

Zircoat® Ytria-Stabilized Zirconia Coatings

Accommodates Improved Expansion and Contraction of Underlying Metal Substrates



Praxair's patented thermal spray processing technology enables the production of Zircoat® yttria-stabilized zirconia coatings with controlled vertical segmentation.

The segmentation allows the coating to accommodate the expansion and contraction of underlying metal substrates, which minimizes stresses during thermal cycling. The microstructure also results in a unique combination of solid particle erosion resistance and easy removal by Tribomet® abrasives, which makes it ideal for turbine outer airseal coatings designed to minimize operating clearances.

Careful control of processing parameters is exercised in producing the coating and obtaining the desired segmentation. Thickness of up to 2 mm is possible, resulting in a significant thermal barrier benefit.

Advantages

- Resistant to solid particle erosion
- Durable thermal barrier coating up to 2 mm thick
- Extremely durable under thermal cycling
- Excellent turbine outer airseal when combined with Tribomet abrasive counterface
- Stable properties in turbine environment

Applications

- Military aero engine high-pressure turbine outer airseal
- Military aero engine high-pressure turbine nozzle guide vane
- Small aero engine turbine outer airseal
- Industrial engine combustor liner
- Industrial engine turbine blades

