BP-8188

LABORATORY TORQUE RHEOMETER

This machine is used to study the thermal stability, shear stability, flow and solidification behavior of thermoplastic materials. Close to the real machining conditions, can measure the rheological properties of materials continuously, accurately and reliably. It also can complete the typical experiments like: XLPE materials cross linking characteristics determination, PVC materials fusion properties and thermal stability determination and the determination of material apparent viscosity and shear rate.

I. Range of application

1) Quality control and raw material testing
2) Product development and formulation optimization
3) Process performance study and process optimization
4) Testing the rheological properties of blends
5) Cross linking (solidification) property testing of thermosetting materials
6) Application of teaching and scientific research

II. Components and function

1. **Mainframe**: Receiving and sending data signal control temperature and mechanical transmission, real-time mapping pressure -time, temperature-time, torque - time curve reports and so on
2. **Mixing unit**: Divided into 60 ml and 300 ml of two kinds, both of them mainly complete material characterization of rheological measurements, and complete material mixing and plasticizing, can be used as mixed material research. Equipped with three kinds of rotors with shear capacity. Make the material is rotated at the same speed between the rotor and the chamber wall, and the opposite direction is the force of mixed and sheared.

III. Main parameters

1. Mainframe

1) Motor power: 4.0KW servo
2) Reduction ratio: 1:20
3) Rotation speed range: 0.1～150rpm
4) Rotation speed deviation: ±0.5%F.S.
5) Torque range: 0～200Nm
6) Torque deviation: ±0.1%F.S.
7) Torque measurement: cantilever dynamic torque measurement
8) Melt pressure range: 0.1～100Mpa
9) Melt pressure deviation: ±0.5%F.S.
10) Temperature control: 5 temperature measurement channels, including 4 temperature control channels
11) Dynamic temperature control accuracy: ±0.5 ℃
12) Static temperature control accuracy: ±0.1 ℃

13) Electric control system: including rotation speed, temperature, pressure, torque etc function.
14) Testing software: Mixing unit data processing software, Polymer melt measurement data processing software
15) Power supply: 3 ∮ , AC380V, 50Hz
16) Dimension: 750×520×1035(W×D×H)mm
17) Weight: About 112kg

2. Mixing unit

1) Chamber capacity: 60ml
2) Rotor speed ratio: 3:2
3) Max torque: 200Nm
4) Rotor material: 38CrMoAl chromium molybdenum alloy
5) Rotor type: Roller (Standard)
6) Max rotation speed: 150rpm
7) Max temp.: 300℃
8) Heating method: Electric heating tube heating
9) Heating zone: 3 zones
10) Heating power: 1.7kw
11) Mixing chamber material: 2311
12) Temp. control method: RKC, J type thermocouple
13) Pressing material method: Manual pressing
14) Power supply: 3 ∮ , AC380V, 50Hz
15) Dimension: 600×520×1450(W×D×H)mm
16) Weight: About 85kg

Feature

Torque rheometer is an ideal equipment to study the flow, plasticization and shear stability of materials. It can be widely used in scientific research and production. It is an important instrument for scientific research and production guidance. The torque rheometer provides a dynamic measurement method that is closer to the actual processing. It can continuously, accurately and reliably measure the rheological properties of the material under the conditions of actual processing, such as multi-component mixing, thermoplastic resin cross-linking, vulcanization of elastomers, dynamic stability of the material, and the effect of screw speed on the processing performance of the system.