

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: