



# DE-SERIES™ CENTRIFUGES



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Coupled with over 60 years of industry leading experience in Solids Control, the Derrick® centrifuge line offers the flexibility and dependability of efficient solids-liquid separation. With safety, reliability, and capacity as a few of the key features of a Derrick centrifuge, this product offers the operator the ability to make on the fly adjustments with the Variable Frequency Drive (VFD™) technology and remote monitoring and operating capabilities.

The rugged design inherent with every Derrick centrifuge allows operators to receive the benefits of maximizing solids removal efficiency while providing unmatched durability in the most challenging environments and applications. Derrick centrifuges are manufactured to serve a variety of markets within the Mining & Industrial, Oil & Gas Drilling, and Civil Construction & Aggregates industries.





# VFD™ (VARIABLE FREQUENCY DRIVE)

## VFD Control

- Allows independent adjustment of bowl speed, conveyor differential speed, and feed rate at the control cabinet
- Enables on-the-fly control of centrifuge parameters for optimal solids removal efficiency in a wide variety of applications

## Automated Load Sensing and Feed Pump Control

- Provides automated process optimization
- Dynamically adjusts feed rate based on bowl and conveyor torque
- Ensures maximum processing rate as conditions change
- Prevents rotating assembly overload and associated downtime
- Safe, consistent, and reliable performance for unattended operation

## Automated Start Up and Shut Down Routines

- Controls all motor acceleration during start up and shut down to ensure safe operation, protecting equipment and personnel
- Includes automatic clean out during shutdown to remove process material from the rotating assembly, extending life and reducing maintenance requirements

## Real-Time Diagnostics

- Issues detailed alarm and fault messages to facilitate troubleshooting, reducing maintenance time and cost
- Monitors and logs main bearing temperatures, feed rates, and motor torques to aid in preventative maintenance and extend machine life



Derrick Centrifuge - Operation		
Bowl	Conveyor	Pump
Input RPM 3200	Input RPM 40	Manual - Input GPM 75
Actual RPM 3200	Actual RPM 40.0	Actual GPM 75.0
Torque % 25.2	Torque % 25.9	
RUNNING	STOP	RUN STOP
LE 75 °F	Status	Clean Out
SE 75 °F	Bowl VFD	Conv VFD
	Alarms	Pump VFD
	Faults	Home

Derrick Centrifuge - Status		
Bowl	Conveyor	Pump
Bearing Temperatures		Speed Feedback
Liquid End 75 °F	Solid End 75 °F	Bowl 0
Safety	Air Conditioner	Hours
E-Stop Switch Closed	Status OK	Current Run Time 0.2
Vibration Switch Closed	Enclosure Temp 84.0 °F	Centrifuge Total 000000.2
Speed Switch Closed	Test A/C	Controller Total 000000.3



# REMOTE MONITOR AND CONTROL OPTIONS



## Enables Remote Access to the Centrifuge Control System

- Monitor and control all operating parameters
- View bowl/conveyor motor torque, feed rate, and bearing temperature trends
- Access setup, diagnostics, and status screens

## Allows Operators to Locate Outside Hazardous Working Environments

- Provides safe working environment
- Reduces personnel exposure to potentially harmful conditions

## Enables Offsite Technical Support and Assistance

- Monitor performance and ensure quality control
- Assist in troubleshooting to minimize downtime
- Optimize centrifuge parameters for maximum solids removal efficiency



## Option #1: Profibus Connection

- Connects a single centrifuge to end-user's control system
- End-user programs and designs centrifuge control screens in their control center
- Ideal for integration of a single unit into a larger package (e.g. a VFD controlled dewatering package or mud treatment system)

## Option #2: Network Connection

- Connects multiple centrifuges (up to four) to rig control center
- Includes routers and headless PC to connect to control center
- Enables offsite access via VPN connection to rig network
- Allows up to three users to monitor connected centrifuges remotely at one time
- Ideal for offshore installations with multiple centrifuges installed and centralized rig control center

