

Cuttings Dryer (VERTI-G)



The VERTI-G⁺ cuttings dryer features a state-of-the-art design that can process varying amounts of cuttings and fluids, typically up to 60 tons (61 metric tons) per hour. Dry solids discharged from the dryer are typically <5% oil content by wet weight.

Size and capacity

The VERTI-G Cuttings Dryer delivers one of the best performing, most dependable dryers on the market. The VERTI-G unit incorporates a high-speed vertical centrifuge that achieves maximum liquids/solids separation in large volume processing. This gives operators a critical advantage in meeting increasingly stringent environmental rules for offshore cuttings disposal.

The VERTI-G unit improves overall cost-efficiency. Valuable drilling fluids can be recovered from cuttings, as well as whole mud lost from shaker failure and rig motion. The VERTI-G unit is effective with oil- and synthetic-base drilling fluids and minimizes waste volume, dramatically reducing disposal costs.

The VERTI-G Cuttings Dryer is available in the following types:

- Compact VERTI-G (Bottom Discharge or Screw Conveyor Discharge)
- Standard VERTI-G

Features and Benefits

Superior environmental performance

- Highly effective liquids/solids separation minimizes fluid content of cuttings prior to offshore discharge
- Drilling-fluid testing and analysis available through M-I SWACO to monitor system effectiveness
- Improved fluid separation reduces waste disposal volumes in zero-discharge applications and significantly lowers organic loading levels on the sea floor

Improved drilling-fluid recovery

- Effective separation reclaims high percentages of fluid from cuttings; also recovers whole mud lost from shaker failure, rig motion and screen blinding
- Valuable recovered fluids can be added back to the active mud system

Safety

- Explosion-proof motors and control panels are certified for use in CE/ATEX (Zone 1) areas
- Integrated, custom-built stands and walkways reduce risk to personnel

Operational Benefits

- Experienced M-I SWACO personnel maintain peak operating efficiency

- High-capacity, continuous-feed units have the throughput to keep up with drilling operations
- Programmable Logic Controller (PLC), with automatic warning indicators, monitors bearing temperatures, adsorbed current, torque and total operating hours. Ability to control auxiliary equipment from VERTI-G control panel (screw conveyor and flushing pump)
- Lifting hoist on stand allows unit maintenance without interfering with rig crane
- Hard-faced, replaceable, adjustable cone flights reduce wear and ensure optimal tolerance
- Horizontal screens allow higher wiping efficiency and less plugging

Ease of maintenance

- Flushing system prevents solids build up in the recovery area and minimizes shutdowns for cleaning
- Normal wear parts are easily accessible from the top of the unit; belts are easily changed without removing gear assembly
- Interchangeable hard-faced rotor blades protect rotor and gearbox from excessive erosion, minimizing main component failure

The VERTI-G process

Cuttings from shale shakers are conveyed to the VERTI-G Cuttings Dryer through a variety of site-engineered conveyance systems that include:

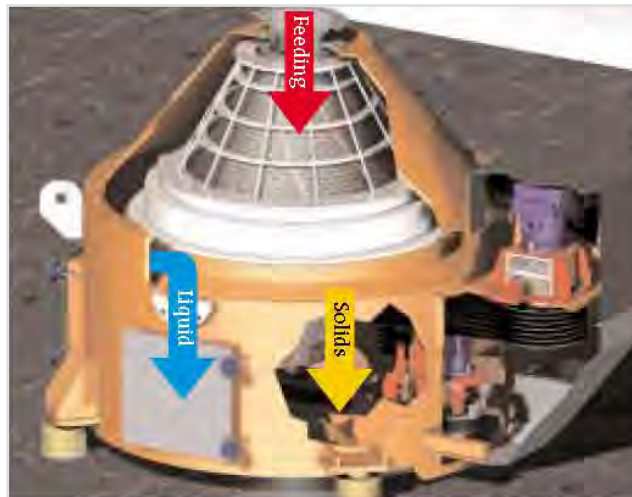
- Gravity feed
- Pneumatic transfer
- Vacuum transfer
- Screw conveyors

The flow of cuttings into the VERTI-G is PLC-controlled and continuously fed to yield optimum liquids/solids separation. Once cuttings are introduced into the dryer's charge hopper, widely-spaced, adjustable flights continuously direct cuttings to the screen surface. Flights are hard-faced to reduce wear and ensure optimum tolerance. Flights within the VERTI-G dryer create a rolling action that promotes further separation and prevents screen plugging. Under high G-forces created by the large cone diameter, liquids/solids separation

occurs instantly as cuttings make contact with the finer-mesh, high-capacity dryer screen while producing cleaner return fluid and drier solids discharge.

