



## What is 1.4301?

Grade 1.4301 is the German equivalent grade of 304 type stainless steel. It is an austenite grade that is able to be deep drawn. Therefore it is widely used in drawing application such as sinks or pans. It is the most commonly stainless steel, and was known in older times as 18/8 stainless steel.

**What is DIN EN 10088?** 1.4301 is also identified in the standard EN 10088. The scope of the standard covers specifications for bars, rods, wire, sections, semi-finished products and bright products of corrosion resistance.

**Why 1.4301 called AISI 304 Steel?** 304 austenite stainless steel is the American equivalent of grade 1.4301, and is the reason why there two terms are interchangeably used.

**Available Forms in Market:** Following are the available forms of 1.4301 steels in the global market:

- Flat bars
- Blocks
- Hexagon bar
- Rebar
- Wire
- Tube and pipe
- Plates
- Round bars
- Square bars
- Sheets

**Dimensional Characteristics of 1.4301 Steels:** The applicable thickness for this 1.4301 material as obtained by online statistics in the market starts from 1 mm to 120 mm depending upon the final shape and the type of processes. However the width of this material varies and it is available in 10 mm to 80 mm. As it is available in different forms, dimensional aspects should be confirmed from traders, manufacturers and dealers. Steel round bars are available from 1 to 120 mm diameter.

**The Indicative Chemical Composition of 1.4301 Steels:** The chemical composition of this grade is indicated as under:

Maximum percentage of **Carbon (C)** is **.07** percent.

Maximum percentage of **Manganese (Mn)** is **2.0** percent

Minimum percentage of **Chromium (Cr)** is **17.5** percent and maximum percentage of



## 1.4301 Austenite Stainless Steel

Chromium is **19.50** percent.

Maximum percentage of **Silicon** (Si) is **1.00** percent.

Maximum percentage of **Phosphorous** (P) is **0.05** percent.

Maximum percentage of **Sulphur** (S) is **0.03** percent

Range of **Nickel** (Ni) percentage is from **8.0** to **10.5** percent.

**Nitrogen** (N) impurities are about 0.11 percent.

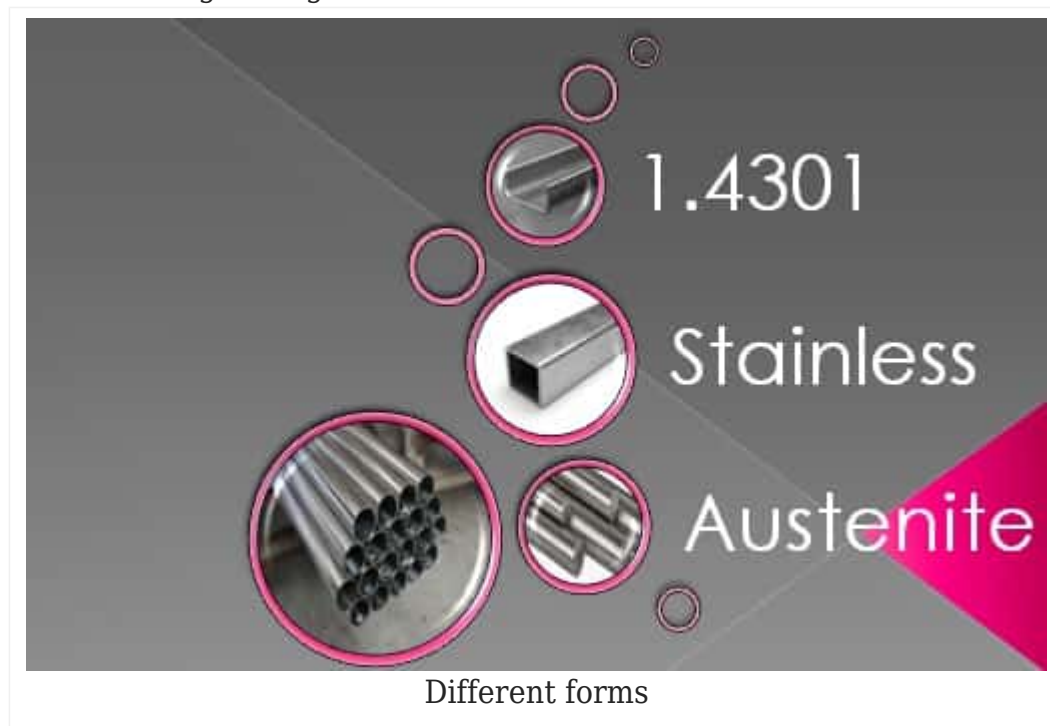
Remaining is iron (Fe) percentage and with few negligible impurities.

**Mechanical Properties of 1.4301 Steels:** Following are some of the mechanical properties of 18/8 material:

The yield strength of the subject steel is expressed in Newton per millimeters and it must be at-least 235 N/mm<sup>2</sup> (MPa).

The elongation property of 1.4301 steel varies with the heat treatment process and thickness but it is indicated typically 40%.

Tensile strength range is around 530 N/mm<sup>2</sup> to 730 N/mm<sup>2</sup>.



**Equivalent Material Grades in Other International Standards:** Read more about the

Equivalent grade of this type in US is 304 stainless steel.

In UNS designation, the corresponding material is referred as UNS S30400.

In AFNOR standard, it is referred as Z7CN 18-09

**Applications of 1.4301 Stainless Steels:** Applications are as under



Making of Heat exchangers  
Making of pipe lines  
Making of pressure vessels  
Making of valves  
Making of flanges and fittings  
Making of threaded bard  
Making of fasteners and fittings  
Making of surgical instruments

## Heat Treatment Processes

**Effects of Cold Forming:** According to ASTM A213, the austenitic stainless steel is subjected to heat treatment to eradicate the impacts of cold forming or to make precipitated chromium carbides dissolved.

**Solution Annealing:** The most certain heat treatment to have both requirements is the solution anneal which is done at 1850 degree Fahrenheit to 2050 degree Fahrenheit range (equivalence to 1010 degree Celcius to 1121 degree Celcius).

**Post-annealing Cooling:** Cooling from the anneal temperature should be at adequtely high rates through 1500 degree Fahrenheit to 800 degree Fahrenheit (816 degree Celcius to 427 degree Celcius) to pevent re-precipitation of chromium carbides.

**Suppliers of 1.4301 Steel:** Suppliers are also listed below:

Supplier M. Woite GmbH bearing contact number 49 (211) 29 26 00 - 00. The supplier address is Freiheitstraße 8 a · 40699 Erkrath · Germany.

Supplier Steelinox BV bearing contact number +31(0) 186 651004 .The supplier address is Einsteinstraat 9,3281 NJ Numansdorp, The Netherlands