

Technical Data Sheet

AMPCO 18

Continuous Cast and Forgings

Nominal composition:

Aluminium (Al)	10.50 %
Iron (Fe)	3.50 %
Others	0.50 % max.
Copper (Cu)	balance

Mechanical and physical properties	Units	HCC Round	HCC Rectangular	HCC Tube	Forgings
1) Tensile strength R_m	MPa	620 (586)	655 (586)	662 (620)	724 (620)
2) Yield strength $R_{p0.2}$	MPa	252 (231)	269 (220)	280 (247)	296 (275)
3) Elongation A_5	%	16 (12)	16 (12)	16 (12)	15 (13)
4) Brinell hardness	HB 30	179 (153)	183 (149)	174 (159)	187 (159)
5) Rockwell hardness	HRB	89 (82)	90 (81)	88 (84)	91 (85)
6) Reduction of area ψ	%	14	14	20	14 (10)
7) Compressive strength R_{mc}	MPa	938	----	938	990
8) Proportional limit in compression R_{pc}	MPa	207	----	207	230
9) Shear strength R_{cm}	MPa	400	----	----	420
10) Modulus of elasticity E	GPa	110	112	110	115
11a) Charpy a_K	J	----	----	----	32
11b) Izod a_K	J	----	----	----	30
12) Fatigue (100'000'000 cycles) σ_N	MPa	----	----	----	240
13) Density ρ	g / cm ³	7.45			
14) Coefficient of expansion α	10 ⁻⁶ / K	16.2			
15) Thermal conductivity λ	W / m · K	63			
16a) Electrical conductivity γ	m / $\Omega \cdot mm^2$	8			
16b) Electrical conductivity I.A.C.S	%	14			
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 exceptional wear and fatigue resistance of this alloy results from a controlled duplex alpha and beta phase. This alloy has high strength combined with good ductility and unusual toughness.

The physical characteristics of this alloy can be varied by heat treatments (AMPCO 18-22, 18-23 and 18-136).

APPLICATIONS:

This alloy is well suited for use as gears, worm wheels, bushings and bearings. AMPCO 18 is a standard alloy for all applications requiring good sliding properties, wear resistance, fatigue resistance, toughness and/or resistance to deformation under load. AMPCO 18 is used in steel mill service as screw down nuts, slippers (many of which are "cast to size"), gears, wedges and breaker blocks. AMPCO 18 has an excellent corrosion resistance and is used in pickling service for such parts as hooks, crates and spreaders, etc.

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