

AISI Standard	431	440C	304	303
German Material No.	1.4057	1.4125	1.4301	1.4305
DIN / EN-Number	EN 10088-3	EN 10088-3	EN 10088-3	EN 10088-3
Symbol	X 17 CrNi 16-2	X 105 CrMo 17	X 5 CrNi 18-10	X 8 CrNiS 18-9
Alloying components %	C ≤ 0,12 ... 0,22 Cr 15,0 ... 17,0 Ni 1,5 ... 2,5	C ≤ 0,95 ... 1,2 Cr 16,0 ... 18,0	C ≤ 0,07 Cr 17,5 ... 19,5 Ni 8,0 ... 10,5	C ≤ 0,10 S ≤ 0,15 ... 0,35 Cr 17,0 ... 19,0 Ni 8,0 ... 10,0
Minimum tensile strength R_m in N/mm²	800 ... 950	750 ... 1500	500 ... 700	500 ... 700
Yield strength R_{p0,2} in N/mm²	≥ 600	-	≥ 190	≥ 190
Machinability	poor	poor ... medium	medium	very good
Forgeability	medium	-	good	poor
Weldability	good	poor	excellent	poor
Special characteristics	magnetic, martensitic structure for elements with high stability, can be used up to 400 °C	magnetic, martensitic structure, thoroughly heat treatable, high wear resistance	antimagnetic, austenitic structure suitable for low temperatures, can be used up to 700 °C	antimagnetic, austenitic structure
Corrosion resistance	good however, sensitive to intercrystalline corrosion	medium Freshwater, oil, gasoline, alcohol, dairy products	good resistant to corrosion, in the natural environment: water, rural and urban 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 chlorides
Main areas of application	Vehicle construction Chemical industry Aviation Machine construction Food industry	Blades, surgical cutting instruments, ball bearings, valves	Food industry Agriculture Chemical industry Vehicle construction Construction industry Machine construction Decorative purposes (Kitchen equipment)	Vehicle construction Electronics Decorative purposes (Kitchen equipment) Machine construction

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AISI Standard	CF-8 Precision casting	301	316	316LHC Sintered Material
German Material No.	1.4308	1.4310	1.4401 (A4)	1.4404
DIN / EN-Number	EN 10213-4	EN 10088-3	EN 10088-3	Sint C40
Symbol	GX 5CrNi 19-10	X 10 CrNi 18-8	X 5 CrNiMo 17-12-2	X 2 CrNiMo 17-13-2
Alloying components %	C ≤ 0,07 Cr 18,0 ... 20,0 Ni 8,0 ... 11,0	C ≤ 0,05 ... 0,15 Mo ≤ 0,8 Cr 16,0 ... 19,0 Ni 6,0 ... 9,5	C ≤ 0,07 Cr 16,5 ... 18,5 Ni 10,0 ... 13,0 Mo 2,0 ... 2,5	C ≤ 0,08 Mo 2,0 ... 4,0 Cr 16,0 ... 19,0 Ni 10,0 ... 14,0
Minimum tensile strength R_m in N/mm²	440 ... 640	500 ... 750	500 ... 700	330
Yield strength R_{p0,2} in N/mm²	≥ 175	≥ 195	≥ 200	≥ 250
Machinability	medium	poor	medium	–
Forgeability	–	good	good	–
Weldability	good	excellent	good	–
Special characteristics	antimagnetic, austenitic structure	antimagnetic, austenitic structure usable as spring steel up to 300 °C	antimagnetic, austenitic structure suitable for low temperatures, can be used up to 600 °C	antimagnetic structure
Corrosion resistance	good resistant to corrosion, Material is largely comparable with AISI 304	good however, sensitive to intercrystalline corrosion	very good significantly higher than AISI 304 in natural environmental mediums and moderate chlorine and salt concentra- tions, however not resistant to ocean water	medium by virtue of its coarser porosity the corrosion resistance is in general reduced as compared with stainless steel, reservations especially in acid and salty environment
Main areas of application	Food industry Beverage industry Packaging industry Fittings Pumps Agitators	Springs for tempera- tures up to 300 °C Tools (knives) Plates for vehicle construction Chemical and food industry	Chemical industry Food industry Machine construction Building industry	Paint, oil, soap and textile industry Electronics Decorative purposes (Kitchen equipment)

