Mixolab Series

UNIVERSAL FLOUR & DOUGH ANALYZERS

IMPROVE MILLING & BAKING PROCESS DECISION MAKING WITH OBJECTIVE ANALYSIS

Mixolab 200

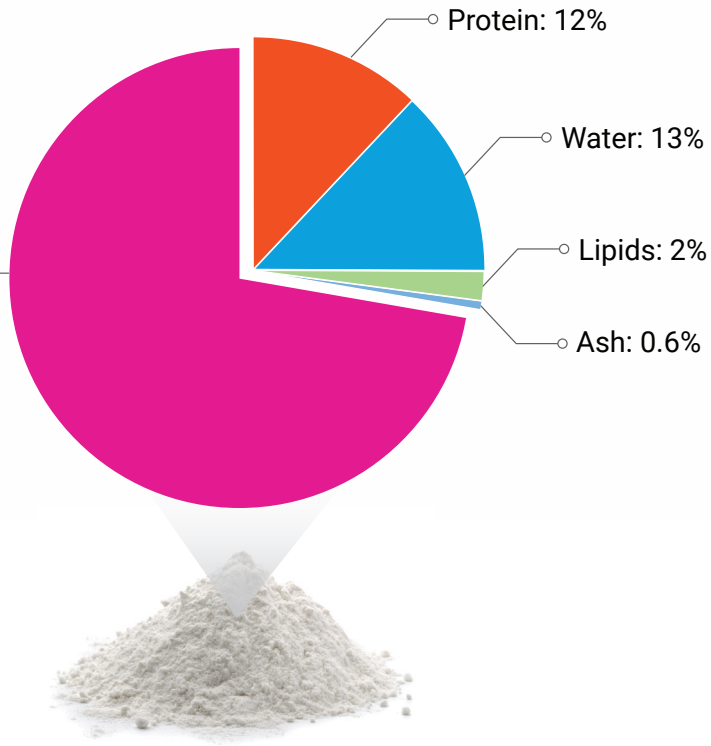
Mixolab 300

CHALLENGES & OPPORTUNITIES IN WHEAT-FLOUR-BREAD QUALITY CONTROL

Protein-Centric Flour Specifications Are Not Enough for Today's Baking Operations

Although proteins, particularly gluten, play a key role in the baking process, starch is the most available component in wheat flour, yet is often ignored in most quality specifications. Therefore, **many bakers still face process issues** despite using flours assessed and approved based on protein characteristics.

Example Flour Composition



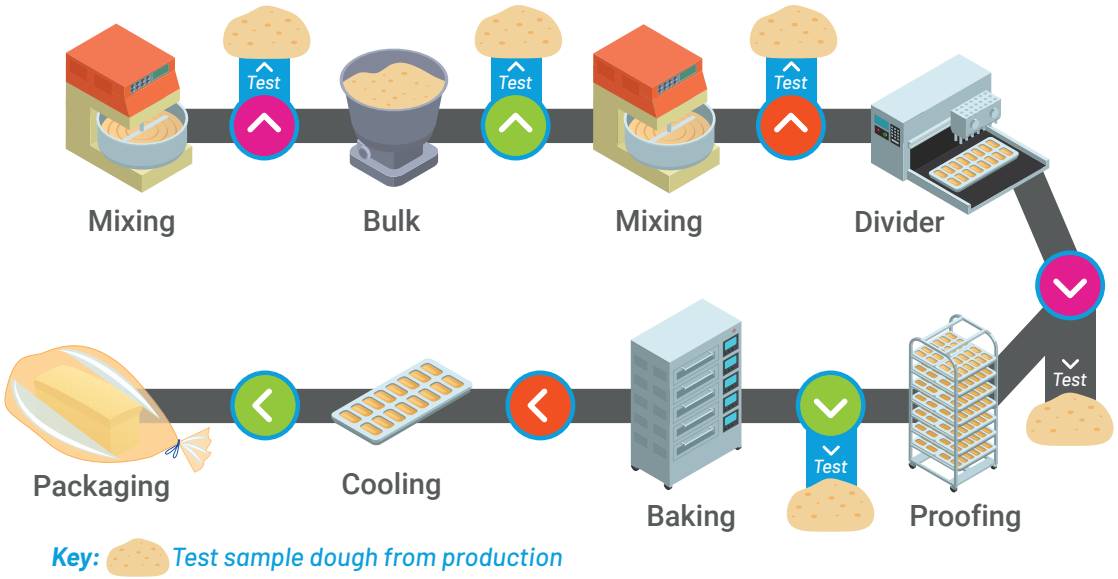
Starch: 72%

Starch has a significant influence on baked product quality but is rarely tested by most flour quality instruments.

At-Line Dough Quality Assessment Lacks Objectivity, Accuracy, and Repeatability

Dough behavior can change significantly throughout the baking process and needs to be monitored frequently at critical process steps. Most bakeries rely on visual or manual assessment of doughs, a subjective and imprecise method that is operator-dependent. This method is becoming more problematic as many baking experts are retiring or leaving the industry, and training new baking operators can take years.

Without a reliable way to quantify dough quality at key process steps, bakeries cannot make informed process control decisions.



Frequent objective testing of doughs throughout production provides a more accurate picture on both flour quality and process performance.

MIXOLAB SERIES: TWO POWERFUL TOOLS TO QUANTIFY FLOUR AND DOUGH BEHAVIOR

Mixolab 200: Comprehensive flour and ingredient analysis for quality control and research applications.

Note: *Upgrading the Mixolab 200 to Mixolab 300 is seamless with the Mixolab 300 Upgrade Kit.*

Mixolab 300: Combines flour and dough analysis into a single, simple solution for lab or at-line use.

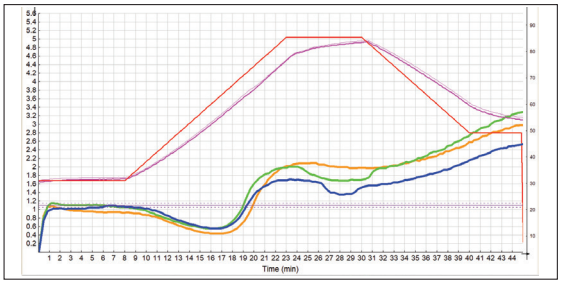
OVERVIEW

The Mixolab Series is the next generation in flour and dough quality analysis. Unlike other rheological instruments, the Mixolab Series is a fully automated tool that simulates the baking process – mixing, heating, and cooling – to assess the functional interactions of starch, proteins, enzymes, and other components.

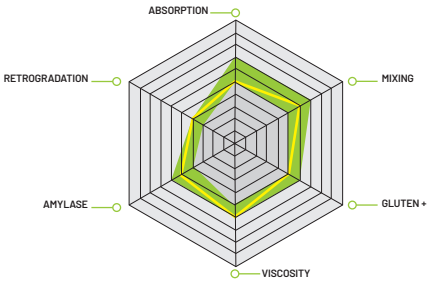
There is a Mixolab Series instrument for every need of all members of the baking and cereal/grains industry. It allows users to validate products, adapt recipes, and improve production processes.

MIXOLAB SERIES FEATURES

- Test all raw materials (wheat, rice, corn and more) and doughs (including batter and liquid doughs).
- Multiple built-in test protocols, with the capability to customize protocols for different flours and baking processes.
- Compliant with international standards: ISO 17718:2013, AACC 54-60.01, ICC 173-1, GOST R54498-2011 and GOST R ISO 17718-2015.



Simulate the entire baking process to accurately characterize flour and dough.



Use internationally-standardized protocols or build your specifications based on comprehensive data.

Simplified at-line dough analysis.

MIXOLAB SERIES BENEFITS

- **For Bakers:** Achieve total process control by evaluating incoming ingredients and dough quality.
- **For Millers:** Improve wheat selection and optimize flour blends to meet customer specifications.
- **For Ingredient Manufacturers:** Objectively assess the influence of enzymes, improvers, and other ingredients on your customer's products.
- **For Recipe Research & Development:** Chopin+ and Chopin+ D protocols simulate the baking process, helping facilitate the product development and research.