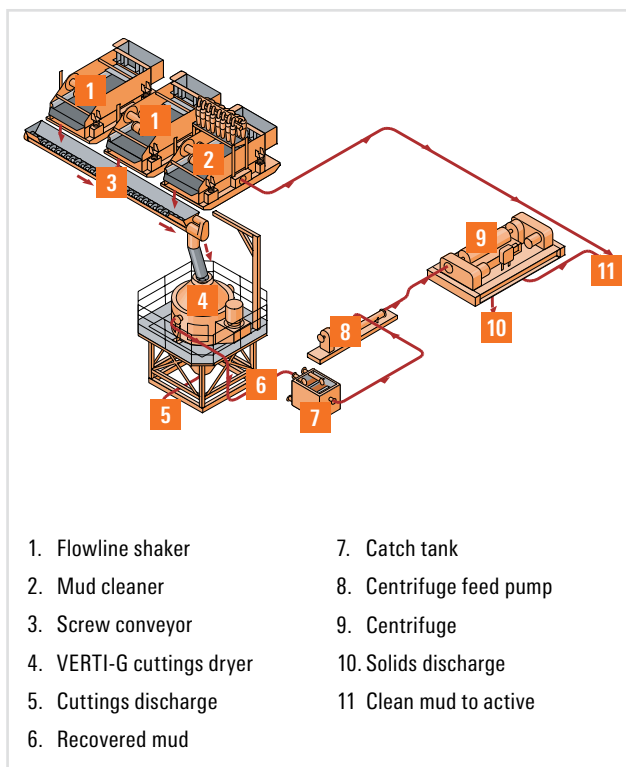
Solids are discharged at the screen bottom and fall by gravity into the water-flushed cuttings trough and shunted overboard. Solids can also be collected for onshore disposal. Processed liquids pass through the screen and then exit through one of two effluent openings.

The fluid is collected and pumped to the M-I SWACO decanting

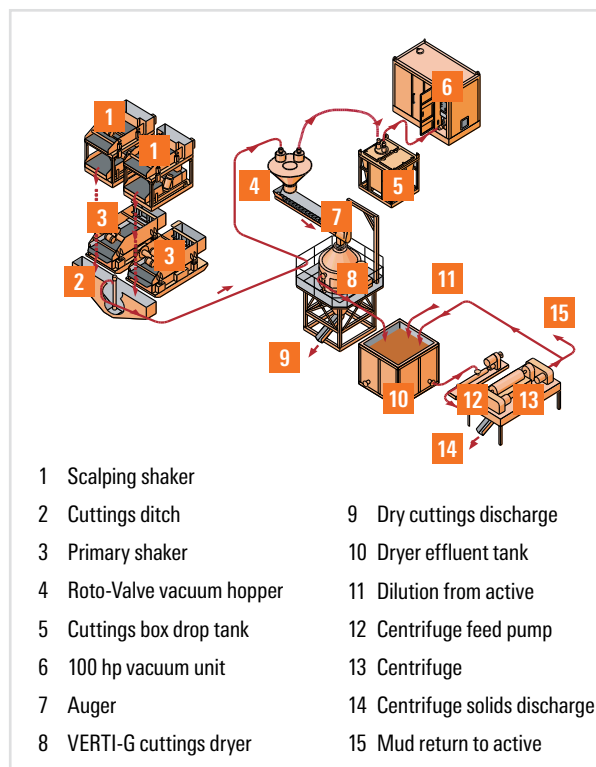


centrifuge for final processing and reuse in the active mud system.

VERTI-G with Auger Feed



VERTI-G with Roto Valve



Technical Specifications for the Compact VERTI-G Cuttings Dryer

CVG (Bottom Discharge)

CVG (Screw Conveyor Discharge)

All dimensions are expressed in inches (millimeters).

Specifications

Performance

- Capacity: 60 Ton/Hr
- Operating Speed: 800 rpm
- G-Force: 327 G

Rotating Assembly

- Base Cone Diameter: 36.0 in. (914 mm)
- Cone Height: 21.9 in. (556 mm)
- Cone Angle: 60°
- Rotor Blades: Replaceable - Castolin D048 Hard-faced
- Flights Tolerance: Adjustable

Gearbox CVG

- Type: Planetary [Model; ZG 3700/13]
- Gear Ratio: 80:1
- Torque, maximum: 6,638 ft-lb (9,000 Nm)
- Differential Range: 10 rpm
- Weight: 474 lbs (215 Kg)

Screens Schedule

- Openings: 0.024 in. (0.6 mm)
- Openings: 0.016 in. (0.4 mm)
- Openings: 0.012 in. (0.3 mm)

Fixed Drive

- Power: 400/460 V - 50/60 Hz, 3 Phase
- Main Drive Motor: 75 Hp (55 kW)
- Screw Conveyor Motor* (Qty 2): 5.4 Hp (4 kW)

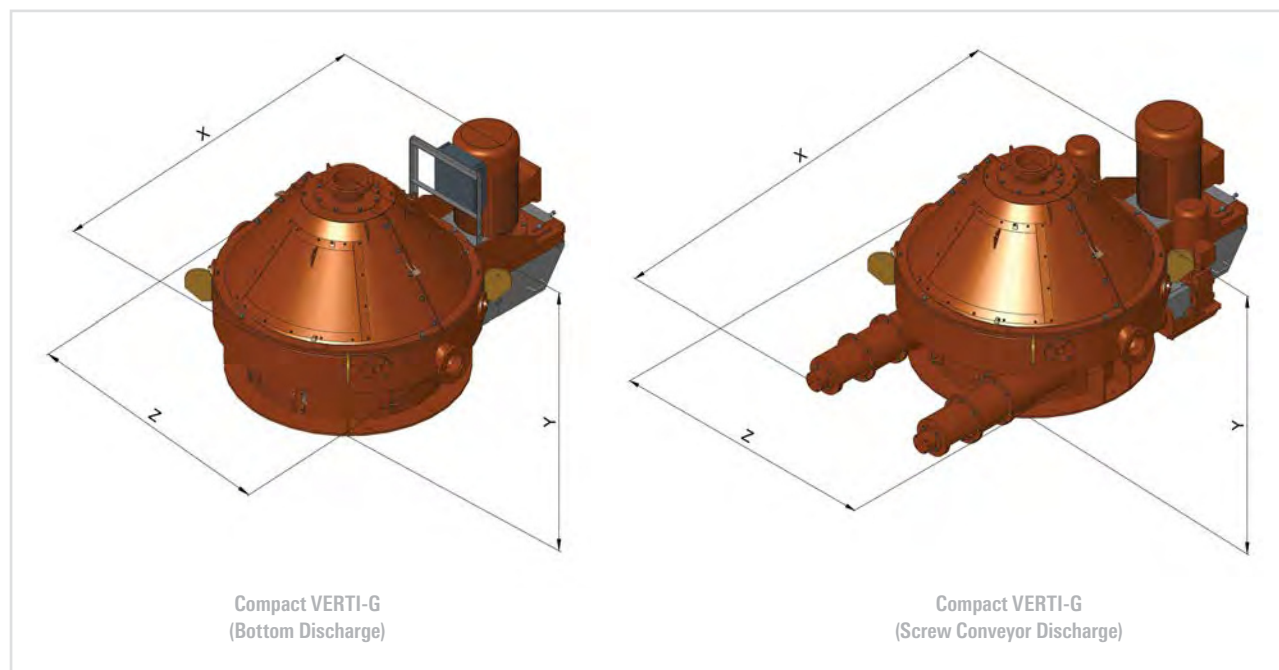
*Only on CVG (Screw Conveyor Discharge)

