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AMPCO® Since 1914

A Second Century of Innovation

FULL PRODUCT RANGE
WORLDWIDE AVAILABILITY
ENGINEERED ADVICE

AMPCOLOY®

AMPCO METAL **EXCELLENCE IN ENGINEERED ALLOYS**

WHO WE ARE...

AMPCO METAL the first name for premium copper alloys since 1914 is an integrated manufacturer and distributor of specialty bronzes and copper-based alloys and related products serving a variety of sectors, including metal processing, aerospace, automotive, oil & offshore, glass and plastics mould-making and a wide range of industrial engineering applications.

AMPCO METAL has its own distribution centers in Europe, USA, Brazil, India, Korea & China with production sites in USA, France and Germany.

Through strong quality control, innovation and excellent customer support, AMPCO METAL strives to remain the established world leader in the production and distribution of specialty copper-based alloys. By providing state-of-the-art engineering services, the company also fulfills an important role in client support, to ensure that specialty alloys are used in the best way possible, from a performance standpoint, as well as final cost.
From blueprint to finished product, AMPCO METAL brings expertise, experience and local availability.

Vision

To be recognized the world leader in the production and distribution of specialty copper-based alloys.

Mission Statement

Provide customers around the world with innovative engineered metal products and services, delivering exceptional value to their business,delivering exceptional value to their business.

Values and Guiding Principles

- Customer at the centre of our attention.
- Grow through innovation.
- Embrace change and reject complacency.
- Excellence in products and services.
- Protect and promote our Brand.
- Be a respectful and trusted partner.

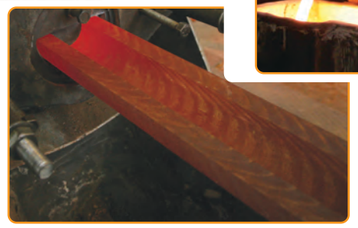
RECYCLING & CORPORATE RESPONSIBILITY

Fully aware of its impact on the environment and wanting to support sustainable developement, AMPCO METAL recycles at all phases of the alloys casting process and utilizes advanced technology throughout its plants to rigidly maintain clean air and clean water programs.

RECYCLING

MELTING

SELECTION AND ANALYSIS



MANUFACTURING

- ALUMINIUM BRONZES -

AMPCO® 8

Offers excellent corrosion resistance and outstanding friction properties. Used in applications such as fittings, fasteners, ball socket seats, bearings and tie rods in brine slurry equipment.

AMPCO® 21

Used for heavier loads under abrasive conditions where no impact forces are present, for example, tube bending tools and mandrels, forming rolls, pilot bushings, dies and drill jig bushings. AMPCO® 21 also offers proven performance in plastic moulding applications such as ejector sleeves and bushings, guide pins and wear plates.

AMPCO® 25

A superb high hardness alloy for the efficient production of quality pressings, principally in stainless steel but equally proficient for titanium, low carbon steels and other deep-drawn or formed metals. With the move towards using thinner, harder steels in many sectors, including automotive production, conventional press tools are prone to rapid heating, leading to mechanical bonding with the moulded component and surface damage (galling), resulting in rejections and poor product quality. The exceptional sliding and thermal transfer characteristics of AMPCO® 25 have been proven to eliminate such problems and enable greater deformation levels - such that the number of production stages may be reduced, productivity increased, rejections eliminated and profits enhanced. Readily polished to a high “mirror” finish by conventional methods, AMPCO® 25 is chosen by the appliance sector for the pressing of scratch-free stainless steel cooker, refrigerator fronts, extractor hoods, cooking utensils and a host of other items.

AMPCO® 15*

Suitable for moderate-wear service bushings, sleeve bearings and bearing races, gears, valve stems, valve guides and seats.

AMPCO® 22

Used principally for forming and drawing dies or wear parts under heavy compressive loads together with cam rollers and followers. AMPCO® 22 is also recommended for plastic mould applications requiring maximum metal to metal wear resistance.

AMPCO® 18

The primary AMPCO® alloy for heavy duty applications involving wear, abrasion and fatigue, where the absence of nickel in its composition significantly reduces the risk of mechanical abrasion with mating steel surfaces. This is the material of choice for wear plates, bearings, tie bar nuts, gears, worm-wheels, tube bending tools, wiper dies and similar applications. AMPCO® 18 is readily machined and should be used in critical situations where it is essential to avoid unnecessary down-time or damage to moving steel parts. The mechanical properties of AMPCO® 18 can be enhanced by special heat treatments devised by AMPCO METAL to meet specific customer demands for higher impact resistance or resistance to distortion, especially applicable to the aviation and steel production sectors.

AMPCO® 26

A harder derivative of AMPCO® 25 for use in exceptional circumstances where severe service conditions are encountered.

- NICKEL-ALUMINIUM BRONZES MANGANESE BRONZE -

AMPCO® 483*

Offers exceptional corrosion and cavitation resistance with high strength, excellent ductility and good weldability. Typical applications are found in marine service, fittings, couplings, fasteners, etc. and for components operating within other corrosive environments.

AMPCO® 642*

Ideal for a variety of marine hardware applications, valve seats/stems, gears and cams. A non-magnetic alloy, resistant to wear and corrosion, that will withstand relatively high temperatures.

AMPCO® 673*

Widely specified for applications such as bushings, cams, nuts and bolts, connector rods, shafts, worm gears and lead screw nuts in corrosive environments, the higher lead content of AMPCO® 673 results in an increase of machinability over its sister alloy, AMPCO® 863, but with a small reduction in mechanical properties.

AMPCO® 45

A high strength alloy with mechanical properties beyond the range of commercial nickel-aluminium bronzes resulting from a special manufacturing process employed by AMPCO METAL. Applications that involve abrasive wear, friction, mechanical deformation or chemical erosion such as aircraft bearings/bushings, pump and marine shafts, wear rings, valve spindles and seats or machine tool parts, will benefit from using AMPCO® 45. The spark-resistance properties of this alloy make it suitable for the production of safety tools and machine tool components used in explosive environments.

AMPCO® M4

A truly exceptional alloy that has been heat-treated utilising the marannealing process to produce a material with mechanical properties and a strength-weight ratio far exceeding the range of commercial aluminium bronzes. The high hardness of AMPCO® M4 coupled with superb resistance to deformation and abrasion, makes this material ideal for applications involving heavy dynamic loads, abrasive wear and frictional forces. In particular, AMPCO® M4 is used extensively in commercial and military aircraft landing gear assemblies, for tube manipulation tools and for parts operating under load in adverse environments, such as the conditions experienced in off-shore drilling situations.

AMPCO® 863*

The higher strength and corrosion resistance of this alloy make it an ideal material for use in the heavy-duty construction and agricultural equipment sectors. By outperforming conventional bronzes, AMPCO® 863 has found considerable success in applications such as bearings, worm gears, cams and in particular, segmented bushings and sleeve bearings.

* please ask your local AMPCO METAL representative for availability

- PROVEN QUALITY – *Outperform ordinary commercial bronzes* -

CONTINUOUS CAST ROUND ROD

Aluminium and manganese bronzes manufactured by AMPCO METAL utilizing the continuous casting process are proven to outperform ordinary commercial bronzes. We maintain an extensive range of stock sizes to ensure a fast response time and material that closely matches your final size requirements.

CONTINUOUS CAST TUBE

When the form of your finished parts permits it, considerable savings in both raw material costs and machining time can be achieved by using bronze alloy tubes from AMPCO METAL. With one of the largest ranges of stock tubes sizes in the non-ferrous sector, we are confident at being able to meet all of your requirements. For large quantity users, we can produce custom-made tube sizes that optimise your production needs, thus improving your productivity still further. Please consult your local AMPCO METAL representative for more details.

CONTINUOUS CAST RECTANGULAR BAR

Aluminium bronzes for applications requiring maximum metal-to-metal wear resistance, stocked in a wide range of sizes and cut to the length that is most efficient for your processing.

