# AAAC Conductor Cables

**AAAC – All Aluminium Alloy (6201) Conductor**

## Application

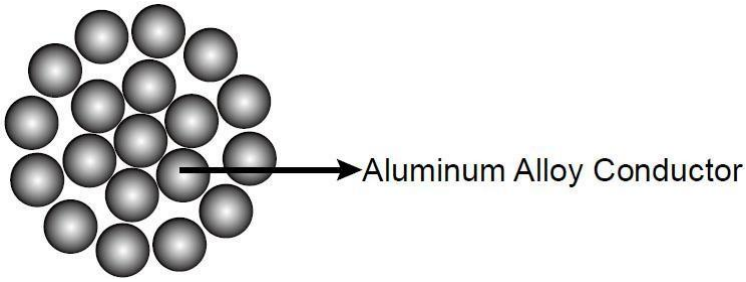
AAAC – All Aluminium Alloy (6201) Conductor used as bare overhead conductor for primary and secondary distribution. Designed utilizing a high-strength aluminum-alloy to achieve a high strength-to-weight ratio; affords good sag characteristics. Aluminum-alloy 6201-T81 gives AAAC higher resistance to corrosion than ACSR.

## Standard

Basic design to: ASTM B-398 Aluminum Alloy 6201-T81 wire for electrical purposes

ASTM B-399 Concentric-lay-stranded 6201-T81 Aluminum Alloy conductors

## Construction

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This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard.

Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |

| | |
|---|---|
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Code Word | Conductor size | | Size and stranding of ACSR equivalent | Wires | Wire diameter | | Cable diameter | | Mass | | Rated strength | | Nominal d.c. Resistance at 20 °C | | Ampacity Sun, no wind | Sun and wind | No sun and wind |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | kcmil | mm² | AWG or kcmil | | mm | mils | mm | in | kg/km | lb/kft | kgf | kips | W/ km | W/kft | A* | | |
| Akron | 30,58 | 15,5 | 6 | 7 | 1,68 | 66,1 | 5,04 | 0,198 | 42,5 | 28,6 | 502 | 1,107 | 2,161 | 0,6588 | 62 | 107 | 111 |
| Alton | 48,69 | 24,7 | 4 | 7 | 2,12 | 83,4 | 6,36 | 0,25 | 67,7 | 45,5 | 799 | 1,762 | 1,358 | 0,4138 | 85 | 143 | 150 |
| Ames | 77,47 | 39,2 | 2 | 7 | 2,67 | 105,2 | 8,02 | 0,316 | 107,7 | 72,4 | 1272 | 2,804 | 0,853 | 0,2601 | 119 | 191 | 201 |
| Azusa | 123,3 | 62,4 | 1/0 | 7 | 3,37 | 132,7 | 10,1 | 0,398 | 171,4 | 115,2 | 1939 | 4,275 | 0,536 | 0,1635 | 164 | 256 | 271 |
| Anaheim | 155,4 | 78,6 | 2/0 | 7 | 3,78 | 149 | 11,4 | 0,447 | 216,1 | 145,2 | 2445 | 5,390 | 0,425 | 0,1297 | 192 | 296 | 315 |
| Amherst | 195,7 | 99,3 | 3/0 | 7 | 4,25 | 167,2 | 12,7 | 0,502 | 272,1 | 182,8 | 3079 | 6,787 | 0,338 | 0,1030 | 226 | 342 | 365 |
| Alliance | 246,9 | 125 | 4/0 | 7 | 4,77 | 187,8 | 14,3 | 0,563 | 343,2 | 230,7 | 3884 | 8,563 | 0,268 | 0,0816 | 265 | 395 | 424 |
| Butte | 312,8 | 159 | 266,8 | 19 | 3,26 | 128,3 | 16,3 | 0,642 | 434,8 | 292,2 | 4767 | 10,508 | 0,211 | 0,0644 | 313 | 460 | 495 |
| Canton | 394,5 | 200 | 336,4 | 19 | 3,66 | 144,1 | 18,3 | 0,721 | 548,5 | 368,6 | 6013 | 13,256 | 0,168 | 0,0511 | 368 | 532 | 575 |
| Cairo | 465,4 | 236 | 397,5 | 19 | 3,98 | 156,5 | 19,9 | 0,783 | 647 | 434,8 | 7092 | 15,636 | 0,142 | 0,0433 | 413 | 590 | 640 |
| Darien | 559,5 | 284 | 477 | 19 | 4,36 | 171,6 | 21,8 | 0,858 | 777,9 | 522,8 | 8527 | 18,798 | 0,118 | 0,0360 | 468 | 663 | 720 |
| Elgin | 652,4 | 331 | 556,5 | 19 | 4,71 | 185,3 | 23,5 | 0,927 | 907 | 609,6 | 9943 | 21,920 | 0,101 | 0,0309 | 520 | 729 | 795 |
| Flint | 740,8 | 375 | 636 | 37 | 3,59 | 141,5 | 25,2 | 0,991 | 1030 | 692,2 | 11048 | 24,356 | 0,089 | 0,0272 | 566 | 790 | 863 |
| Greeley | 927,2 | 470 | 795 | 37 | 4,02 | 158,3 | 28,1 | 1,11 | 1289 | 866,3 | 13827 | 30,483 | 0,071 | 0,0217 | 660 | 908 | 996 |
| - | 1077,4 | 547 | 954 | 61 | 3,38 | 132,9 | 30,4 | 1,2 | 1498 | 1007 | 15891 | 35,032 | 0,061 | 0,0187 | 733 | 998 | 1099 |
| - | 1165,1 | 590 | 1033,5 | 61 | 3,51 | 138,2 | 31,6 | 1,24 | 1620 | 1089 | 17183 | 37,882 | 0,057 | 0,0173 | 771 | 1045 | 1153 |
| - | 1259,6 | 638 | 1113 | 61 | 3,65 | 143,7 | 32,8 | 1,29 | 1751 | 1177 | 18578 | 40,958 | 0,052 | 0,0160 | 812 | 1096 | 1211 |
| - | 1348,8 | 685 | 1192,5 | 61 | 3,78 | 148,7 | 34 | 1,34 | 1875 | 1260 | 19894 | 43,857 | 0,049 | 0,0149 | 850 | 1143 | 1265 |
| - | 1439,2 | 729 | 1272 | 61 | 3,9 | 153,6 | 35,1 | 1,38 | 2001 | 1345 | 21226 | 46,795 | 0,046 | 0,0140 | 886 | 1187 | 1315 |

