



Marinas, Yacht Harbours and Leisure Ports

Floating
Equipment
Catalogue
2015



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The Company

Ahlers Lindley is a Grupo Lindley company, specialized in the design, supply, installation and maintenance of floating equipment for marinas, yacht harbours, leisure, fishing and commercial ports.

The experience gained over more than 25 years of activity, a highly specialized technical staff, and a close collaboration with customers and suppliers, make Lindley a company with unique characteristics, offering a wide and flexible range of solutions, products and services which include:

- Design, fabrication, supply and installation of floating equipment
- Accessories and services
- Fixings and moorings
- Installation, technical service and maintenance
- Complementary equipment (marine fenders, fixed cranes and pollution control equipment)

The success of the equipment and solutions supplied over the years encouraged the continuous development and investment which prompted the export activity in 2008 with projects in Cape Verde, Guinea, Angola and Mozambique; in 2010 Lindley has subsequently expanded it's activities to South America with projects in Brazil, Colombia, Uruguay, Venezuela and Panama.

Today Lindley is a manufacturer specialized in floating equipment for marinas, yacht harbours, berths, fishing and commercial ports with an increasing global presence.



Grupo Lindley



The **Grupo Lindley** of companies began its activities in 1930 with the establishment of Ahlers, Lindley Lda, as a distributor of port and industrial equipment in Portugal. Today the group comprises of three companies : Ahlers Lindley specialized in marinas and commercial ports, Almarin specialized in aids to navigation and Almovi specialized in cargo handling equipment in the industrial and harbour markets.

The services offered by Grupo Lindley cover the entire supply chain of equipment ranging from design, manufacture and installation to after-sales service in different areas of activity.

Ahlers Lindley and Almarin pool engineering and production capabilities sharing expertise in the design and manufacture of fixed and floating structures for the marine environment. Almovi is a market leader in industrial and port handling equipment with highly trained technicians that maintain equipment in the most demanding conditions.

Each company employs qualified staff capable of providing service to customers wherever it may be required. The Grupo Lindley companies are proud to be considered a benchmark by customers who have acquired its products and services.

Facilities at the Grupo Lindley headquarters in Cascais (Portugal)



Floating Equipment

Lindley focuses its activities on the design, supply, installation and maintenance of floating equipment for marinas, yacht harbours, leisure and fishing ports, providing turnkey solutions from project design to installation. The goal of the company is to supply the most advanced products of the best quality to its customers, through its own manufacturing and distribution. The local knowledge and the practical expertise

associated with the work of the engineering team ensure the design and implementation of well balanced projects. Lindley is certified by ISO9001 and has a license for the development of port, river and hydraulic works (INCI-CI5 in Portugal). In addition to providing high quality solutions, one of the differentiation factors of Lindley is the capability to provide support and after-sales service through the lifetime of

an installation. The engineers and technicians will help customers throughout the entire process, selecting the product that is best suited to their needs as well as assisting them with the installation and maintenance of said product. Lindley offers its services to port authorities, regional governments, marinas and yacht clubs and also develops several applications for marine works.



Floating Equipment

- **Floating Breakwater**, steel reinforced concrete
- **Continuous Floating Pontoon**, steel reinforced concrete
- **Floating Pontoons**, galvanized steel, marine grade aluminium, reinforced nordic pine
- **Floating Platforms**, composite material

Access

- **Access Bridges**, galvanized steel, marine grade aluminium, reinforced nordic pine
- **Gates and Access Control**, stainless steel, galvanized steel, marine grade aluminium

Accessories and Services

- **Electricity and Water Service Pedestals**
- **Emergency Service Pedestals**
- **Safety Ladders**
- **Pump-Out Systems**
- **Bollards and Cleats**

Fixings and Mooring

- **Pile Guides**
- **Wall Guides**
- **Radius Arms**
- **Chains and Sinkers**
- **Pile Driving**

Aids to Navigation

- **Balizamar Buoys**, rotomoulded polyethylene hull
- **Guia Buoys**, foam elastomer hull
- **Special Buoys**
- **Towers and Beacons**, steel, aluminium and fiber
- **Lights**, ranges up to 30NM

Accessibilities

- **Mobi-Mat**, portable rollout
- **Mobi-Chair**, amphibious wheelchair

Get a view of our full range of solutions at www.lindley.pt

Floating Breakwater



FLOATING BREAKWATER IN REINFORCED CONCRETE

QMF

The QMF system is composed of steel reinforced concrete pontoons with polystyrene core. This equipment works as a wave attenuator, having a massive and extremely strong structure.

Its geometric configuration, construction method and type of joints makes it a very good choice for protection of basins and in-port docks.

The standard units are usually built on 16 or 20m modules; these lengths decrease the number of necessary moorings and joints, and has advantages in terms of the overall behaviour of the system, reducing maintenance costs. The width ranges between 2,4 and 5m.

GENERAL CHARACTERISTICS

Strength	45N/mm ² concrete, watertight, reinforced with galvanized steel mesh. Massive and extremely resistant units
Core	Expanded polystyrene, density 15kg/m ³
Fenders	Impregnated nordic pine
Joints	Silent and semi-flexible, with galvanized steel bolts and elastomer blocks
Flexibility	Modular construction with variable dimensions
Fixings and moorings	Primordially chains or flexible moorings; optionally piles, metallic sections or radius arms
Services	Cable ducts in PEAD pipe
Live load	Live load capacity above 4kN/m ²
Optional accessories	Nonlinear geometry of the floating breakwater are possible (30°, 45° e 60°). Deck of nordic pine wood, exotic pine or composite. Cast iron and aluminium cleats and bollards. Fenders in marine elastomer. Pigmented concrete

APPLICATIONS

- Wave attenuation and protection of basins and docks in estuaries and semi-sheltered coastal environments
- Berthing and mooring of large vessels
- Landings in exposed areas

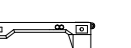
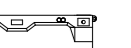
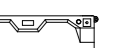
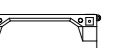
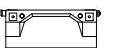
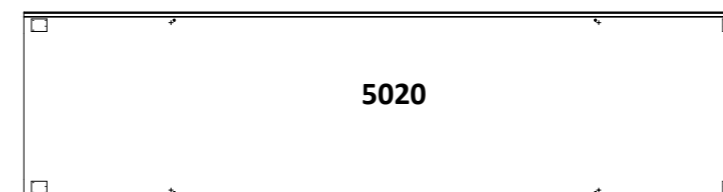
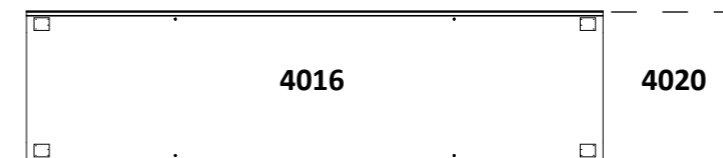
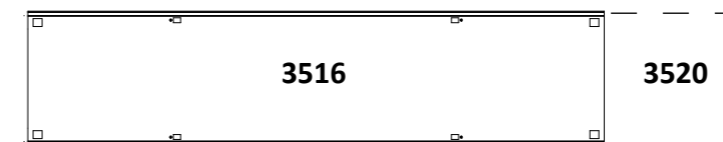
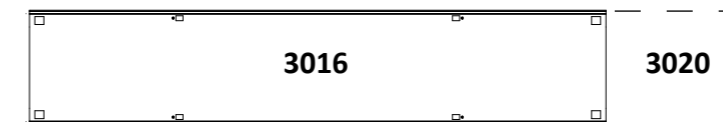
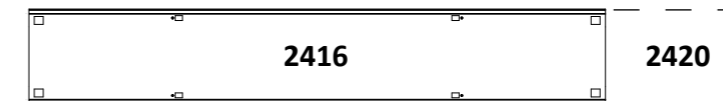
ADVANTAGES

- Stable
- Resistant
- Strong
- Safe



TECHNICAL SPECIFICATIONS

Models	2416	2420	3016	3020	3516	3520	4016	4020	5020
Length (m)	16	20	16	20	16	20	16	20	20
Concrete width (m)	2,4	2,4	3,0	3,0	3,5	3,5	4,0	4,0	5,0
Height (m)	1,0	1,0	1,0	1,0	1,2	1,2	1,8	1,8	1,8
Draft (m)	0,45	0,45	0,45	0,45	0,55	0,55	1,20	1,20	1,20
Freebord (m)	0,55	0,55	0,55	0,55	0,65	0,65	0,60	0,60	0,60
Weight (ton)	18	22	21	26	32	40	34	42	50
Net capacity (kN/m ²)	5,0	5,0	5,5	5,5	6,0	6,0	6,0	6,0	6,0
Strength of joint (kN)	2x448	2x448	2x703	2x703	2x812	2x812	2x812	2x812	2x812

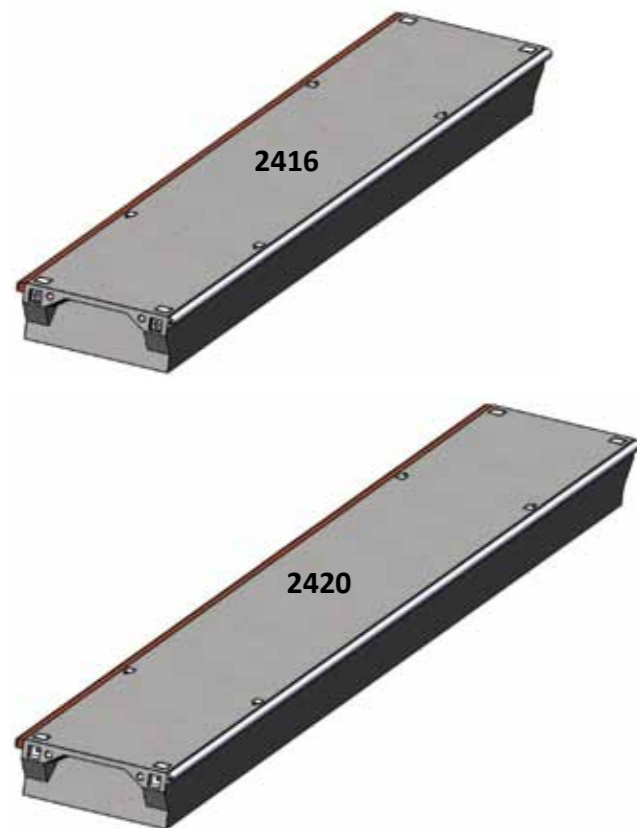
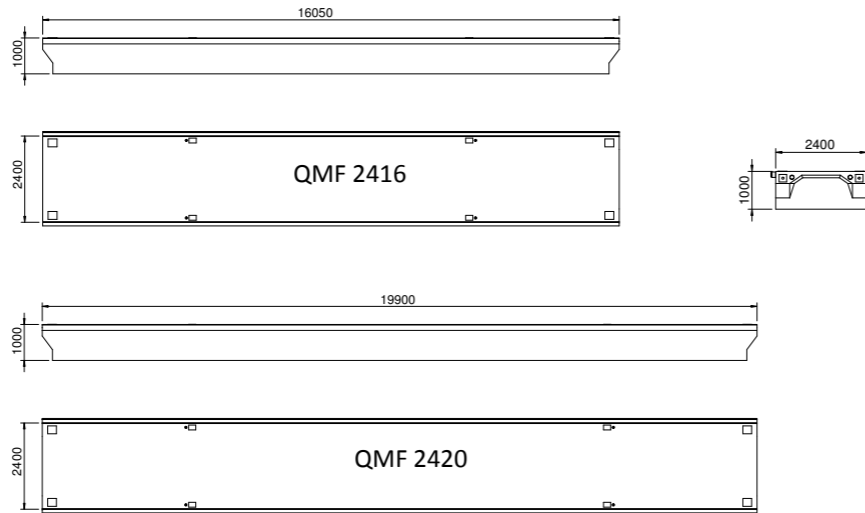


FLOATING BREAKWATER IN REINFORCED CONCRETE

2416, 2420

TECHNICAL SPECIFICATIONS

Models	2416	2420
Length (m)	16	20
Concrete width (m)	2,4	2,4
Height (m)	1,0	1,0
Draft (m)	0,45	0,45
Freebord (m)	0,55	0,55
Weight (ton)	18	22
Net Capacity (kN/m ²)	5,0	5,0
Strength of joint (kN)	2x448	2x448

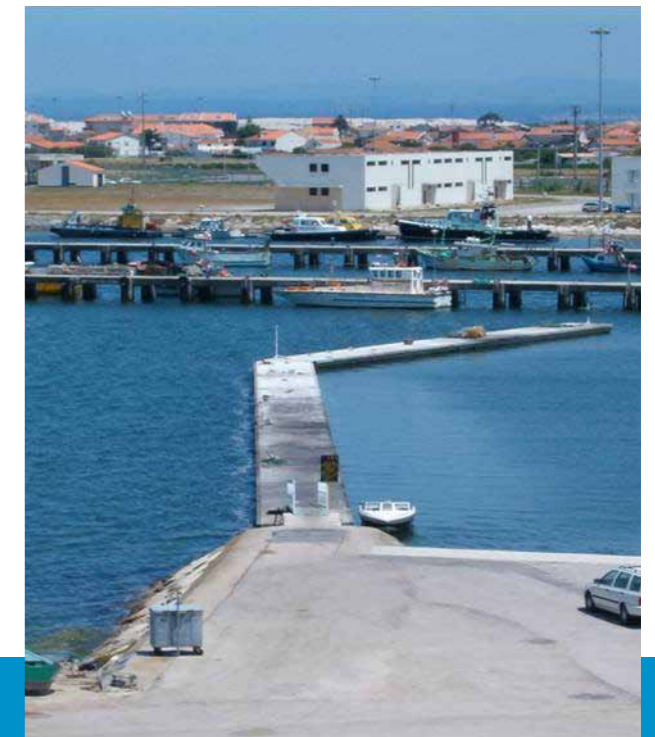
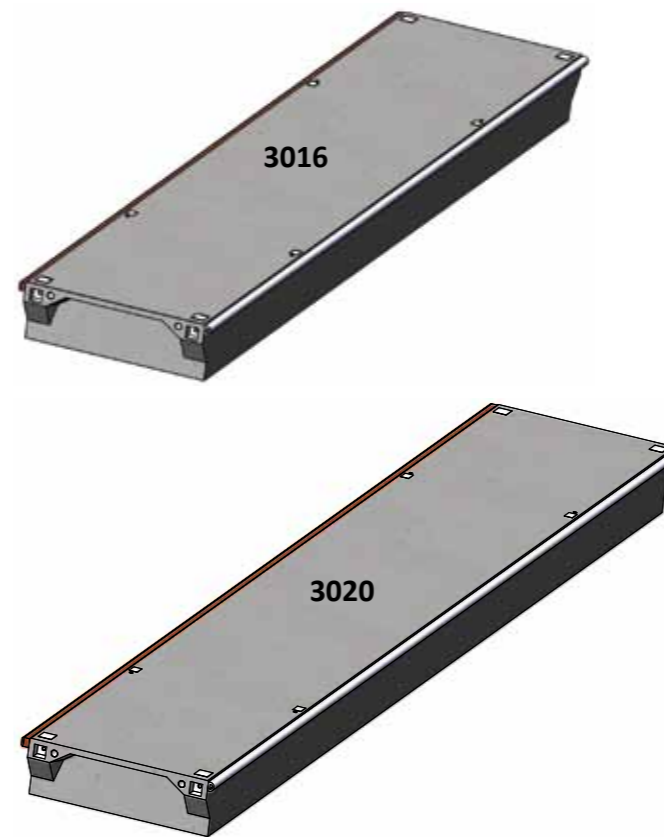
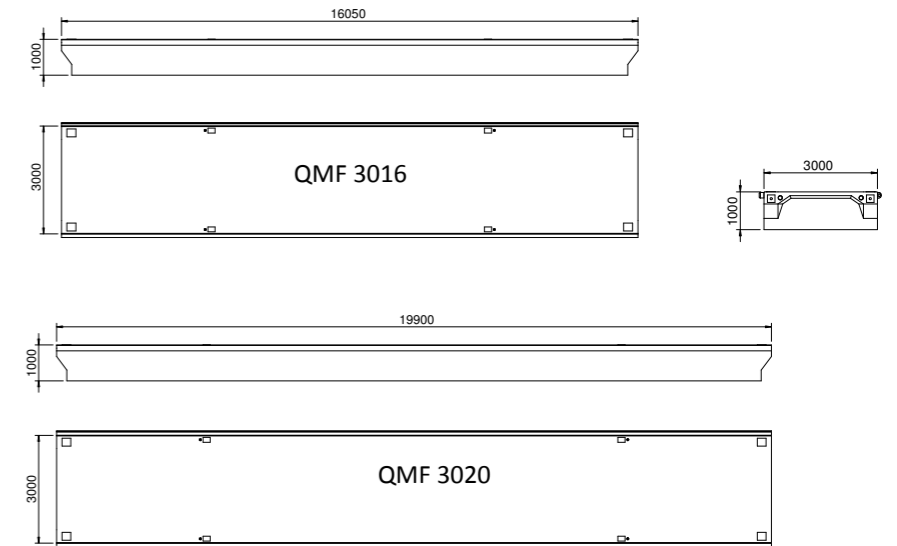


FLOATING BREAKWATER IN REINFORCED CONCRETE

3016, 3020

TECHNICAL SPECIFICATIONS

Models	3016	3020
Length (m)	16	20
Concrete width (m)	3,0	3,0
Height (m)	1,0	1,0
Draft (m)	0,45	0,45
Freebord (m)	0,55	0,55
Weight (ton)	21	26
Net Capacity (kN/m ²)	5,5	5,5
Strength of joint (kN)	2x703	2x703

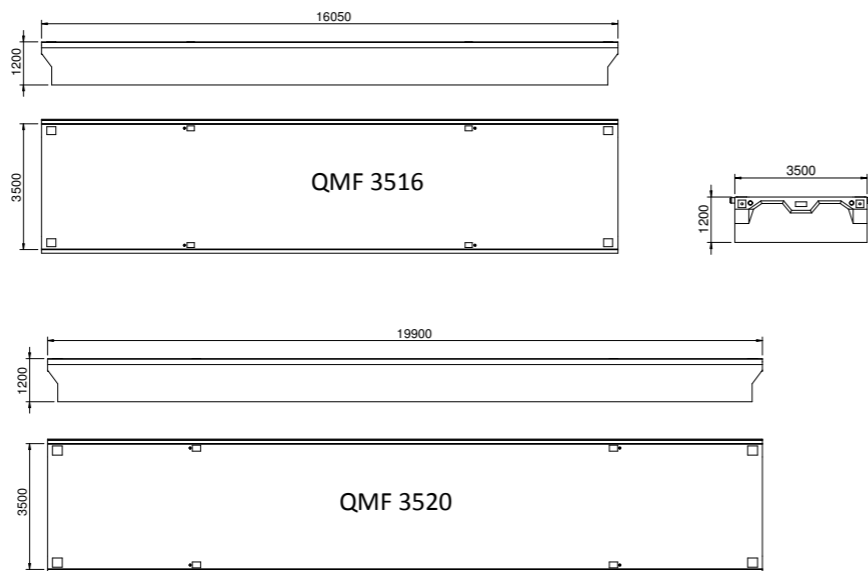


FLOATING BREAKWATER IN REINFORCED CONCRETE

3516, 3520

TECHNICAL SPECIFICATIONS

Models	3516	3520
Length (m)	16	20
Concrete width (m)	3,5	3,5
Height (m)	1,2	1,2
Draft (m)	0,55	0,55
Freebord (m)	0,65	0,65
Weight (ton)	32	40
Net Capacity (kN/m ²)	6,0	6,0
Strength of joint (kN)	2x812	2x812

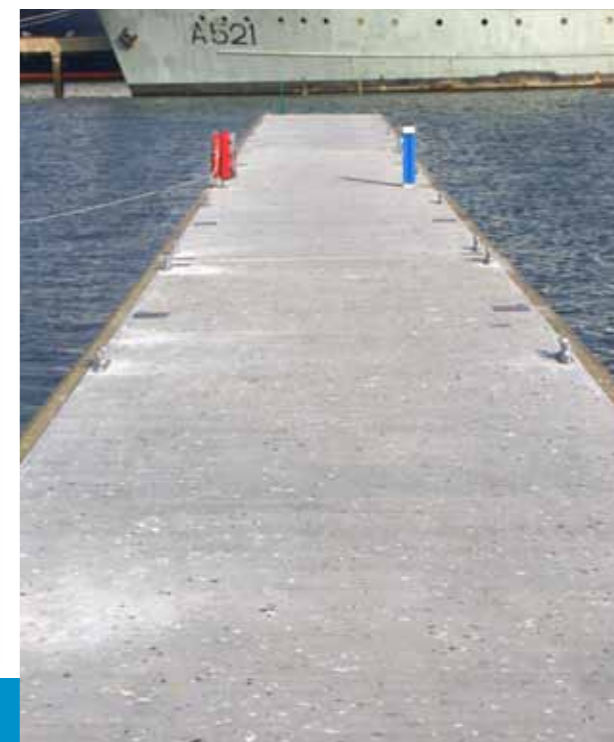
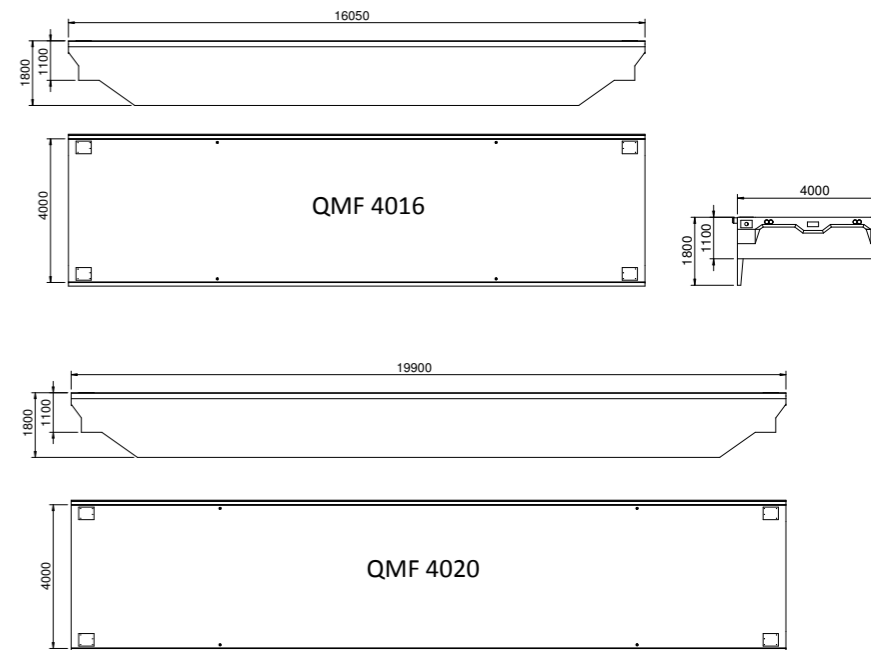


FLOATING BREAKWATER IN REINFORCED CONCRETE

4016, 4020

TECHNICAL SPECIFICATIONS

Modelos	4016	4020
Length (m)	16	20
Concrete width (m)	4,0	4,0
Height (m)	1,8	1,8
Draft (m)	1,20	1,20
Freebord (m)	0,60	0,60
Weight (ton)	34	42
Net Capacity (kN/m ²)	6,0	6,0
Strength of joint (kN)	2x812	2x812



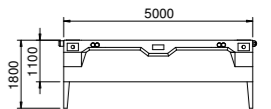
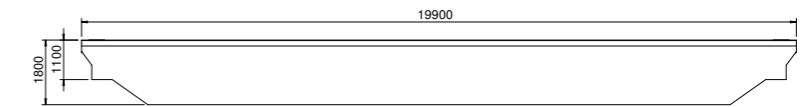


FLOATING BREAKWATER IN REINFORCED CONCRETE

5020

TECHNICAL SPECIFICATIONS

Model	5020
Length (m)	20
Concrete width (m)	5,0
Height (m)	1,8
Draft (m)	1,20
Freebord (m)	0,60
Weight (ton)	50
Net Capacity (kN/m ²)	6,0
Strength of joint (kN)	2x812





Continuous Floating Pontoon

CONTINUOUS FLOATING PONTOON IN REINFORCED CONCRETE PFC

The PFC system is composed of steel reinforced concrete pontoons.

These elements represent the latest know-how in the pontoon technology, designed to accommodate large vessels. It is inexpensive but still strong, stable, maintenance free and gives a very long service life.

The standard configuration is manufactured with internal ducts for water and electricity.

GENERAL CHARACTERISTICS

Strength	45N/mm ² concrete, watertight, reinforced with galvanized steel mesh
Core	Expanded polystyrene, density 15kg/m ³
Fenders	Impregnated nordic pine
Joints	Silent and semi-flexible, with galvanized steel bolts and elastomer blocks
Flexibility	Modular construction with variable dimensions
Fixings and moorings	Piles, metallic sections, radius arms, chains or flexible moorings
Services	Cable ducts in PEAD pipe
Live load	Live load capacity above 4kN/m ²
Optional accessories	Deck of nordic pine wood, exotic pine or composite. Cast iron and aluminium cleats and bollards. Fenders in marine elastomer. Pigmented concrete

APPLICATIONS

- Berthing and mooring of large vessels
- Landings for workboats and fishing vessels
- Landings for tourist boats
- Landing bridges in sheltered areas

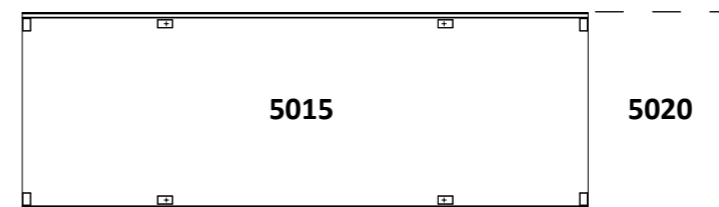
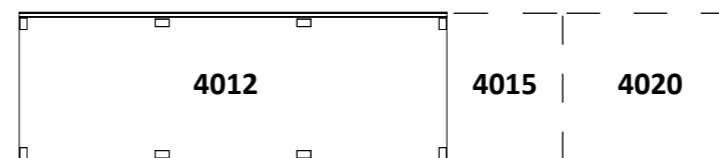
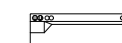
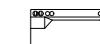
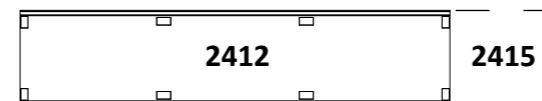
ADVANTAGES

- Long lasting
- Reduced maintenance
- Strong
- Simple



TECHNICAL SPECIFICATIONS

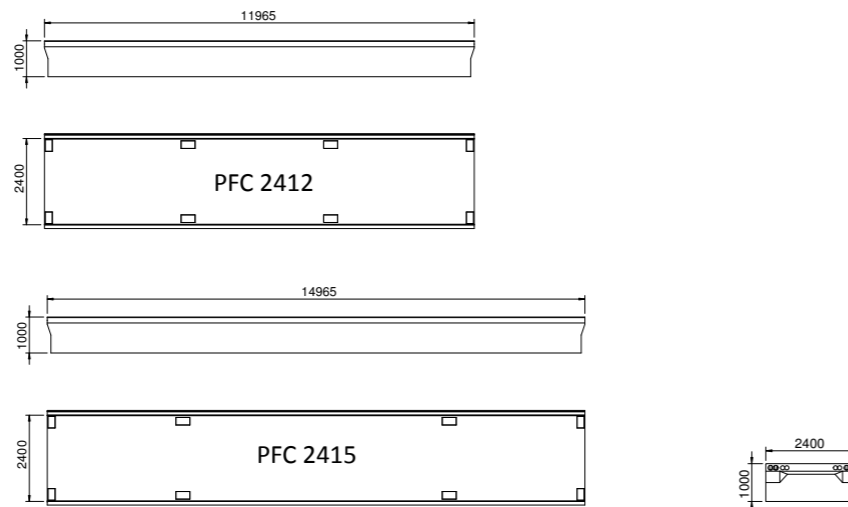
Models	2412	2415	3012	3015	3020	4012	4015	4020	5015	5020
Length (m)	12	15	12	15	20	12	15	20	15	20
Concrete width (m)	2,4	2,4	3,0	3,0	3,0	4,0	4,0	4,0	5,0	5,0
Height (m)	0,85-1,00	0,85-1,00	0,85-1,00	0,85-1,00	1,00	0,85-1,00	0,85-1,00	1,00	1,00	1,00
Freebord (m)	0,45-0,60	0,45-0,60	0,45-0,60	0,45-0,60	0,60	0,45-0,60	0,45-0,60	0,60	0,60	0,60
Weight (ton)	10,4-11,6	13,1-14,6	12,0-14,5	15,1-18,7	25,4	15,9-19,3	20,4-24,3	30,2	28,1	36,6
Net capacity (kN/m ²)	4,6	4,6	5,0	5,0	5,0	5,0	5,0	5,0	5,0	5,0
Strength of joint (kN)	2x322 - 4x200	2x322 - 4x200	2x322 - 4x200	2x322 - 4x200	4x200	2x322 - 4x250	2x322 - 4x250	4x250	4x300	4x300



CONTINUOUS FLOATING PONTOON IN REINFORCED CONCRETE 2412, 2415

TECHNICAL SPECIFICATIONS

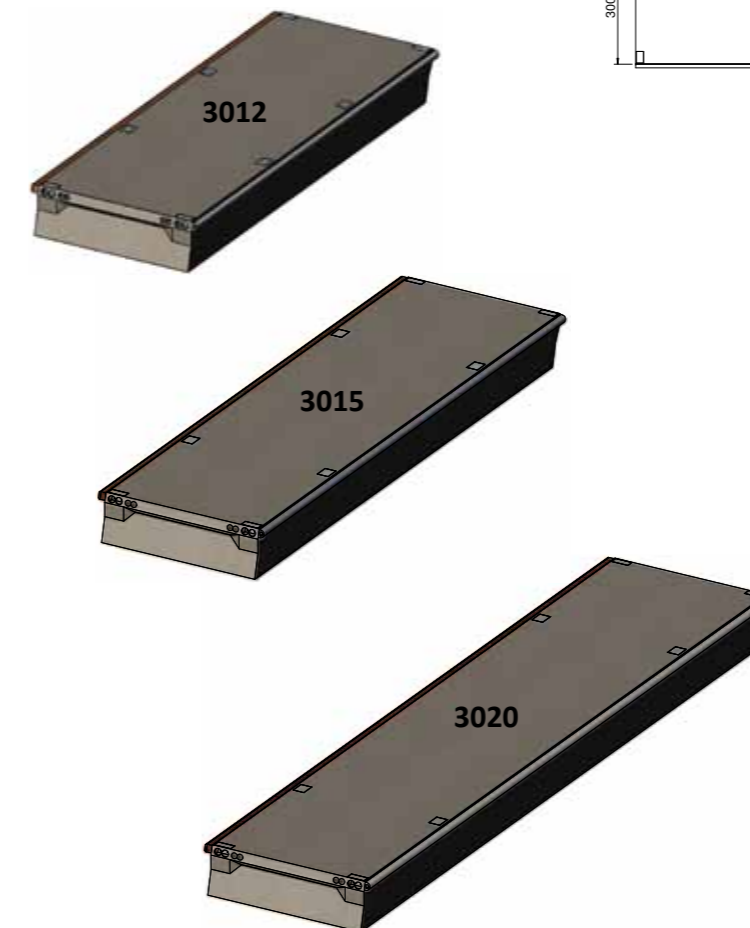
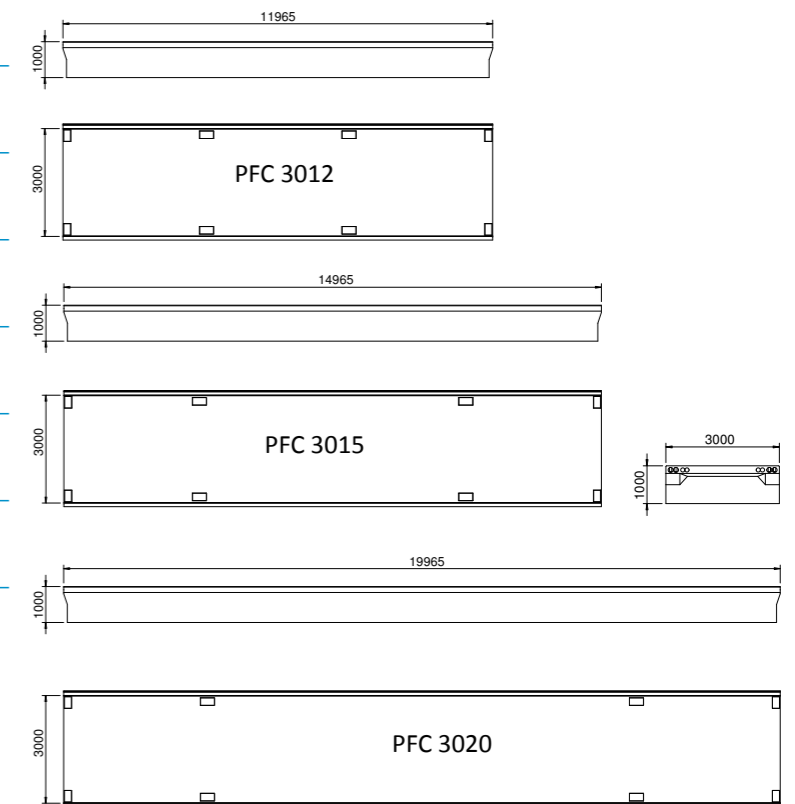
Models	2412	2415
Length (m)	12	15
Concrete width (m)	2,4	2,4
Height (m)	0,85-1,00	0,85-1,00
Freebord (m)	0,45-0,60	0,45-0,60
Weight (ton)	10,4-11,6	13,1-14,6
Net capacity (kN/m ²)	4,6	4,6
Strength of joint (kN)	2x322 - 4x200 2x322 - 4x200	



CONTINUOUS FLOATING PONTOON IN REINFORCED CONCRETE 3012, 3015, 3020

TECHNICAL SPECIFICATIONS

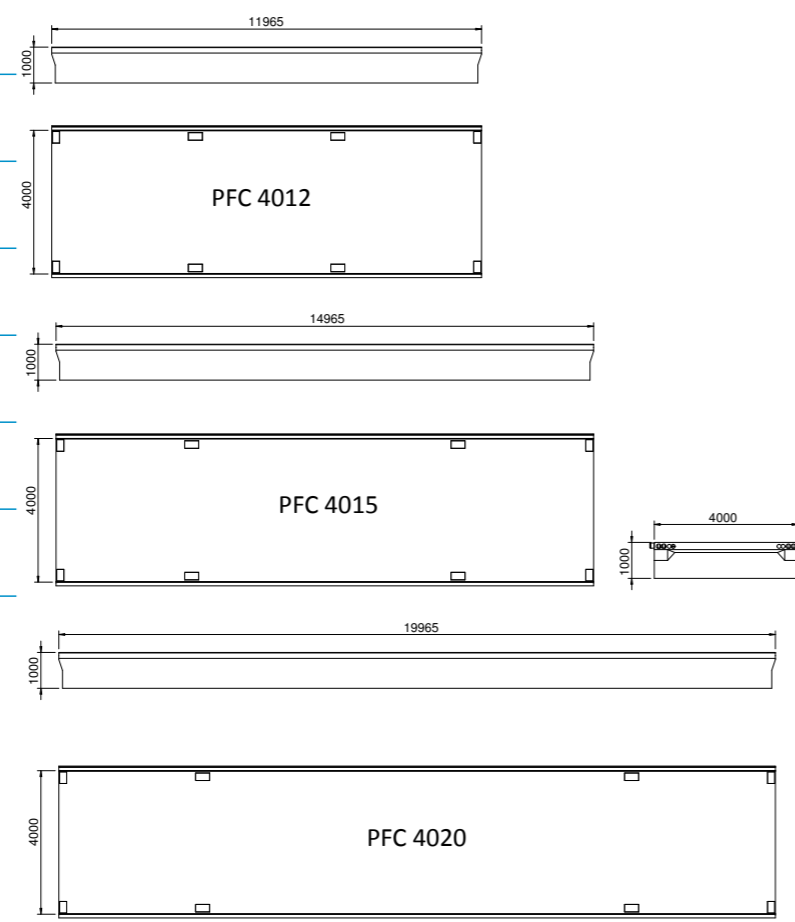
Models	3012	3015	3020
Length (m)	12	15	20
Concrete width (m)	3,0	3,0	3,0
Height (m)	0,85-1,00	0,85-1,00	1,00
Freebord (m)	0,45-0,60	0,45-0,60	0,60
Weight (ton)	12,0-14,5	15,1-18,7	25,4
Net capacity (kN/m ²)	5,0	5,0	5,0
Strength of joint (kN)	2x322 - 4x200 2x322 - 4x200		4x200



CONTINUOUS FLOATING PONTOON IN REINFORCED CONCRETE 4012, 4015, 4020

TECHNICAL SPECIFICATIONS

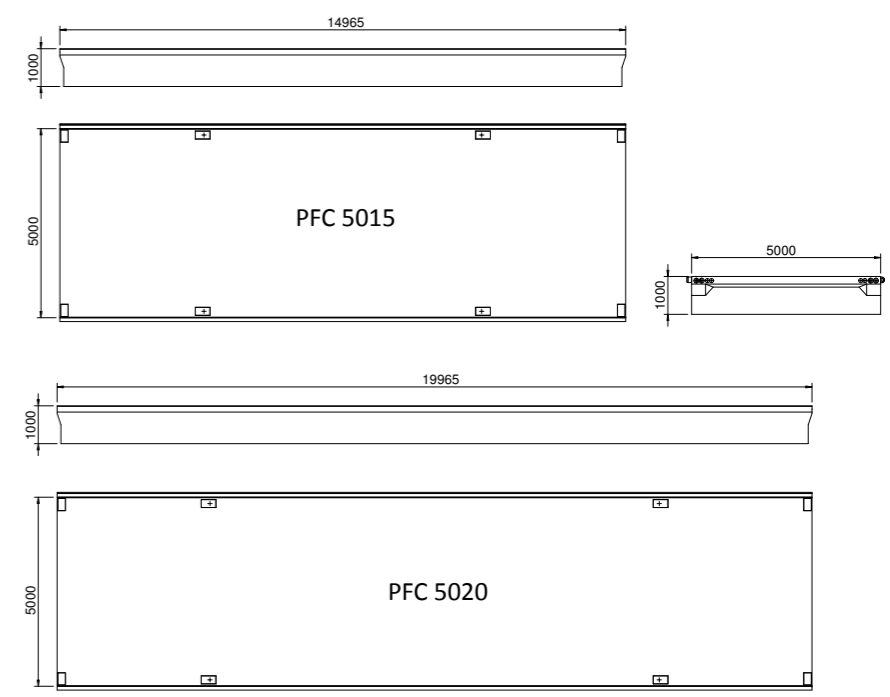
Models	4012	4015	4020
Length (m)	12	15	20
Concrete width (m)	4,0	4,0	4,0
Height (m)	0,85-1,00	0,85-1,00	1,00
Freebord (m)	0,45-0,60	0,45-0,60	0,60
Weight (ton)	15,9-19,3	20,4-24,3	30,2
Net capacity (kN/m ²)	5,0	5,0	5,0
Strength of joint (kN)	2x322 - 4x250	2x322 - 4x250	4x250



CONTINUOUS FLOATING PONTOON IN REINFORCED CONCRETE 5015, 5020

TECHNICAL SPECIFICATIONS

Models	5015	5020
Length (m)	15	20
Concrete width (m)	5,0	5,0
Height (m)	1,00	1,00
Freebord (m)	0,60	0,60
Weight (ton)	28,1	36,6
Net capacity (kN/m ²)	5,0	5,0
Strength of joint (kN)	4x300	4x300





Sagres Pontoon



HOD-DIP GALVANIZED STEEL PONTOON SAGRES E SAGRES+

The Sagres and Sagres+ systems are composed of hot-dip galvanized steel floating pontoons, composed of modular units suitable for use in coastal marinas or exposed inland waters; optionally and for increased protection the structure can be painted after galvanizing.

