

Material Grade: **709M40**
 Material Condition(s): **Untreated / Annealed / Quench and tempered**
 Surface Finish: **As rolled / As forged / Bright drawn / Bright turned**

Associated Standard: **BS970**

Description:

A versatile low alloy steel that possesses good tensile and shock resistance properties combined with ductility. Its resistance to wear can be considerably increased by flame hardening and it is also suitable for nitriding (for maximum wear and abrasion resistance). Bars are often supplied in the hardened and tempered condition with a tensile strength range of 850-1000N/mm². The bars are readily machinable so that the components can be put into service without the cost of further treatment. Bars can also be supplied in the softened state which require hardening and tempering but will give increased machinability

Typical applications: **Axle shafts, crankshafts, gears, induction hardened pins**

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	0.36	0.10	0.70			0.90		0.25
Max	0.44	0.35	1.00	0.040	0.035	1.20	0.40	0.35

(* denotes residual element)

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					255	
Q + T + Drawn, condition 'T'	Min	700	850	9		248	50
	Max		1000			302	
Q + T to condition 'R'	Min	495	700	15		201	28
	Max		850			255	
Q + T to condition 'S'	Min	585	775	15		223	50
	Max		925			277	
Q + T to condition 'T'	Min	680	850	13		248	50
	Max		1000			302	
Q + T to condition 'U'	Min	755	925	12		269	42
	Max		1075			331	