

# Material: IS 3444 Grade 19

## Standard Specification for Corrosion Resistant High Alloy Steel And Nickel Base Castings for General Applications

**Group:** Non-Ferrous Nickel Alloys

**Sub Group:** IS 3444 Grade 19 Corrosion Resistant High Alloy Steel And Nickel Base Castings for General Applications

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

**Grade Belongs to the Industry:** Casting

Chemical Composition		
Carbon	C %	0.120 max.
Silicon	Si %	1.500 max.
Manganese	Mn %	1.000 max.
Phosphorus	P %	0.040 max.
Sulphur	S %	0.040 max.
Chromium	Cr %	15.500 - 20.000
Molybdenum	Mo %	16.000 - 20.000
Tungsten	W %	5.250 max.
Vanadium	V %	0.400 max.
Cobalt	Co %	2.500 max.
Iron	Fe %	7.500 max.
Nickel	Ni %	Balance
-	-	-
-	-	-
-	-	-

Heat Treatment	
As-Cast or Annealing or Age Hardning	

Mechanical Properties	
Tensile Strength in Mpa	500 min.
Yield Strength in Mpa	320 min.
Elongation in %	3 min.
Reduction of Area in %	-
Hardness in BHN	-
Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
-	-	-	-
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