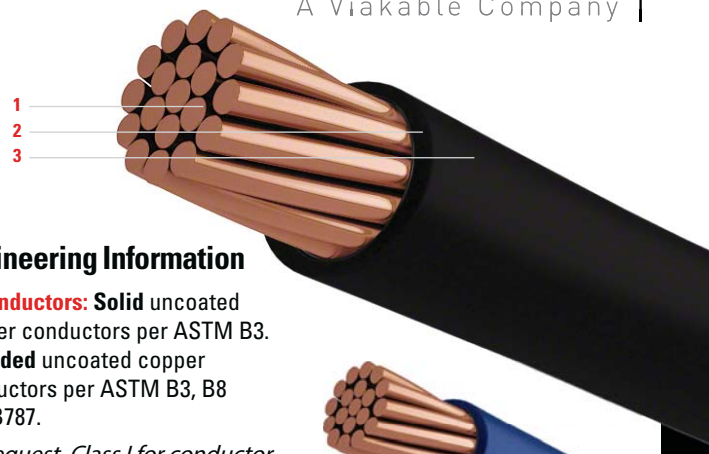
QI® THHN/THWN-2 Copper, PVC Insulated

Nylon Jacket, 600 V

CME wire and cable
A Viakable Company



Features

QI® THHN/THWN-2 Marking apply only to sizes 8 AWG up to 1000 kcmil.

Use of lubrication is not mandatory to install QI® THHN/THWN-2 conductors in the raceways or cable trays.

PVC insulation offers exceptional electrical, physical and flame-retardant properties.

All sizes are UL/cUL Listed as MTW (Not Solid), AWM, T90 Nylon, and TWN75.

All sizes meet VW-1 and FT1 Vertical Flame Test.

All colors in sizes 1/0 and larger are UL listed and marked CT USE in accordance with NEC meeting UL 1685 vertical-tray flame test and also marked FT4 meeting IEEE 1202 vertical-tray test both at 70,000 BTU/Hr.

All colors in sizes 8 AWG and larger are rated SR for Sunlight Resistance exposure.

All sizes and colors are GRII for Gasoline and Oil resistance.

RoHS compliance in sizes 14 AWG to 10 AWG.

BIG Sequential Footage Marking for easy identification, in sizes 1/0 AWG and larger, every 1 ft.

Colored insulation and Nylon jacket is color coded (sizes 8 AWG and larger) for visual identification of conductors in electrical installations.

Application

CME Wire and Cable QI® THHN/THWN-2 conductors in all colors are suitable for use in general purpose wiring in accordance with the requirements of NFPA 70 (NEC®). Type THHN/THWN-2 conductors are approved for use at a maximum voltage of 600 volts and a maximum conductor temperature of 90 °C in wet or dry locations and 75 °C when exposed to gasoline and oil.

Also rated AWM, for 105 °C dry and 80 °C in oil.

Specifications

UL Standard 83 (THHN/THWN-2)

UL Standard 758 (AWM)

UL Standard 1063 (MTW)

CSA Standard C22.2 No. 75 (T90 Nylon/TWN75).

ASTM B3, B8, and B787.

ICEA S-95-658/NEMA WC70.

Federal Specification A-A-59544.

ANSI/NFPA 70 National Electric Code (NEC®).

Engineering Information

1. Conductors: **Solid** uncoated copper conductors per ASTM B3. **Stranded** uncoated copper conductors per ASTM B3, B8 and B787.

On request, Class I for conductor size 250 kcmil to 1000 kcmil per per ASTM B172 and ASTM B174.

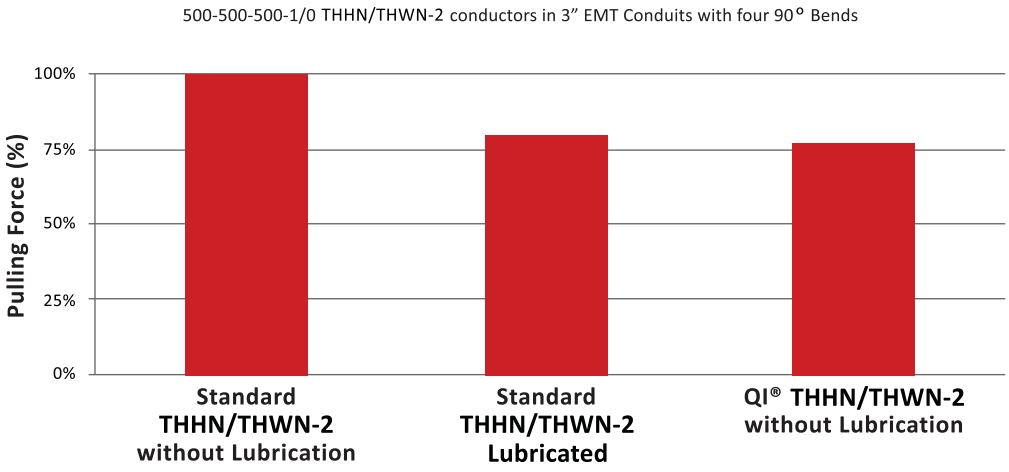
2. Insulation: Polyvinyl Chloride (PVC) per UL 83 and UL 1063.

3. Jacket (color coded): Low friction tough polyamide, Nylon, per UL 83 and UL 1063.

Installation Performance

A significant reduction (25% – 30%) in the pulling force is achieved for QI® THHN/THWN-2 when compared to the pulling forced required for Standard THHN/THWN-2 without any lubricant. Further, this reduction is comparable to the reduction achieved when the Standard THHN/THWN-2 conductors are pulled using a lubricant in identical installation. These results demonstrate that it is feasible to install the QI® THHN/THWN-2 conductors without the use of a lubricant in an NFPA 70 (NEC®) compliant installation.

Pulling Force for QI® THHN/THWN-2



CME wire and cable
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Technical Data *continued*

QI® THHN/THWN-2 600 V, Copper Conductors

Size		Number of Wires	Nominal Thickness		Nominal Diameter	Conductor Area	Ampacity*			Nominal Mass	Standard Packaging
AWG or kcmil	mm²		PVC (in)	Nylon (in)	in	in²	60 °C	75 °C	90 °C	lb/kft	
14	2.08	1	0.015	0.004	0.102	0.0082	15	15	15	16	500' (only in 2000' cartons) and 2500' reel
12	3.31	1	0.015	0.004	0.119	0.0111	20	20	20	23	500' (only in 2000' cartons) and 2500' reel
10	5.26	1	0.020	0.004	0.150	0.0177	30	30	30	37	500' (only in 2000' cartons) and 2500' reel
***8	8.37	1	0.030	0.005	0.204	0.0320	40	50	55	61	500', 1000', 2500', 5000', or cut reels
14	2.08	19	0.015	0.004	0.112	0.0098	15	15	15	17	500' (only in 2000' cartons) and 2500' reel
12	3.31	19	0.015	0.004	0.131	0.0134	20	20	20	25	500' (only in 2000' cartons) and 2500' reel
10	5.26	19	0.020	0.004	0.164	0.0211	30	30	30	39	500' (only in 2000' cartons) and 2500' reel
8	8.37	19	0.030	0.005	0.213	0.0356	40	50	55	61	500', 1000', 2500', 5000', or cut reels
6	13.30	19	0.030	0.005	0.249	0.0487	55	65	75	97	500', 1000', 2500', 5000', or cut reels
4	21.20	19	0.040	0.006	0.318	0.0794	70	85	95	154	500', 1000', 2500', 5000', or cut reels
3	26.70	19	0.040	0.006	0.346	0.0940	85	100	110	191	500', 1000', 2500', 5000', or cut reels
2	33.60	19	0.040	0.006	0.378	0.1122	95	115	130	236	500', 1000', 2500', 5000', or cut reels
1	42.40	19	0.050	0.007	0.435	0.1486	110	130	150	301	500', 1000', 2500', 5000', or cut reels
1/0	53.50	19	0.050	0.007	0.474	0.1765	125	150	170	373	500', 1000', 2500', 5000', or cut reels
2/0	67.40	19	0.050	0.007	0.518	0.2107	145	175	195	463	500', 1000', 2500', 5000', or cut reels
3/0	85.00	19	0.050	0.007	0.568	0.2534	165	200	225	576	500', 1000', 2500', 5000', or cut reels
4/0	107.00	19	0.050	0.007	0.624	0.3058	195	230	260	718	500', 1000', 2500', 5000', or cut reels
250	127.00	37	0.060	0.008	0.678	0.3610	215	255	290	853	500', 1000', 2500', 5000', or cut reels
300	152.00	37	0.060	0.008	0.730	0.4185	240	285	320	1012	500', 1000', 2500', 5000', or cut reels
350	177.00	37	0.060	0.008	0.777	0.4742	260	310	350	1170	500', 1000', 2500', 5000', or cut reels
400	203.00	37	0.060	0.008	0.821	0.5294	280	335	380	1334	500', 1000', 2500', 5000', or cut reels
500	253.00	37	0.060	0.008	0.902	0.6390	320	380	430	1648	500' 1000', 2500' or cut reels
600	304.00	61	0.070	0.009	1.024	0.8235	355	420	475	1991	500' 1000', 2500' or cut reels
750	380.00	61	0.070	0.009	1.126	0.9958	400	475	535	2474	500' 1000', 2500' or cut reels
1000	507.00	61	0.070	0.009	1.275	1.2768	455	545	615	3280	Made-to-order item**

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product.

* Allowable ampacities shown are for general use as specified by the National Electrical Code Sections 310.15 and 240.4(D). In addition also refer to Section 110.14 for requirements for markings on the equipment and the permitted ampacities for the conductors.

** For Made-to-order items: Minimum Runs, Pricing & Lead Times are subject to the plant's production schedule.

*** Size 8 solid in green color is available as a stock item.

PRINT LEGENDS QI Sizes:

STRANDED CONDUCTOR SIZES 8 – 1 AWG (IN ALL COLORS):
CME WIRE & CABLE QI® E102470 S (UL) MTW OR THHN OR THWN-2 OR AWM OR GR II SIZE AWG (SIZE mm²) CU 600 V VW-1 SR OR C(UL) TYPE T90 NYLON OR TWN75 FT1.

CONDUCTOR SIZES 1/0 AWG – 1000 kcmil (IN ALL COLORS):
CME WIRE & CABLE QI® E102470 S (UL) MTW OR THHN OR THWN-2 OR AWM OR GR II SIZE AWG (SIZE mm²) CU 600 V VW-1 SR FOR CT USE FT4 OR C(UL) TYPE T90 NYLON OR TWN75 FT1.

PRINT LEGEND: 8 AWG SOLID (IN ALL COLORS)

CME WIRE & CABLE QI® E95989 S (UL) THHN OR THWN-2 OR AWM OR GR II (SIZE) AWG (SIZE mm²) CU 600 V VW-1 SR OR C(UL) TYPE T90 NYLON OR TWN75 FT1

PRINT LEGENDS: 14 – 10 AWG:

SOLID:
CME WIRE & CABLE E95989 S (UL) THHN OR THWN-2 OR AWM OR GR II (SIZE) AWG (SIZE mm²) CU 600 V VW-1 OR C(UL) TYPE T90 NYLON OR TWN75 FT1 RoHS

STRANDED:
CME WIRE & CABLE E102470 S (UL) MTW OR THHN OR THWN-2 OR AWM OR GR II (SIZE) AWG (SIZE mm²) CU 600 V VW-1 OR C(UL) TYPE T90 NYLON OR TWN75 FT1 RoHS

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Technical Data *continued*

QI® THHN/THWN-2 600 V, Copper Conductors Flexible Stranding

Size		Strand Size (AWG)/	Number of Strands (Stranding Class I)	Nominal Thickness		Nominal Diameter	Nominal Mass	Ampacity			
AWG or kcmil	mm²			PVC (in)	Nylon (in)	in	lb/kft	60 °C*	75 °C*	90 °C*	90 °C**
8	8.37	24	42	0.030	0.005	0.233	66	40	50	55	80
6	13.30	24	63	0.030	0.005	0.269	95	55	65	75	105
4	21.20	24	105	0.040	0.006	0.349	160	70	85	95	140
3	26.70	24	133	0.040	0.006	0.382	198	85	100	110	165
2	33.60	24	161	0.040	0.006	0.411	237	95	115	130	190
1	42.40	24	210	0.050	0.007	0.478	312	110	130	150	220
1/0	53.50	24	266	0.050	0.007	0.524	392	125	150	170	260
2/0	67.40	24	342	0.050	0.007	0.579	496	145	175	195	300
3/0	85.00	24	418	0.050	0.007	0.628	600	165	200	225	350
4/0	107.00	24	532	0.050	0.007	0.694	755	195	230	260	405
250	127.00	24	637	0.060	0.008	0.770	919	215	255	290	455
300	152.00	24	735	0.060	0.008	0.817	1053	240	285	320	500
350	177.00	24	882	0.060	0.008	0.882	1253	260	310	350	570
400	203.00	24	980	0.060	0.008	0.923	1387	280	335	380	615
500	253.00	24	1225	0.060	0.008	1.015	1719	320	380	430	700
600	304.00	24	1470	0.070	0.009	1.121	2072	355	420	475	780
750	380.00	24	1862	0.070	0.009	1.242	2625	400	475	535	885

The above data are approximate and subject to normal manufacturing tolerances. Where required, the compatibility with glands, connectors and accessories should be verified using actual dimensions of the product.

* Allowable ampacities shown are for general use as specified by the National Electrical Code Sections 310.15 (B) (16) of the NEC, 2017 Edition for Insulated Conductors Rated Up to and Including 2000 Volts, 60°C Through 90°C (140°F Through 194°F) Not More Than Three Current-Carrying Conductors in Raceway, Cable, or Earth (Directly Buried), Based on ambient temperature of 30°C (86°F) and 240.4(D). In addition also refer to Section 110.14 for requirements for markings on the equipment and the permitted ampacities for the conductors.

** Allowable Ampacities are based on Table 310.15 (B)(17) of the NEC, 2017 Edition of Single-Insulated Conductors Rated Up to and Including 2000 Volts in Free Air, Based on Ambient Temperature of 30°C (86°F)

PRINT LEGENDS QI Sizes:

CONDUCTOR SIZES 250 kcmil – 750 kcmil (IN ALL COLORS):
CME WIRE & CABLE QI® E315239 (UL) MTW OR THHN OR THWN-2 OR AWM OR GR II SIZE AWG (SIZE mm²) (STRANDS Class I) CU 600 V VW-1 SR FOR CT USE FT4 OR C(UL) TYPE T90 NYLON OR TWN75 FT1.