章鼓 ZHANG GU

气力输送成套系
PNEUMATIC CONVEYING SYSTEM

山东章鼓气力输送工程有限公司
SHANDONG ZHANGGU PNEUMATIC CONVEYING ENGINEERING CO.,LTD

章鼓 ZHANG GU

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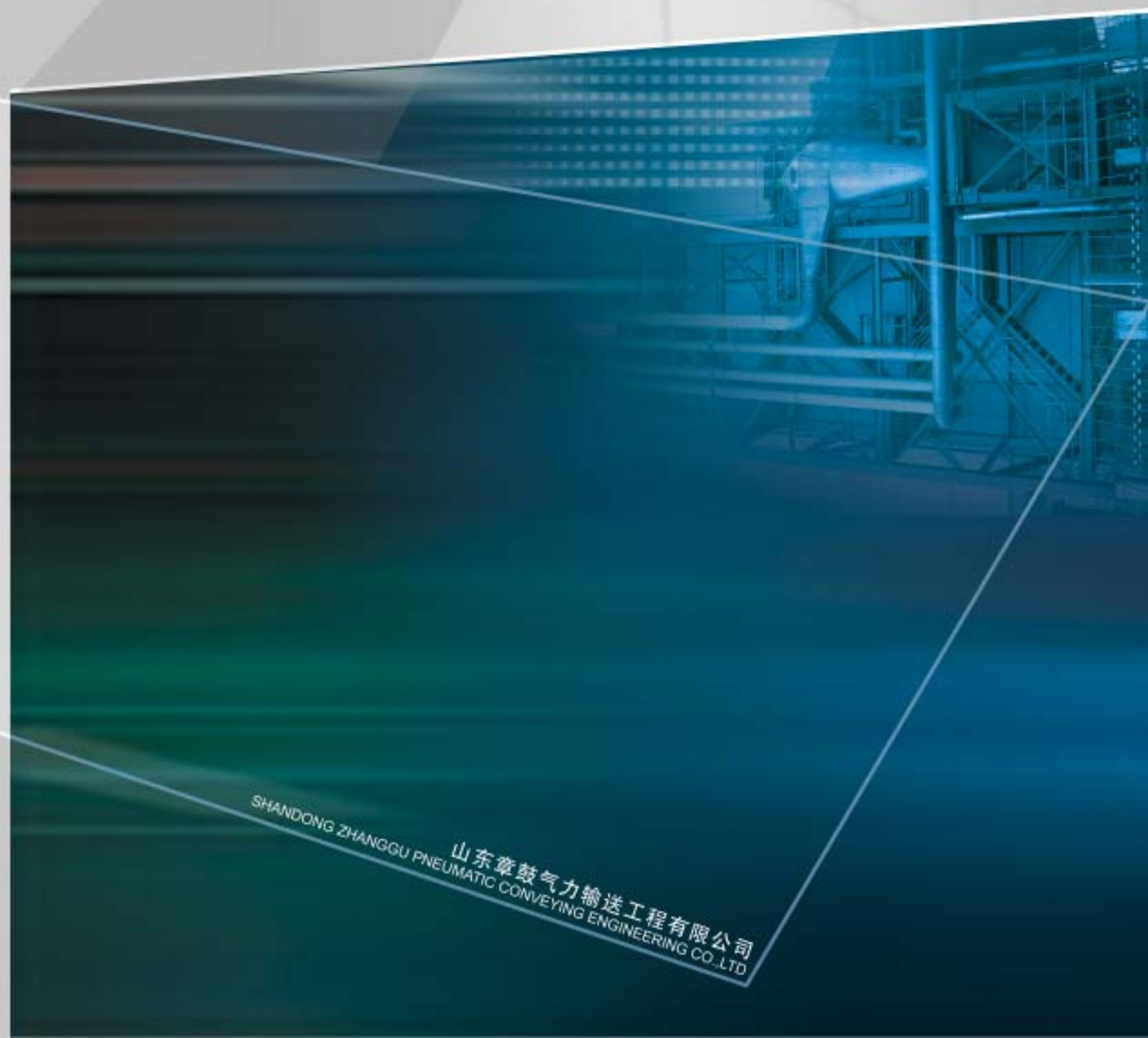

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公司简介 COMPANY SDFKESDFCS

山东章鼓气力输送工程有限公司是中国粉体处理和气力输送系统专业技术公司，高新技术企业；中国机械工程学会全国管道物料输送技术专业委员会常务理事单位。全国化工粉体工程技术中心站技术委员，中国石化集团粉体工程设计中心站技术委员单位，中国粮食气力输送技术专业委员会副理事长单位，公司先后与清华大学、山东大学、山东科技大学、青岛农业大学、郑州工程学院等多所高校建立了产学研基地、教学实习与科研基地。公司具有国内一流的CAD设计中心，有两家中日合资企业，具有世界级气力输送专家博士、研究生数名，拥有享受国务院特殊津贴专家一名，有山东省、济南市专业技术拔尖人才、学术带头人十余名。公司依托山东省章丘鼓风机厂有限公司的设计制造加工优势和国际国内知名高校、科研院所先进的气力输送工程技术、气力输送设备设计制造技术，研制开发高压密相和中低压稀相气力输送系统，从事气固两相流理论研究和应用。在粉体工程、气力输送、科研开发和工程承接方面处于国际领先水平。

公司以科技为先导，以人为本，重视技术集成和科技创新。承接石化、电力、医药、食品、建材、港口、矿业等多行业多领域的气力输送工程和散料处理系统，以“清洁、高效、节能、环保”为宗旨，为用户提供优质、可靠的粉粒体输送及处理系统，满足客户的特殊要求。

公司拥有全国规模最大、试验功能最全、试验测试手段最先进的大型综合性气力输送试验中心，中心建有中低压吸压混合、不锈钢试验线、高压密相试验线，输送管道总距离超过1300米。试验中心功能齐全，可进行气力输送试验多项指标的测定，物料特性的研究和试验数据的采集，为气力输送理论研究及实际的工程设计提供可靠的依据。

本公司可根据客户的需求，为客户提供：项目的可行性分析、项目论证、单机选型、设备性能测试、料性测定、设备安装调试、人员培训、为用户提供气源、供料设备、分离除尘设备、电控及PLC+PC控制等全套气力输送系统交钥匙工程。

Shandong Zhanggu Pneumatic Conveying Englineering Co.,ltd is speeialty technic company of pOwder handling and pneumatic conveying system of china,and which is the permanent syndic of the pipe material conveying committee of China machine engineering academy.Relying on the high quality machining of the zhangqiu blower works co., ltd and the advanced pneumatic conveying design and engineering technology of the known high school and academe,the company develops dense phase and middle-low dilute phase pneumatic conveying syterm,engages the theory study and application of gas-solid double phase. In the powder engineering, pneumatic conveying, sciences develop and engineering continue,the company locate the lead level in domestic.

Taking the science and technology as the precursor,take human as the fundamental,and regard technique integration and innovation.Taking the cleanliness.high efficiency, saving energy and environment protection as the tenet,the company carry on pneumatic conveying engineering and material handling system,which provide the high quality and steadily conveying and handling system of the powder and granule,satisfy the special requirement of the client.

The company has the pneumatic conveying test center which is the biggest scale.the more entire test function,the advanced test way,it has the middle-low,suck-press,stainless, high pressure dense phase test line,lhe total conveying distance exceed 1300 meters,the test center can gather the data,mensurate index research and test the characteristic of material offer the credible gist for pneumatic conveying theory study and factual engineering design

The company offer service based on client demand:

Item feasibility analysis　　Item argumentation

Machine type selection　　Facility performance test

Material characteristic　　Facility assembling and debugging,personnel training

Offer the total pneumatic conveying system bargain key project including air sources,feeder facility,dust separating collector, electricity control and PLC control and so on for the client.

目录 CONTENTS

科研合作与技术开发

Scientific Research Cooperation & Technology Development

实验研究 Test Studying

国内最大的吸压混合综合性能气力输送试中心

- 进行各种物料在不同浓度．不同输送速度下的输送试验
- 进行各种物料长距离单压输送试验研究
- 进行各种物料长距离单吸输送试验研究
- 吸压混合综合性能测试
- 进行沿程压力分布测定及分析计算
- 系统管道放大与缩小计算技术
- 进行单机产品供料能力，供料压力 漏气量测试与研究

The biggest positive and negative ppressure colligation performance testing facility in domestic

- Different thickness and feeding speed, feeding test
- Long distance pressure pneumatic conveying test
- Long distance vaccum pneumatic conveying test
- Positive and negative pressure colligation pedormance test
- Stress distributing mensurate and analysis calculation
- The pipe magnifying and shrunken calculation technology
- Testing and researching of the feeding ability, feeding pressure and air leakage for the stand-alone product.

性能测试试验装置
Performance testing facility

吸压混合气力输送试验台
Positive and negative pressure pneumatic conveying testing facility

功能齐全的高、低压气力输送试验中心

- 输送试验线长度超过 1300 米
- DN80、DNl25、DN200 等多种管径试验线
- 进行高压密相气力输送试验研究
- 脉冲气刀式气力输送试验与研究
- 长距离管道增压防堵技术测试
- 沿程压力分布测定
- 多种型式仓泵的组合气力输送试验研究
- 特殊物料的输送试验
- 自动控制技术开发及系统工艺研究

气力输送试验中心局部
Local lab of pneumatic conveying

High-low pressure pneumatic conveying tester center

- Pipe line length exceed 1300 meters
- DN80, DN125,DN200 and mere pipe test line
- High pressure dense phase test research
- Pulse gas falchion test research
- Pressure increasing and anti pipe jam test for a long distance pipe
- Stress distributing mensurating
- Muti type transport colligation pneumatic conveying test research
- Special material feeding test
- Automatic control technic empolder and system craftwork research

气力输送试验中心
pneumatic conveying test center

气力输送概况及可输送物料

Pneumatic convying general introduction and transportable material

气力输送是一种利用空气（或气体）流作为输送动力，在管道中输送散状固体物料的技术集成系统

气力输送优点：

- 输送管道配置灵活，使工厂生产工艺流程更合理。
- 输送系统完全密闭，粉尘飞扬少，可实现环保要求。
- 运动零部件少，维修保养方便，易于实现自动化.
- 散料输送效率高 降低下包装和装卸运输费用。
- 能避免被输送物料的受潮，污损和混入其他杂物．保证了输送质量。
- 在输送过程中可同时实现多种工艺操作过程，如混合、粉碎、分级、干燥、冷却、除尘等。
- 可将由数点集中的物料送往一处或由一处送往分散的数点，并实现远距离操作。
- 对于化学性质不稳定的物料，可以采用惰性气体输送。

Pneumatic conveying means using air(or gas)sa transportation power and convey dispersed solid material in the pipe

Feature:

- Variable arrangement of the pipe makes the production craft process more reasonable
- The system is sealed and lead to few flying dust, it benefit for environment protection.
- Few movement parts, convenient maintenance, automatic control can be realized easily
- High efficiency of transportation reduce the cost of packing, loading and unloading
- Make the matedal avoid being damped, polluted, damaged, and mixed with other material, the quality of conveying is assured
- Vadous operation process can be realized meanwile for the conveying, such as mixture,crush,grade, dryness cooling, and dust collection
- Send the material from couple place to one place and from one place to couple place, reatize far distance operation
- For the material with erratic chemical character, can adopt inertia gas conveying.

