

# Understanding Stainless Steel

Stainless steel is one of the main construction materials of every professional kitchen. It is tough, easy to clean and resistant to corrosion. It used in cutlery, prime cooking equipment and utensils, but its most visible use is in shelving, tables and sinks. Not the most glamorous areas of the kitchen, but where stainless steel plays a pivotal role in durability of work surfaces and kitchen hygiene.

Steel is made by mixing molten iron with carbon in a furnace. Adding the carbon gives greater strength, but does not overcome the problem of rusting. By adding nickel, chromium or both metals to the molten iron in addition to carbon, rusting can be controlled, though not totally eliminated.

There are international standards laid down for the making of stainless steel so that metal from different parts of the world is consistent. The two main grades of stainless steel used in catering equipment are grade 304 and grade 430. The grade rating indicates the mix of metals in the stainless steel alloy.

Grade 430 is the cheaper stainless steel, containing just chromium. Grade 304 contains both chromium and nickel and is more corrosion resistant, but more expensive.

The benefit of 430 stainless steel is that being cheap, it is useful for the manufacture of tables and pressings such as sinks where low cost is an important part of the specification, but corrosion will be a problem in the long term.

Another important consideration when buying stainless steel tables and sinks is the thickness of the steel. A thin gauge metal will not be as durable as a thick one. The usual thickness for stainless steel tables and sinks is 1.2mm. It is possible to buy .9mm stainless steel, but don't expect a long life from it. The top end of stainless steel for very heavy use is 1.5mm thickness. One way of making a medium thickness stainless steel used in tabling much stronger is to seal in a layer of medium density fibreboard (MDF). This manufacturing process also reduces vibration and noise.

There are no international standards on the polished finish of stainless steel, but there are manufacturer descriptions which indicate the type of surface. Satin finish is a fairly dull looking surface which is suitable where the appearance of the tabling or sinks is not important. This is a very hard-wearing surface which does not show scratch marks as much as a highly-polished stainless steel.

A high polished finish is often used where the stainless steel is on public display such as in serveries and counters, though for economy reasons, the underside may be satin finish. The stainless steel finish gaining popularity for its looks and ease of cleaning has the generic name of superbrush. This has a close grain finish, does not show fingerprints so easily and is easier to keep clean than other stainless steel surfaces.

Popular logic says that pressing a sheet of stainless steel to form sinks or tabling will produce weak spots in the bends. The science of metal says different and folds in metal can actually increase the strength. Where weak points in the fabrication can occur is with cheap welding. With 304 stainless steel it is important that the welding rods are also 304 stainless to avoid the weld becoming a vulnerable area.

One of the principal benefits of stainless steel is its ability to keep clean, yet with sinks and work tables, the cleaning is often the cause of damage. No detergent with bleach or any



chlorine content should be used on stainless steel. Chlorines attack the surface of stainless steel and will lead to rust spots. The best way to clean any stainless steel table or sink is soap and hot water. Harsh abrasives such as wire wool pads will also damage stainless steel. Nylon scouring pads are better, but if they are too rough they will still score the surface and spoil the polished sheen.

### **How to find out more about stainless steel**

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