

HAOFENG HEAVY EQUIPMENT CO., LTD., Was established in 2004, located in Danzao Town Nanhai District Foshan City of Guangdong province, nearby the former residence of Mr. Kang Youwei. **HAOFENG** has the independent capability of R&D and manufacturing high efficient energy-saving pre-crushing system, combination section continuous ball mill, environmental-protection low temperature spray dryer, automatic powder dry-coloring system, automatic glaze batching system, and other equipments for the complete line of raw materials processing.

Currently **HAOFENG** is the largest supplier of the complete line of raw materials processing in China. Its products are widely used in domestic and international ceramic producing centers, such as Guangdong, Guangxi, Hunan, Henan, Shandong, Hebei, Shenyang, Gansu, Yunnan, Sichuan, Shanxi, U.S.A, Vietnam, Indonesia, India, Iran, Turkey, etc.

Every year, **HAOFENG** invests 10% of its annual revenue into R&D, and endeavors to keep up with the international level. The combination section continuous ball mill, which could save 30% energy, has been widely used around the world. The automatic powder dry-coloring system has been successfully into production. Moreover, the environmental-protection low temperature spray dryer could save more than 35% energy.

HAOFENG spares no efforts to realize the vision of ceramic equipment intelligent application, improving efficiency and saving energy. Either now or in the future, **HAOFENG** will insist on promoting the culture of Chinese ceramic industry, and creating national brands with international reputation.



05 企业工厂环境 FACTORY ENVIRONMENT



▲ 放置1 Placing I



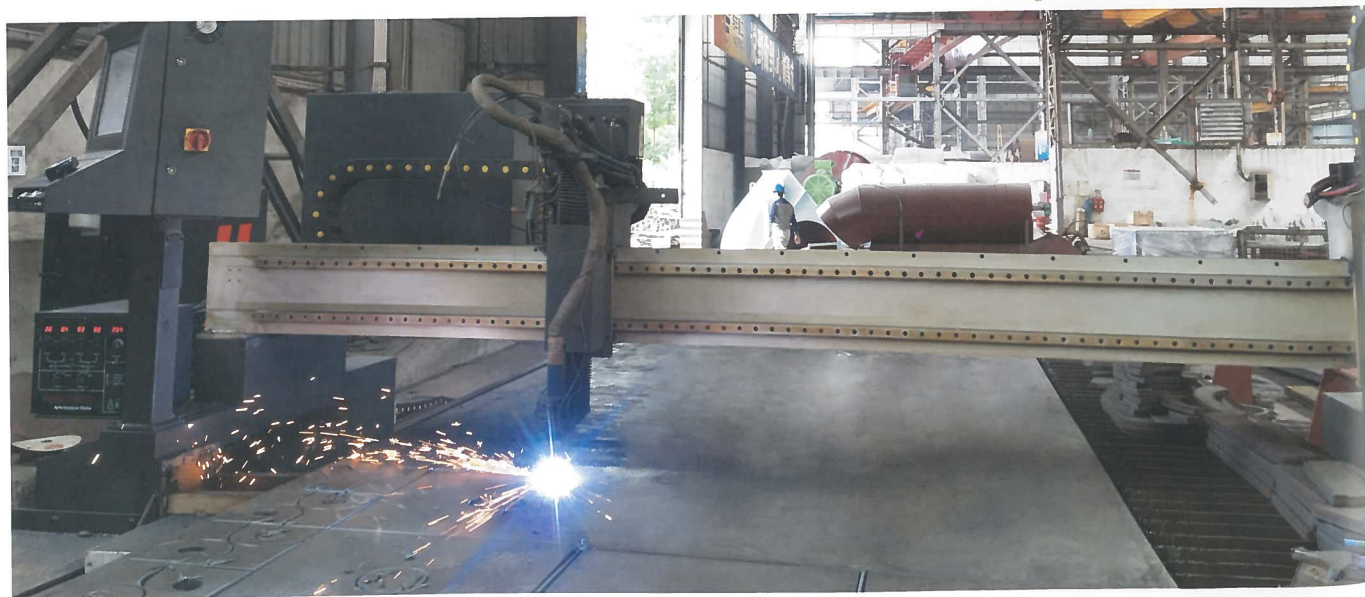
▲ 放置2 Placing II



▲ 焊接1 Welding I



▲ 焊接2 Welding II



▲ 精准切割 Precision Cutting



▲ 仓储 Storage

07 新型节能球磨机

NEW ENERGY-SAVING BALL MILL

新型节能球磨机
NEW ENERGY-SAVING BALL MILL

水煤浆热风炉
WATER COAL STOVE

链排炉
CHAIN STOVE

HSD喷雾干燥塔
HSD SPRAY DRYER

HS系列平浆搅拌机
HS SERIES OF FLAT BLADE TYPE STIRRER

喂料机
FEEDING MACHINE

滚筒筛
ROTARY SIEVE

皮带输送机
BELT CONVEYOR

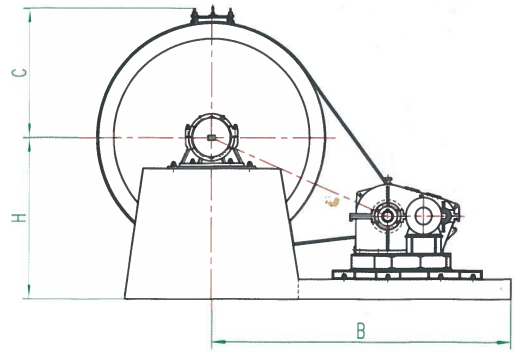
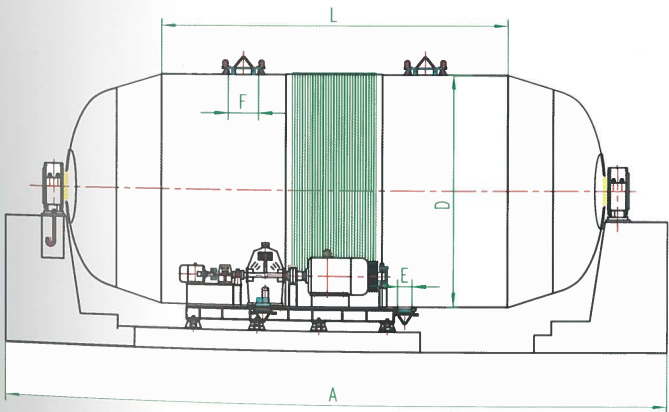
自动配釉系统
AUTOMATIC GLAZING SYSTEM

干法混色系统
DRY MIXED COLOR SYSTEM

HBM型球磨机能满足各类陶瓷生产原料精磨的需求。连续式和大吨位球磨机更是理想的陶瓷原料设备，具有启动简便，能耗低，产量高，成料精等特点。我厂自主研发的新型节能球磨机（专利号为：ZL200820078487.5）能提高球磨效率达到节约成本的效果。

HBM ball mill can meet the fine grinding requirement of all kinds of ceramic raw materials. Especially the continuous type and large ton ball mills will perform perfectly, they have the advantages of easy starting, low energy consumption, high output and nice product, etc. This new energy-saving ball mill (patent no.:ZL200820078487.5) Developed by HAOFENG can save the grinding time and improve the working efficiency to reach cost saving.

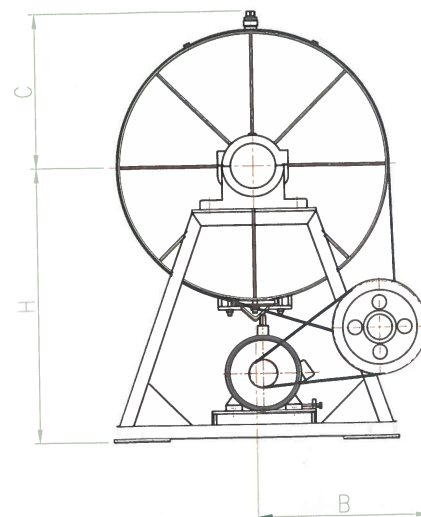
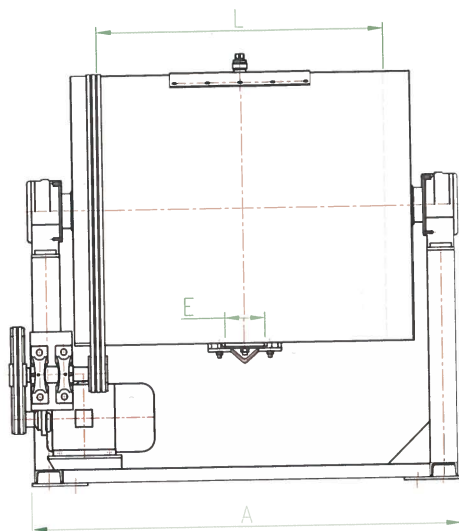




型号 Model	规格 Specification		主电机 Main Motor	辅助电机 Auxiliary Motor	安装尺寸 Dimensions(mm)							
	吨位 Type(T)	容积 Volume(M ³)	功率(KW)	功率(KW)	D	L	H	A	B	C	E	F
HSEBM-3000*6450	30	57.2	110	7.5	3400	6450	2700	9250	4145	2180	250	550
HSEBM-3600*7170	40	69.12	132 / 200	11 / 15	3600	7170	2850	10060	4437	2280	250	550
HSEBM-4000*5500	40	67.75	132 / 160	15	4000	5500	2950	8410	4865	2315	250	550
HSEBM-4000*6765	50	79.25	160	15	4000	6765	2710	9700	4815	2480	250	550
HSEBM-4000*8100	60	97.7	250 / 280	15	4000	8100	2805	11700	4900	2480	250	550
HSEBM-4100*11200	100	141	315	22	4100	11200	3245	15000	5230	2530	250	550

09 新型节能球磨机-釉料球磨机

NEW ENERGY-SAVING BALL MILL - GLAZE BALL MILL



型号 Model	规格 Specification		电机 Power Installed	安装尺寸 Dimensions(mm)							
	吨位 Type(T)	容积 Volume(M ³)	功率(KW)	D	L	H	A	B	C	E	F
HGBM-430*510	0.03	0.07	2.2	430	510	500	1035	670	285	-	100
HGBM-540*630	0.05	0.14	2.2	540	630	550	1155	725	335	-	100
HGBM-600*850	0.1	0.23	1.5 ^①	600	850	700	1334	600	375	-	100
HGBM-800*950	0.2	0.47	2.2 ^①	800	950	800	1436	605	480	-	100
HGBM-950*1020	0.3	0.72	4 ^①	950	1020	983	1530	614	555	-	100

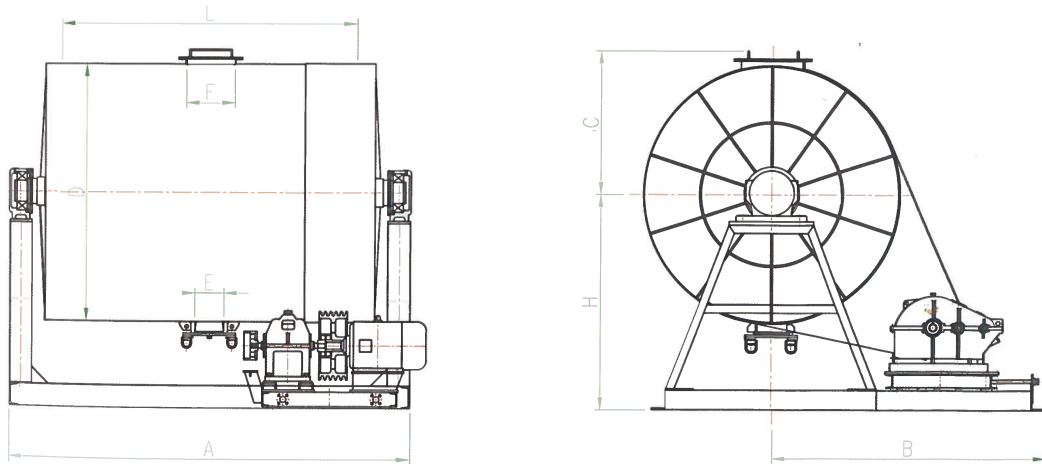
注: ①电机极数为6级 / NOTE: ①means the motor is 6 poles



新型节能球磨机-釉料球磨机

NEW ENERGY-SAVING BALL MILL - GLAZE BALL MILL

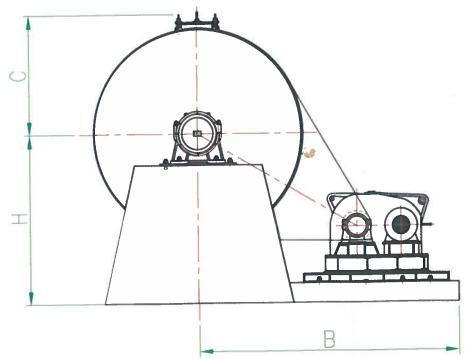
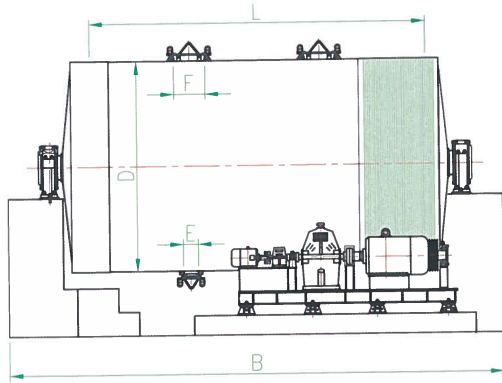
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型号 Model	规格 Specification		主电机 Main Motor	辅助电机 Auxiliary Motor	安装尺寸 Dimensions(mm)							
	吨位 Type(T)	容积 Volume(M ³)	功率(KW)	功率(KW)	D	L	H	A	B	C	E	F
HGBM-1200*1365	0.5	1.53	5.5		1200	1365	1250	2050	1500	850	200	450
HGBM-1450*1760	1	2.91	15		1450	1760	1375	2695	1858	975	200	450
HGBM-1800*2100	1.5	5.34	22		1800	2100	1550	2842	1950	1150	200	450
HGBM-2100*2300	3	7.97	45		2100	2300	1700	3500	3180	1300	200	450
HGBM-2100*2600	3	9	45		2100	2600	1700	3800	3180	1300	200	450
HGBM-2150*3000	5	10.89	55	3	2150	3000	1725	4360	3180	1325	200	450
HGBM-2150*3400	6	12.33	55	3	2150	3400	1725	4760	3180	1325	200	450
HGBM-2600*3800	8	20.175	75	4	2600	3800	1950	5700	3830	1550	200	450
HGBM-2850*4000	10	25.5	75	4	2850	4000	2075	2700	3830	1675	200	450

11 新型节能球磨机—平封头球磨机

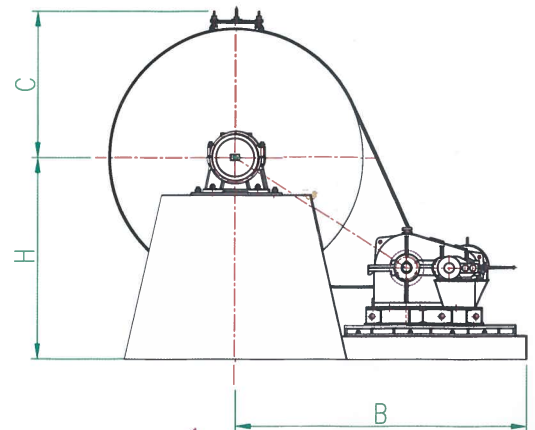
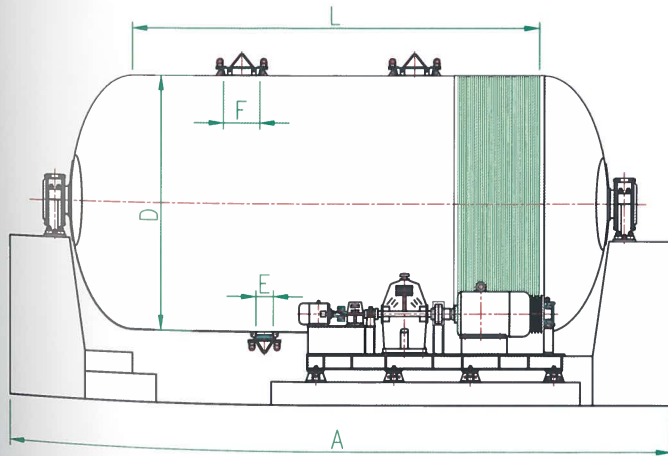
NEW ENERGY-SAVING BALL MILL - FLAT TYPE BALL MILL



型号 Model	规格 Specification		主电机 Main Motor	辅助电机 Auxiliary Motor	安装尺寸 Dimensions(mm)							
	吨位 Type(T)	容积 Volume(M ³)	功率(KW)	功率(KW)	D	L	H	A	B	C	E	F
HBM-3000*4650	15	32.52	90	7.5	3000	4650	2500	6900	3650	1980	250	550
HBM-3200*4650	20	37.31	110	7.5	3200	4650	2600	7050	3910	2080	250	550
HBM-3500*4500	25	43.3	160	7.5	3500	4500	3300	9310	3730	2230	250	550
HBM-3500*5500	20	52	160	11	3500	5500	2850	8635	4385	2230	250	550
HBM-4000*5500	40	69.12	200	15	4000	5500	2800	8700	4895	2480	250	550
HBM-4000*6500	50	81.68	220	15	4000	6500	2800	9700	4895	2480	250	550
HBM-4000*7960	60	100	280	15	4000	7960	2800	11700	5210	2480	250	550

新型节能球磨机-椭圆封头球磨机 12

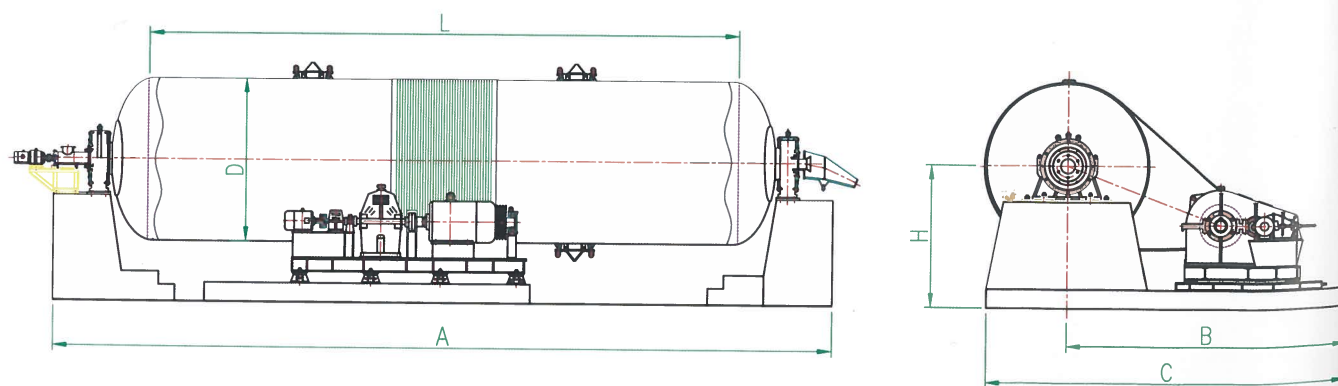
NEW ENERGY-SAVING BALL MILL - ELLIPTICAL TYPE BALL MILL



型号 Model	规格 Specification		主电机 Main Motor	辅助电机 Auxiliary Motor	安装尺寸 Dimensions(mm)							
	吨位 Type(T)	容积 Volume(M ³)	功率(KW)	功率(KW)	D	L	H	A	B	C	E	F
HFBM-3000*4650	15	32.07	90	7.5	3000	4650	2500	6900	3650	1980	250	550
HFBM-3200*4650	20	37.31	110	7.5	3200	4650	2600	7050	3910	2080	250	550
HFBM-3400*4960	25	45.03	132	7.5	3400	4960	2700	7760	4145	2180	250	550
HFBM-3400*6300	30	57.2	110/160	7.5/11	3400	6300	2700	9100	4145	2180	250	550
HFBM-3600*6700	40	68.2	132/160/200/220	7.5/11/15	3600	6700	2850	9600	4125	2280	250	550
HFBM-4000*7900	60	99.27	200	15	4000	7900	3205	10700	4900	2280	250	550
HFBM-4100*11200	100	147.65	280/315	22	4100	11200	2745	15000	4813	2530	250	550

13 新型节能球磨机-单体连续球磨机

NEW ENERGY-SAVING BALL MILL - SINGLE-CHAMBER CONTINUOUS BALL M

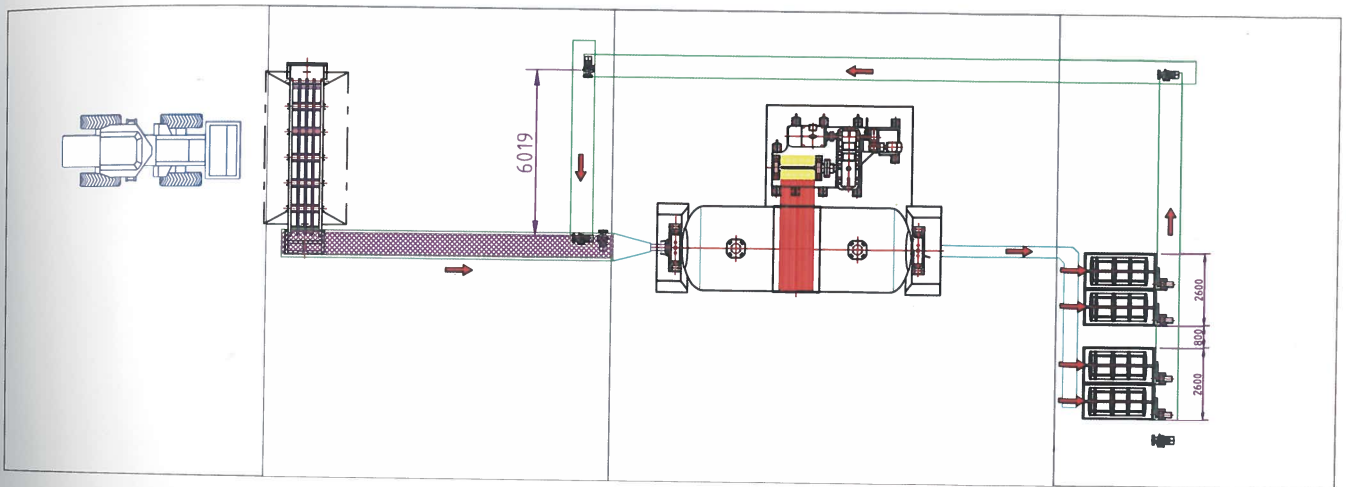
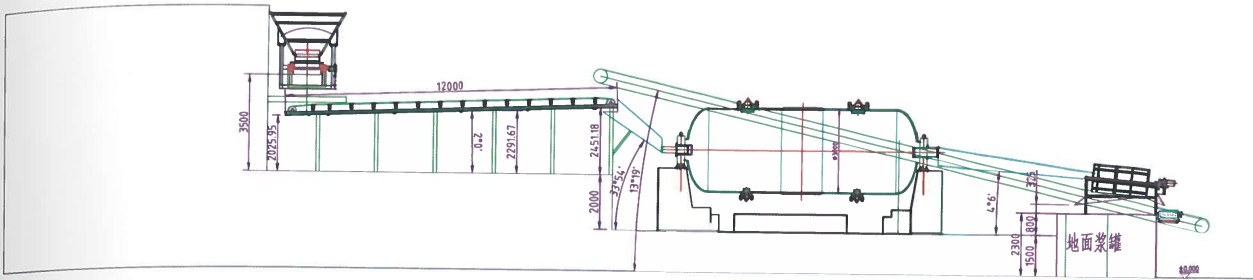


型号 Model	规格 Specification	电机 Power Installed	转速 Mill Speed	安装尺寸 Dimensions(mm)					
	容积 Volume(M ³)	功率(KW)	时速(r/m)	D	L	H	A	B	C
HCBM-3000*5200	37	250	9-13	3000	5200	3200	7979	4220	5075
HCBM-3250*5720	46	280	9-13	3250	5720	3350	8300	4220	5200
HCBM-3000*7000	50	280	16.5	3000	7000	2945	10410	5195	6795
HCBM-3505*6200	60	355	8-12	3505	6200	8979	10410	5195	6795
HCBM-3600*7300	75	355	12.5	3000	7300	3185	12220	5190	6840
HCBM-3000*12000	85	400	16.5	3000	12000	2645	16700	5195	6795
HCBM-3200*12500	100	450	15	3200	12500	3145	17200	5195	6795

新型节能球磨机-单体连续球磨机

NEW ENERGY-SAVING BALL MILL - SINGLE-CHAMBER CONTINUOUS BALL MILL

14



陶瓷工业的粉料制备方面，连续式球磨机的新应用使得高效率和低维修保养成本两者兼得。

根据研磨特性，每台球磨机的转速和机械性能都可以分别配置。研磨介质类型、装载量以及球磨机内衬类型可以单独配置。泥浆在球磨机之间流动有不同的方式供选择，主要取决于实际使用需要和原材料的特性。

方式1：泥浆的传输通过两台球磨机之间的抽吸装置来实现。这种方式，球磨机之间的输送管道的维修保养更为简易。

方式2：采用自然流动方式使泥浆进入下一台球磨机。今后球磨产量的增加或产品类型的改变可以通过增加一台球磨机来实现，无需增加一条新研磨线。每台球磨机都可以实现研磨介质，水和悬浮物（固体或液体）的单独喂料，并处于实时控制。

Body preparation for ceramic industry with the new application of continuous type ball mills, which can achieve both higher efficiency and lower maintenance cost.

Based on the grinding characteristics, each mill's rotational speed and mechanical properties can be arranged separately. Grinding media type and loading capacity, lining type of the mills can be set individually. Flow of slip between mills are in options. The selection of the connection type depends on the application and raw material characteristics.

Option 1 : the slip transfer is made by a pumping unit at the end of each ball mill to the next ball mill. This way can create easier maintenance for the transfer line between the mills.

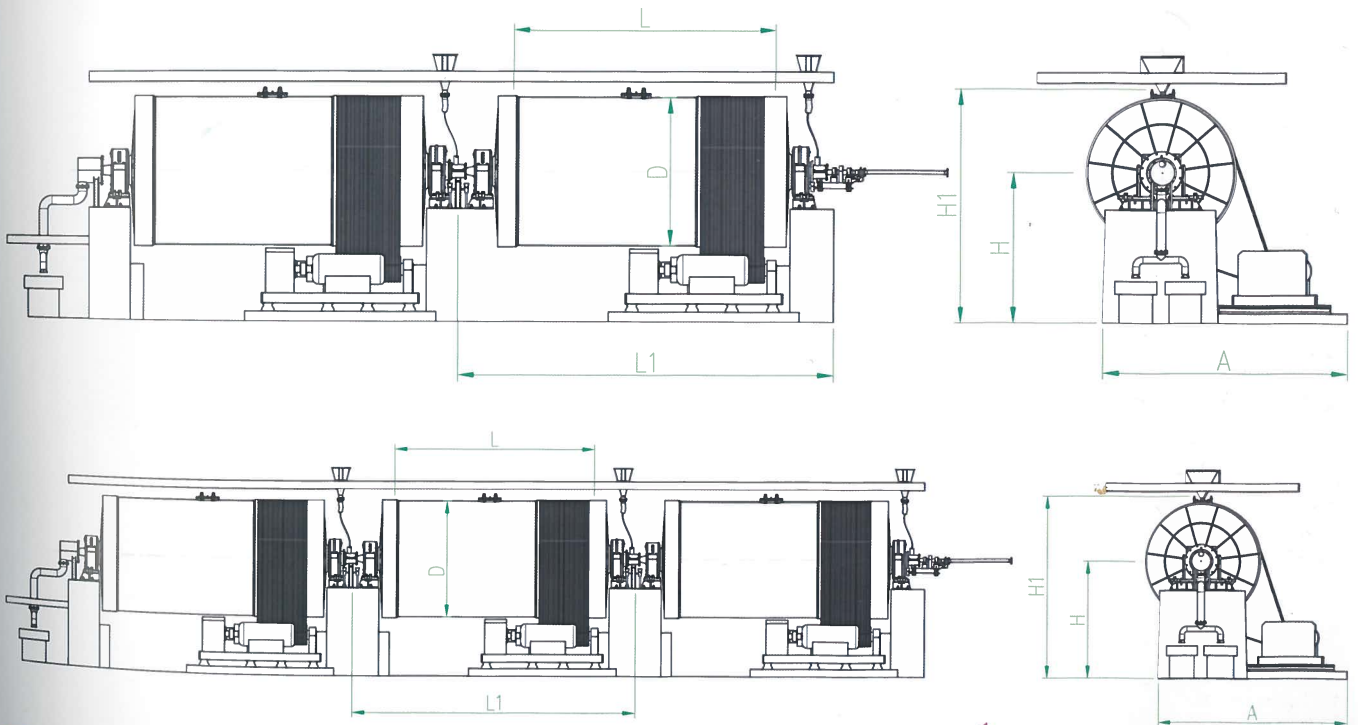
Option 2 : natural flow helps the transfer of the slip to the next ball mill. The future, the capacity increasing or the product type changing can also be implemented by adding a new ball mill instead of adding a new line for grinding. Grinding media, water, deflocculant (solid or liquid) feeding is arranged for each mill and in real-time under control.

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新型节能球磨机-模块式连续球磨机 16

NEW ENERGY-SAVING BALL MILL - MODULAR TYPE CONTINUOUS BALL MILL



型号 Model	规格 Specification	模块数 Module no.	电机 Power Installed		转速 Mill Speed		安装尺寸 Dimensions(mm)					
			功率(KW)	功率(KW)	时速(r/m)	时速(r/m)	D	L	L1	H	H1	A
HMCBM-3065*5250*2	37*2	2	2*250	2*250	9-13	9-13	3065	5250	7979	3400	5075	5870
HMCBM-3250*5720*2	46*2	2	2*315	2*315	9-13	9-13	3250	5720	8479	3400	5270	5870
HMCBM-3505*6200*2	60*2	2	2*400	2*400	8-12	8-12	3505	6200	8979	3600	5607	5870
HMCBM-3065*5250*3	37*3	3	3*250	3*250	9-13	9-13	3065	5250	7979	3400	5075	5870
HMCBM-3250*5720*3	46*3	3	3*315	3*315	9-13	9-13	3250	5720	8479	3400	5270	5870
HMCBM-3505*6200*3	60*3	3	3*400	3*400	8-12	8-12	3505	6200	8979	3600	5607	5870
HMCBM-3600*7300*3	75*3	3	3*450	3*450	8-10	8-10	3600	7300	12220	3185	5281	7034

