

Quotation and Technical Proposal of Rotating Steel Belt

Cooling and Pelletizing Production Line DZ1.5~22

File No.: R2022031701



1. Scope of supply

(This quotation contains the following main parts)

No.	Description	Quantity	Unit price(USD)	Amount price(USD)
1	Filter	2	USD102,000	USD102,000 (RMB647,700)
2	Material pump	1		
3	Temperature controller 20KW	1		
4	DZ1.5-22 steel belt pelletizer	1		
Total				USD102,000FOBshanghai

2.Design conditions

Quantity: 1 set

Type: DZ1.5-22

Fabrication standard: Q/320114SPZL03-2012

Material: nitrate calcium

Capacity: around 3000-3500kg/h

Final product: semi-ball, diameter 5-6mm, thickness 1.5-1.8mm, good strength.

Heat medium: heat conduction oil

Working type: continuous or intermittent

ELECTRICITY AND WATER

Electricity:

Supplier: Suzhou Raidsant Machinery Co., Ltd.
 Address: No.3, Zhenxing Middle Road, Jiangsu Province, P.R.China 215600
 Mobile:+8613915724432 Tel.:+86(512) 58699082 Fax: +86(512) 58699082
 Website: www.raidsant.com.cn Email:judy@raidsant.com



Total power: 28.5KW

:steel belt: 5.5KW, distributor:1.5KW, distributor's temperature controller:
 20KW, material pump:1.5KW

Cooling water:

Consumption (recycled)	~ 25m ³ /h
Inlet water temperature	20°C
Inlet water pressure	0.25 MPa(g)
Back water pressure	normal
Mesh	80mesh

3. Related auxiliaries

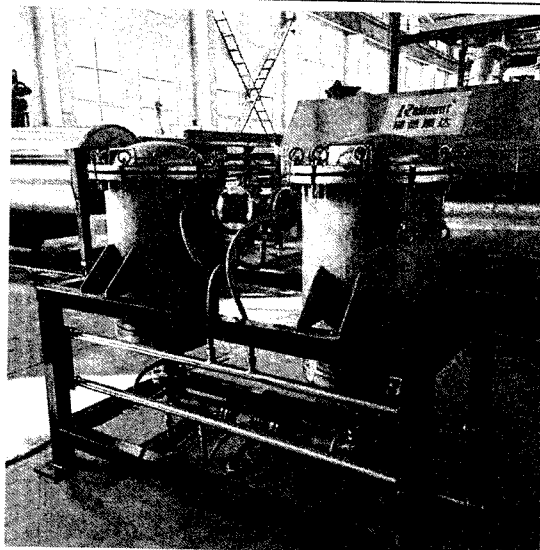
No.	Description	Type	Unit	Quantity	Remark
1	Jacketed stainless steel metal hose		pc	1	Connect material pipeline and distributor's inlet
2	Stainless steel hose		pc	4	Connect mandrel with hot steam and heat conduction oil's inlet and outlet. Supply companion flange.
3	Stainless steel hose		set	3	Connect cooling water's inlet and outlet.
4	Manual control valve		set	1	Control the flow rate after filter and ensure the beautiful shape of granules.
5	Air compressor	0.6m ³	set	1	Clean the rest material in distributor.

4. Main part

No.	Description	Type	Material	Unit	Quantity	
1	Filter	GL-800	316L	set	2 (one works, the other prepares)	
2	Material pump	1.5KW		set	1	
3	Distributor system	Mandrel	DZ1.5	316L	set	1
		Shell	DZ1.5		pc	1
		Slide block	DZ1.5		pc	1
		Drive system	DZ1.5		set	1
		Distributor's frame	DZ1.5		set	1
		Temperature controller	MKR 9KW		set	1
7	Steel belt cooling system	Steel belt	43140× 1500×1	Nippon SUS301	pc	1
		Drum system	Φ1000	A3+SUS304	set	1
		Cooling water slot system	DZ1.5	SUS304	set	1
		Frame system	DZ1.5	SUS304	set	1
		Cover on machine	DZ1.5	SUS304	set	1
		Material discharge scraper		High-density fiberboard	pc	1

4.1 Filters

Supplier: Suzhou Raidsant Machinery Co., Ltd.
 Address: No.3, Zhenxing Middle Roady Jiangsu Province, P.R.China 215600
 Mobile:+8613915724432 Tel.:+86(512) 58699082 Fax: +86(512) 58699082
 Website: www.raidsant.com.cn Email:judy@raidsant.com



Characteristics: the pastillation machine uses 2 sets of parallel jacketed-type fine filters, one works, the other prepares. Jacketed stainless steel ball valve and pressure guage are equipped at front and back of fine filters.