Certification

- CVG (Bottom Discharge): ATEX CE Ex II 2G c b IIB T3
- CVG (Screw Conveyor Discharge): ATEX CE Ex II 2G c b IIB T3
- IECEx Certification available from Q1/Q2 2014

Dimensions and Weights

	X	Y	Z	Weight
CVG (Bottom Discharge)	104.1 in. (2,645 mm)	66.3 in. (1,684 mm)	78.7 in. (2,000 mm)	9,480 lbs (4,300 Kg)
CVG (Screw Conveyor Discharge)	117.1 in. (2,975 mm)	66.3 in. (1,684 mm)	78.7 in. (2,000 mm)	11,023 lbs (5,000 Kg)
VG Control Panel	88.6 in. (2,251 mm)	59.8 in. (1,520 mm)	29.5 in. (750 mm)	886 lbs (402 Kg)



Technical Specifications for the Standard VERTI-G Cuttings Dryer

VGE-01

All dimensions are expressed in inches (millimeters).

Specifications

Performance

- Capacity: 60 Ton/Hr
- Operating Speed: 800 rpm
- G-Force: 327 G

Rotating Assembly

- Base Cone Diameter: 36.0 in.
(914 mm)
- Cone Height: 21.9 in. (556 mm)
- Cone Angle: 60°
- Rotor Blades: Replaceable - Castolin D048
Hard-faced
- Flights Tolerance: Adjustable

Gearbox VGE-01

- Type: Planetary [Model: ZG 4300/10]
- Gear Ratio: 80:1
- Torque, maximum: 8,113 ft-lb
(11,000 Nm)
- Differential Range: 10 rpm
- Weight: 739 lbs (335 Kg)

Screens Schedule

- Openings: 0.024 in. (0.6 mm)
- Openings: 0.016 in. (0.4 mm)
- Openings: 0.012 in. (0.3 mm)

Fixed Drive

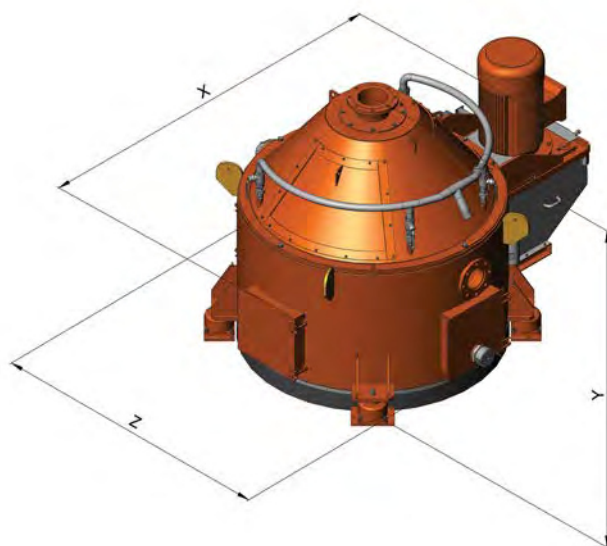
- Power: 400/460 V - 50/60 Hz, 3 Phase
- Main Drive Motor: 75 Hp (55 kW)

Certification

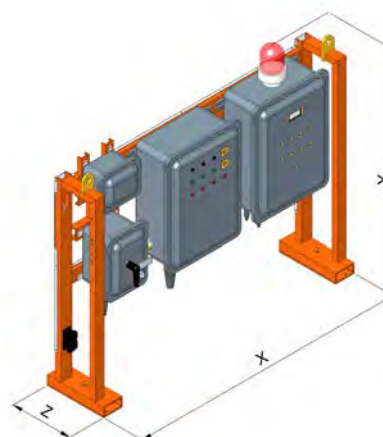
- VGE-01: ATEX CE Ex II 2G c b IIB T3

Dimensions and Weights

	X	Y	Z	Weight
■ Standard VERTI-G (VGE-01)	109.3 in. (2,775 mm)	73.8 in. (1,874 mm)	85.6 in. (2,174 mm)	11,795 lbs (5,350 Kg)
■ VG Control Panel	88.6 in. (2,251 mm)	59.8 in. (1,520 mm)	29.5 in. (750 mm)	886 lbs (402 Kg)



Standard VERTI-G



VERTI-G Control Panel