

APPLICATION STORY

Oil well that ends well

We have all seen these Iron Icons of the American oil and gas fields bobbing their massive heads up and down like huge thirsty Trojan horses at a watering hole. In locations all across our fruited plains you see these machines churn away, day after day, night after night pumping oil and natural gas from the earth. But how do they begin their pumping actions? What keeps them going? What has Ogura to do with this process?

Because of the high-speed engagement, they needed a clutch that could handle the high energy (heat) dissipation in tough outdoor environments... The Ogura high torque, general purpose clutches offered these features and more.

In the typical pump system, an electric motor drives a gearbox that moves a lever. The lever pushes and pulls a polishing rod up and down. The polishing rod is attached to a sucker rod, which is attached to a pump. This system forces the pump up and down, creating a suction that draws oil and natural gas up through the well.

Back when electricity was inexpensive, these machines used large (15-30 HP and more) electric motors. The pumps would continue to run until the gas or oil was drained from the well. The pump would then stop allowing the gas or oil to seep back into the well.

Today there is a push for lower cost fuel extraction technology. Electricity is at an all time high and these big electric motors are expensive! In addition, some wells can have over 100 starts per day. This is a significant expense of motor inrush current. A forward thinking Ogura customer in this business knew there had to be a better way.

It seemed simple: When these pumps are pulling natural gas from the ground, why pay for electricity to pump it? They developed a natural gas engine start system that can run on the same gas they are pulling for the ground! It is almost like free power!

The technical issue: The natural gas engine has more torque at higher RPM's. The pumping loads however can be highest at start up (lower rpms) and would stall the new natural gas engines. Here is where the electric Ogura clutch comes in.

With our high torque, general purpose clutches the user can start the engine remotely, without any load on the engine shaft. Once the engine has warmed up and is accelerated to optimum torque and speed, they engage the Ogura clutch and begin the pumping cycle. The clutch slips a little while the



High torque, general purpose clutch with pulley



Pumpjack with natural gas engine

load is accelerated. The combined result is no engine stall.

Because of the high-speed engagement, they needed a clutch that could handle the high energy (heat) dissipation in tough outdoor environments. Torques in excess of 200 Ft Lbs were needed. The Ogura high torque, general purpose clutches offered these features and more. This clutch offers a built in double "A" groove pulley, perfect for the loads and one less part (the pulley) to inventory and assemble.

So our customer's new natural gas systems are very cost efficient for the well operator and are selling like hotcakes. This customer sees a big potential for these new systems that basically run off of the stuff under our feet! Ogura is "well" suited to help in our customer's big plans for the future. Oil well, another application story in the can.