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AISI Standard	316L (bar steel)	316 Precision casting	316 Precision casting	630
German Material No.	1.4404	1.4405	1.4408	1.4542
DIN / EN-Number	EN 10088-3	EN 10213-4	EN 10213-4	EN 10088-3
Symbol	X 2 CrNiMo 17-12-2	GX 4CrNiMo16-5-1	GX 5 CrNiMo 19-11-2	X 5 CrNiCuNb 16-4
Alloying components %	C ≤ 0,03 Cr 16,5 ... 18,5 Ni 10,5 ... 13,0 Mo 2,0 ... 2,5	C ≤ 0,06 Cr 15,0 ... 17,0 Ni 4,0 ... 6,0	C ≤ 0,07 Cr 18,0 ... 20,0 Ni 9,0 ... 12,0 Mo 2,0 ... 2,5	C ≤ 0,07 Cr 15,0 ... 17,0 Ni 3,0 ... 5,0 Cu 3,0 ... 5,0 Nb min. 5xC ... 0,45
Minimum tensile strength R_m in N/mm²	500 ... 700	760	440 ... 650	800 ... 1200
Yield strength R_{p0,2} in N/mm²	≥ 200	≥ 540	≥ 185	500 ... 1000
Machinability	medium	poor ... medium	medium	poor ... medium
Forgeability	good	-	-	good
Weldability	excellent	good	good	good
Special characteristics	antimagnetic, austenitic structure suitable for low temperatures, can be used up to 700 °C	magnetic, martensitic structure	antimagnetic, austenitic structure	magnetic, martensitic structure suitable for low temperatures, can be used up to 450 °C
Corrosion resistance	very good significantly higher than AISI 304 in natural environmental mediums and moderate chlorine and salt concentrations, however not resistant to ocean water	good resistant to corrosion, Material is largely comparable with AISI 304	very good acid-resistant	good Corrosion resistance comparable with AISI 304, insensitive to intergranular corrosion
Main areas of application	Vehicle construction Chemical industry Food industry Medical / Pharmaceutical industry Building industry	Pumps, Valves, Parts for hydropower engineering	Food industry Chemical industry Fittings Pumps Machine construction	Shipbuilding Food industry Construction engineering Automotive industry Chemical industry Plant construction

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AISI Standard	304Cu	316Ti
German Material No.	1.4567	1.4571
DIN / EN-Number	EN 10088-3	EN 10088-3
Symbol	X 3 CrNiCu 18-9-4	X 6 CrNiMoTi 17-12-2
Alloying components %	C ≤ 0,04 Cr 17,0 ... 19,0 Ni 8,5 ... 10,5 Cu 3,0 ... 4,0	C ≤ 0,08 Mn ≤ 2,0 Cr 16,5 ... 18,5 Ni 10,5 ... 13,5 Mo 2,0 ... 2,5 Ti ≤ 5xC max. 0,7
Minimum tensile strength Rm in N/mm²	450 ... 650	500 ... 700
Yield strength Rp_{0,2} in N/mm²	≥ 175	≥ 175
Machinability	medium ... good	medium ... poor
Forgeability	good	medium
Weldability	good	good
Special characteristics	antimagnetic, austenitic structure suitable for cold forming	antimagnetic, austenitic structure suitable for low temperatures can be used up to 700 °C, high stability even at high temperatures
Corrosion resistance	good resistant to corrosion in the natural environ- ment: water, rural and urban atmospheres without significant acid concentrations, in food areas and in agricultural food areas.	very good comparable with 316L
Main areas of application	Food industry Agriculture Chemical industry Machine construction Shipbuilding Electronics Screw industry	Equipment and pipeline construction Chemical industry Food industry Medical / Pharmaceutical industry Shipbuilding

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