Starrett®

# Vision Systems

KMIC

EZ series

MVR series

AV series

AVR series

AV300+

AV350+

AV300+ Micro

LF series

Metrology Solutions

METROLOGY SOLUTIONS

# CNC Automatic Vision Metrology Systems

## ACCURATE, FLEXIBLE & 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 zoom optics or a quick-change bayonet lens mount which accepts a choice of telecentric lenses for micron-level resolution and optical distortion down to 0.001% for accurate field-of-view (FOV) measurements. These 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).

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

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 and 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 of parts up to 12" (300 mm) using stage motion.


## 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® 7 Professional operating system for network connectivity
- MetLogix M3 CNC metrology software
- Video edge detection (VED)
- Field-of-view (FOV) measurements integrated with stage motion
- Renishaw scales for 0.00002" (0.1 µm) of X,Y and Z axis
- Accuracy: 1.9µm + 5L/1000 for X and Y, 3.5µm + 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: 34" x 20.5" x 27" (863 x 520 x 685 mm)
- H x W x D for AVR300: 34" x 29.2"x 35" (865 x 740 x 890 mm)

## Options

- Dedicated 6.5:1 or 12:1 CNC zoom optics on AVR200 and AVR300
- Quick-change bayonet lens mount for telecentric optics
- Bayonet mountable 0.30X, 0.50X, 0.80X, 1.0X, 2.0X, 4.0X telecentric optics
- 0.5X, 1.5X and 2.0X auxiliary lenses for zoom optics
- Quadrant LED surface illumination for zoom optics
- DXF/FOV option pack for automatic comparison to CAD designs
- Modular system workstation

Starrett AVR200 AVR300

## Operator Interface

The AVR Series is built around a 21.5" all-in-one touch screen PC which runs MetLogix M3 CNC software under Windows® 7 Professional. This 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 pack, DXF CAD files can be imported over a network and be automatically compared to the actual part.

| FEATURE | All-in-one PC with M3 CNC DXF/FOV software |
|---|---|
| All-in-one touch-screen 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 |
| 21.5" (55 cm) color graphic touch-screen | x |
| Windows® 7 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 & export | x |
| Automatic comparison of measurements to CAD files | x |
| Software developer | MetLogix |


## AVR Optics

The Starrett AVR Series CNC vision metrology systems are ideal for repetitive & automatic measurements as well as automatic comparison to CAD files. They are available with either dedicated 6.5:1, 12:1 zoom optics or a quick-change bayonet lens mount which accepts a choice of telecentric lenses for micron-level resolution and optical distortion down to 0.001% for accurate field-of-view (FOV) measurements. These 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 | | | | | | 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 | 86 |
| Camera CCD | 1/1.8" | 1/1.8" | 1/1.8" | 1/1.8" | 1/1.8" | 1/1.8" | 1/3" | 1/3" |

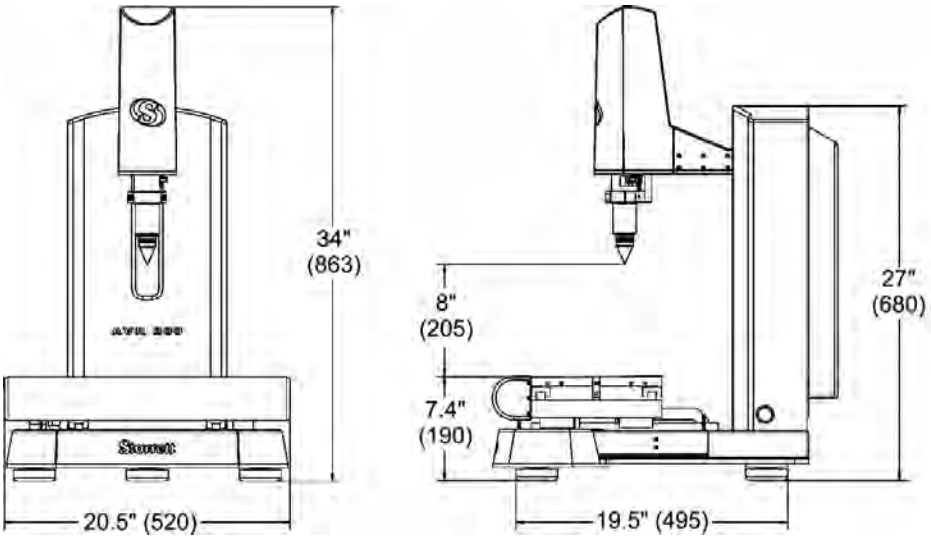
## Interchangeable Lenses

## AVR200/300 Weight & Dimensions

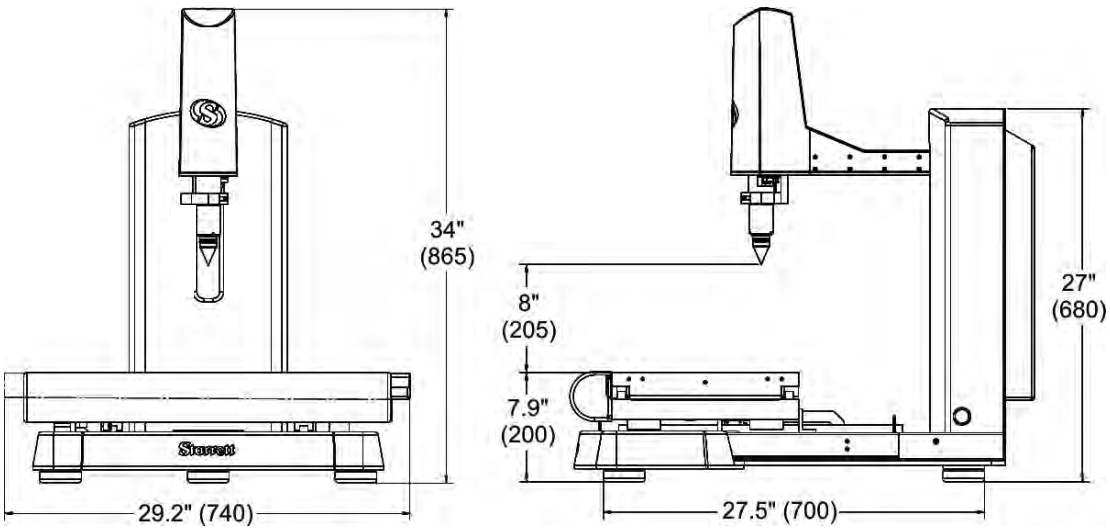
Net weight: 200 lbs (90 kg) for AVR200; 250 lbs (113 kg) for AVR300

Shipping weight: 250 lbs (115 kg) for AVR200; 300 lbs (135 kg) for AVR300

### AVR200 34" x 20.5" x 27" (863 x 520 x 685 mm)




### AVR300 34" x 29.2" x 35" (863 x 740 x 890 mm)

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

**AVR200-300**
Bulletin 970
5M/Q 5/13