

## INSTALLATION INSTRUCTIONS

### Thru-Hull Sensor in a Cored Fiberglass Hull

**IMPORTANT:** Please read these instructions completely before proceeding with the installation.

#### Materials Needed

Safety goggles

Dust mask

Electric drill

Drill bit, hole saw, or spade bit for (see Figure 1):

pilot hole: 3mm or  $\frac{1}{8}$ "

22mm ( $\frac{7}{8}$ " diameter threaded stem

exterior hole: 22mm or  $\frac{7}{8}$ "

interior hole<sup>a</sup>: 35mm or  $2\frac{3}{8}$ "

26mm (1" diameter threaded stem

exterior hole: 26mm or 1"

interior hole<sup>a</sup>: 38mm or  $1\frac{1}{2}$ "

43mm ( $1\frac{11}{16}$ " diameter threaded stem

exterior hole: 43mm or  $1\frac{3}{4}$ "

interior hole<sup>a</sup>: 54mm or  $2\frac{1}{8}$ "

51mm (2" diameter threaded stem

exterior hole: 51mm or 2"

interior hole<sup>a</sup>: 60mm or  $2\frac{3}{8}$ "

Mild household detergent or weak solvent (alcohol)

Sandpaper

Fiberglass cloth and resin (see #5)

or cylinder, wax, tape, and casting epoxy (see #5)

#### Installation in a Cored Fiberglass Hull

To install a thru-hull sensor in a cored fiberglass hull, the core (wood or foam) must be carefully cut and sealed. The core must be protected from water seepage and the hull must be reinforced to prevent it from crushing under the hull nut allowing the housing to become loose.

**Caution:** Always wear safety goggles and a dust mask.

a. The sizes given are suggestions. The optimal interior hole diameter is effected by the hull's thickness and deadrise angle. It must be large enough in diameter to allow the core to be completely sealed.

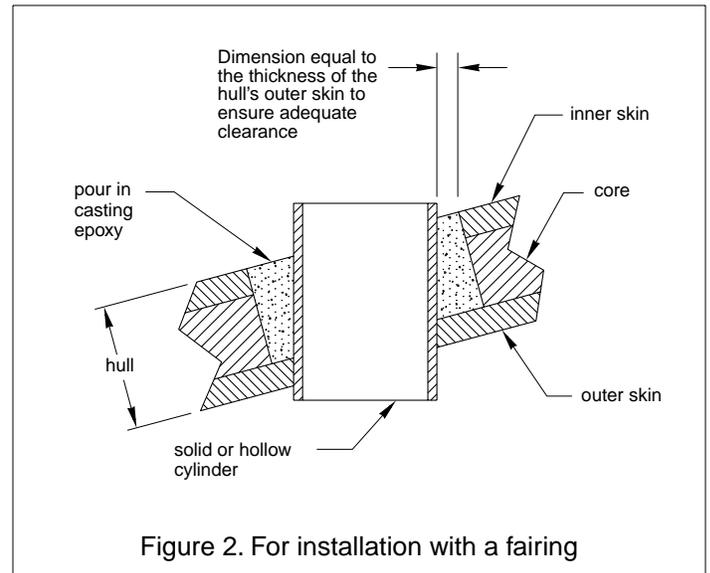


Figure 2. For installation with a fairing

1. Drill a pilot hole from inside the hull (see Figures 2 and 3). For installations with a fairing, drill perpendicular to the waterline. If there is a rib, strut, or other hull irregularity near the selected mounting location, drill from the outside the vessel.

*Note:* If the hole is drilled in the wrong location, drill a second hole in a better location. Apply masking tape to the outside of the hull over the incorrect hole and fill it with epoxy.

2. Using the exterior hole saw, cut a hole from outside the hull through the **outer** skin only.

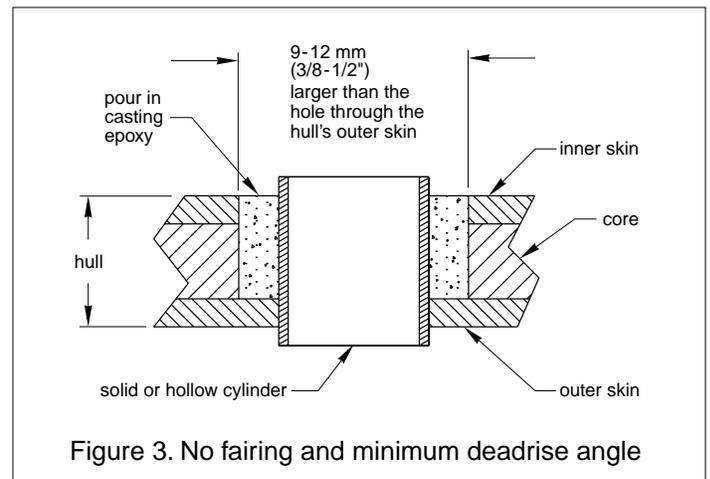


Figure 3. No fairing and minimum deadrise angle

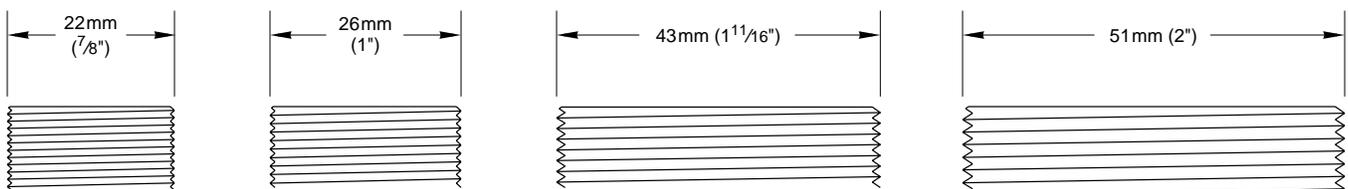


Figure 1. Diameter of the sensor's threaded stem

3. From inside the hull using the interior hole saw, cut through the **inner** skin and most of the core. The core material can be very soft. Apply only light pressure to the hole saw after cutting through the inner skin to avoid accidentally cutting the outer skin.
4. Remove the plug of core material so the inner core of the hull is fully exposed. Clean and/or sand the inner skin, core, and the outer skin (gelcoat) around the hole.

**Warning:** *Always completely seal the hull to prevent water from seeping into the core.*

5. If you are skilled with fiberglass, saturate a layer of fiberglass cloth with a suitable resin and lay it inside the hole to seal and strengthen the core. Add layers until the hole is the correct diameter.

Alternatively, a hollow or solid cylinder of the correct diameter can be coated with wax and taped in place. Fill the gap between the cylinder and hull with casting epoxy. After the epoxy has set, remove the cylinder (see Figures 2 and 3).

6. Clean and sand the area around the hole, inside and outside, to ensure that the sealant will adhere properly to the hull. If there is any petroleum residue inside the hull, remove it with either mild household detergent or a weak solvent, such as alcohol, before sanding.
7. Proceed with the bedding and installation instructions that came with the sensor.

## Checking for Leaks

**Caution:** *Never install a thru-hull sensor and leave the boat in the water unchecked for several days.*

When the boat is placed in the water, **immediately** check around the thru-hull sensor for leaks. Note that very small leaks may not be readily observed. It is best not to leave the boat in the water for more than 3 hours before checking it again. If there is a small leak, there may be considerable bilge water accumulation after 24 hours (probably not enough to cause water damage). If a leak is observed, repeat the bedding and installation procedures immediately.

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