

## Master-Fit®

### FEATURES

The Master-Fit® BTR series provides outstanding performance and maximum installation flexibility for both new construction and replacement applications. Multiple options for placement of water connections and low installation clearances are additional installer-friendly features.

#### THE ELIMINATOR™ SELF-CLEANING SYSTEM

- Designed to significantly reduce or eliminate sediment build-up inside the tank
- Reduced sediment build-up maintains rated thermal efficiency and reduces water heating costs
- Self-cleaning system maximizes tank life

#### FACTORY-INSTALLED DRAFT DIVERTER AND AUTOMATIC FLUE DAMPER (BTR-120-390 Models)

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

#### THREE WATER CONNECTION OPTIONS FOR ADDED FLEXIBILITY

- Hot and cold water connections can be made through front, top or rear of unit
- Eliminator™ system operates when cold water is connected through front

#### PERMAGLAS® ULTRA COAT™ GLASS LINING

- Exclusive process provides superior protection against corrosion
- CoreGard™ anode rods with stainless steel core provide additional corrosion protection

#### INTERMITTENT ELECTRONIC IGNITION

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

#### FACTORY- INSTALLED, CSA CERTIFIED AND ASME RATED T&P RELIEF VALVE

#### MAXIMUM HYDROSTATIC WORKING PRESSURE: 160 PSI

#### 80% THERMAL EFFICIENCY

#### CODES AND STANDARDS

- Design-certified by UL (Underwriters Laboratories), according to ANSI Z.21.10.3 - CSA 4.3 standards governing storage-type water heaters
- Meets the thermal efficiency and standby loss requirements of the U. S. Department of Energy and current edition of ASHRAE/IESNA 90.1
- Design-certified by Underwriters Laboratories Sanitation to NSF Standard 5 for 180°F (62°C) water
- Optional ASME tank construction available

#### THREE-YEAR LIMITED TANK WARRANTY

- For complete warranty information, consult written warranty shipped with water heater or contact A. O. Smith

### BTR-120 through BTR-500(A)





# Commercial Gas Water Heaters

## OTHER MASTER-FIT® FEATURES

### 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

### HANDHOLE CLEANOUT

- Allows easy access to tank interior for cleaning

### PLUG KITS

- Pipe nipples and caps included to plug unused water connections MASTER-FIT® OPTIONS:

### MANIFOLD KITS FOR MULTIPLE HEATER INSTALLATIONS

- 2-unit kit, Part Number 9003426205
- 3-unit kit, Part Number 9003427205
- 4-unit kit, Part Number 9003428205

### OPTIONAL LEG KIT TO MEET NSF STANDARD 5

- For all BTR models, Part Number 9003425205

### MECHANICAL VENTING KITS

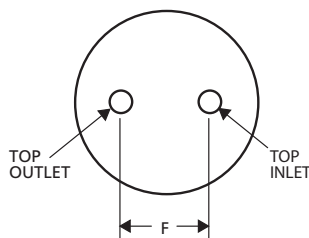
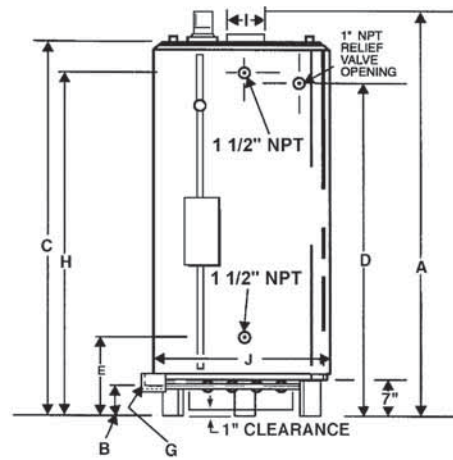
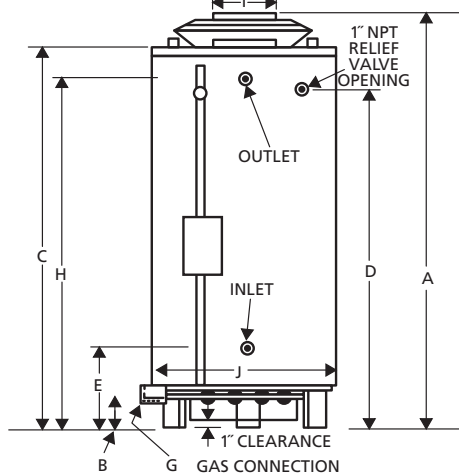
- For BTR-120 through BTR-200, Part Number 9006015005
- For BTR-250 through BTR-500, Part Number 9006016005
- For installation of approved power venter to operate in conjunction with water heater thermostat
- Field wiring should conform to latest version of the National Electric Code ANSI/NFPA No.70
- For more information, consult manual shipped with water heater or contact the A. O. Smith Technical Support Center at 1-800-527-1953

WATER CONNECTIONS	
TOP INLET AND OUTLET	1-1/2" on all models except BTR-251 and BTR-305, not equipped with top connections
FRONT INLET AND OUTLET	2" on BTR-200, BTR-250, BTR-275 and BTR-400, 1-1/2" on all other models
BACK INLET AND OUTLET	2" on BTR-198, BTR-200, BTR-250 BTR-275 and BTR-400, 1-1/2" on all other models

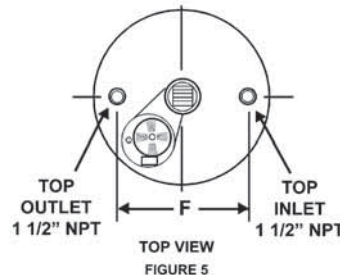
## CAPACITY, INPUT AND OUTPUT

MODEL NUMBER	BTU INPUT PER HOUR	GALLONS OR LITRES	TANK SIZE	GPH OR LPH	RECOVERY - GALLONS OR LITRES PER HOUR AT DEGREE RISE		
					40°F	100°F	140°F
					22°C	56°C	78°C
BTR-120	120,000	U.S. Gallons	71	GPH	291	116	83
		Litres	268	LPH	1102	439	314
BTR-154	154,000	U.S. Gallons	81	GPH	373	149	107
		Litres	307	LPH	1412	564	405
BTR-180	180,000	U.S. Gallons	81	GPH	434	175	124
		Litres	307	LPH	1643	659	469
BTR-197	199,000	U.S. Gallons	100	GPH	482	193	138
		Litres	379	LPH	1825	731	522
BTR-198	199,000	U.S. Gallons	100	GPH	482	193	132
		Litres	379	LPH	1825	731	500
BTR-199	199,000	U.S. Gallons	81	GPH	482	193	132
		Litres	307	LPH	1825	731	500
BTR-200 (A)	199,000	U.S. Gallons	100	GPH	482	193	132
		Litres	379	LPH	1825	731	500
BTR-250 (A)	250,000	U.S. Gallons	100	GPH	606	242	173
		Litres	379	LPH	2294	918	655
BTR-251 (A)	251,000	U.S. Gallons	65	GPH	608	243	174
		Litres	246	LPH	2303	921	658
BTR-275 (A)	275,000	U.S. Gallons	100	GPH	667	267	190
		Litres	379	LPH	2524	1009	721
BTR-305 (A)	305,000	U.S. Gallons	65	GPH	739	296	211
		Litres	246	LPH	2799	1120	800
BTR-365 (A)	365,000	U.S. Gallons	85	GPH	885	354	253
		Litres	322	LPH	3349	1340	957
BTR-400 (A)	390,000	U.S. Gallons	100	GPH	945	378	270
		Litres	379	LPH	3576.8	1430.7	1022
BTR-500 (A)*	500,000	U.S. Gallons	85	GPH	1212	485	346
		Litres	322	LPH	4588	1835	1311

Maximum gas supply pressure (natural and propane gas): 14" w.c.  
 Minimum gas supply pressure, natural gas: 4.5" w.c. Minimum gas supply pressure, propane gas: 11" w.c.  
 Manifold pressure, natural gas: 3.5" w.c. Manifold pressure, propane gas: 10" w.c.  
 Electrical requirements: 120 VAC, 7Amp. Electrical requirements with Power Venter: 120 VAC, 3.0 FLAmps  
 \*Induced draft design, Category I Venting



MODEL BTR-120-390



MODEL BTR-500

FIGURE 5



# Commercial Gas Water Heaters

## DIMENSIONS AND SHIPPING WEIGHTS

MODEL NUMBER	INCHES OR CM	DIMENSIONS										SHIPPING WEIGHT	
		A	B	C	D	E	F	G	H	I	J	STANDARD	ASME
BTR-120	Inches	69-3/4	4-1/4	59-1/2	50-7/8	19-11/16	19	1/2	51-7/8	5	27-3/4	400 Lbs.	-
	CM	177	11	151	129	50	48	-	132	13	71	182 Kg	-
BTR-154	Inches	73	4-1/4	66-1/2	57-7/8	19-11/16	19	1/2	59	6	27-3/4	470 Lbs.	-
	CM	185	11	169	147	50	48	-	150	15	71	213 Kg	-
BTR-180	Inches	67-1/2	4-1/2	62	53-5/8	20-1/2	21	1/2	54-5/8	6	27-3/4	470 Lbs.	-
	CM	171	12	157	136	52	53	-	139	15	71	213 Kg	-
BTR-197	Inches	75	4-1/2	70	61-5/8	20-1/2	21	1/2	62-5/8	6	27-3/4	603 Lbs.	-
	CM	192	12	178	157	52	53	-	159	15	71	273 Kg	-
BTR-198	Inches	75	4-1/2	70	61-5/8	20-1/2	21	1/2	61-1/2	6	27-3/4	603 Lbs.	-
	CM	192	12	178	157	52	53	-	150	15	71	273 Kg	-
BTR-199	Inches	67-1/2	4-1/2	62	53-5/8	20-1/2	21	1/2	54-5/8	6	27-3/4	470 Lbs.	-
	CM	171	12	157	136	52	53	-	139	15	71	213 Kg	-
BTR-200 (A)	Inches	72	4-1/2	65-1/8	55-7/8	19-3/4	23	1/2	56-3/8	6	30-1/4	630 Lbs.	725 Lbs.
	CM	183	12	165	142	50	58	-	143	15	77	286 Kg	329 Kg
BTR-250 (A)	Inches	72	4-1/2	65-1/8	55-7/8	19-3/4	23	1/2	56-3/8	8	30-1/4	630 Lbs.	725 Lbs.
	CM	183	12	165	142	50	58	-	143	20	77	286 Kg	329 Kg
BTR-251 (A)	Inches	75	4-1/2	65-3/4	57-1/4	20	N/A	1/2	58-3/4	8	27-3/4	750 Lbs.	862 Lbs.
	CM	191	12	167	145	51	N/A	-	149	20	71	341 Kg	391 Kg
BTR-275 (A)	Inches	72	4-1/2	65-1/8	55-7/8	19-3/4	23	1/2	56-3/8	8	30-1/4	630 Lbs.	725 Lbs.
	CM	183	12	165	142	50	58	-	143	20	77	286 Kg	329 Kg
BTR-305 (A)	Inches	75	4-1/2	65-3/4	57-1/4	20	N/A	1/2	58-3/4	8	27-3/4	750 Lbs.	862 Lbs.
	CM	191	12	167	145	51	N/A	-	149	20	71	341 Kg	391 Kg
BTR-365 (A)	Inches	79-1/2	4-1/2	70-1/4	62-1/2	22-1/2	23	3/4	63	8	27-3/4	725 Lbs.	833 Lbs.
	CM	202	12	178	159	57	58	-	160	20	71	329 Kg	379 Kg
BTR-400 (A)	Inches	75-1/2	4-1/2	67-1/2	58-1/4	26-3/4	23	3/4	59	8	30-1/4	760 Lbs.	874 Lbs.
	CM	192	12	171	148	68	58	-	150	20	77	345 Kg	396 Kg
BTR-500 (A)	Inches	82-1/4	4-1/2	73-1/2	65-1/4	25-1/2	21	1	65-3/4	8	27-3/4	820 Lbs.	856 Lbs.
	CM	209	12	187	166	65	53	-	167	20	71	372 Kg	388 Kg

BTR-250 (A), BTR-251 (A), BTR-275 (A) models shipped with 8" to 6" vent reducer. Certified for both 6" or 8" vent.

### SUGGESTED SPECIFICATION

(Natural or Propane) gas water heater(s) shall be A. O. Smith Master-Fit® model # \_\_\_\_\_ or equal, with a storage capacity of \_\_\_\_\_ gallons, an input rating of \_\_\_\_\_ BTUs per hour, a recovery rating of \_\_\_\_\_ gallons per hour (gph) at 100°F rise and a maximum hydrostatic working pressure of 160 psi. Water heater(s) shall be protected against 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 to keep precipitated solids in suspension so that they are removed from the water heater on that or successive draws. Glasslined water heater(s) shall also be protected against electrolytic corrosion by multiple factory-installed anode rods. In addition, water heater(s) shall: 1) Be equipped with an integrated control system consisting of a 180°F adjustable thermostat with upper and lower sensing bulbs. 2) Be equipped with intermittent electronic ignition, a manual reset gas shutoff device, a gas pressure regulator, factory-installed, CSA Certified and ASME Rated T&P relief valve and 2-3/4" x 3-3/4" tank inspection port. 3) Be design-certified by UL (Underwriters Laboratories) to current edition of ANSI Z.21.10.3 - CSA 4.3 standards governing storage-type water heaters. 4) Meets the thermal efficiency and standby loss requirements of the U. S. Department of Energy and Current Edition of ASHRAE/IESNA 90.1. 5) Have a 3-year limited warranty against corrosion as outlined in the written warranty.