3 Water Heating

MANUFACTURERS INDEX, SECTION 3

A.O. Smith
Innovation has a name.

ProMax™
Maximum Pro-Formance®

RESIDENTIAL GAS WATER HEATERS
GCV/GCVL Series 300

FEATURES

ProMax is an economical water heater designed for households that need an exceptional performer that provides long-lasting value.

INTELLIGENT CONTROL LOGIC
The internal microprocessor provides enhanced operating parameters and tighter differentials for precise sensing and faster heating response to optimize performance.

SELF-POWERED ELECTRONIC GAS VALVE
Uses a thermopile to generate the power needed to operate the electronic gas control without requiring an external power source.

DIAGNOSTICS
The electronic gas control incorporates an LED status indicator that monitors system operation & service diagnostics.

DYNACLEAN™ DIFFUSER DIP TUBE
Helps reduce lime and sediment buildup, maximizes hot water output. Made from long-lasting PEX cross-linked polymer.

COREGARD™ ANODE ROD
A. O. Smith's exclusive aluminum anode has a stainless steel core, protects tank against corrosion.

GREEN CHOICE® GAS BURNER
Patented "Eco-Friendly" design reduces NOx emissions by up to 33% and complies with less than 40 ng/j requirements for low NOx emissions.

PUSH-BUTTON PIEZO IGNITOR
Makes lighting pilot fast and easy with one-hand push-button spark ignition.

DURABLE, TAMPER-RESISTANT BRASS DRAIN VALVE

BLUE DIAMOND® GLASS COATING
Provides superior corrosion resistance compared to industry-standard glass lining.

CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE
Top-mounted T&P relief valve available as option.

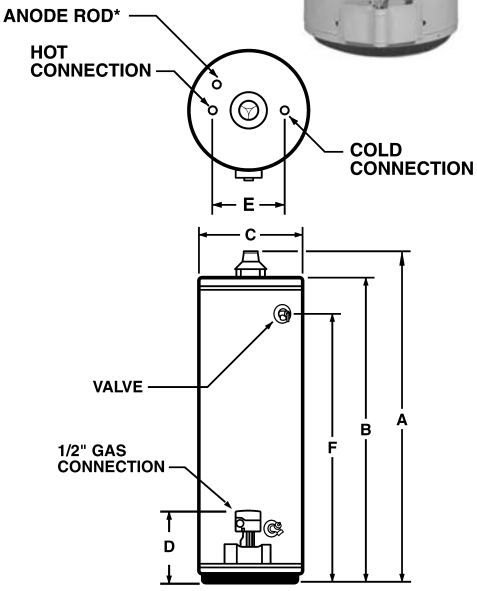
CODE COMPLIANCE
Meets UBC, CEC, SBCC, HUD and BOCA National Codes. Meets the thermal efficiency and standby loss requirements of the U.S. Department of Energy and current edition of ASHRAE/IESNA 90.1 and meets the Federal Energy Efficiency Standards effective January 20, 2004, according to the National Appliance Energy Conservation Act (NAECA) of 1992.

DESIGN-CERTIFIED BY CSA INTERNATIONAL
According to ANSI Z21.10.1 - CSA 4.1 standards governing storage-type water heaters.

FLAMMABLE VAPOR IGNITION RESISTANT COMPLIANT DESIGN
See below.

6-YEAR LIMITED TANK AND PARTS WARRANTY
For complete information, consult written warranty or A. O. Smith.

Green Choice®
Low Lead Content



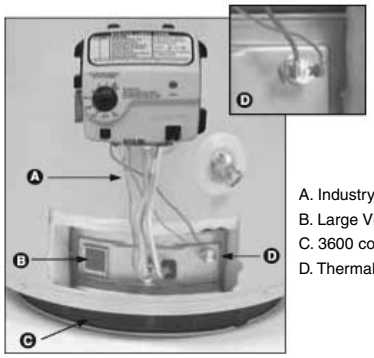
***Location for optional top-mounted T&P Valve if ordered from factory.**

Flammable Vapor Ignition Resistant (FVIR) Water Heaters

A. O. Smith FVIR design meets the American National Standards Institute standards(ANSI Z21.10.1 - CSA 4.1) that deal with the accidental or unintended ignition of flammable vapors, such as those emitted by gasoline.

Feature a sealed combustion chamber with air intake filter and a flame arrestor built into the water heater base. In addition, a thermal cutoff (TCO) device, is designed to shut off gas flow to the burner and pilot if poor combustion is detected.

If flammable vapors accidentally enter the combustion chamber, the arrestor is designed so flames burn off the top surface and can not escape down through the arrestor.



Maximum Hydrostatic Working Pressure: 150 PSI.

A. Industry standard thermopile
B. Large View Port for easy burner inspection
C. 3600 combustion air filter
D. Thermal Cutoff (TCO) with manual reset

MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GALLON CAPACITY	BTU INPUT PER HOUR NATURAL†	RECOVERY 90°F RISE GALLONS PER HR.	FOAM THICKNESS (INCHES)	DIMENSIONS IN INCHES						DRAFT HOOD OUTLET	APPROX. SHIPPING WEIGHT (LBS)
							A	B	C	D	E	F		
TALL MODELS														
GCV-30	67	.61	30	35,500	36	1	61-1/2	58	16	13	8	52	3 or 4	112
GCV-40	70	.59	40	40,000	41	1	61-3/4	58-1/4	18	13	8	51-3/4	3 or 4	138
GCV-50	88	.58	50	40,000	41	1	60-3/4	57	20	13	8	50-1/4	3 or 4	153
SHORT MODELS														
GCVL-30	60	.61	30	35,500	36	1	50	46-3/8	18	13-1/2	8	40	3 or 4	112
GCVL-40	66	.59	40	40,000	41	1	51-1/2	47-3/4	20	13	8	41	3 or 4	135
GCVL-50	93	.61	50	40,000	41	2	53-1/4	49-1/2	24	13-1/4	8	42-1/2	3 or 4	175

Recovery capacity based on actual performance tests.
Water Connections – 3/4" on all models.
† Propane Gas – 40,000 for the 50 gallon short, 37,000 for the 50 gallon tall & 36,000 BTU for 40 gallon models and 32,000 BTU input for 30 gallon models.
For 10-Year Tank and 6-Year Parts Warranty, change "G" to "X" in Model Number (example: XCV-40).
Heat Trap Nipples factory-installed on all models.

A.O. Smith
Innovation has a name.

ProMax® PLUS HIGH RECOVERY

MODELS GCV, GCVT(X), FCG

FEATURES

HIGHEST RECOVERIES AND FIRST HOUR RATINGS
Capacity/input combinations up to 100 gallons/78,000 BTU produce recoveries up to 82 gallons per hour, with deliverable hot water up to 152 gallons.

6-YEAR LIMITED TANK AND PARTS WARRANTY
For complete information, consult written warranty or A.O. Smith Water Products Company.

A.O. SMITH DYNACLEAN™ DIFFUSER DIP TUBE
Helps reduce lime and sediment buildup, maximizes hot water output. Made from long-lasting PEX cross-link polymer.

GREEN CHOICE™ GAS BURNER
Patented "eco-friendly" design reduces NOx emissions by up to 33%, complies with Southern California and Texas requirements.

COREGARD™ ANODE ROD
An A.O. Smith exclusive. Aluminum anode has stainless steel core, protects tank against corrosion longer than ordinary mild steel anodes.

PUSH-BUTTON PIEZO IGNITER
Makes lighting pilot fast and easy with one-hand push-button spark ignition. Standard on C3 Technology™ models.

DURABLE TAMPER-RESISTANT BRASS DRAIN VALVE

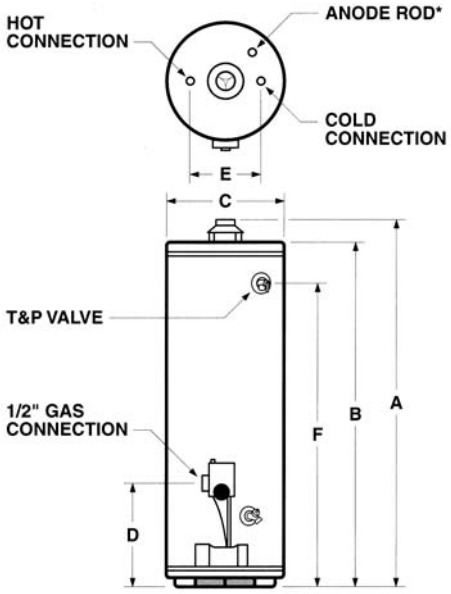
THICK CFC-FREE FOAM INSULATION

A.O. SMITH PERMAGLAS® GLASS COATING
Protects steel tank from rust.

FACTORY-INSTALLED TEMPERATURE AND PRESSURE (T&P) RELIEF VALVE
Top-mounted T&P valve available as option on 40, 50 and 65-gallon models.

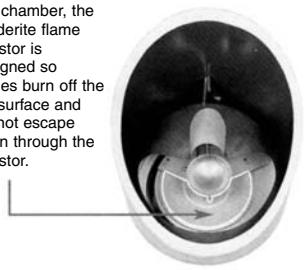
CODE COMPLIANCE: UBC, CEC, SBCC, CABO, HUD, BOCA NATIONAL CODES, ASHRAE/IES 90.1-1999 AND 1990 NAECA

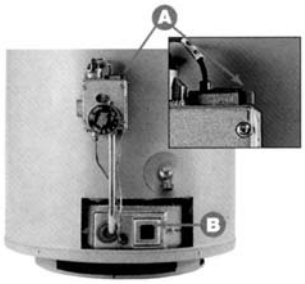
DESIGN-CERTIFIED BY CSA INTERNATIONAL
According to ANS Z21.10.1* standards governing storage-type water heaters.



*Location for optional top-mounted T&P Valve if ordered from factory.

If flammable vapors accidentally enter the combustion chamber, the Corderite flame arrestor is designed so flames burn off the top surface and cannot escape down through the arrestor.





A. Easy-to-light piezo igniter
B. View port for easy burner inspection

Flammable Vapor Ignition Resistant C3 Technology™ Water Heaters

MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GAL CAP.	BTU INPUT PER HOUR NATURAL	RECOVERY 90° RISE GALLONS PER HR.	R VALUE	DIMENSIONS IN INCHES						DRAFT HOOD OUTLET	APPROX. SHIPPING WEIGHT (LBS)
							A	B	C	D	E	F		
GCVT40	88	.60	38	50,000†	48	16	58-1/2	54-3/4	20-1/2	13-3/8	8	48-7/8	4	138
GCVX50	93	.58	50	65,000†	67	16	63-7/8	59-1/2	22	13-3/8	8	54-1/8	4	195
GCV65*	116	.57	65	65,000†	67	16	65	60	24	15-1/2	8	54-1/4	4	215
FCG75**	N/A	N/A	74	75,100	81	16	61	57	26	14-3/4	16	50-1/4	4	275
FCG100*	N/A	N/A	98	75,100	81	10	68-1/2	65	27-3/4	15-3/16	16	57-3/8	4	350

Recovery capacity based on actual performance tests.
Water Connections-1" on 75-gallon, 1-1/4" on 100-gallon models, 3/4" on all other models.
* Not equipped with C3 Technology. 75 gallon model has 80% efficiency, 2.85% standby loss, 100 gallon model has 80% efficiency, 2.48% standby loss
† Propane Gas – FCVT 40: 47,000 BTU input, FCVT 50: 45,000 BTU input
FGG 65 and FGVX 50: 55,000 BTU input
**Also available in LP.

A.O. Smith
Innovation has a name.

ProMax®

RESIDENTIAL GAS WATER HEATERS
GPVL/GPVT/GPVX Series 200

PROMAX® POWER VENT

The ProMax Power Vent water heaters have been engineered to maximize efficiency and deliver a greater energy factor (EF).

FEATURES

ENERGY STAR® QUALIFIED
- All models meet the September 2010 ENERGY STAR® EF requirement and may also qualify for local utility and rebate programs
- Dynaclean™ II dip tube optimizes inlet water pressure to minimize cold water regions within the tank. The self-cleaning action also reduces sediment accumulation on the bottom of the tank.
- Hot-surface ignitor is more robust and reliable than standing pilot, and reduces energy consumption
- Built-in heat traps on the water inlet and outlet reduce the amount of heat lost through piping
- 2-inch, thick, “Environmentally-Friendly” foam insulation reduces the amount of heat loss and contributes to overall energy efficiency

BLUE DIAMOND® GLASS COATING
- An A. O. Smith exclusive provides superior corrosion resistance compared to the industry-standard glass lining

VERSATILE POWER VENT DESIGN
- All models feature an ***exclusive*** 3-position rotatable blower outlet which adds flexibility
- Combined horizontal and vertical vent runs up to 180 equivalent feet with 4” diameter venting (ABS, PVC, CPVC and polypropylene)
- All models are equipped with a protected sensor that detects the presence of flammable vapors and automatically disables the burner to prevent ignition
- Air intake snorkel elevates the inlet location of combustion air to prevent flammable vapors from entering the sealed combustion chamber
- Reduced NOx emissions comply with air quality management district regulations

USER-FRIENDLY
- State-of-the-art electronic gas control provides more precise temperature control
- LED control light displays operation status and diagnostics information
- Factory-installed T&P and a durable, tamper-resistant brass drain valve are positioned for service accessibility

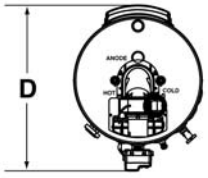
AVAILABLE IN NATURAL GAS AND PROPANE

6-YEAR LIMITED TANK AND PARTS WARRANTY

DIMENSIONS

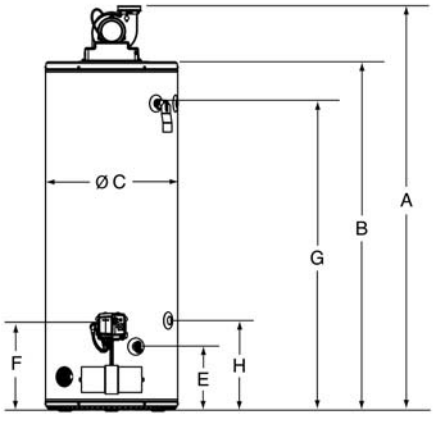
MODEL NUMBER	SERIES	HEIGHT TO TOP OF BLOWER A	HEIGHT TO TOP OF TANK B	DIAMETER C	OVERALL DEPTH D	HEIGHT TO DRAIN E	HEIGHT TO GAS INLET F	HEIGHT TO T&P G	HEIGHT TO UPPER SIDE CONNECT G	HEIGHT TO LOWER SIDE CONNECT H	SHIPPING WEIGHT (LBS)
GPVL 40	200	59	49-5/8	22	29-1/8	11	14-1/4	42-1/2	N/A	N/A	174
GPVT 40	200	68-1/2	59-1/4	20	27-1/8	11	14-1/4	53-1/8	53-1/8	15-1/4	176
GPVL 50	200	60-1/8	50-3/4	24	31-1/8	11	14-1/4	43-3/4	N/A	N/A	198
GPVT 50	200	68-1/8	58-3/4	22	29-1/8	11	14-1/4	51-3/4	51-3/4	15-1/4	192
GPVX 50L	200	61-1/8	52	24	31-1/8	11	14-1/4	44-1/2	44-1/2	15-1/4	212
GPVX 75L	200	70-5/8	61-1/4	26	33-1/8	11	14-1/4	53	53	15-1/4	277

All dimensions in inches.
Side connections standard on GPVX models.
For side connect models, add ‘L’ to model number, e.g. GPVT 40L.



SPECIFICATIONS

MODEL NUMBER	GALLON CAPACITY	INPUT BTU/H	ENERGY FACTOR	FIRST HOUR RATING USG	RECOVERY 90°F RISE GPH
GPVL 40	40	40,000	0.70	73	44.7
GPVT 40	40	50,000	0.70	90	55.9
GPVL 50	50	40,000	0.70	90	44.7
GPVT 50	50	50,000	0.70	96	55.9
GPVX 50L	50	62,000	0.70	110	69.3
GPVX 75L	75	72,000	0.68	155	80.4



VENT LENGTH

MODEL NUMBER	MAXIMUM VENT LENGTH EQ. FT.		
	Ø2"	Ø3"	Ø4"
GPVL 40	50'	125'	180'
GPVT 40	50'	125'	180'
GPVL 50	50'	125'	180'
GPVT 50	50'	125'	180'
GPVX 50L	N/A	50'	125'
GPVX 75L	N/A	50'	125'

A.O. Smith
Innovation has a name.

VERTEX™

90% EFFICIENCY POWER VENT WATER HEATER MODEL GPHE-50

FEATURES

HELICAL INTERNAL HEAT EXCHANGER

- Positioned in the center of the tank, surrounded by water to virtually eliminate radiant heatloss from the chamber
- Achieves 90% thermal efficiency which saves money on operating costs compared to a standard 78% efficient gas water heater

POWER VENTS USING PVC PIPE

- Combined vertical and horizontal vent runs terminating through an outside wall, using Schedule 40 PVC
- 2" pipe, vents up to 25 equivalent feet
- 3" pipe, vents up to 65 equivalent feet
- 4" pipe, vents up to 128 equivalent feet

MODULAR BLOWER

- Equipped with 120 volt, 60 Hz electrical system (rating 5 amps or less), 6-foot cord with standard 3-prong connector
- 2" PVC pipe, elbows and condensate drain supplied to connect heat exchanger outlet to blower
- PVC Vent Attenuation Assembly (VAA) supplied

SIDE-MOUNTED HOT AND COLD RECIRCULATING TAPS

- Allows Vertex to be installed as part of combination space heating/water heating applications or any system requiring a recirculating hot water loop, including radiant floor heating INTELLI-VENT™**

GAS CONTROL

- Equipped with nearly indestructible silicon nitride hot surface ignitor
- Advanced electronics for more precise control of water temperature and easy to understand system diagnostics

COMMERCIAL GRADE GLASS LINING

- A. O. Smith PermaGlas® Ultra Coat™ process provides superior protection against corrosion
- Protects all interior tank surfaces including inside and outside of helical heat exchanger

TWO HEAVY-DUTY ANODE RODS

- Provide maximum protection against corrosionGREEN CHOICE® GAS BURNER
- Patented “Eco-Friendly” design reduces NOx emissions by up to 33%

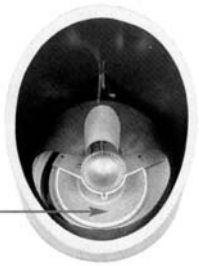
CERTIFIED AND ASME RATED T&P RELIEF VALVE

MAXIMUM HYDROSTATIC WORKING PRESSURE: 150 PSI

®Residential Gas Water Heaters

- Spiral heat exchanger reduces scale and sediment from forming on water-side surface, which can reduce energy efficiency over time

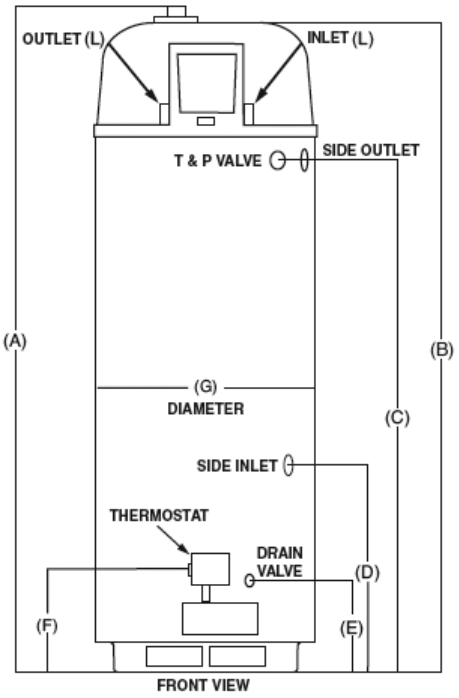
If flammable vapors accidentally enter the combustion chamber, the Corderite flame arrestor is designed so flames burn off the top surface and cannot escape down through the arrestor.



Green Choice® The Eco-Friendly Gas-Fired Burner

CORDERITE COMBUSTION CONTAINMENT TECHNOLOGY

GAS-FIRED UL® LISTED



MODEL NUMBER	BTU INPUT	MAXIMUM VENT DISTANCE (Total Equivalent Feet)		
		2" Pipe	3" Pipe	4" Pipe
GPHE-50	76,000	25’	65'	128'

			NATURAL GAS		PROPANE GAS		A	B	C	D	E	F	G	
Model	Gal. Cap.	Vent Pipe Dia.	Input	GPH 90 ° Rise	Input	GPH 90 ° Rise	Hgt.	Hgt. to Top of Jacket	Side Out-let	Side In-Let	Hgt. Drain Valve	Gas Inlet/ Diameter		Approx. Ship. Wt.
GPHE-50	50	3"	80,000	86	80,000	86	70-5/8	68-1/4	52	21	9-1/8	12	22	210

A.O. Smith®
Innovation has a name.

ProMax®
SPECIALTY
ELECTRIC WATER HEATERS

PROMAX® SPECIALTY ELECTRIC FEATURES

COMPACT ELECTRIC WATER HEATERS
Compact design, side-mounted plumbing and electrical connections (optional top-mounted connections). Designed for installation under a counter, in a crawl space or in other tight spaces. Tank capacities range from 6 through 20-gallons and offer single heating element and durable tamper-resistance brass drain valve.

POINT-OF-USE ELECTRIC WATER HEATER
Designed for low-demand, point-of-use applications, such as office lavatories or buildings with remote restrooms. Models have 2-1/2 gallon tank capacity and are equipped with a single heating element. Includes a standard 110/120V cord set with 3-prong plug and wall-mounting brackets for easy installation.

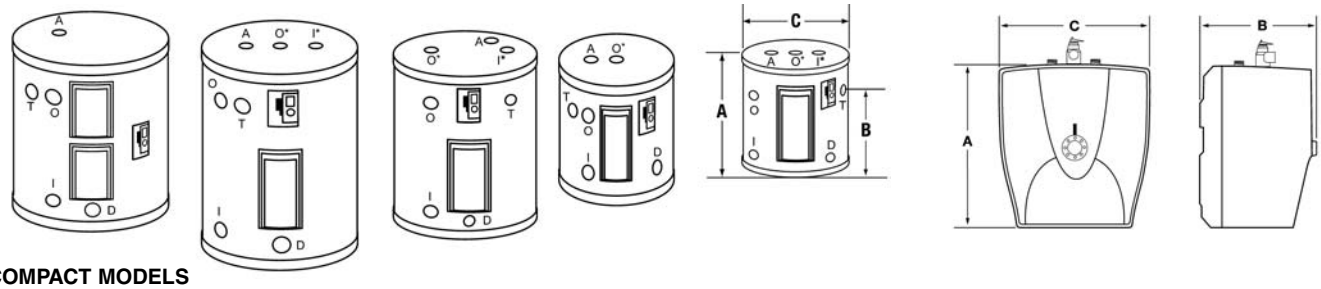
CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE

CODE COMPLIANCE
Meets or exceeds the Federal energy efficiency standards effective January 20, 2004, according to the National Appliance Energy Conservation Act (NAECA) of 1992. Also meets or exceeds the standby loss requirements of the U. S. Department of Energy and current edition of ASHRAE/IESNA 90.1.

6-YEAR LIMITED TANK AND PARTS WARRANTY
For complete information, consult written warranty or A. O. Smith Water Products Company.

Compact Models

Point-Of-Use



COMPACT MODELS

MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GALLON CAPACITY	ELEMENT WATTAGE		RECOVERY 90°F RISE	R VALUE	DIMENSIONS IN INCHES			APPROX. SHIPPING WEIGHT (LBS.)
				STANDARD 120V	MAXIMUM 240V			A	B	C	
EJC-6	N/A	N/A	6	1650	3000	8	8	15-1/4	10-3/4†	14-1/4	31
EJC-10	N/A	N/A	10	1650	6000	8	8	18-1/4	12-1/4†	16	45
EJCS-20	N/A	N/A	19	2500	6000	11	8	24-3/4	18-5/8†	18	65
EJCT-20	N/A	N/A	19.9	2500	6000	11	8	31-5/8	25-3/4†	16	62

LOWBOY SIDE-CONNECT MODELS

MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GALLON CAPACITY	ELEMENT WATTAGE		RECOVERY 90°F RISE	R VALUE	DIMENSIONS IN INCHES			APPROX. SHIPPING WEIGHT (LBS.)
				STANDARD 240V	MAXIMUM 240V			A	B	C	
ECJ-30	37	.93	29	4500	6000	21	16	30	22-3/4†	22	100
ECJN-40	43	.92	38	4500	6000	21	12	31-1/4	24-5/8†	23	131

POINT-OF-USE MODEL

MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GALLON CAPACITY	ELEMENT WATTAGE	RECOVERY 90°F RISE	R VALUE	DIMENSIONS IN INCHES			APPROX. SHIPPING WEIGHT (LBS.)
							A	B	C	
EJC-2	N/A	N/A	2.5	1500@120V	7	8	13-3/4	11	13-3/4	18

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ENERGY SAVER

ELECTRIC
RESIDENTIAL WATER HEATERS
MODELS ECS, ECT, ELJC, ECL(N)

FEATURES

TALL, SHORT AND LOWBOY (TOP CONNECT) MODELS AVAILABLE.

A. O. SMITH DYNACLEAN™ DIFFUSER DIP TUBE

Helps reduce lime and sediment buildup, maximizes hot water output.

Made from long-lasting PEX cross-link polymer.

COREGARD™ ANODE ROD

Aluminum anode with stainless steel core protects tank against corrosion longer than ordinary mild steel anodes.

DURABLE TAMPER-RESISTANT BRASS DRAIN VALVE

A. O. SMITH PERMAGLAS® GLASS COATING

Protects steel tank from rust.

FACTORY-INSTALLED SIDE-MOUNTED TEMPERATURE

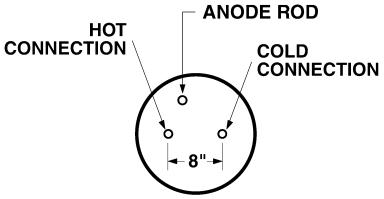
AND PRESSURE (T&P) RELIEF VALVE

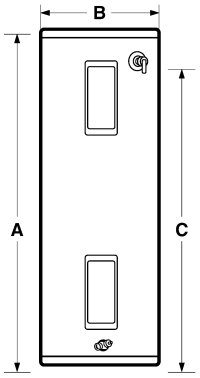
Top-mounted T&P Valve available as option on some models.

6-YEAR LIMITED TANK AND PARTS WARRANTY

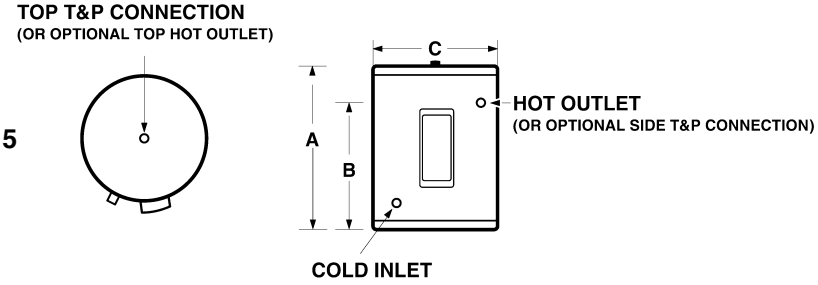
For complete information consult written warranty or A. O. Smith Water Products Company.

CODE COMPLIANCE: CEC, CABO, HUD, BOCA NATIONAL CODES, ASHRAE/IES 90.1-1999 AND 2004 NAECA





ELJC-6 and ELJC-15



MODEL NUMBER	FIRST HOUR RATING GALLONS	ENERGY FACTOR	GAL. CAP.	ELEMENT WATTAGE 240 VAC		RECOVERY 90°F RISE GALLONS PER HOUR	R VALUE**	DIMENSIONS IN INCHES			APPROX. SHIPPING WEIGHT (LBS)
				STANDARD	MAXIMUM			A	B	C	
TALL MODELS											
ECT-40	52	.92	40	4500	6000	21	16	59-1/2	18	53-1/2	115
ECT-52	62	.91	50	4500	6000	21	16	54	20-1/2	47-1/2	125
ECT-55	67	.90	55	4500	6000	21	16	60-1/4	20-1/2	52-3/4	135
ECT-66	72	.88	66	4500	6000	21	16	60-1/4	22	53	170
ECT-80	81	.86	80	4500	6000	21	16	60-1/2	24	52	200
ECT-120*	116	.81	119	4500	6000	21	16	64-1/4	28	54-1/4	320
SHORT MODELS											
ECS-30**	43	.93	30	4500	6000	21	16	36-1/2	20-1/2	28	100
ECS-40**	52	.92	40	4500	6000	21	16	44	20-1/2	37-3/4	115
ECS-50**	60	.90	50	4500	6000	21	16	48	22	40-1/2	150
LOWBOY MODELS											
ELJC-6	N/A	N/A	6	1500 @ 120V	2500 @ 120V	7	8	15-1/2	14-1/4	10-1/2	35
ELJC-15	N/A	N/A	15	1500 @ 120V	2500 @ 120V	7	16	32-1/4	14-1/4	20-3/4	58
ELJC-20	N/A	N/A	19	2500 @ 120V	6000 @ 240V	11	16	32-1/4	18	15-3/4	73
ECL-30**	42	.93	29	4500	6000	21	16	30	22	22-1/2	105
ECLN-40**	48	.92	38	4500	6000	21	12	31-1/4	23	24-5/8	125
ECL-50**	58	.91	50	4500	6000	21	16	34	26-1/2	25	170

Recovery capacity is based on actual performance tests.
For 10-year tank warranty, change "E" to "P" in model number (PCT-40).
* This model is not available with top T&P Valve.
** Models supplied with Heat Trap Nipples.
10-year tank warranty and top T&P Valve option combo not available on ECLN-40 and ECL-50.

