

PH-A14



Horizontal-beam profile projector

PH-A14.

The PH-A14 is a high performance, horizontal-beam projector equipped with highly accurate linear glass scales, cable-ready for connection to your choice of optional data processing and readout unit. This instrument combines Mitutoyo's lens technology, experience and workmanship to provide bright, crisp images for error-free inspection.

Features

- Built to the highest class of accuracy for this type of instrument
- Generous XY stage travel of 200 x 100 mm (8" x 4") makes the PH-A14 suitable for a wide range of applications
- High-capacity stage allows loading up to 45 kgf
- X- and Y-axis handwheels conveniently positioned for ease of use
- Quick-release lever on X axis
- Powerful 150 W halogen illumination provides bright contour images
- Built-in twin swan-neck fibre-optic illumination allows optimum surface lighting when required
- Choice of two optional data processing and readout units for high-productivity inspection to micrometre resolution



QM-Data 200

Alternative 2D data processing and readout unit for the PH-A14

- Enables workpiece-coordinate measurements to 0.0001 mm resolution from simple keypad input with 1000 element memory
- Wide range of built-in measurement commands based on single/related standard geometrical elements
- Accepts edge-detection signals from optional OPTOEYE unit (Code No. 332-151)
- Data output ports to floppy drive, printer and PC

