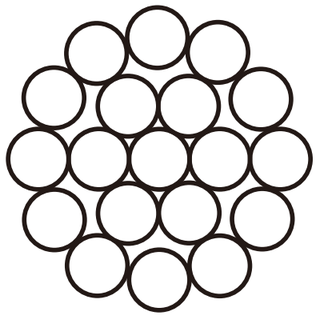
# All Aluminium Alloy Conductors (AAAC/1120)



## Properties:

Aluminium conductors manufactured to AS 1531

This type of conductors is stranded with 1120 aluminium alloy wires

## Structural Parameters:

| Code name | Number and diameter of wire | Overall diameter | Calculated area | Approx. mass of conductor | Rated strength, Min | DC resistance at 20°C | AC resistance at 50Hz, 75°C | Calculated elasticity modulus | Coefficient of linear expansion |
|---|---|---|---|---|---|---|---|---|---|
| - | No./mm | mm | $mm^2$ | kg/km | kN | Ω/km | Ω/km | GPa | 1/°C |
| Chlorine | 7/2.50 | 7.50 | 34.36 | 94.3 | 8.18 | 0.864 | 1.0493 | 65 | 23E-06 |
| Chromium | 7/2.75 | 8.25 | 41.58 | 113 | 9.91 | 0.713 | 0.8659 | 65 | 23E-06 |
| Fluorine | 7/3.00 | 9.0 | 49.48 | 135 | 11.8 | 0.599 | 0.7275 | 65 | 23E-06 |
| Helium | 7/3.75 | 11.3 | 77.28 | 211 | 17.6 | 0.38 | 0.4617 | 65 | 23E-06 |
| Hydrogen | 7/4.50 | 13.5 | 111.3 | 304 | 24.3 | 0.266 | 0.3234 | 65 | 23E-06 |
| Iodine | 7/4.75 | 14.3 | 124.0 | 339 | 27.1 | 0.239 | 0.2906 | 65 | 23E-06 |
| Krypton | 19/3.25 | 16.3 | 157.6 | 433 | 37.4 | 0.189 | 0.2299 | 65 | 23E-06 |
| Lutetium | 19/3.50 | 17.5 | 182.8 | 503 | 41.7 | 0.163 | 0.1984 | 65 | 23E-06 |
| Neon | 19/3.75 | 18.8 | 209.8 | 576 | 47.8 | 0.142 | 0.1729 | 65 | 23E-06 |
| Nitrogen | 37/3.00 | 21.0 | 261.6 | 721 | 62.2 | 0.114 | 0.1390 | 64 | 23E-06 |
| Nobelium | 37/3.25 | 22.8 | 307.0 | 845 | 72.8 | 0.0973 | 0.1189 | 64 | 23E-06 |
| Oxygen | 19/4.75 | 23.8 | 336.7 | 924 | 73.6 | 0.0884 | 0.1081 | 65 | 23E-06 |
| Phosphorus | 37/3.75 | 26.3 | 408.5 | 1120 | 93.1 | 0.0731 | 0.0897 | 64 | 23E-06 |
| Selenium | 61/3.25 | 29.3 | 506.1 | 1400 | 114 | 0.0592 | 0.0730 | 64 | 23E-06 |
| Silicon | 61/3.50 | 31.5 | 586.9 | 1620 | 127 | 0.0511 | 0.0634 | 64 | 23E-06 |
| Sulfur | 61/3.75 | 33.8 | 673.4 | 1860 | 145 | 0.0444 | 0.0554 | 64 | 23E-06 |



## Current Ratings:

| Code name | *Current carrying capacity, A | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 35°C ambient temperature | | | | 40°C ambient temperature | | | |
| | 50°C operation temperature | 60°C operation temperature | 70°C operation temperature | 75°C operation temperature | 50°C operation temperature | 60°C operation temperature | 70°C operation temperature | 75°C operation temperature |
| Chlorine | 109 | 147 | 174 | 186 | 81 | 128 | 159 | 172 |
| Chromium | 123 | 166 | 197 | 210 | 91 | 144 | 180 | 194 |
| Fluorine | 137 | 185 | 220 | 234 | 101 | 161 | 201 | 217 |
| Helium | 180 | 246 | 293 | 313 | 131 | 213 | 267 | 289 |
| Hydrogen | 224 | 307 | 367 | 393 | 160 | 266 | 335 | 363 |
| Iodine | 239 | 329 | 394 | 421 | 170 | 284 | 359 | 389 |
| Krypton | 276 | 382 | 458 | 490 | 194 | 330 | 417 | 453 |
| Lutetium | 301 | 418 | 503 | 538 | 210 | 361 | 458 | 497 |
| Neon | 327 | 456 | 549 | 588 | 226 | 393 | 500 | 543 |
| Nitrogen | 373 | 523 | 631 | 676 | 254 | 450 | 574 | 624 |
| Nobelium | 409 | 578 | 698 | 748 | 276 | 496 | 634 | 690 |
| Oxygen | 432 | 612 | 741 | 794 | 290 | 525 | 673 | 732 |
| Phosphorus | 484 | 689 | 836 | 897 | 319 | 590 | 758 | 826 |
| Selenium | 546 | 785 | 954 | 1024 | 354 | 670 | 865 | 943 |
| Silicon | 593 | 858 | 1045 | 1122 | 379 | 731 | 947 | 1033 |
| Sulfur | 608 | 884 | 1078 | 1159 | 382 | 752 | 976 | 1067 |

*Note: Current carrying capacity is based to the following conditions

- Frequency: 50Hz
- Solar absorption coefficient: 0.5
- Emissivity: 0.5
- Wind speed: 1.0m/s
- Solar radiation: 1000W/$m^2$
- Current carrying capacity values calculated as per IEC 61597