

Material Grade: **945M38**
 Material Condition(s): **Untreated / Annealed / Quench and tempered**
 Surface Finish: **As rolled / As forged**

Associated Standard: **BS970**

Description:

A low-alloy steel capable of being quenched and tempered to produce tensile strengths upon 925N/mm² in small sections and 850N/mm² in medium sections, combined with good ductility and resistance to stock.

In the hardened and tempered condition machinability is comparable to that of other low alloyed steels; approximately 45-55% that of mild steel.

Typical quench and temper regime: Austenitise at 840-870°C followed by Oil Quench. Temper between 550-680°C
 Material will exhibit hardness of 55-60HRC in the as quenched condition.

Typical applications: **General engineered components, high tensile bolts, crankshafts, gears, boring bars, shafts, cutting tool bodies**

1. STEELMAKING

	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>S</u>	<u>P</u>	<u>Cr</u>	<u>Ni</u>	<u>Mo</u>
Min	0.34	0.15	1.20			0.40	0.60	0.15
Max	0.42	0.35	1.60	0.035	0.035	0.60	0.90	0.25

2. TYPICAL MECHANICAL PROPERTIES

Test type	Tensile and hardness test (at room temperature)						Impact test (KV)
	Yield (Re)	0.2 % proof	UTS (Rm)	Elong (A)	R of A (Z)	Hardness	Room Temp
Unit	N/mm ²	N/mm ²	N/mm ²	%	%	HB	J
Annealed	Min						
	Max					235	
Q + T to condition 'R'	Min	525	700	17		201	50
	Max		850			255	
Q + T to condition 'S'	Min	585	755	15		223	50
	Max		925			277	
Q + T to condition 'T'	Min	680	850	13		248	50
	Max		1000			302	