This page is mainly introduced the 304 L chemical information,mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of 304 L,such as it is commonly used in bars, sheet,plates, steel coils, steel pipes,forged and other materials application.

Data Table for Grades Stainless Steels 304 L

304 L Standard Number:		
ITEM	Standard Number	Descriptions
1	A 182/A 182M (2012)	Forged or Rolled Alloy and Stainless Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service
2	A 213/A 213M (2011)	Seamless Ferritic and Austenitic Alloy-Steel Boiler, Superheater, and Heat-Exchanger Tubes
3	A 240/A 240M (2012)	Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
4	A 249/A 249M (2010)	Welded Austenitic Steel Boiler, Superheater, Heat-Exchanger, and Condenser Tubes
5	A 269 (2010)	Seamless and Welded Austenitic Stainless Steel Tubing for General Service
6	A 270 (2010)	Seamless and Welded Austenitic Stainless Steel Sanitary Tubing
7	A 276 (2010)	Stainless Steel Bars and Shapes
8	A 312/A 312M (2012)	Seamless, Welded, and Heavily Cold Worked Austenitic Stainless Steel Pipes
9	A 314 (2008)	Stainless Steel Billets and Bars for Forging
10	A 358/A 358M (2008)	Electric-Fusion-Welded Austenitic Chromium-Nickel Stainless Steel Pipe for High-Temperature Service and General Applications
11	A 403/A 403M (2012)	Wrought Austenitic Stainless Steel Piping Fittings
12	A 409/A 409M (2009)	Welded Large Diameter Austenitic Steel Pipe for Corrosive or High-Temperature Service
13	A 473 (2009)	Stainless Steel Forgings
14	A 478 (2008)	Chromium-Nickel Stainless Steel Weaving and Knitting Wire
15	A 479/A 479M (2011)	Stainless Steel Bars and Shapes for Use in Boilers and Other Pressure Vessels
16	A 493 (2009)	Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging
17	A 511/A 511M (2012)	Seamless Stainless Steel Mechanical Tubing
18	A 554 (2011)	Welded Stainless Steel Mechanical Tubing
19	A 580/A 580M (2012)	Stainless Steel Wire
20	A 632 (2009)	Seamless and Welded Austenitic Stainless Steel Tubing (Small-Diameter) for General Service
21	A 666 (2010)	Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar
22	A 688/A 688M (2012)	Welded Austenitic Stainless Steel Feedwater Heater Tubes
23	A 774/A 774M (2009)	As-Welded Wrought Austenitic Stainless Steel Fittings for General Corrosive Service at Low and Moderate Temperatures
24	A 778 (2009)	Welded, Unannealed Austenitic Stainless Steel Tubular Products

25	A 793 (2009)	Rolled Floor Plate, Stainless Steel
26	A 813/A 813M (2009)	Single- or Double-Welded Austenitic Stainless Steel Pipe
27	A 814/A 814M (2008)	Cold-Worked Welded Austenitic Stainless Steel Pipe
28	A 943/A 943M (2009)	Spray-Formed Seamless Austenitic Stainless Steel Pipes
29	A 959 (2011)	Standard Guide for Specifying Harmonized Standard Grade Compositions for Wrought Stainless Steels
30	A 965/A 965M (2012)	Steel Forgings, Austenitic, for Pressure and High Temperature Parts
31	SAE AMS 5511H (2003)	Steel, Corrosion-Resistant, Sheet, Strip, and Plate 19Cr - 9.5Ni (304L) Solution Heat Treated
32	SAE AMS 5647J (2011)	Steel, Corrosion-Resistant, Bars, Wire, Forgings, Tubing, And Rings 19Cr - 9.5Ni Solution Heat Treated
33	SAE AMS-QQ-S-763B (1998)	Steel, Corrosion Resistant, Bars, Wire, Shapes, and Forgings
34	SAE J 2515 (1999)	High temperature materials for exhaust manifolds
35	SAE J 405 (1998)	Chemical compositions of SAE wrought stainless steels
36	SAE J 467 (1968)	Special Purpose Alloys ("Superalloys")

304 L Chemical composition(mass fraction)(wt.%)

Chemical	Min.(%)	Max.(%)
C		0.030
Si		1.00
Mn		2.00
P		0.045
S		0.03
Cr	18.0	20.0
Ni	8.00	10.0
N		0.10

304 L Physical Properties

Tensile strength	115-234	σb/MPa
Yield Strength	23	σ 0.2 ≥/MPa
Elongation	65	δ5≥ (%)
ψ	-	ψ≥ (%)
Akv	-	Akv≥/J
HBS	123-321	-
HRC	30	-

304 L Mechanical Properties

Tensile strength	231-231	σb/MPa
Yield Strength	154	σ 0.2 ≥/MPa
Elongation	56	δ5≥(%)
ψ	-	ψ≥(%)
Akv	-	Akv≥/J
HBS	235-268	-
HRC	30	-

304 L Heat Treatment Regime				
Annealing	**Quenching**	**Tempering**	**Normalizing**	**Q & T**
√	√	√	√	√

304 L 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 Stainless Steels the specifications follows:

Note:
(1) listed in the table apex diameter (d), to steel thickness (a) multiples said.
(2) in the ASTM A6 standard specified scope can meet any additional conditions.
(3) from the standard for 50 mm (2 in).
Mechanical properties
Mechanische Eigenschaften
Caracteristiques mecaniques
ReH Minimum yield strength / Mindestwert der oberen Streckgrenze / Limite d’elasticite minimale
Rm Tensile strength / Zugfestigkeit / Resistance a la traction
A Minimum elongation / Mindestwert der Bruchdehnung / Allongement minimal
J Notch impact test / Kerbschlagbiegeversuch / Essai de flexion par choc

Round bar:
Diameter : 1mm-2000mm

Square bar:
Size: 50mm * 50mm-600mm *600mm
Plate steel/flat bar:
Size: Thickness: 0.1mm-800mm Width: 10mm to 1500mm
Tube/pipe:
Size: OD: 6-219mm WT: 1-35 mm.
Cold-rolled sheet: Thickness: 2-5mm Width:1000mm Length: 2000mm
Hot-rolled sheet: Thickness:6-80mm Width: 210-610mm
Length: We can supply any length based on the customer's requirement.
Forging/hot rolling/ extrusion of steel.
Forging: Shafts with flanks/pipes/tubes/slugs/donuts/cubes/other shapes
Finished goods condition: hot forging/hot rolling + annealing/normalizing + tempering/quenching + tempering/any conditions based on the customer's requirement
Surface conditions: scaled (hot working finish)/ground/rough machining/fine machining/based on the customer's requirement
Furnaces for metallurgical processing: electrode arc + LF/VD/VOD/ESR/Vacuum consumable electrode.
Ultrasonic inspection: 100% ultrasonic inspection for any inperfections or based on the customer's requirement.
UTS according to SEP 1921 C/c,D/d,E/e;A388 or GB/T 6402
Excellent service for all kinds of industries, with advantages of technologies, equipment and price.
We serve you with our honesty, integrity, and professionality.