

[JIS C 2520]

[JIS C 2532]



Alloys : FCH2 (Fe-Chrome Heating Wire Type 2)

Characteristic

Better process on cold working compared to FCHW1.

Suitable for home appliance and resistors

| JIS    | JIS Code | Electrical Resistivity<br>[ $\mu\Omega\text{m}$ ] | Average TCR<br>[ $\times 10^{-6}/^{\circ}\text{C}$ ] |
|--------|----------|---|--|
| FCH2   | C 2520   | 1.23 $\pm$ 0.06                                   | * 150<br>(20~1000 $^{\circ}\text{C}$ )               |
| GFC123 | C 2532   |   |  |

|   | Thermal expansion coefficient<br>$\times 10^{-6}/^{\circ}\text{C}$ | Specific Heat<br>J/g · K<br>(20 $^{\circ}\text{C}$ ) | Thermal Conductivity<br>w/m · K | Density<br>g/cm <sup>3</sup><br>(20 $^{\circ}\text{C}$ ) | Melting Point<br>$^{\circ}\text{C}$ | Max Operating Temperature<br>$^{\circ}\text{C}$ |
|---|--|--|---------------------------------|--|-------------------------------------|---|
| - | 15   | 0.46   | 13                              | 7.35   | 1500                                | 1000  |

| Chemical Composition | C           | Si         | Mn         | Cr    | Al  | Fe  |
|----------------------|-------------|------------|------------|-------|-----|-----|
| (%)                  | $\leq 0.11$ | $\leq 1.5$ | $\leq 1.0$ | 17~21 | 2~4 | BAL |

Resistance increase by temperature

| $^{\circ}\text{C}$ | 20    | 100   | 200   | 300   | 400   | 500   | 600   | 700   | 800   | 900   | 1000  | 1100 | 1200 |
|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|
| 係数                 | 1.000 | 1.005 | 1.014 | 1.025 | 1.038 | 1.054 | 1.074 | 1.086 | 1.095 | 1.102 | 1.107 |      |      |

| Alloys | Type   | Diameter (mm)         |          |
|--------|--------|-----------------------|----------|
| FCHW2  | Wire   | $\phi 6.00 \sim 0.12$ |          |
| FCHR2  | Ribbon | t=2.90~0.1            | w=40~0.4 |

## Fe-Chrome Heating Wire [Resistance · Length · Weight]

|                 |                                     |
|-----------------|-------------------------------------|
| Alloys<br>FCHW2 | Resistivity (23°C μΩm)<br>1.23±0.06 |
|-----------------|-------------------------------------|

| Diameter<br>(mm) | Tolerance<br>(mm) | Cross<br>section<br>(mm <sup>2</sup> ) | Resistance<br>Tolerance<br>(%) | DC<br>Resistance<br>(Ω/m) | Length<br>(m/Kg) | Weight<br>(g/m) |
|------------------|-------------------|--|--------------------------------|---------------------------|------------------|-----------------|
| <b>6.00</b>      | ±0.080            | 28.27                                  | ±5                             | <b>0.0435</b>             | 4.81             | 208             |
| <b>5.50</b>      | ±0.063            | 23.76                                  | ±5                             | <b>0.0518</b>             | 5.73             | 175             |
| <b>5.00</b>      | ±0.063            | 19.64                                  | ±5                             | <b>0.0626</b>             | 6.93             | 144             |
| <b>4.50</b>      | ±0.063            | 15.90                                  | ±5                             | <b>0.0773</b>             | 8.55             | 117             |
| <b>4.00</b>      | ±0.063            | 12.57                                  | ±5                             | <b>0.0979</b>             | 10.8             | 92.4            |
| <b>3.50</b>      | ±0.050            | 9.621                                  | ±5                             | <b>0.128</b>              | 14.1             | 70.7            |
| <b>3.20</b>      | ±0.050            | 8.042                                  | ±5                             | <b>0.153</b>              | 16.9             | 59.1            |
| <b>2.90</b>      | ±0.050            | 6.605                                  | ±5                             | <b>0.186</b>              | 20.6             | 48.5            |
| <b>2.60</b>      | ±0.040            | 5.309                                  | ±5                             | <b>0.232</b>              | 25.6             | 39.0            |
| <b>2.30</b>      | ±0.040            | 4.155                                  | ±5                             | <b>0.296</b>              | 32.7             | 30.5            |
| <b>2.00</b>      | ±0.040            | 3.142                                  | ±5                             | <b>0.392</b>              | 43.3             | 23.1            |
| <b>1.80</b>      | ±0.040            | 2.545                                  | ±5                             | <b>0.483</b>              | 53.5             | 18.7            |
| <b>1.60</b>      | ±0.032            | 2.011                                  | ±5                             | <b>0.612</b>              | 67.7             | 14.8            |
| <b>1.50</b>      | ±0.032            | 1.767                                  | ±5                             | <b>0.696</b>              | 77.0             | 13.0            |
| <b>1.40</b>      | ±0.032            | 1.539                                  | ±5                             | <b>0.799</b>              | 88.4             | 11.3            |
| <b>1.30</b>      | ±0.032            | 1.327                                  | ±5                             | <b>0.927</b>              | 103              | 9.76            |
| <b>1.20</b>      | ±0.025            | 1.131                                  | ±5                             | <b>1.09</b>               | 120              | 8.31            |
| <b>1.10</b>      | ±0.025            | 0.9503                                 | ±6                             | <b>1.29</b>               | 143              | 6.98            |
| <b>1.00</b>      | ±0.025            | 0.7854                                 | ±6                             | <b>1.57</b>               | 173              | 5.77            |
| <b>0.90</b>      | ±0.025            | 0.6362                                 | ±6                             | <b>1.93</b>               | 214              | 4.68            |
| <b>0.85</b>      | ±0.025            | 0.5675                                 | ±6                             | <b>2.17</b>               | 240              | 4.17            |
| <b>0.80</b>      | ±0.020            | 0.5027                                 | ±6                             | <b>2.45</b>               | 271              | 3.69            |
| <b>0.75</b>      | ±0.020            | 0.4418                                 | ±6                             | <b>2.78</b>               | 308              | 3.25            |
| <b>0.70</b>      | ±0.020            | 0.3848                                 | ±6                             | <b>3.20</b>               | 354              | 2.83            |
| <b>0.65</b>      | ±0.020            | 0.3318                                 | ±6                             | <b>3.71</b>               | 410              | 2.44            |
| <b>0.60</b>      | ±0.020            | 0.2827                                 | ±6                             | <b>4.35</b>               | 481              | 2.08            |
| <b>0.55</b>      | ±0.016            | 0.2376                                 | ±7                             | <b>5.18</b>               | 573              | 1.75            |
| <b>0.50</b>      | ±0.016            | 0.1964                                 | ±7                             | <b>6.26</b>               | 693              | 1.44            |
| <b>0.45</b>      | ±0.016            | 0.1590                                 | ±7                             | <b>7.73</b>               | 855              | 1.17            |
| <b>0.40</b>      | ±0.016            | 0.1257                                 | ±7                             | <b>9.79</b>               | 1083             | 0.924           |

