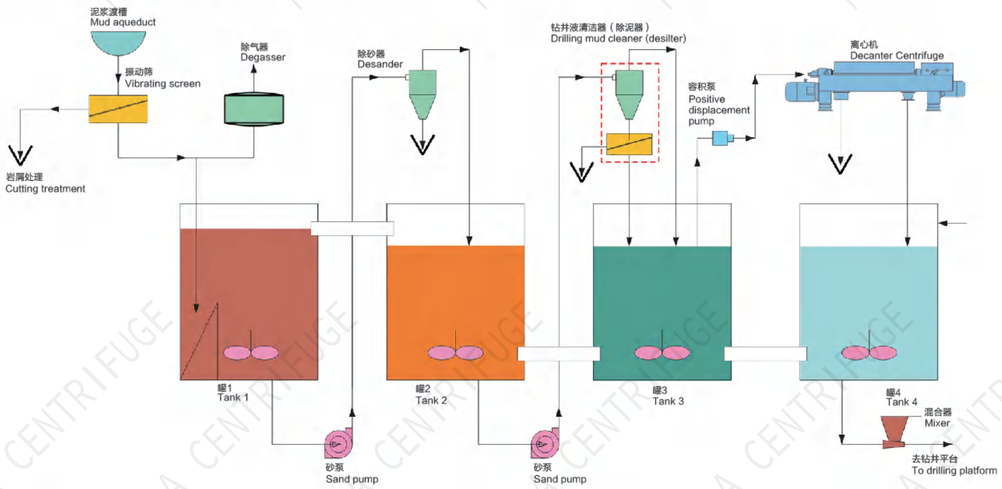
固控成套装置
COMPLETE SOLID CONTROL SYSTEM

▶ 应用领域
APPLICATIONS

- 清洗井底 Well bottom cleaning
- 携带岩屑 Cutting carrying
- 冷却和润华钻头及钻柱 Cooling and lubrication of drill bit and drill string
- 控制与平衡底层压力 Control and balance of bottom pressure
- 形成泥饼保护井壁 Cake forming to protect well walls
- 悬浮钻屑和加重剂沉砂 Sand setting of suspended drill cuttings and weighting agent

▶ 水基泥浆固控系统
WATER-BASE MUD SOLID CONTROL SYSTEM



▶ 工作体系
Electric Control System

分级清除有害固相是华大固控设备体系的工作原理，大体上分有四级：振动筛、除砂器、除泥器、离心机，每级按照该级设备的分离点进行固相分离。

Level-by-level removal of harmful solids is the working principle of Huada Centrifuge's solid control equipment system, which is roughly divided into four levels: shale shaker, desander, desilter and decanter centrifuge. The solid-phase separation is conducted according to the separation point of the equipment at corresponding level.

固控成套装置专用—LW卧式螺旋卸料沉降离心机
COMPLETE SOLID CONTROL DEVICE (DEDICATED) – LW DECANTER CENTRIFUGE

LW钻井液离心机是针对去除钻井液中的废弃固体和细小颗粒设计的，适用于含有水、固混合物的钻井液及传统油基钻井液。

LW drilling mud decanter centrifuge is designed to remove waste solids and fine particles in the drilling mud. It is applicable to the drilling mud containing a mixture of water and solids and traditional oil-based drilling mud.

▶ 主要结构特点
MAIN STRUCTURAL FEATURES

立式机座设计，电机与转鼓对称布局，机器运行平稳，振动水平低。
Vertical base design with symmetrically arranged motor and bowl, and smooth operation of the machine with low vibration level.

转鼓、螺旋等主要零部件采用耐蚀不锈钢或双相钢制造，极限转速高，分离因数大。
Main parts and components such as bowl and scroll made of corrosion-resistant stainless steel or dual-phase steel, with high limit speed and large separation factor.

变频控制，转鼓、螺旋转速分别无级可调。
Frequency conversion control, and steplessly adjustable speeds of both bowl and scroll.

螺旋输送器推料表面喷涂耐磨合金或镶焊硬质合金。
Pushing surface of the screw conveyor sprayed with wear-resistant alloy or inlaid with hard alloy.

摆线齿轮、行星齿轮和液压差速器三种差速系统，差速调节范围大，工况适应性强。
Three differential systems, i.e. cycloidal gearbox, planetary gearbox and hydraulic gearbox (Rotodiff), with a wide range of differential adjustment and strong adaptability to working conditions.

多重安全保护：转速、差速检测，过振动保护，电机过载过热保护，轴承温度监控，螺旋推料扭矩保护、密闭隔爆、惰性气体防护等。
Multiple safety protections: speed, differential speed detection, over-vibration protection, motor overload and overheating protection, bearing temperature monitoring, scroll conveyor torque protection, gas-tight explosion-proof deign, inert gas protection, etc.

