

# **Bow Thruster Installation in a Fiberglass Hull**

## **Step 1: Planning and Safety Measures**

Select a location with minimal structural impact and easy internal access. Ensure all power sources are off.

Wear appropriate PPE when working with aluminum and electrical components.

## **Step 2: Marking the Tunnel Location**

Use the bow thruster template to mark the tunnel holes symmetrically on both sides of the hull. Ensure alignment and proper positioning well below the waterline.

## **Step 3: Cutting the Hull**

Drill pilot holes in the center of each marked circle. Use a hole saw or plasma cutter suitable for aluminum to create the tunnel openings. Deburr the edges thoroughly to prevent sharp burrs.

## **Step 4: Preventing Galvanic Corrosion**

Thoroughly clean and dry the cut areas. Apply an insulating barrier such as epoxy primer or dielectric paint to all surfaces that will come in contact with dissimilar metals. Use isolation bushings and gaskets to prevent metal-to-metal contact.

## **Step 5: Tunnel Installation**

Insert the aluminum tunnel and ensure a tight fit. Tack weld or mechanically fasten the tunnel in place. Weld using proper marine-grade aluminum welding procedures (TIG or MIG). Avoid overheating.

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### **Step 6: Sealing and Reinforcement**

Seal all joints with marine-grade epoxy or polyurethane sealant. Apply internal and external reinforcement with aluminum plates if necessary. Ensure all welds are watertight and corrosion-resistant.

### **Step 7: Installing the Thruster Unit**

Install the bow thruster unit per manufacturer instructions. Use dielectric grease on terminals. Ensure waterproof electrical connections and cable routing.

### **Step 8: Final Testing and Inspection**

Inspect all welds, seals, and electrical connections. Verify galvanic isolation using a multimeter. Perform a dry run of the system, then test underwater after launch to ensure proper operation.