Inland and Coastal
Marina Systems

SETTING THE STANDARD OF EXCELLENCE

Inland and Coastal Marina Systems specialise in the design, manufacture and installation of marinas.

Our clients include local and regional Government, Port and Fishery Authorities, Marina Operators, Sports and Recreational Clubs, Development Consortiums, Consulting Engineers, Architects and Main Contractors.

Our dedicated and experienced team of staff can offer design guidance for floating marinas and provide solutions to satisfy our client's specific requirements. Our integrated approach means that all criteria for a fully functioning marina are addressed including mooring options and services, therefore providing clients with a turnkey solution.

In-house manufacturing ensures that our products are always of a high standard of quality. Our installation service also means that clients can be satisfied that experienced professionals are responsible for providing a fully functioning marina.

Setting the Standard of Excellence

Wherever the site, whatever the size, we have the bespoke marina berthing and protection solution. Let us design and build your next project.

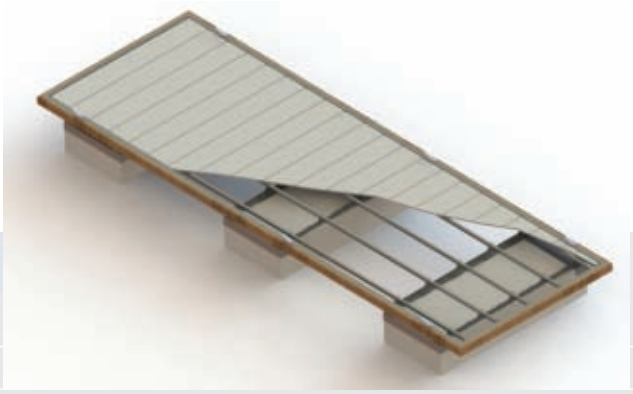
Standard Pontoons

The ICMS Standard Pontoon system is manufactured from galvanised steel with polystyrene floatation blocks encased in a glass fibre reinforced concrete skin.

The decking options available are glass fibre reinforced concrete decking panels, timber, timber composite or glass reinforced plastic mesh. The fender options are hardwood, softwood, plastic or rubber. The ICMS pontoon structure is extremely robust and offers strength and stability even in the most onerous of conditions.

CLONDRA JETTY

STANDARD PONTOONS
Technical Specifications



Walkway & Finger Pontoons

Steel	Grade S275
Welding	All Welds – 6mm CFW
Galvanising	Hot-dip Galvanising to BS EN ISO 1461
Fendering	150 x 50mm Hardwood as standard (Softwood, Rubber or Plastic Fender available on request)
Connections	M24 Galvanised Bolts through 50mm UV Stabilised Rubber Buffers

Floatation Blocks

Skin	10mm Grade 18 GRC (Glass Reinforced Concrete)
Filling	15kg/m^3 Polystyrene
Brackets	Galvanised Steel or Aluminium
Freeboard	500mm (approx.)
Standard Minimum Buoyancy	Main Walkways – 1.2kN/m^2 Finger Walkways – 1.0kN/m^2

LOUGH KEY

STANDARD PONTOONS
Features, Benefits & Accessories

BESPOKE PONTOON DESIGN
Frame sizes, width and shapes can be adapted to suit our customer's needs and the marina layout. ICMS can also offer options on skewed or curved layouts.

MARINA LAYOUT DESIGN
ICMS will work with clients to find the right marina layout for each project, taking account of best practice guidance and customer preference.

GALVANISED STEEL STRUCTURE
The frame of the Standard Pontoon is manufactured from steel galvanised to BS EN ISO 1461 which ensures strength and longevity. The standard ICMS pontoon frame has been successfully operating in numerous locations for over twenty years, testament to the quality of design and product.

DECKING
ICMS Standard Pontoons are available in a range of decking's. The feature and benefits of each decking type is described on pages 21-23 of this brochure.

FLOATATION
The standard ICMS float is a polystyrene float with a Glass Reinforced Concrete skin (GRC). The concrete skin makes the overall pontoon heavier and therefore offers improved stability over plastic floats. ICMS can offer plastic floats on request.

MOORING OPTIONS
ICMS Standard Pontoons can be moored on chain, rope, elasticated mooring systems or piles. All systems are designed to take full account of berthing and environmental loads.

FENDER OPTIONS
The fender options for the ICMS Standard Pontoon are Rubber, Plastic or Timber.

SERVICE OPTIONS
ICMS can provide ducting or cable tray options for the provision of service runs in pontoons. Service access lids can also be provided at the client's request.

SIDE BY SIDE CONNECTIONS
Standard Pontoons can be joined side by side to give large platforms.

QUALITY
All ICMS Standard Pontoons are manufactured to an ISO 9001 Accredited System.

STANDARD PONTOON PROJECTS


DROMOD MARINA


INVERGEAL MARINA


PORTGLENONE


RATHLIN

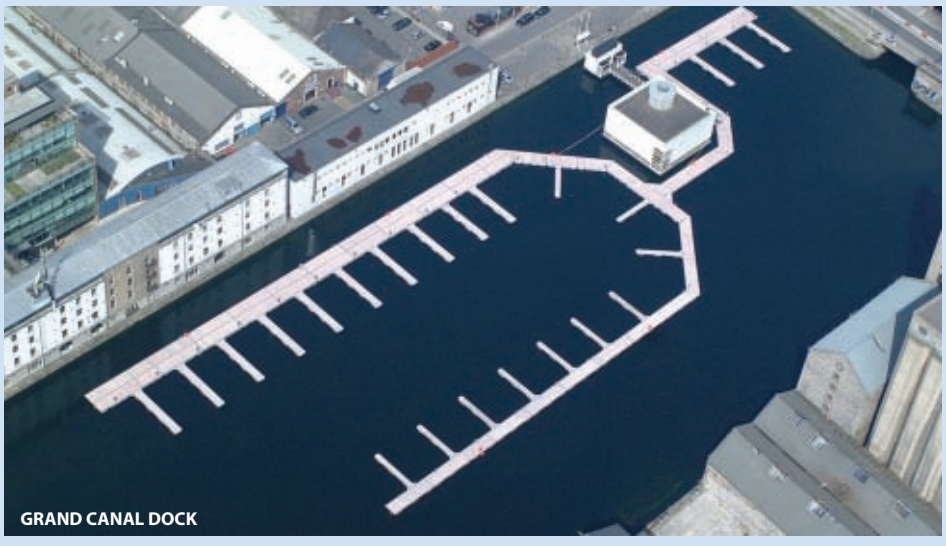
STANDARD PONTOON PROJECTS


DOCHGARROCH


MARINE CHARTER, SEYCHELLES


CAMERON HOUSE

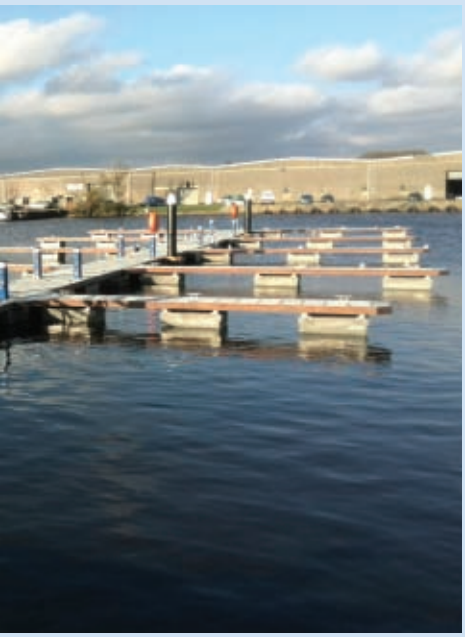

ARKLOW


GRAND CANAL DOCK


BALLINA


ALBERT LOUGH


TARBERT




ROSMONEY


GALWAY MARINA


GREYSTONES

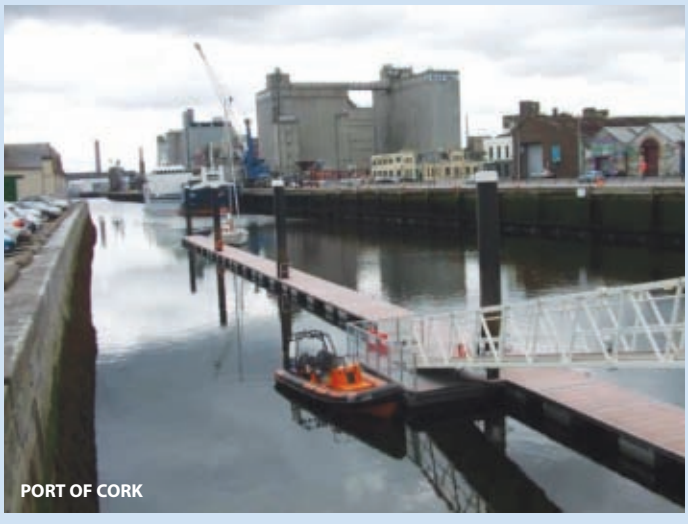
STANDARD PONTOON PROJECTS


TARMONBARRY


ROSSAVEEL SMALL CRAFT HARBOUR


LOUGH KEY MARINA


PORTRUSH


PORT OF CORK


CLONDRA JETTY

COLERAINE HARBOUR

ALBERT MARINA

GALWAY HARBOUR

BANGOR ERRIS

PASSAGE WEST, CO. CORK

Heavy Duty Pontoons

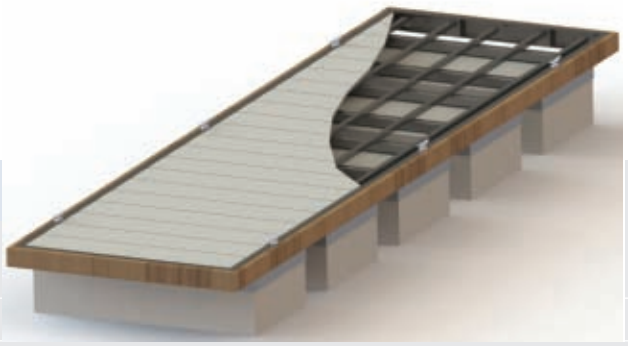
ICMS Heavy Duty Pontoons are of galvanised steel construction and are designed to accommodate the berthing of large vessels. The Heavy Duty Pontoon is used extensively throughout the Commercial Marine Industry for semi-sheltered sites.

This unit is used primarily by harbour boards, pilot and fishing vessels, ferry operators and general commercial traffic. As well as its commercial application, it is also used for the berthing of large leisure vessels and can accommodate boats with lower freeboards when a double fender is added (see picture across).

A particularly desirable feature of this system is the ability to provide a variety of freeboard heights, from 500mm to 1200mm, making it suitable for berthing vessels of any shape and size.

DOUBLE FENDER SYSTEM

HEAVY DUTY PONTOONS
Technical Specifications



Pontoons

Structural Live Load	4kN/m2
Steel	Grade S275
Welding	All Welds – 6mm CFW
Galvanising	Hot-dip Galvanising to BS EN ISO 1461
Fendering	150 x 150 'D' Rubber (others on request) (double on request)
Connections	M24 Galvanised Bolts through 50mm UV Stabilised Rubber Buffers
Length	12m (any dimension under 12m)
Width	6m, 5m, 4m, 3m and 2.4m
Vessel Capacity	110 Ton (can accommodate larger on request)

Floatation Blocks

Skin	10mm Grade 18 GRC (Glass Reinforced Concrete)
Filling	15kg/m³ Polystyrene
Brackets	Galvanised Steel or Aluminium
Freeboard	500 – 1200mm
Standard Minimum Buoyancy	2.0 – 5.0kN/m²

Decking

Decking options	GRP Mesh or GRC Planks. Other options available on request.

