

Specifications of RHEOCORD (Torque Rheometer)

A. A modular torque rheometer which can be attached to a mixer unit and also to a single screw extrusion unit. The system drive and the motor should be strong enough for a variety of viscous polymers and must meet the following minimum specifications:

1. Motor power: 3.8 KN
2. Speed range: 0.2 to 150 rpm
3. Torque: 200 Nm
4. CAN-Bus permanent communication, speed and temperature settings; with the corresponding software

B. Mixing unit

An electrically heated intensive batch mixer for compounding, mixing, and testing of polymers and elastomers, and must have the following specifications:

1. Volume: 120 cm³ or more
2. Material of construction: Stainless steel
3. Rotors: a. Roller rotors; b. Banbury rotors; c. Sigma rotors
4. Rotor volume: about 50 cm³
5. Torque: 160 Nm or more
6. Temperature: up to 450 °C
7. Overload protection: Electrical
8. Protection and cleaning equipment consisting of: Brushes, Alu-case, tools etc.
9. Comprehensive software packages for studying: Blends including additives, heat and shear stability of polymers, flow and cure behaviour of cross-linking, etc.

C. Single screw extruder

A lab. scale single screw extruder which can be attached to the drive unit for the extrusion of polymers with the following specifications:

1. Screw diameter: 19 mm (minimum)
2. L/D = 25
3. Torque range: 150 Nm or more
4. Overload protection: Electrical
5. Melt temperature: 450 °C
6. Material of construction: Stainless steel screw, hardened and chrome plated; Nitrided barrel
7. Round die assembly for extruder
8. Die (s): Strand die for strands of two different diameters in the range between 1mm to 3 mm.
9. Water bath (cooling) and strand cutter (pelletizer) (these may be supplied locally)
10. Torque wrench for screwing in the pressure transducer and the thermocouple.
11. Cleaning tools
12. Comprehensive software package

Overall, in addition, the standard inclusions for both mixer and extruder (for example: thermocouples, transducers, heaters etc.) to also be supplied.