US DROP FORGE

QUALITY • SERVICE • PARTNERSHIP

PRESENTS

ELECTROPOLISHING

WHAT IS ELECTROPOLISHING?

THE BEST WAY TO MAKE
CORROSION RESISTANT FORGINGS!

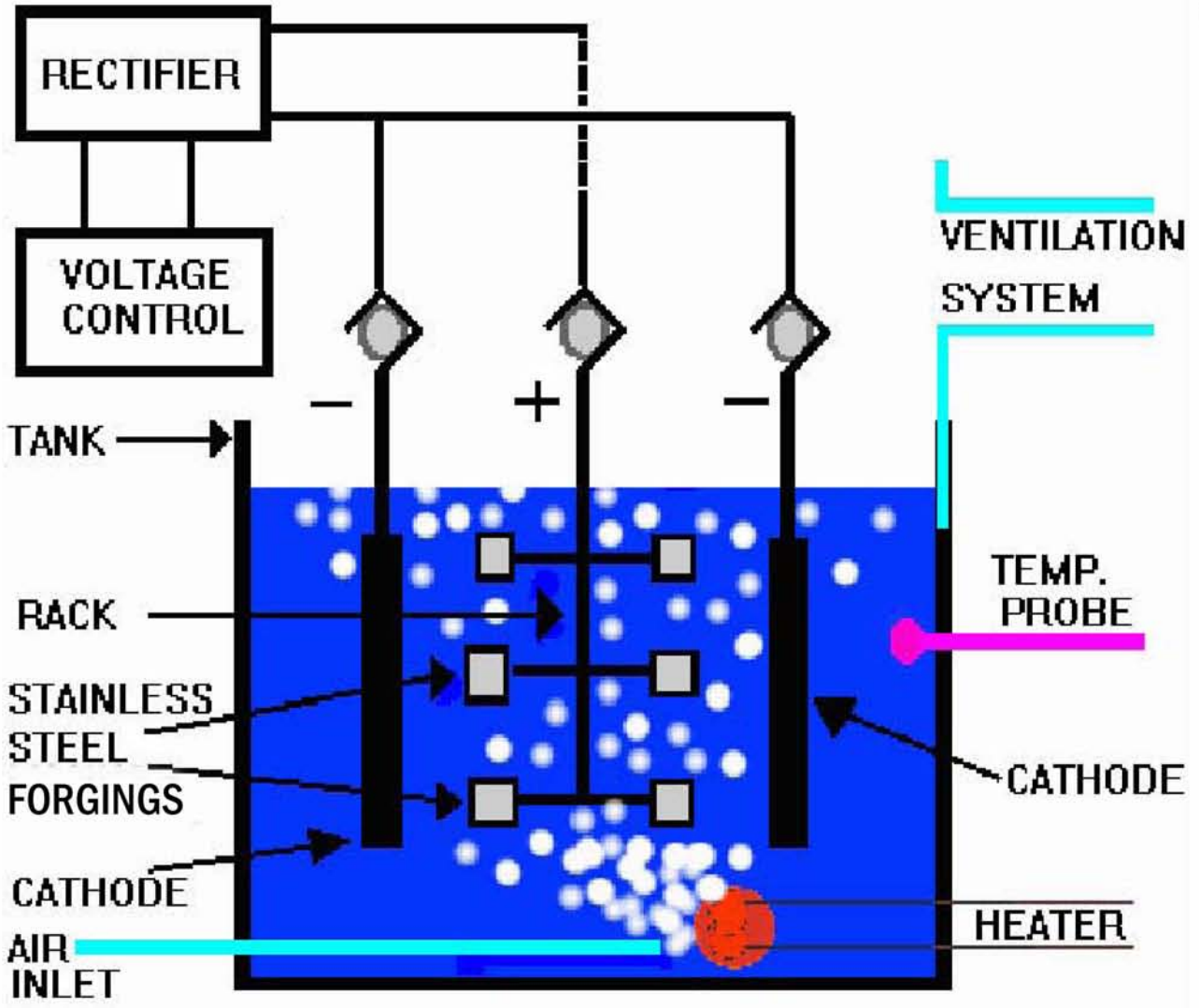
Think of peeling an onion!

Electropolishing is a chemical machining process.

