



## **HALO™ SEALS**

Aerospace Seal  
Performance  
For Earth Based  
Turbomachinery

**Dynamic**  
**Compliant**  
**Low Leakage**  
**Non-Contacting**  
**Self Adjusting**



The **ATGI HALO™ Non-Contacting Dynamic Seal** is patented aerospace technology now available for universal turbomachinery applications. Utilizing hydrostatic principles developed for U.S. military aircraft, the **HALO™ Seal** introduces a compliant, low-leakage seal design to the oil and gas industries.

The ATGI **HALO™ Seal** is proven to effectively:

- Improve efficiency
- Add rotordynamic damping
- Reduce machine assembly time
- Offer constant performance

**ATGI develops custom HALO™ SEALS to retrofit your existing turbomachinery applications.**

In addition, there are no size, surface speed, or pressure limitations. The patented **HALO™ Non-contacting Seal** can be retrofit to improve older turbomachinery performance.

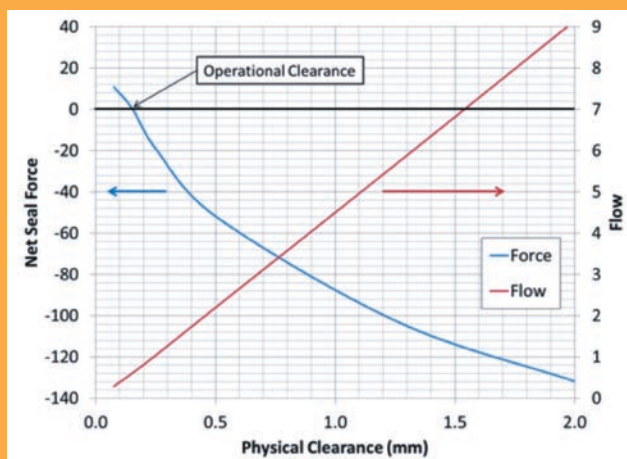
For a closer look at how ATGI can benefit your company, talk to one of our highly experienced and creative technologists and engineers. Phone **772-283-0253**.

# HALO™ SEALS

## How Does It Work?

The HALO seal takes advantage of the variation in hydrostatic pressures with seal tooth clearance to develop a force balanced operational clearance as tight as a few thousandth of an inch (hundredths of a millimeter) over the rotor.

The acceleration of fluid between the seal and the rotor creates a low pressure region that draws the seal towards the rotor. As the seal approaches the rotor surface, the velocity of the fluid decreases, resulting in a pressure rise that increases the outward force on the seal. The operational clearance is achieved when this outward force is balanced with the inward force from the upstream and downstream pressures acting on the backside of the seal. Seal dimensions are tuned to achieve the desired operational clearance.



## What Is A HALO™ Seal?

The ATGI HALO™ Seal is a Non-contacting Dynamic Seal for all rotating equipment.



### Characteristics:

- Non-contacting
- Dynamic
- No RPM Limitations
- No Size Limitations
- Cryogenic To 650 °C Operation
- Low Leakage
- No Pressure Limitation When Stacked In Series

### Applications:

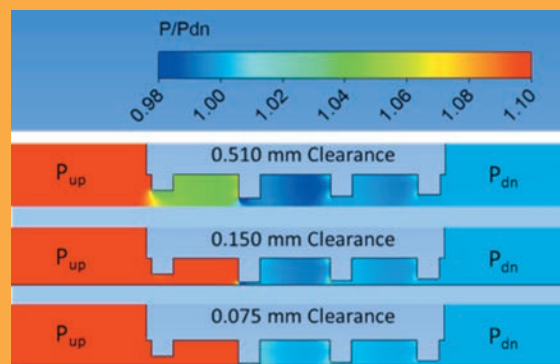
- Gas Turbines
- Compressors
- Pumps
- Turbo-expanders
- Steam turbines
- Nuclear

Challenge ATGI With Your Seal Application Requirements

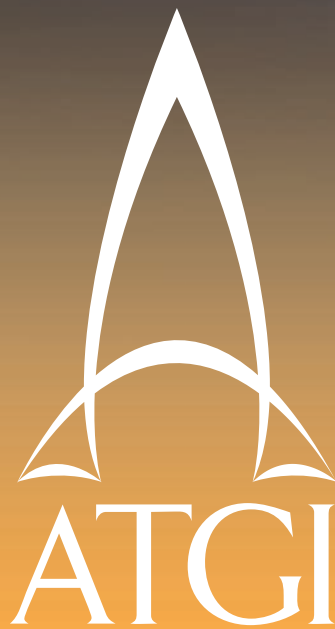
## Pressure With Gap

The operational clearance is consistent throughout the turbomachinery operation. Constant gaps equal constant performance.

The HALO has demonstrated an operational running clearance of 0.006 inch (0.150mm) with cases 0.280 inch (7mm) out-of-round.



Halo™ Non-Contacting Seals:  
Challenge ATGI With Your  
Seal Application Requirements



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