

DVD400™ Specifications



SYSTEM

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| Measurement Technique | Laser based, three-dimensional, optical phase-shifting interferometry |
| Measurement Capability | Measure form and transmitted wavefront characteristics of DVD lenses |
| Magnifications | 1X, 2X, 4X |
| Test Beam Diameter | 6 mm (1X), 3 mm (2X), 1.5 mm (4X) |
| Working Distance | 41 to 116 mm (1.6 to 4.6 in.) at 1X |
| Optical Centerline | 4.25 in. (108 mm) |
| Alignment System | Twin spot, retroreflector assist |
| Part Viewing | Additional fringe monitor included |
| Optic and Part Stage | 5-axis Reference Optic Stage 2-axis Transmission Optic Stage 2-axis Part Holder Stage with removable part tray lens holder slide |
| Computer | Late-generation Dell PC with hard drive, CD-R/W, floppy drive, and 17-inch flat panel monitor; printers optional |
| Software | ZYGO MetroPro software running under Microsoft® Windows 2000™ |

PHYSICAL

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|------------------------|--|
| Dimensions (H x W x D) | 14.8 x 31.0 x 9.0 (37.6 x 78.7 x 22.9 cm) |
| Weight | ~70 lb (31.8 kg) |

LASER SPECIFICATIONS

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|--------------------------|---|
| Type | Laser diode, Class II |
| Wavelength | 405 nm |
| Output Power at Aperture | ≤1 milliwatt |
| Beam Polarization | Selectable: circular, horizontal, or vertical |
| Coherence Length | Greater than 39.4 in. (1 m) |

PERFORMANCE

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| Accuracy (1) | $\lambda/100$ PV |
| Instrument Precision (2) | $\lambda/1,000$ rms (2σ) |
| Repeatability of PV (3) | $\lambda/300$ (2σ) |
| Repeatability of rms (3) | $\lambda/2,000$ (2σ) |
| Spatial Sampling | 512 x 480 pixels (6 mm clear aperture at 1X) |
| Data Acquisition Time | Low Res: 230 ms (5 data frames) |
| Digitization | 8 bits |
| System Quality (4) | Plano testing: $\lambda/10$ Transmitted wavefront testing: $\lambda/10$ |

UTILITY REQUIREMENTS

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| Input Voltage | 100 to 240 VAC, 50/60 Hz |
| Compressed Air | 80 psi (5.5 bar); dry and filtered source (required for optional vibration isolation system) |

ENVIRONMENTAL REQUIREMENTS

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|----------------------|---|
| Temperature | 15 to 30°C (59 to 86°F) |
| Rate of Temp. Change | <1.0°C per 15 min |
| Humidity | 5 to 95% relative, noncondensing |
| Vibration Isolation | Required for vibration frequencies in the range of 1 Hz to 120 Hz |

ACCESSORIES

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| Vibration Isolation | Vibration Isolation System recommended |
| Transmission Flat | 6 mm diameter, $\lambda/20$; standard |
| Reference Flat | 6 mm diameter, $\lambda/30$, 90%; standard |
| Ref. Spheres (optional) | R/0.51, 40%, 33 mm dia. R/0.68, 40%, 25 mm dia. |

- 1 The overall system accuracy for absolute testing (e.g. 3-Flat test). System accuracy is dependent on the quality of the reference optic.
- 2 Precision is the residual rms error of the difference of two consecutive measurements, each with 16 phase averages. This specification is derived from 100 measurements and represents the mean value plus 2σ .
- 3 Repeatability of the quoted statistic is for 100 measurements of the same part, with 16 phase averages per data set. The specification represents the 2σ value of each statistic.
- 4 System quality depends upon the accuracy of the transmission element, geometric distortion of the optical and video system used for imaging, and the number of fringes used in the evaluation. The DVD400 is designed to provide better than $\lambda/10$ performance when using 7 or fewer fringes for plano evaluation.



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