

# Huanggang Huayao Zhongya Kiln & Furnace Co., Ltd.

Huanggang ● China



中亚窑炉



# Brief introduction of tunnel kiln



Tunnel kiln is a continuous heating equipment to fire the products, according to the temperature, the kiln is divided into main exhaust area, preheating area, firing area, rapid cooling area, slow cooling area and fast cooling area. The burners (heater) are arranged on kiln wall in firing area, and they will mix gas and air to fire and heat up the product (sanitary ceramics), the green body is placed on kiln car, is transferred to kiln entrance after the drying, then pushed into the kiln by the pusher, after preheating, heating, cooling, is pushed out of the kiln, the green wares will become the ceramics.

Kiln running is automatically controlled, kiln temperature, pressure, kiln car handling system, and firing system are automatically controlled by computer PLC



# Brief introduction of tunnel kiln



control system. Kiln temperature and pressure will run in accordance with the curve setting in the computer, and kiln car entry and exit the kiln is running in accordance with the setting time.

The whole kiln product line is divided into the following parts:

1. Refractory materials;
2. Iron structure of kiln body;
3. Firing control system;
4. Auto- control system;
5. Equipments;
6. Kiln car system and kiln furniture;

# 1. Refractory materials





## 2-1. Iron material of kiln body-steel frame



## 2-2. Iron structure of kiln body -Piping system





# 3. Firing control system

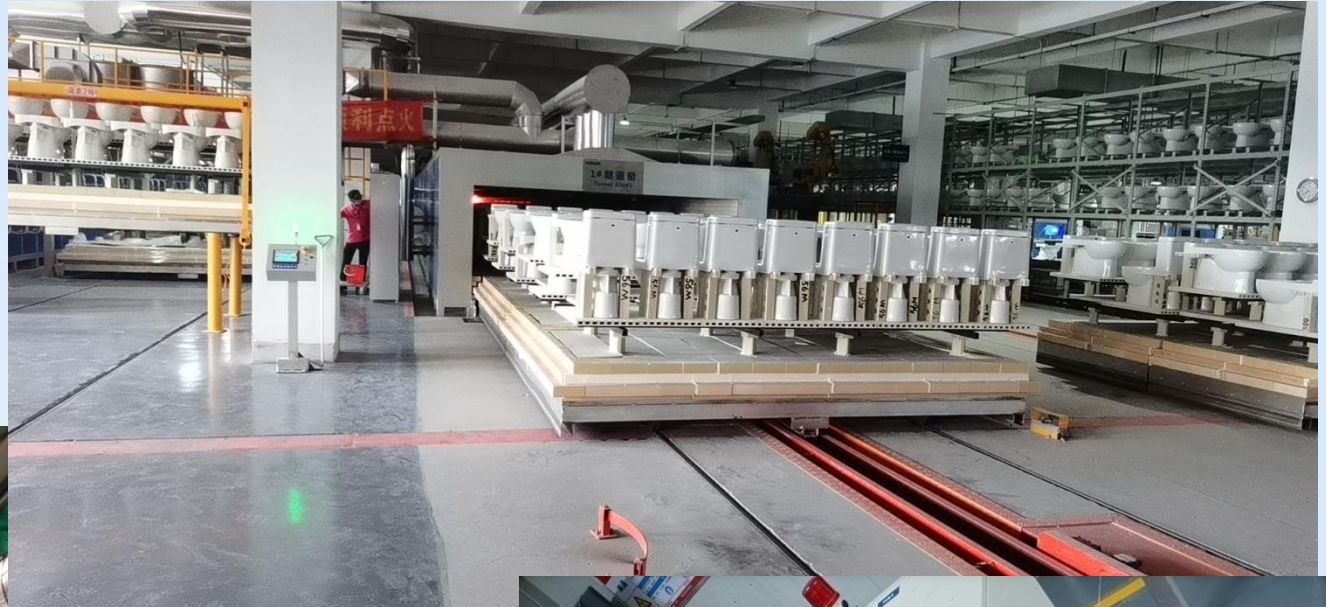


# 4. Auto-control system



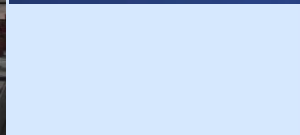


# 5. Equipments





# 6. Kiln car system and kiln furniture





## Material list

No	Specification	Qty	Unit	Supplier
<b>1</b>	<b>Refractory material</b>			
1	Special brick of light weight mullite JM26	13.70	T	Huanghai/Morgan
2	Standard brick of light weight mullite JM26	14.60	T	Huanghai/Morgan
3	Blocks of cordierite mullite	348.00	Pce	Trend, Tianjin
4	Track of cordierite mullite	244.00	Pce	Trend, Tianjin
5	Thick plate of cordierite mullite	336.00	Pce	Trend, Tianjin
6	Damper board	36.00	Pce	Trend, Tianjin
7	Brick of light weight mullite JM23	27.00	T	Good quality
8	Brick of light weight high clay	29.70	T	Good quality
9	Brick of heavy weight high aluminum	8.56	T	Good quality
10	Brick of heavy weight clay	9.50	T	Good quality
11	Burner Sisic tube	52.00	Pce	Huamei, Weifang
12	Burner Sisic tube for excess air burner	6.00	Set	Huamei, Weifang
13	Fiber (1260°C)	2.95	T	Luyang
14	Fiber (1140°C)	6.30	T	Luyang
15	Fiber (1430°C)	2.40	T	Morgan
16	High temperature glue GZ-2	4.80	T	Huanghai/Morgan
17	$\delta=10\text{mm}$ Calcium Silicate sheet	3.60	T	Good quality
18	High aluminum fireclay	12.40	T	Good quality
19	Ceramic tube of high aluminum	152.00	Pce	Good quality

<b>2</b>	<b>Iron material of kiln body</b>			
1	Steel frame 1 of kiln body	19.00	Group	Good quality
2	Steel frame 2 of kiln body	11.00	Group	Good quality
3	Sealing sand channel	60.00	Set	Good quality
4	Sealing sand channel connector	58.00	Set	Good quality
5	Decorated panel/spurt mold	220.00	M <sup>2</sup>	Good quality
6	Hanger hooks	840.00	Set	Good quality
7	Hanger rod	130.00	Set	Good quality
8	Installing sheet for burner	58.00	Set	Good quality
9	Chimney	3.00	Set	Good quality
10	Stainless steel forming pipes	1.65	T	Good quality
11	Stainless steel seamless steel	3.20	T	Good quality
12	Stainless steel sheet	1.50	T	Good quality
13	Stainless steel sheet	1.20	T	Good quality
14	Steel pipes	1.15	T	Good quality
15	Pipe connector	1.00	Set	Good quality
16	Valves of stainless steel	1.00	Set	Good quality
17	Install fitter	1.00	Set	Good quality
18	Metal hose	156.00	Set	Good quality
19	Heat insulation work	264.00	M <sup>2</sup>	Good quality
20	Rail	7.70	T	Good quality
21	Sleeper	1.20	T	Good quality
22	δ=10mm steel sheets	124.00	Pce	Good quality



<b>3</b>	<b>Firing control system</b>			
1	Flange ball valve	4.00	Pce	Good quality
2	Filter	2.00	Pce	Germany Krom
3	Gas regulator	2.00	Pce	Germany Krom
4	Vent valve	1.00	Pce	Germany Krom
5	Pressure meter	4.00	Pce	Germany Krom
6	Pressure switch	2.00	Pce	Germany Krom
7	Flow meter	1.00	Pce	Germany Elster
8	Solenoid valve	2.00	Pce	Germany Krom
9	Ratio valve	10.00	Pce	Germany Krom
10	Actuator with valve	11.00	Set	Germany Krom
11	Solenoid valve of DN15	58.00	Pce	Brahma
12	Burner of 90KW	12.00	Pce	Germany Krom
13	Burners 90kw of lengthen 350mm	40.00	Pce	Germany Krom
14	Burners of excess air	6.00	Pce	Sinon
15	Burner control unit	58.00	Pce	Brahma
16	Observation port	58.00	Pce	Zhongya
17	Standard parts and its accessories	1.00	Set	Good quality
<b>4</b>	<b>Auto control system</b>			
1	Control system of PLC	1.00	Set	SIEMENS
2	Computer	1.00	Set	Dell
3	Inverters	8.00	Pce	Mitsubishi
4	UPS 6KVA	1.00	Pce	Shante Shanghai