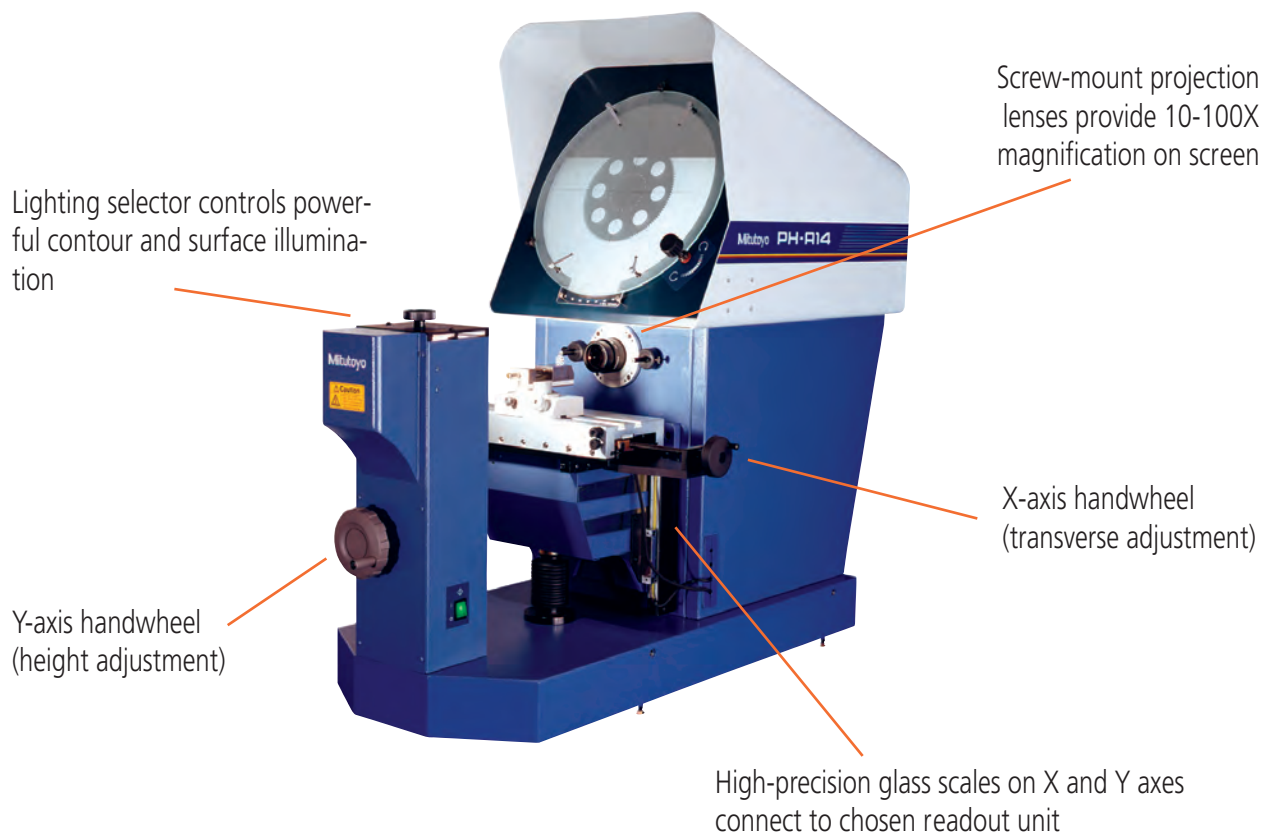


KA Counter

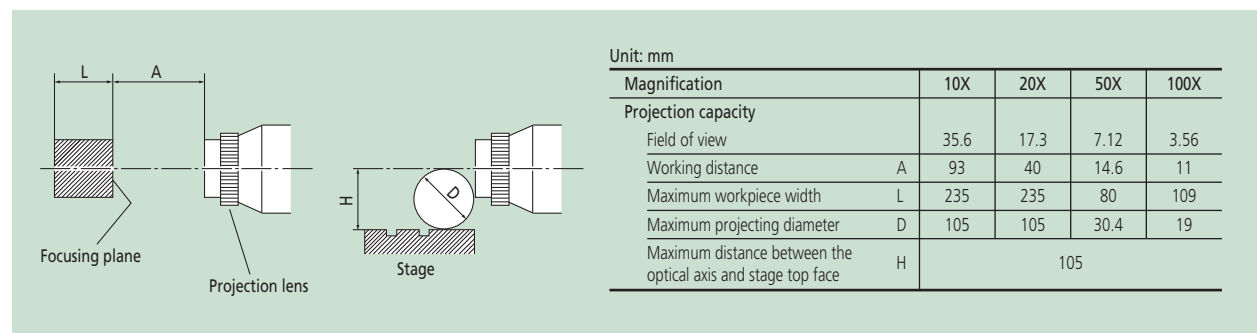
The recommended 2D data processing and readout unit for the PH-A14

- ABSolute Origin System retains zero setting even after power loss
- Switchable resolution to 0.0005 mm (or 0.00005")
- Sealed membrane hardens the counter against dirt and grit
- 10 coordinate-measuring features
- PCD calculation, diameter display, counting direction, mm/inch conversion, smoothing
- Compatible with AT100 and AT700 series scales

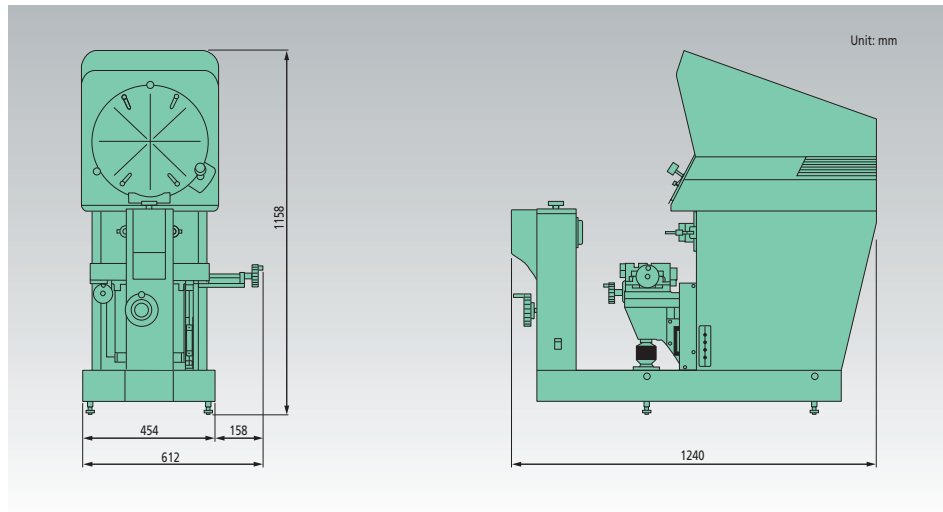
Designed with productivity in mind.



Projection capacity versus magnification



Technical data.



