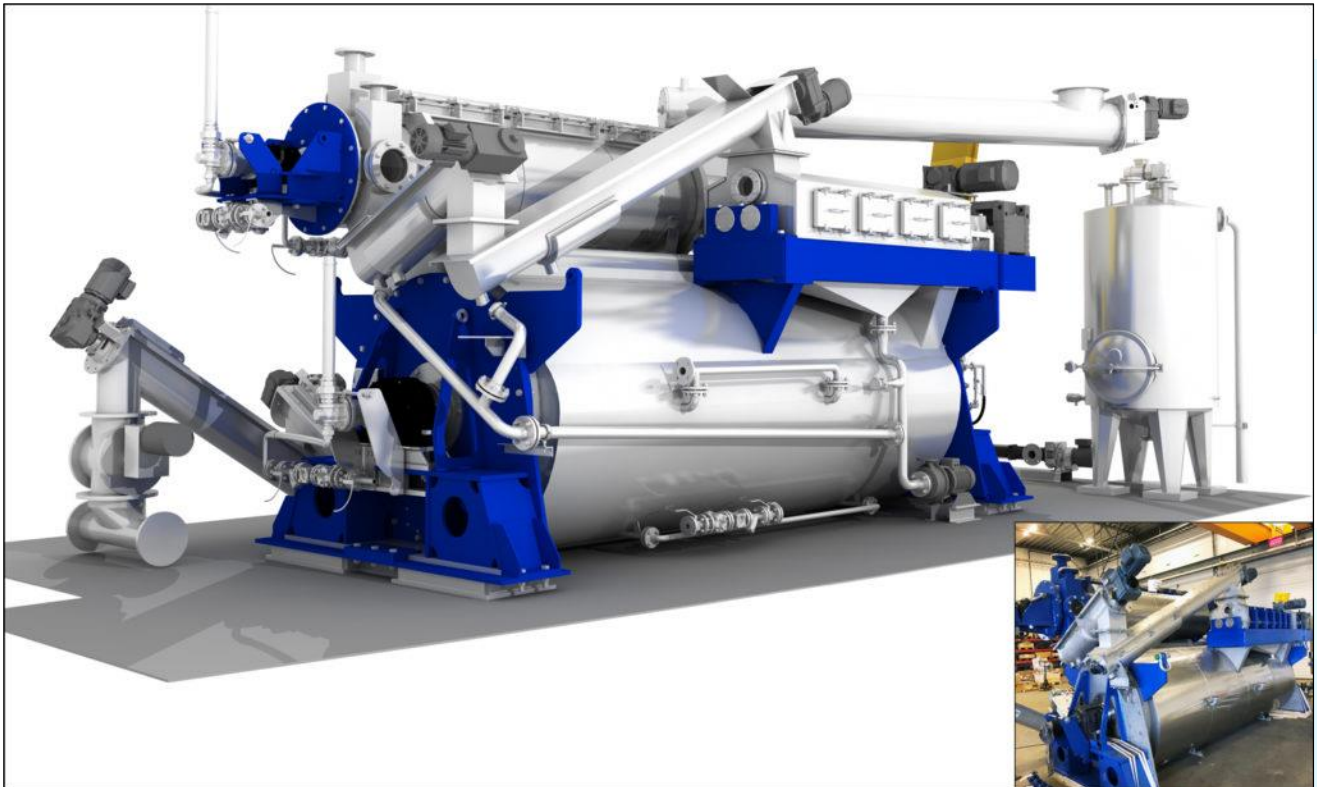


# DATA SHEET AMOF-FJELL FISHMEAL PLANT

## Layout AMOF-FJELL Compact Fishmeal Plant\*



### Compact Fishmeal Plants (typical)

Type	CFP-24*	CFP-48*	CFP-60	CFP-80
Raw material capacity**	30 ton/24 hr	48 ton/24 hr	60 ton/24 hr	80 ton/24 hr
Meal output**	3.6 ton/24 hr	7.2 ton/24 hr	9.0 ton/24 hr	12.0 ton/24 hr
Oil output**	1,5 ton/24 hr	2,9 ton/24 hr	3,6 ton/24 hr	4,8 ton/24 hr
Steam consumption**	400 kg/hr	800 kg/hr	1 000 kg/hr	1 330 kg/hr
Cooker	TC1-2.5	TC2-3	TC3-5	TC3-5+
Press	TP21-2	TP23-2	TP24-2	TP-24-2
3 phase decanter	Included	Included	Included	Included
Drier	AF TD-30+	AF TD-50+	AF TD-60+	AF TD-90+
Space requirement (LxWxH)***	8000x4000x3000	9000x5000x3000	13000x5000x3000	15000x5500x3500
Dry weight***	10 ton	16 ton	30 ton	35 ton
Electric installation	70 kW	100 kW	125 kW	150 kW

\* Skid based arrangement

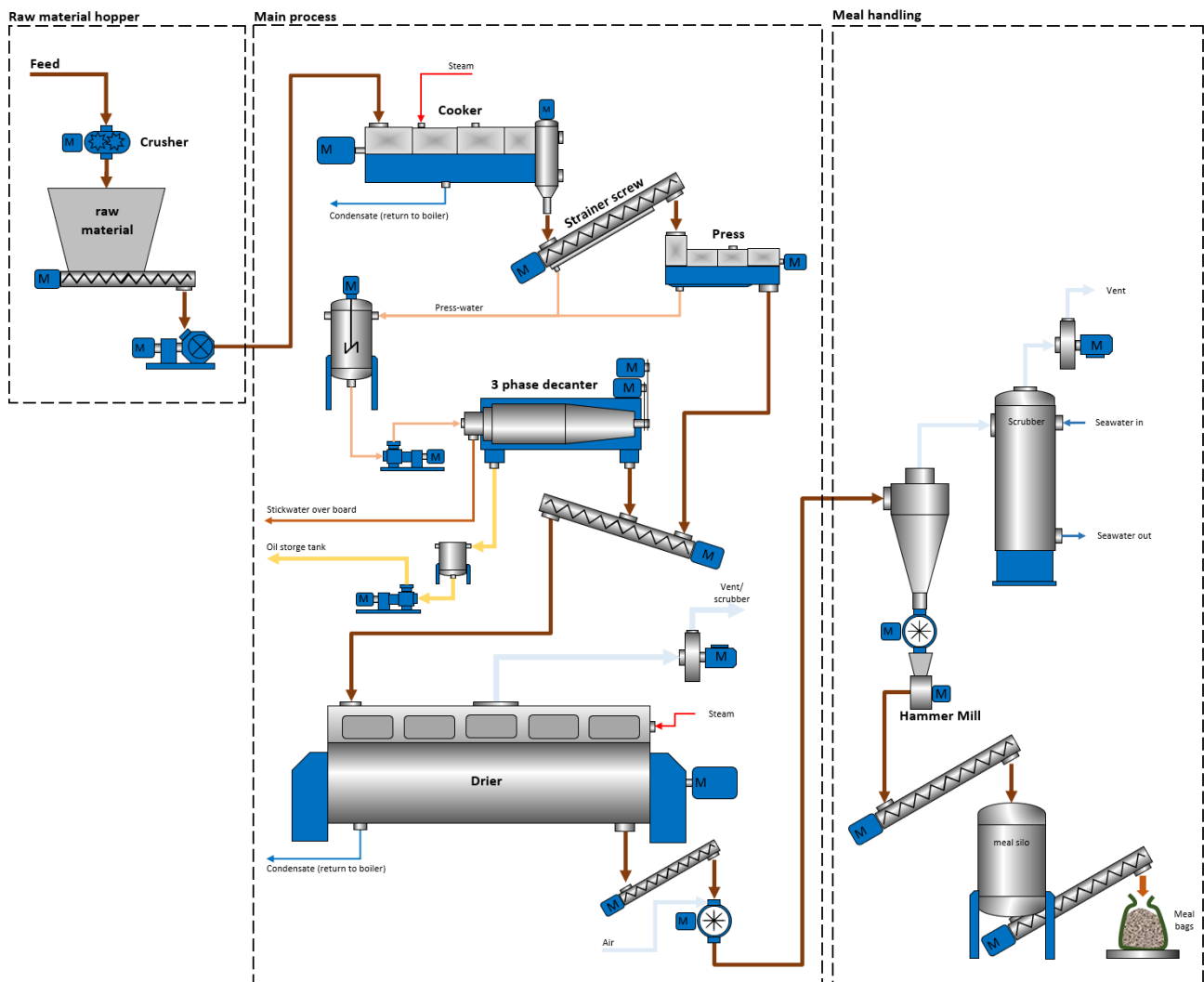
\*\* Nominal values given based on white fish offal. Meal output is increased by 25-30 % with evaporator included

