

## WN 1.1191 or DIN Ck45

### 1. Chemical Composition

C	Si	Mn	P	S	Cr	Mo	Ni	Cr+ Mo+ Ni
0.42-0.50	≤ 0.4	0.5-0.8	≤ 0.03	≤ 0.035	≤ 0.4	≤ 0.1	≤ 0.4	≤ 0.63

### 2. Mechanical Properties

Yield stress (Mpa)	UTS (MPa)	Elongation (%)	A (%)	Impact E (J)	Hardness (HB)
Min 370	630-850	Min 14	Min 35	Min 25	Max 255

### 3. Heat Treatment

Row	Heat treatment type	Temp. Range °C
1	Normalizing	840-900
2	Annealing	650-700
3	Quenching	820-860
4	Tempering	550-660
5	Hot Work	850-1050

### 4. Applicable Standards

EU EN	USA AISI/SAE	Japan JIS	France AFNOR	England BS	Russia GOST
C45E	1045	S45C	C45	080M46	45
Italy UNI	China GB	Sweden SS	Poland PN	Czechia CSN	Inter ISO
C45	45	1650	45	12050	-