



Mooring Products, Glass Instrument Housings

McLane Research Laboratories manufactures and tests our own glass sphere flotation modules and steel flotation buoys for oceanographic moorings and instrument systems. All of our glass spheres are tested in our on-site facility to 7000 meters ocean depth. The 12" borosilicate spheres are assembled in axis-symmetric modules with through center, in-line attachment to a mooring. We also offer conventional, flange mounted hard hats with a single sphere.

We also offers glass spheres as instrument and battery housings. Each sphere is first tested to 7000 meters. Then, we drill penetrator holes to customer specifications, install the connectors, and re-test the assembled housing in our pressure test facility.



Our steel buoys are depth rated from 380 meters to 564 meters. They are leak tested, anode protected, and coated with a durable epoxy finish. Each sphere includes lifting bails and an internal tension member with pad eyes for convenient and dependable in-line use.



- [G2200 and G6600 Glass Flotation](#)
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Glass Flotation Spheres

The Model G6600 deep ocean flotation module incorporates three 12" borosilicate glass spheres in a through-center, symmetric hard hat housing. This configuration provides a steady and reliable distribution of buoyancy along a mooring independent of current direction and cable twist.

McLane also offers conventional, flange mount hard hats (G2200) and a four-sphere module ([G8800](#)).

The G6600 produces 66 lbs (30 kg) of positive buoyancy, which is 18% greater than a conventional 17" glass sphere, and has a comparable weight-in-air of 46 lbs (21 kg). As the G6600 offers greater buoyancy, fewer floats are required on a mooring which results in greater overall efficiency.



The G6600 is pressure tested to 7,000 m. This rating should be compared to 17" glass spheres, which are rated to 6,700 m. The G6600 allows deeper deployments and larger safety margins. Our G2200 and G8800 are also rated to 7000 m.

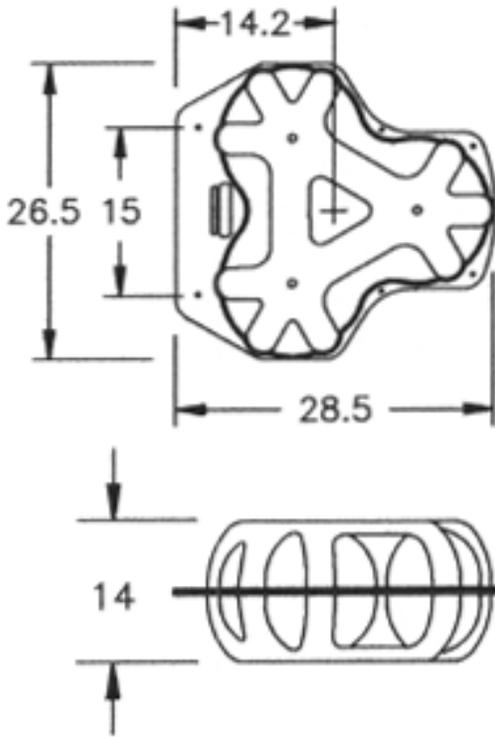


Larger flotation modules, based on the 3 sphere G6600 and retaining the through-center, symmetric feature, are also part of our standard product line.

Pictured to the left are a 3 sphere G6600, a 6 sphere G6600-2, a 9 sphere G6600-3, and two G2200, one with the hard hat opened to expose the 12" borosilicate glass sphere

Through-Center Attachment Method

G6600



Model: G6600

Description: 3 - 12" glass spheres w/ hard hat housing

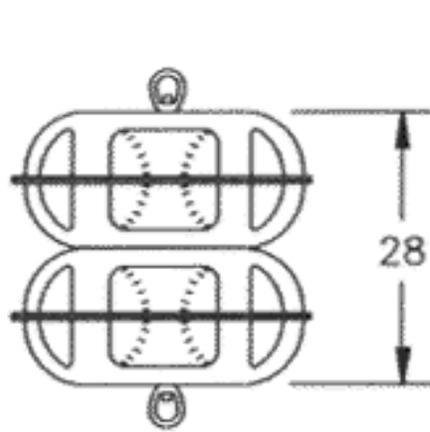
Buoyancy: 66 lbs (30 kg)

Depth Rating:
7000 m (~23,000 ft)

Weight-in-Air: 46 lbs (21 kg)

