ELECTRIC WIRE COMPANY Inc.

Manufacturers of Fine Wire

Plant and Offices
122 FEDERAL ST.
NORTHAMPTON, MASS.

History of Electric Wire Company, Inc.

The Electric Wire Company was incorporated in 1947, primarily to meet the growing demand for high quality enameled wire. An item so essential in the manufacture of motors and various electronic coils.

The "post war" years also brought an even greater need for this same high quality in all types of wire. Production could not be confined to enameled wires alone, but soon encompassed every phase of specialty wire manufacturing. The hard to do items were soon taken as a matter of daily routine.

Soon after the founding of the company, Mr. F. A. Harris, joined his son, Mr. Albert Harris, who had been instrumental in starting the company. F. A. Harris brought with him the skill and knowledge gathered through fifty years in the wire industry. Mr. Sherwood Harris became a member of the firm in 1950. The combining of the knowledge, both practical and technical, of these three members of the Harris family has assisted in the rapid growth of Electric Wire.

Modern wire drawing facilities in a plant laid out for efficient straight line production makes possible the prompt handling of every customer requirement. Electric Wire is fully equipped to manufacture wire to the most exacting specifications.

The intimate knowledge of the most advanced wire drawing techniques, plus the ability to design and build necessary machinery capable of producing the finest quality wire has been a prime factor in the growth of the company to its present envied position in the wire field.

Electric Wire Company now serves every phase of American Industry, wherever high quality wire may be in demand. The phrase "from A to Z" is certainly applicable wherein the end use of our product is concerned . . . Aircraft, Brushes, Cable, Chains, Filters, Jewelry, Missiles, Music Strings, Pot Cleaners, Rope, Springs, Sutures, Wire Cloth and Zippers, just to name a few.

To meet the constant demands of every phase of American Industry, we are constantly striving to improve our product. Every stage of our production is under direct supervision of skilled technical personnel. Our inventory of various alloys and metals is kept at a high level. As many as forty-two different alloys are carried in stock at one time, enabling us to service the most exacting needs of our customers.

Listed herewith are many of the alloys carried in perpetual stock, readily available to be processed to customers special requirements.

PHOSPHOR BRONZE — All grades from 10% to 1½%; all tempers.

BRASSES — All grades and tempers.

COMMERCIAL BRONZE — All tempers.

1% TIN BRASS WIRE — Commercially known as 92-X; all tempers.

MONEL WIRE — All tempers from ¼".

GRADE "A" NICKEL — All tempers from ¼".

DURANICKEL & PERMANICKEL — All tempers from ¼".

INCONEL & INCOLOY — ¼" and finer in all tempers.

STAINLESS STEELS — All alloys in 300 and 400 series including extra low carbon grades. From ¼".

NICKEL SILVER—All grades and tempers. From ¼".

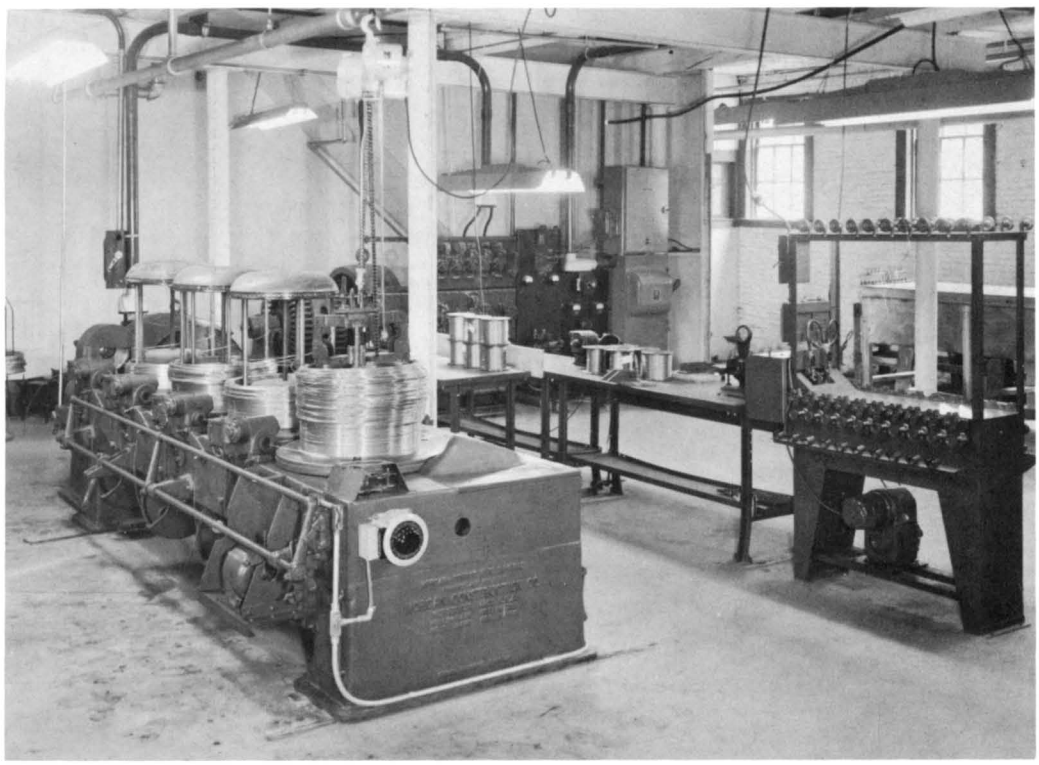
SILICON BRONZE — All tempers.

ALUMINUM — All grades and tempers.

PURE IRON — All tempers.

SILVER WIRE — Sterling; Coin and Pure in all tempers.

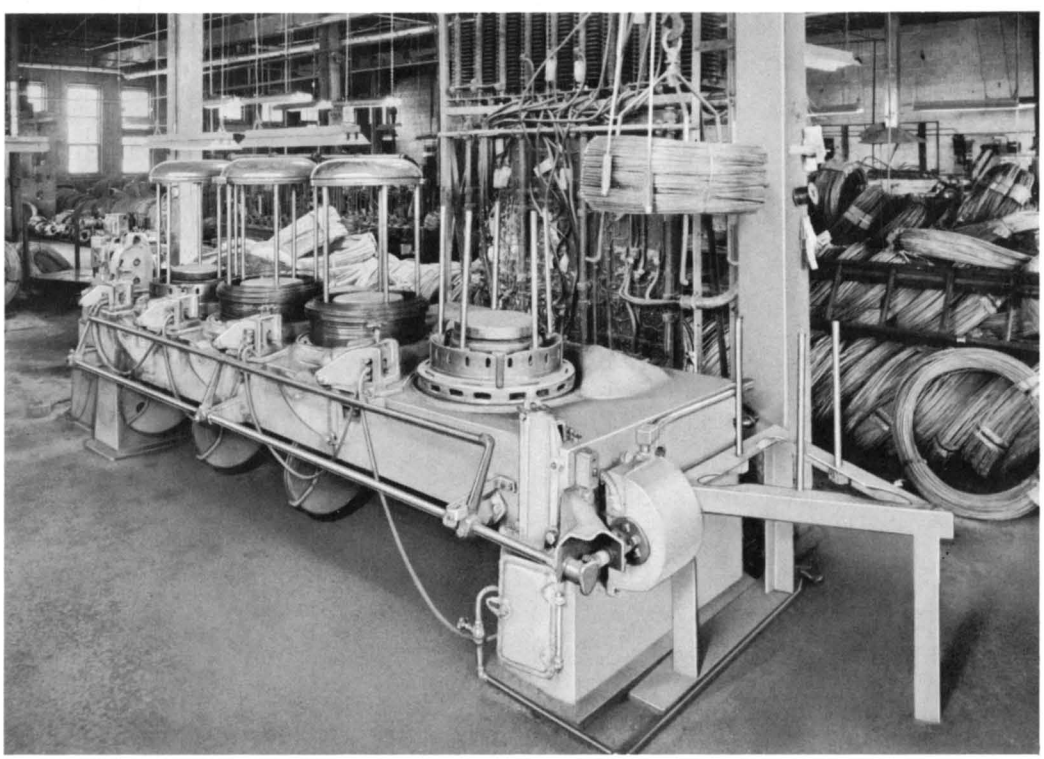
MULTIPLE MACHINES

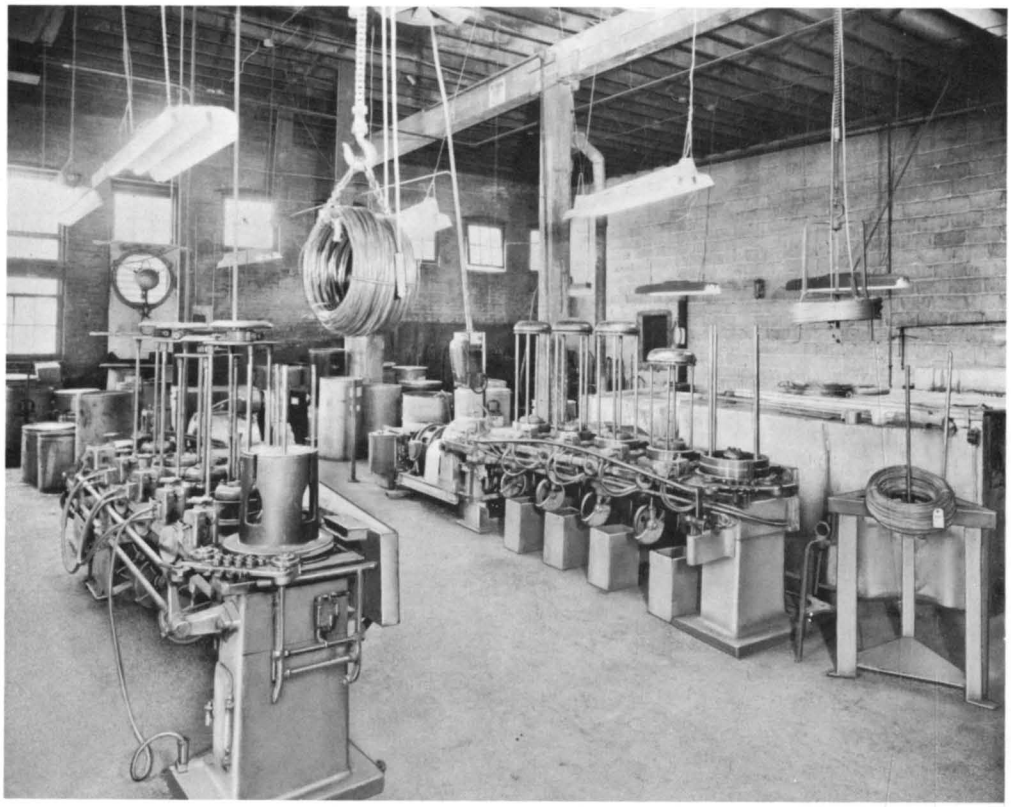


SERVICE

On multiple die machines such as pictured here, selected hot rolled rod is drawn through a series of carbide dies. Before drawing, all rod is coated to insure perfect uniformity and to protect the surfaces of the metal during the cold drawing operation.

QUALITY



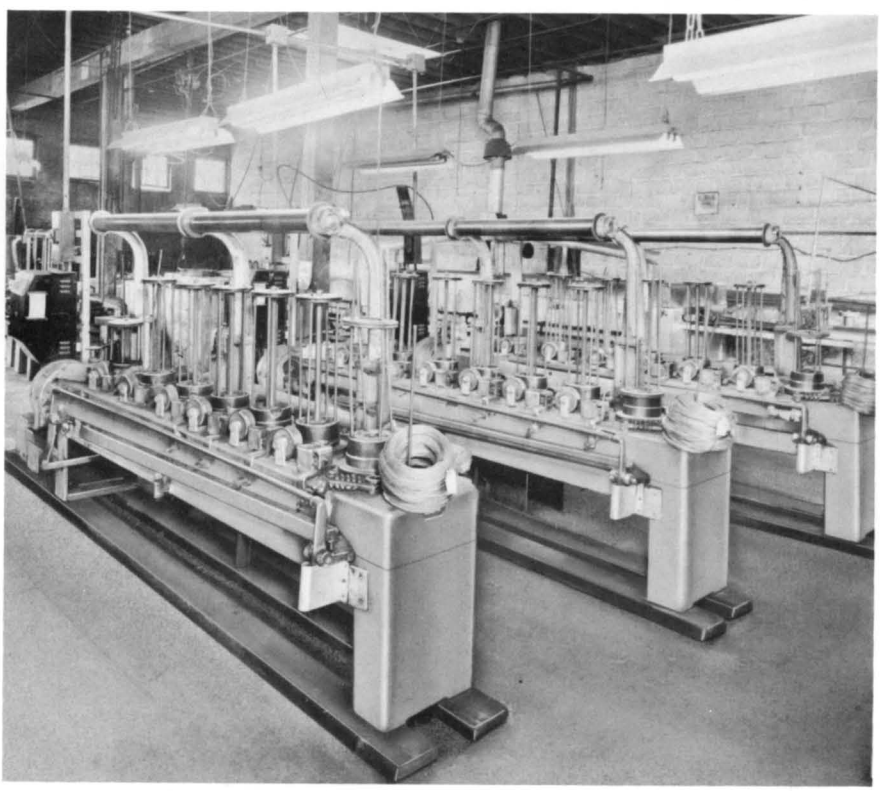


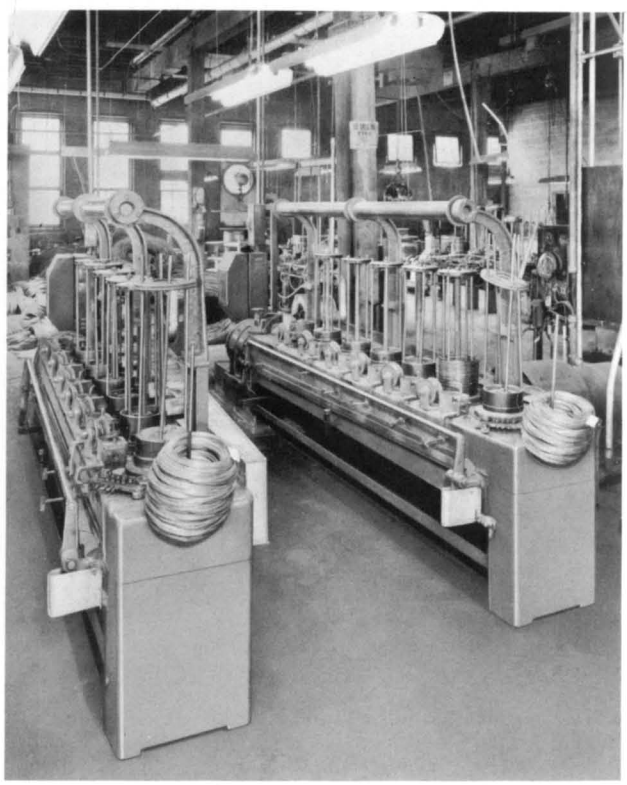
COATING TANKS

The coating tanks pictured in right background contain a Company developed solution for coating intermediate diameters of wire prior to cold drawing on machines pictured below.

"C" MACHINE

The intermediate cold drawing of wire is accomplished on machines shown here, combining ruggedness of equipment with the latest improvements and innovations necessary to cool and lubricate the metal during severe cold drawing operations. The diameter range of these units is one eighth inch to one sixteenth inch.





"D" MACHINE

The continuous machines shown here are used exclusively for finishing operations with a diameter range of .045″ to .015″.

COMPARISON OF WIRE GAUGES

Gauge No.	Brown & Sharp or American			Birmingham or Stubs	W. & M. and Roebling	British Standard or Imperial	U.S. Standard
	Diameter in inches	Area Square inches	Area Circular inches	Diameter of Wire in Inches			
0000	.46000	.166	212,000.0	.454	.393	.400	.406
000	.40964	.132	168,000.0	.425	.362	.372	.375
00	.36480	.105	133,000.0	.380	.331	.348	.344
0	.32486	.0829	106,000.0	.340	.307	.324	.313
1	.28930	.0657	83,700.0	.300	.283	.300	.281
2	.25763	.0521	66,400.0	.284	.263	.276	.266
3	.22942	.0413	52,600.0	.259	.244	.252	.250
4	.20431	.0328	41,700.0	.238	.225	.232	.234
5	.18194	.0260	33,100.0	.220	.207	.212	.219
6	.16202	.0206	26,300.0	.203	.192	.192	.203
7	.14428	.0164	20,800.0	.180	.177	.176	.188
8	.12849	.0130	16,500.0	.165	.162	.160	.172
9	.11443	.0103	13,100.0	.148	.148	.144	.156
10	.10189	.00815	10,400.0	.134	.135	.128	.141
11	.09074	.00647	8,230.0	.120	.120	.116	.125
12	.08081	.00513	6,530.0	.109	.105	.104	.109
13	.07196	.00407	5,180.0	.095	.092	.092	.0938
14	..06408	.00323	4,110.0	.083	.080	.080	.0781
15	.05706	.00256	3,260.0	.072	.072	.072	.0703
16	.05082	.00203	2,580.0	.065	.063	.064	.0625
17	.04525	.00161	2,050.0	.058	.054	.056	.0563
18	.04030	.00128	1,620.0	.049	.047	.048	.0500
19	.03589	.00101	1,290.0	.042	.041	.040	.0438
20	.03196	.000802	1,020.0	.035	.035	.036	.0375
21	.02846	.000636	810.0	.032	.032	.032	.0344
22	.02535	.000505	642.0	.028	.028	.028	.0313
23	.02257	.000400	509.0	.025	.025	.024	.0281
24	.02010	.000317	404.0	.022	.023	.022	.0250
25	.01790	.000252	320.0	.020	.020	.020	.0219
26	.01594	.000200	254.0	.018	.018	.018	.0188
27	.01420	.000158	202.0	.016	.017	.0164	.0172
28	.01264	.000126	160.0	.014	.016	.0148	.0156
29	.01126	.0000995	127.0	.013	.015	.0136	.0141
30	.01003	.0000789	101.0	.012	.014	.0124	.0125
31	.00893	.0000626	79.7	.010	.013	.0116	.0109
32	.00795	.0000496	63.2	.009	.012	.0108	.0102
33	.00708	.0000394	50.1	.008	.011	.010	.0094
34	.00630	.0000312	39.8	.007	.010	.0092	.0086
35	.00561	.0000248	31.5	.005	.0095	.0084	.0078
36	.00500	.0000196	25.0	.004	.009	.0076	.0070
37	.00445	.0000156	19.8	....	.0085	.0068	.0066
38	.00397	.0000123	15.7	....	.008	.006	.0063
39	.00353	.0000098	12.5	....	.0075	.0052	....
40	.00314	.0000078	9.9	....	.007	.0048	....
41	.002800	....	....	....	....	.0044	....
42	.002494	....	....	....	....	.004	....
43	.002221	....	....	....	....	.0036	....
44	.001978	....	....	....	....	.0032	....
45	.001761	....	....	....	....	.0028	....
46	.001568	....	....	....	....	.0024	....
47	.001397	....	....	....	....	.002	....
48	.001244	....	....	....	....	.0016	....
49	.001108	....	....	....	....	.0012	....
50	.0009863	....	....	....	....	.001	....

FEET PER POUND
** MONEL ROUND WIRE

Diameter Inches	Feet per Pound	Diameter Inches	Feet per Pound	Diameter Inches	Feet per Pound	Diameter Inches	Feet per Pound
.2893	3.974	.108	27.99	.057	102.3	.025	532
.284	4.124	.1055	28.89	.056	107.2	.024	582
.283	4.153	.1019	31.98	.055	110.0	.023	629
.2625	4.827	.095	35.96	.054	114.0	.022	687
.259	4.958	.0937	37.87	.053	118.8	.021	754
.2576	5.012	.0915	39.74	.052	123.2	.020	831
.250	5.321	.0907	40.42	.051	127.8	.019	922
.244	5.581	.083	48.29	.050	133.1	.018	1027
.238	5.812	.0808	50.94	.049	139.0	.017	1143
.2294	6.320	.080	51.97	.048	144.9	.016	1301
.225	6.570	.079	53.25	.047	150.6	.015	1478
.220	6.872	.078	54.67	.046	157.2	.014	1697
.2187	6.954	.077	56.10	.045	164.8	.013	1968
.207	7.684	.076	57.58	.044	171.7	.012	2310
.2043	7.968	.075	58.90	.043	180.1	.011	2770
.203	8.071	.074	60.70	.042	188.6	.010	3323
.192	9.022	.073	62.20	.041	198.3	.0095	3596
.1875	9.461	.072	64.40	.040	208.0	.009	4107
.1819	10.05	.071	66.50	.039	218.1	.0085	4605
.180	10.26	.070	68.10	.038	230.2	.008	5197
.177	10.61	.069	69.90	.037	243.1	.0075	5890
.165	12.21	.068	72.00	.036	256.0	.007	6810
.162	12.67	.067	74.10	.035	271.3	.0065	7885
.1562	13.63	.066	76.43	.034	288.0	.006	9240
.148	15.18	.065	78.85	.033	305.4	.0055	11000
.1443	15.97	.064	8130	.032	326.0	.005	13310
.135	18.25	.063	83.80	.031	347.0	.0045	16480
.134	18.52	.062	86.39	.030	369.5	.004	20800
.1285	20.14	.061	88.95	.029	396.0	.0035	27130
.125	21.29	.060	92.40	.028	424.8	.003	36950
.120	23.09	.059	95.70	.027	456.0	.0025	53214
.1144	25.41	.058	98.77	.026	492.1	.002	83130

** For feet per pound of other materials multiply by following factors: K Monel, 1.044; Nickel, .995; Permanickel, 1.011; Inconel, 1.040; Stainless Steel Type 302, 1.11.

GAUGES, SIZES, WEIGHTS AND LENGTHS OF STEEL WIRE

Gauge	Dia. in inches	Feet per pound	Pounds per foot	Gauge	Dia. in inches	Feet per pound	Pounds per foot
5/16"	.3125"	3.839	.2605	#17	.054"	128.6	.007778
#1	.283"	4.681	.2136	#18	.0475"	166.2	.006018
9/32"	.281"	4.740	.2110	#19	.041"	223.0	.004484
#2	.2625"	5.441	.1838	#20	.0348"	309.6	.003230
1/4"	.250"	5.999	.1667	#21	.0317"	373.1	.002680
#3	.2437"	6.313	.1584	#22	.0286"	458.4	.002181
#4	.2253"	7.386	.1354	#23	.0258"	563.3	.001775
7/32"	.21875"	7.835	.1276	#24	.023"	708.7	.001411
#5	.207"	8.750	.1143	#25	.0204"	900.9	.001110
#6	.192"	10.17	.09832	#26	.0181"	1144.	.0008738
3/16"	.1875"	10.66	.09377	#27	.0173"	1253.	.0007983
#7	.177"	11.97	.08356	#28	.0162"	1429.	.0007000
#8	.162"	14.29	.07000	#29	.0150"	1666.	.0006001
5/32"	.15625"	15.36	.06512	#30	.0140"	1913.	.0005228
#9	.1483"	17.05	.05866	#31	.0132"	2152.	.0004647
#10	.135"	20.57	.04861	#32	.0128"	2288.	.0004370
1/8"	.125"	24.00	.04168	#33	.0118"	2693.	.0003714
#11	.1205"	25.82	.03873	#34	.0104"	3466.	.0002885
#12	.1055"	33.69	.02969	#35	.0095"	4154.	.0002407
3/32"	.0937"	42.66	.02344	#36	.0090"	4629.	.0002160
#13	.0915"	44.78	.02233	#37	.0085"	5289.	.0001927
#14	.080"	58.58	.01707	#38	.0080"	5858.	.0001707
#15	.072"	72.32	.01383	#39	.0075"	6665.	.0001500
#16(1/16")	.0625"	95.98	.01042	#40	.0070"	7652.	.0001307

physical properties OF STAINLESS STEEL WIRE

ELECTRIC WIRE COMPANY, Inc.

RESEARCH • DEVELOPMENT • EXPERIENCE

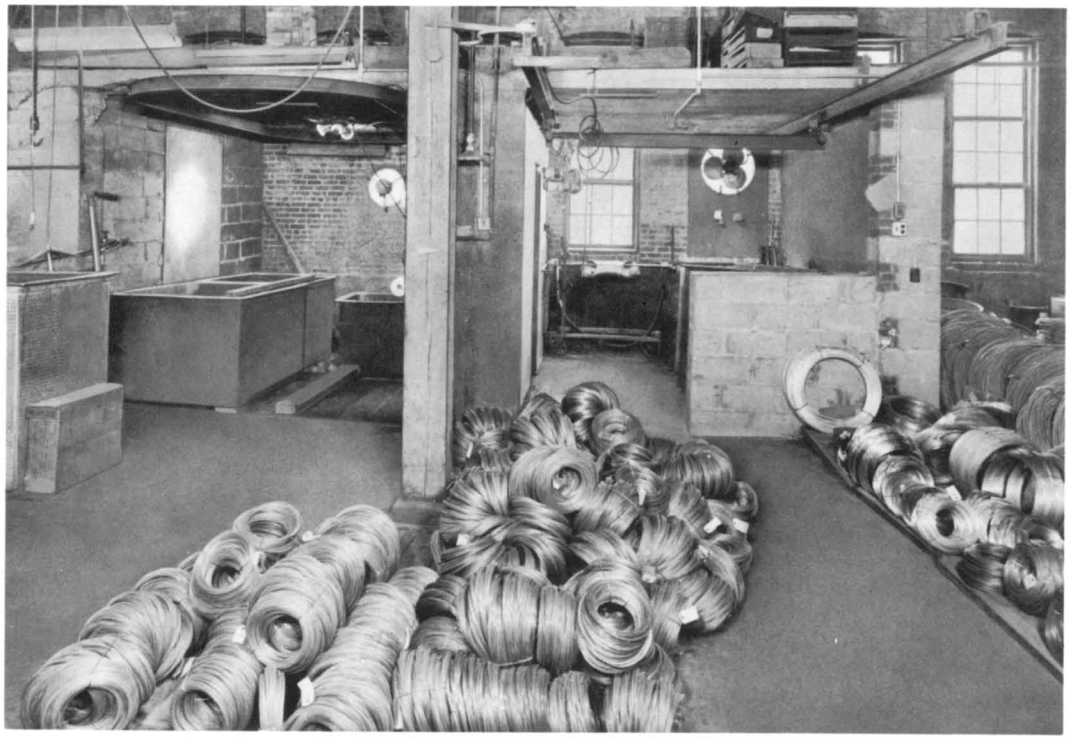
	302	303	304	308	309	310	314	316	321	330	347	410	416	420	430	430-CU	442	446	
APPROXIMATE CHEMICAL COMPOSITION IN PER CENT																			**APPROXIMATE CHEMICAL COMPOSITION IN PER CENT**
Carbon	0.08-0.20	0.15 max.	0.08 max.	0.08 max.	0.20 max.	0.25 max.	0.25 max.	0.10 max.	0.08 max.	0.20 max.	0.08 max.	0.15 max.	0.15 max.	0.15 min.	0.12 max.	0.10 max.	0.35 max.	0.35 max.	Carbon
Manganese	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	2.00 max.	1.00 max.	1.25 max.	1.00 max.	1.00 max.	0.20-0.50	1.50 max.	1.50 max.	Manganese
Silicon	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.50 max.	1.5-3.0	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	1.00 max.	0.65-0.95	1.00 max.	1.00 max.	Silicon
Phosphorus	0.040 max.	0.07 min.,	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.040 max.	0.07 min.	0.04 max.	0.040 max.	0.03	0.040 max.	0.040 max.	Phosphorus
Sulphur	0.030 max.	0.07 min.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.030 max.	0.007 min.	0.03 max.	0.030 max.	0.03	0.030 max.	0.030 max.	Sulphur
Chromium	17-19	17-19	18-20	19-21	22-24	24-26	23-26	16-18	17-19	15-17	17-19	11.5-13.5	12-14	12-14	14-18	15-17	18-23	23-27	Chromium
Nickel	8-10	8-10	8-10	8-10	10-12	12-15	19-22	10-14	8-11	34-36	9-12	.....	.....	.....	.....	.75-1.10	.....	0.25 max.	Nickel
		Sul. or Se. 0.07 min.						2-3 Molybdenum	5 x % C. = Titanium minimum	.....	10 x % C. = Columbium minimum	.....	Sul. or Se. 0.07 min.	.....	.....	Copper	.....	.....	
0.125"-0.250"																			
TENSILE STRENGTH, PSI																			**TENSILE STRENGTH, PSI**
Annealed Soft	90-105,000	100-110,000	90-105,000	85-105,000	85-105,000	85-105,000	85-105,000	85-105,000	90-105,000	85-105,000	85-105,000	75- 90,000	75- 90,000	95-100,000	75- 90,000	75- 90,000	100-120,000	110-125,000	Annealed Soft
20% Cold Drawn (¼ Hard)	120-140,000	130-150,000	120-140,000	110-130,000	110-130,000	110-130,000	110-130,000	110-130,000	120-140,000	110-130,000	110-130,000	90-115,000	90-115,000	100-120,000	90-100,000	90-100,000	120-135,000	130-145,000	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	145-170,000	Not Used	145-170,000	125-155,000	125-155,000	125-155,000	125-155,000	125-155,000	145-170,000	125-155,000	125-155,000	115-140,000	Not Used	120-140,000	100-115,000	100-115,000	135-145,000	145-155,000	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	170-200,000	In These	170-200,000	140-180,000	140-180,000	140-180,000	140-180,000	140-180,000	170-200,000	140-180,000	140-180,000	135-160,000	in These	140-160,000	110-125,000	110-125,000	145-165,000	155-175,000	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	190-230,000	Tempers	190-230,000	160-190,000	160-190,000	160-190,000	160-190,000	160-190,000	190-230,000	160-190,000	160-190,000	150-190,000-B	Tempers	220-250,000-B	125-140,000	125-140,000	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
YIELD STRENGTH, PSI																			**YIELD STRENGTH, PSI**
Annealed Soft	35- 55,000	45- 55,000	35- 55,000	35- 40,000	35- 40,000	35- 40,000	35- 40,000	35- 40,000	35- 55,000	35- 40,000	35- 40,000	35- 50,000	35- 50,000	45- 70,000	40- 60,000	40- 60,000	50- 65,000	50- 65,000	Annealed Soft
20% Cold Drawn (¼ Hard)	90-125,000	95-130,000	90-125,000	80- 90,000	80- 90,000	80- 90,000	80- 90,000	80- 90,000	90-125,000	80- 90,000	80- 90,000	70- 80,000	70- 80,000	90-100,000	70- 80,000	70- 80,000	85- 95,000	90-100,000	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	120-150,000	Not Used	120-150,000	105-125,000	105-125,000	105-125,000	105-125,000	105-125,000	120-150,000	105-125,000	105-125,000	85-105,000	Not Used	100-120,000	80-100,000	80-100,000	105-125,000	110-130,000	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	150-180,000	In These	150-180,000	125-150,000	125-150,000	125-150,000	125-150,000	125-150,000	150-180,000	125-150,000	125-150,000	110-120,000	in These	130-140,000	95-110,000	95-110,000	135-155,000	145-160,000	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	180-220,000	Tempers	180-220,000	150-185,000	150-185,000	150-185,000	150-185,000	150-185,000	180-220,000	150-185,000	150-185,000	135-145,000-B	Tempers	200-230,000-B	115-130,000	115-130,000	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
ELONGATION IN 2 INCHES, %																			**ELONGATION IN 2 INCHES, %**
Annealed Soft	25-55	25-40	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	15-20	14-19	14-19	15-22	15-22	11-15	10-14	Annealed Soft
20% Cold Drawn (¼ Hard)	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	12-17	11-16	11-16	11-16	11-16	8-13	7-12	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	10-17	Not Used	10-17	10-11	10-11	10-11	10-11	10-11	10-17	10-11	10-11	10-15	Not Used	9-14	9-14	9-14	4-9	4-7	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	5-10	In These	5-10	8-12	8-12	8-12	8-12	8-12	5-10	8-12	8-12	8-13	in These	7-12	7-12	7-12	1-3	1-3	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	2-5	Tempers	2-5	4-8	4-8	4-8	4-8	4-8	2-5	4-8	4-8	8-13-B	Tempers	5-10-B	4-6	4-6	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
ROCKWELL HARDNESS NUMBER																			**ROCKWELL HARDNESS NUMBER**
Annealed Soft	B 78-85	B 83-90	B 78-85	B 76-83	B 76-83	B 76-83	B 76-83	B 76-83	B 78-85	B 76-83	B 76-83	B 80-85	B 80-85	B 88-95	B 82-90	B 82-90	B 82-90	B 82-90	Annealed Soft
20% Cold Drawn (¼ Hard)	C 23-28	B 90-100	C 23-28	C 23-28	C 23-28	C 23-28	C 23-28	C 23-28	C 23-28	C 23-28	C 23-28	B 85-90	B 85-90	B 95-100	B 90-95	B 80-95	B 90-95	B 90-95	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	C 29-32	Not Used	C 29-32	C 29-32	C 29-32	C 29-32	C 29-32	C 29-32	C 29-32	C 29-32	C 29-32	B 93-96	Not Used	C 23-28	B 95-100	B 95-100	B 95-100	B 95-100	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	C 33-38	In These	C 33-38	C 33-38	C 33-38	C 33-38	C 33-38	C 33-38	C 33-38	C 33-38	C 33-38	C 20-25	in These	C 28-32	C 22-26	C 22-26	C 22-26	C 22-26	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	C 38-43	Tempers	C 38-43	C 38-43	C 38-43	C 38-43	C 38-43	C 38-43	C 38-43	C 38-43	C 38-43	C 25-30-B	Tempers	C 42-52-B	C-26-30	C 26-30	C 26-30	C 26-30	80% Cold Drawn (Full Hard)
0.020"-0.125"																			
TENSILE STRENGTH, PSI																			**TENSILE STRENGTH, PSI**
Annealed Soft	95-115,000	110-120,000	95-115,000	90-110,000	90-110,000	90-110,000	90-110,000	90-110,000	95-115,000	90-110,000	90-110,000	90-115,000	90-115,000	95-120,000	85-100,000	85-100,000	100-120,000	110-125,000	Annealed Soft
