

## Material: IS 4522 Grade 12

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

**Group:** Ferrous Stainless Steel Alloys

**Sub Group:** IS 4522 Grade 12 Heat Resistant Alloy Steel and Nickel Base Castings

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

**Grade Belongs to the Industry:** Casting

Chemical Composition		
Carbon	C %	0.350 - 0.750
Silicon	Si %	2.500 max.
Manganese	Mn %	2.000 max.
Phosphorus	P %	0.050 max.
Sulphur	S %	0.050 max.
Chromium	Cr %	13.000 - 17.000
Nickel	Ni %	33.000 - 37.000
Molybdenum	Mo %	0.500 max.
Iron	Fe %	Balance
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Heat Treatment	
As - Cast or Annealing	

Mechanical Properties	
Tensile Strength in Mpa	450 - 470
Yield Strength in Mpa	240 - 270
Elongation in %	3.5 - 5
Reduction of Area in %	-
Hardness in HB	135 - 210
Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
N08605	UNS	USA	Casting
N08050	UNS	USA	Casting
A608 Grade HT 50	ASTM	USA	Casting
G X 40 NiCrSiNb 38-18	DIN	Germany	Casting
1.4849	DIN	Germany	Casting
N08005	UNS	USA	Casting
A297 Grade HU	ASTM	USA	Casting

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