Test: Pressure to 7000 m

G6600-2



Model: G6600-2

Description: 2 - G6600 glass flotation modules

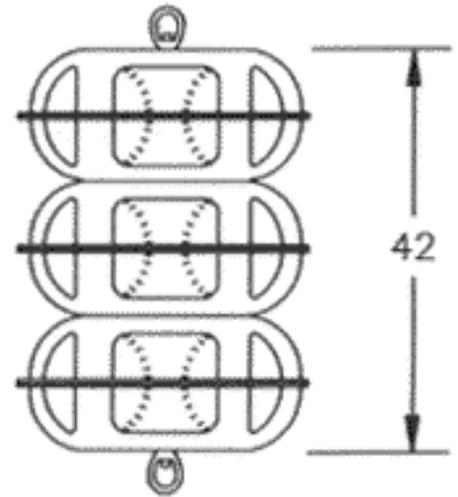
Buoyancy: 125 lbs (57 kg)

Depth Rating:
7000 m (~23,000 ft)

Weight-in-Air: 97 lbs (44 kg)

Test: Pressure to 7000 m

G6600-3



Model: G6600-3

Description: 3 - G6600 glass flotation modules

Buoyancy: 190 lbs (86 kg)

Depth Rating:
7000 m (~23,000 ft)

Weight-in-Air: 145 lbs (66 kg)

Test: Pressure to 7000 m

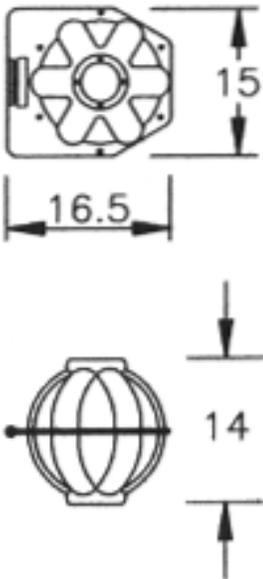
Specifications Subject to Change Without Notice

Major Benefits of McLane glass spheres:

- Greater buoyancy - 66lbs. (G6600) vs. 56lbs. (17 in. sphere)
- Greater depth rate - 7000m (12 in.) vs. 6700 (17 in.)
- All glass spheres are pressure tested to 7000 m (10,950 psi)
- Through-center float package rotates independently of the mooring for stable mooring performance and reduced chain/cable stress
- Higher *Buoyancy-to-Weight in Air* ratio - 1.83 (12 in.) vs. 1.44 (17 in.)
- Cost savings with easier handling and better mooring performance

Flange Attachment Method

G2200



Model: G2200

Description: 12" glass spheres w/ hard hat housing

Buoyancy: 22 lbs (10 kg)

Depth Rating: 7000 m (~23,000 ft)

Weight-in-Air: 14 lbs (6 kg)

Test: Pressure to 7000 m



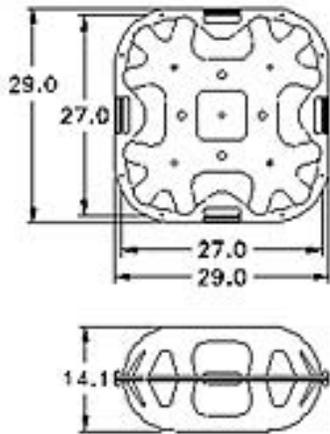
G8800 Glass Flotation Module

The G8800 Flotation Module incorporates four 12" borosilicate glass spheres in a through-center, axis-symmetric, hard hat housing with convenient, integrated handles. The through-center configuration maintains a fixed, torque-free, buoyancy distribution along the wire as the mooring responds to forcing by ambient currents.

Each G8800 module produces approximately 88 lbs. (40 Kg) of positive buoyancy. G8800 modules can be assembled in single, double or triple units secured together by through-center mounting hardware (S8800, S8800-2, S8800-3). Four locking pins give the assembled units necessary rigidity and prevent twisting of modules within a unit. These large flotation packages are thus safely and easily handled during launch and recovery operations.



