VULCAN
Engineering Steels

1214 BRIGHT CARBON STEEL BAR

1214 is a free machining low tensile, low hardenability carbon steel, with free machining characteristics due to the addition of Sulphur. The addition of Sulphur makes welding of this material difficult.
1214 is generally only used in the as rolled condition, and then either cold drawn or turned to allow feeding through NC machines. 1214 can be carburised achieving surface hardness of around 60HRC in smaller sections, however this will reduce as section size increases. Core strength will, however, remain low. 1214 is not recommended for flame, induction or nitride hardening.
Typical applications included lightly stressed components, and machinery parts.

Stocked Sizes	-	Round Metric	5 mm – 110 mm Ø
		Round Imperial	1/4'' – 5'' Ø
		Hexagon	7/16'' – 75 mm A/F
		Square	1/4'' – 4'' A/F

Related Specifications	
Australia	AS 1443 – 1994 1214
Japan	JIS G 4804 SUM22
USA	AISI 1213 and 1215 ASTM A29/A29M – 91 1213 and 1215 SAE 1213 and 1215 UNS G12130

Chemical Composition		
	Min. %	**Max %**
Carbon	0	0.15
Silicon	0	0.10
Manganese	0.80	1.20
Phosphorous	0.04	0.09
Sulphur	0.25	0.35

Typical Mechanical Properties – Cold Drawn & Turned and Polished (For Guidance Only - indicative)				
	Up to 16mm CD	17-38mm CD	39-63mm CD	Turned & Polished (All Sizes)
Tensile Strength (Mpa)	480-760	430-690	400-630	370-520
Yield Strength (Mpa)	350-590	330-550	290-500	230-310
Elongation in 50mm (%)	7	8	9	17
Hardness (Brinell BHN)	142-225	120-205	115-185	105-155

Standard Bright Tolerance (h11) in mm								
3-6mm	+6-10mm	+10-18mm	+18-30mm	+30-50mm	+50-80mm	+80-120mm	+120-180mm	+180-250mm
+0/-0.075	+0/-0.09	+0/-0.11	+0/-0.13	+0/-0.16	+0/-0.19	+0/-0.22	+0/-0.25	+0/-0.29mm

Annealing

Heat to 890-920 Deg C. Hold until temperature is uniform throughout the section and allow to cool in furnace.

Normalizing

Heat to 900-940 Deg C. Hold until temperature is uniform through the section, soak for 10-15 minutes per 25mm of cross section, and allow to cool in still air.

Stress Relieving

Heat to 500-700 Deg C. Hold until temperature is uniform throughout the section, soak for 1 hour per 25mm of section, and cool in still air