

# ABRASIVE SLURRY TRANSFER IN CERAMIC INSULATORS INDUSTRY



## The Need

Ceramic insulators are typically made by shaping and firing a mixture of ceramic materials such as clay, silica, and alumina at high temperatures. Efficient slip transfer systems play an important role by significantly speeding up the production process, reducing downtime and increasing overall productivity.

A top industry leader in the ceramic insulator sector was using a Progressive Cavity Pump for their abrasive slurry transfer application. However, they faced several challenges.

## Customer Challenges



### Elevated Maintenance Costs

Frequent rotor and stator failures due to the abrasive nature of the operating liquid, resulted in significant maintenance costs.

### Frequent Downtime

The packing gland failures caused leakage issues, resulting in operational downtime.

### Reliability Issues

The existing Progressive Cavity Pumps were not reliable, affecting overall productivity.

They were looking for a reliable pumping solution that could transfer abrasive slip efficiently and without any breakdown.

## Process Details

<b>Fluid</b> <b>Ceramic Slip</b> <small>(very abrasive in nature with high silica content up to 15-20%)</small>	<b>Flow Rate</b> <b>250 LPM</b>	<b>Discharge pressure</b> <b>3 Barg</b>	<b>Suction condition</b> <b>3.5 meters Negative</b>	<b>Viscosity</b> <b>1200 Cp</b>	<b>Specific Gravity</b> <b>1.42</b>
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## The Right Solution

The Cognito EODD pumps are specifically designed to handle highly abrasive fluids smoothly, thanks to its robust mechanism, patented diaphragm design and the unique "Stopper Cage Design". In contrast, PC pumps often face wear and tear issues due to their interference fit of main mechanical rotary pumping technology, which are sensitive to abrasives and also not suitable to handle negative suction applications.

Our Cognito team presented how the robust design of Cognito EODD pump & its features can minimize breakdowns and lower the maintenance costs compared to PC pumps with quick return on investment. They also offered IoT-enabled remote monitoring feature for real-time performance tracking to provide customers with greater control of operation and to track the maintenance schedule, something that PC pumps could not offer.

The Cognito EODD pump has effectively replaced the 4" PC pump with our 3" EODD pumps, demonstrating the mentioned advantages and noticeable maintenance cost savings.

## Site Pictures

### BEFORE

### AFTER



## Customer Experience

Switching to Cognito's EODD pumps has been transformative for the customer. They reported substantial reductions in energy costs, maintenance expenses, and downtime. They are very happy with the pump performance and efficiency, having replaced their 15 nos. of 4" PC pumps with our 3" Cognito EODD pumps in a year.

Post-implementation, the customer observed significant improvements:

**Significant reduction in maintenance cost**

**Reduce energy costs by 50%**

**Achieved ROI in less than a year**

**Improved total cost of ownership**

Energy consumption	PC Pump	Cognito™ EODD Pump
<b>No. of Working Hours/Day</b>	8 hr/day	8 hr/day
<b>Energy Consume at Duty Point (estimated)</b>	2.4 KW	1.3 KW
<b>Electricity Consumption/Month</b>	576 kWh	305 kWh
<b>Total Electricity Consumption/Year</b>	6912 kWh	3658 kWh

Maintenance	PC Pump	Cognito™ EODD Pump
	Minimum consumption of 6 stators, 3 rotors, and numerous packing glands, in a year resulted in significant material & maintenance cost	Could operate smoothly & efficiently with very minimal maintenance and zero downtime, resulting in efficient operations.

The customer conveyed their immense satisfaction with the Cognito™ pumps. They highlighted that the switch from PC pumps to EODD pumps has greatly enhanced their operational efficiency and overall cost savings.