

This page is mainly introduced the 309S Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of 309S, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

Datasheet for Steel Grades Specialsteel 309S

309S Standard Number:		
ITEM	Standard Number	Descriptions
1	A 213/A 213M (2011)	Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
2	A 240/A 240M (2012)	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
3	A 249/A 249M (2010)	Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
4	A 276 (2010)	Stainless Steel Bars and Shapes
5	A 312/A 312M (2012)	Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
6	A 314 (2008)	Stainless Steel Billets and Bars for Forging
7	A 358/A 358M (2008)	Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications
8	A 409/A 409M (2009)	Welded Large Diameter Austenitic Steel Pipe for Corrosive or High-Temperature Service
9	A 473 (2009)	Stainless Steel Forgings
10	A 478 (2008)	Chromium-Nickel Stainless Steel Weaving and Knitting Wire
11	A 479/A 479M (2011)	Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels
12	A 511/A 511M (2012)	Seamless Stainless Steel Mechanical Tubing
13	A 554 (2011)	Welded Stainless Steel Mechanical Tubing
14	A 580/A 580M (2012)	Stainless Steel Wire
15	A 813/A 813M (2009)	Single- or Double-Welded Austenitic Stainless Steel Pipe
16	A 814/A 814M (2008)	Cold-Worked Welded Austenitic Stainless Steel Pipe
17	A 943/A 943M (2009)	Spray-Formed Seamless Austenitic Stainless Steel Pipes
18	A 959 (2011)	Standard Guide for Specifying Harmonized Standard Grade Compositions for Wrought Stainless Steels
19	SAE J 405 (1998)	Chemical compositions of SAE wrought stainless steels
20	SAE J 467 (1968)	Special Purpose Alloys ("Superalloys")

309S Chemical composition(mass fraction)(wt.%)

Chemical		Min.(%)		Max.(%)					
C				0.08					
Si				1.00					
Mn				2.00					
P				0.045					
S				0.03					
Cr		22.0		24.0					
Ni		12.0		15.0					
C	Si	Mn	P	S	Cr	Ni	Mo	V	Ta
W	N	Cu	Co	Pb	B	Nb	Al	Ti	Other

Chemical compositions of SAE wrought stainless steels

309S Physical Properties		
Tensile strength	115-234	σ_b /MPa
Yield Strength	23	$\sigma_{0.2} \geq$ /MPa
Elongation	65	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	Akv \geq /J
HBS	123-321	-
HRC	30	-

309S Mechanical Properties		
Tensile strength	231-231	σ_b /MPa
Yield Strength	154	$\sigma_{0.2} \geq$ /MPa
Elongation	56	$\delta_5 \geq$ (%)
ψ	-	$\psi \geq$ (%)
Akv	-	Akv \geq /J
HBS	235-268	-
HRC	30	-

309S Heat Treatment Regime		

Annealing	Quenching	Tempering	Normalizing	Q & T
√	√	√	√	√

309S Range of products				
Product type	Products	Dimension	Processes	Deliver Status
Plates / Sheets	Plates / Sheets	0.08-200mm(T)*W*L	Forging, hot rolling and cold rolling	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Steel Bar	Round Bar, Flat Bar, Square Bar	Φ8-1200mm*L	Forging, hot rolling and cold rolling, Cast	Black, Rough Turning, Shot Blasting,
Coil / Strip	Steel Coil /Steel Strip	0.03-16.0x1200mm	Cold-Rolled & Hot-Rolled	Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting
Pipes / Tubes	Seamless Pipes/Tubes, Welded Pipes/Tubes	OD:6-219mm x WT:0.5-20.0mm	Hot extrusion, Cold Drawn, Welded	Annealed, Solution and Aging, Q+T, ACID-WASHED

We can produce Specialsteel the specifications follows: