

# **Application and performance features**

## **1.1 Application**

MY120x2 Twin-Screw Extruder is mainly applicable for processing floating and sinking aquafeed, expanded rice-noodles and some other expanded food.

## **1.2 Performance characteristics**

The extrusion provides for production of many products with great superiority in comparison with other technologies. Because it almost integrates functions of different equipments in a single process when extruding, the procedures of mixing, extruding, cutting, cooking, forming and drying process in a certain degree can be carried out at the same time.

Products processed by twin-screw extruder have a greater superiority in gelatinization, pellet uniformity, smooth surface and formula adaptability than single-screw extruder.

### **1.2.1 Multi functions of the machine**

An unique combined-type screw structure is adopted, and it can produce a wide varieties products only need to change some simple screw configurations or change the processing parameters.

### **1.2.2 Uniqueness of the product**

Other technologies are difficult in producing some feed products or cannot produce products with certain shapes, however extrusion process can produce them easily.

### **1.2.3 High-quality of the product**

This extruding operation is extremely effective in high-temperature and short-period processing. It provides improved nutrition with reducing the influences of anti-nutritional factors in products as well as sterilizing.

### **1.2.4 Effective utilization of energy**

Extrusion can ripen material in a great degree in the cooking process, sufficiently use steam and reduce power consumption, and thus process cost can be saved.

### **1.2.5 Convenient and accurate control system**

Adopting the automatic control system can accurately control the flow and flow ratio of all materials, and also the different processing parameters can be recorded for the convenience of future production or providing the basis for adjusting processing parameters.

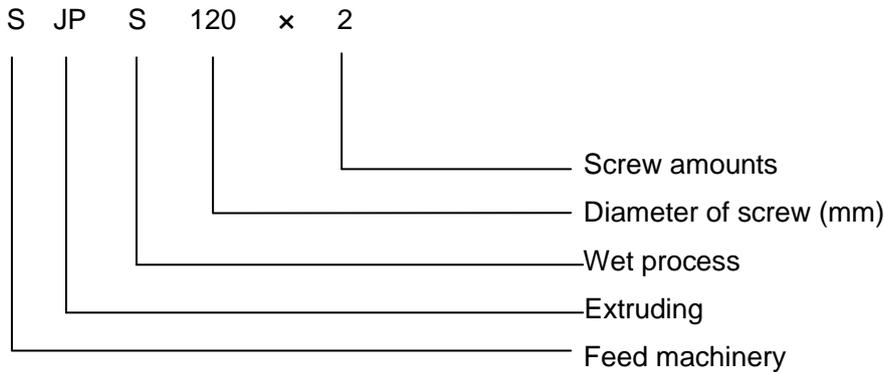
### **1.2.6 Minimum industrial wastewater**

This extruding can effectively avoid industrial wastewater; this is an outstanding advantage for feed manufacturers bearing the increasing pressure for reducing influences of production activities on surrounding environment.

## Main technical parameters

### 2.1 Model description

SJPS120x2 Twin-Screw Extruder



## Overall structure

### 3.1 Overall structure

The extruder is composed of an anti-bridge feeding bin, a feeder, a different diameter cylinder conditioner, the extruding principal machine, a simple pipeline system and an electric control system.

## Maintenance and repair

- 1) The equipment should be cleaned for both inside and outside after each shift of production. Clean the extruding chamber and screw with water after each stoppage timely, so as to avoid difficult cleaning after the materials cooling down and agglomerating;
- 2) Clean up each matching surface of discharging assembly and cutter after each stoppage, and spread them evenly with vegetable oil before getting off work.
  - a) Clean up the spared discharging die in time, and spread or steep vegetable oil on it.
- 3) Each shift should check the drum coupling between the main motor and the reducing gear box for normal work. Determine the coaxiality between the output shaft of main motor and input shaft of reducing gear box with a detector each week. It is required to adjust the coaxiality if it is up to 0.5mm.
- 4) The reducing gear box is lubricated with industrial closed gear oil (GB 5903-1995)L-CKC Grade I, viscosity grade 220.
- 5) Lubricate the feeding conditioner and the bearings of its driving device and other bearings with lubricating grease.
  - I. Designation and code of lubricating grease: 221 lubricating grease(SY1525-82).
- 6) New oil for the reducing gear box must be replaced regularly; the first oil replacing should be carried out after one-month operation of the principal machine, and replace once a year since. The used oil must be emptied before replacing new oil every time, empty the residue in the chamber with compressed air and fill in new oil(calculated a per 10hr operation per day), and both over high or low oil level will affect normal operation of the reducing gear box.
- 7) For other bearings, lubricate grease each 48 working hours.
- 8) Lubricate the chain driving mechanism of the conditioner regularly.
- 9) Disassembling the screw sections, and it is not allowed to knock them out heavily.