可用气力输送的粉粒料品种繁多，每种物料的料性对气力输送装置的适合性和效率都有很大的影响。因此在选定输送装置前要先对物料进行性能测定。常见适合气力输送物料如下：

面粉	豆饼	调味粉	鱼粉	小麦	可可	盐	谷物	大豆	马铃薯粉	豆皮
干酵母	棉籽	纤维素	淀粉	粒糖	饲料	烟叶	滑石粉	白云石	葡萄糖粉	味精
石灰石	氧化镁	二氧化硅	钛白粉	高峙土	萤石粉	膨润土	粘土	铁矾土	钛矿粉	稻壳
白土	长石	洗涤剂粉	化肥	芒硝	尿素粒	氧化锌	消石灰	碳酸钠	水泥	石墨
硅胶	硝酸钠	氢氧化铝	氯酸钠	磷酸钠	碳酸氢钠	硼砂(酸)	石膏粉	锌粉	矿粉	硅铝球
镍粉	碳黑	氧化铁粉	聚丙烯	PTA	PET	ABS	SBS	PVC	PVA	EPS
煤粉	粉煤灰	尼龙切片	碳素	焦碳粒	水泥	铁丸	橡胶粒	木屑	生物酶	TPU
触媒	重钙	生石膏粉	玻璃纤维	赖氨酸	麸皮	铸造黏土	干细盐	蛋白粉	MOCA	CPE
胚芽	果渣	豆粕	明胶	刚玉	Z 型硅胶	石灰粉	白石粉	BHT 添加剂	皂粒	钴粉
硅酸膏	玉米芯粉	薄膜	玉米纤维	PVC 改性剂	碱纤维素	氧化镁	氟化铝	草酸钴粉	氧化铝颗粒	PS
PP	石油焦	钢渣粉	刚玉	电锻煤	冶金焦					

For the pneumatic conveying,transportable familiar material:

Flour	Bean cake	Season powder	Fishmeal	Wheat	Coca	Salt	Corn	Soybean	Potato powder	hull
dry leavening	Cottonseed	Fibrin	Amylum	Granule sugar	Fodder	Tobacco leaf	French chalk	Dolomite	powdered glucose	Monosodium glutamate
Limestone	Magnesia	Aluminum dioxide	Titanium whiting	Kaolin	Flourite powder	Boric moist soil	Clay	Laterite	Ilmenite powder	Rice hull
White dust	Feldspar	Scour powder	Fertilize	Glauber's	Carbamide	Zinc oxide	Calcium hydroxide	Sodium carbonate	Cement	Gaphite
Silica gel	Sodium nitrate	Hydroxid aluminum	Chlorate	Phosphate	Phosphatic	Borax	Land plaster	Zine powder	Mine powder	Silicon aluminium ball
Nickel powder	Carbon black	Ferric	Ploypropylene	PTA	PET	ABS	SBS	PVA	PVA	EPS
Coal powder	Flyash	Nylon slices	Carbon element	Coke granule	Cement	Iron pellet	Rubber granule	Sawdust	Biology enzyme	TPU
Accelerant	Heavy calcium	Land plaster	Fiberglass	Lusine	Bran	Found clay	Dry salt	Protein	MOCA	CPE

气力输送系统

Pneumatic convying System

气力输送系统的三种输送方式

气力输送优点：

A：**悬浮流输送**

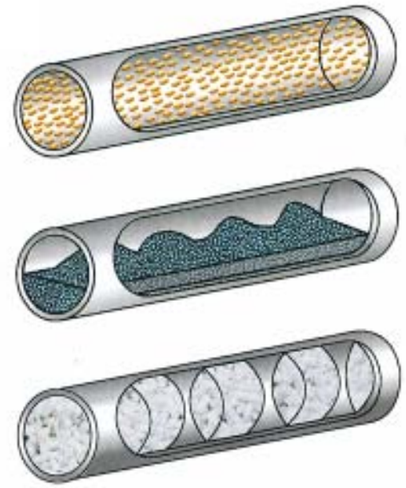
物料输送速度高于悬浮速度.物料在管道中成悬浮状态流动。浓度比小，此输送方式适合于低压稀相短距离输送。

B：**集团流输送**

物料输送速度约等于悬浮速度，物料在管道中成集团状态移动。浓度比适中．此输送方式适合于中压较长距离输送。

C：**栓流输送**

物料输送速度低于悬浮速度物料在管道中被脉冲气阀(气刀)气压力切割成栓状，依靠料栓前后的空气静压差作为推动力前进。浓度比高，此输送方式适合于高压密相长距离低速输送。



Three conveying mode

A:Suspend flow

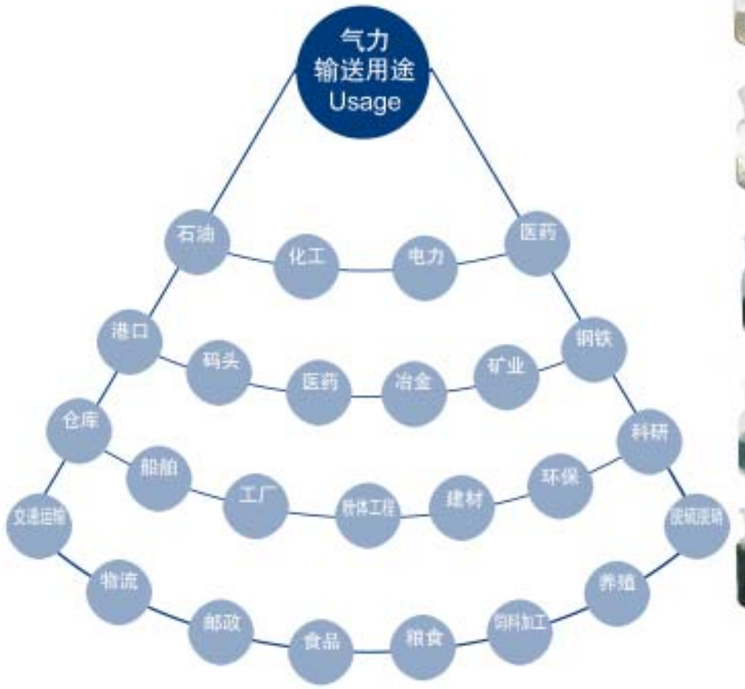
Material's trans velocity is higher than the suspend velocity,the material become suspend state in the pipe, this way suit low pressure, dilute phase short distance.

B:Group flow

Material's trans velocity equal to the suspend velocity, the material become group state,this way suit middle pressurelonger distance.

C:Bolt flow

Material's trans velocity is lower than the suspend velocity, the material is cut into bolt by pulse gas valve in the pipe, then go on depending on the air quiet pressure difference It is suitable for high stress, dense phase, long distance, and lowvelocity.

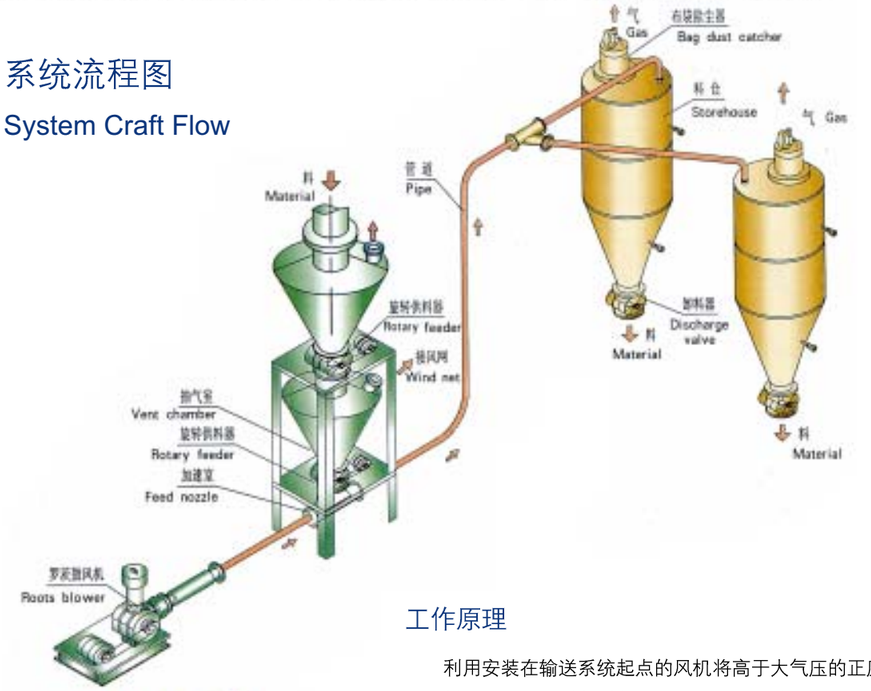


稀相中、低压气力输送系统

Dilute phase middle low pressure pneumatic conveying system

系统流程图

System Craft Flow



工作原理

利用安装在输送系统起点的风机将高于大气压的正压空气通入供料器装置中 物料从料斗中加入 在重力作用下进入供料器进行定量供料，料和气一起经钠送管道送到终点的分离铭或贮仓内。料气分离后，空气经过滤后排入大气。

系统特点

本系统是以罗茨鼓风机为气源．旋转供料器为供料装置、连续压送物料的一种气力输送系统，该系统具有输送压力低，输送距离短、输送可靠的特点，适用于从一处向多处进行分散输送，对物料起到烘干和分级的作用；由于系统为正压，所以即使在管系的组成部分某联接处存在缝隙，外界空气或雨水也不会侵入；物料易从卸料口排出。

分路阀 Shunt valve

低压输送系统 Low pressure conveying system

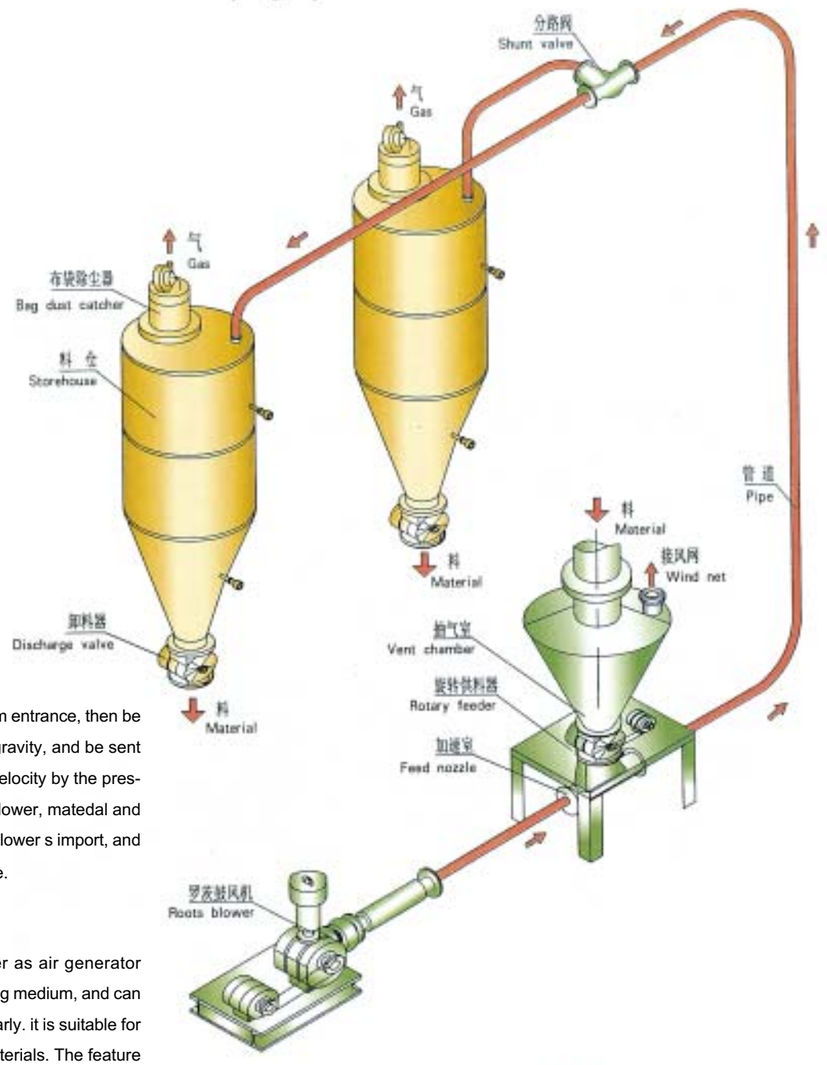
项目 Item	输送方式 Trans mode	输送量 (t/h)Trans quantity	输送压力(kPa) Trans pressure	输送管径 (mm) Trans pipe diameter	输送高度(m) Trans height	输送距离 (m)Trans disrance
参数 Parameter	连续中低压压送 Continuous middle-low pressure conveying	0.1~100	29.4~196	50~250	5~35	10~300

气力输送系统

Pneumatic convying System

系统流程图

System Craft Flow



Work principle

Material enter the rotary feeder from entrance, then be supplied quantificationally by the gravity, and be sent to the appointed storehouse at a velocity by the pressure air pro- duced by the Roots blower, matedal and air separate, filtrated air enter the blower s import, and then proceed next conveying cycle.

System character

This system adopts Roots blower as air generator machine, inedia air as the conveying medium, and can be running continuously and circularly. it is suitable for transporting unstable chemical materials. The feature of this system is low pressure, realiable transport, and recycle inertia air.

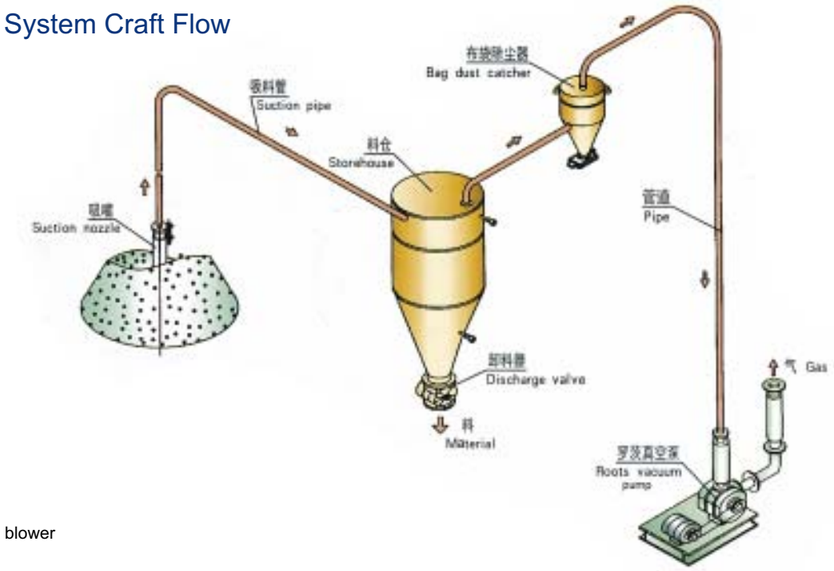
旋转供料器 Rotary feeder

稀相中、低压真空吸送气力输送系统

Dilute phase middle-low vacuum imbiber pneumatic conveying system

系统流程图

System Craft Flow



三叶风机
Three-lobe blower

工作原理

利用安装在输送系统终点的真空泵抽吸系统内的空气，输送管内形成低于大气压的负压气流，物料同大气一起从起点吸嘴进入管道，随着气流输送到终点分离器内，物料颗粒受到重力或离心力作用从气流中分离出来，气体除尘后经离心风机或真空泵排入大气。

系统特点

本系统是以罗茨真空泵为气源，连续吸送物料的一种气力输送系统。该系统具有把物料从数处向一处集中输送输送压力低、输送可靠，设备简单；由于系统内压力低于大气压力，被输送物料不会从系统中逸出；由于吸嘴吸料，可避免取料点的粉尘飞扬，生产效率高。

码头吸粮机
Suck grain machine in dock

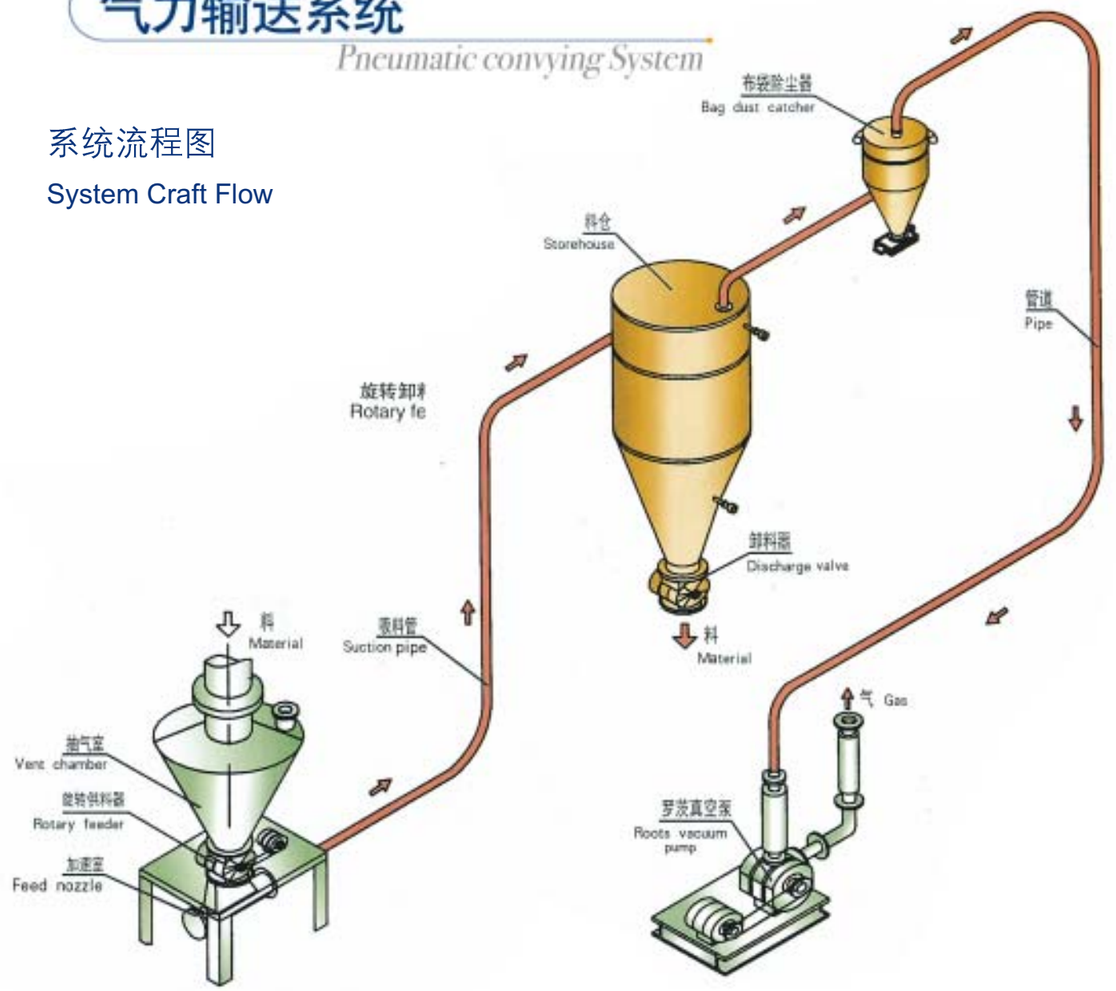
项目 Item	输送方式 Trans mode	输送量(t/h) Trans quantity	输送压力(kPa) Trans pressure	输送管径(mm) Trans pipe diameter	输送高度(m) Trans height	输送距离(m) Trans disrance
参数 Parameter	连续中低压压送 Continuous middle-low pressure conveying	0.1~150	-29.4~80	50~300	5~35	10~150

气力输送系统

Pneumatic convying System

系统流程图

System Craft Flow



Work principle

Using the vacuum pump at the end-point of the system, which can pump the system's air, the pipe become negative pressure flow, material and air are sucked into the pipe from the front inlet, then be sent to the endpoint separator, the granule is separated from the air flow by the gravity and the centrifugal pressure, filtrated air enter the sky through the centrifugal blower or the vacuum.

