

PROmeteus Measurement & Test Systems

Comprehensive Measurement & Test Systems
for Physical Properties of Optical Discs



A Touch of Blue

The **PROmetheus MT-200** is a fundamental off-line measurement system designed for quality assurance and production process control during optical disc replication. Equipped with a range of valuable features, **PROmetheus** sets the industry standard worldwide for measurement of mechanical and optical properties of optical discs and stampers.

As a complement to in-line inspection, the **PROmetheus MT-200** tests and evaluates all prerecorded, recordable and rewritable CDs and DVDs, as well as new formats like DVD±R DL, Blu-ray Disc, HD DVD and UDO.



This tester, unmatched in efficiency and reliability, provides new insights into your replication. It measures all the relevant physical properties and verifies the specifications of all existing optical disc formats. The **PROmetheus MT-200** analyzes the whole disc, embodying an indispensable analytical tool for process stabilization and root cause analysis. Fast feedback on the production process enables the replicator to take corrective actions at an early stage, leading to yield enhancement and a noticeable improvement of the production process.

Groove Evaluation

The **PROmetheus MT-200** can optionally be equipped with a blue laser light source. Due to the shorter wavelength of the blue laser, the angles of the 1st and 2nd diffraction orders are much smaller compared to a red or green laser. This enables reliable measurement of their light intensities, leading to enhanced evaluation of groove shapes and groove symmetry of all recordable and rewritable DVDs, as well as high-density discs, like Blu-ray and HD DVD.

Acceleration Defect Analysis

The HIGH-RES ACC option of the **PROmetheus MT-200** enables enhanced evaluation of acceleration defects on the complete disc. This high-resolution measurement of smallest local deformations is particularly important for high-speed DVD±R and DVD±R DL discs, demanding maximum flatness for proper recording. Previously, only possible on electrical testers with significant time delay, the HIGH-RES ACC option provides immediate feedback on process issues. This allows corrective actions to be taken in time, ensuring a continuous high yield.

General Data	
Disc Diameter	Up to 140 mm
Operating System	LINUX™
Drives	CD Writer, Floppy Disk, USB
Radial Measurement Range	19 ... 70 mm
Measurement Resolution	Radial: 0.1 mm, 0.25 mm, 0.5 mm, 1 mm, 2 mm (selectable) Tangential: 256 points per turn, 2048 points per turn with option HIGH-RES ACC
Measurement Duration	Typically 20 sec, depending on disc diameter and measurement resolution
Display	15" color TFT display, Touchscreen, Resolution: 1024 x 768 pixels
Power Supply	100 ... 127 VAC, 200 ... 240 VAC, 50 ... 60 Hz, 250 VA
Dimensions	Height: 500 mm (+ 330 mm for TFT-screen) Width: 480 mm Depth: 560 mm (+ 230 mm for keyboard drawer)
Laser Class	Class 1 laser and LED product

Technical Data

		CD/CD-R/ CD-RW	DVD-5/-10	DVD-9/ -14/-18	DVD±R	DVD±RW	DVD±R DL	Blu-ray, HD DVD	Stamper
Basic System Measurement Channels									
PRoMetheus MT-200	<ul style="list-style-type: none"> • Transmission and Reflectivity at 650 nm • Radial and Tangential Deviation, Vertical Deviation • Vertical Runout and Axial (Vertical) Acceleration • Optical Density / Thickness of CD-R Dye • Optical Density / Thickness of Reflective Layer • Optical Density / Thickness of Semi-Reflective Layer • Birefringence Values and Orientation • Diffraction Efficiency: 1st Order of CD and DVD • Diffraction Efficiency: 2nd and -1st Order of CD • Groove Depth and Width for CD-R and CD-RW • Clouding of CD 	■	■	■	■	■	■	■	■
Optional Measurement Channels									
LAYER-THICKNESS	<ul style="list-style-type: none"> • Space Layer Thickness • Substrate Thickness of CD and DVD • Space Layer plus Substrate Thickness • Unbalance of CD and CD-R • Cover Layer Thickness of Blu-ray ¹⁾ 	○	○	■	○	○	■	■	-
DIFF-ORDER DVD	<ul style="list-style-type: none"> • Diffraction Efficiency: 2nd and -1st Order of DVD • Groove Evaluation for DVD±R and DVD±RW • Clouding of DVD • Reflectivity and Transmittance at 405 nm 	-	○	○	▲	▲	▲	○	▲
DVDR DYE	<ul style="list-style-type: none"> • Optical Density / Thickness of DVD±R Dye 	○	-	-	■	-	-	-	-
DVDR DL DYE ²⁾	<ul style="list-style-type: none"> • Optical Density / Thickness of DVD±R Dye and DVD±R DL Dye 	○	-	-	○	-	■	-	-
HIGH-RES ACC	<ul style="list-style-type: none"> • Enhanced Evaluation of Local Deformations (ACC) 	○	○	○	▲	○	▲	▲	-
BLU-RAY	<ul style="list-style-type: none"> • Diffraction Efficiency: 1st Order of Blu-ray, HD DVD • Groove Evaluation for Blu-ray and HD DVD • Reflectivity and Transmittance at 405 nm 	○	○	○	○	○	○	■	○
PERP-BIREF	<ul style="list-style-type: none"> • Perpendicular Birefringence 	○	○	○	○	○	○	▲	-
LACQUER	<ul style="list-style-type: none"> • Measurement of Lacquer Thickness 	▲	-	-	○	○	○	○	-
LAPTOP	<ul style="list-style-type: none"> • Laptop for Data Storage 	○	○	○	○	○	○	○	○
STAMPER	<ul style="list-style-type: none"> • Stamper Adapter, Stamper Pin, Diameter on Request 	-	-	-	-	-	-	-	■

- Needed configuration for respective disc type ○ Available option for respective disc type
▲ Highly recommended option for respective disc type - Not applicable

¹⁾ in combination with option BLU-RAY

²⁾ DVDR DL DYE includes DVDR DYE

Light Sources or Illumination	
Light Source 1 and 2	Laser diode: 650 nm (red), circular polarized beam, ≤ 5 mW Spot shape: ≈ 300 μm radial, 800 μm tangential
Light Source 3	Laser diode: 650 nm (red), ≤ 5 mW / Spot shape: ≈ 10 μm diameter
Light Source 4 and 5 ³⁾	Laser diode: 405 nm (blue), ≤ 5 mW Spot shape: ≈ 300 μm radial, 800 μm tangential
Light Source 6 and 7 ⁴⁾	LEDs with 530 nm and 590 nm; other wavelengths on demand
Light Source 8 ⁵⁾	Halogen lamp, white light
Light Source 9 and 10 ⁶⁾	LEDs (visible and infrared)

³⁾ for option DIFF-ORDER DVD and BLU-RAY

⁴⁾ for option DVDR DYE and DVDR DL DYE

⁵⁾ for option LACQUER

⁶⁾ for option DVDR DL DYE

Dr. Schenk GmbH, established in 1985, is an innovative high tech firm based in Munich, Germany.

For the second decade now, the range of products and services offered by Dr. Schenk includes comprehensive solutions for automated quality assurance and production process monitoring – areas where we continue to set new standards for the inspection of surfaces and the measurement of optical and mechanical properties, through the continuous utilization of the latest technical advances in optics and electronics.

The focus of all our activities is the perfect synergy between practical ideas and innovative solutions.

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