

CANADA
Commercial Catalogue

Water Heaters, Hot Water Supply Boilers, Storage Tanks,
Tankless and Specialty Products



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Innovation Has A Name

It should come as no surprise that a company that has built its reputation on the concept of innovation, continues to lead the industry with the broadest—and, yes, the most innovative selection of water heaters and hot water supply boilers in its long and storied history.

What *might* come as a surprise to some is the fact that we view this accomplishment as a mere beginning—an indication of even greater things still to come. For everyone here at A. O. Smith, it's never been just about exceeding what we had achieved in the past—it's always been about exceeding everyone's expectations for the future. Which is why you, our customers, can count on us to provide you with the perfect water heater solution for any application—day after day, year after year.

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A high-efficiency water heater for any high-volume job.

A. O. Smith offers a range of high-efficiency commercial water heaters that can help save on energy costs and still deliver the reliable, powerful performance needed to serve any commercial application—even when the odds might seem stacked against it.

To find out more visit
hotwatercanada.ca

A O Smith
Innovation has a name.



80% thermal efficient - approved for use in combined appliance applications.

Conservationist™ Power Vent BTF Model

CFC-Free Foam Insulation

- Minimizes radiant heat loss

Dip Tube

- Carries inlet water deep into tank

Hot Surface Ignition

- Solid state ignition surface that does not flutter or blow out
- Provides increased reliability and efficiency over spark ignition systems
- Eliminates the pilot and saves energy

User-Friendly

- State-of-the-art electronic gas control provides more precise temperature control
- LED control light displays operation status and diagnostic information

Blue Diamond® Glass Coating

- Provides superior corrosion resistance compared to the industry standard glass lining

Anode

- Tank-mounted, screw-in magnesium anode for longer tank life

High-Input

- 76,000 BTU input assures plenty of hot water is available by providing faster recovery rates and higher first hour draws

Burner

- High-input, multi-port burner for improved combustion efficiency

Enhanced-Flow Brass Drain Valve

- Solid brass, tamper resistant, enhanced-flow, ball type drain valve
- Uses a standard female hose fitting that allows for fast and easy draining during maintenance
- Designed for easy operation, this valve includes an integral screwdriver slot that features a ¼ turn (open/close) radius, which not only permits full straight-through water flow but also a quick and positive shut off

Powered Venting

- Provides more venting flexibility and savings. A new quiet blower allows exhaust venting through the roof or sidewall with plastic pipe such as ULC S636 PVC, CPVC or polypropylene
- Up to 125 equivalent feet of pipe makes installation easy in any situation
- BTF-80 is a Category 3 (positive pressure non-condensing) appliance

Factory-Installed Temperature and Pressure Relief Valve

- Properly sized for each model (Specify if your local code requires a special T&P)

3-Year Limited Tank/1-Year Limited Parts Warranty



MODEL	CAPACITY USG (L)	INPUT BTU/h	MAXIMUM CERTIFIED ALTITUDE FT (M)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
BTF-80	75 (284)	76,000	10,100 (3,078)	74 (280)	70 5/8 (179)	26 (66)	277 (126)



Conservationist™ Atmospheric Vent BT Models

80% thermal efficiency, ideal for light-duty applications.



BT models provide reliable, efficient service for light-duty applications such as office buildings and duplex/fourplex apartment homes.

Heavy Gauge Steel Jacket

- Finished with baked enamel over bonderized undercoat

Glass-Lined Tank

- Protects steel tank from corrosion and maximizes tank life

Fully Automatic Controls with Safety Shut Off

- Accurate, dependable control system requires no electric connections
- Fixed automatic gas shut off device for added safety
- Temperature adjustable up to 181°F

Draft Diverter

- Low profile diverter furnished as standard equipment

Hand Hole Clean Out

- Allows for easy tank cleaning

Foam Insulation

- Saves fuel and helps reduce standby heat loss

Maximum Working Pressure

- 150 psi

Maximum Gas Inlet Pressure

- 14" W.C.

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1
- CSA certified and ASME rated T&P relief valve
- Not recommended for sanitation rinse

3-Year Limited Tank/1-Year Limited Parts Warranty



MODEL	CAPACITY USG (L)	INPUT BTU/h	MAXIMUM CERTIFIED ALTITUDE FT (M)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
BT-80	74 (280)	75,100	7,700 (2,347)	73 (275)	61 1/8 (155)	26 1/2 (67)	275 (125)
BT-100	98 (371)	75,100	7,700 (2,347)	73 (275)	68 3/8 (174)	27 3/4 (71)	350 (159)

80% thermal efficiency,
self-cleaning, easy-to-install.

Master-Fit® Atmospheric Vent BTRC Models

Factory-Installed Draft Diverter and Flue Damper (BTRC 120-400 models)

- Low-profile draft diverter helps for installation in tight spaces
- Automatic motorized flue damper helps minimize standby heat loss
- BTRC 500 model features induced draft design and no damper

Water Connections

- For ease of installation, most models feature water connections on the front, top or rear of unit

PermaGlas® Ultra Coat™ Glass Lining

- Exclusive process provides superior protection against corrosion
- Applied after tank construction, the tank is mechanically maneuvered to ensure the liquid glass covers all surfaces for superior protection

CoreGard™ Anode Rod

- Stainless steel core provides additional corrosion protection

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1

Factory-Installed, CSA Certified and ASME Rated T&P Relief Valve

- Properly sized for each model

Fully Automatic Control System

- Manual reset gas shut off device prevents excessive water temperature
- Adjustable thermostat with 120°F–180°F range
- Gas pressure regulator and pilot filter

Hand Hole Clean Out

- Allows easy access to tank interior for cleaning

Category I Appliance

- Can be commonly vented with other Category I appliances, using standard metal type "B" vent
- Optional power vent kits available to allow sidewall venting up to 100 equivalent feet

BTRC 120-200 P/N 197515-000;
BTRC 250-500 P/N 197515-001

Eliminator™ Self Cleaning System

- Directs incoming cold water to sweep the bottom of the tank so sediment does not accumulate
- Reduced sediment build-up maintains rated thermal efficiency and reduces water heating costs



Approved to NSF Standard 5
with Optional Leg Kit

3-Year Limited Tank/1-Year Limited Parts Warranty

MODEL	CAPACITY USG (L)	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT* IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)	
							STD	ASME
BTRC-120	71 (268)	120,000	116 (439)	5	69 3/4 (177)	27 3/4 (71)	512 (232)	-
BTRC-154	81 (307)	154,000	149 (564)	6	73 (185)	27 3/4 (71)	552 (250)	-
BTRC-180	76 (288)	180,000	174 (659)	6	67 1/2 (171)	27 3/4 (71)	576 (261)	-
BTRC-197	95 (360)	199,000	193 (731)	6	75 (191)	27 3/4 (71)	645 (293)	-
BTRC-199	76 (288)	199,000	193 (731)	6	67 1/2 (171)	27 3/4 (71)	592 (269)	-
BTRC-200A	100 (379)	199,000	193 (731)	6	72 (183)	30 1/4 (77)	-	715 (324)
BTRC-250A	100 (379)	250,000	242 (916)	8	72 (183)	30 1/4 (77)	-	715 (324)
BTRC-251(A)	65 (246)	251,000	243 (920)	8	75 (191)	27 3/4 (71)	660 (299)	661 (300)
BTRC-275A	100 (379)	275,000	267 (1,011)	8	72 (183)	30 1/4 (77)	-	721 (327)
BTRC-305(A)	65 (246)	305,000	296 (1,120)	8	75 (191)	27 3/4 (71)	659 (299)	672 (305)
BTRC-365(A)	65 (246)	365,000	349 (1,321)	8	79 1/2 (202)	27 3/4 (71)	670 (304)	661 (300)
BTRC-400A	100 (379)	390,000	387 (1,465)	8	75 1/2 (192)	30 1/4 (77)	-	844 (383)
BTRC-500A	85 (322)	500,000	479 (1,813)	8	81 1/2 (207)	27 3/4 (71)	-	824 (374)

(A) - Available with ASME tank construction

* Height to top of drafthood
High altitude models also available.

Master-Fit®

Cyclone™ MXi Modulating BTH Gas Models

Modulating burner advances the Cyclone to higher levels of efficiency.



Cyclone MXi MODULATING

The full line of A. O. Smith Cyclone MXi condensing water heaters have been designed to provide years of dependable service and feature industry leading technology. Models are available from 120,000 to 500,000 BTU/h and all deliver thermal efficiencies of 95% and higher. The unique helical coil heat exchanger limits weld joints for optimal service life while maximizing heat transfer.

Cyclone is the industry leader in high efficiency commercial water heating with over a quarter million sold since 1996. The MXi modulating models adjust firing rate to the specific demand further increasing efficiency and money savings.

Submerged Combustion Chamber with Helical Heat Exchanger Coil

- Positioned in center of tank, surrounded by water to virtually eliminate radiant heat loss from chamber
- Direct spark ignition for years of worry free operation
- Spiral heat exchanger keeps hot burner gases swirling and uses centrifugal force to maximize efficiency of heat transfer to water in tank
- Spiral heat exchanger reduces lime scale from forming on water-side surfaces, which maintains energy efficiency over time

Intelligent Control System with Touchscreen Display

- Exclusive A. O. Smith designed control system
- Provides detailed water heater status information
- Precise temperature control adjustable from 90°F to 180°F
- Built-in diagnostics
- Run history information
- Models manufactured March 1, 2018 and later come standard with iCOMM™ Wi-Fi connectivity on-board to monitor remotely using the A. O. Smith app
- Connect to an existing building management system via BACnet or MODBUS with optional ICC gateway

Powered Anodes Standard on All Models

- Provides long-lasting tank protection in varying water conditions
- Powered anodes are non-sacrificial
- Automatically adjusts output needed to properly protect the tank

ASME
(OPTIONAL)



1.888. WATER02

Cyclone™ MXi Modulating BTH Gas Models

Mechanical Venting Versatility

- Flexibility of conventional power venting or direct venting vertically or through a sidewall
- For added flexibility, easy install and access, the exhaust and condensate connections are located in the front of the heater
- Installations require ULC S636 PVC, CPVC, polypropylene or AL29-4C stainless steel pipe for exhaust

Common Venting

- Allows a maximum of 3 heaters to be common vented with sidewall termination (vertical termination is not permitted)
- Reduce install labour with fewer wall cuts
- Kits are available in PVC or polypropylene vent material (1 kit per heater installed)
- Direct vent configuration up to a maximum of 50 equivalent feet



PermaGlas® Ultra Coat™ Glass Lining

- Glass coating is applied using a liquid slush process to ensure uniform coverage - applied after all welding is complete to provide less opportunity for leaks
- Heat exchanger coil is glassed both externally and internally for optimum protection

High Efficiency Modulating Pre-Mix Powered Burner

- Down-fired pre-mix burner provides optimum efficiency and quiet operation
- Top-mounted burner position prevents condensation from affecting burner operation

Space-Saving Design for Installation Flexibility

- Reduced footprint, ease of service, protection from water damage in case of flooding
- Easy to remove top cover for convenient access to serviceable parts
- 0" installation clearances on sides and rear, 1-1/2" installation clearance on top, 4" alcove installation clearance in front hand hole clean out of unit
- Hand hole clean out allows easy access to tank interior for cleaning
- 0" clearance to combustibles, approved for installation on combustible floors

3-Year Limited Tank/1-Year Limited Parts Warranty

MODEL	CAPACITY USG (L)	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)	
							STD	ASME
BTH-120(A)	60 (227)	120,000	138 (523)	3, 4	55 ½ (141)	27 ¾ (71)	460 (208)	490 (220)
BTH-150(A)	100 (379)	150,000	178 (674)	3, 4	76 ½ (195)	27 ¾ (71)	523 (237)	553 (251)
BTH-199(A)	100 (379)	199,000	235 (890)	3, 4	76 ½ (195)	27 ¾ (71)	523 (237)	553 (251)
BTH-250(A)	100 (379)	250,000	291 (1,101)	3, 4	76 ½ (195)	27 ¾ (71)	523 (237)	553 (251)
BTH-300A	119 (451)	300,000	349 (1,321)	4, 6	75 ¾ (192)	33 ⅛ (84)	-	855 (387)
BTH-400A	119 (451)	399,900	460 (1,743)	4, 6	75 ¾ (192)	33 ⅛ (84)	-	855 (387)
BTH-500A	119 (451)	499,900	576 (2,179)	4, 6	75 ¾ (192)	33 ⅛ (84)	-	855 (387)

(A) - Available with ASME tank construction

Cyclone™ Xi™

BTX and BTXL Gas Models

Available up to 96% thermal efficiency, venting flexibility, outstanding value.



The Cyclone Xi is a light-duty, power direct vent, fully condensing commercial gas water heater with an internal helical heat exchanger. This helical heat exchanger helps Cyclone Xi achieve 96% thermal efficiency and deliver outstanding hot water output.

ENERGY STAR® Qualified

Submerged Combustion Chamber, with Helical Heat Exchanger Coil

- Positioned in center of tank, surrounded by water to virtually eliminate radiant heat loss from chamber
- Spiral heat exchanger reduces the accumulation of lime scale, to help maintain higher efficiency performance over time

PermaGlas® Ultra Coat™ Glass Lining

- Exclusive process provides superior corrosion protection
- Both sides of heat exchanger coil are lined for protection against flue gas condensate inside coil

Advanced Electronic Control System with Touchscreen Display

- Precise temperature control
- Connect to an existing building management system via BACnet or MODBUS with optional ICC gateway
- Built-in diagnostics

Venting Options

- Uses inexpensive ULC S636 PVC, CPVC or polypropylene pipe vertically through the roof or horizontally through the wall (see instruction manual for complete venting instructions and allowable vent lengths)
- Optional concentric vent and sidewall termination kits available

Side-Mounted Hot and Cold Recirculating Taps

- Allows Cyclone Xi to be installed as part of combination space heating/water heating applications
- Plugs for the recirculating taps are factory installed

3-Year Limited Tank/1-Year Limited Parts Warranty

ASME
(OPTIONAL)



MODEL	CAPACITY USG (L)	INPUT BTU/h	MAXIMUM CERTIFIED ALTITUDE FT (M)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
BTX-100	50 (189)	100,000	10,100 (3,078)	116 (439)	2, 3	66 ¾ (170)	22 (56)	255 (116)
BTXL-100	75 (284)	100,000	10,100 (3,078)	116 (439)	2, 3	65 ¼ (166)	27 ¾ (71)	382 (173)

76,000 BTU, 94%
thermal efficiency.

Cyclone™ HE™ BTX-80

The 50-gallon light-duty power vent Cyclone HE is designed to produce more hot water than any commercial gas water heater in its class. Thanks to the internal helical heat exchanger—similar to the design of the industry-leading Cyclone MXi and Xi™ models—the unit achieves 94% thermal efficiency. With its small footprint and easy installation, the Cyclone HE delivers heavy-duty performance for light-duty applications, making it the perfect choice for restaurants, offices and other light-duty applications.

Helical Coil Heat Exchanger

- Submerged heat exchanger provides much greater heat transfer surface than standard straight flue tube
- Produces 94% thermal efficiency, which saves money on operating costs and increases hot water output compared to standard-efficiency water heaters

Versatile Power Vent Design

- System allows combined vertical and horizontal vent runs using ULC S636 PVC or CPVC pipe

Modular Blower

- PVC Vent Sound Silencer (VSS) supplied for applications where extra-quiet operation is essential
- Condensate drain supplied

High-Output with Small Footprint

- 22" diameter, combined with 94% efficiency and 76,000 BTU input means the Cyclone HE can be installed in less space than a larger 75-gallon unit with equal or better performance

Blue Diamond® Glass Coating

- Provides superior corrosion resistance compared to industry standard glass lining

Intelli-Vent™* Gas Control

- Equipped with long-lasting silicon nitride hot surface igniter—no standing pilot
- Advanced electronics for more precise control of water temperature and simplified system diagnostics
- 181°F maximum temperature setting

Side-Mounted Hot and Cold Recirculating Taps

- Allows Cyclone HE to be installed as part of combination space heating/water heating applications, or any system requiring a recirculating hot water loop
- Plugs for the recirculating taps are factory-installed

Two Heavy-Duty Anode Rods

- Provide advanced corrosion protection

*Intelli-Vent™ is a trademark of Emerson Electric Company



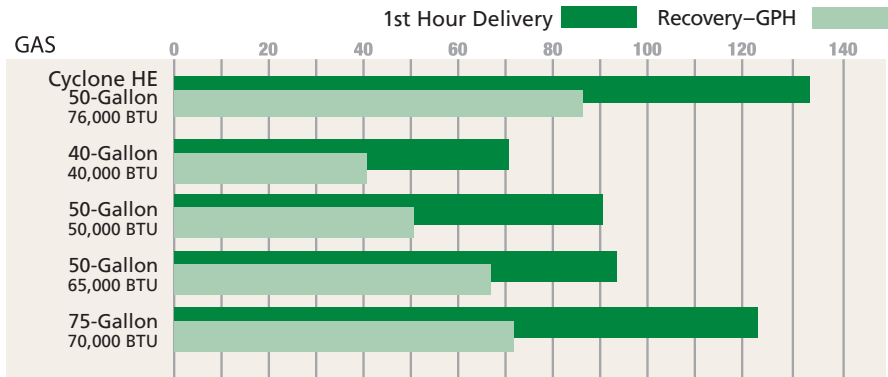
Superior Heat Transfer

By utilizing the innovative internal heat exchanger coil, the Cyclone® HE™ provides superior heat transfer capabilities, resulting in an unprecedented 94% thermal efficiency, far beyond a standard water heater design. Gallon for gallon, the Cyclone HE will heat water for significantly less, resulting in substantial savings on energy costs.

With as much power as larger water heaters in a standard 50-gallon footprint, the Cyclone HE is the natural choice for upgrading during a renovation. And the versatile power vent design allows combined vertical and horizontal vent runs of up to 128 equivalent feet. Cyclone HE provides superior savings on energy costs.



The classic Cyclone helical heat exchanger coil delivers 94% thermal efficiency.



MODEL	CAPACITY USG (L)	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
BTX-80	50 (189)	76,000	86 (325)	71 1/8 (180)	22 (56)	225 (102)

SUGGESTED SPECIFICATION

Natural Gas water heater(s) shall be A. O. Smith Cyclone® HE™ model BTX-80, with 94% thermal efficiency, a storage capacity of 50 gallons, an input rating of 76,000 BTU per hour, a recovery rating of 86 gallons per hour at 100°F rise and a maximum hydrostatic working pressure of 150 psi. Water heater(s) shall be of power vent design using 2", 3" or 4" ULC S636 PVC or CPVC pipe for horizontal and/or vertical vent runs.

3-Year Limited Tank/1-Year Limited Parts Warranty

Polaris™

Stainless Steel PC Models

For small space installations and aggressive water conditions.

Efficiency, installation flexibility and maximum durability all in one with condensing gas modulation, a small footprint and a stainless steel tank!

Advanced Electronic Control

- Large touchscreen display
- Precise temperature control
- Advanced water heater status and diagnostics using easy to read text and animated icons

Side-Mounted Hot and Cold Recirculating Taps

- For installations with a recirculation system or as part of a combined domestic hot water and space heating system

Condensing Design

- Helical coil heat exchanger keeps hot combustion gases in the tank longer to transfer more heat into the water
- Up to 96% thermal efficiency

Modulating Gas Burner

- Maintains high efficiency operation at lower input rates

Stainless Steel Construction

- Tank and heat exchanger are made of high-grade 444 stainless steel to resist the harmful effects of water and increase the life of the heater

3-Year Limited Tank/1-Year Limited Parts Warranty



MODEL	CAPACITY USG (L)	INPUT BTU/h	MAXIMUM CERTIFIED ALTITUDE FT (M)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
PC 34-130	34 (129)	130,000	7,700 (2,437)	149 (562)	2 or 3	48 ½ (123)	22 (56)	150 (68)
PC 34-150	34 (129)	150,000	7,700 (2,437)	171 (649)	2 or 3	48 ½ (123)	22 (56)	150 (68)
PC 50-130	50 (189)	130,000	7,700 (2,437)	149 (562)	2 or 3	62 ¾ (158)	22 (56)	176 (80)
PC 50-150	50 (189)	150,000	7,700 (2,437)	171 (649)	2 or 3	63 ¾ (162)	22 (56)	180 (82)
PC 50-175	50 (189)	175,000	7,700 (2,437)	200 (757)	3	63 ¾ (162)	22 (56)	180 (82)
PC 50-199	50 (189)	199,000	7,700 (2,437)	227 (861)	3	63 ¾ (162)	22 (56)	180 (82)

TX1 Integrated Tankless on Tank

The 2 in 1 solution.



An integrated tank and tankless solution, TX1 meets small to medium commercial applications providing the virtually endless hot water benefit of tankless and the dump load capacity benefit of a storage tank.

Integrated ACT-199 Condensing Tankless

- Delivers 96% thermal efficiency
- Modulating burner
- Commercial grade copper primary heat exchanger provides better heat transfer than stainless steel
- 185°F maximum temperature set point
- With the heat engine outside the tank, thermal stress is eliminated resulting in longer tank life

119 Gallon Storage Tank

- PermaGlas® Ultra Coat™ liquid slush glass lining covers all tank surfaces and is applied after welding for less opportunity for leaks
- Multiple anodes protect the tank
- Front water inlet and top water outlet

Commercial-Grade Components

- 4.1 GPM pump
- Advanced electronic control
- Factory installed T&P and pressure relief valves

**6 Year Limited Heat Exchanger/6 Year Limited Tank/
5 Year Limited Parts Warranty**



ANSI/NSF 5

MODEL	CAPACITY USG (L)	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
ATX-199	119 (451)	199,000	232 (878)	3 or 4	72 (183)	41 (104)	520 (236)



Powered burner models provide thermal efficiencies of 80%.

Small Volume Power Burner BTP Gas Models

These gas powered burner models provide an outstanding thermal efficiency of 80% or more and are suitable for small to medium-sized commercial applications.

Small-Volume BTP Quality Features

- UL listed power burner
- ASME construction
- Factory-installed ASME-rated T&P valve properly sized for each model
- Hand hole clean outs for easy maintenance
- Fully automatic controls ensure safe, efficient operation
- Barometric draft damper ensures correct air flow in the vent
- Professional start-up provided
- Mounted on rugged channel iron skids for easy transport during installation
- Multiple anodes for extra protection against tank corrosion
- Flame inspection port opening for visual inspection of flame characteristics during operation
- Spark pilot ignition
- Factory-installed burner for easy installation

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1

3-Year Limited Tank/1-Year Limited Parts Warranty

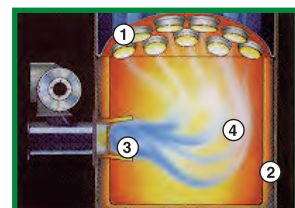
- Factory start-up is required to validate warranty

Options

- 3 vent options: atmospheric, sidewall and direct-vent (to be specified at time of order)

Shown here is the powered burner combustion chamber used in the BTP(V)-540A, BTP(V)-650A and BTP(V)-740A models. These models can vent through a sidewall up to 100 equivalent feet without an external blower.

1. **Exclusive PermaGlas® Ultra Coat™ Glass-Lined Tank** protects tank surfaces and all welds from the corrosive effects of hot water.
2. **Patented Dome Combustion Chamber** ensures optimum flue loading and efficient heat transfer by balancing pressure inside combustion chamber.
3. **Pre-mix Combustion System** provides super clean low-NOx flame. Helps eliminate hot spots and uneven heat transfer.
4. **Sealed Combustion Chamber** reduces heat loss.



MODEL	CAPACITY USG (L)	INPUT BTU/h	FIRST HOUR RATING GPH (LPH)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
BTP(V)-540A	85 (322)	540,000	583 (2,207)	523 (1,980)	9	80 3/4 (205)	29 1/2 (75)	950 (431)
BTP(V)-650A	85 (322)	650,000	690 (2,612)	630 (2,385)	9	80 3/4 (205)	29 1/2 (75)	950 (431)
BTP(V)-740A	85 (322)	740,000	778 (2,945)	718 (2,718)	9	80 3/4 (205)	29 1/2 (75)	950 (431)

(V) - Available for Sidewall Vent or Direct Vent



ACT-199 Condensing and 910 Non-Condensing Tankless Models

Endless hot water*. Compact Size.
Energy Conservation.



ACT-199



910



A. O. Smith commercial tankless water heaters will provide a steady flow of hot water for as long as your application needs it in the most energy efficient way possible. Because our tankless water heaters only activate when hot water is being used, no standby energy losses are incurred providing efficient heating and conserving gas energy. On top of all this, an A. O. Smith tankless water heater takes up much less space than conventional tank-type water heaters or boilers allowing for additional storage space and flexibility.

Commercial Grade Copper Heat Exchanger

- Stronger than regular copper (C1220) and transfers heat faster than stainless steel
- Resilient against erosion

Energy Efficient

- Units only heat the water being used so there is no standby energy loss

Venting Flexibility (ACT-199 Only)

- Gasket inside metal vent collar means no gluing or cutting vent materials for easy installation
- Approved with ULC S636 PVC, CPVC, polypropylene or Cat. III/IV stainless steel pipe

Commercial Temperature Setting

- 185°F maximum temperature set point for applications that require high temperature output

Boiler Replacement Option

- 910 models feature two heat exchangers that provide redundancy; so if one breaks there is still hot water

Multiple Unit Installation

- Easy Link – Up to 4 units with no additional accessories
- Multi Link – Up to 20 units for CT-199 and up to 10 units for 910 using TM-MC02 system controller

Dual Internal Freeze Protection

6-Year Limited Heat Exchanger/5-Year Limited Parts Warranty

MODEL	INPUT BTU/h		THERMAL EFFICIENCY	FLOW RATE GPM		HEIGHT IN (CM)	WIDTH IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
	MINIMUM	MAXIMUM		30°F RISE	70°F RISE				
ACT-199 CONDENSING									
ACT-199	13,000	199,000	96%	10.0	5.4	23 5/8 (60)	17 3/4 (45)	11 1/4 (29)	71 (32)
910 NON-CONDENSING									
ATI-910(A)	15,000	380,000	80% (NG) 82% (LP)	14.5	8.7	25 1/4 (64)	24 7/8 (63)	12 1/4 (31)	112 (51)

*When sized appropriately.

(A) – ASME version available

Pre-built to fit your application.

Tankless Rack System

A fully integrated system of tankless units on wall mount, in-line or back-to-back free standing racks. Designed to reduce installation time and expense while providing a clean, professional look.

Commercial Performance

- Uses the ACT-199 model with 96% thermal efficiency
- 185°F maximum temperature set point

Lightweight

- Sturdy metal frame for easy maneuverability
- Utilizes the industry's lightest 199,000 BTU high efficiency condensing tankless heater

Expandable

- Multiple design and installation configurations
- Up to 1,194,000 BTU on a single rack system
- Able to link up to 20 heaters together with multi-link system (required for systems totaling more than 4 tankless units)

Redundancy

- Multiple combustion systems provide peace of mind
- Easily isolate a unit for maintenance without shutting down

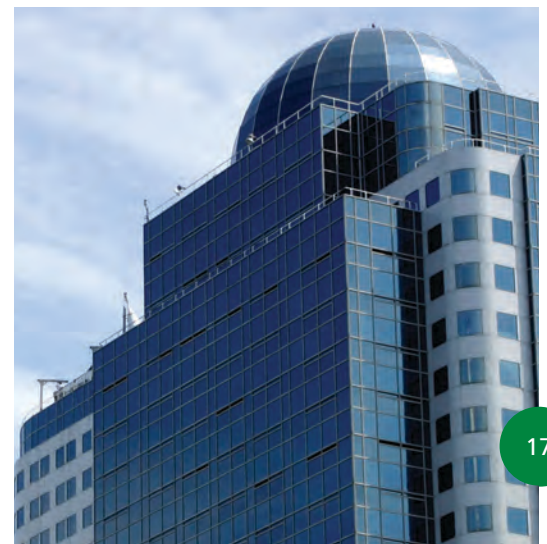
Easy Field Installation

- Reduce installation costs with three simple connections (cold water, hot water, and gas)

Easily Integrate Storage

- A. O. Smith offers a large variety of storage tanks to easily integrate storage capacity into the design

6 Year Limited Heat Exchanger/5 Year Limited Tankless Parts/1 Year Limited Rack Parts Warranty
















Tankless Rack System

Pre-built to fit your application.

Common Venting

- Easily vent multiple tankless units in a clean, professional installation
- Fewer wall penetrations
- Heaters don't de-rate when common vented
- Able to use Schedule 40 ULC S636 PVC on intake and exhaust
- More design flexibility

MODEL	DESCRIPTION	CONFIGURATION	GAS INPUT		MAX GPM @ 100°F*	DIMENSIONS IN (CM)			APPROX. SHIPPING WEIGHT LB (KG)
			MINIMUM BTU/h	MAXIMUM BTU/h		LENGTH IN (CM)	WIDTH IN (CM)	HEIGHT IN (CM)	
ACI-CRS-22WM-N	2 Unit Indoor Wall Mount Natural Gas		15,000	398,000	7.6	46 (117)	13 (33)	57 (145)	240 (109)
ACI-CRS-23WM-N	2 Unit Indoor Wall Mount Natural Gas		15,000	398,000	7.6	66 (168)	13 (33)	57 (145)	250 (113)
ACI-CRS-33WM-N	3 Unit Indoor Wall Mount Natural Gas		15,000	597,000	11.4	66 (168)	13 (33)	57 (145)	350 (159)
ACI-CRS-24IL-N	2 Unit Indoor Inline Natural Gas		15,000	398,000	7.6	46 (117)	30 ½ (77)	53 (135)	265 (120)
ACI-CRS-26IL-N	2 Unit Indoor Inline Natural Gas		15,000	398,000	7.6	66 (168)	30 ½ (77)	53 (135)	285 (129)
ACI-CRS-24B2B-N	2 Unit Indoor Back-To-Back Natural Gas		15,000	398,000	7.6	46 (117)	30 ½ (77)	53 (135)	265 (120)
ACI-CRS-36IL-N	3 Unit Indoor Inline Natural Gas		15,000	597,000	11.4	66 (168)	30 ½ (77)	53 (135)	387 (176)
ACI-CRS-34B2B-N	3 Unit Indoor Back-To-Back Natural Gas		15,000	597,000	11.4	46 (117)	30 ½ (77)	53 (135)	480 (218)
ACI-CRS-36B2B-N	3 Unit Indoor Back-To-Back Natural Gas		15,000	597,000	11.4	66 (168)	30 ½ (77)	53 (135)	510 (231)
ACI-CRS-44B2B-N	4 Unit Indoor Back-To-Back Natural Gas		15,000	796,000	15.2	46 (117)	30 ½ (77)	53 (135)	580 (263)
ACI-CRS-46B2B-N	4 Unit Indoor Back-To-Back Natural Gas		15,000	796,000	15.2	66 (168)	30 ½ (77)	53 (135)	620 (281)
ACI-CRS-56B2B-N	5 Unit Indoor Back-To-Back Natural Gas		15,000	995,000	19	66 (168)	30 ½ (77)	53 (135)	741 (336)
ACI-CRS-66B2B-N	6 Unit Indoor Back-To-Back Natural Gas		15,000	1,194,000	22.8	66 (168)	30 ½ (77)	53 (135)	800 (363)

*Current numbers based on factory testing; 0.5 GPM required for activation; 0.4 GPM required for continuous fire after initial ignition. Propane models available. Change N to P in the model number.

COF models provide thermal efficiencies up to 82%.

Oil-Fired Small-Volume Models

Our COF-199 and larger models have an optional two-stage pump for use with below-grade oil storage tanks. Features include two hand hole clean outs for easy servicing.

Small-Volume COF Quality Features

- For small to medium-sized applications
- UL listed oil burner
- 180°F adjustable thermostat
- Single-stage oil pump for simple, efficient operation
- Solenoid oil valve (standard on COF-455, COF-700)
- 3/4" drain valve
- 1/8 HP motor
- Factory-installed ASME-rated T&P valve properly sized for each model
- Two hand hole clean outs (COF-385 and larger, and ASME models) for easy maintenance
- Barometric draft regulator provided for proper operation, ensures correct flow in the vent
- Foam insulation
- Intermittent ignition
- Anodic protection for longer tank life
- Flame observation port
- Glass-lined tank with 160 psi maximum working pressure
- Professional start-up provided

3-Year Limited Tank/1-Year Limited Parts Warranty

- Factory start-up is required to validate warranty

Options

- Two-stage pump for use with underground oil storage tanks
- Oil solenoid safety valve
- ASME construction available on models COF-315 and larger



MODEL	CAPACITY USG (L)	INPUT* BTU/h	MAXIMUM CERTIFIED ALTITUDE FT (M)	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	HEIGHT IN (CM)	DIAMETER IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)	
								STD	ASME
COF-199	86 (326)	199,000	2,000 (610)	191 (723)	74 1/2 (189)	27 3/4 (70)	36 3/4 (93)	553 (251)	-
COF-245	86 (326)	245,000	2,000 (610)	235 (890)	74 1/2 (189)	27 3/4 (70)	36 3/4 (93)	554 (251)	-
COF-315(A)	84 (318)	315,000	2,000 (610)	302 (1,143)	74 1/2 (189)	27 3/4 (70)	36 3/4 (93)	554 (251)	657 (298)
COF-385(A)	75 (284)	385,000	2,000 (610)	369 (1,397)	73 3/4 (187)	27 3/4 (70)	36 3/4 (93)	624 (283)	742 (337)
COF-455(A)	75 (284)	455,000	2,000 (610)	436 (1,650)	73 3/4 (187)	27 3/4 (70)	36 3/4 (93)	700 (318)	747 (339)
COF-700(A)	69 (261)	700,000	2,000 (610)	671 (2,540)	73 3/4 (187)	27 3/4 (70)	36 3/4 (93)	739 (335)	822 (373)

(A) -Available in ASME models
*Based on No. 2 fuel oil

DEN/DEL Electric Dura-Power™ Models



The Dura-Power DEN (standard upright) and DEL (lowboy) series are available with tank capacities from 6 through 119 gallons. They can be installed for non-simultaneous and single-element operation (maximum input up to 6 kW) or for simultaneous dual-element operation (maximum input up to 12 kW). They are designed for use as recovery heaters for light-duty hot water supply service.

