

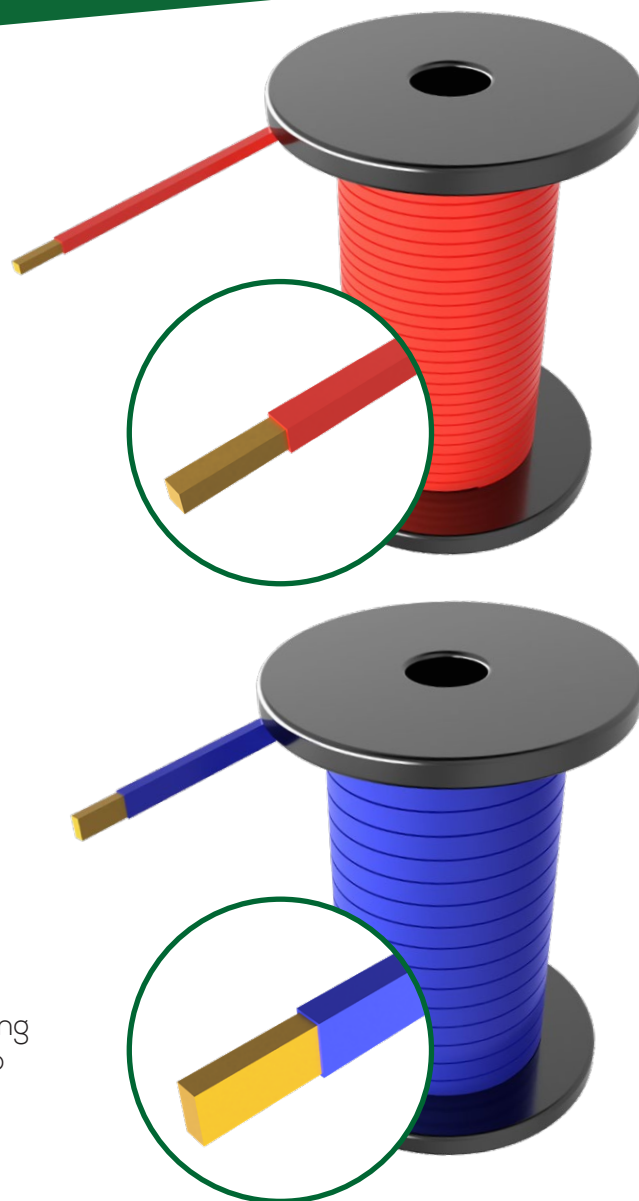
Square and Rectangular Magnet Wire

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.

