



# SNACK

## TWIN SCREW EXTRUSION LINES

FLEXIBLE SYSTEMS DESIGNED  
FOR PRODUCT INNOVATION  
AND PRODUCTIVITY



# RESEARCH AND INNOVATION

Our skills and expertise span many areas of food processing in fields as diverse as thermal control, mechanical engineering, metallurgy, automation, etc. This choice to develop a wide variety of disciplines enables us to anticipate market trends and to assist our clients in their innovations.

## A PARTNER IN NEW PRODUCT DEVELOPMENT

Clextral helps clients develop new products and improve processes by providing expert assistance and equipment at our test facilities. Our R & D services help snack manufacturers anticipate and respond to new trends by managing and implementing their innovations.



## TEST CENTERS

Clextral's three research centers in Firminy - France, Tampa - FL USA and Melbourne - Australia are dedicated to developing new products and improving processes.

Design, laboratory testing, prototyping, small batch processing, industrial simulation are performed independently and confidentially.





# SNACKS IN ALL SHAPES AND SIZES

Flexible lines designed for product innovation and productivity.

Clextral twin screw extrusion production lines can process various cereal based snacks – uncoated, coated or filled – in a wide variety of raw materials and shapes.

Highly flexible and scalable, they can be quickly and economically modified to manufacture innovative products such as 3D direct expanded, co-extruded, chips or bread-style snacks with clip-on equipment.



## **COST-EFFECTIVE: HTST (HIGH TEMPERATURE SHORT TIME) PROCESS**

- Intensified transformation process generates savings in raw materials, water and energy
- Hygienic processing and simplified maintenance design
- Compact footprint for reduced floor space requirement
- Advanced automation designed by our experts ensures precise process control, resulting in consistent and repeatable quality.

DIRECT  
EXPANDED  
SNACKS



MULTIGRAIN  
CHIPS



BREAD  
SNACKS



CO-EXTRUDED



CHIPSTICKS



BI-COLORED



## **THE TWIN-SCREW EXTRUSION PROCESS: FLEXIBILITY FACILITATES PRODUCT INNOVATION**

- Productive and controlled manufacturing: continuous high-capacity processing, fast automated changeovers, recording and management of settings and recipes, quick and easy die changes, simple cleaning and maintenance
- Diversity of raw materials, using a wide range of ingredients (flour or meal using refined or whole cereals, exotic raw materials, classical cereals, etc.) and process flexibility to enable changes in product features (particle size, moisture or variable fat content)
- A variety of operating conditions to produce specific textures and densities
- A wide range of sizes, shapes and fillings
- Clip-on equipment: Simple adaptation of add-ons to extend your range of products: various shapes, bi-colored and co-extruded snacks, bread snacks, multigrain chips, etc.

# COMPLETE SNACKS PRODUCTION WITH CLIP-ON EQUIPMENT

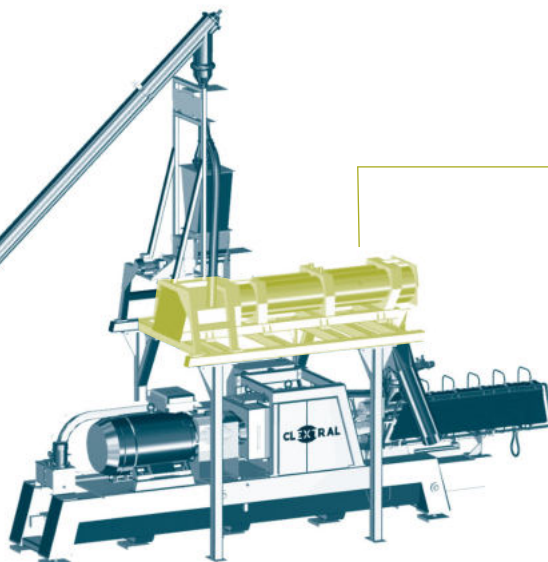
## RAW MATERIAL MIXING & FEEDING



- A wide range of raw materials can be used : cereals (corn, wheat, oat, barley, rice ...), whole grains and / or mixtures of grains, ancient grains (amaranth, quinoa ...), etc.



## EXTRUSION COOKING & SHAPING

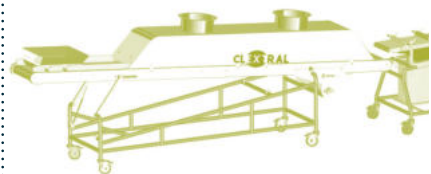


- The paste formed by the action of the co-rotating screws is pushed through the die to shape products in different sizes and structures.
- Preconditioning equipment can be add-on for the production of multigrain wavy chips.



## SHAPING & CUTTING POST-EXTRUSION UNIT

### MODULAR CLIP-ON EQUIPMENT



- Clip on modules enable you to extend your range of products. Various 3D shapes, bi-colored and co-extruded snacks, bread snacks (croutons), chipsticks or multigrain chips can be manufactured on Clextral snack lines.



**Finished product capacity : 200 kg/h to 2 000 kg/h**

## DRYING



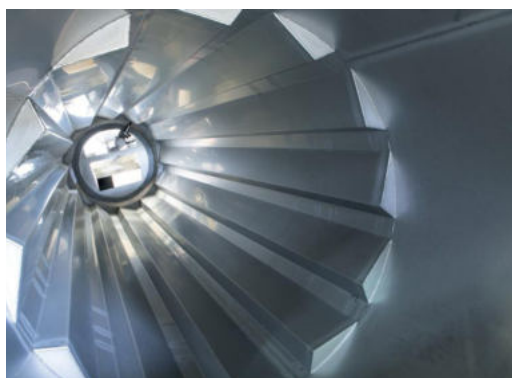
- Drying involves evaporating the liquid in the product, without altering its essential characteristics. It also allows the introduction of new features. The drying step provides essential product characteristics that extend shelf life, ensure quality and simplify transport.



## COATING & FLAVOURING



- Coating impacts product appearance, texture, structure and taste features. It gives the desired visual aspect and taste to the finished product.





Leveraging its core expertise in twin-screw technology, Clextral provides its customers with turnkey processing lines that integrate extruders, dryers and ancillary equipment. Its reliable and innovative systems are quality and excellence benchmarks in its three key markets: Food & Feed, Green Industries and Powder Industries. Clextral is also designing and manufacturing high-precision industrial pumps for the energy and chemical markets. Its global offering includes upstream design and testing of industrial solutions, equipment manufacturing, on-site installation and full maintenance and continuous process improvement services. Based in Firminy (France), Clextral is present on all five continents, providing local support to its customers all over the World.



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