Zinc-Plated Copper Sheath Heating Elements Standard

- Medium-watt density design disperses element temperature over larger surface contact area to minimize scale build-up, maximize efficiency and prolong element life
- Element options from 1.5 kW to 6 kW (non-simultaneous or simultaneous operation), recoveries from 6 GPH to 49 GPH at 100°F rise

Standard Voltages for Easy Installation

- 120V, 277V single-phase, and 208V, 240V and 480V unbalanced three-phase delta
- Easily converted to single-phase at terminal block (except for 208V with 6000W elements)
- Single-element heater, single-phase only (see chart for dual-element options)

Factory-Installed Terminal Block

- Supplied on 208V, 240V and 480V models

Factory-Wired Controls

- Temperature control adjustable from 110°F to 170°F on single-element or 120°F to 180°F on dual element models
- Manual reset high temperature cut off per element (dual element models)
- Factory-wired for non-simultaneous operation; easily converted to simultaneous operation (three-phase models only)

Glass-Lined Tank

- Provides long-lasting protection against corrosion
- Equipped with anode rod for additional corrosion protection

Maximum Hydrostatic Working Pressure

- 150 psi for all models

Codes and Standards

- All models meet the standby loss requirements of NRCan

3-Year Limited Tank/1-Year Limited Parts Warranty

For complete information on available configurations, consult spec sheet.

ELEMENT AVAILABILITY												
MODELS & ELEMENTS	VOLTAGE	WIRING	KW INPUT AVAILABLE									
6-GALLON MODELS SINGLE-ELEMENT	120V	-	1.5	2	2.5	3						
	208V	-	1.5	2	2.5	3						
	240V	-	1.5	2	2.5	3						
	277V	-	1.5	2	2.5	3						
10-GALLON THROUGH 20-GALLON MODELS SINGLE-ELEMENT	480V	-		2	2.5	3						
	120V	-	1.5	2	2.5	3						
	208V	-	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
	240V	-	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
30-GALLON THROUGH 120-GALLON MODELS DOUBLE-ELEMENT	277V	-	1.5	2	2.5	3			4	4.5	5	6
	480V	-		2	2.5	3			4	4.5	5	6
	120V	Interlock	1.5	2	2.5	3						
		Simultaneous	3	4	5	†						
	208V	Interlock	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
		Simultaneous	3	4	5	6	7	8	9	10**	11**	†
	240V	Interlock	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
		Simultaneous	3	4	5	6	7	8	9	10	11	12**
	277V*	Interlock	1.5	2	2.5	3			4	4.5	5	6
		Simultaneous	3	4	5	6			8	9	10	12
	480V	Interlock		2	2.5	3			4	4.5	5	6
		Simultaneous		4	5	6			8	9	10	12

6 gallon model not available above 3kW
6/10/15/20 gallon models all A6 circuit (2 wire) only
† Exceeds maximum amp draw.
** Simultaneous only in 3ph

MODEL	CAPACITY USG (L)	MAXIMUM KILOWATTS	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
SINGLE ELEMENT POINT-OF-USE MODELS					
DEL-6	6 (23)	3	15 1/2 (39)	14 1/4 (36)	35 (16)
DEL-10	10 (37)	6	18 1/4 (46)	18 (46)	54 (24)
DEL-15	13 (49)	6	26 (66)	18 (46)	58 (26)
DEL-20	19 (74)	6	22 1/4 (57)	21 3/4 (55)	73 (33)
DUAL ELEMENT MODELS*					
DEL-30	29 (111)	12	30 7/8 (78)	21 3/4 (55)	100 (45)
DEL-40	38 (145)	12	32 1/4 (82)	24 (61)	125 (57)
DEL-50	46 (175)	12	32 1/4 (82)	26 1/2 (67)	166 (75)
DEN-30	28 (107)	12	34 1/2 (88)	20 1/2 (52)	98 (44)
DEN-40	37 (143)	12	45 1/8 (115)	20 1/2 (52)	113 (51)
DEN-52	46 (175)	12	54 7/8 (139)	20 1/2 (52)	131 (59)
DEN-66	62 (237)	12	60 3/4 (154)	21 3/4 (55)	176 (80)
DEN-80	75 (284)	12	59 3/8 (151)	24 (61)	211 (96)
DEN-120	113 (428)	12	62 7/16 (159)	29 3/8 (75)	326 (148)

* 120V available for single-phase only. Pre-wired for unbalanced three-phase only, non-simultaneous operation of elements standard. Can be re-wired for single phase operation.

DRE/DVE Electric Gold and Gold Xi™ Series

Gold and Gold Xi DRE/DVE series available with 50, 80, and 119 gallon storage tanks, with input choices ranging from 6 kW to 54 kW. They can be used as recovery heaters for hot water supply service or as boosters for supplying sanitizing rinse water for dish washing.

Industrial-grade Incoloy Elements

- Superior scaling resistance, resulting in long term efficiency and damage protection
- Element sizes from 2 kW to 6 kW in 3, 6 or 9 element configurations provide input options from 6 kW to 54 kW, recovers from 25 GPH to 221 GPH at 100°F rise

Internal Fusing for System Protection

- Safeguards elements and contactors from short circuits, overloading and line surges

Standard 208, 240 and 480V Options for Easy Installation

- Single-phase and three-phase delta
- Field-convertible voltages three-phase to single-phase (and vice versa) except for 208V/54 kW
- 277V single-phase also available

Factory-Installed Terminal Block

- Provide electrical service to heater and connect to block

Heavy-Duty Magnetic Contactors (DVE Models Only)

- UL-rated 100,000 cycles

Other Standard DRE/DVE Features

- Two anode rods for maximum corrosion protection
- Simplified circuitry, colour-coded for ease of service
- Bonderized undercoated baked enamel finished cabinets

- Brass drain valve
- CSA Certified and ASME rated temperature and pressure relief valve

DRE Gold Model Controls

- DRE Gold models have surface mounted thermostats with temperature control adjustable 120° to 181°F
- Manual reset high temperature cut off

DVE Gold Xi Model Features

Advanced Electronic Controls

- Connect to an existing building management system via BACnet or MODBUS with optional ICC gateway
- Plain English text and animated icons
- Displays detailed operational and diagnostic information
- Fault or alert messages appear if an operational issue occurs
- Last 9 fault and alert messages saved with time stamp

Economy Mode Operation

- Control system automatically lowers the operating set point by a programmed value during user-defined time periods
- Helps reduce operating costs during unoccupied or low demand periods

Precise Temperature Regulation

- Immersion thermostat allows for more accurate temperature adjustment from 90° to 190°F
- Banks of heating elements (3 elements per bank) are energized according to adjustable (1° to 20°F) differential set points for each bank. Helps reduce current surge and provides accurate water temperature control

- Linear sequencing - first bank on is last bank off
- Helps reduce current surges/spikes and avoid peak demand charges
- Helps reduce operating costs during low load conditions
- Manual reset high temperature cut off

Compliance

- All models meet the current edition of ASHRAE 90.1

3-Year Limited Tank/1-Year Limited Parts Warranty



MODEL	CAPACITY USG (L)	MAXIMUM KILOWATTS	HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)	
					STD	ASME
DVE/DRE-52	50 (179)	54	55 3/4 (142)	21 3/4 (55)	265 (120)	315 (143)
DVE/DRE-80	80 (286)	54	60 1/4 (153)	25 1/2 (65)	280 (127)	330 (150)
DVE/DRE-120	119 (426)	54	62 1/4 (158)	29 1/2 (75)	390 (177)	440 (200)

Heavy-Duty Custom Xi™ Series Electric DSE Models

The heavy-duty Custom Xi DSE series is available with storage capacities from 5 to 119 gallons. All tanks feature ASME tank construction. With input choices as high as 90 kW on 50 through 119 gallon models, the DSE Custom Xi series can be used for maximum-demand hot water supply service or as boosters for supplying sanitizing rinse water for dish washing.



Incoloy Sheath Heating Elements Standard

- Industrial-grade incoloy sheathed heating elements are designed for rugged long-lasting commercial service, and can withstand sheath temperatures up to 1500°F
- Each heating element has three separate heating loops, which provides more heating surface, lower watt density and maximum recovery efficiency
- Pre-wired leads provide excellent protection against oxidation and scaling
- Input options from 3 kW to 90 kW, recoveries from 12 GPH to 369 GPH at 100°F rise

Standard Voltages for Easy Installation

- 208, 240 and 480V single-phase and three-phase
- Single-phase 208V and 240V are field-convertible to three-phase
- All 208V and 240V at 24 kW and below are supplied as phase-convertible units (single-to three-phase and vice versa)
- 277V single-phase also available (Contact A. O. Smith for 120V circuit availability)
- 380, 415, 575 and 600 international voltages also available (check with A. O. Smith)

Factory-Installed Terminal Block

- To accept copper or aluminum leads (on units with more than one contactor)

Advanced Electronic Controls

- Plain English text and animated icons
- Connect to an existing building management system via BACnet or MODBUS with optional ICC gateway
- Displays detailed operational and diagnostic information
- Fault or alert messages appear if an operational issue occurs
- Last 9 fault and alert messages saved with time stamp

Progressive Sequencing

- First heating element on is first heating element off
- First heating element energized is rotated with each successive heating cycle on models with multiple heating elements
- Evens out wear between heating elements
- Helps reduce current surges/spikes and avoid peak demand charges

Economy Mode Operation

- Control system automatically lowers the operating set point by a programmed value during user-defined time periods
- Helps reduce operating costs during unoccupied or low demand periods

Precise Temperature Regulation

- Advanced electronic control provides precise $\pm 1^\circ\text{F}$ temperature control that is ideal for industrial and food service applications where exact temperatures of hot water are needed
- Operating set point is adjustable from 90° to 190°F
- Manual reset high temperature cut off

Heavy-Duty Magnetic Contactors

Power Circuit Fusing for System Protection

PermaGlas® Ultra Coat™ Glass Lining with ASME Tank Construction

CSA Certified and ASME Rated T&P Relief Valve

Compliance

- All models meet the current edition of ASHRAE 90.1

Brass Drain Valve

3-Year Limited Tank/1-Year Limited Parts Warranty

MODEL	CAPACITY USG (L)	MAXIMUM		HEIGHT IN (CM)	DIAMETER IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
		INPUT (kW)	IMMERSION HEATERS			
DSE-5	5 (19)	3	1	22 (56)	16 (41)	82 (37)
DSE-10	10 (38)	6	1	28 1/8 (72)	18 (46)	116 (53)
DSE-20	20 (76)	18	2	31 3/4 (81)	22 (56)	145 (66)
DSE-30	30 (114)	24	2	43 1/4 (110)	22 (56)	218 (99)
DSE-40	40 (151)	36	2	54 3/4 (139)	22 (56)	245 (111)
DSE-50	50 (189)	90	5	66 3/16 (168)	22 (56)	291 (132)
DSE-65	65 (246)	90	5	57 1/4 (145)	26 1/2 (67)	344 (156)
DSE-80	80 (303)	90	5	58 1/8 (148)	28 (71)	406 (184)
DSE-100	100 (379)	90	5	70 1/4 (178)	28 (71)	419 (190)
DSE-120	120 (450)	90	5	70 1/4 (178)	30 (77)	453 (206)

Heavy-Duty Premium Electric DVE/DHE Dura-Power™ Xi Models

Dura-Power commercial electric water heaters are built to the same high quality standards as our gas models. These are the largest commercial electrics we manufacture. Ideal for use as recovery heaters for all types of large commercial and industrial applications or for large process potable hot water requirements. They can be customized to meet any special application with the large selection of available options.

Advanced Electronic Control

■ A. O. Smith's proprietary electronic water heater control provides precise $\pm 1^\circ\text{F}$ temperature control, that is ideal for industrial and food service applications where exact temperatures of hot water are needed.

- **Animated icons** display detailed operational and diagnostic information, and plain text fault or alert messages appear if an operational issue occurs
- **Low water cut off** is factory standard and 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** sizes the input of available elements to match current load conditions and rotates and lead lags element loads to provide long life and equal wear
- **Economy mode operation** automatically lowers the operating set point by a programmed value during user defined time periods using a seven-day clock that may be programmed for night set back and/or weekend shutdown to reduce operating cost and save money
- **Building management system** compatible via BACnet or MODBUS with optional ICC gateway

PermaGlas® Ultra Coat™ Glass Lining

■ Exclusive process provides superior protection against corrosion in varying water conditions

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 is standard)

Incoloy Immersion Heaters

■ Heavy-duty medium watt density elements (three immersion heater) have incoloy sheathing providing excellent protection against oxidation and scaling with input ranges from 15 kW to 900 kW

Power Circuit Fusing for System Protection

Compliance

■ All models meet the current edition of ASHRAE 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, 480, 600 volt single or three-phase
- For other voltages consult A. O. Smith
- Factory-installed terminal block(s)
- Cabinet has baked enamel finish
- Pre-wired element terminal leads
- Temperature and pressure relief valve
- Tanks have a channel skid base
- 12" x 16" manhole is available on models 250 gallons and above

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

3-Year Limited Tank/1-Year Limited Parts Warranty



Options

■ TANK LININGS

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.

■ 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.

■ 3-1/2" DIAL-TYPE PRESSURE GAUGE – Factory-installed.

■ 3-1/2" DIAL-TYPE TEMPERATURE GAUGE – Factory-installed.

■ 12" x 16" MANHOLE – Available as option on tanks 250 gallons and larger.

Control Options

■ HOT WATER GENERATING TUBE HEAT EXCHANGERS – Custom dual energy source units with heating units and control trim that can be built to design specifications on a special order basis for steam or boiler water applications. Consult factory or Hot Water Generator specification sheet for tube bundle sizing information and control options.

■ 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.

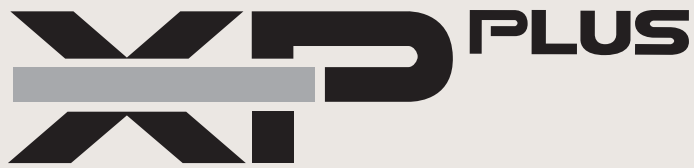
■ SHUNT TRIP CIRCUIT BREAKER – A safety device (circuit breaker) which disconnects power to heater in the event of over-current, high temperature or low water level, breaker must be manually reset.

MODEL*	CAPACITY USG (L)	MAX INPUT (kW)	HEIGHT IN (CM)	WIDTH IN (CM)	DEPTH IN (CM)
HORIZONTAL SQUARE ELECTRIC STORAGE HEATERS					
DHE-150A	150 (568)	144	37 (94)	68 ½ (174)	34 ¼ (87)
DHE-200A	200 (757)	180	37 (94)	78 (198)	34 ¼ (87)
DHE-250A	250 (946)	225	39 (99)	90 ¼ (229)	36 ¼ (92)
DHE-300A	300 (1,136)	270	45 (114)	78 ¼ (199)	42 ¼ (107)
DHE-400A	400 (1,514)	360	52 (132)	78 ¼ (199)	48 ¼ (123)
DHE-500A	500 (1,893)	450	52 (132)	90 ¾ (231)	48 ¼ (123)
DHE-600A	600 (2,271)	540	58 (147)	90 ¾ (231)	54 ¼ (138)
DHE-800A	750 (2,839)	720	58 (147)	102 ¼ (260)	54 ¼ (138)
DHE-1000A	950 (3,596)	900	58 (147)	126 ¼ (321)	54 ¼ (138)
DHE-1250A	1,250 (4,732)	900	64 (163)	130 ¼ (331)	60 ¼ (153)
DHE-1500A	1,500 (5,678)	900	70 (178)	126 ¼ (321)	66 ¼ (168)
DHE-2000A	2,000 (7,571)	900	82 (208)	123 ¼ (313)	78 ¼ (199)
DHE-2500A	2,500 (9,464)	900	82 (208)	144 ¼ (366)	78 ¼ (199)

*Complete model number includes the desired kW at the end.
Minimum installation clearances required: 30" (76 cm) from front, 12" (30 cm) from top and 24" (61 cm) from right side.

MODEL*	CAPACITY USG (L)	MAX INPUT (kW)	HEIGHT IN (CM)	WIDTH IN (CM)	DEPTH IN (CM)
VERTICAL ROUND ELECTRIC STORAGE HEATERS					
DVE-150A	150 (568)	144	65 ½ (166)	32 (81)	38 ¾ (98)
DVE-200A	200 (757)	180	78 (198)	32 (81)	38 ¾ (98)
DVE-250A	250 (946)	216	92 (234)	34 (86)	40 ¾ (104)
DVE-300A	300 (1,136)	270	80 (203)	40 (102)	46 ¾ (119)
DVE-400A	400 (1,514)	360	80 (203)	46 (117)	52 ¾ (134)
DVE-500A	500 (1,893)	396	92 (234)	46 (117)	52 ¾ (134)
DVE-600A	600 (2,271)	396	92 (234)	52 (132)	60 ¾ (154)
DVE-800A	750 (2,839)	396	104 (264)	52 (132)	60 ¾ (154)
VERTICAL SQUARE ELECTRIC STORAGE HEATERS					
DVE-1000A	950 (3,596)	396	128 (325)	52 (132)	60 ¾ (154)
DVE-1250A	1,250 (4,732)	900	132 ½ (337)	64 ½ (164)	64 ½ (164)
DVE-1500A	1,500 (5,678)	900	128 ½ (326)	70 ½ (179)	70 ½ (179)
DVE-2000A	2,000 (7,571)	900	124 ½ (316)	78 ½ (199)	78 ½ (199)
DVE-2500A	2,500 (9,464)	900	146 ½ (372)	82 ½ (210)	82 ½ (210)

*Complete model number includes the desired kW at the end.
Minimum installation clearances required: 30" (76 cm) from front, 12" (30 cm) from top and 24" (61 cm) from right side.
Field certification required on all DVE/DHE installations in Canada.



PWH Model Circulating Water Heaters



The A. O. Smith high efficiency condensing XP^{PLUS} water heater features the latest heat exchanger technology to deliver 98% thermal efficiency. The XP^{PLUS} now comes in models with 1.25, 1.50, 2.0, 3.0 and 4.0 million BTU/hr input rates to cover a wide range of heavy duty commercial and industrial applications.

The XP^{PLUS} is designed to match with an A. O. Smith storage tank for long life and high performance. Optional custom skid systems are available which provide a factory assembled and tested system specifically for your job.

Stainless Steel Condensing Heat Exchanger

- Advanced 316L stainless steel condensing design that heats water at a high 98% thermal efficiency and features a slide out door for improved accessibility and maintenance flexibility
- Advanced NEGIREG combustion system achieves 5:1 turndown
- The gas/air mixture is precisely controlled across the entire turndown range to produce ideal combustion and accurate heat transfer
- The turndown ratio matches the heat demand to prevent short cycling or temperature overshoot

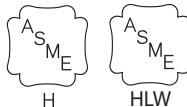
Advanced Electronic Control

- Large touch screen user interface
- The latest in energy saving algorithms
- Includes remote tank temperature control to adjust tank temperature at the water heater - modulates the water heater to maintain tank set point temperature within $\pm 1^\circ\text{F}$
- Water heater output control features 5:1 turndown ratio

All-Bronze Factory Supplied Pump

- Designed to be wired and controlled by the water heater control
- Factory-sized for proper flow between water heater and storage tank
- Allows 50 equivalent feet of piping between water heater and tank

ASME CRN



PWH Model Circulating Water Heaters

98% thermal efficiency

Direct Vent Flexibility

- Direct vent up to 150 equivalent feet of pipe (PWH3000 is available up to 100 equivalent feet only)
- Sidewall or vertical
- Lower installation cost with ULC S636 approved PVC/CPVC venting material
- Approved for use with UL approved AL29-4C stainless steel venting materials

Factory Start-Up Included

- Required for activating warranty and assuring maximum operating performance. Contact your local sales representative or Authorized Start-Up Agent to arrange a FREE certified start-up

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1

Up to 98% Thermal Efficiency (AHRI Certified)

5-Year Limited Heat Exchanger/1-Year Limited Parts Warranty

- For complete information, consult written warranty or contact A. O. Smith

Other XP^{PLUS} Features:

- Models PWH1250-2000 are ANSI Z21.10.3 compliant and ASME certified with "HLW" stamp. Models PWH3000-4000 are ANSI Z21.13 compliant and ASME certified with "H" stamp
- Direct spark ignition
- Sealed combustion
- Low gas pressure operation
- Gasketless design
- 160 psi working pressure
- On/Off switch
- Adjustable high limit with manual reset
- High and low gas pressure switches
- Flow switch
- Inlet and outlet temperature switches
- Temperature and pressure ASME relief valve
- Zero clearance to combustible material
- Approved for combustible floor material

Standard Bronze Pumps:

- PWH1250 1 HP, 120V, 1 Phase
- PWH1500 1 HP, 120V, 1 Phase
- PWH2000 2 HP, 208V, 3 Phase
- PWH3000 5 HP, 208V, 3 Phase
- PWH4000 5 HP, 480V, 3 Phase

XP^{PLUS} Options:

- LP gas field conversion kits
- Condensate neutralization kit
- Vent termination kits
- Skid mounted systems
- Alarm bell
- Modbus or BACnet MSTP communications



RECOVERY CAPACITIES

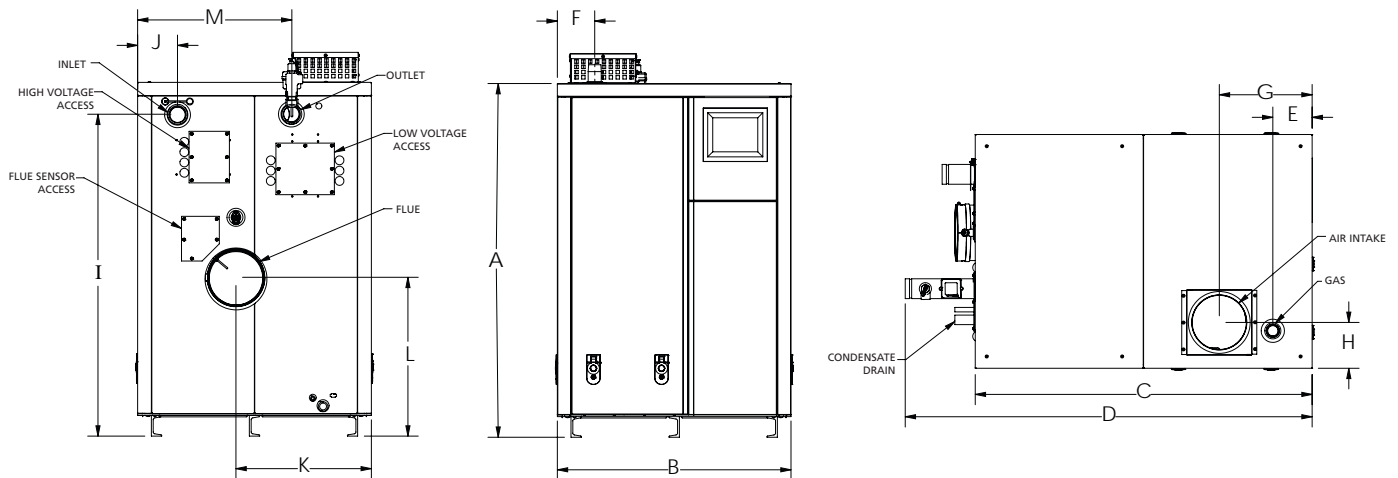
MODEL	INPUT BTU/h	WATER FLOW	TEMPERATURE RISE - °F (°C)							
			40	60	70	80	90	100	120	140
			(22)	(33)	(39)	(44)	(50)	(56)	(67)	(78)
PWH-1250NP	1,250,000	GPH	3,712	2,475	2,121	1,933	1,650	1,485	1,237	1,061
		LPH	14,051	9,369	8,029	7,317	6,246	5,621	4,683	4,016
PWH-1500NP	1,500,000	GPH	4,455	2,970	2,545	2,227	1,980	1,782	1,485	1,273
		LPH	16,864	11,243	9,634	8,430	7,495	6,746	5,621	4,819
PWH-2000NP	1,999,999	GPH	5,939	3,960	3,394	2,970	2,640	2,376	1,980	1,697
		LPH	22,482	14,990	12,848	11,243	9,993	8,994	7,495	6,424
PWH-3000NP	3,000,000	GPH	8,909	5,939	5,091	4,455	3,960	3,564	2,970	2,545
		LPH	33,724	22,482	19,272	16,864	14,990	13,491	11,243	9,634
PWH-4000NP	4,000,000	GPH	11,879	7,919	6,788	5,939	5,279	4,752	3,960	3,394
		LPH	44,967	29,977	25,695	22,482	19,983	17,988	14,990	12,848

