

RESINEX *news*

#13 2007/2008

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Giants in the sea

**Pressure tests
up to 8,000 metres
in the Resinex
Adro laboratory
(page 2)**

**Turn-key
signalling for
the safety of
the Italian ports
(pages 4-5)**

*From Africa to South America the new Resinex buoys
for huge vessels (page 8)*

Monitoring oceans

**Marine parks:
in search of more
secure and less
aggressive
anchorages**
(pages 6-7)

*Resinex buoys for the monitoring
of earthquakes and tsunami (page 2)*

Oi08
oceanology international

Oceanology
London - Stand 330
11 - 13 March 2008



OTC
Houston
Stand 3301

5 - 8 May 2008



Osea 2008
Singapore

2 - 5 December 2008

**Offshore: the oil giants rely
on Resinex products
(page 3)**

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Worldwide Oceanology

Vigilance against tsunami and earthquakes

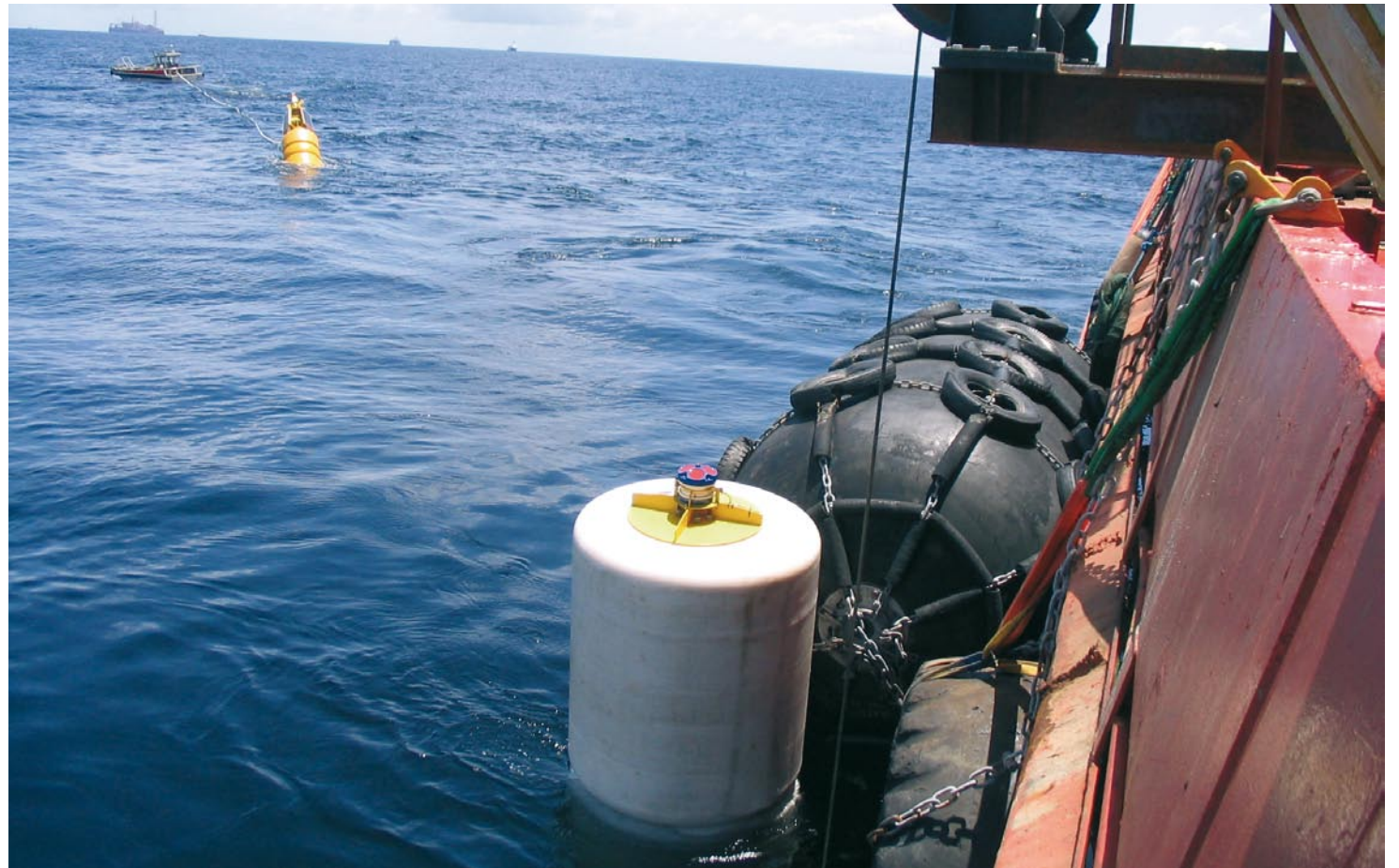
This is the new worldwide level of research and prevention: the scrutiny of the ocean floors in order to keep the marine currents and mega flows of water under constant surveillance and to ensure that telluric subterranean movements do not provoke unexpected and surprise environmental disasters.

The surveillance and study of the sea bed naturally passes through the technology developed by Resinex in almost 50 years of involvement in the field of floatation technology. As a matter of fact, it is the Resinex brand which is on the floating modules of many of the most advanced installations spread around the world in this sector.

In the Mediterranean, it is suffice to remember the Alenia system for the monitoring of the bradyseism of Pozzuoli in the Gulf of Naples, consisting of an elastic beacon supporting sensors able to measure movements of the sea-bed.

Likewise, the elastic beacon supplied by Resinex for a depth of 65 metres and used by the department of Science of the Earth (University of Florence) of the offshore monitoring of the Stromboli Vulcano on the Island of Lipari (Sicily).

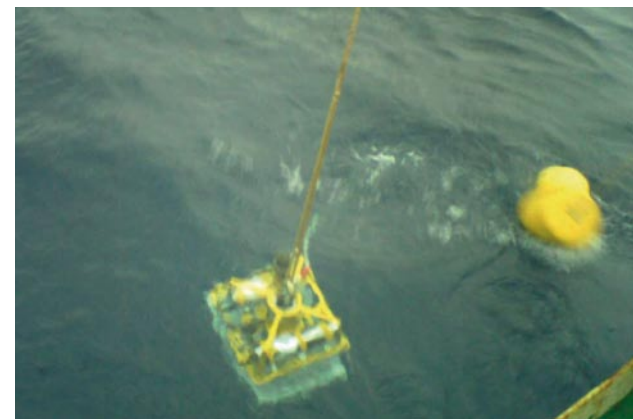
Further a field, in the Gulf of Bengal, Resinex Deep Water Floats are being used by Envirtech in the Poseidon class apparatus finali-



*Above: the positioning of the Id Scope monitoring system equipped with Resinex floats in Angola.
Below: placing in water of the Niot system in the Gulf of Bengal.*

zed by the Indian Oceanographic research institute (Niot). It is a system for the early warning of the Tsunami phenomenon and is positioned at a depth of over 3000 metres from the oceanographic ship, the Sagar Kanya. These stations of the abyss are used for the identification and measuring of the Tsunami in the new Indian Ocean alarm system.

Even huge installations such as the FPSO systems (Floating Production, Storage and Offloading) for deep water oil drilling keep the waves under constant surveillance. Id Scope of the Principate of Monaco is a specialist in marine meteorology and for its monitoring system supplied to the Total offshore fields in Angola and Nigeria requested the safeguard of Resinex floats.



Under from right: another phase in the positioning of the Niot system in the Gulf of Bengal and the elastic beacon activated by Alenia at Pozzuoli (Naples).

Test up to 8000 metres

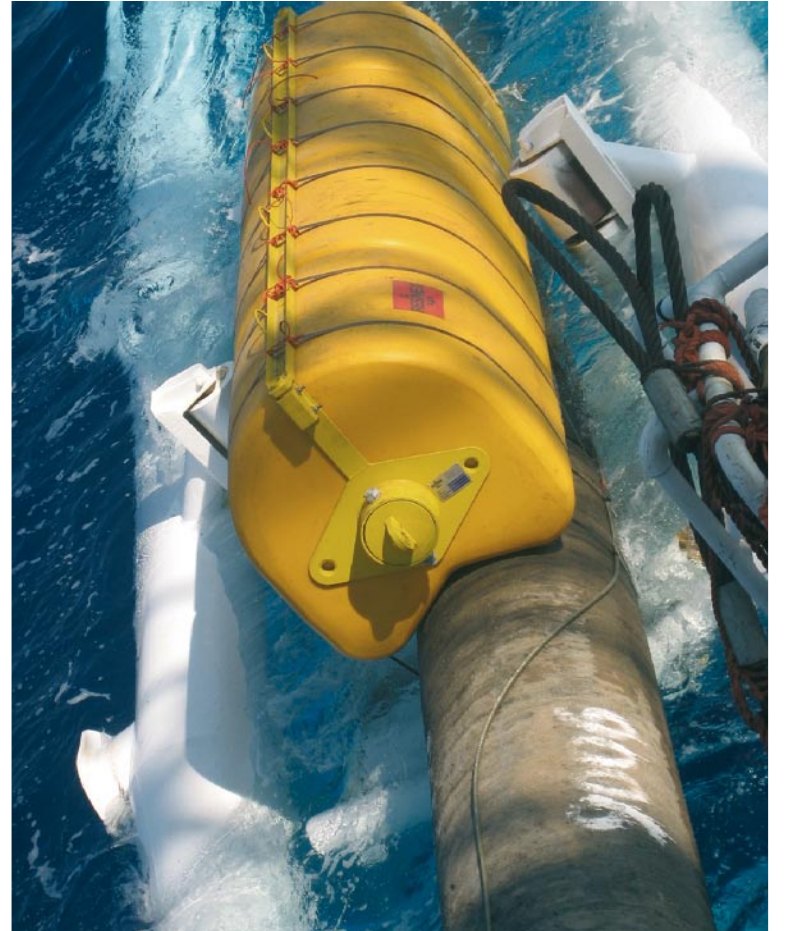
A new piece of equipment has arrived to enrich the already wide range in the Adro Resinex Marine Research Centre laboratory. It is an autoclave which is able to run pressure resistance tests up to 800 bars, the equivalent of 8000 metres depth under sea level (photo underneath). The new autoclave joins the other five already in use at the laboratory.





The offshore oil boom

Resinex is there when mistakes cannot be made



In the deep water offshore oil production fields, floating systems are Resinex. On the right: tie-in-modular floats for the Egyptian Denise (Saipem) project.

In the installations for open sea oil activities and, more in general, for all the installations for the transfer and storage of hydrocarbons, including the various phases of loading and offloading of the tankers, the safety standards must be of the up most and with the highest attention paid to the environment. With this in mind, the floating systems are chosen by the oil companies with the greatest care so as to satisfy the most severe and rigid criteria in order to guarantee the safety of the costly FSO (Floating, Storage and Offloading), FPSO (Floating, Production, Storage and Offloading) and the brand new FDPSO (Floating, Drilling, Production, Storage and Offloading) systems. Among the Resinex customers, they have always naturally been the major companies engaged in the hydrocarbon field.

An important consignment was that made to the Tunisian company Pireco, in which our company delivered the entire maritime signal-

ling system (Pharos Marine) for the El Bibane platform situated off the coast of the state's North African coast. The consignment consisted of five lanterns which show the morse letter "U" (++-) and of a horn which emits the same signal acoustically. This is all controlled by a control panel.

The signalization, light and acoustic, is of a type projected and studied for the use in hazardous areas of hydrocarbon extraction. It is resistant to high temperatures and is completely autonomous both for the main and reserve units and at the same conforming to the Imo norms and Aism-lala recommendations.

Staying in the oil sector, 50 Resinex tie-in floating modules (specifically projected with a cavity for piping support and tested for use at depths of 150 metres) and 40 arrows, for cables were consigned to Saipem for the Denise Egyptian project, where a 32-inches pipe was laid to the platform situated in the

Denise Pliocene gas field, about 60 kilometres off the Egyptian coast at a depth of about 85 metres.

The Sonlis, a logistics company of Sonagol, the Angolan state oil company, and SBM Imodco bought other Resinex support elastic buoys for use in the African plants.

Also the Sonsub Company of the Saipem group, specialized in maritime exploration and owners of ships and ROV (Remotely Operated Vehicles) uses Resinex products as floating systems for the deep water support for the cutting of the pipes without crew (DWCM).

