BP-8186-B

# FILTER VALUE TESTING MACHINE /PLC CONTROL TYPE

The testing method of this machine complies with the European standard EN13900-5:2005, and is suitable for PP, PE and other plastic raw materials and their color masterbatch and other blends of solid matter such as pigment dispersion performance measurement.

## I. Principle：

It is composed of small precision single screw extruder, melt pump, filter, high precision melt temperature and pressure sensors, PLC program measurement and analysis system. The test raw materials are first melted by a single screw extruder, and then transported to the mold head of the 10μm (1250 mesh) filter screen through the melt pump at constant speed, constant pressure and constant temperature. The PLC program control real-time measurement, record the change of the melt pressure curve in front of the screen, automatically calculate the filter pressure value (FPV), and can print the test results.

## II. Typical Application：

1) Masterbatch new product research and development and formula optimization
2) Filling functional masterbatch new product development and formulation optimization
3) Quality inspection and control
4) Measure pigments, masterbatch and other filling material dispersion performance

## III. Single screw extruder

1. Temperature range: ~300℃
2. Temperature accuracy: ±1℃
3. Screw diameter: Φ20 mm
4. Length diameter ratio:1:28
5. Screw rotation speed:0-95rpm frequency control
6. Screw material: It is made of 38CrMoAl chromium-molybdenum steel. With the surface-layer processing of tempering, nitriding, chroming, polishing and super-precision grinding, roughness Ra≤0.4μm, nitriding depth≥0.6mm, the hardness HRC55~60.
7. Barrel material: It is made of 45# carbon structural steel. With the surface-layer processing of tempering, nitriding, chroming, polishing and super-precision grinding, roughness Ra≤0.4μm, nitriding depth≥0.6mm, the hardness HRC55~60.
8. Heating zone: 3 zone heaters for barrel, 2 zone heaters for machine head, external covered with safety protective wind hood
9. Cooling device: 3 groups of multi wing fans with super static forced air cooling
10. Hopper: 304 stainless steel material material, equipped with slide rail type rapid discharge device

11. Melt temperature: High precision melt temperature sensor monitors melt temperature changes
12. Melt pressure: 0-40MPa high precision melt pressure sensor detects changes in head pressure, interlock loop control of the host running
13. Drive motor: 2.2KW precision gear reduction motor
14. Electric control system: PLC programmable color touch screen, man-machine interface operation system, can dynamically display and monitor extrusion process, including temperature control, driving, speed, pressure, interlocking and intercontrol function
15. Safety protection: The melt pressure is interlocked with the host for overpressure alarm protection; the melt temperature is interlocked with the host for low temperature start-up protection
16. Power:3 $\phi$ , AC380V, 50Hz Three-phase five-wire
17. Dimension: 1425×550×940（W×D×H）mm
18. Weight: About 175 KG

## IV. Metering pump

3）Throughput：2cc/rev thoughput capacity
4）Rotation speed：60rpm frequency Control
5）Temp.：≤350℃
6）Pressure：≤270bar

## V. Pressure sensor

1）Inlet pressure：0-10Mpa (Brand: America Dynisco)
2）Outlet pressure：0-35Mpa (Brand: America Dynisco)
3）Pressure accuracy: within ±0.1%

## VI. Filter net

Screen standard reference EN13900-5:2005, with an round aluminum frame covering and a multi-layer structure stainless steel woven mesh inside, for the European standard screen - pack1 / pack2 / pack3 model size

## VII. Analysis and testing platform

1) PLC programmable color touch screen controller, human-machine interface operation
2) Pressure, temperature, flow, speed control module, interlocking closed-loop control
3) Timely collecting and capturing the changes of melt pressure curve
4) With USB interface, can print test results
5) Automatically generating test reports, automatically calculating filter pressure values (FPV)

**Feature**

1. The imported high precision melt gear pump and two integrated temperatures & pressures and their transducers measure accurate temperature, instantly monitoring the handpiece temperature with obvious pressure and temperature variation. Melt pressure and screw speed closed-loop control system, automatic control host operation.
2. PLC programmable LCD touch screen control system, human- computer interface in Chinese and English operation mode, intuitive software graphic interface, equipped with USB interface, all process parameters can be set, printed and saved at will, melt temperature and pressure change curve is clear and accurate, filter pressure value can be calculated automatically, extrusion process can be dynamically displayed and timely monitored, accurate data, reliable performance, according to DIN En-13900-5 pressure filtration value test and determination standard .