



HIGH PURITY MOLYBDENUM AND TUNGSTEN-COPPER COMPOSITES

Molybdenum-Copper and **Tungsten-Copper composites** – developed by AMETEK Specialty Metal Products using its wrought powder metallurgy technology, has unique properties for use in heat sinks, substrates, thermal spreaders and electronic packages.

ADVANCED THERMAL MANAGEMENT PRODUCTS

PROPERTIES & BENEFITS

This series of composites – **Molybdenum-Copper** and **Tungsten-Copper** – developed by AMETEK using its wrought powder metallurgy technology, has unique properties for use in: heat sinks, substrates, and thermal spreaders.

SPECIFICATIONS AND APPLICATIONS

The material is available as finished parts with the following maximum dimensions depending on overall size:

Width: 4 inches (102 mm)

Thickness: 3 inches (76 mm)

Length: 24 inches (610 mm)

MOLYBDENUM-COPPER COMPOSITES (AMC SERIES)

COMPOSITIONS

AMC 6040	60% molybdenum - 40% copper
AMC 6535	65% molybdenum - 35% copper
AMC 7525	75% molybdenum - 25% copper
AMC 8020	80% molybdenum - 20% copper
AMC 8515	85% molybdenum - 15% copper

Other compositions can be produced upon request

DENSITY

	g/cm ³	lb./in. ³
AMC 6040	9.68	0.349
AMC 6535	9.74	0.352
AMC 7525	9.87	0.356
AMC 8020	9.94	0.359
AMC 8515	10.01	0.361

THERMAL CONDUCTIVITY

	W/mK ³	BTU/hr. ft.°F
AMC 6040	215	125
AMC 6535	205	119
AMC 7525	185	108
AMC 8020	175	102
AMC 8515	165	96

THERMAL EXPANSION (in./in. x 10⁻⁶/°C)

	30-1500° C	30-400° C	30-800° C
AMC 6040	9.5	10.2	10.5
AMC 6535	9.0	9.4	9.8
AMC 7525	7.8	8.0	8.4
AMC 8020	7.2	7.5	7.9
AMC 8515	6.8	7.0	7.4

ADVANCED THERMAL MANAGEMENT PRODUCTS

These composites of molybdenum-copper and tungsten-copper have many applications in electronic devices. The excellent thermal conductivity and low thermal expansion makes them ideal for:

- Chip mounting
- Heat sinks
- Circuit board cores
- Lids or covers
- Thermal spreaders
- Electronic packages

The material can be machined into shapes and readily plated if required.

AMETEK's wrought powder metallurgy composites have superior through-thickness thermal conductivity versus other products.

TUNGSTEN-COPPER COMPOSITES (AMC SERIES)

COMPOSITIONS

AWC 7525	75% tungsten - 25% copper
AWC 8020	80% tungsten - 20% copper
AWC 8515	85% tungsten - 15% copper
AWC 8812	88% tungsten - 12% copper
AWC 9010	90% tungsten - 10% copper

Other compositions can be produced upon request

DENSITY

	g/cm ³	lb./in. ³
AWC 7525	14.98	0.541
AWC 8020	15.68	0.567
AWC 8515	16.45	0.594
AWC 8812	16.95	0.612
AWC 9010	17.3	0.625

THERMAL CONDUCTIVITY

	W/mK ³	BTU/hr. ft.°F
AWC 7525	186	107
AWC 8020	175	101
AWC 8515	162	93
AWC 8812	155	90
AWC 9010	150	86

THERMAL EXPANSION (in./in. x 10⁻⁶/°C)

	30-1500° C	30-400° C	30-800° C
AWC 7525	9.06	9.55	9.68
AWC 8020	8.21	8.60	8.63
AWC 8515	7.36	7.65	7.58
AWC 8812	6.78	7.00	6.86
AWC 9010	6.51	6.70	6.53



WE ARE KNOWN FOR HIGH-TECH MATERIALS

AMETEK Specialty Metals Products (SMP) is a world leader in metal powders, high purity strip, ultra thin metal foil, specialty wire, metal matrix composites, engineered shaped components and clad metal products with numerous patents in technically advanced metallurgical materials.

AMETEK SMP manufactures or consolidates a variety of metal alloys including stainless steels, nickel-based alloys, cobalt-based alloys, titanium and titanium alloys and master alloys. For over 50 years, it has developed innovative, proprietary products tailored to specific customer applications.

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