BP-8187-B

LABORATORY SINGLE SCREW CAST FILM MACHINE/PLC CONTROL

It is suitable for extrusion of various general plastics such as PE, PP, PS, PC, PET, ABS, PVC. The machine is equipped with horizontal and vertical extrusion casting cold rolls that can simulate production processes such as single layer casting and sheet extrusion. It can be used for both thinner film preparation and thicker sheet preparation, making them the best laboratory extrusion film forming equipment.

I. Application scope

1. Research and development of new product formulas
2. Optimization of production process parameters
3. Small scale production of narrow film
4. Casting performance testing of polymer materials

II. Single Screw Extruder

1. Capacity: about 3-6kg/h, specific according to the raw material process formula
2. Temperature range: ～300℃
3. Temperature accuracy:±1 ℃
4. Screw diameter:Φ20mm, mixed and dispersed type
5. Length diameter ratio:1:28 other length diameter ratios optional
6. Screw rotation speed: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≤0.4μm, nitriding depth≥0.6mm, 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≤0.4μm, nitriding depth≥0.6mm, 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. Drive motor: 2.2kw precision gear reduction motor
13. Electric control system: PLC programmable color touch screen, man-machine interface operation system, extrusion process can be displayed and monitored dynamically, including temperature control, speed, pressure, driving, interlock and intercontrol function.
14. 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

15. Power:3 ∮ , AC380V, 50Hz Three-phase five-wire
16. Dimension:1425×500×1360（W×D×H）mm
17. Weight: About 175 kg

III. Cast film die

1. Die head form: Hanger type
2. Die head material: CrNiMoA alloy steel
3. Die head hardness: HRC65
4. Flow channel surface: The mold lip surface is chrome plated and polished mirror treatment without any dead angle or trace.
5. Mold lip adjustment: manual full push elastic fine adjustment of the upper lip, and overall structure of the lower lip
6. Mold lip width :260mm
7. Film thickness: 0.05~ 0.25mm adjustable
8. Heater: stainless steel heating rod, equipped with aviation sockets
9. Heating power: 5 zones heating, 3KW per zone power
10. Feeding method: Feeding at the center round mouth of the die
11. Installation method: Vertical installation with rollers
12. Support form: Equipped with mold head load bearing support frame

IV. Casting unit

1. Temperature range: Room temperature~140 ℃
2. Mold temperature machine: Standard with tap water cooling, optional for he ating and chiller units
3. Connection method: Built-in independent valve and rotary joint
4. Roller diameter: Φ150mm×L320mm
5. Number of rollers: 3 in total, front, middle, and rear
6. Roller material: 38CrMoAl chrome molybdenum alloy material
7. Roller surface: HRC60 mirror chrome plating
8. Roller speed: 0~15 rpm servo speed regulation
9. Roller motor: 3-0.75KW servo motor
10. Combination method: Vertical installation with the mold head

V. Winding unit

1. Conveying rollers: Multi row aluminum hard oxygen roller combination
2. Traction rollers: Pneumatic clamping combination of rubber roller and mirror roller
3. Traction speed: 0 ~ 10 m/min servo speed regulation
4. Traction motor: 0.4KW servo motor
5. Tension type: Automatic control by tension controller
6. Main winding: automatic winding without paper core tension
7. Edge cutting device: Install pneumatic slide rail tool holder for edge material cutting
8. Waste edge winding: automatic winding without paper core tension

9. Electric control system: High performance PLC programmable 15-inch color LCD touch screen, multi screen display of man-machine interface, control all process parameters, such as temperature, speed, drive, traction, winding, pneumatic etc, interlock and intercontrol function.
10. Power supply: 3 ϕ , AC380V, 50Hz
11. Volume: 1980×1080×1670（W×D×H）mm
12. Weight: About 485Kg

Feature

1. Can be connected to 16mm, 20mm, 25mm, 30mm and 45mm single screw extruders.
2. Hanger type high-precision flat die head, width range 200mm-300mm; maximum film-forming width is about 300mm, minimum width is 100mm, used to prepare films with maximum width not exceeding 300mm.
3. The temperature of the cold roller is controlled by a special water heating and cooling circulation system, up to 120℃.
4. Cold roller temperature control can also choose oil heating and cooling temperature control, up to 170℃.
5. All internal parts of the die are chrome plated and mirror polished to effectively prevent dead angles.
6. The rubber clamping roller is equipped with tension control (including tension measuring roller), winding tension and winding diameter indication.
7. TFT LCD touch screen for operation, all parameters are displayed on the screen and can be stored and invoked.
8. The quantity of cooling rollers 2 or 3 is made of high-grade tool steel, after precision grinding, mirror polishing and chrome plating, hardness HRC60, surface gloss 2-4RMS.
9. The middle roller of the cooling roller can be an embossing roller, in which case the upper pressing roller is a silicone rubber covered rubber roller.
10. Three cooling rolls of specific model can be switched in three positions-horizontal, 45 degree angle tilt, vertical to adapt to different processes.
11. The common type of upper pressing roller is pneumatically driven, with auxiliary cooling; the specific type of upper pressing roller is hydraulically driven, with rolling process available to produce thick sheet.
12. All drive motors are adjustable speed AC variable frequency motors or servo motors(varies by model).
13. Perfect safety protection configuration, in accordance with CE safety standards.


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