

Alcan Cable

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Suggested Specification for Aluminum Alloy Conductors for Distribution Feeder Applications with Recommendations for Connectors

Product

Distribution feeder conductors in sizes #6 AWG to 1000 kcmil may be copper or aluminum alloy. Aluminum alloy conductors shall be compact stranded conductors of STABILOY[®] (AA-8030) as manufactured by Alcan Cable or of a recognized 8000 Series aluminum alloy conductor material by the Aluminum Association.

Manufacturer shall verify compliance with the elongation requirement per Table 10.1 of UL Standard 1581 for stranded AA-8000 series aluminum alloy conductors on wires taken from the conductor after stranding.

Insulation

For use in raceways: Sizes #6 AWG to 1000 kcmil

Type XHHW-2, temperature rating 90° C and marked "SUN RES".

For use in Cable Trays: Sizes # 1/0 AWG and larger

Type XHHW-2, temperature rating 90° C and marked: "SUN RES", "VW-1", "GASOLINE AND OIL-RESISTANT II", and "FOR CT USE".

Connections for Conductors

1. Using Mechanical Screw Type Connectors:

1.1 Connectors shall be dual rated (AL7CU or AL9CU) and Listed by UL for use with aluminum and copper conductors and sized to accept aluminum conductors of the ampacity specified.

1.2 Using a suitable stripping tool, to avoid damage to the conductor, remove insulation from the required length of the conductor.

1.3 Clean the conductor surface using a wire brush and apply a Listed joint compound.

1.4 Tighten the connection per the connector manufacturer's recommendation.

1.5 Wipe off any excess joint compound.

2. Using Mechanical Compression Type Connectors:

2.1 Connectors shall be dual rated (AL7CU or AL9CU) and Listed by UL for use with aluminum and copper conductors and sized to accept aluminum conductors of the ampacity specified.

2.2 The lugs shall be marked with wire size, die index, number and location of crimps and shall be suitably color coded. Lug barrel shall be factory prefilled with a joint compound Listed by UL.

2.3 Using a suitable stripping tool, to avoid damage to the conductor, remove insulation from the required length of the conductor.

2.4 Clean conductor surface using a wire brush.

2.5 Crimp the connection per the connector manufacturer's recommendation.

2.6 Wipe off any excess joint compound.

3. Termination of Aluminum Conductor to Aluminum Bus:

3.1 Prepare a mechanical connection conforming to 1 or 2.

3.2 Hardware:

- 3.2.1 Bolts: Anodized aluminum alloy 2024-T4 and conforming to ANSI B18.2.1 and to ASTM B211 or B221 chemical and mechanical property limits.
 - 3.2.2 Nuts: Aluminum alloys 6061-T6 or 6262-T9 and conforming to ANSI B18.2.2.
 - 3.2.3 Washers: Flat aluminum alloy 2024-T4, Type A plain, standard wide series conforming to ANSI B27.2.
 - 3.2.4 Lubricate and tighten the hardware as per the manufacturer's recommendations.
4. Termination of Aluminum Conductor to Copper Bus:
- 4.1 Prepare a mechanical connection conforming to 1 or 2.
 - 4.2 Hardware:
 - 4.2.1 Bolts: Plated or galvanized medium carbon steel; heat treated, quenched and tempered equal to ASTM A-325 or SAE grade 5.
 - 4.2.2 Nuts: Heavy semi-finished hexagon, conforming to ANSI B18.2.2, threads to be unified coarse series (UNC), class 2B.
 - 4.2.3 Washers: Should be of steel, Type A plain standard wide series conforming to ANSI B27.2.
 - 4.2.4 Belleville conical spring washers: shall be of hardened steel, cadmium plated or silicone bronze.
 - 4.2.5 Lubricate and tighten the hardware as per the manufacturer's recommendations.
5. Termination of Aluminum Conductor to Equipment Not Equipped for Termination of Aluminum Conductor:
- 5.1 Prepare compression connection using an adapter Listed by UL for the purpose or by pigtailling a short length of suitable size of copper conductor to the aluminum conductor with a compression connector Listed by UL.
 - 5.2 Provide an insulating cover over adapter body or the compression connector.
 - 5.3 Terminate the adapter or the pigtail on to the equipment per manufacturer's recommendation.

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