KARG Industrietechnik

TECHNICAL INFORMATION

MeltFloW Series

Melt-Index Tester Type MeltFloW

The new generation - user friendly, ergonomical and modular

The State of the Art!

The melt index tester series MeltFloW in semi- or fully automatic version are designed as modular instruments for any application. Whether in the control lab of incoming material, monitoring of the production run or in the research and development of polymer materials as well as for education purposes. This melt-index tester series - the best choice for almost every use.

The Melt-Index Tester type MeltFloW *basic* is designed to determine the MFR in g/10 min. according DIN EN ISO 1133, ASTM D 1238 and BS 2782 Methode A and other similar standards.

Features:

- Robust and stable model (masses upto 21,6 kg)
- Up-to-date, modern and ergonomic design
- Precise and longtime constant temperature controlling
- Temperature range upto 400°C (optional 450°C)
- Fixed mounting cutting device
- Microprocessor controlled PID temperature regulator
- Different useful accessories available
- Inert gas overlay (optional)

MeltFloW *basic*

The Melt-Index Tester type MeltFloW *basic* plus is designed to determine the MFR in g/10 min. according DIN EN ISO 1133, ASTM D 1238 and BS 2782 Methode A and other similar standards.

Features:

- **Instrument incl. automatic cutting device and timer**
- Robust and stable model (masses upto 21,6 kg)
- Up-to-date, modern and ergonomic design
- Precise and longtime constant temperature controlling
- Temperature range upto 400°C (optional 450°C)
- Fixed mounting cutting device
- Microprocessor controlled PID temperature regulator
- Different useful accessories available
- Inert gas overlay (optional)

MeltFloW *basic* plus

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MeltFloW Series

The Melt-Index Tester type MeltFloW *@on* is designed to determine the MFR in g/10 min., the MVR in ccm/10 min. according DIN EN ISO 1133, ASTM D 1238 and BS 2782 Methode A and B and other similar standards.

Features:

- modular Melt Index Tester - easy upgradeable at any time (e. g. motorized lifting device, automatic cutting device)
- Linear, high precision piston travel transducer (50 data points)
- User friedly and “all-included” Windows software k-BASE, used for the instrument control with test evaluation, reference-, statistic- and filtering functions
- Different useful accessories (e. g. nozzle plugging device, pneumatic cleaning device, etc.) optionally available
- Inert gas overly available (optional)

MeltFloW *@on*

The Melt-Index Tester type MeltFloW *@on* plus is designed to determine the MFR in g/10 min., the MVR in ccm/10 min. according DIN EN ISO 1133, ASTM D 1238 and BS 2782 Methode A and B and other similar standards.

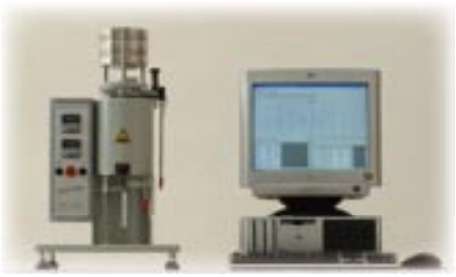
Features:

- **Instrument incl.:**
  → automatic cutting device
  → motorized lifting device
  → integrated weight magazin for loads from 325 gr. upto 21,6 kg
  → Moveable platform for easy cleaning
  → k-BASE software

- **Further options, as:**
  → Nozzle plugging device,
  → Inert gas overlay system, or
  → Corrosion resistant version

  are available (optional)

MeltFloW *@on* plus



MeltFloW *@on* incl. PC and k-BASE

Standards

- **DIN EN ISO 1133:**
  Plastics - Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics (ISO 1133:2005)
- **ASTM D 1238:**
  Standard Test Method for Melt Flow Rates of Thermoplastics by Extrusion Plastometer
- **BS 2782**

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Testing method:

The melt index test is a technological measurement method for the rapid and qualitative determination of the flow characteristics of thermoplastic resins. This test method is used for the inspection of the incoming material as well as for the monitoring of the running production. With the help of this method, the thermoplastic resins can be classified in relation to their processability by commodity producers.
A melt index tester is a device to check in a simple and fast way the flow characteristics, e. g. the so-called Melt Mass Flow Rate and the Melt Volume Flow Rate of thermoplastic materials (granules, powder or grinding) in the molten state in accordance with ASTM D-1238 method A and B and DIN EN ISO 1133 Method A and B. In addition to the above mentioned standards, the procedure is descibed as well in the following additional standards:

AFNOR NF T 51-016
BS 2782 method 720A
UNI 5640 7210

The MFR value (Melt Mass Flow Rate) according method A is calculated by using an analytical precision balance in g/10 min). According to method B, the piston travel (stroke) is measured by a built in transducer and will be used to calculate the MVR (Melt Volume Flow Rate) value in ccm/10 min. This value was introduced to eliminate the influence of the melt density at the respective test temperature. Both values define the quantity of a molten polymer, which flow through a nozzle with a certain dimension at a predefined pressure (load) and temperature. These values are determined by experimental tests.
The MFR value can be achieved by an automatic measurement, if the density of the molten polymer is known.

Basically, the two values must not be used as absolute viscosity values, but they characterize the flow under standardized test conditions and facilitate the quality control.

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TECHNICAL INFORMATION

Configuration:

MeltFloW *basic*
Code 3100.000

MeltFloW *basic* plus
Code 3150.000

MeltFloW *@on*
Code 3200.000

MeltFloW *@on* plus
Code 3300.000

Determination of the MFR in g/10 min.
according DIN EN ISO 1133 and ASTM D 1238 method A

Determination of the MFR in g/10 min. and MVR in ccm/10 min.
according DIN EN ISO 1133 and ASTM D 1238 method A and B

- **Manual cutting device** Code 3100.130
- **Motorized weight lifter** Code 3100.160
- **Mass(es)** Code 3100.20x

- **Motorized cutting device** Code 3200.170
- **Motorized weight lifter** Code 3200.160
- **Mass(es)** Code 3100.20x

- **Corossion resistant version** Code 3100.099
- **Inert gas overlay** Code 3100.119
- **Nozzle plugging device** Code 3100.140
- **Filling funnel** Code 3100.112

Necessary option

Particular options (at least 1 pcs. is necessary)

Possible options (depending on tested polymer)

Further possible options

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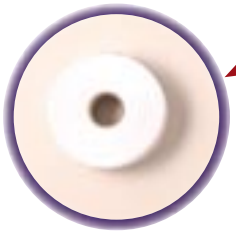
TECHNICAL INFORMATION

Configuration:

Protection cover
Code 3100.150

Cotton strip
Code 3100.105-1



Cleaning pads
Code 3100.105-2

Cleaning cream
Code 3100.106

Liquid cleaning
concentrate
Code 3100.107

Pneumatic
cleaning tool
Code 3100.116

Brush
Code 3100.117-1

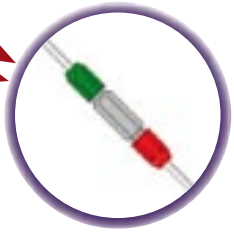
Cleaning piston
Code 3100.117-2

Levelling device
Code 3100.113

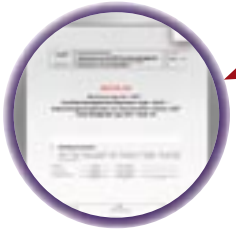
Go-no-Go
for the nozzle
Code 3100.114

Go-no-Go
for the cylinder
Code 3100.115

Precision balance
Code 3100.300



Calibration certificate
Code 0800.311



Necessary option	Particular options (at least 1 pcs. is necessary)	Possible options (depending on tested polymer)	Further possible options

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TECHNICAL INFORMATION

MeltFloW *basic*
Code 3100.000

Basic instrument MeltFloW *basic*

The basic instrument MeltFloW *basic* together with a precision balance can be used for the determination of the **MFR in g/10 min.**
The basic instrument is equipped with the following components:
- Control unit
- Standard die, standard piston
- Cleaning tools (2 pcs.) for cylinder and cleaning tool (1 pcs.) for nozzle (die)
- Technical documentation

We recommend the following accessories for an operational testing:
- Manual cutting device, Code 3100.130 (see „necessary options“)
- at least one (1) testing mass (see „particular options“)

MeltFloW *basic* plus
Code 3150.000

Basic instrument MeltFloW *basic* plus

The basic instrument MeltFloW *basic* plus together with a precision balance can be used for the determination of the **MFR in g/10 min.**
The basic instrument is equipped with the following components:
- Control unit
- Motorized cutting device incl. timer
- Standard die, standard piston
- Cleaning tools (2 pcs.) for cylinder and cleaning tool (1 pcs.) for nozzle (die)
- Technical documentation

We recommend the following accessories for an operational testing:
- at least one (1) testing mass (see „particular options“)

MeltFloW *@on*
Code 3200.000

Basic instrument MeltFloW *@on*

The basic instrument MeltFloW *@on* together with a precision balance can be used for the determination of the **MFR in g/10 min.** as well as for the determination of the **MVR in ccm/10 min**.
The basic instrument is equipped with the following components:
- Control unit
- pistion travel measurement
- Standard die, standard piston
- Cleaning tools (2 pcs.) for cylinder and cleaning tool (1 pcs.) for nozzle (die)
- Software k-BASE
- Technical documentation

We recommend the following accessories for an operational testing:
- Motorized cutting device, Code 3200.170 (see „necessary options“)
- at least one (1) testing mass (see „particular options“)

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TECHNISCHE INFORMATION

MeltFloW *@on plus*
Code 3300.000

Basic instrument MeltFloW *@on* plus

The basic instrument MeltFloW *@on* together with a precision balance can be used for the determination of the **MFR in g/10 min.** as well as for the determination of the **MVR in ccm/10 min**.
The basic instrument is equipped with the following components:
- Control unit
- pistion travel measurement
- **motorized (automatic) cutting device**
- **motorized lifting device for the masses**
- **integrated weight magazin, incl. masses upto 21,6 kg**
- Standard die, standard piston
- Cleaning tools (2 pcs.) for cylinder and cleaning tool (1 pcs.) for nozzle (die)
- Software k-BASE
- Technical documentation

Necessary options

Necessary options:

Option for Code 3100.000:
- Manual cutting device, Code 3100.130

Option for Code 3200.000:
- Motorized cutting device, Code 3200.170 *)

*) Provided with this device, the MFR value should be calculated. For determining the MVR, the motorized cutting device is not mandatory.

Particular option (at least 1 pcs. is necessary)

Particular options:

Each tester (with exception of the MeltFloW @ plus) have to be equipped at least *) with one of the following options:

- Code 3100.201	Mass of 1000 Gr.	(9,81 N)
- Code 3100.202	Mass of 1050 Gr.	(10,30 N)
- Code 3100.203	Mass of 1200 Gr.	(11,77 N)
- Code 3100.204	Mass of 2160 Gr.	(21,18 N)
- Code 3100.205	Mass of 3800 Gr.	(37,27 N)
- Code 3100.206	Mass of 5000 Gr.	(49,05 N)
- Code 3100.207	Additional mass of 5000 Gr.	(49,05 N)
- Code 3100.208	Additional mass of 1600 Gr.	(15,70 N)
- Code 3100.209	Additional mass of 2500 Gr.	(24,53 N)

For the use of additional masses, in any case a standard weight code 3100.206 have to be considered. E.g., to reach a testing mass of 21.6 kg the following individual masses are necessary:
- 1 Pcs. Code 3100.206 (Mass of 5000 gr.)
- 3 Pcs. Code 3100.207 (Additional mass of 5000 gr.) and
- 1 Pcs. Code 3100.208 (Additional mass of 1600 gr.)

