Contact: **01937 584440**
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410 Stainless Steel

410 stainless steel stockholders and suppliers, delivering to the whole of the UK. West Yorkshire Steel are suppliers of 410 stainless steel bar. This grade is a martensitic stainless steel commonly supplied in the hardened but still machineable condition. 410 stainless is suitable for applications where high strength and moderate heat and corrosion resistance are required.

We welcome export enquiries for stainless steel. Contact our sales office and consult our shipping policy for further details.

Related Specifications

BS970 410 S21 AISI ASTM A276 1.4006
UNS S41000 BS EN 10088 X12Cr13

Alternative stainless grades we supply

17/4PH | FV520B | S31254 | 904L | 310 | 316 | 321 | 440B | 440C | 420 | 416 | 431 | S31803 | S32760

Form of Supply

West Yorkshire Steel are suppliers and stockholders of round bar. Diameters can be sawn to your required lengths as one offs or multiple cut pieces. Ground stainless steel bar can be supplied, providing a high quality precision ground bar to tight tolerances.

- Diameter

Applications

Grade 410 stainless steel is commonly used for applications requiring good strength, toughness and reasonable corrosion. These characteristics make it suitable for applications and components such as gas and steam turbine parts, pumps, fasteners, studs, valve components and kitchen utensils.

Analysis

Carbon	0.09-0.15%	Chromium	11.50-13.50%
Manganese	1.00% max	Nickel	1.00% max
Silicon	1.00% max	Sulphur	0.03% max
Molybdenum	0.30% max	Phosphorous	0.04% max

Corrosion Resistance

410 stainless steel offers good corrosion resistance to atmospheric corrosion, water and some chemicals. Its optimum corrosion resistance is in the hardened and tempered condition and is best achieved by allowing oxygen to circulate freely on the surface which will form an oxide film which protects the steel. Keeping the surface free of scale and foreign particles improves corrosion resistance which makes 410 stainless suitable to exposure to chlorides in daily activities such as food and sports environments. Finished components should be passivated. For best corrosion resistance properties 410 stainless steel is mostly supplied in the 'R' condition as 410S21R

Annealing

Heat slowly to 820-900°C, hold until temperature is uniform through the steel. Soak well and allow to cool in the furnace.

Forging

Pre heat carefully, then raise temperature to 1100-1200°C, hold until temperature is uniform through the steel. Do not forge below 900°C. After forging stainless steel 410 grade, cool slowly in a furnace or warm ashes.

Hardening

Heat slowly to 950-1020°C and hold until the temperature is uniform throughout the steel. After adequate soaking quench in oil or air cool. Temper as soon as tools are hand warm.

Tempering

Heat carefully to a suitable tempering temperature. Soak as required and then allow to cool in air. Tempering between 600-700°C will achieve ‘R’ condition. 410 stainless steel can be tempered at lower temperatures to achieve higher tensile strengths but with lower impact properties. Tempering between 400-580°C is not advised as tempering within this range will seriously reduce impact properties and corrosion resistance.

Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to factors such as the shape and size of each steel component. Other considerations during the heat treatment process include the type of furnace, quenching medium and transfer facilities for the work piece. Please consult your heat treatment provider for full guidance on heat treatment of 410 stainless.

Typical Mechanical Properties

Condition	Tensile N/mm²	Yield N/mm²	Elongation %	Izod KCV J	Hardness Brinell
R	700-850	495	15	34	201-255

Certification

Stainless steel 410 (410S21) grade is available with BS EN 10204 3.1 mill certificate, please request when placing any orders.

Quality Assured Supply

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