

# *COONER WIRE*



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## ***OVERVIEW***

Formed by John Cooner in 1957 under the name of Service Cable and Wire with focus on specialty molded electrical cord sets and sales of fine and ultra-fine wire and cable constructions, Cooner Wire continues to excel world wide, as a premier supplier of high technology specialty wire, cable and cable assemblies.

Long term employees Patrick Weir and Steven Smith purchased Cooner Wire from the Cooner family in 1983 and continued to follow the successful direction of John Cooner in maintaining focus on the high technology, specialty wire and cable market. In 1984, Cooner Wire Interconnect Division was expanded and manufacturing was moved to Mexico.

As a pacesetter in the definitive specialty wire and cable industry, Cooner Wire has relied upon its continuing years of experience to help assist and solve complex electronic problems with their resource of experienced personnel. Cooner Wire continues to maintain worldwide recognition as the "go to" company for specialty wire and cable, and cable assembly products.

While Southern California remains the headquarter location for Cooner Wire Company, offices in New Hampshire, China, Japan, Israel, and Mexico are maintained in order to better serve the needs of customers in those immediate areas.

## ***Cooner Wire's Mission***

Cooner Wire Company's mission is to provide all necessary efforts required to continuously improve our ability to produce and maintain excellent quality coupled with timely product availability.

## ***Quality Policy***

Cooner Wire will deliver goods and services that meet or exceed customer requirements on time, every time.

## *Our Philosophy*

Cooner Wire has been the industry leader in expanding the use of high strand count, small strand size conductors. Our focus for over fifty years has been to design wire and cable for maximum flexibility and flex life. This approach to wire and cable is evidenced throughout our catalog. Cooner Wire maximizes strand count by using small diameter strands in the construction of conductors. This is how Cooner Wire is able to provide wires and cables in small packages that can withstand the rigors of everyday use.

Stranded conductors are used in most electric wire and cable applications to provide better limpness, flexibility, and longer flex life. From a practical standpoint, stranded conductors offer longer service life than solid conductors. For a given size of a conductor, increasing the number of strands while reducing the size of the individual stands will increase the conductor flexibility.

Cooner Wire maintains an extensive inventory that includes hundreds of items of non-standard insulated cable constructions as well as an extensive inventory of un-insulated wires including soft annealed bare and tinned-copper wire in six through forty gauge and various sizes of stainless steel, titanium, monel, nickel-plated copper, silver-plated copper, and pure precious metals such as silver, gold, and platinum. Cooner Wire can also furnish ETP copper, OFHC copper, various other plated coppers, copper alloys, and other materials on request.

Cooner Wire continues its approach in designing flexible wire and cable by using softer plastics and rubbers that are uncommon in the general cable market. These materials include Silicone Rubber, TPE's, Polyester, Nylon, PVC and PU. We also offer a full line of Fluoropolymers such as FEP, PFA and ETFE. Cooner Wire works with its customers to meet the exacting requirements for flexibility and flex life along with the environmental rigors most cables are subjected to during their lifespan. Although Cooner Wire maintains a broad inventory of catalog items to support our customers needs, our primary focus is to assist our customers with design and development of custom applications and non-cataloged items so that our products are designed around the needs of our customers rather than our customers designing their products around our cables.

We inventory a variety of braids for many applications, ranging from small tubular constructions for high flexibility leads, to large, flat configurations for grounding straps or bonding leads. We also carry a line of rope constructions in various sizes.

These configurations may be furnished in bare-copper, tinned-copper, silver-plated copper, nickel-plated copper, or gold-plated copper; or may be fabricated of pure silver, gold alloys, monel, stainless steel, pure nickel, bronze, or other materials on request. We have appreciable inventory of bare-copper, tinned-copper, silver-plated copper, and stainless steel available for small quantity purchases. Additionally, any braid construction listed on these pages can also be constructed as a type 7 Litz braid (film insulated).

On November 20, 2000 the Federal Specification QQB-575 was superseded by Federal Specification A-A-59569. Most of our braided materials are fabricated to meet the A-A- 59569 specification. Stainless steel braids and braids that do not meet the AA59569 specification are designated with an NES prefix.

The braid and rope constructions listed in this catalog do not constitute our complete line. Our sales staff is available to assist you in designing any braid to suit your application.

When specifying the desired material use B at the end of the part number to specify bare-copper, T to specify tinned-plated, SPC to specify silver-plated copper, N to specify nickel-plated copper, and GPC to specify gold-plated copper. For pure materials contact your sales representative for more information.

**Tubular Constructions**

**Specifications for Standard Sizes**

PART NUMBER	COMMERCIAL ITEM DESCRIPTION (CID)	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL INSIDE DIAM.	FEET PER POUND	POUNDS PER MFT
NEQ 24136	AA59569 R36T0031	22	600	36	24	24-1-36	.031	500.0	2.0
NEQ 24236	AA59569 R36T0062	19	1200	36	48	24-2-36	.062	250.0	4.0
NEQ 16234	AA59569 R34T0062	19	1351	34	32	16-2-34	.062	233.0	4.3
NEQ 16132	AA59569 R32T0062	20	1024	32	16	16-1-32	.062	303.0	3.3
NEQ 24336	AA59569 R36T0078	18	1800	36	72	24-3-36	.078	167.0	6.0
NEQ 24436	AA59569 R36T0109	16	2400	36	96	24-4-36	.109	122.0	8.2
NEQ 16434	AA59569 R34T0109	16	2544	34	64	16-4-34	.109	114.0	8.8
NEQ 16232	AA59569 R32T0109	17	2023	32	32	16-2-32	.109	152.0	6.6
NEQ 24536	AA59569 R36T0125	15	3000	36	120	24-5-36	.125	97.0	10.3
NEQ 24334	AA59569 R34T0125	16	2862	34	72	24-3-34	.125	109.0	9.2
NEQ 24232	AA59569 R32T0125	15	3034	32	48	24-2-32	.125	99.0	10.1
NEQ 241036	AA59569 R36T0156	12	6000	36	240	24-10-36	.156	47.8	20.9
NEQ 24736	AA59569 R36T0171	14	4200	36	168	24-7-36	.171	69.9	14.3
NEQ 24534	AA59569 R34T0171	13	4770	34	120	24-5-34	.171	64.1	15.6
NEQ 24332	AA59569 R32T0171	14	4551	32	72	24-3-32	.171	68.0	14.7
NEQ 241336	AA59569 R36T0203	11	7800	36	312	24-13-36	.203	35.7	28.0
NEQ 24834	AA59569 R34T0203	11	7632	34	192	24-8-34	.203	35.8	27.9
NEQ 24532	AA59569 R32T0203	11	7585	32	120	24-5-32	.203	40.7	24.6
NEQ 241636	AA59569 R36T0250	10	9600	36	384	24-16-36	.250	29.0	34.5
NEQ 24530	AA59569 R30T0281	9	1200	30	120	24-5-30	.281	23.8	42.0
NEQ 48836	AA59569 R36T0375	10	9600	36	384	48-8-36	.375	29.0	34.5
NEQ 48534	AA59569 R34T0375	10	9540	34	240	48-5-34	.375	30.6	32.7
NEQ 48332	AA59569 R32T0375	11	9102	32	144	48-3-32	.375	30.9	32.4
NEQ 24730	AA59569 R30T0375	8	16800	30	168	24-7-30	.375	17.5	57.0
NEQ 241030	AA59569 R30T0437	6	24000	30	240	24-10-30	.437	12.4	80.6
NEQ 481136	AA59569 R36T0500	9	13200	36	528	48-11-36	.500	21.0	47.7
NEQ 48734	AA59569 R34T0500	9	13356	34	336	48-7-34	.500	21.0	47.7
NEQ 241530	AA59569 R30T0500	6	36000	30	360	24-15-30	.500	8.5	117.0
NEQ 481030	AA59569 R30T0562	3	48000	30	480	48-10-30	.562	6.6	151.0
NEQ 481630	AA59569 R30T0656	1	76800	30	768	48-16-30	.656	3.9	255.0
NEQ 481836	AA59569 R36T0781	7	21600	36	864	48-18-36	.781	13.6	73.5
NEQ 481134	AA59569 R34T0781	7	20956	34	528	48-11-34	.781	13.8	72.5
NEQ 48732	AA59569 R32T0781	7	21239	32	336	48-7-32	.781	13.8	72.7
NEQL 48730	AA59569 R30T0875	5	33600	30	336	48-7-30	.875	8.5	118.0
NEQL 48830	AA59569 R30T1000	4	38400	30	384	48-8-30	1.00	7.4	135.0
NEQL 48930	AA59569 R30T1125	4	43200	30	432	48-9-30	1.125	6.7	150.0
NEQL 481030*	AA59569 R30T1375	3	48000	30	480	48-10-30	1.250	6.1	165.0
NEQL 481130		3	52800	30	528	48-11-30	1.375	5.6	180.0
NEQL 481230*		3	57600	30	576	48-12-30	1.5	5.1	195.0
NEQL 481430*		2	67200	30	672	48-14-30	2.00	4.4	225.0
NEQL 481630*		1	76800	30	768	48-16-30	2.250	3.9	225.0

\* Manufactured to Commercial Item Description A-A-59569 standards although these extra large sizes are not listed in the specifications.



**Oval Constructions**

Stainless Steel Conductor

**Description**

Stainless steel strands braided into an oval construction.

PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL INSIDE DIAM.	NOMINAL FLAT WIDTH	FEET PER POUND	POUNDS PER MFT
NES 481030-304SS	3	48,000	30	480	48-10-30	1-1/2"	1-5/8"	6.9	144
NES 48830-304SS	4	38,400	30	384	48-8-30	1-1/4"	1-7/16"	8.6	118
NES 48730-304SS	5	33,600	30	336	48-7-30	1"	1-1/4"	9.7	103
NES 481836-304SS	7	21,600	36	864	48-18-36	7/8"	1"	14.4	69.5
NES 481536-304SS	8	18,000	36	720	48-15-36	3/4"	15/16"	17.3	57.8
NES 481136-304SS	9	13,200	36	528	48-11-36	5/8"	3/4"	24.1	41.5
NES 48936-304SS	10	10,800	36	432	48-9-36	1/2"	11/16"	29.6	33.8
NES 48836-304SS	10	9,600	36	384	48-8-36	7/16"	5/8"	31.3	32.0
NES 48736-304SS	11	8,400	36	336	48-7-36	3/8"	1/2"	36.8	27.2
NES 241336-304SS	11	7,800	36	312	24-13-36	1/4"	5/16"	38.5	26.0
NES 241036-304SS	12	6,000	36	240	24-10-36	7/32"	1/4"	54.6	18.3
NES 24836-304SS	13	4,800	36	192	24-8-36	3/16"	1/4"	69.4	14.4
NES 24736-304SS	14	4,200	36	168	24-7-36	11/64"	1/4"	79.4	12.6
NES 24536-304SS	15	3,000	36	120	24-5-36	1/8"	5/32"	111	9.0
NES 24436-304SS	16	2,400	36	96	24-4-36	7/64"	1/8"	137	7.3
NES 24336-304SS	18	1,800	36	72	24-3-36	5/64"	7/64"	185	5.4
NES 24236-304SS	19	1,200	36	48	24-2-36	1/16"	3/32"	285.7	3.5
NES 16336-304SS	19	1,200	36	48	16-3-36	1/32"	1/16"	285.7	3.5

COMMERCIAL OVAL BRAID

PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL INSIDE DIAM.	NOMINAL FLAT WIDTH	FEET PER POUND	POUNDS PER MFT
NES 481630	1	76,800	30	768	48-16-30	2-1/4"	2-1/4"	4	255.00
NES 481430	2	67,200	30	672	48-14-30	1-7/8"	1-7/8"	4	225.00
NES 481030	3	48,000	30	480	48-10-30	1-1/4"	1-7/16"	6	165.00
NES 481130	3	52,800	30	528	48-11-30	1-3/8"	1-1/2"	5	180.00
NES 481230	3	57,600	30	576	48-12-30	1-1/2"	1-5/8"	5	195.00
NES 48930	4	43,200	30	432	48-9-30	1-1/8"	1-5/16"	6	150.00
NES 48830	4	38,400	30	384	48-8-30	1"	1-1/4"	7	135.00
NES 481234	7	22,761	30	576	48-12-34	7/8"	1"	12	79.50
NES 481134	7	20,956	34	528	48-11-34	25/32"	15/16"	14	72.50
NES 481034	7	19,051	34	480	48-10-34	11/16"	7/8"	15	66.50
NES 48834	8	15,241	34	384	48-8-34	5/8"	3/4"	19	52.00
NES 48734	9	13,336	34	336	48-7-34	1/2"	11/16"	22	45.60
NES 24834	12	7,620	34	192	24-8-34	5/16"	3/8"	37	26.80
NES 24734	12	6,668	34	168	24-7-34	1/4"	5/16"	43	23.30
NES 24634	13	5,715	34	144	24-6-34	3/16"	1/4"	54	18.60
NES 24534	13	4,763	34	120	24-5-34	11/64"	1/4"	63	16.00
NES 24434	14	3,810	34	96	24-4-34	5/32"	7/32"	79	12.70
NES 24334	15	2,858	34	72	24-3-34	1/8"	5/32"	109	9.20
NES 16434	16	2,540	34	64	16-4-34	7/64"	1/8"	114	8.80
NES 16234	19	1,270	34	32	16-2-34	1/16"	3/32"	233	4.30
NES 24134	20	953	34	24	24-1-34	1/32"	1/16"	313	3.20
NES 16134	22	735	34	16	16-1-34	1/64"	1/32"	535	1.87



## Flat Constructions



## Specifications for Flat Constructions

PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER MFT
NE 4243230		307,200	30	3,072	4x(24-32-30)	1-3/8"	1/2"	1.00	1,080.00
NE 3243230	4/0	230,400	30	2,304	3x(24-32-30)	1-1/4"	3/8"	1.26	795.00
NE 2243530	3/0	168,000	30	1,680	2x(24-35-30)	1-1/4"	1/4"	1.75	570.00
NE 2243230	3/0	153,600	30	1,536	2x(24-32-30)	1-1/4"	1/4"	1.88	530.00
NE 2242730	2/0	129,600	30	1,296	2x(24-27-30)	1-1/8"	1/4"	2.25	445.00
NE 244430	1/0	105,600	30	1,056	24-44-30	1-1/4"	1/4"	2.80	355.00
NE 488436	1/0	100,800	36	4,032	48-84-36	1-5/8"	1/8"	2.82	354.00
NE 243230	1	76,800	30	768	24-32-30	1"	1/8"	3.77	265.00
NE 486036	1	72,000	36	2,880	48-60-36	1-1/4"	1/8"	4.00	250.00
NE 242730	2	64,800	30	648	24-27-30	15/16"	3/32"	4.55	220.00
NE 242030	3	48,000	30	480	24-20-30	3/4"	1/8"	6.06	165.00
NE 484036	3	48,000	36	1,920	48-40-36	1"	1/8"	6.25	160.00
NE 488640	4	39,670	40	4,128	48-86-40	1"	3/32"	7.69	130.00
NE 246736	4	40,200	36	1,608	24-67-36	3/4"	1/8"	7.41	165.00
NE 241530	5	36,000	30	360	24-15-30	5/8"	3/32"	8.47	118.00
NE 482236	6	26,400	36	1,056	48-22-36	7/8"	3/32"	11.06	90.40
NE 241030	6	24,000	30	240	24-10-30	1/2"	1/16"	12.5	80.00
NE 244036	6	24,000	36	960	24-40-36	17/32"	3/32"	13.33	75.00
NE 481936	7	22,800	36	912	48-19-36	13/16"	3/32"	12.99	77.00
NE 832-26-1	7	20,800	36	832	(32-17-36) (16-18-36)	1"	1/16"	13.89	72.00
NE 481536	8	18,000	36	720	48-15-36	5/8"	1/16"	17.01	58.80
NE 24730	8	16,800	30	168	24-7-30	7/16"	1/16"	17.86	56.00
NE 481136	9	13,200	36	528	48-11-36	5/8"	3/64"	21.46	46.60
NE 24530	9	12,000	30	120	24-5-30	3/8"	1/16"	25.00	40.00
NE 24430	10	9,600	30	96	24-4-30	5/16"	1/16"	31.25	32.00
NE 241636	10	9,600	36	384	24-16-36	3/8"	1/16"	32.26	31.00
NE 48836	10	9,600	36	384	48-8-36	1/2"	1/32"	31.25	32.00
NE 241336	11	7,800	36	312	24-13-36	9/32"	3/64"	40.00	25.00
NE 48636	12	7,200	36	288	48-6-36	3/8"	1/32"	41.32	24.20
NE 241036	12	6,000	36	240	24-10-36	1/4"	3/64"	50.00	20.00
NE 24736	14	4,200	36	168	24-7-36	7/32"	1/32"	70.92	14.10
NE 24536	15	3,000	36	120	24-5-36	3/16"	1/32"	100.00	10.00
NE 24436	16	2,400	36	96	24-4-36	5/32"	1/32"	125.00	8.00
NE 124244	17	2,016	44	504	12-42-44	.065" round		164.74	6.07
NE 16536	17	2,000	36	80	16-5-36	1/8"	1/32"	149.25	6.70
NE 24336	18	1,800	36	72	24-3-36	7/64"	1/32"	175.44	5.70
NE 16436	18	1,600	36	64	16-4-36	3/32"	1/32"	196.08	5.10

**Specifications for Flat Constructions, continued**

PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER MFT
NE 24236	19	1,200	36	48	24-2-36	3/32"	1/32"	259.07	3.86
NE 16336	19	1,200	36	48	16-3-36	3/32"	1/32"	259.07	3.86
NE 12940	20	1,038	40	108	12-9-40	.065" round*		299.4	3.34
NE 16640	20	923	40	96	16-6-40	1/16"	1/32"	324.68	3.08
NE 16236	21	800	36	32	16-2-36	1/8"	1/32"	380.23	2.63
NE 16134	22	635	34	16	16-1-34	.037" round*		534.76	1.87
NE 66-40	22	634	40	66	(14-4-40) (2-5-40)	.036" round*		526.32	2.11
NE 8336	22	600	36	24	8-3-36	.038" round*		515.46	1.94
NE 12236	22	600	36	24	12-2-36	3/64"	1/32"	515.46	1.94
NE 24136	22	600	36	24	24-1-36	3/64"	1/32"	515.46	1.94
NE 16340	23	461	40	48	16-3-40	.035" round*		671.14	1.49
NE 16136	24	400	36	16	16-1-36	.029" round*		800.00	1.25
NE 8134	25	318	34	8	8-1-34	.030" round*		1,000.00	1.00
NE 16240	25	308	40	32	16-2-40	.026" round*		943.40	1.06
NE 12136	25	300	36	12	12-1-36	.028" round*		1,000.00	1.00
NE 12240	26	231	40	24	12-2-40	.025" round*		1,250.00	.80
NE 8136	27	200	36	8	8-1-36	.026" round*		1,600.00	.62
NE 8240	28	154	40	16	8-2-40	.020" round*		1,950.00	.51
NE 6136	28	150	36	6	6-1-36	.022" round*		2,100.00	.48
NE 12242	28	150	42	24	12-2-42	.023" round*		2,440.00	.41
NE 6240	29	113	40	12	6-2-40	.018" round*		2,800.00	.36
NE 4136	30	100	36	4	4-1-36	.019" round*		3,000.00	.33

\*These flat braids maintain a slight oval shape due to their small size.

**Specifications for Extra-Wide Sizes**

PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	FEET PER POUND	POUNDS PER MFT
NE 3483530		504,000	30	5,040	3x(48-35-30)	2-1/4"	1/2 "	0.60	1,670.
NE 2483230		307,200	30	3,072	2x(48-32-30)	2-1/8"	5/16"	0.97	1,034.
NE 485230		249,600	30	2,496	48-52-30	2-1/2"	5/32"	1.30	784.
NE 484430	4/0	211,200	30	2,112	48-44-30	2-3/8"	5/32"	1.50	663.
NE 483530	3/0	168,000	30	1,680	48-35-30	2-1/4"	5/32"	1.80	541.
NE 483230	3/0	153,600	30	1,536	48-32-30	2"	5/32"	2.00	500.
NE 482830	2/0	134,400	30	1,344	48-28-30	2"	1/8"	2.20	455.
NE 482230	1/0	105,600	30	1,056	48-22-30	1-3/4"	1/8"	2.80	357.
NE 481830	1	86,400	30	864	48-18-30	1-5/8"	1/8"	3.60	278.
NE 481630	1	76,800	30	768	48-16-30	1-1/2"	1/8"	3.85	260.
NE 481430	2	67,200	30	672	48-14-30	1-3/8"	1/8"	4.40	225.
NE 481030	3	48,000	30	480	48-10-30	1-1/4"	1/8"	6.20	163.
NE 48830	4	38,400	30	384	48-8-30	1"	1/16"	7.60	132.
NE 48730	5	33,600	30	336	48-7-30	1-3/8"	1/16"	8.50	117.
NE 48530	6	24,000	30	240	48-5-30	3/4"	1/16"	12.00	83.


**Specifications for Stranded Rope Lay Constructions**

PART NUMBER	AWG SIZE	CIRCULAR MIL AREA	NO. OF WIRES	WIRE AWG SIZE	CONSTRUCTION	NOMINAL DIAMETER	POUNDS PER MFT
NER 1974034	4/0	211,151	5,320	34	19x7x40/34	.610	697.
NER 1976436	4/0	212,800	8,512	36	19x7x64/36	.613	702.
NER 1975136	3/0	16,575	6,783	36	19x7x51/36	.547	560.
NER 7710836	2/0	132,300	5,292	36	7x7x108/36	.483	433.
NER 778636	1/0	105,350	4,214	36	7x7/86/36	.430	344.
NER 194430	1	83,600	836	30	19x44/30	.342	266.
NER 776836	1	83,300	3,332	36	7x7x68/36	.367	272.
NER 79530	2	66,500	665	30	7x95/30	.305	209.
NER 775436	2	66,150	1,666	34	7x7x34/34	.342	216.
NER 773434	2	66,123	2,107	36	7x7x59/36	.319	238.
NER 774836	3	52,675	2,352	36	7x7x43/36	.283	172.
NER 773436	4	41,650	1,666	36	7x7x34/36	.251	136.
NER 773736	4	45,325	1,813	36	7x7x37/36	.312	155.
NER 772736	5	33,075	1,323	36	7x7x27/36	.242	108.
NER 715036	6	26,250	1,050	36	7x150/36	.200	82.6
NER 711936	7	20,825	833	36	7x119/36	.178	65.6
NER 79536	8	16,625	665	36	7x95/36	.159	52.3
NER 77536	9	13,125	525	36	7x75/36	.146	42.0
NER 736340	9	13,118	1,323	40	7x3x63/40	.152	42.0
NER 75936	10	10,325	413	36	7x59/36	.126	33.0
NER 735040	10	10,494	1,092	40	7x3x50/40	.136	33.4
NER 74736	11	8,225	336	36	7x47/36	.112	26.2
NER 734040	11	8,072	840	40	7x3x40/40	.120	26.4
NER 73736	12	6,475	259	36	7x37/36	.099	20.4
NER 79640	12	6,458	672	40	7x94/40	.099	20.3
NER 73036	13	5,250	210	36	7x30/36	.090	16.5
NER 732540	13	5,247	546	40	7x3x25/40	.096	16.7
NER 72436	14	4,200	168	36	7x24/36	.080	13.2
NER 732140	14	4,238	441	40	7x3x21/40	.086	13.5
NER 735044	14	4,200	1,050	44	7x3x50/44	.082	13.7
NER 75040	15	3,364	350	40	7x50/40	.072	10.8
NER 71536	16	2,625	105	36	7x15/36	.063	8.3
NER 73740	16	2,691	280	40	7x37/40	.066	8.5
NER 79544	16	2,660	665	44	7x95/44	.064	8.4
NER 73140	17	2,084	217	40	7x31/40	.058	6.5
NER 77344	17	2,044	511	44	7x73/44	.057	6.5
NER 7936	18	1,575	63	36	7x9/36	.049	5.0
NER 72440	18	1,614	168	40	7x24/40	.050	5.1
NER 75944	18	1,652	413	44	7x59/44	.050	5.2
NER 72140	19	1,413	147	40	7x21/40	.046	4.5
NER 75044	19	1,400	350	44	7x50/44	.046	4.5
NER 7636	20	1,050	42	36	7x6/36	.042	3.4
NER 71540	20	1,009	105	40	7x15/40	.039	3.2
NER 73744	20	1,036	259	44	7x37/44	.040	3.3
NER 73044	21	840	210	44	7x30/44	.037	2.7
NER 32240	22	634	66	40	3x22/40	.031	2.0
NER 35044	22	600	150	44	3x50/44	.030	1.89
NER 33544	24	420	105	44	3x35/44	.025	1.35
NER 33546	26	259	105	46	3x35/46	.020	.83



Cooner Wire Company maintains a substantial inventory of standard PVC insulated wire and cable for the general purpose requirements of our customers. For specialized requirements, most wires and cables can be constructed using alternative conductor materials such as copper alloy, phosphor bronze and stainless steel which can be supplied in solid, stranded, fine stranded and ultra-fine stranded configurations.

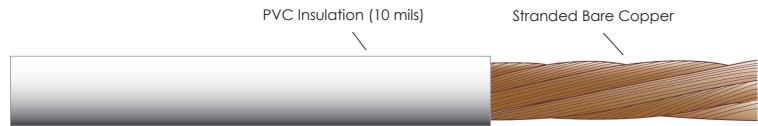
In addition to PVC, insulations and jackets can be supplied in nylon, polyurethane, polyethylene, foamed polyethylene, fluoropolymer, foamed fluoropolymer, silicone rubber, and some other non-standard dielectric materials to meet customer requirements.



EXTRA & ULTRA-FLEXIBLE POLYVINYLCHLORIDE LEAD WIRE

**Description**

Extra flexible bare-copper conductor insulated with a 10 mil (.010") wall of extruded Polyvinylchloride, providing extra flexibility in a 600 volt miniature hook-up wire.

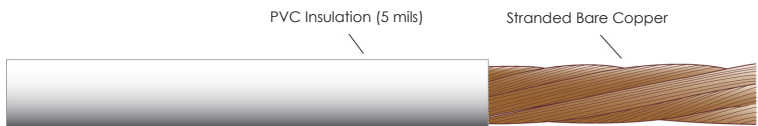


Temperature Rating: -55° to 105° C  
Voltage Rating: 600 Volts

PART NUMBER	AWG SIZE	NO. OF STRANDS	AWG. AND DIA. OF STRANDS	COND. DIA.	NOM. WALL THICK.	DIAMETER OVER INSULATION NOM.
NEF16-66544	16	665	44 (.0016)	.0670	.010	0.087
NEF18-41344	16	413	44 (.0020)	.0520	.010	0.072
NEF20-25944	20	259	44 (.0020)	.0410	.010	0.061
NEF20-15040	20	150	44 (.0020)	.0367	.010	0.057
NEF22-15044	23	150	44 (.0020)	.0290	.010	0.049
NEF22-6540	22	65	40 (.0031)	.0289	.010	0.049
NEF24-10544	24	105	44 (.0020)	.0240	.010	0.044
NEF24-4240	24	42	40 (.0031)	.0232	.010	0.043
NEF26-10546	26	105	46 (.0016)	.0202	.010	0.040
NEF26-6544	26	65	44 (.0020)	.0186	.010	0.039
NEF28-6546	28	66	46 (.0016)	.0149	.010	0.035
NEF28-4044	28	40	44 (.0020)	.0146	.010	0.035
NEF30-4146	30	41	46 (.0016)	.0117	.010	0.032
NEF30-2544	30	25	44 (.0020)	.0116	.010	0.032
NEF32-2546	32	25	46 (.0016)	.0092	.010	0.029
NEF32-1644	32	16	44 (.0020)	.0093	.010	0.029
NEF34-1646	34	16	46 (.0016)	.0074	.010	0.027

**Description**

Ultra-Flexible stranded bare copper conductor insulated with a 5 mil (.005") wall of extruded Polyvinylchloride, providing the maximum flexibility available in a micro-miniature hook-up wire.



Temperature: -55° to 105° C  
Voltage Rating: 300 Volts

PART NUMBER	AWG SIZE	NO. OF STRANDS	AWG. AND DIA. OF STRANDS	COND. DIA.	NOM. WALL THICK.	DIAMETER OVER INSULATION NOM.
NUF29-5146	29	51	46 (.0016)	.0130	.005	0.024
NUF30-4046	30	41	46 (.0016)	.0117	.005	0.022
NUF30-2544	30	25	44 (.0020)	.0115	.005	0.022
NUF32-6550	32	65	50 (.0010)	.0093	.005	0.019
NUF32-2546	32	25	46 (.0016)	.0093	.005	0.019
NUF34-4050	34	40	50 (.0010)	.0073	.005	0.017
NUF34-1044	34	10	44 (.0020)	.0073	.005	0.017
NUF36-2550	36	25	50 (.0010)	.0058	.005	0.016
NUF38-1650	38	16	50 (.0010)	.0046	.005	0.015

\* Tinned-copper versions available upon request.

Standard Colors:

- |           |           |
|-----------|-----------|
| 0. Black  | 6. Blue   |
| 1. Brown  | 7. Violet |
| 2. Red    | 8. Gray   |
| 3. Orange | 9. White  |
| 4. Yellow | 10. Clear |
| 5. Green  |           |



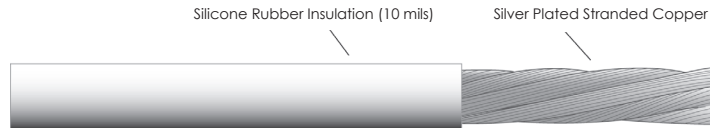
## ULTRA-FLEXIBLE SILIFLEX LEAD WIRE

### Description

Stranded silver-plated copper conductor with 10 mil (.010") wall of extruded silicone rubber insulation, provided maximum flexibility in high temperatures.

