

## 卧式螺旋卸料沉降离心机概述 Introduction to the decanter centrifuge

### 结构原理

无孔转鼓内套装有同心的卸料螺旋，两者高速同向旋转的同时，又具有一定的转速差，该转速差由传动系统及差速器产生。悬浮液由进料管进入输料螺旋内腔。经加速后进入转鼓内，在离心力作用下，密度较大的固相颗粒物沉降到转鼓内壁，形成沉渣环层，并被卸料螺旋不断推送到转鼓小端而排出转鼓外，澄清后的液体不断从转鼓大端的溢流口排出转鼓外，从而实现悬浮液的固液分离。

### Basic Principles

The solid drum is internally installed with a concentric discharge screw. As they rotate in the same direction at a high speed, they have a certain rotational speed difference, which is caused by the driving system and the differential case. Suspension enters the internal of the charge screw through the speed pipe and then goes into the drum after being accelerated. Under the centrifugal force, solid particles of big density settle on the inwall of the drum, and form a circular layer of cake, which is continuously pushed by the discharge screw to the small end of the drum and then out of it, while the settled liquid is continuously discharge out of the drum from the vortex finder of the big end of the drum, hence solid-liquid separation of suspension.

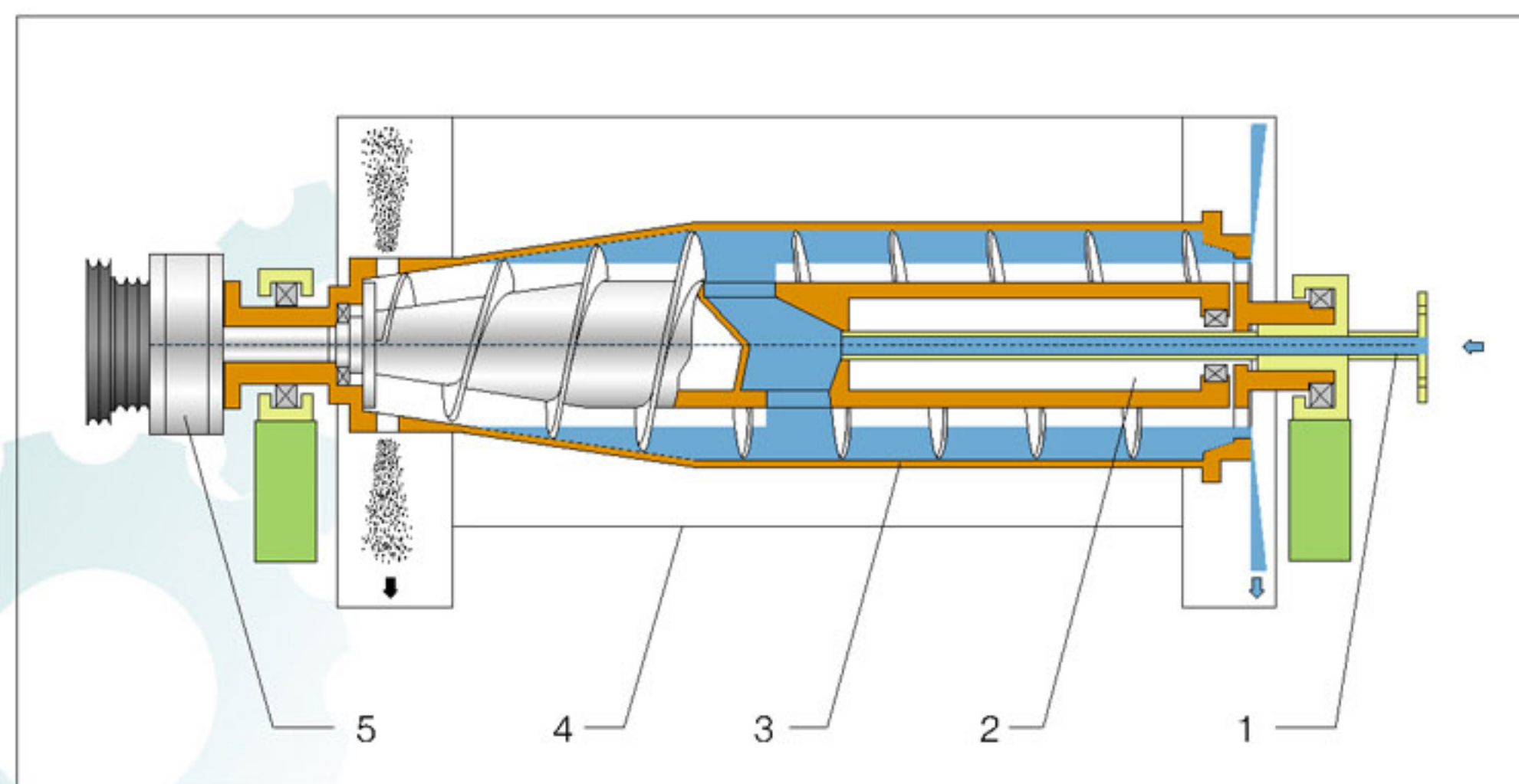
### 性能特点

卧式螺旋卸料沉降离心机能在全速运转下连续进料、分离和卸料。具有结构紧凑、易于密闭、运行平稳、噪声小、处理量大、能耗低、自动化程度高、劳动强度小、操作维护方便、适应范围广等特点。



### Basic Principles

For the decanter centrifuge, the continuous feeding, separating and discharging can be realized as it rotates at its full speed. It is characterized by compact structure, easy obturation, smooth running, low noises, large handing capacity, low energy consumption, high automation, small working strength, simple operation and easy maintenance, and wide application.



1. 进料管  
feed pipe
2. 卸料螺旋  
discharge screw
3. 转鼓  
drum
4. 机壳  
casing
5. 差速器  
differential case

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Sedimentation speed is an important index to measure separating characteristics of materials separated, which plays an important role in sedimentation separation. Sedimentation speed mainly depends on the size solid-phase particles, their shapes and differential density and viscosity between solid and liquid, etc. Thus, it can be adjusted and improved by taking the following measures:

- Adjust work conditions to improve viscosity and increase the differential density between liquid and solid;
- Add flocculating agent to increase the size of solid particles and change their shapes.

针对一些难分离的物料，除了对分离物料本身采取相应的调整措施外，还可对离心机作相应的调整和改进，

- 增大长径比
- 调整转鼓转速
- 调节转鼓与卸料螺旋的差转速
- 改变转鼓锥段半锥角
- 调整液相出口的溢流半径
- 改变卸料螺旋之螺旋头数和螺旋升角
- 增加BD板结构

To those materials difficult to separate, besides adjustment of the materials separated centrifuges may also be adjusted and improved.