FREE IRON and HYDROGEN molecules are drawn from the surface of the forgings using electrical current and a mild acid solution.

This exposes the corrosion resistant CHROME and NICKEL molecules below the surface.

The forgings have a positive charge while the cathode rods are negative. Both are submerged in the solution forming a complete electrical circuit using the acid as a medium. High current areas such as iron and nickel are removed at a faster rate.

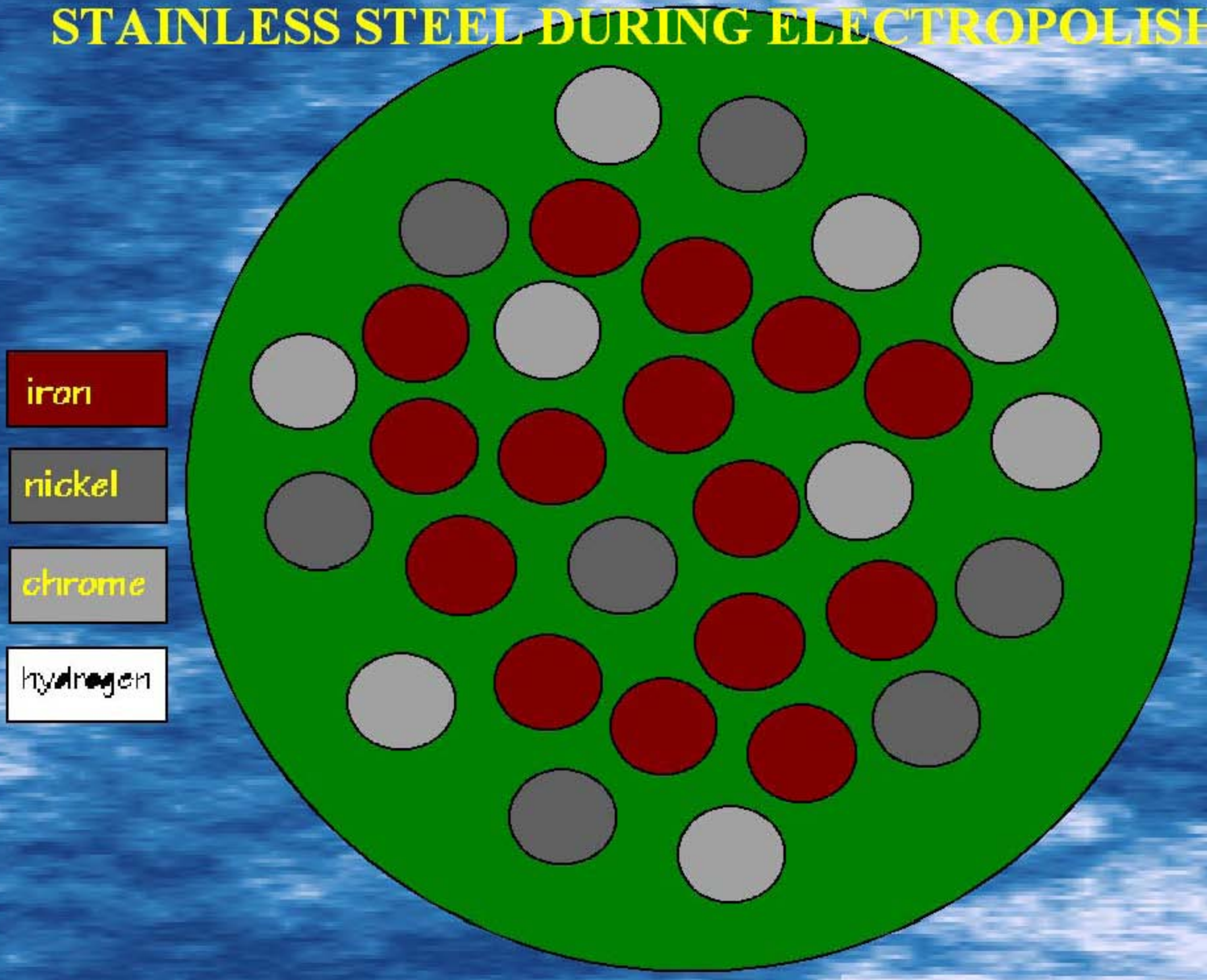


THE ELECTROPOLISH TANK

Stainless Steel forgings are placed on special racks and then dipped in the electrolytically charged solution.

After the hydrogen and iron molecules have been released, the forgings are then dipped in nitric acid, which guarantees passivation.

STAINLESS STEEL DURING ELECTROPOLISHING

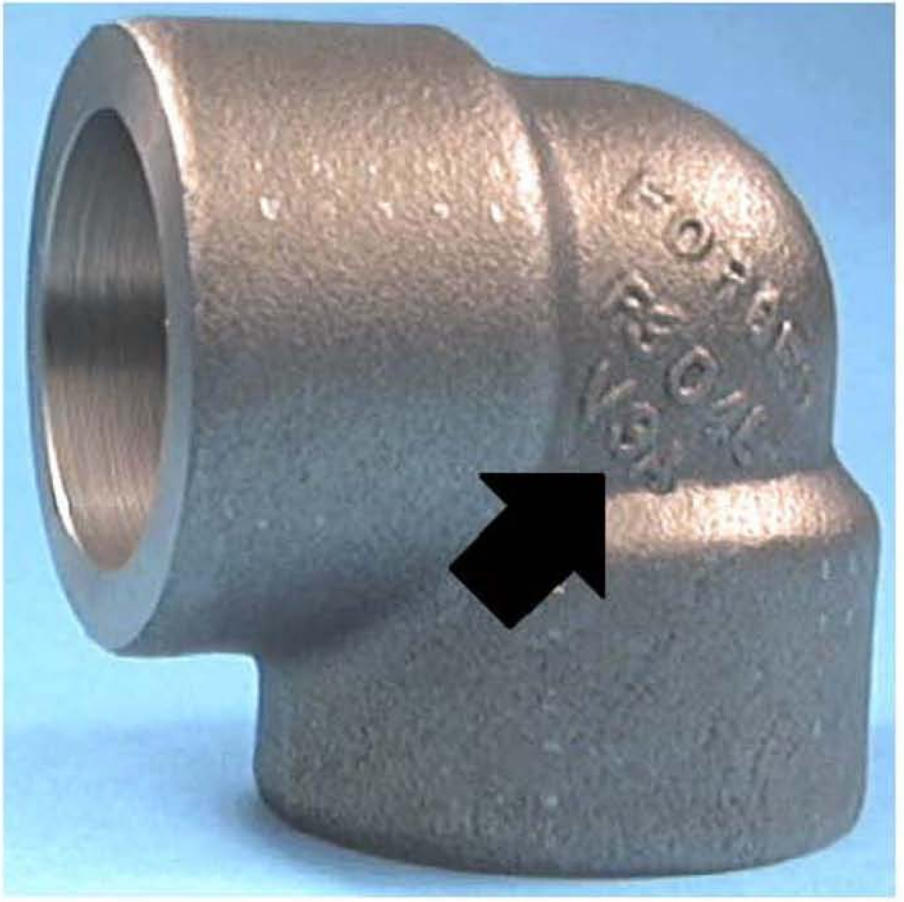


WHY BOTHER ELECTROPOLISHING?

