Main Catalog

Buoys, Fenders and Floats

Buoys and Fenders through the Ages

THE MODERN PLASTIC BUOYS AND FENDERS
The world's first inflatable plastic buoy was produced in 1955 by Polyform, Norway. This picture shows the A-series production no. 168.

PRE-PLASTIC INFLATABLE BUOYS
Made of animal skin or canvas covered with tar and linseed oil. Replaced by the modern plastic buoys by Polyform in 1955.

MARKER
Made of wood. Used by fishermen to locate fishing nets and longlines.

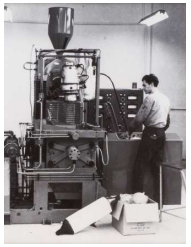
PRE-PLASTIC NON-INFLATABLE FENDERS
Bullet or ball shaped knotted fenders usually made of manila.

CORK
Cork and other lightweight wood materials have been used as floats since prehistoric times.

GLASS FLOATS
Glass floats were produced in Hadeland Glassværk, Norway from 1843 and exported throughout Europe from 1845.

HOLLOW CASKS
Made of wood or metal. Have existed since before the 13th century.

Polyform - the Originator of the modern Plastic Buoy



Polyform® was established in Ålesund, Norway in the year of 1955 and was the first company in the world to produce an inflatable, rotomolded soft Vinyl buoy. The product was an instant success and was immediately accepted in the domestic as well as overseas markets. Products and machinery were gradually developed and improved until the first major leap forward in our production technology happened in the 1970's and early 1980's when specially designed, in-house constructed machinery for rotomolding of our buoys and fenders was developed and put into use. Such type of machinery at that time was truly unique in the world of molding buoys and fenders.

More recent and even more revolutionary developments took place in the new millennium, by our designing and constructing of the first ever fully automated and robot assisted production machinery, built for molding of inflatable fenders.
Ever since the start in 1955, our company has been committed to further expand the range and to further develop, customize and improve the individual products.

Today, Polyform® of Norway can offer the widest range of inflatable buoys and fenders, expanded foam marina fenders, purse seine floats and an extensive range of hard-plastic products for use throughout the marine industry, including aquaculture/fish-farming, offshore oil and gas industry, harbors, ships, marina industry and custom made products also for land-based applications.

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News:

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Area of use

Commercial use and Fishery

(Marker buoys are listed under Aquaculture and Inshore & Marina.)

Offshore

Aquaculture / Fish Farming

Marinas, Docks and Inshore use

Leisure and Recreational Boat

Yachts and Work Boats

Inflatable Buoys and Fenders

People associate Polyform's inflatable buoys and fenders with the easily recognizable blue, rib reinforced ropeholds of the A- and F-series. No wonder, this has been Polyform's hallmark for almost 60 years.
Today, Polyform offers much more, like the extensive range of inflatable buoys and fenders that can be supplied in a wide variety of different colors. The reasons for Polyform's leading edge are the in-house developed molding technologies and the unique raw-materials formulations.
At the end of 2005, after several years of research and development, we launched the first ever fully automated and robot assisted production machinery, built for molding of inflatable fenders. The revolutionary new production machine and method was named POLYMATIQ® and was patented. Simultaneously with the invention of the POLYMATIQ® production machine and process, we developed what we named WELCOTEC©, a welding control technology that guarantees the optimal control over the wall thickness throughout the roto-molding process.

All-plastic valves

The flexible all-plastic Polyform® valve is fitted into every inflatable Polyform® product.
The V-10 valve is a non-return type of valve, fitted with a protective valve screw. For inflation, the screw has to be removed. Air is blown into the valve, and the valve screw has to be set back in place in order to fully secure any loss of air from the valve!
The V-40 valve is designed for easy inflation and deflation of our largest products. This is not a non-return valve. To inflate the product, the valve is opened by turning the valve screw anti-clockwise 3-4 times. Inflate through the center hole of the valve screw itself, and tighten the screw.

Extreme strength

As part of our in-house quality assurance procedures, destructive testing of products is carried out at regular intervals and at random. This picture shows (the destructive) testing for pulling strength for one of our standard blue, rib-reinforced ropeholds.
Please note: Over-inflation will reduce the strength of the products and void guarantee.

polymatiq ROTOMOLDING

In-house developed roto-molding technology.

Foam filling

The majority of our products, soft- as well as hard-shell buoys may be filled with either Polystyrene (EPS) or Polyurethane (PUR) foams.
Please read more about foam filling on page 32 in this catalogue.

Welcotec®

In-house developed welding control technology.

A-series

COMMERCIAL OFFSHORE AQUA CULTURE LEISURE YACHTS & WORK BOATS

All purpose Buoys and Fenders

- Ribbed, reinforced ropehold
- Extra strong ropehold material
- Recessed valve screw
- Perfectly seamless construction
- Extra flexible body material
- Sturdy, uniform wall thickness
- Smooth surface
- Glossy finish

The world's first inflatable plastic buoy.

The professional's choice since 1955

In late 1955, the world's very first inflatable, all-plastic buoy was produced in Aalesund, Norway. This was the first buoy in a series of buoys that was to become the Polyform® A-series. The buoys soon were to be found in most corners of the world, and they established the standard for buoy design and quality. Since 1955, thanks to our innovative staff of engineers and technicians, design and production technology has been further developed and improved. But still today the tough, rib-reinforced ropehold and the seamless construction of the Polyform® buoys and fenders are part of the reasons why professional users all over the world prefer the Polyform® A-series buoys - and why these buoys have become synonymous with **"the best buoy money can buy"**.

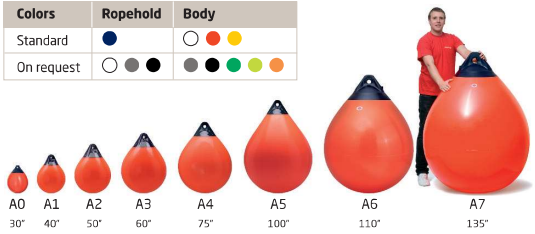
The Polyform A-series have been trusted by fishermen all over the world since 1955.

Polyform A-series are produced in 8 different sizes. Each model is designed and molded in order to offer a maximum of strength in combination with highest possible buoyancy. The wide range, from the smallest to the largest buoy, makes them useful in a wide variety of maritime sectors.

Art.No.	Buoyancy kg*	Length mm	Diameter mm	Eye diameter mm	Weight kg
A0	5,7 / 3,4	280	210	22	0,60
A1	13,0 / 7,8	380	295	22	1,15
A2	32,0 / 19,2	500	390	25	2,10
A3	52,0 / 31,2	575	460	28	3,10
A4	90,0 / 54,0	710	550	28	4,10
A5	215,0 / 129,0	940	710	28	8,30
A6	405,0 / 243,0	1120	850	35	11,30
A7	670,0 / 402,0	1420	1100	60	21,00

*Gross Buoyancy / Recommended maximum Load. Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius. Allowance +/-5%.

Colors	Ropehold	Body
Standard	●	○ ● ●
On request	○ ● ●	● ● ● ● ●



Welcotec®

Polyform A-series are specially designed and produced by use of Polyform's in-house Welcotec™ molding technology ensuring controlled wall thickness, seamless true one-piece products and reliable product quality.

Inflation valves

The A-series buoys from size A1 to A5 are fitted with the V-10 valve. The A6 and A7 are fitted with the larger V-40 valve. The A7 has the Polyform® Double Valve System for more easily deflation.

