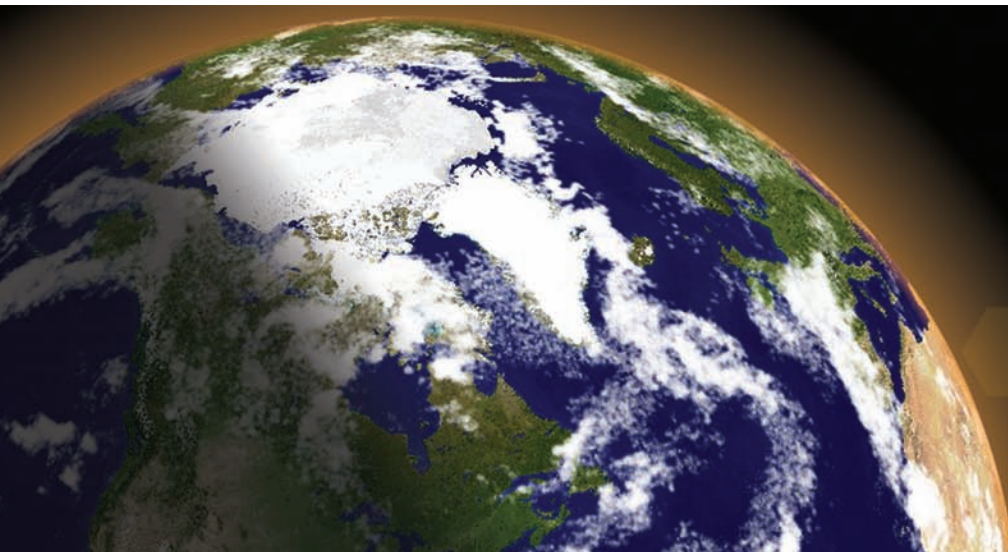
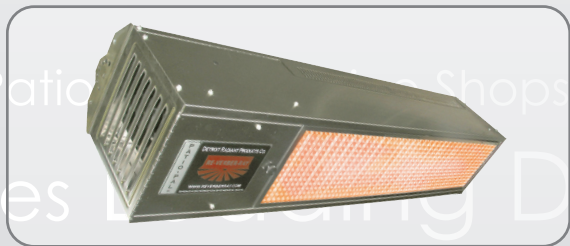


DETROIT RADIANT
PRODUCTS COMPANY

GAS FIRED INFRARED RADIANT HEATING EQUIPMENT



**ENERGY EFFICIENT
HEATING SOLUTIONS**



Global provider of energy efficient heating solutions since 1955

ABOUT DETROIT RADIANT PRODUCTS COMPANY



Founded in 1955, Detroit Radiant Products Company exclusively manufactures infrared heaters. Our commitment to quality has made Re-Verber-Ray® brand products internationally recognized as a leading global provider of energy efficient heating solutions. Headquartered in Warren, Michigan, Detroit Radiant maintains manufacturing and distribution locations throughout the world. Our tooling capabilities and technical expertise allow us great flexibility in the design and manufacture of our product offerings. An on-site ISO 17025 Approved Testing Laboratory enables us to research the latest technologies and to test new products thereby ensuring quality and continued product advancements.

Our extensive distribution network is prepared to assist you with a no-charge design analysis and answer any questions that you may have. These representatives are factory trained and committed to bringing their expertise to your application. Our innovative website offers product literature, a CAD library and unmatched technical support including an aftermarket parts program.

THE EFFICIENCY OF INFRARED HEATING



Re-Verber-Ray® infrared heaters emulate the true efficiency of the sun. Infrared heaters generate energy which is converted into heat when absorbed by floors, animals, people and objects. This energy is then re-radiated to warm the surrounding area by convection. This is the most efficient and effective method of heating under the diverse and challenging conditions present in most commercial and industrial applications.

COMMON APPLICATIONS

- Auto Service Shops
- Farm Buildings
- Ice Rinks
- Home Garages
- Loading Docks
- Warehouses
- Manufacturing Facilities
- Confinement Barns
- Pole Barns
- and Many More!



Fire Stations



Outdoor Patios



Car Washes



Vehicle Maintenance Facilities



Aircraft Hangars

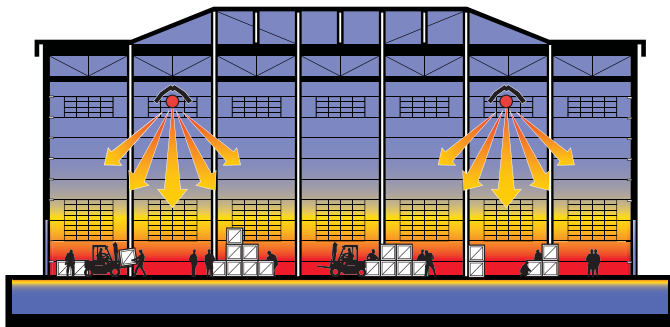


Golf Ranges

TRADITIONAL BENEFITS OF INFRARED

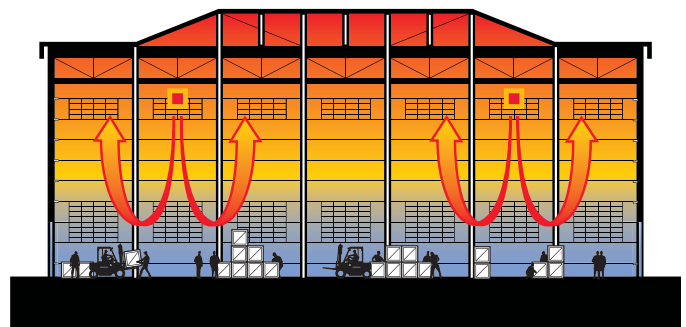
- **Fuel Savings** – 20-50% over conventional forced air units.
- **Flexibility** – Heaters can be placed where most needed.
- **Modular Design** – Re-Verber-Ray® heaters are of a modular design to assure heating protection over traditional central heating systems.
- **Superior Comfort** – Heat the floor zone, not the ceiling.
- **Radiant Efficiency** – Output is enhanced through a highly emissive, black coated radiant tube chamber or perforated ceramic.
- **Durability** – Infrared heaters require very little maintenance and are much easier to clean than air tempering and recirculating systems.
- **Quiet & Clean** – No noisy blowers pushing dirt and dust around.

Heat the People Zone...



INFRARED HEATING SYSTEM

...Not the Empty Spaces.



FORCED AIR HEATING SYSTEM

FUEL SAVING STUDIES

*Proven Average Fuel Savings of 23 Percent**

It is proven that gas fired infrared heaters save energy, and therefore dollars, over traditional hot air heating systems. Detroit Radiant Products is committed to documenting these savings through independent, scientifically conducted studies.

A three-year independent field test was conducted to determine the effectiveness of a two stage heating system and how it meets heat requirements more efficiently vs. forced air heating systems. An accurate side-by-side evaluation of the different heating systems revealed that infrared heaters proved **23% fuel savings** and **improved comfort levels** over a forced air heating system.

Market proven results show **energy costs reduced by as much as 50%** with fixed input infrared heaters when compared to forced air heating.

For more information on how infrared heating can make a difference for you, visit our website or contact us today!

* As reported in ASHRAE Research Project Number 4643. Results may vary depending on application.

TWO STAGE OPERATION

Two stage operation is characterized by a “high” fire and a “low” fire mode. This varied operation reduces on/off cycles by 35%, improves comfort levels, provides faster recoveries, and offers design protection benefits. By reducing on/off cycles you directly reduce wasted energy.

Independent studies have documented that the high/low features of our two stage heaters can **save an additional minimum 12% in fuel consumption** over single stage heaters.

Two stage operation is incorporated in HL3, DET3, LD, HLV and QTD Series models.

Two Stage Benefits:

- 12% minimum fuel savings over single stage infrared heaters.
- Faster heat loss recoveries.
- Improved comfort levels.
- 35% reduction in equipment on/off cycles.
- Design protection benefits.

Not all infrared heaters are designed alike

Two Stage

See Two Stage Operation above.

Burner Design

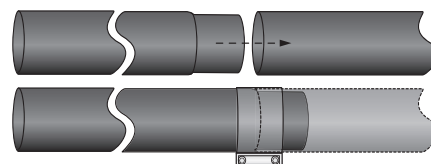
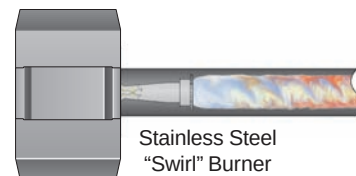
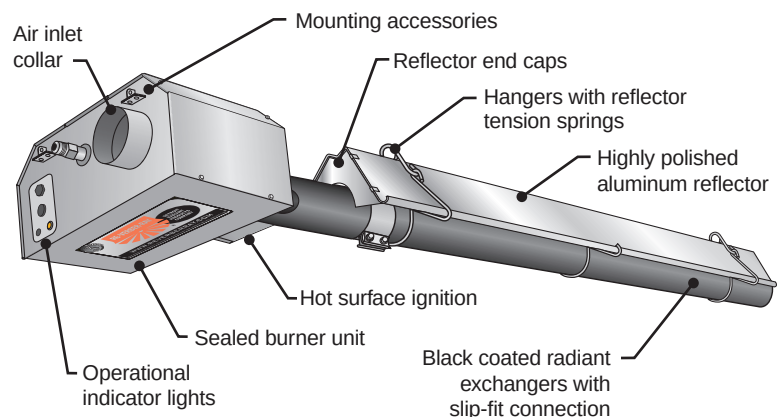
A burner that produces an elongated and spiraled flame is superior to a “cup” style burner that produces a shortened flame. An elongated flame emits more flame radiation than other flames and improves heat distribution. Detroit Radiant’s stainless steel burner is specifically designed for an elongated flame.

Tube Construction

Our “labor saving” interlocking swaged radiant tubes are constructed of stainless steel, titanium stabilized, aluminized coated and/or hot-rolled steel. Different tube materials are subject to different tolerances to heat and corrosion. Quality tube exchanger materials provide increased equipment longevity and when coated with a highly emissive (.95+) black tube coating, infrared heat output is also enhanced.

Reflector

Highly polished aluminum reflectors transmit nearly 90% of radiant energy, while mill finish reflectors may only achieve a reflective value of 65%. Core reflector material is the most critical concern when evaluating reflector design.

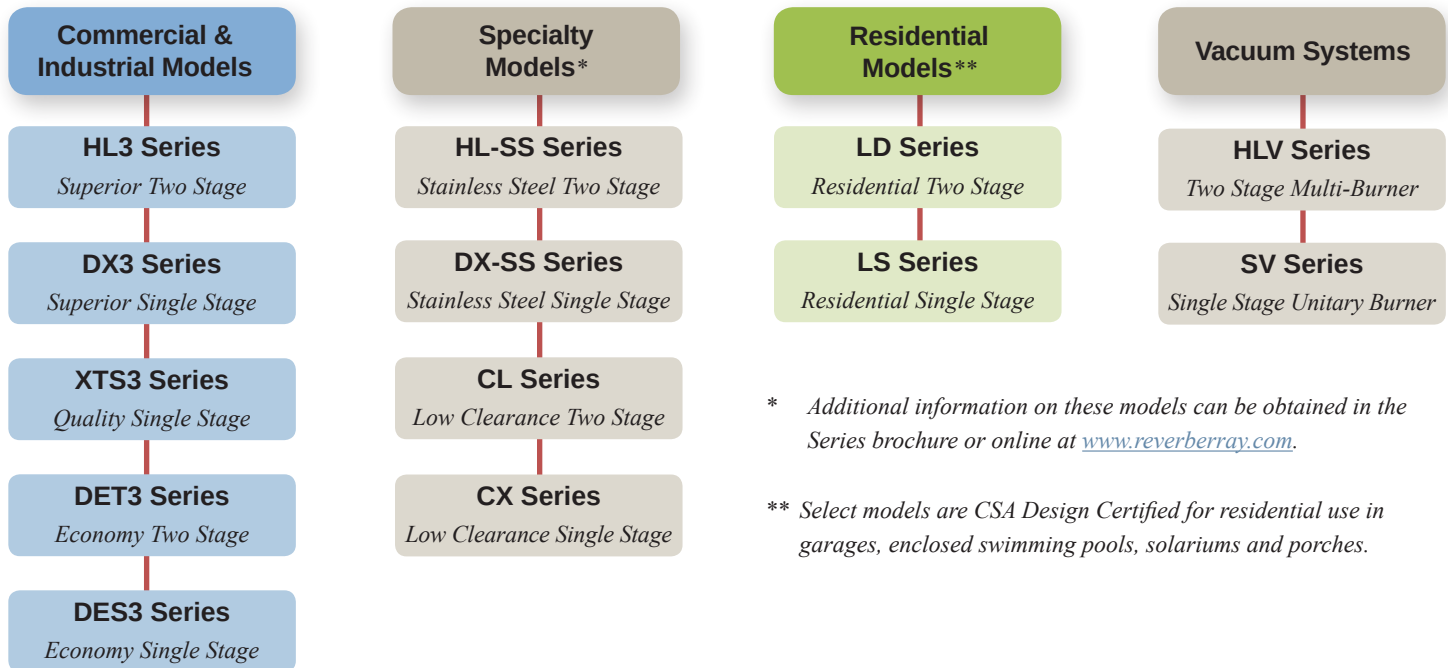


Black Coated "Labor Saving"
Interlocking Swaged Radiant Tubes



Highly Polished Reflectors

LOW INTENSITY HEATER PRODUCT OFFERING



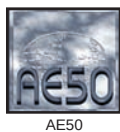
* Additional information on these models can be obtained in the Series brochure or online at www.reverberray.com.

** Select models are CSA Design Certified for residential use in garages, enclosed swimming pools, solariums and porches.

SUPERIOR TWO STAGE

The HL3 Series is ideal for those seeking a heater that offers optimal fuel and comfort benefits with unsurpassed features.

Patent No. 5-353-986



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EHL Series

HL3 Series Premier, Two Stage, Low Intensity Tube Heater

The HL3 Series couples the energy savings of two stage technology with the highest quality features available in any infrared heating equipment. Features include a specially designed stainless steel burner and highly emissive black coated, aluminized steel radiant tubes. Benefits of the HL3 Series include superior fuel economy, comfort levels and equipment longevity. The two stage HL3 Series represents the **BEST** in performance and quality!

HL3 Product Specifications:

BTU Range:	50,000 to 200,000 BTU/h (N or LP)
Lengths:	20 to 70 Feet
Limited Warranty:	1-5-10 (Components-Tubes-Burner)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tube(s):	4" Black Coated Aluminized

HL3 Series Features (see page 9):

- Patented two stage operation.
- Pre and post purge controls.
- Ball valve and flexible gas connector provided.
- Operational indicator lights.
- Self-diagnostic LED, microprocessor based circuitry.
- Hot surface ignition.

Stainless steel upgrades available for harsh environments.

SUPERIOR SINGLE STAGE

The DX3 Series is ideal for those seeking a high-end single stage tube heater with all essential, plus many value-added, features.



