From: Walsh, Bob (Houston)
Sent: Thursday, September 30, 2010 8:08 AM
To: Bell, Wesley (Houston)
Cc: Florence, Ewen (DWH Proj); Tiano, Robert (Houston); Roller, Perrin (DWH Proj)
Subject: Gumbo Box generic info

Attachments: letter_size_pdf[2].pdf; d4a1000206-mmd-001-01[1].jpg; image002.gif

Wes,

I have contacted a friend at NOV and requested drawings for the exact gumbo box that was installed on the DWH so that we can take a better look at whether it was probable that the flow line sensor was installed through the cover right at the mud entry, as we discussed. The attached drawings and photo are generic information for the NOV Brandt gumbo box.

The DWH box was configured a bit differently with an additional entry from the MGS that entered the mud side next to the gumbo chute. It also had multiple the multiple shaker outlets similar to the sketch below. What is interesting to me is, if the Sperry sensor was located at the entry to the box, why would the crew want to use the bypass line to send the flows from the flow line directly overboard when they can just close the feeds to the shale shakers? The box is designed so that it will spill over into the gumbo chute if the volume entering the box exceeds the volume going out to the shale shakers causing the pool height to rise. If the shale shaker feed valves are closed, this would allow the distribution box to fill and spill over into the gumbo chute so that the Sperry sensor could still measure flow into the box.

I am not sure how close the elevations of the mud entry are and with respect to spill over height. I am going to send a few more questions and hope to have more detailed drawings in the next day or so, if NOV legal don't get involved and shut down before the drawings get sent.

Thanks,

Bob

Robert Walsh (Bob)

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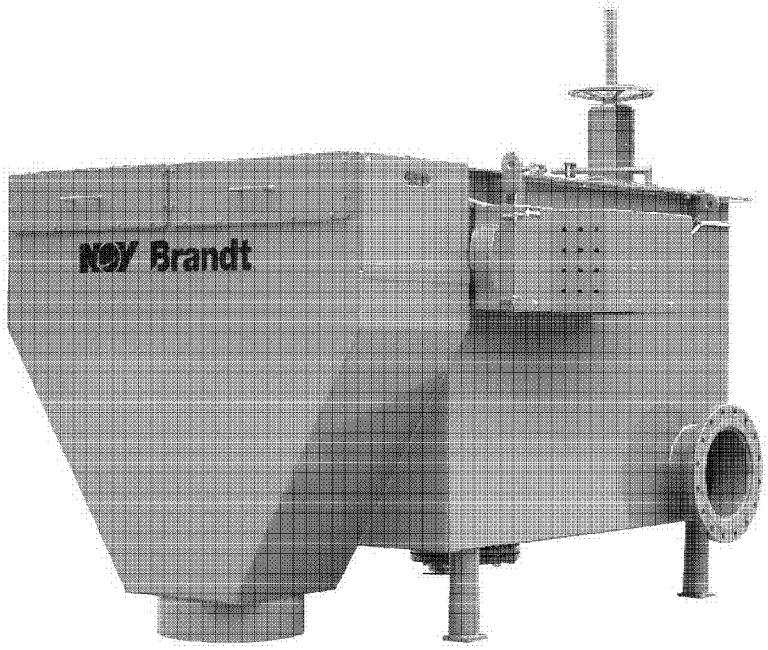
Gumbo Boxes

IMPROVING SOLIDS CONTROL EFFICIENCY BY EFFECTIVELY REMOVING GUMBO AND OTHER STICKY CLAYS BEFORE REACHING OTHER SOLIDS CONTROL EQUIPMENT



NOV Brandt Gumbo Boxes are the first step in effective solids control when large, sticky, hydrated clays (gumbo) and other troublesome solids are encountered during drilling. Gumbo Boxes use a motorized chain conveyor to remove problematic solids before they reach the shale shakers. The removal of gumbo and other solids by these units allows the downstream solids control equipment to operate much more efficiently.

A cartridge assembly houses the Gumbo Chain(s) or Scalper Belt(s) that convey the solids to be discharged. Gumbo Boxes are available in three cartridge configurations:

- 5-foot (1.5-meter) single cartridge
- 6-foot (1.8-meter) single cartridge
- 6-foot (1.8-meter) dual cartridge

The Gumbo Chain utilizes larger hole openings than the Scalper Belt. Chain opening sizes can vary depending on the formation drilled and the needs of the drilling program. The Gumbo Box is available in single or dual cartridge units that can be installed on nearly any rig.

From flowline to disposal, NOV Brandt has the solutions to your separation and waste management needs. NOV Brandt is a subsidiary of National Oilwell Varco, the industry's technological leader.

