

Prior to Heat Treatment

The material you receive will have a maximum hardness of 285Hb.

A typical hardness historically will be between 205-235Hb.

Heat Treatment - Hardening

For maximum hardness (65R or 902VPN) heat to 770°C-780°C, soak till uniform, then quench in water.

(Sizes up to 5/16" diameter may be oil hardened from 800/810°C)

The most efficient method is to heat in a salt bath with close control on temperature. If a muffle furnace is used, the atmosphere should slightly reduce to minimise scale and avoid soft spots.

Hardening colours

Temperature °C	650	700	800	900	1000
Colours	Dull red	Blood red	Cherry red	Light red	Salmon red

Tempering

Minimum of 1 hour soak, immediately after hardening.

The following table gives hardness values at selected tempering temperatures.

Temperature °C	120	150	200	250	300	350	400
Colours	Pale straw	Straw yellow	Bronze/brown	Purple	Violet	Dark blue	Light blue
Hardness (Rc)	63-65	62-64	61-62	58-59	55-56	53-54	48-50

Annealing

Heat slowly to 760°C-780°C. Soak for 1 hour per inch of section and cool slowly in the furnace.

Typical material properties as supplied

Approximate Hardness (Brinell)	180-285
Approximate UTS (tons/in ²)	40-60
Approximate yield point (tons/in ²)	35-50
Approximate torsional stress (tons/in ²)	22-33
Approximate shear stress (tons/in ²)	24-36
Approximate elongation % (2" GL)	35-20
Approximate reduction of area %	45-30
Approximate density (g/cc)	7.83

The above figures are for guidance only and do not form part of a specification.

Precision BS1407 Silver Steel Manufacturers