Working principle: the liquid material may has solid particle which will block the holes on distributor's outer drum. The fine filters will filtrate these particles. The filter element is replaceable, just after cutting the ball valves at front and back of fine filters.

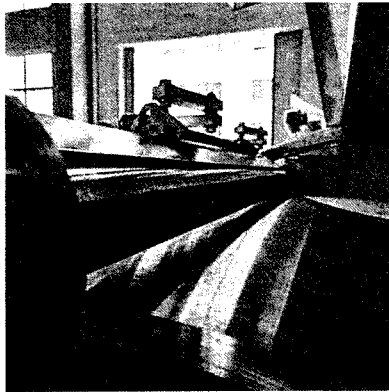
Configuration:

No.	Description	Type	Unit	Quantity	Remark
1	Filter	GL-800	set	2	jacket/316L
2	Jacketed stainless steel ball valve	CLASS150, DN25	set	4	jacket / 316L
3	Jacketed insulation steam/oil metal hose	CLASS150, DN15	set	1	Connect with inlet and outlet of steam/oil , 316L
4	Spare filter element	GL-200	pc	2	316L
5	Jacketed pipeline		set	1	Inner pipe:316L , outer pipe: 316L

Remark	Adopt joint's spiral wound gasket for flange, companion flange has double stainless steel bolt and nut.
--------	---

4.2 Distributor system (Our patent product)

Distributor 1:



Characteristics:

The two ends of the distributor are sealed with a built-in symmetrical mechanical seal, and the sealing surface is in a state of heat insulation, which greatly improves the service life of the mechanical seal, better prevents the leakage of the mechanical seal, and improves the smooth running time of the equipment, reducing the daily maintenance of the equipment.

The overall structure adopts a quick-installation structure. If impurities are found in the production process to block the outer shell of the distributor, it can be disassembled and cleaned within 10 minutes of shutdown and reinstalled for normal production.

Working principle

The material from the upstream is continuously and evenly distributed on the steel belt moving at a uniform speed. The transmission method of the outer shell is a chain type upper transmission, the chain is provided with a tensioning mechanism, and the rotation speed is adjusted by an inverter.

The stator shaft is heated by thermal oil, and the heating temperature can be displayed

on the temperature digital display.

The distributing device adopts a quick insert and draw structure, which can be quickly pulled out of the distributor in 3 minutes to clean up and resume installation and continue production.

The outer shell also adopts a quick disassembly mechanism, which can be quickly disassembled and cleaned without any auxiliary tools, which can effectively reduce the labor intensity of the operator and prevent high temperature burns.

The auxiliary heating can play the role of heat insulation on the surface of the outer shell to prevent the material from solidifying and blocking the discharge hole after the surface of the outer shell contacts the air. There is also a packing seal on the auxiliary heating which has a function of cleaning the residual material and prevents the residual material from being entangled on the outer shell surface and affecting the granulation effect.

The distributor is connected to the material pipeline through a jacketed metal hose, and the connection method is flange connection.

The feeding end of the distributor has a jacketed manual adjustment valve, which manually adjusts the granulation effect and production capacity according to the actual pressure of the material's pipeline.

The seal at both ends of the distributor is a mechanical seal, and the functional end is supported by a manual adjustment mechanism with a scale.

The effective width of the distributor is 1300, made of SUS316L, and a temperature sensor is set at the feeding end to monitor the surface temperature of the distributor in real time, and a low temperature alarm and interlocking with the pneumatic feeding ball valve system. PT100 thermal resistance measures the temperature.

The brackets of the distributor and the steel belt pelletizer are fixed by bolts, which is convenient for disassembly and assembly. The entire set of fixed brackets has a lifting function, which can easily and flexibly adjust the distance between the distributor and the steel belt to achieve the best granulation effect and maintenance work.

