



## The Stainless Steel used for your **TWCO**.

You often read 'Surgical Stainless Steel' or just Stainless Steel with some number behind it, but what is the difference, and what does it mean?

Time for some education!

### Where does it come from.

The term Surgical Stainless Steel is actually just a marketing term, sounds nice but does not refer to one type, or grade, of Stainless Steel in particular. In fact, your sink at home or your fancy stainless steel bracelet could well be of the same quality as "surgical stainless steel."

The 'Surgical' probably refers to the belief that these types of steel are well suited for making surgical implants and equipment; they are easy to clean and sterilize, strong, and corrosion-resistant. However, some patients may have negative immune responses with nickel, commonly mixed with steel to make an alloy. Although there are many variations in the recipes, there are two main types of stainless steel: martensitic and austenitic.

### True surgical applications.

Most surgical equipment, like needles and clamps are made from martensitic stainless steel because it is harder than austenitic steel.

Implants and equipment that are put under pressure like bone fixation screws, prostheses and most of the SS jewellery items are made out of austenitic Stainless Steel, often 316L and 316LVM, because it is less brittle and far more corrosion-resistant. Stainless Steel 316 L is also known as 'Marine Grade' Stainless Steel.

### Martensitic vs austenitic SS (stainless steel): a long story short.

Martensitic: 'harder' and less corrosion resistant where austenitic SS is less brittle and more corrosion resistant. The magnetic permeability achievable in austenitic SS is also very low if compared to martensitic SS (in simple words: it's 'less' magnetic).

### The Jewellery and Watch industry.

Stainless steel 316L is still the most commonly used SS material in the jewellery and watch industry; this is austenitic Stainless Steel.

### And one more thing.

Where does the L stand for in 316L?

The letter itself stands for Low (meaning Low carbon) L grades have 0.03% carbon maximum. L grades are resistant to sensitization in short-term exposures or heat treatments. L grade often have slightly lower (typically 5,000 psi less) minimum strengths than standard stainless steels.

And the LVM in 316LVM?

316LVM stands for Low carbon Vacuum Melted SS. The vac melt version of 316L is almost always certified to ASTM F138, which signifies it as an implantable SS (as the word says, 316LVM: a typical material for the manufacture of surgical implants) .

So now you know all about it!

**A TWCO is made of 'Surgical' 'Marine Grade' Stainless Steel 316L.**