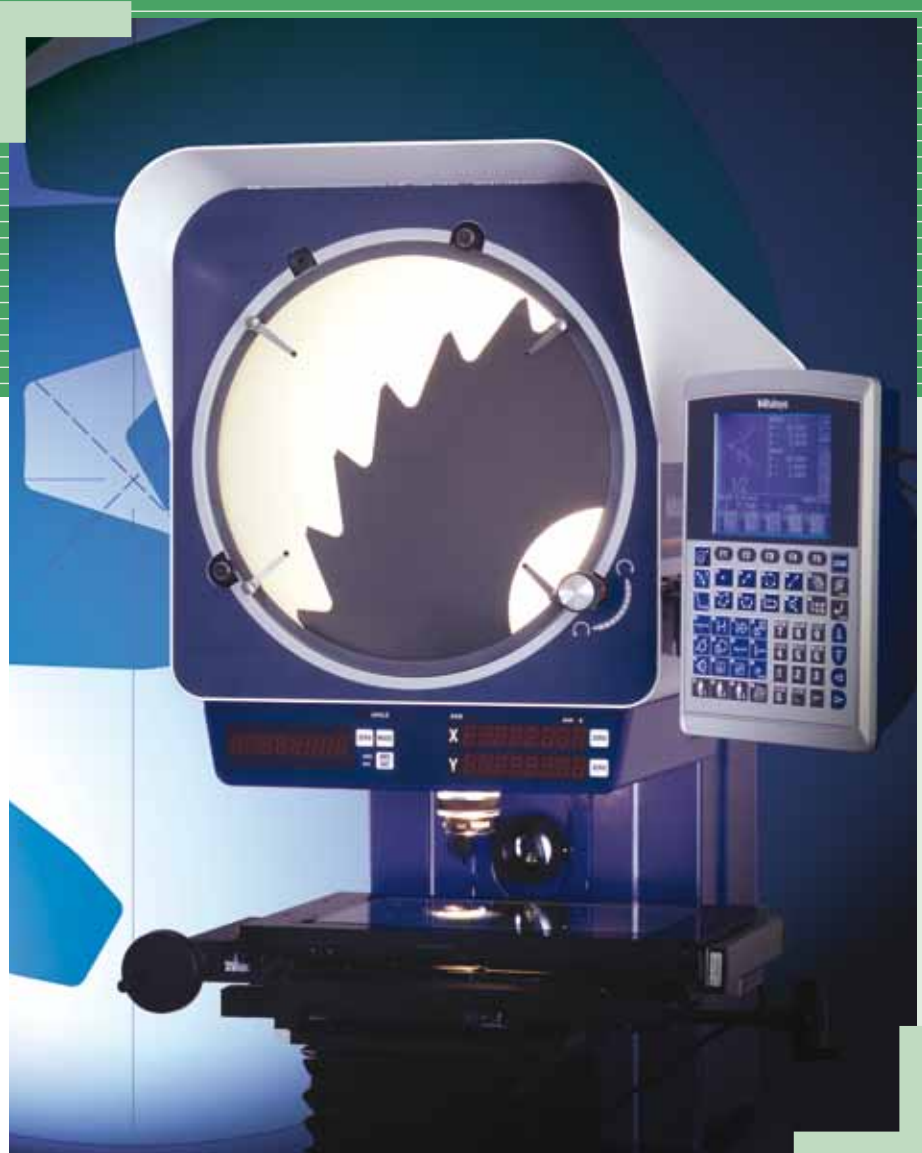


# PJ-A3000

PRE 1162(2)



A vertical-beam projector featuring a bright screen and digital X,Y and angle readouts

# PJ-A3000 Profile Projectors

- A series of midsize profile projectors featuring bright, 315mm (12.40") diameter screens and easy-to-operate XY measurement tables.
- Easy-to-read digital counters\* (XY stage travel) are located near the projection screen, thereby minimizing strain associated with excessive movement. A digital angle display eliminates the need to perform complex calculations.

\*PJ-A3005D-50, PJ-A3005F-150, PJ-A3010F-100 and PJ-A3010F-200

- A floating table makes measuring quicker and easier.
- The PJ-A3000\* can output XY coordinate data. Highly efficient two-dimensional data processing is available by connecting to the optional QM-Data 200.

\*Except for 302-700, 302-709 and 302-719

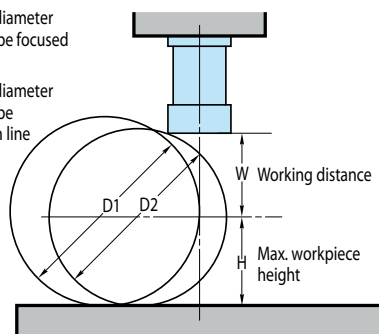


## Projection capacity

Unit: mm



D1: Max. workpiece diameter whose edge line can be focused on the screen center





D2: Max. workpiece diameter whose edge line can be focused on the screen line



| Magnification       | Contour illumination |       |       |       | Surface illumination |       |       |       |
|---------------------|----------------------|-------|-------|-------|----------------------|-------|-------|-------|
|                     | 10X                  | 20X   | 50X   | 100X  | 10X                  | 20X   | 50X   | 100X  |
| View field diameter | 31.5                 | 15.7  | 6.3   | 3.1   | 31.5                 | 15.7  | 6.3   | 3.1   |
| W                   | 66                   | 32.5  | 12.6  | 5     | 20                   | 2     | 12.6  | 5     |
| H PJ-A3000          | 123.5                | 123.5 | 123.5 | 123.5 | 123.5                | 123.5 | 123.5 | 123.5 |
| PJ-A3005R-50        | 123.5                | 123.5 | 123.5 | 123.5 | 123.5                | 123.5 | 123.5 | 123.5 |
| PJ-A3005D-50        | 123.5                | 123.5 | 123.5 | 123.5 | 123.5                | 123.5 | 123.5 | 123.5 |
| PJ-A3010F-100       | 91                   | 91    | 91    | 91    | 91                   | 91    | 91    | 91    |
| PJ-13005F-150       | 103.5                | 103.5 | 103.5 | 103.5 | 103.5                | 103.5 | 103.5 | 103.5 |
| PJ-13010F-200       | 92.5                 | 92.5  | 92.5  | 92.5  | 92.5                 | 92.5  | 92.5  | 92.5  |
| D1 PJ-A3000         | 224                  | 87    | 27    | 10    | 198                  | 61    | 27    | 10    |
| PJ-A3005R-50        | 224                  | 87    | 27    | 10    | 198                  | 61    | 27    | 10    |
| PJ-A3005D-50        | 224                  | 87    | 27    | 10    | 198                  | 61    | 27    | 10    |
| PJ-A3010F-100       | 182                  | 87    | 27    | 10    | 182                  | 61    | 27    | 10    |
| PJ-13005F-150       | 207                  | 87    | 27    | 10    | 198                  | 61    | 27    | 10    |
| PJ-13010F-200       | 185                  | 87    | 27    | 10    | 185                  | 61    | 27    | 10    |
| D2 PJ-A3000         | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |
| PJ-A3005R-50        | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |
| PJ-A3005D-50        | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |
| PJ-A3010F-100       | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |
| PJ-13005F-150       | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |
| PJ-13010F-200       | 154                  | 69    | 25    | 10    | 120                  | 23    | 25    | 10    |

## Order No. & specifications

| Model                 | PJ-A3005F-150   |                 | PJ-A3005F-150E               | PJ-A3005D-50   |                  | PJ-A3005D-50E              |                  | PJ-A3005R-50               |             |
|-----------------------|---|-----------------|------------------------------|--|------------------|----------------------------|------------------|----------------------------|-------------|
|                       |  |                 |                              |  |                  |                            |                  |                            |             |
| Order No.             | 302-702■  | 302-712■        | 302-706■                     | 302-704■   | 302-714■         | 302-708■                   | 302-718■         | 302-709■                   | 302-719■    |
| XY range              | 150 x 50 mm   | 6"x2"           | 150 x 50 mm                  | 50 x 50 mm   | 2"x2"            | 50 x 50 mm                 | 2"x2"            | 50 x 50 mm                 | 2"x2"       |
| Effective table area  | 184 x 82 mm   | 7.24"x3.23"     | 184 x 82 mm                  | 82 x 82 mm   | 3.23"x3.23"      | 82 x 82 mm                 | 3.23"x3.23"      | 82 x 82 mm                 | 3.23"x3.23" |
| Measuring unit        | Built-in linear scales  |                 | Built-in linear scales       | Digimatic micrometer heads   |                  | Digimatic micrometer heads |                  | Micrometer heads           |             |
| Resolution            | 0.001 mm  | .0001"/0.001 mm | 0.001 mm                     | 0.001 mm   | .00005"/0.001 mm | 0.001 mm                   | .00005"/0.001 mm | 0.001 mm                   | .0001"      |
| XY counter            | ✓   | ✓               | —                            | ✓  | ✓                | —                          | —                | —                          | —           |
| Angle counter         | ✓   | ✓               | ✓                            | ✓  | ✓                | ✓                          | ✓                | ✓                          | ✓           |
| Table size            | 280 x 152 mm (11.02"x 5.98")  |                 | 280 x 152 mm (11.02"x 5.98") | 152 x 152 mm (5.98"x 5.98")  |                  | 152x152 mm (5.98"x 5.98")  |                  | 152 x 152 mm (5.98"x5.98") |             |
| Max. workpiece height | 103.5 mm (4.07")  |                 | 103.5 mm (4.07")             | 123.5 mm (4.86")   |                  | 123.5 mm (4.86")           |                  | 123.5 mm (4.86")           |             |

| Model                 | PJ-A3010F-200   |                 | PJ-A3010F-200E               | PJ-A3010F-100  |                 | PJ-A3010F-100E  | PJ-A3000  |
|-----------------------|---|-----------------|------------------------------|--|-----------------|---|---|
|                       |  |                 |                              |  |                 |  |  |
| Order No.             | 302-701■  | 302-711■        | 302-705■                     | 302-703■   | 302-713■        | 302-707■  | 302-700■  |
| XY range              | 200 x 100 mm  | 8"x4"           | 200 x 100 mm                 | 100 x 100 mm   | 4"x4"           | 100 x 100 mm  | —   |
| Effective table area  | 266 x 170 mm  | 10.47"x 6.69"   | 266 x 170 mm                 | 142 x 142 mm   | 5.6"x5.6"       | 142 x 142 mm  | ø 70  |
| Measuring unit        | Built-in linear scales  |                 | Built-in linear scales       | Built-in linear scales   |                 | Built-in linear scales  | Built-in linear scales  |
| Resolution            | 0.001 mm  | .0001"/0.001 mm | 0.001 mm                     | 0.001 mm   | .0001"/0.001 mm | 0.001 mm  | 0.001 mm  |
| XY counter            | ✓   | ✓               | —                            | ✓  | ✓               | —   | —   |
| Angle counter         | ✓   | ✓               | ✓                            | ✓  | ✓               | ✓   | ✓   |
| Table size            | 380 x 250 mm (14.96"x 9.84")  |                 | 380 x 250 mm (14.96"x 9.84") | 250 x 250 mm (19.84"x 9.84")   |                 | 250 x 250 mm (19.84"x 9.84")  | 160 x 145 mm (6.30"x5.70")  |
| Max. workpiece height | 92.5 mm (3.64")   |                 | 92.5 mm (3.64")              | 91 mm (3.58")  |                 | 91 mm (3.58")   | 123.5 mm (4.86")  |

\*To denote your AC line receptacle / cable add the following suffixes (e.g. 302-711A). A for UL/CSA type, C for JAPAN type, D for CEE type, E for BS type

## Projection lenses

10X: **172-202** (Standard accessory)  
 20X: **172-203**  
 50X: **172-204**  
 100X: **172-207**

- All the lenses are available with a half-reflection mirror (built-in half-reflection mirror for 50X and 100X lenses).

