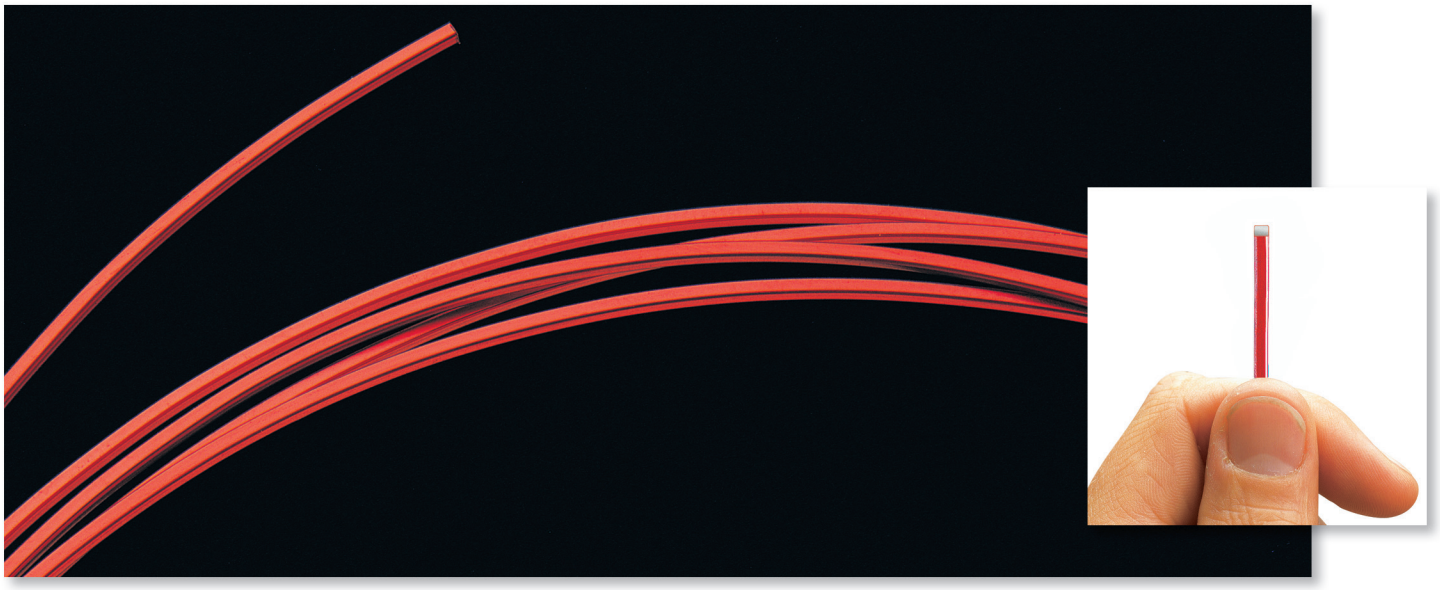
Microsquare™ Magnet Wire



Miniature square and rectangular magnet wire for specialty coil and motor windings.

When product miniaturization calls for tighter dimensional specifications, MWS Microsquare film-coated magnet wire allows design engineers to create compact coils and small motors that deliver more power in less space.

Microsquare means miniature square and rectangular, copper and aluminum magnet wire. Custom-produced by MWS in sizes smaller than 14 AWG or 3500 sq. mil. cross-sectional area, Microsquare is available in a wide range of solderable and high-temperature insulations and a variety of colors, with or without bondable overcoats. See pages 2 and 3 for information on film insulations and pages 8 and 9 for information on bondable overcoats. Microsquare magnet wire was developed to provide improved winding uniformity and maximum use of space.

Cross Section at 100X

#28 Square Copper Insulated, with polyester base coat and epoxy bondable topcoat.

Part Number Ordering System — Make your own part number by following the guidelines outlined below

M 22 1 1 2 1 (155)

Product Letter	Square AWG Size	Conductor Material	Insulation Build	Insulation Type*	Color Code	Thermal Class
For all Microsquare magnet wire	From chart. Use 88 for special square size. Use 99 for rectangular sizes.	1 = Copper 2 = Aluminum 9 = special	1 = single 2 = heavy 3 = triple 4 = quadruple 9 = special	1 = Polyurethane - 155 / 180 2 = Poly-Nylon - 155 / 180 3 = Polyester - 180 4 = Polyester - 200 5 = Polyurethane Bondable 6 = Solderable Polyester - 180 7 = Formvar 8 = ML 9 = special	1 = natural 2 = green 3 = red 4 = blue 9 = special	For Poly and Poly-Nylon insulations specify 155 or 180 thermal class

EXAMPLE = 22 AWG - Square Copper - Single Poly-Nylon 155°C - Natural

NOTE: For part numbers starting with 88 or 99, please show wire dimensions after basic part number.

*See pages 2 and 3 for a complete listing of insulations. Microsquare™ is a trademark of MWS Wire Industries

Copper

SIZE (AWG)	BARE DIMENSION (INCHES) NOM.	BARE WIRE TOLERANCE*	RESISTANCE (OHMS PER 1000 FT. AT 20°C) MIN.	NOM.	MAX.	CORNER RADIUS	SQ. MIL AREA	SIZE (AWG)
15	.0571	± .0005"	2.601	2.761	2.801	.010"	3175	15
16	.0508	± .0005"	3.281	3.483	3.534	.010"	2495	16
17	.0453	± .0005"	4.135	4.390	4.453	.009"	1983	17
18	.0403	± .0005"	5.225	5.546	5.627	.008"	1569	18
19	.0359	± .0005"	6.570	6.975	7.076	.008"	1234	19
20	.0320	± .0004"	8.302	8.685	8.845	.007"	982	20
21	.0285	± .0004"	10.46	10.94	11.15	.006"	781	21
22	.0253	± .0004"	13.17	13.78	14.03	.005"	619	22
23	.0226	± .0004"	16.60	17.37	17.69	.005"	489	23
24	.0201	± .0003"	21.06	22.03	22.44	.005"	383	24
25	.0179	± .0003"	26.00	26.81	27.62	.004"	307	25
26	.0159	± .0003"	32.86	33.88	34.91	.003"	245	26
27	.0142	± .0003"	41.43	42.73	44.02	.003"	194	27
28	.0126	± .0003"	52.51	54.15	55.79	.0025"	153	28
29	.0113	± .0003"	65.83	67.89	69.94	.002"	124	29
30	.0100	± .0003"	83.62	86.24	88.85	.002"	97	30
31	.0089	± .0002"	104.0	107.2	110.5	.0015"	77	31
32	.0080	± .0002"	132.7	136.9	141.0	.0015"	62	32
33	.0071	± .0002"	167.5	172.8	178.0	.001"	49	33
34	.0063	± .0002"	207.4	213.8	220.3	.001"	38	34
35	.0056	± .0002"	263.3	271.5	279.8	.001"	30	35

Aluminum

SIZE (AWG)	BARE DIMENSION (INCHES) NOM.	BARE WIRE TOLERANCE*	RESISTANCE (OHMS PER 1000 FT. AT 20°C) MIN.	NOM.	MAX.	CORNER RADIUS	SQ. MIL AREA	SIZE (AWG)
15	.0571	± .0005"	4.134	4.2624	4.393	.010"	3175	15
16	.0508	± .0005"	5.210	5.372	5.535	.010"	2495	16
17	.0453	± .0005"	6.566	6.722	6.977	.009"	1983	17
18	.0403	± .0005"	8.294	8.554	8.813	.008"	1569	18
19	.0359	± .0005"	10.43	10.76	11.08	.008"	1234	19
20	.0320	± .0004"	13.18	13.60	14.01	.007"	982	20
21	.0285	± .0004"	16.64	17.16	17.68	.006"	781	21
22	.0283	± .0004"	20.86	21.52	22.17	.005"	619	22
23	.0226	± .0004"	26.37	27.19	28.02	.005"	489	23
24	.0201	± .0003"	33.41	34.45	35.50	.005"	383	24
25	.0179	± .0003"	41.98	43.30	44.61	.004"	307	25
26	.0159	± .0003"	52.99	54.65	56.30	.003"	245	26
27	.0142	± .0003"	66.82	68.90	70.99	.003"	194	27
28	.0126	± .0003"	84.74	87.38	90.03	.0025"	153	28
29	.0113	± .0003"	106.2	109.6	112.9	.002"	124	29
30	.0100	± .0003"	134.8	139.0	143.2	.002"	97	30

Minimum and maximum overall dimensions will be the same as those for the equivalent round size.

EXAMPLE: 22 square heavy build: MINIMUM O.D. = .0271"
MAXIMUM O.D. = .0281"

*Conformance to dimensional tolerance is based on the **average** of at least three measurements per axis using a minimum 12" sample length.
Individual measurements outside the tolerance limits will not be cause for rejection.