MARELON® by Forespar®

Supplying the Boating Knowledge You Need

TECH TIPS

Metal Valve & Thru-Hull Safety Check List

Traditional bronze and stainless marine valves are susceptible to corrosion for several different reasons. This corrosion can weaken the metal and cause valves and fittings to fail, allowing water to flood into your boat. For that reason, it is recommended that you do routine inspections of each valve to ensure safety.

Below is a list of things to look for during your plumbing inspection. If you find any of the listed issues, it is strongly recommended that you replace the valve or fitting with noncorroding Marelon composite marine plumbing parts.

Common Causes of Corrosion:

- **Galvanic Corrosion:** There are multiple possible causes of galvanic corrosion. It can occur when dissimilar metals like bronze, yellow brass, or steel are connected without proper isolation or bonding to sacrificial anodes. “Hot" marinas (marinas with stray electrical current, often from shore power issues) can cause significant corrosion, **even in freshwater**, by creating electrochemical cells that corrode nearby metals submerged in the water. Faulty wiring or onboard chargers can also leak DC current, rapidly consuming anodes and damaging underwater metals like props and shafts, even in freshwater environments.
- **High Temperature:** Extreme temperatures variations can cause material expansion and contraction, leading to stress cracks.
- **Broken or Corroded Bonding Wires:** Bonding wires in boat plumbing electrically connect underwater metals, preventing destructive galvanic corrosion by equalizing their electrical potential, and providing a safe path for stray DC/AC currents to trip breakers, protecting your seacocks and thu-hulls (and passengers) from shock hazards. Note that bonding wires are not needed on Marelon products but are required on all metal seacocks and thru-hulls.
- **Chlorides:** Saltwater or harsh chemicals break down the protective chromium oxide layer of the metal.

Key Signs of Metal Corrosion

Visual Warning Signs:

If you see any of the following visual warning signs, a closer inspection of that fitting should be taken to ensure integrity.

- **Pink or Red Surface Discoloration on Bronze:** This is a primary indicator of dezincification, where the zinc in the alloy leaches out, leaving behind a weak, brittle copper structure that can easily develop cracks. If scratching the surface reveals pink instead of gold, the fitting has lost its structural integrity and must be replaced.
- **Heavy Green "Verdigris" on Bronze:** While a thin green patina is normal for bronze, heavy, crumbly, or powdery green deposits (sometimes called "bronze disease") indicate active, destructive corrosion that is weakening the metal.
- **Surface Discoloration on Stainless:** Brown/orange, rust-colored streaks, appearing on the surface, or running down the hull/stringers from under the valve are signs of corrosion on stainless steel parts.
- **Spongy Texture:** If a fitting resonates with a dull “thwack” instead of a metallic ringing sound when tapped with something hard it’s an indication of heavy embedded corrosion.
- **Pitting, Roughness and Cracking:** Small, deep cavities or pinholes that appear on the surface can lead to leaks. Thes warning signs indicate localized corrosion and potential deep hidden metal damage.
- **Crevice Corrosion:** Occurs in confined spaces (under bolts, gaskets, or flanges) where oxygen is low.
- **Flaking Crumbling Metal:** Indicates corrosion, thinning walls and weakened structure.
- **Leaks:** White mineral stains, moisture rings, or active water dripping around the base of the fitting or the valve stem indicate a failed seal or a hairline crack in the body.
- **"Rust-Smacking":** A buildup of corrosion that forces apart connected components in severe cases.

Operational Warning Signs:

If you experience any of the following issues, it's a sign that there is potential invisible corrosion issues happening inside the valve or fitting.

- **Stiff Action or Seizing:** Valves become hard to turn due to internal material buildup. If application of a marine lubricant, such a MareLube, does not loosen the valve, it should be replaced, as metal handles can break off if strong force is applied to a stuck valve
- **Loose or Wobbly Components:** The valve body or thru-hull wiggles when you apply firm hand pressure. This signals the bedding compound has failed, or the metal has thinned to the point of being loose.
- **Performance Changes:** An unexpected increased in the amount of torque required to operate the valve.
- **Unusual Noises:** Valves that make any squealing, grinding, or squeaking noises when operated.
- **Incomplete Closure:** Valve fails to completely close using normal actuation force.

If you See Signs of Potential Failure:

If you see any of the above indicators of plumbing fixture failure, replace that part with Marelon composite marine plumbing fixtures before it's too late. Unlike metal fittings, Marelon never corrodes and offers you a lifetime of certified worry free service.

You can purchase Marelon at most marine stores, or shop online at:
www.forespar.com/marelon-marine-boat-plumbing.shtml

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