



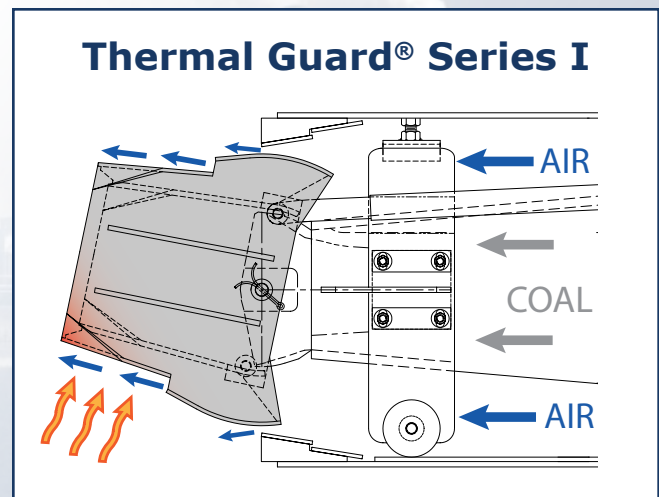
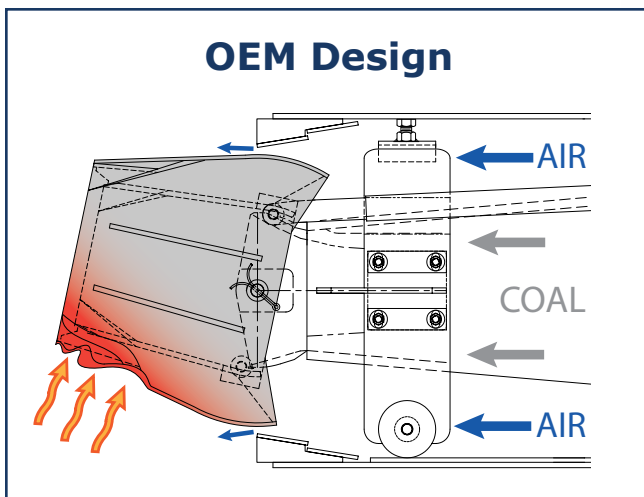
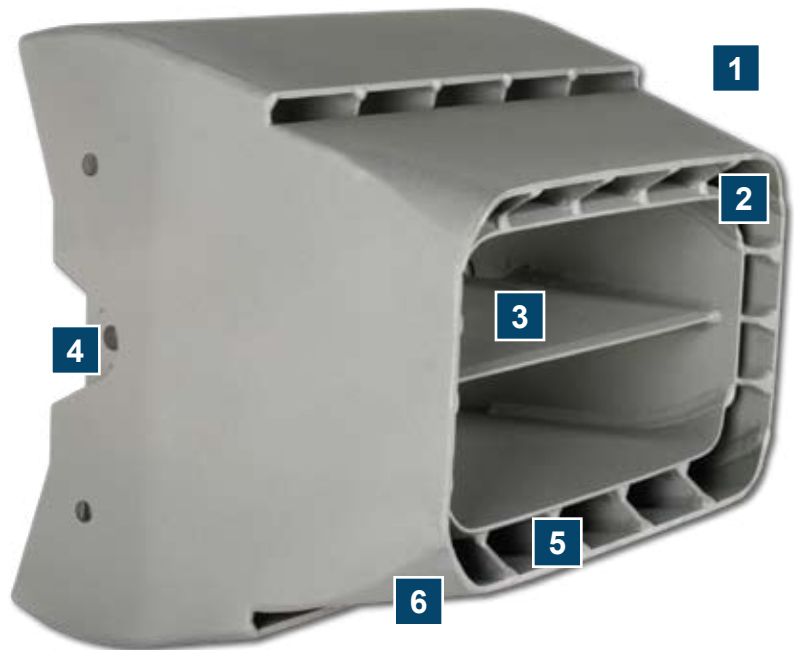
THERMAL GUARD® NOZZLES



SERIES I

The R-V Industries proprietary self-cooling Thermal Guard® Series I design extends performance life of tangential coal and air nozzle tips.

1. Aerodynamic thermal radiation barrier
2. Contoured corners
3. Various erosion protection options
4. Pivot pin design available for furnace side removal
5. Solidly welded inner annulus assures rigidity
6. Shielded corner welds





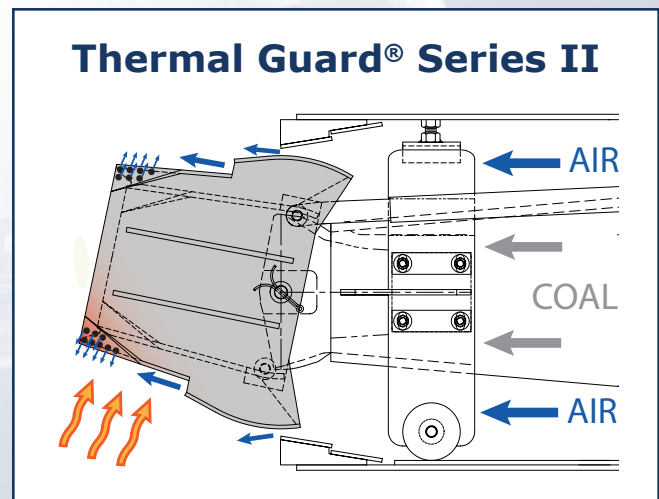
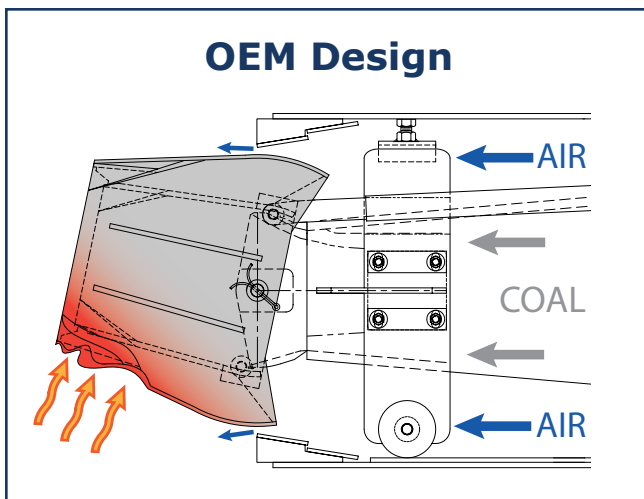
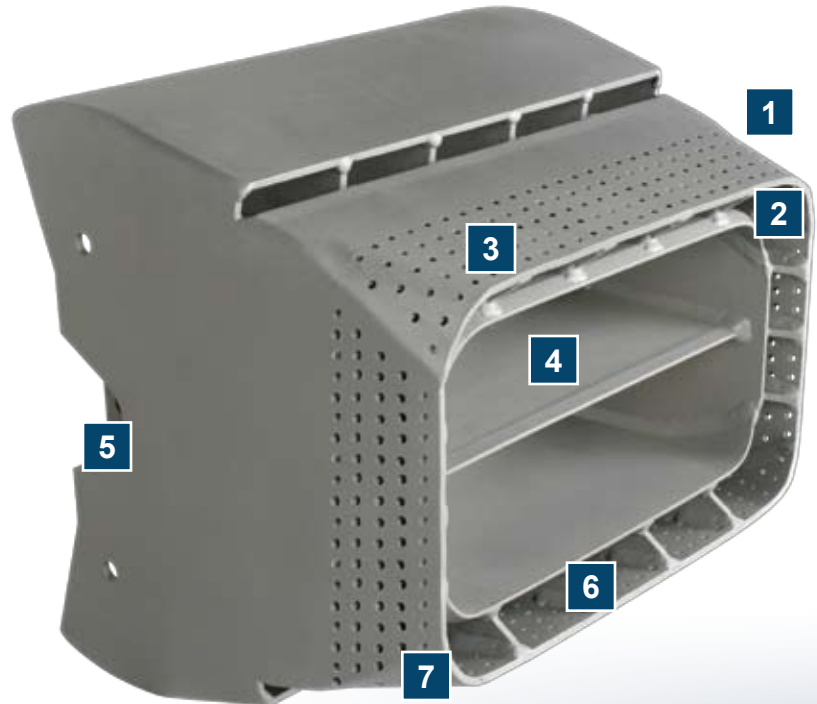
THERMAL GUARD® NOZZLES



SERIES II

Thermal Guard® Series II was designed for more severe duty applications in upper elevations and hot corners. It features all of the design features of the Series I, while incorporating the additional ported film cooling system.

1. Aerodynamic thermal radiation barrier
2. Contoured corners
3. Additional ported film cooling system
4. Various erosion protection options
5. Pivot pin design available for furnace side removal
6. Solidly welded inner annulus assures rigidity
7. Shielded corner welds





THERMAL GUARD® COMPARISON TESTING

To establish the effectiveness of the Thermal Guard® Series I and II nozzle tip designs compared to other brands, thermocouples were installed on the inside and outside of the top plate to measure the temperature gradients. The Thermal Guard® Series I and II repeatedly showed lower temperature gradients across the outer plate, reducing thermal distortion.

SERIES I

Design features an opening barrier that forces air across the outer nozzle plates, providing a cooling air barrier.

SERIES II

Features the same protective barrier as the Series I, but also incorporates a ported film cooling system near the end of the nozzle to further protect the outer plate from thermal distortion.



OEM Design - causes a distortion problem



Thermal Guard® Series I



Thermal Guard® Series II

