



SPRING WIRE



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Central Wire Industries is one of the world's fastest growing wire manufacturers, producing a broad array of stainless steel, nickel alloy, copper, brass, bronze and zinc wires for an equally broad array of applications. Since the late 1960's, CWI has quickly become one of the globe's largest and most respected sources for spring wire.

The CWI is 9001:2015 certified by BSI for the manufacturing of stainless steel wire and nickel-based alloy wire to national and international standards and customer specifications and requirements.



Prompt Delivery

With nine strategically located manufacturing and warehouse sites, deliveries are quick and economical.

High Quality

We carefully select top-quality vendors, and pay meticulous attention to quality at every stage of the manufacturing process.

Expert Service

Our staff of seasoned professionals helps our customers achieve maximum production with minimal waste/scrap.

Spring Industry

Springs are a ubiquitous solution in many modern products, from the high strength performance requirements of heavy equipment and transportation, to the rapid flexing and space constraints in electronics, firearms, and other small objects. This creates engineering challenges for manufacturers, and Central Wire has the products to solve those problems. High performance spring wire will perform with enough strength, resilience, and environmental resistance in all sizes, applications, and end products.

General/Specialist Engineering

Central Wire has the capability to produce spring wire for any application, as the process is controlled from rod breakdown to finished packaging under one roof. This means we can manufacture a specialty solution to meet the needs of your specific application or industry. Whether you are replacing an existing system or crafting a new product, we can customize a solution to exceed your requirements.



Agriculture

The strength and consistency of spring wire plays a pivotal role in the agriculture and food processing industries. Out in the field, wire is used for livestock fencing, gates, and inside harvesting equipment. Inside processing facilities, wire is used for conveyor belts that sort and prepare products, for trays and grates in sterilized locations, and to build the processing equipment itself.

Architecture

Stainless steel wire adds both aesthetic and functional value to architecture. Stainless steel is a durable material able to withstand temperature changes and moisture, making it an affective choice for interior and exterior applications. Its “stainless” finish also stays vibrant with age, which keeps structures looking new and modern.

Marine

Marine industries and applications demand corrosion resistant products that withstand salt and moisture exposure. That is why 300 series stainless steel is one of the most common materials used to produce spring wire for shoreline and open sea products.

Mining

The mining industry relies on products and materials that are engineered to withstand crushing forces, intense vibration, and heavy weight. That is why modern mining, mineral processing, and sorting products are typically manufactured using stainless steel or nickel alloy spring wire. The complex equipment needed to extract and sort minerals are highly customizable to meet the needs of specific applications, and the environment in which that equipment will be expected to perform.

Nuclear

We manufacture high quality spring wire for use in critical nuclear applications. For components experiencing exposure to high heat or corrosives, we recommend using Inconel® or Nitronic series nickel alloys. These materials are engineered to withstand harsh conditions without failure, and selecting them for your wire ensures durability and longevity.

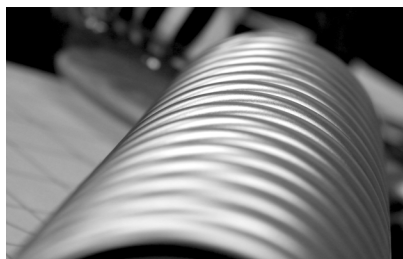
Oil and Gas

The oil and gas industry demands products that can withstand the rigors of challenging work conditions. That is why Central Wire offers spring wire in a broad range of materials including traditional 300 series stainless steel, in addition to other high-strength alloys.

Petrochemical

We have the capability to accurately, consistently, and precisely manufacture spring wire. These products are often used for petrochemical equipment because they can be customized to exacting customer specifications. Whether working in small spaces to capture contaminants and particles, or large spaces to handle large volumes of liquid, we can produce wire to satisfy the performance needs in those environments.





Chrome-Nickel Stainless Steels

Type	C	Mn	P	S	Si	Cr	Ni	Mo	OTHERS
410	0.15	1	0.04	0.03	1	11.50 – 13.50	–	–	–
430	0.12	1	0.04	0.03	1	16.00 – 18.00	–	–	–

Straight Chrome Stainless Alloys

Type	C	Mn	P	S	Si	Cr	Ni	Mo	OTHERS
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	–	–
316	0.08	2	0.045	0.03	1	16.00 – 18.00	10.00 – 14.00	2.00 – 3.00	–
347	0.02	2	0.045	0.03	1	17.00 – 19.00	9.00 – 13.00	–	Cb-Ta 10x C Min.
20CB									
17-7PH	0.09	1	0.04	0.03	1	16.00 – 18.00	6.50 – 7.75	–	–
TT-50	0.03 – 0.06	4.00 – 6.00	0.04	0.03	1	20.50 – 23.50	11.50 – 13.50	1.50 – 3.00	N 0.20 – 0.40

Nickel Alloys

Type	Ni	C	Mn	Fe	S	Si	Cu	Cr	Al	Ti	Cb	Mo	OTHERS
400	63.00 – 70.00	0.025	1.25	2.5	0.01	0.5	28.00 – 34.00	–	0.10-	–	–	–	–
MK-500	63.00 min.	0.18	1.5	2	0.01	0.5	27.00 – 33.00	–	2.65 – 3.15	0.35 – 0.85			
600	72.00 – 78.00	0.08	0.50 – 1.00	6.00 – 8.00	0.01	0.02	0.500.25	14.00 – 17.00	0.35	0.5	1	0.50-	Ta: 0.05 Max. Cb+Ta: 1.00 Max.
601	58.00 – 63.00	0.06	1	Bal.	0.01	0.5	1	21.00 – 25.00	1.00 – 1.70	0.6	–	–	B: 0.006 max.
625	58.00 min.	0.1	0.5	5	0.01	0.5	–	20.00 – 23.00	0.4	0.4	+Ta 3.15 – 4.15	8.00 – 10.00	–
718*	51.00 – 55.00	0.020 – 0.3 0.060		15.00 – 21.00	0.01	0.3	0.3	17.00 – 20.50	0.40 – 0.70	0.75 – 1.15	5.00 – 5.50	2.85 – 3.25	
750	70.00 min.	0.08	1	9	0.01	0.5	0.5	14.00 – 17.00	0.40 – 1.00	2.75	0.70 – 1.20	–	Ta: 0.05 max. Cb+Ta: 0.70 = 1.20
800	30.00 – 35.00	0.01	1.5	Bal	0.01	1	0.75	19.00 – 23.00	0.15 – 0.60	0.15 – 0.60	–	–	–
805	36	0.12	0.75	Bal.	0.02	0.5	0.5	7.5	–	–	–	0.5	–
825	38.00 – 46.00	0.05	1	22.00 min.	0.015	0.5	1.50 – 3.00	19.50 – 23.50	0.2	0.60 – 1.20			
C-276	Bal.	0.01	1	4.00 – 7.00	0.01	0.08	0.5	14.50 – 46.50	–	–	–	15.00 – 17.00	N: 0.10

Minimum Tensile Strength Nickel Alloy Spring Wire

Diameter Range Inches (mm)	Minimum Tensile Strength (psi)		
	Monel® 400	Inconel® 600	Monel® K500*
<0.028(0.71)	165,000	185,000	165,000
0.0281(.071) – 0.057(1.45)	160,000	185,000	165,000
0.0571(1.45) – 0.144(2.90)	150,000	175,000	155,000
0.1441(2.90) – 0.229(5.82)	140,000	170,000	155,000
0.2291(5.82) – 0.312(7.92)	140,000	165,000	135,000
.3121(7.92) – 0.375(9.53)	135,000	160,000	135,000
0.3751(9.53)-0.437(11.10)	130,000	155,000	125,000
0.4371(11.10)-0.500(12.70)	130,000	155,000	120,000
0.5001(12.70)-0.563(14.30)	120,000	140,000	120,000
		X750	
<0.250(<6.36)		190,000	
0.250(6.35) – 0.625(15.88)		160,000	
	After Heat Treatment	X750	
0.012(0.30) – 0.250(6.35)		220,000	
0.2501(6.35) – 0.418(10.62)		200,000	
0.4181(10.62) – 0.625(15.88)		180,000	

Minimum Tensile Strength Type 302/304 Spring Wire

Diameter Range Inches (mm)	Tensile Range (psi)
<.009 (0.23)	325,000
0.009 (0.23) – 0.012 (0.30)	316,000 – 325,000
0.013 (0.33) – 0.016 (0.41)	308,000 – 314,000
0.017 (0.43) – 0.022 (0.56)	296,000 – 306,000
0.023 (0.58) – 0.028 (0.71)	289,000 – 292,000
0.029 (0.74) – 0.036 (0.91)	280,000 – 285,000
0.037 (0.94) – 0.045 (1.14)	272,000 – 280,000
0.046 (1.17) – 0.063 (1.60)	258,000 – 267,000
0.064 (1.63) – 0.080 (2.03)	246,000 – 252,000
0.081 (2.39) – 0.094 (2.39)	238,000 – 242,000
0.095 (2.41) – 0.120 (3.05)	222,000 – 238,000
0.121 (3.07) – 0.148 (3.76)	210,000 – 222,000
0.149 (3.78) – 0.162 (4.11)	200,000 – 205,000
0.163 (4.14) – 0.187 (4.75)	194,000 – 198,000
0.188 (4.78) – 0.207 (5.26)	188,000 – 194,000
0.208 (5.28) – 0.225 (5.72)	184,000 – 188,000
0.226 (5.74) – 0.278 (7.06)	174,000 – 182,000
0.279 (7.09) – 0.362 (9.19)	150,000 – 161,000
.363 (9.22) – 0.500 (12.70)	135,000 – 145,000
>0.501 (12.72)	130,000

*K-500 – For cold drawn, annealed and age hardened: all sizes: 130,000

Modulus of Elasticity			Maximum Safe Temp						
Material	Torsion 10'	Tension 10'	Magnetic	Corrosion Fatigue	T.P / T.S.**	High	Low	Corrosion Resistance (general)	Spring Temper Range (KSI)
M400	10	10	Varies	Good		450 F	-320 F	Good	145/180
K-500	10	10	No	Good	38/42	500 F	-423 F	Good	145/195
600	11	11	No	Good	40/45	750 F	-423 F	Good	170/230
601	11.5	11.5	No	Good				Good	120/205
625	11	11	No	Excellent		700 F	-423 F	Excellent	
718*	11	11	No	Good		1200 F	-423 F	Good	210/250
X750	11	11	No	Good	40/45	1200 F	-453 F	Good	190/230
800	11	11	No	Good				Good	140/175
805	9	9	Slight	Good				Good	150/190
825	10	10	No	Good				Good	
NS902*	9.5	9.5	Slight	Fair				Fair	140/160
H C-276	11.4	11.4	No	Excellent				Excellent	
302/304	11	28	Slight	Fair	40/45	500 F	-320 F	Good	190/360
316	11	28	No	Good	45/50			Good	190/360
347	11	28.5	Slight	Fair	45/50			Fair	190/310
20Cb	11	28	No	Good				Good	
17-7 PH*	11	29	Yes	Fair		550 F	-320 F		230/365
TT-50	10.5	20	No	Good				Good	165/234
410	12	30	Yes	Poor	42/55	500 F		Fair	
430	13	28	Yes	Poor	42/55			Fair	160/200

*Age Hardenable

**Approximate Ratio of Torsional Proportional Limit to Ultimate Tensile Strength for Spring Wire

HASTELLOY is a registered trademark of Haynes Corp.

NS: Ni-Span-C H: Hastelloy TT: Tech-Tronic

Stress Equalizing			Age Hardening		
Alloy	Temp (F)	Time (hrs)	Temp (F)	Time (hrs)	Maximum Safe Operating Temperature (F)
Monel® 400	575-650	1/2-1	Not Possible		450
Monel® K500	575	1/2-1	1000	4	500
Inconel® 600	800-900	1/2-1	Not Possible		750
Inconel® 625	Not Recommended		Not Possible		700
X750 Spring Temper	875	3	1200	4	700
X750 (>0.025" diameter) w1 Temper (15% cold work)	Not Recommended		1350	16	1000
X750 (Annealed) Spring Temper (0.025" diameter)	Not Recommended		1350	16	1200
X750 Spring Temper	Stress Relieved from Age Hardening		Solution Treat: 2100	2	1200
			High Temp Age: 1550	24	
			Regular Age: 1300	20	
Inconel® 718 Spring Temper	Stress Relieved from Age Hardening		1325	8	1000
			1150	8	
Inconel® 718 w1 Temper (15% cold work)	Not Recommended		1800	1	1200
			1320	8	
			1150 (Furnace Cool)	8	
Ni-Span C 902	750	1/2-1	1100-1350	4-5	
Alloy 805 (Temperature Compensating)	750	1/2	Not Possible		
Alloy 825	800	1	Not Possible		
Alloy 20Cb-3			Not Possible		
302 Stainless Steel	650-850	1/2	Not Possible		500
316 Stainless Steel	750-850	1	Not Possible		600
17-7 PH Spring Temper	Stress Relieved from Age Hardening		900	1	550
17-7 PH (15% cold work)	Stress Relieved from Age Hardening		1000	1	550
PH 15-7 Mo Spring Temper	Stress Relieved from Age Hardening		900	16 (requires air cool)	550

Techcote™

Techcote™ is Central Wire's proprietary, non-metallic, soap lubricant coating that enhances consistency and easy removal. Techcote™ is available on wires this a diameter range of 0.022" to .0625".

TechBrite™

A Techbrite™ finish imparts a mirror like finish on bare bright drawn wire. It's This specialty spring wire coating is recommended for applications that require a bright, lustrous appearance. A Techbrite™ finish is available on spring wires with diameters of 0.020" to 0.125".

**Nickel Flash Coatings**

Nickel Coatings offer improved lubricity and greater corrosion resistance for spring wire applications. Available on select alloys and sizes. Call to discuss application and availability.

Copper With Soap

Copper with Soap spring wire coating is available on wires that are drawn with Techcote™ and with diameters from .020" to 0.625".

Available Size Range (inches)			
Alloy	Techcote™	TechBrite™	Nickel Flash*
302/304	0.023 – 0.625	0.003 – 0.125	0.023 – 0.625
316/316L	0.023 – 0.625	0.003 – 0.125	0.023 – 0.625
17-7 PH	0.023 – 0.625	0.003 – 0.125	0.023 – 0.625
Inconel 600	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
Inconel 625	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
Inconel 718	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
X750	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
Monel 400	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
K-500	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
Hastelloy C276	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
MP35N	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625
Nitronic 50	0.003 – 0.625	0.003 – 0.125	0.003 – 0.625

GLOBAL LEADER IN STAINLESS STEEL & NICKEL ALLOY SPRING WIRE

- Agriculture
- Architecture
- Marine
- Mining
- Nuclear
- Oil & Gas
- Petrochemical

