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VEOS GROUP

VEOS MARINE & OFFSHORE
- Port terminal
- Naval base
- Shipyard
- SURF (Subsea, Umbilicals, Riser & Flowlines)

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- Oil&Gas
- Wind power
- Nuclear power
- Hydro-power

VEOS INDUSTRY
- Rail
- Mining
- Civil engineering
- Lifting & handling

VEOS ENGINEERING
- Feasibility & design study
- Calculation note & 3D drawing
- Qualification process
- Prototypying & testing protocol

BERTHING

MOORING

SURFACE BUOYANCY

SUBSEA BUOYANCY

OUTIL DE LEVAGE

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BERTHING

ZONE FINALENS - DOUVRIN

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BERTHING

We are all used to see ships berthed alongside quay or docks. We are very seldom stop to appreciate the efforts put in behind it. Berthing of vessel requires very specialized skills. Pilot has to take in account of various forces, external & internal which are variable to different degrees as well as the vessel's controls available to him. Various factors are taken into account and amongst those included following but not limited to:

Size: A large vessel will be sluggish to turn. Her stopping distance will be considerably large as well as time taken to pick up speed.

Displacement of vessel: Displacement means total weight of the vessel. It is the total volume occupied by underwater part of vessel multiplied by the density of water. Larger the displacement, greater will be the force required to move or stop it.

Wind speeds and direction: Exposed part of vessel acts like a sail. Offshore wind with a speed of 10 knots creates strong adverse wind force which needs to be controlled by using more tugs or bow/stern thrusters. On shore wind though will assist in berthing but strong on shore wind may push the vessel hard to berth causing damage.

Current: Current affects the maneuverability of the vessel. In tidal port with currents, berths are designed in such a way that current will be flowing at 15 to 30 degree to berth. Design berthing velocity for ship is normally 0,2m/second.

Considering these factors, our engineering office is able to design & dimension foam filled fenders fitting to customers' berthing purposes.

Business cases for foam filled fender:

- Extension & renovation of quaysides of industrial harbour, naval base, marina
- Offshore ship to ship for loading & unloading operations
- Set up of ports areas dedicated to launching floating foundations of wind turbines
- Port services such as marine pilot, boatage, rescue team, customs office & maritime affairs vessels
- Ferries & cruise terminals.

Quayside foam filled fender

Allow berthing in safety conditions

Donut rotative foam filled fender

Protect critical harbour areas

Pilot boat foam filled fender

Secure "en route" ship boarding vessel

Fast crew boat foam filled fender

Transfer key personnel from Door to Rigs

Crew transfer vessel foam filled fender

Transport servicing team

Rubber inflatable fender

Carry out offshore ship to ship loading & unloading operation

Rubber fender

Allow berthing in safety conditions

On-board foam filled fender

Secure position in mooring spot

Quayside foam filled fenders

Calculating the berthing energy of vessels is the first and most important step in the fender design process. If something goes wrong during this step, your entire waterfront design could be at risk.

As part of the many services we offer our clients, our new software supports you during the berthing energy calculation process.

Our software considers all relevant parameters such as :
- Ship type,
- full load vessel weight,
- berthing mode,

or point of contact from bow, amongst others, and also offers the option to choose among different design methods, addressing the particulars of your project and or region.

Quayside foam filled fenders

Designed by our engineering office, based on a heat laminated 100% closed cell polyethylen (PE) foam, wrapped with high tenacity polyester fabrics, coated with hot sprayed polyurethane with internal or external end fittings.
Excellent energy performance and coupled with low reaction force makes berthing operations easier especially in difficult conditions.
The floating foam fenders are very appropriate for dock, especially dock with large tidal range.
The foam fenders are available in diameters from 700 to 4500 mm and lengths from 800 mm to 15000 mm.
Different foam density, from 30 to 140 kg/m³ are available upon request.

Foam filled fender performances

OD x Lg (m)	Extra soft (30 kg/m³)		Soft (50 kg/m³)		Medium (70 kg /m³)		Hard (100 kg/m³)		Extra Hard (140 kg/m³)	
	Energy (T.m)	Reaction (T)	Energy (T.m)	Reaction (T)	Energy (T.m)	Reaction (T)	Energy (T.m)	Reaction (T)	Energy (T.m)	Reaction (T)
0,70 x 1,50	2,25	14,00	3,30	20,85	3,60	22,85	4,90	31,15	6,65	42,40
1,00 x 2,00	6,00	26,65	8,85	39,70	9,70	43,40	13,15	59,25	17,95	80,625
1,50 x 3,00	20,10	60,00	29,80	89,35	32,60	97,70	44,30	133,30	60,40	181,50
2,00 x 4,00	47,55	106,70	70,60	158,85	77,20	173,70	104,90	237,00	143,15	322,65
2,50 x 5,00	92,80	166,75	137,85	248,20	150,75	271,45	204,80	370,35	279,50	504,15
3,30 x 6,50	210,00	286,00	312,05	425,70	341,20	465,60	463,65	635,20	632,75	864,70

Installation lay- out

There are different installation options available :
- Simple floating mooring, fixed with properly dimensioned chains according to tidal movements to the quay,
- Suspended mooring, the quay height must be higher than the mooring surface. Fixation by chain is required to prevent the fender rolling onto the top of the quay when tide is high or variation of the vessel draft varies.
- Mooring with tidal monitoring system, concerning areas with high tides, a guide rail is installed on each side of the foam filled fender connected to a mooring ring.

