

GK(F)/GKC

系列全自动卧式刮刀离心机

GK(F)/GKC Automatic Centrifuge

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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离开来，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

主机内充氮气或其它惰性气体，当达到预定指标后主机启动并自动升速，当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，离心机会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，经阀排出机外，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，开门连锁保护，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，既可满足制药行业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

Feeding nitrogen or other inert gas into the host machine, after reaching the pre-determined content, 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 explosion-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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CCGM

● GK主要特点

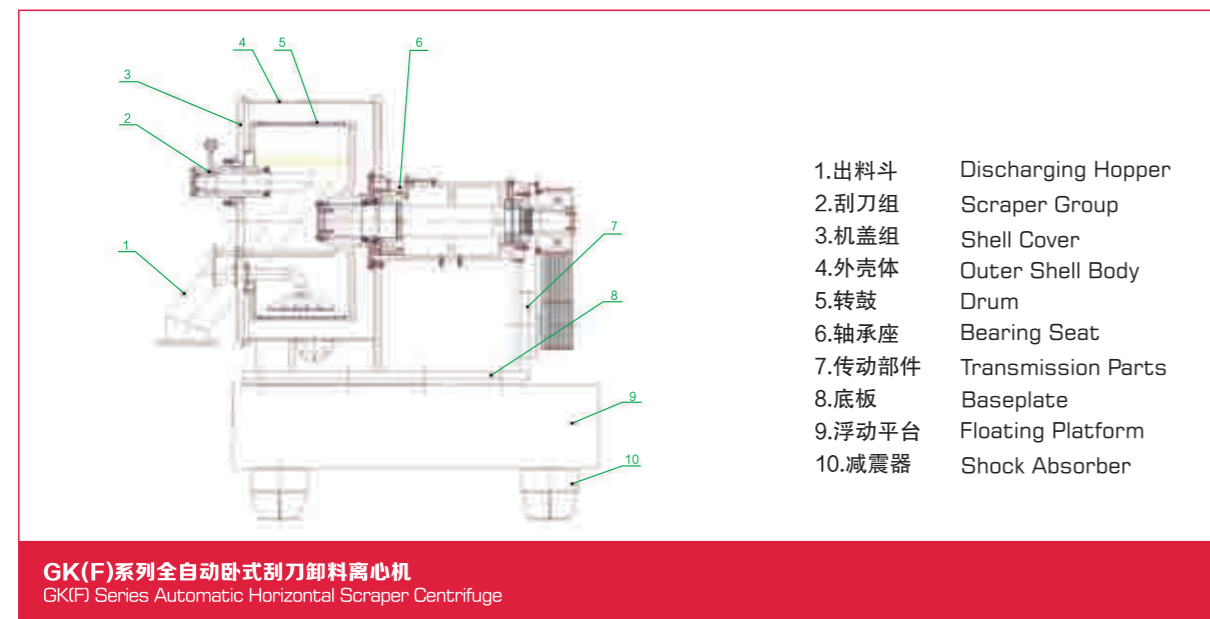
- 1.符合GMP、CGMP和FDA要求，满足无菌原料药的生产需求；
- 2.动力区和生产区的完全隔离，适用洁净要求更高的场合，避免对产品造成污染；
- 3.外壳筒体可以完全打开，可以观察到整个离心机内部，可以对离心机内部进行触摸式擦拭、清洗；
- 4.完善的在线清洗系统，可以对离心机内部不易清洗部位进行有效洗涤，避免交叉污染；
- 5.配置独特的气体反吹装置，可最大程度地清除残余滤饼层；
- 6.全密闭结构，配备惰性气体保护系统，适用防爆级一区使用；
- 7.可选配残余滤饼自动清除装置(获国家专利)。