Gumbo Boxes

FEATURES	BENEFITS
Stainless steel woven chain belt	Provides thousands of operating hours with reliable, maintenance-free service
Optional integrated flow divider with the ability to feed up to eight shakers	Ensures proper flow to subsequent solids control equipment
Option to use single or dual cartridges	Enables customers to obtain the capacity required for their specific application
Ability to handle flow rates up to 3800 gal/min (14384 lit/min)	Facilitates quick processing of gumbo and other troublesome solids

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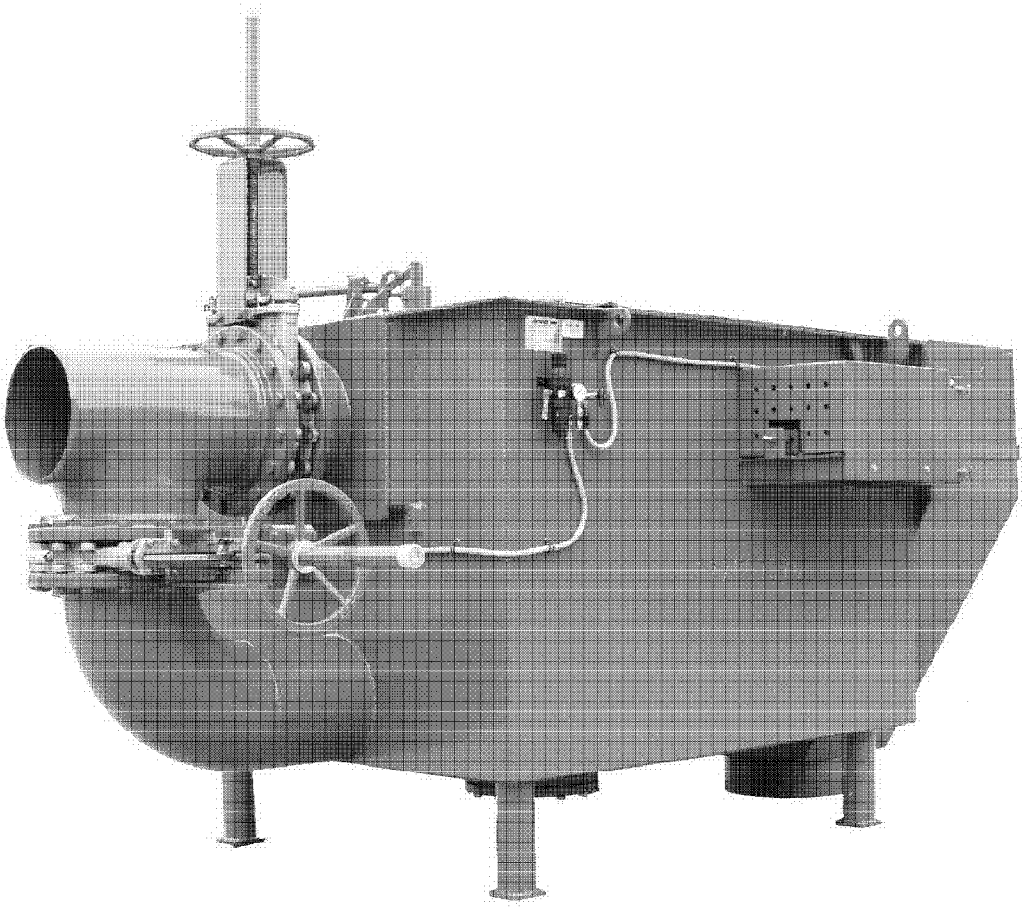
NOV Brandt

Gumbo Boxes



Specifications and Dimensions

	5-Foot (1.5-Meter) Single	6-Foot (1.8-Meter) Single	6-Foot (1.8-Meter) Dual
Dimensions (L x W x H)	98¼ in x 56¼ in x 41⅝ in (2496 mm x 1429 mm x 1057 mm)	110¼ in x 56¼ in x 41⅝ in (2800 mm x 1429 mm x 1057 mm)	112⅜ in x 100¾ in x 64 in (2854 mm x 2559 mm x 2854 mm)
Weight	2640 lb (1199 kg)	2975 lb (1351 kg)	6350 lb (2883 kg)
Motor Type	Explosion-Proof	Explosion-Proof	Explosion-Proof
Motor Power	1 hp (0.75 kw) or 3 hp (2.24 kw)	1 hp (0.75 kw) or 3 hp (2.24 kw)	(2) 1 hp (0.75 kw) or (2) 3 hp (2.24 kw)
Motor RPM	1750	1750	1750
Electrical Requirements	230/460VAC/ 3-phase/60Hz	230/460VAC/ 3-phase/60Hz	230/460VAC/ 3-phase/60Hz
Gearbox Ratio	30:1	30:1	30:1

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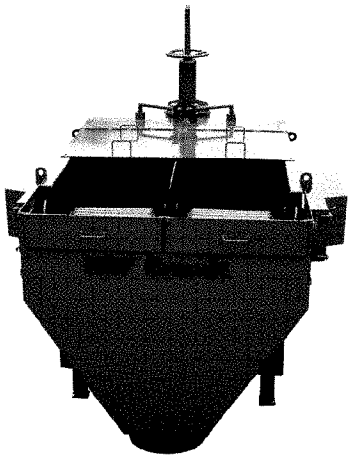
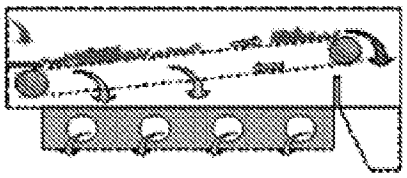


Step 1
Gumbo
Box



Microns	Mesh
	1/2
	1
	2