

---

# SAFETY

A unique system called an Oxygen Detection Safety-pilot, or ODS

Oxygen Detection Safety-pilot (ODS) technology was adopted by all U.S. manufacturers for all vent-free gas products in the early 1980s.

ODS technology originated in Europe, where it has been used for more than half a century with an outstanding record of safety. Consumer Product Safety Commission (CPSC) accident/incident data compiled since 1980 show no documented deaths due to emissions associated with the use of an ODS-equipped vent-free gas heating appliance. Industry engineers say the ODS pilot is to gas what a circuit breaker is to electricity.

## HOW THE ODS WORKS

The ODS system consists of three main components:

- a precisely designed, oxygen sensitive pilot burner that regulates flame characteristics;
- a thermocouple positioned in the mantle of the pilot flame; and
- a safety shut-off valve.

The pilot is designed to be stable within a very narrow operating range. The thermocouple responds

to changes in the pilot flame characteristics and, when heated, generates a millivoltage, which keeps

the gas supply valve in the open position. If low levels of oxygen are detected by the ODS system, the flame extinguishes. The loss of flame causes the thermocouple to cool. This cooling reduces the millivoltage, which causes the gas valve to return to its normally closed position, thus turning off the fuel supply to the appliance. This extinguishes the flame and the pilot. The unit will not operate until the living space is properly ventilated and adequate oxygen is introduced, and the pilot is relighted.

## IT&rsquo;S TAMPER-RESISTANT

Every ODS system contains a precision orifice. This orifice will disintegrate with any attempt at drilling it out to enlarge the pilot flame. Additionally, it is not interchangeable with a normal standing pilot. Furthermore, propane and natural gas vent-free products cannot be converted from one type of gas to another.

## MANY SAFETY FEATURES ENSURE RELIABLE OPERATION

Besides the ODS valve, every vent-free heating appliance is also equipped with:

- an automatic shut-off valve, which stops the flow of gas if the pilot extinguishes or the gas flow is interrupted in any way;
- precision-engineered burners to produce the cleanest, most complete gas burn, with no lift-off or flashback when subjected to low input rates, low pressure, or drafts;
- an internal, non-adjustable pressure regulator that prevents overfiring in case of increased gas pressure;
- an ignition device, usually a Piezo igniter, which eliminates the need for matches;
- defined cabinet temperature limits for wall or floor-mounted heaters;
- a defined distance to combustible surfaces for all gas appliance categories;
- safety grills for heaters, fire screens, and hoods for gas logs.