

Technical Data Sheet

AMPCO 21

Extruded and drawn rounds and rectangular bars

Nominal composition:

| | |
|----------------|-------------|
| Aluminium (Al) | 13.10 % |
| Iron (Fe) | 4.40 % |
| Manganese (Mn) | 2.00 % |
| Others | 0.50 % max. |
| Copper (Cu) | balance |

| Mechanical and physical properties | Units | Ø ≤ 50.8 mm | Ø 50.8 - 76.2 mm | Rectangular bars |
|--|-------------------------|-------------|------------------|------------------|
| 1) Tensile strength R _m | MPa | 758 (689) | 724 (689) | 758 (689) |
| 2) Yield strength R _{p0.2} | MPa | 420 (379) | 407 (365) | 420 (379) |
| 3) Elongation A ₅ | % | 1 (0.5) | 1 (0.5) | 1 (0.5) |
| 4) Brinell hardness | HB 30 | 286 (269) | 286 (269) | 286 (269) |
| 5) Rockwell hardness | HRC | 29 (27) | 29 (27) | 29 (27) |
| 6) Reduction of area ψ | % | ----- | ----- | 0.5 (0) |
| 7) Compressive strength R _{mc} | MPa | 1227 | ----- | 1108 |
| 8) Compressive strength, 0.1 % perm. set | MPa | 421 | ----- | 343 |
| 9) Proportional limit in compression R _{pc} | MPa | 200 | ----- | ----- |
| 10) Shear strength R _{cm} | MPa | ----- | ----- | 413 |
| 11) Modulus of elasticity E | GPa | 110 | 110 | 110 |
| 12a) Charpy a _K | J | 2.7 | 2.7 | 2.7 |
| 12b) Izod a _K | J | 2.7 | 2.7 | 2.7 |
| 13) Density ρ | g / cm ³ | 7.20 | | |
| 14) Coefficient of expansion α | 10 ⁻⁶ / K | 16.2 | | |
| 15) Thermal conductivity λ | W / m · K | 46 | | |
| 16a) Electrical conductivity γ | m / Ω · mm ² | 6 | | |
| 16b) Electrical conductivity I.A.C.S | % | 10 | | |
| 17) Specific heat C _p | J / g · K | 0.42 | | |

Indicated values are nominals. Minima are given in brackets. Assurances given with respect to properties or uses are subject to written approval from AMPCO.

The increase in the Al and Fe content results in a material in which the hard gamma 2 phase (about 400 HB) is present.

By proper metallurgical control this hard constituent is uniformly distributed giving this alloy its ability to resist wear.

APPLICATIONS:

AMPCO 21 is used for guide port bushings and wear strips replacing hardened steel and for some cams when no impact is involved. However, the largest single use is as die rings, inserts, forming rolls etc. in forming, bending or drawing operations, especially when stainless steel is the material being processed.

This material is also widely used as work support blades for the centreless grinding of steel rods.

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