



MELT FLOW
INDEXER
Volumetric
MFI-500/AUTO model

Advanced computerized Plastometer to determine the flow rate (melt index) in thermoplastic materials by means of the volumetric method.

* Automatic test weight application system (motorized)

TECHLABSYSTEMS

Advanced Plastometer to determine the flow rate of thermoplastic materials. The determination of the MFI is essential for the characterization of thermoplastic materials and especially when great reliability, precision and repeatability are required. This tester is also very effective in Quality Control and Research and Development work.

APPLICABLE STANDARDS

ASTM D1238 and ISO 1133 both comply with both methods A (gravimetric) and B (volumetric)

GENERAL INFORMATION

THE MFI-500/AUTO is specifically designed for use in the Quality Control Department as a quick and easy Melt Flow Index Meter for thermoplastic raw materials in accordance with the procedure of **Methods A** (gravimetric) and **B** (volumetric) of the recognized international standards of MFI, ASTM D 1238 and ISO 1133.

PRINCIPLE OF THE MFI TESTS

The flow index measurement is performed by means of a Flow Index Meter, which operates with a constant pressure, exerted by a constant force due to a known weight on a capillary tube whose area remains constant. The ASTM-D1238 standard is commonly used to perform this operation.

The melt flow index (IF) is a measure of the flow capacity of the resin under controlled conditions and can be easily measured with an equipment called a plastometer, using very low deformation rates, a temperature and a dead weight on the piston that depend on the type of thermoplastic raw material to be tested, according to the Standards ASTM D 1238, ISO 1133 **methods A** (gravimetric) and **B** (volumetric) ... This variable is inversely related to viscosity and molecular weight (PM), that is, as the flow rate of the resin, a decrease in viscosity and molecular weight is obtained.

- Kit includes all standard work-cleaning tools, piston and nozzle.
- Standard temperature range up to + 325°C (*) with resolution of $\pm 0.1^\circ\text{C}$
- Piston stroke up to 25 mm with a resolution of ± 0.1 mm
- Digital Stopwatch: with a range of up to 9999 seconds
- Automatic sample cutting
- chrome and polished weights included in the standard supply: 0.15 Kg - 0.875 Kg - 0.96 Kg - 1.64 Kg - 1.2 Kg - 5 Kg & 11.6 Kg

* The weight of 21.6 kg is achieved by combining all the weights + 0.175 kg of piston weight

To calculate the Melt Index in the MFI-500/AUTO model using the Gravimetric method, it is necessary to weigh the extruded material with a resolution of 0.001 g, so we recommend using a precision balance.

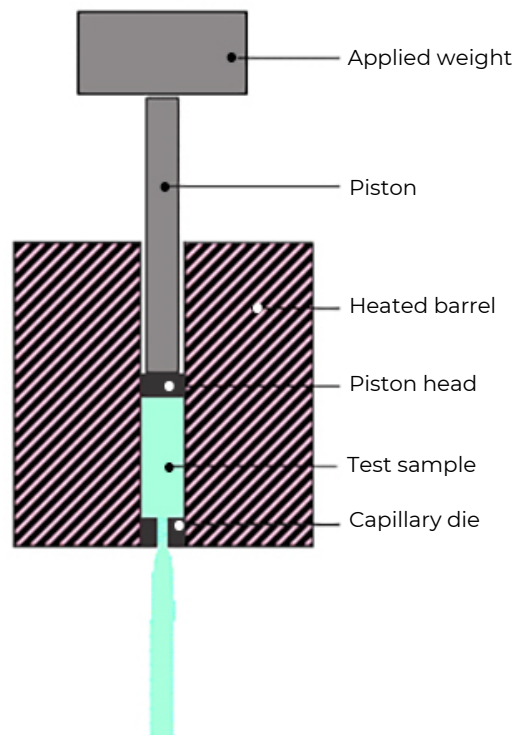


The fluidity index is a basic rheological test that is performed on a polymer to determine its fluidity. It is measured in g/10min. It is defined as the amount of material (measured in grams) that flows through the hole of a capillary die in 10 minutes, maintaining constant pressure and standard temperature.

The melt index consists of taking a quantity of polymer at a known temperature and a given weight through a standardized hole for a certain time, (depending on the standard used, i.e. ASTM)

The fluidity of the polymer is a function of:

- Pressure used (weight of the piston)
- Hole diameter
- Viscosity of the material



This index is of vital importance for those who make injection molding, extrusion, blown molding or any other process that involves the manufacture of a thermoplastic part.

- **VOLUMETRIC and GRAVIMETRIC Methods**
- **Computerized by Fluidity Index Software**
- **(Mini PC included in the supply)**
- **Automatic test weight application system (motorized)**
- **Low Cost - Robust design with great rigidity**
- **Output to PC via RS-232 port with MFI Software**
- **Automatic cutting of samples**
- **Temperature controller (keeping $\pm 0.1^{\circ}\text{C}$)**
- **Equipment prepared to work with corrosive materials such as PVC**



Weights included in the standard supply for direct application on the sample to be tested:

Piston Weight = 0.175 Kg Weight

Weights marked as:

- 1** = 0.15 Kg weight
- 2** = 0.875 Kg weight
- 3** = 0.96 Kg weight
- 4** = 1.64 Kg weight
- 5** = 1.2 Kg weight
- 6** = 5 Kg weight
- 7** = 11.6 Kg weight

PROCESS OF APPLYING WEIGHTS ON THE SAMPLE

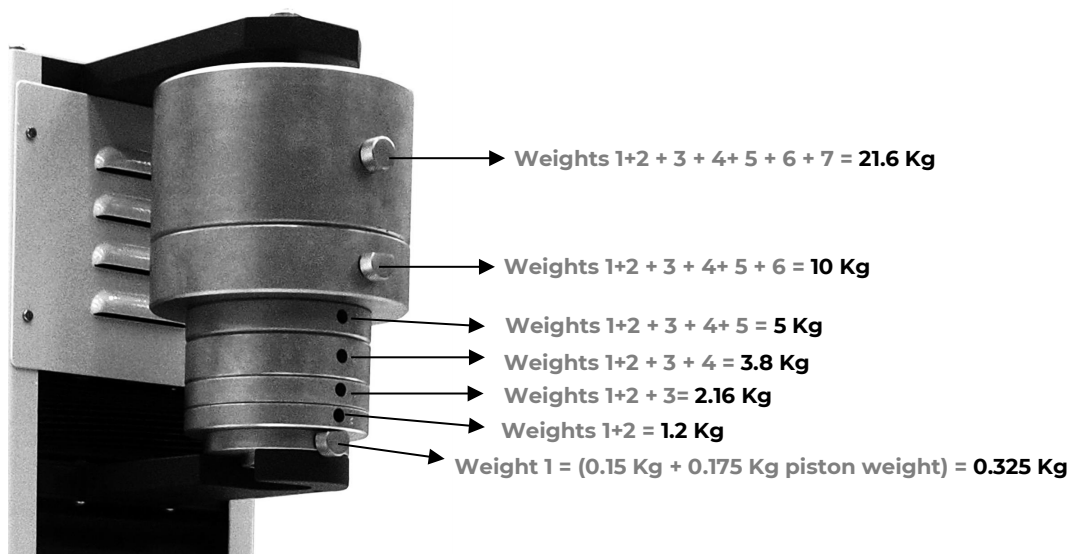
When **weight 1** is selected by placing a pin inside, the total weight applied to the material is **0.325 Kg** (0.175 Kg of piston + 0.15 Kg of weight 1)

When you select **weight 2** by placing the pin inside it, the total weight applied to the material is **1.2 Kg** (0.175 Kg piston + 0.15 Kg weight 1 + 0.875 kg weight 2)

When you select **weight 3** by placing the pin inside it, the total weight applied to the material is **2.16 Kg** (0.175 Kg of piston + 0.15 Kg of weight 1 + 0.875 Kg of weight 2 + 0.96 Kg of weight 3)

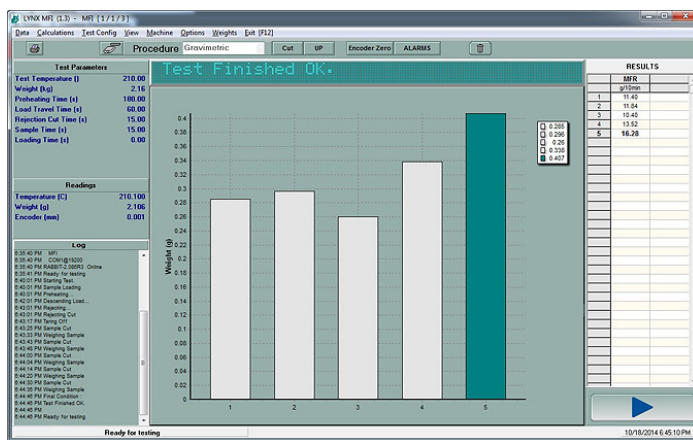
Consequently, the following calculations are made up to the number 7, remaining as follows by putting the pin in the numbers and positions:

- 1** = 0.175 kg piston weight + 0.15 Kg number 1 = **0.325 Kg** total weight applied
- 2** = 0.325 kg total number 1 + 0.875 Kg number 2 = **1.2 Kg** total weight applied
- 3** = 1.2 kg total of number 2 + 0.96 Kg of number 3 = **2.16 Kg** total weight applied
- 4** = 2.16 kg total of number 3 + 1.64 Kg of number 4 = **3.8 Kg** total weight applied
- 5** = 3.8 kg total number 4 + 1.2 Kg number 5 = **5 Kg** total weight applied
- 6** = 5 kg total number 5 + 5 Kg number 6 = **10 Kg** total weight applied
- 7** = 10 kg total of number 6 + 11.6 Kg of number 7 = **21.6 Kg** total weight applied



"MFI" TESTING SOFTWARE
According to ASTM D 1238 and ISO 1133 methods A (Gravimetric) and B (Volumetric).

- Quickness in the execution of tests and in obtaining results
- Without human error
- Traceability according to ISO 9000
- The software records minimum, maximum and median value and standard deviation
- Storage capacity up to 100 tests per report
- **SAVE functions. PRINT AND COPY TO CLIPBOARD - Reports in PDF format**



The Testing Software allows testing and determining the fluidity index of samples in pellets of thermoplastic raw materials and also with corrosive materials such as PVC.

A package with Basic Statistics is included, to be able to carry out data management, choice of language, generation of reports, library for changing test units, different levels of Password, introduction of minimum, maximum and optimal values to manage data with Statistics, Bar charts, GAUSS Bells, Comparison of Tolerances, export data to Word - Excel ..., PDF generation.

ACCESSORIES INCLUDED IN THE STANDARD SUPPLY:



Spatula and pellet feeding **funnel**, Tungsten Carbide Ø 2,095 mm **capillary die**, Capillary die **cleaning tool**, **Piston**, Cylinder **cleaning tool**, **Extrusion tool**, **Plumb line**, **Bubble level** and **Tweezers**.

Set of 7 chrome and polished weights included in the standard supply:

0.15 Kg - 0.875 Kg - 0.96 Kg - 1.64 Kg - 1.2 Kg - 5 Kg & 11.6 Kg



Automatic Cutting System
Included in the standard supply

MELT FLOW INDEXER MFI-500/AUTO model

Model	Application	Temperature Range °C	Temperature Resolution °C	Chronometer Digital S	Dimensions W X D X H / mm	Weight kg	Power Kw
MFI-500/AUTO	Melt Flow Index of Thermoplastics	+ 325	± 0,1	0-9999	580x470x1150	125	1

POWER SUPPLY: 110V / 60Hz or 220V / 50Hz single phase

TRANSPORT PACKAGING DIMENSIONS (1): 800 x 600 x 1300 mm (W X D X H)

TRANSPORT PACKAGING DIMENSIONS (2): 480 x 460 x 380 mm (W X D X H)

GROSS WEIGHT: 165 Kg (Wood packaging with phytosanitary treatment)

STANDARD SUPPLY CONTENT:

- * Flow Rate Meter model MFI-500/AUTO + Mini PC + MFI Software
- * Management Module with Basic Statistics Pack:
Bar Charts - Gaussian Bells and Reference Comparison
- * Cleaning and working tool kit
- * Piston + Standard 2.095 mm Ø Tungsten Carbide Die
- * Set of 7 Weights (0.15 Kg - 0.875 Kg - 0.96 Kg - 1.64 Kg - 1.2 Kg - 5 Kg & 11.6 kg)