



CLEXTRAL

**FOOD AND FEED
APPLICATIONS**



**Technology for
a Changing World**

Turning technology into opportunity

CLEXTRAL'S CO-ROTATING TWIN SCREW EXTRUSION PROCESS

It was Clextral's technical experts who first recognised twin screw extrusion's potential for food and feed applications. In 1970, we developed the first twin screw extruder to manufacture crispbread, creating an entirely new category of snack foods. Our leadership in exploring new food applications has helped processors around the world to benefit from the efficiency, flexibility and economy of the twin screw extrusion process.

Simply defined, a twin screw extruder is *a processing machine consisting of two identical co-rotating intermeshing self-wiping screw profiles operating within a closed barrel.*

Yet, Clextral twin screw extruders offer much more. For over 25 years, we have worked relentlessly to create the most technologically advanced, yet easy-to-use extruders available.

Clextral's technical experts are your partners in extrusion. We offer the equipment and the expertise to help you reach your product goals.

Clextral twin screw extruders offer exceptional versatility in processing, for:

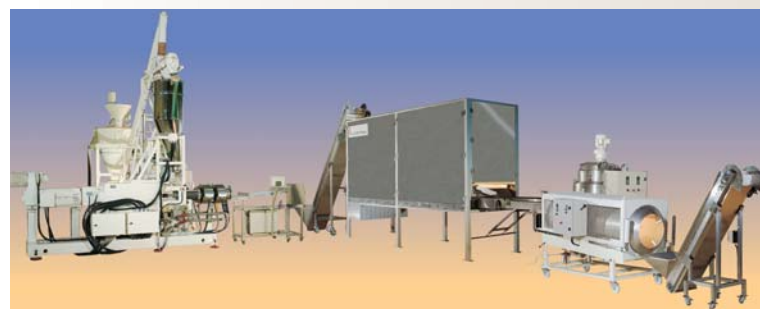
- Material Conveying
- Mixing
- Kneading
- Compression
- Shearing
- Heating
- Cooking
- Cooling
- Pressure Drop
- Degassing
- Chemical Reaction
- Extraction of Liquids
- Shaping



Applications include:

- | | |
|------------------------|-----------------------|
| ■ Snacks | ■ T.V.P. |
| ■ Breakfast Cereals | ■ Confectionery |
| ■ Co-extruded Products | ■ Ingredients |
| ■ Pre-cooked Flours | ■ Caseinates |
| ■ Flat Bread | ■ Petfood |
| | ■ Fish & Aquatic Feed |

Clextral is your reliable source for food and feed extrusion systems, from one machine to turn key production lines.