*) If only a 325 gram mass (equivalent to the weight of the piston) should be necessary, **no** further masses may be selected.

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Possible options (depending on tested polymer)

Possible options (depending on tested polymer):

- **Corossion resistant version, Code 3100.099:**
  Necessary, if polymers which contain chlorine or flour have to be tested.

- **Inert gas overlay, Code 3100.119:**
  Necessary, if during the test a degradation of the polymer by humidity (hydrolysis) can be expected.

- **Nozzle plugging device, Code 3100.140:**
  Necessary, if low viscosity polymers (MFR/MVR > ~20) have to be tested. This nozzle plugging device prevents a flow out of the molten polymer during the preheating time.

- **Filling funnel, Code 3100.112:**
  Meaningful for powder or sticky materials, to prevent the material sticking at the inlet of the cylinder.

Further possible options

Further possible options:

- **Protecion cover, Code 3100.150**:
  Prevent the „flying away“ of the cutted extrudate pieces and facilitate the analysis.

- **Cotton strip, cleaning pads, cleaning cream and liquid cleaning concentrate:**
  Serve as a tool for the necessary cleaning of the instrument after the test.

- **Pneumatic cleaning tool, Code 3100.116 with brush and/or piston:**
  Serve as a tool for the necessary cleaning of the cylinder.

- **Levelling device, Code 3100.113:**
  With this device, the instrument can be levelled exactly according to the cylinder axis.

- **Go-no-Go for the nozzle, Code 3100.114 and Go-no-Go for the cylinder, Code 3100.115:**
  Allows a periodic review (independent of the regular calibration of the instrument) of the nozzle (die) and of the cylinder.

- **Precision balance, Code 3100.300 or 3100.350:**
  Can be used for the evaluation of the cutted extrudate weight (necessary for the determination of the MFR value, if the melt density of the material is not known).

- **Calibration certificatte, Code 0800.311**

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k-BASE Software:

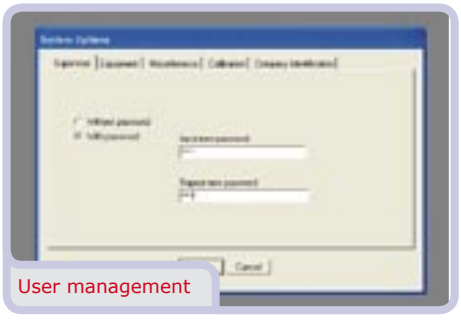
Our **k-BASE software** as a multifunctional software platform is taking into account the current Microsoft ® technology. Previous programs can also be used after an update (Service Pack) to the current version of our software program.

The connection of the instruments is made by RS 232 or USB to a standard PC or laptop.
The software can be installed on any computers in your corporate network. Thus, you have various access to your data.
This is possible even without the connection of an instrument and you can:
- create parameter sets and/or
- evaluate or work on existing tests.

Language change

Online-change of languages

K-BASE is available in different languages, where the change of languages can be done online. It suffices a simple mouse click.
Thus, the test report can be printed in another language, saved as a PDF file, if necessary, sent via email to the customer.



User management

User management

With k-BASE, specific program areas can be restricted. The setting of a password, different functions of the software to a specific user group (operator) can be hided.

Under this user administration and the individual user definition, it can be documented any time who and when has worked with k-BASE.

Calibration

Calibration

k-BASE reminds you automatically to the specified (predetermined by the administrator) calibration intervall - without any further obligation!

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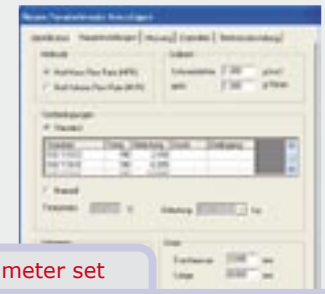
Hardware-Setup

Hardware-Setup

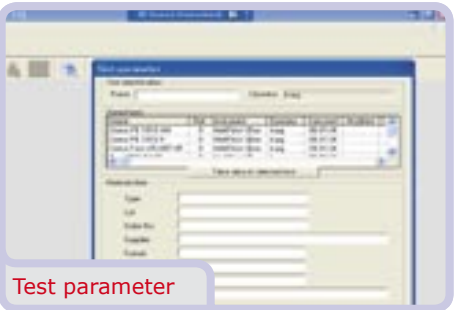
Due to the modular construction, k-BASE is always in a position to adjust a new instrument configuration.
If you want to upgrade or expand your instrument at a later time - it is possible through a simple hardware setup done by the software at any time and without any additional expense (additional wiring or EPROM change).



Parameter set

Parameter set

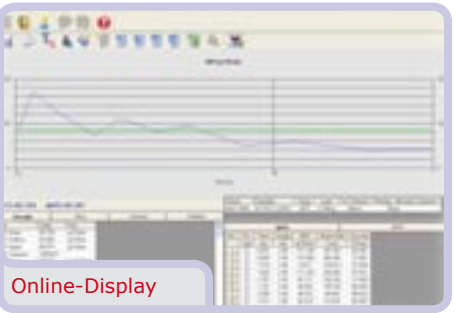
Your test parameter have to be entered in k-BASE only once. K-BASE separates the main input parameter from the individual test parameters (e.g. material data, etc.). This saves time while performing of tests. A input specified field monitoring prevents false entry.



Test parameter

Test parameter

With k-BASE the test can be performed easily and efficiently. Your individual test parameters can be independently programmed or copied from a performed test. A convenient search function supports the selection.



Online-Display

Test run

With k-BASE you can display your actual test results online. The results will be displayed online during the test.
A discontinuation of the measurement is possible at any time, whereby the results will be evaluated until the time of the break off.

Documentation

Documentation

K-BASE will record and document your data clearly and according the standard. All relevant test conditions, material data, parameters, etc. are documented according the standard.
If reasonable and acceptable, a post-processing can be made at any time.

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Technical data:

	MeltFloW *basic*	MeltFloW *basic* plus	MeltFloW *@on*	MeltFloW *@on* plus
Code-No.:	3100.000	3150.000	3200.000	3300.000
Dimensions				
W x H x T (mm), max. (depending on configuration)	340 x 470 x 310	400 x 470 x 450	400 x 470 x 450	400 x 1050 x 450
Weight standard instrument (kg), approx.	26	31	31	85
Weight incl. lifting device (kg), approx.	34	39	39	-
Temperatue data				
Temperature range (°C)	+400 (optionally 450)	+400 (optionally 450)	+400 (optionally 450)	+400 (optionally 450)
Resolution (°C)	0,1	0,1	0,1	0,1
Temperature distribution (K)	≤±0,1	≤±0,1	≤±0,1	≤±0,1
Temperature measurement	by 1 PT 100 each zone	by 1 PT 100 each zone	by 1 PT 100 each zone	by 1 PT 100 each zone
Further data				
Measuring range (mm)	-	-	selectable 1 ... 30	selectable 1 ... 30
Resolution travel measurement (mm)	-	-	0,01	0,01
Electrical data				
Voltage (±10 %) 50/60 Hz (V)	230	230	230	230
Power (W), approx.	1300	1300	1600	1600

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The whole world of Karg Industrietechnik: www.karg-industrietechnik.com

You can find what ever you like to know about us and our products under:

www.karg-industrietechnik.com

Beside any information, news, exhibitions you have also the opportunity to get in touch directly with your responsable sales manager.
We supply quality control instruments for:

- Plastic industry
- Automotive industry
- Laboratories / Universities / Technical high schools
- Electronic industry
- Rubber industry

Due to continuous development policy, changes may be introduced without any notice!

KARG Industrietechnik

Competence in material testing

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