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海汇环保设备公司

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海汇环保设备
HAIHUI ENVIRONMENTAL PROTECTION

海汇环保

——值得信赖的环境可持续发展引领者

企业简介 | COMPANY PROFILE

海汇环保设备公司是国家高新技术企业、国家级专精特新“小巨人”企业、山东省制造业单项冠军企业、山东省瞪羚企业、山东省技术创新示范企业，是集研发设计、生产制造、安装应用、运营维护为一体的创新型制造业企业，拥有年产超过15000台（套）的制造基地，业务涵盖大气治理、VOCs治理、水治理、物料输送、矿山机械、电气自动化等领域。

公司专注于节能环保装备的技术研发与应用，所研制的脉冲喷吹类袋式除尘器通过2019年“泰山品质”产品认证，制定的《输送机托辊》、《脉冲喷吹类袋式除尘器》企业标准荣获国家企业标准领跑者，海汇牌除尘设备、脱硫脱硝设备、污水处理设备荣获第一批“好品山东”称号，带式输送机入选中国带式输送机十大品牌。

公司拥有山东省多源大气污染物智能控制工程研究中心、山东省烟气脱硫除尘环保装备工程实验室、山东省散状物料输送工程技术研究中心、山东省工业设计中心等科研创新平台。先后与中国科学院、山东省环科院、清华大学、山东大学、青岛科技大学等科研院所建立了长期的战略合作关系。先后承担实施了多项省重大科技创新工程项目、省自主创新成果转化重大专项、省泰山产业领军人才项目等省部级技术创新研发项目。拥有授权专利276件，其中发明专利15件。产品广泛应用于冶金、电力、建材、化工、港口等行业，是中国五矿集团、中国建材集团、中国电力建设集团、山东钢铁集团等大型国企、央企的合格供应商，并与山钢、永锋钢铁、石横特钢、沙钢集团、安阳钢铁、青岛特钢、玖龙纸业、太阳纸业、海尔集团、海信集团、三一重工等大型企业建立了长期战略合作关系，产品远销美国、俄罗斯、加拿大、澳大利亚、南美、中东、东南亚等十几个国家和地区。

Haihui Environmental Protection Equipment Co., Ltd. is a national high-tech enterprise, a national-level Specialized, Sophisticated, Distinctive, and Innovative (SSDI) "Little Giant" enterprise, a Shandong Provincial Manufacturing Single Champion enterprise, a Shandong Provincial Gazelle Enterprise, and a Shandong Provincial Technology Innovation Demonstration Enterprise. As an innovative manufacturing enterprise integrating R&D design, production, installation, operation, and maintenance, it operates a manufacturing base with an annual production capacity exceeding 15,000 units (sets). The company's business spans air pollution control, VOCs treatment, water treatment, material conveying, mining machinery, and electrical automation.

Specializing in energy-saving environmental protection equipment R&D and application, the company's pulse-jet bag filter passed the 2019 "Taishan Quality" certification. Its corporate standards for "Conveyor Idlers" and "Pulse-Jet Bag Filters" were recognized as National Enterprise Standard Leaders. Haihui-brand dust removal equipment, desulfurization/denitrification systems, and wastewater treatment equipment were awarded the first batch of "Quality Shandong" titles. Its belt conveyors were listed among China's Top 10 Belt Conveyor Brands.

The company maintains multiple provincial-level R&D platforms including: Shandong Multi-source Air Pollutants Intelligent Control Engineering Research Center, Shandong Flue Gas Desulfurization & Dust Removal Equipment Engineering Laboratory, Shandong Bulk Material Conveying Engineering Technology Research Center, Shandong Industrial Design Center. It has established long-term strategic partnerships with institutions such as the Chinese Academy of Sciences, Shandong Academy of Environmental Sciences, Tsinghua University, Shandong University, and Qingdao University of Science & Technology. The company has executed numerous provincial-level innovation projects, including Major Scientific Innovation Programs, Independent Innovation Achievement Transformation Projects, and Taishan Industrial Leading Talent Programs. With 276 authorized patents (15 invention patents), its products are widely used in metallurgy, power generation, building materials, chemicals, and port industries. The company serves as a qualified supplier for major state-owned enterprises including China Minmetals, China National Building Materials Group, and Power Construction Corporation of China. Strategic partnerships have been established with industry leaders such as Shandong Steel, Yongfeng Steel, Shihua Special Steel, Shagang Group, Anyang Iron & Steel, Qingdao Special Steel, Nine Dragons Paper, Sun Paper, Haier Group, Hisense Group, and Sany Heavy Industry. Products are exported to over 10 countries and regions including the United States, Russia, Canada, Australia, South America, the Middle East, and Southeast Asia.

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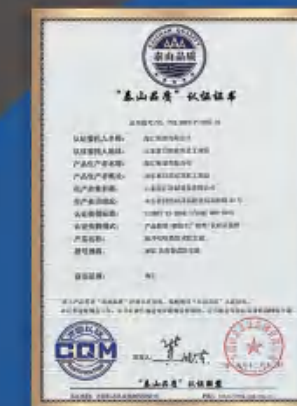
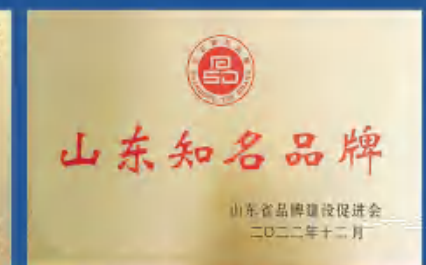
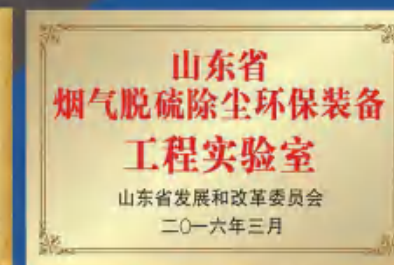
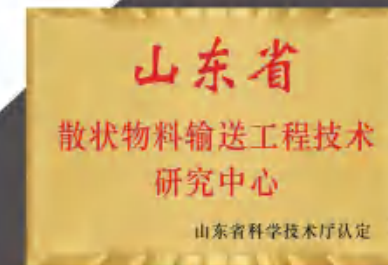
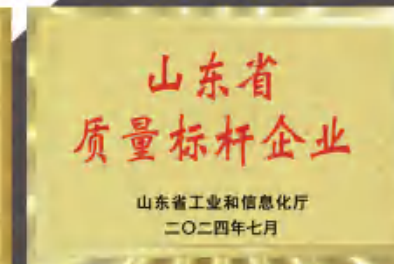
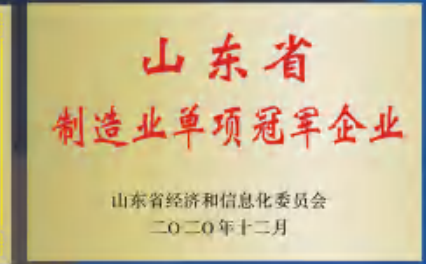
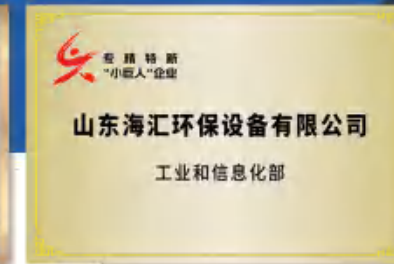
服务与市场
Service and Market

