Caledonian Cables Ltd

Industrial Cables

American Standard(UL)

Addison

Company Profile

Caledonian. established in 1978.offers one of the most complete lines of fiber and copper cabling system solutions with over hundreds of different cabling system products. . Our superior products provide leading edge within every cable series and for every application.

Among the national and international standards with which our cables could comply are: BS - British Standard; LPCB Fire Performance Standard. ISO Standard etc. Caledonian Cables offers a comprehensive stock of cables and cabling products through its nationwide network of resellers and distributors. Caledonian Cables has continually expanded its global presence in Europe and Asia.

Caledonian & Addison. produces a wide range of cables for communication. power and electronics in its primary plants in UK. Italy and Spain. To stay in front. we continually keep expanding our manufacturing capabilities in more low cost region such as Romania. Taiwan. Malaysia etc. This low-cost manufacturing facilities enable us provide a flexible. scalable global system that delivers superior operational performance and optimal results for our customers.

Our extensive global network of manufacturing facilities gives us significant scale and the flexibility to fulfill our customer requirements. This global presence provides design and consultancy solutions that are combined with core cable manufacturing. logistic services. and vertically integrated with our E commerce technologies. to optimize customer operations by lowering costs and reducing time to market.

Caledonian & Addison has been respected for its high standards of quality. excellent service level. competitive pricing and a unique and innovative spirit. With our latest technologies. we are both inspired and well-positioned to meet the changing needs of our customers. We have the resources to diversify and to enhance our product lines and services. We understand the need for change and with our accurate planning. we are ready for the future and the promise of new marketing opportunities. Our tradition of growth through excellence is assured.

Our Design Centers work closely with customers to constantly improve its standard range of products and technologies and to develop customized. country and industry-specific solutions. Caledonian & Addison has established an extensive network of design. manufacturing. and logistics facilities in the world's major markets to serve the growing outsourcing needs of both multinational and regional customers.

Our Certificate

ISO 9001
REGISTERED FIRM

Registration Certificate

This document certifies that the administration systems of

Caledonian Cables Limited / Addison Technology Limited

Marchants Industrial Centre, Mill Lane, Laughton, Lewes, Sussex, BN8 6AJ, United Kingdom

have been assessed and approved by QAS International to the following management systems, standards and guidelines:

ISO 9001 : 2008

With the permitted exclusion of clauses 7.3 Design and Development

The approved administration systems apply to the following:

The manufacture and supply of electrical cables and ancillary power equipment to customers internationally.

Original Approval	6th September 1997
Current Certificate	7th February 2013
Certificate Expiry	7th February 2014
Certificate Number	A6211

On behalf of QAS International

www.qas-international.com

This certificate remains valid while the holder maintains their quality administration systems in accordance with the standards and guidelines stated above, which will be audited annually by QAS International. The holder is entitled to display the above registration mark for the duration of this certificate. This certificate must be returned to QAS International on reasonable request.

Issuing Office: QAS International, 20A Oxford Street, Malmesbury, Wiltshire, SN16 9AX

Table of Content

General Description

XHHW is an alphabetism or initialism which stands for "XLPE (cross-linked polyethylene) High Heat-resistant Water-resistant." XHHW is a designation for a specific insulation material, temperature rating, and condition of use (suitable for wet locations) for electrical wire and cable. Wires with XHHW insulation are commonly used in the alternating current (AC) electrical distribution systems of commercial, institutional, and industrial buildings and installations, usually at voltage levels (potential difference or electromotive force) ranging from 110-600 Volts. This type of insulation is used for both copper and aluminum conductors which are either solid or stranded, depending on size. According to Underwriters Laboratories (UL) Standard 44, XHHW insulation is suitable for use in dry locations up to 90° C (194° F), or wet locations up to 75° C (167° F).
XHHW-2 insulation, which is similar to XHHW, is suitable for use in dry or wet locations up to 90° C (194° F).
XHHW / XHHW-2 electrical conductor insulation is governed by the following Industry Standards:

- UL 44 - File No. E63539
- CSA LL 82214
- ASTM-B3
- ASTM-B8
- ASTM-B787
- U.S. Federal Specification A-A-59544
- NEMA WC70/ICEA S-95-658

XHH Indicates a single conductor having a cross-linked synthetic polymer insulation with no overall covering provided, rated 90°C dry.
RHW Indicates a single conductor having a thermoset insulation, with or without a nonmetallic covering, rated 75°C dry, 75°C wet.
RHW-2 Indicates a single conductor with the same description as Type RHW, except that it is rated 90°C dry, 90°C wet.
RHH Indicates a single conductor with the same description as Type RHW, except that it is rated 90°C dry only.
SA Indicates a single conductor having thermosetting silicone rubber insulation and a nonmetallic covering rated 90°C dry, general use, 200°C dry, special applications.
SIS Indicates a single conductor having thermosetting insulation with no overall covering provided rated 90°C dry, for switchboard wiring only.

American Standard UL

THHN is an acronym which stands for “Thermoplastic High Heat-resistant Nylon-coated” THHN is a designation for a specific insulation material, temperature rating, and condition of use (suitable for dry and damp locations) for electrical wire and cable. Wire with THHN insulation is commonly used in the power-voltage (up to 600 Volts) electrical distribution systems of buildings of all types and sizes throughout North America. This type of insulation is used for both copper and aluminum conductors which are either solid or stranded, depending on size.

THHN electrical conductor insulation is governed by the following Industry Standards:

- UL 83
- UL 1063 (MTW)
- AWM
- Canadian Standard C22.2 No. 75 and CSA Bulletin No. 1451
- ASTM: B3, B8, B787
- WC70/ICEA S-95-658
- U.S. Federal Specification A-A-59544

THWN stands for “Thermoplastic High Water-resistant Nylon-coated.” THWN is a designation for a specific insulation material, temperature rating, and condition of use (wet locations) for electrical wire and cable .Wires with THWN insulation are commonly used in the alternating current (AC) electrical distribution systems of buildings of all types and sizes throughout North America, usually at voltage levels (potential difference or electromotive force) ranging from 110-600 Volts. This type of insulation is used for both copper and aluminum conductors which are either solid or stranded, depending on size.

THWN electrical conductor insulation is governed by the following Industry Standards:

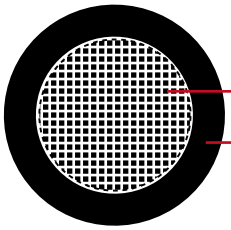
- UL 83
- UL 1063 (MTW)
- AWM
- Canadian Standard C22.2 No. 75 and CSA Bulletin No. 1451
- ASTM: B3, B8, B787
- WC70/ICEA S-95-658
- U.S. Federal Specification A-A-59544

XHH / XHHW-2

Application

The XHH conductor is suitable for most current wiring solutions for residential, commercial and industrial applications. Because of its excellent response under overload and short-circuit situations, it is used in service entrance even underground installations. The XHH conductor is able to work properly up to 90ºC in dry environmental conditions. Its insulation is flame retardant, besides, it provides mechanical resistance against to humidity, chemical agents and oils. Its black pigmentation resist very well the ultraviolet sun light, therefore it could be used with no issue in outside applications. Conductors certified with suffix ´´-2 ´´, as XHH-2, these can meet a continuous operation temperature of 90ºC(194ºF) in dry or wet conditions.

Construction



Conductor: Solid or stranded bare annealed copper

Insulation: Cross-linked polyethylene(XLPE)

Color: upon request, black is preferable

Compliances:

- ASTM B3, B8
- UL 1581 - Flame Exposure Test
- UL 44 - Thermoset-Insulated Wires and Cables
- National Electrical Code (NEC)

Parameters:

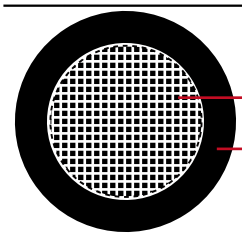
AWG/ kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
14	1	0.030	0.76	0.124	3.15	16	24
12	1	0.030	0.76	0.141	3.58	24	36
10	1	0.030	0.76	0.162	4.11	37	55
8	1	0.045	1.14	0.218	5.55	61	91
6	1	0.045	1.14	0.252	6.40	93	138
14	7	0.030	0.76	0.133	3.37	17	26
12	7	0.030	0.76	0.152	3.85	26	39
10	7	0.030	0.76	0.176	4.46	39	58
8	7	0.045	1.14	0.236	5.99	65	96
6	7	0.045	1.14	0.274	6.95	98	146
4	19	0.045	1.14	0.316	8.04	148	220
3	19	0.045	1.14	0.344	8.75	184	274
2	19	0.045	1.14	0.376	9.54	229	341
1	19	0.045	1.14	0.431	10.94	292	434
1/0	19	0.055	1.40	0.470	11.94	364	541
2/0	19	0.055	1.40	0.514	13.07	453	674
3/0	19	0.055	1.40	0.564	14.33	566	842
4/0	19	0.055	1.40	0.620	15.75	708	1053
250	37	0.065	1.65	0.706	17.93	838	1247
300	37	0.065	1.65	0.761	19.33	999	1486
350	37	0.065	1.65	0.812	20.62	1159	1725
400	37	0.065	1.65	0.859	21.82	1319	1963
500	37	0.065	1.65	0.945	24.00	1639	2439
600	61	0.080	2.03	1.053	26.75	1980	2946
750	61	0.080	2.03	1.159	29.44	2459	3660
1000	61	0.080	2.03	1.313	33.35	3256	4845

XHHW-2, UL Type SIS1/XHHW-2, VW-1 Rated

Applications:

Type SIS1/XHHW-2, VW-1 is for use as general purpose wiring in residential, commercial, institutional and industrial construction at a maximum conductor temperature of 90°C in dry and wet locations; for installation in air, conduit or other raceways, in circuits not exceeding 600 volts. All sizes pass the vertical flame test (VW-1). Colors available. Sizes 1/0AWG and larger are for cable tray use and sunlight resistant. Sizes 2AWG and larger are listed and marked sunlight resistant in black only.

Construction:



Conductor:

Single copper conductor, stranded tinned annealed copper per ASTM B33 Class B stranding per ASTM B8

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Color: upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 1685 - CT Flame Exposure Test.
- UL 1581 - Flame Exposure Test (VW-1)
- IEEE 383 ((IEEE 1202/FT4 (2/0 AWG and larger)
- Flame Test (70,000 Btu/hr Vertical Tray Test))
- ICEA S-95-658 (NEMA WC70)

Parameters:

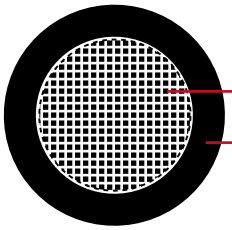
AWG/ kcmil	Strand	Nominal Conductor Diameter Inch/mm		Nominal Insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper Weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
18	7	0.05	1.27	0.030	0.76	0.11	2.74	5	8	9	14
16	7	0.06	1.47	0.030	0.76	0.12	3.05	8	12	13	20
14	7	0.07	1.80	0.030	0.76	0.13	3.38	13	19	19	28
12	7	0.09	2.29	0.030	0.76	0.15	3.86	20	30	27	41
10	7	0.11	2.87	0.030	0.76	0.18	4.45	32	48	41	61
8	7	0.14	3.56	0.045	1.14	0.24	6.05	51	76	69	102
6	7	0.18	4.57	0.045	1.14	0.28	6.99	81	121	103	153
4	7	0.23	5.84	0.045	1.14	0.32	8.18	129	192	156	232
2	7	0.29	7.37	0.045	1.14	0.38	9.68	205	305	239	355
1/0	19	0.36	9.14	0.055	1.40	0.48	12.14	326	485	373	556
2/0	19	0.41	10.41	0.055	1.40	0.52	13.28	411	612	464	691
3/0	19	0.46	11.68	0.055	1.40	0.57	14.55	518	771	579	862
4/0	19	0.51	12.95	0.055	1.40	0.63	15.98	653	972	722	1075
250	37	0.56	14.22	0.065	1.65	0.70	17.75	772	1149	860	1280
350	37	0.66	16.76	0.065	1.65	0.80	20.37	1081	1609	1185	1764
500	37	0.79	20.07	0.065	1.65	0.93	23.65	1544	2298	1669	2484
600	61	0.87	22.10	0.080	2.03	1.04	26.42	1853	2757	2040	3035
750	61	0.98	24.89	0.080	2.03	1.14	28.96	2316	3446	2515	3742
1000	61	1.08	27.96	0.080	2.03	1.29	32.77	3086	4591	3310	4925

XHHW-2, 600V, type RW-90, power cable

Applications:

Type XHHW-2, type RW-90 building wire is intended for general purpose applications utilized in conduit or other recognized raceways for services, feeders, and branch-circuit wiring, as specified in the National Electrical Code (NEC). Type XHHW-2 is permitted to be used in wet or dry locations at temperatures not to exceed 90ºC. Industrial environments where superior insulation toughness and chemical resistance are required. Type XHHW-2 is permitted for 600 volts applications. 1/0 AWG and larger may be used in cable tray in accordance with the National Electrical Code. 1/0 AWG and larger comply with IEEE 1202/UL FT4 flame test and ICEA T-29-520 (210,000 Btu/hr) flame test.

Construction:



Conductor:

Single copper conductor, stranded tinned annealed copper per ASTM B3 Class B stranding per ASTM B8

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Color: upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables.
- UL 1685 - CT Flame Exposure Test.
- UL 1581- Flame Exposure Test (VW-1)
- IEEE 1202/FT4 (2/0 AWG and larger)
- Flame Test (70,000 Btu/hr Vertical Tray Test)).
- ICEA T-29-520 (210,000 Btu/hr) flame test
- ICEA S-95-658 (NEMA WC70)

Parameters:

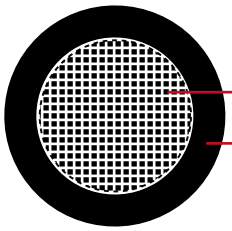
AWG/ kcmil	Strand	Nominal Conductor Diameter Inch/mm		Nominal Insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper Weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
14	7	0.07	1.80	0.030	0.76	0.13	3.38	12	18	17	25
12	7	0.09	2.26	0.030	0.76	0.15	3.84	20	30	26	39
10	7	0.11	2.87	0.030	0.76	0.18	4.57	32	48	38	57
8	7	0.14	3.56	0.045	1.14	0.24	6.10	51	76	65	97
6	7	0.18	4.57	0.045	1.14	0.28	7.11	81	121	99	147
4	7	0.23	5.84	0.045	1.14	0.33	8.38	129	192	152	226
2	7	0.29	7.37	0.045	1.14	0.39	9.91	205	305	233	347
1	19	0.32	8.13	0.055	1.40	0.44	11.18	256	381	293	437
1/0	19	0.36	9.14	0.055	1.40	0.48	12.19	326	485	364	572
2/0	19	0.41	10.41	0.055	1.40	0.53	13.46	411	612	453	674
3/0	19	0.46	11.68	0.055	1.40	0.58	14.73	518	772	565	842
4/0	19	0.51	12.95	0.055	1.40	0.63	16.00	653	972	706	1051
250	37	0.56	14.22	0.065	1.65	0.70	17.78	722	1074	837	1246
350	37	0.66	16.76	0.065	1.65	0.80	20.32	1081	1609	1157	1722
400	37	0.73	18.54	0.065	1.65	0.87	22.10	1235	1838	1322	1967
500	37	0.79	20.07	0.065	1.65	0.93	23.62	1544	2298	1634	2432
600	61	0.87	22.10	0.080	2.03	1.04	26.42	1853	2758	1972	2935
750	61	0.98	24.89	0.080	2.03	1.15	29.21	2316	3447	2448	3643

AL-XHHW-2 Power Cable, CT Rated

Applications:

Type XHHW-2 conductors are primarily used in conduit or recognized raceways for services, feeders, and branch circuit wiring as specified in the National Electrical Code 1 . XHHW-2 conductors may be used in wet or dry locations at temperatures not to exceed 90°C

Construction:



Conductor:

Single core, stranded aluminum alloy conductor

Insulation:

Flame-retardant, abrasion, heat, moisture and sunlight resistant Cross-Linked Polyethylene (FRXLPE)

Color: upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables.
- UL - 1581 Flame Exposure Test (VW-1)
- UL 1685 - CT Flame Exposure Test.
- IEEE 1202/FT4 (2/0 AWG and larger)
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

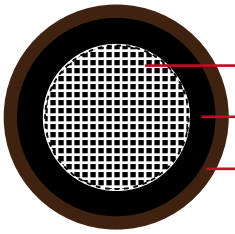
AWG or kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
1/0	10	0.055	1.40	0.449	11.40	138	205
2/0	12	0.055	1.40	0.489	12.42	171	254
3/0	16	0.055	1.40	0.536	13.61	209	311
4/0	19	0.055	1.40	0.588	14.94	253	376
250	22	0.065	1.65	0.653	16.59	304	452
350	35	0.065	1.65	0.749	19.02	410	610
400	35	0.065	1.65	0.792	20.12	463	689
500	35	0.065	1.65	0.869	22.07	567	844
600	58	0.080	2.03	0.976	24.79	695	1034
750	58	0.080	2.03	1.071	27.20	851	1266
1000	58	0.080	2.03	1.223	31.06	1110	1651

XHHW/PVC Jacket, Power Cable, CT Rated

Applications:

XHHW/PVC conductors are primarily used in conduit, cable tray or other recongnized raceways for services, feeders, and branch circuit wiring as specified in the National Electrical Code. XHHW/PVC conductors are sunlight resistant and may be used in wet or dry locations at temperatures not to exceed 90°C. Voltage rating for XHHW/PVC conductors is 600 volts.

