

BEM-650 Shaker

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



Customer-focused, solutions-driven

Features and Benefits

- Patented¹, 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, NORSO, 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 adjustment² 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 screens³ 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.

¹Vibratory Screen Separator U.S. Patent No. 5,265,730

²Patent pending

³U.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 drier 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.

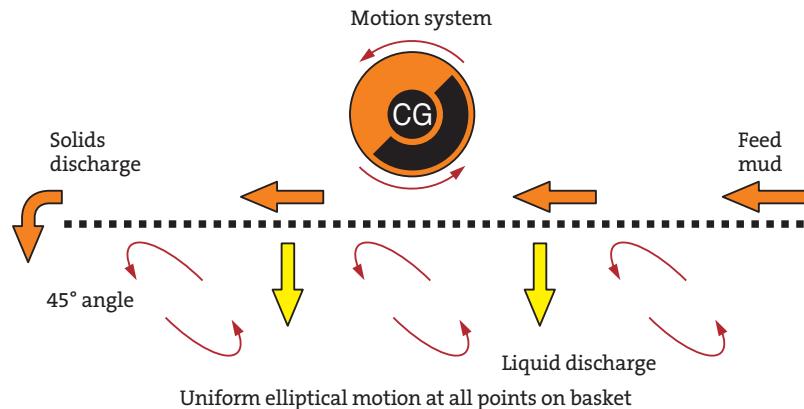
The BEM-650 shaker has been designed with a number of significant refinements that include:

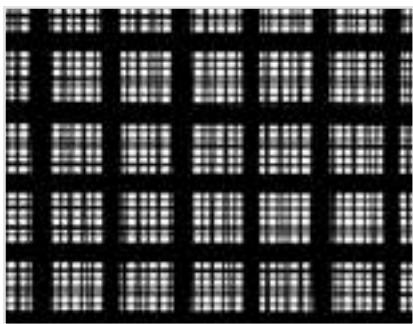
- Smaller footprint
- Fully stainless steel design
- Dual decks (for scalping and fine solids separation)
- Automated deck-angle adjustment²
- Detachable feeder
- Pneumatic screen clamping³

