

# BEM-650 Shaker

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



**BEM-650**



**Mi SWACO**

*Customer-focused, solutions-driven*

## Features and Benefits

- Patented<sup>1</sup>, balanced elliptical motion produces a drier cuttings discharge and results in improved separation efficiency
- Stainless steel construction reduces maintenance costs as a result of low corrosion
- State-of-the-art motion generators are oilfield proven and require minimal maintenance
- Flowback pan between top and bottom decks maximizes effective screening area
- Integral scalping deck improves process capacity, reduces installation costs and improves primary deck screen life
- Gumbo slide design minimizes gumbo buildup
- Dual-angle bottom deck improves separation of water-base-mud cuttings
- Shallow header tank delivers better fluids distribution to screens with no solids settling
- Sloping sump design with left and/or right discharge minimizes settling of ultra-fines
- Meets certification requirements at highest level — ATEX, NORSOK, CE and UL-rated versions available
- Low operational noise levels ensure safety
- Extra-long drip lips
- Easy-to-install optional vapor-extraction hood reduces operator exposure to vapors associated with drilling fluids
- M-I SWACO\* design and service organization provides assistance with rig installation surveys, flow-distribution design to shakers, as well as shaker house and solids-control system design

### Flow-Distribution Box

- Detachable flow-distribution box with built-in lift points allows for flexible installation
- Allows true, “cold” installation to 10-in. (254-mm) pipe flange
- No welding, torch cutting or grinding is necessary

- Two large slide gates, with reliable tab/slot locators, reduce tendency to clog with gumbo

### Controls

- Control panel, with simple start/stop button is suitable for remote operation, reducing operator exposure to vapors associated with drilling fluids
- Easy-to-use pneumohydraulic deck-angle adjustment<sup>2</sup> reduces mud losses from screens
- Bed-angle indicator aids accurate adjustment of basket angle

### Screen Technology

- Composite screen technology increases effective open area, improves process capacity and maximizes screen life
- Special, lightweight screen design allows for easier screen handling
- Pre-tensioned screens (top and bottom decks) allow for quicker screen changes
- All screens front load to improve operator safety

### Screen-Clamping System

- Operated by single three-way, three-position SST ball valve
- Pressure regulator permanently set to proper operating pressure
- Pneumatic quick clamping of screens<sup>3</sup> for quick screen-changing operations
- Screen clamping and angle adjustment operated by rig air supply, lowering maintenance and utilities
- All components bolt on
- Clamp blade axles cast into part with larger shaft size
- Clamp blade receivers have tighter tolerance and increased materials depth

### Two Inspection/Cleanout Ports

- Removable cover allows easy access for rear-screen inspection and maintenance
- Contains splashing and prevents fluid loss during surges
- Improves access to rear clamp blades



*Gumbo slide design minimizes gumbo buildup.*



*Easy-access inspection ports, with pop-in covers, prevent fluid loss during surges. True, cold installation via feeder to pipe flange.*

<sup>1</sup>Vibratory Screen Separator U.S. Patent No. 5,265,730

<sup>2</sup>Patent pending

<sup>3</sup>U.S. Patent No. 6,513,665

# Balanced elliptical motion produces a drier cuttings discharge



## APPLICATIONS

Offshore and onshore projects where more effective fluids/solids 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-650\* shaker is the third-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 drier cuttings, improved solids removal and fluid recovery at high feed rates, longer screen life and minimal downtime add up to significant savings.

## 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-650 shaker is the third-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.

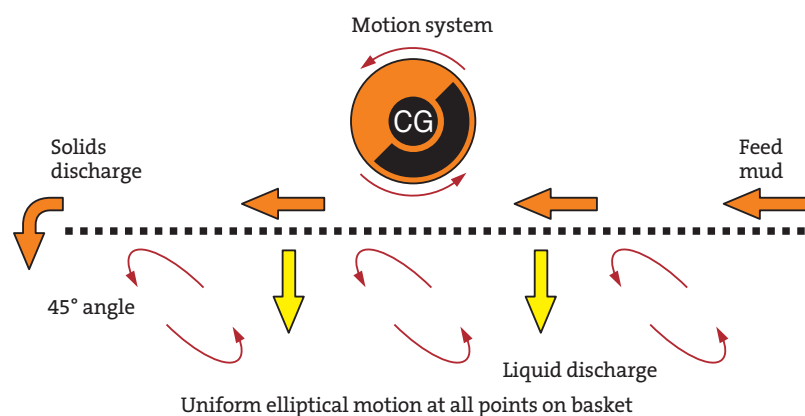
The BEM-650 shaker has been designed with a number of significant refinements that include:

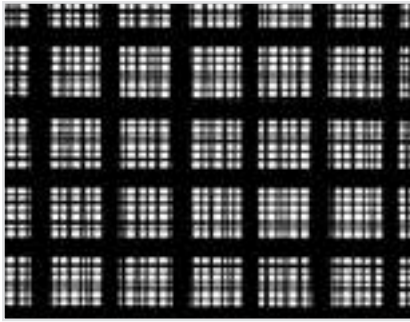
- Smaller footprint
- Fully stainless steel design
- Dual decks (for scalping and fine solids separation)
- Automated deck-angle adjustment<sup>2</sup>
- Detachable feeder
- Pneumatic screen clamping<sup>3</sup>

As a result, the BEM-650 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

## Balanced elliptical motion





# BEM-650

Multiple 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
- Other mesh types available, including TBC\* and XL



Patent-pending, deck-adjustment system

Fully stainless steel design

Upper deck contains two pre-tensioned, flat-panel scalping screens with a gross screen area of 13.8 ft<sup>2</sup> (1.3 m<sup>2</sup>)

Lower deck contains four pre-tensioned, flat-panel primary screens with a gross screen area of 27.6 ft<sup>2</sup> (2.6 m<sup>2</sup>)

Flowback pan between top and bottom decks



Screen-clamping system, with single-point, pneumatic control, speeds screen-changing operations



Bed-angle indicator aids accurate adjustment of basket angle





*Two, large slide gates reduce tendency to clog with gumbo*

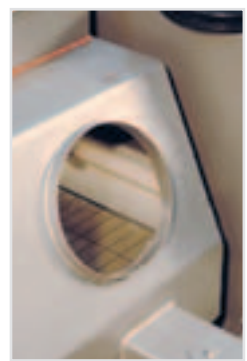


*Detachable flow-distribution box allows for flexible installation*



*Control panel, with simple start/stop button, is suitable for remote operation*

*CE, ATEX, NORSOK and UL-rated versions available*

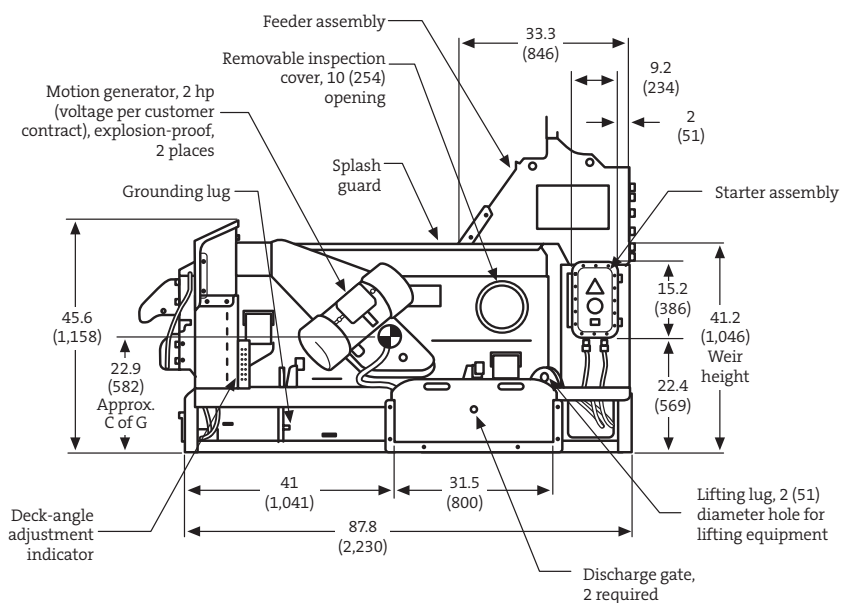
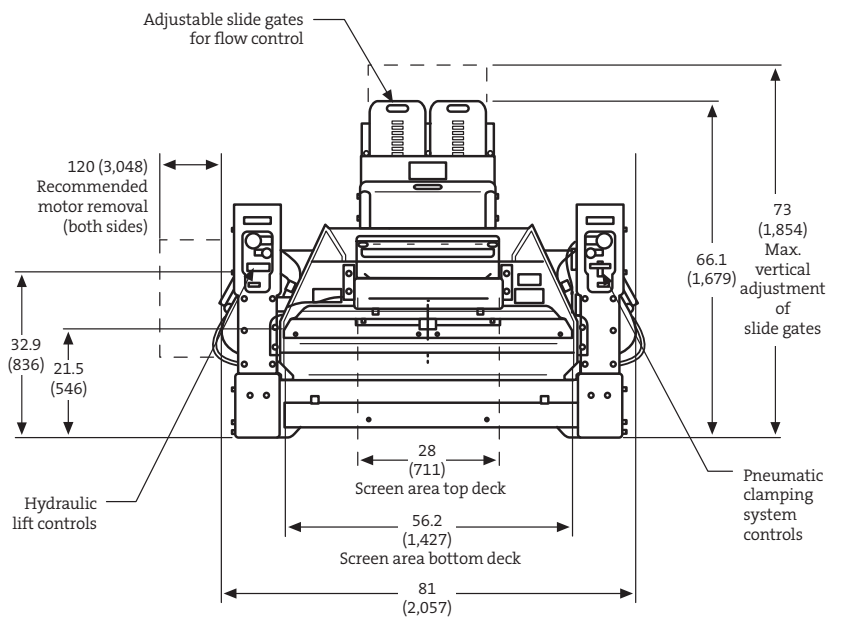
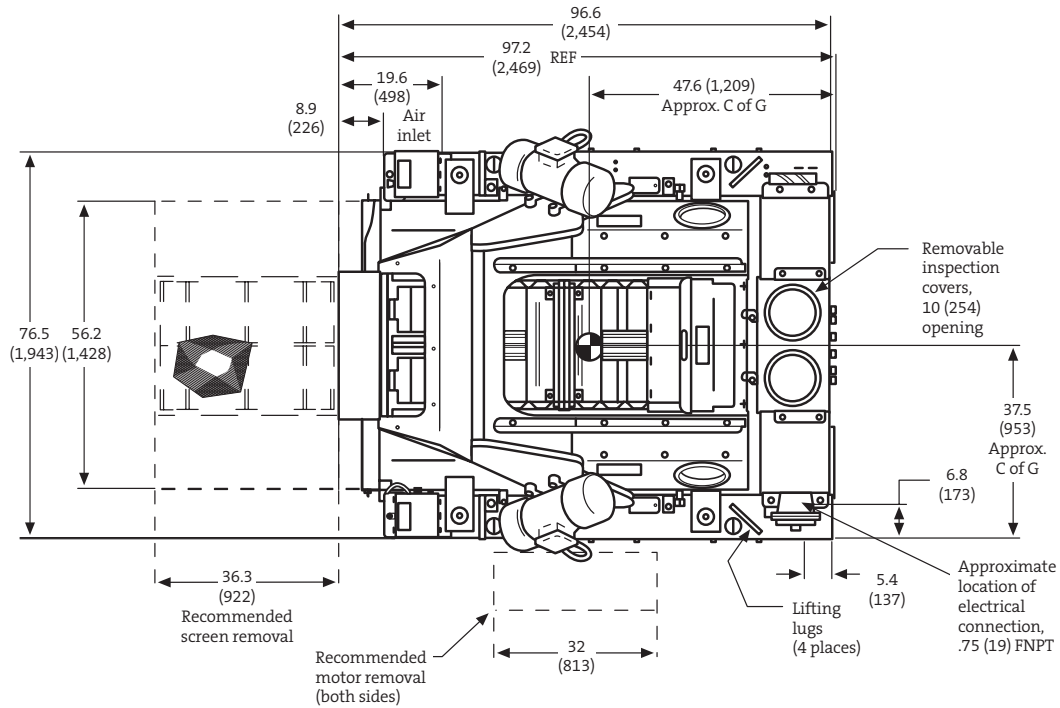


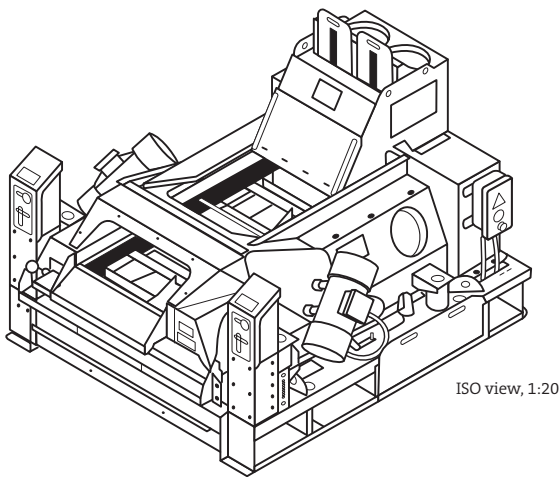
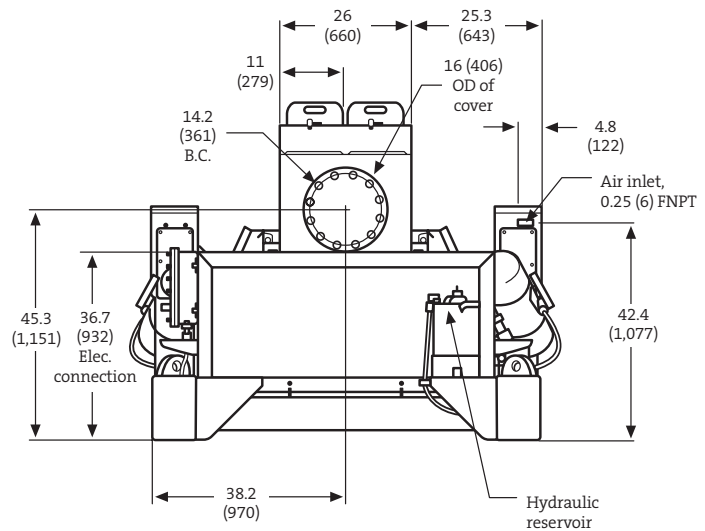
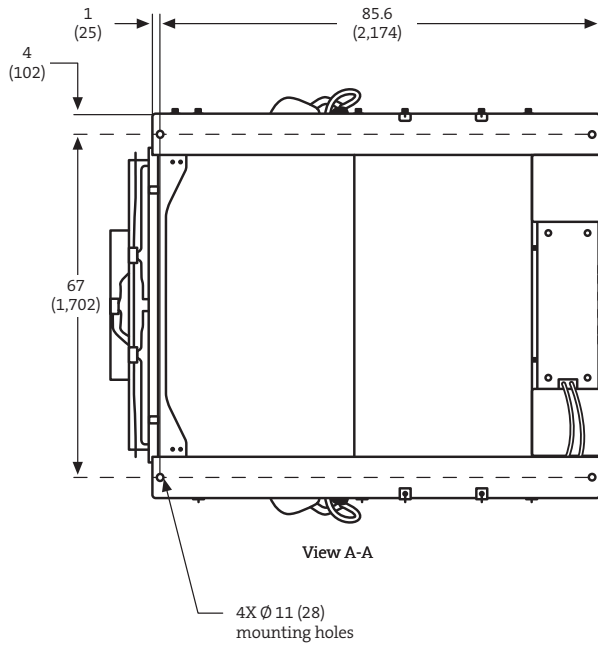
*Rear-screen inspection port, equipped with removable cover, simplifies inspection and maintenance*



*State-of-the-art motion generators are oilfield-proven for low maintenance*

# BEM-650 Shaker Specifications





These renderings are for information purposes only and are not actual schematics.

### Dimensions

- Length 96.6 in. (2,454 mm)
- Width 81 in. (2,057 mm)
- Weir Height 41.2 in. (1,046 mm)
- Height 66.1 in. (1,679 mm)
- Weight 3,900 lb (1,769 kg)

### Screen Deck and Screens

- Gross screen area
  - Scalping deck 13.8 ft<sup>2</sup> (1.3 m<sup>2</sup>)
  - Primary deck 27.6 ft<sup>2</sup> (2.6 m<sup>2</sup>)
- Net (API) screen area
  - Scalping deck 10.8 ft<sup>2</sup> (1 m<sup>2</sup>)
  - Primary deck 21.6 ft<sup>2</sup> (2 m<sup>2</sup>)
- Deck angle adjustable: +5°, -3°
- Screen type: Pre-tensioned composite
- Screen clamping: Pneumatic

### Basket Isolation

- Coated carbon steel springs

### Motor Specifications

- Two (2) vibrator motors
- 460V/60 Hz/1,800 rpm/2 hp or 400V/50 Hz/1,500 rpm/1.75 hp  
Other voltages are also available
- 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)
- Nominal flow capacity >600 gal/min (2,271 L/min), dependent upon fluid properties, solids loading, screen configuration, deck angle and G-force



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