Rough In Dimensions

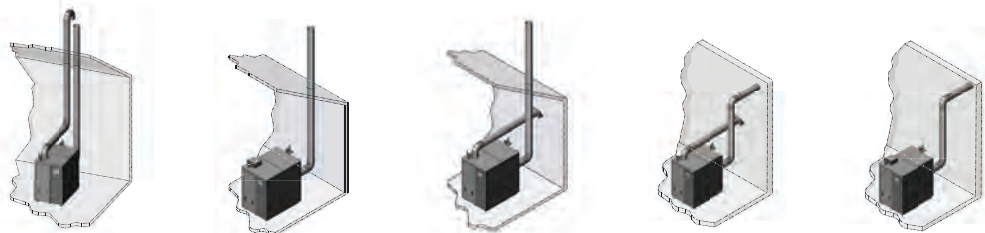
DIMENSIONS AND SPECIFICATIONS								
MODEL	INPUT BTU/h	THERMAL EFFICIENCY	GPH (LPH) 100°F RISE	GAS CONN.	WATER CONN.	AIR INLET	VENT SIZE	SHIPPING WEIGHT LB (KG)
PWH-1250NP	1,250,000	98%	1,485 (5,621)	1-1/2"	2-1/2"	6" OR 8"	6" OR 8"	1,519 (689)
PWH-1500NP	1,500,000	98%	1,782 (6,746)	1-1/2"	2-1/2"	6" OR 8"	6" OR 8"	1,672 (758)
PWH-2000NP	1,999,999	98%	2,376 (8,994)	1-1/2"	2-1/2"	8"	8"	1,931 (876)
PWH-3000NP	3,000,000	98%	3,564 (13,491)	2"	4"	10"	10"	3,147 (1,427)
PWH-4000NP	4,000,000	98%	4,752 (17,988)	2-1/2"	4"	12"	12"	3,694 (1,676)

DIMENSIONS AND SPECIFICATIONS IN (CM)													
MODEL	A	B	C	D	E	F	G	H	I	J	K	L	M
PWH-1250NP	51-1/2 (131)	34 (86)	49 (124)	59 (150)	5-1/2 (14)	5-1/2 (14)	13-1/2 (34)	6-3/4 (17)	46-3/4 (119)	5-3/4 (15)	19-3/4 (50)	23 (58)	22-1/2 (57)
PWH-1500NP	51-1/2 (131)	34 (86)	52-3/4 (134)	62-3/4 (159)	4-1/2 (11)	4-1/2 (11)	13-1/2 (34)	6-3/4 (17)	46-3/4 (119)	5-3/4 (15)	19-3/4 (50)	23 (58)	22-1/2 (57)
PWH-2000NP	51-1/2 (131)	34 (86)	65-1/2 (166)	75-1/2 (192)	7 (18)	5-3/4 (15)	14-3/4 (37)	7-1/4 (18)	46-3/4 (119)	6-3/4 (17)	18-3/4 (48)	23 (58)	23-1/2 (60)
PWH-3000NP	67-1/4 (171)	48-1/4 (123)	79-3/4 (203)	93-3/4 (238)	4-3/4 (12)	6-3/4 (17)	17-3/4 (45)	8-3/4 (22)	60-1/4 (153)	8-1/2 (22)	25-1/2 (65)	29-1/2 (75)	40 (102)
PWH-4000NP	67-1/4 (171)	48-1/4 (123)	96 (244)	110 (279)	5 (13)	7-1/2 (19)	17-3/4 (45)	8-3/4 (22)	60-1/4 (153)	8-1/2 (22)	25-1/2 (65)	29-1/2 (75)	40 (102)

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



VERSATILE MULTI-VENTING CONFIGURATIONS



Direct or sidewall vent up to 150 feet with PVC, CPVC, Polypropylene or Stainless Steel. For detailed venting instructions review the XP PLUS water heater instruction manual at www.hotwatercanada.ca

Burkay® HW Gas Models

80% thermal efficiency hot water supply boilers.

Famous Burkay reliability. Because of their lightweight and compact design, they may be easily transported on a two-wheel dolly replacing large boilers in a much smaller space. Burkay models are for indoor use in installations requiring higher inputs up to 670,000 BTU. They can be manifolded for unlimited fire power.

All Non-Ferrous Waterways

- All castings are made of bronze or brass
- All water tubes are made from copper
- Brazed joints or flare union construction make the boiler immune to the effects of thermal shock and thermal cycling

Efficient Copper Coil Combustion Chamber

- The combustion chamber is a heat exchanger formed from a two passage coil of tightly wound continuous copper tube
- Water circulating through this coil surrounds the main burner and captures the radiant heat
- A wrap of insulation on the outside of the coil retains the heat captured by the circulating water

Copper Heat Exchanger

- Directly above the coil and the main burner is a compact, horizontal, copper fin tube heat exchanger
- The flue gases must pass through this efficient heat exchanger before leaving the boiler
- This unique design provides maximum heat transfer and proven field durability

Thermal Balancer

- Patented pump delay system that allows the boiler and pump to run simultaneously but delays pump shut off at end of heating cycle to remove usable heat from the heat exchanger and reduce the scale forming tendencies of motionless hot water

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1

5-Year Limited Heat Exchanger/1-Year Limited Parts Warranty



MODEL	INPUT BTU/h	OUTPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	VENT DIAMETER (IN)	HEIGHT* IN (CM)	DIAMETER IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
HW-300	300,000	240,000	297 (1,124)	8	65 (165)	25 1/4 (64)	29 5/8 (75)	250 (113)
HW-399	399,000	319,200	388 (1,469)	10	57 1/8 (145)	27 (69)	31 1/2 (80)	301 (137)
HW-420	420,000	336,000	413 (1,563)	10	57 1/8 (145)	27 (69)	31 1/2 (80)	301 (137)
HW-520	520,000	416,000	515 (1,949)	10	68 5/16 (174)	27 (69)	36 1/2 (93)	381 (173)
HW-670	660,000**	528,000**	600 (2,271)	12	68 5/16 (174)	27 (69)	36 1/2 (93)	381 (173)

*Height to top of diverter

**Propane: 670,000 BTU/h INPUT; 536,000 BTU/h OUTPUT.

85% thermal efficiency
water heater..

Burkay Genesis® Hot Water Supply

A. O. Smith Burkay Genesis water heaters offer everything you could ask for in a non-condensing water heater. They provide a near condensing 85% thermal efficiency, outstanding venting flexibility, space-saving stackable design and an advanced electronic control system.



Electronic Control with Precise Temperature Management

- Controls every electrical water heater function, including pump operation and main burner ignition, delivers precise temperature management with $\pm 1^\circ\text{F}$ accuracy
- Display panel shows current operating status and fault readings in easy-to-understand English instead of confusing numeric codes
- Display also shows temperature set points, outlet temperature, current inlet/outlet differential (ΔT) and tank temperature
- Help screens assist in water heater set-up and explain all control options
- When mounted in the storage tank, the included remote temperature sensor allows the tank temperature to be set and monitored at the water heater



Multiple Venting Options

- All Genesis models can vent vertically in Category I with double wall "B" vent or horizontally in Category IV with AL29-4C stainless steel vent material

Copper Finned-Tube Heat Exchanger

- Gasket-less glass-lined headers and copper finned tubes with extruded integral fins deliver exceptional heat transfer
- ASME certified "H" stamped
- Copper is lightweight for easier handling and immune to thermal shock

Stage Gas Firing System

- Prevents short cycling and ensures smooth operation, saves fuel and extends product life
- Delivers maximum output when demand is high, reduced firing rates during off peak times

Factory Start-Up Included

- Required for activating warranty and assuring maximum operating performance. Contact your local sales representative or Authorized Start-Up Agent to arrange a FREE certified start-up

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1
- Certified to ANSI Z21.13/CSA 4.9 boiler standard

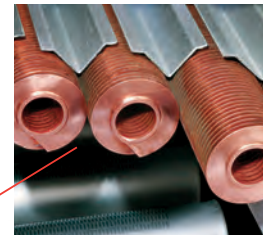
5-Year Limited Heat Exchanger/1-Year Limited Parts Warranty



Electronic Control provides remote tank temperature sensing and +/- 1° tank temperature control. Controls the factory furnished pump to assure maximum heat transfer and reduce stand-by heat loss.

Ceramic Fiber Combustion Chamber
Rated for temperatures up to 2300°F.

Copper Finned Tube Heat Exchanger



- Copper-finned design delivers superior heat transfer and energy efficiency
- Copper is lightweight, immune to rust and thermal shock

Unique **gasketless glasslined header** design eliminates gaskets and O-rings.

Combustion Air Blower with Air Shutter
Adjusts to the application for maximum efficiency.

Multi-Stage Firing

Hot Surface Ignition

Pressurized Combustion System
Clean burning Stainless Steel Premix Burners for smooth ignition and clean combustion

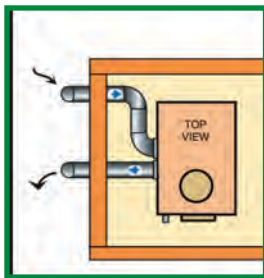
MODEL	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	WATER CONNECTION (IN)	GAS CONNECTION (IN)	VENT / INTAKE CONNECTION (IN)	HEIGHT IN (CM)	WIDTH IN (CM)	WIDTH WITH PUMP IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
GWH-400	399,000	412 (1,560)	2	1 1/4	6/6	31 1/2 (80)	37 5/8 (96)	46 1/2 (118)	22 1/4 (57)	454 (206)
GWH-500	500,000	515 (1,949)	2	1 1/4	6/6	31 1/2 (80)	45 3/8 (115)	54 1/4 (138)	22 1/4 (57)	467 (212)
GWH-650	650,000	670 (2,536)	2	1 1/4	8/8	31 1/2 (80)	56 3/4 (144)	65 5/8 (167)	22 1/4 (57)	551 (250)
GWH-750	750,000	773 (2,926)	2	1 1/4	8/8	31 1/2 (80)	64 (163)	72 7/8 (185)	22 1/4 (57)	611 (277)
GWH-1000	990,000	1,020 (3,861)	2 1/2	2	10/10	36 (91)	48 1/2 (123)	54 3/8 (138)	33 (84)	843 (382)
GWH-1250	1,260,000	1,298 (4,913)	2 1/2	2	12/12	36 (91)	58 3/4 (149)	64 5/8 (164)	33 (84)	939 (426)
GWH-1450	1,440,000	1,484 (5,618)	2 1/2	2	12/12	36 (91)	68 7/8 (175)	74 3/4 (190)	33 (84)	1,035 (469)
GWH-1800	1,800,000	1,855 (7,022)	2 1/2	2	14/12	36 (91)	82 3/8 (209)	88 1/4 (224)	33 (84)	1,168 (530)
GWH-2100	2,070,000	2,133 (8,074)	2 1/2	2	14/12	36 (91)	92 5/8 (235)	98 1/2 (250)	33 (84)	1,285 (583)

Burkay Genesis®

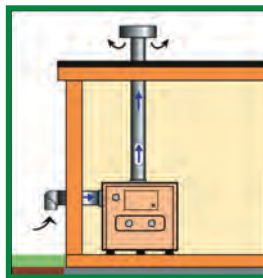
Mechanical Venting Flexibility

Direct-Venting Examples

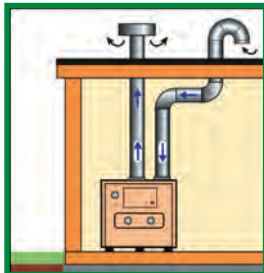
- Allows clean, uncontaminated air to be drawn directly into the unit
- Flue gas by-products are expelled through the wall to the outside
- The water heater can be vented directly through an outside wall or vertically through the roof



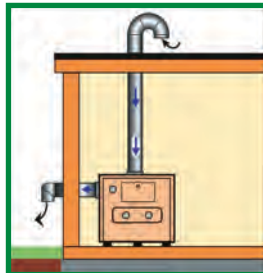
Horizontal sidewall direct-venting rear intake/exhaust



Vertical direct-venting with horizontal combustion air in-take rear intake/top exhaust

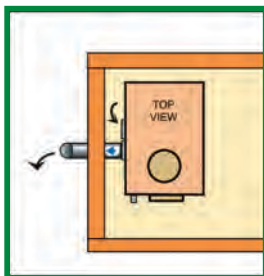


Vertical direct-venting top intake/exhaust

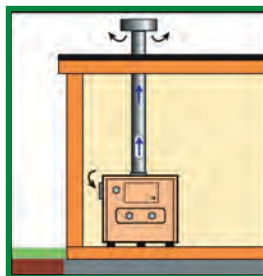


Horizontal direct-venting with vertical combustion air intake top intake/rear exhaust

Conventional Venting Examples

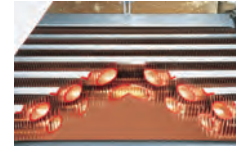


Horizontal sidewall-venting with rear exhaust



Conventional vertical-venting with top exhaust

See Installation Manual for detailed venting information and maximum/minimum intake and venting distances.



Other Genesis Features

- Stage firing - 2 stages
- Sealed combustion chamber
- Stainless steel burners
- All bronze circulating pump (shipped loose)
- On/Off switch
- Adjustable high limit with manual reset
- Pump delay
- ASME T&P relief valve 125 psi
- Factory mounted flow switch
- BMS terminal strip
- Contacts for air louvers
- Contacts on any failure

Genesis Options

- Cupro-nickel heat exchanger
- High gas pressure switch with manual reset
- Low gas pressure switch with manual reset
- Low water cut off with manual reset and test
- Stack rack
- Combustible floor shield (400 - 750)
- International voltage (230V 50Hz)
- Sequencing control panel with cascade/lead-lag operation for 1-4 water heaters



Variable Fire (VF) Circulating Water Heaters

Up to 87% efficient, hot water supply with modulating fire 4:1 turndown.

The VF Series Circulating Water Heaters are designed with one thing in mind: to provide the best value for our customer. These heaters deliver an exceptionally high thermal efficiency by combining an advanced modulating venturi-mixing gas/air ratio system with a vertical multi-pass copper heat exchanger for outstanding efficiency of up to 87%.

The secret to the stunning performance of the VF Series is its flexibility.

The VF is capable of firing from 100% to 25% or a 4:1 turndown ratio. The water heater's output is based strictly on the current system demand and required BTUs needed to maintain the desired system set-point temperature. The VF's modulating capability is virtually limitless.

The VF Water Heater sets a high-efficiency standard by combining thermal efficiencies up to 87% with a smoother, more energy-efficient overall system operation.

Advanced High Efficiency Combustion Technology

- Venturi-mixing gas/air ratio system works with variable speed blower to precisely mix gas and air throughout firing range
- 4:1 turndown fully modulating capability prevents energy stealing short cycling and provides smooth system operation with higher overall system efficiencies

Compact, Low-Profile Design

- Zero clearance on sides and lightweight copper heat exchanger makes VF Series easier to move and install in limited spaces — perfect for retrofits
- Fits in an elevator, ideal for boiler rooms with limited access — only 24" wide
- Multiple water heater systems provide increased turndown and even smoother, more efficient system operation
- 4 water heaters with 4:1 turndown = 16:1 total system turndown

High Efficiency Copper Fin Tube Heat Exchanger

- Vertical heat exchanger design encircles the burner with a combustion chamber that is a 360° wall of copper fin tubes
- All internal heat exchanger non-copper surfaces are glass lined with A. O. Smith's proprietary porcelain glass coating to resist rust

- Impervious to thermal shock
- Heavy duty gasket-less heat exchanger design

Category II and IV Listed

- Requires AL29-4C gas tight rust resistant venting material

Factory Start-Up Included

- Required for activating warranty and assuring maximum operating performance. Contact your local sales representative or Authorized Start-Up Agent to arrange a FREE certified start-up

Codes and Standards

- All models meet the thermal efficiency and standby loss requirements of NRCan and current edition of ASHRAE 90.1

Other VF Water Heater Features:

- ASME-rated T&P valve
- Factory mounted flow switch
- Contacts for 0-10 VDC BMS external control
- Contacts for alarm or any failure
- All bronze factory supplied pump
- Digital inlet and outlet temperature readout
- Manual reset hi-limit

5-Year Limited Heat Exchanger /1-Year Limited Parts Warranty

VF Water Heater Approved Options

- For optional equipment, see VF Water Heater spec sheet



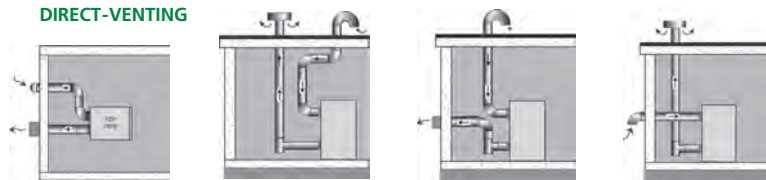
MODEL	INPUT BTU/h	RECOVERY 100°F (56°C) TEMP. RISE GPH (LPH)	HEIGHT IN (CM)	WIDTH IN (CM)	DEPTH WITH PUMP IN (CM)	DEPTH IN (CM)	APPROX. SHIPPING WEIGHT LB (KG)
VWH-500	500,000	527 (1,995)	44 1/2 (113)	23 1/8 (59)	45 1/2 (116)	30 3/8 (77)	573 (260)
VWH-750	750,000	791 (2,994)	52 1/8 (132)	23 1/8 (59)	45 1/2 (116)	30 3/8 (77)	622 (282)
VWH-1000	999,999	1,054 (3,990)	59 1/4 (150)	23 1/8 (59)	45 1/2 (116)	30 3/8 (77)	662 (300)
VWH-1500	1,500,000	1,582 (5,989)	65 3/8 (166)	27 1/8 (69)	51 (130)	31 5/8 (80)	1,118 (507)
VWH-2000	2,000,000	2,109 (7,983)	76 5/8 (195)	27 1/8 (69)	51 (130)	31 5/8 (80)	1,187 (538)

Variable Fire (VF) Circulating Water Heaters

Versatile Multi-Venting Configurations

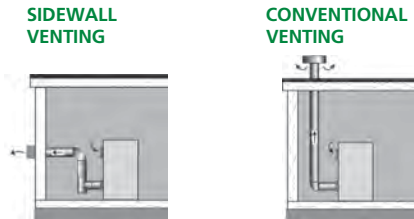
- Two-pipe direct-venting vertical and/or horizontal sidewall, with all combustion makeup air drawn from outside the building

50 Equivalent Feet
(15 Meters) Exhaust
50 Equivalent Feet
(15 Meters) Intake
90 Degree Elbows =
5 Feet (2 Meters)
45 Degree Elbows =
2 1/2 Feet (1 Meter)



- Conventional venting, vertical or horizontal sidewall

50 Equivalent Feet
Max (15 Meters)
90 Degree Elbows =
5 Feet (2 Meters)
45 Degree Elbows =
2 1/2 Feet (1 Meter)



Please consult latest edition
of the Installation Manual for
detailed venting information
and maximum/minimum
venting distances.

VF Electronic Control

The VF Electronic Control is designed to operate all the various elements of a domestic hot water heating system. The VF Electronic Control will control temperature, operate the pump and dispense a large amount of operational data.

Electronic Modulating Control

- Modulates the burner to maintain tank temperature within $\pm 1^\circ\text{F}$
- Infinite burner firing rate that modulates between 25% and 100% fire
- LED display provides current water heater status in easy-to-understand English with help screens to assist should a fault occur
- Controls and monitors every electrical water heater function with onboard diagnostics
- Building Management System (BMS) integration with 0-10 VDC input allows BMS to control water heater firing rate



Packaged Hot Water Generating (HWG) Systems - Steam/Hot Water

Designed for utilizing steam or high temperature boiler water as the energy source.

These skid-mounted water heater systems are completely assembled and packaged for use. All components are sized, piped and checked at the factory before shipment. HWG systems are available in space saving vertical or horizontal models.

Custom units built to order, with tank capacities up to 5,000 gallons including special control trim and special heating units can be built to design specifications on a special order basis.

Insulation

- Models are insulated with fiberglass to meet or exceed the thermal efficiency and standby loss requirements of NRCan and the most current edition of ASHRAE 90.1

Integral Pump

- System includes an integral bronze circulator pump

Steam Units

- Standard steam trim consists of temperature control valve, 1 steam trap on condensate line, inlet and auxiliary strainers

Optional Steam Trim

- Includes electric operated valve
- Pressure gauge with siphon, vacuum breaker and air vent

Boiler Units

- Standard boiler water trim includes temperature control valve

Optional Boiler Trim

- Electric high limit safety system, three-way controls with bypass
- Pressure gauge with siphon, vacuum breaker and air vent
- Boiler water temperature gauge

Cathodic Protection

- Standard systems employing glass, cement or epoxy-lined tanks are fitted with magnesium anodes to help prevent corrosion

Gallon Sizes

- HWG models are available from 120 gallons to 5,000 gallons in both vertical and horizontal configurations

HWG Options (Steam or Water Boiler Units)

- Low water cut-off, 12" x 16" vessel manway, 4" x 6" vessel hand hole

Code Listing

- The standard system will employ an ASME "HLW" code glass-lined storage tank fitted with an ASME "U" code $\frac{3}{4}$ " diameter copper tube heat exchanger

5-Year Limited Tank Warranty and 1-Year Limited Coil Warranty

For GPH recoveries, consult spec sheet.



Custom Small and Large Volume Storage Tanks (T, TV, TH, TJ, TJV, TJVT, TJH, TJHT)

These storage tanks are ideal for use with gas/electric water heaters to provide additional storage capacity for systems with large water draws at temperatures of 180°F or lower. Sizes range from 80 to 2,500 gallons and custom models are available with special linings and accessories.



Glass-Lined Tank

- Internal surfaces exposed to water are glass-lined per ASME HLW procedures
- Some tanks use an NSF-approved glass-lining compound

Horizontal or Vertical Mounting

- "H" in the model number indicates horizontal only and "V" indicates vertical only
- TJ-80 (vertical only)

Jacketed Tanks

- Tanks surrounded with high-density fiberglass insulation to meet or exceed the thermal efficiency and standby loss requirements of NRCAN and the most current edition of ASHRAE 90.1

Cathodic Protection

- Heavy duty anodes help extend tank life

ASME Construction

- Standard on tanks 140 gallons and larger or with an "A" in the model number
- 125, 150 and 160 psi maximum working pressures available

5-Year Limited Tank/1-Year Limited Parts Warranty

(Except T120V & T200V models which have a 3-year limited tank warranty)

Options

- Factory jacketing and insulation
- Manholes/hand holes
- Factory-installed T&P valves
- Angle base
- Ring base
- Horizontal tank saddles
- Lifting lugs

Other Linings Available

- Cement formulation provides excellent corrosion protection; available on 200-gallon and larger sizes
- Epoxy lining is suitable for cold or hot water storage; available on 200-gallon and larger sizes

BARE (UNINSULATED) STORAGE TANKS			
MODEL	CAPACITY USG (L)	HEIGHT/LENGTH IN (CM)	DIAMETER IN (CM)
VERTICAL/HORIZONTAL			
T-80S	80 (303)	61 ½ (156)	20 (51)
T-120S	119 (450)	64 ¾ (164)	24 ¼ (62)
T-120V	119 (450)	60 ¾ (154)	24 (61)
T-140A	140 (530)	75 (191)	24 (61)
T-200V (ASME)	188 (712)	75 (191)	28 (71)
T-200A	200 (757)	70 ¾ (180)	30 (76)
T-250A	250 (946)	84 (213)	30 (76)
T-350A	350 (1,325)	86 (218)	34 (86)
T-400A	400 (1,514)	96 (244)	36 (91)
VERTICAL ONLY			
TVN-500A	500 (1,892)	87 (221)	42 (107)
TV-500A	500 (1,892)	77 (196)	48 (122)
TV-600A	600 (2,271)	88 (224)	48 (122)
TV-700A	700 (2,650)	97 (246)	48 (122)
TV-750A	750 (2,839)	100 (254)	48 (122)
TV-1000A	1,000 (3,785)	124 (315)	48 (122)
TV-1250A	1,250 (4,732)	128 (325)	54 (137)
TV-1500A	1,500 (5,678)	124 (315)	60 (152)
TV-1750A	1,750 (6,624)	148 (376)	60 (152)
TV-2000A	2,000 (7,571)	121 (307)	72 (183)
HORIZONTAL ONLY			
THN-500A	500 (1,892)	83 (211)	42 (107)
TH-500A	500 (1,892)	73 (185)	48 (122)
TH-600A	600 (2,271)	84 (213)	48 (122)
TH-700A	700 (2,650)	93 (236)	48 (122)
TH-750A	750 (2,839)	96 (244)	48 (122)
TH-1000A	1,000 (3,785)	120 (305)	48 (122)

VERTICAL JACKETED (INSULATED) STORAGE TANKS			
MODEL	CAPACITY USG (L)	HEIGHT IN (CM)	DIAMETER IN (CM)
VERTICAL ROUND			
TJ-80S	80 (303)	63 (160)	25 ¼ (64)
TJ-80A	80 (303)	54 ⅞ (139)	26 ½ (67)
TJV-120A	119 (450)	61 ¾ (157)	28 (71)
TJV-120M	119 (450)	62 (157)	29 ⅞ (75)
TJV-140A	140 (530)	87 (221)	30 (76)
TJV-200A	200 (757)	83 (211)	36 (91)
TJV-200M (ASME)	180 (681)	77 (196)	32 (81)
TJV-250A	250 (946)	96 (244)	36 (91)
TJV-350A	350 (1,325)	97 (251)	42 (107)
TJV-400A	400 (1,514)	105 (267)	42 (107)
TJVT-500A	500 (1,893)	91 (231)	46 (117)
TJV-500A	500 (1,893)	77 (196)	52 (132)
TJV-600A	600 (2,271)	88 (224)	52 (132)
TJV-700A	700 (2,650)	97 (251)	52 (132)
TJV-750A	750 (2,839)	100 (254)	52 (132)
TJV-1000A	1,000 (3,785)	124 (315)	52 (132)
VERTICAL SQUARE			
TJV-1250A	1,250 (4,732)	133 (338)	60 (152)
TJV-1500A	1,500 (5,678)	129 (328)	66 (168)
TJV-1750A	1,750 (6,624)	153 (389)	66 (168)
TJV-2000A	2,000 (7,571)	126 (320)	78 (198)
TJV-2500A	2,500 (9,464)	146 ½ (372)	78 (198)

HORIZONTAL JACKETED (INSULATED) STORAGE TANKS				
MODEL	CAPACITY USG (L)	HEIGHT IN (CM)	LENGTH IN (CM)	DIAMETER/DEPTH IN (CM)
HORIZONTAL ROUND				
TJH-250A	250 (946)	41 (104)	87 (221)	34 (86)
TJH-350A	350 (1,325)	47 (119)	76 (193)	40 (102)
TJH-400A	400 (1,514)	53 (135)	76 (193)	46 (117)
TJHT-500A	500 (1,892)	53 (135)	87 (221)	46 (117)
TJH-500A	500 (1,892)	59 (150)	77 (196)	52 (132)
TJH-600A	600 (2,271)	59 (150)	88 (244)	52 (132)
TJH-700A	700 (2,650)	59 (150)	97 (246)	52 (132)
TJH-750A	750 (2,839)	59 (150)	100 (254)	52 (132)
TJH-1000A	1,000 (3,785)	59 (150)	124 (315)	52 (132)
HORIZONTAL SQUARE				
TJH-1250A	1,250 (4,732)	68 ½ (174)	134 (340)	60 ¼ (153)
TJH-1500A	1,500 (5,678)	74 ½ (189)	127 (323)	66 ¼ (168)
TJH-2000A	2,000 (7,571)	86 ½ (220)	127 (323)	78 ¼ (199)
TJH-2500A	2,500 (9,464)	86 ½ (220)	144 (366)	78 ¼ (199)



Desired temperatures in A. O. Smith HD custom storage tanks can be maintained with special copper tube heating elements. Available for use with steam or boiler water, single- or double-wall construction.

HD Custom Tanks Built to Order for Any Need

A. O. Smith understands the variety of special needs you may have in designing a complete commercial hot water supply system. We can meet just about any need you specify, with our "HD" heavy duty large volume custom built storage tanks from 80 to 4,000 gallons, all with ASME construction, and with an extensive list of options, including:



- Cement, epoxy or glass linings
- 125, 150 or 160 psi working pressure
- Factory jacketing and insulation
- Manholes
- Hand holes
- Lifting lugs
- Steam or hot water tank heaters
- Special and additional tank openings
- Leg and ring bases
- Horizontal tank saddles
- Factory-mounted T&P gauges

ICC BMS gateway
for control of A. O. Smith
water heaters.

Building Management System BACnet and MODBUS Interface

Models:

ETH-1000

Ethernet connection

XLTR-1000

Serial RS-485 connection

Connect your A. O. Smith water heater to your building management system using the Millennium control from ICC (Industrial Control Communications, Inc.)

- Works with Cyclone® BTH and BTX(L)-100, Gold Xi™ DVE, Heavy-Duty Custom Xi™ DSE and Dura-Power™ Xi DVE/DHE models
- Use the ICC Control to enable/disable the water heater
- Change temperature set points and differentials
- Two models with four different configurations to connect to BACnet and MODBUS
- Ethernet and Serial RS-485 versions available
- 2 wire or 4 wire RS-485 Network
- Power can be supplied via the USB cable, as a 7-24 VDC input on the main terminal block, or via IEEE 802.3af Power over Ethernet (PoE on ETH-1000 only)
- Configure protocols, network characteristics, and client/server object definitions
- Graphically interact with the internal database in real-time via USB connection
- Automatically discover and configure IP settings Ethernet gateways connected to the current subnet
- Update firmware
- Heater connection wiring supplied with unit
- For questions on this product call 888-928-3702 Opt 1
- RTU and serial connect via RS-485
- Ethernet and IP connect via RJ-45



ICC ENERGY MANAGEMENT INTERFACES			
PROTOCOL	PART #	CONNECTION TYPE	APPLICATION
BACnet	100131364	Serial (RS485)	Commercial Gas - Cyclone® BTH and BTX(L)-100
	100131365		Commercial Electric DVE, DSE, DVE/DHE
	100131370	Ethernet (IP)	Commercial Gas - Cyclone® BTH and BTX(L)-100
	100131371		Commercial Electric DVE, DSE, DVE/DHE
MODBUS	100131367	Serial (RS485)	Commercial Gas - Cyclone® BTH and BTX(L)-100
	100131368		Commercial Electric DVE, DSE, DVE/DHE
	100131373	Ethernet (IP)	Commercial Gas - Cyclone® BTH and BTX(L)-100
	100131374		Commercial Electric DVE, DSE, DVE/DHE



Innovation Continues to Lead.



For over 140 years, A. O. Smith has built a reputation for innovation and this continues to lead with our most complete line of products yet. With the trademark blend of innovative technology and energy-efficient solutions, our comprehensive line is the natural source for everything from the smallest light commercial installation all the way up to the largest multi-structure complex.

We offer over 500 different commercial models, including gas-fired, oil-fired and electric configurations, ranging in capacities from 5 gallons to 4,000 gallons, with input range from 50,000 BTU to the equivalent of 2,500,000 BTU.

Through an inspired blend of innovation, efficiency and over 140 years of expertise, A. O. Smith continues to set the industry standard for performance and quality of water heaters and storage tanks.



No Other Company is Better Qualified to Fill Your Hot Water Needs.

Knowledgeable People at Your Service

To better serve our customers, A. O. Smith has over 200 manufacturer's representatives covering Canada and the United States. In addition, we have more than 400 factory-authorized service technicians to provide reliable, immediate warranty services. We also maintain a well-staffed Customer Care and Technical Support facility in Fergus, Ontario that can provide information on A. O. Smith products, sizing, competitive analysis, etc.



A. O. Smith Customer Care Facility

"Our job is to 'smooth the road' from proper product selection to installation, and to help customers over the 'potholes' of troubleshooting service."



A. O. Smith has facilities located worldwide.

Plants are located in strategic locations throughout North America, providing timely shipments to wholesalers. In addition, manufacturing plants are also located in Nanjing, China, to supply the ever-increasing demand for water heaters to the expanding Far East. Juarez, Mexico; Fergus and Stratford, Ontario; Veldhoven, The Netherlands and Istanbul, Turkey round out the facilities worldwide and demonstrate A. O. Smith's global reach!

Notes

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This image shows a single sheet of white paper with horizontal green ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Notes

This image shows a full page of blank handwriting practice paper. It features approximately 28 evenly spaced horizontal green lines across the entire page, providing a guide for letter height and placement. The background is plain white, and there are no margins, text, or other markings present.



A. O. Smith Enterprises Ltd.

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Customer Service: 1-888-599-2837 Technical Support: 1-888-479-8324

www.hotwatercanada.ca

*A. O. Smith reserves the right to make product changes
or improvements at any time without notice.*