

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 accurate hot water temperatures 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.

BMS COMPATIBLE

- Modbus/BACnet compatible with optional Gateway interface. Call 888 WATER02 for more information.

PERMAGLAS® 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 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 elements have incoloy sheathing; provide excellent protection against oxidation and scaling. The input ranges from 15kW to 900kW (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, NRCan 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, 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

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

Attention: Significant changes have been made to some models. Please note that this spec sheet refers specifically to models manufactured in Lebanon, TN



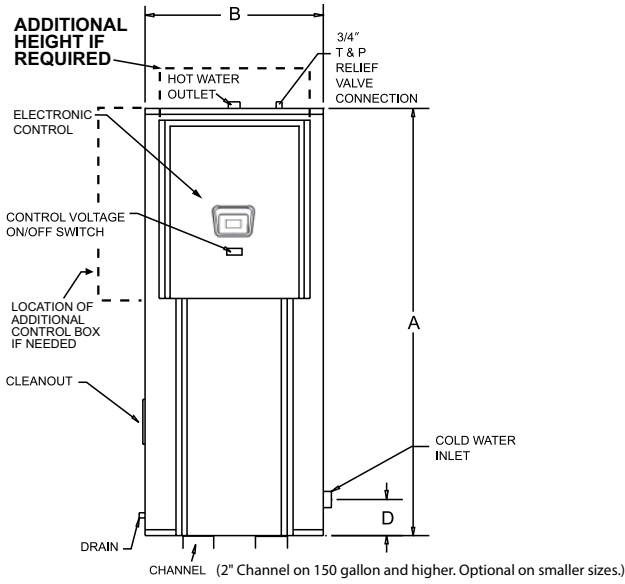
DVE-150 THRU 2500



DHE-150 THRU 2500

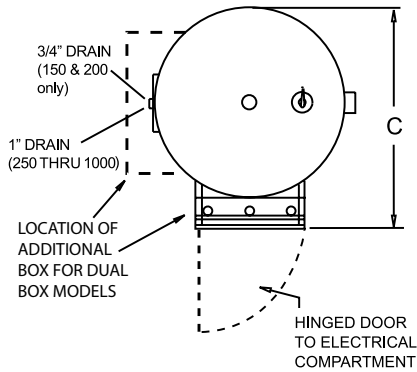


Vertical Round Models 150-1000

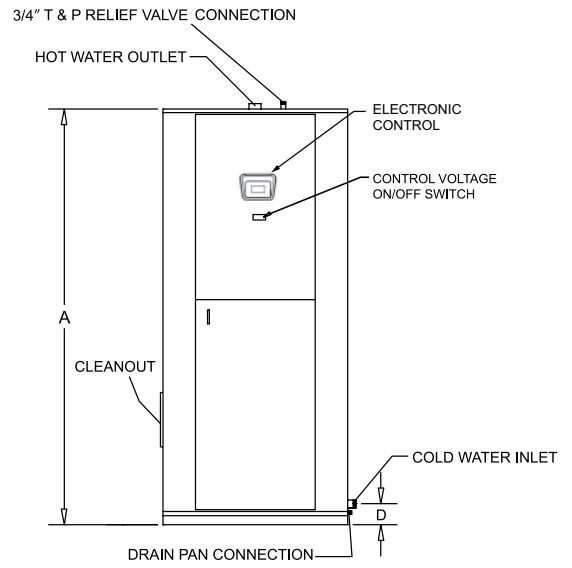


*An oversized control panel may be required on models with inputs above 72 kW. Consult the factory for specific details.

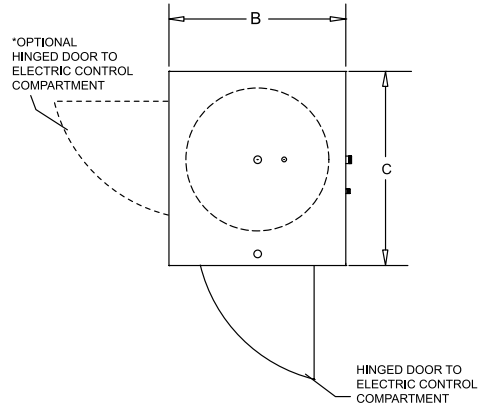
TOP VIEW



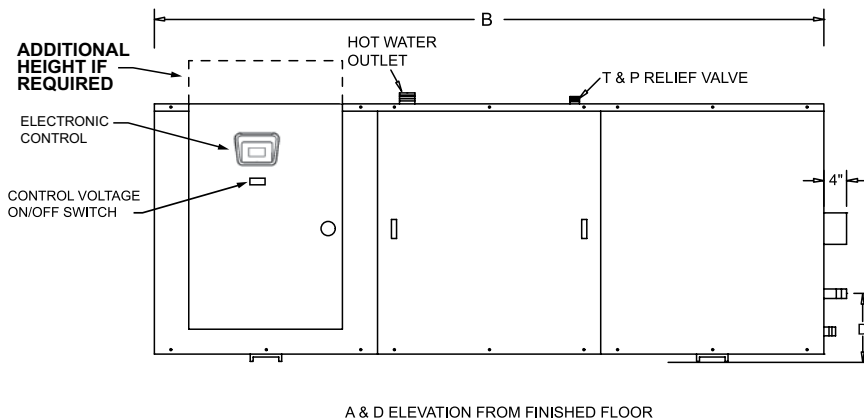
Vertical Square Models 1250-2500



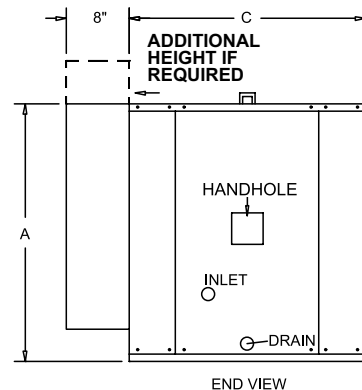
TOP VIEW



Horizontal Models



A & D ELEVATION FROM FINISHED FLOOR



END VIEW

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

*An oversized control panel may be required on models with inputs above 72 kW. An oversized control panel may increase the width and depth of the square jacket by up to 2".



COMMERCIAL ELECTRIC WATER HEATERS

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									
DVE-150A	162	150	65-1/2"	32"	38-3/4"	11-3/4"	1-1/2"	1-1/2"	650
DVE-200A	162	200	78"	32"	38-3/4"	11-3/4"	1-1/2"	1-1/2"	750
DVE-250A	198	250	92"	34"	40-3/4"	19-1/4"	1-1/2"	1-1/2"	1,165
DVE-300A	180	300	80"	40"	46-3/4"	20-3/4"	2"	2"	1,350
DVE-400A	162	400	80"	46"	52-3/4"	22-1/4"	2"	2"	1,590
DVE-500A	162	500	92"	46"	52-3/4"	22-1/4"	2"	2"	1,700
DVE-600A	216	600	92"	52"	60-3/4"	24-1/4"	2-1/2"	2-1/2"	2,010
DVE-800A	216	750	104"	52"	60-3/4"	24-1/4"	2-1/2"	2-1/2"	2,450
DVE-1000A	216	950	128"	52"	60-3/4"	24-1/4"	2-1/2"	2-1/2"	3,160
Vertical Square Electric Storage Heater									
DVE-150A	162	150	65-1/2"	32	38-3/4"	7-3/4"	1.5	1.5	650
DVE-200A	198	200	78	32	38-3/4"	7-3/4"	1.5	1.5	750
DVE-250A	234	250	92	34	40-3/4"	19-1/2"	1.5	1.5	1,165
DVE-300A	288	300	80	40	46-3/4"	21	2	2	1,350
DVE-400A	324	400	80	46	52-3/4"	22-1/2"	2	2	1,590
DVE-500A	432	500	92	46	52-3/4"	22-1/2"	2	2	1,700
DVE-600A	414	600	92	46	60-3/4"	24-1/2"	2.5	2.5	2,010
DVE-800A	468	800	104	52	60-3/4"	24-1/2"	2.5	2.5	2,450
DVE-1000A	648	1,000	128	52	60-3/4"	24-1/2"	2.5	2.5	3,160
DVE-1250A	648	1,250	132-1/2"	52	64-1/2"	23-1/4"	3	3	3,560
DVE-1500A	918	1,500	128-1/2"	70-1/2"	70-1/2"	25-1/4"	3"	3"	4,120
DVE-2000A	918	2,000	124-1/2"	78-1/2"	78-1/2"	27"	3"	3"	4,350
DVE-2500A	918	2,500	146-1/2"	82-1/2"	82-1/2"	29"	3"	3"	5,750
Horizontal Square Electric Storage Heater									
DHE-150A	162	150	37"	68-1/2"	34-1/4"	12"	2"	2"	1,180
DHE-200A	198	200	37"	78"	34-1/4"	12"	2"	2"	1,370
DHE-250A	234	250	39"	90-1/4"	36-1/4"	13"	2"	2"	1,450
DHE-300A	288	300	45"	78-1/4"	42-1/4"	14-3/4"	2"	2"	1,530
DHE-400A	324	400	52"	78-1/4"	48-1/4"	16"	2"	2"	1,750
DHE-500A	432	500	52"	90-3/4"	48-1/4"	16"	2"	2"	1,860
DHE-600A	414	600	58"	90-3/4"	54-1/4"	13-1/2"	2-1/2"	2"	2,340
DHE-800A	468	750	58"	102-1/4"	54-1/4"	13-1/2"	2-1/2"	2"	2,850
DHE-1000A	648	950	58"	126-1/4"	54-1/4"	13-1/2"	2-1/2"	2"	3,040
DHE-1250A	648	1,250	64"	130-1/4"	60-1/4"	15"	3"	3"	3,750
DHE-1500A	918	1,500	70"	126-1/4"	66-1/4"	16"	3"	3"	4,340
DHE-2000A	918	2,000	82"	123-1/4"	78-1/4"	14"	3"	3"	4,580
DHE-2500A	918	2,500	82"	144-1/4"	78-1/4"	16-1/2"	3"	3"	6,060

kW Input	GPH 100°F Rise	Btu/hr Equivalent	Max. No. of Elements	No. of Control Steps	kW Per Element	No. of Contractors 240/480V	Suggested Modulating Control Steps 240/480V	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			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

For higher inputs consult the factory.



COMMERCIAL ELECTRIC WATER HEATERS

TANK LININGS 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 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.

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. 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 Field Installed.

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 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 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’ Laboratories Label. Heater(s) shall have a 3-year limited warranty as outlined in the written warranty. Fully illustrated instruction manual included. Water heater units(s) shall be compatible with building management systems using Modbus or BACnet with factory supplied gateway.

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