System character

Roots Vacuum pump is the air generator, the system send material continuously. Low pressure, transport credibility, simple facility is the feature of the system. It can be suitable to carry material concentrically from multi place to one place; because the system is negative, material can not escape from the system; because of the suction nozzle, so dust flying can be avoided.

旋转卸料器
Rotary feeder

稀相惰性气体循环气力输送系统

Dilute phase inertia air circle pneumatic conveying system

工作原理

物料从料斗中进入旋转供料器，物料在重力作用下由供料器进行定量供料，罗茨鼓风机产生压力气体，以一定的速度把物料输送到指定料库，料气分离后，气体除尘后进入进气管由风机进气口吸入进行下一次输送循环。

不锈钢旋转供料器
Stainless rotary feeder

系统特点

本系统是以罗茨鼓风机为气源，惰性气体为输送介质连续输送物料的一种循环式气力输送系统。该系统适宜输送化学性质不稳定的片状、粉状与粒状物料。具有压力低，输送可靠、惰性气体能够循环利用的特点。罗茨鼓风机在系统中起到压送(鼓风机)和吸送(真空泵)的作用。

罗茨鼓风机 Roots blower

项目 Item	输送方式 Trans mode	输送量(t/h) Trans quantity	输送压力(kPa) Trans pressure	输送管径(mm) Trans pipe diameter	输送高度(m) Trans height	输送距离(m) Trans disrance
参数 Parameter	连续中低压压送 Continuous middle-low pressure conveying	0.1~50	29.4~196	50~150	5~30	30~200

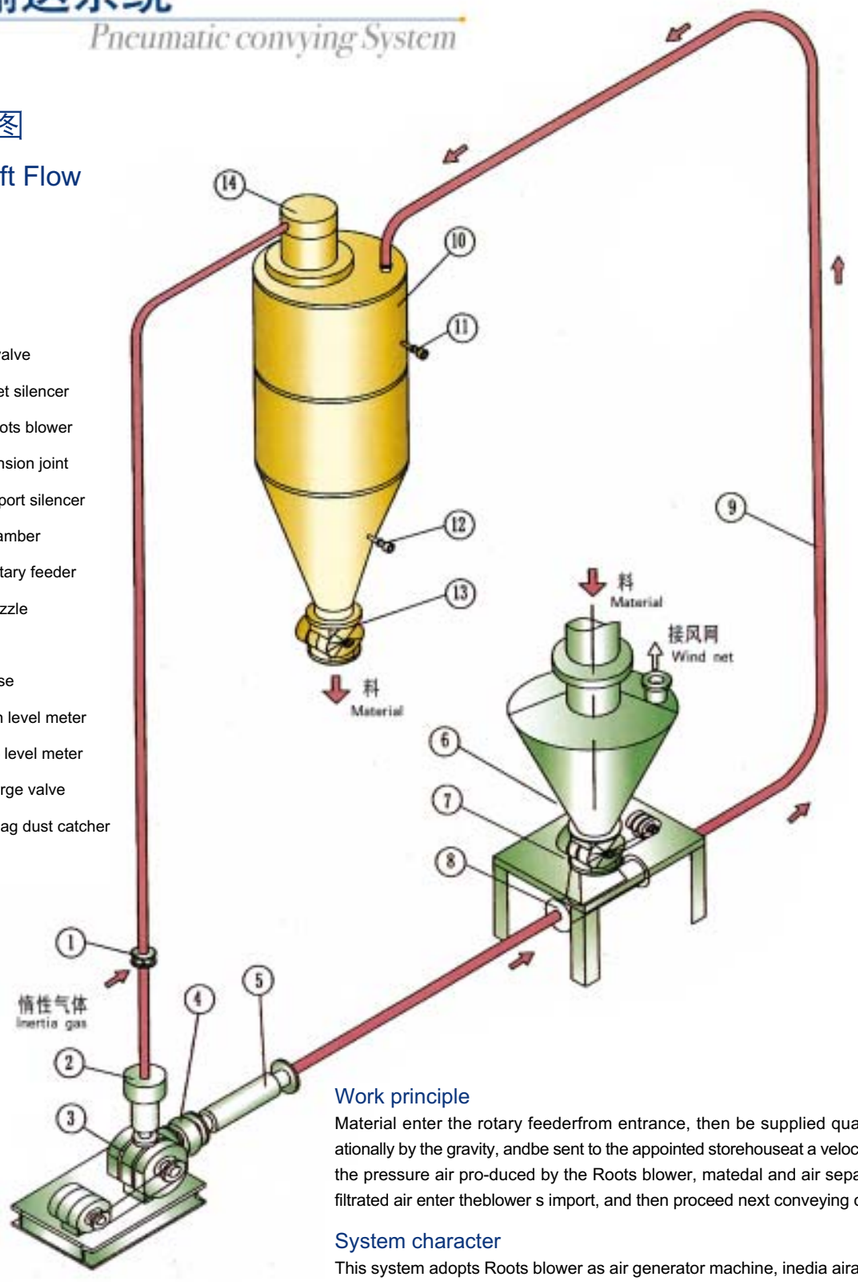
惰性气体循环气力输送系统
Inertia air circle pneumatic conveying system

气力输送系统

Pneumatic convying System

系统流程图

System Craft Flow



1.截止阀 Cut-off valve
2.进口消声器 Inlet silencer
3.罗茨鼓风机 Roots blower
4.弹性接头 Expansion joint
5.出口消声器 Export silencer
6.抽气室 Vent chamber
7.旋转供料器 Rotary feeder
8.加速室 Feed nozzle
9.管道 Pipe
10.料仓 Storehouse
11.高料位计 High level meter
12.低料位计 Low level meter
13.卸料器 Discharge valve
14.布袋除尘器 Bag dust catcher

Work principle

Material enter the rotary feederfrom entrance, then be supplied quantific ationally by the gravity, andbe sent to the appointed storehouseat a velocity by the pressure air pro-duced by the Roots blower, matedal and air separate, filtrated air enter theblower s import, and then proceed next conveying cycle.

System character

This system adopts Roots blower as air generator machine, inedia airas the conveying medium, and can be running continuously and circularly.it is suitable for transporting unstable chemical materials. The feature ofthis system is low pressure, realiable transport, and recycle inertia air.

高压供料器压送气力输送系统

High pressure feeder pneumatic conveying system

高压供料器
High pressure feeder

双级串联罗茨鼓风机
Two-stage Roots blower

工作原理

物料从料斗中加入，在加料阀控制作用下进入高压供料器进行定量供料，以双级串联罗茨鼓风机或空气压缩机为气源，产生高压气体，以一定的速度把物料从管道中输送到终点分离器(料仓)，料气分离后，气体经过滤除尘后排入大气。

系统特点

本系统是以双级罗茨鼓风机或空气压缩机为气源，产生高压气体，连续压送物料的一种气力输送系统。该系统适用于从一处向多处进行分散输送，具有压力高，密封可靠，对物料起到烘干和分级的作用；适宜中长距离输送，输送比重较大。磨损性较小的粉状和粒状物料。由于旋转阀叶轮的分隔作用，可将物料自动分成料栓，从而形成密相气力输送系统。

Work principle

Under the control of the flashboard valve, material enter the high pressure feeder from the hopper, feeding quantificationally. The materia in the pipe are sent to the terminal separator by the high pressure gas from two-stage roots blower or air compressor. After separating the material and the gas, the filtrated gas is vented to the air.

System character

In the system,the high pressure gas is produced by two-stage Roots blower or air compressor, and convey the material continuously. The system can convey the material from one place to multi-place, with the feature of high pressure, realiable sealing, and have the function of drying and classification to the material. It is suitable for the transporation of long distance, high density, less abrasion.