Temperature: 0°C to 200°C

Voltage Rating: 300 volts



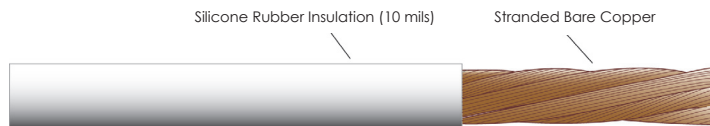
PART NUMBER	AWG SIZE	NO. OF STRANDS	AWG. AND DIA. OF STRANDS	COND. DIA.	NOM. WALL THICK.	DIAMETER OVER INSULATION NOM.
AS155-18	18	413	44 (.00200)	0.053	.011	0.072
AS155-20	20	259	44 (.00200)	0.041	.010	0.060
AS155-22	22	168	44 (.00200)	0.033	.010	0.051
AS155-24	24	105	44 (.00200)	0.026	.010	0.046
AS155-26	26	66	44 (.00200)	0.019	.010	0.039
AS155-28	28	65	46 (.00160)	0.015	.010	0.035
AS155-30	30	41	46 (.00160)	0.012	.010	0.032
AS155-32	32	65	50 (.00099)	0.009	.010	0.029
AS155-34	34	41	50 (.00099)	0.007	.010	0.027
AS155-36	36	25	50 (.00099)	0.006	.010	0.026

### Description

Stranded bare-copper conductor insulated with 10 mil (.010") wall of extruded silicone rubber insulation, providing maximum flexibility in higher temperatures.

Temperature: 0°C to 150°C

Voltage Rating: 300 volts



PART NUMBER	AWG SIZE	NO. OF STRANDS	AWG. AND DIA. OF STRANDS	COND. DIA.	NOM. WALL THICK.	DIAMETER OVER INSULATION NOM.
AS999-18	18	413	44 (.00200)	0.053	.011	0.072
AS999-20	20	259	44 (.00200)	0.041	.010	0.060
AS999-22	22	168	44 (.00200)	0.033	.010	0.051
AS999-24	24	105	44 (.00200)	0.026	.010	0.046
AS999-26	26	66	44 (.00200)	0.019	.010	0.039
AS999-28	28	65	46 (.00160)	0.015	.010	0.035
AS999-30	30	41	46 (.00160)	0.012	.010	0.032
AS999-32	32	65	50 (.00099)	0.009	.010	0.029
AS999-34	34	41	50 (.00099)	0.007	.010	0.027
AS999-36	36	25	50 (.00099)	0.006	.010	0.026

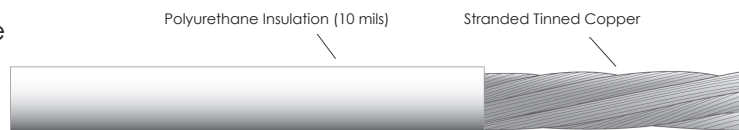


### Description

Stranded tinned-copper conductor insulated with 10 mil (.010") wall of extruded polyurethane insulation, providing excellent flexibility.

Temperature Rating: -55° to 80° C

Voltage Rating: 600 Volts



PART NUMBER	AWG SIZE	NO. OF STRANDS	AWG. AND DIA. OF STRANDS	COND. DIA.	NOM. WALL THICK.	DIAMETER OVER INSULATION NOM.
CW5052-18	18AWG	413	44 (.0020)	0.050	.010	0.070
CW5052-20	20AWG	259	44 (.0020)	0.040	.010	0.060
CW5052-22	22AWG	150	44 (.0020)	0.030	.010	0.050
CW5052-24	24AWG	105	44 (.0020)	0.025	.010	0.045
CW5052-26	26AWG	66	44 (.0020)	0.020	.010	0.040
CW5052-28	28AWG	40	44 (.0020)	0.015	.010	0.035
CW5052-30	30AWG	25	44 (.0020)	0.012	.010	0.032

Standard Colors:

- |           |           |
|-----------|-----------|
| 0. Black  | 6. Blue   |
| 1. Brown  | 7. Violet |
| 2. Red    | 8. Gray   |
| 3. Orange | 9. White  |
| 4. Yellow | 10. Clear |
| 5. Green  |           |

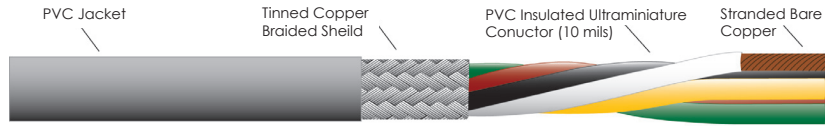
# HOOK UP WIRE AND CABLE

## 600 VDC EXTRA FLEXIBLE PVC CABLES

### Multi Conductor

#### Miniature Hook-up Wire and Cable

- U= Cabled conductors only  
S= Cabled conductors with tinned-copper braided shield  
J= Cabled conductors, overall jacket only  
SJ= Cabled conductors with tinned-copper braided shield and Gray PVC jacket



PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMEF 1/18-41344 S	1	18	413/44	.010	.072	.072	44	.181		
NMEF 1/18-41344 SJ	1	18	413/44	.010	.072	.072	44	.181	.010	.101
NMEF 2/18-41344 U	2	18	413/44	.010	.072	.144				
NMEF 2/18-41344 S	2	18	413/44	.010	.072	.144	40	.158		
NMEF 2/18-41344 J	2	18	413/44	.010	.072	.144			.015	.174
NMEF 2/18-41344 SJ	2	18	413/44	.010	.072	.144	40	.158	.015	.188
NMEF 3/18-41344 U	3	18	413/44	.010	.072	.155				
NMEF 3/18-41344 S	3	18	413/44	.010	.072	.155	40	.169		
NMEF 3/18-41344 J	3	18	413/44	.010	.072	.155			.020	.195
NMEF 3/18-41344 SJ	3	18	413/44	.010	.072	.155	40	.169	.020	.209
NMEF 4/18-41344 U	4	18	413/44	.010	.072	.174				
NMEF 4/18-41344 S	4	18	413/44	.010	.072	.174	38	.192		
NMEF 4/18-41344 J	4	18	413/44	.010	.072	.174			.020	.214
NMEF 4/18-41344 SJ	4	18	413/44	.010	.072	.174	38	.192	.020	.232
NMEF 5/18-41344 U	5	18	413/44	.010	.072	.194				
NMEF 5/18-41344 S	5	18	413/44	.010	.072	.194	38	.212		
NMEF 5/18-41344 J	5	18	413/44	.010	.072	.194			.020	.234
NMEF 5/18-41344 SJ	5	18	413/44	.010	.072	.194	38	.212	.020	.252
NMEF 1/20-25944 S	1	20	259/44	.010	.061	.061	44	.070		
NMEF 1/20-25944 SJ	1	20	259/44	.010	.061	.061	44	.070	.010	.090
NMEF 2/20-25944 U	2	20	259/44	.010	.061	.122				
NMEF 2/20-25944 S	2	20	259/44	.010	.061	.122	40	.136		
NMEF 2/20-25944 J	2	20	259/44	.010	.061	.122			.015	.152
NMEF 2/20-25944 SJ	2	20	259/44	.010	.061	.122	40	.136	.015	.166
NMEF 3/20-25944 U	3	20	259/44	.010	.061	.131				
NMEF 3/20-25944 S	3	20	259/44	.010	.061	.131	40	.145		
NMEF 3/20-25944 J	3	20	259/44	.010	.061	.131			.015	.161
NMEF 3/20-25944 SJ	3	20	259/44	.010	.061	.131	40	.145	.015	.175
NMEF 4/20-25944 U	4	20	259/44	.010	.061	.147				
NMEF 4/20-25944 S	4	20	259/44	.010	.061	.147	40	.161		
NMEF 4/20-25944 J	4	20	259/44	.010	.061	.147			.020	.187
NMEF 4/20-25944 SJ	4	20	259/44	.010	.061	.147	40	.161	.020	.201
NMEF 5/20-25944 U	5	20	259/44	.010	.061	.165				
NMEF 5/20-25944 S	5	20	259/44	.010	.061	.165	38	.183		
NMEF 5/20-25944 J	5	20	259/44	.010	.061	.165			.020	.205
NMEF 5/20-25944 SJ	5	20	259/44	.010	.061	.165	38	.183	.020	.223
NMEF 1/22-6540 S	1	22	65/40	.010	.049	.049	44	.058		
NMEF 1/22-6540 SJ	1	22	65/40	.010	.049	.049	44	.058	.010	.078
NMEF 2/22-6540 U	2	22	65/40	.010	.049	.098				
NMEF 2/22-6540 S	2	22	65/40	.010	.049	.098	40	.112		
NMEF 2/22-6540 J	2	22	65/40	.010	.049	.098			.015	.128
NMEF 2/22-6540 SJ	2	22	65/40	.010	.049	.098	40	.112	.015	.142
NMEF 3/22-6540 U	3	22	65/40	.010	.049	.105				
NMEF 3/22-6540 S	3	22	65/40	.010	.049	.105	40	.119		
NMEF 3/22-6540 J	3	22	65/40	.010	.049	.105			.015	.135
NMEF 3/22-6540 SJ	3	22	65/40	.010	.049	.105	40	.119	.015	.149
NMEF 4/22-6540 U	4	22	65/40	.010	.049	.118				
NMEF 4/22-6540 S	4	22	65/40	.010	.049	.118	40	.132		
NMEF 4/22-6540 J	4	22	65/40	.010	.049	.118			.015	.148
NMEF 4/22-6540 SJ	4	22	65/40	.010	.049	.118	40	.132	.015	.162

Cables are jacketed in gray. For additional jacket colors contact a sales representative.



### Multi Conductor

Miniature Hook-up Wire and Cable - continued

PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMEF 5/22-6540 U	5	22	65/40	.010	.049	.132				
NMEF 5/22-6540 S	5	22	65/40	.010	.049	.132	40	.146		
NMEF 5/22-6540 J	5	22	65/40	.010	.049	.132			.015	.162
NMEF 5/22-6540 SJ	5	22	65/40	.010	.049	.132	40	.146	.015	.176
NMEF 1/22-15044 S	1	22	150/44	.010	.049	.049	44	.058		
NMEF 1/22-15044 SJ	1	22	150/44	.010	.049	.049	44	.058	.010	.078
NMEF 2/22-15044 U	2	22	150/44	.010	.049	.098				
NMEF 2/22-15044 S	2	22	150/44	.010	.049	.098	40	.112		
NMEF 2/22-15044 J	2	22	150/44	.010	.049	.098			.015	.128
NMEF 2/22-15044 SJ	2	22	150/44	.010	.049	.098	40	.112	.015	.142
NMEF 3/22-15044 U	3	22	150/44	.010	.049	.105				
NMEF 3/22-15044 S	3	22	150/44	.010	.049	.105	40	.119		
NMEF 3/22-15044 J	3	22	150/44	.010	.049	.105			.015	.135
NMEF 3/22-15044 SJ	3	22	150/44	.010	.049	.105	40	.119	.015	.149
NMEF 4/22-15044 U	4	22	150/44	.010	.049	.118				
NMEF 4/22-15044 S	4	22	150/44	.010	.049	.118	40	.132		
NMEF 4/22-15044 J	4	22	150/44	.010	.049	.118			.015	.148
NMEF 4/22-15044 SJ	4	22	150/44	.010	.049	.118	40	.132	.015	.162
NMEF 5/22-15044 U	5	22	150/44	.010	.049	.132				
NMEF 5/22-15044 S	5	22	150/44	.010	.049	.132	40	.146		
NMEF 5/22-15044 SJ	5	22	150/44	.010	.049	.132			.015	.162
NMEF 1/24-10544 S	1	24	105/44	.010	.044	.044	44	.053		
NMEF 1/24-10544 SJ	1	24	105/44	.010	.044	.044	44	.053	.010	.073
NMEF 2/24-10544 U	2	24	105/44	.010	.044	.088				
NMEF 2/24-10544 S	2	24	105/44	.010	.044	.088	44	.097		
NMEF 2/24-10544 J	2	24	105/44	.010	.044	.088			.015	.118
NMEF 2/24-10544 SJ	2	24	105/44	.010	.044	.088	44	.097	.015	.127
NMEF 3/24-10544 U	3	24	105/44	.010	.044	.095				
NMEF 3/24-10544 S	3	24	105/44	.010	.044	.095	40	.109		
NMEF 3/24-10544 J	3	24	105/44	.010	.044	.095			.015	.125
NMEF 3/24-10544 SJ	3	24	105/44	.010	.044	.095	40	.109	.015	.139
NMEF 4/24-10544 U	4	24	105/44	.010	.044	.106				
NMEF 4/24-10544 S	4	24	105/44	.010	.044	.106	40	.120		
NMEF 4/24-10544 J	4	24	105/44	.010	.044	.106			.015	.136
NMEF 4/24-10544 SJ	4	24	105/44	.010	.044	.106	40	.120	.015	.150
NMEF 5/24-10544 U	5	24	105/44	.010	.044	.119				
NMEF 5/24-10544 S	5	24	105/44	.010	.044	.119	40	.133		
NMEF 5/24-10544 J	5	24	105/44	.010	.044	.119			.015	.149
NMEF 5/24-10544 SJ	5	24	105/44	.010	.044	.119	40	.133	.015	.163
NMEF 1/26-10544 S	1	26	66/44	.010	.039	.039	44	.048		
NMEF 1/26-10544 SJ	1	26	66/44	.010	.039	.039	44	.048	.010	.068
NMEF 2/26-6544 U	2	26	66/44	.010	.039	.078				
NMEF 2/26-6544 S	2	26	66/44	.010	.039	.078	44	.087		
NMEF 2/26-6544 J	2	26	66/44	.010	.039	.078			.010	.098
NMEF 2/26-6544 SJ	2	26	66/44	.010	.039	.078	44	.087	.010	.107
NMEF 3/26-6544 U	3	26	65/44	.010	.039	.084				
NMEF 3/26-6544 S	3	26	65/44	.010	.039	.084	44	.093		
NMEF 3/26-6544 J	3	26	65/44	.010	.039	.084			.010	.104



# HOOK UP WIRE AND CABLE

## 600 VDC EXTRA FLEXIBLE PVC CABLES

### Multi Conductor

Miniature Hook-up Wire and Cable - continued

PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMEF 4/26-6544 U	4	26	65/44	.010	.039	.094				
NMEF 4/26-6544 S	4	26	65/44	.010	.039	.094	40	.108		
NMEF 4/26-6544 J	4	26	65/44	.010	.039	.094			.015	.124
NMEF 4/26-6544 SJ	4	26	65/44	.010	.039	.094	40	.108	.015	.135
NMEF 5/26-6544 U	5	26	65/44	.010	.039	.105				
NMEF 5/26-6544 S	5	26	65/44	.010	.039	.105	40	.119		
NMEF 5/26-6544 J	5	26	65/44	.010	.039	.105			.015	.165
NMEF 5/26-6544 SJ	5	26	65/44	.010	.039	.105	40	.119	.015	.149
NMEF 1/28-4044 S	1	28	40/44	.010	.035	.035	44	.044		
NMEF 1/28-4044 SJ	1	28	40/44	.010	.035	.035	44	.044	.010	.064
NMEF 2/28-4044 U	2	28	40/44	.010	.035	.070				
NMEF 2/28-4044 S	2	28	40/44	.010	.035	.070	44	.079		
NMEF 2/28-4044 J	2	28	40/44	.010	.035	.070			.010	.090
NMEF 2/28-4044 SJ	2	28	40/44	.010	.035	.070	44	.079	.010	.099
NMEF 3/28-4044 U	3	28	40/44	.010	.035	.075				
NMEF 3/28-4044 S	3	28	40/44	.010	.035	.075	44	.084		
NMEF 3/28-4044 J	3	28	40/44	.010	.035	.075			.010	.095
NMEF 3/28-4044 SJ	3	28	40/44	.010	.035	.075	44	.084	.010	.104
NMEF 4/28-4044 U	4	28	40/44	.010	.035	.084				
NMEF 4/28-4004 S	4	28	40/44	.010	.035	.084	44	.093		
NMEF 4/28-4044 J	4	28	40/44	.010	.035	.084			.010	.104
NMEF 4/28-4044 SJ	4	28	40/44	.010	.035	.084	44	.093	.010	.113
NMEF 5/28-4044 U	5	28	40/44	.010	.035	.095				
NMEF 5/28-4044 S	5	28	40/44	.010	.035	.095	40	.109		
NMEF 5/28-4044 J	5	28	40/44	.010	.035	.095			.015	.125
NMEF 5/28-4044SJ	5	28	40/44	.010	.035	.095	40	.109	.015	.139
NMEF 1/29-5146 S	1	28	51/46	.010	.033	.033	44	.042		
NMEF 1/29-5146 SJ	1	29	51/46	.010	.033	.033	44	.042	.010	.062
NMEF 2/29-5146 U	2	29	51/46	.010	.033	.066				
NMEF 2/29-5146S	2	29	51/46	.010	.033	.066	44	.075		
NMEF 2/29-5146 J	2	29	51/46	.010	.033	.066			.101	.086
NMEF 2/29-5146 SJ	2	29	51/46	.010	.033	.066	44	.075	.010	.095
NMEF 3/29-5146 U	3	29	51/46	.010	.033	.071				
NMEF 3/29-5146 S	3	29	51/46	.010	.033	.071	44	.080		
NMEF 3/29-5146 J	3	29	51/46	.010	.033	.071			.010	.091
NMEF 3/29-5146 SJ	3	29	51/46	.010	.033	.071	44	.080	.010	.100
NMEF 4/29-5146 U	4	29	51/46	.010	.033	.080				
NMEF 4/29-5146 S	4	29	51/46	.010	.033	.080	44	.089		
NMEF 4/29-5146 J	4	29	51/46	.010	.033	.080			.010	.100
NMEF 4/29-5146SJ	4	29	51/46	.010	.033	.080	44	.089	.010	.109
NMEF 5/29-5146 U	5	29	51/46	.010	.033	.089				
NMEF 5/29-5146 S	5	29	51/46	.010	.033	.089	44	.098		
NMEF 5/29-5146 J	5	29	51/46	.010	.033	.089			.015	.119
NMEF 5/29-5146 SJ	5	29	51/46	.010	.033	.089	44	.098	.015	.018
NMEF 1/30-2544 S	1	30	25/44	.010	.032	.032	44	.041		
NMEF 1/30-2544 SJ	1	30	25/44	.010	.032	.032	44	.041	.010	.061
NMEF 2/30-2544 U	2	30	25/44	.010	.032	.064				
NMEF 2/30-2544 S	2	30	25/44	.010	.032	.064	44	.073		
NMEF 2/30-2544 J	2	30	25/44	.010	.032	.064			.010	.084
NMEF 2/30-2544 SJ	2	30	25/44	.010	.032	.064	44	.073	.010	.093



### Multi Conductor

Miniature Hook-up Wire and Cable - continued

PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMEF 3/30-2544 U	3	30	25/44	.010	.032	.069				
NMEF 3/30-2544 S	3	30	25/44	.010	.032	.069	44	.078		
NMEF 3/30-2544 J	3	30	25/44	.010	.032	.069			.010	.089
NMEF 3/30-2544 SJ	3	30	25/44	.010	.032	.069	44	.078	.010	.098
NMEF 4/30-2544 U	4	30	25/44	.010	.032	.077				
NMEF 4/30-2544 S	4	30	25/44	.010	.032	.077	44	.086		
NMEF 4/30-2544 J	4	30	25/44	.010	.032	.077			.010	.097
NMEF 4/30-2544 SJ	4	30	25/44	.010	.032	.077	44	.086	.010	.106
NMEF 5/30-2544 U	5	30	25/44	.010	.032	.086				
NMEF 5/30-2544 S	5	30	25/44	.010	.032	.086	44	.095		
NMEF 5/30-2544 J	5	30	25/44	.010	.032	.086			.010	.106
NMEF 5/30-2544 SJ	5	30	25/44	.010	.032	.086	44	.095	.010	.115
NMEF 1/32-1644 S	1	32	16/44	.010	.029	.086	44	.038		
NMEF 1/32-1644 SJ	1	32	16/44	.010	.029	.029	44	.038	.010	.058
NMEF 2/32-1644 U	2	32	16/44	.010	.029	.029				
NMEF 2/32-1644 S	2	32	16/44	.010	.029	.058			.010	.078
NMEF 2/32-1644 SJ	2	32	16/44	.010	.029	.058	44	.067	.010	.087
NMEF 3/32-1644 U	3	32	16/44	.010	.029	.058				
NMEF 3/32-1644 S	3	32	16/44	.010	.029	.062	44	.071		
NMEF 3/32-1644 J	3	32	16/44	.010	.029	.062			.010	.082
NMEF 3/32-1644 SJ	3	32	16/44	.010	.029	.062	44	.071	.010	.091
NMEF 4/32-1644 U	4	32	16/44	.010	.029	.062				
NMEF 4/32-1644 S	4	32	16/44	.010	.029	.070	44	.079		
NMEF 4/32-1644 J	4	32	16/44	.010	.029	.070			.010	.090
NMEF 4/32-1644 SJ	4	32	16/44	.010	.029	.070	44	.079	.010	.099
NMEF 5/32-1644 U	5	32	16/44	.010	.029	.070				
NMEF 5/32-1644 S	5	32	16/44	.010	.029	.078	44	.087		
NMEF 5/32-1644 J	5	32	16/44	.010	.029	.078			.010	.098
NMEF 5/32-1644 SJ	5	32	16/44	.010	.029	.078	44	.087	.010	.107
NMEF 1/34-1044 S	1	34	10/44	.010	.027	.078	44	.036		
NMEF 1/34-1044 SJ	1	34	10/44	.010	.027	.027	44	.036	.010	.056
NMEF 2/34-1044 U	2	34	10/44	.010	.027	.027				
NMEF 2/34-1044 S	2	34	10/44	.010	.027	.054	44	.063		
NMEF 2/34-1044 J	2	34	10/44	.010	.027	.054			.010	.074
NMEF 2/34-1044 SJ	2	34	10/44	.010	.027	.054	44	.063	.010	.083
NMEF 3/34-1044 U	3	34	10/44	.010	.027	.054				
NMEF 3/34-1044 S	3	34	10/44	.010	.027	.058	44	.067		
NMEF 3/34-1044 J	3	34	10/44	.010	.027	.058			.010	.078
NMEF 3/34-1044 SJ	3	34	10/44	.010	.027	.058	44	.067	.010	.087
NMEF 4/34-1044 U	4	34	10/44	.010	.027	.058				
NMEF 4/34-1044 S	4	34	10/44	.010	.027	.065	44	.074		
NMEF 4/34-1044 J	4	34	10/44	.010	.027	.065			.010	.094
NMEF 4/34-1044 SJ	4	34	10/44	.010	.027	.065	44	.074	.010	.094
NMEF 5/34-1044 U	5	34	10/44	.010	.027	.065				
NMEF 5/34-1044 S	5	34	10/44	.010	.027	.073	44	.082		

Color Code: 1. White 2. Black 3. Red 4. Green 5. Yellow

Available in more conductors if needed.

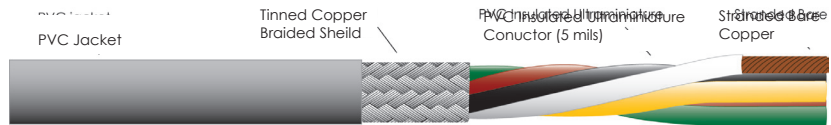


# 300 VDC ULTRA FLEXIBLE MICROMINIATURE PVC CABLES

## Ultra Flexible Microminiature

### Multi Conductor Cables

- U= Cabled conductors only  
S= Cabled conductors with tinned-copper braided shield  
J= Cabled conductors, overall jacket only  
SJ= Cabled conductors with tinned-copper braided shield and Gray PVC jacket



PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMUF 1/30-4046 S	1	30	41/46	.005	.022	.022	44	.031		
NMUF 1/30-4046 SJ	1	30	41/46	.005	.022	.022	44	.031	.010	.051
NMUF 2/30-4046 U	2	30	41/46	.005	.022	.044				
NMUF 2/30-4046 S	2	30	41/46	.005	.022	.044	44	.053		
NMUF 2/30-4046 J	2	30	41/46	.005	.022	.044			.010	.064
NMUF 2/30-4046 SJ	2	30	41/46	.005	.022	.044	44	.053	.010	.073
NMUF 3/30-4046 U	3	30	41/46	.005	.022	.047				
NMUF 3/30-4046 S	3	30	41/46	.005	.022	.047	44	.056		
NMUF 3/30-4046 J	3	30	41/46	.005	.022	.047			.010	.067
NMUF 3/30-4046 SJ	3	30	41/46	.005	.022	.047	44	.056	.010	.076
NMUF 4/30-4046 U	4	30	41/46	.005	.022	.053				
NMUF 4/30-4046 S	4	30	41/46	.005	.022	.053	44	.062		
NMUF 4/30-4046 J	4	30	41/46	.005	.022	.053			.010	.073
NMUF 4/30-4046 SJ	4	30	41/46	.005	.022	.053	44	.062	.010	.082
NMUF 5/30-4046 U	5	30	41/46	.005	.022	.059				
NMUF 5/30-4046 S	5	30	41/46	.005	.022	.059	44	.068		
NMUF 5/30-4046 J	5	30	41/46	.005	.022	.059			.010	.079
NMUF 5/30-4046 SJ	5	30	41/46	.005	.022	.059	44	.068	.010	.088
NMUF 6/30-4046 SJ	6	30	41/46	.005	.022	.066	44	.075	.010	.095
NMUF 7/30-4046 SJ	7	30	41/46	.005	.022	.066	44	.075	.010	.095
NMUF 8/30-4046 SJ	8	30	41/46	.005	.022	.073	44	.082	.010	.102
NMUF 9/30-4046 SJ	9	30	41/46	.005	.022	.074	44	.083	.010	.103
NMUF 10/20-4046 SJ	10	30	41/46	.005	.022	.088	44	.097	.015	.127
NMUF 11/30-4046 SJ	11	30	41/46	.005	.022	.088	44	.097	.015	.127
NMUF 12/30-4046 SJ	12	30	41/46	.005	.022	.091	44	.100	.015	.130
NMUF 13/30-4046 SJ	13	30	41/46	.005	.022	.097	44	.106	.015	.136
NMUF 14/30-4046 SJ	14	30	41/46	.005	.022	.097	44	.106	.015	.136
NMUF 15/30-4046 SJ	14	30	41/46	.005	.022	.103	44	.112	.018	.148
NMUF 16/30-4046 SJ	16	30	41/46	.005	.022	.103	44	.112	.018	.148
NMUF 17/30-4046 SJ	17	30	41/46	.005	.022	.110	44	.119	.020	.159
NMUF 18/30-4046 SJ	18	30	41/46	.005	.022	.110	44	.119	.020	.159
NMUF 19/30-4046 SJ	19	30	41/46	.005	.022	.110	44	.119	.020	.159
NMUF 20/30-4046 SJ	20	30	41/46	.005	.022	.117	44	.126	.020	.166
NMUF 1/32-6550 S	1	32	65/50	.005	.020	.020	44	.029		
NMUF 1/32-6550 SJ	1	32	65/50	.005	.020	.020	44	.029	.010	.049
NMUF 2/32-6550 U	2	32	65/50	.005	.020	.040				
NMUF 2/32-6550 S	2	32	65/50	.005	.020	.040	44	.049		
NMUF 2/32-6550 J	2	32	65/50	.005	.020	.040			.010	.060
NMUF 2/32-6550 SJ	2	32	65/50	.005	.020	.040	44	.049	.010	.069
NMUF 3/32-6550 U	3	32	65/50	.005	.020	.043				
NMUF 3/32-6550 S	3	32	65/50	.005	.020	.043	44	.052		
NMUF 3/32-6550 J	3	32	65/50	.005	.020	.043			.010	.063
NMUF 3/32-6550 SJ	3	32	65/50	.005	.020	.043	44	.052	.010	.072
NMUF 4/32-6550 U	4	32	65/50	.005	.020	.048				
NMUF 4/32-6550 S	4	32	65/50	.005	.020	.048	44	.057		
NMUF 4/32-6550 J	4	32	65/50	.005	.020	.048			.010	.068
NMUF 4/32-6550 SJ	4	32	65/50	.005	.020	.048	44	.057	.010	.077
NMUF 5/32-6550 U	5	32	65/50	.005	.020	.054				
NMUF 5/32-6550 S	5	32	65/50	.005	.020	.054	44	.063		
NMUF 5/32-6550 J	5	32	65/50	.005	.020	.054			.010	.074
NMUF 5/32-6550 SJ	5	32	65/50	.005	.020	.054	44	.063	.010	.083
NMUF 1/34-4050 S	1	34	40/50	.005	.018	.018	44	.027		
NMUF 1/34-4050 SJ	1	34	40/50	.005	.018	.018	44	.027	.010	.047
NMUF 2/34-4050 U	2	34	40/50	.005	.018	.036				
NMUF 2/34-4050 S	2	34	40/50	.005	.018	.036	44	.045		
NMUF 2/34-4050 J	2	34	40/50	.005	.018	.036			.010	.056
NMUF 2/34-4050 SJ	2	34	40/50	.005	.018	.036	44	.045	.010	.065

Cables are jacketed in gray. For additional jacket colors contact a sales representative.



# 300 VDC ULTRA FLEXIBLE MICROMINIATURE PVC CABLES

## Ultra Flexible Microminiature

Multi Conductor Cables - continued

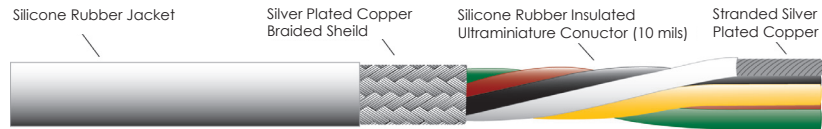
PART NUMBER	NUMBER OF COND.	SINGLE CONDUCTOR DATA				NOM. DIAM. OVER CABLED COND.	SHIELD		JACKET	
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.		SHIELD STRAND AWG	NOM. DIAM. OVER SHIELD	NOM. WALL THICKNESS	NOM. O.D.
NMUF 3/34-4050 U	3	34	40/50	.005	.018	.039				
NMUF 3/34-4050 S	3	34	40/50	.005	.018	.039	44	.048		
NMUF 3/34-4050 J	3	34	40/50	.005	.018	.039			.010	.059
NMUF 3/34-4050 SJ	3	34	40/50	.005	.018	.039	44	.048	.010	.068
NMUF 4/34-4050 U	4	34	40/50	.005	.018	.043				
NMUF 4/34-4050 S	4	34	40/50	.005	.018	.043	44	.052		
NMUF 4/34-4050 J	4	34	40/50	.005	.018	.043			.010	.063
NMUF 4/34-4050 SJ	4	34	40/50	.005	.018	.043	44	.052	.010	.072
NMUF 5/34-4050 U	5	34	40/50	.005	.018	.049				
NMUF 5/34-4050 S	5	34	40/50	.005	.018	.049	44	.058		
NMUF 5/34-4050 J	5	34	40/50	.005	.018	.049			.010	.069
NMUF 5/34-4050 SJ	5	34	40/50	.005	.018	.049	44	.058	.010	.078
NMUF 1/36-2550 S	1	36	25/50	.005	.016	.016	44	.025		
NMUF 1/36-2550 SJ	1	36	25/50	.005	.016	.016	44	.025	.010	.045
NMUF 2/36-2550 U	2	36	25/50	.005	.016	.032				
NMUF 2/36-2550 S	2	36	25/50	.005	.016	.032	44	.041		
NMUF 2/36-2550 J	2	36	25/50	.005	.016	.032			.010	.052
NMUF 2/36-2550 SJ	2	36	25/50	.005	.016	.032	44	.041	.010	.061
NMUF 3/36-2550 U	3	36	25/50	.005	.016	.034				
NMUF 3/36-2550 S	3	36	25/50	.005	.016	.034	44	.043		
NMUF 3/36-2550 J	3	36	25/50	.005	.016	.034			.010	.054
NMUF 3/36-2550 SJ	3	36	25/50	.005	.016	.034	44	.043	.010	.063
NMUF 4/36-2550 U	4	36	25/50	.005	.016	.039				
NMUF 4/36-2550 S	4	36	25/50	.005	.016	.039			.010	.059
NMUF 4/36-2550 SJ	4	36	25/50	.005	.016	.039	44	.048	.010	.068
NMUF 5/36-2550 U	5	36	25/50	.005	.016	.043				
NMUF 5/36-2550 S	5	36	25/50	.005	.016	.043	44	.052		
NMUF 5/36-2550 J	5	36	25/50	.005	.016	.043			.010	.063
NMUF 5/36-2550 SJ	5	36	25/50	.005	.016	.043	44	.052	.010	.072
NMUF 1/38-1650 S	1	38	16/50	.005	.014	.014	44	.023		
NMUF 1/38-1650 SJ	1	38	16/50	.005	.014	.014	44	.023	.010	.043
NMUF 2/38-1650 U	2	38	16/50	.005	.014	.028				
NMUF 2/38-1650 S	2	38	16/50	.005	.014	.028	44	.037		
NMUF 2/38-1650 J	2	38	16/50	.005	.014	.028			.010	.048
NMUF 2/38-1650 SJ	2	38	16/50	.005	.014	.028	44	.037	.010	.057
NMUF 3/38-1650 U	3	38	16/50	.005	.014	.030				
NMUF 3/38-1650 S	3	38	16/50	.005	.014	.030	44	.039		
NMUF 3/38-1650 J	3	38	16/50	.005	.014	.030			.010	.050
NMUF 3/38-1650 SJ	3	38	16/50	.005	.014	.030	44	.039	.010	.059
NMUF 4/38-1650 U	4	38	16/50	.005	.014	.034				
NMUF 4/38-1650 S	4	38	16/50	.005	.014	.034	44	.043		
NMUF 4/38-1650 J	4	38	16/50	.005	.014	.034			.010	.054
NMUF 4/38-1650 SJ	4	38	16/50	.005	.014	.034	44	.043	.010	.063
NMUF 5/38-1650 U	5	38	16/50	.005	.014	.038				
NMUF 5/38-1650 S	5	38	16/50	.005	.014	.038	44	.047		
NMUF 5/38-1650 J	5	38	16/50	.005	.014	.038			.010	.058
NMUF 5/38-1650 SJ	5	38	16/50	.005	.014	.038	44	.047	.010	.067

Color Code: 1. White 2. Black 3. Red 4. Green 5. Yellow

Available in more conductors if needed.



# 300 VDC SILVER PLATED COPPER SILIFLEX CABLES



PART NUMBER	NUMBER OF COND.	AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.	SHIELD STRAND AWG	NOM. WALL THICKNESS	NOM. O.D.
AS155-18-1SJ	1	18	413/44	.011	.072	40	.020	0.145
AS155-18-2J	2	18	413/44	.011	.144		.025	0.194
AS155-18-2SJ	2	18	413/44	.011	.144	40	.025	0.208
AS155-18-3J	3	18	413/44	.011	.155		.025	0.205
AS155-18-3SJ	3	18	413/44	.011	.155	40	.030	0.229
AS155-18-4J	4	18	413/44	.011	.174		.030	0.234
AS155-18-4SJ	4	18	413/44	.011	.174	40	.040	0.268
AS155-18-5J	5	18	413/44	.011	.195		.040	0.275
AS155-18-5SJ	5	18	413/44	.011	.195	40	.045	0.299
AS155-20-1SJ	1	20	259/44	.010	.060	40	.015	0.094
AS155-20-2J	2	20	259/44	.010	.120		.025	0.170
AS155-20-2SJ	2	20	259/44	.010	.120	40	.025	0.184
AS155-20-3S	3	20	259/44	.010	.129		.025	0.179
AS155-20-3SJ	3	20	259/44	.010	.129	40	.025	0.193
AS155-20-4S	4	20	259/44	.010	.145		.030	0.205
AS155-20-4SJ	4	20	259/44	.010	.145	40	.030	0.219
AS155-20-5S	5	20	259/44	.010	.162		.030	0.222
AS155-20-5SJ	5	20	259/44	.010	.162	40	.030	0.236
AS155-22-1SJ	1	22	150/44	.010	.051	40	.015	0.095
AS155-22-2J	2	22	168/44	.010	.102		.020	0.142
AS155-22-2SJ	2	22	168/44	.010	.102	40	.025	0.156
AS155-22-3J	3	22	168/44	.010	.109		.025	0.159
AS155-22-3SJ	3	22	168/44	.010	.109	40	.025	0.173
AS155-22-4J	4	22	168/44	.010	.123		.030	0.183
AS155-22-4SJ	4	22	168/44	.010	.123	40	.030	0.197
AS155-22-5J	5	22	188/44	.010	.138		.035	0.198
AS155-22-5SJ	5	22	168/44	.010	.138	40	.035	0.212
AS155-24-1SJ	1	24	105/44	.010	.046	44	.015	0.085
AS155-24-2J	2	24	105/44	.010	.092		.015	0.122
AS155-24-2SJ	2	24	105/44	.010	.092	44	.015	0.131
AS155-24-3J	3	24	105/44	.010	.099		.015	0.129
AS155-24-3SJ	3	24	105/44	.010	.099	40	.020	0.153
AS155-24-4J	4	24	105/44	.010	.111		.020	0.151
AS155-24-4SJ	4	24	105/44	.010	.111	40	.025	0.175
AS155-24-5J	5	24	105/44	.010	.125		.025	0.175
AS155-24-5SJ	5	24	105/44	.010	.125	40	.030	0.199
AS155-26-1SJ	1	26	66/44	.010	.039	44	.015	0.078
AS155-26-2J	2	26	66/44	.010	.078		.015	0.108
AS155-26-2SJ	2	26	66/44	.010	.078	44	.015	0.117
AS155-26-3J	3	26	66/44	.010	.084		.015	0.114
AS155-26-3SJ	3	26	66/44	.010	.084	44	.015	0.123
AS155-26-4J	4	26	66/44	.010	.094		.015	0.124
AS155-26-4SJ	4	26	66/44	.010	.094	44	.020	0.143
AS155-26-5J	5	26	66/44	.010	.105		.020	0.145
AS155-26-5SJ	5	26	66/44	.010	.105	40	.020	0.154

Cables are jacketed in white. For additional jacket colors contact a sales representative.

\* Shielded, jacketed cables require a PTFE tape wrap.



# HOOK UP WIRE AND CABLE

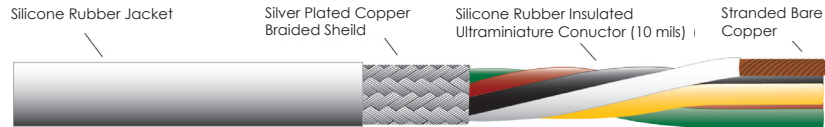
## 300 VDC SILVER PLATED COPPER SILIFLEX CABLES

PART NUMBER	NUMBER OF COND.	AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.	SHIELD STRAND AWG	NOM. WALL THICKNESS	NOM. O.D.
AS155-28-1SJ	1	28	65/46	.010	.035	44	.012	0.076
AS155-28-2J	2	28	65/46	.010	.070		.015	0.100
AS155-28-2SJ	2	28	65/46	.010	.070	44	.020	0.125
AS155-28-3J	3	28	65/46	.010	.075		.020	0.115
AS155-28-3SJ	3	28	65/46	.010	.075	44	.020	0.130
AS155-28-4J	4	28	65/46	.010	.084		.020	0.124
AS155-28-4SJ	4	28	65/46	.010	.084	44	.020	0.139
AS155-28-5J	5	28	65/46	.010	.095		.020	0.135
AS155-28-5SJ	5	28	65/46	.010	.095	44	.025	0.160
AS155-30-1SJ	1	30	41/46	.010	.032	44	.012	0.079
AS155-30-2J	2	30	41/46	.010	.064		.015	0.094
AS155-30-2SJ	2	30	41/46	.010	.064	44	.020	0.119
AS155-30-3J	3	30	41/46	.010	.069		.020	0.109
AS155-30-3SJ	3	30	41/46	.010	.069	44	.020	0.124
AS155-30-4J	4	30	41/46	.010	.077		.020	0.117
AS155-30-4SJ	4	30	41/46	.010	.077	44	.020	0.132
AS155-30-5J	5	30	41/46	.010	.086		.020	0.126
AS155-30-5SJ	5	30	41/46	.010	.086	44	.020	0.141
AS155-32-1SJ	1	32	75/50	.010	.029	44	.015	0.076
AS155-32-2J	2	32	75/50	.010	.058		.015	0.088
AS155-32-2SJ	2	32	75/50	.010	.058	44	.015	0.103
AS155-32-3J	3	32	75/50	.010	.062		.020	0.102
AS155-32-3SJ	3	32	75/50	.010	.062	44	.020	0.117
AS155-32-4J	4	32	75/50	.010	.070		.020	0.110
AS155-32-4SJ	4	32	75/50	.010	.070	44	.020	0.125
AS155-32-5J	5	32	75/50	.010	.078		.020	0.118
AS155-32-5SJ	5	32	75/50	.010	.078	44	.020	0.133
AS155-34-1SJ	1	34	41/50	.010	.027	44	.01	0.064
AS155-34-2J	2	34	41/50	.010	.054		.015	0.084
AS155-34-2SJ	2	34	41/50	.010	.054	44	.015	0.099
AS155-34-3J	3	34	41/50	.010	.058		.015	0.088
AS155-34-3SJ	3	34	41/50	.010	.058	44	.015	0.103
AS155-34-4J	4	34	41/50	.010	.065		.020	0.105
AS155-34-4SJ	4	34	41/50	.010	.065	44	.020	0.120
AS155-34-5J	5	34	41/50	.010	.073		.020	0.113
AS155-34-5SJ	5	34	41/50	.010	.073	44	.020	0.128
AS155-36-1SJ	1	36	25/50	.010	.026	44	.010	0.063
AS155-36-2J	2	36	25/50	.010	.052		.015	0.082
AS155-36-2SJ	2	36	25/50	.010	.052	44	.015	0.097
AS155-36-3J	3	36	25/50	.010	.056		.015	0.086
AS155-36-3SJ	3	36	25/50	.010	.056	44	.015	0.101
AS155-36-4J	4	36	25/50	.010	.063		.015	0.093
AS155-36-4SJ	4	36	25/50	.010	.063	44	.020	0.108
AS155-36-5J	5	36	25/50	.010	.070		.020	0.110
AS155-36-5SJ	5	36	25/50	.010	.070	44	.020	0.125

\* Shielded, jacketed cables require a PTFE tape wrap.





**300 VDC BARE COPPER SILIFLEX CABLES**


PART NUMBER	NUMBER OF COND.	AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.	SHIELD STRAND AWG	NOM. WALL THICKNESS	NOM. O.D.
AS999-18-1SJ	1	18	413/44	.011	.072	40	.020	0.145
AS999-18-2J	2	18	413/44	.011	.144		.025	0.194
AS999-18-2SJ	2	18	413/44	.011	.144	40	.025	0.208
AS999-18-3J	3	18	413/44	.011	.155		.025	0.205
AS999-18-3SJ	3	18	413/44	.011	.155	40	.030	0.229
AS999-18-4J	4	18	413/44	.011	.174		.030	0.234
AS999-18-4SJ	4	18	413/44	.011	.174	40	.040	0.268
AS999-18-5J	5	18	413/44	.011	.195		.040	0.275
AS999-18-5SJ	5	18	413/44	.011	.195	40	.045	0.299
AS999-20-1SJ	1	20	259/44	.010	.060	40	.015	0.094
AS999-20-2J	2	20	259/44	.010	.120		.025	0.170
AS999-20-2SJ	2	20	259/44	.010	.120	40	.025	0.184
AS999-20-3S	3	20	259/44	.010	.129		.025	0.179
AS999-20-3SJ	3	20	259/44	.010	.129	40	.025	0.193
AS999-20-4S	4	20	259/44	.010	.145		.030	0.205
AS999-20-4SJ	4	20	259/44	.010	.145	40	.030	0.219
AS999-20-5S	5	20	259/44	.010	.162		.030	0.222
AS999-20-5SJ	5	20	259/44	.010	.162	40	.030	0.236
AS999-22-1SJ	1	22	150/44	.010	.051	40	.015	0.095
AS999-22-2J	2	22	168/44	.010	.102		.020	0.142
AS999-22-2SJ	2	22	168/44	.010	.102	40	.025	0.156
AS999-22-3J	3	22	168/44	.010	.109		.025	0.159
AS999-22-3SJ	3	22	168/44	.010	.109	40	.025	0.173
AS999-22-4J	4	22	168/44	.010	.123		.030	0.183
AS999-22-4SJ	4	22	168/44	.010	.123	40	.030	0.197
AS999-22-5J	5	22	188/44	.010	.138		.035	0.198
AS999-22-5SJ	5	22	168/44	.010	.138	40	.035	0.212
AS999-24-1SJ	1	24	105/44	.010	.046	44	.015	0.085
AS999-24-2J	2	24	105/44	.010	.092		.015	0.122
AS999-24-2SJ	2	24	105/44	.010	.092	44	.015	0.131
AS999-24-3J	3	24	105/44	.010	.099		.015	0.129
AS999-24-3SJ	3	24	105/44	.010	.099	40	.020	0.153
AS999-24-4J	4	24	105/44	.010	.111		.020	0.151
AS999-24-4SJ	4	24	105/44	.010	.111	40	.025	0.175
AS999-24-5J	5	24	105/44	.010	.125		.025	0.175
AS999-24-5SJ	5	24	105/44	.010	.125	40	.030	0.199
AS999-26-1SJ	1	26	66/44	.010	.039	44	.015	0.078
AS999-26-2J	2	26	66/44	.010	.078		.015	0.108
AS999-26-2SJ	2	26	66/44	.010	.078	44	.015	0.117
AS999-26-3J	3	26	66/44	.010	.084		.015	0.114
AS999-26-3SJ	3	26	66/44	.010	.084	44	.015	0.123
AS999-26-4J	4	26	66/44	.010	.094		.015	0.124
AS999-26-4SJ	4	26	66/44	.010	.094	44	.020	0.143
AS999-26-5J	5	26	66/44	.010	.105		.020	0.145
AS999-26-5SJ	5	26	66/44	.010	.105	40	.020	0.154

Cables are jacketed in white. For additional jacket colors contact a sales representative.

\* Shielded, jacketed cables require a PTFE tape wrap. \* Tinned-copper versions available upon request.



# HOOK UP WIRE AND CABLE

## 300 VDC BARE COPPER SILIFLEX CABLES

PART NUMBER	NUMBER OF COND.	AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICK.	NOMINAL DIAM.	SHIELD STRAND AWG	NOM. WALL THICKNESS	NOM. O.D.
AS999-28-1SJ	1	28	65/46	.010	.035	44	.010	0.063
AS999-28-2J	2	28	65/46	.010	.067		.015	0.097
AS999-28-2SJ	2	28	65/46	.010	.067	44	.015	0.106
AS999-28-3J	3	28	65/46	.010	.075		.015	0.105
AS999-28-3SJ	3	28	65/46	.010	.075	44	.015	0.114
AS999-28-4J	4	28	65/46	.010	.084		.015	0.114
AS999-28-4SJ	4	28	65/46	.010	.084	44	.015	0.123
AS999-28-5J	5	28	65/46	.010	.095		.020	0.135
AS999-28-5SJ	5	28	65/46	.010	.095	44	.020	0.144
AS999-30-1SJ	1	30	41/46	.010	.032	44	.010	0.061
AS999-30-2J	2	30	41/46	.010	.063		.010	0.083
AS999-30-2SJ	2	30	41/46	.010	.063	44	.010	0.092
AS999-30-3J	3	30	41/46	.010	.069		.015	0.099
AS999-30-3SJ	3	30	41/46	.010	.069	44	.015	0.108
AS999-30-4J	4	30	41/46	.010	.077		.015	0.107
AS999-30-4SJ	4	30	41/46	.010	.077	44	.015	0.116
AS999-30-5J	5	30	41/46	.010	.086		.015	0.116
AS999-30-5SJ	5	30	41/46	.010	.086	44	.015	0.125
AS999-32-1SJ	1	32	65/50	.010	.029	44	.010	0.058
AS999-32-2J	2	32	65/50	.010	.057		.010	0.077
AS999-32-2SJ	2	32	65/50	.010	.057	44	.010	0.086
AS999-32-3J	3	32	65/50	.010	.062		.015	0.092
AS999-32-3SJ	3	32	65/50	.010	.062	44	.015	0.101
AS999-32-4J	4	32	65/50	.010	.070		.015	0.100
AS999-32-4SJ	4	32	65/50	.010	.070	44	.015	0.109
AS999-32-5J	5	32	65/50	.010	.079		.015	0.109
AS999-32-5SJ	5	32	65/50	.010	.079	44	.015	0.118
AS999-34-1SJ	1	34	41/50	.010	.027	44	.010	0.056
AS999-34-2J	2	34	41/50	.010	.053		.010	0.073
AS999-34-2SJ	2	34	41/50	.010	.053	44	.010	0.082
AS999-34-3J	3	34	41/50	.010	.058		.015	0.088
AS999-34-3SJ	3	34	41/50	.010	.058	44	.015	0.097
AS999-34-4J	4	34	41/50	.010	.065		.015	0.095
AS999-34-4SJ	4	34	41/50	.010	.065	44	.015	0.104
AS999-34-5J	5	34	41/50	.010	.073		.015	0.103
AS999-34-5SJ	5	34	41/50	.010	.073	44	.015	0.112
AS999-36-1SJ	1	36	26/50	.010	.026	44	.010	0.055
AS999-36-2J	2	36	26/50	.010	.051		.010	0.071
AS999-36-2SJ	2	36	26/50	.010	.051	44	.010	0.080
AS999-36-3J	3	36	26/50	.010	.056		.015	0.086
AS999-36-3SJ	3	36	26/50	.010	.056	44	.015	0.095
AS999-36-4J	4	36	26/50	.010	.063		.015	0.093
AS999-36-4SJ	4	36	26/50	.010	.063	44	.015	0.102
AS999-36-5J	5	36	26/50	.010	.070		.015	0.100
AS999-36-5SJ	5	36	26/50	.010	.070	44	.015	0.109

\* Shielded, jacketed cables require a PTFE tape wrap.

\* Tinned-copper versions available upon request.



Cooner Wire provides two series of ultra flexible, ultra miniature medical wire and cable. These unusual wires and cables offer minimum diameters with maximum flexibility and flex life. Single conductor wires are insulated with clear non-hydroscopic fluoropolymer (withstanding 150 V.D.C at 20°C, useful from -80° to 200°C), extruded over multi-stranded, oxygen free copper or stainless steel.

The oxygen free copper series (prefixed CZ) when cabled and shielded utilizes gold-plated copper as the shielding material. The stainless steel series (prefixed AS) when cabled and shielded utilizes a stainless steel shielding material. All shields are braided.

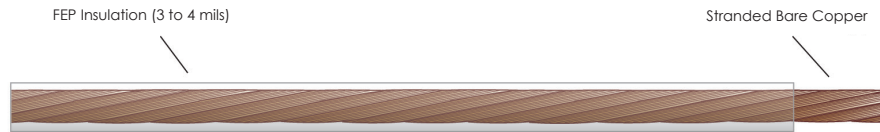
The tables below describe single conductor, unshielded constructions only. The following pages describe cables from one to five conductors (although more conductors are available if required) which may be shielded, or shielded and jacketed with either fluoropolymer (FEP) or polyvinylchloride (PVC). For the CZ styles, the table below also indicates the corresponding cable series in conjunction with the wire part number.

Additionally, Cooner Wire maintains an inventory of solid wires in precious metals. Classified as electrode wire these wires have been successfully designed into various areas of high technology electronics use including medical, aerospace and semiconductor applications and can be supplied in insulated or un-insulated constructions.

**Note:** Although Cooner Wire Company utilizes only superior quality material for the manufacture of our products, no warranty is expressed or implied for Invivo applications.



SINGLE MEDICAL WIRES



WIRE SERIES	CABLE SERIES	AWG SIZE	CONDUCTOR CIRC. MILS	STRAND CONSTR.	NOM. WALL THICKNESS FEP	NOMINAL OVERALL DIAMETER	OHMS PER FOOT
CZ 1103	(CZ 1103-1)	40	10	10/50	.003-.004	.011	1.080
CZ 1187	(CZ 1223-1)	38	15	15/50	.003-.004	.012	.720
CZ 1174	(CZ 1215-1)	36	25	25/50	.003-.004	.013	.430
CZ 1321	(CZ 1324-1)	34	40	40/50	.003-.004	.014	.270
CZ 1111	(CZ 1111-1)	33	49	50/50	.003-.004	.015	.220
CZ 1322	(CZ 1325-1)	32	64	64/50	.003-.004	.016	.170
CZ 1209	(CZ 1209-1)	31	74	75/50	.003-.004	.019	.150
CZ 1320	(CZ 1323-1)	30	99	40/46	.003-.004	.022	.110
CZ 1104	(CZ 1104-1)	29	126	51/46	.003-.004	.023	.085
CZ 1105	(CZ 1105-1)	28	161	65/46	.003-.004	.024	.06

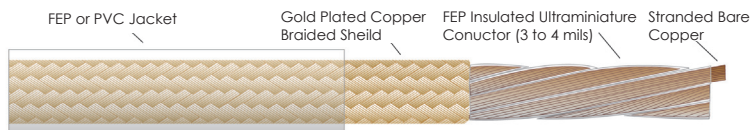


WIRE SERIES	AWG SIZE	CONDUCTOR CIRC. MILS	STRAND CONSTR.	NOM. WALL THICKNESS FEP	NOMINAL OVERALL DIAMETER	OHMS PER FOOT
AS 631	40	10	10/50	.003-.004	.011	45.94
AS 632	38	15	15/50	.003-.004	.012	30.63
AS 633	36	25	25/50	.003-.004	.013	18.38
AS 634	34	40	40/50	.003-.004	.014	11.48
AS 635	33	50	50/50	.003-.004	.015	9.19
AS 636	32	64	64/50	.003-.004	.016	7.18
AS 637	31	75	75/50	.003-.004	.019	6.13
AS 814	30	102	40/46	.003-.004	.022	4.56
AS 815	29	131	51/46	.003-.004	.023	3.57
AS 816	28	166	65/46	.003-.004	.024	2.80

### MULTI CONDUCTOR CABLES - CZ SERIES

#### Multi Conductor Medical Cables

Copper Conductors,  
Gold Plated Copper Braided Shields



CABLE SERIES	WIRE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
			AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
CZ 1111-1	CZ 1111	1	33	50/50	.003-.004	.015	.028			
CZ 1111-1F	CZ 1111	1	33	50/50	.003-.004	.015	.028	.005-.007	.040	
CZ 1111-1P	CZ 1111	1	33	50/50	.003-.004	.015	.028	.005-.007		.044
CZ 1111-2	CZ 1111	2	33	50/50	.003-.004	.015	.044			
CZ 1111-2F	CZ 1111	2	33	50/50	.003-.004	.015	.044	.005-.007	.056	
CZ 1111-2P	CZ 1111	2	33	50/50	.003-.004	.015	.044	.005-.007		.060
CZ 1111-3	CZ 1111	3	33	50/50	.003-.004	.015	.049			
CZ 1111-3F	CZ 1111	3	33	50/50	.003-.004	.015	.049	.005-.007	.061	
CZ 1111-3P	CZ 1111	3	33	50/50	.003-.004	.015	.049	.005-.007		.065
CZ 1111-4	CZ 1111	4	33	50/50	.003-.004	.015	.052			
CZ 1111-4F	CZ 1111	4	33	50/50	.003-.004	.015	.052	.005-.007	.064	
CZ 1111-4P	CZ 1111	4	33	50/50	.003-.004	.015	.052	.005-.007		.068
CZ 1325-1	CZ 1322	1	32	64/50	.003-.004	.016	.028			
CZ 1325-1F	CZ 1322	1	32	64/50	.003-.004	.016	.028	.005-.007	.040	
CZ 1325-1P	CZ 1322	1	32	64/50	.003-.004	.016	.028	.005-.007		.044
CZ 1325-2	CZ 1322	2	32	64/50	.003-.004	.016	.044			
CZ 1325-2F	CZ 1322	2	32	64/50	.003-.004	.016	.044	.005-.007	.056	
CZ 1325-2P	CZ 1322	2	32	64/50	.003-.004	.016	.044	.005-.007		.060
CZ 1325-3	CZ 1322	3	32	64/50	.003-.004	.016	.049			
CZ 1325-3F	CZ 1322	3	32	64/50	.003-.004	.016	.049	.005-.007	.061	
CZ 1325-3P	CZ 1322	3	32	64/50	.003-.004	.016	.049	.005-.007		.065
CZ 1325-4	CZ 1322	4	32	64/50	.003-.004	.016	.052			
CZ 1325-4F	CZ 1322	4	32	64/50	.003-.004	.016	.052	.005-.007	.064	
CZ 1325-4P	CZ 1322	4	32	64/50	.003-.004	.016	.052	.005-.007		.068
CZ 1209-1	CZ 1209	1	31	75/50	.003-.004	.019	.033			
CZ 1209-1F	CZ 1209	1	31	75/50	.003-.004	.019	.033	.005-.007	.045	
CZ 1209-1P	CZ 1209	1	31	75/50	.003-.004	.019	.033	.005-.007		.049
CZ 1209-2	CZ 1209	2	31	75/50	.003-.004	.019	.056			
CZ 1209-2F	CZ 1209	2	31	75/50	.003-.004	.019	.056	.005-.007	.068	
CZ 1209-2P	CZ 1209	2	31	75/50	.003-.004	.019	.056	.005-.007		.072
CZ 1209-3	CZ 1209	3	31	75/50	.003-.004	.019	.060			
CZ 1209-3F	CZ 1209	3	31	75/50	.003-.004	.019	.060	.005-.007	.072	
CZ 1209-3P	CZ 1209	3	31	75/50	.003-.004	.019	.060	.005-.007		.076
CZ 1209-4	CZ 1209	4	31	75/50	.003-.004	.019	.065			
CZ 1209-4F	CZ 1209	4	31	75/50	.003-.004	.019	.065	.005-.007	.075	
CZ 1209-4P	CZ 1209	4	31	75/50	.003-.004	.019	.065	.005-.007		.079
CZ 1323-1	CZ 1320	1	30	40/46	.003-.004	.022	.033			
CZ 1323-1F	CZ 1320	1	30	40/46	.003-.004	.022	.033	.005-.007	.045	
CZ 1323-1P	CZ 1320	1	30	40/46	.003-.004	.022	.033	.005-.007		.049
CZ 1323-2	CZ 1320	2	30	40/46	.003-.004	.022	.056			
CZ 1323-2F	CZ 1320	2	30	40/46	.003-.004	.022	.056	.005-.007	.068	
CZ 1323-2P	CZ 1320	2	30	40/46	.003-.004	.022	.056	.005-.007		.072
CZ 1323-3	CZ 1320	3	30	40/46	.003-.004	.022	.060			
CZ 1323-3F	CZ 1320	3	30	40/46	.003-.004	.022	.060	.005-.007	.072	
CZ 1323-3P	CZ 1320	3	30	40/46	.003-.004	.022	.060	.005-.007		.076
CZ 1323-4	CZ 1320	4	30	40/46	.003-.004	.022	.065			
CZ 1323-4F	CZ 1320	4	30	40/46	.003-.004	.022	.065	.005-.007	.075	
CZ 1323-4P	CZ 1320	4	30	40/46	.003-.004	.022	.065	.005-.007		.079

\* Available in more conductors if required. \* Specify jacket material: F - Fluorocarbon P - PVC

## MULTI CONDUCTOR CABLES - CZ SERIES

### Multi Conductor Medical Cables - continued

Copper Conductors, Gold Plated Copper Braided Shields

CABLE SERIES	WIRE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
			AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
CZ 1103-1	CZ 1103	1	40	10/50	.003-.004	.011	.019			
CZ 1103-1F	CZ 1103	1	40	10/50	.003-.004	.011	.019	.005-.007	.031	
CZ 1103-1P	CZ 1103	1	40	10/50	.003-.004	.011	.019	.005-.007		.035
CZ 1103-2	CZ 1103	2	40	10/50	.003-.004	.011	.028			
CZ 1103-2F	CZ 1103	2	40	10/50	.003-.004	.011	.028	.005-.007	.040	
CZ 1103-2P	CZ 1103	2	40	10/50	.003-.004	.011	.028	.005-.007		.044
CZ 1103-3	CZ 1103	3	40	10/50	.003-.004	.011	.029			
CZ 1103-3F	CZ 1103	3	40	10/50	.003-.004	.011	.029	.005-.007	.041	
CZ 1103-3P	CZ 1103	3	40	10/50	.003-.004	.011	.029	.005-.007		.045
CZ 1103-4	CZ 1103	4	40	10/50	.003-.004	.011	.030			
CZ 1103-4F	CZ 1103	4	40	10/50	.003-.004	.011	.030	.005-.007	.042	
CZ 1103-4P	CZ 1103	4	40	10/50	.003-.004	.011	.030	.005-.007		.046
CZ 1223-1	CZ 1187	1	38	16/50	.003-.004	.012	.019			
CZ 1223-1F	CZ 1187	1	38	16/50	.003-.004	.012	.019	.005-.007	.031	
CZ 1223-1P	CZ 1187	1	38	16/50	.003-.004	.012	.019	.005-.007		.035
CZ 1223-2	CZ 1187	2	38	16/50	.003-.004	.012	.028			
CZ 1223-2F	CZ 1187	2	38	16/50	.003-.004	.012	.028	.005-.007	.040	
CZ 1223-2P	CZ 1187	2	38	16/50	.003-.004	.012	.028	.005-.007		.044
CZ 1223-3	CZ 1187	3	38	16/50	.003-.004	.012	.030			
CZ 1223-3F	CZ 1187	3	38	16/50	.003-.004	.012	.030	.005-.007	.042	
CZ 1223-3P	CZ 1187	3	38	16/50	.003-.004	.012	.030	.005-.007		.046
CZ 1223-4	CZ 1187	4	38	16/50	.003-.004	.012	.032			
CZ 1223-4F	CZ 1187	4	38	16/50	.003-.004	.012	.032	.005-.007	.042	
CZ 1223-4P	CZ 1187	4	38	16/50	.003-.004	.012	.032	.005-.007		.048
CZ 1215-1	CZ 1174	1	36	25/50	.003-.004	.012	.024			
CZ 1215-1F	CZ 1174	1	36	25/50	.003-.004	.013	.024	.005-.007	.036	
CZ 1215-1P	CZ 1174	1	36	25/50	.003-.004	.013	.024	.005-.007		.040
CZ 1215-2	CZ 1174	2	36	25/50	.003-.004	.013	.037			
CZ 1215-2F	CZ 1174	2	36	25/50	.003-.004	.013	.037	.005-.007	.049	
CZ 1215-2P	CZ 1174	2	36	25/50	.003-.004	.013	.037	.005-.007		.053
CZ 1215-3	CZ 1174	3	36	25/50	.003-.004	.013	.041			
CZ 1215-3F	CZ 1174	3	36	25/50	.003-.004	.013	.041	.005-.007	.053	
CZ 1215-3P	CZ 1174	3	36	25/50	.003-.004	.013	.041	.005-.007		.057
CZ 1215-4	CZ 1174	4	36	25/50	.003-.004	.013	.045			
CZ 1215-4F	CZ 1174	4	36	25/50	.003-.004	.013	.045	.005-.007	.057	
CZ 1215-4P	CZ 1174	4	36	25/50	.003-.004	.013	.045	.005-.007		.061
CZ 1324-1	CZ 1321	1	34	40/50	.003-.004	.014	.024			
CZ 1324-1F	CZ 1321	1	34	40/50	.003-.004	.014	.024	.005-.007	.036	
CZ 1324-1P	CZ 1321	1	34	40/50	.003-.004	.014	.024	.005-.007		.040
CZ 1324-2	CZ 1321	2	34	40/50	.003-.004	.014	.037			
CZ 1324-2F	CZ 1321	2	34	40/50	.003-.004	.014	.037	.005-.007	.049	
CZ 1324-2P	CZ 1321	2	34	40/50	.003-.004	.014	.037	.005-.007		.053
CZ 1324-3	CZ 1321	3	34	40/50	.003-.004	.014	.041			
CZ 1324-3F	CZ 1321	3	34	40/50	.003-.004	.014	.041	.005-.007	.053	
CZ 1324-3P	CZ 1321	3	34	40/50	.003-.004	.014	.041	.005-.007		.057
CZ 1324-4	CZ 1321	4	34	40/50	.003-.004	.014	.045			
CZ 1324-4F	CZ 1321	4	34	40/50	.003-.004	.014	.045	.005-.007	.057	
CZ 1324-4P	CZ 1321	4	34	40/50	.003-.004	.014	.045	.005-.007		.061

\* Available in more conductors if required. \* Specify jacket material: F - Fluorocarbon P - PVC



## MULTI CONDUCTOR CABLES - CZ SERIES

**Multi Conductor Medical Cables - continued**

Copper Conductors, Gold Plated Copper Braided Shields

CABLE SERIES	WIRE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
			AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
CZ 1104-1	CZ 1104	1	29	51/46	.003-.004	.023	.035			
CZ 1104-1F	CZ 1104	1	29	51/46	.003-.004	.023	.035	.005-.007	.047	
CZ 1104-1P	CZ 1104	1	29	51/46	.003-.004	.023	.035	.005-.007		.051
CZ 1104-2	CZ 1104	2	29	51/46	.003-.004	.023	.057			
CZ 1104-2F	CZ 1104	2	29	51/46	.003-.004	.023	.057	.005-.007	.069	
CZ 1104-2P	CZ 1104	2	29	51/46	.003-.004	.023	.057	.005-.007		.073
CZ 1104-3	CZ 1104	3	29	51/46	.003-.004	.023	.062			
CZ 1104-3F	CZ 1104	3	29	51/46	.003-.004	.023	.062	.005-.007	.074	
CZ 1104-3P	CZ 1104	3	29	51/46	.003-.004	.023	.062	.005-.007		.078
CZ 1104-4	CZ 1104	4	29	51/46	.003-.004	.023	.067			
CZ 1104-4F	CZ 1104	4	29	51/46	.003-.004	.023	.067	.005-.007	.079	
CZ 1104-4P	CZ 1104	4	29	51/46	.003-.004	.023	.067	.005-.007		.083
CZ 1105-1	CZ 1105	1	28	65/46	.003-.004	.024	.037			
CZ 1105-1F	CZ 1105	1	28	65/46	.003-.004	.024	.037	.005-.007	.049	
CZ 1105-1P	CZ 1105	1	28	65/46	.003-.004	.024	.037	.005-.007		.051
CZ 1105-2	CZ 1105	2	28	65/46	.003-.004	.024	.059			
CZ 1105-2F	CZ 1105	2	28	65/46	.003-.004	.024	.059	.005-.007	.071	
CZ 1105-2P	CZ 1105	2	28	65/46	.003-.004	.024	.059	.005-.007		.073
CZ 1105-3	CZ 1105	3	28	65/46	.003-.004	.024	.064			
CZ 1105-3F	CZ 1105	3	28	65/46	.003-.004	.024	.064	.005-.007	.076	
CZ 1105-3P	CZ 1105	3	28	65/46	.003-.004	.024	.064	.005-.007		.078
CZ 1105-4	CZ 1105	4	28	65/46	.003-.004	.024	.069			
CZ 1105-4F	CZ 1105	4	28	65/46	.003-.004	.024	.069	.005-.007	.081	
CZ 1105-4P	CZ 1105	4	28	65/46	.003-.004	.024	.069	.005-.007		.083

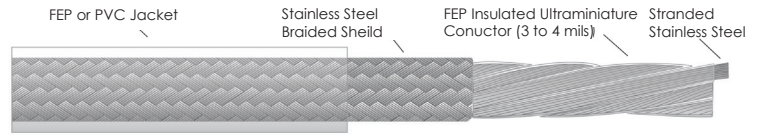
\* Available in more conductors if required.

 \* Specify jacket material: F - Fluorocarbon  
 P - PVC


## MULTI CONDUCTOR CABLES - AS SERIES

### Multi Conductor Medical Cables - continued

Stainless Steel Conductors and Shields



CABLE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
AS 631-1SS	1	40	10/50	.003-.004	.011	.019			
AS 631-1SSF	1	40	10/50	.003-.004	.011	.019	.005-.007	.031	
AS 631-1SSP	1	40	10/50	.003-.004	.011	.019	.005-.007		.035
AS 631-2SS	2	40	10/50	.003-.004	.011	.028			
AS 631-2SSF	2	40	10/50	.003-.004	.011	.028	.005-.007	.040	
AS 631-2SSP	2	40	10/50	.003-.004	.011	.028	.005-.007		.044
AS 631-3SS	3	40	10/50	.003-.004	.011	.029			
AS 631-3SSF	3	40	10/50	.003-.004	.011	.029	.005-.007	.041	
AS 631-3SSP	3	40	10/50	.003-.004	.011	.029	.005-.007		.045
AS 631-4SS	4	40	10/50	.003-.004	.011	.030			
AS 631-4SSF	4	40	10/50	.003-.004	.011	.030	.005-.007	.042	
AS 631-4SSP	4	40	10/50	.003-.004	.011	.030	.005-.007		.046
AS 632-1SS	1	38	16/50	.003-.004	.012	.019			
AS 632-1SSF	1	38	16/50	.003-.004	.012	.019	.005-.007	.031	
AS 632-1SSP	1	38	16/50	.003-.004	.012	.019	.005-.007		.035
AS 632-2SS	2	38	16/50	.003-.004	.012	.028			
AS 632-2SSF	2	38	16/50	.003-.004	.012	.028	.005-.007	.040	
AS 632-2SSP	2	38	16/50	.003-.004	.012	.028	.005-.007		.044
AS 632-3SS	3	38	16/50	.003-.004	.012	.030			
AS 632-3SSF	3	38	16/50	.003-.004	.012	.030	.005-.007	.042	
AS 632-3SSP	3	38	16/50	.003-.004	.012	.030	.005-.007		.046
AS 632-4SS	4	38	16/50	.003-.004	.012	.032			
AS 632-4SSF	4	38	16/50	.003-.004	.012	.032	.005-.007	.044	
AS 632-4SSP	4	38	16/50	.003-.004	.012	.032	.005-.007		.048
AS 633-1SS	1	36	25/50	.003-.004	.013	.024			
AS 633-1SSF	1	36	25/50	.003-.004	.013	.024	.005-.007	.036	
AS 633-1SSP	1	36	25/50	.003-.004	.013	.024	.005-.007		.040
AS 633-2SS	2	36	25/50	.003-.004	.013	.037			
AS 633-2SSF	2	36	25/50	.003-.004	.013	.037	.005-.007	.049	
AS 633-2SSP	2	36	25/50	.003-.004	.013	.037	.005-.007		.053
AS 633-3SS	3	36	25/50	.003-.004	.013	.041			
AS 633-3SSF	3	36	25/50	.003-.004	.013	.041	.005-.007	.053	
AS 633-3SSP	3	36	25/50	.003-.004	.013	.041	.005-.007		.057
AS 633-4SS	4	36	25/50	.003-.004	.013	.045	.005-.007		
AS 633-4SSF	4	36	25/50	.003-.004	.013	.045	.005-.007	.057	
AS 633-4SSP	4	36	25/50	.003-.004	.013	.045	.005-.007		.061
AS 634-1SS	1	34	40/50	.003-.004	.014	.024			
AS 634-1SSF	1	34	40/50	.003-.004	.014	.024	.005-.007	.036	
AS 634-1SSP	1	34	40/50	.003-.004	.014	.024	.005-.007		.040
AS 634-2SS	2	34	40/50	.003-.004	.014	.037			
AS 634-2SSF	2	34	40/50	.003-.004	.014	.037	.005-.007	.049	
AS 634-2SSP	2	34	40/50	.003-.004	.014	.037	.005-.007		.053
AS 634-3SS	3	34	40/50	.003-.004	.014	.041			
AS 634-3SSF	3	34	40/50	.003-.004	.014	.041	.005-.007	.053	
AS 634-3SSP	3	34	40/50	.003-.004	.014	.041	.005-.007		.057
AS 634-4SS	4	34	40/50	.003-.004	.014	.045			
AS 634-4SSF	4	34	40/50	.003-.004	.014	.045	.005-.007	.057	
AS 634-4SSP	4	34	40/50	.003-.004	.014	.045	.005-.007		.061



## MULTI CONDUCTOR CABLES - AS SERIES

**Multi Conductor Medical Cables - continued**

Stainless Steel Conductors and Shields

CABLE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
AS 635-1SS	1	33	50/50	.003-.004	.014	.028			
AS 635-1SSF	1	33	50/50	.003-.004	.015	.028	.005-.007	.040	
AS 635-1SSP	1	33	50/50	.003-.004	.015	.028	.005-.007		.044
AS 635-2SS	2	33	50/50	.003-.004	.015	.044			
AS 635-2SSF	2	33	50/50	.003-.004	.015	.044	.005-.007	.056	.060
AS 635-2SSP	2	33	50/50	.003-.004	.015	.044	.005-.007		.060
AS 635-3SS	3	33	50/50	.003-.004	.015	.049			
AS 635-3SSF	3	33	50/50	.003-.004	.015	.049	.005-.007	.061	
AS 635-3SSP	3	33	50/50	.003-.004	.015	.049	.005-.007		.065
AS 635-4SS	4	33	50/50	.003-.004	.015	.052			
AS 635-4SSF	4	33	50/50	.003-.004	.015	.052	.005-.007	.064	
AS 635-4SSP	4	33	50/50	.003-.004	.015	.052	.005-.007		.068
AS 636-1SS	1	32	65/50	.003-.004	.016	.028			
AS 636-1SSF	1	32	65/50	.003-.004	.016	.028	.005-.007	.040	
AS 636-1SSP	1	32	65/50	.003-.004	.016	.028	.005-.007		.044
AS 636-2SS	2	32	65/50	.003-.004	.016	.044			
AS 636-2SSF	2	32	65/50	.003-.004	.016	.044	.005-.007	.056	
AS 636-2SSP	2	32	65/50	.003-.004	.016	.044	.005-.007		.060
AS 636-3SS	3	32	65/50	.003-.004	.016	.049			
AS 636-3SSF	3	32	65/50	.003-.004	.016	.049	.005-.007	.061	
AS 636-3SSP	3	32	65/50	.003-.004	.016	.049	.005-.007		.065
AS 636-4SS	4	32	65/50	.003-.004	.016	.052			
AS 636-4SSF	4	32	65/50	.003-.004	.016	.052	.005-.007	.064	
AS 636-4SSP	4	32	65/50	.003-.004	.016	.052	.005-.007		.068
AS 637-1SS	1	31	75/50	.003-.004	.019	.033			
AS 637-1SSF	1	31	75/50	.003-.004	.019	.033	.005-.007	.045	
AS 637-1SSP	1	31	75/50	.003-.004	.019	.033	.005-.007		.049
AS 637-2SS	2	31	75/50	.003-.004	.019	.056			
AS 637-2SSF	2	31	75/50	.003-.004	.019	.056	.005-.007	.068	
AS 637-2SSP	2	31	75/50	.003-.004	.019	.056	.005-.007		.072
AS 637-3SS	3	31	75/50	.003-.004	.019	.060			
AS 637-3SSF	3	31	75/50	.003-.004	.019	.060	.005-.007	.072	
AS 637-3SSP	3	31	75/50	.003-.004	.019	.060	.005-.007		.076
AS 637-4SS	4	31	75/50	.003-.004	.019	.065			
AS 637-4SSF	4	31	75/50	.003-.004	.019	.065	.005-.007	.075	
AS 637-4SSP	4	31	75/50	.003-.004	.019	.065	.005-.007		.079
AS 814-1SS	1	30	41/46	.003-.004	.022	.033			
AS 814-1SSF	1	30	41/46	.003-.004	.022	.033	.005-.007	.045	
AS 814-1SSP	1	30	41/46	.003-.004	.022	.033	.005-.007		.049
AS 814-2SS	2	30	41/46	.003-.004	.022	.056			
AS 814-2SSF	2	30	41/46	.003-.004	.022	.056	.005-.007	.068	
AS 814-2SSP	2	30	41/46	.003-.004	.022	.056	.005-.007		.072
AS 814-3SS	3	30	41/46	.003-.004	.022	.060			
AS 814-3SSF	3	30	41/46	.003-.004	.022	.060	.005-.007	.072	
AS 814-3SSP	3	30	41/46	.003-.004	.022	.060	.005-.007		.076
AS 814-4SS	4	30	41/46	.003-.004	.022	.065			
AS 814-4SSF	4	30	41/46	.003-.004	.022	.065	.005-.007	.075	
AS 814-4SSP	4	30	41/46	.003-.004	.022	.065	.005-.007		.079





## MULTI CONDUCTOR CABLES - AS SERIES

**Multi Conductor Medical Cables - continued**

Stainless Steel Conductors and Shields

CABLE SERIES	NO. OF COND.	SINGLE CONDUCTOR DATA				NOMINAL DIAMETER OVER SHIELD	JACKET		
		AWG SIZE	STRAND CONSTR.	NOMINAL WALL THICKNESS	NOM. DIAM.		NOMINAL WALL THICKNESS	NOM. O.D. FEP	NOM. O.D. PVC
AS 815-1SS	1	29	51/46	.003-.004	.023	.035			
AS 815-1SSF	1	29	51/46	.003-.004	.023	.035	.005-.007	.047	
AS 815-1SSP	1	29	51/46	.003-.004	.023	.035	.005-.007		.051
AS 815-2SS	2	29	51/46	.003-.004	.023	.057			
AS 815-2SSF	2	29	51/46	.003-.004	.023	.057	.005-.007	.069	
AS 815-2SSP	2	29	51/46	.003-.004	.023	.057	.005-.007		.073
AS 815-3SS	3	29	51/46	.003-.004	.023	.062			
AS 815-3SSF	3	29	51/46	.003-.004	.023	.062	.005-.007	.074	
AS 815-3SSP	3	29	51/46	.003-.004	.023	.062	.005-.007		.078
AS 815-4SS	4	29	51/46	.003-.004	.023	.067			
AS 815-4SSF	4	29	51/46	.003-.004	.023	.067	.005-.007	.079	
AS 815-4SSP	4	29	51/46	.003-.004	.023	.067	.005-.007		.083
AS 816-1SS	1	28	65/46	.003-.004	.024	.037			
AS 816-1SSF	1	28	65/46	.003-.004	.024	.037	.005-.007	.049	
AS 816-1SSP	1	28	65/46	.003-.004	.024	.037	.005-.007		.051
AS 816-2SS	2	28	65/46	.003-.004	.024	.059			
AS 816-2SSF	2	28	65/46	.003-.004	.024	.059	.005-.007	.071	
AS 816-2SSP	2	28	65/46	.003-.004	.024	.059	.005-.007		.073
AS 816-3SS	3	28	65/46	.003-.004	.024	.064			
AS 816-3SSF	3	28	65/46	.003-.004	.024	.064	.005-.007	.076	
AS 816-3SSP	3	28	65/46	.003-.004	.024	.064	.005-.007		.078
AS 816-4SS	4	28	65/46	.003-.004	.024	.069			
AS 816-4SSF	4	28	65/46	.003-.004	.024	.069	.005-.007	.081	
AS 816-4SSP	4	28	65/46	.003-.004	.024	.069	.005-.007		.083

\* Available in more conductors if required.



**Miniature Electrode Wire**

Single Conductor Constructions

SINGLE CONDUCTOR DATA	PART NUMBER	CONDUCTOR				NOMINAL CONDUCTOR RESISTANCE OHMS/FOOT
		AWG SIZE	NO. OF STRANDS	NOM. DIA.	NOM. INS. O.D.	
AS 169 SERIES Conductor: Solid Platinum Iridium Insulation: Quad Teflon	AS 169-33	33	1	.0070	.0100	3.054
	AS 169-36	36	1	.0050	.0070	6.160
	AS 169-40	40	1	.0030	.0040	16.024
	AS 169-50	50	1	.0010		157.142
AS 765 SERIES - (Annealed) Conductor: Solid 316 Stainless Steel Insulation: Quad Teflon	AS 765-30	30	1	.0100	.0131	4.380
	AS 765-32	32	1	.0080	.0108	4.850
	AS 765-34	34	1	.0063	.0087	11.040
	AS 765-36	36	1	.0050	.0071	17.520
	AS 765-38	38	1	.0040	.0057	27.380
	AS 765-40	40	1	.0031	.0045	45.580
	AS 765-50	50	1	.0010		446.940
AS 766 SERIES Conductor: Solid 99.99% Pure Soft Silver Insulation: Quad Teflon	AS 766-26	26	1	.0159	.0190	.039
	AS 766-30	30	1	.0100	.0131	.098
	AS 766-32	32	1	.0080	.0108	.153
	AS 766-36	36	1	.0050	.0071	.392
	AS 766-40	40	1	.0031	.0045	1.020
AS 767 SERIES Conductor: Solid Pure Copper (Annealed) Insulation: Quad Teflon	AS 767-30	30	1	.0100	.0131	.108
	AS 767-36	36	1	.0050	.0071	.429
	AS 767-40	40	1	.0031	.0045	1.120
AS 768 SERIES Conductor: Solid 316 Stainless Steel (Annealed) Insulation: Quad Teflon	AS 768-744	36	7/44	.0050	.0085	17.200
AS 769 SERIES Conductor: Stranded Pure Silver Insulation: Quad Teflon	AS 769-740	32	7/40	.0093	.0122	.014
AS 770 SERIES Conductor: Solid Pure Platinum Insulation: Quad Teflon	AS 770-36	36	1	.0050	.0071	2.552
	AS 770-38	38	1	.0040	.0057	3.988
	AS 770-40	40	1	.0031	.0045	6.639



#### Miniature Electrode Wire - continued

Single Conductor Constructions

SINGLE CONDUCTOR DATA	PART NUMBER	CONDUCTOR				NOMINAL CONDUCTOR RESISTANCE OHMS/FOOT
		AWG SIZE	NO. OF STRANDS	NOM. DIA.	NOM. INS. O.D.	
CW 5263 Conductor: Pure Gold Insulation: Quad Teflon	CW 5263-26	26	1	.0159	.0190	.039
	CW 5263-28	28	1	.0126	.0160	.064
	CW 5263-30	30	1	.0100	.0131	.098
	CW 5263-32	32	1	.0080	.0108	.153
	CW 5263-34	34	1	.0063	.0087	.254
	CW 5263-36	36	1	.0050	.0071	.392
	CW 5263-38	38	1	.0040	.0057	.630
	CW 5263-40	40	1	.0031	.0045	1.020
AS 826 SERIES Conductor: Solid 99.99% Pure Silver Insulation: Uninsulated	AS 826-22	22	1	.0253		.015
	AS 826-24	24	1	.0251		.024
	AS 826-26	26	1	.0159		.039
	AS 826-30	30	1	.0100		.098
	AS 826-32	32	1	.0080		.153
	AS 826-34	34	1	.0063		.247
	AS 826-36	36	1	.0050		.392
	AS 826-40	40	1	.0031		1.020
AS 172 SERIES Conductor: Solid Tungsten Insulation: Teflon	AS 826-44	44	1	.0020		2.477
	AS 172-30	30	1	.0100	.0131	.330
	AS 172-32	32	1	.0080	.0108	.515
	AS 172-34	34	1	.0063	.0087	.831
	AS 172-36	36	1	.0050	.0071	1.320
	AS 172-38	38	1	.0040	.0057	2.062
	AS 172-40	40	1	.0031	.0045	3.433



Cooner Wire Company coaxial cables are intended to provide a flexible alternative to standard RG coaxial cables where non-standard needs generate requirements for non-standard coaxial cables. Cooner Wire Company maintains an inventory of Cooner Wire CW2040 Series as well as other specialty designed coaxial cables to support our customer's needs. Constructions as small as 42 AWG or in some cases, even smaller, may be available out of stock.



## Coaxial Cables

Silver Plated Copper Conductor  
Silver Plated Copper Braided Shield



### 26 AWG

PART NUMBER	CONDUCTOR			SHIELD CONSTR.	JACKET		ELECTRICAL	
	AWG SIZE	STRAND CONSTR.	NOM. DIA.		NOM. MATERIAL	NOMINAL O.D.	NOMINAL IMPEDANCE	CAPACITANCE
CW2040-2650 F	26	105/46	.019	16-8-44	FEP	.082	50	29.5
CW2040-2650 P	26	105/46	.019	16-8-44	PVC	.088	50	29.5
CW2040-2650 SR	26	105/46	.019	16-8-44	SILICONE RUBBER	.098	50	29.5
CW2040-2675 F	26	105/46	.019	24-8-44	FEP	.116	75	17.1
CW2040-2675 P	26	105/46	.019	24-8-44	PVC	.126	75	17.1
CW2040-2675 SR	26	105/46	.019	24-8-44	SILICONE RUBBER	.136	75	17.1

### 30 AWG

PART NUMBER	CONDUCTOR			SHIELD CONSTR.	JACKET		ELECTRICAL	
	AWG SIZE	STRAND CONSTR.	NOM. DIA.		NOM. MATERIAL	NOMINAL O.D.	NOMINAL IMPEDANCE	CAPACITANCE
CW2040-3050 F	30	40/46	.012	16-5-44	FEP	.058	50	29.5
CW2040-3050 P	30	40/46	.012	16-5-44	PVC	.064	50	29.5
CW2040-3050 SR	30	40/46	.012	16-5-44	SILICONE RUBBER	.074	50	29.5
CW2040-3075 F	30	40/46	.012	16-7-44	FEP	.075	75	17.1
CW2040-3075 P	30	40/46	.012	16-7-44	PVC	.081	75	17.1
CW2040-3075 SR	30	40/46	.012	16-7-44	SILICONE RUBBER	.091	75	17.1
CW2040-3095 F	30	40/46	.012	24-7-44	FEP	.110	95	13.5
CW2040-3095 P	30	40/46	.012	24-7-44	PVC	.120	95	13.5
CW2040-3095 SR	30	40/46	.012	24-7-44	SILICONE RUBBER	.130	95	13.5

### 32 AWG

PART NUMBER	CONDUCTOR			SHIELD CONSTR.	JACKET		ELECTRICAL	
	AWG SIZE	STRAND CONSTR.	NOM. DIA.		NOM. MATERIAL	NOMINAL O.D.	NOMINAL IMPEDANCE	CAPACITANCE
CW2040-3250 F	32	65/50	.009	12-5-44	FEP	.050	50	29.5
CW2040-3250 P	32	65/50	.009	12-5-44	PVC	.056	50	29.5
CW2040-3250 SR	32	65/50	.009	12-5-44	SILICONE RUBBER	.066	50	29.5
CW2040-3275 F	32	65/50	.009	16-6-44	FEP	.064	75	17.1
CW2040-3275 P	32	65/50	.009	16-6-44	PVC	.070	75	17.1
CW2040-3275 SR	32	65/50	.009	16-6-44	SILICONE RUBBER	.080	75	17.1
CW2040-3295 F	32	65/50	.009	24-7-44	FEP	.104	95	13.5
CW2040-3295 P	32	65/50	.009	24-7-44	PVC	.114	95	13.5
CW2040-3295 SR	32	65/50	.009	24-7-44	SILICONE RUBBER	.124	95	13.5

### 36 AWG

PART NUMBER	CONDUCTOR			SHIELD CONSTR.	JACKET		ELECTRICAL	
	AWG SIZE	STRAND CONSTR.	NOM. DIA.		NOM. MATERIAL	NOMINAL O.D.	NOMINAL IMPEDANCE	CAPACITANCE
CW2040-3650 F	36	25/50	.006	12-4-44	FEP	.039	50	29.5
CW2040-3650 P	36	25/50	.006	12-4-44	PVC	.045	50	29.5
CW2040-3650 SR	36	25/50	.006	12-4-44	SILICONE RUBBER	.055	50	29.5
CW2040-3675 F	36	25/50	.006	12-6-44	FEP	.055	75	19.6
CW2040-3675 P	36	25/50	.006	12-6-44	PVC	.061	75	19.6
CW2040-3675 SR	36	25/50	.006	12-6-44	SILICONE RUBBER	.071	75	19.6
CW2040-3695 F	36	25/50	.006	16-5-44	FEP	.062	95	13.5
CW2040-3695 P	36	25/50	.006	16-5-44	PVC	.068	95	13.5
CW2040-3695 SR	36	25/50	.006	16-5-44	SILICONE RUBBER	.078	95	13.5



PART NUMBER	AWG SIZE	NO. OF STRANDS	NOM. DIA.	INS. MAT.	SHIELD STRAND	JACKET MAT.	NOM. O.D.	SPECIAL FEATURE
CW5352	30	25/44 COPPER ALLOY	.012	PFA PLATED BRAIDED	38 SILVER	POLYESTER	.072	HIGH STRENGTH ALLOY. STOCK IN GREEN OR BROWN LOW NOISE
CW6108	42	7/50 SILVER PLATED ALLOY	.002	PFA PLATED ALLOY SPIRAL	48 SILVER	PFA	.0115	50 OHM COAX HIGH STRENGTH ALLOY STOCK IN CLEAR
CW6563	42	7/50 SILVER PLATED ALLOY	.002	PFA PLATED ALLOY SPIRAL	48 SILVER	PFA	.012	50 OHM COAX HIGH STRENGTH ALLOY SPECIFY COLOR WHEN ORDERING
CW6636	42	7/50 SILVER PLATED ALLOY	.006	PFA PLATED ALLOY	46 SILVER	PFA	.015	75 OHM COAX HIGH STRENGTH ALLOY STOCK IN BLACK



Cooner Wire Company power and ground cables are built to meet the most demanding industry requirements. Utilizing maximum strand configurations and maximum dielectric flexibility, Cooner Wire power and ground cables minimize exposure to failure due to vibration and flex applications. The superior pliability of these constructions also minimize the obstacles associated with limited space and routing that exist in many of today's power and ground applications. Available in both round cabled constructions and flat braided constructions, Cooner Wire power and ground cables are available to meet specialty power and ground needs.