CASTLETOWNBERE HARBOUR, CO. CORK

HEAVY DUTY PONTOON
Features, Benefits & Accessories

BESPOKE PONTOON DESIGN
Frame sizes, width and shapes can be adapted to suit our customer's needs and the marina layout. ICMS can also offer options on skewed or curved layouts.

MARINA LAYOUT DESIGN
ICMS will work with clients to find the right marina layout for each project, taking account of best practice guidance and customer preference.

GALVANISED STEEL STRUCTURE
All steelwork used in the construction of the Heavy Duty Pontoons is hot-dipped galvanised after fabrication, to BS 1461:2009. The comprehensive grid structure offers high resistance to lateral loads and excellent torsional stiffness against wave action, hence the pontoon is suitable for the berthing of large commercial boats in exposed environments.

DECKING OPTIONS
The decking options available for ICMS Heavy Duty Pontoon are Glassfibre Reinforced Plastic (GFRP) or Glassfibre Reinforced Concrete (GRC), both with excellent anti-slip properties, low maintenance requirements and suitable for hardworking environments.

FLOATATION
The incorporation of multiple, equally spaced, concrete encased floatation blocks provides increased reserve buoyancy and stability. Freeboard can be adjusted to meet the needs of the customer.

MOORING OPTIONS
ICMS Heavy Duty Pontoon can be moored on chain, rope, elasticated mooring systems or piles. All systems are designed to take full account of berthing and environmental loads.

FENDER OPTIONS
The fender options available for the ICMS Heavy Duty Pontoon are Rubber, Plastic or Timber.

SERVICE OPTIONS
ICMS can provide ducting or cable tray options for the provision of service runs in pontoons. Service access lids can also be provided at the client's request.

SIDE BY SIDE CONNECTION
ICMS can also provide side by side connection for Heavy Duty Pontoons providing clients with an option to extend past the standard 3m unit, up to any width required.

PILING SYSTEMS
For Heavy Duty Pontoons restrained by a piling system, ICMS can offer clients the option of either an external or internal pile guide. Both systems will be designed to satisfy the full range of loads experienced by the pontoons.

MOORING BOLLARDS
As well as standard mooring cleats, the Heavy Duty Pontoon can be adapted to use up to 10T capacity mooring bollards, provided in either galvanised or powder coated finish.

QUALITY
All ICMS Heavy Duty Pontoons are manufactured to an ISO 9001 Accredited System.

DARTMOUTH HARBOUR

HEAVY PONTOON PROJECTS


LANGSTONE HARBOUR

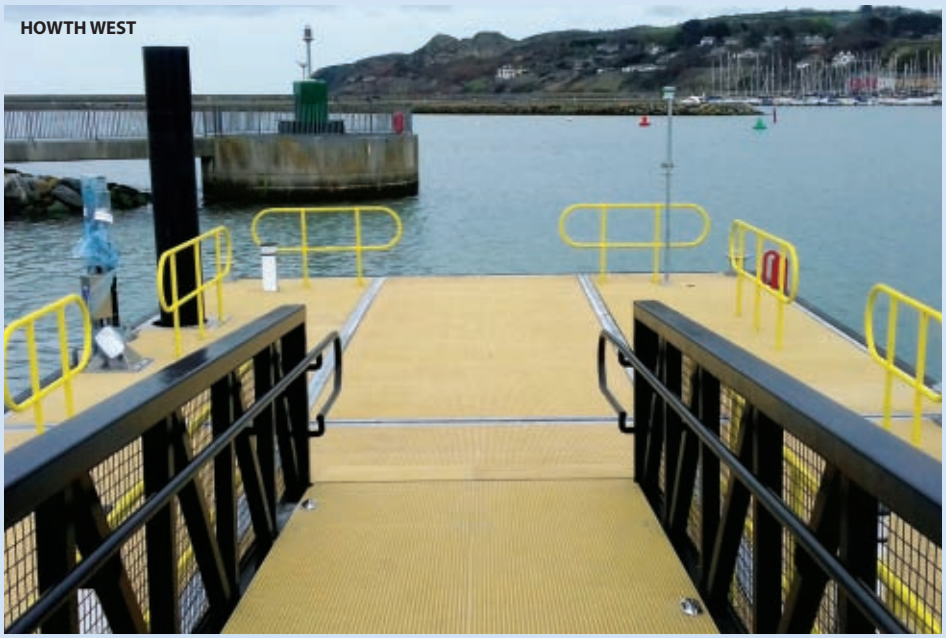

DUNMORE EAST FISHERY HARBOUR


SCRABSTER


KILMORE QUAY RNLI


PASSAGE WEST

HEAVY DUTY PONTOON PROJECTS

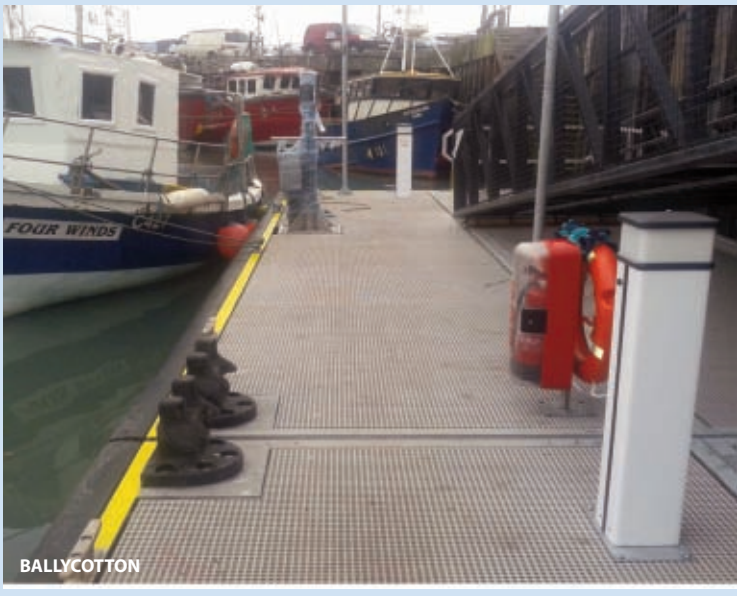

HOWTH WEST


HELMSDALE


KILLYBEGS SMALL CRAFT HARBOUR


NEWHAVEN


PORTLAND



BALLYCOTTON

DUNMORE EAST LEISURE BERTH

GREENCASTLE

HOWTH

BELFAST ROWING CLUB

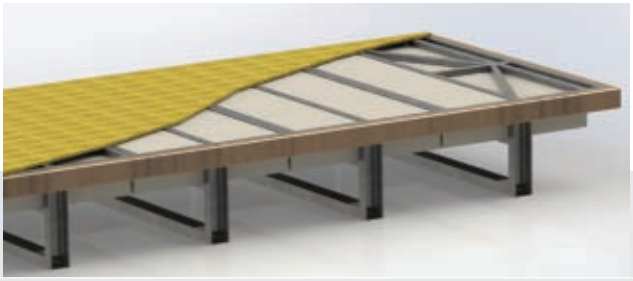
Rowing Pontoons

The design of the ICMS Rowing Pontoon ensures that freebaords are low enough so that oars can come in over the top of the pontoon for all types of rowing boats, whilst still ensuring that reserve buoyancy and stability are maximised.

As a company we also understand the safety issues rowing clubs have to consider as members gain access to the water, many of which are young carrying boats in wet conditions. Therefore in the specification of access solutions and decking materials, safety is a key feature.

PORTORA ROWING CLUB

ROWING PONTOONS
Technical Specifications



Frame

Steel	Grade S275
Welding	All Welds - 6mm CFW
Galvanising	Hot-dip Galvanising to BS EN ISO 1461
Fendering	150 x 50mm Hardwood as standard (Softwood, Rubber or Plastic Fender available on request)
Decking	GRC or GRP
Connections	M24 Galvanised Bolts through 50mm UV Stabilised Rubber Buffers
Buoyancy	100-150mm Freeboard: 50-100kg/m² Reserve Buoyancy

Floatation Blocks

Skin	10mm Grade 18 GRC (Glass Reinforced Concrete)
Filling	15kg/m³ Polystyrene
Brackets	Galvanised Steel or Aluminium

ST. MICHAEL'S ROWING CLUB, LIMERICK

ROWING PONTOONS
Features, Benefits & Accessories

HIGH RESERVE BUOYANCY
ICMS have developed a Rowing Pontoon which maximises the reserve buoyancy of the pontoon whilst maintaining a low freeboard. This is achieved by using all available space, above the water line in the pontoon structure for floatation. The high reserve buoyancy means that the use of the pontoon can be maximised in that multiples of rowers can be on the facility and launching boats simultaneously.

ACCESS AND EGRESS DESIGN
ICMS will consider how the pontoon user can safely access and egress from the pontoon whilst carrying a rowing boat. A detailed analysis of the types of boats used on the facility and the lifting capacities of users will be considered as part of this process. The design and supply of an access system fit for purpose will be included as part of the overall project.

GALVANISED STEEL STRUCTURE
The frame of the Rowing Pontoon is manufactured from steel galvanised to BS EN ISO 1461 which ensures strength and longevity.

DECKING OPTIONS
Rowing Pontoons are generally decked with Glass Reinforced Plastic (GRP) or Glass Reinforced Concrete (GRC) which offers excellent anti-slip properties for rowers.

FLOATATION
The floatation blocks for the Rowing Pontoons are encased in a Glass Reinforced Concrete Skin. This makes the overall weight of the rowing pontoon heavier and increases the stability of the pontoons.

MOORING OPTIONS
ICMS Rowing Pontoon can be moored on chain, rope, elasticated mooring systems or piles. All systems are designed to take full account of berthing and environmental loads

FENDER OPTIONS
The fender options for the ICMS Rowing Pontoon are Rubber, Plastic or Timber.

SIDE BY SIDE CONNECTIONS
Rowing Pontoons can be joined side by side to give large platforms for rowing clubs.

QUALITY
All ICMS Rowing Pontoons are manufactured to an ISO 9001 Accredited System.

RIVER LEE ROWING PONTOON

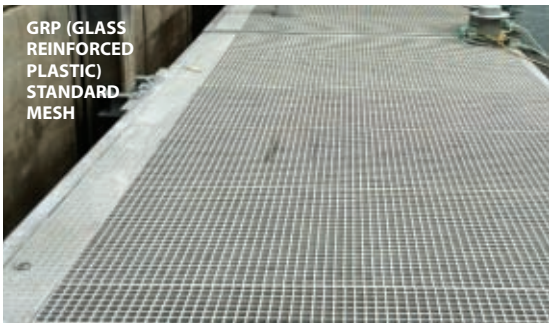
Decking Options

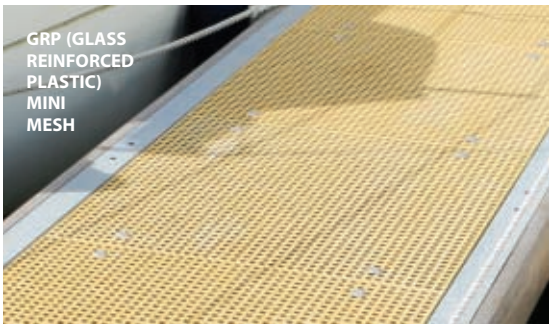
ICMS can offer a variety of decking options for your pontoon.

- *GRC (Plain, Stipple or Timber Effect)*
- *GRP Mesh (Micro, Mini or Standard Mesh)*
- *Timber*
- *Timber Composite*

GRC STIPPLE EFFECT

DECKING OPTIONS
Features, Benefits & Accessories


GRP (GLASS REINFORCED PLASTIC) STANDARD MESH


GRP (GLASS REINFORCED PLASTIC) MINI MESH


TIMBER COMPOSITE DECK

GRP (GLASS REINFORCED PLASTIC) MICRO MESH

GRC (GLASS REINFORCED CONCRETE)

- *Excellent anti slip properties*
- *Heavier than other decking options and therefore provides a more stable pontoon*
- *Cost effective solution*
- *Options available on plain, stipple or timber effect finish*
- *Excellent aesthetic properties*
- *Hard-wearing; UV and weather resistant.*

GRP (GLASS REINFORCED PLASTIC)

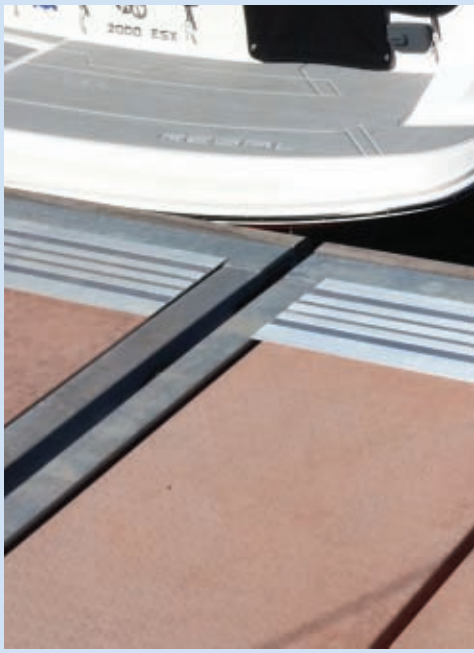
- *Excellent anti slip properties*
- *Very popular with ports and harbours*
- *Options on Micro, Mini and Standard Mesh*

TIMBER & TIMBER COMPOSITE

- *Excellent aesthetic properties*
- *Very popular with yacht harbour marinas*
- *Smooth finish for bare feet*


TIMBER DECK


GRC (GLASS REINFORCED CONCRETE) PLAIN



GRC (Glass-fibre Reinforced Concrete) DECKING
Technical Specifications

GRC (Glass-fibre Reinforced Concrete) Decking

Design Live Loading	4.0kN/m² (standard walkways @ 500mm support centres)
Concrete	Grade 18 GRC (Glass Reinforced Concrete)
Reinforcement	GFRP Rebar or 5% AR Glass-fibre
Weight	2200kg/m³
Surface Finish	Smooth Non-slip GRC (Non-slip tests available)
Colour	Salmon Pink/Grey/Teak (other colours available on request)
Fixings	Galvanised/Stainless Steel TEK-Screws

DIMENSIONS

Width: 400mm for Plain and Stipple, 300mm for Timber Effect

Lengths: 570mm, 820mm, 1020mm, 1320mm, 1820mm, 2220mm, 2820mm

Thickness: 15mm – 30mm

GRC STIPPLE EFFECT

GRC TIMBER EFFECT

POOLBEG HARBOUR

Concrete Breakwater Units

ICMS breakwaters are manufactured in-house to an ISO 9001 accredited quality system. The main function of the breakwaters is to attenuate waves to an acceptable level so that sheltered berthing can be provided where a fixed breakwater is not feasible. Breakwaters also offer clients the option to provide a berthing facility for boats in exposed conditions. The units are manufactured from Grade C50/60 reinforced concrete with internal polystyrene blocks. Given the severe environments that these units have to function in we pay particular emphasis to the enhancement of the lifespan and hence offer galvanised reinforcing steel as standard and a glass fibre reinforced concrete skin to the base of the floatation blocks.

CONCRETE BREAKWATER UNITS
Technical Specifications

GRC (Glass-fibre Reinforced Concrete) Decking

Live Loading	4.0kN/m²
Design Codes	BS6349 (British Standard Code of Practice for Maritime Structures)
Concrete	C50/60
Steel Reinforcement & Concrete Cover	To EN 1992-1-1/ BS4449 and Hot-dip Galvanising to EN ISO 1461. Concrete Cover designed to BS EN 1992-1-1:2004
End to End Connections	6 x 40T (Minimum) SWL – Stainless Steel Connectors (per joint) with 2 No. IRHD 70 Rubber Buffers
Side to Side Connections	High Tensile Threaded Bars with Elastomeric Bearings provided at joints.
Fendering	150x50mm Hardwood as standard (Softwood, Rubber or Plastic available on request)
Surface Finish	Top surface with non-slip brush finish
Mooring	Options – External Piles, Internal Piles or Mooring System using Mooring Tubes or Mooring Hooks

STANDARD DIMENSIONS
(other Sizes available on request)

TYPE 1 *20m x 4m x 1.75m (60T)*

TYPE 2 *20m x 5m x 1.41m (70T)*

TYPE 3 *20m x 4m x 1.41m (60T)*

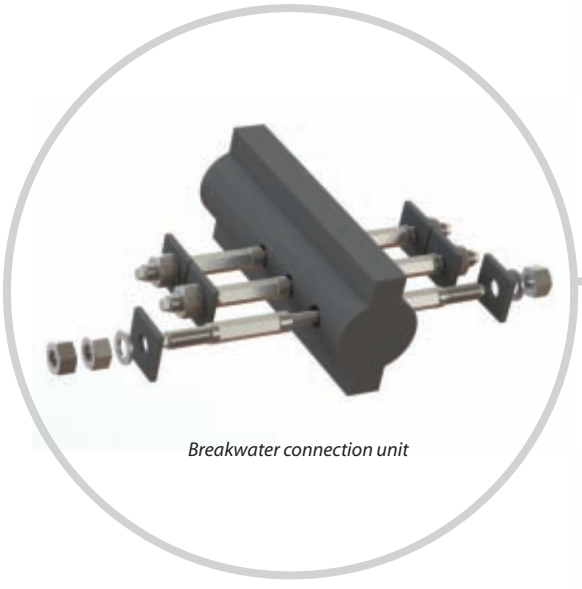
TYPE 4 *20m x 3m x 1.41m (50T)*

All steel in breakwaters galvanised as standard.

Floatation Blocks

Bottom Skin (optional)	Grade 18 GRC (Glass-fibre Reinforced Concrete)
Filling	15kg/m³ Polystyrene
Buoyancy	500kg/m²
Freeboard	Type 1 - 800mm; Type 2, 3 & 4 – 500mm (other freeboards available on request)

Breakwaters Unit with GRC Bottom Skin providing protection to the polystyrene floatation units.



Breakwater connection unit

CONCRETE BREAKWATER UNITS
Features, Benefits & Accessories

BESPOKE DESIGN
ICMS can customise breakwaters to suit clients needs.

WAVE DAMPENING
ICMS Breakwaters offer excellent wave attenuation properties. Transmission co-efficient for ICMS breakwaters have been derived so that a detailed analysis of the level of protection offered on all sites can be provided.

CONNECTIONS
Connections consist of high yield stainless steel wire rope and rubber buffers with IRHD 70, offering a combination of both strength and flexibility to suit even the most onerous of sites.

CONCRETE
Breakwaters are manufactured from Grade C50/60 Concrete offering a High Strength Unit.

REINFORCING STEEL & CONCRETE COVER
Galvanised Reinforcing Steel is used throughout breakwater and Concrete Cover is provided in accordance with exposure classifications ensuring the longevity of product.

BASE SKIN
A Glass Reinforced Concrete Skin can be provided to the base of the Breakwaters to protect floats from damage and prevent buoyancy loss.

MOORING SYSTEMS
Where a mooring system is used for restraint the ICMS breakwater offers a mooring box as standard, whereby the chain/rope can be fed from the deck level and held in a mooring box, substantially reducing the underwater work required from other systems such as mooring hooks. This system reduces installation times and provides the client with safer methods of work/ maintenance.

PILING SYSTEMS
On breakwaters restrained by a piling system, ICMS can offer clients the option of either an external or internal pile guide. Both systems will be designed to satisfy the full range of loads experienced by the breakwaters.

FENDER OPTIONS
The fender options for the ICMS Breakwater are Rubber, Plastic or Timber.

SERVICE OPTIONS
Cast in ducting is provided for service runs with manholes located at suitable spacings for convenient access.

SIDE BY SIDE CONNECTION
ICMS can also offer clients a side by side connection for breakwaters providing clients with an overall width of up to 10m.

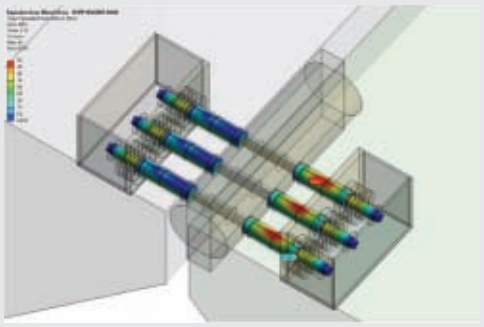
MOORING BOLLARDS
ICMS can provide galvanised and powder coated mooring bollards load tested up to 10T.

QUALITY
All ICMS breakwaters are manufactured to an ISO 9001 Accredited System.

Expertise & Experience

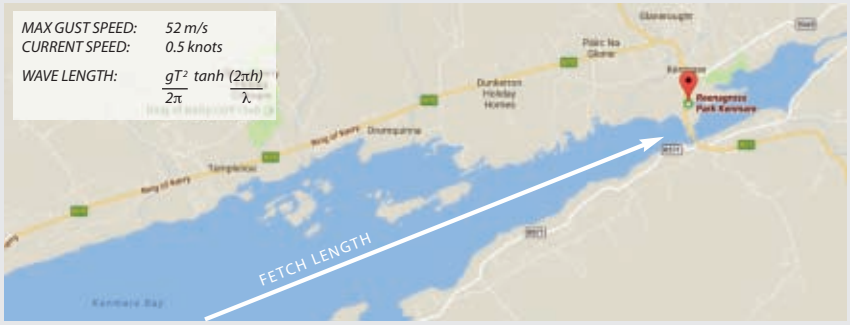
Inland and Coastal Marina Systems have over 20 years experience in the manufacture of breakwaters and can offer clients the following:

RESEARCH AND DEVELOPMENT



Latest advancements in breakwater design from both in house R&D and literature reviews of international research and development.

ASSESSMENT OF ENVIRONMENTAL CHARACTERISTICS

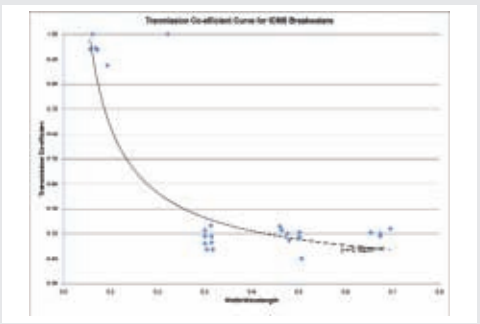


A team of dedicated and experienced engineers who will accurately assess the environmental (wave, wind, current) and berthing characteristics of sites in order to propose innovative and fit for purpose solutions.

MANUFACTURING

Large scale manufacturing facility with extensive in-house expertise in concrete design.

WAVE ATTENUATION STUDY



Wave attenuation characteristics of ICMS Breakwaters derived from field studies.

CONCRETE BREAKWATER PROJECTS


KNIGHTSTOWN, COUNTY KERRY


BANTRY


CROSSHAVEN


ARDYNE


KNIGHTSTOWN

PIRGADIKIA, GREECE

DROMOD

FOYLE MARINA

PORT OF SLIGO

Continuous Concrete Pontoons

ICMS have developed a Continuous Concrete Pontoon (CCP) to provide an economical berthing and/or attenuation option in semi-exposed sites. The CCP offers many of the benefits of the breakwater such as high weight for dampening of a wave and safe berthing, Grade C50/60 Concrete for strength and Galvanised Steel for longevity. Because of the weight of the pontoon CCP's also offer clients a very stable floating solution which can be used for cycle ways or walk ways.

KILLYBEGS

ABOVE AND BELOW: **ACRES LAKE**

CONTINUOUS CONCRETE PONTOONS
Technical Specifications

GRC (Glass-fibre Reinforced Concrete) Decking

Live Loading	4.0kN/m²
Design Codes	BS6349 (British Standard Code of Practice for Maritime Structures)
Concrete	C50/60
Steel Reinforcement & Concrete Cover	To EN 1992-1-1/ BS4449 and Hot-dip Galvanising to EN ISO 1461 Concrete Cover designed to BS EN 1992-1-1:2004
Connections	4 Nr Stainless Steel Connectors consisting of 32mm diameter rope and 2Nr. IRHD 70 Rubber Buffers
Fendering	150x50mm Hardwood as standard (Softwood, Rubber or Plastic Fender available on request)
Surface Finish	Top surface with non-slip finish
Mooring	Options – External Piles, Internal Piles or Mooring System using Mooring Tubes or Mooring Hooks

STANDARD DIMENSIONS
(other Sizes available on request)

- **TYPE 1** 20m x 3m x 1.0m (30T)
- **TYPE 2** 20m x 2.5m x 1.0m (25T)
- **TYPE 3** 12m x 3m x 1.2m (20T)
- **TYPE 4** 12m x 2.5m x 1.2m (18T)

Floatation Blocks

Bottom Skin (Optional)	Grade 18 GRC (Glass-fibre Reinforced Concrete)
Filling	15kg/m³ Polystyrene
Buoyancy	500kg/m²
Freeboard	500mm (Standard – Can be adjusted to suit)

Features, Benefits & Accessories

WAVE DAMPENING
The CCP offers an advantage over steel and aluminium pontoons because of its weight. The increased mass improves the wave dampening properties of the pontoon. For this reason it is a suitable pontoon option for semi- exposed sites.

STABILITY
Again the high weight of the CCP offers clients a very stable pontoon option, with reduced motions.

CONTINUOUS SURFACE
The CCP has a continuous surface which enables clients to use the pontoon in more innovative projects such as cycle paths or public walkways.

CONCRETE
The CCP is manufactured from Grade C50/60 concrete offering a high strength unit

REINFORCING STEEL
Galvanised Reinforcing Steel is used through the breakwater for longevity of the product.

BASE SKIN
A Glass Reinforced Concrete Skin can be provided to the base of the CCP to protect floats from damage and prevent buoyancy loss.

MOORING OPTIONS
ICMS Continuous Concrete Pontoons can be moored on chain, rope or elasticated mooring systems using mooring hooks or on piles.

FENDER OPTIONS
The fender options for the ICMS Continuous Concrete Pontoon are Rubber, Plastic or Timber.

SERVICE OPTIONS
Cast in ducting is provided for service runs with manholes located at suitable spacings for convenient access.

MOORING BOLLARDS
ICMS can provide galvanised and powder coated mooring bollards load tested up to 10T.

QUALITY
All ICMS Continuous Concrete Pontoons are manufactured to an ISO 9001 Accredited System.

PONTOONS TO SERVICE CILL AIRNE RESTAURANT, RIVER LIFFEY, DUBLIN

Service Pontoons

Inland and Coastal Marina Systems has the in-house expertise to provide innovative design solutions for clients who require special services on their pontoons.

TARA MINES PUMP PONTOON

TOILET AND SHOWER BLOCK ON BREAKWATER PONTOON, FOYLE MARINA, DERRY

SERVICE PONTOON PROJECTS

KILRUSH DIESEL BERTH SERVICE PONTOONS

DARTMOUTH DINGHY PONTOON

HOUSE BOAT PONTOON, CHICHESTER MARINA

DRUMCONRATH PUMP PONTOON

DROMOLAND CASTLE PUMPHOUSE PONTOON

QUAY WALL PILES

Mooring Options

The ICMS team of engineers will advise you on the most appropriate mooring option for your project

DRIVEN PILE

DRIVEN PILES

The features of this type of a restraint system are:

- *Reduced sway movement of floating infrastructure; resulting in an improved fatigue life for joints*
- *Small overall marina footprint*
- *Piles can be external or internal in the floating infrastructure*
- *Reduced maintenance of floating infrastructure compared to mooring systems.*

QUAY WALL PILES

The features of this type of a restraint system are:

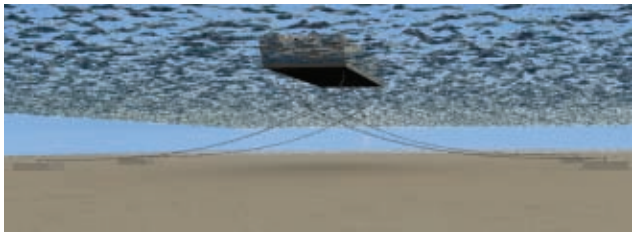
- *Similar to the driven piles there is reduced sway movement of floating breakwater infrastructure; resulting in an improved fatigue life for joints*
- *Small overall marina footprint*
- *Piles can be bolted to a concrete/stone quay wall or welded to a sheet pile quay wall*
- *More cost effective piling option than driven piles*
- *Only suitable for pontoons, breakwaters are not normally restrained in this manner*
- *H Piles can be galvanised and/or painted for longevity*
- *Reduced maintenance of floating infrastructure compared to mooring systems*

MOORING ARMS

The features of this type of restraint system are:

- *Suitable where piles are not an option and there is limited footprint for a mooring system*
- *Arms are fabricated from galvanised steel for longevity*
- *Arms are hinged for the range of vertical motions*
- *Joints and Arms are designed by ICMS for the environmental and berthing loads*
- *Mooring Arms can also be used as access gangways*

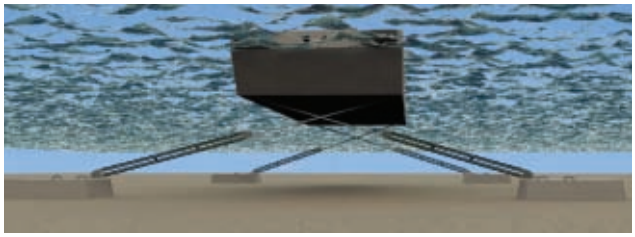
CHAIN MOORING SYSTEM



The features of this type of a restraint system are:

- *Weight of Chain in the catenary counteracts the environmental and berthing loads*
- *Chain can be held in place by gravity anchors or plough anchors*
- *Requires a large footprint*
- *The forces acting on the system are lower than a piled system as the pontoons can sway when impacted with loads*
- *Can be a large range of motions*
- *ICMS can provide a full mooring system design compliant with BS6349:Part 6*

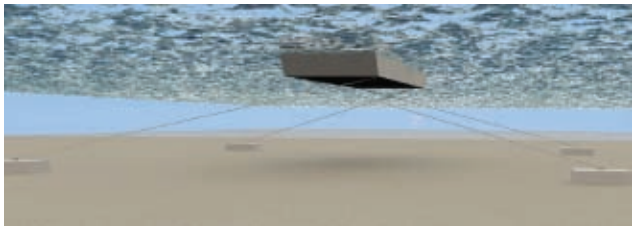
ELASTOMERIC/RUBBERISED MOORING SYSTEM



The features of this type of a restraint system are:

- *Tensioned mooring system – rubber in the system extends when loads are applied*
- *A reduced footprint is required compared to a chain mooring system*
- *As the moorings are tensioned the range of motions are reduced compared to a chain mooring system*

ROPE MOORING SYSTEM



The features of this type of a restraint system are:

- *Similar to a rubberised system this is also a tensioned system whereby the rope extends when a load is applied*
- *Ropes have to be installed at very shallow angles to achieve the required extensions; therefore, a large footprint is required*
- *Excellent solution where high environmental loadings are likely to be incurred*
- *Requires design by specialist engineers*

HELMSDALE GANGWAY

Access and Accessories

ICMS Access range includes the following:

- *Access Ramps (Steel or Aluminium)*
- *Sea Stairs*
- *Cantilever Platforms*
- *Gates (Mechanical or Electrical)*
- *Disabled Hoists*

TEELIN SEA STAIRS

ACCESS
Technical Specifications

Access Gangways

Steel	*Grade S235 (Aluminium available on request)*
Welding	*All Welds – 6mm CFW*
Galvanising	*Hot-dip Galvanising to BS EN ISO 1461*
Painting	*'Galvacoat' Paint (Optional)*
Connections	*M24 Galvanised Bolts – Grade 8.8*
Handrail	*40mm CHS (Double or Single)*
Side panels	*50mm x 50mm Mesh Panels (available on request)*

GFRP (Glass Fibre Reinforced Plastic)

Design Live Loading	*2.5kN/m2 (Light Loading) or 4.0kN/m2 (Crowd Loading)*
Reinforcement	*Continuous Glass-fibre Strands*
Surface Finish	*Silicon grits anti-slip surface*
Colour	*Light Grey, Sand and Green*
Fixing	*Stainless Steel Clips and Screws*
Thickness	*14mm, 22mm, 25mm, 30mm*

DIMENSIONS

Length: *2m – 30m*

Width: *1.0m – 2.5m (BS requires min. width of 1.2m between handrails)*

ST. MICHAEL'S ROWING CLUB

ACCESS Features, Benefits & Accessories

DESIGN

ICMS engineers will consider the access issues for the client and propose a suitable solution complying to best practice guidance. All access ramps and sea stairs are individually customised to suit the range and type of motions that will be experienced. ICMS can also where required design and install cantilever platforms.

SAFETY

ICMS provide Glassfibre reinforced plastic mesh on all access gangways and sea stairs which provide excellent anti-slip properties. Mesh panels can also be provided on the sides of the access ramps as required.

LONGEVITY

Access ramps and sea-stairs are either manufactured from aluminium or galvanised and painted steel for longevity

GATES

ICMS can design and manufacture gates with the client's desired access control arrangements

DISABLED ACCESS


PORTGLENONE

ICMS will provide the client with access solutions for disabled users either in the form of a disabled hoist (see opposite page), a long ramp with appropriate gradients or a double ramp (see above).

ACCESS PROJECTS


HELMSDALE CANTILEVER


ALUMINIUM RAMP IN ROSSAVEEL


HOWTH CRANKED GANGWAY

GALWAY


MOVANGHER

ACCESSORIES

EMERGENCY SERVICES BOLLARD


CREW LIFT


SERVICE BOLLARD


ICMS SHELTER


LADDER, HANDRAIL AND SHELTER


ICMS CLEAT


MOORING BOLLARD


MOORING BOLLARD

At Inland and Coastal Marina Systems we offer a number of marina accessories such as handrails, ladders, cleats and bollards. We can also provide a full range of marina services.

Inland and Coastal
Marina Systems

SETTING THE STANDARD OF EXCELLENCE

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