But Resinex not only supplies buoys in plastic: for customers used to more traditional products, we still also manufacture big steel floats such as those which Chevron positioned in its African operations with a net buoyancy of 15 tons.

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From left to right: a big steel pendant buoy for Chevron, the ROV modules for distance cutting of pipes for Sonsub, covering of marine rubber hoses for Manuli.



RESINEX

Safety on the "mot"

Beacons, racons and lanterns.

Cagliari (Sardinia)



Resinex elastic beacons in the canal port of Cagliari.

Malamocco (Venice)



Light buoys in the Malamocco canal.

Anzio (Lazio)



Fixed beacon at the entrance of Anzio Port.

Triest



Port of Triest: maintenance of lantern and Racon at the lighthouse.

Resinex produces and installs safe turn-key systems for the access to ports even for the signalling of shallow water or obstacles to navigation. We also produce fenders of every size to ensure the safe mooring in the dock. Resinex's experience in the ports in all the world is demonstrated by the hundreds of installations carried out over the years. Some recent examples?

At Cagliari, in Summer 2007, five elastic beacons fitted with lights and solar panels are used to signal the navigable entrance canal to the canal port of Cagliari. Three others were supplied in the Autumn of 2005 in order to delineate the safe passage for vessels which pass through the canal.

The Anzio Port Authority has acquired a solid fixed Resinex beacon (green) to be used for the signalling of the port entrance.

In 2007 the signalling (red and green) used to mark the entrance to the port canal of Cervia renewed. Not only was the maintenance of the two support metallic land beacons carried out and also the activation of new FA-250 marine lanterns, but also the installation of a brand new directional sound signal type (ELG 300-02), with an automatic fog detector (FD-300) and a CG 1000 inverter power supply unit. (All Pharos Marine equipment).

Four 2.5 metre diameter light buoys with a 4 metre focal plane were installed in the outer port of Ravenna in November 2007. They were fitted



Resinex land beacons for the Cervia (Rimini Riviera) canal port. Fog Detector and F



“Corways of the sea”

