

This page is mainly introduced the AISI A2 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of AISI A2, 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 AISI A2

AISI A2 Standard Number:

ITEM	Standard Number	Descriptions
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AISI A2 Chemical composition (mass fraction) (wt.%)

Chemical			Min. (%)				Max. (%)		
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Category	Steel
Class	Tool steel
Type	Air-hardening medium-alloy cold work steel
Designations	France: AFNOR Z 100 CDV 5 Germany: DIN 1.2363 Japan: JIS SKD 12 Sweden: SS 2260 United Kingdom: B.S. BA 2 United States: ASTM A681 , FED QQ-T-570 , SAE J437 , SAE J438 , UNS T30102

Composition

Element	Weight %
C	0.95-1.05
Mn	1.00
Si	0.50
Cr	4.75-5.50
Ni	0.30
Mo	0.90-1.40
V	0.15-0.50
Cu	0.25
P	0.03
S	0.03

Mechanical Properties

Properties		Conditions	
		T (°C)	Treatment
Density (×1000 kg/m ³)	7.86	25	
Poisson's Ratio	0.27-0.30	25	
Elastic Modulus (GPa)	190-210	25	

Thermal Properties

Properties		Conditions	
		T (°C)	Treatment
Thermal Expansion (10 ⁻⁶ /°C)	10.7	20-100 more	

AISI A2 Physical Properties

Tensile strength	115-234	σ _b /MPa
Yield Strength	23	σ _{0.2} ≥/MPa
Elongation	65	δ ₅ ≥ (%)
ψ	-	ψ ≥ (%)
Akv	-	Akv ≥/J
HBS	123-321	-
HRC	30	-

AISI A2 Mechanical Properties

Tensile strength	231-231	σ _b /MPa
Yield Strength	154	σ _{0.2} ≥/MPa
Elongation	56	δ ₅ ≥ (%)
ψ	-	ψ ≥ (%)
Akv	-	Akv ≥/J
HBS	235-268	-
HRC	30	-

AISI A2 Heat Treatment Regime

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

AISI A2 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 the specifications follows: