

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-120-400 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 (82°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 |

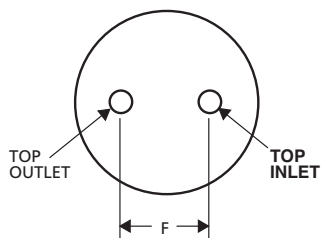
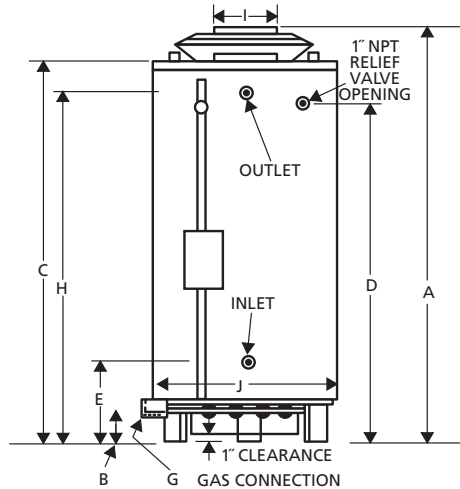
Maximum gas supply pressure (natural and propane gas): 14" w.c.

Minimum gas supply pressure, natural gas: 4.5" w.c. Minimum gas supply pressure, propane gas: 11" w.c.

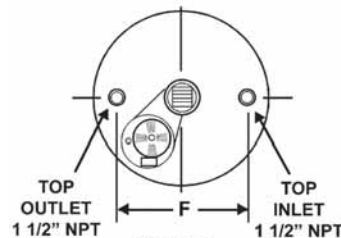
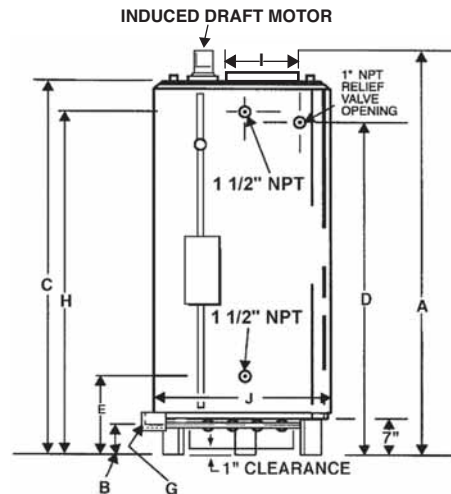
Manifold pressure, natural gas: 3.5" w.c. Manifold pressure, propane gas: 10" w.c.

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 | 6 | 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 | 27-5/4 | 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 | 81-1/2 | 17-1/2 | 77-1/4 | 67-1/2 | 27-13/100 | 21 | 1 | 67-1/2 | 8 | 27-3/4 | 812 Lbs. | 857 Lbs. |
| | CM | 209 | 12 | 187 | 166 | 65 | 53 | - | 167 | 20 | 71 | 368 Kg | 389 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.

*BTR-120 approved for 5" venting using field supplied 6" to 5" reducer.

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.