



18U Integrated Rack & Subsystems

ASW Towed Array Sonar



Captec engineered and delivered a fully compliant naval rack for integrated sonar control equipment naval deployment. Designed, fabricated, integrated, and tested in-house, the solution met stringent naval defense standards and tight delivery schedules, providing a robust, reliable platform now deployed internationally across demanding maritime operations.

The customer is a defense technology organization with which Captec has maintained a working relationship for more than ten years. When they required a naval rack to integrate their sonar array control system, they approached Captec to support them on a more advanced rack design.



The Challenge

The customer required a naval rack to house and protect advanced sonar equipment operating in demanding maritime conditions. The system needed to support a heavier payload than standard, withstanding shocks of up to 30G in compliance with DEF STAN 00-35 and 08-123.

To provide clear visibility of critical system indicators during operation, the customer required an integrated glass front panel, a new feature for this rack type that introduced additional complexity. It had to remain robust enough to endure naval-grade shock and vibration while still meeting electromagnetic compatibility certification standards.

With a compressed program schedule, the challenge extended beyond technical compliance to the need for rapid design, testing, and delivery without compromising quality, performance, or reliability.



The Solution

Captec designed and delivered an 18U, 19-inch naval rack precisely configured around the customer's sonar control equipment fitment requirements. Drawing on extensive experience in naval rack design, the engineering team introduced several new features to meet the project's demanding requirements.

These included a power sequencing control panel to ensure safe device start-up, height adjustments for optimal payload integration and center of gravity positioning, and a reinforced glass front panel incorporating EMC mesh to maintain visibility while providing electromagnetic shielding.

All design, fine limit metalwork fabrication, finishing, and electrical integration were completed in-house at Captec's Subsystems Engineering site, allowing close collaboration between Metalwork Engineering and Electrical Assembly teams. This unified approach reduced dependency on external suppliers, minimized lead times, and enabled rapid iteration during testing.

Captec also managed all compliance activities, overseeing formal shock and vibration testing to 30G to ensure full adherence to DEF STAN requirements. The project was completed on schedule and without the need for redesigns, demonstrating Captec's capability to deliver complex, compliant naval systems rapidly and reliably through coordinated in-house engineering and program control.



The Outcome

The naval rack was delivered on time, fully compliant, and ready for immediate integration into the customer's sonar control system. Following deployment, it has performed successfully across multiple international platforms, demonstrating consistent reliability and durability in demanding maritime conditions. The project validated Captec's capability to execute complex defense programs to schedule while maintaining uncompromising standards of quality and compliance.

The customer commended the precision of the design, the open and collaborative approach throughout development, and the efficiency gained through Captec's control of both engineering and testing under one roof. This integration simplified program management, reduced coordination overheads, and ensured rapid issue resolution throughout the build and validation phases.

The successful completion of the project reinforced confidence in Captec's ability to deliver technically complex and fully compliant systems within demanding timescales. The experience and outcomes gained have informed subsequent naval programs, supporting the continued development of rugged, high-performance, and certifiable platforms for future mission-critical applications.



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