Brabender®

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The Brabender® Farinograph®-AT

More Automatization and Application in the Laboratory

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…where quality is measured.

Brabender® Farinograph®-AT

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Content

- **The Brabender® Farinograph®-AT**
- **The water dosing system**
- **The operation display**
- **The working tools of the Farinograph®-AT**
- **Software options**
- **„New“ applications**

New and „old“ features

- Automatic water dosing system
- Extended software applications
- Better reproducibility (because of technical inovations)
- Variable speed (0-200 min^{-1})
- Higher torque (20 Nm)
- Display shows actual temperatures
- Recording of two temperatures (dough and water)
- Calculates mixing energy
- Patented

International standards like

- ICC 115/1 + 114/1
- AACC 54-21 + 54-10
- ISO 5530-1 + 5530-2
- and others

are anymore fulfilled

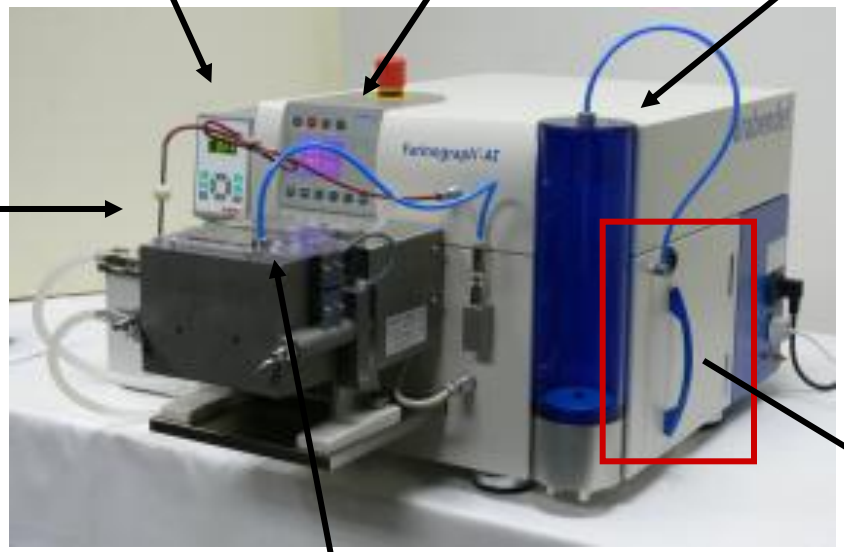
The new Farinograph®-AT
Water Dosing System

Thermostate

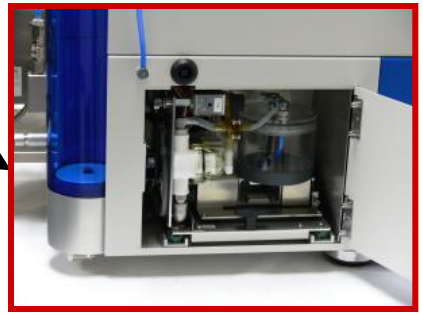
Display

Water tank (2 l)

Temperature control



Dosing into mixer



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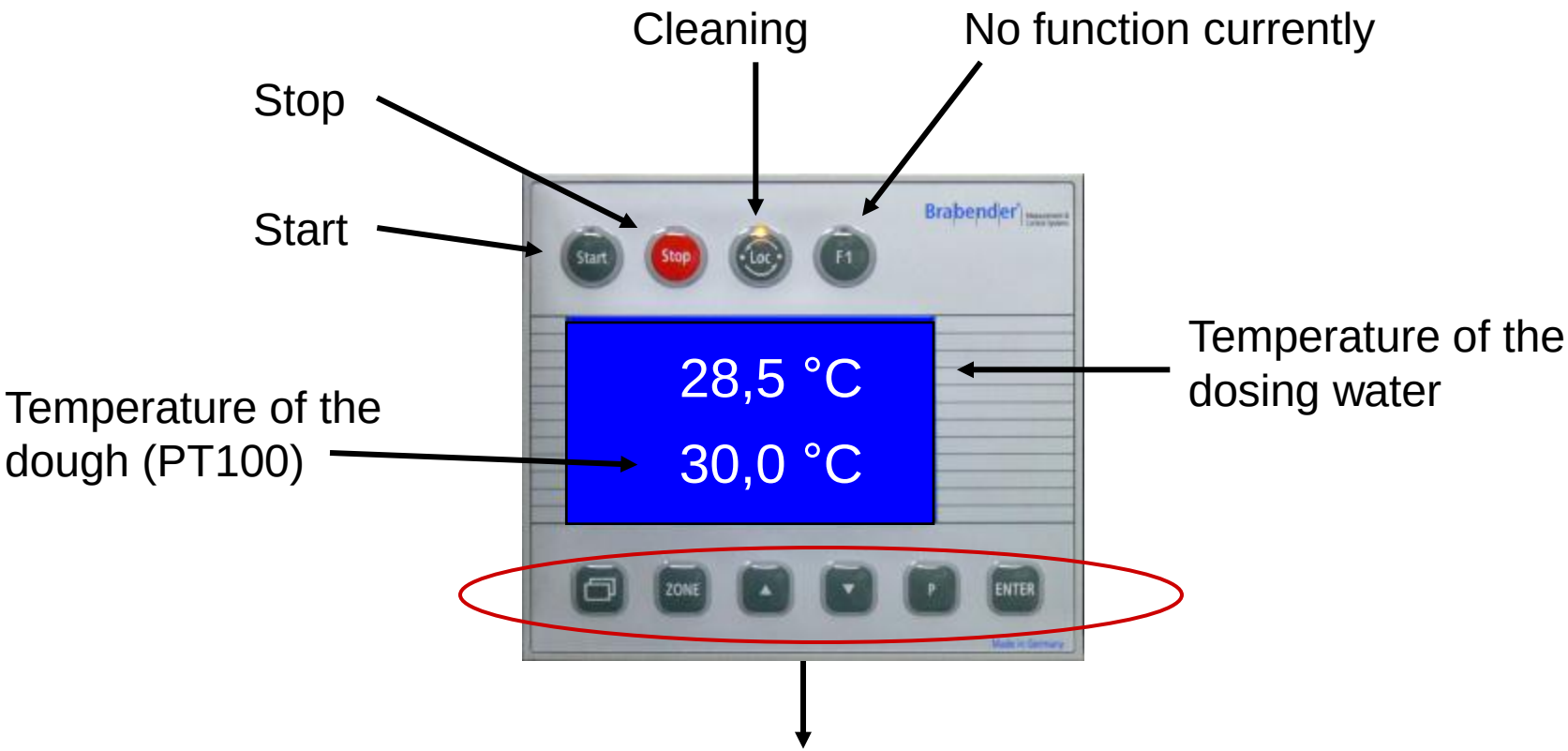
Features

- Automatic dosing of the selected amount of water
- Temperature control of added water
  - ⇒ Everytime the same temperature of the water
- Connected to external thermostat
  - ⇒ Reduce cost and maintenance
- Accuracy < 0,1 % water
- Easy detachable tank for cleaning
- Removable dosing system for maintenance

Working principle

- Pre-selection of the approximate water absorption
- Enter the amount with the keybord into the software
- Start the initialisation of Farinograph® and mixer
- Tempering of the water
- Fixing of the water intake on the mixer
- Start running the Farinograph® test
- If neccessary fill in more water with pushing the keybord

The new Farinograph®-AT
The Operation Display



- to change contrast and language
- for service

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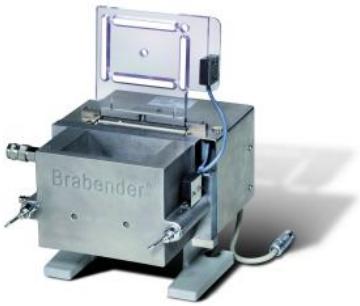
The new Farinograph®-AT
Working tools

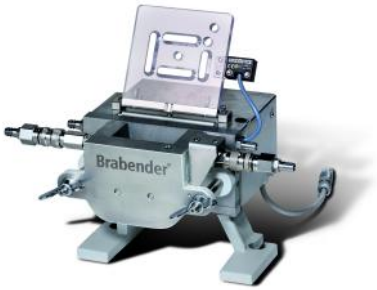
Sigma mixer S 300

- Standard test according ICC/AACC e.g.
- 300 g flour
- For mixing the Extensograph dough
- Removable blades



Sigma mixer S 50

- Standard test according ICC/AACC e.g.
- 50 g flour
- Removable blades



Sigma mixer S 10

- For small samples
- 10 g flour
- For breeders and research work
- To mix dry gluten

Resistograph mixer R 100

- Flat blades
- Narrow bowl
- Intensive/high speed mixing
- High shearing force

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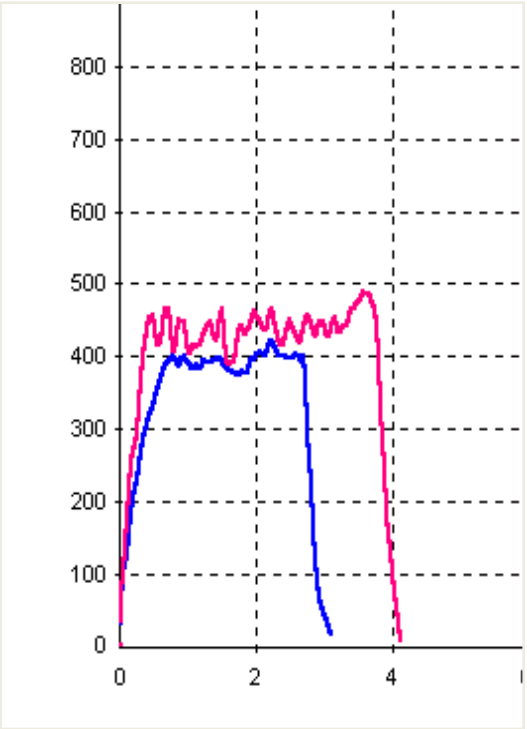
Hardness and Structure Tester

- Measures hardness of grain (wheat, barley, malt)
- Torque and time during milling with a cone mill is recorded.
- Gives information about the need of conditioning of grain
- Adjustable fineness
- Special software



The new Farinograph®-AT
Working tools

Planetary mixer P600

- Soft dough (e.g. rye doughs)
- Sponges (e.g. sponge doughs)
- Foames (e.g. egg white)
- Cold swelling raw materials
- Container volume: 2500 ml
- Temperature controlled: approx. -5 → 150°C

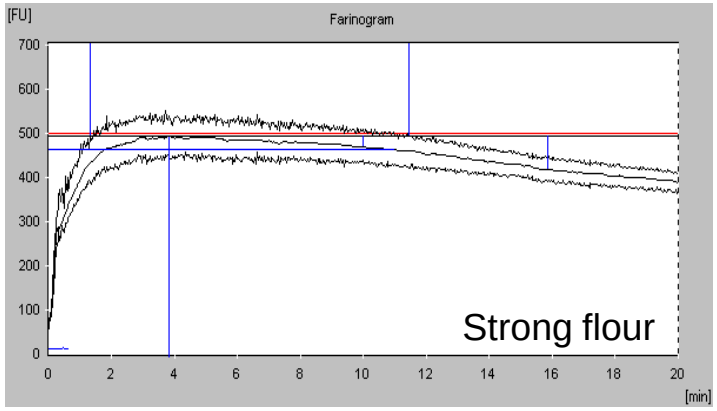
Farinograph®-E with P600

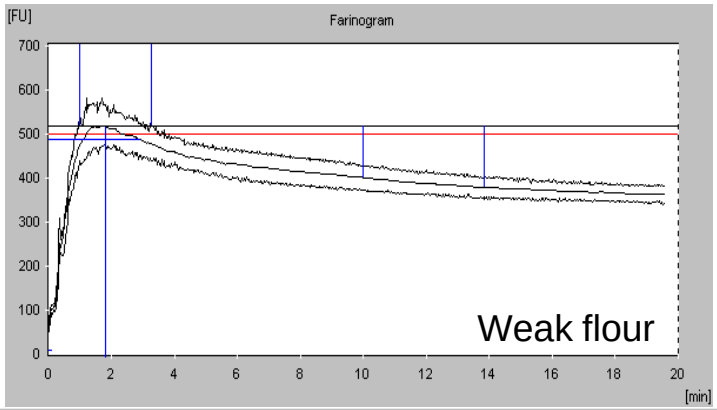
Kneading hook

Whisk

K-hook

1. Standard software to run standard test like ICC, AACC





Information about

- Wheat quality
- Water absorption
- Mixing behaviour
  - Development time
  - Stability
  - Degree of softening

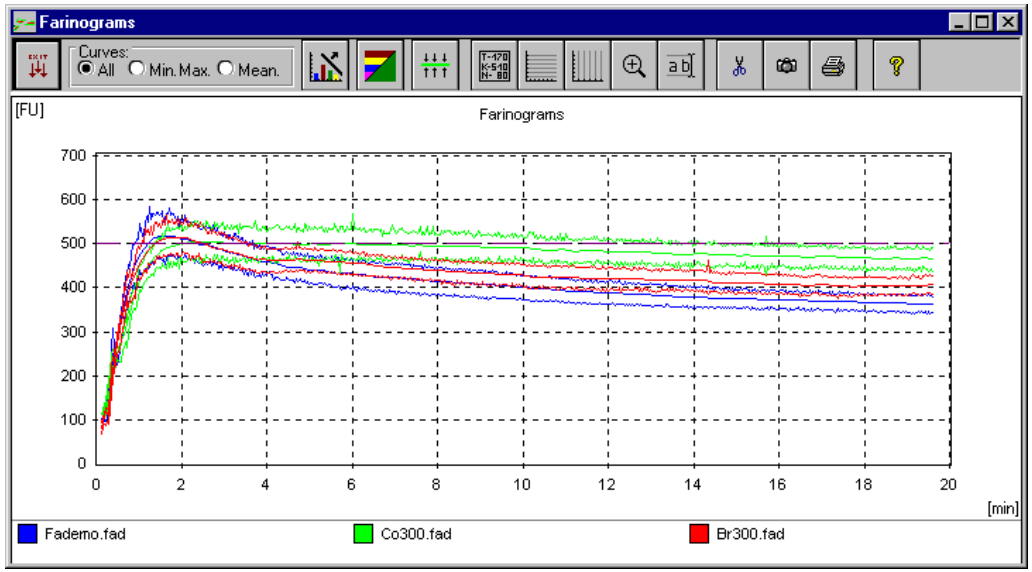
2. Additional software for applications different from the standard Farinograph test

- Correlation of different curves
- Variable speed (0-200 min^{-1})
- Programming of own speed profiles (1 min – 96 h)
- Customised evaluation methods
- Create own temperature profiles
- Auto save mode
- Compare directly with chosen reference curve

The new Farinograph®-AT
Software for special applications

Correlation of different curves

- To compare different curves
- Automatic statistical evaluation



Test Parameters

Parameter	Fademo.fad	Co300.fad	Br300.fad
Sample	Biscuit ABC	CO	BR
Date	10.08.97	06.08.97	21.08.97
Evaluation	BRABENDER / ICC	BRABENDER/ICC	BRABENDER/ICC
Operator	Miller	Serway	Serway
Mixer [g]	300	300	300
Moisture content [%]	13,0	14,0	14,0
with waterabsorption [%]	56,7	62,4	57,2
Std. Moisture content [%]	14,0	14,0	14,0
Std. Consistency [FU]	500	500	500
Remarks	For Best-Cake Compar		
Remarks	in Milltown		

Evaluation

	Fademo.fad	Co300.fad	Br300.fad
Consistency [FU]	516	504	512
Waterabsorption (500 FU) [%	57,1	62,5	57,5
Waterabsorption (14,0%) [%	55,9	62,5	57,5
Development time [min]	1,8	2,8	2,1
Stability [min]	2,3	12,0	2,1
Degree of softening [FU]	116	14	83
Degree of softening (ICC) [FI	137	30	96
Farinograph quality number	29	147	32

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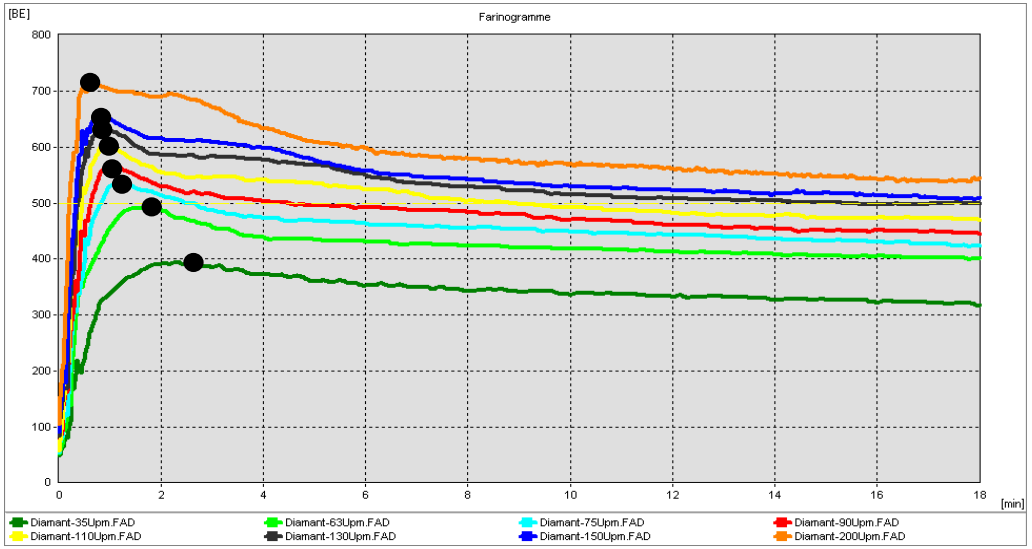
Software for special applications

Variable speed

- Internal method
- Shortens the test time
- Show the influence of intensive mixing



Auswertung

	IBIS-35	IBIS-50	IBIS-63	IBIS-75	IBIS-90	IBIS-110	IBIS-130	IBIS-150	IBIS-200
Konsistenz [BE]	401	460	504	536	583	641	694	740	833
Wasseraufnahme (500 BE) [%]	59,2	60,7	61,8	62,6	63,8	65,2	66,6	67,7	70,0
Wasseraufnahme (14,0%) [%]	59,2	60,7	61,8	62,6	63,8	65,2	66,6	67,7	70,0
Teigentwicklungszeit [min]	3,8	3,2	2,6	6,8	5,2	3,6	3,0	2,3	1,7
Stabilität [min]	18,6	18,6	16,0	10,9	6,5	3,5	2,4	1,6	0,8
Teigerweichung [BE]	24	28	15	18	42	74	103	127	189
Teigerweichung (ICC) [BE]	36	31	28	55	71	90	121	149	199
Farinograph Qualitätszahl	121	107	157	125	85	56	41	32	22

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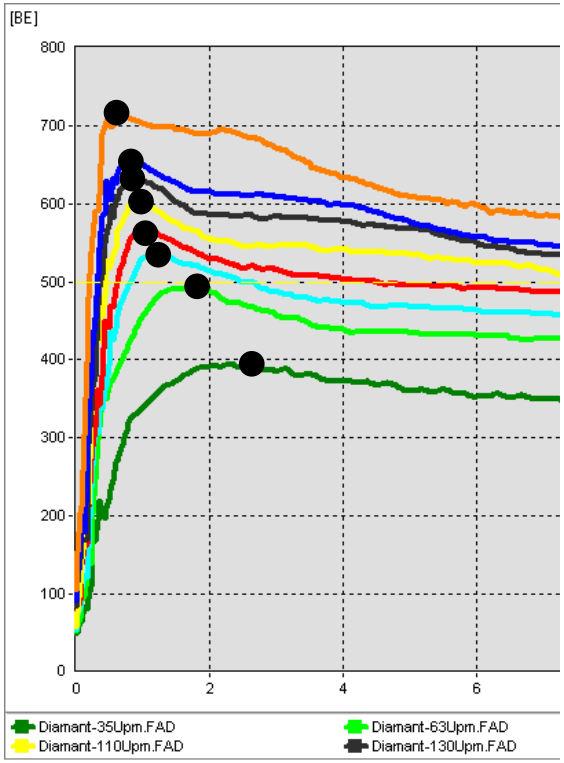
Variable speed



