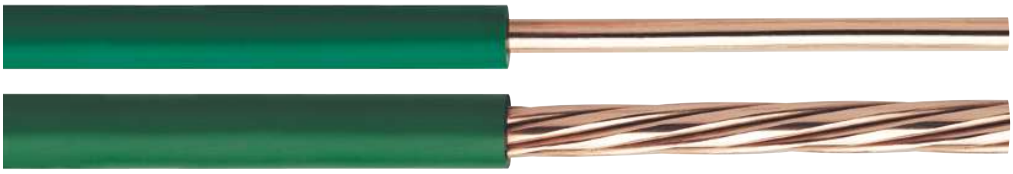
# Wire and Cable Type THW-LS and THHW-LS

Thermoplastic Insulation, Heat Resistant (75°C), Suitable for Wet Locations, Low Smoke
Thermoplastic Insulation, High Heat Resistant (90°C), Suitable for Wet Location (75°C), Low Smoke



## Description

Soft copper conductor, PVC-LS (Low smoke emissions) insulated.

## Construction

Conductor
Solid or compressed strand soft copper

Insulation
THW-LS: Polyvinyl Chloride (PVC 75°C), flame retardant and low smoke emissions (LS).
THHW-LS: Polyvinyl Chloride (PVC 90°C), flame retardant and low smoke emissions (LS).

## Characteristics

Operating Temperature
Dry Locations THHW-LS 90°C, THW-LS 75°C
Wet Locations THHW-LS 75°C, THW-LS 75°C

Operating Voltage
600 V.

## Applications

THW-LS and THHW-LS cables and wires are used generally in building wiring, feeder and branch circuits, and internal secondary industrial distribution. In installations what require special security conditions in fire case.

In fire case, THS-LS and THHW-LS have an excellent performance regarding low smoke emissions, darkness, toxicity, and corrosive smoke.

Installation: in ducts tubing and boards; raceways for 1/0 AWG and greater sizes, according to NEC and NTC 2050 standards.

## Standards

CENTELSA THW-LS and THHW-LS wires and cables are manufactured under the following standards:

ASTM B3, NTC 359. Soft copper wire.
ASTM B8, NTC 307. Concentric Lay Stranded copper conductors.
ASTM B787. 19 Wire Combination Unilay Stranded Copper conductors for subsequent insulation
UL 1581, NTC-3203. Reference Standard for Electrical Wires, Cables and Flexible Cords.
UL 83, NTC-1332. Thermoplastic insulated Wires and Cables.

## Certifications

CENTELSA THW-LS and RHHW-LS Wires and Cables are certified by:

ICONTEC (Colombia). Standard NTC 1332.
LAPEM (Mexico). CFE E0000-03.
FONDONORMA (Venezuela). NORVEN 364 (Standard COVENIN 397).
ANCE (Mexico) NOM 063.

Colors
Sizes 14 to 6 AWG: black, white, red, green, yellow, blue. Sizes 4 AWG and greater: black

Packaging
Sizes 14 to 10 AWG: 100 m spools covered with plastic thermo pack, in corrugated carton boxes. Sizes 8 and 6: 2000 m reels, Sizes 4 to 4/0 AWG: 1000 m reels. Sizes 250 to 500 kcmil: 500 m reels.

Note: Other configurations, sizes, colors and length not specified herein are available upon request.

# Wire and Cable Types THW-LS y THHW-LS 600V (International System Units)

Thermoplastic Insulation, Heat Resistant (75°C), Suitable for Wet Locations, Low Smoke
Thermoplastic Insulation, High Heat Resistant (90°C), Suitable for Wet Locations (75°C), Low Smoke

Standard: UL 83, NTC 1332. Thermoplastic insulated Wires and Cables

| SIZE AWG / kcmil | STRANDS No. | STRANDING CLASS | SECTION ($mm^2$) | CONDUCTOR DIAMETER (mm) | INSULATION THICKNESS (mm) | INSULATION DIAMETER (mm) | DC RESISTANCE AT 20°C [1] (ohm/km) | APPROX. TOTAL WEIGTH (kg/km) | AMPACITY [2] 75°C (A) [3] | AMPACITY [2] 75°C (A) [4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1 | Solid | 2.08 | 1.63 | 0.76 | 3.23 | 8.29 | 27 | 20 | 25 |
| 12 | 1 | Solid | 3.31 | 2.05 | 0.76 | 3.65 | 5.21 | 40 | 25 | 30 |
| 10 | 1 | Solid | 5.26 | 2.59 | 0.76 | 4.19 | 3.28 | 59 | 35 | 40 |
| 8 | 1 | Solid | 8.37 | 3.26 | 1.14 | 5.64 | 2.06 | 99 | 50 | 55 |
| 6 | 1 | Solid | 13.30 | 4.12 | 1.52 | 7.29 | 1.30 | 160 | 65 | 75 |
| 4 | 1 | Solid | 21.15 | 5.19 | 1.52 | 8.36 | 0.815 | 237 | 85 | 95 |
| 14 | 19 | C | 2.08 | 1.75 | 0.76 | 3.35 | 8.45 | 28 | 20 | 25 |
| 12 | 19 | C | 3.31 | 2.21 | 0.76 | 3.81 | 5.31 | 41 | 25 | 30 |
| 10 | 19 | C | 5.26 | 2.78 | 0.76 | 4.38 | 3.34 | 61 | 35 | 40 |
| 8 | 19 | C | 8.37 | 3.51 | 1.14 | 5.89 | 2.10 | 102 | 50 | 55 |
| 6 | 19 | C | 13.30 | 4.42 | 1.52 | 7.59 | 1.32 | 166 | 65 | 75 |
| 4 | 19 | C | 21.15 | 5.58 | 1.52 | 8.75 | 0.831 | 246 | 85 | 95 |
| 2 | 19 | C | 33.63 | 7.04 | 1.52 | 10.21 | 0.523 | 371 | 115 | 130 |
| 1 | 19 | B | 42.41 | 7.90 | 2.03 | 12.08 | 0.415 | 484 | 130 | 150 |
| 1/0 | 19 | B | 53.48 | 8.88 | 2.03 | 13.06 | 0.329 | 595 | 150 | 170 |
| 2/0 | 19 | B | 67.43 | 9.96 | 2.03 | 14.15 | 0.261 | 734 | 175 | 195 |
| 3/0 | 19 | B | 85.03 | 11.19 | 2.03 | 15.37 | 0.207 | 907 | 200 | 225 |
| 4/0 | 19 | B | 107.2 | 12.56 | 2.03 | 16.75 | 0.164 | 1123 | 230 | 260 |
| 250 | 37 | B | 126.7 | 14.18 | 2.41 | 19.15 | 0.139 | 1348 | 255 | 290 |
| 300 | 37 | B | 152.0 | 15.52 | 2.41 | 20.49 | 0.116 | 1595 | 285 | 320 |
| 350 | 37 | B | 177.3 | 16.78 | 2.41 | 21.75 | 0.0992 | 1841 | 310 | 350 |
| 400 | 37 | B | 202.7 | 17.94 | 2.41 | 22.91 | 0.0868 | 2086 | 335 | 380 |
| 500 | 37 | B | 253.4 | 20.04 | 2.41 | 25.01 | 0.0694 | 2573 | 380 | 430 |
| 600 | 61 | B | 304.0 | 22.00 | 2.79 | 27.75 | 0.0578 | 3102 | 420 | 475 |
| 700 | 61 | B | 354.7 | 23.75 | 2.79 | 29.50 | 0.0496 | 3588 | 460 | 520 |
| 750 | 61 | B | 380.0 | 24.59 | 2.79 | 30.35 | 0.0463 | 3830 | 475 | 535 |
| 800 | 61 | B | 405.4 | 25.39 | 2.79 | 31.15 | 0.0434 | 4071 | 490 | 555 |
| 900 | 61 | B | 456.0 | 26.94 | 2.79 | 32.70 | 0.0386 | 4554 | 520 | 585 |
| 1000 | 61 | B | 506.7 | 28.38 | 2.79 | 34.14 | 0.0347 | 5036 | 545 | 615 |

Notes:
1. DC resistance calculated based on a 17.241 ohm-mm2/km resistivity for cooper.
2. No more than three current carrying conductors in a duct or in direct burial, 30°C ambient temperature, according to NEC and NTC 2050, for sizes 14 12 and 10 AWG overload protection must be 15, 20 and 30 A.
3. According to NEC NTC 2050 the minimun size for use in Tray Cables must be 1/0 AWG for phase conductors, and 4 AWG for grounding conductors.
4. Data herein indicated are approximated and are subject to normal manuracturing tolerances.