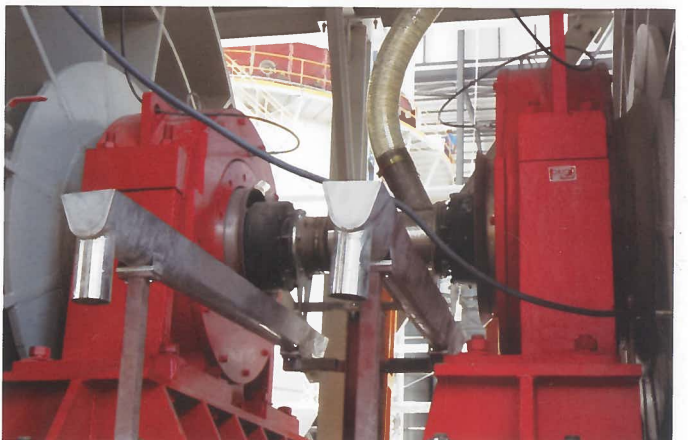
17 新型节能球磨机-模块式连续球磨机

NEW ENERGY-SAVING BALL MILL - MODULAR TYPE CONTINUOUS BALL MILL



新型节能球磨机-模块式连续球磨机

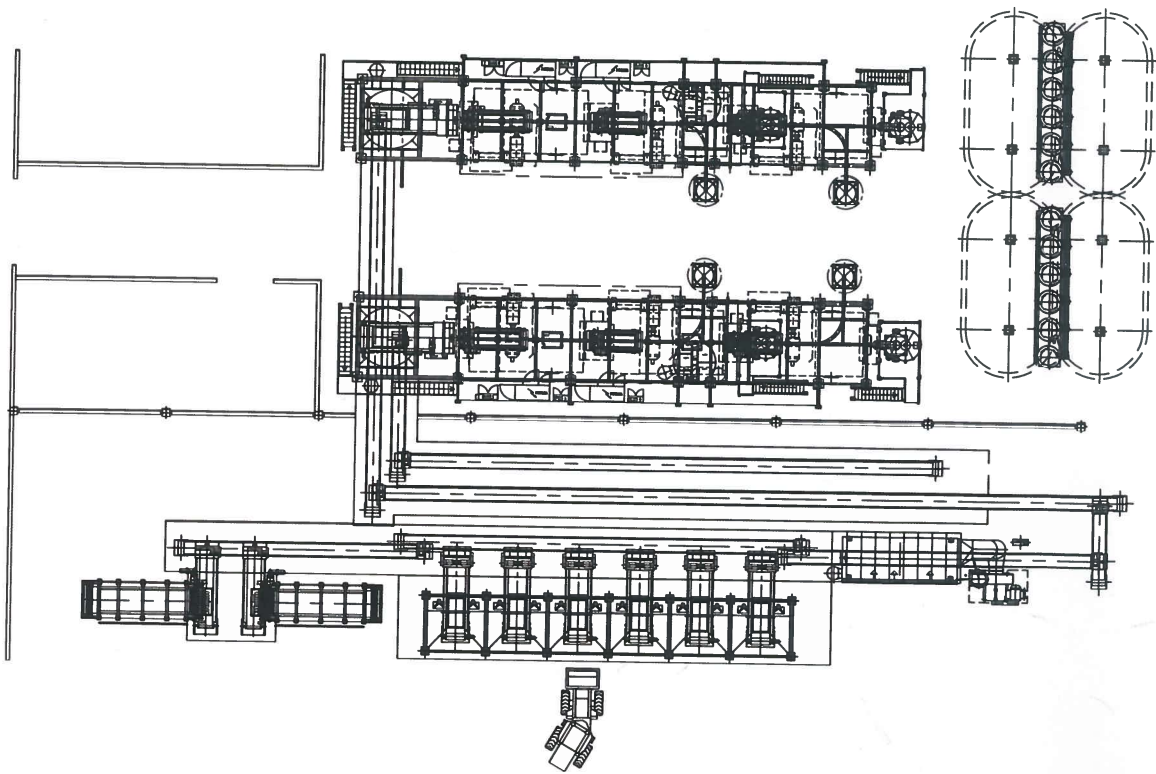
NEW ENERGY-SAVING BALL MILL - MODULAR TYPE CONTINUOUS BALL MILL



19 新型节能球磨机-模块式连续球磨机

NEW ENERGY-SAVING BALL MILL - MODULAR TYPE CONTINUOUS BALL M





对球磨机进行固体材料和液体的送料是通过自动连续喂料系统来实现的。这套系统包含跟进和控制过程必需的配置，并能对所有操作数据进行记录。

根据材料规格和客户的需求，球磨机固体材料的喂料有两种方式供选择：固体材料可以储存在大料仓里，通过箱式喂料机送料；也可以储存在小料斗里，通过装料器送料。两种送料系统的原材料都是通过水平传感器来控制。

The feeding of solid and liquid material to the mill is realized by automatic continuous feeding system which includes all necessary equipments for following up and controlling the process and to record all parameters during the operation.

Depending on the specifications of materials and the customer requests, various solutions exist for feeding the solid material to the mill. The solid material can be stored either in big silos, to be loaded by box feeder, or small hoppers, to be loaded by loader. In both systems, the raw materials are all controlled by the sensors.

21 釉料连续球磨系统

CONTINUOUS MILLING SYSTEM FOR GLAZE





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连续球磨系统可以应用在釉料制备工序，通过“失重式称重系统”可以让釉料精准地按照配方比例连续供料到连续球磨系统，实现连续不间断产釉浆，整个过程自动化程度高，釉料的细度稳定，具备用人少，浪费少，污染少等优点，是陶瓷行业的一大突破新型技术。

Continuous ball mill system can be applied in the glazing preparation process, through the GRAVITY TYPE WEIGHING SYSTEM, which can let the glazing accurately according to the formula ratio to supply continuously for the continuous ball mill system, and it can achieve slurry producing continuously. This whole process has the advantages of : the high degree of automation, glazing fineness stability, less labours, less waste and less pollution, etc. This is a big breakthrough of new technology in ceramic industry nowadays.

23 水煤浆热风炉

WATER COAL STOVE

新型节能球磨机
NEW ENERGY-SAVING BALL MILL

水煤浆热风炉
WATER COAL STOVE

链排炉
CHAIN STOVE

HSD喷雾干燥塔
HSD SPRAY DRYER

HS系列平桨搅拌机
HS SERIES OF FLAT BLADE TYPE STIRRER

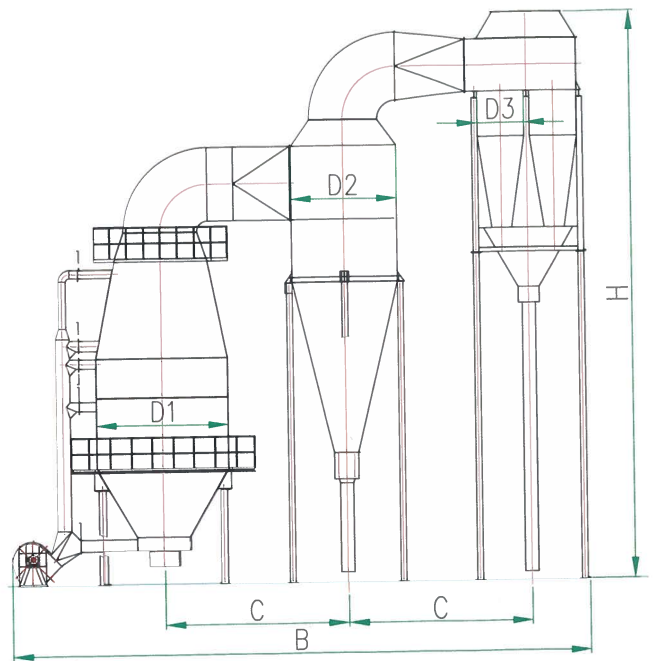
喂料机
FEEDING MACHINE

滚筒筛
ROTARY SIEVE

皮带输送机
BELT CONVEYOR

自动配釉系统
AUTOMATIC GLAZING SYSTEM

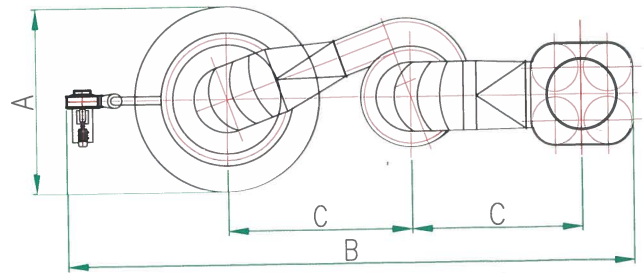
干法混色系统
DRY MIXED COLOR SYSTEM



水煤浆炉
Water Coal Stove

1级除尘器
Dust Collector 1

2级除尘器
Dust Collector 2





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水煤浆炉采用最新的燃烧技术以及新式旋风除尘原理，能使水煤浆充分燃烧并能一次清除超过97%的煤灰，并在外加的除尘器获得更加干净的热风，可以满足抛光砖正常品质的生产要求。

The water coal stove has adopted the newest combustion technology and new cyclone dust removal principle, it can make the coal water mixture combust fully and remove more than 97% coal ash at one time. Besides, it can get the clean hot air from the added dust collector. So this water coal stove can meet the production requirements of polishing tiles perfectly.

型号 Model	产粉量 Output T/day	喷枪数量 Qty. Of Spray Gun (支) / (Pcs)	螺杆泵规格 及数量 Spc. & Qty. Of Screw Pump	总功率(KW) Gross Power	安装尺寸 Dimensions(mm)						
					D1	D2	D3	H	A	B	C
HWCS-5000	400~500	12	G70*2	30+7.5	5000	4500	1500*4	21650	8000	24100	7000
HWCS-5500	600~700	12	G70*2	30+7.5	5500	5000	1800*4	22500	8500	24600	7000
HWCS-6000	800~900	18	G85*2	37+11	6000	5500	2000*4	23500	9000	25100	7000
HWCS-6500	1000~1200	18	G85*2	37+11	6500	6000	2200*4	24500	9500	25600	7000
HWCS-7000	1300-1500	22	G105*2	45+15	7000	6500	2400*4	26100	10000	26100	8000
HWCS-7500	1500-1800	22	G105*2	45+18.5	7500	6500	2400*4	27120	10000	28230	9000

25 链排炉

CHAIN STOVE

新型节能球磨机
NEW ENERGY-SAVING BALL MILL

水煤浆热风炉
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AUTOMATIC GLAZING SYSTEM

干法混色系统
DRY MIXED COLOR SYSTEM

HCS链排式煤粉热风炉

该设备可以直接利用煤气站剩余的粉煤，加10-15%的煤气站污水和焦油直接燃烧，通过专用设备热风除尘，完全满足陶瓷生产要求。已在国内众多陶瓷生产、矿物加工领域应用，节能效果显著。

产品配有自动上煤和出灰机构，具有自动化程度高、操作建议、设备运行安全、可靠性高的特点。

由于所用燃料为煤粉，粉煤使用时需加入10-15%的水分，拥有煤气发生站的厂家可将酚水、废焦油加入煤中，既可解决酚水污染，又可变废为宝。

本产品粉煤燃烧采用高压风助燃，针对不同的陶瓷产品选用适合的高温烟气旋风除尘，除尘效率 > 90%，具有高效无污染特点。

本设备配套有全自动控制系统，利用温度控制仪表和变频器配合，通过PID自动调节来控制助燃风量和炉排转速，实现温度自动化控制。面板设有自动/手动转换开关，方便调试和试运行手动操作和调节。

HCS chain-row type coal-powder hot-air furnace

This furnace can directly burn the remaining coal powder with 10-15% waste water and tar from the coal gas station, dust is removed by special equipments, so that is fully meet the ceramic production requirements. It has been used in the fields of ceramic production and mineral processing at domestic and abroad, and the energy-saving effect is great.

This machine has automatic device for loading coal and unloading ash, it has the advantages of high automaticity, simple operation and stable running.

Using coal powder as fuel should mix with 10-15% water. Factories with gas station could put the phenol water and waste tar into the coal, this way can not only solve the phenol water pollution problem but also change the waste to treasure.

The burning of coal powder adopts the high pressure air as combustion-supporting. We apply the suitable high-temperature cyclone dust collectors according to different kinds of ceramic products, and the dust collection rate is more than 90%, such high efficiency and pollution-free are both available.

This furnace has fully automatic control system. In this system, the temperature controller works with inverter and the combustion air and rotating speed are controlled by PID adjustment, thus the temperature can be controlled automatically. The panel has the automatic transfer switch and manual transfer switch, which is convenient for the commissioning and testing operation.





型号 Model	HCS-6T	HCS-8T	HCS-10T	HCS-12T	HCS-14T	HCS-16T	HCS-20T	HCS-25T	HCS-30T	
额定蒸发量(t/h) Evaporation Capacity	6T	8T	10T	12T	14T	16T	20T	25T	30T	
热功率(Kcal/h) Thermal Power	3.8x10 ⁶	4.82x10 ⁶	6.3x10 ⁶	7.5x10 ⁶	8.45x10 ⁶	9.65x10 ⁶	12x10 ⁶	15.5x10 ⁶	21x10 ⁶	
额定热功率(MW) Rated Thermal Power	4.2	5.6	7	8.4	9.8	11.2	14	17.5	17.5	
炉排宽度(m) Width	1.3	1.7	2.1	2.5	2.9	2.9	3.3	3.7	4.1	
前后轴距(m) Wheel Base	7.5	7.5	7.5	7.5	6.5	7.5	7.5	8.4	8.4	
炉排有效面积(m ²) Effective Area	7.28	9.52	11.76	14	16.24	18.8	23.5	24.5	29.3	
粒度(mm) Fineness	<25mm (<3mm的不大于30%)									
低位发热量(MJ/Kg) Quantity Of Heat	>20.00~21.70									
热效率(%) Productiveness	80	80	85	85	88	88	88	88	88	
功率(KW) Power	18.5	22	30	37	45	45	75	90	110	
减速机 Speed Reducer	型号 Model	GL-10P	GL-16P	GL-16P	GL-16P	GL-20P	GL-20P	GL-20P	GL-30P	GL-30P
	功率(KW) Power	0.75	1.1	1.1	1.1	1.5	1.5	1.5	2.2	2.2
粉料产能(T/24h) Capacity	100-150T	150-200T	200-300T	300-400T	400-480T	480-550T	550-800T	800-1100T	1100-1300T	
搭配喷塔型号(Kg/h) Tower Model	2500	3200	4000	5000	6000	8000	8000-12000	12000型以上	12000型以上	
装机功率(KW) Total Power	19.25	23.1	31.1	38.1	46.5	46.5	76.5	92.2	113.2	
外形尺寸(mm) Size (L长xW宽xH高)	8600*2200*2260	8600x2800x2260	8600x3200x2260	8600x3600x2260	7700x4000x2260	8600x4000x2260	8600x4400x2260	9500x4800x2560	9500x5200x2560	
除尘器规格(个) Dust Remover Specifications	Φ2200mm*1	Φ2500mm*1	Φ2800mm*1	Φ3000mm*1	Φ2500mm*2	Φ2800mm*2	Φ3200mm*2	Φ3500mm*2	Φ3800mm*2	

27 HSD喷雾干燥塔

HSD SPRAY DRYER

新型节能球磨机

NEW ENERGY-SAVING BALL MILL

水煤浆热风炉

WATER COAL STOVE

链排炉

CHAIN STOVE

HSD喷雾干燥塔

HSD SPRAY DRYER

HS系列平浆搅拌机

HS SERIES OF FLAT BLADE TYPE STIRRER

喂料机

FEEDING MACHINE

滚筒筛

ROTARY SIEVE

皮带输送机

BELT CONVEYOR

自动配釉系统

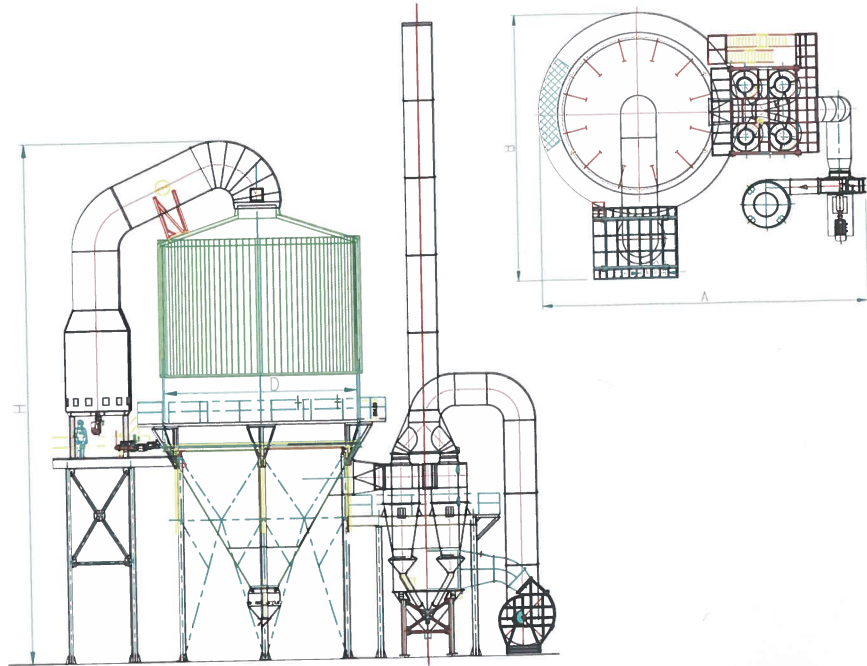
AUTOMATIC GLAZING SYSTEM

干法混色系统

DRY MIXED COLOR SYSTEM

本HSD系列喷雾干燥器主要提供建筑陶瓷工业、日用陶瓷工业和电瓷工业等制备压力成型的坯粉。

HSD spray dryers mainly supply the dry powder to building ceramics industry, domestic ceramics industry and electric porcelain industry.





型号 Model	能耗 Energy Consumption		柱塞泵 规格及数量 Spec. & Qty. of piston pump	产量(Kg/h) Powder Output	总功率(KW) Gross Power	喷枪支数 Spray Gun Nos	安装尺寸 Dimensions(mm)			
	蒸发量(Kg/h) Evaporation Capacity	热消耗量 Kcal/h Thermal Consumption					D	H	A	B
HSD-300	300	255000	YB110*2	696	42	2	4560	8000	8750	6000
HSD-500	500	425000	YB110*2	1161	59	8	5320	8000	11500	8000
HSD-800	800	680000	YB110*2	1857	67	10	5280	8500	12000	9250
HSD-2000	2000	1700000	YB120*2	4643	85	15	6500	21800	14500	11500
HSD-2500	2500	2125000	YB140*2	5804	105	18	7000	22850	15500	11500
HSD-3600	3600	3060000	YB200*2	8357	127	24	7600	23700	15500	11500
HSD-4800	4800	4080000	YB200*2	11143	169	27	7600	24850	18000	12000
HSD-6000	6000	5100000	YB250*2	13929	204	30	8360	25850	19900	16000
HSD-7000	7000	5950000	YB250*2	16250	244	33	8360	26850	19900	16000
HSD-9000	9000	7650000	YB250*2	20893	294	42	9120	27000	20000	17000
HSD-10000	10000	8500000	YB300*2	23215	310	45	9880	28000	21000	18000
HSD-12000	12000	10200000	YB300*2	27857	340	48	10500	29000	22000	18000
HSD-14000	14000	11900000	YB300*2	32500	375	72	11400	30000	23000	19000
HSD-18000	18000	15300000	YB300*2	41786	415	84	12400	33000	27000	25000
HSD-20000	20000	17000000	YB300*3	46429	560	102	13000	35000	27000	22800
HSD-23000	23000	19550000	YB300*3	53393	560	108	13700	37000	27600	23950
HSD-25000	25000	21250000	YB300*3	58036	630	114	14500	38500	28120	25000
HSD-27000	27000	22950000	YB300*4	62679	630	120	15300	39200	29300	25800
HSD-30000	30000	25500000	YB300*4	69644	710	126	16100	39850	30250	27200

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水煤浆热风炉
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陶瓷浆液的干燥是坯粉制备的最后一道工序，出来的坯粉获得稳定的含水量，此时粒粉的形状大小也很重要。我们的喷雾干燥塔将会通过以下性能确保理想干燥的实现：

- ◆ 低能耗；
- ◆ 出色的喷雾设计实现高效干燥；
- ◆ 高效低能的燃烧机；
- ◆ 高效风机确保热风快速流动；
- ◆ 高质量不锈钢旋风除尘器的特殊结构会有效减少气压流失；
- ◆ 良好的保温有效防止热散失，能耗低；
- ◆ 可调节喷嘴和可移除喷枪，无需停止干燥塔；
- ◆ 使用寿命长；
- ◆ 故障率低。

根据不同的燃烧(天然气、燃料油等)配置不同的系统设计，应客户的需求，我们还可以实现余热发电；湿法除尘器和干滤系统可适用除尘系统。

容积选择方面，以下公式可计算干粉产量：

HSD： 喷雾塔规格； **X：** 泥浆干燥率； **Y：** 干粉干燥率； **P：** 产量kg/h

$$P = HSD \times \frac{X}{Y - X}$$

例如：HSD为9000的塔，泥浆含水率为35%，需要含水率为7%的干粉，可计算如下：

$$P = 9000 \times \frac{100 - 35}{(100 - 7) - (100 - 35)} \rightarrow P = 20893 \text{ kg/h}$$

喷雾塔规格为9000，产量为20893 kg/h

Drying of the ceramics suspension is the last process of the body preparation in which to obtain constant humidity and the optimal geometry for the granules is very important. Spray dryers guarantee to realize a perfect drying by:

- ◆ Lower energy consumption;
- ◆ Optimal spraying design for efficient drying;
- ◆ Burners with high efficiency and lower consumption;
- ◆ High efficient fans ensure the effective air flow of the hot air;
- ◆ Special construction of the high quality stainless steel cyclones ensures the low air pressure loss and maximum efficiency;
- ◆ Perfect isolation to keep the heat loss and fuel consumption at minimum levels;
- ◆ Adjustable nozzle position and removable lances without stopping the dryer;
- ◆ Long duty life;
- ◆ Low failure rate.