A.O. Smith®
Innovation has a name.

CONSERVATIONIST®

TANK-TYPE WATER HEATERS

BT-65, 80 & 100

FEATURES

All models comply with ASHRAE/IES 90.1b-1992.

GLASS-LINED TANK — Assures years of rust-free clean hot water.

FULLY AUTOMATIC CONTROLS WITH SAFETY SHUTOFF — Accurate, dependable control system requires no electric connections. Fixed automatic gas shutoff device for added safety. Not recommended for 180°F sanitizing. Use Models BTC-80 & BTC-100 for 180°F sanitizing.

HEAVY GAUGE STEEL JACKET — Finished with baked enamel over bonderized undercoat.

FOAM INSULATION — Saves fuel, helps reduce standby heat loss.

CERTIFICATION — Units are design certified by the American Gas Association (Canadian Gas Association for units built in Canada). Meets rigid requirements of the National Sanitation Foundation when equipped with leg kit. Certified for installation on combustible flooring.

EASY TO INSTALL — Completely factory assembled. Only gas, water and vent connections need be made. All connections are located in front and top of heaters for ease of installation and service.

DRAFT DIVERTER — Low profile diverter furnished as standard equipment.

MAXIMUM WORKING PRESSURE — 150 psi.

MAXIMUM GAS INLET PRESSURE — 14" W.C.

HANDHOLE CLEANOUT — On 75 and 100 gallon models. Allows easy tank cleaning.

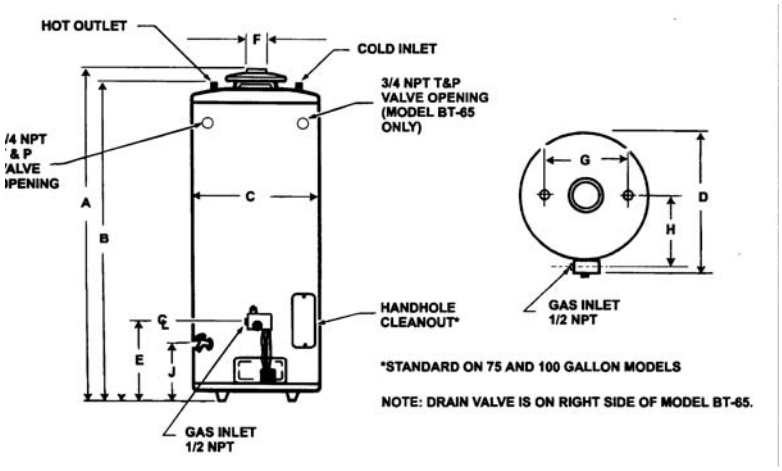
OTHER FEATURES

• Built-in gas filter and integral dirt leg (propane only) • Anodic protection • Equipped with gas pressure regulator • Integral automatic gas shutoff system prevents excessive water temperature • Factory installed A.G.A./ASME rated temperature and pressure relief valve.

LIMITED WARRANTY OUTLINE

If the tank should leak any time during the first three years, under the terms of the warranty, A. O. Smith will furnish a replacement heater; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A. O. Smith Water Products Company.

Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.



ALL DIMENSIONS IN INCHES

Model	A	B	C	D	E	F	G	H	J	Inlet Outlet	Approx. Ship. Wt. (Lbs.)
BT65	64-3/4	59-7/8	20-1/4	23-3/8	15-5/8	4	8	11-1/2	11-3/4	3/4	165
BT80	61-1/2	58-1/2	25-1/2	28-1/2	15-3/16	4	16	14	11-15/16	1	291
BT100	68-3/4	66-1/2	26-1/2	29-3/4	15-3/16	4	16	14-1/2	11-15/16	1-1/4	366

FOR UNITS BUILT IN USA

RECOVERY CAPACITIES

Model	Approx. Gal. Cap	Type of Gas	Input Rating BTU/Hr.	Temperature Rise - Degrees F - Gallons Per Hour											
				30	40	50	60	70	80	90	100	110	120	130	140
BT65	65	Nat. & Prop.	50,000	162	131	97	81	69	61	54	48	44	40	37	35
BT80	74.5	Nat. & Prop.	75,000	227	170	136	114	97	85	76	68	62	57	52	49
BT100	100	Nat. & Prop.	75,000	227	170	136	114	97	85	76	68	62	57	52	49

NOTE: To compensate for the effects of high altitude areas above 2000 feet, recovery capacity should be reduced approximately 4% for every 1000 feet above sea level.

Capacity ratings are at 75% thermal efficiency (except as noted).

A.O. Smith
Innovation has a name.

Master - Fit

BOOSTER MODELS
COMMERCIAL WATER HEATERS
BTR-151, BTR-201

The Master-Fit® BTR-151 and BTR-201 are designed for installation in "booster" applications, to supply commercial dishwashers with very high temperature water…usually 180ºF. A booster water heater is normally used in conjunction with a standard water heater water delivering hot water at a lower temperature to meet the non-dishwashing needs of a restaurant or other food-service application.

THE ELIMINATOR™
SELF-CLEANING SYSTEM

- Designed to significantly reduce or eliminate buildup of lime, sand and other sediment inside the tank
- Reduced sediment buildup helps Master-Fit water heaters maintain their rated energy-efficiency and reduce water heating costs
- Self-cleaning system also helps prolong tank life

BUILT-IN INDUCED DRAFT BLOWER

- Produces power-induced draft of makeup air prior to burner ignition
- Provides more efficient control of heat through the flue collector
- Ideal for installations where negative air pressure is a potential problem
- No draft hood or barometric damper required

RATED AS CATEGORY 1 APPLIANCE

- Can be commonly vented with other Category 1 appliances, using standard metal type "B" vent

PERMAGLAS® ULTRA COAT
GLASS LINING

- A.O. Smith exclusive process provides superior protection against corrosion
- A.O. Smith CoreGard anode rods with stainless steel core provide additional corrosion protection

THREE WATER CONNECTION OPTIONS

- Hot and cold water connections can be made through top, front or rear of water heater
- The Eliminator self-cleaning device operates when cold water is connected through front

INTERMITTENT ELECTRONIC IGNITION

- Eliminates standing pilot
- Includes power ON/OFF switch
- Provides flame failure response in less than one second

FACTORY-INSTALLED TEMPERATURE & PRESSURE RELIEF VALVE

MAXIMUM HYDROSTATIC WORKING
PRESSURE 160 PSI

80% THERMAL EFFICIENCY CODES AND STANDARDS

- Design-certified by CSA International, according to to ANSZ21.10.3 standards governing storage-type water heaters
- Optional ASME construction available

WARRANTY

- Three-year limited warranty against tank leaks
- For complete warranty information, consult written warranty shipped with water heater, or contact A.O. Smith Water Products Company

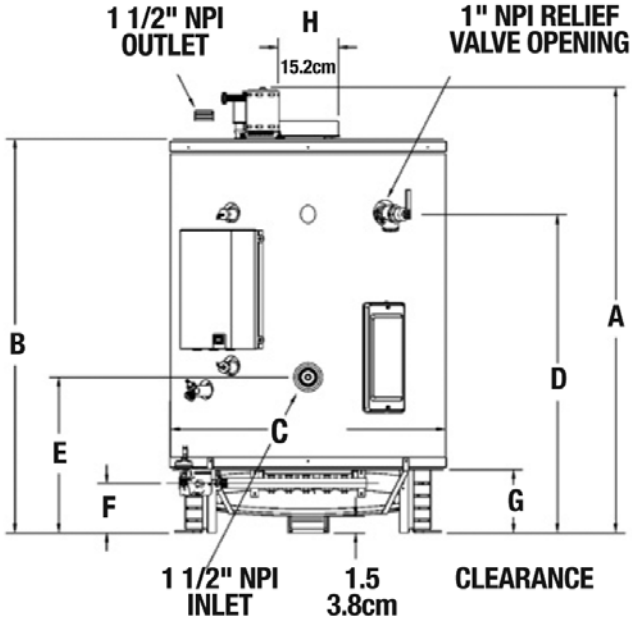
A.O. Smith
Innovation has a name.

Master - Fit

BOOSTER MODELS
COMMERCIAL WATER HEATERS
BTR-151, BTR-201

CAPACITY, INPUT AND OUTPUT

MODEL NUMBER	GALS. CAP.	BTU INPUT PER HOUR	FIRST HOUR RATING 100°F RISE	RECOVERY – GALLONS PER HOUR AT °F TEMPERATURE RISE		
				40°	100°	140°
BTR-151	32	150,000	167	364	145	104
BTR-201	32	199,000	216	485	194	139



DIMENSIONS AND WEIGHT

MODEL NUMBER	DIMENSIONS IN INCHES								GAS CONN.	WATER CONN.	APPROX. SHIPPING WEIGHT (LBS.)
	A	B	C	D	E	F	G	H			
BTR-151	45	40	27-3/4	32-1/4	15-3/4	5	6-1/2"	6"	3/4"	1-1/2"	400
BTR-201	45	40	27-3/4	32-1/4	15-3/4	5	6-1/2"	6"	3/4"	1-1/2"	400

SUGGESTED SPECIFICATION

Gas booster water heater(s) shall be A.O. Smith Master-Fit, Model Number _____ , with a 32-gallon storage capacity, an input rate of _____ BTU/HR, _____ gas, and a recovery rate of _____ gallons per hour at a _____ degree Fahrenheit temperature rise, and a maximum hydrostatic working pressure of 160 psi.

Unit(s) shall have a fan-assisted combustion system, providing a power-induced draft of makeup air prior to burner ignition.

Unit(s) shall be equipped with intermittent electronic ignition with power on/off switch, which shall provide flame failure response in less than one second. The burner for the unit(s) shall be easily removable. Unit(s) shall be equipped with a factory-installed temperature and pressure relief valve, and a 2-3/4" x 3-3/4" tank inspection port.

The water heater tank shall be glasslined and protected against premature failure in the following ways:

1. Against electrolytic corrosion by multiple, factory-installed anode rods
2. Against failure due to overheating caused by the buildup of scale, film and other sediment by a self-cleaning device, positioned inside the tank so that it directs the flow of inlet water in such a way that microscopic particles of precipitated solids shall be kept in suspension and exhausted from the water heater on that or successive hot water draws.

Unit(s) shall meet or exceed ASHRAE/IESNA 90.1-1999, and be design certified by CSA International, according to ANSZ21.10.3 standards governing storage-type water heaters.

A.O. Smith®
Innovation has a name.

MasterFit®

COMMERCIAL GAS TANK-TYPE WATER HEATERS BTR 120-500(A)

FEATURES

80+ % thermal efficiency affords lower operating costs on most models.

WATER CONNECTIONS — For ease of installation, BTR's feature on most models water connections on the top, front, and rear.

GLASS LINED TANK — Permaglas® Ultracoat is the proprietary ceramic coating developed by A.O. Smith's ceramic engineers specifically for this heater. It is applied after the complete tank has been assembled to give a seamless barrier against corrosion by hot water. The maximum working pressure is 160 psi.

FULLY AUTOMATIC CONTROLS WITH SAFETY SHUTOFF — Accurate, dependable control system. Manual reset gas shutoff device for added safety. Maximum inlet gas pressure is 14" W.C. Minimum gas pressure is 4.5" W.C. natural gas, 11" W.C. propane.

FOAM INSULATION — Saves fuel, helps reduce standby heat loss.

JACKET — Heavy gauge steel finished with a baked enamel finish over a bonderized undercoat.

EASY CLEANING — Handhole cleanout allows easy cleaning.

FULLY TESTED FOR SAFETY AND PERFORMANCE — Design certified by the Underwriters Laboratory for 180°F hot water service. Meets rigid requirements of the National Sanitation Foundation when equipped with optional leg kit. Certified for use on combustible flooring.

INTERMITTENT IGNITION DEVICE — Eliminates standing pilot. Provides flame failure response in less than one second. Power ON/OFF switch.

EASY TO INSTALL — Completely factory-assembled. Only gas, water, vent and electric connections need be made. Provided with drain valve.

FACTORY INSTALLED AND TESTED DRAFT DIVERTER — Low profile "snap action" diverter with automatic motorized flue damper to minimize standby losses.

ANODES — CoreGuardTM long-life, stainless steel core anode rods.

PLUG KITS — Pipe nipples and caps are included to plug unused water connections.

OTHER FEATURES

- Equipped with gas pressure regulator and pilot filter
- Integral automatic gas shutoff system prevents excessive water temperature
- A.G A. rated temperature and pressure relief valve factory-installed
- Maximum working pressure is 160 psi standard
- Cathodic protection
- Adjustable thermostat witha 120-180°F range.

OPTIONS

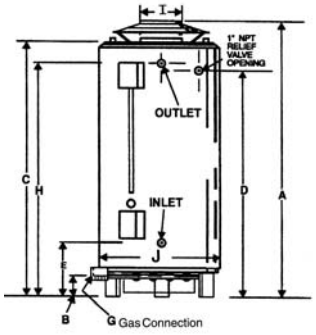
- Power vent kits for side wall venting.
- Manifold kits for multiple heater installations.
- Meets NSF Standard 5 with optional leg kit.

