

# MFi Series

The New Generation of Melt Flow Testers





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## MFi Series

The New Generation of Melt Flow Testers





For over **75 YEARS** the Instron® brand has been widely recognized for producing some of the most advanced mechanical testing systems in the world. Our systems are designed by industry experts, vetted by active members of major standards organizations, and supported by a global network of skilled and experienced service technicians. This comprehensive approach allows us to back each Instron system with an unmatched level of industry and application expertise designed to support it throughout its lifetime.



**1500+ employees**  
A highly-educated, experienced, and diverse workforce



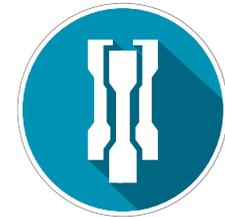
Representing **160 countries**, speaking **40+ languages**



**50,000+ systems** installed worldwide



**75+ years** of engineering and manufacturing testing systems



**Diverse product range** for nearly all global markets and industries



# MEETING YOUR TESTING NEEDS

MFi Series

Selecting the appropriate Melt Flow Tester for your applications is of considerable importance whether you are checking the consistency of incoming material lots, performing a quick Quality Check on products by checking flow properties of materials being used in manufacturing process, comparing flow values per standard industrial procedures as part of product development, or selecting new materials or formulations to optimize an existing process.

## **PROCEDURE A (ISO 1133-1/-2\*, ASTM D1238)**

Widely used for basic quality control, this is a mass-measurement method where the operator must weigh portions of the extruded material cut at precise time intervals. The Melt Mass-Flow Rate (MFR) result is directly obtained by dividing the Extrudate Mass by the corresponding Extrusion Time. Standards recommend that this procedure be limited to MFR ranging from 0.15 – 50 g/10 min.

## **PROCEDURE B (ISO 1133-1/-2\*, ASTM D1238)**

As the most common procedure for Melt Flow tests, this is a volume-measurement method where the instrument uses a piston displacement transducer (encoder) and a synchronized timing device to perform a semi-automatic test. The instrument calculates the Melt Volume-Flow Rate (MVR) and multiplies this by the melt density giving an MFR value. The melt density value can be either known in advance or calculated by the instrument using the value of extrudate mass.

## **PROCEDURE C (ASTM D1238)**

This is a modification to Procedure B and applies to fast-flowing materials (e.g. MFR of 50 g/10 min or greater). It requires a different die geometry (“Half Die”) and a Die Plugging Device to avoid excessive leakage of the material before beginning measurements. The use of Half Die is also foreseen by ISO as an option within Procedures A and B.





# SOLUTIONS FOR ALL OF YOUR TESTING NEEDS

Discover the New Generation of Melt Flow Index Testers

Ideal for performing tests according to ISO 1133 and ASTM D1238 Procedures A, B, and C.

The MFi Series provide exceptional performance with unparalleled accuracy and reliability. Offering up to 450 °C temperature and piston displacement accuracy down to 0.02 mm, our new generation of melt flow index testers offers ultimate flexibility for any testing need.

Equipped with a capacitive 7" color touch screen user interface, easy cleaning system, automatic material compacting and purging, it maximizes lab efficiency while minimizing costly errors.





# AVAILABLE MODELS

## MFi Series

### MFi5

The MFi5 is a compact instrument that allows rapid inspection of the melt mass flow rate of plastics to Method A, Method B and Method C. It is especially designed for different needs, from simple Incoming Material Acceptance to Process Control checks. The manually operated MFi5 tests plastics quickly and reliably thanks to the pre-set methods.

#### Included:

- Piston Travel Transducer

#### Options:

- Automatic Die Plug Opening
- Automatic Cutter
- Light piston for high flow materials
- Corrosion and wear resistant material for barrel, piston, and dies
- UL/CSA version
- Bluehill® Melt Software



### MFi7

The MFi7 is a modular instrument designed to accommodate an increasing volume of testing. Created to improve repeatability and reduce the introduction of operator error, the MFi7 offers a high level of flexibility, accuracy and shorter test cycle times due to automatic material compaction, purging and cleaning.

