

Technical Data Sheet

AMPCO[®] 45

Extruded and drawn rods

Nominal composition:

Aluminium	(Al)	10.0%	Manganese	(Mn)	1.0%
Iron	(Fe)	2.5%	Others		max. 0.5%
Nickel	(Ni)	5.0%	Copper	(Cu)	balance

Mechanical and physical properties	Units	Nominal Values		
		Ø ≤ 25.4 mm	Ø 25.4 - 50.8 mm	Ø > 50.8 mm
Tensile strength R _m	MPa	814	793	772
Yield strength Rp _{0.5}	MPa	517	448	420
Elongation A ₅	%	15	18	20
Brinell hardness	HBW 10/3000	228	217	212
Rockwell hardness	HRB	98	96	96
Reduction of area ψ	%	15	20	20
Compressive strength R _{mc}	MPa	1034	1000	965
Compressive strength, 0.1 % perm. set	MPa	303
Proportional limit in compression R _{pc}	MPa	276	276	262
Shear strength R _{cm}	MPa	483	476	448
Modulus of elasticity E	GPa	117	117	117
Charpy a _K	J	11.3	11.3	11.3
Izod a _K	J	13.6	13.6	13.6
Fatigue (100'000'000 cycles) σ _N	MPa	262	255	255
Density ρ	g / cm ³	7.53		
Coefficient of expansion α	10 ⁻⁶ / K	16.2		
Thermal conductivity λ	W / m · K	46		
Electrical conductivity γ	m / Ω · mm ²	5		
Electrical conductivity	% I.A.C.S.	9		
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.

For material released per AMS 4640 specification, minimum hardness is not applicable as long as requirements for tensile are met.

AMPCO[®] 45 is a high strength alloy with mechanical properties beyond the range of commercial nickel-aluminium bronzes. This is due to its special manufacturing process.

APPLICATIONS:

AMPCO[®] 45 is recommended for heavy-duty high-loaded mechanical and corrosive applications. Typical applications involving abrasive wear, friction, deformation, chemical erosion include:



- aircraft bearings / bushings
- pump and marine shafts and wear rings
- valve spindles and seats
- machine tool parts

The spark-resistance properties make it suitable for safety tools and machine tool components in explosive environments.

Specification: AMS 4640, ASTM B 150