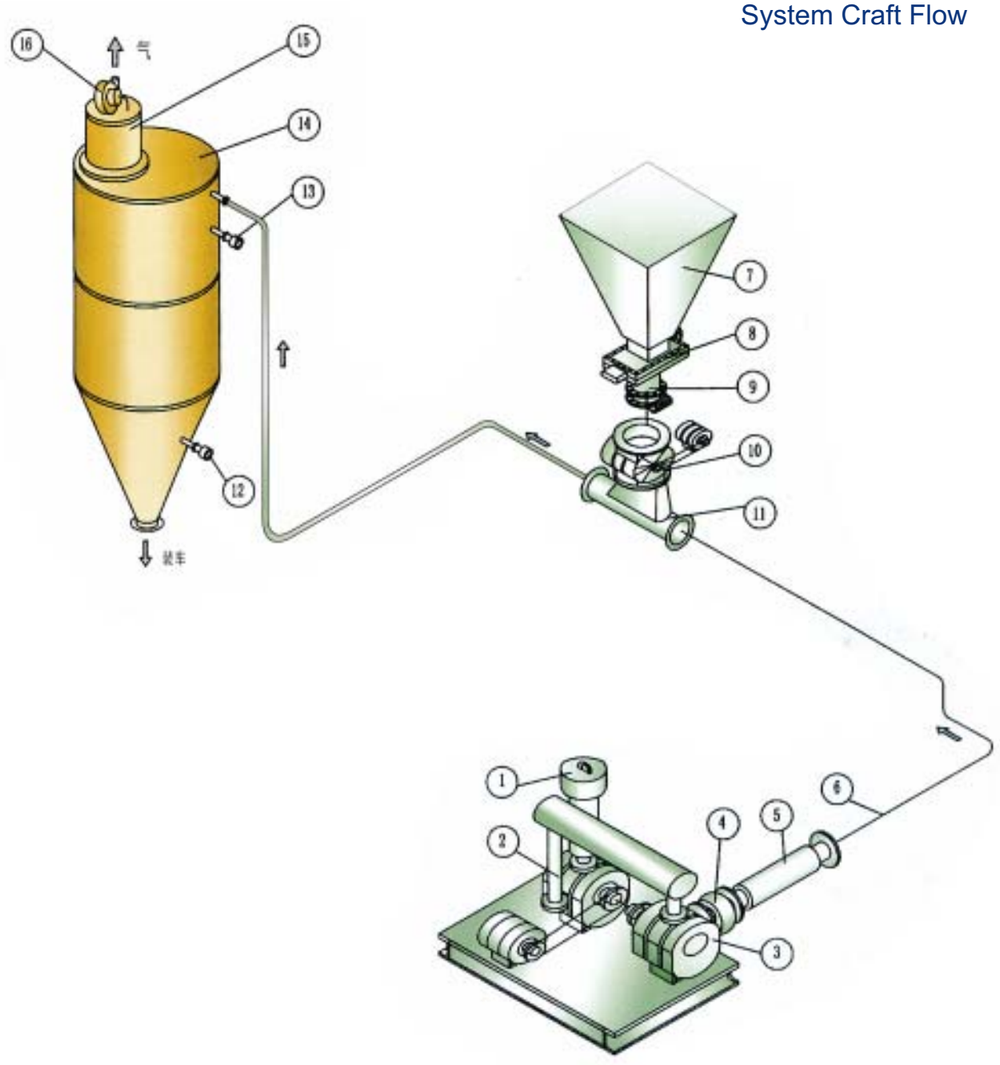
项目 Item	输送方式 Trans mode	输送量(t/h) Trans quantity	输送压力(kPa) Trans pressure	输送管径(mm) Trans pipe diameter	输送高度(m) Trans height	输送距离(m) Trans disrance
参数 Parameter	连续中低压压送 Continuous middle-low pressure conveying	0.1~50	98~300	50~150	20~40	50~300

气力输送系统

Pneumatic convying System

系统流程图

System Craft Flow



1、吸入消声器 Suction silencer
2、一级罗茨鼓风机 Grade I Roots blower
3、二级罗茨鼓风机 Grade H Roots blower
4、弹性接头 Expansion joint
5、排出消声器 Discharge silencer
6、管道 Pipe
7、料斗 Hopper
8、手动插板机 Handle Flashboard valve
9、电动卸料机 Electromotion discharge valve
10、高压供料器 High pressure feeder
11、加速室 Feed nozzle
12、低料位计 Low level meter
13、高料位计 High level meter
14、料仓 Storehouse
15、袋式过滤器 Bag filter
16、引风机 Suction blower

密相高压气力输送系统

Dense phase high pressure pneumatic conveying system

工作原理

物料从料斗中由进料阀控制加入发送罐(仓泵)．空压机产生高压气体．以一定的速度把物料输送到指定料库，料气分离后．气体经除尘后排入大气或接入除尘风网。

系统特点

本系统是以空压机为气源，发送罐输送物料的一种密相高压气力输送系统。该系统具有流速低。耗气量小，适宜长距离，大容量的输送，对于透气性好的物料，便于实现流态化输送．具有噪声低、破碎少的特点。适宜输送水泥、粉煤灰、矿粉、铸造型砂、化工原料等磨削性较大的物料。

Work principle

Under the control of the flashboard valve, material enter the transpod, the compressor engender high pressure gas, which convey material to the appointed storehouse, after material and air is separated, filtrated air enter the sky or dust meshwork.

System character

It is a kind of dense phase high pressure pneumatic conveying system and which adopt air compressor as gas generator, usetransport to convey material, its feature is low flow velocity, less air consumption, low noise, less crash, and long distance and large capacity conveying. For ventilative material, fluidity conveying can be realized. It is suitable for conveying cement, ore powder,flyash, foundry mould sand, chemical material

项目 Item	输送方式 Trans mode	输送量(t/h) Trans quantity	输送压力(kPa) Trans pressure	输送管径(mm) Trans pipe diameter	输送高度(m) Trans height	输送距离(m) Trans disrance
参数 Parameter	连续中低压压送 Continuous middle-low pressure conveying	0.1~100	100~600	40~200	40	∠1000

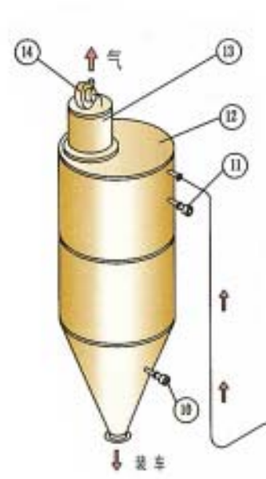
高压仓泵输送系统
High presure transport conveying system

上引式仓泵
Ascending suction transport

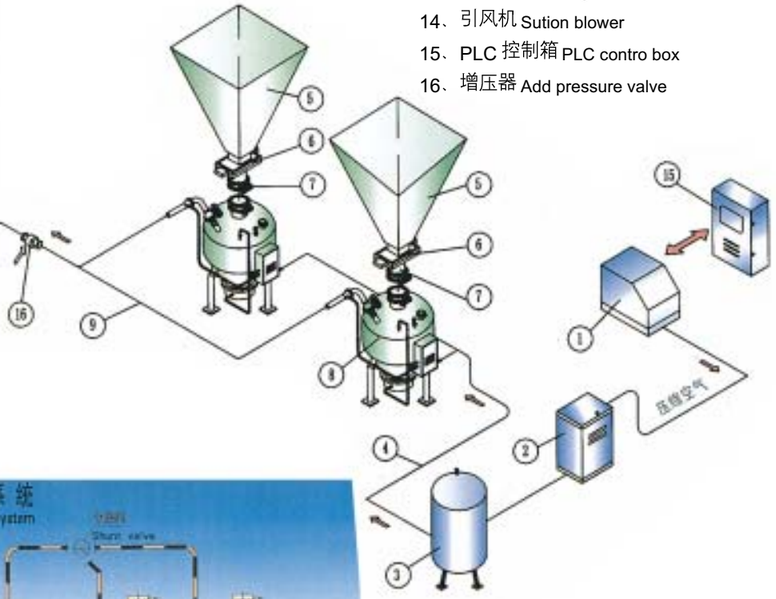
空气压缩机
Air compressor

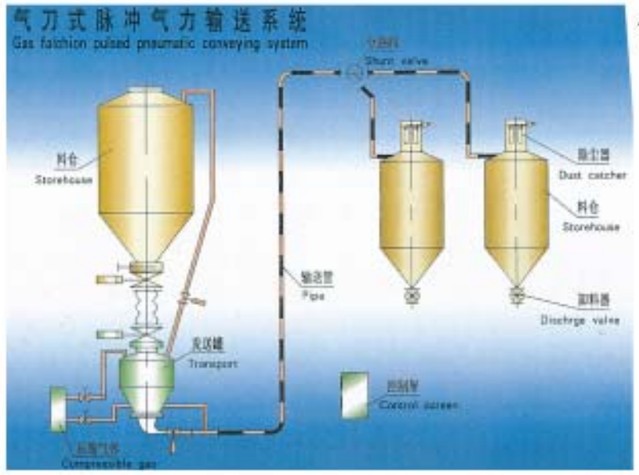
气力输送系统

Pneumatic convying System



1、螺杆式空气压缩机 Screw air compressor
2、冷冻干燥机 Freeze drier
3、储气罐 Gas storage
4、输气管道 Transport gas pipe
5、排料装置 Feed equipment
6、手动插板阀 Handle flashboard valve
7、电动卸料阀 Electromotion discharge valve
8、发送罐 Storehouse pump
9、管道 Pipe
10、低料位计 Low level meter
11、高料位计 High level meter
12、料仓 Storehouse pump
13、袋式过滤器 Bag filter
14、引风机 Sution blower
15、PLC 控制箱 PLC contro box
16、增压器 Add pressure valve





系统流程图

System Craft Flow

电厂正压输送粉煤灰系统

Power station positive pressure conveying flyash system

工艺流程

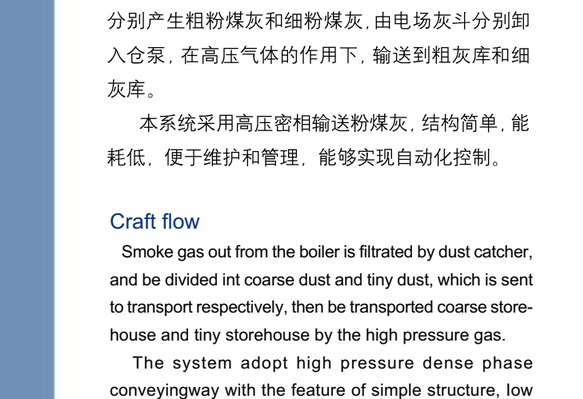
锅炉燃烧产生的烟气，经电除尘器过滤除尘，分别产生粗粉煤灰和细粉煤灰，由电场灰斗分别卸入仓泵，在高压气体的作用下，输送到粗灰库和细灰库。

本系统采用高压密相输送粉煤灰，结构简单，能耗低，便于维护和管理，能够实现自动化控制。

Craft flow

Smoke gas out from the boiler is filtrated by dust catcher, and be divided int coarse dust and tiny dust, which is sent to transport respectively, then be transported coarse store-house and tiny storehouse by the high pressure gas.

