



**GRUPO
EURORED**

FISHFARMING





Solutions for any type of installation

At Grupo Eurored we design and develop projects in collaboration with our clients, accompanying them in all phases of the process, providing technical solutions combined with reliable professional service and support.

Our deep knowledge in the industry, backed by more than 45 years of experience, allows us to provide innovative ideas and services that guarantee success in the development of sustainable and profitable aquaculture operations, responding to the needs of our clients. With the support of the rest of the department

Group services that include warehouse, logistics, workshop and supplies, operations and our own network, we take charge of the start-up of the aquaculture facility in record time, guaranteeing the operability of the project from the first moment.

We specialize in the design and execution of open water cage aquaculture adapted to any type of culture, aimed at increasing fish production and long-term production sustainability to meet the growing demand for species such as sea bass, sea bream, tuna, sea bass or salmon, among others.

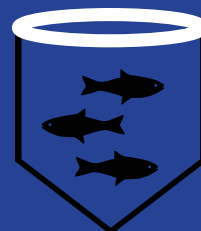


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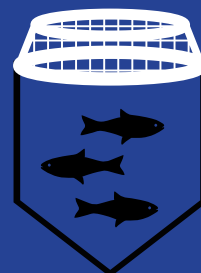
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Cage design



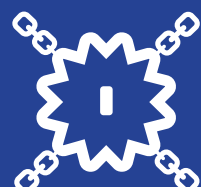
Bird nets



Cage nets



Mooring solutions



Fishfarming

What does it consist of?

Cage culture is an emerging system through which fish are raised from fingerlings, and continue to grow and fatten to commercial size, developing in a closed space with free flow of water and constantly supervised that facilitates inventory and guarantees the safety and control of production. In addition, for the start-up of the installation it is not necessary to carry out permanent constructions, since it is possible to combine flotation systems and easily removable elements that simplify their transfer.

The cages make the growth process of the fish more efficient, since in freedom they take longer to reach the right size for consumption, while in captivity the growth period is considerably shortened, with an average of 6 to 18 months for its total development, which varies depending on the species.

In addition, cage farming reduces the handling and mortality of fish and allows them to be partially fed according to a schedule, favoring semi-intensive and super-intensive farming in certain cases, focused on increasing fish production in line with demand.

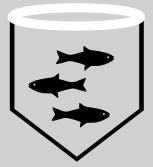
Regarding the economic aspect, this production method requires a relatively low capital investment with simple technology, providing a very favorable response and production time for the producer.

The cages facilitate controlled handling of the fish, allowing stocking at high densities and the maximum use of available water resources, which translates into a rapid return on the capital invested, making it a very profitable system.

At Grupo Eurored we specialize in providing everything necessary for the design, equipment, machinery and start-up of aquaculture estates, whatever their production system. As specialists in this field, we will advise you on the main qualities of each system and type of crop, as well as the most suitable elements and materials for its implementation.

CAGE DESIGN





Floats for the assembly of cages

Articulated float tubes made of high-density polyethylene (HDPE).

They are characterized by being flexible and light, easily adapting to the movement of the sea and facilitating their assembly and handling. They allow the creation of a stable and safe platform that guarantees the firmness of the installation even in extreme conditions.

Dimensions of the flotation tubes:

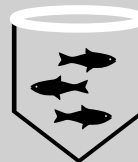
- $\varnothing 90$, $\varnothing 110$, $\varnothing 160$, $\varnothing 250$, $\varnothing 280$ mm
- $\varnothing 315$ mm, $\varnothing 400$ mm, $\varnothing 450$ mm, $\varnothing 500$ mm and $\varnothing 630$ mm

Main features:

- Excellent flexibility resistant to corrosion.
- Adapted to extreme conditions.
- Long useful life.
- High efficiency and low integral cost.
- Non-polluting.



