



Smart Series Commercial Performance Data

Revised date: 1/12/07

2006-21 Smart-Performance Data



Performance Data Charts

Use Of These Charts Will Determine:

- **Model Of The Indirect-Fired Water Heater**
- **MBH Net Boiler Output Required For Hot Water Generation**
- **Boiler Water Temperature Required**

To Use The Performance Charts, These Conditions Must Be Known:

- **Domestic Water Temperature Rise**
- **Continuous Draw GPH or First Hour Rating GPH**

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- For the purpose of this manual,
First Hour Rating GPH = Continuous Draw GPH + Usable Storage*
 - For hot water requirements greater than those listed, multiple water tanks must be used.
 - Smart Series indirect-fired water heaters will absorb less than 200,000 BTU per hour with boiler supply temperature of 240° F and domestic water outlet temperature of 210° F.
 - The installing contractor assumes responsibility for compliance with state or local codes.

| Model | Usable Storage [gal] | Min. Circulator Flow Rate [gpm] | Boiler Head loss at Min. Flow |
|--------------|-----------------------------|--|--------------------------------------|
| Smart-60 | 50 gal | 20 gpm | 4.0 Ft |
| Smart-80 | 60 gal | 22 gpm | 3.5 Ft |
| Smart-100 | 80 gal | 24 gpm | 4.5 Ft |
| Smart-120 | 100 gal | 28 gpm | 4.0 Ft |

* Approximately 85% of storage capacity

200° F Boiler Water Temperature

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 200 | 200 | 200 | 200 |
| 75 | 300 | 300 | 300 | 300 |
| 100 | 400 | 400 | 400 | 400 |
| 150 | 600 | 600 | 600 | 600 |
| 200 | 800 | 800 | 800 | 800 |
| 250 | 1000 | 1000 | 1000 | 1000 |
| 300 | 1200 | 1200 | 1200 | 1200 |
| 350 | 1400 | 1400 | 1400 | 1400 |
| 400 | 1580 | 1600 | 1600 | 1600 |
| 450 | 1580 | 1730 | 1800 | 1800 |
| 500 | 1580 | 1730 | 2000 | 2000 |
| 550 | 1580 | 1730 | 2000 | 2200 |
| 600 or More | 1580 | 1730 | 2000 | 2345 |

30° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 150 | 150 | 150 | 150 |
| 75 | 225 | 225 | 225 | 225 |
| 100 | 300 | 300 | 300 | 300 |
| 150 | 450 | 450 | 450 | 450 |
| 200 | 600 | 600 | 600 | 600 |
| 250 | 750 | 750 | 750 | 750 |
| 300 | 900 | 900 | 900 | 900 |
| 350 | 1050 | 1050 | 1050 | 1050 |
| 400 | 1130 | 1200 | 1200 | 1200 |
| 450 | 1130 | 1240 | 1350 | 1350 |
| 500 | 1130 | 1240 | 1440 | 1500 |
| 550 | 1130 | 1240 | 1440 | 1650 |
| 600 or More | 1130 | 1240 | 1440 | 1685 |

40° F Domestic Rise

200° F Boiler Water Temperature

| 50° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 120 | 120 | 120 | 120 |
| | 75 | 180 | 180 | 180 | 180 |
| | 100 | 240 | 240 | 240 | 240 |
| | 150 | 360 | 360 | 360 | 360 |
| | 200 | 480 | 480 | 480 | 480 |
| | 250 | 600 | 600 | 600 | 600 |
| | 300 | 720 | 720 | 720 | 720 |
| | 350 | 840 | 840 | 840 | 840 |
| | 400 | 860 | 940 | 960 | 960 |
| | 450 | 860 | 940 | 1080 | 1080 |
| | 500 | 860 | 940 | 1090 | 1200 |
| | 550 or more | 860 | 940 | 1090 | 1280 |

| 60° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 100 | 100 | 100 | 100 |
| | 75 | 150 | 150 | 150 | 150 |
| | 100 | 200 | 200 | 200 | 200 |
| | 150 | 300 | 300 | 300 | 300 |
| | 200 | 400 | 400 | 400 | 400 |
| | 250 | 500 | 500 | 500 | 500 |
| | 300 | 600 | 600 | 600 | 600 |
| | 350 | 690 | 700 | 700 | 700 |
| | 400 | 690 | 740 | 800 | 800 |
| | 450 or more | 690 | 740 | 812 | 900 |

