

Environment-Compatible

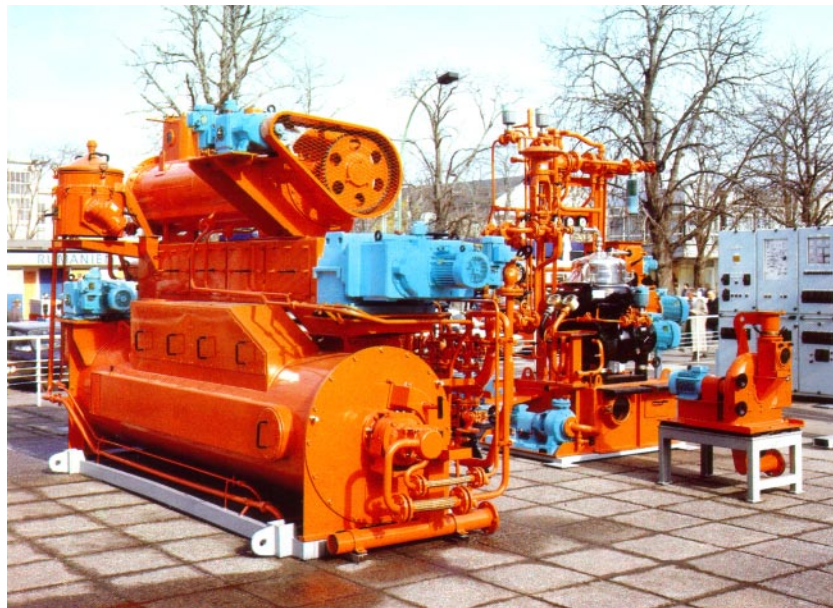
Unique

**SAB**

## **IB-FMA All-purpose Fish Meal Plants**

**for Stationary and Seaborne Applications**

**upgraded to latest EU Standards**



*A complete SAB Fish Meal Plant being readied for shipment*

### **The Raw Material:**

- offal, by-catch and fresh harvests -
- 'lean' or with high oil contents -
- marine and/or aquatic -

### **The Capacities:**

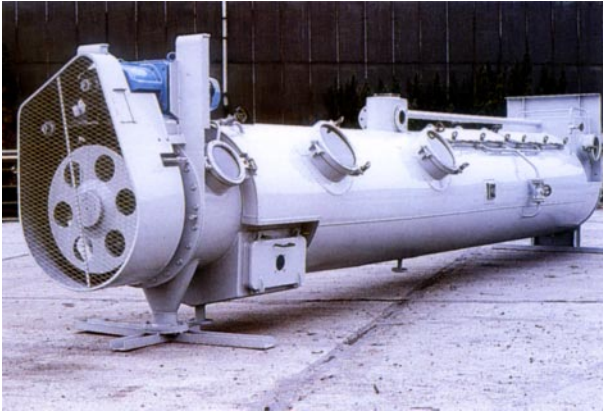
**Standard Plants - One Tower: 5 to 80 mTon/24h**

