



**C.W. Brabender®**  
INSTRUMENTS, INC.

## Brabender® Extensograph®-E

Testing flour quality:

- Stretching behavior of the dough
- Baking characteristics
- Influence of flour additives
- Rheological optimum

Flour testing  
in compliance with

AACC 54-10  
ISO 5530-2  
ICC 114/1



# Brabender

# New features New design

## Extensograph®-E

The application of constant flour qualities is of decisive importance for the milling and baking industries. Different baking products make different demands to the flour quality.

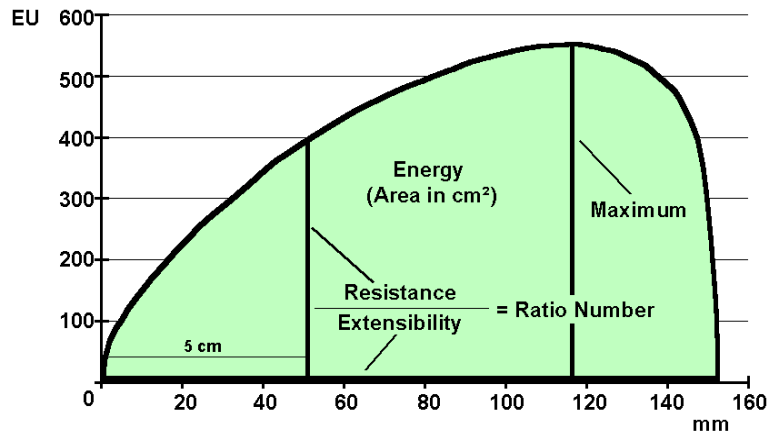
Use the Brabender® Extensograph®-E for measuring the stretching properties of your dough, in particular the resistance to extension and the extensibility, to make reliable statements about the baking behavior of the dough.

Like no other instrument, the Extensograph®-E shows the influence of flour additives like ascorbic acid, enzymes (proteinases), and emulsifiers and, thus, permits to determine the rheological properties of each flour and to adjust the "rheological optimum" for the respective purpose.

### Test procedure

Before starting the test in the Extensograph®-E, prepare your sample dough from flour, distilled water, and salt in the Farinograph®-E. This ensures objectivity and reproducibility during dough preparation and a constant starting consistency.

After a certain proving time, the dough is stretched until rupture in the Extensograph®-E. The force exerted is measured and recorded. This procedure is repeated three times.



### The Extensogram

The Extensogram recorded on-line and represented as a color diagram on the monitor shows the exerted force as a function of the stretching length (time). The shape of the measuring curve and its variation during the individual proving times, the area below the curve as well

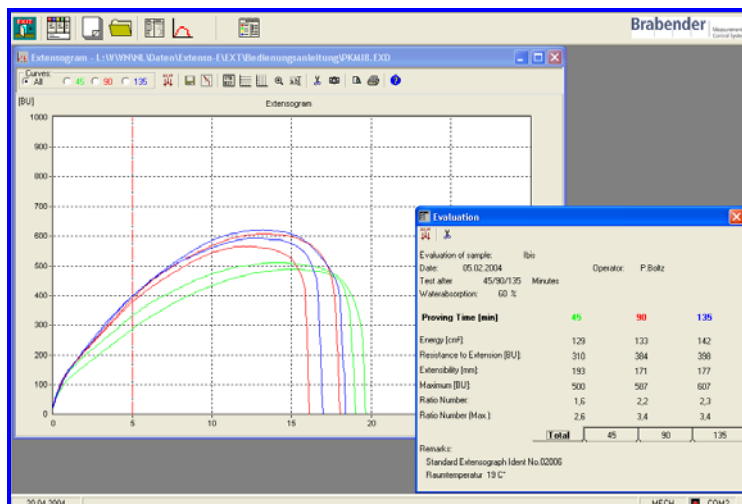
as the numerical values of the different evaluation points permit to make reliable and reproducible representations of the flour quality and the suitability of the flour for a certain task. Furthermore, the influence of flour additives on the flour characteristics can be made evident.

### Standard and short method

There are several standards describing in detail the Extensograph®-E test procedure:

- AACC Standard No. 54-10
- ISO 5530-2
- ICC Standard No. 114/1

In addition to these standard methods, there are accepted short methods that allow saving time with reduced proving times that are similar to those in production - the results correlate very well with those from the standard methods.



## Menu-guided test procedure

The program guides you through the entire test. Clear on-line diagrams show the test progress.

The evaluation is not limited to the standard methods - you can just as well run tests without duplication and with any proving times.

The software manages the day's tests of and shows, for each sample, which proving times have already been completed.

## Automatic test evaluation

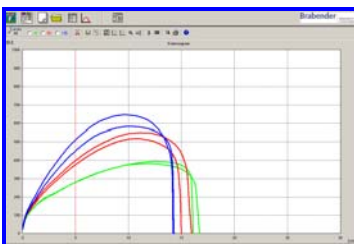
The Extensogram includes

- Resistance to extension
- Extensibility
- Maximum
- Area below the curve (energy)
- Ratio number (extensibility/resistance)
- Extensibility/maximum

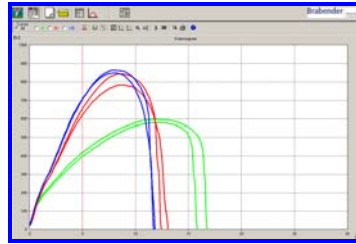
From these values, the rheological properties of the respective flour and the influence of flour additives (ascorbic acid, enzymes, emulsifiers) on the flour quality can be clearly recognized.

Furthermore, the "rheological optimum" for the respective application of the flour can be determined and adjusted on the basis of the evaluation data.

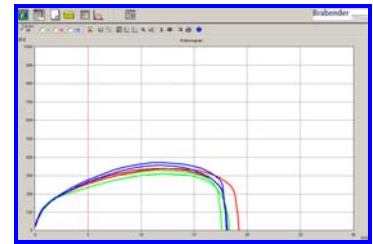
## Extensogram profiles of different flour qualities



- Strong flour
- Extensible, elastic dough
- Suited for long fermentation processes, large proving tolerance
- Light, voluminous baking products with a good volume



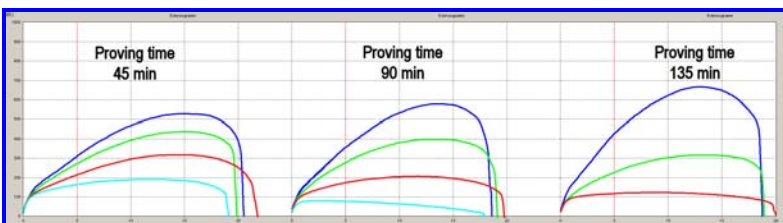
- Rigid, tough dough structure
- Poor extensibility
- Dough hardly rises during proving
- Results in small pieces of dough with poor spring



- Flour producing a wet, plastic dough
- Soft dough
- Narrow fermentation tolerance, dough tends to spread
- Small baking volume



*Influence of ascorbic acid (no and increasing addition)*



*Influence of proteinase (no and increasing addition)*

## Rheological optimum

Different products require different flour qualities and dough properties. The "rheological optimum" characterizes the physical condition of a dough which, under the given processing conditions, supplies an optimum baking result.

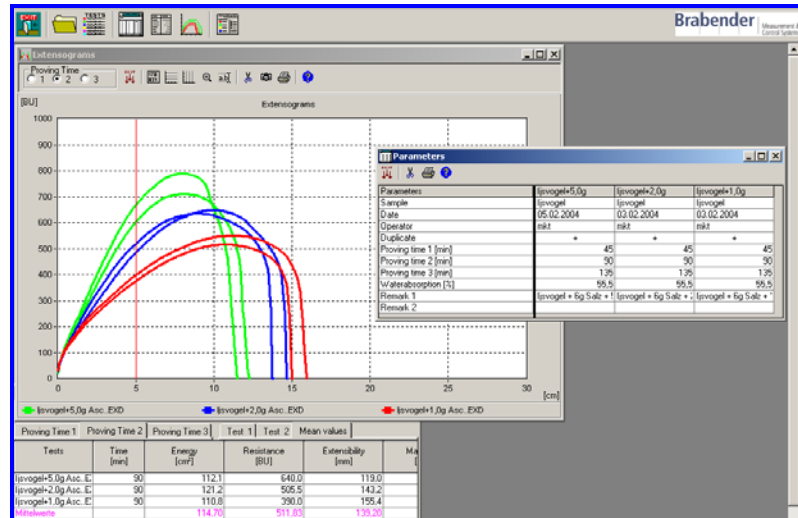
The diagrams on the left show the effect of various amounts of flour additives on the flour quality.

# Data correlation / Specification

## Extensograph®-E

### Data correlation

Use the powerful correlation program to compare diagrams and results of up to 10 tests. Test conditions and results are contrasted in tables and evaluated statistically. Quickly assess trends or irregularities by drawing and printing the Extensograms of a proving time in a single diagram.



### Customer Service

C.W. Brabender® provides unparalleled service and technical support for our customers by employing highly skilled tradesmen, service technicians, and an experienced sales force.

We have a modern application laboratory located at our National Headquarters to benefit the interests of our customers. An experienced technician shall attend to the specific needs of each and every individual, and shall remain present throughout the entirety of the test and trial periods in order to assist in the customer's quest for desired results.

Contact the technical staff at C.W. Brabender® to arrange a personal demonstration of the Extensograph®-E. Discuss what we can do for you...

### Technical data Extensograph®-E

Sample weight	300 g of flour + 6 g of salt + dist. water
Speed of balling unit	83 ± 3 min <sup>-1</sup>
Speed of dough roll	15 ± 1 min <sup>-1</sup>
Speed of stretching hook	14.5 ± 0.5 mm/s
Force measurement	electronically
PC port	RS 232
Mains connection	115/230 V, 50/60 Hz
Dimensions (H * W * D)	
<ul style="list-style-type: none"> <li>instrument with tray holder arms, without rack</li> <li>space required (at table edge)</li> </ul>	450 * 850 * 630 mm 1000 * 850 * 630 mm
Weight	approx. 76 kg

Subject to change of design and technical modification without notice.

Brabender® agencies all over the world.

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Zertifiziert nach  
DIN EN ISO  
9001:2000