



TERMONAPETOSTI TERMOPAROV [mV]

1. Fe-CuNi po DIN 43710/1977

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| -100 | -4,75 | -5,15 | -5,53 | -5,90 | -6,26 | -6,60 | -6,93 | -7,25 | -7,56 | -7,86 |
| 0 | 0 | -0,51 | -1,02 | -1,53 | -2,03 | -2,51 | -2,98 | -3,44 | -3,89 | -4,33 |

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0 | 0 | 0,52 | 1,05 | 1,58 | 2,11 | 2,65 | 3,19 | 3,73 | 4,27 | 4,82 |
| 100 | 5,37 | 5,92 | 6,47 | 7,03 | 7,59 | 8,15 | 8,71 | 9,27 | 9,83 | 10,39 |
| 200 | 10,95 | 11,51 | 12,07 | 12,63 | 13,19 | 13,75 | 14,31 | 14,88 | 15,44 | 16,00 |
| 300 | 16,56 | 17,12 | 17,68 | 18,24 | 18,80 | 19,36 | 19,92 | 20,48 | 21,04 | 21,60 |
| 400 | 22,16 | 22,72 | 23,29 | 23,86 | 24,43 | 25,00 | 25,57 | 26,14 | 26,71 | 27,28 |
| 500 | 27,85 | 28,43 | 29,01 | 29,59 | 30,17 | 30,75 | 31,33 | 31,91 | 32,49 | 33,08 |
| 600 | 33,67 | 34,26 | 34,85 | 35,44 | 36,04 | 36,64 | 37,25 | 37,85 | 38,47 | 39,09 |
| 700 | 39,72 | 40,35 | 40,98 | 41,62 | 42,27 | 42,92 | 43,57 | 44,23 | 44,89 | 45,55 |
| 800 | 46,22 | 46,89 | 47,57 | 48,25 | 48,94 | 49,63 | 50,32 | 51,02 | 51,72 | 52,43 |

Na primer:

- napetost pri $-130\text{ °C} = -100 \rightarrow \dots30 = -5,90\text{ mV}$
- napetost pri $850\text{ °C} = 800 \rightarrow \dots50 = 49,63\text{ mV}$

2. Fe-CuNi, tip J po IEC 584-1

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| -200 | -7,890 | -8,096 | - | - | - | - | - | - | - | - |
| -100 | -4,632 | -5,036 | -5,426 | -5,801 | -6,159 | -6,499 | -6,821 | -7,122 | -7,402 | -7,659 |
| 0 | 0 | -0,501 | -0,995 | -1,481 | -1,960 | -2,431 | -2,892 | -3,344 | -3,785 | -4,215 |

| T [°C] | 0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0 | 0,507 | 1,019 | 1,536 | 2,058 | 2,585 | 3,115 | 3,649 | 4,186 | 4,725 |
| 100 | 5,268 | 5,812 | 6,359 | 6,907 | 7,457 | 8,008 | 8,560 | 9,113 | 9,667 | 10,222 |
| 200 | 10,777 | 11,332 | 11,887 | 12,442 | 12,998 | 13,553 | 14,108 | 14,663 | 15,217 | 15,771 |
| 300 | 16,325 | 16,879 | 17,432 | 17,984 | 18,537 | 19,089 | 19,640 | 20,192 | 20,743 | 21,295 |
| 400 | 21,846 | 22,397 | 22,949 | 23,501 | 24,054 | 24,607 | 25,161 | 25,716 | 26,272 | 26,829 |
| 500 | 27,388 | 27,949 | 28,511 | 29,075 | 29,642 | 30,210 | 30,782 | 31,356 | 31,933 | 32,513 |
| 600 | 33,096 | 33,683 | 34,273 | 34,867 | 35,464 | 36,066 | 36,671 | 37,280 | 37,893 | 38,510 |
| 700 | 39,130 | 39,754 | 40,382 | 41,013 | 41,647 | 42,283 | 42,922 | 43,563 | 44,207 | 44,852 |
| 800 | 45,498 | 46,144 | 46,790 | 47,434 | 48,076 | 48,716 | 49,354 | 49,989 | 50,621 | 51,249 |
| 900 | 51,875 | 52,496 | 53,115 | 53,729 | 54,341 | 54,948 | 55,553 | 56,155 | 56,753 | 57,349 |

Na primer:

- napetost pri $-130\text{ °C} = -100 \rightarrow \dots30 = -5,801\text{ mV}$
- napetost pri $850\text{ °C} = 800 \rightarrow \dots50 = 48,716\text{ mV}$



3. NiCr-CuNi, tip E po IEC 584-1

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| -100 | -5,237 | -5,680 | -6,107 | -6,516 | -6,907 | -7,279 | -7,631 | -7,963 | -8,273 | -8,561 |
| 0 | 0,000 | -0,581 | -1,151 | -1,709 | -2,254 | -2,787 | -3,306 | -3,811 | -4,301 | -4,777 |