## Option #3: Wireless Connection

- Connects a single centrifuge to customer's PC or laptop via web portal
- Includes cellular modem with wireless antenna for offsite access
- Includes hardwired router to allow direct connection onsite
- Allows a user to remotely monitor multiple centrifuges simultaneously
- Ideal for land rig installations and small fleets

## Option #4: Cloud-Based Fleet Management

- Connects multiple centrifuges via wireless or hardwire connection to internet with GPS tracking
- Uploads and stores data on cloud server
- Allows access to entire fleet through single website
- Enables offsite personnel to locate, manage, monitor, and control all units
- Provides custom report generation tools
- Ideal for large, geographically dispersed fleets

**FOUR REMOTE MONITOR AND CONTROL OPTIONS PROVIDE FLEXIBILITY FOR DIFFERENT APPLICATIONS AND INSTALLATIONS**



DE-1000 Control Cabinet



# CONSTRUCTION



## Engineered for High Volume Solids Removal

- Large feed chambers to handle high feed rates
- Robust flight design to convey large quantities of high density solids
- Steep and short beach to enable high volume solids discharge
- Designed to handle heavy weight drilling fluids and support high circulating rates in oil & gas drilling
- Designed to process feed slurries with highly abrasive solids in mining and aggregate operations
- Designed to manage high feed rates and solids loading for civil construction applications

## Built for Durability and Reliability

- Fully stainless rotating assemblies, both bowl and conveyor, to prevent corrosion and increase asset longevity in harsh operating conditions
- Conveyor flights have tungsten carbide tiles to protect from wear and damage
- Conveyor features hardened/replaceable feed nozzles and feed accelerator to extend conveyor life
- Bowls have hardened/replaceable solids discharge inserts and plows to reduce repair costs
- Built to last with minimal repair costs and downtime, reducing total cost of ownership

# AWARD-WINNING SERVICE & HSE



## Award-Winning After Sales Service

- One-year Derrick warranty provides protection against defects in materials and workmanship
- 24-hour on-call technical support ensures timely assistance
- Dedicated centrifuge technicians available to deploy worldwide for repair and service
- Derrick factory repair and remanufacture with nine-month warranty
- Separately available commissioning service to help start new operations and jobs
- Multiple levels of training available: operator, electrical and mechanical maintenance, operational theory and optimization

## Health, Safety, & Environment (HSE)

- Explosion proof components and electrical control enclosures
- VFD control cabinet purge system ensures safe operation in hazardous locations
- Lift assist for case covers to prevent personnel injury
- Automatic shutdown for high vibration and motor overload to protect equipment from damage and protect personnel from harm
- Guards and covers on all rotating components to prevent personnel injury
- Detailed equipment manuals and equipment labeling for safe operation
- Optional proximity sensors on case cover and guards

# DE-7200™ VFD

## FEATURES & BENEFITS

### Bowl

- High volumetric flow rates provide processing capacity for the most demanding applications
- Driven by a 150 HP motor, the bowl attains 2750 G's at 3000 RPM to separate fine solids at high feed rates
- High speed and high capacity enable maximum solids removal efficiency and finest cut points

### Conveyor and Gearbox

- Axial and radial combination conveyor increases throughput and reduces fluid turbulence at liquid end of bowl for increased solids settling
- With 70,806 in-lbs maximum torque and 60 HP motor, the conveyor handles high solids volume without overloading or packing off
- Overload clutch protects gearbox from damage due to excessive torque

### Control System

- Control cabinet can be separated from the centrifuge for flexibility during installation
- Non-hazardous location (switchgear room) control panel available
- Variable frequency drive control for ultimate operational flexibility and performance optimization
- Load sensing and feed pump control automatically adjusts feed rate for optimal processing efficiency



DE-7200™ with Control Cabinet

# DE-7200

## SPECIFICATIONS

DE-7200	
<b>CENTRIFUGE</b>	
Type:	Decanter (continuous flow)
Bowl Inside Diameter:	21.4" (544 mm)
Bowl Effective Length:	72" (1829 mm)
High G Maximum:	2750 G's
Bowl Speed Range:	up to 3000 RPM
Conveyor Differential Speed Range:	1-90 RPM
<b>CONVEYOR</b>	
Type:	Axial/Radial Hybrid
Lead Direction:	Left Hand
Movement Related to Bowl:	Leading
<b>GEARBOX</b>	
Type:	Three Stage - planetary
Ratio:	48:1
Torque Maximum:	70,806 in-lb (8000 N·m)
<b>ELECTRICAL</b>	
Bowl Drive:	150 HP (112 KW) Motor and VFD
Conveyor Drive:	60 HP (45 KW) Motor and VFD
Pump Drive:	30 HP (22 KW) VFD
Control System:	Intuitive color operator interface with PLC control and dedicated Operator Interface (OI) terminal
<b>OPTIONS</b>	
Electrical Configurations:	400/480/600 VAC Input
Electrical Cabinet:	NEMA 4 (non-explosion proof) rating NEC Class I, Division I, Groups C&D (explosion proof) rating



# DE-1000™ SERIES

## FEATURES & BENEFITS



### DE-1000™ LP (Low Profile) VFD Dual Voltage

- Driven by a 50 HP motor, the bowl attains up to 2575 G's at 3600 RPM to separate fine solids at high feed rates
- 24,782 in-lbs maximum conveyor torque with 52:1 gearbox and 20 HP conveyor drive motor
- Modular, low profile construction allows control cabinet and centrifuge to be installed separately or as a single unit
- Bowl, conveyor, and feed pump all VFD-controlled
- Automatic load sensing and feed pump control
- Capable of operating on 460V/3phase and 480V/3phase at 60Hz or 380V/3phase and 400V/3phase at 50Hz without any loss in performance
- Can be deployed around the world without changing electrical components or motors



DE-1000 LP VFD Dual Voltage

### DE-1000 FHD™ (Full Hydraulic Drive) Dual Voltage

- Driven by a 50 HP motor, the bowl attains up to 2300 G's at 3400 RPM to separate fine solids at high feed rates
- 18,800 in-lbs maximum conveyor torque with Rotodiff hydrostatic conveyor drive
- Independent adjustment of bowl speed and conveyor differential speed for optimal performance
- Automatic feed pump cycling and conveyor boost reduce the likelihood of rotating assembly overload and associated operational downtime
- Automatic safety shutdown for hydraulic fluid high temperature, high pressure, or low fluid level
- Capable of operating on 440V/3phase and 460V/3phase at 60Hz or 380V/3phase and 415V/3phase at 50Hz without any loss in performance
- Can be deployed around the world without changing electrical components or motors



DE-1000 FHD Dual Voltage

### DE-1000 LP GBD™ (Gearbox Drive)

- Driven by a 50 HP motor, the bowl attains up to 3180 G's at 4000 RPM at 60Hz and up to 2100 G's at 3250 RPM at 50Hz to separate fine solids at high feed rates
- Offers limited operational flexibility with fixed conveyor differential speed and bowl speed adjustment requiring sheave change
- Budget-priced offering for applications with consistent feed slurries
- Compact footprint and lightweight, allowing four units to fit in standard 40 foot container
- Reduced transportation, shipping costs, and ease of installation on smaller rigs and job sites



DE-1000 LP GBD

# DE-1000

## SPECIFICATIONS

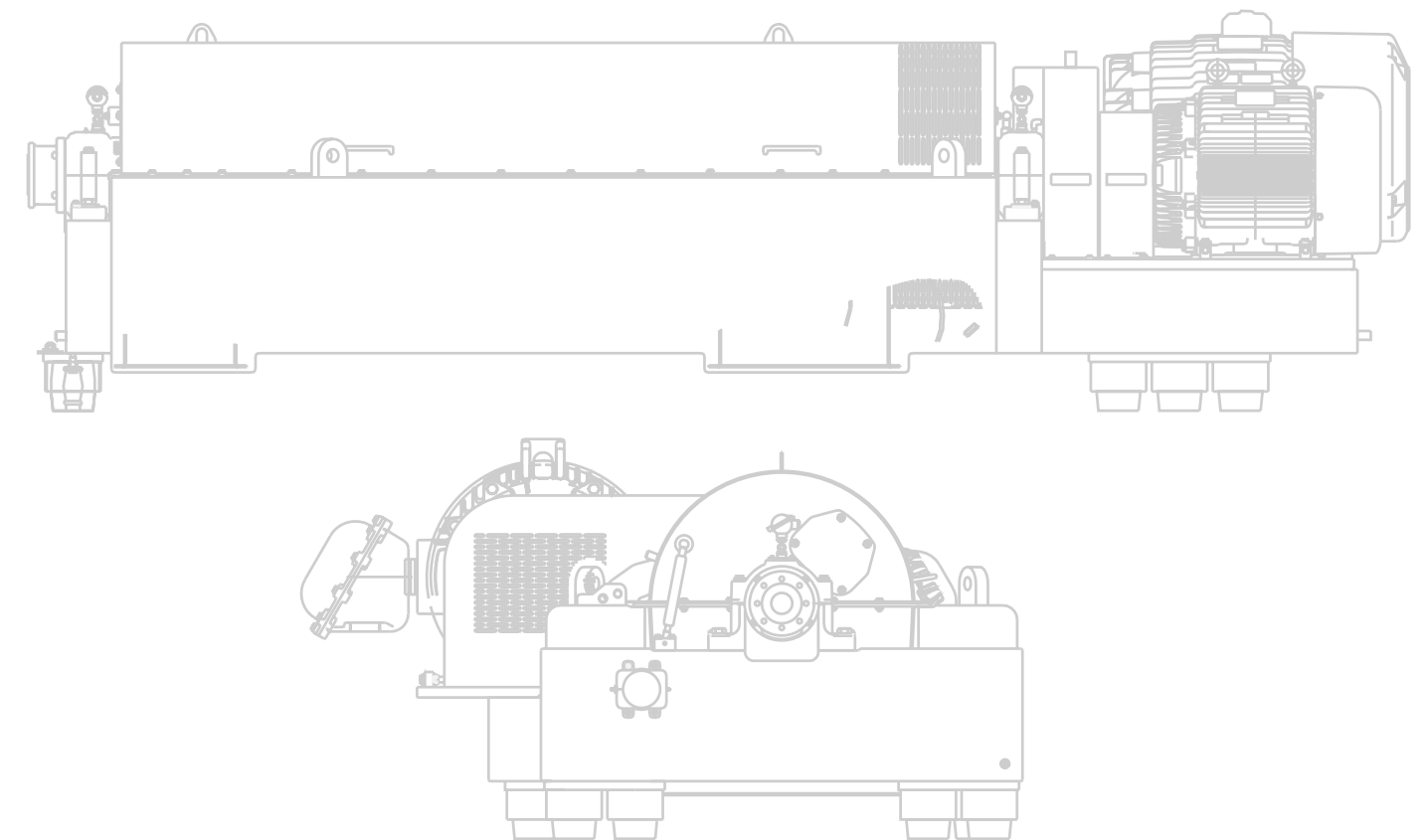
DE-1000 SERIES			
CENTRIFUGE	VFD	FHD	GBD
<b>Type:</b>	Decanter (continuous flow)	Decanter (continuous flow)	Decanter (continuous flow)
<b>Bowl Inside Diameter:</b>	14" (356 mm)	14" (356 mm)	14" (356 mm)
<b>Bowl Effective Length:</b>	49" (1238 mm)	49" (1238 mm)	49" (1238 mm)
<b>Bowl Material:</b>	316 Stainless Steel	316 Stainless Steel	316 Stainless Steel
<b>High G Maximum:</b>	2575 G's	2300 G's	3180 G's
<b>Bowl Speed Range:</b>	up to 3600 RPM	up to 3400 RPM	up to 4000 RPM
<b>Conveyor Differential Speed Range:</b>	1-100 RPM	3-90 RPM	Fixed speed based on gearbox ration
CONVEYOR			
<b>Standard Type:</b>	Helical - Radial	Helical - Radial	Helical - Radial
<b>Optional Type:</b>	Helical - Axial	Helical - Axial	Helical - Axial
<b>Lead Direction:</b>	Left Hand	Left Hand	Left Hand
<b>Movement Related to Bowl:</b>	Lagging	Lagging	Lagging
GEARBOX			
<b>Type:</b>	Two Stage - Planetary	Roto - Differential	Two Stage - Planetary
<b>Ratio:</b>	52:1	N/A	52:1 or 125:1
<b>Torque Maximum:</b>	24,782 in-lb (2800 N-m)	18,800 in-lb (2124 N-m)	17,400 in-lb (1965 N-m) for 52:1 25,000 in-lb (2824 N-m) for 125:1 Gearbox
ELECTRICAL			
<b>Bowl Drive:</b>	50 HP (37 KW) Motor and VFD	50 HP (37 KW) Motor	50 HP (37 KW) Motor
<b>Conveyor Drive:</b>	20 HP (15 KW) Motor and VFD	Hydraulic	N/A
<b>Pump Drive:</b>	15 HP (21 KW) VFD	N/A	N/A
<b>Control System:</b>	Intuitive color operator interface with PLC control and dedicated Operator Interface (OI) terminal dedicated Operator Interface (OI) terminal	Independent hydraulic control valves and associated pressure gauges for bowl and conveyor speeds	On/Off control panel for centrifuge and feed pump