Foam filled A-series

The Polyform A-series are intended as air inflated floats and fenders, but may alternatively - for special applications - be offered filled with Polyurethane foam (PUR). *See page 32.*

Boat size	Recommended A fender
- 10'	A0
11' - 16'	A1
17' - 23'	A1 / A2 / A3
24' - 30'	A3 / A4
31' - 45'	A4 / A5
46' - 60'	A5 / A6
60' -	A7

From the largest to the smallest, the Polyform A-series are always reliable.

F-series

COMMERCIAL LEISURE YACHTS & WORK BOATS

Heavy duty Fenders

- Ribbed, reinforced ropehold
- Recessed valve screw
- Extra strong ropehold material
- Perfectly seamless construction
- Extra flexible body material
- Sturdy, uniform wall thickness
- Smooth surface
- Glossy finish

F-series cylindrical fenders have set the standard for heavy duty fenders for close to 60 years. The newest generation are made by use of Polyform's unique, in-house developed and patented **POLYMATIQ®** technology.
Highest breaking strength is taken care of by the two multiple rib-reinforced rock solid ropeholds. Tested for strength and flexibility in temperatures ranging from -30°C to +60°C, these most heavy duty fenders feature high abrasive resistance and high energy absorption (up to 3.8 ton meter for F-13), making them suitable for ships of up to 1500 ton d/w (F-13) .
In addition to be a must for recreational crafts and yachts, the F-series cylindrical fenders are widely used by

- Coast guard and navy vessels
- Pilot boats
- Commercial ships
- "ALMOST ANY KIND OF BOATS AFLOAT"

Appreciated by dedicated yachtsmen for its superb quality

From the smallest dinghy up to the largest yachts, there is a suitable Polyform F-series fender.

Art.No.	Volume liter	Length mm	Diameter mm	Eye diameter mm	Weight kg
F01S	2,8	370	130	18	0,62
F01M	4,0	465	130	18	0,68
F01L	5,3	560	130	18	0,75
F1	8	610	150	22	1,00
F02	15	660	200	25	1,65
F2	16	610	220	28	1,75
F3	22	745	220	28	2,10
F4	35	1040	220	28	2,90
F5	35	775	290	28	3,00
F6	60	1090	290	28	4,20
F7	85	1020	375	28	5,30
F8*	135	1440	375	28	7,60
F11**	275	1455	590	28	10,50
F13	700	1880	750	40	23,00

* F8 optional double valve system on request. ** F11 supplied with double valve system as standard.
Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius. Allowance +/-5%.

Colors	Ropehold	Body
Standard	●	○ ●
On request	○ ● ●	● ●

Custom colors available.

NEW MODELS

F01 is now available in 3 different sizes:

polymatiq ROTOMOLDING

Polyform F-series fenders are made by our unique, in-house developed and patented POLYMATIQ® technology that ensures supreme control over the fusion process and warrants for the most consistent quality available anywhere for such molded, soft Vinyl fenders.

Inflation valves

The F-series fenders from size F01 to F11 are fitted with the V-10 valve.
The F13 fenders are fitted with the larger V-40 valve.

Double Valve System.
The F11 (and optional F8) is fitted with the Polyform® Double Valve System for more easily deflation.

F-series cylindrical fenders are offered in as many as 12 different sizes to fit vessels ranging from the smallest dinghy up to commercial ships and Navy vessels.

Boat size	Recommended F fender
- 10'	F01S / F01M
11 - 16'	F01S / F01M / F01L / F1
17' - 23'	F1 / F02 / F2
24' - 30'	F2 / F3 / F4
31' - 45'	F5 / F6
46' - 60'	F7 / F8
60' -	F11 / F13

Inflatable soft Vinyl Buoys and Fenders

HL-series

COMMERCIAL LEISURE

High-Liner

Welcotec

Polyform HL-series are specially designed and produced by use of Polyform's in-house Welcotec™ molding technology ensuring controlled wall thickness, seamless true one-piece products and reliable product quality.

Cylindrical, 'bullet-shaped' **POLYFORM®** HL-buoysare specially designed to reduce drag when used under conditions with strong currents. Under some conditions, the HL-buoys can considerably reduce the drag when compared to spherical buoys.
The **HL-buoy** is also a popular fender, especially on boats with low freeboard. Designed with the original **POLYFORM®** blue-top ropehold, the **HL-buoys** are heavyduty buoys, used by commercial fishermen in inshore and offshore environments.

Colors	Ropehold	Body
Standard	●	○ ● ●
On request	○ ● ●	● ● ● ● ● ● ●

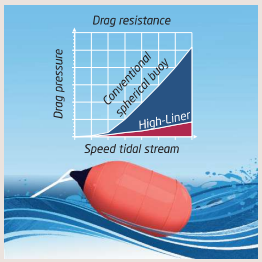
Custom colors available. Allowance +/-5%.

HL-series					
Art.No.	Buoyancy kg*	Length mm	Diameter mm	Eye diameter mm	Weight kg
HL1	12,0 / 7,5	470	230	22	1,15
HL2	30,5 / 18,5	620	300	22	2,1
HL3	51,0 / 30,5	745	350	25	3,1

**Gross Buoyancy / Recommended maximum Load. Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius.

Inflation valves

The HL-series buoys are fitted with the V-10 valve.



Due to its special design the High-Liner buoys will "fly" on the waves.

It's in harsh waters like this the High-Liner buoys have their great advantage.

HL used as fender

G-series

LEISURE

Blow molded utility Fenders

The **POLYFORM® G-fenders** are blow molded from marine-grade Vinyl material. Intended to be used for typically light-weight utility fenders - but still designed with re-enforcing ribs along the length of the fender body - to assure added strength and abrasion resistance. These fenders are fitted with the full-size **POLYFORM®** V-10 all-plastic valve and securing valve screw.
The **G-fenders** are suitable for smaller and medium size pleasure crafts. (Please refer to our Fender-Guide).

Standard colors ○ ●

G-series				
Art.No.	Length mm	Diameter mm	Eye diameter mm	Weight kg
G2	407	117	13	0,5
G3	515	145	16	0,8
G4	585	170	20	1,1
G5	705	215	22	1,5

Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius. Allowance +/-5%.

Inflation valves

The G-fenders are fitted with the V-10 valve.

Polyform G-fenders are suitable for pleasure crafts up to 30 ft.

Inflatable soft Vinyl Buoys and Fenders

CC-series

COMMERCIAL INSHORE & MARINA

Multi-purpose Buoys

Commonly known as "**Dhan-Buoys**" or "**High-Fliers**". These buoys are fitted with a central, flexible tube for mounting of for example a pole. The **CC-series** Multi-purpose buoys are of seamless molded construction and are widely used for various marking applications.

Standard colors

Inflation valves

The CC-series buoys are fitted with the V-10 valve.

Art.No.	Buoyancy kg*	Length mm	Diameter mm	Tube diameter mm	Weight kg
CC2	29,0 / 17,5	430	385	48	2,6
CC3	55,0 / 33,0	500	450	48	3,9
CC4	100,0 / 60,0	590	540	48	5,3

*Gross Buoyancy / Recommended maximum Load. Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius. Allowance +/-5%.

Pe3-buoy

COMMERCIAL LEISURE

Marker Buoy

Semi hard plastic, non-inflatable marker buoys.

Standard colors:

Art.No.	Buoyancy kg*	Length mm	Diameter mm	Eye diameter mm	Weight kg
Pe3	1,6 / 1,0	208	150	10	0,11

**Gross Buoyancy / Recommended maximum Load. Allowance +/-5%.

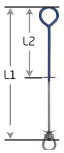
CCE/CCD-series

INSHORE & MARINA LEISURE

Inflatable Mooring Buoys

The **POLYFORM**® inflatable mooring buoys are offered with either a short mooring rod (**CCE**-type mooring buoy) or a long mooring rod (**CCD**-type mooring buoy). The mooring buoys are fully assembled by the factory and only need correct inflation before use. The rods include a swivel at the lower end and all parts are hot dipped galvanized.

Standard colors



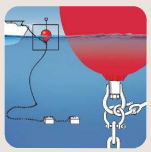
Art.No.	Rod diameter mm	L1 mm	L2 mm	Buoyancy kg*
CCE2	16	640	150	28.0 / 16.5
CCE3	19	740	150	53.0 / 31.5
CCE4	19	855	170	98.0 / 58.0
CCD2	16	1065	575	27.0 / 16.0
CCD3	19	1190	600	52.0 / 31.0
CCD4	19	1485	800	97.0 / 57.0

**Total gross volume of buoys and Recommended Load for the buoy. Do not over-inflate! Maximum 0.15 - 0.20 bar of pressure at 20° Celsius. Allowance +/-5%.

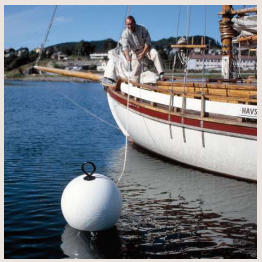
Inflation valves

The CCE/CCD-series buoys are fitted with the V-10 valve.

***IMPORTANT:** Like all other inflatable buoys and fenders, these buoys are designed for surface use only, not for use under water. As these buoys are permanently exposed to the environment, maintaining correct inflation measurements are of highest importance for the quality and lifespan of the products.*



Only the lower swivel (under water) shall be used for mooring. Do not expose the buoy to a load of more than 60% of its total buoyancy. All moorings shall be checked for wear and tear at least twice a year.



Polyform Special Foam Products

Polyform has a variety of products made partially or completely from different foam materials. The better known material is the Bacell™, used for example in the Marina Fender Series, the BPB fishing floats and in many custom made products.
The latest development is a hard wearing foam material with very strong surface and very good fendering features named FoamXD™. It is especially developed to be used in the production of boat and marina products. The new FoamXD™ material is represented in the new PMF, Polyform modular fendering system, introduced to the market in 2013.
Polyform EVA (ethylene vinyl acetate) products are made from Bacell™, an in-house developed material with unique properties, particularly suitable for marine products. Bacell™ was originally developed to meet the high demands of professional users. Today it is also used to make a range of products intended for the recreational boating market.
The 100% closed cell foam materials cannot puncture and will never absorb any water. It is highly shock absorbing, has excellent durability, and retains its shape even after high strain and extensive use. In addition it has high buoyancy and it is resistant to UV light and all weather conditions.

Polyform emphasis on continuous development and testing of EVA materials for new products and applications.

Bacell™ is an in-house developed EVA material that is used in a wide variety of products.

Manufacturing of products in Bacell™ sets high standards for quality and tight tolerances for deviation.

MR/MG-series

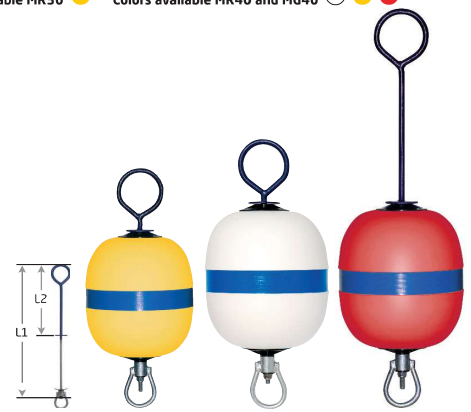
INSHORE & MARINA LEISURE

Non-inflatable Mooring Buoys

MR30, **MR40** (with short iron rods) and **MG40** (with long iron rod) are manufactured from **BACELL™**, Polyform's special foam material with 100% closed cells. The material is an in-house composition, consisting of environmentally friendly **EVA**. The closed-cell structure prevents any water from entering into the material and makes these buoys totally puncture proof. **MR- and MG-series** mooring buoys are fitted with a hot dipped galvanized mooring rod and swivel.

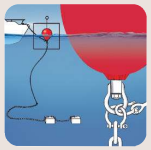
Color available MR30

Colors available MR40 and MG40



Art.No.	Rod diameter mm	L1 mm	L2 mm	Diameter mm	Buoyancy kg*
MR30	12	385	140	250	9,8 / 5,9
MR40	12	600	140	285	14,0 / 8,0
MG40	12	890	435	285	13,5 / 7,5

**Total gross volume of buoys and Recommended Load for the buoy. Allowance +/-5%.



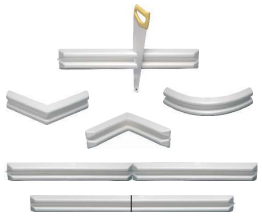
Only the lower swivel (under water) shall be used for mooring. Do not expose the buoy to a load of more than 60% of its total buoyancy. All moorings shall be checked for wear and tear at least twice a year.

MF-series

INSHORE & MARINA

Dock ending Products

The **Polyform MF-series** are the ultimate fenders for maximum protection of boats in marinas and floating docks. The fenders can be mounted in any position to most materials. There are no need for air filling or maintenance.
The **MF-series** are made from **BACELL®** - a foam material that has been used in the professional market for over 20 years. **BACELL®** is a 100% closed cell-foam that cannot puncture and thus will not soak any water. Will not deteriorate in the sun, and will not stain your boat.



*The **MF44** and **MF60** can be cut, curved, twisted, formed and shaped without loosing it's unique qualities.*

The MF-series are delivered plastic-wrapped or in sales displays with fittings and mounting instructions enclosed.

MF44 gray

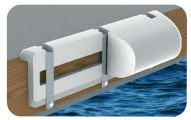
The MF44 Marina Fender is our smallest dock fender list for boat protection. It's easily attached to most docks by use of mounting brackets (included) and 4 appropriate screws. Can be formed to cover corners and bends. Will not deteriorate in the sun, will not mark your boat.

MF60 white

MF60 Marina Fender is the ideal protection - mounts easily to most docks by use of mounting brackets (included) and 4 appropriate screws. Can be formed to cover corners and bends. Will not deteriorate in the sun, will not mark your boat.

MBF150 blue

The MBF150 Marina Bumper is the most heavy-duty type of Marina Fender, designed for maximum protection of the bow/stern when mooring and during boarding. Delivered with mounting brackets.

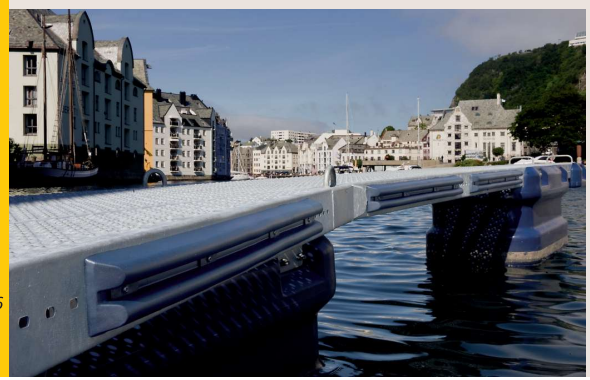


MBF150 Marina Bumper comes with a reinforced mounting bracket system.