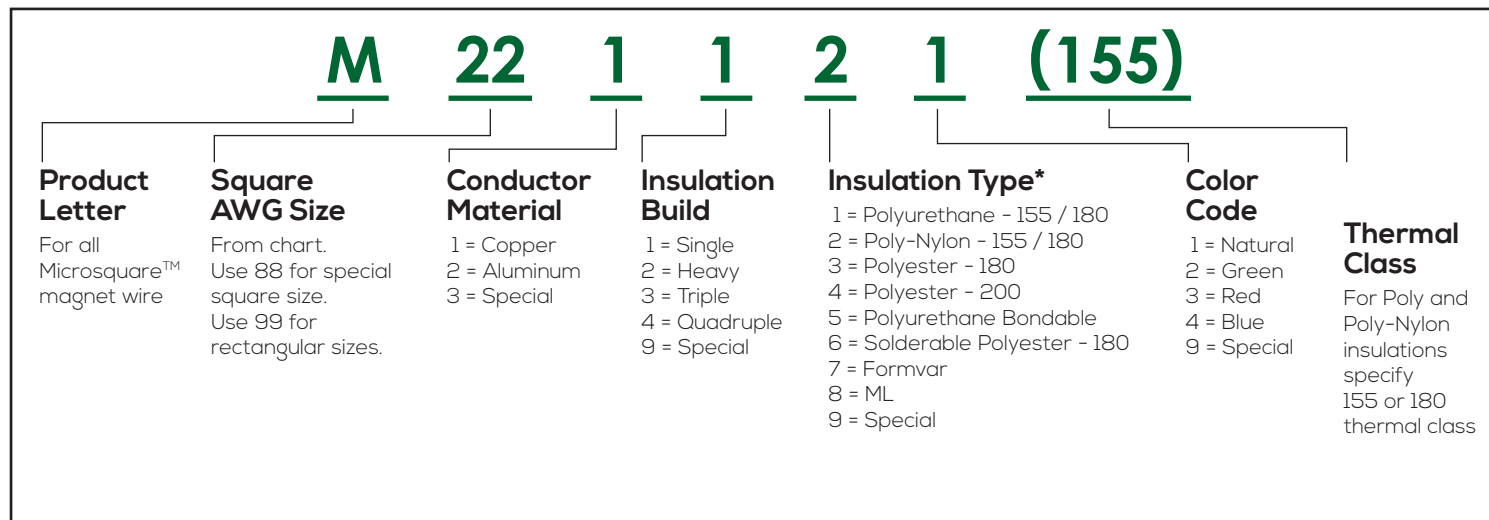
Microsquare™ means miniature square and rectangular copper and aluminum magnet wire. Custom-produced by MWS in sizes smaller than 14 AWG or 3500 sq. mil. cross-sectional area, Microsquare™ is available in a wide range of solderable and high-temperature insulations and a variety of colors, with or without bondable overcoats. See pages 4 and 5 for information on film insulations and page 10 for information on bondable overcoats. Microsquare™ magnet wire was developed to provide improved winding uniformity and maximum use of space.

Rectangular wire when used in coil making creates a denser winding that dissipates heat better than a round wire coil. Less 'air' between layers generates more power at higher operating temperatures. MWS has been a leader in enameled rectangular wire for 50 years. Our proprietary processes can produce enamel coated wires as thin as .002" with widths up to .300". We offer many insulation options including polyimide, polyester-amide/imide, polyurethane, in addition to the option of a bond top coat.



Part Number Ordering System

Make your own part number by following the guidelines outlined below



Square

SIZE (AWG)	BARE COPPER									HEAVY BUILD			SIZE (AWG)
	DIMENSIONS (INCHES)			RESISTANCE* (OHMS PER 1000 FT. AT 20°C)			SQUARE MILS	CORNER RADIUS	POUNDS PER 1000 FT	DIMENSIONS (INCHES)			
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	NOM.	NOM.		MIN. INCREASE	MIN. O.D.	MAX. O.D.	
1	.2864	.2893	.2922	.09627	.09895	.1020	82,320	.039	317.2	.003	.2894	.2972	1
2	.2550	.2576	.2602	.1217	.1253	.1295	64,980	.039	250.4	.003	.2580	.2652	2
3	.2271	.2294	.2317	.1539	.1589	.1648	51,250	.039	197.5	.003	.2301	.2367	3
4	.2023	.2043	.2063	.1949	.2018	.2100	40,370	.039	155.6	.003	.2053	.2113	4
5	.1801	.1819	.1837	.2470	.2568	.2689	31,710	.039	122.2	.003	.1831	.1887	5
6	.1604	.1620	.1636	.3101	.3211	.3345	25,360	.031	97.75	.003	.1634	.1686	6
7	.1429	.1443	.1457	.3929	.4084	.4277	19,940	.031	76.86	.003	.1459	.1507	7
8	.1272	.1285	.1298	.4981	.5210	.5501	15,630	.031	60.25	.003	.1302	.1348	8
9	.1133	.1144	.1155	.6267	.6513	.6812	12,510	.026	48.20	.003	.1163	.1205	9
10	.1009	.1019	.1029	.7951	.8309	.8757	9,803	.026	37.78	.003	.1039	.1079	10
11	.0897	.0907	.0917	.9914	1.033	1.085	7,883	.020	30.38	.003	.0927	.0967	11
12	.0798	.0808	.0818	1.254	1.317	1.397	6,185	.020	23.84	.003	.0828	.0868	12
13	.0710	.0720	.0730	1.565	1.641	1.734	4,964	.016	19.13	.003	.0740	.0780	13
14	.0631	.0641	.0651	1.980	2.094	2.239	3,889	.016	14.99	.003	.0661	.0701	14