20% Cold Drawn (¼ Hard)	140-160,000	150-170,000	140-160,000	115-140,000	115-140,000	115-140,000	115-140,000	115-140,000	140-160,000	115-140,000	115-140,000	115-130,000	115-130,000	120-135,000	105-120,000	105-120,000	120-135,000	130-145,000	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	165-230,000	Not Used	165-230,000	140-170,000	140-170,000	140-170,000	140-170,000	140-170,000	165-230,000	140-170,000	140-170,000	130-140,000	Not Used	140-150,000	115-130,000	115-130,000	135-145,000	145-155,000	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	195-300,000	in These	195-300,000	170-200,000	170-200,000	170-200,000	170-200,000	170-200,000	195-300,000	170-200,000	170-200,000	140-160,000	in These	150-170,000	125-140,000	125-140,000	145-165,000	155-175,000	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	230-300,000	Tempers	230-300,000	185-245,000	185-245,000	185-245,000	185-245,000	185-245,000	230-300,000	185-245,000	185-245,000	170-190,000-B	Tempers	220-250,000-B	140-160,000	140-160,000	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
YIELD STRENGTH, PSI																			**YIELD STRENGTH, PSI**
Annealed Soft	40- 60,000	45- 60,000	40- 60,000	35- 50,000	35- 50,000	35- 50,000	35- 50,000	35- 50,000	40- 60,000	35- 50,000	35- 50,000	40- 60,000	40- 60,000	50- 70,000	40- 60,000	40- 60,000	50- 65,000	50- 65,000	Annealed Soft
20% Cold Drawn (¼ Hard)	100-150,000	105-155,000	100-150,000	90-130,000	90-130,000	90-130,000	90-130,000	90-130,000	100-150,000	90-130,000	90-130,000	80- 90,000	80- 90,000	90-100,000	80- 90,000	80- 90,000	85- 95,000	90-100,000	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	130-210,000	Not Used	130-210,000	110-155,000	110-155,000	110-155,000	110-155,000	110-155,000	130-210,000	110-155,000	110-155,000	95-105,000	Not Used	100-120,000	95-105,000	95-105,000	105-125,000	110-130,000	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	170-270,000	in These	170-270,000	150-180,000	150-180,000	150-180,000	150-180,000	150-180,000	170-270,000	150-180,000	150-180,000	110-120,000	in These	130-140,000	110-125,000	110-125,000	135-155,000	145-160,000	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	210-280,000	Tempers	210-280,000	185-230,000	185-230,000	185-230,000	185-230,000	185-230,000	210-280,000	185-230,000	185-230,000	160-180,000-B	Tempers	200-230,000-B	130-150,000	130-150,000	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
ELONGATION IN 2 INCHES, %																			**ELONGATION IN 2 INCHES, %**
Annealed Soft	25-55	20-40	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	15-20	14-19	14-19	15-22	15-22	11-15	10-14	Annealed Soft
20% Cold Drawn (¼ Hard)	15-25	10-20	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	12-17	11-16	11-16	11-16	11-16	8-13	7-12	20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	10-17	Not Used	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-15	Not Used	9-14	9-14	9-14	4-9	4-7	40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	5-10	in These	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	8-13	in These	7-12	7-12	7-12	1-3	1-3	60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	2-5	Tempers	2-5	1-2	1-2	1-2	1-2	1-2	2-5	1-2	1-2	8-13-B	Tempers	5-10-B	2-5	2-5	Not Practical	Not Practical	80% Cold Drawn (Full Hard)
0.002"-0.020"																			
TENSILE STRENGTH, PSI																			**TENSILE STRENGTH, PSI**
Annealed Soft	105-160,000	Not Used	105-160,000	95-130,000	95-130,000	95-130,000	95-130,000	95-130,000	105-160,000	95-130,000	95-130,000	75- 95,000	Not Used	95-115,000	70- 90,000	70- 90,000	Not Used in This Size Range. However, They Can Be Manufactured.		Annealed Soft
20% Cold Drawn (¼ Hard)	160-200,000	in This	160-200,000	130-170,000	130-170,000	130-170,000	130-170,000	130-170,000	160-200,000	130-170,000	130-170,000	95-115,000	in This	120-140,000	90-110,000	90-110,000			20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	205-240,000	Size Range	205-240,000	165-205,000	165-205,000	165-205,000	165-205,000	165-205,000	205-240,000	165-205,000	165-205,000	120-140,000	Size Range,	135-160,000	115-135,000	115-135,000			40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	250-300,000	However,	250-300,000	205-230,000	205-230,000	205-230,000	205-230,000	205-230,000	250-300,000	205-230,000	205-230,000	140-160,000	Can Be	150-170,000	135-155,000	135-155,000			60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	300-360,000	It Can Be Manufactured	300-360,000	245-275,000	245-275,000	245-275,000	245-275,000	245-275,000	300-360,000	245-275,000	245-275,000	180-200,000-B	Manufactured	220-250,000-B	160-200,000	160-200,000			80% Cold Drawn (Full Hard)
YIELD STRENGTH, PSI																			**YIELD STRENGTH, PSI**
Annealed Soft	45- 80,000	Not Used	45- 80,000	35- 70,000	35- 70,000	35- 70,000	35- 70,000	35- 70,000	45- 80,000	35- 70,000	35- 70,000	40- 60,000	Not Used	50- 70,000	40- 55,000	40- 55,000	Not Used in This Size Range. However, They Can Be Manufactured.		Annealed Soft
20% Cold Drawn (¼ Hard)	120-170,000	in This	120-170,000	100-140,000	100-140,000	100-140,000	100-140,000	100-140,000	120-170,000	100-140,000	100-140,000	80-100,000	in This	90-110,000	75- 90,000	75- 90,000			20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	175-215,000	Size Range,	175-215,000	135-170,000	135-170,000	135-170,000	135-170,000	135-170,000	175-215,000	135-170,000	135-170,000	105-130,000	Size Range,	.....	95-120,000	95-120,000			40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	230-280,000	Can Be	230-280,000	185-210,000	185-210,000	185-210,000	185-210,000	185-210,000	230-280,000	185-210,000	185-210,000	130-150,000	Can Be	.....	115-130,000	115-130,000			60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	280-350,000	Manufactured	280-350,000	230-260,000	230-260,000	230-260,000	230-260,000	230-260,000	280-350,000	230-260,000	230-260,000	170-180,000-B	Manufactured	200-230,000-B	140-180,000	140-180,000			80% Cold Drawn (Full Hard)
ELONGATION IN 2 INCHES, %																			**ELONGATION IN 2 INCHES, %**
Annealed Soft	25-55	Not Used	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	25-55	20-35	Not Used	10-20	20-35	20-35	Not Used in This Size Range. However, They Can Be Manufactured.		Annealed Soft
20% Cold Drawn (¼ Hard)	15-25	in This	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	15-25	in This	8-16	15-25	15-25			20% Cold Drawn (¼ Hard)
40% Cold Drawn (½ Hard)	10-17	Size Range,	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-17	10-15	Size Range,	6-12	10-15	10-15			40% Cold Drawn (½ Hard)
60% Cold Drawn (¾ Hard)	5-10	Can Be	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	5-10	Can Be	5-10	5-10	5-10			60% Cold Drawn (¾ Hard)
80% Cold Drawn (Full Hard)	1-2	Manufactured	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	1-2	5-10-B	Manufactured	4-6-B	5-10	5-10			80% Cold Drawn (Full Hard)

