

GK(F)/GKC

系列全自动卧式刮刀离心机

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● 性能与用途

GK(F)/GKC系列全自动卧式刮刀卸料离心机是一种连续运转间歇卸料的固液分离设备。

该型离心机采用PLC程序控制，通过变频调速，制动系统采用能耗制动或回馈制动，通过料位探测、速度检测、轴温检测、振动检测等实现整个分离过程的全自动循环作业(包括进料、分离脱水、洗涤、卸料等工序)，也可选择手动操作模式，手动操作模式与全自动操作模式可以自由切换。

GK(F)系列全自动卧式刮刀卸料离心机一般用于中细颗粒的固液分离，也可用于有毒、易燃、易爆介质的固液分离，固体物料的排放可以通过斜斗也可采用搅笼螺旋输送的方式。主要用于化工、制药等领域的原料中间体及成品的固液分离。

GKC系列全自动卧式刮刀卸料离心机，为穿墙型安装型式，可以将动力区和生产区分开来，使用在要求高的制药行业，该型离心机可以将整个外壳筒体打开，易于检查和清洗。

● Properties and Uses

GK(F)/GKC automatic centrifuge is solid-liquid separation equipment which adopts continuous operation and intermittent discharging.

The machine is controlled by PLC. It regulates speed by frequency converter; braking system adopts dynamic braking and regenerative braking. Through such procedures as product level detection, speed inspection, shaft temperature and vibration monitoring, the whole separation process is automatic circulative work (including feeding, dehydration, washing, discharging and etc.). Also manual operation mode is available which can be changed over from full-automation mode by customer's will.

GK(F) series automatic centrifuge is not only used for medium and fine particle contained suspension's separation, but also used for the solid-liquid separation of noxious, explosive and combustible product. It adopts inclined hopper or screwed conveyor to discharge solid product. It is mainly used in solid-liquid separation of raw materials, intermediates and end products in the fields such as pharmaceutical industry and chemical industry.

GKC automatic centrifuge adopts wall penetration installation; its power area and processing area can be separated. It can be used in pharmaceutical industry which has high requirements. The whole housing bucket can be open for inspection and cleaning.

● GK(F)/GKC工作原理

主机启动并自动升速，同时对机内进行换气(或充氮气及其它惰性气体)，当达到预定指标且转鼓转速达到加料速度时，进料阀自动打开，同时料位探测器也开始工作，当料层达到一定厚度，即碰到料位探测板时，进料阀自动关闭，停止进料，物料在离心力作用下，悬浮液中大部分液体经滤布(滤网)及转鼓壁上的小孔被甩出，再经机壳的径向排液口流向母液罐(初滤阶段)。物料甩干到一定时间后，即进行洗涤，此时根据工艺要求，离心机自动减速到洗涤速度，洗涤阀自动打开，当洗涤液达到一定厚度时，洗涤阀自动关闭，离心机自动升速至高速进一步甩干(精滤)。

运转一定时间后，物料得到充分的甩干，此时进行卸料，离心机自动减速到设定速度后，卸料阀打开，卸料油缸工作，刮刀自动旋转上升，固体物料被刮下掉进装有螺旋出料器的料斗中，螺旋出料器不断将料推出，经阀排出体外，刮刀上升到离滤布一定的距离时，刮刀装置上的挡块靠近接近开关，刮刀停止上升，并停留一段时间(大约15s)后快速退回，进入下一周期。

● GK(F)主要特点

1. 采用变频调速和PLC程序控制，配设人机界面，配套电气-液压(气动)执行机构。对加料，初过滤，洗涤，精过滤，卸料等全过程监控，真正体现人机对话无人看护的自动化操作，使用维护方便。
2. 通过变频调速系统实现机器的无级调速，采用能耗制动或回馈制动方式，运行更可靠。完善地保护系统，料位探测，转速检测，过振动保护，开门联锁保护，电机过载过热保护，刮刀动作保护等，机器使用更安全。
3. 全封闭防爆型结构设计，配置了自动换气系统(根据氧含量或保护气体压力)或惰性气体保护。即可满足制药行业GMP规范的要求，也可应用于易燃易爆等有毒物料的固液分离。
4. 机壳采用焊接结构，结构紧凑，重量轻，强度高。
5. 内外表面经抛光处理，无死角，全部圆滑过渡，配在线清洗(料清洗，机器清洗)，实现最佳的洗涤效果。
6. 可选配残余滤饼自动清除装置(获国家专利)。

● GK(F)/GKC Working principle

Host machine starts and automatically speeds up, meanwhile gas inside machine can be exchanged with nitrogen or other inert gas. When predetermined target is met and drum speed is suitable for feeding, feeding valve will be open automatically and product level detection begins to work. When layer thickness is thick enough to reach the product detection slab, feeding valve closes to stop feeding. Under the effect of centrifugal force, most of the liquid in suspension is thrown out through filter cloth (or filter net) and the holes on drum wall then flows into mother liquid tank through horizontal liquid outlet (initial filter). With product dehydration going on, centrifuge will automatically slow down to washing speed according to technical requirement for washing. Washing valve opens automatically. With washing liquid rising to a certain height, washing valve closes and centrifuge speeds up automatically for further dehydration (secondary filter).

After a moment of operation, product will be fully dried, then discharging will be in process. Then discharging valve opens and discharging cylinder begins to work when centrifuge automatically slows down to predetermined speed. With scraper rising spirally and automatically, solid product is scraped down into the hopper equipped with spiral discharger. With constant motion of spiral discharger, product is pushed out and discharged through valve. Scraper rises closer to filter cloth with a certain distance till the bar on scraper device approaches proximity switch to stop scraper rising then retreats quickly after a short stay (about 15s) then enters next cycle.

● GK(F) Main characteristics

1. This centrifuge adopts speed regulation by frequency converter and PLC control, friendly human-computer interface and electric-hydraulic (pneumatic) device. Monitoring can be executed in overall processes such as feeding, initial filtering, washing, secondary filtering and discharging etc. which embodies automatic operation without operator, so human-machine conversation can be realized with convenient use and maintenance.
2. Frequency speed regulation system is adopted to ensure stepless speed regulation, while dynamic braking (or regenerative braking) is adopted to ensure stable operation. There is also perfect protection system, product level detection, speed inspection, vibration protection, interlock protection for machine's opening, over heating protection for motor and scraper motion protection, all of which make it safer for operation.
3. Adopted whole sealing sex-proof structure, the centrifuge has automatic air exchange system (according to oxygen content or protective gas pressure) or inert gas protection, so it can meet the demand of GMP Norm of pharmaceutical industry and solid-liquid separation of flammable and explosive products.
4. Welded structure is adopted on the shell to ensure a tight form and high intensity but light weight.
5. Inner surface is polished and no dead angles are left. Connection parts, welding seam, corner and edge adopt round and smooth treatment. Equipped with CIP system (product and machine cleaning) to get a optimized washing effect.
6. The automatic residual cakes removing device is optional (have owned the national patent).



