This page is mainly introduced the ?11-1 Datasheet, including chemical information,mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of ?11-1,such as it is commonly used in bars, sheet,plates, steel coils, steel pipes,forged and other materials application.

Datasheet for Steel Grades Tool Steel And Hard Alloy y11-1

?11-1 Standard Number:		
ITEM	Standard Number	Descriptions

?11-1 Chemical composition(mass fraction)(wt.%)									
Chemical			Min.(%)				Max.(%)		
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
1.05-1.14	0.17-0.33	0.17-0.33	≤0.030	≤0.028	≤0.20	≤0.25			
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other
		0.25							

?11-1 Physical Properties		
Tensile strength	115-234	σb/MPa
Yield Strength	23	σ 0.2 ≥/MPa
Elongation	65	δ5≥ (%)
ψ	-	ψ≥ (%)
Akv	-	Akv≥/J
HBS	123-321	-
HRC	30	-

?11-1 Mechanical Properties		
Tensile strength	231-231	σb/MPa
Yield Strength	154	σ 0.2 ≥/MPa

Elongation	56	δ5≥(%)
ψ	-	ψ≥(%)
Akv	-	Akv≥/J
HBS	235-268	-
HRC	30	-

?11-1 Heat Treatment Regime

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

?11-1 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 Tool Steel And Hard Alloy the specifications follows: