

ken-tron

W I R E D I V I S I O N



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OUR SERVICE IS OUR STRENGTH

Since 1960, Ken-tron Wire Division has provided high quality custom drawn wire for a range of applications from medical, industrial, and military to musical. Originally named Kentucky Electronics, our growth and diversification has provided us with the ability to meet your wire needs for high quality and rigid tolerances such as temper, straightness, bend and size to within $\pm .0001$ inch (one ten thousandth). We are dedicated to delivering the best service – *Our Service is Our Strength*.



We are conveniently located at 610 Industrial Drive in Owensboro, Kentucky, where we can easily and quickly ship to any national or international location of your choice. You can reach us by calling (270) 684-0431, by facsimile: (270) 684-0435, or email: wire@ken-tron.com. Our mailing address is Ken-tron Mfg., Inc., P.O. Box 21250, Owensboro, KY 42304-1250. Any way you contact us, our customer service representatives will quickly, courteously and enthusiastically answer your needs, whether it be a quote, an order or just an information request.



Ken-tron Wire Division purchases wire at large diameters and redraws these wires to smaller diameters (as small as .001" - less than half the thickness of a human hair). We can furnish you with wire from .001" to .150" in quantities as small as one pound. In order to provide you with the perfect product, our wire goes through various rigorous processes such as drawing, annealing, cleaning, spooling, testing and inspection.

Customer Service

Ken-tron is one of the most reliable companies with whom you will ever do business. Our delivery record is over 99% on-time shipments; it is very seldom that we ship even one day late, and we won't do that without notifying you first. With our outstanding emphasis on service, you will receive prompt personal attention to your quote request or your order. The dedicated team we have assembled combines charm, wisdom and up-beat personalities with team work, willingness to try new ideas and the ability and enthusiasm to work with you to develop new products. We are working and growing together and we not only get the job done, we do it better.



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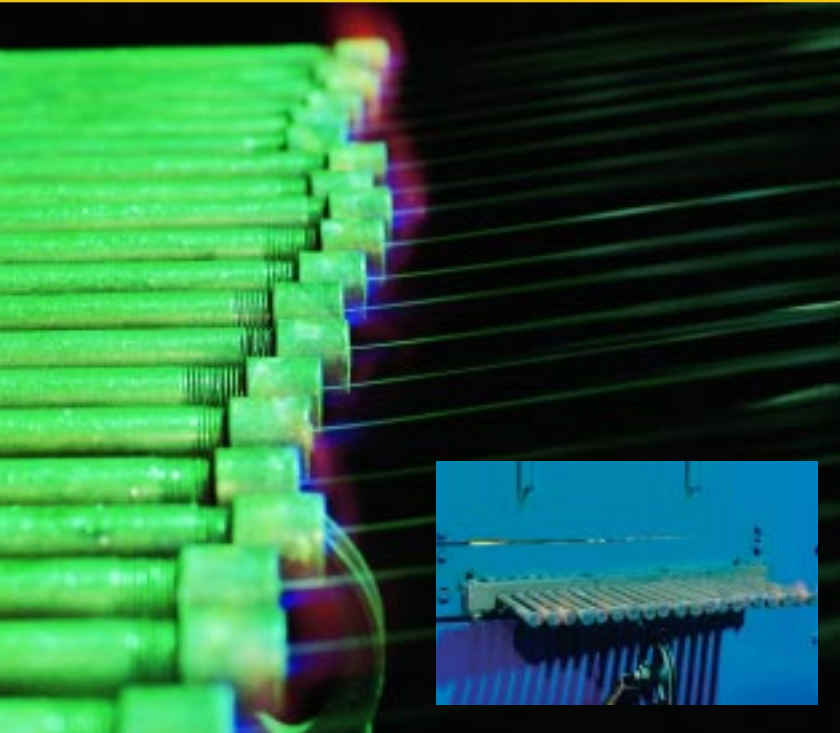
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Annealing

Annealing restores the elasticity to overworked, hardened metals by the application of heat. This process also cleans the wire by burning off any lubricant left from the drawing process. Your wire may be annealed in one of two ways.

In the first method, Batch Anneal, wire is placed in large furnaces. A shield is placed over the wire and the air is replaced with hydrogen to form an atmosphere which will prevent the wire from burning or changing colors. Then an electric heat jacket is placed over the shield and a precise amount of required heating is administered for the proper length of time to clean and soften the metal. The temperature and time is controlled by electronic instruments, and the maximum temperature in the batch anneal is 1,475 degrees Fahrenheit.

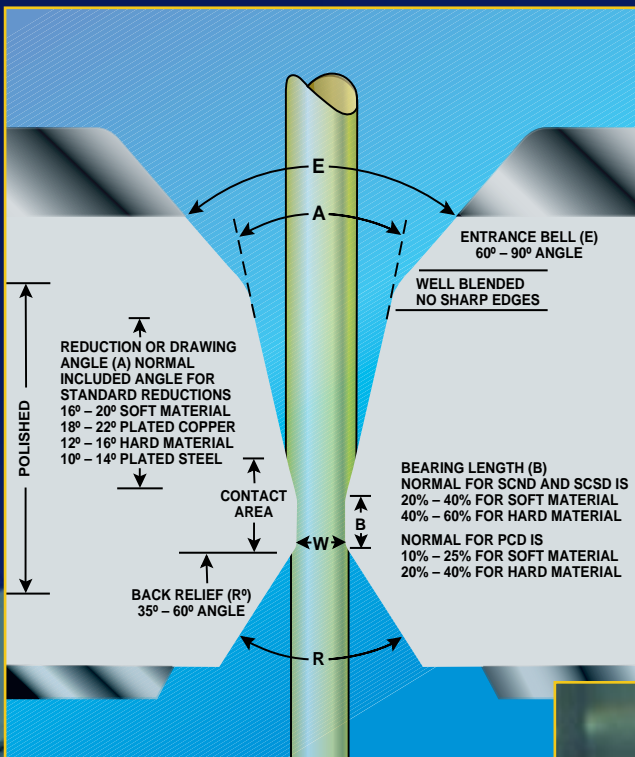
In Strand Annealing Furnaces, the second method, wire is pulled through tubes filled with hydrogen. These tubes, from 10 to 20 feet long, are surrounded by electric heat. The heat in this second method may reach temperatures up to 2,300 degrees Fahrenheit. From the heated tubes, the wire travels through a second set of tubes which are immersed in water to cool the wire. The temper or softness is determined in this operation by the heat inside the furnace and the speed at which the wire is pulled through the tubes. The wire is taken up on spools or in pay pack barrels as it exits the strand annealing furnace.





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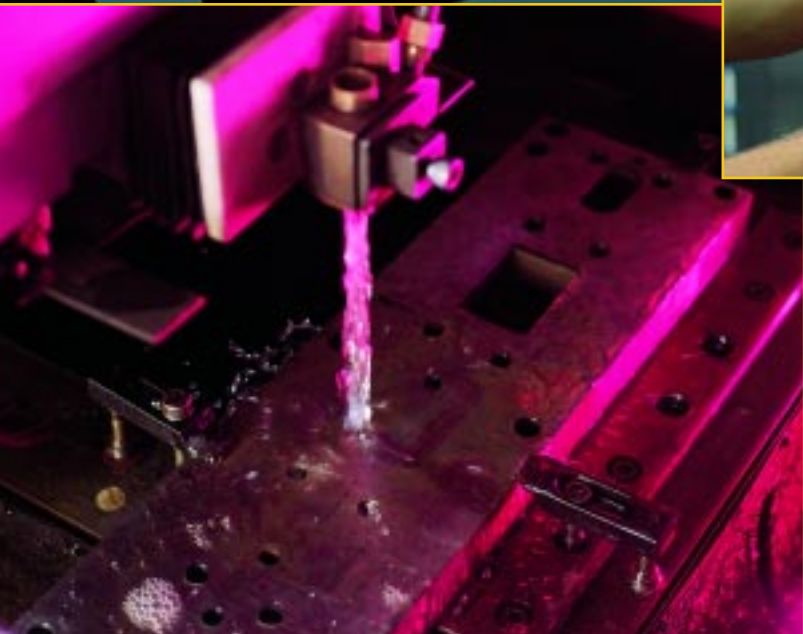
Die Shop

The Diamond Die Repair Shop at Ken-tron repairs wire dies as they are worn due to the heat and friction of wire drawing. Diamond dies have very complicated angles required to allow entry of the wire and reduction of the width of the wire. They must have the proper degree of angle and length of surface for the material of the wire to expand in length. The shop uses diamond powder and wire as the shaping tools in their equipment to repair the angles and restore the die to a consistent and usable size.



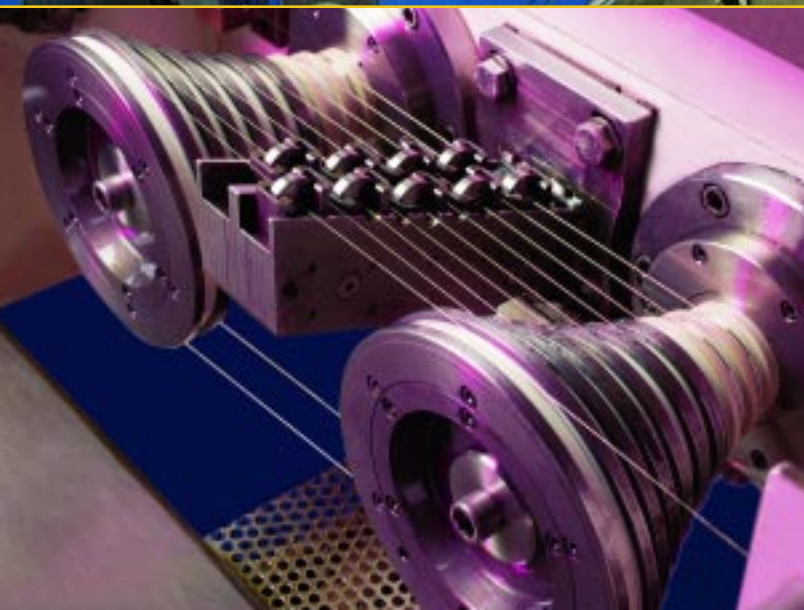
Wire EDM Machine

The Wire EDM Machine uses electrical current to precisely form die parts for stamping and/or forming. We can help you meet your special EDM Traveling Wire needs. Call us for information on special stamping dies.



Drawing

Drawing is the process by which the wire is stretched and shaped. Wire is threaded through a diamond die and then wrapped around a capstan (a vertical cylinder) in the drawing machine. This capstan turns, and stretches the wire with its pull. The capstan is designed to take up the 12 to 20% increase in footage after the wire passes through the die. The drawing machine may contain from one to twenty-one dies, depending upon the finished diameter of the wire and its hardness. Each subsequent die is followed by a capstan of greater size than the previous capstan. The final or finish die is the last in the sequence, so called because it produces the finished size of the wire. The friction and heat created by the passage of the wire through the die will wear or break the diamond eventually, so these wires and dies are submerged in a lubricant (oil or soap) or the lubricant is sprayed on the wire and die to reduce the damage or wear.



The wire has to meet exacting tolerances, so each batch is tested for consistency in diameter and any diamond die found to produce less than acceptable conformity is sent to the die shop for reworking. In order to reach the desired size, some wire may have to pass through several dies. If it becomes hard or brittle, it has to be annealed in order to restore its elasticity. This will vary depending upon the material of the wire, e.g. cobalt can only be drawn through a few dies before it becomes very hard, whereas copper, silver and nickel can go through several.



