

PASSION  
EXPERIENCE  
INNOVATION  
*Marinas for life*





# APEIRON

THE JOCKEY CLUB

*ELITE MARINAS GROUP and RONAUTICA MARINAS  
awarded the famed Jockey Club Marina in North Miami*

*Elite Marinas Group and Ronautica Marinas are proud to announce its been awarded the contract to rebuild and modernize the Jockey Club Marina in North Miami, Florida. Elite Marinas Group and Ronautica Marinas will provide engineering, production and management to the project that will deliver a state-of-the-art facility.*



*The project includes rebuilding and replacing the damaged seawall, removal and replacing of the piles required and deliver an aluminium docking system that will surpass all necessary requirements for longevity and safety. Project is scheduled for completion June 2019.*



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# 1 *Presentation*



PASSION  
EXPERIENCE  
INNOVATION

## Marinas for life

We are the first company in Spain, and one of the pioneers in Europe in developing floating pontoons and marina projects

### MISSION, VISION AND VALUES

Our **commitment** is to build first class quality Marinas. Our **goal** is to be recognized because of the top level service and involvement we provide to our customers and the quality of our final product. We **believe** that companies are their employees, and the passion for the job, honesty and endeavor on the daily work of each one of the professional who works in Ronautica Marinas is reflected in the quality of the marinas that we build.

We have **32300ft<sup>2</sup>** | Headquarters and manufacturing facilities for aluminium structures

We have **50000ft<sup>2</sup>** | Precast yard for concrete pontoons and breakwaters manufacturing

Working since **1989** | Royal Yacht Club of Vigo. First marina built in our home town

**12** Countries in which we have already worked | Panama, Cuba, Mexico, United States, Ireland, Cyprus, Portugal..



Located in Tui, Galicia, we have our own production resources, and our own assembly procedure, with a consolidated collaboration with our suppliers and expertise to deal each kind of turnkey projects we execute.

The experience of Ronautica on the management of marinas, design and construction of sailing boats and services related to the marine industry, is part of the DNA and knowledge of Ronautica Marinas, identity signs which make us being different against other companies at the same sector.



## Worldwide outreach

**Strategic location for international maritime transport.**

Production Centre for concrete pontoons and breakwaters in the port of Brens, A Coruña.

## Innovation R+D+i

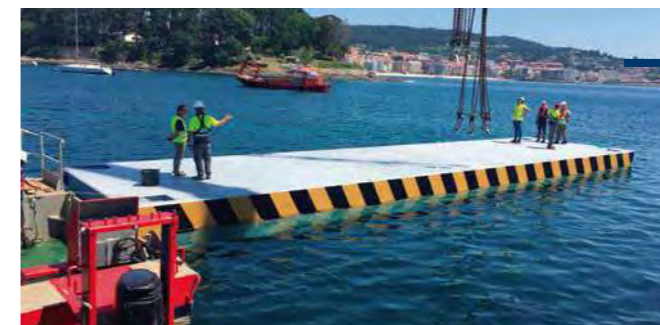
The ultimate goal of Ronautica Marinas R+D policy is necessarily innovation, understood as the successful introduction into the technologic market, processes or products developed during the previous phases of research and development

**2003** Creation of the R+D+i department

**85%** The components that compose the marinas manufactured by Ronautica Marinas have been developed by the company itself

### R+D+i DEPARTMENT OBJECTIVES

- To carry out projects that allow us to improve technologically, as well as to develop technology related to our productive activity.
- To promote the training and motivation of our employees and the generation of ideas by work groups.
- To integrate R+D+i management in the remaining Quality and Environmental management systems.



The new concrete products range is the result of an R+D+i project during the years 2010-2014.



Experts in the design and manufacture of marinas according to the highest international standards.

## Quality and environment

Our main objective is to be recognized internationally for the quality of our products and for the excellence in service and commitment to our customers.



We have implemented an Integrated Quality and Environmental Management System, according to the **UNE-EN ISO 9001:2015** and **UNE-EN-ISO 14001:2015** standards, based on the following principles:

- Achieve the highest level of proficiency and ensure that all our products and services fulfill quality specifications.
- Ensure that all activities carried out meet the maximum conditions of environmental protection and pollution prevention.
- Provide a fast and reliable response in all aspects, from administrative to operational processes.
- Promote training and motivation of all employees of the company.
- Minimize the amount of waste generated and the use of resources.
- Commit to constant improvement by defining actions to that purpose.

At Ronautica Marinas we believe in a **flexible and productive work culture that allows us to turn our work into a positive factor for our personal development.**

Since the year 2016 Ronautica Marinas has implemented in the company flexibility of labor schedule and teleworking to favor the conciliation of labor and personal life.

The objective is to improve the quality of life of the people who work in Ronautica Marinas. Improving job satisfaction we increase the productivity and quality of our work.



## Services

Put yourself in the hands of specialists to ensure that your project is technically feasible, adapted to the hydrodynamic conditions of the environment and designed to optimise your investment and last over time.

### Turnkey installation

We are familiar with designing, manufacturing and assembling the marina as a whole. To simplify the building process to the promoter and unify under a **single contractor** all the development.

### Design and engineering

**Civil Engineering for the design of the marina**, the shelter dykes, preliminary studies, bathymetries, dredging, drafting of basic and constructive projects.

### Maintenance and remodeling

Like any infrastructure, ports, marinas and piers need maintenance over time. Doing it the proper way **minimizes operating costs and extends the life of the marina.**

### Customized solutions

**Each project is different and requires tailor-made solutions.** These range from small piers to marinas with hundreds of moorings.

### Project management

**We offer Project Management services for the construction of your marina.** Our team will be responsible for the project as a whole, coordinating the different works and providing added value as opposed to the mere supplier of products.



# 2 Product range



## Pontoons

### ALUMINIUM FLOATING PONTOONS



#### Standard series

Designed for ships up to 15'- 45' long, small jetties and lightweight installations.



#### Reinforced series

For boats up to 50' to 60' Main profiles and internal structure of props and crossbars reinforced to support higher efforts.



#### Serie RO4

For Megayachts, fishing, working and passenger boats. The RO4 Series has been designed to resist the most demanding conditions, without maintenance neither corrosion.

### ALUMINIUM FIXED PONTOONS

To those marinas which prefer fixed pontoons in front of the floating ones, but do not want to drive up the investment with civil works, neither expensive precast concrete slabs.



### CONCRETE PONTOON

Concrete pontoons are the highest level of strength and stability. Manufactured with reinforced concrete, expanded polystyrene core and reinforcement fibers.

Our 25 years of experience have taught us how to manufacture what we believe to be the best floating concrete pontoons on the market.



## Breakwaters

### CONCRETE FLOATING BREAKWATERS

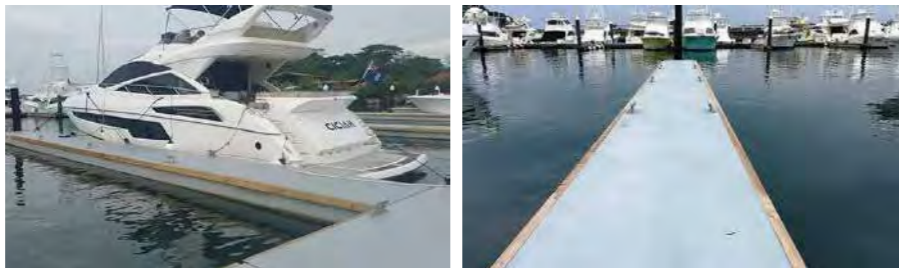
Design and manufacture in-house. Tailor-made solutions for each location. Wave attenuation and mooring studies with chain, seaflex or piles made in-house. Flexible joints.



## Fingers

### CONCRETE FINGERS

Built in only one piece in lengths up to 75' including service channels, fenders and all related accessories to provide to the marina the mooring for vessels more functional and comfortable.



### ALUMINUM FINGERS



#### Fingers with pile guide

For the large boats. Reinforced fingers from 3' up to 7' width, with pile guides at the end. Depending on the length, also with a second pile, internal, to do not interfere with the lateral mooring of the boat.

#### Small finger arms

The cheapest solution for easy mooring the smallest boats and avoid the uncomfortable Med Moring System with chain and ropes.

#### Fingers without pile guide

Reinforced on the connection to the pontoon. Depending on the size of the boat and the configuration of the marina, it can be design up to 35' length without piles at the end. Widths from 1'-3" to 5'

## Access gangways

### ARTICULATED ALUMINUM



#### Standard

Starting with simple access ramps for small jetties up to large reinforced walkways for the public transit and vehicles.



#### Reinforced

Made to measure designs to comply with the demanding overloads, lengths, geometries or special requirements.

### FIXED ALUMINUM WALKWAYS



Our exclusive RO5 profile allows us to build fixed walkways that are unique on the market. Great resistance to vertical overload and all advantages of the aluminum against concrete and steel: price, lightness, versatility and simple assembly, even at remote places. From small walkways to bridges up to 23' width.

## Accessories

### CONNECTION SETS



#### Aluminum serie

Elastomer blocks reinforced with Kevlar. Single, double or triple according to type of pontoons and fingers. From 14,300 lb to 78,264 lb breaking load.



#### Concrete breakwater serie

Stainless steel wires and elastomer blocks for the most solid and versatile junction sets on the market. Two, three and up to four wires per junction box. 22 lbs breaking load per wire.



#### Concrete pontoons serie

Rigid connections with elastomer blocks and plugs or flexible connections with steel wires depending on the application and mooring system used. 10 lbs breaking load per bolt. 21 lbs breaking load per wire.

**PILE GUIDES**



Aluminium pontoon rings made of aluminium and galvanised steel for concrete pontoons. Internal and external. With rollers or fenders. Complete range.

**CLEATS**



From 9,900 lbs breaking load to more than 44,100 lbs. Cleats, bits and bollards. For small boats or Megayachts. In cast aluminium and steel. For aluminium and concrete pontoons. Customizable with your marina logo.

**FENDERS**



We have different materials and prices to fit the requirements of each budget and type of boat: PVC, EVA, Composite.

**PAVEMENT**



Rot-proof tropical hardwood, technical composite imitation wood, GRP tramex, aluminum, non-slip concrete. Guaranteed durability.

**ANCHORING SYSTEMS**



Driving of steel piles with own equipment and staff. SEAFLEX, chain, HEB beams, connecting rods. We design and install the anchoring system for your marina.

**SERVICE PEDESTALS**



We work with the leading international manufacturers in the industry to offer you the best options available. Including electrical design and approvals. Also grey water, waste water and fire stations.

**FLOATS**



**Rotomolded Polyethylene**

After 25 years of experience we are able to offer the best rotomolded floats on the market. Different measures to adapt to all applications. Up to 10 years warranty.



**Concrete floats**

The combination of aluminum pontoons with concrete floats will allow you to obtain the best of each technology: the versatility of aluminum and the strength and stability of concrete. Improve your marina at a reasonable price.

**ADDITIONAL FURNITURE**



Bathing ladders, benches, recycling containers, lights. Furniture and accessories in aluminum and stainless steel to provide your floating pontoons with all services.

# 3 Applications





## Marinas

Yachts Clubs, Private Marinas or Resort. Motor boats, sailboats or Megayachts. We design and build marinas with the highest international quality standards. Turnkey Projects. Rely on a specialist.



We work with promoters to leverage their investment by optimizing the design. Complete product range

Designed for boats up to

200'



## Fishing and passenger ports

The strength of our pontoons makes them suitable for all types of professional activities.



125 psf

Maximum use overload



Designed for boats up to

100 ft



## Private docks

Inland water in lakes, rivers or reservoirs. Temporary facilities for hotels and beaches. Small jetties for private use.



Custom designs



Jetties integrated in private resorts

## Special installations

Floating pedestrian walkways, hard-to-reach jetties, viewpoints, aquaculture facilities... In Ronáutica Marinas we are specialized in designing and executing singular projects.



Riverside conditioning



River stops



Platforms for shows



## Sports events

The elite competitions and the events organization are part of the highly qualitative world of Ronáutica Marinas. We make pontoons for rent, platforms for shows and private pontoons that allow the public to enjoy the water surfaces in complete safety.



Facilities for America's Cup, Volvo Ocean Race, Solitaire du Figaro...



Regatta pitches for rowing and canoeing



# 4 Relevant projects



# KARPAZ GATE MARINA

TURKISH REPUBLIC NORTH OF CYPRUS. 2011

**RONÁUTICA**  
MARINAS



**WINNER**  
INTERNATIONAL  
MARINA OF THE YEAR 2017

# KARPAZ GATE MARINA

## TURKISH REPUBLIC NORTH OF CYPRUS

**RONÁUTICA**  
MARINAS

### PROJECT DESCRIPTION

<b>Year of Installation</b>	2011
<b>Dock System</b>	2850' Aluminum pontoons from 6' up to 10' width. 1415' Aluminum Fingers from 20' up to 30' long. Polyethylene floats and concrete floats with high freeboard for large boats.
<b>Mooring system</b>	Med mooring system for big boats, fingers for small boats.
<b>Capacity / Boat Size</b>	300 Berths. / 20' up to 197' (6 m up to 60 m).
<b>Anchoring System</b>	54 Steel piles 40' long, diameter 16", 18", 20" and 22".



### ADDITIONAL INFORMATION

#### KARPAZ GATE MARINA WINS TYHA INTERNATIONAL MARINA OF THE YEAR AWARD 2017

With 300 berths and the ability to cater for yachts up to 200', Karpaz Gate Marina offers a luxurious experience in a unique, unspoilt location for captains, crew and families. Leisure facilities include the exceptional Beach Club, with 100' infinity pool and watersports centre, and Hemingway's Resto-Bar, featuring international and traditional Cypriot and Turkish cuisine. Guests also have access to a fitness centre/gym and Mephisto Diving Centre.

<http://www.karpazbay.com>



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# COMBARRO SPORTS MARINA

COMBARRO, PONTEDRA - SPAIN. 2007

**RONÁUTICA**  
MARINAS



**Marina  
Excellence  
Design  
Jack Nichol  
Award**

# COMBARRO SPORTS MARINA

COMBARRO, PONTEDRA - SPAIN

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2007
<b>Dock System</b>	525' Concrete breakwater, 13' width. 2850' aluminum pontoons from 5' up to 13' width with concrete and polyethylene flotation. 3500' aluminum fingers from 5 m up to 12 m long.
<b>Capacity / Boat Size</b>	310 Berths. / 26' up to 66' (8 m up to 20 m).
<b>Anchoring System</b>	Seaflex with 12.5 t concrete blocks on the floating breakwater. 63 Steel piles Ø18' of 60' long for floating pontoons.



## ADDITIONAL INFORMATION

Marina located on the north coast of the Ría of Pontevedra, awarded with PIA NC prize "2012 Marina Excellence Design Jack Nichol Award". PIANC is the World Association for Waterborne Transport Infrastructure. Using the words of the jury: "Combarro Marina was ranked highest as a facility that is safe and easy for boaters to use, well-designed, attractive and appealing to boaters, and utilizes materials and construction methods that are environmentally friendly and minimize impacts on the environment".

The design of Combarro Marina reflects not only the needs of the boaters it serves, but the surrounding community and environment. Thus, the Recreational Navigation Commission awards the 2012 Marina Excellence.



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# HARBOUR ISLE MARINA

BRADENTON, FLORIDA - USA. 2018

**RONÁUTICA**  
MARINAS





# HARBOUR ISLE MARINA

BRADENTON, FLORIDA - EE.UU.

**RONÁUTICA**  
MARINAS

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2018
<b>Dock System</b>	Gangways, longs 20, 30 and 80'. 1220' Pontoons from 8 up to 10' width. 875' Fingers from 25 up to 35' long. All in high-strength aluminum structure. Polyethylene floatation.
<b>Capacity / Boat Size</b>	59 Slips. / 37' up to 50' (11 m up to 15 m).
<b>Anchoring System</b>	49 Rings for Piles of 14' diameter for floating pontoons.



## ADDITIONAL INFORMATION

Introducing Sarasota-Bradenton's Newest Marina & Boathouse at *One Particular Harbour Margaritaville* located at 12300 Manatee Avenue West, Bradenton, FL 34209 in a spectacular setting on the Anna Maria Sound side of Perico Island. The marina provides direct, no-bridge access to Anna Maria Sound, Tampa Bay and the Gulf of Mexico.

*One Particular Harbour* is being developed by *Minto Communities* in partnership with *Margaritaville Holdings* and *RONÁUTICA MARINAS* participates in this project as gangways, pontoons and fingers supplier.



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# DAVILA SPORT MARINA

VIGO, PONTEVEDRA - SPAIN. 2005

**RONÁUTICA**  
MARINAS



# DAVILA SPORT MARINA

VIGO, PONTEVEDRA - SPAIN.

**RONÁUTICA**  
MARINAS

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2005
<b>Dock System</b>	1050' Concrete Breakwater, 14' width. 5230' Aluminum pontoons from 6' up to 13' width. 1375' Aluminum fingers, longs 25 and 30'. High freeboard concrete floats up to 3' for pontoons and polyester floats for fingers.
<b>Capacity / Boat Size</b>	150 Berths. / 12 m up to 80 m (39' up to 263')
<b>Anchoring System</b>	Seaflex with 12 t concrete blocks on the floating breakwater. Steel piles up to 32" diameter and 1260' long for floating pontoons.



## ADDITIONAL INFORMATION

Marina reference in North of Spain for Megayachts. Inaugurated for the *Volvo Ocean Race 2005*. Pontoons inside the 82900 ft<sup>2</sup> of water surface are made of reinforced aluminum with concrete and polyester floats with two different freeboards depending on the length of the boat. Entry to the marina is protected with 1050' of floating concrete breakwater 14' width. The marina includes first class services for users including dry storage, reparation area, restaurant, dive school, CCTV, control access and all utilities for being one of the best marinas in Spain.



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# PUERTO DEPORTIVO DE BAIONA

BAIONA, PONTEVEDRA - SPAIN. 2002

**RONÁUTICA**  
MARINAS



# PUERTO DEPORTIVO DE BAIONA

BAIONA, PONTEVEDRA - SPAIN

**RONÁUTICA**  
MARINAS

## PROJECT DESCRIPTION

### Year of Installation

2002

### Dock System

Aluminum gangway, 40' long. 670' Concrete Breakwater, 13' width. 4220' Aluminum pontoons 8' up to 10' width. 3750' Aluminum fingers, long 20' up to 40'. Concrete floatation for pontoons and Polyester for fingers.

### Capacity / Boat Size

344 Berths. / 8 m up to 25 m (26' up to 80').

### Anchoring System

Concrete blocks and chains for the floating breakwater and 79 steel piles, diameter of 18" and 20" and 42' long for pontoons and fingers.



## ADDITIONAL INFORMATION

Located in a privileged enclave, in the historic center of the *Real Villa de Baiona*. It gathers splendid conditions for sports sailing, and is a required scale for recreational boats in transit to Portugal, the Mediterranean, the Canary Islands and the Caribbean.



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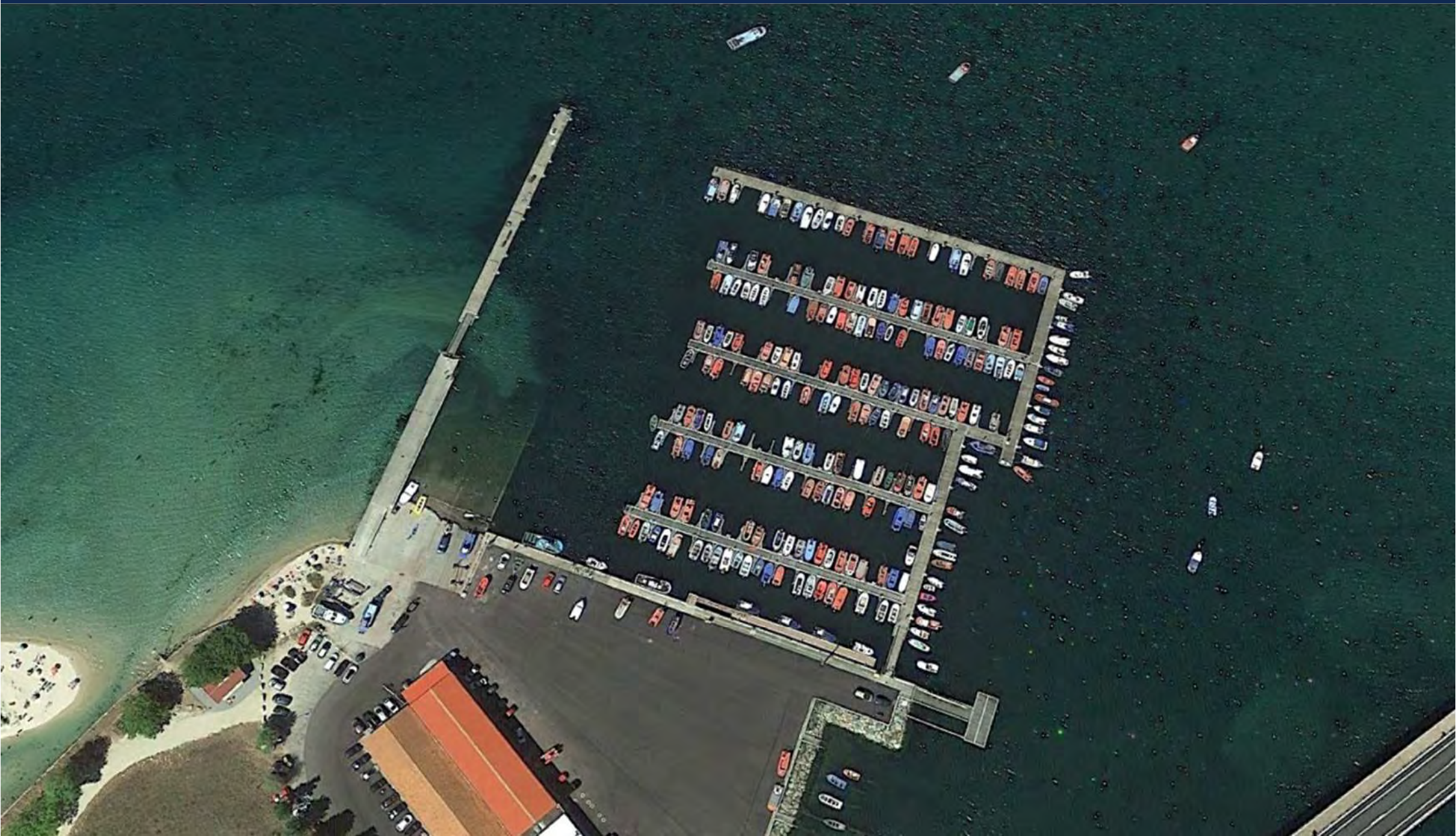


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# TESTAL FISHING PORT

NOIA - SPAIN. 2007

**RONÁUTICA**  
MARINAS



# TESTAL FISHING PORT

NOIA - SPAIN

**RONÁUTICA**  
MARINAS

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2007
<b>Dock System</b>	236' Floating concrete breakwater, 11' width. 740' Concrete pontoons, 10' width. 515' Aluminum pontoons, 8' width. 1195' Aluminum fingers, long 4 m and 5 m. Polyester floatation.
<b>Capacity / Boat Size</b>	120 Berths. / 20' up to 23' (6 m up to 7 m).
<b>Anchoring System</b>	38 Steel piles diameter 22" and 40' long.



## ADDITIONAL INFORMATION

The port of Noia, also known as the port of Testal, is located in the innermost point of the *Ría of Muros and Noia*, the northernmost of the *Rías Baixas*, south of the mouth of the River Tambre. The shellfish farms of the estuary are mainly dedicated to the extraction of cockles.



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# PEARL ISLAND MARINA

PEDRO GONZALEZ ISLAND - PANAMA. 2014

**RONÁUTICA**  
MARINAS





# PEARL ISLAND MARINA

## PEDRO GONZALEZ ISLAND - PANAMA

### PROJECT DESCRIPTION

#### Year of Installation

2014

#### Fixed walkways

First stretch of 328' of fixed walkway 13' width. Fixed platform with restaurant and captaincy building. Second stretch of 165' long and 10' width ending with an octagon-shaped viewpoint from which the floating pontoons are accessed. Aluminum walkways on steel piles. Own design and execution.

#### Dock System

1150' Pontoons, 8' width. 925' Fingers 5' width. 225' Fingers, 6' width. All made in high-strength aluminum structure with polyethylene floatation.

#### Capacity / Boat Size

45 Berths in phase I. / 40' up to 250' (12 m up to 76 m).

#### Anchoring System

77 Steel piles, diameters 16, 24 and 26" for a tidal load of 22'

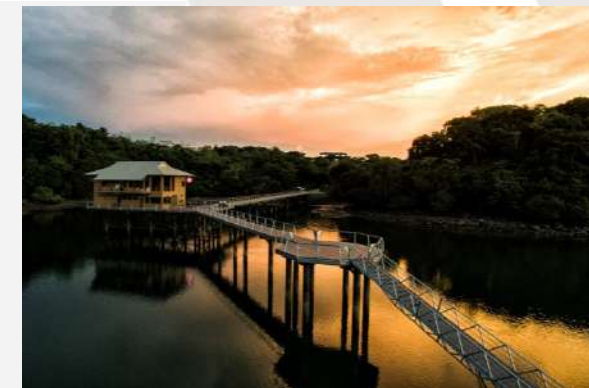


### ADDITIONAL INFORMATION

Located only a 40 miles off-shore south of Panama City, Pedro Gonzalez is the third largest island in the Pearl Islands archipelago in the Pacific sector of Panama. In its more than 400 hectares, this paradise has 14 pristine beaches, and pristine water that is the playground of humpback whales, dolphins and sea turtles.

The private Marina on the west side of the *La Peninsula* offers 45 berths for yachting and sailing enthusiasts in the initial phase of development. 24 h services, bar, terrace, restaurant, transportation to/from residences, storage for kayaks, paddle board, jet ski, convenience store...

First Class Marina exclusive for residents in the private island.



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# PORT OF GARACHICO

GARACHICO, TENERIFE - SPAIN. 2011

**RONÁUTICA**  
MARINAS



# PORT OF GARACHICO

GARACHICO, TENERIFE - SPAIN.

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2011
<b>Dock System</b>	7 Gangways, 2 5 ' long. 1455' pontoons, 6 ' width. 1445' Fingers of 20' up to 32' long. All with high-strength aluminum structure. Polyethylene floatation.
<b>Capacity / Boat Size</b>	200 Berths. / 20' up to 50' (6 m up to 15 m).
<b>Anchoring System</b>	22 Steel piles 40' long, diameter 20''.



## ADDITIONAL INFORMATION

The Port of Garachico, in the north of Tenerife, is located in an area open to the waves coming from the direction arch WNN-ENE. The design has taken into account the effect of breakage that high-level waves can have on the maneuver of vessels in relatively small draft areas. It is protected from waves and currents by a dike 2130 feet long. It has 160 berths on pontoons for sports boats up to 15 meters in length, in addition to 40 berths for fishing vessels up to 25 feet length.



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# LA PLAYITA DE AMADOR MARINA

PERICO ISLAND, AMADOR - PANAMA. 2015

**RONÁUTICA**  
MARINAS



## LA PLAYITA DE AMADOR MARINA

PERICO ISLAND, AMADOR – PANAMA.

### PROJECT DESCRIPTION

<b>Year of Installation</b>	2015
<b>Dock System</b>	1 Aluminum gangway of 65' long x 6' width. 630' Concrete pontoons, 10' width. 1150' Concrete fingers, 6' width. Both 50' up to 70' long, produced in one piece.
<b>Capacity / Boat Size</b>	40 Berths. / 50' up to 120' (15 m up to 37 m).
<b>Anchoring System</b>	32 Steel piles, diameter 16", 18" and 20".



### ADDITIONAL INFORMATION

Concrete pontoons for the second phase expansion of this "Boutique Marina". Located in the nautical area of the Costway, it is rated as the best marina of Panama City in terms of quality of the floating docks and personalized care to the clients. Concrete pontoons made in Spain and shipped to Panama. Execution time: 8 months.



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# CAMPECHE COUNTRY CLUB MARINA

CAMPECHE - MEXICO. 2016

**RONÁUTICA**  
MARINAS



# CAMPECHE COUNTRY CLUB MARINA CAMPECHE - MEXICO.

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2016
<b>Dock System</b>	1937 ft. <sup>2</sup> of fixed platform at the entrance. 3 Gangways, 50 and 60' long. 1345' Pontoons, 8' up to 20' width. 850' Fingers from 20' up to 60' long. All in high-strength aluminum structure. Polyethylene floats. 60 Jet-Ski polyethylene floating platforms.
<b>Capacity / Boat Size</b>	90 Berths, 60 Jet-Ski. / 26' up to 72'. (8 m up to 22 m).
<b>Anchoring System</b>	35 Steel piles 16" to 20" diameter, 38' up to 52' long. Type of soil: rock.



## ADDITIONAL INFORMATION

Located at southwest of the Campeche city. This is a turnkey project including design, manufacturing and installation of pontoons, services and piling.

Design provided by *Aquatica Ingeniería* includes fixed breakwater and artificial beach.

Execution time: 5 months.

<http://campechecountryclub.com.mx/>



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# VISTAMAR MARINA

SAN CARLOS - PANAMA. 2016

**RONÁUTICA**  
MARINAS





# VISTAMAR MARINA

## SAN CARLOS - PANAMA

### PROJECT DESCRIPTION

<b>Year of Installation</b>	2016
<b>Dock System</b>	3 Gangways 80' long . 3580' Pontoons from 7' up to 20' width. 2775' Fingers, longs 40, 60, 70 and 90 m. All in high-strength aluminum structure. Polyethylene floatation.
<b>Capacity / Boat Size</b>	206 Berths. / 50' up to 200' (15 m up to 61 m).
<b>Anchoring System</b>	116 Steel piles 52 m long, diameters 14" and 20".



### ADDITIONAL INFORMATION

Vista Mar Marina has constructed a world-class marina in Panama utilizing innovative designs, the highest quality materials, state of the art engineering and luxury amenities, all combined with unparalleled and personal customer service. Located in San Carlos, 42 nautical miles southwest of the Panama Canal. Outstanding marina facilities provide all the services you may need such as drinking water, electrical connections, forklifts, dry storage areas, fuel supply, Internet access, an exclusive panoramic restaurant with bar and sea view, 24 hour reception, laundry, security, quick store and more.



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# FLOATING BREAKWATER PORTONOVO

PORTONOVO, PONTEVEDRA - SPAIN. 2017

**RONÁUTICA**  
MARINAS



## FLOATING BREAKWATER PORTONOVO

PORTONOVO, PONTEVEDRA - ESPAÑA.

### PROJECT DESCRIPTION

<b>Year of Installation</b>	2017
<b>Dock System</b>	260' Concrete floating breakwater in modules of 65' long, 16' width and 6' high.
<b>Anchoring System</b>	16 Concrete blocks 12.5 t and 164' chain Ø2" .



### ADDITIONAL INFORMATION

Floating dock to improve the shelter of the port of Portonovo in front of the wind waves. Consisting in the construction and installation of 260' of floating concrete breakwater by means of 4 modules of 65' long, 16' wide, 6' of prop, lateral keels, 69 t weight, lower concrete slab. These works will be based on anchoring lines formed by a 2" chain with a length of 165'.

Ronautica Marinas has manufactured in its facilities, transported and installed, the floating concrete breakwaters supplied to the construction company *López Cao* within the work of improving the shelter in the port of Portonovo promoted by *Portos de Galicia*.



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# DERG MARINA

BALLINA, COUNTRY TIPPERARY - IRELAND. 2018

**RONÁUTICA**  
MARINAS



# DERG MARINA

BALLINA, COUNTRY TIPPERARY - IRELAND.

## PROJECT DESCRIPTION

<b>Year of Installation</b>	2018
<b>Dock System</b>	2870' Fixed pontoons. 175' Floating pontoons. 1795' Fingers. Polyethylene floatation. 870 Fender Barrier. All in high-strength aluminum structure.
<b>Capacity / Boat Size</b>	128 Berths. / 8 m up to 14 m. (26' up to 46').
<b>Anchoring System</b>	Fixed pontoons leaning on steel beams. Floating pontoons and some fingers of the north extreme are anchored.



## ADDITIONAL INFORMATION

Located in County Tipperary on the banks of the River Shannon, the marina is located on the channel that separates Lake Derg from the dam located downstream.

The design of this marina replaces the deteriorated existing wooden dock and fingers.



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# CONCRETE PONTOON IN PORT OF VILAGARCIA

VILAGARCIA, PONTEVEDRA - SPAIN. 2018

**RONÁUTICA**  
MARINAS



# CONCRETE PONTOON IN PORT OF VILAGARCIA

VILAGARCIA, PONTEVEDRA - SPAIN

**RONÁUTICA**  
MARINAS

## PROJECT DESCRIPTION

Year of Installation

2018

Dock System

Fixed platform in cantilever of 20' long and 8' wide for anchorage an articulated-sliding gangway 52' long and 5' wide, both with high - strength aluminum structure. 1 Line of 3 Concrete floating modules of 70' x 13' x 4' Own design and execution.

Capacity / Boat Size

3 Berths. / Up to 65' (Up to 20 m).

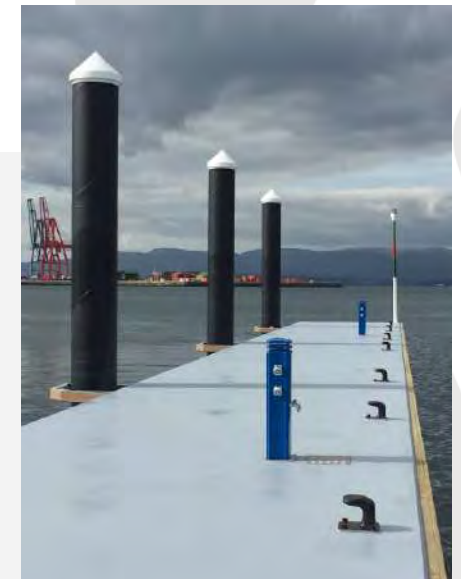
Anchoring System

6 Steel piles 26'' diameter for a tide load of 14'.



## ADDITIONAL INFORMATION

Project located in the ramp of Cavadelo of the port of Vilagarcía, entailing the demolition of 230' of impaired dam and replacement of this by a concrete breakwater, consisting of three modules of 70' x 13' x 4' fixed by steel piles with a platform in cantilever of 20'x8' and access gangway of 50' x 5' both with aluminum structure.



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**BUREAU VERITAS**  
Certification



## Certificación Certification

Concedida a / Awarded to

### **RONAUTICA QUALITY MARINAS SLU**

2ª FASE PARQUE EMPRESARIAL DE AREAS- PARCELAS 1,2 Y 3  
36711 TUI  
SPAIN

**Bureau Veritas Certification certifica que el Sistema de Gestión ha sido auditado y encontrado conforme con los requisitos de la norma:**

Bureau Veritas certify that the Management System has been audited and found to be in accordance with the requirements of standard:

**NORMA / STANDARD**

## **ISO 9001:2015**

**El Sistema de Gestión se aplica a:**

Scope of certification:

**DISEÑO, FABRICACIÓN Y COMERCIALIZACIÓN DE ESTRUCTURAS FLOTANTES Y ACCESORIOS PARA PUERTOS DEPORTIVOS Y PESQUEROS.**

**DESIGN, MANUFACTURING AND COMMERCIALIZATION OF FLOATING STRUCTURES AND ACCESSORIES FOR MARINAS AND FISHING HARBOURS.**

**Número del Certificado**  
Certificate Number

**ES075516-1**

Directora de Certificación / Certification  
Manager

**Aprobación original :**  
Original approval date :

**26/10/2016**

**Certificado en vigor:**  
Effective date:

**26/10/2016**

**Caducidad del certificado:**  
Certificate expiration date:

**25/10/2019**

**Este certificado está sujeto a los términos y condiciones generales y particulares de los servicios de certificación**  
This certificate is valid, subject to the general and specific terms and conditions of certification services

Entidad de Certificación / Certification Body: Bureau Veritas Iberia S.L.  
C/ Valportillo Primera 22-24, Edificio Caoba, Pol. Ind. La granja, 28108 Alcobendas - Madrid, Spain

**ENAC**  
CERTIFICACIÓN  
Nº 04/C-SC004



**BUREAU VERITAS**  
Certification



## Certificación Certification

Concedida a / Awarded to

### **RONAUTICA QUALITY MARINAS SLU**

2ª FASE PARQUE EMPRESARIAL DE AREAS- PARCELAS 1,2 Y 3  
36711 TUI  
SPAIN

**Bureau Veritas Certification certifica que el Sistema de Gestión ha sido auditado y encontrado conforme con los requisitos de la norma:**

Bureau Veritas certify that the Management System has been audited and found to be in accordance with the requirements of standard:

**NORMA / STANDARD**

## **ISO 14001:2015**

**El Sistema de Gestión se aplica a:**

Scope of certification:

**DISEÑO, FABRICACIÓN Y COMERCIALIZACIÓN DE ESTRUCTURAS FLOTANTES Y ACCESORIOS PARA PUERTOS DEPORTIVOS Y PESQUEROS.**

**DESIGN, MANUFACTURING AND COMMERCIALIZATION OF FLOATING STRUCTURES AND ACCESSORIES FOR MARINAS AND FISHING HARBOURS.**

**Número del Certificado**  
Certificate Number

**ES075517-1**

Directora de Certificación / Certification  
Manager

**Aprobación original :**  
Original approval date :

**26/10/2016**

**Certificado en vigor:**  
Effective date:

**26/10/2016**

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**ENAC**  
CERTIFICACIÓN  
Nº 03/C-MA007

## SUMMARY TYPE OF PONTOONS

### ALUMINUM PONTOONS + PLASTIC FLOATS



TYPE	MAIN PROFILE	BOAT SIZE
STANDARD	SR2	≤ 12 m (39')
HEAVY	RO2	12 – 18 m (40' – 59')
REINFORCED	RO4	≥ 20 m (65')

### ALUMINUM PONTOONS + CONCRETE FLOATS



TYPE	MAIN PROFILE	BOAT SIZE
STANDARD	SR3	≤ 12 m (39')
HEAVY	RO3	12 – 18 m (40' – 59')
REINFORCED	RO4	≥ 20 m (65')

### CONCRETE PONTOONS



Concrete pontoons are the highest level of strength and stability. Manufactured with reinforced concrete, expanded polystyrene core and reinforcement fibers.

Our 25 years of experience have taught us how to manufacture what we believe to be the best floating concrete pontoons on the market.

Widths from 8' up to 20' , lengths up to 70' in only 1 piece. Full range of accessories and options. Services ducts. Concrete coatings with different colors and textures. Timber, plastic or rubber fenders. Pavements with composite decking or hardwood. Fixing rails for cleats or accessories. Connection set for chains, Seaflex or piles.

### CONCRETE FLOATING BREAKWATERS



The floating concrete breakwaters are wave attenuators. Tailor-made design for each location depending on the local conditions. Highest quality product with own know-how and manufacturing.

The range of RONÁUTICA MARINAS breakwaters is highly strong and durable. Professionally designed by experienced engineers, the breakwaters have a long maintenance free service live. Features of the design are high freeboard, the exceptional strong rubber/steel connections and the accessibility of the anchor connections providing easy installation and adjustment. Fitted with twin keels the breakwater units have very effective wave attenuation characteristics making them the right choice in demanding environments.

# CONCRETE BREAKWATERS

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### TECHNICAL DATA

Self-compacting concrete with polypropylene fibers

Concrete strength > 5700 PSI

Reinforcement: Fully hot-dip galvanized steel B500SD

Expanded polystyrene core, density 1 lbs/pi<sup>3</sup>



BREAKWATERS	BW52136	BW52166	BW65136	BW65166	BW52137	BW52167	BW65137	BW65167
Length (ft)	52 (16m)	52 (16m)	65 (20m)	65 (20m)	52 (16m)	52 (16m)	65 (20m)	65 (20m)
Concrete Width (ft)	13 (4m)	16 (5m)	13 (4m)	16 (5m)	13 (4m)	16 (5m)	13 (4m)	16 (5m)
Height (ft)	6 (1.8m)	6 (1.8m)	6 (1.8m)	6 (1.8m)	7.4 (2.25m)	7.4 (2.25m)	7.4 (2.25m)	7.4 (2.25m)
Weight (T)	45.6	50.6	50.6	62.5	47.0	52.0	53.0	65.0
Net Capacity (psf)	125	125	125	125	125	125	125	125
Freeboard (in)	20.5 (0.52m)	23.6 (0.60m)	24.0 (0.61m)	24.4 (0.62m)	24.4 (0.62m)	26.8 (0.68m)	26.8 (0.68m)	27.6 (0.70m)
Strength of Joint (lbsf)	3 x 121396	3 x 121396	3 x 121396	3 x 121396	3 x 121396	3 x 121396	3 x 121396	3 x 121396



### OPTIONAL ACCESORIES

Services channels

Concrete coatings with different colors and textures

Timber, plastic or rubber fenders

Pavements with composite decking or hardwood.

Fixing rails for cleats or accessories

Connection set for chains, Seaflex or piles.



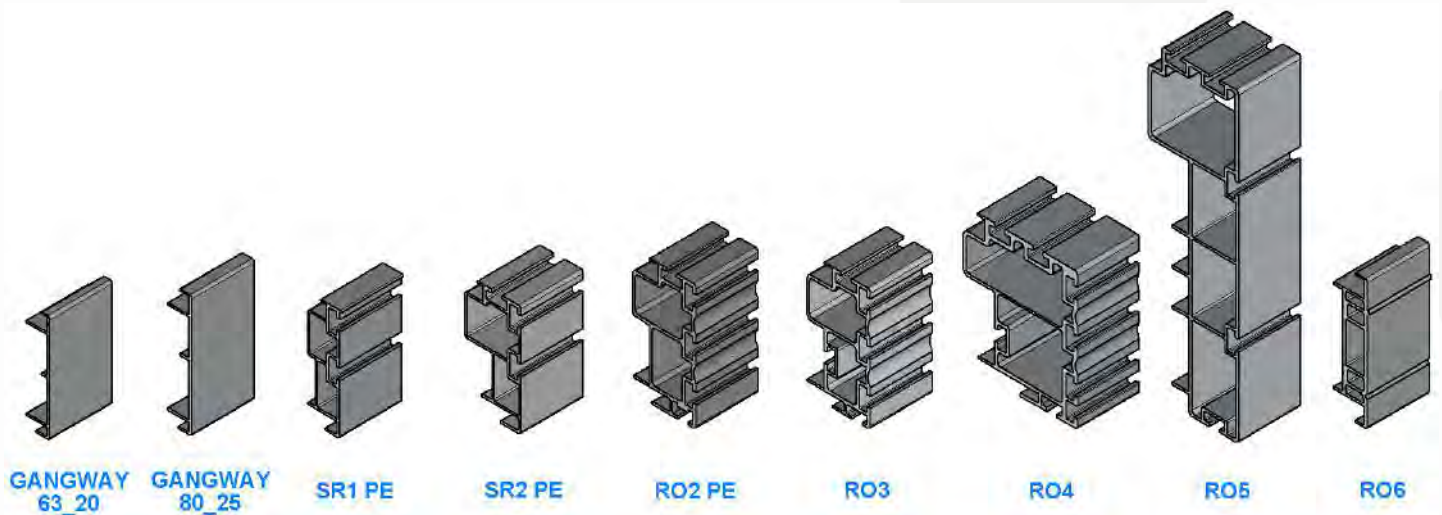
# ALUMINUM PROFILES

## MAIN STRUCTURAL PROFILES

The main structural profile is the basis upon which the pontoon, fingers and gangways are defined. Due to its design, these structural profiles retain their rigidity against the forces due to the closed cell structure and the rails which are designed to connect freely without having to drill or weld any of the mooring elements, services, fenders, fingers, etc.

The main structural profiles at RONÁUTICA MARINAS are referred to as:

NAME	USES	WEIGHT (lb /ft)	INERTIA	
			I <sub>x</sub> (cm <sup>4</sup> )	I <sub>y</sub> (cm <sup>4</sup> )
<b>Gangway 63/20</b>	Gangways/Fingers	1.81	302.5	8.6
<b>Gangway 80/25</b>	Gangways/Fingers	2.48	514.0	11.1
<b>SR1 PE</b>	Fingers	3.45	535.0	52.0
<b>SR2 PE</b>	Fingers/Pontoons	4.33	717.0	184.0
<b>RO2 PE</b>	Pontoons	7.02	1552.0	364.0
<b>RO3</b>	Pontoons	7.13	1410.0	362.0
<b>RO4</b>	Pontoons	13,10	3799.0	2240.0
<b>RO5</b>	Pontoons/Gangways	14.72	19409.8	1588.3
<b>RO6</b>	Pontoons	5.16	907.3	72.0



The extensive range of main structural profiles available from RONÁUTICA MARINAS allow us to provide a suitable pontoon for numerous purposes, in all cases perfectly designed to fulfill the requirements, from small boats up to Megayachts, fixed docks or large span gangways with high live load requirements.

# MATERIALS

## 6005 A T6 ALUMINUM

**MATERIAL NAME:** EN-AW-6005 A T6 ALUMINUM [Al SiMg(A)]

**DESCRIPTION OF THE ALLOY:** Medium strength structural alloy. It has a good combination of strength, toughness, surface finish and is more suitable than 6082 for decorative anodizing. Widespread use in engineering, transportation, and leisure applications such as yacht masts, train carriages, running boards for SUVs and complex sections for railway, bus and truck structures.

### Typical Applications

- Boat masts
- Structural elements
- Railway applications

### CHEMICAL COMPOSITION<sup>1</sup>:

Si		Fe		Cu		Mn*		Mg		Cr*		Zn		Ti		Pb		Bi	Sn	Others	
Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Max	Tot
0.50	0.90	-	0.35	-	0.30	-	0.50	0.40	0.70	-	0.30	-	0.20	-	0.1	-	-	-	-	0.05	0.15

\* Mn + Cr: 0.12 – 0.50 %

<sup>1</sup> Chemical composition according to EN-573-3:1994

### MECHANICAL PROPERTIES<sup>2 3</sup>:

Temper	Wall Thickness T [mm]	R <sub>p0.2</sub> [MPa]	R <sub>m</sub> [MPa]	A [%]	A <sub>50mm</sub> [%]	HBW <sup>c</sup> TYPICAL VALUE	Vickers <sup>c</sup> TYPICAL VALUE	Webster <sup>c</sup> TYPICAL VALUE
Open Profile T4 <sup>a</sup>	t≤25	90	180	15	13	50	56	9
Open Profile T6 <sup>a</sup>	t≤5	225	270	8	6	90	105	16
	5<t≤10	215	260	8	6	85	98	15
Hollow Profile T4 <sup>a</sup>	10<t≤25	200	250	8	6	85	98	15
	t≤10	90	180	15	13	50	56	9
Hollow Profile T6 <sup>a</sup>	t≤5	215	255	8	6	85	98	15
	5<t≤15	200	250	8	6	85	98	15

<sup>2</sup> Properties according to EN 755-2:2008 for extruded profile, minimum values unless else specified.

