

TECHNICAL SPECIFICATION

- Microprocessor Temp Control
- Dual Zone Heating
- Temperature Accurate to +/- 0.1°C
- Temperature Range 0 to 400°C
- Temperature Resolution +/- 0.01°C
- Digital Encoder Accurate to +/- 0.02mm
- Multi slicing feature for accurate flow curve analysis
- Intuitive Menu Prompts
- Test Die, Piston & 2.16kg Test Weight supplied as standard
- Filling and cleaning tools included as standard
- Conforms to ASTM D1238, ASTM D3364, ISO 1133, DIN 53735 and others
- Electrical characteristics: 110v@60hz and 220v@50hz – fuse rating: 10amp
- **Techni-Test** software included as standard

TESTING FEATURES

MFI:

- Operator list
- Material reference list
- Batch ref with data input
- Variable test temp input
- Variable test weight input
- Variable pre-heat input
- Material density data input
- Variable test distance
- Multi slicing feature
- High and low limit parameter setting

DENSITY:

- Operator list
- Material reference list
- Batch ref with data input
- Variable test temp input
- Variable test weight input
- Variable pre-heat input
- Variable test distance
- Numeric input of material weight in grams
- Automatic calculation of Density at test temperature

OPTIONAL ANCILLARIES:

- Weight Loader Option
- Full Range of Test Weights Available from 1Kg to 21.6Kg

WEIGHTS & DIMENSIONS:: MODEL 6MPCA

Net Weight (kg)	42	Please note that shipping weights will increase if heavy test weights are included. For a complete set of test weights add approximately 30 kg to the weight.
Width (cm)	57	
Depth (cm)	58	
Height (cm)	70	

Model 6 Advanced Microprocessor Controlled Melt Flow System with **Techni-Test** software

MODEL 6MPCA

The **6MPCA** is the most advanced model offered within the Ray-Ran Range of Melt Flow Indexers. The operating procedure is very simple to undertake using its on board advanced microprocessor technology. The large liquid crystal display (LCD) provides simple on screen instructions reducing user error and the test parameters are easily entered via the alpha numeric membrane keypad. The apparatus can accurately determine results for **MFR**, **MVR** and **Density** at test temperature.

To conduct a test molten polymer is extruded through a closely controlled orifice (die) from the apparatus using user set test parameters of temperature and pressure produced by a dead weight system. Rotary encoder technology accurately determines piston displacement as the polymer is extruded and automatically starts the test when the piston is in the critical zone for testing.

Simple parameters are entered such as user names, material reference numbers and batch numbers which are stored in lists for future recall and results presentation. Other parameters which are user defined are multi slicing and hi – lo limits. The multi slicing feature of the 6MPCA makes flow curve analysis instantly recognizable when the results are downloaded to the supplied **Techni-Test Software**. The operator inputs data for the amount of slices to be made during the setup process and the microprocessor accurately records the MFR result at



each slice during the test. For quality control purposes the 6MPCA microprocessor can be set with High and Low limits which are clearly defined when the results are downloaded to a PC showing the user instantly if the material is a pass or fail.

If a materials density at test temperature is not known then a simple density test can be conducted by extruding molten polymer over a selected test distance, weighing the cut off and inputting the weight into the microprocessor. The density

result will be automatically calculated and stored for you to conduct your MFI test. After each test has been conducted the results are displayed on the LCD giving the MFI (g/10mins), Shear Stress (Pa), Shear Rate (1/sec), Viscosity (Pa/sec) and the Melt Volume Rate (cc/10min) which can then be downloaded via the on board RS232 connector or the Ethernet connection to Ray-Ran's dedicated **Techni-Test Software** where results are displayed in graphical and tabular form. CSV files of the results can also be saved which can be exported into other user programs for generating test reports. The apparatus can also be supplied with an optional thermal printer for easy results printout if the machine is not connected to a network or PC.

The 6MPCA Melt Flow System is supplied as standard with a replaceable hardened steel cylinder liner, standard test die and piston along with 2.16 kg test load and cleaning ancillaries. The apparatus has dual Zone heating technology to keep the maximum allowable temperature variation along the length of the cylinder liner in accordance with the International test standard ISO1133

Optional weights can be supplied to cover all testing parameters to International Test standards and for the heavier weights the optional weight loader can fitted to the apparatus for ease in loading the piston. The weight loader can also be used as a hold back feature for materials which have a high flow rate. All documentation is supplied including **Techni-Test Software**, a product user manual and a fully traceable calibration certificate.

ENTER THE WORLD OF TECHNI-TEST

Techni-Test is an easy to use software package supplied with the 6MPCA which allows the operator to monitor all aspects of the Melt Flow System during the test procedure.

To ensure reliable data analysis and results presentation test results are downloaded in graphical and tabular format. Each tabular result displays Extrusion Time, MFI, MVR, Shear Rate, Viscosity and Apparent IV (Intrinsic Viscosity) which is automatically calculated by the **Techni-Test** Software without the need for specialised equipment. Batch statistics such as Mean and Co-efficient of Variation (COV) are also displayed and are updated after each test result is downloaded. Test reports can be printed from the main screen when each test has been completed.

From the graph each multi-slice point is clearly identified giving accurate flow curve analysis of the material under test and by placing the cursor over each point the MFI value can be read on the screen. For Internal Quality Control Procedures at a glance, high and low limits are clearly displayed on the graph showing instantly if the material is a pass or fail. Multiple tests are clearly visible on the graph for results comparison within the batch and are highlighted in different colours for viewing.



In Test Results Viewer mode, users have the ability to upload saved results from previous tests for Material Comparison, Data Manipulation or File Export. Abnormal results caused by air pockets within the molten material for example are clearly identified and can be removed from the test data bringing the batch statistics into a normal range ensuring that the test procedure does not have to be repeated saving time and material. Exporting the results file in Viewer Mode is simple. The Export file format is .CSV and can be opened with Microsoft Excel.

