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QUOTATION

SAT110 Compounding and Granulating Production Line



From

Useon Extrusion

Member of Useon Group

Dear Sirs,

Thank you very much for your inquiry. According to your inquiry, we make the offer following. If you need more information or other requests, we are glad to help you.

Main technical specifications

1. Process tasks

Recycle cleaned bottle flakes with the size less than 10mm (Moisture<1.5%).

Recycle PET lumps with the size less than 8mm.

Recycle PET sheet with the size less than 10mm.

2. Output and main extruder type

Output: 1000-1200 kg/h (difference up to size of flakes and operation conditions).

Main extruder type: SAT110 co-rotating twin screw extruder.

3. Flow chart description

Volumetric feeding - > twin screw compounding - > vacuum system.

4. Main features of extruder

Closely intermeshing screw profile with screws that are self-wiping at narrow clearance for easy product and color changing.

Special mixing and shearing elements is with varying effects for high process flexibility.

Modular building-block system for barrel.

Each barrel is with one temperature zone for optimal processing.

High reliable safety clutch and interlocking system for optimal protection against overload

High torque gear box ensure high output and long life time.

Variable screw speed from 100 to 800 rpm allows wide range of process technologies.

Large free volume due to outer/inner screw diameter ratio $Do/Di \sim 1.75$ for optimum processing.

Water manifold completely made of stainless steel.

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1. Commercial Terms

1.1. Delivery Scope

No.	Denomination of the delivery	Qty.	Price	Spec. and model
1.0	Raw materials dealing and feeding system			
1.1	Volumetric feeder with force feeding	1 set	4,500	
2.0	SAT110 compounding system			
2.1	SAT110 co-rotating twin screw extruder	1 set	120,000	AC motor 250 KW, 32L/D
2.2	Vacuum system	1 set	14,000	
3.0	Intelligent control cabinet	1 set	28,000	Windows software
4.0	Spare parts		Incl.	
	Total price FOB Nanjing in RMB		166,500	

1.2. Price item

Basis of FOB defined defined in accordance with the provisions of the International Rules for the Interpretation of the International Commercial Terms (INCOTERMS) 2000.

1.3. Validity of the Quotation

This quotation is open for acceptance with 60 days from the date of this offer, unless an extension of validity is agreed upon.

1.4. Delivery Time

Approx. **65 days** required after receipt of down payment, and technical and commercial clarification.

The agreed delivery period is subject to the punctual receipt by us of all equipment, documents, approvals, releases and services to be furnished by Buyer for the performance of the order.

1.5. Terms of payment

30% of total price as down-payment by T/T, 70% of total price shall be paid by TT upon the acceptance of the machines by the Buyer's inspector at the Seller's factory and before shipment.

1.6. Packaging

Painted with anti-corrosion oil, and covered by film.

1.7. Warranty

12 months is from the date of commissioning, or at the latest, 15 months from delivery. All the parts are under the warranty, except the wearing part (barrel, screw elements, roller and cutter of pelletizer).

1.8. Documentation

Basic engineering layout and documentation of factory preparation will be delivered within 30 days after received down payment by Seller. 1 set of operation manuals (copy in one CD) in English languages will be delivered with equipment.

1.9. Commissioning

USEON will send two engineers to buyer's factory for installation and commissioning of the sold machines, training for buyer's staffs for operating, repairing and trouble shooting, for no more than 7 working days (subject to both parties agreement). Cost of economical 2-way air tickets, reasonable accommodation and foods are under customer's account during staying time. The Buyer shall send the invitation accordingly, if any.

1.10. Modification of order

Modifications requested by customer after the contract has been concluded will be carried out by USEON if the parties have agreed in writing about any extra charges, changed delivery times, the warranty or any other changes and consequences with regard to the contract.

1.11. Limitation of liability

The parties agree that any claim to compensation for loss of profit as well as for indirect damage and consequential damage, on the basis of whatever legal ground, are excluded.

This shall not apply if legal provisions make liability for such damage mandatory in cases of intent or gross negligence.

In the course of your further planning, questions regarding this project will certainly have to be discussed. For this, we remain at your entire disposal.

1.12. Transport

To be responsible by the buyer (**the complete line need two sets of 40 feet container**).

2. Technical Specifications

No.	Denomination of the delivery	Qty.
1.0	Raw materials dealing and feeding system	
1.1	Volumetric feeder	1 set



Capacity: 1400kg/hr.

Feeding method: by single screw.

RPM controller: AC inverter.

Motor: 4KW,

S.S. hopper Vol.: 500L.

Hopper with one level sensor to provide the signal to interlock with the loader which in the scope of customer.

With vertical force feeder.

Feeding method: by single screw.

Motor power: 4KW.

2.0	SAT110 compounding system	
2.1	SAT110 co-rotating twin-screw extruder	1 set

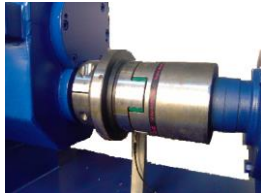
Main motor:

Supplier: WN/ Huabin

AC motor, 250KW with speed 1480rpm.

Speed controller: SCİYON AC inverter.

Clutch:



The clutch is used to transmit the power from the motor to the gearbox.

High safety coupling with torque limit from Useon.

With cover for safety.

High torque gearbox:



Precise balancing principle applied to increase torque level.

Torque level up to **10.3** defined by Torque/center line distance.

High safety factor design.

Latest steel alloy material for gears applied with special heat treatment and manufactured at high precision level.

NSK bearings and imported seals applied,

Input/output rotary speed: 1480/330rpm.

Special lubricating for gearbox:

Fin-plate heat exchanger configured to provide best cooling.

With one temperature sensor: if the oil temperature more than 60 degree, the extruder will stop automatically.

With one pressure sensor: if the oil pressure less than 0.2 MPA, the extruder will stop automatically.

With one pressure indicator meter for the operator to see the pressure easily.

With magnetic filter to remove the metal power from the gear.

With one vane pump with much less noise compare to the traditional gear pump.

Screw element & shaft:

The intermeshing screws co-rotate and wipe each other with narrow clearance so that no residues are left in the screw flights and cleaning effort is thus reduced.

The screw shaft system is characterized by the following:

- Through-going solid shafts
- Screw elements with various pitches and lengths
- Kneading blocks with various angles of stagger, numbers of kneading disks and disk widths
- Screw tips to fix the screw set axially
- Gear teeth connection to ensure power flow between the screw shaft and screw elements

Screw Diameter: $\Phi 108\text{mm}$. L/D = 32:1.

Maximum Screw speed: 330rpm.

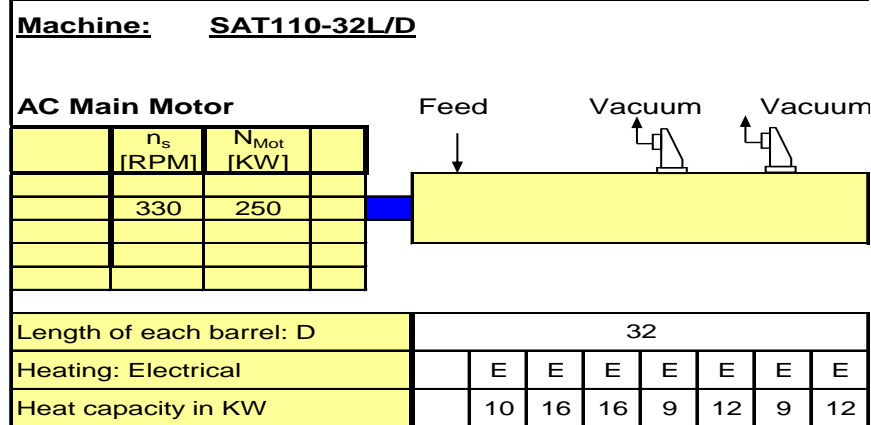
Screw configuration: with modular structure, torque transmission by spline.

Material of screw: **38CrMoAlA**.

Nitrify treatment: with nitrify depth 0.4 ~ 0.6mm.

Surface hardness: HV840 ~ 940.
 Roughness: Ra≤1.6μm.
 Structure feature: modular fixed on shafts.
 Direction of screw: co-rotating.
 Screw shaft material: 40CrNiMoA.

Barrel:



Barrel configuration: one complete barrel.
 Material: **38CrMoAlA**.
 Nitrify treatment:
 Nitrify depth of screw: 0.5 ~ 0.7mm.
 Surface hardness: >HV940.
 Roughness: Ra≤3.2μm.

Temperature control system:

Temperature controller: PLC.
 Heating system: infrared heater, total heating power with about 85KW.
 Cooling system: air cooling fan ,with power 0.75kW;

Steel base:

Welding base with 6 pieces of special pads which can adjust the height and reduce the vibration.

2.2 Vacuum system

1 set



Connect with the second and the third vacuum port.

The compact vacuum system is used for the removal of volatile matter and moisture from the product. The system is completely assembled and internally tubed.

Consisting of following main components:

The first stage ROTH vacuum pump: 4KW.

The first stage ROTH vacuum pump: 3KW.

The second stage water ring vacuum pump: 15KW.

1 collecting tank to empty vacuum condensate into containers.

1 manual valve

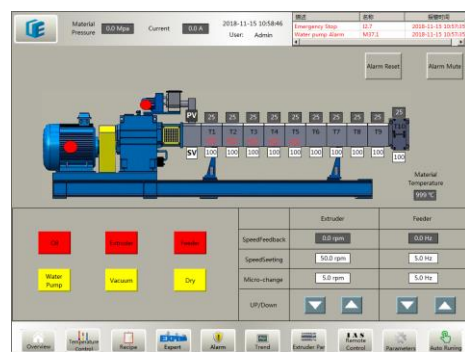
1 air pressure indicator

1 bypass

With independent PLC and HMI control.

3.0 Control system

1 set



Intelligent Control System:

Useon develop and launch the New Intelligent Control System based on the many years experience of manufacturing of Extruder, and always be devoted to make the User's experience more personal and efficient.

1. Reducing the cable in control cabinet approx. 70% and greatly reducing the error rate and troubleshooting time; all the wire connecting every control modular by the special communication line except the power line, so the cabinet looks more neatly.
2. The program written in the special PLC, it is easy to modify and check the error.
3. All the driving ,heating ,and cooling controlled by the special modular, it is more convenient to install and replace.
4. The software special designed based on Windows system, the operation screen is more personal.
5. Built-in Wifi, easier to connect to internet or hotspot by phone, The engineer from Useon can remote control the machine ,monitor and modify the parameter.

6. Formula function, User can set up the optimized formula in program to assure the quality of product.
7. The historical data of process parameters can be preserved and reflected in the form of curves. It includes each temp. of every zone, speed, ampere, pressure etc.
8. Intelligent assist system(IAS), when the loading ampere or melt pressure is more than setting value, IAS will reduce the screw and feeder speed automatically.
9. Alarm diagnosis function, the system is equipped with intelligent equipment alarm modular and remote service system to monitor the running state of the machine. The system will automatically report the cause of the failure and guide the operator how to eliminate the alarm. Useon can connect to this extruder by remote control.
10. Maintenance remind, The system automatically count the effective running time , then give the information of inspection to avoid the false check or miss detection.
11. All the devices have industrial Ethernet which is very convenient to connect with other intelligent products such as Loss-in –weight feeding system and underwater cutting system.
12. One button start/stop.
13. All electric parts and design of control panel meet with the standards of CE.

Note: all the electrical equipment doesn't have UL certification.

5.0 Spare parts

Free spare parts

- Screw elements 600mm.
 - Each type of heater 1 pcs.
 - O seal for vacuum ports 4pcs.
 - Solid state relay 3 pcs.
 - Tool part to draw screws 2 pcs.
 - Oil sealing for input and output shafts for gearbox 3sets.
 - Standard tools 1 set.
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3. Exclusion

The following are not included in the scope of our supply:

- The preparation of the site with all the necessary foundation work, ceiling openings etc.
- The connecting cables from the mains to the switch unit and from this to the various motors and auxiliary units of our equipment.

- The electrical installation including the required safety devices outside the machine and switch unit.
- The connection pipes, gravity feed hoppers etc. between the various units supplied by user.
- Any required frames, platforms, suspension devices, covers for feed hoppers etc.
- The operating media such as oil, grease etc. as well as raw materials for starting up and operation.
- All equipment and services which are not expressly stated in our quotation
- The installation and commissioning. Please request our personnel in good time for this work. A separate order is required.

4. General Conditions of Factory Requirements

Electric

- 3X480 Volts + neutral + earth conductor
- 60hz
- 400KVA
- **Please inform us if your factory power supply is different**

Pneumatic

- 4-8 bar
- 0.5 m³/min

Circulate cooling water

- The cooling water quantity and the cooling capacity of the air cooling tower will be mentioned on the documentation of factory preparation).

Ambient temperature

- 10 - 40 °C

Foundation:

- Firm base ≥ 15 cm reinforced cement (recommended)

5. Other items

Standard color of extruder and down stream machine: gray (RAL 7026).

Please inform us the color code if you want to painting by the other color.