

# Starrett®



## VISION SYSTEMS

KMR SERIES  
MV SERIES  
MVR SERIES  
AV SERIES  
AVR SERIES  
AV300+  
AV350+  
AV300+ MICRO  
LF SERIES

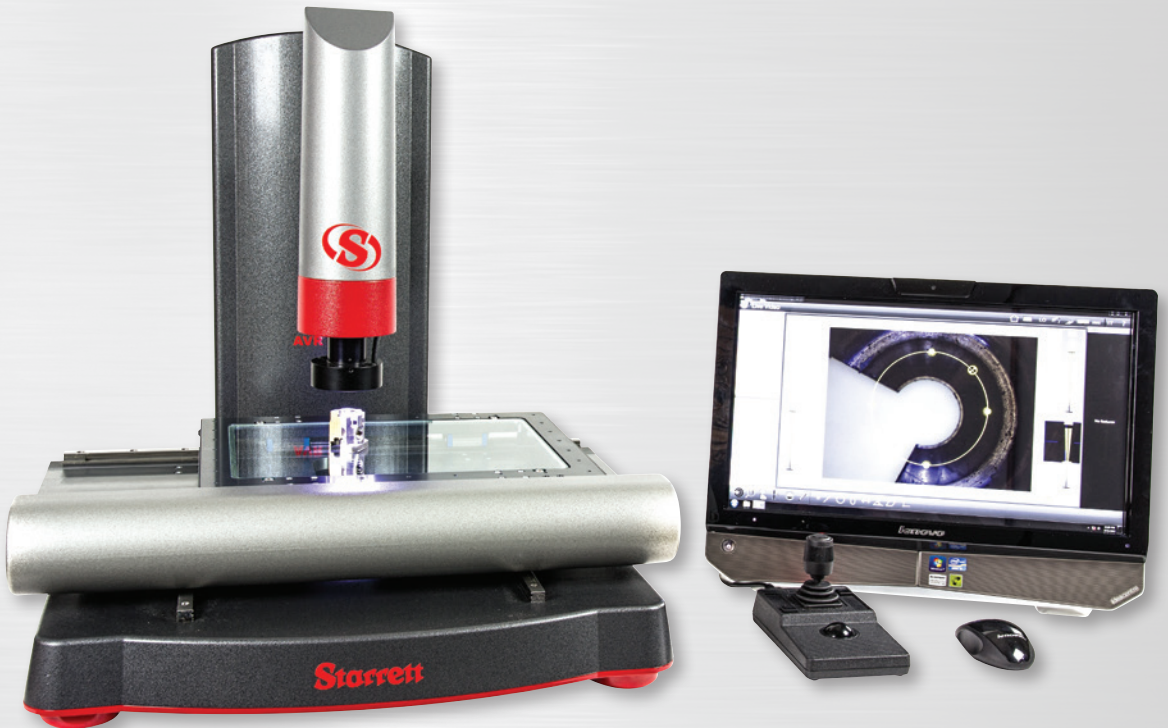
METROLOGY  SOLUTIONS

# CNC AUTOMATIC VISION METROLOGY SYSTEMS

ACCURATE, FLEXIBLE AND IDEAL FOR REPETITIVE MEASUREMENTS

The Starrett AVR Series CNC automatic vision metrology systems are ideal for repetitive measurements and automatic comparison to CAD files. They are available with dedicated 6.5:1 or 12:1 zoom optics or a quick-change bayonet lens mount which accepts a choice of six interchangeable telecentric lenses for micron-level resolution and optical distortion down to 0.001% for accurate field-of-view (FOV) measurements. The FOV can encompass an entire small part up to 2.00 x 1.50" or a feature of a larger part and be seamlessly integrated with stage motion to measure parts with a length up to 8" (AVR200) or 12" (AVR300). Systems are also touch probe compatible.

AVR Series hardware features include a granite base for maximum stability, recirculating ball linear guides for smooth and precise stage motion, and full CNC control for high throughput. All electronics other than the PC are housed in the Z-column, ensuring an integrated system with minimal external wiring.



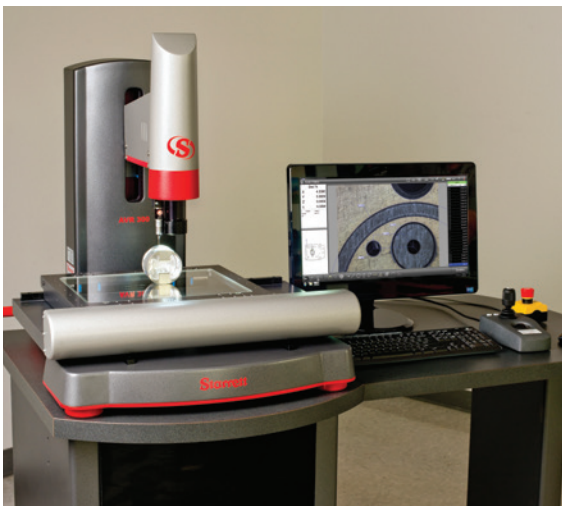
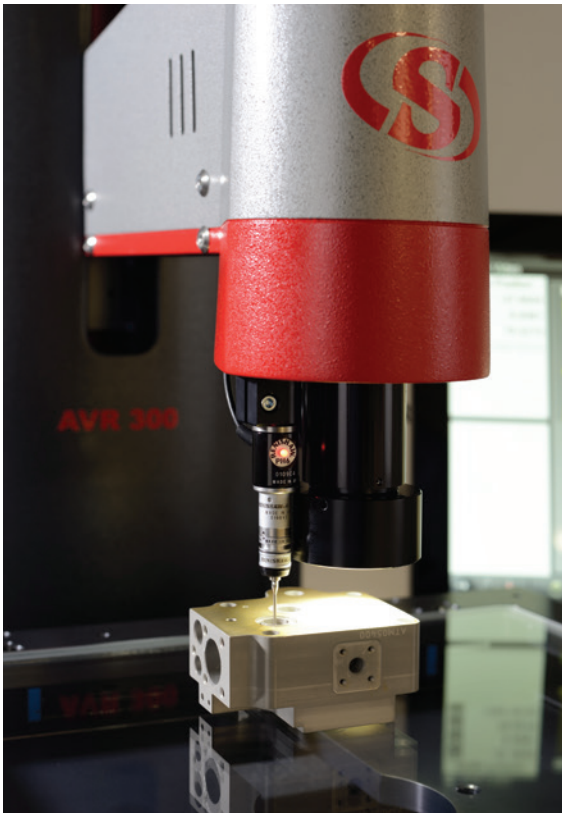
**Starrett®**

AVR200  
AVR300



# AUTOMATIC VISION METROLOGY SYSTEMS

The AVR Series consists of two models for 8 x 4 x 8" or 12 x 8 x 8" of X-Y-Z travel. Both provide motorized travel and zoom, which can be under full software control (CNC operation), or under manual control via a joystick and trackball. Available with interchangeable telecentric lenses for field-of-view (FOV) measurements or with dedicated with optical zoom, these new CNC vision metrology systems are easy to use, versatile and accurate. They are equally suitable for individual measurements, for high-speed "go-no-go" testing of small parts within the FOV, and for automatic testing using stage motion to measure parts up to 8" (200mm) on the AVR200 and up to 12" (300mm) on the AVR300. Systems are also touch probe compatible.



## FEATURES

- X-Y travel for AVR200: 8 x 4" (200 x 100 mm)
- X-Y travel for AVR300: 12 x 8" (300 x 200 mm)
- Z travel: 8" (200 mm) with 2.0X auxiliary lens
- Full CNC X-Y-Z positioning or motorized manual positioning using a pendant with joystick and trackball
- Windows® 10 Professional operating system for network connectivity
- MetLogix™ M3 CNC measuring software
- Video edge detection (VED)
- Field-of-view (FOV) measurements integrated with stage motion
- Renishaw scales for 0.00002" (0.1µm) of X,Y and Z axis
- Accuracy: 1.9µm + 5L/1000 for X and Y, 2.5µm + 5L/1000 for Z
- Color digital video camera
- Collimated LED sub-stage illumination
- Ring light LED surface illumination
- Granite base
- H x W x D for AVR200: 33.5 x 20.5 x 25.2" (851 x 520 x 641mm)
- H x W x D for AVR300: 32.5 x 26.5 x 33.7" (825 x 673 x 855mm)

## OPTIONS

- Dedicated 6.5:1 or 12:1 CNC zoom optics on AVR200 and AVR300
- Quick-change bayonet lens mount for telecentric optics
- Interchangeable bayonet mount telecentric optics with magnifications of 0.30x, 0.50x, 0.80x, 1.0x, 2.0x and 4.0x
- 0.5x, 1.5x and 2.0x auxiliary lenses for zoom optics
- Renishaw touch probe kit
- Quadrant LED surface illumination for zoom optics
- DXF/FOV option for automatic comparison to CAD designs
- Modular workstation system
- Calibration standards
- Part fixtures and work holding devices

### OPERATOR INTERFACE

The AVR Series is built around a 24" touch screen and PC which runs MetLogix™ M3 CNC software under Windows® 10 Professional. M3 software supports 3-axis measurements and 2D geometrical constructs (points, lines, angles, rectangles). The screen displays a live video image of the part plus geometry tools and digital readings. The part image can be resized using pan and zoom, and measurements can be taken by simply tapping a feature on the screen. With the M3 DXF/FOV option CAD files can be imported over a network and be automatically compared to the actual part.

FEATURE	24" COLOR TOUCH-SCREEN MONITOR AND PC WITH M3 SOFTWARE
24" (60cm) color graphic touch-screen monitor and PC	x
M3 controller housed in Z column	x
Full CNC control of X-Y-Z position and optical zoom	x
Manual X-Y-Z position control via joystick and trackball	x
Windows® 10 Professional operating system	x
Wi-Fi network connectivity	x
Video edge detection	x
X-Y-Z 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™

\*Standard on FOV models only.



### AVR OPTICS

The AVR CNC Vision Metrology Systems are ideal for repetitive and automatic measurements as well as automatic comparison to CAD files. The AVR200 and AVR300 models are available with either dedicated 6.5:1, 12:1 zoom optics or a quick-change bayonet lens mount on the FOV models which accepts a choice of six interchangeable telecentric lenses for micron-level resolution and optical distortion down to 0.001% for accurate field-of-view (FOV) measurements. The lens magnifications can encompass an entire small part up to 2.00 x 1.50" or a feature of a larger part and be seamlessly integrated with stage motion to measure parts with a length up to 8" (AVR200) or 12" (AVR300).

OPTICAL PARAMETER	TELECENTRIC OPTICS (FOV MODELS)						DEDICATED ZOOM OPTICS	
							6.5:1	12:1
Optical Magnification on CCD	0.30x	0.50x	0.80x	1.0x	2.0x	4.0x	0.47x to 3.0x	0.4x to 4.7x
Total Magnification on Monitor	13x	22x	36x	45x	89x	178x	31x to 198x	26x to 310x
Field of View Width, mm	24	14	9	7	3.5	1.8	10 to 1.6	12 to 1
Working Distance, mm	110	110	110	110	110	110	88	88
Camera CCD	1/1.8"	1/1.8"	1/1.8"	1/1.8"	1/1.8"	1/1.8"	1/3"	1/3"

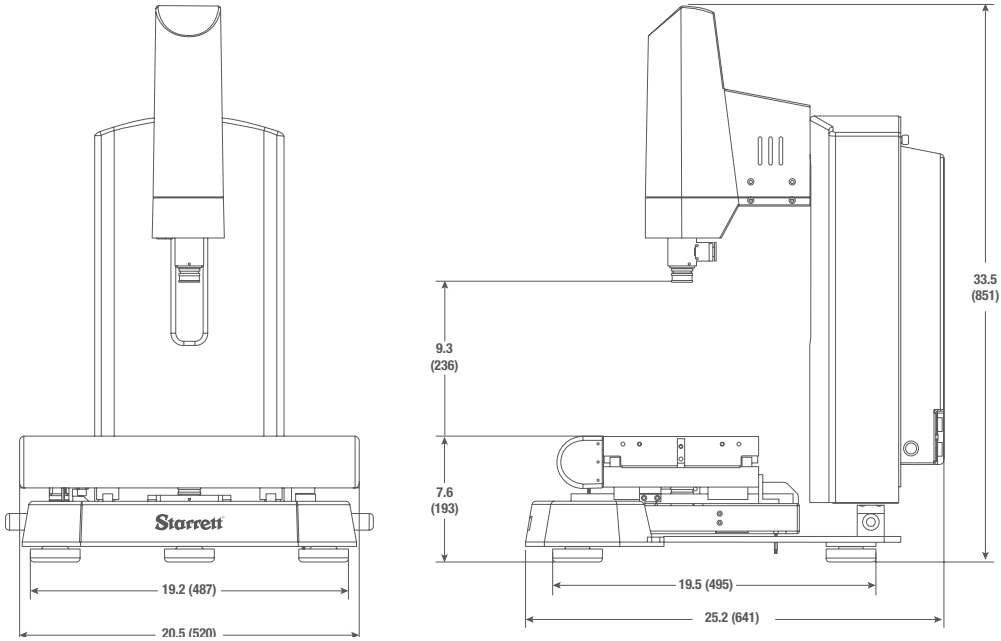
### INTERCHANGEABLE LENSES



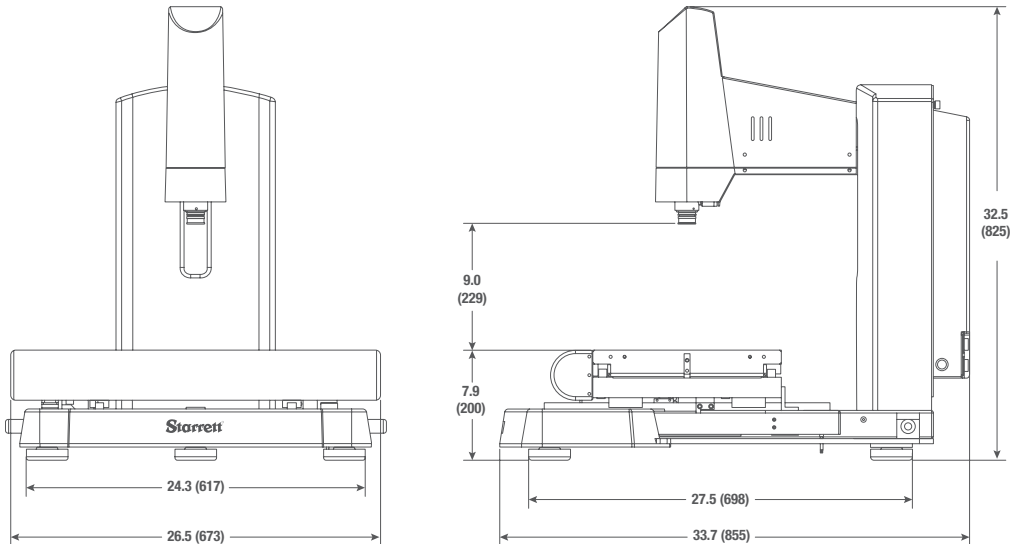
### AVR200/300 WEIGHT AND DIMENSIONS

Net Weight: 200lbs (90kg) for AVR200 250lbs (115kg) for AVR300  
 Shipping Weight: 250lbs (115kg) for AVR200 300lbs (135kg) for AVR300

#### AVR200 33.5 x 20.5 x 25.2" (851 x 520 x 641mm)



#### AVR300 32.5 x 26.5 x 33.7" (825 x 673 x 855mm)



### Starrett Metrology Division

Starrett Kinematic Engineering, Inc.  
 26052-103 Merit Circle  
 Laguna Hills, CA USA 92653  
 Tel: 949-348-1213



<http://www.starrett.com/u?AVR200-300>

### AVR200-300

Bulletin 970  
 PDF 12/16

The L.S. Starrett Company 2013®  
 Specifications Subject to Change