



**SACMI**

**CBF**

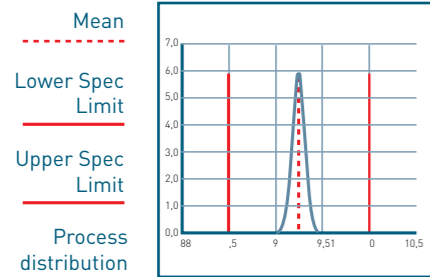
Compression Blow Forming for the Dairy Industry

# SUPERIOR QUALITY CONTAINERS FOR THE DAIRY INDUSTRY

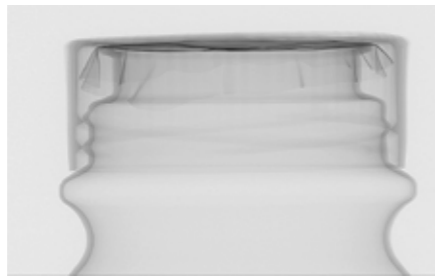
## SUPERIOR NECK QUALITY AND CONSISTENCY

Improved sealing performance, higher consistency and repeatability of all bottle specifications.

## SUPERIOR CONTAINER PROPERTIES



Weight [g] - Normal distribution



X ray photo of a bottle

## NO GATE

Superior performance against stress cracking & improved product appearance.

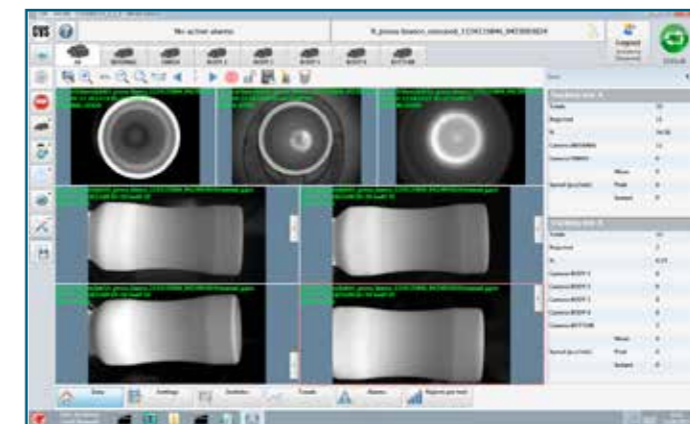


## SUPERIOR PROCESS QUALITY

Superior sustainability and purity due to lower melt temperature. Higher consistency and repeatability of all bottle specifications, delivering the highest performance levels.

## 100% PERFECT BOTTLES

Thanks to a fully integrated quality control vision system, CBF ensures full compliance with specifications for all produced bottles.



In recent years the DAIRY market has shown clear signs of strong worldwide growth. SACMI, which has long been active in this sector, is now strengthening its presence and extending its already-comprehensive range of technical solutions thanks to the introduction of CBF technology. CBF (Compression Blow Forming) machines constitute the technological link that completes the SACMI solution range for the

DAIRY industry. This includes complete filling lines for dairy products, the widely acclaimed range of thermoforming machines and fully tested and approved end-of-line solutions. CBF machines reinforce SACMI's presence in a highly strategic market segment and represent clear evidence of SACMI Group's renewed commitment to leading this segment by introducing innovative technologies.

