

# PETFOOD IN ALL TEXTURES, SHAPES AND COLORS

Clextal twin-screw extrusion systems produce innovative and premium pet food with breed-specific characteristics that boost consumer appeal.

With Clextal's technology, pet food producers can control all process parameters to tailor kibbles for individual animals: degree of hardness, size, shape, moisture content, texture, flavor, healthy ingredients, etc.



DRY KIBBLES



SEMI-MOIST KIBBLES



CO-EXTRUDED

## THE TWIN-SCREW EXTRUSION PROCESS: FAST, HYGIENIC, SIMPLE, COST-EFFECTIVE

- **Productive:** continuous processing, fast changeover of configuration and easy cleaning and maintenance
- **Product-process flexibility:** continuous processing of a wide range of raw materials (natural ingredients, grain free, fresh meat, high protein, high fat, etc.) and recipes for a variety of nutritionally-balanced products
- **Different textures, shapes and appearance:** variable density, moisture content, hardness, etc.
- **Perfect process control with advanced automation:** consistency, accuracy and repeatability in product features and quality
- **Intensified processing** to reduce water and energy consumption, lower operational costs and contribute to Sustainable Development

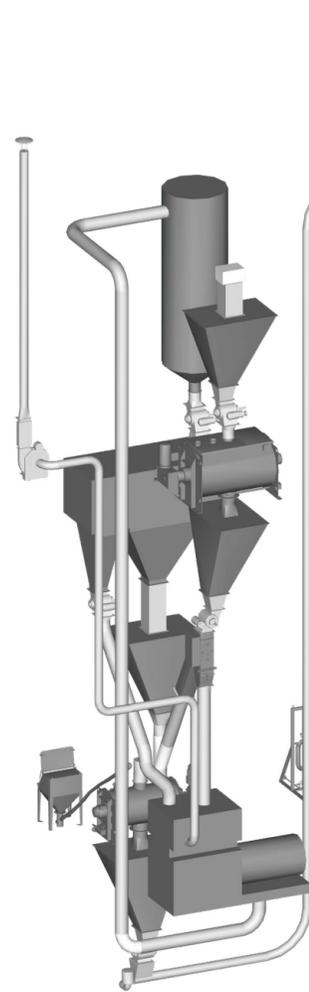


### COST-EFFECTIVE: HTST (HIGH TEMPERATURE SHORT TIME)

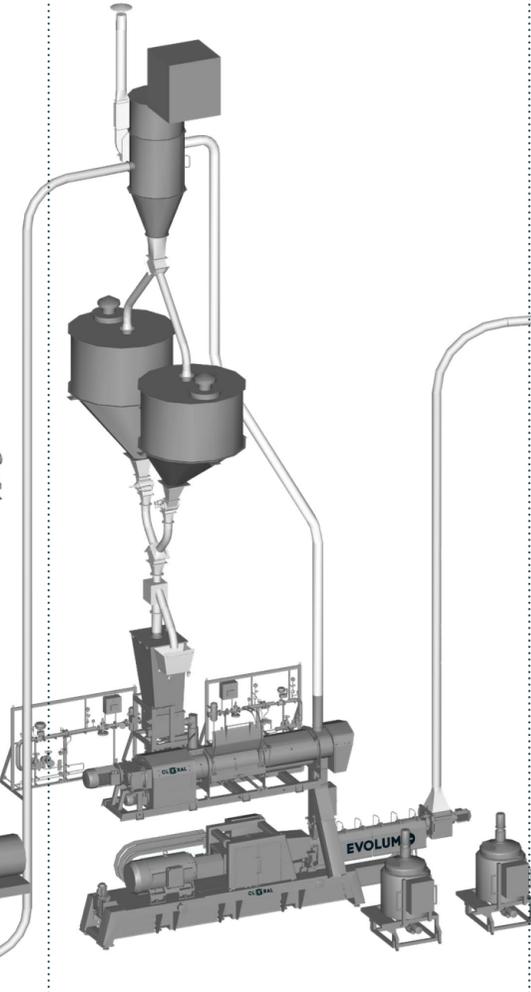
- Intensified transformation process generates savings in raw materials, water and energy
- Hygienic processing and easy maintenance
- Compact design with reduced floor space requirement
- Advanced automation designed by our experts ensures precise process control for consistent and repeatable quality

# PETFOOD TWIN SCREW EXTRUSION LINE

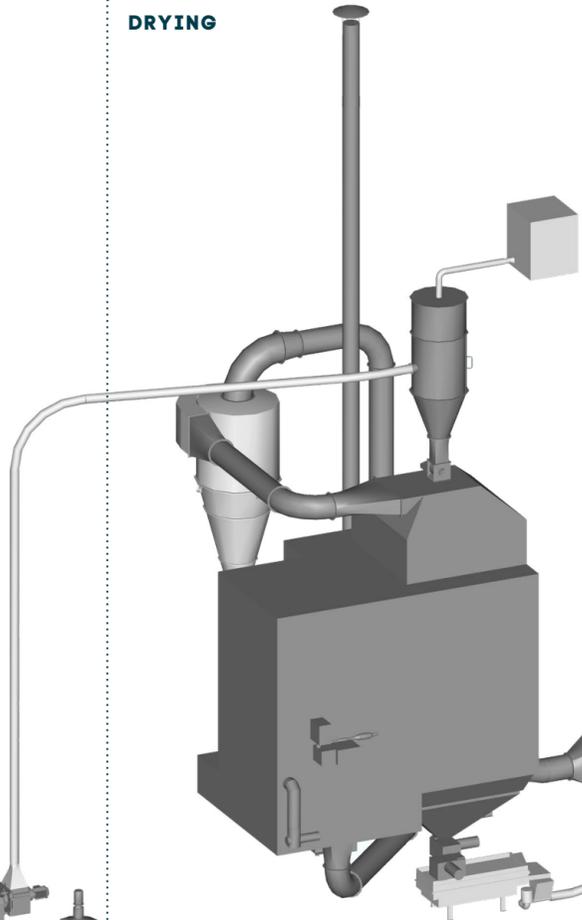
## RAW MATERIAL GRINDING AND MIXING



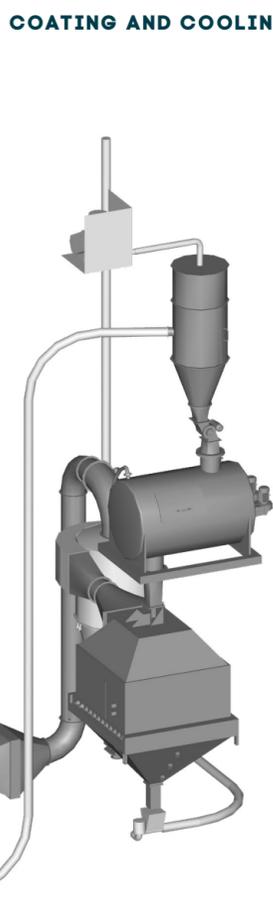
## EXTRUSION COOKING & SHAPING



## DRYING



## COATING AND COOLING



• A wide range of raw material can be used: cereal flour, vegetable proteins, meat flour, minerals and vitamins and, in some cases, fish flour and fresh meat.



• The dough formed by the action of the co-rotating screws is pushed towards the die to shape products in different sizes and textures whatever the feed composition.



• Drying reduces the moisture content of the product, without altering its essential characteristics. The drying step extends product shelf life, ensures consistent texture quality and simplifies any handling operations.

• Coating adds flavor, taste, texture, and nutritional features, and can enhance product appearance.

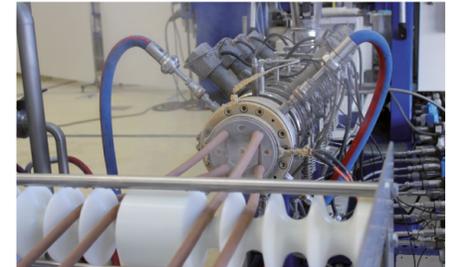
## CLIP-ON EQUIPMENT TO EXTEND YOUR POSSIBILITIES

Clip on modules allow you to extend your range of products. These technologies can be installed on existing lines.

### CO-EXTRUSION CLIP-ON

Co-extrusion is a process to make products combining two distinct characteristics: a crisp cereal-based exterior and a soft filling.

The extruder creates the directly expanded outer shell and the auxiliary system injects the filling at the die level. Using a modular co-extrusion platform, the production line can process both filled and unfilled products.



### CRIMPER

The EVOLUM® PF range of crimper machines is dedicated to shaping the coextruded products coming out of the co-extrusion die with a wide variety of traditional and innovative shapes: pillows, triangles, tubes, bars, sticks, diamond shaped, specialty profiles...



# RESEARCH AND INNOVATION

Our technologies and expertise span many areas of food processing in fields as diverse as thermal control, mechanical engineering, metallurgy, and process automation. Through this wide variety of disciplines, we utilize our competencies to anticipate market trends and 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 fully-equipped test centers. Our R & D services help pet food manufacturers leverage their extrusion technology to stay on the leading edge of industry trends while implementing their innovations.



## TEST CENTERS

Clextral's research centers are innovation hubs that combine our extensive product development and production resources with industry-leading expertise.

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

## WORLDWIDE PRESENCE



# PETFOOD TWIN SCREW EXTRUSION LINES

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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FOR PRODUCT PREMIUM PETFOOD  
PRODUCTION



CLEXTRAL A DIVISION OF GROUPE LEGRIS INDUSTRIES

**CLEXTRAL** Extrusion  
Expertise  
Excellence

