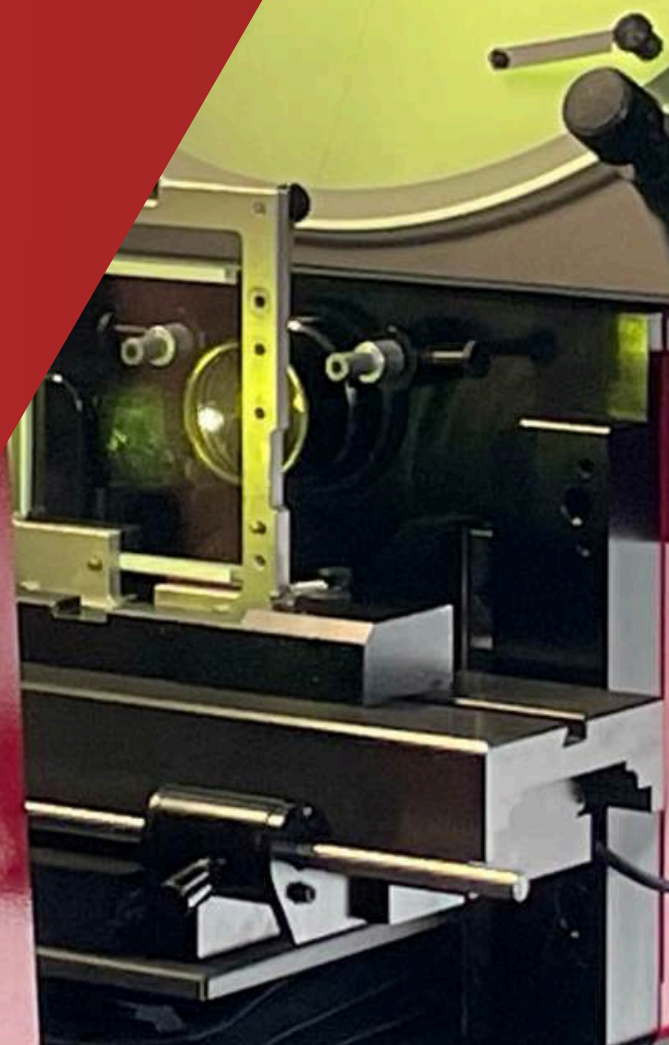


# Documentation

## Projecteur de profil



# HORIZONTAL DIGITAL VIDEO COMPARATORS

## HDV

### HDV300 AND HDV400 BENCH-TOP SYSTEMS

The HDV Horizontal Digital Video Comparators combine the best features of a horizontal optical comparator and a vision metrology system. The HDV is configured like a traditional horizontal comparator. The workstage is the same as the Starrett field-proven comparators. The heart of the HDV system centers on a uniquely patented designed interchangeable lens mounting system coupled to a hi-resolution 5 mega-pixel digital video camera. The system is available with a choice of seven telecentric lenses for micron-level resolution and optical distortion as low as 0.001% for accurate field-of-view (FOV) measurements. With MetLogix™ M3 software, DXF CAD files can be imported and 2D Go/No-Go digital overlays can be developed directly from the CAD files. Video edge detection (VED) allows real-time interaction of the imported file with the video image of the part being inspected. Productivity, speed and accuracy are all enhanced. Systems are available in manual or CNC control.

#### FEATURES AND SPECIFICATIONS

- Steel and aluminum construction with hard anodized stage tooling plate and riser
- 540mm x 130mm workstage
- 50kg maximum load capacity
- 50mm of focus travel
- Manual X-Y and focus positioning via hand wheels or CNC with joystick and trackball positioning
- Heidenhain glass scales for 0.5µm X and Y resolution
- LED illumination for surface and profile lighting
- 5 mega-pixel color video camera (2448 x 2058 pixels)
- Software and part image displayed on 60cm (24") touch-screen color monitor (1920 x 1080 pixels)

#### OPTIONS

- 6 interchangeable telecentric lenses for fields of view from 29mm to 2.3mm (patent US 9,360,435 B2)
- Interchangeable 6.5:1 zoom optics
- Systems are also available with fixed 0.14x lens offering 63mm x 47mm FOV. (Lenses are not interchangeable)
- MetLogix™ M3 software with DXF/FOV, Profile Fitting and Thread Measurement Modules
- Optional CNC controls
- 56cm or 79cm purpose built cabinet stands
- Extensive line of calibration standards, work-holding devices and accessories
- Swing-away lamp house



HDV400 CNC

Click the QR code to view the HDV Series



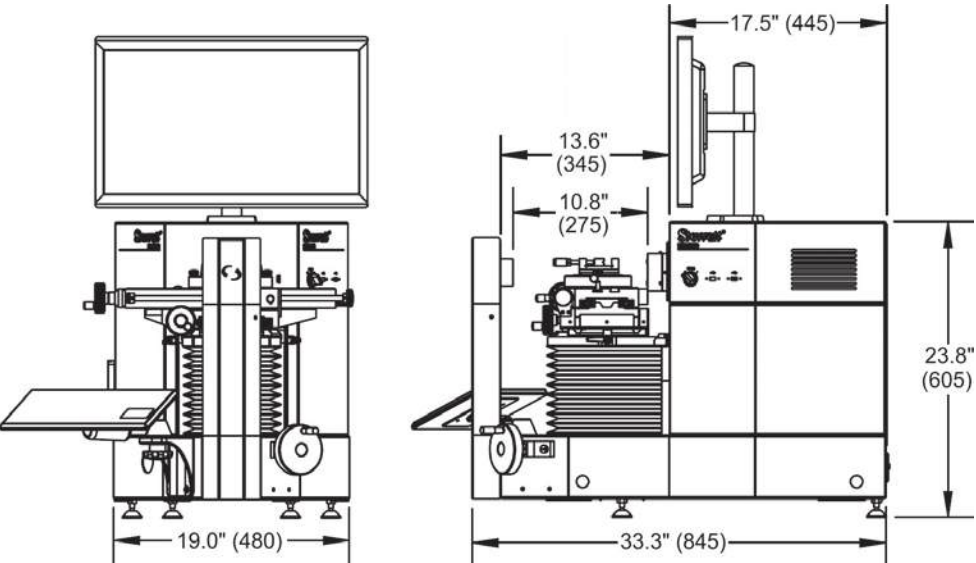
HDV300/400 Optics								
System Parameter	Telecentric Lenses							6.5:1 Zoom Lens
Optical magnification	0.14x	0.3x	0.5x	0.8x	1.0x	2.0x	4.0x	0.7x to 4.5x
Magnification on 60cm (24") monitor	4.7x	10x	16.4x	27x	33x	69x	137x	58x to 363x
Field of view width	60mm	28mm	17mm	10.5mm	8.4mm	4.2mm	2.1mm	12mm to 18.8mm
Field of view height	51mm	24mm	14mm	8.9mm	7.1mm	3.7mm	1.8mm	10.1mm to 15.7mm
Working distance	110mm	110mm	110mm	110mm	110mm	110mm	110mm	88mm

Specifications	HDV300	HDV400
Net Weight	100kg	105kg
Shipping Weight	200kg	200kg
X-Y Travel	300mm x 150mm	400mm x 150mm
X-Y Accuracy	E2 = 3.0 µm + L/33	E2 = 3.0 µm + L/33

Operator Interface	All-in-One PC with M3 DXF/FOV Software
Feature	
60cm (24") color graphic touch-screen monitor and PC	x
Integrated motion control unit	x
Windows®-based operating system	x
Wi-Fi network connectivity	x
Video edge detection	x
X-Y-Q (angle) measurements*	x
2D geometric constructs plus height	x
FOV measurements integrated with X-Y stage motion	x
CAD file import and export	x
Automatic comparison of measurements to CAD files**	x
Software developer	MetLogix™

\*X-Y-Z measurements only available when configured with 3-axis option.  
\*\*Only available when equipped with M3 Digital Comparator module in FOV models.

#### HDV300 / HDV400 DIMENSIONS





# HORIZONTAL DIGITAL VIDEO COMPARATORS

## HDV

### HDV500 CNC FLOOR STANDING

The HDV500 CNC Digital Video Comparator offers the best features of a large, floor standing, horizontal optical comparator and a vision metrology system. The HDV500 has a long 500mm x 200mm X-Y stage and heavy-duty steel construction. The workstage is the same as the popular HF600 and HF750. The heart of the HDV system centers on a uniquely designed interchangeable lens mounting system (patent pending) to a hi-resolution 5 mega-pixel digital video camera. The HDV500 is available with a choice of three telecentric lens options for micron-level resolution and accurate Field-of-View (FOV) measurements. With MetLogix™ M3 Metrology software, DXF CAD files can be imported and 2D Go/No-Go digital overlays can be developed directly from the CAD files. Video edge detection (VED) allows real-time interaction of the imported file with the video image of the part being inspected. Productivity, speed, and accuracy are all enhanced.

#### FEATURES AND SPECIFICATIONS

- Steel construction with nickel plated stage tooling plate
- 540mm x 130mm workstage top plate
- CNC controls
- 150kg maximum load capacity
- 75mm of focus travel
- Helix angle adjustment with ±15° Vernier scale
- X-Y and focus positioning via joystick and trackball positioning
- Heidenhain glass scales for 0.5µm X and Y resolution
- LED illumination for surface and profile lighting
- 5 mega-pixel black and white digital video camera (2448 x 2058 pixels)
- Floor standing model

#### OPTIONS

- 3 interchangeable telecentric lenses for fields of view including- 34.7mm x 29mm, 53.8mm x 45mm, and 76.5mm x 64mm.
- MetLogix™ Profile Fitting and Thread Measurement software
- Extensive line of accessories, workholding devices and calibration standards
- APT60, 120 or 200 rotary indexing table (see page 25)



HDV500

Click the QR code to view the HDV500



Operator Interface	
Feature	All-in-One PC with M3 DXF/FOV Software
1070cm (42") color graphic monitor and PC (installed in main housing)	x
Integrated motion control unit	x
Windows®-based operating system (1080 pixels)	x
Wi-Fi network connectivity	x
Video edge detection	x
X-Y-Q (angle) measurements*	x
2D geometric constructs plus height	x
FOV measurements integrated with X-Y stage motion	x
CAD file import and export	x
Automatic comparison of measurements to CAD files**	x
Software developer	MetLogix™

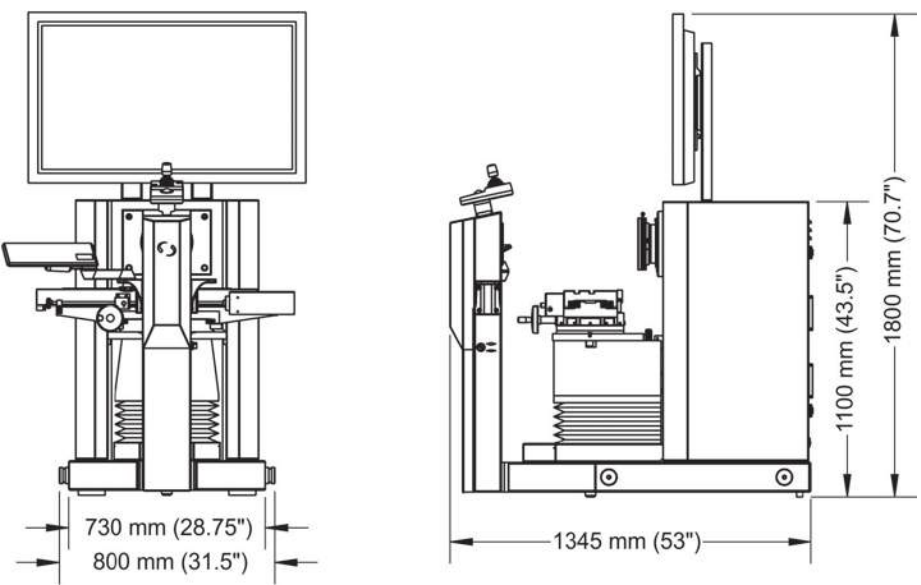
\*X-Y-Z measurements only available when configured with 3-axis option.  
\*\*Only available when equipped with M3 Digital Comparator module in FOV models.

HDV500 Optics			
System Parameter	Telecentric Lenses		
Optical magnification	0.11x	0.16x	0.24x
Magnification on 1070cm (42") monitor**	6.5x	9.3x	14.7x
Field of view width	76.5mm	53.8mm	34.7mm
Field of view height	64mm	45mm	29mm
Working distance	228mm	159mm	150mm

\*Best fit software setting  
\*\*Note that screen magnification is variable based on setting in M3 software

Specifications	
Net Weight	600kg
Shipping Weight	635kg
X-Y Travel	500mm x 200mm
X-Y Accuracy	E2 = 3.0 µm + L/33

#### HDV500 DIMENSIONS

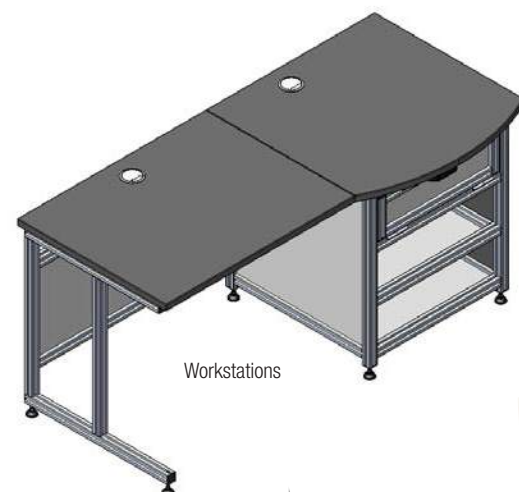


SPECIFICATIONS AND OPTIONS

Model	MVR200	MVR300	AVR200	AVR300	AVR400	AV350	AV450	AVX550	HVR100-Flip	HDV300	HDV400	HDV500
Bench-Top System	X	X	X	X	X	—	—	—	X	X	X	—
Floor-Standing System	—	—	—	—	—	X	X	X	—	—	—	X
Part View Orientation	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Horizontal/Vertical	Horizontal	Horizontal	Horizontal
X-Y-Z Travel (mm)	200mm x 100mm x 200mm	300mm x 200mm x 200mm	200mm x 100mm x 200mm	300mm x 200mm x 200mm	400mm x 300mm x 200mm	350mm x 350mm x 200mm	450mm x 350mm x 200mm	550mm x 400mm x 250mm	—	300mm x 150mm	400mm x 150mm	500mm x 200mm
Z Axis Measuring	Optional	Optional	Standard	Standard	Standard	Standard	Standard	Standard	—	—	—	—
CNC	—	—	Standard	Standard	Standard	Standard	Standard	Standard	—	Optional	Optional	Standard
X-Y Accuracy (µm)	E2 = 1.9µm + 5L/1000	E2 = 1.9µm + 5L/1000	E2 = 1.9µm + 5L/1000	E2 = 1.9µm + 5L/1000	E2 = 2.5µm + 5L/1000	E2 = 2.5µm + 5L/1000	E2 = 2.5µm + 5L/1000	E2 = 2.5µm + 5L/1000	Within 0.010mm	E1 = 3.0µm + L33	E1 = 3.0µm + L/33	E1 = 3.0µm + L/33
Z Accuracy (µm)	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	E1 = 2.5µm + 5L/1000	—	—	—	—
Scale Resolution	0.5µm	0.5µm	0.1µm	0.1µm	0.1µm	0.1µm	0.1µm	0.1µm	—	0.5µm	0.5µm	0.5µm
Multi-Sensor Compatible	—	—	Yes	Yes	Yes	Yes	Yes	Yes	—	—	—	—
Base	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Granite	Aluminum	Steel	Steel	Steel
Control System/Software	M3	M3	M3	M3	M3	M3	M3	M3	M3 FOV	M3	M3	M3
Display	60cm Touchscreen PC (24")	60cm Touchscreen PC (24")	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	60cm (24") Touchscreen PC	1070cm (42") Monitor
Zoom Optics - Standard	6.5:1	6.5:1	6.5:1 - 2 LED 12:1 - 3 LED	6.5:1 - 2 LED 12:1 - 3 LED	6.5:1 - 2 LED 12:1 - 3 LED	12:1	12:1	12:1	—	—	—	—
Zoom Optics - Optional	—	—	—	—	—	6.5:1	6.5:1	—	—	6.5:1	6.5:1	—
Telecentric Optics	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	On FOV models, choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	0.090x	Choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	Choice of 0.3x, 0.5x, 0.8x, 1.0x, 2.0x, 4.0x interchangeable Telecentric Lenses Optional- 0.14x fixed	Choice of 0.11x, 0.16x, 0.24x interchangeable Telecentric Lenses
Digital Video Camera	1.3 or 2.0 MP Color with Telecentric	1.3 or 2.0 MP Color with Telecentric	1.3 MP Color Standard; 2 MP with Telecentric	1.3 MP Color Standard; 2 MP with Telecentric	1.3 MP Color Standard; 2 MP with Telecentric	1.3, 2.0 MP Color (Lens dependent)	1.3, 2.0 MP Color (Lens dependent)	1.3, 5.0 MP (Lens dependent)	5 MP Black and White	5 MP Color	5 MP Color	5 MP Black and White
Surface Ring Illumination	LED	LED	LED	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED	LED	LED	LED	LED
Transmitted Illumination	LED	LED	LED	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED	—	LED	LED	LED
Coaxial Illumination - Optional	LED	LED	LED	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED or Fiber Optic	LED	—	—	—	—
Auxiliary Lenses - Optional	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	0.5x, 1.5x, 2.0x	—	—	—	—
Rotary Fixture	—	—	Optional	Optional	Optional	Optional	Optional	Optional	—	Optional	Optional	Optional-
Renishaw Touch Probe	—	—	Optional	Optional	Optional	Optional	Optional	Optional	—	—	—	—
Renishaw Touch Probe Change Rack	—	—	Optional	Optional	Optional	Optional	Optional	Optional	—	—	—	—
Dual Camera	—	—	—	—	—	—	—	Optional	—	—	—	—
Machine Pedestal and Point of Control Cart	—	—	—	—	—	Standard	Standard	Optional	—	—	—	—
Cabinet Stand	—	—	—	—	—	—	—	—	—	Optional	Optional	—
Workstation Base and extension	Optional	Optional	Optional	Optional	Optional	—	—	—	Optional	—	—	—
Part Fixturing	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Dark Field Quadrant Illumination (LED only)	—	—	Optional	Optional	Optional	Optional	Optional	Optional	—	—	—	—
Video Pixel Calibration Standard	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Calibration Standards	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
FOV, Linear and 2D Calibration Standards	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional



## ACCESSORIES



Workstations



UKAS Traceable Calibration Standards

Renishaw Changer Rack



Touch Probe Kits

Click the QR code to view Inspection Arsenal



### Part Holding Fixtures

Part Holding Fixtures provided in Collaboration with Inspection Arsenal  
[www.inspectionarsenal.com](http://www.inspectionarsenal.com)

## APT ROTARY STAGES: APT 60, 120, 200

Starrett vision systems now have three rotary options- the APT 60, APT 120 and APT 200. These stages provide numerous benefits including increased radial load stability and moment load rating. In addition, the rotary stages are ideal for positioning small cylindrical parts such shafts, cutting tools and threaded parts.

### APT 60 FEATURES

- Available on all CNC AV/AVR/HDV systems
- Great for positioning small cylindrical parts (shafts, cutting tools, threaded parts)
- Includes an axial load rating of 57.8N and a radial load rating of 19.6N
- Includes a 57mm diameter circular face
- Provides encoder resolution to 0.001 degrees
- Includes options for 25mm collet set or a 40mm collet set:
- The 25mm collet set holds parts up to 16mm in diameter
- The 40mm collet set holds parts up to one inch in diameter
- Can be paired with a tailstock and live center for greatly increased radial load stability
- Includes the option for 90-degree mounting bracket

### APT 120 FEATURES

- Available on the HDV 500 system
- Provides significantly increased moment load rating of 14.7Nm
- Includes an axial load rating of 150N
- Includes a 97 mm diameter circular face
- Minimized runout (wobble) and radial runout of 10 microns
- Operates at a maximum speed of 300 rpm
- Includes the option for 90-degree mounting bracket

### APT 200 FEATURES

- Available on the HDV 500 system
- Provides significantly increased moment load rating of 55.2Nm
- Includes an axial load rating of 300N
- Includes a 182mm diameter circular face
- Minimized runout (wobble) and radial runout of 10 microns
- Operates at a maximum speed of 300 rpm
- Includes the option for 90-degree mounting bracket

	APT60	APT120	APT 200
Rotational Accuracy	+5 arc minutes	+30 arc seconds	+30 arc seconds
Load Capacity, Axial	57.8N	150N	300N
Face Diameter	57mm	97mm	182mm
Maximum Speed (RPM)	10	300	300
Runout (µm)	10 (100 with collet set)	10	10
Rotary Stage Weight	1.2 kg	7kg	10kg





# VIDEO INSPECTION SYSTEMS

## KMR-FOV 0.14

The KMR-FOV 0.14 video based inspection and measurement system is ideal for receiving inspection, quality assurance, training, manufacturing assembly, research and documentation - wherever easy setup and operation is required. M3 models offer Field-Of-View measurement, powerful image processing and DXF imports for direct comparison to the work piece for accurate and repeatable measurements.

### FEATURES & SPECIFICATIONS

- 0.14x Telecentric Lens
- Metlogix™ M3 software including Digital Comparator (DC)
- Color digital video camera
- PC with 60cm (24") touchscreen monitor
- LED ringlight and substage illumination
- Screen resolution 1920 x 1080
- Video edge detection

	KMR-FOV .14
Part Number	KMR-FOV-M3-0.14x
Optics	Telecentric Lens
CCD Sensor	5 M Pixel
Camera Interface	USB Cable
Computer	PC
Software	Metlogix™ M3
Video Screen	60cm (24") Touchscreen Monitor
Screen Resolution	1920 x 1080
Lens Magnification	0.14x
Screen Magnification	4.7x
Auxiliary lenses	N/A
Field of view (width x height)	60mm x 51mm
X-Y Stage Motion	None
Metrology Means	M3 FOV Software
Measurement Resolution	Up to 3µm*
Meas. Accuracy	Up to ±3µm*
Basic Stand	Milled
Boom Stand	N/A
LED Back Light	Narrow Angle
LED Ring Light	Dome
Lighting Control	Via M3 Software
Video Inspection	Yes
Basic Dimensions	Yes, VED- FOV Stage Measurement
Geometric Constructs	Yes
Image Annotation	Yes
Image Archiving	Yes
Video Edge Detection	Yes

Our KMR systems line provide high performance for low cost. These machines are simple to operate without compromising performance.

With six models to choose from, we can customize to your specific needs.

Call +44 (0) 1858 436 940 for an exact quote.

Click the QR code to view the KMR-FOV 0.14



# VIDEO INSPECTION SYSTEMS

## KMR 200

The KMR-200-M3 video based inspection and measurement system is ideal for receiving inspection, quality assurance, training, manufacturing assembly, research and documentation - wherever easy setup and operation is required but with an X and Y travel option where stage movement is required. M3 models offer Field-Of-View measurement, powerful image processing and DXF imports for direct comparison to the work piece for accurate and repeatable measurements.

### FEATURES & SPECIFICATIONS

- Precision 200mm x 100mm XY stage
- Metlogix™ M3 software including Digital Comparator (DC)
- Color digital video camera
- PC with 60cm (24") touchscreen monitor
- 6.5:1 zoom lens
- LED ringlight and substage illumination
- Screen resolution 1920 x 1080
- Auxiliary lens 0.5x and 2x
- Video edge detection

	KMR 200
Part Number	KMR-200-M3
Optics	6.5:1 Zoom
CCD Sensor	1.33 M Pixel
Camera Interface	USB Cable
Computer	PC
Software	Metlogix™ M3
Video Screen	60cm (24") Touchscreen Monitor
Screen Resolution	1920 x 1080
Lens Magnification	0.7x to 4.5x Zoom Lens with magnification level feedback through M3 software.
Screen Magnification	35x to 225x
Auxiliary lenses	0.5x, 2x
Field of view width	1.4mm to 9.0mm
Field of view height	1.1mm to 7.4mm
X-Y Stage Motion	200mm x 100mm
Z Travel	125mm
Metrology Means	X and Y Encoders
Measurement Resolution	0.5µm (0.00002")
Meas. Accuracy	2.5µm + 5L/1000
Basic Stand	Standard
Boom Stand	N/A
LED Back Light	Standard
LED Ring Light	Standard
Lighting Control	Via M3 Software
Video Inspection	Yes
Basic Dimensions	Yes, VED- FOV Stage Measurement
Geometric Constructs	Yes
Image Annotation	Yes
Image Archiving	Yes
Video Edge Detection	Yes

Click the QR code to view the KMR 200



# KMR VIDEO INSPECTION SYSTEMS

## KMR

KMR video measurement and inspection systems are a family of four versatile and affordable inspection and vision metrology systems. They are ideal for receiving inspection, quality assurance, training, manufacturing, assembly, research, and documentation – wherever easy setup and a range of magnifications are required. Depending on the size of the parts to be measured, measurements can be all electronic within the field of view, or be integrated with stage motion for parts up to 200mm.

Our KMR systems line provide high performance for low cost. These machines are simple to operate without compromising performance.

With six models to choose from, we can customize to your specific needs.

Call +44 (0) 1858 436 940 for an exact quote.

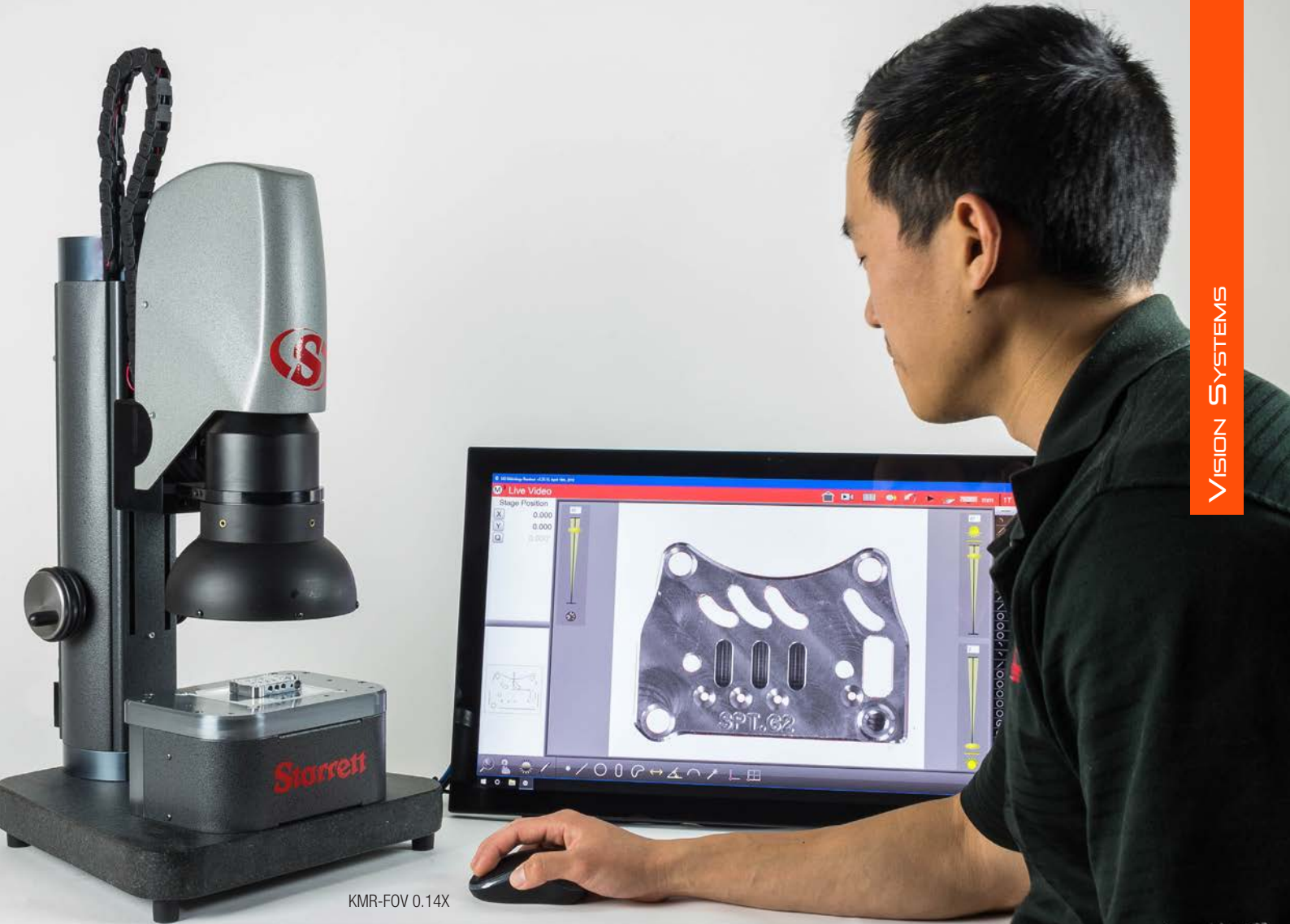
### FEATURES AND SPECIFICATIONS

- Metlogix™ M3 software including Digital Comparator (DC)
- Color digital video camera
- PC with 60cm (24") touchscreen monitor
- LED ringlight and substage illumination
- Screen resolution 1920 x 1080
- Video edge detection
- Equipped with 6.5:1 zoom lens or choice of 0.14x, 0.3x, 0.5x, or 1.0x telecentric lens
- Auxiliary lens options of 0.5x, 0.75x, 1.5x, 2x for use with 6.5:1 zoom option



KMR-M3

Click the QR code to view the KMR Series

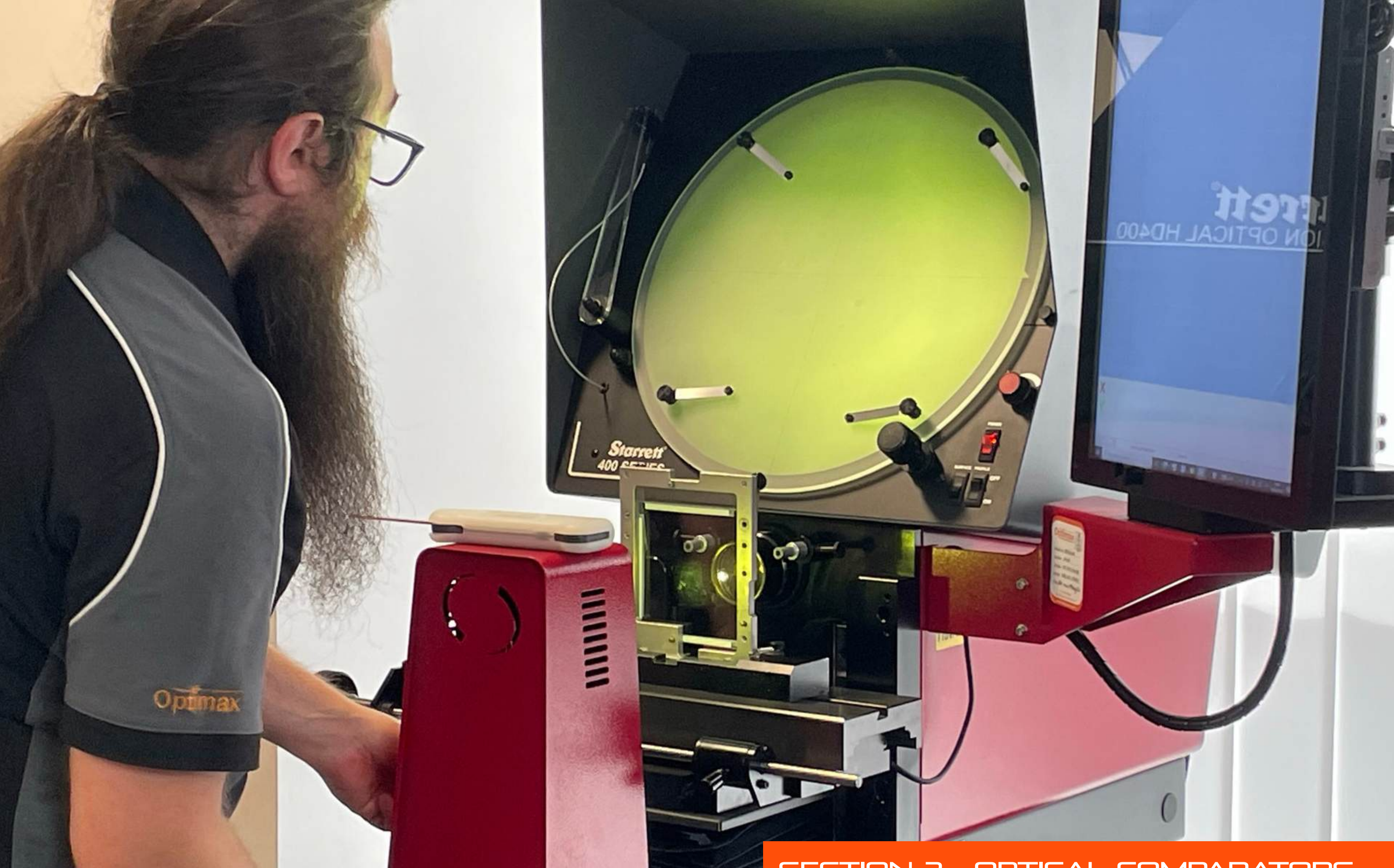


KMR-FOV 0.14X

	KMR	KMR FOV-0.3x	KMR FOV-0.5x	KMR FOV-1.0x
Part Number	KMR-Zoom-M3	KMR-FOV-M3-0.3x	KMR-FOV-M3-0.5x	KMR-FOV-M3-1.0x
Optics	6.5:1 Zoom	Telecentric Lens	Telecentric Lens	Telecentric Lens
CCD Sensor	1.33 M Pixel	2.02 M Pixel	2.02 M Pixel	2.02 M Pixel
Camera Interface	USB Cable	USB Cable	USB Cable	USB Cable
Computer	PC	PC	PC	PC
Software	Metlogix™ M3	Metlogix™ M3	Metlogix™ M3	Metlogix™ M3
Video Screen	60cm (24") Touchscreen Monitor	60cm (24") Touchscreen Monitor	60cm (24") Touchscreen Monitor	60cm (24") Touchscreen Monitor
Screen Resolution	1920 x 1080	1920 x 1080	1920 x 1080	1920 x 1080
Lens Magnification	0.7x to 4.5x Zoom Lens	0.3x	0.5x	1.0x
Screen Magnification	35x to 225x	13x	22x	45x
Auxiliary lenses	0.5x, 2.0x	N/A	N/A	N/A
Field of view width	1.4mm to 9.0mm	24 mm	14mm	7.1mm
Field of view height	1.1mm to 7.4mm	19mm	11mm	5.8mm
X-Y Stage Motion	None	None	None	None
Metrology Means	M3 FOV Software	M3 FOV Software	M3 FOV Software	M3 FOV Software
Measurement Resolution	Up to 2µm*	Up to 2µm*	Up to 2µm*	Up to 2µm*
Meas. Accuracy	Up to ±2.5µm*	Up to ±2.5µm*	Up to ±2.5µm*	Up to ±2.5µm*
Basic Stand	Standard	Standard	Standard	Standard
Boom Stand	Optional	N/A	N/A	N/A
LED Back Light	Standard	Standard	Standard	Standard
LED Ring Light	Standard	Standard	Standard	Standard
Lighting Control	Via M3 Software	Via M3 Software	Via M3 Software	Via M3 Software
Video Inspection	Yes	Yes	Yes	Yes
Basic Dimensions	Yes, VED- FOV Stage Measurement	Yes, VED- FOV Stage Measurement	Yes, VED- FOV Stage Measurement	Yes, VED- FOV Stage Measurement
Geometric Constructs	Yes	Yes	Yes	Yes
Image Annotation	Yes	Yes	Yes	Yes
Image Archiving	Yes	Yes	Yes	Yes
Video Edge Detection	Yes	Yes	Yes	Yes

\*These are best values. Actual values will depend on the zoom lens setting or the selected telecentric lens.  
Disclaimer: Due to continual product improvements, specifications may change without notice.





## SECTION 2 - OPTICAL COMPARATORS

**Starrett®**



# HORIZONTAL BENCH-TOP OPTICAL COMPARATOR

## HE400

The most economical of our bench top comparators, the HE400 offers a 400mm diameter screen, 250mm x 100mm X-Y stage travel, LED lighting, choice of six bayonet-style fixed interchangeable lenses and Q-axis angular readout: all to improve capability and performance. These latest horizontal comparators are fitted with MetLogix™ M1, M2, or Mx-Series measuring software digital readout systems, making them simple to use, but having the power to satisfy the most complex measuring requirements.

### FEATURES AND SPECIFICATIONS

- All metal construction
- Single bayonet-style lens mounting system
- Collimating condenser with yellow/green filter and provision to mount further accessories
- Linear encoder (glass scale) with 1µm on both X and Y axes
- LED profile and surface illumination
- Fully retractable flexible duplex fiber optic surface illumination
- Digital protractor for accurate angle measurement 1' resolution
- Available with MetLogix™ M1 tablet, M2 PC-based touch screen measuring software, Mx100 or Mx200 digital readout system
- 7kg load capacity
- 480mm x 120mm precision workstage top plate with machined slot for easy fixturing
- 254mm x 100mm of XY stage travel
- 1-1/8" (28mm) focus travel
- Fine adjustment on all axes
- Quick release mechanism on the X-axis

### OPTIONS

- Five interchangeable fixed magnification lenses including 10x, 20x, 25x, 50x and 100x
- Automatic fiber optic edge detection
- Canopy and curtains- free standing design (see Pg. 51)
- Purpose built cabinet stand
- Extensive line of accessories



HE400

Click the QR code to view the HE400



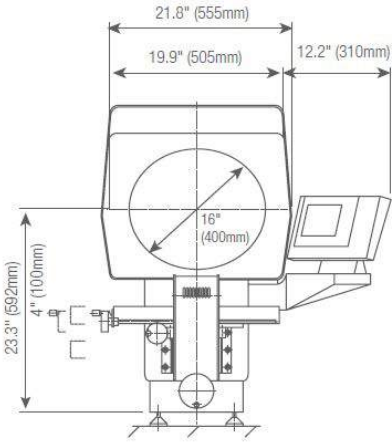
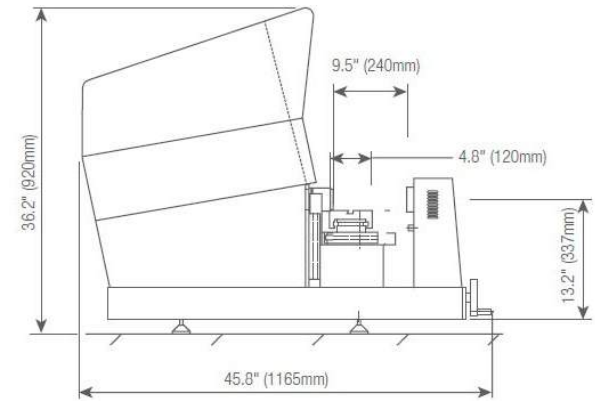
Operator Interface				
Feature	M1	M2	Mx100	Mx200
Optical edge detection (Option)	x	x	—	x
Geometric Functions	x	x	—	x
Graphic Based Constructions	—	x	—	x
Tolerancing	—	x	—	x
Data export reporting	x	x	x	x
Part programming and playback	—	x	—	x
Operating system	MLX Android™	MS Windows®	MLX Android™	MLX Android™
Part view display	—	x	—	—
Feature annotation	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	
	HE400
Horizontal Travel	10" (250mm)
Vertical Travel	4" (100mm)
Focus Travel	1-1/8" (28mm)
Top Plate*	480mm x 120mm
Image	Inverted and reversed

\*With machined single slot for easy fixturing

Weight and Dimensions	
	HE400
Net Weight	105kg
Shipping Weight	146kg
Shipping Dimensions	125cm x 81cm x 130cm

### HE400 DIMENSIONS





# HORIZONTAL BENCH-TOP OPTICAL COMPARATOR

## HB400

The HB400 Optical Comparator provides exceptional performance with a 400mm diameter viewing screen, LED lighting, and 50kg workstage load capacity. Available with optical and/or video edge detection which removes operator subjectivity in locating edges of parts being measured. A bayonet style lens mounting system accepts a choice of five fixed interchangeable lenses as well as the OV2 Zoom or TOV2 fixed telecentric magnification video camera systems. Motorized stage controls and swing-away lamp house are also optional features. This comparator provides performance previously only available with floor standing models.

### FEATURES AND SPECIFICATIONS

- 400mm x 150mm X-Y travel workstage
- All metal construction with hard-anodized stage tooling plate
- Single bayonet-style lens mounting system
- Collimating condenser with yellow/green filter and provision to mount further accessories
- Linear encoder (glass scale) with 0.5µm resolution on both X and Y axes
- LED profile and surface illumination
- Fixed duplex fiber optic surface illumination
- Digital protractor for accurate angle measurement (1' resolution) via Q-axis readout
- Available with MetLogix™ M1 tablet, M2 or M3 measuring software on touch-screen PC, or Mx-Series digital readout.
- Fine adjustment on all axes
- Quick release mechanism on the X-axis

### OPTIONS

- Five interchangeable fixed magnification lenses including 10x, 20x, 25x, 50x and 100x
- Automatic optical edge detection
- Automatic video edge detection (available only with OV2 or TOV2 video cameras and M3 software)
- OV2 Video Camera with 6.5:1 zoom lens
- TOV2 Telecentric Video Camera with choice of 0.3x or 0.5x fixed magnification lens
- Motorized X and Y axes
- Swing-away lamp house
- Canopy and curtains- free standing design (see Pg. 51)
- Purpose built cabinet stand
- Extensive line of accessories



HB400

Click the QR code to view the HB400



Optional 5x Lens

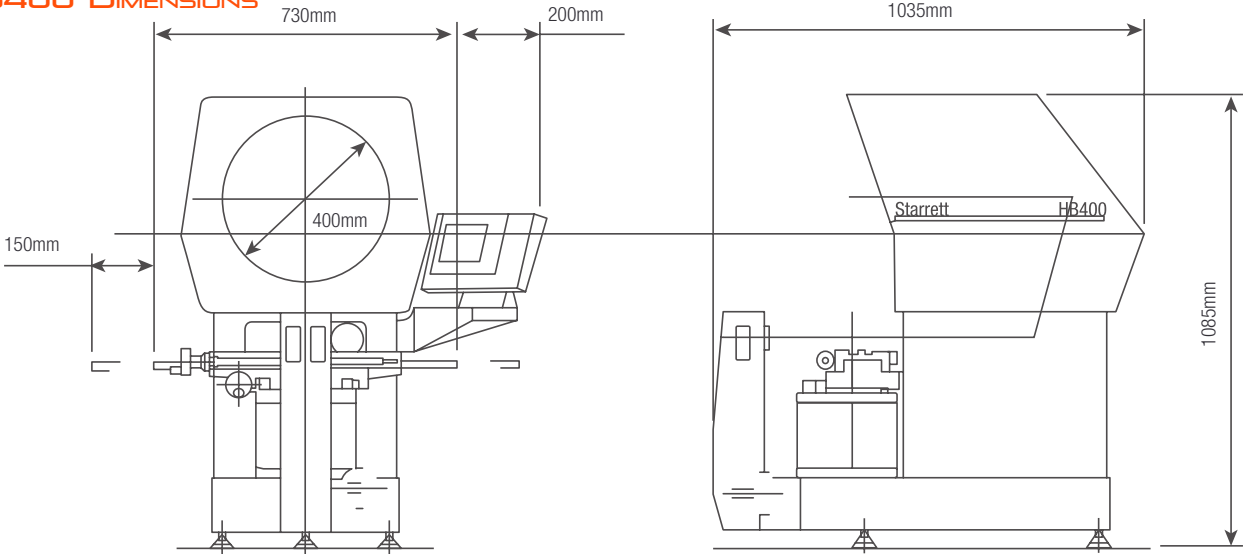
Operator Interface					
Feature	M1	M2	M3	Mx100	Mx200
Optical edge detection (Option)	x	x	x	—	x
Geometric Functions	x	x	x	—	x
Graphic Based Constructions	—	x	x	—	x
Tolerancing	—	x	x	—	x
Data export reporting	x	x	x	x	x
Part programming and playback	—	x	x	—	x
Operating system	MLX Android™	MS Windows®	Windows®	MLX Android™	MLX Android™
Part view display	—	x	x	—	—
Feature annotation	—	x	x	—	—
CNC drive option	—	—	x	—	—
Video edge detection (option)	—	—	x	—	—
CAD file import and export option	—	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	
	HB400
Horizontal Travel	16" (400mm)
Vertical Travel	6" (150mm)
Focus Travel	2" (50mm)
Top Plate*	530mm x 120mm
Image	Vertically correct

\*With machined slots for easy fixturing

Weight and Dimensions	
	HB400
Net Weight	145kg
Shipping Weight	175kg
Shipping Dimensions	125cm x 81cm x 130cm

### HB400 DIMENSIONS





# HORIZONTAL BENCH-TOP OPTICAL COMPARATOR

## HD400

### DUAL LENS

The HD400 is a dual lens Optical Comparator allowing instant switching between two magnifications lenses or video camera adapter. The HD400 is equipped with a 400mm travel workstage as standard. Optional automatic edge detection or video edge detection removes operator subjectivity in locating edges of parts being measured. A bayonet style lens mounting system accepts a choice of five interchangeable lenses as well as our OV2 Zoom or TOV2 fixed telecentric magnification video camera systems. Motorized stage controls and swing-away lamp house are also optional features.

### FEATURES AND SPECIFICATIONS

- 400mm x 150mm X-Y travel workstage
- All metal construction with hard-anodized stage tooling plate
- 400mm diameter screen
- Dual-lens mounting system
- Collimating condenser with yellow/green filter and provision to mount further accessories
- Linear encoder (glass scale) with 0.5µm resolution on both X and Y axes
- LED profile and surface illumination
- Fully retractable flexible duplex fiber optic surface illumination
- Digital protractor for accurate angle measurements (1' resolution) via Q-axis readout
- Helix adjustment for accurate thread form inspection
- Available with MetLogix™ M1 tablet, M2 or M3 PC-based touch screen measuring software or Mx-Series digital readout system
- Fine adjustment on all axes
- Quick release mechanism on the X-axis

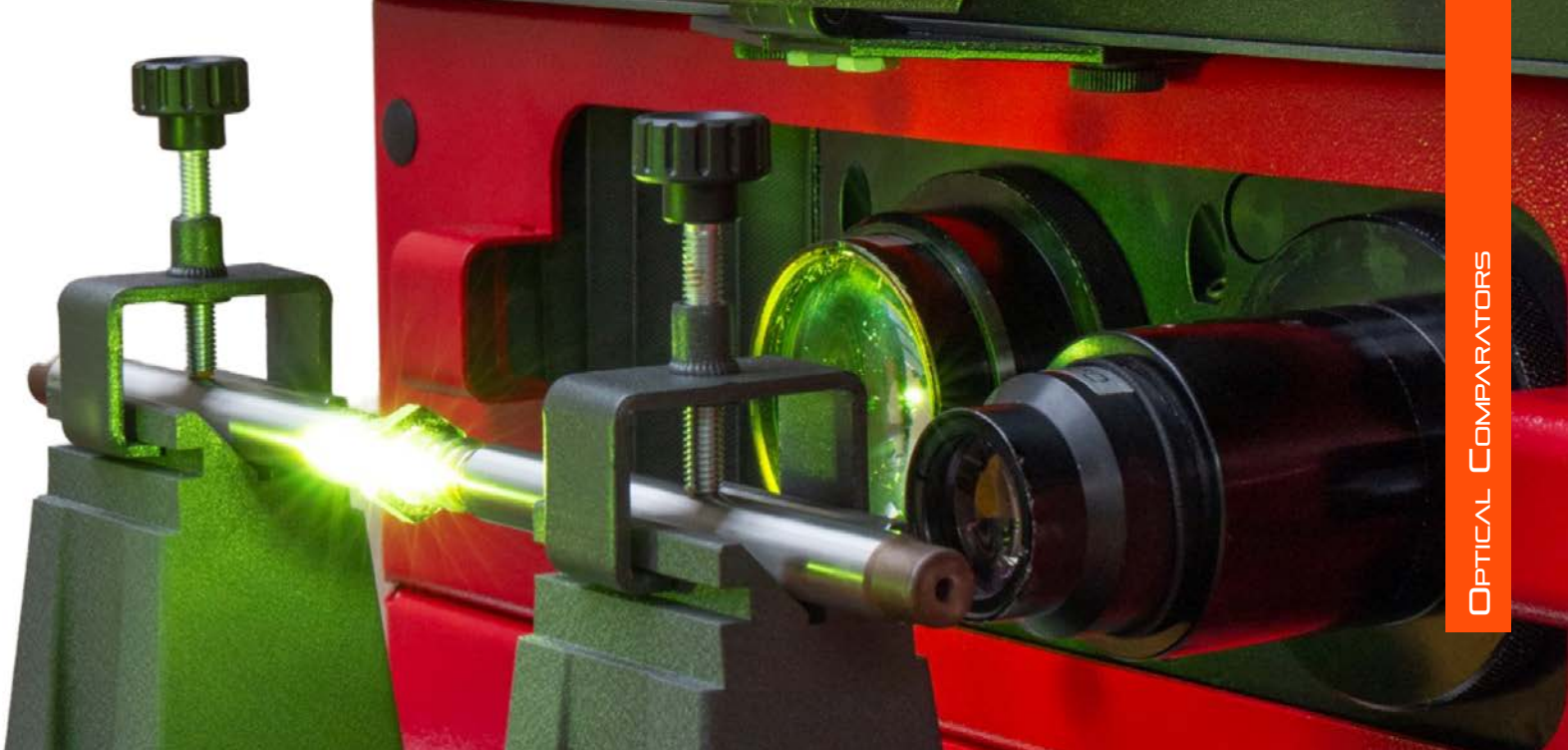
### OPTIONS

- Five interchangeable fixed magnification lenses including 10x, 20x, 25x, 50x and 100x
- Automatic optical edge detection
- Automatic video edge detection (available only with OV2 or TOV2 video cameras and M3 software)
- OV2 Video Camera with 6.5:1 zoom lens
- TOV2 Telecentric Video Camera with choice of 0.3x, or 0.5x fixed magnification lens
- Motorized X and Y axes
- Swing-away lamp house
- Canopy and curtains- free standing design (see Pg. 51)
- Purpose built cabinet stand
- Extensive line of accessories



HD400

Click the QR code to view the HD400



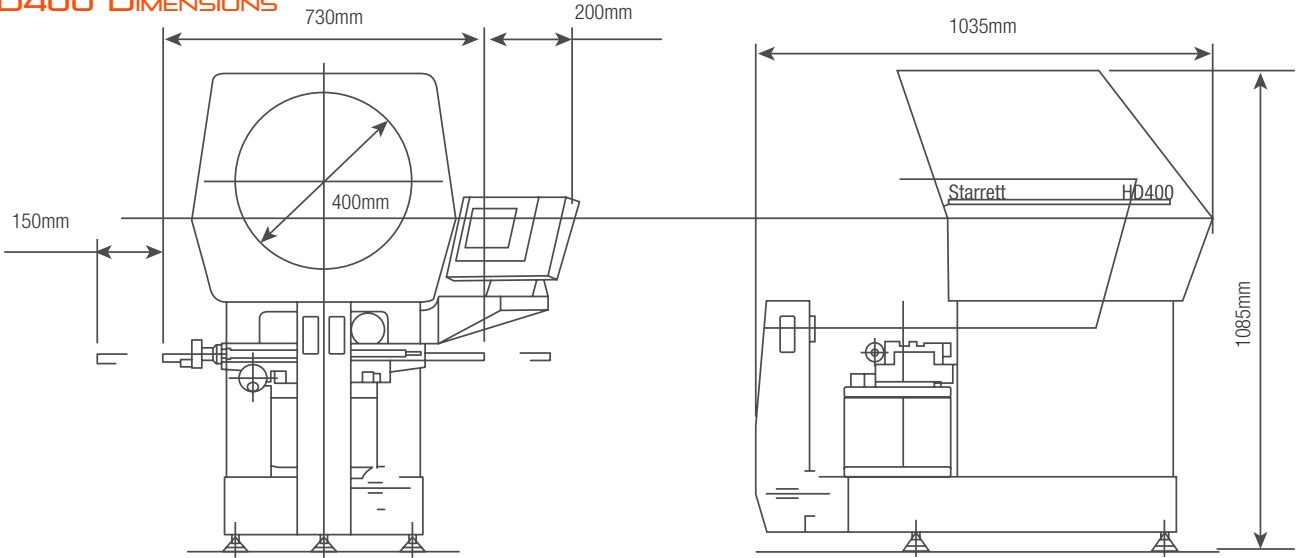
Operator Interface					
Feature	M1	M2	M3	Mx100	Mx200
Optical edge detection (Option)	x	x	x	—	x
Geometric Functions	x	x	x	—	x
Graphic Based Constructions	—	x	x	—	x
Tolerancing	—	x	x	—	x
Data export reporting	x	x	x	x	x
Part programming and playback	—	x	x	—	x
Operating system	MLX Android™	MS Windows®	Windows®	MLX Android™	MLX Android™
Part view display	—	x	x	—	—
Feature annotation	—	x	x	—	—
CNC drive option	—	—	x	—	—
Video edge detection (option)	—	—	x	—	—
CAD file import and export option	—	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	HD400
Horizontal Travel	16" (400mm)
Vertical Travel	6" (150mm)
Focus Travel	2" (50mm)
Top Plate*	530mm x 120mm
Image	Vertically correct

\*With machined slots for easy fixturing

Weight and Dimensions	HD400
Net Weight	145kg
Shipping Weight	175kg
Shipping Dimensions	125cm x 81cm 130cm

### HD400 DIMENSIONS





# HORIZONTAL FLOOR STANDING OPTICAL COMPARATOR

## HF600

Well known throughout the world for superior value and exceptional measuring performance across the full measuring range and at all magnifications, the HF600 sets the standard in all applications from the QC lab to the production floor. The HF600 Comparator has a four-position lens turret for instant selection of optional magnification lenses. Inserting the optional OV2 or TOV2 Video Camera System converts the Comparator into a video metrology system. Ideal for use over a broad spectrum of industries and applications, the HF600 is designed and built to satisfy the requirements of measuring small to large work pieces with total precision, ruggedness, and efficiency. The HF600 utilizes 2D measurement software for geometries like diameters, radius, angles, lines, points, and for skew correction. Advanced software can also provide many tools such as CAD file import, CAD data export for reverse engineering, standard and custom reports, and Ethernet networking.

### FEATURES AND SPECIFICATIONS

- 300mm x 200mm X-Y travel workstage
- All metal construction with nickel plated stage tooling plate
- 600mm diameter screen with precision cross lines and overlay clips
- Motorized X and Y axes standard
- Two-axis power drive via joystick and variable speed control for fine adjustment
- Projection lens turret with four lens capacity (lenses not included)
- Turret mounted condenser system and yellow/green filter and provision to mount further accessories
- Stage Weight Capacity: 150kg (evenly distributed)
- Workstage capacity between centers: 440mm
- Fully retractable duplex fiber optic surface illumination
- 20µin (0.5µm) resolution Heidenhain linear scales
- Screen driven rotary Q-axis with 1' resolution
- Available with MetLogix™ M1 tablet, M2 or M3 measuring software with touch screen and PC, or Mx-Series digital readout systems
- Complete with full canopy and curtains

### OPTIONS

- Six interchangeable lens magnification including 10x, 20x, 25x, 31.25x, 50x and 100x
- Interchangeable OV2 video camera system with a 6.5:1 zoom lens
- Interchangeable TOV2 telecentric video camera systems with choice of 0.16x, 0.3x or 0.5x fixed magnification lenses
- Extended Stage Travel: 20" (500mm) X-axis; 8" (200mm) Y-axis
- Fully automatic CNC controls
- Automatic Optical Edge Detection
- Automatic Video Edge Detection available only with OV2 and TOV2 video camera systems
- Swing-away lamp house
- Extensive line of accessories



HF600

Click the QR code to view the HF600



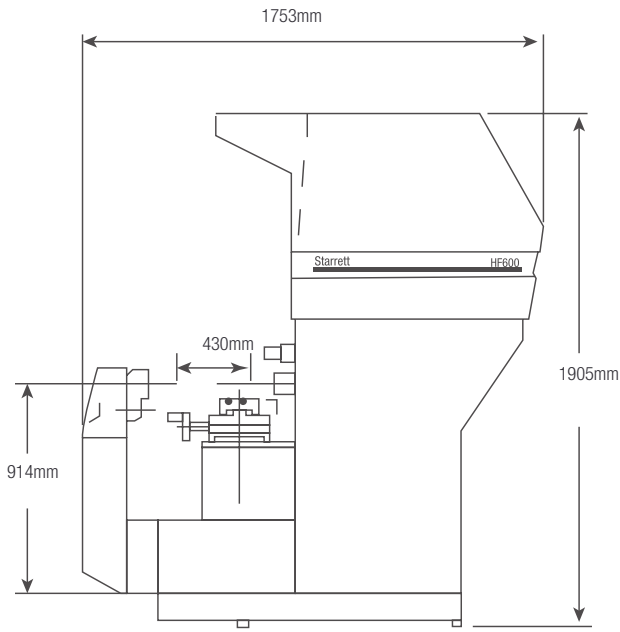
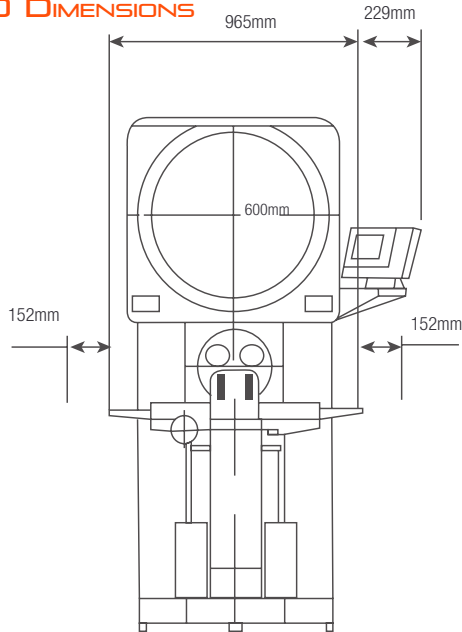
Operator Interface					
	M1	M2	M3	Mx100	Mx200
Optical edge detection (Option)	x	x	x	—	x
Geometric Functions	x	x	x	—	x
Graphic Based Constructions	—	x	x	—	x
Tolerancing	—	x	x	—	x
Data export reporting	x	x	x	x	x
Part programming and playback	—	x	x	—	x
Operating system	MLX Android™	MS Windows®	Windows®	MLX Android™	MLX Android™
Part view display	—	x	x	—	—
Feature annotation	—	x	x	—	—
CNC drive option	—	—	x	—	—
Video edge detection (option)	—	—	x	—	—
CAD file import and export option	—	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	
	HF600
Horizontal Travel	12" (300mm)
Vertical Travel	8" (200mm)
Focus Travel	3" (75mm)
Top Plate*	635mm x 230mm
Image	Erect and reversed

\*With machined slots for easy fixturing

Weight and Dimensions	
	HF600
Net Weight	610kg
Shipping Weight	680kg
Crated Dimensions	206cm x 125cm x 226cm

### HF600 DIMENSIONS





# HORIZONTAL FLOOR STANDING OPTICAL COMPARATOR

## HF750

Utilizing the same exemplary build standards as the HF600, the HF750 super capacity Optical Comparator delivers benefits from an even larger 762mm screen, setting a new standard for clarity and brightness. Ideal for use over a broad spectrum of industries and applications, the HF750 is designed and built to satisfy the requirements of measuring small to large work pieces with total precision, ruggedness, and efficiency. The geometric software measures diameter, radius, angle, line and point features, plus part skewing for faster setup. The HF750 is available with optical edge detection or video edge detection with advanced software and OV2 or TOV2 video camera options.

### FEATURES AND SPECIFICATIONS

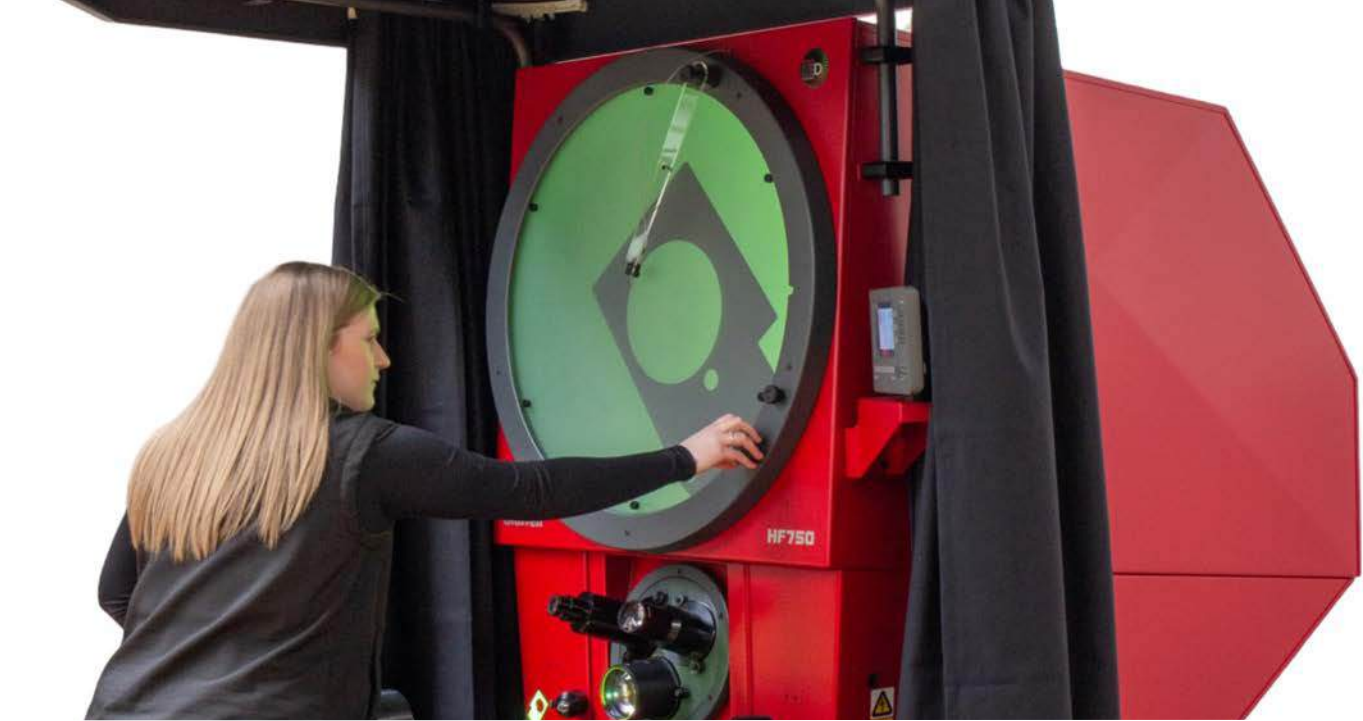
- 300mm x 200mm X-Y travel workstage
- All metal construction with nickel plated stage tooling plate
- 30" (762mm) diameter screen with precision cross lines and overlay clips
- Motorized X and Y axes standard
- Two-axis power drive via joystick and variable speed control for fine adjust
- Projection lens turret with three lens capacity (lenses not included)
- Turret mounted condenser system and yellow/green filter and provision to mount further accessories
- Stage Weight Capacity: 150kg (evenly distributed)
- Workstage capacity between centers 440mm
- Fully retractable duplex fiber optic surface illumination
- Halogen profile and surface illumination
- 20µin (0.5µm) resolution Heidenhain linear scales
- Screen driven rotary Q-axis with 1' resolution
- Available with MetLogix™ M1 tablet, M2 or M3 measuring software with touch screen and PC, or Mx-Series digital readout systems
- Complete with full canopy and curtains

### OPTIONS

- Six interchangeable lens magnifications including 10x, 20x, 25x, 31.25x, 50x and 100x
- Interchangeable OV2 video camera system with 6.5:1 zoom lens
- Interchangeable TOV2 telecentric video camera systems with choice of 0.16x, 0.3x or 0.5x fixed magnification lenses
- Extended Stage Travel: 20" (500mm) X-axis; 8" (200mm) Y-axis
- Fully automatic CNC controls
- Automatic optical edge detection
- Automatic video edge detection available only with OV2 and TOV2 video camera systems
- Swing-away lamp house
- Extensive line of accessories



Click the QR code to view the HF750



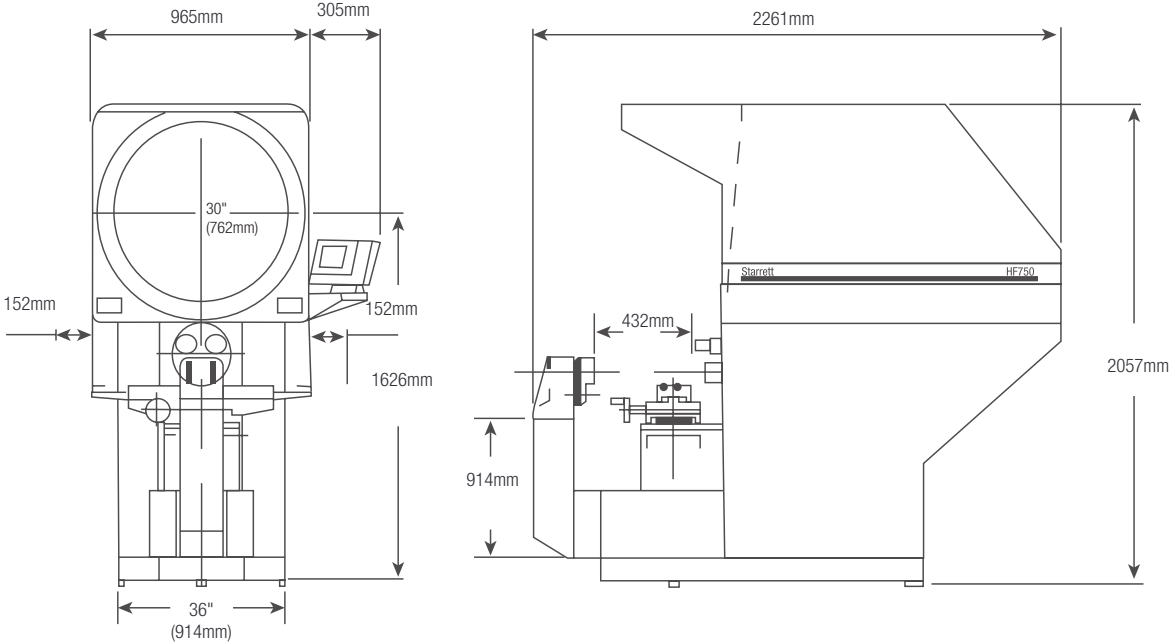
Operator Interface					
Feature	M1	M2	M3	Mx100	Mx200
Optical edge detection (Option)	x	x	x	—	x
Geometric Functions	x	x	x	—	x
Graphic Based Constructions	—	x	x	—	x
Tolerancing	—	x	x	—	x
Data export reporting	x	x	x	x	x
Part programming and playback	—	x	x	—	x
Operating system	MLX Android™	MS Windows®	Windows®	MLX Android™	MLX Android™
Part view display	—	x	x	—	—
Feature annotation	—	x	x	—	—
CNC drive option	—	—	x	—	—
Video edge detection (option)	—	—	x	—	—
CAD file import and export option	—	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	
	HF750
Horizontal Travel	12" (300mm)
Vertical Travel	8" (200mm)
Focus Travel	3" (75mm)
Top Plate*	635mm x 230mm
Image	Erect and reversed

\*With machined slots for easy fixturing

Weight and Dimensions	
	HF750
Net Weight	753kg
Shipping Weight	817kg
Crated Dimensions	244cm x 124cm x 231cm

### HF750 DIMENSIONS





# VERTICAL BENCH-TOP OPTICAL COMPARATORS

## VB300

The VB300 is another optical comparator with the Starrett trademark formula: high performance at a low cost. This vertical bench top comparator is designed to meet the demands of modern industry and is ideal for the rapid inspection of small light-weight components, stampings, plastic molding, electronic components, small turned parts and more. The VB300 features a variety of digital displays making the VB300 easy to use and has the power to satisfy the most complex of measuring requirements.

### FEATURES AND SPECIFICATIONS

- All metal construction for optimum performance
- 300mm diameter screen with overlay clips
- Linear encoder (glass scale) with 0.1µm resolution on both X and Y axes
- Stage weight capacity: 5kg (evenly distributed)
- LED profile and surface illumination
- Screen driven Q-axis
- Quick release mechanism on X-axis and Y-axis
- Available with a simple integrated LED readout display or choice of the new MetLogix™ M1 tablet, M2 PC-based measuring software, or Mx-Series digital readout systems

### OPTIONS

- Choice of four fixed magnification lenses including 10x, 20x, 25x and 50x
- Canopy and curtains- free standing design (see Pg. 51)
- Purpose built cabinet stand
- Work holding accessories

## VB400

The VB400 Vertical Optical Comparator allows flat parts to be simply laid on a glass insert in the workstage. Features include a 400mm diameter vertical screen, ultra-bright LED profile and surface illumination, and linear encoder scales for 0.1µm resolution.

### FEATURES AND SPECIFICATIONS

- All metal construction
- 400mm diameter screen
- Collimating condenser with yellow/green filter and provision to mount further accessories
- Linear encoder (glass scale) with 4µin (0.1µm) resolution on both X and Y axes
- LED profile and surface illumination
- Digital protractor for accurate angle measurements (1' resolution) via Q-axis readout
- Available with MetLogix™ M1 tablet, M2 PC-based touch screen measuring software or Mx-Series digital readout system
- Fine adjustment on all axes
- Quick release mechanism on the X-Y axes

### OPTIONS

- Choice of five fixed magnification lenses including 10x, 20x, 25x, 31.25X and 50x
- Canopy and curtains- free standing design (see Pg. 51)
- Purpose built cabinet stand
- Work holding accessories

Operator Interface- VB300					
Feature	Integral LED readout	M1	M2	Mx100	Mx200
Angular digital measurement in readout	x	—	—	—	x
Mounted to comparator arm	—	x	x	x	x
Color graphics	—	x	x	x	x
Touch screen operation	—	x	x	x	x
Operating system	—	MLX Android™	Windows®	MLX Android™	MLX Android™
X-Y-Q axis digital readout	x	x	x	x	x
2D geometry software with skew	—	x	x	—	x
Optical edge detection option	—	x	x	—	x
Software developer	—	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Operator Interface- VB400				
Feature	M1	M2	Mx100	Mx200
Mounted to comparator arm	x	x	x	x
Color graphics	x	x	x	x
Touch screen operation	x	x	x	x
Operating system	MLX Android™	Windows®	MLX Android™	MLX Android™
X-Y-Q axis digital readout	x	x	x	x
2D geometry software with skew	x	x	—	x
Optical edge detection option	x	x	—	x
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	VB300
Horizontal Travel	4" (100mm)
Vertical Travel	4" (100mm)
Focus Travel	3.5" (90mm)
Top Plate*	225mm x 225mm
Glass Insert	150mm x 150mm
Image	Reversed

\*With machined slot for easy fixturing

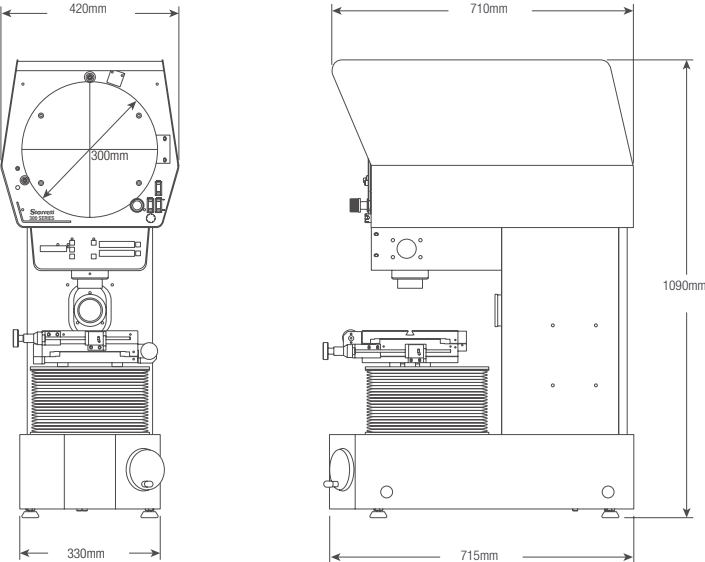
Weight and Dimensions	VB300
Net Weight	192kg
Shipping Weight	201kg
Gross Dimensions (L x W x H)	112cm x 84cm x 132cm

Specifications	VB400
Horizontal Travel	8" (200mm)
Vertical Travel	4" (100mm)
Focus Travel	4" (100mm)
Top Plate*	400mm x 230mm
Glass Insert	235mm x 140mm
Image	Reversed

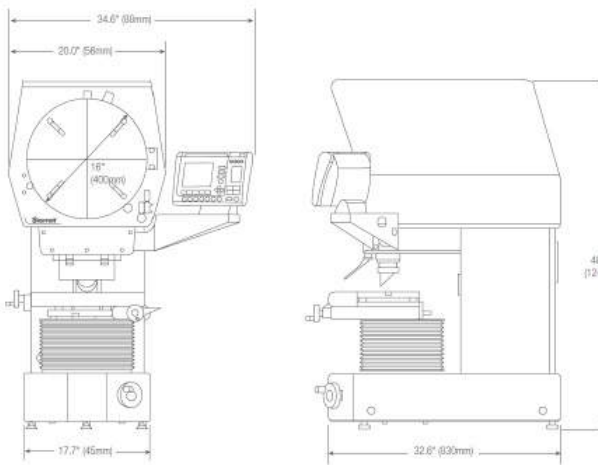
\*With machined slot for easy fixturing

Weight and Dimensions	VB400
Net Weight	192kg
Shipping Weight	201kg
Shipping Dimensions (L x W x H)	125cm x 81cm x 130cm

### VB300 DIMENSIONS



### VB400 DIMENSIONS



Click the QR code to view the VB Series





# VERTICAL FLOOR STANDING OPTICAL COMPARATOR

## VF600

If your measuring requirements demand the use of a large screen vertical axis comparator, then look no further than the VF600. Ideal for the larger components found in the electronics, stamping, and extrusion industries, the VF600 is the ultimate in vertical axis optical comparators; a design based on years of knowledge in the manufacture of high performing optical comparators.

### FEATURES AND SPECIFICATIONS

- 200mm x 100mm X-Y travel workstage
- Available with MetLogix™ M1 tablet, M2 measuring software with touch-screen with PC, or Mx-Series digital readout system
- Screen is angled 30° from horizontal for clear, easy viewing
- Projection lens turret with three lens capacity (lenses not included)
- Turret mounted condenser system complete with two lenses and yellow/green filter with provision to mount further accessories
- Full canopy and curtains
- Linear encoder (glass scale) with 0.5µm resolution on both X and Y axes

### OPTIONS

- Choice of five fixed magnification lenses including 10x, 20x, 25x, 50x and 100x
- Automatic edge detection
- Motorized X-Y axis
- Fully automatic CNC controls



VF600



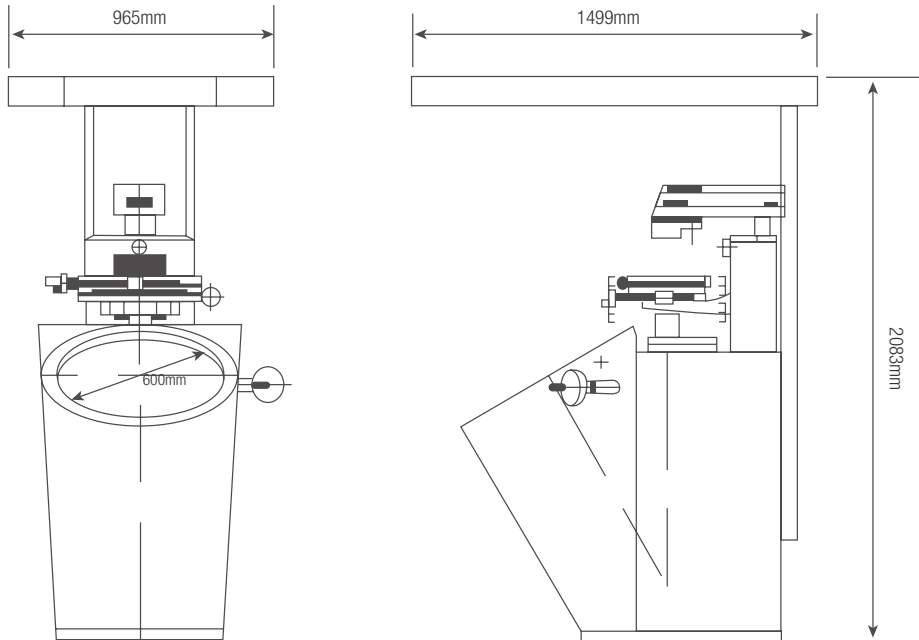
Operator Interface					
Feature	M1	M2	M3	Mx100	Mx200
Optical edge detection (Option)	x	x	x	—	x
Geometric Functions	x	x	x	—	x
Graphic Based Constructions	—	x	x	—	x
Tolerancing	—	x	x	—	x
Data export reporting	x	x	x	x	x
Part programming and playback	—	x	x	—	x
Operating system	MLX Android™	MS Windows®	Windows®	MLX Android™	MLX Android™
Part view display	—	x	x	—	—
Feature annotation	—	x	x	—	—
CNC drive option	—	—	x	—	—
Video edge detection (option)	—	—	x	—	—
CAD file import and export option	—	—	x	—	—
Software developer	MetLogix™	MetLogix™	MetLogix™	MetLogix™	MetLogix™

Specifications	VF600
Horizontal Travel	8" (200mm)
Vertical Travel	4" (100mm)
Focus Travel	4" (100mm)
Top Plate*	400mm x 230mm
Glass Insert	235mm x 140mm
Image	Inverted and reversed

\*With machined slots for easy fixturing

Weight and Dimensions	VF600
Net Weight	230kg
Shipping Weight	425kg
Shipping Dimensions	152cm x 120cm x 206cm

### VF600 DIMENSIONS



Click the QR code to view the VF600





## OV2™ OPTICAL COMPARATOR VIDEO ADAPTER

The OV2 is a special zoom lens and video camera adapter that can be interchanged with the fixed magnification lens on Starrett Optical Comparators. Combined with MetLogix™ M3 measuring software and touch-screen with PC, the result is a low cost video measuring system, expanding the versatility of your optical comparator! The OV2 is available as an option with new Starrett Comparators and as an easy-to-install field retrofit. When used with the dual-lens HD400, and the HF600 and HF750 multi-lens turrets, the OV2 allows immediate access to both Video and Optical measurement without changing the part setup.

### FEATURES AND SPECIFICATIONS

- Interchangeable bayonet style lens mount with 6.5:1 zoom lens, surface ring light and video camera creates a video measuring system
- Changeover between normal optical mode and OV2 is easy and fast
- Lens locks into comparator body and is pre-aligned
- Up to 32mm of working distance allows maximum stage travel utilization
- Video magnifications up to 240x
- Utilizes MetLogix™ M3 measuring software and touch-screen with PC for video display
- Maximizes existing investment to provide a low cost entry into video measurement technology
- Available for other makes of optical comparators, please call for more information



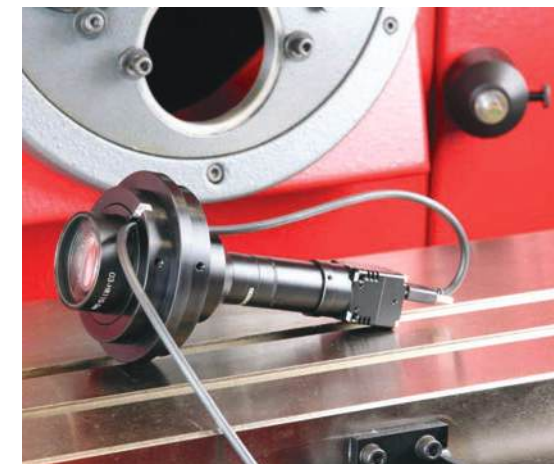
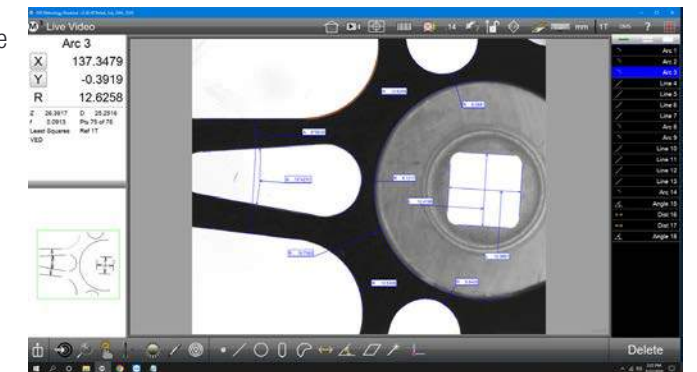
## TOV2 OPTICAL COMPARATOR TELECENTRIC VIDEO ADAPTER

The TOV2 telecentric lens and video camera can be interchanged with the fixed magnification lenses on Starrett Optical Comparators that utilize MetLogix™ M3 software. The TOV2 is available with a choice of 0.16x, 0.3x or 0.5x telecentric lenses as an option with new Starrett Comparators and an easy-to-install field retrofit.

### FEATURES AND SPECIFICATIONS

- Interchangeable bayonet-style lens mount with choice of 3 telecentric lenses, a surface ring light and video camera to create a video measuring system
- Offers a choice of 0.16x, 0.3x, 0.5x or 1.0x telecentric magnification lenses (compatibility depends on model)
- Changeover between normal optical mode and TOV2 is easy and fast
- Lens locks into comparator body and is pre-aligned
- Utilizes MetLogix™ M3 video based measuring software and a touch-screen with PC for video display
- Maximizes existing investment to provide a low cost entry into video measurement technology
- Available for other makes of optical comparators, please call for more information

M3 software display





SPECIFICATIONS AND OPTIONS

Model	HE400	HB400	HD400	VB300	VB400	VF600	HF600	HF750	HS600*	HS750*
Bench Top System	x	x	x	x	x	—	—	—	—	—
Floor-Standing System	—	—	—	—	—	x	x	x	x	x
Part View Orientation	Horizontal	Horizontal	Horizontal	Vertical	Vertical	Vertical	Horizontal	Horizontal	Horizontal	Horizontal
Side Bed Version	—	—	—	—	—	—	—	—	Standard	Standard
Screen Diameter (in)	16"	16"	16"	12"	16"	24"	24"	30"	24"	30"
Screen Diameter (mm)	400mm	400mm	400mm	300mm	400mm	600mm	600mm	750mm	600mm	750mm
X-Y Measuring Range (in)	10" x 4"	16" x 6"	16" x 6"	4" x 4"	8" x 4"	8" x 4"	12" (20" optional) x 8"	12" (20" optional) x 8"	12" (20" optional) x 8"	12" (20" optional) x 8"
X-Y Measuring Range (mm)	254mm x 100mm	400mm x 150mm	400mm x 150mm	100mm x 100mm	200mm x 100mm	200mm x 100 mm	300mm (500mm) x 200mm	300mm (500mm) x 200mm	300mm (500 mm) x 200mm	300mm (500 mm) x 200mm
Linear Glass Scale Encoder on X and Y Axis	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Motorized X-Y Axis	—	Optional	Optional	—	—	Standard	Standard	Standard	Standard	Standard
CNC Control	—	Optional	Optional	—	—	Optional	Optional	Optional	Optional	Optional
Focus Range (in)	1.2"	2"	2"	3.5"	4"	3"	3"	3"	3"	3"
Focus Range (mm)	30mm	50mm	50mm	90mm	100mm	100mm	75mm	75mm	75mm	75mm
Work Stage (in)	18.75" x 4.75"	21" x 5"	21" x 5"	9" x 9"	16" x 9"	16" x 9"	25" x 9" (Optional 32"x 8")	25" x 9" (Optional 32"x 8")	25" x 9" (Optional 32" x 8")	25" x 9" (Optional 32" x 8")
Work Stage (mm)	480mm x 120mm	530mm x 130mm	530mm x 130mm	225mm x 225mm	400mm x 225mm	400mm x 225mm	635mm x 230mm (813mm x 203mm)	635mm x 230mm (813mm x 203mm)	635mm x 230mm (813mm x 203mm)	635mm x 230mm (813mm x 203mm)
Load Capacity with Negligible Deflection (kg)	6.8kg	10kg	10kg	5kg	10kg	30kg	50kg	50kg	50kg	50kg
Load Capacity Maximum (kg)	25kg	50kg	50kg	6.8kg	22.7kg	30kg	150kg	150kg	150kg	150kg
Angula Measurement Resolution	1'	1'	1'	1'	1'	1'	1'	1'	1'	1'
Profile Illumination	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Surface Illumination	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Quick Change Lens Mount (lenses not included)	Single	Single	Dual	Single	Single	3 Lens Turret	4 Lens Turret	3 Lens Turret	3 Lens Turret	3 Lens Turret
Collimating Condenser with Yellow/Green Filter	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard	Standard
Control System Software	M1, M2, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	LED Display, M1, M2, Mx100, Mx200	M1, M2, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	M1, M2, M3, Mx100, Mx200	M1, M2, M3, Mx100, Mx200
Display (control system dependent)	M1 tablet, 15" All-in-One touch screen PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	LED Display, M1 tablet, 15" All-in-One touch screen PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO	M1 tablet, 15" All-in-One touch screen PC, 24" touch screen monitor with PC, Mx DRO
Optical Edge Detection	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Digital Video Camera System	-	Optional	Optional	—	—	—	Optional	Optional	Optional	Optional
Lenses - Screen Magnification (one required, not included)	10x, 20x, 25x, 50x, 100x	10x, 20x, 25x, 50x, 100x	10x, 20x, 25x, 50x, 100x	10x, 20x, 25x, 50x	10x , 20x, 25x, 31.25x, 50x, 100x	10x, 20x, 25x, 50x, 100x	10x, 20x, 25x, 31.25x, 50x, 100x	10x, 20x, 25x, 31.25x, 50x, 100x	10x, 20x, 25x, 31.25x, 50x, 100x	10x, 20x, 25x, 31.25x, 50x, 100x
Iris Diaphragm	Optional	Optional	Optional	—	—	Optional	Optional	Optional	Optional	Optional
Precision Rotary Vise	Optional	Optional	Optional	—	—	—	Optional	Optional	Optional	Optional
Vee Block on Rotary Base	Optional	Optional	Optional	—	—	—	Optional	Optional	Optional	Optional
Precision Fixed Vise	Optional	Optional	Optional	—	—	—	Optional	Optional	Optional	Optional
Precision Centers and Veels	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional	Optional
Helix Center Support System	—	—	—	—	Optional	Optional	—	—	—	—
Precision Rotary Work Stage	—	—	—	—	Optional	Optional	—	—	—	—
Glass Plate Work Holder	Optional	Optional	Optional	—	—	—	Optional	Optional	Optional	Optional
Field of View Diameter (in)	8.2", 8.2", 8.2", 5.5", 4.1"	7.0", 7.8", 9.8", 4.9", 3.8"	7.0", 7.8", 9.8", 4.9", 3.8"	5.5", 5.5", 5.5", 5.5"	8.2", 8.2", 8.2", 5.5", 5.5", 4.1"	5.5", 5.5", 5.5", 5.5", 3.8"	11.0", 11.0", 11.0", 11.0", 4.0"	15.7", 13.3", 11.0", 5.7", 6.2"	11.0", 11.0", 11.0", 11.0", 4.0"	15.7", 13.3", 11.0", 5.7", 6.2"
Field of View Diameter (mm)	210mm, 210mm, 210mm, 140mm, 105mm	180mm, 200mm, 250mm, 125mm, 98mm	180mm, 200mm, 250mm, 125mm, 98mm	140mm, 140mm, 140mm, 140mm	210mm, 210mm, 210mm, 140mm, 140mm, 105mm	140mm, 140mm, 140mm, 140mm, 98mm	280mm, 280mm, 280mm, 280mm, 104mm	400mm, 340mm, 280mm, 145mm, 160mm	280mm, 280mm, 280mm, 280mm, 104mm	400mm, 340mm, 280mm, 145mm, 160mm
Working Distance (in)	3.0", 2.9", 2.7", 1.9", 1.6"	3.1", 2.9", 2.4", 1.9", 1.6"	3.1", 2.9", 2.4", 1.9", 1.6"	3.0", 2.9", 2.7", 1.9"	3.0", 2.9", 2.7", 2.1", 1.9", 1.6"	5.4", 5.0", 4.0", 3.4", 1.7"	5.4", 5.0", 4.0", 3.4", 1.7"	5.9", 3.9", 3.6", 2.3", 1.8"	5.4", 5.0", 4.0", 3.4", 1.7"	5.9", 3.9", 3.6", 2.3", 1.8"
Working Distance (mm)	78mm, 76mm, 70mm, 50mm,41mm	80mm, 76mm, 62mm, 50mm, 41mm	80mm, 76mm, 62mm, 50mm, 41mm	78mm, 76mm, 70mm, 50mm	78mm, 76mm, 70mm, 55mm, 50mm, 41mm	138mm, 127mm, 103mm, 88mm, 44mm	138mm, 127mm, 103mm, 88mm, 44mm	151mm, 101mm, 92mm, 60mm, 48mm	138mm, 127mm, 103mm, 88mm, 44mm	151mm, 101mm, 92mm, 60mm, 48mm
Cabinet Stand 79cm	Optional	Optional	Optional	Optional	Optional	—	—	—	—	—
Cabinet Stand 56cm	Optional	Optional	Optional	Optional	Optional	—	—	—	—	—
Canopy and Curtains	Optional	Optional	Optional	Optional	Optional	Standard	Standard	Standard	Standard	Standard

\*Systems are not shown in this catalog.





ACCESSORIES

Starrett offers a full range of accessories and purpose-built cabinet stands designed for our Optical Comparator systems to ensure efficient system setup for a broad range of applications.

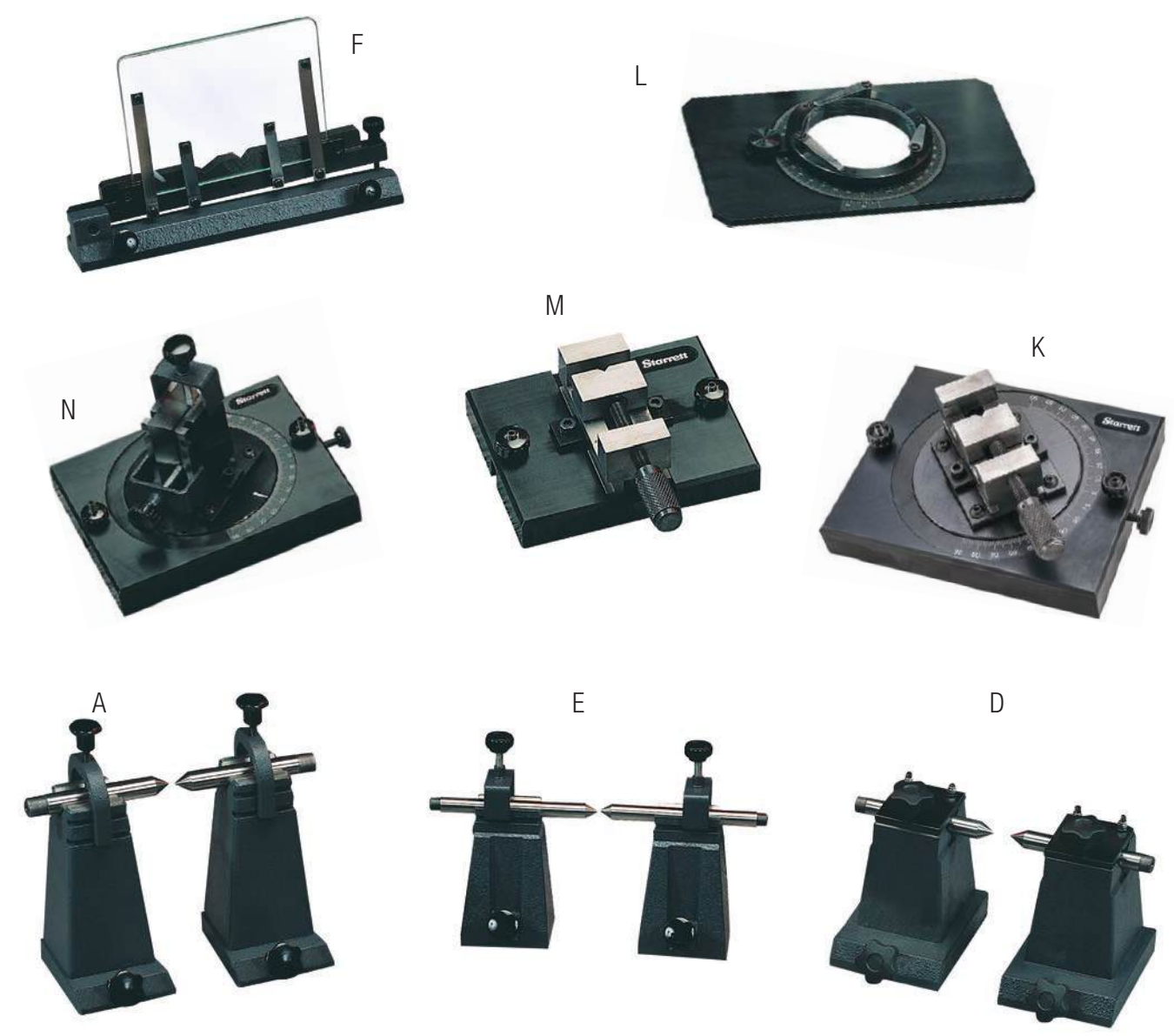
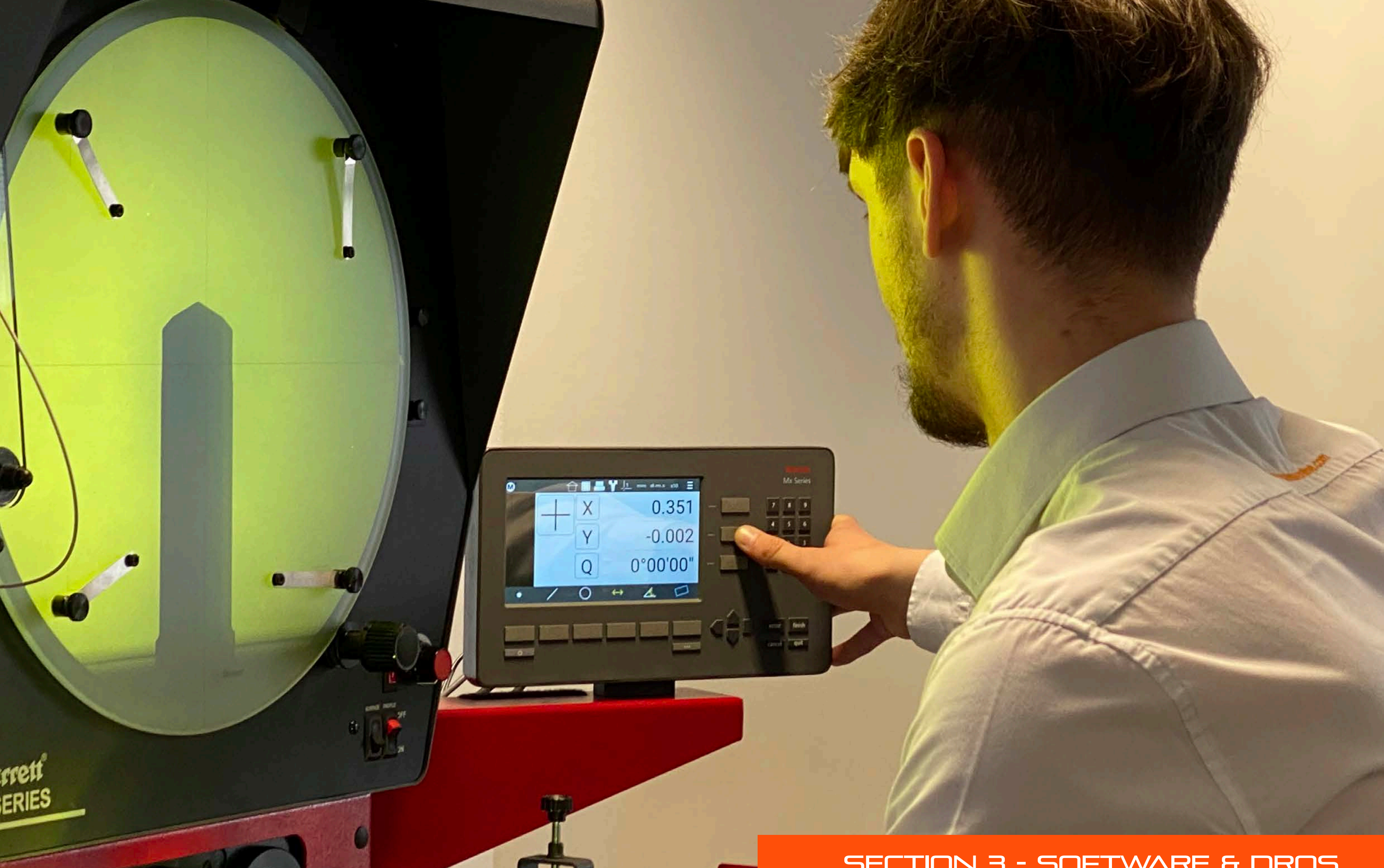


Photo Key	Part No.	Description	For Models
A	OCN8	Large Centers and Vees	HF600, HF750, HDV500
B	ORV2*	2-1/32" Capacity Rotary Vise	HF600, HF750, HDV500
C	4U000* OGH1* OGH2*	Magnification Checking Graticule	HE/HB/HD400 and VB400 HF750 HF600
D	OCN7	Small Centers and Vees	HF600, HF750, HDV500
E	7P000	Centers and Vees	HE/HB/HD400
F	OVH1	Vertical Glass Plate Holder	HF600, HF750, HDV 500
J	7U000*	Vertical Glass Plate Holder	HB400, HD300, HDV300, HDV400
K	4H003-1	Rotary Vise with 1-1/4" Capacity	HE/HB/HD400, HF600, HF750
L	6U003	Rotary Work-stage	VB400
M	4H002-1	Fixed Position Vise with 1-1/4" Capacity	HE400, HB400, HD400, HF600, HF750
N	4H004-1	Universal Vee Block on Rotary Base	HF600, HF750
O	7R000	79cm Cabinet Stand	HE400, HB400, HD400, VB300, VB400
P	7R001	Canopy and Curtains	HE400, HB400, HD400, VB300, VB400
	6N011	Canopy and Curtains (no bench required)	VF600
	OCY16	Canopy and Curtains (no bench required)	HF600, HF750

\*Product not shown





## SECTION 3 - SOFTWARE & DROS



# MetLogix™ SOFTWARE

## M1 & M2

### FOR OPTICAL COMPARATORS

Graphics rich display, large icon buttons, and intuitive operation. Coordinate display for X and Y linear axes and Q angular values for screen rotation. Easy part alignment and datum function.



M1 shown on VB300



M2 All-in-One Touchscreen PC

### FEATURES

- Clean and simple touchscreen interface with large icon buttons and intuitive operation
- Graphics-rich display providing instant information on feature form, tolerances, and measurement data
- Coordinate display for X and Y linear axes and Q angular values for screen rotation
- Easy part alignment and datum functions
- Measure and tolerance these geometric features: point, line, angle, distance, radius, diameter
- As you measure, a part view is created in the feature view. Constructions between features such as distances and bolt hole pattern can be done by simple selections from the part view.
- For repetitive part measurement, create a part program that will visually guide operators through part measurement
- Optional optical edge detection provides better throughput and removes operator subjectivity
- Four different report forms can be printed or exported to Microsoft Excel, text files, or to an SPC program
- M2 utilizes a Windows®-based operating system, enabling flexible data export and interface capability
- M1 utilizes an Android™ operating system and a Bluetooth® connection to the host Optical Comparator
- Fast, easy connection to printers and networks

	MetLogix™ M1	MetLogix™ M2
Mounted to comparator arm	x	x
Color graphics	x	x
Touch-screen operation	x	x
Operating system	MLX Android™	Windows®
X-Y-Q (angle) measurements	x	x
2D geometry software with skew	x	x
Optical edge detection option	x	x
Interface	Android™ Tablet	38cm (15") All-in-one Touchscreen PC



### M1 & M2

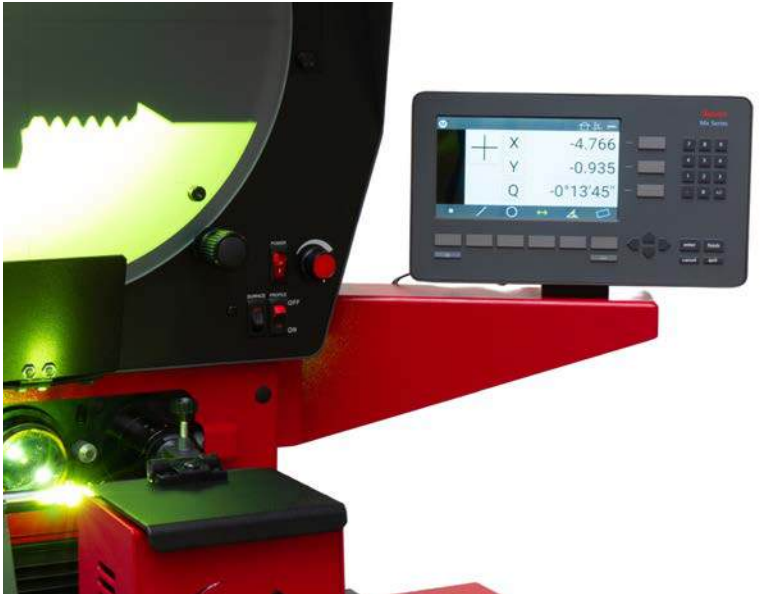
MetLogix™ control software provides a broad range of powerful, user-friendly functions on a compact, icon-based touchscreen interface in place of the traditional control.

# MetLogix™ SOFTWARE

## Mx100 & Mx200

### FOR OPTICAL COMPARATORS

The Mx100 and Mx200 are shop-hardened digital readouts. A sealed rubber keypad and durable powder-coated enclosure provide lasting performance in any environment from the shop floor to the Quality Control Lab.



Mx200 Shown on HD400



Mx200 shown on HB400



Mx100



Mx200

### FEATURES

- Clean, simple and durable interface with large rubber buttons and intuitive operation
- Graphics-rich display providing instant information on feature form, tolerances, and measurement data on 18cm (7") color screen
- Coordinate display for X and Y linear axes and Q angular values for screen rotation
- Easy part alignment and datum functions
- Measure and tolerance these geometric features: point, line, angle, distance, radius, diameter
- As you measure, a part view is created in the feature view. Constructions between features such as distances and bolt hole pattern can be done by simple selections from the part view.
- For repetitive part measurement, create a part program that will visually guide operators through part measurement
- Optical edge detection on Mx200 provides better throughput and removes operator subjectivity
- Four different report forms can be printed or exported to Microsoft Excel, text files, or to an SPC program
- Mx-Series utilizes a customized Android™ operating system
- Fast, easy connection to printers and networks
- MxLink technology on the Mx200 model allows users to transfer measurement data instantly and wirelessly to a network Windows® computer

	MetLogix™ Mx100	MetLogix™ Mx200
Mounted to comparator arm	x	x
Color graphics	x	x
Touch-screen operation	x	x
Operating system	MLX Android™	MLX Android™
X-Y-Q (angle) measurements	x	x
2D geometry software with skew	—	x
Optical edge detection option	—	x
Interface	MetLogix™ DRO	MetLogix™ DRO



### Mx100 & Mx200

MetLogix™ control readouts provide a broad range of powerful, user-friendly functions on a compact, icon-based touchscreen interface in place of the traditional control.



# METLOGIX™ SOFTWARE

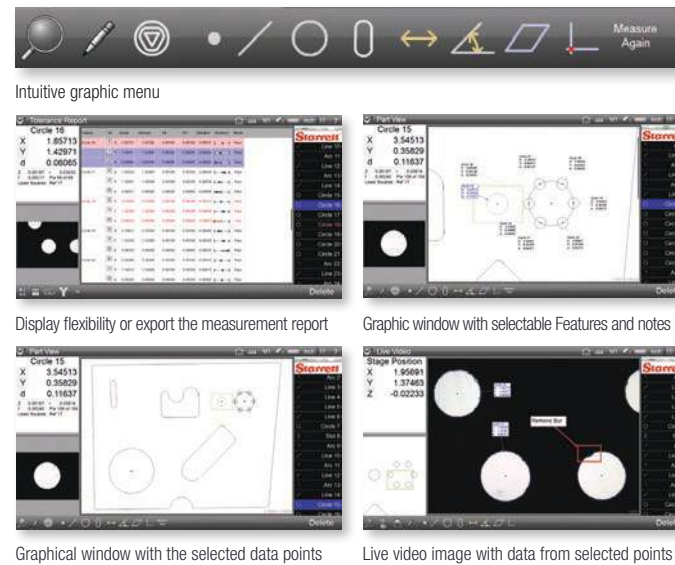
## M3

### FOR VISION SYSTEMS

Multi-touch software control that can pan and zoom with pinch, swipe, or touch. Works with active part views and live video feeds (or use the conventional mouse interface). Custom "Eye Measure" probe captures complex edges generated by a finger path drawn on the touch screen. Measure Logic probe intelligence provides instant feature determination and measurement with a single touch.

#### FEATURES

- DXF CAD file import for comparing parts being inspected to the actual design file; no need for cumbersome Mylar overlays
- "Vtouch" Probe has video touch probe functionality – just click for simple acquisition of points on a feature's edge
- Part View can generate distance and tangent lines from within the graphical part view. The "Gesture Menu" can be used for feature creation and manipulation tools.
- "Quick Annotate" allows data on several features to be displayed simultaneously with smart marquee feature selection
- Application of universal tolerance value entry according to feature resolution groupings
- Feature Detail Graphics: Individual feature views display point cloud distributions, nominal deviations, and tolerance results. Scroll through Actual, Nominal, Tolerance, Deviation and Data Fit Type information
- Simple machine/camera calibration with popular machine and video correction methods
- Windows®-based, globally recognized OS for flexible data exporting and interface with Windows® applications
- DC (FOV) software option



# METLOGIX™ SOFTWARE

## M3

### FOR OPTICAL SYSTEMS

Full CNC control software that is used in conjunction with the OV2 zoom video camera and/or the TOV2 telecentric video camera systems. The M3 system allows for both conventional mouse point-and-click control as well as touchscreen pan and pinch zoom for feature measurement.

#### FEATURES

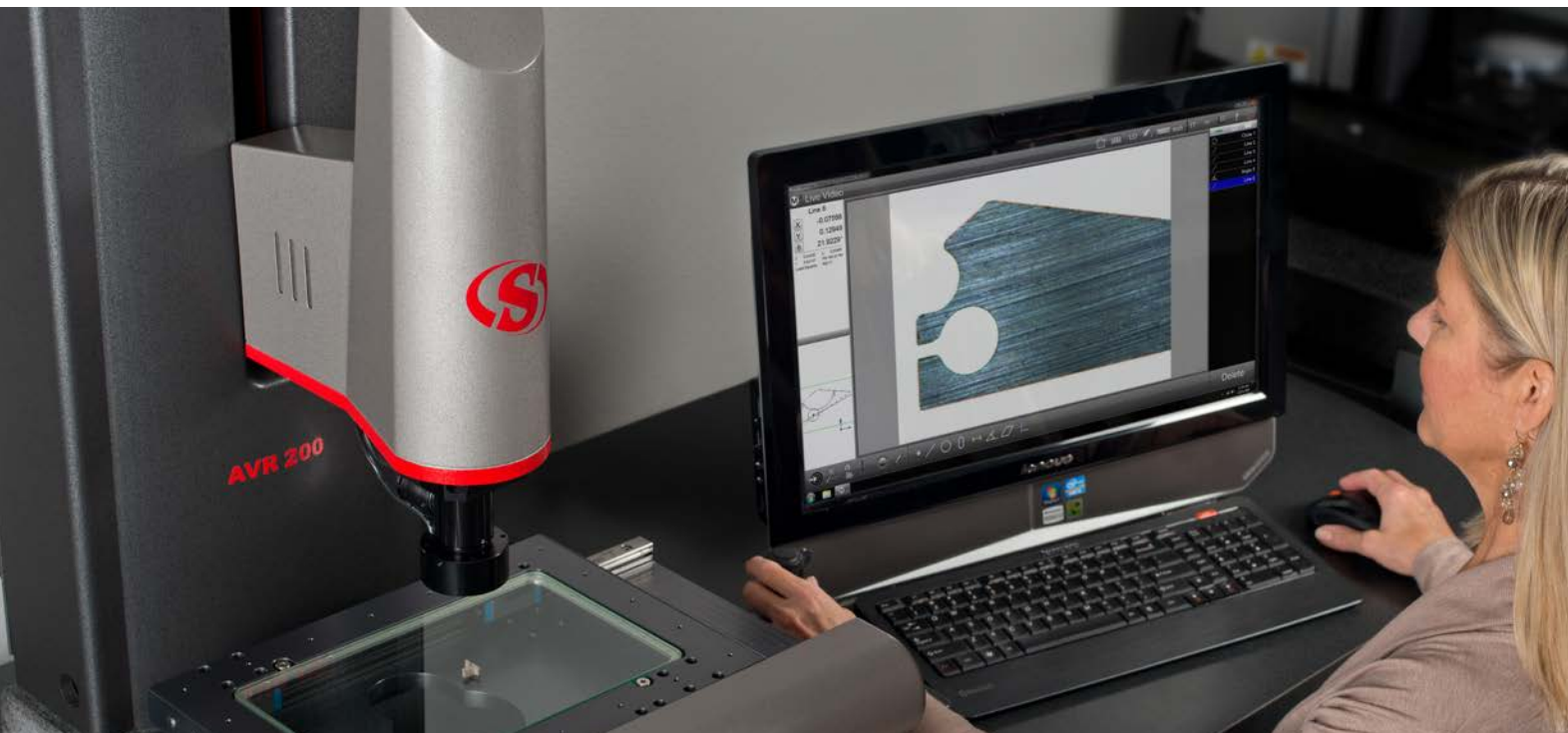
- DXF CAD file import for comparing parts being inspected to the actual design file; no need for cumbersome Mylar overlays
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- Simple machine/camera calibration with popular machine and video correction methods
- Windows®-based, globally recognized OS for flexible data exporting and interface with Windows® applications
- DC (FOV) "digital comparator" software option



OV2 Video camera for Optical Comparators work with M3 software



TOV2 Video camera for Optical Comparators work with M3 software







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