## Green filter

**172-160-3**

- Increases the sharpness of a contour image on the screen.

## Rotary tables

- A holder with clamp (**176-107**) can be mounted on these tables.

| Order No.          | 176-106 | 172-196 |
|--------------------|---------|---------|
| Effective diameter | 66 mm   | 100 mm  |
| Angle reading      | 6'      | 2'      |
| Height             | 22 mm   | 20.5 mm |
| Mass               | 1.7 kg  | 2.5 kg  |

## Oblique reflection mirrors



- Suitable for inspecting the surfaces of plastics and other low-reflection-ratio materials.

| Order No.   | 172-229  | 172-230  |
|-------------|----------|----------|
| Application | 10X lens | 20X lens |

## Overlay chart set



- Makes the inspection of projected images quicker and easier than ever.
- Twelve different patterns are available in each set.

## Fixture mount adapter



- Used for mounting fixtures such as a rotary table and swivel center supports on PJ-A3010F-200/E
- Mass: 2 kg

## Swivel center supports



- Suitable for clamping cylinders and ball screws, etc.

| Order No.                  | 176-105       | 172-197       |
|----------------------------|---------------|---------------|
| Maximum workpiece diameter | 70 mm (45 mm) | 80 mm (65 mm) |
| Maximum workpiece length   | 140 mm        | 140 mm        |
| Swivel                     | ±10°          | ±10°          |
| Mass                       | 2.4 kg        | 2.5 kg        |

( ): When swiveled 10°

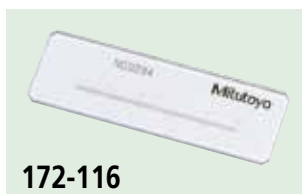
## Holder with clamp



**176-107**

- Maximum height of workpiece: 35 mm
- Mass: 0.42 kg

## Standard scales



**172-116**

- Used to check the accuracy of magnification.

| Order No.  | 172-116      | 172-117 |
|------------|--------------|---------|
| Range      | 50 mm        | 2"      |
| Graduation | 0.1 mm       | .01"    |
| Line width | 3.25 $\mu$ m | .00013" |
| Mass       | 15 g         |         |

## V-block with clamp



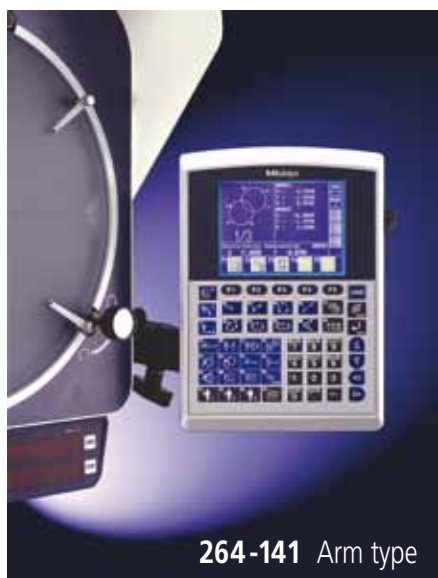
**172-378**

- Max. workpiece diameter: 25 mm
- Mass: 0.8 kg

## Machine stands

- **172-269**
- **172-267** (Auxiliary stand)

## QM-Data 200



**264-141** Arm type

■ Suffix for AC line receptacle/cable: A for UL/CSA type, C for JAPAN type, D for CEE type, E for BS type

- The QM-Data 200 is a 2D data processing unit for optical instruments\*. This features powerful 2D coordinate measurement capabilities with unmatched simple key operation.

\*Connecting cable (12AAA807) is required for PJ-A3000.