Aquaculture cages



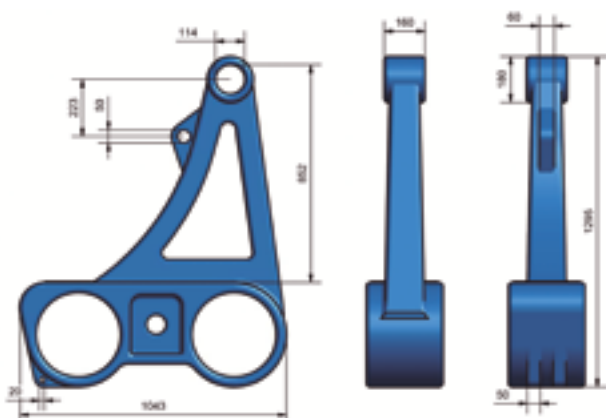
Eurored Group offers a wide range of marine cages and floating structures worldwide, designed by engineers and professionals with experience in the naval sector with a reputation for its resistance, operational stability, durability capable of withstanding the most extreme conditions.

Manufactured in high-density polyethylene (HDPE) through high quality standards controlled until the completion and delivery of the product.

Grupo Eurored Acuicultura has a range of supports for the construction of both circular and square plastic cages. All structures are manufactured using controlled industrial processes.

We have two lines of Supports or Brackets designed to respond to the most severe conditions.

The Fusion Line is manufactured by injection and the Farms series by Rotational system.



Main features:

- Manufacture by injection or rotational molding
Designed for Offshore or confined water
Material 100% HDPE.
- Adapted to circular or square cages For cages up to 120 meters in diameter Fixing system with or without studs.
- Built-in anti-current ring tensioner for easy maintenance.
- Support parts injected with closed cell PUR
- 100% UV.

Characteristics of Plastic Cages

Modelos de Jaulas:	EuroFarm 250	EuroFarm 315	EuroFarm 400	EuroFarm 450	Comentarios
Tamaños de Jaulas -	225/250mm	315mm (12")	400mm (16")	450mm (18")	Medidas Sistema Imperial
Diámetro Tubo Flotación:	(9"/10")				por confirmar.
Tamaños de Jaulas -	40 - 90m	60 - 100m	90 - 160m	120 - 160m	Desde el centro del
Circunferencias Estándar:	(130 - 300')	(200 - 330')	(300 - 530')	(400 - 530')	Tubo de Flotación Interior
Tamaños de Jaulas -	13 - 29m	19 - 32m	29 - 51m	38 - 51m	Desde el centro del
Diámetros Estándar:	(42 - 94')	(63 - 104')	(94 - 167')	(125 - 167')	Tubo de Flotación Interior
Distancia del Centro	52cm	66cm	85cm	100cm	
Entro Tubos de Flotación:	(20")	(26")	(33")	(39")	
Bracket - PE	*	Si	Si	Si	PIM Bracket
Moulded (new PIM Type):					(Bracket moldeado a inyección)
Connection for bird net	Si	Si	Si	Si	Disponible como Opción
support poles:					
Distancia Estándar	2m (6' 7")	2m (6' 7")	2.5m (8' 2")	2.5m (8' 2")	Puede ser personalizada
Entre Brackets:					para colocar redes.
Dimensión -	125mm (5")	125mm (5")	160mm (6,5")	160mm (6,5")	
Barandilla PE:					
Dimensión -	110mm (4,5")	110mm (4,5")	140mm (5,5")	140mm (5,5")	
Tubo Flotación:					
Estándar Noruego -	Si	Si	Si	Si	Certificados
Certificado NS9415:					ISO 9001 y ISO 14001.
Compatible Jaula de 2 anillos:	Si	Si	Si	Si	Obligatorio solo para Noruega.
Compatible Jaula de 3 anillos:	Si	-	-	-	Jaula Estándar
Tubo de Hundimiento:	Si	Si	Si	Si	
Comp. Plataforma de Pasarela:	Si	Si	Si	Si	Usados para 315 en adelante.
Comp. como Jaula Sumergible:	Si	Si	No	No	Pregunte por detalles específicos.

Cage towing



The experience in the manufacture and assembly of the necessary elements for the towing of marine cages for live fish or artifacts are a guarantee of success.

At Grupo Eurored we design, calculate and assemble the towing lines guaranteeing the success of the assembly.

We have twisted ropes in 8 and 12 cords in Dyneema, HDPEW, PP and Nylon ready to assemble with any of the necessary joining elements.

- Sling for TOWING THROUGH GAZA
- Sling for TOWING BY CABLE
- Dyneema towing sling
- various slings



Calculation of the tension of a marine cage towing

In the absence of external elements, such as wind and/or sea, the resistance offered by the plastic cage or structure is the so-called total resistance (R_t) and which depends above all on the speed (V_b) and the area of the wetted surface (S) related by the formula:

Where:

- **CT**: Total resistance coefficient
- **d**: water density
- **Vb**: ship speed
- **Yes**: hull surface wet

$$R = \frac{C_t \cdot d \cdot V_b^2 \cdot S}{2}$$

R_t





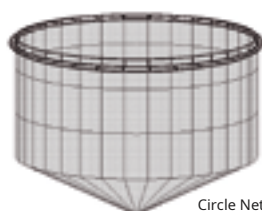
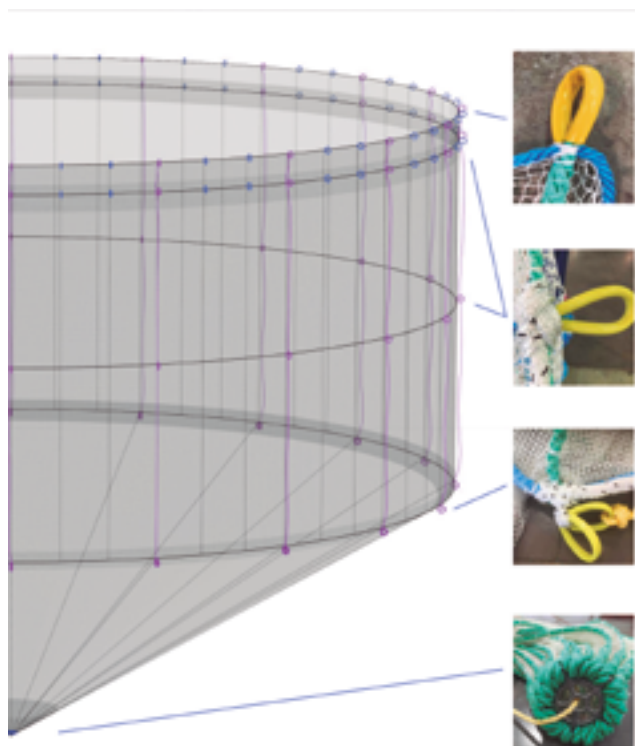
Marine cage nets



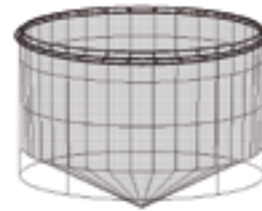
Both the design and the production of the nets are carried out in an integral way in our **PRODUCTION CENTER**, which has everything necessary for the start-up of the project.

Our technical office is in charge of carrying out the conceptual design of the project, as well as all the services related to its control and maintenance.

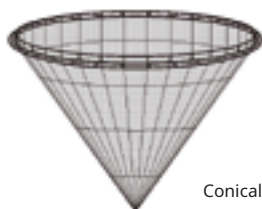
Our production facilities are adapted and equipped to manufacture the nets accurately, safely and efficiently.



