



STAINLESS STEEL
COMPARISON





Stainless steel, like any metal, is subject to corrosion. Ground conditions can provide varying aggressive environments and can be devastating on some grades of stainless steel. The addition of molybdenum, not found in series 300 stainless steel, gives surgical grade 316 stainless steel increased pitting/crevice corrosion resistance. Series 300 stainless steel is susceptible to corrosion, whereas *surgical Grade 316 stainless steel is highly resistant, and remains almost unscathed in conditions that completely destroy series 300 stainless steel.*

For this reason all FLEX-SEAL® ARC Nut & Bolt Clamps are made of surgical grade 316 stainless steel.

FORMS OF CORROSION

Corrosion of stainless steel can take one of many forms of which those most relevant to buried steels are:

A) Uniform Corrosion - a general thinning of the material, usually associated with very aggressive chemical environments such as strong acids. Stainless steels form a very protective chromium oxide surface film, which is self-healing and protects the underlying metal against this form of corrosion in most environments. This therefore tends to be insignificant in most soils.

B) Pitting Corrosion - this is a form of corrosion due to the breakdown of the protective chromium oxide surface film in localized areas by aqueous chlorides; often initiating at surface imperfections such as inclusions.

C) Crevice Corrosion - a form of localized corrosion, which initiates under tight crevices such as washers, overlaps in welds, cracks etc. where liquids can penetrate and then be trapped and depleted in oxygen. Chlorides can then concentrate in the crevice and break down the oxide film.

D) Galvanic Corrosion - caused when the stainless steel becomes the anode in a mixed metal system, however this is unlikely as in our products stainless steel is unlikely to be in contact with a more noble material.

SUPERIOR DESIGN

FLEX-SEAL® ARC Shielded Adjustable Repair Sewer Couplings incorporate several **innovative design** features which ensure **superior performance** and **longer effective life**:

SHEAR BANDS

FLEX-SEAL® ARC Shielded Adjustable Repair Sewer Couplings are recommended for **civil and local authority applications** and incorporate a wide series 300 stainless steel shear resistant band around the outside of the coupling. This band assists in **maintaining pipe alignment** and **protects** the rubber sleeve from tears under load. These features reduce the chance of blockages by ensuring pipes stay aligned, thus **eliminating potential flow obstructions**.

HIGH TORQUE NUT & BOLT CLAMPS

Surgical grade 316 stainless steel Nut & Bolt Clamps ensure a **minimum of stress relaxation** occurs, and are designed to enable **simple tightening**. The design set the bolt at the perfect angle adjacent to the tangent of the coupling and optimizes the conversion of torque applied to tension in the clamping band, and hence **maximizes the sealing pressure** for a given torque.

