



Replacement Basket with Newpark Screens for Hyperpool®* Shale Shaker Lowers Screen Replacement Costs while Improving Separation Efficiency, Texas Panhandle

Newpark's retrofit basket and replacement screens for the Hyperpool® shaker provides a 50% reduction in screen costs while gaining efficiency in both screen life and cuttings discard rate.

CHALLENGE	SOLUTION	RESULT
<ul style="list-style-type: none"> Alternative to high-priced OEM screens Improve cuttings discard rate to lower screen replacement rate 	<ul style="list-style-type: none"> Newpark replacement shaker basket with Newpark screens Turnkey basket replacement service at the rigsite, re-using shaker base and motors 3 Newpark replacement screens instead of 4 required to dress shaker 	<ul style="list-style-type: none"> Significantly lower cost for screen replacements Reduced HSE risk with fewer screen changeouts Improved cuttings discard rate

OVERVIEW

Customer requested an alternative to high-priced replacement shale-shaker screens that can only be provided by OEM on the factory-installed Hyperpool® shaker basket, dressed with 4 screens. Newpark engineered a retrofit shaker basket which accepts only 3 larger replacement screens to provide a similar overall screening area.

Newpark also provided the turnkey services to remove the OEM basket and retrofit the replacement basket.

CHALLENGE

The Hyperpool® OEM shaker screen is only available for customers to purchase direct from the OEM. However, by engineering a new shaker basket design to retrofit onto the Hyperpool® base, alternative competitive screens can be provided.

Reducing the total number of screens required, while maintaining separation performance, reduces the overall cost for dressing the shaker.

SOLUTION

Following development and testing in association with industry experts, the Newpark solution created three significant benefits for the customer:

- Robust replacement basket fitting directly onto the Hyperpool® base, and designed to accommodate the existing shaker motors, thereby minimizing installation time;

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- A new lower-cost replacement screen design allowing 3 screens to be used on the retrofitted basket in place of the 4 screens used on the OEM basket; and
- Performance and durability of the replacement screens that matches or improves on the OEM screens.

The changeout of the OEM basket for the replacement basket was carefully planned and then completed safely in less than 2 hours per shaker, including removing and reinstalling of the shaker motors.

RESULTS

Separation performance data measured by Newpark below demonstrates that the Newpark retrofit shaker basket and replacement screens either match or improve on the solids removal and discard rate efficiencies compared against the factory-fitted shaker basket and OEM screens.

According to the data as measured by Newpark, the Newpark screens have a 27% faster cuttings-discard rate than the OEM screens. The reduced time the cuttings stay on the screen generally equates to less wear-and-tear on the screen mesh –typically reducing the number and frequency of screen changes.

In this case, the customer achieved a 50% reduction in screen costs while gaining an overall improvement in the life of the screens.

RETENTION ON CUTTINGS ANALYSIS		
	Newpark	OEM
Raw data		
Mass Empty Retort (grams)	853.0	856.8
Mass Wet Cuttings (grams)	899.3	906.3
Mass Empty Liquid Receiver (grams)	46.0	46.4
Mass Liquid & Receiver (grams)	58.0	61.0
Mass Dryed Retort (grams)	886.4	890.4
Volume Water (mL)	12.0	15.0
Calculations		
Wet Cuttings mass (grams)	46.3	49.5
Dry Cuttings mass (grams)	33.4	33.6
Mbf - (Mass Base Fluid)	0.0	-0.4
% Mbf (Retained On Cuttings)	0.00	-0.81
Mass Balance Requirement %	97.99	97.37

Summary of Particle Size Analysis (Sample #5634 Derrick Effluent)

% Volume Under 2 µm	% Volume Under 6 µm	% Volume Under 74 µm	Vol. Weighted Mean, µm	D 50, µm
14.65	39.20	99.20	15.50	9.15

Summary of Particle Size Analysis (Sample #5669 Influent Possum Belly)

% Volume Under 2 µm	% Volume Under 6 µm	% Volume Under 74 µm	Vol. Weighted Mean, µm	D 50, µm
14.35	37.95	90.15	38.60	10.30

Summary of Particle Size Analysis (Sample #5723 Newpark Effluent)

% Volume Under 2 µm	% Volume Under 6 µm	% Volume Under 74 µm	Vol. Weighted Mean, µm	D 50, µm
15.90	41.80	98.00	15.80	8.40

†

† Data generated and shown in the four tables above are based solely on testing performed by Newpark using OEM and Newpark screens under substantially the same conditions (i.e. flow rates, fluid properties and other drilling conditions).