

# Abradable Seals



Abradable seals permit the engine designer to install a rub tolerant material so that the engine operating clearance can be minimized with attendant maximization of engine efficiency. As demand increases for improved engine performance, the use of abradable seals applied to the stationary engine parts becomes important to permit complete sealing of blade tips and interstage labyrinth seal knife edges through the full 360° arc of rotation while minimizing or eliminating wear on the expensive rotating hardware.

The design and selection of an abradable seal for any particular position in a gas turbine engine represents a compromise of design requirements. The seal material must be designed to withstand the rigors of the environment for the life of the engine while still fulfilling its basic abradable seal function. The material must be compliant forgiving to abrade away when contacted by a high speed rotating part without wearing the part while, at the same time, resilient enough to withstand high velocity gas and particulate erosion.

## Seal properties

### FIBERS

Seals are made from Technetics Group's metal fibers. Fiber choice is usually defined by the temperature requirements of the application.

### DENSITIES

Product densities generally range from 16% (of solid) to 32%. Density of a porous metal is 100 minus percent porosity.

### SEAL SEGMENTS

These materials have been furnished in segments which are generally .1 to .3" thick. Length tolerances are + 1/16-0" and width tolerances are  $\pm .020$ ". Thickness tolerances are  $\pm 7\%$  of nominal.



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