The system adopt high pressure dense phase conveyingway with the feature of simple structure, low wasting energy, convenient managing, can be



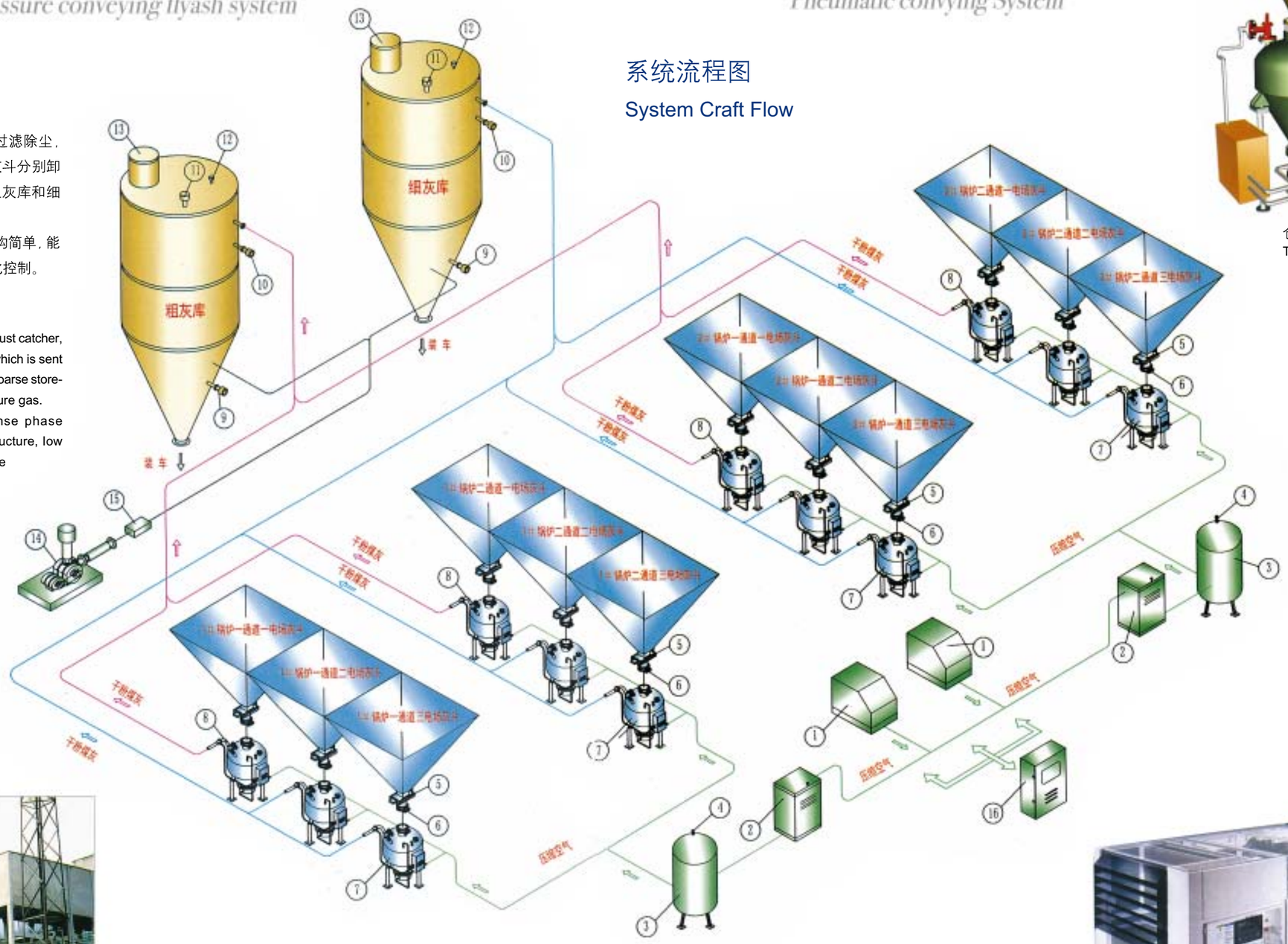
电厂输送粉煤灰系统 Power station fyash conveying system

气力输送系统

Pneumatic convying System

系统流程图

System Craft Flow



仓式泵
Transport

1、螺杆式空气压缩机 Screw air comperssor
2、冷冻干燥机 Freeze drier
3、储气罐 Gas storage
4、电接点压力表 Electricity join pressure gauge
5、手动插板阀 Handle flashboard valve
6、电动卸料阀 Electromotion discharge valve
7、上引式仓泵 Ascending suction transport
8、出料阀 Discharge valve
9、低料位计 Low level meter
10、高料位计 High level meter
11、真空释放阀 Vacuum release valve
12、连续料位计 Continuous level meter
13、袋式过滤器 Bag filter
14、罗茨鼓风机 Roots blower
15、电加热器 Electricity heater
16、PLC 控制箱 PLC control box

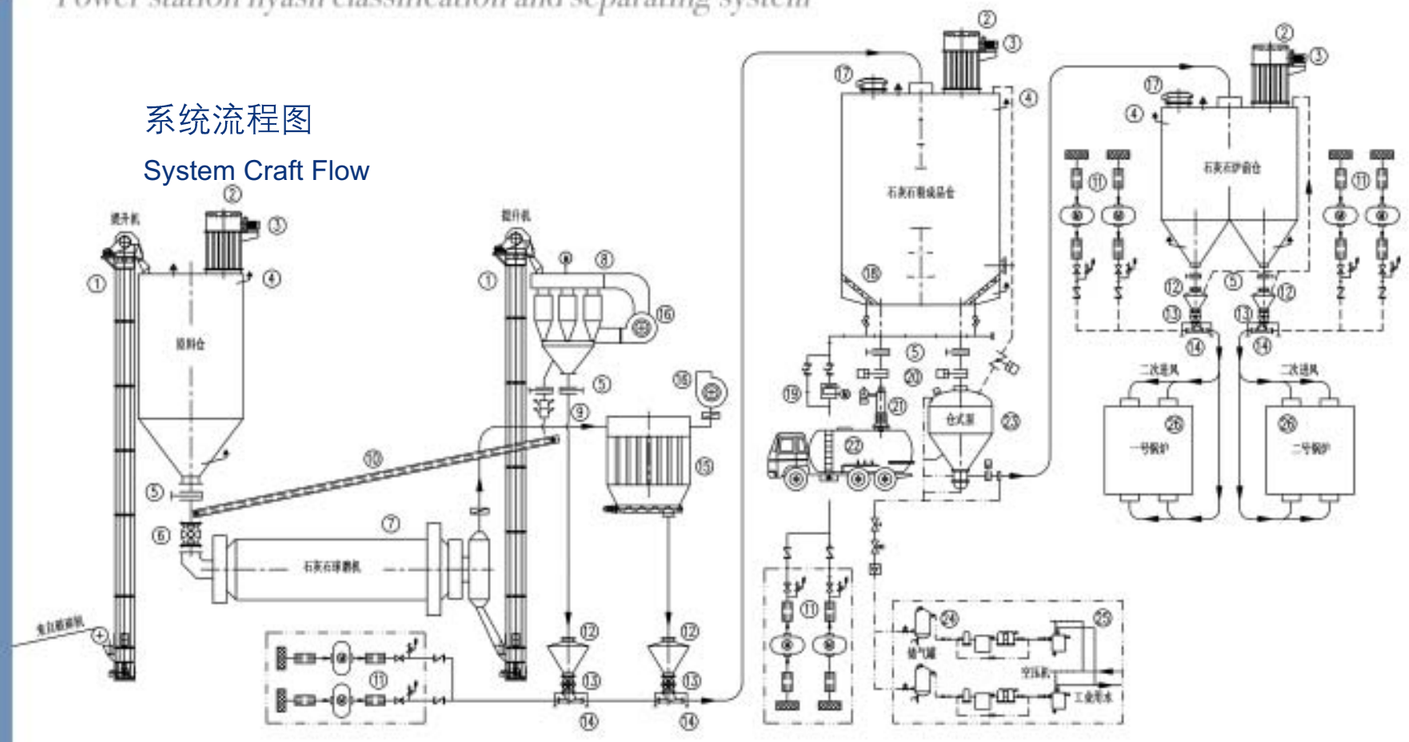
螺杆式空气压缩机
Screw air compressor

电厂脱硫工程系统

Power station flyash classification and separating system

系统流程图

System Craft Flow



工艺流程

来自破碎机破碎后的石灰石颗粒经提升机提升至原料仓中，经下方的给料机定量的将石灰石颗粒加入到石灰石球磨机内，给料量即可通过变频器变频调速，也可以通过螺旋称给料机进一步实现给料量的调节。经球磨机粉碎后的物料一部分细的粉尘直接进入除尘器进行收集，一部分经提升机提升后进入选粉机进行筛选，达到细度的石灰石粉与经除尘器收集的石灰石粉经气力输送的方式送至石灰石粉成品仓尾气经仓顶除尘器过滤后净空气直接排入大气。经选粉机过滤后较粗粉粒料经皮带输送机送至磨头。对于成品库中的石灰石粉一部分通过气力输送的方式直接送至附近的石灰石炉前仓，进一步通过气力输送的方式送至锅炉进行烟气脱硫，另一部分可以通过散装罐车进行外运综合利用。"