\*\*\* Area for meal handling system not included

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## Process Flowsheet (typical)



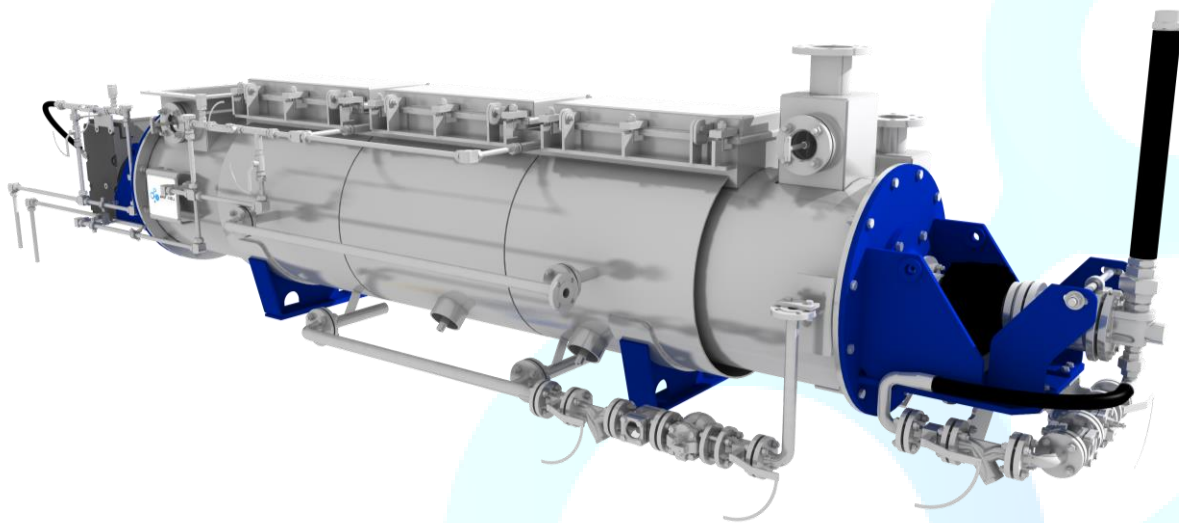
## Highlights for increased capacity and quality

- Our cooker is a robust slow rotating machine that is designed to reduce emulsion and ensure good coagulation of the feed material. By handling the raw material with care, we ensure that oil separation gives optimum quality.
- By using a press to remove stick water we:
  - Reduce the energy consumption on the dryer
  - Increase oil output and quality
  - Lower fat content in the meal

## Functional Description

Fish offal must be pre-treated in a way that limits the amount of free water from processing and transport in the fish factory and be coarsely grinded to avoid large heads and bones, prior to the raw material hopper.

From this tank the material is conveyed by a screw conveyor or a suitable pump to the screw cooker.



**Figure 1 Cooker**

The screw cooker is designed as a large slowly rotating screw conveyor with steam heated outer pipe and hollow steam heated flighting allowing heating of the raw material to about 95°C to secure complete coagulation.

