

## **Ultima 80 All-Purpose Fish Meal Plant for Oily and Lean Marine and Aquatic Raw Materials**

The numbering of items in this specification follows the Legend on the attached plan for Ultima 80. The plant is built up from two separate and independent processing lines; an **Oil Extraction Line** (items 1 through 20) and a **LeanFish Drying Line** (items 21 through 38). The equipment is operated from two **Electric Control Panels** conveniently located on the shop floor (items 39 and 40). Observation and remote overall control of the process is effected on **Screens** located in the Foreman's cabin and Administration (items 41 and 42). For detailed description of the concept, please consult the attachments.

### **The Oil Extraction Line**

- 1 1 off **Raw Material Feeding Conveyor I**  
consisting hopper on inlet, trough with cover, rotor, motor, drive and support:
- |   |               |
|---|---------------|
| Flight diameter of rotor                                    | 280 mm        |
| Geared driving motor, totally enclosed, variable speed      | 2,2/65 kW/rpm |
| Approximate length overall                                  | 3.000 mm      |
| Weight in working order; including motor, drive and support | 350 kg        |
- 2 1 off **Disintegrator/Crusher**  
consisting a sturdy collapsible housing, rotor, motor and drive:
- |  |                 |
|--|-----------------|
| Nominal diameter of rotor                          | 450 mm          |
| Driving motor, totally enclosed, constant speed    | 5,5/1450 kW/rpm |
| Belt drive ratio                                   | ~ 1:2 -         |
| Overall dimensions; LxWxH                          | 600x600x550 mm  |
| Weight in working order; including motor and drive | 280 kg          |
- 3 1 off **Raw Material Feeding Conveyor II**  
consisting trough with cover, rotor, motor, drive and support:
- |   |               |
|---|---------------|
| Flight diameter of rotor                                    | 280 mm        |
| Geared driving motor, totally enclosed, constant speed      | 3,0/65 kW/rpm |
| Approximate length overall                                  | 3.000 mm      |
| Weight in working order; including motor, drive and support | 300 kg        |
- 4 1 off **Cooker**  
consisting circular housing with steam jacket and windows for inspection, rotor with steam heated core, hopper on inlet, insulation on jacketed section, motor, drive and footing:
- |  |                    |
|--|--------------------|
| Nominal diameter of rotor                              | 700 mm             |
| Steam consumption                                      | 750 kg/h           |
| Steam pressure   | 4 barg             |
| Geared driving motor, totally enclosed, variable speed | 3,0/1-8 kW/rpm     |
| Overall dimensions; LxWxH                              | 5.500x900x1.250 mm |
| Weight in working order; including motor and drive     | 3.600 kg           |
- 5 1 off **Receiving Tank**  
for ground and cooked material, with stirrer and level control for the outlet of the Cooker:
- |  |                |
|--|----------------|
| Geared driving motor, totally enclosed, constant speed | 0,75/10 kW/rpm |
| Nominal dimensions DxH                                 | 500x1.500 mm   |
| Weight in working order; including motor and drive     | 280 kg         |

- 6 2 off **Excentric Screw Pumps**  
*Nova Rotors Type 0040-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 70-400 rpm  
Driving motor (each) 2,0 kW  
Weight in working order; including motor and drive (each) 150 kg
- 7 1 off **Intermediate Tank**  
*for cooked material, with steam jacket and stirrer; insulated:*  
Steam consumption 50 kg/h  
Steam pressure 4 barg  
Geared driving motor, totally enclosed, constant speed 0,75/10 kW/rpm  
Nominal dimensions DxH 800x1.500 mm  
Weight in working order; including motor and drive 300 kg
- 8 2 off **Excentric Screw Pumps**  
*Nova Rotors Type 0040-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 70-400 rpm  
Driving motor (each) 2,0 kW  
Weight in working order; including motor and drive (each) 150 kg
- 9 1 off **Decanter**  
*Alfa Laval Model NX 418, or approved equivalent;*  
*for further details consult attached leaflet:*  
Driving motor 40 kW  
Overall dimensions; LxWxH 3.300x850x1.350 mm  
Weight in working order; including motor and drive 2.200 kg
- 10 2 off **Excentric Screw Pumps**  
*Nova Rotors Type 0040-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 70-400 rpm  
Driving motor (each) 2,0 kW  
Weight in working order; including motor and drive (each) 150 kg
- 1 off **Structural Steel Support**  
*for items 4, 5, 6, 9 and 10 as shown on Picture 3 on the*  
*Ultima 80 plan (not numbered); including service platform*  
*with stair case and rails; all-welded, sand blasted and spray*  
*galvanized, collapsible for transport in a container:*  
Weight in working order 1.250 kg
- 11 1 off **Settling Tank I**  
*first step in a two-stage separation of oil by gravity from*  
*the decanter fluid, with internal arrangement of piping*  
*to optimize the flow:*  
Nominal dimensions DxH 1.000x2.000 mm  
Weight in working order 420 kg
- 12 1 off **Settling Tank II**  
*second step in a two-stage separation of oil by gravity*  
*from the decanter fluid, with internal arrangement of*  
*piping to optimize the flow:*  
Nominal dimensions DxH 1.000x2.000 mm  
Weight in working order 420 kg

- 13 1 off **Excentric Screw Pump**  
*Nova Rotors Type 0030-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 100-500 rpm  
Driving motor 1,5 kW  
Weight in working order; including motor and drive 150 kg
- 14 1 off **Intermediate Tank**  
*for lean fluid from the Decanter (stickwater), following separation of the oil in Settling Tanks I and II:*  
Nominal dimensions DxH 1.200x2.000 mm  
Weight in working order; including motor and drive 500 kg
- 15 2 off **Excentric Screw Pumps**  
*Nova Rotors Type 0030-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 100-500 rpm  
Driving motor (each) 1,5 kW  
Weight in working order; including motor and drive (each) 150 kg
- 1 off **Structural Steel Support**  
*for items 7, 8, 11, 12, 13, 14 and 15 as shown on Picture 4 on the Ultima 80 plan (not numbered); all-welded, sand blasted and spray galvanized, collapsible for transport in a container:*  
Weight in working order 1.100 kg
- 16 1 off **Centrifugal Oil Separator**  
*Alfa Laval Model BRPX 313, or approved equivalent; for details see attached specification sheet:*  
Driving motor 25 kW  
Overall dimensions; LxWxH 1.450x1.100x1.550 mm  
Weight in working order; including motor and drive 1.500 kg  
*The Centrifugal Oil Separator (item 16) is not included in the price. However, provision is made in designs to permit installation of this machine at a later date. It will then take over the separation of oil from the decanter fluid by gravity in Settling Tanks I and II.*
- 17 1 off **Receiving Tank**  
*for blood water from cleaning and/or pumping carrier where raw material is pumped from fishing vessels to the Raw Material Bunker:*  
Nominal dimensions DxH 800x2.000 mm  
Weight in working order 270 kg
- 18 1 off **Excentric Screw Pump**  
*Nova Rotors Type 0030-1, or approved equivalent:*  
Capacity 00-00 l/min  
Rotor speed 100-500 rpm  
Driving motor 1,5 kW  
Weight in working order; including motor and drive 150 kg
- 19 2 off **Stop Valves**  
*for diverting the blood water / pumping carrier to the Oil Extraction or LeanFish Drying lines as desired.*  
Weight in working order 60 kg

- 20 1 off **Screw Conveyor**  
 consisting trough with cover, twin-pitch rotor, motor, drive and support; for transfer of solids to the LeanFish Drying Line:
- |   |               |
|---|---------------|
| Flight diameter of rotor                                    | 280 mm        |
| Geared driving motor, totally enclosed                      | 4,0/65 kW/rpm |
| Approximate length overall                                  | 5.000 mm      |
| Weight in working order; including motor, drive and support | 400 kg        |

**Summary for Items 1 through 20 above, including item 39 below:**

<b>Total connected Electric Value</b> (name plate value):	94,7 kW
<b>Electric Consumption</b> (estimated):	~ 63 kW
<b>Steam Consumption</b> (estimated):	900 kg/h
<b>Total Weight:</b>	14.370 kg
<b>Price EXW Pune, India:</b>	000 USD

**The LeanFish Drying Line**

- 21 1 off **Raw Material Feeding Conveyor I**  
 consisting hopper on inlet, trough with cover, rotor, motor, drive and support:
- |   |               |
|---|---------------|
| Flight diameter of rotor                                    | 280 mm        |
| Geared driving motor, totally enclosed, variable speed      | 2,2/65 kW/rpm |
| Approximate length overall                                  | 3.000 mm      |
| Weight in working order; including motor, drive and support | 350 kg        |
- 22 1 off **Disintegrator/Crusher**  
 consisting a sturdy collapsible housing, rotor, motor and drive:
- |  |                 |
|--|-----------------|
| Nominal diameter of rotor                          | 450 mm          |
| Driving motor, totally enclosed, constant speed    | 5,5/1450 kW/rpm |
| Belt drive ratio                                   | ~ 1:2 -         |
| Overall dimensions; LxWxH                          | 600x600x550 mm  |
| Weight in working order; including motor and drive | 280 kg          |
- 23 1 off **Raw Material Feeding Conveyor II**  
 consisting trough with cover, rotor, motor, drive and support:
- |   |               |
|---|---------------|
| Flight diameter of rotor                                    | 280 mm        |
| Geared driving motor, totally enclosed, constant speed      | 3,0/65 kW/rpm |
| Approximate length overall                                  | 3.000 mm      |
| Weight in working order; including motor, drive and support | 320 kg        |
- 24 1 off **Raw Material Feeder**  
 consisting hopper on inlet, cylindrical trough, rotor, motor, drive and support:
- |   |                |
|---|----------------|
| Flight diameter of rotor                                    | 280 mm         |
| Geared driving motor, totally enclosed, constant speed      | 4,0/150 kW/rpm |
| Approximate length overall                                  | 3.000 mm       |
| Weight in working order; including motor, drive and support | 360 kg         |
- 25 1 off **Hot Gas Generator** (abbreviated HGG)  
 welded steel shell with stainless steel fire tube and refractory lining; primary and secondary air flow manually controlled; automatic fuel burner for oil or gas, with step less capacity control from 10% to 100%:

	<i>Capacity of oil fuel burner</i>	225 kg/h
	<i>Nominal dimensions of shell DxL</i>	1.750x3.600 mm
	<i>Nominal dimensions of stainless steel fire tube DxL</i>	1.500x1.500 mm
	<i>Overall dimensions LxWxH</i>	3.600x1.800x2.400 mm
	<i>Weight of steel and SS</i>	3.300 kg
	<i>Weight of refractory lining</i>	1.900 kg
	<i>Weight in working order, ...</i>	
	<i>... including burner, fire tube and refractory lining</i>	6.200 kg
26	<b>1 off Rotary Dryer (abbreviated RD)</b>	
	<i>consisting a sturdy welded steel shell with internal flights, return flight and two live rings, rotating on two pairs of idlers; operated with heavy duty chain drive:</i>	
	<i>Geared driving motor, totally enclosed, variable speed</i>	30/75 kW/rpm
	<i>Nominal dimensions of shell DxL</i>	1.900x10.500 mm
	<i>Overall dimensions of compl. unit LxWxH</i>	10.500x2.100x2.600 mm
	<i>Weight in working order, ...</i>	
	<i>... including live rings, idlers, motor and drive</i>	6.600 kg
27	<b>1 off Dry Material Collector</b>	
	<i>to separate solid material from the hot gas; of all-welded construction, with access door and footing:</i>	
	<i>Overall dimensions, including footing, LxWxH</i>	750x2.100x3.600 mm
	<i>Weight in working order</i>	1.100 kg
28	<b>1 off Collector Conveyor</b>	
	<i>consisting trough with cover, twin-pitch rotor, motor and drive:</i>	
	<i>Flight diameter of rotor</i>	280 mm
	<i>Geared driving motor, totally enclosed, constant speed</i>	2,2/70 kW/rpm
	<i>Approximate length overall</i>	3.000 mm
	<i>Weight in working order; including motor, drive and support</i>	320 kg
29	<b>1 off Return Conveyor I</b>	
	<i>consisting trough with cover, twin-pitch rotor, motor, drive and support; variable speed drive, the first of two steps returning dry solids back to the Raw Material Feeder (item 24):</i>	
	<i>Flight diameter of rotor</i>	280 mm
	<i>Geared driving motor, totally enclosed, variable speed</i>	3,0/70 kW/rpm
	<i>Approximate length overall</i>	7.000 mm
	<i>Weight in working order; including motor, drive and support</i>	660 kg
30	<b>1 off Return Conveyor II</b>	
	<i>consisting trough with cover, rotor, motor, drive and support; constant speed drive, the second of two steps returning dry solids back to the Raw Material Feeder (item 24):</i>	
	<i>Flight diameter of rotor</i>	280 mm
	<i>Geared driving motor, totally enclosed, constant speed</i>	4,0/70 kW/rpm
	<i>Approximate length overall</i>	7.000 mm
	<i>Weight in working order; including motor, drive and support</i>	660 kg
31	<b>1 off Exhauster</b>	
	<i>centrifugal heavy duty industrial fan of vertical-shaft direct drive arrangement; rotor mounted directly on the motor and specially designed to operate without clogging on air mixed with solids; scroll of involute design for optimum pneumatic</i>	

