed to the requirements of ASME and are available in 100, 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.

INCOLOY IMMERSION HEATERS

- Heavy-duty medium watt density elements (three/immersion heater) have incoloy sheathing: provide excellent protection against oxidation and scaling. The input ranges from 15kW to 3000kW (see accompanying chart).

FUSING

- Control and power circuit fusing to meet N.E.C.

COMPLIANCE

- Meets the standby loss requirements of the U.S. Department of Energy, NRC and current edition of ASHRAE/IES 90.1.

MAGNETIC CONTACTOR(S)

- Heavy duty UL rated for 100,000 cycles.

OTHER STANDARD FEATURES

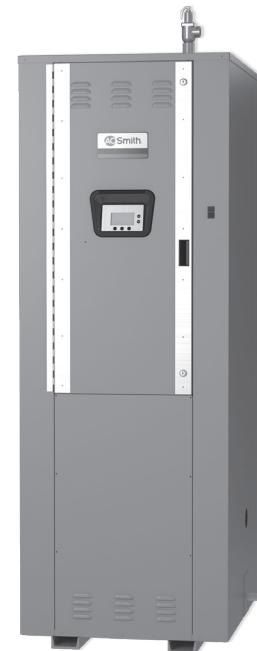
- Color-coded circuitry for easier servicing
- Anode rods for maximum corrosion protection
- Standard voltages include 208, 240, 480, 600 volt single or three-phase
- International voltages available (consult factory)
- Factory-installed terminal block(s)
- Cabinet has baked enamel finish
- Prewired element terminal leads
- Temperature and pressure relief valve

OPTIONAL DUAL-ENERGY SOURCE CAPABILITY

- 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.

THREE YEAR LIMITED WARRANTY

- For complete warranty information consult written warranty or go to hotwater.com

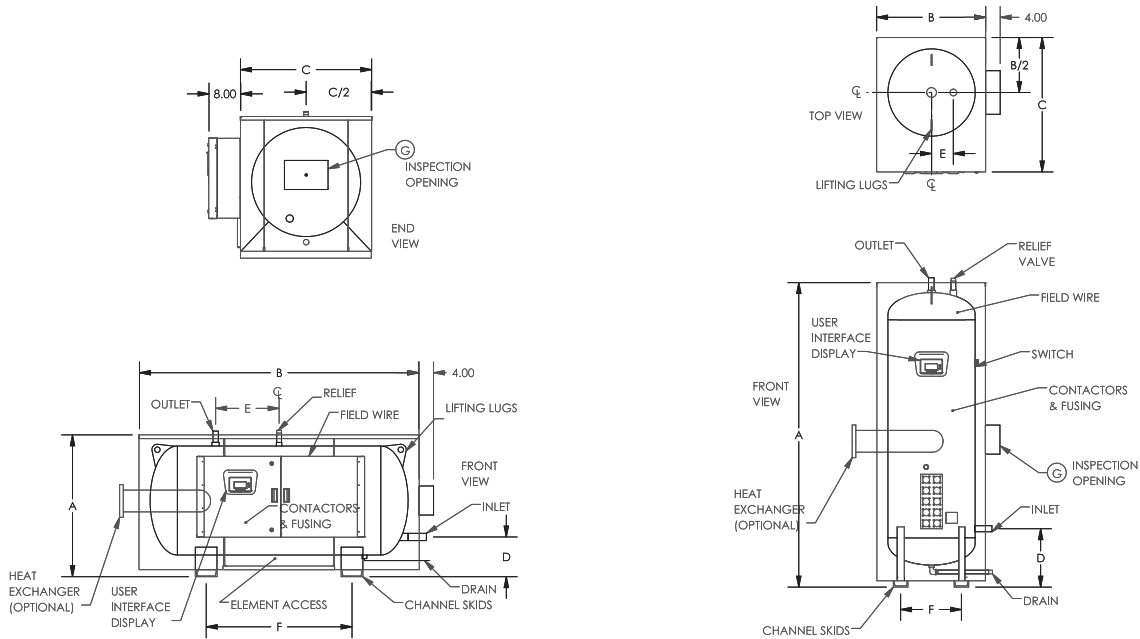


DVE-140 THRU 10,000



DHE-200 THRU 10,000





Model Number*	Nominal Gallon Capacity	Maximum kW Input	Dimensions in Inches										Inlet/Outlet Openings	Drain Opening	Relief Valve Opening**	
			A	B	C	D	E	F	G							
Vertical Electric Storage Heater																
DVE-140	140	150	83-1/2	30	37	16	6	17	Optional	1-1/4	3/4	1				
DVE-150	150	150	83-1/2	30	37	16	6	17		1-1/4	3/4	1				
DVE-150L	150	150	59-1/2	36	43	17-1/2	6	21		1-1/4	3/4	1				
DVE-200	200	180	79-1/2	36	43	17-1/2	6	21		1-1/2	3/4	1				
DVE-250	250	240	93	36	43	17-1/2	6	21		1-1/2	3/4	1				
DVE-300	300	300	83-1/2	42	49	19	6	25-1/2		2	3/4	1				
DVE-350	350	330	95-1/2	42	49	19	6	25-1/2		2	3/4	1				
DVE-400	400	390	102-1/2	42	49	19	6	25-1/2		2	3/4	1				
DVE-500	500	480	97	48	55	21	6	30		4" x 6" Handhole	2	1-1/4	1			
DVE-600	600	600	112	48	55	21	6	30			2	1-1/4	1			
DVE-700	700	690	124	48	55	21	6	30	2		1-1/4	1				
DVE-800	800	780	116	56	61	23	8	34	11" x 15" Manhole	2	1-1/2	1				
DVE-1000	1,000	990	116	60	67	24-1/2	10	38		3	1-1/2	1				
DVE-1250	1,250	1,200	143	60	67	24-1/2	10	38		3	1-1/2	1				
DVE-1500	1,500	1,500	155	60	67	24-1/2	10	38		3	1-1/2	1				
DVE-2000	2,000	1,980	183	66	73	25	12	42-1/2		3	2	1				
DVE-3000	3,000	3,000	217	72	79	27-1/2	14	47		3	2	1-1/2				
DVE-5000	5,000	3,000	309	78	85	30	14	51		3	2	1-1/2				
DVE-7500	7,500	3,000	330	90	97	30	14	59-1/2		4	2	1-1/2				
DVE-10,000	10,000	3,000	358	102	109	30	14	68	4	2	1-1/2					
Horizontal Electric Storage Heater																
DHE-200	200	180	38-1/2	77	36	10-1/2	17-1/2	31	Optional	1-1/2	3/4	1				
DHE-250	250	240	38-1/2	91	36	10-1/2	24	48		1-1/2	3/4	1				
DHE-300	300	300	44-1/2	81	42	8-1/4	17	36		2	3/4	1				
DHE-350	350	330	44-1/2	93	42	8-1/4	23	48		2	3/4	1				
DHE-400	400	390	44-1/2	100	42	8-1/4	26-1/2	55	4" x 6" Handhole	2	3/4	1				
DHE-500	500	480	51	94	48	14	24	48		2	1-1/4	1				
DHE-600	600	600	51	109	48	14	32	64		2	1-1/4	1				
DHE-700	700	690	51	121	48	14	38	76		2	1-1/4	1				
DHE-800	800	780	57	111	54	16-1/2	32	64		11" x 15" Manhole	2	1-1/2	1			
DHE-1,000	1,000	990	61	111	60	16-1/2	29-1/2	59			3	1-1/2	1			
DHE-1,250	1,250	1,200	61	138	60	16-1/2	43	86			3	1-1/2	1			
DHE-1,500	1,500	1,500	61	150	60	16-1/2	50	98			3	1-1/2	1			
DHE-2,000	2,000	1,980	70	177	66	20	60	120			3	2	1-1/4			
DHE-3,000	3,000	3,000	76	211	72	20	72-1/2	131			3	2	1-1/4			
DHE-5,000	5,000	3,000	82	296	78	20-1/2	113-1/2	195	3	2	1-1/4					
DHE-7,500	7,500	3,000	94	317	90	20-1/2	121	218	4	2	1-1/4					
DHE-10,000	10,000	3,000	106	345	102	22	132	220	4	2	1-1/4					

*Complete model number includes the desired kW at the end, e.g.: DVE-500-120 when kW=120.

**Size may vary according to kW input.

Minimum installation clearances required. 30" from front, 12" from top, and 24" from right side.

Dimensions and specifications subject to change without notice in accordance with our policy of continuous product improvement.



