

## Product Information

### Aflow Extrusion Plastometer



#### Applicational range

The Aflow is noted for having a high degree of automation: whether simple cleaning and defined pre-compacting at the press of a button, or infinitely settable test loads - the Aflow adapts to your test tasks. The extrusion plastometer supports all globally common standards and procedures, including ISO 1133, ASTM D 1238 according to Methods A, B, C and D.

The pneumatic precompacting feature allows the polymer to be defined and evenly precompacted at the press of a button – saving time and effort. Furthermore, testXpert II determines the test results in the automatic parameter control, so that the Aflow automatically selects the correct test parameters. This precompacting feature gives you a high degree of user independence even if the testers change often.

To further accelerate the test procedure after the test, you have the possibility to eject the remaining material from the extrusion barrel with a force of up to 80 kg and then to clean the extrusion barrel with a pneumatic cleaning device at the press of a button. Space-saving, multi-device operation lets you connect up to six Aflow or Mflow extrusion plastometers to a PC. Of course, you can also use the Aflow in Stand Alone Mode without a PC.

#### Advantages:

- Fast cleaning and defined pre-compacting at the press of a button
- The test loads can be infinitely set from 0.325 kg to 50 kg
- With automatic parameter control (APC), the Aflow selects the test parameters to determine the optimized test results - the result is fewer measurement errors
- The remaining material can be ejected from the extrusion barrel with a force of up to 80 kg
- Time-saving, multi-stage tests according to Method D: Several tests with different weight stages can be carried out with a single barrel filling
- The precise temperature distribution in the extrusion barrel corresponds to ISO 1133 Part 1 and Part 2
- The swiveling testing tower locks automatically in the cleaning or testing position
- Ergonomic operation: The swiveling and detachable specimen hopper is ideally suited for rapid filling of the extrusion barrel and also for quick and easy ejection of the remaining test granulate
- In Stand Alone Mode, results can be quickly and easily read without a PC

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### Aflow Extrusion Plastometer

#### Basic instruments

Description	Item number
Aflow Extrusion Plastometer, supply voltage 220 to 240 V, 50/60 Hz	<b>032295</b>
Aflow Extrusion Plastometer, supply voltage 100 to 127 V, 50/60 Hz	<b>032297</b>

Remark: Requires dry and oiled air.

#### Technical data for Aflow Extrusion Plastometer

The Aflow Extrusion Plastometer in its basic version is equipped for MFR und MVR testing to Method A, B, C and D. These are achievable with automatical extrudate cutter and scales. Tests according to the following Standards are possible: ISO 1133, ASTM D 1238, ASTM D 3364, JIS K 7210.

Technical data of the instruments	
<b>General</b>	
Power consumption	600 W
Compressed air, oiled, dry	6 - 10 bar
Weight	130 kg (all equipment included)
Dimensions: height x width x depth	1200 x 580 x 600 mm (incl. cleaning, all equipment included)
Keypad	Pressure point – plastic foil keypad
Display	LCD-Graphic display, back-lit
Number of parameter sets storable	35
Interfaces	<ul style="list-style-type: none"> <li>• USB for connecting PC</li> <li>• RS 232-interface for raw data export, data output: serial number, specimen number, number of cuttings, density (operator input), density at test temperature, total weight of extrudate, MFR median value, MVR median value, MFR and MVR individual values</li> <li>• RS 232-interface to connect a analysis scale from the Zwick product range</li> </ul>
<b>Operational ranges</b>	
Test loads	0.325 up to 50 kg
Temperature range	+50 up to +450 °C
<b>Error limits</b>	
Temperature accuracy in the area of 0 to 75 mm over the orifice in the temperature range of 50°C to 450°C	< 0.3 °C with distance and with time, acc. to ISO/CD 1132-2
Temperature display resolution	0.1 °C
Error limit of time measurement (Method A)	±0.02 s using automatic extrudate cutter
Error limit of time measurement (Method B)	±0.001 s
Error limit of travel measurement (Method B)	±0.02 mm (ISO 1133) or ±0.4 % of 6.25 mm (ASTM D 1238)
Resolution of the travel measurement (Method B)	< 0.0005 mm
<b>Multiple instrument operation on one PC</b>	
Available minimum RAM	1.54 GB
Processor	3 GHz
Up to 6 Aflow Extrusion Plastometers can be connected to one PC.	

In the **scope of supply** of the Aflow Extrusion Plastometers are USB-cable, cleaning accessories (cleaning rod, cleaning brush, cleaning pads, orifice cleaning drill Ø 2.095 mm) for barrel and orifice, test granulate and a swivelling filling channel included.

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#### Extrusion barrels

An extrusion barrel must be selected depending on the material that is to be tested. Cleaning pads and a cleaning piston are supplied to clean the extrusion barrel.

Description	Item number
Extrusion barrel for fluorine-free plastics, inner dia. 9.55 mm, accurately machined hole, wear-resistant	<b>050888</b>
Extrusion barrel for fluorine-containing plastics, inner dia. 9.55 mm, accurately machined hole	<b>050880</b>

#### Cooling unit

Description	Item number
Cooling unit for a fast cooling of the extrusion barrel with compressed air	<b>090173</b>

#### Pistons

At least one piston must be selected depending on the materials that are to be tested.

If testing should be performed to ISO 1133-1997, a piston with non-rounded edge (sharp-edge) is required.

Description	Item number
Piston for fluorine-free plastics, according to ISO 1133, weight 0.325 kg, wear-resistant	<b>032298</b>
Piston for fluorine-containing plastics, according to ISO 1133, weight 0.325 kg,	<b>032299</b>
Piston for fluorine-free plastics, sharp-edge, according to ISO 1133, weight 0.325 kg,	<b>032300</b>
Piston for fluorine-free plastics, according to ASTM D 1238	<b>1015333</b>

#### Orifices

At least one pair of orifices (2 pieces) must be selected depending on the materials that are to be tested.

Scope of supply: 2 pieces

Description	Item number
Sintered material orifices, inner dia. 2.095 mm, according to ISO 1133 and ASTM D 1238, length 8 mm, wear-resistant, for fluorine-free and fluorine-containing plastics	<b>312342</b>
Sintered material orifices, inner dia. 1.05 mm, according to ISO 1133 and ASTM D 1238 method C, length 4 mm, wear-resistant, for fluorine-free and fluorine-containing plastics	<b>325554</b>
Sintered material orifices, inner dia. 1.18 mm, according to BS 2782-7, method 720A-1997, length 8 mm, wear-resistant, for fluorine-free and fluorine-containing plastics	<b>001351</b>
Sintered material orifices, inner dia. 2.095 mm, according to ASTM D 3364, length 25.4 mm, for PVC tests	<b>092326</b>

#### Cleaning and pre-compacting

A pneumatic device is available for quick, fatigue-free cleaning and pre-compacting. The pneumatic cleaning device enables cleaning and pre-compacting at a pre-set pressure. The clean/pre-compact option allows the cleaning pressure and pre-compacting pressure to be adjusted variably via the instrument electronics or testXpert II. A switch on the cleaning device allows one of two pressure levels to be selected.

Description	Item number
Pneumatically cleaning device, manual pre-set pressure	<b>032304</b>
Switching of cleaning/pre-compacting, software-controlled, variable pressure setting for pre-compacting and cleaning	<b>032306</b>

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#### Extrudate cutters and orifice plug

The automatic cutter is used for the precise cutting of the extrudate. The orifice plug prevents the early flow of the plastic material when testing with high flow rates ( $> 10 \text{ cm}^3 / 10 \text{ min}$  at a load of  $0.325 \text{ kg}$ ).

For the use of the orifice plug an extrudate cutter is necessary.

Description	Item number
Extrudate cutter, automatically operated, automatic control of the time interval or manually by pushbutton	<b>032301</b>
Orifice plug, for tests on high flow rate plastics, incl. ceramics cap	<b>032302</b>

#### Further accessories

Description	Item number
Protective shield, for absorption of separate specimen parts	<b>032303</b>
Maintenance unit, for air drying and oiling of non-conditioned air	<b>044307</b>

#### Graph: Accessories

