$Nachvollziehbare \ Berechnungen \ der \ H-Werte \\ Rechenweg: \ tR\_column = \ tR\_total - \ tR\_extra, \ \ W\_column = 2 * \ sqrt(\sigma^2\_total - \sigma^2\_extra), \ \ N = (tR\_column / \ W\_column)^2, \ \ HETP = 150 \ mm / \ N = (tR\_column / \ W\_column / \ W\_column)^2, \ \ HETP = 150 \ mm / \ M = (tR\_column / \ W\_column / \ W\_c$ 

| Messung | tR_total (min) | σ²_total (min²) | tR_extra (min) | σ²_extra (min²) | tR_column (min) | W_column (min) | N       | HETP (mm) |
|---------|----------------|-----------------|----------------|-----------------|-----------------|----------------|---------|-----------|
| 1       | 0.455          | 0.000           | 0.070          | 0.000           | 0.385           | 0.027          | 201.780 | 0.743     |
| 2       | 0.473          | 0.000           | 0.072          | 0.000           | 0.401           | 0.027          | 228.490 | 0.656     |
| 3       | 0.492          | 0.000           | 0.074          | 0.000           | 0.418           | 0.029          | 210.333 | 0.713     |
| 4       | 0.513          | 0.000           | 0.078          | 0.000           | 0.435           | 0.028          | 236.605 | 0.634     |
| 5       | 0.534          | 0.000           | 0.080          | 0.000           | 0.454           | 0.030          | 229.939 | 0.652     |
| 6       | 0.562          | 0.000           | 0.084          | 0.000           | 0.478           | 0.030          | 249.378 | 0.601     |
| 7       | 0.589          | 0.000           | 0.090          | 0.000           | 0.499           | 0.031          | 259.264 | 0.579     |
| 8       | 0.621          | 0.001           | 0.095          | 0.000           | 0.526           | 0.032          | 274.350 | 0.547     |
| 9       | 0.655          | 0.001           | 0.099          | 0.000           | 0.556           | 0.035          | 252.838 | 0.593     |
| 10      | 0.693          | 0.001           | 0.106          | 0.000           | 0.587           | 0.036          | 268.868 | 0.558     |
| 11      | 0.739          | 0.001           | 0.111          | 0.000           | 0.628           | 0.036          | 298.397 | 0.503     |
| 12      | 0.792          | 0.001           | 0.118          | 0.000           | 0.674           | 0.040          | 286.635 | 0.523     |
| 13      | 0.851          | 0.001           | 0.126          | 0.000           | 0.725           | 0.043          | 281.943 | 0.532     |
| 14      | 0.918          | 0.001           | 0.135          | 0.001           | 0.783           | 0.047          | 274.806 | 0.546     |
| 15      | 1.001          | 0.001           | 0.147          | 0.001           | 0.855           | 0.051          | 278.754 | 0.538     |
| 16      | 1.098          | 0.001           | 0.160          | 0.001           | 0.938           | 0.055          | 288.828 | 0.519     |
| 17      | 1.219          | 0.002           | 0.175          | 0.001           | 1.044           | 0.061          | 296.837 | 0.505     |
| 18      | 1.370          | 0.002           | 0.196          | 0.001           | 1.174           | 0.069          | 286.581 | 0.523     |
| 19      | 1.566          | 0.003           | 0.221          | 0.001           | 1.345           | 0.078          | 294.196 | 0.510     |
| 20      | 1.822          | 0.004           | 0.254          | 0.002           | 1.568           | 0.090          | 300.799 | 0.499     |
| 21      | 2.185          | 0.005           | 0.301          | 0.002           | 1.884           | 0.110          | 295.683 | 0.507     |
| 22      | 2.731          | 0.008           | 0.374          | 0.003           | 2.357           | 0.138          | 293.450 | 0.511     |
| 23      | 3.641          | 0.013           | 0.491          | 0.005           | 3.151           | 0.184          | 293.576 | 0.511     |
| 24      | 5.456          | 0.028           | 0.726          | 0.009           | 4.730           | 0.276          | 292.937 | 0.512     |
| 25      | 10.918         | 0.109           | 1.423          | 0.028           | 9.496           | 0.569          | 278.467 | 0.539     |