When choosing a size and type of mud pump for your drilling project, there are several factors to consider. These would include not only cost and size of pump that best fits your drilling rig, but also the diameter, depth and hole conditions you are drilling through. I know that this sounds like a lot to consider, but if you are set up the right way before the job starts, you will thank me later.

Recommended practice is to maintain a minimum of 100 to 150 feet per minute of uphole velocity for drill cuttings. Larger diameter wells for irrigation agriculture or municipalities may violate this rule, because it may not be economically feasible to pump this much mud for the job. Upheal velocity is determined by the flow rate of the mud system, diameter of the borehole and the diameter of the drill pipe. There are many tools, including handbooks, rule of thumb, slide rule calculators and now apps on your handheld device, to calculate velocity. It is always good to remember the time it takes to get the cuttings off the bottom of the well. If you are drilling at 200 feet, then a 100-foot-per-minute velocity means that it would take two minutes to get the cuttings out of the hole. This is always a good reminder of what you are drilling through and how long ago it was that you drilled it. Ground conditions and rock formations are ever changing as you go deeper. Wouldn’t it be nice if they all remained the same?

THE TRUE INNOVATION WAS PROVIDING THE WELL DRILLER A SOLUTION FOR THEIR MUD PUMP REQUIREMENTS THAT WAS THE RIGHT SIZE AND WEIGHT TO INTEGRATE INTO BOTH EXISTING AND NEW DRILLING RIGS.

Centrifugal-style mud pumps are very popular in our industry due to their size and weight, as well as flow rate capacity for an affordable price. There are many models and brands out there, and most of them are very good quality. How does a centrifugal mud pump work? The rotation of the impeller accelerates the fluid in the volute or diffuser chamber. The added energy from the acceleration increases the velocity and pressure of the fluid. These pumps are known to be very inefficient. This means that it takes more energy to increase the flow and pressure of the fluid when compared to a piston-style pump. However, you have a significant advantage in flow rates from a centrifugal pump versus a piston pump. If you are drilling deeper wells with heavier cuttings, you will be forced at some point to use a piston-style mud pump. They have much higher efficiencies in transferring the input energy into flow and pressure, therefore resulting in much higher pressure capabilities.

Piston-style mud pumps utilize a piston or plunger that travels back and forth in a chamber known as a cylinder. These pumps are also called “positive displace-