

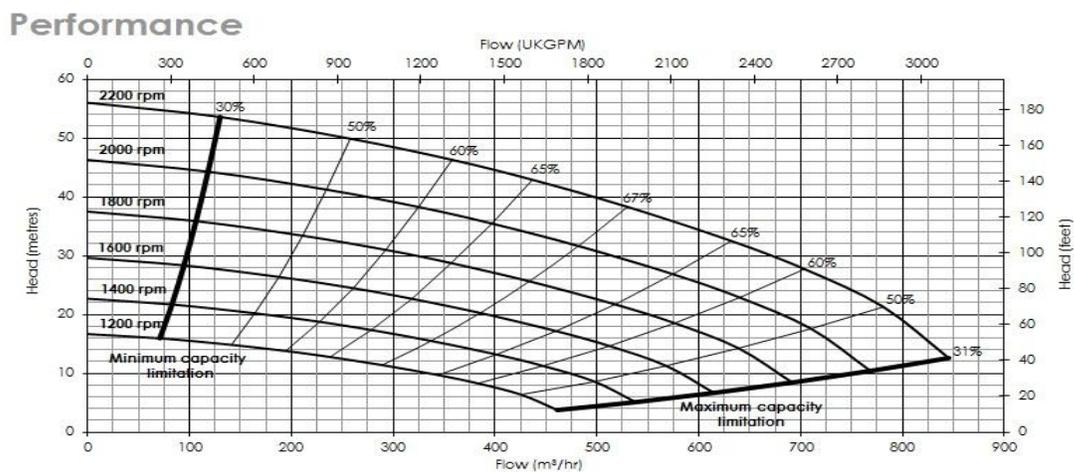


THE TRIDENT COMPARISON

Suncor has a 100 Million per year budget for De-watering their mine sites. The rep I spoke with told me the main pump they use is the Godwin CD250M series (<http://www.xylem.com/dewatering/kr/categories/pumps/automatic-self-priming-pumps#>). This model weighs 8,000lbs.



Here is the pumps performance curve:





THE TRIDENT COMPARISON

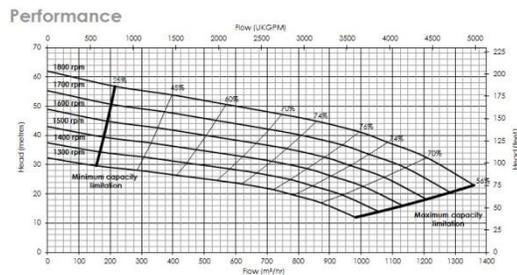
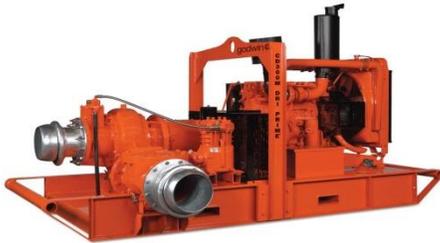
As with all pump curves, they show a minimum and maximum operating output value. With the CD250M, if you redline the motor, it will output 1,400 gpm at 150' elevation (head), but the motor will fail because it's not meant to run wide open under load. To get a fair output value, you need to take a reading from the middle of the chart, which gives us 1,600 gpm at 80' of head with a 67% pump efficiency.

- Note: As with all pumps currently on the market, the higher the elevation that you try to push water (head), the lower the output volume (as seen in the pump curve).

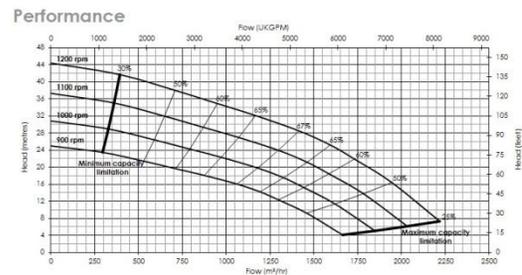
Godwin produces several other models as well:

The CD300M which weighs 11,000 lbs

The CD400M which weighs 15,000 lbs



CD300M Pump curve



CD400M Pump curve

For all of Godwin's pump curve tests, they have their pumps sitting at water level with no more than 6' of suction. The test tree is a vertical tower positioned right beside the pump outlet.

The CD300M has a 110 gallon fuel tank, which lasts for 10 hours of light operation, this equates to 11 gallons per hour at idle!