* Allowed ampacities of bare conductors in free air, based on ambient temperature of 25 ºC, conductor temperature of 75 ºC, wind velocity 2 ft/s, conductor emisivity 0,5, solar radiation 96 W/ft2, at sea level.

### AAAC – All Aluminium Alloy Conductor (AAAC/1120) AS/NZS 1531

## Application

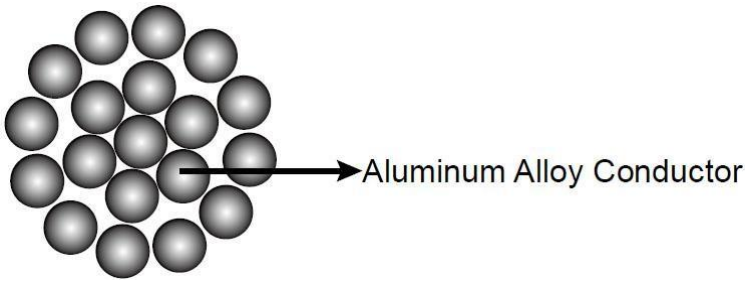
AAAC- The full name: All aluminium alloy conductor. AAAC contains a small percentage (about 0.6%) of silicon and magnesium elements. It provides several benefits for overhead lines.

7 and 19 strand construction is suitable for bare overhead reticulation of medium spans, normally at low and medium voltages. 37 and 61 strand construction is suitable for transmission and sub transmission lines where homogeneous construction can reduce line losses and improve corrosion resistance in conductors with similar strength to ACSR types.

## Standard

Basic design to: AS 1531

## Construction




AAAC cable bvconsists of aluminum alloy wires. The aluminum alloy wires are concentrically stranded.

This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard.

Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Code<br>Name | No./ Dia.of Wire<br>No/mm | Approx.Overall Dia.<br>mm | Approx. Weight<br>Kg/km | Calculated Breaking Load<br>kN | Max.DC Resistance at 20C<br>/km |
|---|---|---|---|---|---|
| CHLORINE | 7/2.50 | 7.50 | g4 | 8.18 | 0.8637 |
| CHROMIUM | 7/2.75 | 8.25 | 113 | 9.91 | 0.7138 |
| FLUORINE | 7/3.00 | 9 | 135 | 11.80 | 0.5998 |

| | | | | | |
|---|---|---|---|---|---|
| HELIUM | 7/3.75 | 11.25 | 211 | 17.60 | 0.3839 |
| HYDROGEN | 7/4.50 | 13.5 | 304 | 24.3 | 0.2666 |
| IODINE | 7/4.75 | 14.25 | 339 | 27.1 | 0.2393 |
| | 19/3.19 | 15.95 | 417 | 36.06 | 0.1964 |
| KRYPTON | 19/3.25 | 16.25 | 433 | 37.4 | 0.1892 |
| | 19/3.45 | 17.25 | 488 | 42.18 | 0.1679 |
| LUTETIUM | 19/3.50 | 17.50 | 502 | 41.7 | 0.1631 |
| | 19/3.69 | 18.45 | 558 | 46.32 | 0.1468 |
| NEON | 19/3.75 | 18.8 | 577 | 47.8 | 0.1421 |
| | 19/3.81 | 18.55 | 627 | 52.01 | 0.1307 |
| | 19/4.12 | 20.6 | 698 | 67.75 | 0.1177 |
| NITROGEN | 37/2.00 | 21 | 720 | 82.2 | 0.1143 |
| | 19/4.32 | 21.6 | 765 | 63.5 | 0.1071 |
| NOBELIUM | 37/3.25 | 22.8 | 845 | 72.8 | 0.0873 |
| | 19/4.70 | 23.5 | 906 | 72.02 | 0.0805 |
| | 37/3.37 | 23.59 | 909 | 78.4 | 0.0906 |
| | 37/3.40 | 23.8 | 925 | 79.78 | 0.088 |
| OXYGEN | 19/4.75 | 23.8 | 925 | 73.6 | 0.0886 |
| | 37/3.42 | 23.94 | 338 | 80.72 | 0.0879 |
| | 37/3.44 | 24.08 | 947 | 81.67 | 0.0889 |
| . | 61/2.72 | 24.48 | 978 | 79.75 | 0.0845 |
| | 37/3.55 | 24.85 | 1008 | 83.5 | 0.0816 |
| | 37/3.62 | 25.34 | 1049 | 86.8 | 0.0785 |
| PHOSPHORUS | 37/3.75 | 26.3 | 1125 | 93.1 | 0.0731 |
| | 37/2.79 | 26.53 | 1150 | 95.17 | 0.0716 |
| | 81/2.95 | 26.55 | 1151 | 93.81 | 0.0718 |
| | 37/3.794 | 26.68 | 1152 | 95.37 | 0.0715 |
| | 37/3.85 | 26.95 | 1186 | 98.2 | 0.0894 |
| | 37/3.96 | 2772 | 1255 | 103.90 | 0.0656 |
| | 61/3.16 | 28.44 | 1320 | 10764 | 0.0826 |
| SELENIUM | 61/3.25 | 29.3 | 1400 | 114 | 0.0592 |
| | 61/3.26 | 29.34 | 1405 | 114.5 | 0.0588 |
| . | 61/3.30 | 29.7 | 1440 | 117.4 | 0.0574 |
| . | 37/4.28 | 29.96 | 1486 | 121.37 | 0.0561 |

| | | | | | |
|---|---|---|---|---|---|
| | 3714.38 | 30.66 | 1535 | 127.11 | 0.0536 |
| . | 61/3.49 | 31.41 | 1610 | 131.3 | 0.0513 |
| | 37/4.49 | 31.43 | 1613 | 133.57 | 0.051 |
| SILICON | 61/3.50 | 31.5 | 1620 | 12700 | 0.051 |
| | 61/3.56 | 32.04 | 1676 | 131.15 | 0.0493 |
| | 61/3.64 | 32.76 | 1752 | 13700 | 0.0472 |
| . | 61/3.71 | 33.38 | 1820 | 142.4 | 0.0454 |
| SULFUR | 61/3.75 | 33.8 | 1860 | 146.5 | 0.0445 |
| | 61/3.79 | 34.11 | 1899 | 148.64 | 0.0435 |
| . | 61/3.85 | 34.65 | 1950 | 153.4 | 0.0422 |
| . | 61/3.92 | 35.28 | 2032 | 159 | 0.0407 |
| | 61/3.99 | 35.91 | 2104 | 164.74 | 0.0393 |
| | 61/4.05 | 36.45 | 2189 | 169.7 | 0.0381 |
| | 61/4.12 | 37.08 | 2244 | 175.7 | 0.0368 |
| | 61/4.18 | 37.62 | 2310 | 180.8 | 0.0358 |
| | 61/4.24 | 38.16 | 2377 | 186.04 | 0.0348 |
| | 61/4.30 | 38.7 | 2445 | 191.34 | 0.0338 |
| | 614.35 | 39.15 | 2502 | 185.8 | 0.033 |
| | 61/4.36 | 39.24 | 2513 | 186.71 | 0.0329 |
| | 61/4.43 | 39.87 | 2595 | 203.1 | 0.0319 |
| | 81/4.49 | 40.41 | 2888 | 208.82 | 0.031 |
| | 61/4.54 | 40.86 | 2725 | 204.4 | 0.0303 |
| | 61/4.60 | 41.4 | 2798 | 209.84 | 0.0285 |

**AAAC – All Aluminum Alloy Conductor Cables ASTM B 399/B 399M**

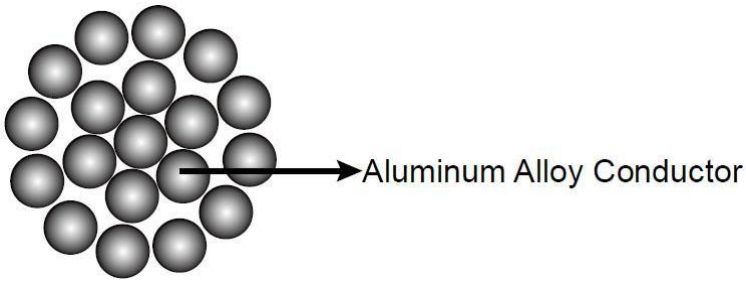
## Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical teatures exist.

## Standard

Basic design to ASTM B 399/B 399M

## Construction

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## Service Conditions

| | |
|---|---|
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| Wind Pressure | 80 – 130kg/m² |
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| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Nominal Area | | Stranding | Overall Diameter | Weight | Rated Strength | Electrical Resistance | Current Rating* |
|---|---|---|---|---|---|---|---|
| AWG&MCM | mm^2 | No.×mm | mm | kg/km | KN | Ω/Km | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | 13.2 | 7/1.55 | 4.65 | 36.2 | 4.18 | 2.5361 | 69 |
| 4 | 21.1 | 7/1.96 | 5.88 | 57.9 | 6.69 | 1.586 | 93 |
| 2 | 33.5 | 7/2.47 | 7.41 | 92 | 10.6 | 0.9987 | 123 |
| 0 | 53.5 | 7/3.12 | 9.36 | 146.8 | 17 | 0.62592 | 165 |
| 2/0 | 67.3 | 7/3.50 | 10.5 | 184.8 | 20.4 | 0.49738 | 190 |
| 3/0 | 84.9 | 7/3.93 | 11.79 | 233 | 25.7 | 0.3945 | 219 |
| 4/0 | 107 | 7/4.42 | 13.26 | 294.7 | 32.5 | 0.31188 | 253 |
| 250 | 126 | 19/2.91 | 14.55 | 346.7 | 38.8 | 0.26509 | 280 |
| 300 | 152 | 19/3.19 | 15.95 | 416.7 | 46.6 | 0.22059 | 313 |
| 350 | 178 | 19/3.45 | 17.25 | 487.3 | 52 | 0.1886 | 345 |
| 400 | 203 | 19/3.69 | 18.45 | 557.5 | 59.5 | 0.16486 | 375 |
| 450 | 228 | 19/3.91 | 19.55 | 626 | 66.8 | 0.14683 | 402 |
| 500 | 253 | 19/4.12 | 20.6 | 695 | 74.2 | 0.13224 | 429 |
| 550 | 279 | 37/3.10 | 21.7 | 766.2 | 83.9 | 0.11995 | 455 |
| 600 | 303 | 37/3.23 | 22.61 | 831.9 | 91 | 0.11049 | 478 |
| 650 | 330 | 37/3.37 | 23.59 | 905.5 | 94.9 | 0.1015 | 504 |
| 700 | 354 | 37/3.49 | 24.43 | 971.2 | 101 | 0.09464 | 525 |
| 750 | 381 | 37/3.62 | 25.34 | 1045 | 109 | 0.08796 | 549 |
| 800 | 404 | 37/3.73 | 26.11 | 1109 | 116 | 0.08285 | 569 |
| 900 | 456 | 37/3.96 | 27.72 | 1250 | 131 | 0.07351 | 612 |
| 1000 | 508 | 37/4.18 | 29.26 | 1393 | 146 | 0.06597 | 653 |
| 1250 | 631 | 61/3.63 | 32.67 | 1732 | 179 | 0.05306 | 743 |
| 1500 | 759 | 61/3.98 | 35.82 | 2082 | 215 | 0.04414 | 827 |
| 1750 | 886 | 61/4.30 | 38.7 | 2431 | 251 | 0.03781 | 904 |

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre2, ambient temperature of 50° C & conductor temperature of 80°C.

**AAAC – All Aluminum Alloy Conductor Cables BS EN 50182**

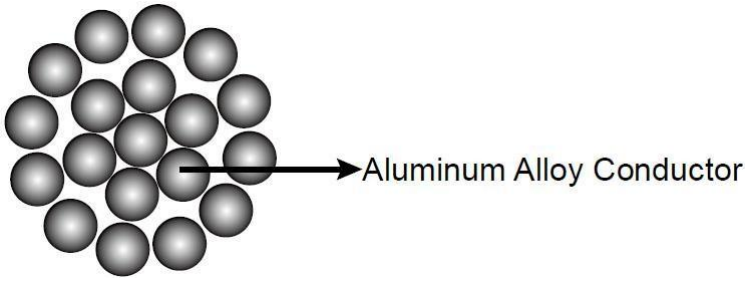
## Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical teatures exist.

## Standard

Basic design to BS EN 50182

## Construction

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| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Code | Stranding | Nominal Area | Overall Diameter | Weight | Rated Strength | Electrical Resistance | Current Rating* |
|---|---|---|---|---|---|---|---|

| | No.×mm | mm^2 | mm | kg/km | KN | Ω/Km | A |
|---|---|---|---|---|---|---|---|
| Box | 7/1.85 | 18.8 | 5.55 | 51.4 | 5.55 | 1.748 | 87 |
| Acacia | 7/2.08 | 23.8 | 6.24 | 64.9 | 7.02 | 1.3828 | 101 |
| Almond | 7/2.34 | 30.1 | 7.02 | 82.2 | 8.88 | 1.0926 | 116 |
| Cedar | 7/2.54 | 35.5 | 7.62 | 96.8 | 10.46 | 0.9273 | 129 |
| Deodar | 7/2.77 | 42.2 | 8.31 | 115.2 | 12.44 | 0.7797 | 143 |
| Fir | 7/2.95 | 47.8 | 8.85 | 130.6 | 14.11 | 0.6875 | 155 |
| Hazel | 7/3.30 | 59.9 | 9.9 | 163.4 | 17.66 | 0.5494 | 178 |
| Pine | 7/3.61 | 71.6 | 10.83 | 195.6 | 21.14 | 0.4591 | 199 |
| Holly | 7/3.91 | 84.1 | 11.73 | 229.5 | 24.79 | 0.3913 | 219 |
| Willow | 7/4.04 | 89.7 | 12.12 | 245 | 26.47 | 0.3665 | 228 |
| Oak | 7/4.65 | 118.9 | 13.95 | 324.5 | 35.07 | 0.2767 | 272 |
| Mulberry | 19/3.18 | 150.9 | 15.9 | 414.3 | 44.52 | 0.2192 | 314 |
| Ash | 19/3.48 | 180.7 | 17.4 | 496.1 | 53.31 | 0.183 | 351 |
| Elm | 19/3.76 | 211 | 18.8 | 579.2 | 62.24 | 0.1568 | 386 |
| Poplar | 37/2.87 | 239.4 | 20.09 | 659.4 | 70.61 | 0.1387 | 416 |
| Sycamore | 37/3.23 | 303.2 | 22.61 | 835.2 | 89.4 | 0.1095 | 480 |
| Upas | 37/3.53 | 362.1 | 24.71 | 997.5 | 106.82 | 0.0917 | 535 |
| Yew | 37/4.06 | 479 | 28.42 | 1319.6 | 141.31 | 0.0693 | 633 |
| Totara | 37/4.14 | 498.1 | 28.98 | 1372.1 | 146.93 | 0.0666 | 648 |
| Rubus | 61/3.50 | 586.9 | 31.5 | 1622 | 173.13 | 0.0567 | 714 |
| Sorbus | 61/3.71 | 659.4 | 33.39 | 1822.5 | 194.53 | 0.0505 | 764 |
| Araucaria | 61/4.14 | 821.1 | 37.26 | 2269.4 | 242.24 | 0.0406 | 868 |
| Redwood | 61/4.56 | 996.2 | 41.04 | 2753.2 | 293.88 | 0.0334 | 970 |

Note: *The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre2, ambient temperature of 50° C & conductor temperature of 80°C.

## Technical Data

| CODE | AL NOMINAL AREA | MAXIMUM RESISTANCE DC AT 20º | CURRENT RATING |
|---|---|---|---|

| | | | | TEMPERATE | TROPICAL |
|---|---|---|---|---|---|
| | MM² | Ω / KM | Ω / 1000FT | AMP | AMP |
| - | - | 2.87 | 0.873 | 90 | 73 |
| Box | - | 1.79 | 0.544 | 121 | 98 |
| Acacia | - | 1.4 | 0.426 | 140 | 114 |
| Almond | 25 | 1.11 | 0.339 | 162 | 131 |
| Ceda | 30 | 0.944 | 0.288 | 180 | 145 |
| - | 40 | 0.794 | 0.242 | 200 | 162 |
| Fir | 50 | 0.7 | 0.213 | 217 | 175 |
| Hazel | 100 | 0.559 | 0.17 | 250 | 201 |
| Pine | - | 0.467 | 0.142 | 279 | 224 |
| - | - | 0.398 | 0.121 | 309 | 247 |
| Willow | 150 | 0.373 | 0.114 | 322 | 258 |
| - | 175 | 0.347 | 0.106 | 337 | 270 |
| - | 300 | 0.308 | 0.0938 | 343 | 290 |
| Oak | - | 0.282 | 0.0859 | 384 | 307 |
| - | - | 0.282 | 0.086 | 385 | 307 |
| Mulberry | - | 0.222 | 0.0676 | 448 | 356 |
| Ash | - | 0.185 | 0.0565 | 501 | 398 |
| Elm | - | 0.159 | 0.048 | 553 | 438 |
| Poplar | - | 0.14 | 0.0427 | 598 | 473 |
| - | - | 0.124 | 0.0337 | 647 | 511 |
| Sycamore | - | 0.111 | 0.0377 | 694 | 547 |
| Upas | - | 0.0925 | 0.0282 | 776 | 610 |
| - | - | 0.0794 | 0.0242 | 854 | 669 |
| Yew | - | 0.0698 | 0.0213 | 925 | 723 |

**AAAC – All Aluminum Alloy Conductor Cables DIN 48201-6**

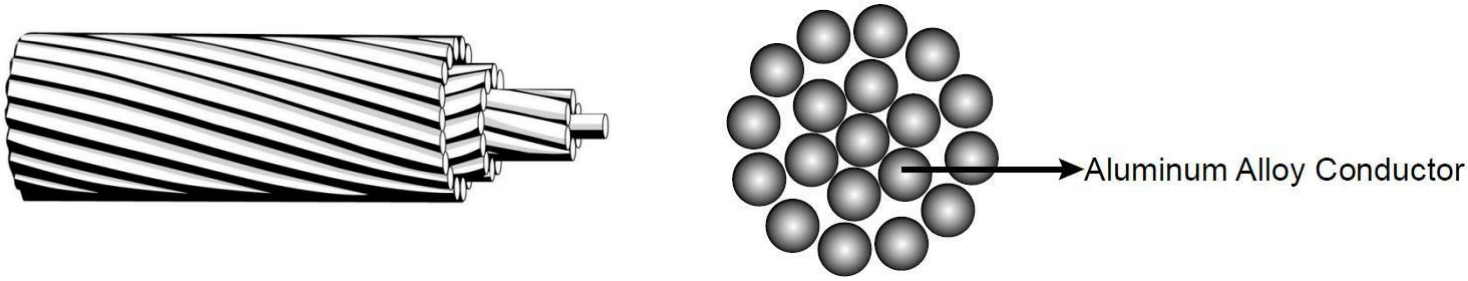
## Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical teatures exist.

## Standard

Basic design to DIN 48201-6

## Construction

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This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard.

Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Nominal Area | | Stranding | Overall Diameter | Weight | Rated Strength | Electrical Resistance | Current Rating* |
|---|---|---|---|---|---|---|---|
| Nominal | Teorical | | | | | | |
| mm^2 | mm^2 | No.×mm | mm | kg/km | KN | Ω/Km | A |
| 16 | 15.89 | 7/1.70 | 5.1 | 43 | 4.44 | 2.0742 | 78 |
| 25 | 24.25 | 7/2.10 | 6.3 | 66 | 6.77 | 1.3593 | 102 |
| 35 | 34.36 | 7/2.50 | 7.5 | 94 | 9.6 | 0.9591 | 126 |
| 50 | 49.48 | 7/3.00 | 9 | 135 | 13.82 | 0.666 | 158 |
| 50 | 48.35 | 19/1.80 | 9 | 133 | 13.5 | 0.6849 | 156 |
| 70 | 65.81 | 19/2.10 | 10.5 | 181 | 18.38 | 0.5032 | 189 |
| 95 | 93.27 | 19/2.50 | 12.5 | 256 | 26.05 | 0.3551 | 234 |
| 120 | 116.99 | 19/2.80 | 14 | 322 | 32.68 | 0.2831 | 269 |
| 150 | 147.11 | 37/2.25 | 15.8 | 406 | 41.09 | 0.2256 | 309 |
| 185 | 181.62 | 37/2.50 | 17.5 | 500 | 50.73 | 0.1828 | 352 |
| 240 | 242.54 | 61/2.25 | 20.3 | 670 | 67.74 | 0.1371 | 420 |
| 300 | 299.43 | 61/2.50 | 22.5 | 827 | 83.63 | 0.111 | 477 |
| 400 | 400.14 | 61/2.89 | 26 | 1104 | 111.76 | 0.0831 | 568 |
| 500 | 499.83 | 61/3.23 | 29.1 | 1379 | 139.6 | 0.0665 | 649 |
| 625* | 626.2 | 91/2.96 | 32.6 | 1732 | 174.9 | 0.0531 | 742 |
| 800* | 802.09 | 91/3.35 | 36.9 | 2218 | 224.02 | 0.0415 | 857 |
| 1000* | 999.71 | 91/3.74 | 41.1 | 2767 | 279.22 | 0.0333 | 971 |

* The items marked with "*" are not in our current product range and the details are for information only.

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre2, ambient temperature of 50° C & conductor temperature of 80°C.

### AAAC – All Aluminum Alloy Conductor Cables IEC 61089

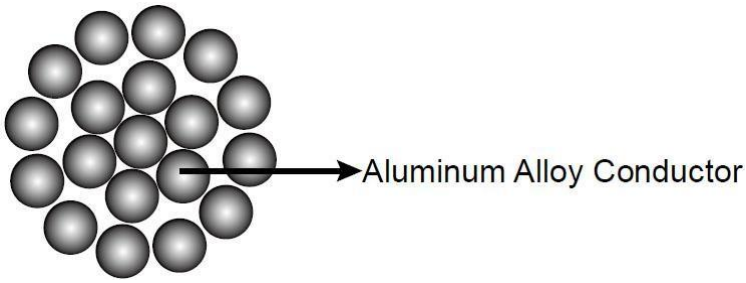
## Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical features exist.

## Standard

Basic design to IEC 61089

## Construction




AAAC cable bvconsists of aluminum alloy wires. The aluminum alloy wires are concentrically stranded.

This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard.

Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| Code | Nominal Area | Stranding | Overall Diameter | Weight | Rated Strength | Electrical Resistance | Current Rating* |
|---|---|---|---|---|---|---|---|
| | mm^2 | No.×mm | mm | kg/km | KN | Ω/Km | A |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 16 | 18.4 | 18.4 | 5.49 | 50.4 | 5.43 | 1.7896 | 86 |
| 25 | 28.8 | 28.8 | 6.87 | 78.7 | 8.49 | 1.1453 | 113 |
| 40 | 46 | 46 | 8.67 | 125.9 | 13.58 | 0.7158 | 151 |
| 63 | 72.5 | 72.5 | 10.89 | 198.3 | 21.39 | 0.4545 | 200 |
| 100 | 115 | 115 | 13.9 | 316.3 | 33.95 | 0.2877 | 266 |
| 125 | 144 | 144 | 15.5 | 395.4 | 42.44 | 0.2302 | 305 |
| 160 | 184 | 184 | 17.55 | 506.1 | 54.32 | 0.1798 | 355 |
| 200 | 230 | 230 | 19.65 | 632.7 | 67.91 | 0.1439 | 407 |
| 250 | 288 | 288 | 21.95 | 790.8 | 84.88 | 0.1151 | 466 |
| 315 | 363 | 363 | 24.71 | 998.9 | 106.95 | 0.0916 | 535 |
| 400 | 460 | 460 | 27.86 | 1268.4 | 135.81 | 0.0721 | 618 |
| 450 | 518 | 518 | 29.54 | 1426.9 | 152.79 | 0.0641 | 663 |
| 500 | 575 | 575 | 31.15 | 1585.5 | 169.76 | 0.0577 | 706 |
| 560 | 645 | 645 | 33.03 | 1778.4 | 190.14 | 0.0516 | 755 |
| 630 | 725 | 725 | 35.01 | 2000.7 | 213.9 | 0.0458 | 809 |
| 710 | 817 | 817 | 37.17 | 2254.8 | 241.07 | 0.0407 | 866 |
| 800 | 921 | 921 | 39.42 | 2540.6 | 271.62 | 0.0361 | 928 |
| 900* | 1036 | 1036 | 41.91 | 2861.1 | 305.58 | 0.0321 | 992 |
| 1000* | 1151 | 1151 | 44.11 | 3179 | 339.53 | 0.0289 | 1051 |
| 1120* | 1289 | 1289 | 46.75 | 3560.5 | 380.27 | 0.0258 | 1118 |
| 1250* | 1439 | 1439 | 49.39 | 3973.7 | 424.41 | 0.0231 | 1185 |

