



# AMPCOLOY High-Conductivity Alloys



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|  | Beryllium-containing Alloys |              | Beryllium-free Alloys |               |
|--|-----------------------------|--------------|-----------------------|---------------|
| Chemical composition (%)                         | AMPCOLOY® 83                | AMPCOLOY® 95 | AMPCOLOY® 944         | AMPCOLOY® 940 |
| Be   | 2.0                         | 0.5          | -                     | -             |
| Co   | 0.5                         | 2.0          |                       |               |
| Ni   |                             |              | 7.0                   | 2.5           |
| Cr   |                             |              | 1.0                   | 0.4           |
| Si   |                             |              | 2.0                   | 0.7           |
| Cu   | balance                     | balance      | balance               | balance       |
| <b>Mechanical Properties</b>                     |                             |              |                       |               |
| Rockwell Hardness (HRB/HRC)                      | 38 C                        | 100 B        | 29 C                  | 95 B          |
| Brinell Hardness (HBW)                           | 360                         | 240          | 280                   | 210           |
| Tensile Strength MPa (KSI)                       | 1175 (170)                  | 830 (120)    | 860 (125)             | 650 (94)      |
| Yield Strength MPa (KSI)                         | 1000 (145)                  | 550 (80)     | 725 (105)             | 500 (73)      |
| Elongation A5 %                                  | 4                           | 10           | 5                     | 12            |
| <b>Physical Properties</b>                       |                             |              |                       |               |
| Elec. Conductivity %IACS                         | 20                          | 52           | 30                    | 48            |
| Thermal Conductivity W/m·K (BTU/ft hr °F)        | 106 (61)                    | 220 (127)    | 150 (87)              | 208 (120)     |
| Density g/cm <sup>3</sup> (lbs/in <sup>3</sup> ) | 8.26 (0.298)                | 8.75 (0.316) | 8.7 (0.314)           | 8.71 (0.315)  |
| Working Temperature limit °C (°F)                | 300 (572)                   | 450 (842)    | 400 (752)             | 450 (842)     |

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

# THERMAL CONDUCTIVITY VERSUS HARDNESS



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