Angled Media Infrared Burners

Designed to Spread Radiation Over 135° Radius

The Apollo-Ray angled media (AM) burner model is a surface combustion gas-fired infrared burner. The emitter's symmetrical trapezoid shape allows the radiation from the angled emitter to spread over a 135° radius.

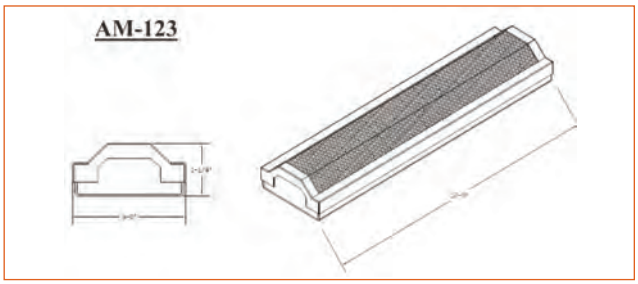
As with other surface combustion infrared burners, the premixed air and gas travel through the burner body and out the porous emitter surface. Combustion takes place in a thin layer just above the outer surface of the emitter.

The AM emitter has a multilayered sintered metal fiber alloy construction. Its many micro pores evenly entrain and disperse the air/gas mixture. The high surface area of these compressed FeCrA1 alloy fibers produces a very high heat flux density.

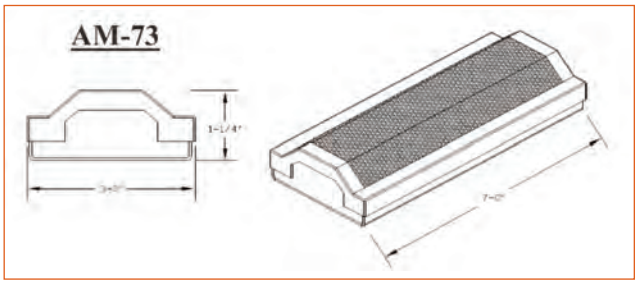
The burner body's all stainless steel welded construction forms a tight seal. Each modular section measures 3" wide by 1.3" high. The overall height of the AM series burner when mounted on a manifold has a diameter of just under 5". This includes factory mounted special hooded ignitor and monitors for this burner. The AM series burners are available in two lengths, the AM-123 is 12" long, while the AM-73 is 7" long.

Various combinations of these burner sections can be configured to match the conveyor belt width.

The drawings below provide a side and top view of both sizes of burner sections.



The maximum 5" diameter design of the entire burner allows retrofitting into the existing ribbon burner ports of commercial baking ovens without any modifications. We have designed the AM series to adapt to a flanged assembly, which is typically bolted to the outside of an oven wall. This design accommodates the threaded stainless steel pipe manifold inlet and the insulated ignitor/monitor assembly by extending these both through the cast iron flange on the outside of the oven wall.



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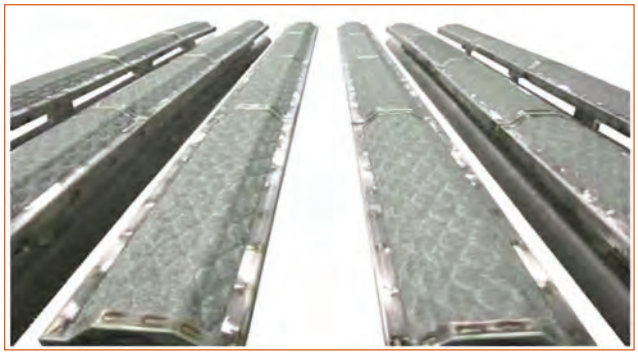
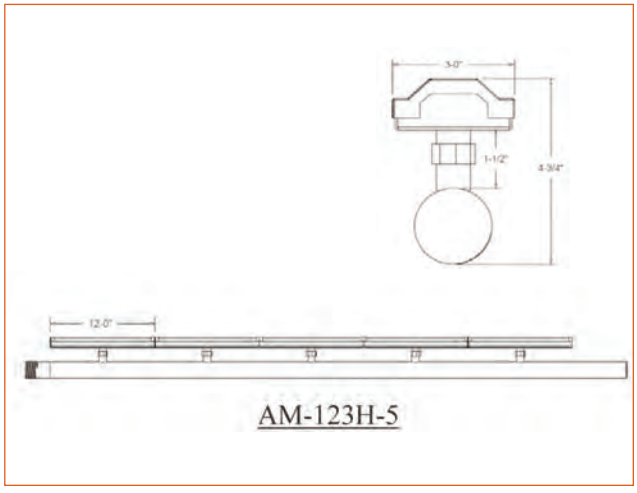
Once the burner assembly is slid into place in an oven, the existing ribbon burner air/gas mixer can be used by simply adjusting (reducing) the gas setting. The rated input capacity of the AM-123 burner model is 17,500 Btu/hr, while the AM-73 has a rated input capacity of 10,200 Btu/hr. If the AM burners are placed 4" from the belt, the radiant energy will diffuse across 18" of belt length. If the burners are placed on 36" centers, the product will see continuous, uniform IR radiance. This pattern is ideal in the baking industry where more diffuse and continuous radiation is desired.



The emitter is flexible by nature but backed by rigid internal supports. This allows it to resist damage caused during routine maintenance or by thermal shock from cycling the burners on and off during varying production runs. The AM burner can be used either above or below a conveyor belt and can effectively withstand oven operating temperatures of 750+ ºF. Direct spark ignition and rapid flame propagation are two of the advanced features of the AM series burner. The turndown ratio on the AM series is 2:1 with the oxygen percent in the air/gas mixture (methane) set at 19.3%. The total radiation emitted by the burner is 3.7 times less at low fire than at high fire. The air/gas mixture pressure in the burner manifold should be set to approximately 3.5" w.c. The input fuel is convective energy. This means that 2/3 of the energy output radiates directly toward the product, while the remaining convective energy is used to maintain the desired oven temperature with little or no waste in ventilating loss. In ovens where the AM has replaced ribbon burners, one half of the ribbon burners have been eliminated while maintaining line speeds and increasing product quality. In situations where increased line speeds are desired, additional burners can be added in accordance with thermal requirements.

The AM series burners reach full fire in seconds, while cooling to the touch in seconds. This technology prevents burning of the product and waste of fuel in the event of line stops. Labor and lost productivity costs are also minimized with short heat up and cool down periods.



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