

## Application**brief**

**Eclipse Product:** SER v5 Burners

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**Application:** SER v5 Burner Retrofit Provides Cost Savings and Higher Efficiency.

**Description:** Over fifteen years ago, a major automotive component supplier converted its six Ipsen P8 electric furnaces with the Eclipse SER v1 burners. The SER v1 burners delivered approximately 50% in fuel savings, and now the customer was interested in upgrading to SER v5 burners for even more benefits. In addition to upgrading the burners, there was also a mandate from FM Global to monitor the burners with flame safety. The previous flame safety in the furnaces had fallen into disrepair.

The Eclipse 4.5" SER v5 burner with metallic outer tubes was chosen for this application because of the minimal changes in the refractory walls. The original SER v1 burners had 3.25" ceramic outer tubes. The furnaces were scheduled to be relined and the current refractory was replaced with refractory that allows a thinner side wall without sacrificing the insulating factor. Burner installation and refractory work was performed by a local contractor.

By using the 4.5" SER v5 burners, Eclipse was able to increase the radiant tube surface area by 39%. Even with a lower flux rate, the net output was increased by 19%. Fuel savings were estimated at \$1,400 per year per furnace.



Before: The SER v1 burners were installed in the mid 1990's.



After: By converting the furnaces from SER v1 to SER v5 burners, the customer was able to save time and money and lower their NO<sub>x</sub> emissions.



**Customer Benefits:**

- 50% reduction in NO<sub>x</sub> emissions.
- Overall furnace efficiency increased by an additional 8%.
- FM Global approved design without electronic flame safety systems.
- Reduction in furnace recovery time from 35 minutes to 20 minutes.
- Insulated burner bodies provide a cooler work environment.

**Cost Savings for Six Furnaces:**

- Approximately \$8,400 in additional annual fuel savings.
- \$25,000 annual savings in maintenance labor.
- \$150,000 annual savings in repair parts.