



High alloy Austenitic Stainless Steel Spring Wire (904L /1.4539/ N08904)

DESCRIPTION

Raajratna manufactures high quality High alloy austenitic stainless steel spring wire in bright as well as in stearate coated surface finish.

High alloy austenitic stainless steel spring wires can be supplied in ½ hard, ¾ hard & full hard conditions as well. We are using drawing lubricants from CONDAT and also of Japanese origin.

904 L is a high alloy austenitic stainless steel used in severe corrosive environments, including environments with high chloride content and acids. This grade is recommended for springs which are operated in extremely corrosive conditions.

APPLICATIONS

High alloy austenitic stainless steel spring wires are used for producing various types of springs like Aerosol spring, Compression spring, Extension spring, and Torsion spring as well as for wire form, Straight Pin etc.

STANDARDS

High alloy austenitic stainless steel spring wires are manufactured as per **10270-3**, and other equivalent international standards.

SURFACE FINISH

Size (mm)	Finish
0.10 – 2.50	Bright
0.20 – 16.00	Coated
0.15 – 2.00	Ni Coated

CHEMICAL ANALYSIS

Element	EN 10270-3 (Requirement)	Typical values
%C	0.020 Max	0.013
%Mn	2.00 Max	1.50
%Si	0.70 Max	0.45
%P	0.030 Max	0.012
%S	0.010 Max	0.003
%Cr	19.00 - 21.00	19.80
%Ni	24.00 – 26.00	24.20
%Mo	4.00 – 5.00	4.20
%Cu	1.20 - 2.00	1.25
%N	0.15 Max	0.040

PHYSICAL PROPERTIES

Density (20°C)	8.0 g/cm ³
Thermal conductivity (20°C)	12 W/m.K.
Specific heat (20°C)	450 J/Kg.K
Electrical resistivity (20°C)	0.95 Ωmm ² /m
Shear modulus	
As drawn: 69 GPa approx	Tempered: 71 GPa approx
Modulus of elasticity	
As drawn: 180 GPa approx	Tempered: 185 GPa approx
Thermal expansion coefficient	
20° – 100°C	15.8
20° – 200°C	16.1
20° – 300°C	16.5
20° – 400°C	16.9
20° – 500°C	17.3

- 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.

MECHANICAL PROPERTIES

Mechanical properties of supplied wire (As drawn condition) as per **EN 10270-3** are mentioned below.

Tensile strength as per EN 10270-3			
Sizes (mm)		Tensile strength (MPa)	
From	To	(Min.)	(Max.)
	0.20	1600	1840
>0.20	0.30	1550	1790
>0.30	0.40	1550	1790
>0.40	0.50	1500	1750
>0.50	0.65	1450	1670
>0.65	0.80	1450	1670
>0.80	1.00	1400	1610
>1.00	1.25	1350	1560
>1.25	1.50	1350	1560
>1.50	1.75	1300	1500
>1.75	2.00	1300	1500
>2.00	2.50	1300	1500
>2.50	3.00	1300	1500
>3.00	3.50	1300	1500
>3.50	4.25	1250	1440
>4.25	5.00	1250	1440
>5.00	6.00	1250	1440
>6.00	7.00	1200	1380
>7.00	8.50	1150	1330

- After straightening, TS may be reduced by up to 6%.
- Depending on storing condition the ageing can increase the tensile strength up to 50 N/ mm².
- 1 MPa = 1 N/mm², 1 GPa = 1 KN/mm².
- When better formability required or in case of thicker sizes, Tensile strength values may be agreed upon.

HEAT TREATMENT

Tensile strength values of drawn wire may be increased by about 50 – 150 MPa by tempering at 250 – 400 °C / 5 – 30 Minutes. Tempering effect will be more if greater holding time is used. In case of very short holding periods temperature may be raised up to 425°C.

Service temperature: –200 to 300°C.

DISCLAIMER:

Recommendations are for guidance only. Suitability of a material for a specific application. Customer has to check the suitability of recommendation.