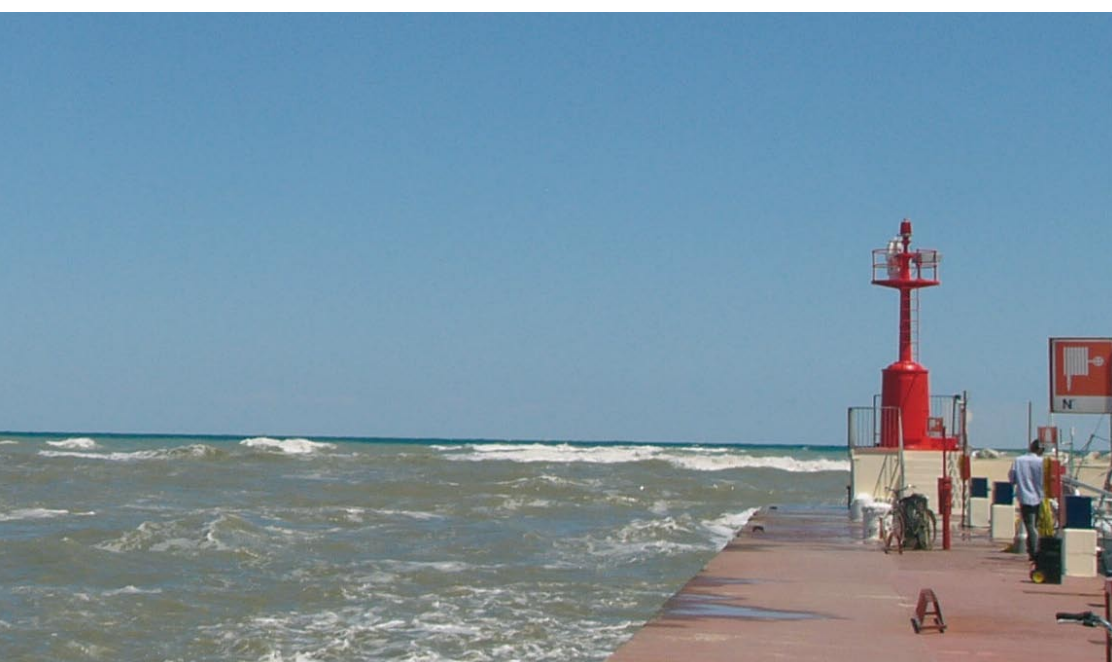
Beacons: the real aids to navigation

with led lights which require little maintenance. Three new land beacons were positioned by Resinex on the wharf in the port of Portoferraio on the island of Elba where vessels can dock on both sides. They are fitted with fixed coupled vertical led red/green lights with a tampon battery so as to nullify any power failure from the fixed electricity grid. Still, in the ports of Piombino and Portoferraio, Resinex giant fenders can be found to ensure the safe berthing of vessels.

In Venice, the presence of Resinex is fundamental for safe navigation in the lagoon: the most recent operation, in 2007, was the supply of new signalling buoys on the island of Mezzo as part of the MOSE project at the entrance mouth to the Lido port and to make the canal navigable: giant 2.5 diametre Resinex floating buoys were installed with lights and solar panels.

Slightly further to the North, at the entrance to the port of Malamocco, other light buoys can be found (always 2.5 in diametre) which are being used to signal the consolidation work way in the basin at the entrance of the navigable canal.

All our catalogues in
www.resinextrad.com



Fog Horn for the safety of navigation.

Ravenna



Installation of large light buoys in the Ravenna outer port.

Piombino (Tuscany)



Resinex jumbo fenders at Piombino (Tuscany).

Genoa Nervi



Genoa Nervi: Land beacons at Genoa Nervi industrial port.

Portoferraio (Elba Island)



Coupled red-green land beacons at Portoferraio (Elba Island).

RESINEX

Hidden anchorages for environmental moorings

Resinex first convention on eco-compatible systems

The Divemex plug

The double expansion Divemex plug was protected to obtain anchorage on a rocky bed and to satisfy three conditions: low environmental impact, safety and reduced installation and running costs.

It is made of stainless steel AISI 416: the head of the plug is substitutable according to its use. The eyeball is in standard galvanized steel that can be replaced with a coupling in stainless steel, or with a plate for bed anchorage in galvanized steel, with an eyeball in stainless steel. In respect to the concrete sinker, the Divemex plug has the advantage of being able to be positioned on the sea bed thereby obtaining a more stable anchorage and at the same time occupying less space.



The Manta Ray anchorage

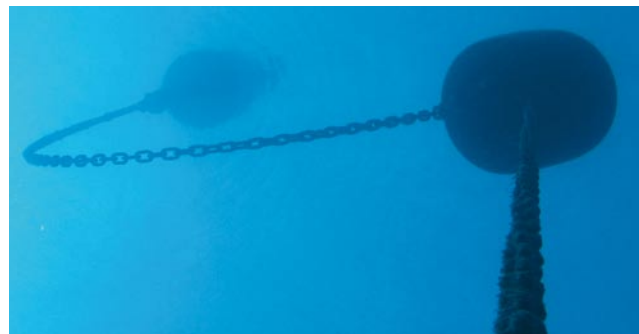
The Manta Ray System was created by the United States Navy with name "Pile Driven Plate Anchors" (PDPA), but after the expiry of the patent the Foresight Products company of Denver, present producer, changed the name to Manta Ray.

The Manta Ray anchor can come in various sizes to offer the best choice in relation to the sea bed it has to work on and to the traction it has to undergo. All are equipped with a cross cusp with a counter-sunk terminal and lateral wings to facilitate penetration into the ground.

In the rear part there is a cylindrical housing to accommodate the guiding utensil of the percussion hammer and to follow the direction of fixing. The Manta Ray anchorage is irremovable and in no event, when positioned correctly, can it plough the bed.



With regards to the problem of the eco-compatible anchorage, which has become central to the management evolution of marine parks and in order to make all the protected areas places of enjoyment and safe to the public with the adequate controls and vigilance, Resinex titled a convention "the phantom anchor: eco-compatible mooring in protected marine areas" which was held Friday 9th November 2007 at Alghero (North Sardinia). It must be remembered that "concrete sinkers" are still often employed in Italy using blocks of concrete of various dimensions placed on the marine bed connected to the buoy by a chain.



