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无锡市中达离心机械有限公司
WUXI ZHONGDA CENTRIFUGE MACHINERY CO.,LTD

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中达
离心机械
ZHONGDA Centrifuge Machinery

分级离心机专业制造商

无锡市中达离心机械有限公司
WUXI ZHONGDA CENTRIFUGE MACHINERY CO.,LTD

企业简介
About us

无锡市达离心机械有限公司，始建于1987年，是中国分离机械行业长期享有较高声誉的卧式螺旋卸料沉降离心机专业制造企业。现为中国分离机械行业协会会员单位。公司位于无锡市锡山经济开发区厚桥街道，环境优雅，交通便利，离沪宁高速公路出口3公里左右，交通十分便利。

公司技术力量雄厚，加工装备精良，检测手段完善，内部管理规范，是目前国内初具现代化规模、拥有较强科研能力和综合加工能力的离心机研制和生产的骨干企业。公司占地面积2.5万平方米；拥有各类加工检测设备200余台套，卧螺离心机年生产能力可达350余台。

本公司经过近20年的发展，现生产9大系列20余种规格型号的卧式螺旋卸料沉降离心机和4种规格型号的的卧式螺旋卸料过滤离心机。同时，能以个性化的设计和制造，生产满足顾客特殊需要的各类离心机。

本公司于1999年通过ISO9001国际质量体系认证，产品质量上乘，服务优良，多次获得国家、行业和省、市多项奖励，主导产品性能处于国内先进水平。产品适用于固相物为颗粒状、结晶状、纤维状或粉状物等悬浮液的固液分离和湿法分级，广泛应用于石油、化工、化肥、轻工、食品、制药、环保、冶炼等行业。产品畅销全国各地，并远销欧亚非多个国家和地区，深得顾客好评。企业的发展. 离不开顾客及社会各界的支持与厚爱，本公司热忱希望与国内外广大客商开展长期友好的经济、技术合作和商务往来，共创更加美好的明天！

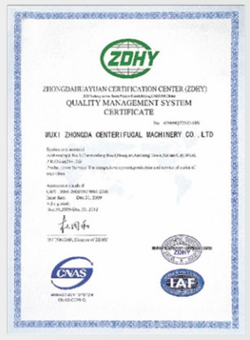
Wuxi Zhongda Centrifugal Machinery Co., Ltd., founded in 1987, is China's separation machinery industry enjoys a high reputation of the horizontal spiral discharge sedimentation centrifuge professional manufacturing enterprises. Now it is a member unit of China separating machinery industry association. The company is located in Wuxi Xishan Economic Development Zone Houqiao street, elegant environment, convenient transportation, 3 kilometers away from Shanghai–Nanjing Expressway exports, traffic is very convenient.

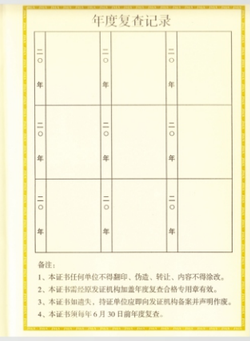
The company has strong technical strength, sophisticated processing equipment, detection means perfect, internal management norms, is currently in its modernization scale, with strong research ability and comprehensive processing capacity of the centrifuge development and production of key enterprises. The company covers an area of 25 thousand square meters, has more than 200 sets of processing and testing equipment, and the annual production capacity of horizontal spiral centrifuge can reach more than 350 units.

After nearly 20 years of development, the company is producing 9 series of more than 20 kinds of specifications of the horizontal spiral discharge sedimentation centrifuge and 4 types of specifications of the horizontal spiral discharge filter centrifuge. At the same time, can be personalized design and manufacturing, production to meet the special needs of customers centrifuges.

In 1999, the company passed the ISO9001 international quality system certification, the product quality, excellent service, many times won the national, industrial and provincial, municipal awards, leading product performance at the domestic advanced level. Product is suitable for solid–liquid separation and wet classification on solid suspension granular, crystalline, fibrous or powder material, widely used in petroleum, chemical industry, chemical fertilizer, light industry, food, pharmaceutical, environmental protection, smelting and other industries. Products sell well all over the country, and exported to Europe and Africa, not many countries and regions, won the praise of customers. The development of the enterprise. Cannot do without the support and love of customers and the community, we hope to develop long–term friendly economic and technical cooperation and business dealings with customers home and abroad to create a better tomorrow!

资质与荣誉
Qualification Honor





工作现场
Working Field

采用国内外先进设备，确保产品质量，做到让客户放心。
Using advanced equipment to ensure product quality,
do make our customers satisfied.

经营理念
Business philosophy

企业经营理念
团结求实，视质量为企业的生命;
创新争先，持续改进是企业的动力;
让客户放心、满意是企业的追求。

Unity and truth-seeking, depending on the quality of life of the enterprise;
Innovation comes first, continuous improvement is a dynamic business;
Make our customers satisfied,satisfaction is the pursuit.

经营目标
Business objectives

成为国内一流的卧螺离心机专业制造商
Become the leading professional manufacturer Decanters

ZD2000F
分级系统
ZD2000F
Grading system

现代社会使用0.1–5微米之间的超细材料越来越多，例如陶瓷、涂料、塑料、化合物、纤维、薄膜、颜料和研磨物料。这样大小的颗粒、原料和其它预备的材料可以经精细研磨制成或者由非常昂贵且不环保的化学方法制成，但是湿法研磨的制备方法极大地提高了生产的成本和营运的开支。

ZD2000F分级系统适用于精确分离细微物料中的粗大颗粒，分离的效果取决于加工物料的固体含量、粘度、密度和粒径分布，以及设备的性能如离心力、分级腔的设计等等。我公司特殊转子设计能够提供平稳和低湍流的分级效果，这是有效分级所必须具备的。

ZD2000F分级系统在运行中，是无需使用分散剂的。

The modern society uses more and more ultrafine materials, such as ceramics, coatings, plastics, compounds, fibers, films, pigments and abrasion materials, between 0.1 and 5 micrometers. Such particles, the size of raw materials and other preparation of materials can be made by fine grinding or made by chemical method is very expensive and not environmental protection, but the preparation method of the wet grinding greatly increases the cost of production and operating costs.

ZD2000F grading system is suitable for precise separation of fine material of rough particles, the effect of the separation depends on the processing materials of solid content, viscosity, density and particle size distribution, and the performance of the equipment such as centrifugal force, the design of the sizing chamber, and so on. The special rotor design of our company can provide the grading effect of smooth and low turbulence, which is necessary for effective grading.

ZD2000F grading system is in operation without the use of dispersants.

工作原理 Working Principle

“分级”指的是将悬浮在液体中的粒子谱机械分级成两部分，该分离以物理效应为基础。

黏性使料浆粘附到转子壁上，并且以相同速度进行旋转。离心力将液体和悬浮固体分离开，重力加速度和离心力作用下逐渐形成转子壁面和抛物液面。

环形转子盖内的料浆随着速度的增加而形成了液体柱，固体颗粒按雷诺兹数值分布悬浮在液体(层流)中。

最终，粒子受到离心力与转鼓壁斜向的总力，随着体积的增加，力偏转角α减小，只有最细的粒子随液体流动至分级转子的顶部，由出液管抛出，而其他的都沉积于分级转子壁上，经分散刮卸流出。

