Consumer Guide To Vent-Free Products

COME IN FROM THE COLD.

A Model For Every Heating Need!

VANGUARD
GAS HEATING PRODUCTS

A Safe, Simple and Inexpensive Answer To Your Supplemental Heating Needs.

Gas space heating has truly come of age with Vanguard's Vent-Free Gas Heating Products! The unique, clean combustion, 99% heating efficient burner designs require no outside venting, so there is no heat loss up a chimney or out a vent.

Vanguard Vent-Free Gas Heating Products offer you a number of advantages:

- Inexpensive to purchase and operate for just pennies an hour
- Feature 99.9% heating efficiency - all the heat stays in the room!
- Operate without electricity - provide warmth during power outages
- Are design certified by the International Approval Services (IAS) to the national safety standard (ANSI Z21.11.2)

Safety Features Built Into Every Heater

Regardless of which Vanguard model you select it will include state-of-the-art safety features:

- ***Vent-free gas burners*** are precision engineered to produce the cleanest, most complete gas burn with no lift-off or flashback.
- An automatic ***shut-off valve*** which stops the gas flow if the pilot extinguishes or the gas flow is interrupted.
- The internal, nonadjustable pressure ***regulator*** prevents over firing in case of increased gas pressure.
- A ***piezo ignitor*** eliminates the need for matches in starting the pilot flame.
- A ***safety pilot system,*** also known as oxygen detection safety pilot (ODS) technology, has been required by the ANSI Z21.11.2 standard since 1980 and has been supplied in all vent-free products sold in the U.S. since that time.

ODS technology originated in Europe, and has been used in European gas heating appliances for more than 35 years with an outstanding record of safety.

Consumer Product Safety Commission (CPSC) in depth accident/incident data accumulated since 1980 reveals an equally strong safety record for ODS equipped vent-free gas products installed in the U.S. for more than sixteen years.

How The Safety Pilot System Works

The system consists of three main components:

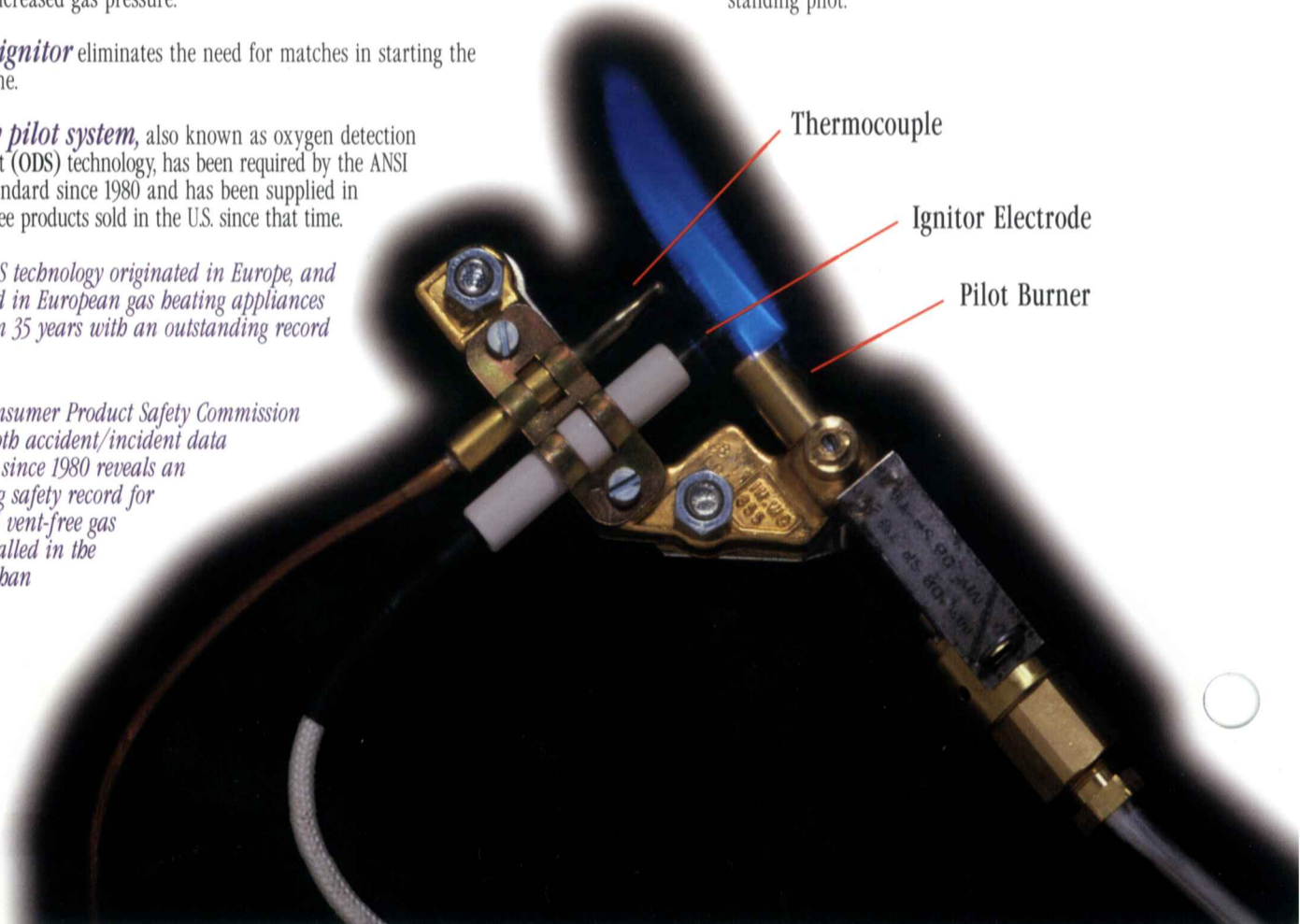
- a precisely designed, oxygen sensitive pilot burner that regulates flame characteristics;
- a thermocouple positioned in the mantle of the pilot flame; and
- a safety shut-off valve.

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.

In the rare instance that the room oxygen level approaches ANSI defined minimums, 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. The unit will not operate until the living space is properly ventilated and adequate oxygen is introduced, and the appliance is manually restarted.

The Safety Pilot System is Tamper-Proof

Every ODS system contains a precision orifice. This orifice will disintegrate with any attempt at drilling out to enlarge the pilot flame. Additionally, it is not interchangeable with a normal standing pilot.



"Let's Clear The Air"

Regarding The Effect of Vent-Free Gas Heaters on Indoor Air Quality

In 1995, the scientists at the American Gas Association's Research Division (AGAR) tested the levels of all five major contributors of indoor air quality - oxygen, carbon monoxide, carbon dioxide, nitrogen dioxide and water vapor (humidity) – against the latest Indoor Air Quality (IAQ) guidelines and concluded that vent-free gas heating products performed well within nationally recognized guidelines for indoor air quality.

This research proves that vent-free gas heating products meet applicable emissions requirements, even when used over extended time periods, among sensitive populations, and even with oversized units.

Independent Research on Vent-Free Gas Products & Humidity

A rigorous and comprehensive study was completed in December 2002 by risksciences, LLC, an independent scientific consulting firm nationally recognized for its experiertise in human exposure modeling in residential environments. The reasearch study concluded:

For the vast majority of homes (99%) in the U.S., vent-free gas appliances DO NOT generate enough water vapor to raise indoor relative humidity high enough to foster mold growth.

AGA RESEARCH COMPARISON OF RELATED IAQ GUIDELINES TO VENT-FREE GAS PRODUCTS' EMISSIONS

Combustion by product	Specifying agency	National IAQ Standard/Guidelines exposure level/time	Vent-free gas product
Carbon Monoxide (CO)	CPSC	15 ppm avg/8 hours 25 ppm avg/1 hour	2.5 ppm/8 hours 1.5 ppm/1 hour
Nitrogen Dioxide (NO_2)	CPSC	0.3 ppm avg/1 hour	0.22 ppm/1 hour
Carbon Dioxide (CO_2)	OSHA	5000 ppm avg/8 hours	1500 ppm/8 hours
Oxygen (O_2)	NIOSH	19.5% minimum/continuous	20.4% continuous
Humidity (H_2O)	ASHRAE	60% maximum/continuous	36.5% maximum with no condensation

Is Vent-Free Gas Heating Right For Me?

While most states permit installation of vent-free gas heating appliances, a handful of states still prohibit residential use. Very often, that's because a state's building codes haven't caught up with vent-free gas technology.

Because states, counties and municipalities adopt various codes, please check with your salesperson, installer or local codes officials to assure the current code in the city where you plan to install permits vent-free gas appliances. Please note, all Vanguard Manually Variably Controlled Gas Log Heaters are cross listed to the ANSI Z21.60 Vented Log Decorative Standard and can be installed using a damper clamp where vent-free installations are prohibited.

NATIONAL BUILDING/MODEL CODES

The following seven model building codes permit the installation of listed vent-free gas products:

- National Fire Protection Association (NFPA)
- Building Officials and Code Administrators (BOCA)
- Southern Building Code Congress International (SBCCI)
- Council of American Building Officials (CABO)
- International Mechanical Code (IMC)
- International Fuel Gas Code (IFGC)
- International Conference of Building Officials-Uniform Mechanical Code (ICBO-UMC)
- International Association of Plumbing and Mechanical Officials (IAPMO)

Other Considerations...

Also double-check with your retailer or installing professional before installing a vent-free heating appliance in:

- ***Homes of Extremely Tight Construction*** – if your home shows symptoms of an inadequately ventilated home (moisture on inside of windows, mildew, and shower or bath humidity lingers), additional ventilation may be required prior to adding additional vent-free gas appliances.
- ***Homes With Other Fuel Burning Appliances*** – if there are other fuel burning appliances that use inside air for combustion (i.e. gas ranges, fireplaces, clothes dryers) in the area you plan to operate your vent-free heating product, you must provide adequate fresh air to support the operation of all the appliances. Consult your installer and refer to the Air for Combustion and Ventilation section of the Owners and Installation Manual for your specific Vanguard Vent-Free Appliance.
- ***Homes At High Altitude*** – (i.e. homes at 4,500 feet above sea level or higher) – may experience nuisance pilot outage and flame shutdown due to lower atmospheric pressure.
- ***Bedrooms and Bathrooms*** – in many areas the installation of vent-free products is permitted up to 10,000 Btu in bedrooms and 6,000 Btu in bathrooms**.

*Several counties and municipalities in Colorado, and Minnesota permit the product. Wisconsin restricts installation in homes built after 1980.

**ANSI Z21.11.2 Standard and National Fuel Gas Code permit wall mounted installations of vent-free gas heater of 10,000 Btu or less in bedrooms and 6,000 Btu or less in bathrooms.

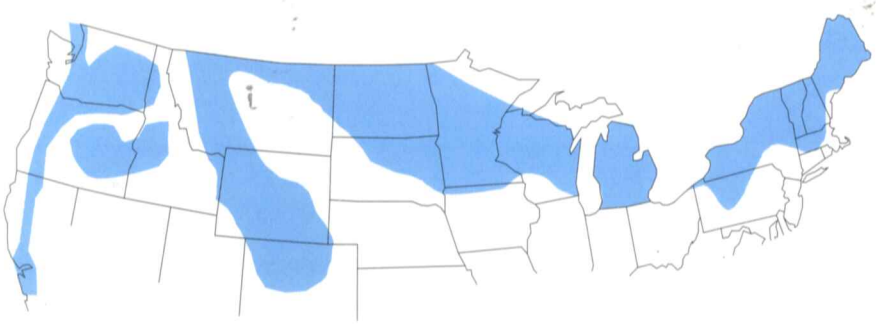
What Size (Btu) Vent-Free Gas Heating Appliance Should I Choose?

Because there are broad temperature ranges in all regions of the country, the desired heat output from a vent-free gas appliance will vary dramatically based on the season and usage patterns of the household. Vanguard Vent-Free Gas Heating Products offer a range of heat settings, whether manually, thermostatically or remote controlled and are intended for use as supplemental heat in conjunction with your central heating system. The fan on your central heating system will circulate the heat your Vanguard Vent-Free Appliance provides.

In terms of indoor air quality, when selecting your Vanguard heating appliance, any size of product can be chosen based on personal preference in all applications other than the exception described below.

A. If you live in the region indicated on the map (below) and are installing your heater in a room that can be isolated from other rooms by door(s), use the chart below to determine your maximum heater Btu rate. Determine the cubic feet to be heated (length x width x height) and multiply this number by the applicable value on the chart below.

B. Note, if you increase the ventilation of an isolated room by installing a permanent opening (such as removing a door or adding a vent) to an adjoining room or area at least 40% greater in volume then the isolated space the chart below does not apply. Simply select the Vanguard Vent-Free Gas Heating Appliance of your choice.



Example:

Your house is of average construction and you wish to use a thermostatically controlled vent-free appliance. The area you wish to heat is 30' long x 15' wide x 8' high. The cubic feet will be 30' x 15' x 8'= 3,600 ft^3.

Refer to the chart, multiply the appropriate chart-value by the cubic feet of the area. 4.05 x 3,600 ft^3=14,580 Btu. This is the maximum Btu output of a vent-free heating appliance installed in this room.

Or follow the directions included in B above and install any size vent-free heating appliance you desire.

SIZING GUIDELINES FOR VENT-FREE GAS PRODUCTS INSTALLED IN ISOLATED SPACES IN HEATING REGION SHOWN ON MAP

Heating Region	House Construction					
	Loose		Average		Tight	
	Appliance Operation					
	TStat	Manual	TStat	Manual	TStat	Manual
	Maximum Input Rate Needed to Maintain Indoor Air Quality Btuh/ft^3					
See Map	5.55	4.50	4.05	2.55	3.70	1.95

* Selected information throughout this brochure reprinted from the Consumer Guide to Vent-Free Gas Products, The Vent-Free Gas Products Alliance, 1996.

Vanguard's complete line of vent-free gas fireplace products also features thirty-eight gas log heater models plus a full line of LogMate Fireboxes, Mini Hearth Heaters and Classic Hearth Fireplace Systems. A wide selection of accessory items including mantels, bases, trims and blowers is available.

VANGUARD DESA HEATING PRODUCTS www.VanguardHeat.com Bowling Green, KY 42101 (866) 672-6040

Made in U.S.A. NPGA HPBA NICE & WARM Vent-Free Gas Heat gama

IMPORTANT

- Installation must be done by qualified service persons.
- Read Owner's Manual before using.
- Check local codes and ordinances for permitted uses.
- All products approved for manufactured (mobile) home installation.
- We reserve the right to amend product specifications without notice.
- Operating heater at elevations above 4,500 ft. could cause nuisance outages.
- Use with adequate air (ventilation) only. Humidifies while it heats. Provides water vapor in the area heated. Refer to owner's manual for specifics.
- Product cannot be converted between fuel types.
- The only warranty we offer is our standard warranty. Please read the warranty for any limitations or disclaimers.
- All parts have a limited four year warranty. Stainless Steel burners carry a limited five year warranty. All accessories have a one year warranty.

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