- increase length-to-diameter ratio
- adjust rotate speed of drum
- adjust differential speed of drum with discharge screw
- change angle of slope of drum in cone section
- adjust overflow radius of liquid phase outlet
- change the number of screws of discharge screw and helix angle
- increase BD plate structure

对离心机技术参数的调整和相关部位的改进，除分离转速、差转速及液相出口的溢流半径在分离现场可作小范围调整外，其余均必须是在离心机产品制作前确定。另外，针对分离物不同的腐蚀性，具有不同抗腐能力的材质与之相匹配。因此，顾客垂询时，请详细赐告分离物料的特性参数、工况条件及分离要求等。

As for the adjustment of technical parameters and improvement of corresponding parts of a centrifuge, all must be fixed before manufacturing it except that separating rotate speed, differential rotate speed and overflow radius of liquid phase outlet can be changed a little on the separating field. What's more, for the different corrosion of materials separate, corrosion resistant materials of different kinds can be used. So when customers ask for information, please tell us in details about natural parameters, work condition and separation requirements, etc.

注：分离因数是离心机的一种特性参数，是指分离物料在离心力场所受离心力与重力的比值，一般情况下分离因数越大分离效果越好。分离因数Fr的计算公式： $Fr = m \cdot R \cdot \omega^2 / g = R \cdot \omega^2 / g \approx 1.12R \cdot n^2 \cdot 10^{-3}$

式中：n—转鼓迴转速度 R—转鼓迴转半径，单位为m

Notes: separating factor is a natural parameter of the centrifuge. It refers to ratio of the centrifugal force on the material separated and the gravity on it in centrifugal force field. Generally speaking, the bigger a separating factor, the better the separating effect. The calculation formula of separating factor Fr is as follows:  $Fr = m \cdot R \cdot \omega^2 / g = R \cdot \omega^2 / g \approx 1.12R \cdot n^2 \cdot 10^{-3}$

where: n—Drum Speed, r/min; R—Drum radius, m



## 卧式螺旋卸料沉降离心机应用领域 Application Area of the decanter centrifuge

固液分离	己二酸铵	明矾	氢氧化铝	碳酸氢铵	氯化铵	硝酸铵	抗菌素	氯化钡
	亚硫酸铵	碳酸钡	碳酸锶	碳酸钙	氢氧化钙	硝酸钙	草酸钙	纤维素
	硫酸钡	硫酸钙	淀粉	酒糟废液	PTA	血粉	大豆蛋白	啤酒酵母
	发酵液	电镀液	酒石酸	硫酸钠	聚氯乙烯	辛德粉	脱硫石膏	

液-液-固分离	煤焦油-水-固	棕榈油-水-固
	两种互不相溶、有比重差的液体和固体的分离	

污泥脱水	石棉污泥	电厂污泥	制药污泥	钢厂污泥	自来水厂污泥	PVC污泥	电厂炉灰污泥	乳品污泥
	含油污泥	制皂污泥	皮革污泥	印染污泥	氢氧化物污泥	明矾污泥	天然气脱硫污泥	电石污泥
	石英污泥	汽车污泥	活性污泥	石膏浆	造纸污泥	生活污水	纤维板污泥	电镀污泥
	油田污泥	厌氧污泥	钻井污泥	乳品污泥				

粒度分级	氧化锌	钛白粉	高岭土	淀粉	钻井泥浆	煤粉浮选	水晶石浮选	硅藻土	石膏
	铝土矿	苯甲酸	矿石	碳化硅	颜料回收				

液相澄清	大豆蛋白	花生蛋白	果汁	饮料	植物油	柠檬酸	废油净化	洗涤水净化	桔汁
	氯二泥	苯甲酸	碳化硅	苯	椰子汁				

工业生活废水	高岭土废水	酵母废水	啤酒废水	冲洗水	脱墨冲洗水	氧化锌废水	生活废水
	精炼油废水	淀粉废水	酵母废水	饮料废水	涂漆废水	粪水	



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Solid-liquid separation	Adipic acid / Alum / Aluminium hydroxide / Ammonium hydrogencarbonate / Ammonium chloride /
	Ammonium nitrate / Barcteriophage / Barium chloride / Ammonium bisulfite / Barium carbonate / Strontium carbonate / Calcium carbonate / Calcium hydroxide / Cadmium nitrate / Cellulose / Barium sulfate / Calcium sulphate / Stach / Lees waste solution / PTA / Blood meal / Soybean proteom / Beer yeast / Fermentation fluid /
	Electroplate liquid / Tartaric acid / PVC desulfurization gypsum

Liquid-liquid-solid separation	Coal tar-water -solid	Palm oil-water -solid
	Liquid-solid separation with different densities and they are not solvable each other in liquid mixture	

Sludge dewatering	Asbestos sludge / Electric power plant sludge / Pharmacy sludge / Steel factory sludge / Tap water factory sludge /
	PVC sludge / Electric power plant hearth cinder sludge / Dairy sludge / Oil refining sludge / Soapmaking sludge /
	Leather sludge / Printing and dyeing sludge / Hydroxide sludge / Alum sludge / Gas sweetening sludge / Tourmalin sludge / Car sludge / Active sludge / Gypsum sludge / Paper making sludge / Life sludge / Fiberboard sludge /
	Electroplate sludge / Oil field sludge / Anaerobic sludge / Make hole sludge / Quartz sludge

Size-grading	Zinc oxide / Titanium white power / kaoline / Starch / Make hole sludge / Coal dust flotation / Quart crystal flotation / Infusorial earth / Gypsum / Bauxite / Porcelain clay / Ore / Carborundum / Dye recycle

liquid phase clarification	Sobean protein / Peanut protein / Juice / Beverage / Vegetable oil / Citric acid / Waste oil purification / Washing water purification / Orange juice / Benzonic acid / Carborundum / Benzene / Coconut milk

Industrial and domestic sewage	Kaoline waste water / yeast waste water / Beer waste water / Washing water / Deinked washing water /
	Leather-making waste water / Zinc oxide waste water / Oil refining waste water / Starch waste water /
	Beverage waste water / Painting waste water / Plant waste water / Feces water



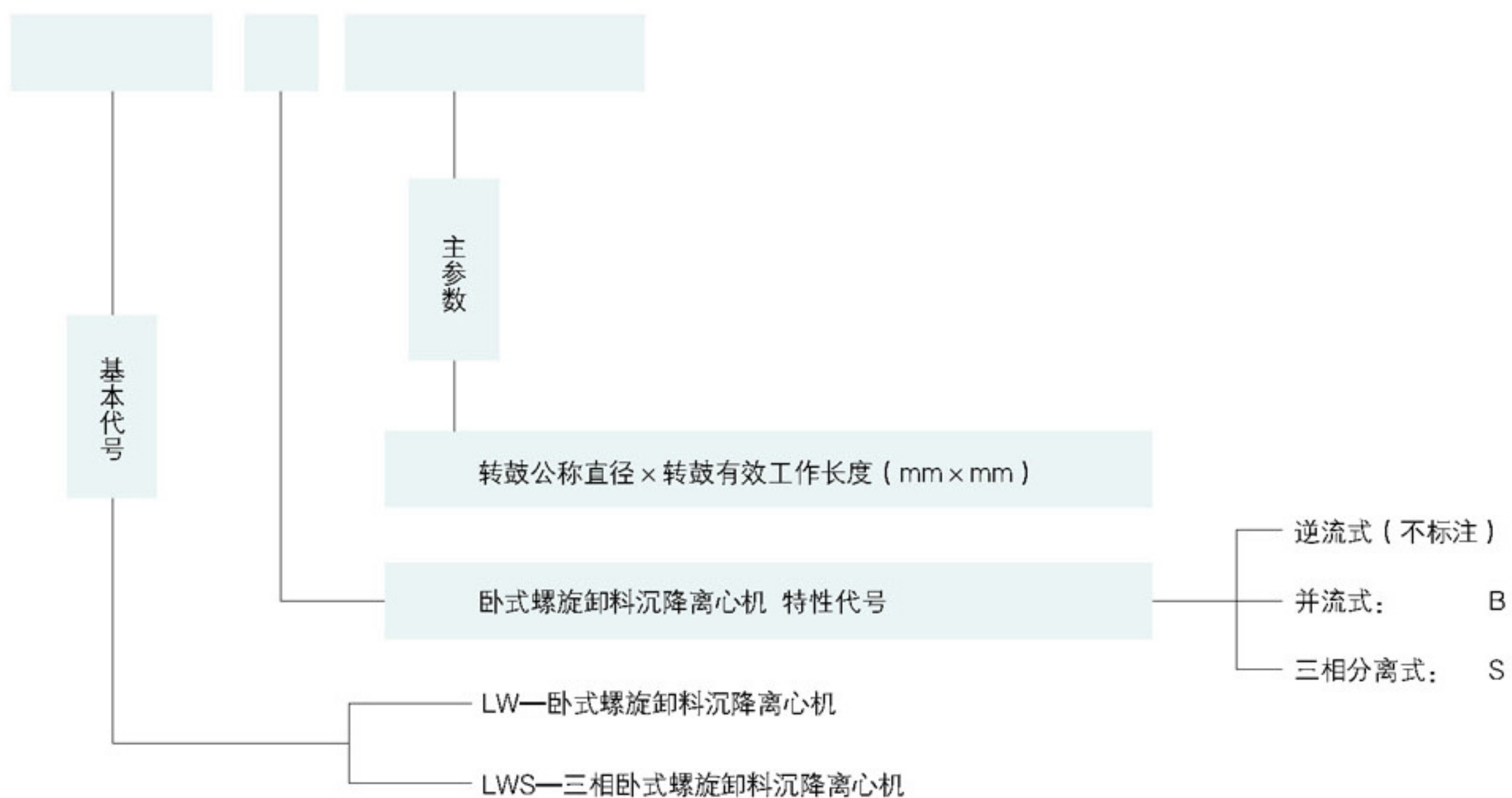
## 适用范围

卧式螺旋卸料沉降离心机适用于固相粒度0.005~15mm、浓度1~40%、温度 $\leq 100^{\circ}\text{C}$ 的各类悬浮液的固相脱水、液相澄清分离和液、液、固三相分离及颗粒分级等。尤其适用于滤布再生有困难及浓度、颗粒变化较大的悬浮液分离。如聚氯乙烯树脂、亚硫酸铵、碳酸钡、硫酸锶、立德粉、淀粉、硅藻土、石膏、铝土矿、大豆蛋白、花生蛋白、果汁、饮料、植物油、柠檬酸、血粉、钛白粉、高岭土、钻井泥浆等加工和精煤脱水、粉煤脱水、废油净酒糟废液、矿物分级处理、市政污水处理以及电厂污泥、印染污泥、造纸污泥等工业废水处理领域。

## Application scope

The decanter centrifuge is suitable for solid-phase dewatering, liquid-phase clarification and separation, liquid-liquid-solid three phase separation and size-grading of various suspensions with solid-phase particle sizes of 0.005~15mm, consistency of 1~40% and temperature of  $\leq 100^{\circ}\text{C}$ , esp. for separating the suspensions whose consistency and particle size vary greatly and for which recovery of filter cloth is difficult, such as treatment of PVC resins, ammonium sulfite, barium carbonate, strontium sulphate, lithopone, starch, diatomite, plaster, bauxite, soybean protein, peanut protein, fruit juice, drinks, vegetable oil, citric acid, powder of blood, powder of titanium white, kaolin clay and drilling mud, etc., and dewatering of washed coal and fine coal, purification of waste oil, treatment of grain stillage liquid waste and municipal sewage and mineral classification. Besides, it is suitable for waste water treatment of electric power plant sludge, printing and dyeing sludge, paper manufacture sludge.

## 卧式螺旋卸料离心机型号编制方法 Composing Method of Horizontal Decanter centrifuge Models



主参数: Principal parameters

基本代号: Basic code names

卧式螺旋卸料沉降离心机: decanter centrifuge

三相卧式螺旋卸料沉降离心机: Three phase decanter centrifuge

转鼓公称直径 × 转鼓有效工作长度 (mm × mm): drum's nominal diameter × drum's valid active length

卧式螺旋卸料沉降离心机 特性代号: characteristic code of the horizontal decanter centrifuge



逆流式 (不标注): counter flow(not marked)

并流式: parallel flow

三相分离式: three-phase separate type

## 卧式螺旋卸料沉降离心机产品主要型号及技术参数 Main models and technical parameters of decanter centrifuge series

型号规格	转鼓直径 (mm)	转鼓长度 (mm)	最高转速 (rpm)	最大分离 因素	处理能力 (m <sup>3</sup> /h)	主电机 功率(Kw)	重量 (Kg)	外形尺寸 长×宽×高(mm)
LW250×1000-N	250	1000	5400	4080	0.5~5	7.5	1000	2410×800×1080
LW300×1200-N	300	1200	4200	3000	1~5	7.5~11	1200	2610×800×1080
LW300×1350-N	300	1350	4200	3000	1~10	7.5~11	1400	2760×800×1080
LWF355×860-N	355	860	4000	3180	1~8	11/4	1200	2402×830×1300
LW355×1250-N	355	1250	4000	3180	1~10	15	1800	3185×840×1180
LW355×1600-N	355	1600	4000	3180	1~20	15~18.5	1800	3495×840×1180
LW400×1200-N	400	1200	3650	3000	1~10	15~18.5	2500	2990×960×1205
LWS400×1200-N(三相)	400	1200	3650	3000	1~5	15~18.5	2500	2990×960×1205
LW400×1600-N	400	1600	3650	3000	2~20	15~22	2500	3690×1020×1205
LW400×1800-N	400	1800	3650	3000	2~25	15~22	2500	3890×1020×1205
LWS400×1800-N(三相)	400	1800	3650	3000	2~25	15~22	2500	3890×1020×1205
LW450×1350-N	450	1350	3450	3000	3~25	18.5~37	3000	3647×1080×1385
LW450×1800-N	450	1800	3450	3000	3~30	22~37	3000	3997×1080×1385
LW450×2000-N	450	2000	3450	3000	3~35	22~37	3000	4297×1080×1385
LWS450×2000-N(三相)	450	2000	3450	3000	3~35	22~37	3000	4297×1080×1385
LW450×2150-N	450	2150	3450	3000	4~40	22~37	3200	4447×1080×1385
LW500×1650-N	500	1650	3000	2500	5~45	22~37	3800	3980×1140×1470
LWG500×2000-N	500	2000	3550	3500	5~45	30~37	3800	4330×1140×1470
LW500×2000-N	500	2000	3000	2500	5~45	30~37	3800	4330×1140×1470
LWS500×2000-N(三相)	500	2000	3000	2500	5~45	30~37	3800	4330×1140×1470
LW500×2250-N	500	2250	3000	2500	8~50	37~45	4000	4580×1140×1470
LW530×2280-N	530	2280	2900	2500	15~65	45~55	5000	4924×1170×1540
LWS530×2280-N(三相)	530	2280	2900	2500	15~65	45~55	5000	4924×1170×1540
LW580×2030-N	580	2030	2780	2500	20~60	55~75	6200	4730×1270×1540
LW580×2500-N	580	2500	2780	2500	20~80	55~75	6500	5205×1270×1540
LW650×2800-N	650	2800	2500	2270	20~110	75~90	7000	4300×1900×1350
LW760×3040-N	760	3040	2250	2150	30~150	90~132	8500	5000×2500×1500
LW900×3600-N	900	3600	2000	2000	30~200	132~200	14000	6000×2700×1500

# 卧螺离心机专业制造商

型号规格: Specifications

处理能力: Capacity

转鼓直径: Drum's nominal diameter

主电机功率: Power of main motor

转鼓有效工作长度: Drum's valid active length

重量: Weight

最高转速: Drum speed

外形尺寸 长×宽×高: Size length×width×height

最大分离因数: Separating factor

## 卧式螺旋卸料沉降离心机主要技术特点 Main technical characteristics of decanter centrifuge series

离心机和制造符合《JB/T502-2004螺旋卸料沉降离心机》及《JB 8525-1997 离心机安全要求》等标准规定。

Their manufacture and design accord with the standard of "JB/T502-2004 Decanter Centrifuge" and "JB 8525-1997 Safety Requirements of Centrifuge"

高转速、高分离因数、大长径比。转鼓直径530mm以下的该类离心机，分离转速一般在3000r/min以上，分离因数在2500以上，长径比最大可达5。其中LW250×1000-N离心机最高转速达5400r/min，分离因数可达4000。

High rotational speed, high separating factor and big length-to-diameter ratio. For centrifuges with drum diameter below 530mm, their separating rotational speed is usually above 3000r/min, their separating factor is above 2500 and their length-to-diameter ratio can reach up to 5. Among them, the highest rotational speed of LW250×1000-N can reach 5400r/min, and its separating factor is above 4000.

单机处理能力大。直径为：250、300、355、400、450、500、530、580、650、760、900 (mm) 的卧式螺旋卸料沉降系列离心机，均是根据最新的流体理论，参照国外最新结构设计，处理能力大，分离效果好。

Big single machine processing capacity: The decanter centrifuge series with diameters of 250、300、355、400、450、500、530、580、650、760 and 900(mm) are all designed according to the newest fluid theory and with reference to the advanced structures abroad. they have a big capacity and fine separate effect.

振动小、噪声低、承载能力强。该系列离心机主轴承均采用进口轴承，轴承精度高、承载能力强；零部件制造精度高，整机经双转子精密动平衡，保障了高速运转下的平稳性及可靠性。离心机振动小、噪声低、各项性能均优于国家标准的要求。

Low vibration, low noises and big bearing capacity. Imported main bearings with high precision and big bearing capacity are used for this series. Precision of components is high. The entire machine gets precise dynamic balance through dual rotors, thus stationarity and reliability are guaranteed when it is running at a high rotational speed. With low vibration and low noises, all of its properties are higher than those stipulated in the National Standard.

具有多重保护装置，运行可靠。该系列离心机一般均配置差速器过载保护或限矩偶合器等保护装置。根据需要，还可配置振动保护、温度监测及保护、进料调节等安全保护装置，通过自动报警、强制停机对整机加以保护。

With multiple protecting apparatus, reliable running is realized. The series of centrifuges are usually equipped with such overload protective devices as differential case or torque-limiter coupling. If required, other protection devices such as vibration protection, temperature monitoring and protection, and feed adjusting, etc. can be equipped, which are able to protect the entire machine by automatic alarm and forced stoppage.

差速系统性能可靠。该系列离心机差速器一般采用行星齿轮或摆线针轮差速器，根据需要，还可以选配全液压差速系统。机械差速器一般采用国内知名品牌，液压差速系统采用进口品牌。差速器制造精度高、性能好、运行可靠。

Property of differential system is reliable. Differential case of satellite differential or cycloidal needle wheel differential is used. If necessary, fully hydraulic differential system is used. Mechanical differential cases of well-known national brands have been chosen, and hydraulic pressure differential system adopts the foreign brands. The differential case is of high precision, high performance and reliable operation.



- 关键部位防腐、耐磨。螺旋推料面、螺旋体进料分布部位及转鼓出渣口等关键部位一般均喷焊或堆焊硬质合金耐磨层，特殊用途离心机则采用镶片式硬质合金耐磨块或镶耐磨套或贴耐磨陶瓷片，防腐、耐磨、使用寿命长。

Key parts are corrosion-resistant and wear resistant. The surface of screw, the inlet on the screw and the discharge outlet on drum are usually surfaced or beadweld with wear-resistant surface made of hard carbide. For the centrifuges on special occasions, wear-resistant blocks of imbedded hard carbide are adopted, or inlaid with wear resistant jacket or wear resistant ceramic plates, corrosive-resistant, wear-resistant and lasting.

- 具有多种驱动、调速方式。根据不同的要求，可选配相应的驱动、差速及调速方式，便于调节转鼓转速及差转速，以达到最好的分离效果，能适应各种不同的分离场合。

It has many modes of drive and speed regulation. According to different demands, corresponding drive, differential and speed regulation mode can be adopted to adjust the rotate speed of drum and its differential rotate speed so as to achieve the best separating results on different separating occasions.

- 密封、防爆性能好。对于易燃、易爆等特殊分离场合，有特殊设计制造的密封、隔爆机型供选择，且密闭、隔爆性能好，安全可靠。机械密封使用寿命确保8000小时，气密封寿命确保15000小时以上。

Fine obturation and explosion-proof performance. Machines of obturation and explosion-proof type are specially designed for those special separating occasions inflammable and explosive. Mechanical seal can last no fewer than 8000 hours and gas seal no fewer than 15000 hours.

- 电器控制系统先进、可靠。电器控制系统有普通型、防爆型、微电脑全自动控制等形式。还可根据需要，采用CDS中央控制系统远程监控和全自动操作。电器控制系统均采用国内知名品牌或进口元器件，性能可靠。

Advanced and reliable control system of electrical system equipment. Types of control of electrical equipment can be classified as conventional, explosion-proof and fully automatic control with computers. CDS central control system can also be selected for remote supervisory and controlling and full-automatic operation. All the electrical components of the electrical control system are either imported from abroad or of famous brands at home, which perform well.

- 选材优异。该系列离心机与物料相接触的部位，一般均选用优质高强度奥氏体不锈钢或双相不锈钢，零部件具有足够的强度和优越的抗腐能力。

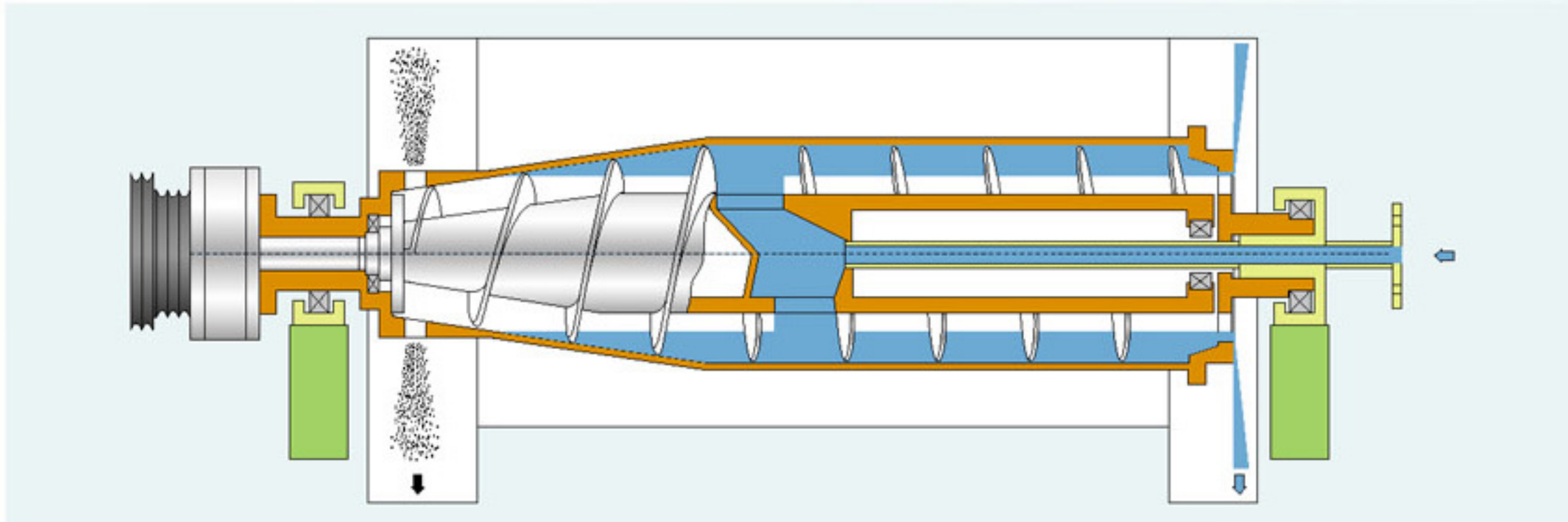
Materials of high quality have been used. Austenitic stainless steel or two-phase stainless steel is usually used for the parts of machines that suspension touch. These parts have high strength and good ability to resist corrosion.





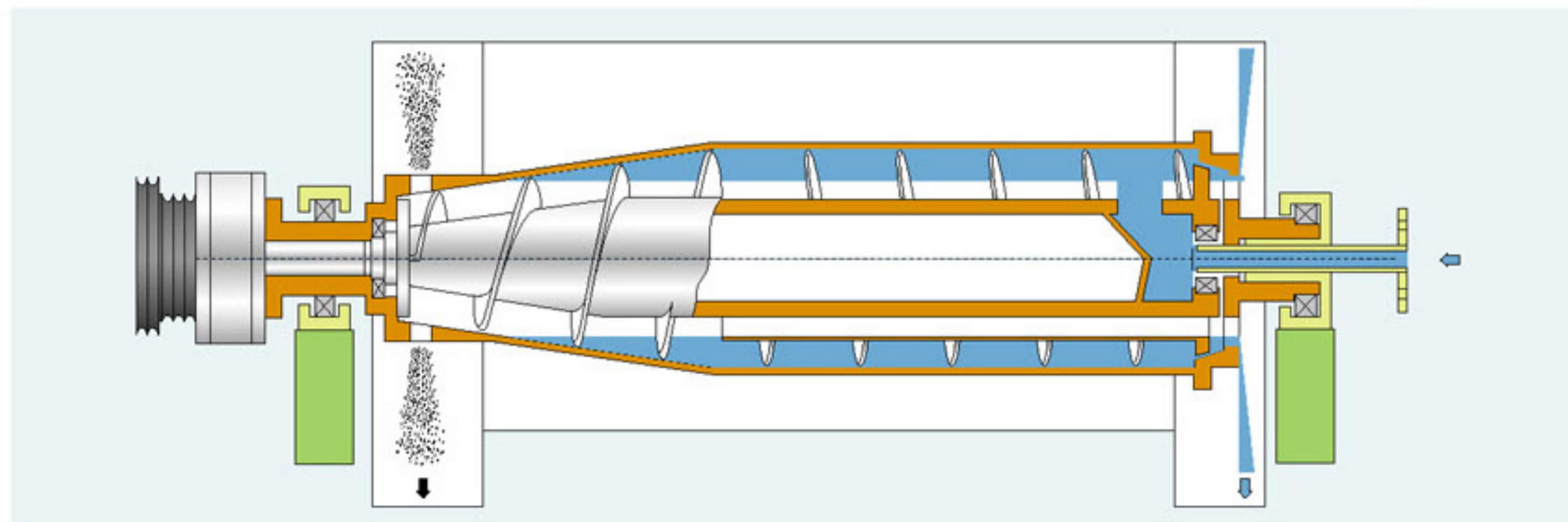
## 卧式螺旋卸料沉降离心机典型结构

Typical structures of the decanter centrifuge



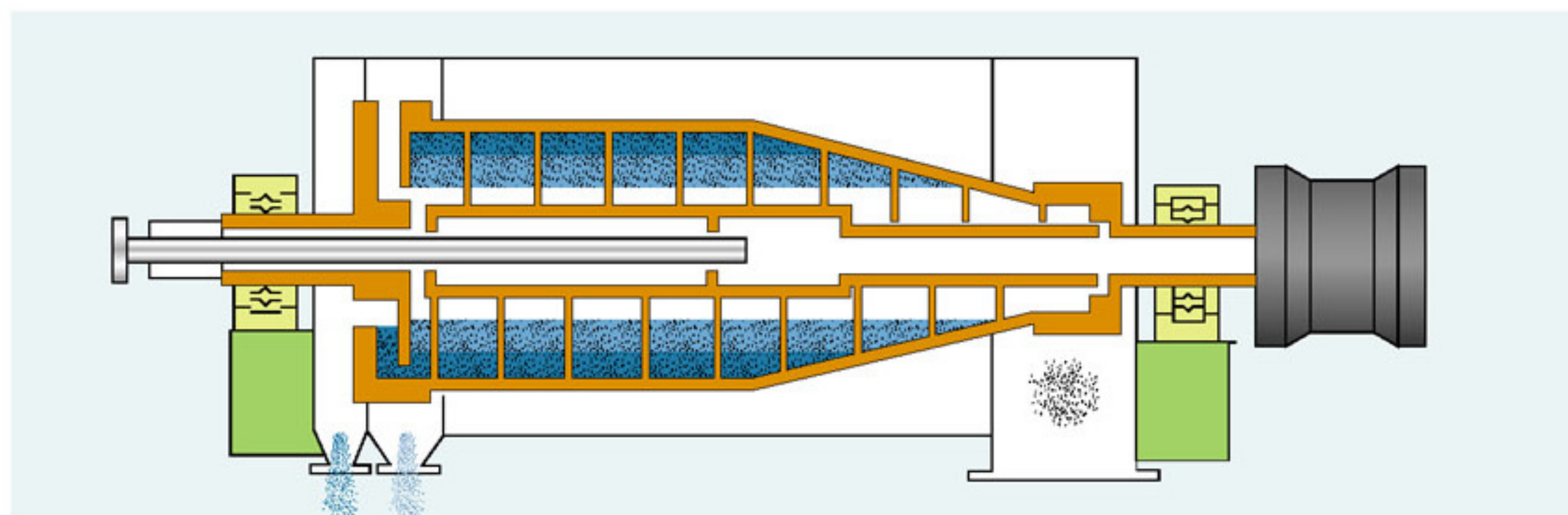
逆流型 混合液进入转鼓后澄清液和沉渣在分离时逆向移动，分别流向各自的出口。逆流型是标准机型，适用于大多数分离场合。

