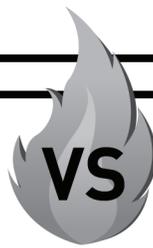


ROBERTS GORDON® INFRARED HEATING



RE-VERBER-RAY by DETROIT RADIANT PRODUCTS CO.

VANTAGE® Modulating (CTH3)

MP Series

Efficiency: ROBERTS GORDON® innovative high efficiency reflectors are a key component to our low-intensity infrared heaters to provide a radiant efficiency higher than any other low-intensity infrared heater on the market with an Infrared Factory of 15*. This is highly specifiable as no competitor can match our radiant efficiency. However, a higher efficiency heater will mean a higher price. So depending on who the decision maker is, a higher radiant efficiency may not be a guaranteed lock. Identifying the decision maker will help push this through. Particularly if the owner will continue to operate in the building. Efficiencies are more important to owner-operators than owner-developers as the operators are more interested in keeping overall operation costs down and productivity up. This can be achieved with increased comfort and fuel savings as a result from a higher efficient radiant heating system.

*Rated in accordance with AHRI Standard 1330.

Burner Construction: All ROBERTS GORDON® burners are spot-welded durable construction with electrostatically applied powder coating to resist corrosion for long-lasting high quality appearance. An internal partition separates the electrical compartment from the combustion air side which keeps all hot gases and dirt away from the burner controls which will contribute to a longer component life. Serviceability is accessible through easy-to-remove access panels.

Product Warranty: All of our products carry an industry-leading (3) year tip to tip warranty. The warranty includes all parts and components. This is NOT a pro-rated warranty. Other manufacturers may offer short 1 year warranty on parts and a longer warranty on components such as tubes. Warranties such as this are deceiving as most of the failed components are parts from the burner head, not the tubes. You can be confident that when purchasing a high-performance ROBERT GORDON® product that your investment is well protected.

Safety: All heaters are tested and approved to be in compliance with ANSI Z83.20 (latest edition). Each burner has multiple safety features that will lock the burner out in the event of a component failure or other external influences such as combustion air blockage. It is our goal at Roberts-Gordon to always be in compliance with the latest government standards and regulations to ensure safe operation of our heating equipment.

Heater Exchangers: Available in hot-rolled steel, aluminized, or double coated porcelain steel, our highly emissive heat exchangers maximize radiant output. The first 10' (3 m) section of heat exchanger tubing for all unitary heaters consists of ALUMI-THERM® steel, which contains mostly aluminized steel with traces of titanium for added durability and increased longevity.

Generable Competitor Overview: Detroit Radiant promotes the ability for the user to have complete control over their modulating heater, or set the system up to be fully automatic. Although their features have good intentions, after performing our own tests we found the heater did not quite perform as advertised. Also, the features do not give Detroit Radiant a specifiable advantage over our VANTAGE® Modulating heater.

 Feature	 Function	 The Real Story	 Sell Up
Available in 3 different operation modes: Comfort, Economy and Standard.	Comfort Mode: heater operates to minimize temperature differential throughout the length of the heat exchanger.	During our testing, we found that in this function, the fan speed increases, introducing a higher volume of air causing an uneven air to gas mixture and the heater to burn leaner. This pushes more heat out through the flue and reduces efficiency.**	The ROBERTS GORDON® VANTAGE® Modulating heater uses an intelligent logic algorithm built into its control board. This will monitor the specific usage and requirements for the environment. The control board will automatically choose the best operating parameters and modulate accordingly to increase efficiency and comfort. This operation eliminates the need for a user "mode selection".
	Economy Mode: Heater operates to maximize thermal efficiency by providing a higher concentration of heat.	Our tests showed that this function has the opposite effect of comfort mode. The heater burns richer and the fan speed is reduced. This again creates an uneven air to gas mixture, reduces efficiency and can create soot.	
	Standard Mode: Heater operates at its optimum efficiency, balancing the features of economy and comfort modes.	We found that the combustion air volume and gas did not remain linear during operation. Uneven air to gas ratio can cause soot or carbon monoxide.**	
Blast Mode™	Allows the user to temporarily lock the heater into its highest output plus an extra 5,000 BTU's.	The unit tested in our lab had achieved no additional output.**	When an infrared heating system is designed correctly, there is no need for additional input.
Full Gas Modulating with Corresponding Air Flow.	Optimal fuel performance by constantly maintaining an even air to gas ratio during modulation.	The unit tested in our lab showed the air to gas ratio is not linear in proportion with input. This created carbon monoxide and soot. Also when controlled with a standard on/off thermostat, heater does not modulate at all.**	The VANTAGE® Modulating heater always maintains an even air to gas ratio throughout modulating. This results in clean combustion for long-lasting optimal performance.

**Results based on Roberts-Gordon testing of Detroit Radiant model: MP-25-80. All tests were performed in Roberts-Gordon's laboratory certified for witnessed manufacturer's testing based on ISO 17025:2005.

 Feature	 Function	 The Real Story	 Sell Up
Potentiometer Control	Provides users manual control of firing rate on a 1 through 10 scale.	The unit tested in our lab showed the heater did not change linearly with the position of the potentiometer. Large "dead zones" with only a 1% input change per position from position 0 though position 8 were recorded.**	The control algorithm in the VANTAGE® Modulating heater allows for manual control of the input rate. A linear pattern is followed between the minimum and maximum rated firing rates throughout the potentiometer settings.
Premium User Interface (PUI)	Allows a building management system or remote analog signal to be used to dictate the firing rate of the MP series heater via a 0-10VDC, 0-20VDC, or a 4-20mA signal.	Our testing found the heater firing rate did not vary linearly with changes in voltage. Also, any given firing rate differed depending on if the voltage was rising or falling .**	The VANTAGE® Modulating heater can accept 4-20mA or 0-10VDC signals. As is the same with potentiometer control, input rate remains linear with changes in voltage.
Safety and Service	A relay is positioned between the ignition module and the gas valve to provide power to the valve.	We found that failure of the relay in the closed position, or incorrect wiring due to poor markings on the relay during service will provide constant power to the gas valve causing the valve to remain open regardless if there is a call for heat.**	The control board in the VANTAGE® Modulating heater is wired directly to the gas valve. In the event of a board failure, it would not be possible for the board to allow power to the gas valve.
	The MP uses an air pressure sensor to measure differential pressure for modulation purposes, and a pressure switch to prove minimum airflow for ignition.	The unit tested in our lab, found that the sensor is not compared to the switch, the two components operate completely independently. In the event the sensor provides incorrect pressure readings, the board will continue to modulate gas flow based on incorrect differential pressure. In addition to sensor drift, there are no safeguards to protect against incorrect connection of the air hoses. The heater can still light and could cause soot and carbon monoxide.**	The VANTAGE® Modulating is designed to shut down in the event the tubes are improperly connected as the pressure switch will not read the correct differential pressure.
Black-Coated Emitter Tubes	Aluminized steel finish black coated emitter tube produces an emissivity rating of .92.	Although black coated tubes are ideal for emitting radiant energy, the Pyromark 1200 flat black paint that DR applies to their tubes is not rated to withstand temperatures above 1,000° F. The surface temperature of low-intensity tube heaters can reach 1,200° F, exceeding the temperature resistance of the paint. Over time, this will make the paint brittle and cause erosion . Out of the box, the paint is not durable and scratches off easily.	Roberts-Gordon carries 3 different types of emitter tubes that are durable and have a high emissivity rating without gimmicky processes. Our Hot-rolled steel tubes have an emissivity rating of .80. We heat-treat our aluminized tubes in house so they can provide a high emissivity (.80) while being very durable and resistant to corrosion. We also offer a double coated porcelain aluminized tube. Porcelain coated both inside and out, RG tubes are designed to handle large amounts of condensation and are extremely durable with an emissivity rating as high as .96.
Polished Aluminum Reflectors	Polished aluminum reflects the maximum amount of radiant energy emitted from the heat exchanger down towards objects below.	Polished aluminum has a the same reflectivity rating as a mill finished reflector. Our testing showed DR's reflectors produced one of the lowest radiant efficiency numbers on the market only reaching an Infrared Factor of 12. *	Roberts-Gordon mill finish high efficiency reflectors far exceed the performance of DR reflectors. We have achieved an Infrared Factor as high as 15*. This is higher than any low-intensity infrared tube heater on the market.

**Results based on Roberts-Gordon testing of Detroit Radiant model: MP-25-80. All tests were performed in Roberts-Gordon's laboratory certified for witnessed manufacturer's testing based on ISO 17025:2005.

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This document should be used as a competitive analysis sheet to promote ROBERTS GORDON® Infrared Heating systems over competitors.
Competitive information is subject to change without notice.