



MC-HL 600V RA90-HL 600V

UL 1569; UL 2225; CSA C22.2 No. 123; CSA C22.2 No. 174; UL 44

XLPE insulated, corrugated welded aluminum sheath and PVC jacket

CONSTRUCTION

| | |
|----------------------|--|
| Conductor | Uncoated soft copper per ASTM B3 stranded: - sizes smaller than 8AWG are concentric acc. to ASTM B8 - sizes 8AWG and larger are compacted acc. to ASTM B-496 |
| Insulation | Cross-linked polyethylene type XHHW-2/R90 acc. to UL 44/CSA C22.22 No. 38 |
| Grounding conductors | Uncoated soft copper per ASTM B3 stranded acc. to ASTM B8 |
| Assembly | MC-HL VFD: 3 insulated conductors with 3 uninsulated ground wires MC-HL: 4 - 19 insulated conductors with 1 uninsulated ground wire |
| Fillers | Non-hygroscopic fillers as necessary |
| Core wrapping | Polypropylene tape |
| Aarmor | Continuously corrugated welded aluminum |
| Jacket | Flame and sunlight resistance PVC acc. to UL 1569 |



Characteristic

| | | |
|---------------------|---|--------------|
| Core identification | - sizes smaller than 8AWG: per ICEA Method 1 Table E-2 (as below) | |
| Conductor number | Insulation color | Stripe color |
| 1 | Black | - |
| 2 | Red | - |
| 3 | Blue | - |
| 4 | Orange | - |
| 6 | Yellow | - |
| 6 | Brown | - |
| 7 | Red | Black |
| 8 | Blue | Black |
| 9 | Orange | Black |
| 10 | Yellow | Black |
| 11 | Brown | Black |
| 12 | Black | Red |
| 13 | Blue | Red |
| 14 | Orange | Red |

MC-HL 600V RA90-HL 600V

Characteristic

| | | |
|--|------------------|--------------|
| Core identification | | |
| Conductor number | Insulation color | Stripe color |
| 15 | Yellow | Red |
| 16 | Brown | Red |
| 17 | Black | Blue |
| 18 | Red | Blue |
| 19 | Orange | Blue |
| - sizes 8AWG and larger: method 4 per ICEA (all cores are black with printed numbers in contrasting ink) | | |
| Colour of sheath | Black | |
| Maximum conductor operating temperature | +90°C | |
| Lowest ambient temperature for fixed installation | -40°C | |
| Maximum short-circuit conductor temperature | +250°C | |

Fire Performance

| | |
|-----------------|------------------------|
| Flame retardant | UL 1685/IEEE 1202 FT-4 |
|-----------------|------------------------|

Cable Marking

TELE-FONIKA (UL) E140378 MC-HL 3C (SIZE) CU + 3C (SIZE) CU GRD XHHW-2 600V SUN RES FOR CT USE DIRECT BURIAL -40C FT4 CSA 205591 RA90 HL XLPE 3C(SIZE AWG)(SIZE mm2)+3C (SIZE AWG)(SIZE mm2) 600V GRD SUN RES FT4 (-40°C) (FOOTAGE MARKERS) (PRODUCTION CODE)

Approvals

UL approved E140378

CSA approved 80243354

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| Conductor size | Number of conductors | Insulation thickness | Diameter of the insulated wire | Ground wire size | Approx. diameter over core | Approx. diameter over armor | Jacket thickness | Approximate overall diameter of cable | Approximate net weight of cable |
|---|----------------------|----------------------|--------------------------------|------------------|----------------------------|-----------------------------|------------------|---------------------------------------|---------------------------------|
| AWG kcmil | No. | mil | inch | AWG | inch | inch | mil | inch | lbs/ft |
| 3 insulated conductors with 3 uninsulated ground wires | | | | | | | | | |
| 14 | 3 | 30 | 0.14 | 18 | 0.37 | 0.54 | 50 | 0.65 | 205 |
| 12 | 3 | 30 | 0.15 | 16 | 0.43 | 0.58 | 50 | 0.68 | 264 |
| 10 | 3 | 30 | 0.18 | 14 | 0.45 | 0.61 | 50 | 0.71 | 326 |
| 8 | 3 | 45 | 0.24 | 14 | 0.55 | 0.77 | 50 | 0.87 | 436 |
| 6 | 3 | 45 | 0.28 | 12 | 0.63 | 0.88 | 50 | 0.99 | 603 |
| 4 | 3 | 45 | 0.33 | 12 | 0.74 | 0.99 | 50 | 1.10 | 798 |
| 2 | 3 | 45 | 0.38 | 10 | 0.85 | 1.12 | 50 | 1.22 | 1104 |
| 1/0 | 3 | 55 | 0.45 | 10 | 1.00 | 1.37 | 50 | 1.47 | 1662 |
| 2/0 | 3 | 55 | 0.48 | 10 | 1.18 | 1.56 | 60 | 1.68 | 2020 |
| 3/0 | 3 | 55 | 0.54 | 8 | 1.28 | 1.67 | 60 | 1.79 | 2469 |
| 4/0 | 3 | 55 | 0.59 | 8 | 1.39 | 1.79 | 60 | 1.91 | 2942 |
| 250 | 3 | 65 | 0.66 | 8 | 1.54 | 1.95 | 60 | 2.07 | 3422 |
| 350 | 3 | 65 | 0.76 | 6 | 1.75 | 2.18 | 60 | 2.31 | 4499 |
| 350 | 3 | 65 | 0.76 | 8 | 1.75 | 2.18 | 60 | 2.31 | 4587 |
| 500 | 3 | 65 | 0.88 | 6 | 2.00 | 2.46 | 75 | 2.62 | 6230 |
| 4 - 19 insulated conductors with 1 uninsulated ground wire | | | | | | | | | |
| 14 | 4 | 30 | 0.14 | 14 | 0.37 | 0.57 | 50 | 0.67 | 243 |
| 14 | 5 | 30 | 0.14 | 14 | 0.44 | 0.64 | 50 | 0.74 | 266 |
| 14 | 6 | 30 | 0.14 | 14 | 0.44 | 0.64 | 50 | 0.74 | 285 |
| 14 | 8 | 30 | 0.14 | 14 | 0.55 | 0.76 | 50 | 0.87 | 349 |
| 14 | 9 | 30 | 0.14 | 14 | 0.57 | 0.82 | 50 | 0.92 | 375 |
| 14 | 11 | 30 | 0.14 | 14 | 0.59 | 0.84 | 50 | 0.94 | 426 |
| 14 | 12 | 30 | 0.14 | 14 | 0.63 | 0.88 | 50 | 0.98 | 447 |
| 14 | 19 | 30 | 0.14 | 14 | 0.75 | 1.01 | 50 | 1.12 | 616 |
| 12 | 4 | 30 | 0.15 | 12 | 0.43 | 0.65 | 50 | 0.76 | 294 |
| 12 | 8 | 30 | 0.15 | 12 | 0.62 | 0.86 | 50 | 0.97 | 453 |
| 12 | 11 | 30 | 0.15 | 12 | 0.67 | 0.93 | 50 | 1.03 | 559 |
| 12 | 12 | 30 | 0.15 | 12 | 0.71 | 0.97 | 50 | 1.07 | 592 |
| 12 | 18 | 30 | 0.15 | 12 | 0.80 | 1.07 | 50 | 1.17 | 793 |
| 10 | 4 | 30 | 0.18 | 10 | 0.47 | 0.73 | 50 | 0.83 | 377 |

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| Conductor size | Number of conductors | Insulation thickness | Diameter of the insulated wire | Ground wire size | Approx. diameter over core | Approx. diameter over armor | Jacket thickness | Approximate overall diameter of cable | Approximate net weight of cable |
|----------------|----------------------|----------------------|--------------------------------|------------------|----------------------------|-----------------------------|------------------|---------------------------------------|---------------------------------|
| AWG kcmil | No. | mil | inch | AWG | inch | inch | mil | inch | lbs/ft |
| 10 | 8 | 30 | 0.18 | 10 | 0.71 | 0.97 | 50 | 1.07 | 606 |
| 10 | 11 | 30 | 0.18 | 10 | 0.78 | 1.04 | 50 | 1.14 | 748 |
| 350 | 4 | 65 | 0.76 | 3 | 1.89 | 2.34 | 75 | 2.50 | 5802 |
| 500 | 4 | 65 | 0.88 | 2 | 2.17 | 2.65 | 75 | 2.80 | 7897 |