Art.No.	Length mm	Height mm	Depth
MF44	940	85	44
MF60	1000	140	60
MBF150	650	200	130

Allowance +/-5%.

Standard colors



The MF fenders are produced in a foam material that will not puncture or absorb water. They can be sawn, screwed and drilled into. They can easily be mounted in most places fendering are required.

MF44 and MF60 may be mounted in numerous ways.

MF44 mounted to a outrigger by use of plastic strips.

MFB150 mounted using the enclosed brackets.

PMF

YACHTS & WORK BOATS COMMERCIAL

Modular Fendering System

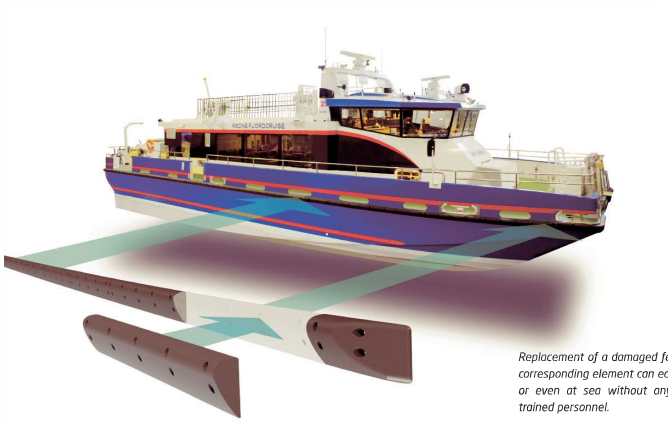
The Polyform Modular Fendering System consists of fender modules, mounting hardware and fixing profiles.
PMF is intended as fendering between a boat and the dock, and can also be used in other fendering applications. The modules are developed for use in a system in which one or more modules are mounted to a mounting profile.

The key feature to the fendering modules is the capacity to absorb a repeated energy without permanent deformation.
Fender modules, with integrated fixing points, are designed to be fastened to a profile on a ship or a quay by means of mounting parts. Fixing profiles can be manufactured in steel, aluminum or plastic resin, and are bolted, welded, bonded, or integrated to a ship or a pier.

The system profile may be in continuous lengths, in sections, or intermittently.
The cross section of the fixing profile serves as guidance during the assembly of the elements to the boat.Design, size, and absorbing capacity of the modules are adapted to the fendering required.

Modules with different characteristics may be used in the same system, such as customized zones with higher load.

Along with the mounting hardware, modules are designed for easy mounting and dismounting to the fixing profile.
The back side of the modules is designed to guide the fenders while mounting, and seal off the top and bottom edge to prevent intrusion of dirt.



Replacement of a damaged fender module with a corresponding element can easily be done at port, or even at sea without any need of specially trained personnel.

Successfully tested for wear and tear on shuttle boat.

The modules are flexible and can be shaped along the profiles of different boats.

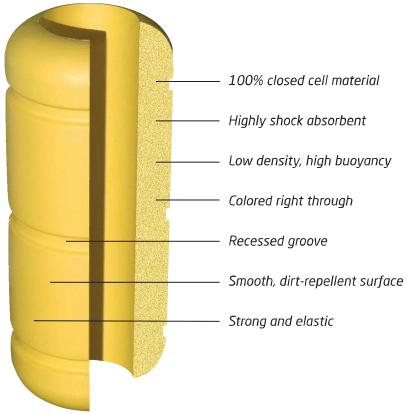
PMF system can be customized to different sized boats or applications.

Polyform Special Foam Products

FlowSafe

OFFSHORE AQUA CULTURE INSHORE & MARINA

Hose Flotation Device



Star shaped inner surface on Type 3. Smooth inner surface on Type 4, Type 5 and Type 5L.

FlowSafe hose flotation devices are used in various fields of marine activities, such as offshore oil- and gas industry and port facilities.

Transfer of fluid at sea is often associated with serious problems – especially in severe weather. During discharge, the hose sinks as it fills with water, slurry, or whatever is being pumped through the hose. Even slight movement of the vessel can cause the hose to come in contact with the propeller.

The consequences arising from a broken hose can be extreme:

- Contamination due to spillage
- Destruction of the hose requiring repair or replacement at considerable cost that could have been avoided.
- Damage to the supply ship putting it out of operation. Both, the vessel and the crew may be exposed to danger.

With **FlowSafe** hose flotation device fitted around the transfer hose these problems may to a large degree be avoided. The hose will float in plain sight, making discharging much simpler and safer.

FlowSafe protection

During discharge the hose is exposed to wear and tear. Mount **FlowSafe** around the hose at the points that receive the greatest wear. This provides effective protection to the hose, thereby adding to its service life and reducing overall cost.

FlowSafe produced from environmentally friendly Bacell™ material

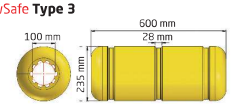
FlowSafe hose flotation devices are manufactured from **BACELL™** - an ethylene vinyl acetate (EVA) material made according to our in-house developed raw material recipe. BACELL™ is a highly shock absorbent, strong and elastic material with 100% watertight cells. Relative to its strength, **BACELL™** has very low density, resulting in high buoyancy. To the highest possible degree, the outstanding elasticity of the **BACELL™** material prevents **FlowSafe** from shrinking, deforming or breaking.

FlowSafe flotation devices are formed like a wrapping that can be opened along a lengthwise split. This makes **FlowSafe** easy to mount around the hose.
FlowSafe can be held in place by adequate fastening devices, such as metal or plastic strips which fit into the grooves around the outer perimeter of the flotation device. Being recessed inside the grooves, the securing strips are largely protected from being damaged.

Type	Length inches	O.D. inches	I.D. inches	Groove inches	Mass pounds	Buoyancy pounds
3	23.62	9.25	3.94	1.10	4.93	37.5
4	23.62	9.25	4.72	1.10	4.56	33.0
5	23.62	9,45	5.70	1.10	4.56	33.0
5L	27.16	11.02	5.70	1.26	4.56	44.1

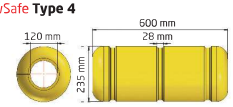
O.D. = Overall Diameter I.D. = Inner Diameter Allowance +/-5%.

FlowSafe **Type 3**



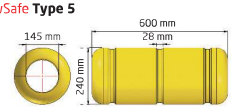
Mass 2,24 kg - Buoyancy 17,0 kg

FlowSafe **Type 4**



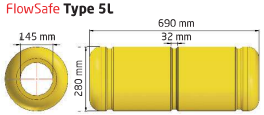
Mass 2,07 kg - Buoyancy 15,0 kg

FlowSafe **Type 5**



Mass 2,07 kg - Buoyancy 15,0 kg

FlowSafe **Type 5L**



Mass 2,07 kg - Buoyancy 20,0 kg

FlowSafe acknowledgement

The Norwegian Maritime Administration states (in part):
"The maritime administration recommends that such flotation devices be employed on discharge hose to ensure that they float on the surface, and subsequently reduce the risk that the discharge hose is drawn up into the propeller causing loss of maneuverability."

FlowSafe is suitable for use offshore as well as in ports, on canals, lakes and rivers.

Polyform Special Foam Products

BPB-series

COMMERCIAL

Purse Seine Floats

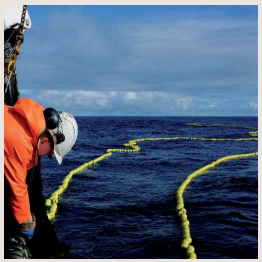
Incorporated reinforcement grommets and central tube.

The **BPB Bacell™ Purse Seine Floats** are manufactured from ethylene vinyl acetate (EVA) to our in-house developed raw material recipe.
Advanced production technology guarantees floats of superior quality. The grommets are a part of the products from stage one in the production cycle and thus form an integrated part of the finished products.
BACELL™ floats are light in weight, have very high tensile strength and do not absorb any water. The outstanding elasticity of the Bacell® material provides floats that have the highest resistance to shrinkage, permanent deformation and breakage.

The Bacell™ material withstand severe stress without reducing its properties

Article	BPB3500	BPB4600	BPB5700	BPB6800	BPB8000	BPB9000	BPB9800	BPB11000
Buoyancy kg	3.500	4.600	5.700	6.900	8.000	9.000	9.750	10.900
Length mm	201	225	224	230	264	273	274	285
Diameter mm	176	186	212	226	232	240	248	255
Hole mm	35	35	45	45	45	50	45	50
Weight gram	510	610	740	880	1040	1040	1210	1210

Allowance +/- 5%



Widely used in all the major fisheries in both the northern and southern hemisphere.

Photo: fotomaritim.no

Non-inflatable Hard-Shell PE Products

The Polyform hard-shell products are rotationally molded buoys, pontoon floats and custom made products produced from PE (Polyethylene). These are mainly buoys for mooring – but included is also a significant range of different other products like different size and design pontoon floats, tanks, containers and customer tailored products.
Buoys for mooring are usually filled with polystyrene foam (EPS) and may also be offered filled with polyurethane foam (PUR). For further info see page 32.

Most hard shell PE products come with EPS foam filling, but can alternatively be supplied with different qualities of polyurethane (PUR) foam. Some products are intended to be used without foam, but can be supplied with various foam qualities on request.

Expansion of the EPS foam is done by using heat, and requires experienced operators.

Mooring- spring- and light buoys are available with various fittings in galvanized steel. In addition, we make fittings to customer specifications.

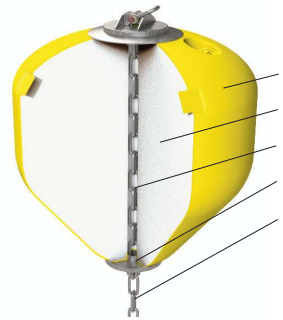
Aqua-series

Mooring and Spring Buoys

The Aqua series buoys are rotomolded from polyethylene (PE) with an extra heavy wall-thickness of 8mm and filled with polystyrene foam (EPS), or polyurethane foam (PUR) depending on the application.
The hot dip galvanized steel armatures and chain varies from application to application depending if it is for aquaculture, offshore, surface, sub-surface or other installations.

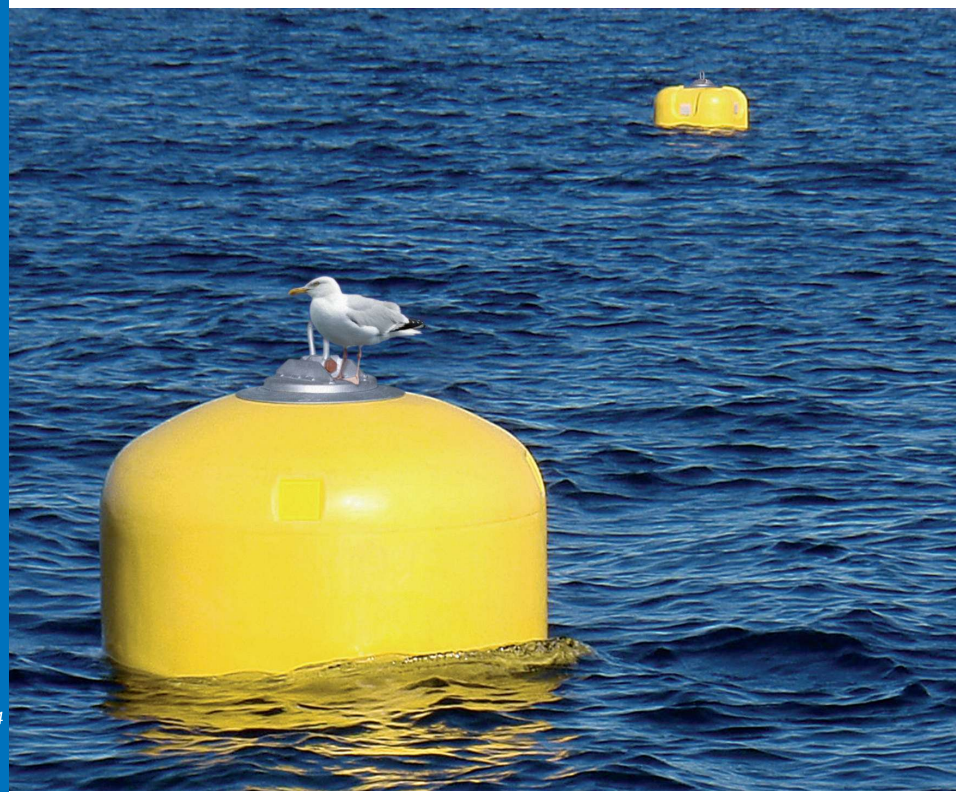
Standard color

Custom colors available.



Standard Aqua buoy configuration

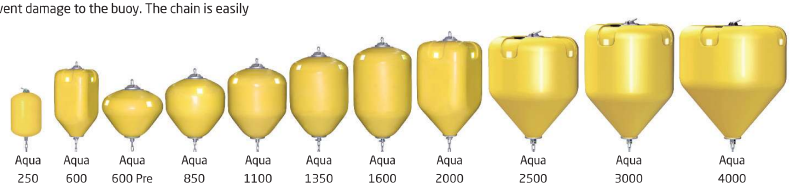
- *Roto-molded polyethylene outer shell*
- *Filled with expanded polystyrene (EPS)*
- *Hot dip galvanized chain*
- *Strong, hot dip galvanized terminating discs*
- *Easy shackle attachment for mooring line/-chain*



Aqua-series configured for fish farming/aquaculture

The Aqua-series buoys are made from a rotomolded PE outer shell and filled with polystyrene (EPS) foam, guaranteeing a compressive strength of 5 mH²O and a density of 25kg /m3.
The continuous high quality chain is terminated at either end of the buoy by use of terminating discs that are designed to prevent damage to the buoy. The chain is easily attached by shackle to the anchor line. All wear parts are standard components and can easily be replaced. Aqua-series buoys are designed for surface use and they are equipped with four yellow, daylight reflective tapes for better visibility. Armature and also a radar reflector can be supplied on demand and can also be mounted afterwards.

PRODUCT CERTIFICATE
Complies with the requirements for strength and safety according to ***Marine fish farms NS 9415*** *(Norwegian Standard).*



Type	Volume in liter	Weight in kg	Net buoyancy kg	Length in cm*	Diameter in cm	Light armature option
Aqua 250	260	32	228	113	65	no
Aqua 600	620	55	560	165	77 x 77	no
Aqua 600 Pre	620	60	560	127	120	no
Aqua 850	873	73	800	143	120	yes
Aqua 1100	1130	95	1035	165	120	yes
Aqua 1350	1380	118	1262	188	120	yes
Aqua 1600	1640	130	1510	213	120	yes
Aqua 2000	2020	180	1900	228	117 x 117	yes
Aqua 2500	2550	210	2340	210	160 x 160	yes
Aqua 3000	3050	235	2815	235	160 x 160	yes
Aqua 4000	4075	285	3790	235	194 x 194	yes

*Length inclusive of the terminating discs. Other sizes on request. Allowance +/-5%.