*Based on 100% conductivity IACS

Microsquare™

SIZE (AWG)	BARE DIMENSION (INCHES)	BARE WIRE TOLERANCE*	RESISTANCE (OHMS PER 1000 FT. AT 20°C)			CORNER RADIUS	SQ. MIL AREA	SIZE (AWG)
	MIN.		MIN.	NOM.	MAX.			
15	.0571	± .0005"	2.601	2.761	2.801	.010"	3,175	15
16	.0508	± .0005"	3.281	3.483	3.534	.010"	2,495	16
17	.0453	± .0005"	4.135	4.390	4.453	.009"	1,983	17
18	.0403	± .0005"	5.225	5.546	5.627	.008"	1,569	18
19	.0359	± .0005"	6.570	6.975	7.076	.008"	1,234	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

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.

Square and Rectangular Magnet Wire

Aluminum

Square

SIZE (AWG)	BARE ALUMINUM									HEAVY BUILD			SIZE (AWG)
	DIMENSIONS (INCHES)			RESISTANCE* (OHMS PER 1000 FT. AT 20°C)			SQUARE MILS	CORNER RADIUS	POUNDS PER 1000 FT	DIMENSIONS (INCHES)			
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.	NOM.	NOM.		MIN. INCREASE	MIN. O.D.	MAX. O.D.	
1	.2864	.2893	.2922	.1558	.1601	.1650	82,320	.039	96.46	.003	.2894	.2972	1
2	.2550	.2576	.2602	.1969	.2028	.2096	64,980	.039	76.15	.003	.2580	.2652	2
3	.2271	.2294	.2317	.2491	.2572	.2666	51,250	.039	60.06	.003	.2301	.2367	3
4	.2023	.2043	.2063	.3154	.3265	.3399	40,370	.039	47.30	.003	.2053	.2113	4
5	.1801	.1819	.1837	.3997	.4156	.4351	31,710	.039	37.16	.003	.1831	.1887	5
6	.1604	.1620	.1636	.5017	.5196	.5412	25,360	.031	29.72	.003	.1634	.1686	6
7	.1429	.1443	.1457	.6357	.6609	.6920	19,940	.031	23.37	.003	.1459	.1507	7
8	.1272	.1285	.1298	.8059	.8431	.8902	15,630	.031	18.32	.003	.1302	.1348	8
9	.1133	.1144	.1155	1.014	1.054	1.102	12,510	.026	14.66	.003	.1163	.1205	9
10	.1009	.1019	.1029	1.286	1.344	1.417	9,803	.026	11.49	.003	.1039	.1079	10
11	.0897	.0907	.0917	1.604	1.672	1.755	7,883	.020	9.237	.003	.0927	.0967	11
12	.0798	.0808	.0818	2.028	2.131	2.260	6,185	.020	7.248	.003	.0828	.0868	12
13	.0710	.0720	.0730	2.532	2.655	2.806	4,964	.016	5.817	.003	.0740	.0780	13
14	.0631	.0641	.0651	3.203	3.389	3.623	3,889	.016	4.557	.003	.0661	.0701	14

*Based on 61.8% conductivity IACS

Microsquare™

SIZE (AWG)	BARE DIMENSION (INCHES)	BARE WIRE TOLERANCE*	RESISTANCE (OHMS PER 1000 FT. AT 20°C)			CORNER RADIUS	SQ. MIL AREA	SIZE (AWG)
	MIN.		MIN.	NOM.	MAX.			
15	.0571	± .0005"	4.134	4.2624	4.393	.010"	3,175	15
16	.0508	± .0005"	5.210	5.372	5.535	.010"	2,495	16
17	.0453	± .0005"	6.566	6.722	6.977	.009"	1,983	17
18	.0403	± .0005"	8.294	8.554	8.813	.008"	1,569	18
19	.0359	± .0005"	10.43	10.76	11.08	.008"	1,234	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
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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

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