Features of foam filled fenders

- Unsinkable
- Bespoke dimensions
- Proportional increase of energy & reaction
- Low hull pressure
- Non marking finish
- Low maintenance
- Long life expectancy
- Repairable
- Respect of environment
- Available in different colours
- Anti-UV treatment available upon request

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Donut rotative foam filled fenders

This type of defense is specifically installed on:
- Dry dock entrances, an alternative solution to the fenders installed directly on the quay, the rotating "donut" type fenders are fitted to the pile.
They are made from a metal guide ring, sized to the diameter of the pile, and installed with rotation guidance by a HDPE pad.
- Corner protectors
- Rotating structures
- Port entrance pontoons
- Bridge protection

They are made from a metal guide ring, sized to the diameter of the pile, and installed with rotation guidance by a HDPE pad.

Donut rotative foam filled fenders

Donut fenders move up and down along the pile depending on the tide. Therefore, the design must consider several cases in order to achieve the desired performance at all times.

Each of the variables listed below will have impact on the fender performances.
- Foam density
- Inside & outside diameter
- height
The most frequent diameters vary from 1270 to 4220 mm.
The fenders have a core of closed cell physically reticulated polyolefin foam, at a density proposed according to the level of energy to be dissipated.

The sprayed Nibraprène® ES 40D coating is produced without solvent, respectful of the environment, securing dimensional stability over time of the fenders while improving the resistance qualities. It is reinforced with high strength polyester fabrics, the dope-dyed color is defined by customer's requirements.

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Small duty on-board foam filled fenders

Specially design to absorb shocks during berthing your boat, they could easily be moved at different areas of the hull.
Depending of the size of the boat, recommendation to have them at two-third the height of the freeboard. This kind of fender is designed for quick & convenient handling.

Three different fender shapes are available upon request:
- Conical
- Cylindrical
- Spherical

Options are available on upon request:
- straps net
- with single or twin boots
- with single or twin wire
- with metallic axle

Small duty on-board foam filled fenders

Made out of physically reticulated polyolefin closed cell foam, wrapped with high tenacity polyester fabrics and coated with Nibraprène® ES 40D polyurethane.
Dimensions from OD200 to 600 mm with length from 400 to 1200 mm.
Its main characteristics:

- Mobile,
- Light weight,
- Easy to handle & to install,
- Non marking skin,
- Long life expectancy,
- Installation in both vertical & horizontal positions,

depending on single or double boots.
Weight from 5 to 25 kgs .

Performance of fender

	Extra soft (30 kg/m³)		Soft (50 kg/m³)		Medium (70 kg /m³)		Hard (100 kg/m³)		Extra Hard (140 kg/m³)	
OD x Len (m)	A.E (T.m)	R.F (T)	A.E (T.m)	R.F (T)	A.E (T.m)	R.F (T)	A.E (T.m)	R.F (T)	A.E (T.m)	R.F (T)
0,20 x 0,40	0,10	1,05	0,10	1,55	0,15	1,70	0,15	2,35	0,20	3,20
0,25 x 0,50	0,15	1,65	0,20	2,45	0,20	2,70	0,25	3,70	0,35	5,00
0,30 x 0,60	0,20	2,40	0,30	3,55	0,30	3,90	0,40	5,30	0,55	7,25
0,40 x 0,80	0,45	4,25	0,60	6,35	0,65	6,90	0,90	9,45	1,20	12,90
0,50 x 1,00	0,80	6,65	1,15	9,90	1,25	10,85	1,70	14,80	2,30	20,15
0,60 x 1,20	1,35	9,60	1,95	14,25	2,15	15,60	2,90	21,30	3,90	29,00

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Fast crew boat foam filled fenders

Provide connection between a base onshore and offshore installation such as drilling rigs, that is the mission assigned for Fast Crew Boat. These boats are operated by chartered companies, providing personnel logistics, by focusing on safety, reliability and comfort. This service is based on 24 hours a day, 7 days a week and 365 days a year.
Some professionals calls that service « Door to Rig ».
To run that cost effective service for the Oil&Gas companies, CTV needs to meet high requirements such as:

- Light, high speed and comfortable for personnel
- Highly manoeuvrable boats with good sea keeping capabilities
- Reliable, facing potential difficult sea conditions
- Manoeuvrability & station keeping characteristics make it perfect vessel for boat landing operation

Foam filled fender is highly recommended, being the best compromise between weight and capacity of absorbing shocks generated by berthing.

Fast crew boat foam filled fenders

Foam filled fender has many advantages, that's why most of pilot boats are equipped with this type of fenders.

Lighweight

One third lighter than rubber fender.
Where vessel weight is of a prime importance, foam filled fender will significantly reduce overall weight without reducing protection. Lightweight fender also have a direct impact on oil consumption of workboats.

Protecting your vessel

Our foam filled fender ensure maximum protection with a very high energy absorption & low reaction force.
Our design office provide calculation note taking consideration of customer's berthing conditions.
Using the 3D drawing of our customers, we advise and supply the fenders in different forms according to the available recess of the boat:

- Square shape
- Half cylindrical shape
- Cylindrical shape

No solvent use

The sprayed Nibraprène® ES 40D coating is produced without solvent, respectful of the environment, securing dimensional stability over time of the fenders while improving the resistance qualities.

Main features of boat foam filled fender

- Unsinkable, even damaged,
- Lighweight and efficient berthing properties,
- Choice of foam density to customize boat fendering system according to berthing conditions,
- Better spread of kinetic energy absorption,
- Low maintenance and no pressure monitoring required,
- Wide operating temperature range,
- Repairable.

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Wind farm support vessel foam filled fenders

WFSV are dedicated to transport maintenance team to offshore wind farms. Its maximum capacity is 12 persons with the possibility of carrying light cargo parcels on the offshore fields. WFSV needs to meet high requirements such as:

- Light, high speed and comfortable for personnel
- Highly manoeuvrable boats with good sea keeping capabilities
- Reliable, facing potential difficult sea conditions,
- Manoeuvrability & station keeping characteristics make it perfect vessel for boat landing operation

Foam filled fender is highly recommended, being the best compromise between weight and capacity of absorbing shocks generated by berthing.The bow fender usually suits the wind turbine boat landing.With our innovative solution, the WFSV is protected by foam filled fender coated with polyurethan with an additional protection calls NibraPAD® against shock generated during boat landing.
It is fixed and built in on the foam filled fender, tightened with cargo straps.

Wind farm support vessel foam filled fenders

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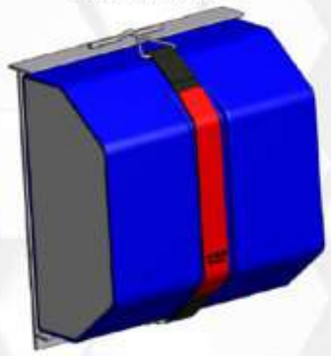
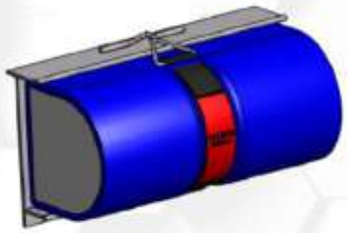
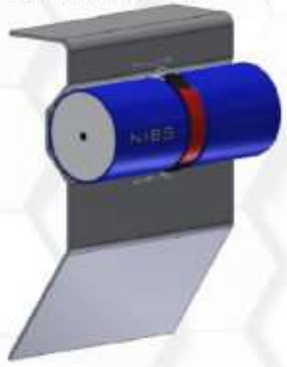
Square shape



Half cylindrical shape



Cylindrical shape



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Pilot boat foam filled fenders

Around harbours, rivers, ports and basins, pilots offer local knowledge and the experience necessary to ensure navigation safety and protect the environment. Through daily practice, pilots develop specific qualities and techniques for maneuvering ships in narrow waters and restricted areas surrounded by port facilities. They serve ships day and night, through thick fog or high winds, thus avoiding delays or carrying the maximum cargo capacity through the usable depths of the channel in the economic interest of the port and the ships, thereby ensuring fluidity of traffic, and therefore participating directly in the competitiveness of the port.
In addition, it is expected that the maritime pilots, who are the only port stakeholders to board the ship "en route", report to the State of the port of call if the ships present a risk to the environment or by security.
To carry out their mission, pilots deserve high quality equipments, especially high performance boat foam fenders, necessary for all-weather and safe ship berthing.
Expert in the supply of sprayed foam filled fender is available for the bow, sides and rears of a vessel, and is able to support the harshest marine environments and working conditions.
Our lightweight products are the preferred solutions for the fast moving boats like pilot boats.
Providing industry best levels of durability, our boat fender solutions are fit to purpose for pilot boats , especially to board the ship « en route » in the safest possible conditions.

Pilot boat foam filled fenders

Foam filled fender has many advantages, that's why most of pilot boats are equipped with this type of fenders.

Lighweight

One third lighter than rubber fender.
Where vessel weight is of a prime importance, foam filled fender will significantly reduce overall weight without reducing protection. Lightweight fender also have a direct impact on oil consumption of workboats.

Protecting your vessel

Our foam filled fender ensure maximum protection with a very high energy absorption & low reaction force.
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Using the 3D drawing of our customers, we advise and supply the fenders in different forms according to the available recess of the boat:
- Square shape
- Half cylindrical shape
- Cylindrical shape

No solvent use

The sprayed Nibraprène® ES 40D coating is produced without solvent, respectful of the environment, securing dimensional stability over time of the fenders while improving the resistance qualities.

Main features of boat foam filled fender

- Unsinkable, even damaged,
- Lighweight and efficient berthing properties,
- Choice of foam density to customize boat fendering system according to berthing conditions,
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- Wide operatig temperature range,
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Workboats

Around harbours, rivers, ports and Naval base, work boat personnel offer local knowledge and the experience necessary to carry different type of missions:

- Boatage operations
- Diving boat
- Ambulance boat
- Taxi boat

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Duty boats

Around harbours, rivers, ports and Naval base, duty boat personnel offer local knowledge and the experience necessary to carry different type of missions:

- Military operations for special forces interceptors
- Surveillance mission for the maritime affairs
  Fire brigade vessel for rescue operations
- Customs speed boat for inspection intervention
  Police vessel to fight against any delictious acts
- Civil protection for rescue intervention

To carry out their mission, duty boat personnel deserve high quality equipments, especially high performance boat foam fenders, necessary for all-weather and safe ship berthing. Expert in the supply of sprayed foam filled fender is available for the bow, sides and rears of a vessel, and is able to support the harshest marine environments and working conditions. Our lightweight products are the preferred solutions for the fast moving boats like duty boats. Providing industry best levels of durability.

our boat fender solutions are fit to purpose for duty boats, especially to board the ship « en route » in the safest possible conditions.

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MOORING

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MOORING

Ropes or chains that keep a boat from moving away from a place. A vessel has to be positioned alongside a jetty or a berth between mooring buoys, to a mooring buoy, to another ship and then made fast using her own anchors and mooring lines. While moored alongside a fixed or floating jetty or a sea berth, there are different forces impacting on the vessel such as wind, current, tide, wave action, swell and trim of the vessel. Many mooring methods are practised all over the world such as:

- Ship to Ship mooring,
- Mediterranean mooring,
- Baltic mooring,
- Running mooring,
- Standing mooring,
- Spider mooring,
- Single point mooring,
- Conventional mooring.

For each mooring method, fenders will be essential for the protection of port quayside but also to secure offshore ship to ship transfer as well as the mooring buoys useful for mooring offshore.

Business case for mooring:

- Development of moorings for small cruise ships a shore to coast,
- Extension of gas terminal requiring new mooring points,
- Efficient way of managing Navy base vessel fleet
- Solution to avoid damages on seabed due to anchoring in protected areas,
- Tools to set mooring rules for yachts and speed boats a shore of tourist spots

Composite or steel mooring buoys

Load & unload spot

Bollards

Keep the boat position

Pelican hook

Support mooring line

Quick release hook

Monitor the mooring line

Mooring buoys

The use of mooring buoys meets different purposes like:
- Reducing anarchic mooring of cruise ships and yachts at anchor in protected areas
- Offshore & remote mooring
- Temporary mooring in a port, dock or harbour
- Additional mooring for large vessels on berthing/ mooring dolphin
- Long term mooring for occasionally used vessels.

It is sized to the characteristics of the civil and/or national navy boats it accommodates, the mooring line is calibrated according to environmental conditions (sea currents and exposure to the wind), it connects the mooring buoy to the dead body fixed to the bottom of the sea. VEOS Marine & Offshore design office advises you and offers you a turnkey solution.

Mooring buoys

The mooring buoy is equipped with fixing accessories at customer's choice.
- Padeye
- Elbow crucifix
- Crucifix

And also options such as:
- Footrest
- Handrail

Standard range			
Buoyancy (Te)	Len (mm)	OD (mm)	Overall Length (mm)
5	1325	2500	2300
7,5	1325	3000	2300
10	1325	3500	2300
15	1500	3950	2475
20	2000	3900	2975
25	2000	4350	2975
30	2500	4200	3475

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SURFACE BUOYANCY

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SURFACE BUOYANCY

Exploration of sea resources and development of both renewables & marine traffic are generating more & more equipments requiring buoyancy properties. Without being exhaustive, here below are the most common applications:

- FPSO towing & mooring installation,with chain support buoys,
- Hopper Suction dredger with pipe floats and bow coupling float,
- LIDAR buoys (or weather buoys) to real time marine monitoring & information system,
- Anti-intrusion barrier to prevent from any potential risk,
- Marker buoys for navigation aids,
- Mooring buoys to anchor vessel during offshore operation,
- Pick-up buoys linked to a mooring line,
- Submarine ballast buoy measurement,
- Aquaculture buoys,
- and Power buoy or charging buoy to reduce hybrid vessel gas emissions while at sea.

Chain support buoy & Chain through support buoy

Ligthen chain weight

Anti-intrusion barrier

Prevent against potential risks

Anchor buoy

Connect on the point of anchoring

Bow coupling float

Connect the bow coupling float to the discharge dredging head

Pipe float

Make the discharge pipe a float

LIDAR buoy

Give buoyancy to collection data equipments

Marker buoys

Ease marine traffic

Mooring buoy

Secure position at sea

Pick-up buoy

Identify a mooring line for collection

Submarine buoy

Measure ballast

Aquaculture buoy

Define the fish breeding area

Power buoy

Reduce vessel emissions

General surface support buoys

General surface support buoys are designed to withstand the severe & delicate operating conditions associated with offshore operations.
Made out of closed cell polyethylen foam, coated with resistant Nibraprène® ES 40D polyurethane skin ensuring the buoy will not absorb water even if the skin is damaged, increasing the life expectancy of the product and reducing the maintenance costs.
The resilient material makes the buoys self fendering with a high impact absorption capacity.
Used extensively in single point mooring systems, the three main types of support buoys are:

- Cylindrical buoy (or utility buoy)
- Chain through support buoy
- Pick-up buoy

General surface support buoys

For the ends of metallic axle, options described below are available upon request:

- Mechanical welded swivel
- Padeye
- Elbow crucifix
- Crucifix
- Commercial swivel

Standard range			
Buoyancy (T)	Len (mm)	OD (mm)	Overall Lg (mm)
2	1500	1500	2270
3	1500	1800	2270
4	1500	2050	2270
5	2000	1950	2270
6	2000	2100	2270
7	2000	2300	2270
8	2500	2200	3270
10	2650	2350	3420

Features

- Unsinkable, even if damaged
- Long life expectancy
- Reliable
- High impact absorption rate

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Small support buoys

General surface support buoys are designed to withstand the severe & delicate operating conditions associated with offshore operations.
Made out of closed cell polyethylen foam, coated with resistant Nibraprène® ES 40D polyurethane skin ensuring the buoy will not absorb water even if the skin is damaged, increasing the life expectancy of the product and reducing the maintenance costs.
The resilient material makes the buoys self fendering with a high impact absorption capacity.
Used extensively in single point mooring systems, the three main types of support buoys are:

- Cylindrical buoy (or utility buoy)
- Chain through support buoy
- Pick-up buoy

Small support buoys

Small support buoys are specially designed for buoyancy no greater than 1 ton.
For the ends of metallic axle, options described below are available upon request:

- Mechanical welded swivel
- Padeye
- Elbow crucifix
- Crucifix
- Commercial swivel

Features

- Unsinkable, even if damaged
- Long life expectancy
- Reliable
- High impact absorption rate

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Anchor pendant buoys

Anchor pendant buoys are dedicated to carry out offshore operation, mainly directly linked with anchoring but also to pipe laying operations.
VEOS Group is able to offer three versions of anchor pendant buoys:
- Single anchor pendant buoy
- Modular anchor pendant buoy
- Donut anchor pendant buoy

Modular anchor pendant buoys consist of removable, interchangeable module with end modules and center module assembled onto central steelwork and fixed in position with retaining flanges, giving the possibility of monitoring the level of buoyancy required.
Each module is manufactured from polyethylen closed cells foam, coated with Nibraprène® ES 40D polyurethane elastomer skin.
The closed cell structure of the resilient polyethylene foam core means that the buoy will not absorb water, even if the skin is punctured therefore maintaining buoyancy and functionality.

Donut modular anchor pendant buoy system comprises of 2 or 4 removable and interchangeable modules which rotate around a central steel frame.
Each module is manufactured from polyethylen closed cells foam, coated with Nibraprène® ES 40D polyurethane elastomer skin.

Anchor pendant buoys

For both type of anchor pendant buoys, the following options are available upon request;
- Radar reflector
- Reflective tape
- Navigation lights

For the ends of metallic axle, options described below are available upon request:
- Mechanical welded swivel
- Padeye
- Elbow crucifix
- Crucifix
- Commercial swivel

Features

- Unsinkable, even if damaged
- Long life expectancy
- Reliable
- High impact absorption rate

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Chain through support buoys

Chain through support buoys are designed to withstand the severe operating conditions associated with offshore operations.
Made out of closed cell polyethylen foam, coated with resistant Nibraprène® ES 40D polyurethane skin ensuring the buoy will not absorb water even if the skin is damaged, increasing the life expectancy of the product and reducing the maintenance costs.
Foam Filled Chain Support Buoys with chain passing through the Buoy, from 2,5 Tons to 10 Tons (or more) - Cylindrical or rectangular in shape - Fitted with chain locking plate or chain locking pin, on one of both ends.
The resilient material makes the buoys self fendering with a high impact absorption capacity.

