

# Zoom 6000

## Performance Specifications

| Zoom 6000 Combinations<br>Lens Attachment + Prime Lens +<br>Adapter | Working<br>Distance<br>(mm) | System<br>Magnification | NA Objective  | Resolve Limit<br>( $\mu$ m) | Matching Pixel<br>Size ( $\mu$ m) | Depth of Field (mm) |
|---------------------------------------------------------------------|-----------------------------|-------------------------|---------------|-----------------------------|-----------------------------------|---------------------|
|                                                                     |                             | Low-High                | Low-High      | Low-High                    | Low-High                          | Low-High            |
| 0.25x + 6.5X Zoom + 0.5x                                            | 300                         | 0.09 - 0.56             | 0.006 - 0.018 | 55.56 - 18.52               | 2.50 - 5.19                       | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 0.67x                                           | 300                         | 0.12 - 0.75             | 0.006 - 0.018 | 55.56 - 18.52               | 3.33 - 6.95                       | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 1.0x                                            | 300                         | 0.18 - 1.13             | 0.006 - 0.018 | 55.56 - 18.52               | 5.00 - 10.46                      | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 1.33x                                           | 300                         | 0.23 - 1.51             | 0.006 - 0.018 | 55.56 - 18.52               | 6.65 - 13.91                      | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 2.0x                                            | 300                         | 0.35 - 2.25             | 0.006 - 0.018 | 55.56 - 18.52               | 9.72 - 20.84                      | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 3.3x                                            | 300                         | 0.58 - 3.71             | 0.006 - 0.018 | 55.56 - 18.52               | 15.29 - 28.93                     | 13.89 - 1.54        |
| 0.25x + 6.5X Zoom + 5.0x                                            | 300                         | 0.88 - 5.62             | 0.006 - 0.018 | 55.56 - 18.52               | 24.45 - 52.04                     | 13.89 - 1.54        |
| 0.5x + 6.5X Zoom + 0.5x                                             | 175                         | 0.18 - 1.13             | 0.011 - 0.035 | 30.30 - 9.52                | 2.73 - 5.38                       | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 0.67x                                            | 175                         | 0.23 - 1.50             | 0.011 - 0.035 | 30.30 - 9.52                | 3.48 - 7.14                       | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 1.0x                                             | 175                         | 0.35 - 2.25             | 0.011 - 0.035 | 30.30 - 9.52                | 5.30 - 10.71                      | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 1.33x                                            | 175                         | 0.47 - 3.03             | 0.011 - 0.035 | 30.30 - 9.52                | 7.05 - 14.24                      | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 2.0x                                             | 175                         | 0.70 - 4.50             | 0.011 - 0.035 | 30.30 - 9.52                | 10.61 - 21.42                     | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 3.3x                                             | 175                         | 1.16 - 7.43             | 0.011 - 0.035 | 30.30 - 9.52                | 15.44 - 39.08                     | 4.13 - 0.41         |
| 0.5x + 6.5X Zoom + 5.0x                                             | 175                         | 1.75 - 11.25            | 0.011 - 0.035 | 30.30 - 9.52                | 26.51 - 53.55                     | 4.13 - 0.41         |
| 0.75x + 6.5X Zoom + 0.5x                                            | 113                         | 0.26 - 1.69             | 0.017 - 0.053 | 19.62 - 6.28                | 2.55 - 5.32                       | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 0.67x                                           | 113                         | 0.35 - 2.25             | 0.017 - 0.053 | 19.62 - 6.28                | 3.43 - 7.08                       | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 1.0x                                            | 113                         | 0.53 - 3.38             | 0.017 - 0.053 | 19.62 - 6.28                | 5.20 - 10.63                      | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 1.33x                                           | 113                         | 0.70 - 4.54             | 0.017 - 0.053 | 19.62 - 6.28                | 6.92 - 14.13                      | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 2.0x                                            | 113                         | 1.05 - 6.75             | 0.017 - 0.053 | 19.62 - 6.28                | 10.30 - 21.23                     | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 3.3x                                            | 113                         | 1.73 - 11.14            | 0.017 - 0.053 | 19.62 - 6.28                | 15.36 - 33.31                     | 1.73 - 0.18         |
