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	**KSI**	**130**
Yield strength $Rp_{0.5}$	**KSI**	**105**
Elongation in 2"	**%**	**4**
Brinell hardness	**BHN 30**	**269**
Rockwell hardness	**HRC**	**27**
Reduction of area ψ	**%**	**4**
Compressive strength R_{mc}	**KSI**	**175**
Compressive strength, 0.1 % perm. set	**KSI**	**105**
Shear strength R_{cm}	**KSI**	**80**
Modulus of elasticity E	**KSI**	**18000**
Charpy $_{aK}$	**LBS.FT**	**4**
Fatigue (100'000'000 cycles) σ_N	**KSI**	**37**
Density ρ	**LBS / IN³**	**0.269**
Coefficient of expansion α	**IN / IN / °F**	**$9 \cdot 10^{-6}$**
Thermal conductivity λ	**CGS**	**0.1**
Electrical resistivity γ (1mm² section)	**Microhms/ m**	**208**
Electrical conductivity	**% I.A.C.S.**	**8.2**
Specific heat c_p	**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® 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