

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	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	-

A 646 Grade HP 9-4-20 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	-

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,	$\Phi 8$ -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: