



AFRS Fluid Recovery System



Cuttings from Centrifuge

BRANDT AFRS Fluid Recovery System Gen II

Effective and efficient secondary recovery process for oil-based mud.

WellSite Services - FluidControl designed the BRANDT™ AFRS™ Fluid Recovery System for effective and efficient secondary fluid recovery. The system's patent-pending design processes drilled cuttings coming off the shaker from the wellbore.

There are two main purposes of the AFRS; the first is to recover excess fluid that has generally been lost to disposal. The fluid can be processed and re-introduced into the mud system to reduce drilling costs.

The second is to significantly lower the amount of drilling fluid retained on the cuttings, making them stackable and reducing disposal costs. Drier cuttings reduce (or eliminate) the amount of mix-off material required.

The AFRS hopper is positioned beneath the shaker slide(s). After primary separation occurs, the cuttings from the shaker slide are channeled into the AFRS hopper and transported to the BRANDT HS-2172 centrifuge (drying centrifuge) via a vortex pump.

The vortex pump is designed to pass solids with minimal degradation. This NOV manufactured pump is the same style pump used in highly sensitive applications such as fish and shrimp farms. As this pump is capable of moving live fish and shrimp, it is an ideal choice to process cuttings from the shaker without detrimental degradation to the cuttings occurring, thus significantly reducing the creation/formation of low gravity solids (LGS). The pump sends the mixture of cuttings and fluid to the drying centrifuge, where the mixture is processed.

Benefits

- Secondary recovery without increasing low gravity solids (LGS)
- Reduces oil on cuttings to as low as 5%
- Significantly reduces volume of mix-off material required to stabilize cuttings by 89% to 100%
- Reduces trucking and disposal costs
- Reduces base fluid dilution
- Decreases overall tonnage to landfill
- Fully automated design
- Reduces environmental footprint

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Other dryers in the market use an auger to transport the cuttings; however, this method has a negative effect of further solids degradation and presents additional safety hazards.

The solids are discharged to the nearby shale bin and the recovered fluid (effluent) is transported to the fluid recovery tank. The fluid recovery tank serves two purposes; first, it is used to calculate the volume of fluid recovered. The tank holds 25.16 bbl (4 m³) of fluid and is equipped with a float system designed to pump-off 3 bbls (357 liters) when activated. Second, the tank's volume is utilized to transport the fluid through the hopper, which aids in moving the cuttings coming off the shaker and through the system without solids degradation.

Once the pump-off of recovered volume is activated, the system is designed so that the fluid from the recovery tank is transferred to the conventional solids control centrifuge (polishing unit) for final processing prior to being returned to the active mud system. This ensures that any remaining LGS in the recovered fluid are removed.

The AFRS utilizes an HS-2172 centrifuge as a drying centrifuge to reduce the amount of drilling fluid retained in the cuttings. The centrifuge has been widely used in several different applications in US operations, has a proven track record in performance, and is considered by many to be best in class. Designed with a full-variable control system, it enables the operator increased flexibility and easy control over the differential of the bowl/conveyor and pump to attain the best results.

Overall, the system has been able to bring base fluid on cuttings to as low as 5% that has been traditionally lost with disposal. Instead, fluid (effluent) is re-introduced into the active mud system. Field data has shown that when drilling, the AFRS can recover .04 bbls per foot.

Additional cost efficiencies

Based on data collected from multiple field tests and current drilling programs, it is conservatively estimated that only 11% of the usual amount of mix-off material is needed when the AFRS is running, reducing mix-off material by 89%. In some cases, mix-off material was reduced 100%.

Furthermore, the reduction of fluid on the cuttings also lowers the volume and weight of the processed cuttings for haul off, reducing trucking and other costs associated with disposal.

Safety is paramount and as such, the AFRS maintains the highest of HSE standards. By utilizing the vortex pump, we have eliminated the use of an auger for transporting cuttings, making it a safer environment for workers on the job site.

The Advanced Fluid Recovery System was designed small enough into tight locations and simple enough to quickly move with ease.

The system nets positive environmental benefits; by reducing fluid on the cuttings and minimizing or eliminating mix-off materials, the overall environmental footprint is reduced due to less loads to the landfill.

The combined value realized from recovered mud, makes the AFRS a cost benefit and logical decision for any operator.



Nominal specifications and dimensions for AFRS (Hopper)

Length	Width	Height	Weight (Dry)
27 ft 6 ¹ / ₁₆ in	36 in	75 ¹ / ₁₆ in	13,607 lbs

*General Specifications subject to change without notice; contact your local NOV representative for further details.