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EDX Series

DX3 Series Premier, Single Stage, Low Intensity Tube Heater

The DX3 Series represents the highest quality single stage low intensity heater available anywhere. Performance is enhanced through the use of a specially designed stainless steel burner and highly emissive black coated, aluminized steel radiant tubes. The DX3 Series offers superior low intensity heat, performance and longevity. The DX3 Series is designed to provide years of reliable, trouble-free service.

DX3 Product Specifications:

BTU Range:	50,000 to 200,000 BTU/h (N or LP)
Lengths:	20 to 80 Feet
Limited Warranty:	1-5-10 (Components-Tubes-Burner)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tubes:	4" Black Coated Aluminized

DX3 Series Features (see page 9):

- Pre purge controls.
- Ball valve and flexible gas connector provided.
- Operational indicator lights.
- Potted (water resistant) circuitry.
- Hot surface ignition.

Stainless steel upgrades available for harsh environments.

QUALITY SINGLE STAGE

The XTS3 Series is ideal for those seeking a quality single stage tube heater with all essential features.



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XTS3 Series Single Stage, Low Intensity Infrared Tube Heater

The XTS3 Series utilizes advanced control technology in an economical package. Economy is accomplished through the use of hot-rolled steel radiant tubes. The XTS3 Series successfully couples superior performance and economy with the result being a good quality heater at an affordable price.

XTS3 Product Specifications:

BTU Range:	50,000 to 200,000 BTU/h (N or LP)
Lengths:	20 to 60 Feet
Limited Warranty:	1-3-5 (Components-Tubes-Burner)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tube(s):	4" Hot-Rolled Steel

XTS3 Series Features (see page 9):

- Pre purge controls.
- Hot surface ignition.
- Select stainless steel upgrades available.

ECONOMY SERIES

Economy heaters are ideal for those seeking an economical two stage or single stage heater with limited features.



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DET3 Series Economical, Two Stage, Low Intensity Tube Heater *DES3 Series* Economical, Single Stage, Low Intensity Tube Heater

Streamlined for economy and designed without sacrificing burner performance, both the DET3 and DES3 Series are quality, energy efficient heaters at a more economical price. Our patented two stage technology incorporated into the DET3 Series, provides more comfort while saving valuable energy dollars.

Product Specifications:

BTU Range:	50,000 to 200,000 BTU/h (N or LP)
Lengths:	20 to 60 Feet
Limited Warranty:	1-2-3 (Components-Tubes-Burner)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tube(s):	4" Hot-Rolled

Series Features (see page 9):

- Direct spark ignition.
- Operational indicator lights (DET3).

LOW MOUNT / LOW BTU / RESIDENTIAL*

Residential heaters are ideal for those seeking a two stage or single stage tube heater for areas with low mounting heights or heat loads.*



LD Series Low Mount, Two Stage, Low Intensity Tube Heater *LS Series* Low Mount, Single Stage, Low Intensity Tube Heater

*Reference product specifications for models that are CSA Design Certified for residential use.

Product Specifications:

BTU Range:	25,000 to 50,000 BTU/h (N or LP)
Lengths:	10 to 30 Feet
Limited Warranty:	1-3-5 (Components-Tubes-Burner)
Combustion Tube(s):	3" Black Coated Titanium Stabilized
Radiant Tube(s):	3" Black Coated Aluminized

Series Features (see page 9):

- Operational indicator lights.
- Hot surface ignition.



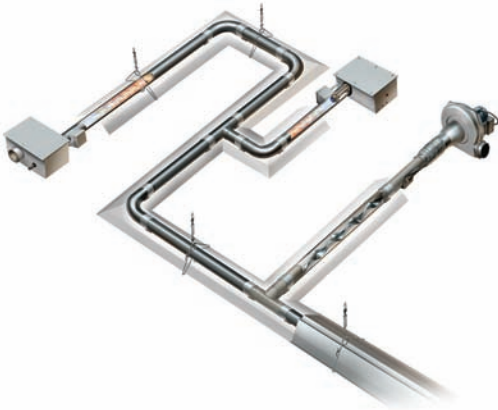
Low Mounting Height



Residential Garage

MULTIPLE BURNER VACUUM SERIES

Vacuum systems are ideal for those seeking an energy efficient heating system and/or as a solution in applications with unique design challenges.