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



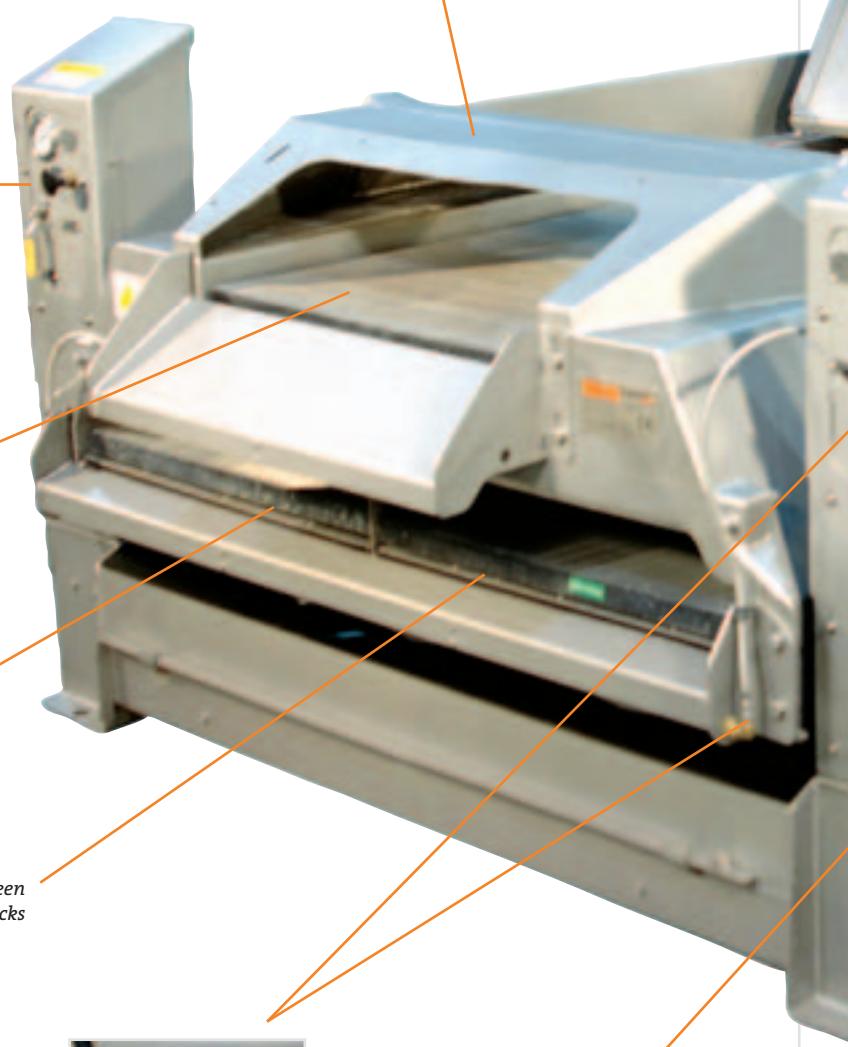


Multiple fine screening wire mesh choices:

- *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



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 276 ft² (2.6 m²)

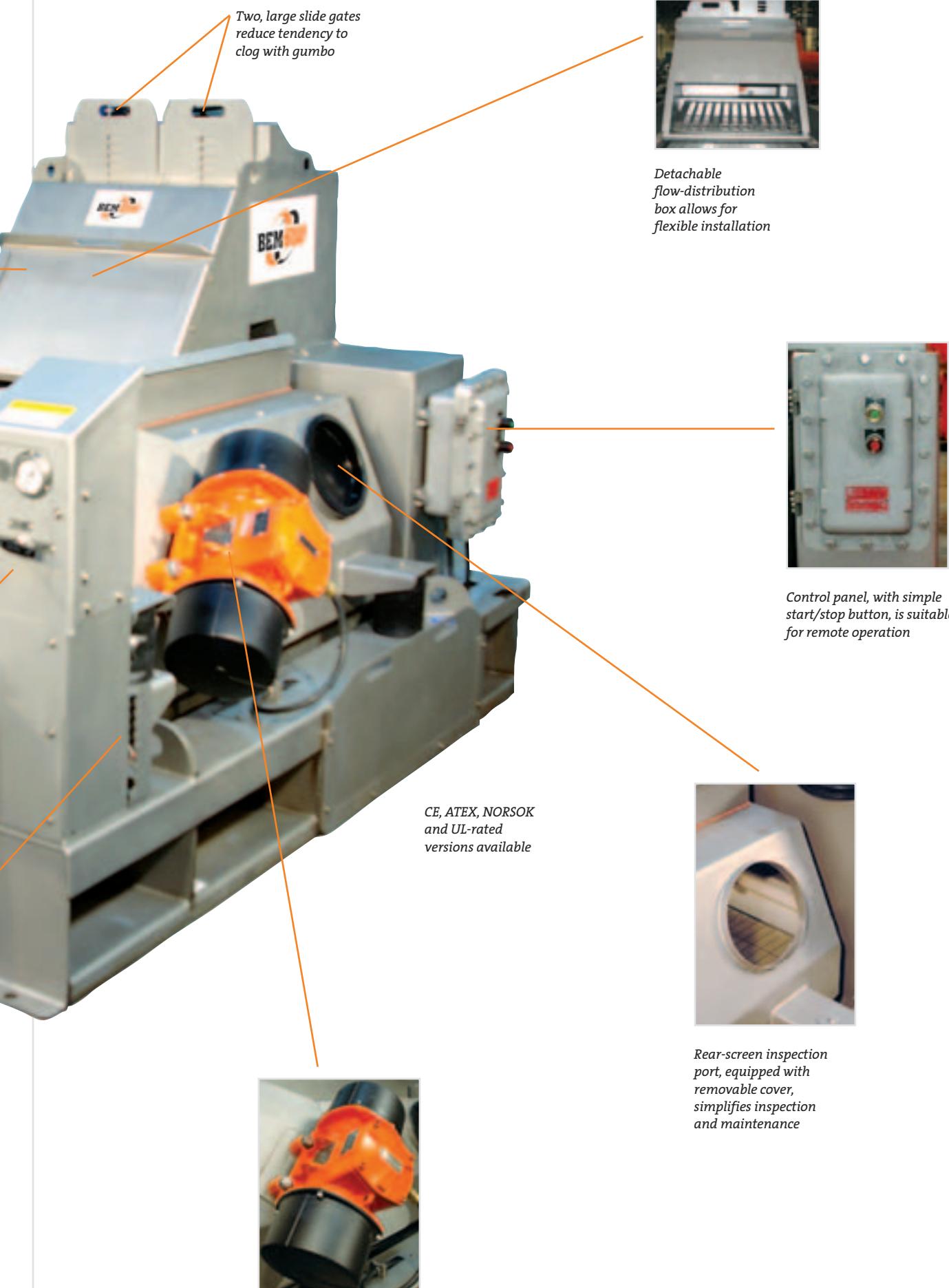
Flowback pan between top and bottom decks