Construction:



Conductor:

Single copper conductor, stranded tinned annealed copper per ASTM B3 Class B stranding per ASTM B8

Insulation:

Flame-retardant, abrasion, heat, moisture and sunlight resistant Cross-Linked Polyethylene (FRXLPE)

Jacket: Flame retardant, moisture and sunlight resistant PVC

Color: upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables.
- UL 1685 - UL CT Flame Exposure Test.
- UL 1581 - UL Flame Exposure Test (VW-1)
- IEEE 383 (IEEE 1202/FT4 (2/0 AWG and larger)
- Flame Test (70,000 Btu/hr Vertical Tray Test)).
- ICEA S-95-658 (NEMA WC70)

Parameters:

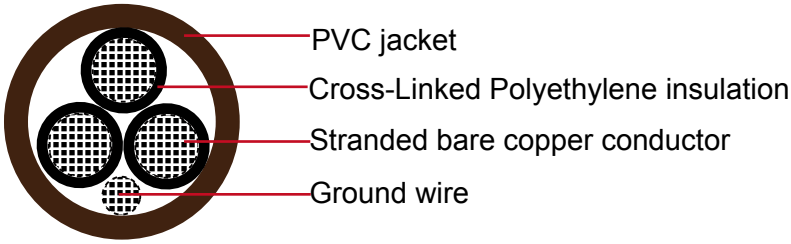
AWG or kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
1/0	19	0.055	1.40	0.045	1.14	0.565	14.3	412	613
2/0	19	0.055	1.40	0.045	1.14	0.608	15.4	505	751
3/0	19	0.055	1.40	0.045	1.14	0.659	16.7	623	927
4/0	19	0.055	1.40	0.045	1.14	0.715	18.1	769	1145
250	37	0.065	1.65	0.065	1.65	0.821	20.8	934	1390
350	37	0.065	1.65	0.065	1.65	0.924	23.4	1268	1887
500	37	0.065	1.65	0.065	1.65	1.053	26.7	1763	2624
750	61	0.080	2.03	0.065	1.65	1.261	32.0	2602	3871
1000	61	0.080	2.03	0.065	1.65	1.41	35.8	3411	5076

XHHW/PVC, 3-core, Type TC Power Cable

Applications:

XHHW/PVC, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Power Cable is listed for direct burial or in underground ducts and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper
(Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)
Ground Wire: bare annealed copper (Type XHHW-2)
Jacket: Flame retardant, moisture and sunlight resistant PVC (LSOH is available upon request)
Color: upon request, black is preferable

Compliances:

- UL 44 -Thermoset-Insulated Wires and Cables
- UL 1277 - Electrical Power and Control Tray Cables
- UL 1581 - Flame Exposure Test (VW-1)
- ICEA S-58-679 Method 4
- UL 1685 - Flame Exposure Test
- ICEA T-29-520 - Vertical Cable Tray Flame Test
- IEEE 383 (IEEE 1202/FT4) - Flame Test
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

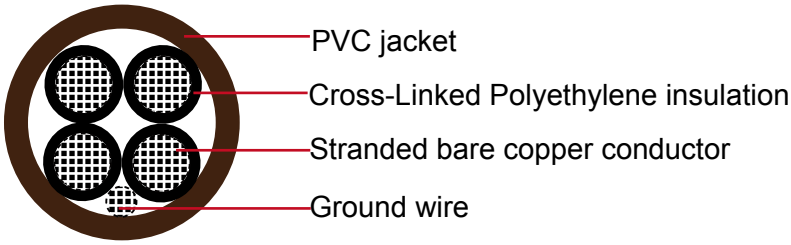
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.681	17.30	330	491
6	7	8	0.060	1.52	0.766	19.46	468	697
4	7	8	0.060	1.52	0.797	20.24	606	901
2	7	6	0.080	2.03	0.96	24.38	954	1420
1	19	6	0.080	2.03	1.1	27.94	1173	1746
1/0	19	6	0.080	2.03	1.186	30.12	1421	2115
2/0	19	6	0.080	2.03	1.279	32.49	1704	2536
3/0	19	4	0.080	2.03	1.385	35.18	2135	3177
4/0	19	4	0.080	2.03	1.506	38.25	2580	3839
250	37	4	0.080	2.03	1.653	41.99	3021	4496
300	37	3	0.110	2.79	1.827	46.41	3684	5481
350	37	3	0.110	2.79	1.935	49.15	4219	6277
400	37	3	0.110	2.79	2.032	51.61	4747	7064
500	37	2	0.110	2.79	2.214	56.24	5755	8564
750	61	1	0.110	2.79	2.663	67.64	8543	12711

XHHW/PVC, 4-core, Type TC Power Cable

Applications:

XHHW/PVC, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Power Cable is listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper
(Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Ground Wire: bare annealed copper (Type XHHW-2)

Jacket: Flame retardant, moisture and sunlight resistant PVC (LSOH is available upon request)

Color: upon request, black is preferable

Compliances:

- UL 44 -Thermoset-Insulated Wires and Cables
- UL 1277 - Electrical Power and Control Tray Cables
- UL 1581 - Flame Exposure Test (VW-1)
- ICEA S-58-679 Method 4
- UL 1685 - Flame Exposure Test
- ICEA T-29-520 - Vertical Cable Tray Flame Test
- IEEE 383 (IEEE 1202/FT4) - Flame Test
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

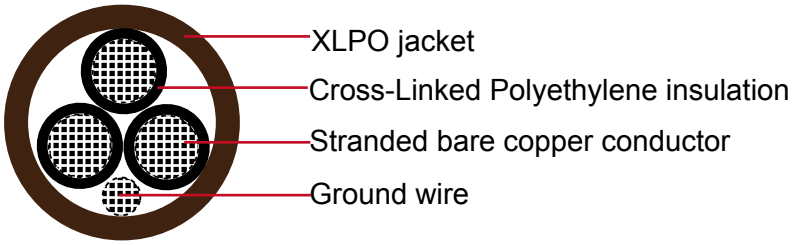
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.747	18.97	404	601
6	7	8	0.080	2.03	0.882	22.40	613	912
4	7	8	0.080	2.03	0.917	23.29	802	1193
2	7	6	0.080	2.03	1.054	26.77	1191	1772
1	19	6	0.080	2.03	1.21	30.73	1503	2236
1/0	19	6	0.080	2.03	1.307	33.20	1806	2688
2/0	19	6	0.080	2.03	1.411	35.84	2199	3272
3/0	19	4	0.080	2.03	1.529	38.84	2744	4084
4/0	19	4	0.110	2.79	1.729	43.92	3449	5132
250	37	4	0.110	2.79	1.888	47.96	4030	5996
350	37	3	0.110	2.79	2.137	54.28	5453	8114
500	37	2	0.110	2.79	2.448	62.18	7562	11252

XHHW/XLPO, 3-core, Type TC Power Cable

Applications:

XHHW/XLPO, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Power Cable is listed for direct burial or in underground ducts and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper
(Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)
Ground Wire: bare annealed copper (Type XHHW-2)
Jacket: Flame retardant, moisture and sunlight resistant XLPO (LSOH is available upon request)
Color: upon request, black is preferable

Compliances:

- UL 44 -Thermoset-Insulated Wires and Cables
- UL 1277 - Electrical Power and Control Tray Cables
- UL 1581 - Flame Exposure Test (VW-1)
- ICEA S-58-679 Method 4
- UL 1685 - Flame Exposure Test
- ICEA T-29-520 - Vertical Cable Tray Flame Test
- IEEE 383 (IEEE 1202/FT4) - Flame Test
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

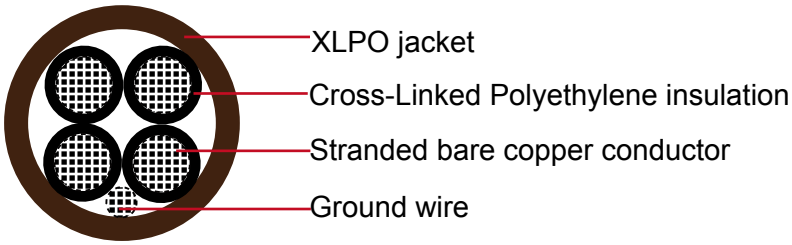
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.681	17.30	330	491
6	7	8	0.060	1.52	0.766	19.46	468	697
4	7	8	0.060	1.52	0.797	20.24	606	901
2	7	6	0.080	2.03	0.96	24.38	954	1420
1	19	6	0.080	2.03	1.1	27.94	1173	1746
1/0	19	6	0.080	2.03	1.186	30.12	1421	2115
2/0	19	6	0.080	2.03	1.279	32.49	1704	2536
3/0	19	4	0.080	2.03	1.385	35.18	2135	3177
4/0	19	4	0.080	2.03	1.506	38.25	2580	3839
250	37	4	0.080	2.03	1.653	41.99	3021	4496
300	37	3	0.110	2.79	1.827	46.41	3684	5481
350	37	3	0.110	2.79	1.935	49.15	4219	6277
400	37	3	0.110	2.79	2.032	51.61	4747	7064
500	37	2	0.110	2.79	2.214	56.24	5755	8564
750	61	1	0.110	2.79	2.663	67.64	8543	12711

XHHW/XLPO, 4-core, Type TC Power Cable

Applications:

XHHW/XLPO, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC is approved for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90°C. 6 and 8 AWG constructions with insulated grounds (standard) and 4 AWG and larger with bare or insulated ground are UL Listed for exposed runs (ER) per NEC 336.10.

Construction:



Conductor:
Stranded bare annealed copper
(Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Ground Wire: bare annealed copper (Type XHHW-2)

Jacket: Flame retardant, moisture and sunlight resistant XLPO (LSOH is available upon request)

Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables
- UL 1581 - Electrical Wires, Cables and Flexible Cords
- ICEA S-58-679 Method 4
- UL 1685 - UL CT Flame Exposure Test (70,000 Btu/hr)
- ICEA T-29-520 - Vertical Cable Tray Flame Test (210,000 Btu/hr)
- IEEE 1202/FT4 - Flame Test of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)

Parameters:

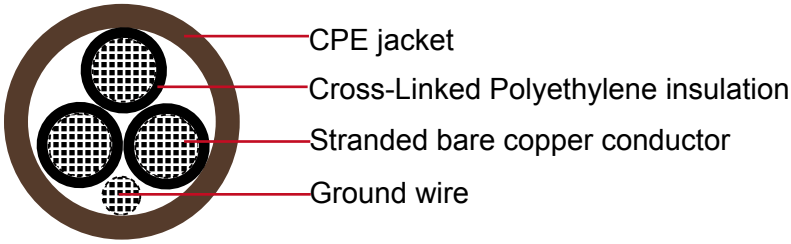
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.747	18.97	404	601
6	7	8	0.080	2.03	0.882	22.40	613	912
4	7	8	0.080	2.03	0.917	23.29	802	1193
2	7	6	0.080	2.03	1.054	26.77	1191	1772
1	19	6	0.080	2.03	1.21	30.73	1503	2236
1/0	19	6	0.080	2.03	1.307	33.20	1806	2688
2/0	19	6	0.080	2.03	1.411	35.84	2199	3272
3/0	19	4	0.080	2.03	1.529	38.84	2744	4084
4/0	19	4	0.110	2.79	1.724	43.79	3427	5100
250	37	4	0.110	2.79	1.888	47.96	4030	5996
350	37	3	0.110	2.79	2.137	54.28	5454	8115
500	37	2	0.110	2.79	2.448	62.18	7562	11252

XHHW/CPE, 3-core, 600V,Type TC Power Cable

Applications:

XHHW/CPE, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC is listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90 °C.

Construction:



Conductor:
Stranded bare annealed copper
(Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)
Ground Wire: bare annealed copper (Type XHHW-2)
Jacket: Flame retardant, moisture and sunlight resistant CPE (PVC or LSOH are available upon request)
Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables
- UL 1685 - UL CT Flame Exposure Test (70,000 Btu/hr)
- ICEA S-58-679 Method 4
- IEEE 1202/FT4 - Flame Test of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA S-95-658 Construction requirements

Parameters:

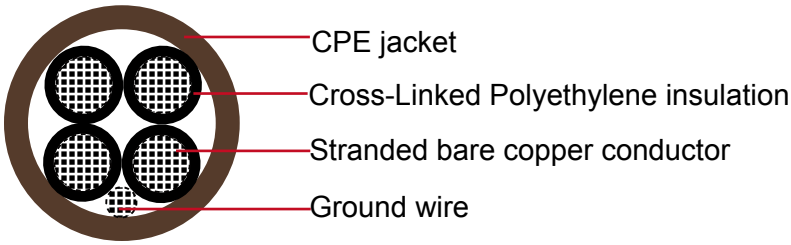
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.681	17.30	327	486
6	7	8	0.060	1.52	0.766	19.46	465	691
4	7	8	0.060	1.52	0.797	20.24	610	907
2	7	6	0.080	2.03	0.96	24.38	958	1425
1	19	6	0.080	2.03	1.097	27.86	1169	1739
1/0	19	6	0.080	2.03	1.182	30.02	1426	2121
2/0	19	6	0.080	2.03	1.277	32.44	1711	2546
3/0	19	4	0.080	2.03	1.385	35.18	2144	3190
4/0	19	4	0.080	2.03	1.506	38.25	2591	3855
250	37	4	0.080	2.03	1.653	41.99	3036	4517
350	37	3	0.110	2.79	1.935	49.15	4231	6295
500	37	2	0.110	2.79	2.214	56.24	5853	8709
750	61	1	0.110	2.79	2.663	67.64	8568	12750

XHHW/CPE, 4-core, 600V, Type TC Power Cable

Applications:

XHHW/CPE, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC is listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used in wet and dry locations at temperatures not to exceed 90 °C.

