



**When It Comes  
To Developing  
Technology  
Trust Bradford White**

So much has been made of the requirements for gas-fired residential water heaters, it may be difficult for wholesalers, professional contractors and homeowners to know where to turn.

**That's where Bradford  
White comes in**

Trust us to be there with the technology and the products that are right for the times. Better yet, trust Bradford White with our track record for safe, professional installations and the engineering expertise that is available only through wholesalers to plumbing and heating professionals.



**Built to be the Best™**



Introducing  
The Bradford White

**DEFENDER**

**Safety System®**

Maintenance Free  
Protection Featuring  
**ScreenLok® Technology**





# The Bradford White Maintenance Free Protection

Bradford White is proud to offer the Defender Safety System®, a combustion technology that resists the ignition of flammable vapors that can occur outside of the water heater. The Defender Safety System® was designed to meet the new American National Standards Institute's (ANSI) standard for residential gas water heaters.

The Bradford White Defender Safety System® maintains outstanding efficiency, a long service life and very low NOx emissions. Best of all, it provides maintenance free operation while meeting the stringent ANSI standard for residential gas atmospheric and power-vented water heaters.

## How The Safety System Works

During normal operation, air for combustion is drawn into the water heater through the opening in the jacket. This air travels down and around the combustion chamber and enters through holes in the very bottom of the corrosion-resistant combustion chamber. The air then travels up through the oriented flame arrestor plate louvers, where the velocity of the air is increased and its direction altered. The air then mixes in a normal manner with the supplied gas and is efficiently combusted, producing very low NOx emissions.

The heart of Bradford White's Defender Safety System® is the flame arrestor design of the patented ScreenLok® Technology. This precisely engineered and manufactured component is made of a stainless steel alloy and contains up to eighteen thousand, geometrically oriented louvers. These micro dimensioned louvers increase the velocity of incoming air to the system. If flammable vapors enter this uniquely designed system and are ignited, a vector effect occurs inside of the combustion chamber.

# DEFENDER Safety System® Featuring ScreenLok® Technology

The combination of high velocity air entering the chamber and the vector effect caused by combustion will prevent any flames present in the chamber from traveling backwards through the flame arrestor plate and outside of the water heater.

In the case where trace amounts of flammable vapors are present in the air flowing into the combustion chamber, the vapors are harmlessly ignited by the burner/pilot flame. If flammable vapors are in sufficient quantity to prevent normal combustion the burner/pilot flame is shut down. Should the flammable vapors continue to the burner, the flame arrestor plate prevents the flames from traveling backwards and igniting vapors outside of the combustion

The Bradford White Defender Safety System® was engineered to be the safest, most reliable flammable vapor resistant system in the industry.



Bradford White's Research and Development Laboratory in Middleville, MI

This design has been life-cycle tested in Bradford White's state-of-the-art R&D facility, an independent laboratory, and has also undergone extensive field testing.

## The Bradford White Defender Safety System® Features

- 1. Advanced ScreenLok® Technology Flame Arrestor Design** - Constructed of a stainless steel alloy for outstanding impact, heat, crack, and corrosion resistance. Tested in the harshest simulated environment, and continued to operate properly over the normal life expectancy of the product. If it becomes necessary because of an extreme environment, the system can be easily cleaned using a shop vacuum and/or compressed air.
- 2. Resettable Thermal Switch** - Proven and reliable bimetallic switch prevents burner or pilot operation in case of ongoing flammable vapor burn inside of the combustion chamber or restricted air flow caused by lint, dust and/or oil buildup. Allows simplified, quick and easy service (only for atmospheric models).
- 3. Flammable Vapor Sensor** - Electronic sensor prevents burner operation if flammable vapors are detected. The sensor will also prevent operation if there is ongoing flammable vapor burn inside of the combustion chamber (only for power vented models).
- 4. Proven Low NOx Design** - Efficient and clean combustion on all models and sizes. Meets regulations of 40 ng/J or less of NOx emissions. Used for many years to allow off-the-shelf replacement if necessary.
- 5. Pedestal Base** - Rugged and durable base allows easy transport and positioning, and provides corrosion resistant contact with floor.
- 6. Controlled Combustion System** - Added strength, lower noise. Assures combustion air is directed through the ScreenLok® Technology flame arrestor.
- 7. Maintenance Free** - No regular cleaning of air inlet openings or flame arrestor is required under normal conditions.
- 8. Sight Window** - Offers a view into the combustion chamber to observe the operation of the pilot and burner.

