E STEEL SDN BHD (891338-A)

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420 Stainless Steel, SUS420

SUS420 grade is a martensitic, higher carbon version of SUS410. Available in different variations of carbon content 420 stainless steel is suitable for heat treatment. 420 stainless has a 13% chromium content which gives the specification a level of corrosion resistance properties. British standard grades available are 420S29, 420S37, 420S45.Some other European stainless steel specifications 1.2083 , 1.2316 and 1.4034, both which have a higher carbon content and achieve a good Rockwell hardness when heat treated.

Related Specifications

1.4021 1.4028 1.4034 1.2083 ASTM A276 S42000
BS EN 10088 AISI BS970 UNS X20Cr13 X30Cr13

Mechanical Properties

Tempering Temperature (°C)	Tensile Strength (MPa)	Yield Strength 0.2% Proof (MPa)	Elongation (% in 50mm)	Hardness Brinell (HB)	Impact Charpy V (J)
Annealed *	655	345	25	241 max	-
204	1600	1360	12	444	20
316	1580	1365	14	444	19
427	1620	1420	10	461	#
538	1305	1095	15	375	#
593	1035	810	18	302	22
650	895	680	20	262	42

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Applications

420 stainless steel is widely used in the medical and cutlery industries. It is suitable for applications such as instruments, knives, hand tools, pump shafts and plastic moulds. SS420 is not recommended for use in temperatures above the relevant tempering temperature, because of the reduction in mechanical properties.

Corrosion Resistance

Best corrosion resistance of 420 stainless steel is achieved when SUS420 is hardened and surface ground or polished. In the hardened condition SUS420 has good corrosion resistance to atmosphere, foods, fresh water, mild alkalis and acids, steam, crude oil and other similar corrosive media.

Hardening

SS420 is suitable for heat treatment up to 52 HRc or higher depending on the carbon content and size of the component. European grade 1.2083 is a high carbon type 420 stainless steel and is ideally suited for application where highest achievable hardness is required.

Heat Treatment of SUS420

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to factors such as the shape and size of each 420 stainless steel component. Other considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment of stainless steel 420 grade.
