

# Composites Boat Building



The marine market uses composites materials to manufacture pleasure boats, fishing boats, houseboats, yachts, and personal watercraft like jet skis and waverunners.

Composites equipment is used to manufacture fiberglass parts including hulls, decks, consoles, live wells, seating areas, canopies, hatch covers, and more.

## Open molding

Since the exterior of any marine part usually has a texture or glossy finish, gel coat systems are the first piece of equipment required. They are used to apply gel coat to a mold. Gel coat is the surface of the part the customer will see or touch and there cannot be any defects in the finish. .

The next step of building any fiberglass part is to reinforce or laminate the gelcoated part before it is removed from the mold. Lamination is the process of adding reinforcement, usually fiberglass, and catalyzed resin.

## Closed molding

Another process for making composite parts is through closed molding (also called resin transfer molding or RTM). Although this process tends to be more expensive than open molding, it does produce parts that have better quality since there is less variability of material and fiberglass per part. Because the mold has two halves (closed mold) only a precise amount of material is required to fill the mold each time to make the part. This means that manufacturers can forecast the exact amount of material and fiberglass required for their manufacturing needs. The parts will also maintain the required thickness throughout the part – and from part to part. Normally, the first step in this process is to gel coat one or both halves of the mold. This can be achieved via any of Graco's gel coating systems. There many different processes to fill the gel coated mold with catalyzed resin after the reinforcing material is hand placed in a mold half. Graco's family of [Spartan RTM systems](#) can provide a solution to all RTM processes.