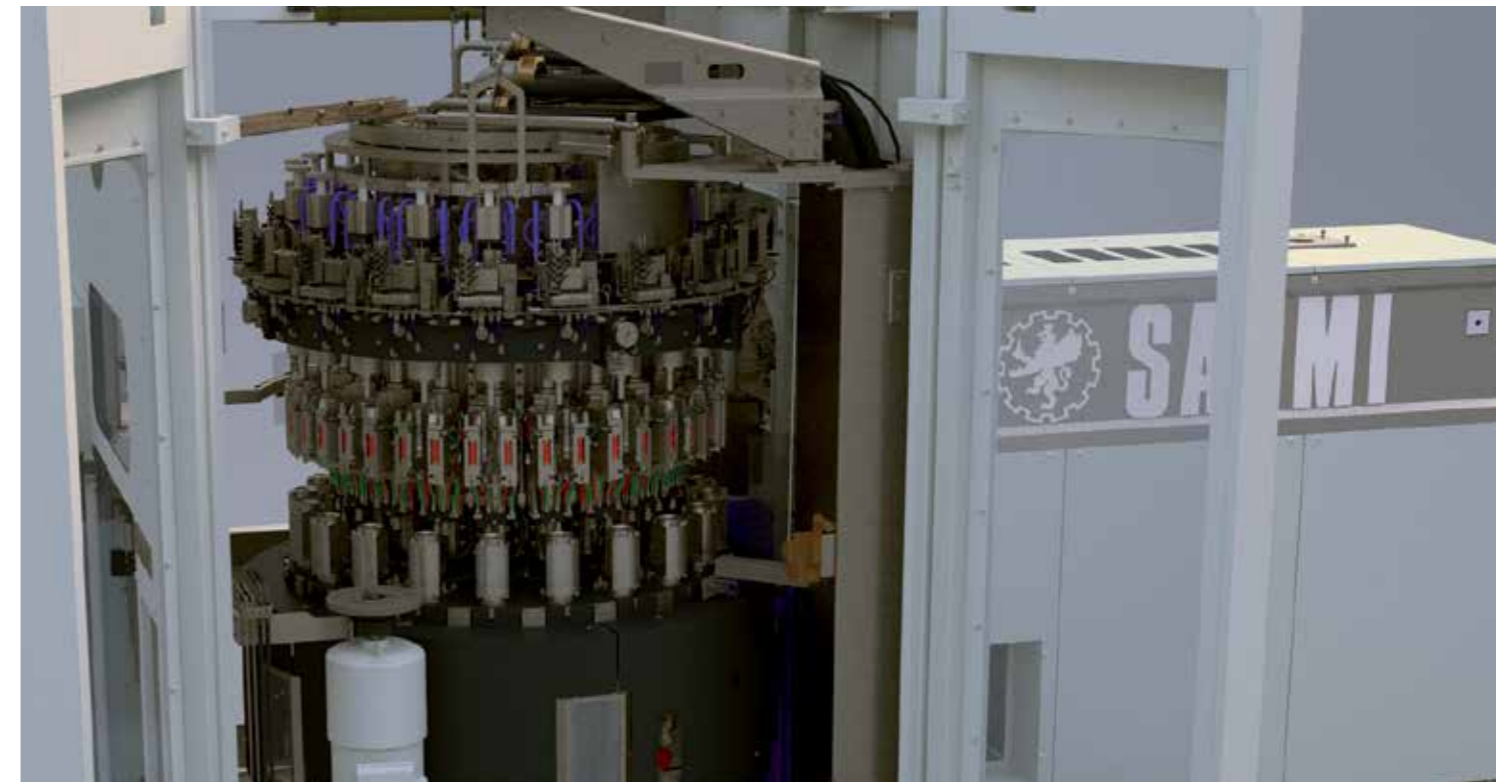
# Technical content on this innovative process

Key process factors



# Compression Blow Forming

The competitive advantages of an innovative technology



## State-of-the-art technology

CBF (Compression Blow Forming) is a unique combination of compression molding and blow forming. From resin to bottle in one single rotary station: the process begins with the resin being introduced into a continuously operating extruder. The continuous extruder itself provides a constant supply of molten resin which is cut into precisely pre-sized pellets which are then inserted into an open compression mold. This compression cycle molds the preform to have exactly the same weight as the final container. The preform is temperature controlled to provide the best blow process properties. The blow mold

is then activated and the preform is blown into the final desired shape without requiring any trimming, thus dramatically reducing scrap. The container is then transferred by a positive control system to the exit conveyor and during this part of the process leak detection as well as visual quality control is carried out on every single container. CBF is a continuous process and allows for maximum machine compactness and fully integrated quality control. From resin to bottle with a single, compact and highly controlled unit: CBF is a game-changing technology for the dairy industry.