Service ducts are provided down both sides of all walkways as standard. Duct covers are anodised aluminium.

These systems are recommended for semi-sheltered areas in protected basins with larger vessels and was developed as an evolution of standard equipment installed by Lindley with satisfactory performance over the last twenty years.

GENERAL CHARACTERISTICS

Strength	Welded steel frame structure. Designed to withstand demanding weather conditions
Fenders	Impregnated nordic pine
Flexibility	Universal adjustment along the pontoon allowing the positioning of other walkways, fingers and accessories
Fixings and moorings	Piles, metallic sections, radius arms, chains or flexible moorings
Services	Easy assembly and maintenance of the water and electricity services
Live load	Standard live load of 1,5kN/m ² applied on the walking surface between ducts
Optional accessories	A continuous PVC service support tray can be provided in the duct. Fenders in marine elastomer. Superior overload by additional flotation

APPLICATIONS

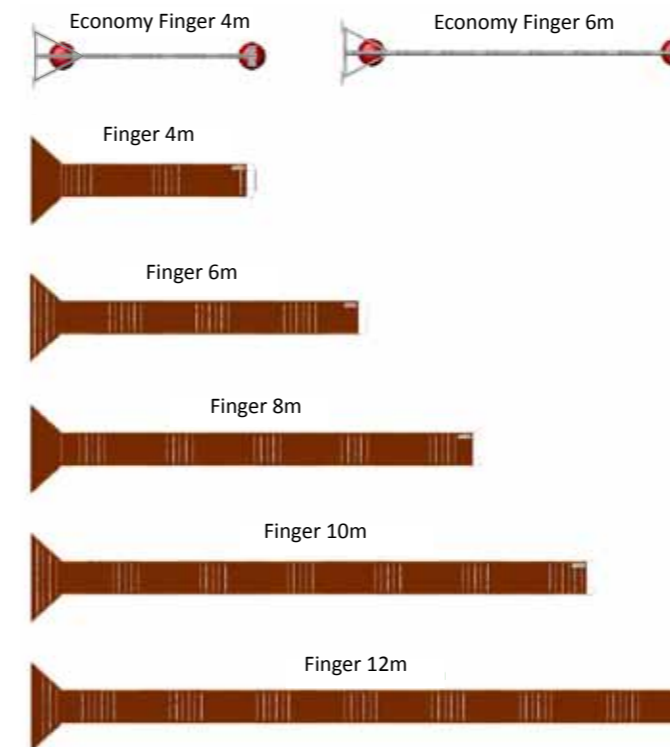
- Semi-sheltered areas in protected basins
- Mooring pontoons in marinas and leisure docks
- Private and public piers
- Landings

ADVANTAGES

- Proven
- Stable
- Reinforced structure
- Resistant
- Solid



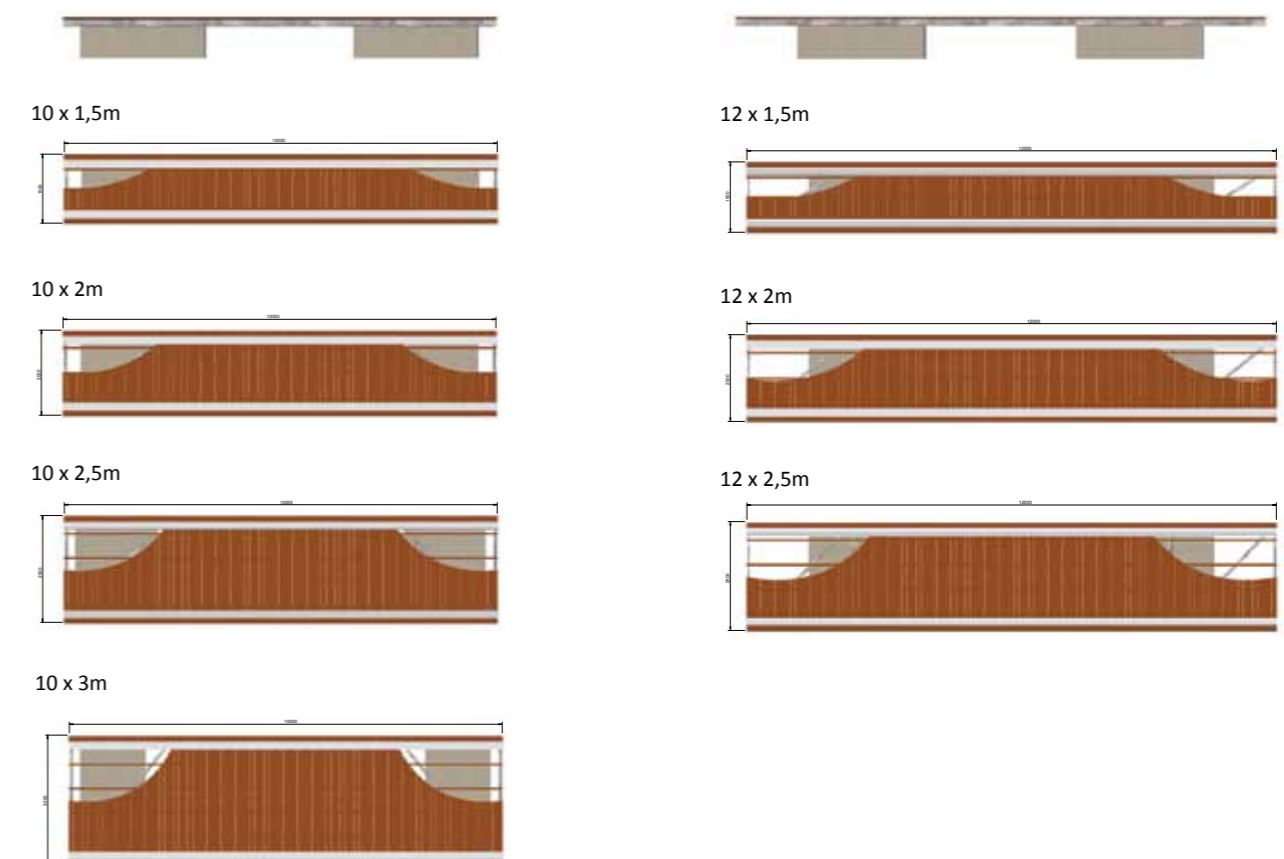
Fingers



TECHNICAL SPECIFICATIONS

Decking	Decking made of imputrescible exotic wood, maintenance free, with a minimum density of 1.100kg/m ² , standard dimensions including 145x21mm hardwood boards with a special grooved profile, fixed with stainless steel screws; optional dimensions including 110x21mm and 145x28mm; optional on composite or grating materials
Structure	Each component has a welded steel frame structure comprising standard sections and a specially rolled edge section. The frames are hot-dip galvanized in single sections resulting in a minimum outer layer of 610g/m ² (BS EN ISO 1461:1999). The Sagres+ system has reinforced structure. Structure weight with 2,5m width: 57kg/m (Sagres) and 67kg/m (Sagres+)
Live load	Walkways: standard live load of 1,5kN/m ² with option for 2,5kN/m ² . Fingers: standard live load of 1,0kN/m ²
Freeboard	500mm unladen
Draft	400mm unladen
Design parameters	Significant ripple with maximum height of 400mm (Sagres) and 500mm (Sagres+). Basic wind speed of 47m/s and steady wind speed of 25m/s. Maximum lateral loading of 1,25kN/m (Sagres) and 1,50kN/m (Sagres+). Maximum distance between piles: 25m (Sagres) and 30m (Sagres+)
Floats	Walkways: in expanded polystyrene core coated with concrete and polyethylene reinforced stainless steel; maintenance free. Fingers: in rotomoulded polyethylene and filled with expanded polystyrene; easy installation, reduced width. Fixed to the structure with stainless steel screws
Joints	Flexible and silence with elastomer blocks crossed by M24 hex screws in galvanized steel and nuts; four screws per joint between walkways

Walkways



REINFORCED PONTOON IN HOD-DIP GALVANIZED STEEL

SAGRES HD

The Sagres HD system is composed of hot-dip galvanized steel reinforced floating pontoons with high strength and live load, available in various dimensions and freeboards, with similar finishes with PFC, Sagres and Faro ranges.

Service ducts are provided down both sides of all walkways as standard. Duct covers are anodised aluminium.

The Sagres HD is a modular system with excellent behaviour under alternating loads, which makes it ideal for places where the loads due to wind and curling action are the critical factor.

GENERAL CHARACTERISTICS

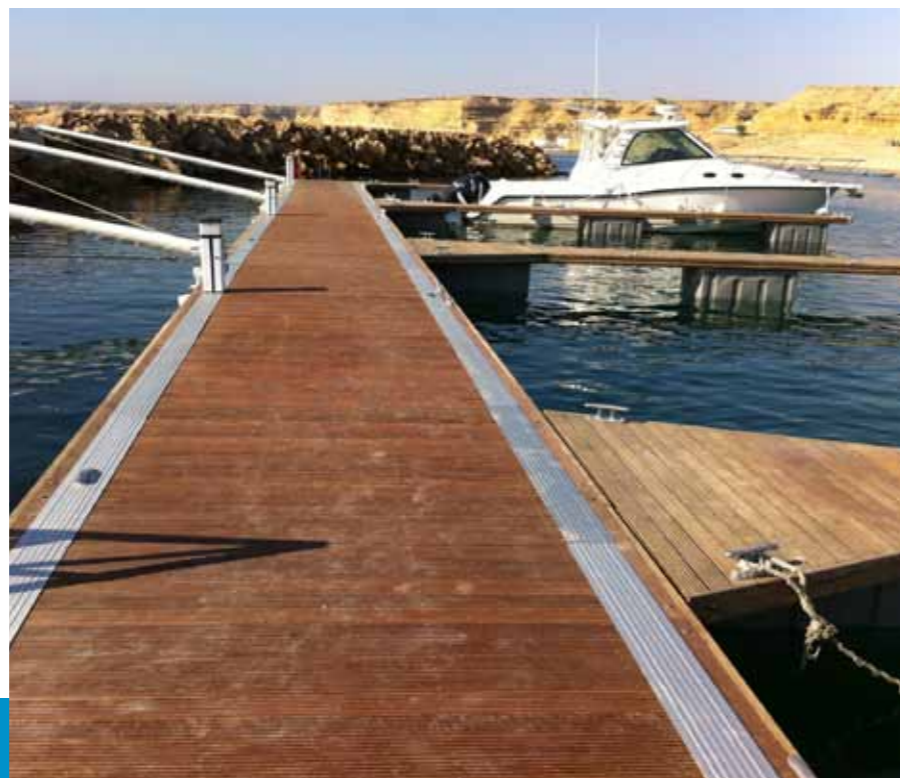
Strength	Reinforced hot-dip galvanized steel structure Designed to withstand demanding weather conditions
Fenders	Impregnated nordic pine
Flexibility	Universal adjustment along the pontoon allowing the positioning of other walkways, fingers and accessories
Fixings and moorings	Piles, metallic sections, radius arms, chains or flexible moorings
Services	Easy assembly and maintenance of the water and electricity services
Live load	Standard live load of 2,5kN/m ² applied on the walking surface between ducts
Optional accessories	It can be fitted up to 10T bollards. Fenders in marine elastomer. Epoxy paint over galvanizing for additional protection. Incorporation of side guardrails. Superior overload by additional flotation

APPLICATIONS

- Semi-exposed areas in basins and estuaries
- Landings for workboats and heavy fishing vessels
- Fuel dock
- Landings for heavy vessels
- Landings

ADVANTAGES

- Stable
- Reinforced structure
- Resistant
- Robust



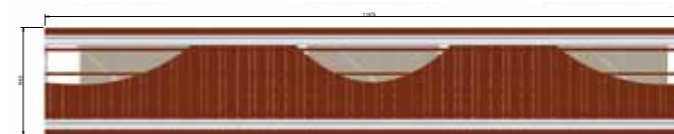
TECHNICAL SPECIFICATIONS

Decking	Decking made of impurexotic wood, maintenance free, with a minimum density of 1.100kg/m ³ , standard dimensions including 145x21mm hardwood boards with a special grooved profile, fixed with stainless steel screws; optional dimensions including 110x21mm and 145x28mm; optional on composite or grating materials
Structure	Each component has a welded steel frame structure comprising standard sections and a specially rolled edge section. The frames are hot-dip galvanized in single sections resulting in a minimum outer layer of 610g/m ² (BS EN ISO 1461:1999). Structure weight with 2,5m width: 71kg/m
Live load	Walkways: standard live load of 2,5kN/m ² with option for 4,0kN/m ² , between ducts
Freeboard	550mm unladen
Draft	400mm unladen
Design parameters	Significant ripple with maximum height of 600mm. Basic wind speed of 47m/s and steady wind speed of 25m/s. Maximum lateral loading of 2,5kN/m. Maximum distance between piles: 35m
Floats	Made of expanded polystyrene core coated with concrete, optionally PEAD. Reinforcing structure in stainless steel. Fixed to the structure with stainless steel crews
Joints	Flexible and silence with elastomer blocks crossed by M24 hex screws in galvanized steel and nuts; four screws per joint between walkways

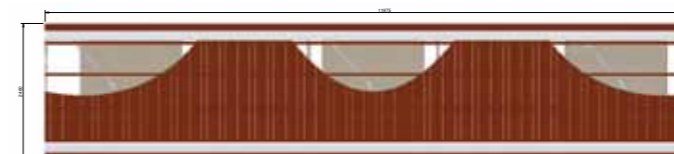
Walkways



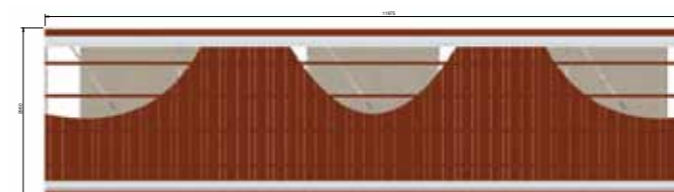
12 x 2m



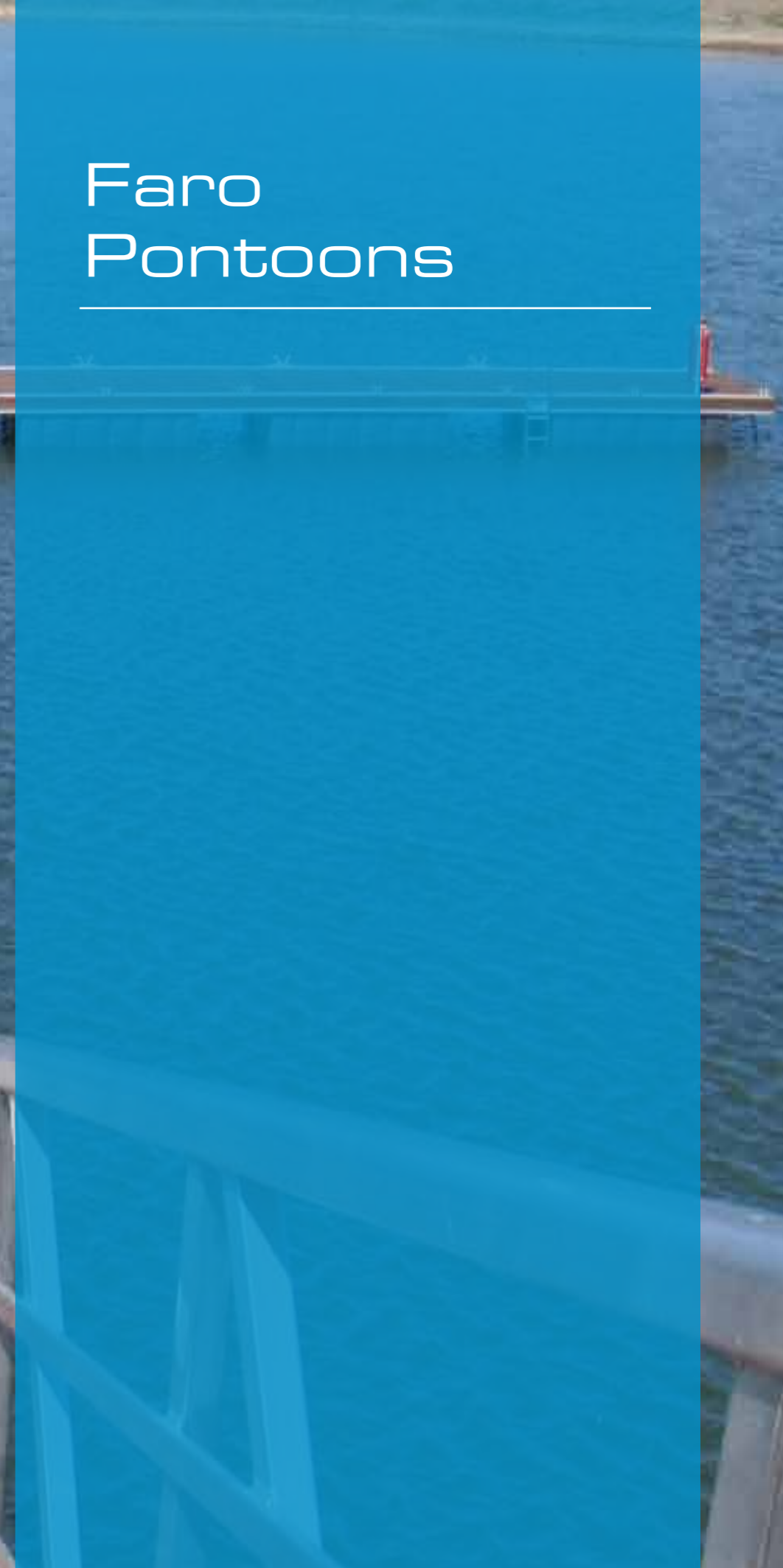
12 x 2,5m



12 x 3m



Faro Pontoons



MARINE GRADE ALUMINIUM ALLOY PONTOON

FARO E FARO+

The Faro and Faro+ systems consists of floating pontoons in marine grade aluminium alloy, composed of modular units.

Along with Lindley floats the Faro and Faro+ system endows marinas, docks and navigation channels of an attractive floating equipment with high resistance to sea water corrosion.

Service ducts are provided down both sides of all walkways as standard. Duct covers are anodised aluminium; optionally a continuous PVC service support tray can be provided in the duct.

These systems are recommended for sheltered locations in basins and estuaries, where there is a high risk of corrosion.

GENERAL CHARACTERISTICS

Strenght	Marine grade aluminium alloy structure. Material with high resistance to sea water corrosion with an attractive finish
Fenders	Impregnated exotic wood
Flexibility	Universal adjustment along the pontoon allowing the positioning of other walkways, fingers and accessories
Fixings and moorings	Piles, metallic sections, radius arms, chains or flexible moorings
Services	Easy assembly and maintenance of the water and electricity services
Live load	Standard live load of 1,5kN/m ² applied on the walking surface between ducts
Optional accessories	Fenders in marine elastomer. Incorporation of side guardrails. Superior overload by additional flotation

APPLICATIONS

- Sheltered areas in basins and estuaries
- Landings for recreation and leisure vessels
- Private pier with fingers
- Areas of high environmental aggression

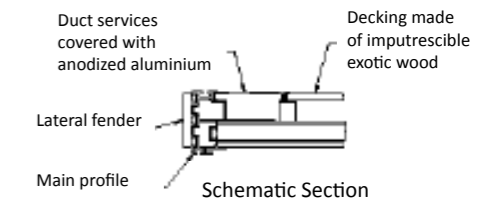
ADVANTAGES

- Attractive
- Stable
- Easy to assemble
- Flexible
- High resistance to corrosion

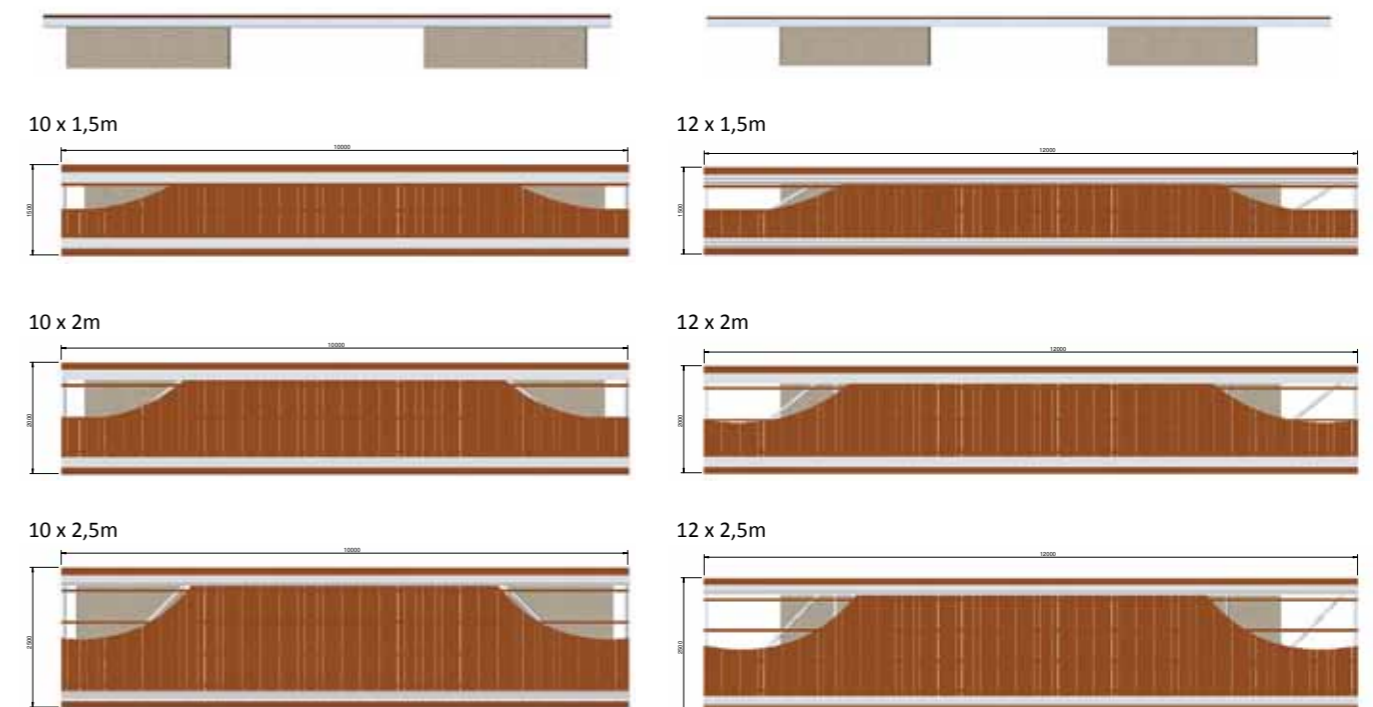


TECHNICAL SPECIFICATIONS

Decking	Decking made of imputrescible exotic wood, maintenance free, with a minimum density of 1.100kg/m ² , non-slip, standard dimensions including 145x21mm planed and profiled hardwood deck boards fixed to timber spines with stainless steel screws; optional dimensions including 110x21mm and 145x28mm; optional on composite or grating materials
Structure	Each unit has a welded aluminium structure comprising standard sections and specially comissioned extrusions. The aluminium alloy are A6082-T6 and A6005-T5. The Faro+ system has reinforced structure and a more robust profile. Structure weight with 2,5m width: 34,4kg/m (Faro) e 45,6 kg/m (Faro+)
Live load	Walkways: standard live load of 1,5kN/m ² , between ducts Fingers: standard live load of 1,0kN/m ²
Freeboard	500mm unladen
Draft	400mm unladen
Design parameters	Significant ripple with maximum height of 250mm (Faro) and 350mm (Faro+). Basic wind speed of 40m/s and steady wind speed of 25m/s. Maximum lateral loading of 0,25kN/m (Faro) e 0,50kN/m (Faro+). Maximum load on cleats of 25kN (Faro) e 50kN (Faro+). Maximum distance between piles: 20m (Faro) e 24m (Faro+)
Floats	Walkways: in rotomoulded polyethylene and filled with expanded polystyrene; free maintenance. Fingers: the same structure of walkways, in marine aluminium. Floats made of rotomoulded polyethylene and filled with expanded polystyrene
Joints	Flexible and silence with elastomer blocks crossed by M24 hex screws in galvanized steel and nuts; four screws per joint between walkways



Walkways



REINFORCED PONTOON IN MARINE GRADE ALUMINIUM ALLOY

FARO HD

The Faro HD system consists of floating pontoons in reinforced marine grade aluminium alloy, used to berthing and mooring of vessels in semi-sheltered locations where there is a high risk of corrosion.

Service ducts are provided down both sides of all walkways as standard. Duct covers are anodised aluminium; optionally a continuous PVC service support tray can be provided in the duct.

Along with Lindley floats the Faro HD system endows marinas, docks and navigation channels of an attractive and stable floating equipment.

GENERAL CHARACTERISTICS

Strenght	Reinforced marine grade aluminium alloy structure. Material with high resistance to sea water corrosion with an attractive finish
Fenders	Impregnated exotic wood
Flexibility	Universal adjustment along the pontoon allowing the positioning of other walkways, fingers and accessories
Fixings and moorings	Piles, metallic sections, radius arms, chains or flexible moorings
Services	Easy assembly and maintenance of the water and electricity services
Live load	Standard live load of 2,0kN/m ² applied on the walking surface between ducts
Optional accessories	Incorporation of side guardrails. Fenders in marine elastomer. Superior overload by additional flotation

TECHNICAL SPECIFICATIONS*

Decking	Decking made of imputrescible exotic wood, maintenance free, with a minimum density of 1.100kg/m ² , non-slip, standard dimensions including 145x21mm planed and profiled hardwood deck boards fixed to timber spines with stainless steel screws; optional dimensions including 110x21mm and 145x28mm; optional on composite or grating materials
Structure	Each unit has a welded aluminium structure comprising standard sections and specially comissioned extrusions. The aluminium alloy are A6082-T6 and A6005-T5. Structure weight with 2,5m width: 65,3kg/m
Live load	Walkways: standard live load of 2,0kN/m ² , with option for 4,0kN/m ² , between ducts Fingers: standard live load of 1,0kN/m ²
Freeboard	500mm unladen
Draft	400mm unladen
Design parameters	Significant ripple with maximum height of 450mm. Basic wind speed of 42m/s and steady wind speed of 22m/s. Maximum lateral loading of 0,75kN/m. Maximum load on cleats of 75kN. Maximum distance between piles: 28m
Floats	Walkways: in rotomoulded polyethylene and filled with expanded polystyrene; free maintenance. Fingers: the same structure of walkways, in marine aluminium. Floats made of rotomoulded polyethylene and filled with expanded polystyrene
Joints	Flexible and silence with elastomer blocks crossed by M24 hex screws in galvanized steel and nuts; four screws per joint between walkways

APPLICATIONS

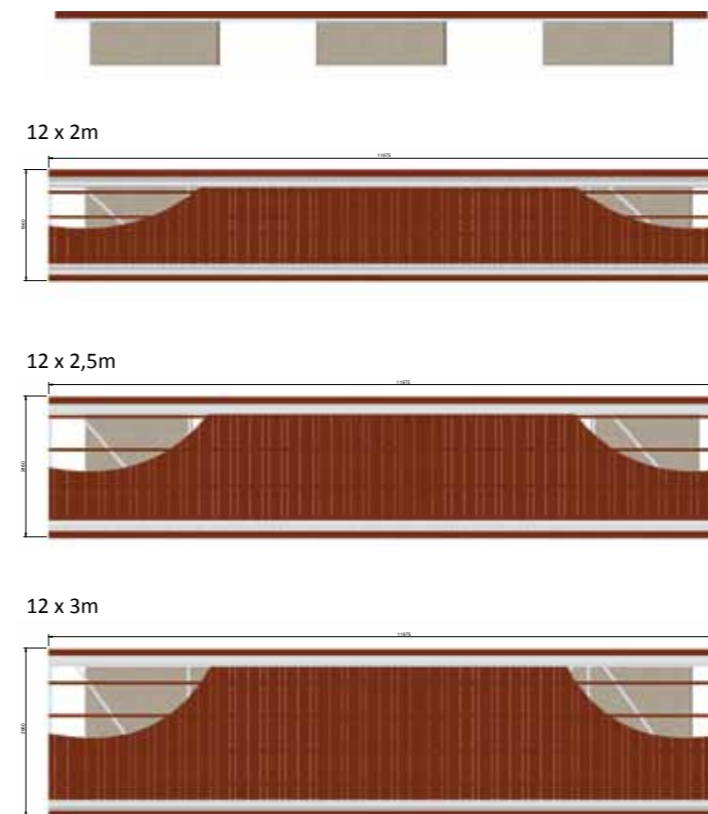
- Berthing heavy vessels in sheltered locations
- Landings for work and touristic boats
- Fixed structures and light-weight landings

ADVANTAGES

- Long lasting
- Corrosion resistant
- Robust



Walkways





Doc-Kit Pontoons



REINFORCED NORDIC PINE PONTOON DOC-KIT

The Doc-Kit system is composed of nordic pine wood floating pontoons, designed and manufactured in Portugal by Lindley.

The equipment is supplied as a standard kit so that may be easily transported and installed. It is intended for sheltered locations, with reduced currents and without ripple caused by wind.

Being entirely fabricated in wood integrates harmoniously with their natural surroundings.

GENERAL CHARACTERISTICS

Streight	Impregnated nordic pine with galvanized steel reinforcements
Core	Expanded polystyrene floats and filled with expanded polystyrene
Fenders	Nordic pine
Flexibility	Easy transportation, assembly and disassembly
Fixings and moorings	Chains and sinkers or flexible moorings
Live load	Standard live load of 1kN/m ²

Optional accessories

Stainless steel reinforcements.
Walkway with 4 x 2,2m.
Fixings and moorings by piles or metallic sections.
Lightweight fingers, used in conjunction with the walkways to individual moorings.
Fenders in marine elastomer.
Downgraded step to rowing and canoeing.
Downgraded floats to reduce the freeboard

APPLICATIONS

- Private pier
- Pontoons for rowing and canoeing
- Pontoon to support sailing
- Pontoons to riverside beaches, rivers, lakes and dams

ADVANTAGES

- Economic
- Ecologic
- Lightweight

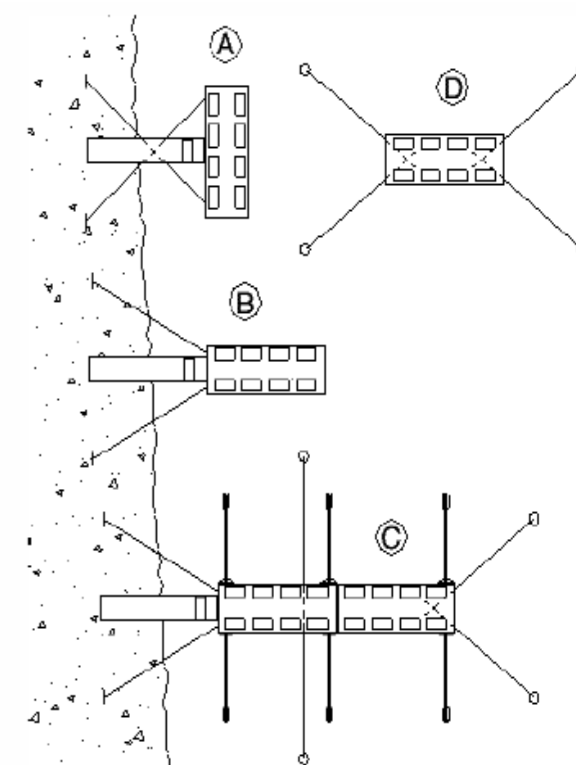


TECHNICAL SPECIFICATIONS

Decking	Decking made of nordic pine wood with 25mm thick, planed, fixed with stainless steel screws
Structure	Impregnated nordic pine with galvanized steel reinforcements
Live load	100kg/m ² for a uniformly distributed load on the deck, with 25% fluctuation reserve
Freeboard	400mm unladen
Draft	150mm unladen
Design parameters	Sheltered locations with waves with less than 150mm and currents lower than 1 knot
Floats	Made of rotomoulded polyethylene and filled with expanded polystyrene
Joints	Flexible and silence with elastomer blocks and galvanized or stainless steel screws

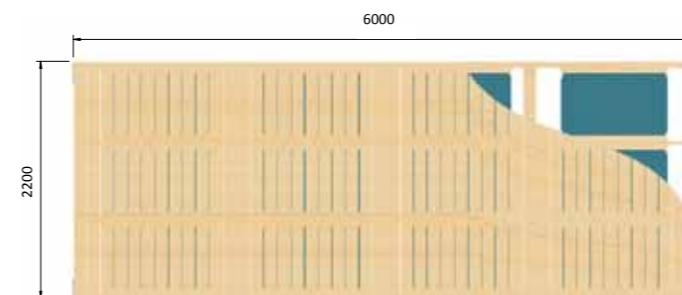
EXAMPLES OF LAYOUTS

A	Arrangement in T with access bridge
B	Arrangement in I with access bridge
C	Combinations of walkways; with fingers for several berths
D	Isolate system

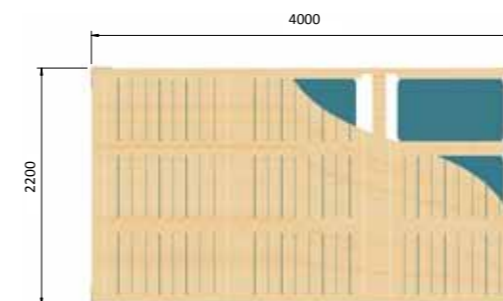


Walkways

6 x 2,2m - standard configuration



4 x 2,2m - configuration adapted to the local development plan





Floating Platforms



ROTOMOULDED POLYETHYLENE PLATFORM HYDROFLOAT

The Hydrofloat system is composed of floating platforms with rotomoulded polyethylene structure and non-slip floor, designed to allowing the safe parking of jetskis in marinas, docks and reservoirs.

This equipment has reduced maintenance and can be front or side-mounted on floating or fixed docks, without fixed parts in their structure.

This platform protect your equipment, allowing you enjoy fast and convenient access to the water; the platform features an exclusive bow bumper that slows your craft's forward motion and provides a soft rest for the keel.

GENERAL CHARACTERISTICS

Structure	Ultra-tough polyethylene construction with non-slip floor
Dimensions	Length: 3,5m Width: 1,5m Height: 38cm
Flexibility	Easy transportation, assembly and disassembly
Maintenance	Reduced
Live load	Up to 700kg
Weight	105kg
Color	Available in blue and brown

APPLICATIONS

- Jet ski parking
- Berthing of semi-rigid boats

ADVANTAGES

- Easy to assemble
- Lightweight
- Resistant
- Versatile



INJECTED POLYETHYLENE MODULAR PLATFORM FLEXIFLOAT

The Flexifloat system is composed of floating platforms with injected polyethylene, being used in temporary applications or areas with restricted access to heavy vehicles; in spite his lightweight it was designed to withstand adverse weather conditions.

This equipment is characterized by its reduced maintenance requirements and for his long lasting life.

The mini elements have downgraded freebord and are suitable for applications of adaptive sailing, rowing and canoeing.

This equipment is certified by ISO9001 standards and approved by environmental protection institutions.

GENERAL CHARACTERISTICS

Structure	Injected polyethylene with non-slip floor
Dimensions	Mini elements : 50x50x25cm Single elements : 50x50x40cm Double elements : 100x50x40cm
Flexibility	Easy transportation, assembly and disassembly
Maintenance	Reduced
Live load	Up to 375kg/m ²
Weight	Mini elements : 5,2kg Single elements : 6,0kg Double elements : 11,5kg
Color	Available in blue, gray or black

APPLICATIONS

- Natural swimming pools, water parks
- Berthing of semi-rigid boats
- Temporary applications
- Aquaculture

ADVANTAGES

- Easy to assemble
- Economic
- Modular
- Resistant



Pontoon Access Bridges and Gates



ACCESS STRUCTURE ACCESS BRIDGES

The design of the access bridge to a pontoon defines the quality of the project and can be used for pedestrian applications or access to floating facilities.

The bridges designed by Lindley may have structure in steel, aluminium or nordic pine wood, in accordance with Sagres, Faro and Doc-Kit ranges, respectively.

Lindley has been developing calculations methods and proven optimization manufacturing processes in bridges produced over the last few years.

The structural performance is properly optimized in terms of resistance and deformation for the loading conditions defined for each project. Our team of engineers study the behaviour of structures according to the specifications defined for each application.

APPLICATIONS

- Pier access in marinas, docks and fishing piers
- Pedestrian walkways

ADVANTAGES

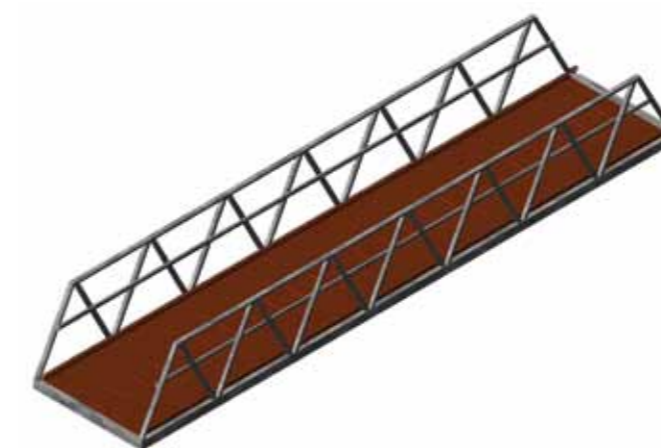
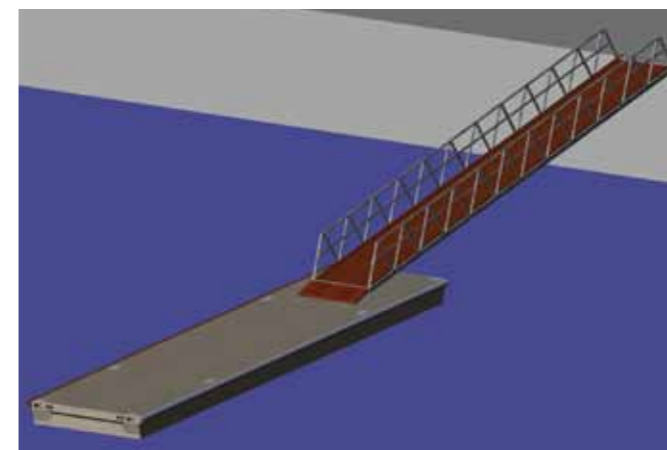
- Safe
- Resistant
- Proven

