

PROCESSES FOR OPTIMUM CONTINUOUS FERMENTATION

# PERFECTLY PREPARED DOUGHS



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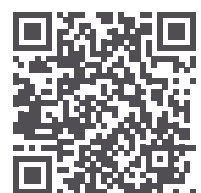
**ZEPPELIN**<sup>®</sup>  
WE CREATE SOLUTIONS





## ZEPELIN SYSTEMS

# TECHNOLOGY FOR PERFECT BAKED GOODS



### MODULE 1

Storage container for flour

### MODULE 2

Water mixing unit  
Differential dosing scale  
DymoMix®

### MODULE 3

Pump for dough



## THE MODULAR DOSING SYSTEM

# MANAGE CONTINUOUS PROCESSES MORE FLEXIBLY

### PRODUCTION MUST ADAPT TO CHANGING MARKETS

The baked goods market has changed enormously in recent years – and with it the variety of baked goods. Today, supermarket freezers offer a wide range of whole grain products, rye, spelt, chia and wholemeal rolls and much more. This is a challenge for industrial bakeries. While large quantities of baked goods with the same raw materials can be easily managed with continuously operating systems, things look quite different when ingredients have to be changed. This requires flexible plant technology.

### A MODULAR SYSTEM FOR MAXIMUM FLEXIBILITY

The modular system offers the ideal prerequisites for responding flexibly to changing markets. Depending on requirements, it can include different components for making dough. For fermented doughs, the system comprises a storage container, water mixing unit, differential dosing scale and the DymoMix® mixer. These elements are essential for the subsequent fermentation and are installed on top of each other in three modules.





## VERSATILE EX WORKS

# THE BEST DOUGH? A QUESTION OF TECHNOLOGY!

### ALL PARAMETERS COORDINATED

For successful fermentation, temperature, water content and the amounts of flour, starter cultures or yeast suspensions must be closely monitored throughout the process. Flour, tempered water and the starter culture or storage leaven for further processing are used as starting materials.

### SUITABLE FOR PRE-FERMENTS AND SOURDOUGHS

The modular dosing system can be used for the production of pumpable pre-ferments and sourdoughs, such as liquid sponge, wheat sourdoughs, unleavened doughs, rye sourdoughs or even spelt pre-ferments and sourdoughs. The plant works with varying raw materials as well as with different quantities. Depending on how the pre-ferment or sourdough is processed, a capacity of between 500 and 6,000 kg/h is possible.

### GOOD TO KNOW!

The modular dosing system can also be used for dough production with the DymoMix® and Codos® kneader configuration. This applies regardless of whether the doughs to be produced require a very high energy input – such as for rolls or sandwich breads – or a relatively low energy input, such as for pastries or certain cookie doughs.



## DOSING AND MIXING

# PRECISION FOR QUALITY

### DOSING TO THE GRAM

The differential dosing scale ensures a continuous and consistent material flow of powdered raw materials. These include starch, proteins or dextrans in addition to grain flours. Together with the powdered raw materials, liquid ingredients such as yeast suspensions or oils are also dosed continuously. Gluten-free products as well are processed without any problems.

### DYMO MIX®: INNOVATIVE MIXING

Liquids and solids are continuously dosed into the DymoMix®, where the raw materials are mixed homogeneously and without lumps by hydration of the powdered components with water or oil. This immediately produces a homogeneous mixture.

### HYDRATION MAKES THE DIFFERENCE

The hydration takes place through a specially developed nozzle in the rotating shaft of the DymoMix®. This forms a liquid shield through which the powdery particles have to penetrate and thus be hydrated. Even at low moisture content, a high-quality product can be produced that can be processed immediately without intermediate steps: The biochemical processes of the pre-ferment can start.







## THE OPTIMUM TEMPERATURE WINDOW

# NOT TOO HOT AND NOT TOO COLD ...

### EXACT TEMPERATURE CONTROL

Exact water dosing and temperature control are just as important as precise dosing and mixing. For example, lactobacilli require approx. 24-26 °C, while yeasts require a few degrees more to initiate an optimal fermentation process, e.g., for liquid sponge.

### UP TO 30 °C DIFFERENCE

It is difficult to maintain the required temperature window. For example, flour temperatures can vary from three to over 30 °C depending on the season and location. Outside temperatures also play a role. Precisely

maintaining the temperature of the dough before it enters the fermentation tanks is controlled by the temperature of the added water. This requires high-level precision and speed.

### THE PLANT THAT GROWS WITH YOU

The doughs are pumped directly into the subsequent fermentation tanks. They remain there until they are used right away or the dough is stored. For storage purposes, the dough must be cooled from 30 to five °C. If additional fermenters are required, these can be integrated in addition. The plant therefore grows with the bakery's requirements.

## INNOVATIVE DESIGN

# THE ADVANTAGES OF A MODULAR SYSTEM

### QUICK COMMISSIONING

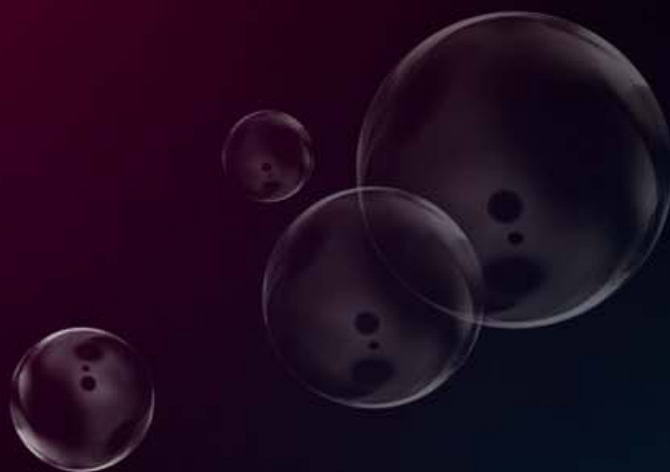
The modular design of the system has additional advantages. The tower is a compact, space-saving system that can be set up in a very short time. Modularization and plug-in control modules make the setup quick and easy. Thanks to a FAT (Factory Acceptance Test) at Zeppelin Systems, commissioning times can be minimized.

A further advantage of the modularity: the new system is uniformly designed for all target markets – in addition to Europe – Africa, Asia and Australia as well as North and South America. This is a major advantage for companies with production facilities in different countries.

### EASE OF MAINTENANCE

All units such as pumps used for dosing liquids, flow meters, valves and measuring instruments can be readily serviced thanks to their easy accessibility. This adds economic efficiency to flexibility.





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