SPECIFICATIONS



Model:	G8800	Depth	7,000 m.
Description:	4-12" glass spheres w/ hard hat housing	Rating:	~ 23,000 ft.
Buoyancy:	88 lbs. 40 kg.	Air Weight:	66 lbs. 30 kg.
Dimensions: (sphere)	12 in. (x4) 30 cm. (x4)	Test:	~ 10,000 psi



Glass Instrument and Battery Housings

McLane Research Laboratories Inc fabricates glass instrument and battery housings to meet the unique and exacting specifications of our customers. Housings can be manufactured with a wide variety of electrical penetrators and fluid/gas feed-throughs. Each sphere is tested to 7000 meters. After the pressure test we drill penetrator holes in the glass. The sphere can be shipped to the customer in this form. Alternatively, we can install the connectors and re-test the assembled housing in our pressure test facility. Contact us at your convenience to discuss the needs of your research program.



On the left is a G2200 instrument housing with a vacuum port placed 30 degrees from the pole of the sphere. On the right is a custom housing built for Woods Hole Oceanographic Institution. The penetrators on the top hemisphere include three multi-pin electrical connectors spaced 120 degrees apart along a circle located 30 degrees from the pole and a titanium hydraulic feed-through located at the pole. A vacuum port is installed in the matching hemisphere.

Close-up of the WHOI instrument housing.





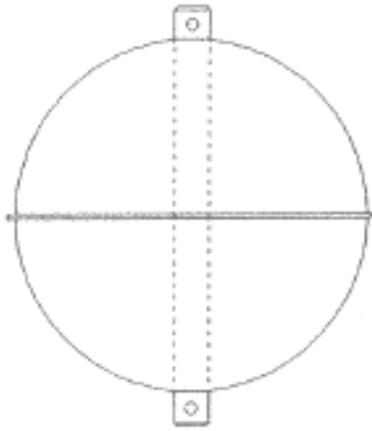
Steel Flotation Buoys

McLane Research Laboratories steel, sub-surface flotation is a cost effective, uncompromising solution to your shallow water and coastal buoyancy requirements. With quality steel construction and a durable finish, our highly efficient buoys are designed to combat the harsh ocean environment and abusive deployment procedures.

Each McLane buoy is constructed of heavy duty pressure vessel quality (PVQ) steel. Our buoys are manufactured with an internal tension member that allows in-line placement of the sphere in a high tension mooring. Each buoy is equipped with convenient pad eyes to ease deployment and recovery operations. All McLane steel flotation buoys have a durable, epoxy finish and are galvanically protected with two zinc anodes.



The steel buoy pictured above is a 37.5" McLane Model SO726.



Rugged Tension Bar Through Each Buoy
For High In-Line Loads.

FEATURES:

- Pad eyes at each pole for in-line moorings
- Internal tension member
- 5,000 lbs. in-line tension
- High visibility, corrosion resistant coating
- Individually x-ray and leak tested
- Cathodic protection

SPECIFICATIONS: *(Subject to Change)*

Model	Buoyancy lbs (kg)	Dimensions in (cm)	Depth Rating ft (m)	Weight lbs (kg)
S0369	369 (168)	30 (76)	1,250 (380)	165 (75)
S0726	700 (318)	37 (94)	1,250 (380)	302 (137)
S0962	898 (407)	40.5 (103)	1,250 (380)	410 (186)
S1335	1290 (585)	48 (122)	1,805 (564)	878 (398)



Turn-Key Ocean Mooring Systems

McLane Research Laboratories, Inc. offers their expertise in designing, constructing and shipping ocean moorings for deployment anywhere in the world oceans regardless of the size requirements. Each mooring system has your choice of instrumentation, such as sediment traps, water transfer systems, and/or current meters. McLane has years of experience in designing safe, stable moorings with an advance facility for construction with rigorous quality control. We have shipping experts, to send the cargo almost anywhere in the world for minimal costs.

We use hardware from many established companies, who offer the best possible designs and quality in the industry. Some standard parts are thru-center glass buoyancy modules and torque compensated 3x19 plastic jacketed wire rope which has 35 years of user history. All mooring instruments and hardware are carefully packed into either commercial containers or pallet boxes, depending on shipping requirements, and sent directly to the research vessel's port of departure. This eliminates the responsibility from the scientists to design, purchase and transport extremely complex arrays. The scientist is relieved from the worries of missing parts and can concentrate more on his/her science. With McLane's modular mooring design and volume purchasing, the total cost of an ocean mooring systems is far less than an individual provision.

