

# AQUACULTURE SOLUTIONS



**aquafarm  
concepts**

We at **Aquafarm Concepts** want to present ourselves as a company specialising in the implementation of all processes related with hatcheries and aquaculture facilities.

**MISSION:**

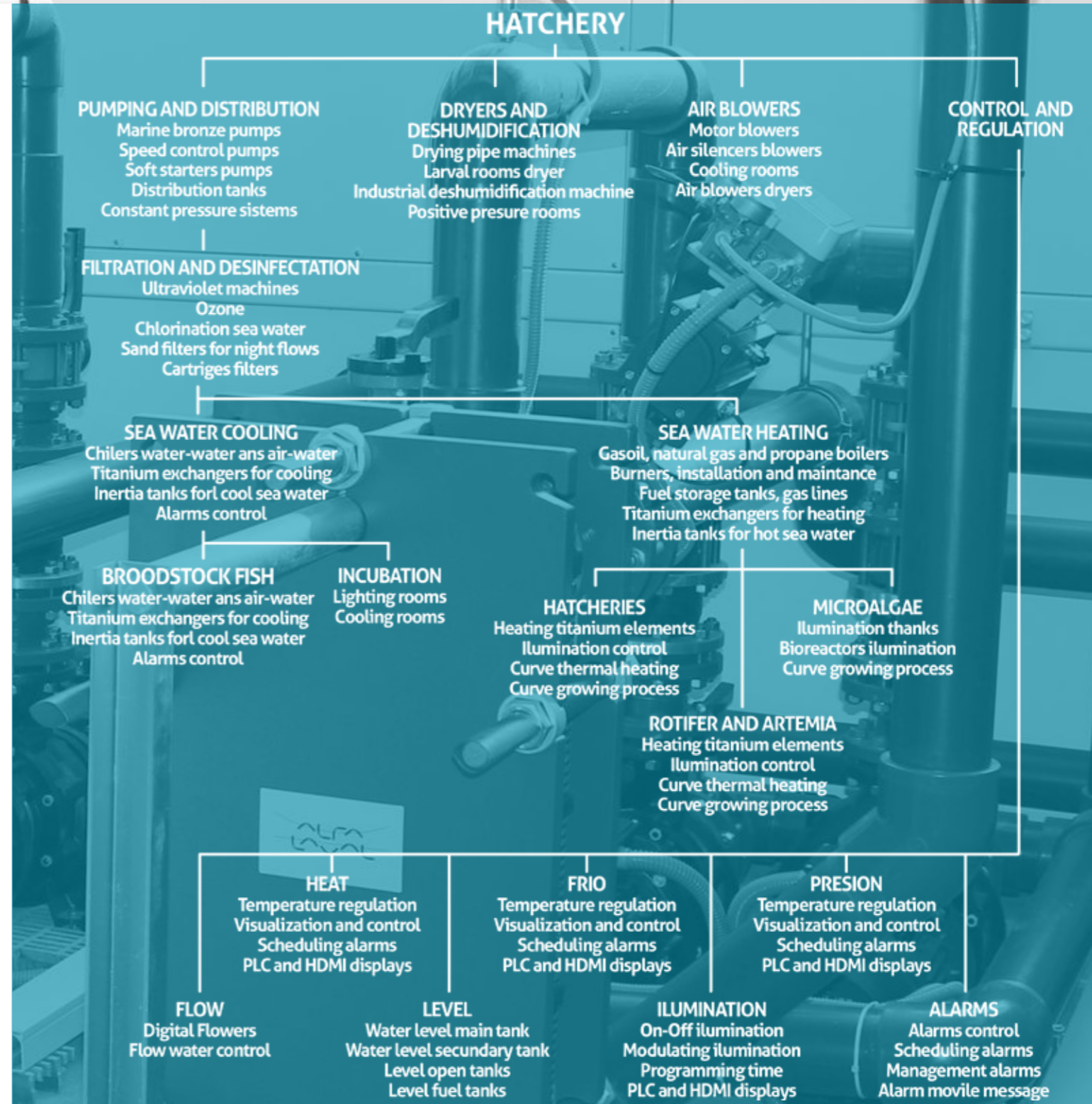
To provide **specific integral solutions** for **aquiculture installations and fish farming systems**, including the different production stages, from intake, filtration, distribution and treatment of seawater to control of **all production processes** such as lighting, heating temperature curve, system automation, alarm management and display, etc.

