BEM-600 Shaker

Balanced elliptical motion for better solids removal and fluid recovery with less screen wear

Customer-focused, solutions-driven
Balanced elliptical motion produces a dryer cuttings discharge

**APPLICATIONS**
Offshore and onshore projects where more effective solids/fluid separation is required in addition to the reduction of costs related to shaker performance.

**PROBLEMS**
Conventional shakers exhibit one or more — or all — of the following: inefficient solids handling and fluid recovery, screen blinding, premature screen wear and safety issues.

**SOLUTIONS**
The BEM-600* shaker is the second-generation balanced elliptical motion shale shaker from M-I SWACO*. It provides better solids removal and fluid recovery with less screen wear while occupying a relatively small footprint.

**ECONOMICS**
Significantly dryer cuttings, improved solids removal and fluid recovery at high feed rates, longer screen life and minimal downtime add up to significant savings. For economical retrofits, the BEM-600 stainless steel basket motor assembly can be installed on existing shaker skids.

**ENVIRONMENTAL**
More efficient fluids/solids separation results in significantly smaller disposal volumes of dryer cuttings.

Better solids and fluids processing, less screen wear
The BEM-600 shaker is the second-generation balanced-elliptical-motion shale shaker from M-I SWACO. Its performance is centered on our field-proven and patented, balanced-elliptical-motion technology. Independent testing has confirmed that, compared with other shaker types, this gentle rolling motion consistently provides better solids removal and fluid recovery with less screen wear.

The BEM-600 shaker has been designed with a number of significant refinements that include:
- Smaller footprint
- Fully stainless steel design
- Dual decks (for scalping and fine solids separation)
- Pneumatic screen clamping
- Detachable feed trough

As a result, the BEM-600 shaker routinely provides:
- A compact unit built for long life
- Improved solids removal and fluid recovery at higher feed rates
- Faster and safer screen changing

The easy retrofit to BEM-600 quality
An important option is the ability to retrofit the stainless steel BEM-600 basket motor assembly onto existing shaker skids. Built to quickly retrofit, the BEM-600 shaker can be installed in a matter of hours with minimal modification.

The results of a BEM-600 retrofit are:
- Reduced shaker replacement costs
- Minimal downtime
- Significantly improved performance

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**Balanced elliptical motion**

- **Solids discharge**
- **Feed mud**
- **Liquid discharge**
- **45° angle**

Uniform elliptical motion at all points on basket
Upper deck contains two pre-tensioned, flat-panel scalping screens with a gross screen area of 13.8 ft² (1.3 m²)

Lower deck contains four pre-tensioned, flat-panel primary screens with a gross screen area of 27.6 ft² (2.6 m²)

Flow-back pan between top and bottom decks

Deck-angle adjustments −3° to +5°

Screen clamping by single-point, pneumatic control

Bed-angle indicator

Fully stainless steel design

Two fine screening wire mesh choices:
- High-capacity mesh (HC) designed to produce excellent flow rates
- Long-life mesh (XR*) designed to extend time between screen changes

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State-of-the-art motion generators provide low maintenance

CE, ATEX, NORSOK and UL-rated versions available

Detachable header box

Control panel suitable for remote operation

BEM-600 performance data

This graph provides a screen-life comparison between the M-I SWACO BEM-600 shaker fitted with 165- and 200-mesh MAGNUM* HC screens and a competitor’s shaker fitted with 165- and 200-mesh TBC HiFlo* screens. The screen life achieved by the BEM-600 shaker was vastly superior, averaging ten times that of the competitor’s shaker. Only one BEM-600 screen failed during the test, compared to 10 screen failures for the competitor’s shaker.

The BEM-600 shaker also outperformed the competitor’s shaker under field conditions by processing 25% more drilling fluid, using screens with the same mesh.

The balanced elliptical motion generated by the BEM-600 shaker assisted in discharging cuttings that were an average of 7% drier than those discharged by the competitor’s shaker.

MAGNUM screens averaged ten times the screen life of the competitor’s shaker.
Features and Benefits

**Stainless steel construction**
- Reduces maintenance costs as a result of low corrosion

**Patented, balanced elliptical motion**
- Produces a drier cuttings discharge
- Results in improved separation efficiency

**Pneumatic quick clamping of screens**
- Ease of screen changing operation (top and bottom decks)
- Speedy screen changing

**Remote-controlled, pneumatic-hydraulic deck-angle adjustment**
- Quick operation
- Reduces mud losses from screens

**Screen clamping and angle adjustment operated by rig air supply**
- Low maintenance, low utilities

**MAGNUM® screen technology**
- Increases effective open area
- Improves process capacity
- Maximizes screen life

**Integral scalping screen**
- Improves process capacity
- Reduces installation costs

**Easily retrofits existing shakers**
- Reduces installation costs

**Detachable header box and flow distributor**
- Flexible installation

**State-of-the-art motion generators**
- Low maintenance
- Oilfield proven

**ATEX, NORSOK and UL-rated versions available**
- Meets certification requirements at highest level

**Control panel suitable for remote operation**
- Reduces operator exposure to vapors associated with drilling fluids

**Easy-to-install optional vapor-extraction hood**
- Reduces operator exposure to vapors associated with drilling fluids

**All screens front load**
- Improves safety for operators
- No need for operators to maneuver between shakers during normal operations

**Uses pre-tensioned screens**
- Allows for quicker screen changing (top and bottom decks)
- Extends screen life

**Special, lightweight screen design**
- Allows for easier screen handling
- Allows for recycling of screen frame

**Flow-back pan between top and bottom decks**
- Maximizes effective screening area

**Integral gumbo screen**
- Improves gumbo separation

**Dual-angle bottom deck**
- Improves separation of water-base-mud cuttings

**Shallow header tank**
- Better fluids distribution to the screens
- No solids settling

**Quiet operation**
- Low operational noise levels ensure safety

**Sloping sump design with left and/or right discharge**
- Minimizes settling of ultra-fines

**Bed-angle indicator**
- Aids accurate adjustment of basket angle

**Fully supported by M-I SWACO design and service organization**
- Assistance with rig installation surveys, flow distribution design to shakers, as well as shaker house and solids-control system design

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1. Vibratory Screen Separator U.S. Patent No. 5,265,730
2. U.S. Patent No. 6,431,368
3. Patent pending

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BEM-600 Shaker Specifications

**Dimensions**
- Length: 100.3 in. (2,546 mm)
- Width: 81.2 in. (2,063 mm)
- Weir Height: 43.7 in. (1,110 mm)
- Height: 64.5 in. (1,638 mm)
- Weight: 4,800 lb (2,177 kg)

**Screen Deck and Screens**
- Gross screen area:
  - Scalping deck: 13.8 ft² (1.3 m²)
  - Primary deck: 27.6 ft² (2.6 m²)
- Net (API) screen area:
  - Scalping deck: 10.7 ft² (1 m²)
  - Primary deck: 21.5 ft² (2 m²)
- Deck angle adjustable: +5°, –3°
- Screen type: Pre-tensioned
- Screen clamping: Pneumatic

**Basket Isolation**
- Coated carbon steel springs

**Motor Specifications**
- Two (2) 2.0-hp vibrator motors
- 460V/60 Hz/1,800 rpm or 400V/50 Hz/1,500 rpm
- Explosion proof
- Class I, Groups C and D
- Class II, Groups E, F and G
- UL, CE, CSA, ATEX, NORSOK
- Motor weight: 200 lb/60 Hz (91 kg, 60 Hz)
  216 lb/50 Hz (98 kg, 50 Hz)

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