**Construction**

- A. Tinned Copper Strand: 36 AWG
- B. Strand Construction: See below
- C. Insulated with PVC, 105°C, 300 volts
  - 1. Wall thickness: See below
  - 2. Color: To be specified
  - 3. UL 10198, CSA Approved, VW-1 Rated



PART NUMBER	AWG SIZE	STRAND CONSTRUCTION	NO. OF ENDS	CIRC. MILS.	MIN. WALL THICKNESS	NOM. OVERALL O.D.	NOM. CARRYING CAPACITY AMPS
CW 6254-02	18	7x9/36	63	1,575	.015"	.083"	12
CW 6254-01	16	7x15/36	105	2,625	.015"	.098"	19
CW 6254-0	14	7x24/36	168	4,200	.020"	.126"	30
CW 6254-2	12	7x37/36	259	6,475	.020"	.146"	35
CW 6254-4	10	7x59/36	413	10,325	.020"	.173"	50
CW 6254-6	8	7x95/36	665	1,662	.030"	.235"	70
CW 6254-8	7	7x119/36	833	20,825	.030"	.249"	80
CW 6254-10	6	7x150/36	1,050	26,250	.030"	.272"	95
CW 6254-12	4	7x7x34/36	1,666	41,650	.030"	.349"	125
CW 6254-14	2	7x7x54/36	2,646	66,150	.030"	.422"	170
CW 6254-16	1	7x7x68/36	3,332	83,300	.040"	.488"	195
CW 6254-18	1/0	7x7x86/36	4,214	105,350	.040"	.538"	230
CW 6254-20	2/0	7x7x108/36	5,292	132,300	.050"	.614"	265
CW 6254-22	3/0	19x7x51/36	6,783	169,575	.060"	.679"	310
CW 6254-24	4/0	19x7x64/36	8,512	212,800	.080"	.789"	360

Jacket color to be specified.

**Construction**

- A. Tinned Copper Strand: 36 AWG
- B. Strand Construction: See below
- C. Insulated with PVC, 105°C, 600 volts
  - 1. Wall thickness: See below
  - 2. Color: To be specified
  - 3. UL 10070, CSA Approved

PART NUMBER	AWG SIZE	STRAND CONSTRUCTION	NO. OF ENDS	CIRC. MILS.	MIN. WALL THICKNESS	NOM. OVERALL O.D.	NOM. CARRYING CAPACITY AMPS
CW 5361-02	18	7x9x36	63	1,575	.030"	.116"	12
CW 5361-01	16	7x15x36	105	2,625	.030"	.131"	19
CW 5361-0	14	7x24x36	168	4,200	.030"	.148"	30
CW 5361-2	12	7x37x36	259	6,475	.030"	.168"	35
CW 5361-4	10	7x59x36	413	10,325	.030"	.195"	50
CW 5361-6	8	7x95x36	665	1,662	.045"	.263"	70
CW 5361-8	7	7x119x36	833	20,825	.060"	.315"	80
CW 5361-10	6	7x150x36	1,050	26,250	.060"	.338"	95
CW 5361-12	4	7x7x34x36	1,666	41,650	.060"	.415"	125
CW 5361-14	2	7x7x54x36	2,646	66,150	.060"	.488"	170
CW 5361-16	1	7x7x68x36	3,332	83,300	.080"	.576"	195
CW 5361-18	1/0	7x7x86x36	4,214	105,350	.080"	.626"	230
CW 5361-20	2/0	7x7x108x36	5,292	132,300	.080"	.680"	265
CW 5361-22	3/0	19x7x51x36	6,783	169,575	.080"	.723"	310
CW 5361-24	4/0	19x7x64x36	8,512	212,800	.080"	.789"	360

Jacket color to be specified.





**Construction**

- A. Tinned Copper Strand: 36 AWG
- B. Strand Construction: See below
- C. Insulated with PVC, 80°C, 300 volts
  - 1. Wall thickness: See below
  - 2. Color: To be specified
  - 3. UL 1662

PART NUMBER	AWG SIZE	STRAND CONSTRUCTION	NO. OF ENDS	CIRC. MILS.	MIN. WALL THICKNESS	NOM. OVERALL O.D.	NOM. CARRYING CAPACITY AMPS
CW 3563-02	18	7x9x36	63	1,575	.015"	.082"	12
CW 3563-01	16	7x15x36	105	2,625	.015"	.100"	19
CW 3563-0	14	7x24x36	168	4,200	.020"	.128"	30
CW 3563-2	12	7x37x36	259	6,475	.020"	.148"	35
CW 3563-4	10	7x59x36	413	10,325	.020"	.175"	50
CW 3563-6	8	7x95x36	665	16,625	.030"	.233"	70
CW 3563-8	7	7x119x36	833	20,825	.030"	.253"	80
CW 3563-10	6	7x150x36	1,050	26,250	.030"	.276"	95
CW 3563-12	4	7x7x34x36	1,666	41,650	.030"	.349"	125
CW 3563-14	2	7x7x54x36	2,646	66,150	.030"	.422"	170
CW 3563-16	1	7x7x68x36	3,332	83,300	.040"	.488"	195
CW 3563-18	1/0	7x7x86x36	4,214	105,350	.040"	.538"	230
CW 3563-20	2/0	7x7x108x36	5,292	132,300	.050"	.614"	265
CW 3563-22	3/0	19x7x51x36	6,783	169,575	.060"	.679"	310
CW 3563-24	4/0	19x7x64x36	8,512	212,800	.080"	.789"	360

Jacket color to be specified.

**Construction**

- A. Tinned Copper Strand: 36 AWG
- B. Strand Construction: See below
- C. Insulated with Silicone Rubber, 150°C, 600 volts
  - 1. Wall thickness: See below
  - 2. Color: To be specified
  - 2. Non-UL

Silicone Rubber Insulation

Stranded Tinned Copper

PART NUMBER	AWG SIZE	STRAND CONSTRUCTION	NO. OF ENDS	CIRC. MILS.	MIN. WALL THICKNESS	NOM. OVERALL O.D.	NOM. CARRYING CAPACITY AMPS
AS 105-05	24	42/40	42	404	.030"	.083"	6
AS 105-04	22	3x22/40	66	634	.030"	.089"	8
AS 105-03	20	7x15/40	105	1,009	.030"	.100"	10
AS 105-02	18	7x24/40	168	1,614	.030"	.111"	12
AS 105-01	16	7x15/36	105	2,625	.030"	.125"	19
AS 105-0	14	7x24/36	168	4,200	.030"	.142"	30
AS 105-2	12	7x37/36	259	6,475	.030"	.162"	35
AS 105-4	10	7x59/36	413	10,325	.045"	.219"	50
AS 105-6	8	7x95/36	665	16,625	.060"	.284"	70
AS 105-8	7	7x119/36	833	20,825	.060"	.307"	80
AS 105-10	6	7x150/36	1,050	26,250	.060"	.326"	95
AS 105-12	4	7x7x34/36	1,666	41,650	.060"	.403"	125
AS 105-14	2	7x7x54/36	2,646	66,150	.060"	.476"	170
AS 105-16	1	7x7x68/36	3,332	83,300	.080"	.560"	195
AS 105-18	1/0	7x7x86/36	4,214	105,350	.080"	.610"	230
AS 105-20	2/0	7x7x108/36	5,292	132,300	.080"	.664"	265
AS 105-22	3/0	19x7x51/36	6,783	169,575	.080"	.707"	310
AS 105-24	4/0	19x7x64/36	8,512	212,800	.080"	.773"	360

Jacket color to be specified.

**Construction**

- A. Tinned Copper Strand
- B. Strand Construction: See below
- C. Insulated with Silicone Rubber, 150°C, 600 volts
  - 1. Wall thickness: See below
  - 2. Color: To be specified
  - 3. UL-Rated

PART NUMBER	AWG SIZE	STRAND CONSTRUCTION	NO. OF ENDS	CIRC. MILS.	MIN. WALL THICKNESS	NOM. OVERALL O.D.	NOM. CARRYING CAPACITY AMPS	UL STYLE
CW6044-04	22	42/40	26	650	.052"	.133"	6	3212
CW6044-03	20	3x22/40	42	1,050	.052"	.141"	8	212
CW6044-02	18	7x15/40	65	1,625	.052"	.151"	10	3212
CW6044-01	16	7x24/40	105	2,625	.052"	.167"	12	3212
CW6044-0	14	7x24/36	168	4,200	.052"	.184"	19	3212
CW6044-2	12	7x37/36	259	6,475	.052"	.203"	30	3212
CW6044-4	10	7x59/36	413	10,325	.052"	.230"	35	3212
CW6044-6	8	7x95/36	665	16,625	.070"	.299"	50	3213
CW6044-8	7	7x119/36	833	20,825	.070"	.318"	70	3213
CW6044-10	6	7x150/36	1,050	26,250	.070"	.340"	80	3213
CW6044-12	4	7x7x34/36	1,666	41,650	.070"	.411"	95	3213
CW6044-14	2	7x7x54/36	2,646	66,150	.070"	.482"	125	3213
CW6044-16	1	7x7x68/36	3,332	83,300	.086"	.555"	170	3214
CW6044-18	1/0	7x7x86/36	4,214	105,350	.086"	.626"	195	3214
CW6044-20	2/0	7x7x108/36	5,292	132,300	.086"	.680"	230	3214
CW6044-22	3/0	19x7x51/36	6,783	169,575	.086"	.719"	265	3214
CW6044-24	4/0	19x7x64/36	8,512	212,800	.086"	.789"	310	3214

Jacket color to be specified.



# INSULATED FLAT BRAIDED GROUND CABLE

## Tinned Copper Conductor, PVC Insulation UL Style 1680

### Description

Tinned copper strands braided into a flat construction and insulated with polyvinylchloride (PVC). These constructions may be fabricated of bare copper, although tinned copper is generally preferred because of its resistance to corrosive elements and ease of flexibility. Other insulating materials are available on request. Temperature rating: +105°C.

### Applications

Useful for grounding applications requiring flexible, insulated connections.



PART NUMBER	BRAID AWG SIZE	CIRCULAR MIL AREA	WIRE AWG SIZE	NO. OF WIRES	CONSTR.	NOMINAL WIDTH INCHES	NOMINAL THICKNESS INCHES	NOMINAL WALL THICKNESS	NOMINAL INSULATED DIMENSION
AS 356-832-1.0 T	7	20,800	36	832	32-17-36 16-18-36	1"	1/16"	.030"	1.060" x .123"
AS 356-832-75 0 T	7	20,800	36	832	32-17-36 16-18-36	3/4"	1/16"	.030"	.810" x .123"
AS 356-4815-625 T	8	18,000	36	720	48-15-36	5/8"	1/16"	.030"	.685" x .087"
AS 356-4811-625 T	8	13,200	36	528	48-8-36	5/8"	3/64"	.020"	.665" x .102"
AS 356-2416-375 T	10	9,600	36	384	24-16-36	3/8"	1/16"	.020"	.415" x .061"
AS 356-488-500 T	10	9,600	36	384	48-8-36	1/2"	1/32"	.020"	.540" x .087"
AS 356-2413-281 T	11	7,800	36	812	24-13-36	9/32"	3/64"	.020"	.321" x .061"
AS 356-486-375 T	12	7,200	36	288	48-6-36	3/8"	1/32"	.020"	.415" x .087"
AS 356-2410-250 T	12	6,000	36	240	24-10-36	1/4"	3/64"	.020"	.290" x .061"
AS 356-247-218 T	14	4,200	36	168	24-7-36	7/32"	1/32"	.020"	.258" x .061"
AS 356-245-187 T	15	3,000	36	120	24-5-36	3/16"	1/32"	.020"	.277" x .061"
AS 356-244-156 T	16	2,400	36	96	24-5-36	5/32"	1/32"	.015"	.186" x .061"
AS 356-243-125 T	18	1,800	36	72	24-3-36	1/8"	1/32"	.015"	.139" x .061"

The suffix "T" stands for tinned copper construction. If bare copper is desired, replace the "T" with a "B"  
Jacket color to be specified.

Sometimes customer specifications require more specialized cables. Although Cooner Wire is an industry leader in the designing of custom cables to meet the specific needs of our customers, we recognize that MOQ or time restraints require many customers to forgo a special cable. For this reason Cooner Wire designed specialty application cables for general purposes. These cables do not represent every cable Cooner Wire inventories for these occasions, but they were designed with the intent of helping our customers meet their deadlines and budgets without compromising quality.



PART NUMBER	NO. OF COND.	CONDUCTOR DATA			SHIELD DATA	JACKET DATA		SPECIAL FEATURES
		AWG SIZE	STRAND CONST MAT.	INS. MAT.	CONSTRUCTION	JACKET MAT.	O.D.	
AS148REV.1	8	30	7/36 T.C.	FEP	38AWG T.C. BRAIDED	S.R.	.145	ECONOMICAL S.R. JACKETED CABLE
AS165REV.1	2	29	51/46 B.C.	S.R.	8-6-40 T.C. BRAIDED	S.R.	.095	ULTRA FLEXIBLE SHIELDED TWISTED PAIR
AS323REV.1	10	28	40/44 B.C.	FEP	NO SHIELD	S.R.	.120	HIGH TEMP FLEXIBLE CABLE, WHITE JACKET
AS363	10	28	40/44 B.C.	PVC	NO SHIELD	PVC	.130	ULTRA THIN PVC INSULATED CABLE.
CW2516 REV.1	3	29	51/46 B.C.	FEP	8-5-40 T.C. SPIRAL	PVC	.080	UL20469 APPROVED BLACK JACKET
CW2517	4	32	25/46 B.C.	PVC	8-5-40 T.C. SPIRAL	PVC	.085	SMALL O.D. BLACK JACKET
CW2518 REV.4	3	30	41/46 B.C.	PVC	8-5-40 T. C. SPIRAL	PVC	.073	UL APPROVED, SOFT DUROMETER PVC WHITE JACKET
CW3330	10	24	105/44 B.C.	PVC	24-9-30 T.C. BRAIDED	PU	.240	HIGHLY DURABLE POLYURETHANE CABLE, BLACK & GRAY IN STOCK
CW3416	10	28	40/44 B.C.	PVC	40AWG T.C. BRAIDED	PVC	.154	BLACK JACKET
CW3462 GRAY	4	26	65/44 S.P.C.	PFA	44AWG S.P.C.	S.R.	.173	PHACO STYLE CABLE
CW3625T	12	28	40/44 T.C.	PVC	40 AWG T.C. BRAIDED			GRAY JACKET
CW5434 REV.1	6	26	65/44 B.C.	PVC	SPIRAL T.C.	PVC	.163	FLEXIBLE MULTI-PURPOSE PVC CABLE
CW5663	3	24	105/44 S.P.C.	PFA	3 S.P.C. DRAIN WIRES	S.R.	.180	PHACO STYLE CABLE
CW5664	3	26	65/44 S.P.C.	PFA	3 S.P.C. DRAIN WIRES	S.R.	.119	PHACO STYLE CABLE
CW5765	10	28	40/44S.P.C.	PTFE	24-7-40S.P.C. BRAIDED	S.R.	.204	FIVE TWISTED PAIRS GRAY JACKET
CW6005	16	30	25/44 B.C.	PVC	40AWG T.C. BRAIDED	PVC	.157	VERY FLEXIBLE CABLE
CW6161	6	28	40/44B.C.	PVC	24-6-40 T.C. BRAIDED	PVC	.149	BARE COPPER DRAIN WIRE, WHITE JACKET.
CW6300	26	28	40/44B.C.	PVC	24-8-40T.C. BRAIDED	PVC	.214	HIGHLY FLEXIBLE
CW6424	37	28	40/44B.C.	PVC	40AWG T.C. BRAIDED	PVC	.245	HIGHLY FLEXIBLE MATTE GRAY JACKET
CW6461	10	24	105/44B.C.	PVC	48-6-40T.C. BRAIDED	PVC	.308	FIVE TWISTED PAIRS



Coil and circuit designers are constantly faced with the problem of losses due to skin and proximity effects. These losses are caused by the tendency of current to flow only on the surface of wires at high frequencies. To combat these problems, it is necessary to increase the surface area without a large increase in the size of the conductor. This is accomplished by bunching together several strands of fine, film insulated wire with special attention being given to the fact that it is desirable to have each wire in the group brought to the surface of the conductor with some regularity. Thus, the conductors are formed into groups which are cabled in a geometric pattern, permitting each wire to occupy every possible position in the entire length of the cable at some point. The term used for this type of cabling is litz wire. Cooner Wire carries eight different types of litz cable in both round and rectangular constructions. Although Cooner Wire emphasizes litz wire, we also inventory a large and diverse stock of magnet wire for purchase.

Since litz wire starts with magnet wire, we begin the litz wire section of our catalog by introducing magnet wire. Included is a brief description of the most common types of film insulations, and magnet wire size tables for single, double, and triple film thicknesses. Next we provide tables and formulas to help our customers build a litz cable that will meet their needs as well as descriptions of the most common types of litz wire serves. Finally we have listed some of the possible constructions available in each of our eight basic types. Types two through eight are generally made to order to meet customers' specific requirements. Many type one constructions are carried in stock. Our range of configurations includes from the very finest conductors, to cables as large as four inches in diameter containing up to 18,000 wires. We will be pleased to cooperate with your engineers to provide you litz wire constructions to meet your specifications.



**POLYURETHANE 130  
MW 75-C****CLASS 130°C**

Polyurethane 130 magnet wire is insulated with a smooth uniform film of modified polyurethane resin. Standard color is red. This product has excellent solderability and thermal properties. Recommended soldering temperature is 360°C (680°F). This magnet wire is U.L. approved.

**POLYURETHANE 155  
MW 79-C****CLASS 155°C**

Polyurethane 155 magnet wire has similar properties to Polyurethane 130 described above. The main feature of this product is its higher thermal rating (155°C) while retaining excellent solderability characteristics. Recommended soldering temperature is 360°C (680°F). This magnet wire is U.L. approved.

**POLYURETHANE-NYLON (Nyleze™)  
MW 28-C****CLASS 130°C**

Polyurethane Nylon magnet wire is a dull film construction with a base coat of modified polyurethane and a polyamide (nylon) topcoat. Standard color is red. Features of this product are its excellent solderability, windability and craze resistance. Recommended soldering temperature is 360°C (680°F). This magnet wire is U.L. approved.

**POLYURETHANE NYLON 155  
MW 80-C****CLASS 155°C**

Polyurethane Nylon 155 magnet wire has similar properties to Polyurethane Nylon described above. The main feature of this product is its higher thermal rating (155°C) while retaining excellent soldering characteristics. Recommended soldering temperature is 360°C (680°F). This magnet wire is U.L. approved.

**TERASOD  
MW 77-C****CLASS 180°C**

Terasod magnet wire is insulated with a smooth film of modified polyester-imide. This is a solderable product with a recommended soldering temperature of 455°C (850°F). It has excellent electrical, chemical and thermal properties. This magnet wire is U.L. approved.

**TERASOD NYLON  
MW 78-C****CLASS 180°C**

Terasod Nylon magnet wire is a dual film construction with a polyester-imide base coat and a polyamide (Nylon) top coat. In addition to being solderable features are its excellent windability, craze and solvent resistance. Recommended soldering temperature of 455°C (850°F).

**POLY-BOND  
MW 3-C****CLASS 105°C**

Poly-Bond magnet wire is a dual film construction having a base coat of modified polyurethane and a polyvinyl butyral (self bonding) top coat. The bondable top coat may be activated by solvent application, heat or a combination of the two. This product is solderable and its primary use is in the manufacture of self supported coils and coils of unusual shape.

**POLY NYLON-BOND  
MW 29-C****CLASS 150°C**

Poly Nylon-Bond magnet wire is similar to Poly-Bond with the exception of having a polyamide (Nylon) barrier between the polyurethane base coat and the bondable top coat. It is solderable and activation of the bond coat is achieved in the same manner as the Poly-Bond.

**BUTYRAL BOND****CLASS 105°C**

This polyvinyl butyral (self bonding) top coat may be applied over Terasod, Isomid or AWMP-200. Activation of the bond can be achieved by solvent application, heat or a combination of the two. The primary use of this product is in the manufacture of self supported or odd shaped coils.

**EPOXY BOND****CLASS 155°C**

This epoxy (self bonding) top coat may be applied over Terasod, Isomid or AWMP-200. The recommended method of bond activation is with heat. The primary use of this product is in the manufacture of self supported and odd shaped coils where a thermal rating up to 155C is required.

**POLYESTER BOND****CLASS 180°C**

This polyester (self bonding) top coat may be applied over Terasod, Isomid or AWMP-200. The recommended method of bond activation is with heat although in some applications solvent bonding may produce the desired results. The primary use of this product is in the manufacture of self supported and odd shaped coils where a thermal rating up to 180C is required.

**PLAIN ENAMEL  
MW 1-C****CLASS 105°C**

Plain Enamel magnet wire is insulated with a synthetic resin enamel. It is the oldest of the film insulations and all basic properties are good. Mechanical stripping is required.

**POLYVINYL-FORMVAR (Formvar™)  
MW 15-C****CLASS 105°C**

Formvar magnet wire is coated with polyvinyl formal resin offering exceptional; toughness, windability and dielectric strength. Should be stress relieved one to four hours after winding at 125°C to avoid crazing. Requires mechanical or chemical stripping.

**ISOMID  
MW 15-C****CLASS 105°C**

Isomid magnet wire is a one film insulation of polyester-polyimide polymer offering superior cut-thru, burnout resistance, thermal flexibility, and solvent resistance. Isomid is compatible with most of the existing impregnating systems. Requires mechanical or chemical stripping.

**AWMP-200  
MW 74-C****CLASS 200°C**

AWMP-200 magnet wire is insulated wire with smooth, uniform film composed of modified polyester resins. Thermoplastic flow values are in excess of 300°C and there is an excellent balance of all other properties as well as compatibility with most solvents and varnish systems.

**POLYIMIDE (ML™)  
MW 16-C****CLASS 220°C**

Polyimide magnet wire is insulated with a smooth film of aromatic polyimide resins. Features are excellent solvent and burn-out resistance, thermoplastic flow values, flexibility and the ability to withstand excessive overloads. It is compatible with most solvents and varnish systems.



Specifications for Single Film Insulation, Round

AWG SIZE	NOMINAL BARE WIRE DIAMETER	FILM ADDITION		OUTSIDE DIAMETER			WEIGHT		REISTANCE AT 20°C-68°F		WIRES PER SQUARE INCH
		MIN.	MAX.	MIN.	NOM.	MAX.	POUNDS/MFT NOMINAL	FEET/POUND NOMINAL	OHMS/MFT NOMINAL	OHMS/POUND NOMINAL	
8	.1285	.0016	.0026	.1288	.1306	.1324	50.23	19.91	.6281	.01250	59
9	.1144	.0016	.0026	.1149	.1165	.1181	39.80	25.13	.7925	.01991	74
10	.1019	.0015	.0025	.1024	.1039	.1054	31.57	31.68	.9987	.03163	93
11	.0907	.0015	.0025	.0913	.0927	.0941	25.05	39.92	1.261	.0503	116
12	.0808	.0014	.0024	.0814	.0827	.0840	19.93	50.18	1.588	.0797	146
13	.0720	.0014	.0023	.0727	.0739	.0750	15.81	63.25	2.001	.1266	183
14	.0641	.0014	.0023	.0649	.0660	.0670	12.50	80.80	2.524	.2019	230
15	.0571	.0013	.0022	.0578	.0589	.0599	9.95	100.50	3.181	.3197	288
16	.0508	.0012	.0021	.0515	.0525	.0534	7.89	126.70	4.018	.5093	363
17	.0453	.0012	.0020	.0460	.0469	.0478	6.26	159.70	5.054	.8073	455
18	.0403	.0011	.0019	.0410	.0418	.0426	4.97	201.20	6.386	1.2849	572
19	.0359	.0011	.0019	.0366	.0374	.0382	3.95	253.20	8.046	2.0370	715
20	.0320	.0010	.0018	.0327	.0334	.0341	3.13	319.50	10.130	3.2364	896
21	.0285	.0010	.0018	.0292	.0299	.0306	2.483	402.70	12.77	5.143	1,119
22	.0253	.0010	.0017	.0260	.0267	.0273	1.970	507.60	16.20	8.223	1,403
23	.0226	.0009	.0016	.0233	.0239	.0244	1.565	650.00	20.30	12.971	1,751
24	.0201	.0009	.0015	.0208	.0213	.0218	1.240	805.50	25.67	20.702	2,204
25	.0179	.0009	.0014	.0180	.0191	.0195	.988	1,012.10	32.37	32.763	2,741
26	.0159	.0008	.0013	.0165	.0170	.0174	.784	1,276.00	41.02	52.32	3,460
27	.0142	.0008	.0013	.0149	.0153	.0156	.623	1,605.00	51.44	82.57	4,272
28	.0126	.0007	.0012	.0132	.0136	.0139	.495	2,820.00	65.31	131.94	5,407
29	.0113	.0007	.0012	.0119	.0123	.0126	.394	2,538.00	81.21	206.12	6,610
30	.0100	.0006	.0011	.0155	.0109	.0112	.312	3,205.00	103.70	332.37	8,417
31	.0089	.0006	.0010	.0094	.0097	.0100	.2480	4,032.00	130.90	527.80	10,628
32	.0080	.0006	.0010	.0085	.0088	.0091	.1966	5,086.00	162.00	824.00	12,913
33	.0071	.0005	.0009	.0075	.0078	.0081	.1570	6,369.00	205.70	1,310.20	16,437
34	.0063	.0005	.0008	.0067	.0070	.0072	.1244	8,039.00	261.30	2,100.50	20,408
35	.0056	.0004	.0007	.0059	.0062	.0064	.0989	10,111.00	330.70	3,343.80	26,015
36	.0050	.0004	.0007	.0053	.0056	.0058	.0788	12,690.00	414.80	5,264.00	31,888
37	.0045	.0003	.0006	.0047	.0050	.0052	.0624	16,026.00	512.10	8,207.00	40,000
38	.0040	.0003	.0006	.0042	.0045	.0047	.0494	20,243.00	648.20	13,121.00	49,383
39	.0035	.0002	.0005	.0036	.0039	.0041	.0393	25,445.00	846.60	21,542.00	65,746
40	.0031	.0002	.0005	.0012	.0035	.0037	.0313	31,949.00	1,079.00	34,473.00	81,633
41	.0028	.0002	.0004	.0029	.0031	.0033	.02470	40,486.00	1,323.00	53,563.00	104,058
42	.0025	.0002	.0004	.0026	.0028	.0030	.01946	51,387.00	1,659.00	85,252.00	127,551
43	.0022	.0002	.0003	.0023	.0025	.0026	.01548	64,599.00	2,143.00	138,437.00	160,000
44	.0020	.0001	.0003	.0020	.0022	.0024	.01233	81,103.00	2,593.00	210,300.00	206,611
45	.00176	.0001	.00022	.00179	.0012	.00205	.00965	103,627.00	3,348.00	346,943.00	345,304
46	.00157	.0001	.00021	.00161	.00173	.00185	.00767	130,378.00	4,207.00	548,501.00	420,521
47	.00140	.0001	.00024	.00145	.00158	.00170	.00615	162,602.00	5,291.00	860,325.00	510,204
48	.00124	.0001	.00021	.00129	.00140	.00150	.00487	205,339.00	6,745.00	1,385,010.00	649,773
49	.00111	.0001	.00014	.00117	.00240	.00130	.00385	258,000.00	8,417.00	2,200,000.00	
50	.00099	.0001	.00017	.00105	.00112	.00120	.00310	312,000.00	10,580.00	3,400,000.00	
51	.00088	.00010	.00018	.00095	.00102	.00110	.00240	416,600.00	13,390.00	5,500,000.00	
52	.00078	.00010	.00019	.00085	.00092	.00100	.00180	555,000.00	17,050.00	9,400,000.00	
53	.00070	.00005	.00031	.00072	.00079	.00085	.00150	667,000.00	21,170.00	14,000,000.00	
54	.00062	.00005	.00020	.00065	.00070	.00075	.00120	859,000.00	26,980.00	23,000,000.00	
55	.00055	.00005	.00013	.00058	.00064	.00070	.00092	1,090,000.00	34,280.00		
56	.00049	.00005	.00014	.00052	.00059	.00065	.00072	1,380,000.00	43,190.00		

For gauge size forty-five through fifty-six, all dimensions are theoretical.

All magnet wire constructions are manufactured in accordance with Military Specification J-W-1177.



