



TYPE MD9000 FR PRECISION SLIT RECTANGULAR REMOTE LENS



Type MD9000-FR2 Lens with SLB-A "L" Mounting Bracket

- **Robust cast aluminum housing rated IP66 with unique air purge & cooling facility.**
- **Optional Water Cooling with separate air purge available.**
- **Gunsight Alignment.**
- **Internal 5° & 15° vertical shuttering option.**
- **Slide flange mounting.**
- **Utilizes Linearized Flexible Armored Fiber Optic Cables**
- **Ambient temperature rating of 90°C without cooling, 120°C with air cooling and 160°C with water cooling.**
- **Unique combined air purge and cooling facility**
- **Optional Water Coolant Radiator & separate Air Purge**

General Description

The Type FR Precision Slit Rectangular Lens is specifically engineered for mounting in high ambient temperatures very close to the product line. It can be used in areas where with heavy steam or water is present. This lens is highly suited to Hot Bar & Rod Mills, Hot Strip Mills, Hot Plate Mills.

Where high accuracy is required or the product deviates about the center line (i.e. Rod Mill) the FR2, a 1/2° x 25° precision slit rectangular lens, should be utilized. Even product dramatically deviating about the center of field of view can be monitored with this slit field of view lens arrangement. The type FR Precision Slit Rectangular Lens can be vertically shuttered to the type FR1, 1/2° x 15° precision slit rectangular lens, and the type FR0, 1/2° x 5° precision slit rectangular lens.

The lens is supplied with a robust cast aluminum housing rated IP66. It features a unique air purge & air cooling facility. It is designed for an ambient temperature rating of 90°C without Air Cooling and 120°C with Air Cooling.

As an option Water Cooling with separate air purge is available. This allows for operation in an ambient temperature of 160°C. In addition Vortex cooled air can be used with the standard air purges & air cooling facility.

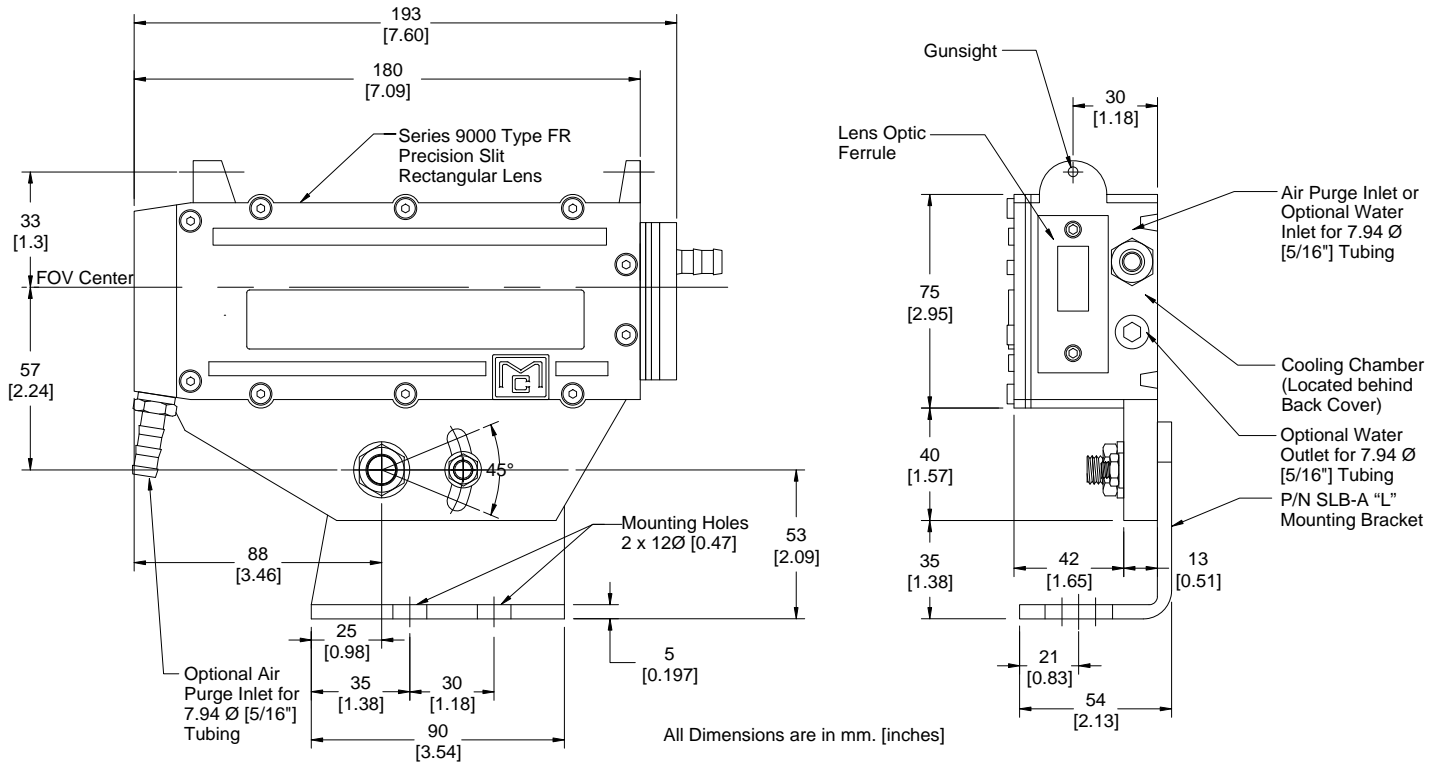
An optional HRPC-8000 custom fabricated heat reflective protective cover is available. The cover is made from Elko-Therm™ aluminized Kevlar. Up to 90% of external heat sources are reflected away.

The Type FR Precision Slit Rectangular Lens is used in conjunction with the Moduloc Model MD9100 & MD95100 Hot Metal Detectors. These detectors are activated by the infrared radiating from the hot metal or product. This infrared energy is concentrated via the lens system and multi-strand fiber optic lead onto a photodiode that activates a switched output once this IR energy exceeds a preset level.

The Model MD9100 & MD95100 Hot Metal Detectors comprise an electronic controller within a mounting cradle, a flexible stainless sheathed linearized flexible armored fiber optic cables and remote lenses in various configurations. The remote lenses may be installed close to hot product in areas of high ambient temperature with heavy steam or water present. This interchangeability of lenses, together with alternate lengths of optic lead allows the user to adopt one standard Sensor whilst utilizing a variety of lenses to suit individual installation requirements.

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Dimensions



General Specifications

Housing:	Aluminum AL6, Oven baked blue paint.
Housing Rating:	IEC IP66, DIN, 89011
Weight:	1.7 Kg
Temperature Rating:	-20°C to +90°C (-4°F to 194°F) without air cooling
	-20°C to +120°C (-4°F to 248°F) with air cooling
	to +160°C (320°F) with water cooling

Air & Water Specifications	
Air Pressure:	1 cu ft/min at 5 PSI for normal conditions. 5 cu ft./min at 15 PSI for severe conditions
Water Pressure:	5 to 10 PSI, 40 PSI Maximum
Water Volume:	Regulate between 0.2 - 0.3 liters/min.
Water Temp:	For Ambient Temp. up to 160°C use water chilled to 5°C

Type FR Lens Information			
Lens Type	FR0	FR1	FR2
Field of View (FOV)	1/2° x 5°	1/2° x 15°	1/2° x 25°
Scanned Area at 1 meter (39.37 in)	10 x 100 mm (0.39 x 3.94 in)	10 x 300 mm (0.39 x 11.81 in)	10 x 500 mm (0.39 x 19.69 in)

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MODULOC®
Control Systems

We reserve the right to alter specifications without prior notice. Specifications without tolerances are typical values.

Your Local Sales Representative:



Bulletin MC-9000-FR-09-02
July 2009