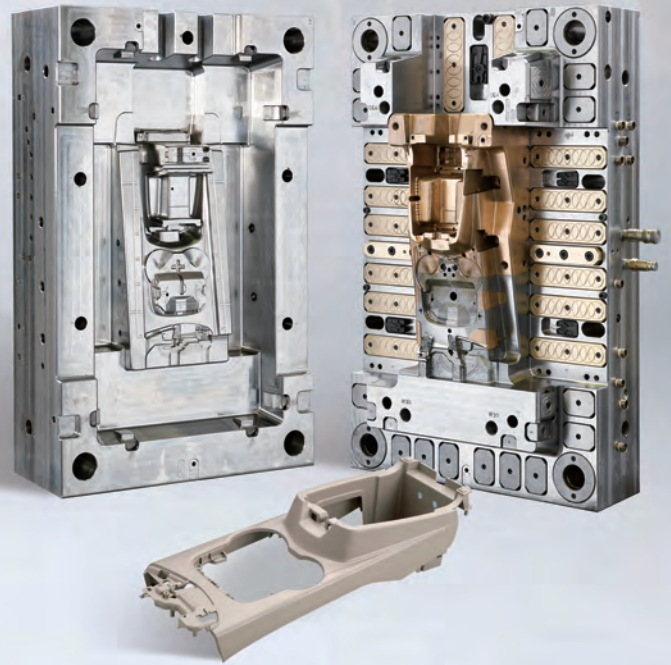




EXCELLENCE IN ENGINEERED ALLOYS



# SPECIAL ALLOYS

FOR WEAR, CORROSION RESISTANT & HIGH CONDUCTIVITY APPLICATIONS



[www.ampcometal.com](http://www.ampcometal.com)



Nearest International Standards

AMPCO Reference	ISO	AFNOR	AFNOR Alloy	DIN	ASTM
AMPCO® 8					
AMPCO® 18					
AMPCO® 18.23					
AMPCO® 21					
AMPCO® 22			AMPCO METAL Specification		
AMPCO® 25					
AMPCO® 26					
AMPCO® 45					
AMPCO® M4					

Nominal Chemical Composition (Remainder Cu)							Mechanical & Physical Properties							Usage Guideline			
Sn	Zn	Pb	Al	Fe	Ni	Mn	D Kg/dm <sup>3</sup>	Rm MPa	Rp 0,2 MPa	A <sub>5</sub> %	HBW 10/3000	Thermal Conductivity W/m.K	Linear Expansion Coefficient 10 <sup>-6</sup> /K	Coefficient of Friction Unlubricated	Need for Lubrication	Average Speed m/s	Average Load MPa
0.25			6,5	2,5			7.95	552	283	40	153	54	16	0.17	Moderate	1.5	85
			10,5	3,5			7.45	724	365	14	192	63	16	0.18	Moderate	1.5	100
			10,5	3,5			7.45	758	386	16	207	63	16	0.18	Moderate	1.5	100
			13,1	4,4		2	7.21	758	420	1	286	46	16	0.21	Moderate	0.7	115
			14,1	4,7		2	7.06	724	427	0.5	332	42	16	0.25	Moderate	0.6	120
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
Proprietary							6.93	R <sub>mc</sub> 1601	R <sub>p0.1</sub> 720	0	420	33	16	0.32	Moderate	0.4	130
			10	2,5	5	1.5	7.53	814	517	15	228	46	16.2	0.23	High	1.5	90
			10,5	4,8	5	1.5	7.45	1000	793	8	260/300	42	16	0.23	High	1	330

Cr	Co	Be	Zr	Ni	Si	Mn	Thermal Conductivity W/m.K			Electrical Conductivity % IACS	RWMA Class					
							20°C	100°C	200°C							
	0,5	2					8.26	1310	827	5	360	106	120	135	20%	4
1				7	2		8.7	938	730	5	294	156	170	190	30%	4
0,4				2,5	0,7		8.71	689	517	13	210	208	226	243	48%	3
	Co + Ni2	0,5					8.75	760	550	14	250	230	251	272	48%	3
	Co + Ni2	0,5					8.75	830	550	10	240	217	235	254	52%	3
>1			>0,10				8.87	520	466	18	151	333	350	367	82%	2