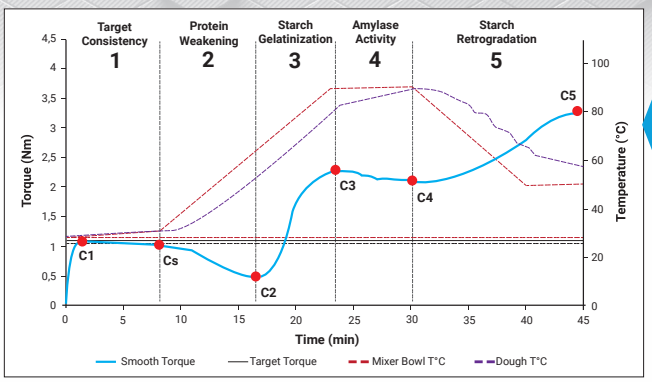
Mixolab Series

FLOUR ANALYSIS

Applicable to both Mixolab 200 and Mixolab 300

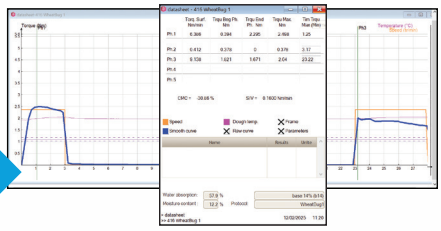
Standard & Customizable Flour Quality Analysis Protocols

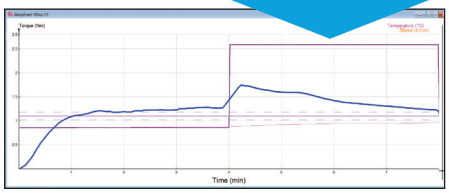
Originally developed for analyzing white wheat flours, the Mixolab Series now offers the most variety of flour and ingredient testing protocols of any instrument of its kind.



The Chopin+ protocol is the international standard for total flour quality analysis.

Wixo protocol simulates the Alveograph test.

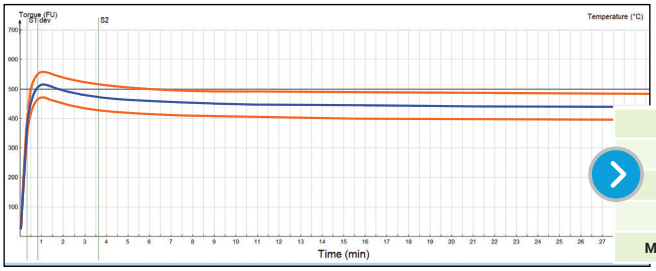




Wheat Bug Protocol identifies flour contamination caused by insects.

Farinograph® Protocol (Chopin-S)

The Mixolab Series is equipped with a test protocol that provides equivalent Farinograph® data (values and units). The data are comparable with those from existing Farinograph® equipment with a much smaller sample size.



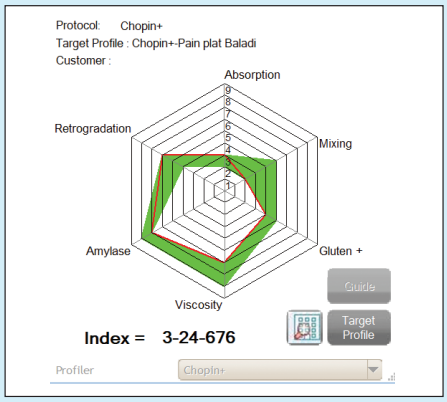
Farinograph® curve from a Mixolab

ABSORPTION	63.4%
DEVELOPMENT TIME	3.8 min
STABILITY	11.1 min
SOFTENING	45 FU
MTI (MIXING TOLERANCE INDEX)	51 FU

Mixolab Profiler for White Wheat Flours

The Mixolab Profiler allows products to be classified based on six quality criteria of the Chopin+ protocol: water absorption, mixing, gluten+, viscosity, amylase, and retrogradation.

Create specific target profiles to better screen and detect under-performing flours.



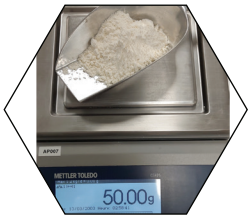
Example Mixolab Profile for a target flour specification.

INDEX TYPE	DESCRIPTION (VALUES FROM 0-9)
ABSORPTION	Ability of flour to absorb water
MIXING	Stability of flour during kneading
GLUTEN+	Resistance of gluten to heat
VISCOSITY	Dough viscosity during heating
AMYLASE	Starch gel stability at high temperature, strongly impacted by amylase activity
RETROGRADATION	Cooked product shelf life

Simple Operating Procedure

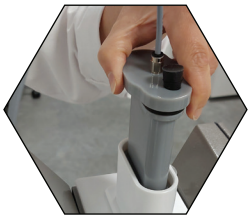
Step 1: Configure the Test

Step 2: Weigh the flour sample



Step 3: Add flour to the mixing bowl

Step 4: Place the hydration nozzle



Test time: 45 minutes

Operator time: 5 minutes

Note: All flour tests utilize the easy-to-clean Standard Mixing Bowl

Dough Analysis Modes

The Mixolab 300 is equipped with two different dough analysis modes:

DOUGH ANALYSIS
Applicable only to the Mixolab 300

- **Instant Consistency Mode:** Ideal for production monitoring, offering an objective reading of the consistency of the dough in as little as two minutes.
- **Full Test Mode:** Ideal for R&D and product development, providing a complete view of dough behavior during mixing, heating, and cooling phases.

Dough Introduction Kit

The Dough Introduction Kit makes it simple to administer doughs and batters of varying consistencies.

Liquid batters

Crumbly doughs (with funnel)

Sticky doughs (with dough pusher)

Simple Operating Procedure

Step 1: Configure the Test

Step 2: Weigh the dough sample

Step 3: Add dough to the mixing bowl

Step 4: Place dough pusher

Test time:
2-to-45 minutes

Operator time:
5 minutes

Note: All dough tests utilize the easy-to-clean Dough Mixing Bowl.

Mixolab Series

TESTING PROTOCOLS TAILORED FOR WHEAT SELECTION, FLOUR CORRECTION, AT-LINE ANALYSIS, AND MORE

Ready-to-Use Mixolab Protocols

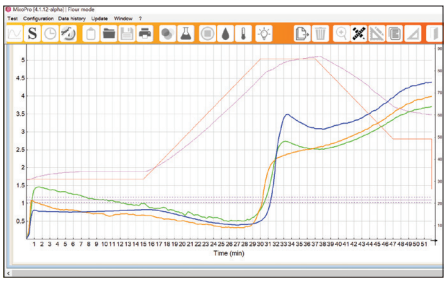
Protocol Name	Description	Tested Product	Applicable Mixolab
Chopin+	Standardized, full analysis (proteins and starch), associated with the Mixolab Profiler for white wheat flour.	White wheat flour	Mixolab 200 Mixolab 300
ChopinWheat+	Copy of the Chopin+, associated with a specific Mixolab Profiler for whole wheat flours.	Whole wheat flour	Mixolab 200 Mixolab 300
ChopinDurum+	Copy of the Chopin+, associated with a specific Mixolab Profiler for durum wheat flour.	Durum wheat flour	Mixolab 200 Mixolab 300
Chopin-S	Protocol associated with prediction algorithms allowing comparable results (values and units) to be obtained with the Farinograph®.	White wheat flour	Mixolab 200 Mixolab 300
WheatBug	Protocol for identifying batches of wheat infested with wheat bugs.	Ground wheat	Mixolab 200 Mixolab 300
Wixo	Protocol associated with mathematical algorithms and allowing an evaluation of the Alveo parameters (P, L, W, Ie), in 8 minutes from ground wheat.	Ground wheat	Mixolab 200 Mixolab 300
Start (with Instant Consistency Mode)	Short protocol to objectively assess the dough consistency and allows to monitor production.	Dough	Mixolab 300
Chopin+ D	Copy of the Chopin+ protocol, dedicated to the full analysis of dough.	Dough	Mixolab 300

Protocol Customization Capabilities

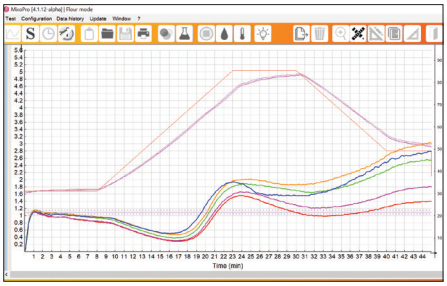
In addition to the ready-to-use protocols, the Mixolab Series offers numerous possibilities for adapting and customizing protocols to respond to most of the new emerging challenges, such as:

- Gluten-free flours
- Starches
- Enzymes
- Pulses
- Vital gluten
- Insect powders, and more