Counter-current type After blended liquid flows into drum, the cleaned solution and the cake move conversely in separating, each flowing toward its own outlet. The counter current type is a kind of normal one and suitable for most separating situations.



并流型 混合液进入转鼓后澄清液和沉渣在分离时沿同一方向移动，分离后澄清液再经撇液管回流排出，避免进料时料液对沉渣的冲刷。并流型结构更适用于低浓度、难分离物料的分。

Co-current type After blended liquid flows into drum, the cleaned solution and the cake move in the same direction when separating. After separation, the cleaned solution flows back and is discharged through backflow connection in order that cake is not washed away by feed liquid when feeding. This type is more suitable for separation of materials with low concentration and difficult to separate.



三相分离性 具有密度差的二种液相物 and 一种固相物进入转鼓后，在离心力的作用下，固相物沉降，二种液相物出现出现分层，从而实现液液固三相分离，适用于具有密度差的液—液—固三相分离场合。

Three-phase separation type After two liquid phases and one solid phase with differential density come in to drum, under a centrifugal force, solid phase settles and the two liquid phases are stratified, thus liquid-liquid-solid separation is realized. This type is suitable for such a three-phase separation situation as liquid-liquid-solid with differential density.



## 系列卧式螺旋卸料沉降离心机驱动与调速方式 Drive and speed regulation of decanter centrifuge series

### 单速电机驱动 差速器的输入轴固定

通过更换皮带轮分别调节转鼓转速和差转速，此种调速方式适用于工艺稳定的物料分离。

### Driven by a single-speed motor and the output the stalk of differential case is fixed

Adjust the rotate speed of the drum and differential rotate speed by changing belt pulley, which is suitable for separation of common materials that do not have any special changes.

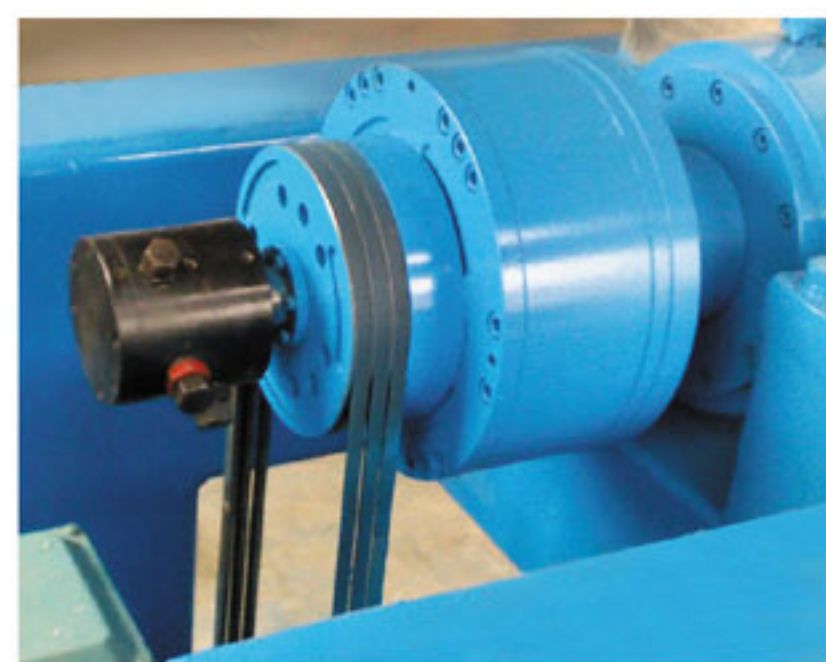


### 用两台变频器分别控制主、辅电机的驱动

采用双变频器控制主、辅电机的驱动，分别调节转鼓的转速和差转速，调速方式快捷。

### Control drive of the main motor and the auxiliary motor respectively with two frequency-converters, and the drive ratio of the differential case is fixed.

It is fast to control drive of the main motor and the auxiliary motor and adjust the rotate speed of the drum and differential rotate speed respectively with two frequency-converters.



### 主电机驱动转鼓，用液压马达调节差速

用变频调速器来调节主电机驱动的转鼓转速，用液压马达变速调节改变差转速。

### Main motor drivers drum, and differential speed is regulated by hydraulic motor

Regulate rotate speed of drum driven by main motor by using frequency-conversion speed governor and change rotate speed by using hydraulic motor

## 各种转速之间的相互关系以及与卸料螺旋的差转速

## Relationship between different kinds of rotate speed and the differential rotate speed between drum and discharge screw

### 转鼓转速： $n_{\text{转}}=n_1 \times i_1$

$n_{\text{转}}$ —转鼓转速 r/min

$n_1$ —主电机转速（主电机转速由主电机铭牌读取，或由变频调速方式调节）r/min

$i_1$ —主电机与转鼓皮带轮传动的传动比

### Rotate speed of drum: $n_r=n_1 \times i_1$

$n_r$ —rotate speed of drum r/min

$n_1$ —rotate speed of main motor(The rotate speed of the main rotator is indicated on its nameplate or adjusted and set by frequency-conversion speed-regulation modes.)r/min

$i_1$ —drive ratio of main motor with the drive of drum belt pulley

## 转鼓与卸料螺旋的差转速： $\Delta_n=(n_1 \times i_1 - n_2 \times i_2) \div i_{\text{差}}$

$\Delta_n$ —转鼓与卸料螺旋的差转速 r/min

$i_{\text{差}}$ —差速器的固定传动比

$n_2$ —副电机转速（副电机转速由副电机铭牌读取，或由变频调速方式调节）r/min

$i_2$ —副电机与差速器皮带轮的传动比

## differential rotate speed of drum with discharge screw: $\Delta_n=(n_1 - n_2) \div i_d$

$=(n_1 \times i_1 - n_2 \times i_2) \div i_d$

$\Delta_n$ —differential rotate speed of drum with discharge screw r/min

$i_d$ —fixed drive ratio of differential case

$n_2$ —rotate speed of auxiliary motor(The rotate speed of the auxiliary rotator is indicated on its nameplate or adjusted and set by frequency-conversion speed-regulation modes.)r/min

