INDIAN INSTITUTE OF TECHNOLOGY BOMBAY

MATERIALS MANAGEMENT DIVISION

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Technical Specification for Injection Moulding Machine and Micro compounder

Technical requirements:

1. Micro Compounder should enable compounding with a micro amount of material i.e. about 6 g of polymer. This should be of interest in R&D applications for material development, testing of expensive additives and sample preparation for various testing methods like, tensile, impact or DMA tests. The micro-compounder is based on a conical twin-screw Compounder. An integrated bypass valve enables the recirculation of the melt via the backflow channel. Instrument control Computer control via essential visualization software.

   Technical Data:

   (a) Drive: Motor power 400 W
   (b) Speed: min 1 rpm and max 360 rpm
   (c) Torque max. 5 Nm / screw
   (d) Extruder: Design: Conical co-/counter rotating
   (e) Temperature: 300 °C
   (f) Temperature zones: 2
   (g) Volume: 5.5 cm^3
   (h) Hardness barrel: min 55 HRC
   (i) Bypass control: manual
   (j) Feeding: manual
   (k) Outlet: square
   (l) Delivery content: PC control software, Manual feeding system, 1 set of co-rotating screws and tools for handling and cleaning, set of rod dies (0.5, 1.0, 1.5- and 2.0mm diameter), adapter for collection of melt from micro compounder Injection

moulding machine to produce test specimen with a minimum amount of sample material (3.5 g).

2. The manufacturing process must be completely numerically controlled with at least ten different sets of parameters to be stored in the machine. A variety of different mould geometries are available. Machine to be suitable to produce specimen with maximum 150 mm length (ISO 527 Tensile bar).

   Technical data:

   (a) Max. melt temperature: 450 °C
   (b) Max. mold temperature: 250 °C
   (c) Max. Injection pressure: 1100 bar
   (d) Dimensions: 30x46x71 cm
   (e) Weight: 60 kg
   (f) Electrical power: 230/110 V, ±10%, 3.15 A, 50/60 Hz

3. Tensile bar ISO527-2-1BA mould
4. Mould for bar 80x10x4 mm Izod ISO180, Charpy ISO179-1