## Total cost of the bottle

- Higher efficiency
- Lower start-up time
- Lighter bottle with improved mechanical properties
- Reduced labour requirements
- Less floor space

## Sustainability

- Lowest power consumption in the industry
- Lower scrap rate during production
- Less material wastage during color change

## Superior Bottle Quality

- CBF technology reduces variability, improving tolerances and statistical capability
- Highly repetitive manufacturing process delivering superior consistency
- No hot-runner on extrusion system
- No gate, no welding lines
- Zero resin scrap during production
- Improved sustainability and purity due to lower melt temperature

find out more about CBF



# GAME-CHANGING TECHNOLOGY FOR PLASTIC CONTAINERS



## PROCESS

One continuous process to manufacture bottles straight from pellets.

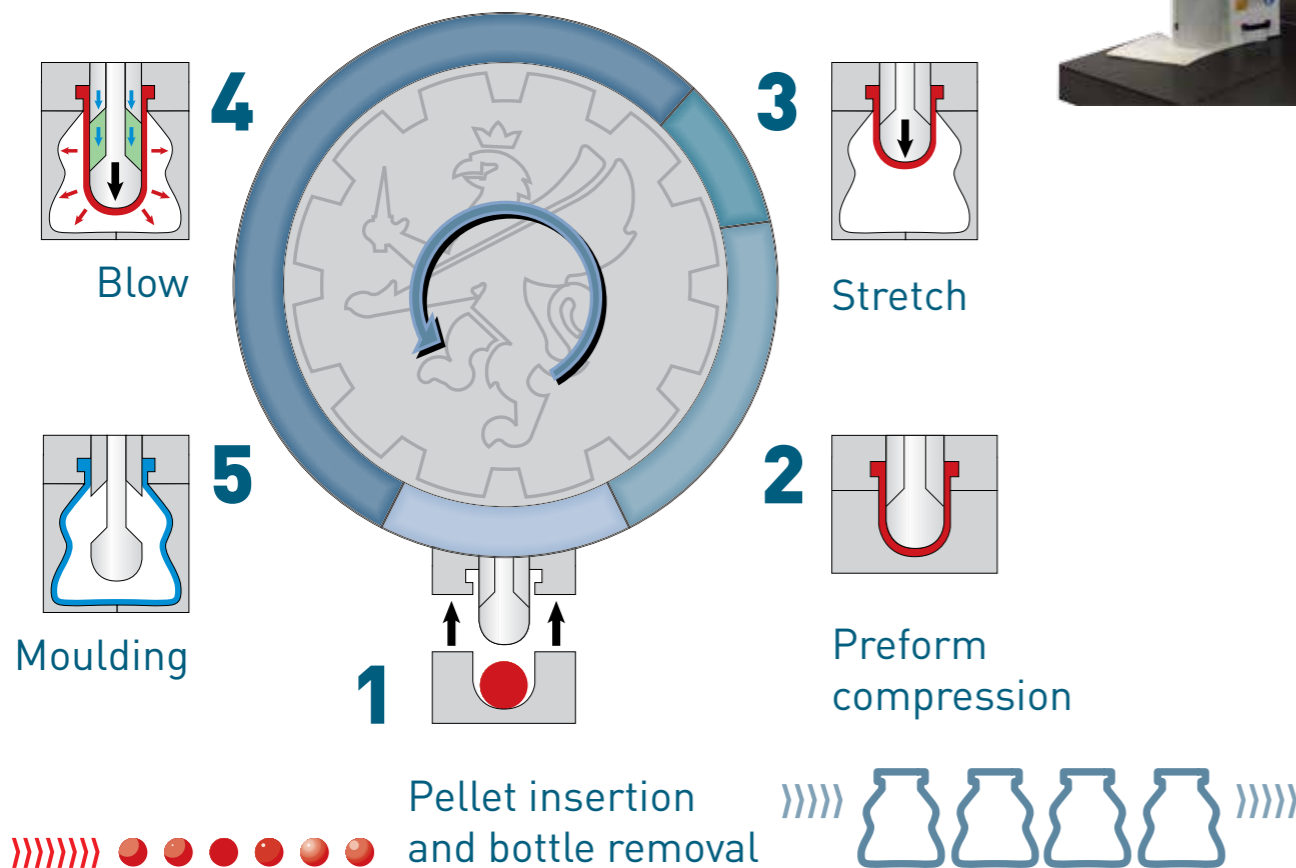
## MODULAR TOOL

designed for maximum flexibility



## POSITIVE CONTROL

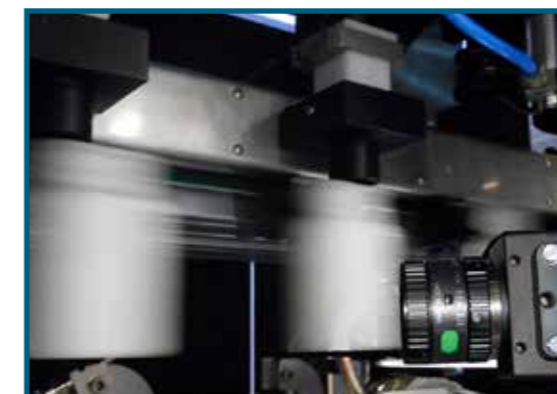
of the bottle



## TOTAL QUALITY CONTROL

performed on each bottle produced

*bottle vision system*



*leak test*



# Sacmi product development lab

The advantages of a partner with development and testing skills

# 100% perfect bottles

Case studies

In the Closures and Containers LAB, the CBF-LAB provides all customers with complete development of dairy packaging solutions, from the initial idea to final testing and start up on the line:

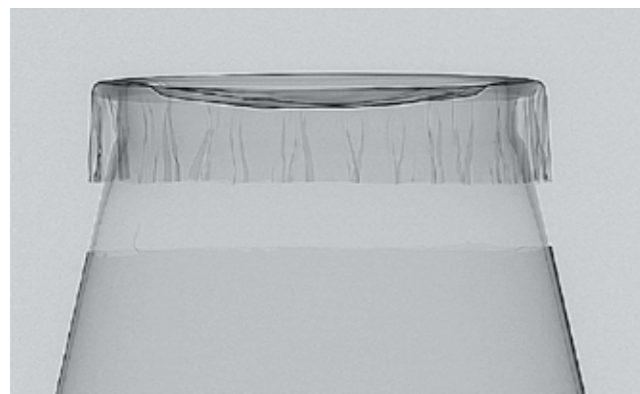
- 3D modelling, rendering and mock up, container prototyping
- Material and additive testing and characterization (DSC, DMA, crystallinity, viscosity)
- Container sizing (optical, CMM, thickness, statistical analysis)
- Container performance (mechanical performance, sealing performance, OTR , WVTR)



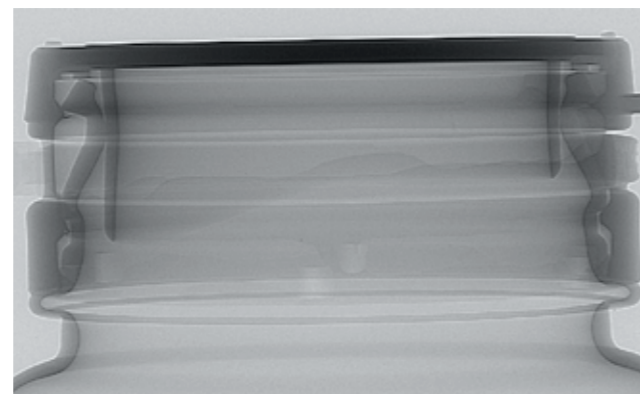
FINISH & CLOSURE  
WITH ALUMINIUM FOIL SEAL