COMMERCIAL ELECTRIC WATER HEATERS

Standard kW Ratings	Number of Immersion Heaters	BTU Input and Output	GPH Recovery 100°F Rise	Number of 50A Contactors		Amperage Draw			
				Three Phase		Three Phase			
				208V, 240V	480V, 600V	208V	240V	480V	600V
XI On/Off									
15	1-15kW	51,195	61	1	1	42	37	19	15
XI Progressive									
24	2-12kW	81,912	98	2	1	67	58	27	23
30	2-15kW	102,390	123	2	1	83	72	36	29
36	3-12kW	122,868	147	3	1	100	87	43	35
45	3-15kW	153,585	184	3	2	126	109	54	44
60	4-15kW	204,720	246	4	2	167	145	72	58
75	5-15kW	255,975	307	5	3	208	181	90	72
90	6-15kW	307,170	369	6	3	250	217	109	87
105	7-15kW	358,365	430	7	4	292	253	127	101
120	8-15kW	409,560	492	8	4	333	289	145	115
150	10-15kW	511,950	615	10	5	416	361	180	144
180	12-15kW	614,340	738	12	6	499	433	217	173
210	14-15kW	716,730	861	14	7	583	505	253	202
240	16-15kW	819,120	987	16	8	666	577	289	231
270	18-15kW	921,510	1,107	18	9	750	650	325	260
300	20-15kW	1,023,900	1,230	20	10	832	722	361	289
330	22-15kW	1,126,290	1,353	22	11	916	794	397	318
360	24-15kW	1,228,680	1,476	24	12	999	866	433	346
390	26-15kW	1,331,070	1,599	26	13	1,083	938	469	375
420	28-15kW	1,433,460	1,722	28	14	1,166	1,010	505	404
450	30-15kW	1,535,850	1,845	30	15	1,249	1,083	542	433
480	32-15kW	1,638,240	1,968	32	16	1,332	1,155	578	462
510	34-15kW	1,740,630	2,091	34	17	1,416	1,227	613	491
540	36-15kW	1,843,020	2,214	36	18	1,499	1,299	650	520
570	38-15kW	1,945,410	2,337	38	19	1,582	1,371	686	548
600	40-15kW	2,047,800	2,460	40	20	1,664	1,443	722	577
630	42-15kW	2,150,190	2,583	N/A	21	Not Recommended	Not Recommended	758	606
660	44-15kW	2,252,580	2,706	N/A	22			794	635
690	46-15kW	2,345,970	2,829	N/A	23			830	664
720	48-15kW	2,457,360	2,952	N/A	24			866	693
810	54-15kW	2,764,530	3,321	N/A	27			974	779
900	60-15kW	3,071,700	3,690	N/A	30			1,083	866
990	66-15kW	3,378,870	4,059	N/A	33			830	953
1080	72-15kW	3,686,040	4,428	N/A	36			866	1,039
1170	78-15kW	3,993,210	4,797	N/A	39			874	1,126
1260	84-15kW	4,300,380	5,166	N/A	42			1,083	1,213
1350	90-15kW	4,607,550	5,535	N/A	45			1,191	1,300
1440	96-15kW	4,914,720	5,904	N/A	48			1,299	1,386
1530	102-15kW	5,221,890	6,273	N/A	51			1,408	1,473
1620	108-15kW	5,529,060	6,642	N/A	57			1,516	1,559
1800	120-15kW	6,141,600	7,380	N/A	60			1,624	1,732
1980	132-15kW	6,757,740	8,118	N/A	66	1,732	1,905		
2040	136-15kW	6,962,520	8,364	N/A	68	1,841	1,963		
2220	148-15kW	7,576,860	9,102	N/A	74	1,949	2,136		
2250	150-15kW	7,679,250	9,225	N/A	74	2,707	2,165		
2400	160-15kW	8,188,800	9,840	N/A	80	2,887	2,310		
2540	176-15kW	9,010,320	10,824	N/A	88	3,175	2,540		
2820	188-15kW	9,624,660	11,562	N/A	94	3,392	2,714		
3000	200-15kW	10,236,000	12,300	N/A	100	3,608	2,887		



COMMERCIAL ELECTRIC WATER HEATERS

TANK LININGS OPTIONS

CEMENT

- A special formulation of cement providing excellent corrosion protection. Available on 200 gallon and larger tanks.

EPOXY

- A solventless two component epoxy lining applied to a minimum ten-mil (.010") dry thickness. Available on 200 gallon and larger tanks.

GOLDENROD® ELEMENTS

- Available with optional Goldenrod® elements - All DVE/DHE models are available with the Goldenrod® 24K gold plated elements (patent pending). Goldenrod® elements provide long-life and five times the scaling resistance of standard incoloy elements.
- Goldenrod® elements carry a three-year warranty against failure due to scale buildup.

SPECIAL CONSTRUCTION OPTIONS

11" X 15" MANHOLE – AVAILABLE AS OPTION ON TANKS 700 DOWN TO 30" TANK DIAMETER

STAINLESS STEEL VESSELS

- Consult the factory for application information.

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 PACKAGE

- 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.

SAMPLE SPECIFICATIONS

The heater(s) shall be A. O. Smith 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 lugs and channel skid base. 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 rectangular 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 _____ kW, 4 bolt flange mounted, 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 optional ICC interface.

OPTIONAL INTERNATIONAL VOLTAGES

- 380 and 415 volts three-phase.

FACTORY-INSTALLED 3-1/2" DIAL-TYPE PRESSURE GAUGE

FACTORY-INSTALLED 3-1/2" DIAL-TYPE TEMPERATURE GAUGE

CONTROL OPTIONS

COPPER TUBE TANK HEATER

- Double wall copper tube tank heaters are designed for heating potable water with both potable or non-potable liquids or steam, and are specifically engineered for installation in models DVE and DHE for dual-energy applications. Tank heaters have a positive fail-safe means of leak detection in the event of either tube failure to prevent mixture of heating medium and potable water. Single wall heat exchangers are also available.

TERMINAL BLOCKS

- Allows for remote connection to building demand limiter or other functions.

AUTOMATIC RESET HIGH LIMIT

- A control that in the event of high temperature, interrupts power, de-energizing elements, automatic reset. (Standard with modulating step control).

INDICATING LIGHTS

- Denotes heating stage(s) in operation. Up to one light per contactor is available.

OVERRIDE SWITCHES

- 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. NOTE: Once door is opened heater may be energized if necessary for service diagnosis.

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.

CIRCUIT BREAKER

- A safety device which disconnects power to the heater in the event of overcurrent.

For technical information call 800-527-1953. A. O. Smith Corporation reserves the right to make product changes or improvements without prior notice.