Physical Properties of Steel Wire

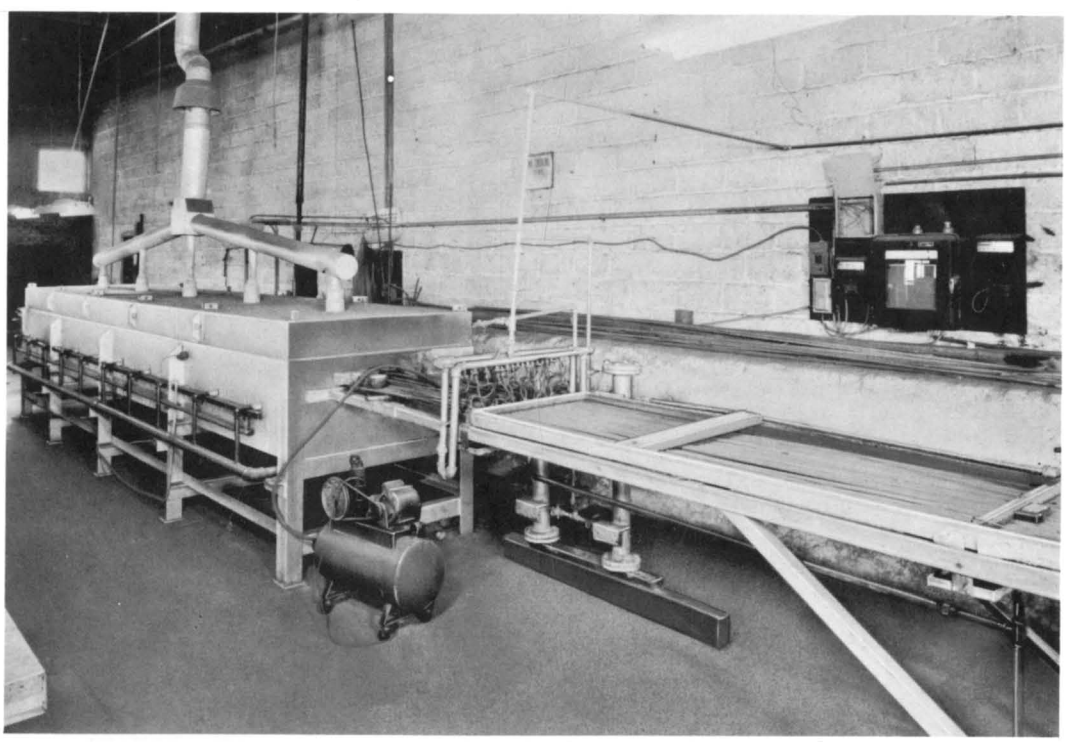
All Calculations Based on 489.6 Pounds Per Cubic Foot for Steel Wire

Steel Wire Ga. No. W.&M.	Diameter in Inches	Area in Square Inches	Breaking Strain 100,000 Lbs. Per Sq. In.	Weight, Pounds Per 1,000 Ft.	Feet Per Pound	Steel Wire Ga. No. W.&M.	Diameter in Inches	Area in Square Inches	Breaking Strain 100,000 Lbs. Per Sq. In.	Weight, Pounds Per 1,000 Ft.	Feet Per Pound	Steel Wire Ga. No. W.&M.	Diameter in Inches	Area in Square Inches	Breaking Strain 100,000 Lbs. Per Sq. In.	Weight, Pounds Per 1,000 Ft.	Feet Per Pound
	.0010	.00000079	.079	.00267	374924		.0225	.000397	39.7	1.348	741.8		.081	.005153	515.3	17.50	57.14
	.0012	.00000113	.113	.00384	260364	24	.0230	.000415	41.5	1.411	708.7		.082	.005281	528.1	17.93	55.77
	.0014	.00000154	.154	.00523	191288		.0235	.000433	43.3	1.470	680.3		.083	.005411	541.1	18.37	54.42
	.0016	.00000201	.201	.00683	146455		.0240	.000452	45.2	1.536	650.9		.084	.005542	554.2	18.82	53.13
	.0018	.00000254	.254	.00864	115716		.0245	.000471	47.1	1.601	624.9		.085	.005672	567.2	19.27	51.89
	.0020	.00000314	.314	.01067	93731		.0250	.000491	49.1	1.667	599.9		.086	.005809	580.9	19.73	50.68
	.0022	.00000380	.380	.01291	77464	23	.0258	.000523	52.3	1.775	563.3		.087	.005945	594.5	20.19	49.53
	.0024	.00000452	.452	.01536	65091		.0260	.000531	53.1	1.8032	554.5		.088	.006082	608.2	20.65	48.43
	.0026	.00000531	.531	.01803	55464		.0270	.000573	57.3	1.9444	514.3		.089	.006221	622.1	21.13	47.33
	.0028	.00000616	.616	.02091	47822		.0280	.000616	61.6	2.091	478.2		.090	.006362	636.2	21.60	46.29
	.0030	.00000707	.707	.02405	41660	22	.0286	.000642	64.2	2.182	458.4		.091	.006504	650.4	22.09	45.27
	.0032	.00000804	.804	.02731	36614		.0290	.000661	66.1	2.245	445.4	13	.0915	.006575	657.5	22.33	44.78
	.0034	.00000908	.908	.03084	32404		.0300	.000707	70.7	2.400	416.6		.092	.006648	664.8	22.58	44.30
	.0036	.00001018	1.018	.03457	28929		.0310	.000755	75.5	2.564	390.0		.093	.006793	679.3	23.07	43.36
	.0038	.00001134	1.134	.03851	25967	21	0317	.000789	78.9	2.680	373.1		.094	.006940	694.0	23.57	42.43
	.0040	.00001257	1.257	.04268	23433		.0320	.000804	80.4	2.731	366.1		.095	.007088	708.8	24.07	41.54
	.0042	.00001385	1.385	.04704	21250		.033	.000855	85.5	2.906	344.3		.096	.007238	723.8	24.58	40.68
50	.0044	.00001521	1.52	.05164	19366		.034	.000908	90.8	3.084	324.3		.097	.007390	739.0	25.10	39.84
49	.0046	.00001662	1.66	.05644	17718	20	.0348	.000951	95.1	3.23	309.6		.098	.007543	754.3	25.62	39.03
48	.0048	.00001810	1.81	.06145	16273		.035	.000962	96.2	3.27	306.1		.099	.007700	770.0	26.15	38.24
47	.0050	.00001964	1.96	.06668	14997		.036	.001018	101.8	3.46	289.3		.100	.007854	785.4	26.67	37.49
46	.0052	.00002124	2.12	.07212	13866		.037	.001075	107.5	3.65	274.0		.101	.008012	801.2	27.21	36.75
45	.0055	.0000238	2.38	.0807	12394		.038	.001134	113.4	3.85	259.7		.102	.008171	817.1	27.75	36.04
44	.0058	.0000264	2.64	.0897	11145		.039	.001195	119.5	4.06	246.3		.103	.008332	833.2	28.30	35.34
43	.0060	.0000283	2.83	.0960	10415		.040	.001257	125.7	4.27	234.3		.104	.008495	849.5	28.85	34.66
42	.0062	.0000302	3.02	.1025	9753	19	.041	.001320	132.0	4.48	223.0		.105	.008659	865.9	29.41	34.00
	.0065	.0000332	3.32	.1127	8824		.042	.001385	138.5	4.71	212.5	12	.1055	.008742	874.2	29.69	33.69
41	.0066	.0000342	3.42	.1162	8607		.043	.001452	145.2	4.93	202.8		.106	.008825	882.5	29.97	33.37
40	.0070	.0000385	3.85	.1307	7652		.044	.001521	152.1	5.16	193.7		.107	.008992	899.2	30.54	32.74
39	.0075	.0000442	4.42	.1500	6665		.045	.001590	159.0	5.40	185.2		.108	.009161	916.1	31.11	32.14
38	.0080	.0000503	5.03	.1707	5858		.046	.001662	166.2	5.64	177.2		.109	.009331	933.1	31.69	31.56
37	.0085	.0000567	5.67	.1927	5189		.047	.001735	173.5	5.89	169.8		.110	.009503	950.3	32.27	30.99
36	.0090	.0000636	6.36	.2160	4629	18	.0475	.001772	177.2	6.02	166.2		.111	.009677	967.7	32.86	30.43
35	.0095	.0000709	7.09	.2407	4154		.048	001810	181.0	6.15	162.7		.112	.009852	985.2	33.46	29.89
	.0100	.0000785	7.85	.2667	3749		.049	.001886	188.6	6.40	156.2		.113	.010029	1002.9	34.06	29.36
34	.0104	.0000849	8.49	.2885	3466		.050	.001966	196.6	6.67	149.8		.114	.010207	1020.7	34.66	28.85
	.0105	.0000866	8.66	.2940	3400		.051	.002043	204.3	6.94	144.1		.115	.010387	1038.7	35.27	28.35
	.0110	.0000950	9.5	.3228	3098		.052	.002124	212.4	7.21	138.7		.116	.010568	1056.8	35.89	27.86
	.0115	.0001040	10.4	.3525	2835		.053	.002206	220.6	7.49	133.5		.117	.010751	1075.1	36.51	27.39
33	.0118	.0001094	10.9	.3714	2693	17	.054	.002290	229.0	7.78	128.6		.118	.010936	1093.6	37.14	26.93
	.0120	.0001131	11.3	.3841	2604		.055	.002376	237.6	8.07	123.9		.119	.011122	1112.2	37.77	26.48
	.0125	.0001228	12.3	.4168	2400		.056	.002463	246.3	8.36	119.6		.120	.011310	1131.0	38.41	26.04
32	.0128	.0001287	12.9	.4370	2288		.057	.002552	255.2	8.67	115.3	11	.1205	.011404	1140.4	38.73	25.82
	.0130	.0001327	13.3	.4508	2218		.058	.002642	264.2	8.97	111.5		.121	.011499	1149.9	39.05	25.61
31	.0132	.0001369	13.7	.4647	2152		.059	.002734	273.4	9.28	107.8		.122	.011690	1169.0	39.70	25.19
	.0135	.0001433	14.3	.4861	2057		.060	.002827	282.7	9.60	104.2		.123	.011882	1188.2	40.35	24.78
30	.0140	.0001539	15.4	.5228	1913		.061	.002923	292.3	9.93	100.7		.124	.012076	1207.6	41.01	24.38
	.0145	.0001651	16.5	.5607	1783		.062	.003019	301.9	10.25	97.53		.125	.012272	1227.2	41.68	24.00
29	.0150	.0001767	17.7	.6001	1666	16	.0625	.003068	306.8	10.42	95.98		.126	.012469	1246.9	42.34	23.62
	.0155	.0001889	18.9	.6415	1559		.063	.003117	311.7	10.59	94.4		.127	.012668	1266.8	43.02	23.25
	.016	.0002011	20.1	.6828	1465		.064	.003217	321.7	10.92	91.53		.128	.012868	1286.8	43.70	22.88
28	.0162	.0002061	20.6	.7000	1429		.065	.003318	331.8	11.27	88.74		.129	.013070	1307.0	44.39	22.53
	.0165	.0002140	21.4	.7267	1376		.066	.003421	342.1	11.62	86.07		.130	.013272	1327.2	45 08	22.18
	.0170	.0002270	22.7	.7709	1297		.067	.003526	352.6	11.97	83.54		.131	.013478	1347.8	45.77	21.85
27	.0173	.0002351	23.5	.7983	1253		.068	.003632	363.2	12.33	81.10		.132	.013685	1368.5	46.47	21.52
	.0175	.000241	24.1	.8167	1224		.069	.003739	373.9	12.70	78.74		.133	.013893	1389.3	47.18	21.20
	.0180	.000255	25.5	.8642	1157		.070	.003848	384.8	13.07	76.52		.134	.014103	1410.3	47.89	20.88
26	.0181	.000257	25.7	.8738	1144		.071	.003959	395.9	13.44	74.40	10	.135	.014314	1431.4	48.61	20.57
	.0185	.000269	26.9	.9135	1095	15	.072	.004072	407.2	13.83	72.32	9	.1483	.017273	1727.3	58.66	17.05
	.0190	.000284	28.4	.9645	1037		.073	.004185	418.5	14.21	70.37	8	.162	.020612	2061.2	70.00	14.29
	.0195	.000299	29.9	1.014	986.2		.074	.004301	430.1	14.61	68.45	7	.177	.024606	2460.6	83.56	11.97
	.0200	.000314	31.4	1.067	937.3		.075	.004418	441.8	15.00	66.65	6	.192	.028953	2895.3	98.32	10.17
25	.0204	.000327	32.7	1.110	900.9		.076	.004537	453.7	15.41	64.89	5	.207	.033654	3365.4	114.3	8.75
	.0205	.000330	33.0	1.121	892.1		.077	.004657	465.7	15.82	63.21	4	.2253	.039867	3986.7	135.4	7.39
	.0210	.000346	34.6	1.176	850.0		.078	.004778	477.8	16.23	61.61	3	.2437	.046645	4664.5	158.4	6.31
	.0215	.000363	36.3	1.233	811.0		.079	.004902	490.2	16 65	60.06	2	.2625	.054119	5411.9	183.8	5.44
	.0220	.000380	38.0	1.291	774.6	14	.080	.005027	502.7	17.07	58.58	1	.283	.062902	6290.2	213.6	4.68