JG型专用橡胶减振器，无需地脚螺栓固定。
JG dedicated rubber shock absorber, fixing with anchor bolts not required.

▶ 技术参数
TECHNICAL PARAMETERS

项目 Items	型号 Models						
	LW220x880	LW355x1460	LW450x1800	LW530x2120	LW650x2800	LW720x2665	LW1000x3000
转鼓直径 Bowl Diameter（mm）	220	350	450	530	650	720	1000
长径比 L / D	4	4.17	4	4	4.3	3.7	3
转鼓转速 Bowl Speed（r/min）	4800	4000	3500	3200	2500	2000	1500
分离因数 Separation Factor	2840	3132	3083	3035	2270	1600	1258
主电机功率 Main motor power (kW)	11	30	45	75	90	110	132
机器重量 Weight (kg)	1000	2800	3600	4200	9600	12000	16000
外形尺寸 Dimension (L × W × H)	2234x740x781	336x920x1060	4200x1090x1250	4885x1230x1350	5400x1750x1600	5365x3160x1510	5180x2450x1950

固控成套装置—GZS振动筛
COMPLETE SOLID CONTROL SYSTEM – GZS SHALE SHAKER

钻井液振动筛是固控设备的主要设备之，振动筛使用的效果不但直接决定后几级固控设备的工作效能，而且影响整个钻井工程或定向穿越工程工况。

The drilling fluid shale shaker is one of the main equipment of the solid control equipment. The effect of the shale shaker not only directly determines the working efficiency of solid control equipment at subsequent levels, but also affects the working conditions of the entire drilling engineering or HDD Engineering.

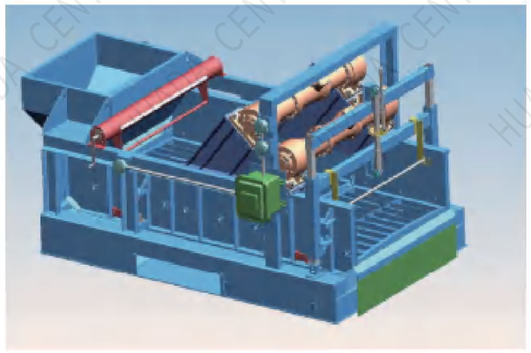
采用ANANY有限元分析，优化结构设计。
Adopt ANANY limited element analysis to optimize structure.

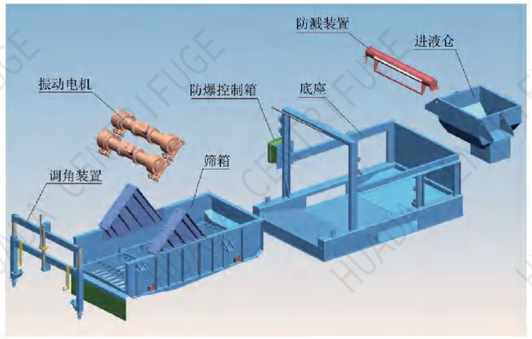
采用SS304或Q345高强度合金材料。
SS304 or Q345 high-strength alloy materials used.

筛箱整机热处理。
Overall heat treatment of screen deck.

选用意大利OLI振动电机。
Italian OLI vibration motor selected.

表面重度防腐涂层。
Heavy anti-corrosion coating on the surface.





▶ 工作原理
WORKING PRINCIPLE

振动筛筛床上安装的激振器产生激振力，使筛床产生振动，筛床通过其上安装的筛网将力作用于通过的泥浆，使泥浆中的固相与液相分离，小于筛孔的钻屑固相随液相落入罐里，大于筛孔的钻屑固相及被吸附的泥浆残液被运移出筛床至罐外池中。

The vibration exciter installed on the screen bed of the shale shaker produces an exciting force to make the screen bed vibrate. The screen bed applies force on the passing mud through the screen installed on it to separate the solids and liquids in the mud. The solid drill cuttings smaller than the screen mesh fall into the tank with the liquids, and the solid drill cuttings larger than the screen mesh and the adsorbed mud residue are transported out of the screen bed to the pool outside the tank.