FORGED PLATE

AMPCO® aluminium bronze alloys are available from stock in the widest range of plate sizes up to and including 10" (260 mm) thickness (AMPCO® 18). Forged plate from AMPCO METAL exhibits the consistent, defect-free structure demanded by today's manufacturing sector. To further enhance the ease of use of AMPCO® alloys, such plates are usually supplied in the rough machined condition, thus ensuring a high degree of dimensional stability, minimising waste and reducing machining time.

TYPICAL APPLICATIONS

Wear plates, work rest blades, brakes on theme park rides, gear racks, tube-bending tools, wiper dies, drawing and straightening dies, wear strips, bushings and many others.

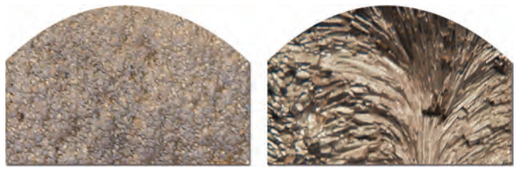
microcast®

Ever since the formation of the Company, AMPCO METAL has striven to give its customers the range and quality of copper based alloys they need for their manufacturing processes.

For a group of materials to fulfil the critical demands of designers and manufacturers, the alloys must exhibit exceptional mechanical and performance characteristics - consistently and across the whole alloy range. With horizontal continuous cast materials, such consistency comes from a tight control of the manufacturing process - from raw material selection and the casting process itself, through to subsequent heat treatments.

AMPCO METAL exercises these controls, and goes even further, with the application of a proprietary casting procedure that ensures our materials have a fine, homogenised structure - essential in achieving the superior mechanical properties you expect from AMPCO®. The resulting Microcast® structure is best illustrated by the photographs below:

microcast®



AMPCO® Bronze

Competition Material

- CHEMICAL COMPOSITION AND PROPERTIES -

		CONTINUOUS CAST ALUMINIUM BRONZE					MANGANESE BRONZE
		AMPCO® 18	AMPCO® 21	AMPCO® 22	AMPCO® 25	AMPCO® 26	AMPCO® 863
Chemical Composition	Cu	Balance	Balance	Balance			62.0
	Al	10.5	13.1	14.4	PROPRIETORY	PROPRIETORY	6.0
	Fe	3.5	4.4	4.7			3.0
	Mn	-	Others 2.5	Others 2.5			3.0
	Zn	-	-	-			26.0
Properties							
Tensile Strength: MPa (ksi)		655 (95)	703 (102)	586 (85)			724 (105)
Yield Str. 0.5% elong: MPa (ksi)		269 (39)	407 (59)	489 (71)		-	
Elongation: (% in 2* = 50.8mm)		16	1	0.5	-	-	18
Hardness: BHN (3000 kg)		183	285	331	364	418	225
Density: kg/dm^3 (lb./cu.in.)		7.45 (.269)	7.20 (.260)	7.06 (.255)	6.93 (.250)	6.84 (.247)	7.83 (.283)

The above are nominal values. If specific minimum figures are required, please contact your local AMPCO METAL representative

All of which combine to give you:

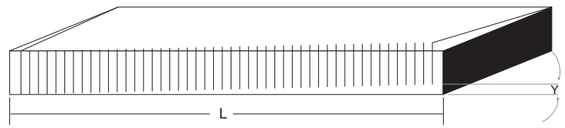
- Easier machining
- Greater component life
- Less maintenance and expensive downtime

With microcast® alloys from AMPCO METAL you get:

- Superior wear characteristics
- Greater resistance to corrosion
- Higher mechanical properties
- A consistent, reliable product

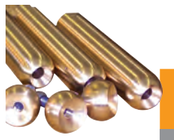
Straightness Tolerance Allowable Deviation from Straight

Deviation from straightness (Y) due to twist, waviness or full length camber will not exceed 3/16" in 5 feet (L) or 4.8 mm in 1500mm. Distance across flat held to limits permitting clean-up to nominal size. Tolerances are all plus, no minus.



AMPCO® aluminium bronzes in the extruded and cold finished form offer considerable flexibility to companies engaged in manufacturing parts for heavy duty service where the slightly ***higher mechanical properties*** can prove invaluable. Fully complementing our range of continuously cast materials in the applications that they can be used in, AMPCO® extruded products can also be manufactured to much ***closer tolerances***, thus minimising waste and reducing machining time.

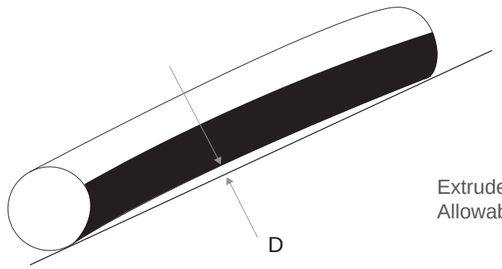
AMPCO METAL offers its alloy extrusions in the standard forms: rounds, tubes and rectangles.
In general, the extrusion process produces alloys with an even finer grain structure and a corresponding increase of mechanical properties. For Larger, “special made to order” shapes can also be produced. Please contact your local AMPCO METAL representative for further information.



- CHEMICAL COMPOSITION AND PROPERTIES -

		EXTRUDED & DRAWN ALUMINIUM BRONZES							NICKEL ALUMINIUM BRONZES				MANGANESE BRONZE
		AMPCO® 8	AMPCO® 15	AMPCO® 18	AMPCO® 21	AMPCO® 22	AMPCO® 25	AMPCO® 642		AMPCO® 45	AMPCO® 483	AMPCO® M4	AMPCO® 673
Chemical Composition	Cu	Balance	88	Balance	Balance	Balance	NOT	91	Cu	Balance	Balance	Balance	60
	Al	6.5	9	10.5	13.1	14.4	PUBLISHED	7	Al	10	9	10.5	-
	Fe	2.5	3	3.5	4.4	4.7		-	Fe	2.5	3	4.8	-
	Mn	-	-	-	2.0	2.5		-	Mn	1.0	1.5	1.5	2.5
	Si	-	-	-	-	-		2	Si	-	-	-	1.0
									Ni	5.0	5.0	5.0	-
									Pb	-	-	-	2.2
									Zn	-	-	-	34.0
Properties													
Tensile Strength: MPa (ksi)		552 (80)	655 (95)	724 (105)	758 (110)	724 (105)		620 (90)		814 (118)	724 (105)	1000 (145)	517 (75)
Yield Str. 0.5% elong: MPa (ksi)		323 (47)	345 (50)	365 (53)	420 (61)	427 (62)		310 (45)		517 (75)	365 (53)	793 (115)	379 (55)
Elongation: (% in 2* = 50.8mm)		35	25	14	1	.5		9		15	22	8	15
Hardness: BHN (3000 kg)		174	174	192	286	332	375	183		228	212	286	153
Rockwell		88B	88B	92B	29C	35C	40C	90B		98B	96B	29C	82B
Density: kg/dm$_3$ (lb./cu.in.)		7.95 (.287)	7.65 (.276)	7.45 (.269)	7.20 (.260)	7.06 (.255)	6.93 (.250)	7.70 (.278)		7.53 (.272)	7.64 (.276)	7.45 (.269)	8.35 (.302)
Electrical Conductivity: % IACS		12	12	12	10	10	8	8		9	7	8.2	18
Thermal Conductivity: CGS (W/mK)		.129 (54)	.13 (55)	.15 (63)	.11 (46)	.10 (42)	.08 (33)	.11 (45)		.11 (46)	.09 (36)	.1 (42)	.02 (83)
	BTU/ft./hr./°F	31	31	36	27	24	19	26		27	21	24	48

The above are nominal values. If specific minimum figures are required, please contact your local AMPCO METAL representative



Extruded Straightness Tolerance
Allowable Deviation from Straight

AMPCO® 8, 15, 18, 45, 483, 642		
Diameter Inches (mm)	Length L feet (mm)	Maximum Curvature depth of arc D inches(mm)
up to 3" (76.20)	up to 2"(600)	5/32" (4)
	over 2" to 5" (600 to 1500)	5/32" (4) in any 2 foot (600) portion
	over 5" to 10" (1500 to 3000)	3/8" (9.5) in any 5 foot (1500) portion
	UP to 10" (3000)	3/4" (19) in any 10 foot (3000) portion
over 3" to 4" (76.2 to 101.6)		3/4" (19) in any 6 foot (1800) portion
over 4" (101.6)		1/8" (3.2) in any 1 foot (300) portion
AMPCO® 21, 22, M-4		
all sizes		1/8"（3.2）in any 1 foot portion (300) of total length

- COPPER CHROME NICKEL SILICON -

High conductivity alloys that offer a unique combination of properties for demanding and thermal applications.

AMPCOLOY® 940

A superb combination of high thermal and electrical conductivity, with high hardness and strength. Good corrosion and abrasion resistance. Beryllium free.

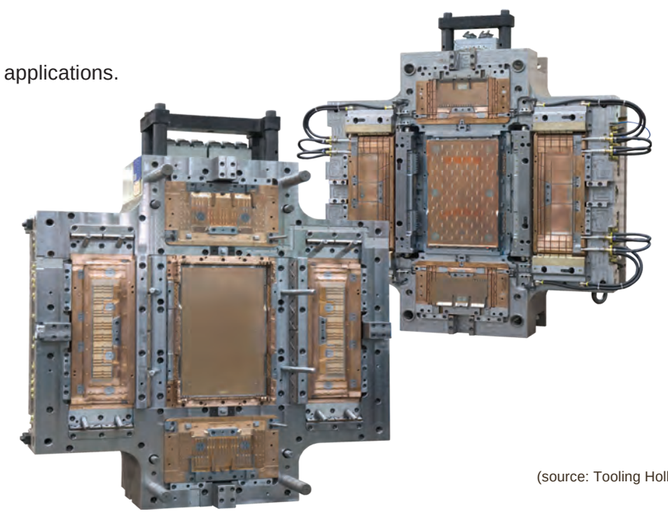
Applications: Plastic injection mold tools and inserts. Plunger tips for cold chamber die casting machines. Molds for non-ferrous metal casting.

AMPCOLOY® 944

An exceptional combination of higher thermal conductivity, tensile strength for applications that require rapid heat removal. Beryllium free.

Applications: Plastic injection mold tools and inserts, butt welding dies, plunger tips, heavy duty electrical and wear components.

- *Retains the inherent corrosion-resistance of copper*
- *High thermal conductivity for fast removal of heat*
- *Excellent machining properties*
- *Superb wear resistance*



(source: Tooling Holland)

- CuCrZr -

AMPCOLOY® 972

Very high electrical and thermal conductivity, good hardness and high resistance to softening.

Applications: Welding wheels, electrodes, holder and shanks for resistance welding machines, Clamps for butt and flash welding.

AMPCOLOY® High Conductivity Alloys are supplied in the mill hardened condition for the convenience of our customers and ease of use.

		EXTRUDED & DRAWN , FORGED HIGH COPPER ALLOYS			BERYLLIUM-CONTAINING ALLOYS			
		AMPCOLOY® 940	AMPCOLOY® 944	AMPCOLOY® 972		AMPCOLOY® 83	AMPCOLOY® 89	AMPCOLOY® 95
Chemical Composition (%)	Cu	96.4	90	Balance	Cu	Balance	Balance	Balance
		-	-		Be	1.9	0.5	0.5
					Co	0.5	2.0 (Co+Ni)	2.0 (Co+Ni)
	Cr	0.4	1.0	1.0				
	Ni	2.5	7.0					
	Zr			0.1				
	Si	0.7	2.0					
Mechanical Properties @20°C (68°F)								
Rockwell Hardness		95B	29C	79B		40C	98B	100B
Brinell Hardness		210	280	142		380	230	240
Tensile Strength MPa (ksi)		689 (100)	860 (125)	480 (70)		1250 (181)	740 (107)	850 (130)
Yield Strength MPa (ksi)		517 (75)	725 (105)	413 (60)		1000 (145)	680 (98)	600 (80)
Elongation A5 (%)		13	5	20		4	12	16
Physical Properties @ 20°C (68°F)								
Electrical Conductivity m/Ω mm²		28	18	50		12.8	40	28
Electrical Conductivity %IACS		48	30	86		22	69	48
Thermal Conductivity W/m·K(BTU.ft.hr.°F)		208 (120)	156 (90)	320 (185)		106 (61)	300 (173)	220 (127)
Elasticity Modulus GPa (ksi)		131 (19000)	151 (22000)	129 (17000)		131 (19000)	135 (19600)	130 (18500)
Specific Heat J/gK (BTU/lb.°F)		0.38 (0.09)	0.38 (0.09)	0.38 (0.09)		0.42 (0.1)	0.38 (0.09)	0.42 (0.1)
Density g/cm³ (lb./in³)		8.71 (0.315)	8.70 (0.314)	8.90 (0.320)		8.26 (0.298)	8.80 (0.318)	8.75 (0.316)
Working temperature limit °C (°F)		450 (840)	400 (750)	450 (840)		300 (572)	450 (840)	450 (840)

