



Pump Solution for Emptying FKOD Vessels

OIL & GAS STORAGE AND PIPELINE SYSTEM USE NETZSCH PUMPS FOR APPLICATION

Major Engineering partner in Oil & Gas Storage and Pipeline systems leverage NETZSCH Experience for their FKOD vessel pumps and sump applications

During a pipeline engineering and construction proposal, key project stakeholders did not hesitate to contact NETZSCH as a trusted partner. They were designing a flare system for a bulk storage terminal project and were familiar with NETZSCH pump solutions to empty the flare knockout drum (FKOD) vessel, an integral part of a new high-pressure flare system.

These large vessels, part of the flare system, capture and remove accumulated liquids that condense during the ordinary expulsion of relief gases. FKODs are essential components of industrial pressure relief systems at gas and petroleum sites.



Typical horizontal knockout drum

Also called vapor liquid separators or knockout pots, liquid knockout drums are standard components in all flare systems and play a crucial role in safe operations.

Flare Systems

Flare systems generally require a flare knockout drum to separate liquid from gas and to hold the maximum amount of liquid that can be relieved during an emergency situation or maintenance activities. Knockout drums are typically located on the main flare line upstream of the flare stack.

All flare systems are designed to include a liquid knockout drum vessel. These vessels are either above grade or at below grade, and typically operate at vapor pressures of up to 103 kPaa. There is often not a lot of energy to get the fluid into the pump suction. While centrifugal pumps are used in these applications, centrifugal pumps are often susceptible to cavitation. In this project, the fluid was light oil/condensates (C5+) with a low viscosity of 0.2 - 0.7 cP and a vertical NEMO® BT progressing cavity pump was chosen.

Optimized Pump Solutions

At NETZSCH, we understand the challenges our energy and petro-chemical customers face including pipeline, effluent, safety, storage, and discharge issues. Typical pumping solutions often include centrifugal pumps which require higher available net positive suction head (NPSHa) levels. However, NETZSCH progressing cavity pumps provide better suction capabilities at lower required net positive suction head (NPSHr) levels than centrifugal pumps and other types of positive displacement pumps.

As experts in pressure profiles from pump suction to discharge, we have mastered the dynamic relationship between NPSHa derived by pump system configuration as a whole and NPSHr derived by each pump as a separate unit. We can help you optimize the required suction (NPSHr)—the external pressure required for the pump to operate while immersed in liquid—while also controlling the available suction (NPSHa)—the external pressure at each pump.



NETZSCH NEMO® BT is installed on top of the drum which is below grade.

Progressing cavity pumps are a superior choice for above-grade and below-grade sump tanks. Having the pump semi-immersed in the tank allows for the capability to drain the tank down to only a few inches of liquid at the bottom.

Moreover, progressing cavity pumps are better at handling variable flow and pressure rates where the time needed to empty the tank also varies. They are also able to adapt to changes in viscosities, vapor pressure, and specific gravity. These factors influence pump performance and reliability. NETZSCH progressing cavity pumps are ideal at managing these conditions.

Another benefit of our vertically-mounted progressing cavity pumps over horizontally-mounted pumps under an above-



NETZSCH has the capability to design customized pumps to accommodate the customer's specifications for drum design including mounting flanges, connections, immersion depths, sealing and auxiliary equipment.

grade tank is that our sealing design is available to channel any leakage from the mechanical seal back into the sump. This green-friendly feature reduces the risk of environmental contamination.

A representative at Bluestar Engineering Ltd. stated, "This pump is a great fit for pumping out underground tanks & vessels. It has been a popular choice with our clients as it provides a consistent flow rate and produces sufficient head to re-inject product into the process piping."

NETZSCH pumps have been in operation since 2017 with this major oil & gas storage and pipeline company who has partnered with us. They are very pleased with their decision to standardize on our NEMO® BT line for their FKOD vessel and sump pumps.

FKOD Vessel Pump Application Data

Pump type:	NM063BT
Discharge pressure (Pref):	218 psi / 1,500 kPag
Flow:	22 to 62 gpm / 5 to 14 m ³ /h
FKOD mounting flange dia:	28" / 700 mm
Immersion depth	110" / 2,800 mm
SG:	0.65 to 1.0 kg/dm ³
Viscosity:	0.2 - 0.7 cP

Contact NETZSCH:

NETZSCH customers rely on our rigorous 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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