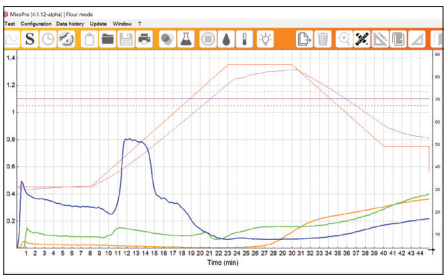
Adjustable Parameters	Range of Values
Mixing Speed	30 to 250 rpm
Sample Weight	45 to 100 g for Flour Mode 10 to 300 g for Dough Mode
Water Tank Temperature	10 to 60°C
Temperature	10 to 90°C
Step Duration	Up to 240 minutes
Temperature Gradient	- 12 to + 12°C/min



Pulse flour comparison curve



Bacterial amylase comparison curve



Various dough comparison curves (cake, brioche, etc.)

EASY TO USE MIXOPRO SOFTWARE

MixoPRO

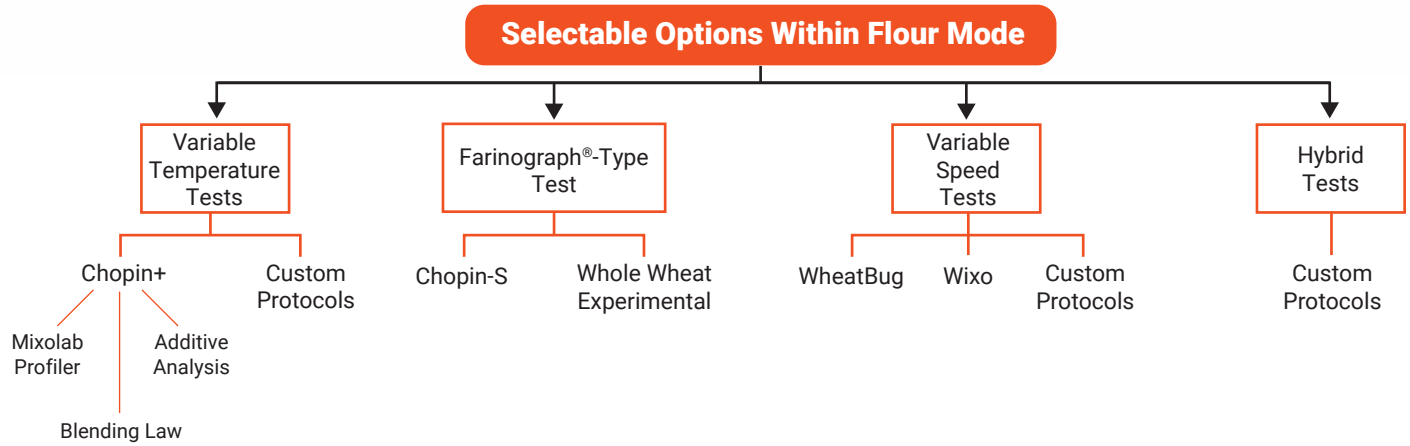
The MixoPRO software with the Mixolab Series is a comprehensive package with advanced features to help users gain valuable insights on their flour and dough products, requiring little training or operator expertise.

Universal Software Features (Both Flour & Dough Modes)

- Available in 17 languages.
- Instructional videos included for easy training and handling.
- Select from various test units (Nm / mNm / °C / °F).
- Compare multiple trials and adapt curve color and thickness for better visibility.
- Export tests in multiple file formats, making it easy to connect to LIMS (.xlsx, .csv, .wdz).

