Material Comparison Chart - Characteristics of Stainless Steels

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German Material No.	1.4301	1.4305	1.4308 (precision casting)
AISI Standard	304	303	CF-8
DIN-No.	EN 10088-1; -2; -3	EN 10088-1; -2; -3	EN 10283
Short Name	X5CrNi18-10	X8CrNi18-9	GX5CrNi19-10
Components %	C </= 0.07% Si </= 1.0% Mn </= 2.0% P </= 0.045% S </= 0.03% Cr </= 17.0 - 19.5% Ni </= 8.0 - 10.5%	C </= 0.10% Si </= 1.0% Mn </= 2.0% P </= 0.045% S </= 0.15 - 0.35% Cr </= 17.0 - 19.0% Ni </= 8.0 - 10.0%	C </= 0.07% Si </= 1.5% Mn </= 1.5% P </= 0.04% S </= 0.03% Cr </= 18.0 - 20.0% Ni </= 8.0 - 11.0%
Minimum tensile strength Rm Nmm^2	500 - 700	500 - 700	440 - 640
Yield strength	/= 190	/= 190	/= 175
Expansion properties	medium	very good	medium
Forging properties	good	poor	--
Suitability for welding	excellent	poor	good
Special characteristics	Antimagnetic structure suitable for low temperatures, can be used up to 700°C.	Antimagnetic structure.	Antimagnetic, austenitic structure.
Corrosion resistance	Good. Resistant to corrosion in the natural environment: water, country and city atmospheres without significant chloride or acid concentrations, in food areas and in agricultural food areas.	Medium, due to the sulphur content reservations in environments which contain acids and chlorines.	Good. Corrosion resistant. Material is to a large extent comparable with 1.4301.
Main areas of application	Food industry, agriculture, chemical industry, vehicle construction, construction industry, machine construction, decorative purposes (kitchen fittings).	Vehicle construction, electronics, decorative purposes (kitchen fittings).	Food industry, beverage industry, packing industry, armatures, pumps, mixers.

German Material No.	1.4310	1.4404	1.4567
AISI Standard	301	316 LHC	304 Cu
DIN-No.	EN 10088-1; -2; -3	(Sint C40)	EN 10088-1; -3
Short Name	X10CrNi18-8	X2CrNiMo17-12-2	X3CrNiCu18-9-4
Components %	C </= 0.05 - 0.15% Si </= 2.0% Mn </= 2.0% P </= 0.045% S </= 0.015% Cr </= 16.0 - 19.0% Mo </= 0.8% Ni </= 6.0 - 9.5%	C </= 0.10% Si </= 1.0% Mn </= 2.0% Mo </= 2.0 - 4.0% Cr </= 16.0 - 19.0% Ni </= 10.0 - 14.0%	C </= 0.04% Si </= 1.0% Mn </= 2.0% P </= 0.045% S </= 0.03% Cr </= 17.0 - 19.0% Ni </= 8.5 - 10.0%
Minimum tensile strength Rm Nmm^2	500 - 750	330	450 - 650
Yield strength	/= 195	/= 250	/= 175
Expansion properties	poor	--	excellent
Forging properties	good	--	good
Suitability for welding	good	--	very good
Special characteristics	Austenitic structure.	Antimagnetic structure.	Antimagnetic structure, suitable for low temperatures.
Corrosion resistance	Good. Corrosion resistant in a natural environment: water, rural, urban and industrial atmosphere.	Medium, by virtue of its coarser porosity the corrosion resistance is in general reduced as compared with stainless steels. Reservations especially in acid and salty environment.	Very good. Resistant to corrosion in the natural environment; water, country and city atmospheres without significant chloride or acid concentrations, in food areas and in agricultural food areas.
Main areas of application	Springs for temperatures up to 300°C, tools (knives), sheet metal for vehicles, automotive industry, chemical and food industry.	Chemical, cellulose and paper industry, paint, oil, soap and textile industry, dairies, breweries.	Food industry, agriculture, chemical industry, machine construction, navigation electronics, decorative purposes (kitchen fittings).

*The characteristics described should be treated as guidelines only. No guarantee is made. The exact conditions of use have to be taken into account individually.