NOT FOR RESIDENTIAL USE!



HLV Series Two Stage, Multiple Burner, Infrared Vacuum System

The HLV Series is engineered to utilize both two stage and condensing technology, offering optimal operating efficiencies and fuel savings. Key operational features include a 20% reduction in output when operating in low fire and stainless steel tailpipe when optional condensing operation is utilized. Standard features include titanium stabilized combustion chambers, hot surface ignition, indicator lights and most mounting accessories.

Product Specifications:

BTU Range:	40,000 to 200,000 BTU/h (N or LP) per Burner
Lengths:	Varies by Design
Limited Warranty:	1-3-5-1 (Components-Tubes-Burner-Pump)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tube(s):	Option to select type Aluminized or Hot-Rolled

Series Features:

- Self-diagnostic circuitry.
- Extended vacuum system runs.
- Largest BTU offering.
- Reliable performance in high wind conditions.
- Systems from 1-6 burners ranging from 40,000 to 750,000 total BTU's per pump.

UNITARY VACUUM HEATERS

The SV Series is ideal for those seeking a single stage negative pressure system and/or when extended vent runs are necessary.



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SV Series Single Stage, Unitary, Infrared Vacuum Tube Heater

The SV Series is the latest advancement in vacuum system technology. This unitary vacuum heater incorporates our acclaimed stainless steel swirl burner for optimal heat distribution. Other features include the largest BTU offering, extended venting runs, self-diagnostic circuit controls, reliable performance in high wind conditions and the quietest vacuum operation in the industry.

Product Specifications:

BTU Range:	50,000 to 200,000 BTU/h (N or LP)
Lengths:	20 to 80 Feet
Limited Warranty:	1-3-5-1 (Components-Tubes-Burner-Pump)
Combustion Tube(s):	4" Black Coated Titanium Stabilized/Aluminized
Radiant Tube(s):	4" Black Coated Aluminized

Series Features:

- Self-diagnostic circuitry.
- Operational indicator lights.
- Reliable performance in high wind conditions.
- Quiet vacuum (negative pressure) operation.

LOW INTENSITY FEATURES COMPARISON

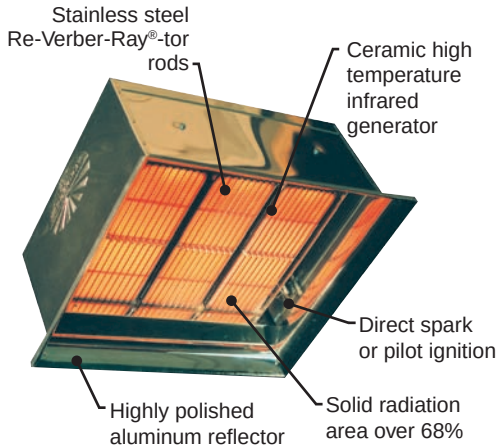
Features	HL3	DX3	XTS3	DET3	DES3	Other	LD	LS	HLV	SV
20 to 70+ Ft. Model Lengths	●	●							●	●
50,000 (40,000 on HLV) to 200,000 BTU/h Input Models	●	●	●	●	●				●	●
24 in. Stainless Steel Flexible Gas Connector	●	●	●	●	●		●	●	●	●
Power Cord Connection	●	●	●	●	●		●	●	●	
Certification of Europe Approval and Seal (CE)	✱	✱								
Coated Aluminized Radiant Emitter Tubes	●	●					●	●	●	●
Coated Titanium Stabilized/Aluminized Combustion Chamber	●	●	●	●	●		●	●	●	●
Slip-Fit Tube Connections	●	●	●	●	●		●	●	●	●
Enameled Steel Control Box	●	●	●	●	●		●	●	●	●
Fitted Plastic Air Inlet Collar	●	●	●	●	●		●	●	●	●
Highly Polished Aluminum Reflectors	●	●	●	●	●		●	●	●	●
Hot Surface Ignition	●	●	●				●	●	●	●
Operational Indicator Lights	●	●	○	●	○		●	●	●	●
Outdoor Approval Kit Available	○	○					○	○		
'U' or 'L' Configurations Available	○	○	○	○	○		○	○	○	○
Positive Pressure Operation	●	●	●	●	●		●	●		
Post Purge Fan Relay	●						●		●	
Radiant Tubes Coated with Highly Emissive Black Paint	●	●					●	●	●	●
Reflector Center Supports for each 10 Ft. Tube Section	●	●					●	●	●	●
Reflector End Caps with Clips	●	●	●				●	●	●	●
Reflector Tension Springs	●	●	●				●	●	●	●
Self-Diagnostic Circuitry with LED Display	●						●		●	
Serviceability While Operational	●	●	●	●	●					
Shut-Off Ball Valve with Inlet Tap	●	●					●	●	●	●
Turbulator Heat Baffle	●	●	●	●	●		●	●	●	●
Two Stage Operation	●			●			●		●	
Tool-Free Access to Parts	●	●	●	●	●					
Upgradable to Stainless Steel ‡	✱	✱								