<sup>3</sup> If a profile cross section is comprised of different thickness which fall in more than one set of specified mechanical property values, the lowest specified value shall be considered as valid for the whole profile section.

<sup>a</sup> Properties may be obtained by press quenching.

<sup>c</sup> Brinell hardness values for information only. Vickers and Webster converted from Brinell value and should be considered approximate.

### MECHANICAL PROPERTIES: (minimum)

	Symbol	Tensile Strength (MPa)	Elasticity Limit (MPa)	Elongation (%)	Hardness, Brinell
Annealed	O	< 15	< 11	> 20	60
Tempered	T1/T4	180	90	-	65
Tempered & Age hardened	T6	265	215	8	80

### PHYSICAL PROPERTIES:

Density	0.07 lbs/in <sup>3</sup>
Modulus of Elasticity	68.600 MPa
Melting range	1121-1211 F°
Specific heat capacity (0 to 100°C)	880 J/Kg °C
Thermal conductivity	170 W/m °C
Specific resistance	3.5 microohms cm
Coefficient of Linear Expansion (20-100°C)	24 x 1/10 x 6 °C-1

# MATERIALS

## 6005 A T6 ALUMINUM

### TECHNOLOGICAL PROPERTIES:

- **Ability to be anodized:** very good in protection and industrial use and suitable for decorative purposes.
- **Anti-corrosive:** well suited to a marine environment.
- **Weldability:** can be welded by all the usual methods. Welding a T5/T6 alloy results in the mechanical properties being reduced to that of a T4 alloy.
- **Machineability:** acceptable in T5 & T6 forms.
- **Formability:** very good in the annealed state and good in T1, T4 and T64 condition.

### MAIN USES:

Average mechanical properties superior to those of the 6063 makes this suitable for:

- Frames with structural and/or specific requirements (armor-plated frames, specific external appearance, etc.).
- Other applications requiring a medium strength alloy (transport, car industry, naval constructions, ladders, etc.).

## ACCESS ELEMENTS

### ALUMINUM GANGWAYS

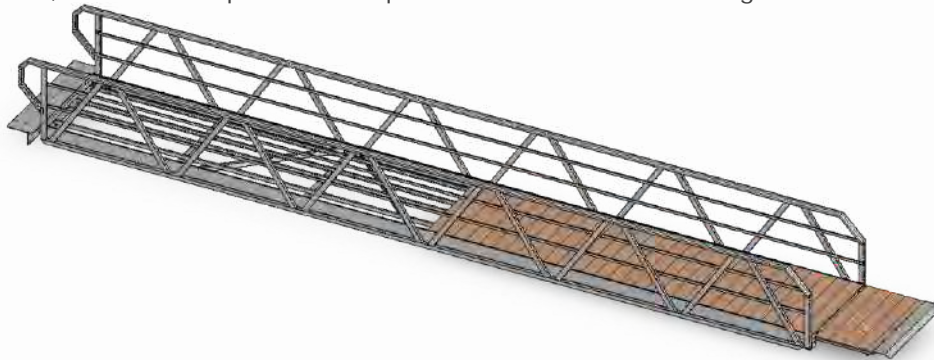
The gangway provides access to the floating platform from land. The length will be in relation to the amount of light that needs to be preserved and the tidal waters or the changes in existing water levels. The lengths most commonly used are 20, 25, 40, 50, 60, 70, 75 and 80 m. The inside width usually varies between 3 ft. and 6ft , although it's also possible to have smaller or larger sizes. The use overload varies between 30 and 100 psf

The gangways can either be fixed to piles or articulated with the articulated version available in either a telescopic or hinged version.

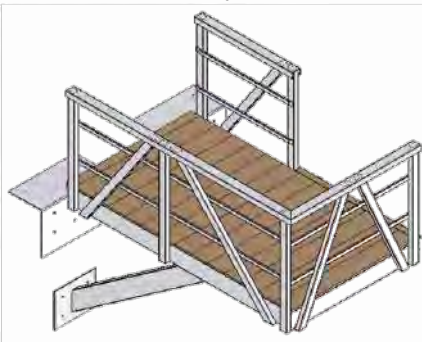


The gangways are constructed in A 6005 T6 marine grade aluminum with decking in rot-resistant tropical hardwood or ecological composite, latticed side rails, 1.05 m high, which serve as a handrail and safety railing for the users and also make the gangways more rigid, small ramp where the pontoon support is located, aluminum sliding tracks and a galvanized steel fixing plate to fix to the public quay. These gangways are also suitable for disabled access (wheelchairs) and such as goods trolleys.

Available in two main structural designs, the "Gangway 63/20" (2.70 kg/ml), with decking 1 inch. thick or the "Gangway 80/25" (3.69 kg/ml), with decking 1 inch. thick . The larger ones, and depending on their use overload, can use RO6 profile and square tube 4 x4 inch or rectangular tube 8 x 3 inch.



When the gangway runs parallel to the quay the installation of an extension ledge is required to provide access from land and the corresponding pontoon anchoring. This extension has the same quality aluminum structure and pavement decking as those of the gangways and pontoons.





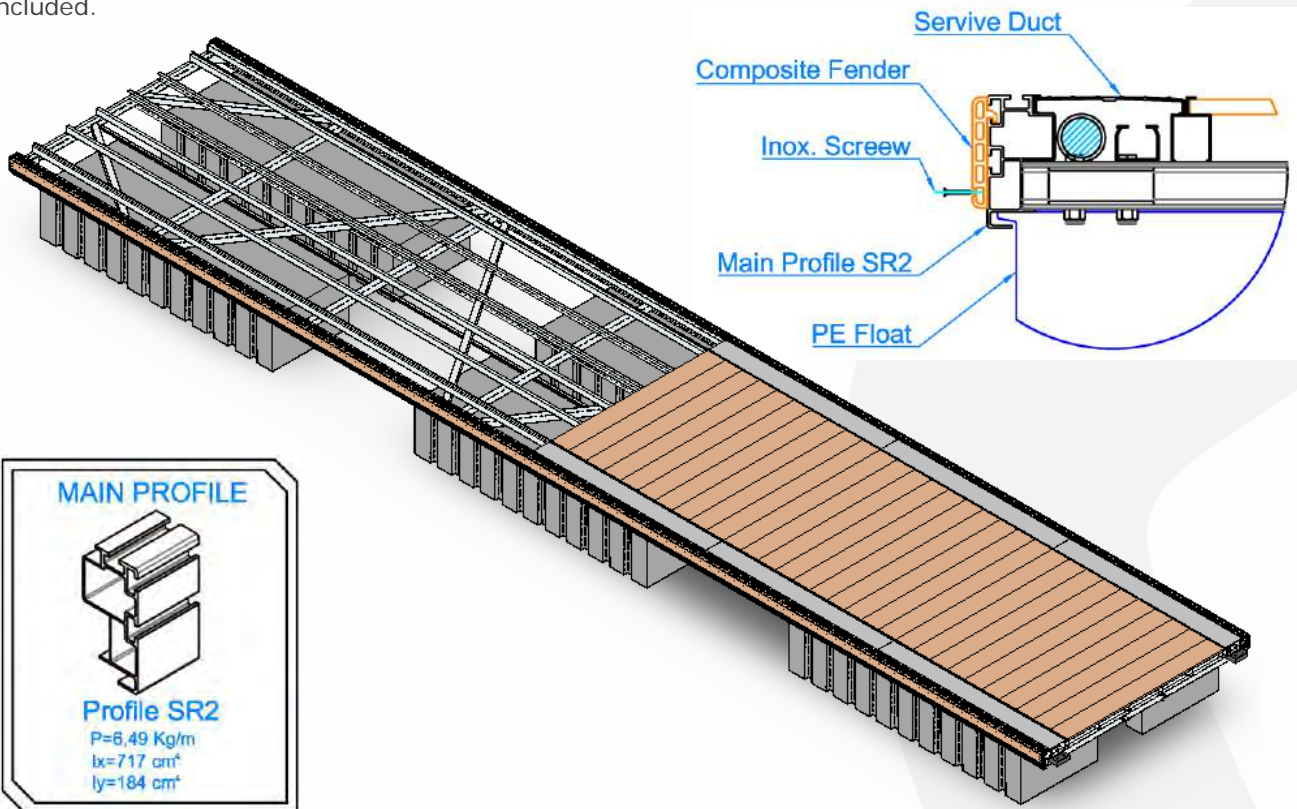
# ALUMINUM PONTOONS

## PONTOON TYPE SR2

Pontoons are the main floating element in any marina, designed to serve equally as a pedestrian walkway as a mooring for boats.

The main structural profile constitutes the basic characteristic of the pontoon that defines it.

Built with a 6005 A-T6 aluminum alloy structure with and "SR2" (4.00 lb/ft) structural profile, decking and perimeter fender in either high density rot-resistant tropical hardwood or ecological composite, both with 1 inch textured slip proof high density surface . PVC fender type D-60 is also available. They can include aluminum service duct on both sides of the pontoon with a hole-punched PVC section for channeling electricity services. Elastomer joining blocks reinforced with Kevlar between sections are also included.



STANDARD MEASUREMENTS*	TYPE OF FLOTATION	RECOMMENDED FLOTATION*
40' x 6'	Polyethylene	10 A2
40' x 8'	Polyethylene	6 B2
40' x 10'	Polyethylene	15 A2

\* It is also possible to take other measures such as varying the floatation, depending on the needs of the installation.

For container transportation the maximum size is 37'-6" x 7'

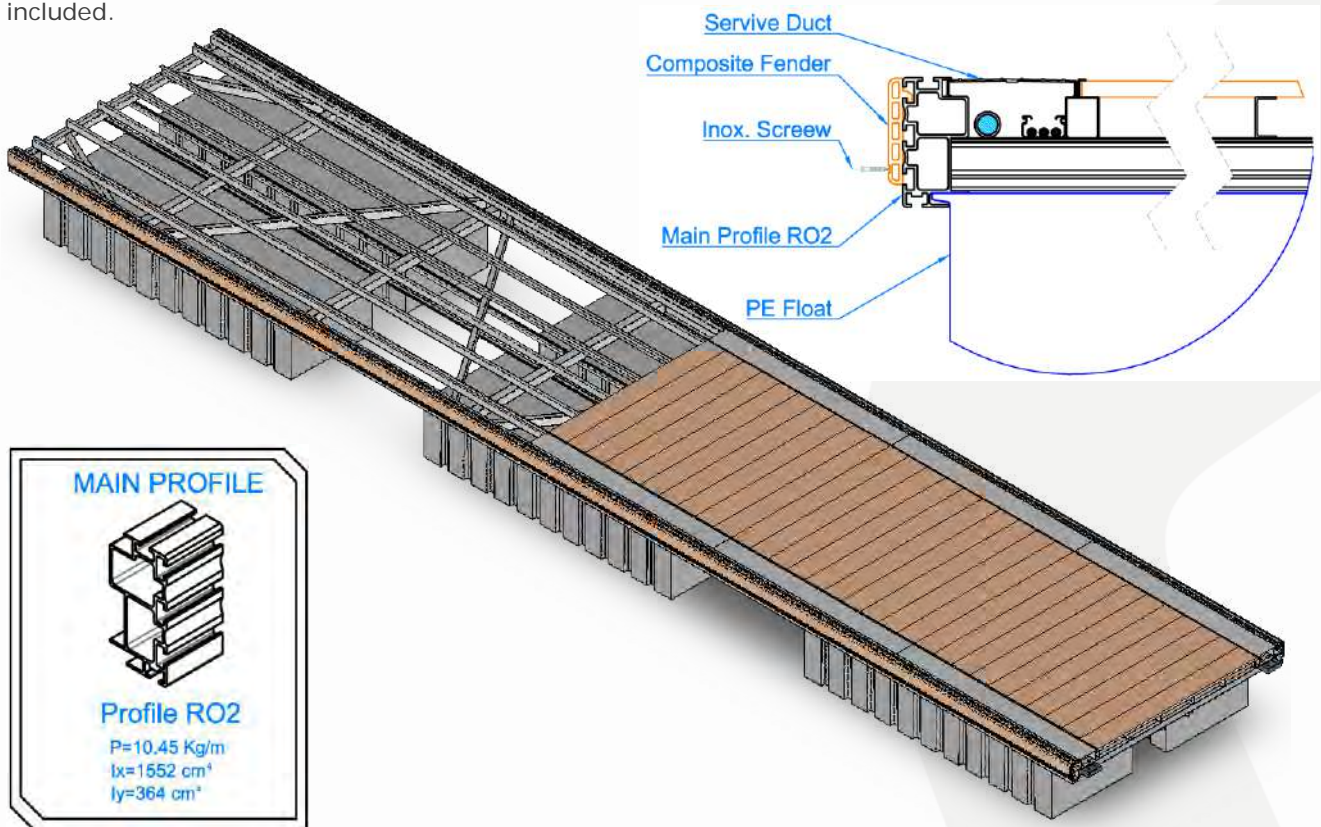
# ALUMINUM PONTOONS

## PONTOON TYPE RO2

Pontoons are the main floating element in any marina, designed to serve equally as a pedestrian walkway as a mooring for boats.

The main structural profile constitutes the basic characteristic of the pontoon that defines it.

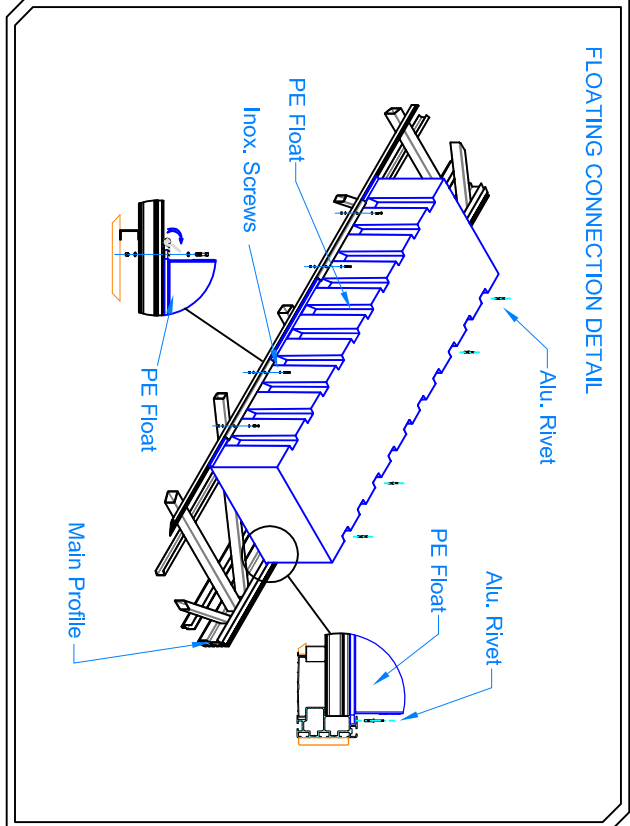
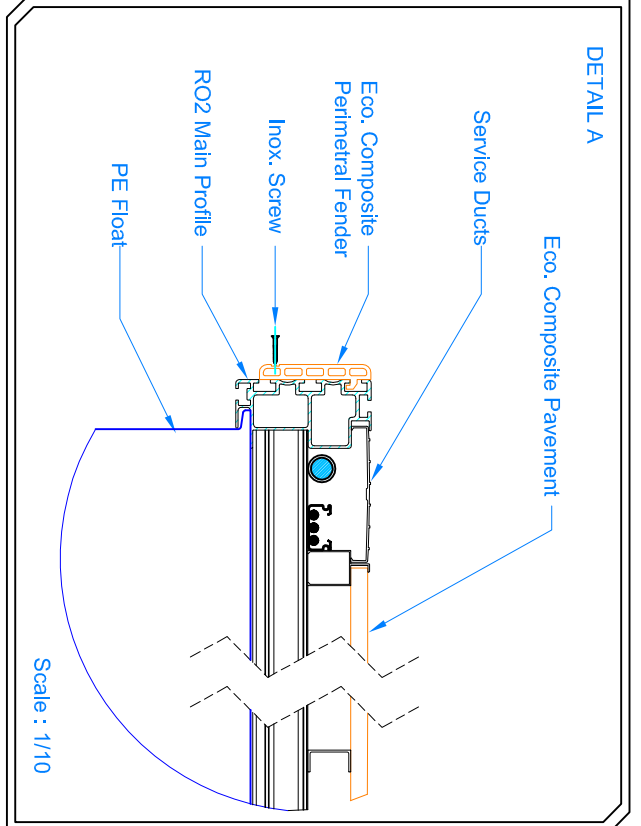
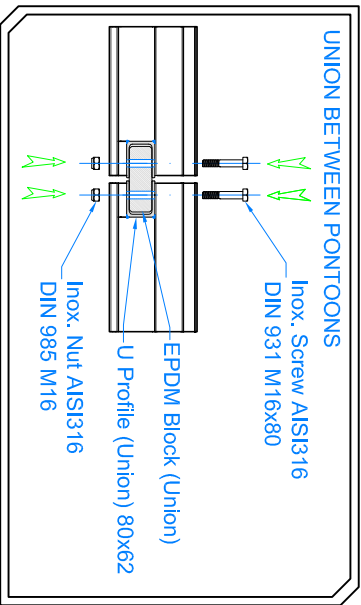
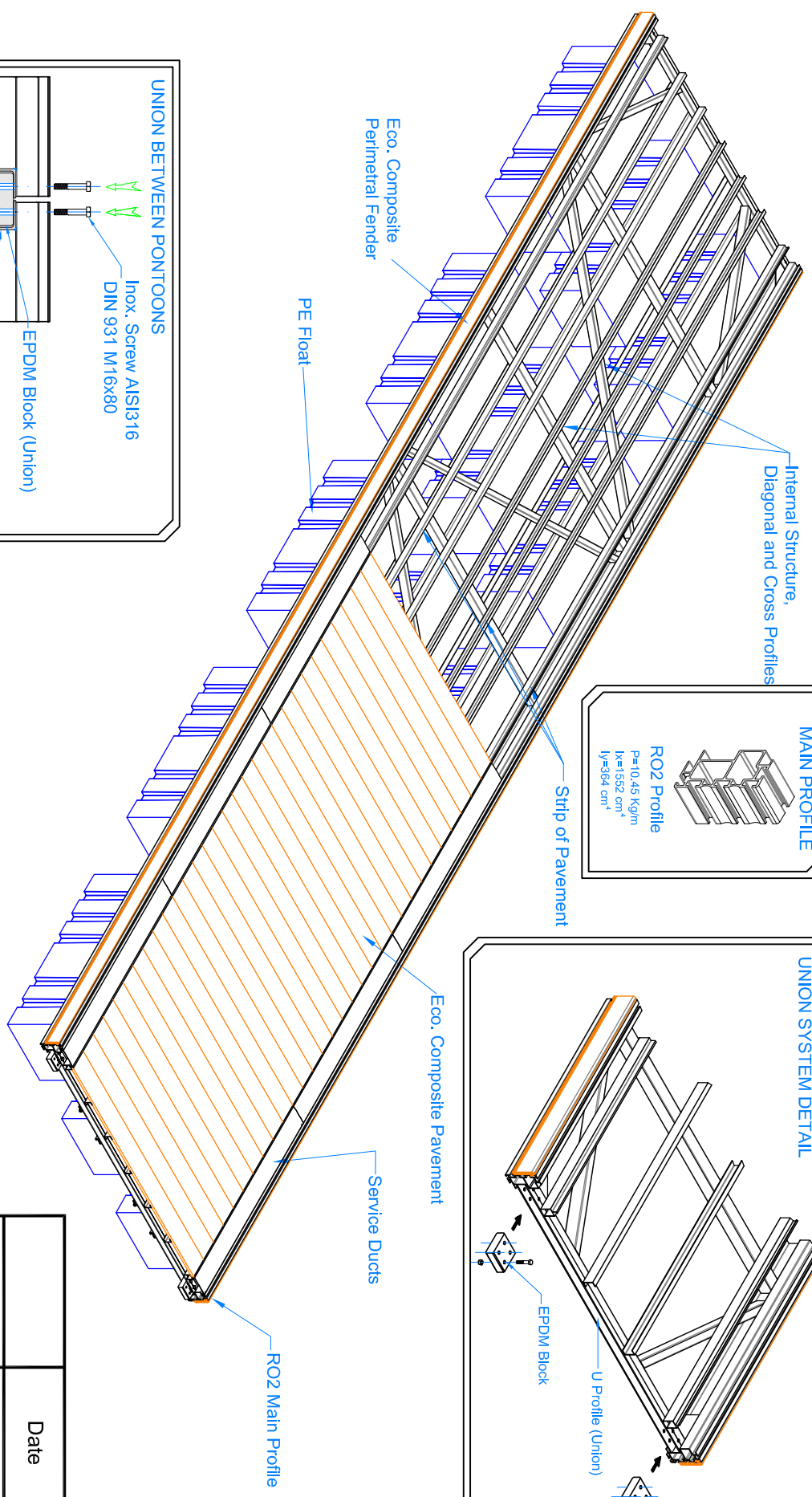
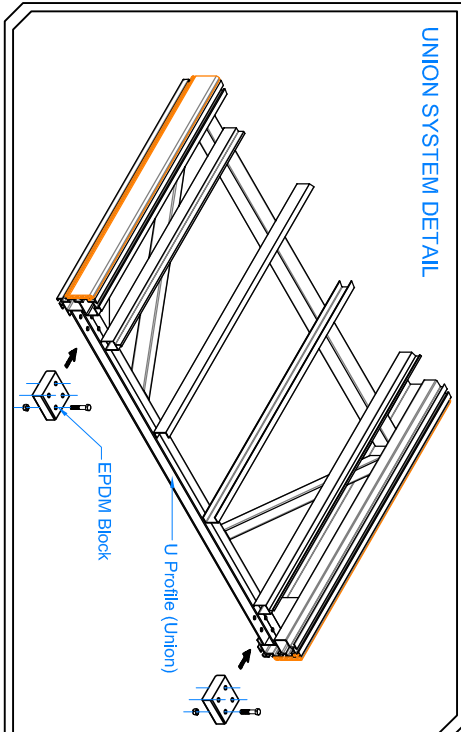
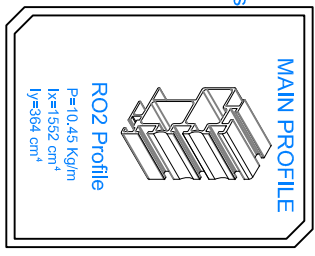
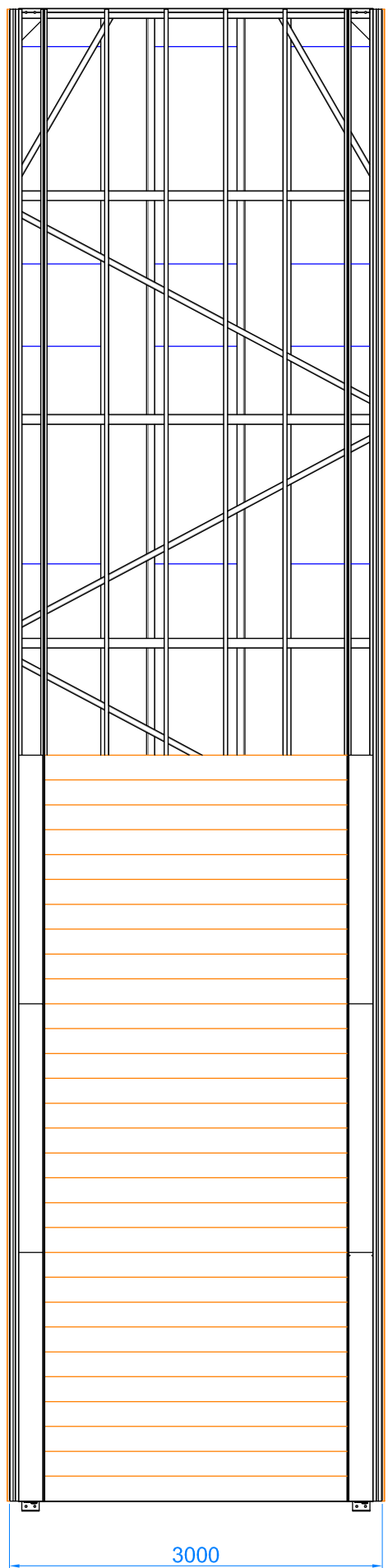
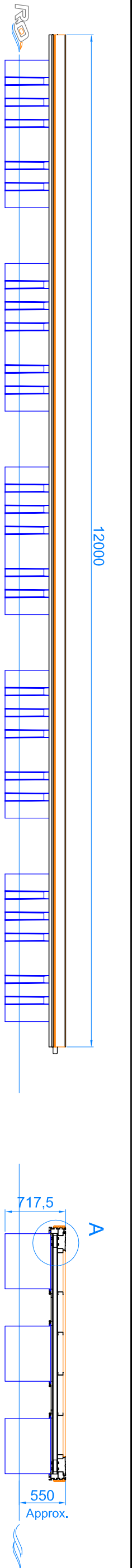
Built with a 6005 A-T6 aluminum alloy structure with and "RO2" (7.02 lb/ft) structural profile, decking and perimeter fender in either high density rot-resistant tropical hardwood or ecological composite, both with 24 mm thick textured slip proof high density surface. PVC fender type D-60 is also available. They can include aluminum service duct on both sides of the pontoon with a hole-punched PVC section for channeling electricity services. Elastomer joining blocks reinforced with Kevlar between sections are also included.



