

This page is mainly introduced the C45E Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of C45E, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel C45E

C45E Standard Number:		
ITEM	Standard Number	Descriptions
1	NF EN 10083-1	Steels for quenching and tempering - Part 1: General technical delivery conditions
2	NF EN 10083-2	Steels for quenching and tempering - Part 2: Technical delivery conditions for non alloy steels
3	NF EN 10132-3	Cold rolled narrow steel strip for heat treatment - Technical delivery conditions - Part 3: Steels for quenching and tempering
4	NF EN 10250-2	Open die steel forgings for general engineering purposes - Part 2: Non-alloy quality and special steels
5	NF EN 10269	Steels and nickel alloys for fasteners with specified elevated and/or low temperature properties
6	NF EN 10277-5	Bright steel products - Technical delivery conditions - Part 5: Steels for quenching and tempering
7	NF EN 10297-1	Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes
8	NF EN 10305-1	Steel tubes for precision applications - Technical delivery conditions - Part 1: Seamless cold drawn tubes
9	NF EN 10343	Steels for quenching and tempering for construction purposes - Technical delivery conditions

C45E Chemical composition(mass fraction)(wt.%)		
Chemical	Min.(%)	Max.(%)
C	0.42	0.50
Si		0.40
Mn	0.50	0.80
P		0.035
S		0.035
Cr		0.40
Ni		0.40
Mo		0.10
Cr+Ni+Mo		0.63

C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Steels for quenching and tempering for construction purposes - Technical delivery conditions

C45E Physical Properties

Tensile strength	115-234	σ_b /MPa
Yield Strength	23	$\sigma_{0.2} \geq$ /MPa
Elongation	65	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	$Akv \geq$ /J
HBS	123-321	-
HRC	30	-

C45E Mechanical Properties

Tensile strength	231-231	σ_b /MPa
Yield Strength	154	$\sigma_{0.2} \geq$ /MPa
Elongation	56	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	$Akv \geq$ /J
HBS	235-268	-
HRC	30	-

C45E Heat Treatment Regime

Annealing	Quenching	Tempering	Normalizing	Q & T
√	√	√	√	√

C45E Range of products

Product type	Products	Dimension	Processes	Deliver Status
Plates / Sheets	Plates / Sheets	0.08-200mm(T)*W*L	Forging, hot rolling and cold rolling	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Steel Bar	Round Bar, Flat Bar, Square Bar	Φ8-1200mm*L	Forging, hot rolling and cold rolling, Cast	Black, Rough Turning, Shot Blasting,
Coil / Strip	Steel Coil /Steel Strip	0.03-16.0x1200mm	Cold-Rolled & Hot-Rolled	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Pipes / Tubes	Seamless Pipes/Tubes, Welded Pipes/Tubes	OD:6-219mm x WT:0.5-20.0mm	Hot extrusion, Cold Drawn, Welded	Annealed, Solution and Aging, Q+T, ACID-WASHED

We can produce Specialsteel the specifications follows: