

# Vertical Cuttings Dryer Technology

## Vertical Cuttings Dryer Process Description

### Description

The Vertical Cuttings Dryer is a continuous process Centrifuge in which the flow of the feed material through the Centrifuge is automatically controlled to obtain liquid-solid separation. It is not a solids bowl Centrifuge but is constructed from wedge wire material encasing a mesh screen, which allows the liquid to drain off.

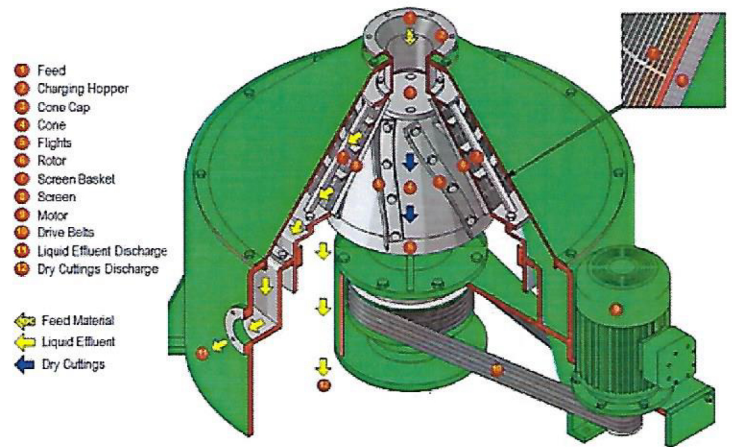
The below diagram shows the flow of material through the Vertical Cuttings Dryer separation chamber.

The feed is introduced through the inlet hopper and is immediately accelerated to machine speed by the cone cap and the flights and is directed to the screen surface. Centrifugal forces inside the Centrifuge will vary up to 352 "Gs" and liquid-solid separation starts immediately upon contact with the screen surface. The flow rate of cuttings over the screen is controlled by the speed differential between the cone and the basket and by the flights, which also roll the cuttings to further assist separation. The cuttings are discharged from the base of the separation chamber and fall by gravity overboard or into cuttings containers for shipping to shore. At this point the cuttings will typically have 2% to 5% oil retention. Note: Drill cutting oil retentions are dependent upon the drilling fluid properties and the amount of fluid that is discharged with the cuttings from the Shakers. The free liquid in the cuttings will pass through the wedge wire screen and is collected in the launder area of the device. Additional solids separation occurs as the fluid passes through the drill cuttings cake that accumulates on the screen in a similar process to a Filter Press. The recovered liquid will then exit the unit at the effluent openings and is collected in a retention tank. From there the liquid is fed to a Decanting type Centrifuge to remove most of the fine solids before being returned to the Mud System.

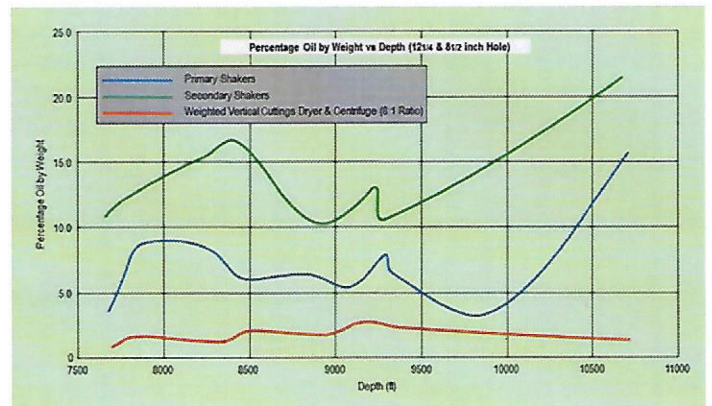
From a maintenance point of view, normal wear parts are easily accessible from the top of the machine. Belts can be easily changed without removing the gear assembly and the entire gear assembly can be removed with little effort. The Vertical Cuttings Dryer is designed for high speed service with particular care taken to ensure vibration free operation. Each component making up the rotating assembly is individually balanced so that all parts are completely interchangeable without disturbing the balance of the assembly. All in all, the unit is well designed to cope with the rugged nature of oilfield application.

