

AOC Resins Flex Their Muscles



Osprey Class Minehunter at dock for a review

Resin	Hydropel® isophthalic polyester
Manufacturing Process	Open molding with semi-automated impregnation
Composite Application	Minehunter hull, deck & bulkhead
Ship Length	188 feet (57.3 meters)
Beam	36 feet (11 meters)
Displacement	1.97 million pounds (895 metric tons)

Until 12 composite Osprey Class Coastal Minehunters were commissioned in the 1990s, the U.S. Navy was specifying wood for minehunter hull construction. Both wood and composite have material properties that add protection against mines that detonate upon receiving magnetic or acoustic signals. However, unlike wood, composites deliver design and performance features that benefit from Hydropel® marine resin technology from AOC.

Composites design freedom allowed the hull to be manufactured without longitudinal or transverse frames. The monocoque hull structure is designed to resiliently “give” then return to shape when impacted with the sudden shock loading of an under-sea explosion.

AOC Resins Flex Their Muscles, continued

The Osprey Class ships were the U.S. Navy's first to be designed only for minehunting. By the end of 2007, new U.S. naval strategies led to the decommissioning of Osprey Class ships to make way for a new class of multi-purpose composite ships with minehunting capabilities. After years of outstanding service to American defense, the ships have been transferred to the navies of other countries.

Osprey Class minehunter technology was derived from the Italian Lerici Class mine countermeasure ship developed by Intermarine SpA of La Spezia, Italy. The U.S. Navy initiated a unique technology transfer agreement for the U.S. ships to be built through Intermarine SpA's general partner Intermarine USA.

Each ship used 600,000 (272 metric tons) pounds of Hydropel isophthalic polyester resin for composite open molding. Superior Hydropel processing characteristics allowed the resin to be combined with fiberglass reinforcement in a semi-automated resin-impregnation process. Furthermore, the resin's excellent mechanical properties contribute to the hull's unique combination of high structural strength and flexural resilience.

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