**Twin & Multi Tower Arrangements: up to 320 mTon/24h**

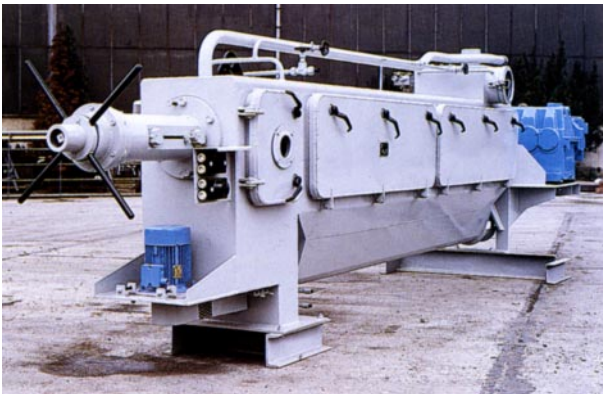
*(details on last page)*

**Compact - Economical**

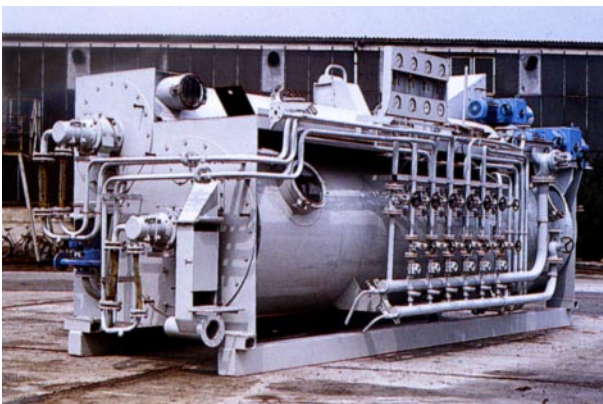
## *The SAB Tower Assembly*



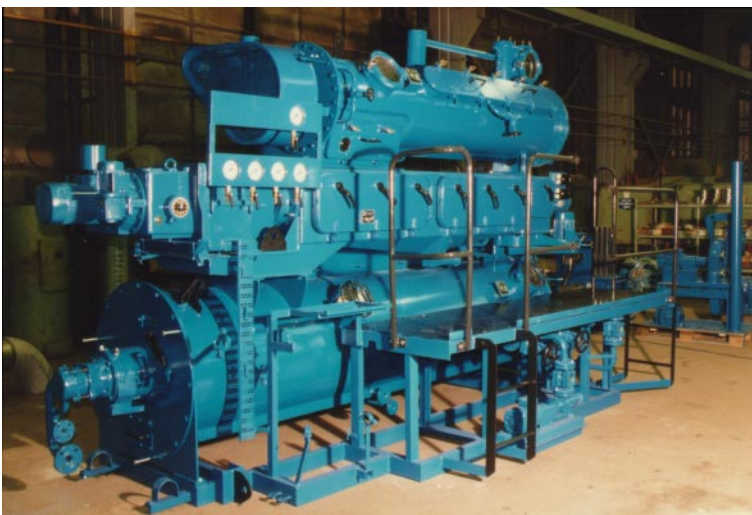
*The Cooker (at the top), ...*



*... the Press (in the middle) ...*



*... and the Dryer (at the bottom); ...*



*... all assembled into one Vertical Block.*

## *The SAB Type IB-FMA All-purpose Fish Meal Plant - in a nut shell*

*SAB Type IB-FMA Semi-automatic All-purpose Fish Meal Plants are equipped to process offal, by-catch and fresh harvests into fish meal and fish oil of prime quality. In their standard executions, the plants can handle marine or aquatic raw material with oil contents exceeding 20% of the live weight and individual lengths up to 75 cm. The plants are designed and built for continuous duty and can operate around the clock.*

*The term semi-automatic implies that, except for starting and stopping, work on the plants merely consists removing a filled bag from the bagging station and replacing it with an empty one. Automatic controls are set when processing commences and need be adjusted only if the consistency of the raw material changes.*

*The core piece of the SAB Fish Meal Plant, the unique Tower Assembly, —shaded in The Concept below—is built up from the cooker (on top), the press (in the middle), the drier (at the bottom) and some accessories (pictures left), all assembled into one Vertical Block, thereby eliminating transport equipment between these components (transfer by gravity) and minimising space requirements.*

*The process begins with the feeding of raw material, followed by mincing, cooking, pressing, drying, milling and bagging. The presswater is separated in the Three-Phase Decanter, into solids 'suspended' in the presswater, oil and stickwater. The stickwater passes through the Liquid Concentration Plant and the resulting concentrate, consisting the solids that were 'dissolved' in the presswater, is fed back into the mainstream.*

*Hence; all solids from the raw material are recovered and the final product becomes Whole Meal. Although the quality depends largely on the freshness of the raw material, meal and oil from SAB Fish Meal Plants always constitute high grade additives to animal and aquaculture feed.*