FINISH & CLOSURE  
WITH INTERNAL PLUG SEAL



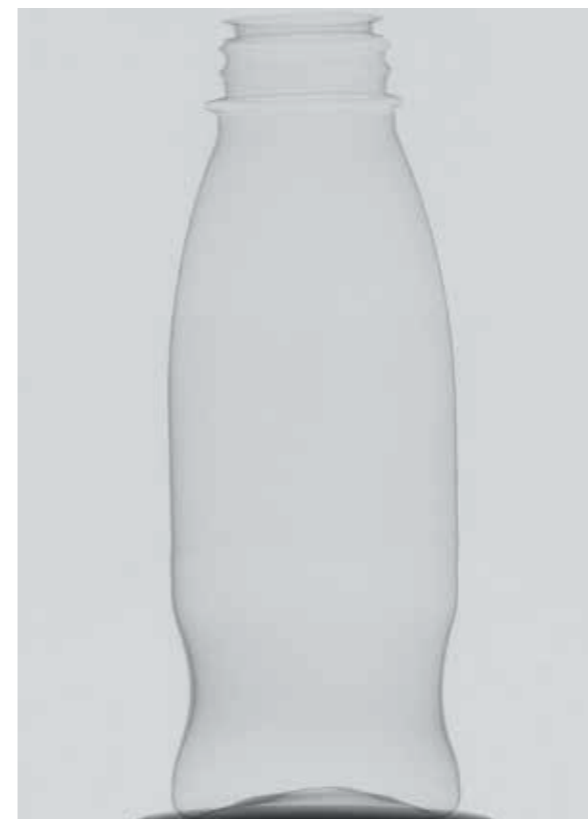
FINISH FOR  
ALUMINIUM FOIL SEAL



FINISH & CLOSURE SNAP-ON  
WITH INTERNAL PLUG SEAL



Case Study - Summary Data	
nominal capacity	100 ml
resin	HDPE
master	none
overall weight	4.7 g
bottle weight ST. Dev	0.02 g
bottle weight range	± 0.06 g
bottle height	89 mm
bottle diameter	43 mm
mean body thickness	0.4 mm
top load resistance	70 N
max top load resistance	> 100 N



Case Study - Summary Data	
nominal capacity	350 ml
resin	HDPE
master	none
overall weight	20.7 g
bottle weight ST. Dev	0.02 g
bottle weight range	± 0.06 g
bottle height	170 mm
bottle diameter	62 mm
mean body thickness	0.55 mm
top load resistance	150 N
max top load resistance	> 200 N

# A wide range of forms

The huge potential of CBF

The CBF range of machines covers a broad variety of products that respond to the demands of today's DAIRY market. This innovative technology allows producers to manufacture all the most commonly used liquid yogurt and single-serve probiotic containers while maintaining excellent product quality standards. CBF also creates plenty of opportunities to make the container lighter.