Chain through support buoys

Features

- Unsinkable, even if damaged
- Long life expectancy
- Reliable
- High impact absorption rate

For the ends of metallic axle, options described below are available upon request:
- Mechanical welded swivel
- Padeye
- Elbow crucifix
- Crucifix
- Commercial swivel

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Half shell chain protection buoys

Half shell chain protection buoys are designed to prevent any damage of the FPSO anchor chain may on the FPSO hull or possible damage on flowlines.
The device is made out of two metallic shells, each of them equipped with buoyancy modules strapped together and assembled around the anchor chain. The product has a tidal monitoring system.
Buoyancy modules are made out of closed cell polyethylen foam, coated with resistant Nibraprène® ES 40D polyurethane elastomer skin ensuring the buoy will not absorb water even if the skin is damaged, increasing the life expectancy of the product and reducing the maintenance costs.

Half shell chain protection buoys

Features

- Long life expectancy
- Reliable
- High impact absorption rate

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Anti-intrusion floating barriers

Anti-intrusion floating barriers are bespoke barrier systems for support, mooring, navigation, demarcation and navy base restricted areas in all marine environments, from inland waterways to offshore applications.

The anti-intrusion floating barrier can be put into service with many possible configurations such as:

- quick anchoring on quay, dikes or dead body
- fixation with tidal monitoring on quay, pile or slide
- openable section to allow the passage of more or less important boats
- intermediate mooring buoy to delimit a specific area

There are three different anti-intusion floating barrriers to respond to a level of potential risks:

- Light barrier, visual deterrent, consisting of OD 600 x 2000 mm floats

- Semi-heavy boom, anti-intrusive, consisting of floats OD 1000 x 2500 mm

- Heavy barrier, anti-intrusive blocking, consisting of spherical floats OD 1500 mm equipped with submerged and emerged protection accessories

Anti-intrusion floating barriers

The floating anti-intrusion boom is an integral part of the safety of a port installation and offers many advantages:

- modularity according to the configuration of the area to be protected
- quick and easy deployment - equipped with a display lit by an autonomous solar LED system
- Almost non-existent maintenance
- unsinkability, even when damaged

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Instrumentation buoys

Instrumentation buoys are required to aid navigation, weather forecasts and wind resource assessment prior to any new offshore wind farm is set up.
We have three different types of applications:

- ODAS "Ocean Data Acquisition System" describing a wide range of devices for collecting weather and oceanographical data. Buoy systems carrying instruments are either moored or drifting, and may have instruments either in the float or slung beneath them to any depth
- LIDAR "Laser Imaging, Detecting and Ranging" used to carry out accurate wind measurements at sea
- Floating beaconing dedicated to floating aids to navigation equipments
- Floating panel Specially design to give indications on restricted or forbidden areas for navigation

Instrumentation buoys

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VEOS
MARINE & OFFSHORE

Creativity & energy
dedicated to your projects

SUBSEA BUOYANCY

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SUBSEA BUOYANCY

Going deeper & deeper to explore Oil&Gas fields, installing large subsea and land interconnectors between countries and HV subsea export cables linking offshore windfarms to land are good examples of projects demanding subsea buoyancy.

- SSB Small Subsea Buoys, rotomolded full of epoxy or syntatic foam depending on water depth
- Modular buoys, combination of stackable roto-molded buoys
- Pipe laying buoys, wrapped on pipe during pipe laying installation
- ROV buoyancy module.

SSB Small Subsea Buoys

Give chain and/or flowlines more slack

Modular buoys

Monitor buoyancy level

Pipe laying buoys

Ease the installation of pipe at sea

ROV buoyancy module

Run ROV (Remote Operated Vehicule)

Pipe laying buoys

Flexible pipes and umbilicals require the use of buoyancy modules to reduce topside or tension loads and assist in achieving particular configurations which include steep, lazy, W-wave and pliant. At the same time, hoses, cables, ropes and umbilicals may need specialfloattobelightenedunderwater.
The density and composition of the modules are based on operational requirements tailored to project requirements such as:
- hydrostatic pressure
- uplift
- water ingress
- flexible diameter
- length

VEOS Marine & Offshore is able to offer bespoke distributed buoyancy solutions as follows:

- Rotary moulded polyethylene shell filled with polyurethane foam filled core suitable for shallow water
- Rotary moulded polyethylene shell filled with syntatic foam filled core in a range of densities for deep water

Each module can be fixed either with a clamping system and/or fastening straps.

Pipe laying buoys

Shallow water with PU hard foam

Density (kg/m³)	Water Depth (msw)
100	Up to 100
200	Up to 200
300	Up to 300
400	Up to 400

Subsea application with syntatic epoxy foam

3 types of filling material:
- Standard
- Light
- Extra-light

3 depth ranges:
- Up to 1 000 msw / Crush test 150 bars
- Up to 2 000 msw / Crush test 300 bars
- Up to 3 000 msw / Crush test 450 bars

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VEOS
INDUSTRY

La créativité et l'énergie
dédiées à vos projets

OUTIL DE LEVAGE

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OUTIL DE LEVAGE

Notre bureau d'études conçoit des outillages de levage et de manutention sur-mesure pour le secteur industriel.
Ces outillages sont utilisés pour différentes applications multi-sectorielles et concernent :

- L'optimisation de process
- L'ergonomie du poste de travail, en lien avec les exigences du HSE
- Le levage de masses en sécurité
- Les opérations de contrôle de masse
- La conception de machine spéciale pour de la manutention lourde
- Les supports de travail

Les produits sont testés selon les normes applicables au domaine d'utilisation avec la possibilité d'une certification par un organisme agréé.
Les domaines d'application :

- Génie civil
- Industrie ferroviaire & automobile
- Energie (pétrolier, énergie renouvelable, industrie nucléaire)
- Sidérurgie
- Maritime & chantiers navals
- Défense

Palonniers

Lever en toute sécurité

Chariots de manutention lourde

Optimiser les flux de production

Supports calibrés pour contrôle de géométrie

Tester avant de réparer

Cés de levage

Manutentionner des charges creuses

Cés de levage

Les cés de levage permettent la manutention de charges creuses et peuvent être utilisés pour le levage de rouleaux, de tuyaux, de bobines et de charges cylindriques, sans limite de poids.

Pour une application de manutention de pipe dans l'industrie pétrolière et gazière, le « Pipe Hook » est un cé de levage dédié à la manutention horizontale de tube.

Cet outillage se compose de deux parties :

- Le corps, en acier revêtu de polyuréthane
- L'insert en polyuréthane améliorant la répartition des efforts de contact

Cés de levage

Le bureau d'ingénierie dimensionne l'outillage selon les caractéristiques et le poids des pipes.
Notre gamme permet de répondre au besoin de manutention de tuyau de diamètre allant de 4'' jusqu'à 48''.
Les cés de levage sont testés sur nos bancs d'essai selon les normes appliquées au domaine d'utilisation.
Un certificat de test officiel peut être délivré en présence d'un organisme agréé.

Les avantages

- Pas de corrosion & revêtement de protection contre les chocs,
- Interchangeabilité des inserts,
- N'endommage pas les pipes lors de leur manutention
- Production sur-mesure rapide

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Palonniers

Nos palonniers sont conçus sur-mesure pour la prise en charge et levage d'éléments pré-assemblés sur un chantier ou une ligne d'assemblage, il existe différentes catégories telles que :

- Palonnier en croix pour big bag.
- Palonnier fixe en H fixe et/ou réglable.
- Palonnier mono-poutre fixe et/ou réglable.
- Palonnier caisse.
- Palonnier ventouse.
- Palonnier multi-fonctions

Palonniers

Les palonniers sont testés sur nos bans d'essai selon les normes appliquées au domaine d'utilisation.
Un certificat de test officiel peut être délivré en présence d'un organisme agréé.

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Ecarteurs

Ce système de manutention offre une solution pratique aux professionnels souhaitant faciliter le levage et le transport de charge. Le palonnier écarteur permet de ne pas introduire d'efforts de compression sur la pièce manutentionnée.

Ces palonniers sont faits sur-mesure, avec en option la note de calcul.

Ecarteurs

Les écarteurs sont testés sur nos bancs d'essai selon les normes appliquées au domaine d'utilisation.
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Pinces

Nos pinces sont conçues sur-mesure pour la prise en charge et levage d'éléments pré-assemblés sur un chantier ou une ligne d'assemblage, il existe différentes catégories telles que :

Pour une application dans le domaine ferroviaire
- Pince à tube
- Pince à rail
- Pince à bogies

Pour une application dans le domaine du génie civil
- Pince à bordure
- Pince à bloc béton
- Pince à queuze

Pour toute pince spéciale, notre bureau d'étude est prêt à l'étudier.

Pinces

Les pinces sont testées en sur nos bancs d'essai selon les normes appliquées au domaine d'utilisation. Un certificat de test officiel peut être délivré en présence d'un organisme agréé.

