



Raajratna Austenitic

Stainless Steel wire

S30400, X5CrNI18-10, 1.4301

DESCRIPTION

Raajratna manufactures high quality 304 grade stainless steel wires from various sizes in Bright as well as Matte finish.

Stainless steel wires can be supplied in ¼ hard ½ hard, ¾ hard & full hard conditions.

APPLICATIONS

Stainless steel ¼ hard wires are used for producing various types of products like Kitchen ware baskets, Balls, Nails, Staples, Spokes, Screens, Filters, Wall ties, Conveyor belts, Wire fencing, Fasteners etc.

STANDARDS

The stainless steel wires are manufactured as per **ASTM A 580, EN 10088-3, JIS G4309**, customers specification and other equivalent international standards.

SURFACE FINISH

Size (mm)	Finish
0.030 – 0.80	Bright
0.80 – 25.0	Bright / Matte

Chemical composition

Element	Specification	Typical values
%C	0.08 Max	0.040
%Mn	2.00 Max	1.50
%Si	1.00 Max	0.400
%P	0.045 Max	0.035
%S	0.030 Max	0.008
%Cr	18.00-20.00	18.100
%Ni	8.00 – 10.50	8.050
%N	0.10 Max	0.060

PHYSICAL PROPERTIES

Density (20°C)	7.9 g/cm ³
Thermal conductivity (20°C)	15 W/m/ °C
Electrical resistivity (20°C)	730 μ -mm
Thermal expansion coefficient	
20° – 100°C	16.0 X 10 ⁻⁶ cm/cm/°C
20° – 200°C	16.5 X 10 ⁻⁶ cm/cm/°C
20° – 300°C	17.0 X 10 ⁻⁶ cm/cm/°C
20° – 400°C	18.0 X 10 ⁻⁶ cm/cm/°C
20° – 500°C	18.0 X 10 ⁻⁶ cm/cm/°C

TYPICAL MECHANICAL PROPERTIES

Tensile strength	700- 900 Mpa
Yield strength (Rp 0.2%)	400 – 750 Mpa
Elongation (4xDia) %	25 % min
Hardness	200-250 BHN

Magnetic properties

304 is fully nonmagnetic in annealed condition. All austenitic grades have very low magnetic permeability and hence show almost no response to a magnet when in the annealed condition; the situation is, however, far less clear when these steels have been cold worked by wire drawing, rolling or even center-less grinding, shot blasting or heavy polishing. After substantial cold working Grade 304 may exhibit quite strong response to a magnet, whereas Grades 310 and 316 will in most instances still be almost totally non-responsive.

The change in magnetic response is due to atomic lattice straining and formation of martensite. In general, the higher the nickel to chromium ratio the more stable is the austenitic structure and the less magnetic response that will be induced by cold work. Magnetic response can therefore be used as a method for sorting grades of stainless steel, but considerable caution needs to be exercised.

Data shown are typical, and should not be construed as max & min values for specification. Data on any particular piece of material may vary from those shown herein. Customer has to check the suitability.

Heat Treatment

The heat treatment (annealing) that gives 304 optimum properties includes heating in the range of 1850 - 2000°F (1010 - 1100°C), followed by rapid cooling with water quenching.

Hardenability

304 is not hardenable by heat treatment. Strength and hardness will increase upon cold drawing and forming.

Welding

304 grade is readily welded, without pre-heating, with or without filler metal using all welding methods except gas welding. If filler material is used, AWS ER308L (covered electrode), ER308/ER308L (manual TIG)/ER308Lsi (TIG or MIG) are recommended. Shielding Gases Argon 100% + 2-3 % CO₂ or 1-2% O₂ are suggested.