# Wire and Cable Types THW-LS y THHW-LS 600V

Thermoplastic Insulation, Heat Resistant (75°C), Suitable for Wet Locations, Low Smoke
Thermoplastic Insulation, High Heat Resistant (90°C), Suitable for Wet Locations (75°C), Low Smoke

Standard: UL 83, NTC 1332. Thermoplastic insulated Wires and Cables

| SIZE AWG / kcmil | STRANDS No. | STRANDING CLASS | SECTION (sq inches) | CONDUCTOR DIAMETER (mils) | INSULATION THICKNESS (mils) | INSULATION DIAMETER (mils) | DC RESISTANCE AT 20°C [1] (ohm/kft) | APPROX. TOTAL WEIGTH (pound/kft) | AMPACITY [2] 75°C (A) [3] | AMPACITY [2] 90°C (A) [4] |
|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 1 | Solid | 0.00323 | 64 | 30 | 127 | 2.53 | 18 | 20 | 25 |
| 12 | 1 | Solid | 0.00513 | 81 | 30 | 144 | 1.59 | 27 | 25 | 30 |
| 10 | 1 | Solid | 0.00815 | 102 | 30 | 165 | 1.00 | 40 | 35 | 40 |
| 8 | 1 | Solid | 0.0130 | 128 | 45 | 222 | 0.628 | 66 | 50 | 55 |
| 6 | 1 | Solid | 0.0206 | 162 | 60 | 287 | 0.395 | 107 | 65 | 75 |
| 4 | 1 | Solid | 0.0328 | 204 | 60 | 329 | 0.248 | 159 | 85 | 95 |
| 14 | 19 | C | 0.00323 | 69 | 30 | 132 | 2.58 | 19 | 20 | 25 |
| 12 | 19 | C | 0.00513 | 87 | 30 | 150 | 1.62 | 28 | 25 | 30 |
| 10 | 19 | C | 0.00815 | 110 | 30 | 173 | 1.02 | 41 | 35 | 40 |
| 8 | 19 | C | 0.0130 | 138 | 45 | 232 | 0.641 | 69 | 50 | 55 |
| 6 | 19 | C | 0.0206 | 174 | 60 | 299 | 0.403 | 111 | 65 | 75 |
| 4 | 19 | C | 0.0328 | 220 | 60 | 344 | 0.253 | 165 | 85 | 95 |
| 2 | 19 | C | 0.0521 | 277 | 60 | 402 | 0.159 | 249 | 115 | 130 |
| 1 | 19 | B | 0.0657 | 311 | 80 | 476 | 0.126 | 326 | 130 | 150 |
| 1/0 | 19 | B | 0.0829 | 349 | 80 | 514 | 0.100 | 400 | 150 | 170 |
| 2/0 | 19 | B | 0.105 | 392 | 80 | 557 | 0.0795 | 493 | 175 | 195 |
| 3/0 | 19 | B | 0.132 | 440 | 80 | 605 | 0.0630 | 609 | 200 | 225 |
| 4/0 | 19 | B | 0.166 | 494 | 80 | 659 | 0.0500 | 755 | 230 | 260 |
| 250 | 37 | B | 0.196 | 558 | 95 | 754 | 0.0423 | 906 | 255 | 290 |
| 300 | 37 | B | 0.236 | 611 | 95 | 807 | 0.0353 | 1072 | 285 | 320 |
| 350 | 37 | B | 0.275 | 661 | 95 | 856 | 0.0302 | 1237 | 310 | 350 |
| 400 | 37 | B | 0.314 | 706 | 95 | 902 | 0.0264 | 1402 | 335 | 380 |
| 500 | 37 | B | 0.393 | 789 | 95 | 985 | 0.0212 | 1729 | 380 | 430 |
| 600 | 61 | B | 0.471 | 866 | 110 | 1093 | 0.0176 | 2085 | 420 | 475 |
| 700 | 61 | B | 0.550 | 935 | 110 | 1162 | 0.0151 | 2411 | 460 | 520 |
| 750 | 61 | B | 0.589 | 968 | 110 | 1195 | 0.0141 | 2574 | 475 | 535 |
| 800 | 61 | B | 0.628 | 1000 | 110 | 1226 | 0.0132 | 2736 | 490 | 555 |
| 900 | 61 | B | 0.707 | 1061 | 110 | 1287 | 0.0118 | 3061 | 520 | 585 |
| 1000 | 61 | B | 0.785 | 1117 | 110 | 1344 | 0.0106 | 3384 | 545 | 615 |

Notes:
1. DC resistance calculated based on a 10.371 ohm-cmil/ft resistivity for cooper.
2. No more than three current carrying conductors in a duct or in direct burial, 30°C ambient temperature, according to NEC and NTC 2050, for sizes 14 12 and 10 AWG overload protection must be 15, 20 and 30 A.
3. According to NEC NTC 2050 the minimun size for use in Tray Cables must be 1/0 AWG for phase conductors, and 4 AWG for grounding conductors.
4. Data herein indicated are approximated and are subject to normal manuracturing tolerances.