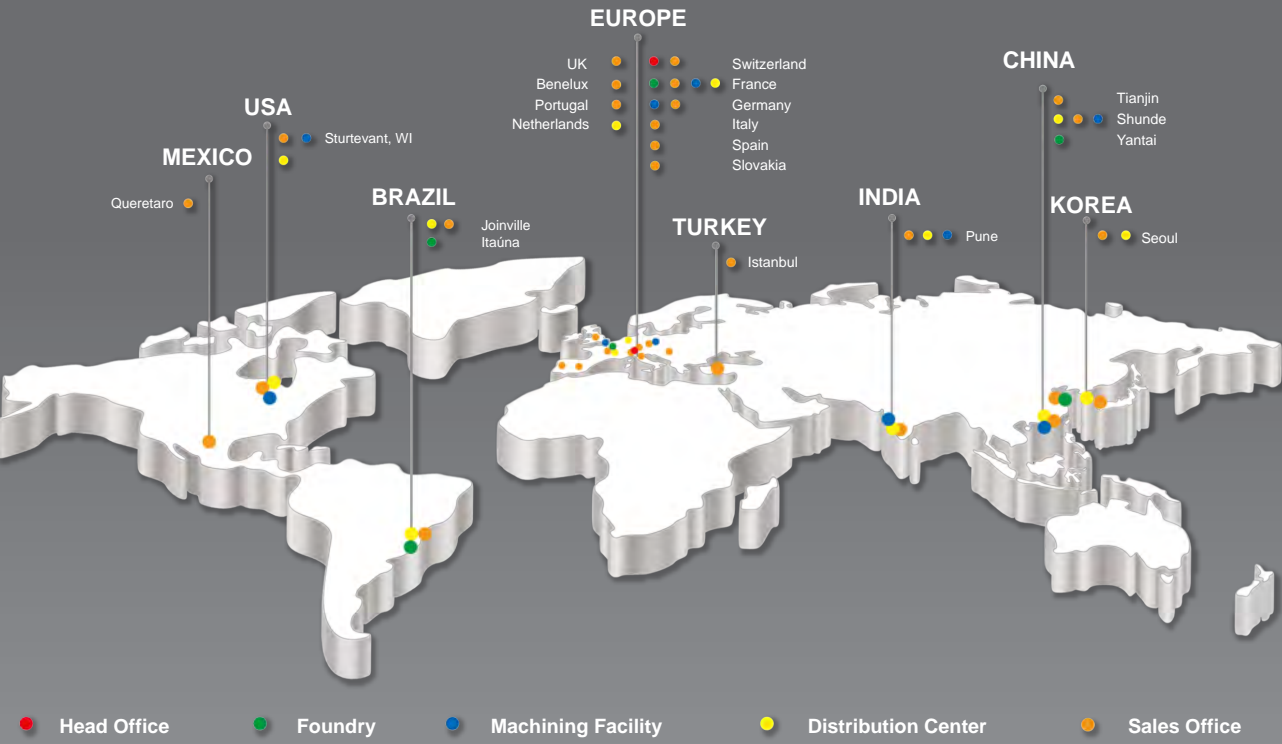


MATERIAL SELECTION GUIDE



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



www.ampcometal.com

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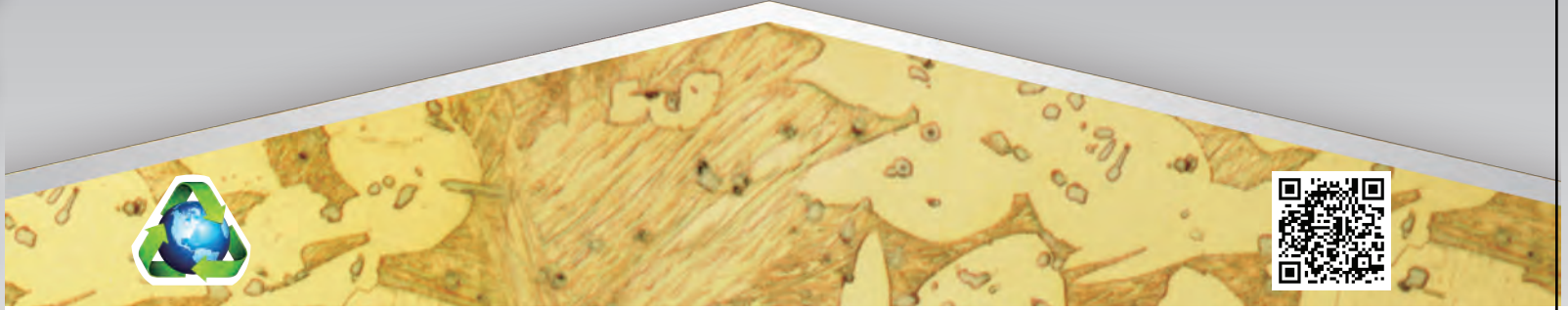
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AMPCO METAL EXCELLENCE IN ENGINEERED ALLOYS

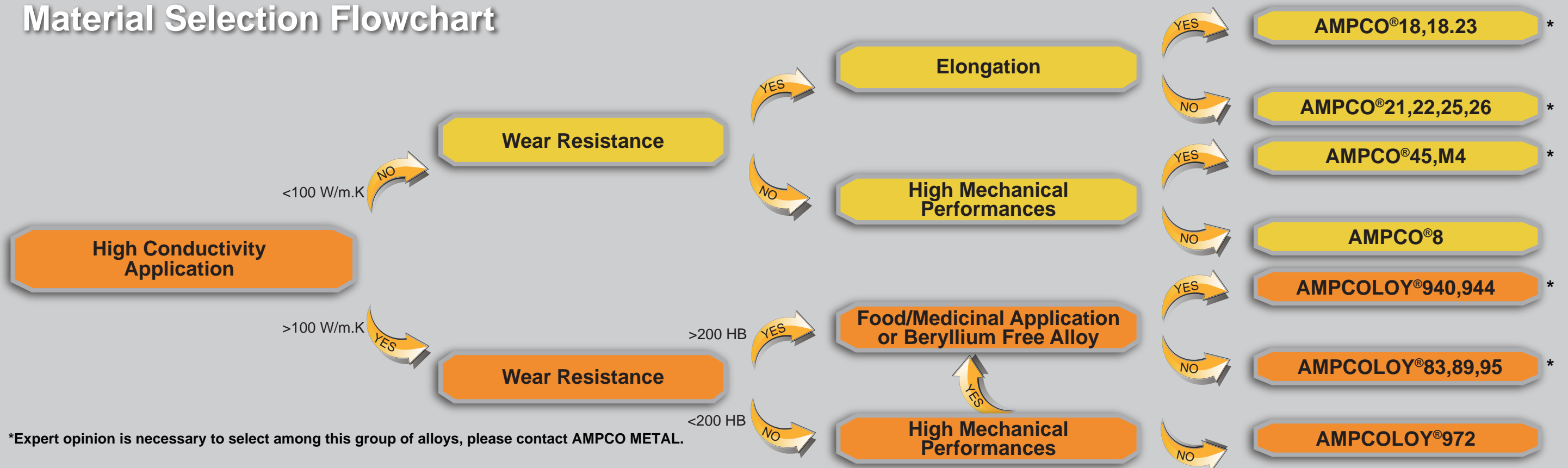
| AMPCO | AMPCO Reference | Nearest International Standards | | | | | Nominal Chemical Composition (Remainder Cu) | | | | | | Mechanical & Physical Properties | | | | | | Usage Guideline | | | | | |
|---------------------------|--------------------------|---------------------------------|----|-----|------|-----|---------------------------------------------|----|------|------|-----|----|----------------------------------|----------------------|------------------------|-----------------------|------------------|-------------|----------------------------|------------------------------|--------------------------------------|---------------------|-------------------|------------------|
| | | ISO | EN | DIN | ASTM | AMS | Sn | Zn | Pb | Al | Fe | Ni | Mn | D Kg/dm ³ | Rm MPa | R _{p0.2} MPa | A ₅ % | HBW 10/3000 | Thermal Conductivity W/m.K | Linear Expansion Coefficient | Coefficient of Friction Unlubricated | Need for Lubricated | Average Speed m/s | Average Load MPa |
| AMPCO [®] BRONZE | AMPCO [®] 8 | AMPCO METAL Specification | | | | | 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 _{nc} 1580 | R _{nc0.1} 710 | 0,2 | 364 | 33 | 16 | 0,30 | Moderate | 0,5 | 125 | |
| | AMPCO [®] 26 | | | | | | Proprietary | | | | | | 6,93 | R _{nc} 1601 | R _{nc0.1} 720 | 0 | 420 | 33 | 16 | 0,32 | Moderate | 0,4 | 130 | |
| | AMPCO [®] 45 | | | | | | 4640 4880 | | | 10 | 2,5 | 5 | 1,5 | 7,53 | 814 | 517 | 15 | 228 | 46 | 16,2 | 0,23 | High | 1,5 | 90 |
| | AMPCO [®] M4 | | | | | | 4590 4881 | | | 10,5 | 4,8 | 5 | 1,5 | 7,45 | 1000 | 793 | 8 | 260/300 | 42 | 16 | 0,23 | High | 1 | 330 |

| AMPCOLOY | AMPCOLOY Reference | Nearest International Standards | | | | | Nominal Chemical Composition (Remainder Cu) | | | | | | Mechanical & Physical Properties | | | | | | Usage Guideline | | | | |
|------------------------------|---------------------------|----------------------------------------------------|---------|---------|---------|----|---------------------------------------------|----|----------------------|-----------|-----------------------|------------------|----------------------------------|----------------------------|-------|-------|--------------|------------|-----------------|-----|-----|-----|---|
| | | Cr | Be | Zr | Si | Co | Ni | Mn | D Kg/dm ³ | Rm MPa | R _{p0.2} MPa | A ₅ % | HBW 10/3000 | Thermal Conductivity W/m.K | | | Elec.C %IACS | RWMA Class | | | | | |
| | | | | | | | | | | | | | | 20°C | 100°C | 200°C | | | | | | | |
| AMPCOLOY [®] ALLOYS | AMPCOLOY [®] 83 | CuBe2 | CW 101C | 2.1247 | C17200 | | 2 | | | 0,5 | | | 8,26 | 1310 | 827 | 5 | 360 | 106 | 130 | 145 | 20% | 4 | |
| | AMPCOLOY [®] 944 | AMPCO METAL Specification Alloys without Beryllium | | | | | 1 | | | 2 | | 7 | | 8,7 | 938 | 730 | 5 | 294 | 156 | 170 | 190 | 30% | 4 |
| | AMPCOLOY [®] 940 | AMPCO METAL Specification Alloys without Beryllium | | | | | 0,4 | | | 0,7 | | 2,5 | | 8,71 | 689 | 517 | 13 | 210 | 208 | 226 | 243 | 48% | 3 |
| | AMPCOLOY [®] 89 | CuNiBe | CW 110C | 2.0850 | -C17510 | | 0,5 | | | Co + Ni 2 | | | 8,75 | 740 | 680 | 12 | 230 | 300 | 320 | 340 | 69% | 3 | |
| | AMPCOLOY [®] 95 | CuCoNiBe | CW 103C | -2.1285 | -C17510 | | 0,5 | | | Co + Ni 2 | | | 8,75 | 830 | 550 | 10 | 240 | 217 | 235 | 254 | 52% | 3 | |
| | AMPCOLOY [®] 972 | CuCrZr | CW 106C | 2.1293 | C18150 | | 1 | | 0,10 | | | | 8,87 | 520 | 466 | 18 | 151 | 333 | 350 | 367 | 82% | 2 | |

Please ask us about your other copper alloy requirements.

