

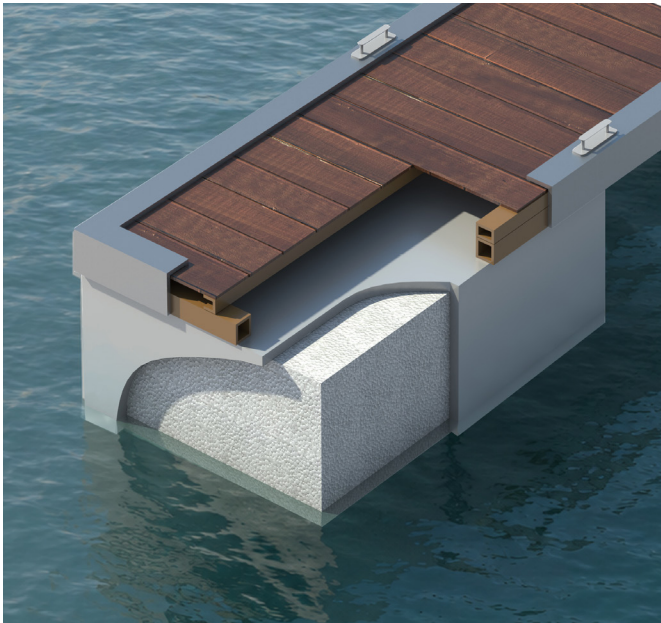
BEWI FloatMaster

Technical Datasheet

BEWI FloatMaster is a high-performance, closed-cell expanded polystyrene (EPS) solution engineered specifically for floating infrastructure, including marina pontoons, floating safety booms, and marine platforms. Designed for durability and reliability, it serves as an advanced alternative to traditional, complex buoyancy systems.

Key Benefits

- Lightweight and highly buoyant
- Available in multiple grades from 70 - 300
- Freeze/thaw resistant
- Ideal for encapsulating in concrete or specialist butyl coatings
- EPS is 100% recyclable



Physical Properties & Performance

Composition:	Closed-cell Expanded Polystyrene (EPS)
Grades	Available in grades ranging from EPS 70 to EPS 300
Dimensions:	Avilable in: 2400mm (L) x 1200mm(W) x 1200mm (T) Custom factory-cutting sizes are available upon request.
Installation Efficiency:	Engineered for precision fitment to maximize buoyancy performance beneath deck surfaces

Technical Considerations

When specifying FloatMaster/EPS for marine pontoon applications, it is crucial to understand how density influences buoyancy. While all grades of FloatMaster are highly buoyant, their performance characteristics vary slightly based on the grade selected.

The Relationship Between Density and Buoyancy

FloatMaster is categorized by grade, ranging from EPS 70 to EPS 300 to achieve higher structural strength. Because higher-grade blocks contain more material, they are slightly heavier, which results in a marginal decrease in net flotation capacity compared to lower-density blocks of the same volume.

Buoyancy Performance by Grade

EPS Grade	EPS 70	EPS 100	EPS 150	EPS 200	EPS 250	EPS 300
EPS Density (kg/m³)	15	20	25	30	35	38
Net Buoyancy (kg/m³)	985	980	975	970	965	960
8% Water Absorption Allowance (kg)	78.8	78.4	78.0	77.6	77.2	76.8
Total Effective Buoyancy (kg/m³)	906.2	901.6	897.0	892.4	887.8	883.2
Typical Shear Strength (kPa)	55	75	100	125	170	225

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Engineering Considerations

In professional marine engineering, these variations are managed by applying a conservative "effective" buoyancy factor. For the BEWI FloatMaster range, this is typically standardized at approximately 900kg/m³.

This value is intentionally conservative, sitting below the theoretical buoyancy of water to account for two specific factors:

1. **Self-Weight:** The inherent mass of the FloatMaster block, which fluctuates based on the chosen grade.
2. **Water Uptake:** An allowance of 8 - 10% for water absorption during permanent submersion.

Recommendation: When selecting the appropriate EPS grade for your project, prioritize the compressive and shear strength required to withstand the maximum anticipated loads on your pontoon structure, rather than optimizing for buoyancy variance alone. For assistance with load calculations or grade selection, please consult our technical team.

Typical Buoyancy Calculation Example

Total Imposed Load: 25,000 N = 25 kN

Buoyancy Force $\approx$ Weight Density of Water: 900 kg/m³ $\approx$ 9 kN/m³

1. **Determine Required Submerged Volume**
(Total Imposed Load / Weight density of water):
 $25 \text{ kN} / 9 \text{ kN/m}^3 = 2.78 \text{ m}^3$
(For the pontoon to float, 2.78 m³ must be submerged.)

2. **Verify FloatMaster Capacity:**
Hypothesis: Using a pontoon configuration of 8 EPS blocks, each 1.2 m x 1.2 m x 2.4 m:

- **Total EPS Volume:** $8 \times 3.456 \text{ m}^3 = 27.648 \text{ m}^3$
- **EPS Surface Area:** $8 \times 2.88 \text{ m}^2 = 23.04 \text{ m}^2$

3. **Calculate Actual Submerged Height:**
 $2.78 \text{ m}^3 / 23.04 \text{ m}^2 = 0.12065 \text{ m}$
(The EPS will be submerged by approximately 120.65 mm. Since this is well within the total block volume, this configuration is suitable.)

Sustainability: The Greenline Advantage

BEWI FloatMaster can also be supplied using BEWI Greenline. This range reflects our commitment to a circular economy, featuring:

- **Recycled Content:** Produced using recycled EPS products, such as collected fish boxes and packaging, to minimise waste.
- **Reduced Carbon Footprint:** Engineered with a lower environmental impact compared to virgin materials.
- **BEWI Circulum® Balance:** We utilise EPS raw material grades derived from recycled feedstock to ensure consistent, sustainable quality.

Disclaimer: Every effort has been made to ensure the correctness of the information provided in this data sheet and is based on data and knowledge accurate at the time of production. It is designed for experienced professionals in the building and construction industry and does not offer a complete overview of industry practices. Therefore, this cannot guarantee the performance results, as usage and installation conditions are outside our control. If you have any questions regarding the suitability of the application, please contact us.

For more information:

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