



Uniquely Engineered Electrodes and
Wires Designed to Resist Severe
Cavitation-Erosion Damage

CaviTec™

- Extends the service life of hydro-turbine blades, reducing maintenance costs
- Available as stick electrode (SMA) or cored wire (GMA)
- Outlasts 308/309 stainless steel by up to six times
- High integrity weld deposits
- Free from micro-cracking
- Readily profiled and contoured

CaviTec™ is a proprietary welding wire used to resist damage from severe cavitation-erosion. This alloy was uniquely engineered at the Hydro Quebec Research facilities. CaviTec™, with its enhanced properties, is an austenitic-type alloy containing controlled amounts of chromium, cobalt, silicon and manganese. The finely controlled balance of these elements significantly improves strain-hardening and shock-dampening properties. The result: improved cavitation-erosion resistance.

CaviTec™ is proven to last up to six times longer than traditional stainless steel overlays. This high strain, work-hardening austenitic stainless steel delivers maximum protection for areas needing frequent or major repairs. CaviTec's all position weldability also makes controlled overlapping and profiling very easy to do.

Essentially an austenitic-phase structure. This metastable phase transforms under cyclical stress to an α -martensitic phase, which results in a very fine deformation twinning.

TECHNICAL DATA

| Typical Values (SMA and GMA) | |
|---------------------------------------|---|
| Typical Hardness (HV ₅₀): | 250-280 - as deposited 270-300 - A27 plain carbon steel 230-260 - 308/309 stainless steel |
| Typical Work (HV ₅₀): | 400-450 work hardened |
| Current polarity: | DCEP (DC+) |



SMA



GMA

PROCEDURE FOR USE*

Preparation: Remove damaged area with arc-air or plasma gouging. Grind gouged surface to remove oxides and slag. Minimum depth of preparation should be 1/8". If the refill depth is greater than 3/8" first fill with a grade 308 or 309 or the "L" version. This preparation is needed to maintain a maximum CaviTec deposit depth of 3/8".

Technique: Maintain a medium-to-short arc and incline the electrode at a 45° angle in the direction of travel. The preferred bead profile should be a non-weave. Back-fill craters to reduce crater-cracking tendencies.

Parameters: Please contact Eutectic's Technical Services for application welding parameters.

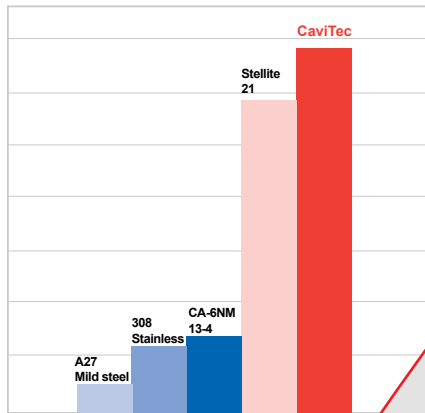
Post Welding: Grind to profile.

* In highly stressed regions of the turbine runner, it is recommended that a buttering layer of 309L be deposited. In such cases, the minimum depth of preparation should be increased to 1/4" (6mm).

TYPICAL APPLICATIONS

- Francis turbines
- Kaplan turbines
- Propeller turbines
- Bulb turbines
- Draft tubes
- Impellers
- Pumps & valves
- Wicket gates

Relative Cavitation-Erosion Resistance



Stellite 21 is a trade mark of Thermadyne Corp.