| 70° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 90 | 90 | 90 | 90 |
| | 75 | 130 | 130 | 130 | 130 |
| | 100 | 170 | 170 | 170 | 170 |
| | 150 | 260 | 260 | 260 | 260 |
| | 200 | 345 | 345 | 345 | 345 |
| | 250 | 430 | 430 | 430 | 430 |
| | 300 | 515 | 515 | 515 | 515 |
| | 350 | 550 | 600 | 600 | 600 |
| | 400 | 550 | 600 | 666 | 685 |
| | 450 or more | 550 | 600 | 666 | 740 |

200° F Boiler Water Temperature

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 75 | 75 | 75 | 75 |
| 75 | 115 | 115 | 115 | 115 |
| 100 | 150 | 150 | 150 | 150 |
| 150 | 225 | 225 | 225 | 225 |
| 200 | 300 | 300 | 300 | 300 |
| 250 | 375 | 375 | 375 | 375 |
| 300 | 450 | 450 | 450 | 450 |
| 350 | 450 | 500 | 525 | 525 |
| 400 | 450 | 500 | 560 | 600 |
| 450 or more | 450 | 500 | 560 | 640 |

80° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 70 | 70 | 70 | 70 |
| 75 | 100 | 100 | 100 | 100 |
| 100 | 135 | 135 | 135 | 135 |
| 150 | 200 | 200 | 200 | 200 |
| 200 | 270 | 270 | 270 | 270 |
| 250 | 335 | 335 | 335 | 335 |
| 300 | 360 | 400 | 400 | 400 |
| 350 | 360 | 450 | 470 | 470 |
| 400 | 360 | 450 | 500 | 535 |
| 450 or more | 360 | 450 | 500 | 560 |

90° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 60 | 60 | 60 | 60 |
| 75 | 90 | 90 | 90 | 90 |
| 100 | 120 | 120 | 120 | 120 |
| 150 | 180 | 180 | 180 | 180 |
| 200 | 240 | 240 | 240 | 240 |
| 250 | 280 | 300 | 300 | 300 |
| 300 | 280 | 360 | 360 | 360 |
| 350 | 280 | 360 | 400 | 420 |
| 400 or More | 280 | 360 | 400 | 450 |

100° F Domestic Rise

200° F Boiler Water Temperature

| 110° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|----------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 55 | 55 | 55 | 55 |
| | 75 | 80 | 80 | 80 | 80 |
| | 100 | 110 | 110 | 110 | 110 |
| | 150 | 165 | 165 | 165 | 165 |
| | 200 | 220 | 220 | 220 | 220 |
| | 250 | 220 | 275 | 275 | 275 |
| | 300 | 220 | 280 | 311 | 330 |
| | 350 or More | 220 | 280 | 311 | 360 |

| 120° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|----------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 50 | 50 | 50 | 50 |
| | 75 | 75 | 75 | 75 | 75 |
| | 100 | 100 | 100 | 100 | 100 |
| | 150 | 145 | 150 | 150 | 150 |
| | 200 | 145 | 200 | 200 | 200 |
| | 250 | 145 | 220 | 244 | 250 |
| | 300 or More | 145 | 220 | 244 | 275 |

| 130° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|----------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 45 | 45 | 45 | 45 |
| | 75 | 70 | 70 | 70 | 70 |
| | 100 | 85 | 95 | 95 | 95 |
| | 150 | 85 | 140 | 140 | 140 |
| | 200 or More | 85 | 170 | 176 | 185 |

180° F Boiler Water Temperature

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 200 | 200 | 200 | 200 |
| 75 | 300 | 300 | 300 | 300 |
| 100 | 400 | 400 | 400 | 400 |
| 150 | 600 | 600 | 600 | 600 |
| 200 | 800 | 800 | 800 | 800 |
| 250 | 1000 | 1000 | 1000 | 1000 |
| 300 | 1195 | 1200 | 1200 | 1200 |
| 350 | 1195 | 1345 | 1400 | 1400 |
| 400 | 1195 | 1345 | 1575 | 1600 |
| 450 | 1195 | 1345 | 1575 | 1800 |
| 500 or more | 1195 | 1345 | 1575 | 1860 |

30° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 150 | 150 | 150 | 150 |
| 75 | 225 | 225 | 225 | 225 |
| 100 | 300 | 300 | 300 | 300 |
| 150 | 450 | 450 | 450 | 450 |
| 200 | 600 | 600 | 600 | 600 |
| 250 | 750 | 750 | 750 | 750 |
| 300 | 850 | 900 | 900 | 900 |
| 350 | 850 | 955 | 1050 | 1050 |
| 400 | 850 | 955 | 1120 | 1200 |
| 450 or more | 850 | 955 | 1120 | 1320 |

40° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 120 | 120 | 120 | 120 |
| 75 | 180 | 180 | 180 | 180 |
| 100 | 240 | 240 | 240 | 240 |
| 150 | 360 | 360 | 360 | 360 |
| 200 | 480 | 480 | 480 | 480 |
| 250 | 600 | 600 | 600 | 600 |
| 300 | 640 | 720 | 720 | 720 |
| 350 | 640 | 720 | 840 | 840 |
| 400 | 640 | 720 | 840 | 960 |
| 450 or more | 640 | 720 | 840 | 995 |

50° F Domestic Rise

180° F Boiler Water Temperature

| 60° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 100 | 100 | 100 | 100 |
| | 75 | 150 | 150 | 150 | 150 |
| | 100 | 200 | 200 | 200 | 200 |
| | 150 | 300 | 300 | 300 | 300 |
| | 200 | 400 | 400 | 400 | 400 |
| | 250 | 500 | 500 | 500 | 500 |
| | 300 | 500 | 560 | 600 | 600 |
| | 350 | 500 | 560 | 640 | 700 |
| 400 or More | 500 | 560 | 640 | 720 | |

| 70° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 90 | 90 | 90 | 90 |
| | 75 | 130 | 130 | 130 | 130 |
| | 100 | 170 | 170 | 170 | 170 |
| | 150 | 260 | 260 | 260 | 260 |
| | 200 | 345 | 345 | 345 | 345 |
| | 250 | 400 | 430 | 430 | 430 |
| | 300 | 400 | 460 | 515 | 515 |
| | 350 or More | 400 | 460 | 525 | 590 |

| 80° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 75 | 75 | 75 | 75 |
| | 75 | 115 | 115 | 115 | 115 |
| | 100 | 150 | 150 | 150 | 150 |
| | 150 | 225 | 225 | 225 | 225 |
| | 200 | 310 | 310 | 310 | 310 |
| | 250 | 310 | 375 | 375 | 375 |
| | 300 | 310 | 380 | 435 | 450 |
| | 350 or More | 310 | 380 | 435 | 500 |

180° F Boiler Water Temperature

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 70 | 70 | 70 | 70 |
| 75 | 100 | 100 | 100 | 100 |
| 100 | 135 | 135 | 135 | 135 |
| 150 | 200 | 200 | 200 | 200 |
| 200 | 250 | 270 | 270 | 270 |
| 250 | 250 | 320 | 335 | 335 |
| 300 | 250 | 320 | 365 | 400 |
| 350 or More | 250 | 320 | 365 | 420 |

90° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 60 | 60 | 60 | 60 |
| 75 | 90 | 90 | 90 | 90 |
| 100 | 120 | 120 | 120 | 120 |
| 150 | 180 | 180 | 180 | 180 |
| 200 | 200 | 240 | 240 | 240 |
| 250 | 200 | 260 | 295 | 300 |
| 300 or More | 200 | 260 | 295 | 360 |

100° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 55 | 55 | 55 | 55 |
| 75 | 80 | 80 | 80 | 80 |
| 100 | 110 | 110 | 110 | 110 |
| 150 | 160 | 165 | 165 | 165 |
| 200 | 160 | 220 | 220 | 220 |
| 250 | 160 | 220 | 250 | 275 |
| 300 or More | 160 | 220 | 250 | 280 |

110° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 50 | 50 | 50 | 50 |
| 75 | 60 | 75 | 75 | 75 |
| 100 | 60 | 100 | 100 | 100 |
| 150 or More | 60 | 120 | 127 | 135 |

