VULCAN
Engineering Steels

1045 HARD CHROME PLATED BAR

1045 Chrome Plated Bar is supplied Cold Drawn or Turned, ground, chrome plated and polished condition. Chrome plating hardness has a surface hardness of HV 1000-1150.
1045 Chrome bar is the most commonly used of the Chrome Bar options as it combines good strength and impact properties and a cost effective solution.
Typical Applications include: Agricultural equipment, compressors, jacks, transport lifting equipment, hoists and mining/earthmoving equipment.

Available Sizes - Metric - 6 mm – 200 mm Ø
Imperial - ½'' – 8'' Ø

Related Specifications – Base Material	
Australia	AS 1442/1443 – 1992 1045
Germany	C45 (W.Nr 1.0503) CK45 (W. Nr 1.1191)
Japan	JIS G4051 S45C
USA	AISI C1045 ASTM A29 – 91 1045 SAE 1045 UNS G10450

Chemical Composition*		
	Min. %	**Max %**
Carbon	0.43	0.50
Silicon	0.10	0.35
Manganese	0.60	0.90
Phosphorous		0.04
Sulphur		0.04

Typical Mechanical Properties Based on Turned Bar – (For Guidance Only)	
Tensile Strength (Mpa)	570-700
Yield Strength (Mpa)	300-500
Elongation in 50mm (%)	14-30
Hardness (Brinell BHN)	170-210
Hard Chrome Plating	
Typical Surface Hardness (Chrome Plated)	HV 1000-1150
Typical Surface Smoothness	0.10 – 0.30 um Ra (Microns)
Typical Surface Deposit	0.025-0.050mm (0.001''-0.002'')

Diameter & Straightness Tolerance

Size mm	Up to 51mm dia		Over 51mm to 102mm Dia		Over 102 mm dia	
Dia Tol (mm)	+0	-0.025	+0	-0.05	+0	-0.075
Straightness	0.25mm/1000mm		0.30mm/1000mm			

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1045 INDUCTION HARDENED CHROME PLATED BAR

1045 Chrome Plated Bar is supplied Cold Drawn or Turned, Induction Hardened, ground, chrome plated and polished condition. Chrome plating hardness has a surface hardness of HV 1000-1150, and is Induction Hardened to a depth of approximately 3mm and a hardness of 55-65 HRC.
1045 Chrome bar is the most commonly used of the Chrome Bar options as it combines good strength and impact properties and a cost effective solution.
Typical Applications include: Mining and Earthmoving Equipment as well as heavy duty industrial equipment.

Available Sizes - Metric - 25 mm – 110 mm Ø
Imperial - 1'' – 6'' Ø

Related Specifications – Base Material		
Australia	AS 1442/1443 – 1992 1045	
Germany	C45 (W.Nr 1.0503) CK45 (W. Nr 1.1191)	
Japan	JIS G4051 S45C	
USA	AISI C1045 ASTM A29 – 91 1045 SAE 1045 UNS G10450	
Chemical Composition*		
	Min. %	**Max %**
Carbon	0.43	0.50
Silicon	0.10	0.35
Manganese	0.60	0.90
Phosphorous		0.04
Sulphur		0.04

Typical Mechanical Properties Based on Turned Bar – (For Guidance Only)						
Tensile Strength (Mpa)	570-700					
Yield Strength (Mpa)	300-500					
Elongation in 50mm (%)	14-30					
Hardness (Brinell BHN)	170-210					
Typical Induction Hardened Case Properties						
Depth of hardness	Approx. 3mm					
Hardness	55-65 HRC					
Hard Chrome Plating						
Typical Surface Hardness (Chrome Plated)	HV 1000-1150					
Typical Surface Smoothness	0.10 – 0.30 um Ra (Microns)					
Typical Surface Deposit	0.025-0.050mm (0.001''-0.002'')					
Diameter & Straightness Tolerance						
Size mm	Up to 51mm dia		Over 51mm to 102mm Dia		Over 102 mm dia	
Dia Tol (mm)	+0	-0.025	+0	-0.05	+0	-0.075
Straightness	0.25mm/1000mm		0.30mm/1000mm			

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4140 HARD CHROME PLATED BAR

4140 High Tensile Chrome Plated Bar is supplied in the hardened and tempered condition, Cold Drawn or Turned, ground, chrome plated and polished. Chrome plating hardness has a surface hardness of HV 1000-1150.
4140 Chrome bar is used in applications demanding higher yield and tensile strength compared to 1045 Chrome Bar, and is also available in the Induction Hardened condition in some sizes. Induction Hardened 4140 generally has a hardened depth of approximately 3mm and hardness of 55-65 HRC.
Typical Applications include: Agricultural equipment, compressors, jacks, transport lifting equipment, hoists and mining/earthmoving equipment.

Available Sizes - Metric - 20 mm – 120 mm Ø
Imperial - 3/4'' – 6'' Ø

Related Specifications – Base Material	
Australia	AS 1444 – 1996 4140
Germany	W. Nr 1.7225 42CrMo4
Japan	JIS G4105 SCM440
USA	AISI/SAE 4140 ASTM A29/A29M – 91 4140 UNS G41400

Chemical Composition*		
	Min. %	**Max %**
Carbon	0.36	0.44
Silicon	0.10	0.40
Manganese	0.65	1.10
Chromium	0.75	1.20
Molybdenum	0.15	0.35
Phosphorous		0.04
Sulphur		0.04

Typical Mechanical Properties Based on Turned Bar – (For Guidance Only)						
Tensile Strength (Mpa)	850-1000					
Yield Strength (Mpa)	650-850					
Elongation in 50mm (%)	14-30					
Hardness (Brinell BHN)	248-302					
Hard Chrome Plating						
Typical Surface Hardness (Chrome Plated)	HV 1000-1150					
Typical Surface Smoothness	0.10 – 0.30 um Ra (Microns)					
Typical Surface Deposit	0.025-0.050mm (0.001''-0.002'')					
Diameter & Straightness Tolerance						
Size mm	Up to 51mm dia		Over 51mm to 102mm Dia		Over 102 mm dia	
Dia Tol (mm)	+0	-0.025	+0	-0.05	+0	-0.075
Straightness	0.25mm/1000mm		0.30mm/1000mm			