Cleaning Department



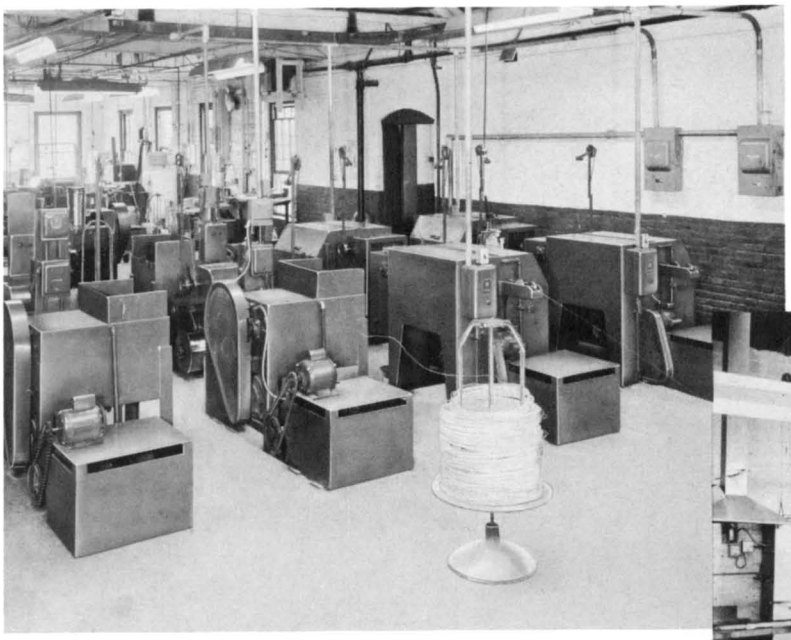
In the above cleaning and pickling room, intermediate and finished diameter wires are completely cleaned of all surface impurities, dirt, grease and coating. The final cleaning of the wire is accomplished through a four cycle bath including our own special solution of acids.



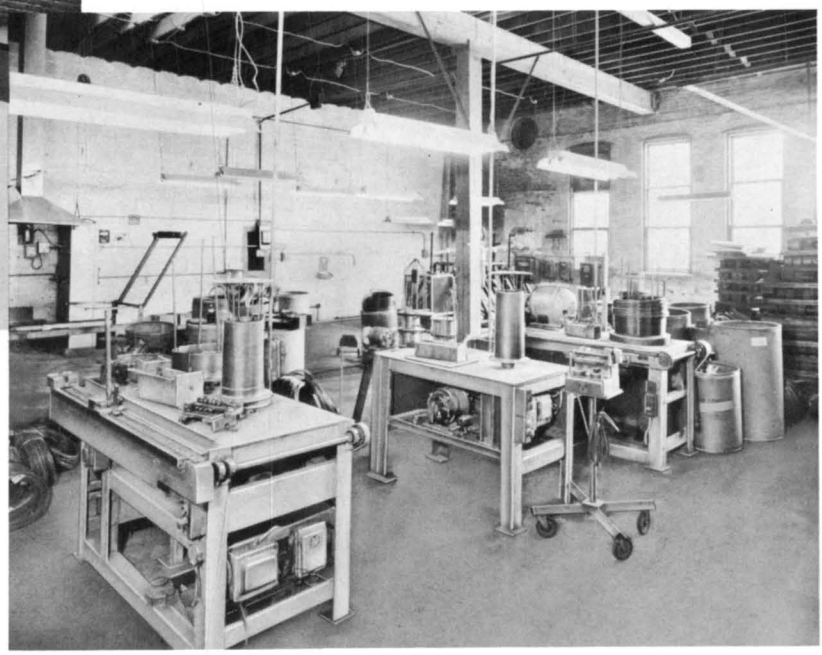
Heavy Annealing Unit

Unit pictured here is twenty-two foot, gas fired furnace, utilized for intermediate annealing. Temperature is pyrometer regulated. Ammonia cracking unit provides for atmospheric control. Wire from this furnace is bright annealed and packaged in coils or on reels, with a diameter range from one quarter inch to one sixteenth of an inch.