LIMITED WARRANTY OUTLINE

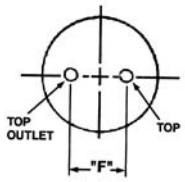
If the tank should leak any time during the first three years, under the terms of the limited warranty, A. 0. Smith will furnish a replacement heater; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY**. For complete information, consult the written warranty or A. 0. Smith Water Products Company.

Warranty does not apply to product installed outside of the United States of Amenca or its territorial possessions andCanada.

ROUGH-IN DIMENSIONS
SIDE VIEW OF BTR
Models 120-500



Top View of BTR



c UL us LW ASME on selected models.

Dimension Tables for BTR
Models 120-500

Model	Approx Tank Cap. (Gals.)	Type of Gas	Input Rating Btu/Hr	A	B	C	D	E	F	G	H	I	J	Approx. Ship Wt. Std	Approx. Ship Wt. ASM
BTR120	71	nat/prop	120,000	69-3/4	4-1/4	59-1/2	50-7/8	19-5/8	19	1/2	51-7/8	5	27-3/4	400	---
BTR154	81	nat/prop	154,000	73	4-1/4	66-1/2	57-7/8	19-5/8	19	1/2	59	6	27-3/4	470	---
BTR180	81	nat/prop	180,000	67-1/2	4-1/2	62	53-5/8	20-1/2	21	1/2	54-5/8	6	27-3/4	470	---
BTR197	100	nat/prop	199,000	75	4-1/2	70	61-5/8	20-1/2	21	1/2	62-5/8	6	27-3/4	603	---
BTR198	100	nat/prop	199,000	75	4-1/2	70	61-5/8	20-1/2	21	1/2	61-1/2	6	27-3/4	603	---
BTR199	81	nat/prop	190,000	67-1/2	4-1/2	62	53-5/8	20-1/2	21	1/2	53-1/2	6	27-3/4	470	---
BTR200(A)	100	nat/prop	199,000	72	4-1/2	65	55-7/8	19-3/4	23	1/2	54-7/8	6	30-1/4	630	724
BTR250(A)	100	nat/prop	250,000	72	4-1/2	65	55-7/8	19-3/4	23	1/2	56-3/8	8	30-1/4	630	724
BTR251(A)	65	nat/prop	251,000	75	4-1/2	65-3/4	57-1/4	20	NA	1/2	58-3/4	8	27-3/4	750	862
BTR275(A)*	100	nat/prop	275,000	72	4-1/2	65	55-7/8	19-3/4	23	1/2	56-3/8	8	30-1/4	630	724
BTR305(A)	65	nat/prop	305,000	75	4-1/2	65-3/4	57-1/4	20	NA	3/4	58-3/4	8	27-3/4	750	862
BTR365(A)	85	nat/prop	365,000	79-1/2	4-1/2	70-1/4	62-1/2	22-1/2	21	3/4	63	8	27-3/4	725	833
BTR400(A)	100	nat/prop	399,000	75-1/2	4-1/2	67-1/2	58-1/4	26-3/4	23	3/4	59	8	30-1/4	760	874
BTR500(A)	85	nat/prop	500,000	82-1/4	4-1/2	73-1/2	65-1/4	25-1/2	21	1	65-3/4	8	27-3/4	745	856

Gas Pressure Requirements		
	Natural Gas	PropaneGas
Max. Supply Pressure	13.8" w.c.	13.8" w.c.
Min. Supply Pressure	4.5" w.c.	11" w.c.
Manifold Pressure	3.5" w.c.	10" w.c.

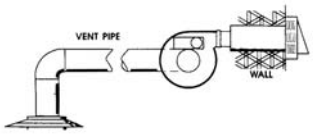
Electrical Specifications		
	Volts	Amps
BTR	120VAC	.7
BTR with Power Venter	120VAC	3.0 FLA

MasterFit®

COMMERCIAL GAS TANK-TYPE WATER HEATERS BTR 120-500(A)

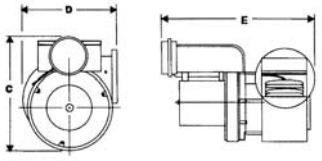
POWER VENTS FOR BTR

FEATURES



DESIGNED FOR FLEXIBILITY — Easy to install sidewall power vent system. Use these kits where gas is the preferred choice, but conventional venting is costly. Allows conversion from electric to gas or upgrading to units with higher inputs without having to do costly venting system upgrades. Easy to install and wire. Approved for use on all A.O. Smith water heaters listed below. Allows th~ use of smaller diameter vent pipe than allowed with conventional venting.

POWERFUL 115 VOLT POWER VENTER — Allows venting up to 100 equivalent feet away. Each model sized for a perfect match with A.O. Smith water heaters. Power Venters have one or more of the following depending on the heater's requirements. Built in 24/11 Svolt relay to interface with control systems. Combination 24 volt relay and adjustable post-purge timer control in lieu of relay on some models. Installed diaphragm draft proving switch. Vibration isolation mount works with common plumber's strap and helps keep operation quiet. All controls factory mounted and wired for simple installation.

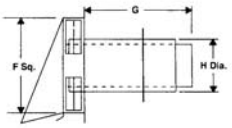


ALUMINUM VENT HOOD — Mounts on outside of wall. Features telescoping vent pipe connection sleeve, rust free construction, outside wall condensate shield, 1 airspace provides clearance forcombustibles, special heat shield protects building exterior. Mounting hardware included.

COLOR CODED WIRING HARNESS — Eliminates need for electrician (check codes). Simple 24 volt connections and a 25' lowvoltage cable. Includes grounded 115 volt power cord with plug on models up through 250,000 btu.

ADAPTER FITTINGS — Provided along with mounting hardware and instructions for a quick and simple installation. Approved vent pipe reducers supplied where applicable.

APPROVED FOR TYPE-B VENT — Non pressurized vent from heater to power venter allows the use of economical Type-B vent pipe.



BTR Water Models	Part Number	Motor Watts	Motor Amps	Max. Length of Vent	Vent Dia. Size	C Vent Assembly Height	D Vent Assembly Depth	E Vent Assembly Width	F Vent Termination Square	G	H Dia.	Rough In
120	6543	95	1.26	100 ft.*	4"	7-7/8"	7"	10-1/4"	9"	9-1/2"	6-5/8"	7-1/8"
154-251	6544	95	1.26	100 ft.*	4"	7-7/8"	7"	10-1/4"	9"	9-1/2"	6-5/8"	7-1/8"
275-500	6545	224	2.0	100 ft.*	6"	9-1/4"	8-1/2"	11-1/2"	10-1/8"	9-1/2"	8-1/2"	9"

*Vent pipe/vent hood connection based on Class B vent pipe sizes. Calculated using total pipe length, plus 5 ft. for every 90" elbow and 2-1/2 ft. or every 45" elbow.

RECOVERY CAPACITIES FOR BTR

Model	Input Rating Btu/Hr.	Gal.	Temperature Rise - Degrees F - Gallons Per Hour											
			30	40	50	60	70	80	90	100	110	120	130	140
BTR120	120,000	71	388	291	233	194	166	145	129	116	106	97	90	83
BTR154	154,000	81	498	373	299	249	213	187	166	149	136	124	115	107
BTR180	180,000	81	532	436	349	291	249	218	194	175	159	145	134	124
BTR197	199,000	100	643	482	386	322	276	241	214	193	175	161	148	132
BTR198	199,000	100	643	482	386	322	276	241	214	193	175	161	148	138
BTR199	190,000	81	614	461	368	307	263	230	205	184	167	154	142	132
BTR200(A)	199,000	100	643	482	386	322	276	241	214	193	175	161	148	132
BTR250(A)	250,000	100	808	606	485	404	346	303	269	242	220	202	186	173
BTR251(A)	251,000	65	811	608	487	406	348	304	270	243	221	203	187	174
BTR275(A)	275,000	100	889	667	533	444	381	333	296	267	242	222	205	190
BTR305(A)	305,000	65	986	739	592	493	423	370	329	296	269	246	228	211
BTR365(A)	365,000	85	1180	885	708	590	506	442	393	354	322	295	272	253
BTR400(A)	399,000	100	1293	970	776	646	554	485	431	388	353	323	298	277
BTR500(A)	500,000	85	1616	1212	970	808	693	606	539	485	441	404	373	346

Model	Clearance to Combustibles		Clearance to Non-Combustibles	
	Sides & Rear	Top Cover	Sides & Rear	Top Cover
BTR120	1"	12"	0"	12"
BTR154	1"	12"	0"	12"
BTR180	1"	12"	0"	12"
BTR197	1"	12"	0"	12"
BTR198	1"	12"	0"	12"
BTR199	1"	12"	0"	12"
BTR200(A)	1"	12"	0"	12"
BTR250(A)	2"	12"	0"	12"
BTR251(A)	2"	12"	0"	12"
BTR275(A)	2"	12"	0"	12"
BTR305(A)	2"	12"	0"	12"
BTR365(A)	3"	12"	0"	12"
BTR400(A)	3"	12"	0"	12"
BTR500(A)	6"	12"	3"	12"

Water Connections in Inches						
	Inlet			Outlet		
Models	Top	Front	Back	Top	Front	Back
BTR120	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR154	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR180	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR197	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR198	1-1/2	1-1/2	2	1-1/2	1-1/2	2
BTR199	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR200(A)	1-1/2	2	2	1-1/2	2	2
BTR250(A)	1-1/2	2	2	1-1/2	2	2
BTR251(A)	NA	1-1/2	1-1/2	NA	1-1/2	1-1/2
BTR275(A)	1-1/2	2	2	1-1/2	2	2
BTR305(A)	NA	1-1/2	1-1/2	NA	1-1/2	1-1/2
BTR365(A)	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
BTR400(A)	1-1/2	2	2	1-1/2	2	2
BTR500(A)	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2

A.O. Smith
Innovation has a name.

CONSERVATIONIST®

COPPER HEAT EXCHANGER
COMMERCIAL WATER HEATERS
*HW-120M, *HW-160M, *HW-200M, *HW-225M

Meets or exceeds the requirements of ASHRAE-90.1-1989 & New York, California Codes for energy efficiencies as a water heater.

LIMITED WARRANTY OUTLINE

If the coil, heat exchanger or burner should fail within 5 years, under the terms of the warranty, then A.O. Smith will furnish a replacement part; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY**. For complete information, consult the written warranty or A O Smith Water Products Company.

FOR UNITS BUILT IN USA

FOR UNITS BUILT IN CANADA

FEATURES

ALL NON-FERROUS WATERWAYS — Rustproof because water comes in contact with nothing but copper, brass or bronze. Copper transfers heat eight times faster than ferrous metals yet offers remarkable structural strength without excessive weight. Free from the effects of therma! shock.

EFFICIENT COPPER COIL COMBUSTION CHAMBER — Continuous coils of tightly wound copper tubing form a unique combustion chamber. Water circulating thru the coils, around the flame, captures radiant heat which may otherwise be lost. Eliminates any need for insulation.

OPTIMUM ENERGY TRANSFER FROM COPPER HEAT EXCHANGER — Integral extended surface copper tube having helical fins on the outside. Since the fins are extruded from the tube, surface contact is optimized resulting in maximum heat transfer and efficiency. Burkay design provides a liberal heat transfer area directly above the source of heat.

NEW HIGH-EFFICIENCY STAINLESS-STEEL BURNER — Developed especially for A. O. Smith water heaters using the very latest burner principles.

FORCED WATER CIRCULATION IMPROVES SYSTEM EFFICIENCY — Water moving at 2 to 4 feet per second helps to prevent lime build-up and also scrubs extra heat from the copper coil combustion chamber.

120V AC CONTROLS — Positive switch action. Max. inlet gas supply pressure 14" W.C. Heaters must be activated by external temperature control.

THERMAL BALANCER (HW-200M, HW-225M) — Patented thermal balancer functions as a pump shutoff delay switch. It allows the pump and heater to activate simultaneously but delays pump shut off for 120 ± 30 seconds after heater shuts down. This allows the high temperature water to clear the heater thus utilizing all heat that had been generated plus reducing the scale forming tendencies of motionless hot water (Not to be used on booster recovery systems.)

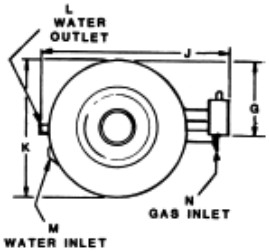
MAIN BURNER REGULATION — Factory adjusted for gas required.

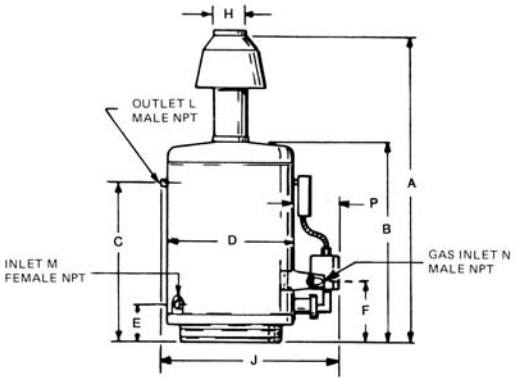
JACKET — Prefinished with a bonderized coating followed by a bakedon enamel finish.

CERTIFICATION — All models are design certified by the American Gas Association (Canadian Gas Association for units built in Canada) and are certified for installation on combustible flooring. All bear the ASME code symbol and are approved by the National Sanitation Foundation.

WORKING PRESSURE — 160 psi.

INTERMITTENT IGNITION — Available as an option (120/24 volt).





ALL DIMENSIONS IN INCHES

Models	A	B	C	D	E	F	G	H	J	K	L	M	N
HW120M	49-3/8	30-3/8	23-5/8	20-3/4	5-1/2	10	11-13/16	6	26-11/16	20-3/4	1-1/4	1	1/2
HW160M	50-1/8	30-3/8	23-5/8	20-3/4	5-1/2	10	11-13/16	7	26-11/16	20-3/4	1-1/4	1	1/2
HW200M	53-1/4	33-1/8	27-1/8	20-3/4	5-1/2	10	11-13/16	7	26-11/16	20-3/4	1-1/4	1	1/2
HW225M	60	33-1/8	27-1/8	20-3/4	5-1/2	10	11-13/16	7	26-11/16	20-3/4	1-1/4	1	3/4

RECOVERY CAPACITIES											
	Input Rating BTU/Hr.	Temperature Rise - Degrees F - Gallons Per Hour									
Model	Nat. & Propane Gas	40	50	60	70	80	90	100	110	120	130	140
HW120M	120,000	300	240	200	171	150	133	120	109	100	92	86
HW160M	160,000	385	308	257	220	193	171	154	140	128	118	110
HW200M	199,000	487	389	324	278	243	216	195	177	162	150	139
HW225M	225,000 Nat. Gas Only	543	434	362	310	271	241	217	197	181	167	155

Recovery rating of models shown in chart above are obtained by actual efficiency test data, by a recognized Certification Agency.

