



## MR-12 Infrared Burner

*The Selas MR-12 infrared burner has a durable fine porosity metal alloy refractory grid that has excellent resistance to impact, thermal shock and water damage.*

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### How It Works

The MR-12 is a surface combustion gas-fired infrared burner with a metallic alloy foam emitter and a cast iron housing. The MR-12's durable construction is ideal for many industrial applications including powder coating, textile finishing, building products, paper drying, glass annealing and heat treating.

The MR-12 has a relatively high heat flux density with low combustion velocity and achieves an emitter

temperature of 1700°F. It has a turndown ratio of 2.5 to 1, allowing it to also run at a lower temperature (of 1100°F) for sensitive products or in the event of a line slowdown. The emitter's ability to quickly cool down to ambient temperature prevents burning if there is a line shutdown. The burner can be restarted and reach peak temperature in seconds. The quick response of the burner optimizes labor efficiency and productivity and reduces energy costs.

### Applications:

- Powder coating
- Textile finishing
- Building products
- Paper drying
- Glass annealing
- Heat treating



**Diverse Combustion Technologies. One Reliable Source.**

# Operating Principles

The MR-12's fine porosity metallic foam emitter provides an even combustion surface and ample air/gas flow to minimize flashing or internal combustion. The emitter is secured to the housing by stainless steel hold down rails and bolts, eliminating the risk of heat fatigue inherent in alternative fastening systems such as springs or clips.

The emitter is also secured with a high temperature gasket to diminish escape pathways, ensuring maximum air/gas flow. Its modular construction allows for inexpensive and simple maintenance. The MR-12 is connected to the manifold with a three piece threaded union connector and orifice nipple assembly (UCO-75) to provide quick and easy removal and replacement of the burners.

The MR-12's maximum capacity is 20,400 BTU/Hr at high fire and 3.5" W.C. Its capacity will increase at higher air/gas pressures but this is not recommended because doing so may shorten the emitter's lifetime. The 60 sq in (387 sq cm) of surface area on each 12" x 5" burner section provides an output of 340 BTU/sq in (53 BTU/sq cm). The radiant output of the burner is approximately 65% infrared and 35% convective heat. The MR-12 is designed to best operate at 19.2% oxygen in the air/gas feed.

The Model MR-12 is mounted on structural steel manifolds using a UCO-75 union connector and orifice nipple assembly. The burners can be mounted parallel or perpendicular to the manifold to meet space requirements and optimize the dwell time at various line speeds. Flame ignitors and monitors are mounted on the near and far ends of each burner system. Heat control is typically provided by UV heat sensors which signal an automated butterfly valve on the air blower.

Features	Benefits
Modular 12" x 5" construction	Quick and easy replacement of burner sections
Emitter sealed with high temperature gasket	Diminishes escape paths to ensure maximum flow
Fine porosity metallic foam emitter	Uniform firing rate across entire surface
Burner can be placed closer to item	Maximizes radiant energy transfer
Durable construction with stainless steel fasteners	Eliminates risk of heat fatigue



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