The above are nominal values. If specific minimum figures are required, please contact your local AMPCO METAL representative

- BERYLLIUM COPPER -

AMPCOLOY® 83

Exceptionally high hardness and strength, combined with good electrical and thermal conductivity. Applications: Welding dies for the flash-butt welding in cold-rolling mills. Injection mold tools and Inserts in the plastic molding sector. Special applications in aviation, deep sea water connections.

AMPCOLOY® 95

High hardness and high heat resistance coupled with good electrical and thermal conductivity. Applications: Electrodes, electrode holders for the resistance welding sector. Crosswire welding of reinforcing mesh, Molds for non-ferrous metal casting, plunger tips for cold chamber die casting. Is suitable for applications with high thermal loads and parts at risk from thermal cracking.

AMPCOLOY® 89

High electrical and thermal conductivity with very good hardness and strength at high temperatures. Applications: Welding electrodes, electrode holders for resistance welding applications. Seam welding of stainless sheet metals. Welding of reinforcing mesh, Molds for non-ferrous metal casting. Cooling inserts in steel moulds and Plunger Pistons. Is suitable for applications with high thermal loads and parts at risk from thermal cracking.

WARNING:

For alloys that contain Beryllium, it is recommended that during any operation which is liable to create dust or fumes (for example dry grinding, polishing or welding) precautions should be taken to ensure there is no inhalation or exposure to eyes or skin. Conventional machining (for example milling and turning) is not generally considered hazardous. For further information please contact your local AMPCO METAL representative.

ALUMINUM BRONZES & OTHER COPPER ALLOYS

STANDARD	Alloy number & designation	Tensile Rm, KSI	Tensile Rm, MPa	Yield Rp0.2, KSI	Yield Rp0.2, MPa	Elongation A5 or 4D %	Hardness HB 10/30	Hardness Rockwell
AMS 4533 AMS 4534 AMS 4535 AMS 4650 AMS 4651	C17200 CuBe2	60 to 185 (*)	413 to 1275 (*)	20 to 160 (*)	140 to 1100 (*)	20% to 4% (*)	90 to 360 (*)	45 to 37 (*)
AMS 4590	C63020 CuAl11Ni5Fe5	130 to 135	900 to 930	90 to 100	620 to 690	6	255	26 HRC
AMS 4616	C65620 CuSi3Zn3Fe2	56	390	20	140	30	90	55 HRB
AMS 4633 AMS 4634	C64200 CuAl7Si1.8	90	620	50	345	30	166	86 HRB
AMS 4635	C62300 CuAl10Fe3	95	655	50	345	25	174	88 HRB
AMS 4640	C63000 CuAl10Ni5Fe4	100 to 110	690 to 760	50 to 68	345 to 470	10	187 to 241	
AMS 4862	C86300 CuAl10Fe3	110	760	60	415	14	192	99 HRB
AMS 4880	C95510 CuAl10Ni5Fe3	95 to 105	655 to 725	50 to 62.5	345 to 430	9	187 to 241	
AMS 4881	C95520 CuAl11Ni5Fe5	120 to 130	830 to 900	85 to 95	590 to 655	3	255	26 HRC
BSB 23 (DTD 197)	CuAl11Ni5Fe5 CA104 UA11N	94 to 101	690 to 760	46 to 58	320 to 400	10	179 to 255	
NFL 14702		104 to 113	720 to 780	72 to 86	500 to 590	7 to 10	200 to 215	
NFL 14707	CuZn19Al6MnFe	113 to 120	780 to 830	78 to 85	540 to 590	7 to 10	225	
ASNA 3405	CuNi2Si	71 to 94	490 to 650	49 to 86	340 to 590	8 to 10	160 to 195	

