

# ■ Barum & Dewar

## DMC3 / TripleSat Satellite Constellation

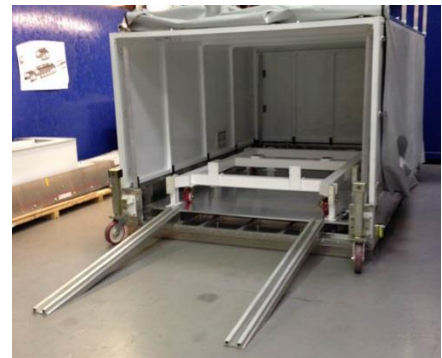
Launched in July 2015 from a Space Centre site in India these three satellites began life in a UK laboratory. Barum & Dewar designed and manufactured the bespoke containers trusted to deliver them safely to India.



## The Challenge for B&D.....

Surrey Satellite Technology Ltd (SSTL) have entrusted B&D with the design and manufacture of satellite and flight hardware containers for more than a decade and each new project brings with it fresh challenges.

On DMC3 these began well before the final transit containers were being designed. Testing of an early Structural Qualification Model (SQM) at a UK test facility with limited access and height restrictions required an innovative approach – B&D designed a “test container” incorporating a trolley system with winch mounted into a shock mounted base with end opening removable lid container.



## Flight Hardware Containers

Due to the height of the satellites on this project a decision was made early on that they would be transported on their sides. But with all mounting positions located on the natural base a cantilever frame was designed which itself would locate onto a mounting trolley which could be wheeled into the Satellite Container.



In order to comply with air transportation regulations these containers were fitted with pressure relief valves and secondary rapid burst panels. Located within a recessed panel alongside purge valves and desiccant ports on one of the removable lift off lids.

B&D took care of everything including the design, make and fit of all warning and general labelling. Every detail is captured and incorporated in full drawing pack with 3D CAD.

B&D have designed and manufactured Space Flight Hardware Containers for over 20 years and have become a trusted partner to clients such as SSTL who rely upon B&D's containers to safely transport their Space Hardware from laboratory to launch site.

## Shock and Vibration

Transportation of the DMC3 Satellites was to include both road and air as well as the handling that would be required during loading and unloading of this fragile and valuable cargo. Complex shock and vibration analysis was undertaken before specific all metal multi-directional wire mounts were selected and designed to support the payload on a bespoke solid aluminium interface plate. Sway space calculations then determined the overall container size.



## Bespoke Satellite Container



The end result is a container designed to provide complete protection to the payload throughout transportation from laboratory to launch site.

Whilst protection was the prime focus for B&D, the design team considered

the way in which the payload would be handled and added features such as integrated document and sling compartments, lid guides to ease lowering and removal of lid and reduce possibility of payload damage, fully adjustable castors to enable maneuverability of container within cleanroom facilities.



## What did our client have to say?

***"The bespoke containers we use to ship our satellites and spacecraft around the world are vital to ensure that our multi-million pound spacecraft arrive in perfect condition. Barum & Dewar are regarded as a trusted partner and SSTL have used B&D to supply bespoke containers for many years and are very pleased with the product and the level of service we receive from the company."***

Trust us to deliver the best in custom packaging.

Barum & Dewar specialise in the design, manufacture and supply of protective cases. We provide complete packaging solutions from foam inserts to bespoke transit containers.

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