efficiency; including channel pieces for air/solids from Dry Material Collector (item 27) and to Cyclones (item 32); variable speed drive:

Flight diameter of rotor	1.000 mm
Geared driving motor, totally enclosed	22/970 kW/rpm
Approximate overall dimensions LxWxH	1.559x1.300x850 mm
Weight in working order; including motor	540 kg

32 2 off **Cyclones**

pneumatic dust separators; consisting circular upper shells and conical bottom sections, with tangential inlet for air/solids and vertical outlets for air (top) and solids (bottom); outlets with flanged connections:

Diameter of vertical shell	1.100 mm
Approximate overall dimensions LxWxH	1.200x1.100x4.100 mm
Weight in working order (each)	540 kg

33 2 off **Air Locks**

rotary air valves; for the bottom outlets of the Cyclones:

Nominal diameter of rotor and shell	400 mm
Geared driving motor, totally enclosed	0,55/75 kW/rpm
Approximate overall dimensions LxWxH	450x450x500 mm
Weight in working order; including motor (each)	160 kg

34 1 off **Cyclone Conveyor**

consisting trough with cover, rotor, motor, drive and support; reversible direction of rotation:

Flight diameter of rotor	280 mm
Geared driving motor, totally enclosed, constant speed	4,0/65 kW/rpm
Approximate length overall	7.000 mm
Weight in working order; including motor, drive and support	660 kg

35 1 off **Mill Conveyor**

consisting trough with cover, rotor, motor, drive and support; transferring dried material to Milling & Bagging:

Flight diameter of rotor	280 mm
Geared driving motor, totally enclosed, constant speed	4,0/70 kW/rpm
Approximate length overall	5.000 mm
Weight in working order; including motor, drive and support	480 kg

36 1 off **Enhancement**

attachment to Mill Conveyor (item 35):

Weight increase of Mill Conveyor	120 kg
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37 1 off **Shaker/Doser**

oscillating trough; to dose dried material to the Hammer Mill:

Geared driving motor, totally enclosed, variable speed	1,1/100 kW/rpm
Approximate overall dimensions LxWxH	1.200x450x1.000 mm
Weight in working order; including motor, drive and support	125 kg

38 1 off **Milling & Bagging**

consisting a Swing Hammer Mill with motor and belt drive, manually operated twin-spigot Bagging Outlet and two Digital Scales with Displays; all mounted on a structural support of welded steel, sand blasted and spray galvanized:

Tip diameter of mill rotor	600 mm
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<i>Driving motor, totally enclosed, constant speed</i>	22/1.450 kW/rpm
<i>Weight of Swing Hammer Mill</i>	520 kg
<i>Approximate overall dimensions LxWxH</i>	1.200x4501.000 mm
<i>Weight in working order; including motor, drive and support</i>	~1.200 kg