STANDARD MEASUREMENTS*	TYPE OF FLOTATION	RECOMMENDED FLOTATION*
40' x 6'	Polyethylene	10 A2
40' x 8'	Polyethylene	6 B2
40' x 10'	Polyethylene	15 A2

\* It is also possible to take other measures such as varying the floatation, depending on the needs of the installation.

For container transportation the maximum size is 37'-6" x 7'



Unit: millimetres.

Design	06/11/2018	X		<b>RONAUTICA</b> 2ª Fase Parque Empresarial de Avés, Parcelas 1,2 y 3 38711 Avés - Tui (España) www.ronauticamarinas.com
Approval	06/11/2018	X		
Titulo: Pontoons RO2 of 12x3 m With Service Ducts.		CLIENT PD18xxx-xx Last Revision 00 (06/11/2018)		PROJECT Page 01 de 01
Scale 1:50	Date Name Signature			Format <b>A3</b>

# ALUMINUM PONTOONS

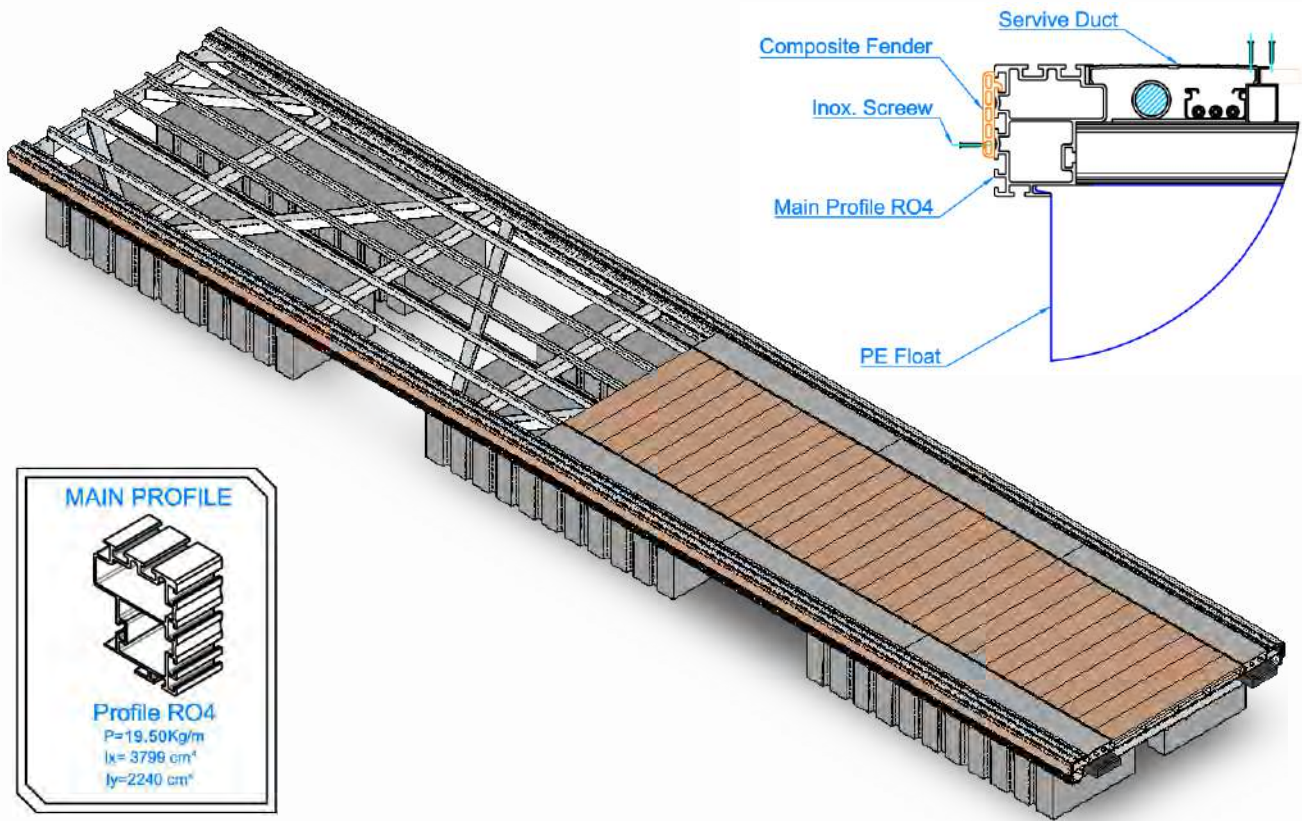
## PONTOON TYPE RO4 – PE FLOATATION

Pontoons are the main floating element in any marina, designed to serve equally as a pedestrian walkway as a mooring for boats.

The main structural profile constitutes the basic characteristic of the pontoon that defines it.

In the range of products of RONÁUTICA MARINAS, pontoon type RO4 is particularly designed for large boats, working boats and Megayachts.

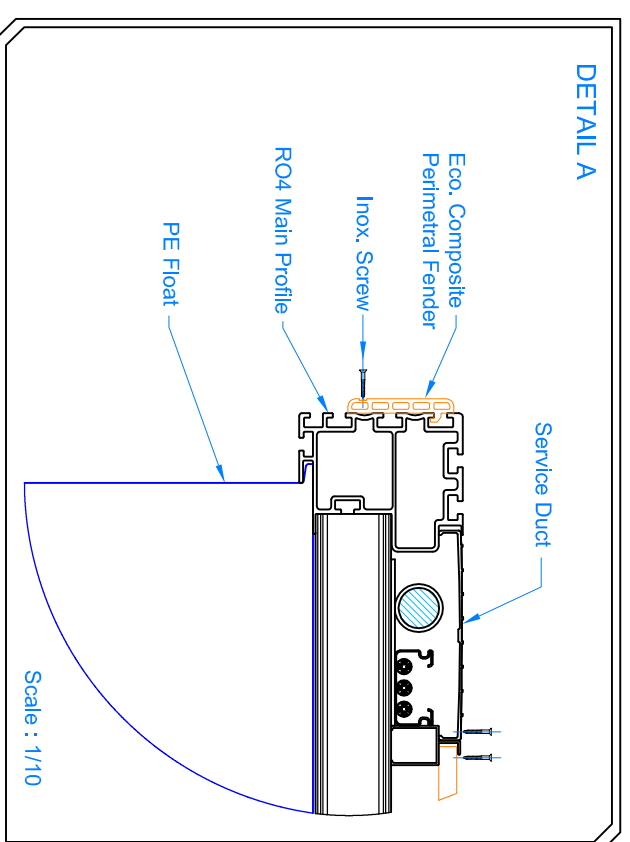
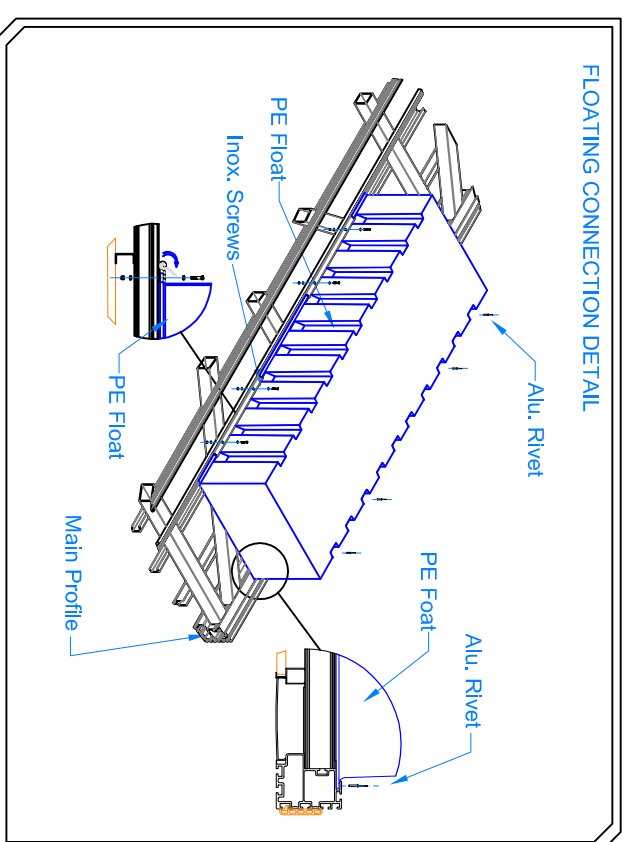
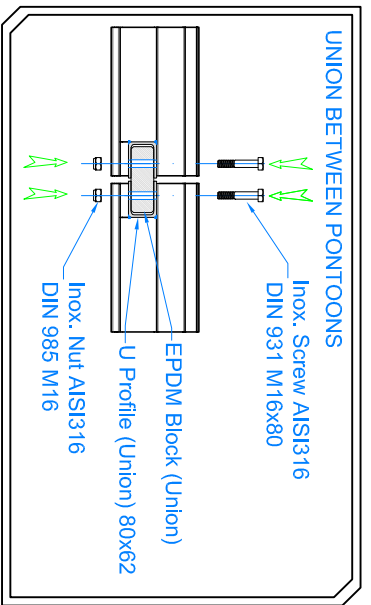
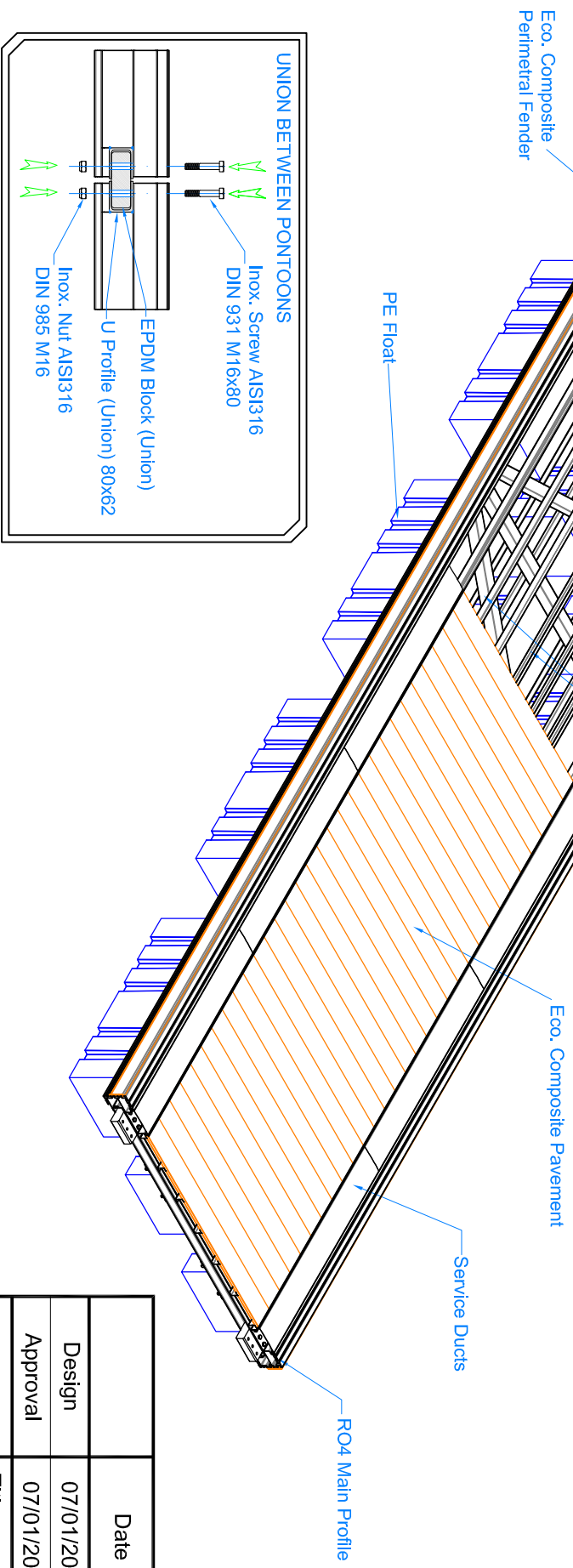
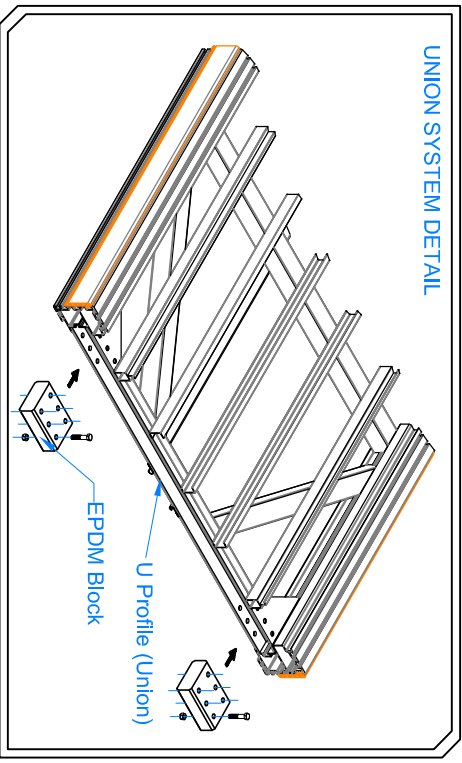
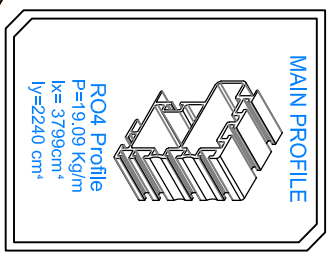
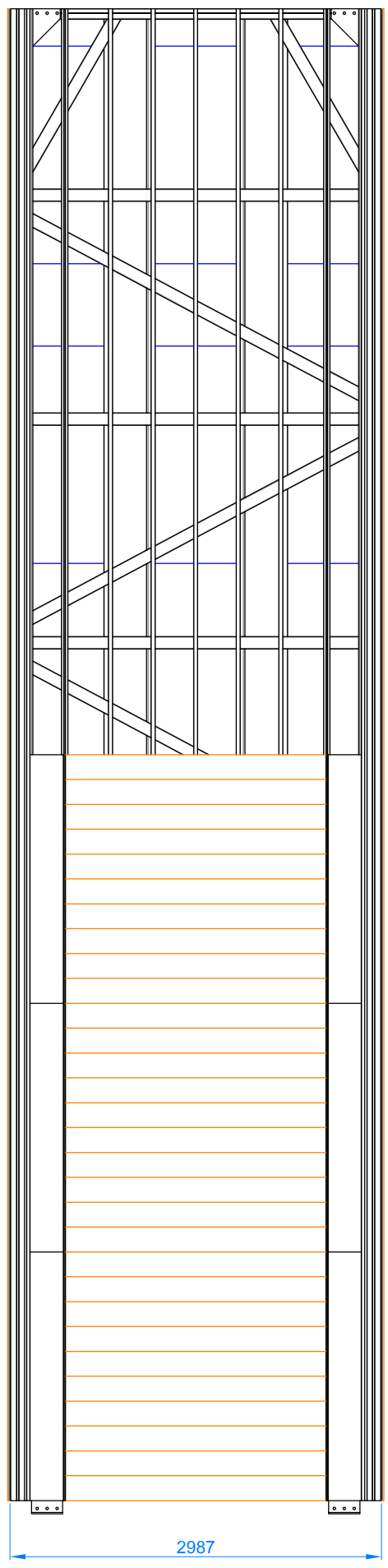
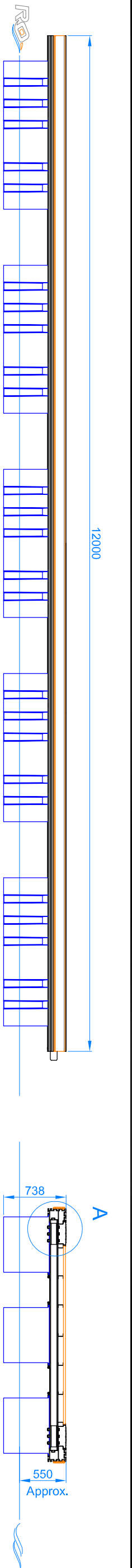
All metallic structure is made of aluminum naval quality alloy 6005 A-T6 with a main profile "RO4" (12.50 lb/ft), one of the heavier and stronger profile in the marina industry. Decking and perimeter fender are mounted in either high density rot-resistant tropical hardwood or ecological composite of 1 inch., both with textured slip proof high density surface. PVC fender type D-60 is also available. Include aluminum service duct on both sides of the pontoon with a hole-punched PVC section for channeling electricity services. Elastomer joining blocks reinforced with Kevlar between sections are also included.



STANDARD MEASUREMENTS	TYPE OF FLOTATION	RECOMMENDED FLOTATION
40' x 6'	Polyethylene	10 A2
40' x 8'	Polyethylene	6 B2
40' x 10'	Polyethylene	15 A2
40' x 13'	Polyethylene	20 A2

\* It is also possible to take other measures such as varying the flotation, depending on the needs of the installation.

For container transportation the maximum size is 37'-6" x 7'



Unit: millimetres.

Design	07/01/2019	X		<b>RONAUTICA</b> 2ª Fase Parque Empresarial de Ares. Parcelas 1,2 y 3 38711 Ares - Tud (España) www.ronauticamarinas.com	CLIENT Last Revision PD18xxx-xx 00 (07/01/2019)	PROJECT Format A3	
Approval	07/01/2019	X					
Title: Pontoons RO4 12x3 m. PE Floats. With Service Ducts		Date 07/01/2019		Name X		Signature X	
Scale 1:50							

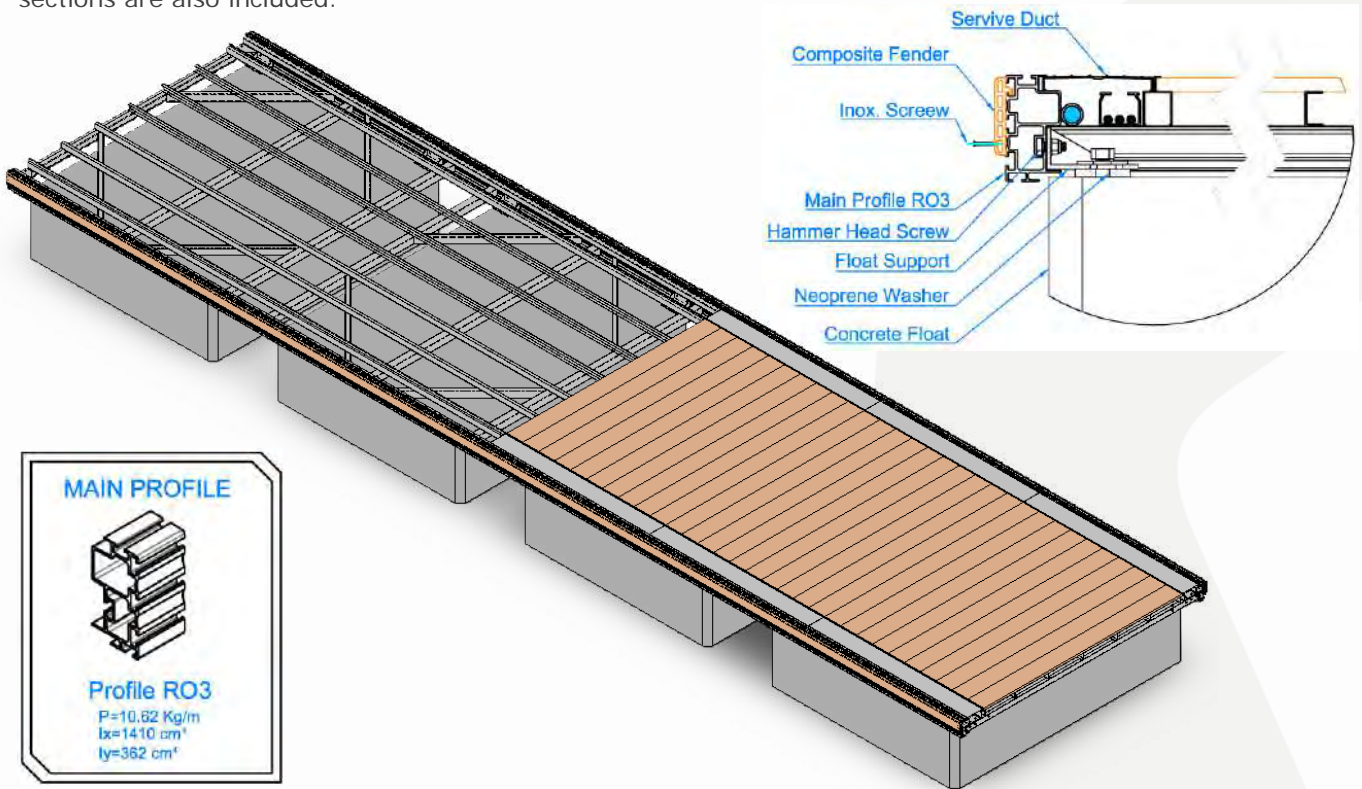
# ALUMINUM PONTOONS

## PONTOON TYPE RO3 – CONCRETE FLOATATION

Pontoons are the main floating element in any marina, designed to serve equally as a pedestrian walkway as a mooring for boats.

In the range of products of RONÁUTICA MARINAS, pontoon type RO3 is particularly designed to take concrete floats that provide greater stability. The main structural profile constitutes the basic characteristic of the pontoon that defines it.