5	Travel switch and proximity switch	18.00	Set	Omron
6	Low-voltage apparatus	1.00	Set	Schneider
7	Electrical components	1.00	Set	Schneider
8	Kiln drive and watch control cabinet	1.00	Set	With air conditioner
9	Transfer car control cabinet	2.00	Set	With air conditioner
10	Beeper	4.00	Set	Shanghai
11	S thermocouple	10.00	Pce	Tianchang, Anhui
12	K thermocouple	9.00	Pc	Tianchang, Anhui
13	Wire and cable	1.00	Set	Tianchang, Anhui
14	Compensation cable	1.00	Set	Tianchang, Anhui
15	Shelf and accessories	1.00	Set	Zhongya
16	Pressure sensor	4.00	Pce	Festo
17	Micro pressure sensor	2.00	Pce	Festo
13	Kiln car loading gauge	2.00	Set	Zhongya
<b>5</b>	<b>Equipment</b>			
1	Main exhaust fan	2.00	Pce	Foshan, Guangfeng
2	Stir air fan (SUS304)	2.00	Pce	Foshan, Guangfeng
3	Combustion air fan (SUS304)	2.00	Pce	Foshan, Guangfeng
4	Rapid cooling fan (SUS304)	2.00	Pce	Foshan, Guangfeng
5	Exhaust heat fan	2.00	Pce	Foshan, Guangfeng
6	Fast cooling fan	2.00	Pce	Foshan, Guangfeng
7	Cooling under car fan	1.00	Pce	Foshan, Guangfeng
8	Air curtain at kiln exit fan	1.00	Pce	Foshan, Guangfeng



9	High temperature filter	1.00	Pce	Santi Suzhou
10	Fans' filter	6.00	Set	Zhongya
11	Fans' platform	3.00	Set	Zhongya
12	Hydraulic dual pusher	1.00	Pc	Zhongya
13	Switch shelf	1.00	Set	Zhongya
14	Standard parts	1.00	Set	Good quality
<b>6</b>	<b>Kiln car</b>			
1	Steel frame of kiln car	63.00	Pce	Zhongya
2	Kiln car's axle and wheel	63.00	Set	Zhongya
3	High temperature bearing	504.00	Set	SKF Sweden
4	Accessories of kiln car	1.00	Set	Zhongya
5	Refractory material of kiln car	63.00	Pce	
5.1	Light weight brick		Set	Good quality
5.2	Fiber (1430°C)		Set	Morgan
5.3	Fiber (1260°C)		Set	Luyang
5.4	Fiber (1140°C)		Set	Luyang
<b>7</b>	<b>Kiln furniture</b>			
1	Collar of cordierite	378.00	Pce	Trend, Tianjin
2	Hollow post	378.00	Pce	Trend, Tianjin
3	Main beam	189.00	Pce	Huamei, Weifang
4	Secondary beam	252.00	Pce	Huamei, Weifang
5	How slab	630.00	Pce	Trend, Tianjin

<b>11</b>	<b>Spare parts</b>			
1	Burner SiC tube	2.00	Pce	Huamei, Weifang
2	Fiber (1430°C)	2.00	Roll	Morgan
3	Diaphragm of pressure regulator	1.00	Set	Germany Krom
4	High temperature bearing	8.00	Set	SKF Sweden
5	Solenoid valve of DN15	2.00	Pce	Brahma
6	Burner control unit	2.00	Pce	Brahma
7	Kiln car's wheel	1.00	Set	Zhongya
8	Travel switch and proximity switch	2.00	Set	Omron
9	Air filter net	1.00	Set	Good quality
10	S thermocouple	2.00	Pce	Tianchang, Anhui
11	K thermocouple	2.00	Pce	Tianchang, Anhui
12	SisiC secondary beam	8.00	Pce	Huamei, Weifang
13	SisiC main beam	6.00	Pce	Huamei, Weifang
14	Sealing ring of pusher	1.00	Set	Zhongya
15	Electrical components such as the relay	1.00	Set	Schneider