- 35 upm
- 63 upm
- 75 upm
- 90 upm
- 110 upm
- 130 upm
- 150 upm
- 200 upm

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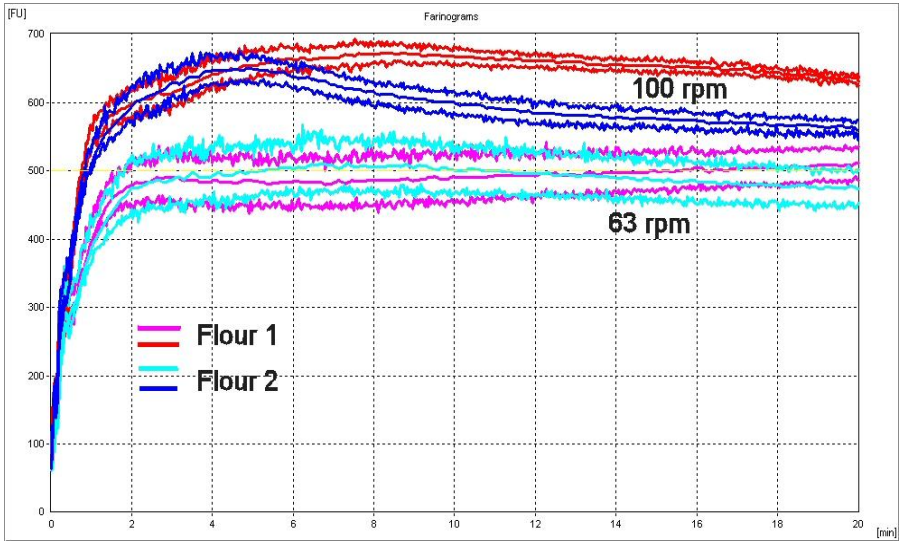
Different kneading intensities

- Standard speed 63 min^{-1}
  - Both flours have nearly the same quality
  - Problems by the production of bread, rolls, toast…,

  ⇒ But why?

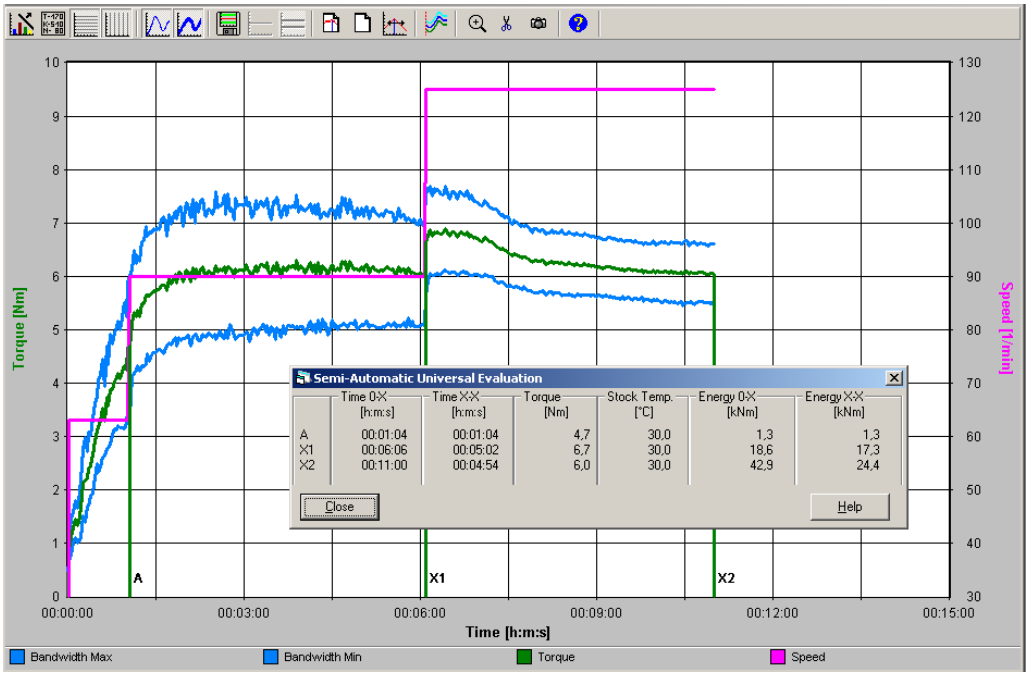
- Intensive mixing 100 min^{-1}
  - More energy into the dough
  - More stress for the gluten
  - The gluten of the blue sample crashed after a certain time



