

## 316 Stainless Steel

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**316, 316L stainless steel stockholders and suppliers, delivering to the whole of the UK.** This grade is a chromium nickel molybdenum austenitic grade which is suitable for use in severely corrosive conditions. The addition of molybdenum gives it a better corrosion resistance than other austenitic stainless steel grades such as 304. It achieves a higher resistance to pitting and crevice corrosion in a chloride environment. The 316L (316S11) grade has a reduced carbon content to improve corrosion resistance after welding.

We welcome export enquiries for stainless steel. Contact our sales office and consult our [shipping policy](#) for further details.

### Related Specifications

1.4401 1.4404 BS EN 10088-1 X2CrNiMo17-12-2 AISI ASTM

### Alternative stainless grades we supply

[17/4PH](#) | [FV520B](#) | [S31254](#) | [904L](#) | [310](#) | [321](#) | [440B](#) | [440C](#) | [420](#) | [410](#) | [416](#) | [431](#) | [S31803](#) | [S32760](#)

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## Form of Supply

West Yorkshire Steel are suppliers and stockholders of round bar, plate and sheet. Sawn blanks can be supplied cut to your requirements as one offs or multiple cut pieces. Ground 316 bar can be supplied, providing a high quality precision ground bar to close tolerances. Also available in plate which can be supplied as 316 plasma cut pieces and sheet which can be supplied guillotined to size.

- Sheet
  - Plate
  - Diameter
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## Applications

Used widely in industries such as chemical, construction, aerospace and automotive. Typical applications are exhaust manifolds, heat exchangers, bellows, oil refinery equipment, marine equipment, pulp paper and textile processing equipment.

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## Analysis

Carbon*	0.08% max	Chromium	16.00-18.00%
Manganese	2.00% max	Nickel	10.00-14.00%
Silicon	1.00% max	Molybdenum	2.00-3.00%
Sulphur	0.03% max		
Phosphorous	0.03% max		

(\*Carbon content on 316L 0.03% max)

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## Corrosion Resistance

316 stainless steel grade is more resistant to atmospheric and other mild types of corrosion than that of other austenitic stainless steel grades, such as 303, 304, 321 and 310. As a molybdenum bearing stainless it is considerably more resistant to solutions of sulphuric acid and phosphoric acid than that of other austenitic grades. 316 has a better resistance to pitting corrosion and stress corrosion cracking in chloride solutions to that of other non molybdenum bearing stainless steel grades.

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## Welding

Stainless steel 316 is readily weldable with most welding procedures. Oxyacetylene welding is not recommended due to possible carbon pick up in the weld area. With its lower carbon content 316L stainless is preferred to standard 316 as it can be welded without loss of corrosion resistance due to intergranular carbide precipitation. Post weld annealing is not normally required, except for service in more extreme conditions. We recommend you contact your welding consumables supplier who should provide you full assistance and information on welding stainless steel.

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## Forging

Heat the 316 slowly and uniformly throughout the section to 1150-1200°C. Re heat as necessary and avoid working below 900°C. Cool in air. Forgings will require annealing in order to obtain optimum corrosion resistance.

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## Scaling Temperature

The oxidation resistance of a stainless steel specification is traditionally termed as the scaling temperature. This is the temperature at which the oxidation rate of a stainless steel becomes unacceptably high. The safe scaling temperature for continuous service of 316 is 875°C. In an oxidising and reducing sulphurous atmosphere the scaling temperature of 316 stainless is lowered.

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## Typical Physical Properties

Temp °C	Density Kg/m <sup>3</sup>	Mean Coefficient of Thermal Expansion	Modulus of Elasticity kg/mm	Electrical Resistivity ?mm <sup>2</sup> /m	Specific Heat Capacity kcal°C
20	7.90	16.5x10 <sup>-6</sup>	20000	0.75	0.105

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## Certification

Stainless steel 316 grade is available with BS EN 10204 3.1 mill certificate, please request when placing any orders.

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## Quality Assured Supply

316 stainless is supplied in accordance with our ISO 9001:2015 registration.