

Product Information

Aflow extrusion plastometer

CTA: 168420 169603



Aflow extrusion plastometer

Applications

Speed, operator-independence and high test-result reproducibility and repeatability – all these things matter in research and development and in 24-hour operation, as in production control.

A defining feature of Aflow is its high level of automation - easy cleaning and defined pre-compacting at the touch of a button, stepless test-load settings - Aflow adapts to your testing requirements.

Aflow can be operated in stand-alone mode via a modern touch display or on a PC with ZwickRoell testing software.

The basic version of the Aflow extrusion plastometer is designed to perform MFR and MVR tests in accordance with Methods A, B, C and D. This can be done using an automatic extrudate cutter and balance. Tests can be performed in accordance with the following standards:

- ISO 1133, ASTM D1238, ASTM D3364, JIS K 7210.

Advantages and features

Fast, effortless cleaning and pre-compacting

Aflow's pneumatic cleaning device enables cleaning and pre-compacting to be performed at a preset pressure. The Clean and Pre-compact option allows variable adjustment of the cleaning and pre-compacting pressure, while a switch on the cleaning unit allows one of the two pressure steps to be selected.



Optimum test sequence - time-saving and operator-friendly

The pneumatic pre-compaction feature allows the polymer to be defined and uniformly pre-compacted at the touch of a button—saving time and effort. For an even faster post-test sequence the remaining material can be expelled from the extrusion barrel with a force of up to 80 kg and the extrusion barrel cleaned with a pneumatic cleaning device- again at the touch of a button.

Flexibility via stepless test load up to 50 kg

Test loads in Aflow can be adjusted steplessly from 0.325 kg to 50 kg. A multi-stage test can be performed effortlessly to Method D purely by means of presets in the software. This allows several tests with different weight stages to be carried out with a single barrel filling.

Flexible - use with or without PC

The new standardized operating philosophy allows the operator to move easily between instrument and PC and always feel at home.

Intuitive, workflow-based touch operation

All test-related settings are grouped logically and are separated from higher-level system settings. The operator is guided through test configuration step by step. The saved test configuration can easily be exported and transferred to other instruments.

PI 780 0918

Product Information

Aflow extrusion plastometer

Rapid familiarization with user management, including stand-alone mode

Integrated user management allows the operator's input options to be reduced to a minimum. Users see only what is important to them, allowing them to focus on the task at hand right from the start.

Live MVR

The MVR is shown "live" in graphic form in stand-alone mode and in the ZwickRoell testing software. This allows both melting process and behavior to be followed precisely during measurement.

Managing multiple extrusion plastometers via one PC

With multi-instrument operation up to 6 extrusion plastometers can be controlled from one PC. Central operation and results saving from a single work station makes for efficiency and provides a quick overview of all tests currently in progress. For multi-instrument operation the required Ethernet interfaces must be available on the PC; otherwise Ethernet hubs must be used.

Product Information

Aflow extrusion plastometer

Technical data

Basic instruments

Please note:

requires dry, oiled air

Type Item No.	Aflow extrusion plastometer (230 V) 1043954	Aflow extrusion plastometer (110 V) 1043955	
Test load	0.325 to 50 (stepped or stepless)	0.325 to 50 (stepped or stepless)	kg
Compressed air, oiled, dry	5 to 10	5 to 10	bar
Dimensions:			
Height	1021	mm	
Width	580	mm	
Depth	596	mm	
Dimensions			
Height	1021	mm	
Width	580	mm	
Depth	596	mm	
Approx. weight	114	114	kg
Test temperature	+50 to +450	+50 to +450	°C
Display	capacitive touch display	capacitive touch display	
Temperature display resolution	<0.001	<0.001	K
Number of storable parameter sets	> 100	> 100	
Interfaces	<ul style="list-style-type: none"> • Ethernet port for connecting a PC • 2 x USB port for connecting a printer or USB stick • RS232 port for exporting raw data, data output: serial number, specimen number, number of extrudates, thickness (user-specified), thickness at test temperature, total weight of extrudates, MFR average value, MVR average value, MFR and MVR individual values • RS232 port for connecting an analytical balance (from the ZwickRoell range) 		
Temperature accuracy in the range of 0 to 75 mm above the die in the temperature range of 50 °C to 450 °C	<0.3 ¹⁾	<0.3 ¹⁾	K
Time measurement			
Error limit (Method A)	± 0.02 (with automatic extrudate cutter)	± 0.02 (with automatic extrudate cutter)	s
Error limit (Method B)	± 0.01	± 0.01	s
Travel measurement			
Error limit (Method B)	±0.02 mm (ISO 1133) / ±0.4 % of 6.25 mm (ASTM D1238)	±0.02 mm (ISO 1133) / ±0.4 % of 6.25 mm (ASTM D1238)	
Resolution	<0.0005	<0.0005	mm