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

Material Selection Flowchart





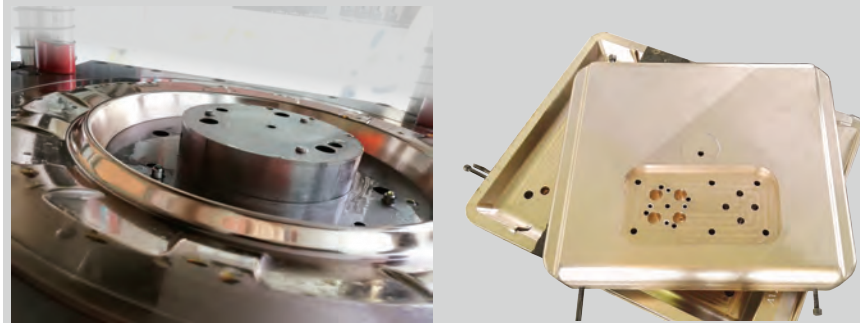
Wear & Corrosion Resistant Bronzes

SPECIFY AMPCO®

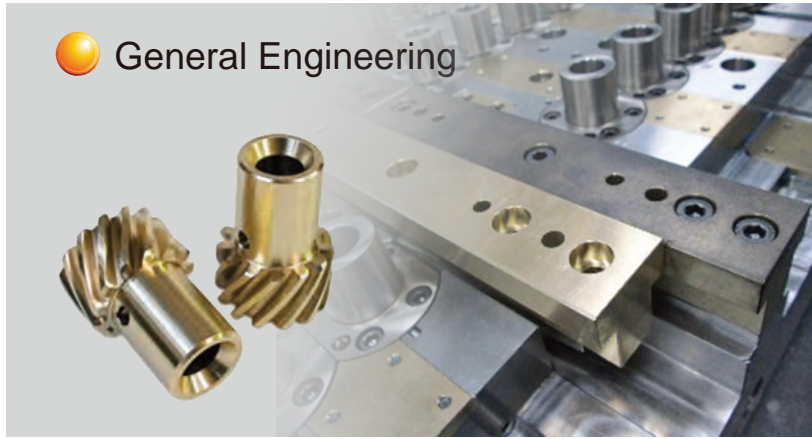


High Conductivity Alloys

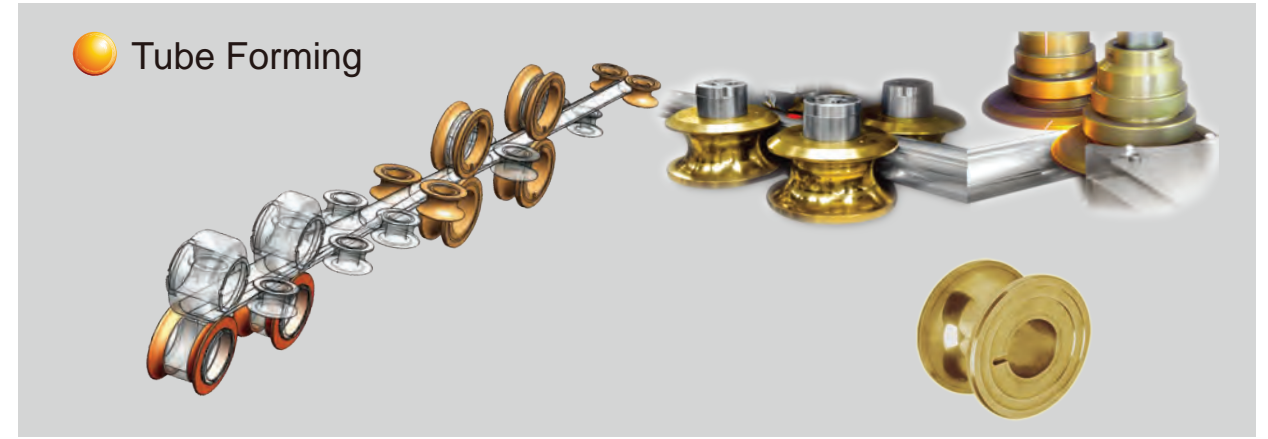
● Deep Drawing



● General Engineering



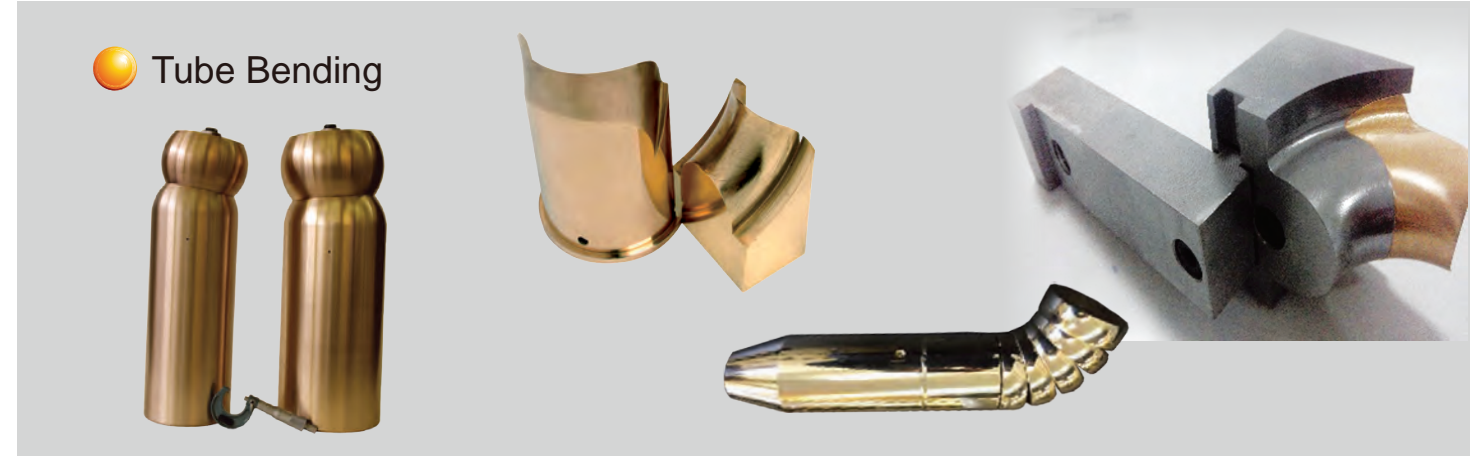
● Tube Forming



● Plastic Industry



● Tube Bending



● Rollercoasters



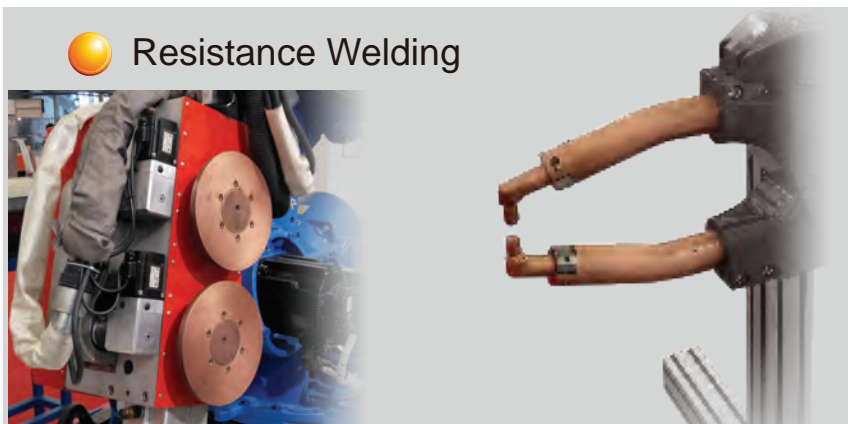
● Steel Mill



● Aerospace & Offshore