Programming of speed profiles

For the simulation of production processes

- 1 minute 63 min^{-1}
- 5 minutes 90 min^{-1}
- 4 minutes 125 min^{-1}

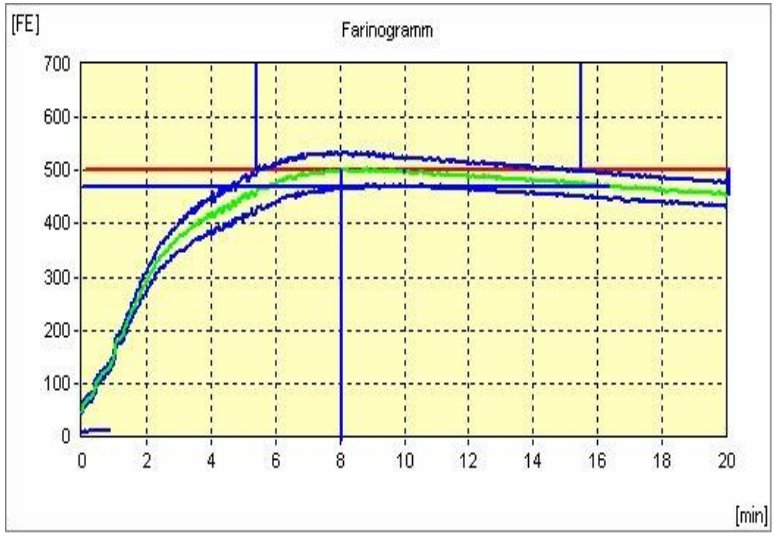


„New“applications

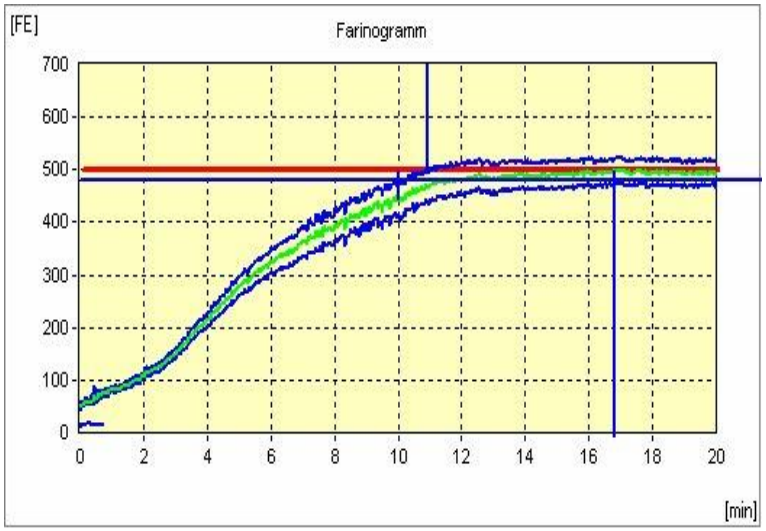
- Whole meal flour
- Sponge dough
- Water absorption of rye
- Heating of dough

Results with same dough consistency and grain

Wholemeal flour fine

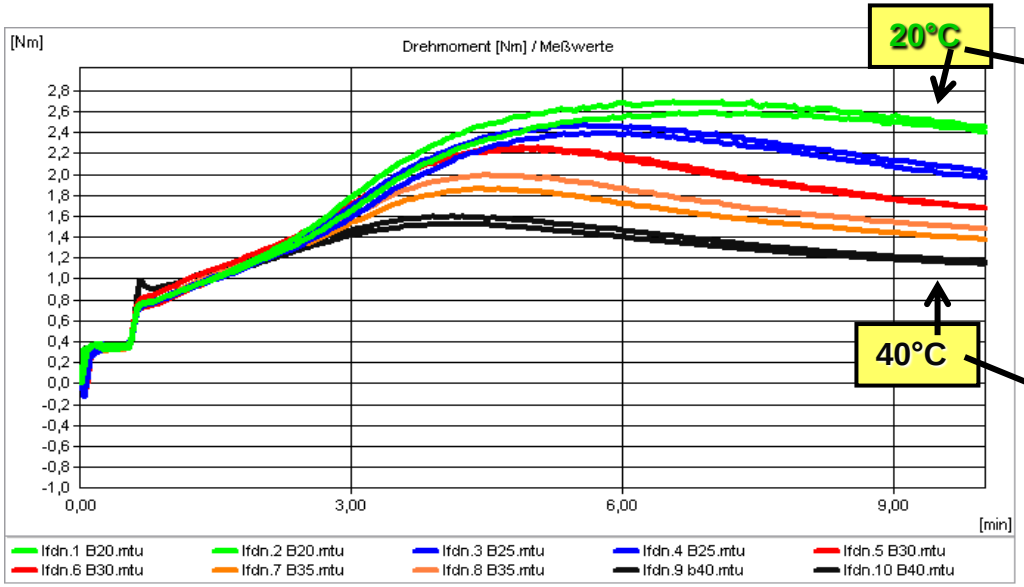


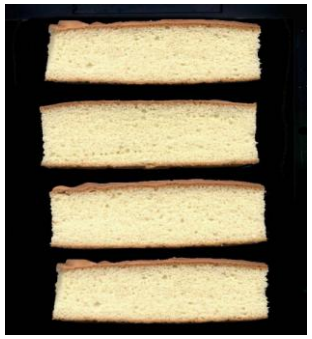
Wholemeal flour coarse

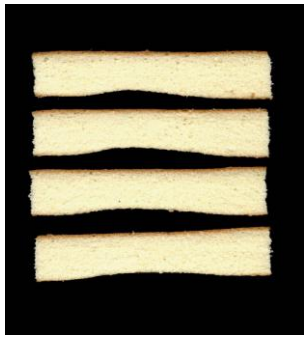


65,4	Water absorbtion [%]	63,0
501	Consistency [FU]	498
8,1	Dough development time [min]	16,8

Rheological analysis of sponge batters







The temperatures were increased step by step by 5°C

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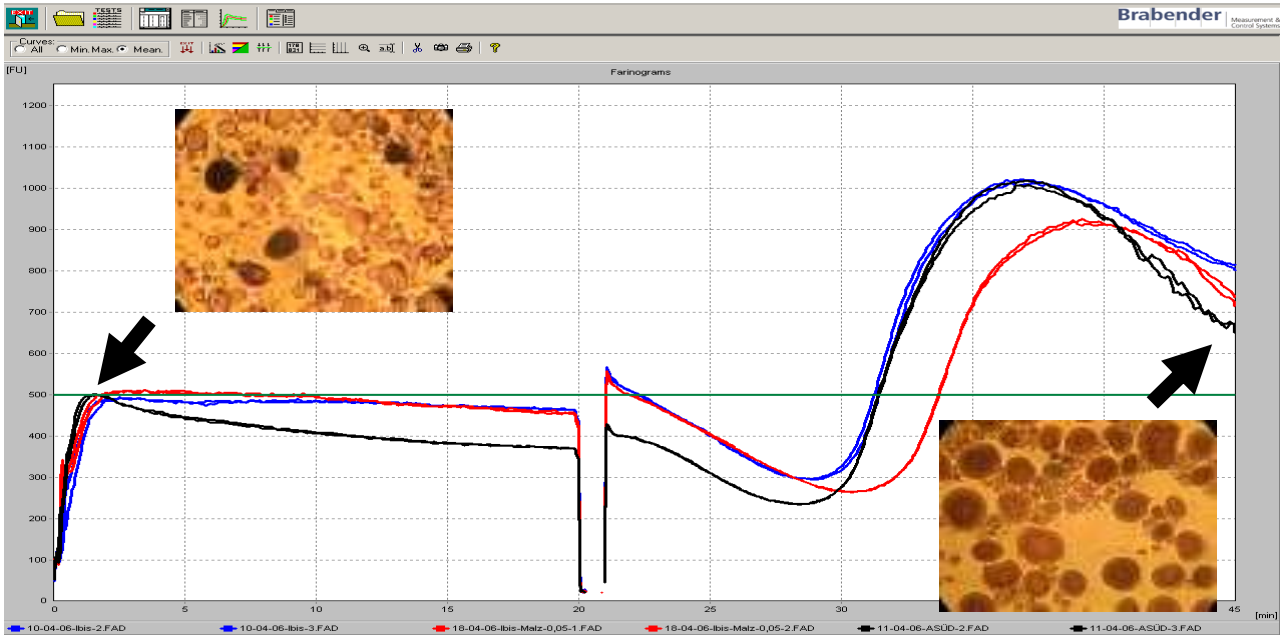
Software for special applications



Strong flour 66,2 %

Strong flour 66,2 % plus 0,1 % malt

Weak flour 58,4 %

- Standard Farinogram (AACC / ICC / and others) - not calculated by software
- Farinogram with speed and temperature profile (30°C - > 96C°; 3,3 °C/min.)
- Heating rates up to more than 10 °C/min. possible
- Measuring of the temperature within the dough

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Thank you very much for your attention

Simply the Originals – Made in Germany

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More info at www.brabender.com

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