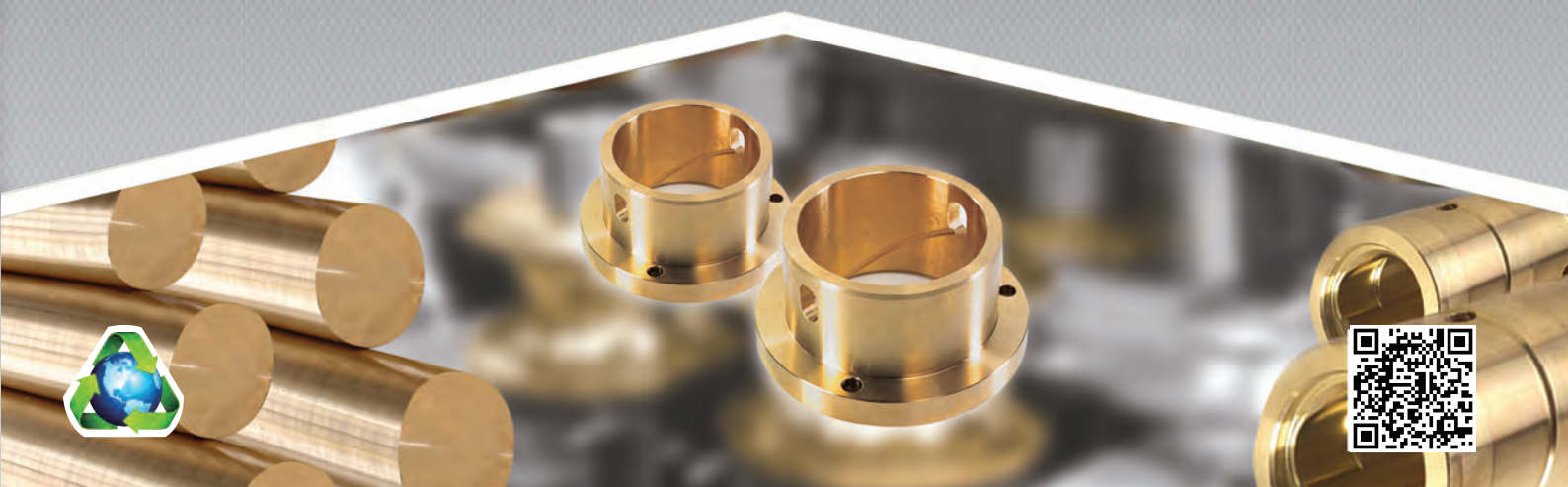




**SPECIAL ALLOYS**  
WEAR, CORROSION RESISTANT &  
HIGH CONDUCTIVITY APPLICATIONS



AMPCO METAL **EXCELLENCE IN ENGINEERED ALLOYS**





|                 |              | Nearest International Standards |       |             |     |      |
|-----------------|--------------|---------------------------------|-------|-------------|-----|------|
| AMPCO Reference |              | ISO                             | AFNOR | AFNOR Alloy | DIN | ASTM |
| AMPCO® BRONZE   | AMPCO® 8     | AMPCO METAL Specification       |       |             |     |      |
|                 | AMPCO® 18    |                                 |       |             |     |      |
|                 | AMPCO® 18.23 |                                 |       |             |     |      |
|                 | AMPCO® 21    |                                 |       |             |     |      |
|                 | AMPCO® 22    |                                 |       |             |     |      |
|                 | 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<br>Kg/dm <sup>3</sup>          | Rm<br>MPa              | Rp 0,2<br>MPa             | A <sub>5</sub><br>% | HBW<br>10/3000 | Thermal<br>Conductivity<br>W/m.K | Linear Expansion<br>Coefficient<br>10 <sup>-6</sup> /K | Coefficient of<br>Friction<br>Unlubricated | Need for<br>Lubrication | Average<br>Speed m/s | Average<br>Load MPa |
| 0.25                                        |    |    | 6,5   | 2,5 |    |     | 7.95                             | 552                    | 283                       | 40                  | 153            | 54                               | 16                                                     | 0.17                                       | Moderate<br>💧           | 1.5                  | 85                  |
|                                             |    |    | 10,5  | 3,5 |    |     | 7.45                             | 724                    | 365                       | 14                  | 192            | 63                               | 16                                                     | 0.18                                       | Moderate<br>💧           | 1.5                  | 100                 |
|                                             |    |    | 10,5  | 3,5 |    |     | 7.45                             | 758                    | 386                       | 16                  | 207            | 63                               | 16                                                     | 0.18                                       |                         | 1.5                  | 100                 |
|                                             |    |    | 13,1  | 4,4 |    | 2   | 7.21                             | 758                    | 420                       | 1                   | 286            | 46                               | 16                                                     | 0.21                                       |                         | 0.7                  | 115                 |
|                                             |    |    | 14,1  | 4,7 |    | 2   | 7.06                             | 724                    | 427                       | 0.5                 | 332            | 42                               | 16                                                     | 0.25                                       | Moderate<br>💧           | 0.6                  | 120                 |
| Proprietary                                 |    |    |       |     |    |     | 6.93                             | R <sub>m</sub><br>1580 | R <sub>p,0.1</sub><br>710 | 0.2                 | 364            | 33                               | 16                                                     | 0.30                                       | Moderate<br>💧           | 0.5                  | 125                 |
|                                             |    |    |       |     |    |     | 6.93                             | R <sub>m</sub><br>1601 | R <sub>p,0.1</sub><br>720 | 0                   | 420            | 33                               | 16                                                     | 0.32                                       | Moderate<br>💧           | 0.4                  | 130                 |
|                                             |    |    | 10    | 2,5 | 5  | 1.5 | 7.53                             | 814                    | 517                       | 15                  | 228            | 46                               | 16.2                                                   | 0.23                                       | High<br>💧               | 1.5                  | 90                  |
|                                             |    |    | 10, 5 | 4,8 | 5  | 1.5 | 7.45                             | 1000                   | 793                       | 8                   | 260/300        | 42                               | 16                                                     | 0.23                                       |                         | 1                    | 330                 |