#### Included:

- Piston Travel Transducer
- Motorized Weights Lifter
- Emergency Stop button

#### Options:

- Automatic Die Plug opening
- Automatic Cutter
- Light piston for high flow materials
- Zero Gravity piston
- Additional Safety Shields
- Unit for automatic compacting and purging
- Manual Test Masses Selector
- Corrosion and wear resistant material for barrel, piston, and dies
- UL/CSA version
- Bluehill® Melt Software





# SAFE AND EFFORTLESS MASSES HANDLING

Guarantee safe and effortless maneuver for your operators



## Manual Mass Selector

Choose the manual mass selector to get safer and simplified testing maneuvers. Our solution relies on a patented positioning sensor supports the operator avoiding wrong masses selection and costly errors.



## Lifter

Motorized lifter for automatic and accurate test mass application. Having the lifter reduces the interaction of the operator with the masses helping to ensure that these are applied consistently from test to test & operator to operator.



## Test Masses

Apply single test masses according to your testing needs. Our full set of weights is designed to satisfy all existing standards.



## Safety Shield

Prevents accidental access by the operator to the machine test areas to avoid hazards and enhancing safety, in multi-access laboratories.





# HIGH PERFORMANCE SOLUTIONS

Designed for Quicker Tests and Easy Cleaning



## High-Flow Solutions

Along with the standard 325 g piston and die plug our zero gravity and light pistons assist in testing of high flow materials. Different plug tips provide stability and allow the device to work with materials having very high MFR (1600g/10min and up).



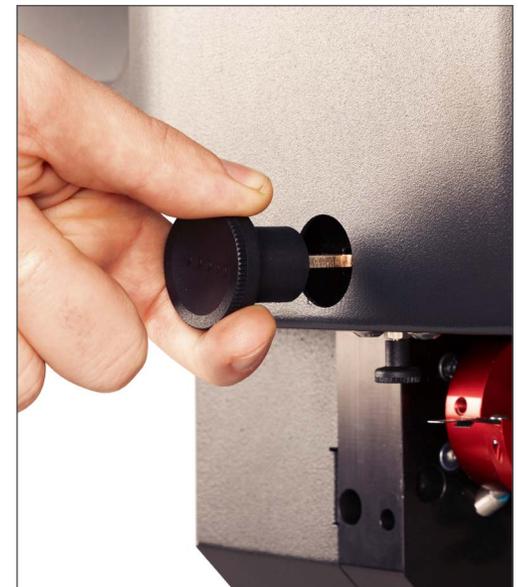
## Melt Cutter

Use the motorized cutter to make concise, repeatable cuts of the extrudate based on time or position to get accurate, reproducible test results. The cutting time is repeatable within 0.01 s.



## Removable Die Retainer

Clean up is quick and easy with the die retaining system. One quick pull and the die is released for cleaning of both the die and the surrounding area so testing can be resumed rapidly.





# USER FRIENDLY INTERFACE

MFi Series



## Safe Working Area

The position of the control panel prevents sample debris from damaging it while increasing the width of the test area for safer operations.



## Smart User Interface

Quickly and easily create a test method with just three inputs using our patented solution. Configure user permissions for safer and error-free test methods. See real time graphs (MFR/MVR vs. individual measurements) and test results.



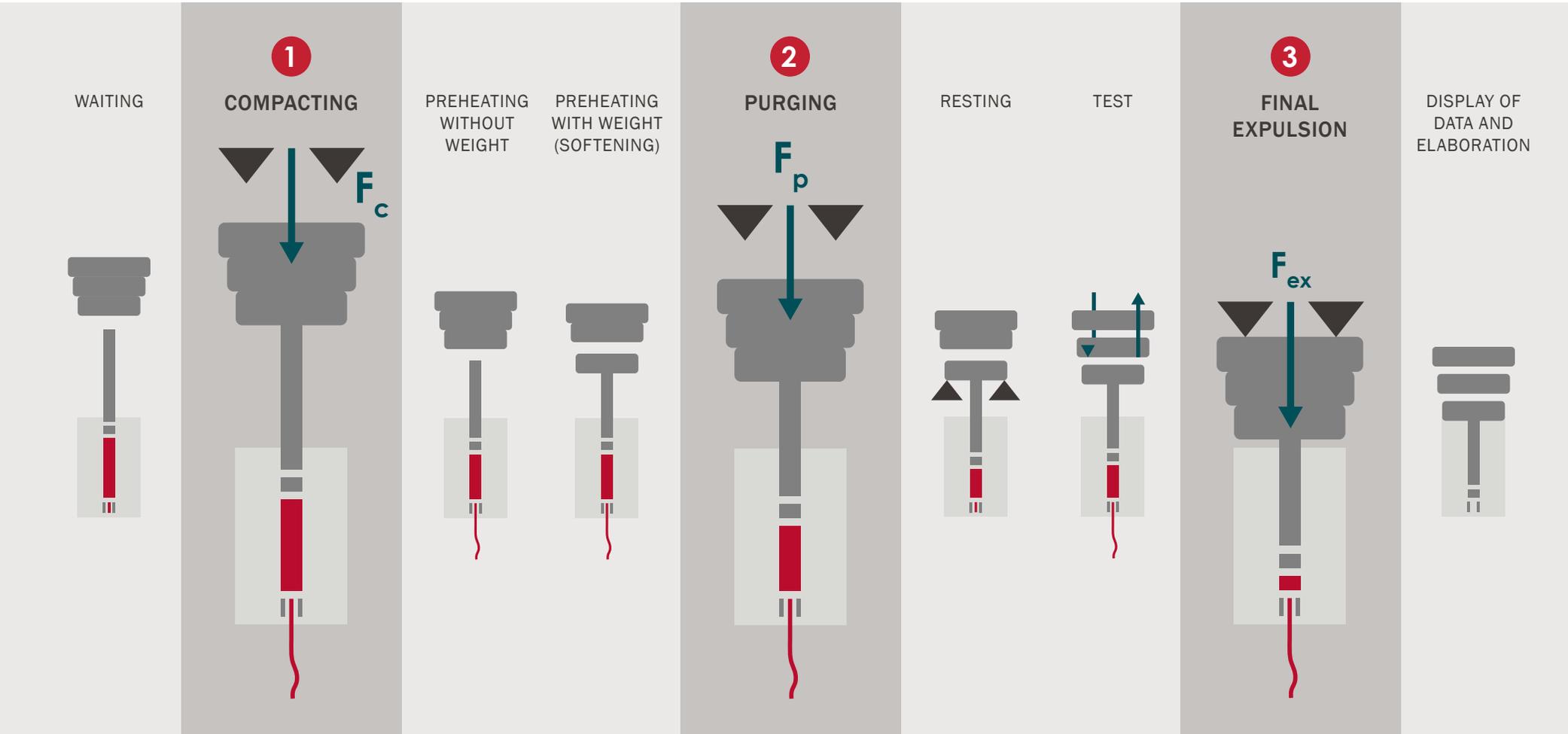
## Live Help

Whether you are an experienced user or a new operator, assistance is always available with Live Help. This function has been designed to reduce the number of trainings required for new operators, as well as avoiding costly errors during testing by providing Help on each screen at any time.



# AUTOMATIC MATERIAL COMPACTING AND PURGING

Get more accurate and repeatable test results with our system for material compacting and purging



## 1 Compacting

The unit compacts the material under test with a constant pressure, allowing higher levels of accuracy and repeatability

## 2 Purging

The material is expelled to reach a suitable condition to start tests

## 3 Final Expulsion

Facilitate cleaning operations by avoiding material stuck in the barrel

Rely on the load cell for controlled material compaction before the test and effortless, quick purging of materials left in the barrel once the test has finished.



### SAVE TIME AND EFFORT

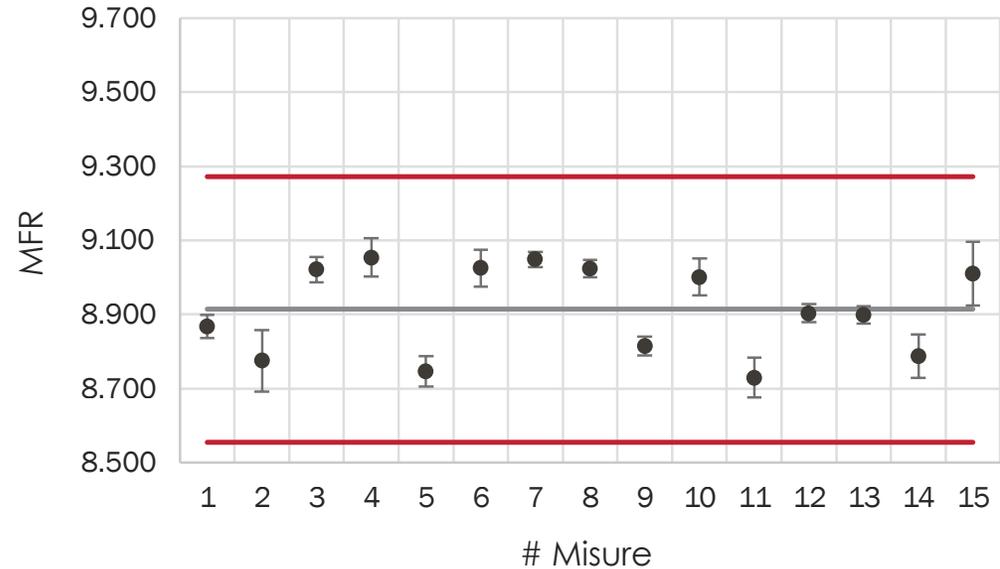
Having the load cell control the compacting and purging phases can increase lab throughput and consistency in test results. At the end of each test, avoid time consuming cleaning operations.



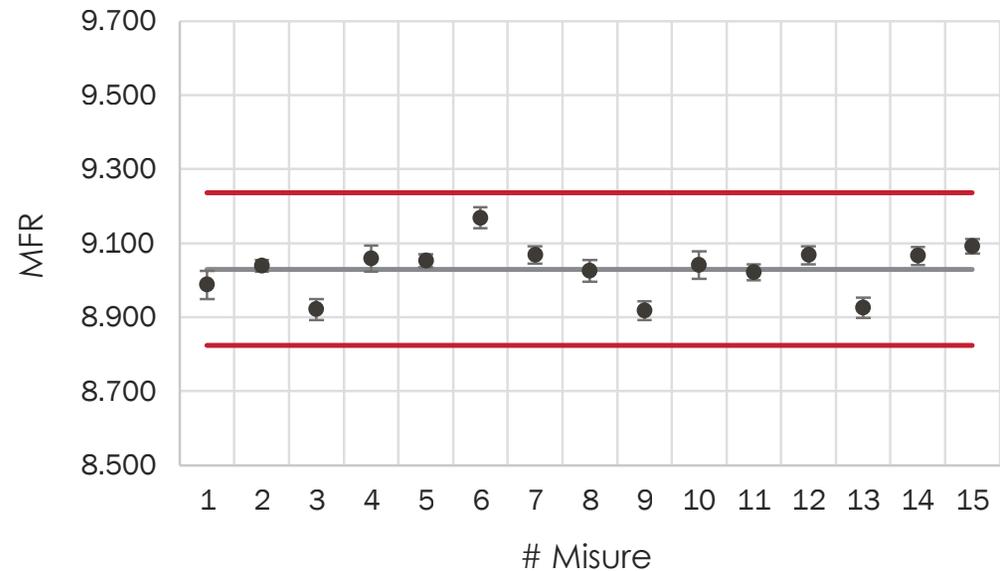
### REPEATABLE

Avoiding operator inconsistencies during the compacting phase provides test results that are more accurate and repeatable. Standard deviations are improved by 50%.

### Without Load Cell



### With Load Cell





# BLUEHILL<sup>®</sup> MELT SOFTWARE

MFi Series

The MFi Series is powered by Instron's Bluehill Melt Software. Equipped with easy-to-understand icons and workflows, Bluehill Melt makes it simple to train users and set up tests, helping you maximize lab efficiency while minimizing costly errors.



Send test methods to 1 or more testers



Manage multiple Melt Flow units through a wired network



Automatically generate reports with configurable naming conventions



Create customizable reports (pdf) and export files (csv)



Includes Remote Tech Support





# QUICK AND EASY

Efficient from the first steps



## Just in Time

Intelligent inventory management and efficient production flows ensure 50% faster delivery of your melt flow tester.



## Interactive Configurator

Create your own melt flow tester at any time with the interactive and easy-to-use web-based configurator.



## Easy Self Installation

Maintain business continuity: you can get your Melt Flow Tester installed and running with directed self installation videos.



# SUPPORT FOR THE LIFE OF YOUR EQUIPMENT

Protecting Your Investment



## Calibration

Our state-of-the-art Calibration Laboratory offers a comprehensive range of accredited calibration and verification services complying with ASTM, ISO and Nadcap standards for force, speed, strain (extensometers), displacement, impact, temperature, torque, creep, strain gauge channel, and alignment.



## On-Site Services

When on-site assistance is needed, our team of 300+ global service engineers can help get you back up and running. Our factory-trained technicians are located all around the world and speak 40+ languages to help solve problems no matter where they occur.



## Instron Connect

Instron Connect includes a number of technologies that allow you to connect with our technical support teams. These problem-solving tools harness innovative technology to rapidly troubleshoot issues, answer your technical questions and obtain information fast, increasing productivity, reducing risk and minimizing downtime.



## InSkill AI Mobile App

Minimize your downtime and obtain information for your Instron system, with InSkill App. You can troubleshoot your system's issues with our AI-driven support tool, submit support requests and view your system's calibration certificates and service history. All of this 24/7, no matter where you are.



# SPECIFICATIONS

## MFi Series



**MFi5**



**MFi7**

Type of Test	Methods A, B, C	Methods A, B, C
Test Temperature Range	50°C – 450°C	50°C – 450°C
Piston Travel Transducer	✓	✓
PTT resolution	<0.005 mm	<0.005 mm
Test Mass Range	0.100 kg, 0.325 kg, 0.500 kg, 1.000 kg, 1.050 kg, 1.200 kg, 2.160 kg, 3.800 kg, 5.000 kg, 6.480 kg, 10.000 kg, 12.500 kg, 15.000 kg, 20.000 kg, 21.600 kg	0.100 kg, 0.325 kg, 0.500 kg, 1.000 kg, 1.050 kg, 1.200 kg, 2.160 kg, 3.800 kg, 5.000 kg, 6.480 kg, 10.000 kg, 12.500 kg, 15.000 kg, 20.000 kg, 21.600 kg
Test Masses Motorized Lifter	-	✓
Automatic Compacting and Purging	-	Optional
Motorized Melt Cutter	Optional	Optional
Test Masses Manual Selector	-	Optional
Die Plug Automatic Opening	Optional	Optional
Temperature Accuracy	<0.3°C	<0.3°C
Barrel Type	STANDARD: Nitrided Steel with Superior Wear Resistance	STANDARD: Nitrided Steel with Superior Wear Resistance
	OPTIONAL: Special stainless-steel for corrosive materials	OPTIONAL: Special stainless-steel for corrosive materials
Temperature Resolution	<0.05°C	<0.05°C
User Interface	7" Capacitive touch display	7" Capacitive touch display
Other Facilities Required to Operate Basic Machine and Options	Only Electrical supply	Only Electrical supply
Additional Safety Shields	-	Optional
Bluehill Melt Software	Optional	Optional
Export Interfaces	USB, LAN for Bluehill Melt Software	USB, LAN for Bluehill Melt Software
Basic Machine Dimensions (w × d × h)	510 x 370 x 600 mm	510 x 370 x 850 mm
Machine Dimensions with Options (w × d × h)	510 x 370 x 700 mm	775 x 440 x 1200 mm
Basic Machine Mass	60 kg	70 kg
Power Supply	660 W	780 W
Electrical Supply Only	115 or 230 115 V Hz 50/60	115 or 230 115 V Hz 50/60



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## THE WORLD STANDARD

We stake our reputation on the integrity of data. From the measurement of primary test data to result generation, we design and manufacture the full data integrity chain (e.g. load cells, sensor conditioning, and software). Additionally, we calibrate more than 90,000 of these sensors annually with the lowest accumulated uncertainty.

**30,000+**

We service and calibrate more than 30,000 Instron systems in active use worldwide every year.

**96%**

96% of the Fortune 100 list of the world's largest manufacturing companies use Instron test systems.

**18,000+**

Instron systems have been cited in more than 18,000 patents since 1975.

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