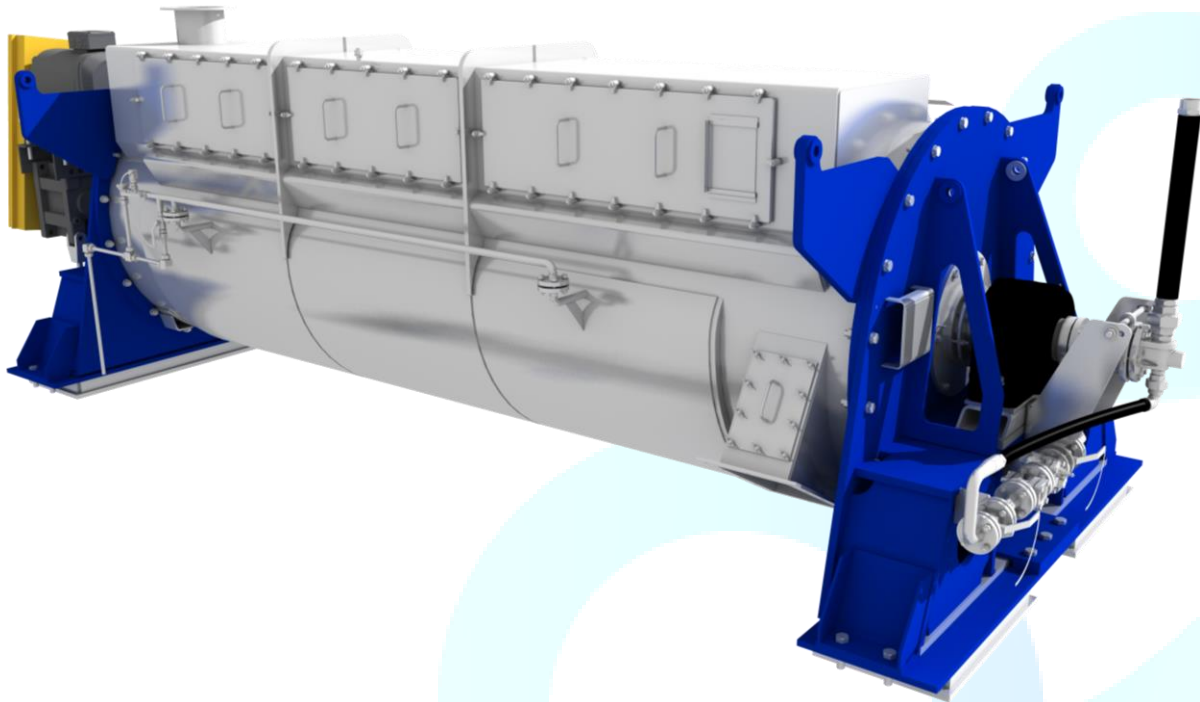
Coagulated material is directed by means of one or two screw conveyors with strainer to remove free water to optimize press performance.

The twin-screw press consists of two counter rotating screws with conical shaft so that available volume between screws and the casing is gradually reduced. The casing is perforated so that liquid is squeezed out, and the press cake is dropped or conveyed directly into the dryer.

The liquid from the press is directed to the press liquid tank together with liquids from the strainer or strainer conveyors. From this tank the liquid is pumped into the three-phase decanter, which in one single step by means of centrifugal force can separate:

- Liquid in a pulp containing the suspended solids
- Stick water consisting of water with water soluble proteins
- High grade fish oil

The pulp is conveyed to the dryer, the stick water is discharged to sea, and oil is pumped to a suitable oil storage tank.



**Figure 2 Dryer**

The dryer consists of a steam heated jacket and an internal rotor with steam heated hollow discs. The mixture of press cake and decanter cake is heated to the boiling point, and water evaporates as the material is gradually transported to the outlet of the dryer by means of agitators installed on the tip of the discs. The combination of gentle rotation and evaporations result in a fishmeal with approx. 90 % dry solids.

Vapour from the dryers is drawn out and treated in a seawater scrubber together with ventilation air and vapour from the other process equipment. (optional)

Fish meal is conveyed by using air to a hammer mill. By using air transport, the meal is cooled prior to milling.

The milling plant converts the meal to a homogenous powder.

After milling the meal is conveyed to the meal silo, which serves as the main reservoir for bagging. Transport may be by means of screw conveyors or pneumatic system.