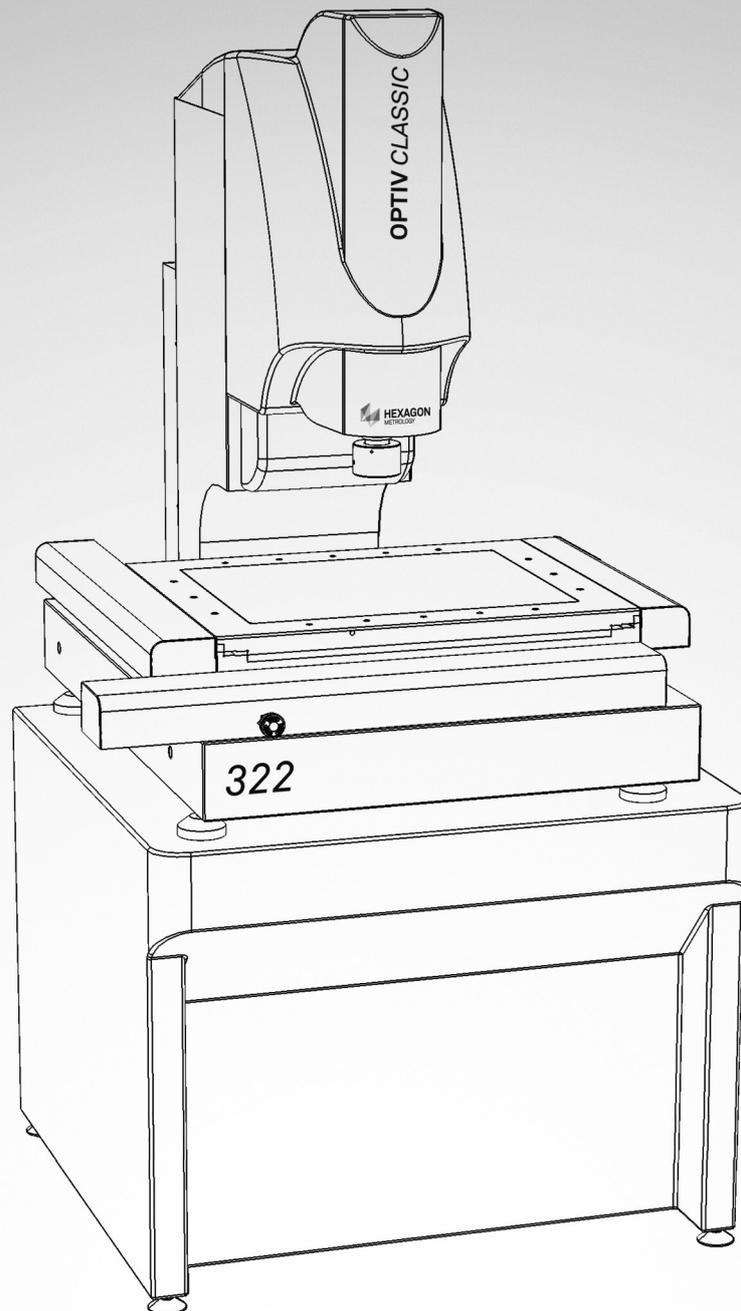


# OPTIV CLASSIC 322

Version 3/2013



**Product description**

The Optiv Classic 322 combines optical and tactile measurement in one system (optional touch-trigger probe). The system supports multi-sensor measurements using the Vision sensor (CCD color camera, motorised CNC zoom) and the TESASTAR probe head. The Optiv Classic 322 provides easy pallet station integration with good accessibility to the measuring table from all sides. Measurement software is PC-DMIS Vision.

