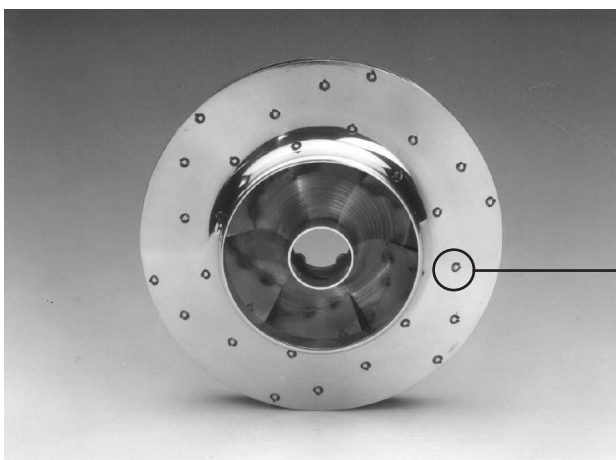
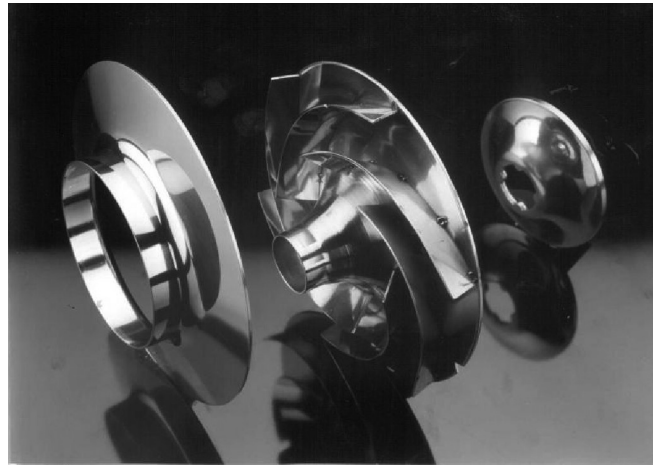
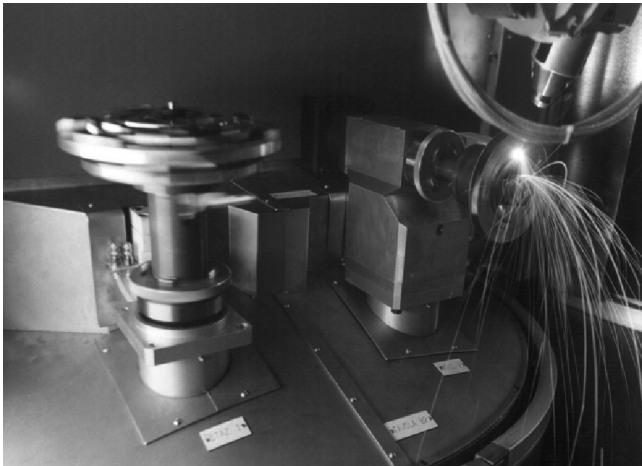


# e-SV Advantage: Laser Welding

## FEATURES

- Less deformation of welded components, due to lower thermal energy needed for the welding procedure (compared to other welding manufacturing processes)
- Reduced thickness of weld area, which means lower change of the material properties; the result is a lower surface area exposed to the attack of chemical/aggressive agents
- Better mechanical resistance (bending, torsion) in joints and flanges; Milliseconds long pulses are used to weld thin materials such as razor blades while continuous laser systems are employed for deep welds.
- Small heat-affected zones.



**Laser welding on 46SV impeller:**  
Spot welding follows impeller blades all along the profile

# e-SV Options

## FOR APPLICATIONS REQUIRING SPECIAL MATERIAL TREATMENT

### PASSIVATION OF STAINLESS STEEL

Passivation is the chemical treatment of stainless steel with a mild oxidant, such as a nitric acid solution, for the purpose of enhancing the spontaneous formation of the protective passive film. The treatment with an acid solution will remove the surface contamination, but will not effect base material.

Passivation process begins with a cleaning cycle, the removal of oils, greases, forming compounds, lubricants, coolants, cutting fluids and other undesirable organic and metallic residue left behind because of fabrication and machining processes. General degreasing and cleaning can be accomplished many ways, including vapor degreasing, solvent cleaning and alkaline soaking. After removing organic and metallic residues, the parts are placed into a nitric-acid-based solution.

#### Benefits

- Brightens - improves decorative finish
- Stress relief of welded areas
- Redefines oxide layer - improves corrosion resistance
- Removes surface contaminants - improved sanitary preparation

### ELECTROPOLISHING OF STAINLESS STEEL

Electropolishing is used as a replacement for mechanical finishing, polishing, buffing and mass finishing. In addition to making a part's surface smoother, it is a more visible means of brightening, deburring, passivating, stress relieving and otherwise improving the physical characteristics of most metals and alloys.

Process starts when metal part is immersed in a liquid media and subjected to Direct Current. The metal part is made anodic (+). The Direct Current flows from the anode to the cathode removing metal ions at a controlled rate. Electropolishing removes metal from the surface producing a unidirectional pattern that is stress-free, microscopically smooth and often highly reflective.

#### Benefits

- Passivity of base material
- Deburrs - easily cleaned after repeated use
- Remove surface defects - prolonged service life
- Smoothes - lower surface friction
- Brightens - almost perfect decorative finish
- Stress relief of welded areas
- Redefines oxide layer - improves corrosion resistance
- Removes surface contaminants - improved sanitary preparation

For more information, visit us at:  
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