

*The effective technology
and complex services*

Farmet[®]
Oil & Feed Tech

EXTRUDER FE 4000 – INNOVATIVE SOLUTION FOR THE PRODUCTION OF HIGH-QUALITY FEED

FE 4000



OIL & FEED TECH



**HEXANE FREE
TECHNOLOGIES**[®]


Why extrusion?

Extrusion belongs to the most commonly used methods of heat treatment of materials and it is thus one of the progressive production tool for obtaining high-quality feed. Extrusion contains **mechanical grinding, kneading, heating at high pressure, and squeezing the material through a die with the aim of reaching mechanical and heat treatment of the material.**

Extrusion is called as a „**HTST method**“ (High Temperature Short Time), because it uses a short-term effect of high temperature and pressure on the processed material (this short-term effect is gentle to nutritionally valuable substances and during proper process optimization there is no significant decrease in them).

Main benefits of extrusion:

The extruder can efficiently process biological material, which can be than used both in feed mixtures and as well as in the food industry. The obtained feed can have many forms – e. g. granules (sinking, floating).



- Removal of anti-nutritional substances
- Denaturation of proteins
- Increased hygienic quality of feed
- Starch gelatinization
- Homogenization of mixtures
- Mechanical grinding

- Increases taste, digestibility and accessibility of nutrients
- Increases energetic value, decreases volume of feed ration, saves feed and finance
- Extends storability
- Enables better workability and better digestibility of feed
- Better nutrient availability
- Simplifies digestion and makes better input of nutrients to the digestive system

Why extruder FE 4000?

- **Modern, top and high-performance equipment usable in several feed applications.** It compresses the material under high pressure and heats it to a high temperature. It enables the removal of antinutritional substances from feed, change of texture, expansion and sterilization of feed, gelatinization of starches and denaturation of proteins. In ruminant applications, the by-pass protein is increased during the process of extrusion. The benefit of extrusion is tastier feed with higher nutritional value.
- **Regulation of temperature by our unique solution (automatically regulated nozzle) can be prepared the most suitable feed for monogastric/polygastric animals.**
- **Long-term experience in branch, unique product range of extruders and presses, energy optimization - patented energy recovery solution RECU. We offer the optimal technology EP1 - One level pressing with extrusion for soybean processing.**
- **Professional equipment suitable for extrusion of any biological material,** however mainly for oilseeds (soybeans), cereals, legumes, various vegetable and animal mixtures for the production of Petfood or Fish feed. Due to a wide range of accessories, it enables its conversion to various extrusion methods.

To achieve the particular shape, the extruder is equipped with a granulation die and a cutter at the output. Typical representatives of these materials are cereals and their meal (corn, wheat, barley, rye, oats) and some legumes and their meal (peas, beans, ...) and their mixtures. Typical property of these materials is a high starch content, thanks to which the material at the output of extruder is cohesive and it is necessary to be divided by cutting head into granules.



The main benefits of extruder FE 4000:

- **Professional solution of own production designed for continuous operation that can be optimized.** Temperature regulation is solved both by inserts in working unit and especially by automatic regulation (cone). It is a fully automatic and flexible option of temperature regulation controlled by PLC.
- **Wide range of processed materials (for dry and wet extrusion).** Only with a mechanical way, you can efficiently produce fresh feed with an optional ratio of fat and proteins. The feed is intended for all categories of livestock (monogasters, polygasters).
- **Unique technology EP1 - One-level pressing with extrusion.** Due to a combination of thermal and mechanical processing, including the possibility of using a patented system of energy recovery, you get high-quality vegetable oil and feed. The obtained commodities are without any chemical substances - a unique feed of the top-quality!
- **Savings of operational costs** (low energy consumption in case of using the system of recuperation RECU).
- **A unique solution for longer life of working parts.**
High quality and availability of spare parts.
Low wear - used high quality materials, own modern production, assembly.
Simple maintenance, assembly, disassembly, replaceability and repairability of individual working parts. For example: a patented solution for replacing wear liners in the basket, faster and easier opening of work. units thanks to hydraulic tilting, swapping and reversing of all working screws with each other,...
- **Intelligent system of control and visualization of the process** (Clever, Clever Max).
- **Minimal operator requirements, compact installation dimensions.**
- **Wide range of accessories.** The possibility to convert the extruder into another processed commodity. For example: dosing of water, conditioner, injection of water into extruder, cutting head, cooling and drying of the extrudate.

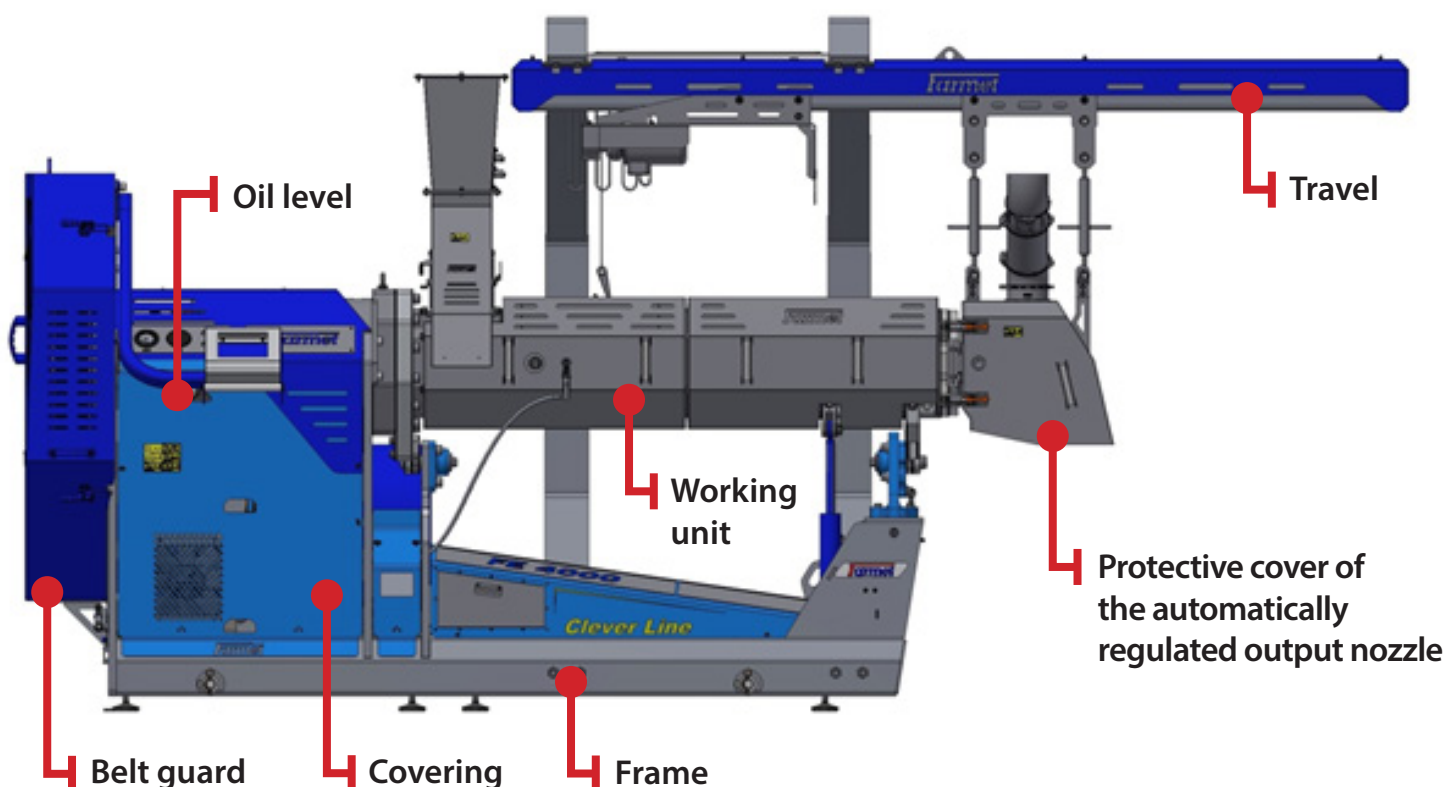
Control and visualization of the process

The technology is solved by a complex system of control with the use of modern PLC systems. We also offer the possibility of visualization on PC, remote control system via internet everywhere in the world.

The system automatically controls the quantity of material and required water or steam dosing.



Description of main parts of extruder FE 4000:



Parameters

| INDICATIVE PARAMETERS | FE 4000 |
|-----------------------|------------|
| Throughput [t/hr] | 4 - 8 |
| Input [kW] | 250 - 400 |
| Length [mm] | 5 300 |
| Width [mm] | 2 400 |
| Height [mm] | 2 600 |
| Weight [kg] | max. 8 100 |

