

The Tolerance Distribution ($\lambda = 0.6328 \text{ mm}$)

The Tolerance of The Entrance Window (293 K)

| | Aperture | Radius | Thickness | decenter | Irregularity |
|-----------|----------|--------------------|------------------|----------------|-------------------|
| Surface 1 | 127 mm | 6883.5 \pm 50mm | | | p-v < 1 λ |
| Surface 2 | 127 mm | plane (<10 fringe) | 15 \pm 0.7 mm | < \pm 0.1 mm | p-v < 1 λ |
| Focus | | plane | 260 \pm 1.5 mm | | |

The Positions Tolerance of The Offner Assembling (293 K)

| | Position | Decenter | Tilt |
|-----------------|----------|----------|-------|
| Offner assemble | 0.015 mm | 0.5 mm | 0.08° |

The Tolerance of The Offner Elements (293 K)

| | Clear Aperture | Radius | Separation | decenter | tilt | Irregularity |
|------------------|----------------|------------------|-----------------------|--------------|-------------|---------------------|
| Telescope Focus | | | 0 \pm 0.2 mm | | | |
| Folding mirror 1 | 90 x 14 mm | | 80 \pm 0.2 mm | | | p-v <0 .1 λ |
| Folding mirror 2 | 67 x 25 mm | plane(<1 fringe) | 480.681 \pm 0.4 mm | | | p-v <0 .1 λ |
| Primary Mirror | 142 mm | 560 \pm 1 mm | 279.283 \pm 0.4 mm | \pm 0.3 mm | \pm 0.06° | p-v <0.25 λ |
| Second Mirror | 18 mm | 280 \pm 0.6 mm | 279.283 \pm 0.4 mm | | | p-v <0.1 λ |
| Folding mirror 3 | 110 x 20 mm | plane(<1 fringe) | 302.882 \pm 0.50 mm | | | p-v <0 .1 λ |
| Slit | | | 258.801 \pm 0.33 mm | | | |

The Tolerance of Filters (293 K)

| | Aperature | Surface curvature | Thickness | Irregularity |
|-----------------|-----------|-------------------|----------------------|--------------------|
| BK7 Filter | 68x38 mm | <1.5 fringe | 3.0394 \pm 0.04 mm | p-v< 1/2 λ |
| Sapphire Filter | 68x38 mm | <0.35 fringe | 2.448 \pm 0.015 mm | p-v< 1/4 λ |

The Tolerance of The Collimator System (293 K)

| | Clear Aperture | Radius | Position | CC | Decenter | Tilt | Irregularity |
|---------------------|----------------|------------------|---------------|-------------|--------------|--------------|---------------------|
| Off-axis paraboloid | 156x107 mm | 3000 \pm 15 mm | \pm 0.05 mm | \pm 0.008 | \pm 0.1 mm | \pm 0.008° | p-v < 1/8 λ |

The Tolerance of The Dispersion System (293 K)

| | Aperature | Fringe no defocus | Fringe defocus | Irregularity |
|-------------------------|------------|-------------------|----------------|---------------------|
| Grating mirror | 96x99 mm | <0.3 fringe | <2 fringe | p-v < 1/8 λ |
| Cross dispersion mirror | 107x107 mm | <0.4 fringe | <2 fringe | p-v < 1/8 λ |

Cross dispersion element (293 K)

| | Prism 1 | Prism 2 | Wollaston |
|-----------------------------|-----------------------|-----------------------|----------------------|
| Size | 108x121 mm | 124x130 mm | 96x127 mm |
| Center thickness | 23.954 \pm 0.1 mm | 35 \pm 0.1 mm | 15 \pm 0.1 mm |
| Vertex angle | 13.8° \pm 30 arcsec | 19.0° \pm 30 arcsec | 8.0° \pm 30 arcsec |
| Front surface flattern | 1 fringe | 2 fringe | 2 fringe |
| Center surface | | | 3 fringe |
| Back surface flatness | 0.5 fringe | 1.5 fringe | 1 fringe |
| Front surface irregularity | 0.2 λ | 0.2 λ | 0.2 λ |
| Center surface irregularity | | | 0.4 λ |
| Back surface irregularity | 0.2 λ | 0.2 λ | 0.2 λ |
| Glass homogeneity | < 0.15 λ | < 0.25 λ | < 0.25 λ |
| Supporting | <0.15 μ | <0.25 μ | <0.25 μ |