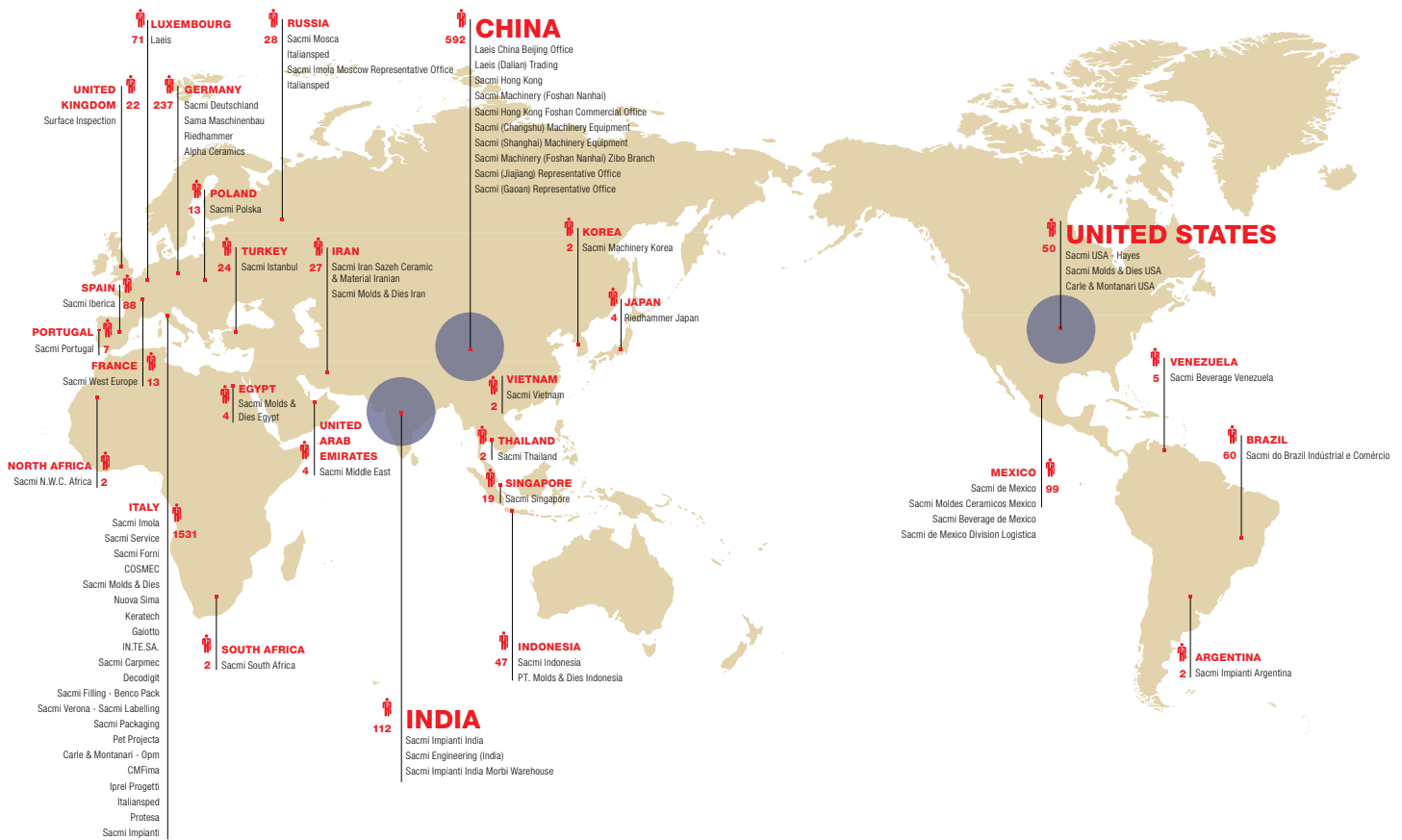
Moreover, CBF provides competitive manufacturing solutions for higher-volume bottles, such as in the fresh milk industry. Another interesting field of application for this technology is the yogurt industry since CBF machines can also produce wide-mouth containers suitable, for example, for desserts.

CBF is the ideal solution for container manufacturers who, now more than ever, are looking for an optimum combination of key factors such as high output rates and flexibility. Absolute container quality is made possible by the numerous control devices integrated inside the machine and can be combined with outstanding container lightness without modifying mechanical properties.

Moreover, CBF offers a perfect response to the needs of the DAIRY market as all available resins can be processed on this technology. CBF machines offer the best response to market needs and can handle even the broadest output and/or container requirements.



# Sacmi machines and plants for dairy containers: know-how and certified solutions



## CBF technology and products have already been chosen by customers in the biggest dairy markets worldwide: USA, CHINA and INDIA.

SACMI is a multinational cooperative and the world-leading designer, builder and distributor of plant engineering solutions in the ceramics, beverage & packaging, food & pharma, automation and service industries. The Group is present in no less than 30 countries and consists of 80 companies.

The SACMI network provides advanced after sales service thanks to its far-reaching web of branches and assistance centres, located on all the main markets; there is also an optional Teleservice that can be used with all our plant solutions. The latter ensures

customers can count not only on a fast, efficient spare parts warehouse but also on remote diagnostic services where specialised SACMI technicians work alongside the customer to analyse individual machines and find solutions to any production issues.

The Sacmi Group's technological/market leadership position within its various businesses areas, not to mention the Group's financial solidity, provides customers with production effectiveness and efficiency they can count on, achievement of expected results and a fast return on investment.



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