

## 321 Stainless Steel

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**321 stainless steel stockholders and suppliers, delivering to the whole of the UK.** This grade is a titanium stabilised austenitic stainless. The addition of titanium to 321 stainless helps improve its welding properties and the elevated temperature properties of the steel. This stainless steel offers excellent oxidation resistance and corrosion resistance. It offers higher creep and stress rupture properties than 304 austenitic stainless grade. 321 stainless possesses excellent resistance to intergranular corrosion when worked or welded in temperatures with the carbide precipitation range of 427-818°C.

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

### Related Specifications

1.4541 BS EN 10088-1 X6CrNiTi18 10 321S31 BS970 ASTM S32100

### Popular grades we supply

[17/4PH](#) | [FV520B](#) | [S31254](#) | [904L](#) | [310](#) | [316](#) | [440B](#) | [440C](#) | [420](#) | [410](#) | [416](#) | [431](#) | [S31803](#) | [S32760](#)

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### Form of Supply

West Yorkshire Steel are suppliers and stockholders of sheet, plate and bar. We can guillotine cut pieces to your required sizes. 321 stainless steel round bar is available and diameters can be cut to your requirements. Precision ground steel bar can be supplied, providing a high quality stainless bar to close tolerances.

- Sheet
  - Plate
  - Diameter
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### Applications

321 stainless steel is used widely in industries such as automotive, chemical, construction and aerospace. Typical applications are exhaust systems and manifolds, heat exchangers, bellows, oil refinery equipment, furnace parts and firewalls.

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## Analysis

Carbon	0.08% max	Chromium	17.00-19.00%
Manganese	2.00% max	Nickel	9.00-12.00%
Silicon	0.75% max	Sulphur	0.030% max
Nitrogen	0.10% max	Phosphorous	0.045% max
		Titanium	5x(C+N) min to 0.70% max

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## Corrosion Resistance

Stainless steel 321 grade has similar corrosion resistance to that of 304 austenitic grade. However it is better suited for applications where an unstabilised chromium nickel steel, such as 304, would be susceptible to intergranular corrosion. It offers excellent corrosion resistance in most natural waters (rural and industrial), provided the chloride, salt and concentrations of hydrochloric and organic acids are low.

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## Welding

Stainless steel 321 is readily weldable with most welding procedures. Oxyacetylene welding is not recommended due to possible carbon pick up in the weld area. Due to intergranular carbide precipitation 321 can be welded without loss of corrosion resistance and post weld annealing is not normally required, except for service in more extreme conditions. We recommend you contact your welding consumables supplier who should be able to provide you full assistance and information on welding stainless steel.

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## Forging

Heat the 321 slowly and uniformly throughout the section to 1150-1250°C. Re heat as necessary and avoid working below 900°C. Cool in air.

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## Scaling Temperature

The oxidation resistance of a stainless steel 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 321 is 875°C. In an oxidising and reducing sulphurous atmosphere the scaling temperature of 321 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	17x10 <sup>-6</sup>	20000	0.7	0.105

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## Certification

Stainless steel 321 grade is available with BS EN 10204 3.1 mill certificate, please request when placing any orders.

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## Quality Assured Supply

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