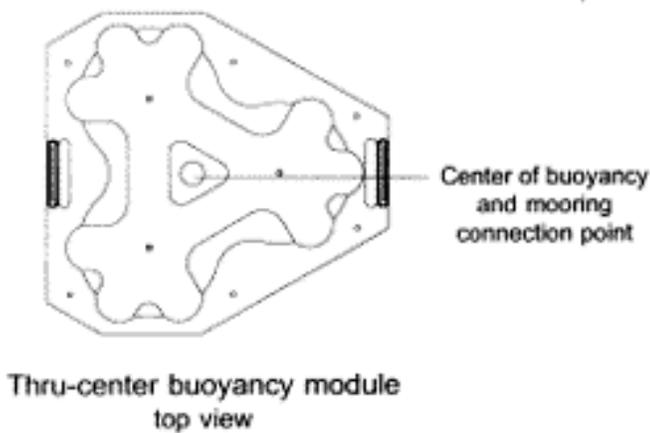
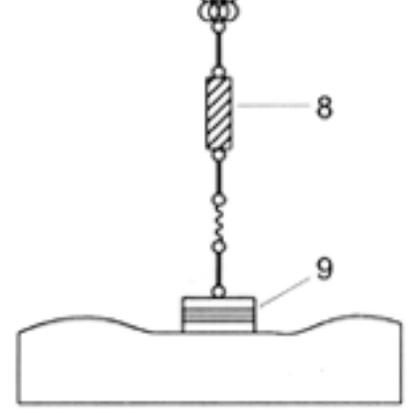
We are proud of McLane's many turn-key ocean mooring systems that have successfully supported ocean science world-wide. Contact McLane Research Laboratories with your mooring questions. We will be happy to discuss your requirements to provide additional information and quotation for the cost of a mooring, free of charge.

Instrumentation McLane can offer a wide variety of instruments, from their own sediment traps and water transfer systems, to other vendors for equipment such as current meters

Beacon float Both VHF Radio and a xenon flasher are standard equipment on a beacon float. An optional ARGOS transmitter with a deep submersible antenna can be added.



Glass flotation	The thru-center buoyancy modules produce very low torque on the mooring line due to its unique in-line design. All glass spheres are pressure tested to full ocean depth.
Wire rope	All wire rope is made of 3x19 torque compensated wire which is surrounded by a plastic jacket for corrosion protection. The wire rope has been used by the oceanographic community for 35 years. Each end of the wire rope are terminated and pull tested.
Nylon rope	The nylon rope is cut and terminated to custom lengths. Each termination is pull tested for reliability.
Chain	All chain is either made of galvanized carbon steel or stainless steel.
Acoustic release	The highly reliable releases have to pass through our rigorous quality control. Deck units are also available.
Anchor	We supply anchors with various weights and configurations.
Bridles	For all instruments, we offer a wide variety of bridles. The bridles can be made of wire rope, nylon rope, chain, or solid titanium rods.
Hardware	The miscellaneous hardware such as shackles and pear links are made of either galvanized carbon steel or stainless steel.



Legend

1. Beacon Float
2. Sediment Trap
3. Current meter
4. Glass Flotation
5. Taut lines
6. Nylon rope
7. Chain
8. Acoustic release
9. Anchor



Mooring Recovery Float

Description:

The McLane Research mooring recovery float, model G6600-BF, is a low profile, easy to handle package which is used to locate and recover subsurface moorings. Typical subsurface mooring designs include a float supporting a xenon flash and/or radio beacon at the top of the mooring. Flashers and beacons speed mooring location and recovery and reduce ship time. After the mooring has been released from its ballast point and surfaces, the beacons will begin operation.

The G6600-BF is fabricated of non-corrosive components, has a full ocean depth rating (7,500m), and includes clamps which interface with a number of xenon flash and radio beacons (e.g., Novatech and Argos, purchased separately). The G6600-BF is an affordable, high quality solution to many shallow and deep water mooring recovery applications.

Applications:

- Shallow and deep water mooring recovery
- Float/Instrument location
- Buoyant Marking float

Features:

- Rugged, non-corrosive design
- High visibility orange polyethylene shell
- Mounting chassis for most manufacturer's xenon/radio beacons
- Simple assembly/disassembly procedure for ease of storage, deployment, and recovery



Specifications:

Depth rating	Buoyancy	Buoyancy Type	Overall Length	Weight-in-air
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7,500m	20.4kgs	G6600 module	152.4cm	27.2kgs
24,000ft	45lbs	G6600 module	5ft	60lbs