- 10) Clean the pneumatic valve on the upper part of anti-bridge feeding bin every week, so as to avoid time delay for feeding caused by blockage in this part. Clean the residual material on the cylinder wall of the feeder each week. Clean the residual material in soft joint between feeder outlet and conditioner inlet each week. Clean the water adding and steam nozzle of conditioner each week to keep liquid application smoothly. Dismount the by-pass and clean it once a week, and clean the residual material at the feeding inlet of extruding barrel at the same time.
- 11) Keep the extruder and its surroundings clean.

## Malfunction and troubleshooting

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Trouble	Causes	Solutions
1. Temperature of extruding chamber fails in meeting the rated temperature required.	Steam conditioning temperature is low. Steam pipeline of Jacket is blocked. The inlet of steam pipeline in extruding chamber is blocked;	Raise conditioning temperature, materials temperature after conditioning is 80℃ -90℃ Clean the steam pipeline of jacket. Clean the inlet of steam pipeline in extruding chamber.
2. Temperature of extruding chamber fails in meeting the requirement	Steam pressure is not enough Steam pipeline is blocked	Check steam pressure, adjust it normally to 4bar Clean the steam pipelines
3. Material surface is coarse with different length after extruding.	Poor conditioning. Part of the die plate holes are blocked Ground particle size larger than required Bad quality die plate	Conditioning the material Stop production and clean the die plate Improve grinding effect and achieve fine particles Adopt the die plate from the regulated manufacturer
4.Throughput decreases	pressure ring or wear is worn; Screw head is serious worn.	a) Replace wear ring or pressure ring b) Replace screw head
5.Material cannot be discharged suddenly after normal operation	Excessive short-time feeding or cut-off feeding; Blocked die holes;	Stop production, check and correct it;
6.Wave type intermittent discharge	Low filling degree of expanding chamber;	Improve the output;
7Insufficient expansion	Insufficient gelatinization	Improve the output; Improve the conditioning temperature; Improve the jacket heating temperature; Improve the rotary speed of main motor;
8.Excessive extruding	Excessive temperature; Too fast rotating speed of main motor; Opening area of the die plate does not match the output.	Decrease the temperature. Reduce the rotating speed. Change the opening area of die plate or adjust the output.
9.Over long or short expansion grains	Over-high or low cutting speed;	Adjust the cutting transmission speed;

10.Poor product formability	Improper raw material formula; Over-high or low processing Temperature; Unstable feeding; Too much or too little moisture contained in product; Incorrect cutting speed; Blade is worn out; Too large ground particles;	Change formula of raw materials; Recombine the components in machine barrel; Adjust to even feeding; Reduce or increase water or steam addition volume; Adjust the rotating speed appropriately; Replace blade; Smash the raw material more fine to reach the defined granularity.
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## Transport and storage

### Transport

The extruder is suitable for land or water transportation. Attention should be paid to the package and storage marks on the packing box when unloading or loading during transport. To prevent over-turning or heavily pressing the extruder when transport, and the front end of the extruder should be equipped with support when packing.

### Storage

- 1) When the machine equipment is to be stored in the open air, the facilities for prevention of rain, sunshine and water accumulation should be available.
- 2) The equipment should be stored in ventilated, dry and cool place for long-time storage, and damp proof measures should be taken, the exposed surface without painting should be painted with rust-proof oil.