

Technical Data Sheet

AMPCO[®] M4

Sand Castings

Nominal composition:

Aluminium	(Al)	10.5%
Iron	(Fe)	4.8%
Nickel	(Ni)	5.0%
Manganese	(Mn)	1.5%
Others		max. 0.5%
Copper	(Cu)	balance

Mechanical and physical properties	Units	Nominal Values
Tensile strength R_m	MPa	896
Yield strength $R_{p0.5}$	MPa	724
Elongation A_5	%	4
Brinell hardness	HBW 10/3000	269
Rockwell hardness	HRC	27
Reduction of area ψ	%	4
Compressive strength R_{mc}	MPa	1206
Compressive strength, 0.1 % perm. set	MPa	724
Shear strength R_{cm}	MPa	552
Modulus of elasticity E	GPa	124
Charpy a_k	J	5.4
Fatigue (100'000'000 cycles) σ_N	MPa	255
Density ρ	g / cm ³	7.45
Coefficient of expansion α	10 ⁻⁶ / K	16
Thermal conductivity λ	W / m · K	42
Electrical conductivity γ	m / Ω · mm ²	4.8
Electrical conductivity	% I.A.C.S.	8.2
Specific heat c_p	J / g · K	0.45

Assurances given with respect to properties or uses are subject to written approval from AMPCO METAL.

The patented process gives AMPCO[®] M4 mechanical properties beyond the range of commercial nickel-aluminium bronzes, comparable to beryllium copper at a lower cost and without the beryllium copper industrial hygiene requirements.

APPLICATIONS:

AMPCO[®] M4 was initially developed as an aircraft specification alloy for gears in retractable landing assemblies, engine spacer bearings and other similar applications. It is rapidly growing in use where higher mechanical properties at elevated temperatures together with corrosion-resistant properties are required. Typical applications include aircraft landing gear bearings and bushings, bending dies (shoes and mandrels) for the tube bending industry, gear wheels and wear/guide plates, etc..

Specification: AMS 4881 for castings