# WEIGHTS & DIMENSIONS

EQUIPMENT		DIMENSIONS			
Model	Options	Width in (mm)	Length in (mm)	Height in (mm)	Weight lbs (kg)
<b>DE-7200 VFD (Variable Frequency Drive)</b>	Centrifuge	81-5/16 (2065)	155-13/16 (3958)	64-5/8 (1641)*	14000 (6351)
	Electrical Control Cabinet	31-9/16 (802)	69-7/16 (1763)	79-5/16 (2015)	2010 (912)
<b>DE-1000 LP VFD (Variable Frequency Drive)</b>	Low Profile Centrifuge/Cabinet	66 (1676)*	159-13/16 (4059)	67 (1702)*	7300 (3311)
	Electrical Control Cabinet	55-3/8 (1407)	41 (1041)	50-15/16 (1294)	1500 (680)
<b>DE-1000 FHD (Full Hydraulic Drive)</b>	Dual Voltage Centrifuge	83-1/2 (2121)*	115 (2921)	70-9/16 (1792)*	9000 (4082)
<b>DE-1000 LP GBD (Gearbox Drive)</b>	Low Profile Centrifuge	69-15/16 (1776)*	110 (2794)	66-1/8 (1679)*	5200 (2359)

\* Centrifuge Bowl Cover Open

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**The Derrick Family** is a community comprised of thousands of individuals in countries around the globe. We share a collective interest in **Community Enrichment** through our avid support of industry associations and charitable organizations. Aware of our worldwide impact, we support the recovery of natural resources in the most energy-efficient manner, placing vital importance on **Global Sustainability**. Our **Award-Winning Service** department works around-the-clock to provide unparalleled support to customers around the world.

Our pioneering spirit is best demonstrated by our long-term commitment to **Continuous Innovation** which drives manufacturing of our **Leading-Edge Solutions**. Clients partner with us to overcome their most difficult fine-separation challenges and we deliver with our team of **World-Class Technologists**, many of whom have been with us for well over two decades. Our vertically integrated approach ensures product dependability and reinforces our **Quality Commitment**.

We are a **Global Family** focused on **Pioneering Technology**.



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