# CM44

## Copper Nickel Mangan

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# Alloys：CM44 (Copper Nickel Mangan)

［JIS C 2532］

Since it has poor resistance to corrosion and oxidation, it is desirable to use it with a moisture-proof and oxidation-resistant coating. It is non-magnetic.Can be used up to 150℃.
Small temperature coefficient of resistance and thermal electromotive force against copper. Good solderability.

| JIS | JIS Code | Electrical Resistivity [μΩm] | Average TCR [×10-6/℃] | Grade |
|---|---|---|---|---|
| CM44 | C2532 | 0.440±0.03 | ＊±50 | General |

（＊）Reference value

| Cuprous Electromotive Force Mv/K (0~100℃) | Thermal Expansion Coefficient ×10-6/ | Specific Heat J/g･K (20℃) | Thermal Conductivity w/m･K | Density g/cm3 (20℃ | Melting Point ℃ | Max Operating Temperature ℃ |
|---|---|---|---|---|---|---|
| ±1 | 18.0 | 0.41 | 22 | 8.44 | ＊1020 | 150 |

（＊）Reference value

| Chemical Composition | Mn | Ni | Cu+Ni+Mn |
|---|---|---|---|
| （%） | 10~13 | 1~4 | ≧98 |

| Alloys | Type | Diameter (mm) | | |
|---|---|---|---|---|
| CM44W | Wire | φ6.00～0.04 | | |
| CM44R | Ribbon | Please consult | | |
| CM44P CMP･CMR | Plate | 1.0t×180w×1200L（In stock） | | |
| | | Quality | softness | O |
| | | | hardness | H |
| CM44 | Foil | Please consult | | |



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# CM44 (Copper Nickel Mangan)

## Resistance・Length・Weight

### Wire

Electrical Resistivity (23℃μΩm) 0.440±0.03

| Diameter (mm) | Tolerance (mm) | Cross section (mm2) | Resistance Tolerance (%) | DC Resistance (Ω/m) | Length (m/Kg) | Weight (g/m) |
|---|---|---|---|---|---|---|
| 6.00 | ±0.080 | 28.27 | ±5 | 0.0156 | 4.21 | 238 |
| 5.50 | ±0.063 | 23.76 | ±5 | 0.0185 | 5.01 | 200 |
| 5.00 | ±0.063 | 19.64 | ±5 | 0.0224 | 6.06 | 165 |
| 4.50 | ±0.063 | 15.90 | ±5 | 0.0277 | 7.49 | 134 |
| 4.00 | ±0.063 | 12.57 | ±5 | 0.0350 | 9.47 | 106 |
| 3.50 | ±0.050 | 9.621 | ±5 | 0.0457 | 12.4 | 80.8 |
| 3.20 | ±0.050 | 8.042 | ±5 | 0.0547 | 14.8 | 67.6 |
| 2.90 | ±0.050 | 6.605 | ±5 | 0.0666 | 18.0 | 55.5 |
| 2.60 | ±0.040 | 5.309 | ±5 | 0.0829 | 22.4 | 44.6 |
| 2.30 | ±0.040 | 4.155 | ±5 | 0.106 | 28.7 | 34.9 |
| 2.00 | ±0.040 | 3.142 | ±5 | 0.140 | 37.9 | 26.4 |
| 1.80 | ±0.040 | 2.545 | ±5 | 0.173 | 46.8 | 21.4 |
| 1.60 | ±0.032 | 2.011 | ±5 | 0.219 | 59.2 | 16.9 |
| 1.50 | ±0.032 | 1.767 | ±5 | 0.249 | 67.4 | 14.8 |
| 1.40 | ±0.032 | 1.539 | ±5 | 0.286 | 77.3 | 12.9 |
| 1.30 | ±0.032 | 1.327 | ±5 | 0.331 | 89.7 | 11.1 |
| 1.20 | ±0.025 | 1.131 | ±5 | 0.389 | 105.3 | 9.50 |
| 1.10 | ±0.025 | 0.9503 | ±6 | 0.463 | 125 | 7.98 |
| 1.00 | ±0.025 | 0.7854 | ±6 | 0.560 | 152 | 6.60 |
| 0.90 | ±0.025 | 0.6362 | ±6 | 0.692 | 187 | 5.34 |
| 0.85 | ±0.025 | 0.5675 | ±6 | 0.775 | 210 | 4.77 |
| 0.80 | ±0.020 | 0.5027 | ±6 | 0.875 | 237 | 4.22 |
| 0.75 | ±0.020 | 0.4418 | ±6 | 0.996 | 269 | 3.71 |
| 0.70 | ±0.020 | 0.3848 | ±6 | 1.14 | 309 | 3.23 |
| 0.65 | ±0.020 | 0.3318 | ±6 | 1.33 | 359 | 2.79 |
| 0.60 | ±0.020 | 0.2827 | ±6 | 1.56 | 421 | 2.38 |
| 0.55 | ±0.016 | 0.2376 | ±7 | 1.85 | 501 | 2.00 |
| 0.50 | ±0.016 | 0.1964 | ±7 | 2.24 | 606 | 1.65 |
| 0.45 | ±0.016 | 0.1590 | ±7 | 2.77 | 749 | 1.34 |
| 0.40 | ±0.016 | 0.1257 | ±7 | 3.50 | 947 | 1.06 |
| 0.35 | ±0.013 | 0.09621 | ±7 | 4.57 | 1237 | 0.808 |
| 0.32 | ±0.013 | 0.08042 | ±7 | 5.47 | 1480 | 0.676 |
| 0.29 | ±0.013 | 0.06605 | ±7 | 6.66 | 1802 | 0.555 |
| 0.26 | ±0.010 | 0.05309 | ±8 | 8.29 | 2242 | 0.446 |
| 0.23 | ±0.010 | 0.04155 | ±8 | 10.6 | 2865 | 0.349 |
| 0.20 | ±0.010 | 0.03142 | ±8 | 14.0 | 3789 | 0.264 |
| 0.18 | ±0.008 | 0.02545 | ±8 | 17.3 | 4678 | 0.214 |
| 0.16 | ±0.008 | 0.02011 | ±8 | 21.9 | 5921 | 0.169 |
| 0.15 | ±0.008 | 0.01767 | ±8 | 24.9 | 6737 | 0.148 |
| 0.14 | ±0.008 | 0.01539 | ±8 | 28.6 | 7733 | 0.129 |
| 0.13 | ±0.006 | 0.01327 | ±9 | 33.1 | 8969 | 0.111 |
| 0.12 | ±0.006 | 0.01131 | ±9 | 38.9 | 10526 | 0.095 |
| 0.11 | ±0.006 | 0.009503 | ±9 | 46.3 | 12527 | 0.0798 |
| 0.10 | ±0.006 | 0.007854 | ±9 | 56.0 | 15158 | 0.066 |
| 0.09 | ±0.005 | 0.006362 | ±10 | 69.2 | 18713 | 0.0534 |
| 0.08 | ±0.005 | 0.005027 | ±10 | 87.5 | 23684 | 0.0422 |
| 0.07 | ±0.005 | 0.003848 | ±10 | 114 | 30934 | 0.0323 |
| 0.06 | ±0.004 | 0.002827 | ±11 | 156 | 42104 | 0.0238 |
| 0.05 | ±0.004 | 0.001964 | ±11 | 224 | 60630 | 0.0165 |
| 0.04 | ±0.003 | 0.001257 | ±12 | 350 | 94735 | 0.0106 |

### Ribbon

Electrical Resistivity (23℃μΩm) 0.440±0.03

* Please contact us for more information as the sizes we can manufacture are limited.