

# Technical Data Sheet

## AMPCO<sup>®</sup> M4

### Extrusions



#### 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	
		Ø ≤ 1"	Ø 1" - 4"
Tensile strength R <sub>m</sub>	KSI	145	140
Yield strength R <sub>p 0.5</sub>	KSI	115	105
Elongation in 2"	%	8	8
Brinell hardness	BHN 30	286	286
Rockwell hardness	HRC	29	29
Reduction of area ψ	%	13	12
Compressive strength R <sub>mc</sub>	KSI	192	192
Compressive strength, 0.1 % perm. set	KSI	106	100
Shear strength R <sub>cm</sub>	KSI	78	78
Modulus of elasticity E	KSI	18000	18000
Charpy a <sub>K</sub>	LBS.FT	5	5
Fatigue (100'000'000 cycles) σ <sub>N</sub>	KSI	51	51
Density ρ	LBS / IN <sup>3</sup>	0.269	
Coefficient of expansion α	IN / IN / °F	9 · 10 <sup>-6</sup>	
Thermal conductivity λ	CGS	0.1	
Electrical resistivity γ (1mm <sup>2</sup> section)	Microhms/ m	208	
Electrical conductivity	% I.A.C.S.	8.2	
Specific heat c <sub>p</sub>	BTU / LB. °F	0.107	

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

The patented process gives AMPCO<sup>®</sup> 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<sup>®</sup> 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 4590 for extrusions**

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