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Some stainless steels are magnetic and others are not

There is a common myth that if a magnet sticks to stainless steel, it is "low quality" or not "true" stainless steel. However, this is far from the truth. Magnetism is not a sign of quality, rather, it is a property of certain stainless steel families that depends on their internal structure.

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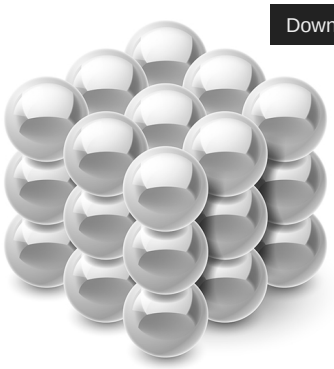

Different families, different behaviors

Stainless steel is primarily an alloy of iron and chromium, but its magnetic behavior depends on its composition. Depending on the elements added to the mix, the atoms arrange themselves in different ways:

- The "non-magnetic" ones (Austenitic): such as the well-known 304 or 316. By adding nickel to the alloy, the atoms organize in a way that prevents magnetic domains from aligning. This is why they are used in sinks or utensils where magnetism is not desired.
- The "magnetic" ones (Ferritic and Martensitic): these have a different composition and structure that does allow for magnetic alignment. They are essential in cutlery or induction cooktops, where magnetism is indispensable for generating heat.

The "superpower" to transform

A curious fact is that austenitics originally do not attract magnets, but they can become magnetic if they undergo cold deformation (such as bending or machining). By forcing the metal, its internal structure partially changes into a phase called martensite, which is magnetic.

Speed and Precision

In the industry, it is not just about whether it "sticks," but how fast it responds. Some stainless steels have high electrical resistivity, which allows magnetism to enter and leave the material almost instantly. This makes them perfect for high-precision electronic components that operate hundreds of times per second.

In conclusion, magnetism is a property that we must take into account depending on our final application.

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If you want to know more about this subject, download the Technical document: "Stainless St
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