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● GK主要特点

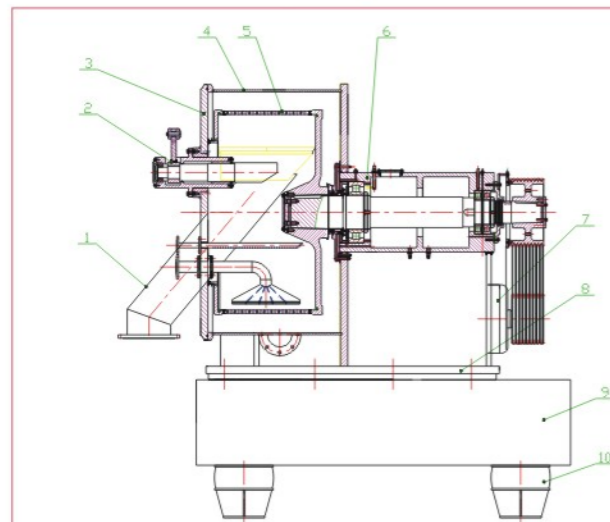
1. 符合GMP、cGMP和FDA要求，满足无菌原料药的生产需求；
2. 动力区和生产区的完全隔离，适用洁净要求更高的场合，避免对产品造成污染；
3. 外壳筒体可以完全打开，可以观察到整个离心机内部，可以对离心机内部进行触摸式擦拭、清洗；
4. 完善的在线清洗系统，可以对离心机内部不易清洗部位进行有效洗涤，避免交叉污染；
5. 配置独特的气体反吹装置，可最大程度地清除残余滤饼层；
6. 全密闭结构，配备惰性气体保护系统，适用防爆级一区使用。
7. 可选配残余滤饼自动清除装置(获国家专利)。

● GKC Main Characteristics

1. It is fully conformed to GMP cGMP and FDA Norm and meet the requirements of asepsis raw medicine production.
2. With absolute isolation between power area and process area. it is suitable for occasion when customer requires high quality cleaning to avoid the contamination to product.
3. The out shell bucket can be opened, so the whole internal parts can be observed and easy for touch wiping and cleaning.
4. Perfect CIP system can be carried out to wash the internal parts of centrifuge to avoid cross contamination which are not easy to clean.
5. Unique pneumatic counter-pulse device is equipped, which can remove remnant filter cake as much as possible.
6. Totally-enclosed structure equipped with inert gas protection is adopted to be used in ex-proof I section.
7. The automatic residual cakes removing device is optional (have owned the national patent)



● 结构示意图 Structure Sketch Map



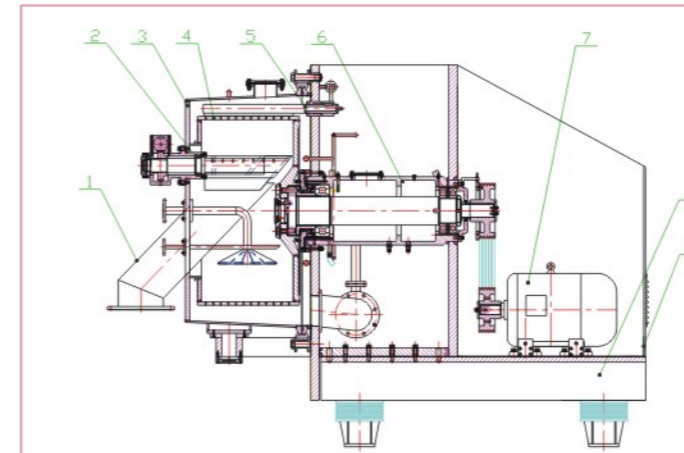
1. 出料斗 Discharging Hopper
2. 刮刀组 Scraper Group
3. 机盖组 Shell Cover
4. 外壳体 Outer Shell Body
5. 转鼓 Drum
6. 轴承座 Bearing Seat
7. 传动部件 Transmission Parts
8. 底板 Base Plate
9. 浮动平台 Floating Platform
10. 减震器 Shock Absorber

GK(F) 系列全自动卧式刮刀卸料离心机

GK(F) Series Automatic Horizontal Scraper Centrifuge



● 结构示意图 Structure Sketch Map



1. 出料斗 Discharging Hopper
2. 刮刀组 Scraper Group
3. 外壳组 Shell Cover
4. 转鼓 Drum
5. 反吹装置 Back Flush Device
6. 轴承座 Bearing Seat
7. 传动部件 Transmission Parts
8. 浮动平台 Floating Platform
9. 驱动罩壳 Drive Inclosure

GKC系列全自动卧式刮刀卸料离心机

GKC Series Automatic Horizontal Scraper Centrifuge

● GK(F)系列离心机主要技术参数 GK(F) Model and Main Parameters

项目Item	型号 Model	GK(F)-800	GK(F)-1050	GK(F)-1250	GK(F)-1250A	GK(F)-1350	GK(F)-1600	GK(F)-1600A	GK(F)-1800
转鼓直径 Drum diameter(mm)		800	1050	1250	1250	1350	1600	1600	1800
转鼓高度 Drum Height(mm)		400	500/630	500	630	680	800	1000	1000
转鼓容积 Drum volume(L)		100	210/260	290	380	500	700	840	1061
装料限量 Loading capacity(Kg)		135	230/280	370	500	650	900	1000	1320
最高转速 Max. Speed (n/min)		1500/1600	1400/1700	1200	1200	1200	950	950	900
最大分离因素 Maximum separating factor		1007/1145	1150/1696	1006	1006	1086	808	808	815
电机功率 Motor power (Kw)		30	37/55	55	55	55	90	90	132
外形尺寸(含减震器) Size including Shock absorber (mm)		2215x2000x2100	3191x2100x2140	2745x2200x2620	2745x2200x2620	3860x2500x2900	4625x3100x3430	4625x3100x3430	5640x3600x3900
机器重量 Weight(Kg)		3200	6000/6200	7000	7600	8500	14000	14800	22700
含平台重量 Weight Including Platform(Kg)		6000	14000/14200	14500	15600	16000	31000	31800	40500

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● GKC系列离心机主要技术参数 GKC Model and Main Parameters

项目Item	型号 Model	GKC-800	GKC-1000	GKC-1050	GKC-1250	GKC-1350
转鼓直径 Drum diameter(mm)		800	1000	1050	1250	1350
转鼓高度 Drum Height(mm)		400	500	500	630	660
转鼓容积 Drum volume(L)		100	180	210	335	450
装料限量 Loading capacity(Kg)		130	230	230	430	585
最高转速 Max. Speed (n/min)		1500/1800	1400	1400	1200	1200
最大分离因素 Maximum separating factor		1007/1448	1096	1150	1006	1086
电机功率 Motor power (Kw)		30	37	37	55	55
外形尺寸(含减震器) Size including Shock absorber (mm)		2620x2000x2070	3439x2316x2428	3439x2316x2428	3700x2500x2700	3860x2680x2740
含平台重量 Weight Including Platform(Kg)		9800	15000	16000	18000	20000

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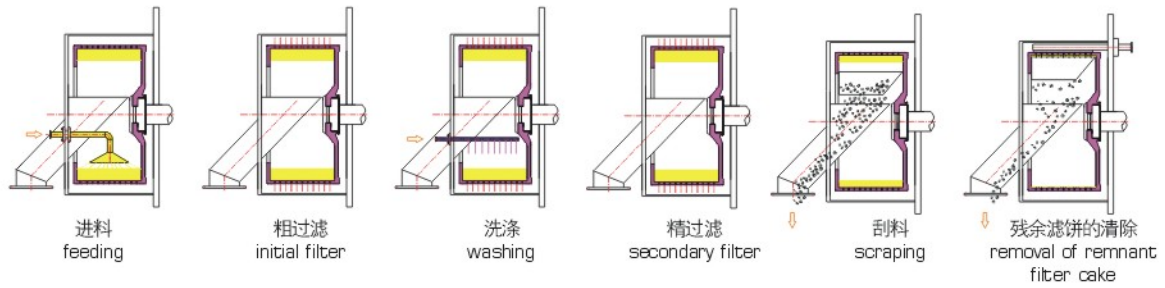
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● GK(F)/GKC工作过程示意图 GK(F)/GKC Working Process Sketch Map

斜斗式出料 Slant Hopper Discharging



搅笼螺旋输送机出料 Screw Conveyor Discharging