AMPCO® BRONZE



AMPCOLOY® ALLOYS

AMPCOLOY Reference	Chemical Composition	AFNOR Alloy	DIN	ASTM
AMPCOLOY® 83	CuBe2		2.1247	C17200
AMPCOLOY® 944		AMPCO METAL Specification	Alloys without Beryllium	
AMPCOLOY® 940				
AMPCOLOY® 89	CuNiBe			
AMPCOLOY® 95	CuCoNiBe		~ 2.1285	~ C17510
AMPCOLOY® 972	CuCrZr		2.1293	C18150

Standards

Alloy type	Standards					
	EN 1982	EN	DIN	CDA	ASTM	GAM MM12
ALUMINUM BRONZES	CUAL10FE5NI5	CC333G	DIN 2.0975	C95500	B505	CUAL9NI5FE4
	CUAL10FE2	CC331G	DIN 2.0940	C95200	B505	CUAL10FE3
	CUAL9	CC330G		C95300	B505	-
	CUAL10NI3FE2	CC332G	DIN 2.0970			CUAL9NI3FE2
	CUAL11FE6NI6	CC334G	DIN 2.0980	C95520	B505	-
TIN BRONZE	CUSN8	-	-	-	-	
	CUSN9	-	-	-	-	CUSN8
	CUSN10	CC480K	DIN 2.1050	C90700	B505	-
	CUSN12	CC483K	DIN 2.1052	C90800	B427	-
	CUSN11PB2	CC482K	DIN 2.1061	C92700	B505	CUSN12
	CUSN12NI2	CC484K	DIN 2.1060	C91700	B427	-
	CUSN7ZN2PB3	CC492K	DIN 2.1093	-	-	-
BRASS	CUZN25AL5MN4FE3	CC762S	DIN 2.0598	C86200	B505	-
	CUZN34MN3AL2FE1	CC764S	DIN 2.0596	C86700*	B584	-
	CUZN35MN2AL1FE1	CC765S	DIN 2.0592	C86400*	B584	-
	CUZN37AL1	CC766S	DIN 2.0510	C86500	B505	-
	CUZN19AL6	-	-	-	-	CUZN19AL6
	CUZN23AL4	-	-	-	-	CUZN23AL4

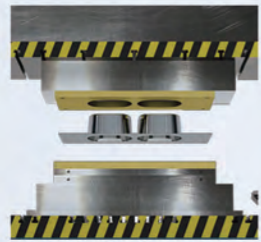
Typical nominal chemistry%				Typical applications
Al	Fe	Ni	Mn	
10.8	4	4.2	-	Demanding applications where high mechanical properties, good corrosion resistance and high ductility are required.  Machinery, shafts, valve bodies, propeller hub, worm gears, bushings, propeller blades, wear plates.
9	3.2	-	-	
10	1.2	-	-	
9	2.5	3.2	0.8	
11	4.8	5.1	-	
Sn	Pb	Zn	Ni	Typical for high strength, low speeds and heavy loads applications like gear, bushing and bearing. Pump impellers, piston rings, steam fittings, valve bodies, retaining and clamps.  Also for connectors, relays and conductor springs.
8	1	1.5	1	
8.5	0.05	0.2	0.05	
11	-	-	-	
12	0	-	-	
10	1.8	-	-	
12	0	-	1.5	
Zn	Al	Fe	Mn	Typical for low friction applications with slow speed and high pressure.  Fasteners, screw nuts, bushings, cams, frames, worm gears, machine parts, hooks, press dies, shafts, valve stems.
25	4	3	3.8	
34	2	2	2	
38	0.5	1	0.5	
39	1	1.2	0.8	
19	6	-	-	
23	4	-	-	



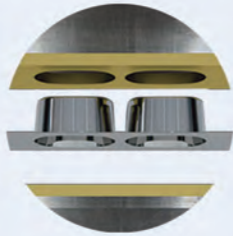
# SPECIFY AMPCO®



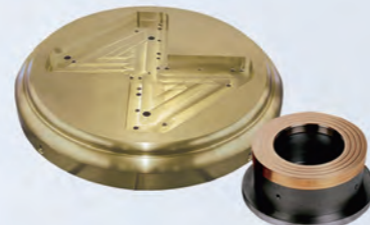
## Wear-Resistant Bronzes Corrosion-Resistant Bronzes



Deep Drawing



Tube Bending



AMPCO® 21/22/25/26



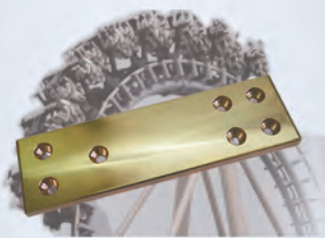
AMPCO® 18/21/22/25/M4



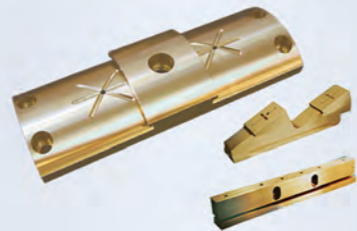
Tube Forming



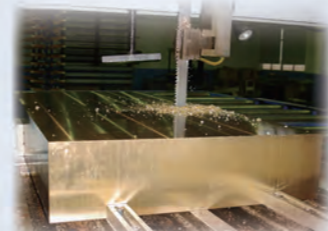
AMPCO® 18/21/22/25



Rollercoasters  
AMPCO® 18/M4



Steel Mill  
AMPCO® 18



General Engineering  
AMPCO® 18/21/M4



Welding Materials  
AMPCO - TRODE®



AMPCO SAFETY TOOLS®



## High-Conductivity Alloys



Plastics Industries



AMPCOLOY® 940/944/83/95



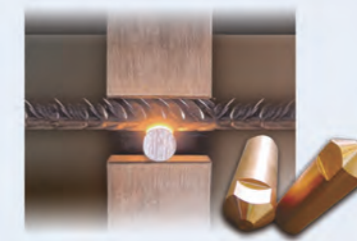
Aerospace & Offshore



AMS 4640/4590/4880/4881



Resistance Welding & Plunger Tips



AMPCOLOY® 972/940/83/95



Die Casting  
AMPCOLOY® 940/89/95



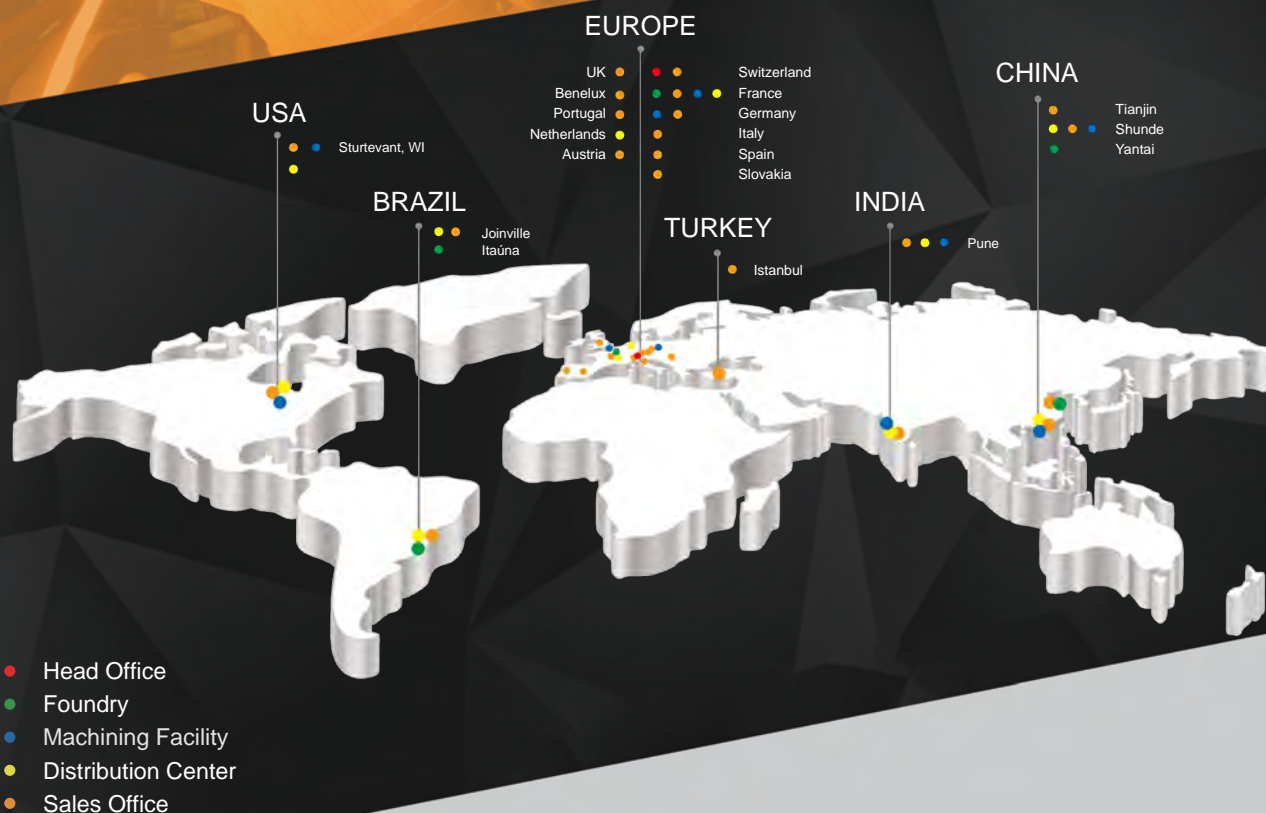
Soap Mould  
AMPCOLOY® 940



A Second Century of Innovation



EXCELLENCE IN ENGINEERED ALLOYS



### EUROPE (Headquarters)

#### AMPCO METAL S.A.

Route de Chésalles 48  
P.O.Box 45, 1723 Marly  
SWITZERLAND  
TOLL FREE PHONE: 800 8080 5050  
Tel.: +41 26 439 93 00  
Fax: +41 26 439 93 01  
Info@ampcometal.com

### BRASIL

#### AMPCO METAL Brasil Ltda.

Rua Dona Francisca 8400 - galpão 2  
Zona Industrial Norte  
Joinville, SC - 89219 - 600  
Tel.: +55 47 3305 0020  
Fax: +55 47 3305 0021  
Infobrasil@ampcometal.com

### CHINA

#### AMPCO METAL (Foshan) Co., Ltd

Warehouse 9-1 No 9 Xinyue road  
Jinqiao Industrial city, Wusha  
Daliang town, Shunde, Foshan  
Guangdong Province, P.R.China.  
P.C.528333  
TOLL FREE PHONE: 4008 899 028  
Tel.: +86 (0) 757 2232 6571  
Fax: +86 (0) 757 2232 6570  
Infochina@ampcometal.com

### INDIA

#### AMPCO METAL INDIA PVT. LTD.

A-8/4, Village - Nighoje,  
Chakan MIDC, Phase IV, Tal : Khed  
Pune - 410501, Maharashtra - INDIA  
Tel.: +91 2135 610 810  
Fax: +91 2135 610 811  
Infoindia@ampcometal.com

### U.S.A

#### AMPCO METAL Inc.

1221 Grandview Pkwy  
Sturtevant, WI 53177  
Tel.: +1 800 844 6008  
Fax: +1 847 437 6008  
Infousa@ampcometal.com

