Aluminum Metallized Flamecoating

- Sandblast to White Metal Condition with16-32 Grit Alum Oxide.
- Metallized Aluminum 6 to 12 mils (150 to 300 microns).
- Baked Powdercoat 8 to 36 mils (200 to 900 microns).

Steel Corrosion in Marine Applications

Mariners have used sacrificial anodes since the 19th century as simple protection from electrochemical corrosion. Zinc plates or plugs are used to protect keels and propellers and other wetted metals. Aluminum and Zinc are more reactive than iron or steel and thus will attract almost all local oxidation until it completely corrodes away.

The crystalline structure of steel has both anodic and cathodic particles that are touching to create an electrical path. All that is necessary to start corrosion is the electrolyte water, or even worse, saltwater. Simple paint protection works by creating a barrier to the water. Perfect paint coatings work indefinitely, but in real marine applications even the best paint coatings will become scratched, abraded, damaged, scored or burned allowing corrosion to start. Once rust starts, the remaining paint will blister which exposes more of the steel to moisture, accelerating the corrosion damage.

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The Aluminum Metallizing process is available as an option on VMT Carbon Steel frames, such as the SW32. By using a torch and compressed air, atomized aluminum is sprayed over the bare sandblasted steel surface. The aluminum forms an intimate electrical connection to the steel crystalls. It cannot be scraped off, and the chemical bond is much more resilient than dip galvanizing or paint with metals such as zinc. The aluminum metallizing provides an extremely strong barrier to moisture plus galvanic protection completely surrounding the steel with an anode. Once cool, the aluminum coating is an excellent clean base for powder coating to provide a smooth clean finish. Even a scratch or cut through the flamecoat to the bare metal will not start to rust, because nearby aluminum is such a strong anode that all the steel is cathodic by comparison. The aluminum does not have to work as an anode until the powder coating barrier is broken, and then the steel cannot start to rust until all the aluminum in the area is used in the corrosion process which can take many years. Contact your Parker VMT representative for more information.

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