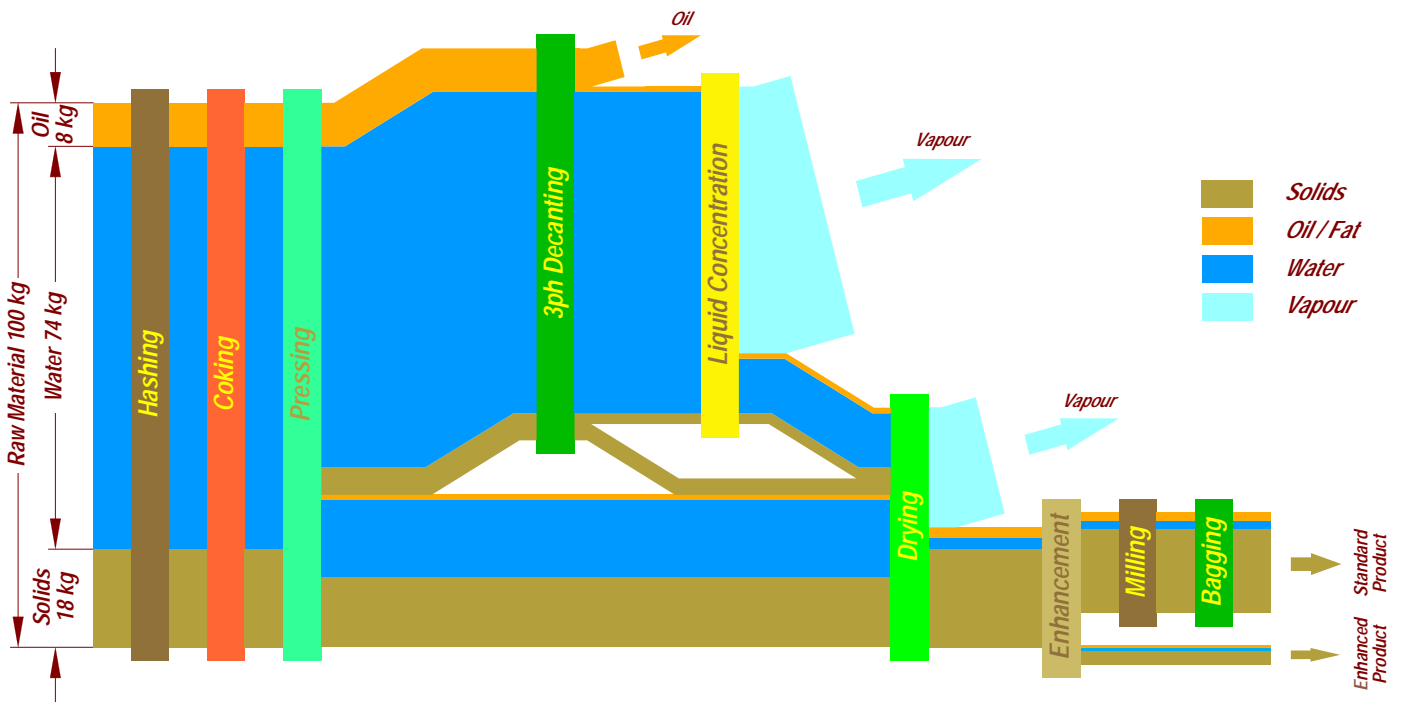
*SAB Fish Meal Plants work on a so-called wet method; hence, the material is cooked and dried through contact with surfaces indirectly heated through steam at moderate temperatures. This warrants tender handling of the material and results in the so-called Low Temperature Meal, abbreviated LT-Meal. And since all solids from the raw material are recovered, the product becomes Whole Low Temperature Meal—known in the market as WLT-Meal.*

*Enhancement (available on request): Generally, digestible proteins are contained in the soft tissue of the raw material; the minerals come from the bones. Fish meal with high protein content and low in minerals is sought after to feed juveniles in aquaculture. All SAB Fish Meal Plants can be equipped to separate a fraction of the dried product from the mainstream prior to milling (see 'Mass Flow ...' and 'The Concept' below), known as Enhancement. Usually, the separated fraction contains well over 80% of the digestible protein and—since it is comparatively small—the reduction in the protein content of the very much larger volume of standard product is negligible.*

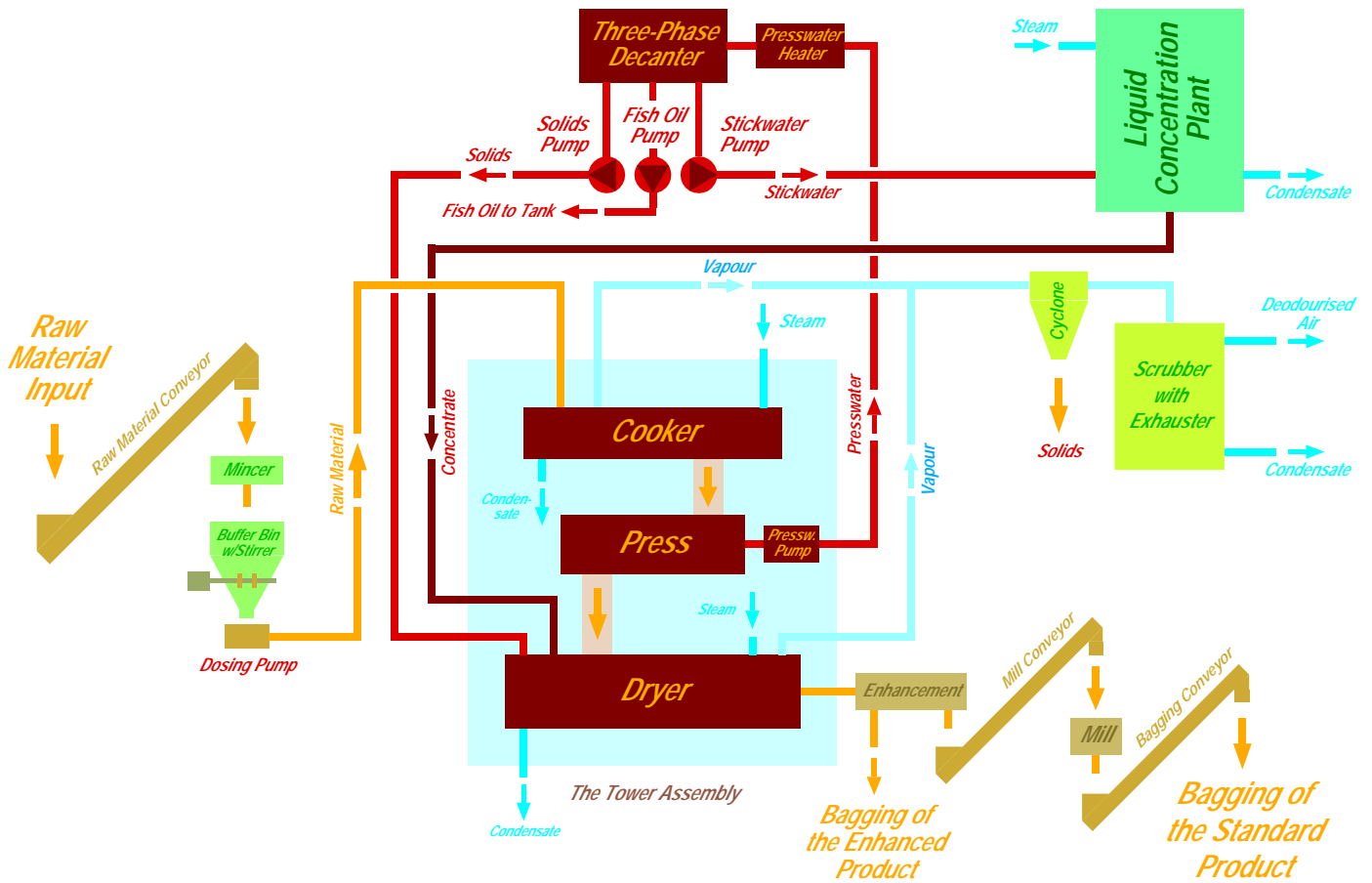
*The plants are started up and operated from a central Electric Power and Control Panel and can be controlled from there in the semi-automatic mode. All electric functions can be switched on and off and the speed of all components vital to the operation of the plant (conveyors, cooker, press, dryer, dosing pumps) adjusted directly from this panel—however, also manually at the particular component itself. The supply of steam and the return of condensate, to and from all equipment heated with steam, is managed from the central Valve Panel fitted on the side of the dryer (pictures left).*