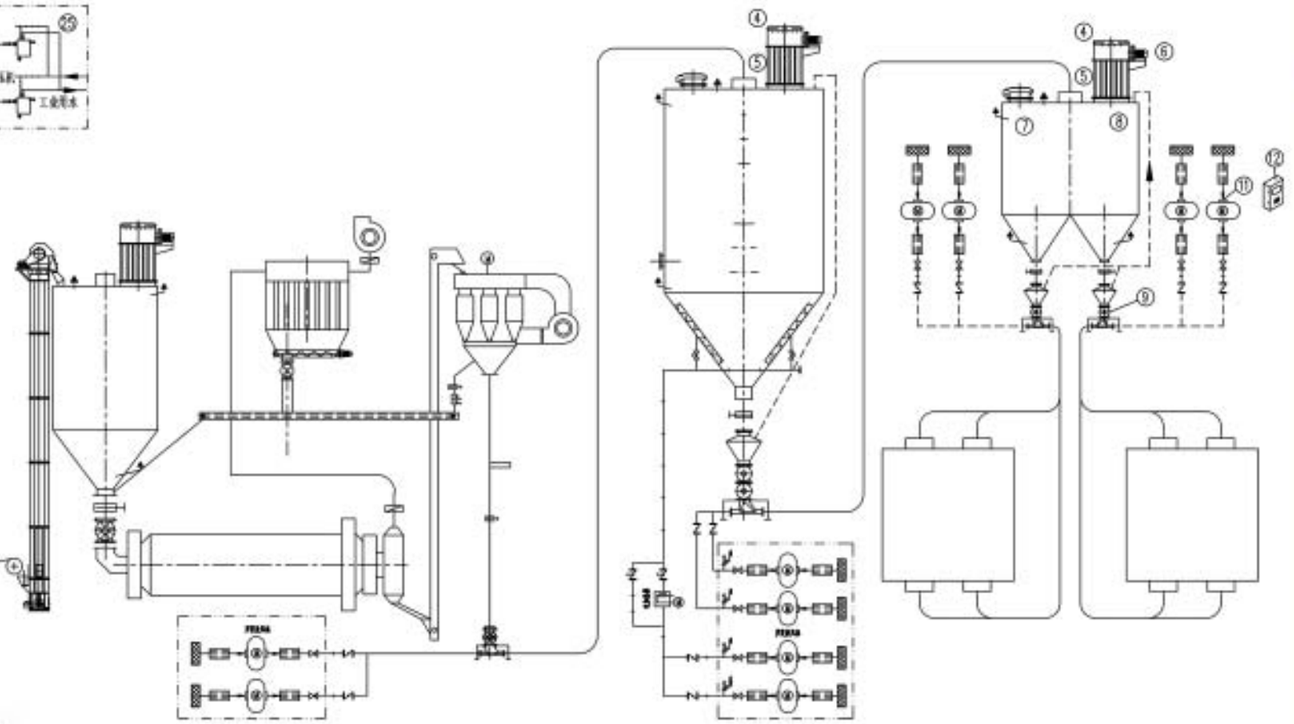
Process flow:

The limestone granule is lifted into raw material storage by elevating conveyor after breaking, and is quantitative conveyed into ball mill by the rotary feeder at bottom. The conveying capacity can be realized by the adjustment of converter or screw weigh conveyor. After breaking by ball mill, some fine powder is directly collected by dust catcher, and another is lifted into bolting mill by elevating conveyor to screen. The limestone powder with adequate fineness and collected by dust catcher is conveyed into warehouse using pneumatic conveying system.
Exhaust tail gas directly after filtering by roof scrubber. The thicker powder is conveyed to grinding head after filtering by bolting mill. Some of limestone powder in warehouse is conveyed to the storage bin before furnace with pneumatic conveying mode, and further conveyed into boiler furnace with pneumatic conveying system to carry out flue gas desulfurization. Another can be complex utilized through outbound bulk tank car.

气力输送系统

Pneumatic convying System

1、灰库气化风机 Storehouse gasify blower
2、插板阀 Flashboard valve
3、真空释放阀 Vacuum re[ease valve
4、袋式过滤器 Bag filter
5、分选机 Separator choice machine
6、连续式料位计 Continuous level meter
7、多管收集器 Multi pipe collector
8、旋转卸料阀 Rotaryfeeder
9、高料位计 High level meter
10、低料位计 Low level meter
11、脉冲布袋除尘器 Pulsed bag dust catcher
12、耐磨供料器 Abrasion-resistant feeder
13、加速室 Feed nozzle
14、罗茨鼓风机 Roots blower
15、分选离心风机
Separator choice centrifugal blower



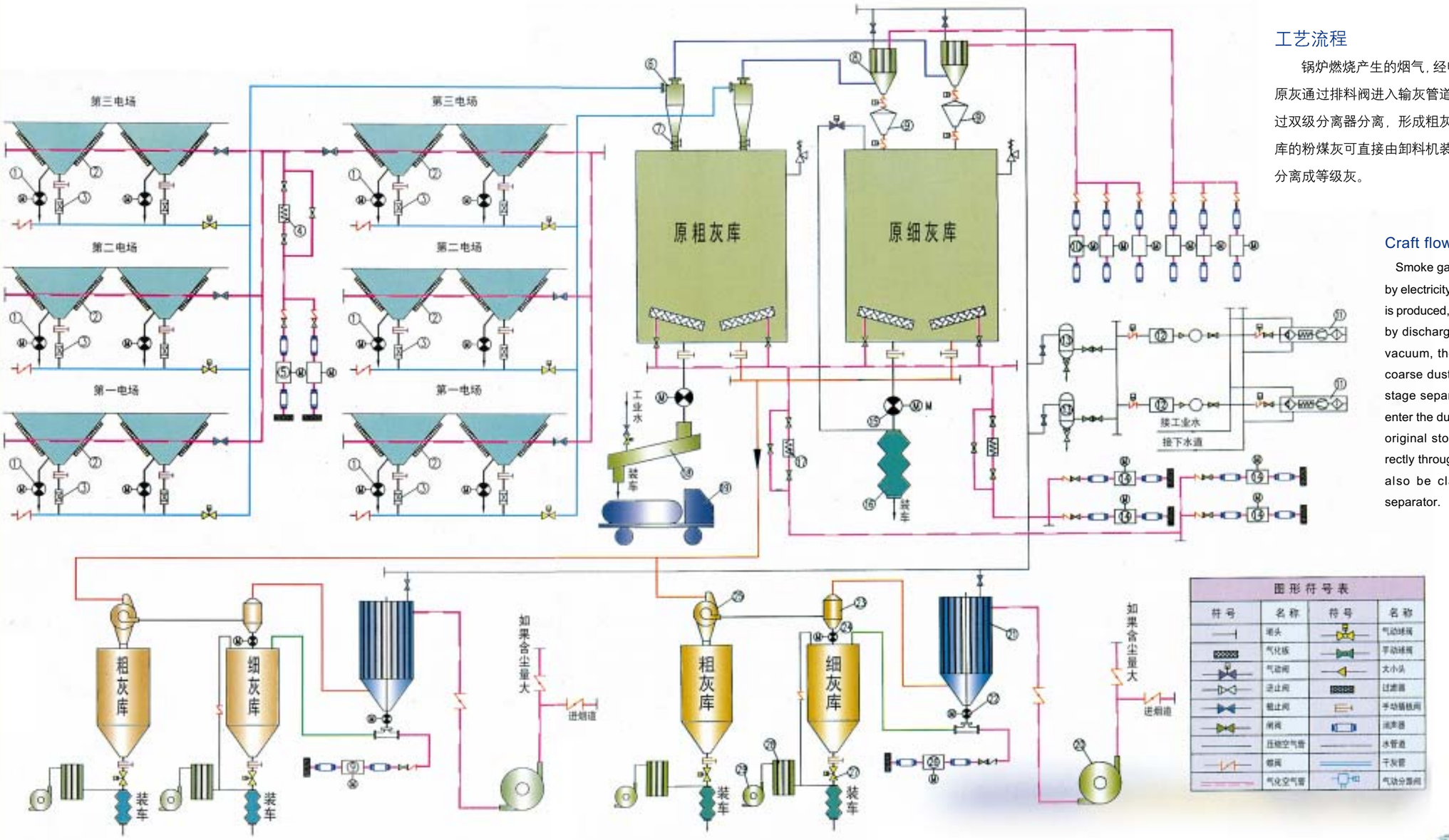
电厂粉煤灰分级分选系统
Power station flyash classification
and separating system

电厂负压除灰系统

Power station negative pressure dust eliminating system

气力输送系统

Pneumatic convying System



工艺流程

锅炉燃烧产生的烟气，经电除尘器过滤产生原粉煤灰。原灰通过排料阀进入输灰管道，在罗茨真空泵作用下，经过双级分离器分离，形成粗灰和细灰后落入原灰库。原灰库的粉煤灰可直接由卸料机装车，亦可进一步通过分选机分离成等级灰。

Craft flow

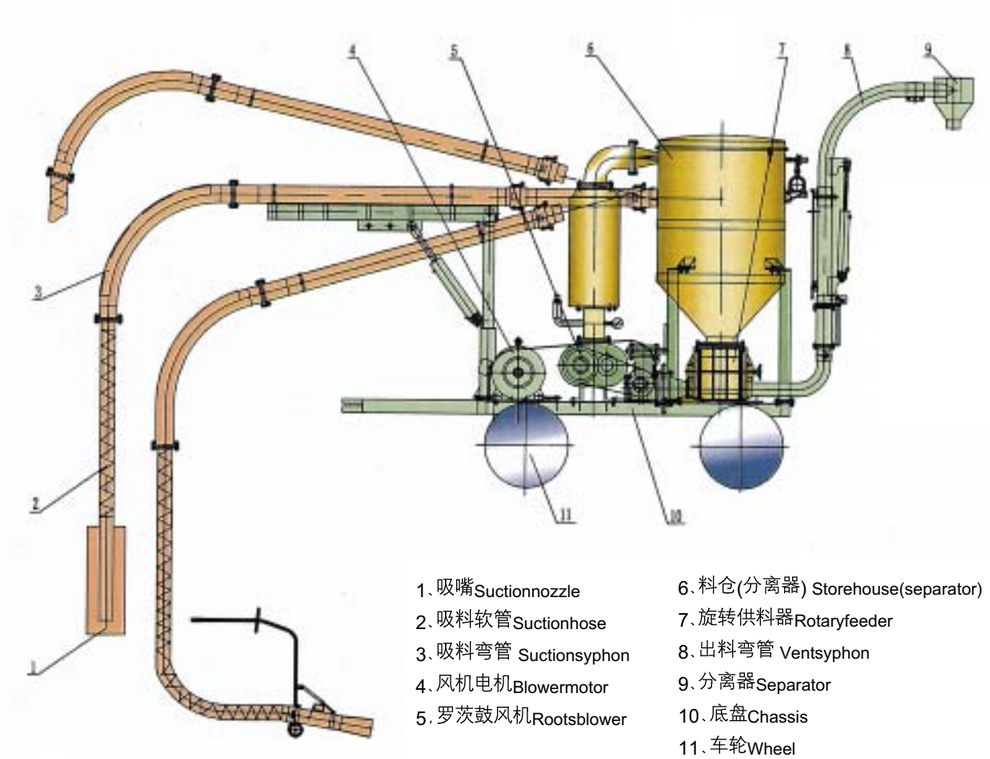
Smoke gas out from the boiler is filtrated by electricity dust catcher, and original dust is produced, which enter the conveying pipe by discharging valve, at the action of the vacuum, the original dust is divided into coarse dust and thin dust by the double-stage separator′ s separating, and then enter the dust storehouse. The dust Of the original storehouse, can be shipping directly through discharge machine or it can also be classified into grade ash by separator.

