



Melt Flow Tester Model MP1200



Manual Model

Tinius Olsen is proud to introduce the latest addition to its polymer testing line, the MP1200 Melt Flow Tester/Extrusion Plastometer. The MP1200 features the latest in melt flow measurement technology and allows operators to quickly and easily set up and perform melt flow tests: according to ASTM D1238, ISO 1133-1 & 2, and other international and industrial specifications.

The MP1200 is available in two distinct versions, a manual version (model MP1200), and a motorized version (model MP1200M). The manual MP1200 comes with everything you need (except weights and laboratory balance) to perform an ASTM D1238 Procedure A (manual cut) gravimetric melt flow rate (MFR). Test loads are applied manually. The MP1200 can be upgraded with optional features, including ISO 1133 tools and an encoder-based programmable piston displacement transducer (or PPDT for short), for testing according to Procedures B & C (ASTM D1238) or for volume measurement tests (melt volume rate or MVR) and melt density calculations. Also available as options are Tinius Olsen's manual and automatic specimen cutting tool attachments, which can be used with some materials to reduce the human involvement with the machine during the test and increase accuracy and repeatability of test results.

The MP1200M is equipped with a motorized weight lifting and lowering device (WLD) that further automates the testing procedure. The WLD safely and automatically applies test weights to the piston at a user selected time interval during the test. It is also available with the PPDT and cutter options, as well as the Flow Rate Ratio (FRR) attachment for ASTM D1238 Procedure D for polyethylene and the Purge and Purge/Clean options.

Both versions feature a newly

redesigned furnace that now uses a three-zone band heater for unsurpassed temperature control ($\pm 0.1^{\circ}\text{C}$ from set point) along the entire testing area of the bore, meeting the new requirements specified in ISO 1133-2. The furnace also features a quick action die release for easy removal of the die for cleaning after a test.

The MP1200 features a user-friendly color touch-screen LCD display. Operators can configure the options available for the machine and program user settings (language, units, alarms, etc.). Individual test protocols can be set and stored for rapid recall when needed. When programming tests, operators have the option of selecting which sample identifiers they wish to use from a preloaded list or they can make their own identifier. They can also select which test results they wish to report. Test results are displayed automatically at the end of the test and can be saved or printed out to a printer connected to the MP1200's USB port.

For more sophisticated data collection, the MP1200 works with Tinius Olsen's Horizon software. Horizon can store an unlimited amount of test settings and test results for recall when desired. The operator can also generate test reports and SPC control charts.

Key Features:

- **Three-zone band heater**
- **Touch-screen control**
- **Quick die release**
- **Powerful data analysis and control software**
- **USB connectivity**
- **Tapered weight design**



Fig. 1. Manual MP1200 configured for Method A testing.

Fig. 2. "Home" screen for Manual MP1200.



Fig. 3. Program selection screen.

Motorized Model

Common Specifications

System

Conformance	ASTM D1238 and D3364, ISO 1133-1 and -2, BS2782, DIN 53735, JIS K7210
Operating Temperature	450 °C max
Temperature Control	+/- 0.1 °C
Spatial Temperature Variation	+/- 0.1 °C
Temperature Controller	Three zone PID
Temperature Sensors	Platinum RTDs (3)
Timer Accuracy	0.001 second
Display	7.1" LCD touch-screen, 800x480 resolution
Data Entry	Touch-screen display
Communications Port	USB
Weights	Stainless steel or Aluminum, +/- 0.5% tolerance

PPDT-1200 Actuating Switch

Transducer Accuracy	+/-0.025 mm (+/- 0.001 in)
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MWLD-1200 Motorized Weight Support

Transducer Accuracy	+/- 0.1 mm (+/- 0.01 in)
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Physical

Overall Dimensions	458 mm (18 in) wide x 394 mm (15.5 in) deep x 521 mm (20.5 in) high for basic unit or 762 mm (30 in) for motorized unit (to top of weight cage, platform lowered)
Net Weight	21 kg (46 lb) for basic unit or 32 kg (71 lb) for motorized unit, not including weights or options
Gross Weight	32 kg (70 lb) for basic unit or 43 kg (95 lb) for motorized unit, not including weights or options
Electrical	115 or 230 VAC +/- 10% (must be specified at time of order), 50/60 Hz single phase, 500W average
CE Mark	Conforms to all applicable European CE directives

Specifications subject to change without notice.



Fig. 4. Model MP1200M (motorized) shown with Programmable Piston Displacement Transducer and Automatic Cutter.

Fig. 5. "Home" screen for MP1200M (motorized).



Fig. 6. Program creation screen for automatic time flow and time basis tests.



Fig. 7. Test result screen.

Optional Accessories

FLOW RATE RATIO

Adding this Flow Rate Ratio attachment allows you to determine flow rate using two or three different test loads on one charge of material.



CUT OFF TOOLS

Two types of cut off tool are available – a manual cut off or a motorized cut off. The manual cut off (above left) features a crank that the operator rotates when prompted; the motorized cut off (above right) will automatically cut the extrudate at user preset intervals.



PNEUMATIC CLEAN AND PURGE

Available as either a purge-only accessory or a purge-and-cleaning accessory, these pneumatically operated pistons are used in conjunction with the motorized weight lowering platform for more automated operation of the MP1200M.

Software

Tinius Olsen has built upon its long history of providing solutions to an enormous variety of testing problems to develop Horizon, a comprehensive software program that makes testing simple, precise, and efficient. Whether the test sample is metal, paper, composite, polymer, rubber, textile, or a micro component, Tinius Olsen's

Horizon software goes far beyond data collection and presentation. It will help you automate your operations, from R&D to the charting and analysis of QC testing.

Horizon provides a library of standard, specific, and application-focused test routines that have been developed in close cooperation with our customers around the world and to the standards they are using.

Among the many valuable features

offered by Horizon are: a test routine library; simultaneous multiple machine control; test, output, method, and result editors; and multilayered security. This software is designed for data acquisition, data analysis, and closed loop control of nearly all Tinius Olsen testing machines.

Horizon also includes the following:

- Generation of user customized reports
- Standard SPC programs for X-bar, R, and frequency distributions/histograms
- Ability to recall, replot and rescale test curves



- Recall of data that spans different test modules
- User-configurable machine parameter and control settings

- Multilingual capabilities

Horizon is rich with capabilities that improve productivity and enable you to build, access, and use a modern, powerful materials testing database. It employs the latest Windows environments to create an intuitive user experience. Built-in tutorials, on-line help, and help desk access provide additional user support.



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