**Fields of application**

- Shop floor and inspection room
- Versatile geometry measurements and GD&T analysis

**Design**

- Design principle:
  - » Benchtop unit of proven cross-table design with a solid metal base frame as a standard
- Guides:
  - » Mechanical linear guides on all axes, counterbalance on Z axis
- Drives:
  - » DC servo motors, power transmission via plain shafts in conjunction with rolling ring drives
- Length measuring system:
  - » Incremental, optoelectronic length measuring system
- Resolution of the scales:
  - » 0.05 µm

**Measuring range (X x Y x Z)**

<sup>(1)</sup> Vision sensor <—>  
Touch-trigger probe  
(X offset = 55 mm)

<sup>(2)</sup> At a maximum workpiece depth in Y of 140 mm, otherwise Z = 80 mm

	Optiv Classic 322	
	Measuring range single sensor	Mutual measuring range <sup>(1)</sup>
<b>X</b>	300 mm (11.81 in.)	245 mm (9.65 in.)
<b>Y</b>	200 mm (7.87 in.)	200 mm (7.87 in.)
<b>Z</b>	200 mm (7.87 in.) <sup>(2)</sup>	200 mm (7.87 in.) <sup>(2)</sup>

**Loading capacity**

- Load-bearing capacity of the table up to 16 kg

**Dimensions in mm and weights in kg**

- Dimensions see machine layout on page 5
- Machine weight 260 kg + base frame 45 kg

**Measuring accuracy <sup>(3)</sup>**

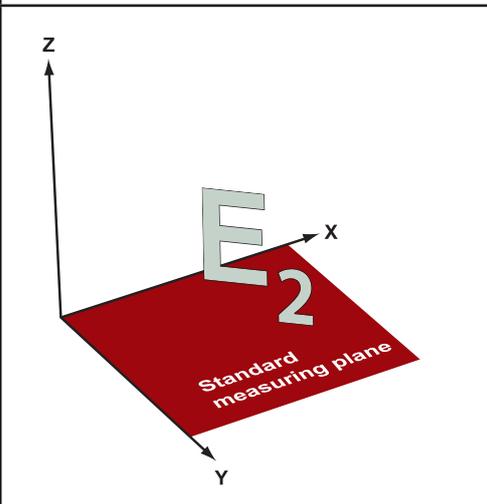
<sup>(3)</sup> The conditions of acceptance of Hexagon Metrology Vision apply.

L = measurement length in mm

**At 20°C, according to ISO 10360-7, with Vision sensor, at highest zoom magnification, standard measuring plane <sup>(3)</sup>**

**XY measuring accuracy**  
MPE (E<sub>xy</sub>) = (2.8 + L/150) µm

**Z measuring accuracy**  
MPE (E<sub>z</sub>) = (5.0 + L/150) µm



- Airborne noise emissions**
  - The A-weighted emission sound pressure level at operator’s position is less than 70 db(A).
- Environmental requirements**
  - Air humidity 45 % - 75 % RL, non-condensing
  - Environmental temperature 20 °C ± 2 °C
  - Permissible temperature gradient 1.0 °C/h, 2.0 °C/d, 1.0 °C/m
- Throughput**
  - Max. traversing speed
    - » X, Y = 165 mm/s, Z = 60 mm/s

**Vision sensor**

**Technical description**

- Sensor for non-contact measurement of smallest and closely toleranced features
  - » High resolution color CCD camera, for interference-free, low noise image reproduction
  - » Maximum optical precision due to low distortion optics
    - » Motorised CNC zoom
  - » Powerful image processing
    - » Fast, precision video autofocus
    - » Automatic feature detection, geometry and bad pixel video filters
    - » Contour scanning mode:
      - Sophisticated set of user-selectable algorithms to setup edge detection, intelligent, automatic selection of the most suitable setting for the measurement
    - » Best fit routines
    - » AutoTune:
      - Transferability of measuring programs between machines of the same type
    - » MultiCapture:
      - MultiCapture allows all 2D features within a field of view to be captured simultaneously, regardless of the feature type. Inspection speeds can be increased by 35 % or more, depending on the feature size and density. The capture sequence for groups of features using MultiCapture is also automatically optimized, creating the most efficient possible path with the fewest number of stage movements.
    - » RGB Sensitivity Adjustments for color cameras:
      - Software controls for Red/Green/Blue (RGB) sensitivity in images from a color camera allow for fine control adjustment over image contrast. This capability improves overall consistency in vision inspection in general and is especially useful for colored parts where edges can be difficult to capture with grayscale or lighting modifications alone.