04

Authoritative Qualifications & Certifications 权威资质&认证



Corporate honor 企业荣誉



Manufacturing Equipment 生产制造设备



机加工生产线
Machine processing production line



压装机器人
Press fitting robot



机器人工作站
Robotic Work Station



焊接机器人
Welding robot



袋笼生产线
Bag cage production line



龙门式数控激光加工机床
Gantry CNC laser machine tool



双枪焊机
Double gun welding machine



数控液压闸式剪板机
CNC hydraulic brake plate shears



型材激光切割机
Profile laser cutting machine



数控加工中心
CNC machining center



CK6150数控车床
CK6150 CNC lathe



全自动智能托辊生产线
Automatic intelligent trolley line



滤袋生产线
Filter bag production line



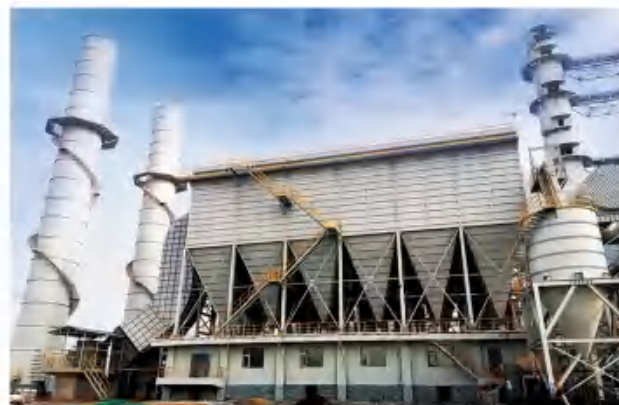
焊接生产线
Welding production line



自动烘干喷漆生产线
Automatic drying and painting production line

Atmospheric governance system 大气治理系统

高效节能袋式除尘器系列产品 HIGH EFFICIENCY AND ENERGY-SAVING BAG FILTER SERIES PRODUCTS



设备介绍

高效节能脉冲袋式除尘器是一种干式滤尘装置，其基本机理为含尘气体通过装有滤袋的箱体时，其中的粉尘被滤袋阻拦而得到净化，粉尘经集中排出。袋式除尘器具有以下特点：除尘效率高，对细粉尘具有很高的捕集效率，适用性强，能处理多种类型的粉尘，对粉尘特性不敏感。入口气体含尘浓度变化较大时，对除尘效率不影响，除尘效率99%以上，能实现 $\leq 5\text{mg}/\text{m}^3$ 的超低排放。可用于从几百立方米每小时到几百万立方米每小时风量含尘气体处理净化，能保持稳定的净化效果。

应用于国内外冶金、电力、水泥建材、焦化、港口、垃圾焚烧等行业。

High efficiency and energy-saving pulse bag filter is a dry dust filtering device. Its basic mechanism is that when the dusty gas passes through the box with filter bag, the dust in it is blocked by the filter bag and purified, and the dust is centrally discharged. Bag filter has the following characteristics: high dust removal efficiency, high capture efficiency for fine dust, strong adaptability, can handle various types of dust, and is not sensitive to dust characteristics. When the dust concentration of inlet gas changes greatly, it will not affect the dust removal efficiency. The dust removal efficiency is more than 99%, and can be $\leq 5\text{mg}/\text{m}^3$ under all working conditions. Ultra low emission. It can be used for the treatment and purification of dusty gas with air volume from hundreds of cubic meters per hour to millions of cubic meters per hour, and can maintain a stable purification effect.

It is widely used in metallurgy, electric power, cement building materials, coking, port, waste incineration and other industries at home and abroad.

技术优势及创新性

TECHNOLOGICAL ADVANTAGES AND INNOVATION

- 01 能实现 $\leq 5\text{mg}/\text{m}^3$ 超低排放，有效治理雾霾。
It can achieve $\leq 5\text{mg}/\text{m}^3$ under all working conditions. Ultra clean emission and effective control of smog.
- 02 低阻力、低能耗、高效率、节能安全，阻力低于1.0KPa。
Low resistance, low energy consumption, high efficiency, energy-saving and safe, with resistance below 1.0KPa.
- 03 采用“有限元流场模拟”，风量分配均匀、滤袋寿命3年以上。箱体板压型耐压强度大、结构简单、外形美观。
The "finite element flow field simulation" is adopted to evenly distribute the air volume and ensure the service life of the filter bag for more than 3 years. It adopts box plate pressing, with high compressive strength, simple structure and beautiful appearance.
- 04 花板孔径偏差小于 $0+0.1$ ，用弹性涨圈固定滤袋的花板孔径，使花板孔的精度更高，保证了滤袋的装配精度。
The deviation of the aperture of the flower plate is less than $0+0.1$, and the aperture of the flower plate of the filter bag is fixed with an elastic expansion ring, which makes the accuracy of the aperture of the flower plate higher and ensures the assembly accuracy of the filter bag.
- 05 喷嘴和引射装置采用定时定压喷吹结构，“喷嘴形式顶压翻边而成”，使喷吹管上的每个喷吹嘴的出气量相同，流线型设计使气体动力性能好，脉冲气流更有效的带入大量气体进入滤袋，清灰效果好。
The nozzle and ejector adopt the timing and constant pressure injection structure, "the nozzle is formed by top pressure flanging", so that the air outlet of each nozzle on the injection pipe is the same. The streamlined design makes the gas dynamic performance good, and the pulse air flow can more effectively bring a large amount of gas into the filter bag, with good ash cleaning effect.
- 06 采用全自动智能化管理系统，采用“组合状态（定时+定阻）清灰模式，清灰效果理想，解决了“二次扬尘”和“粉尘再附”问题。实现自动检测破袋现象，能及时地分析、判断、显示出具体滤袋破损位置，在不停机的情况下，进行更换滤袋。
The full-automatic intelligent management system and the "combined state (timing + constant resistance) ash cleaning mode are adopted, the ash cleaning effect is ideal, and the problems of "secondary dust" and "dust re attachment" are solved. It can automatically detect the phenomenon of bag breakage, analyze, judge and display the specific damaged position of the filter bag in time, and replace the filter bag without stopping the machine.



电袋复合除尘器系列产品

SERIES PRODUCTS OF ELECTRIC BAG COMPOSITE DUST COLLECTOR



电袋复合式除尘器作为一种新型的复合型除尘器，采用了静电除尘和布袋除尘的原理，克服了之前单一功能除尘器的弊端，可谓这一领域的重大突破，对于PM2.5的吸收也具有良好的效果。广泛应用：冶金、燃煤电厂、水泥回转窑等烟气温度高、压力大的行业。

As a new type of composite dust collector, the electrostatic bag composite dust collector adopts the principles of electrostatic dust removal and bag dust removal, which overcomes the disadvantages of the previous single function dust collector. It can be described as a major breakthrough in this field. The absorption of 5 also has a good effect. Widely used: metallurgy, coal-fired power plants, cement rotary kilns and other industries with high flue gas temperature and pressure.

技术优势及创新性

TECHNOLOGICAL ADVANTAGES AND INNOVATION

除尘器效率高、性能长期高效稳定，不受烟尘比电阻等影响，电场区域有效收集约70%-80%的粉尘，经过滤20%左右的细粉尘经过布袋区域过滤，出口排放为4-10mg/Nm³。

The dust collector has high efficiency, long-term high efficiency and stability, and is not affected by the specific resistance of smoke and dust. About 70% - 80% of the dust is effectively collected in the electric field area. After filtration, about 20% of the fine dust is filtered in the bag area, and the discharge at the outlet is 4-10mg / Nm³.