Product Information

Aflow extrusion plastometer

Type Item No.	Aflow extrusion plastometer (230 V) 1043954	Aflow extrusion plastometer (110 V) 1043955	
Multi-instrument operation on a single PC.			
available main memory, min.	1.54	1.54	GB
clock rate	3	3	GHz
connected Aflow plastometers per PC	6	6	
Included in delivery:	<ul style="list-style-type: none"> Ethernet cable cleaning accessories (cleaning piston, cleaning brush, cleaning pads (500x)) for barrel test granulate and filling chute for granulate 		
Power input specifications			
Power supply	220 to 240 V, 1L/PE/N	100 to 127 V, 1L/PE/N	
Power consumption (full load), approx.	0.6	0.6	kVA
Power frequency	50/60	50/60	Hz

1) for distance and time, complies with ISO 1133-2

Accessories required

Extrusion barrels (1 x required)

At least one extrusion barrel must be selected, in accordance with the materials to be tested. Various plastics (e.g. PTFE and PFA) which contain fluorine release hydrofluoric acid, which attacks the extrusion barrel material. For these plastics extrusion barrels made of a special steel alloy are used. These extrusion barrels have only limited suitability for filled plastics. For these the wear-resistant version is recommended.

Test material	Inner diameter [mm]	Drill hole	Properties	Item no.
Plastic, fluorine free	9.55	Finely honed	Wear resistant	050888
Plastic, containing fluorine	9.55	Finely honed	Resistant to acid	050880

Piston (1 x required)

At least one piston must be selected, in accordance with the materials to be tested. Various plastics (e.g. PTFE and PFA) which contain fluorine release hydrofluoric acid, which attacks the extrusion barrel material. For these plastics pistons made of a special steel alloy are used. These pistons have only limited suitability for filled plastics. For these the wear-resistant version is recommended. For tests to ISO 1133-1997, a piston with non-rounded edges (sharp-edged) is required.

Test material	Standard	Properties	Item no.
Plastic, fluorine free	ISO 1133	Wear resistant	032298
Plastic, containing fluorine	ISO 1133	Resistant to acid	032299
Plastic, fluorine free	ISO 1133-1997	sharp-edged, Plastic, containing fluorine	032300
Plastic, fluorine free	ASTM D1238	-	1015333

Product Information

Aflow extrusion plastometer

Dies (scope of delivery 2 pieces, 1x required)

At least one pair of dies must be selected, in accordance with the materials to be tested. Scope of delivery: 2 pieces + orifice cleaning drill.

Material	Test material	Standard	Inner diameter [mm]	Properties	Item no.
Sintered material	Plastic, containing fluorine, without fluorine	ISO 1133 and ASTM D1238	2.095	Wear resistant	312342
Sintered material	Plastic, containing fluorine, without fluorine	ISO 1133 and ASTM D1238 Method C	1.05	Wear resistant, resistant to acid	325554
Sintered material	Plastic, containing fluorine, without fluorine	BS 2782-7, Method 720A-1997	1.18	Wear resistant, resistant to acid	001351
Sintered material	PVC	ASTM D3364	2.095	Wear resistant, resistant to acid	092326

Optional accessories

Extrudate cutters

Description	Item number
Extrudate cutter The automatic extrudate cutter is used to achieve precise extrudate cutting. The die plug prevents premature outflow of the material when plastics with high flow-rates ($> 10 \text{ cm}^3/10 \text{ min}$ at load 0.375 kg) are being tested. Extrudate cutter, automatic activation, automatic control via time interval or manually via push-button, includes replacement blades (4 pieces)	032301

Die plug

When the die plug is in use, an extrudate cutter is required in order to eject the die plug automatically when the test begins.

Description	Item number
Die plug for testing plastics with high flow-rate; ceramic plug included ¹⁾	032302

1) Required: 1x extrudate cutter

Separating pane

Description	Item number
Separating pane for automatic extrudate cutter, for collecting individual extrudates	032303

Product Information

Aflow extrusion plastometer

Cleaning

Dimensions of pneumatic cleaning device unit including basic instrument: 1200 x 580 x 596 mm (H x W x D)

Description	Item number
Pneumatic cleaning device	032304
Option cleaning/pre-compaction: Software-controlled, variable switching option for pressure setting for pre-compaction and cleaning ¹⁾	032306

1) Required for this: Pneumatic cleaning device