THE TRIDENT COMPARISON

Typical mine site in Fort McMurray Alberta



Currently, Two or Three pieces of support equipment are required for placement of the pumps, tying up extra manpower, equipment and burning even more fuel each time they need to relocate.

Also, being as the current pumps don't have the ability to push at high head, they are forced to run multiple pumps and move the water laterally.



THE TRIDENT COMPARISON

Now, let's compare these pumps to the Trident:

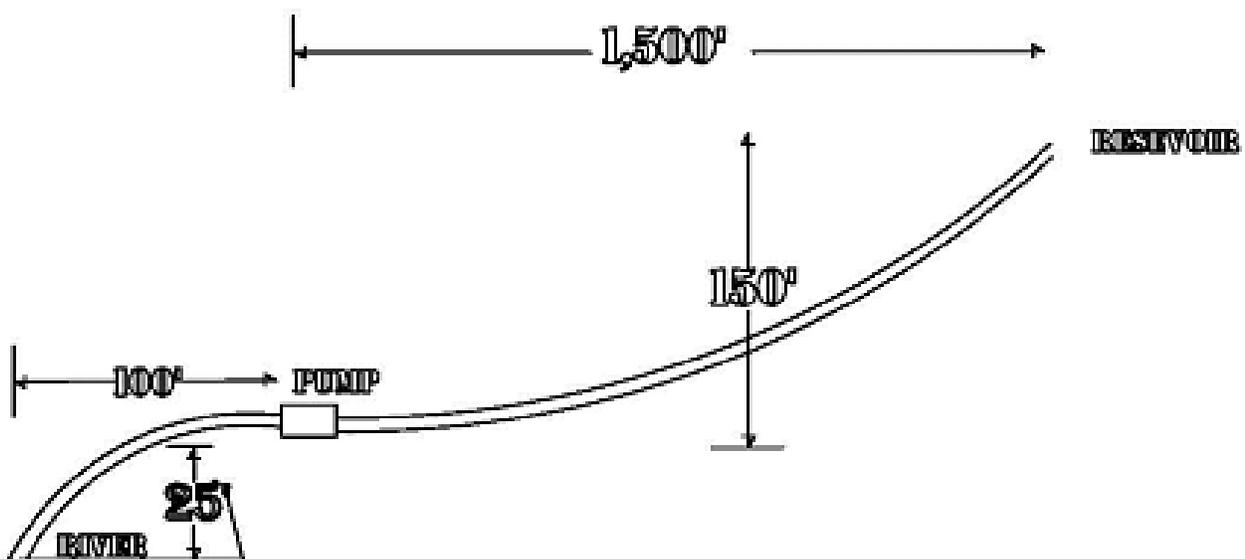


The Trident's dry weight is 500 lbs. It's most powerful model can output 10,000 Imperial gpm, but the pump in the video was designed to flow 3,000 Imperial gpm.