(*) depending on the heat treatment from the soft condition to aging

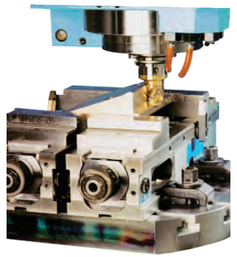
AMPCO METAL has a long and successful association with the aerospace sector of the economy. This distinct market position has been achieved through a worldwide network of manufacturing and distribution facilities in Europe, Asia and the United States. Our distinct line of AMPCO® alloys for the aerospace sector include a variety of aluminum bronze, manganese bronze and AMPCOLOY® beryllium copper alloys. Our global position of premium bronze and beryllium copper alloys ensures that material is available when and where our aerospace customer base requires them.

In conjunction with approvals from various aerospace manufacturers worldwide, AMPCO METAL has also earned the prestigious AS 9120 standard for the distribution of alloys within the aerospace sector. These approvals, along with ISO 9001:2008, illustrate our commitment to delivering the quality and service expected from the aerospace sector customer base.

ISO 9001
AS 9120
BUREAU VERITAS Certification

- PER YOUR DRAWING -

– AMPCO METAL, your trustworthy partner –



AMPCO METAL machines, crafts and finishes speciality bronze and copper alloy parts to your exact specifications, in single units or multiples (short or medium production runs).

An expert touch is needed when it comes to shaping high technology alloys into intricate, functional components of maximum reliability. Our fully-equipped shops in Germany and United States specialize in parts produced from bronze and copper alloys, including AMPCO® and AMPCOLOY® alloys.

AMPCO METAL is equipped with modern 3 and 5-axis CNC machining centers and lathe complete with rotary tools and other high technology equipment. We can machine parts from very small sizes all the way to 3 meters in length (10’ long) and diameters up to 1.4 meters (5’ dia.). All of the AMPCO® / AMPCOLOY® as well as most DIN or CDA materials, in any form of production like castings, forgings, centrifugals can be machined to your specifications and drawings. In addition we can offer engineering advice on the part design, geometry and choice of alloys for your application.

All AMPCO services and processes follow rigorous EN ISO 9001:2008 standards, to ensure the most precise, reliable results, as well as short delivery times to match today’s most stringent deadlines.

MACHINING CAPABILITIES
USA / EUROPE

		metric(mm)	imperial(in)
Sawing	Max. Cutting Range	520 x 380 x 2500	20 x 15 x 100
Turning	Max. Dimensions	Ø 700 x 3000	Ø 27,5 x 120
		Ø 1000 x 200	Ø 40 x 8
Milling	Max. X, Y, Z travel	3000 x 800 x 720	120 x 32 x 28
3-D Milling (5-axis milling)	Max. Dimensions	730 x 850 x 560	28 x 33 x 22
Surface Grinding	Max. Dimensions	1000 x 450 x 400	40 x 18 x 16
Outside Diameter Grinding	Max. Dimensions	Ø 350 x 1000	Ø 14 x 40
Inside Diameter Grinding	Max. Dimensions	Ø 2 - 170, up to length 500	Ø 0,08 - 7, up to length 20
Deep Hole Drilling	Max. Dimensions	Ø 2,5 - 350, up to length 3800	Ø 0,1 - 14, up to length 150
Wire-cut EDM-ing	Max. X, Y, Z travel	750 x 500 x 400	30 x 20 x 16
Sinker EDM-ing	Max. X, Y, Z travel	350 x 250 x 270	14 x 10 x 11
Welding	MIG / MAG / WIG, DC & AC Current		
Heat Treatment	Max. Dimensions*	1000 x 750 x 400	40 x 30 x 16

*Thickness restrictions might be possible