UNS S38815 Material

Introduction

UNS S38815 is a high-silicon, chromium-nickel austenitic stainless steel developed for demanding high-temperature and highly corrosive environments — particularly hot, concentrated sulfuric acid, sulfidizing atmospheres, and furnace/retort applications. Its unusually high silicon content (≈5–6.5%) produces a protective silica/chromia scale that improves resistance to carburization, sulfidation and scaling at elevated temperatures while maintaining good corrosion resistance in strong acids.

Chemical Composition

Element	Symbol	% (Weight)
Carbon	C	0.030 max
Silicon	Si	5.500 – 6.500
Manganese	Mn	2.000 max
Phosphorus	P	0.040 max
Sulphur	S	0.020 max
Chromium	Cr	13.000 – 15.000
Nickel	Ni	13.000 – 17.000
Molybdenum	Mo	0.750 – 1.500
Copper	Cu	0.750 – 1.500
Aluminium	Al	0.300 max
Iron	Fe	Balance

Heat Treatment

Solution Annealing

Mechanical Properties

Property	Unit	Value
Tensile Strength	MPa	540 min
Yield Strength	MPa	255 min
Elongation	%	30 min
Reduction of Area	%	-
Hardness	BHN	-
Impact	Joule	-

Cross Reference Table

Material	Standard	Country	Grade Belong to the Industry
A240 UNS S38815	ASTM	USA	Steel, Plate, Sheet and Strip
A403 WP S38815	ASTM	USA	Steel and Pipe
A959 S38815	ASTM	USA	Steel