



## Material - IS 13505 Grade 9

**Standard Specification for Centrifugally Cast High Alloy Steel and Nickel Base Tubing for Pressure Application at High Temperature**

**Group - Ferrous Stainless Steel Alloys**

**Sub Group - IS 13505 Centrifugally Cast High Alloy Steel and Nickel Base Tubing for Pressure Application at High Temperature**

**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	Solution Annealing	
Silicon	Si %	2.000 max.		
Manganese	Mn %	2.000 max.		
Phosphorus	P %	0.050 max.		
Sulphur	S %	0.050 max.		
Chromium	Cr %	23.000 - 27.000		
Nickel	Ni %	11.000 - 14.000		
Molybdenum	Mo %	0.500 max.		
Iron	Fe %	Balance	Mechanical Properties	
-	-	-	Tensile Strength in Mpa	515 min.
-	-	-	Yield Strength in Mpa	240 min.
-	-	-	Elongation in %	10 min.
-	-	-	Reduction of Area in %	-
-	-	-	Hardness in BHN	-
-	-	-	Impact in Joule	-

Cross Reference Table			
Material	Standard	Country	Grade Belong to the Industry
422936	CSN	Czech Republic	Casting
A 608 Grade HH33	ASTM	USA	Casting
J93633	UNS	USA	Casting
1.4837	EN	European Union	Casting
1.4837	DIN	Germany	Casting
1.4837	ISO	International	Casting
SCH 13X	JIS	Japan	Casting

**Further any inquiry to discuss with Gravity Cast Pvt. Ltd. – Gravity Group of Companies team member Call on +918469160029, or email [marketing@gravitycastindia.com](mailto:marketing@gravitycastindia.com)**

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