

## Material: ASTM A213 S 32050

### Standard Specification for Seamless Ferritic and Austenitic Alloy Steel Boiler, Superheater, and Heat-Exchanger Tubes

**Group:** Ferrous Stainless Steel Alloys

**Sub Group:** ASTM A 213/A213M- Seamless Ferritic and Austenitic Alloy Steel Boiler, Superheater, and Heat-Exchanger Tubes

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

**Grade Belongs to the Industry:** Tubes for Superheater and Heat exchanger

Chemical Composition			Heat Treatment	
Carbon	C %	0.030 max.	Solution Annealing	
Silicon	Si %	1.000 max.		
Manganese	Mn %	1.500 max.		
Phosphorus	P %	0.035 max.		
Sulphur	S %	0.020 max.		
Chromium	Cr %	22.000 - 24.000		
Nickel	Ni %	20.000 - 23.000		
Molybdenum	Mo %	6.000 - 6.8000		
Copper	Cu %	0.400 max.	Mechanical Properties	
Nitrogen	N %	0.210 - 0.320	Tensile Strength in Mpa	675 min.
Iron	Fe %	Balance	Yield Strength in Mpa	330 min.
-	-	-	Elongation in %	40 min.
-	-	-	Reduction of Area in %	-
-	-	-	Hardness in HB	256 max.
-	-	-	Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
A240 S 32050	ASTM	USA	Plate, Sheet and Strip
A358 S 32050	ASTM	USA	Pipes
A959 S 32050	ASTM	USA	Plate, Sheet and Strip
A249 S 32050	ASTM	USA	Tubes for Superheater and Heat exchanger
S 32050	UNS	USA	Plate, Sheets and , Strip
A743 CK35MN	ASTM	USA	Casting
STS 350	KS	Korea	Casting

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