



AISI 316 Austenitic Nonmagnetic Stainless Steel

What is AISI 316? Grade AISI 316 is the general purpose and widely used austenite steel. These are having FCC i.e. face centered cubic structure. It is a non-martensite stainless steel and is therefore nonmagnetic in its properties in the annealed state. It can be cold worked which makes it hardened. It has increased corrosion resistance because of molybdenum content in it. Therefore it can also be used in chloride environment.

What is AISI? AISI stands for American Iron and Steel Institute. The American Iron and Steel Institute (AISI) is an association of North American steel manufacturers. AISI has developed carbon steel naming convention. AISI 316 is among one of the grade that can be identified from that convention in the category of Nickel-chromium steels.

Why AISI 316 called SS316 Steel? SS316 steel is common name used for its equivalent of American grade AISI 316,

Available Forms in Market: Following are the available forms of AISI 316 steels in the global market:

Coils

Slit Coils

Flat bars

Foil

Mesh

Rods

Forged Parts

Blocks

Round bars

Square bars

Cut to length Sheets

Dimensional Characteristics of AISI 316 Steels: Different manufacturers have different capabilities to produce specific forms and dimensions. The available thickness for this AISI 316 material differs. As per online statistics in the market, it starts from 0.5 mm to 200 mm depending upon processes. However the width of this material varies and it is available in 10 mm to 1500 mm. As it is available in different forms, dimensional aspects should be confirmed from suppliers, manufacturers and dealers.

The Indicative Chemical Composition of AISI 316 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 **16.5** percent and maximum percentage of



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Chromium is **18.5** percent.

Maximum percentage of **Silicon** (Si) is **1.0** percent.

Maximum percentage of Molybdenum (Mo) is **2.25** percent and minimum is **2.0** percent.

Minimum percentage of Nickel (Ni) is **8.0** percent and maximum percentage is **13.0** percent.

Maximum percentage of Phosphorous (P) is **0.04** percent

Nitrogen is referred maximum as **0.11** percent.

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

Mechanical Properties of AISI 316 Steels: Following are some of the mechanical properties of this material:

The elongation property of AISI 316 steel varies with the heat treatment process and thickness but it is indicated typically 50%

Shear modulus is around 86 Giga Pascal.

The Rockwell hardness is indicated around 82-95 HRB based on heat treatment process.

Elastic modulus is around 193 Giga Pascals.

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

Equivalent grade of this type in UNS designation is UNS S31600

In JIS designation, the corresponding material is referred as SUS 316.

In DIN standard, 1.4401 is equivalent material.

Applications of AISI 316 Stainless Steels: Applications are as under

Making of heat exchangers

Making of food and pharmaceutical processing equipment

Making of Laboratory benches & equipment

Making of surgical instruments and implants

Making of marine exterior trim

Making of Chemical containers

Making of industrial equipment exposed to chemicals

Making of boat fittings

Making of threaded fasteners and springs

Heat Treatment Processes: AISI 316 stainless steel is available in different heat treated forms which are listed as under:

Quarter hard

Full hard

Hot finished

Cold finished

Annealed state



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1/8 hard tempered

1/16 hard tempered

Suppliers of AISI 316 Steel: Suppliers are also listed below:

Supplier Via Circonvallazione bearing contact number + 39 030 99 25 711. The supplier address is 7 26020 Bordolano (CR) Italia.

Supplier Acerinox bearing contact number (+34) 91 398 51 00 / 91 398 51 02. The supplier is located in Madrid.