120° F Domestic Rise

160° F Boiler Water Temperature

| 30° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 200 | 200 | 200 | 200 |
| | 75 | 300 | 300 | 300 | 300 |
| | 100 | 400 | 400 | 400 | 400 |
| | 150 | 600 | 600 | 600 | 600 |
| | 200 | 800 | 800 | 800 | 800 |
| | 250 | 875 | 1000 | 1000 | 1000 |
| | 300 | 875 | 1010 | 1200 | 1200 |
| | 350 | 875 | 1010 | 1200 | 1400 |
| | 400 or More | 875 | 1010 | 1200 | 1430 |

| 40° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 150 | 150 | 150 | 150 |
| | 75 | 225 | 225 | 225 | 225 |
| | 100 | 300 | 300 | 300 | 300 |
| | 150 | 450 | 450 | 450 | 450 |
| | 200 | 600 | 600 | 600 | 600 |
| | 250 | 610 | 710 | 750 | 750 |
| | 300 | 610 | 710 | 835 | 900 |
| | 350 or More | 610 | 710 | 835 | 1000 |

| 50° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 120 | 120 | 120 | 120 |
| | 75 | 180 | 180 | 180 | 180 |
| | 100 | 240 | 240 | 240 | 240 |
| | 150 | 360 | 360 | 360 | 360 |
| | 200 | 455 | 480 | 480 | 480 |
| | 250 | 455 | 525 | 600 | 600 |
| | 300 | 455 | 525 | 620 | 720 |
| | 350 or More | 455 | 525 | 620 | 740 |

| 60° F Domestic Rise | Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|---------------------|----------|-----------|-----------|
| | | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| | 50 | 100 | 100 | 100 | 100 |
| | 75 | 150 | 150 | 150 | 150 |
| | 100 | 200 | 200 | 200 | 200 |
| | 150 | 300 | 300 | 300 | 300 |
| | 200 | 340 | 400 | 400 | 400 |
| | 250 | 340 | 400 | 465 | 500 |
| | 300 or More | 340 | 400 | 465 | 550 |

160° F Boiler Water Temperature

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 90 | 90 | 90 | 90 |
| 75 | 130 | 130 | 130 | 130 |
| 100 | 170 | 170 | 170 | 170 |
| 150 | 260 | 260 | 260 | 260 |
| 200 | 260 | 310 | 345 | 345 |
| 250 | 260 | 310 | 378 | 430 |
| 300 or More | 260 | 310 | 378 | 450 |

70° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 75 | 75 | 75 | 75 |
| 75 | 115 | 115 | 115 | 115 |
| 100 | 150 | 150 | 150 | 150 |
| 150 | 180 | 225 | 225 | 225 |
| 200 | 180 | 230 | 274 | 300 |
| 250 or More | 180 | 230 | 274 | 340 |