Suitable system designs for different types of fuels (natural gas, fuel-oil etc) and also cogeneration is possible according to customer request; Wet scrubber and dry filter systems can be applied for dedusting system.

Capacity selection, To calculate the dried powder production, the following formula can be used:

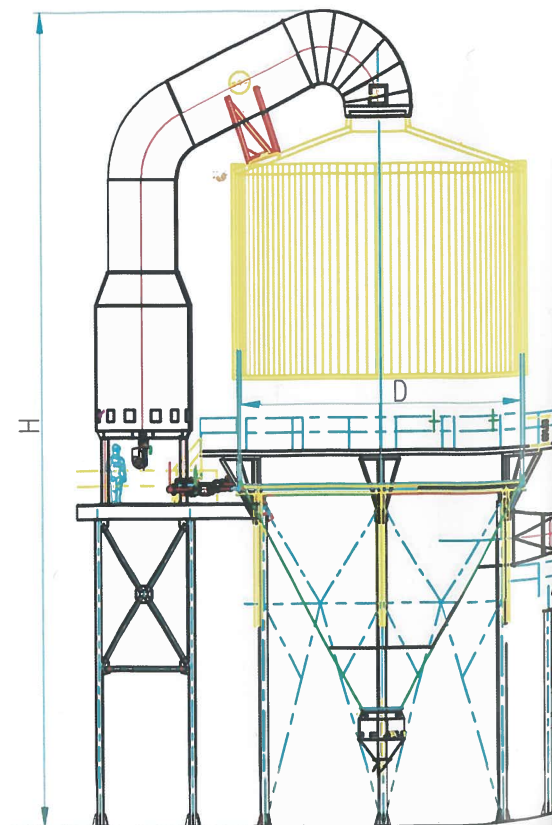
HSD: the type of spray dryer; **X:** dry percentage in the dlp;
Y: dry percentage in dried powder; **P:** production in kg/h

$$P = HSD \times \frac{X}{Y - X}$$

FOR EXAMPLE: HSD 9000 is being used for the slip at 35% humidity and the desired humidity of the output powder is 7%.

$$P = 9000 \times \frac{100 - 35}{(100 - 7) - (100 - 35)} \rightarrow P = 20893 \text{ kg/h}$$

HSD is 9000; P is 20893 kg/h





当今时代，节能是最重要的议题之一。除了拥有高性能的球磨机，在喷雾干燥系统的节能方面我们也有创新，为生产实现有效的成本控制。

根据热流量和工厂的实际情况，我们可以设计不同的余热再用方案。

最普遍的方式就是利用窑炉冷却系统的干净空气，并通过风机输入喷雾干燥塔使其成为内热源。喷干塔再把这些风混合使用，这个过程的能耗是很低的。

另一种方式就是利用窑炉排气的热风，但通常需要用石灰石对这些管道气进行脱硫。石灰石有助于清除管道气中的 SO_2 。否则当 SO_2 遇上凝结水，会发生酸性反应，从而腐蚀金属表面。如工厂内有燃气轮机，可直接把涡轮的排气接到喷雾塔。如果没有，一个低氧系统的特殊燃烧机可用来提供额外热风，从而完成干燥过程。

In today's world, energy saving is one of the most important subjects. In addition to the high performance ball mills, we also have solutions for energy saving in the spray drying systems to create a cost effective production for the producer.

According to the available amount of hot air and the situation of the current plant, we can create different solutions for the heat recovery.

The most common approach is using the clean air of the kiln cooling system and feed it to the spray dryer by the help of a fan as an external hot air source. Hot air is again by the burner of the spray dryer but for sure with less amount of gas is consumed.

Another approach is use the hot air from the exhaust of the kiln but a flue gas desulfurization should be applied commonly by the help of a limestone. Limestone is the aid for the removal of the SO_2 in the flue gas to clean it. Otherwise, when SO_2 meets with condensation water, acidity of reaction will happen and harms the surface. If the plant has a gas turbine for electricity production, the exhaust of the turbine can be fed directly into the spray dryer if it is in necessary quantity. If not a special burner for low oxygen systems can be used for creating extra hot air to fulfill the drying process.

31 新型侧旋风喷雾干燥塔

NEW TYPE SPRAY DRYER



该分风器降低了安装喷雾干燥器的高度要求。新的分风器，从塔体分离，在加热和冷却时可以自由抵消热胀冷缩，从而避免了热胀冷缩对塔体的结构的破坏。

Also, this distributor reduces the height requirement for the building where the spray-dryer is installed. The new distributor, detached from the tower, is free to move during heating and cooling and so prevents differential tensions with the colder cylinder structure.

型号 Model	能耗 Energy Consumption		柱塞泵 规格及数量 Spec. & Qty. of piston pump	产量(Kg/h) Powder Output	大风机功率 (KW) Gross Power	喷头数 Spray Gun Mouth	安装尺寸 Dimensions(mm)			
	蒸发量(Kg/h) Evaporation Capacity	热消耗量 Kcal/h Thermal Consumption					D	H	A	B
HSD-10000	10000	8500000	YB300*2	23215	280	78	9880	22080	22500	18000
HSD-12000	12000	10200000	YB300*2	27857	315	84	10500	23400	23000	18000
HSD-14000	14000	11900000	YB300*2	32500	355	90	11400	24850	23500	19000
HSD-18000	18000	15300000	YB300*3	41786	450	96	12000	26500	24500	21900
HSD-20000	20000	17000000	YB300*3	46429	560	102	13000	28600	27000	22800

本HS系列平浆搅拌机用于陶瓷行业釉料及浆料的搅拌，使料浆不产生沉淀。本机结构紧凑，运行平稳，根据浆池的大小，叶片采用不同的结构形式，使搅拌更加均匀。本机有效地改善了螺旋浆叶搅拌机搅拌不均及浆叶磨损快等缺点。

Hs series of flat blade type stirrer is used for the stirring of glaze and slip in ceramics industry which can prevent slurry from deposition. It has the advantages of compact structure and stable running. The blade has different kinds of structure according to the size of slip tank to mix the slip well. This stirrer has efficiently improved the problems of uneven stirring and quick-wear blade in spiral blade type stirrer.

型号 Model	容积 Volume(M ³)	直径 Diameter		转速 Speed	功率(kw) Power
		A	B		
FFF77	2.65	1500	1500	30	2.2
FFF87	7.8	2000	2400	21	3
FFF87	10	2500	2000	17	3
FFF87	21	3000	3000	15	4
FFF97	34	3500	3500	12	4
FFF97	37	4000	3000	11	4
FFF107	118	5000	6000	7.5	5.5
FFF107	170	6000	6000	5.6	5.5
HS-800型	118	5000	6000	7.5	5.5
HS-801型	170	6000	6000	5.6	5.5
HS-950型	230	7000	6000	5.1	7.5
HS-950型	300	8000	6000	4.6	7.5
HS-950型	380-508	9000	6000-8000	4.3	11
HS-950型	470-628	10000	6000-8000	4	11
HS-1100型	570-760	11000	6000-8000	3.5	15
HS-1100型	680-900	12000	6000-8000	3.1	15

搅拌机用于保持混合物处于均匀状态。
特殊设计的轴承系统可承受过大的径向力。

搅拌机由以下部件组成：齿轮箱；

联轴器主轴；

搅拌叶。

轴和搅拌叶的材质选择，以及搅拌叶的设计取决于实际应用和客户的需求。

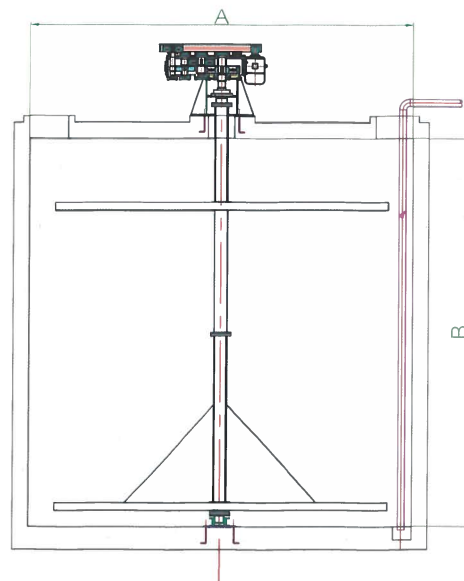
Slow stirrer units are used for keeping the mixture in homogenous form.

Specially designed with the special bearing system to endure the excess radial load.

Stirrer units consist of followings:

Geared motor
Rigid coupling Shaft
Propeller system

Material selection for shaft and propeller, and propeller design depends on the practical application and customer demands.



新型节能球磨机
NEW ENERGY-SAVING BALL MILL

水煤浆热风炉
WATER COAL STOVE

链排炉
CHAIN STOVE

HSD喷雾干燥塔
HSD SPRAY DRYER

HS系列平浆搅拌机
HS SERIES OF FLAT BLADE TYPE STIRRER

喂料机
FEEDING MACHINE

滚筒筛
ROTARY SIEVE

皮带输送机
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本系列喂料机适用于中、大型球磨机配套使用，用于定量、定比的运输陶瓷原料的一种机械设备。并配合皮带输送机为球磨机加料。该机构紧凑、牢固、安装操作方便和使用安全可靠。



This feeding machine is used with middle and large ball mills. It can transport the ceramics raw materials according to a definite quantity and proportion, and send the materials to the ball mill by belt conveyor. It has the advantages of firm structure, easy operation and safety.