A.O. Smith
Innovation has a name.

CONSERVATIONIST®
COMMERCIAL BOILERS
HW-300 THRU HW-670
Domestic Hot Water Supply Boiler

Meets or exceeds the requirements of ASHRAE 90.1b-1992, New York and California Energy Codes.

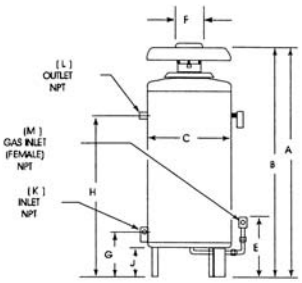
HW – INDOOR INSTALLATION ONLY

Not approved for instantaneous applications.

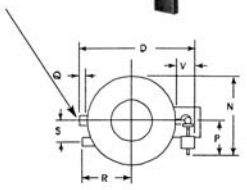
USA CANADA

HW MODELS CERTIFICATION & APPROVAL

NOTE: MANIFOLD HAS EXTRA OPENINGS FOR THERMOMETER (3/4" AND RELIEF VALVE [1"] (HW-520 AND -670 ONLY)



HW - INDOOR MODELS



HW - 300 ONLY

HW - 670 ONLY

FEATURES

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 heater immune to the effects of thermal shock and thermal cycling. A great boiler for domestic hot water supply systems.

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 Burkay coil and heat exchanger design provide maximum heat transfer and proven field durability.

BURKAY BURNER MAXIMIZES EFFICIENCY — The patented Burkay burner uses primary air injection at up to 72 individual orifices plus secondary entrainment of air. Approved for installation on combustible floors as shipped from factory.

GAS VALVES — Slow opening redundant gas valves ensure smooth light-off without flame roll-out or pilot outage.

THERMAL BALANCER — Patented pump delay system that allows 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.

AUTOMATIC SAFETY CONTROLS AND ELECTRONIC IGNITION — Proven pilot ignition system provides flame failure response in under one (1) second. Redundant high limit controls and gas valves assure safe shutoff in the event of overheating or flame failure. Requires 120V 60Hz, maximum inlet gas pressure of 14" WC and activation of heater by external temperature control.

OPTIONAL POWERED VENT HOOD — for sidewall venting.

WORKING PRESSURE — ASME approved, hydrostatically tested and certified for 160 psi.

*Except model HW-399 is 81%.

LIMITED WARRANTY OUTLINE

If the heat exchanger modules should fail within 5 years, under the terms of the warranty; A. O. Smith will furnish a replacement part; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A. O. Smith Water Products Company.

Note: When used as a hot water boiler, heat exchanger carries a 10 year warranty.

DIMENSIONS

Models	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	V	Approx Ship. Wt. Lbs.
HW-300	65	43-1/4	25-1/4	29-5/8	16-1/2	8	12	36	9	1-1/4	1-1/4	3/4	26-5/8	14	1	10-1/8	5-318	5	240
HW-420	57-1/8	45-1/8	27	31-1/2	16-3/4	10	12	38-3/4	9	1-1/2	1-1/2	1	27-1/2	14	1	11-1/4	5-1/2	5	291
HW-520	68-5/16	56-1/4	27	36-1/2	18	10	12	46-1/2	9	2	2	1-1/4	24-1/2	11	3-1/2	12	5-3/4	7	361
HW-670	67	56-1/4	27	38-1/4	17-3/4	12	12	46-1/2	9	2	2	1-1/4	26-3/4	13-1/4	3-1/2	12	5-3/4	7	361

SPECIFICATIONS AND RECOVERY CAPACITIES

Model	Input Rating A.G.A. BTUH Natural and Propane Gases		Temperature Rise - Degrees F												
			20	30	40	50	60	70	80	90	100	110	120	130	140
HW-300	300,000	GPH	1491	993.9	745	596	497	426	373	331	298	271	248	229	213
		GPM	24.8	16.6	12.4	9.9	8.3	7.1	6.2	5.5	4.9	4.5	4.1	3.8	3.5
HW-420	420,000	GPH	2087	1391	1044	935	696	596	521.9	464	417	379	348	321	298
		GPM	34.7	23.2	17.4	13.9	11.6	9.9	8.7	7.7	6.9	6.3	5.8	5.3	4.9
HW-520	520,000	GPH	2584	1723	1292	1034	861	738	646	574	516	470	430	396	369
		GPM	43	28.7	21.5	17.2	14.4	12.3	10.8	9.6	8.6	7.8	7.1	6.6	6.1
HW-670	660,000 Nat.	GPH	3280	2186	1640	1312	1093	937	820	729	656	596	547	504	468
		GPM	54.6	36.4	27.3	21.9	18.2	15.6	13.6	12.1	10.9	9.9	9.1	8.4	7.8
	670,000 LP	GPH	3249	2166	1624	1299	1083	928	812	722	650	591	541	500	464
		GPM	54.1	36.1	27.1	21.7	18.1	15.5	13.5	12.0	10.8	9.8	9.0	8.3	7.7

Innovation has a name.

CYCLONE XHE™

94% EXTRA HIGH EFFICIENCY TANK-TYPE WATER HEATERS

BTH-120, BTH-150, BTH-199 & BTH-250

FEATURES

94% THERMAL EFFICIENCY — Fully condensing design is 16% more efficient than the ASHRAE requirement of 78%.

FLEXIBLE VENTING — 3" or 4" PVC, ABS or CPVC pipe is recom-mended. The CYCLONE XHE TM vents vertically, horizontally and is also approved for direct vent sealed combustion applications.50 equivalent feet maximum using 3" vent, 120 equivalent feet using 4" vent.

ADVANCED ELECTRONIC CONTROLS — A microprocessor controls the ignition and thermostat allowing precise setting of water temperatures from 110°F to 180°F. A digital display panel shows the operating mode, all user settings and any failure modes for ease of service.

PRESET POWER BURNER — Developed for the CYCLONE XHE TM ,a turbulent jet flame shoots down the submerged combustion chamber in a spiral action. This turbulence causes a thorough mixing of the gas and air for optimum combustion and high heat transfer efficiencies.

SUBMERGED COMBUSTION CHAMBER — Submerging the combustion chamber in the center of the water storage tank minimizes radiant heat loss and improves efficiency.

ZERO INCH CLEARANCE — The CYCLONE XHE™ jacket is cool and is approved for zero inches to combustibles for unsurpassed installation flexibility.

SPIRAL WOUND FLUE TUBE — The continuous spiral flue tube keeps the hot combustion gases moving at a high velocity. The combination of high turbulence and velocity causes an enormous rate of heat transfer into the water.

SCALE FREE — This flue design prevents scale and sediment from forming on the flue tube and reducing efficiency over time.

GLASS LINED TANK — Proprietary ceramic coating developed by A.O. Smith's ceramic engineers specifically for this heater is applied after the complete tank has been assembled to give a seamless barrier against corrosion by hot water. The maximum working pressure is 160 psi.

HANDHOLE CLEANOUT — Allows easy inspection and cleaning of the tank.

FOAM INSULATION — Thick foam insulation protected by a heavy gauge steel jacket contributes to low standby losses.

EASY INSTALLATION — All components are factory assembled and 100% tested prior to shipment. Only gas, water, electrical and venting connections need to be made. No major field adjustments are required for proper operation. Includes T&P valve and drain valve.

LIMITED WARRANTY OUTLINE

If the tank assembly which includes the combustion chamber and flue should leak any time during the first three years, under the terms of the warranty, A.O. Smith will furnish a replacement tank assembly. Installation, labor, handling and local delivery are extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A.O. Smith Water Products Company.

Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.

SCQAMD Approved, Rule 1146.2 Low NOx

ASME (OPTIONAL)

RECOVERY CAPACITIES

Model	BTU Input	Approx. Gallon Capacity	Ship. Wt.	Temperature Rise - Degrees F - Gallons per Hour											
				30	40	50	60	70	80	90	100	110	120	130	140
BTH-120	125,000	60	350	475	356	285	237	203	178	158	142	129	119	110	102
BTH-150	150,000	100	438	570	427	342	285	244	214	190	171	155	142	131	122
BTH-199	199,000	100	438	756	567	453	378	324	283	252	227	206	189	174	162
BTH-250	240,000	100	438	912	684	547	456	391	342	304	273	249	228	210	195
BTH-300	300,000	130	940	1164	873	699	582	499	436	388	349	318	291	269	250
BTH-400	400,000	130	940	1552	1164	931	776	665	582	517	465	423	388	359	332
BTH-500	500,000	130	940	1919	1439	1151	959	822	720	640	576	523	480	443	411

*BTH-250 NOT AVAILABLE IN LP GAS.

Combustible clearances 0".
Approved for combustible floors.

INSTALLATION CLEARANCES

Sides	0"
Front	4"
Rear	0"
Top	2"

MAXIMUM EQUIVALENT VENT LENGTH:

BTH-120 – 250	using 3" pipe: 50 ft.
BTH-120 – 250	using 4" pipe: 120 ft.
BTH-300 – 500	using 3" pipe: not applicable
BTH-300 – 500	using 4" pipe: 70 ft.

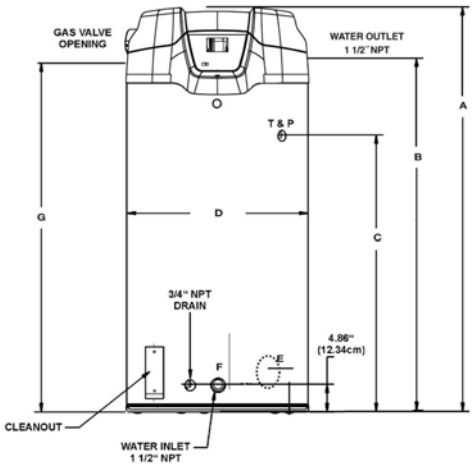
GAS VALVE PIPING

BTH-120	1/2" NPT
BTH-150	3/4" NPT
BTH-199	1/2" NPT
BTH-250	1/2" NPT
BTH-300	1 1/4" NPT
BTH-400	1 1/4" NPT
BTH-500	1 1/2" NPT

CLEARANCES

Sides	0"
Front	0"
Rear	0"
Top	1.5"
To Combustibles*	0"

• Approved for combustible floors



DIMENSIONS AND SHIPPING WEIGHTS

MODEL	DIMENSIONS							SHIP WEIGHT STD LBS/KG	SHIP WEIGHT ASME LBS/KG
	A INCHES/CM	B INCHES/CM	C INCHES/CM	D INCHES/CM	E INCHES/CM	F INCHES/CM	G INCHES/CM		
BTH-120	55.5/141	44.5/113	35/88.9	27.75/70.5	7.5/19.1	6.3/16	47/119.4	460Lbs/208.7Kg	490Lbs/222.2Kg
BTH-150	75.5/191.8	64.5/163.8	55.5/141	27.75/70.5	7.5/19.1	6.3/16	68/172.7	555Lbs/251.7Kg	595Lbs/269.9Kg
BTH-199, 250	75.5/191.8	64.5/163.8	55.5/141	27.75/70.5	7.5/19.1	6.3/16	72/182.9	555Lbs/251.7Kg	595Lbs/269.9Kg
BTH-300, 400, 500	75.5/191.8	64.5/163.8	50.77/129	33.12/84.1	8/20.3	4.86/12.3	67.25/170.8	N/A	940Lbs/426.4Kg

Innovation has a name.

ON DEMAND

HIGH EFFICIENCY INDOOR TANKLESS WATER HEATERS

ATI-520H-N, ATI-520H-P

ANSI Z21.10.3 CSA 4.3

FEATURES

ENERGY STAR® QUALIFIED

Condensing Technology Provides Significant Energy Cost Savings

- Stronger than standard copper and more resilient against erosion

Secondary Heat Exchanger Is Made Of Type 316L Stainless Steel

- Provides additional protection against corrosion

Continuous Maximum Flow Rates Up To 9.0 GPM

- Can Be Used In Both Residential And Light Commercial Applications

Easily Connect Up To 4 Units

- With no additional parts or accessories needed

Built-in Display Shows Operating Temperature Along With Diagnostic And Error Codes

SAFETY FEATURES

- Air-Fuel Ratio (AFR) Sensor
- Exhaust & Water Temperature Safety Control
- Overheat Cutoff Fuse
- Internal Freeze Protection System

POWER DIRECT VENT DESIGN

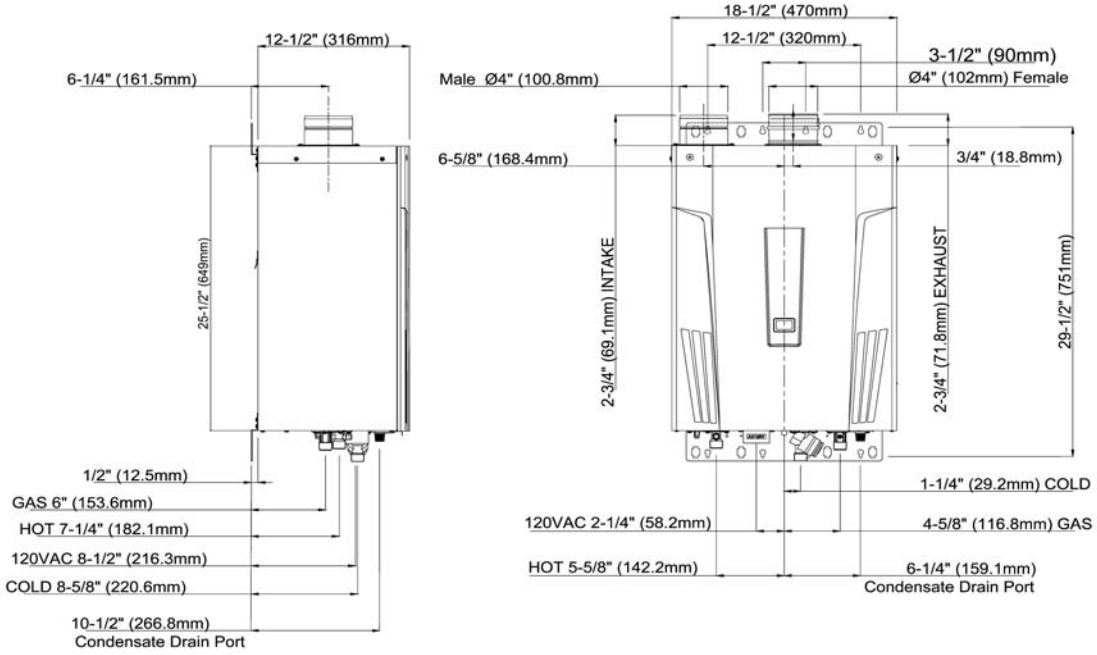
- 4" Pipe Vents up to 50 Equivalent Feet or 3" Pipe Vents up to 25 Equivalent Feet
- Uses Inexpensive PVC, CPVC, OR ABS Pipe for Intake and Exhaust (solid core only)
- Category III Stainless Steel venting can also be used

ACCESSORIES

- Remote Temperature Controller
- Pipe Cover
- Neutralizer Kit
- Plumbing Installation Kits
- PVC Intake Adaptor
- Concentric Termination

WARRANTY

- 12-year limited warranty on heat exchanger in residential applications
- 5-year limited warranty on heat exchanger in commercial applications
- 5-year warranty on all parts



CLEARANCES: Top: 12"; Bottom: 12"; Front: 4"; Back: .05"; Sides: 3"

INDOOR CONDENSING MODELS

Model Number	Fuel Type	Gas Consumption Input		Inlet Gas Pressure		Energy Factor	Hot/Cold Gas Conn.	Dimensions in Inches			Approx. Shipping Weight (LBS)
		Minimum Btu/H	Maximum Btu/H	Minimum W.C.	Maximum W.C.			Height	Width	Diameter	
ATI-520H-N	Natural	13,000	199,000	5.0	10.5	0.91	3/4" NPT	25.6	18.5	12.4	73
ATI-520H-P	Propane	13,000	199,000	8.0	14.0	0.91	3/4" NPT	25.6	18.5	12.4	70

A.O. Smith
Innovation has a name.

