

## DIAMOND-COATING SEAL FACE TREATMENTS

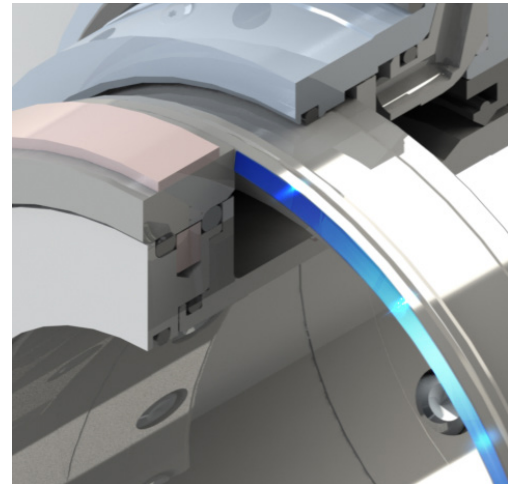
Solve chronic seal failures, while cutting cooling water and power use

### WHY USE FLEXICE™?

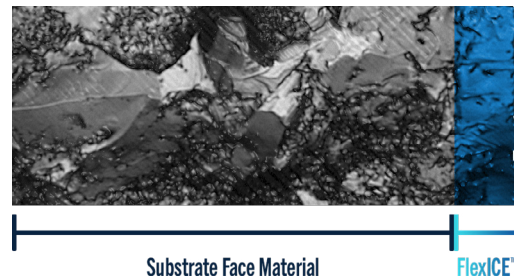
- **Intermittent dry running** and frequent stop/starts are tolerated, when otherwise temperatures would spike, causing elastomer failures, face blistering and leaks.
- **Low-lubricity fluids** like hot water, condensate, and light hydrocarbons can be sealed because FlexICE™ coated faces are less reliant on a stable fluid film for support.
- **Ultra-high face hardness** prevents damage from solids and abrasives.
- **Lower friction** and cooling water demands reduce costs of auxiliary support.

### THE FLEXASEAL SOLUTION

FlexICE™ is Flexaseal's advanced diamond-bond coating that extends the life and performance of your most challenging mechanical seal applications. FlexICE™ delivers exceptional hardness, ultra-low friction, and superior thermal conductivity, allowing seals to better handle dry running, frequent stop/starts, and low-lubricity fluids.

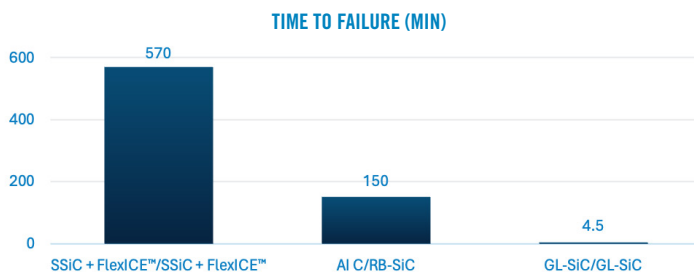


Colors for illustration purposes only



Cross-sectional view of FlexICE™ ~ 15µm diamond deposition layer over typical seal face material substrate.

### DRY RUN TEST DATA



#### CONTROLS

Seals: 1-3/4" stationary multispring cartridges  
Seal Chamber Fill: 60psig nitrogen, dry  
Speed: 4500 RPM

### COATING PARAMETERS

Coefficient of Friction	0.025 (nominal)
Coating Hardness	3,500–4,000 Hv
Max Temperature	932° F (500° C)
Coating Thickness (typ)	6–15 µm (240–590 µ-in)

\*Max temperature / pressure / speed indicate operating extremes independently and do not imply the seal will function at these extremes at the same time. Contact Flexaseal if in doubt.

## APPLY FLEXICE™ FOR MANY OPERATIONAL CHALLENGES

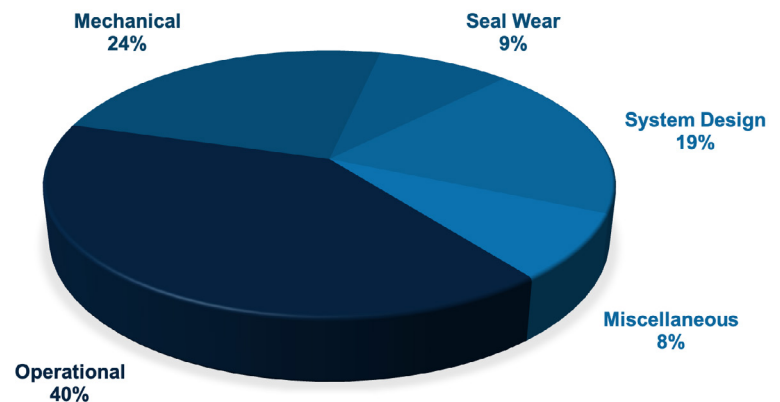
### Mitigate common seal failure modes

Almost 75% of seal failures result from operation, system issues, or wear. FlexICE technology helps eliminate those problems:

- Tolerate intermittent dry-running during start-up, shutdown, or upset.
- Perform reliably in low-lubricity fluids such as hot condensate, light hydrocarbons, and fluids with entrained gas.
- Resist abrasive wear from slurries, fibers, or particulates, maintaining flatness and seal integrity.
- Run cooler and more efficiently, reducing auxiliary cooling demand and energy losses.

The result is often a significant increase in Mean Time Between Repair (MTBR), particularly in bad-actor applications where conventional seals routinely fail.

### SEAL FAILURE CAUSES



## SOLVE YOUR TOUGHEST CHALLENGES

### Common Applications:

Service	Challenges	FlexICE™ Face Benefit
Hot condensate / BFW	Vaporizing film, corrosion	Low friction & thermal conductivity reduce heat;
Transfer Pumps	Frequent starts/stops; dry-runs	Dry-run tolerance
Light hydrocarbons	Poor lubricity	Lower friction keeps faces cool; improved stability
Multi-phase fluids	Inconsistent fluid film, high gas volume fraction	Low friction, hard faces remain stable throughout
Heat transfer fluids	Heat blistering at faces	High thermal conductivity and low friction quickly removes heat and reduces thermal shock
Slurries (mining/FGD/coking)	Abrasion & scoring	Ultra-hard surface resists wear; maintains flatness
Pulp & paper stock	Fibers, starts/stops	Dry-run tolerance and abrasion resistance