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# 2%MnNi

## Nickel Alloy Wire,Ribbon

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# Alloys : 2%MnNi (Nickel Alloy Wire, Ribbon)

The temperature at which it softens is higher than that of nickel wire, and it has a characteristic of low gas release under vacuum heating, making it suitable for inner lead wires for electron tubes.

| Electrical Resistivity<br>[ $\mu\Omega\text{m}$ ] | Average TCR<br>[ $\times 10^{-6}/^{\circ}\text{C}$ ] |
|---|--|
| * 0.11  | * 4300   |

(\* ) Reference value

| Thermal Expansion Coefficient<br>$\times 10^{-6}/$ | Density<br>g/cm <sup>3</sup><br>(20°C) | Melting Point<br>°C | Max Operating Temperature<br>°C |
|--|--|---------------------|---------------------------------|
| 14.0   | 8.90                                   | 1360                | 400                             |

| Chemical Composition | C          | Si         | Mn      | Ni           | Cu         | Fe         | S            |
|----------------------|------------|------------|---------|--------------|------------|------------|--------------|
| (%)                  | $\leq 0.1$ | $\leq 0.2$ | 1.5~2.5 | $\geq 97.00$ | $\leq 0.1$ | $\leq 2.0$ | $\leq 0.008$ |

| Alloys | Type   | Diameter (mm)         |
|--------|--------|-----------------------|
| 2%MnNi | Wire   | $\phi 5.00 \sim 0.03$ |
|        | Ribbon | Please consult        |

# 2%MnNi (Nickel Alloy Wire, Ribbon)

## Resistance·Length·Weight

Wire      Electrical Resistivity (23°CμΩm) \*0.11      (\* )Reference value

| Diameter (mm) | Tolerance (mm) | Cross section (mm <sup>2</sup> ) | Resistance Tolerance (%) | DC Resistance (Ω/m) | Length (m/Kg) | Weight (g/m) |
|---------------|----------------|----------------------------------|--------------------------|---------------------|---------------|--------------|
| 5.00          | ±0.060         | 19.6                             | ±5                       | 0.00561             | 5.73          | 175          |
| 4.50          | ±0.050         | 15.9                             | ±5                       | 0.00692             | 7.07          | 141          |
| 4.00          | ±0.050         | 12.6                             | ±5                       | 0.00876             | 8.95          | 112          |
| 3.50          | ±0.050         | 9.62                             | ±6                       | 0.0114              | 11.7          | 85.6         |
| 3.20          | ±0.040         | 8.04                             | ±6                       | 0.0137              | 14.0          | 71.5         |
| 2.90          | ±0.040         | 6.60                             | ±6                       | 0.0167              | 17.0          | 58.8         |
| 2.60          | ±0.040         | 5.31                             | ±6                       | 0.0207              | 21.2          | 47.2         |
| 2.30          | ±0.040         | 4.15                             | ±6                       | 0.0265              | 27.1          | 37.0         |
| 2.00          | ±0.030         | 3.14                             | ±6                       | 0.0350              | 35.8          | 27.9         |
| 1.80          | ±0.030         | 2.54                             | ±6                       | 0.0432              | 44.2          | 22.6         |
| 1.60          | ±0.030         | 2.01                             | ±7                       | 0.0547              | 55.9          | 17.9         |
| 1.50          | ±0.030         | 1.77                             | ±7                       | 0.0623              | 63.6          | 15.7         |
| 1.40          | ±0.030         | 1.54                             | ±7                       | 0.0715              | 73.0          | 13.7         |
| 1.30          | ±0.030         | 1.33                             | ±7                       | 0.0829              | 84.7          | 11.8         |
| 1.20          | ±0.030         | 1.13                             | ±7                       | 0.0973              | 99.4          | 10.1         |
| 1.10          | ±0.030         | 0.950                            | ±7                       | 0.116               | 118           | 8.45         |
| 1.00          | ±0.030         | 0.785                            | ±7                       | 0.140               | 143           | 6.99         |
| 0.90          | ±0.030         | 0.636                            | ±7                       | 0.173               | 177           | 5.66         |
| 0.85          | ±0.030         | 0.567                            | ±7                       | 0.194               | 198           | 5.05         |
| 0.80          | ±0.020         | 0.502                            | ±7                       | 0.219               | 224           | 4.47         |
| 0.75          | ±0.020         | 0.442                            | ±7                       | 0.249               | 254           | 3.93         |
| 0.70          | ±0.020         | 0.385                            | ±7                       | 0.286               | 292           | 3.42         |
| 0.65          | ±0.020         | 0.332                            | ±7                       | 0.332               | 339           | 2.95         |
| 0.60          | ±0.020         | 0.283                            | ±7                       | 0.389               | 398           | 2.52         |
| 0.55          | ±0.020         | 0.237                            | ±8                       | 0.463               | 473           | 2.11         |
| 0.50          | ±0.010         | 0.196                            | ±8                       | 0.561               | 573           | 1.75         |
| 0.45          | ±0.010         | 0.159                            | ±8                       | 0.692               | 707           | 1.41         |
| 0.40          | ±0.010         | 0.126                            | ±8                       | 0.876               | 895           | 1.12         |
| 0.35          | ±0.010         | 0.0962                           | ±8                       | 1.14                | 1168          | 0.856        |
| 0.32          | ±0.010         | 0.0804                           | ±8                       | 1.37                | 1398          | 0.715        |
| 0.29          | ±0.010         | 0.0660                           | ±8                       | 1.67                | 1702          | 0.588        |
| 0.26          | ±0.010         | 0.0531                           | ±8                       | 2.07                | 2117          | 0.472        |
| 0.23          | ±0.010         | 0.0415                           | ±8                       | 2.65                | 2706          | 0.370        |
| 0.20          | ±0.006         | 0.0314                           | ±9                       | 3.50                | 3578          | 0.279        |
| 0.18          | ±0.006         | 0.0254                           | ±9                       | 4.32                | 4418          | 0.226        |
| 0.16          | ±0.006         | 0.0201                           | ±9                       | 5.47                | 5591          | 0.179        |
| 0.15          | ±0.006         | 0.0177                           | ±9                       | 6.23                | 6361          | 0.157        |
| 0.14          | ±0.006         | 0.0154                           | ±9                       | 7.15                | 7303          | 0.137        |
| 0.13          | ±0.006         | 0.0133                           | ±9                       | 8.29                | 8469          | 0.118        |
| 0.12          | ±0.006         | 0.0113                           | ±9                       | 9.73                | 9940          | 0.101        |
| 0.11          | ±0.006         | 0.00950                          | ±9                       | 11.6                | 11829         | 0.0845       |
| 0.10          | ±0.006         | 0.00785                          | ±9                       | 14.0                | 14313         | 0.0699       |
| 0.09          | ±0.005         | 0.00636                          | ±10                      | 17.3                | 17671         | 0.0566       |
| 0.08          | ±0.005         | 0.00502                          | ±10                      | 21.9                | 22365         | 0.0447       |
| 0.07          | ±0.005         | 0.00385                          | ±10                      | 28.6                | 29211         | 0.0342       |
| 0.06          | ±0.004         | 0.00283                          | ±11                      | 38.9                | 39759         | 0.0252       |
| 0.05          | ±0.004         | 0.00196                          | ±11                      | 56.1                | 57253         | 0.0175       |
| 0.04          | ±0.003         | 0.00126                          | ±12                      | 87.6                | 89458         | 0.0112       |
| 0.03          | ±0.003         | 0.000707                         | ±12                      | 156                 | 159037        | 0.00629      |