

RESINEX *news*

#14 2008/2009

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Deeper and deeper

Our buoys can reach up to 11000 metres under water (pages 4 and 5)



Extremely safe mooring

The big yachts prefer Resinex (page 8)

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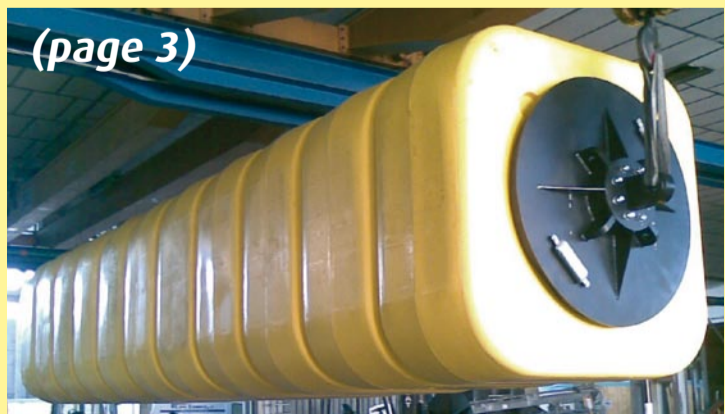
Supergiant



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New maxi modular buoys for the offshore oil fields

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- YOU CAN FIND US AT:



OMC 2009
Ravenna
Stand C10 Hall B

25 - 27 March 2009



OTC
Houston
Stand 3101

4 - 7 May 2009



Oceanology
London - Stand E550
9 - 11 March 2010

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Catamarans, the ultimate mooring

The innovative giants



On the May 30 2008 the largest floating offshore structure in the Mediterranean was positioned 12 nautical miles off the Ravenna coast in 25-metre depth water in order to test “bollard pull”. The zone basically is a special area equipped for the testing of power and efficiency of tugboats, whose pulling capacity can be verified and certified.

It was in this innovative offshore field, deployed by Lucatelli company in Trieste on behalf of the Ravenna Port Authority, that the largest plastic mooring buoy in the world was placed. It is a 20-ton maxi Resinex float with 58 ton of net buoyancy and measures 6 metres in width by 3,5 metres in height. The jumbo buoy is a Catamaran Resinex type, it was especially projected by our technical department in order to minimize the oscillations in relation to the behaviour of the tugboats.

The floatability and unsinkability are guaranteed by 24 plastic modules which are inserted in a steel structure which also hosts the balancing bollard pull levers. The buoy is equipped with a Marimatech 250-ton quick release hook. The big Catamaran buoy is visible both day and night thanks to a Pharos Marine, marine lantern and a ATONIS T3000 transponder.



Final assembly onshore, final details on board and the load test of the Ravenna's giant.



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Resinex is the world leader in the field of giant buoys, able to reach very high levels of buoyancy and to satisfy the widest range of demands required by the marine industry both for the mooring and support of ships. The customer satisfaction throughout the world is confirmed by our products success.

In the last year, our company projected and built many of these giants with capacity to face the most adverse meteo-marine conditions without any difficulty.

Eight giants 4,3 Mt diameter Resinex catamaran model Pem 43 double buoy, with a net buoyancy of over 24 tons and with a weight of 8,3 tons were installed in Cameroon at the port city of Limbe, in the gulf of Guinea. The Resinex buoys will be used in the mooring system at the Sonara terminal, the national refining company of Cameroon, owned partly by the state and partly by TotalFinaElf, Mobil and Exxon.

In Albania, for the new combined cycle power plant (100 MW) of Vlore, Resinex has supplied others five Pem 43 catamaran simple buoys with 4,3 Mt diameter and a net buoyancy of 11 tons. The Resinex giants come used in the offshore marine terminal tanker mooring system.

Below: pictures regarding the assembling of the eight catamaran buoys in Cameroon.

They have a diameter of 4.3 metres, a height of 2.2 metres.

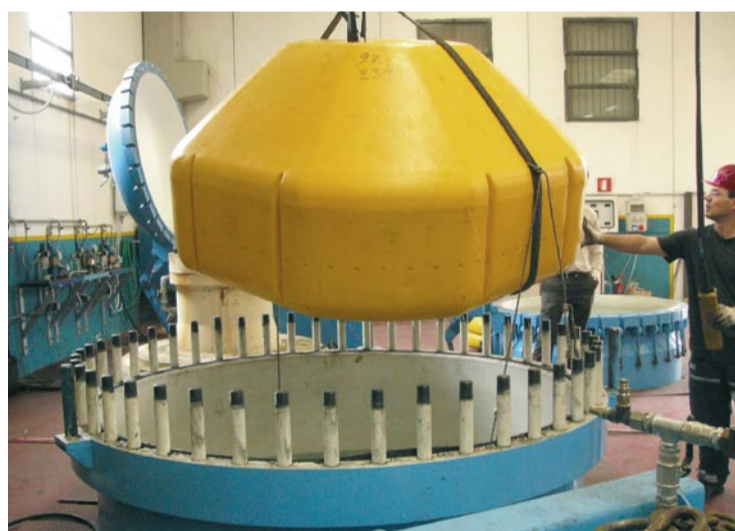
Net buoyancy of 24.250 kilos.

The safe working load of the quick release hook is 95 tons.

Maxi modular buoys for the offshore oil fields



Above: assembling tests and final checks for the modular buoy: it is 12 metres long. Below: a module after the test pressure in the autoclave.



Nine Resinex big floating systems for the support of hoses and cables, are destined to be installed in the offshore field BC-10 of Shell in Brazil, off the Brazilian coasts of the Espirito Santo State. These big buoys were supplied by our company to the international group SBM Offshore, specialist in plants for the open sea oil industry.

They are nine modular systems, each of them is composed of 11 floats, linked together, which form a unique buoy which is 12 metres long. Each side measures 2,25 metres.

They will be used to work in surface and every buoy is able

to generate a nett buoyancy of 45 tons.

The modularity of this floating system, allow to project it "ad hoc" according to the specific needs of each client and it makes the transportation easier and less expensive.

The BC-10 Shell field, is located in the Campos field, 120 kilometres South-East Vitoria in deep water between 1500 and 2000 metres, where the FPSO (Floating Production Storage and Offloading) "Espirito Santo" of SBM is operative. It is a vessel of 270.000 tons of tonnage, it can stow 2 millions of crude oil barrels and it can work up to 1.780 metres of depth.

It has been calculated that in a full running, the BC-10 Shell field will be able to produce 100.000 oil barrels a day.

Shell has 50% of the investment and it is an operative partner also on behalf of Petrobras (35%) and of ONGC (15%).



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Safety high buoyancy

Reliability and quality from Gulf of Mexico to Brazil



Up: Resinex synt buoys NB 2.1 tons in operation underwater. Left: the installation of the SBM support buoys in the Frade field (Brazil).

The attention and the care which Resinex reserves in the research of new materials is repaid by the trust of the most attentive clients, who require maximum safety and high quality.

In autumn 2008 the group SBM, working as suppliers to the offshore oil and gas industry on a global basis, has purchased some Resinex support buoys to use them in water depth in Brazil during its activities of cable positioning for the Chevron's Frade field offshore production project, involving heavy oil and located in the Campos basin. Budgeted at US \$ 2.6 billion, the Frade development project includes 19 wells and will be exploited through an SBM FPSO (Floating Production, Storage and Offloading vessel). The final connection of a well to the FPSO will take place in 2011, when Chevron expects to

reach the field's production peak of 80,000 barrels/day.

The eighteen deep water floats which Resinex supplied to SBM have the following dimensions 210x120x210 centimetres, weigh 2900 kilos and are able to reach a nett buoyancy of 2100 kilos.

They are rotationally moulded in linear polyethylene and they are filled with a special syntactic material, which has been mixed and tested in the Resinex laboratories and they can withstand pressures up to 2000 water depth.

The six spring buoys Resinex for the mooring system, delivered to Helix Energy Solutions in October 2008, were tested for a water depth of 300 metres. Helix is the group of Houston which performs pipelay and subsea construction operations in deepwater oil and gas fields worldwide.

Helix operates the Gulf of Mexico's first dynamically-positioned floating production vessel, Helix Producer I, set to start production on Helix's Phoenix field.

The six support buoys, chosen for the anchoring system of the Phoenix plant, are type Resinex PEM 21, each of them is composed of two modules. The modules are rotationally moulded, in linear polyethylene, of troncoconical shape, with a diameter of 210 cm and 140 cm in height.

Each buoy weighs 2800 kilos and has a nett buoyancy of 3800 kilos.

The modules have been filled with a special syntactic compound and tested in the six autoclaves of the Resinex Marine Research Centre, which are able to run pressure resistance tests up to 850 bars, the equivalent of 8500 metres depth under sea level.

The new ultra deep plant

Marine technology



The oil research and the scientific experimentation drive their proper sounding lines where the pressure reaches 1100 atmospheres, that is more than a thousand times the earthly surface pressure. And Resinex Research conforms itself: our company has made another important investment in this strategic field.

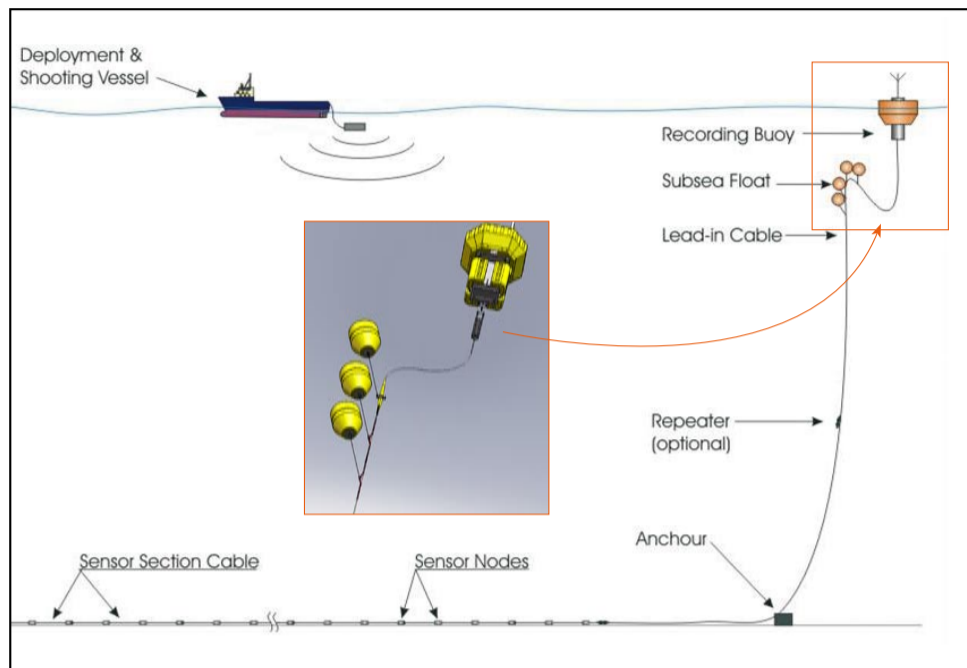
Thanks to the new plant inaugurated some weeks ago in Capriolo (Brescia), which has a constant and monitored temperature, Resinex is able to manufacture buoys which are able to support pressures up to 1100 bar.

The new premise, with laboratories which have a surface of 800 square metre, thanks to the usage of the innovative syntactic materials, experimented at the Resinex Marine Research Centre, will be able to satisfy the growing demand of special products coming from our customers.

The high level of Resinex is guaranteed by the Quality Control department, which verifies that the process of manufacturing complies with the procedures certified by Lloyd's Register ISO 9001.

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at 2000 meter depth



Above: working scheme of the RXT sensor system for the sea bed detections.
Right: the installation of the Resinex buoys.

Reservoir Exploration Technology (RXT) is a Norwegian company extremely specialized, with branches all over the world.

They deal with geo-physical relief and with the acquisition of data about the sea bed for the various usages, from the checking of the sounding depths, to the positioning of cables and hoses, to the detections for the oil industry. RXT, puts on the sea bed the sensors, arranging a series of special cables which communicate with the signals emitted by the support vessel and send the data to a surface buoy which records them. The sensors grant a precise and detailed analysis of the ground.

Also RXT has discovered the reliability of Resinex deep water floats. They ordered 40 pieces to use them for different seismic detections which they have to make up to 1000 metres water depth for the oil reconnaissance. Resinex floats are used at about 300 metres under sea level to support the weight of the cables, full of sensors positioned at the bottom. The operations will take place in Nigeria, in the Gulf of Mexico, in Brazil and in the Caspian Sea.

40 buoys for sea mapping



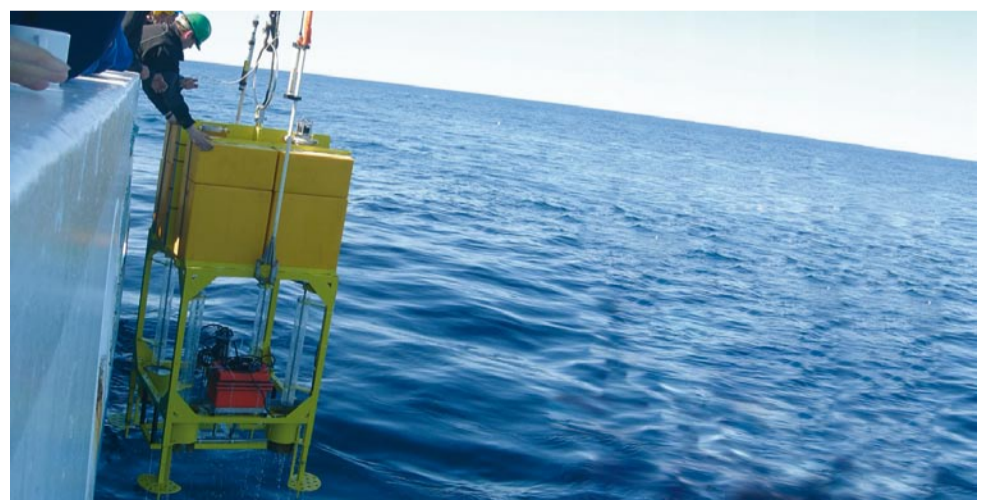
Scientific tests up to 11000 metres



At the moment (as the pictures of Soren Rysgaards, Thomas Juhl Petersen & Ronnie N. Glud show) Resinex floats have been tested at a water depth of a

little more than 600 metres under the sea level, in the gelid waters of South-Eastern Greenland. In 2009 they will reach up to 9.000 metres and further on up to 11.000

University of Copenhagen



metres, in the Marianne's deep. It is a studying project of the sea water depths of the Scottish Association for Marine Science (SAMS) with the University of Copenhagen and

which utilizes the most advanced Resinex deep water floats as support to their delicate sensors which must withstand pressures which are higher than 1000 atmospheres.

Stromboli, under the volcano



The beacon is equipped with many monitoring systems powered by solar panels.

The University of Florence Department of Science on behalf of the Italian Civil Protection has positioned off the coast of the island of Stromboli (southern Tyrrhenian sea) a Resinex elastic beacon equipped with a wave metre and hydro-acoustic system.

The aim is to monitor the stability of the submerged

flank of the Stromboli volcano, the famous “Sciara” of fire. In December 2002 a volcanic eruption did in effect produce an instability of the said “Sciara” of fire which, sliding into the sea (about 10 million cubic metres), created a tsunami wave which invested the southern Tyrrhenian sea causing substantial damage to all the Eolie islands as well as along the Calabrian and Sicilian coastlines.

Thanks to a sinker of about 15 tons, connected by means of an anti-torsion cable, the beacon is anchored some 200 metres off the coast to a depth of 43-metres.

The set of instruments mounted on the Resinex beacon is made up of a large band hydrostatic pressure sensor, a water temperature sensor, a hydro-acoustic sensor (positioned at a 14-metre depth), two tiltmetres and a Gps (on the tower).

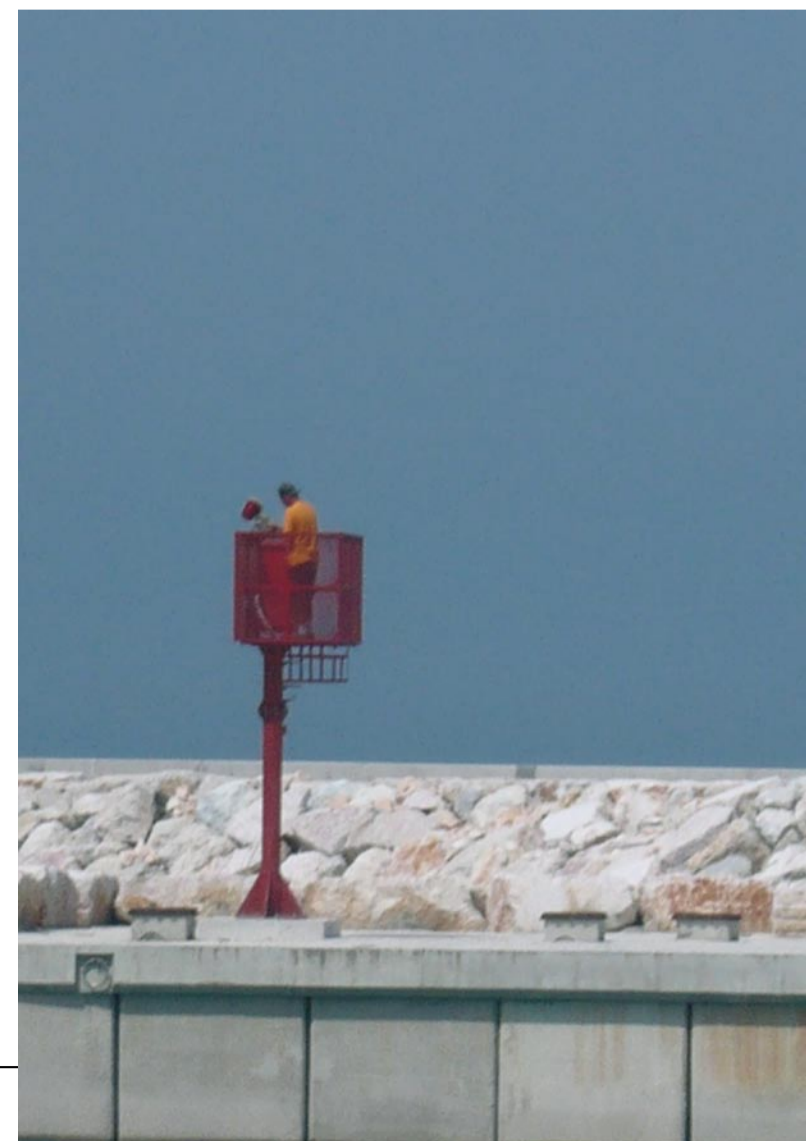
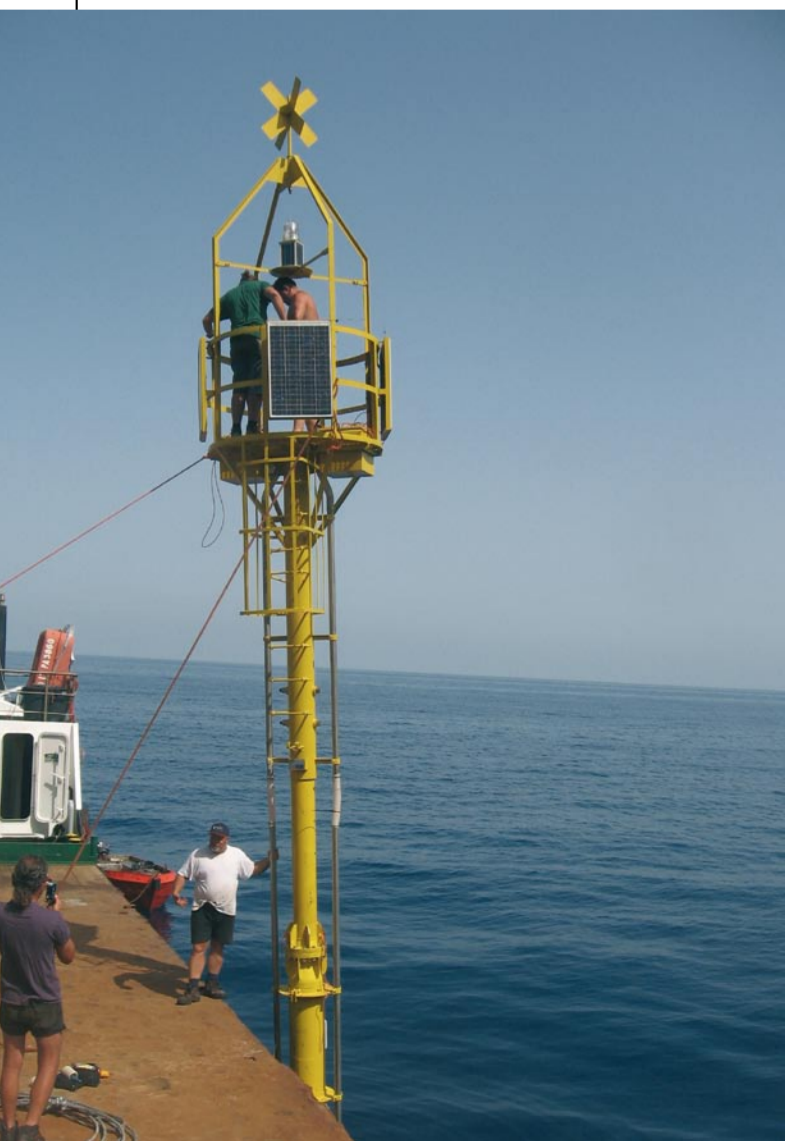
The beacon is therefore able to provide immediately variables of hydrostatic pressure and consent the complete monitoring of marine fluctuations. The hydrophone, positioned at a 14-metre depth, is used to register any possible hydro-acoustic waves resulting from the underwater sliding of the volcano and which propagates in the water at speeds of 1,500 metres per second. The Gps receiver ensures the correct temporal synchronization of all data on board and monitors the geographical position.