80° F Domestic Rise

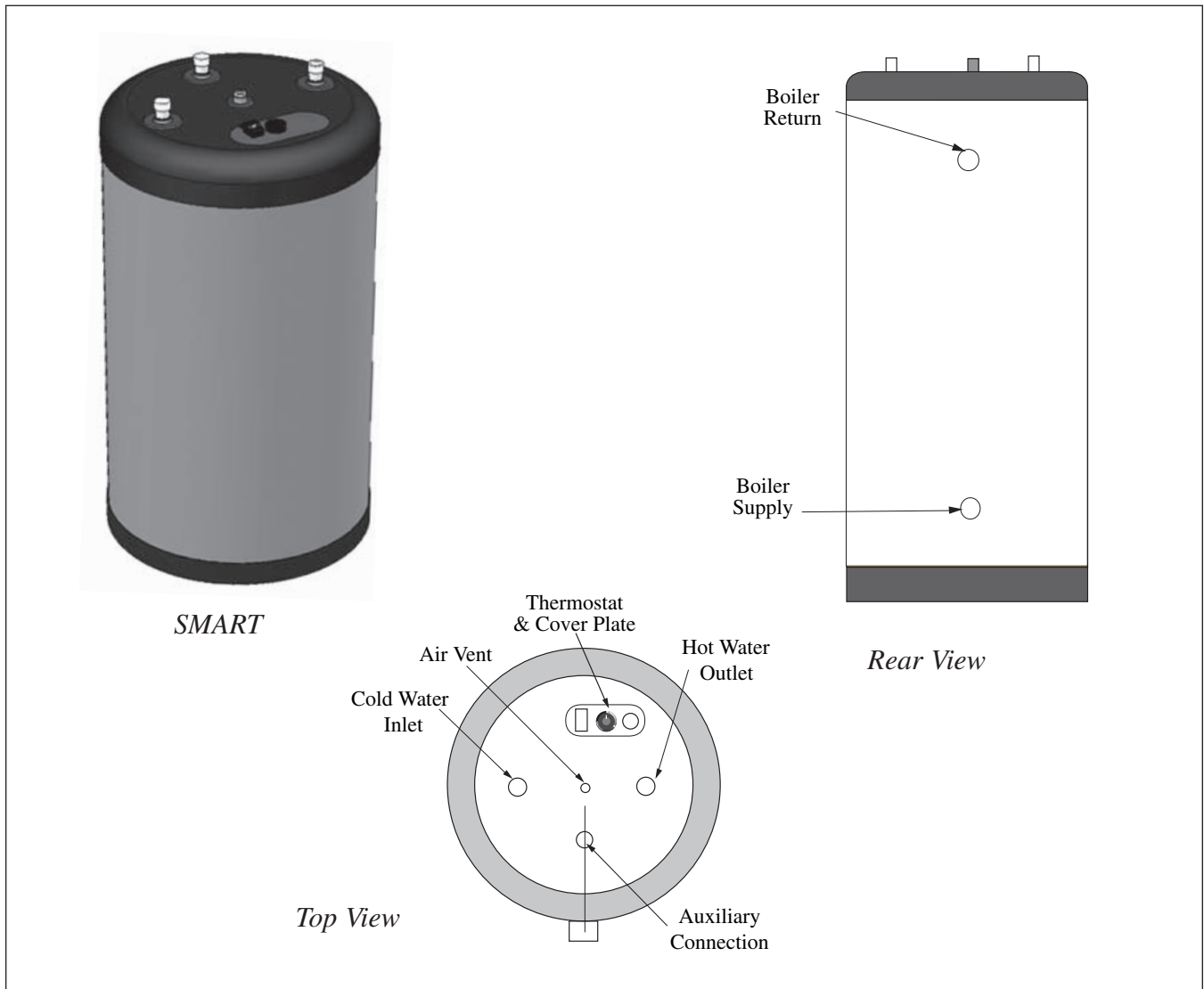
| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 70 | 70 | 70 | 70 |
| 75 | 100 | 100 | 100 | 100 |
| 100 | 130 | 135 | 135 | 135 |
| 150 | 130 | 170 | 200 | 200 |
| 200 or More | 130 | 170 | 210 | 260 |

90° F Domestic Rise

| Boiler Output (MBH) | Continuous Draw GPH | | | |
|---------------------|---------------------|----------|-----------|-----------|
| | Smart-60 | Smart-80 | Smart-100 | Smart-120 |
| 50 | 60 | 60 | 60 | 60 |
| 75 | 70 | 90 | 90 | 90 |
| 100 | 70 | 120 | 120 | 120 |
| 150 | 70 | 120 | 155 | 180 |
| 200 or More | 70 | 120 | 155 | 200 |

100° F Domestic Rise

Construction



Specifications

| Model No. | Diameter | Height | Boiler/Supply Return | Domestic Inlet/Outlet | Auxiliary Connection | Domestic Capacity (gal.) | Heating Water Capacity (gal.) | Heat Surface (sq. ft.) | Empty Weight (lbs) |
|-----------|----------|--------|----------------------|-----------------------|----------------------|--------------------------|-------------------------------|------------------------|--------------------|
| Smart 60 | 22" | 66" | 1 1/4" | 3/4" | 3/4" | 56 | 8 | 24 | 190 |
| Smart 80 | 26" | 61" | 1 1/2" | 1 1/2" | 1 1/2" | 70 | 14 | 29 | 315 |
| Smart 100 | 26" | 78" | 1 1/2" | 1 1/2" | 1 1/2" | 95 | 25 | 36 | 362 |
| Smart 120 | 32" | 72" | 2" | 1 1/2" | 1 1/2" | 119 | 43 | 40 | 479 |



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