

Technical Data Sheet

AMS 4590

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 ≤ 25.4 mm	Ø 25.4 - 101.6 mm
Tensile strength R _m	MPa	1000	965
Yield strength R _{p 0.5}	MPa	793	724
Elongation A ₅	%	8	8
Brinell hardness	HBW 10/3000	286	286
Rockwell hardness	HRC	29	29
Reduction of area ψ	%	13	12
Compressive strength R _{mc}	MPa	1324	1324
Compressive strength, 0.1 % perm. set	MPa	731	689
Shear strength R _{cm}	MPa	538	538
Modulus of elasticity E	GPa	124	124
Charpy a _K	J	7	7
Fatigue (100'000'000 cycles) σ _N	MPa	352	352
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 AMS 4590 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:

AMS 4590 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