

# CD-500 High-Volume Fully-Hydraulic Centrifuge

High-powered hydraulic centrifuge designed for exceptional low gravity solids (LGS) separation and barite recovery in huge feed rate operations

## APPLICATIONS

Drilling projects that require the most efficient fluids/solids separation, along with barite recovery and dewatering, especially where high processing volumes are expected.

## PROBLEMS

Conventional oilfield centrifuges cannot process large volumes of drilling fluid *and* meet all of the requirements for effective solids removal, barite recovery and strict environmental compliance.

## SOLUTIONS

M-I SWACO has designed the CD-500 HVFH decanting centrifuge to process large volumes of solids, improve barite recovery and produce solids that meet environmental regulations for disposal. Automatic PLC monitoring and adjustment compensates for varied drilling conditions and maintains maximum solids/fluids separation throughout the drilling operation.

## ECONOMICS

The CD-500 HVFH centrifuge recovers valuable drilling fluid and barite while reducing the total volume of drilling waste that must be transported for injection, disposal or remediation.

## ENVIRONMENTAL

By recovering more fluid and producing drier cuttings with a smaller volume, the CD-500 HVFH centrifuge helps operators reduce their drilling waste and disposal volumes.



**The CD-500\* HVFH** features a double accelerator chamber and two different feed tubes, allowing its operational mode to be adapted for the targeted process: LGS removal or barite recovery.

The innovative CD 500 HVFH high-volume, fully hydraulic centrifuge is designed as an alternative to the standard CD 500 FH. The new unit is equipped with updated PLC software and larger and more powerful motors engineered to refine separation at higher feed rates.

To allow increased flow rates and reduce wear issues, the new conveyor features a quasi axial design with tungsten carbide tiles on flights. The main bearings are installed in split pillow blocks for oil-forced lubrication to improve both maintenance procedures and protect against contamination.

## Safety Features

- Torque limiter with a torque-limiter switch on the back drive protects the gearbox sun-wheel shaft
- A vibration sensor will stop the centrifuge in the event of high vibration
- Micro-switches on the belt guards and vessel prevent centrifuge startup while servicing
- Pressure sensors monitor the main and back drives
- Temperature sensors monitor the bearings and the hydraulic oil to prevent overheating

## Certifications

ATEX: Ex II 2 G c b IIB T3

## Environmental Operating Conditions

Operating temperature: 0° C to 40° C (32° F to 104° F)

Storage temperature: -20° C to 40° C (-4° C to 104° F)

Higher temperature shall be met (submitted by a specific assessment) and it must be specified on the purchase order (which must be managed as a "special order").

## Noise Level

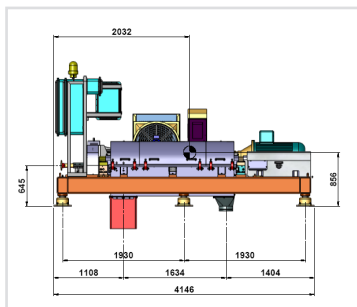
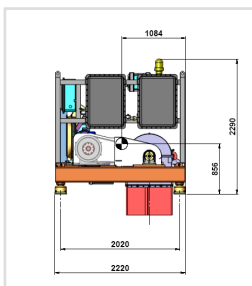
83 dBA (calculated A-weighted emission sound pressure level at 1 meter).

## Control System

The system can be controlled and monitored in either manual or automatic mode and the two independent hydraulic motors provide fully variable adjustments for bowl speed and differential values. This capacity is made possible through the on-board screen that also maintains adequate control of the sensors to prevent torque overload, overheating of bearings and hydraulic oil, overpressures, excessive vibration, or inadvertent start-up while servicing.

## FEATURES AND BENEFITS

- High volume processing
- High G-Force
- Exceptional Sigma value
- Fully variable bowl speed
- Fully variable differential value
- Variable speed pump improves solids control efficiency
- Double acceleration chamber
- Two feed tubes available
- Stainless steel bowl and conveyor
- Tungsten carbide tiles on conveyor flights
- Automatic and manual control
- Programmable Logic Controller (PLC) protects, controls and optimizes centrifuge performance to avoid solids pack-off
- Higher torque resistance than conventional centrifuges
- Solids pack-off removal device
- 24/7 technical assistance



## Physical Data

Overall dimension and weight	
Length X	4,146 mm (163.23 in.)
Height Y	2,290 mm (90.16 in.)
Width Z	2,220 mm (87.40 in.)
Total weight	6,401 kg (14,112 lb)
Center of gravity position	
Length XG	2,032 mm (80.00 in.)
Height YG	856 mm (33.70 in.)
Width ZG	1,084 mm (42.68 in.)
Nozzle schedule	
Feed pipe flange	2 in. with ANSI B 16.5
Liquid-discharge connection flange	1 x 8 in. Victaulic
Solid-discharge connection flange	810 mm x 450 mm (31.89 in. x 17.72 in.)

## Physical Data

Centrifuge	
Bowl length (internal)	1,715 mm (67.52 in.)
Bowl diameter (internal)	472 mm (18.58 in.)
Maximum design speed	3,400 rpm
Operating speed range	0 – 3,200 rpm
Maximum G-force	2,656 g (at 3,200 rpm)
Maximum Sigma value	4,607 m <sup>2</sup> (at 3,200 rpm)
Conveyor speed range	1 – 40 rpm
Conveyor pitch	130 mm (5.12 in.)
Maximum solids discharge rate	11.8 m <sup>3</sup> /h (51.8 gal/min)
Hydraulic capacity (water)	71.1 m <sup>3</sup> /h (313 gal/min) at 3,250 rpm 155 m <sup>3</sup> /h (682 gal/min) at 1,700 rpm
<b>Gearbox and Drive</b>	
Type	Akim 3700/10 (planetary gearbox)
Ratio	80:1
Max torque	8,500 Nm (6,269 ft-lb)
Power required	270 kW (360 HP)
Voltage	400V @ 50Hz, 3Ph - 460V @ 60Hz, 3Ph
Drive system	Hydraulic, independent systems for bowl and scroll drive
Electric motor	90 kW (120 HP)
Control system	PLC in automatic or manual control mode

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