**Illumination for Vision sensor**

- Coaxial LED top light
- LED back light
- Multi-segment LED ring light
  - » 4 quadrants
- Laserpointer (simplifies navigation during the measuring program generation)

**CNC zoom**

- Motorised zoom, for a continuous adjustment of field of view and resolution
  - » Standard: 6.5x
- High resolution 1/3-inch CCD color camera (H 752 x V 582 pixels)
- Available lenses: Standard

Magnification variants of the 6.5x CNC zoom on a 20 in. monitor					
Lens	Magnification	Working distance <sup>(1)</sup> (mm)	Max. workpiece height <sup>(1)</sup> (mm)	Max. field of view (mm)	Min. field of view (mm)
Standard	51.6x to 313x	90	0 to 190	6.5 x 4.9	1.07 x 0.81

<sup>(1)</sup> Without multi-segment LED ring light (When using a multi-segment LED ring light, these values are reduced by the amount of the overall height of the ring light (approx. 30 mm).)

**Tactile sensor**

- TESASTAR - Manual swivelling head with integrated touch trigger probe
  - » Probe repeatability 1D 0.75 µm (stylus length 21 mm; 0.12 N; 8 mm/s)
  - » Adjustable trigger force 0.1 to 0.3 N
  - » Overtravel X/Y = +/- 20°, Z = + 6 mm
  - » Measuring directions ±X, ±Y, +Z

**Mutual measuring range Vision sensor <—> Touch-trigger probe in X direction = 245 mm (X offset = 55 mm)**

**Control system and safety regulations**

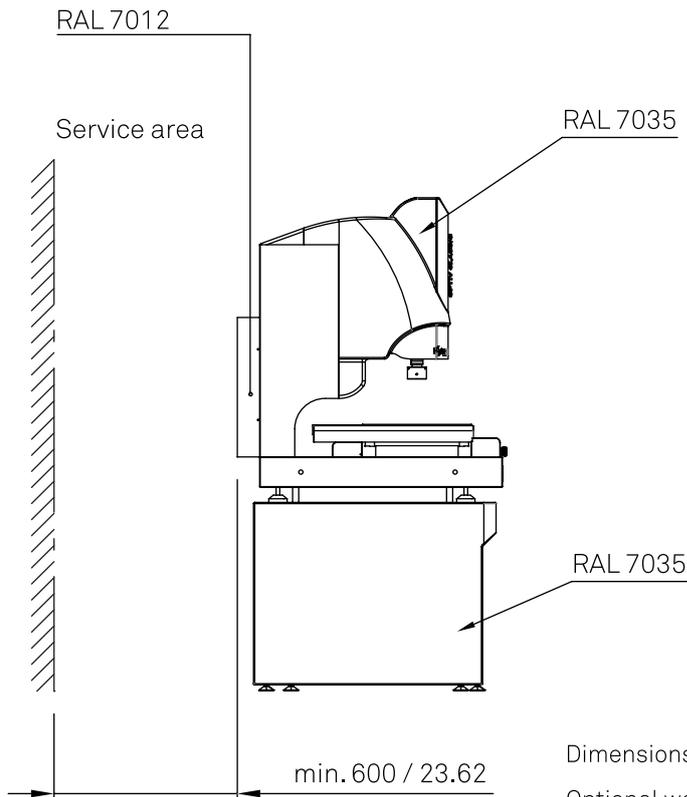
- CNC controller:
  - » 3 axes microprocessor CNC with vector path control
- Safety equipment:
  - » Emergency-Stop circuit with Emergency-Stop button
  - » Axis drive via rolling ring drive with safety slip clutch
  - » Scale signal monitoring
  - » Protective covers for the axes' drives
  - » Collision protection for touch-trigger probes
- Safety regulations:
  - » EN ISO 12100-1 and -2 (Safety of machinery)
  - » EN 60204-1 (Safety of machinery - Electrical equipment of machines)
  - » EN 61000-6-2 and -4 (Electromagnetic compatibility EMC)
  - » EN 61010-1 (Safety requirements for electrical equipment for measurement, control and laboratory use)
  - » EN 61326-1 (Electrical equipment for measurement, control and laboratory use - EMC requirements)

**Supply data**

- Input voltage power supply 115-230 V ± 10%
- Frequency 50/60 Hz ± 5%
- Power consumption (max.) 690 W