**Specifications for Heavy Film Insulation, Round**

AWG SIZE	NOMINAL BARE WIRE DIAMETER	FILM ADDITION		OUTSIDE DIAMETER			WEIGHT		REISTANCE AT 20°C-68°F		WIRES PER SQUARE INCH
		MIN.	MAX.	MIN.	NOM.	MAX.	POUNDS/MFT NOMINAL	FEET/POUND NOMINAL	OHMS/MFT NOMINAL	OHMS/POUND NOMINAL	
8	.1285	.0033	.0044	.1305	.1234	.1342	50.42	19.83	.6281	.01246	57
9	.1144	.0032	.0043	.1165	.1182	.1198	39.97	25.02	.7925	.01983	72
10	.1019	.0031	.0042	.1040	.1056	.1071	31.72	31.53	.9987	.0983	90
11	.0907	.0030	.0041	.0928	.0943	.0957	25.18	39.71	1.261	.0501	112
12	.0808	.0029	.0039	.0829	.0842	.0855	20.03	49.93	1.588	.0793	141
13	.0720	.0028	.0038	.0741	.0753	.0765	15.90	62.89	2.001	.1258	176
14	.0641	.0027	.0037	.0662	.0673	.0684	12.57	79.55	2.524	.2008	221
15	.0571	.0026	.0036	.0591	.0602	.0613	10.01	99.90	3.181	.3178	276
16	.0508	.0026	.0035	.0529	.0539	.0548	7.95	125.79	4.018	.5054	344
17	.0453	.0025	.0034	.0473	.0483	.0492	6.32	158.23	5.054	.7997	429
18	.0403	.0024	.0033	.0423	.0432	.0440	5.02	199.20	6.386	1.2721	536
19	.0359	.0023	.0032	.0378	.0387	.0395	3.99	250.60	8.046	2.0165	668
20	.0320	.0022	.0030	.0339	.0346	.0353	3.16	316.50	10.130	3.2057	835
21	.0285	.0021	.0029	.0303	.0310	.0317	2.510	398.40	12.77	5.008	1,041
22	.0253	.0020	.0028	.0270	.0277	.0284	1.990	502.50	16.20	8.141	1,303
23	.0226	.0019	.0027	.0243	.0249	.0255	1.590	628.90	20.30	12.767	1,613
24	.0201	.0019	.0026	.0218	.0224	.0229	1.260	793.70	25.67	20.373	1,993
25	.0179	.0018	.0025	.0195	.0201	.0206	1.005	995.00	32.37	32.209	2,475
26	.0159	.0017	.0024	.0174	.0180	.0185	.7990	1,252.00	41.02	51.34	3,086
27	.0142	.0016	.0022	.0157	.0161	.0165	.6340	1,577.00	51.44	81.14	3,858
28	.0126	.0015	.0021	.0140	.0144	.0148	.5040	1,984.00	65.31	129.50	4,823
29	.0113	.0014	.0020	.0126	.0130	.0134	.4010	2,494.00	81.21	202.52	5,917
30	.0100	.0013	.0019	.0112	.0116	.0120	.3180	3,145.00	103.70	326.10	7,432
31	.0089	.0013	.0018	.0101	.0105	.0108	.2540	3,937.00	130.90	515.40	9,070
32	.0080	.0011	.0017	.0091	.0095	.0098	.2019	4,953.00	162.00	802.40	11,080
33	.0071	.0001	.0016	.0081	.0085	.0088	.1611	6,207.00	205.70	1,276.80	13,841
34	.0063	.0010	.0014	.0072	.0075	.0078	.1269	7,880.00	261.30	2,059.10	17,778
35	.0056	.0009	.0013	.0064	.0067	.0070	.1010	9,901.00	330.70	3,274.30	22,277
36	.0050	.0008	.0012	.0057	.0060	.0063	.0803	12,453.00	414.80	5,166.00	27,778
37	.0045	.0008	.0011	.0052	.0055	.0057	.0641	15,601.00	512.10	7,989.00	33,058
38	.0040	.0007	.0010	.0046	.0049	.0051	.0509	19,646.00	648.20	12,735.00	41,649
39	.0035	.0006	.0009	.0040	.0043	.0045	.0403	24,814.00	846.60	21,007.00	54,083
40	.0031	.0006	.0008	.0036	.0038	.0040	.0319	31,348.00	1,079.00	33,824.00	69,252
41	.0028	.0005	.0007	.0032	.0034	.0036	.0252	39,683.00	1,323.00	52,500.00	86,505
42	.0025	.0004	.0006	.0028	.0030	.0032	.0199	50,251.00	1,659.00	83,367.00	111,111
43	.0022	.0004	.0006	.0025	.0027	.0029	.0159	62,893.00	2,143.00	134,780.00	137,174
44	.0020	.0004	.0006	.0023	.0025	.0027	.0127	78,470.00	2,593.00	204,173.00	160,000
45	.00176	.0003	.0005	.0021	.0022	.0023	.0099	101,000.00	3,348.00	346,943.00	
46	.00157	.0003	.0005	.0019	.0020	.0021	.0079	127,000.00	4,207.00	548,501.00	
47	.00140	.0003	.0005	.0017	.0018	.0019	.0063	160,000.00	5,291.00	860,325.00	
48	.00124	.0002	.0004	.0015	.0016	.0017	.0050	200,000.00	6,745.00	1,385,010.00	
49	.00111	.0002	.0004	.0013	.0014	.0015	.0039	253,000.00	8,417.00	2,200,000.00	
50	.00099	.0002	.0004	.0012	.0013	.0014	.0031	316,000.00	10,580.00	3,400,000.00	

For gauge size forty-five through fifty, all dimensions are theoretical.

All magnet wire constructions are manufactured in accordance with Military Specification J-W-1177.



**Specifications for Triple Film Insulation, Round**

AWG SIZE	NOMINAL BARE WIRE DIAMETER	FILM ADDITION		OUTSIDE DIAMETER			WEIGHT		REISTANCE AT 20°C-68°F		WIRES PER SQUARE INCH
		MIN.	MAX.	MIN.	NOM.	MAX.	POUNDS/MFT NOMINAL	FEET/POUND NOMINAL	OHMS/MFT NOMINAL	OHMS/POUND NOMINAL	
8	.1285	.0045	.0057	.1317	.1336	.1355	50.55	19.78	.6281	.01243	56
9	.1144	.0044	.0056	.1176	.1194	.1211	40.08	24.95	.7925	.01977	70
10	.1019	.0043	.0055	.1052	.1068	.1084	31.83	31.42	.9987	.03137	88
11	.0907	.0042	.0053	.0940	.0955	.0969	25.27	39.57	1.261	.04990	110
12	.0808	.0040	.0051	.0840	.0854	.0867	20.12	49.70	1.588	.07893	137
13	.0720	.0039	.0049	.0752	.0764	.0776	15.97	62.62	2.001	.12530	171
14	.0641	.0038	.0048	.0673	.0684	.0695	12.64	79.11	2.524	.19970	214
15	.0571	.0037	.0047	.0602	.0613	.0624	10.07	99.30	3.181	.31590	266
16	.0508	.0036	.0045	.0539	.0549	.0558	8.00	125.00	4.018	.5023	332
17	.0453	.0035	.0044	.0483	.0493	.0502	6.36	157.20	5.054	.7947	411
18	.0403	.0034	.0043	.0433	.0442	.0450	5.06	197.60	6.386	1.2621	512
19	.0359	.0033	.0041	.0388	.0396	.0404	4.02	248.80	8.046	2.0014	638
20	.0320	.0031	.0039	.0348	.0355	.0362	3.19	313.50	10.13	3.1755	793
21	.0285	.0030	.0038	.0312	.0319	.0326	2.540	393.70	12.77	5.028	983
22	.0253	.0029	.0036	.0279	.0286	.0292	2.010	497.50	16.20	8.060	1,223
23	.0226	.0028	.0035	.0252	.0258	.0263	1.610	621.10	20.30	12.609	1,502
24	.0201	.0027	.0034	.0226	.0232	.0237	1.280	781.30	25.67	20.055	1,858
25	.0179	.0026	.0033	.0203	.0209	.0214	1.018	982.30	32.37	31.798	2,289
26	.0159	.0025	.0031	.0182	.0187	.0192	.809	1,236.00	41.02	50.70	2,860
27	.0142	.0023	.0029	.0164	.0168	.0172	.643	1,555.00	51.44	80.00	3,543
28	.0126	.0022	.0028	.0147	.0151	.0155	.513	1,949.00	65.31	127.31	4,386
29	.0113	.0021	.0027	.0133	.0137	.0141	.409	2,445.00	81.21	198.56	5,328
30	.0100	.0020	.0026	.0119	.0123	.0127	.325	3,077.00	103.70	319.08	6,610
31	.0089	.0019	.0025	.0107	.0111	.0115	.2590	3,861.00	130.90	505.40	8,116
32	.0080	.0018	.0024	.0097	.0101	.0105	.1650	4,831.00	162.00	782.60	9,803
33	.0071	.0017	.0023	.0087	.0091	.0095	.1650	6,061.00	205.70	1,246.70	12,076
34	.0063	.0015	.0020	.0077	.0081	.0084	.1310	7,634.00	261.30	1,994.70	15,242
35	.0056	.0014	.0019	.0069	.0073	.0076	.1045	9,569.00	330.70	3,164.60	18,765
36	.0050	.0013	.0018	.0062	.0066	.0069	.0834	11,990.00	414.80	4,974.00	22,957
37	.0045	.0012	.0016	.0056	.0059	.0062	.0660	15,152.00	512.10	7,759.00	28,727
38	.0040	.0011	.0015	.0050	.0053	.0056	.0526	19,011.00	648.20	12,323.00	35,600
39	.0035	.0010	.0014	.0044	.0047	.0050	.0418	23,923.00	846.60	20,254.00	45,269
40	.0031	.0009	.0012	.0039	.0042	.0044	.0332	30,120.00	1,079.00	32,500.00	56,590
41	.0028	.0008	.0011	.0035	.0038	.0040	.0264	37,879.00	1,323.00	50,114.00	69,252
42	.0025	.0007	.0010	.0031	.0034	.0036	.0210	47,619.00	1,659.00	79,000.00	86,505
43	.0022	.0007	.0010	.0028	.0030	.0032	.0169	59,172.00	2,143.00	126,805.00	111,111
44	.0020	.0007	.0010	.0026	.0028	.0030	.0136	73,529.00	2,593.00	190,662.00	127,551

All magnet wire constructions are manufactured in accordance with Military Specification J-W-1177.

Generally speaking a design engineer who requires a litz wire already knows the operating frequency required in the application. Therefore the first consideration in any litz wire design is the operating frequency, this is because the operating frequency will determine the litz wire construction as well as the gauge size of the individual strands.

The ratios of A.C. resistance to D.C. resistance for an isolated solid round wire ( $H$ ) in terms of a value ( $X$ ) are shown below:

**TABLE ONE**

$X$	0	0.5	0.6	0.7	0.8	0.9	1.0
$H$	1.0000	1.0003	1.0007	1.0012	1.0021	1.0034	1.005

The value of  $X$  for copper wire is determined by the following formula.

**FORMULA 1**

$$X = 0.271 D_M \sqrt{F_{MHZ}}$$

Where:  $D_M$  = Wire Diameter  
 $F_{MHZ}$  = Frequency in megahertz

Using table one as a guide and other empirical data Table 2 lists the recommended gauges with the corresponding frequencies.

**TABLE TWO**

FREQUENCY	RECM'D WIRE GAUGE	NOM. DIA. OVER COPPER	DC RES. OHMS/M' MAX "H"	SINGLE STRAND RDC/RAC
60HZ to 1KHZ	28 AWG	0.0126	66.3700	1.0000
1KHZ to 10KHZ	30 AWG	0.0100	105.820	1.0000
10KHZ to 20KHZ	33 AWG	0.0071	211.700	1.0000
20KHZ to 50KHZ	36 AWG	0.0050	431.900	1.0000
50KHZ to 100KHZ	38 AWG	0.0040	681.900	1.0000
100KHZ to 200KHZ	40 AWG	0.0031	1152.30	1.0000
200KHZ to 350KHZ	42 AWG	0.0025	1801.00	1.0000
350KHZ to 850KHZ	44 AWG	0.0020	2873.00	1.0003
850KHZ to 1.4MHZ	46 AWG	0.0016	4544.00	1.0003
1.4MHZ to 2.8MHZ	48 AWG	0.0012	7285.00	1.0003

Assuming that the litz wire design has been constructed so that each strand occupies all possible positions in the cable, and the wire gauge of the strand has been determined, the ratio of A.C. to D.C. resistance of an isolated litz wire conductor can be determined using formula 2.

**FORMULA 2<sup>1</sup>**

$$\frac{\text{A.C. Resistance}}{\text{D.C. Resistance}} = H + K \left( \frac{N_{D1}}{D_0} \right)^2 G$$

- Where:
- $H$  = Resistance ratio of individual strands  
When isolated (Taken from table 1 or 2)
- $G$  = Eddy-current  $\left( \frac{D_1 \sqrt{F}}{10.44} \right)^4$
- $F$  = Operating frequency in Hz
- $N$  = Number of strands in the cable
- $D_1$  = Diameter of the finished cable
- $D_0$  = Diameter of the finish cable over the strands in inches
- $K$  = Constant depending on  $N$ , given in the following table

$N$	3	9	27	Infinity
$K$	1.55	1.84	1.92	2

The D.C. resistance of a litz wire conductor is related to the following parameters:

1. AWG of the individual strand
2. Number of strands in the cable
3. Factors relating to the increased length of the individual strands per unit length of cable (take-up). For normal litz wire constructions a 1.5% increase in D.C. resistance for every cabling operation are approximately correct.

From these parameters for the D.C. resistance of any litz wire construction the following formula is derived:

**FORMULA 3**

$$R_{DC} = \frac{R_s (1.02)^{N_B} (1.03)^{N_C}}{N_s}$$

- Where:
- $R_{DC}$  = Resistance in ohms/1000 ft.
- $R_s$  = Maximum D.C. resistance of the individual strands (taken from table two)
- $N_B$  = Number of cabling operations
- $N_C$  = Number of cabling operations
- $N_s$  = Number of individual strands



## DESCRIPTION OF FIBER SERVES

Textile covered wire provides good mechanical properties, chemical resistance and long term dielectric strength. Its insulation value is derived to a large degree through greater separation of the conductors. A textile serve is treated with a conductive substance and applied as a braid, or more often as a spiral wrap. Fiber serves are used for applications requiring extreme limpness, flexibility and long flex-life. Many conductors utilize both film and fiber servings for a superior insulation for specific applications. The recommended maximum operating temperatures listed below are based on using these fiber insulations as secondary insulations for film insulated litz wire.

**COTTON** 105°C**Advantages**

An inexpensive serving, cotton has good abrasion resistance.

Size range: 8-40 gauge.

**Limitations**

Poor space factor, non-solderable.

**SILK** 105°C**Advantages**

Silk has a good space factor as well as good abrasion resistance and flexibility. It is slightly better than nylon for applications requiring a minimum fiber wall.

Size range: 20-44 gauge.

**Limitations**

Non-solderable, more expensive than other fibers.

**NYLON** 130°C**Advantages**

Nylon has a good space factor, excellent abrasion resistance, and is solderable. It will not support combustion.

Size range: 3-44 gauge.

**Limitations**

Not recommended where a minimum fiber wall is required.

**DACRON** 155°C**Advantages**

Dacron provides good abrasion resistance, solderability, and a slightly higher maximum operating temperature than nylon.

Size range: 8-40 gauge.

**Limitations**

Better space factor than cotton or fiberglass, but poorer than silk or nylon.

**HIGH TEMPERATURE NYLON (NOMEX™)** 250°C**Advantages**

This insulation has a good space factor and provides outstanding thermal and chemical stability at high temperatures. It will not melt or support combustion.

Size range: 8-40 gauge.

**Limitations**

Non-solderable, more expensive than other fibers.

**FIBERGLASS** 260°C**Advantages**

Fiberglass provides good electrical properties at high temperatures.

Size Range: 8-40 gauge.

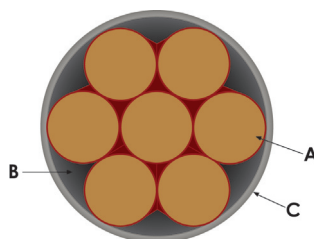
**Limitations**

Poor space factor, non-solderable.



### Round Litz Cable - Type 1

- A. Film Insulated Wire.
- B. Several twisted wires.
- C. Optional outer textile insulation (single or double serve.)



### Description

Round, multiple stranded magnet wire. Miniature, flexible strands are film insulated and stranded together in a geometric pattern, permitting each wire to occupy every possible position in the entire length of the cable at some point. The optional overall insulation may be a single or double fiber serve. Standard nylon covered litz constructions are shown in the following table. However, we can provide any litz construction according to your specifications.

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONST.	SINGLE NYLON		DOUBLE NYLON	
					MAX. CIA.	FEET PER POUND	MAX. DIA.	FEET PER POUND
20	40	36	1,000.0	40/36	.0444	310	.0464	300
21	32	36	800.0	32/36	.0399	385	.0419	375
21	30	36	750.0	30/36	.0387	410	.0407	400
22	27	36	675.0	27/36	.0368	455	.0388	445
23	22	36	550.0	22/36	.0334	560	.0354	540
23	20	36	500.0	20/36	.0320	615	.0340	595
23	19	36	475.0	19/36	.0310	645	.0330	625
24	18	36	450.0	18/36	.0304	680	.0324	660
24	16	36	400.0	16/36	.0288	765	.0308	735
24	15	36	375.0	15/36	.0279	815	.0294	785
25	12	36	300.0	12/36	.0252	1,010	.0272	970
26	10	36	250.0	10/36	.0232	1,210	.0252	1,160
27	9	36	225.0	9/36	.0221	1,340	.0241	1,280
27	8	36	200.0	8/36	.0210	1,500	.0230	1,430
28	7	36	175.0	7/36	.0197	1,710	.0217	1,630
28	6	36	150.0	6/36	.0194	1,980	.0214	1,860
29	5	36	125.0	5/36	.0177	2,370	.0197	2,220
30	4	36	100.0	4/36	.0160	2,930	.0180	2,720
31	3	36	75.0	3/36	.0145	3,840	.0165	3,520
22	40	38	640.0	40/38	.0364	490	.0384	480
23	30	38	480.0	30/38	.0318	650	.0338	630
24	25	38	400.0	25/38	.0292	780	.0312	750
25	20	38	320.0	20/38	.0263	970	.0283	930
25	19	38	304.0	19/38	.0255	1,010	.0275	980
25	18	38	288.0	18/38	.0250	1,080	.0270	1,030
26	16	38	256.0	16/38	.0237	1,210	.0257	1,150
26	15	38	240.0	15/38	.0230	1,290	.0250	1,220
27	12	38	192.0	12/38	.0208	1,600	.0228	1,510
28	10	38	160.0	10/38	.0192	1,910	.0212	1,810
28	9	38	144.0	9/38	.0183	2,090	.0203	2,030
29	8	38	128.0	8/38	.0174	2,380	.0194	2,300
30	7	38	112.0	7/38	.0164	2,660	.0184	2,540
30	6	38	96.0	6/38	.0161	3,100	.0181	3,000
31	5	38	80.0	5/38	.0147	3,750	.0167	3,590
32	4	38	64.0	4/38	.0133	4,640	.0153	4,390
33	3	38	48.0	3/38	.0122	5,960	.0142	5,550
24	40	40	384.4	40/40	.0291	770	.0311	740
25	32	40	307.5	32/40	.0262	960	.0282	920
25	30	40	288.3	30/40	.0254	1,020	.0274	980
26	27	40	259.5	27/40	.0242	1,130	.0262	1,080
27	22	40	211.4	22/40	.0221	1,380	.0241	1,310
27	20	40	192.2	20/40	.0221	1,510	.0231	1,440



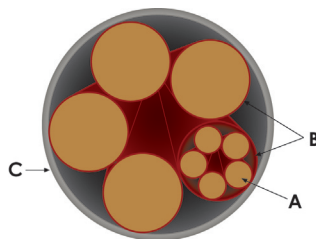
ROUND LITZ - TYPE 1

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONST.	SINGLE NYLON		DOUBLE NYLON	
					MAX. CIA.	FEET PER POUND	MAX. DIA.	FEET PER POUND
28	18	40	173.0	18/40	.0201	1,680	.0221	1,590
28	16	40	153.8	16/40	.0191	1,880	.0211	1,770
28	15	40	144.2	15/40	.0186	2,000	.0206	1,880
29	12	40	115.3	12/40	.0168	2,480	.0188	2,320
30	10	40	96.1	10/40	.0155	2,980	.0175	2,860
31	9	40	86.5	9/40	.0148	3,280	.0168	3,170
31	8	40	76.9	8/40	.0141	3,750	.0161	3,590
32	7	40	67.3	7/40	.0131	4,180	.0151	3,970
32	6	40	57.7	6/40	.0130	4,840	.0150	4,580
33	5	40	48.1	5/40	.0120	5,760	.0140	5,830
34	4	40	38.4	4/40	.0109	7,000	.0129	6,470
35	3	40	28.8	3/40	.0100	9,240	.0120	8,400
25	40	41	313.6	40/41	.0261	970	.0281	930
26	30	41	265.2	30/41	.0229	1,280	.0249	1,220
27	25	41	196.0	25/41	.0211	1,530	.0231	1,450
28	20	41	156.8	20/41	.0191	1,900	.0211	1,800
29	18	41	141.1	18/41	.0182	2,110	.0202	1,980
29	16	41	125.4	16/41	.0172	2,360	.0192	2,220
29	15	41	117.6	15/41	.0168	2,510	.0188	2,370
30	12	41	94.1	12/41	.0152	3,110	.0172	3,000
31	10	41	78.4	10/41	.0140	3,750	.0160	3,590
32	9	41	70.6	9/41	.0135	4,070	.0155	3,880
32	8	41	62.7	8/41	.0128	4,500	.0148	4,300
33	7	41	54.9	7/41	.0121	5,150	.0141	4,880
33	6	41	47.0	6/41	.0119	5,960	.0139	5,550
34	5	41	39.2	5/41	.0109	7,610	.0129	5,950
35	4	41	31.4	4/41	.0100	8,920	.0120	8,140
36	3	41	23.5	3/41	.0091	11,340	.0111	10,180
26	40	42	250.0	40/42	.0239	1,220	.0259	1,170
27	36	42	225.0	36/42	.0228	1,360	.0248	1,290
27	32	42	220.0	32/42	.0216	1,520	.0236	1,440
27	30	42	188.0	30/42	.0210	1,620	.0230	1,530
28	27	42	168.8	27/42	.0200	1,790	.0220	1,670
29	22	42	137.5	22/42	.0183	2,180	.0203	2,050
29	20	42	125.0	20/42	.0175	2,400	.0195	2,250
30	18	42	112.5	18/42	.0167	2,650	.0187	2,470
30	15	42	93.8	15/42	.0154	3,160	.0156	2,930
31	12	42	75.0	12/42	.0140	3,900	.0160	3,580
32	10	42	62.5	10/42	.0130	4,640	.0150	4,230
33	9	42	56.3	9/42	.0124	5,130	.0144	4,650
33	8	42	50.0	8/42	.0118	5,720	.0138	5,160
34	7	42	43.8	7/42	.0110	6,480	.0130	5,810
34	6	42	37.5	6/42	.0109	7,420	.0129	6,550
35	5	42	31.3	5/42	.0101	8,750	.0121	7,620
36	4	42	25.0	4/42	.0092	10,660	.0112	9,110
37	3	42	18.8	3/42	.0085	13,620	.0105	11,310
28	40	44	160.0	40/44	.0195	1,880	.0215	1,750
29	32	44	128.0	32/44	.0177	2,390	.0197	2,150
29	30	44	120.0	30/44	.0172	2,470	.0192	2,270
30	27	44	108.0	27/44	.0164	2,730	.0184	2,490
31	22	44	88.0	22/44	.0150	3,310	.0170	3,000
31	20	44	80.0	20/44	.0144	3,620	.0164	3,260
31	19	44	76.0	19/44	.0141	3,800	.0161	3,420
31	18	44	72.0	18/44	.0138	4,000	.0158	3,600
32	15	44	60.0	15/44	.0127	4,880	.0147	4,440
33	12	44	48.0	12/44	.0116	5,880	.0136	5,500
34	10	44	40.0	10/44	.0108	7,000	.0128	6,470
34	9	44	36.0	9/44	.0103	7,610	.0123	6,950
35	8	44	32.0	8/44	.0099	8,640	.0119	7,920
36	7	44	28.0	7/44	.0093	9,660	.0113	8,770
36	6	44	24.0	6/44	.0092	11,340	.0112	10,180
37	5	44	20.0	5/44	.0085	13,330	.0105	11,860
38	4	44	16.0	4/44	.0078	15,450	.0098	13,880
39	3	44	12.0	3/44	.0072	19,360	.0092	17,790



### Round Litz Cable - Type 2

- A. Film Insulated Wire.
- B. Several twisted wires.
- C. Optional outer textile insulation (single or double serve.)



### Description

Round, multiple stranded magnet wire. Miniature, flexible strands are film insulated and stranded together into groups which are cabled in a geometric pattern, permitting each wire to occupy every possible position in the entire length of the cable at some point. The optional overall insulation may be a single or double fiber serve. On large constructions, braided insulations are also offered. Standard, nylon covered litz constructions are shown in the following table. However, we can provide any litz construction according to your specifications.

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONST.	SINGLE NYLON		DOUBLE NYLON	
					MAX. CIA.	FEET PER POUND	MAX. DIA.	FEET PER POUND
3	210	26	53,130	7/30/26	.335	5.8	.340	5.8
4	154	26	38,962	7/22/26	.288	7.9	.293	7.9
5	133	26	33,649	7/19/26	.267	9.2	.282	9.1
6	98	26	24,794	7/14/26	.231	12.4	.236	12.3
2	665	30	66,500	7/95/30	.382	4.7	.386	4.6
3	525	30	52,500	7/75/30	.340	5.9	.344	5.9
4	413	30	41,300	7/59/30	.302	7.5	.306	7.4
6	259	30	25,900	7/37/30	.240	11.9	.244	11.8
8	165	30	16,500	5/33/30	.194	19.2	.198	19.1
10	105	30	10,500	5/21/30	.154	30.2	.158	29.9
8	665	36	16,625	7/95/36	.200	17.3	.204	17.2
9	525	36	13,125	7/75/36	.178	24.2	.182	23.9
10	413	36	10,325	7/59/36	.159	29.5	.163	29.2
12	259	36	6,475	7/37/36	.125	46.1	.129	45.3
14	150	36	3,750	5/30/36	.088	82.9	.090	81.9
15	120	36	3,000	5/24/36	.080	105.0	.082	104.0
17	90	36	2,250	3/30/36	.069	133.0	.071	131.0
18	60	36	1,500	3/20/36	.057	208.0	.059	204.0
20	45	36	1,125	3/15/36	.051	276.0	.053	270.0
13	300	38	4,800	3/5/20/38	.097	66.0	.099	65.0
14	250	38	4,000	5/50/38	.092	79.0	.094	77.0
15	200	38	3,200	5/40/38	.082	98.0	.084	96.0
16	150	38	2,400	5/30/38	.071	133.0	.073	130.0
17	120	38	1,920	3/40/38	.065	167.0	.067	163.0
19	90	38	1,440	3/30/38	.056	225.0	.058	220.0
20	60	38	960	3/20/38	.047	312.0	.049	305.0
22	45	38	720	3/15/38	.042	435.0	.044	422.0
18	189	40	1,816	3/3/21/40	.061	165.0	.063	162.0
19	135	40	1,297	3/3/15/40	.052	230.0	.054	225.0
20	108	40	1,038	3/36/40	.046	285.0	.048	280.0
21	81	40	778	3/27/40	.041	380.0	.043	365.0
22	63	40	605	3/21/40	.036	470.0	.038	450.0
24	45	40	432	3/15/40	.031	660.0	.033	630.0
21	120	42	750	5/24/42	.040	400.0	.042	385.0
22	100	42	625	5/20/42	.037	500.0	.039	485.0
23	87	42	544	3/29/42	.035	550.0	.037	535.0
24	72	42	450	3/24/42	.032	690.0	.034	660.0
24	60	42	375	3/20/42	.029	815.0	.031	785.0
26	45	42	281	3/15/42	.025	1,090.0	.027	1,040.0



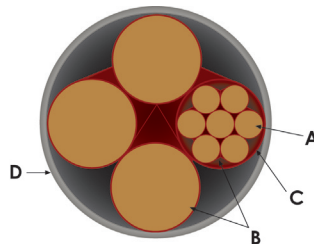


# ROUND LITZ - TYPE 2 / TYPE 3

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONST.	SINGLE NYLON		DOUBLE NYLON	
					MAX. CIA.	FEET PER POUND	MAX. DIA.	FEET PER POUND
15	810	44	3,240	3/3/3/30/44	.083	88.0	.085	86.0
20	270	44	1,080	3/3/30/44	.047	290.0	.049	285.0
20	220	44	880	5/44/44	.048	355.0	.050	345.0
22	180	44	720	5/36/44	.043	445.0	.045	430.0
22	150	44	600	5/30/44	.04	520.0	.042	500.0
23	120	44	480	5/24/44	.036	645.0	.038	625.0
24	100	44	400	5/20/44	.031	780.0	.033	760.0
25	90	44	360	3/30/44	.028	800.0	.030	780.0
26	72	44	288	3/24/44	.025	1,115.0	.027	1,065.0
26	60	44	240	3/20/44	.024	1,310.0	.026	1,230.0
28	45	44	180	3/15/44	.021	1,715.0	.023	1,640.0
29	30	44	120	3/10/44	.017	2,325.0	.019	2,090.0

## Type 3

- A. Film insulated wire.
- B. Several twisted wires.
- C. Textile insulation over component groups of twisted wires (T.I.)
- D. Outer textile insulation (T.I.)



## Description

Round, multiple stranded magnet wire. Miniature, flexible strands are film insulated and stranded together into groups which are cabled in a geometric pattern, permitting each wire to occupy every possible position in the entire length of the cable at some point. These component groups are separately insulated with a fiber serve and a second fiber serve is applied overall. If the constructions listed in the following table do not meet your specific requirement, please contact our sales department.

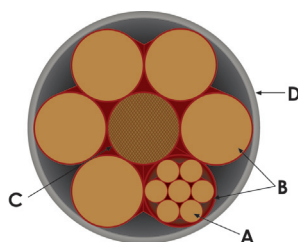
AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION
13	215	36	5,375	5 (43/36 T.I.) T.I.
14	150	36	3,750	5 (30/36 T.I.) T.I.
15	120	36	3,000	5 (24/36 T.I.) T.I.
17	90	36	2,250	3 (30/36 T.I.) T.I.
13	300	38	4,800	5 (3/20/38 T.I.) T.I.
14	250	38	4,000	5 (5/10/38 T.I.) T.I.
15	200	38	3,200	5 (40/38 T.I.) T.I.
16	150	38	2,400	5 (30/38 T.I.) T.I.
17	120	38	1,920	5 (24/38 T.I.) T.I.
19	90	38	1,440	3 (30/38 T.I.) T.I.
17	200	40	1,922	5 (40/40 T.I.) T.I.
19	150	40	1,442	5 (30/40 T.I.) T.I.
20	100	40	961	5 (20/40 T.I.) T.I.
21	90	40	865	5 (30/40 T.I.) T.I.
20	180	42	1,125	5 (36/42 T.I.) T.I.
21	120	42	750	5 (24/42 T.I.) T.I.
22	100	42	625	5 (20/42 T.I.) T.I.
23	90	42	563	3 (30/42 T.I.) T.I.
20	270	44	1,080	3 (3/30/44 T.I.) T.I.
20	220	44	880	5 (44/44 T.I.) T.I.
22	180	44	720	5 (36/44 T.I.) T.I.
22	150	44	600	5 (30/44 T.I.) T.I.
23	120	44	480	5 (24/44 T.I.) T.I.
24	100	44	400	5 (20/44 T.I.) T.I.
24	90	44	372	3 (30/44 T.I.) T.I.



## Round Litz Cable, continued

### Type 4

- A. Film Insulated Wire.
- B. Several twisted wires.
- C. Cotton core around which the several groups are spiraled (A/C).
- D. Outer textile insulation (T.I.)



### Description

Round multiple stranded magnet wire. Miniature, flexible strands of film insulated and stranded together into groups which are cabled in a geometric pattern around a central cotton core. A fiber serve is then applied over the entire cable. Geometric bunching permits each wire to occupy every possible position in the entire length of the cable at some point. By utilizing a core, all of the wires are on the surface of the conductor and the cable retains a uniform, round shape. If the constructions listed in the following table do not meet your specific requirement, please contact our sales department.

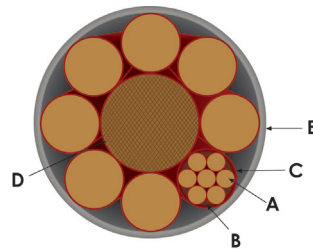
AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION
11	360	36	9,000	6 (3/20/36) A/C T.I.
12	240	36	6,000	6 (40/36) A/C T.I.
14	180	36	4,500	6 (30/36) A/C T.I.
16	100	36	2,500	5 (20/36) A/C T.I.
9	800	38	12,800	8 (5/20/38) A/C T.I.
12	450	38	7,200	6 (3/25/38) A/C T.I.
13	360	38	5,760	6 (3/20/38) A/C T.I.
13	300	38	4,800	6 (5/10/38) A/C T.I.
14	240	38	3,840	6 (40/38) A/C T.I.
16	180	38	2,880	6 (30/38) A/C T.I.
17	120	38	1,920	6 (20/38) A/C T.I.
11	800	40	7,688	8 (5/20/40) A/C T.I.
14	450	40	4,325	6 (3/25/40) A/C T.I.
15	360	40	3,460	6 (3/30/40) A/C T.I.
17	240	40	2,306	6 (40/40) A/C T.I.
13	900	42	5,625	9 (5/20/42) A/C T.I.
16	450	42	2,813	6 (3/25/42) A/C T.I.
18	300	42	1,875	6 (5/10/42) A/C T.I.
19	200	42	1,250	5 (40/42) A/C T.I.
13	1,200	44	4,800	8 (5/30/44) A/C T.I.
14	1,050	44	4,200	7 (5/30/44) A/C T.I.
16	600	44	2,400	6 (5/20/44) A/C T.I.
19	360	44	1,440	6 (3/20/44) A/C T.I.
20	240	44	960	6 (40/44) A/C T.I.
22	180	44	720	6 (30/44) A/C T.I.

A/C - Around the core



### Type 5

- A. Film Insulated Wire.
- B. Several twisted wires.
- C. Textile insulation over component groups of twisted wires (T.I.).
- D. Cotton core around which the several groups are spiraled (A/C).
- E. Outer textile insulation (T.I.).



### Description

Round, multiple stranded magnet wire. Miniature, flexible are film insulated and stranded together into groups which are cabled in a geometric pattern around a central cotton core. These component groups are separately insulated with a fiber serve, and a second fiber serve or braid is then applied over the entire cable. Geometric bunching permits each wire to occupy every possible position in the entire length of the cable at some point. By utilizing a core, all of the wires are on the surface of the conductor, and the cable retains a uniform, round shape. If the construction listed in the following table do not meet your specific requirements, please contact our sales department.

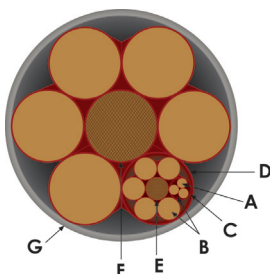
AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION
2	6,075	36	151,875	9 (5/5/27/36 T.I.) A/C T.I.
6	2,520	36	63,000	8 (5/3/21/36 T.I.) A/C T.I.
9	1,188	36	29,700	12 (3/33/36 T.I.) A/C T.I.
10	516	36	12,900	12 (43/36 T.I.) A/C T.I.
	420	36	10,500	7 (3/20/36 T.I.) A/C T.I.
11	360	36	9,000	9 (40/36 T.I.) A/C T.I.
12	280	36	7,000	7 (40/36 T.I.) A/C T.I.
14	150	36	3,750	6 (25/36 T.I.) A/C T.I.
4	2,625	38	42,000	21 (5/25/38 T.I.) A/C T.I.
9	900	38	14,400	10 (3/30/38 T.I.) A/C T.I.
9	810	38	12,960	9 (3/30/38 T.I.) A/C T.I.
11	540	38	8,640	6 (3/30/38 T.I.) A/C T.I.
11	480	38	7,680	8 (3/20/38 T.I.) A/C T.I.
12	384	38	6,144	6 (4/16/38 T.I.) A/C T.I.
14	240	38	3,840	6 (40/38 T.I.) A/C T.I.
17	128	38	2,048	8 (16/38 T.I.) A/C T.I.
8	1,680	40	16,145	14 (3/40/40 T.I.) A/C T.I.
10	1,200	40	11,532	12 (5/20/40 T.I.) A/C T.I.
12	700	40	6,727	10 (3/25/40 T.I.) A/C T.I.
13	600	40	5,766	6 (5/20/40 T.I.) A/C T.I.
14	450	40	4,325	6 (3/25/40 T.I.) A/C T.I.
15	360	40	3,460	6 (3/20/40 T.I.) A/C T.I.
16	256	40	2,460	8 (32/40 T.I.) A/C T.I.
18	180	40	1,730	6 (30/40 T.I.) A/C T.I.
12	1,800	44	7,200	6 (5/3/20/44 T.I.) A/C T.I.
15	900	44	3,600	6 (5/30/44 T.I.) A/C T.I.
16	600	44	2,400	6 (5/20/44 T.I.) A/C T.I.
18	450	44	1,800	6 (3/25/44 T.I.) A/C T.I.
19	360	44	1,440	6 (3/20/44 T.I.) A/C T.I.
19	300	44	1,200	5 (3/20/44 T.I.) A/C T.I.
20	240	44	960	6 (40/44 T.I.) A/C T.I.
22	180	44	720	6 (30/44 T.I.) A/C T.I.

A/C - Around the core

## Round Litz Cable, continued

### Type 6

- A. Film Insulated Wire.
- B. Several twisted wires.
- C. Textile insulation over component groups of twisted wires (T.I.)
- D. Textile insulation overall (T.I.)
- E. Cotton core in component group (A/C).
- F. Cotton core around which the several groups are spiraled.
- G. Textile insulation overall (I.)



### Description

Round, multiple stranded magnet wire. Miniature, flexible strands are film insulated and stranded together into groups which are cabled in a geometric pattern around a central cotton core. These component groups are separately insulated with a fiber serve, and a second fiber serve is applied overall. Several of these groups are then cabled together over a central cotton core, and a third insulation is applied over the entire cable. This outer insulation on cables whenever all diameters less than one inch usually consists of a fiber serve or braid. On cables larger than one inch, mylar tape, polyvinylchloride tape or an extruded jacket may be applied. Geometric bunching permits each wire to occupy every possible position in the entire length of the cable at some point. By utilizing a core, all of the wires are on the surface of the conductor and the cable retains a uniform, round shape. If the constructions listed in the following table do not meet your specific requirement, please contact our sales department.

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION
2	21,000	36	525,000	14 (10 (3/50/36 T.I.) A/C T.I.) A/C I.
	16,128	36	403,200	14 (12 (3/32/36 T.I.) A/C T.I.) A/C I.
	7,200	36	180,000	10 (6 93/40/36 T.I.) A/C T.I.) A/C I.
	5,160	36	129,000	10 (12 (43/36 T.I.) A/C T.I.) A/C I.
	2,400	36	60,000	6 (10(40/36 T.I.) A/C T.I.) A/C I.
	1,620	36	40,500	6 (6(3/14/36 T.I.) A/C T.I.) A/C I.
1	18,000	38	288,000	10 (6(3/5/20/38 T.I.) A/C T.I.) A/C I.
	14,400	38	230,400	12 (6(5/40/38 T.I.) A/C T.I.) A/C I.
	8,640	38	138,240	6 (8(3/3/20/38 T.I.) A/C T.I.) A/C I.
	4,860	38	77,760	9 (6(3/30/38 T.I.) A/C T.I.) A/C I.
	3,600	38	57,600	8 (6(3/25/38 T.I.) A/C T.I.) A/C I.
	1,440	38	23,040	6(6(40/38 T.I.) A/C T.I.) A/C I.
2	16,800	40	161,448	14 (12(5/20/40. T.I.) A/C T.I.)A/C I.
	10,500	40	100,905	10 (10(3/35/40 T.I.) A/C T.I.)A/C I.
	7,290	40	70,057	9(6(3/45/40 T.I.) A/C T.I.) A/C I.
	5,400	40	51,894	10 (6(3/30/40 T.I.) A/C T.I.) A/C I.
	2,160	40	20,758	6 (6(3/20/40 T.I.) A/C T.I.) A/C I.
	1,440	40	13,838	8 (6(30/40 T.I.) A/C T.I.) A/C I.

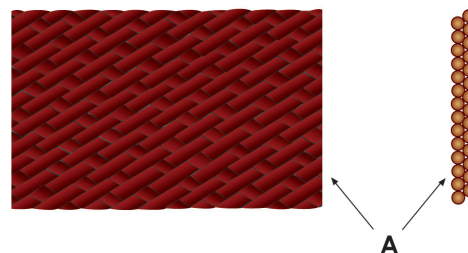
A/C - Around the core

## Type 7

A. One wire or a group of insulated wires.

### Applications

The type 7 braided Litz constructions shown below are used primarily in high frequency grounding applications, or where special inductor designs require high aspect ratio conductors. We have listed only the most popular constructions and frequency ranges. Specific sizes utilizing most any wire gauge are available for custom applications.



AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
10	96	30	9,600	24/4/30	.068	.341
9	120	30	12,000	24/5/30	.068	.409
8	168	30	16,800	24/7/30	.068	.477
6	240	30	24,000	24/10/30	.102	.545
5	360	30	36,000	24/15/30	.109	.725
5	336	30	33,600	48/7/30	.068	1.50
4	504	30	50,400	24/21/30	.190	.75
3	648	30	64,800	24/32/30	.136	1.02
2	768	30	76,800	24/32/30	.145	1.16
1/0	1,056	30	105,600	24/44/30	.145	1.45
2/0	1,536	30	153,600	48/32/30	.181	2.32
3/0	1,680	30	168,000	48/35/30	.181	2.61
4/0	2,469	30	249,600	48/52/30	.181	2.90
22	32	36	800	16/2/36	.038	.075
18	64	36	1,600	16/4/36	.038	.113
16	96	36	2,400	24/4/36	.038	.188
14	168	36	4,200	24/7/36	.038	.263
12	288	36	7,200	48/6/36	.038	.450
10	384	36	9,600	24/16/36	.076	.450
9	528	36	13,200	48/11/36	.056	.750
8	720	36	18,000	48/15/36	.075	.750
6	1,056	36	26,400	48/22/36	.075	1.05
4	1,608	36	40,200	24/67/36	.113	.90
2	2,880	36	7,200	48/60/36	.113	1.50
1/0	4,032	36	100,800	48/84/36	.150	1.95

## Type 8 Monofilar Conductors

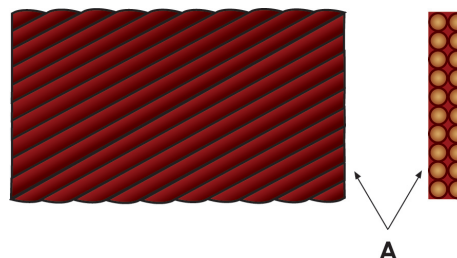
A. One wire or a group of insulated wires.

### Description

Flat or rectangular, multiple stranded magnet wire. Strands are film insulated and stranded together in a rectangular configuration permitting each wire to lie on the surface of the conductor.

### Applications

Used for winding some types of motors, transformers, reactors and inductors where a greater copper density in a smaller area is desired. Flexibility and winding are relative to the number of individual strands employed.



AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
1/0	18	12	119,322	18/12	.152	.842
1/0	17	12	112,693	17/12	.152	.795
1/0	16	12	106,064	16/12	.152	.748
1	15	12	99,435	15/12	.152	.702
1	14	12	92,806	14/12	.152	.655
1	13	12	86,177	13/12	.152	.608
2	12	12	79,548	12/12	.152	.561
2	11	12	72,919	11/12	.152	.515
2	10	12	66,290	10/12	.152	.468
3	9	12	59,661	9/12	.152	.421
3	8	12	53,032	8/12	.152	.374
4	7	12	46,403	7/12	.152	.327
1	23	14	94,507	23/14	.121	.860
1	22	14	90,398	22/14	.121	.823
1	21	14	86,289	21/14	.121	.785
1	20	14	82,180	20/14	.121	.748
2	19	14	73,071	19/14	.121	.710
2	18	14	73,962	18/14	.121	.673
2	17	14	69,853	17/14	.121	.636
2	16	14	65,744	16/14	.121	.598
3	15	14	61,635	15/14	.121	.561
3	14	14	57,526	14/14	.121	.523
3	13	14	53,417	13/14	.121	.486
4	12	14	49,308	12/14	.121	.449
4	11	14	45,199	11/14	.121	.411
4	10	14	41,090	10/14	.121	.374
5	9	14	36,981	9/14	.121	.337
5	8	14	32,872	8/14	.121	.299
6	7	14	28,763	7/14	.121	.262
3	24	16	61,944	24/16	.097	.719
3	23	16	59,363	23/16	.097	.689
3	22	16	56,782	22/16	.097	.659



## RECTANGULAR LITZ - TYPE 8

## Monofilar Conductors

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
3	21	16	54,201	21/16	.097	.629
3	20	16	51,620	20/16	.097	.599
4	19	16	49,039	19/16	.097	.569
4	18	16	46,458	18/16	.097	.539
4	17	16	43,877	17/16	.097	.509
4	16	16	41,296	16/16	.097	.479
5	15	16	38,715	15/16	.097	.449
5	14	16	36,134	14/16	.097	.419
5	13	16	33,553	13/16	.097	.389
6	12	16	30,972	12/16	.097	.359
6	11	16	28,391	11/16	.097	.329
6	10	16	25,810	10/16	.097	.299
7	9	16	23,229	9/16	.097	.270
7	8	16	20,648	8/16	.097	.240
7	7	16	18,067	7/16	.097	.210
5	24	18	38,976	24/18	.078	.576
5	23	18	37,352	23/18	.078	.552
5	22	18	35,728	22/18	.078	.528
5	21	18	34,104	21/18	.078	.504
5	20	18	32,480	20/18	.078	.480
6	19	18	30,856	19/18	.078	.456
6	18	18	29,232	18/18	.078	.432
6	17	18	27,608	17/18	.078	.408
6	16	18	25,984	16/18	.078	.384
7	15	18	24,360	15/18	.078	.360
7	14	18	22,736	14/18	.078	.336
7	13	18	21,112	13/18	.078	.312
8	12	18	19,488	12/18	.078	.288
8	11	18	17,864	11/18	.078	.264
8	10	18	16,240	10/18	.078	.240
9	9	18	14,616	9/18	.078	.216
9	8	18	12,992	8/18	.078	.192
10	7	18	11,368	7/18	.078	.168
7	24	20	24,576	24/20	.062	.461
7	23	20	23,552	23/20	.062	.442
7	22	20	22,528	22/20	.062	.423
7	21	20	21,504	21/20	.062	.404
7	20	20	20,480	20/20	.062	.384
8	19	20	19,456	19/20	.062	.365
8	18	20	18,432	18/20	.062	.346
8	17	20	17,408	17/20	.062	.327
8	16	20	16,384	16/20	.062	.308
9	15	20	15,360	15/20	.062	.288
9	14	20	14,336	14/20	.062	.269
9	13	20	13,312	13/20	.062	.250



RECTANGULAR LITZ - TYPE 8

Monofilar Conductors

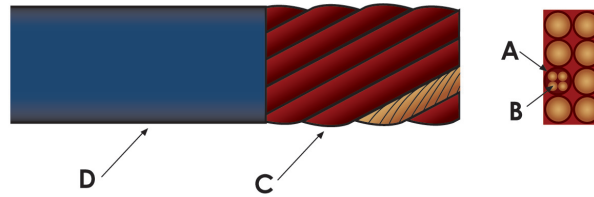
AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
10	12	20	12,288	12/20	.062	.231
10	11	20	11,264	11/20	.062	.211
10	10	20	10,240	10/20	.062	.192
11	9	20	9,216	9/20	.062	.173
11	8	20	8,192	8/20	.062	.154
12	7	20	7,168	7/20	.062	.135
10	17	20	10,881	17/22	.050	.262
10	16	22	10,241	16/22	.050	.246
11	15	22	9,601	15/22	.050	.231
11	14	22	8,961	14/22	.050	.215
11	13	22	8,321	13/22	.050	.200
12	12	22	7,681	12/22	.050	.185
12	11	22	7,041	11/22	.050	.169
12	10	22	6,401	10/22	.050	.154
13	9	22	5,760	9/22	.050	.139
13	8	22	5,120	8/22	.050	.123
12	17	24	6,868	17/24	.038	.199
12	16	24	6,464	16/24	.038	.187
13	15	24	6,060	15/24	.038	.176
13	14	24	5,656	14/24	.038	.163
13	13	24	5,252	13/24	.038	.152
14	12	24	4,848	12/24	.038	.140
14	11	24	4,444	11/24	.038	.129
14	10	24	4,040	10/24	.038	.116
15	9	24	3,636	9/24	.038	.105





### Multi Stranded Conductors

- A. Film insulated wire.
- B. Several twisted wires.
- C. Multiple groups of twisted wires cabled together and laid flat.
- D. Optional outer textile or tape insulation (single or double serve).



### Description

Flat or rectangular, multiple stranded magnet wire. Strands are film insulated and stranded together into groups which are cabled together in a rectangular configuration permitting each wire to lie on the surface of the conductor.

### Applications

Used for winding some types of motors, transformers, reactors and inductors where a greater copper density in a smaller area is desired. Flexibility and winding are relative to the number of strands employed. These constructions generally will have a large surface area because there are more strands than in equivalent monofilar constructions.

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
2/0	84	18	136,416	12/7/18	.233	.820
1/0	77	18	125,048	11/7/18	.233	.755
1/0	70	18	113,680	10/7/18	.233	.689
1	63	18	102,312	9/7/18	.233	.624
1	56	18	90,944	8/7/18	.233	.559
2	49	18	79,576	7/7/18	.233	.495
1/0	112	20	114,688	16/7/20	.187	.868
1/0	105	20	107,520	15/7/20	.187	.815
1	98	20	100,352	14/7/20	.187	.768
1	91	20	93,184	13/7/20	.187	.709
1	84	20	86,016	12/7/20	.187	.657
2	77	20	78,848	11/7/20	.187	.604
2	70	20	71,680	10/7/20	.187	.552
3	63	20	64,512	9/7/20	.187	.500
3	56	20	57,344	8/7/20	.187	.448
4	49	20	50,176	7/7/20	.187	.396
1	140	22	89,614	20/7/22	.150	.864
1	133	22	85,139	19/7/22	.150	.823
2	126	22	80,658	18/7/22	.150	.780
2	119	22	76,177	17/7/22	.150	.738
2	112	22	71,696	16/7/22	.150	.695
2	105	22	67,215	15/7/22	.150	.653
3	98	22	62,734	14/7/22	.150	.611
3	91	22	58,253	13/7/22	.150	.568
3	84	22	53,772	12/7/22	.150	.526

## Concentric Stranded Conductors

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
4	77	22	49,291	11/7/22	.150	.484
4	70	22	44,810	10/7/22	.150	.442
5	63	22	40,329	9/7/22	.150	.400
5	56	22	35,848	8/7/22	.150	.359
6	49	22	31,368	7/7/22	.150	.317
2	168	24	67,872	24/7/24	.121	.836
2	161	24	65,044	23/7/24	.121	.801
3	154	24	62,216	22/7/24	.121	.767
3	147	24	59,388	21/7/24	.121	.734
3	140	24	56,560	20/7/24	.121	.699
3	133	24	53,732	19/7/24	.121	.665
4	126	24	50,904	18/7/24	.121	.630
4	119	24	48,076	17/7/24	.121	.596
4	112	24	45,248	16/7/24	.121	.562
4	105	24	42,420	15/7/24	.121	.528
5	98	24	39,592	14/7/24	.121	.494
5	91	24	36,764	13/7/24	.121	.459
5	84	24	33,936	12/7/24	.121	.425
6	77	24	31,108	11/7/24	.121	.391
6	70	24	28,280	10/7/24	.121	.357
7	63	24	25,452	9/7/24	.121	.324
7	56	24	22,624	8/7/24	.121	.290
8	49	24	19,796	7/7/24	.121	.257
4	168	26	42,480	24/7/26	.097	.672
5	161	26	40,710	32/7/26	.097	.644
5	154	26	38,940	22/7/26	.097	.617
5	147	26	37,170	21/7/26	.097	.590
5	140	26	35,400	20/7/26	.097	.562
5	133	26	33,630	19/7/26	.097	.534
6	126	26	31,860	18/7/26	.097	.507
6	119	26	30,090	17/7/26	.097	.479
6	112	26	28,320	16/7/26	.097	.452
6	105	26	26,550	15/7/26	.097	.424
7	98	26	24,780	14/7/26	.097	.397
7	91	26	23,010	13/7/26	.097	.369
7	84	26	21,240	12/7/26	.097	.342
8	77	26	19,470	11/7/26	.097	.314
8	70	26	17,700	10/7/26	.097	.287
9	63	26	15,930	9/7/26	.097	.260
9	56	26	14,160	8/7/26	.097	.233
10	49	26	12,390	7/7/26	.097	.206
6	168	28	26,688	24/7/28	.078	.538

**Concentric Stranded Conductors**

AWG SIZE	NUMBER OF WIRES	WIRE AWG SIZE	NOMINAL CIRCULAR MIL AREA	CONSTRUCTION	NOMINAL THICKNESS INCHES	NOMINAL WIDTH INCHES
7	161	28	25,576	23/7/28	.078	.515
7	154	28	24,464	22/7/28	.078	.493
7	147	28	23,352	21/7/28	.078	.472
7	140	28	22,240	20/7/28	.078	.449
7	133	28	21,128	19/7/28	.078	.428
8	126	28	20,016	18/7/28	.078	.405
8	119	28	18,904	17/7/28	.078	.383
8	112	28	17,792	16/7/28	.078	.361
8	105	28	16,680	15/7/28	.078	.339
9	98	28	15,568	14/7/28	.078	.317
9	91	28	14,456	13/7/28	.078	.295
9	84	28	13,344	12/7/28	.078	.273
10	77	28	12,232	11/7/28	.078	.252
10	70	28	11,120	10/7/28	.078	.230
11	63	28	10,008	9/7/28	.078	.208
11	56	28	8,896	8/7/28	.078	.186
12	49	28	7,784	7/7/28	.078	.165
10	119	30	11,900	17/7/30	.063	.309
10	112	30	11,200	16/7/30	.063	.291
10	105	30	10,500	15/7/30	.063	.273
11	98	30	9,800	14/7/30	.063	.256
11	91	30	9,100	13/7/30	.063	.238
11	84	30	8,400	12/7/30	.063	.220
12	77	30	7,700	11/7/30	.063	.203
12	70	30	7,000	10/7/30	.063	.185
13	63	30	6,300	9/7/30	.063	.168
13	56	30	5,600	8/7/30	.063	.150
14	49	30	4,900	7/7/30	.063	.133

# ***GENERAL TECHNICAL INFORMATION***



### METRIC SYSTEM

10 Millimeters = 1 Centimeter  
10 Centimeters = 1 Decimeter  
10 Decimeters = 1 Meter  
10 Meters = 1 Dekameter  
10 Dekameters = 1 Hectometer  
10 Hectometers = 1 Kilometer

### U.S. CUSTOMARY SYSTEM

12 Inches = 1 Foot  
3 Feet = 1 Yard  
5 1/2 Yards = 1 Rod  
40 Rods = 1 Furlong  
8 Furlongs = 1 Mile  
3 Miles = 1 League

### CONVERSION CHART

TO CONVERT	INTO	MULTIPLY BY
Centimeters	Inches	0.394
	Feet	0.0328
	Meter	0.01
	Millimeters	10
Meters	Centimeters	100
	Feet	3.281
	Inches	39.37
	Kilometers	.001
	Miles	0.000624
	Millimeters	1000
	Yards	1.093
Kilometers	Feet	3281
	Meters	1000
	Miles	0.621
	Yards	1093

### TEMPERATURE CONVERSION

$$\text{Celsius} = \frac{5}{9}(\text{F}-32)$$

$$\text{Fahrenheit} = \frac{9\text{C}}{5} + 32$$

$$\text{Kelvin} = ^\circ\text{C} + 273.15$$

**Specifications for Annealed Bare Copper or Silver-Plated Copper, Round.**

AWG SIZE	OUTSIDE DIAMETER			CROSS SECTION		WEIGHT		RESISTANCE AT 20°C-68°F			
	MIN.	NOM.	MAX.	CIRCULAR MILS	SQUARE MILS	LBS/MFT NOMINAL	FEET/LBS NOMINAL	FEET/OHM NOMINAL	MIN.	OHMS/MFT NOM.	MAX.
1	.2864	.2893	.2922	83694.	65733.	253.30	3.948	8072.	.1264	.1239	.1215
2	.2250	.2576	.2602	66358.	52118.	200.90	4.978	6399	.1595	.1563	.1532
3	.2271	.2294	.2317	52624.	41331.	159.30	6.277	5074.	.2011	.1971	.1932
4	.2023	.2043	.2063	41738.	32781.	126.30	7.918	4023.	.2534	.2485	.2437
5	.1801	.1819	.1837	33088.	25987.	100.20	9.980	3191.	.3197	.3134	.3073
6	.1604	.1620	.1636	26244.	20612.	79.44	12.59	2531.	.4031	.3952	.3875
7	.1429	.1443	.1457	20822.	16354.	63.03	15.87	2008.	.5079	.4981	.4886
8	.1272	.1285	.1298	16512.	12969.	49.98	20.01	1592.	.641	.6281	.6156
9	.1133	.1144	.1155	13087.	10279.	39.62	25.24	1262.	.8079	.7925	.7774
10	.1009	.1019	.1029	10384.	8156.	31.43	31.82	1001.	1.0187	.9987	.9795
11	.0898	.0907	.0916	8226.	6461.	24.90	40.16	793.	1.286	1.261	1.236
12	.0800	.0808	.0816	6529.	5128.	19.76	50.61	629.8	1.62	1.588	1.557
13	.0713	.0720	.0727	5184.	4072.	15.69	63.73	499.7	2.04	2.001	1.962
14	.0635	.0641	.0647	4107.	3227.	12.44	80.39	396.2	2.572	2.524	2.478
15	.0565	.0571	.0577	3260.	2560.	9.87	101.32	314.4	3.249	3.181	3.115
16	.0503	.0509	.0513	2581.	2027.	7.812	128.0	248.9	4.099	4.018	3.940
17	.0448	.0453	.0458	2052.	1612.	6.213	161.0	197.9	5.167	5.054	4.943
18	.0399	.0403	.0407	1624.	1275.	4.914	203.5	156.6	6.514	6.386	6.263
19	.0355	.0359	.0363	1289.	1012.	3.900	256.4	124.3	8.231	8.046	7.869
20	.0317	.0320	.0323	1024.	804.	3.099	322.7	98.7	10.319	10.128	9.943
21	.0282	.0285	.0288	812.3	638.	2.459	406.7	78.32	13.05	12.77	12.50
22	.0250	.0253	.0256	640.1	502.7	1.937	516.3	61.74	16.59	16.20	15.82
23	.0224	.0226	.0228	510.8	401.2	1.546	646.8	49.26	20.66	20.30	19.95
24	.0199	.0201	.0203	404.0	317.3	1.223	817.7	38.96	26.19	25.67	25.17
25	.0177	.0179	.0181	320.4	251.6	.097	1031.	30.89	33.13	32.37	31.66
26	.0157	.0159	.0161	252.8	198.5	.7650	1307.	24.38	42.07	41.02	40.01
27	.0141	.0142	.0143	201.6	158.3	.6101	1639.	19.44	52.17	51.44	50.71
28	.0125	.0126	.0127	158.8	1247.7	.4806	2081.	15.31	66.37	65.31	64.30
29	.0112	.0113	.0114	127.7	100.3	.3866	2587.	12.32	82.68	81.21	79.78
30	.0099	.0100	.0101	100.0	78.50	.3025	3306.	9.64	105.82	103.71	101.67
31	.0088	.0089	.009	79.21	62.21	.2398	4170.	7.639	133.9	130.9	128.0
32	.0079	.0080	.0081	64.00	50.27	.1937	5163.	6.174	166.2	162.0	158.1
33	.0070	.0071	.0072	50.41	39.59	.1526	6553.	4.861	211.7	205.7	200.1
34	.0062	.0063	.0064	39.69	31.17	.1201	8326.	3.827	269.8	261.3	253.2
35	.0055	.0056	.0057	31.36	24.63	.0949	10537.	3.024	342.8	330.7	319.2
36	.0049	.0050	.0051	25.00	19.64	.07569	13212.	2.411	431.9	414.8	398.7
37	.0044	.0045	.0046	20.25	15.90	.06128	16319.	1.953	535.7	512.1	490.1
38	.0039	.0040	.0041	16.00	12.57	.04844	20644.	1.543	681.9	648.2	617.0
39	.0034	.0035	.0036	12.25	9.62	.03708	26969.	1.181	897.1	846.6	800.2
40	.0030	.0031	.0032	9.61	7.55	.0291	34364.	.927	1152.3	1079.2	1012.8
41	.0027	.0028	.0029	7.84	6.16	.02374	42123.	.7559	1423.	1323.	1233.
42	.0024	.0025	.0026	6.25	4.91	.01892	52854.	.6028	1801.	1659.	1534.
43	.0021	.0022	.0023	4.84	3.80	.01465	68259.	.4666	2352.	2143.	1960.
44	.0019	.0020	.0021	4.00	3.14	.0121	82645.	.3857	2873.	2593.	2352.
45	.00169	.00176	.00183	3.10	2.43	.00939	106500.	.2987	3616.	3348.	3080.
46	.00151	.00157	.00164	2.47	1.94	.00744	134400.	.2377	4544.	4207.	3870.
47	.00135	.00140	.00146	1.96	1.54	.00591	169200.	.189	5714.	5291.	4868.
48	.0019	.00124	.00129	1.54	1.21	.00469	213400.	.1483	7285.	6745.	6204.
49	.00107	.00111	.00116	1.23	.968	.00371	269700.	.1188	9090.	8417.	7774.
50	.00095	.00099	.00103	.98	.770	.00294	339700.	.0945	11430.	10580.	9734.



**Specification for Annealed Tinned Copper, Round**

AWG SIZE	OUTSIDE DIAMETER			CROSS SECTION		WEIGHT		RESISTANCE AT 20°C-68°F	
	MIN.	NOM.	MAX.	CIRCULAR MILS	SQUARE MILS	LBS/MFT NOMINAL	FEET/LBS NOMINAL	FEET/OHM NOMINAL	OHMS/MFT NOM.
2	.2550	.2576	.2653	66358.	52118.	200.9	4.978	6215.	.1609
3	.2271	.2294	.2363	52624.	41331.	159.3	6.277	4931.	.2028
4	.2023	.2043	.2104	41738.	32781.	126.3	7.918	3911.	.2557
5	.1801	.1819	.1874	33088.	25987.	100.2	9.980	3100.	.3226
6	.1604	.1620	.1669	26244.	20612.	79.44	12.59	2459.	.4067
7	.1429	.1443	.1486	20822.	16354.	63.03	15.87	1951.	.5126
8	.1272	.1285	.1324	16512.	12969.	49.98	20.01	1547.	.6464
9	.1133	.1144	.1178	13087.	10279.	39.62	25.24	1226.	.8156
10	.1009	.1019	.1050	10384.	8156.	31.43	31.82	962.5	1.039
11	.0898	.0907	.0934	8226.	6461.	24.90	40.16	762.8	1.311
12	.0800	.0808	.0832	6529.	5128.	19.76	50.61	605.3	1.652
13	.0713	.0720	.0742	5184.	4072.	15.69	63.73	480.8	2.080
14	.0635	.0641	.0660	4107.	3227.	12.44	80.39	381.0	2.625
15	.0565	.0571	.0588	3260.	2560.	9.87	101.32	302.2	3.308
16	.0503	.0508	.0523	2581.	2027.	7.812	128.0	239.3	4.179
17	.0448	.0453	.0466	2052.	1612.	6.213	161.0	190.3	5.256
18	.0399	.0403	.0415	1624.	1275.	4.914	203.5	150.6	6.641
19	.0355	.0359	.0370	1289.	1012.	3.900	256.4	119.5	8.367
20	.0317	.0320	.0329	1024.	804.	3.099	322.7	94.97	10.53
21	.0282	.0285	.0293	812.3	638.	2.459	406.7	75.30	13.28
22	.0250	.0253	.0261	640.1	502.7	1.937	516.3	59.67	16.85
23	.0224	.0226	.0233	510.8	401.2	1.546	646.8	47.37	21.11
24	.0199	.0201	.0207	404.0	317.3	1.223	817.7	37.45	26.70
25	.0177	.0179	.0184	320.4	251.6	.970	1031.	29.09	34.38
26	.0157	.0159	.0164	252.8	198.5	.7650	1307.	22.95	43.57
27	.0141	.0142	.0146	201.6	158.3	.6101	1639.	18.30	54.63
28	.0125	.0126	.0130	158.8	124.7	.4806	2081.	14.41	69.38
29	.0112	.0113	.0116	127.7	100.3	.3866	2587.	11.59	86.26
30	.0099	.0100	.0103	100.0	78.5	.3025	3306.	8.985	111.3
31	.0088	.0089	.0092	79.21	62.21	.2398	4170.	7.112	140.6
32	.0079	.008	.0083	64.00	50.27	.1937	5163.	5.747	174.0
33	.0070	.0071	.0074	50.41	39.59	.1526	6553.	4.529	222.8
34	.0062	.0063	.0066	39.69	31.17	.1201	8326.	3.565	280.5
35	.0055	.0056	.0059	31.36	24.63	.0949	10537.	2.817	355.0
36	.0049	.0050	.0053	25.00	19.64	.07569	13212.	2.246	445.3
37	.0044	.0045	.0048	20.25	15.9	.06128	16319.	1.819	549.8
38	.0039	.0040	.0043	16.00	12.57	.04844	20644.	1.437	695.8
39	.0034	.0035	.0038	12.27	9.62	.03708	26969.	1.100	908.8
40	.0030	.0031	.0034	9.61	7.55	.0291	34364.	.863	1158.5
41	.0027	.0028	.0031	7.84	6.16	.02374	42123.	.704	1420.0
42	.0024	.0025	.0028	6.25	4.91	.01892	52854.	.561	1781.3
43	.0021	.0022	.0022	4.84	3.8	.01465	68259.	.418	2142.6
44	.0019	.0020	.0020	4.00	3.14	.01210	82645.	.359	2783.3
45	.0017	.0018	.0020	3.10	2.43	.00939	106500.	.216	3144.6

**Decimals to Millimeters and Nominal AWG\***

INCHES	AWG SIZE	M/M	INCHES	AWG SIZE	M/M	INCHES	AWG SIZE	M/M	INCHES	AWG SIZE	M/M	INCHES	AWG SIZE	M/M
.00049	-56-	.013	.016	-26-	.402	.065		1.651	.121		3.073	.179		4.547
			.017		.432	.066		1.676	.122		3.099	.180		4.572
.00055	-55-	.015				.067		1.702	.123		3.124	.181		4.597
			.018	-25-	.457	.068		1.727	.124		3.150			
.00062	-54-	.017	.019		.483	.069		1.753	.125		3.175	.182	-5-	4.623
						.070		1.778	.126		3.200	.183		4.648
.00070	-53-	.019	.020	-24-	.508	.071		1.803	.127		3.226	.184		4.674
			.021		.533							.185		4.699
.00078	-52-	.021				.072	-13-	1.829	.128	-8-	3.251	.186		4.724
			.022	-23-	.559	.073		1.854	.129		3.277	.187		4.750
.00088	-51-	.023	.023		.584	.074		1.880	.130		3.302	.188		4.775
			.024		.610	.075		1.905	.131		3.327	.189		4.801
.00099	-50-	.025				.076		1.930	.132		3.353	.190		4.826
			.025	-22-	.635	.077		1.956	.133		3.378	.191		4.851
.00111	-49-	.028	.026		.660	.078		1.981	.134		3.404	.192		4.877
			.027		.686	.079		2.007	.135		3.429	.193		4.902
.00124	-48-	.030							.136		3.454	.194		4.928
			.028	-21-	.711	.080	-12-	2.032	.137		3.480	.195		4.953
.00140	-47-	.035	.029		.737	.081		2.057	.138		3.505	.196		4.978
			.030		.762	.082		2.083	.139		3.531	.197		5.004
						.084		2.134	.141		3.556	.199		5.055
.00176	-45-	.044	.032	-20-	.813	.085		2.159	.142		3.581	.200		5.080
			.033		.838	.086		2.184	.143		3.607	.201		5.105
.0020	-44-	.051	.034		.864	.087		2.210				.202		
			.035		.889	.088		2.235		-7-	3.632	.203		
.0022	-43-	.056				.089		2.261	.145		3.658			
			.036	-19-	.914				.146		3.683	.204	-4-	5.182
.0025	-42-	.064	.037		.940	.090		2.286	.147		3.708	.205		5.207
			.038		.965	.091		2.311	.148		3.734	.206		5.232
.0028	-41-	.071	.039		.998	.092		2.337	.149		3.759	.207		5.258
						.093		2.362	.150		3.785	.208		5.283
.0031	-40-	.076	.040	-18-	1.016	.094		2.388	.151		3.810	.209		5.309
			.041		1.041	.095		2.413	.152		3.835	.210		5.334
.0035	-39-	.089	.042		1.067	.096		2.438	.153		3.861	.211		5.359
			.043		1.092	.097		2.464	.154		3.866	.212		5.385
.0040	-38-	.102	.044		1.118	.098		2.489	.155		3.912	.213		5.410
						.099		2.515	.156		3.937	.214		5.436
.0045	-37-	.115	.045	-17-	1.143	.100		2.540	.157		3.962	.215		5.461
			.046		1.168	.101		2.565	.158		3.988	.216		5.486
.0050	-36-	.127	.047		1.194				.159		4.013	.217		5.512
			.048		1.219	.102	-10-	2.591	.160		4.039	.218		5.537
.0056	-35-	.142	.049		1.245	.103		2.616	.161		4.064	.219		5.563
			.050			.104		2.642				.220		5.588
.0063	-34-	.152				.105		2.667	.162	-6-	4.115	.221		5.613
			.051	-16-	1.295	.106		2.692	.163		4.140	.222		5.639
.0071	-33-	.178	.052		1.321	.107		2.718	.164		4.166	.223		5.664
			.053		1.346	.108		2.743	.165		4.191	.224		5.690
.0080	-32-	.203	.054		1.372	.109		2.769	.166		4.216	.225		5.715
			.055		1.397	.110		2.794	.167		4.242	.226		5.740
.0089	-31-	.229	.056		1.422	.111		2.819	.168		4.267	.227		5.766
						.112		2.845	.169		4.293	.228		5.791
.0100	-30-	.254	.057	-15-	1.448	.113		2.870	.170		4.318	.229		5.817
			.058		1.473				.171		4.343			
.0113	-29-	.279	.059		1.499	.114	-9-	2.896	.172		4.369	.230	-3-	5.842
			.060		1.524	.115		2.921	.173		4.394	.231		5.867
.012	-28-	.305	.061		1.549	.116		2.946	.174		4.420	.232		5.893
.013		.330	.062		1.575	.117		2.972	.175		4.445	.233		5.918
			.063		1.600	.118		2.997	.176		4.470	.234		5.944
.014	-27-	.335				.119		2.023	.177		4.496	.235		5.969
.015		.381	.064	-14-	1.626	.120		3.048	.178		4.521	.236		5.994





## *GLOSSARY*



**A**

**Abrasion** – Damage caused by scraping or rubbing against a rough, hard surface.

**Abrasion Resistance** – A measure of the ability of a wire, wire covering or material to resist surface wear or damage by mechanical means.

**A.C.** – Abbreviation for alternating current.

**Admittance** – The measure of ease with which an alternating current flows in a circuit. The reciprocal of impedance.

**Alloy** – A metal formed by combining two or more other metals.

**Alternating Current** – Electrical current that periodically and regularly reverses its direction. The frequency of the change in flow is expressed in cycles per second (Hertz or Hz)

**Ambient Temperature** – The temperature of a medium, such as a gas or liquid, surrounding an object.

**American Wire Gauge (AWG)** – The standard system used for designating wire diameter.

**Ampere** – A standard unit of current. Designated as the amount of current that occurs when one volt of emf is applied across one ohm of resistance. An ampere of current is produced by one coulomb of charge passing a point in one second.

**Ampere's Rule** – Current in a certain direction is equivalent to the motion of positive charges in that direction. The magnetic flux generated by a current in the counter-clockwise direction when it is approaching the observer.

**Analog** – Representation of data by continuously variable quantities.

**Anneal** – To heat and then gradually cool in order to relieve mechanical stresses. Annealing copper makes it softer and less brittle.

**Annealed Wire** – Wire which has been softened by heating. Sometimes referred to as soft drawn wire.

**Arc Resistance** – Time required for an arc to establish a conductive path in a material. Breakdown between two electrodes usually occurs as a conducting path is burned on the surface of the dielectric material.

**ASTM** – Abbreviation for American Society for Testing and Materials.

**Attenuation** – Power loss in an electrical system. Applied to coaxial cables, the power drop or signal loss in a circuit, expressed in decibels, db. It is also the decrease in amplitude of a wave with distance in the direction of wave propagation when the time or the decrease in amplitude with time at a given place. Attenuation is generally expressed in db per unit, usually 1000 ft., and is indicative of the power loss.

**AWG** – Abbreviation for American Wire Gauge.

**B**

**Bandwidth** – The difference between the upper and lower limits of a given band of frequencies. Expressed in Hertz.

**Bare Conductor** – A conductor not covered in an insulating material.

**Bare Copper (B.C.)** – A copper conductor that is not plated.

**Baud** – Unit of data transmission speed meaning bits per second. 500 baud = 500 bits per second.

**Braid** – Woven material, usually metallic, used as shielding for wires and cables and as a ground.

**Breakdown Voltage** – The voltage at which the insulation between two conductors will break down.

**Bunch Strand** – Conductors twisted together with the same lay and direction without regard to geometric pattern.

**C**

**Cable Filler** – The material used in multi-conductor cables to occupy the interstices formed by the assembly of the insulated conductors, thus forming a cable of the desired shape.

**Capacitance** – The ability of a dielectric material between conductors to store electricity, when a difference of potential exists between the conductors. The unit of measurement is the farad which is the capacitance value which will permit one ampere of current, when the voltage across the capacitor changes at a rate of one volt per second.

**Capacitive Coupling** – Electrical interaction between two conductors caused by the capacitance between them.

**Carrier** – The basic woven element of a braid consisting of one or more ends (strands) which creates the interlaced effect.

**Circuit** – A complete path over which electrons flow from the negative terminals of a voltage source through parts and wires to the positive terminals of the same voltage.

**Circular Mil** – A unit of area equal to the area of a circle whose diameter is 1 mil (0.001 inch); equal to square mil X 0.78540. Used chiefly in specifying cross-sectional areas of round conductors.

**Coaxial Cable** – A cable consisting of two cylindrical conductors with a common axis. The two conductors are separated by a dielectric. The outer conductor, normally at ground potential, acts as a return path for current flowing through the center conductor and prevents energy radiation from the cable. The outer conductor, or shield is also commonly used to prevent external radiation from affecting the current flowing in the inner conductor. The outer shield or conductor consists of woven, or spiraled strands, or a metal foil sheath.

**Concentric Stranding** – A group of un-insulated wires twisted together and containing a center core with subsequent layers spirally wrapped around the core to form a single conductor.

**Conductance** – The reciprocal of resistance. It is the ratio of current passing through a material to the potential difference at its ends.



**Conductivity** – The ability of a material to allow electrons to flow, measured by the current per unit of voltage applied.

**Conductor** – A material suitable for carrying an electric current.

**Contrahelical** – The direction of a layer with respect to the previous layer spiraling in an opposite direction than the preceding layer within a wire or cable.

**Core** – In cables, a term used to express a component or assembly of components over which other materials are applied, such as additional components, shield or jacket.

**Corona** – A luminous discharge due to ionization of the gas surrounding a conductor around which exists a voltage gradient exceeding a certain critical value.

**Coulomb** – Unit quantity of electricity; i.e., the quantity transferred by one (1) ampere in one second.

**Cross-Sectional Area of a Conductor** – The sum of cross-sectional areas of its component wires, that of each wire being measured perpendicular to its individual axis.

**Crosstalk** – A type of interference caused by audio frequencies from one line being coupled into adjacent lines. The term is loosely used also to include coupling at higher frequencies.

**Current** – The rate of transfer of electricity. Practical unit is the ampere which represents the transfer of one coulomb per second.

**Current Carrying Capacity** – The maximum current a conductor can carry without heating beyond a safe limit.

**Cycle** – The complete sequence including reversal of the flow of an alternating current.

## D

**Db.** – Abbreviation for decibel

**Db. Loss** – The loss of a signal in a conductor expressed in decibels.

**D.C.** – Abbreviation for direct current

**Decibel** – Unit expressing differences of power level. Used to express power gain in amplifiers or power loss in passive circuits or cables.

**Denier** – A term that describes the weight of a yarn (not cotton or spun rayon) which in turn determines its physical size.

**Dielectric** – 1) Any insulating medium which intervenes between two conductors and permits electrostatic attraction and repulsion to take place across it. 2) A material having the property that energy required to establish an electric field is recoverable in whole or in part, as electric energy.

**Dielectric Absorption** – The property of an imperfect dielectric whereby there is an accumulation of electric charges within the body of the material when it is placed in an electric field.

**Dielectric Constant** – Also called permittivity. That property of a dielectric which determines the amount of electrostatic energy that can be stored by the material when a given voltage is applied to it. Actually, the ratio of the capacitance of a capacitor using the dielectric to the capacitance of an identical capacitor using a vacuum as a dielectric.



**Dielectric Loss** – The time rate at which electric energy is transformed into heat in a dielectric when it is subjected to a changing electric field.

**Dielectric Strength** – The voltage which an insulating material can withstand before breakdown occurs, usually expressed as a voltage gradient (such as volts per mil).

**Direct Current** – An electric current which flows in only one direction.

**Dissipation Factor** – The tangent of the loss angle of the insulating material. The ration of the power loss to the circulating KVA.

**Drain Wire** – In a cable an un-insulated wire laid over the component or components and used as a ground connection.

**Drawing** – In the manufacture of wire, pulling the metal through a die or series of dies for reduction of diameter to a specified size.

**Durometer** – A measurement used to denote the hardness of a substance.

## E

**Eccentricity** – A measure of the center of a conductor's location with respect to the circular cross section of the insulation. Expressed as a percentage of center displacement of one circle within the other.

**Electrostatic** – Pertaining to static electricity, or electricity at rest. An electric charge, for example.

**ETFE** – A fluoropolymer insulating compound (Tefzel®)

**Elongation** – The fractional increase in length of a material stressed in tension.

**ETP Copper** – Electrolytic tough pitch copper 99.95% pure.

**Extrusion** – Method of forcing plastic, rubber, or elastomer material through an orifice in more-or-less continuous fashion to apply insulation or jacketing to a conductor or cable.

## F

**Farad** – Unit of capacitance. The capacitance of a capacitor which, when charged with one coulomb, gives a difference of potential one volt.

**Fatigue Resistance** – Resistance to metal crystallization which leads to conductors or wires breaking from flexing.

**F.E.P.** – Abbreviation for fluorinated ethylene propylene.

**Filler** – Materials used in multi-conductor cables to occupy the interstices formed by the assembled conductors. Also, a substance, often inert, added to a plastic to improve properties and/or decrease cost.

**Flat Braid** – A woven braid which is rolled flat at the time of manufacture to a specific width depending upon construction.

**Flex Life** – The ability of a cable to bend many times before breaking.

**Frequency** – The number of times an alternating current repeats its cycle in one second.



**G**

**Gauge** – A term used to denote the physical size of a wire. Sometimes spelled gage.

**Ground** – An electrical term meaning to connect to the earth or other large conducting body to serve as an earth thus making a complete electrical circuit.

**Ground Wire** – A conductor leading from radio equipment to an electrical connection with the ground.

**H**

**Hard Drawn Wire** – Wire that has not been annealed after drawing.

**Helical** – Spiral

**Helix** – Spiral winding.

**Henry** – Unit of inductance when the induced electromotive force of one volt is produced by the inducing current changing at the rate of one ampere per second.

**Hertz (Hz)** – the unit of frequency, one cycle per second.

**Hi-Pot Test** – A test designed to determine the highest potential that can be applied to a conductor without breaking through the insulation.

**High Voltage** – Generally considered to be a wire or cable with an operating voltage of over 600 volts.

**Hytre®** – Polyester insulating compound.

**I**

**Impedance** – The total opposition a circuit, cable, or component offers to alternating current. It includes both resistance and reactance and is generally expressed in ohms.

**Impedance, Characteristic** – In a transmission cable of infinite length, the ratio of the applied voltage to the resultant current at the point the voltage is applied. Or, the impedance which makes a transmission cable seem infinitely long, when connected across the cable's output terminals. For a wavelength, it is the ratio of rms voltage to total rms longitudinal current at certain points in a diameter, when the wavelength is match-terminated.

**Impedance Match** – A condition whereby the impedance of a particular circuit cable or component is the same as the impedance of the circuit, cable, or device to which it is connected.

**Inductance** – A property of a conductor or circuit which resists a change in current. It causes current changes to lag behind voltage changes and is measured in henrys.

**Insulation** – Material having a high resistance to the flow of electrical current, to prevent leakage of current from a conductor.

**Interstices** – A minute space between one thing and another, especially between things closely set or between the parts of a body.

**J**

**Jacket** – Pertaining to wire and cable, the outer sheath which protects against environment and may also provide additional insulation.

**K**

**Kilowatt** – A unit of power equal to one thousand watts.

**Kilovolt Ampere** – 1000 volts X amperes.

**Kilovolt** – 1000 volts

**L**

**Lay** – Pertaining to wire and cable, the axial distance required for one cabled conductor or conductor strand to complete one revolution about the axis around which it is cabled.

**Lay Direction** – The twist in the cable as indicated by the top strands while looking along the axis of the cable away from the observer. Described as left hand or right hand.

**Lead (pronounced “leed”)** – A connecting wire, such as a test lead, or battery lead, or conductor brought out from a coil or winding.

**Leakage** – The undesirable passage of current over the surface of or through an insulator.

**Litz Wire** – Wire made from a number of fine individually insulated strands specifically cables or braided together to reduce skin effect and hence, lower resistance to high frequency currents for lower RF losses. Derived from the German word “litzendraht”

**Loss** – The portion of energy applied to a system that is dissipated and performs no useful work.

**Low Noise Cable** – Cable configuration specially constructed to eliminate spurious electrical disturbances caused by capacitance changes or self-generated noise induced by either physical abuse or adjacent circuitry.

**M**

**Magnet Wire** – Film insulated wire, commonly found in motors, transformers, and other coils for electromagnetic devices.

**Megahertz** – one million hertz.

**MCM** – Abbreviation for a thousand circular mils.

**Melt Point** – The point at which a material melts.

**Mfd** – Abbreviation for microfarad, one millionth of a farad.

**Mhz** – Abbreviation for Megahertz.

**Micro** – Prefix denoting one-millionth.

**Mil** – A unit of length equal to one thousandth of an inch.

**Milli** – Prefix meaning one-thousandth.

**Multi-Conductor Cable** – A combination of two or more conductors cabled together and insulated from one another.



**N**

**Nanosecond** – one thousandth of one millionth of a second.

**NEC** – Abbreviation for National Electrical Code.

**NEMA** – Abbreviation for National Electrical Manufacturers Association.

**O**

**OD** – Abbreviation for outside diameter.

**Ohm** – the electrical unit of resistance. The value of resistance through which a potential difference of one volt will maintain a current of one ampere.

**P**

**Periodicity** – The uniformly spaced variations in the insulation diameter of a transmission cable that result in reflections of a signal, when its wavelength or multiple thereof equal to the distance between two diameter variations.

**PFA** – Abbreviation for Perfluoroalkoxy.

**Pf** – Abbreviation for picofarad.

**Picks Per Inch** – The number of times the carriers in a braid cross over each other in the same direction along the longitudinal axis for each inch of length.

**Pico** – Prefix meaning one-millionth of one-millionth.

**Picofarad** – One-millionth of one-millionth of a farad. A micro-microfarad.

**Plasticizer** – A chemical added to plastics to make them softer and more flexible.

**Plating** – One method of applying a coating of metal over another metal.

**Polymer** – A substance made of many repeating chemical units or molecules. The term polymer is often used in place of plastic, rubber, or elastomer.

**Propagation Delay** – Time required for a signal to pass from the input to the output of a device.

**PU** – Abbreviation for polyurethane.

**Pulse** – A current or voltage which changes abruptly from one value to another and back to the original value in a finite length of time. Used to describe one particular variation in a series of wave motions.

**PTFE** – Abbreviation for polytetrafluoroethylene.

**PVC** – Abbreviation for polyvinyl chloride.





**R**

**Reactance** – Opposition offered to the flow of alternating current by inductance or capacitance or a component or circuit.

**Resistance** – In D.C. circuits, the opposition a material offers to current, measured in ohms. In A.C. circuits, resistance is the real component of impedance, and may be higher than the value measured at D.C.

**Rope Strand** – A conductor composed of a center group of twisted strands surrounded by layers of twisted strands.

**S**

**Separator** – Pertaining to wire and cable, a layer of insulating material such as textile, paper or PTFE tape, which is placed between a conductor and its dielectric, between a cable jacket and the components it covers, or between various components of a multiple-conductor cable. It can be utilized to improve stripping qualities and/or flexibility, or can offer additional mechanical or electrical protection to the components it separates.

**Shield** – A sheet, screen, spiral or braid or metal, usually copper, aluminum, or other conducting material placed around or between electrical circuits or cables or components, to contain any unwanted radiation, or to keep out any unwanted interference.

**Shield Effectiveness** – the relative ability of a shield to screen out undesired radiation. Frequently confused with the term shield percentage.

**Signal** – A current used to convey information, either digital, analog, audio or video.

**Skin Effect** – The tendency of alternating current, as its frequency increases, to travel only on the surface of a conductor.

**S.R.** – Abbreviation for Silicone Rubber.

**Standing Wave** – The stationary pattern of waves produced by two waves of the same frequency travelling in opposite directions on the same transmission line. The existence of voltage and current maxima and minima along a transmission line is a result of reflected energy from an impedance mismatch.

**Standing Wave Ratio (swr)** – A ratio of the maximum amplitude to the minimum amplitude of a standing wave stated in current or voltage amplitudes.

**Strand** – one of the wires, or groups of wires, of any stranded conductor.

**Surge** – A temporary and relatively large increase in the voltage or current in an electric circuit or cable. Also called transient.

**Sweep-test** – A test given to check attenuation by oscilloscope, as in coaxial cable.



**T**

**Tear Strength** – Force required to initiate or continue a tear in a material under specified conditions.

**Tensile Strength** – The pulling stress required to break a given specimen.

**Temperature Rating** – the maximum temperature at which the insulating material may be used in continuous operation without loss of its basic properties.

**Thermocouple** – A device for measuring temperature where two electrical conductors of dissimilar metals are joined at the point of heat application and a resulting voltage difference, directly proportional to the temperature, is developed across the free ends and is measured potentiometrically.

**Thermoplastic** – A material which will soften, flow, or distort appreciably when subjected to sufficient heat and pressure. Examples are polyvinyl chloride and polyethylene.

**Thermosetting** – A material which will soften, flow or distort appreciably when subjected to heat and pressure. Examples are rubber and neoprene.

**Tinned Wire** – Wire that is coated with a thin layer of tin to simplify soldering.

**Tinsel Wire** – A type of electrical conductor comprised of a number of tiny threads, each thread having a fine, flat, ribbon of copper or other metal closely spiraled about it. Used for small size cables requiring limpness and extra-long flex life.

**Tolerance** – A specified allowance for error from a standard or given dimension, weight, or property.

**Triaxial** – Refers to a three conductor cable with one conductor in the center, a second circular conductor shield concentric with the first, and third circular conductor shield insulated from and concentric with the first and second, usually with insulation, and a braid overall.

**Transfer impedance** -

**Twisted Pair** – A cable composed of two small insulated conductors, twisted together without a common covering. (Note: The two conductors of a twisted pair are usually substantially insulated, so that the combination is a special case of a cord.)

**U**

**U.L.** – Abbreviation for Underwriters Laboratories.

**Unbalanced Line** – A transmission line in which voltages on the two conductors are unequal with respect to ground, e.g. a coaxial cable.

**Unilay** – More than one layer of helically laid wires with the direction of lay and length of lay the same for all layers.

V

**Velocity of Propagation** – The transmission speed of an electrical signal down a length of cable compared to speed in free space. Usually expressed as a percentage.

**Volt** – A unit of electrical pressure. One volt is the amount of pressure that will cause one ampere of current in one ohm of resistance.

**Voltage** – Electrical potential or electromotive force expressed in volts.

**Voltage Rating** – The highest voltage that may be continuously applied to a wire in conformance with standards or specifications.

W

**Watt** – A unit of electrical power. One watt is equivalent to the power represented by one ampere of current under a pressure of one volt in a D.C. circuit.

**Wave Length** – The distance between the nodes of a wave. The ratio of the velocity of the wave to the frequency of the wave.

**Wire gauge** – A system of numerical designations of wire sizes.

Y

**Yield Strength** – The lowest stress at which a material undergoes plastic deformation. Below this stress, the material is elastic, above, viscous.







