

**ADVANCED  
DIAMOND**  
TECHNOLOGIES

# ENHANCED ROTATING EQUIPMENT EFFICIENCY THROUGH DIAMOND

**THE INTEGRATION  
OF ADT'S  
UNCD®**

The integration of ADT's UNCD helped an aquarium pump manufacturer reduce the power consumption of its 1/15 hp pumps by as much as 7%. With abrasive seawater being processed, and occasional dry-run periods, the adoption of diamond seal faces also enhanced pump reliability and lifespan.

**ADT'S UNCD DIAMOND SEAL FACE COATING ENHANCED THE PUMP ENERGY EFFICIENCY AND THE STABILITY OF FRAGILE AQUARIUM ECOSYSTEMS.**

**ENHANCED**  
MECHANICAL EFFICIENCY

PUMP ENERGY COSTS WERE REDUCED

**5-7%**

DEPENDING ON APPLICATION.

&

**INCREASED**  
RELIABILITY AND DURABILITY

UNCD'S ABRASION- AND DRY-RUN  
RESISTANCE ALLOWS:

**CONSTANT OPERATION**  
**IN ABRASIVE**   
**SALT WATER**

**DIAMOND PROPERTIES LEVERAGED IN THIS STUDY:**



Abrasion Resistance



Hardness



Lubricity

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# THE APPLICATION

Even the smallest rotating equipment applications require big ideas to enhance performance. Beyond their small size, aquarium pumps face a number of unique demands. From constant running to the intermittent dry-run conditions and the biological sensitivity of the aquarium's inhabitants, the pumps used to maintain these fragile mini-ecosystems have a significant and difficult job to do.

When a major fractional horsepower pump manufacturer approached ADT to request help designing and implementing a product addition that would give them a competitive advantage in the aquarium pump marketplace, the ADT team delivered. Leveraging the unique properties of diamond, ADT was able to provide a diamond coated silicon carbide seal face that kept pumps running cheaper, longer and more reliably.

# THE CHALLENGE

On a daily basis, small clean water pumps are challenged by:



Variable Run Conditions



Abrasive Solutions



Intermittent Dry Running



Critical/Intensive Applications



Constant Power Demand

# THE SOLUTION

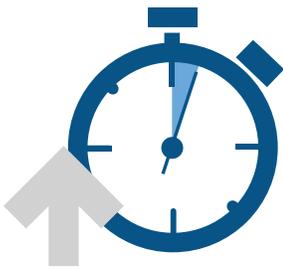
## ENHANCED MECHANICAL EFFICIENCY

Regardless of application size, the mechanical efficiency of rotating equipment is often one of the largest concerns of its operators. With a low friction coefficient, applications utilizing UNCD seal faces experience less frictional energy dissipation than with traditional silicon carbide faces. For small, clean water pumps, this energy savings can be as much as 7%.

## GREATER EFFICIENCY



## ADT UNCD PROVIDES:



MORE UPTIME



ENHANCED DURABILITY

## INCREASED RELIABILITY AND DURABILITY

The durability and reliability of a rotary pump is critical to its overall performance. Whether the lives of a tiny ecosystem are at stake, or the profitability of an industrial process, operators need a pump they can rely on. Using mechanical seals that incorporate the unique abrasion resistance and lubricity of UNCD diamond coated seal faces are proven to enhance the useful life of rotating equipment.

**TO LEARN MORE ABOUT HOW ADT'S UNCD**  
has revolutionized mechanical seals in industrial applications:

Contact ADT at:  
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