Design conditions

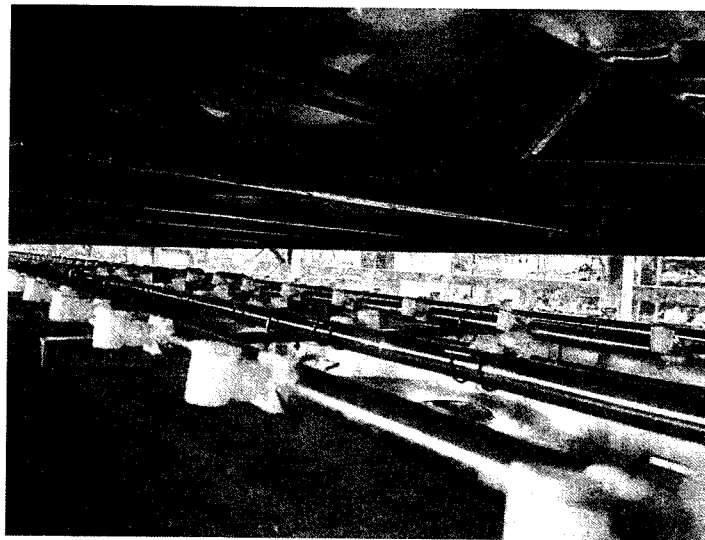
Model: DZ1.5

Running speed: variable frequency speed regulation

Operating power: 1.5KW

Explosion-proof grade: EXdIIBT4 IP54.

4.3 Steel belt and spray cooling system



Characteristics: adopt segmented frame, they will be assembled through screw in purchaser's factory. Adopt annulus steel belt, the steel belt will be welded in purchaser's factory. Adopt cooling water.

Working principle: It is to cool the material on steel belt and to convey.

- a. The steel belt is driven by the drum at the discharge end, the drive type is worm direct-coupled type. The rotation speed is adjusted by inverter. Under the steel belt, there are 3 sections of spray cooling which spray cooling water to the back of steel belt. So the granules on steel belt will be cooled.
- b. Cooling water at back of steel belt drops down and is discharged through water exit at every cooling section.
- c. There is a gas outlet at the upper side of the distributor, and the waste gas produced

when the material is cooling will be exhausted by fans.

d. To guarantee the steel belt's long-time and continuous work, there are 4 anti-deviation switch at the lower part of frame with alarm system which monitors the steel belt's state and also interlocks with distributor system.

4.3.1 Steel belt (Nippon SUS301)



a. Dimension: $47140 (\pm 50) \times 1500 (\pm 1.0) \times 1.0 (\pm 0.1)$ mm (length \times width \times thickness)
Imported special steel belt, there are NBR strips at both sides of steel belt's back for avoiding belt's deviation.

b. Drum: diameter 1000mm, material: SUS304+A3.

c. Center distance of drum: 22000mm

d. effective cooling area: 28.6m^2

e. Effective width: 1300mm

f. Steel belt speed: $0 \sim 80$ m/min(adjustable)

g. The drum's transmission type is motor direct drive, motor: 5.5KW, explosion-proof level: DIPB21TAT3, protection level: IP65.

h. Material of material discharge scraper: high-density resin

i. There are 3 sections cooling water slot made of stainless steel 304, the water pipe's

material is PPR, and the external interface of water tank is stainless steel. The side is PVC transparent curtain. And plastic spray nozzles are equipped inside.

j. The material of frame is carbon steel coated with anticorrosive paint. 6 sections frame will be connected by screw bolt.

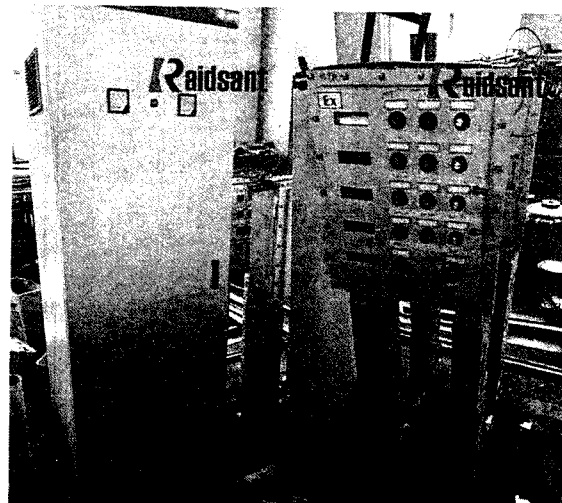
k. The roller under steel belt adopts bearing structure.

l. The cover on the pastillation machine is made of stainless steel 304.