All the equipment on board is monitored by an electronic control system totally developed by the National Institute of Applied Optics of Florence in collaboration with Bioage S.r.l.

The signals transmitted by the beacon also contain a series of diagnostic parameters which

enable the immediate and continuous monitoring of the on board instrumentation and timely maintenance procedures.

The entire monitoring system is powered by three solar panels but has the capacity to operate autonomously for long periods (about 6 months) without the aid of the panels.





Special beacon for Swedish ice

Projected for the Arctic sea

In order to resist the extreme temperatures of the bitter Arctic winter, an experimental Resinex elastic beacon, purposely designed, was installed by our company in July 2008 to a 11-metre depth three miles off the port of Västervik, about 200 kilometres south of Stockholm in Sweden.

The beacon in question is a light elastic beacon, without a tower, which supports a marine lantern with a focal plane of six metres, visible for three miles, and four yellow reflector panels. The anchorage is guaranteed by a steel plate (made by Resinex) firmly fixed to the rocky sea bed. The lantern has the task to signal hazardous rock outbreaks at the mouth of the port of Västervik which could constitute a danger for craft entering or leaving the port.

In answer to a specific client request, the Swedish Maritime Administration, Resinex projected a beacon to meet such a requirement which would be able to withstand the extreme gelid winter sea climate where ice-packs of a two meter depth form.

After forming, these masses of ice are at the mercy of the marine

currents and so move, taking with them all that has been entrapped within their midst. The Swedish Maritime Administration has lost a number of buoys in the area which have been ripped from their moorings and damaged in their structure. In order to resolve this problem, the Resinex Technical Division designed and created an innovative beacon; the lower part of the said beacon is an extremely strong tubular structure with a float which remains completely underwater. It is connected to an upper steel pole (where the lantern is positioned) by a special flange which can withstand normal marine conditions (wind, wave, current etc...) but will break away when subjected to the force of the ice.

The upper part is fastened to the lower part by a steel cable which is inside the beacon and during spring permits the recovery of the detached pole. With this particular and innovative application the lower part of the beacon which is anchored, including the float, remains undamaged, while at the same time the upper part can be easily reassembled by replacing only six bolts.



Above: the Resinex special elastic beacon during the assemble in Västervik port. Below: the installed elastic beacon near the rock outbreaks.



Write us: marketing@resinextrad.com

Nav-aids set

In June 2008 Resinex carried out the supply and servicing of the marine signals in order to guarantee the safety of the new port in Senigallia in the province of Ancona (Central Italy).

The port has over 300 boat-berths of which thirty are reserved for transit vessels. The port itself contains internal marinas and is placed at the estuary of the river Misa.

At the port entrance, two stainless steel land beacons were placed, each being fitted with Pharos Marine lanterns with an eight-nautical-mile range as well as automated directional fog horns and anti-fog devices which were serviced by our company.

On the outer-port a stainless steel tower was positioned with a fixed red beacon synchronized to be visible at 180°. Another two fixed beacon towers were assembled in order to give a 4-nautical-mile optical vision.

The general positioning of the Senigallia signalling system also brought about the complete revision of the red cast iron land beacons positioned on the wharf south of the port-canal mouth.

Luminous way for Alexandria harbour



Twelve Resinex light buoys with 3 meter diameter float were recently located in the Alexandria port (Egypt) as a replacement of old buoys.



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Even the maxiyachts prefer Resinex



Photos by: Giovanna Cannas.

Sardinia: safe mooring

Resinex buoys are used for the open sea mooring of the biggest oil tankers, as they represent the best quality in the world for the floating and grant the highest safety to the extremely expensive vessels and to their contents, protecting in this way, both the ship-owner investments and the environment.

For different reasons, the same demands of reliability, are required for the mooring of the maxiyachts, real technological jewels of the leisure navigation, sumptuous oasis for a quality tourism which patronize the most charming Italian coasts.

The managers of the mooring fields for the yachts in Sardinia, apply to Resinex in order to give to their proper clients the highest guarantee in terms of quality and safety. The latest supplied buoys, are able to moor leisure boats which are up to 100 metres long.

In Cala di Volpe (Sardinia), on the occasion of the enlargement of the mooring area of the Fox Mooring, five buoys, for example, have been positioned for the mooring of yachts up to 100 metres long and seven

buoys for boats up to 70 metres. These buoys are Resinex PEM 15, they have a diameter of 150 centimetres.

The other 15 buoys (type Resinex E8) have been destined to yachts up to 50 metres long.

Not very far from Cala di Volpe, in the environmental oasis, managed by La Maddalena Marine Park, our company supplied a new series of buoys for the mooring of medium-big leisure boats.

They are 51 floats type Resinex E6 and 13 floats type Resinex E8.

All these floats have been projected to host the system for the safe mooring, technologically patented by MarPark.

In another location, one of the most beautiful places in the North of Sardinia, Porto Rotondo, just outside the port, six new mooring points for maxiyachts have been created. They are two Resinex buoys type PEM 10 (1 metre of diameter, for boats up to 40 metres), two PEM 13 (1,3 metre of diameter for boats up to 50 metres), and two PEM 15 (1,5 metre of diameter for boats up to 70 metres).

Asia, the future



The business relationship between Resinex and the Asian continent started more than 40 years ago and it has been always consistent with numerous supplies of mooring buoys, of marine signalling systems, of huge foam filled fenders, of deep water floats, of elastic beacons, and dredging floats. One the first marine giants, made by our company, for example, was the top model Catamaran buoy type Pem 58x2000, with 5,8 metre of

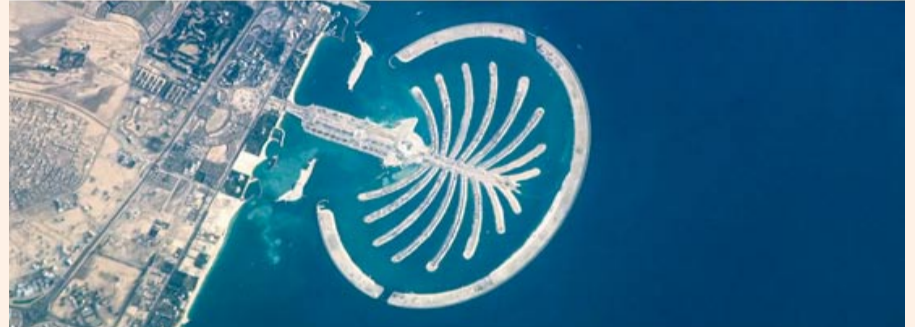
diameter, 40 ton of net buoyancy, 75 ton SWL, the most stable mooring buoy in plastic ever made in the 2005 for the offshore oil market, has been supplied to the Malaysian companies MMHE and MISC, subsidiaries of Petronas.

During the years in Asia we have developed strong relations with many marine operators: Yokohama, Ishikawajima, Bridgestone, Modec, Hamanaka, Maxus, Pertamina, Aramco, KOC, Hyundai, Thai Oil, Indian Oil, Dubai Petroleum, Petron Corp., MISC and various Asian branches of the major marine installators.

Starting exactly from this story and thanks to the quality of Resinex production a growing interest from Asian companies in our products has been developed.

Interest, which has been recently witnessed by numerous visits of delegates to our plants located in North Italy in the province of Brescia and to our stand in the Osea 2008 (photo) at December in Singapore.

Dredging floats in Dubai



Resinex has in the catalogue dozens of models of floats for dredging: 540 dredging floats have been sent to Dubai at the end of 2008.