**Optional equipment**

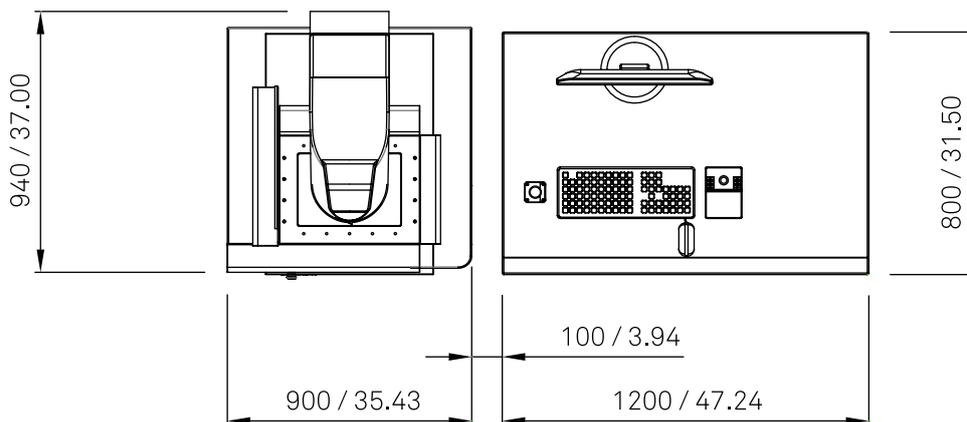
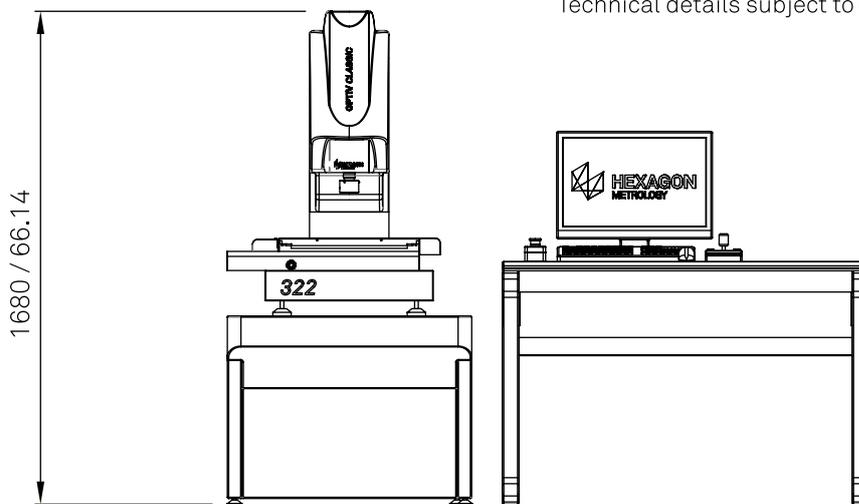
- Indexing rotary stage
- Periphery:
  - » Worktable
  - » Printers, monitors

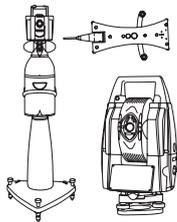


Dimensions in mm / inch

Optional worktable, differing variants possible.

Technical details subject to change without prior notice.

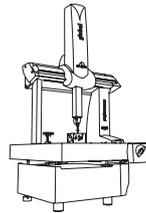




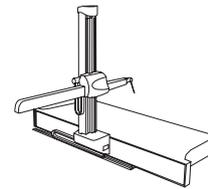
LASER TRACKERS & STATIONS



PORTABLE MEASURING ARMS



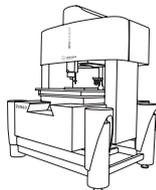
BRIDGE CMMs



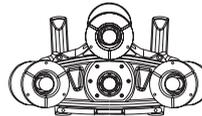
HORIZONTAL ARM CMMs



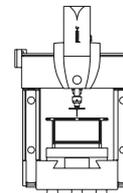
GANTRY CMMs



MULTISENSOR & OPTICAL SYSTEMS



WHITE LIGHT SCANNERS



ULTRA HIGH ACCURACY CMMs



SENSORS



PRECISION MEASURING INSTRUMENTS



SOFTWARE SOLUTIONS



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