Cumbersome, invasive and, at times, devastating for the habitat, the use of concrete sinkers is a system to leave behind. Ok, but in what way? The Resinex convention was an opportunity to bring together the experts in the sector. The managers of the protected marine areas, the producers of the most innovative systems of sea-bed anchorage, project technicians, sub aqua divers, entrepreneurs, mooring area managers, buoy producers, such as Resinex, all were impatient to report their personal experiences and divulge the future needs in the light of the various technical problems arising in the field. The attendees agreed on the need of a systematic approach in the preliminary survey of the creation of a mooring area, a survey of the characteristics of any particular place is indispensable: the meteo-marine conditions, the stability, problems related to local flora and fauna, the typology and stratigraphy of the bed (geotechnic survey).

All this information, together with the typology and size of the vessels that would use the mooring area is fundamental for an adequate planning of the installation. An accurate marrying of the diverse technical elements is also indispensable, with a global analysis of the project: eco-compatible anchorage; mooring lines equipped with jumpers, the surface buoys can be the resolution of specific problems linked to the characteristics of a particular place.

The convention organized by Resinex, the first of its kind in Italy, has begun to give an answer to a series of strategic technical needs for the future of eco-tourism.

Anchor screws

These anchors are preferred in environmentally sensitive areas and are recommended by agencies and scuba-divers since these anchors do not drag around the harbour bottoms or the Posidonia grasslands and are easily removed leaving the sea bed unaltered even after long periods of use.

Helix: These US anchors increase their holding in relation with the soil into which they are screwed. These square shaft anchors are installed with the aid of hydraulic devices able to screw the anchor through resisting soils.

Eco Blue 300: this Italian system is made up of a special patented instrument, in stainless steel, that is manually actuated on the bed by only two divers from which there is a ping to fix the desired mooring line.



The MarPark System

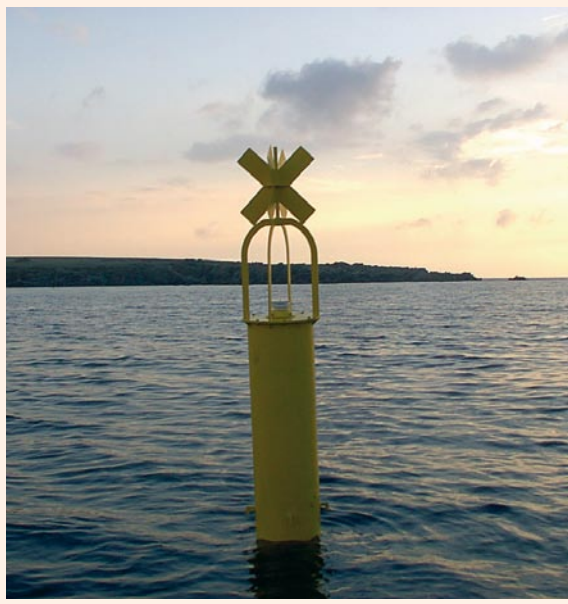
The Mirelli Engineering firm on behalf of Italgest and Safebay has developed mooring with buoys fitted with wireless technology. Through the joint venture of Em Sailing and Sisgen, buoy areas have been created for the mooring of pleasure craft with innovative methodology, but above all with no or next to none environmental impact. Resinex developed and produced, following exclusive technical specifications, the buoys tailored made for the remote controlled direction and management of the buoy areas. After diverse experiments the float-buoy MarPark configuration was reached, chain with jumper and again in depth with Manta Ray or micro pipes.





Ad hoc solutions for marine parks

A spar buoy at Mal di Ventre



North of the island of Mal di Ventre (Western Sardinia), a spar buoy in shallow water.

Only Resinex is a guarantee

The strong demand for eco-compatible tourism, with the inception of the new protected marine areas has found the ideal response for its safety needs in the highly reliable Resinex products.

In collaboration with park managements and local authorities, our company has been the most brisk in the installation of the perimeter buoys for the protected marine areas and for totally safe mooring buoys.

In the area of signalling in the Autumn of 2006, Resinex had already restructured the buoys of zone A of the Sinis protected marine area in Sardinia, around the isle of Mal di Ventre and of Catalano.

North of Mal di Ventre, in shallow depth open to the force of a mistral wind, an innovative signalling spar buoy was installed, projected for just extreme adverse critical meteo-marine conditions.

For the sea periphery of the regional camp of Campi Flegrei, created to protect one of the most important active volcanic areas in Europe at Bacoli in Campania, the authorities had confidence in Resinex floats.

Also the marine reserve of Torre Guaceto (Puglia), which controls six kilometres of coast, has been outlined by Resinex buoys.

Resinex is the most active company in the area of supplying mooring buoys for pleasure craft both marine parks and for coastal areas of the highest environmental prestige. In 2007, among others, the enlargement of a mooring area was made at Asinara in Sardinia. Still in the island, Resinex consigned its large sized buoys to two mooring zones at Cala di Volpe on the Costa Smeralda for the purpose of accommodating large yachts of up to one hundred metres in length.

Big boats at Cala di Volpe (Sardinia)



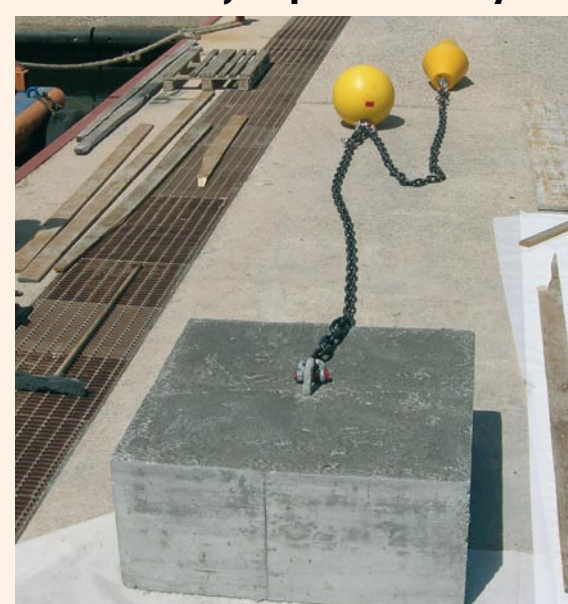
Cala di Volpe: Resinex floats and MarPark system for boats from 25 to 100 metres.

Telecontrol in Sinis (Sardinia)



Demarcation buoy South of Catalano with a distance telecontrol.

Asinara: jumper and buoy



An anchor with a concrete sinker, jumper and buoy, installed in the Asinara park (Sardinia).

Sardinia, special for maxi yachts



Fox Mooring rest area for maxi yachts at Cala di Volpe.



"Rope keeper" at Capraia (Tuscany)



Capraia: Resinex buoys with a special "rope keeper" system (Bollani project).



Great ideas, huge buoys

Innovative catamarans for the safe mooring of maxi-vessels



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

This big buoys are based on a modular system and tailor made for any particular need. This particular modular system can also be transported and positioned at a very low cost. In 2007, our company projected and built these "monsters" with the capacity to face the most adverse meteo-marine conditions without any difficulty.

A giant 4.3 Mt diameter Resinex catamaran model Pem 43 buoy, with a net buoyancy of over 20 tons and with a Marimatech quick release hook (www.marimatech.com) mooring system was installed in Venezuela (at Carenero, in the state of Miranda, 250 kilometres east of the port of La Guaira) to be used at the PDVSA oil company's terminal.

In South Africa, for the Moma mineral sands project, another catamaran buoy was installed, but with a smaller size, with a net buoyancy of 11 tons. The mining zone of Moma extends a good 58 kilometres along the coast and 7 kilometres inland. It is calculated that 750 thousand tons of mineral sand can be produced a year.

The mooring installation which has a very high level of stability was furnished by Resinex to Anchor Industries (South Africa) and is equipped with an AIS transponder (Atonis of Pharos Marine).

Some phases of the assembling and positioning of the Resinex Pem 43 giant mooring buoy, installed in November 2007 at Carenero, Venezuela, with a diameter of 4,3 metres and a net buoyancy of 20 tons it guarantees a stability even under the high mooring tension forces of the oil tankers.



Above, a Pem 43 buoy during an assembly test at the Resinex Torbiato plant before being delivered to South Africa: it has a net buoyancy of 11 tons.