|                  |               |                           |  |  |                          |         |
|------------------|---------------|---------------------------|--|--|--------------------------|---------|
| AMPCOLOY® ALLOYS | AMPCOLOY® 83  | CuBe2                     |  |  | 2.1247                   | C17200  |
|                  | AMPCOLOY® 944 | AMPCO METAL Specification |  |  | Alloys without Beryllium |         |
|                  | AMPCOLOY® 940 |                           |  |  |                          |         |
|                  | AMPCOLOY® 88  | CuNiBe                    |  |  |                          |         |
|                  | AMPCOLOY® 95  | CuCoNiBe                  |  |  | ~2.1285                  | ~C17510 |
|                  | AMPCOLOY® 972 | CuCrZr                    |  |  | 2.1293                   | C18150  |

| 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 | 740  | 680 | 12 | 230 | 300                        | 320   | 340   | 69%                            | 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          |

| 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   | Demanding applications where high mechanical properties, good corrosion resistance and high ductility are required.<br><br>Machinery, shafts, valve bodies, propeller hub, worm gears, bushings, propeller blades, wear plates                 |
| 10.8                       | 4    | 4.2    | -    |                                                                                                                                                                                                                                                |
| 9                          | 3.2  | -      | -    |                                                                                                                                                                                                                                                |
| 10                         | 1.2  | -      | -    |                                                                                                                                                                                                                                                |
| 9                          | 2.5  | 3.2    | 0.8  |                                                                                                                                                                                                                                                |
| 11                         | 4.8  | 5.1    | -    | 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.<br><br>Also for connectors, relays and conductor springs. |
| Sn 8                       | Pb 1 | Zn 1.5 | Ni 1 |                                                                                                                                                                                                                                                |
| 8.5                        | 0.05 | 0.2    | 0.05 |                                                                                                                                                                                                                                                |
| 11                         | -    | -      | -    |                                                                                                                                                                                                                                                |
| 12                         | 0    | -      | -    |                                                                                                                                                                                                                                                |
| 10                         | 1.8  | -      | -    |                                                                                                                                                                                                                                                |
| 12                         | 0    | -      | 1.5  |                                                                                                                                                                                                                                                |
| 7                          | 3    | 2      | 2    |                                                                                                                                                                                                                                                |
| Zn                         | Al   | Fe     | Mn   | Typical for low friction applications with slow speed and high pressure.<br><br>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    | -      | -    |                                                                                                                                                                                                                                                |





**Wear - Resistant Bronzes**  
**Corrosion - Resistant Bronzes**

**SPECIFY AMPCO® High - Conductivity Alloys**



● Deep Drawing

AMPCO® 21/22/25/26



● Tube Bending

AMPCO® 18/21/22/25/M4

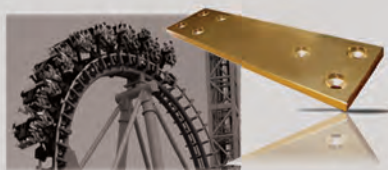


● Tube Forming

AMPCO® 18/21/22/25



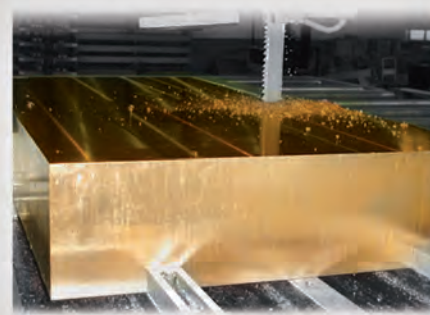
● Rollercoasters AMPCO®18/M4



● Steel Mill AMPCO®18



● General Engineering  
AMPCO® 18/21/M4



**Vision**

We aspire to be recognized as the global reference in sustainable metal solutions, with distinctive quality and unparalleled customer service, aiming at the highest customer satisfaction for being always their first choice

**Mission**

To support this vision, our mission is to be a sustainable and reliable partner for our customers, providing innovative metal solutions with outstanding quality and service, delivering exceptional value to their business, and providing a safe and prosperous environment for our employees while serving our community with a long-term and sustainable approach, and delivering continuous profitable growth, benefiting the Company, our people, and our stakeholders.

**Values**

- We want to be recognized as a partner, not just a supplier
- We sell solutions, not just products
- We focus on quality and service
- We care for our key success factor and main asset - our employees
- We care for our families, friends, society - our people

● Welding Materials  
AMPCO - TRODE®

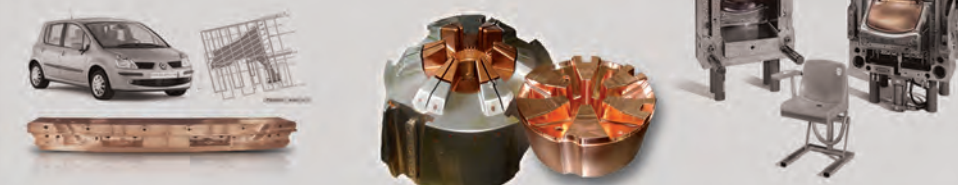


● AMPCO® SAFETY TOOLS



● Plastics Industries

AMPCOLOY® 940/944/83/95



● Aerospace & Offshore AMS 4640/4590/4880/4881



● Die Casting

AMPCOLOY® 940/89/95



● Soap Mould

AMPCOLOY® 940

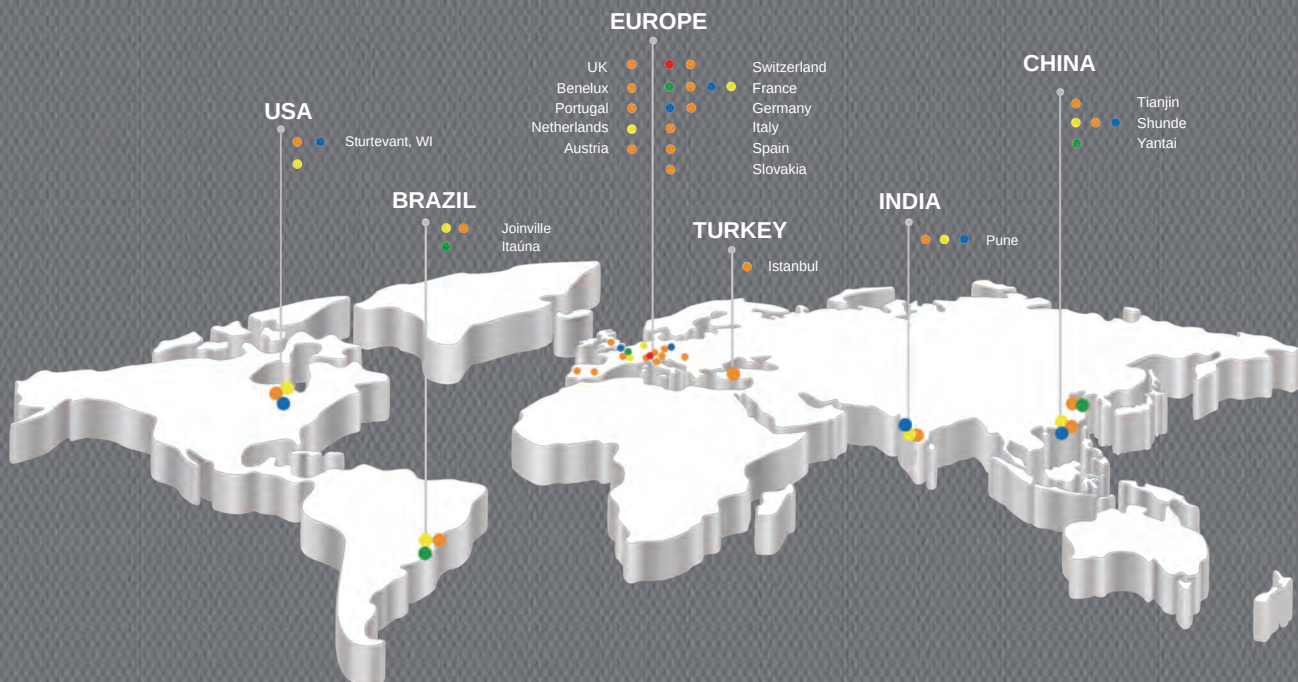


● Resistance Welding & Plunger Tips

AMPCOLOY® 972/940/83/95







● Head Office    ● Foundry    ● Machining Facility    ● Distribution Center    ● Sales Office



**AMPCO METAL** is proud to participate into saving natural resources by using mostly recycled metal!



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