Aqua-series other configurations

The Aqua-series can easily be custom made, specially designed to meet the needs of the customer. They can be equipped with different steel armatures, different dimensions of continuous chain through the center, and different materials adapted to the use either on the surface or submerged to various depths. Polyform has an experienced research and development department and can in cooperation with the customer come up with the desired solutions.

Non inflatable Hard Shell PE Products

APB-series

COMMERCIAL OFFSHORE AQUA CULTURE INSHORE & MARINA YACHTS & WORK BOATS

Modular Mooring and Spring Buoys

The APB-series represents a modular series of buoys, designed for surface or for sub-surface use, rotomolded from polyethylene (PE) and filled with polystyrene foam (EPS), polyurethane foam (PUR) or other materials depending on the application. The buoys are equipped with hot dip galvanized steel armatures, 4 full-length hot dip galvanized steel bolts and continuous chain through the center. The steel armatures and chain vary from application to application depending on whether it is for aquaculture, offshore, surface, sub-surface or other installations.

Standard color

Custom colors available.

The modular system allows for sections to be added / removed as needed.

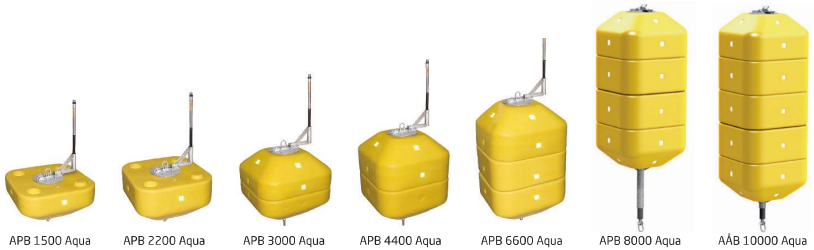
APB 6600 Aqua configured for use in aquaculture.

APB-series configured for fish farming/aquaculture

The APB Aqua buoys are rotomolded from polyethylene (PE) and filled with polystyrene foam (EPS), designed for surface use and equipped with yellow, daylight reflective tapes on all 4 sides. In addition to the continuous chain through the center, the buoys are secured with 4 full-length hot dip galvanized steel bolts. The buoys are designed to form a modular system and individual sections can therefore be added or, if necessary be removed from the assembly, to adapt to different buoyancy needs. The buoys include an integrated pipe as part of the top disc, allowing for light and different other equipment easily to be mounted.

aquastructures

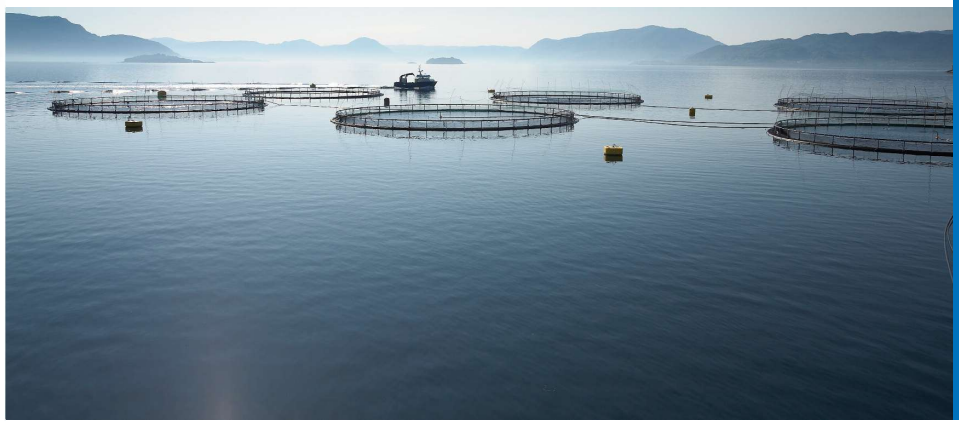
PRODUCT CERTIFICATE
Complies with the requirements for strength and safety according to ***Marine fish farms NS 9415*** *(Norwegian Standard).*



APB 1500 Aqua | APB 2200 Aqua | APB 3000 Aqua | APB 4400 Aqua | APB 6600 Aqua | APB 8000 Aqua | AÅB 10000 Aqua

Type	Weight in kg	Net buoyancy kg	Length in cm*	Width in cm	Light armature option
APB 1500 Aqua	255	1500	109	180 x 180	yes
APB 2200 Aqua	280	2200	145	180 x 180	yes
APB 3000 Aqua	400	3000	194	180 x 180	yes
APB 4400 Aqua	590	4400	245	180 x 180	yes
APB 6600 Aqua	890	6400	335	180 x 180	yes
APB 8000 Aqua	1685	8215	529	180 x 180	yes
APB 10000 Aqua	1975	10325	529	180 x 180	yes

*Length inclusive of the terminating discs. Other sizes on request.



APB-series other configurations

The APB buoys are produced with steel armatures for offshore applications, filled with polystyrene foam (EPS), polyurethane foam (PUR) or other materials depending on the application (see page 32). The buoys can easily be custom made, specially designed to meet the needs of the customer. They can be equipped with different steel armatures, different dimensions of continuous chain through the center, and different materials adapted to the use either on the surface or submerged to various depths. Polyform has an experienced research and development department and can in cooperation with the customer come up with the desired solutions.

APB modular system allows the construction of buoys in many varieties

Example of a customized APB buoy used in a research project.

MB-series

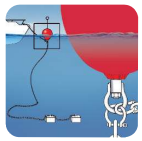
Mooring Buoys

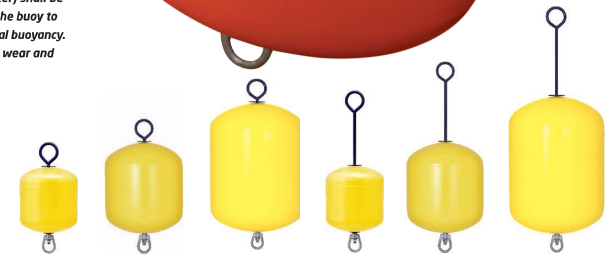
The MB-series buoys are mainly used for mooring, marking of fishing gear and cables, pipelines, and different other surface installations. The MB-series buoys are rotomolded from polyethylene (PE) and filled with polystyrene foam (EPS), guaranteeing a compressive strength of 5 mH2O and a density of 250kg /m3.
The buoys come complete with hot dip galvanized armature and swivel.

Standard colors:

Custom colors available.

Only the lower swivel (under water) shall be used for mooring. Do not expose the buoy to a load of more than 60% of its total buoyancy. All moorings shall be checked for wear and tear at least twice a year.





Type	MB40	MB100	MB250	MB40L	MB100L	MB250L
Volume in liter	45	106	255	45	106	255
Weight of buoy kg	4,5	9	20	4,5	9	20
Weight of armature kg	2,5	3,5	5	3	6	8
Net buoyancy in kg	38	94	230	37	91	227
Length of buoy cm	43	59	92	43	59	92
Length of armature cm	78	92	135	115	150	200
Diameter of armature mm	16	19	19	16	19	19
Diameter of buoy cm	38	50	65	38	50	65

Allowance +/-5%.

LB-series

Light Buoys

Light-buoys
The LB-series light-buoys are used for marking of fishing equipment as well as fish farms, moorings, cables, pipelines and many different other surface or submerged installations. The LB-series buoys are roto-molded from polyethylene (PE) and filled with polystyrene foam (EPS). The buoys are made to accommodates the Jotron® MF1114 light-armature. In many cases the bracket can be adjusted to accommodate also different other standard models / types of light-armatures. The buoys come complete with hot dip galvanized armature and swivel.

Type	LB100	LB250
Volume in liter	105	250
Weight of buoy kg	10	25
Net buoyancy in kg*	92 / 82	225 / 215
Length of buoy cm	110	120
Length of light-armature cm	170	170
Diameter of mooring-armature mm	20	20
Diameter of buoy cm	50	65

*Exclusive of light armature / inclusive of Jotron MF1114 light-armature. Allowance +/-5%.

Standard color

Custom colors available.

FSF-Series

Pontoon Floats

Cylindrical pontoon floats for various applications
The FSF-pontoon floats are constructed from an outer, 6mm strong roto-molded PE shell that is filled with polystyrene foam (EPS). As a standard, these pontoon floats come with a 93mm or 50mm center hole. Different other dimensions can be produced to order. For the standard product, the center hole is manufactured as a passage directly through the foam filling. As an alternative - if required and on demand - a plastic pipe can be welded in.

Type	FSF 230/93	FSF 230/50	FSF 230/93T
Volume in liter	230	230	230
Weight in kg	19	19	22
Net buoyancy kg	210	210	210
Height/Length in cm	97	97	97
Length of pipe cm			110
Diameter in cm	65	65	65
Diam. center hole cm	9,3	5	9,3

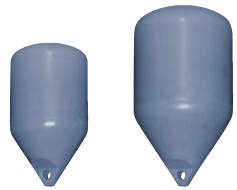
Allowance +/-5%.

Standard color

Custom colors available.

SBH-buoys

Mussel Farm Buoys



Buoys specially developed for mussel farming
The SBH buoys are specially developed and designed for mussel farming. This due to features like the ability to withstand tear and wear and, very importantly, featuring the highest breaking load for the ropehold. Environmentally correct GRAY colored, cylindrical in shape and with a sleek surface that makes these buoys also ideal for locations exposed to ice.

Type	SBH120	SBH250
Volume in liter	120	250
Weight in kg	6	12
Net buoyancy kg	114	238
Height cm	90,5	118
Diameter cm	50	65
Eyelet in Ropehold cm	5	5
Breaking strength kg*	2500	3500

* Refers to short-time exposure to load. Allowance +/-5%.

Standard color

Custom colors available.

LSB-buoys

Light Spring Buoys

Light spring-buoys
The LSB-buoys are constructed from an outer, roto-molded PE shell that is filled with polystyrene foam (EPS). The LSB-buoys are designed for surface use.
Special measures have been taken to ensure the product's ability to withstand wear and tear and highest possible breaking load for the ropehold.

Type	LSB120	LSB250
Volume in liter	120	250
Weight in kg	10	19,5
Net buoyancy kg	110	230
Height cm	90,5	118
Diameter in cm	50	65
Eyelet in Ropehold cm	5	5
Breaking strength kg*	2500	3500

* Refers to short-time exposure to load. Allowance +/-5%.

Standard color

Custom colors available.

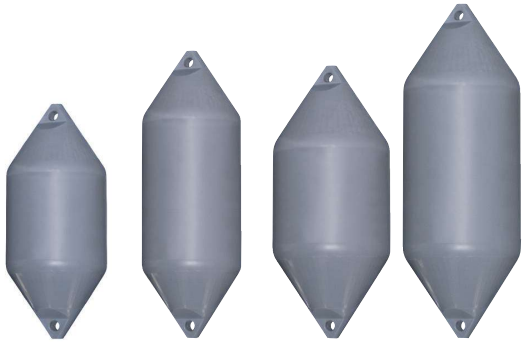
HDF-series

Heavy Duty Fenders

Strong, durable air-filled fenders for commercial crafts. Produced in one piece with extra reinforced ropeholds. The HDF fenders are roto-molded from a strong, 8 mm thick semi-soft thermo-plastic material.

Standard color

Custom colors available.



Type	HDF9	HDF10	HDF11	HDF12
Volume in liter	140	210	265	400
Weight in kg	11	18	20	30
Net buoyancy kg	129	192	245	370
Height cm	120	160	145	185
Diameter in cm	50	50	65	65
Eyelet in ropehold cm	5	5	5	5
Breaking strength kg*	2500	2500	3500	3500

Refers to short-time exposure to load. Allowance +/-5%.

Waste Water Tanks

Waste water tanks produced from strong, durable polyethylene.
The tanks are ideal for use where local conditions do not permit direct emissions.
Constructed to be buried in the ground, connected to an air inlet system.

Standard color

Custom colors available.

Type	1300L	3000L	6000L
Volume in liter, net	1300	3000	6000
Weight kg	65	120	230
Length cm	133	215	358
Diameter cm	130	160	160

MP-Pontoons

Pontoon for floating marina systems

The pontoon floats are mainly produced with polystyrene as secondary buoyancy. In case of damage to the products the solution with polystyrene foam will maintain the buoyancy of the pontoon float until due service is done.
The pontoon floats are suitable both for marina producers and DIY (do it yourself). One of the advantages for the marina producers to use standard products is low development cost in the establishment phase. We can also offer custom molding of special designed pontoon floats for defined applications

Standard color

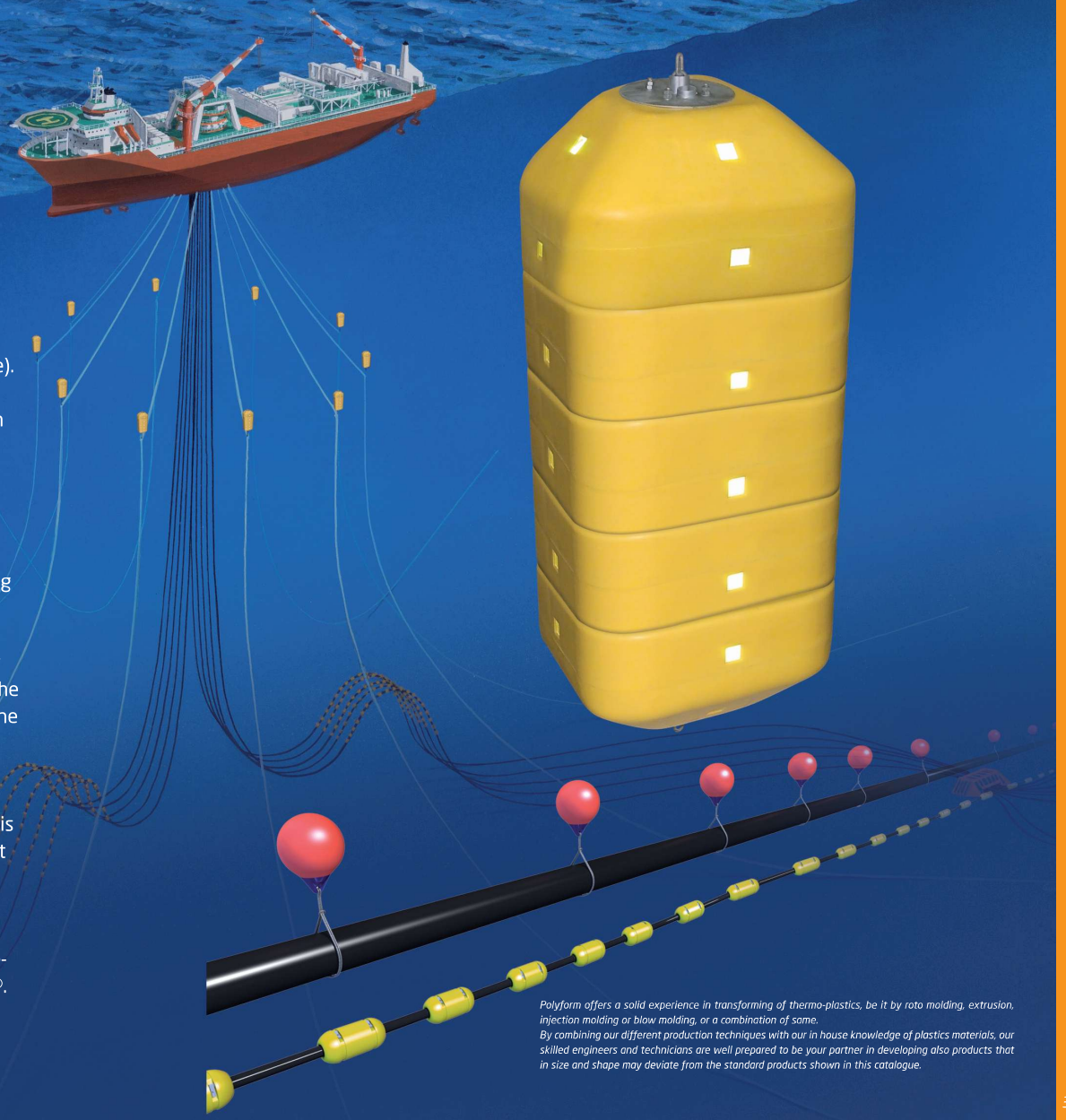
Custom colors available.

