PRODUCT CATALOG

alanwire

ABOUT US

Alan Wire Company began in 1974 as a small bare copper manufacturer serving the utility and electrical wholesale markets with copper grounding products. Over the last 40 years, the company has grown to be recognized a reliable source for 600 volt copper building wire products, manufacturing THHN, TFF, TFN, MTW, as well as other application specific copper wires. In 2008, Alan Wire began manufacturing 600 volt tray cable for circuit controls and power cable, offering up to 500MCM – 3C with a ground. As recently as 2016, Alan Wire added single conductor XHHW and THHN in aluminum as well as aluminum UD Cable and service entrance cable.

Alan Wire today operates in roughly five hundred thousand square feet of space between two production facilities, warehouse distribution, and post production packaging. The company is family owned and operated, as it has been since 1974. Responsive customer service and a focus on lasting relationships are two reasons why people continually rely on Alan Wire for their wire and cable needs.

We are proud to be an American manufacturer locating in Sikeston, Missouri and committed to our customers, our surrounding economic area, and most of all, those that rely on Alan Wire as an employer in the Southeast Missouri Region. We look forward to continued growth in the years to come and are excited to continually bring opportunity to our local community.

Please contact us directly or reach out to the appropriate sale representative in your area. We would appreciate the opportunity to earn your business.

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COPPER PRODUCTS

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THHN, MTW, THWN, AWM T90 NYLON, TWN75 (cUL)

Thermoplastic Insulated, Nylon Sheathed Heat, Oil & Gasoline Resistant 600 Volt Copper

DESCRIPTION:

Alan Wire Type THHN or THWN-2 conductors are primarily used in conduit as branch circuits in commercial or industrial applications, as specified by the National Electric Code. Type AWM or MTW conductors are primarily used as appliance or machine tool wiring, as specified by the National Electric Code. Type THHN or THWN-2 are available stranded in sizes 14 awg - 750 kcmiL, and as solid in sizes 14-10 awg. Stranded sizes 14 awg - 750 kcmiL are also rated as AWM or MTW. The conductors are soft-annealed, stranded or solid copper and are insulated with a tough heat and moisture resistant polyvinyl chloride (PVC), over which a nylon (polymide) jacket is applied. Sizes #4 – 750MCM made with friction reducing nylon jacket to aid in the installation process.

STANDARDS AND SPECIFICATIONS:

- 600V Rated
- UL 83, 1063, 758
- Sunlight Resistant
- VW-1 Rated
- Cable Tray Use 1/0 & Larger
- NEMA Publication No. WC70
- Gasoline & Oil Resistant II
- IEEE 1202
- c(UL) On All Sizes
- ARRA 2009 Section 1605 "Buy American" Compliant
- Available in low and high voltage colors

Conductor					Ampacity	
Size (AWG)	Stranding	PVC Insulation	Nylon Jacket	Nom. OD (Mils)	90° THHN/ THWN-2	Approx Net WT./MFT
*14	Solid	15	4	102	15	16
*12	Solid	15	4	119	20	24
*10	Solid	20	4	150	30	37
14	19	15	4	112	15	16
12	19	15	4	131	20	24
10	19	20	4	165	30	37
8	19	30	5	218	55	64
6	19	30	5	256	75	96
4	19	40	6	325	95	155
3	19	40	6	388	130	235
2	19	40	6	388	130	235
1	19	50	7	437	150	300
1/0	19	50	7	477	170	370
2/0	19	50	7	521	195	465
3/0	19	50	7	571	225	570
4/0	19	50	7	627	260	720
250	37	60	8	711	290	850
300	37	60	8	766	320	1011
350	37	60	8	817	350	1172
400	37	60	8	864	380	1333
500	37	60	8	949	430	1653
600	61	70	9	1051	475	1985
750	61	70	9	1126	535	2462

*Not suitable for MTW applications.

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XHHW-2 / RW 90
COPPER CONDUCTOR
Thermoplastic Insulated, Nylon Sheathed
Heat, Oil & Gasoline Resistant 600 Volt Copper

DESCRIPTION:
Type XHHW-2 conductors are primarily used in conduit or other recognized raceways for services, feeders, and branch circuit wiring, as specified in the National Electrical Code (NEC). XHHW-2 conductors may be used in wet or dry locations. XHHW-2 conductors are rated for 600 volts. Sizes 1/0 and larger have UL's VW-1 (Vertical Wire) Flame Test. 1/0 AWG and larger may be used in cable tray in accordance with the National Electrical Code. These cables pass IEEE 1202/CSA (70,000 BTU/hr) cable tray flame test.

STANDARDS AND SPECIFICATIONS:
- 600V Rated
- UL 44
- VW-1 Rated 1/0 & Larger
- Cable Tray Use 1/0 & Larger
- NEMA Publication No. WC70
- Gasoline & Oil Resistant II
- IEEE 1202
- Canadian Standard C22.2 No. 38
- ICEA 595-658
- 90ºC and Wet and Dry Locations
- -40ºC
- RoHS and REACH Compliant
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				Allowable Ampacities*			
Size (AWG)	Stranding	Insulation Thickness XLPE (Inches)	Outside Diameter (Inches)	60ºC	75ºC	90ºC	Approx Net WT./MFT
14	7	0.030	0.133	N/A	N/A	25	17
12	7	0.030	0.152	N/A	N/A	30	26
10	7	0.030	0.176	N/A	N/A	40	39
8	7	0.045	0.236	40	50	55	67
6	7	0.045	0.274	55	65	75	100
4	7	0.045	0.322	70	85	95	150
3	7	0.045	0.350	85	100	110	205
2	7	0.045	0.382	95	115	130	230
1	19	0.055	0.431	110	130	150	291
1/0	19	0.055	0.470	125	150	170	362
2/0	19	0.055	0.514	145	175	195	445
3/0	19	0.055	0.564	165	200	225	564
4/0	19	0.055	0.620	195	230	260	707
250	37	0.065	0.672	215	255	290	836
300	37	0.065	0.724	240	285	320	996
350	37	0.065	0.771	260	310	350	1115
400	37	0.065	0.815	280	335	380	1315
500	37	0.065	0.896	320	380	430	1632
600	61	0.080	1.026	355	420	475	1950
750	61	0.080	1.131	400	475	535	2440

*Allowable ampacity shown above is per National Electrical Code. The above data is approximate and subject to normal manufacturing tolerances.

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TFFN/TEWN & TFN

Thermoplastic Insulated, Nylon Sheathed
Heat, Oil & Gasoline Resistant 600 Volt Copper

DESCRIPTION:
Alan Wire Type TFFN and TFN wires are recommended in most types of commercial and industrial applications where resistance to mechanical abuse is required. TFFN conductors are primarily used as machine tool wiring in conduit as branch or control circuits as specified in the National Electrical Code. Both TFN and TFFN conductors are suitable for use as Appliance Wiring Material as specified by Underwriters Laboratories Standard 758 where exposed to temperatures not exceeding 105ºC or where exposed to oil at a temperature not exceeding 80ºC. TFFN and TFN copper conductors are annealed stranded (TFFN) or solid (TFN) copper. The conductors are insulated with a tough, heat and moisture resistant polyvinyl chloride (PVC), over which a nylon (polymide) jacket is applied.