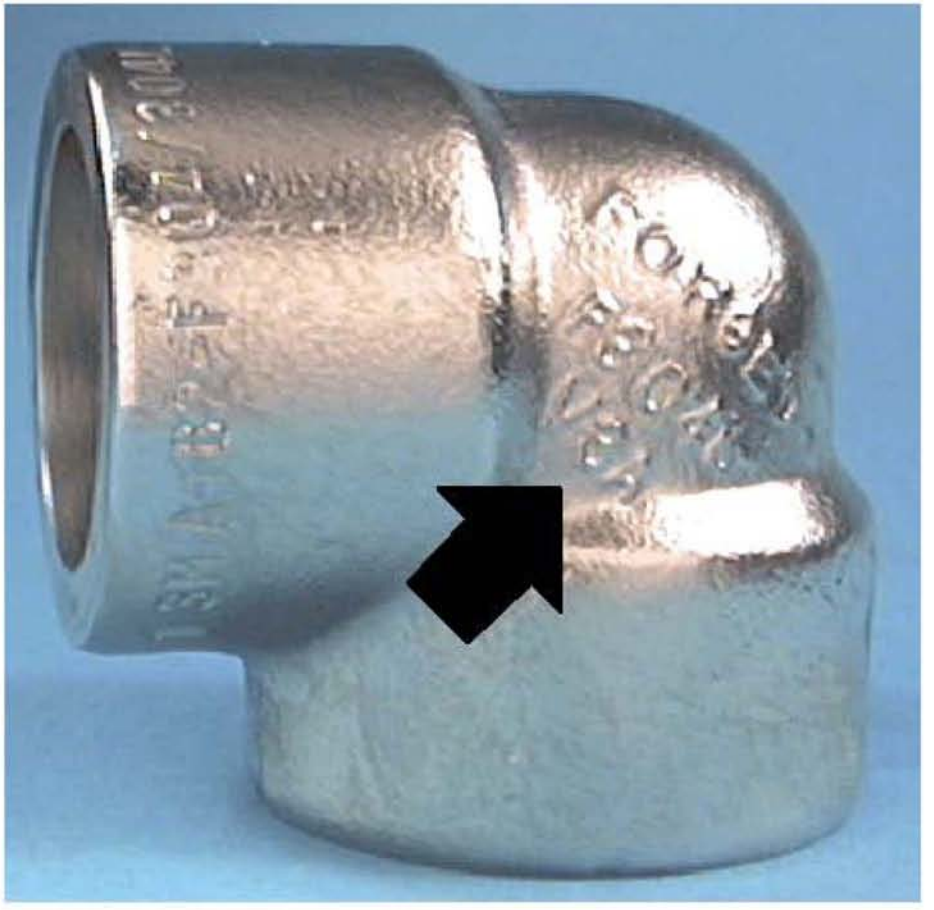
THE METAL SURFACE BECOMES SMOOTH
HIGHER SURFACE REFLECTIVITY
FORGING SURFACE IS CLEANER
HYDROGEN IS REMOVED FROM THE FORGING
INCREASED RESISTANCE TO BACTERIA
REDUCES SURFACE FATIGUE
IMPROVED CORROSION RESISTANCE
REDUCED SURFACE FRICTION
REDUCED PREP TIME IN WELDING
MEETS ALL CODE REQUIREMENTS
NO ADDITIONAL COST!

BEFORE AND AFTER

Electropolishing smooths and brightens the surface of the stainless steel forging

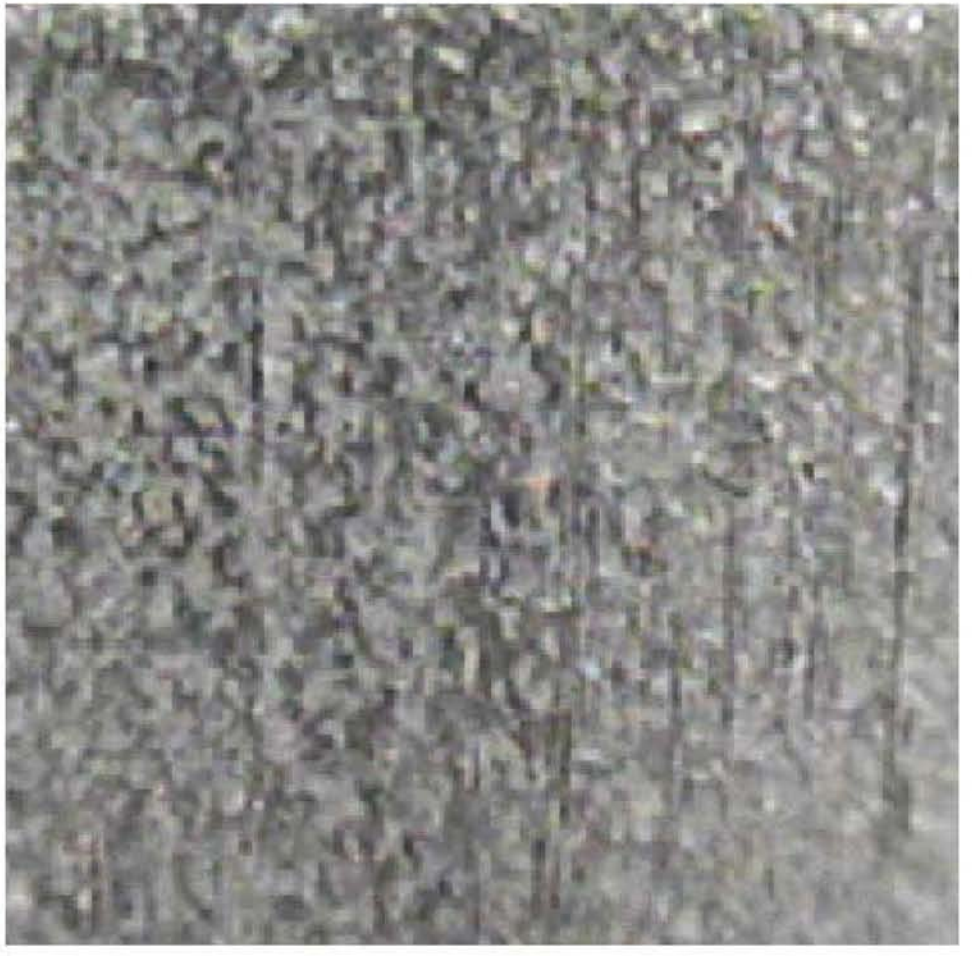


SHOT BLASTED



ELECTROPOLISHED

A SMOOTH CLEAN SURFACE HAS A HIGHER CORROSIVE RESISTANCE



COMPETITION'S 304L

average roughness of 350 RA

US DROP FORGE'S 304L

average roughness of 125 RA

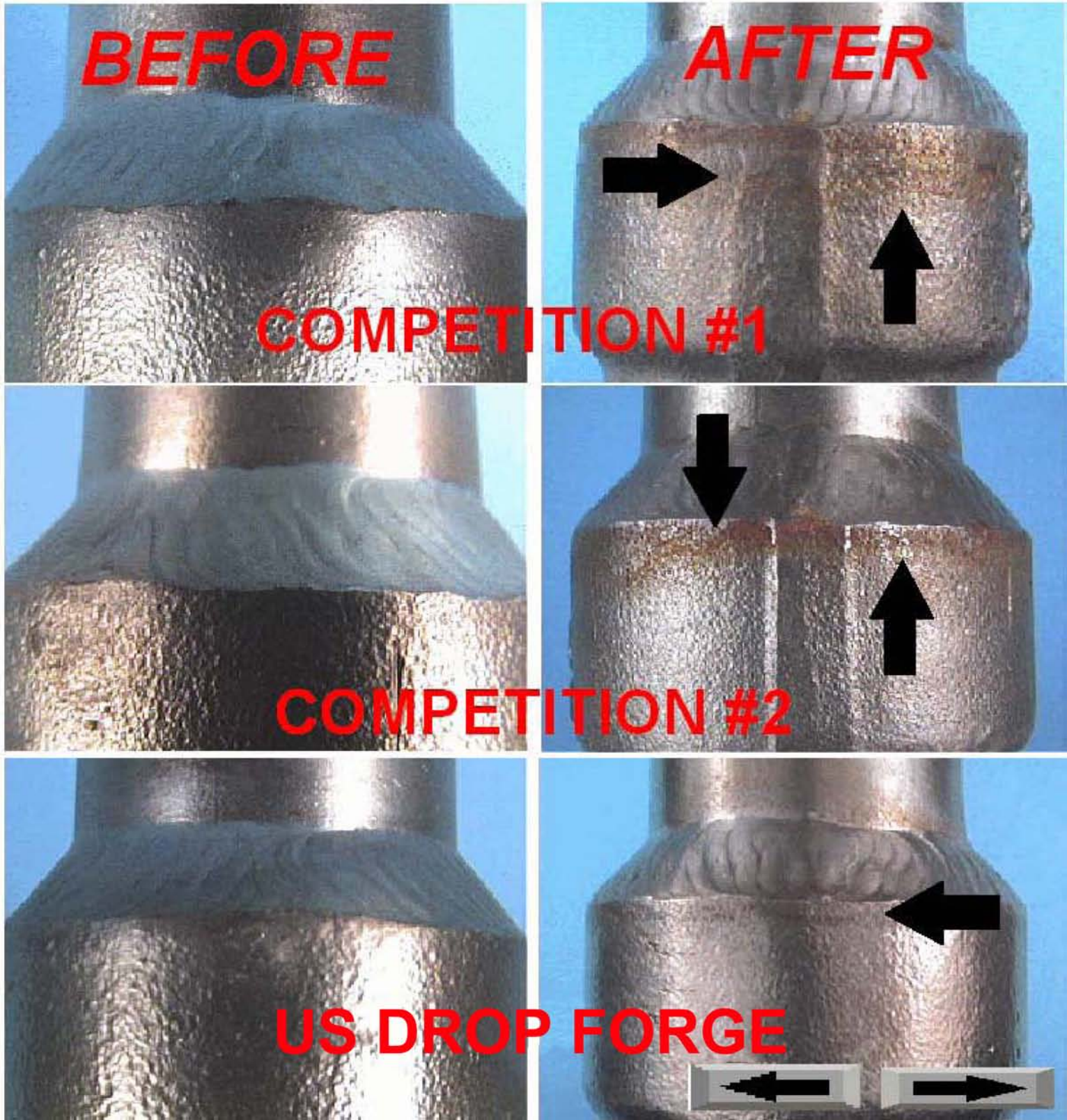
ASTM A182 CALLS FOR A MAXIMUM AVERAGE ROUGHNESS OF 250 RA