It is important when doing the design and installation of the Vertical Cuttings Dryer package to account for process operation optimization and also account for maintenance of the package

## Vertical Cuttings Dryer Process Schematic

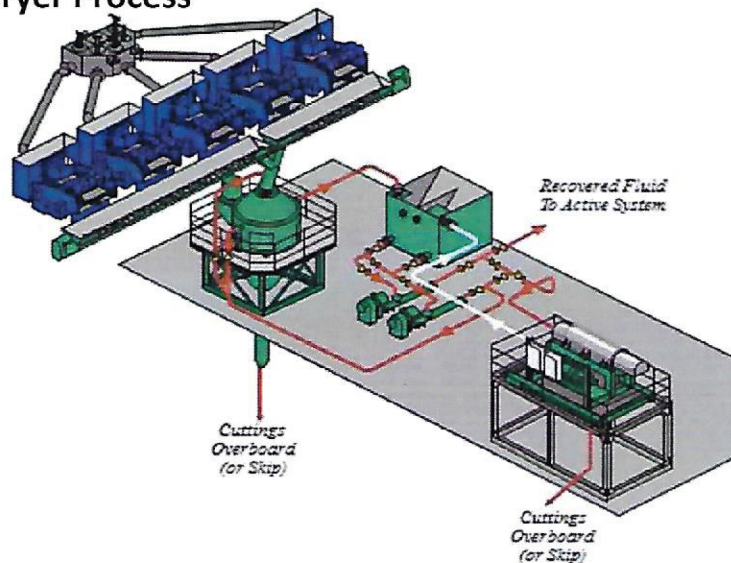


## Typical Performance Graph

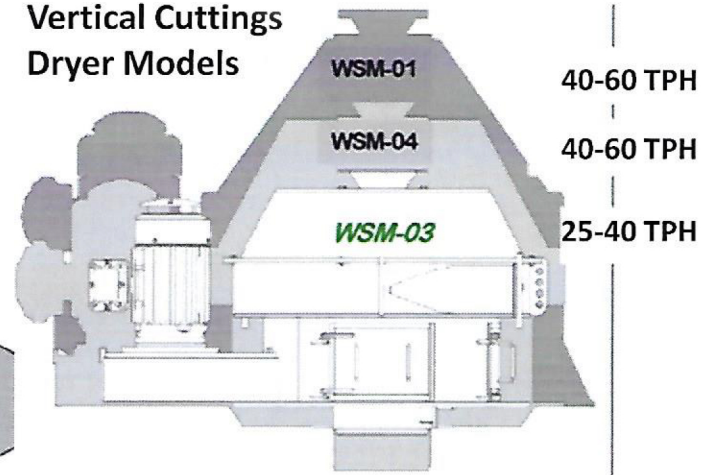




## Vertical Cuttings Dryer Process



## Vertical Cuttings Dryer Models



The Vertical Cuttings Dryer is a vertical axis centrifuge designed to reclaim free liquid from drilled cuttings. It works on the principle of applying accelerated G forces to the cuttings as they transport across a mesh screen, thereby allowing the liquid and solids to separate. The liquid is recovered for re-use and the dried cuttings are discharged as waste. Technical specifications for the unit are as follows

### Dimensions Without Stand

Model	Length	Width	Height:	Weight:
Vertical Cuttings Dryer (VCD-04)	8.10 ft	7.3 ft	7.3 ft	7,700 lbs
	2,500 mm	2,200 mm	1,800 mm	3,492 kg

### Power Requirements

Model	Voltage	Electrical Classification	Power Output
Vertical Cuttings Dryer (VCD-04)	460V / 60hz OR 380V / 50hz	Class 1 – Division 1 Explosion Proof Group D ( Temperature Rating of 55deg C	75 HP / ½ HP (57 Kw / 0.4 Kw)
	3 Phase (Dual Rate Motor)		

### Operational Parameters

Model	Capacity	Maximum Bowl RPM	'G' Force	Gearbox Ratio
Vertical Cuttings Dryer (VCD-04)	40- 60 mt/hr (10 -15 kg/s)	887.5 rpm	403 'Gs'	71:1'

### Screen Technical Data

Model	Mesh	Inches/mm	Equiv. Micron	Screen Surface Area
Vertical Cuttings Dryer (VCD-04)	32	0.0197 in	508	13.3 sq.ft (1.25 sq.m)
	42	0.015 in	381	
	60	0.0098 in	248	
	65	0.0083 in	210	

### Other Specifications:

G Force top of screen: 143.19 G

G force bottom of Screen: 04.92 G

**G force formula:** Bowl diameter in inches x rpm squared x .0000142

New Cairo, Egypt  
5th Settlement,  
North 90th Street  
Villa 238  
T: +20225381693  
F: +20225381693  
info@idecint.com

Dubai, UAE  
JLT, Cluster W, Liwa Heights  
Office 2301  
P.O. Box 31956, Dubai  
T: +971 4 4518052  
F: +971 4 4518032  
info@idecint.com