STANDARDS AND SPECIFICATIONS:

- 600V Rated
- UL 66, 758, 1063
- c(UL) On All Sizes
- Gasoline & Oil Resistant II
- TEWN meets UL 758 with FT1 rating
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor		TFFN			Ampacity	
Size (AWG)	Stranding	PVC Insulation	Nylon Jacket	Nom. OD (Mils)	90°	Approx Net WT./MFT
18	16 Strand	15	4	90	6	8
16	26 Strand	15	4	104	8	11

Conductor		TFN			Ampacity	
Size (AWG)	Stranding	PVC Insulation	Nylon Jacket	Nom. OD (Mils)	90°	Approx Net WT./MFT
18	Solid	15	4	78	6	7.5
16	Solid	15	4	89	8	10.5

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MTW, AWM, TEW

Thermoplastic Insulated, Moisture & Oil Resistant 600 Volt Copper

DESCRIPTION:
Alan Wire Type MTW/AWM/TEW is primarily used as wiring in machine tools, appliances, and in various building applications as specified by the National Electrical Code. MTW/AWM/TEW conductors are stranded, soft-annealed copper. The conductors are then insulated with a tough polyvinyl chloride (PVC), making the wire heat, moisture, and oil-resistant.

STANDARDS AND SPECIFICATIONS:

- VW-1 rated
- TEW is CSA rated & FT1 rated
- 600 Volts
- #18 - #10 Style 1032 for 1,000V rating
- UL 758, 1063
- Style No. 1344 (8 AWG)
- Style NO. 1232 & 1346 (6-2 AWG)
- #18 - #10 class K flexible stranding
- RoHS and REACH Compliant
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				
Size (AWG)	Stranding	Insulation Thickness (Mils)	Nom. OD (Inches)	Approx Net WT./MFT
18	16	.030	0.113	11
16	26	.030	0.125	14
14	41	.030	0.139	20
12	65	.030	0.158	28
10	105	.030	0.182	43
8	19	.045	0.246	74
6	19	.060	0.315	114
4	19	.060	0.365	167
2	19	.060	0.430	252

Wire Type	Dry	Oil	Wet
MTW	90ºC	60ºC	60ºC
AWM	105ºC	60ºC	75ºC
TEW	105ºC	60ºC	

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TYPE TC-ER CONTROL CABLE M-1/E-2

DESCRIPTION:
Alan Wire Type TC-ER Control Cable is intended for use in accordance with Article 336 of ANSI/NFPA 70 National Electrical Code. It is suitable for use in wire ways, trays, channels, conduit and ducts. It is UL Listed for direct burial in wet or dry locations, sunlight resistant and available as Exposed run (ER) for use between cable trays and utilization equipment in accordance with NEC 336.10 (7).

STANDARDS AND SPECIFICATIONS:

- 18 AWG thru 10 AWG soft annealed, bare copper per ASTM B3 & ASTM-B787
- UL 83
- Flame retardant insulation
- PVC Rated for use at 90º C dry
- PVC Rated for use at 75º C wet
- Gasoline & Oil Resistant II
- Color coded per method ICEA Method M-1
- E-2 insulated conductors are twisted together
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor					
Size (AWG)	Number of Conductors	Individual Conductor Stranding	Jacket Thickness PVC (Inches)	Nominal O.D. (Inches)	Approx Net WT./MFT
18	2 Flat*	16	0.045	.189 x .287	35
18	3	16	0.045	0.29	47
18	4	16	0.045	0.31	56
18	5	16	0.045	0.34	66
18	7	16	0.045	0.36	84
16	2 Flat*	16	0.045	.205 x .311	43
16	3	26	0.045	0.32	61
16	4	26	0.045	0.34	74
16	5	26	0.045	0.37	98
16	7	26	0.045	0.41	109
14	2 Flat*	19	0.045	.211 x .320	55
14	3	19	0.045	0.33	72
14	4	19	0.045	0.36	94
14	5	19	0.045	0.40	116
14	7	19	0.045	0.43	147
12	2 Flat*	19	0.045	.225 x .360	74
12	3	19	0.045	0.37	102
12	3 BWG**	19	0.045	0.37	102
12	4	19	0.045	0.41	131
12	5	19	0.045	0.44	162
12	7	19	0.045	0.49	231
10	2 Flat*	19	0.045	.261 x .425	109
10	3	19	0.045	0.45	154
10	3 BWG**	19	0.045	0.45	154
10	4	19	0.060	0.49	197
10	5	19	0.060	0.57	260
10	7	19	0.045	0.66	362
12	3 w/ground	19	0.045	0.39	131
10	3 w/ground	19	0.045	0.45	191

*ER rating only applies to 3 or more insulated conductors. Not applicable to conductor items.
**Conductors are Black, White, and Green.

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TYPE TC-ER POWER CABLE M-4

DESCRIPTION:
Alan Wire Type TC-ER Control Cable is intended for use in accordance with Article 336 of ANSI/NFPA 70 National Electrical Code. It is suitable for use in wire ways, trays, channels, conduit and ducts. It is UL Listed for direct burial in wet or dry locations, sunlight resistant and available as Exposed run (ER) for use between cable trays and utilization equipment in accordance with NEC 336.10 (7).

STANDARDS AND SPECIFICATIONS:

- 8 AWG thru 500MCM soft annealed, bare copper per ASTM B3 & ASTM-B787
- UL 83
- Flame retardant insulation
- PVC Rated for use at 90º C dry
- PVC Rated for use at 75º C wet
- Gasoline & Oil Resistant II
- Color coded per method ICEA Method M4 with printed numbers
- Finished cable meets specification UL 1277
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor					
Size (AWG)	Number of Conductors	Grnd Size	Nominal Jacket Thickness (Inches)	Nominal O.D. (Inches)	Approx Net WT./MFT
8	3	10	0.060	0.57	288
8	4	10	0.060	0.66	385
6	3	8	0.060	0.61	415
6	4	8	0.060	0.67	549
4	3	8	0.080	0.78	650
4	4	8	0.080	0.95	806
2	3	6	0.080	0.91	957
2	4	6	0.080	1.05	1195
1	3	6	0.080	1.21	1395
1/0	3	6	0.080	1.28	1447
2/0	3	6	0.080	1.35	1737
3/0	3	4	0.080	1.41	2200
4/0	3	4	0.080	1.58	2595
250	3	4	0.110	1.75	3039
350	3	3	0.110	2.15	3698
500	3	2	0.110	2.23	5678

BARE COPPER SOLID

DESCRIPTION:
Bare Copper conductors are primarily used for grounding purposes as specified in the National Electrical Code. Alan Wire Bare Copper conductors are normally annealed (soft) copper, solid or stranded. Medium-hard drawn tempers are also available in solid and stranded. Sizes 14 thru 2 are available in solid. Sizes 8 thru 2 are available in 7 strand. Sizes 1 thru 4/0 are available in 7 strand and 19 strand. 250 MCM, 350 MCM, and 500 MCM are available in 37 strand only. 600 MCM and 750 MCM are available in 61 strand only.

STANDARDS AND SPECIFICATIONS:

- B-1 (Hard Drawn)
- B-2 (Medium Hard Drawn)
- B-3 (Soft or Annealed)
- REA/RUS Approved
- RoHS Compliant
- ARRA 2009 Section 1605 "Buy American" Compliant

Size (AWG)	Stranding	Bare WT./MFT	Footage Per 25lb Spool	Spools Per Box
14	Solid	12.4	2000	2
12	Solid	19.8	1250	2
10	Solid	31.5	800	2
8	Solid	50.0	500	4
6	Solid	79.5	315	4
4	Solid	126.3	200	4
2	Solid	200.9	125	2

BARE COPPER STRANDED

DESCRIPTION:
Bare Copper conductors are primarily used for grounding purposes as specified in the National Electrical Code. Alan Wire Bare Copper conductors are normally annealed (soft) copper, solid or stranded. Medium-hard drawn tempers are also available in solid and stranded. Sizes 14 thru 2 are available in solid. Sizes 8 thru 2 are available in 7 strand. Sizes 1 thru 4/0 are available in 7 strand and 19 strand. 250 MCM, 350 MCM, and 500 MCM are available in 37 strand only. 600 MCM and 750 MCM are available in 61 strand only.

STANDARDS AND SPECIFICATIONS:

- B-1 (Hard Drawn)
- B-2 (Medium Hard Drawn)
- B-3 (Soft or Annealed)
- REA/RUS Approved
- RoHS Compliant
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				
Size (AWG)	Stranding	Bare WT./MFT	Footage Per 25lb Spool	Spools Per Box
8	7 Strand	51.0	500	2
6	7 Strand	81.0	315	4
4	7 Strand	128.9	200	4
3	7 Strand	162.5	150	2
2	7 Strand	204.9	125	2
1	7 Strand	258.4	Available in Standard and Non Standard Lengths	
1/0	7 Strand	325.8		
2/0	7 Strand	410.9		
3/0	7 Strand	518.1		
4/0	7 Strand	653.3		
1	19 Strand	258.4		
1/0	19 Strand	325.8		
2/0	19 Strand	410.9		
3/0	19 Strand	518.1		
4/0	19 Strand	653.3		
250 MCM	37 Strand	772		
350 MCM	37 Strand	1080		
500 MCM	37 Strand	1544		
600 MCM	61 Strand	1835		
750 MCM	61 Strand	2316		

BARE COPPER TINNED

DESCRIPTION:
Solid soft tinned copper wires are used primarily in applications involving current flow, corrosion resistance, or the need to solder the wire to some component. The addition of a tin coating facilitates the soldering process with only a small price differential over bare copper. A tin coating is also desirable in applications where operating temperatures exceed 100ºC up to 150ºC. At such temperatures the corrosion resistance of bare copper declines and the tin coating acts to protect the surface of the bare copper. The standard minimum thickness of tin coating is 40 micro-inches.

STANDARDS AND SPECIFICATIONS:

- ASTM B33-81
- Bare conductor prior to coating meets ASTM B-1-81, B2-82, or B3-74
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor			Overall Diameter Inches				
Size (AWG)	Stranding	Individual Strand Size	Nominal	Minimum	Maximum	Max Resistance OHM/MFT 68ºF	Bare WT./MFT
2	Solid	0.2576	0.2576	0.2550	0.2653	0.1641	200.9
2/0	19	0.0837	0.4180	0.4138	0.4305	0.043	410.9
4/0	19	0.1147	0.5280	0.5227	0.5438	0.0524	653.3

USE-2, RHH, RHW-2 COPPER CONDUCTOR

DESCRIPTION:
Type USE-2 or RHH or RHW-2 copper conductors are suitable for use in conduit and raceways installed underground in conduit, in wet locations, and where condensation and moisture accumulations within the conduit do not exceed 90ºC. When used as RHH or RHW-2, conductor temperatures shall not exceed 90ºC in wet or dry locations. Voltage rating for USE-2 or RHH or RHW-2 conductors is 600 volts. Rated for 1,000 volts in RW90 applications per c(UL).

STANDARDS AND SPECIFICATIONS:

- 600V Rated
- UL 854, 44
- Cable Tray Use 1/0 & Larger
- NEMA Publication No. WC70
- Gasoline & Oil Resistant II
- Sunlight Resistant
- 90ºC and Wet and Dry Locations
- -40ºC
- RoHS and REACH Compliant
- Federal Specification A-A-59544 Insulated Cable Engineers Association ICEA S-66-524
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				Allowable Ampacities*			
Size (AWG)	Stranding	Insulation Thickness XLPE (Inches)	Outside Diameter (Inches)	60ºC	75ºC	90ºC	Approx Net WT./MFT
14	7	0.045	0.163	N/A	N/A	25	20
12	7	0.045	0.182	N/A	N/A	30	29
10	7	0.045	0.206	N/A	N/A	40	42
8	7	0.060	0.266	40	50	55	72
6	7	0.060	0.304	55	65	75	106
4	7	0.060	0.352	70	85	95	157
3	7	0.060	0.380	85	100	110	201
2	7	0.060	0.412	95	115	130	237
1	19	0.080	0.481	110	130	150	309
1/0	19	0.080	0.520	125	150	170	382
2/0	19	0.080	0.564	145	175	195	471
3/0	19	0.080	0.614	165	200	225	587
4/0	19	0.080	0.670	195	230	260	729
250	37	0.095	0.732	215	255	290	861
300	37	0.095	0.784	240	285	320	1029
350	37	0.095	0.831	260	310	350	1193
400	37	0.095	0.875	280	335	380	1354
500	37	0.095	0.956	320	380	430	1676
600	61	0.110	1.086	355	420	475	2012
750	61	0.110	1.335	455	545	615	2490

*Allowable ampacity shown above is per National Electrical Code. The above data is approximate and subject to normal manufacturing tolerances.

XLP COVERED LINE WIRE

Weatherproof

DESCRIPTION:
For use in overhead distribution systems where protection from environmental elements is required. Copper conductor covered with cross-linked polythylene insulation (XLP).

