Abbreviation	EN Norm	ASTM / AISI	AFNOR	DIN Abbreviation	ISO	Other
X2CrNi18-9	1.4307	304L	Z3CN19-09	1.4307		S30403

1.4307 Wire

Chemical analysis by European norm EN 10088-1 in mass percent.

C	Si	Mn	P	S	N	Cr	Ni
≤ 0.03	≤ 1.0	≤ 2.0	≤ 0.045	≤ 0.015	≤ 0.11	17.5 – 19.7	8.0 – 10.0

C	
≤ 0.07	(1.4301)

Diameter 0.02 – 4.00 mm

Application
Because of its excellent corrosion resistance, ease of cold-forming (bending, deep drawing, rolling, etc.), and its noble appearance, 1.4307 is used in a variety of different applications.
The production of 1.4307 as a dually certified (1.4301 / 1.4307 (304L)) standard grade is becoming more common in steelworks. Its former designation V2A (from approx. 1912) is no longer used. Applications of this material cover a broad range starting in the automotive and construction industries, covering kitchen building and passing all the way into the medicinal and pharmaceutical sectors.
During cold forming the material's austenitic structure is transformed into a martensitic one, making it both hard and magnetic. The steel's fatigue strength is formidable.

Resistance to Corrosion
1.4307 is resistant to corrosion caused by water, steam, air humidity, food acids, and weak organic, as well as inorganic acids. Use in mediums containing chloride, like cooking salt or chlorinated cleaning agents, should be avoided unless followed by immediate and thorough cleaning. Prolonged exposure dramatically increases the odds of corrosion taking place. The use of 1.4307 as load-bearing or voltage carrying elements in the presence of chlorides must be avoided to prevent stress corrosion cracking.

Weldability
All electrical welding processes can be used effectively. Gas welding on the other hand, should not be used since a carburization takes place. Without a subsequent thermal treatment after welding 1.4301 is less resistant to intercrystalline corrosion than 1.4307, because of the former's higher carbon percentage. This is especially the case for larger diameters with greater thermal input.

Limit Temperature
The time during which this material is kept between 450 °C and 850 °C, during its production as well as later processing must be limited as this particular grade tends to excrete chromium carbides. The alloy is resistant to intercrystalline corrosion in temperatures up to 300 °C during continuous operation.

Surface Finish

Drawn	Chemically purged	0.020 – 3.499 mm
Surface Ground	Chemically purged	3.500 – 4.000 mm

Delivery mode

As a ring

On assorted spools

Straightened

Axles

Diameter Tolerances

Diameter (mm)	Tolerance (%)	Tolerance (µ)
0.020 – 0.249		± 1.0
0.250 – 0.399		± 1.5
0.400 – 1.500		± 2.0
1.500 – 4.000		± 2.5

Mechanical Properties

Condition at delivery (mm)	Ultimate Tensile Strength (N/mm^2)
0.005 – 0.019	
0.020 – 0.199	
0.200 – 0.499	700 – 1500 (depends on diameter)
0.500 – 0.999	
1.000 – 1.999	
2.000 – 4.000	

Physical Properties

Density		7.90	g/cm^3
Coefficient of Thermal Expansion	20 ºC – 200 ºC	17.00	$10^{-6}/K$
Specific Heat Capacity	20 ºC	500.00	J/kgK
Thermal Conductivity	20 ºC	15.00	W/mK
Specific Electric Resistance	20 ºC	0.73	$\Omega\ mm^2/m$
Young's Modul	20 ºC	200.00	GPa