Technical Data Sheet

AMPCOLOY® 940

AMPCOLOY® 940 is a high-performance copper alloy designed to excel in a variety of industrial applications. This versatile alloy has exceptional properties, including high electrical and thermal conductivity combined with impressive tensile strength and hardness, ensuring durability and longevity in demanding environments. It also replaces beryllium-containing RWMA Class 3 alloys to meet stringent health and safety regulations.

Key Features:

- High electrical & thermal conductivity
- Beryllium-free
- Food certified by ISEGA
- High tensile strength & hardness
- RWMA Class 3
- Corrosion resistant & coatable
- Remarkable properties up to 450°C
- Increasing conductivity at higher temperatures

Nominal Composition:

Copper (Cu)	Nickel (Ni)	Silicium (Si)	Chromium (Cr)	Others
Balance	2.5%	0.7%	0.4%	max. 0.5%

Applications:

- Replaces beryllium-containing alloys
- Used to comply with strict health and safety regulations
- Electrode holders, spot-welding electrodes & seam welding discs
- Cooling inserts & injection nozzles in the plastic molding industry
- Plunger tips for cold-chamber aluminum die casting machines
- Projection & butt-welding dies
- Energy engineering components

AMPCOLOY® 940 is used in a wide variety of industries due to its superior properties. This high conductivity bronze alloy is used for resistance welding, die casting and injection molding where its durability and heat resistance are paramount. Its wide range of applications makes it an indispensable material for industries seeking superior performance and safety compliance.

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Mechanical Properties (Nominal values)	Sand Casted	Forged	Extruded		
			Ø ≤ 25 mm	Ø 25 – 50 mm	Ø > 50 mm
Tensile Strength R_m (MPa)	544	648	689	669	662
Yield Strength $R_{p\,0.5}$ (MPa)	475	496	517	517	510
Elongation A_5 (%)	8	11	13	13	13
Brinell Hardness (10/3000)	210	210	210	210	210
Compressive Yield Strength $R_{pc0.1}$ (MPa)	-	552	552	552	552
Modulus of Elasticity E (GPa)	131	131	131	131	131

Physical Properties:

Density ρ (g/cm³)	Coefficient of Expansion α (10^{-6}/K)	Thermal Conductivity λ (W/m·K)			Electrical Conductivity γ (m/Ω·mm²)	Electrical Conductivity (% I.A.C.S.)	Specific Heat c_p (J/g·K)
		20°C	100°C	200°C			
8.71	17.5	208	226	243	28	48	0.38

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:

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