



Case Study

Horizontal Directional Drilling: Leveraging heavy-duty slurry pumps for national O&G projects

Overview

Oil and gas industries often drill non-vertical wells at multiple angles to better reach energy reserves and minimize the wells' environmental impacts. One Colorado-based horizontal directional drilling (HDD) company deploys their fleet of trucks and portable drilling equipment to support oil and gas infrastructure projects all over the country.

Once on site, the drilling company prepares for their HDD project by digging a 10-foot deep, 15'x15' holding pit for the cuttings, mud and spent drillers fluid used in the boring process. They insert a submersible slurry pump to transport spent drilling fluid to a separator truck, which uses mesh screens to filter out the rocks, gravel, and debris. The drillers mud is then ready for re-use in the horizontal drill rig.

In 2015, the company decided to standardize their fleet of portable slurry pumps. They determined that the pumps had to be engineered for abrasive slurry, needed to be sturdy and mobile, and capable of 24/7 continuous operations.

Horizontal directional drilling leverages heavy duty slurry pumps to access hard-to-reach places

PROBLEM

- Highly abrasive solids degrading pumps
- Thick slurry can settle and clog pumps
- Frequent handling and moving causing damage



Solution

After consulting with their pump distributor, the drilling company selected the Industrial Flow Solutions™ BJM® abrasion-resistant, solids-handling KZN series pump. The pump operates in the holding pit suspended, so the pump is not sitting directly against the bottom of the pit. Once the drilling is complete, the technicians shut down the pump, fill in the hole from the holding pit, remove the equipment and prepare it for transport to the next job site.

KZN pumps feature wet parts made of abrasion-resistant chrome iron. A 28% heavy duty, high chrome iron agitator is specifically designed to suspend mud for easy transport, without clogging the pump. The semi-open impeller handles solids concentrations, as high as 70% by weight, ideal for slurry laden with rocks and debris. The KZN pumps' hardened ductile iron volutes are cast with extra thick walls where pumped slurry enters the discharge. A replaceable chrome iron wear plate helps to improve overall pump life by providing higher endurance for abrasive slurries.

Pump motors are protected by Class H motor insulation, built in amperage (FLA), and temperature overload protection. Double silicon carbide mechanical seals separate the oil-filled seal chamber and a heavy-duty lip seal for additional mechanical seal protection. And instead of a side discharge connection, which can be damaged during transport, KZN's top discharge also helps cool the motor with discharged fluids.

The company added more KZN series pumps to their national fleet of portable HDD equipment



FEATURES

- Abrasion-resistant solids-handling pump
- Heavy duty, high-chrome agitator (28%) for sand/sludge/slurry applications
- Semi-open chrome impeller and wear plate handles high concentration of abrasive solids
- Double silicon carbide mechanical seals in a separate oil-filled seal chamber

APPLICATIONS

- Oil & Gas
- Mining & Minerals
- Food & Beverage

RESULTS

- Heavy duty, high-chrome abrasion-resistant construction
- Designed for frequent moves
- Engineered for 24/7 operation



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