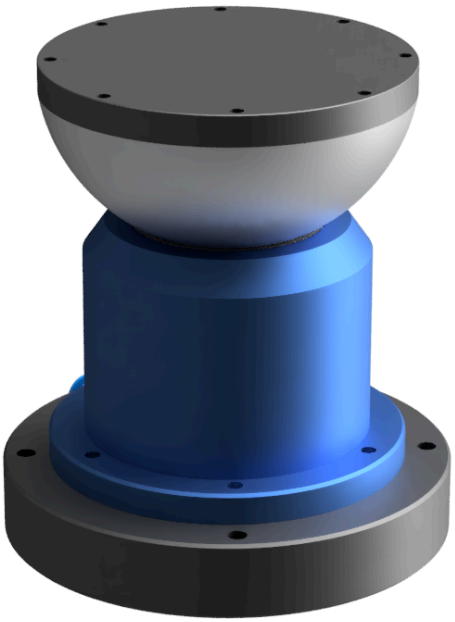
TAKEME2SPACE

FloatMaster - Air Bearing Datasheet

Technical Specifications



Description:
FloatMaster, FloatMaster Sr and the FloatMaster X are Air Bearing Platforms from TakeMe2Space. These have been designed to deliver exceptional rotational accuracy and low friction for demanding applications. Each bearing has two parts: an aluminium ball that floats on a thin film of air, and a porous graphite cup through which the air is fed. During operations the ball and cup never touch, which virtually eliminates mechanical contact and friction.



Ball, on the underside of the platform (top), and cup (bottom)

This system offers a wide rotation range, enabling precise rotations in all three axes: 360° about the vertical axis (θZ) and ±20° about the other two (θX, θY). It supports high load capacities of up to 600 N while maintaining a consistent air gap of 5 microns, ensuring reliable performance even under demanding conditions. With exceptionally low friction, it delivers smoother rotations and reduced energy consumption. The graphite bearing surface enhances wear resistance and long-term durability. Designed with flexibility in mind, it comes in three sizes to suit various satellite sizes and masses. The robust aluminum 6061 housing with hard anodizing ensures durability and corrosion resistance, while the efficient design operates with a maximum air flow rate of just 30 L/min, optimizing performance and minimizing operating costs.



Air bearing inside the Helmholtz cage

Specifications:

	FloatMaster	**FloatMaster Sr**	**FloatMaster X**
Model No.	FM-60	FM-300	FM-600
Load Capacity at 5µm air gap	60 N	300 N	600 N
Ball diameter	120 mm	132 mm	270 mm
Bearing Dimensions (dia x ht)	80 mm x 60 mm	135 mm x 105 mm	200 mm x 150 mm
Bearing mass (cup & housing)	300 g	1000 g	3000 g
Rotation range in θX	+/-20°		
Rotation range in θY	+/-20°		
Rotation range in θZ	360°		
Bearing surface	Graphite		
Housing material	Aluminium 6061, Hard anodised		
Air Pressure	45 - 116 psi		
Air Flow Rate	< 30 L/min		
Air Gap	5 µm		
Balancing System	Manual		

Contact us at info@tm2.space