| 0.75x + 6.5X Zoom + 5.0x                                            | 113                         | 2.63 - 16.88            | 0.017 - 0.053 | 19.62 - 6.28                | 25.74 - 53.09                     | 1.73 - 0.18         |
| None + 6.5X Zoom + 0.5x                                             | 92                          | 0.35 - 2.25             | 0.023 - 0.071 | 14.50 - 4.70                | 2.54 - 5.28                       | 0.95 - 0.10         |
| None + 6.5X Zoom + 0.67x                                            | 92                          | 0.47 - 3.00             | 0.023 - 0.071 | 14.50 - 4.70                | 3.41 - 7.04                       | 0.95 - 0.10         |
| None + 6.5X Zoom + 1.0x                                             | 92                          | 0.70 - 4.50             | 0.023 - 0.071 | 14.50 - 4.70                | 5.08 - 10.55                      | 0.95 - 0.10         |
| None + 6.5X Zoom + 1.33x                                            | 92                          | 0.93 - 6.05             | 0.023 - 0.071 | 14.50 - 4.70                | 6.76 - 14.03                      | 0.95 - 0.10         |
| None + 6.5X Zoom + 2.0x                                             | 92                          | 1.40 - 9.00             | 0.023 - 0.071 | 14.50 - 4.70                | 10.15 - 21.11                     | 0.95 - 0.10         |
| None + 6.5X Zoom + 3.3x                                             | 92                          | 2.31 - 14.85            | 0.023 - 0.071 | 14.50 - 4.70                | 15.29 - 29.11                     | 0.95 - 0.10         |
| None + 6.5X Zoom + 5.0x                                             | 92                          | 3.50 - 22.50            | 0.023 - 0.071 | 14.50 - 4.70                | 25.38 - 52.76                     | 0.95 - 0.10         |
| 1.5x + 6.5X Zoom + 0.5x                                             | 51                          | 0.53 - 3.38             | 0.034 - 0.106 | 9.80 - 3.14                 | 2.60 - 5.32                       | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 0.67x                                            | 51                          | 0.70 - 4.50             | 0.034 - 0.106 | 9.80 - 3.14                 | 3.43 - 7.09                       | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 1.0x                                             | 51                          | 1.05 - 6.75             | 0.034 - 0.106 | 9.80 - 3.14                 | 5.15 - 10.63                      | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 1.33                                             | 51                          | 1.40 - 9.08             | 0.034 - 0.106 | 9.80 - 3.14                 | 6.85 - 14.14                      | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 2.0x                                             | 51                          | 2.10 - 13.50            | 0.034 - 0.106 | 9.80 - 3.14                 | 10.29 - 21.26                     | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 3.3x                                             | 51                          | 3.47 - 22.28            | 0.034 - 0.106 | 9.80 - 3.14                 | 15.29 - 28.92                     | 0.43 - 0.04         |
| 1.5x + 6.5X Zoom + 5.0x                                             | 51                          | 5.25 - 33.75            | 0.034 - 0.106 | 9.80 - 3.14                 | 25.73 - 53.16                     | 0.43 - 0.04         |
| 2.0x + 6.5X Zoom + 0.5x                                             | 36                          | 0.70 - 4.50             | 0.046 - 0.142 | 7.24 - 2.34                 | 2.54 - 5.29                       | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 0.67x                                            | 36                          | 0.94 - 6.00             | 0.046 - 0.142 | 7.24 - 2.34                 | 3.41 - 7.05                       | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 1.0x                                             | 36                          | 1.40 - 9.00             | 0.046 - 0.142 | 7.24 - 2.34                 | 5.08 - 10.58                      | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 1.33                                             | 36                          | 1.86 - 12.10            | 0.046 - 0.142 | 7.24 - 2.34                 | 6.76 - 14.07                      | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 2.0x                                             | 36                          | 2.80 - 18.00            | 0.046 - 0.142 | 7.24 - 2.34                 | 10.15 - 21.15                     | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 3.3x                                             | 36                          | 4.62 - 29.70            | 0.046 - 0.142 | 7.24 - 2.34                 | 15.30 - 28.70                     | 0.24 - 0.02         |
| 2.0x + 6.5X Zoom + 5.0x                                             | 36                          | 7.00 - 45.00            | 0.046 - 0.142 | 7.24 - 2.34                 | 25.38 - 52.88                     | 0.24 - 0.02         |

### Assumptions:

1. Minimum resolvable feature size is half of the threshold line pair limit. Calculation =  $1/(3000 \times \text{Lens NA})$
2. Matching pixel size is that which will permit the minimum feature size to overlap two pixels. Calculation =  $1/2(\text{Feature Size} \times \text{System Magnification})$
3. If the matching pixel size is greater than the camera pixel size, the system is "lens limited."
4. If the matching pixel size is less than the camera pixel size, the system is "camera limited."