

## Tilapia recirculation system

### Design of a 25 ton Tilapia ongrowing system

#### **General data**

Price (including pre-ongrowing and ongrowing system and extra materials)

Total system size:

Installed power:

Daily water usage:

Daily average feed gift:

Average FCR

#### **Materials**

To produce 25 tons of Tilapia two systems are needed. In the pre-ongrowing system the fish are grown from 1 to around 50 grams. This system is operated without pure oxygen injection. The ongrowing system however needs supplementary oxygen addition to grow the fish to max. 700 grams.

#### **Pre-ongrowing system (growth interval 1-50 grams)**

The following tanks are fully constructed of concrete, because it is more cost effective. These are not included in this quotation. The walls of the tanks have a thickness of 20 cm and a floor of 18 cm thick. The concrete is reinforced with iron frame work (iron diam. 8 mm - 150 mm squares).

- The drumfilter is placed in a concrete tank
- The sedimentation - denitrification tank
- The pumptank

#### **Fishtanks**

6 full glassfiber tank of 2,4 m<sup>3</sup>. Each tank has a double outlet; one for complete draining and one for connection to the system. The tanks are placed on concrete stand. The PVC pipes are placed under the tanks.

#### **Drumfilter**

The pre-ongrowing system has one drumfilter. This stainless steel (quality 304) drumfilter has a 60 µm filterscreen, a 0,25 kW motor for rotating the drum and a 0.37 kW pump for feeding the cleaning nozzles and an electrical switchboard for running.

#### **Sedimentation - denitrification unit**

This tank is filled with PP sedimentation filterblock, which is stabilised with stainless steel supports under and on top of the blocks.

#### **Biotower**

The biotower is constructed from a stainless steel frame which is filled with bionet filterblocks. The biotower is surrounded by a PVC lining and sits in a glassfiber with wooden core reception tank. The system water is distributed over the biotower using down sprayers. The biotower with reception tank is fitted on a stainless steel support. The biotower is actively ventilated using a ventilator.

#### **UV-C treatment unit**

Per pre-ongrowing system 3 UV-C units with a capacity of 55 Watt each are installed.

### ***Pumps***

1 SAER 2,2 kW pump runs the pre-ongrowing system. The pump has a capacity of 50 m<sup>3</sup> per hour.

### ***Pipes and fittings***

The drainwater from 3 fishtanks is collected in a central 160 mm drainpipe. Two of these pipes flow directly to the drumfilter. These PVC pipes and fittings are not included in this quotation.

The total EX WORKS price for the pre-ongrowing unit is € 27.906,-. This price is valid until December 2007.

### **Ongrowing section 50-700 grams**

The following tanks are fully constructed of concrete, because it is more cost effective. These are not included in this quotation. The walls of the tanks have a thickness of 20 cm and a floor of 18 cm thick. The concrete is reinforced with iron frame work (iron diam. 8 mm - 150 mm squares).

- 12 fishtanks of 9 m<sup>3</sup>;
- 1 drumfilter tank;
- 1 pumptank;
- 2 sedimentation - denitrification tanks

### ***Drumfilter***

This ongrowing system has one drumfilter. This stainless steel (quality 304) drumfilter has a 100 µm filterscreen, a 0,25 kW motor for rotating the drum and a 0.37 kW pump for feeding the cleaning nozzles and an electrical switchboard for running.

### ***Sedimentation - denitrification unit***

These two tanks are filled with PP sedimentation filterblock (channel width 54 mm) which is stabilised with stainless steel supports under and on top of the blocks. Each tank has a 125 mm slide valve outlet.

### ***Biotower***

The biotower is constructed from a stainless steel frame which is filled with bionet filterblocks. The biotower is surrounded by a PVC lining and sits in a glassfiber with wooden core reception tank. The system water is distributed over the biotower by a PVC distribution plate on top of the biotower. The biotower with reception tank is fitted on a stainless steel support.

### ***UV-C treatment unit***

In the ongrowing system a 275 Watt UV-C reactor is installed. This UV-C unit is constructed in the drumfilter tank.

### ***Pumps***

In this system 300 m<sup>3</sup> of water has to be pumped per hour to a height of 6 meters. This can be performed with 4 SAER 2,2 kW pumps.

### ***Oxygen enrichment in the fishtanks***

The oxygen from the generator is directed to a Kaskade 4 oxygen enrichment instrument in each fishtank. The oxygen is dissolved in the water coming from one of the water inlets from the biotower reception tank.

#### *Oxygen generator*

***This generator is an option. If pure oxygen in cylinders are readily available, this is a better option. The only advantage of this machine is the 24 hours a day availability of oxygen.***

#### *Pipes and fittings*

All the tanks will have a PVC outlet for draining and a PVC outlet for returning the water to the drumfilter. Each tank will have a perforated PVC drain connected to the PVC outlet pipe, which is flowing to the drumfilters. These PVC pipes and fittings are not included in this offer.

The total EX WORKS price for the ongrowing unit is € 71.888,-. The price excluding the oxygen generator is € 56.138,- This price is valid until December 2007.

#### **General conditions**

##### Warrenty

7 years on all tanks

1 year on workmanship

#### **Partners**

Durante Fish Industries, Ibadan, Nigeria  
[www.durantefish.com](http://www.durantefish.com)

Skretting, Boxmeer, The Netherlands  
[www.skretting.com](http://www.skretting.com)

Til-Aqua, Velden, The Netherlands  
[www.til-aqua.com](http://www.til-aqua.com)

PAL Anlagbau, Abtshagen, Germany  
[www.pal-anlagbau.de](http://www.pal-anlagbau.de)

Hendrix Misr, Cairo, Egypt