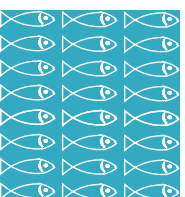
Our deployment systems are designed for and especially adapted to the different stages of aquaculture production: **incubation, nursery, broodstock, rotifers and artemia, hatcheries, pre-fattening, fattening.**

**OBJETIVE:**

Our aim is to achieve our customers' full satisfaction, for which we bring to bear our **experience** and **know-how** in the field of installations in **aquiculture facilities**, using the latest generation of materials and technology seeking efficiency, reliability and energy savings.

We carry out the design, programming, execution, monitoring, start-up and maintenance of all our installations with our own staff, offering our customers direct, professional treatment.





## HATCHERIES

Installation of **larval tanks**, hydraulic systems for distribution of cold seawater and raw seawater.

Installation of digital and variable area **flowmeters** to control the amount of water added to tanks.

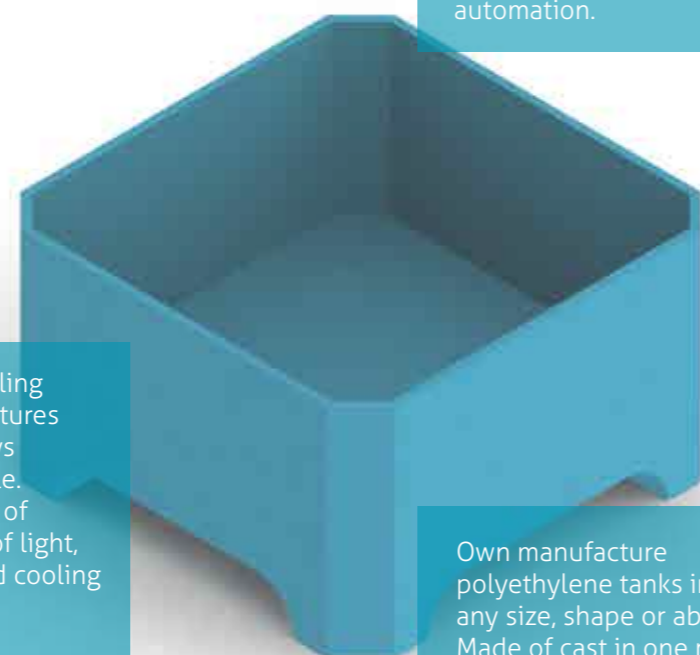
Installation of hatchery **heating systems** using individual **titanium electric resistors** or coils with boiler water.

Exact control of temperature, lighting and **growth cycles**, programming according to user-defined periods or manual programming of temperature, days of light, **thermal curve for growth**, etc. All system variables are user-programmable.

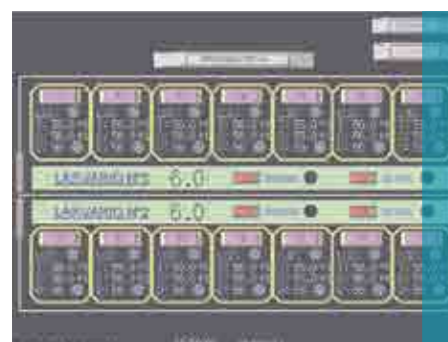


Tank lighting by specific lights with all or nothing operation or modulating with a daylight diffuser.

Construction and installation of stainless steel coils for individual larval tanks for heating by boiler water. Temperature adjustment by motorised valve prepared for automation.



Own manufacture polyethylene tanks in any size, shape or ability. Made of cast in one piece without welding.



Control and scheduling of working temperatures on the different days of the hatchery cycle. Preset programmes of temperature, days of light, thermal heating and cooling curve.

Installation of all/ nothing or specific modulating lighting for this application.



Control of tank water temperature keeping it stable at a fixed temperature throughout the year. Programming of temperature alarms and pre-alarms.

Control and programming of tank lighting by month and time zone; every tank can be programmed with on and off selected for every day of the year.



Possibility of switching on at low luminosity to avoid the stress on the brood stock of conventional systems, where lighting is 0 or 100%.



## BROODSTOCK FISH

Installation of **broodstock tanks**, hydraulic systems for distribution of cold and raw seawater. Installation of digital and variable area **flowmeters** to control the amount of water added to tanks.

Control of **broodstock tank lighting, (sst system) sunrise/sunset simulation technology**. You can produce more natural lighting for your fish with installation of modulating lighting programmable according to time zone (astronomical time), programmable switching-on at low light intensity to **avoid stressing the broodstock** at the beginning of the day. Control, regulation and programming of different lighting dates for groups of tanks depending on the time zone or **photoperiod**. Each tank can be assigned different months of **reproductive cycle**.

Control of the temperature and flow of water into tanks, year-round uniform temperature. Control of oxygen level in water, alarm management.



# ROTIFER AND ARTEMIA

Installation of **rotifer** and **artemia** tanks using individual **titanium electric resistors** or coils with boiler water.

Exact control of temperature, lighting and **growth cycles**, programming according to user-defined periods or manual programming of temperature, days of light, **thermal curve for growth**, etc. All system variables are user-programmable.



Cold heat exchangers made of Titanium especially suitable for seawater. Energy recovery circuits in drains.

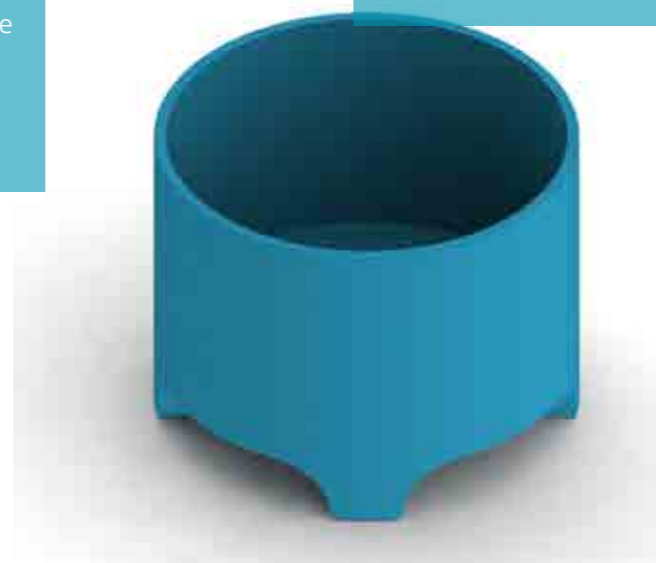


Water chillers— air or watercooled – with rotary, screw or scroll compressors, with R-410A ecological refrigerant.

Tank lighting by specific lights with all or nothing operation or modulating with a daylight diffuser.

Construction and installation of stainless steel coils for individual larval tanks for heating by boiler water. Temperature adjustment by motorised valve prepared for automation.

Titanium electric resistors of different powers, shapes and sizes for larval tanks.



# SEAWATER COOLING



Installation of **seawater cooling systems** using cooling-only chillers or heat pumps with **exchangers** with **titanium** plates and buffer tanks. Distribution system using direct production, recirculation or storage tanks.

**Precise, constant, year-round temperature** control of the seawater distributed to hatcheries or broodstock tanks.

Buffer tanks for the primary cooling circuit with water or glycol depending on the working temperature. Cold water distribution and polyester storage tanks, with or without degassifiers.





# SEAWATER HEATING

Installation of seawater **heating systems** using boilers with diesel oil, natural gas or propane burners. Heating using auxiliary systems such as cooling circuit water and cogeneration intercoolers, steam circuits, thermal oil, etc. Primary water circuit distribution to consumption points via buffer tanks.

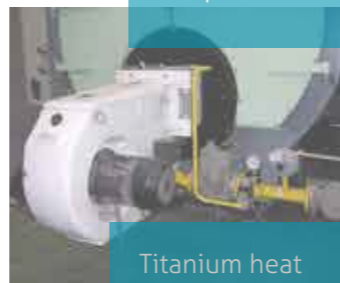
**Hot and cold seawater mixing systems** to obtain different working temperatures, allowing tanks with different working temperatures.

Diesel oil, natural gas and propane burners working in two stages on modulating depending on the power. Installation, maintenance and technical service.

Fuel storage tanks, mother tanks, gear pumps for fuel distribution, gas lines, adjustment and control ramps, regulating and metering stations (R.M.S.)



Buffer tanks and distribution tanks with different working temperatures.