5. Main parts' brand

No.	Subcontractors	Parts	Remark
1	Nippon steel	Steel belt	
2	Siemens	Inverter	
3	Raidsant	Control system	
4	Schneider	Electricals	
5	Honghong	Reducer	
6	Wannan	Motor	
7	Kunshan Aode	Temperature controller	

6. Control system



The control system controls the steel belt's line speed, through the inverter;

indications of inlet temperature and heated liquid; start-stop control of the machine; emergency stop and safety chain stop control.

The control counter displays the following operating information:

No.	Name	Display range	Remark
1	Steel belt inverter frequency	0~50HZ	
2	Distributor inverter frequency	0~50HZ	
3	Material pump inverter frequency	0~50HZ	
4	Distributor temperature (°C)	0~300	
5	Stainless steel dustproof cover temperature (°C)	0~300	

Electrical control cabinet and the specific configuration

Contents:

Power switch, control circuit apparatus;

Temperature controller

Steel belt's converter, distributor converter, material pump inverter

The instrument panels meet with the following requirements:

All instrument panels adopt SI system of units. Protection class: IP55

Grounding resistance: Electrical: $\leq 10 \Omega$ meter: $\leq 4 \Omega$

Components' brand

No.	Description	Type	Quantity	Brand
1	Breaker	C32N	7	Schneider
2	Fuse	RT18-32X	5	Shanghai Hugong
3	AC contactor	LC1/220V	3	Schneider
4	Thermal overload relay	LR2-D1312C(5.5-8	1	Schneider
5	Control relay	CA2-DN22/220V	2	Schneider
6	Power indicator	XB2-BVM3C/220	1	Schneider
7	Key switch	XB2EG21C	1	Schneider

8	Emergency stop button	ZB2BS54C	1	Schneider
9	Emergency stop button + explosion-proof box	ZB2BS54C+	1 set	
10	Rope switch		2	
11	Inverter		2	Siemens
12	Frequency meter	AI501(48X96)	2	Yudian
13	Ammeter	AI501(48X96)	2	Yudian
14	Potentiometer	LA42DWQ5K	2	Shanghai Tianyi
15	Button with light	XB2	14	Schneider
16	Small relay	RU2S / 24V	8	IDEC
17	Explosion-proof limit switch	BZX51	5	Huarong
18	Indicator (green)	XB3BVB	14	Schneider
19	Explosion-proof thermal resistance	WZPK	2	Shanghai Instrument
20	CPU	226DC/DC/DC	1	Siemens
22	PLC	S7-200	1	Siemens
23	Positive pressure explosion-proof control cabinet		1	Raidsant

7. Spare part

No.	Description	Material/Type	Quantity	Price
1	Filter element	06Cr19Ni10	1 pc	Free
2	Mechanical seals for pastillation machine's distributor	Assemblies	1 set	Free
3	DZ1.5 distributor slide block	Composite part	1 pcs	Free
4	Nozzles for cooling water	PVC	50 pcs	Free
5	DZ1.5 Material-discharging scraper	High-density resin plate	1 pc	Free
6	Metal hose	Stainless steel	1 pc	Free
7	PTFE strip for auxiliary heat	PTFE	1	Free
8	Water remove brush		1pc	Free
The free spare parts will be sent with machine to customer.				

8. Payment method:

20% T/T deposit before production, 80% T/T before delivery.

9. Delivery:

Within 55 days after receiving 40% payment in advance.

10. Machine acceptance

Pre-acceptance

Pre-acceptance is done at vendor's factory by purchaser.

Final acceptance

At purchaser's site and after the machine is working 72 hours, purchaser does the final acceptance and issues the acceptance report.

Acceptance criteria

a. Mechanical performance is in accordance with technical proposal and company

standard;

- b. Capacity:3000-3500kg/h
- d. Final product dimension: 5-6mm (semi-ball form) , conform to GB/T2449-2006
- e. Granulation rate: $\geq 99\%$
- f. The machine can run 24 hours with 3000-3500kg/h.

11. Installation charges (exclude of the total price) and guarantee period:

- a. Round-trip flight tickets for 2 engineers;
- b. Service charge during the testing, 1 person 250USD/day;
- c. Buyer offers accommodations for engineers freely;
- d. The whole machine's guarantee period is 12 months. During this time, seller will provide accessories for buyer freely if the malfunctions are not caused by human accident. After the warranty period, seller will supply accessories for buyer with the cost prices;
- e. We need around 7 days to erect and adjust the machine .
- f. We need 4-5 persons from you to assist our engineers while erecting and adjusting the machine.