Specifications

Model		PH-A14	
Code No.		172-810	
Projected image type		Inverted	
Protractor screen	Diameter	356 mm	
	Material	Fine-ground glass with crosshair lines	
	Angle	Vernier scale, resolution: 2'	
Illumination Contour		24 V, 150 W (512305) halogen lamp, heat absorbing filter and cooling fan, telecentric illumination	
	Surface	24 V, 150 W (512305) halogen lamp, twin swan-neck fibre-optic illuminator	
Magnification		10X (standard), 20X, 50X, 100X (optional)	
Magnification accuracy	Contour	0.1% or less	
	Surface	0.15% or less	
Stage	Size	407 x 153 mm	
	X axis	Travel	200 mm (8")
		Reading unit	DRO
	Y axis	Accuracy	(6+L/15) µm *
		Resolution	0.001 mm (0.00005") **
		Travel	100 mm (4")
	Z axis	Reading unit	DRO
		Accuracy	(6+3L/15) µm *
		Resolution	0.001 mm (0.00005") **
		Focusing travel	50 mm (2")
XY data processing/readout unit		Optional	
Power supply		240 VAC, 50/60 Hz	
Dimensions (W x D x H)		648 x 1355 x 1100 mm	
Mass		140 kg	
Maximum stage loading		45 kgf	

* L = measuring length (mm)

** Set on XY counter

Standard accessories

Code No.	Description
172-011	Projection lens 10X
512305	Halogen bulb 24 V, 150 W (500 h)
384208	Fuse 2.5 A
538815	Hexagonal wrench 2.5 mm
12BAC245	Spanner SN11
99MBA025A	User's manual
172-810E	Power lead

Optional accessories.

Code No.	Description
172-012	Projection lens 20X
172-013	Projection lens set 50X (includes condenser)
172-014	Projection lens set 100X (includes condenser)
172-116	Standard scale 50 mm / 0.1 mm
172-117	Standard scale 2" / 0.01"
172-118	Reading scale 200 mm / 0.5 mm
172-119	Reading scale 8" / 0.02"
172-161	Reading scale 300 mm / 0.5 mm
172-162	Reading scale 12" / 0.02"
172-286	Green filter
12AAB-478	Condenser for fibre-optic illuminator
172-142	Centre support
172-143	Centre support riser
172-132	Vertical holder
172-144	Rotary vice
172-234	V-block with clamp
172-001	Tipped-saw support stand
172-002	Cutter support stand
176-653	Digital rotation head
172-000-108	Machine stand
332-151	OPTOEYE edge-detection unit (for use with QM-Data 200)
12AAE671	Detector holder (for use with OPTOEYE edge-detection unit)
Data Processor and Display Counters	
264-140E	QM-Data 200 (stand-mounted model)
264-141E	QM-Data 200 (arm-mounted model)
174-173E	KA Counter (tray-mounted model)
58AAA407	Tray for KA Counter
Overlay Charts	
512066	Radial lines, 1° increment; Concentric semicircles, 1 mm increment
512067	Concentric circles, 5 mm radial increment; Crosshairs graduated 1 mm intervals
512068	Concentric circles, 1 mm radial increment; Crosshairs
512069	Horizontal lines, 50 mm pitch; Vertical lines, 20 mm pitch
512070	Square grid, 10 mm pitch
512071	Crosshairs graduated 5 mm intervals
512072	Square grid, 1 mm pitch
512073	Radial lines, 1° increment
512074	Lines, 1 mm pitch
512075	Radial lines, 1° increment; Concentric circles, 1 mm radial increment
512076	Metric thread (20X), 0.075-0.225 mm pitch; Unified thread (20X), 12-28 TPI; Whitworth thread (20X), 10-20 TPI
512077	Metric thread (100X), 0.075-0.225 mm pitch; Involute gear tooth (20X), m = 0.2-1.0 (pressure angle 20°), m = 0.2-1.0 (pressure angle 14.5°)

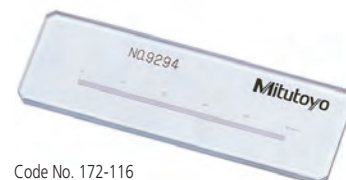
OPTOEYE-200 Edge Sensor

- The Optoeye-200 Edge Sensor eliminates operator error by auto detecting component edges via a fibre-optic link to the projector and connection to the QM-Data 200 data processing unit.
- A detector holder (Code No. 12AAE671) is required for measurement.



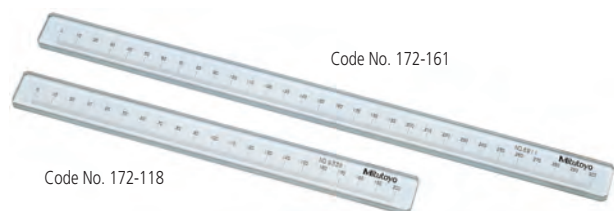
Standard glass scale

- Used on the stage to project a calibrated image on to the screen that can then be measured to determine magnification accuracy.



Reading scales

- For measuring the magnified image of a standard scale on the screen to determine magnification accuracy.



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Note:

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