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THHN/THWN-2/MTW/T90



Specifications

- ASTM (American Society for Testing & Material) ASTM B3 Class B, B8 (sizes 6 and larger), B787 (#14, #12, #10 & #8)
- Underwriters Laboratories UL 83 Thermoplastic Insulated Wire and Cables UL 1063 Machine-Tool Wire (for 19, 37 and 61 strand product) UL 758 AWM Spec 1316, 1317, 1318, 1319, 1320, 1321
- C (UL) C22.2 No. 75 for T90
- NEMA WC 70/ICEA S-95-658
- Institute of Electrical and Electronics Engineers
- IEEE 1202 For CT rating 1/0 and larger National Electric Code[®] NFPA 70, NFPA-79 (AWM 600V 105°C/75°C in oil)
- Federal Specification A-A59544
- RoHS Compliant for Lead Free

Construction

Conductors: Solid bare copper per ASTM B3
Stranded bare copper per ASTM B3, ASTM B787, ASTM B8

Insulation: Lead-free, color-coded compound that is heat-, flame-, and moisture-resistant Polyvinyl Chloride (PVC) per UL 83 and UL 1063

Jacket: Clear nylon (polyamide) or UL-listed equivalent jacket per UL 83 and UL 1063

Features: All sizes are rated for gasoline- and oil-resistant II. All sizes are insulated with lead-free compounds and are RoHS compliant. 14 AWG thru 6 AWG conductors shall be listed Type THHN or THWN or THWN-2 or MTW or AWM and are suitable for operation at 600 volts at a conductor temperature not to exceed 105°C. 1/0 AWG and larger conductors shall be UL-listed Type THHN or THWN or THWN-2 or MTW and are rated for CT use and are suitable for operations at 600 volts in all installations as specified by the National Electric Code[®]. 1/0 AWG and larger conductors are printed with "Easy-Read" sequential countdown marking which may assist in inventory controls. All conductors 1/0 AWG and larger are jacketed with SLK Technology nylon which could assist in pulling operations at the construction work site.

Applications

Type THHN/THWN-2 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 or THWN, conductor is suitable for use in dry locations at temperatures not to exceed 90°C. When used as Type THWN or T90 Nylon, conductor is suitable for use in wet or dry locations at temperatures not to exceed 75°C or not to exceed 75°C when exposed to oil. When used as Type THWN-2, conductor is suitable for use in wet or dry locations at temperatures not to exceed 90°C or not to exceed 75°C when exposed to oil. When used as type MTW, conductor is suitable for use in wet locations or when exposed to oil 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.

Recommended Sample Specifications

(MTW or THHN or THWN or THWN-2)

Conductors shall be UL-listed Type MTW or THHN or THWN or THWN-2 gasoline- and oil-resistant II for CT use (1/0 and larger), suitable for operations at 600 volts in all installations as specified by the National Electric Code[®]. Conductors shall be annealed copper, insulated with high-heat, moisture-resistant, and lead-free PVC, jacketed with abrasion-, moisture-, gasoline-, and oil-resistant nylon or UL-listed equivalent.



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Conductor Size {AWG or MCM/KCMIL}	No. of Strands	PCV Insulation Thickness (mils)	Nylon Jacket Thickness (mils)	Nominal OD (mils)	Approximate Net Weight per 1000 ft	Allowable Ampacities		
						60°C	70°C	90°C
14*	1	15	4	102	15	15	15	15
12*	1	15	4	119	23	20	20	20
10*	1	20	4	150	37	30	30	30
14*	19	15	4	109	16	15	15	15
12*	19	15	4	128	24	20	20	20
10*	19	20	4	161	38	30	30	30
8*	19	30	5	212	63	40	50	55
6*	19	30	5	250	95	55	65	75
4	19	40	6	319	153	70	85	95
3	19	40	6	346	189	85	100	110
2	19	40	6	378	234	95	115	130
1	19	50	7	435	300	110	130	150
1/0	19	50	7	474	372	125	150	170
2/0	19	50	7	518	463	145	175	195
3/0	19	50	7	568	576	165	200	225
4/0	19	50	7	624	719	195	230	260
250	37	60	8	694	849	215	255	290
300	37	60	8	747	1010	240	285	320
350	37	60	8	797	1175	260	310	350
400	37	60	8	842	1332	280	335	380
500	37	60	8	925	1652	320	380	430
600	61	70	9	1024	1990	355	420	475
750	61	70	9	1126	2468	400	475	535

* Suitable for 105°C wiring material (AWM)

#14 -#1 are rated VW-1

All AWG sizes are Rated THWN-2

#8 and larger are rated Sun-Light Resistant (Black only)

All AWG sizes are rated T90

1/0 AWG and larger are rated for Cable Tray

Allowable Ampacities shown are for general use as specified by the National Electric Code®, Section 310.15

60°C: When terminated to equipment for circuits rated 100 amperes or less or marked for AWG 14 thru 1 conductors

MTW: Wet locations or when exposed to coolant

75°C: When terminated to equipment for circuits rated 100 amperes or marked for conductors larger than 1 AWG

THWN when exposed to oil or coolant. MTW dry Locations

90°C: THHN dry locations