AN ISO 9001, 14001, 45001
CERTIFIED

MANUFACTURER SUPPLIER
& EXPORTERS

CISCO METAL & ALLOYS

www.ciscometal.com

OUR ISO CERTIFICATES

Company Overview – Cisco Metal & Alloys

Established in 2023, Cisco Metal & Alloys has quickly positioned itself as a globally recognized supplier of high-quality industrial raw materials, serving critical industries such as oil & gas, petrochemical, power generation, marine, and heavy fabrication. We specialize in the supply of Carbon Steel (CS), Alloy Steel, and Stainless Steel (SS) in a variety of product forms including Pipes & Tubes, Round Bars, and Plates, all conforming to international codes and standards.

Our product range spans a wide spectrum of specifications:

- Carbon Steel
  - Pipes/Tubes: ASTM A106 Gr. B, A53, A333 Gr. 6
  - Round Bars: ASTM A105, A350 LF2, A36
  - Plates: ASTM A516 Gr. 60/70
  -
- Alloy Steel
  - Pipes/Tubes: ASTM A335 P11, P22, P5, P91 / ASTM A213 T11, T22, T5
  - Round Bars: ASTM A182 F5, F9, F11, F22, F91
  - Plates: ASTM A387 Gr. 11/22 Cl.1 & Cl.2
  -
- Stainless Steel
  - Pipes/Tubes: ASTM A312 / A213 TP304, TP304L, TP316, TP316L, TP321, TP347
  - Round Bars: ASTM A276 / A479 Gr. 304, 304L, 316, 316L, 321, 347
  - Plates: ASTM A240 Gr. 304, 304L, 316, 316L, 321
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In addition to ASTM/ASME grades, Cisco Metal & Alloys also offers Japanese (JIS) and European (EN, DIN) grade materials, sourced directly from reputed mills in compliance with international quality benchmarks. All materials are supplied with complete Mill Test Certificates (MTC) as per EN 10204 3.1 / 3.2, ensuring full traceability and certification authenticity.

We also cater to stringent project requirements with materials meeting NACE MR0175/ISO 15156, PED, IBR, and other applicable specifications. With robust supply chain networks, technical expertise, and global logistics support, Cisco Metal & Alloys is your trusted partner for high-performance materials, delivered with precision and reliability worldwide.

Why Choose – Cisco Metal & Alloys

Global Sourcing Capabilities
We offer materials manufactured in accordance with:

- **Japanese Standards (JIS)**
- **European Norms (EN, DIN)**
- **American Standards (ASTM/ASME)**

All materials are accompanied by full Mill Test Certificates (MTCs) as per EN 10204 3.1 / 3.2, ensuring traceability and compliance. We also meet additional specifications such as:

- **NACE MR0175/ISO 15156**
- **PED 2014/68/EU**
- **IBR (Indian Boiler Regulations)**

✅ Certified & Traceable Materials
✅ Global Export Logistics
✅ Strong Technical & Project Expertise
✅ Rapid Turnaround & Custom Solutions
✅ Compliance with Industry-Specific Standards

Cisco Metal & Alloys is committed to delivering dependable, high-grade material solutions to clients worldwide. From general engineering needs to mission-critical applications, we are your trusted partner in metal supply.

PRODUCT

CARBON STEEL PIPES & TUBES

Category	Grade / Type	ASTM Specification
Seamless Pipe	A106 Grade A / B / C	ASTM A106
Seamless Pipe	A53 Grade A / B	ASTM A53
Seamless Pipe	API 5L Gr. B / X42–X70	API 5L
Seamless Pipe	A333 Grade 1 – 6	ASTM A333
Seamless Pipe	A192	ASTM A192
Seamless Pipe	A209 Grade T1 / T1a	ASTM A209
Welded Pipe	A53 Grade A / B	ASTM A53
Welded Pipe	A252 Grade 1 / 2 / 3	ASTM A252
Welded Pipe	A134	ASTM A134
Welded Pipe	A135 Grade A / B	ASTM A135
Welded Pipe	A672	ASTM A672
Carbon Steel Tube	A513 Type 1 & 2	ASTM A513
Carbon Steel Tube	A500 Grade A / B / C	ASTM A500
Carbon Steel Tube	A179	ASTM A179
Carbon Steel Tube	A214	ASTM A214
Carbon Steel Tube	A210 Grade A1 / C	ASTM A210

PRODUCT

ALLOY STEEL PIPES & TUBES

CATEGORY	TYPE & GRADE	SPECIFICATION
Seamless Pipe	P1, P2, P11, P12, P22, P91 T1, T2, T11, T12, T22, T91	ASTM A335
Seamless Pipe	A335 Grade P1 to P91	ASTM A213
Seamless Pipe	A213 Grade T1 to T91	ASTM A335
Seamless Pipe	A369 Grades	ASTM A213
Seamless Pipe	A691	ASTM A369
Welded Pipe	A234 WP1 / WP5 / WP9 / WP11	ASTM A691
Welded Pipe	A199	ASTM A234
Welded Pipe	T1, T5, T9, T11, T22, T91	ASTM A199
Alloy Steel Tube	A209 Grade T1 / T1a	ASTM A213
Alloy Steel Tube	A213 T5, T9, T11, T22	ASTM A209
Alloy Steel Tube		ASTM A213

PRODUCT

STAINLESS STEEL PIPES & TUBES

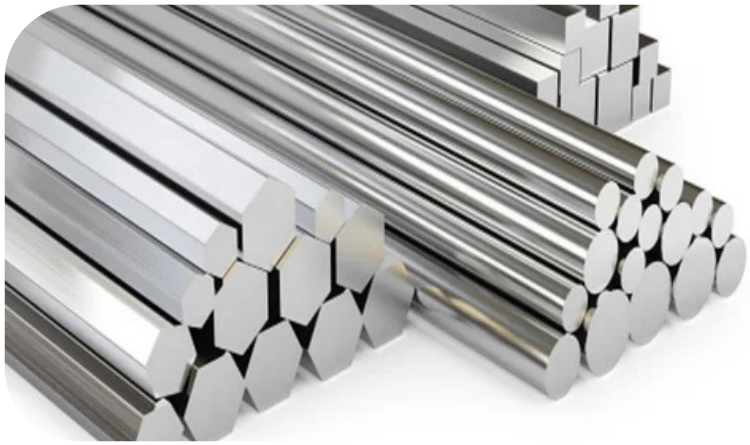
CATEGORY	GRADE	SPECIFICATION
SEAMLESS PIPE	304/304L/316/316L/ 321/347/316Ti/317L/ 310S/904L/304/304L/ 316/316L	ASTM A312
WELDED PIPE	A358 GRADES	ASTM A358
WELDED PIPE	304/304L/316/316L	ASTM A312
STAINLESS STEEL TUBE	TP304H/ TP316H/ TP321h	
STAINLESS STEEL TUBE	A213 GRADES	ASTM A213
STAINLESS STEEL TUBE	A269 GRADES	ASTM A269

PRODUCT

CARBON STEEL ROUND BAR

ALLOY STEEL ROUND BAR

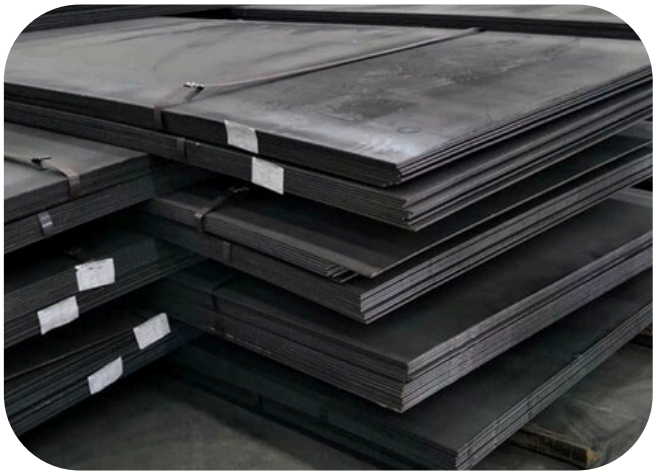
STAINLESS STEEL BAR



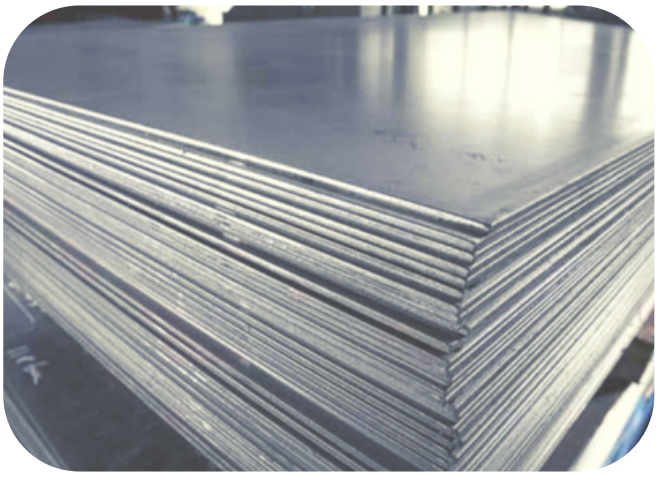
CATEGORY	GRADE	SPECIFICATION
CARBON STEEL	A36/ A105	ASTM A36/ ASTM A105
CARBON STEEL	C1018 ENB/ EN9	A108BS 970/ ASTM A29
CARBON STEEL	304/ 304L	ASTM A276/ A479 ASTM
STAINLESS STEEL	316/ 316L	A276/ A279
STAINLESS STEEL	310/ 321/ 347	ASTM A276/ A479
ALLOY STEEL	4140/ 4340	ASTM A29/ A193
ALLOY STEEL	8620	ASTM A29/ A322
ALLOY STEEL	A182 F5/ F9/ F11/ F22	ASTM A182

PRODUCT

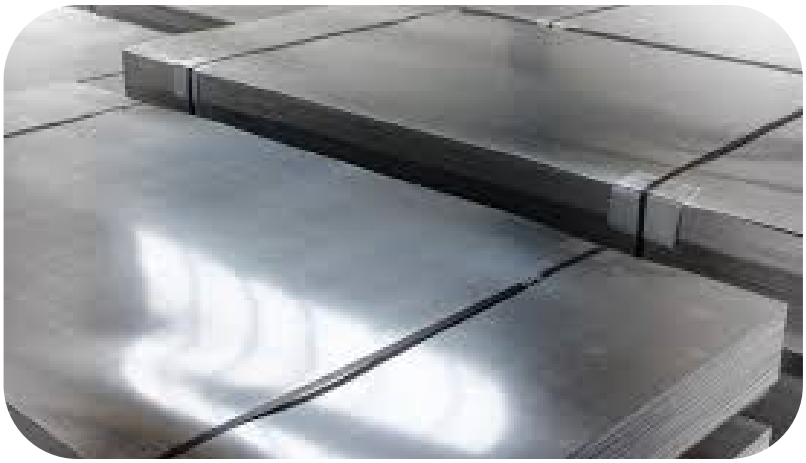
CARBON STEEL PLATE



ALLOY STEEL PLATE



STAINLESS STEEL PLATE



CATEGORY	GRADE	SPECIFICATION
CARBON STEEL	A36	ASTM A36
CARBON STEEL	A516 GRADE 60/ 70	ASTM A516
CARBON STEEL	A283 GRADE C	ASTM A283
STAINLESS STELL	304/ 304L/ 316/	ASTM A240
STAINLESS STELL	316L	ASTM A240
STAINLESS STELL	321/ 347	ASTM A240
ALLOY STEEL	A387 GRADE 11/ 22	ASTM A387
ALLOY STEEL	A204 GRADE B/ C	ASTM A204
ALLOY STEEL	EN19/ 4140/ 4340	ASTM/ A29

SPRCIAL GRADES

STRAIGHT GRADE

The straight grades of austenitic stainless steel contain a maximum of .08% carbon. There is a misconception that straight grades contain a minimum of .03% carbon, but the spec does not require this. As long as the material meets the physical requirements of straight grade, there is no minimum carbon requirement.

LOW CARBON GRADE

The “L” grades are used to provide extra corrosion resistance after welding. The letter “L” after a stainless steel type indicates low carbon (as in 304L). The carbon is kept to .03% or under to avoid carbide precipitation. Carbon in steel when heated to temperatures in what is called the critical range (800 degrees F to 1600 degrees F) precipitates out, combines with the chromium and gathers on the grain boundaries. This deprives the steel of the chromium in solution and promotes corrosion adjacent to the grain boundaries. By controlling the amount of carbon, this is minimized. For weldability, the “L” grades are used. You may ask why all stainless steels are not produced as “L” grades. There are a couple of reasons:

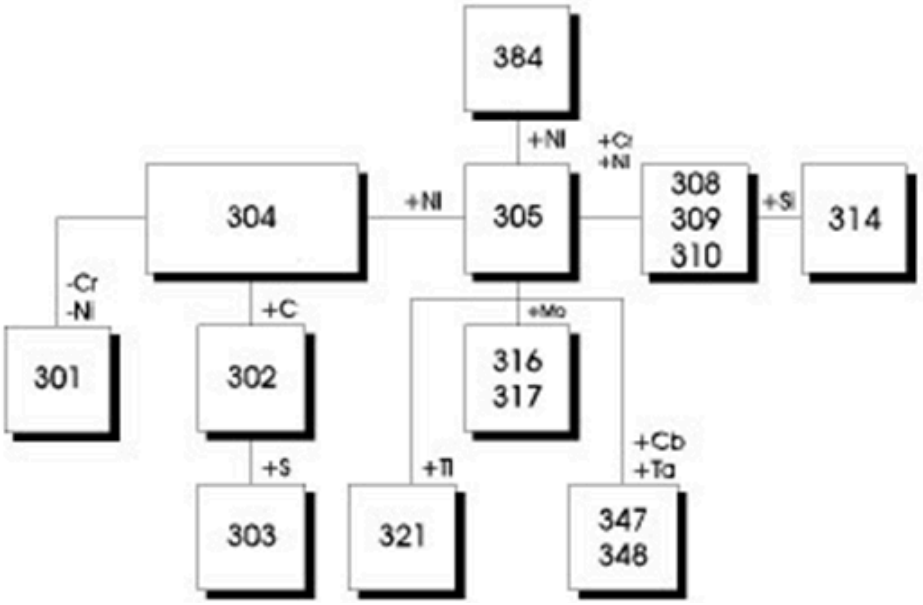
- "L" grades are more expensive
- Carbon at high temperatures imparts great physical strength

Frequently the mills are buying their raw material in “L” grades, but specifying the physical properties of the straight grade to retain straight grade strength. A case of having your cake and heating it too. This results in the material being dual certified 304/304L; 316/316L, etc

HIGH CARBON GRADE

The “H” grades contain a minimum of .04% carbon and a maximum of .10% carbon and are designated by the letter “H” after the alloy. People ask for “H” grades primarily when the material will be used at extreme temperatures as the higher carbon helps the material retain strength at extreme temperatures.

You may hear the phrase “solution annealing”. This means only that the carbides which may have precipitated (or moved) to the grain boundaries are put back into solution (dispersed) into the matrix of the metal by the annealing process. “L” grades are used where annealing after welding is impractical, such as in the field where pipe and fittings are being welded.



Type 304:-

The most common of austenitic grades, containing approximately 18% chromium and 8% nickel. It is used for chemical processing equipment, for food, dairy, and beverage industries, for heat exchangers, and for the milder chemicals.

Type 316:-
Contains 16% to 18% chromium and 11% to 14% nickel. It also has molybdenum added. The molybdenum is used to control pit type attack. Type 316 is used in chemical processing, the pulp and paper industry, for food and beverage processing and dispensing and in the more corrosive environments. The molybdenum must be a minimum of 2%.

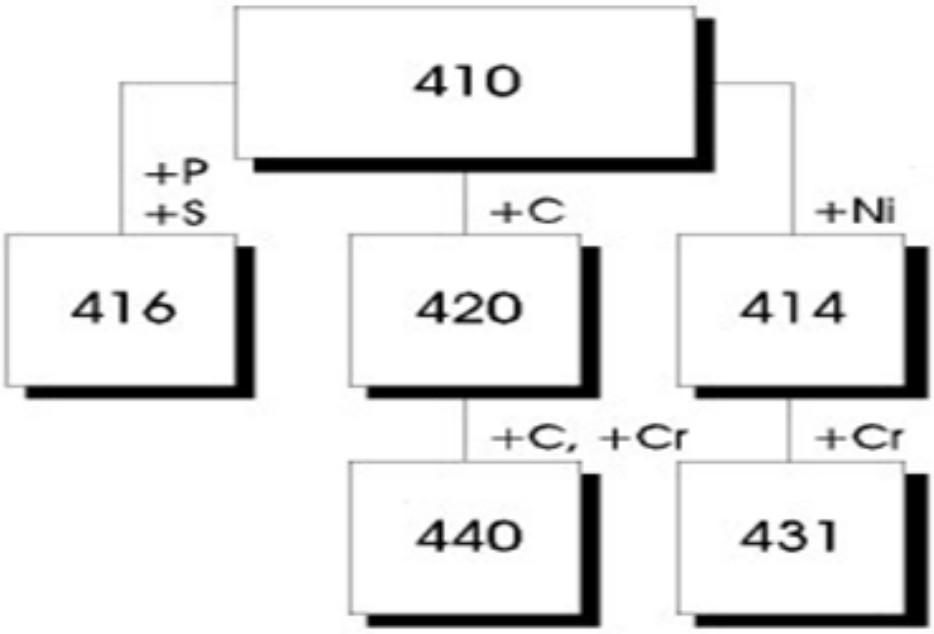
Type 317:-
Contains a higher percentage of molybdenum than 316 for highly corrosive environments. It must have a minimum of 3% “moly”. It is often used in stacks which contain scrubbers.

Type 317L:-
Restricts maximum carbon content to 0.030% max. and silicon to 0.75% max. for extra corrosion resistance.

Type 321 & Type 347:-
These types have been developed for corrosive resistance for repeated intermittent exposure to temperature above 800 degrees F. Type 321 is made by the addition of titanium and Type 347 is made by the addition of tantalum/columbium. These grades are primarily used in the aircraft industry.

MARTENSITIC GRADES

Martensitic grades were developed in order to provide a group of stainless alloys that would be corrosion resistant and hardenable by heat treating. The martensitic grades are straight chromium steels containing no nickel. They are magnetic and can be hardened by heat treating. The martensitic grades are mainly used where hardness, strength, and wear resistance are required.



Type 410:-

Basic martensitic grade, containing the lowest alloy content of the three basic stainless steels (304, 430, and 410). Low cost, general purpose, heat treatable stainless steel. Used widely where corrosion is not severe (air, water, some chemicals, and food acids. Typical applications include highly stressed parts needing the combination of strength and corrosion resistance such as fasteners.

Type 410S:-

Contains lower carbon than Type 410, offers improved weldability but lower hardenability. Type 410S is a general purpose corrosion and heat resisting chromium steel recommended for corrosion resisting applications.

Type 414:-

Has nickel added (2%) for improved corrosion resistance. Typical applications include springs and cutlery.

Type 416:-

Contains added phosphorus and sulphur for improved machinability. Typical applications include screw machine parts.

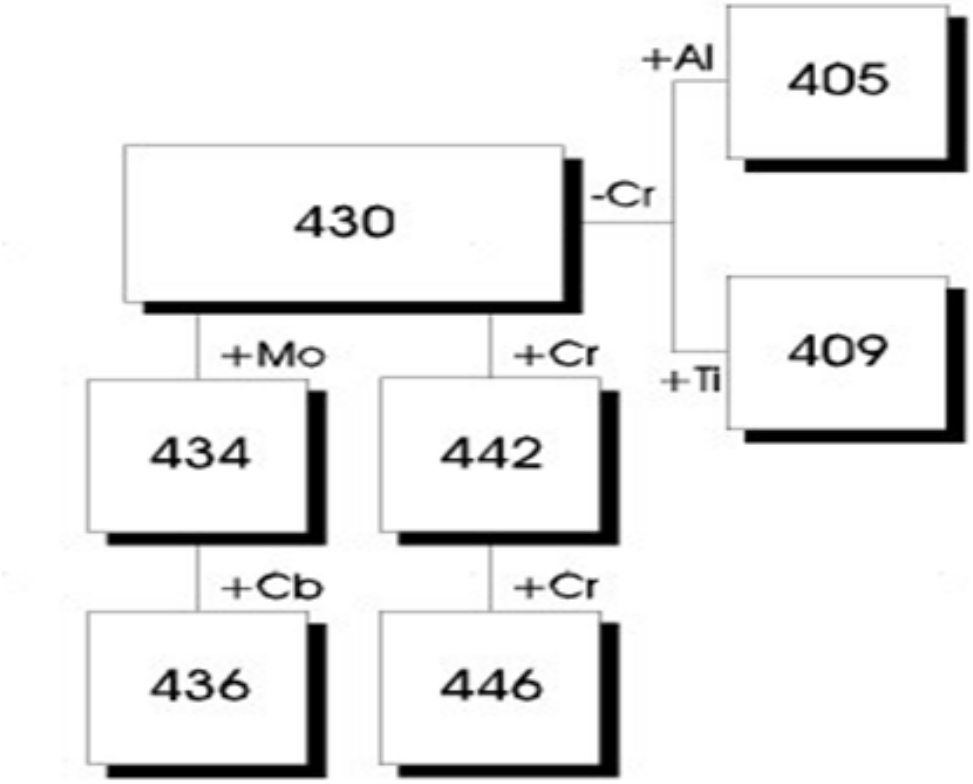
Type 420:-
Contains increased carbon to improve mechanical properties. Typical applications include surgical instruments.

Type 431:-
Contains increased chromium for greater corrosion resistance and good mechanical properties. Typical applications include high strength parts such as valves and pumps.

Type 440:-
Further increases chromium and carbon to improve toughness and corrosion resistance. Typical applications include instruments.

FERRITIC GRADES

Ferritic grades have been developed to provide a group of stainless steel to resist corrosion and oxidation, while being highly resistant to stress corrosion cracking. These steels are magnetic but cannot be hardened or strengthened by heat treatment. They can be cold worked and softened by annealing. As a group, they are more corrosive resistant than the martensitic grades, but generally inferior to the austenitic grades. Like martensitic grades, these are straight chromium steels with no nickel. They are used for decorative trim, sinks, and automotive applications, particularly exhaust systems.



Type 430:-

The basic ferritic grade, with a little less corrosion resistance than Type 304. This type combines high resistance to such corrosives as nitric acid, sulfur gases, and many organic and food acids.

Type 405:-

Has lower chromium and added aluminum to prevent hardening when cooled from high temperatures. Typical applications include heat exchangers.

Type 409:-

Contains the lowest chromium content of all stainless steels and is also the least expensive. Originally designed for muffler stock and also used for exterior parts in non-critical corrosive environments.

Type 434:-

Has molybdenum added for improved corrosion resistance. Typical applications include automotive trim and fasteners.

Type 436:-
Type 436 has columbium added for corrosion and heat resistance. Typical applications include deep-drawn parts.

Type 442:-
Has increased chromium to improve scaling resistance. Typical applications include furnace and heater parts.

Type 446:-
Contains even more chromium added to further improve corrosion and scaling resistance at high temperatures. Especially good for oxidation resistance in sulfuric atmospheres.

DUPLEX GRADE

Duplex grades are the newest of the stainless steels. This material is a combination of austenitic and ferritic material. This material has higher strength and superior resistance to stress corrosion cracking. An example of this material is type 2205. It is available on order from the mills.

Precipitation Hardening Grades

Precipitation hardening grades, as a class, offer the designer a unique combination of fabricability, strength, ease of heat treatment, and corrosion resistance not found in any other class of material. These grades include 17Cr-4Ni (17-4PH) and 15Cr-5Ni (15-5PH). The austenitic precipitation-hard enable alloys have, to a large extent, been replaced by the more sophisticated and higher strength superalloys. The martensitic precipitation-hard enable stainless steels are really the work horse of the family. While designed primarily as a material to be used for bar, rods, wire, forgings, etc., martensitic precipitation-hard enable

alloys are beginning to find more use in the flat rolled form. While the semi-austenitic precipitation-hard enable stainless steels were primarily designed as a sheet and strip product, they have found many applications in other product forms. Developed primarily as aerospace materials, many of these steels are gaining commercial acceptance as truly cost-effective materials in many applications.

SUPER ALLOY GRADE

Superalloys are used when 316 or 317 are inadequate to withstand attack. They contain very large amounts of nickel and/or chrome and molybdenum. They are usually much more expensive than the usual 300 series alloys and can be more difficult to find. These alloys include Alloy 20 and Hastelloy.

300 Series Austenitic Physical Properties

Type	UNS	Tensile (ksi) min	Yield (ksi) min	Elongation min	Hardness (Brinell) max	Hardness (Rockwell B) max
302	S30200	75	30	40% in 2"	183	88
304*	S30400	75	30	40% in 2"	183	88
304L*	S30403	70	30	40% in 2"	183	88
309	S30900	75	30	40% in 2"	217	95
309S	S30908	75	30	40% in 2"	217	95
310	S31000	75	30	40% in 2"	217	95
310S	S31008	75	30	40% in 2"	217	95
316*	S31600	75	30	40% in 2"	217	95

316L*	S31603	70	25	35% in 2"	217	95
317	S31700	75	30	35% in 2"	217	95
317L	S31703	75	30	35% in 2"	217	95
321	S32100	75	30	40% in 2"	183	88
347	S34700	75	30	40% in 2"	183	88

400 Series Martensitic Physical Properties

Type	UNS	Tensile	Yield	Elongation	Hardness
		(ksi) min	(ksi) min	min	(Brinell) max
410*	S41000	65	30	20% in 2"	217
410S	S41008	60	30	22% in 2"	183
416	S41600	75	40	30-25% in 2"	-
420	S42000	95	60	30-25% in 2"	-
430	S43000	65	30	22% in 2"	183
440C	S44004	-	-	-	-

2205+2 Series Austenitic Physical Properties

Type	UNS	Tensile	Yield	Elongation	Hardness	Hardness
		(ksi) min	(ksi) min	min	(Brinell) max	(Rockwell B) max
2205+2*	S322505/S31803	95	65	25%	-	293

Stainless Steel Chemical Properties

These tables are intended for estimating purposes only and lists typical chemical properties for a variety of 300 and 400 series stainless steel grades. All values shown indicate the maximum percentage unless otherwise noted.

Type	C	Mn	P	S	Si	Cr	Ni	Mb
302	0.15	2	0.045	0.03	1	17.00/19.00	8.00/10.00	-
304*	0.08	2	0.045	0.03	1	18.00/20.00	8.00/10.50	-
304L*	0.03	2	0.045	0.03	1	18.00/20.00	8.00/12.00	-
309	0.2	2	0.045	0.03	1	22.00/24.00	12.00/15.00	-
309S	0.08	2	0.045	-	1	22.00/24.00	-	-
310	0.25	2	0.045	0.03	1.5	24.00/26.00	19.00/22.00	-
310S	0.08	2	0.045	0.03	1.5	24.00/26.00	19.00/22.00	-
316*	0.08	2	0.045	0.03	1	16.00/18.00	10.00/14.00	2.00/3.00
316L*	0.03	2	0.045	0.03	1	16.00/18.00	10.00/14.00	2.00/3.00
317	0.08	2	0.045	0.03	1.00/1.00	18.00/20.00	11.00/15.00	3.00/4.00
317L	0.03	2	0.045	0.03	0.75	18.00/20.00	11.00/15.00	3.00/4.00
321	0.08	2	0.04	0.03	1	17.00/19.00	9.00/12.00	0.75/0.75
347	0.08	2	0.04	0.03	0.5/1.00	17.00/19.00	9.00/12.00	0.5/0.75

400 Series Martensitic Chemical Properties

Type	C	Mn	P	S	N	Si	Cr	Ni	Mb
410*	0.15	1	0.04	0.03	-	1	11.5 / 13.5	-	-
410S	0.08	0.30/ 0.65	0.03	0.01	0.06	0.15/ 0.50	12.00 / 12.60	0.20/ 0.55	0.20/ 0.55
416	0.15	1.25	0.06	0.15 min	-	1	12.00 / 14.00	-	-
420	0.15 min	1	0.04	0.03	-	1	12.00 / 14.00	-	-
430	0.15	1	0.04	0.03	-	1	16.00 / 18.00	-	-
440C	0.95/1 .20	1	0.04	0.03	-	1	16.00 / 18.00	-	0.75

2205+2 Series Martensitic Chemical Properties

Type	C	Mn	P	S	N	Si	Cr	Ni	Mb
2205+ 2*	.030 max	2.00 max	.035 max	.020 max	.08-.2 0	1.00 max	22.0-23.0	4.5-6.5	2.5-3.53

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- Steel Allied

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