**These photographs were taken at 8X zoom*

THESE ARE THE RESULTS OF A TWO HOUR, 316/L SALT SPRAY TEST IN ACCORDANCE WITH ASTM B117

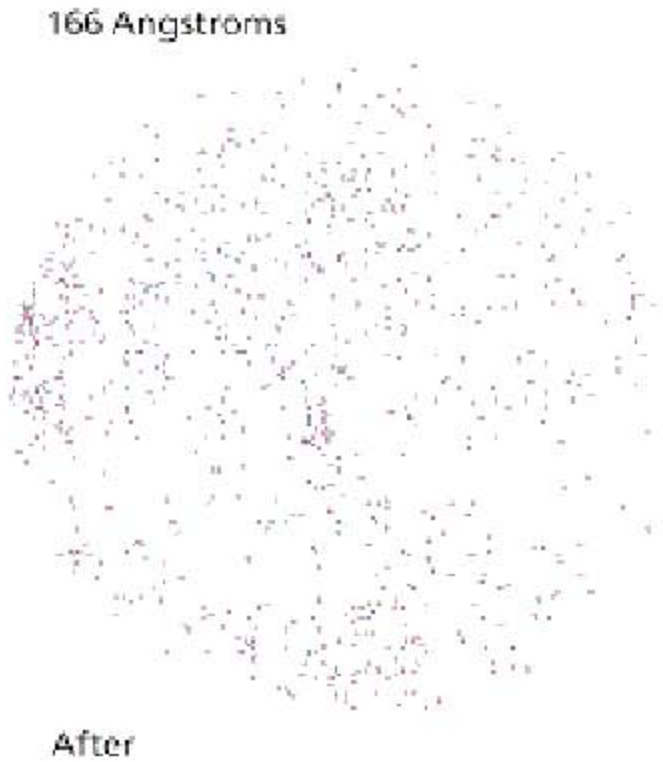
TESTING WAS 5% SOLUTION AT 95 DEGREES FAHRENHEIT FOR A TOTAL OF TWO HOURS

ALL WELDING WAS PERFORMED BY AN ASME WELDER FROM AN INDEPENDANT FABRICATION SHOP



THE FEATURES OF HYDROGEN REMOVAL

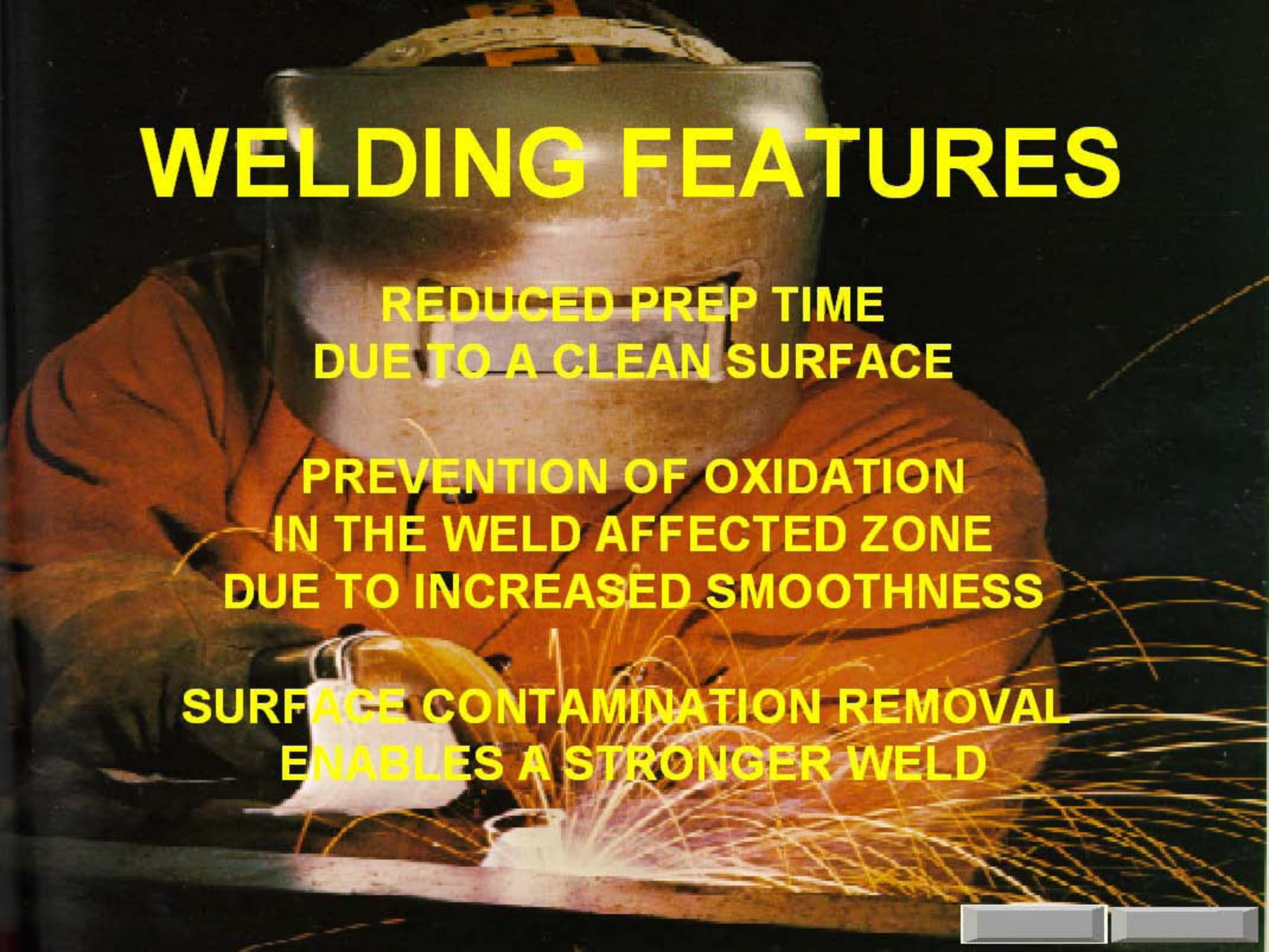
- **SURFACE FATIGUE IS REDUCED**
- **PREVENTS MICROBIOLOGICAL CORROSION**
- **RESISTANT TO ANAEROBIC BACTERIA**



THESE RESULTS WERE OBTAINED USING SECOND ION MASS-SPECTROSCOPY

COMPLIANT WITH:

- ASTM A380
- ASTM A967
- ASTM B117
- FEDERAL QQP-35
- MIL STD 753



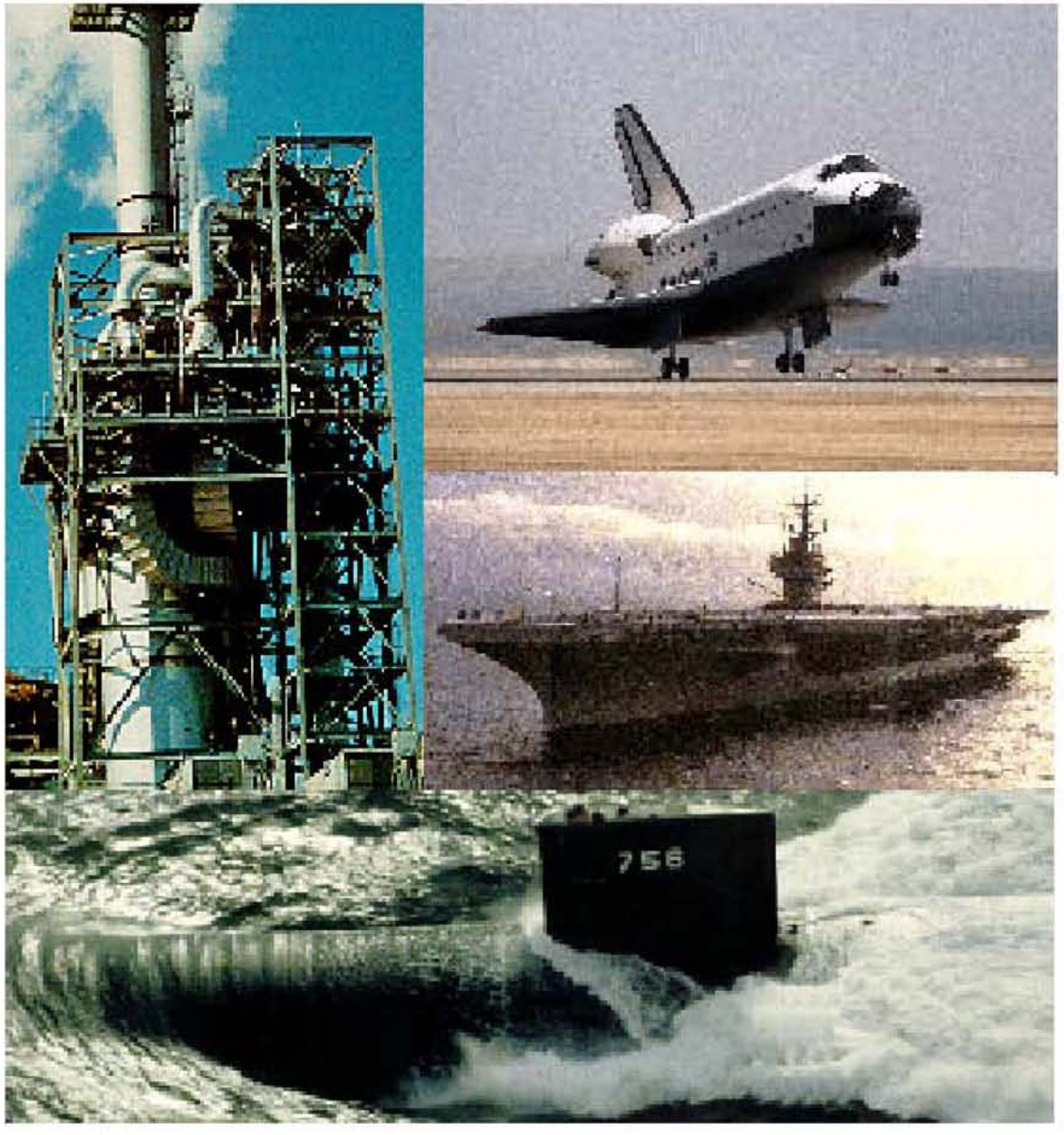
WELDING FEATURES

REDUCED PREP TIME
DUE TO A CLEAN SURFACE

PREVENTION OF OXIDATION
IN THE WELD AFFECTED ZONE
DUE TO INCREASED SMOOTHNESS

SURFACE CONTAMINATION REMOVAL
ENABLES A STRONGER WELD

ELECTROPOLISHED FORGINGS ARE USED EVERYWHERE BY EVERYONE!



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- SHELL
- FLUOR
- ARCO
- AMOCO
- BP OIL
- MOBIL OIL
- MW KELLOG
- NEWPORT NEWS
- BECHTEL
- GENERAL MOTORS
- ALLIED CHEMICAL
- ROHM & HAAS CO.
- ARAMCO SERVICES

For more information on why electropolished forgings are the superior choice, contact your Drop Forge representative or call

856-467-0500

http://www.usdropforge.com