**Summary for Items 21 through 38 above, including item 40 below:**

<b>Total connected Electric Value</b> (name plate value):	108,1 kW
<b>Electric Consumption</b> (estimated):	~ 72 kW
<b>Oil Fuel Consumption</b> (estimated):	200 kg/h
<b>Total Weight:</b>	21.485 kg
<b>Price EXW Pune, India:</b>	000 USD

**39 1 off Electric Main Panel**

*with switch gear for all electrically activated equipment in the Oil Extraction Line (items 1 through 20 above), with overload and safety breakers, volt and ampere meters and control lights for hard wire arrangement; including digital chips for observation and remote control from Foerman's Control (item 41) and Observation Screen in Administration (item42):*

<i>Approximate overall dimensions LxWxH</i>	2.000x600x2.200 mm
<i>Weight in working order</i>	~650 kg

**40 1 off Electric Sub Panel**

*with switch gear for all electrically activated equipment in the LeanFish Drying Line (items 21 through 38 above), with overload and safety breakers, volt and ampere meters and control lights for hard wire arrangement; including digital chips for observation and remote control from Foerman's Control (item 41) and Observation Screen in Administration (item42):*

<i>Approximate overall dimensions LxWxH</i>	2.000x600x2.200 mm
<i>Weight in working order</i>	~650 kg

**41 1 off Foreman's Control**

*digital display for touch-screen operation; permitting observation and emergency intervention into the process.*

**42 1 off Observation Screen**

*digital display for touch-screen operation; permitting observation and emergency intervention into the process.*

**43 1 off Steam Generator**

*with sufficient capacity for all steam consuming equipment in the plant, including cleaning; delivered by others.*

**44 1 off Odor Control**

*built up from a Scrubber and an Evaporative Cooler, both with Spray Trees, nozzles and Recirculation Pumps, for odor contaminated as well as clean water, as shown on attached leaflet; the equipment is installed in an enclosure constructed locally from conventional building materials (concrete, brick); the spray trees, the cooling coil and the pumps, are delivered*

*prefabricated and/or assembled; odor is suppressed through the introduction of biochemicals of ozone:*

*Pumped volume (each) 120 m<sup>3</sup>/h*

*Pump motors (each) 11 kW*

*Overall dimensions of cooling coil LxWxH 1.500x1.800x5.400 mm*

*Approximate dimensions of enclosure LxWxH 6.000x6.000x3.600 mm*

*Total weight of delivered material ...*

*... (coil, spray trees, pumps and supports) 1.250 kg*

-- 1 off **Ducting and Smoke Stack**

*ducting from Cyclones (item 32) to Odor control (item 44) and Smoke Stack 6 m high (not indicated on the Ultima 80 plan):*

*Diameter of ducting and stack 750 mm*

*Estimated total weight, including supports 4.000 kg*

### **Price and Terms of Payment on request**

### **Conditions**

*All information in this specification is subject to scrutinizing and changes when exact characteristics (size and LOC of the species), consistency (state of decomposition) and quantities (in 24 hours and during one week) of the raw material to be processed, including geographic location (atmospheric conditions) of the plant, are known. To warrant optimum performance, final designs must be made compatible with all such local conditions.*

### **Exclusions**

- *FOB and CIF charges, including ocean insurance*
- *Third party inspection and certification*
- *Import duty and taxes*
- *Erection guidance and commissioning*
- *Spares, including freight and transport for same*
- *Fees for visa and work permits for supervision and/or service*
- *Traveling, board and lodging for supervisors and service men*
- *Electric cables and installation thereof, from the power supply ...  
... to the cabinet and from the cabinet to the individual motors*
- *Fuel day tank, fuel pump and necessary piping for the fuel*
- *Insulation and cladding wherever required*
- *Civil construction, building and foundations*
- *Carbon steel structures, checkered plates, gratings, hand rails ...  
... and staircases, other than stated*
- *Equipment and crane for heavy lifting and handling ...  
... of components during installation*
- *Welding machines and other tooling required at site*
- *Supply of sea water, freshwater, insulation and electricity*
- *Anything not mentioned in the specification above*