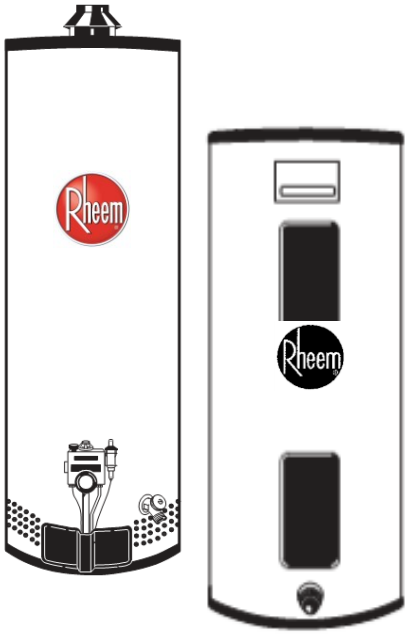
# RHEEM WATER HEATERS




## GAS ①

| | | 6 Year* | Width x Height to vent top | Recovery/(NAT) Flue Size / Energy Factor |
|---|---|---|---|---|
| **Classic** ◆PROG- ◆6-Year Warranty | ◆**29** gal (29-32N) | $ 785.00 | 16½ x 59¾ | 32 / 3 / .63 |
| | ◆**40** gal (40-38N) | 760.00 | 19 x 61½ | 38 / 3 / .62 |
| **Classic** ◆PROG- ◆6-Year Warranty | ◆**40** gal (40-40N) | $ 785.00 | 19½ x 63¼ | 40 / 3 / .62 |
| | ◆**50** gal (50-40N) | 923.00 | 21½ x 62½ | 40 / 3 / .62 |
| | ◆**75** gal (75-76N) | 1,795.00 | 26¼ x 64 | 75 / 4 / .53 |
| **LOWBOY** ◆ PROG- ◆6-Year Warranty | ◆**30** gal (30S-30N) | $ 861.00 | 19¾ x 49⅞ | 30 / 3 / .63 |
| | ◆**40** gal (40S-34N) | 830.00 | 21 x 52⅛ | 34 / 3 / .62 |
| **MOBILE HOME** ② ◆6-Year Warranty | **30** gal (30-32N) | $ 1,195.00 | 16½ x 59⅝ | 32 / 3 / .63 |
| | **40** gal (40-34N) | 1,260.00 | 18½ x 61½ | 34 / 3 / .62 |

**Protection-Plus** #SP20079 $175.00
**Tank Warranty 4-year extension.**
**6/8-year warranty ⇨ 10/12-year warranty**

◆ **NEW Guardian Gas Water Heaters**
**Meets the new ANSI Z21.10.1 code for Flammable Vapor Ignition Resistance protocols. With Piezo push-button gas igniter.**

*** Tank Warranty is 6-years**
**Parts have a 6-year warranty.**
The warranty on Mobile Home water heaters is still 5-years on the tank & 1-year on parts.

① All Prices are for NATURAL GAS
*For **LPG add $ 66.00** to the Retail Price.*
② Mobile Home is set for Natural Gas, can be field converted to LPG.
Recovery = GPH Recovery at 90° rise.

## ELECTRIC

| | | 6 Year* | Width x Height | Energy Factor |
|---|---|---|---|---|
| **Classic** ◆PROE- ◆6-Year Warranty | **30** gal (E30-T2) | $ 735.00 | 19¼ x 47½ | .95 |
| | **40** gal (E40-M2) | 695.00 | 20¼ x 48¼ | .95 |
| | **50** gal (E50-T2) | 755.00 | 20¼ x 58⅝ | .95 |
| **Classic+** ◆8-Year Warranty | ★**50** gal (+E50-T2) | $ 845.00 | 20⅜ x 58⅝ | .95 |
| **Classic** ◆PROE-***Short*** ◆6-Year Warranty | **28** gal (E28-S2) | $ 806.00 | 23 x 31⅛ | .95 |
| | **36** gal (E36-S2) | 780.00 | 24¼ x 31½ | .95 |
| **Classic** ◆PROE-POU POINT OF USE ◆6-Year Warranty | **2.5** gal (E2-1) | $ 460.00 | + 9¾ x 14 | |
| | **6** gal (E6-1) | 485.00 | * 15¾ x 15¼ | |
| | **10** gal (E10-1) | 675.00 | * 15¾ x 23 | |
| | **15** gal (E15-1) | 800.00 | * 17¾ x 24¼ | |
| | **20** gal (E20-1) | 735.00 | * 19¾ x 25¼ | |

*(120v & 240v Models)
» Side connections «

**All non-compact electric heaters have 2 interlocked 4500W / 240V elements w/ 21 GPH recovery @ 90°rise.**
**+ = ½"ips water connections (¾"ips for relief valve).**
*** = Tanks have ¾" side inlets for water / relief valve**
*** = Water / relief valve does not come with these units.**

## Facts About Water

**1** Gal of fresh water = **8.333** lb.
**1** cubic foot of water = **7.48** Gal

Water expands 4.34% when heated from 40ºF to 212ºF.
A 40 gal water heater will gain an extra 1.8 gal of water volume when heating water from 55ºF to 120ºF.
If a house has a check valve on the incoming cold water line, a small expansion tank might be needed to prevent the P&T valve from continuously opening.

**1** Foot of Head = **.433** #/sq. ft
**2.31** Feet of Head = **1** #/sq. ft
**115.5** Feet of Head = **50** #/sq. ft

The **Static-Head** of a water system equals the height difference between the water surface in a water tank and the faucet in the house.
The **Dynamic-Head** of a water system equals the **Static-Head** minus the **Friction-Loss** in the piping, fittings, and valves.

A 1000' run of 1" PVC pipe from a water tank 100' higher than a house will have a **Static-Head** of 43psi. The **Dynamic-Head** will be less than 29psi @ 10gpm. For 1¼" Pipe the **Dynamic-Head** will be 39psi @ 10gpm.

## Gas & Electricity

**1** kWh = **3,412** BTU
**4,500** Watts = **15,354** BTU

**1** HP = **745.7** Watts
**1** kW = **1.341** HP

**1** Gal of Propane = **91,000** BTU
**1** Cu. Ft of Natural gas = **1,075** BTU

**1** psi of Gas = **27.68"** Water Column
**1** psi of Gas = **2.036"** Mercury Column

**7"** Water Column (Nat) = **4.04** Ounces/Sq. In.
**11"** Water Column (LPG) = **6.34** Ounces/Sq. In.

**1** Therm = **100,000** BTU
**1.05** Therm = **100** cubic feet (Nat)

### For Electric Water Heaters

$$GPH = .4096x\frac{Watts}{Temp.Rise}$$

GPH is gal / hour of hot water at a given temperature:
e.g. a 4500watt electric element produces 20.5 GPH @ a 90º Temperature Rise (ground water Temp ~50ºF to normal water heater Temp ~ 140ºF)

$$Amps = \frac{Watts}{Volts}$$

e.g. a **4500watt 240volt** electric element draws **18.75 amps**, a **2000watt 120volt** electric element draws **16.67 amps.**

### Friction Loss per 100' of PVC Pipe #/Sq. Inch

| GPM | ½" | ¾" | 1" | 1¼" | 1½" | 2" |
|---|---|---|---|---|---|---|
| 1 | .43 | .12 | | | | |
| 2 | .86 | .24 | .13 | .04 | .01 | |
| 5 | 4.87 | 1.36 | .39 | .12 | .06 | .02 |
| 7 | 8.95 | 2.49 | .72 | .21 | .10 | .04 |
| 10 | 17.03 | 4.74 | 1.37 | .40 | .20 | .07 |
| 15 | ↳ | 10.06 | 2.90 | .85 | .43 | .14 |
| 20 | | 17.13 | 4.94 | 1.45 | .74 | .25 |
| 25 | | ↳ | 7.45 | 2.18 | 1.12 | .37 |
| 30 | | | 10.46 | 3.06 | 1.57 | .52 |
| 35 | | | 13.91 | 4.07 | 2.09 | .70 |
| 40 | | | ↳ | 5.22 | 2.68 | .89 |
| 45 | *Use Next Pipe Size* | | | 6.49 | 3.33 | 1.11 |
| 50 | | | | 7.88 | 4.04 | 1.35 |
| 60 | | | | ↳ | 5.67 | 1.89 |
| 80 | | | | | 9.68 | 3.22 |
| 100 | | | | | 14.61 | 4.87 |

### Friction Loss per 100' of Poly Pipe #/Sq. Inch

| ½" | ¾" | 1" | 1¼" | 1½" | 2" | GPM |
|---|---|---|---|---|---|---|
| .56 | .15 | | | | | 1 |
| 1.84 | .48 | .15 | .04 | | | 2 |
| 9.04 | 2.38 | .76 | .21 | .10 | | 5 |
| 13.00 | 3.70 | 1.20 | .32 | .18 | .05 | 7 |
| 30.95 | 8.08 | 2.56 | .69 | .33 | .10 | 10 |
| ↳ | 16.58 | 5.25 | 1.42 | .68 | .21 | 15 |
| | ↳ | 8.69 | 2.36 | 1.13 | .34 | 20 |
| | | 12.92 | 3.50 | 1.67 | .51 | 25 |
| | | ↳ | 4.82 | 2.31 | .70 | 30 |
| | | | 6.36 | 3.03 | .92 | 35 |
| | | | 8.08 | 3.84 | 1.17 | 40 |
| *Use Next Pipe Size* | | | 10.02 | 4.76 | 1.44 | 45 |
| | | | ↳ | 5.76 | 1.73 | 50 |
| | | | | 7.97 | 2.42 | 60 |
| | | | | ↳ | 4.02 | 80 |
| | | | | | 6.00 | 100 |