1、电动锁气器Electric airlock
2、气化板Gasify board
3、排料阀Discharge valve
4、电加热器Electric heater
5、灰斗气化风机Ash gasify blower
6、旋风分离器Cyclone separator
7、重锤式锁气器Heavy sinker airlock
8、组合式布袋除尘器Assembled bag dust catcher
9、电动锁气器Electric airlock
10罗茨真空泵Roots vacuum pump
11、螺杆空气压缩机Screw air compressor
12、冷冻干燥器Freeze dryer
13、储气罐Gas storage pot
14 、原灰库气化风机
Original ash storehouse gasify blower
15、旋转卸料器Rotary feeder
16、干灰散装机Dry ash bulk machine
17、电加热器Electric heater
18、湿式搅拌器Wettest beater
19、粉煤灰罐车Flyash tank car
20、高压离心风机High pressure centrifugal blower
21、脉冲布袋防尘器Pulsed bag dust catcher
22、旋转供料器Rotary feeder
23 多管收集器Multi pipe collector
24、电动锁气器Electric airlock
25、分选机Separator choice machine
26、罗茨鼓风机Roots blower
27、气动卸料阀Pneumatic feeder
28、袋式过滤器Bag filter
29、引风机Suction blower

耐磨供料器
Abrasion-resistant feeder

移动式气力输送系统

Movable pneumatic conveying system



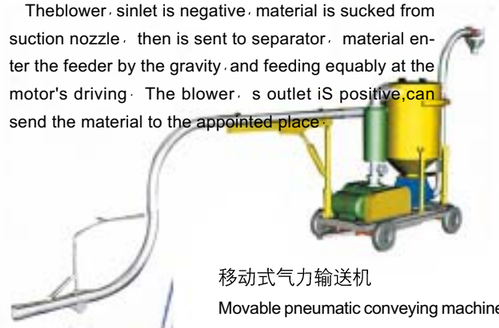
1、吸嘴Suctionnozzle
2、吸料软管Suctionhose
3、吸料弯管 Suctionsyphon
4、风机电机Blowermotor
5、罗茨鼓风机Rootsblower
6、料仓(分离器) Storehouse(separator)
7、旋转供料器Rotaryfeeder
8、出料弯管 Ventsyphon
9、分离器Separator
10、底盘Chassis
11、车轮Wheel

工艺流程

风机进口产生一定负压力的气体，物料从吸嘴吸入，运送到分离器，物料在重力作用下进入卸料器，在电机带动下均匀供料。风机出口产生一定压力的高压气体，携带物料运送到指定位置。

Craft flow

Theblower，sinlet is negative，material is sucked from suction nozzle，then is sent to separator，material enter the feeder by the gravity，and feeding equably at the motor's driving. The blower，s outlet iS positive,can send the material to the appointed place.



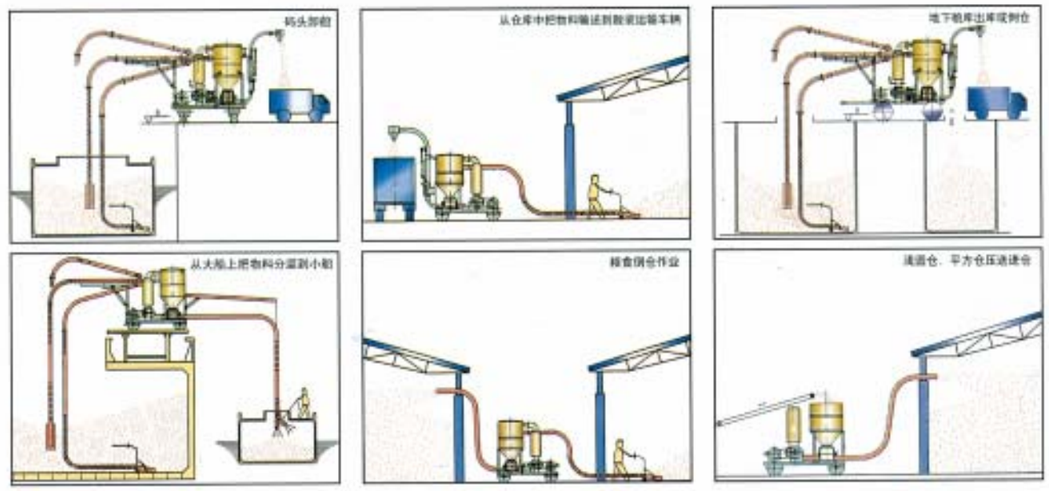
移动式气力输送机
Movable pneumatic conveying machine

移动式气力输送机
MOVabe pneUmatic conveying machine

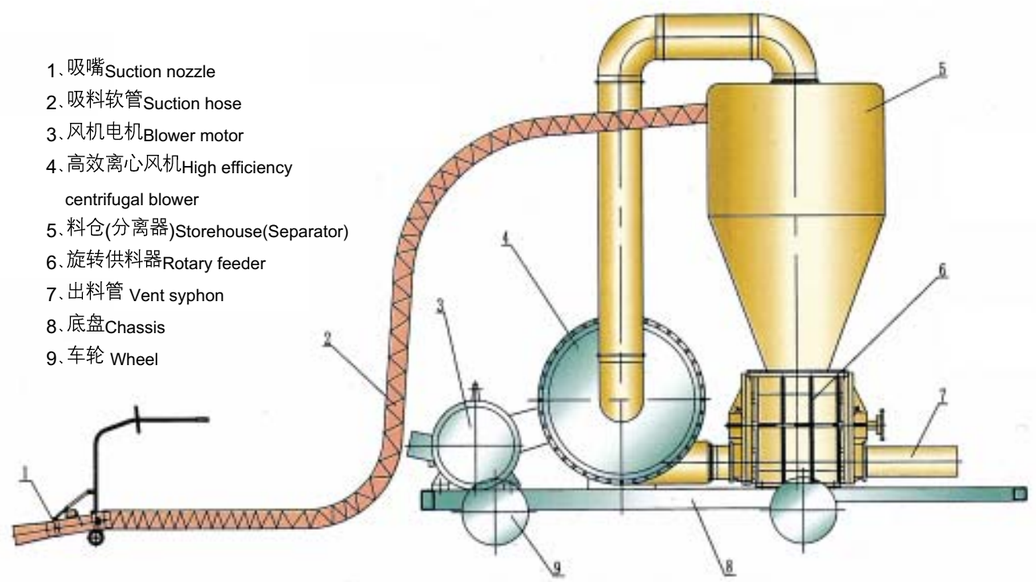
气力输送系统

Pneumatic convying System

典型应用示例 Typical application example



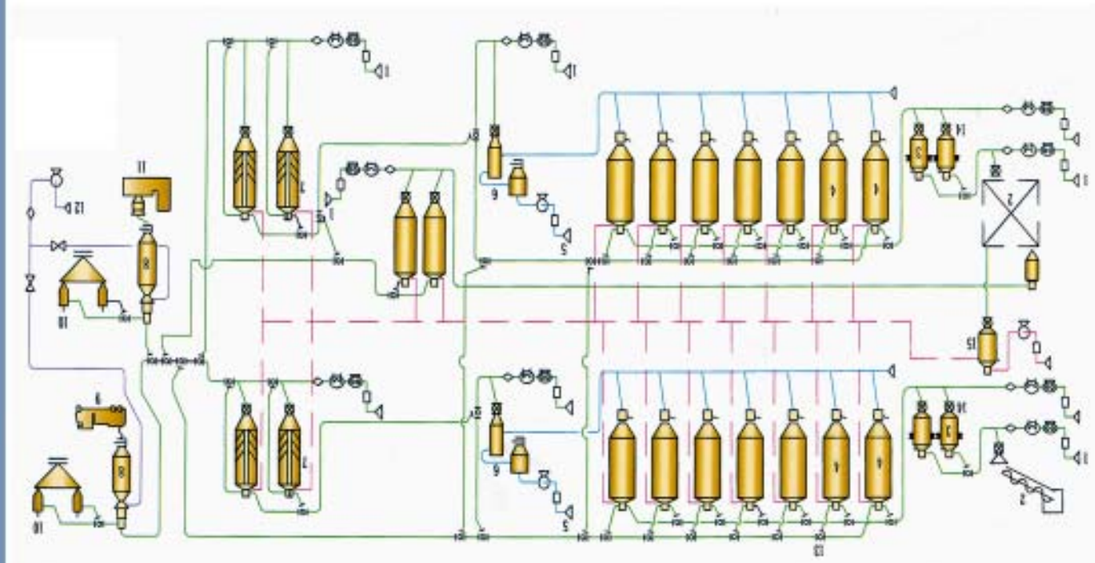
1、吸嘴Suction nozzle
2、吸料软管Suction hose
3、风机电机Blower motor
4、高效离心风机High efficiency centrifugal blower
5、料仓(分离器)Storehouse(Separator)
6、旋转供料器Rotary feeder
7、出料管 Vent syphon
8、底盘Chassis
9、车轮 Wheel



移动式气力输送机
Movable type pneUmatic conveying machine

石化粉粒料气力输送系统

Compound type pneumatic conveying system



1、罗茨鼓风机
Roots blower
2、送料设备
Supply material facility
3、计量设备
Measure facility
4、料仓
Storehouse
5、真空泵
Vacuum pump
6、中间分离器、除尘器
Middle separator,dust catcher
7、均料装置
Equalityequipment
8、分离器
Separator
9、运输车辆
Transport vehicle
10、贮存仓
Stockpile storehouse
11、包装机
Packaging machine
12、引风机
SuctiOnblower
13、分路阀
Shunt valve
14、旋转供料器
Rotary feeder
15、除尘系统
Collection dust system

中国市场营销网络

Sale Net of National Market

加工中心Processing center

分路阀Shunt Valve

大型供料器
Big Type Feeder

国际先进的加工设备
International Advanced Manufacturing Equipment

国内一流的CAD设计中心 First CAD Design Center In DOmestic