# INGEMAR

*Ingegneria Marittima*





## BUILDING ON THE WATER 2014/2018

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*Ingegneria Marittima*

According to the latest data and market signals, the Italian yachting industry seems to have finally overcome its difficult years. Fortunately for the Ingemar Group, orders from the international markets helped it to maintain the quality of its products and to increase the contribution of research and innovation in its industrial processes.
The markets recognized and rewarded this commitment and, in the face of a consistent recovery in the sector, Ingemar has consolidated its leadership in Italy, strengthened its presence in the Mediterranean area and expanded its trade horizons, often in emerging and rapidly changing geographic areas.
The last 5 years were years of great projects and great challenges, in which we participated in the birth of mega tourist settlements, landing places and artificial lagoons on the desert coasts of the Red Sea and the Gulf. These projects have often led us far from Italy and our affections, but at the same time gave us immense satisfactions in locations that we could not have previously imagined would be subject to such a sudden development.
In the Mediterranean we participated in the growth of new amazing residential complexes such as Porto Montenegro and Lustica Bay in Montenegro and Portopiccolo in Italy. We also outfitted new important marinas such as the Valletta marina in Malta, Santa Manza in Corsica, Novi Vinodolski in Croatia, Marina Zea in Athens, La Spezia and Capo d'Orlando in Italy. Our floating pontoons and breakwaters provided new moorings for numerous sailing clubs and public administrations such as in Portorož in Slovenia, Luka Volme in Croatia, Locarno in Switzerland, as well as Bari, Venice and Monfalcone in Italy.
In the same years the Group strengthened its engineering and operational capabilities, with a policy of investment in research and development, for example with the introduction of new construction systems for large reinforced concrete structures, with prefabricated modules easily transportable to be connected on site or with monolithic elements cast directly on the installation site, as in case of floating mega breakwater elements. In the human resources sector, Ingemar maintained the necessary attention to the human and professional growth of the personnel, enhanced the technical office with the introduction of new skills and IT tools and technologies. The commercial activity has been assisted by a wider sales network and by new agreements for production and distribution in the most distant countries. We are now approaching our 40th the anniversary of activity and we look back with satisfaction on what have achieved, yet we are ready to face new challenges with even more energy, serenity and enthusiasm.

*Sea City, Kuwait*

## VALLETTA - MALTA

### An elite marina under the palaces of the Hospitallers

The new marina in Valletta is the Marina di Varazze initiative, part of the Azimut - Benetti group, in cooperation with some Maltese entrepreneurs in the boating and construction sectors. All members have enthusiastically contributed their specific skills to the success of the project that integrates well with the dense network of Maltese landings. The Azimut - Benetti shipyard has a well-established experience in the management of marina, Esprit Yachting in the field of boat sales and assistance, Arrigo Group in the hotel and tourism sector, Tal - Maghtab of the constructions and Joinwell in the furnishings sector. Positioned in Sa Maison, close to Msida Marina, the new marina contributes its discreet and elegant structure to the ambitious "Valletta City Gate" project of restructuring the monumental city walls and historic buildings classified as "World Heritage". Inaugurated in July 2017, the marina offers 270 berths from 10 to 28 meters and has some additional moorings for superyachts up to 50 meters. Ingemar supplied 4 long piers of 3 meters wide floating pontoons type King Size, with galvanized steel structure, concrete floaters filled with polystyrene foam and decking in exotic wood.
The type of pontoons used, characterized by discontinuous floatation to limit the interference with the currents, ensures their high resistance to the residual wave motion of the site and a discreet and elegant look in analogy with other installations on the Maltese islands. A wonderful experience of collaboration and a very pleasant return to Valletta where, in 1989, we made our first important experience on foreign markets.


## LA SPEZIA

### Mega 185 t wave attenuators for an all-floating marina

As part of the redevelopment of the city waterfront, the Autorità di Sistema Portuale del Mar Ligure Orientale undertook the redevelopment and conversion of the Molo Pagliari in La Spezia to the east of the port areas, with the aim to enhance its historical and cultural value. The works have been entrusted to Trevi spa, a company specializing in foundations and special works, and include the construction of modular structures in metallic carpentry to host the service and support activities for the storage and maintenance of small pleasure craft, as well as mussel farming activities. The works at sea consist of the construction of a new floating tourist landing to assure about 850 berths for local residents and small boat holders in the Marina di Fossamastra and Canaletto. After a very long contest in which all the most important manufacturers at international level took part, Trevi has entrusted Ingemar with the demanding task of supplying all the floating works envisaged by the project. Considering particularly strong wave movement in the installation site, the floating structures require dimensions and performance capabilities well above the international off the shelf production standards.
A distinctive and qualifying feature of the new marina, in fact, is precisely the breakwater protection, consisting of the semi-flexible connection of monolithic elements in reinforced concrete with polystyrene foam core. The dimensions and weight of the breakwater modules are truly exceptional (the breawater modules have dimensions 20x10x2.4m and 20x8x2.40 weighing respectively 180 and 150 ton!). The solution to produce the modules directly in the vicinity of the place of use, as in case of a maxi construction site in Kuwait, allowed significant production savings, acceleration of time and reduction of the overall energy consumption and pollution emmissions by limiting or eliminating the need for many handling and transport activities.
In the Ingemar factory in Casale sul Sile, the elements of the internal mooring piers were produced, of all-concrete tyoe, in reinforced concrete and wood decking. The same type of elemenst are employed for service pontoons parallel to the Molo Pagliari quay and and for service floating platforms. At the end of the works, approximately 1400 linear meters of pontoons will be installed, able to accommodate about 850 boats.

## SANTA MANZA - FRANCE

### All-floating new marina at the entrance to the Straights of Bonifacio

Straights of Bonifacio, Maddalena Archipelago and the Costa Smeralda are the most popular destinations for yachtsmen cruising between Corsica and Sardinia. In this context we find the new all-floating marina of Santa Manza, built by Porto Vecchio Marine, a par excellence company in the nautical sector considering its dimensions, equipment and services, taking care of the sales and offering assistance for important international shipyards.
In the spirit of continuous growth in the nautical sector, Porto Vecchio Marine completed this wonderful initiative a few miles from Bonifacio. The renovation of an old building as a modern club house and the creation of a floating marina for large yachts transformed a corner of the beautiful bay into a discreet and luxurious mooring point and a meeting place for sea lovers. Ingemar was entrusted with design and construction of floating structures: 240 m of All Concrete, heavy duty pontoons in monolithic 20x4 m reinforced concrete elements weighing 40 tons each. The floating elements will be dismantled and put to safety at the end of the season when the strong winds from the North-West start to blow, creating inside the bay the waves unsustainable for floating structures. The installation, with its characteristics of seasonal use, will contribute to the appreciation of natural resources by restoring a pristine environment at the end of the summer season.
A few steps from the new marina a new landing was added, on the initiative of the municipal administration. Local boaters would have found new moorings on two floating piers composed of Ingemar discontinuous pontoons with a steel structure and wooden finishings.

## CAPO D'ORLANDO (ME)

### A strategic tourist port for pleasure yachting in the southern Tyrrhenian Sea

Capo d'Orlando is located in an enchanting setting between Messina and Cefalù, facing the Aeolian Islands. The new marina is the result of the commitment of some local entrepreneurs - Ilario Franco, Giuseppe Mangano and Francesco Federico - who believed in the potential of this town with an important tourist tradition and an enviable environmental context.
The new marina is developed on a layout formed by 2 large central piers that extend from the quay to the North and from which a series of perpendicular mooring piers branch off.
The 5 m wide main piers with a concrete walking surface consist of a new type of continuous floating concrete elements with a very high live load capacity (500kg / sqm), which allow for safe transit of electric vehicles and provide a wide access corridor to the mooring piers. The mooring pontoons are characterized by a wooden decking and a discontinuous floatation to allow water to be recycled at the surface level. The single piers, up to 150m long, have a total linear development of 850m and consist of 2.5m wide modules with frames in galvanized steel, supported by unsinkable concrete floaters with a polystyrene foam core. All the floating elements are anchored with tubular steel piles fixed in the seabed and special cushioned pile guide devices.
The marina covers a total area of 183,000 square meters and is able to accommodate 562 boats with a length between 7.5 m and 40 m. The boats will use the "med-mooring" systems, with mooring lines, ground chains and concrete anchor blocks. All the moorings are served by fire-fighting terminals and service pillars in stainless steel, with E-Power system for energy and water metering, controlled remotely from the marina office.
The elegant constructions foreseen by the project to support the tourist infrastructure include the workshop for repairs and storage, a promenade of shops that extends to the level of the quay on about 3,000 square meters, with bars, restaurants, Yacht Club and a minimarket. A truly futuristic port complex in an exceptional landscape: a prestigious reference for Ingemar and a wonderful memory of collaboration and enthusiasm among all the participants of the initiative.

## ATHENS - GREECE

### Expansion and renovation in Marina Zea

In Marina Zea, the lively marina managed by KG MEDMARINAS in the center of Piraeus, after long delays linked to local authorizations, the elements of the All Concrete Ingemar floating pontoons and steel frame piers with wood finishings, stored for many years on the quay in Piraeus awaiting the green light for installation, are finally operative.
In the summer of 2018, two long piers perpendicular to the mainland and a pontoon parallel to the quay secured mooring to a maxi-yacht. Another T-shaped pier was ready to accommodate smaller boats. Different construction types of piers with different lay outs for specific functional and design requirements. For us at Ingemar it was a great pleasure to return to a friendly environment and see our previous installations in perfect working order. It was especially important to us work again with our customers with whom we have established a special relationship of trust and collaboration since the years when we installed the piers and floating breakwaters of Marina di Gouvià in Corfù and Marina di Lefkada.

## CASTELFRANCO VENETO (TV)

### Floating solarium for Baita al Lago on the private pond

On the private lake of Baita al Lago, which in summer is an alternative beach walk for those who want to avoid queues, the surface for sunbathers has been expanded with a floating solarium made by Ingemar: 240sqm, able to support the load of 700 people. In the evenings, the solarium becomes an eating area for the restaurant on the ground. A platform obtained by exploiting the modularity of King Size standard pontoons, connected to the ground with a walkway and served by a floating swimming pool.

## TIVAT - MONTENEGRO

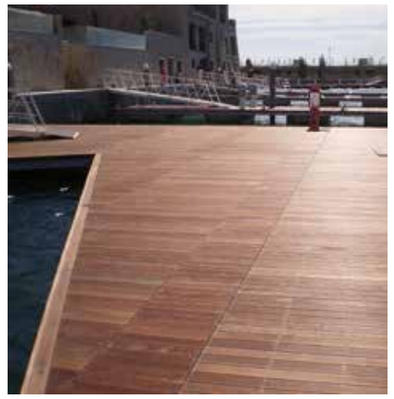
### Luštica Bay, a new tourist port

The new tourist settlement is the work of Luštica Development AD, a company of the Orascom Development Ltd. group responsible for the development and management of the Luštica bay and was built around its marina on the image of the old fishing villages along the Adriatic coast, traditionally build arround the port.
The project includes 2 elegant marinas: the main one with about 180 berths for boats up to 35m and another for smaller vessels. After a rigorous selection at an international level, Ingemar was awarded the contract to supply the floating structures and began an active technical collaboration with the managers of the investor. The first piers are operational since July 2018.

## SISTIANA (TS)

### Residences and a tourist harbour on the site of an old quarry

Portopiccolo (the north east's "little Monte Carlo" of North East) was inaugurated on 8 August 2014. It is strategically located on the cliffs of Sistiana between the two magnificent castles of Duino and Miramare. This was an investment of € 250 million with the sole purpose of redeveloping the site of an old chalk quarry in the Bay of Sistiana close to Trieste.
In three years a surface area of 350,000m2 (the previous stone "factory") has become a modern tourist harbour for the elite surrounded by a typically maritime-style village.
There are 380 lodgings, of which 80 are residences. There are also restaurants by the sea, a spa of 15,000m2 with the best thalassotherapy treatments in Europe and fashionable shops along the seafront.
The whole village complex is a zero emissions zone, it is entirely pedestrianised and has also abolished the use of all types of gas (including for cooking).
Ingemar was appointed by Rizzani de Eccher, the complex's main contractor, to execute the final plan drawings, the construction and installation of all the floating structures servicing the marina.
This was quite literally a "tailor made" assignment from the minutely detailed plan drawings, to the choice of supplies and the technical decisions.
The pontoons, with an overall length of 500 m and a surface area of approximately 1800 sqm, are 2.5/3m wide and are all equipped with fingers for mooring yachts up to 32m. A large floating platform acts as a main focal point of the marina giving access to the largest berths. All the elements, with decks in staves made of exotic hardwood, have lengths,form, size and variable features according to the complex layout and the different requirements of the vessels.
Floating units are in concrete for the pontoons and in rotomoulded polyethylene for the fingers and were chosen on the basis of the expected performances and of the local wind and wave climate.
The floating structures are anchored by 65 no. pile drilled into the rock bed and secured by high strength mortar so as to guarantee maximum safety and functionality of the floating systems.
Pontoons are fastened to the piles by sliding devices recessed into the structure of the pontoon so to avoid interference with the moored boats.
This was a prestigious turnkey assignment for an important international group.
This was a challenging project characterised by a very tight timeframe and a demanding client, a challenge that Ingemar was able to take on itself and win in 4 months only in a very collaborative environment made of enthusiastic people proud of being involved in such an a futuristic development.



## SEA CITY - KUWAIT

### Growth continues in the basins of the new city on the Arabic Gulf

*La'ala Al-Kuwait Sabah Al-Ahmad Sea City,* 85km south of Kuwait City, is an astonishing project in several stages begun in 2003 and occupying an area of over 64 square kilometers along the Arabic Gulf; with a 25 year development plan a new city for in excess of 100,000 inhabitants will arise from nothing along more than 200km of new coastline overlooking a series of canals and lagoons excavated out of the desert.
The project, by the La'ala Al-Kuwait Real Estate Company, has seen completion of the first 3 phases of infrastructures and residential plots and includes the development of three new marinas, the first two of which are already completed, and the third is currently under construction, for more than 2,000 berths. In early 2012, following a stringent international selection process, Ingemar was appointed to manage the final design and to supervise the on-site construction of pontoons, fingers and floating breakwaters, and of the additional accessories and the anchorage systems for the marinas. Due to their importance for the success of the fabrication, Ingemar was also appointed to supply all the specialist structures, the gangways and the most critical components for the standard All Concrete elements. After a precise analysis of the manufacturing types, of the logistic issues and of the local resources, the construction of floating elements began in 2013. The "numbers" for the projects are truly impressive: in the first two marinas only, 17km of floating breakwaters, pontoons and fingers, for a total of 40,000 square meters, anchored by in excess of 830 no. piles will provide moorings for over 1,200 yachts up to 40m in length. At present the construction of the structures for the third marina, with more 8,500 m of floating structure and 860 berths is under way and to be completed in 2018.

The types of elements of the third marina are the same as those of the previous two marinas, with the necessary modifications to adapt the structures to the specific layout and to the size of the boats: concrete floating pontoons and breakwaters, 3 and 4m wide and up 20m long with a displacement of up to 65 tons and concrete fingers up to 30x3m. The elements are of the all-concrete continuous floating type with galvanised rebar, expanded polystyrene cores that assuring flotation and with a concrete anti-slip deck finishing. A great number of elements has requested a specific design to follow the indications of lay-out of marina and the request for large floating platforms with dimension up to 16x16m both for connecting different piers and for accommodating buildings for marina related services. This is an extremely prestigious international assignment rewarding Ingemar's attention to the Middle East market and its capacity to adapt to the specific requirements of each client-investor in the role of reliable technical partner and supplier.

## NOVI VINODOLSKI - CROATIA

### Novi Marina

In the Gulf of Quarnaro at Novi Vinodolski a new tourist port is nearing completion; it is being constructed by an important local company, GPP Mikic d.o.o., which is highly motivated to invest in the yachting sector. This is a very appealing area: on the border with Istria, in the splendid gulf of Quarnaro and in front of Krk island. The new marina has 180 berths and will certainly become a popular destination within the efficient Croatian network of harbours.
The authorities in Croatia are extremely efficient and Ingemar received approval to install their types of pontoons and moorings in a short time. Installation of the modules, four piers placed at right angles to the quay for approximately 500m was completed in August 2016.
The pontoons are in reinforced steel, suitable to the size of the yachts up to 18m in length and considering the strong winds which are common in this area.

### Mitan Marina

The discontinuous floating pontoons in steel, concrete and tropical wood seem to be the winning solution in this very stormy area of the upper Gulf of Quarnaro. As part of a program to adapt to the new functional requirements of the marina, Navicon decided to entrust Ingemar with the supply of the new floating structures: floating pontoons and fingers along the quay were part of the first step, to be followed by restyling and upgrading of the other existing structures.

## PORTOROZ - SLOVENIA

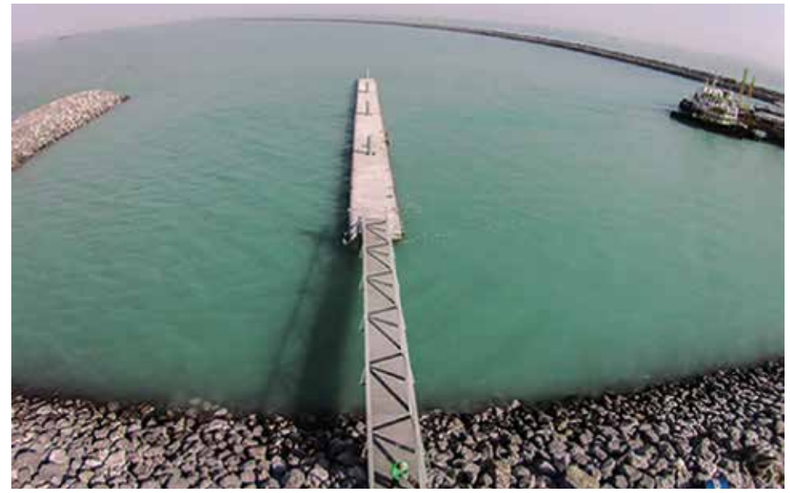
### A new municipal landing in the Gulf of Trieste

The small stretch of Slovenian coast between Italy and Croatia is a destination for many yachtsmen, especially foreigners, because of its easy road connections with the countries of Central Europe and development of quality tourism along the coast. The municipality of Piran, where the large tourist port of Portorož is situated, decided to increase the number of berths in the port. New landings on floating structures were added, located at the entrance of the bay, close to the historical center. On behalf of Adriaing, the contractor for the works, Ingemar supplied a 12x3x1.80m floating barrier of reinforced concrete breakwaters and a series of 12x2.50x1m continuous floatation all-concrete pontoons.

## AL FAW - IRAQ

### A new maritime hub in the Arabic Gulf is under construction

On the estuaries of the Tigris and Euphrates a gigantic port complex is being constructed which will serve as a junction for maritime traffic in the entire Arabic Gulf.
Ingemar was appointed to supply a series of floating pontoons in reinforced concrete of very high displacement to moor service and working vessels.
The modules were designed by and produced in Kuwait under the supervision of Ingemar to be subsequently towed to Iraq. The sections, with dimensions of 20x4x2m, weigh 65t, have an a very high freeboard of 80cm to meet the specific requirements of the vessels which will be accommodated at the moorings.



## SALERNO

### Marina d'Arechi selects Ingemar to complete the port

Work at sea is completed at the tourist Marina D'Arechi - Salerno Sport Village. Begun in July 2010 and inaugurated in June 2012 with the first 480 berths, the marina today has nearly 1,000 berths of between 10 to 100m over a surface area of approximately 340,000m2. This is a futuristic project by the architect, Santiago Calatrava, and the engineer, Guglielmo Migliorino: a harbour off the coast connected to land by an elegant suspension bridge and a marina club in the shape of a yacht. Today the Marina is one of the most important assets in the Mediterranean sea and was awarded the FEE's Blue Flag as well as 5 Helms by the Registro Italiano Navale. Ingemar is especially proud of having contributed to the success of the Marina by installing five floating piers which complete the port's layout. The pontoons forming the piers, 35 elements altogether with dimensions of 12x3m, are of the all-concrete type in reinforced concrete with a displacement of 16t and a freeboard of 60cm, and are anchored by piles. The deck is composed by staves made in WPC (Wood Plastic Composite) in line with the previous installations. Yachts up to 36m now moor along the new piers. By the end of 2016 Ingemar supplied and installed another pier which completed the marina layout. This 100 m pier includes pontoons of the same All Concrete type and is dedicated to superyachts. Marina D'Arechi's president, cav. Agostino Gallozzi, honoured Ingemar with an appreciative testimony of its contribution to the success of the new marina: "*We are truly pleased to vouch for the added value which Ingemar's pontoons have conferred on the Marina's moorings with their quality, stability and comfort.*" A great working experience in a very cooperative environment enriched by the dedication and the enthusiasm of the people involved.

## VENICE

Case study

### A showcase for unique creations

Venice and the Lagoon are the ideal setting for installing special floating structures which can cope with these extreme tidal fluctuations and, because of their modest dimensions and a constant low level surface aspect, they also have a low environmental impact.
The anchorage system of poles, minimising interference with the delicate hydromechnical equilibrium of the Lagoon, has contributed to the continued success of floating structures in many situations.
There are many installations by Ingemar in the Venetian lagoon, both in the tourist harbour sector as well as that of the floating structures for the Venetian water taxis and both tourist as well as working craft.
The efficiency of floating breakwaters in a lagoon characterised by short length and contained wave motion, means that economic barriers can be employed which are both functional and have a low impact.
The practicality of floating crossings and mooring pontoons for motor vessels has convinced the city's administration, as well as both the operators and the consumer, of their validity and encouraged technicians to adopt floating solutions for further innovative structures.
It took time to convince the Venetians and overcome their diffidence when confronted by changes so different from their traditions.
Structures fixed to poles have centuries of history: it took 5 years of activity by Ingemar before the first structure was installed in a shipyard in Mestre in 1984!
In the years that followed these new features have gradually become more common in the services sector, for moorings and special structures. The following is a list of the more important installations: pontoons and floating breakwaters for recreational yachts at Sacca della Misericordia, at Consorzio Cantieristica Minore and at Diporto Velico Veneziano; landings for the Venetian vaporettos at Sant'Elena, Certosa, Tronchetto and Punta Sabbioni; floating pedestrian walkways on the Giudecca canal and the Canal Grande; piers at the Venice passenger terminal for tourists, floating pavilions for the Venice Architecture Biennale and pontoons for the for the Americas Cup and the Italian Coast Guard at Arsenale; bespoke pontoons for the Hospital entrance, for depot of the vessels which collect the city's rubbish, for access to hotels and residences and for the refuge port of MOSE (the Venice flood barrier project); at the floating port of Tronchetto with approximately 900m of pontoons, piers and a floating bridge for an ad hoc project for 250 working vessels.
New tourist harbours in the Venetian lagoon have also installed Ingemar's elements: Marina di Portegrandi, the harbour at the Parco Archeologico e Naturalistico in the north lagoon, with 300 berths from 8-18m, the marina of Vento di Venezia, created to salvage an abandoned area on the island of La Certosa with 320 berths up to 35m, Marina St. Elena, which can be reached on foot from Piazza S. Marco, with 150 berths up to 40m and an entire floating harbour at Marina Fiorita at Treporti with 130 berths up to 22m.
So as can be seen the Venetian Lagoon is splendid testimony to Ingemar's ability to construct over water and not only for the yachting sector.
Over the last three years the difficult economic situation, especially within the yachting sector, has prompted greater prudence in the private investment sector. However, the energetic marina of Vento di Venezia has countered this trend.
Created in 2003, this marina was responsible for the reevalution of the island of La Certosa which is one of the Lagoons' most evocative sites and close to the vaporetto stop at Piazza San Marco.
The number of berths has increased over time with new mooring structures which have grown in parallel with its receptive capacity, services, dockyard and hangars.
In 2014 new important projects were implemented: a barrier using high displacement breakwater elements, 4m widths and 20m lengths weighing 70t, ensure protection for the new pontoons and fingers from wave motion making this a true floating harbour facing Venice.
The new harbour, fully supplied with all services and destined predominantly for Mega Yachts, has 11 new berths up to 35m adding to the existing 300 berths from 10 to 35m.
In the public works' sector there have been numerous important ventures.
At the new headquarters of the ACTV Venezia (Venetian public waterbuses) a floating harbour on Isola del Tronchetto, protected by 600m of floating breakwaters, is nearing completion.
The new modules, 20x3m and 2.05m in height, have a displacement of 55t per element and a freeboard of 75cm: the surface finish is in exposed concrete.
Within the area protected by the breakwaters a series of pontoons and floating piers ensure moorings for the water taxis and the public transport vessels.
All floating elements are anchored to the seabed by steel piles. Two projects to modernise the Venetian public transport moorings at the airport harbour have been completed. Firstly a series of floating fingers were installed to be used by passengers of the water taxis, and secondly a number of ad hoc platforms and pontoons for the use of the vaporetti. The platforms follow a complicated layout according to their functions and the canopy systems.
All the structures have extremely high performance characteristics and finishings according to their specific use and surrounding environment.
Ingemar has also constructed many new special landings for tourist vessels and tourists visiting the Lagoon.





Case study








## MONFALCONE (GO)

### Canale Liesert: ad hoc layout for the Cantiere Alto Adriatico 1977

Cantiere Alto Adriatico is the last installation carried out by Ingemar in the Canale Liesert at Monfalcone near Gorizia. This is the basin for a shipyard which specialises in boat restoration and construction and boasts a patented technology for building hulls in wood.
A change in management at the Cantiere meant further effort on our part and necessitated a complete review of the original project (modifying the layout) notwithstanding having already produced a large part of the contract.
The results however are exemplary: 72m of floating pontoons parallel to the quai and anchored with vertical beams (partly constructed with slim size pontoons), with two 40m perpendicular floating pontoons of our reinforced tall series and anchored by piles up to 20m long.

### Panzano basin: variety of structures for Lega Navale Monfalcone and Circolo Canottieri Timavo

In the first half of 2018, Ingemar completed two major projects with important enlargements of boat landings for Circolo Canottieri Timavo and Lega Navale di Monfalcone: two historical customers of Ingemar, concession neighbors with the management determined to benefit from the Municipal Plan of Territory which provided for the possibility of extension of the concessions. Ingemar's assistance on these new projects began more than 4 years before and the initial lay-outs have been refined over time in search of the right balance between maximising the use of available water space, specific needs of the association members and identification of Ingemar products most suitable for the purpose. In the end, the flexibility of the Group's intervention once again made the difference and, given the variety of elements supplied, the new landings resemble an open-air showroom of the most current Ingemar production.