▶ 技术参数
TECHNICAL PARAMETERS

型号 Models	GZS14	GZS12	GZS26	GZS26D
振动轨迹 Vibration mode	直线振动 Straight line vibration			
电机功率 Motor Power	2x0.45kw	2x1.0kw	2x1.5kw	2x2.0kw
振动强度 Vibration intensity	≤ 7.5G	≤ 7.5G	≤ 7.5G	≤ 7.5G
双振幅 Double amplitude	5.0~7.0mm			
处理量 Throughput	35m^3/h（150gpm）	80m^3/h（350gpm）	120m^3/h（528gpm）	150m^3/h（640gpm）
筛箱调节角度 Deck adjustment	0~2°	−1~3°	−1~5°	−1~5°
常用电制 Common voltage	380V/50Hz 460V/60Hz			
筛网面积 Screen area	1.4m^2	2.1m^2	2.6m^2	4.5m^2
筛网数量 Number of screens	2panel	2panel	3panel	5panel
启动器 Starter	磁力启动器 Magnetic starter			
振动噪音 Vibration noise	< 80db			
重量 Weight	700kg	1150kg	1280kg	1600kg
外形尺寸 Dimension	1610x1220x1180mm	1925x1850x1500mm	2355x1850x1500mm	2700x1850x1440mm
筛网执行标准及目数 Executive standard of screen and number of meshes	API , 40/60 目（mesh）			
备注 Remark	处理量测算基础：泥浆密度：1.2g/cm^3，粘度 45s，筛网 40 目 Bases for treatment capacity calculation: mud density: 1.2g/cm3; viscosity: 45s; screen: 40−mesh			

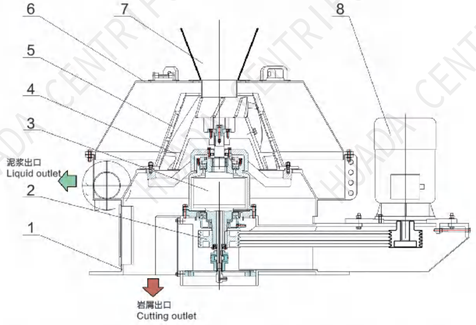
固控成套装置—LLL立式螺旋卸料过滤离心机（岩屑甩干机）
COMPLETE SOLID CONTROL SYSTEM – LLL VERTICAL CUTTING DRYER

▶ 工作原理
WORKING PRINCIPLE

悬浮液从进料管进入螺旋内腔，并通过螺旋顶部的进料口进入转鼓，在离心力场的作用下，料浆中的液相通过铺设在转壁上的筛网被过滤出去，固相颗粒则被截留在转鼓内；同时，转鼓内的固相颗粒在离心力和螺旋与转鼓之间的相对差速作用下，从转鼓顶部（小端）向转鼓底部（大端）运动，在此运动过程中，由于回转直径的加大，离心力得到快速递增，固相从初始进入时的较高含湿量到排出转鼓时达到最低含湿量固相，从而实现固液相自动、连续的分离。

The slurry enters the scroll inner chamber from the feed pipe and then enters the basket through the feed port at the top of the scroll. Under the action of the centrifugal force field, the liquid in the slurry is filtered out through the screen laid on the rotating wall, and the solid particles are trapped in the basket. At the same time, the solid particles in the basket move from the top (small end) of the basket to the bottom (big end) of the basket under the action of centrifugal force and the relative differential speed between the spiral and the basket. During this movement, the centrifugal force is rapidly increased due to the increase in the rotation diameter, and the solids change from a high moisture content at the time of initial entry to the lowest moisture content at the time of discharge, realizing the automatic and continuous separation of solid and liquid phases.

▶ LLL型离心机结构图
DIAGRAM OF LLL CENTRIFUGE STRUCTURE



1 机座 Base
2 传动机构 Transmission mechanism
3 差速器 Gearbox
4 螺旋刮刀 Scroll blade
5 滤网 Screen
6 机壳 Shell
7 进料斗 Feed hopper
8 主电机 Main motor

▶ 产品特点
PRODUCT FEATURES

转鼓 / Basket　差速器 / Gearbox　螺旋 / Scroll

· 转鼓锥角按工艺条件可选。
· 独立的润滑系统，润滑方式简单可靠。
· 特制条形筛网，耐磨性好，使用寿命长。
· 进连续料、分离、脱水、卸料，处理量大。
· 3K型行星差速器，结构紧凑，传动扭矩大。
· 转鼓螺旋等旋转部件立式布局，对中性好、运转平稳，振动小。
· Optional basket cone angle according to the process conditions.
· Independent lubrication system, simple and reliable lubrication method.
· Special strip screen with good wear resistance and long service life.
· Continuous feeding, separation, dewatering and unloading, with high treatment capacity.
· 3K planetary gearbox with compact structure and high driving torque.
· Vertical layout of rotating parts such as the basket and scroll, good centering, stable operation and low vibration.

▶ 技术参数
TECHNICAL PARAMETERS

型号 Models	LLL500	LLL600	LLL700
转鼓直径 Basket Diameter (mm)	500	600	700
最大转速 Max. speed (r/min)	2000	1600	1300
分离因数 Separation Factor	1120	860	660
筛网数目 Number of screens	20~70	20~70	20~70
生产能力 Production capacity (T/h)	20	40	60
电机功率 Motor power (kw)	15	30	45
电压 Voltage (V)	380 / 460	380 / 460	380 / 460
防护等级 IP grade	IP56	IP56	IP56
外形尺寸 Dimension (mm)	1520x110x1200	1800x1100x1450	2250x1580x1500
重量 Weight (kg)	900	2980	3440