

LABORATORY TWIN SCREW EXTRUDER/PLC CONTROL SYSTEM

This machine is suitable for mixing, plasticizing, and extrusion processing experiments of engineering plastics, modified plastics, waste plastics, and color masterbatch. It has functions such as plasticizing homogenization, coloring and sampling, and filling modification.

1. Output: According to the raw material formulation process
2. Temperature range: $\sim 300^{\circ}\text{C}$
3. Temperature accuracy: $\pm 1^{\circ}\text{C}$
4. Screw diameter: $\Phi 20\text{ mm}$
5. Length diameter ratio: 1:40 optional
6. Screw direction: Rodent type, parallel and same direction
7. Screw rotation speed: 0-280rpm
8. Screw material: The mandrel is made of 40CrNiMoA chromium-molybdenum alloy tool steel, and the threaded components are made of W6Mo5CR4V2 wear-resistant alloy steel, with a hardness of HRC60, with conveying blocks, mixing blocks, shearing blocks, banburying blocks, kneading blocks, countercurrent blocks, building block series components, and the mandrel is gradually splined and can be combined according to any material ratio to meet the needs of different extrusion processes
9. Barrel material: The 5-section barrel is made of 45# nitriding steel forgings, lined with a301 wear-resistant alloy sleeve, with hardness of HRC60, and treated by nitriding, quenching and tempering and ultra precision grinding, with surface roughness $R_a \leq 0.4\text{ }\mu\text{m}$. Wear and corrosion resistance
10. Combination method: The combination mode of the screw suite is building block spiral and the machine barrel is multi-section type, with self-cleaning function
11. Heating zone: 5 cast aluminum heaters fixed at barrel, 1 heater at handpiece, each section with 1 kw heating power, external covered with safety protective wind hood
12. Cooling zone: The entire section of the barrel adopts a soft water circulation cooling system, each segments of cooling water flow rate is adjustable, equipped with self-priming circulating water pump, 304 stainless steel water storage tank, inlet and outlet water pipes and the electromagnetic valve components,etc. Can implement independent temperature control and cooling for each section of the barrel unit
13. Vacuum zone: Water circulation vacuum degassing device, equipped with water ring vacuum pumps, vacuum gauge, regulating valve and other components, forming a non-clogging dehumidification exhaust system
14. Feeding device: Adopting double screw metering type forced feeding, equipped with a horizontal mixer, the feeding is uniform and stable, and it is not easy to

bridge. The feeding speed is adjustable by frequency conversion from 0-50rpm, and a sliding rail type fast discharge device is installed

15. Die head pressure: Dynisco high precision temperature and pressure sensors monitor the temperature and pressure changes of the melt in the machine head, interlock and control the operation of the host, with the overpressure protection function
16. Die head: Cr12 chromium molybdenum alloy head, nitriding hardness HRC60
17. Reduction gearbox: High speed heavy duty hard tooth surface gear transmission, with an integrated structure of gear reduction and torque distribution box, internal transmission parts adopt imported high load bearing and oil seal, oil-immersed splash lubrication, smooth operation
18. Drive motor: Precision heavy duty gear reduction motor, constant torque power output control.
19. Main frame: The overall frame is welded with steel, which is sturdy and not easily deformed. The bottom of the frame is equipped with movable and brake casters, making it easy to install and move
20. Safeguard: Safeguard functions include: Melt pressure is interlocked with the host for overpressure alarm protection; Melt temperature is interlocked with the host for startup and shutdown protection; Feeding and host interlocking for startup sequence protection.
21. Electric control system: PLC programmable color touch screen, man-machine interface operation system, extrusion process can be displayed and monitored dynamically, including temperature control, driving, speed, pressure, interlocking and intercontrol function
22. Power: 3 ϕ , AC380V, 50Hz Three-phase five-wire
23. Dimension: 1950×500×1500 (W×D×H) mm
24. Weight: About 285Kg

■ Information: Manual and Product quality assurance card

Feature

1. The screw diameters are 16、20、25、30 (optional) , and the length diameter ratio is 10-30 times can be optional.
2. The material of the screw and the charging barrel is 40CrNiMo special tool steel which is hard and wear resistant and has been processed through nitriding, tempering, chromeplate and super-precision grinding.
3. The twin screw adopts the compound mode of build block, including the conveying building block of screw thread, kneading building block, shear building block and remilling etc. The screw suite consisting of these kneading blocks of different alternate angles and width can meet different shearing forces and mixing effects required by multi materials production and can carry out the craft scheduled combination in accordance with any material.
4. The twin screw component combination has the self clean function like mutual cleaning up etc. At high-speed rotating, reducing material wastes during the experimental process and saving clean-up time.
5. The charging barrel is heated by the cast copper heater which is simply maintained and easily installed and costs little heating time and high heat rate,

ensuring the required temperature. The charging barrel adopts soft water circulation cooling with a good cooling effect.

6. The host machine transmission box and torque divider are put into one of tight structure, steady operation and large torque, appropriate for any output of power of high shear rate.
7. The handpiece is equipped with a quick converter and a high precision melt temperature and pressure transducer, the pressure of the detecting handpiece being accurate and reliable. The interlock joint control intelligent pressure control system has the function of automatic alarm and automatically-controlled stop.
8. PLC programmable color touch screen, man-machine interface operation system, can dynamically display and monitor extrusion process, including temperature control, driving, pressure, interlocking spreading function. The software interface is intuitive and has a USB data output interface, which is easy to input and print.

