Quotation for Ceramic Equipment

KEXINDA ENTERPRISE

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To: H&R.Johnson India Ltd. **No:** KEXINDA QT1128-2005 **Date:**2005/6/30 Valid for 30 days

Daily output 15T frit kiln production line design

1. Mainly equipment list and quotation

Code	Equipment description	Unit price (USD)	Unit	Qty	Amount(USD)
01	Mixer、Silo、feeding conveyor system	28,200.00	set	1	28,200.00
02	Screw (spire type) feeder	2,600.00	set	1	2,600.00
03	11.5m^2 reserve heat type U shape melting pool	212,000.00	set	1	212,000.00
04	Quench system	6,800.00	Set	1	6,800.00
05	Exhaust smoke system	5,000.00	set	1	5,000.00
06	Double roller type press machine	5,450.00	set	2	10,900.00
07	Cooling system	2,100.00	set	1	2,100.00
08	Temperature control system	2600.00	set	1	2600.00
09	Gas pressure stable and reduce alarm system	6,400.00	set	1	6,400.00
10	41#outlet brick 2pcs and block brick 1pc	3,700.00	set	1	3,700.00
11	Reamer bit for outlet of ascent &descent and feeding machine each 1 spare	9,200.00	set	1	9,200.00
12	B type thermal couple (spare use)	400.00	set	2	800.0
				Total Fob Foshan	290,300.00

NOTE: a. The above quotation basic on FOB Fosahn excludes equipments for foundation, material weighing, wastewater treatment recycling system, the wire connection other than electrical cabinet, the combustion gas pipe connection from the gas station to frit factory.

b. Because of the heavy furnace, the foundation should be constructed according to the

seller’s instruction.

c. The above equipments should be constructed at site of buyer’s factory, since the melting furnace with high temperature and the melting liquid is high temperature either.

d. The buyer bear the seller engineers and technicians round-trip air-tickets, local boarding and lodging and pocket money USD20.00/day for each engineer or technician. Total about 15-16 technicians.

Equipment description

2.1、 Main technology parameter：

- Melting area：11.5m^2
- Melting capacity： opalescent frit 15T/24h，
  Transparent frit 19.5T/24h
- Max flame temperature：1150-1580
- Products：Ceramic frit
- Unit production consumption ： 1600-2000Kcal/kg
- Fuel Kcal：8000Kcal/Nm^3 (Natural gas)
- Power：26KW (not include the mixer part)

2.2、 Equipment technology description

2.2.1、a. Mixer system：

- Stainless steel unloading small silo。With magnetic bar.
- Conveyor belt：400×13100 conveyor belt (upper equipped with seal cover) 1set 2.2kw
- Cone shape mixer：the capacity 5m^3, each time mix material 3000kgs/time, power 15kw, adopted the stainless steel
- 4000×4000×3400 steel construction platform 1 set

b. Storage system ：

conveyor belt：400×16300 conveyor belt(upper equipped with seal cover) 1set，motor 2.2kw

- Silo：(Top equipped with seal cove) 2pcs capacity: 10m^3 /pc
  Stainless steel material
  Vibrating machine 2pcs
  Automatic feeder 2pcs
- 2500×4300×6000 steel construction platform 1 set

c. Loading system：

- conveyor belt：400×4000conveyor belt (upper equipped with seal cover) 1set

2.2.2、Screw feeder cooling

Stainless steel material

Capacity: 400kgs/silo

Water-cooling

Power: 3kw

2.2.3 11.5m^2 Character of reserve heat type U shape melt pool construction：

- This furnace construction designed according to the experience from many ceramic frit and micro-glass frit factory, and refer the foreign latest technology save energy, high efficiency ceramic glaze frit pool. The technology with reliable running performance leading the advance in China.
- Melting pool：The pool wall utilize G33# electric melting corundum brick with thickness 300mm. Liquid hole use 41#shrinkproof hole brick. The floor brick use 33＃ws with thickness 70mm。Pool wall brick use declining pouring，the wall thickness 300mm，wall heat reserve layer thickness 230mm：the bottom glass frit furnace use pouring gaoling brick with thickness 300mm，heat reserve layer with thickness 204mm。Working channel and unloading outlet use 41#shrinkproof electric melt corundum brick。
- Heat reserve (recovery) chamber：the side wall use the stick clay brick thickness 345mm，out ;heat preservation layer use brick thickness 230mm。The grit use the strip shape brick：upper with 5 layer magnesium brick、10 layer of high aluminum brick, 20 layer of good quality stick clay brick。The heat reserve chamber equipped with checking door and cleaning hole so it can be checked and cleaned during in normal running condition.
- Flame space：the bowstring thickness 300mm，use good quality silicon brick，out layer with thickness 204mm light aluminum refractory brick, Brest wall brick thickness 300mm，out layer 230mm light silicon refractory brick。The area which the brest wall and the pool wall joint point use 30-AZX corundum brick。These part was held by steel pillar of the kiln, make the upper furnace separate from the pool (brest wall and bowstring) so that can exchange the pool wall brick while they were corroded and no need to dismantle brest wall and top of the bowstring. It could be reduced maintains cost and cycle. At present the normal melt furnace their brest wall and bowstring top are total press on the pool wall, it is add the dangerous for running and while exchange the pool wall brick must dismantle the whole furnace top and brest wall, which make the costly maintains and long maintains cycle time. Small furnace: total made by silicon brick，top thickness 250mm，heat preservation layer thickness 204mm；side wall heat preservation thickness114mm。Fire spray outlet use electric melt corundum

brick。

- Melting furnace control（include the cabinet）: The combustion air exchange direction automatic control in heat reserve chamber, melting temperature could be controlled by manual and automatically, the temperature show on smoke slot both in the melting zone and working zone. In melting zone equipped with one B shape thermal couple, and the heat reserve (recovery) chamber use one S shape thermal couple, the smoke channel use one K shape thermal couple.
- Cool: The furnace liquid layer outer wall adopt the blower compel cooling, which can make the melt pool longer life.

2.2.4 Water quench system

- 3tons single orbit crane one set, power:3kw
  1ton hanger buckets
  one set of stainless steel unloading channel
  1 frit storage tank with 2tons capacity

2.2.5 Exhaust system

- Blower 1set power 11kw
  Smoke channel
  Chimney (2m higher than the proof of the workshop)

2.2.6 Double roller type press machine

- Qty: 2set (one work and one spare use)
  High temperature durable stainless steel material
  Power: 2.2kw

2.2.7 Cooling system

- Blower 1 set power 5.5kw
  Pipeline 1 set

2.2.8 Temperature automatically control system

- cabinet with operate panel
  Burner adopt P.I.D control
  Heat reserved chamber heat air direction exchange by PLC control

● 2.3 **Main equipment material composed**

Part	Total thickness		Constructor design
Melting part	Bottom 624mm—634mm	From bottom to upper	204mm stick clay refractory brick
			300mm Glass frit use the pouring Gaolin brick
			60mm zirconium pounded material
			70mm 33# shrink proof electric melt corundum
	Pool wall 560mm	From inner to outer	300mm thick 33#（WS.PT）turning liquid hole 41# electric melt corundum
			30mm zirconium pounded material
			230mm light aluminum refractory brick
Flam space	Bowstring	Inner to outre	300mm 96# fine quality silicon brick
			204mm light silicon brick
	Brest wall 630mm	below to upper	136mm agglomeration zirconium 964mm 96# good quality silicon brick
		Inner to outer	300mm silicon brick，(out)230mm light brick
Small furnace	Fire spray outlet		33# normal pouring electric melt corundum
	Bottom 268mm	below to upper	238mm good quality silicon brick
			30mm zirconium pounded material
	Top of the furnace	Lower to upper	250mm good quality silicon brick and(33#PT electric melt corundum)
			204mm light aluminum refractory brick
Heat reserve chamber	Side wall 575mm	Inner to outer	345mm stick clay brick
			230mm light aluminum refractory brick，upper about 2000mm high aluminum brick
	Top of the chamber 454mm	below to upper	250mm high aluminum brick
			204mm light aluminum refractory brick
	Grid	below to upper	Stick strip clay brick 20layers
			High aluminum strip brick 10layers
			Magnesium strip brick 5layers

2.4

3.Technology service

3.1、 Technology data

After the project started, the seller should supply the foundation drawing, technology layout, and sent the technician to install site arrange the erection work.

The seller supply the whole set of the instruction manual, furnace layout and electric control drawing, also the seller supply whole set machinery quality certificate and the instruction manual for the meters and relative instrument. During the testing the furnace the technician will give training to buyer's operators.

3.2、 Equipment quality guarantee

3.2.1、 The supplier guaranty the furnace (product) work accord with national quality standard strictly work with " China Glass Industry JC493-92'' standard certificate equal with both sides' require performance.

3.2.2、 After the tractions finish for the long terms technology exchange, from the equipment start production (except the pool top, brest wall, pool wall, and pool bottom) 12 months as the guarantee period. During the guarantee period, if there have any infection to the production since the seller supply any disfigurement material and bad quality, the maintain cost should be beard on seller's account. On condition with convenient transport the maintainer should be arrived to site in soonest. But the following case is not in the guarantee scope: easy wear part and some minor electric instrument, or the operator not properly work and the equipment which not supplied by the seller caused the fault.

3.3、Project install process

Work sequence	1-10 days	11-20 days	21-30 days	31-40 days	41-50 days	51-60 days	60-70 days	71-120 days
Furnace body and smoke channel								
heat reserve project								
Metal construct install								
Brick work								

Pipe making								
Blower install								
Loading system								
Pipe install								
Firing system install								
Electric instrument install								
Furnace cool status test								
Work site clean test								