Titanium heat exchangers, especially suitable for seawater. Energy recovery circuits in drains.



Viessmann and Buderus medium and high power high-performance industrial boilers, allowing primary circuit return temperatures of 35°C.



# HYDRAULIC INSTALLATIONS

Installation of **pipes in boilers and chiller rooms**, closed primary circuits and open secondary circuits.

Installation of **seawater distribution pipes** from pumps sea uptake to regulator tank filters and general distribution pipe lines, made by **polypropylene, polyethylene, pvc, thermoplastic.**

Installation of secondary pipes for hot and cold tanks to broodstock, larval and pre-growing water.

Installing pipes for primary circuits of boilers, cogeneration, steam, thermal oil, etc.. Fiber glass insulation with aluminum coating.



Installing PVC pipes for distribution seawater. Large diameter pipes and collectors with isolating valves



Installation and distribution pipes for hot and cold water to individual tanks, drains and water recirculation.

Installation of pipes for sea water made of different materials: polypropylene, pvc, polyethylene, etc.



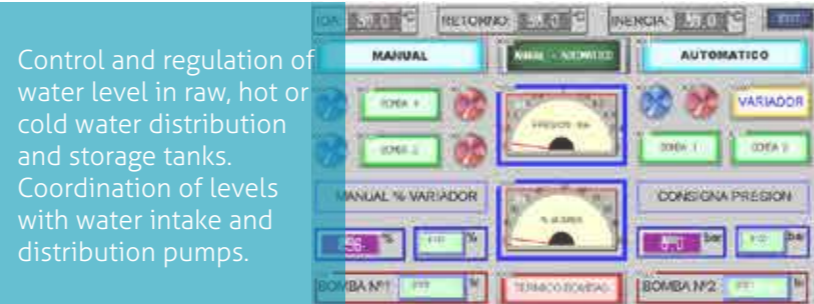


# PROCESS CONTROL AND AUTOMATION

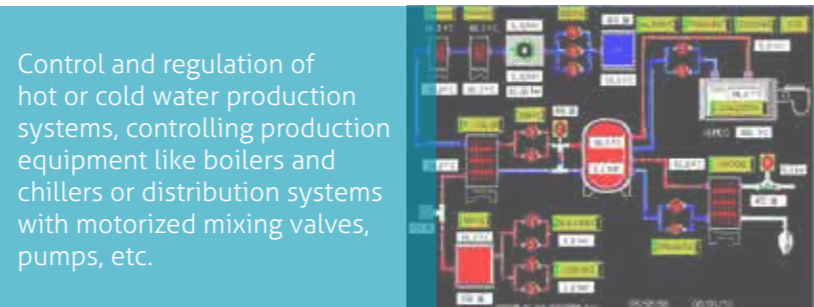
These **control systems** are not just industrial automation systems, are **specially developed for** and adapted to the processes in **aquaculture facilities**, taking the characteristics and details of each process and species farmed into account.

We carry out control, regulation and programming of all factors in processes in aquaculture facilities: **temperature, pressure, flow, level, lighting, oxygen** and **water turbidity**, with alarm management with an SMS service.

All processes can be carried out with simple systems offering easy, reliable regulation, or with automatic management systems which **provide** great **accuracy, process efficiency**, flexibility of programming, changes in operating and regulation criteria, as well as reliability.



Control and regulation of water level in raw, hot or cold water distribution and storage tanks. Coordination of levels with water intake and distribution pumps.



Control and regulation of hot or cold water production systems, controlling production equipment like boilers and chillers or distribution systems with motorized mixing valves, pumps, etc.



Control and display of water flow with closed-pipe or open-channel flowmeters. Systems for detection of water movement in pipes.

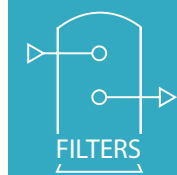
Control and regulation of sand filters, automatic washing function of time working, dirt, pressure or schedule. All parameters are user selectable.



Control and management of systems of cooling sea water, as well as all fixtures, pumps, levels, chillers, filters, alarms, etc.



Control and regulation of water level in raw, hot or cold water distribution and storage tanks. Coordination of levels with water intake and distribution pumps.



# SEAWATER FILTRATION AND DISINFECTION

Seawater filtration systems using **sand filters** for high flows, **rotary filters** rotary filters, and cartridge filters with replaceable cartridges for medium flows.

Water **desinfection** using **ozone**, ultraviolet or **chlorination systems** with flow control and chlorine cut-off system when there is no water flow.

Seawater purifiers and **desalination systems** providing drinking water for basic services.



Self-cleaning rotary filters with stainless steel screens of up to 50 µ to prevent breakages from solids in suspension.



Desalination plants to supply water to auxiliary services.



Sand filter battery for high flows, cartridge filters with different micron ratings (1/5/10 microns), high-flow cartridge filters.



# PUMPING SYSTEMS AND SEA WATER DISTRIBUTION

Seawater **pumping and distribution systems** from intake pit to main regulator tank, pumping from regulator tank to filters and distribution throughout the facility. Installation of Galway cascade pumps and supply **pressure control**, supplied to lines with different pressure and flow requirements.

Variable frequency drives for pump speed control, sequence systems for exact control of supply pressure and to avoid water hammering in pipes.



Submersible pumps and base-plate mounted pumps built of marine bronze, running at low speed (1,500 rpm) to avoid the formation of air bubbles in the seawater.



Secondary tanks for degassing and bubble removal, water treatment before its distribution to plant.



Individual flowmeters to tanks. Outs DN25 - DN50 - DN63.



# DRY PIPE, DESHUMIDIFICATION AND DESINFECTATION



Drying machine for hatcheries, Rotifer and Artemia rooms and culture rooms.



Systems for **interior drying of water and air distribution pipes**, for both main and reserve lines. Interior drying and **desinfection of seawater pipes** eliminates water remaining after cleaning work on them, eliminating the appearance of bacteria and fungus.

Machines for **drying hatcheries rotifer and artemis rooms**, preventing humidity after washing and disinfection of culture zones. This system reduces drying times required before rooms can be used again, **increasing their productivity**.

Machines for drying the interior of water distribution pipes, avoiding wetness after their disinfection, leaving them completely dry for subsequent entry into service.



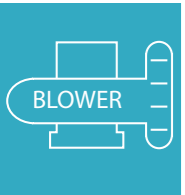


## INCUBATION

Installation and conditioning of **incubation rooms**, incubator lighting, water temperature control and room cooling to keep a **constant temperature** constant temperature during the incubation process. **Drying** and **filtration** of process inflow.



General lighting of incubation rooms or dedicated lighting for each incubator.



## AIR BLOWERS

Installation of blowers for a supply to auxiliary services and tanks. **Constant pressure supply** with compressor adjustment matching them to the precise demand at all times. Refrigeration of air dryer and blower rooms to provide dry blown air.

Heat exchangers stainless steel pipes to refrigerate air blowers.



- Direct-action blowers and blowers with separate turbine.
- Blower intake silencers.
- Blower room cooling and ventilation.
- Blower air drying.



## RENEWABLE ENERGY

We carry out **energy efficiency studies** to check for excess energy consumption, identify places with a performance deficit and find real, effective solutions which help reduce the company's energy costs.



Solar thermal panels with automatic, differential temperature control systems to rationalise energy input and efficiency.

Installation of water heating systems using **renewable energy sources** such as solar thermal panels, photovoltaic panels, solar vacuum tubes, biomass boilers, etc. These systems can support previously installed heat production systems, **providing considerable energy cost and carbon footprint reduction.**



Biomass boilers and adapted to work with pellets, wood chips, olive stones, cuttings, etc.

All elements installed are first-class, globally recognised brand names, ensuring long working life and low maintenance.

Solar vacuum tubes for working with temperatures up to 80°C, with automatic, differential temperature control systems to rationalise energy input and efficiency.





# AQUACULTURE SOLUTIONS

## ENERGY SAVINGS

At AQUAFARM CONCEPTS we are especially committed to the environment. In all our products and installations, we seek energy savings and efficiency as an essential part of our systems. This means better use of energy resources and economic benefits for our customers.

Using renewable energy sources like solar thermal energy, solar photovoltaic energy, heat recovery from seawater, geothermal and aerothermal energy, and biomass and adapting them to the processes of aquaculture facilities results in better use of available energy resources and economic benefits for our customers.

To this end, we only use high energy efficiency equipment which gives better performance and reliability in all systems installed.



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