

This page is mainly introduced the A 646 Grade HP 9-4-20 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of A 646 Grade HP 9-4-20, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Datasheet for Steel Grades Specialsteel A 646 Grade HP 9-4-20

### A 646 Grade HP 9-4-20 Standard Number:

ITEM	Standard Number	Descriptions
1	A 646/A 646M (2011)	Premium Quality Alloy Steel Blooms and Billets for Aircraft and Aerospace Forgings

### A 646 Grade HP 9-4-20 Chemical composition (mass fraction) (wt.%)

Chemical			Min.(%)				Max.(%)		
C			0.17				0.23		
Si							0.10		
Mn							0.20		
Ni							0.65		
Cr							0.40		
Al			4.25				4.75		
Cu									
Ti									
Fe									
Mo							0.85		
Co			8.50				9.50		
V			0.06				0.12		
P							0.01		
S							0.01		
W			0.90				1.10		
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Premium Quality Alloy Steel Blooms and Billets for Aircraft and Aerospace Forgings

## A 646 Grade HP 9-4-20 Physical Properties

Tensile strength	115-234	$\sigma_b$ /MPa
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	-

## A 646 Grade HP 9-4-20 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	-

## A 646 Grade HP 9-4-20 Heat Treatment Regime

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

## A 646 Grade HP 9-4-20 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,	Φ8-1200mm*L	Forging, hot rolling and	Black, Rough Turning,

	Square Bar		cold rolling, Cast	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:**