



Stainless Steel Spring Wire

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The inherent corrosion resistance of stainless steels eliminates the need for protective coatings and makes them the optimal material for springs operating in a range of corrosive conditions, high temperatures and where maintenance and replacement are impractical.

Quality Assured

Fox Wire is a name that is synonymous with quality and reliability.

Our range of stainless steel spring wires to the International Specification EN 10270-3 is further augmented by EN 10088-3 grades, all produced in sizes from **0.4mm to 20.0mm diameter**.

Manufacturing consistently high quality wire in terms of steel grade, tensile strength, surface finish as well as cast, pitch and packaging ensures maximum product performance both during spring manufacture and in service.

The spring properties of our stainless wires are obtained by precision cold drawing which produces a tough fibrous structure with a high tensile strength. This tensile strength is maintained at operating temperatures up to 250°C and stainless springs can be used at reduced stress levels up to 450°C, at which elastic properties are good.

Surface Finish

As standard our spring wire is supplied with 'Fox Coat', a specially developed non-metallic coating providing a combination of good spring coiling characteristics and resistance to moisture pick-up. Fox Coat is easily removed after coiling and stress relieving. A desoaped, carbide drawn matt finish or a polished surface are also available.

Stainless Spring Grades

Current Designation			EN 10270-3 2001 Chemical Composition % by mass max unless stated										
Type	Name	Number	C	Si	Mn	P	S	N	Cr	Cu	Mo	Ni	Others
302	X10CrNi18-8	1.4310	0.05/0.15	2.0	2.0	0.045	0.015	-	16.00/19.00	-	0.8	6.00/9.50	N:≤0.11
316	X5CrNiMo17-12-2	1.4401	0.70	1.0	2.0	0.045	0.015	-	16.50/18.50	-	2.00/2.50	10.00/13.00	N:≤0.11
17/7PH	X7CrNiAl17-7	1.4568	0.09	0.7	1.0	0.04	0.015	-	16.00/18.00	-	-	6.50/7.80	Al:0.70/1.50

Current Designation			EN 10088-3 Chemical Composition % by mass max unless stated										
Type	Name	Number	C	Si	Mn	P	S	N	Cr	Cu	Mo	Ni	Others
316Ti	X6CrNoMoTi17-12-2	1.4571	0.08	1.0	2.0	0.045	0.030	-	16.5/18.5	-	2.00/2.50	10.5/13.5	Ti: 5xC/0.70
Duplex 2205	X2CrNiMoN22-5-3	1.4462	0.030	1.0	2.0	0.035	0.015	0.10/0.22	21.0/23.0	-	2.5/3.5	4.5/6.5	-
904L	X1NiCrMoCu25-20-5	1.4539	0.02	0.7	2.0	0.030	0.010	0.15	19.0/21.0	1.20/2.00	4.0/5.0	24.0/26.0	-

Size Range

EN Number	Min	Max
10270-3	0.4mm	20.00mm
10088-3	0.4mm	20.00mm

Diameter Tolerances

Nominal diameter (d) (mm)	Spools or Coils
0,41 ≤ d < 0,65	+0.008
0,65 ≤ d < 0,81	+0.010
0,81 ≤ d < 1,01	+0.010
1,01 ≤ d < 1,61	+0.015
1,61 ≤ d < 2,26	+0.015
2,26 ≤ d < 3,20	+0.020
3,20 ≤ d < 4.01	+0.020

Nominal diameter (d) (mm)	Spools or Coils
4,01 ≤ d < 4.51	+0.025
4,51 ≤ d < 6.01	+0.025
6,01 ≤ d < 6.26	+0.025
6,26 ≤ d < 7.01	+0.030
7,01 ≤ d < 9.01	+0.030
9,01 ≤ d < 10.00	+0.035



Tensile Strength

The tensile strength of austenitic stainless steels can be increased by low temperature tempering treatment after spring coiling. Stress relaxation properties are greatly superior to those of carbon steels. Spring wire can also be supplied in martensitic grades on which high strength can be achieved by heat treatment.

For the more demanding spring specifications, we have the facility to FRACMAT test diameters up to 3.50mm.

European Standards for Stainless Spring Wire EN 10270-3:2001

EN 1008 grades - Tensile strength by agreement.

Steel Grade	Tensile strength (Mpa) ^{a b c d e f}			
	1.4310		1.4401	1.4568
Nominal Diameter (mm) ^g	Normal Tensile strength (NS), min.	High Tensile strength (HS), min.	min.	min.
0.40 <d ≤0,50	2 050	2 200	1 650	1 900
0.50 <d ≤0,65	2 000	2 150	1 625	1 850
0.65 <d ≤0,80	1 950	2 100	1 600	1 825
0.80 <d ≤1,00	1 900	2 050	1 575	1 800
1.00 <d ≤1,25	1 850	2 000	1 550	1 750
1.25 <d ≤1,50	1 800	1 950	1 500	1 700
1.50 <d ≤1,75	1 750	1 900	1 450	1 650
1.75 <d ≤2,00	1 700	1 850	1 400	1 600
2.00 <d ≤2,50	1 650	1 750	1 350	1 550
2.50 <d ≤3,00	1 600	1 700	1 300	1 500
3.00 <d ≤3,50	1 550	1 650	1 250	1 450
3.50 <d ≤4,25	1 500	1 600	1 225	1 400
4.25 <d ≤5,00	1 450	1 550	1 200	1 350
5.00 <d ≤6,00	1 400	1 500	1 150	1 300
6.00 <d ≤7,00	1 350	1 450	1 125	1 250
7.00 <d ≤8,50	1 300	1 400	1 075	1 250
8.50 <d ≤10,00	1 250	1 350	1 050	1 250

a Tensile strength calculated on actual diameter

b The maximum tensile strength shall be the min. value plus 15% of the minimum value. The range of tensile strength values within a production batch of the same heat shall be maximum 9% of the minimum values in this table.

c After straightening, the tensile strength may be reduced by up to 10%.

d When better formability is required, lower tensile strength values may be agreed upon.

e The wire is supplied in the cold drawn condition. The tensile strength in the finished spring may be substantially influenced by a heat treatment; particularly precipitation hardening of grade 1.4568 results in substantially higher tensile strength.

f 1 Mpa = 1 N/mm²

g Larger diameters may be specified in which case the parties shall agree the tensile strength at the time of enquiry and order.

We are also able to supply stainless steel spring wire to other recognised international and customer and other material grades on request.

Packaging

Coil	Steel Reel	Spool - Plastic	ZZ's	Formers
Maximum Weight				
Kg				
15 - 650	250 - 350	40	400 - 450	1000



FOX WIRE

Fox Wire Limited
Sheephouse Wood
Stocksbridge
Sheffield
S36 4GS
United Kingdom

Phone: +44(0)114 288 4207
Fax: +44(0)114 288 4874
E-mail: info@foxwire.co.uk
Web: www.foxwire.co.uk

Fox Wire GmbH
Wideystraße 38
59174 Kamen
Germany

Tel: +49 - 23 07 - 97 330 - 21
Fax: +49 - 23 07 - 97 330 - 19
E-mail: info@foxwire.de
Web: www.foxwire.de