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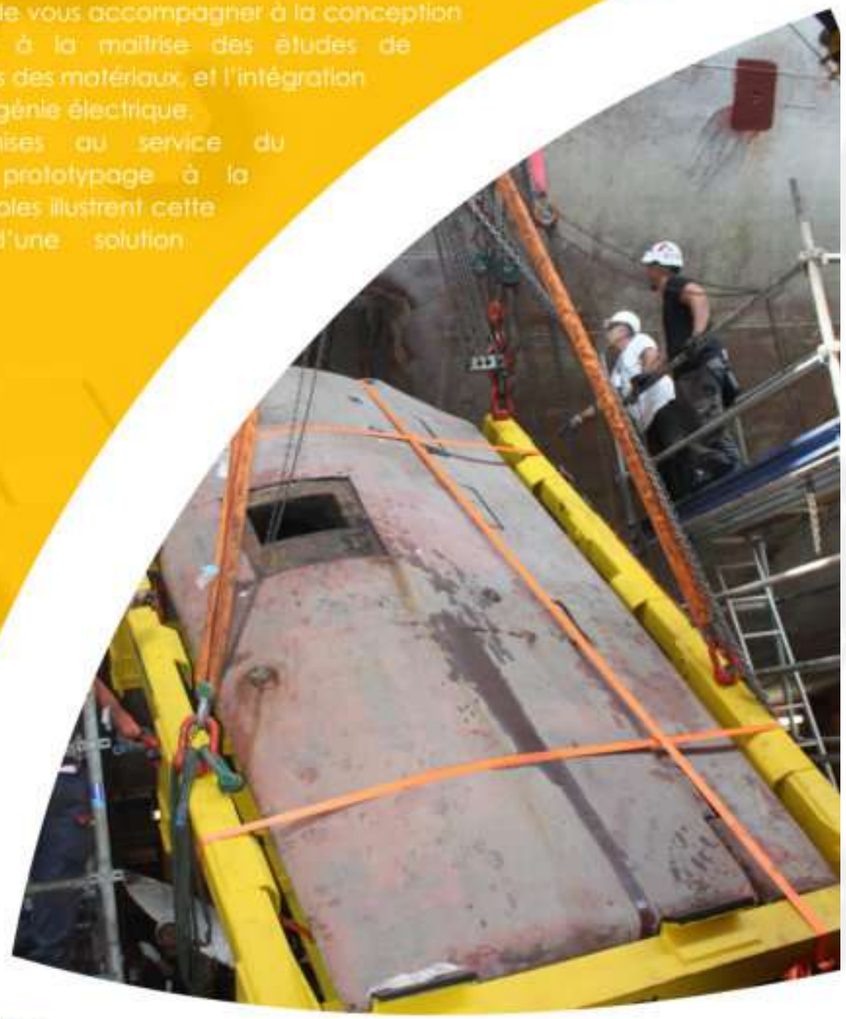
Outillages sur mesure

Notre bureau d'études propose de vous accompagner à la conception d'outillage personnalisé grâce à la maîtrise des études de dimensionnement, des résistances des matériaux, et l'intégration d'automatisme embarqué et du génie électrique.
Toutes ces compétences mises au service du développement produit, du prototypage à la validation finale. Ces deux exemples illustrent cette capacité de conception d'une solution personnalisée.



Outillages sur mesure

Chariots de manutention lourde

L'optimisation des flux de process est fortement recherchée chez les industriels, tout système fiable qui amène de la fluidité, du gain de temps tout en assurant la sécurité des opérateurs est source d'intérêt.
Fruit de la collaboration avec nos clients, nous nous sommes penchés sur la conception de systèmes autonomes de manutention lourde, similaires à des AGV (Automatic Guided Vehicules).
Chariots électriques de prise en charge de conteneurs de taille maximale de 26,5 mètres de long et d'un poids maximal de 20 tonnes.
Le système fonctionne par pair, connecté l'un à l'autre par WIFI. Chaque chariot est attelé à une motrice électrique et communique par radio fréquence. La motrice électrique est filoguidée. Elle suit un parcours tracé au sol, d'une station de parking de conteneur jusqu'au début d'une ligne d'assemblage.
Il permet d'optimiser les flux de production et de libérer d'autres moyens de manutention.

Supports calibrés pour contrôle de géométrie

Contrôle en quatre points des masses & enregistrement des poids avant et après révision de véhicules.
La mobilité des supports calibrés permet au client de s'affranchir des contraintes de génie civil.
Cette mesure de contrôle permet de localiser les écarts à chaque appui de suspension et compenser par un calage.

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Technical solution provider & manufacturer in both plastics and mechanical engineering

VEOS holding group has operated in the heart of the "Hauts-de-France" industrial area for more than 40 years. The VEOS team is well known to their clients for delivering custom made technical solutions for various industrial applications, particularly to the marine industry.

Based on its experience and know-how, VEOS is keen to consolidate its market share in its traditional markets and also in new developing markets.
VEOS is a family owned business and managed by de VATTEVILLE family, who are proud to carry strong values and are committed to do everything possible to meet their customer's satisfaction.

40 YEARS of expertise

Turnover of **€ 5 M**

30 employees

300 customers across the world

Certificate
ISO 9001 V 2015


QUALITY MANAGEMENT SYSTEM CERTIFICATE
ISO 9001 : 2015

VEOS MARINE & OFFSHORE

VEOS ENERGY

VEOS INDUSTRY

VEOS ENGINEERING

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Creativity & energy dedicated to your projects