$i_2$ —drive ratio of auxiliary motor with the drive of differential case belt pulley

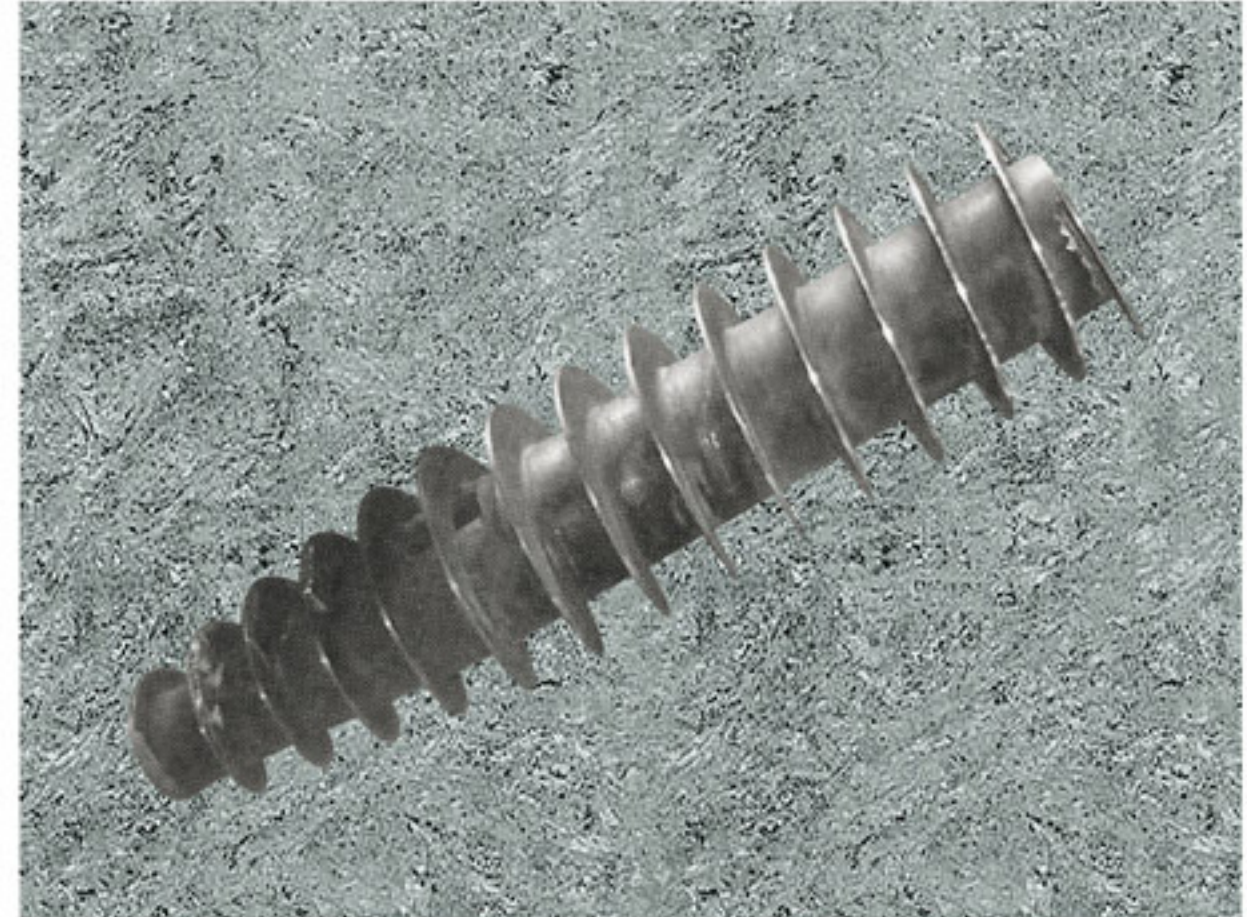
当采用液压马达或全液压差速装置时，卸料螺旋转速由液压马达或液压差速装置直接调速，则转鼓与卸料螺旋的差转速为液压马达输出转速。

When a hydraulic motor or a fully hydraulic motor differential mechanism is adopted, the rotate speed of discharge screw is set up directly by the hydraulic motor or the fully hydraulic motor differential mechanism, and the differential rotate speed of drum with discharge screw is the liquid presses the motor exportation to turn soon.

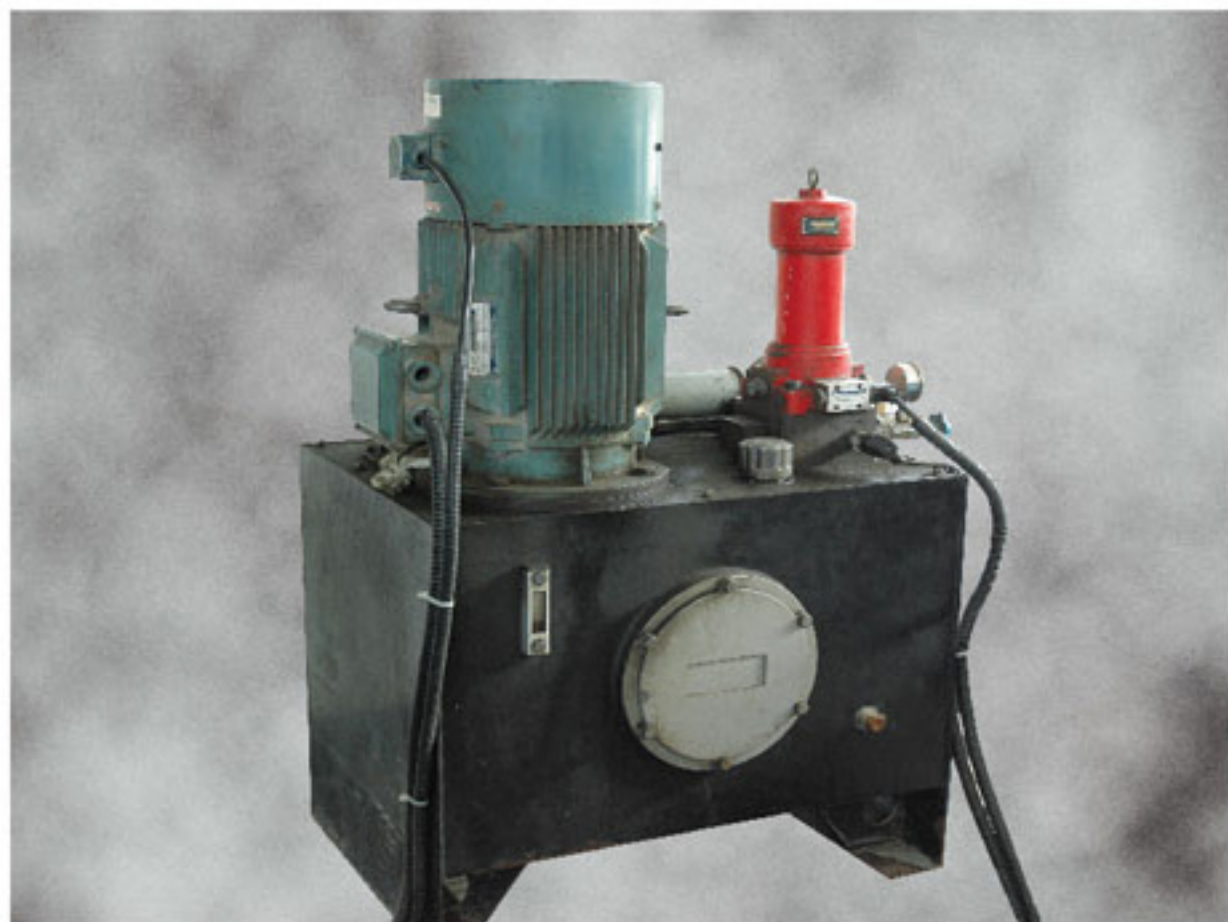
## 卧式螺旋卸料沉降离心机重点部位分解 Decomposition of key parts of decanter centrifuge