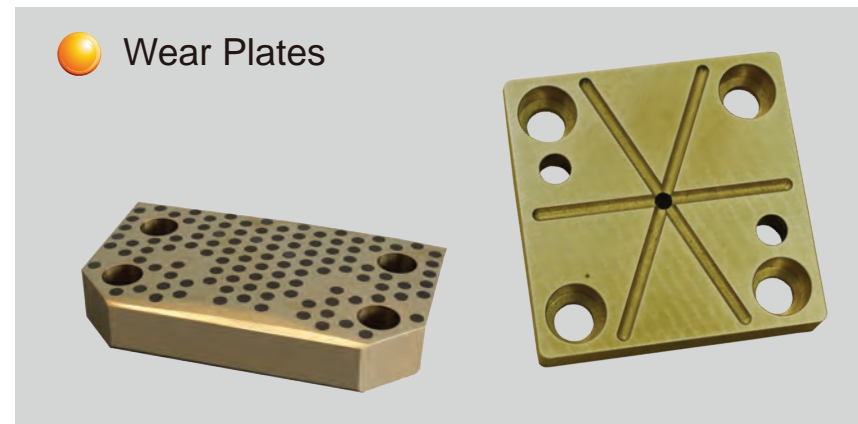
● Resistance Welding



● Mould

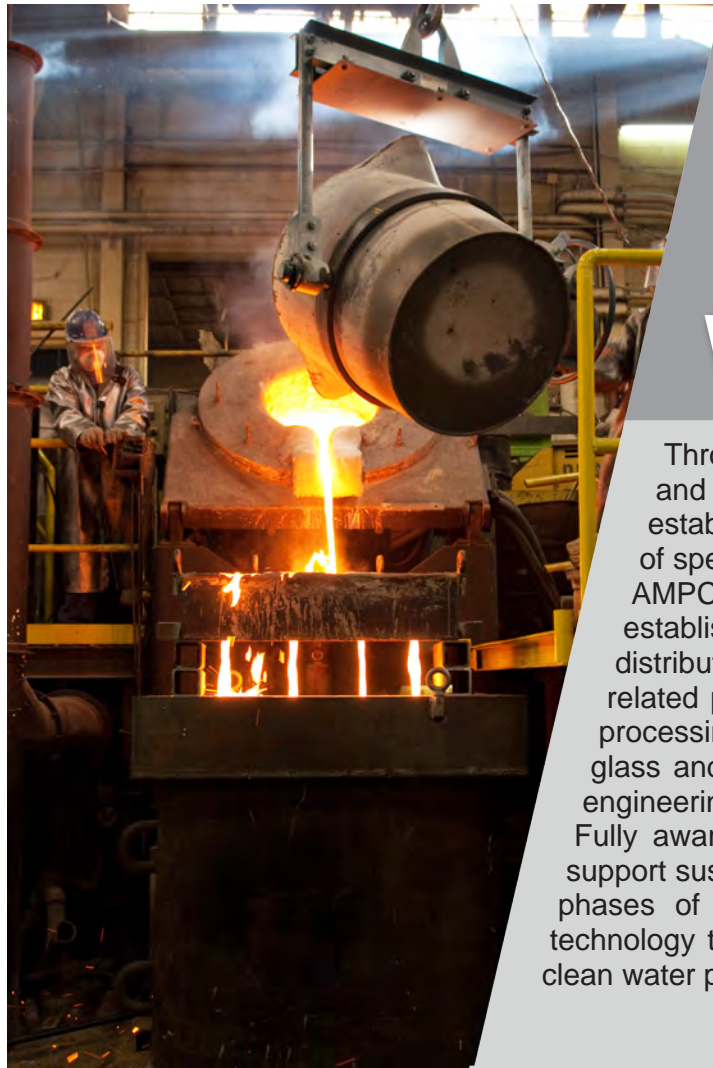


● Wear Plates



● Soap Mould



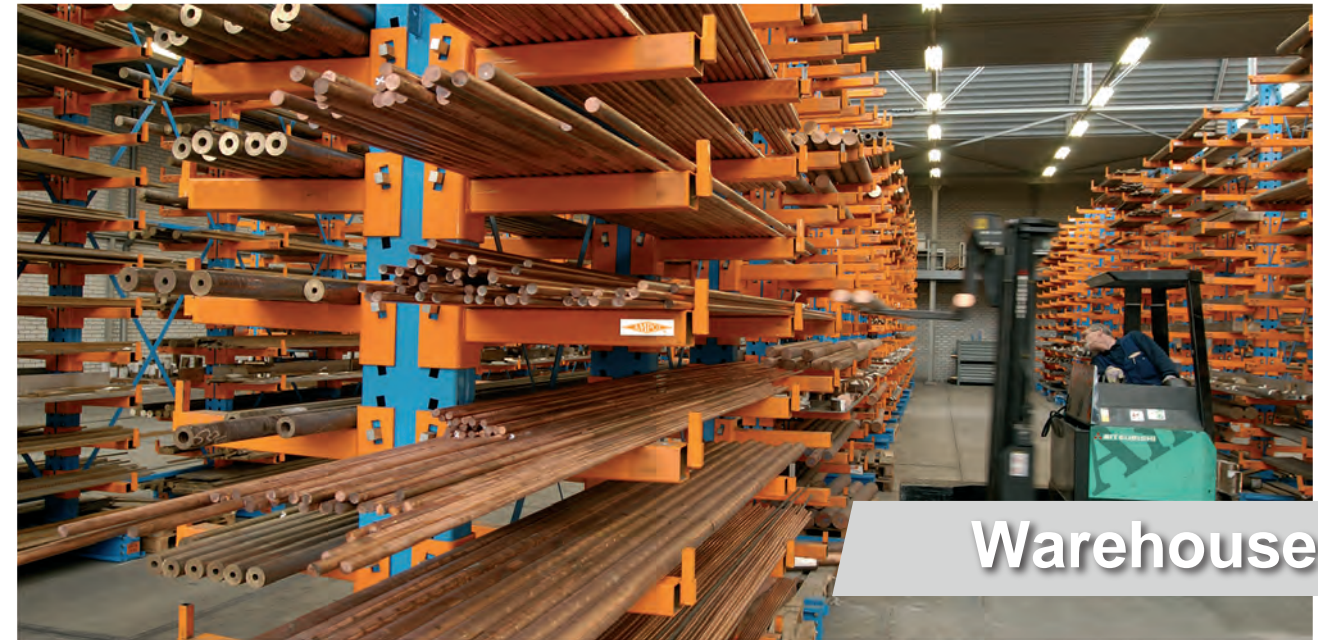


Who We Are....

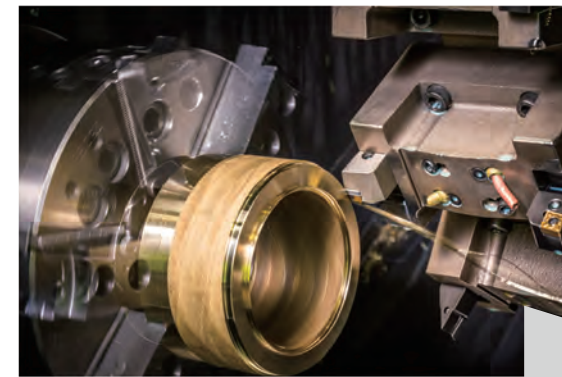
Through excellent quality control and a spirit of innovation and customer service, AMPCO METAL remains the established world leader in the production and distribution of speciality copper-based alloys.

AMPCO METAL – the first name in premium copper alloys established in 1914 – is an integrated manufacturer and distributor of specialty bronzes, copper-based alloys and related products serving a variety of sectors including: metal processing, aerospace, automotive, oil and offshore drilling, glass and plastic mold-making and a wide range of industrial engineering applications.

Fully aware of its impact on the environment and wanting to support sustainable development, 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.



Warehouse



Machine Shop

microcast® PROCESS key to Superiority



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



Through a combination of consistent metallurgical control and melting know-how, our proprietary AMPCO® specification is produced with unique microstructure, largely attributable to the phases in the alloys. The phase alpha, beta and the intermetallic compound). The distinctiveness of that intermetallic compound in AMPCO® alloys is readily recognized and has come to be known as AMPCO-PHASE®. Totally distinct from the large and segregated compound in generic bronzes which tends to contribute to weak alloy properties.