| Conductor size | Number of conductors | Min. Bending Radius | Max. pulling tension | DC Resistance at 20°C * | Ampacity at 90°C ** |
|---|----------------------|---------------------|----------------------|-------------------------|---------------------|
| AWG kcmil | No. | inch | lbs | Ω / 1000 ft | A |
| 3 insulated conductors with 3 uninsulated ground wires | | | | | |
| 14 | 3 | 4.4 | 95 | 2.684 | 25 |
| 12 | 3 | 4.7 | 155 | 1.696 | 30 |
| 10 | 3 | 5.1 | 245 | 1.061 | 40 |
| 8 | 3 | 6.1 | 350 | 0.654 | 55 |
| 6 | 3 | 6.9 | 560 | 0.411 | 75 |
| 4 | 3 | 7.7 | 825 | 0.258 | 95 |
| 2 | 3 | 8.5 | 1310 | 0.162 | 130 |
| 1/0 | 3 | 10.3 | 1980 | 0.102 | 170 |
| 2/0 | 3 | 11.8 | 2450 | 0.081 | 195 |
| 3/0 | 3 | 12.6 | 3145 | 0.064 | 225 |
| 4/0 | 3 | 13.4 | 3890 | 0.051 | 260 |
| 250 | 3 | 14.5 | 4550 | 0.043 | 290 |
| 350 | 3 | 16.2 | 6425 | 0.031 | 350 |
| 350 | 3 | 16.2 | 6260 | 0.031 | 350 |
| 500 | 3 | 18.4 | 8990 | 0.022 | 430 |

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| Conductor size | Number of conductors | Min. Bending Radius | Max. pulling tension | DC Resistance at 20°C * | Ampacity at 90°C ** |
|---|----------------------|---------------------|----------------------|-------------------------|---------------------|
| AWG kcmil | No. | inch | lbs | Ω / 1000 ft | A |
| 4 - 19 insulated conductors with 1 uninsulated ground wire | | | | | |
| 14 | 4 | 4.7 | 100 | 2.684 | 15 |
| 14 | 5 | 5.2 | 140 | 2.684 | 15 |
| 14 | 6 | 5.2 | 160 | 2.684 | 15 |
| 14 | 8 | 6.1 | 210 | 2.711 | 15 |
| 14 | 9 | 6.4 | 230 | 2.711 | 15 |
| 14 | 11 | 6.6 | 280 | 2.711 | 12 |
| 14 | 12 | 6.9 | 300 | 2.711 | 12 |
| 14 | 19 | 7.8 | 465 | 2.711 | 12 |
| 12 | 4 | 5.3 | 185 | 1.696 | 20 |
| 12 | 8 | 6.8 | 330 | 1.712 | 20 |
| 12 | 11 | 7.2 | 445 | 1.712 | 15 |
| 12 | 12 | 7.5 | 480 | 1.712 | 15 |
| 12 | 18 | 8.2 | 705 | 1.712 | 15 |
| 10 | 4 | 5.8 | 295 | 1.061 | 30 |
| 10 | 8 | 7.5 | 530 | 1.072 | 28 |
| 10 | 11 | 8.0 | 705 | 1.072 | 20 |
| 350 | 4 | 17.5 | 8270 | 0.031 | 280 |
| 500 | 4 | 19.6 | 11765 | 0.022 | 344 |

* The DC resistance when measured on a single conductor within a completed twisted conductor assembly

** Ampacities are based on TABLE 310.16 of the NEC 2020, for three-core cables,

Ampacities have been adjusted for more than three current-carrying conductors based on Table 310.15.

The overcurrent protection for these conductor types shall not exceed 15 amperes for 14 AWG, 20 amperes for 12 AWG, and 30 amperes for 10 AWG.

Ampacities is given for cables in raceway or direct buried at 30°C ambient temperature and 90°C conductor temperature.

Applications and Features

Cables may be installed indoors or outdoors, in wet or dry locations, in cable tray or direct burial. Aluminium corrugated sheath provides protection against moisture, gasses, liquids and mechanical damage. The cables are resistant to impacts and bending at low temperatures up to -40°C. The outer sheath is UV sunlight and oil resistant. Flame test meets FT4

Standard length cable packing

on drums