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0,000 | 0,591 | 1,191 | 1,801 | 2,419 | 3,047 | 3,683 | 4,329 | 4,983 | 5,646 |
| 100 | 6,317 | 6,996 | 7,986 | 8,377 | 9,078 | 9,787 | 10,501 | 11,222 | 11,949 | 12,681 |
| 200 | 13,419 | 14,161 | 14,909 | 15,661 | 16,417 | 17,178 | 17,942 | 18,710 | 19,481 | 20,256 |
| 300 | 21,033 | 21,814 | 22,597 | 23,383 | 24,171 | 24,961 | 25,754 | 26,549 | 27,345 | 28,143 |
| 400 | 28,943 | 29,744 | 30,546 | 31,350 | 32,155 | 32,960 | 33,767 | 34,574 | 35,382 | 36,190 |
| 500 | 36,999 | 37,808 | 38,617 | 39,426 | 40,236 | 41,045 | 41,853 | 42,662 | 43,470 | 44,278 |
| 600 | 45,085 | 45,891 | 46,697 | 47,502 | 48,306 | 49,109 | 49,911 | 50,713 | 51,513 | 52,312 |
| 700 | 53,110 | 53,907 | 54,703 | 55,498 | 56,291 | 57,083 | 57,873 | 58,663 | 59,451 | 60,237 |
| 800 | 61,022 | 61,806 | 62,588 | 63,368 | 64,147 | 64,924 | 65,700 | 66,473 | 67,245 | 68,015 |
| 900 | 68,783 | 69,549 | 70,313 | 71,075 | 71,835 | 72,593 | 73,350 | 74,104 | 74,857 | 75,608 |

Na primer:

- napetost pri -130 oC = -100 → ...30 = -6,516 mV
- napetost pri 850 oC = 800 → ...50 = 64,924 mV

4. NiCr-Ni, tip K po DIN 43710/1977 in IEC 584-1

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| -100 | -3,553 | -3,852 | -4,138 | -4,410 | -4,669 | -4,912 | -5,141 | -5,354 | -5,550 | -5,730 |
| 0 | 0 | -0,392 | -0,777 | -1,156 | -1,527 | -1,889 | -2,243 | -2,586 | -2,920 | -3,242 |

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0 | 0,397 | 0,798 | 1,203 | 1,611 | 2,022 | 2,436 | 2,850 | 3,266 | 3,681 |
| 100 | 4,095 | 4,508 | 4,919 | 5,327 | 5,733 | 6,137 | 6,539 | 6,939 | 7,338 | 7,737 |
| 200 | 8,137 | 8,537 | 8,938 | 9,341 | 9,745 | 10,151 | 10,560 | 10,969 | 11,381 | 11,793 |
| 300 | 12,207 | 12,623 | 13,039 | 13,456 | 13,874 | 14,292 | 14,712 | 15,132 | 15,552 | 15,974 |
| 400 | 16,395 | 16,818 | 17,241 | 17,664 | 18,088 | 18,513 | 18,938 | 19,363 | 19,788 | 20,214 |
| 500 | 20,640 | 21,066 | 21,493 | 21,919 | 22,346 | 22,772 | 23,198 | 23,624 | 24,050 | 24,476 |
| 600 | 24,902 | 25,327 | 25,751 | 26,176 | 26,599 | 27,022 | 27,445 | 27,867 | 28,288 | 28,709 |
| 700 | 29,128 | 29,547 | 29,965 | 30,383 | 30,799 | 31,214 | 31,629 | 32,042 | 32,455 | 32,866 |
| 800 | 33,277 | 33,686 | 34,095 | 34,502 | 34,909 | 35,314 | 35,718 | 36,121 | 36,524 | 36,925 |
| 900 | 37,325 | 37,724 | 38,122 | 38,519 | 38,915 | 39,310 | 39,703 | 40,096 | 40,488 | 40,879 |
| 1000 | 41,269 | 41,657 | 42,045 | 42,432 | 42,817 | 43,202 | 43,585 | 43,968 | 44,349 | 44,729 |
| 1100 | 45,108 | 45,486 | 45,863 | 46,238 | 46,612 | 46,985 | 47,356 | 47,726 | 48,095 | 48,462 |
| 1200 | 48,828 | 49,192 | 49,555 | 49,916 | 50,276 | 50,633 | 50,990 | 51,344 | 51,697 | 52,049 |
| 1300 | 52,398 | 52,747 | 53,093 | 53,439 | 53,782 | 54,125 | 54,466 | 54,807 | - | - |

Na primer:

- napetost pri -130 °C = -100 → ...30 = -4,410 mV
- napetost pri 850 °C = 800 → ...50 = 35,314 mV



