



# SUBMITTAL SHEET

## DURA POWER™ XI CUSTOM VERTICAL & HORIZONTAL DVE/DHE ELECTRIC WATER HEATERS

Job Name \_\_\_\_\_  
 Location \_\_\_\_\_  
 Engineer \_\_\_\_\_  
 Wholesaler \_\_\_\_\_  
 Mech. Contractor \_\_\_\_\_  
 Model No. \_\_\_\_\_  
 Gallon Capacity \_\_\_\_\_  
 Restrictions of Mechanical Room or Facility \_\_\_\_\_

- Voltage \_\_\_\_\_
- kW \_\_\_\_\_
- Phase: 1 3
- Lining: Glass Cement
- Configuration: Horizontal Vertical

Note: Control Panel height may exceed tank height.  
 Some models may require dual control panels affecting the footprint and service access.  
 Consult factory for specific height and footprint with inputs above 72kW.

### Standard Features:

- Glass Lined Steel Tank
- Incoloy Heating Elements
- Magnesium Anodes
- Internal Fusing (above 120 amps)
- Enamel Finished, Galvanized Steel Jacket
- Hinged Doors w/Key Lock
- Channel Iron Skid Base (Except 250 gallon & larger)
- 4X6 Handhole Cleanout - All Models
- Immersion Thermostat

- Advanced Electronic Control
  - Low Water Cut-Off (Probe Type)
  - BMS Enable/Disable Contacts
- Control Voltage ON/OFF Switch w/Pilot Light
- High Limit w/Manual Reset
- Terminal Block Connections
- ASME Temperature and Pressure Relief Valve (Supplied but not installed for 125 psi only)
- 125 psi Working Pressure
- Approved for 180°F Temperature Operation

### Optional Equipment:

Alarm Bell  
 Construction ASME 150 psi 160 psi  
 12" x 16" Construction Manway (250 Gal. & larger only)  
 Lifting Lugs (pair)  
 High/Low Water Pressure Switch  
 Pilot Lights and Switch for each Contactor  
 Safety Door Interlock  
 Temperature and Pressure Gauge

Shunt Trip Disconnect (Field Installed)  
 Attachment Points (on 250 Gal. & larger only)  
 Channel Iron Skid base for 150 and 200 gallon  
 BMS BACNet & MODBUS interface  
 ASME T&P Valve for \_\_\_\_\_ psi  
 Tube Bundle Option - please complete application information on page 2.  
 Special Tappings (indicate on attached drawings) NPT:  
 Size \_\_\_\_\_" Quantity \_\_\_\_\_

### Notes:

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## Tube Bundle Sizing Questions

(For units with a heating coil the below must be completed)

\*Minimum of 5 data points are required in order to complete a tube bundle sizing\*

### Tank Side:

- Tank Capacity \_\_\_\_\_
- Inlet Water Temp \_\_\_\_\_ \* Required
- Stored or Tank Set Point \_\_\_\_\_ \* Required
- Recovery Rate (GPH) \_\_\_\_\_ \* Required
- Design Pressure (125 PSI or 150 PSI) \_\_\_\_\_
- Coil Material (if other than copper) \_\_\_\_\_
- Double or Single Wall Coil \_\_\_\_\_

### Coil Side Heating Source (Choose Steam or Boiler Water)

#### Steam:

- Steam Pressure \_\_\_\_\_ Steam Available (lbs/h) \_\_\_\_\_ \* Required
- Steam Inlet Pressure \_\_\_\_\_ \* Required
- Steam Outlet Pressure \_\_\_\_\_ \* Required

#### Boiler:

- Boiler Water Entering Temp. \_\_\_\_\_ \* Required
- Boiler Water Leaving Temp. \_\_\_\_\_ \* Required
- Boiler Water Available (GPH) \_\_\_\_\_ \* Required
- Glycol (yes no )
- If yes, Type of Glycol \_\_\_\_\_ and % of glycol \_\_\_\_\_%

### Water to Water

Control packages include isolation valves, 2-way self-operated temperature regulator, inlet wye strainer and all necessary piping

All models that include a tube bundle will ship with a Recirc Pump unless otherwise stated 1/25hp (120V/1PH)

## 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 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 NRCan and current edition of ASHRAE/IES 90.1.

### MAGNETIC CONTACTOR(S)

- Heavy duty UL rated for 100,000 cycles.

### OTHER STANDARD FEATURES

- Colour-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

### 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



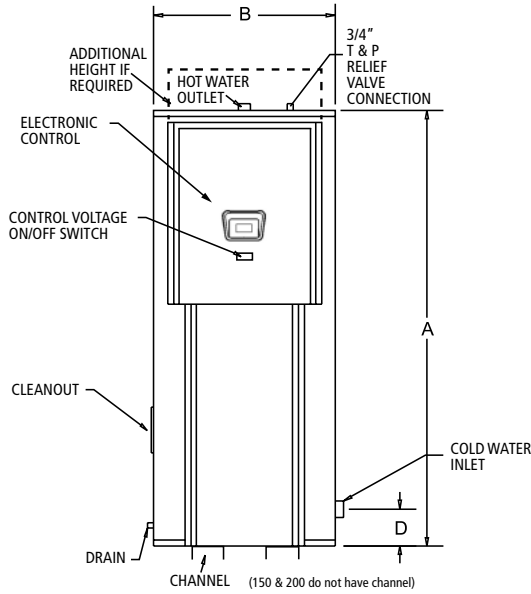
DVE-150 THRU 2500



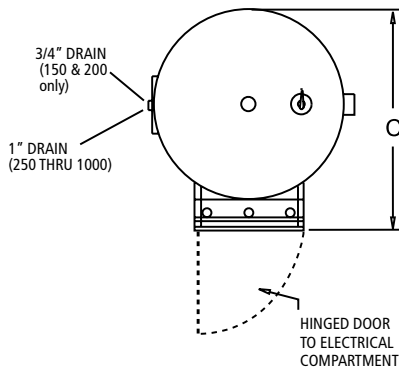
DHE-150 THRU 2500



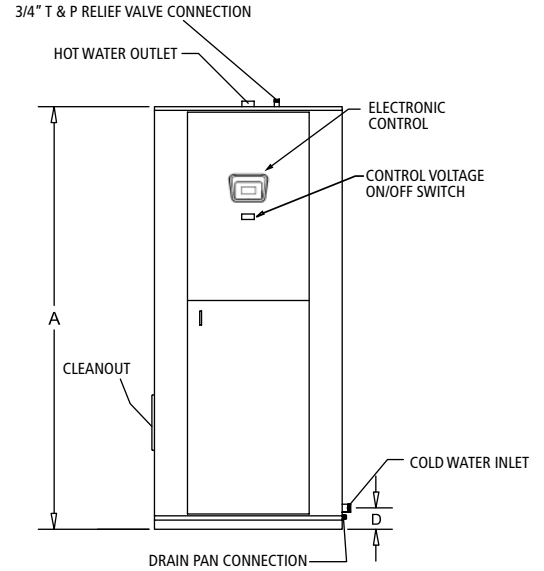
## Vertical Round Models 150-1000



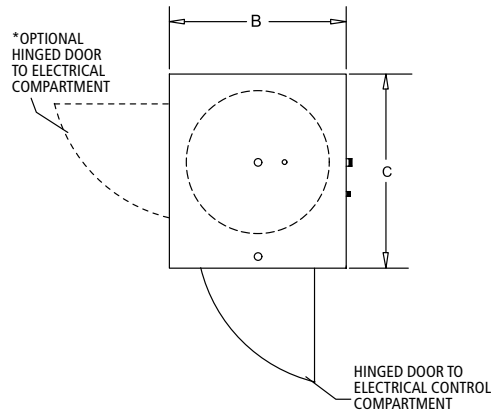
TOP VIEW



## Vertical Square Models 1250-2500

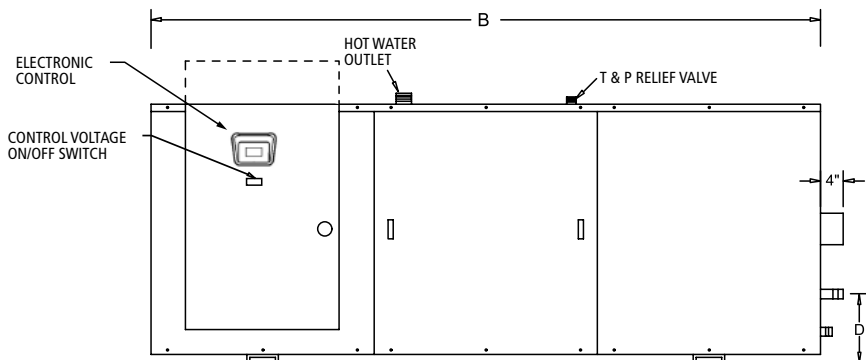


TOP VIEW

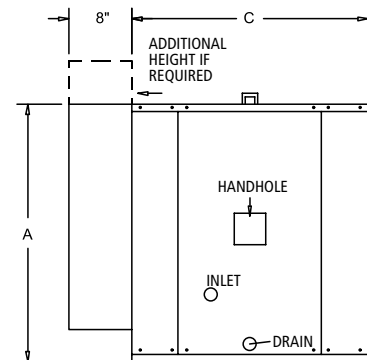


\*An oversized control panel may be required on models with inputs above 72 kW. An oversized control panel may increase the width and depth of the square jacket by up to 2".

## Horizontal Models



A & D ELEVATION FROM FINISHED FLOOR



END VIEW

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



# Commercial Electric Water Heaters

MODEL NUMBER	MAX. KW	TANK CAPACITY		DIMENSIONS								WATER CONNECTION		SHIPPING WEIGHT	
				A		B		C		D		INLET OPENINGS	OUTLET OPENINGS		
		USG	LITRE	INCHES	CM	INCHES	CM	INCHES	CM	INCHES	CM	IN (NPT)	IN (NPT)	LB	KG
<b>VERTICAL ROUND ELECTRIC STORAGE HEATER</b>															
DVE-150A	144	150	568	65-1/2	166	32	81	38-3/4	98	11-3/4	30	1-1/2	1-1/2	650	295
DVE-200A	180	200	757	78	198	32	81	38-3/4	98	11-3/4	30	1-1/2	1-1/2	750	340
DVE-250A	216	250	946	92	234	34	86	40-3/4	104	19-1/4	49	1-1/2	1-1/2	1,165	528
DVE-300A	270	300	1,136	80	203	40	102	46-3/4	119	20-3/4	53	2	2	1,350	612
DVE-400A	324	400	1,514	80	203	46	117	52-3/4	134	22-1/4	57	2	2	1,590	721
DVE-500A	396	500	1,893	92	234	46	117	52-3/4	134	22-1/4	57	2	2	1,700	771
DVE-600A	396	600	2,271	92	234	52	132	60-3/4	154	24-1/4	62	2-1/2	2-1/2	2,010	912
DVE-800A	396	750	2,839	104	264	52	132	60-3/4	154	24-1/4	62	2-1/2	2-1/2	2,450	1,111
DVE-1000A	396	950	3,596	128	325	52	132	60-3/4	154	24-1/4	62	2-1/2	2-1/2	3,160	1,433
<b>VERTICAL SQUARE ELECTRIC STORAGE HEATER</b>															
DVE-1250A	900	1,250	4,732	132-1/2	337	64-1/2	164	64-1/2	164	23-1/4	59	3	3	3,560	1,615
DVE-1500A	900	1,500	5,678	128-1/2	326	70-1/2	179	70-1/2	179	25-1/4	64	3	3	4,120	1,869
DVE-2000A	900	2,000	7,571	124-1/2	316	78-1/2	199	78-1/2	199	27	69	3	3	4,350	1,973
DVE-2500A	900	2,500	9,464	146-1/2	372	82-1/2	210	82-1/2	210	29	74	3	3	5,750	2,608
<b>HORIZONTAL SQUARE ELECTRIC STORAGE HEATER</b>															
DHE-150A	144	150	568	37	94	68-1/2	174	34-1/4	87	12	31	2	2	1,180	535
DHE-200A	180	200	757	37	94	78	198	34-1/4	87	12	31	2	2	1,370	621
DHE-250A	225	250	946	39	99	90-1/4	229	36-1/4	92	13	33	2	2	1,450	658
DHE-300A	270	300	1,136	45	114	78-1/4	199	42-1/4	107	14-3/4	37	2	2	1,530	694
DHE-400A	324	400	1,514	52	132	78-1/4	199	48-1/4	123	16	41	2	2	1,750	794
DHE-500A	450	500	1,893	52	132	90-3/4	231	48-1/4	123	16	41	2	2	1,860	844
DHE-600A	540	600	2,271	58	147	90-3/4	231	54-1/4	138	13-1/2	34	2-1/2	2	2,340	1,061
DHE-800A	720	750	2,839	58	147	102-1/4	260	54-1/4	138	13-1/2	34	2-1/2	2	2,850	1,293
DHE-1000A	900	950	3,596	58	147	126-1/4	321	54-1/4	138	13-1/2	34	2-1/2	2	3,040	1,379
DHE-1250A	900	1,250	4,732	64	163	130-1/4	331	60-1/4	153	15	38	3	3	3,750	1,701
DHE-1500A	900	1,500	5,678	70	178	126-1/4	321	66-1/4	168	16	41	3	3	4,340	1,969
DHE-2000A	900	2,000	7,571	82	208	123-1/4	313	78-1/4	199	14	36	3	3	4,580	2,077
DHE-2500A	900	2,500	9,464	82	208	144-1/4	366	78-1/4	199	16-1/2	42	3	3	6,060	2,749

For inputs not listed, consult the factory.



# Commercial Electric Water Heaters

KW INPUT	GPH 100°F RISE	BTU/h EQUIVALENT	MAX. NO. OF ELEMENTS	NO. OF CONTROL STEPS	KW PER ELEMENT	NO. OF CONTACTORS 240/480V	SUGGESTED MODULATING CONTROL STEPS 240/480V	AMPERAGE DRAW					
								SINGLE PHASE		THREE PHASE			
								208V	240V	208V	240V	480V	600V
15	62	51,180	1	1	15	2/1		72	63	42	36	18	15
18	74	61,416	1	1	18	2/1		87	75	50	44	22	18
30	123	102,360	2	1	15	2/1		144	125	83	72	36	29
36	148	122,832	2	1	18	4/2	4/2	174	150	100	87	44	35
45	185	153,540	3	1	15	3/2	3/2	216	188	125	108	54	44
54	221	184,248	3	1	18	6/2	3/2	260	225	150	130	65	52
60	246	204,720	4	2	15	12/6	4/3	289	250	167	144	72	58
72	295	245,664	4	2	18	8/4	4/4	Not Recommended	Not Recommended	200	174	87	70
90	369	307,080	5	2	18	6/3	3/3			250	217	109	87
108	443	368,496	6	2	18	12/4	4/4			300	260	130	104
120	492	409,440	8	3	15	8/4	4/4			333	289	144	116
135	554	460,620	9	3	15	9/6	4/4			375	325	162	130
144	590	491,328	8	3	18	16/8	4/4			400	347	174	139
162	664	552,744	9	3	18	18/6	8/6			450	389	195	156
180	738	614,160	10	4	18	20/10	8/8			500	434	217	174
216	886	736,992	12	4	18	24/8	8/8			600	519	260	208
234	959	798,408	13	5	18	26/13	8/8			650	563	282	226
252	1,033	859,824	14	5	18	28/14	8/8			700	607	304	243
270	1,107	921,240	15	5	18	30/10	12/10			750	649	325	260
288	1,181	982,656	16	6	18	32/16	12/12			800	692	347	278
306	1,255	1,044,072	17	6	18	34/17	12/12			850	736	368	295
324	1,328	1,105,488	18	6	18	36/12	12/12			900	780	390	312
342	1,402	1,166,904	19	7	18	38/19	12/12			950	822	412	330
360	1,476	1,228,320	20	7	18	40/20	12/12			1,000	865	435	347
378	1,550	1,289,736	21	7	18	42/14	14/14			1,050	909	455	364
396	1,624	1,351,152	22	8	18	44/22	15/16			1,100	952	477	381
414	1,697	1,412,568	23	8	18	46/23	16/16			1,150	995	498	399
432	1,771	1,473,984	24	8	18	48/16	16/16			1,200	1,040	520	416

For inputs not listed, 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.

## 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 and 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 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 888-599-2837. A. O. Smith Enterprises Ltd. reserves the right to make product changes or improvements without prior notice.