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Uses

Wire processed by Ken-tron is currently being used in a wide variety of applications including:

Specialty Wires for Aircraft Engines and Instruments

NASA Space Equipment and Systems

Automotive Electronic Equipment

Televisions, Radios and Computers

Medical Staples

Hip Joint Replacements

Needles for Eye Surgery

Relay Switches (applications include Electronic Equipment and Airbags for Automobiles)

Lighting

Woven Screens for Marine, Medical and Food Industries

Heating Elements

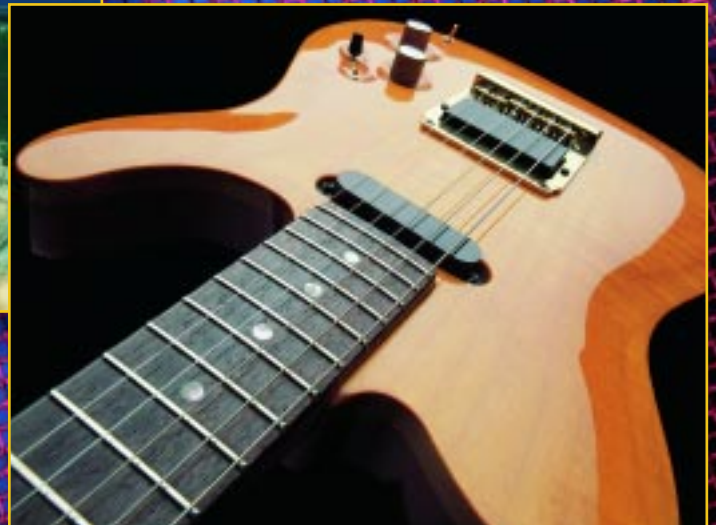
EDM Wire Metal Cutting Machines

Musical Strings

Research

Security Systems

Home Appliances



Spooling

The wire is taken up into coils, spools or pay pack barrels (bulk orders). For those special applications which require special spooling, i.e. ultra fine wire, or batch annealed wire (which cannot be heated on spools), we have respooling machines which can precisely wind the wire for perfect feeding.



Testing

Our test equipment can verify the chemical composition of the wire (metal monitor), surface quality, roundness, tensile properties (Instron) and the weight required to stretch vs. the breaking weight of the wire. The breaking weight will vary from a few pounds to several thousand pounds depending on the size and composition of the wire. The size can be verified to the millionth of an inch by hand, bench, or laser micrometers. The straightness of the wire and the weight required to bend the wire to a determined degree can also be verified to meet exacting requirements.



Inspection

All wire goes through our final inspection for correct diameter, spooling, labeling, and all other customer specifications. All spools are then shrink-wrapped for their protection.

Our rigorous quality control checks allow us to qualify for ISO 9002 Certification #1016.

Materials

Materials Redrawn by Ken-tron Wire:

Phos Bronze
 42 Alloy
 52 Alloy
 Kovar
 Haynes 25
 Haynes 188
 Haynes 230
 Haynes 214
 Hastelloy B-2
 Hastelloy C-276
 Hastelloy C 22
 Hastelloy G 30
 Hastelloy X
 Hastelloy W
 Waspalloy
 Monel 400
 Inconel 718, 625, X750
 Incoloy 825
 Brass 230, 240, 270, 260, 340
 OFHC Copper CDA 102 & 101
 Nickel 200, 201, 205 & 270
 Nickel Plated 2%, 4%, 8%, 12% & 16%
 Nickel Plated Copper 27%
 Nitronic 32
 70/30 Nickel Iron
 Precious Metal Plated Wires
 17-4 Stainless Steel
 17-7 Stainless Steel
 300 Series Stainless 302, 304, 305, 316 L, 316 LVM & 347
 400 Series Stainless 420 & 430

We have many popular sizes in stock and ready for immediate shipment. We are not limited to the above materials, Ken-tron will also draw customer consigned materials!

Decimal Size	Ft. Per Pound*	Decimal Size	Ft. Per Pound*	Decimal Size	Ft. Per Pound*	Decimal Size	Ft. Per Pound*	Decimal Size	Ft. Per Pound*	Decimal Size	Ft. Per Pound*
.150	16.7	.125	24.0	.100	37.5	.075	67	.050	150	.025	600
.149	16.9	.124	24.4	.099	38.3	.074	69	.049	156	.024	651
.148	17.1	.123	24.8	.098	39	.073	71	.048	163	.023	708
.147	17.4	.122	25.2	.097	40	.072	73	.047	170	.022	774
.146	17.6	.121	25.6	.096	41	.071	75	.046	177	.021	850
.145	17.9	.120	26.1	.095	42	.070	77	.045	185	.020	937
.144	18.1	.119	26.5	.094	43	.069	79	.044	194	.019	1,038
.143	18.4	.118	26.9	.093	44	.068	81	.043	203	.018	1,156
.142	18.6	.117	27.4	.092	45	.067	84	.042	213	.017	1,296
.141	18.9	.116	27.9	.091	46	.066	86	.041	223	.016	1,464
.140	19.2	.115	28.4	.090	47	.065	89	.040	235	.015	1,665
.139	19.4	.114	28.9	.089	48	.064	92	.039	247	.014	1,911
.138	19.7	.113	29.4	.088	49	.063	95	.038	260	.013	2,217
.137	20.0	.112	29.9	.087	50	.062	98	.037	274	.012	2,601
.136	20.3	.111	30.4	.086	51	.061	101	.036	289	.011	3,096
.135	20.6	.110	31.0	.085	52	.060	105	.035	306	.010	3,746
.134	20.9	.109	31.6	.084	54	.059	108	.034	324	.009	4,624
.133	21.2	.108	32.2	.083	55	.058	112	.033	344	.008	5,853
.132	21.5	.107	32.8	.082	56	.057	116	.032	366	.007	7,644
.131	21.9	.106	33.4	.081	58	.056	120	.031	390	.006	10,404
.130	22.2	.105	34.0	.080	59	.055	124	.030	417	.005	14,982
.129	22.6	.104	34.7	.079	61	.054	129	.029	446	.004	22,900
.128	22.9	.103	35.4	.078	62	.053	134	.028	478	.003	40,700
.127	23.1	.102	36.0	.077	64	.052	139	.027	514	.002	91,500
.126	23.6	.101	36.8	.076	65	.051	144	.026	555	.001	370,539

*Ft. per pound is average. The length may vary depending on materials.

Ken-tron Wire Division is growing and improving to serve you better. Among the new acquisitions to improve our speed and quality, we have three new furnaces and furnace spoolers, six fine wire drawing machines, a new state-of-the-art Instron (to test wire strength), four new respoolers, two laser micrometers and one semi-automatic shrink wrap machine. We recently installed a new computer system and we have added manufacturing space to our current facility.

Through all these positive changes, we have increased our production, our quality, and our commitment to serving you. Our emphasis is on providing you with an excellent product, in a timely manner, and at a reasonable price. If you are not a customer, please contact our sales department and let us demonstrate how our quality, value, service and reliability can improve your bottom line. If you are currently one of our worldwide customers, thank you!


We look forward to hearing from you!

Ken-tron Mfg., Inc.
Wire Division
610 Industrial Drive
P.O. Box 21250
Owensboro, KY 42304-1250

Phone: (270) 684-0431
Toll Free: (800) 872-9336
FAX: (270) 684-0435
Website//www.ken-tron.com
Email: wire@ken-tron.com

*Our dedicated
team is
working and
growing
together.
We not only get
the job done,
we do it
better!*





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