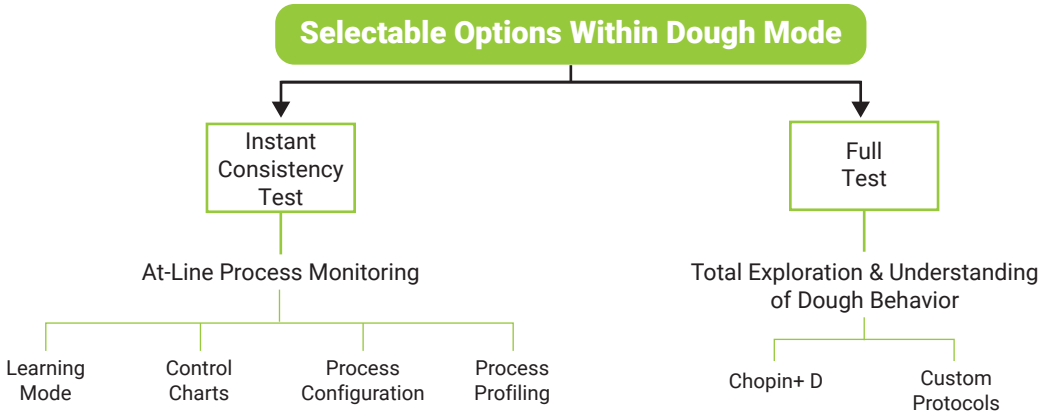
Flour Mode (Mixolab 200 & Mixolab 300)

The MixoPRO Flour Mode provides the complete range of flour analysis for various protocols and custom tests.



Dough Mode (Mixolab 300)

The MixoPRO Dough Mode revolutionizes at-line dough testing, allowing users to quantify dough attributes quickly and simply.



ORDERING INFORMATION

The Mixolab Series comes complete with a kneading machine with accurate temperature control, and an integrated water tank. The system also includes a MiniPC (not furnished: keyboard, monitor, monitor connector cable, mouse). Necessary hydraulic hoses to connect Mixolab to the cold water supply are included, as well as a cleaning brush, a filling hopper and additional spare parts. The cooling system is not furnished.

ACCESSORIES

Part Number	Description
MIX-432	Additional Flour Mixing Bowl*
MIX-431	Additional Dough Mixing Bowl*/**
MIX-191	Flour reference sample for Flour Mixing Bowl calibration
MIX-435	Flour reference sample for Dough Mixing Bowl calibration
MIX-1005	Mixolab 200 spare parts kit
MIX-1015	Mixolab 300 spare parts kit
CHILLER	250W recirculating chiller for Mixolab
CHILLER F500	500W recirculating chiller for Mixolab

Chiller 250w

Chiller 500w

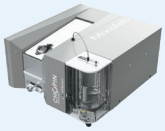
Reference Flour

Flour Mixing Bowl

Dough Mixing Bowl

*A maximum of two Flour Mixing Bowls (numbered 1 and 2) and two Dough Mixing Bowls (numbered 3 and 4) can help streamline testing.
**While the use of two Dough Mixing Bowls is fine for Instant Consistency tests, it is not recommended for full tests.

SPECIFICATIONS



Mixolab 200

Note: *Upgrading the Mixolab 200 to Mixolab 300 is seamless with the Mixolab 300 Upgrade Kit.*

Mixolab 300

	Mixolab 200	Mixolab 300
Analysis Possibilities	Flour	Flour & Dough
Dough Introduction Kit?	No	Yes
Mixing Bowls	Standard	Standard & Dough
Dimensions (W x D x H)	460 mm x 505 mm x 270 mm (18.11 in x 19.88 in x 10.63 in)	460 mm x 505 mm x 375 mm (18.11 in x 19.88 in x 14.76 in)
Weight	33 kg (72.75 lbs)	35 kg (77.16 lbs)
Input Power	220/240 V 50- 60 Hz 1000 W	
Noise Level	< 70 dB	
Fuse	5x20 T 10 A 250 V	
MiniPC Specifications	Windows 10 IOT, Fan-less – 8GB RAM; MixoPRO software pre-installed	
Cooling System	Chiller (recommended / not supplied) or water supply system	
Data Export to USB	Is available	
Printable Results	By connecting an external printer to the MiniPC (printer not supplied)	
Software Languages	Chinese, Croatian, Czech, English, French, German, Greek, Italian, Magyar, Polish, Portuguese, Russian, Romanian, Serbian, Spanish, Turkish, Ukrainian	
Environmental Considerations	Indoor use only; Storage temperature: -25°C to + 55°C (-135°F to +131°F); Operating temperature: 10°C to 30°C (50°F to 86°F); Humidity: Usage RH <= 85%; Cooling circuit water: Water temperature 15°C and 20°C (59°F to 68°F); Power voltage variations: <+/- 10%	
Regulatory Compliances	Degree of pollution as per EN 61010:2; Installation category as per EN 61010: II (surge category)	

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