

NETZSCH Progressing Cavity Pumps Reduce Downtime and Improve Life-Cycle Cost for Explosives Manufacturing Plant in South Africa

For a major manufacturer of explosives products and raw materials for the mining industry, NETZSCH dramatically increased uptime in an explosive emulsion manufacturing process by replacing troublesome pumps with NEMO® progressing cavity pumps

Downtime is the enemy of productivity and profitability at any manufacturing facility. A stalled process line due to a pump failure is one that is not making product, not satisfying customer demand and not generating revenue. For a major African manufacturer of commercial explosives for mining, quarrying and the construction markets, pump downtime and serious maintenance problems led them to seek a new pumping solution from NETZSCH.

This customer was facing pump failure every four to six weeks with the existing pumps being used in their ammonium nitrate emulsion manufacturing process. According to the NETZSCH representative in South Africa, Tyron Adam, "The universal joint of the competitor's pump was failing and the stator wasn't handling the heat in the emulsion production rig."

At the customer's plant, the ammonium nitrate emulsion production rig is enclosed in a shipping container. The ammonium nitrate solution is pumped into a jet mixer where it is fed oil and then pumped into an emulsifier. The ammonium nitrate emulsion is subsequently pumped through a heat exchanger to drop the temperature. When the emulsion reaches the right temperature, it is then pumped into storage silos in preparation for transport by truck.

Even though the customer has an on-site maintenance and repair team, each of the frequent pump failures involves a 10-hour



The NETZSCH NEMO progressing cavity pump seen here is dramatically improving life-cycle costs and uptime for a customer's explosive emulsion manufacturing process.

process to pull the pump, clean and repair it. Additionally, the customer found that because of the frequency of the pump failures, they had to maintain additional stock of the emulsion on site in order to satisfy their customer demand.

NETZSCH Pump Provides 18-Month Uptime

To solve these production issues, NETZSCH offered this manufacturer a NEMO® progressing cavity pump with an undercut rotor. This pump solution allowed the customer to pump at the higher temperature and overcome pressure losses

through the exchanger. The NETZSCH representative noted that the pump's "V" joint has proved to be the biggest success for the customer.

With the installation of the NETZSCH progressing cavity pump in the explosive emulsion production process, this customer has gone 18 months without any maintenance problems or downtime. The NETZSCH pump also has allowed the customer to produce 30% more bulk emulsion in the same installation space. A smaller pump motor for the NETZSCH progressing cavity pump also translates into energy savings for the customer.

According to Adam, "The main thing is that with the improved uptime we are able to give them more product per hour with problem-free pumping. The maintenance team can now go home over the weekend and not have to hold their breath that the rig will last through the weekend."

After 18 months of run time, a recent seal replacement on the NEMO® pump was handled in about two hours by the customer's maintenance team, dramatically lowering downtime for this production process.

With the success of the NETZSCH progressing cavity pump on one of the plant's four explosive emulsion rigs, the customer is now in the process of changing out the three other emulsion production rigs for a total of eight NETZSCH progressing cavity pumps. In another area, this customer is switching to NETZSCH for four transfer pumps that support their manufacturing process.

Pump Data

Pump type:	NEMO® Model NM063SY03S18V
Capacity:	183 gpm / 50 m ³ /hr
Pressure:	218 psi / 15 bar
Medium:	Emulsion
Temperature:	176°F / 80° C
Viscosity:	14,000 – 18,500 cps

Contact NETZSCH

NETZSCH produces NEMO® Progressing Cavity Pumps for a wide range of processing and conveying applications. They are used for the continuous, pressure-stable, gentle and low-pulsation conveyance of almost any substance including sludge, chemicals, adhesives, and petroleum. NEMO® Progressing Cavity Pumps are available in four rotor/stator geometries and a selection of engineered joints are sure to suit your application.

NETZSCH customers rely on our strict standards in design, engineering and manufacturing to deliver products with absolute functional reliability and exceptional quality. NETZSCH service, like NETZSCH quality, is geared to surpass our customers' expectations.

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