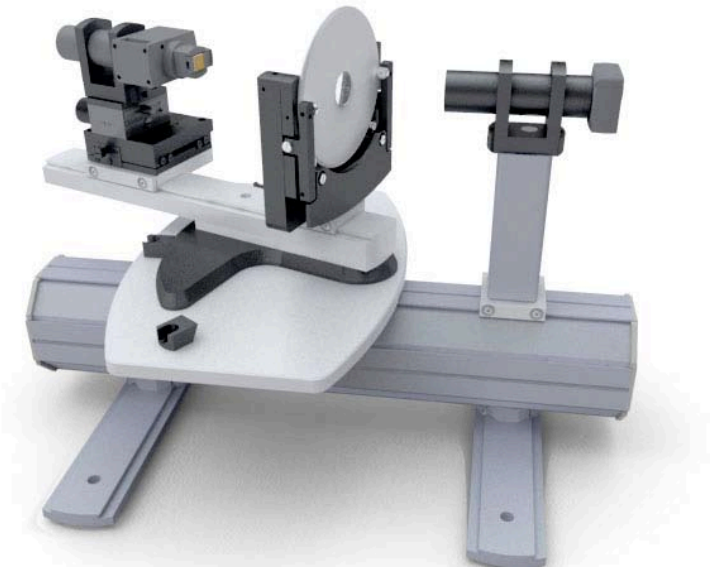
Specification Sheet

Model OS400-20 | Lens Bench



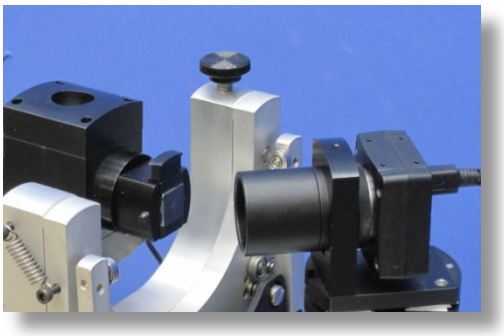
Overview

The OS-400-20 is a **manual** bench, designed for testing relatively **small** lenses at **infinite** conjugates.
The optical path consists of a back-lit, non-recessed reticle, the lens under test, and a video telescope.

- This configuration is especially well suited for very fast lenses, with no microscope to limit the NA
  - Is not limited to lenses with small chief ray angles
  - All non-negative BFL lenses can be tested
  - Makes it easy to test oil and water immersion lenses
- Plus it is easy to incorporate thin glass plates to simulate a cover glass or optical window

Tests Performed

- On & Off-axis image quality
  - MTF
  - Numerical measurement of 3-bar contrast
  - Enslitted energy
- EFL
- Distortion
- Field Curvature
- Chief ray angle
- Pupil size, shape on- and off-axis
- Relative Illumination
- Veiling glare (relative)



Test Lens Range

- EFL Range: 01 mm < EFL < 200 mm
- F/Number, NA: no practical limit
- Field of View: +/- 90 degrees
- Clear Aperture: 0.1mm to 15mm
- Weight/Size: up to ~2 kg with supplied lens holder
  Illumination Sources
- Five LED Sources spanning 400 – 780 nm
- "White" LED
- Photopic source (White LED plus filter)

Measurement Accuracy

- MTF accuracy 2% MTF at 200 lines / mm at F8
- MTF Repeatability: 1% MTF typical
- EFL / magnification Repeatability: 1:5000

Options

- Vertical optical rail
- Telescopes with larger CA, up to 48 mm

Parts List

Optical rail
- 0.5 meter extruded aluminum optical rail
- Pneumatic anti-vibration foot kit (not shown in photo)

Light source
- Quick-change holder for direct-view reticles
- Dual port integrating sphere, with ports for LED and fiber bundle
- Kit for 5 single color LED's + white LED, White LED with photopic filter
- 100:1 DC current source with universal AC inputLens mount with universal 4.75 inch disk

Reticle kit
- Small USAF reticle
- Kit of 4 "Box" targets for MTF / EFL measurement. (Smallest target has <1-micron line width.)
- Cross reticle (for alignment)
- Veiling glare target

Lens mount with universal 4.75 inch disk
- U-mount base with +/- 3 mm Y adjustment
- Two universal lens disks with ThorLabs® SM1 thread
  - SM1 adaptors for RMS, C-Mount, M-12
- Kit of 2 blank disks with pilot hole for custom mounts
- Disk with 3-arm chuck, SM2 thread on thru-hole
- SM2 riser to allow testing very wide angle lenses

Video telescope kit
- Monochrome CCD camera with 1280 X 960 resolution
- Kinematic breakaway mount for X-Z stage
- 100mm telescope, 45mm telescope, 18mm telescope

Close-up lens
- 100mm close-up lens for viewing exit pupil

Pivot table
- "Mushroom" pivot assembly with +/- 90 degree motion

X-Z stage for microscope
- Cross roller Z stage with 25 mm travel.
- Rack-and pinion cross-axis stage with 40 mm travel
- "Breakaway" magnetic kinematic mount for microscope
- Optional 1 um digital readout on Z axis, 10 um readout on X

Calibration kit / Reference lens
- 400 mm F/8 reference lens with inspection certificate

Computer and software
- OpticStudio software on CD
- Laptop computer with software preinstalled
- USB "dongle," required to run software

Support
- 2 year warranty
- Perpetual software license
- 2 year software maintenance and support