

# Material: ASTM A 1040 1146

## Standard Specification For Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel

**Group:** Ferrous Mild Steel Alloys

**Sub Group:** ASTM A 1040 1146 Carbon Steel Compositions For Forging To Hot-Rolled And Cold-Finished Steel

**Application:** Intended for Valve, Pump, General Engineering, Automotive and Other Industries

**Grade Belongs to the Industry:** Steel

Chemical Composition			Heat Treatment	
Carbon	C %	0.420 - 0.490	As Raw or Annealing or Normalizing or Hardening and Tempering	
Manganese	Mn %	0.700 - 1.000		
Phosphorus	P %	0.040 max.		
Sulphur	S %	0.080 - 0.130		
Silicon	Si %	0.100 max.		
Iron	Fe %	Balance		
-	-	-		
-	-	-		
-	-	-		
-	-	-		
			Mechanical Properties	
			Tensile Strength in Mpa	590 - 650
			Yield Strength in Mpa	320 min.
			Elongation in %	12 min.
			Reduction of Area in %	35 - 40
			Hardness in HB	170 - 187
			Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
G11460	UNS	USA	Bars, Wire Rods, Plates, Strip, Sheets and Tubing
1146	SAE	USA	Bars, Wire Rods, Plates, Strip, Sheets and Tubing
1146	AISI	USA	Steel and Bar
A 29 1146	ASTM	USA	Steel and Bar
A 510 1146	ASTM	USA	Wire Rod, Round Wire and Steel
A 576 11L46	ASTM	USA	Steel and Bar
A 576 1146	ASTM	USA	Steel and Bar

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