

AMPCO METAL is an integrated metal producer, offering under the AMPCO® and AMPCOLOY® brands, the widest range of premium specialty bronzes and copper alloys, providing exceptional physical and mechanical properties.

Professional value-added services, product quality and short deliveries are internationally guaranteed through our warehouses in Europe, USA, India and China.



Round bar, rectangles, tubes and plate are all readily available from stock and cast or forged shapes can be produced specifically to your requirements.

In addition to our activity in alloys, AMPCO METAL has invested extensively in the latest machining technology and has the expertise to deliver highly competitive, pre-machined or fully machined precision pieces, as required.



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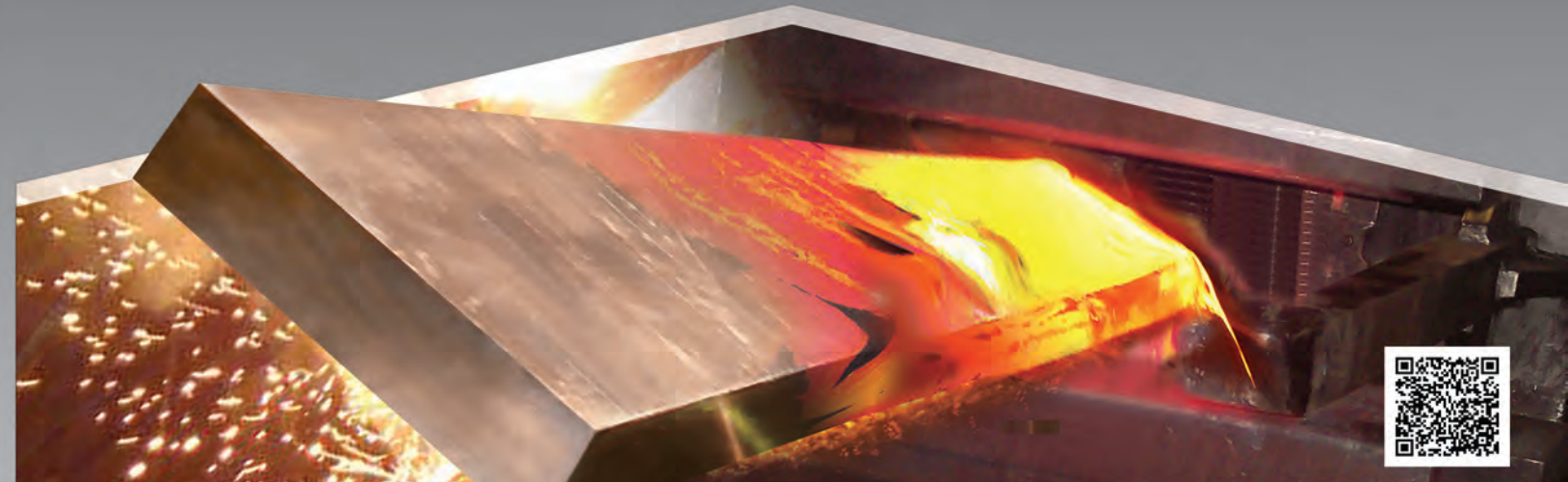
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**AMPCO METAL**

**EXCELLENCE IN ENGINEERED ALLOYS**



AMPCO Reference	Nearest International Standards					Nominal Chemical Composition (Remainder Cu)							Mechanical & Physical Properties						Usage Guideline				
	ISO	AFNOR	AFNOR Alloy	DIN	ASTM	Sn	Zn	Pb	Al	Fe	Ni	Mn	D Kg / dm <sup>3</sup>	Rm MPa	R <sub>p0.2</sub> MPa	A <sub>5</sub> %	HBW 10/3000	Thermal Conductivity W/m·K	Linear Expansion Coefficient	Coefficient of Friction Unlubricated	Need for Lubrication	Average Speed m/s	Average Load MPa
AMPCO® 8						0,25			6,5	2,5			7,95	552	283	40	153	54	16	0,17	Moderate	1,5	85
AMPCO® 18									10,5	3,5			7,45	724	365	14	192	63	16	0,18	Moderate	1,5	100
AMPCO® 18.23									10,5	3,5			7,45	758	386	16	207	59	16	0,18		1,5	100
AMPCO® 21									13,1	4,4		2	7,21	758	420	1	286	46	16	0,21	•	0,7	115
AMPCO® 22									14,1	4,7		2	7,06	724	427	0,5	332	42	16	0,25	Moderate	0,6	120
AMPCO® 25						Proprietary						6,93	R <sub>mc</sub> 1580	R <sub>p0.1</sub> 710	0,2	364	33	16	0,30	Moderate	0,5	125	
AMPCO® 26						Proprietary						6,93	R <sub>mc</sub> 1601	R <sub>p0.1</sub> 720	0	420	33	16	0,32	Moderate	0,4	130	
AMPCO® 45					AMS 4640 AMS 4880				10	2,5	5	1,5	7,53	814	517	15	228	46	16,2	0,23	High	1,5	90
AMPCO® M4					AMS 4590 AMS 4881				10,5	4,8	5	1,5	7,45	1000	793	8	260/300	42	16	0,23	•	1	330

AMPCOLOY® ALLOYS	AMPCOLOY®	Chemical Composition	AFNOR	DIN	ASTM	Nominal Chemical Composition (Remainder Cu)							Thermal Conductivity W/m·K			Elec.C %IACS	RWMA Class					
						Cr	Co	Be	Zr	Ni	Si	Mn	20°C	100°C	200°C							
						AMPCOLOY® 83	CuBe2		2.1247	C17200		0,5	2								8,26	1310
AMPCOLOY® 944	AMPCO METAL Specification			Alloys without Beryllium		1				7	2		8,7	938	730	5	294	156	170	190	30%	4
AMPCOLOY® 940	AMPCO METAL Specification					0,4				2,5	0,7		8,71	689	517	13	210	208	226	243	48%	3
AMPCOLOY® 89	CuNiBe					Co + Ni 2		0,5					8,75	740	680	12	230	300	320	340	69%	3
AMPCOLOY® 95	CuCoNiBe		~2.1285	~C17510		Co+Ni 2		0,5					8,75	830	550	10	240	217	235	254	52%	3
AMPCOLOY® 972	CuCrZr		2.1293	C18150		>1			>0,10				8,87	520	466	18	151	333	350	367	82%	2

	AMPCO Reference	Chemical Composition	AFNOR	DIN	ASTM	Nominal Chemical Composition (Remainder Cu)							D Kg / dm <sup>3</sup>	Rm MPa	R <sub>p0.2</sub> MPa	A <sub>5</sub> %	HBW 10/3000	Thermal Conductivity W/m·K	Linear Expansion Coefficient	Coefficient of Friction Unlubricated	Need for Lubrication	Average Speed m/s	Average Load MPa		
						Sn	Zn	Pb	Al	Fe	Ni	Mn													
TIN-LEADED BRONZE	A30	UPb15Sn8	NF EN1982	UPb15	2.1182	C93800	7	<2	15			<2		9,25	200	90	8	65	63	18,8	0,04	Small	12	20	
	A32	UPb10Sn10	NF EN1982	UPb10	2.1176	C93700	10	<2	10			<2		9	220	110	8	70	54	18,7	0,05	•	10	25	
TIN BRONZE	A35	CuSn7Pb	NF EN1982	UE7	2.1090	C93200	7	4	6,5			<2		8,8	260	120	12	70	64	18,5	0,06	Moderate	7	40	
	A712	CuSn12P	NF EN1982	UE12P	2.1052	C90800	12	<0,2	<0,7			<2		8,6	300	150	12	90	46	18,5	0,07		•	6	60
	A708	CuSn8 P		UE9P	2.1030	C52100	8	<0,2				<0,1	P: 0,01-0,24	8,8	350	170	25	80	63	17	0,07		•	3	50
BRASS	A393	CuZn39Pb3	NF EN1982	UZ39	2.0401	C38500		39	<3,5					8,5	430	230	10	120	100	18,5		Very High	1	60	
	A402	CuZn40Al2	NF EN1982	UZ40	2.0550	C28000		40		2		2		8,2	540	250	15	150	117	21		•	1,5	80	
HIGH RESISTANCE BRASS	A780	CuZn23Al4	NF EN1982	UZ23		C86200		23,4		4,3	2,5	2,5	7,8	500	250	8	160	20	17	0,17	•	Very High	1,5	80	
	A820	CuZn19Al6	NF EN1982	UZ19				20		6,2	3	3	7,6	750	500	8	220	20	17	0,17	•	•	1	90	
ALUMINIUM BRONZE	A609	CuAl9Ni3Fe2	NF EN1982	UA9			<0,1	<0,3		9	2	3	1,5	7,6	500	180	18	110	38	16	0,23	•	High	1,5	70
	A608	CuAl10Ni5Fe4	NF L14-705	UA10N	2.0975	C95800	<0,05	<0,5		10	4	5	<1	7,6	586	241	18	160	36	16	0,23	•	•	1,5	90
COPPER TUNGSTEN		CuW / W					CW à 66%, 70%, 75%, 80%, 100%																		

Please ask us about your other copper alloy requirements.

These values are an indication. For specific design parameters consult your local AMPCO METAL office.