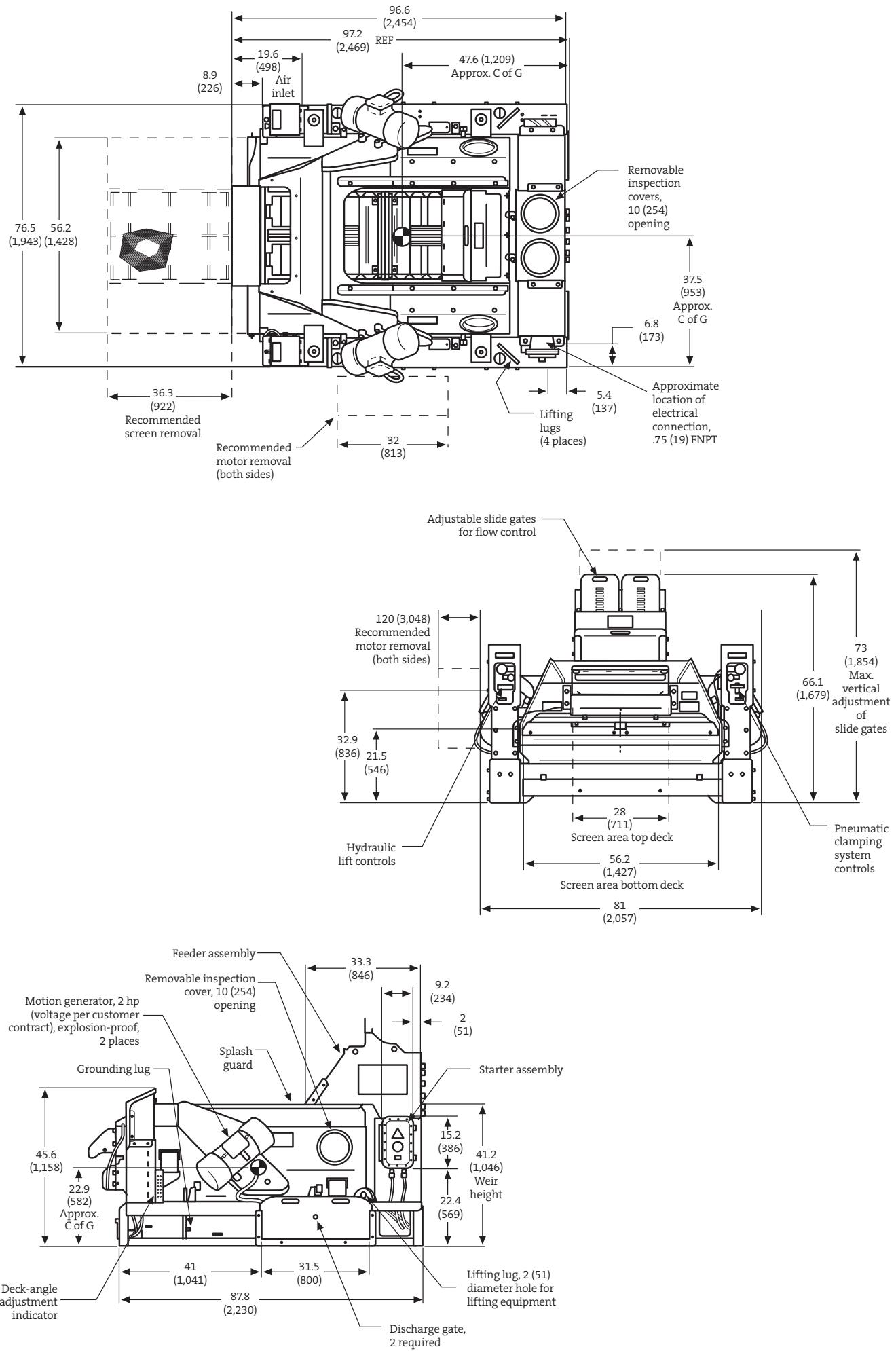
Screen-clamping system, with single-point, pneumatic control, speeds screen-changing operations

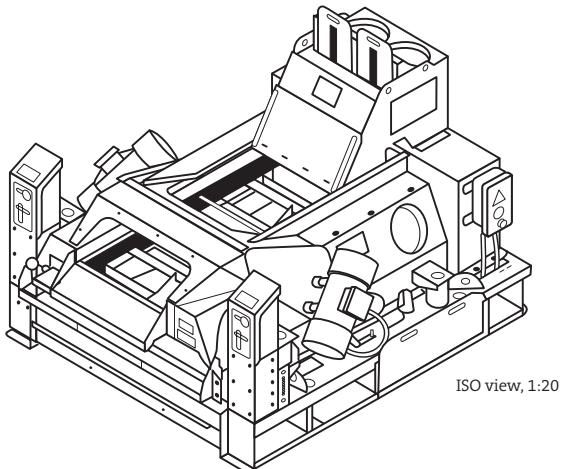
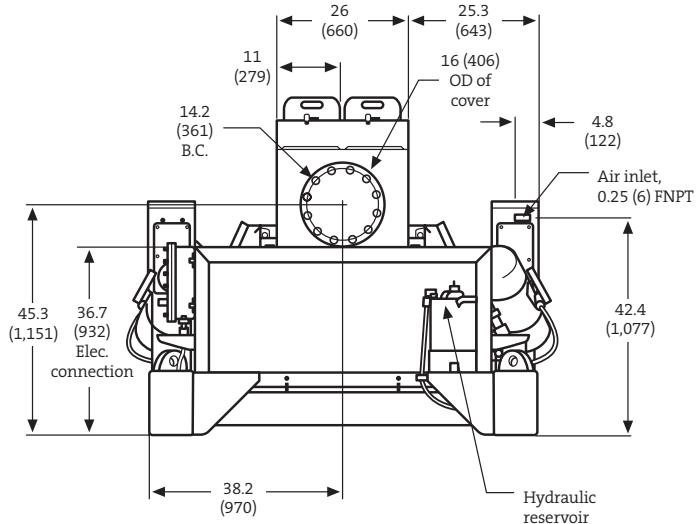
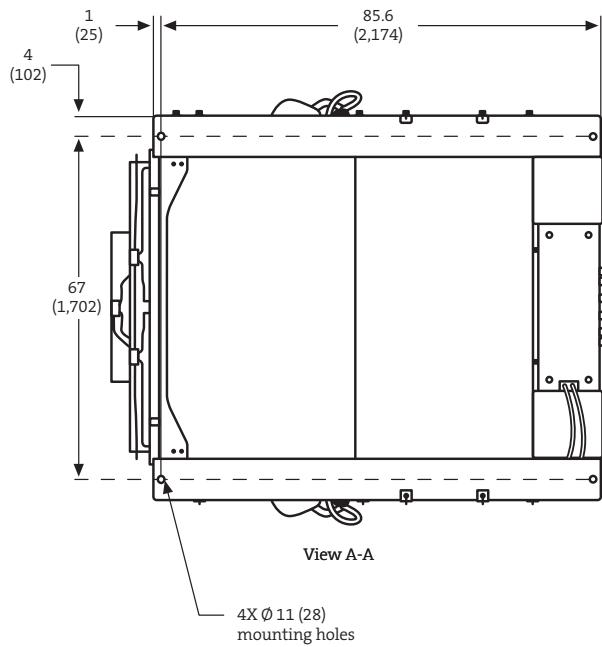


Bed-angle indicator aids accurate adjustment of basket angle



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 ft² (1.3 m²)
 - Primary deck 27.6 ft² (2.6 m²)
- Net (API) screen area
 - Scalping deck 10.8 ft² (1 m²)
 - Primary deck 21.6 ft² (2 m²)
- 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, NORSOX
- 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



P.O. Box 42842
Houston, Texas 77242-2842
Tel: 281-561-1300
Fax: 281-561-1441
www.miswaco.com
E-mail: questions@miswaco.com

Technology Centers:

HOUSTON, TEXAS
Tel: 281-561-1300 · Fax: 281-561-1441
ABERDEEN, SCOTLAND
Tel: 44-1224-334634 · Fax: 44-1224-334650
STAVANGER, NORWAY
Tel: 47-51-577300 · Fax: 47-51-570605

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