



Tapping into stainless steel



Italian design has always been synonymous with style and luxury, with a flair for making the functional beautiful. Whether Vespa or Ferrari, Benetton or Gucci, furniture or eyewear, Italian style imbues a touch of *bellezza* to all facets of life. Italian bathrooms and kitchens are no different. Sleek, moly-containing stainless steel fittings also contribute to the tradition of combining utility with elegance and glamour.

In a world where the COVID-19 global pandemic has intensified the focus on hygiene, many are spending more time than ever washing their hands. This mundane task, and the humble faucet that enables it, has never been more important. Italian designers increasingly have embraced designing faucets with stainless steel, not only for its unique beauty but also for its innate hygienic properties. The non-porous surface of stainless steel makes it more difficult for bacteria, germs and other deposits to attach and accumulate. Such a smooth surface is also easier to clean, making it a safer and more hygienic choice in both the kitchen and the bathroom. As the world adapts to reduce and prevent the spread of pathogens, it is no wonder these attractive, practical faucets are increasingly popular.

A revolution in the making

Today, most faucet bodies are made from brass. An alloy of copper and zinc, brass's resistance to soft-water corrosion and hard-water calcification makes it a highly popular choice. Brass faucet bodies are generally produced through machining, although some manufacturers use die-casting. Once created, they are usually chrome or nickel-plated.

Using brass to make the faucet body is cost-effective, however, there are drawbacks. The plated finishes required to give brass a clean, modern look wear off over time, slowly exposing the different color of the base material. This unsightly wear often results in a shorter service life compared to more durable materials.

In addition to durability issues, the use of brass faucets raises some health concerns – particularly when used for drinking water. Often, a small amount of lead is added to the brass alloy to improve the casting and machining processes. However, when in contact with water, brass and other lead-containing alloys can release very small amounts of lead into the water and the environment. Although strict regulation drastically reduced the amount of lead allowed in fixtures, in some jurisdictions to less than 0.25% in “lead-free” brass, environmentally and socially conscious companies in Italy are avoiding it altogether. They are turning to molybdenum-containing Type 316 stainless steel to solve these issues while creating beautiful yet functional designs.

A low-maintenance beauty

Until recently, stainless steel was predominantly used for industrial valves. More expensive than brass and harder to form and machine, use for kitchen and bathroom fittings was rare. Yet, since the late 1990s more and more Italian manufacturers are using stainless steel for everyday water fixtures. While Type 304 stainless steel is used in much



➤ Outdoor showers in Type 316 stainless steel are resistant to tea staining not only in the desert but also near the sea.

of the mass market, a number of high-end companies have chosen to use Type 316 stainless steel exclusively, or nearly exclusively, for functional, aesthetic and ethical reasons. The first model using Type 316 stainless steel in Italy was created in 1997, and other producers followed suit. Interestingly, many of them advertise their products with “316” in the article or model name, to emphasize high quality.

Type 316 is a more corrosion resistant grade of stainless steel, typically containing 2% or even 2.5% molybdenum. The addition of molybdenum makes the steel extraordinarily resistant to corrosion without additional treatment, even when used in harsh marine environments or for drinking water containing relatively high amounts of chlorides. High corrosion resistance under these conditions makes it well-suited for domestic faucets and shower fittings as well as outdoor spa, shower and pool fittings. Type 316 is not only more durable than Type 304 stainless steel, but it is also more resistant to harsh cleaning agents. If not properly rinsed, Type 304 can stain when cleaned with an aggressive product, while Type 316's superior corrosion resistance avoids many of these problems. For hospitality settings like hotels, where the same powerful detergents used to wash floors and sinks and tubs are often used in the daily cleaning of fittings, this is a significant advantage.



➤ Hand polishing is a step in the production of this stainless steel fitting.

Stainless steel fittings create an elegant accent in any bathroom thanks to the different surface finishes available. They include mirror, brushed and satin finishes and even a range of colors. The basic finishes are obtained through polishing of solid stainless steel, unlike the plating added on top of the surfaces of brass faucet bodies. Polished stainless steel is extremely scratch-resistant, and if scratching ever occurs, it can be polished out. Considering the average family uses a faucet 70 times a day, durable materials help maintain the beauty and the value of a bathroom renovation. The long-lasting performance of Type 316 and its low carbon cousin, Type 316L, means less frequent replacement, essentially offsetting the higher initial cost of the material.

➤ Type 316 stainless steel faucets are available in different finishes and even different colors.



➤ A stainless steel tap is made of solid metal. The smooth finish on the inside reduces the formation of biofilms and adherence of pathogens.

Responsible elegance

Product quality and excellence aside, socially responsible consumers and manufacturers have additional reasons for a growing interest in molybdenum-containing stainless steel faucets and bathroom fittings. Made completely of stainless steel, these fittings are 100% recyclable. Thanks to its high intrinsic value and its predominantly industrial applications, Type 316 stainless steel has an especially high end-of-life recycling rate. It is probably one of the most recycled materials in the world. Additionally, according to a Yale University study (2015), the average recycled content of new stainless steel was 44% globally, but in the USA and Europe, the recycled content of new stainless steel is 70% or more. It is noteworthy that global demand for stainless steel outpaces the amount of scrap available for recycling. Therefore, virgin material is used to a greater extent in more recently industrialized countries, that do not yet have as much older stainless steel in service.

Then there are the health benefits. In addition to inhibiting bacterial growth, Type 316 stainless steel is also 100% lead-free. This mitigates toxicity concerns and simplifies compliance with rigorous Health and Safety requirements around lead content, such as NSF61 Annex G, and the low lead requirements of the U.S. Safe Drinking Water Act. The high corrosion resistance of molybdenum-containing stainless steel also means it does not release any other harmful components into the drinking water.

Kitchen and bathroom fittings made of sanitary and sustainable materials are becoming more sought after globally, as consumers demand safer, greener and more durable, yet stylish water fixtures. Italian manufacturers were among the first to set these trends. And by using molybdenum-containing stainless steel, they have found the perfect way to continue the age-old Italian tradition of making the functional beautiful. (Stratia)