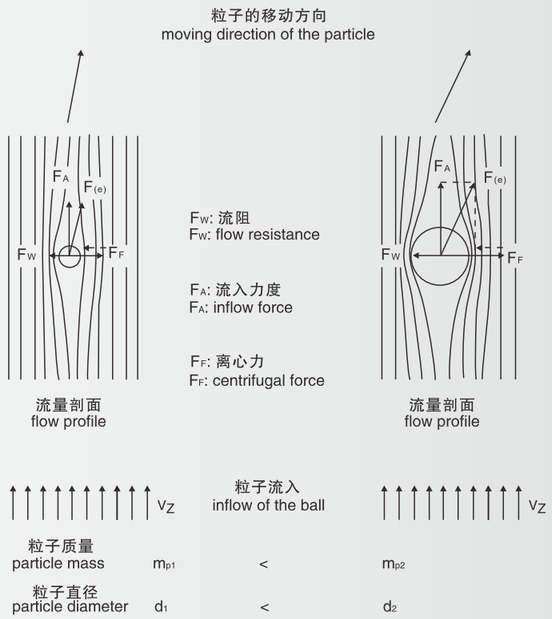
The term ‘classifying’ defines the mechanical separation of a particle spectrum suspended in a liquid into two groups. The separation is based on physical effects.

Due to its viscosity, the slurry adheres to the rotor wall and rotates at approximately the same speed. Subsequently, the liquid and the suspended solids particles are drawn by the centrifugal forces, working on them, to the classifying rotor wall and a parabolic liquid level is forming under the effect of acceleration due to gravity and centrifugal force.

At increased speed, with an annular classifying rotor lid, the slurry, in borderline case, is available in form of a liquid cylinder. Here flow forces in the lower Reynolds’ number range are exerted on the solids particles suspended in the liquid, i.e. in laminar flow.

All in all, the particles are therefore subjected to directed total forces diagonal to the wall, the force deflection angle α is decreasing as the volume increases, so that only the finest particles reach the top classifying rotor rim, while all others settle on the classifying rotor wall.

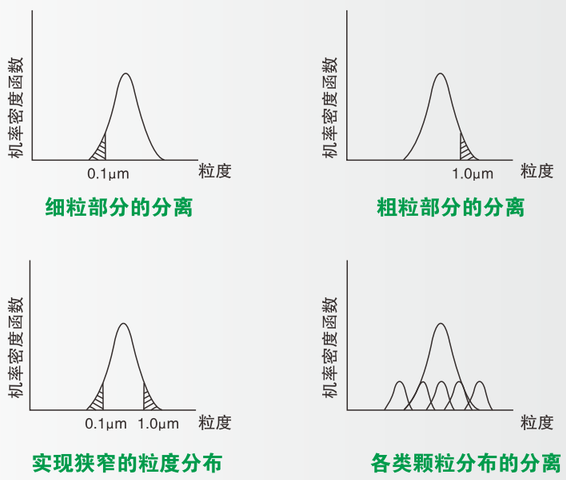
工作原理示意图
Schematic Diagram of working Principle



不同质量相关的动力学效应造成的离心区域的粒子大小分布情况

Separation of particle size distributions in the centrifugal field due to the influence of mass–related different dynamical effects.

离心分离的示例概率
Exemplary possibilities of centrifugal separation



工序示例 Process the sample

ZD2000F分级系统的工作流程分为两个步骤

第一步分级，离心机转子旋转过程中，悬浮液连续不断地输送到系统中，同时粗渣和凝聚物收集在分级腔中，悬浮液通过单独的分级环室，从分级腔顶部边缘送出，出口位置高于转子顶部，成为可立即使用的清液。

第二步分散，当分级腔内填满超过60%容积的粗渣时，转子速度将会降低到预先设定的分散速度。启动分散装置时，少量的稀释液会不断地打进分级腔内。分散流程持续以减速进行，在所有的环室清洁后，排除的粗渣用泵抽走。在再次启动之前，分级腔将短暂停止运行，以使得滞留液体可完全流出系统。

精确的分级系统，使得只有小部分(粗大粒子)需要刮削处理。这对于需要处理的物料而言，是极少量的，因此减少了污染的过程，能够大大提高效益。

The work flow of ZD2000F classification system is divided into two steps

First step grading, centrifuge rotor spinning process, the suspension continuously to the system, at the same time the coarse slag and condensate collection in the classifying chamber, suspending liquid through a separate grading ring room, sent from the sizing chamber top edges, export position higher than the top of the rotor, become clear liquid can be used immediately.

