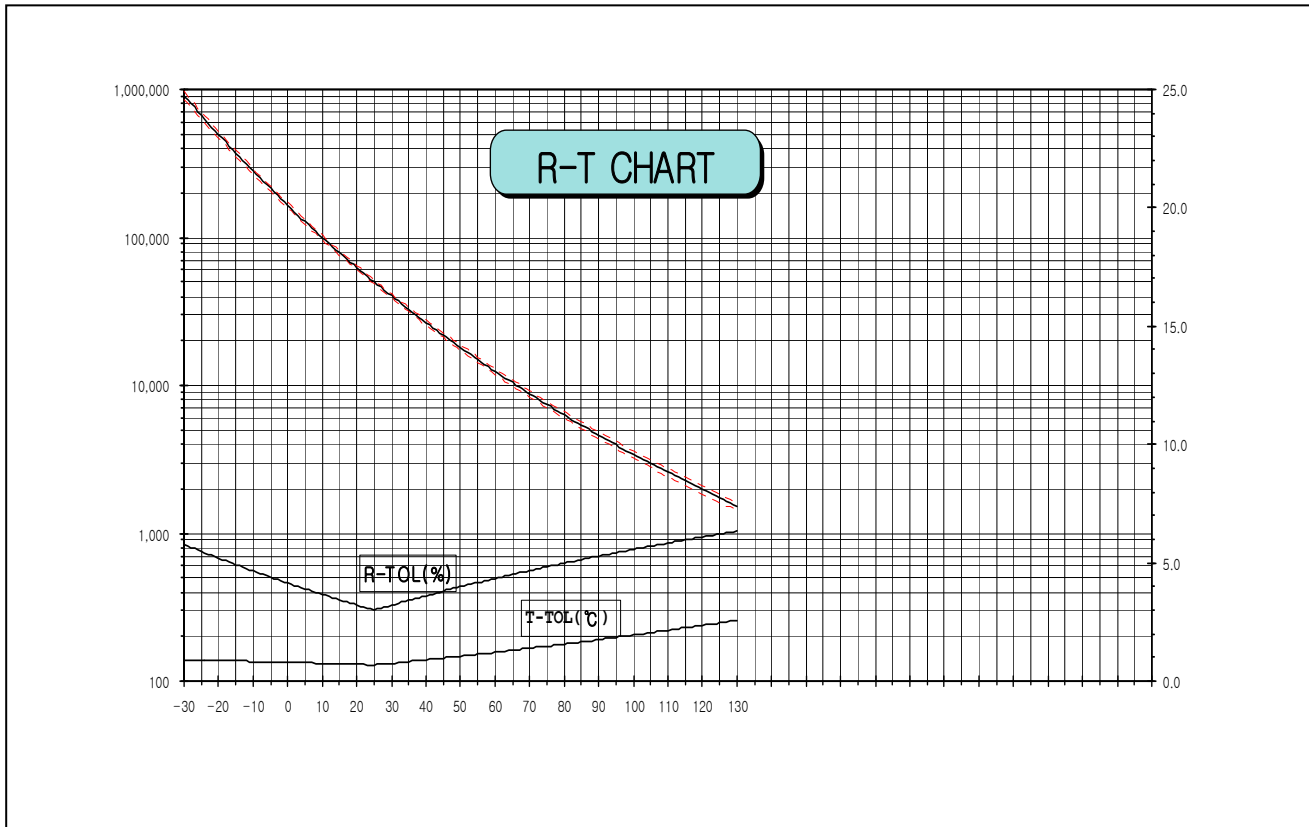


Koolance SEN-AP002P Temperature Sensor Specifications

www.koolance.com

Center-Temp / R-Value 25.0°C/50000.00Ω
 R-Tolerance of Center-Temp 3.00%
 Test Conditon Zero Power
 β-Range (25/85)°C
 β-Value 3970.0K
 β-Tolerance 1.00%



L : 0.0°C=164,443.00Ω

M : 25.0°C=50,000.00Ω

H : 85.0°C=5,372.50Ω

| TEMP. (°C) | RESISTANCE (Ω) | | | RESIST.-TOL. (%) | | TEMP.-TOL. (°C) | |
|---------------|-------------------|-----------|-----------|---------------------|------|--------------------|------|
| | MIN | CENTER | MAX | MAX | MIN | MAX | MIN |
| -30.0 | 857341.87 | 909876.45 | 964761.07 | 6.03 | 5.77 | 0.93 | 0.89 |
| -29.0 | 805612.92 | 854440.47 | 905411.80 | 5.97 | 5.71 | 0.93 | 0.89 |
| -28.0 | 757333.95 | 802734.09 | 850090.08 | 5.90 | 5.66 | 0.93 | 0.89 |
| -27.0 | 712254.57 | 754484.49 | 798498.94 | 5.83 | 5.60 | 0.92 | 0.89 |
| -26.0 | 670143.99 | 709440.30 | 750364.95 | 5.77 | 5.54 | 0.92 | 0.88 |
| -25.0 | 630789.31 | 667369.81 | 705436.21 | 5.70 | 5.48 | 0.92 | 0.88 |
| -24.0 | 593994.07 | 628059.34 | 663480.57 | 5.64 | 5.42 | 0.91 | 0.88 |
| -23.0 | 559576.88 | 591311.73 | 624283.97 | 5.58 | 5.37 | 0.91 | 0.87 |

| | | | | | | | |
|-------|-----------|-----------|-----------|------|------|------|------|
| -22.0 | 527370.21 | 556944.97 | 587648.91 | 5.51 | 5.31 | 0.91 | 0.87 |
| -21.0 | 497219.26 | 524790.99 | 553393.12 | 5.45 | 5.25 | 0.90 | 0.87 |
| -20.0 | 468980.88 | 494694.49 | 521348.31 | 5.39 | 5.20 | 0.90 | 0.87 |
| -19.0 | 442522.69 | 466511.91 | 491358.97 | 5.33 | 5.14 | 0.89 | 0.86 |
| -18.0 | 417722.18 | 440110.49 | 463281.40 | 5.26 | 5.09 | 0.89 | 0.86 |
| -17.0 | 394465.94 | 415367.40 | 436982.71 | 5.20 | 5.03 | 0.89 | 0.86 |
| -16.0 | 372648.94 | 392168.94 | 412339.98 | 5.14 | 4.98 | 0.88 | 0.85 |
| -15.0 | 352173.84 | 370409.81 | 389239.44 | 5.08 | 4.92 | 0.88 | 0.85 |
| -14.0 | 332950.42 | 349992.49 | 367575.74 | 5.02 | 4.87 | 0.88 | 0.85 |
| -13.0 | 314895.02 | 330826.55 | 347251.30 | 4.96 | 4.82 | 0.87 | 0.85 |
| -12.0 | 297929.99 | 312828.16 | 328175.70 | 4.91 | 4.76 | 0.87 | 0.84 |
| -11.0 | 281983.28 | 295919.55 | 310265.10 | 4.85 | 4.71 | 0.86 | 0.84 |
| -10.0 | 266987.99 | 280028.55 | 293441.72 | 4.79 | 4.66 | 0.86 | 0.83 |
| -9.0 | 252881.96 | 265088.15 | 277633.42 | 4.73 | 4.60 | 0.85 | 0.83 |
| -8.0 | 239607.42 | 251036.10 | 262773.20 | 4.68 | 4.55 | 0.85 | 0.83 |
| -7.0 | 227110.67 | 237814.58 | 248798.86 | 4.62 | 4.50 | 0.85 | 0.82 |
| -6.0 | 215341.75 | 225369.82 | 235652.60 | 4.56 | 4.45 | 0.84 | 0.82 |
| -5.0 | 204254.18 | 213651.82 | 223280.70 | 4.51 | 4.40 | 0.84 | 0.82 |
| -4.0 | 193804.71 | 202614.06 | 211633.20 | 4.45 | 4.35 | 0.83 | 0.81 |
| -3.0 | 183953.02 | 192213.25 | 200663.64 | 4.40 | 4.30 | 0.83 | 0.81 |
| -2.0 | 174661.59 | 182409.08 | 190328.77 | 4.34 | 4.25 | 0.82 | 0.81 |
| -1.0 | 165895.44 | 173163.99 | 180588.33 | 4.29 | 4.20 | 0.82 | 0.80 |
| 0.0 | 157621.94 | 164443.00 | 171404.84 | 4.23 | 4.15 | 0.81 | 0.80 |
| 1.0 | 149810.68 | 156213.49 | 162743.35 | 4.18 | 4.10 | 0.81 | 0.79 |
| 2.0 | 142433.28 | 148445.04 | 154571.31 | 4.13 | 4.05 | 0.80 | 0.79 |
| 3.0 | 135463.24 | 141109.28 | 146858.35 | 4.07 | 4.00 | 0.80 | 0.79 |
| 4.0 | 128875.82 | 134179.72 | 139576.17 | 4.02 | 3.95 | 0.80 | 0.78 |
| 5.0 | 122647.91 | 127631.63 | 132698.32 | 3.97 | 3.90 | 0.79 | 0.78 |
| 6.0 | 116757.93 | 121441.93 | 126200.15 | 3.92 | 3.86 | 0.79 | 0.77 |
| 7.0 | 111185.68 | 115589.03 | 120058.61 | 3.87 | 3.81 | 0.78 | 0.77 |
| 8.0 | 105912.30 | 110052.77 | 114252.18 | 3.82 | 3.76 | 0.78 | 0.76 |
| 9.0 | 100920.12 | 104814.29 | 108760.76 | 3.77 | 3.72 | 0.77 | 0.76 |
| 10.0 | 96192.61 | 99855.97 | 103565.54 | 3.71 | 3.67 | 0.77 | 0.76 |
| 11.0 | 91714.32 | 95161.29 | 98648.94 | 3.66 | 3.62 | 0.76 | 0.75 |
| 12.0 | 87470.75 | 90714.81 | 93994.51 | 3.62 | 3.58 | 0.75 | 0.75 |
| 13.0 | 83448.33 | 86502.06 | 89586.85 | 3.57 | 3.53 | 0.75 | 0.74 |
| 14.0 | 79634.35 | 82509.52 | 85411.55 | 3.52 | 3.48 | 0.74 | 0.74 |
| 15.0 | 76016.88 | 78724.46 | 81455.11 | 3.47 | 3.44 | 0.74 | 0.73 |
| 16.0 | 72584.75 | 75135.02 | 77704.89 | 3.42 | 3.39 | 0.73 | 0.73 |
| 17.0 | 69327.47 | 71730.02 | 74149.03 | 3.37 | 3.35 | 0.73 | 0.72 |
| 18.0 | 66235.19 | 68499.00 | 70776.42 | 3.32 | 3.30 | 0.72 | 0.72 |
| 19.0 | 63298.69 | 65432.15 | 67576.64 | 3.28 | 3.26 | 0.72 | 0.71 |
| 20.0 | 60509.28 | 62520.25 | 64539.93 | 3.23 | 3.22 | 0.71 | 0.71 |
| 21.0 | 57858.81 | 59754.66 | 61657.09 | 3.18 | 3.17 | 0.70 | 0.70 |

| | | | | | | | |
|------|----------|----------|----------|------|------|------|------|
| 22.0 | 55339.63 | 57127.24 | 58919.52 | 3.14 | 3.13 | 0.70 | 0.70 |
| 23.0 | 52944.55 | 54630.37 | 56319.14 | 3.09 | 3.09 | 0.69 | 0.69 |
| 24.0 | 50666.79 | 52256.87 | 53848.35 | 3.05 | 3.04 | 0.69 | 0.69 |
| 25.0 | 48500.00 | 50000.00 | 51500.00 | 3.00 | 3.00 | 0.67 | 0.67 |
| 26.0 | 46397.45 | 47853.41 | 49310.65 | 3.05 | 3.04 | 0.70 | 0.70 |
| 27.0 | 44397.94 | 45811.14 | 47226.78 | 3.09 | 3.08 | 0.71 | 0.71 |
| 28.0 | 42495.91 | 43867.58 | 45242.76 | 3.13 | 3.13 | 0.73 | 0.72 |
| 29.0 | 40686.08 | 42017.43 | 43353.30 | 3.18 | 3.17 | 0.74 | 0.74 |
| 30.0 | 38963.51 | 40255.73 | 41553.38 | 3.22 | 3.21 | 0.76 | 0.75 |
| 31.0 | 37323.53 | 38577.79 | 39838.31 | 3.27 | 3.25 | 0.77 | 0.77 |
| 32.0 | 35761.77 | 36979.19 | 38203.64 | 3.31 | 3.29 | 0.79 | 0.78 |
| 33.0 | 34274.09 | 35455.77 | 36645.19 | 3.35 | 3.33 | 0.80 | 0.80 |
| 34.0 | 32856.58 | 34003.62 | 35159.02 | 3.40 | 3.37 | 0.82 | 0.81 |
| 35.0 | 31505.59 | 32619.02 | 33741.40 | 3.44 | 3.41 | 0.83 | 0.83 |
| 36.0 | 30217.65 | 31298.49 | 32388.82 | 3.48 | 3.45 | 0.85 | 0.84 |
| 37.0 | 28989.49 | 30038.74 | 31097.95 | 3.53 | 3.49 | 0.86 | 0.86 |
| 38.0 | 27818.04 | 28836.66 | 29865.68 | 3.57 | 3.53 | 0.88 | 0.87 |
| 39.0 | 26700.38 | 27689.32 | 28689.05 | 3.61 | 3.57 | 0.90 | 0.89 |
| 40.0 | 25633.78 | 26593.95 | 27565.25 | 3.65 | 3.61 | 0.91 | 0.90 |
| 41.0 | 24615.65 | 25547.93 | 26491.65 | 3.69 | 3.65 | 0.93 | 0.92 |
| 42.0 | 23643.53 | 24548.78 | 25465.75 | 3.74 | 3.69 | 0.94 | 0.93 |
| 43.0 | 22715.11 | 23594.17 | 24485.20 | 3.78 | 3.73 | 0.96 | 0.95 |
| 44.0 | 21828.22 | 22681.90 | 23547.76 | 3.82 | 3.76 | 0.98 | 0.96 |
| 45.0 | 20980.78 | 21809.87 | 22651.32 | 3.86 | 3.80 | 0.99 | 0.98 |
| 46.0 | 20170.84 | 20976.10 | 21793.87 | 3.90 | 3.84 | 1.01 | 0.99 |
| 47.0 | 19396.56 | 20178.73 | 20973.54 | 3.94 | 3.88 | 1.03 | 1.01 |
| 48.0 | 18656.19 | 19415.98 | 20188.52 | 3.98 | 3.91 | 1.04 | 1.02 |
| 49.0 | 17948.07 | 18686.18 | 19437.13 | 4.02 | 3.95 | 1.06 | 1.04 |
| 50.0 | 17270.64 | 17987.74 | 18717.75 | 4.06 | 3.99 | 1.08 | 1.06 |
| 51.0 | 16622.42 | 17319.16 | 18028.87 | 4.10 | 4.02 | 1.09 | 1.07 |
| 52.0 | 16002.00 | 16679.02 | 17369.04 | 4.14 | 4.06 | 1.11 | 1.09 |
| 53.0 | 15408.05 | 16065.96 | 16736.88 | 4.18 | 4.10 | 1.13 | 1.10 |
| 54.0 | 14839.33 | 15478.71 | 16131.11 | 4.21 | 4.13 | 1.14 | 1.12 |
| 55.0 | 14294.62 | 14916.05 | 15550.50 | 4.25 | 4.17 | 1.16 | 1.14 |
| 56.0 | 13772.80 | 14376.84 | 14993.87 | 4.29 | 4.20 | 1.18 | 1.15 |
| 57.0 | 13272.79 | 13859.98 | 14460.12 | 4.33 | 4.24 | 1.20 | 1.17 |
| 58.0 | 12793.59 | 13364.44 | 13948.20 | 4.37 | 4.27 | 1.21 | 1.19 |
| 59.0 | 12334.21 | 12889.23 | 13457.11 | 4.41 | 4.31 | 1.23 | 1.20 |
| 60.0 | 11893.75 | 12433.42 | 12985.89 | 4.44 | 4.34 | 1.25 | 1.22 |
| 61.0 | 11471.33 | 11996.13 | 12533.66 | 4.48 | 4.37 | 1.27 | 1.24 |
| 62.0 | 11066.13 | 11576.51 | 12099.54 | 4.52 | 4.41 | 1.28 | 1.25 |
| 63.0 | 10677.36 | 11173.77 | 11682.74 | 4.56 | 4.44 | 1.30 | 1.27 |
| 64.0 | 10304.28 | 10787.14 | 11282.47 | 4.59 | 4.48 | 1.32 | 1.29 |
| 65.0 | 9946.18 | 10415.91 | 10898.01 | 4.63 | 4.51 | 1.34 | 1.30 |

| | | | | | | | |
|-------|---------|----------|----------|------|------|------|------|
| 66.0 | 9602.38 | 10059.38 | 10528.64 | 4.66 | 4.54 | 1.36 | 1.32 |
| 67.0 | 9272.25 | 9716.91 | 10173.72 | 4.70 | 4.58 | 1.38 | 1.34 |
| 68.0 | 8955.18 | 9387.86 | 9832.59 | 4.74 | 4.61 | 1.39 | 1.36 |
| 69.0 | 8650.59 | 9071.66 | 9504.67 | 4.77 | 4.64 | 1.41 | 1.37 |
| 70.0 | 8357.93 | 8767.75 | 9189.38 | 4.81 | 4.67 | 1.43 | 1.39 |
| 71.0 | 8076.68 | 8475.57 | 8886.16 | 4.84 | 4.71 | 1.45 | 1.41 |
| 72.0 | 7806.33 | 8194.64 | 8594.51 | 4.88 | 4.74 | 1.47 | 1.43 |
| 73.0 | 7546.42 | 7924.45 | 8313.93 | 4.91 | 4.77 | 1.49 | 1.44 |
| 74.0 | 7296.49 | 7664.55 | 8043.94 | 4.95 | 4.80 | 1.51 | 1.46 |
| 75.0 | 7056.11 | 7414.51 | 7784.10 | 4.98 | 4.83 | 1.52 | 1.48 |
| 76.0 | 6824.87 | 7173.89 | 7533.97 | 5.02 | 4.87 | 1.54 | 1.50 |
| 77.0 | 6602.38 | 6942.30 | 7293.15 | 5.05 | 4.90 | 1.56 | 1.51 |
| 78.0 | 6388.27 | 6719.36 | 7061.25 | 5.09 | 4.93 | 1.58 | 1.53 |
| 79.0 | 6182.19 | 6504.71 | 6837.90 | 5.12 | 4.96 | 1.60 | 1.55 |
| 80.0 | 5983.80 | 6298.00 | 6622.74 | 5.16 | 4.99 | 1.62 | 1.57 |
| 81.0 | 5792.77 | 6098.90 | 6415.43 | 5.19 | 5.02 | 1.64 | 1.59 |
| 82.0 | 5608.80 | 5907.09 | 6215.66 | 5.22 | 5.05 | 1.66 | 1.61 |
| 83.0 | 5431.59 | 5722.28 | 6023.10 | 5.26 | 5.08 | 1.68 | 1.62 |
| 84.0 | 5260.87 | 5544.17 | 5837.48 | 5.29 | 5.11 | 1.70 | 1.64 |
| 85.0 | 5096.36 | 5372.50 | 5658.50 | 5.32 | 5.14 | 1.72 | 1.66 |
| 86.0 | 4937.82 | 5207.00 | 5485.91 | 5.36 | 5.17 | 1.74 | 1.68 |
| 87.0 | 4785.00 | 5047.41 | 5319.43 | 5.39 | 5.20 | 1.76 | 1.70 |
| 88.0 | 4637.66 | 4893.52 | 5158.84 | 5.42 | 5.23 | 1.78 | 1.72 |
| 89.0 | 4495.59 | 4745.07 | 5003.88 | 5.45 | 5.26 | 1.80 | 1.74 |
| 90.0 | 4358.58 | 4601.86 | 4854.35 | 5.49 | 5.29 | 1.82 | 1.75 |
| 91.0 | 4226.41 | 4463.68 | 4710.02 | 5.52 | 5.32 | 1.84 | 1.77 |
| 92.0 | 4098.90 | 4330.33 | 4570.70 | 5.55 | 5.34 | 1.86 | 1.79 |
| 93.0 | 3975.87 | 4201.61 | 4436.17 | 5.58 | 5.37 | 1.88 | 1.81 |
| 94.0 | 3857.13 | 4077.35 | 4306.27 | 5.61 | 5.40 | 1.90 | 1.83 |
| 95.0 | 3742.51 | 3957.38 | 4180.81 | 5.65 | 5.43 | 1.92 | 1.85 |
| 96.0 | 3631.86 | 3841.51 | 4059.61 | 5.68 | 5.46 | 1.94 | 1.87 |
| 97.0 | 3525.02 | 3729.61 | 3942.52 | 5.71 | 5.49 | 1.97 | 1.89 |
| 98.0 | 3421.84 | 3621.51 | 3829.37 | 5.74 | 5.51 | 1.99 | 1.91 |
| 99.0 | 3322.19 | 3517.06 | 3720.02 | 5.77 | 5.54 | 2.01 | 1.93 |
| 100.0 | 3225.91 | 3416.13 | 3614.32 | 5.80 | 5.57 | 2.03 | 1.95 |
| 101.0 | 3132.89 | 3318.59 | 3512.13 | 5.83 | 5.60 | 2.05 | 1.97 |
| 102.0 | 3043.00 | 3224.30 | 3413.33 | 5.86 | 5.62 | 2.07 | 1.99 |
| 103.0 | 2956.12 | 3133.14 | 3317.78 | 5.89 | 5.65 | 2.09 | 2.01 |
| 104.0 | 2872.14 | 3045.00 | 3225.36 | 5.92 | 5.68 | 2.12 | 2.03 |
| 105.0 | 2790.94 | 2959.76 | 3135.96 | 5.95 | 5.70 | 2.14 | 2.05 |
| 106.0 | 2712.43 | 2877.31 | 3049.46 | 5.98 | 5.73 | 2.16 | 2.07 |
| 107.0 | 2636.50 | 2797.55 | 2965.76 | 6.01 | 5.76 | 2.18 | 2.09 |
| 108.0 | 2563.05 | 2720.38 | 2884.76 | 6.04 | 5.78 | 2.20 | 2.11 |
| 109.0 | 2492.00 | 2645.70 | 2806.35 | 6.07 | 5.81 | 2.22 | 2.13 |

| | | | | | | | |
|-------|---------|---------|---------|------|------|------|------|
| 110.0 | 2423.26 | 2573.43 | 2730.45 | 6.10 | 5.84 | 2.25 | 2.15 |
| 111.0 | 2356.74 | 2503.48 | 2656.96 | 6.13 | 5.86 | 2.27 | 2.17 |
| 112.0 | 2292.35 | 2435.75 | 2585.79 | 6.16 | 5.89 | 2.29 | 2.19 |
| 113.0 | 2230.03 | 2370.18 | 2516.87 | 6.19 | 5.91 | 2.31 | 2.21 |
| 114.0 | 2169.70 | 2306.68 | 2450.10 | 6.22 | 5.94 | 2.34 | 2.23 |
| 115.0 | 2111.28 | 2245.18 | 2385.42 | 6.25 | 5.96 | 2.36 | 2.25 |
| 116.0 | 2054.70 | 2185.60 | 2322.75 | 6.28 | 5.99 | 2.38 | 2.27 |
| 117.0 | 1999.91 | 2127.89 | 2262.02 | 6.30 | 6.01 | 2.40 | 2.29 |
| 118.0 | 1946.83 | 2071.96 | 2203.16 | 6.33 | 6.04 | 2.43 | 2.31 |
| 119.0 | 1895.41 | 2017.77 | 2146.10 | 6.36 | 6.06 | 2.45 | 2.34 |
| 120.0 | 1845.58 | 1965.25 | 2090.79 | 6.39 | 6.09 | 2.47 | 2.36 |
| 121.0 | 1797.30 | 1914.33 | 2037.16 | 6.42 | 6.11 | 2.50 | 2.38 |
| 122.0 | 1750.50 | 1864.97 | 1985.15 | 6.44 | 6.14 | 2.52 | 2.40 |
| 123.0 | 1705.13 | 1817.11 | 1934.71 | 6.47 | 6.16 | 2.54 | 2.42 |
| 124.0 | 1661.15 | 1770.70 | 1885.78 | 6.50 | 6.19 | 2.57 | 2.44 |
| 125.0 | 1618.51 | 1725.69 | 1838.31 | 6.53 | 6.21 | 2.59 | 2.46 |
| 126.0 | 1577.15 | 1682.03 | 1792.26 | 6.55 | 6.24 | 2.61 | 2.49 |
| 127.0 | 1537.04 | 1639.67 | 1747.57 | 6.58 | 6.26 | 2.64 | 2.51 |
| 128.0 | 1498.14 | 1598.57 | 1704.20 | 6.61 | 6.28 | 2.66 | 2.53 |
| 129.0 | 1460.39 | 1558.69 | 1662.11 | 6.63 | 6.31 | 2.68 | 2.55 |
| 130.0 | 1423.77 | 1519.98 | 1621.24 | 6.66 | 6.33 | 2.71 | 2.57 |