转鼓 drum



卸料螺旋 discharge screw



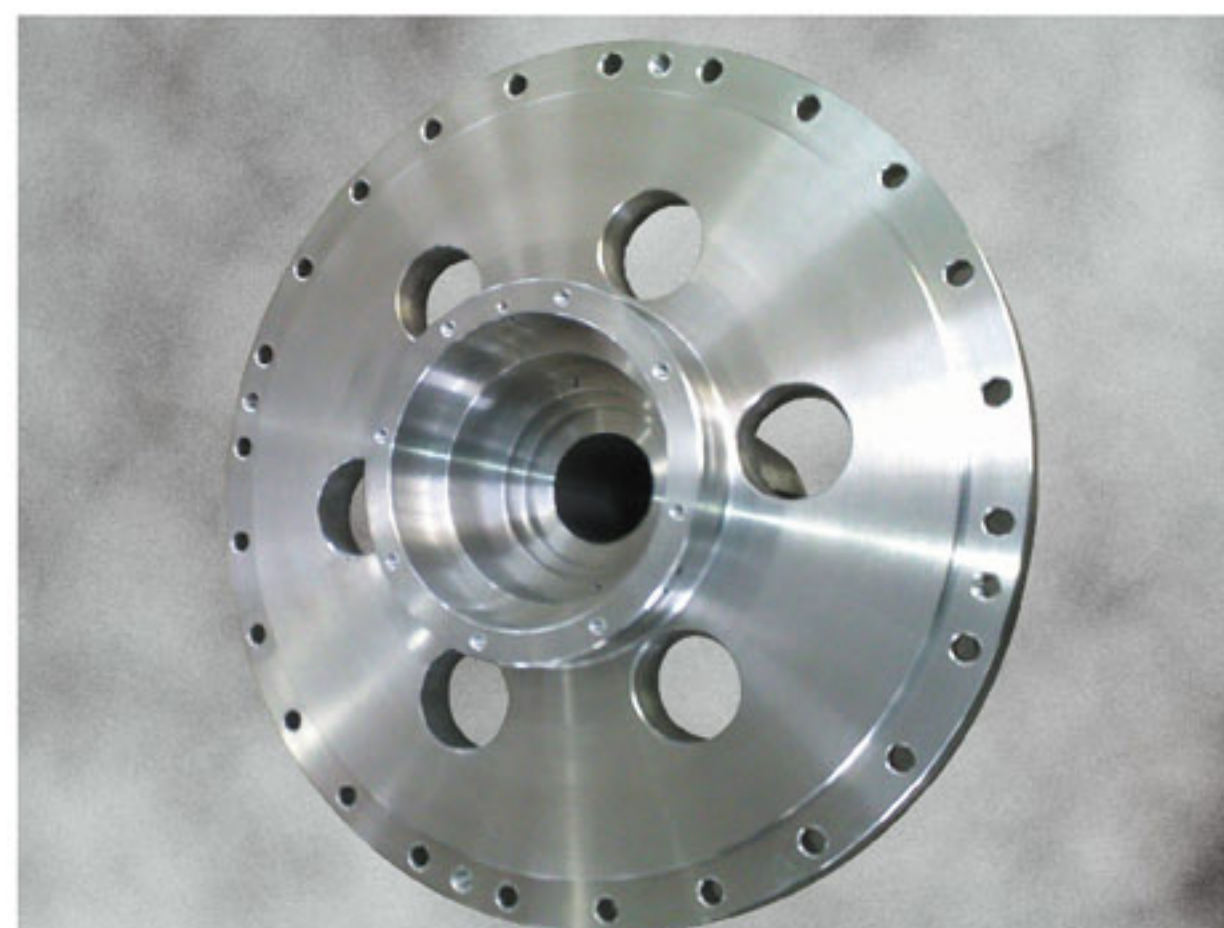
液压泵站 hydraulic power unit



齿轮差速器 satellite



▣ 喷焊硬质合金耐磨层  
surfacing welding hard alloy wearing layer



▣ 端盖 drum cover

## 卧式螺旋卸料沉降离心机的应用条件和适应性调整 Application Conditions and Suitability Adjustment of the Decanter centrifuge

### ▣ 卧式螺旋卸料沉降离心机的基本应用条件是：

- 被分离物料为悬浮液等固液混合液，非乳浊液；
- 组成悬浮液或混合液的各相物之间必须有大于 $0.06\text{g/cm}^3$ 的密度差；
- 悬浮液浓度1~40%；
- 固相物颗粒0.005~15mm；
- 分离过程工况温度 $\leq 100^\circ\text{C}$ ；
- 适当的粘度；
- 分离用途：固相脱水、液相澄清分离；液液固三相分离；粒度分级。

### The basic application conditions for the decanter centrifuge

- The materials to be separated should be solid-liquid intermixture such as suspension, not emulsion;
- There must be a certain differential which big in  $0.06\text{g/cm}^3$  density between all the phases composing suspension or intermixture;
- The suspension concentration should be 1~40%;
- The particle size of solid phase should be 0.005~15mm;
- The work temperature in the process of separating should be  $\leq 100^\circ\text{C}$ ;
- Appropriate viscosity;
- Used for: dewatering of solid phase, clarification and separation of liquid phase, liquid-liquid-solid three-phase separation and size-grading.

不同的分离物料具有不同的分离特性。即使是同一种分离物料，不同的工艺方法和工况条件，亦具有不同的分离特性。而分离物料特性的好坏直接影响离心机分离效果的好坏和处理能力的大小。

Different materials separated have different characteristics. Even the same material displays different separating properties when separated by different techniques or on different conditions. The quality of the separating characteristics will have direct influences on the separating results of the centrifuge and its separating capacity.

沉降速度是衡量分离特性的一个相当重要的指标，对沉降分离起着决定性的作用。而沉降速度主要取决于固相颗粒尺寸、颗粒形状、固体与液体之间的密度差以及它们的粘度等。那么，沉降速度就可通过以下措施来调节和改善：

- 调整工况温度，以改善粘度和加大液、固相之间的密度差；
- 添加絮凝剂，以使颗粒凝聚增大固相颗粒尺寸和改变固相颗粒形状。