Type	MP 80	MP200	MP 420	MP1100
Volume in liter	80	200	420	1100
Weight in kg	10	18	30	50
Net buoyancy kg	70	182	390	1050
Height in cm	59	54	55	79
Length in cm	70	140	175	143
Width in cm	22	25	50	98

Allowance +/-5%.

Subsea

Mooring and Buoyancy Systems



Mooring and more

The Polyform® hard shell products are rotationally molded buoys, pontoon floats and custom made products produced from PE (Polyethylene). These are mainly buoys for mooring - but included is also a significant range of different other products like different size and design pontoon floats, tanks, containers and customer tailored products.
Buoys for mooring are usually filled with polystyrene foam (EPS) and may also be offered filled with polyurethane foam (PUR).

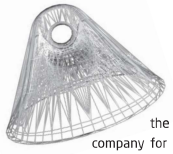
Polyform® Buoyancy System

The largest types of buoys Polyform® can offer are made by assembling modular, hard shell "building blocks" - foam filled and held together by use of hot dip galvanized armatures and top- and bottom plates. Such buoys are constructed by assembling two types of blocks, one type for the top- and bottom ends of the buoy and square blocks in between. The top- and bottom blocks represent a buoyancy of 2550 kg each, while the square blocks represent a buoyancy of 2350 kg each.
The individual building blocks are roto molded from polyethylene (PE) and filled with polyurethane (PUR) foam with a density adapted to the intended use of the buoy. Standard color is yellow and the PE material is colored throughout the material and UV protected. Different equipment can be mounted to the top plate of the armature, for example lifting hooks/eyelets, strobe light, pole, radar reflector etc.
Such giant buoys are not standard items and have to be designed and assembled individually, based on the customers' demands. For more detailed information on the Buoyancy Systems, please contact Polyform®.

Polyform offers a solid experience in transforming of thermo-plastics, be it by roto molding, extrusion, injection molding or blow molding, or a combination of same.
By combining our different production techniques with our in house knowledge of plastics materials, our skilled engineers and technicians are well prepared to be your partner in developing also products that in size and shape may deviate from the standard products shown in this catalogue.

Development and Customization

From idea-phase to finished products



Polyform AS, the manufacturing company for the Polyform® products, is a highly competent roto-molder, experienced in molding hard- as well as soft thermo-plastics. An extensive assortment of different shape and size products have been part of the production range for now close to 60 years.
In addition, Polyform has one of the most comprehensive injection-molding manufacturing facilities in Norway. Our modern, closed loop-control machines range from 150T up to 4000T, thus enabling us to mold a complete range of leading edge polymers .
Our total manufacturing capabilities also include blow-molding, extrusion, expansion and forming products from different types of foam materials, ultrasonic welding and even decoration, in addition to roto-molding and injection molding.
Our skilled engineers and technicians - through their specialized knowledge and expertise - can assist you in the research and development phase of your project. We can produce construction drawings, 3-D drawings, mold design - and we can assist with the construction and machining of production molds/tools.
Combining our different production techniques and adding specialized techniques, such as structural foam and gas assisted molding technologies may give you, our customer, the edge you need to be the leader in your market place.
From idea-phase to finished products:
Try us!

Years of experience in selecting the right raw materials for each particular product has provided us with vital knowledge.

Foam Filling

The majority of our hard-shell products are filled with a foam-material, either an expanded-polystyrene (EPS) or a polyurethane (PUR) type of foam.
Most of our products – hard-shell products as well as soft plastic buoys and fenders can be filled with foam, if desired and for special applications.
Whereas many of the hard-shell products can be supplied with a filling of either EPS or PU foam, the soft plastic products (= inflatable types) can be filled with PU foam only. This will be a rigid/hard type of PUR foam, NOT a soft type.
As a general rule, a product filled with EPS foam is intended for use on the surface only. The EPS foam is not intended for sub-surface use and will not stand up to the compression force when submerged.
The PU foam we offer can be formulated and supplied in a variety of different densities, suitable for surface use and can also be specially designed for submerged use.
Foam-filling will add to the weight of the product, resulting in a loss of buoyancy equal to the weight of the foam injected into the product. The higher density of the foam – the higher the weight.
It is of the highest importance to clearly define the conditions and use the foam-filled products are intended to be used in – only then can we determine the correct type and density of foam to be used for that particular product and its intended application.

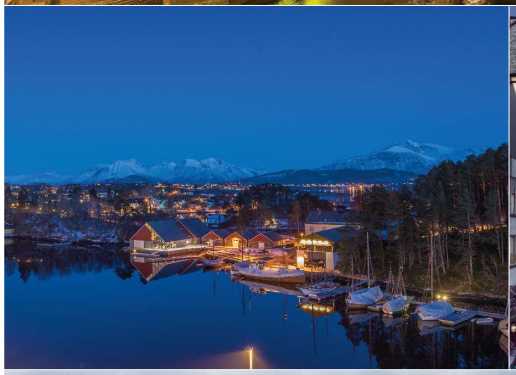
Foam density will determine the product's features. From lightweight EPS for surface use, to high density PUR qualities for subsea use. We hove the knowhow!

Customized products

Based on existing products, we can make customized installations.

Custom-molded products

In addition to standard products Polyform AS can offer a wide range of customized products and custom molding of special products. Skilled engineers and technicians - through their specialized knowledge and expertise - can assist in the research and development phase on projects. Polyform AS can produce construction drawings, 3-D drawings, mold design - and assist with the construction and machining of production molds/tools.



Polyform® is situated in the north-western part of Norway,
in an area known for having one of the world's most innovative
environments within the maritime industry.
Polyform® products are distributed to all parts of the globe.

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