5. Pt10Rh-Pt, tip S po DIN 43710/1977 in IEC 584-1

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0 | 0,055 | 0,113 | 0,173 | 0,235 | 0,299 | 0,365 | 0,432 | 0,502 | 0,573 |
| 100 | 0,645 | 0,719 | 0,795 | 0,872 | 0,950 | 1,029 | 1,109 | 1,190 | 1,273 | 1,356 |
| 200 | 1,440 | 1,525 | 1,611 | 1,698 | 1,785 | 1,873 | 1,962 | 2,051 | 2,141 | 2,232 |
| 300 | 2,323 | 2,414 | 2,506 | 2,599 | 2,692 | 2,786 | 2,880 | 2,974 | 3,069 | 3,164 |
| 400 | 3,260 | 3,356 | 3,452 | 3,549 | 3,645 | 3,743 | 3,840 | 3,938 | 4,036 | 4,135 |
| 500 | 4,234 | 4,333 | 4,432 | 4,532 | 4,632 | 4,732 | 4,832 | 4,933 | 5,034 | 5,136 |
| 600 | 5,237 | 5,339 | 5,442 | 5,544 | 5,648 | 5,751 | 5,855 | 5,960 | 6,064 | 6,169 |
| 700 | 6,274 | 6,380 | 6,486 | 6,592 | 6,699 | 6,805 | 6,913 | 7,020 | 7,128 | 7,236 |
| 800 | 7,345 | 7,454 | 7,563 | 7,672 | 7,782 | 7,892 | 8,003 | 8,114 | 8,225 | 8,336 |
| 900 | 8,448 | 8,560 | 8,673 | 8,786 | 8,899 | 9,012 | 9,126 | 9,240 | 9,355 | 9,470 |
| 1000 | 9,585 | 9,700 | 9,816 | 9,932 | 10,048 | 10,165 | 10,282 | 10,400 | 10,517 | 10,635 |
| 1100 | 10,754 | 10,872 | 10,991 | 11,110 | 11,229 | 11,348 | 11,467 | 11,587 | 11,707 | 11,827 |
| 1200 | 11,947 | 12,067 | 12,188 | 12,308 | 12,429 | 12,550 | 12,671 | 12,792 | 12,913 | 13,034 |
| 1300 | 13,155 | 13,276 | 13,397 | 13,519 | 13,640 | 13,761 | 13,883 | 14,004 | 14,125 | 14,247 |
| 1400 | 14,368 | 14,489 | 14,610 | 14,731 | 14,852 | 14,973 | 15,094 | 15,215 | 15,336 | 15,456 |
| 1500 | 15,576 | 15,697 | 15,817 | 15,937 | 16,057 | 16,176 | 16,296 | 16,415 | 16,534 | 16,653 |
| 1600 | 16,771 | 16,890 | 17,008 | 17,125 | 17,243 | 17,360 | 17,477 | 17,594 | 17,711 | 17,826 |
| 1700 | 17,942 | 18,056 | 18,170 | 18,282 | 18,394 | 18,504 | 18,612 | - | - | - |

Primer:

- napetost pri 850 °C = 800 → ...50 = 7,892 mV

6. Pt13Rh-Pt, tip R po IEC 584-1

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0 | 0,054 | 0,111 | 0,171 | 0,232 | 0,296 | 0,363 | 0,431 | 0,501 | 0,573 |
| 100 | 0,647 | 0,723 | 0,800 | 0,879 | 0,959 | 1,041 | 1,124 | 1,208 | 1,294 | 1,380 |
| 200 | 1,468 | 1,557 | 1,647 | 1,738 | 1,830 | 1,923 | 2,017 | 2,111 | 2,207 | 2,303 |
| 300 | 2,400 | 2,498 | 2,596 | 2,695 | 2,795 | 2,896 | 2,997 | 3,099 | 3,201 | 3,304 |
| 400 | 3,407 | 3,511 | 3,616 | 3,721 | 3,826 | 3,933 | 4,039 | 4,146 | 4,254 | 4,362 |
| 500 | 4,471 | 4,580 | 4,689 | 4,799 | 4,910 | 5,021 | 5,132 | 5,244 | 5,356 | 5,469 |
| 600 | 5,582 | 5,696 | 5,810 | 5,925 | 6,040 | 6,155 | 6,272 | 6,388 | 6,505 | 6,623 |
| 700 | 6,741 | 6,860 | 6,979 | 7,098 | 7,218 | 7,339 | 7,460 | 7,582 | 7,703 | 7,826 |
| 800 | 7,949 | 8,072 | 8,196 | 8,320 | 8,445 | 8,570 | 8,696 | 8,822 | 8,949 | 9,076 |
| 900 | 9,203 | 9,331 | 9,460 | 9,589 | 9,718 | 9,848 | 9,978 | 10,109 | 10,240 | 10,371 |
| 1000 | 10,503 | 10,636 | 10,768 | 10,902 | 11,035 | 11,170 | 11,304 | 11,439 | 11,574 | 11,710 |
| 1100 | 11,846 | 11,983 | 12,119 | 12,257 | 12,394 | 12,532 | 12,669 | 12,808 | 12,946 | 13,085 |
| 1200 | 13,224 | 13,363 | 13,502 | 13,642 | 13,782 | 13,922 | 14,062 | 14,202 | 14,343 | 14,483 |
| 1300 | 14,624 | 14,765 | 14,906 | 15,047 | 15,188 | 15,329 | 15,470 | 15,611 | 15,752 | 15,893 |
| 1400 | 16,035 | 16,176 | 16,317 | 16,458 | 16,599 | 16,741 | 16,882 | 17,022 | 17,163 | 17,304 |
| 1500 | 17,445 | 17,585 | 17,726 | 17,866 | 18,006 | 18,146 | 18,286 | 18,425 | 18,564 | 18,703 |
| 1600 | 18,842 | 18,981 | 19,119 | 19,257 | 19,395 | 19,533 | 19,670 | 19,807 | 19,944 | 20,080 |
| 1700 | 20,215 | 20,350 | 20,483 | 20,616 | 20,748 | 20,878 | 21,006 | - | - | - |

Primer:

- napetost pri 850 °C = 800 → ...50 = 8,570 mV



7. Pt30Rh-Pt6Rh, tip B po IEC 584-1 (PtRh18)

| T [°C] | ...0 | ...10 | ...20 | ...30 | ...40 | ...50 | ...60 | ...70 | ...80 | ...90 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0 | 0 | -0,002 | -0,003 | -0,002 | 0 | 0,002 | 0,006 | 0,011 | 0,017 | 0,025 |
| 100 | 0,033 | 0,043 | 0,053 | 0,065 | 0,078 | 0,092 | 0,107 | 0,123 | 0,140 | 0,159 |
| 200 | 0,178 | 0,199 | 0,220 | 0,243 | 0,266 | 0,291 | 0,317 | 0,344 | 0,372 | 0,401 |
| 300 | 0,431 | 0,462 | 0,494 | 0,527 | 0,561 | 0,596 | 0,632 | 0,669 | 0,707 | 0,746 |
| 400 | 0,786 | 0,827 | 0,870 | 0,913 | 0,957 | 1,002 | 1,048 | 1,095 | 1,143 | 1,192 |
| 500 | 1,241 | 1,292 | 1,344 | 1,397 | 1,450 | 1,505 | 1,560 | 1,617 | 1,674 | 1,732 |
| 600 | 1,791 | 1,851 | 1,912 | 1,974 | 2,036 | 2,100 | 2,164 | 2,230 | 2,296 | 2,363 |
| 700 | 2,430 | 2,499 | 2,569 | 2,639 | 2,710 | 2,782 | 2,855 | 2,928 | 3,003 | 3,078 |
| 800 | 3,154 | 3,231 | 3,308 | 3,387 | 3,466 | 3,546 | 3,626 | 3,708 | 3,790 | 3,873 |
| 900 | 3,957 | 4,041 | 4,126 | 4,212 | 4,298 | 4,386 | 4,474 | 4,562 | 4,652 | 4,742 |
| 1000 | 4,833 | 4,924 | 5,016 | 5,109 | 5,202 | 5,297 | 5,391 | 5,487 | 5,583 | 5,680 |
| 1100 | 5,777 | 5,875 | 5,973 | 6,073 | 6,172 | 6,273 | 6,374 | 6,475 | 6,577 | 6,680 |
| 1200 | 6,783 | 6,887 | 6,991 | 7,096 | 7,202 | 7,308 | 7,414 | 7,521 | 7,628 | 7,736 |
| 1300 | 7,845 | 7,953 | 8,063 | 8,172 | 8,283 | 8,393 | 8,504 | 8,616 | 8,727 | 8,839 |
| 1400 | 8,952 | 9,065 | 9,178 | 9,291 | 9,405 | 9,519 | 9,634 | 9,748 | 9,863 | 9,979 |
| 1500 | 10,094 | 10,210 | 10,325 | 10,441 | 10,558 | 10,674 | 10,790 | 10,907 | 11,024 | 11,141 |
| 1600 | 11,257 | 11,374 | 11,491 | 11,608 | 11,725 | 11,842 | 11,959 | 12,076 | 12,193 | 12,310 |
| 1700 | 12,426 | 12,543 | 12,659 | 12,776 | 12,892 | 13,008 | 13,124 | 13,239 | 13,354 | 13,470 |
| 1800 | 13,585 | 13,699 | 13,814 | - | - | - | - | - | - | - |

Primer:

- napetost pri **850 °C** = 800 → ...50 = **3,546 mV**