运行阻力低、电袋除尘比全袋式除尘减小300-500pa阻力。

The running resistance is low, and the resistance of electric bag dedusting is 300-500 PA lower than that of full bag dedusting.

系统阻力低、减少压缩空气消耗量所节省功率大于电场运行功率。

The system resistance is low, and the power saved by reducing compressed air consumption is greater than that of electric field operation.

耗能低，除尘效率高，适用于除去烟气中0.01-50μm的粉尘。

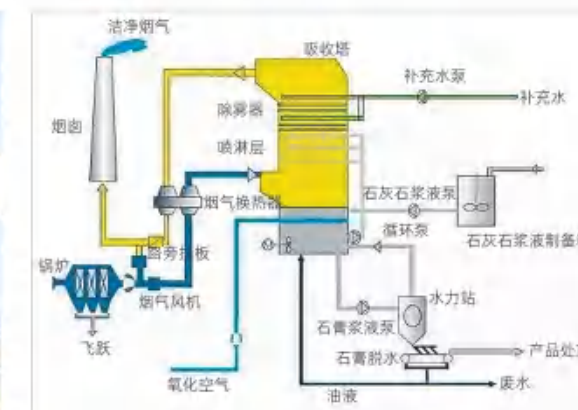
Low energy consumption, high dust removal efficiency, suitable for removing 0.01-50μm of flue gas dust.

石灰石石膏脱硫技术

LIMESTONE GYPSUM DESULFURIZATION TECHNOLOGY

烟气进入脱硫装置的湿式吸收塔，与自上而下喷淋的碱性石灰石浆液雾滴逆流接触，其中的酸性氧化物SO₂以及其他污染物HCL、HF等被吸收，烟气得以充分净化；吸收SO₂后的浆液反应生成CaSO₃，通过就地强制氧化、结晶生成CaSO₄·2H₂O，经脱水后得到商品级脱硫副产品—石膏，最终实现含硫烟气的综合治理。

The flue gas enters the wet absorption tower of the desulfurization unit and contacts with the reverse flow droplets of alkaline lime-stone slurry sprayed from top to bottom, in which the acidic oxide SO₂ and other pollutants, such as HCL and HF, are absorbed to fully purify the flue gas; Absorb SO₂ After the serious reaction to form CaSO₃, CaSO₃ is formed by forced oxidation and crystallization in situ CaSO₄·2H₂O. After dehydration, the commercial deulfurization by-product-gypsum is obtained to realize the comprehensive treatment of flue gas containing sulfur.

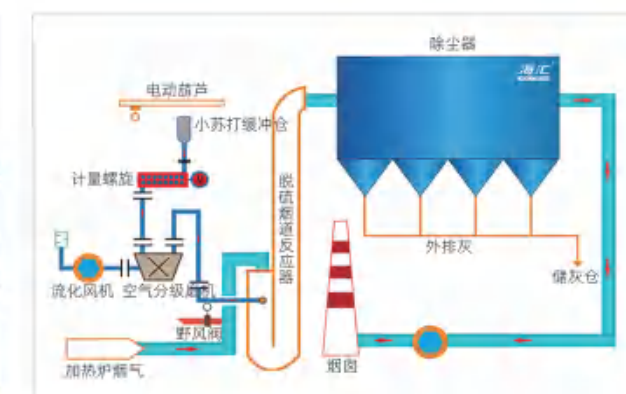


SDS钠基（或钙基）干法脱硫技术

SDS SODIUM-BASED (OR CALCIUM-BASED) DRY DESULFURIZATION TECHNOLOGY

烟气通过烟道进入烟道反应混合器，在反应器入口，注入脱硫剂，在反应器中，烟气中的SO₂及酸性气体迅速与脱硫剂反应而高效脱除。脱硫后烟气携带脱硫灰在烟道反应器中往上流动。经除尘器过滤净化后，无尘烟气由风机送往烟囱排放。

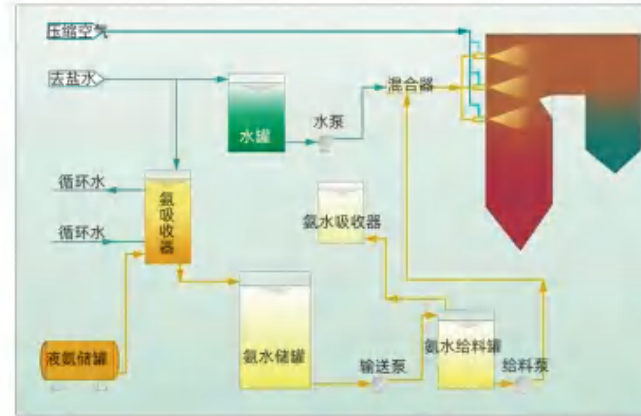
The flue gas enters the flue reaction mixer through the flue, and desulfurizer is injected at the inlet of the reactor. In the reactor, SO₂ and acidic gases in the flue gas quickly react with the desulfurizer and are efficiently removed. After desulfurization, the flue gas carries desulfurization ash and flows upwards in the flue reactor. After being filtered and purified by a dust collector, the dust-free flue gas is sent by a fan to the chimney for discharge.



SNCR脱硝工艺 SNCR DENITRATION TECHNOLOGY

选择性非催化还原(SNCR)脱硝工艺是将含有NH_x基的还原剂(如氨气、氨水或者尿素等)喷入温度为900℃-1100℃的区域,该还原剂迅速热分解成NH₃和其它副产物,随后NH₃与烟气中的NO_x进行SNCR反应而生成N₂和H₂O。

Selective non-catalytic reduction(SNCR) denitrification process is to spray nhx-based reducing agents (such as ammonia gas, ammonia water or urea, etc.) into the area with a temperature of 900℃-1100℃, and the reducing agent is rapidly decomposed into NH₃ and other by-products. Then NH₃ reacts with NO_x in flue gas to produce N₂ and H₂O.

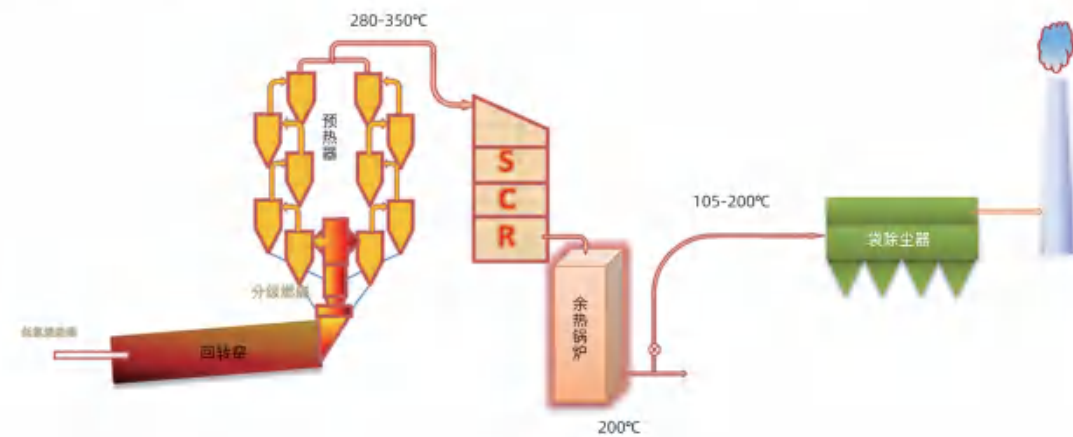


SNCR工艺流程图
SNCR Process flow chart

SCR脱硝工艺 SCR DENITRATION TECHNOLOGY

选择性催化还原法是国内外电厂应用最多,技术最成熟的一种烟气脱硝技术,催化剂种类分常规中高温催化剂(300-420℃和低温催化剂(220-300℃),实践证明,在催化剂活性温度条件时可取得较高的NO_x去除率,去除率达到90%以上。还原剂以尿素或氨水为主,氨基有选择性地与烟气中的氮氧化物反应并生成无毒无污染的氮气和水。SCR脱硝系统主要由烟气系统、脱硝反应器、还原剂制备系统、电气控制系统等几部分组成。

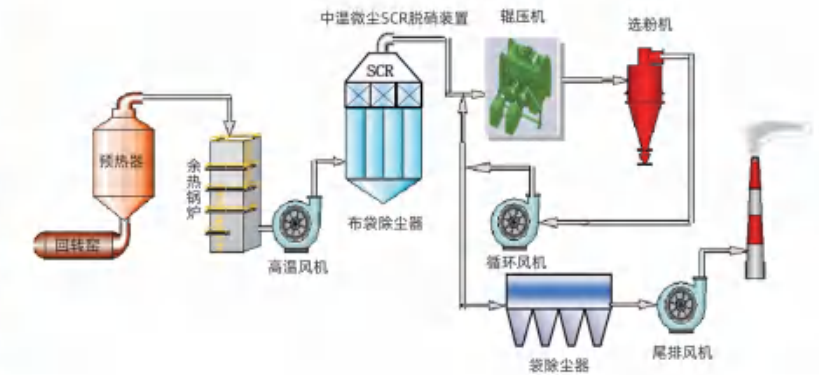
Selective catalytic reduction is the most widely used and most mature flue gas denitrification technology in power plants at home and abroad. The types of catalysts can be divided into conventional medium and high temperature catalysts (300-420℃) and low temperature catalysts (220-300℃). It has been proved in practice that high NO_x removal rate can be achieved under the condition of catalyst activity temperature. The reducing agent is mainly urea or ammonia. The amino group selectively reacts with nitrogen oxides in flue gas and produces non-toxic nitrogen and water. SCR denitrification system is mainly composed of flue gas system, denitrification reactor, reducing agent preparation system, electrical control system and other parts.



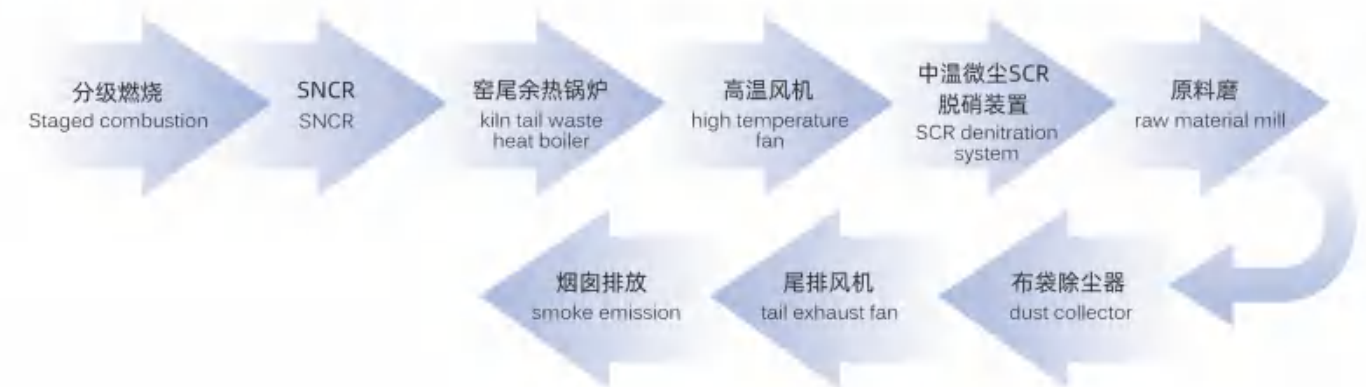
尘硝一体化SCR脱硝工艺 INTEGRATED SCR DENITRATION PROCESS OF DUST AND NITRATE

中温微尘SCR脱硝装置将布袋除尘器和SCR及原位自激活装置设计形成一体化装置,安装在余热锅炉后面催化剂反应温度170-230℃,脱硝效率95%以上。实现了水泥窑氮氧化物和粉尘颗粒物的高效处理,颗粒物≤5mg/m³、氮氧化物≤50mg/m³、氨逃逸≤2.5mg/m³达到超低排放要求,同时脱硝氨水用量降低约75%,每年可降低氮氧化物排污总量约1100吨,解决了催化剂堵塞等。

The medium-temperature micro-dust SCR denitrification device designs the bag-type dust collector, SCR and in-situ self-activation device to form an integrated device. The catalyst reaction temperature is 170-230℃ and the denitrification efficiency is more than 95%. The efficient treatment of nitrogen oxides and dust particles in the cement kiln has been achieved, and the PMS5mg/m³, NO_x ≤ 50mg/m³, ammonia escape ≤ 2.5mg/m³ meet the ultra-low emission requirements, while the amount of denitrification ammonia water is reduced by about 75%, and the total amount of nitrogen oxide pollution can be reduced by about 1100 tons per year. It has thoroughly solved the industrial problems such as catalyst blockage, and has the characteristics of low energy consumption, low resistance and low operating cost.



工艺流程 TECHNOLOGICAL PROCESS



配件系列产品 ACCESSORIES PRODUCTS

滤袋 FILTER BAG

滤料Filter	特性Features
涤纶 Polyester fibre	常温性能好，能连续在130℃下工作，弹性恢复性能好，耐磨及耐热性能优于尼龙，轻度较高，耐酸和弱碱，化学性能稳定，是袋式除尘器常用的材料。 It has good room temperature performance, can work continuously at 130 °C, good elastic recovery performance, better wear resistance and heat resistance than nylon, slightly higher, acid and weak alkali resistance and stable chemical properties. It is a common material for bag filter.
PTFE	耐高温，使用温度范围广，可在260℃高温下长期连续使用，瞬间温度可达 280℃；化学稳定性强，耐腐蚀；自润滑性良好，摩擦系数极低，过滤磨损很小；PTFE膜的表面张力很低，具有很好的不粘性和拒水性。 High temperature resistance, wide temperature range, can be used continuously at 260 °C for a long time, and the instantaneous temperature can reach 280 °C. Strong chemical stability and corrosion resistance, Good self lubrication, very low friction coefficient and small filtration wear. The surface tension of PTFE membrane is very low and has good invisibility and water repellency.
氟美斯 Flumes	FMS氟美斯耐高温针刺毡是98年批量投放市场的一个耐高温新品种。它是由二种或二种以上的耐高温纤维混合及层状复合，以实现更高、更新的物理及化学性能。复合型耐高温针刺毡商品名确定为FMS(氟美斯)。 FMSlumes high temperature resistant needle fel is a new high temperature resistant variety put on the market in batches in 1998. it is composed of two or more kinds of high temperature resistant fibers mixed and layered composite to achieve higher and newer physical and chemical properties. The trade name of composite high temperature resistant needle punched filter fel is determined as FMS(flumes).
玻璃纤维 Glass fiber	应用广泛，高温性能突出，耐腐蚀性，抵抗大部分酸，抗拉强度高，不耐磨，流体阻力小，易清灰，价格低廉。 It is widely used with outstanding high-temperature performance, corrosion resistance, resistance to most acids, high tensile strength, no wear resistance, low fluid resistance, easy ash removal and low price.
P84	耐高温性能强，纤维细，孔隙微小，粉尘只能停留在滤毡表面，清灰所需要的压力小，运行阻力低，过滤效率高，但不耐水解，价格较高。 It has strong high temperature resistance, fine fiber and small pores. The dust can only stay on the surface of the filter fel, the pressure required for ash removal is small, the running resistance is low and the filtration efficiency is high but it is not resistant to hydrolysis and the price is higher.



脉冲阀 PULSE VALVE

在选型设计脉冲反吹清灰时考虑减少含气量及空压机的制气量，我公司在设计工程中，常规工况下：2.5inch以下的选取直角式脉冲阀；2.5inch及以上的选取淹没式脉冲阀。脉冲阀的选取与反吹清灰面积有关，所需清灰面积（单位内滤袋过滤面积）<脉冲阀喷吹面积。

In the selection and design of pulse back blowing soot cleaning, we consider reducing the air content and air production of the air compressor. In the design project, under normal working conditions, our company selects the right angle pulse valve below 2.5inch. Submerged pulse valve shall be selected for 2.5inch and above. The selection of pulse valve is related to the soot cleaning area of back blowing, and the required soot cleaning area (filter area of filter bag in unit) is less than the injection area of pulse valve.

脉冲阀选型Pulse valve selection						
设计所需面积 Design required area	30.8m ²	直角阀 Right angle valve		淹没阀 Submerged valve		
规格 Specifications	喷吹面积 Injection area	进出口尺寸 Inlet and outlet dimensions	重量1(直角) weight1(right angle)	进出口尺寸 Inlet and outlet dimensions	重量2(淹没) Weight2 (submerged)	备注 Remarks
Z-20	3.5-6	G3/4	0.65	-	-	-
Z(Y)-25	8-10	G1	0.8	G1	0.8	-
Z(Y)-40S	12-16	G1 1/2	1.4	G1 1/2	1.2	-
Z(Y)-50S	18-28	G2	2.4	φ60	2.5	-
Z(Y)-62S	27-38	G2 1/2	3.5	φ75	3	-
Z(Y)-76S	37-65	G3	4.3	φ89	3.7/2.9/2.95	Y/YA/YB
Z(Y)-102S	70-90	G4	7.3	φ114	5.65	-
Y-102SA	55-80	-	-	φ102	3.3	-
Y-102SE	70-90	-	-	φ114	5	-

袋笼 BAG CAGE

适用于各类织物滤袋：如普通玻纤、Superflex超抗折四氯玻纤和TeflonB玻纤织物袋及纯PTFE滤袋等。1、框架规格：直径公差+0，-0.8mm；长度公差+0，-6mm。2、框架要求有20-24根竖筋，或竖筋间距≤19.05mm。3、框架铁丝为11号粗细，一般4mm较好，尤其对6米长的框架。4、框架支撑圈间距视框架直径而定：框架直径<140mm，间距≤200mm；框架直径<165mm，间距≤150mm；框架直径>165mm，间距≤100mm。5、直径保持不变，底部无缩小。6、框架底盘必须小于或等于框架外径，底盘直径与框架外径的差值在5mm以内。7、所有框架必须无毛刺和焊接实点。8、花板孔径的公差为0，+0.3mm。9、滤袋胀圈的直径应比花板孔小3.2-3.6mm左右。10、框架直径应比花板孔小10-12mm左右。11、框架的横圈使用直径为4mm的钢丝，竖筋的直径为3.5mm的钢丝。12、文丘里/保护短管使用厚度大于1mm的钢板冲压制成。

Suitable for all kinds of fabric filter bags: such as ordinary glass fiber, Superflex super anti folding tetrafluoroglass fiber, Teflon B glass fiber fabric bag and pure PTFE filter bag, etc. 1. Frame specification: diameter tolerance + 0, - 0.8mm, Length tolerance + 0, - 6mm. 2. The frame is required to have 20-24 vertical bars, or the spacing of vertical bars is 19.05mm. 3. The frame iron wire is 11 thick and thin, generally 4mm is better, especially for the 6m long frame. 4. The spacing between frame support rings depends on the diameter of the frame: the diameter of the frame is <140mm and the spacing is ≤200mm. Frame diameter <165mm, spacing ≤150mm. Frame diameter >165mm, spacing ≤100mm. 5. The diameter remains unchanged and there is no reduction at the bottom. 6. The frame chassis must be less than or equal to the outer diameter of the frame, and the difference between the chassis diameter and the outer boundary of the frame shall be within 5mm. 7. All frames must be free of burrs and solid welding points. 8. The tolerance of orifice diameter of flower plate is 0, + 0.3mm. 9. The diameter of the expansion ring of the filter bag shall be about 3.2 - 3.6mm smaller than that of the flower plate hole. 10. The diameter of the frame shall be about 10-12mm smaller than that of the flower plate hole. 11. The steel wire with the diameter of 4mm is used for the horizontal ring of the frame, and the steel wire with the diameter of 3.5mm is used for the vertical reinforcement. 12. Venturi / protection spool shall be stamped from steel plate with thickness greater than 1mm.



Sewage treatment system

水处理系统

水处理防治技术

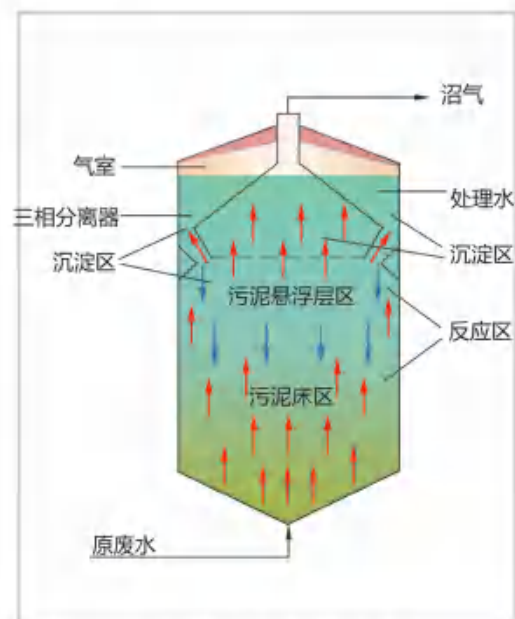
PREVENTION AND CONTROL OF WATER TREATMENT TECHNOLOGY

升流式厌氧污泥床 (UASB) 反应器

SHENGLIU SHI ANAEROBIC SLUDGE BED (UASB) REACTOR

升流式厌氧污泥床(Up-flow Anaerobic Sludge Bed, 简称 UASB) 工艺由于具有厌氧过滤及厌氧活性污泥法的双重特点, 作为能够将污水中的污染物转化成再生清洁能源——沼气的一项技术。UASB反应器由污泥反应区、气液固三相分离器(包括沉淀区)和气室三部分组成。该反应器结构、运行操作维护管理相对简单, 造价也相对较低, 技术已经成熟, 已广泛应用于各类高浓度有机废水的处理中, 效果稳定, 得到广泛的欢迎和应用。

ShengLiuShi Anaerobic Sludge Bed (Up flow Anaerobic Sludge Bed, referred to as UASB) process with Anaerobic filter and the dual characteristics of Anaerobic activated Sludge process, as to be able to convert the pollutants in wastewater into a renewable clean energy, biogas technology. By sludge UASB reactor reaction zone, gas liquid solid three phase separator (including precipitation area) the gas chamber of three parts. The reactor structure, operation maintenance and management is relatively simple, the cost is relatively low, the technology is mature, has been widely used in all kinds of high concentration organic wastewater treatment, the effect is stable, widely welcome and applications.



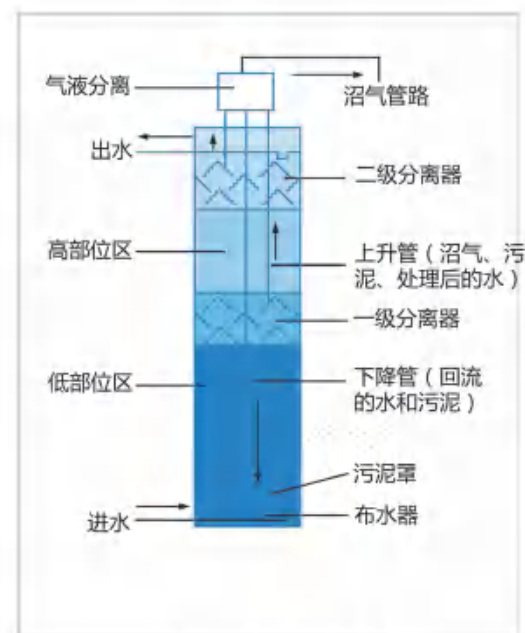
UASB反应器结构示意图
UASB reactor structure diagram

厌氧内循环 (IC) 反应器

ANAEROBIC INNER LOOP (IC) REACTOR

IC厌氧反应器是在上流式厌氧污泥床(UASB)反应器的研究成果的基础上, 发的第三代超高效厌氧反应器。该反应器通过采用两级三相分离器将反应器划分为下部的高负荷区和上部的低负荷区, 依靠沼气在升流管和回流管间产生的密度差在反应器内部形成流体循环, 从而强化了污水与厌氧颗粒污泥的接触, 使废水得以快速净化的一种高效厌氧反应器。IC厌氧反应器具有占地少、容积负荷高、抗冲击能力强、性能稳定、产气量大、操作管理简单、运行成本低、经济效益明显等特点, 更适用于中高浓度污水处理工程中。

IC anaerobic reactor is in upflow anaerobic sludge bed (UASB) reactor, on the basis of the research achievements of the third generation of super efficient anaerobic reactor. The reactor by using two-stage three-phase separator could be divided into the lower reactor with high load area and the upper area, low load on biogas in riser pipe and the density difference between reflux pipe fluid loop is formed within the reactor, thus strengthen the contact with the anaerobic granular sludge of wastewater, the wastewater can be rapid purification of a highly efficient anaerobic reactor. IC anaerobic reactor with less land, high volume load, impact resistant capability is strong, stable performance, large gas production, simple operation management, low operation cost and economic benefit is obvious, more suitable for the high concentration in the wastewater treatment engineering.



IC反应器结构示意图
ICB reactor structure diagram

曝气生物滤池—BAF处理工艺

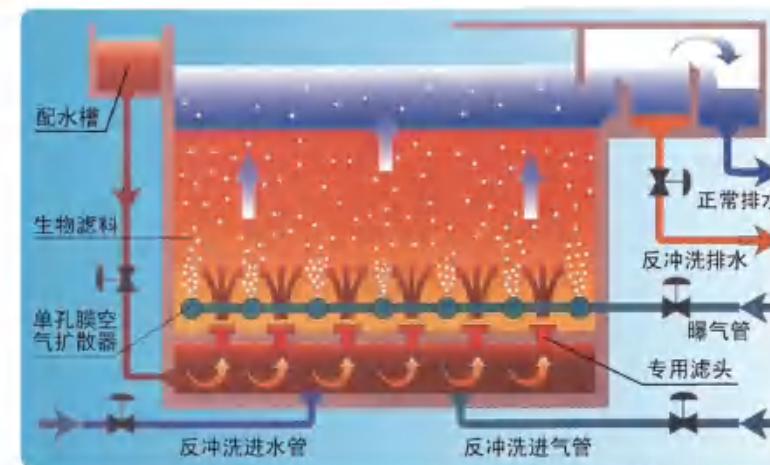
BIOL OGICAL AERATED FILTER

曝气生物滤池(Biological Aerated Filter简称BAF)是上世纪八十年代末法国研制成功的污水处理新工艺, 属第三代生物膜反应器, 不仅具有生物膜工艺技术的优势, 同时也起着有效的空间过滤作用。其基本原理是在一级处理基础上, 以颗粒状填料及其附着生长的生物膜为处理介质, 充分发挥生物代谢作用、物理过滤作用、膜及膜的物理吸附作用以及反应器内食物多级捕食作用, 实现污染物在同一单元反应器内去除。通过使用特殊的滤料和正确的配气设计, 使其与传统处理工艺相比具有优异的工艺性能。

曝气生物滤池具有出水水质好; 占地面积小, 基建投资省; 不产生臭气, 环境质量高; 运行费用低; 抗冲击负荷能力强, 无污泥膨胀问题, 耐低温; 自动化控制程度高, 易于管理; 模块化结构, 便于后期改、扩建等优点。

Biological aerated filter (Biological Aerated Filter referred to as BAF) is the eighty's of the last century the French new sewage treatment process, is the third generation of biofilm reactor, not only has the advantages of biofilm technology, but also play an effective role in filtering space. The basic principle is the primary treatment based on the granular packing and its attached biofilm growth as the media, give full play to the role of physical adsorption of biological metabolism and physical filtration, membrane and membrane and packing and food in the reactor to achieve multi-level predation, pollutants removal in the same reactor. Through the use of special materials and the correct valve design, which compared with the traditional treatment process has the excellent performance.

Biological aerated filter has good water quality; covers an area of small, investment in infrastructure; does not produce odor, high environmental quality; low operation cost; strong ability of shock loading resistance, no sludge bulking problem, low temperature resistance; high degree of automation, easy to manage; modular structure, easy to change, such as the expansion of the late.



BAF反应器结构示意图
BAF reactor structure diagram

废水处理项目
Wastewater treatment project

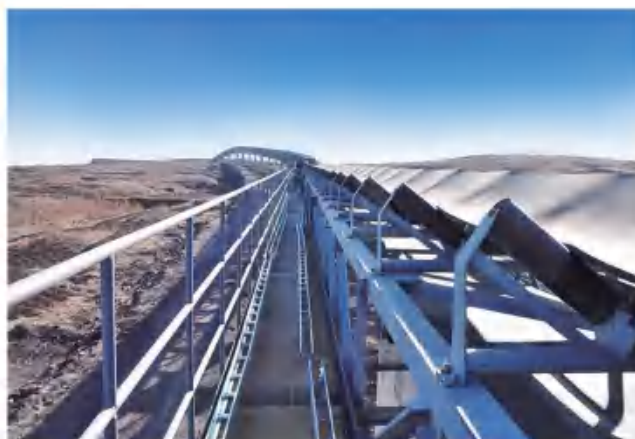


Material conveying System

物料输送系统

长距离曲线带式输送机

LONG DISTANCE CURVED BELT CONVEYOR



设备介绍

长距离曲线带式输送机具有超长输送距离和超大输送能力以及多点曲线转弯输送的特点，使其能够最大限度的满足高产高效物料输送的需求。广泛应用于冶金、矿山、煤炭、电力、建材、港口等行业，具有平稳可靠、噪声小、污染低、结构简单、运行费用低等特点。

长距离曲线带式输送机可根据不同的输送工艺要求，按照不同的地形、走势、工况进行选型设计，我公司已实现单机最长输送距离15km、最大功率 $3 \times 1750\text{kW}$ 、最大输送量 7500t/h 、最大带强 4500N/mm 、最大带宽 2200mm 。

The long-distance curve belt conveyor has the characteristics of ultra long conveying distance, ultra large conveying capacity and multi-point curve turning conveying, so that it can meet the needs of high-yield and efficient material conveying to the greatest extent. It is widely used in metallurgy, mining, coal, electric power, building materials, port and other industries. It has the characteristics of stability and reliability, low noise, low pollution, simple structure and low operation cost.

The long-distance curved belt conveyor can be selected and designed according to different conveying process requirements and different terrain, trend and working conditions. Our company has realized the maximum conveying distance of a single machine of 15km and the maximum power of $3 \times 1750\text{kW}$, maximum conveying capacity 7500t/h , maximum belt strength 4500N/mm and maximum bandwidth 2200mm .

技术优势及创新性

TECHNOLOGICAL ADVANTAGES AND INNOVATION

- 实现长距离单机无中间转载输送、小半径转弯以及多点转弯，输送线路布置更为灵活，可一机代替多机，极大地减少项目投资。
Realize long-distance single machine non intermediate transfer transportation, small radius turning and multi-point turning. The layout of transmission line is more flexible, and one machine can replace multiple machines, greatly reducing the project investment.
- 采用多点驱动、可控启停、自控张紧等控制技术，使整机运行更为平稳，同时降低驱动装置、输送带、滚筒等零部件的规格型号。
Multi point drive, controllable start and stop, automatic tension and other control technologies are adopted to make the whole machine run more stably, and reduce the specifications and models of driving devices, conveyor belts, pulleys and other parts.
- 运用节能输送带、低阻力托辊等新技术，降低装机功率。
New technologies such as energy-saving conveyor belt and low resistance rollers are used to reduce the installed power.
- 实现全线设备集中控制和联锁，达到自动化操作和无人化运行。
Realize the centralized control and interlocking of the equipment of the whole line to achieve automatic operation and unmanned operation.



管状带式输送机 TUBULAR BELT CONVEYOR



管状带式输送机作为一种由传统带式输送机发展形成的一种特种输送设备，密闭、连续输送各种粉状、粒状和块状等散装物料，在运行过程中输送带逐步卷成圆筒状，将物料围包在管状输送带内进行输送。

As a special conveying equipment developed from the traditional belt conveyor, the tubular belt conveyor conveys all kinds of powder, granular and block bulk materials in a closed and continuous manner. In the process of operation, the conveyor belt is gradually rolled into a cylindrical shape and the materials are wrapped in the tubular conveyor belt for transportation.



技术优势及创新性 TECHNOLOGICAL ADVANTAGES AND INNOVATION

- 输送物料种类广泛。
A wide range of materials are transported.
- 可以小曲率半径弯曲，实现空间曲线布置。
It can bend with small curvature radius to realize spatial curve layout.
- 节省占地面积，减少钢构、土建投资。
Save floor space and reduce investment in steel structure and civil engineering.
- 密封输送物料，实现环保输送。
Sealed conveying materials to achieving environmentally friendly conveyor.
- 管状输送带增大物料与输送带间的摩擦力，实现大倾角输送。
The tubular conveyor belt increases the friction between the material and the conveyor belt to realize large inclination conveying.
- 上下分支输送带均可输送物料，实现双向物料输送。
The upper and lower branch conveyor belts can transport materials to realize two-way material transportation.



大倾角带式输送机 LARGE INCLINATION BELT CONVEYOR

大倾角带式输送机采用具有波状挡边和横隔板的特种输送带，可以在0~90°的倾角范围内任意布置，具有大倾角输送、提升高度大、占地面的小、投资费用低等优点，特别适用于大倾角连续输送散装物料的工况。

The high inclination belt conveyor adopts the special conveyor belt with wavy edge and diaphragm, which can be arranged arbitrarily within the inclination range of 0 ~ 90 °. It has the advantages of high inclination conveying, large lifting height, small occupation of the ground and low investment cost. It is especially suitable for the working condition of continuous conveying of bulk materials at high inclination.

连续卸料设备 CONTINUOUS UNLOADING EQUIPMENT

连续卸料设备主要应用于平面堆场、成排筒仓等具有连续输送、连续卸料需求的工况，安装于带式输送机中部，可以实现固定单点、移动多点以及连续平面等卸料方式，配套密封系统和通风除尘系统实现环保卸料。

Continuous unloading equipment is mainly used in plane storage yard, row silos and other working conditions with continuous transportation and continuous unloading requirements. It is installed in the middle of belt conveyor, which can realize unloading modes such as fixed single point, mobile multi-point and continuous plane. It is equipped with sealing system and ventilation and dust removal system to realize environmental protection unloading.



滚筒 PULLEY

滚筒是带式输送机的重要组成部分，按照所起作用可以分为传动滚筒和改向滚筒两大类。传动滚筒的主要作用是将驱动装置提供的动力传递到输送带上，改向滚筒主要用于改变输送带运行方向或者增加传动滚筒与输送带的包角。

Pulley is an important component of belt conveyor. According to its role, it can be divided into two categories: drive pulley and bend pulley. The main function of the drive pulley is to transfer the power provided by the driving device to the conveyor belt. The bend pulley is mainly used to change the running direction of the conveyor belt or increase the wrap angle between the drive pulley and the conveyor belt.



托辊 ROLLER

托辊是带式输送机的主要部件之一，其用量在整机中占比30%~40%，主要作用为支承输送带和输送物料，并且具有减小运行阻力、限定输送带垂度等作用。按照使用功能主要分为承载托辊、缓冲托辊、调偏托辊、平行托辊、V型托辊、梳形托辊等种类。

Roller is one of the main components of belt conveyor. Its consumption accounts for 30% ~ 40% of the whole machine. It is mainly used to support the conveyor belt and transport materials, reduce the running resistance and limit the sag of the conveyor belt. According to the use function, it is mainly divided into carry roller, impact roller, training roller, flat roller, V-type roller, comb roller and other types.



Material Handling System 物料处理系统

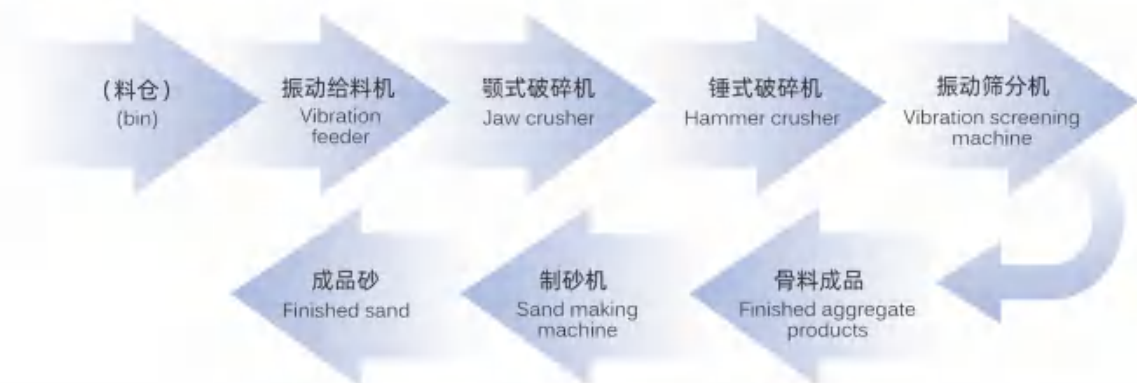
骨料生产线工程 AGGREGATE PRODUCTION LINE ENGINEERING

石料生产线专用设备是生产建筑、公路、铁路用石料的专用石料设备，成功应用于石灰石、玄武岩、花岗岩、鹅卵石等岩石的破碎加工，破碎后的成品质量完全达到GB14685-2019标准，为高速公路、铁路、水利、混凝土搅拌站等行业提供了合格骨料。

Stone production line is special equipment for producing building, highway, railway, with a special stone stone equipment successfully applied in limestone, basalt, granite, pebbles and other processing of fractured rocks, broken after the finished product quality completely reach GB14685-2019 standards, for highway, railway, water conservancy, concrete mixing station provides qualified aggregate.



