

This page is mainly introduced the Z45CS9 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of Z45CS9, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Datasheet for Steel Grades Specialsteel Z45CS9

### Z45CS9 Standard Number:

ITEM	Standard Number	Descriptions
1	NF A 35-579	Valve steels and alloys for internal combustion engines

### Z45CS9 Chemical composition (mass fraction) (wt.%)

Chemical	Min.(%)	Max.(%)							
C	0.40	0.50							
Si	2.70	3.30							
Mn		0.80							
P		0.040							
S		0.030							
Cr	8.00	10.00							
Ni									
Mo									
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Valve steels and alloys for internal combustion engines

### Z45CS9 Physical Properties

Tensile strength	115-234	$\sigma_b$ /MPa
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Yield Strength	23	$\sigma_{0.2} \geq$ /MPa
Elongation	65	$\delta 5 \geq$ (%)
$\psi$	-	$\psi \geq$ (%)
Akv	-	Akv $\geq$ /J
HBS	123-321	-
HRC	30	-

Z45CS9 Mechanical Properties		
Tensile strength	231-231	$\sigma_b$ /MPa
Yield Strength	154	$\sigma_{0.2} \geq$ /MPa
Elongation	56	$\delta 5 \geq$ (%)
$\psi$	-	$\psi \geq$ (%)
Akv	-	Akv $\geq$ /J
HBS	235-268	-
HRC	30	-

Z45CS9 Heat Treatment Regime				
Annealing	Quenching	Tempering	Normalizing	Q & T
√	√	√	√	√

Z45CS9 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	$\Phi 8$ -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:**