

Thermophysical Properties of Alloys

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| 7.9 g/cm ³ Unalloyed Steels Carbon Steels 1147 - 1536 °C 0.46 - 0.48 J/(gK) 11 - 17 mm ² /s 40 - 60 W/(mK) 12e-6 1/K | 7.8 g/cm ³ Alloyed Steels X12 CrNi25-21, AISI 310 (1.4845, austenitic) 1330 - 1400 °C 0.48 J/(gK) 3.4 mm ² /s 13 W/(mK) 16e-6 1/K (20-200°C) | 7.9 g/cm ³ Alloyed Steels X5 CrNi18-10, AISI 304 (1.4301, austenitic) 1420 - 1470 °C 0.5 J/(gK) 3.8 mm ² /s 15 W/(mK) 17e-6 1/K (20-200°C) | 7.7 g/cm ³ Alloyed Steels X10 CrAlSi 7 (1.4713, ferritic) 1450 °C 0.45 J/(gK) 6.6 mm ² /s 23 W/(mK) 11e-6 1/K (20-200°C) | 7.0 - 7.3 g/cm ³ Iron Cast Alloys Cast Iron 1128 - 1227 °C 0.46 - 0.55 J/(gK) 9 - 18 mm ² /s 30 - 63 W/(mK) 10 to 12e-6 1/K | 2.44 g/cm ³ Al - Si Al65%Si 577 - 880 °C 0.85 J/(gK) 64 mm ² /s 131 W/(mK) - 1/K | 2.7 g/cm ³ Al - Si AlSi10Mg (EN AC-43000) 434 J/g 559 °C 0.85 J/(gK) 66 mm ² /s 150 W/(mK) 20e-6 1/K | 2.7 g/cm ³ Al - Si AlSi9Cu3 (EN AC-46000) 438 J/g 505 °C 0.83 J/(gK) 53 mm ² /s 119 W/(mK) 20e-6 1/K | 2.4 g/cm ³ Al - Mg AlMg15Si8Cu2 387 J/g 576 °C 0.93 J/(gK) 38 mm ² /s 95 W/(mK) - 1/K | 2.4 g/cm ³ Al - Mg AlMg20.5Si11Cu2 286 J/g 579 °C 0.96 J/(gK) 38 mm ² /s 87 W/(mK) | 2.4 g/cm ³ Al - Mg AlMg4.5Mn 290 J/g 575 - 640 °C - J/g | 2.7 g/cm ³ Al - Mg AlMg4.5Mn - J/g | 7.0 - 8.3 g/cm ³ Pb - Te Pb - Te - J/g 0.14 - 0.16 J/(gK) 0.5 - 2.7 mm ² /s 0.7 - 3.1 W/(mK) - 1/K | 6.4 g/cm ³ Pb - X Pb ₁₀ Sb ₂ Te ₁₃ - J/g - J/(gK) 0.88 mm ² /s - W/(mK) - 1/K | 6.9 g/cm ³ Pb - X (Pb ₁₀ Sb ₂ Te ₁₃) - J/g - J/(gK) 0.86 mm ² /s - W/(mK) - 1/K | 15.4 g/cm ³ Au - Ag Au-Ag-Cu (75%Au) - J/g 870 - 900 °C 0.29 J/(gK) 20 mm ² /s 89 W/(mK) 16e-6 1/K (20-200°C) | 14.8 g/cm ³ Au - Cu Au-Cu (75%Au) - J/g 870 - 900 °C 0.15 J/(gK) 19 mm ² /s 41 W/(mK) - 1/K | 16.2 g/cm ³ Au - Pd Au-Pd - J/g 1075 °C 0.16 J/(gK) 17 mm ² /s 44 W/(mK) - 1/K | 14.7 g/cm ³ Al - Si AlSi10Mg (EN AC-43000) 2.7 g/cm ³ 434 J/g 0.85 J/(gK) 66 mm ² /s 150 W/(mK) 20e-6 1/K | 8.6 g/cm ³ Brass (Cu-Zn) CuZn30 (CW505L) - J/g 910 - 950 °C 126 W/(mK) 20e-6 1/K | 8.4 g/cm ³ Brass (Cu-Zn) CuZn37 (CW508L) - J/g 902 - 920 °C 37 mm ² /s 120 W/(mK) 20e-6 1/K | 8.2 g/cm ³ Special Brass CuZn23Al3Co - J/g - °C 0.38 J/(gK) 25 mm ² /s 78 W/(mK) 18e-6 1/K | 8.4 g/cm ³ Special Brass CuZn39Pb2 (CW612N) - J/g - °C 0.38 J/(gK) 34 mm ² /s 109 W/(mK) 21e-6 1/K | 8.9 g/cm ³ Bronze (Cu-Sn) CuSn4 (CW450K) - J/g 950 - 1070 °C 0.38 J/(gK) 30 mm ² /s 100 W/(mK) 18e-6 1/K | 8.8 g/cm ³ Bronze (Cu-Sn) CuSn6 (CW452K) - J/g 900 - 1050 °C 0.38 J/(gK) 22 mm ² /s 75 W/(mK) 19e-6 1/K | 1.8 g/cm ³ Mg - Y Rare Earth WE43 - J/g 540 - 640 °C 0.97 J/(gK) 27 mm ² /s 51 W/(mK) 27e-6 1/K | 1.8 g/cm ³ Mg - Al-Zn G-MgAl9Zn1 (AZ91) 272 J/g 559 °C 1.0 J/(gK) 46 mm ² /s 84 W/(mK) 27e-6 1/K | 1.8 g/cm ³ Mg - Ag Rare Earth-Zr G-MgAg3SE2Zr1 (MSR-B) - J/g 550 °C 1.0 J/(gK) 62 mm ² /s 113 W/(mK) 27e-6 1/K | 7.6 - 9.0 g/cm ³ Ni - X Ni Alloy - J/g 1250 - 1455 °C 0.41 - 0.52 J/(gK) 2.3 - 5.8 mm ² /s 9 - 22 W/(mK) 13 to 14e-6 1/K | 8.2 g/cm ³ Ni - Cr NiCr19NbMo (2.4668, Inconel 718) 227 J/g 1260-1336 °C 0.44 J/(gK) 3.2 mm ² /s 11 W/(mK) 13e-6 1/K (20-100°C) | 4.9 g/cm ³ Ti-Mo Ti15Mo3Nb3Al0.2Si - J/g - °C 0.49 J/(gK) 3.1 mm ² /s 7.6 W/(mK) 4.9e-6 1/K | 4.2 g/cm ³ Ti-V Ti15V3Cr3Sn3Al - J/g - °C 0.50 J/(gK) 3.9 mm ² /s 8.1 W/(mK) 9.7e-6 1/K |
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- Iron Alloys
- Aluminum Alloys
- Lead Alloys
- Gold Alloys
- Copper Alloys
- Magnesium Alloys
- Nickel Alloys
- Titanium Alloys

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|------------------------|----------------------|----------------------------------|
| Density | Alloy | Melting Enthalpy |
| Specific Heat Capacity | | Melting Range |
| Thermal Diffusivity | Thermal Conductivity | Coefficient of Thermal Expansion |