

DE-7200™ VFD™ Centrifuge processes exceptional flow rate while maintaining optimal solids removal performance

- 558 gallons per minute max feed rate
- 95% API RP 13C drilled solids removal system performance
- 3 micron D50 cut point
- Outstanding durability

Objective

To efficiently process drilling fluid with a large bowl centrifuge to maximize solids removal while handling the highest flow rate possible. Evaluation of equipment over the course of 5 wells on a land rig in North Texas drilling horizontal wells with oil-based fluid.

1. Determine maximum feed rate
2. Measure performance parameters
 - Solids removal efficiency
 - Processing capacity
 - Cut point
3. Evaluate wear resistance and durability

Test Conditions

Maximum Capacity

The maximum capacity test was conducted under the following conditions:

Drilling Conditions	
Hole Size:	8.5 inches
Mud Weight:	8.5 PPG
PV:	14
YP:	9
ROP:	144 ft.hr

The DE-7200 handled a maximum feed rate of 558 GPM with the following performance results:

Centrifuge Performance Results	
Feed Rate:	558 GPM
Bowl Speed:	1500 RPM
Conveyor Diff:	40 RPM
Effluent LGS:	5.49% vol
OOC:	9.76% wt
Effluent D90:	11.14 microns

Multi Well Performance Evaluation

Solids Removal Efficiency

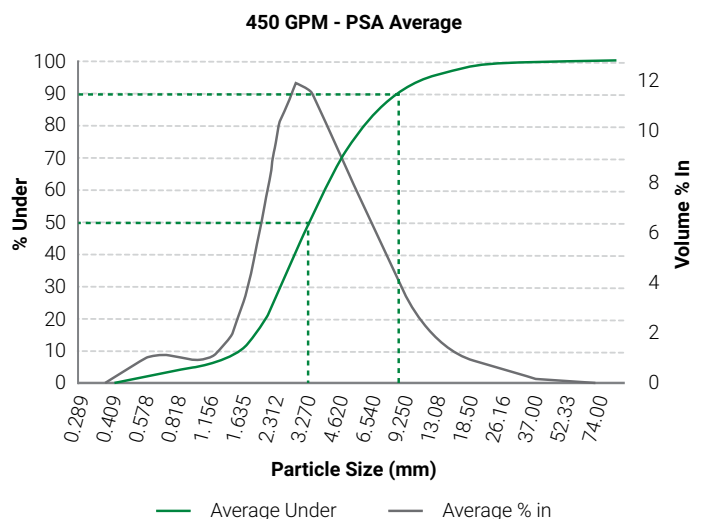
Over the course of drilling five wells, the DE-7200™ Centrifuge maintained on average a 95% solids removal efficiency (as calculated by API RP 13C).

Processing Capacity

Centrifuge feed rates varied during the multi-evaluation depending on drilling conditions. The DE-7200 achieved a 450 GPM feed rate with excellent solids removal performance.

Cut Point

Samples taken when the centrifuge was processing 450 GPM were analyzed with laser diffraction to determine cut point based on particle size distribution in the effluent. When processing 450 GPM, the DE-7200 average D90 cut point was 9 microns and D50 cut point was 3 microns. The chart below plots the full particle size analysis data.



Wear Characteristics and Durability

The increase in solids processed can have an accelerated wear effect on all consumable parts, but the amount of this acceleration needed to be quantified. Following operation on the five well study, the DE-7200 was disassembled and inspected for signs of wear.

As evidenced in the photos below, there was essentially no damage or wear to the bowl or conveyor, even after processing more than 8,000,000 gallons of drilling fluid.

Based on the inspection results, a major North American solids removal/waste management company determined that the DE-7200 would last up to 2 times longer in the field than competitive equipment before requiring any repair work.

Benefits

- **High processing capacity coupled with excellent solids removal efficiency**
 - o Reduced dilution and haul off costs
 - o Improved drilling fluid properties (rheology)
 - o Increased rate of penetration
 - o Bottom line – operational cost savings for the oil company
- **Exceptional durability**
 - o Double the life of competitive equipment
 - o Reduced total cost of ownership for contractor or service company

Conclusion

This extended field evaluation highlights the ability of the DE-7200 to handle feed rates of 450 GPM or more while effectively removing detrimental fine and ultra-fine solids from drilling fluid. The high capacity and increased solids removal efficiency shown by the DE-7200 proved its ability to meet the demanding and ever-changing drilling conditions needed for highly deviated and extended reach wells.



Stainless steel conveyor showed virtually no damage.



Feed nozzles condition post-evaluation proves durability.

For more information, please contact your local Derrick sales representative.

15630 Export Plaza Drive • Houston, Texas 77032 • Toll Free: (866) DERRICK • Office: (281) 590-3003 • Fax: (281) 590-6187
info@derrick.com • www.Derrick.com