

4140

High Tensile Chrome Bar Induction Hardened & Non Induction Hardened

Bars made from this chrome plated steel are typically used in applications where there are heavy duty conditions – often corrosive. The steel contains increased levels of alloying elements which delivers a high grade steel with superior tensile strength exhibiting good machining.

Typical Chemical Composition %

	MIN	MAX
Carbon	0.36	0.44
Chromium	0.75	1.20
Manganese	0.65	1.10
Molybdenum	0.15	0.35
Phosphorous	0.00	0.04
Silicon	0.10	0.40
Sulphur	0.00	0.04

Mechanical Properties

Tensile Strength Rm (MPA)	800
Yield Strength Re (MPA)	690
Elongation	Min 20 %
Hardness BHN	Min 242 (condition T)

Welding

4140 has limited weldability. Welding the hard chrome bar in the hardened and tempered 'as supplied' condition is not recommended and should be avoided if at all possible as the mechanical properties will be altered in the area of the weld heat affected zone. If welding is necessary, first remove the cardboard tube protection from the area that will be affected by heat (otherwise corrosion of the plating can be caused by fumes emitted from

the cardboard). Preheating to 200 to 300°C is strongly recommended. The upper limit should not be exceeded as there is a risk of deterioration in the chrome layer.

4140 can be friction welded, however, precautions are necessary in order to limit the formation of undesirable micro structures in the welded zone. Consult your welding consumables supplier before commencing.

Machining

Operation Parameters	Rough Turning	Fine Turning	Threading
Feed mm/r	0.3 – 0.6	0.05 – 0.3	-
Cut depth mm	2.0 – 5.0	0.2 – 2.0	-
Tool (coated)	ISO P15 – P 30	ISO P10 – P15	ISO P20 – P30
Speed m/min.	180 – 230	230 – 280	120 – 150

Surface Hardness, Induction Hardening:

The chrome layer hardness is 850 HV_{0.1}. The surface hardness in the induction hardened zone immediately beneath the chrome layer

is 55 HRC min. The depth of hardening is between 1.0 and 3.0 mm depending on dimension.

Carried out Controls

Chrome Layer Thickness

The thickness of the chrome is a minimum 20µm.

Surface Roughness

The surface roughness (Ra) is always less than 0.2µm and normally in the range of 0.05 – 0.15µm. Rt (ISO) is always less than 2.0µm and normally in the range 0.5 – 1.5µm.

Straightness

The maximum deviation is 0.2mm/1.0m.

Roundness

The out of roundness is maximised at 50% of the diameter tolerance interval.

Diameter Tolerance

ISO f7 is standard. Other tolerances can be supplied upon request (narrowest range is ISO level 7).

Tolerance Ranges

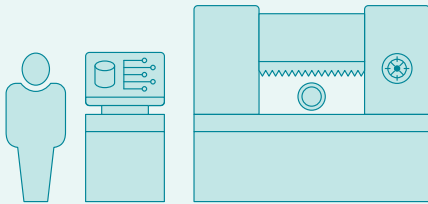
Size (mm)	ISO f7. µm	
	Upper	Lower
>18 - 30	- 20	- 41
>30 - 50	- 25	- 50
>50 - 80	- 30	- 60
>80 - 120	- 36	- 71



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Cutting Service



Our laser guided band saws are dedicated to hydraulic steels. Our superior cutting service ensures that we can typically process orders faster than our competitors. If we receive an order before 12 noon, we aim to have that order on transport that day.

Delivery



We've positioned ourselves geographically to be in a strategic location with excellent on and off highway access which enables transport to collect products with ease and enables us to distribute products efficiently, on time and safely to every postcode area throughout Australia.

Disclaimer

The data ranges and application examples shown are for general information purposes only and are not to be considered as recommendations. Test certificates for specific products are available on request.

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