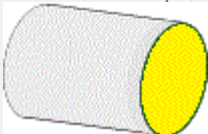


1045 INDUCTION HARDENED HARD CHROME PLATED BAR

1045 is a medium tensile carbon steel supplied in the turned, induction hardened and straightened, precision ground, polished, chrome plated and final polished condition, with a typical base metal tensile strength of 670 Mpa, an induction hardened case of 3.2mm thick approx. to Rc55-65, plus a typical hard chrome plated surface hardness of HV 1000 - 1150. Characterised by an extremely smooth surface finish with excellent wear and corrosion resistance, supported by an induction hardened case offering greater strength and resistance to mechanical damage, coupled with good core strength. 1045 induction hardened hard chrome plated bar is used extensively by the hydraulic and pneumatic industries, for those applications utilising its high surface hardness and excellent resistance to surface impact.

| Colour Code | Stocked Sizes | |
|---|---------------|--------------------|
| Yellow (End Caps)  | Metric | 25 mm - 110 mm Dia |
| | Imperial | 7/8" - 5"Dia |

Related Specifications (Base Material)

| | |
|---------------|--|
| Australia | AS 1443 - 1994 1045 |
| Germany | W.Nr 1.0503 C45 W.Nr 1.1191 CK45 |
| Great Britain | BS970 - Part 3 - 1991 080A47 BS970 - Part 1 - 1972 080M46 BS970 - 1955 EN43B |
| Japan | JIS G 4051 S45C |
| USA | AISI C1045 ASTM A29/A29M - 91 1045 SAE 1045 UNS G 10450 |

Chemical Composition (Base Material)

| | Min. % | Max % |
|-------------|--------|-------|
| Carbon | 0.43 | 0.50 |
| Silicon | 0.10 | 0.35 |
| Manganese | 0.60 | 0.90 |
| Phosphorous | 0 | 0.04 |
| Sulphur | 0 | 0.04 |

Typical (Base Metal) Mechanical Properties - As Supplied Condition

| | |
|-----------------------|--------|
| Manufacturing Process | Turned |
| Tensile Strength Mpa | 670 |
| Yield Strength Mpa | 470 |
| Elongation In 50mm % | 20 |

| | | | | | | | | |
|--|-----------------------------------|----------------|--------|---------------------|--------|----------------|--------|---|
| Hardness Brinell HB | 200 | | | | | | | |
| Typical Properties Induction Hardened Case | | | | | | | | |
| Thickness | 3.2mm | | | | | | | |
| Hardness | Rc 55-65 | | | | | | | |
| Hard Chrome Plating | | | | | | | | |
| Typical Surface Hardness | HV 1000 - 1150 | | | | | | | |
| Typical Surface Smoothness | 0.10 - 0.30 umRa (Microns) | | | | | | | |
| Typical Surface Deposit* | 0.025 - 0.050 mm(0.001" - 0.002") | | | | | | | |
| *Note: Can be supplied up to 0.125 mm against order, subject to minimum quantity requirements. | | | | | | | | |
| Diameter and Straightness Tolerance | | | | | | | | |
| Diameter | mm | Up to 51mm Dia | | Over 51 - 102mm Dia | | Over 102mm Dia | | Straightness |
| | Inches | Up to 2.0 | | Over 2.0 - 4.0 | | Over 4.0 | | |
| Tolerance | mm | +0.00 | -0.025 | +0.00 | -0.050 | +0.00 | -0.075 | Below 50mm 0.25mm/1000mm Over 50mm 0.30mm/1000mm |
| | Inches | +0.00 | -0.001 | +0.00 | -0.002 | +0.00 | -0.003 | |
| Typical Bar Lengths | | | | | | | | |
| Over 25mm Dia | 6000mm | | | | | | | |
| Bar lengths are approximates only. NB. Bars have 100mm approx. unchromed surface at each end. | | | | | | | | |
| Packaging | | | | | | | | |
| Supplied in cardboard tubes for protection. | | | | | | | | |
| Sawing | | | | | | | | |
| 1045 induction hardened hard chrome plated bar, due to the extreme hardness of the induction hardened case, requires special cutting blades or grinding equipment. | | | | | | | | |
| Machining | | | | | | | | |
| 1045 induction hardened hard chrome plated bar, due to the extreme hardness of the induction hardened case, requires *ceramic tipped machine tools. Having removed the induction hardened case, the core has very good machinability, similar to 1045 standard bar. To protect the polished chrome surface, soft materials such as copper, aluminium or mild steel should be used as clamping materials and any particles of hard chrome should be removed immediately to avoid scratching. Otherwise all machining operations may be carried out satisfactorily.*Please consult your machine tool supplier. | | | | | | | | |
| Welding | | | | | | | | |
| Welding of 1045 induction hardened hard chrome plated bar is not generally recommended. | | | | | | | | |

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