● GK Main Characteristics

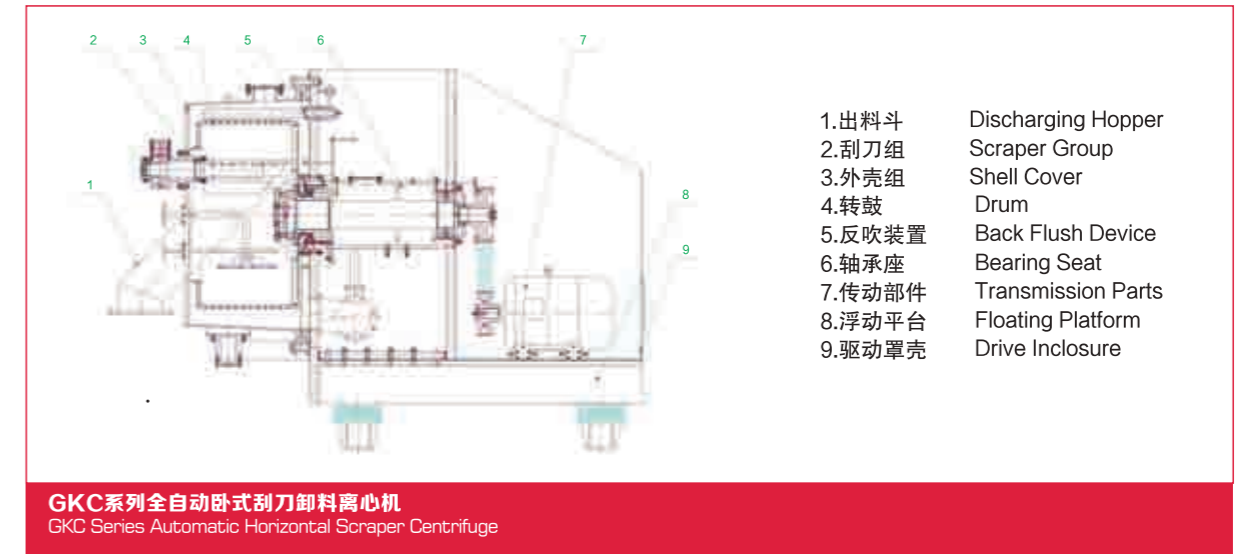
- 1.It is fully conformed to GMP CGMP and FDA Norm and meet the requirements of asepsis raw medicine production
- 2.With absolute isolation between power area and process area. It is suitable for occasion when customer requires high quality cleaning to avoid the contamination to product.
- 3.The out 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

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

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)-600	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)		600	800	1050	1250	1250	1350	1600	1600	1800
转鼓高度Drum Height(mm)		315	400	500/630	500	630	680	800	1000	1250
转鼓容积Drum volume(L)		41	100	210/260	265	335	500	700	840	1390
装料限量Loading capacity(Kg)		53	130	230/280	350	430	650	900	1000	1800
最高转速Max. Speed(r/min)		2400	1500/1600	1400/1700	1200	1200	1200	950	950	900
最大分离因素Maximum separating factor		1931	1007/1145	1150/1696	1006	1006	1086	808	808	815
电机功率Motor power (Kw)		18.5	30	37/55	55	55	55	90	90	132
外形尺寸(含减震器) Size including Shock absorber (mm)		1745×1400 ×1307	2215×2000 ×2100	3191×2100 ×2140	2745×2200 ×2620	2745×2200 ×2620	3860×2500 ×2900	4625×3100 ×3430	4625×3100 ×3430	5640×3600 ×3900
机器重量Weight(Kg)		3000	3200	6000/6200	7000	7600	8500	14000	14800	22700
含平台重量Weight Including Platform(Kg)		3000	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-600	GKC-800	GKC-1000	GKC-1050	GKC-1250	GKC-1350	GKC-1600
转鼓直径Drum diameter(mm)		600	800	1000	1050	1250	1350	1600
转鼓高度Drum Height(mm)		315	400	500	500	630	660	800
转鼓容积Drum volume(L)		41	100	180	210	335	450	700
装料限量Loading capacity(Kg)		53	130	230	270	430	585	900
最高转速Max. Speed(r/min)		2400	1500/1800	1400	1400/1700	1200	1200	950
最大分离因素Maximum separating factor		1931	1007/1448	1096	1150/1696	1006	1086	808
电机功率Motor power (Kw)		18.5	30	37	37	55	55	90
外形尺寸(含减震器) Size including Shock absorber (mm)		2016×1410 ×1480	2620×2000 ×2070	3439×2316 ×2428	3439×2316 ×2428	3700×2500 ×2700	3860×2680 ×2740	4823×3400 ×3355
含平台重量Weight Including Platform(Kg)		4000	9800	15000	16000	18000	22000	28000

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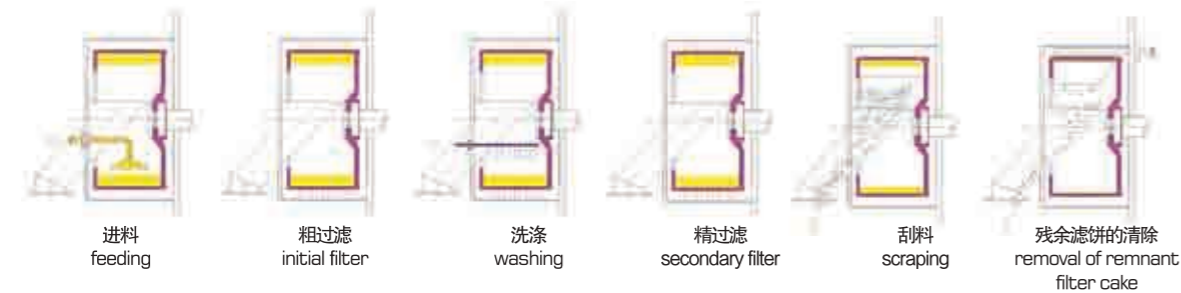
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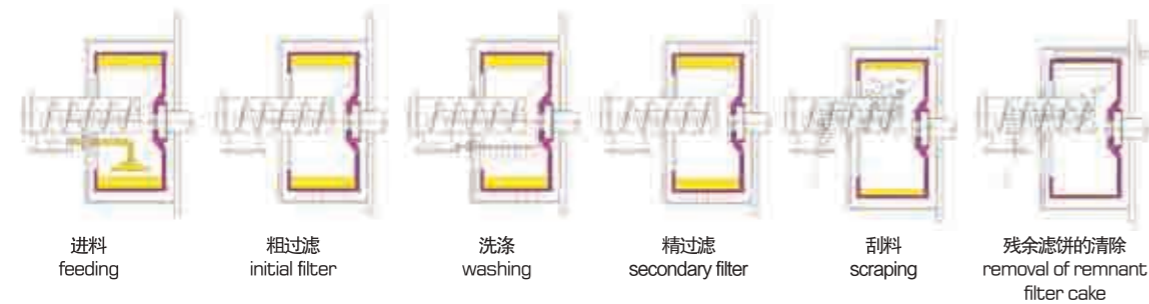
GK(F)/GKC Automatic Centrifuge