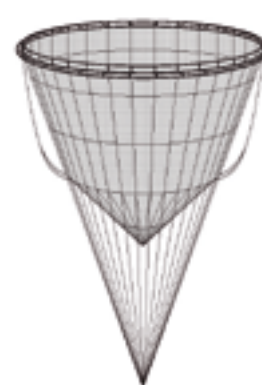
Circle Network



Circular net with anti current



Conical Net

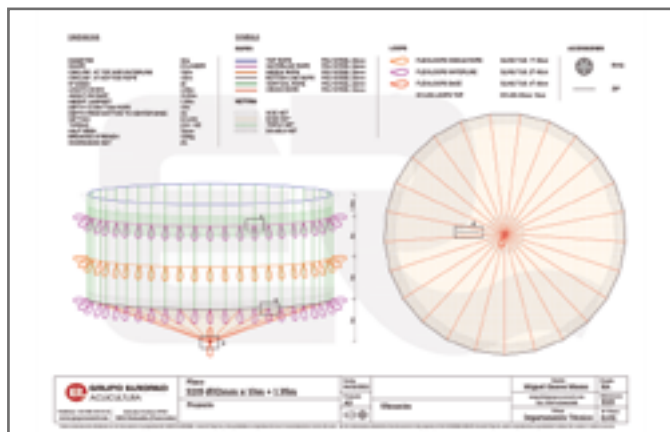


Square Net

At Grupo Eurored we specialize in the design and manufacture of various types of nets for cages depending on the characteristics of the aquaculture area.

We have our own net shop in which we manufacture nets of the highest quality for the protection of fish

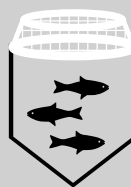
in culture taking into account the specifications related to the oceanographic and environmental conditions to develop high quality nets under the **NS9415 standard** that guarantee the integrity of the installation.



All of our designs are certified to meet the requirements of the **Norwegian Standard NS9415 regulations** and certification **Iso 9001** of Det Norske Veritas (DNV).

In addition, all assembly and manufacturing procedures are also subject to our own control and quality systems to offer maximum safety.

Bird netting



Our net designs are adapted to different types of cages to prevent bird attacks and can be supplied with a central support, in a hamster wheel format or with posts that support the net around the perimeter.

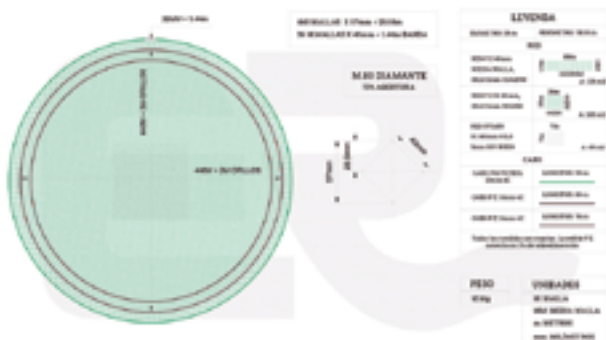
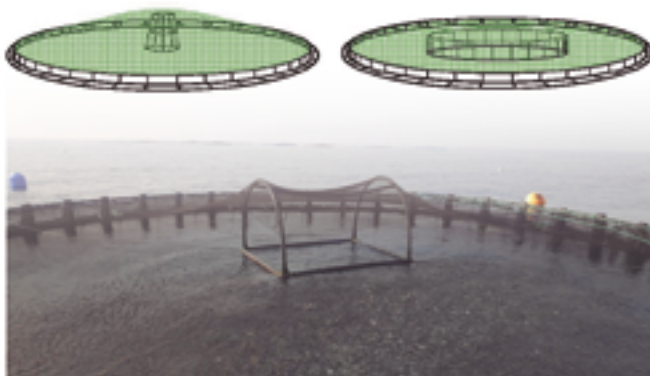
There are also models available for cages with a smaller surface area without a central support, which cover the entire surface of the installation.



The net supports for aviaries in marine cages have a standardized height above the water according to the net model we make.

Sizes range from 1.2m to 5m in height. They can be manufactured from diameters of 10m to 40 meters as standardized models.

Our technicians design and adapt the structures to the cage with the best materials that withstand the most extreme conditions.



cage nets



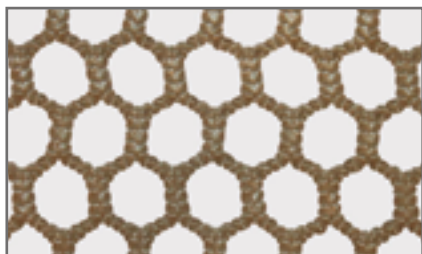
Nylon Net / 210

Special knotless net made of nylon, which guarantees a high quality net with a long service life.

It is available in various threads, sizes and mesh colors.

Advantages:

- Better performance at sea.
- Requires fewer repairs.
- Great durability.
- Great fit that facilitates washing and disinfection.



HDPE net / 2800

High-density polyethylene-based cage nets, a highly abrasion-resistant fiber with great adaptability, also used for protection against predators, available in various sizes.

Advantages:

- Greater resistance to abrasion.
- Great durability.
- Very flexible, strong and corrosion resistant.
- Great fit that facilitates washing and disinfection.



UHMWPE Network & Dyneema /27000

UHMWPE-based cage nets, an ultra resistant fiber, stronger and lighter than nylon nets.

Thanks to their durability and resistance to cuts or breaks, they are commonly used for species that bite the net, preventing accidental escapes, and for protection against predators.

Advantages:

- Less antifouling material: less algae growth.
- Less need for net washing and less stress for the fish.
- Keeps the shape better.



Antifouling:

Problems related to marine growth have become increasingly complex, with rising sea temperatures and new species of algae.

Therefore, we make sure that we have partners that ensure that we make the right decisions.

to promote healthy fish with sufficient oxygen and optimal growth conditions. Our main long-term partner offers a high quality antifouling program suitable for all markets to combat marine growth in fish farming nets.

network table

Our nets are manufactured following strict safety controls, following the UNE standard. According to your specifications, parameters are used to prevent breakage and leaks.

NETWORK-CLASSES ACCORDING TO THEIR SIZE

PROFUNDIDAD m	CIRCUNFERENCIA m							
	< 49	50 - 69	70 - 89	90 - 109	110 - 129	130 - 149	150 - 169	> 170
0 - 15	I	II	III	IV	V	V	VI	0
15.10 - 30	II	III	IV	IV	V	VI	VII	0
30.10 - 40	III	III	IV	V	V	VI	VII	0
> 40	0	0	0	0	0	0	0	0

NETWORK RESISTANCE REQUIREMENTS

MEDIA MALLA mm	CARGA DE ROTURA MÍNIMA DE MALLA EN LA RED (Kg)							
	I	II	III	IV	V	VI	VII	0
< 6	21	21	25	25	25	25	25	25
6.0 - 8.0	25	31	31	39	39	39	39	39
8.1 - 12.0	31	39	47	55	55	55	55	55
12.1 - 16.5	39	47	65	63	71	71	79	79
16.6 - 22.0	47	63	79	79	79	95	95	95
22.1 - 29.0	63	71	95	95	117	136	136	136
29.1 - 35	95	95	117	117	136	136	151	151

The half meshes in square nets must be sized according to the NS-EN-ISO 1107 standard. For nets with hexagonal mesh, use the conversion table.

All of our designs are certified to meet the requirements of **Norwegian Standard NS9415** and ISO 9001 certification by Det Norske Veritas (DNV).

In addition, all assembly and manufacturing procedures are also subject to our own control and quality systems to offer maximum safety.

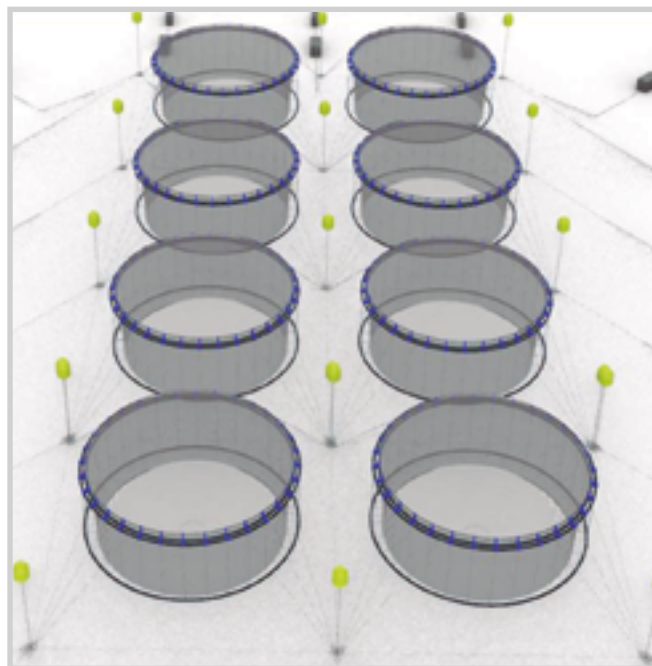




Grupo Eurored puts at your disposal finished mooring systems for Fishfarming installations and complete packages where everything is fully assembled and certified, including individual components such as anchors, Bolt systems or the manufacture of concrete blocks, anchors, ropes, chains, shackles and buoys for the execution of the project.

Structures are custom built to the individual requirements of each facility. We offer nets in various designs and materials adjusted to the type of crop, installation location and requested finishes.

We design intelligent solutions adapted to the new technological challenges of the industry. We only work with products of the highest quality, certified under NS9415 and DNV, which guarantee safety, with an excellent response to extreme conditions that contributes to extending the useful life of the aquaculture facility.



Design and calculations: aquaculture facilities mooring



Mooring and anchoring buoys in different volumes and models.



Deep galvanized bonding systems are used to guarantee the life of the mooring lines.



Gunnebo's Model 852 certified shackles make joints safe for installation.



Depth buoys that guarantee the stability of the installation, and can be installed at levels greater than -50 meters.



The manufacture of these flotation units guarantee the mooring line and inspection control.

Offshore security available to everyone.

Sensors

Grupo Eurored puts at your disposal the most advanced technology for the comprehensive monitoring of your installation. We have sensors for measuring oxygen, PH, salinity, CO₂, conductivity and temperature, among others, with great precision.

Establishing a suitable temperature is the basis for optimal feeding and growth patterns, while oxygen is a fundamental factor for the growth and well-being of the fish. To know these parameters, the sensors have a fast response and maintain stability, even in dynamically changing conditions.

We also have handheld and portable instruments to which the sensors can be attached. These instruments are ideal for point measurements in many places and ponds, allowing the data to be known instantly.



COBALIA: Comprehensive process monitoring software for aquaculture



COBÁLIA is an advanced management platform for aquaculture farms that allows real-time monitoring of facility variables and generates reports automatically, with access from anywhere thanks to its web application, which can be viewed from your mobile.

The system, which has a personalized configuration and intuitive navigation,

collects data from all the sensors and instruments in your production.

In a cloud database, artificial intelligence will calculate, evaluate and generate improvement ideas to optimize production. The data may be shared with the various providers to allow them to provide personalized advice based on the actual data collected by the program.

PACIFIC: Comprehensive monitoring hardware for aquaculture

Pacific is a measurement, monitoring and control system designed for use in fish farms. It is both multi-channel and multi-parameter, and forms a small, modular complete system.

FEATURES:

- Up to 20 probes: wired, wireless.
- Combination of relays and digital inputs/ outputs (up to 30 of each).
- P-NET, API interface, TCP/Modbus, TCP/IP, USB.
- Built-in data logger.
- Touch screen.





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