## LUKA VOLME - CROATIA

### A floanting marina in the bay of Banjole

Istria, with its natural beauty combined with a rich history and splendid architecture, has become a popular destination for yachtowners in the upper Adriatic. Amongst the many destinations for yachting tourists the small marina of Mr. Branimir Mezulich, Luka Volme d.o.o., is especially favoured for its beautiful surroundings, peace and tranquility of the moorings and the welcoming assistance of the marina's personnel.
Ingemar is particularly pleased to have contributed to the success of this initiative.

## TIVAT - MONTENEGRO

### The "Monte Carlo of the Adriatic" expands - a popular destination for the elite

Porto Montenegro, overlooking the spectacular Bay of Kotor, Unesco World Heritage site, was inaugurated in 2009 and has since grown at a steady pace with a series of new interventions intended for the completion of residences and the opening of the large hotel Regent Porto Montenegro. The marina was almost doubled with the extension of the main pier, the construction of a new fixed pier arm and the installation of new pontoons and floating breakwaters. Ingemar continues to be the trusted partner of investors and completed the previous installations, on behalf of the Montenegrin company Yu Briv, main contractor of all the interventions in Phase 2, with about 600 meters of new steel piers with concrete floats with width 2.50, 3 and 4 meters to accommodate large yachts up to 25m. New floating breakwaters, on the other hand, were provided directly to Adriatic Marinas doo. With these latest supplies, Ingemar range of products and technical solutions is complete in the splendid showcase of this amazing project of residential development and the port. The marina is largely protected by floating breakwaters, the boats are moored at floating pontoons and piers of different sizes and functions, the quays are surrounded by floating and fixed structures made to measure, the berths are served by service bollards, fire terminals and pump out systems for waste waters. Ingemar is proud that this marina, equipped with its floating structures and "made in Italy" service networks, has been awarded with the 5 Golden Anchors by the Yacht Harbor Association (TYHA) and received the title of "Super Yacht Marina of the Year 2015".

## LOCARNO - SWITZERLAND

### Floating breakwaters and new pontoons for Cantiere Nautico Di Domenico

Locarno, on the Swiss side of the upper Lake Maggiore, is a lively town loved by tourists and boat enthusiasts. In 2017 the historic Di Domenico yard decided to completely restructure its old harbor, exposed to the short and steep waves that are formed by the wind from the North.
The experience and the precious collaboration of the technicians of the shipyard allowed Ingemar to supply a series of floating breakwaters and piers anchored with large piles fixed to the lake bed, that have fully satisfied the customer's expectations.

## SAUDI ARABIA

### Newly tailored landings for the Saudi sea borders

We are still working on the coast of Arabia on behalf of the Saudi Government: a task of great prestige and responsibility. We have built numerous new sea landings, having explored the 2,640 kilometers of coasts of the Red Sea and the Gulf to check the conditions of use of each project site in order to settle on the most suitable technical solution for each of them.
After the success of the first series of installations for boats up to 12 m long, Ingemar was charged with the task of designing and supplying new moorings for larger vessels, with fingers able to accommodate boats up to 16 m length. Diverse site conditions encountered (cliffs, beaches, reinforced concrete quays, islands not accessible with standard lifting machinery) required the use of different solutions with regard to the installation method, adapted each time to the specific site conditions.
Piles fixed in seabed and sliding pile guide devices, vertical beams fixed to the quays or connecting horizontal rods anchored to the reinforced concrete plinths placed on the shore, represent the range of different anchoring solutions, designed ad hoc for each installation, which allow to adapt a single landing to the features of the installation site.
The structures are made of aluminum alloy for marine use or in galvanized and painted steel, depending on the size of the boats and the local marine weather conditions. Similarly, the type of floating units, in concrete or in rotational polyethylene with expanded polystyrene core, varies according to the specific conditions of use.
The most important common characteristics of all the installation are the high endurance of the structures intended for "heavy duty" applications in areas that are not perfectly protected, and by the modularity of the lay-outs that allow for potential expansions, modifications or changes of the installation sites, possible even at an advanced stage of the project, in order to respond promptly to the customer requirements. The landing facilities, designed to be easily transported in containers, were built in Italy, in the Casale sul Sile factory, on the express wish of the client: a further signal of appreciation of the quality of the "Made in Italy" Ingemar products and tribute to the design skills and general contractor capability of Ingemar on the difficult but promising Saudi market.
Starting from 2016, for the first time in Saudi Arabia, some installations subject to significant wave motion are protected by floating breakwaters, consisting of large monolithic elements in reinforced concrete with dimensions of 20x4x2m and 68t displacement. The breakwaters were made in Italy, transported by ship to the port of Jeddah for installations on the shores of the Red Sea and that of Dammam for the installations in the waters of the Gulf and eventually by truck to the installation sites.
This exciting experience, which sees us supporting our client as true technical partners, continues, is rewarding us for the Group technical and operational abilities but also for the great passion with which we have faced new challenges and responsibilities.

## PROTECTED AREAS

### Building on the water with respect for the environment

On the mainland the lakes, rivers and lagoons are natural environments, rich in resources for tourism, sport and recreation. However, they are often very precious contexts from a naturalistic point of view that require non-invasive interventions in harmony with the surrounding territory. The floating structures, light and almost transparent on the water, made of natural, inert and recyclable materials, ensure minimum impact on the territory and are the best solution for environmentally friendly installations. The floating paths on the lakes of Resia and Revine, the mooring points on the Cavanella canal in Caorle and the shore dock in the Venice Arsenal are examples of our latest projects in these delicate natural areas.




## PARATICO - LAGO D'ISEO

### A small floating marina for Cantiere Bertelli

This was a made to measure project using breakwaters, pontoons, and service platforms for the historic Cantiere Bertelli at Paratico which over the years has integrated their original activities as boatbuilders with storage hangars, with a small but excellent harbour on Lago d'Iseo. A large covered showroom and a modern restaurant complete the services of this yachting marina which has become a popular destination for both the local and international sailing community.

## S. GIORGIO DI NOGARO (UD)

### Reorganisation of the mooring at the Circolo Nautico Laguna San Giorgio

It is infrequent for amateur sailing clubs, which for years have existed using dysfunctional homemade moorings, to decide to rearrange their moorings and turn to the experience of Ingemar. Nor is it often that suppliers with whom we frequently work, such as Opemar, will take the helm of a commission and Ingemar instead becomes their supplier!
At the end of 2014, to create moorings for 120 yachts from 6-10m in the lagoon between Marano and Grado, two landings were installed which from above seem like 2 large letter Hs, both characterised by a narrow pontoon (160cm) so as to minimise any obstruction. Both landings are composed of a fixed pontoon parallel to the quay supported by steel piles, a central floating arm perpendicular to the pier and a floating pontoon forming a T-shape. The landings are completed with mooring fingers of 6-8m.


## INGEMAR PRODUCTION PLANT

### Ingemar's plant at Casale sul Sile expands production facilities for large reinforced concrete elements

Since 2003 the Ingemar group's production has been concentrated at its factory at Casale sul Sile, halfway between Treviso and Venice, whereas the offices in Milan continue as the administrative and financial centre. The production site, owned by Ingemar T&S, comprises a surface area of 2,000 sqm of offices and plant and a further 5,000 sqm for the loading, moving and storage of materials as well as the construction of prefabricated elements within dedicated retractable warehouses.
Growing demand for pontoons and floating breakwaters in reinforced concrete, combined with tight schedules for completing projects, has led to increasing the range of production facilities and equipment dedicated to these huge elements.
Parallel to production equipment for the fabrication of the pontoons up to 12x3x1,20m, a new prefabricated depot has been installed housing a large modular mould for the production of breakwaters 20x4x2,40m and wider. Furthermore, two additional formworks for pontoons up to 12x3x1.6 m have been installed inside the factory.
A new construction crane covers almost the entire casting yard area so as to move materials on stock and to facilitate the preparation of castings. This was an important investment for the company, driven not only by the consideration that there is a growth in demand for these huge modules, but also by the conviction that only within a specially equipped area using a specialist workforce supervised by technical personnel it is possible to assure quality and the highest standards that are essential for the production of these large and complex structures.




## EVENTS ON THE WATER

### Ingemar's pontoons boost nautical shows, sport events and yacht races

After the years of decline in the yachting industry there is a great desire for recovery and many signs of improvement and Ingemar, as a technical sponsor, provided valuable support for organizers of the most diverse initiatives. The adaptability and strength of Ingemar floating modules made it possible to optimize the layout of the water exhibition areas of Genoa and Venice boat shows and the mooring structures of important sailing regattas, such as the TAN Trophy of the Livorno Naval Academy, some stages of the Louis Vuitton Cup and the The Gargano Regatta. In recent years numerous additional events were added, such as the provisional installations for Blu Roma at the port of Ostia, for the vintage boats rallies organised by Riva shipyard in Sarnico and in Venice, for the world championship of Canoa and Paracanoa on Idroscalo in Milano, for the Primavela cup and the National Youth Championships in 2016 in Trieste. In 2017, new sponsorships were added: for the challenges of the Venice Laser Cup and the International Optimist Class Team Race, those of the European Minialtura Championship and the Offshore World Championship of Motonautica di Chioggia. Ingemar floating structures were even chosen to provide mooring to the megayachts on display during the celebrations for the 50 years anniversary of the Ferretti Yachts Group in Venice.