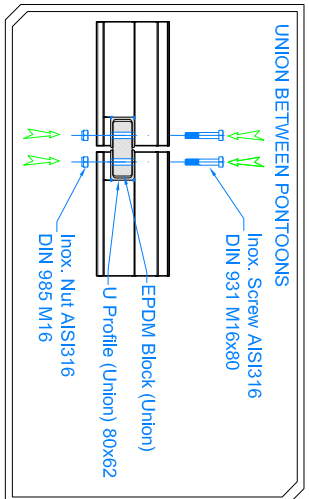
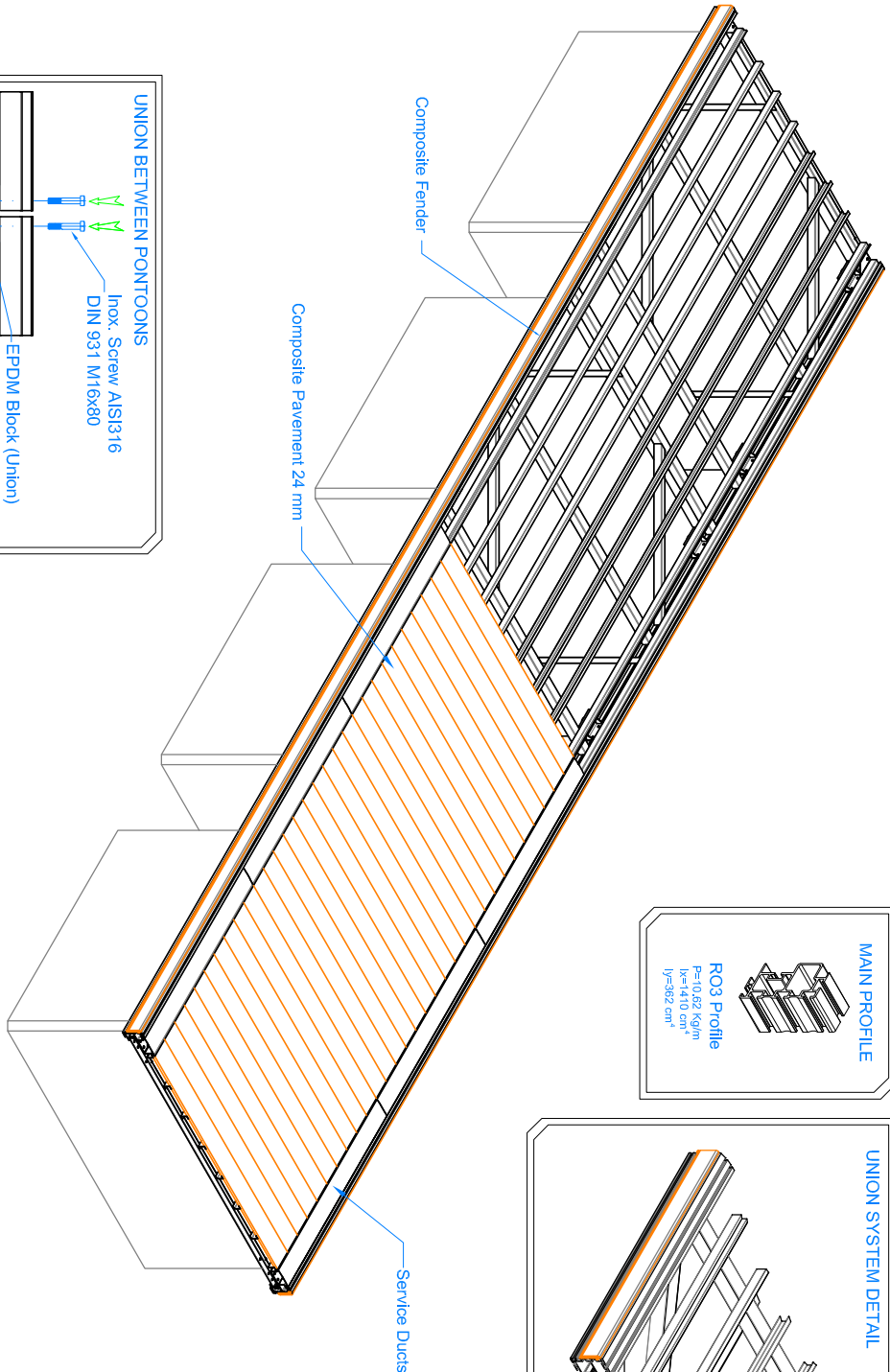
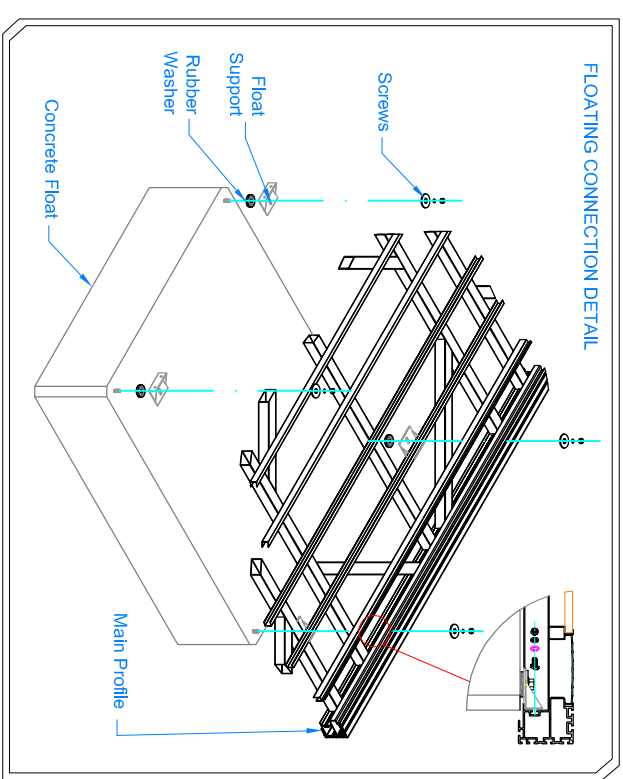
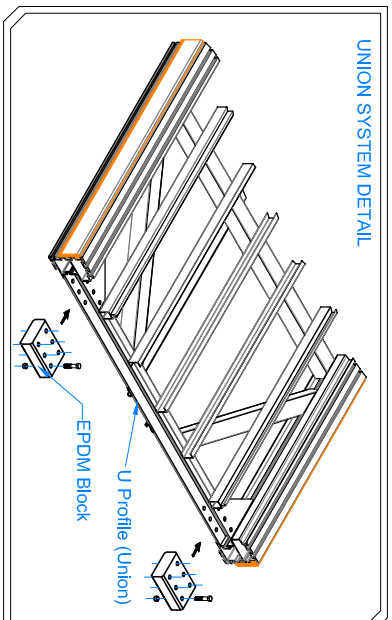
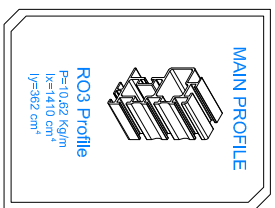
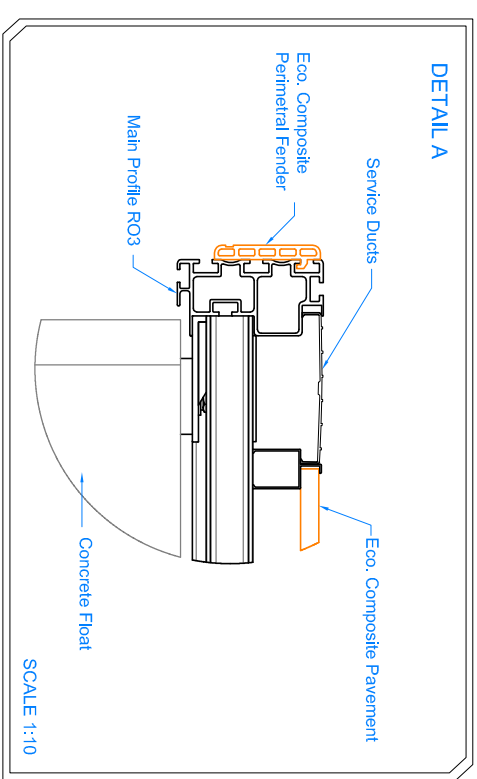
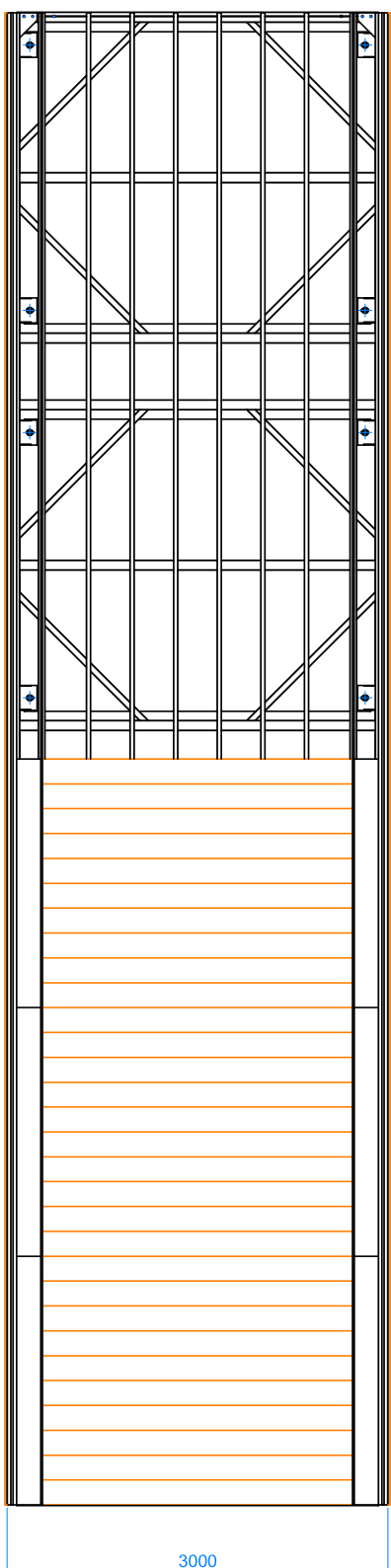
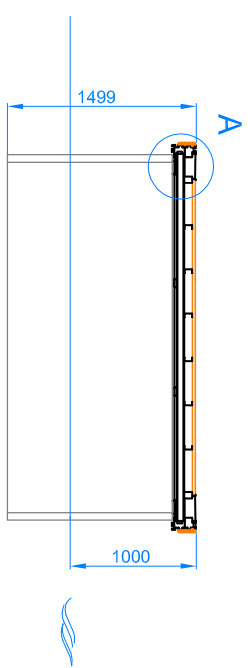
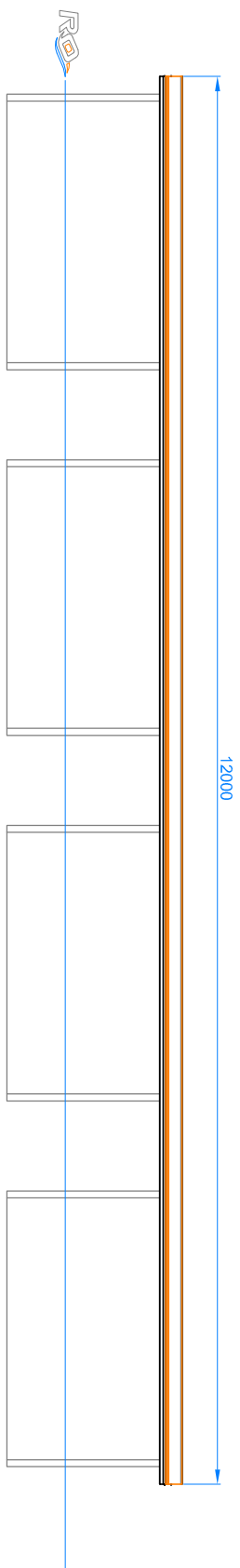
All metallic structure is made of aluminum naval quality alloy 6005 A-T6 with a main profile "RO3" (7.13 lb/ft). Decking and perimeter fender are mounted in either high density rot-resistant tropical hardwood or ecological composite of 1 inch, both with textured slip proof high density surface. PVC fender type D-60 is also available. Include aluminum service duct on both sides of the pontoon with a hole-punched PVC section for channeling electricity services. Elastomer joining blocks reinforced with Kevlar between sections are also included.



STANDARD MEASUREMENTS*	TYPE OF FLOATATION	RECOMMENDED FLOATATION*
40' x 6'	Concrete	4 HAP
40' x 8'	Concrete	3 HAG / 4 HAP
40' x 10'	Concrete	3 HAG
40' x 13'	Concrete	6 HAP

\* Other measures are also available as such as varying the floatation, depending on the needs of the installation.

For container transportation the maximum size is 37'-6" x 7'



		Date	Name	Signature	<p>2ª Fase Parque Empresarial de Aavss. Parcelas 1, 2 y 3 36711 Aavss - Iul (España) www.ronauticamarinas.com</p>
Design		07/01/2019	X		
Approval		07/01/2019	X		
Scale 1:60		Title:		Pontoon RO3 of 12x3 m	
		CLIENT		PROJECT	
		Last Revision		PD18xxx-xx	
		00 (07/01/2019)		Page 01 of 01	
		Format		A3	

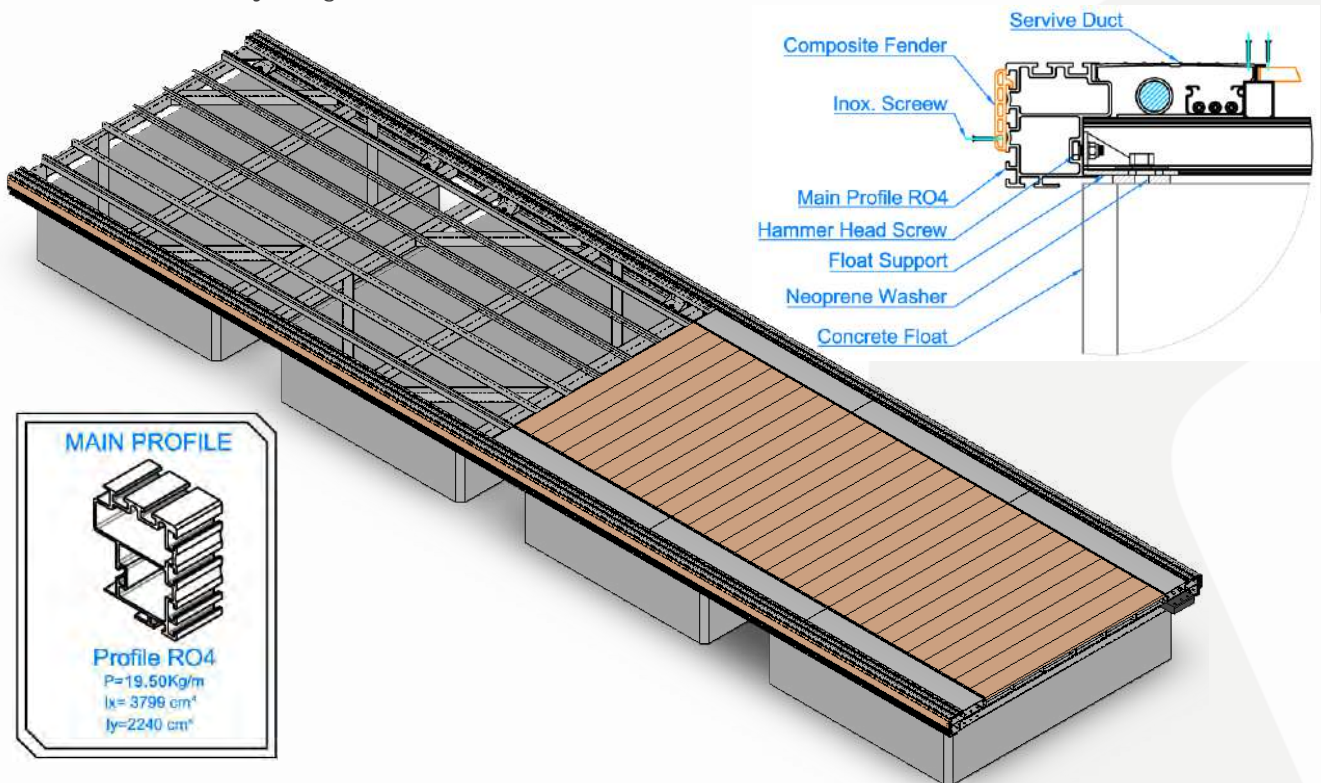
# ALUMINUM PONTOONS

## PONTOON TYPE RO4 – CONCRETE FLOATATION

Pontoons are the main floating element in any marina, designed to serve equally as a pedestrian walkway as a mooring for boats.

In the range of products of RONÁUTICA MARINAS, pontoon type RO4 is particularly designed for large boats, working boats and Megayachts, providing greater stability by concrete floatation. The main structural profile constitutes the basic characteristic of the pontoon that defines it.

All metallic structure is made of aluminum naval quality alloy 6005 A-T6 with a main profile "RO4" (12.50 lb/ft), one of the heavier and stronger profile in the marina industry. Decking and perimeter fender are mounted in either high density rot-resistant tropical hardwood or ecological composite of 1 inch, both with textured slip proof high density surface. PVC fender type D-60 is also available. Include aluminum service duct on both sides of the pontoon with a hole-punched PVC section for channeling electricity services. Elastomer joining blocks reinforced with Kevlar between sections are also included.

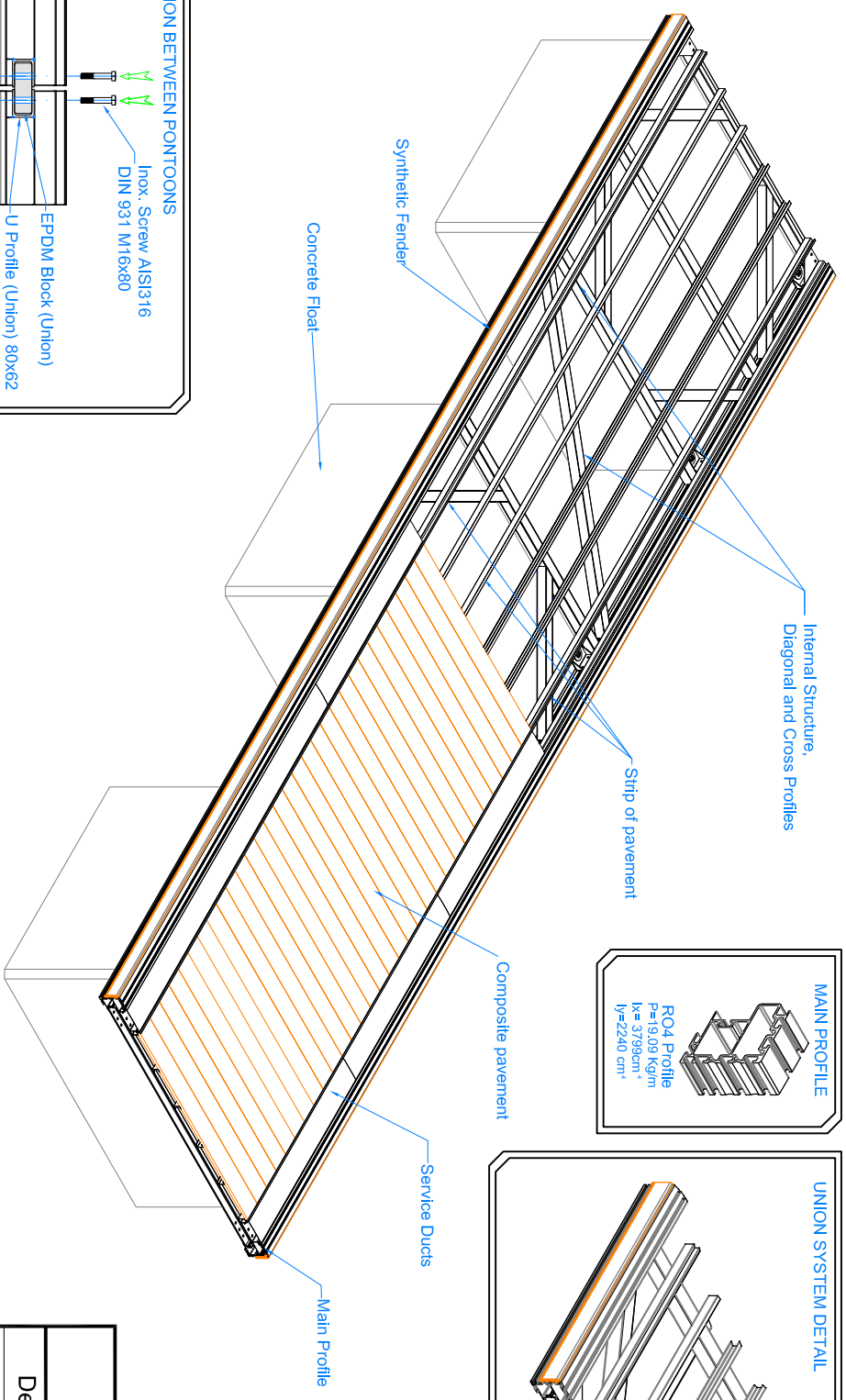
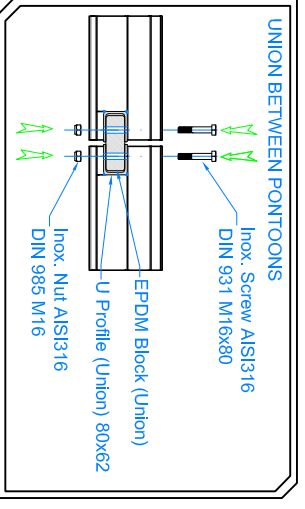
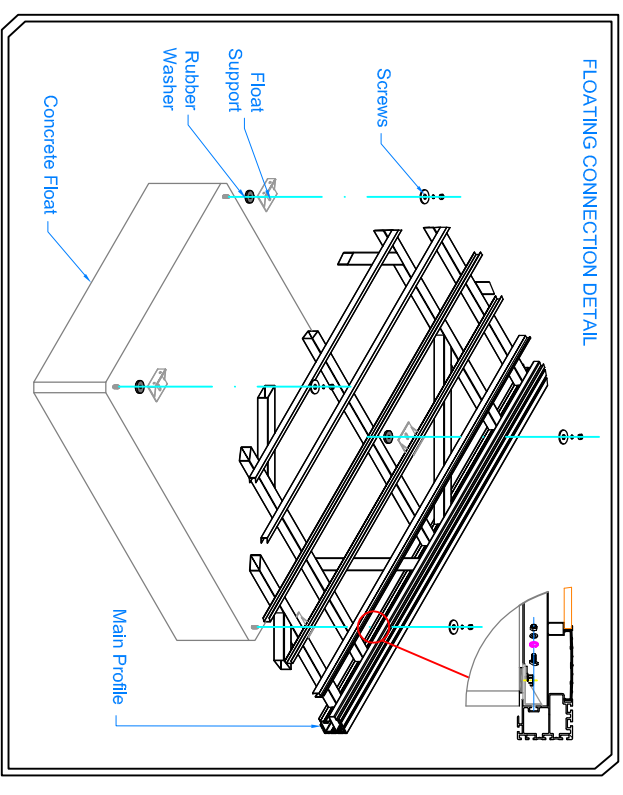
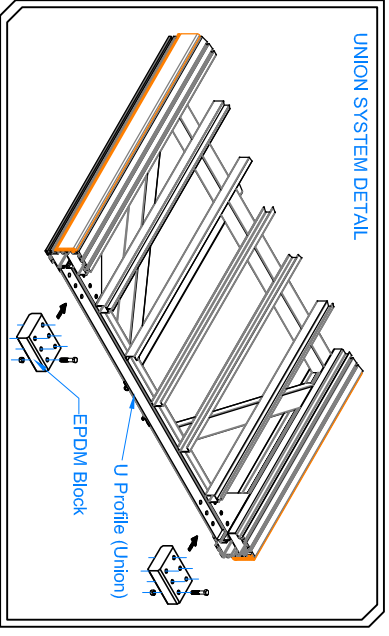
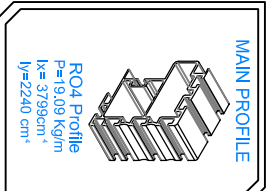
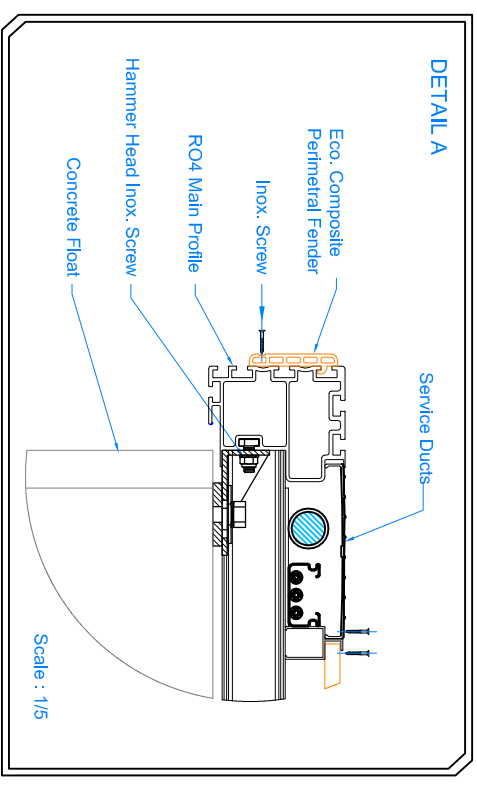
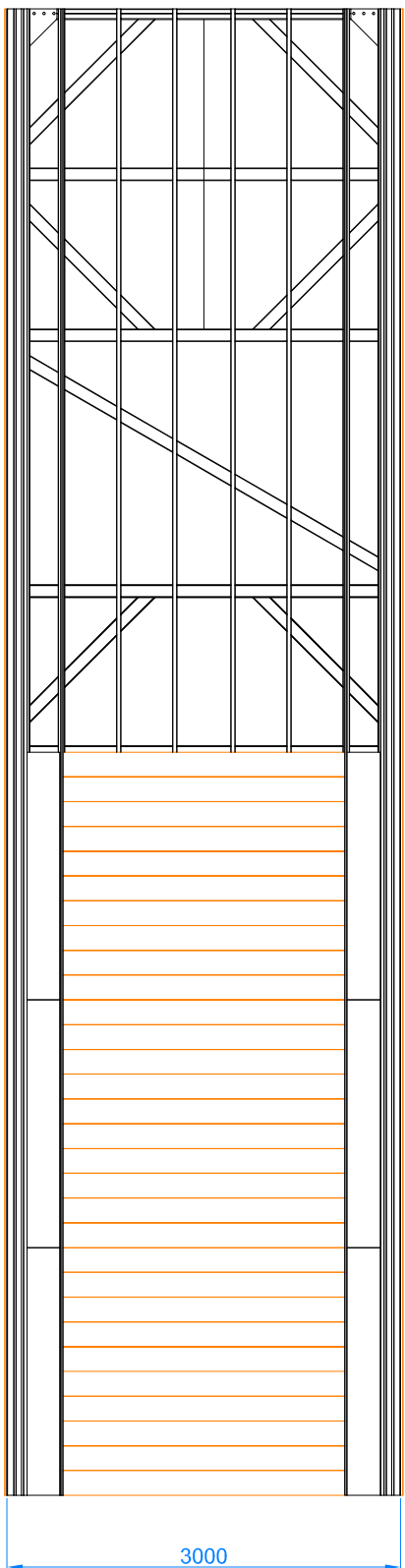
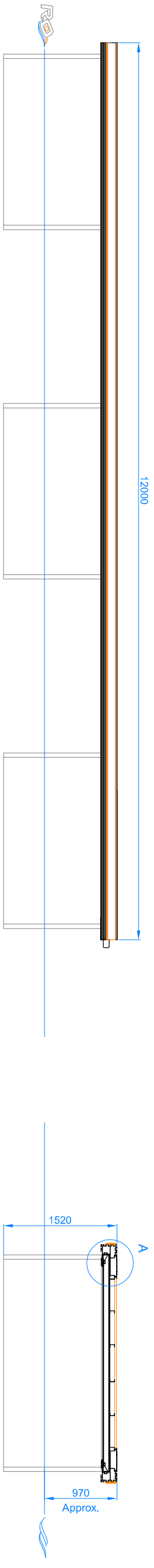


STANDARD MEASUREMENTS *	TYPE OF FLOATATION	RECOMMENDED FLOATATION *
40' x 6'	Concrete	4 HAP
40' x 8'	Concrete	3 HAG / 4 HAP
40' x 10'	Concrete	3 HAG
40' x 13'	Concrete	6 HAP

\* Other measures are also available as such as varying the floatation, depending on the needs of the installation.

For container transportation the maximum size is 37'-6" x 7'





Unit: millimeters

Design	07/01/2019	X		<b>RONAUTICA</b> 2ª Fase Parque Empresarial de Aves. Parcelas 1,2,3 38711 Aves - Tui (España) www.ronauticamarinas.com	PROJECT CLIENT Last Revision PD18xxx-xx 00 (07/01/2019)	Format <b>A3</b>	
Approval	07/01/2019	X					
Date		Name		Signature			
Title:		Pontoons RO4 12x3 m. Concrete Floats					
Scale 1:60							

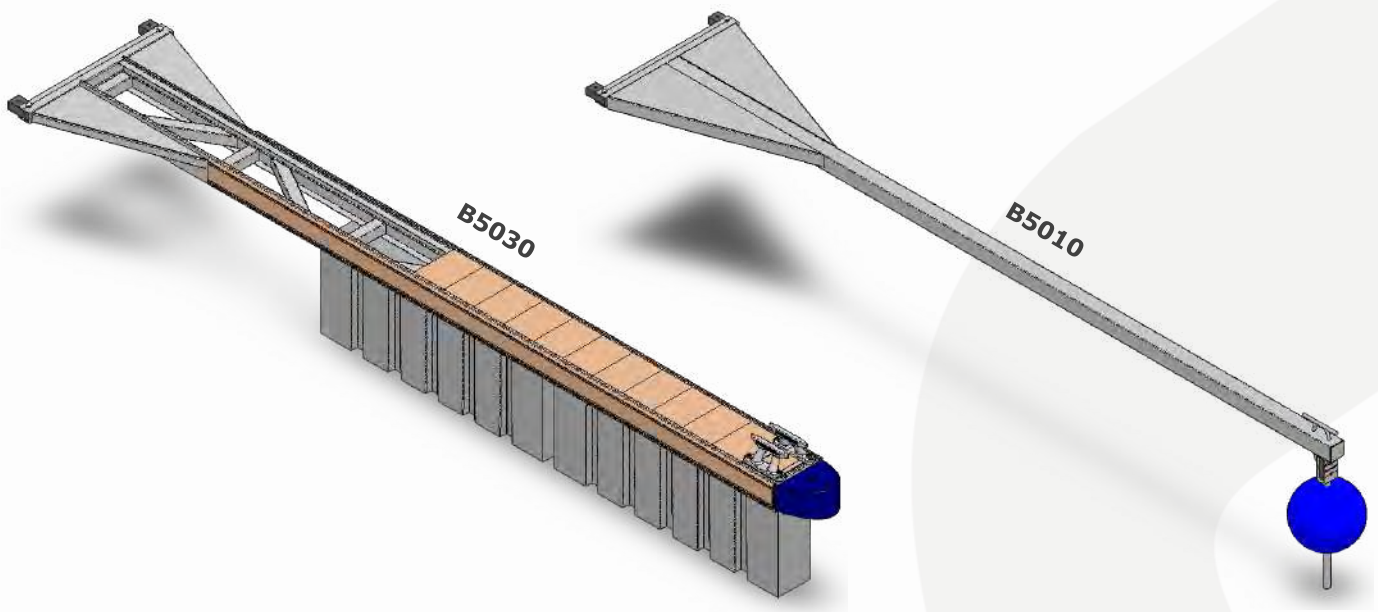
## ALUMINUM FINGERS

### NO PASSABLE FINGERS

RONÁUTICA MARINAS has two different types of No Passable small fingers, both of 6005 A-T6 aluminum alloy construction and attached to the main pontoon structure by reinforced elastomer blocks.

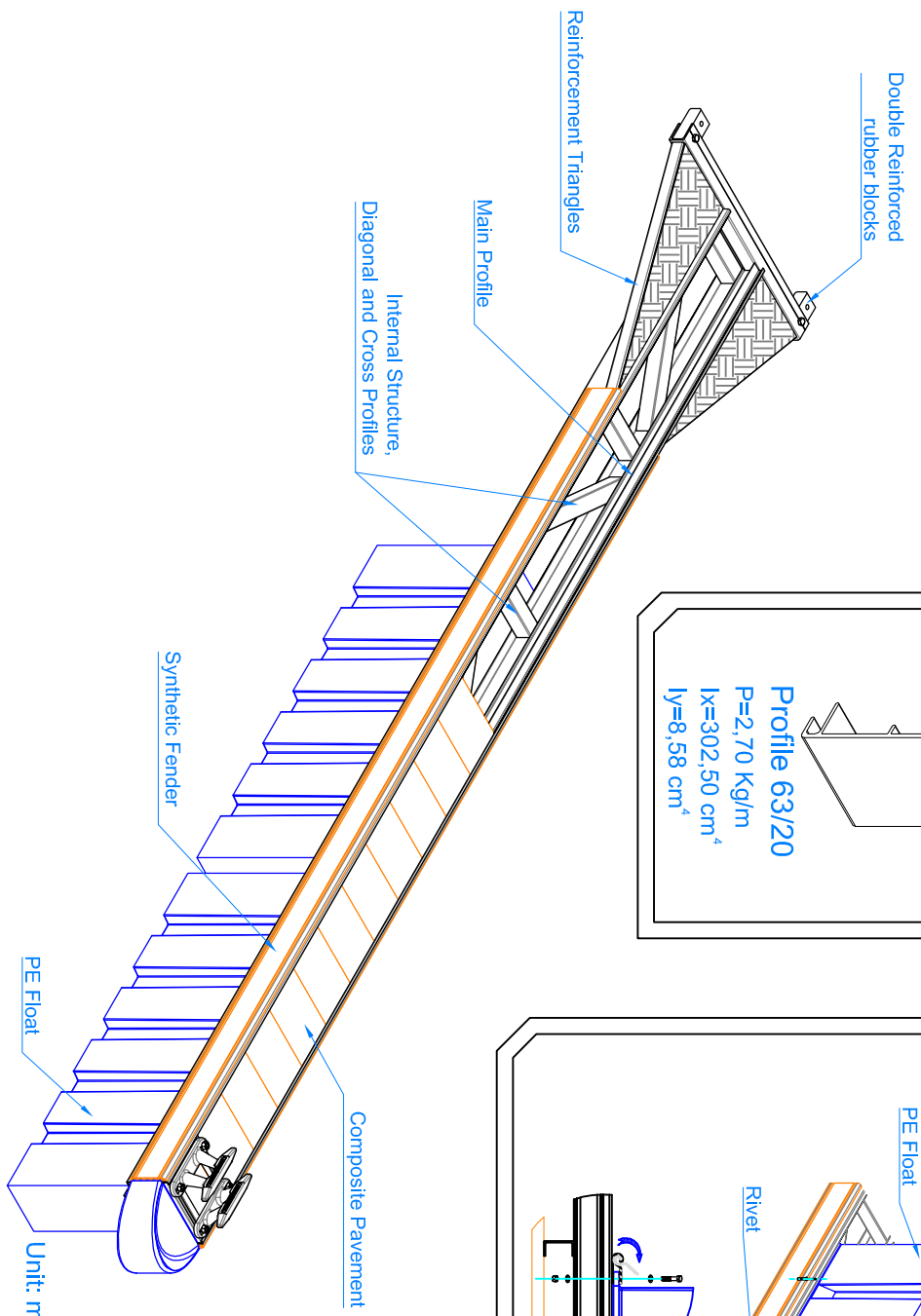
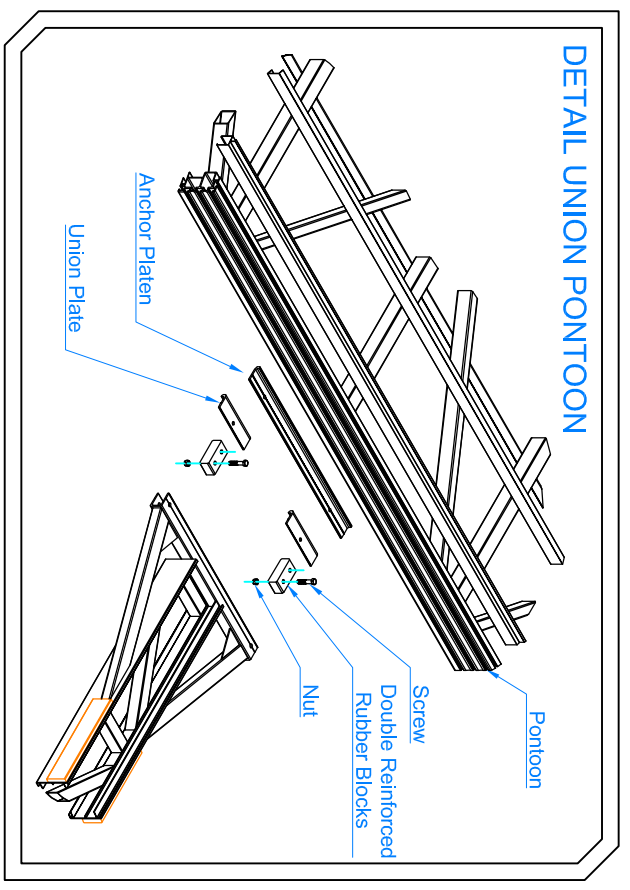
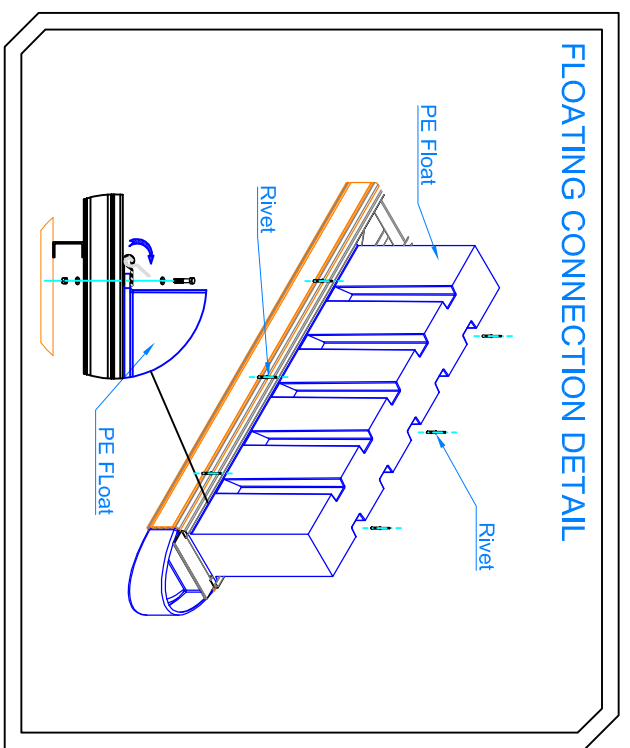
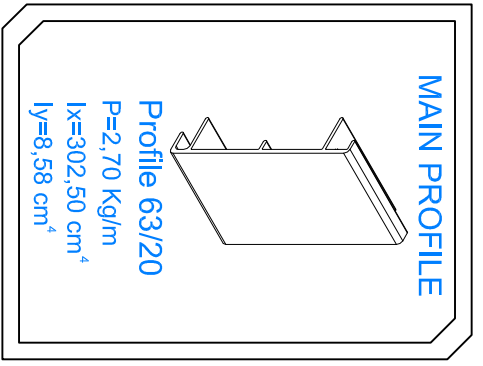
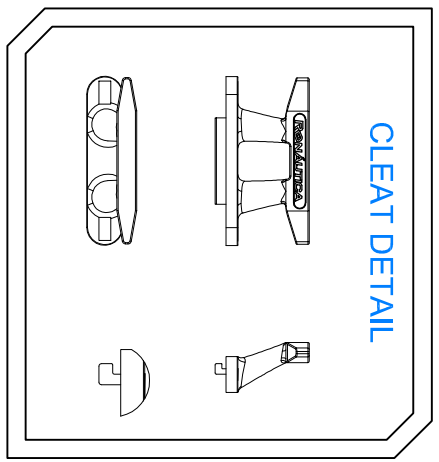
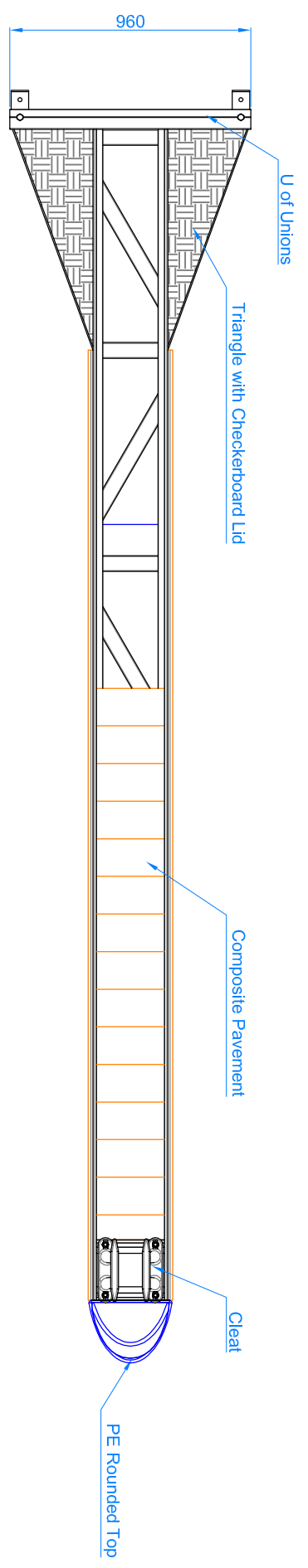
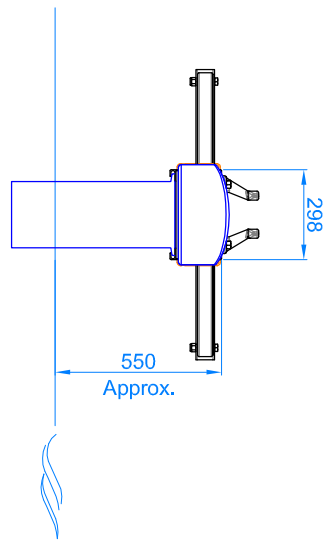
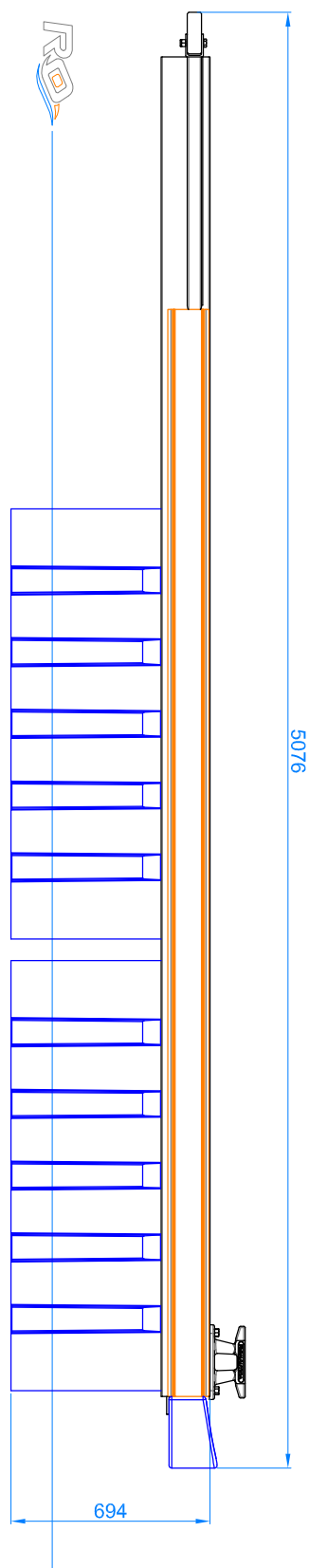
In the first option, the structure is based upon the "63 x 20 gangway" profile (2.00 lb/ft). Decking and lateral fenders are both in a high density rot-resistant 1 inch thick tropical hardwood or ecological composite. The finger pontoon features a rounded end.

The other option is based upon a square tubular structure, 4" x 4" x 1/8" with floatation by means of a Ø18 inch. buoy.



TYPE	LENGTH (mm)	WIDTH (mm)	RECOMMENDED FLOATATION
<b>B6030</b>	6000 (20ft.)	300 (1ft.)	3 I2 643
<b>B5030</b>	5000 (16ft.)	300 (1ft.)	2 I2 643
<b>B4030</b>	4000 (13ft.)	300 (1ft.)	2 I2 643
<b>B3030</b>	3000 (10ft.)	300 (1ft.)	1 I2 643
<b>B6010</b>	6000 (20ft.)	100 (4in)	2 CCRS-3 Buoy
<b>B5010</b>	5000 (16ft.)	100 (4in)	1 CCRS-3 Buoy
<b>B4010</b>	4000 (13ft.)	100 (4in)	1 CCRS-3 Buoy
<b>B3010</b>	3000 (10ft.)	100 (4in)	1 CCRS-3 Buoy

\* Other measures are also available as such as varying the floatation, depending on the needs of the installation.



		<b>Scale 1:25</b>	
Dibujado	01/10/2018	Name	X
Approval	01/10/2018	Signature	X
Title: No Passable Finger 5,0 x 0,30 m.		Signature	
CLIENTE		PROYECTO	
Last Revision		PD18xxx-xx	
00 (01/10/2018)		Page 01 of 01	
Format		A3	

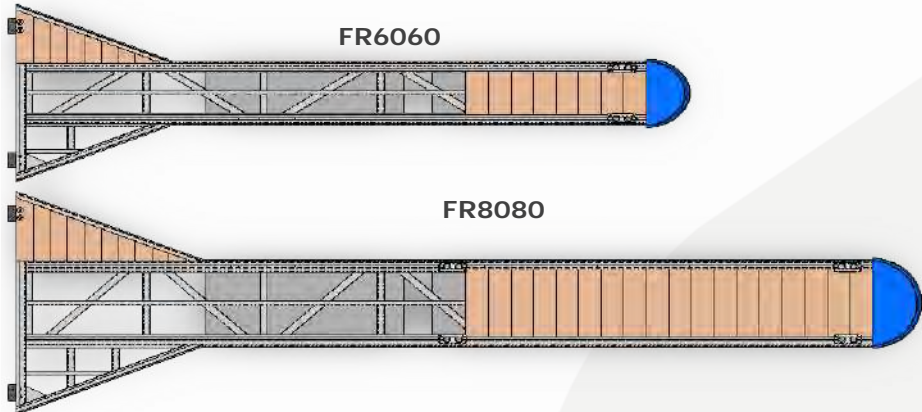
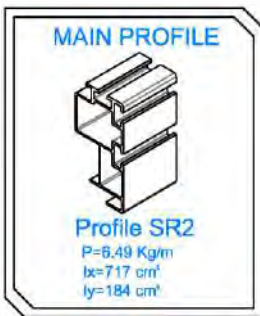
**RONAUTICA**  
 MARINAS  
 2ª Fase Parque Empresarial de Aves,  
 Parcelas 1,2 y 3  
 38711 Ares - Tud (España)  
 www.ronauticamarinas.com

# ALUMINUM FINGERS

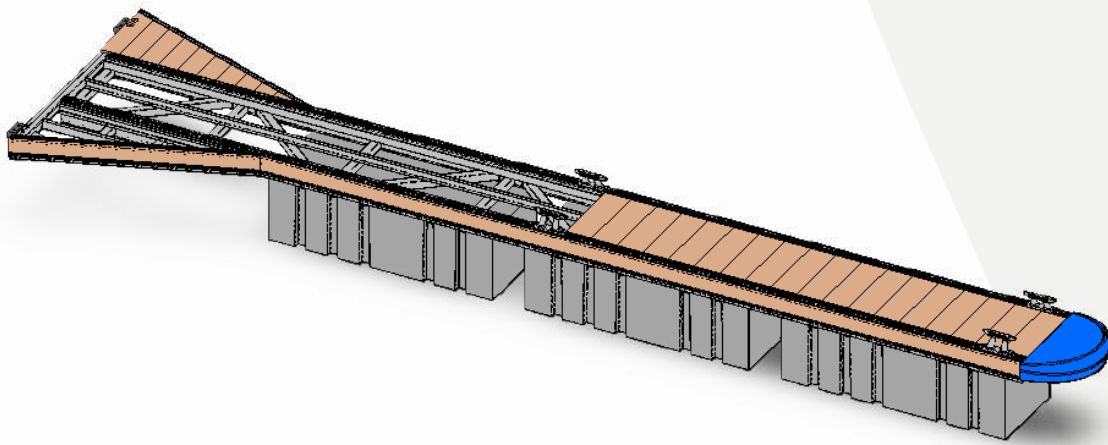
## FINGERS (PASSABLES)

Structurally built in 6005 A-T6 aluminum alloy. Decking, triangles and lateral fenders in 1 inch. thick high density rot-resistant tropical hardwood or ecological composite, with textured slip proof surface. PVC fender type D-60 is also available. Fixed to the main pontoon structure by elastomer joining blocks reinforced with Kevlar. The end of the finger is a polyethylene rounded top.

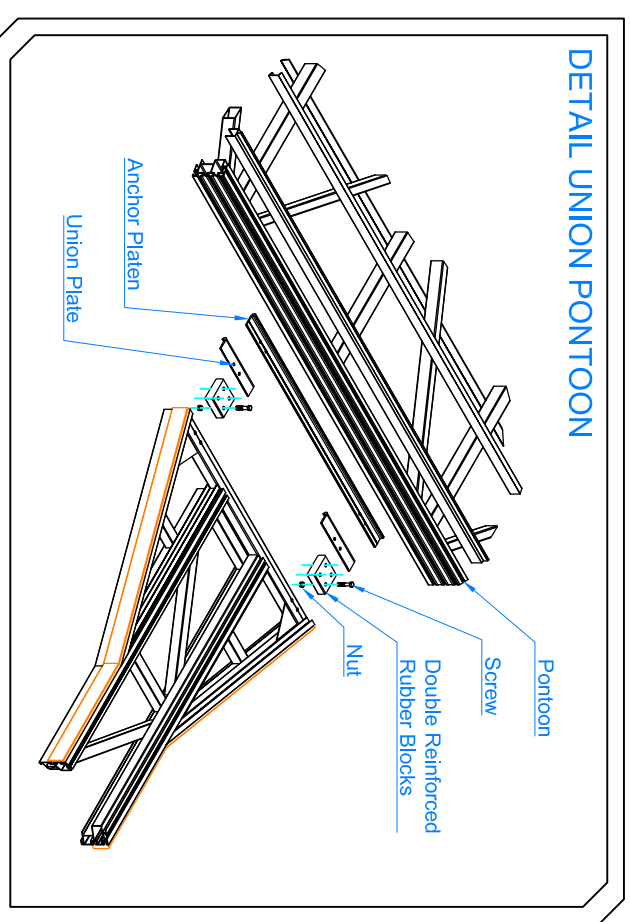
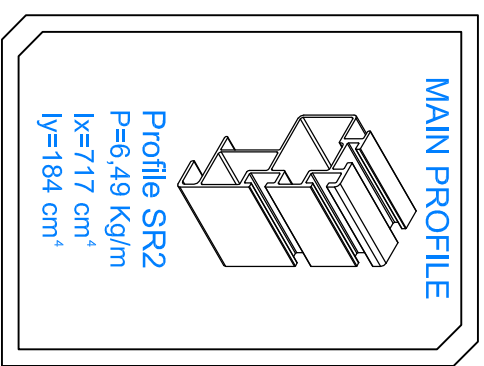
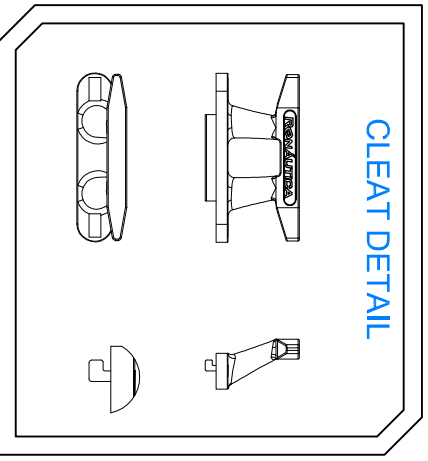
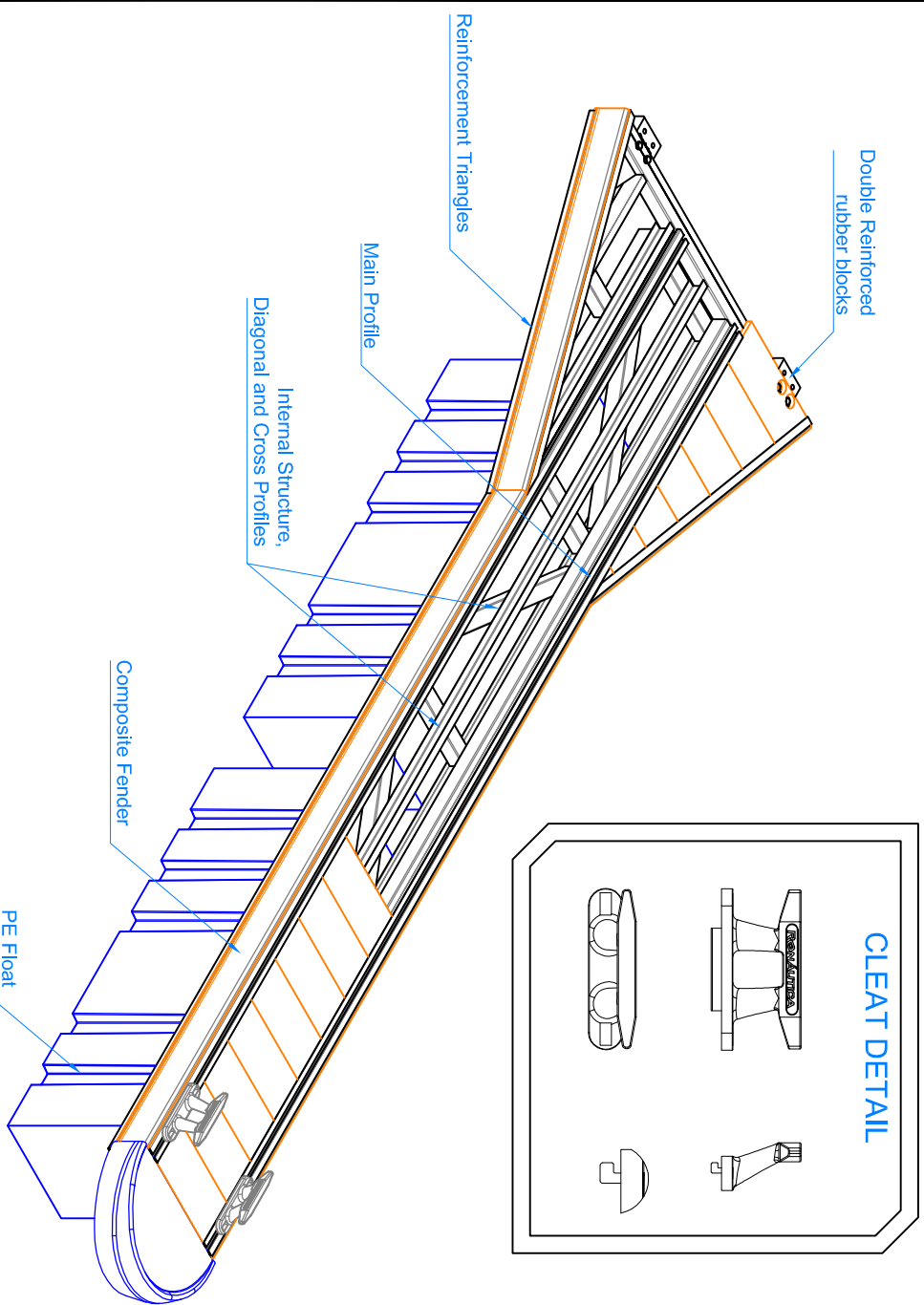
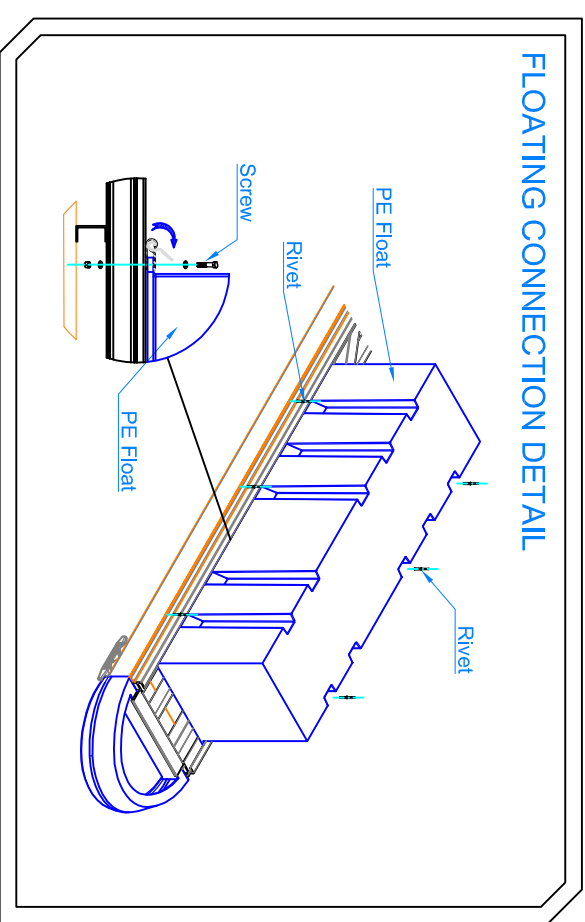
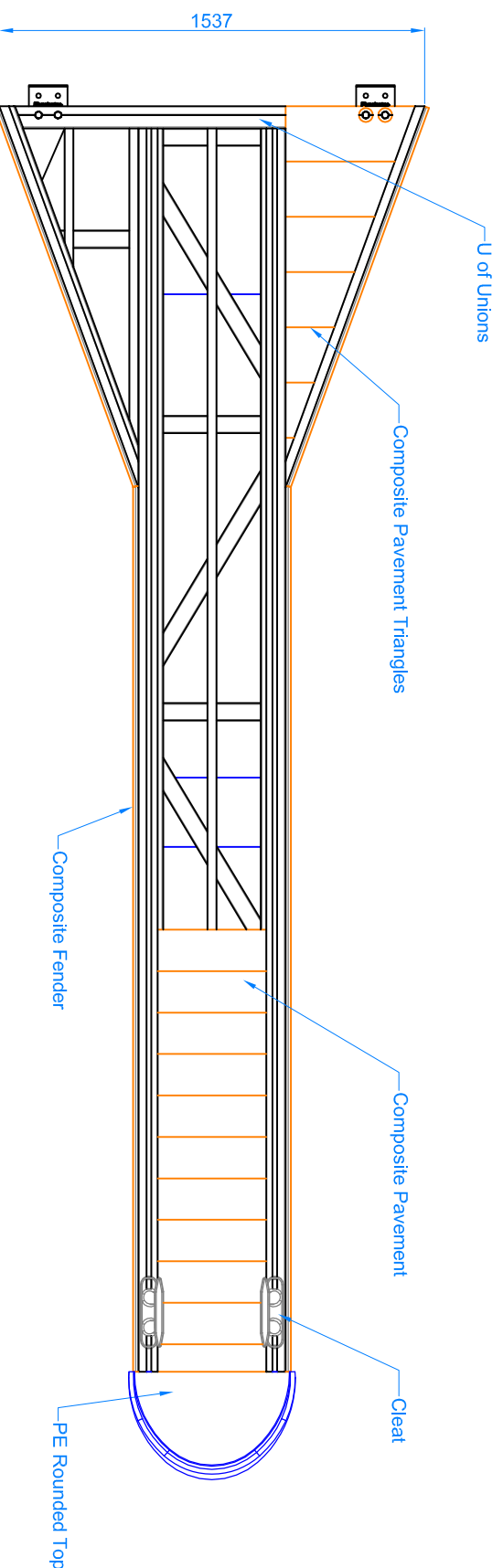
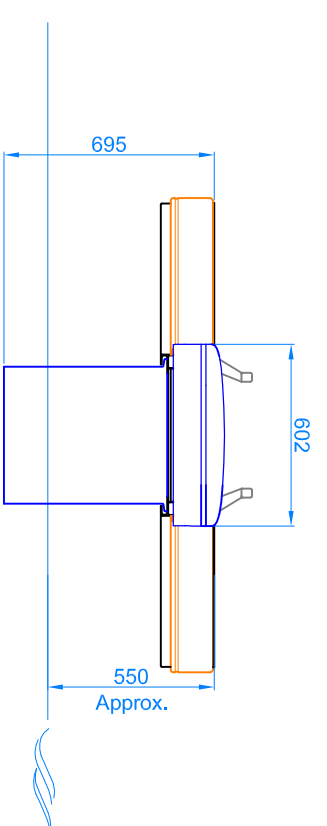
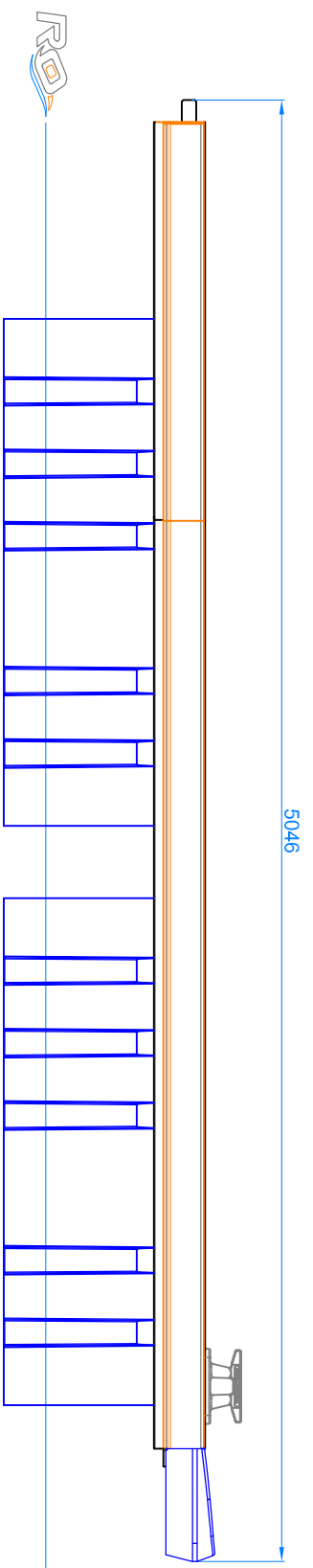
Available in two possible widths, 2ft. and 3ft. and "SR2" (4.00 lb/ft) main structural profiles



TYPE	MAIN PROFILE	LENGTH (mm)	WIDTH (mm)	RECOMMENDED FLOTATION
FR4060	SR2	4000 (13ft.)	600 (2ft.)	1 J2
FR5060	SR2	5000 (16ft.)	600 (2ft.)	2 J2
FR6060	SR2	6000 (20ft.)	600 (2ft.)	2 J2
FR7060	SR2	7000 (23ft.)	600 (2ft.)	3 J2
FR8060	SR2	8000 (26ft.)	600 (2ft.)	3 J2
FR8080	SR2	8000 (26ft.)	800 (3ft.)	3 A2
FR9080	SR2	9000 (30ft.)	800 (3ft.)	4 A2
FR10080	SR2	10000 (32 ft.)	800 (3ft.)	4 A2



\* Other measures are also available, depending on the needs of the installation.



Unit: millimetres.

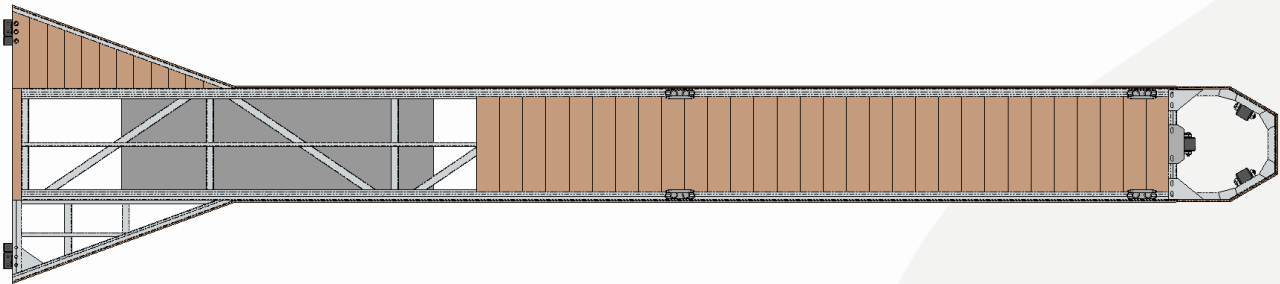
		<b>Scale 1:25</b>	
Design	13/02/2019	X	
Approval	13/02/2019	X	
Title: Finger 5,0 x 0,60 m.		Signature:	
		2ª Fase Parque Empresarial de Aves, Parcelas 1,2 y 3 38711 Aves - Tud (España) www.ronauticamarinas.com	
CLIENT		PROYECT	
Last Revision	PD18xxx-xx	Format	
00 (13/02/2019)	Page 01 of 01	A3	

# ALUMINUM FINGERS

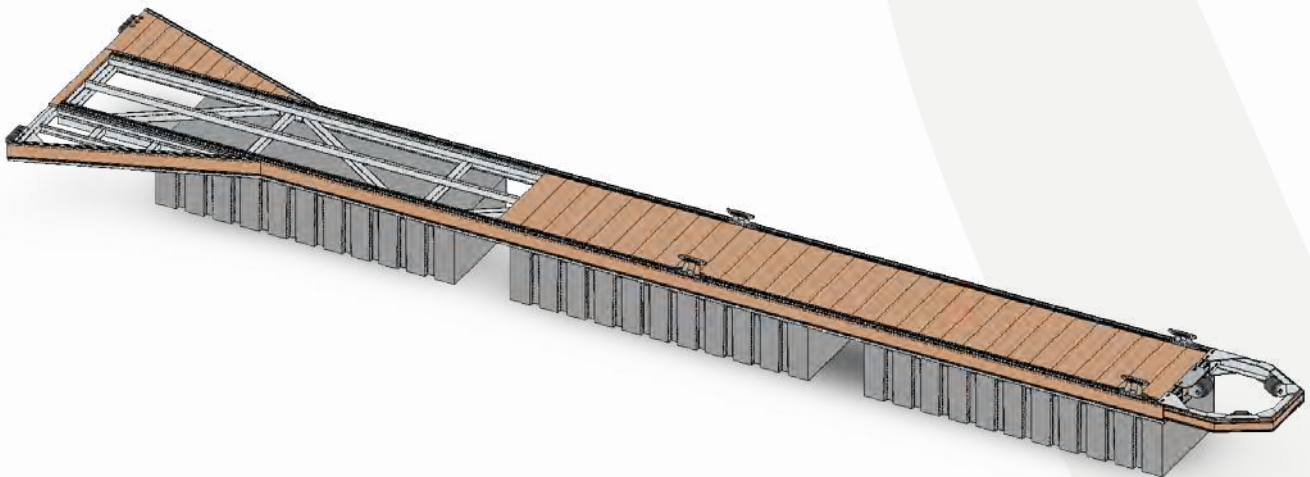
## PILED FINGERS (PASSABLES)

Structurally built in 6005 A-T6 aluminum alloy. Decking, triangles and lateral fenders in high density rot-resistant tropical hardwood or ecological composite, with textured slip proof surface. PVC fender type D-60 is also available. Fixed to the main pontoon structure by elastomer joining blocks reinforced with Kevlar.

On account of its length and width this finger can be considered equivalent to a pontoon. It uses the same profiles as a pontoon and for its sizing, the same design criteria of the rest of the marina are used.



TYPE	LENGTH (mm)	WIDTH (mm)	RECOMMENDED FLOTATION
FRP10100	10000 (32 ft.)	1000 (3ft.)	3 B2
FRP12100	12000 (40 ft.)	1000 (3ft.)	4 B2
FRP14100	14000(45ft.)	1000 (3ft.)	5 B2



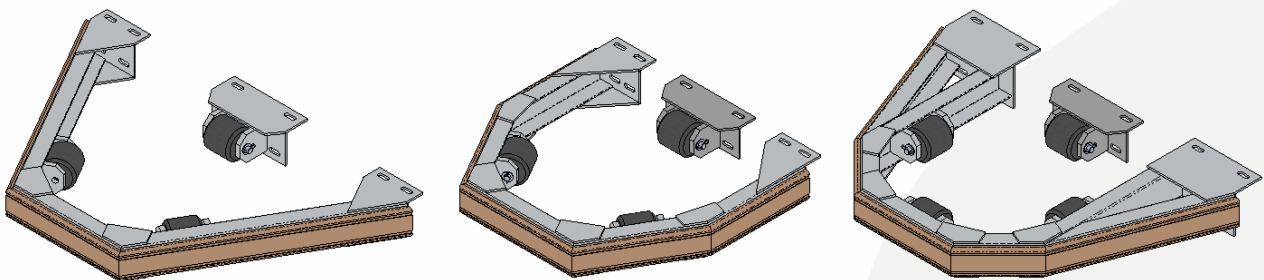
For fingers more than 60' long and 6' wide, it is advisable for these to be piled at more than one point. These piles will be coupled by inner rings so as to not affect the boats.

## ANCHORING

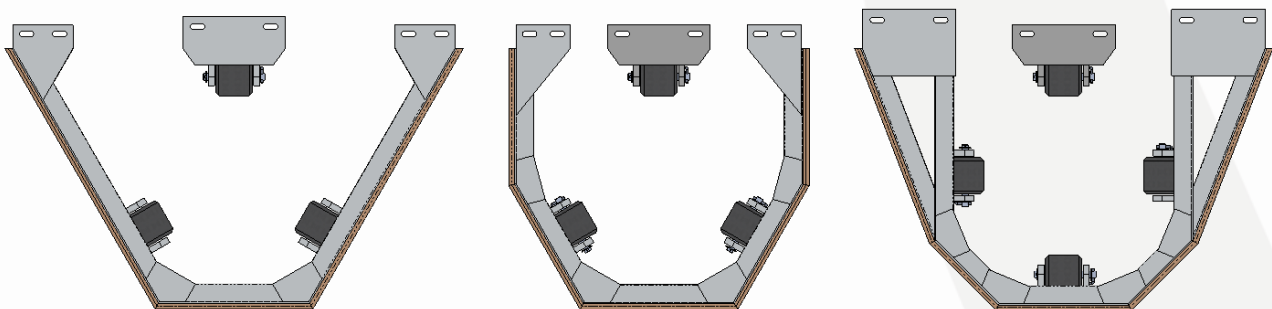
### EXTERNAL ALUMINUM PILE GUIDES

The pile guides are used to fix the pontoon to the piles set into the sea bed. The pile guides are made from 6005 A-T6 aluminum alloy and fixed to the pontoon by stainless steel fittings.

The pile guides will be fitted with 3 or 4 high-resistance rubber rollers with nylon cores and Ø1 inch stainless steel shafts, designed to cushion the blows against the piles produced by the movement of the pontoons due to the sea swell. This not only reduces the noise but also the appearance of gaps and misalignment brought about as a result of the structure's continuous banging against the pipes. These pile guides also include a high density rot-resistant tropical hardwood or ecological composite fender of 3/4 inch, of the same quality as fitted on the pontoons. PVC fender type D-60 is also available.



The pile guides with 3 rollers are generally used for anchoring finger pontoons less than 6 ft. wide. The size of these pile guide fittings is in relation to the pile at which they're aimed and covers a wide range which goes from small 10 inch. diameters, for those making use of the smallest pile guides with three rollers, to large 32 in diameters. The number of rollers can be increased by special request. Rubber blocks instead rollers are also available.



RONÁUTICA MARINAS also supplies inner pile guides for pontoons, for installations wherever required.

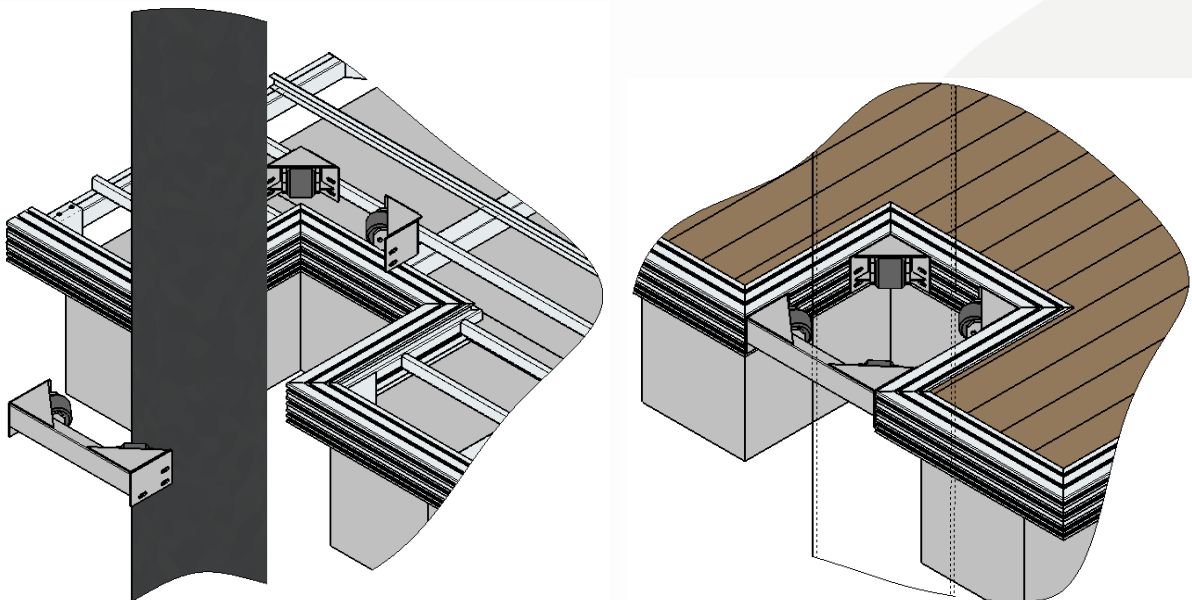


## ANCHORING

### INNER ALUMINUM PILE GUIDES

The inner pile guides are used to fix the pontoon to the pipes set into the sea bed, in installations wherever required. The pile guides are made from 6005 A-T6 aluminum alloy and fixed to the pontoon by stainless steel fittings.

The inner pile guides will be fitted with 4 or more high-resistance rubber rollers with nylon cores and Ø1 inch. stainless steel shafts designed to cushion the blows against the piles produced by the movement of the pontoons due to the sea swell. This not only reduces the noise but also the appearance of gaps and misalignment brought about as a result of the structure's continuous banging against the pipes. These pile guides also include in the external side a high density rot-resistant tropical hardwood or ecological composite fender of the same quality as fitted on the pontoons. PVC fender type D-60 is also available.



The size of these pile guides fittings is in relation to the pile at which they're aimed and covers a wide range which goes from small 14 inch diameters to large 32 inch diameters. The number of rollers can be increased by special request. Rubber blocks instead rollers are also available.





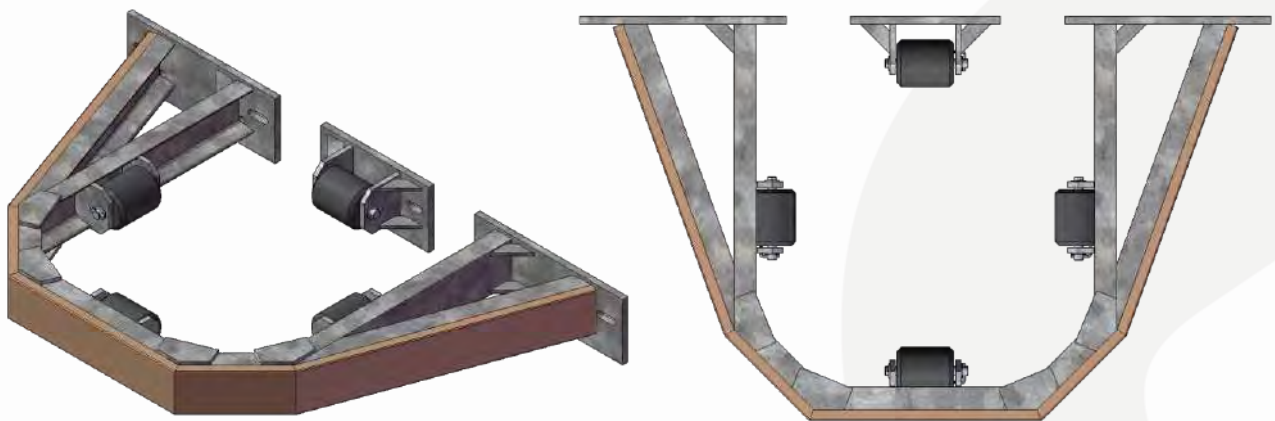
## ANCHORING

### EXTERNAL STEEL PILE GUIDES

When it comes to anchoring concrete pontoons and floating breakwaters by means of piles, the use of galvanised steel pile guides is recommended.

These pile guides, which firmly attach the pontoon by gripping the pipes, are fixed to the pontoon by stainless steel fittings.

The pile guides will be fitted with 4 high-resistance rubber rollers with nylon cores and Ø1 inch stainless steel shafts, designed to cushion the blows against the piles produced by the movement of the pontoons due to the sea swell. This not only reduces the noise but also the appearance of gaps and any misalignment brought about as a result of the structure's continuous banging against the pipes. These pile guides also include a 1 inch. thickness fender of pinewood with autoclave treatment of the same quality as fitted on the pontoons. PVC fender type D-60 is also available.



The size of these pile guides is in relation to the size of the pile at which they're aimed, the most commonly used diameters are 24 inch and 26 inch up to 32 inch . The number of rollers can be increased by special request. Rubber blocks instead rollers are also available.



# ANCHORING

## H-BEAM SYSTEM

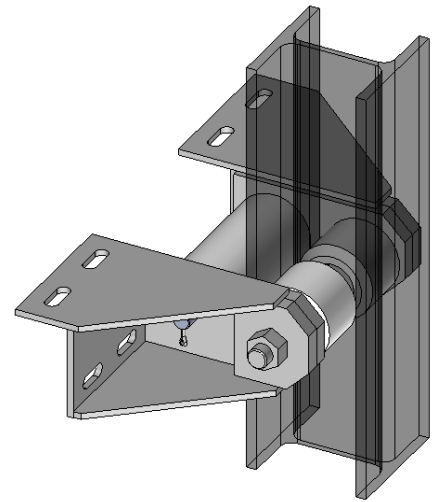
**USE:** Recommended for pontoons anchored to the dock.

These are heat laminated structural steel beams with a hot-dip galvanization process to guarantee the maximum protection against saltwater corrosion.

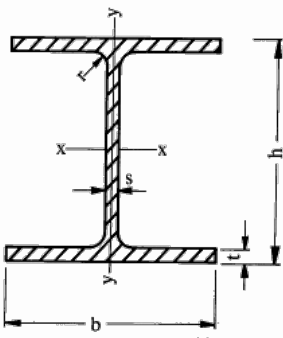
Types of H-Beams generally used are HEB160 and HEB180.

The anchoring and support fixings provide the right holding to the quayside. Their installation carried out by means of mechanical anchor bolts or chemical (epoxy resin), depending on the type of quay and tide levels.

Integrated carriages with 2 or three nylon or neoprene wheels slide along these beams to the pontoon, the wheels guaranteeing the movement of the structure to be in line with the variation in water levels. Main structure in 6005 A-T6 aluminum alloy with nylon wheels and AISI-316 stainless steel fittings and shafts.



Main features of the H-Beam System generally used (UNE 36.527):



HEB	DIMENSIONS					Moment of INERTIA cm <sup>4</sup>		Mod. RESISTANCE cm <sup>3</sup>		WEIGHT (lb/ft)
	h	b	s	t	r	I <sub>x</sub>	I <sub>y</sub>	W <sub>x</sub>	W <sub>y</sub>	
160	160	160	8.0	13.0	15	2492	889	311	111	28.60
180	180	180	8.5	14.0	15	3831	1363	426	151	34.20

# FLOATATION

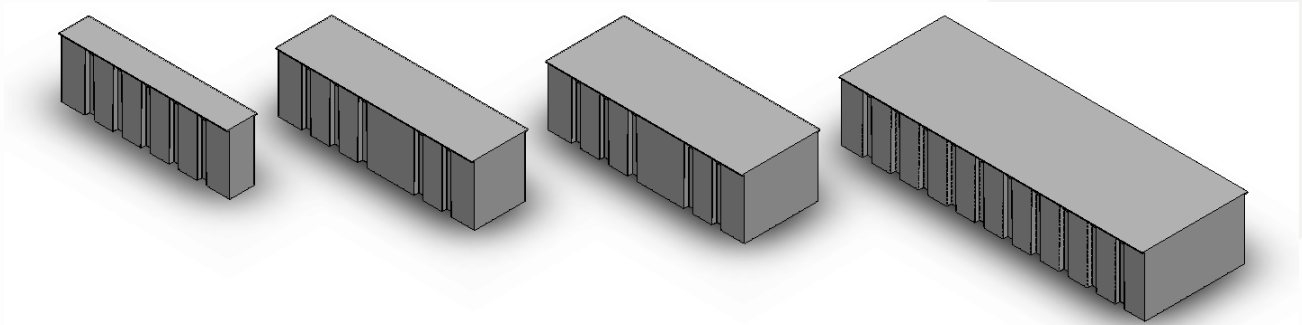
## POLYETHYLENE (PE) FLOATS

The outside of these floats are formed by a structure with double rotomolded shell, total thickness 1/3 inch. The outer layer is made of 1/8" polyethylene and the inner layer is 1/8" of polyethylene foam. The double layer provides greater strength, rigidity and lightness. The interior hollow of the float is filled with expanded Polystyrene injected with density 1 lbs/ pi<sup>3</sup>, this polystyrene prevents the entry of water in case of leaks due to breakage or cracking.

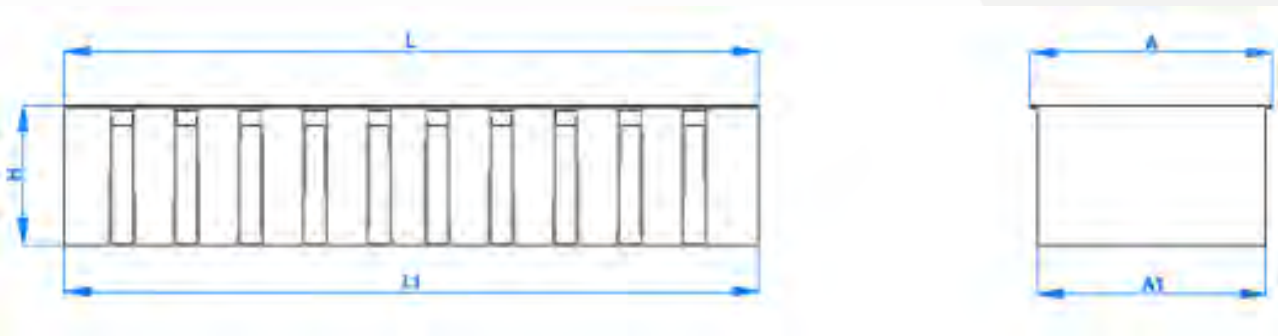
The floats slide in between the main structural profiles to be fixed in place by aluminum rivets with 1/4 inch diameter stainless steel pins and hexagonal screws which allow the individual floats to be replaced if changed or damaged.

The choice of size and type of float depends upon the pontoon's dimensions as well as the necessary load capacity and freeboard height.

RONÁUTICA MARINAS has a standard range of floats which give the pontoon a freeboard height of 50-55 cm and special floats for freeboards ranging between 25 cm and 100 cm.



TYPE	L (inch)	L1 (inch)	A (inch)	A1 (inch)	H (inch)	Approx. Volume (pi <sup>3</sup> )	Weight (Kg)
<b>STANDAR FLOATS</b>							
<b>A2 540</b>	68	68	28	26	22	21	30.24
<b>B2 540</b>	106	106	37	35	22	44.45	60.46
<b>J2 540</b>	68	68	19	18	22	14.7	23.74
<b>I2 643</b>	60	60	11	8	26	6.86	20.11

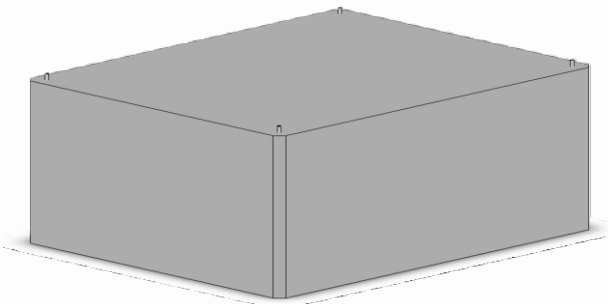


## FLOATATION CONCRETE FLOATS

**USE:** In aluminum pontoons for increase the stability to moor large boats, working boats and Megayachts

These floats are made with self-compacting concrete with polypropylene fibers and have a smooth finish, with fully hot-dip galvanized steel armor. The core is made of high density expanded polystyrene foam (HDEP). Due to the high inertia attributed to this combination, pontoons maintain greater stability. The fiber-reinforcement ensures the floats to be more durable and impact resistant. The pontoon is anchored by marine quality stainless steel fittings firmly embedded in the concrete floats.

As regards construction, the specifications laid down in the EHE (Spanish structural concrete regulations) have also been taken into account with regards to maximizing the protective measures against steel reinforcement corrosion, in this case with a special surface treatment.



### PROPERTIES:

Made with HA35/F/15/IIIc+Qb concrete, reinforced with fully hot-dip galvanized steel armor with a 1 lbs/ft<sup>3</sup> expanded polystyrene inner core and four grade 24 stainless steel threaded rods.

MODEL	MEASUREMENTS		
	A (inch)	B (inch)	C (inch)
HAP700	92.5	75	28
HAP1310	92.5	75	51.5
HAG700	114.1	92.5	28
HAG1310	114.1	92.5	51.5

# DECKING

## COMPOSITE DECKING

**MATERIAL NAME:** TIMBERTECH TWINFINISH 5/4, Two Sided, VertiGrain & Brushed.

**USE:** Decking on aluminum pontoons, fingers and gangways.

**MATERIAL DESCRIPTION:** High quality composite decking made from reclaimed wood fibres and pure plastic resins, with the addition of inorganic pigments to protect from UV rays and certain other additives guaranteed to provide the constant color and appearance.

**COMPOSITION:**

	WEIGHT %	AMOUNT PER VOLUME
Wood fibres	40-60	15 mg/m <sup>3</sup>
Polyethylene HD	25-60	Not available
Production secret	5-20	2 mg/m <sup>3</sup> NIOSH
Production secret	2-10	Not available

**Note:** Contains thermoplastics and the remains of timber products. The final product has the appearance of timber and can be used in a great many different applications.

**MECHANICAL PROPERTIES:**

Modulus of Elasticity	3.58 x 10 <sup>9</sup> MPa
Modulus of Rupture	2.14 x 10 <sup>7</sup> MPa
Tensile Modulus	
- Width	6.06 x 10 <sup>9</sup> MPa
- Length	2.61 x 10 <sup>9</sup> MPa
Peak tensile strength	
- Width	12.48 x 10 <sup>6</sup> MPa
- Length	4.41 x 10 <sup>5</sup> MPa
Compressive strength	
Width	20.90 x 10 <sup>6</sup> MPa
Length	19.99 x 10 <sup>6</sup> MPa



**PHYSICAL PROPERTIES:**

Flash point	825.00 °F
Relative density	>1
Friction coefficient:	
- Dry:	0.55
- Wet:	0.88
Thermal expansion coefficient:	
- Width:	3.41 x 10 <sup>-5</sup>
- Length:	3.41 x 10 <sup>-5</sup>
HDT 18.20 x 105 (Psi):	206.0 °F
Vicat 1 Kg:	273.2 °F
Specific Gravity:	1.2 gm/cc

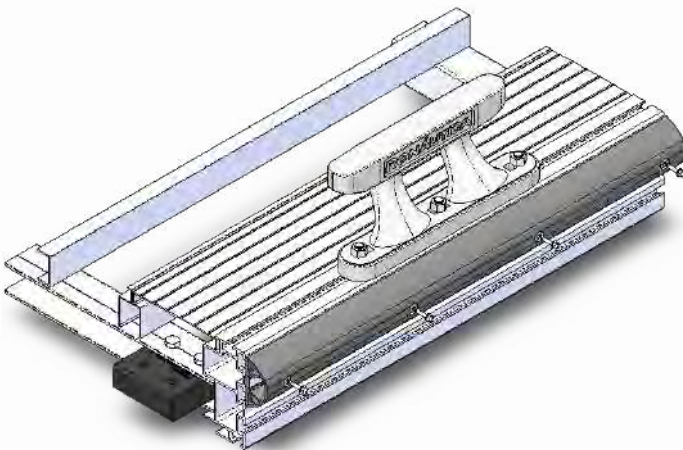


## FENDERS

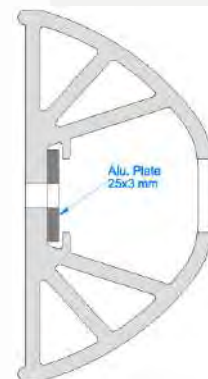
### PVC FENDER D60

**MATERIAL NAME:** PVC perimetral fender.

**USE:** Lateral fender on pontoons, fingers and pile guides.



DIMENSIONS	FENDER D 60
LENGTH	7 ft
WIDTH	2 inch
HEIGHT	4 inch
JOINT SISTEM	Stainless Steel screws fixed by drill.



#### PROPERTIES:

**Composition:** Polyvinyl chloride (PVC). Soft PVC hardness 85/90 ShA.

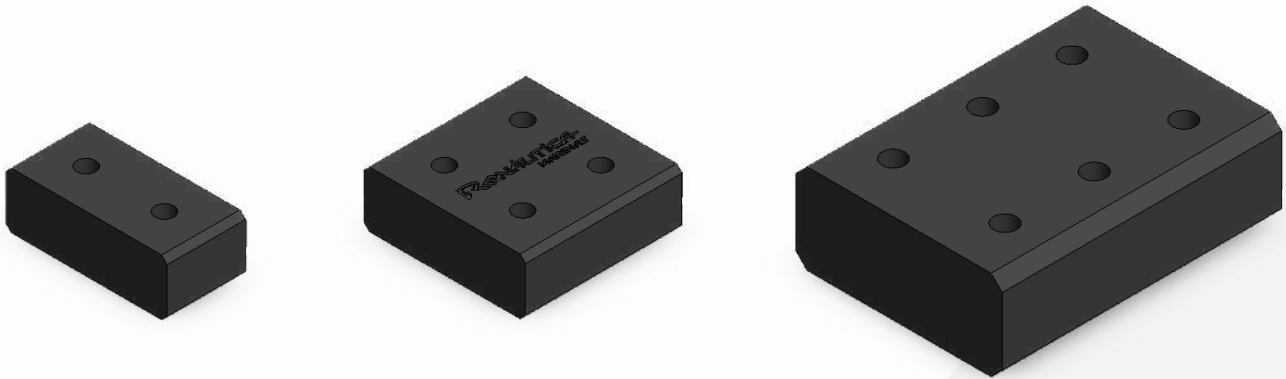
**Temperature range:** -40°F, +140°F. Resistant material to ultraviolet light, sunlight, oils and gasoline. Standard color: Gray.

Compatible with existing fenders of wood or composite, concrete pontoons and aluminum profiles.

# JOINING ELEMENTS

## JOINING BLOCKS

The pontoon sections are coupled together by rubber elastomer blocks reinforced with a Kevlar sheet inset through the rubber and fixed onto reinforced profiles by “Nylstop”, 2/3 inch diameter stainless steel nuts and bolts.



### Neoprene Features:

The blocks are made from neoprene with a density of 1.2Kg/l, with a 5000 psi break load with a 450% extension. The Shore A durometer reading for the material is 75±5

### Joining Block Properties:

	SINGLE BLOCK	DOUBLE BLOCK	TRIPLE BLOCK
<b>BREAK LOAD</b>	6610 Kg	19200 Kg	35500 Kg
<b>DIMENSIONS</b>	6 x 2.75 x 2 inch	6 x 5.5 x 50 inch	10 x 7 x 3 inch
<b>FITTINGS</b>	2 x DIN931 M16x80 A2 stainless steel bolts	4 x DIN931 M16x80 A2 stainless steel bolts	6 x DIN931 M20x130 A2 stainless steel bolts
	2 x DIN985 M16 A2 stainless steel locking nuts	4 x DIN985 M16 A2 stainless steel locking nuts	6 x DIN985 M20 A2 stainless steel locking nuts

RO4 structural profile units are joined together by triple elastomer blocks.

The single blocks are used to attach the no passable fingers to the pontoon.

# FLOATING PLATFORMS

## JET-SKI PLATFORMS

The Jet-Ski platforms are manufactured in polyethylene and have an overload of use up to 1000 Kg. The anchor to the watercraft is made by a black nylon cleat with a length of 6.5 inch. For the connection to the dock, it has a sliding polyethylene ring with a 2.5 inch diameter stainless steel tube

Dimensions: 12.79 x 4.840 x 1.25 ft.

Available colors: Violet, Green, Blue, Beige, Red and Gray.

Weight: 150 Kg.



VIOLET color  
Ref. A300102-10



GREEN color  
Ref. A300102-20



BLUE color  
Ref. A300102-30



BEIGE color  
Ref. A300102-40

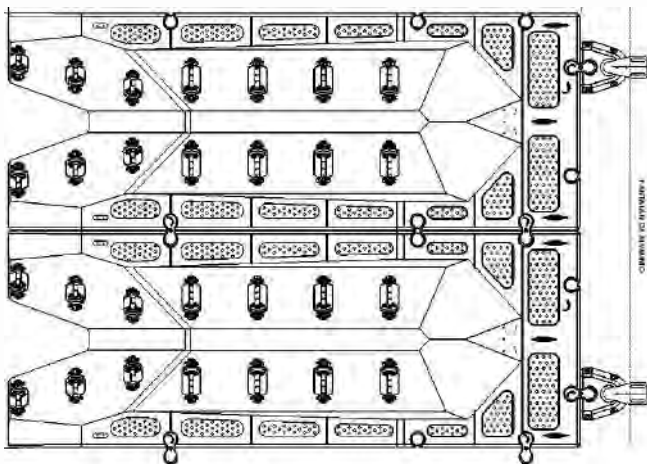


RED color  
Ref. A300102-50



GRAY color  
Ref. A300102-60

These platforms have a joining kit that allows joining two or more platforms together consisting of two reinforced rubber blocks and threaded rod in stainless steel M10x14inch. .







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