链板式喂料机技术参数 Technical Parameters Of Chain Plate Type Feeding Machine

型号 Model	长 L (mm)	宽 W (mm)	高 H (mm)	喂料时间 Feeding Time	容量 Capacity (m ³)	输送速度 Transport Speed (m/min)	装机功率 Installed Power (kw)	全机重量 Weight (T)
HFM-12	7000	3200	2700	20-30	12	0.76	7.7	5
HFM-20	7160	2790	3710	20-30	20	1.52	8.5	10.2
HFM-30	7160	2790	3710	40-60	30	1.52	9.5	10.2
HFM-40	7200	3300	3500	40-60	40	1.52	9.5	10.2
HFM-50	7720	3440	4170	50-70	50	1.52	11	11.2
HFM-60	7720	3440	5120	50-70	60	1.52	11	11.2

皮带式喂料机技术参数 Technical Parameters Of Belt Type Feeding Machine

型号 Model	长 L (mm)	宽 W (mm)	高 H (mm)	喂料时间 Feeding Time	容量 Capacity (m ³)	输送速度 Transport Speed (m/min)	装机功率 Installed Power (kw)	全机重量 Weight (T)
HFM-20(P)	7280	2950	3160	20-30	20	3.92	3	6.2
HFM-20(P)	7280	2950	3160	20-30	20	3.92	11	7.3
HFM-30(P)	7280	2950	3600	40-60	30	3.92	3	7
HFM-40(P)	7280	2950	4750	40-60	60	3.92	3	8



新型节能球磨机
NEW ENERGY-SAVING BALL MILL

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DRY MIXED COLOR SYSTEM

HAOFENG

粉料转筛技术参数 Technical Parameters Of Powder Rotary Screen

规格 Specification	筛网规格 Net Size (mesh)	电机功率 Motor (kw)	材质 Material
HRS-φ800*2000	8~200	BLD3-87-2.2kw	
HRS-φ1000*2000	8~200	BLD3-87-2.2kw	
HRS-φ1000*2500	8~200	BLD3-87-2.2kw	
HRS-φ1500*5100	4~20	FR97-73-5.5kw	

泥浆转筛技术参数 Technical Parameters Of Mud Rotary Screen

规格 Specification	筛网规格 Net Size (mesh)	电机功率 Motor (kw)	材质 Material
HRS(S)-φ800*2000	8~200	BLD3-87-2.2kw	
HRS(S)-φ1000*2000	8~200	BLD3-87-2.2kw	
HRS(S)-φ1000*2500	8~200	BLD3-87-2.2kw	

本系列滚筒筛，采用转动筛选的原理，可广泛应用于陶瓷、食品、医药、农业矿山工业以及实验的干（湿）物料筛分与分级。具有结构简单、重量轻、维修方便、噪声低于标准要求、驱动功率小等特点，有固定式和移动式两种结构，不需要基础固定。

This rotary sieve which has adopted the rotation screening principle is widely used in ceramics, food, medication, agriculture and mine industry. It is also a good choice for the screening separation and grading of dry or wet materials in experiment. This rotary sieve has the advantages of simple structure, low weight, easy maintenance, low noise and small driving power. There are two kinds of structure, fixed type and movable type, and both of them don't need foundation for supporting.

35 皮带输送机

BELT CONVEYOR

新型节能球磨机
NEW ENERGY-SAVING BALL MILL

水煤浆热风炉
WATER COAL STOVE

链排炉
CHAIN STOVE

HSD喷雾干燥塔
HSD SPRAY DRYER

HS系列平浆搅拌机
HS SERIES OF FLAT BLADE TYPE STIRRER

喂料机
FEEDING MACHINE

滚筒筛
ROTARY SIEVE

皮带输送机
BELT CONVEYOR

自动配釉系统
AUTOMATIC GLAZING SYSTEM

干法混色系统
DRY MIXED COLOR SYSTEM

该机械用于输送粉料，由机架、输送皮带、传动装置、拖辊装置和纠偏装置组成。

This machine is used to convey the powder material. It consists of frame, conveyer belt, driving system, roller supporting device and correcting device.



皮带输送机技术参数 Technical Parameters Of Belt Conveyor

型号 Model	皮带宽度 Width Of Belt (mm)	辊筒直径 Roller Diameter (mm)	速比 Speedratio	驱动方式 Driving Type	最大输送量 Maximum Throughput (T/h)
HBC-500	500	240	1:30	联轴器/ 链条/皮带	20
HBC-600	600	270	1:30		25
HBC-800	800	320	1:30		40
HBC-1000	1000	400	1:30		80



陶瓷釉料配料控制系统是用于釉料自动计量配料的成套设备，其具有计量精准、自动化程度高、配料效率高、适应各种物料、粉尘污染小等优点。

系统由蓄料仓、自动加料机、输送机械、除尘设备及控制系统组成。

控制系统采用工业PC机作为上位机+PLC+称重模块+称重传感器+变频器等组成，可根据客户需要开发相应软件或程序。控制精度0.2%—0.5%。

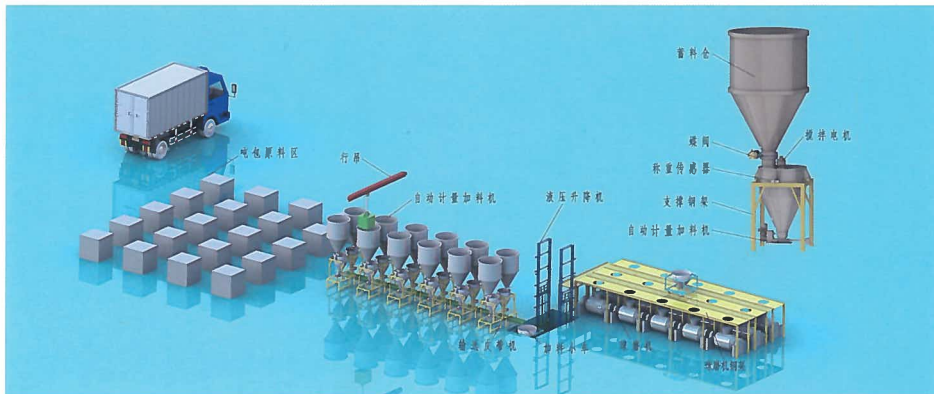
自动加料机可输送颗粒、粉体材料，有破桥装置防止物料架桥，双螺杆自清功能防止物料粘螺杆造成下料不畅。

Glazing automatic dosing control system has such characteristics as accurate dosing, high level automation, high dosing efficiency, little dust pollution, etc.

This system consists of storage bin, automatic feeder, conveying machine, dust removing device and control system.

The control system adopts industrial PC as upper computer + PLC + Weighing module + weighing sensors + inverter. The relevant software or program can be developed based on the clients* requirement. The control accuracy can reach 0.2% to 0.5%.

Automatic feeder can convey pellet or power material. It is configured with bridge breaking equipment to prevent the material bridging phenomenon. While the twin screw with self-cleaning function can keep the material from sticking the screw



陶瓷釉料配料控制系统功能和特点：

- ◆ 上位机 + PLC的结构提高了系统的可靠性。上位机除了下达初始工艺参数和控制指令外，不参与PLC的实时控制过程，即使上位机处于脱机状态，PLC也能顺利地当前生产任务；
- ◆ 高级语言与汇编混合编程，既保证了系统的可靠性，又便于软件升级；
- ◆ 中文(简体或繁体)或英文(按要求)友好人机界面，操作非常简便，仅需1个小时即可学会操作；
- ◆ 动态的工艺流程显示画面，操作人员可通过彩色显示器直观地监视整个配料控制过程，包括料仓输送设备的工作状态、秤量数据和各种工艺阀门的工作状态等；
- ◆ 参数修改、功能设置更加灵活，系统智能化程度高；
- ◆ 产量数据可存入硬盘；
- ◆ 留有连网端口；
- ◆ 系统可实时检测监测、显示、存储、打印各瞬时信号、变量、参数。

Function and Feature of Glazings Dosing Control System

- ◆ Upper computer + PLC improves the system reliability. The upper computer only issue the initial technique parameter and control command, it does not take part in PLC real-time control process. Although the upper computer is off-line, PLC can complete the current production task;
- ◆ High-level language, or assembly hybrid programming guarantee the system reliability and software upgrading;
- ◆ Chinese(simplified or traditional) or English(optional) friendly human-machine interface is easier to operate. It takes only 1 hour to learn and master;
- ◆ Dynamic technique process display screen, the operator can monitor the whole dosing control process including the material bin conveying device working conditions, weighing data, all kind of technique switch or valve working conditions via colored display;
- ◆ Parameter revising and function setting is more flexible, and the system intelligent level is high.
- ◆ The output data can be stored in hard disk;
- ◆ The networking port is reserved;
- ◆ The system can inspect or monitor, display, store, print all of the instant signal, variable or parameter at real time.

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37 干法混色系统

DRY MIXED COLOR SYSTEM



陶瓷釉料配料控制系统操作界面包含的主要内容：

- ◆ 计量控制有手动、半自动及全自动运行方式，并可以随时切换；
- ◆ 陶瓷釉料配料控制系统配方表：配方编号、配方名称、原料桶号、原料名称、计量重量，可存储10种以上配方；
- ◆ 原料表：原料桶号、原料名称、计量级别、落差、大小料供给、阀门开关时间；
- ◆ 动态计量程式表：含计量机构的名称、计量时间、稳定时间、产量、归零；
- ◆ 计量显示主界面：含计量机构名称、计量设定总重量、当前计量的实际总重量（动态显示）、当前计量的材料名称、当前计量的材料设定重量、当前计量材料的实际重量（动态显示）；
- ◆ 计量控制主界面：设置如下按钮开关—计量开始、计量停止、强迫单步停止（跳过某一种原料计量）、强迫全部停止（直接跳至最后结束）、计量（配料）复位（归）；
- ◆ 原料统计报表：可统计当天、当月或某段时间内某种、某几种或全部原料的耗用重量；
- ◆ 配方生产统计报表：可统计当天、当月或某月某段时间

The glazings dosing control system operation screen mainly include:

- ◆ The dosing control has manual, semi-automatic, full automatic moving way. It can be switched over at any time;
- ◆ The glazings recipe control system recipe list: recipe number, recipe name, material bucket number, material name, dosing weighing. It can store more than 10 kinds of recipe;
- ◆ Recipe list: material bucket number, material name, dosing level, fall, major or minor material supply, valve open or close time;
- ◆ Recipe list: material bucket number, material name, dosing metering level, fall, major or minor material supply, valve open or close time;
- ◆ Dynamic dosing flowsheet: including dosing mechanism name, dosing time, stabilizing time, output, zero return;
- ◆ The dosing display main screen: consisting of dosing mechanism name, dosing set total weighing, current dosing actual total weight(dynamic display), current dosing material name, current dosing material set weight, current dosing material actual weight(dynamic display);
- ◆ Dosing control main screen: set the below button - dosing start, dosing stop, forcing one-step stop (skipping some material dosing), forcing all stop (direct skipping to end dosing or restoring);
- ◆ Material statistics list: it can report the same day, 1

陶瓷干法混色连续输、配、混失重喂料系统

本系统由原料仓、真空上料系统、皮带输送机、蓄料仓、皮带秤、失重式加料机、连续干混机组成。用于干粉、颗粒物料的连接输送、连续计量配料、连续混合。

特点:

通过选装的工业4.0卡将显示与控制置于云端,进行大数据管理。实现通过电子终端(手机、平板、远程电脑)对生产状态实时的监视、控制、远程调试、远程诊断。

- ◆ 连续喂料精准,其精度可达0.2%-0.5%;
- ◆ 环境友好,选配除尘设备,防止粉尘飞扬;
- ◆ 连续生产,产量大,可达15T/H;
- ◆ 立式布局,占地面积小;
- ◆ 混合效果好,可连续将比例为5:995的物料混合均匀;
- ◆ 操作简单,一个系统对喂料总量及配比进行管理,一键启停。

Continuous transmission, distribution, mixing Loss-weight feeding system

The system is composed of raw material bin, a vacuum material system, belt conveyor, storage bin, belt scales, loss-weight feeder, continuous dry mixing machine. And it is used for continuous feeding of dry powder, granular materials, continuous dosing, continuous mixing.

Characteristic:

Through the optional industry 4.0 card connect to the Internet cloud, realize big data management, and achieve real-time monitoring, control, remote debugging, remote diagnosis, remote debugging, remote control, remote control, remote debugging of the electronic terminal (mobile phone, tablet, remote computer).

- ◆ Feeding precision, its precision is up 0.2%-0.5%;
- ◆ Environment friendly, optional dust removal equipment, prevent dust from flying;
- ◆ Continuous production, large output, up to 15T/H;
- ◆ Vertical layout, small floor area;
- ◆ Good mixing effect, the proportion of the material can be mixed evenly 5:995;
- ◆ Easy operation, one system take charge of feeding amount and ratio, one key start-stop.

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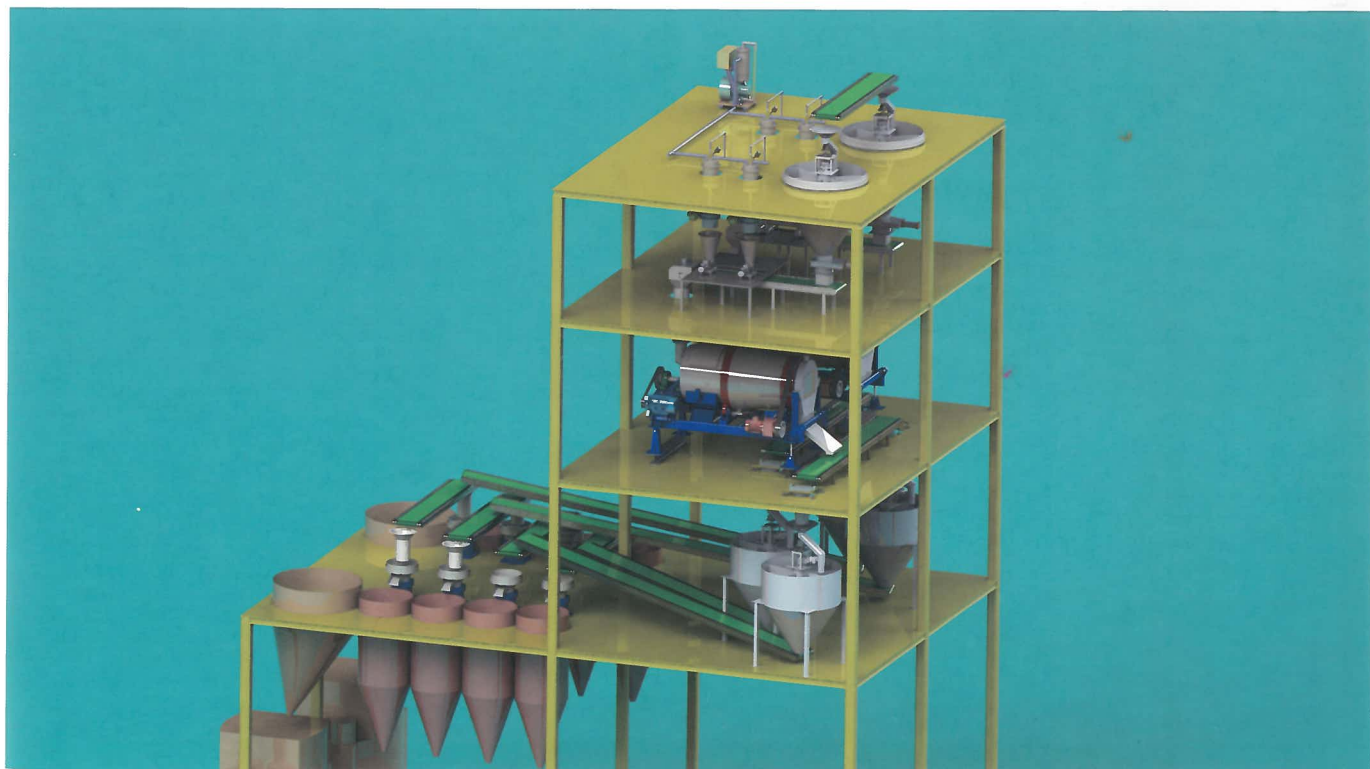
BELT CONVEYOR

自动配釉系统

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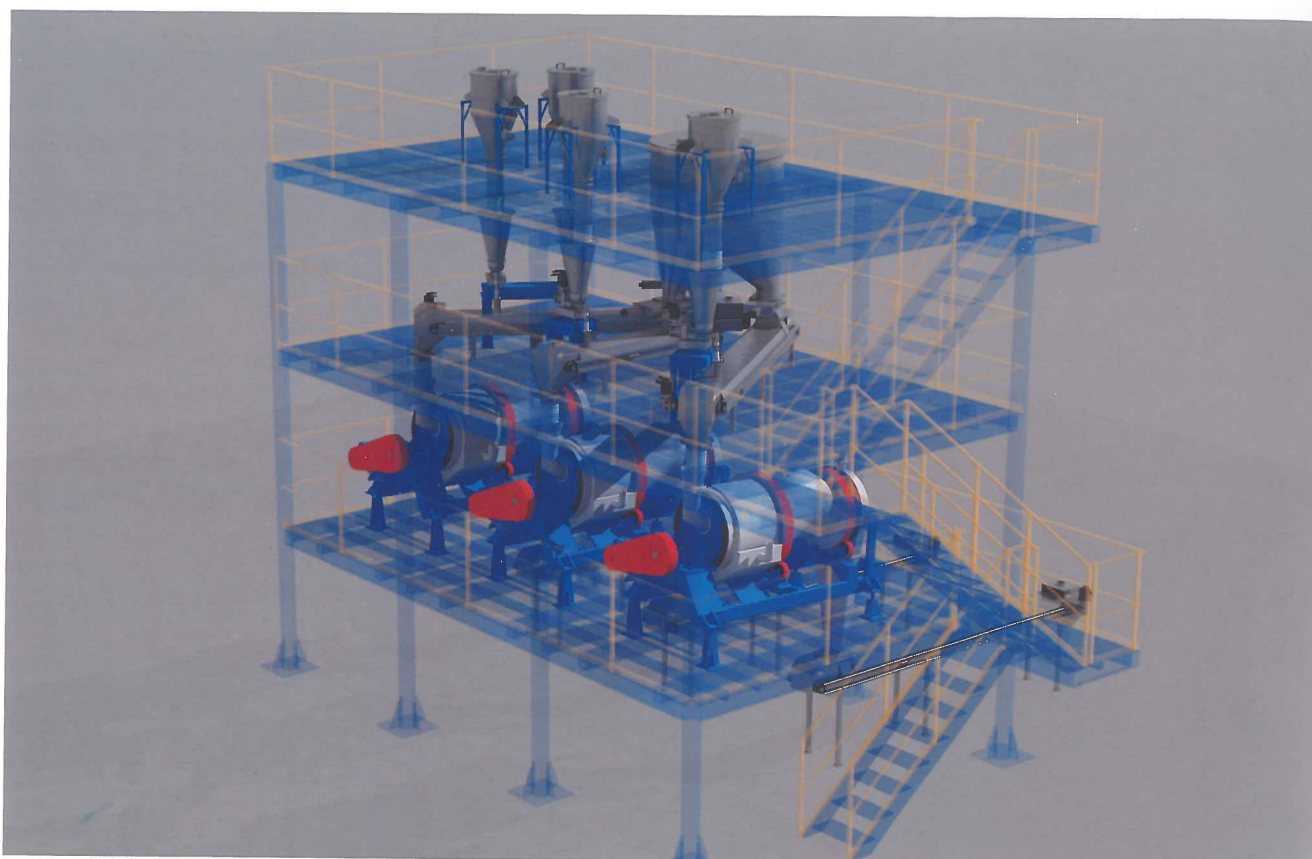
干法混色系统

DRY MIXED COLOR SYSTEM



39 干法混色系统

DRY MIXED COLOR SYSTEM



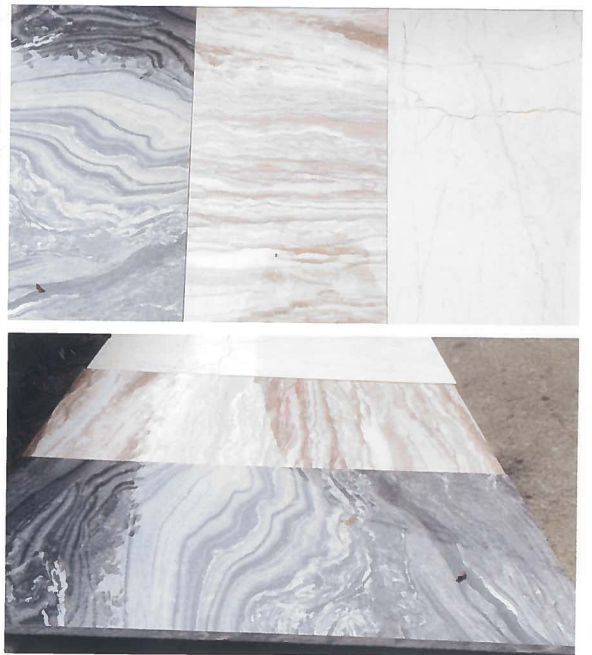
干法混色的优点:

- ◆ **转产方便**
可随意根据需要转产，小批量订单也可随时转产。
- ◆ **减少浆池**
无配色、均化浆池，浆池数量大幅减少，投资及占地减少。
- ◆ **节能节水**
转产时无清洗环节（浆池、喷雾塔清洗），可节省大量清洗时间，节水，减少基础物料浪费。

Advantages of dry mixed color:

- ◆ **Easy production chagement**
The production chagement can be conducted according to the clients' requirement at will. Small lot of order can also be changed the line of production at any time.
- ◆ **Reducing pulp chest**
The number of pulp chest are greatly reduced and the invest or occupation decrease accordingly.
- ◆ **Energy and water saving**
There will be no cleaning procedure (the pulp chest or spray tower cleaning), it will save the cleaning time, water or basic material.

HAOFENG



干法混色工艺流程:

DRY MIXED COLOR PROCESS:



41 工程3D效果图展示

ENGINEERING 3D EFFECT CHART DISPLAY