STANDARDS AND SPECIFICATIONS:

- ASTM B-1 (Hard Drawn)
- ASTM B-2 (Medium Hard Drawn)
- ASTM B-3 (Soft or Annealed)
- ASTM B-8 (Concentric Stranded Copper)
- RoHS Compliant
- Weatherproof
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor			Weight		Allowable Ampacity
Size (AWG)	Stranding	Insulation Thickness (Mils)	Copper Weight Per MFT	Approx Net WT./MFT	Ampacity
8	Solid	30	50	59	103
6	Solid	30	79	90	130
4	Solid	30	126	140	163
2	Solid	45	200	227	219
6	7	30	81	92	130
4	7	30	128	142	163
2	7	45	204	231	219
1/0	7	60	325	370	297
2/0	7	60	410	460	344
4/0	7	60	653	720	466
250	37	60	771	838	519
350	37	60	1081	1159	645
500	37	75	1544	1651	812

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TRANSFORMER RISER WIRE

Covered Copper Overhead Conductors

DESCRIPTION:
Used as non-insulated transformer risers intended to reduce faults due to atmospheric conditions, vibrations, and crossed leads. Soft drawn copper conductors, solid and stranded, covered with Polythylene.

STANDARDS AND SPECIFICATIONS:

- ASTM B-3
- ASTM B-8
- ANSI C-8.35
- ICEA S-61-402/NEMA WC-5
- Suitable for Direct Burial
- Sunlight Resistant
- Chemical, Oil & Moisture Resistant
- Crush & Abrasion Resistant
- RoHS Compliant
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor			Diameter (Inches)		
Size (AWG)	Stranding	Covering Thickness (Mils)	Bare Conductor	Covered	Approx Net WT./MFT
6	Solid	110	0.162	0.382	117
6	7 Strand	110	0.0184	0.404	122
4	Solid	110	0.204	0.424	170
4	7 Strand	110	0.232	0.452	177
2	Solid	110	0.258	0.478	252
2	7 Strand	110	0.292	0.512	261

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TRACER WIRE

Covered Copper Conductors

DESCRIPTION:
Suitable for direct burial to facilitate the detection and tracing of underground utility systems. Tracer Wire is a solid copper conductor insulated with a linear low density polythylene (LLDPE), classified as high molecular weight polythylene (HMPE). Insulation provides excellent abrasion, crush, chemical, oil and moisture resistance. A single conductor tracer wire is intended to carry a radio signal to aid in the location of buried utility lines. The wire may be identified by surface printing, indicating manufacturer, conductor size. Custom Legends available. UL listed.

STANDARDS AND SPECIFICATIONS:

- Solid copper per ASTM B-3
- Insulation yellow & blue (other colors subject to minimum run)
- High Molecular Weight Polythylene (HMPWE)
- Insulation meets ASTM D-1248, Type I, Category 4, Grade E4 & E5
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor		Nominals (Inches)		Standard Lengths	Product Weight
Size (AWG)	Stranding	Insulation	O.D.	Put-Up	(Lbs./MFT)
14	Solid	0.030	0.124	2500 ft.	17.4
14	Solid	0.045	0.154	2500 ft.	20.0
12	Solid	0.030	0.141	2500 ft.	24.5
12	Solid	0.045	0.171	2500 ft.	30.0
10	Solid	0.030	0.162	2500 ft.	39.3
10	Solid	0.045	0.192	2500 ft.	43.0

CATHODIC PROTECTION CABLE

Soft Drawn Copper Conductor

DESCRIPTION:
Designed for use in Cathodic systems to protect against galvanic and electrolytic corrosion of underground or submerged metallic objects. Applications may also include pipelines, storage tanks, and other buried or water-submerged metallic structures. Soft drawn bare copper strand. High-molecular weight, black polythylene (HMWPE) covering. Colors available upon request. Minimum runs may apply.

STANDARDS AND SPECIFICATIONS:

- ICEA S-61-402/NEMA WC-5
- Suitable for Direct Burial
- Chemical, Oil, & Moisture Resistant
- Crush & Abrasion Resistant
- RoHS Compliant
- Sunlight Resistant
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				
Size (AWG)	Stranding	Insulation Thickness (Mils)	Nominal O.D. (Inches)	Approx Net WT./MFT
12	7/.305"	110	0.309	48
10	7/.0385"	110	0.316	60
8	7/.0486"	110	0.368	113
6	7/.0612"	110	0.404	122
4	7/.0772"	110	0.452	177
2	7/.0974"	110	0.512	261
1	19/.0664"	125	0.584	344
1/0	19/.0745"	125	0.623	413
2/0	19/.0837"	125	0.669	508
4/0	19/.1055"	125	0.773	772

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ALUMINUM PRODUCTS

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ALUMINUM THHN, THWN, T90 NYLON, TWN75 (cUL)

Thermoplastic Insulated, Nylon Sheathed 600 Volt Aluminum

DESCRIPTION:

Alan Wire type THHN/THWN-2 is suitable for general wiring applications as defined by the NEC (National Electrical Code) for 600V applications. THHN/THWN-2 is available in sizes ranging from #6 to 1000MCM. The conductors are made with 8000 series aluminum alloy and insulated with tough, heat and moisture resistant PVC (polyvinyl chloride), over which a nylon (polymide) jacket is applied. All sizes are made with a friction reducing compound to aid in the installation process.

STANDARDS AND SPECIFICATIONS:

- 600V Rated
- UL 83, 1063, 758
- Sunlight Resistant
- VW-1 Rated
- Cable Tray Use 1/0 & Larger
- NEMA Publication No. WC70
- Gasoline & Oil Resistant II
- IEEE 1202
- c(UL) On All Sizes
- ARRA 2009 Section 1605 "Buy American" Compliant
- Available in low and high voltage colors

Conductor					Ampacity	
Size (AWG)	Stranding	PVC Insulation	Nylon Jacket	Nom. OD (Mils)	90° THHN/ THWN-2	Approx Net WT./MFT
6	7	30	5	240	55	37
4	7	40	6	307	75	60
2	7	40	6	361	100	89
1	19	50	7	415	115	116
1/0	19	50	7	452	135	140
2/0	19	50	7	491	150	170
3/0	19	50	7	538	175	207
4/0	19	50	7	590	205	255
250	36	60	8	658	230	308
300	36	60	8	707	260	361
350	36	60	8	754	280	413
400	36	60	8	797	305	465
500	36	60	8	873	350	570
600	58	70	9	973	385	693
700	58	70	9	1038	425	797
750	58	70	9	1068	435	847
900	58	70	9	1161	480	1002
1000	58	70	9	1223	500	1114

XHHW-2
ALUMINUM - 600V

DESCRIPTION:
Alan Wire type XHHW-2 conductors are primarily used in conduit or other recognized raceways for services and feeders as specified by the NEC (National Electrical Code). XHHW-2 is available in sizes ranging from #6 to 1000MCM. The conductors are made with 8000 series aluminum alloy and cross-linked polyethylene insulation is applied. All sizes are made with a friction reducing compound to aid in the installation process.

STANDARDS & SPECIFICATIONS:
- 600V Rated
- Wet/Dry Locations (90°C)
- Underwriter's Laboratories UL 44
- Sunlight Resistant
- Cable Tray use 1/0 & Larger
- NEMA Publication No. WC-70
- Canadian Standard C22.2 No. 38
- Gasoline & Oil Resistant II
- ICEA S-95-658
- IEEE 1202
- ARRA 2009 Section 1605 "Buy American" Compliant
- Available in low and high voltage colors

Conductor				Ampacity	
(AWG or MCM)	Stranding	Insulation Thickness (mls)	Outside Diameter (in)	(AMPS)* 90° C	Approx Net WT./MFT
6	7	45	0.26	60	39
4	7	45	0.305	75	57
2	7	45	0.36	100	85
1	19	55	0.415	115	109
1/0	19	55	0.45	135	132
2/0	19	55	0.49	150	161
3/0	19	55	0.54	175	199
4/0	19	55	0.59	205	244
250	36	65	0.655	230	293
300	36	65	0.705	255	345
350	36	65	0.75	280	397
400	36	65	0.795	305	449
500	36	65	0.87	350	551
600	58	80	0.98	385	674
700	58	80	1.04	420	774
750	58	80	1.075	435	824
900	58	80	1.161	480	980
1000	58	80	1.23	500	1078

SERVICE ENTRANCE STYLE R (SER)

600V - 8000 SERIES ALUMINUM ALLOY

DESCRIPTION:

Compact stranded 8000 series aluminum alloy conductors. XHHW-2 insulation on individual conductors. Three conductors with a ground: two insulated conductors with an insulated neutral and bare ground. Gray PVC jacket is extruded over the assembly.

STANDARDS & SPECIFICATIONS:

- UL 44 for Type XHHW-2 Conductors
- UL 854
- Federal Specification JC-30B NEC
- 8000 Series AL Alloy
- Flame Retardant Jacket
- Sunlight Resistant Jacket

Service Entrance -Style R (SER) - Three Conductors with Ground						
Construction	Phase Conductor Stranding	Ground Conductor Stranding	Nom. Cable OD (in.)	Amp. (90˚C)	Amp. (Dwelling)	LBS/MFT
6/3c w/g	7	7	.697	60	-	185
4/3c w/g	7	7	.791	75	-	246
2/3c w/g	7	7	.918	100	100	351
1/3c w/g	19	7	1.039	115	110	443
1/0-3c w/g	19	7	1.143	135	125	530
2/0-3c w/g	19	19	1.247	150	150	642
3/0-3c w/g	19	19	1.338	175	175	780
4/0-3c w/g	19	19	1.472	205	200	952

**Ampacity chart per NEC.

SERVICE ENTRANCE STYLE U (SEU)

600V - 8000 SERIES ALUMINUM ALLOY

DESCRIPTION:

For use as to deliver electrical service from the service head to the house meter. Compact stranded 8000 series aluminum alloy conductors. XHHW-2 insulated conductors laid in parallel. Bare conductor strands are helically wound around the two parallel conductors. Glass reinforced tape is applied over the assembly. Gray PVC jacket is extruded over the entire assembly.

STANDARDS & SPECIFICATIONS:

- UL 44 for Type XHHW-2 Conductors
- UL 854
- Federal Specification JC-30B NEC
- 8000 Series AL Alloy
- Flame Retardant Jacket
- Sunlight Resistant Jacket

Service Entrance -Style U (SEU)						
Construction	Phase Conductor Stranding	Ground Conductor Stranding	Nom. Cable OD (in.)	Amp. (90˚C)	Amp. (Dwelling)	LBS/MFT
6/2c-6g	7	11	.458 x .720	60	-	143
4/2c-4g	7	16	.505 x .811	75	-	198
4/2c-6g	7	11	.502 x .808	75	-	184
2/2c-2g	7	15	.559 x .919	100	100	282
2/2c-4g	7	16	.559 x .919	100	100	259
1/0-2c-1/0g	19	18	.661 x 1.095	135	125	438
1/0-2c-2g	19	14	.647 x 1.095	135	125	387
2/0-2c-2/0g	19	18	.719 x 1.208	150	150	516
2/0-2c-1g	19	14	.702 x 1.190	150	150	467
4/0-2c-4/0g	19	30	.857 x 1.445	205	200	770
4/0-2c-2/0g	19	18	.818 x 1.406	205	200	692

**Ampacity chart per NEC.

UD CABLE

DUPLEX - SECONDARY ALUMINUM - 600V

DESCRIPTION:
Product may be buried directly in the ground or installed in ducts for 600 volt secondary applications.
Product is comprised of concentric stranded or compressed 1350-H19 aluminum conductor with XLP insulation.
Neutral conductors to be identified with a yellow stripe.

STANDARDS & SPECIFICATIONS:

- ASTM B-230
- ATSM B-231
- ICEA S-105692
- UL 854 for type USE-2
- Direct Burial Rated
- Sunlight Resistant
- Federal Specification JC-308 NEC
- 600V Rated

600V Secondary AL UD Cable -Duplex									
Part #	Phase Conductor AWG	Phase Conductor Stranding	Phase Conductor Insul. Thick. Mils	Neutral AWG	Neutral Stranding	Neutral Insul. Thick. Mils	Cable OD Single Phase Inches	Cable OD Complete Cable Inches	Lbs./M'
Bard*	8	7	60	8	7	60	0.25	.50	62.2
Clafflin	6	7	60	6	7	60	0.31	.61	92.8
Delgado	4	7	60	4	7	60	0.35	.70	131.7
Everett*	2	7	60	2	7	60	0.41	.82	191.2
NOTE: *Items may require minimum run quantities.									

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UD CABLE

TRIPLEX - SECONDARY ALUMINUM - 600V

DESCRIPTION:
Product may be buried directly in the ground or installed in ducts for 600 volt secondary applications.
Product is comprised of concentric stranded or compressed 1350-H19 aluminum conductor with XLP insulation.
Neutral conductors to be identified with a yellow stripe.

STANDARDS & SPECIFICATIONS:

- ASTM B-230
- ATSM B-231
- ICEA S-105692
- UL 854 for type USE-2
- Direct Burial Rated
- Sunlight Resistant
- Federal Specification JC-308 NEC
- 600V Rated

600V Secondary AL UD Cable - Triplex									
Part #	Phase Conductor AWG	Phase Conductor Stranding	Phase Conductor Insul. Thick. Mils	Neutral AWG	Neutral Stranding	Neutral Insul. Thick. Mils	Cable OD Single Phase Inches	Cable OD Complete Cable Inches	Lbs./M'
Erksine	6	7	60	6	7	60	0.31	.66	133
Vasssar	4	7	60	4	7	60	0.35	.76	188
Ramapo	2	7	60	2	7	60	0.41	.88	272
Stephens	2	7	60	4	7	60	0.41	.88	243
Brenau	1/0	19	80	2	7	60	0.53	1.10	385
Bergen	1/0	19	80	1/0	19	80	0.53	1.14	460
Hunter*	2/0	19	80	2/0	19	80	0.57	1.24	558
Converse	2/0	19	80	1	19	80	0.62	1.19	480
Rockland*	3/0	19	80	3/0	19	80	0.62	1.34	677
Hollins*	3/0	19	80	1/0	19	80	0.62	1.34	605
Sweetbriar	4/0	19	80	2/0	19	80	0.68	1.41	706
Monmouth	4/0	19	80	4/0	19	80	0.68	1.47	828
Pratt	250	37	95	3/0	37	80	0.76	1.63	862
Wesleyan	350	37	95	4/0	37	80	0.86	1.79	1123
Rider	500	37	95	350	37	95	0.99	2.05	1607
Fairfield*	750	61	110	500	61	95	1.20	2.58	2379

NOTE: *Items may require minimum run quantities.

UD CABLE

QUADRUPLEX - SECONDARY ALUMINUM - 600V

DESCRIPTION:
Product may be buried directly in the ground or installed in ducts for 600 volt secondary applications.
Product is comprised of concentric stranded or compressed 1350-H19 aluminum conductor with XLP insulation.
Neutral conductors to be identified with a yellow stripe.

STANDARDS & SPECIFICATIONS:

- ASTM B-230
- ATSM B-231
- ICEA S-105692
- UL 854 for type USE-2
- Direct Burial Rated
- Sunlight Resistant
- Federal Specification JC-308 NEC
- 600V Rated

600V Secondary AL UD Cable -Quadruplex

Part #	Phase Conductor AWG	Phase Conductor Stranding	Phase Conductor Insul. Thick. Mils	Neutral AWG	Neutral Stranding	Neutral Insul. Thick. Mils	Cable OD Single Phase Inches	Cable OD Complete Cable Inches	Lbs./M'
Tulsa	4	7	60	4	7	60	0.35	.85	249
Wittenberg*	2	7	60	2	7	60	0.41	.99	382
Dyke	2	7	60	4	7	60	0.41	.93	334
Notre Dame	1/0	19	80	2	7	60	0.53	1.28	534
Purdue*	1/0	19	80	1/0	19	80	0.53	1.28	614
Syracuse	2/0	19	80	1	19	80	0.57	1.31	657
Wake Forest	4/0	19	80	2/0	19	80	0.68	1.55	974
Rust	250	37	95	3/0	19	80	0.76	1.73	1183
Slippery Rock	350	37	95	4/0	19	80	0.86	2.08	1544
Wofford*	500	37	95	350	37	95	0.99	2.39	2251

NOTE: *Items may require minimum run quantities.

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UD CABLE

TRIPLEX - 8000 SERIES - SECONDARY ALUMINUM - 600V

DESCRIPTION:
Product may be buried directly in the ground or installed in ducts for 600 volt secondary applications.
Product is comprised of concentric stranded or compressed 8000 series aluminum alloy conductor with XLP insulation.
Neutral conductors to be identified with a white stripe.

STANDARDS & SPECIFICATIONS:

- ASTM B-230
- ATSM B-231
- ICEA S-105692
- UL 854 for type USE-2
- Federal Specification JC-308 NEC
- Direct Burial Rated
- Sunlight Resistant
- 8000 Series AL Alloy
- Tri-rated RHH/RHW-2/USE-2
- 600V Rated

600V Secondary AL UD Cable - Triplex - 8000 Series									
Part #	Phase Conductor AWG	Phase Conductor Stranding	Phase Conductor Insul. Thick. Mils	Neutral AWG	Neutral Stranding	Neutral Insul. Thick. Mils	Cable OD Single Phase Inches	Cable OD Complete Cable Inches	Lbs./M'
Vasssar*	4	7	60	4	7	60	0.35	.76	188
Ramapo*	2	7	60	2	7	60	0.41	.88	272
Stephens	2	7	60	4	7	60	0.41	.88	243
Brenau	1/0	19	80	2	7	60	0.53	1.10	385
Bergen*	1/0	19	80	1/0	19	80	0.53	1.14	460
Hunter*	2/0	19	80	2/0	19	80	0.57	1.24	558
Converse	2/0	19	80	1	19	80	0.57	1.19	480
Sweetbriar	4/0	19	80	2/0	19	80	0.68	1.41	706
Monmouth	4/0	19	80	4/0	19	80	0.68	1.47	828
Pratt	250	37	95	3/0	19	80	0.76	1.63	862
Wesleyan*	350	37	95	4/0	19	80	0.86	1.79	1123

NOTE: *Items may require minimum run quantities.

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ALUMINUM TIE WIRE

DESCRIPTION:
Generally used in overhead transmission and distribution line construction to secure components such as pin insulators to conductors or used for grounding applications.

STANDARDS AND SPECIFICATIONS:

- Meets ASTM Specification
- B609 – Aluminum Round Wire
- 1350 Aluminum Alloy (Solid & Soft)
- ARRA 2009 Section 1605 "Buy American" Compliant

Conductor				
Size (AWG)	Number of Strands	Diameter(Mils)	Weight per 1000 Ft (Lbs.)	Breaking Strength (Lbs.)
6	Solid	162.0	24.1	232
4	Solid	204.3	38.4	369
2	Solid	257.6	61.0	586

DOCUMENTATION

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CERTIFICATE OF COMPLIANCE & ORIGIN

This letter is to certify that Alan Wire's solid soft drawn and concentrically stranded soft drawn bare copper meets ASTM standard B-3 and B-8 for soft drawn (annealed) solid or stranded bare copper wire. Conductors may also be constructed to meet ASTM B-787.

Alan Wire THHN/THWN-2 building wire products meet all applicable ASTM standards, UL Standard 83, UL Standard 1063, CSA C22.2 No. 75, and the requirements of the National Electrical Code. Alan Wire's THHN/THWN-2 (1/0-750 MCM) is CT rated for CT use.

Alan Wire Type TC Power & Control cable meets UL 1277 & all applicable requirements of the National Electrical Code.

Alan Wire XHHW-2 products meet UL44, CSA C22.2 No. 38, and all applicable requirements of the National Electrical Code. USE-2 meets UL 854 and requirements of the NEC.

All Alan Wire insulated products are RoHS & REACH Compliant.

All Alan Wire products are compliant with the Dodd-Frank Act and contain no conflict minerals.

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LIMITED PRODUCT WARRANTY

Alan Wire Company warrants its title to the products sold by it and warrants to the Purchaser that its products are free of defects of workmanship or material and are in conformity with applicable ASTM and/or Underwriter's Laboratories specifications and descriptions referred to or set out herein.

No claim shall be maintained hereunder unless the facts giving rise to it are discovered within 12 months of shipment and written notice thereof given to Alan Wire within 30 days of discovery.

The sole and exclusive liability to Alan Wire Company for breach of warranty shall be to refund the purchase price of, or at its option, to replace or repair, the product or part concerned F.O.B. its factory or such other place as it may designate. The warranties stated in this document are exclusive of all other warranties, written or oral, statutory, express or implied, none of which shall apply to the sale of Alan Wire Company's products hereunder. Lengths of cable which are replaced by Alan Wire Company in accordance with foregoing shall become the property of Alan Wire Company and shall be returned to it by the Purchaser. No returned merchandise will be accepted without written permission.

In addition, Alan Wire Company guarantees that our THHN/THWN-2 size 4 AWG and larger may be installed into PVC or metal conduit without additional lubrication. If our product is found to be defective, Alan Wire agrees to reimburse the contract for direct cost to replace the defective product. Alan Wire reserves the right to require inspection of installed product in question prior to removal.

This warranty is void unless contract follows standard industry guidelines used in installation of 600 volt power cable into conduit. Also the warranty does not apply to any misuse of our products, including use contrary to our specifications, guides, or applicable building codes.

TECHNICAL REFERENCES

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ALLOWABLE AMPACITIES

of not More Than 3 Insulated Conductors

Rated 0-2000 Volts, 60º to 90ºC (140º to 194ºF), In Raceway or Cable or Earth (Directly Buried)
Based on ambient air temperature of 30ºC (86ºF).

Size	Temperature Rating of Conductor		
AWG	60ºC (140ºF)	75ºC (167ºF)	90ºC (194ºF)
	TW*, UF	FEWP*, RH*, RHW*, THHW*, THW*, THWN*, XXHW*, USE*, ZQ*	TA, TBS, SA, SIS, FEP*, FEPB*, MI, RHH*, RHW-2, THHN*, THHW*, THW-2, THWN-2, USE-2, XHH, XHHW*, XHHW-2, ZW-2
		Copper	
18	0	0	141
16	0	0	18
14	20*	20*	25*
12	25	25*	30*
10	30	35*	40*
8	40	50	55
6	55	65	75
4	70	85	95
3	85	100	110
2	95	115	130
1	110	130	150
1/0	125	150	170
2/0	145	175	495
3/0	165	200	225
4/0	195	230	260
250	215	255	290
300	240	285	320
350	260	310	350
400	280	335	380
500	320	380	430
600	355	420	475
700	385	460	520
750	400	475	535
800	410	490	555
900	435	520	585
1000	455	545	615
1250	495	590	665
1500	520	625	705
1750	545	650	735
2000	560	665	750

*Unless otherwise specifically permitted elsewhere in this Code, the overcurrent protection for conductor types marked with an asterisk(*) shall not exceed 15 amperes for No. 14, 20 amperes for No. 12, and 30 amperes for No. 10 copper; or 15 amperes for 15 amperes for no. 12 and 25 ampers for No. 10 aluminum and copper-clad aluminum after any correction factors for ambient temperature and number of conductors have been applied. Table 310-16 NEC.

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STRANDING CLASSES

CONCENTRIC-LAY CONDUCTORS:
- Class B - Power Cables
- Class C - Power Cables, where more flexible stranding than Class B is desired.
- Class D - Power Cables where extra flexible stranding is desired.

ROPE-LAY AND BUNCH-STRANDED CONDUCTORS:
(Class G and H shall have concentric-lay stranded members and Class I, K, and M shall have bunch stranded members.)
- Class G - All cables for portable use.
- Class H - All cables where extreme flexibility is required, such as for use on take-up reels, etc.

Class	14-2 AWG	1-4/0 AWG	250-500 MCM
B	7	19	37
C	19	37	61
D	37	61	91
G	49	133	259
H	133	259	427

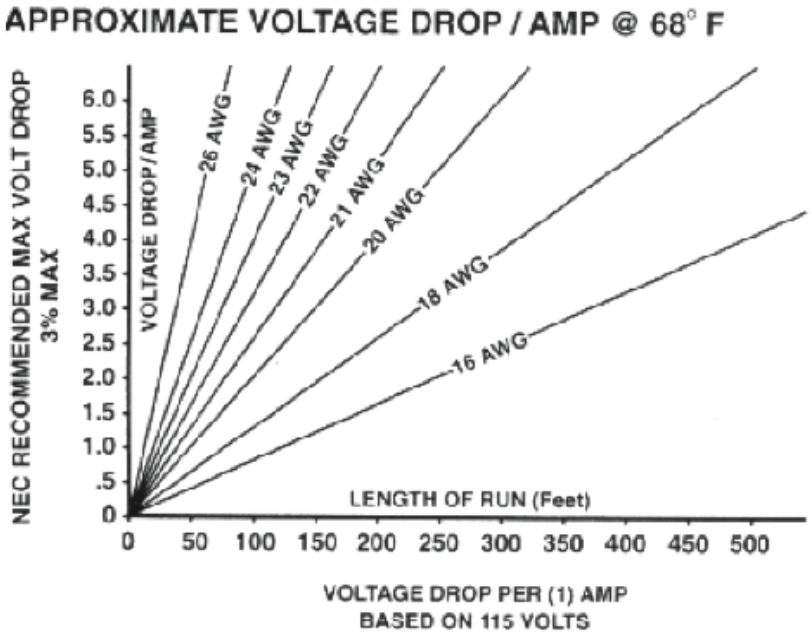
The information presented within this section has been carefully prepared and is believed to be accurate. Alan Wire Company makes no warranties, expressed or implied, and disclaim any responsibility or liability for loss or damage as a result of use of this information.

PROPER WIRE
SELECTION & VOLTAGE DROP

With today's widespread use of electronic and programmable thermostats, we recommend that you check with the manufacturer of the equipment that you are installing and use their recommendations for wire sizing. This is important today because many electronic and programmable thermostats are particularly sensitive to voltage drop problems. Many manufacturers warranties are voided if the thermostat is not installed to their specifications.

Voltage drop is primarily a function of the length of the conductor and the size of the copper wire. The smaller wire, the higher the voltage drop over a given distance.

The basic formula for determining voltage drop in a 2-wire DC or AC circuit or a 3-wire AC Single phase circuit with a balanced load at 100 percent factor and negligible reactance is:
Voltage Drop + 2 x I (amps) x L (ft) x R (ohms/1000 ft) / 1000



For additional information on voltage drop calculations, consult the National Electrical Code.

The information presented within this section has been carefully prepared and is believed to be accurate. Alan Wire Company makes no warranties, expressed or implied, and disclaim any responsibility or liability for loss or damage as a result of the use of this information.

CONDUIT FILL

Maximum Number of THHN/THWN Conductors in Conduit or Tubing per 1993 NEC

Type: TFFN - Fixture Wires												
Size (AWG)	.5 inch	.75 inch	1 inch	1.25 inch	1.5 inch	2 inch	2.5 inch	3 inch	3.5 inch	4 inch	5 inch	6 inch
18	19	34	55	97	132	216	0	0	0	0	0	0
16	15	26	43	76	104	169	0	0	0	0	0	0

Type:THHN - THWN												
Size (AWG)	.5 inch	.75 inch	1 inch	1.25 inch	1.5 inch	2 inch	2.5 inch	3 inch	3.5 inch	4 inch	5 inch	6 inch
14	13	24	39	69	94	154	0	0	0	0	0	0
12	10	18	29	51	70	114	164	0	0	0	0	0
10	6	11	18	32	44	73	104	160	0	0	0	0
8	3	5	9	16	22	36	51	79	106	136	0	0
6	1	4	6	11	15	26	37	57	76	98	154	0
4	1	2	4	7	9	16	22	35	47	60	94	137
3	1	1	3	6	8	13	19	29	39	51	80	116
2	1	1	3	5	7	11	16	25	33	43	67	97
1	0	1	1	3	5	8	12	18	25	32	50	72
1/0	0	1	1	3	4	7	10	15	21	27	42	61
2/0	0	1	1	2	3	6	8	13	17	22	35	51
3/0	0	1	1	1	3	5	7	11	14	18	29	42
4/0	0	1	1	1	2	4	6	9	12	15	24	35
250	0	0	1	1	1	3	4	7	10	12	20	28
300	0	0	1	1	1	3	4	6	8	11	17	24
350	0	0	1	1	1	2	3	5	7	9	15	21
400	0	0	0	1	1	1	3	5	6	8	13	19
500	0	0	0	1	1	1	2	4	5	7	11	16
600	0	0	0	1	1	1	1	3	4	5	9	13
750	0	0	0	0	1	1	1	2	3	4	7	11

*Unless otherwise specifically permitted elsewhere in this Code, the overcurrent protection for conductor types marked with an asterisk(*) shall not exceed 15 amperes for No. 14, 20 amperes for No. 12, and 30 amperes for No. 10 copper; or 15 amperes for 15 amperes for no. 12 and 25 ampers for No. 10 aluminum and copper-clad aluminum after any correction factors for ambient temperature and number of conductors have been applied. Table 310-16 NEC.

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CONDUIT FILL CONT.

Maximum Number of THHN/THWN Conductors in Conduit or Tubing per 1993 NEC

COMBINATION OF CONDUCTORS:
For groups of combinations of conductors the conduit or tubing shall be such size that the sum of the cross sectional areas of the individual conductors will not be more than the percentage of the interior cross sectional area of the conduit or tubing shown in the following table:

Number of Conductors	1	2	3	4	Over 4
All conductor types except lead-covered (new or rewiring)	53	31	40	40	40
Lead-covered Conductors	55	30	40	38	3

*Unless otherwise specifically permitted elsewhere in this Code, the overcurrent protection for conductor types marked with an asterisk(*) shall not exceed 15 amperes for No. 14, 20 amperes for No. 12, and 30 amperes for No. 10 copper; or 15 amperes for 15 amperes for no. 12 and 25 ampers for No. 10 aluminum and copper-clad aluminum after any correction factors for ambient temperature and number of conductors have been applied. Table 310-16 NEC.

This information presented within this section has been carefully prepared and is believed to be accurate. Alan Wire Company makes no warranties, expressed or implied, and disclaim any responsibility or liability for loss or damage as a result of the use of this information.

CONVERSION FACTORS

LENGTH		
Multiply	By	To Obtain
Centimeters	x .3937	= inches
Fathoms	x 6.0	= feet
Feet	x 12.0	= inches
Feet	x .3048	= meters
Inches	x 2.54	= centimeters
Kilometers	x .6214	= miles
Meters	x 3.281	= feet
Meters	x 39.37	= inches
Meters	x 1.094	= yards
Miles	x 5280.0	= feet
Miles	x 1.609	= kilometers
Rods	x 5.5	= yards
Yards	x .9144	= meters

AREA		
Multiply	By	To Obtain
Acres	x 43560.0	= square feet
Acres	x 4840.0	= square yards
Circular Mils	x 7.854×10^{-7}	= square inches
Circular Mils	x .7854	= square mils
Square Centimeters	x .144	= square inches
Square Feet	x 144.0	= square inches
Square Feet	x .0929	= square meters
Square Inches	x 6.452	= sq. centimeters
Square Meters	x 1.196	= square yards
Square Miles	x 640.0	= acres
Square Mils	x 1.273	= circular mils
Square Yards	x .8361	= square meters

VOLUME		
Multiply	By	To Obtain
Cubic Feet	x .0283	= cubic meters
Cubic Feet	x 7.481	= gallons
Cubic Inches	x .5541	= ounces (fluid)
Cubic Meters	x 35.31	= cubic feet
Cubic Meters	x 1.308	= cubic yards
Cubic Yards	x .7646	= cubic meters
Gallons	x .1337	= cubic feet
Gallons	x 3.785	= liters
Liters	x .2642	= gallons
Liters	x 1.057	= quarts
Ounces (fluid)	x 1.805	= cubic inches
Quarts (fluid)	x .9463	= liters

FORCE AND WEIGHT		
Multiply	By	To Obtain
Grams	x .0353	= ounces
Kilograms	x 2.205	= pounds
Newtons	x .2248	= pounds (force)
Ounces	x 28.35	= grams
Pounds	x 453.6	= grams
Pounds (force)	x 4.448	= newtons
Tons (short)	x 907.2	= kilograms
Tons (short)	x 2000.0	= pounds

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CONVERSION FACTORS CONT.

TORQUE		
Multiply	**By**	**To Obtain**
Gram-Centimeters	x 0.139	= ounces-inches
Newton-Meters	x .7376	= pound-feet
Newton-Meters	x 8.851	= pounds-inches
Ounce-Inches	x 72.0	= gram-centimeters
Pound-Feet	x 1.3558	= newton-meters
Pound-Inches	x .113	= newton-meters

ENERGY OF WORK		
Multiply	**By**	**To Obtain**
Btu	x 778.2	= foot-pounds
Btu	x 252.0	= gram-calories

POWER		
Multiply	**By**	**To Obtain**
Btu per hour	x .293	= watts
Horsepower	x 33000.0	= foot-pounds per min.
Horsepower	x 550.0	= foot-pounds per sec.
Horsepower	x 746.0	= watts
Kilowatts	x 1.341	= horsepower

PLANE ANGLE		
Multiply	**By**	**To Obtain**
Degrees	x .0175	= radians
Minutes	x .01667	= degrees
Minutes	x $2.9x10^{-4}$	= radians
Quadrants	x 90.0	= degrees
Quadrants	x 1.5708	= radians
Radians	x 57.3	= degrees

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COPPER TO ALUMINUM CONVERSION CHART

Wire Size and Amp Ratings					
Wire Gauge Size	Copper			Aluminum	
	60°C (140°F)	75°C (167°F)	90°C (197°F)	75°C (167°F)	90°C (197°F)
	NM-B	THW	THWN-2	THW	XHHW-2
	UF-B	THWN	THHN	THWN	THHN
		SE	XHHW-2	SE	TWHN-2
		USE		USE	
		XHHW		XHHW	
14	15	15	15		
12	20	20	20	15	15
10	30	30	30	25	25
8	40	50	55	40	45
6	55	65	75	50	55
4	70	85	95	65	75
3	85	100	115	75	85
2	95	115	130	90	100
1		130	145	100	115
1/0		150	170	120	135
2/0		175	195	135	150
3/0		200	225	155	175
4/0		230	260	180	205
250		255	290	205	230
300		285	320	230	260
350		310	350	250	280
500		380	430	310	350
600		420	475	340	385
750		475	535	385	435
1000		545	615	445	500

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