

Material Grade: **42CrMo4**  
 Material Condition(s): **Untreated / Annealed / Quench and tempered**  
 Surface Finish: **As rolled / As forged / Bright turned**

Associated Standard: **BS EN 10083**  
**BS EN 10250**

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 or nitriding (for maximum wear and abrasion resistance). Bars can be supplied in quenched and tempered condition with tensile strength exceeding 800 N/mm<sup>2</sup> (depending on section thickness) but are also available in the softened, more machineable state suitable for further heat treatment.

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

Typical conditions: **no designation or +U - as rolled**  
**+A - soft annealed**  
**+N - normalised**  
**+QT - quench and tempered**  
**+H - with additional hardenability test**  
**+HH - with enhanced hardenability test**

**1. STEELMAKING**

	<u>C</u>	<u>Si</u>	<u>Mn</u>	<u>S*</u>	<u>P</u>	<u>Cr</u>	<u>Mo</u>
Min	0.38		0.60			0.90	0.15
Max	0.45	0.40	0.90	0.035	0.025	1.20	0.30

(\* grade variation 42CrMoS4 has S range of 0.020-0.040%)

**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
Variation	Sample dia	Unit	N/mm <sup>2</sup>	N/mm <sup>2</sup>	N/mm <sup>2</sup>	%	%	HB	J
42CrMo4 + A		Min							
		Max						241	
42CrMo4 + QT	> 40 ≤ 100mm	Min	650		900	12	50		35
		Max			1100				
42CrMo4 + QT	> 160 ≤ 330mm	Min	460		700	15			27
		Max							