



Recovery Rating on the Residential Gas Water Heaters Labeling

The formula and computations for the amount of hot water a gas water heater can produce are different based on the authority of the label. The American National Standards Institute (ANSI) regulates the rating plate and has their formula; the Department of Energy (DOE) regulates the yellow energy guide and has their formula; and the specification sheet Gallons Per Hour (GPH) recovery is an industry accepted mathematical formula that has been in use for years.

Effective with the ANSI Standard Z21.10.1a-2002; CSA 4.1-2001, all residential gas water heaters must have the recovery rating listed on the manufacturer’s rating label. By ANSI definition, this recovery is listed in gallons per hour and is the result of the formula:

Manufacturer’s input rating in Btu per hour
1179 BTU/Gallon

To show how this works, lets use an example of a 42V40-40F. This is a 40,000 BTU input 40-gallon capacity water heater.

- 40-gallon tank
- 40.4 GPH recovery at 90 degree rise per the specification sheet and industry accepted formula
- 33.9 gallons recovery per ANSI formula on the rating plate
- 70 gallons first hour delivery per DOE on the yellow energy guide label

As you can see, there is a wide range of delivery capacities notes on the water heater’s labeling.

Below is a table that will show you some normal BTU input results using the ANSI formula:

Manufacturers Input Rating in BTU/hr	ANSI Constant	ANSI Recovery Rating
26000	1179	22.1
28000	1179	23.7
30000	1179	25.4
32000	1179	27.1
34000	1179	28.8
36000	1179	30.5
38000	1179	32.2
40000	1179	33.9
42000	1179	35.6
44000	1179	37.3
46000	1179	39.0
48000	1179	40.7
50000	1179	42.4

Manufacturers Input Rating in BTU/hr	ANSI Constant	ANSI Recovery Rating
52000	1179	44.1
54000	1179	45.8
56000	1179	47.5
58000	1179	49.2
60000	1179	50.9
62000	1179	52.6
64000	1179	54.3
66000	1179	56.0
68000	1179	57.7
70000	1179	59.4
72000	1179	61.1
74000	1179	62.8

This recovery number may be different from the First Hour Deliver computation on the yellow Energy Guide Label attached to your water heater. The First Hour Deliver rating includes recovery, **PLUS** storage available and the units ability to reheat water while being consumed. Therefore, the First Hour Deliver number will be higher than on the manufacturer’s rating plate.