HILLFOOT
METALS | SUPPLY CHAIN | INNOVATION

MATERIAL DATASHEET

Title:

34CrNiMo6

Material Grade: **34CrNiMo6**
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 general purpose steel used for a wide range of engineering parts. It is capable of being heat treated to produce a wide range of tensile strengths combined with good ductility and resistance to shock. It has good hardenability, enabling it to be used for medium tensile strengths in fairly large sections, and possesses good resistance to wear. At low temperatures good impact values can also be obtained.
Bars are often supplied in the hardened and tempered condition with a tensile strength exceeding 1000 N/mm2 (depending on section size). Material is 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 give increased machinability.
Nickel-chromium-molybdenum steels benefit from a combinations of alloying elements. Nickel imparts toughness; chromium depth of hardness; molybdenum inhibits temper brittleness and each elements tends to reduce grain size.

Typical applications: **Shafts, connection rod bolts, push rods, studs, pinion sleeves, mandrel bars for tube manufacturing, breech mechanism parts, high-duty engine connecting rods, high temperature bolts in oil refining and steam installations, various parts of machine tools such as spindle gears, power transmission gears, slide cams**.

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

	C	Si	Mn	S	P	Cr	Ni	Mo
Min	0.30		0.50			1.30	1.30	0.15
Max	0.38	0.40	0.80	0.035	0.025	1.70	1.70	0.30

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/mm2*	*N/mm2*	*N/mm2*	*%*	*%*	*HB*	J
34CrNiMo6 + A		Min							
		Max						248	
34CrNiMo6 + QT	> 40 ≤ 100mm	Min	800		1000	11	50		45
		Max			1200				
34CrNiMo6 + QT	> 160 ≤ 330mm	Min	540		750	14			45
		Max							