● 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 Screw Conveyor Discharging



GKH

系列全自动虹吸型卧式刮刀卸料离心机

GKH Automatic Siphon Centrifuge

GKH系列全自动卧式刮刀卸料离心机
GKH Series Automatic Horizontal Siphon Scraper Centrifuge

● 性能与用途

GKH系列全自动虹吸型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，与GK(F)型离心机相比具有更高的生产能力和分离效果。

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，全自动循环作业，手动操作模式与全自动操作模式可以自由切换。

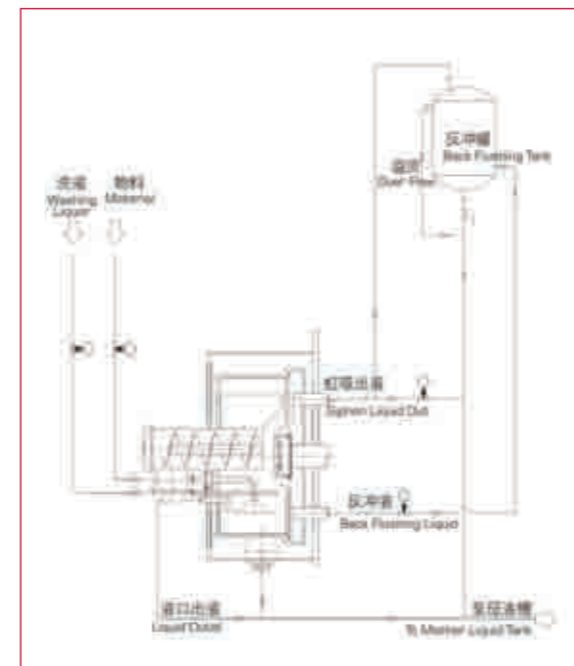
GKH系列全自动虹吸型卧式刮刀卸料离心机除适用普通物料外更适用于固相粒度小、难分离的物料，普遍使用在制药、化工、食品行业(如淀粉、磷酸钙、小苏打等)。

● Properties and Uses

GKH Series automatic siphon centrifuge is a solid-liquid separation equipment which adopts continuous operation and intermittent discharging. Its production capacity and separation effect is better than GK(F) centrifuge.

This machine is controlled by PLC and regulates speed by frequency converter, braking system applies dynamic braking and regenerative braking, the whole separation process is automatic circulative process and manual operation mode is applicable to be changed over from automatic operation mode.

GKH Series automatic siphon centrifuge is more suitable for separating such product as small solid phase granularity and which is hard to be separated. It is widely used in pharmaceutical, Chemical and foodstuff industry (e.g. starch, calcium phosphate, Sodium bicarbonate).

GKH系统布置示意图
GKH System Layout Diagram

● GKH工作原理

卧式虹吸刮刀离心机，除具有普通刮刀卸料离心机的推动力外，还有类似于真空管的虹吸抽力。

离心机空载时，由反冲管向虹吸室内灌液，液体由虹吸室经转鼓的通孔压向外转鼓间隙内，一面排除虹吸管的空气，一面又在过滤介质上形成一层液体，使进料分布均匀。然后开始进料，同时虹吸管旋转到某一位置，一定时间后再旋转到要求的较低位置，进料结束后，将虹吸管转到最低位置(虹吸室最大直径位置)。悬浮液进入转鼓后，固体颗粒被截留在滤布上，而液体则穿过滤布和过滤内转鼓，汇集在内外转鼓的间隙内，经转鼓和虹吸室的通孔进入虹吸室，再由虹吸管抽走，沉积的固体继续甩干后，油缸推动刮刀旋转开始刮料，再经料斗滑出机外，卸料完后进行洗网，虹吸刮刀离心机不仅在转鼓内对滤布进行冲洗，还可由反冲管向虹吸室加入冲洗水。控制虹吸管的上下旋转，使液体从内转鼓下面脉动式反冲洗滤网。可根据物料特性决定冲洗时间和次数，洗网完成后自动进入下一个循环工作周期。