

# Material: IS 4522 Grade 11

## Standard Specification for Heat Resistant Alloy Steel and Nickel Base Castings

**Group:** Ferrous Stainless Steel Alloys

**Sub Group:** IS 4522 Grade 11 Alloy Steel and Nickel Base Casting for Heat Resistant

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

**Grade Belongs to the Industry:** Casting

Chemical Composition			Heat Treatment	
Carbon	C %	0.200 - 0.500	As - Cast or Annealing	
Silicon	Si %	2.000 max.		
Manganese	Mn %	2.000 max.		
Phosphorus	P %	0.050 max.		
Sulphur	S %	0.050 max.		
Chromium	Cr %	19.000 - 23.000		
Nickel	Ni %	23.000 - 27.000		
Molybdenum	Mo %	0.500 max.		
Iron	Fe %	Balance	Mechanical Properties	
-	-	-	Tensile Strength in Mpa	440 min.
-	-	-	Yield Strength in Mpa	240 min.
-	-	-	Elongation in %	7 min.
-	-	-	Reduction of Area in %	-
-	-	-	Hardness in HB	130 - 200
-	-	-	Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
J94213	UNS	USA	Casting
A608 Grade HN 40	ASTM	USA	Casting
J94214	UNS	USA	Casting
SCH 19	JIS	Japan	Casting
A297 Grade HN	ASTM	USA	Casting
13505 Grade 12	IS	India	Casting
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Customer Care: +91-99090 45075 Email: [info@icastllp.com](mailto:info@icastllp.com)