

Starrett®



OPTICAL COMPARATORS

HE400

HB400

HD400

HF600

HF750

HS600

HS750

VB300

VB400

VF600

METROLOGY  SOLUTIONS

STARRETT OPTICAL COMPARATORS

RUGGED, ACCURATE & EASY TO USE

Starrett optical comparators provide a time-tested, cost-effective solution for non-contact measurement. In this easy-to-learn technology, the image of a part is projected on a screen at a precisely known magnification. Measurements can then be taken off the image by moving the system's X-Y stage, or the image can simply be compared to a transparent overlay.

Our optical comparators combine mechanical stability with precision optics and versatile lighting to produce bright, sharp images and exceptional accuracy. We offer models in different sizes, with horizontal or vertical projection, lenses for magnifications from 10x to 100x, optical edge or video edge detection, manual, motor-driven or CNC workstage travel, and choice of digital readouts and displays. Our proven mechanical designs are now enhanced with the latest metrology software for unmatched flexibility and productivity.



HORIZONTAL BENCHTOP OPTICAL COMPARATOR

The HD400 is a dual-lens benchtop horizontal optical comparator, with a 16" diameter screen, a vertically correct image, 16" x 6" XY stage travel, a high 110lb workload capacity, and ultra-bright LED lighting. A two-lens slide allows instant switching between two magnifications. Available with optical edge or video edge detection, this comparator provides performance previously only available with floor-standing models.

VIDEO EDGE DETECTION

The HD400 provides the ultimate system flexibility and can be converted from an optical comparator to vision metrology system operation when using the OV2 6.5:1 zoom lens or the TOV2 telecentric video system including choice of 0.3x or 0.5x fixed lens magnification.



FEATURES

- All metal construction for optimum stability
- 16" (400mm) diameter screen with crosslines, overlay clips
- Dual mirror design for vertically erect image
- 21.3"x5.1" (540x130mm) stage surface
- 16" x 6" (406 x152mm) XY stage travel, 2" (50mm) focus travel
- 110lb (50kg) maximum load capacity
- Dual lens slide for instant magnification changes
- Fine adjustment for X and Y axes
- Quick release mechanism for X-axis
- Heidenhain glass scales for 0.00002" (0.5µm) X and Y resolution
- Helix angle adjustment with ±15° Vernier scale
- Fan cooled LED surface and profile illumination
- Flexible duplex fiber-optic surface illumination

OPTIONS

- Six interchangeable fixed magnification lenses including 10x, 20x, 25x, 31.25x, 50X, 100x
- OV2 Video system with video edge detection
- TOV2 Telecentric Video system with video edge detection and choice of 0.3x or 0.5x fixed magnification
- Choice of Quadra-Chek® digital readouts or MetLogix™ M1 tablet, or M2 or M3 measuring software with touch screen monitor and PC
- Manual, motorized or CNC stage motion control
- 23" (58cm) or 32" (81cm) purpose built cabinet stand
- Canopy and curtains (designed to mount on the Starrett cabinet stand)
- Swing away lamp house
- Extensive line of accessories





METLOGIX™ M1 measuring software utilizes an Android operating system and a Bluetooth connection. Clean and simple touch screen interface with large icon buttons and intuitive operation.

METLOGIX™ M2 measuring software with 15.6" color touch screen, 2D geometry software for point, line, circle, distance, angle and skew. Windows® 7 PRO operating system and Wi-Fi network connectivity. Supports optical edge detection and CNC control.

METLOGIX™ M3 measuring software displays on a touch screen monitor and PC. Supports both optical edge detection and video edge detection, and has Wi-Fi connectivity for import/export of CAD files and data.

QUADRA-CHEK® QC221 Digital readout. Monochrome LCD screen (5.7"), sealed metal housing, 2D geometry software. Supports optical edge detection.



Clockwise from the top:
MetLogix™ M3
Quadra-Chek® QC221
MetLogix™ M1

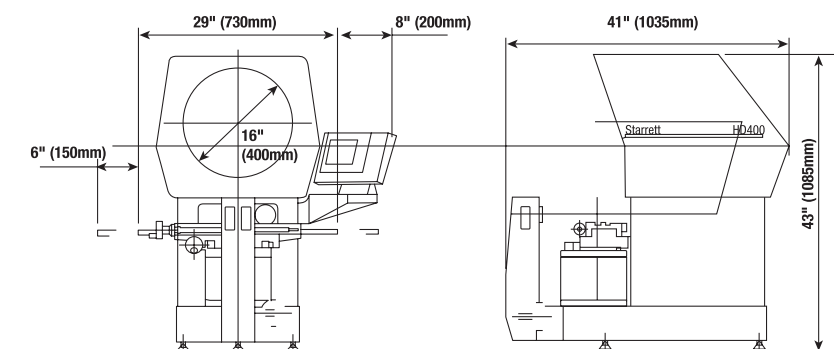
FEATURE	METLOGIX™ M3	METLOGIX™ M2	METLOGIX™ M1	QUADRA-CHEK® QC221
Mounted to compactor arm		X	X	X
Color graphics	X	X	X	
Touch-screen operation	X	X	X	
MS Windows operating system	X	X		
X-Y-Q (angle) measurements	X	X	X	X
2D geometry software with skew	X	X	X	X
Optical edge detection option	X	X	X	X
Video edge detection option	X			
CAD file import and export option	X			
CNC drive option	X	X		
Software developer	MetLogix™			Metronics/Heidenhain

HD400 DIMENSIONS

Gross weight: 385lb (175kg)

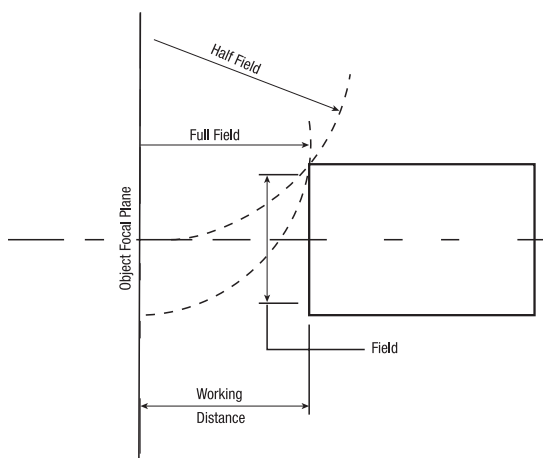
Net Weight: 330lb (150kg)

Shipping dimensions:
49" x 32" x 51" (125 x 81 x 130cm)



HD400 OPTICS

The HD400 is available with a choice of six projection lenses, the Starrett OV2 Optical Video system or TOV2 Telecentric Video system. All interchangeable lens assemblies, the OV2 and the TOV2 Video cameras are mounted by a bayonet-style lens system which allows quick changeover between magnifications or between the OV2 and TOV2 Video cameras and VED operation.



LENS SELECTION GUIDE

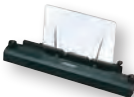
MAGNIFICATION	10	20	25	31.25	50	100
Screen diameter	16"					
Field of view	1.6" (40mm)	.8" (20mm)	.6" (16mm)	.5" (13mm)	.3" (8mm)	.16" (4mm)
Working distance	3.1" (80mm)	3" (76mm)	2.5" (62mm)	2.2" (57mm)	2" (50mm)	1.5" (41mm)
Max. Dia.: Half Field	9.5" (245mm)		10.3" (263mm)	10" (253mm)	7.1" (185mm)	4" (106mm)
Mas. Dia.: Full Field	7" (180mm)	8" (200mm)	10" (250mm)	9" (234mm)	5" (125mm)	3.9" (98mm)
Projected image	Vertically correct					

FIELD OF VIEW TERMINOLOGY

Working Distance:	Is the distance between the objective lens and the component when the component is in focus
Field Of View (FOV):	Is the viewable area. To fill the 16" (400 mm) diameter screen when using a 10x lens, the maximum diameter object projected would be 1.6" (40 mm).
Half Field View:	Is the maximum size a component can be projected to the center of the screen before colliding with the lens.
Full Field of View:	Is the maximum size a component can be projected over the full screen before colliding with the lens.
Projected Image:	Is how a component is projected onto the screen in relation to its placement on the workstage.

ACCESSORIES

Starrett manufactures a comprehensive range of fixtures and accessories for our line of optical comparators. Each accessory is made from the highest quality material and is machined, assembled and inspected to the same stringent quality standards as the comparator itself.

ACCESSORIES			
Precision Centers and Vees	Rotary Vee Blocks	Rotary Vises	Cabinet Stands
			
Vertical Glass Plate Holders	Magnification Check Graticule	Fixed Vises	
			

Starrett Metrology Division

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HD400

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Specifications Subject to Change