

SELF RECUPERATIVE AND RADIANT TUBE BURNERS

UNI-RAD®

Custom designed furnace burner with plug in reucuperator, custom designed for each customer application.

Overview



MAXON's UNI-RAD® Radiant Tube Burner produces an extremely stable and luminous flame that maximizes heat transfer throughout radiant tube furnaces. Flame ignition is maintained by a patented continuous spark system that ensures ignition each and every time without fragile, porcelain ignitors. This patented ignition system enables UNI-RAD® to pulse fire radiant tubes producing longer tube lives for reduced furnace ownership expense. Options are available to operate with preheated combustion air to 1200°F (650°C) to reduce your fuel consumption and operational expenses.

Features & Benefits:

- **Plasma Type Ignition:** Unlike most spark ignited burners, the UNI-RAD Burner provides a zone of ionized air enriched with a small quantity of combustion gas to provide high energy ignition
- **Annular Ignition Electrodes:** The UNI-RAD Burner does not use a conventional spark plug; instead, the primary air and gas inlet tubes provide the electrical path for the ignition spark. This design feature provides many times the electrode area for extended life and positive burner ignition
- **Adjustable Flame Length:** The flame length may be tailored to your specific needs by changing the combustion air to ignition air ratios. This simple adjustment allows the burner to obtain optimum tube temperature uniformity over a wide range of firing rates and preheated air temperatures
- **Wide Input Range:** The unique design of the UNIRAD Burner allows it to operate over a large range of fuel gas inputs. Stability is maintained and flame length is controllable with firing rates ranging from as little as 80,000 Btu/hr input to as much as 700,000 Btu/hr
- **Instantaneous Ignition:** The burner's continuous plasma spark provides instantaneous ignition allowing the burner to operate from the Duration Adjusting Type (DAT) output from a Proportional, Integral, Derivative (PID) Control Loop. Please note, continuous sparking is not mandatory with the UNIRAD Burner; intermittent sparking has been tested in several applications. When controlled using the appropriate valving, single point tube temperature variations may be reduced to as little as plus or minus 4° F (2.2°C). Contact Maxon for details
- **Flame Supervision:** The UNI-RAD Burner may be used in conjunction with IR or UV scanner flame supervision equipment. Contact Maxon for details
- **Super Forced Cooling:** In applications requiring rapid cooling, the UNI-RAD Burner has been used with secondary cooling manifolds to provide high rates of heat removal using conventional radiant tubes. The UNI-RAD Burner can sustain radiant tube pressure in excess of 10 PSIG (0.7 bars)
- **Radiant Tube Types:** The UNI-RAD System is suitable for use on customer-supplied pressure tubes, negative pressure tubes, and electrified radiant tubes

More Information:

- [Technical Information for UNI-RAD](#)
- [Find spare parts in PartDetective for UNI-RAD](#)

Specifications

APPLICATIONS & COMPATIBILITY

Applications

- Heat treatment lines in metals industry (W-shaped and U-shaped tubes)



BURNER/FLAME-RELATED LENGTHS

Typical Radiant Tube Length

- > 4 m

AIR/EXHAUST/FLUE GAS TEMPERATURES

Stack Temperature

- 640 to 750 deg C (1184 to 1382 deg F) at 3% O₂

SYSTEM/UPGRADE COMPATIBILITY

Recuperator Compatibility

- Radiant tube ID ≥ 186 mm (7 in), length > 4 m (15.7 in), leg spacing > 600 mm (23.6 in)

PROCESSING & PERFORMANCE METRICS

NO_x Emissions

- 140 to 250 mg/m³ at 3% O₂ (optimized via FGR)

Efficiency

- 64% to 70% (Hi) (Burner + Recuperator)

Capacity Range

- 100 to 200 kW (Lower Heating Value - LHV)

ELECTRICAL SPECIFICATIONS

Maintenance Interval

- Twice per year (more frequent if media is contaminated)

INSTALLATION & MOUNTING SPECIFICATIONS

Installation Notes

- Gas nozzle must be flush with burner tip inner face

IGNITION, FLAME & SUPERVISION SPECIFICATIONS

Ignition Type

- Plasma type high energy ignition (no spark plug)

Flame Type

- Long, luminous diffusion flame

Flame Supervision

- UV or IR Scanners

FUEL, GAS & MEDIA SPECIFICATIONS

Hydrogen Capability

- 100% H₂ capable

Fuel Type

- Natural Gas (NG), Liquefied Petroleum Gas (LPG), Coke Oven Gas (COG), LNG, Hydrogen (up to 100%)

CONTROL, LOGIC & FUNCTIONAL BEHAVIOR

Control Type

- On/Off (modulation possible within limits)

AIR & COMBUSTION AIR SPECIFICATIONS

Combustion Air Requirements



- Dry, clean, no condensate

COMBUSTION/FURNACE/CHAMBER TEMPERATURES

Combustion Air Preheat Temperature

- 500 to 600 deg C (932 to 1112 deg F)

OVERVIEW

Burner Type

- Nozzle-mix burner

STANDARDS & CERTIFICATIONS

Approvals

- Compliant with Eurasian Customs Union standards

Filters

▼ CATEGORY

- ☒ Spare Part

▼ TYPE

- ☒ Air Inlet Tube Assembly
- ☒ Burner Air Inlet Housing
- ☒ Burner Gasket
- ☒ Centering Spider
- ☒ Gas Inlet Tube Assembly
- ☒ Ring
- ☒ Tube Recuperator

 Search

Part Number	1049543
Description	MOD 5"-1.5" BRNR AIR INLT HSG
Category	Spare Part
Type	Burner Air Inlet Housing
	Order Online

Part Number	1050671
Description	.625" ID CRMC INSL
Category	-
Type	-
	Order Online

Part Number	1052392
Description	3.75"-4.875" RECUP TBNG L=19"
Category	Spare Part
Type	Tube Recuperator
	Order Online

Part Number	1053138
Description	15.5" AIR INLT TB ASY
Category	Spare Part
Type	Air Inlet Tube Assembly
	Order Online

Part Number	1053173
Description	1.25"-4.25"C BRNR AIR INLT HSG
Category	Spare Part
Type	Burner Air Inlet Housing Order Online
Part Number	1053174
Description	1.5"-6"C BRNR AIR INLT HSG
Category	Spare Part
Type	Burner Air Inlet Housing Order Online
Part Number	1053208
Description	MOD 4" RECUP
Category	Spare Part
Type	Recuperator Order Online
Part Number	1053232
Description	7.625" OD UNI-RAD RING
Category	Spare Part
Type	Ring Order Online
Part Number	1053236
Description	8.875" OD UNI-RAD RING
Category	Spare Part
Type	Ring Order Online
Part Number	1056165
Description	IGN ROD
Category	Spare Part
Type	Ignition Rod Order Online

Rows 10 ▾

Product Number



Please sign in to view part numbers available for purchase based on your account

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MOD 4" RECUP

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