DEPICTED HERE ARE VARIOUS VIEWS OF DIFFERENT PHASES OF OUR PRODUCTION FACILITIES.



Intermediate wire drawing units with a diameter range from .057" to .011".



Single Holing Bull Blocks to manufacture special tempers and special size coils.

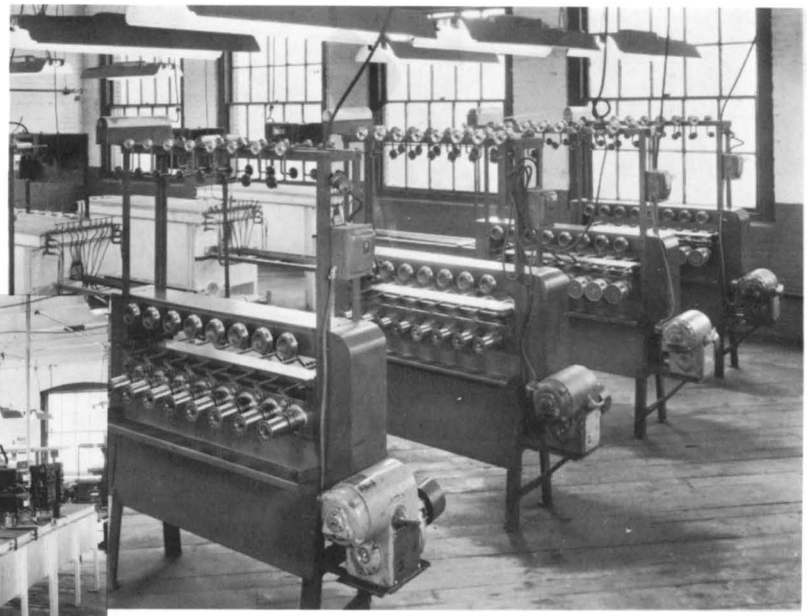
INTEGRITY

EXPERIENCE

Fine wire drawing section of plant with a diameter range of .040" to .001".

Additional heavy wire annealing furnace with diameter range from .125" to .050".

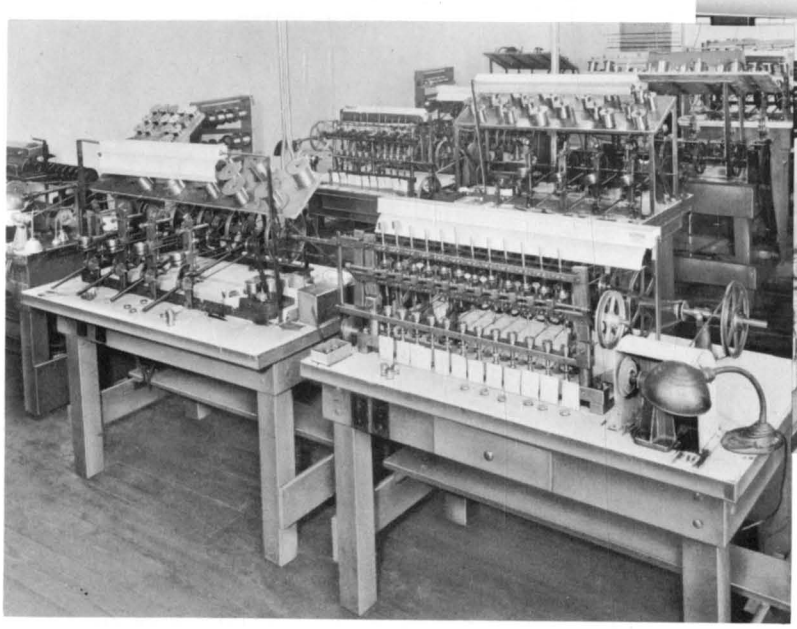
Section of fine wire annealing department with range to finest diameters.

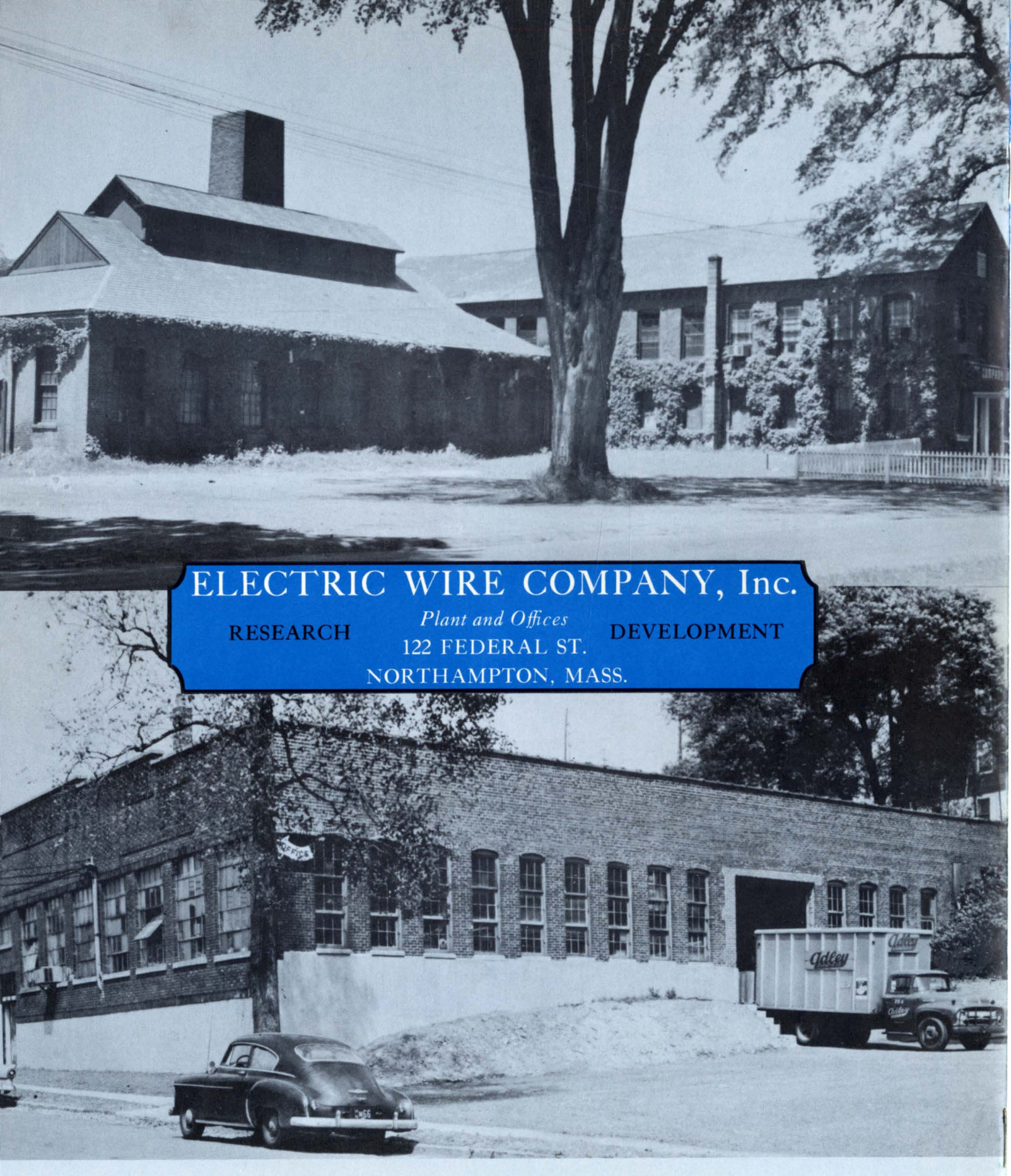


SERVICE

Our modern up to date die departments where diamond and carbide dies are shaped, recut and polished. This operation, requiring high degrees of skill and technical knowledge, is under constant control and supervision to assure our customers of finished wires of the most exacting specification.

QUALITY





ELECTRIC WIRE COMPANY, Inc.

RESEARCH — *Plant and Offices* — DEVELOPMENT

122 FEDERAL ST.

NORTHAMPTON, MASS.