*SAB Fish Meal Plants are built to ordinances in force world wide governing environment-compatibility and to stringent standards on hygiene, industrial safety and accident prevention. They can be delivered in 'twin' and 'multi' tower arrangements, up to capacities exceeding 300 mTon/24h of the raw material (details on last page).*

*In addition to a qualified Factory Manager, one to six Workmen—for small to big plants respectively, depending on skill and degree of training—are required to operate the SAB Fish Meal Plants in their full capacities, including feeding of raw material and bagging of finished product.*



**Mass Flow in Fish Meal Plants**



**The Concept**

## Standard Plants - One Tower

Entry [Unit]	Type	IB-FMA5	IB-FMA12	IB-FMA30	IB-FMA40	IB-FMA60	IB-FMA80
<b>Capacities:</b> [mTon/24h]		4-5	10-12	25-30	35-40	50-60	70-80
<b>Steam:</b>							
Consumption: [kg/h]		135	250-300	550-600	750-800	960-1.200	1.500-1.600
Pressure Required: [kPa]		400	400	400	400	400	400
<b>Electrical:</b>							
Name Plate Value: [kW]		33	58	98	103	121	124
Consumed: [kWh/h]		25	44	74	77	91	93
<b>Water:</b>							
Fresh: [l/h]		30	40	100	125	140	150
Cooling: [l/h]		130*	250*	550*	700*	1.000*	1.400*
Cleaning: [l/24h]		2.000	3.000	4.000	4.000	5.000	6.000
Pressure Required: [kPa]		500	500	500	500	500	500
<b>Floor &amp; Space Required:</b>							
Plant only: [sqm]		24	55	66	70	88	100
Finished Prod. Store: [sqm]		10!	15!	25!	30!	40!	50!
Head Room Req'd: [m]		3	5	7	7	8	8
<b>Shipping Data:</b>							
Shipping Volume: [cum]		58	145	175	185	232	290
Shipping Weight: [kg]		12	21	36	44	56	65

Numbers marked with (\*) are nominal values, those with (!) proposed values - Subject to change without notice

## Twin & Multi Tower Arrangements

Entry [Unit]	Type	IB-FMA2-60	IB-FMA2-80	IB-FMA3-80	IB-FMA4-80
<b>Capacities:</b> [mTon/24h]		100-120	140-160	210-240	280-320
<b>Steam:</b>					
Consumption: [kg/h]		1.900-2.400	3.000-3.200		
Pressure Required: [kPa]		400	400		
<b>Electrical:</b>					
Name Plate Value: [kW]		222	228		
Consumed: [kWh/h]		167	171		
<b>Water:</b>					
Fresh: [l/h]		240	300		
Cooling: [l/h]		2.000*	2.700*		
Cleaning: [l/24h]		9.000	10.000		
Pressure Required: [kPa]		500	500		
<b>Floor &amp; Space Required:</b>					
Plant only: [sqm]		145	160		
Finished Prod. Store: [sqm]		80!	100!		
Head Room Req'd: [m]		8	8		
<b>Shipping Data:</b>					
Shipping Volume: [cum]		450	550		
Shipping Weight: [kg]		105	115		

Numbers marked with (\*) are nominal values, those with (!) proposed values - Subject to change without notice

**The final answer to a perpetual question:**

**The SAB Fish Meal Plant**



**Ishroengl ehf - IceBits ehf**

**Glosalir 7, Suite 704**

**IS-201 Kopavogur - Iceland**

**Desk: 00354 5622524 - Pocket: 00354 8961892 - Fax: 00354 5621592**

**eMail: [ingvar@ingvar.is](mailto:ingvar@ingvar.is) - The Web: [www.ingvar.is](http://www.ingvar.is)**