



Technical Data Sheet

AMPCOLOY® 972

AMPCOLOY® 972 is a precipitation-hardening copper-based alloy known for its exceptional properties. Heat treatment gives this alloy remarkable mechanical properties, including high ductility at temperatures up to 932°F. It has excellent wear and corrosion resistance, making it ideal for a wide range of applications. In particular, the alloy exhibits both excellent thermal & electrical conductivity and good mechanical strength.

Key Features:

- ▶ Highest electrical & thermal conductivity of all AMPCOLOY® alloys
- ▶ Good mechanical properties including high ductility
- ▶ Beryllium-free
- ▶ Corrosion resistant & coatable
- ▶ RWMA Class 2
- ▶ Remarkable properties up to 932°F
- ▶ Increasing conductivity at higher temperatures

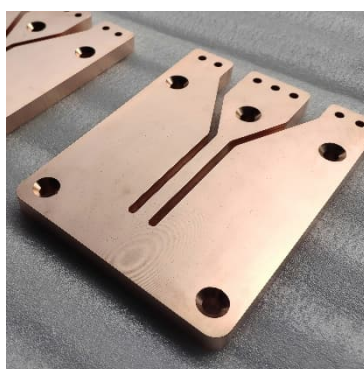


Nominal Composition:

Copper (Cu)	Chromium (Cr)	Zirconium (Zr)	Others
Balance	1.0%	0.1%	max. 0.2%

Applications:

- ▶ Cooling in injection molding
- ▶ Resistance welding tips, electrode caps & welding wheels
- ▶ Molds for the continuous casting of steel or aluminum
- ▶ Applications where electrical performance is critical
- ▶ Various parts in energy engineering, power generation or steel mills
- ▶ Used in general engineering, oil, gas, chemical & automotive industry



AMPCOLOY® 972 is used in a wide variety of industries. In the automotive sector, this versatile alloy excels in resistance welding tips and electrode caps, where its exceptional wear resistance and electrical conductivity are invaluable. This high copper alloy consistently delivers reliable results, demonstrating its adaptability to a wide range of applications.



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Mechanical Properties (Nominal values)	Rolled	Forged	Extruded square			Extruded round			
			≤ 0.78"	- 1.77"	- 4"	≤ 1"	- 2"	- 3.15"	- 5.1"
Tensile Strength R _m (ksi)	58	64	68	64	54	75	70	67	61
Yield Strength R _{p0.5} (ksi)	46	51	64	51	39	68	60	59	55
Elongation 2" (%)	18	18	8	10	18	20	20	18	18
Brinell Hardness (10/3000)	135	135	155	145	125	152	142	125	125
Rockwell Hardness (HRB)	76	76	83	79	72	82	78	72	72
Modulus of Elasticity E (ksi)	17700	17400	17400						

Physical Properties:

Density ρ (lbs/in³)	Coefficient of Expansion α (in/in/°F)	Thermal Conductivity λ (W/m·K)			Electrical Conductivity (% I.A.C.S.)	Specific Heat C _p (BTU/lb·°F)
0.32	9.44·10 ⁻⁶	68°F 320	212°F 350	392°F 367	86	0.091

Machining Parameters:

Operation	Cutting Speed v _c (m/min)	Feed f (mm/rev)	Depth a (mm)	Tool Specification
Milling – Roughing	100 - 130	0.1 - 0.2	up to 2	K10 - K20
Milling – Finishing	90 - 110	0.05 - 0.1	0.1 - 0.5	K10 - K20
Turning – Roughing	150 - 225	0.1 - 0.2	up to 2	K10 - K20
Turning – Finishing	170 - 250	0.05 - 0.1	0.1 - 0.2	K10 - K20

Scan the QR Code to view our machining recommendations:



Contact us