工艺流程 TECHNOLOGICAL PROCESS



颚式破碎机 JAW CRUSHER

PE系列颚式破碎机俗称颚破，又名老虎口。由动颚和静颚两块颚板组成破碎腔，模拟动物的两颚运动而完成物料破碎作业的破碎机。广泛运用于矿山冶炼、建材、公路、铁路、水利和化工等行业中各种矿石与大块物料的破碎。

PE Series jaw crusher is commonly known as jawbone, also known as tiger mouth. The crusher is composed of two jaw plates, a moving jaw and a static jaw, to simulate the movement of two jaws of animals and complete the material crushing operation. It is widely used in the crushing of various ores and large materials in mining smelting, building materials, highway, railway, water conservancy and chemical industries.



PF反击式破碎机 PF IMPACT CRUSHER



反击式破碎机采用成熟的制造技术，独特的结构设计，能使破碎出来的物料颗粒呈立方体，无张力和裂缝，颗粒形状更加完美，能破碎进料粒度不超过350mm，抗压力强度不超过350兆帕的各种物料（花岗岩、石灰石、矽石、混凝土等）。

反击式破碎机广泛应用于矿山、铁路、高速公路、电力、煤炭、水泥、化工、建筑等行业。

The impact crusher adopts mature manufacturing technology and unique structural design, which can make the crushed material particles appear cubic, without tension and cracks, and the particle shape is more perfect. It can crush all kinds of materials (granite, limestone, gangue, concrete, etc.) with feed particle size no more than 350mm and pressure strength no more than 350Mpa.

Impact crushers are widely used in mining, railway, expressway, electric power, coal, cement, chemical industry, construction and other industries.

PC锤式破碎机 PC HAMMER CRUSHER

锤式破碎机是直接将大块物料一段式（一次性）破碎成所需要物料粒度。适用于矿山、水泥、化工、电力、冶金等工业部门破碎中等硬度的物料，如石灰石、炉渣、焦炭等物料的中碎、细碎作业。

Hammer crusher is used to directly crush large materials into the required particle size in one stage (one-time). It is suitable for crushing medium hardness materials, such as limestone, slag, coke and other materials in mining, cement, chemical industry, electric power, metallurgy and other industrial departments.



圆振动筛 CIRCULAR VIBRATING SCREEN

YZ系列圆振动筛是一种以圆形运动为轨迹的多层数、高效新型振动筛分设备。其采用驱动电机带动激振器端部偏块调节振幅，物料的筛分面积大，筛分成品石子的规格最多达6种，具有结构可靠、激振力强、效率高、振动噪音小、维修方便等特点，该振动筛广泛应用于矿山、建材、交通等行业的物料产品分级筛选。

YZ series circular vibrating screen is a new type of multi-layer and high-efficiency vibrating screening equipment with circular motion as the track. It uses the drive motor to drive the deviation block at the end of the exciter to adjust the amplitude. The screening area of materials is large, and there are up to 6 specifications for screening finished stones. It has the characteristics of reliable structure, strong exciting force, high efficiency, low vibration noise and convenient maintenance. The vibrating screen is widely used in the graded screening of materials and products in mining, building materials, transportation and other industries.



TH系列提升机 TH SERIES HOIST

TH型环链式斗式提升机是一种圆环链斗式提升机，采用混合式或重力式卸料，挖取式装料。TH型环链式斗式提升机适用于输送堆积密度小于1.5t/m³易于掏取的粉状、粒状、小块状的磨琢性物料，物料温度在250℃以下。如：煤、水泥、砂子、化肥、粮食等。

Th ring chain bucket elevator is a ring chain bucket elevator, which adopts mixed or gravity unloading and digging loading. Th type ring chain bucket elevator is suitable for conveying bulk density less than 1.5t/m³. It is easy to take out powdery, granular and small abrasive materials, and the material temperature is below 250 °C. Such as coal, cement, sand, chemical fertilizer, grain, etc.



NE/NSE系列提升机 NE / NSE SERIES HOIST



该系列提升机采用流入式喂料，诱导式卸料；物料流入料斗内靠链板提升到顶端，物料在重力作用下自行卸料。它具有提升范围广、输送能力大、驱动功率小、使用寿命长、提升高度高、密封性好、运行可靠性好、机械尺寸小、结构精度高、使用成本低等优点，广泛应用于建材、化工、矿山等行业。

This series of hoists adopts inflow feeding and induction unloading. The material flows into the hopper and is lifted to the top by the chain plate, and the material is discharged by itself under the action of gravity. It has the advantages of wide lifting range, large conveying capacity, low driving power, long service life, high lifting height, good sealing, good operation reliability, small mechanical size, high structural accuracy and low use cost. It is widely used in building materials, chemical industry, mining and other industries.

Engineering case

工程案例



炼铁高炉出铁场除尘项目
Dust removal project of ironmaking blast furnace tapping yard



电厂脱硫湿电一体化项目
Power plant desulfurization wet electricity integration project



水泥窑头窑尾除尘项目
Dust removal project at the head and tail of cement kiln



俄罗斯东方港除尘项目
Russian Vostochnyy port dust removal project



制药公司新建400t/d污水处理项目
New 400t/d sewage treatment project of pharmaceutical company



900m³/h 脱硫废水处理项目
900m³/h Desulfurization wastewater treatment project



钢铁行业输送项目
Steel industry transportation project



煤炭行业输送项目
Coal industry transportation project



国外输送项目
Foreign conveyor projects



港口输送项目
Port transportation project



造纸行业输送项目
Transportation project of paper industry



砂石骨料生产线
Sand and gravel aggregate production line

生态环境综合治理



大气治理
Atmospheric governance



水处理
Sewage treatment



物料输送
Material conveying



物料处理
Material Handling

Service Trade

技术服务



·拥有专业的技术团队

Having a professional technical team

·以丰富的经验给予技术支持

Provide technical support with rich experience

·派遣高级技术人员进行技术交流

Dispatch senior technical personnel for technical exchange

·专业人员指导安装、调试工作，直到设备正常运转

Professional personnel guide installation and debugging work until the equipment operates normally

·拥有十余支工程施工售后运营团队

Having over ten after-sales operation teams for engineering construction

·专业人员1小时响应，重大问题24小时到达现场

Professional personnel respond within 1 hour and arrive on-site 24 hours for major issues

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石油化工
petrochemical
industry



电力
power



冶金
metallurgy



建材
building
materials



矿山
mine



港口
port



其他
other

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