



# STAINLESS STEEL COMPARISON GUIDE - [www.steelgear.co.uk](http://www.steelgear.co.uk)

## General Description:

	Alloy	Chromium	Nickel	Carbon	Manganese	Sulfur	Molybdenum	Copper	Iron	Silicon	Phosphorus	Vanadium	Nitrogen	Heat Treating	Micro structure
		Cr	Ni	C	Mn	S	Mo	Cu	Fe	Si	P	V	N		
General purpose, precipitation-hardening, stainless steel, Low temperature (1000 def F approx) "age hardening" produces superior hardness/strength without distortion or scaling.	<a href="#">17-4PH</a>	16%	3%											Yes	Martensitic
Type 302 is a slightly higher carbon version of type 304, most commonly found in strip and wire forms. More corrosion resistant than 301 due to higher nickel content. Non-magnetic in annealed form, slightly magnetic when cold formed.	<a href="#">302</a>	18%	9%	0.15%	2%	0.03%				1%				No	Austenitic
303 is one of the most popular of all the free machining stainless steels. It offers good strength, corrosion resistance and great machinability.	<a href="#">303</a>	17%	8%											No	Austenitic
One of the most widely used and oldest of the stainless steels. This was originally called 18-8 which stood for its chromium and nickel content. It possesses an excellent combination of strength, corrosion resistance and fabricability.	<a href="#">304</a>	18%	8%											No	Austenitic
This austenitic stainless steel has an increased molybdenum content to increase its resistance to corrosion when compared to other 300 series alloys. It will resist scaling at temperatures up to 1600 F. Many of our customer use this material for heat treating applications where hot salt solution is used. 316 is also used in the marine industry because of its resistance to corrosion.	<a href="#">316</a>	16%	10%				2%							No	Austenitic
Much like 316 the "L" means "low carbon", the .035% carbon is a MAXIMUM value, in % by weight, and represents what is not removed during steel making. The advantage of the lower carbon is that it forms less chromium carbide during welding. Chromium is what makes stainless steel stainless, if it is tied up as chromium carbide it cannot prevent corrosion. In the old days it was difficult to get down to .035% so most 316 (and 304) had ~.06% and was subject to "sensitization" during welding.	<a href="#">316L</a>	16%	10%	0.035%			2%							No	Austenitic
416 was the first free machining stainless steel. It is a heat treatable chromium steel with excellent machinability and non-galling characteristics. The alloy is magnetic in all conditions. 416 is used a lot in well shafting.	<a href="#">416</a>	12%				0.15%								Yes	Martensitic
A basic ferritic non-heat treatable stainless steel. Its strengths are in ductility, formability, good corrosion and oxidation resistance, thermal conductivity and finish quality.	<a href="#">430</a>	16%												Yes	Ferritic
This is a high carbon martensitic stainless with moderate corrosion resistance good strength and the ability to obtain and keep excellent hardness (Rc 60) and wear resistance. This is a common material used in knife making. □	<a href="#">440C</a>	12%		0.95%										Yes	Martensitic