



C45

Carbon Steel

TECHNICAL SHEET

1 Comparison Standards

W.Nr	DIN	JIS equivalent	AISI/SAE	AFNOR	BS	UNI
C45	C45	S45C	1045	AF65C45 C45	070M46 50HS	1C45

2 Chemical Composition

C	Mn	P (max)	S (max)	Cr	Si	Supply Condition	Supply Hardness (HB)
0.42-0.50	0.50-0.80	0.025	0.025	0.20-0.40	0.15-0.35	-	-

3 Main Characteristics and Applications

C45 grade steel is a medium-carbon steel known for its moderate tensile strength. It can be through-hardened to a high hardness (HRC 55) through quenching and tempering or localized hardening using flame or induction techniques.

Applications:

- Gears and Shaft
- Automotive components
- General engineering

4 Production Route

- EAF - LF - VD - Forging / Rolling + Annealing
- Machining if Required

5 Mechanical Properties

Condition	Yield Strength R _e (Mpa)	Tensile Strength R _m (Mpa)	Elongation A5(%)	Hardness HRC	Quenching Temperature (°C)	Bendability	Thickness, t1.95mm ≤ t ≤ 10.0mm	
Rolled		750						
Annealed	460	540	18	58	820	Min. recommended Bending radius (≤90°)	Rolled	Annealed
Water quenched	330	2270	30	55	860		2.0×t	2.0×t
Oil quenched		1980						



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