● Standard Feature ○ Optional Feature ✱ Select Models

‡ When upgrading model HL3 or DX3 Series to stainless steel, the appliance will be fitted with a version 2 control box.

HIGH INTENSITY SERIES

The DR Series is ideal for unvented spot heating applications or in applications where unvented high intensity heat offers design benefits or is preferred.



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DR Series Gas Fired, High Intensity, Unvented Infrared Space Heater

The DR Series is commonly used in areas of high air infiltration, high ceilings and/or spot heating applications. The DR Series is available in a multitude of configurations, ranging from 30 to 160 MBH with 6 different control options.

Standard Features:

- 5-year limited warranty.
- Exclusive Re-Verber-Ray® ceramic burner provides maximum conversion to infrared radiation.
- CSA Design Certified, UL Listed, accepted by FIA and FM.
- Available in 6 control configurations from manual to solid state ignition.
- Lower installation costs through compact modular heater design.
- Rugged, non-corrosive, materials in heater construction.
- Proven design – over 2,000,000 burners in use.
- Re-Verber-Ray®-tor rods increase heater temperature and efficiency.
- 35 ft. wire and thermostat included with each millivolt unit.

ELECTRIC HEATERS

Electric infrared heaters are the cleanest method of heating, taking nothing from the air and adding nothing to the air.



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BAH Series Electric, High Intensity, Infrared Heater

Electric infrared heaters are the answer to applications where gas and/or ventilation is not available or is impractical. A custom-tailored installation can economically meet the heating needs for new construction or retrofitted for existing facilities - producing clean, even, energy-efficient heat.

BAH Series Features:

- Ideal for low output, low clearance to combustible areas.
- Choose 120, 208 or 240 volts.
- 6 different kW models available, ranging from 0.5kW to 4.0kW.
- Glass encased "quartz" tube heating element provides virtually instant heat.
- Pollution free; no venting required.
- Mounts in any position.
- Quiet & clean operation.

PATIO HEATERS

Patio heaters are ideal for those seeking to provide comfort primarily to outdoor applications.

PATIO·PAL®



NOT FOR INDOOR RESIDENTIAL USE!



PH Series Gas Fired, High Intensity, Infrared Patio Heater

Designed to add warmth to outdoor patio applications, the **PATIO·PAL®** infrared heater is the perfect solution to stylishly extend the outdoor season to many commercial and outdoor residential applications. The **PATIO·PAL®** easily mounts out of the way and without the hassle of refilling propane tanks. Specifically designed for comfort, reliability and ease of installation, the **PATIO·PAL®** is sure to deliver the desired amount of warmth for dining, entertainment or work areas.