GENERAL CHARACTERISTICS

Strenght	Steel, aluminium and nordic pine wood structures, as customer and application needs
Decking	Exotic wood provided with slats anti-slip; optionally in composite materials
Flexibility	Adaptable to each application
Live load, lateral loading	Standard live load evenly distributed over the deck of 2,5kN/m ² ; horizontal load of 1kN/m ² applied on the balcony side
Optional accessories	Depending on use, the bridges can be designed to special loadings, in particular of 4kN/m ² for unrestricted access and 5kN/m ² for no restricted use of the public. There is design and manufacturing capacity to meet special requirements



AÇO METALIZADO OU GALVANIZADO PONTE ALPS



Steel bridge
8 x 1,5m

TECHNICAL SPECIFICATIONS

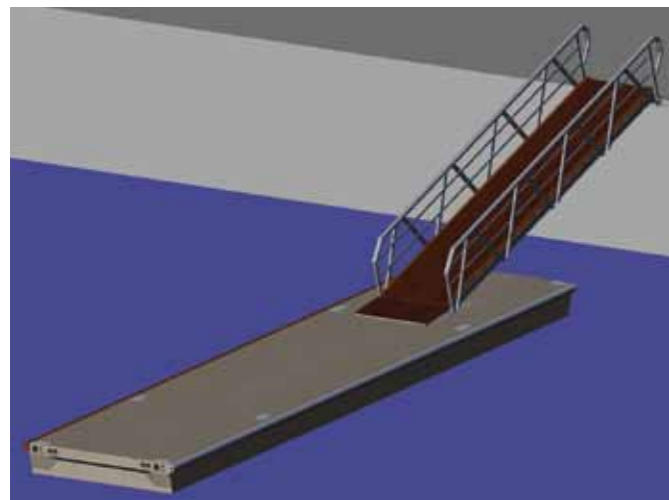
Structure	Lattice with profiles in treated metallized steel or hot galvanized painted
Dimensions	Preferably manufactured with standard dimensions, ranging from 8 to 20m in length, and concrete widths of 1,0, 1,5, 2,0 and 2,5m.
Live load	Standard live load of 2,5kN/m ² , 4kN/m ² or 5kN/m ²
Design and manufacturing	Capacity to meet special requirements in terms of length and live load

OPTIONS

Joints	Both the upper end and the lower end of the bridge can be provided with biaxial pivots, allowing angular movements in the vertical and horizontal planes
Floating support bridge	May have its own buoyancy at the lower end
Lighting	Can be provided with its own lighting



MARINE GRADE ALUMINIUM ALPF BRIDGE



TECHNICAL SPECIFICATIONS

Structure	Lattice with marine aluminium profiles
Dimensions	Preferably manufactured with standard dimensions, ranging from 8 to 20m in length, and concrete widths of 1,0, 1,5, 2,0 and 2,5m
Live load	Standard live load of 2,5kN/m ² , 4kN/m ² or 5kN/m ²
Design and manufacturing	Capacity to meet special requirements in terms of length and live load

OPTIONS

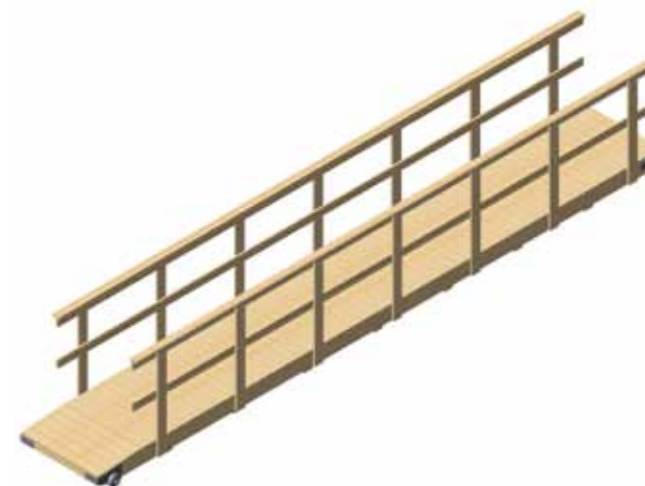
Joints	Both the upper end and the lower end of the bridge can be provided with biaxial pivots, allowing angular movements in the vertical and horizontal planes
Floating support bridge	May have its own buoyancy at the lower end
Lighting	Can be provided with its own lighting



Aluminium bridge
8 x 1,5m



NORDIC PINE ALPD BRIDGE



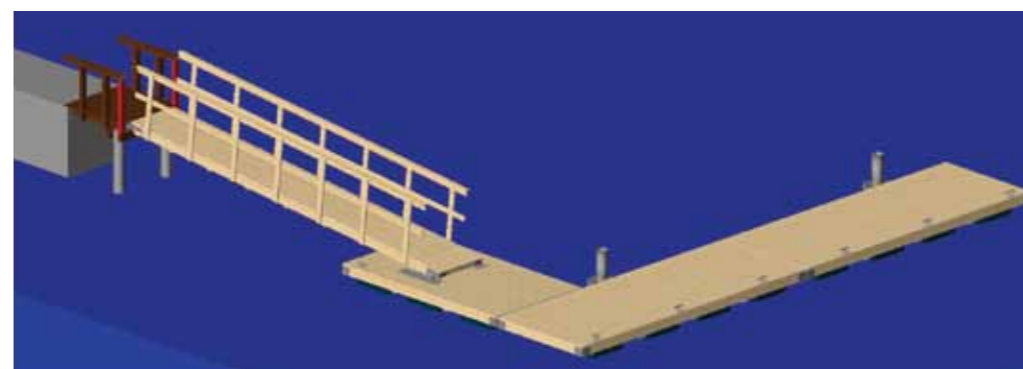
Nordic pine bridge
6 x 1,1m

TECHNICAL SPECIFICATIONS

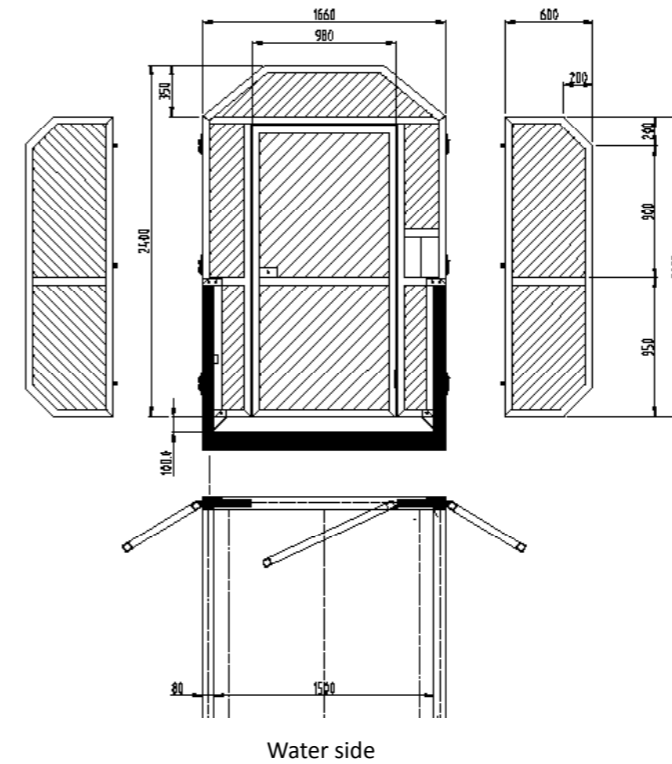
Structure	Nordic pine wood reinforcing steel
Dimensions	Preferably manufactured with standard dimensions, ranging from 4 to 6m in length, and concrete widths of 1,1m
Live load	Standard live load evenly distributed over the deck of 1kN/m ²
Design and manufacturing	Capacity to meet special requirements in terms of length and live load

OPTIONS

Joints	Both the upper end and the lower end of the bridge can be provided with biaxial pivots, allowing angular movements in the vertical and horizontal planes
Floating support bridge	May have its own buoyancy at the lower end
Lighting	Can be provided with its own lighting



ACCESS CONTROL ALAC GATE



GENERAL CHARACTERISTICS

Structure	Reinforced with anti-corrosive treatment including finishing matching the bridges
Composition	Gate and side guards with polycarbonate panels
Flexibility	Lindley's team will assist in selecting the correct product for each application

OPTIONS

Automation	Can be automated through arm and electrical latch; in this case the access control is done through electronic key, keypad or lock with spring
Finishes	With panels of galvanized blurred grid, tempered glass or perforated plate as customer's need
Accessories	Own lighting, CCTV system, hinged or sliding doors, with single leaf or double

APPLICATIONS

- Access control to the pier in marinas and docks

ADVANTAGES

- Attractive finish
- Easy of use
- Safe



Accessories and Services



ACCESSORIES AND SERVICES

SERVICE PEDESTALS

Electricity, Lighting and Water Service Pedestals

Lindley offers a comprehensive range of electricity, lighting and water service pedestals suitable for almost every location and application, depending on the project needs.

The colours and sizes can be adapted to the environment in which pedestal is inserted, according with customers requirements.

GENERAL CHARACTERISTICS

Sizes	Base, width and height variables depending on the application; standard heights of 250mm, 500mm, 750mm and 1000mm
Finish	Exterior finishing in anti-corrosive material (plastic pressed, painted aluminium or stainless steel)
Pedestals	Electricity: socket combinations are available in single-phase and/or three-phase of 16A to 250A. Water: socket combinations of 1/2" to 1", including appropriate hose support
Protection	Equipped with differential switch and a dijonator to prevent overloads
Colours	Available in various colours and patterns
Manufacturing	ISO9001 certified supplier. Selected materials and components from proven suppliers
Optional accessories	Consumption control by counters and analog or digital readers, associated with credit card systems or operating chips. Integration into global management systems of infrastructure

APPLICATIONS

- Floating pontoons
- Fixed structures ashore
- Fuel dock services
- Caravan and camping parks
- Public recreational locations

ADVANTAGES

- Resistant
- Safe
- Versatile



ACCESSORIES AND SERVICES

EMERGENCY SERVICE PEDESTALS

TECHNICAL SPECIFICATIONS

Structure	Base and column in galvanized steel and fiberglass body
Equipment	Life buoys, dry powder fire extinguishers and first aid kit
Manufacturing	ISO9001 certified supplier
Optional	Alarm system, illumination and signage



SAFETY LADDERS

TECHNICAL SPECIFICATIONS

Dimensions	Available in various sizes and configurations
Structure	Non-corrosive material (fiber, stainless steel or aluminium)
Installation	Lateral or top fixation by stainless steel screws



PUMP OUT STATIONS

TECHNICAL SPECIFICATIONS

Structure	Painted galvanized steel or stainless steel
Constrution	Vacuum system with autonomous circuits for waste water and oil-contaminated water based on membrane or peristaltic pumps
Protection	Equipped with diferential switch and a dijonator to prevent overloads
Capacity	Suction circuit through flexible hose with 38mm diameter, length of 10m and shut-off valve; flexible circuit compression in flexible pipe with a diameter of 51 or 63mm, length up to 150m and manometric height up to 6m
Operation	Through credit card or chips for both pumps
Finish	Cover in non-corrosive material (stainless steel or painted aluminium)





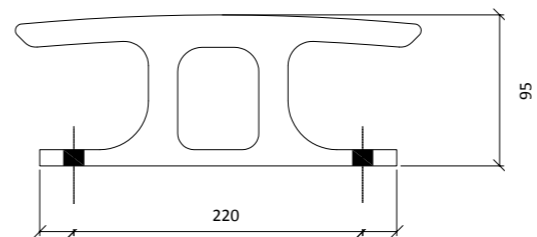
ACCESSORIES AND SERVICES

CLEATS AND BOLLARDS

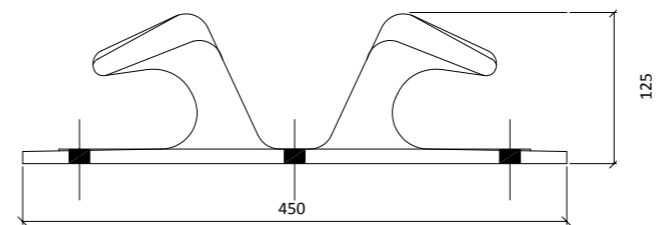
TECHNICAL SPECIFICATIONS

Structure	Cast aluminium
Installation	Fixing by stainless steel screws

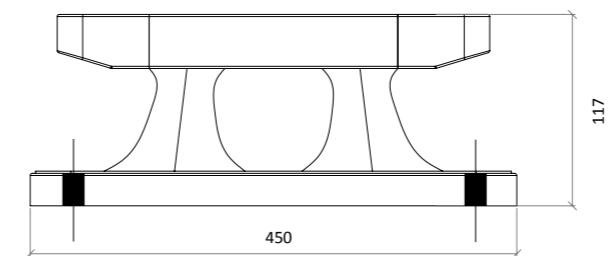
3T CLEAT



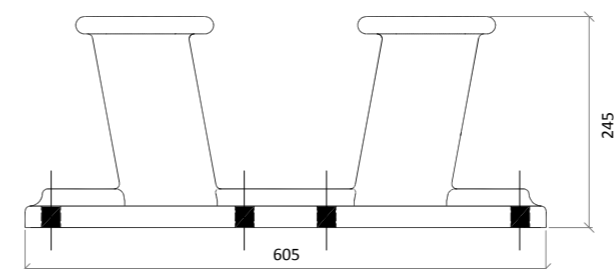
5T BOLLARD



8T CLEAT



10T BOLLARD





Fixings and Moorings





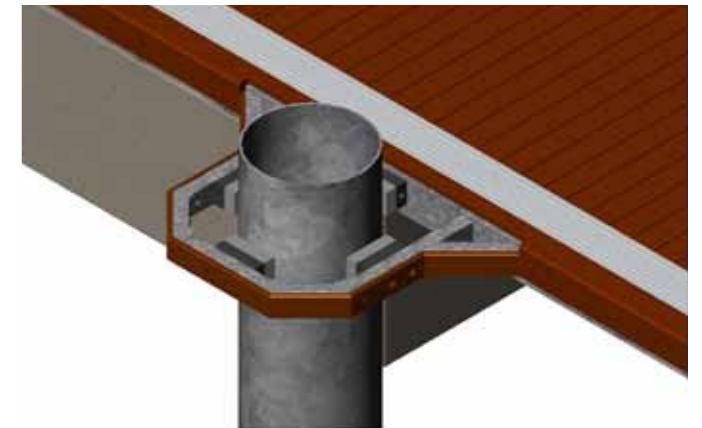
FIXINGS AND MOORINGS

PILE GUIDES

The pile guides system is composed by a guide ring which firmly attach the pontoon by gripping the pipes, adjusting and guiding the movement of the pontoons due to the sea swell.

TECHNICAL SPECIFICATIONS

Dimensions	Available in various sizes
Structure	X50 or higher steel pile pipes, 340-610mm diameters, longitudinal seam and minimum thickness of 10mm
Manufacturing	Painted galvanized steel or aluminium



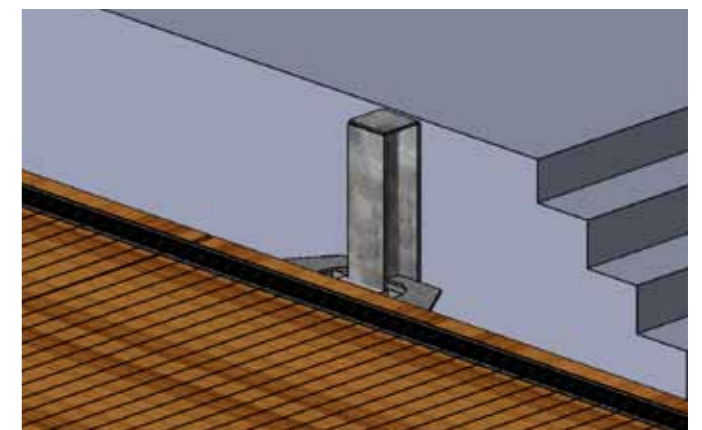
WALL GUIDES

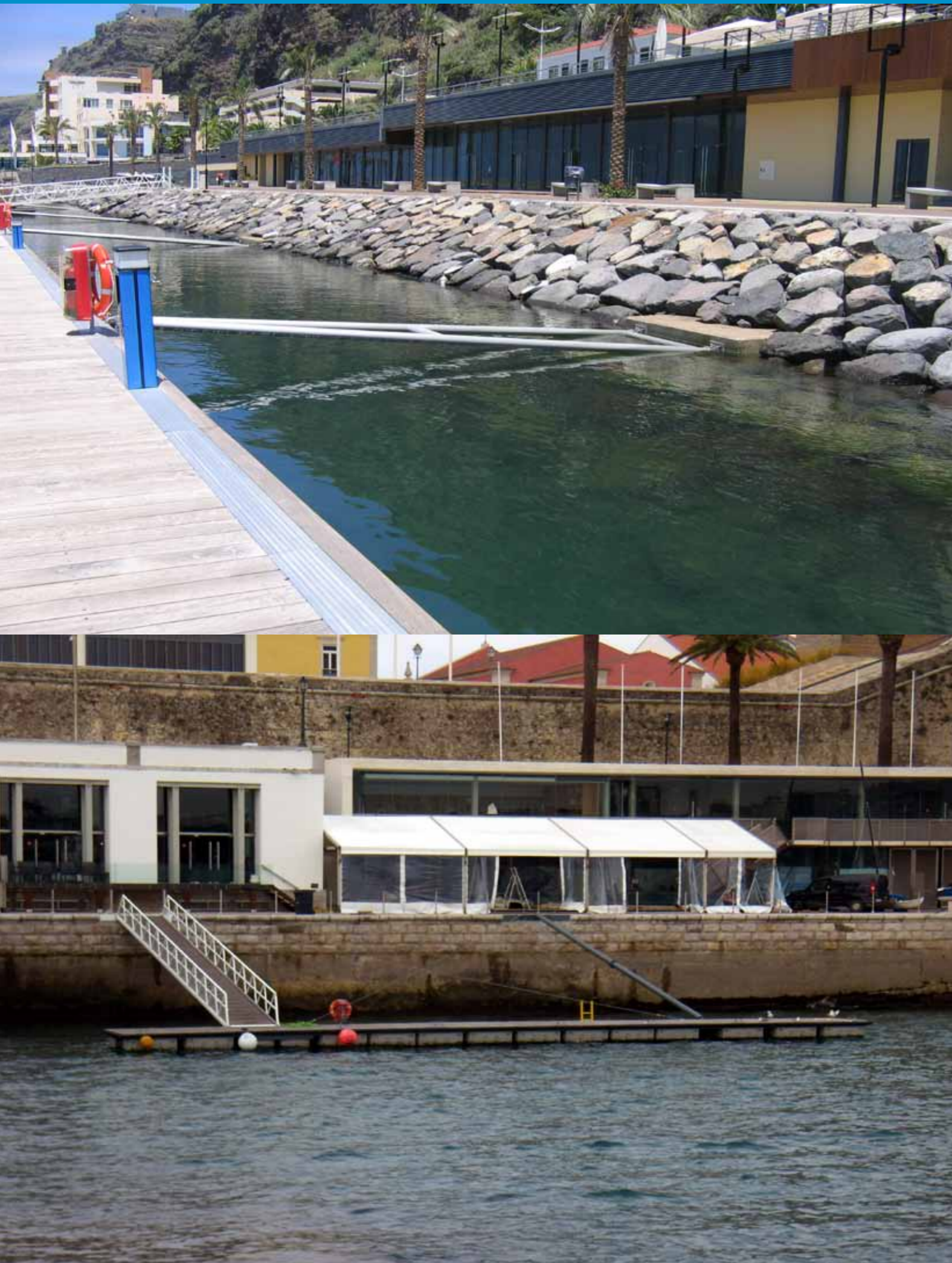
The wall guides system is composed by heat laminated structural steel columns which also undergo a hot-dip galvanization process. They can be fixed to the dock by means of chemical anchor bolts.

The hose clamps used in the wall guides are equipped with low friction material and impact attenuation system, as well as an adjusting device to minimize any slacks.

TECHNICAL SPECIFICATIONS

Dimensions	Available in various sizes
Structure	HEB steel guides (160-220)
Manufacturing	Painted galvanized steel





FIXINGS AND MOORINGS RADIUS ARMS

The radius arms can be tube shaped or lattice and works in compression-tension keeping the pontoon positioned regarding the margin; a set of crossed locking cables ensures the rigidity of the assembly and remains it parallel to the ground; the fixings and moorings of this type are normally calculated to resist with safety to the currents with a maximum velocity of 3m/s (approx. 6 knot).

TECHNICAL SPECIFICATIONS

Dimensions	Available in various sizes
Treatment	Metal components treated by hot-dip galvanized process, endowed with its own buoyancy



Tubular 12m



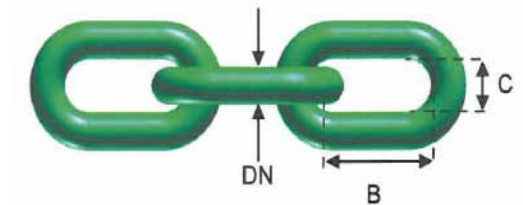
'A' Frame 12m



Lattice 14m

CHAINS AND SINKERS

The fixings and moorings by chains and sinkers are the preferred method of mooring pontoons; this solution consists of using metallic chains attached to fixed sinkers which due to its weight, introduce damping to the pontoon movements.



TECHNICAL SPECIFICATIONS

Dimensions	Available in various sizes
Structure	Metallic chains connected to an open or closed link
Treatment	Hot-dip galvanization or treated tar epoxy paint



FIXINGS AND MOORINGS

PILE DRIVING

Lindley has the capacity to perform pile driving works for mooring pontoons, both in sandy and sludge soils or even in more demanding applications such as clayey and rocky soils.

Using modular equipment transportable by road (with lower cost of mobilization) is possible carry out works of this type using proven and certified systems by the competent authorities.

This process involves performing three steps:

- Installation of floating pontoon
- Preparation of metallic pipes
- Pile driving

APPLICATIONS

- Pontoon mooring in sandy, sludge, clayey and rocky soils
- Support of fixed structures on the water plan

ADVANTAGES

- Low-cost mobilization
- Road transportable
- Ease of operation

GENERAL CHARACTERISTICS

METALLIC PILE DRIVING PLATFORM 80kN	
Floating pontoon	12x7,5m
Winch	80kN
Hydraulic central	
Winch maneuver	2.000kg
Maximum lift capacity	8.000kg
Maximum speed of lift capacity	20m per min.
Maximum speed	50m per min.
Lift capacity at maximum speed	4.000kg
Cable type	18mm
Hammer for sand and slit piling	3.200kg/6.000kg
Trepanning to piling on the rock	1.500kg
Piling limit	Predefined quota
Maximum capacity of piling	100 diameters
Maximum diameter of piling	800mm

ASSEMBLY

Assembly of floating pontoon The pontoon is composed of three modules that are transported by truck to the site; once in the place of the work performance, the modules are discharged to the leveled ground and pre-assembled, and then placed in the water by telescopic crane; when the pontoon is floating is made the joints adjustment, proceeding then to the assembly of the tower and hydraulic equipment

Preparation of metallic pipes The metallic pipes used for the piles are discharged to the leveled ground near to the water, so as to permit its gradual transfer to the floating pontoon as they perform the piling work

Pile driving The piling is done in accordance with the work plan defined with the customer, proceeding then to a preliminary position with the aid of topography and tower guidance to ensure the vertical position; the piling is done using a free fall hammer; in cases where its necessary to add pipes the sections will be welded top to top; in the end of piling (predefined quota) the pile top is cut off at the elevation crowing and is applied a welded flange for pipe buffering, minimizing gas exchange and the internal corrosion





Innovation, Quality and Engineering



Innovation and Quality

The quality control of manufactured products is a priority at Lindley. The company strictly monitors the quality of its workmanship and raw materials used. Traceability is of the utmost importance so as to be able to access performance throughout the life span of the product. Lindley is ISO9001:2008 certified, which shows its commitment to quality and the environment. The fulfillment of the standard procedures allows standardize activities and promote a constant improvement of the company's product.

Lindley is a collective member of PIANC - The World Association for Waterbone Transport Infrastructure -, organization providing guidance for sustainable waterbone transport infrastructure for ports and waterways, regularly participates in technical seminars, meetings and conferences.

Lindley has building licence, referring to Portugal INCI organization, in the 3rd Category - Hydraulic Works enabling the company to carry out works within the river and hydraulic works, harbour works, dredging and repairs and surface treatments in metal structures.

All sub-categories of licence are included in class 5 of INCI enabling the company to autonomously perform works whose total value may reach up to 2.65M€.



INCI
ALVARÁ DE CONSTRUÇÃO Nº 62351
 Decreto-Lei n.º 12/2004, de 9 de Janeiro

AHLERS LINDLEY, LDA.
 ESTRADA MANIQUE EDF MICAL
 ALCOITAO
 2649-502 ALCOITAO
 Nº Contribuinte 500012261
 Empresa inscrita em 05-06-2009

Categoria	Habilitações	
	Classe	Subcategoria
3ª Categoria - Obras Hidráulicas	5	1ª Obras fluviais e aproveitamentos hidráulicos
	5	2ª Obras portuárias
	5	5ª Dragagens
5ª Categoria - Outros Trabalhos	5	8ª Reparações e tratamentos superficiais em estruturas metálicas

vs. 8

Classe	Valores das obras
1	Até 166.000 €
2	Até 332.000 €
3	Até 664.000 €
4	Até 1.328.000 €
5	Até 2.656.000 €
6	Até 5.312.000 €
7	Até 10.624.000 €
8	Até 16.600.000 €
9	Acima de 16.600.000 €

Este documento não substitui a consulta no endereço www.inci.pt

Engineering

Lindley benefits from the Grupo Lindley know-how acquired over 85 years of experience manufacturing products for the marine and harbour environment. The added value is reflected in the design and control of solutions for their customers. The standard, batch produced products are periodically reviewed for updating of designs and procedures.

Lindley is continuously analysing materials, ensuring that the most suitable materials are used for each application. Prior to adopting new designs or incorporating new materials, the solutions are tested using a variety of alternative methods: physical tests conducted at out installations or in the marine environment and materials testing in external laboratories.

All the new designs are created using three-dimensional tools and a subsequent structural analysis. The use of state of the art tools and the dedication of qualified personnel in the Grupo Lindley are the foundation for high quality products to the market.



Connecting land and sea



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