



Melt Plastometer Model MP600



THE BASIC MP600: For Manual (Procedure A) Testing

- Standard equipment includes all operating tools, piston rod, and orifices.
- Integral microprocessor-based controller/timer incorporates latest digital technology, serial port, non-volatile memory, LED indication, and audio alarms for preheat completion and cutoff intervals.
- Simple user interface combines high visibility, 4-line, vacuum fluorescent display with durable membrane keypad.
- Weights and reference thermometers available for all standard and custom applications.
- Corrosion resistant components available for testing fluoroplastics and fluorocarbons.
- Program storage of up to 25 sets of user programmable test parameters (power-up in last used program).
- Operation to 450°C with control and display to 0.1°C.
- Two-zone PID control of temperature.
- Self-diagnostic error detection.
- Communication port for connecting to computer or printer.

```
AT 230.0 SP 230.0 C
PN 01 PROC A
CI 30.0 s
PRESS ENTER TO CONT
```

```
LOAD SAMPLE ET 41s
PRESS ENTER TO CONT
```

```
AT 230.0 SP 230.0 C
CI 30.0 ET 88 s
START=CUTOFF TIMING
EXIT=WEIGHT ENTRY
```

```
ENTER CUTOFF WT 1
631s
PRESS ENTER TO CONT
```

```
FLOW RATE 1
12.620 g/10
PRESS ENTER TO CONT
PRESS EXIT TO EXIT
```

```
FLOW RATE n=3
AUG 12.633 g/10
PRESS ENTER TO CONT
PRESS EXIT TO EXIT
```



Fig 1. Standard Model MP600 complete with standard accessories. Weights are material dependent and consequently supplied as options.

PPDT-600 AUTOMATIC TIMING SWITCH

For Automatically Timed (Procedure B) Testing

The addition of an automatic timing switch enables the basic MP600 melt indexer to perform Procedure B tests.

- Precision optical encoder enables piston position measurement to better than 0.025 mm (0.001 in.).
- Programmable starting positions and piston travel distances (mm or in.) for up to 10 captures in a single test.
- Calculates and displays Capture Time, Flow Rate (Melt Index), and Volume Rate of each capture.
- Additional display choices include Apparent Shear Stress, Shear Rate, and Viscosity.

- Calculates Melt Density using a cut-off weight and built-in subroutine.
- Automatically selects proper piston travel distance, 6.35 or 25.4 mm (0.25 or 1 in.) for flow rate calculation.
- Real time display of flow rate or volume rate.
- Real time display of piston height.

```
AT 230.0 SP 230.0 C
PN 02 PROC B
RT 300 s
PRESS ENTER TO CONT
```

```
PISTON TRAVEL CAP 1
25.4 mm
PRESS ENTER TO CONT
```

```
START CAPTURE 1
46.00 mm
PRESS ENTER TO CONT
```

```
LOAD SAMPLE ET 20s
PRESS START TO TEST
```

```
AT 230.0 SP 230.0 C
C1 0.00 ET 355 s
F RATE 0.000 g/10
PISTON HT 54.98 mm
```

```
FLOW RATE 1
12.620 g/10
PRESS ENTER TO CONT
PRESS EXIT TO EXIT
```



Fig 2. Standard MP600 with accessories and optional weight and piston displacement transducer.

MWLD-600 MOTORIZED WEIGHT SUPPORT

Lowering and Lifting Device

The combination of an automatic timing switch and motorized weight support/lowering and lifting device equips the MP600 for additional automated tests.

- Automates testing cycle by positioning weight support to a preselected height and applying selected load after preheat interval.



Fig 4. By adding this Flow Rate Ratio Attachment, you can determine flow rate using two or three different test loads on one charge of material.



Fig 3. MP600 motorized weight with lowering and lifting device.

Fig 5. Automatic swing-away platform allows easy cleaning.



Common Specifications

SYSTEM

Conformance: ASTM D1238 and D3364, ISO 1133, BS 2782, DIN 53735, JIS K7210, and other similar methods

Operating Temperature: 450°C maximum

Temperature Control: $\pm 0.1^\circ\text{C}$

Spatial Temperature Variation: $\pm 0.25^\circ\text{C}$ (10 mm/75 mm above orifice)

Temperature Controller: two-zone PID

Temperature Sensors: platinum RTDs (2)

Timer Accuracy: 0.001 second

Display: 4 line x 20 character vacuum fluorescent

Keypad: membrane type

Communications Port: EIA-232/485 for connecting to a computer or printer

Weights: stainless steel, $\pm 0.5\%$ tolerance

PPDT-600 Actuating Switch

Transducer Accuracy: better than ± 0.025 mm (0.001 in.)

MWLD-600 Motorized Weight Support Transducer Positioning Accuracy: ± 0.1 mm (0.01 in.)

PHYSICAL

Overall Dimensions: 51 cm (20 in.) wide x 38 cm (15 in.) deep x 58 cm (24 in.) high for basic unit or 95 cm (38 in.) high for motorized unit

Net Weight: 21 kg (46 lb) for basic unit; 32 kg (71 lb) for motorized unit, not including weights or options

Gross Weight: 32 kg (70 lb) for basic unit; 43 kg (95 lb) for motorized unit, not including weights or options

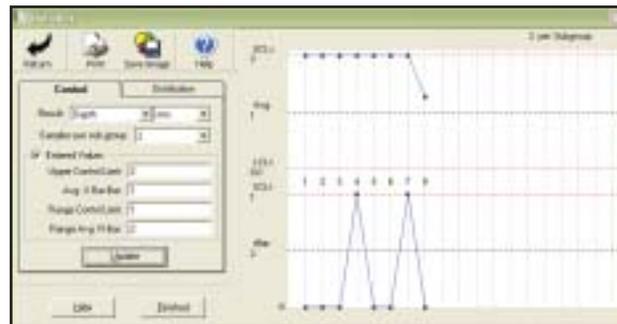
Electrical: 115 or 230 VAC $\pm 10\%$ (specify), 50/60 Hz, single phase, 400/800 VA

CE Marked: conforms to all applicable European CE Directives

EP600 Software

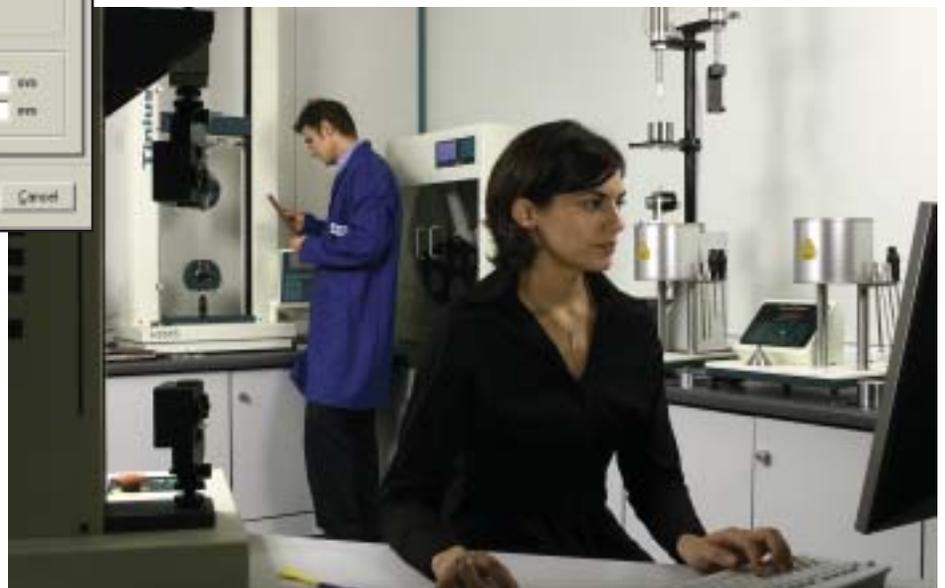
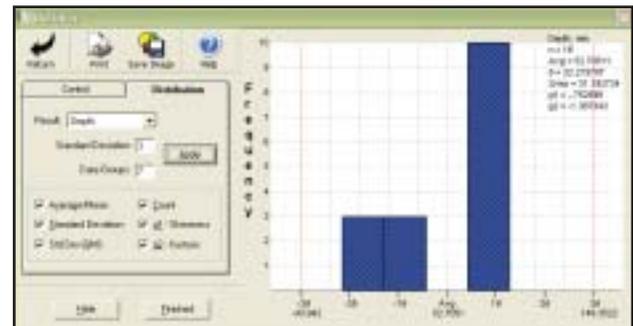
- For easy testing control and data storage using a PC.
- Packages available for control of up to 10 machines from a single PC.
- User-selected reporting and exporting formats.
- Built-in SPC programs for X-bar, R, and frequency distribution chart/histograms.
- Test mode allows configuring, running, and saving of tests and results.
- Recall mode permits viewing of previously saved results and performs database maintenance.
- Demo mode simplifies operator training.
- Two levels of password protection.

Date	Sample ID	Lot	Release	Run	Operator	Trip	Temp	Temp	Temp	Temp	Temp	Temp
2010-01-01	P000001	1000	1000	1	A	1	100	1	1.00	0.10	0.01	0.00
2010-01-01	P000002	1000	1000	1	A	2	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000003	1000	1000	1	A	3	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000004	1000	1000	1	A	4	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000005	1000	1000	1	A	5	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000006	1000	1000	1	A	6	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000007	1000	1000	1	A	7	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000008	1000	1000	1	A	8	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000009	1000	1000	1	A	9	100	1	0.00	0.00	0.00	0.00
2010-01-01	P000010	1000	1000	1	A	10	100	1	0.00	0.00	0.00	0.00



The 'Test Settings' dialog box contains the following fields and options:

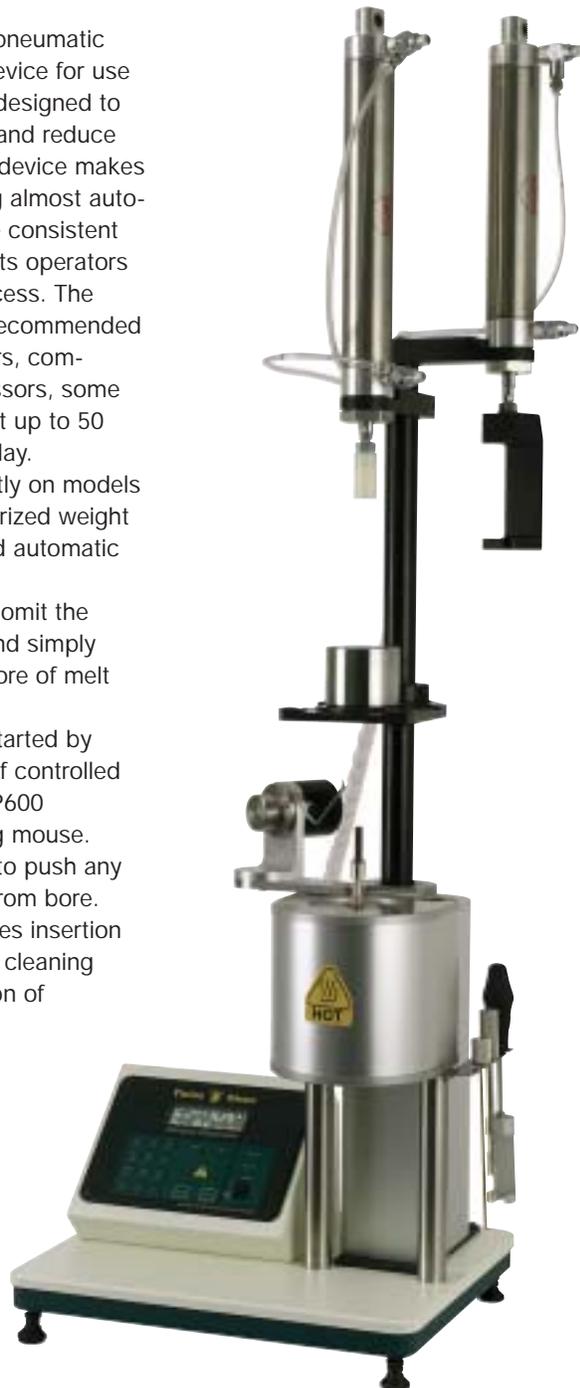
- Test Parameters:**
 - Test Set: FF-001-001
 - Report Name: MFR-Adj1
 - Procedure: [Dropdown]
 - Auto: [1230]
- Test Conditions, Temperature & Time:**
 - Set Temperature: 200 °C
 - Release Time: 300 Seconds
 - MFLD Position: 70 mm
 - Maximum Test Time: 230 Minutes
- Density Calculation Method:**
 - Use Entered Value: 7.385 G/cm³
 - Enter Cubic Weight
 - Do Not Calculate
- Test Options:**
 - Auto Load Lever
 - Ask for Test Approval
- Drill Information:**
 - Drill Diameter: 2.0955 mm
 - Drill Length: 3.0000 mm



Purge System for MP600

Tinius Olsen offers a pneumatic purge and cleaning device for use with the MP600. It is designed to increase productivity and reduce operator fatigue. The device makes MFR and MVR testing almost automatic, produces more consistent test results, and assists operators with the cleaning process. The system is especially recommended for resin manufacturers, compounders, and processors, some of whom may conduct up to 50 melt flow tests each day.

- Works most efficiently on models equipped with motorized weight lowering system and automatic timing switch.
- Allows operators to omit the weighing process and simply pour material into bore of melt flow indexer.
- Permits test to be started by pressing button, or if controlled by Tinius Olsen's EP600 software, by clicking mouse.
- Can be reactivated to push any remaining material from bore.
- Cleaning only requires insertion of cleaning tool and cleaning patch, then activation of cleaning ram.



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