Construction:



Conductor:
Stranded bare annealed copper (Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)
Ground Wire: bare annealed copper (Type XHHW-2)
Jacket: Flame retardant, moisture and sunlight resistant CPE (PVC or LSOH are available upon request)
Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables
- UL 1685 - UL CT Flame Exposure Test (70,000 Btu/hr)
- ICEA S-58-679 Method 4
- IEEE 1202/FT4 - Flame Test t of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA S-95-658 Construction requirements

Parameters:

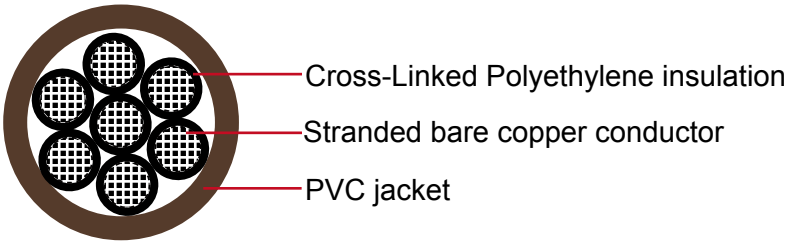
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
8	7	10	0.060	1.52	0.747	18.97	401	596
6	7	8	0.080	2.03	0.882	22.40	607	903
4	7	8	0.080	2.03	0.917	23.29	807	1200
2	7	6	0.080	2.03	1.054	26.77	1197	1781
1	19	6	0.080	2.03	1.21	30.73	1511	2249
1/0	19	6	0.080	2.03	1.307	33.20	1814	2699
2/0	19	6	0.080	2.03	1.411	35.84	2210	3288
3/0	19	4	0.080	2.03	1.529	38.84	2759	4105
4/0	19	4	0.110	2.79	1.729	43.92	3439	5118
250	37	4	0.110	2.79	1.888	47.96	4046	6021
350	37	3	0.110	2.79	2.137	54.28	5474	8145
500	37	2	0.110	2.79	2.448	62.18	7586	11288

XHHW/PVC, 600V, Type TC Control Cable

Applications:

XHHW/PVC type TC Control Cable is for use in industrial power or control circuits where small diameter, flame retardant cables are desired. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Control Cable is also listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10. This cable may be used in wet or dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper, available in sizes AWG14, 12, 10 (Type XHHW-2)

Insulation: Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)
Jacket: Flame retardant, moisture and sunlight resistant PVC (LSOH is available upon request)
Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables
- UL 1581 - Electrical Wires, Cables and Flexible Cords.
- ICEA S-58-679 - Control Cable Conductor Identification Method 1, Table 2
- UL 1685 - UL Flame Exposure Test (70,000 Btu/hr).
- ICEA T-29-520 - Vertical Cable Tray Flame Test (210,000 Btu/hr).
- IEEE 1202 - Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA S-95-658 (NEMA WC 70)
- IEEE 383

Parameters:

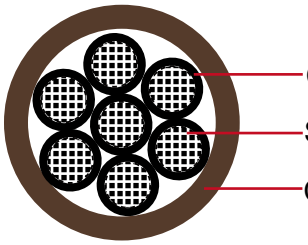
No.of Cores	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
AWG 14 (7 strands)						
2	0.045	1.14	0.349	8.86	63	94
3	0.045	1.14	0.370	9.40	87	129
4	0.045	1.14	0.403	10.24	106	157
5	0.045	1.14	0.440	11.18	125	186
6	0.045	1.14	0.479	12.17	146	218
7	0.045	1.14	0.479	12.17	164	245
8	0.060	1.52	0.549	13.94	201	299
9	0.060	1.52	0.588	14.94	223	332
10	0.060	1.52	0.638	16.21	247	367
12	0.060	1.52	0.659	16.74	285	424
15	0.060	1.52	0.730	18.54	347	517
19	0.060	1.52	0.768	19.51	424	630
20	0.060	1.52	0.808	20.52	446	664
25	0.080	2.03	0.938	23.83	582	866
30	0.080	2.03	0.991	25.17	680	1012
37	0.080	2.03	1.067	27.10	818	1217
AWG 12 (7 strands)						
2	0.045	1.14	0.384	9.75	85	127
3	0.045	1.14	0.408	10.36	115	172
4	0.045	1.14	0.445	11.30	147	219
5	0.045	1.14	0.487	12.37	171	255
6	0.060	1.52	0.562	14.27	217	323
7	0.060	1.52	0.562	14.27	244	363
8	0.060	1.52	0.607	15.42	275	410
9	0.060	1.52	0.651	16.54	307	457
10	0.060	1.52	0.709	18.01	340	506
12	0.060	1.52	0.732	18.59	396	589
15	0.060	1.52	0.813	20.65	484	721
19	0.080	2.03	0.896	22.76	628	934
20	0.080	2.03	0.942	23.93	661	984
25	0.080	2.03	1.043	26.49	811	1207
30	0.080	2.03	1.104	28.04	953	1418
37	0.080	2.03	1.19	30.23	1152	1714
AWG 10 (7 strands)						
2	0.045	1.14	0.431	10.95	116	172
3	0.045	1.14	0.459	11.66	161	239
4	0.045	1.14	0.502	12.75	205	306
5	0.060	1.52	0.581	14.76	260	387
6	0.060	1.52	0.632	16.05	306	455
7	0.060	1.52	0.632	16.05	346	514
8	0.060	1.52	0.685	17.40	392	583
9	0.060	1.52	0.736	18.69	437	651
10	0.060	1.52	0.803	20.40	485	721
12	0.080	2.03	0.870	22.10	599	892
15	0.080	2.03	0.964	24.49	733	1091
19	0.080	2.03	1.014	25.76	901	1340
20	0.080	2.03	1.066	27.08	949	1412
25	0.080	2.03	1.184	30.07	1168	1739
30	0.080	2.03	1.254	31.85	1379	2052
37	0.080	2.03	1.355	34.42	1674	2491

XHHW/CPE, 600V, Type TC Control Cable

Applications:

XHHW/CPE type TC Control Cable is for use in industrial power or control circuits where small diameter, flame retardant cables are desired. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Control Cable is also listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10.Conductors may be used in wet or dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper, available in size AWG14, 12, 10(Type XHHW-2)

Insulation:
Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Jacket: Flame retardant, moisture and sunlight resistant CPE (PVC/LSOH is available upon request)

Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables
- UL 1685 - UL Flame Exposure Test (70,000 Btu/hr)
- ICEA S-58-679 - Control Cable Conductor Identification Method 1, Table 2
- IEEE 1202 - Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)

Parameters:

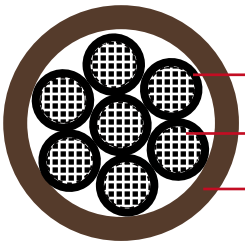
No.of Cores	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
AWG 14 (7 strands)						
2	0.045	1.14	0.349	8.86	62	92
3	0.045	1.14	0.370	9.40	85	127
4	0.045	1.14	0.403	10.24	104	155
5	0.045	1.14	0.440	11.18	123	183
7	0.045	1.14	0.479	12.17	163	242
9	0.060	1.52	0.588	14.94	220	327
12	0.060	1.52	0.659	16.74	282	419
15	0.060	1.52	0.730	18.54	343	511
19	0.060	1.52	0.768	19.51	420	624
25	0.080	2.03	0.938	23.83	576	857
37	0.080	2.03	1.067	27.10	811	1206
AWG 12 (7 strands)						
2	0.045	1.14	0.384	9.75	84	125
3	0.045	1.14	0.408	10.36	114	169
4	0.045	1.14	0.445	11.30	145	216
5	0.045	1.14	0.487	12.37	170	252
7	0.060	1.52	0.562	14.27	241	358
9	0.060	1.52	0.651	16.54	303	452
12	0.060	1.52	0.732	18.59	392	583
15	0.060	1.52	0.813	20.65	480	714
19	0.080	2.03	0.896	22.76	622	925
25	0.080	2.03	1.043	26.49	804	1196
37	0.080	2.03	1.190	30.23	1144	1702
AWG 10 (7 strands)						
2	0.045	1.14	0.431	10.95	114	170
3	0.045	1.14	0.459	11.66	159	236
4	0.045	1.14	0.502	12.75	204	303
5	0.060	1.52	0.581	14.76	257	382
7	0.060	1.52	0.632	16.05	342	510
9	0.060	1.52	0.736	18.69	433	645
12	0.080	2.03	0.870	22.10	593	883
15	0.080	2.03	0.964	24.49	726	1081

XHHW/XLPO, Type TC Control

Applications:

XHHWXLPO type TC Control Cable is for use in industrial power or control circuits where small diameter, flame retardant cables are desired. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Control Cable is also listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10. Conductors may be used in wet or dry locations at temperatures not to exceed 90°C.

Construction:



Conductor:
Stranded bare annealed copper

Insulation:
Flame-retardant and moisture resistant Cross-Linked Polyethylene (XLPE)

Jacket: Low smoke halogen free polyethylene jacket

Color: upon request, black is preferable

Compliances:

- UL 1277 - Electrical Power and Control Tray Cables.
- UL 1581 - Electrical Wires, Cables and Flexible Cords
- ICEA S-58-679 Method 1
- UL 1685 - UL Flame Exposure Test (70,000 Btu/hr).
- ICEA T-29-520 - Vertical Cable Tray Flame Test (210,000 Btu/hr).
- IEEE 1202 - Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA S-95-658 (NEMA WC 70) RoHS

Parameters:

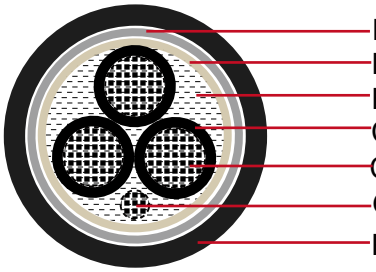
No.of Cores	Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
AWG 14 (7 strands)						
2	0.045	1.14	0.349	8.86	63	94
3	0.045	1.14	0.370	9.40	87	129
4	0.045	1.14	0.403	10.24	106	157
5	0.045	1.14	0.440	11.18	125	186
6	0.045	1.14	0.479	12.17	146	218
7	0.045	1.14	0.479	12.17	164	245
8	0.060	1.52	0.549	13.94	201	299
9	0.060	1.52	0.588	14.94	223	332
10	0.060	1.52	0.638	16.21	247	367
12	0.060	1.52	0.659	16.74	285	424
15	0.060	1.52	0.730	18.54	347	517
19	0.060	1.52	0.768	19.51	424	630
20	0.060	1.52	0.808	20.52	446	664
25	0.080	2.03	0.938	23.83	582	866
30	0.080	2.03	0.991	25.17	680	1012
37	0.080	2.03	1.067	27.10	818	1217
AWG 12 (7 strands)						
2	0.045	1.14	0.384	9.75	85	127
3	0.045	1.14	0.408	10.36	115	172
4	0.045	1.14	0.445	11.30	147	219
5	0.045	1.14	0.487	12.37	171	255
6	0.060	1.52	0.562	14.27	217	323
7	0.060	1.52	0.562	14.27	244	363
8	0.060	1.52	0.607	15.42	275	410
9	0.060	1.52	0.651	16.54	307	457
10	0.060	1.52	0.709	18.01	340	506
12	0.060	1.52	0.732	18.59	396	589
15	0.060	1.52	0.813	20.65	484	721
19	0.080	2.03	0.896	22.76	628	934
20	0.080	2.03	0.942	23.93	661	984
25	0.080	2.03	1.043	26.49	811	1207
30	0.080	2.03	1.104	28.04	953	1418
37	0.080	2.03	1.190	30.23	1152	1714
AWG 10 (7 strands)						
2	0.045	1.14	0.431	10.95	116	172
3	0.045	1.14	0.459	11.66	161	239
4	0.045	1.14	0.502	12.75	205	306
5	0.060	1.52	0.581	14.76	260	387
6	0.060	1.52	0.632	16.05	306	455
7	0.060	1.52	0.632	16.05	346	514
8	0.060	1.52	0.685	17.40	392	583
9	0.060	1.52	0.736	18.69	437	651
10	0.060	1.52	0.803	20.40	485	721
12	0.080	2.03	0.870	22.10	599	892
15	0.080	2.03	0.964	24.49	733	1091
19	0.080	2.03	1.014	25.76	901	1340
20	0.080	2.03	1.066	27.08	949	1412
25	0.080	2.03	1.184	30.07	1168	1739
30	0.080	2.03	1.254	31.85	1379	2052
37	0.080	2.03	1.355	34.42	1674	2491

XHHW-2, AL armor, 600V Type MC

Applications:

600 Volt Type MC Cable is for use in aerial installations, direct burial, metal racks, cable trays, troughs or continuous rigid cable supports. Listed by Underwriters Laboratories as Type MC, this cable is capable of operating continuously at a maximum conductor temperature of 90° C in wet or dry locations. For use in Class I Div. 2, Class II Div. 2, & Class III Div. 1, hazardous locations.

Construction:



Conductor:

Class B compressed concentric stranded bare copper in accordance with ASTM B3 and B8 and ICEA

Insulation:

Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE).

Ground Wire:

Class B compressed concentric stranded bare copper in accordance with ASTM B3 and B8.

Assembly:

The insulated conductors will be cabled round with fillers and with a grounding conductor in one outer interstice and covered with a binder tape.

Armor:

A single strip of interlocked aluminum tape.

Jacket:

Flame retardant, sun resistant PVC (CPE/LSOH is available upon request)

Color:

upon request, black is preferable

Compliances:

- ► UL 44 - Thermoset-Insulated Wires and Cables
- ► UL 1569 - Metal-Clad Cables
- ► IEEE 1202 - Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ► ICEA T-29-520 - Vertical Cable Tray Flame Tests (210,000 Btu/hr)
- ► ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

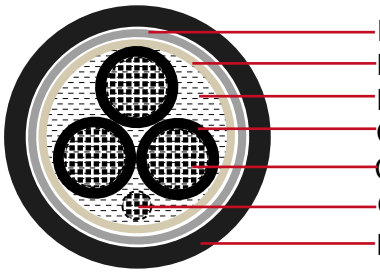
AWG or kcmil	Conductor Inch/mm		Nominal Insulation Thickness Inch/mm		Nominal Insulation Diameter Inch/mm		Grou-nd Wire Size	Core Diameter Inch/mm		Armor Diameter Inch/mm		Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
3 cores																	
8	0.139	3.53	0.045	1.14	0.232	5.89	10	0.510	12.95	0.720	18.29	0.050	1.27	0.820	20.83	405	603
6	0.174	4.42	0.045	1.14	0.267	6.78	8	0.586	14.88	0.796	20.22	0.050	1.27	0.896	22.76	550	819
4	0.221	5.61	0.045	1.14	0.314	7.98	8	0.685	17.40	0.895	22.73	0.050	1.27	0.995	25.27	727	1082
2	0.277	7.04	0.045	1.14	0.370	9.40	6	0.808	20.52	1.018	25.86	0.050	1.27	1.118	28.40	1048	1560
1	0.322	8.18	0.055	1.40	0.435	11.05	6	0.948	24.08	1.158	29.41	0.050	1.27	1.258	31.95	1269	1888
1/0	0.362	9.19	0.055	1.40	0.475	12.07	6	1.034	26.26	1.244	31.60	0.050	1.27	1.344	34.14	1533	2281
2/0	0.405	10.29	0.055	1.40	0.518	13.16	6	1.127	28.63	1.337	33.96	0.050	1.27	1.437	36.50	1823	2713
3/0	0.454	11.53	0.055	1.40	0.567	14.40	4	1.233	31.32	1.443	36.65	0.050	1.27	1.543	39.19	2262	3366
4/0	0.510	12.95	0.055	1.40	0.623	15.82	4	1.354	34.39	1.664	42.27	0.060	1.52	1.784	45.31	2814	4187
250	0.558	14.17	0.065	1.65	0.691	17.55	4	1.501	38.13	1.811	46.00	0.060	1.52	1.931	49.05	3275	4874
350	0.661	16.79	0.065	1.65	0.794	20.17	3	1.723	43.76	2.033	51.64	0.060	1.52	2.153	54.69	4396	6542
500	0.790	20.07	0.065	1.65	0.923	23.44	2	2.002	50.85	2.312	58.72	0.075	1.91	2.462	62.53	6104	9083
750	0.968	24.59	0.080	2.03	1.131	28.73	1	2.455	62.36	2.765	70.23	0.075	1.91	2.915	74.04	8860	13184
4 cores																	
250	0.558	14.17	0.065	1.65	0.691	17.55	4	1.676	42.57	1.986	50.44	0.060	1.52	2.106	53.49	4204	6255
350	0.661	16.79	0.065	1.65	0.794	20.17	3	1.925	48.90	2.235	56.77	0.060	1.52	2.355	59.82	5647	8402
500	0.790	20.07	0.065	1.65	0.923	23.44	2	2.240	56.90	2.550	64.77	0.075	1.91	2.700	68.58	7857	11691

XHHW-2, Galvanized steel armor, 600V Type MC

Applications:

600 Volt Type MC Cable is for use in aerial installations, direct burial, metal racks, cable trays, troughs or continuous rigid cable supports. Listed by Underwriters Laboratories as Type MC, this cable is capable of operating continuously at a maximum conductor temperature of 90°C in wet or dry locations.

Construction:



Conductor:

Class B compressed concentric stranded bare copper in accordance with ASTM B3 and B8 and ICEA

Insulation:

Flame-retardant and moisture resistant Cross-Linked Polyethylene (FRXLPE)

Ground Wire:

Class B compressed concentric stranded bare copper in accordance with ASTM B3 and B8

Assembly:

The insulated conductors will be cabled round with fillers and with a grounding conductor in one outer interstice and covered with a binder tape

Armor:

A single strip of interlocked galvanized steel tape.

Jacket:

Flame retardant, sun resistant PVC (CPE/LSOH is available upon request)

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 1569 - Metal-Clad Cables
- IEEE 1202 - Flame Testing of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA T-29-520 - Vertical Cable Tray Flame Tests (210,000 Btu/hr)
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

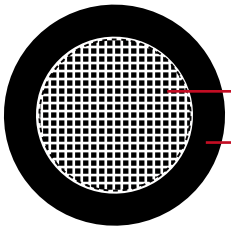
AWG or kcmil	Conductor Inch/mm		Nominal Insulation Thickness Inch/mm		Nominal Insulation Diameter Inch/mm		Grou -nd Wire Size	Core Diameter Inch/mm		Armor Diameter Inch/mm		Nominal jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
3 cores																	
8**	0.139	3.53	0.045	1.14	0.232	5.89	10	0.510	12.95	0.720	18.29	0.050	1.27	0.820	20.83	511	761
6**	0.174	4.42	0.045	1.14	0.267	6.78	8	0.586	14.88	0.796	20.22	0.050	1.27	0.896	22.76	671	999
4	0.221	5.61	0.045	1.14	0.314	7.98	8	0.685	17.40	0.895	22.73	0.050	1.27	0.995	25.27	867	1290
2	0.277	7.04	0.045	1.14	0.370	9.40	6	0.808	20.52	1.018	25.86	0.050	1.27	1.118	28.40	1211	1802
1	0.322	8.18	0.055	1.40	0.435	11.05	6	0.948	24.08	1.158	29.41	0.050	1.27	1.258	31.95	1458	2170
1/0	0.362	9.19	0.055	1.40	0.475	12.07	6	1.034	26.26	1.244	31.60	0.050	1.27	1.344	34.14	1738	2586
2/0	0.405	10.29	0.055	1.40	0.518	13.16	6	1.127	28.63	1.337	33.96	0.050	1.27	1.437	36.50	2046	3044
3/0	0.454	11.53	0.055	1.40	0.567	14.40	4	1.233	31.32	1.443	36.65	0.050	1.27	1.543	39.19	2504	3727
4/0	0.510	12.95	0.055	1.40	0.623	15.82	4	1.354	34.39	1.564	39.73	0.060	1.52	1.684	42.77	3131	4659
250	0.558	14.17	0.065	1.65	0.691	17.55	4	1.501	38.13	1.711	43.46	0.060	1.52	1.831	46.51	3627	5397
350	0.661	16.79	0.065	1.65	0.794	20.17	3	1.723	43.76	1.933	49.10	0.060	1.52	2.053	52.15	4800	7142
500	0.790	20.07	0.065	1.65	0.923	23.44	2	2.002	50.85	2.212	56.18	0.060	1.52	2.332	59.23	6505	9679

RHH/RHW-2, 600V, Power Cable, CT Rated

Applications:

Type RHH or RHW-2 or USE-2 conductors are for use in conduit or cable tray as specified in the NEC®. When used as Type USE-2 conductor is suitable for use as underground service entrance cable for direct burial at conductor temperatures not to exceed 90°C. When used as RHH or RHW-2, conductor temperatures shall not exceed 90°C in wet or dry locations. Voltage rating for RHH or RHW-2 or USE-2 conductors is 600V.

Construction:



Conductor:

Stranded bare annealed soft copper

Insulation:

Flame-retardant, abrasion, moisture and heat resistant Cross-Linked Polyethylene (FRXLPE)

Color: upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 1581 - UL Flame Exposure Test (VW-1)
- UL 854 - Service Entrance Cables.
- UL 1685 - UL Flame Exposure Test
- ICEA S-95-658 (NEMA WC70)
- IEEE 1202/FT4 - Flame Test (4/0 and Larger) of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

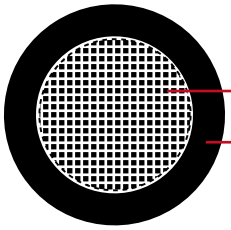
AWG or kcmil	Strand	Conductor Diameter Inch/mm		Nominal insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper Weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
14	7	0.07	1.78	0.045	1.14	0.17	4.32	13	19	24	36
12	7	0.09	2.29	0.045	1.14	0.19	4.83	20	30	33	49
10	7	0.12	3.05	0.045	1.14	0.21	5.33	32	48	48	71
8	7	0.15	3.81	0.060	1.52	0.27	6.86	50	75	78	116
6	7	0.18	4.57	0.060	1.52	0.31	7.87	81	121	114	170
4	7	0.23	5.84	0.060	1.52	0.36	9.14	129	192	169	252
2	7	0.29	7.37	0.060	1.52	0.42	10.67	205	305	254	378
1/0	19	0.37	9.40	0.080	2.03	0.53	13.46	326	485	403	600
2/0	19	0.41	10.41	0.080	2.03	0.58	14.73	411	612	501	746
4/0	19	0.52	13.21	0.080	2.03	0.69	17.53	653	972	760	1131
250	37	0.56	14.22	0.095	2.41	0.77	19.56	772	1149	906	1349
350	37	0.67	17.02	0.095	2.41	0.87	22.10	1081	1609	1237	1841
500	37	0.80	20.32	0.095	2.41	1.00	25.40	1542	2295	1730	2575
750	61	0.98	24.89	0.110	2.79	1.22	30.99	2316	3447	2576	3834
1000	61	1.13	28.70	0.110	2.79	1.37	34.80	3086	4593	3405	5068

RHH/RHW, copper, 2000V

Applications:

Type RHH, RHW-2 copper wire is suitable for wiring in raceways, conduit, etc. Applications include general purpose wiring for power distribution, services, feeders, and branch circuit wiring in residential, industrial, and commercial buildings.

Construction:



Conductor:

Stranded bare annealed copper

Insulation:

Flame-retardant, abrasion, moisture and heat resistant Cross-Linked Polyethylene (FRXLPE)

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 854 - Service Entrance Cables
- ICEA S-95-658 (NEMA WC 70)

Parameters:

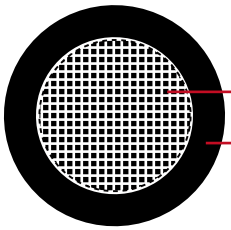
AWG or kcmil	Strand	Nominal insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
14	7	0.060	1.52	0.193	4.90	25	37
12	7	0.060	1.52	0.212	5.38	34	51
10	7	0.060	1.52	0.236	5.99	48	71
8	7	0.070	1.78	0.286	7.26	73	109
6	7	0.070	1.78	0.324	8.23	106	158
4	7	0.070	1.78	0.372	9.45	158	235
3	7	0.070	1.78	0.4	10.16	195	290
2	7	0.070	1.78	0.432	10.97	240	357
1	19	0.090	2.29	0.501	12.73	310	461
1/0	19	0.090	2.29	0.54	13.72	382	568
2/0	19	0.090	2.29	0.584	14.83	472	702
3/0	19	0.090	2.29	0.634	16.10	586	872
4/0	19	0.090	2.29	0.69	17.53	728	1083
250	37	0.105	2.67	0.785	19.94	871	1296
300	37	0.105	2.67	0.839	21.31	1,033	1537
350	37	0.105	2.67	0.891	22.63	1,195	1778
400	37	0.105	2.67	0.938	23.83	1,357	2019
500	37	0.105	2.67	1.023	25.98	1,677	2495
600	61	0.120	3.05	1.131	28.73	2,021	3007
750	61	0.120	3.05	1.238	31.45	2,501	3721

RHH/RHW-2, Single AL Conductor, 2000V

Applications:

Type RHH, RHW-2 copper wire is for use from the lower control box at the base of the wind power tower and out to the step-up transformer through conduit, and industrial environments where superior insulation toughness and chemical resistance is required. The maximum operating temperature not to exceed 90°C in wet or dry locations.

Construction:



Conductor:

Stranded compacted aluminum(AA-8000 series)

Insulation:

Flame-retardant Cross-Linked Polyethylene (XLPE)

Color:

upon request, black is preferable

Compliances:

- National Electric Code (NEC)
- UL 44 Stranded for rubber-insulated wires and cables
- ICEA S-95-685/NEMA WC70
- UL listed as Type RHH/RHW-2
- OSHA acceptable

Parameters:

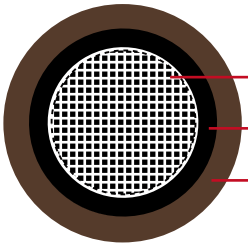
AWG or kcmil	Strand	Conductor Diameter Inch/mm		Nominal insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Aluminum Weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
8	7	0.134	3.40	0.070	1.78	0.285	7.20	15.49	23.05	38.15	56.78
6	7	0.169	4.29	0.070	1.78	0.320	8.10	24.60	36.61	51.08	76.01
4	7	0.213	5.41	0.070	1.78	0.360	9.10	40.20	59.82	71.50	106.40
2	2	0.268	6.81	0.070	1.78	0.420	10.70	62.40	92.86	100.10	148.96
1	18	0.301	7.65	0.090	2.29	0.495	12.60	77.81	115.79	133.76	199.05
1/0	18	0.339	8.61	0.090	2.29	0.530	13.50	100.12	148.99	160.82	239.32
2/0	15	0.379	9.63	0.090	2.29	0.580	14.70	123.90	184.38	191.50	284.97
3/0	18	0.426	10.82	0.090	2.29	0.615	15.60	156.22	232.47	228.68	340.30
4/0	18	0.476	12.09	0.090	2.29	0.665	16.90	201.40	299.70	281.10	418.31
250	35	0.524	13.31	0.105	2.70	0.745	18.90	233.50	347.47	336.15	500.23
350	35	0.619	15.72	0.105	2.70	0.840	21.30	330.90	492.41	448.90	668.00
500	35	0.740	18.80	0.105	2.70	0.960	24.40	467.10	695.09	604.77	899.96
600	58	0.820	20.83	0.105	2.70	1.040	26.40	559.50	832.59	710.14	1056.76
750	58	0.910	23.11	0.120	3.05	1.175	29.90	700.50	1042.41	901.20	1341.08
1000	58	1.060	26.92	0.120	3.05	1.325	33.70	939.00	1397.33	1168.00	1738.10

RHH or RHW, EPR/XLPO, 600 Volt

Applications:

600 Volt EPR/XLPO Type RHH or RHW-2 or USE-2 is suited for use in mass transit and general industry applications where flexibility, fire resistance, and low smoke generation are concerns. May be installed in wet or dry locations (including direct burial for size AWG 8 and larger) in cable trays or in raceways. These cables are capable of operating continuously at a conductor temperature not in excess of 90°C for normal operation, 130°C for emergency overload conditions, and 250°C for circuit conditions.

Construction:



Conductor:

Class B compressed concentric stranded bare copper in accordance with ASTM B3 and B8 and ICEA.

Insulation:

Being resistant to moisture, most oils, acids, and alkalies EPR (ethylene propylene rubber) insulation

Jacket:

Flame retardant, moisture and sunlight resistant XLPO

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 1581 - UL Flame Exposure Test (VW-1)
- UL 1685 - UL Flame Exposure Test
- ICEA S-68-516 (NEMA WC8)
- RoHS

Parameters:

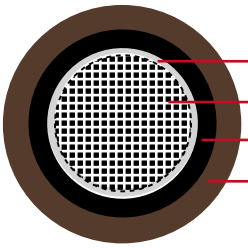
AWG or kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominal Jacket Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
2	7	0.045	1.14	0.030	0.76	0.445	11.3	250	372
1	19	0.055	1.40	0.045	1.14	0.524	13.3	335	499
1/0	19	0.055	1.40	0.045	1.14	0.563	14.3	410	610
2/0	19	0.055	1.40	0.045	1.14	0.607	15.4	503	749
3/0	19	0.055	1.40	0.045	1.14	0.657	16.7	673	921
4/0	19	0.055	1.40	0.045	1.14	0.713	18.1	764	1137
250	37	0.065	1.65	0.065	1.65	0.838	21.3	940	1399
350	37	0.065	1.65	0.065	1.65	0.944	24.0	1274	1896
500	37	0.065	1.65	0.065	1.65	1.076	27.3	1769	2633
750	61	0.080	2.03	0.065	1.65	1.291	32.8	2616	3893
1000	61	0.080	2.03	0.065	1.65	1.445	36.7	3428	5101

RHH or RHW-2 or USE-2, 600V, EPR / CSPE

Applications:

These cables are designed for use in lighting and power applications. Suitable for use in circuits not exceeding 600 volts at conductor temperatures not exceeding 90°C in wet and dry locations. May be installed in raceways, duct, cable tray, direct burial and aerial installations. Sizes 1/0 AWG and larger can be installed in cable tray.

Construction:



Conductor:

Class B stranded, soft annealed, tin coated copper in accordance with ASTM B33 and B8 and ICEA.

Separator (Optional):

A suitable opaque separator tape used over the conductor to facilitate stripping.

Insulation:

Ethylene Propylene Rubber compound (EPR).

Jacket:

Heavy duty, oil-resistant Chlorosulfonated Polyethylene (CSPE); VW-1 Rated.

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 854 - Service Entrance Cables
- ICEA S-95-658 (NEMA WC 70)
- IEEE 383 - Flame Test(70,000 BTU/hr)

Parameters:

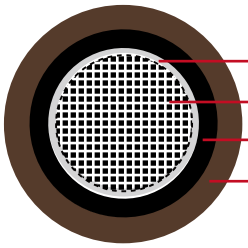
AWG or kcmil	Strand	Nominal insulation Inch/mm		Nominal jacket Inch/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
14	7	0.030	0.76	0.015	0.38	0.175	4.45	25	37
12	7	0.030	0.76	0.015	0.38	0.190	4.83	33	49
10	7	0.030	0.76	0.015	0.38	0.215	5.46	47	70
8	7	0.045	1.14	0.015	0.38	0.275	6.99	75	112
6	7	0.045	1.14	0.030	0.76	0.345	8.76	120	179
4	7	0.045	1.14	0.030	0.76	0.395	10.03	176	262
2	7	0.045	1.14	0.030	0.76	0.455	11.56	262	390
1/0	19	0.055	1.40	0.045	1.14	0.585	14.86	420	625
2/0	19	0.055	1.40	0.045	1.14	0.630	16.00	517	769
3/0	19	0.055	1.40	0.045	1.14	0.680	17.27	650	967
4/0	19	0.055	1.40	0.045	1.14	0.740	18.80	779	1159
250	37	0.065	1.65	0.065	1.65	0.845	21.46	952	1416
300	37	0.065	1.65	0.065	1.65	0.900	22.86	1290	1919
350	37	0.065	1.65	0.065	1.65	0.950	24.13	1280	1904
500	37	0.065	1.65	0.065	1.65	1.080	27.43	1770	2633
750	61	0.080	2.03	0.065	1.65	1.290	32.77	2630	3913
1000	61	0.080	2.03	0.065	1.65	1.445	36.70	3440	5118

RHH-RHW, DLO, 600V - 2000V

Applications:

RHH-RHW, DLO (Diesel Locomotive Cable) type is designed for use as motor and power leads where flexibility and portability are required. DLO cables are also suitable for use in wiring diesel-electric locomotives, railroad and transit cars, earth moving equipment, offshore drilling rigs, storage batteries, charging equipment and in sizes 1/0 AWG and larger, flexible wiring for installation in conduit or tray per the NEC.

Construction:



Conductor:

Flexible stranded tin-coated copper

Separator:

A suitable opaque separator tape used over the conductor to facilitate stripping.

Insulation: EPR (Ethylene-Propylene Rubber) thermosetting compound, 90°C.

Jacket: Heavy duty, oil-resistant CPE or CSPE

Color: upon request, black is preferable

Compliances:

- ICEA S-75-381, Portable and Power Feeder Cables for use in Mines and Similar applications.
- ASTM B-33, ASTM B-172 & ASTM B-174
- UL 44 Listed as RHH-RHW
- MSHA accepted

Parameters:

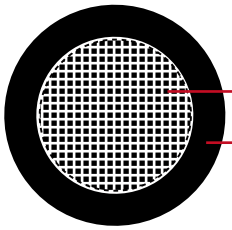
AWG or kcmil	Strand	Nominal insulation mils/mm		Nominal jacket mils/mm		Nominal Overall Diameter Inch/mm		Cable Weight Lbs/kft kg/km	
2000V									
14	19	0.045	1.14	0.030	0.76	0.224	5.69	35	52
12	19	0.045	1.14	0.030	0.76	0.244	6.20	45	67
10	27	0.045	1.14	0.030	0.76	0.278	7.06	65	97
8	37	0.060	1.52	0.030	0.76	0.327	8.31	89	132
6	61	0.060	1.52	0.030	0.76	0.387	9.83	130	193
5	91	0.060	1.52	0.030	0.76	0.431	10.95	176	262
4	105	0.060	1.52	0.030	0.76	0.451	11.46	197	293
3	125	0.060	1.52	0.030	0.76	0.475	12.07	227	338
2	150	0.060	1.52	0.030	0.76	0.501	12.73	263	391
1	225	0.080	2.03	0.045	1.14	0.647	16.43	415	617
1/0	275	0.080	2.03	0.045	1.14	0.697	17.70	492	732
2/0	325	0.080	2.03	0.045	1.14	0.734	18.64	564	839
3/0	450	0.080	2.03	0.045	1.14	0.812	20.62	741	1102
4/0	550	0.080	2.03	0.045	1.14	0.867	22.02	881	1311
262.6	650	0.095	2.41	0.065	1.65	0.987	25.07	1089	1620
313.1	775	0.095	2.41	0.065	1.65	1.052	26.72	1268	1887
373.7	925	0.095	2.41	0.065	1.65	1.122	28.50	1479	2200
444.4	1100	0.095	2.41	0.065	1.65	1.197	30.40	1734	2580
535.3	1325	0.110	2.79	0.065	1.65	1.305	33.15	2081	3096
646.4	1600	0.110	2.79	0.065	1.65	1.397	35.48	2461	3661
777.7	1925	0.110	2.79	0.065	1.65	1.487	37.77	2903	4319
929.2	2300	0.110	2.79	0.065	1.65	1.594	40.49	3417	5084
1111	2750	0.125	3.18	0.065	1.65	1.756	44.60	4084	6076
600V									
16	26	0.030	0.76	0.030	0.76	0.180	4.57	25	37
14	41	0.045	1.14	0.030	0.76	0.225	5.72	40	60
12	65	0.045	1.14	0.030	0.76	0.245	6.22	50	74
10	104	0.045	1.14	0.030	0.76	0.270	6.86	70	104

RHH/RHW-2/USE-2, FR-EPR, 600V

Applications:

RHH/RHW-2/USE-2, FR-EPR type is for use in broad range of commercial, industrial and utility applications where reliability is the major concern, where maximum performance will be demanded and where space is limited, and usually used in free air, raceways or direct burial in accordance with NEC.

Construction:



Conductor: Compressed stranded annealed bare copper, Class B stranding per ASTM B8

Insulation: Flame-retardant Ethylene Propylene Rubber (EPR)

Color: upon request, black is preferable

Compliances:

- National Electrical Code (NEC)
- UL 44 Type RHH/RHW-2
- UL 854 Type USE-2
- ICEA S-95-658/NEMA WC70)
- “FOR CT USE” on 1/0 AWG and larger in accordance with NEC
- UL Listed VW-1
- UL 1581 VW-1
- For 1/0 AWG and larger: IEEE 383, IEEE 1202/CSA FT4, ICEA T-29-520
- OSHA acceptable

Parameters:

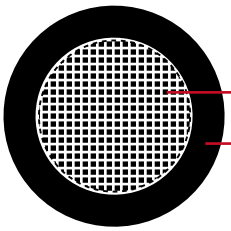
AWG or kcmil	Strand	Conductor Diameter Inch/mm		Nominal Insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
14	7	0.07	1.78	0.045	1.14	0.17	4.32	13	19	24	36
12	7	0.09	2.29	0.045	1.14	0.19	4.83	20	30	33	49
10	7	0.12	3.05	0.045	1.14	0.21	5.33	32	48	48	71
8	7	0.15	3.81	0.060	1.52	0.27	6.86	50	75	78	116
6	7	0.18	4.57	0.060	1.52	0.31	7.87	81	121	114	170
4	7	0.23	5.84	0.060	1.52	0.36	9.14	129	192	169	252
2	7	0.29	7.37	0.060	1.52	0.42	10.67	205	305	254	378
1/0	19	0.37	9.40	0.080	2.03	0.53	13.46	326	485	402	598
2/0	19	0.41	10.41	0.080	2.03	0.58	14.73	411	612	500	744
4/0	19	0.52	13.21	0.080	2.03	0.69	17.53	653	972	759	1130
250	37	0.56	14.22	0.095	2.41	0.77	19.56	772	1149	905	1347
350	37	0.67	17.02	0.095	2.41	0.87	22.10	1081	1609	1235	1838
500	37	0.80	20.32	0.095	2.41	1.00	25.40	1542	2295	1728	2572
750	61	0.98	24.89	0.110	2.79	1.22	30.99	2316	3447	2573	3829
1000	61	1.13	28.70	0.110	2.79	1.37	34.80	3086	4593	3402	5063

RHH/RHW-LS/USE, XLPO, LSOH, CSA AWM I A/B, Class I*

Applications:

RHH/RHW-2/USE-2, XLPO type is for use in conduit, open tray, underground duct and aerial installations when properly supported and installed, RHH/RHW ratings is for installation in conduit or raceway, USE rating is for direct burial applications and CT rated for installation in cable tray（1/0 AWG and larger）, it is for use in all closed environments or populated spaces such as auditoriums, arenas and health facilities where more stringent specifications for smoke and toxicity emission levels are desired, for use in broad range of commercial, industrial and utility applications where reliability is the major concern, where maximum performance will be demanded and where space is limited.

Construction:



Conductor:

Tinned coated copper per ASTM B3 and B33. Class I stranding per ASTM B8

Insulation:

Flame-retardant, oil-resistant, limited smoke, Cross-Linked Polyolefin (XLPO)

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 758 - Appliance Wiring Material
- UL 854 - Service Entrance Cables.
- UL 1685 - UL Vertical Tray Fire
- ICEA S-95-658 (NEMA WC70)
- IEEE 1202 (70,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- Telcordia GR347 Core
- UL Listed VW-1
- CSA FT4
- CSA Standard C22.2 No. 0.3 and No. 210.2
- Meets EPA 40 CFR, Part 261 for leachable lead content per TCLP method
- OSHA acceptable

Parameters:

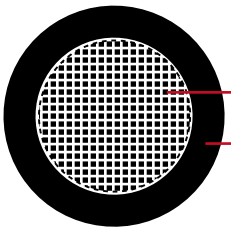
AWG or kcmil	Strand (class I*)	Conductor Diameter Inch/mm		Nominal insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
14	41	0.07	1.88	0.045	1.14	0.18	4.57	14	20	20	29
12	65	0.09	2.39	0.045	1.14	0.20	5.08	21	31	27	40
10	65	0.12	3.15	0.045	1.14	0.23	5.84	33	48	39	58
8	41	0.16	4.06	0.060	1.52	0.29	7.37	51	76	59	87
6	63	0.21	5.33	0.060	1.52	0.34	8.64	80	119	120	179
4	105	0.26	6.60	0.060	1.52	0.38	9.65	134	199	184	274
2	161	0.32	8.13	0.060	1.52	0.45	11.43	205	305	266	396
1	210	0.38	9.65	0.080	2.03	0.55	13.97	261	389	356	530
1/0	259	0.42	10.67	0.080	2.03	0.59	14.99	329	489	433	644
2/0	329	0.47	11.94	0.080	2.03	0.64	16.26	417	621	529	787
3/0	413	0.53	13.46	0.080	2.03	0.71	18.03	524	780	654	973
4/0	532	0.61	15.49	0.080	2.03	0.78	19.81	682	1014	831	1237
250	608	0.65	16.51	0.095	2.41	0.85	21.59	779	1159	946	1408
350	851	0.78	19.81	0.095	2.41	1.00	25.40	1095	1630	1301	1936
500	1221	0.95	24.13	0.095	2.41	1.16	29.46	1517	2258	1821	2710
750	1850	1.11	28.19	0.110	2.79	1.36	34.54	2408	3584	2723	4052

RHH/RHW-LS/USE, XLPO, LSOH, CSA AWM I A/B, Class B

Applications:

RHH/RHW-2/USE-2, XLPO type is for use in conduit, open tray, underground duct and aerial installations when properly supported and installed, RHH/RHW ratings is for installation in conduit or raceway,USE rating is for direct burial applications and CT rated for installation in cable tray(1/0 AWG and larger), it is for use in all closed environments or populated spaces such as auditoriums, arenas and health facilities where more stringent specifications for smoke and toxicity emission levels are desired, for use in broad range of commercial, industrial and utility applications where reliability is the major concern, where maximum performance will be demanded and where space is limited.

Construction:



Conductor:

Tinned coated compressed copper per ASTM B3 and B33. Class B stranding per ASTM B8

Insulation:

Flame-retardant, oil-resistant, limited smoke, Cross-Linked Polyolefin (XLPO)

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset-Insulated Wires and Cables
- UL 758 - Appliance Wiring Material
- UL 854 - Service Entrance Cables.
- UL 1685 - UL Vertical Tray Fire
- ICEA S-95-658 (NEMA WC70)
- IEEE 1202 (70,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- Telcordia GR347 Core
- UL Listed VW-1
- CSA FT4
- CSA Standard C22.2 No. 0.3 and No. 210.2
- Meets EPA 40 CFR, Part 261 for leachable lead content per TCLP method
- OSHA acceptable

Parameters:

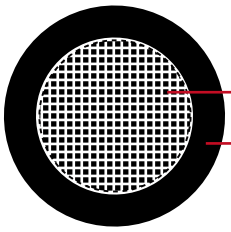
AWG or kcmil	Strand (class B)	Conductor Diameter Inch/mm		Nominal insulation Thickness Inch/mm		Nominal Overall Diameter Inch/mm		Copper weight Lbs/kft kg/km		Cable Weight Lbs/kft kg/km	
14	7	0.07	1.78	0.045	1.14	0.17	4.32	13	19	18	27
12	7	0.09	2.29	0.045	1.14	0.19	4.83	20	30	25	37
10	7	0.12	3.05	0.045	1.14	0.22	5.59	32	48	38	57
8	7	0.15	3.81	0.060	1.52	0.28	7.11	50	75	58	86
6	7	0.18	4.57	0.060	1.52	0.31	7.87	81	121	116	173
4	7	0.23	5.84	0.060	1.52	0.36	9.14	129	192	171	254
2	7	0.28	7.11	0.060	1.52	0.42	10.67	205	305	257	382
1	19	0.32	8.13	0.080	2.03	0.49	12.45	258	385	331	493
1/0	19	0.36	9.14	0.080	2.03	0.53	13.46	326	485	406	604
2/0	19	0.41	10.41	0.080	2.03	0.58	14.73	411	612	495	737
3/0	19	0.46	11.68	0.080	2.03	0.63	16.00	518	771	612	911
4/0	19	0.51	12.95	0.080	2.03	0.68	17.27	653	972	757	1126
250	37	0.56	14.22	0.095	2.41	0.76	19.30	772	1149	905	1347
350	37	0.66	16.76	0.095	2.41	0.87	22.10	1081	1609	1237	1841
500	37	0.79	20.07	0.095	2.41	1.00	25.40	1544	2298	1728	2571
750	61	0.97	24.64	0.110	2.79	1.21	30.73	2316	3447	2572	3827

USE-2

Application

The product can be installed as general purpose building wire, used in service entrance, feeders and branch circuits applications for residential, commercial, industrial and transportation environments for permanent installations utilizing 600 volts or less. Suitable for directly buried installations or ducts and can be used in environments where superior insulation toughness and chemical resistance is required.The product high resistance to humidity makes this cable suitable for wet location, for outdoors and for weather resistant use. USE-2 cable can be installed in electrical metallic tubing, PVC conduits and other raceways, in free air messenger support or directly buried. It is recommended that the installation instructions indicated by the Local Electric Code, or any equivalent, be followed, so that the safeguarding of persons and the integrity of the product will not be affected by deficiencies in the installation.

Construction



Conductor: Compressed stranded aluminum conductor 1359 H-19

Insulation: UL 854 recognized cross-linked polyethylene

Color: upon request, black is preferable

Compliances:

- B-230 Aluminum Wire, 1350-H19 for Electrical Purposes.
- B-231 Aluminum 1350 Conductors, Concentric-Lay-Stranded.
- UL 854 (for USE-2)

Parameters:

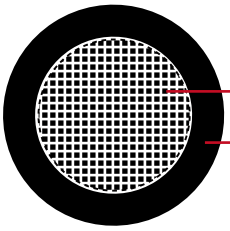
AWG or kcmil	Strands	Conductor Diameter Inch/mm		Nominal Insulation Thickness Inch/mm		Nominl Overall Diameter Inch/mm		Cable Weight Lbs/kft	kg/km
6	7	0.169	4.29	0.060	1.52	0.289	7.34	45	67
4	7	0.213	5.41	0.060	1.52	0.333	8.46	64	95
2	7	0.268	6.81	0.060	1.52	0.388	9.86	93	138
1	19	0.299	7.59	0.080	2.03	0.459	11.66	122	182
1/0	19	0.337	8.56	0.080	2.03	0.497	12.62	147	219
2/0	19	0.377	9.58	0.080	2.03	0.537	13.64	179	266
3/0	19	0.425	10.80	0.080	2.03	0.585	14.86	218	324
4/0	19	0.476	12.09	0.080	2.03	0.636	16.15	266	396
250	37	0.520	13.21	0.095	2.41	0.710	18.03	318	473
300	37	0.571	14.50	0.095	2.41	0.761	19.33	373	555
350	37	0.618	15.70	0.095	2.41	0.808	20.52	428	637
400	37	0.657	16.69	0.095	2.41	0.847	21.51	481	716
500	37	0.736	18.69	0.095	2.41	0.926	23.52	587	873
700	61	0.878	22.30	0.110	2.79	1.098	27.89	815	1213
750	61	0.906	23.01	0.110	2.79	1.126	28.60	867	1290
1,000	61	1.059	26.90	0.110	2.79	1.279	32.49	1130	1681

SIS Switchboard Wire

Applications:

Type SIS VW-1 for use at 600 Volts or less, rated for a maximum continuous operating temperature of 90˚C in wet and dry locations. For use in Class 1E low voltage applications in operation and interconnection of protective devices where optimum performance is required.

Construction:



Conductor:

Stranded tinned annealed copper per ASTM B33; Class B stranding per ASTM B8

Insulation:

Flame-retardant, heat, moisture and radiation resistant, thermoset Cross-Linked Polyethylene(FRXLPE)

Color:

upon request, black is preferable

Compliances:

- UL 44 - Thermoset Insulated Wires & Cables
- ICEA S-95-658/NEMA WC70(formerly ICEA S-66-524 & S-19-81)
- IEEE 383 (70,000 BTU/hr)
- ICEA T-29-520 (210,000 BTU/hr)
- UL 1581 VW-1

Parameters:

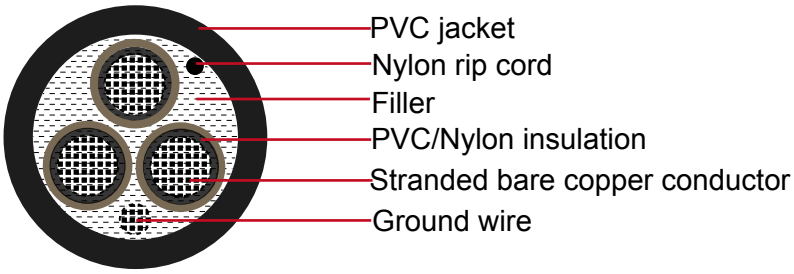
AWG or kcmil	Strand		Nominal insulation Thickness		Nominal Overall Diameter		Copper Weight		Cable Weight	
	Cl. B	Cl. C	Inch	mm	Inch	mm	Lbs/kft	kg/km	Lbs/kft	kg/km
18	7	19	0.030	0.76	0.108	2.69	5	8	9	14
16	7	19	0.030	0.76	0.118	2.95	8	12	13	19
14	7	19	0.030	0.76	0.133	3.33	13	19	19	28
12	7	19	0.030	0.76	0.152	3.81	20	30	27	41
10	7	19	0.030	0.76	0.175	4.39	32	48	41	60
8	7	19	0.045	1.14	0.236	5.92	51	76	68	100
6	7	19	0.045	1.14	0.273	6.86	81	121	101	151
4	7	19	0.045	1.14	0.320	8.05	129	192	154	229
2	7	19	0.045	1.14	0.379	9.55	205	305	237	353
1	19	37	0.055	1.40	0.437	11.0	258	384	298	444
1/0	19	37	0.055	1.40	0.476	12.0	326	485	371	552
2/0	19	37	0.055	1.40	0.521	13.2	411	612	462	687
3/0	19	37	0.055	1.40	0.571	14.4	518	771	575	856
4/0	19	37	0.055	1.40	0.627	15.9	653	972	717	1067
250	37	61	0.065	1.65	0.695	17.6	772	1149	852	1268
350	37	61	0.065	1.65	0.798	20.2	1081	1609	1176	1750
500	37	61	0.065	1.65	0.927	23.4	1544	2297	1659	2468
750	61	91	0.080	2.03	1.137	28.8	2316	3446	2480	3691
1000	61	91	0.080	2.03	1.287	32.6	3088	4595	3279	4879

THHN/THWN, 600V, Type TC Power Cable

Applications:

THHN/PVC, type TC Power Cable is used to supply power to motors, or for connection to other power devices in industrial settings. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC Power Cable is listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. This cable may be used at temperatures not to exceed 75°C in wet locations and 90°C in dry locations.

Construction:



Conductor:

Soft annealed bare copper, Class B stranding per ASTM B8

Insulation:

Polyvinyl chloride (PVC) insulation over with a nylon (polyamide) jacket applied

Ground Wire:

Soft annealed bare copper, Class B stranding per ASTM B8

Assembly:

Three or more conductors will be cabled round with fillers and a nylon rip cord is put under the jacket for ease of stripping

Jacket:

Heat, moisture and sunlight resistant PVC(LSOH is available upon request)

Color:

upon request, black is preferable

Compliances:

- ► UL 1277 - Electrical Power and Control Tray Cables
- ► ICEA S-58-679 - Control Cable Conductor Identification. Method 4
- ► UL 1685 - UL CT Flame Exposure Test (70,000 Btu/hr)
- ► ICEA T-29-520 - Vertical Cable Tray Flame Test (210,000 Btu/hr)
- ► IEEE 1202/FT4 - Flaming Test of Cables for Use in Cable Tray in Industrial and Commercial Occupancies (70,000 Btu/hr)
- ► ICEA S-95-658 (NEMA WC 70) construction requirements

Parameters:

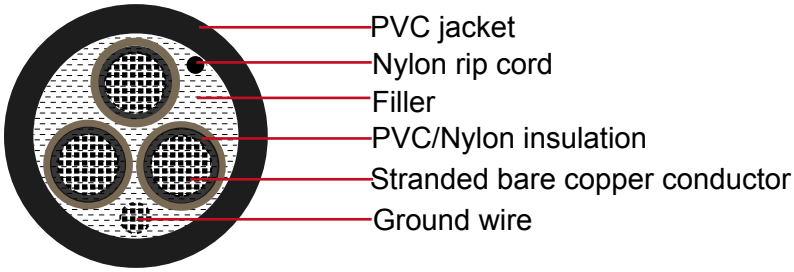
AWG or kcmil	Strand	Ground Wire Size AWG	Nominal jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft	kg/km
3 conductors								
8	7	10	0.060	1.52	0.625	15.88	295	440
6	7	8	0.060	1.52	0.710	18.03	435	647
4	7	8	0.060	1.52	0.795	20.19	606	902
2	7	6	0.080	2.03	0.958	24.33	942	1401
1	19	6	0.080	2.03	1.100	27.94	1195	1779
1/0	19	6	0.080	2.03	1.184	30.07	1445	2150
2/0	19	6	0.080	2.03	1.281	32.54	1734	2579
3/0	19	4	0.080	2.03	1.391	35.33	2163	3218
4/0	19	4	0.080	2.03	1.508	38.30	2617	3894
250	37	4	0.080	2.03	1.659	42.14	3070	4568
350	37	3	0.110	2.79	1.942	49.33	4276	6363
500	37	2	0.110	2.79	2.220	56.39	5906	8788
750	61	1	0.110	2.79	2.652	67.36	8609	12811
4 conductors								
8	7	10	0.060	1.52	0.685	17.40	369	548
6	7	8	0.060	1.52	0.780	19.81	549	817
4	7	8	0.080	2.03	0.914	23.22	808	1202
2	7	6	0.080	2.03	1.052	26.72	1197	1782
1	19	6	0.080	2.03	1.210	30.73	1532	2280
1/0	19	6	0.080	2.03	1.304	33.12	1838	2734
2/0	19	6	0.080	2.03	1.413	35.89	2238	3330
3/0	19	4	0.080	2.03	1.536	39.01	2782	4139
4/0	19	4	0.110	2.79	1.726	43.84	3477	5173
250	37	4	0.110	2.79	1.895	48.13	4095	6093
350	37	3	0.110	2.79	2.144	54.46	5530	8228
500	37	2	0.110	2.79	2.455	62.36	7652	11386
750	61	1	0.140	3.56	2.998	76.15	11365	16911

THHN/THWN, 600V, Type TC control Cable

Applications:

Type TC Control Cable is for use in industrial power or control circuits where small diameter, flame retardant cables are desired. Primary installations include cable trays, raceways, and outdoor locations where supported by a messenger wire. Type TC is also listed for direct burial and for use in Class 1, Division 2 hazardous locations and Class 1 control circuits. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10. Conductors may be used at temperatures not to exceed 75°C in wet locations or 90°C in dry locations. 130°C for emergency overload ratings, and 250°C for short circuit ratings. Not recommended in D.C. operation in wet locations.

Construction:



Conductor:

Soft annealed bare copper, Class B stranding per ASTM B8

Insulation:

Polyvinyl chloride (PVC) insulation over with a nylon (polyamide) jacket applied

Assembly:

Three or more conductors will be cabled round with fillers and a nylon rip cord is put under the jacket for ease of stripping

Jacket:

Heat retardant, moisture and sunlight resistant PVC

Color:

upon request, black is preferable

Compliances:

- NFPA 70 (NEC)
- UL 1581 - Electrical Wires, Cables and Flexible Cords
- ICEA S-58-679 - Control Cable Conductor Identification Method 1, Table 2
- UL 1685 - UL Flame Exposure Test (70,000 Btu/hr)

Parameters:

Insulation thickness : 16-12AWG PVC 15mils(0.38mm) Nylon 4mils(0.10mm)

10AWG PVC 20mils(0.50mm) Nylon 4mils(0.10mm)

AWG 16 (26 strands) - Type TC-TFFN* Conductors

Number of Conductors	Nominal jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft	kg/km
2	0.045	1.14	0.288	7.32	43	64
3	0.045	1.14	0.303	7.70	53	79
4	0.045	1.14	0.329	8.36	66	98
5	0.045	1.14	0.357	9.07	81	120
7	0.045	1.14	0.386	9.80	103	153
9	0.045	1.14	0.447	11.35	134	199
12	0.045	1.14	0.501	12.73	165	245
15	0.060	1.52	0.585	14.86	218	324
19	0.060	1.52	0.614	15.60	263	391
25	0.060	1.52	0.713	18.11	339	504
30	0.080	2.03	0.753	19.13	396	589
37	0.080	2.03	0.812	20.62	477	709

AWG 14 (7 strands) - Type TC-THHN or THWN Conductors

Number of Conductors	Nominal jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft	kg/km
2	0.045	1.14	0.305	7.8	56	83
3	0.045	1.14	0.322	8.2	74	110
4	0.045	1.14	0.350	8.9	93	139
5	0.045	1.14	0.381	9.7	109	162
6	0.045	1.14	0.413	10.5	129	192
7	0.045	1.14	0.413	10.5	145	215
8	0.045	1.14	0.446	11.3	164	243
9	0.045	1.14	0.478	12.2	182	271
10	0.060	1.52	0.550	14.0	217	322
12	0.060	1.52	0.568	14.4	251	373
15	0.060	1.52	0.627	15.9	305	454
19	0.060	1.52	0.658	16.7	373	555
20	0.060	1.52	0.691	17.6	393	584
25	0.060	1.52	0.766	19.4	483	719
30	0.060	1.52	0.810	20.6	568	845
37	0.080	2.03	0.913	23.2	720	1072

AWG 12 (7 strands) - Type TC-THHN or THWN Conductors

Number of Conductors	Nominal jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft	kg/km
2	0.045	1.14	0.340	8.6	75	112
3	0.045	1.14	0.360	9.2	105	156
4	0.045	1.14	0.392	10.0	128	190
5	0.045	1.14	0.428	10.9	154	229
6	0.045	1.14	0.466	11.8	183	272
7	0.045	1.14	0.466	11.8	207	308
8	0.045	1.14	0.504	12.8	234	349
9	0.060	1.52	0.572	14.5	277	412
10	0.060	1.52	0.621	15.8	307	457
12	0.060	1.52	0.641	16.3	358	532
15	0.060	1.52	0.710	18.0	438	652
19	0.060	1.52	0.746	18.9	539	802
20	0.060	1.52	0.785	19.9	568	845
25	0.080	2.03	0.911	23.1	734	1092
30	0.080	2.03	0.963	24.4	863	1284
37	0.080	2.03	1.036	26.3	1044	1553

AWG 10 (7 strands) Type TC-THHN or THWN Conductors

Number of Conductors	Nominal jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft kg/km	
2	0.045	1.14	0.407	10.3	111	166
3	0.045	1.14	0.433	11.0	155	230
4	0.045	1.14	0.473	12.0	198	294
5	0.060	1.52	0.549	13.9	250	371
6	0.060	1.52	0.596	15.1	294	437
7	0.060	1.52	0.596	15.1	333	495
8	0.060	1.52	0.645	16.4	377	561
9	0.060	1.52	0.693	17.6	421	626
10	0.060	1.52	0.755	19.2	467	694
12	0.060	1.52	0.780	19.8	547	814
15	0.080	2.03	0.908	23.1	706	1050
19	0.080	2.03	0.954	24.2	867	1291
20	0.080	2.03	1.003	25.5	913	1359
25	0.080	2.03	1.112	28.2	1125	1675
30	0.080	2.03	1.177	29.9	1329	1977
37	0.080	2.03	1.271	32.3	1614	2402

THHN / THWN-2 / MTW

Applications:

Type THHN/THWN conductors are primarily used in conduit for services, feeder, and branch circuits in commercial or industrial applications as specified in the National Electrical Code®.

When used as type THHN, conductor is suitable for use in dry locations at temperatures not to exceed 90°C.

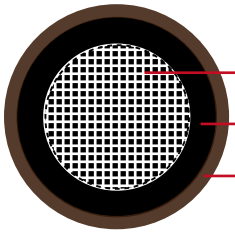
When used as type THWN, conductor is suitable for use at temperatures not to exceed 90°C, dry locations or 75°C wet locations or not to exceed 75°C when exposed to oil or coolant.

When used as type THWN-2, conductor is suitable for use in wet and dry locations at temperatures not to exceed 90°C or not to exceed 75°C when exposed to oil or coolant.

When used as type MTW, conductor is suitable for use in wet locations, or when exposed to oil or coolant at temperatures not to exceed 60°C, or dry locations at temperatures not to exceed 90°C (with ampacity limited to that for 75°C conductors per NFPA 79).

Conductor temperatures not to exceed 105°C in dry locations when rated AWM and used as appliance wiring material. Voltage rating for all applications is 600 volts.

Construction:



Conductor:

Soft annealed bare copper, Class B stranding per ASTM B8

Insulation:

Tough, heat and moisture resistant Polyvinyl chloride (PVC) insulation over which a nylon (polyamide) jacket is applied.

Color:

upon request, black is preferable

Compliances:

- UL 83 - Thermoplastic-Insulated Wires and Cables
- CSA C22.2 No. 75-03
- UL 1063 (MTW) - Machine-Tool Wires and Cables (stranded cables only)
- UL 758 (AWM)
- ICEA S-95-658/NEMA WC 70

Parameters:

AWG or kcmil	Strand	Nominal Insulation thickness Inch/mm		Nominal Jacket thickness Inch/mm		Nominal Overall Diameter Inch/mm		Cable weight Lbs/kft	kg/km
14	1	0.015	0.38	0.004	0.10	0.11	2.79	15	22
12	1	0.015	0.38	0.004	0.10	0.12	3.05	23	34
10	1	0.020	0.51	0.004	0.10	0.15	3.81	37	54
14	19	0.015	0.38	0.004	0.10	0.11	2.79	16	24
12	19	0.015	0.38	0.004	0.10	0.13	3.30	24	36
10	19	0.020	0.51	0.004	0.10	0.17	4.32	39	58
8	19	0.030	0.76	0.005	0.13	0.22	5.59	63	94
6	19	0.030	0.76	0.005	0.13	0.26	6.60	98	145
4	19	0.040	1.01	0.006	0.15	0.33	8.38	157	234
3	19	0.040	1.01	0.006	0.15	0.36	9.14	193	287
2	19	0.040	1.01	0.006	0.15	0.39	9.91	240	357
1	19	0.050	1.27	0.007	0.18	0.43	10.92	300	446
1/0	19	0.050	1.27	0.007	0.18	0.47	11.94	376	560
2/0	19	0.050	1.27	0.007	0.18	0.52	13.21	467	695
3/0	19	0.050	1.27	0.007	0.18	0.57	14.48	581	864
4/0	19	0.050	1.27	0.007	0.18	0.64	16.26	724	1077
250	37	0.060	1.52	0.008	0.20	0.69	17.53	855	1272
300	37	0.060	1.52	0.008	0.20	0.76	19.30	1022	1521
350	37	0.060	1.52	0.008	0.20	0.79	20.07	1191	1772
400	37	0.060	1.52	0.008	0.20	0.85	21.59	1345	2001
500	37	0.060	1.52	0.008	0.20	0.94	23.88	1668	2482
600	61	0.070	1.78	0.009	0.23	1.10	27.94	1994	2967
750	61	0.070	1.78	0.009	0.23	1.16	29.46	2465	3668

TW

Application

The TW conductor is suitable for most current wiring solutions for residential, commercial and industrial environments. It is used in branch circuits for permanent installations. TW conductors in sizes 14 AWG to 8 AWG can be installed in conduits and other raceways. The temperature of installation shall not exceed 60ºC.

Construction:

Conductor: Bare annealed copper conductor, solid or stranded

Insulation: PVC 60°C insulation

Color: upon request, black is preferable

Compliances:

- ASTM B3, B8
- UL 83 - Thermoplastic-Insulated Wires and Cables
- UL 1581 - Electrical Wires, Cables and Flexible Cords

Parameters:

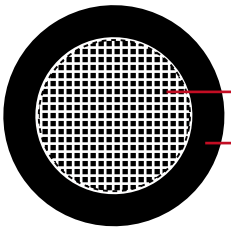
AWG or kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominl Overall Diameter Inch/mm		Cable Weight Lbs/kft	kg/km
14	1	0.030	0.76	0.138	3.5	19	28
12	1	0.030	0.76	0.154	3.9	27	40
10	1	0.030	0.76	0.177	4.5	40	60
8	1	0.045	1.14	0.240	6.1	67	100
14	7	0.030	0.76	0.146	3.7	19	29
12	7	0.030	0.76	0.165	4.2	29	43
10	7	0.030	0.76	0.193	4.9	44	65
8	7	0.045	1.14	0.260	6.6	72	107

THW/THW-2

Applications:

The THW conductor is suitable for most current wiring solutions for residential, commercial and industrial environments. It is used in service entrance, feeders and branch circuits for permanent installations. THW conductors in sizes 14 AWG to 1000 Kcmil (MCM) can be installed in conduits and other raceways. The temperature of installation shall not exceed 75ºC(THW), not exceed 90ºC(THW-2).

Construction:



Conductor: Bare annealed copper conductor, solid or stranded

Insulation: PVC 75°C insulation

Color: upon request, black is preferable

Compliances:

- ASTM: B3, B8.
- UL 83 - Thermoplastic-Insulated Wires and Cables
- UL 1581 - Electrical Wires, Cables and Flexible Cords

Parameters:

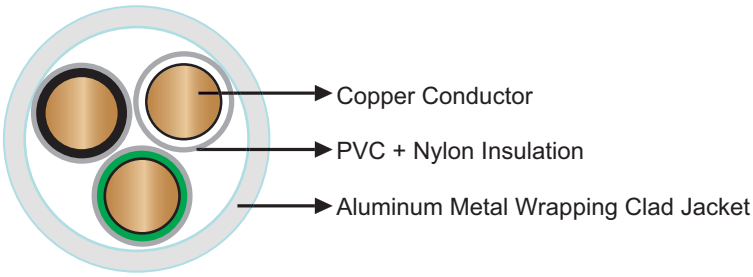
AWG or kcmil	Strand	Nominal Insulation Thickness Inch/mm		Nominl Overall Diameter Inch/mm		Cable Weight Lbs/kft	kg/km
14	1	0.030	0.76	0.169	4.3	22	33
12	1	0.030	0.76	0.189	4.8	32	47
10	1	0.030	0.76	0.213	5.4	46	68
8	1	0.045	1.14	0.240	6.1	67	100
6	1	0.060	1.52	0.276	7	101	151
14	7	0.030	0.76	0.177	4.5	24	36
12	7	0.030	0.76	0.201	5.1	34	50
10	7	0.030	0.76	0.228	5.8	49	73
8	7	0.045	1.14	0.291	7.4	79	118
6	7	0.060	1.52	0.335	8.5	117	174
4	7	0.060	1.52	0.386	9.8	172	256
2	7	0.080	2.03	0.445	11.3	263	391
1	19	0.080	2.03	0.531	13.5	339	505
1/0	19	0.080	2.03	0.575	14.6	418	622
2/0	19	0.080	2.03	0.622	15.8	515	767
3/0	19	0.080	2.03	0.677	17.2	638	950
4/0	37	0.080	2.03	0.740	18.8	792	1179
250	37	0.095	2.41	0.823	20.9	943	1404
300	37	0.095	2.41	0.882	22.4	1118	1664
350	37	0.095	2.41	0.937	23.8	1292	1923
400	37	0.095	2.41	0.984	25	1465	2180
500	61	0.095	2.41	1.079	27.4	1810	2694
600	61	0.110	2.79	1.197	30.4	2178	3241
700	61	0.110	2.79	1.272	32.3	2521	3751
750	61	0.110	2.79	1.307	33.2	2693	4007
800	61	0.110	2.79	1.343	34.1	2863	4260
900	61	0.110	2.79	1.409	35.8	3205	4769
1000	61	0.110	2.79	1.472	37.4	3538	5265

Copper MC Electrical Cable

Applications:

Copper MC Cables is manufactured for indoor, outdoor and conduit use only. It can not be directly buried in the earth without the protection of conduit or cable tray. It's manufactured with Copper THHN Wires and insulated copper THHN ground wire. This type of electrical cable is also manufactured with aluminum strands called Aluminum MC Cable which is slightly less of a conductor of electricity.

Construction:



Conductor: Soft annealed bare copper, Class B stranding per ASTM B8

Insulation: THHN/THWN insulation

Jacket: Aluminum metal clad wrapping jacket

Properties:

Voltage rating: 600V

Temperature rating: 90°C

Parameters:

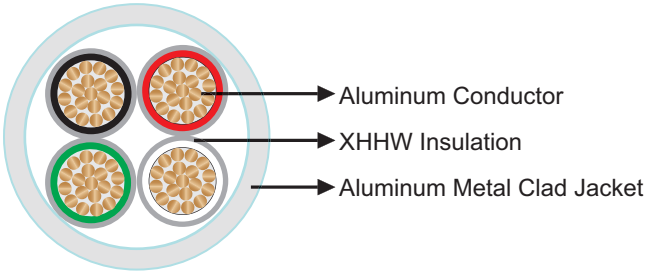
Type	AWG	Strand	Cable Weight	
			Lbs/kft	Kg/km
2 Cores + Ground				
MC 14/2	14	1	77	114.6
MC 12/2	12	1	134	199.4
MC 10/2	10	1	162	241.0
MC 8/2	8	19	231	343.7
MC 6/2	6	19	333	495.4
3 Cores + Ground				
MC 14/3	14	1	94	149.9
MC 12/3	12	1	134	199.4
MC 10/3	10	1	202	300.5
MC 8/3	8	19	298	443.4
MC 6/3	6	19	441	656.1
MC 4/3	4	19	635	944.8
MC 2/3	2	19	1183	1760.1
4 Cores + Ground				
MC 14/4	14	1	112	166.6
MC 12/4	12	1	180	267.8
MC 10/4	10	1	266	395.8
MC 8/4	8	19	378	562.4
MC 6/4	6	19	545	810.9
MC 4/4	4	19	800	1190.2
MC 2/2	2	19	1183	1760.1

Aluminum MC Electrical Cable

Applications:

These cables are designed for indoor, outdoor and conduit use only. They cannot be directly buried in the earth without the protection of conduit or cable tray. They are manufactured with Aluminum XHHW Wires and an insulated Aluminum XHHW ground wire.

Construction:



Conductor: Stranded Aluminum Strands 6 - 750 mcm

Insulation: XHHW insulation

Jacket: Aluminum Metal Clad Jacket

Properties:

Voltage rating: 600 Volts

Temperature rating: 90°C

Parameters:

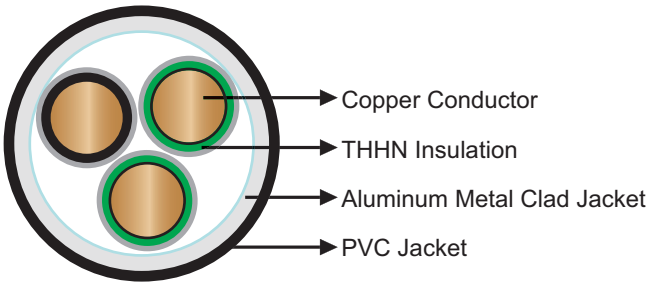
Type	AWG	Strand	Cable Weight	
			Lbs/kft	Kg/km
3 Cores + Ground				
MC 6/3	6 AWG	19	237	352.8
MC 4/3	4 AWG	19	298	443.6
MC 2/3	2 AWG	19	411	611.8
MC 1/3	1 AWG	19	496	738.3
MC 1/0 3	1/0 AWG	19	578	860.4
MC 2/0 3	2/0 AWG	19	678	1009.2
MC 3/0 3	3/0 AWG	19	833	1239.9
MC 4/0 3	4/0 AWG	19	1089	1621.0
MC 250 3	250 MCM	19	1275	1897.9
MC 350 3	350 MCM	19	1653	2460.5
MC 400 3	400 MCM	19	1830	2724.0
MC 500 3	500 MCM	19	2177	3240.5
MC 600 3	600 MCM	19	2608	3882.1
MC 750 3	750 MCM	19	3118	4641.2
4Cores + Ground				
MC 2/4	2 AWG	19	508	756.2
MC 1/4	1 AWG	19	619	921.4
MC 1/0 4	1/0 AWG	19	727	1082.2
MC 2/0 4	2/0 AWG	19	858	1277.2
MC 3/0 4	3/0 AWG	19	1138	1693.9
MC 4/0 4	4/0 AWG	19	1374	2045.2
MC 250 4	250 MCM	19	1634	2432.2
MC 350 4	350 MCM	19	2129	3169.1
MC 500 4	500 MCM	19	2877	4282.5
MC 600 4	600 MCM	19	3415	5083.3
MC 750 4	750 MCM	19	4089	6086.6

Copper MC Cable with PVC - Direct Burial

Applications:

These cables are designed for Direct Burial. They can be directly buried in the earth without the protection of conduit or cable tray.They are manufactured with Copper THHN Wires and an insulated Copper THHN ground wire. The added protection of the PVC jacket over the aluminum metal clad creates a moisture tight seal allowing this MC Cable to be buried directly in concrete if needed.

Construction:



Conductor: Stranded Copper Strands 14 - 2 awg, THHN Copper Conductors

Jacket: Aluminum Metal Clad Jacket

Properties:

Voltage rating: 600 Volts

Temperature rating: 90°C

Parameters:

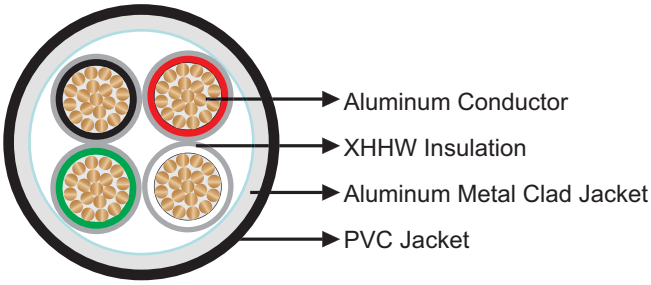
Type	AWG	Stranding	Cable Weight	
			Lbs/kft	Kg/km
2 Cores + Ground				
MC PVC 14/2	14	Solid	77	114.6
MC PVC 12/2	12	Solid	110	163.7
MC PVC 10/2	10	Solid	162	241.1
MC PVC 8/2	8	19 Strands	231	343.8
MC PVC 6/2	6	19 Strands	333	495.7
3 Cores + Ground				
MC PVC 14/3	14	Solid	94	139.9
MC PVC 12/3	12	Solid	134	199.5
MC PVC 10/3	10	Solid	202	300.7
MC PVC 8/3	8	19 Strands	298	443.6
MC PVC 6/3	6	19 Strands	441	656.4
MC PVC 4/3	4	19 Strands	635	945.2
MC PVC 2/3	2	19 Strands	934	1390.3
4Cores + Ground				
MC PVC 14/4	14	Solid	112	166.7
MC PVC 12/4	12	Solid	180	267.9
MC PVC 10/4	10	Solid	266	395.9
MC PVC 8/4	8	19 Strands	378	562.7
MC PVC 6/4	6	19 Strands	545	811.2
MC PVC 4/4	4	19 Strands	800	1190.8
MC PVC 2/4	2	19 Strands	1183	1760.9

Aluminum MC Cable with PVC- Direct Burial

Applications:

These cables are designed for Direct Burial. They can be directly buried in the earth without the protection of conduit or cable tray. They are manufactured with Aluminum XHHW Wires and an insulated Aluminum XHHW ground wire.

Construction:



Conductor: Stranded Aluminum Strands 6 - 750 mcm

Insulation: XHHW insulation

Jacket: Aluminum Metal Clad Jacket

Properties:

Voltage rating: 600 Volts

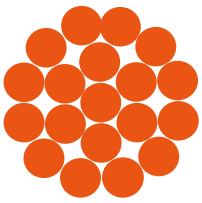
Temperature rating: 90°C

Parameters:

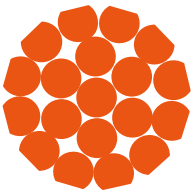
Type	AWG	Strand	Cable Weight	
			Lbs/kft	Kg/km
3 Cores + Ground				
MC PVC 6/3	6 AWG	19	237	352.8
MC PVC 4/3	4 AWG	19	298	443.6
MC PVC 2/3	2 AWG	19	411	611.8
MC PVC 1/3	1 AWG	19	496	738.3
MC PVC 1/0 3	1/0 AWG	19	578	860.4
MC PVC 2/0 3	2/0 AWG	19	678	1009.2
MC PVC 3/0 3	3/0 AWG	19	833	1239.9
MC PVC 4/0 3	4/0 AWG	19	1089	1621.0
MC PVC 250 3	250 MCM	19	1275	1897.9
MC PVC 350 3	350 MCM	19	1653	2460.5
MC PVC 400 3	400 MCM	19	1830	2724.0
MC PVC 500 3	500 MCM	19	2177	3240.5
MC PVC 600 3	600 MCM	19	2608	3882.1
MC PVC 750 3	750 MCM	19	3118	4641.2
4Cores + Ground				
MC PVC 6/4	6 AWG	19	297	442.1
MC PVC 4/4	4 AWG	19	372	553.7
MC PVC 2/4	2 AWG	19	508	756.2
MC PVC 1/4	1 AWG	19	619	921.4
MC PVC 1/0 4	1/0 AWG	19	727	1082.2
MC PVC 2/0 4	2/0 AWG	19	858	1277.2
MC PVC 3/0 4	3/0 AWG	19	1138	1693.9
MC PVC 4/0 4	4/0 AWG	19	1374	2045.2
MC PVC 250 4	250 MCM	19	1634	2432.2
MC PVC 350 4	350 MCM	19	2129	3169.1
MC PVC 500 4	500 MCM	19	2877	4282.5
MC PVC 600 4	600 MCM	19	3415	5083.3
MC PVC 750 4	750 MCM	19	4089	6086.6

Reference

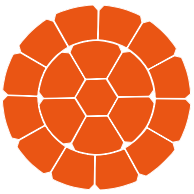
Stranded Conductor Standards



Round



Compressed



Compact

Conforms to:

ASTM B3

Soft or annealed copper wire

ASTM B8

Concentric lay stranded copper conductors Class B, C and D

ASTM B33

Tinned soft or annealed copper wire

ASTM B172

Rope lay stranded copper conductors having bunch stranded members Classes I, K and M

ASTM B173

Rope lay stranded copper conductors having concentric stranded members Classes G and H

ASTM B174

Bunch stranded copper conductors

ASTM B496

Compact round concentric lay stranded copper conductors

ASTM B 230

Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes

ASTM B 230M

Standard Specification for Aluminum 1350-H19 Wire for Electrical Purposes [Metric]

ASTM B 231

Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors

ASTM B 231 M

Standard Specification for Concentric-Lay-Stranded Aluminum 1350 Conductors [Metric]

Class B Conductors

AWG/kcmil	No./Strand Inch	Nominal Area kcmil	Nominal Area mm^2	Nominal Diameter Inch	Nominal Diameter mm	Nominal Weight Lbs/Kft	Nominal Weight kg/km
22	7/.0100	0.64	0.32	0.030	0.76	2.2	3.3
20	7/.0121	1.02	0.52	0.036	0.91	3.2	4.8
18	7/.0152	1.62	0.82	0.045	1.14	5.0	7.4
16	7/.0192	2.58	1.31	0.056	1.42	8.0	12
14	7/.0242	4.11	2.08	0.071	1.80	12.7	18.9
12	7/.0305	6.53	3.31	0.090	2.29	20.2	30.1
10	7/.0385	10.38	5.26	0.113	2.87	32.1	47.8
9	7/.0432	13.09	6.63	0.127	3.23	40.4	60.1
8	7/.0486	16.51	8.37	0.141	3.58	51.0	74.4
7	7/.0545	20.82	10.5	0.158	4.01	64.3	95.7
6	7/.0612	26.24	13.3	0.178	4.52	81.1	121
5	7/.0688	33.09	16.8	0.200	5.08	102	152
4	7/.0772	41.74	21.2	0.225	5.72	129	192
3	7/.0867	52.62	26.7	0.252	6.40	163	243
2	7/.0974	66.36	33.6	0.283	7.19	205	305
1	19/.0664	83.69	42.4	0.322	8.18	258	384
1/0	19/.0745	105.6	53.5	0.362	9.19	326	485
2/0	19/.0837	133.1	67.4	0.406	10.3	411	612
3/0	19/.0940	167.8	85.0	0.458	11.6	518	771
4/0	19/.1055	211.6	107	0.512	13.0	653	972
250	37/.0822	250	127	0.558	14.2	772	1150
262.6	—	—	—	—	—	—	—
300	37/.0900	300	152	0.611	15.5	926	1380
313.1	—	—	—	—	—	—	—
350	37/.0973	350	177	0.661	16.8	1080	1607
373.7	—	—	—	—	—	—	—
400	37/.1040	400	203	0.706	17.9	1235	1838
444.4	—	—	—	—	—	—	—
500	37/.1162	500	253	0.789	20.0	1544	2297
535.3	—	—	—	—	—	—	—
592	—	—	—	—	—	—	—
600	61/.0992	600	304	0.866	22.0	1853	2757
646.4	—	—	—	—	—	—	—
750	61/.1109	750	380	0.968	24.6	2316	3446
777.7	—	—	—	—	—	—	—
1000	61/.1280	1000	507	1.117	28.4	3088	4595
1111	—	—	—	—	—	—	—

Class C Conductors

AWG/kcmil	No./Strand Inch	Nominal Area kcmil	Nominal Area mm^2	Nominal Diameter Inch	Nominal Diameter mm	Nominal Weight Lbs/Kft	Nominal Weight kg/km
22	19/.0063	0.64	0.32	0.031	0.79	2.3	3.4
20	19/.0080	1.02	0.52	0.038	0.97	3.8	5.7
18	19/.0092	1.62	0.82	0.044	1.12	5.0	7.4
16	19/.0117	2.58	1.31	0.056	1.42	8.0	12
14	19/.0147	4.11	2.08	0.071	1.80	12.7	18.9
12	19/.0185	6.53	3.31	0.089	2.26	20.2	30.1
10	19/.0234	10.38	5.26	0.112	2.85	32.1	47.8
9	19/.0262	13.09	6.63	0.123	3.12	40.4	60.1
8	19/.0295	16.51	8.37	0.139	3.53	51.0	74.4
7	19/.0331	20.82	10.5	0.156	3.96	64.3	95.7
6	19/.0372	26.24	13.3	0.175	4.45	81.0	121
5	19/.0417	33.09	16.8	0.203	5.16	102	152
4	19/.0469	41.74	21.2	0.229	5.82	129	192
3	19/.0526	52.62	26.7	0.256	6.50	163	243
2	19/.0591	66.36	33.6	0.288	7.32	205	305
1	37/.0476	83.69	42.4	0.325	8.26	258	384
1/0	37/.0534	105.6	53.5	0.364	9.25	326	485
2/0	37/.0600	133.1	67.4	0.410	10.4	411	612
3/0	37/.0673	167.8	85.0	0.459	11.7	518	771
4/0	37/.0756	211.6	107	0.516	13.1	653	972
250	61/.0640	250	127	0.562	14.3	774	1150
262.6	—	—	—	—	—	—	—
300	61/.0701	300	152	0.615	15.6	927	1380
313.1	—	—	—	—	—	—	—
350	61/.0757	350	177	0.664	16.9	1082	1610
373.7	—	—	—	—	—	—	—
400	61/.0810	400	203	0.711	18.1	1235	1838
444.4	—	—	—	—	—	—	—
500	61/.0905	500	253	0.794	20.2	1545	2299
535.3	—	—	—	—	—	—	—
592	—	—	—	—	—	—	—
600	91/.0812	600	304	0.893	22.7	1853	2757
646.4	—	—	—	—	—	—	—
750	91/.0908	750	380	0.999	25.4	2316	3446
777.7	—	—	—	—	—	—	—
1000	91/.1048	1000	507	1.153	29..3	3088	4595
1111	—	—	—	—	—	—	—

Class I Conductors

AWG/kcmil	No./Strand Inch	Nominal Area kcmil	Nominal Area mm^2	Nominal Diameter Inch	Nominal Diameter mm	Nominal Weight Lbs/Kft	Nominal Weight kg/km
22	—	—	—	—	—	—	—
20	—	—	—	—	—	—	—
18	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—
14	—	—	—	—	—	—	—
12	—	—	—	—	—	—	—
10	27/24	10.91	5.53	0.123	3.12	33.7	50
9	—	—	—	—	—	—	—
8	37/24	14.95	7.57	0.138	3.50	46.0	68
7	—	—	—	—	—	—	—
6	61/24	24.64	12.5	0.190	4.83	77	114
5	91/24	36.76	19	0.240	6.10	113	168
4	105/24	42.42	21	0.260	6.60	132	196
3	125/24	50.5	25	0.285	7.24	155	231
2	150/24	60.6	31	0.320	8.13	189	281
1	225/24	90.9	46	0.385	9.78	280	417
1/0	275/24	111.1	56	0.435	11.0	346	515
2/0	325/24	131.3	66	0.470	11.9	403	600
3/0	450/24	181.8	92	0.545	13.8	567	844
4/0	550/24	222.2	112	0.580	14.7	684	1018
250	—	—	—	—	—	—	—
262.6	650/24	262.6	133	0.652	16	820	1220
300	—	—	—	—	—	—	—
313.1	775/24	313.1	159	0.700	18	960	1428
350	—	—	—	—	—	—	—
373.7	925/24	373.7	189	0.760	19	1105	1644
400	—	—	—	—	—	—	—
444.4	1100/24	444.4	225	0.850	21	1370	2038
500	—	—	—	—	—	—	—
535.3	1325/24	535.3	271	0.940	24	1700	2530
592	1480/24	597.9	303	0.970	25	1835	2730
600	—	—	—	—	—	—	—
646.4	1600/24	646.4	327	1.040	26	1992	2964
750	—	—	—	—	—	—	—
777.7	1925/24	777.7	394	1.120	28	2390	3556
1000	—	—	—	—	—	—	—
1111	2750/24	1111	563	1.340	34	3400	5059

General description of the UL44 products

Type-letter designation	XHHW-2	XHHW	XHH	RHH	RHW-2	RHW
Maximum Temperature	90°C (194°F) wet or dry	75°C (167°F) wet 90°C (194°F) dry	90°C (194°F) dry	90°C (194°F) dry	90°C (194°F) wet or dry	75°C (167°F) wet or dry
Maximum Voltage	600			600 or 2000		
Conductor Size	14 AWG – 2000 kcmil					
Number of Conductors	One, 2 parallel, 2 or more cabled					
Conductor Metal	14 and 13 AWG – soft-annealed copper, 12 AWG – 2000 kcmil – aluminum, copper-clad aluminum, or soft-annealed copper					
Conductor – General	Metal coating Splices Separator					
Insulation Material(s)b	XL EPCV			SBR/IIR/NR CP CPE EPCV EP XL Silicone rubber (RHH only)		

Type-letter designation	SA	SIS
Maximum Temperature	90°C (194°F) dry 200°C (392°F) special dry	90°C (194°F) dry
Maximum Voltage	600	
Conductor Size	14 AWG – 2000 kcmil	14 – 4/0 AWG
Number of Conductors	One, 2 parallel, 2 or more cabled	
Conductor Metal	Soft-annealed copper	14, 13 AWG soft-annealed copper, 12 – 4/0 AWG – aluminum, copper-clad aluminum, or soft-annealed copper
Conductor – General	Metal coating Splices Separator	
Insulation Material(s)b	200°C silicone	CP CPE EPCV XL

General description of the UL83 products

Type-letter designation	**TW**	**THW**	**Insulated conductors for Type ACTH cable**	**THWN**
Maximum temperature	60°C (140°F) dry or wet	75°C (167°F) dry or wet	75°C (167°F) dry	75°C (167°F) dry or wet
Conductor size	14 AWG – 2000 kcmil		14 – 1 AWG	14 AWG – 1000 kcmil
Conductor metal	Soft-annealed copper for Nos. 14 and 13 AWG; aluminum, copper-clad aluminum, or soft-annealed copper for other sizes			
Conductor – general	Metal coating Splices Separator			
Insulation – materialc	PVC	PVC in one or two layers		PVCb,d
Insulation – general	Application Joints Other material Centering			
Physical properties of insulation	PVC			
Nylon jacket	None			yes

Type-letter designation	THW-2	THHW	THWN-2	THHN	Insulated conductors without a nylon jacket for Type ACTHH, NM-B, and NMC-B cables	Insulated conductors without a nylon jacket for Type UF-B cable
Maximum temperature	90°C (194°F) dry or wet	90°C (194°F) dry 75°C (167°F) wet	90°C (194°F) dry or wet	90°C (194°F) dry		90°C (194°F) dry 60°C (140°F) wet
Conductor size	14 AWG – 2000 kcmil	14 AWG – 1000 kcmil			14–1AWG	14 – 6 AWG
Conductor metal	Soft-annealed copper for Nos.14 and 13 AWG; aluminum, copper-clad aluminum, or soft-annealed copper for other sizes					
Conductor – general	Metal coating Splices Separator					
Insulation – materialc	PVC in one or two layers	PVC		PVCb,d	PVCd	PVC
Insulation – general	Application Joints Other material Centering					

Thicknesses of insulation on Type SA wire

Size of conductor	Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm		Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm	
AWG								
14 – 10	0.045	1.14	0.040	1.02	0.045	1.14	0.040	1.02
9 – 2	0.060	1.52	0.054	1.37	0.060	1.52	0.054	1.37
1 – 4/0	0.080	2.03	0.072	1.83	0.080	2.03	0.072	1.83
kcmil								
213 – 500	0.095	2.41	0.086	2.18	0.095	2.41	0.086	2.18
501 – 1000	0.110	2.79	0.099	2.51	0.110	2.79	0.099	2.51
1001 – 2000	0.125	3.18	0.112	2.84	0.125	3.18	0.112	2.84

Thicknesses of insulation on Type SIS wire

Size of conductor	Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm		Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm	
AWG								
14 – 10	0.030	0.76	0.027	0.69	0.030	0.76	0.027	0.69
9 – 2	0.045	1.14	0.040	1.02	0.045	1.14	0.040	1.02
1 – 4/0	0.055	1.40	0.050	1.27	0.055	1.40	0.050	1.27

Thicknesses of insulation on Type XHHW-2, XHHW, and XHH wires

Size of conductor	Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm		Minimum average thickness Inch/mm		Minimum thickness at any point Inch/mm	
AWG								
14 – 10	0.030	0.76	0.027	0.69	0.030	0.76	0.027	0.69
9 – 2	0.045	1.14	0.040	1.02	0.045	1.14	0.040	1.02
1 – 4/0	0.055	1.40	0.050	1.27	0.055	1.40	0.050	1.27
kcmil								
213 – 500	0.065	1.65	0.058	1.47	0.065	1.65	0.058	1.47
501 – 1000	0.080	2.03	0.072	1.83	0.080	2.03	0.072	1.83
1001 – 2000	0.095	2.41	0.086	2.18	0.095	2.41	0.086	2.18

Thicknesses of insulation on 600V Type RHW-2, RHH, and RHW wires

Size of conductor	Wire with insulation consisting of Class SBR/IIR/NR under a neoprene, NBR/PVC, CPE or CP jacket or a fibrous covering and wire with insulation consisting of silicone rubber (RHH only) or EP under a neoprene, NBR/PVC, CPE, or CP jacket or a fibrous covering and wire with insulation consisting of Class CP, CPE, or XL or EPCV under no covering				Wire with composite insulation consisting of a layer of CP, CPE, EPCV, or XL over a layer of EP without any outer covering											
					Inner Layer – EP						Outer Layer – CP, CPE, EPCV, or XL					
	Minimum thickness				Minimum thickness						Minimum thickness					
	mils mm				mils mm						mils mm					
	Average At any point		Average At any point		Average At any point			Average At any point			Average At any point			Average At any point		
						A	B		A	B		A	B		A	B
AWG																
14 – 10	45	40	1.14	1.02	30	27	28	0.76	0.69	0.71	15	14	12	0.38	0.36	0.30
9, 8, 7	60	54	1.52	1.37	45	40	42	1.14	1.02	1.07	15	14	12	0.38	0.36	0.30
6 – 2	60	54	1.52	1.37	45	40	44	1.14	1.02	1.12	0	27	24	0.76	0.69	0.61
1 – 4/0	80	72	2.03	1.83	55	50	54	1.40	1.27	1.37	45	40	36	1.14	1.02	0.91
kcmil																
213 – 500	95	86	2.41	2.18	65	8	65	1.65	1.47	1.65	65	58	52	1.65	1.47	1.32
501 – 1000	110	99	2.79	2.51	80	72	78	2.03	1.83	1.98	65	58	52	1.65	1.47	1.32
1001 – 2000	125	112	3.18	2.84	–	–	–	–	–	–	–	–	–	–	–	–

a The minimum thickness at any point shall not be less than indicated in column A or B under Inner Layer with the minimum thickness at any point not less than indicated in the corresponding column A or B under Outer Layer. The thickness in column B under Inner Layer plus the thickness in Column B under Outer Layer equals 90 percent of the sum of the average thicknesses indicated under Inner Layer and Outer Layer.

Thicknesses of insulation on 2000 V Type RHW-2, RHH, and RHW wires

Size of conductor	Wire with insulation consisting of silicone rubber (RHH only) or EP under a neoprene, NBR/PVC, CPE, or CP jacket or a fibrous covering and wire with insulation consisting of Class XL or EPCV under no covering				Wire with insulation consisting of CP or CPE under no covering and wire with insulation consisting of Class SBR/IIR/NR under a neoprene, NBR/PVC, CPE, or CP jacket or a fibrous covering				Wire with composite insulation consisting of a layer of CP, CPE, EPCV, or XL over a layer of EP without any outer covering											
									Inner Layer – EP						Outer Layer – CP, CPE, EPCV, or XL					
	Minimum thickness								Minimum thickness						Minimum thickness					
	mils mm				mils mm				mils mm						mils mm					
	Avg. At any point		Avg. At any point		Avg. At any point		Avg. At any point		Avg. At any point			Avg. At any point			Avg. At any point			Avg. At any point		
										A	B		A	B		A	B		A	B
AWG																				
14 – 10	60	54	1.52	1.37	80	72	2.03	1.83	45	40	42	1.14	1.02	1.07	15	14	12	0.38	0.36	0.30
9	70	63	1.78	1.60	80	72	2.03	1.83	55	50	51	1.40	1.27	1.30	15	14	12	0.38	0.36	0.30
8, 7	70	63	1.78	1.60	80	72	2.03	1.83	55	50	52	1.40	1.27	1.32	30	27	24	0.76	0.69	.61
6 – 2	70	63	1.78	1.60	95	86	2.41	2.18	55	50	52	1.40	1.27	1.32	30	27	24	0.76	0.69	0.61
1 – 4/0	90	81	2.29	2.06	110	99	2.79	2.51	65	58	63	1.65	1.47	1.60	45	40	36	1.14	1.02	0.91
kcmil																				
213 – 500	105	94	2.67	2.39	125	112	3.18	2.84	75	68	74	1.90	1.73	1.88	65	58	52	1.65	1.47	1.32
501 – 1000	120	108	3.05	2.74	140	126	3.56	3.20	90	81	88	2.29	2.06	2.24	65	58	52	1.65	1.47	1.32
1001 – 2000	140	126	3.56	3.20	140	126	3.56	3.20	115	104	113	2.92	2.64	2.87	95	85	76	2.41	2.16	1.93

a The minimum thickness at any point shall not be less than indicated in Column A or B under Inner Layer with the minimum thickness at any point not less than indicated in the corresponding Column A or B under Outer Layer. The thickness in Column B under EP plus the thickness in Column B under Outer Layer equals 90 percent of the sum of the average thicknesses indicated under Inner Layer and Outer Layer.

Thicknesses of jacket on single-conductor wires and cables

Size of conductor	600-V wires and cables				2000–V Wires and Cables			
	mils		mm		mils		mm	
	Minimum average thickness	Minimum thickness at any point	Minimum average thickness	Minimum thickness at any point	Minimum average thickness	Minimum thickness at any point	Minimum average thickness	Minimum thickness at any point
AWG								
14 – 12	15	12	0.38	0.30	15	12	0.38	0.30
11, 10	15	12	0.38	0.30	30	24	0.76	0.61
9 – 3	30	24	0.76	0.61	30	24	0.76	0.61
2	30	24	0.76	0.61	45	36	1.14	0.91
1 – 3/0	45	36	1.14	0.91	45	36	1.14	0.91
4/0	45	36	1.14	0.91	65	52	1.65	1.32
kcmil								
213 – 1000	65	52	1.65	1.32	65	52	1.65	1.32
1001 – 2000	95	76	2.41	1.93	95	76	2.41	1.93

Thicknesses of insulation and jacket on Type THWN-2, THHN, and THWN wires

Conductor size	Minimum thicknesses					
	PVC insulation				At any point of nylon jacket	
	Average		At any point			
	mils	mm	mils	mm	mils	mm
AWG						
14–12	15	0.38	13	0.33	4	0.10
11,10	20	0.51	18	0.46	4	0.10
9–5	30	0.76	27	0.69	5	0.13
4–2	40	1.02	36	0.91	6	0.15
1–4/0	50	1.27	45	1.14	7	0.18
kcmil						
213–500	60	1.52	54	1.37	8	0.20
501–1000	70	1.78	63	1.60	9	0.23

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