Dura-Power

COMMERCIAL ELECTRIC WATER HEATERS
DRE-52, 80, 120

FEATURES

GLASS-LINED TANK — Three sizes: 50, 80 and 119 gallon capacity. Tank interior is coated with glass specially developed by A.O. Smith Ceramic Research for water heater use. Tanks rated 150 psi working pressure (ASME 150 psi). Foam insulation reduces costly heat loss and is vermin proof.

ELEMENTS — Incoloy sheathing for longer life. Low watt density: means lower surface temperature to minimize scale buildup and more surface to heat water. Element sizes from 3 to 6 Kw. Use 3, 6, or 9 elements standard; total of 9 to 54 Kw input (see chart on back).

FUSING — Protects all elements, thermostats, and internal wiring circuits against excess current flow. Meets National Electric Code requirements that non-ASME tanks must have internal fusing when current draw exceeds 48 amps.

STANDARD VOLTAGES — 208, 240 and 480V single-phase and three phase delta. Convertible from three-phase to single-phase (in field) and vice versa. 277V single-phase also available.

TERMINAL BLOCK — Factory installed. Just bring the service to the heater and connect to block.

CONTROLS — One temperature control (adjustable through a range of 120º to 180ºF) and manual reset high temperature cutoff per element. Thermostat step control may be achieved by varying settings on individual temperature controls. Located behind hinged control compartment door for quick, easy access.

OTHER STANDARD FEATURES

- Simplified circuitry, color coded for ease of service
- Two anode rods for maximum corrosion protection
- Cabinet has bonderized undercoat with baked enamel finish
- Bottom inlet and top outlet openings
- Drain valve
- A.G.A./A.S.M.E. Temperature and Pressure relief valve
- Single panel control box

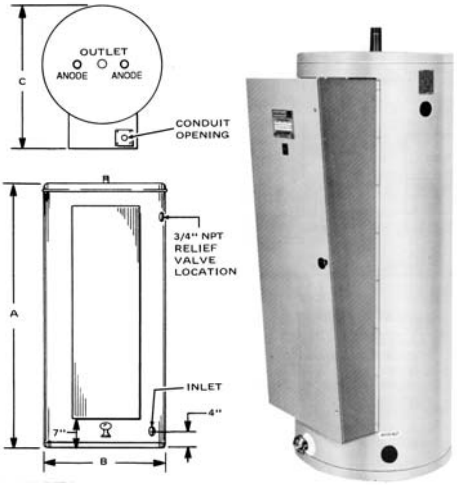
OPTIONAL

- U.L. listed conversion kits to correct some voltage and Kw requirements in the field before and after installation.
- Manifold kits with gate valves - available for multiple installation.
- ASME 150 psi tank construction
- International voltages — 380, 415 and 480 volts, three-phase available with Y connected elements.
- Field conversion kits for voltage and Kw.

RECOVERY RATE IN GALLONS PER HOUR*
Temperature Rise ºF

STANDARD KW INPUT	BTU/ HOUR	30º	40º	50º	60º	70º	80º	90º	100º	110º	120º	130º	140º
9	30,717	123	92	74	62	53	46	41	37	34	31	28	26
12	40,956	164	123	98	82	70	61	55	49	45	41	38	35
13.5	46,025	184	138	111	92	79	69	62	55	50	46	43	40
15	51,195	205	154	123	102	88	77	68	61	56	51	47	44
18	61,434	246	184	148	123	105	92	82	74	67	62	57	53
24	81,912	328	246	197	164	140	123	109	98	90	82	76	70
27	92,151	369	276	221	185	158	138	123	111	101	92	85	79
30	102,390	410	307	246	205	176	154	137	123	112	102	95	88
36	122,868	492	369	295	246	211	184	164	148	134	123	113	105
40.5	138,226	554	418	332	277	237	208	185	166	151	138	128	119
45	153,585	615	461	369	307	263	230	205	184	168	154	142	132
54	184,302	738	554	443	369	316	277	246	221	201	185	170	158

Figured at 1 KW (3413 Btu) = 4.1 Gallons at 100ºF temperature rise.
To determine recovery rate per minute, divide recovery rate per hour by 60.
NSF ratings may be obtained by multiplying the above GPH figures by 0.98.



Model Number	Tank Capacity in Gallons	Dimensions in Inches A	B	C	Inlet/ Outlet	Approx. Ship. Wt. (Lbs.) Standard	ASME
DRE-52	50	55-1/4	21-3/4	27-1/4	1-1/4	245	296
DRE-80	80	59-1/2	25-1/4	31-1/4	1-1/4	264	309
DRE-120	119	62-1/4	29-1/2	35-3/4	1-1/4	375	401

LIMITED WARRANTY OUTLINE

If the tank should leak any time during the first three years, under the terms of the warranty, A.O. Smith will furnish a replacement heater; installation, labor, handling and local delivery extra.

THIS OUTLINE IS NOT A WARRANTY.

For complete information, consult the written warranty or A.O. Smith Water Products Company.

KW Input	Model Numbers Tank Capacity In Gallons 50	80	119	No. of Elements and Thermostats	Element Wattage	Full Load Current In Amperes Single Phase 208V	240V	277V	480V	Three Phase 208V	240V	480V
9	DRE-52-9	DRE-80-9	DRE-120-9	3	3000	43.3	37.5	32.5	18.8	25.0	21.7	10.8
12	DRE-52-12	DRE-80-12	DRE-120-12	3	4000	57.7	50.0	43.3	25.0	33.3	28.9	14.4
15	DRE-52-15	DRE-80-15	DRE-120-15	3	5000	72.1	62.5	54.2	31.3	41.6	36.1	18.0
13.5	DRE-52-13.5	DRE-80-13.5	DRE-120-13.5	3	4500	64.9	56.3	48.7	28.1	37.5	32.5	16.2
18	DRE-52-18	DRE-80-18	DRE-120-18	3+	6000	86.5	75.0	65.0	37.5	50.0	43.3	21.7
24	DRE-52-24	DRE-80-24	DRE-120-24	6	4000	115.4	100.0	86.6	50.0	66.6	57.7	28.9
27	DRE-52-27	DRE-80-27	DRE-120-27	6	4500	129.8	112.5	97.5	56.3	74.9	65.0	32.5
30	DRE-52-30	DRE-80-30	DRE-120-30	6	5000	144.2	125.0	108.3	62.5	83.3	72.2	36.1
36	DRE-52-36	DRE-80-36	DRE-120-36	6+	6000	173.1	150.0	130.0	75.0	99.9	86.6	43.3
40.5	N/A	DRE-80-40.5	DRE-120-40.5	9	4500	194.7	168.8	146.2	84.4	112.4	97.4	48.7
45	N/A	DRE-80-45	DRE-120-45	9	5000	216.3	187.5	162.5	93.8	124.9	108.3	54.1
54	N/A	DRE-80-54	DRE-120-54	9	6000	N/A	225.0	194.9	112.5	149.9	129.9	65.0

+ 208 volt models may contain three (3) additonal elements and thermostats.

UL®

ASME

NSF

A.O. Smith
Innovation has a name.

Dura-Power

COMMERCIAL ELECTRIC WATER HEATERS
DVE-52, 80, 120

FEATURES

GLASS-LINED TANK — Three sizes; 52, 80 and 119 gallon capacity. Tank interior is coated with glass specially developed by A.O. Smith Ceramic Research for water heater use. Tanks rated at 150 psi working pressure; tested at 300 psi. Foam insulation reduces costly heat loss. ASME (optional) maximum working pressure is 160 psi.

ELEMENTS — Heavy duty elements have Incoloy sheaths and ceramic terminal block for rugged commercial service. Medium watt density means lower surface temperature to minimize scale buildup and more surface to heat water. Element sizes from 2 to 6 KW. Use 3, 6 or 9 elements; maximum input 54 KW. The design assures proper placement of elements in the tank to avoid bridging the sheaths with lime or scale deposits.

POWER CIRCUIT FUSING — Protects elements and contactors from short circuits, overloading or line surges. Meets National Electric Code requirements (fusing required when current draw exceeds 48 amps).

STANDARD VOLTAGES — 208, 240 and 480V single-phase and three phase delta. Convertible from three-phase to single-phase (in field) and vice versa (except 208/54 KW). 277V singlephase also available.

TERMINAL BLOCK — Factory installed. Just bring the service to the heater and connect to block.

MAGNETIC CONTACTORS — Heavy duty; UL rated 100,000 cycles.

Meets or exceeds the requirements of ASH RAE 90.1 b-i 992 Standard for energy efficiencies.

CONTROLS — 120V control circuit is powered by fused transformer, eliminating need for 120V service connection. Immersion temperature control adjustable through a range of 60°F to 180°F. Manual reset high temperature cutoff.

• Simplified circuitry, color coded for ease of service • Hinged control compartment door for quick, easy access • Two anode rods for maximum corrosion protection • Cabinet has bonderized undercoat with baked enamel finish • Top outlet, side inlet and relief valve openings • Nipple and brass drain valve • A.G.A./ ASME temperature and pressure relief valve.

OPTIONAL

MANIFOLD KITS WITH STOP VALVES — Available for multiple installations.

THERMOSTATIC SEQUENCING CONTROL — Energizes three elements at a time to prevent line surges when thermostat calls for heat. Available on units 24 KW and larger. See page C 029.0 for service wiring and fuse selection.

OPTIONAL INTERNATIONAL VOLTAGES — 380, 415, 480, 575 and 600 volts three-phase available with Y connected elements.

RECOVERY CAPACITY IN GALLONS AT TEMPERATURE RISE OF

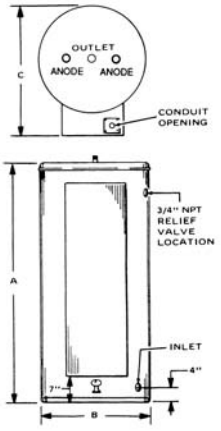
STANDARD KW INPUT	BTU/ HOUR	30°	40°	50°	60°	70°	80°	90°	100°	110°	120°	130°	140°
6	20,478	82	62	49	41	35	31	27	25	22	21	19	18
9	30,717	123	92	74	62	53	46	41	37	34	31	28	26
12	40,956	164	123	98	82	70	61	55	49	45	41	38	35
13.5	46,075	184	138	111	92	79	69	62	55	50	46	43	40
15	51,195	205	154	123	102	88	77	68	61	56	51	47	44
18	61,434	246	184	148	123	105	92	82	74	67	62	57	53
24	81,912	328	246	197	164	140	123	109	98	90	82	76	70
27	92,151	369	276	221	185	158	138	123	111	101	92	85	79
30	102,390	410	307	246	205	176	154	137	123	112	102	95	88
36	122,868	492	369	295	246	211	184	164	148	134	123	113	105
40.5	138,226	554	418	332	277	237	208	185	166	151	138	128	119
45	153,585	615	461	369	307	263	230	205	184	168	154	142	132
54	184,302	738	554	443	359	316	277	246	221	201	185	170	158

Figured at 1 KW (3413 BTU) = 4.1 Gallons at 100°F temperature rise.
NSF ratings may be obtained by multiplying the above figures by 0.98.

LIMITED WARRANTY OUTLINE

If the tank should leak any time during the first three years, under the terms of the warranty, A.O. Smith will furnish a replacement heater; installation,labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.**

For complete information, consult the written warranty or A. 0. Smith Water Products Company



Model Number	Tank Capacity in Gallons	Dimensions in Inches A	B	C	Inlet/ Outlet	Approx. Ship. Wt. (Lbs.) Standard	ASME
DVE-52	50	55-1/4	21-3/4	27-1/4	1-1/4	265	316
DVE-80	80	59-1/2	25-1/4	31-1/4	1-1/4	280	325
DVE-120	119	62-1/4	29-1/2	35-3/4	1-1/4	390	416

KW Input	Model Numbers Tank Capacity In Gallons 50	80	119	Number Of Elements	Element Wattage	Full Load Current In Amperes Single Phase 208V	240V	277V	480V	Three Phase 208V	240V	480V
6	DVE-52-6	DVE-80-6	DVE-120-6	3	2,000	28.8	25.0	21.7	12.5	16.7	14.4	7.2
9	DVE-52-9	DVE-80-9	DVE-120-9	3	3,000	43.3	37.5	32.5	18.8	25.0	21.7	10.8
12	DVE-52-12	DVE-80-12	DVE-120-12	3	4,000	57.7	50.0	43.3	25.0	33.3	28.9	14.4
13.5	DVE-52-13.5	DVE-80-13.5	DVE-120-13.5	3	4,500	64.9	56.3	48.7	28.1	37.5	32.5	16.2
15	DVE-52-15	DVE-80-15	DVE-120-15	3	5,000	72.1	62.5	54.2	31.3	41.6	36.1	18.0
18	DVE-52-18	DVE-80-18	DVE-120-18	3*	6,000	86.5	75.0	65.0	37.5	50.0	43.3	21.7
24	DVE-52-24	DVE-80-24	DVE-120-24	6	4,000	115.4	100.0	86.6	50.0	66.6	57.7	28.9
27	DVE-52-27	DVE-80-27	DVE-120-27	6	4,500	129.8	112.5	97.5	56.3	74.9	65.0	32.5
30	DVE-52-30	DVE-80-30	DVE-120-30	6	5,000	144.2	125.0	108.3	62.5	83.3	72.2	36.1
36	DVE-52-36	DVE-80-36	DVE-120-36	6*	6,000	173.1	150.0	130.0	75.0	99.9	86.6	43.3
40.5	DVE-52-40.5	DVE-80-40.5	DVE-120-40.5	9	4,500	194.7	168.8	146.2	84.4	112.4	97.4	48.7
45	DVE-52-45	DVE-80-45	DVE-120-45	9	5,000	216.3	187.5	162.5	93.8	124.9	108.3	54.1
54	DVE-52-54	DVE-80-54	DVE-120-54	9	6,000	N/A	225.0	194.9	112.5	149.9	129.9	65.0

Lime Tamer

ASME
(OPTIONAL)

NSF

* 208 volt models may contain three (3) additonal elements.

Innovation has a name.

COMMERCIAL HOT WATER STORAGE TANKS TJV-120M, TJV120A

FEATURES

Exceeds ASHRAE 90.1b-1992.

A.O. Smith storage tanks are ideal for use with gas-fired copper heat exchanger equipment for storage of any potable water at temperatures up to 180°F.

GLASS-LINED TANK — Alkaline borosilicate composition permanently fused to steel by firing at a temperature of 1600°F, providing years of corrosion protection and dependable use.

HEAVY GAUGE STEEL JACKET — With baked enamel finish.

THREADED OPENINGS — All tanks furnished with threaded openings for thermometer, relief valve, 2" recirculation lines, tankstat, and drain valve.

TJV-120M and TJV-120A

• Fits through 30" door • Magnesium anode • for anticorrosion protection

TJV-120M • 119 gallons • exceeds ASHRAE requirements • 150 psi working pressure.

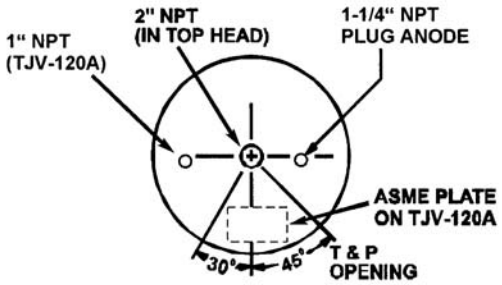
OPTIONS

Perfectly balanced manifold kits (120 gallon models) allow installation where 240 to 480 gallons of stored water is required.

LIMITED WARRANTY OUTLINE

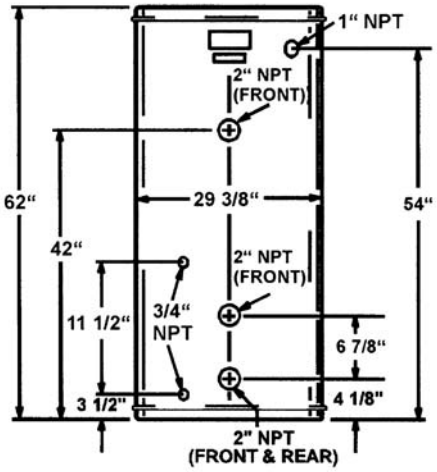
If the tank should leak any time during the first 5 years, under the terms of the warranty, A.O. Smith will repair or replace the tank; installation, labor, handling and local delivery extra. **THIS OUTLINE IS NOT A WARRANTY.** For complete information, consult the written warranty or A.O. Smith Water Products Company.

120 GALLON MODEL



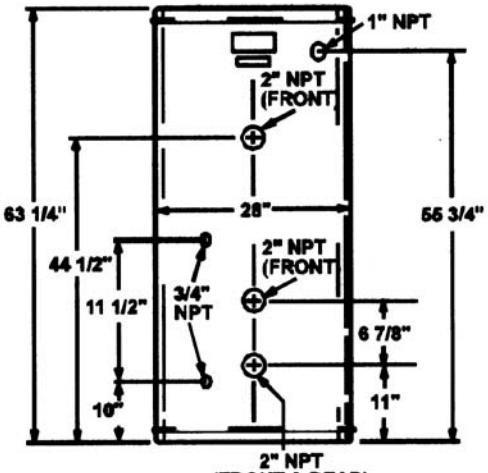
TJV-120M/TJV-120A

TJV-120M
(SHIPPING WT. 320 LBS.)



119 GALLONS

TJV-120A
(SHIPPING WT. 400 LBS.)



ASME 119 GALLONS

A.O. Smith
Innovation has a name.

LARGE VOLUME HOT WATER STORAGE TANKS

LIMITED WARRANTY OUTLINE

If the tank should leak any time during the first 5 years, under the terms of the warranty, A.O. Smith will repair or replace the tank; installation, labor, handling and local delivery are extra. **THIS OUTLINE IS NOT A WARRANTY**. For complete information, consult the written warranty or A.O. Smith Water Products Company.

Warranty does not apply to product installed outside of the United States of America or its territorial possessions and Canada.

FEATURES

A.O. Smith storage tanks are ideal for use with gas4i red copper heat exchanger equipment and other A. 0. Smith hot water systems for storage of any potable water at temperatures as high as 180 degrees or lower.

GLASS-LINED — All internal surfaces exposed to water are glass-lined per ASME HLW procedures, using an NSF approved glass-lining compound.

SIZES FROM 80 TO 1,000 GALLONS — All tanks in table on reverse side are normally carried in stock. ASME construction available on all except 80 and 120 gallon size.

HORIZONTAL OR VERTICAL MOUNTING — Except TL-500 which is horizontal.

MAGNESIUM ANODES — For extra protection.

Stock tanks T-140A and larger have threaded leg sockets on one head for vertical installations. (Except TL-500).

WORKING PRESSURES

Tanks tested at test pressures assigned in accordance with working pressures shown in table on reverse side.

OPTIONS

- ASME and National Board Certification sheets
- Tank saddles - two per horizontal tank required.

NOTE: Custom line tanks available to meet military specifications, various working pressures, lifting lugs, handholes, manholes, special opening sizes or locations. Refer to sheet A 411.0.

(ON ASME CONSTRUCTED TANKS)

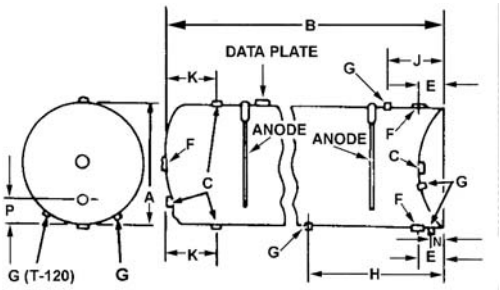


FIGURE 1 – T-80, T-120
NOTE: T-120 shown.

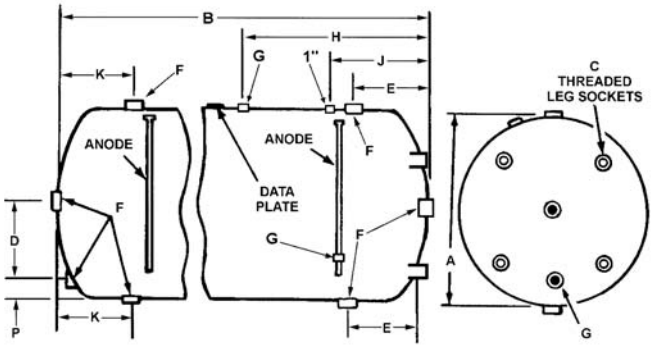


FIGURE 2 – T-140 thru T-1000A
TL-500 - Horizontal mounting only. No leg sockets.

All Dimensions in Inches (mm)

Model	Overall Dimensions Inches	Working Pressure	Approx. Ship Wt.	Refer to Figure	A	B	C	D	E	F	G	H	J	K	N	P
T-80 STD.	23" x 62"	150	230	1	23-1/4	62-1/4	--	46-1/2	16	--	3/4	--	7	3-5/8	3/4	--
T-120 STD	24" x 64"	150	287	1	24-1/4	64-3/8	2-1/2	--	--	--	3/4	34-1/2	15-1/2	10-1/2	3-1/2	4-1/8
T-140 ASME	24" x 76-1/4"	125	400	2	24	75	2-1/2	8	10-1/2	2	3/4	26	17	10-1/2	--	4
T-200 ASME	30" x 72"	125	460	2	30	70-3/4	2-1/2	11	13	2-1/2	3/4	28-1/2	19-1/2	13	---	4
T-250 ASME	30" x 84"	125	505	2	30	84	2-1/2	10	13	2-1/2	3/4	28-1/2	19-1/2	13	---	4
T-325-ASME	34" x84"	125	600	2	34	84	2-1/2	12	13-1/4	2-1/2	3/4	28-3/4	19-3/4	13-3/4	---	5
T-350 ASME	36" x 88"	125	670	2	36	86	2-1/2	13-3/8	14-1/2	2-1/2	3/4	30	21	14-1/2	---	4-5/8
T-400 ASME	36" x 97"	125	775	2	36	96	2-1/2	13-3/8	14-1/2	2-1/2	3/4	30	21	14-1/2	---	4-5/8
TL-500 ASME	36" x 122"	125	950	2	36	120-3/8	---	11	16-1/4	3	3/4	31-3/4	22-3/4	16-1/4	---	7
TN-500 ASME	42" x 89"	125	815	2	42	88	3	16	18	3	3/4	33-1/2	24-1/2	18	---	5
T-500 ASME	48" x 74"	125	950	2	48	72-3/4	3	18	19-3/4	3	3/4	32-3/4	26-3/4	19-3/4	---	6
T-750 ASME	48" x 106"	125	1290	2	48	105	3	18	19-3/4	3	3/4	32-3/4	26-3/4	19-3/4	---	6
T-1000 ASME	48" x 138"	125	1655	2	48	136	3	18	19-3/4	3	3/4	32-3/4	26-3/4	19-3/4	---	6

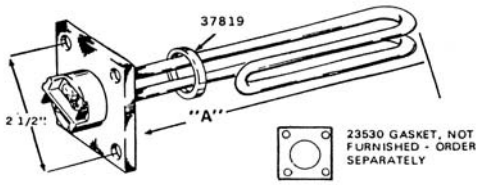
ELECTRIC WATER HEATER ELEMENTS

CORROGARD™ ZINC-PLATED COPPER SHEATH FLANGED ELEMENTS

Master-Fit water heater PARTS GAS

PART #
23530
37819*

*INCLUDED, BUT MAY BE ORDERED SEPARATELY



120V

PART #	WATTAGE	"A"
9004680115	1500	11
9004681115	2000	11
9004683115	3000	11

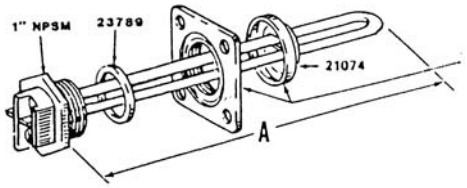
208V

PART #	WATTAGE	"A"
9004690105	1500	13-1/2
9004691105	2500	13-1/2
9004692105	3000	11-3/4
9004693105	4000	13
9004687105	4500	13-1/2
9004688105	5000	16

240V

PART #	WATTAGE	"A"
9004672115	1000	8
9004673115	1500	11
9004674105	2000	13-1/2
9004675105	2500	11-1/2
9004676105	3000	11-3/4
9004677115	3500	13-1/2
9004678105	4000	13-1/2
9004668105	4500	13-1/2
9004669105	5000	16
9004671105	5500	16
9004670105	6000	16

CORROGARD™ SCREW-IN ELEMENTS AND THREADED ADAPTER FLANGES



120V

PART #	WATTAGE	"A"
9004739105	1000	8
9002963005	1500	11
9003947115	2000	11-1/2
9002859115	2500	11-1/2
9002862115	3000	11-3/4

208V

PART #	WATTAGE	"A"
9004705115	1500	13
9002961115	2500	13-1/2
9004706105	3000	13-1/2
9004707105	4000	13-1/2
9002645115	4500	13-1/2
9001224115	5000	13-1/2
9003953005	6000	16

240V

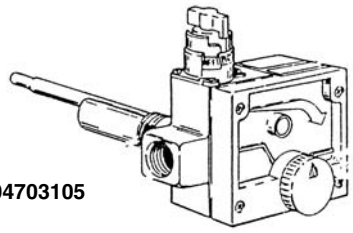
PART #	WATTAGE	"A"
9000143115	1000	8
9002864005	1500	11
9000145115	2000	13-1/2
9002860115	2500	12-1/2
9003959115	3000	11-3/4
9004712105	3500	13-1/2
9002868115	4000	13-1/2
9000095015	4500	13-1/2
9000150115	5000	16
9002867115	5500	16
9003952115	6000	16

A.O. Smith
Innovation has a name.

CONTROLS & PARTS

Master-Fit water heater PARTS GAS

WHITE-RODGERS CONTROL



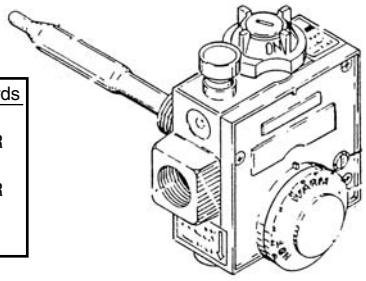
PART NO. 9004703105

A. O. Smith* American-Standard* Master-Fit*	J.C. Penney Kmart Sears* State*	Honey-well	J.C. Penney/Kmart Grainger/ White-Rodgers*		Rheem/Rudd Nasco/ Robertshaw
ALL RESIDENTIAL	3773	V5124C	3703	3773U	
WATFR HEATERS	3773U	V5126C	3708	37C73U	Use
MANUFACTURED	37C73U	VSI3OC	3733	3755	No. 23910-1
AFTER 6/1/62	37C75U	V5130R	3753	3775U	Master-Fit
	---	V5130W	3763	37C75U	Control
	---	V5131C	3763U	3777	
	---	---	3767	3777U	
	---	---	3773	3779	

Robertshaw UNITROL® 110 CONTROL

Replaces These Controls

*Robertshaw/*Nasco/*Rheem/*Wards		
110	110RTS	200
110R	110RTSP	200R
110S	R110RT	400
110T	R110RTP	400R
110RT	R110RTS	
110RTP	R110RTSP	



PART NO. 9005891105

RESIDENTIAL

NATURAL GAS

3-1/2" main pressure regulator setting.

3" to 4" pilot pressure.

Energy cutoff at 1950F water temperature.

Temperature range: warm 120ºF) to hot (160ºF).

PART NO. 9004703105 WITH 1-1/4" SHANK

PART NO. 9004353105 WITH 2-1/2" SHANK

*Where required, use Part No. 39079 to add 1-1/2" to control shank length.

RESIDENTIAL – TO 170ºF MAX.

LIGHT COMMERCIAL

NATURAL GAS

96.000 Btuh maximum capacity.

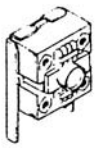
4" main pressure regular setting.

3" to 4" pilot pressure.

Energy cutoff at 195ºF water temperature.

Temperature range: Warm 120ºF to Hot 180ºF.

PART NO. 9005891105



PART NO. 9004778115 (standard type)

HIGH LIMIT CONTROL
(PRIOR TO 1975)

Style 1610 Series HLC.

Double pole, single throw, opens circuit at 190ºF.

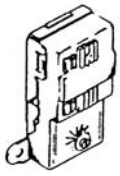
Manual reset, can't be blocked shut.

40 amps per pole @ 240V (9600W).

30 amps per pole @ 206V (6240W).

25 amps per pole @ 277/480V (6925/12,000W)

PART NO. 38017 (standard type)



PART NO. 9004715115 (standard type)

SINGLE THROW THERMOSTAT
(PRIOR TO 1975)

Style 7025 Series AW (Replaces 5025 and 8025).

Single pole, single throw.

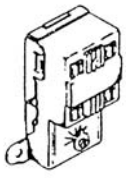
Temperature range 110ºF to 170ºF.

25 amps @ 120/240V (3000/6000W).

30 amps @ 208V (6240W).

21.6 amps @ 277V (5983W).

12.5 amps @ 480V (6000W).



PART NO. 9003896215 (standard type)

DOUBLE THROW THERMOSTAT
(PRIOR TO 1975)

Style 7135 Series AW (Replaces 5135 and 8135).

Double pole, double throw

Temperature range 110ºF to 170ºF.

25 amps @ 120/240V (3000/6000W).

30 amps @ 208V (6240W).

21.6 amps @~277V (5983W).

12.5 amps @ 480V (6000W).

BC/HW COMMERCIAL WATER HEATER PARTS

Master-Fit water heater PARTS GAS

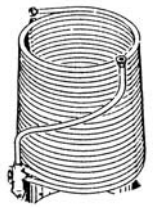
BC 120-670 COMMON WATER HEATER PARTS

MODEL	SERIES	COIL	HEAT EXCHANGER	COIL LIMIT SWITCH	CONTROL LIMIT	THERMO COUPLE	GAS VALVE
BC120	830,831,840,841 832,833,842,843	---	9005061205	9004993215	097933-015	K16FA36	9004813105 9004497205
BC160	830,831,840,841 832,833,842,843	9005066205	9005058205	9004993215	097933-015	K16FA36	9004813105 9004497205
BC200	830,831,840,841 832,833,842,843	9005067205	9005058205	9004993215	097933-015	K16FA36	9004813105 9004497205
BC225	830,831,840,841 832,833,842,843	9005067205	9005058205	9004993215	097933-015	K16FA36	9004813105 9004497205
BC300	740, 741 740A, 741A 740B/P, 741B/P 760, 761S	---	9005046205	9004993215 9004993215 9004993215 9004993215	097933-015	K16FA36	9004813105
BC399	740, 741 740A, 741A 740B/P, 741B/P 760, 761S	---	---	9004993215 9004993215 9004993215 9004993215	097933-015	K16FA36	9004813105
BC 420	740, 741 740A, 741A 740B/P, 741B/P 760, 761S	---	---	9004993215 9004993215 9004993215 9004993215	097933-015	K16FA36	9004813105
BC 670	740, 741 740A, 741A 740B/P, 741B/P 760, 761S	9005091205	9005083205	9004993215 9004993215 9004993215 9004993215	097933-015	K16FA36	9005081105

HW 80-670 COMMON WATER HEATER PARTS

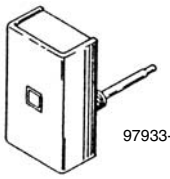
MODEL	SERIES	COIL	HEAT EXCHANGER	MODULE	CONTROL LIMIT	THERMO-COUPLE	GAS VALVE*
HW80	840-843 880-883	97282 97282-1	96582	78191	93661-4	78802 32536-7	6390 78190-4
HW120	840-843 880-883	97283 97283-1	96582	78191	93661-4	78802 32536-7	6390 78190-4
HW160	840-843 880-883	97284 97284-1	96558	78191	93661-4	78802 32536-7	6390 78190-4
HW200	840-843 880-883	97285 97285-1	96558	78191	93661-4	78802 32536-7	6390 78190-4
HW225	840-843 880-883	97285 97285-1	96558	78191	93661-4	78802 32536-7	6390 78190-4
HW300	872, 873 892, 893	97485	93997 190922	78191-2 191182	93661-4	**PILOT** 78192-2	6390
HW399/ HW420	872, 873 892, 893 838, 839	97486	94774 190913 98927	78191-2 78191-2	93661-1 97474-1	78192-2 78192-2	CALL
HW670	892, 893 896, 897	99267	190889	191182	97474-1 93661-1		CALL

***SMR S-12 use 6390.**
SMR S-13 use 78190-4.



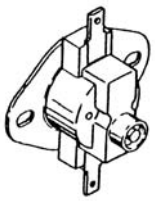
COPPER COMBUSTION COILS

HEAT EXCHANGERS



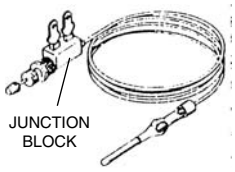
97933-5

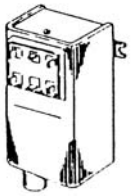
Thermostatic
TEMPERATURE CONTROLS
For Coil and Tank Type heaters



Surface mounted high limit
TEMPERATURE CONTROLS
For Coil and Tank Type heaters

THERMOCOUPLES





MODULES

A.O. Smith
Innovation has a name.

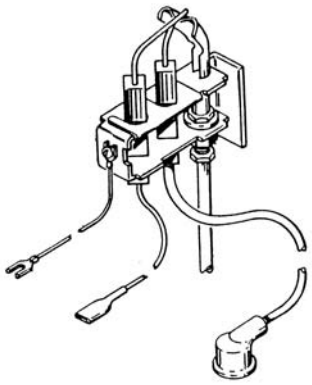
COMMERCIAL TANK-TYPE WATER HEATER PARTS LIST

BTC-120, 154, 179, 240, 305, 365 SERIES 880 THRU 883
STANDARD AND ASME MODELS (A)

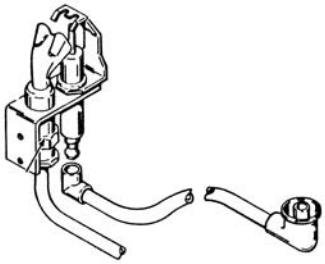
Master-Fit water heater PARTS ELECTRIC

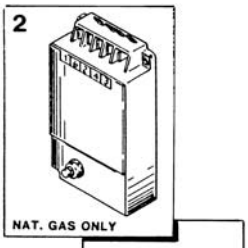
1 PILOT BURNER ASSEMBLIES

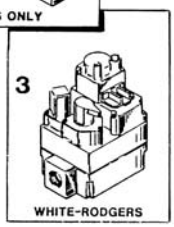
880 and 881 Series

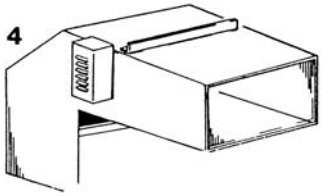


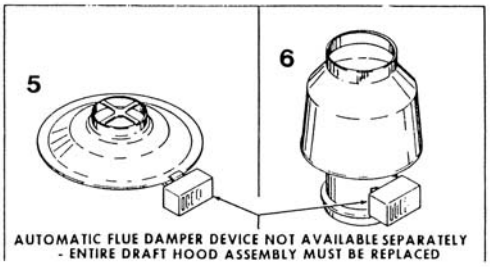
882 and 883 Series

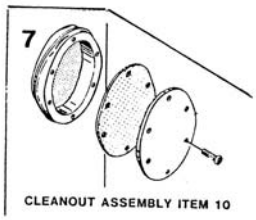












DESCRIPTION	BTC 120	BTC 154	BTC 179	BTC 197/240A	BTC 305A	BTC 365(A)
MAIN BURNER*	9005889205(2)*	9005889205(2)*	9005889205(3)*	9005889205(4)*	9005889205(6)*	9005889205(8)*
1) PILOT BURNER:						
#880 SERIES	9004988115	9004988115	9004988115	9004988115	9004988115	9004988115
#882 SERIES	9004998215	9004998215	9004998215	9004998215	9004998215	9004998215
2) SPARK MODULE						
#880 SERIES	9004470205	9004470205	9004470205	9004470205	9004470205	9004470205
#882 SERIES	AS 78191-2	AS 78191-2	AS 78191-2	AS 78191-2	AS 78191-2	AS 78191-2
4) GAS VALVE	AS 77937-2	AS 77937-2	AS 77937-2	AS 77937-2	AS 77937-2	AS 77937-4
5, 6) DRAFT HOOD: HORIZONTAL BTC 197 ONLY BTC 240A ONLY VERT. LO-PROFILE VERTICAL	CALL	CALL	CALL	CALL	CALL	CALL
7) CLEANOUT ASSY						
PRESS PLATE	9005797205	9005797205	9005797205	9005797205	9005797205	9005797205
GASKET	9004099215	9004099215	9004099215	9004099215	9004099215	9004099215
SCREWS	9004100215	9004100215	9004100215	9004100215	9004100215	9004100215

* ( ) INDICATES NUMBER OF BURNERS

WATTS REGULATOR
WATTS REGULATOR COMPANY

TEMPERATURE & PRESSURE RELIEF VALVES

NO. 40, 140, 240, 340 SERIES

USE 3/4" NO.40/140 SERIES FOR GAS, ELECTRIC OR OIL FIRED STORAGE WATER HEATERS FROM 180,000 TO 200,000 BTU/HR. RATING.
USE 1" NO. 40, 140, N240 SERIES FOR GAS OR OIL FIRED STORAGE WATER HEATERS FROM 450,000 TO 730,000 BTU/HR. RATING.
USE NO. 340, 342 SERIES FOR GAS OR OIL FIRED HOT WATER SUPPLY BOILERS OVER 730,000 BTU/HR. RATING.

MODEL #	INLET	OUTLET	HEIGHT	AGA/CGA TEMP. STEAM RATING	ASME PRESS. STEAM RATING	TEMP. WATER RATING @ 210°F
WV 40L-3/4*	3/4" M	3/4" F	5-5/8"	180,000	777,600	---
WV 40L-1*	1" M	1" F	6-1/4"	450,000	1,155,000	800,000
WV 40XL-3/4*	3/4" M	3/4" F	5-3/4"	200,000	777,600	---
WV 40XL-1*	1" N	1" M	6-1/4"	500,000	1,155,000	1,000,000
WV 140X-1-125	1" F	1" F	5-1/2"	670,000	1,670,000	1,500,000
WV N240X-1	1" F	1" F	6-5/8"	730,000	2,195,000	2,000,000
WV N241X-1-1/4	1-1/4" M	1" F	6-5/8"	730,000	2,195,000	2,000,000
WV 340-1-1/2	1-1/2" F	1-1/2" F	9-3/4"	1,150,000	3,450,000	3,000,000
WV 342-2*	2" M	1-1/2" F	9-3/4"	1,150,000	3,450,000	3,000,000

***Available in 125 or 150 psi.**

40L/40XL Series

NO. 174A SERIES

A.S.M.E. WATER PRESSURE RELIEF VALVE
BRONZE BODY RELIEF VALVES FOR PRESSURE PROTECTION ONLY OF ALL TYPES OF HOT WATER HEATING BOILER EQUIPMENT.

MODEL #	INLET	OUTLET	HEIGHT	STEAM DISCHARGE CAPACITIES		
				50 LBS	125 LBS	150 LBS
WV 174A-3/4	3/4"	3/4"	5-1/8"	950,000	2,070,000	2,445,000
WV 174A-1	1"	1"	5-3/4"	1,470,000	3,215,000	3,795,000
WV 174A-1-1/4	1-1/4"	1-1/4"	8-3/4"	2,459,000	5,370,000	6,340,000
WV 174A-1-1/2	1-1/2"	1-1/2"	9"	2,950,000	6,460,000	7,630,000
WV 174A-2	2"	2"	11-5/8"	5,575,000	12,170,000	14,370,000


174A Series

NO.100 XL

A THERMOSTAT WITH A THERMO-BONDED NON-METALLIC PROTECTIVE COATING AND A PROTECTIVE DIELECTRIC BARRIER TO PROTECT THERMOSTAT FROM ACCUMULATIONS OF MINERAL DEPOSITS.
MALE INLET FEMALE OUTLET.

MODEL	INLET	OUTLET	HEIGHT	AGA/CGA TEMP. STEAM RATING
WV 100XL*	3/4"	3/4"	3-1/2"	100,000

***Available in 125 or 150 psi.**


100XL Series

M31SL SERIES

DIAPHRAGM TYPE
CODED FOR THE CITY OF CHICAGO.

PART #	SIZE
WV 31SL	3/4"

THERM-X-TROL®
THERMAL EXPANSION ABSORBER. FOR POTABLE WATER HEATERS ONLY.

MODEL # / CAP.*
AM ST-5
AM ST-12
AM ST-20
AM ST30

* STANDARD AIR CHARGE 40 PSI.

MINI-TROL® WATER HAMMER ARRESTOR. ELIMINATES HYDRAULIC SHOCK IN PIPING SYSTEMS

MODEL#	DIMENSIONS
AM 500	4-1/2 X 3-1/8