Product Specifications:

BTU Range: 28,000 to 34,000 BTU/h (N or LP)
Limited Warranty: 1 Year Controls, 5 Years Burner

PH Series PATIO·PAL® Features:

- CSA Design Certified for indoor and outdoor use.
- Decorative aluminum grill with stainless steel frame.
- Wind and rain protected design.
- Reliable direct spark ignition.
- Power cord connection with potted circuitry.
- Housing available in black coated aluminized steel or 304 Series brushed stainless steel.

LOW INTENSITY SPOT HEATERS

The QT Series unique design provides superior performance and is ideal for applications seeking even heat intensity.



Patent Pending

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QTD Series Quad Tube, Multi-Burner, Two Stage Low Intensity Heater QTS Series Quad Tube, Multi-Burner, Single Stage Low Intensity Heater

The QT Series Patent Pending design captures operational benefits of both high and low intensity infrared heaters. Its unique construction features include a multi-burner, multi-exchanger platform optimized for a broad and even heat output pattern without hot spots. Available in both single and dual stage operation, this heater provides application versatility unmatched by traditional infrared solutions.

QTD & QTS Series Features:

- CSA Design Certified for both indoor and outdoor use.
- Compact, aesthetically pleasing construction.
- Easy to install with minimal assembly required.
- Proven reduced energy consumption characteristics.
- Multiple construction features including: dual spark ignition, highly emissive heat exchangers, polished reflectors, operational indicator lights and more.
- Designed and packaged for ease in transportation.

CERTIFYING AGENCIES AND ASSOCIATIONS

Re-Verber-Ray® products are recognized not only for efficiency, but also for safety. When installed according to the written instructions, our heaters meet or exceed the Standards set forth by:

Canadian Standard Association (CSA)



All units have been CSA Design Certified to relevant ANSI Standards for Gas Fired Infrared Heaters and bear the CSA seal.

American National Standards Institute (ANSI)



Detroit Radiant Products heaters comply with the strict construction and safety Standards as set forth by ANSI.

Underwriters Laboratory (UL)



Re-Verber-Ray® heaters comply with current OSHA requirements, are accepted by the FIA/FM and are UL Listed (DR Series only).

Air-Conditioning, Heating & Refrigeration Institute



Detroit Radiant Products is a longtime member of AHRI (formerly Gama), the key association in setting Standards and handling affairs in the Gas Appliance Industry.

Certification of Europe (CE)



In addition to the Certification Agencies listed, Detroit Radiant Products offers both high and low intensity heaters designed and certified to European Standards.

Infrared Heater Safety Council (IRSC)



Detroit Radiant Products is a participating member of the Infrared Heater Safety Council (IRSC). This Council educates building inspectors, fire authorities and end users on safe practices.

US Green Building Council (USGBC)



Detroit Radiant Products Company has been a member of the USGBC, a non-profit trade organization that oversees the LEED® Certification program, and is proud to have a LEED® Accredited Professional on staff.

ISO/IEC 17025 Certified Laboratory

An on-site ISO/IEC 17025 certified testing laboratory allows for continuous developments and research of the latest technological advancements as well as in-house CSA product certification and review.

www.reverberray.com



Detroit Radiant Products offers the most complete and interactive website amongst infrared manufacturers. This site is designed with specifying engineers, installing contractors and end users in mind.

- Product Specification Data
- Product Installation Manuals
- Design and Application Guides
- CAD Drawing Library
- Local Representative Locator
- Troubleshooting Assistance
- Replacement Parts Library
- Features Comparison Charts
- Online Product Registration
- and Much More!



DETROIT RADIANT PRODUCTS CO.

21400 Hoover Road, Warren, MI 48089

Voice: (586) 756-0950

Toll Free: (800) 222-1100

Fax: (586) 756-2626

Website: www.reverberray.com

E-mail: sales@drp-co.com

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