In the second step, the rotor speed will be reduced to a predetermined dispersion rate when the lumen is filled with more than 60% of the coarse slag. When the dispersing device is activated, a small amount of the diluent will continuously penetrate into the graded cavity. The dispersion process continues to decelerate, and after all the ring rooms are cleaned, the removal of coarse slag is pumped away. Before restarting, the classifier will briefly stop running so that the stranded liquid can be completely out of the system.

The accurate grading system makes only a small fraction (large particles) need to be scraped. This is very small for the materials that need to be processed, thus reducing the process of pollution, which can greatly improve the efficiency.

ZD2000F分级离心机技术参数
ZD2000F Classification Centrifuge Technical Parameters

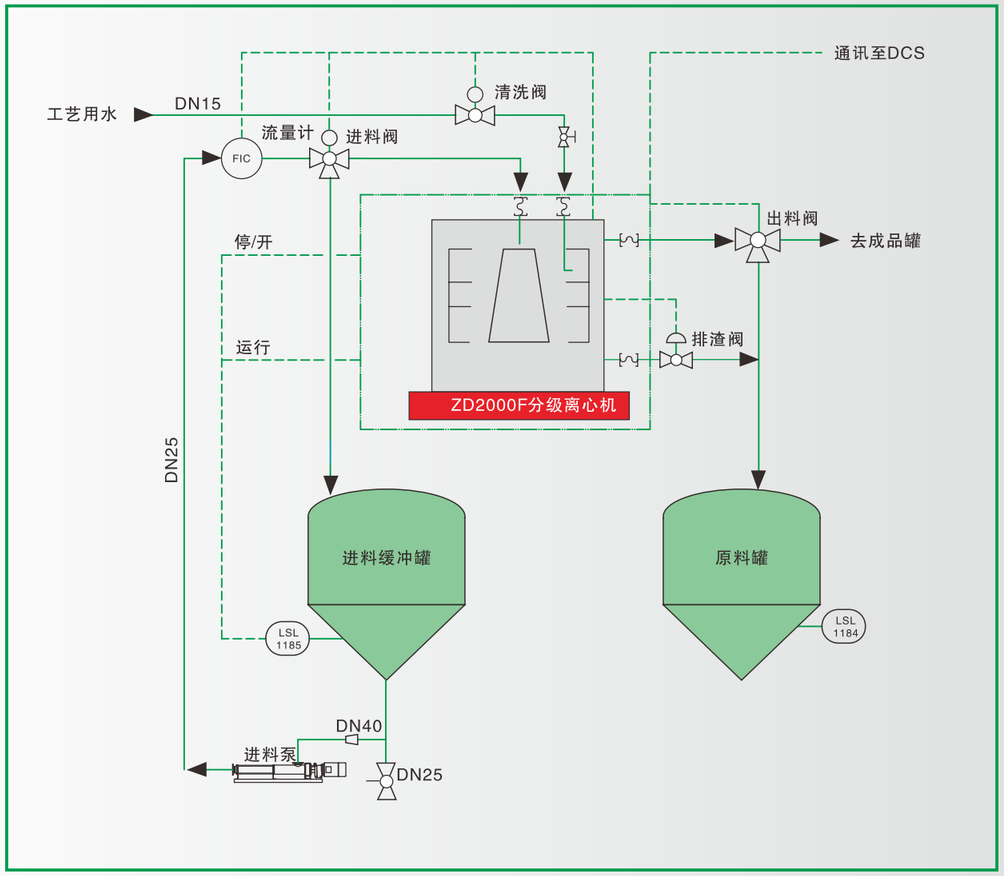
型号project	ZD2000F
转鼓直径Drum diameter	500mm
转鼓长度The length of the drum	620mm
转鼓最高转速Turn the drum up speed	2400r/min
转鼓最高分离因数Turn the separation factor	1610g
处理量Processing	500–1500l/h
主电机功率Main motor	15KW
外形尺寸(长X宽X高)Overall dimensions (length X wide X high)	1300x1300x2085(mm)

ZD2000F分级离心机的特点
ZD2000F Classification Centrifuge Characteristics

◎节能设计
◎不用真空带和篮子过滤
◎离心式的微米分级
◎很高的分离因数
◎高效的纳米分离技术

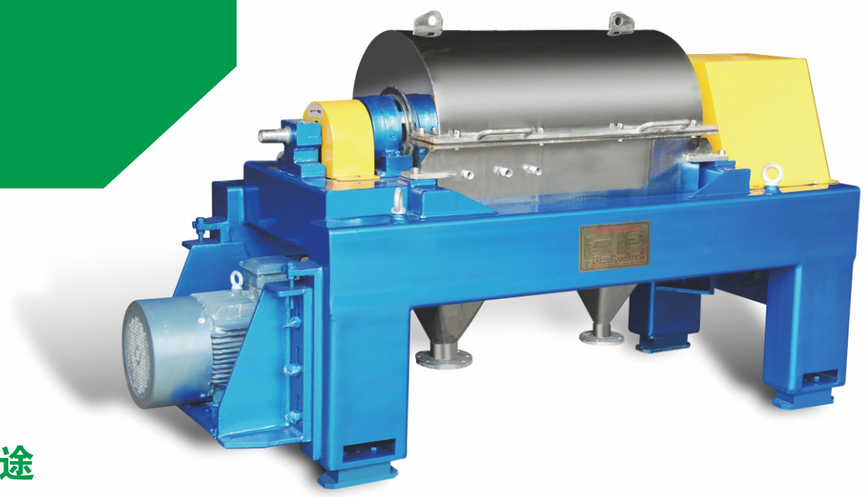
◎Energy saving design
◎Do not use vacuum belt and basket filtering
◎Centrifugal micron classification
◎High separation factor
◎Efficient nano-separation techniques

ZD2000F分级系统工艺流程图
ZD2000F Hierarchical system process flow chart



无锡市中达离心机械有限公司
WUXI ZHONGDA CENTRIFUGE MACHINERY CO.,LTD

分级型
卧螺离心机
Horizontal Spiral Centrifuge



性能和用途

LWF系列离心分级机是利用离心沉降原理对物料进行连续处理、去除物料中粗粒子，而将较细的粒子保存下来的一种高效湿法分级设备。该机具有如下特性：

1、应用范围广，该机对物料的适应性强。该机适用于物料固相重量浓度＜30%，固相粒子当量直径≥0.5μm的物料进行分级，如对高岭土、二氧化钛、白垩、硅藻土、染料、油漆、涂料等物料都能进行有效的分级等。

2、该机具有连续生产，处理量大，单位能耗小，自动化程度高等优点，特别适用于工业生产的流水线作业。

3、该机结构先进，采用变频无级调速能使生产在最佳工艺条件下进行，使分级效率更高、更经济。

4、该机设置有机械、振动及电器过载保护装置，一旦发生过载或螺旋与转鼓堵塞，就会自动报警并切断电源，保证该机运行安全、可靠。

5、该机整个分级过程都在密封状况下进行，对环境无污染、无气味，特别适用于管道化生产。

6、该机结构紧凑、占地面积小、安装方便，安装投资及机器辅助设备少，安装不需固定的基础，可在高空楼板上安装，可简化工厂的工艺流程。日常维护费用小、保养简单、易损件螺旋的表面喷焊Ni-WC等硬质合金，其表面处理后可大大提高其耐磨性，使用寿命成倍提高。螺旋磨损后也可进行修复，延长使用寿命。

7、该机与物料接触部分均采用耐蚀不锈钢，特殊物料可采用钛材。

Performance and Use

LWF series centrifugal classifier is a kind of high efficiency wet classification equipment which uses centrifugal sedimentation principle for continuous treatment of materials, removal of coarse particles in the material, and preservation of fine particles. The machine has the following characteristics:

1, wide range of application, the machine adaptability to the material. This machine is suitable for materials of solid weight concentration is less than 30%, classification of solid particles diameter of more than 0.5 μ m materials, such as kaolin, titanium dioxide, chalk, diatomite, dye, paint and other materials can effectively carry out the grading.

2, the machine has the advantages of continuous production, large amount of processing, small unit energy consumption, high degree of automation, etc., especially suitable for industrial production line operation.

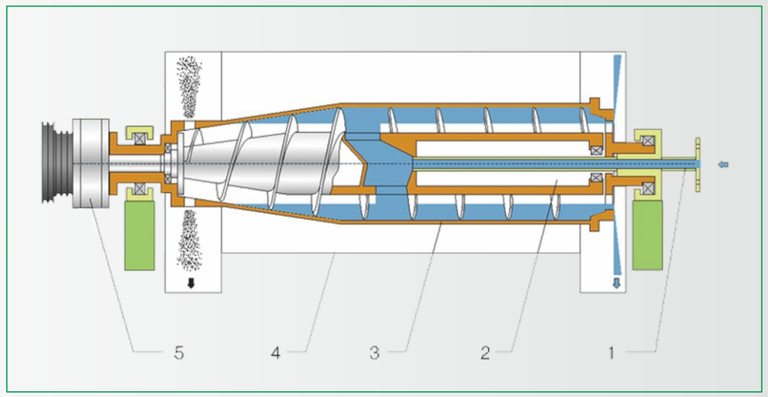
3. The structure of the machine is advanced, and the stepless speed regulation with frequency conversion can make the production under the optimal process conditions, so that the classification efficiency is higher and more economical.

4, the machine is equipped with mechanical, vibration and electrical overload protection device, once the overload or spiral and drum blocked, it will automatically alarm and cut off the power supply, to ensure the safe and reliable operation of the machine.

5. The whole classification process of the machine is carried out under the condition of sealing. It has no pollution and odor to the environment. It is especially suitable for piping production.

6. The machine has the advantages of compact structure, small footprint, convenient installation, less installation investment and machine auxiliary equipment, installation without fixed foundation, and can be installed on the high-altitude floor, which can simplify the process flow of the factory. The surface of the hard alloy, such as small daily maintenance cost, simple maintenance, spiral surface spraying and welding Ni-WC, can greatly improve the wear resistance and prolong the service life of the cemented carbide. After the spiral wear, it can also be repaired to extend the service life.

7, the machine and material contact parts are corrosion-resistant stainless steel, special materials can use titanium materials.



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

结构与分级原理 Structure and Classification Principle

LWF系列离心分级机主要有转鼓、螺旋输送器、进出料管、左右轴承部件、差速器、电机传动部件，以及机座、粗细相收集罩壳、电控箱等部件组成。

该机的分级操作原理如下：

待处理的料浆经进料管进入机内，随转鼓一起旋转，由于料浆中不同粒径粒子的密度差，在离心力的作用下，就使得密度大的粗粒子沉降于转鼓内壁并由螺旋推料器推送到转鼓小端出口由离心力卸出，而由细粒子形成的细浆则成为一个内环，转鼓里面环形液层深度可通过转鼓盖上的溢流挡板调节。分级后的细浆就经溢流口排出，回收的沉渣(粗粒子)由螺旋推料器推出。

LWF series centrifugal classifier mainly consists of drum, screw conveyor, inlet and outlet pipe, left and right bearing parts, differential, motor drive parts, as well as frame, thick and thin phase collecting shell, electric control box and other components.

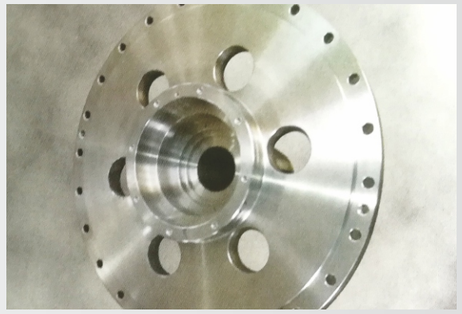
The classification principle of the machine is as follows:

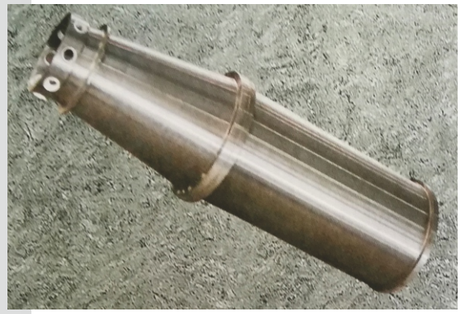
The slurry through the feed tube into the machine, together with the rotary drum, the slurry of different size particle density difference, under the action of centrifugal force, the density of coarse particle deposition in the inner wall of the drum and screw conveyor, pushed to the small end of a rotary drum by centrifugal force discharge outlet, formed by fine particles of fine pulp has become an inner drum inside the annular layer depth can be adjusted by the drum cover on the overflow baffle. The fine slurry is discharged through the overflow mouth, and the recovered sediment (coarse particles) is pushed out by the screw pusher.

主要技术参数 Main Technical specifications

型号project	LW355FX860	LW450FX1100
转鼓直径Drum diameter	355	450
转鼓长度The length of the drum	860	1100
转鼓型式Drum type	圆柱—圆锥型cylindrical—Conetype	圆柱—圆锥型cylindrical—Conetype
转鼓最高转速Turn the drum up speed	3500r/min	3200r/min
分离因数The separation factor	2430	2578
最大处理能力Maximum processing capacity	1~5m^3/h	3~10m^3/h
差转速Differential speed	5~30转/分 turn/minutes	5~30转/分 turn/minutes
主电机Main motor	Y160M2-2-B3-15kW	Y180M-2-22kW
副电机Vice motor	Y132SL-4-B3-5.5kW	Y160M-4-B3-7.5kW
整机重量The weight	1500kg	2200kg
外形尺寸Overall dimensions	2580 × 930 × 1265	3657 × 1010 × 1448

工作参数的选择
Selection of working parameters





用户可根据被分级物料（悬浮液）的物性，分级要求，处理能力，工艺要求等因素综合考虑，合理选择好离心机参数，以获得满意的分级效果和经济效益。

1、进料浓度

进料浓度对物料的分级性能有着十分重要的影响，在一般情况下，物料的进料浓度越低，其分散性能越好，则对物料的分级越有利，相对其回收率也就越高，但如果物料浓度太低时，容易使分级后的后续处理增加负荷，反之，颗粒的分散性较差，分级效果及回收率都会受到一定的影响。因此，选择好物料的进料浓度十分重要，一般其浓度在10~20%较为适宜。

2、进料流量(即处理量)的选择

按分级的角度来说，进料流量越小，物料在转鼓内轴向流速越小，则物料在转鼓内的停留时间越长，分级效果越好。随着进料量增大，轴向流量增加，物料在转鼓内停留时间减少分级效果变差，离心机的进料量还受螺旋的最大排渣能力和浓度及粘度限制，进料量过大，被分出的大颗粒将无法及时排出而引起转鼓的堵料，所以在使用时应按物料特性、分级要求和物料中大颗粒含量多少，选择适宜的进料流量，一般浓度较大时进料量不宜过大。

3、分离因数

转鼓的转速愈高则分离因数越大。一般来说，分离因数越高，其分离性能也就越好，但当螺旋离心机作为分级使用时，因为要求的是从固相物料中回收细粒子，因此随着分离因数的增大，许多细粒子都会随同粗粒子一同贴近鼓壁，从而料浆中细粒子数量明显减少，使得回收率减低。当然，分离因数过低时，也会因此出现无法完全分开的现象，所以，过高和过低的分离因数都是没有意义的。因此选择恰当的转速，产生合适的分离因数，对分级效果十分重要。

4、螺旋与转鼓的差转速

差转速愈大，螺旋的排泄能力增大，但沉渣的含湿量增大，螺旋对物料的扰动也大，从而使分级效果变差，反之变好。对易于分级的物料可用大的差转速来提高螺旋的排渣能力，以提高处理量，但沉渣的含湿量将会增大。故差转速的大小，可通过物料分级试验与分级工艺要求来定。

5、溢流半径

半径的选择对用作分级的卧螺离心机既显得十分重要，同时又较为困难，因为它将随着工艺要求，进料浓度以及分离因数等各种参数的改变而改变。对同一种物料、同一种工艺参数时，随着溢流半径增大，其分级后的细相粒径会愈来愈大，使得分级效果变差，但其细相料浆中的固相含量将会愈来愈大。

Selection of working parameters

The user can according to the grading materials (suspension) properties, classification requirements, processing ability, comprehensive consideration process requirements, reasonable selection of good centrifuge parameters, to obtain satisfactory classification results and economic benefits.

1, Feed concentration

Feed concentration on the material classification performance has very important influence, in general, the material of the lower feed concentration, the better the performance of its dispersion, the classification the better for the material, the higher the relative to its recovery, but if the material when the concentration is too low, easy to increase the classification after the subsequent processing load, on the other hand, the particle dispersion is poorer, classification effect and the recovery will be affected by a certain.Therefore, choose good material feed concentration is very important, generally its concentration in 10 to 20% more appropriate.

2, Selection of feed flow (throughput)

From the point of view of classification, the smaller the feed flow rate, the smaller the axial velocity of the material in the drum, the longer the residence time of the material in the drum, the better the classification effect. With the feed rate increases, the axial flow increases, the residence time variation in drum reduce the classification effect, the feeding amount of the centrifuge is also affected by the maximum discharge capacity and spiral concentration and viscosity limit, feed volume, separated by large particles will not be discharged in time caused by plugging the drum, so when in use should be according to the material characteristics and requirements of classification and material in large particle content, select the appropriate feed flow, generally higher concentration of feed quantity should not be too large.

3, Separation factor

The higher the rotating speed of the drum is, the greater the separation factor is. In general, the higher the separation factor, the separation performance is better, but when the spiral centrifuge as classification is used, because of the requirement is the recovery of fine particles from the solid material, so with the increase of the separation factor, many fine particles are coarse particles together with close to the drum wall, thus the quantity of fine particles in the pulp obviously reduce, make the recovery rate reduce. Of course, when the separation factor is too low, the phenomenon can not be completely separated, so the separation factor of too high and too low is meaningless. Therefore, it is very important to choose the proper rotational speed to produce the proper separation factor.

4, Differential rotation speed between screw and drum

The larger the differential speed is, the greater the excretory capacity of the spiral, but the wet content of the sediment increases, and the disturbance of the spiral to the material is also large, which makes the classification effect worse, and vice versa. In order to improve the discharge capacity of the screw, the large differential speed can be used to improve the discharge capacity of the material, but the moisture content of the sediment will increase. The magnitude of differential speed can be determined by material classification test and classification process requirements.

5, Overflow radius

The choice of the radius is very important and difficult for the classified decanter centrifuge, because it will change with the variety of parameters such as process requirements, feed concentration and separation factor. For the same material, the same process parameters, with overflow radius increases, its classification after the fine particle diameter will become increasingly large, the classification effect of variation, but the fine phase in the slurry solid content will be more and more important.