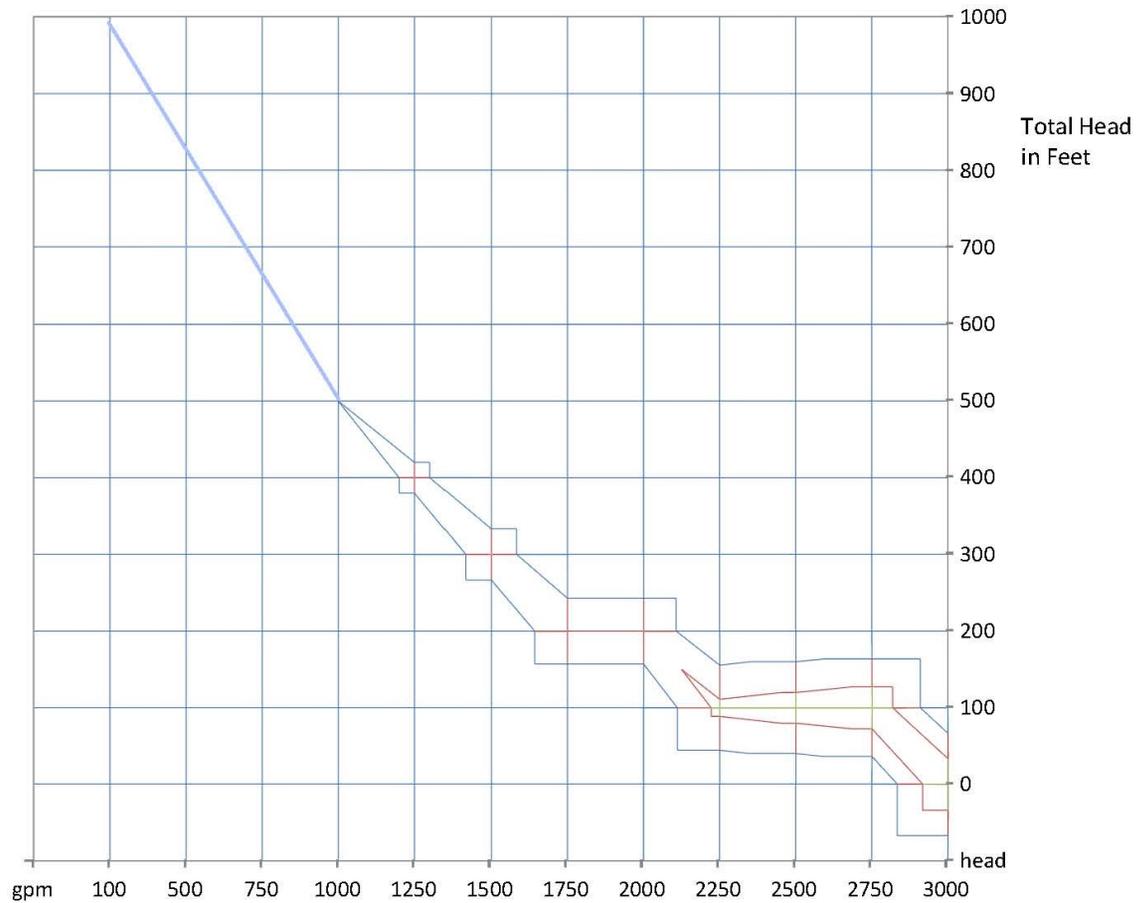
We don't have access to the same test rig Godwin uses, so all we can go by is our actual field tests and gps elevation and distance readings.

The following CAD drawing illustrates how our pump was set up in the video.

THE TRIDENT



Trident Pump





THE TRIDENT COMPARISON

The Trident has a maximum operating rpm of 13,200, its maximum hp is achieved at 10,800 rpm and its maximum torque is achieved at 8,700 rpm.

The pump doesn't start rotating until the motor revs to 4,000 rpm. We set it up this way so the motor is comfortably into its powerband prior to applying a load to activate our torque multiplication. With that said, thanks to our patented design, our pump has the ability to apply over 1,300 lb ft of torque at the impeller! Another benefit of our design is; Our pump always uses 100% of the available power at full engine RPM and adjusts itself to meet a particular flow or head constraint regardless of the suction or piping configuration; basically, we have one pump that changes to produce different pump curves based on what you want! It's because of this fact that we are able to achieve such large volumes and high head.

To achieve the results above, the motor was set at just below ½ throttle at 6,500 rpm (2,000 gpm). The only reason we didn't crack the pump wide open was because of the limiting factor of running a 6" suction, which causes cavitation past a certain flow threshold. The answer is to go with an 8" suction but the 6" worked fine for our tests.

Looking at our CAD drawing, you see the pump outlet is connected to 1,500' of 6" poly line, which travels vertically 150' (head) and we have an output of 1,500 imperial gpm coming out the top end.

None of the pumps above can even come close to this output and elevation, let alone at ½ throttle!

Our actual fuel consumption was 4 gallons of regular unleaded gas per hour, which is ½ as much as the CD250 and 1/3rd the fuel consumption of the CD300. Considering our pump is set up in a real world environment and their pump curve results are based on a clinical state, we are drastically outperforming these pumps!

Shell uses the DependPower 4025, which has a 387 gallon fuel tank that lasts 13 hours. This equates to 29.7 gallons per hour, which is 6 times as much fuel as our pump. This pump can reach heads of 340', but it has a weight of 20,000 lbs. We found a 340' hill on the banks of the Athabasca River, ran a 4" hose from the River to the top and fired up the pump. At ¾ throttle, we flowed over 1,000 gpm at 5 gallons of fuel per hour, so we had no problem surpassing that goal with our pump!

Based on the information above, because of its versatility, power and fuel efficiency, I foresee us offering mine de-watering for Suncor, Syncrude, CNRL and Shell's two main sites within a few years.

This doesn't even include the Forest fire, flood relief markets and the other applications our pump will fit into!

Regards: Kevin Younker

CEO

