

Glaze Transfer Application in Refractory Industry



In the refractory industry, glaze transfer is essential for transporting viscous, abrasive, and reactive glazes through production line for continuous transferring. The efficiency of this process is critical, as it directly affects the end product's quality and durability, with inefficiencies potentially leading to defects, delays, and higher costs.

One of the leading refractory customers encountered difficulties with traditional AODD pumps in this demanding application. These challenges were successfully addressed with the introduction of Cognito™'s EODD pump. Let's delve into the specifics of how this solution made a difference.

Customer Challenges

01

Higher Energy Consumption

The process demanded continuous operation for 23-24 hours daily, resulting in substantial energy costs due to the need for a constant continuous supply of pneumatic air.

02

Lack of Safety Features

The absence of leak detection mechanism in AODD pumps led to undetected leakages from diaphragm ruptures, resulting in significant safety hazards & operational disruptions.

03

Elevated Maintenance Costs

Frequent diaphragm ruptures due to the abrasive nature of the operating liquid, coupled with potential failures of the air valve assembly, resulted in significant maintenance costs.

04

Higher Downtime and Production Loss

Frequent downtime and part replacement added to overall expenses.

Process Details

Fluid

Glaze
(very abrasive in nature)

Flow Rate

325 LPM

Discharge pressure

3.5 Barg

Viscosity

2000 Cp

Specific Gravity

1.7

The Right Solution

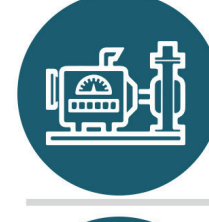
EODD pumps offer greater efficiency and lower energy consumption than AODD pumps. Their electric operation and advanced safety features reduce energy use, quickly detect leaks and stop the pump, and ensure reliable performance. Additional safety features further lower maintenance costs and extend pump longevity in challenging conditions.



Unique patented diaphragm : engineered for exceptional durability, especially in abrasive conditions. Their unique design and optimized balance of diameter and stroke length ensure effective performance and increased longevity even for more abrasive fluids.



Seal-less design : No seal failures/damages due to Leak detection sensors in place that eliminates the need for seals replacement, reducing maintenance requirements and minimizing potential failure points.



The unique "Stopper Cage Design" : extends manifold life by protecting seats from abrasion, ensuring trouble-free operation, and increasing the lifespan of the manifold, check valves, and seats by 2 to 3 times.



Leak detection mechanism prevents leakages by promptly identifying leaks, allowing for immediate corrective action, reducing need for frequent inspections, and ensuring continuous, reliable pump performance.

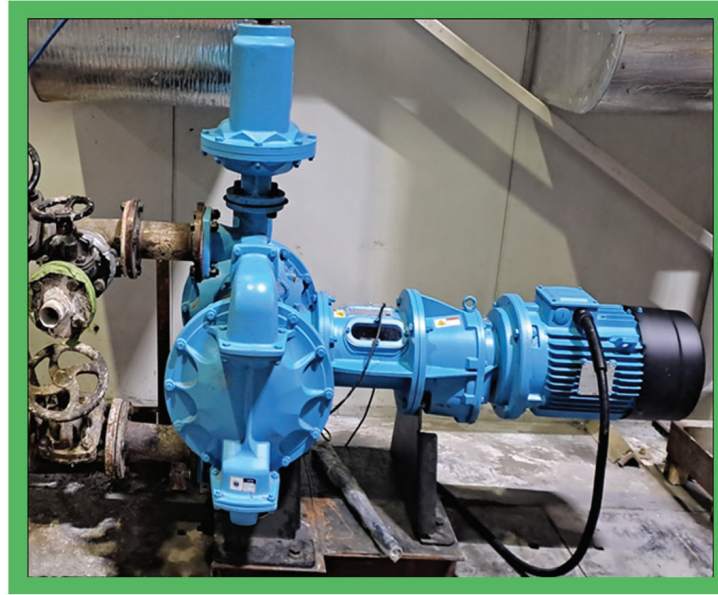
The Cognito™ team successfully convinced the customer to replace their 3" AODD pumps with 3" EODD pumps by showcasing the above benefits along with the ROI calculations. These features promised to cut maintenance needs, extend the lifespan of critical components by 2 to 3 times apart from the significant energy savings. These significant benefits made a strong case for the replacement.

Site Pictures

BEFORE



AFTER



Customer Experience

The switch to Cognito's EODD pumps has been transformative for the customer. They reported a substantial reduction in the energy cost, maintenance costs and downtime.

Post-implementation, the customer observed significant improvements:

Phenomenal energy savings

Reduced maintenance cost

Improved safety mechanism

Achieved ROI within 1 year

Improved total cost of ownership

Energy consumption

No. of Working Hours/Day

Energy Consume at Duty Point (estimated)

Electricity Consumption/Month

Total Electricity Consumption/Year

AODD Pump

24 hr/day

9.3 KW

6714 kWh

80568 kWh

Cognito™ EODD Pump

24 hr/day

3.2 KW

2304 kWh

27648 kWh

Maintenance

AODD Pump

Consumption of minimum one set Diaphragm & Air valve assembly in a year

Cognito™ EODD Pump

Operated smoothly very minimum maintenance and zero downtime, resulting in efficient operations.

The customer expressed high satisfaction with the reliability and efficiency of their new system, noting that the decision to replace the AODD pumps with EODD pumps has greatly improved their operational efficiency and overall cost-effectiveness. No diaphragm replacement or leakages seems from last one year from Cognito™ EODD pump. Installation date was 3rd of August 2023.