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre2, ambient temperature of 50° C & conductor temperature of 80°C.

**AAAC – All Aluminum Alloy Conductor Cables BS 3242**

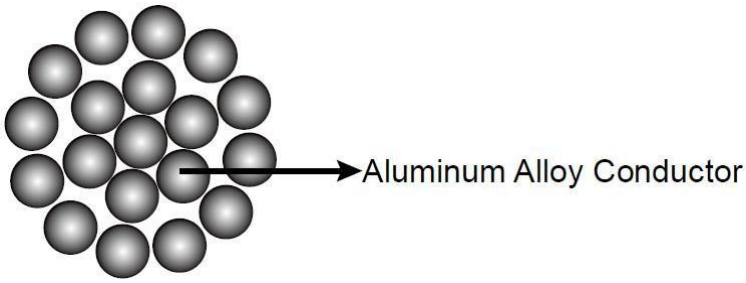
## Application

AAAC is mainly used as bare overhead transmission cable and as primary and secondary distribution cable. It is also suitable for laying across basins, rivers and valleys where special geographical teatures exist.

## Standard

Basic design to BS 3242

## Construction




AAAC cable bvconsists of aluminum alloy wires. The aluminum alloy wires are concentrically stranded.

This section deals with heat-treatable magnesium silicon type aluminium alloys to the applicable International Standard, the electrical and mechanical properties of which all fall within the values suggested by relevant standard.

Conductors to all other recognized specifications can also be supplied. The alloys referred to have higher strength but lower conductivity than pure aluminium.

Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| CODE | AL NOMINAL AREA | CU NOMINAL AREA EQUIVALENT | TOTAL AREA | STRANDING | OVERALL DIAMETER | WEIGHT |
|---|---|---|---|---|---|---|
| | MM² | MM² | MM² | NO.×MM | MM | KG/KM |
| - | - | 6.45 | 11.7 | 7/1.47 | 4.41 | 32.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Box | - | 9.68 | 18.8 | 7/1.85 | 5.55 | 51.7 |
| Acacia | - | 12.9 | 21.9 | 7/2.08 | 6.24 | 66.1 |
| Almond | 25 | 16.1 | 30.1 | 7/2.34 | 7.02 | 82.9 |
| Ceda | 30 | 19.4 | 35.5 | 7/2.54 | 7.62 | 97.8 |
| - | 40 | 22.6 | 42.2 | 7/2.77 | 8.31 | 116.4 |
| Fir | 50 | 25.8 | 47.8 | 7/2.95 | 8.85 | 131.8 |
| Hazel | 100 | 32.3 | 59.9 | 7/3.30 | 9.9 | 165 |
| Pine | - | 38.7 | 71.7 | 7/3.61 | 10.83 | 197.7 |
| - | - | 45.2 | 84.1 | 7/3.91 | 11.73 | 231.6 |
| Willow | 150 | 48.4 | 89.8 | 7/4.04 | 12.12 | 247.5 |
| - | 175 | 51.6 | 96.5 | 7/4.19 | 12.57 | 266.2 |
| - | 300 | 58.1 | 108.8 | 7/4.45 | 13.35 | 299.8 |
| Oak | - | 64.5 | 118.9 | 7/4.65 | 13.95 | 327.8 |
| - | - | 80.6 | 118.8 | 19/2.82 | 14.1 | 327.6 |
| Mulberry | - | 96.8 | 151.1 | 19/3.18 | 15.9 | 416.7 |
| Ash | - | 113 | 180.7 | 19/3.48 | 17.4 | 498.1 |
| Elm | - | 129 | 211 | 19/3.76 | 18.8 | 582.1 |
| Poplar | - | 145 | 239 | 37/2.87 | 20.09 | 658.8 |
| - | - | 161 | 270.8 | 37/3.05 | 21.35 | 746.7 |
| Sycamore | - | 194 | 303 | 37/3.23 | 22.61 | 834.9 |
| Upas | - | 226 | 362.1 | 37/3.53 | 24.71 | 998.6 |
| - | - | 258 | 421.8 | 37/3.81 | 26.47 | 1163 |
| Yew | - | - | 479.9 | 37/4.06 | 28.42 | 1323 |

(*) Note: The values of current rating mentioned in above Table are based on wind velocity of 0.6 metre/second, solar heat radiation of 1200 watt/metre2, ambient temperature of 50° C & conductor temperature of 80°C.

**Cable Almelec – All Aluminium Alloy Conductor NF-C 34125**

## Application

AAAC – All Aluminum Alloy Conductor is used for primarily and secondary overhead transmission and distribution services. AAAC conductor is designed utilizing a high-strength aluminum alloy to achieve a high strength-to-weight ratio and better sag characteristic. AAAC conductor has a

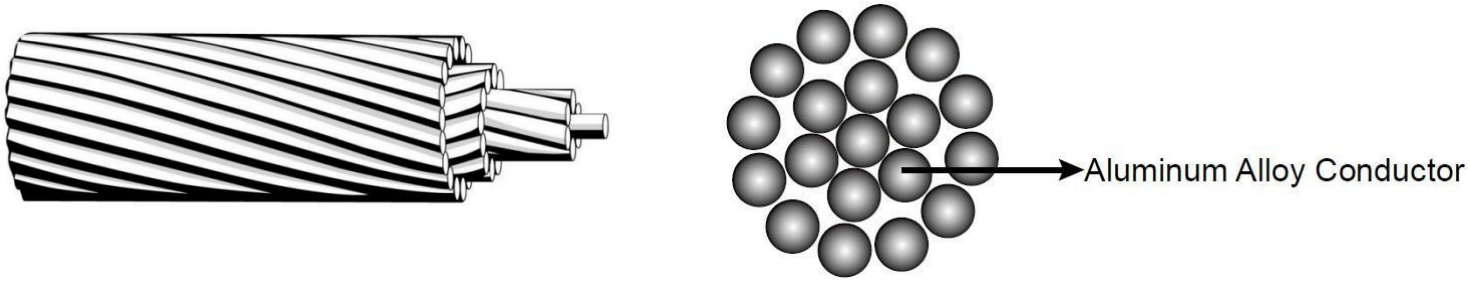
higher resistance to corrosion than ACSR.

These condcutors are used for the long spans network. They could be supplied Greased or not Greased.

## Standard

Basic design to: NFC 34 125, EN 50182

## Construction

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Being lighter, alloy conductors can sometimes be used to advantage in place of the more conventional ACSR; Having lower breaking loads than the later, their use becomes particularly favourable when ice and wind loadings are low.

## Electrical Properties

| | |
|---|---|
| Density@20ºC | 2.70 kg/dm |
| Temperature Coefficient@20°C | 0.00360 (°C) |
| Resistivity@20°C | 0.0326 Ohms mm²/m |
| Linear Expansivity | 23 x10-6(°C) |

## Service Conditions

| | |
|---|---|
| Ambient Temperature | -5°C - 50°C |
| Wind Pressure | 80 – 130kg/m² |
| Seismic Acceleration | 0.12 - 0.05g |
| Isokeraunic Level | 10 – 18 |
| Relative Humidity | 5 – 100% |

## Construction Parameters

| name | name | actual section | no. of wire | wire diameter | conductor diameter | conductor weight appr. | calc. breaking force | calc. conductor resistance |
|---|---|---|---|---|---|---|---|---|
| NF-C 34125 | EN 50182 | mm² | | mm | mm | kg/km | kN | Ohm/km |
| ASTER 22 | 22-AL4 | 22,0 | 7 | 2,00 | 6,00 | 60,0 | 7,15 | 1498 |
| ASTER 34,4 | 34-AL4 | 34,4 | 7 | 2,50 | 7,50 | 93,5 | 11,17 | 0,959 |
| ASTER 54,6 | 55-AL4 | 54,6 | 7 | 3,15 | 9,45 | 148,9 | 17,73 | 0,604 |
| ASTER 75,5 | 76-AL4 | 75,5 | 19 | 2,25 | 11,3 | 207,4 | 24,55 | 0,438 |
| ASTER 117 | 117-AL4 | 117,0 | 19 | 2,80 | 14,0 | 321,2 | 38,02 | 0,283 |
| ASTER 148 | 148-AL4 | 148,1 | 19 | 3,15 | 15,8 | 406,6 | 48,12 | 0,223 |
| ASTER 181,6 | 182-AL4 | 181,6 | 37 | 2,50 | 17,5 | 500,3 | 59,03 | 0,183 |
| ASTER 228 | 228-AL4 | 227,8 | 37 | 2,80 | 19,6 | 627,6 | 74,04 | 0,146 |
| ASTER 288 | 288-AL4 | 288,3 | 37 | 3,15 | 22,1 | 794,3 | 93,71 | 0,115 |
| ASTER 366 | 366-AL4 | 366,2 | 37 | 3,55 | 24,9 | 1.008,9 | 115,36 | 0,090 |
| ASTER 570 | 570-AL4 | 570,2 | 61 | 3,45 | 31,1 | 1.576,0 | 185,33 | 0,058 |
| ASTER 851 | 851-AL4 | 850,7 | 91 | 3,45 | 38,0 | 2.360,7 | 276,47 | 0,039 |
| ASTER 1144 | 1144-AL4 | 1.143,5 | 91 | 4,00 | 44,0 | 3.173,4 | 360,22 | 0,029 |
| ASTER 1600 | 1600-AL4 | 1.595,9 | 127 | 4,00 | 52,0 | 4.427,5 | 502,72 | 0,021 |