COGNITO™

CASE STUDY

Cognito EODD Pump Delivers Leak-Free Wastewater Transfer in Chemical Manufacturing

In the operationally critical world of chemical manufacturing, machine reliability and safety are imperative. One of the largest chemical producers in the world, headquartered in China, faced persistent challenges in its wastewater transfer process. Frequent leaks, equipment failures, unprecedented downtime, and high maintenance costs were impacting their productivity and safety. The leaks posed safety hazards — incidents that could threaten both personnel and the facility. Additionally, downtime caused by a pump in a large operation that runs 22 hours per day was another cause for concern.

For Safe Application

The company was using progressive cavity (PC) pumps, which frequently suffered from:

- Leaks
- Rotor and stator failures
- High maintenance costs and extended downtimes

The customer needed a reliable, low-maintenance, and leak-free pump solution that could reduce operational disruptions and improve safety.

The chemical company's wastewater slurry application contained flocculent components, had a specific gravity of 1.2, and flowed at 250 LPM under a discharge pressure of 3.5 barg. With a viscosity ranging from 100 to 200 cP and ambient temperature conditions, this fluid demanded a pump that could handle moderate abrasiveness and ensure continuous, leak-free operation.

Process Details

- Fluid name: Slurry (with flocculent component)
- Flow rate: 250 LPM
- Discharge pressure: 3.5 barg
- Viscosity: 100–200 cP
- Solid particle size: Flocculent (not specified)
- Temperature: Ambient
- Specific gravity: 1.2

The Right Solution: Cognito's EODD Pump

The Cognito team proposed its electrically operated double diaphragm (EODD) pump mounted on a complete pump skid. The EODD pump's seal-less design eliminated leakage risks, while its robust construction ensured low maintenance and minimal downtime. Enhanced safety features further aligned with the company's operational standards.

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ROI Says It All

The company's transition from a PC pump to Cognito's EODD pump not only improved operational reliability but also delivered significant cost savings. A detailed ROI analysis reveals the financial impact of this upgrade:

- Number of working hours per day: 22
- Total number of working hours per year: 7,920

	PC Pump	Cognito EODD Pump
Size of Pump	3 Inches	3 Inches
Rotation Speed	200 RPM	92.0 SPM
Flowrate	133.0 LPM	250.0 LPM
Discharge pressure	3.5 BARG	3.5 BARG
Motor power	10.0 HP	10.0 HP

Parameter	PC Pump	Cognito EODD Pump
Energy Consumption at Duty Point	5.5 KW	4.0 KW
Monthly Electricity Consumption	3,630 KWh	2,640 KWh
Annual Electricity Consumption	43,560 KWh	31,680 KWh
Per-Year Energy Savings With IDEX EODD Pump (KWH): 11,880		

By switching to Cognito's EODD pump, the company significantly reduced energy consumption and maintenance costs, achieving a rapid return on investment within the first year. This investment not only paid for itself quickly, but it also continues to deliver long-term financial and operational benefits.

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Customer Benefits

The transition to Cognito's EODD pump was transformative. Key benefits included:

- **Leak-free operation:** No more packing failures or fluid spills.
- **Reduced maintenance:** No rotor or stator replacements required.
- **Reduced downtime:** Continuous operation with minimal interruptions.
- **Improved safety:** Enhanced design features for safer handling.
- **High reliability:** Proven performance in critical fluid transfer.

Conclusion

Cognito's EODD pump transformed the chemical company's wastewater transfer process. The customer reported increased confidence in operational safety, along with notable savings in maintenance costs, reduced downtime, and improved overall reliability. The success of this installation has positioned Cognito as a trusted partner for critical fluid handling in the chemical industry.

Before

After

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