

BP-8178-B-III

THREE LAYER CO EXTRUSION LAB FILM BLOWING MACHINE/ PLC CONTROL

This machine is a multi-layer co extruded film pilot line composed of three single screw extruders, which simulates the processing characteristics of blends and composite materials, and can reach up to 7 layers.

I. Single Screw Extruder-3 sets

1. Output: about 3-6kg/h per extruder, specific according to the raw material process formula
2. Temperature range: Normal temperature $\sim 300^{\circ}\text{C}$
3. Temperature accuracy: $\pm 1^{\circ}\text{C}$
4. Screw diameter: 20mm
5. Length ratio: 1:28
6. Rotation speed of screw: 0-95rpm frequency control
7. Screw material: It is made of 38CrMoAl chromium-molybdenum steel. With the surface-layer processing of quenching and tempering, nitriding, chroming, polishing and super-precision grinding, roughness $Ra \leq 0.4\mu\text{m}$, nitriding depth $\geq 0.6\text{mm}$, hardness HRC55~60.
8. Barrel material: It is made of 45# carbon structural steel. With the surface-layer processing of quenching and tempering, nitriding, chroming, polishing and super-precision grinding, roughness $Ra \leq 0.4\mu\text{m}$, nitriding depth $\geq 0.6\text{mm}$, hardness HRC55~60.
9. Heating zone: 3 zone heaters for barrel, 2 zone heaters for machine head, external covered with safety protective wind hood
10. Cooling device: 3 groups of multi wing fans with super static forced air cooling
11. Hopper: 304 stainless steel material, equipped with slide rail type rapid discharge device
12. Melt pressure: 0-35MPa high precision melt pressure sensor detects changes in head pressure, interlocking control host working
13. Melt temperature: High precision melt temperature sensor monitors melt temperature changes
14. Quick change chuck: C-type snap ring connection, easy for quick connection with downstream equipment
15. Drive motor: 3.7kw precision gear reduction motor
16. Power: 3 ϕ , AC380V, 50Hz Three-phase and five-line
17. Dimension: 1520 \times 1140 \times 1200 (W \times D \times H)mm (excluding adjustable electric cabinet)
18. Weight: about 465kg

II. Distributor

1. Number of layers: A/B/C three layers
2. Replication ratio: can be set according to needs

3. Axial distributor: special configuration
4. Radial distributor: special configuration

III. Co-Extruded Die Head

1. Die diameter: Ø60
2. Die structure: Spiral composite type
3. Flow channel surface: There are no dead corners inside the flow channel, and the surface is chrome plated and polished
4. Feeding method: Central feeding
5. Heating zone: 3 zones heating
6. Die material: 718H chromium molybdenum alloy

IV. Film Blowing Tower

1. Wind ring: Double layers air outlet channel structure
2. Air volume at the air outlet: Adjustable air volume
3. Wind ring material: Cast aluminum alloy
4. Film thickness: 0.05 ~ 0.10 mm adjustable
5. Maximum folding diameter: 200mm
6. Inflation gas: Compressed air 0~6 bar adjustable
7. Cooling air: Blower flow 60L/min
8. Traction roller: Ø80×L350mm rubber roller and mirror steel roller clamping combination
9. Traction speed: 0-20m/min variable frequency speed regulation
10. Opening and closing type: Pneumatic opening and closing
11. Herringbone plate: Aluminum alloy material, hard oxygen rotating shaft
12. Winding roller: Ø 80 × L350mm air tension shaft
13. Coiling diameter: ≥ 300 mm
14. Tension type: Automatic tension control achieved by tension sensor and controller
15. Tension range: 0-10kg
16. Traction motor: 200W
17. Winding motor: 6.5N.m
18. Fan: 1.5KW
19. Observations box: 10w LED shadowless light source
20. Electric control system: PID/LED/RKC intelligent digital temperature control, high precision digital instrument display all extrusion parameters including driving, traction, winding, interlocking and control functions
21. Power supply: 3 ϕ , AC380V, 18A
22. Volume: 1290×750×2420 (W×D×H) mm
23. Weight: 415kg

V. Electrical control cabinet

1. Electric control system: PLC programmable color touch screen, 15 inch display screen, human-machine operation interface, the extrusion process can be dynamically displayed, including temperature control, drive, traction, winding, speed, pressure, and online control functions

2. Safety protection: The melt pressure is interlocked with the host for overpressure alarm protection; Melt temperature is interlocked with the host for low-temperature startup protection
3. Volume: 1140×700×1670 (W×D×H) mm
4. Weight: 110kg

Feature

1. This machine has compact design and a small body, not occupying too much indoor area.
2. The host and auxiliary machines are of easy assembly with few raw material. The maximum folded diameter of the thin film can reach 200mm.
3. Equipped with C-type quick change head, easy to connect with other devices, such as calendering, casting, granulation, filtration, etc. Also saving time and effort for test conversion.
4. Single-layer or double-layer cooling vane and the closed-loop control of creasing width ensure reliable product quality.
5. The height of the filming blow tower can be adjusted arbitrarily to meet test requirements.
6. The extrusion, traction and rolling have the property of stepless speed regulating, ensuring requirements of film blowing technology to be met.
7. Pneumatic paperless mandrel winding film device is adopted, which is easy to wind and convenient to replace the paper core.
8. Can connect 12.5mm, 16mm, 20mm, 25mm, 30mm, 40mm and 45mm single screw extruder.
9. Die head diameter 20-190mm, optional insert for die gap.
10. The single-layer blown film die has a spiral flow channel structure to ensure uniform melt distribution; the multi-layer co-extrusion die has a “muffin type” structure to ensure uniform distribution of each layer. The inner flow channel has no dead corners, is highly polished and nickel plated, and the die is chrome plated.
11. Integrated inspection light box facilitates quick and real-time observation of film defects.
12. Perfect safety protection configuration, in accordance with CE safety standards.