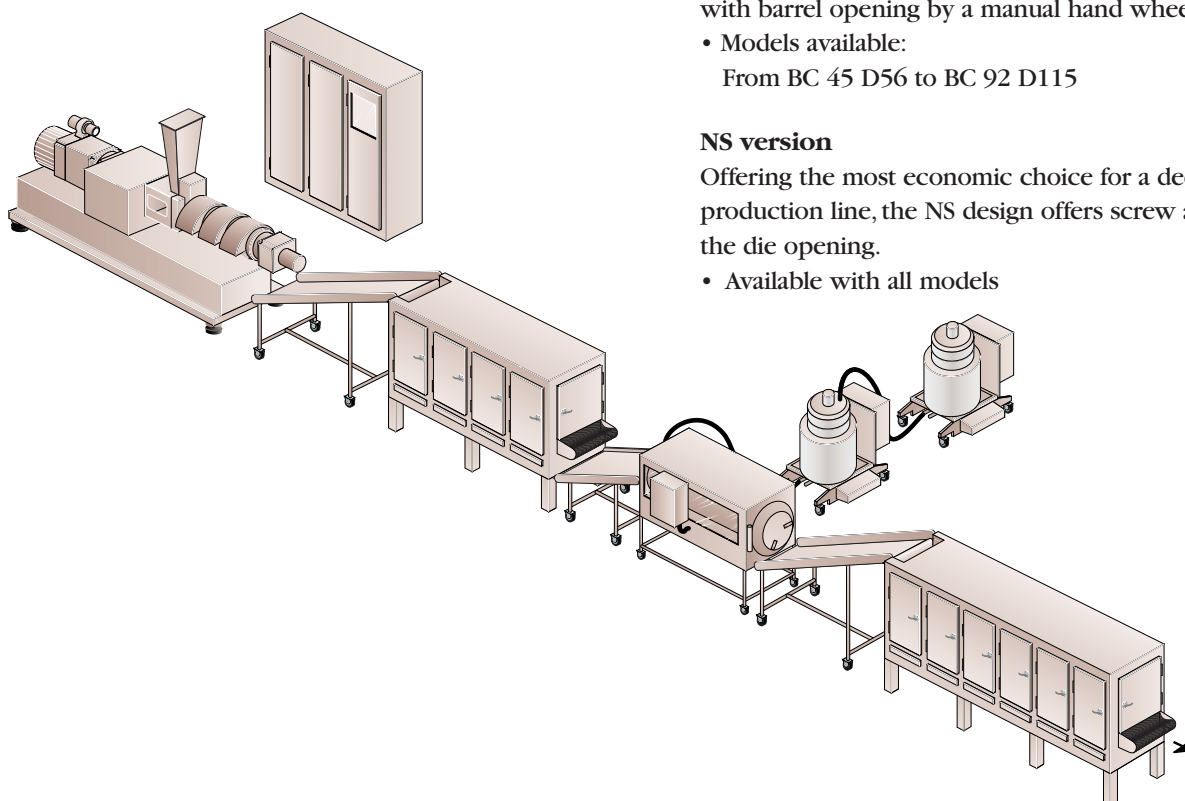
FOOD and FEED PRODUCTION EXTRUDERS

Clextral sets the pace in production extruders for food and feed applications.

A solution for every application

Clextral understands that the requirements of one processor will be different from another. To provide the best solution for individual needs and budgets, we manufacture three series of extruders.

We offer complete extrusion processing lines which include all equipment, installation, start-up and training. From one machine to a turn key processing line, we can help you reach your extrusion product goals.



Today, Clextral twin screw extruders for the food industry set new standards in extrusion technology, offering exceptional processing efficiency and unrivaled flexibility.

EVOLUM Twin Screw Extruders

These extruders deliver the features that are destined to help processors achieve unrivaled performance from their extrusion processing lines, offering vastly increased torque and screw speeds while achieving premium product quality.

H version

The ultimate in flexibility, the H design offers hydraulic barrel opening for screw access with the push of a button. This automatic barrel opening offers several advantages:

- Allows product inspection during production runs or for research and development
- Facilitates screw reconfiguration
- Provides simplified sanitation and maintenance
- Available with all models

OS version

The OS design offers all the advantages of the H series with barrel opening by a manual hand wheel.

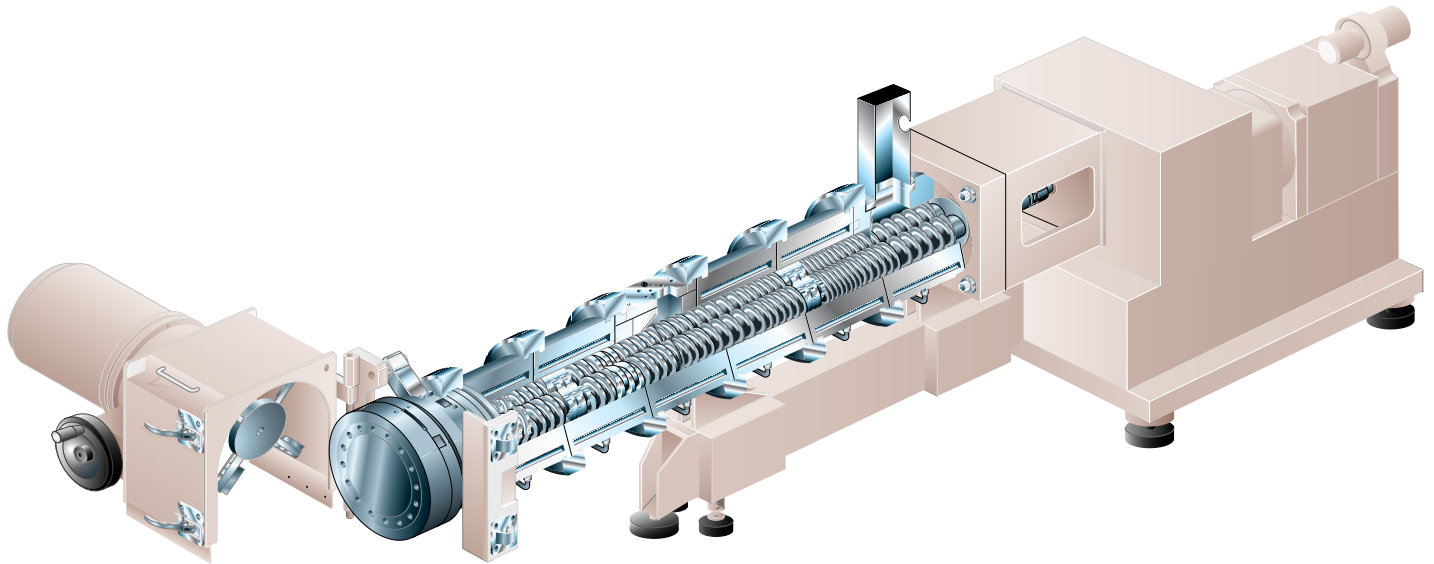
- Models available:
From BC 45 D56 to BC 92 D115

NS version

Offering the most economic choice for a dedicated production line, the NS design offers screw access at the die opening.

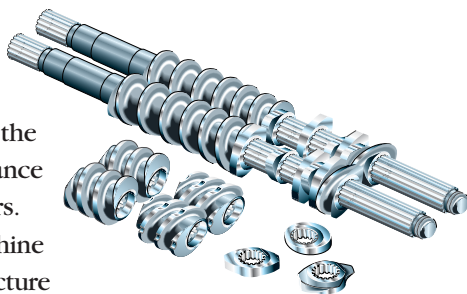
- Available with all models

Designed for exceptional performance



Superior Performance

Heavy-duty machine construction and the finest quality components assure your satisfaction in the long term performance of Clextral extruders. Computerised machine design and manufacture ensure that each extruder meets the precise specifications. Barrel and screw metallurgy options provide solutions for virtually all food processing applications; from standard nitrided hardened steel to special industrial alloys that are proven in production to withstand the most abrasive and corrosive processing conditions.

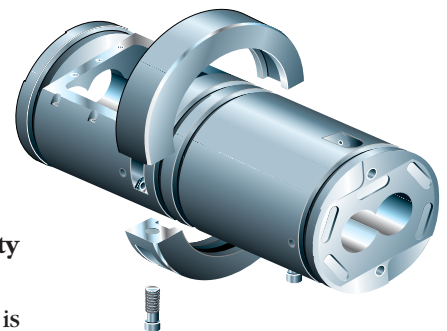


Unrivalled Versatility

Screw elements slide onto the splined shafts to allow numerous configurations of the screw profile for optimum processing. A variety of screw thread designs are available to obtain ideal shear for each product.

Unmatched Flexibility

A hallmark of Clextral twin screw extruders is their flexibility. Clextral engineers have taken the modular concept one step further, with designs that make it simple to change extruder barrels, screws and dies, to vary production parameters. These quick changeover features make it realistic to run multiple products on the same extruder, and provide true flexibility for future requirements.



The modular barrels are configured using quick-clamp fixtures for ease in adding or removing barrel segments for changing process requirements. An unlimited number of product shapes and sizes are processed accurately and consistently, with expert attention to die design, flow pattern and cutting assemblies.



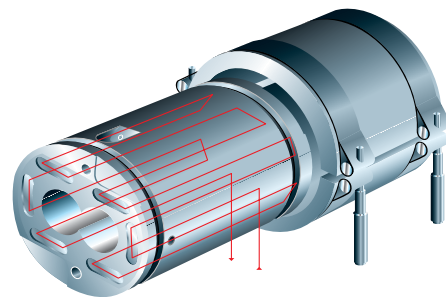
Accurate Process Control

All processing parameters including motor speed, dry material feed, fluid feed and temperature are accurately measured and controlled to guarantee the quality and consistency of your extruded products.

We offer the finest in relay logic and PLC control systems with a full menu of options; including current and historic data reporting, graphic trending of process variables, automatic start-up and shut-down, recipe storage and recall. Clextral-engineered network communication systems are available to manage your complete production line operation.

Precise Temperature Regulation

Clextral extruders offer high efficiency resistance heating systems which provide energy to the extrudate very quickly. Induction heating, fluid heat transfer and steam injection are additional heating options. Fluid cooling circulation systems within each barrel module and high efficiency vacuum venting options assure optimum processing temperatures for every product.



Simplified Scale-up

Clextral extruders have geometrically proportional designs that permit accurate extrapolation of production parameters. Scale-up data can be calculated precisely in order to duplicate product characteristics from one extruder model to another.

Maximum Power

Clextral extruders offer direct drive power transfer from the variable speed motor through a gear box reducer to the screw shafts. This direct drive transfer consistently generates maximum energy to the screw profiles for optimum torque and throughput. Electrical and mechanical security couplings ensure efficient protection in case of sudden overload.



FROM ONE MACHINE TO TURN KEY PROJECTS

Clextral is your reliable source for extrusion processing systems. Our offer includes:

- Process engineering and design
- Total project management
- CAD equipment configuration
- Process and technical assistance
- Staff training
- Automation control including hardware and software

Scope of supply:

- Raw material handling
- Mixers
- Feeders
- Preconditioners
- Twin screw extruders
- Steam injection devices
- Pumps
- Cutters
- Conveying systems
- Flaking mills
- Toasting ovens
- Dryers
- Cooling units
- Coating systems
- Bulk storage
- Additional equipment as required

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