## Reading scales

- Specially designed for checking the magnified image of a standard scale on the projection screen.

| Order No.  | 172-118    | 172-119 | 172-161      | 172-162 |
|------------|------------|---------|--------------|---------|
| Range      | 200 mm     | 8"      | 300 mm       | 12"     |
| Graduation | 0.5 mm     | .02"    | 0.5 mm       | .02"    |
| Line width | 18 $\mu$ m | .00071" | 19.5 $\mu$ m | .00077" |
| Mass       | 65 g       |         | 100 g        |         |



**172-118**

**172-161**

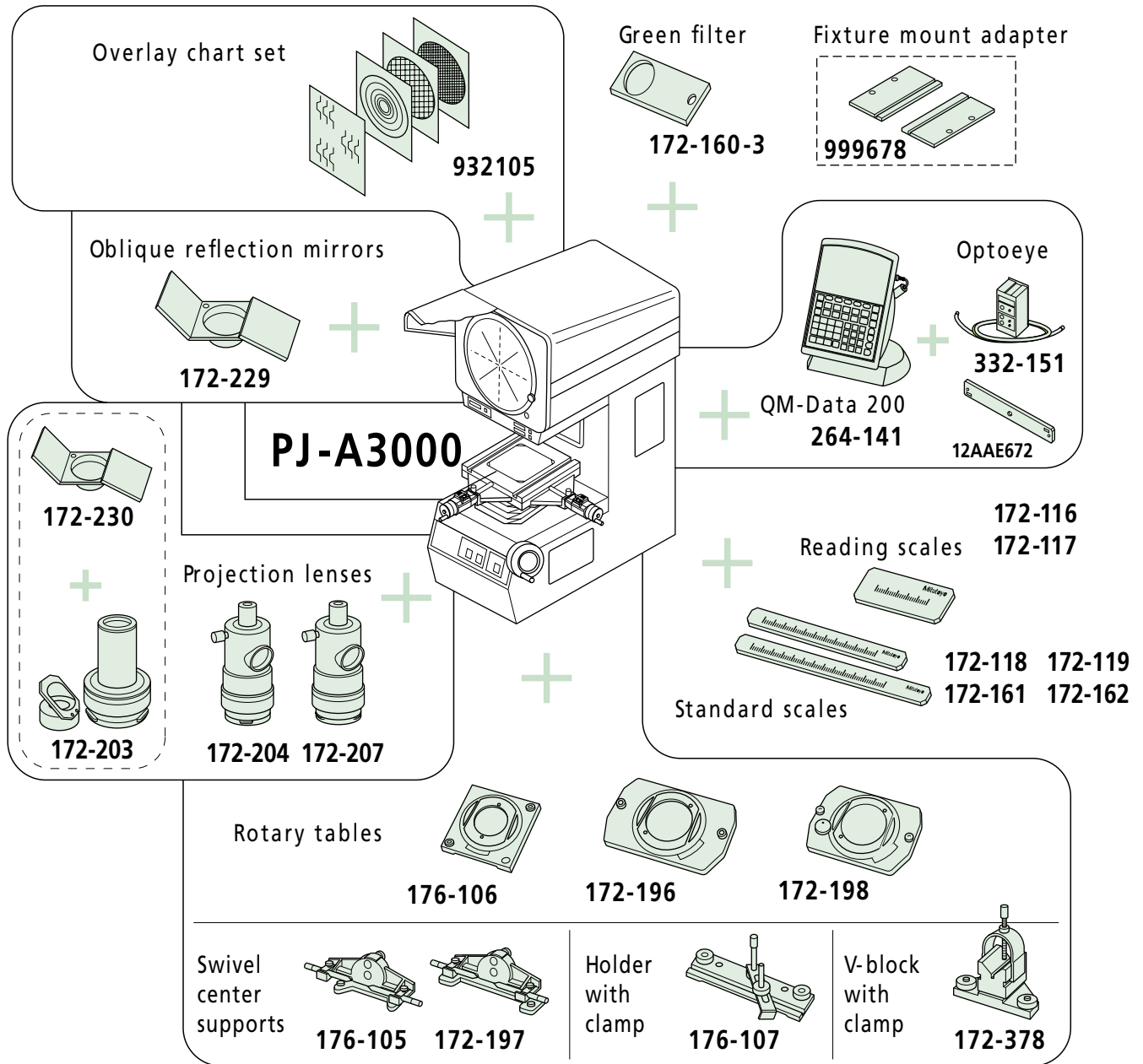
## Optoeye



**12AAE671**

**332-151**

## System diagram



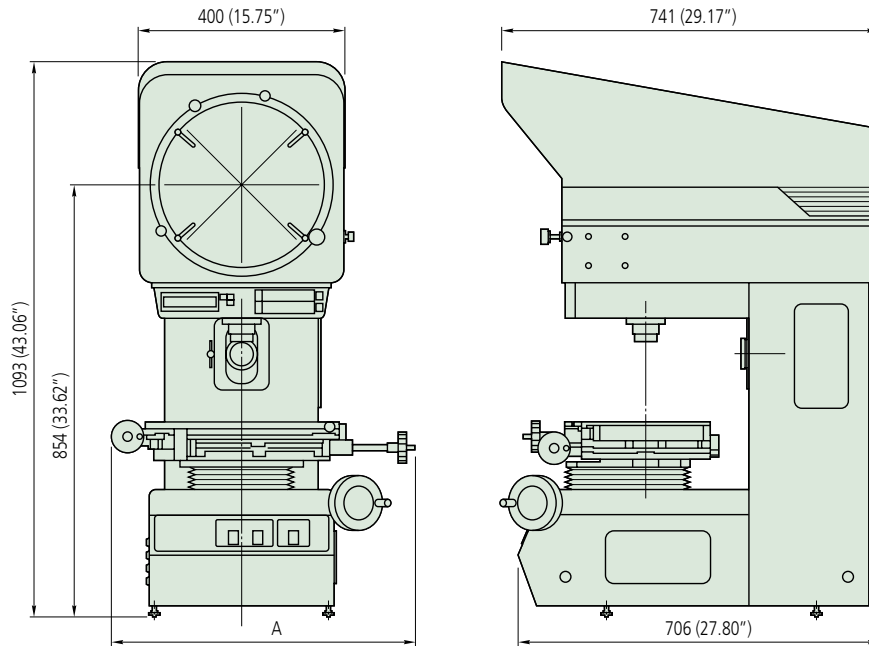
|  | 176-106 | 172-196 | 176-105 | 172-197 | 176-107 | 176-378 |
|--|---------|---------|---------|---------|---------|---------|
| PJ-A3005, PJ-A3005R-50, PJ-A3005D-50/E           | ✓       | —       | ✓       | —       | ✓       | ✓       |
| PJ-A3005F-150/E, PJ-3010F-100/E, PJ-A3010F-200/E | —       | ✓*      | —       | ✓*      | ✓*      | ✓*      |

\*Fixture mount adapter (999678) is required for PJ-A3010F-200/E.



## Dimensions

Unit: mm (inch)



A: 593 (23.35")  
 446 (17.57")  
 427 (16.81")  
 455 (17.91")

## Common specifications

| Projected image        |                      | Inverted image  |
|------------------------|----------------------|---|
| Protractor screen      | Effective diameter   | 315 mm (12.4")  |
|                        | Screen material      | Fine ground glass   |
|                        | Reference line       | Cross hair line   |
|                        | Angle display (LED)  | Resolution: 1' or 0.01° (switchable), Range: ± 360°<br>Functions: Absolute/incremental mode switching, Zero Set   |
| Projection lens        |                      | 10X   |
| Magnification accuracy | Contour illumination | ± 0.1% or less  |
|                        | Surface illumination | ± 0.15% or less   |
| Contour illumination   | Light source         | Halogen bulb (24V, 150W)  |
|                        | Optical system       | Telecentric system  |
|                        | Functions            | 2-stage brightness switch, Heat-absorbing filter  |
| Surface illumination   | Light source         | Halogen bulb (24V, 150W)  |
|                        | Optical system       | Vertical illumination with a half-reflection mirror   |
| Functions              |                      | Adjustable condenser lens, Oblique reflection mirrors (options for 10X and 20X lenses)  |
| Power supply           |                      | 100/110/120/220/230/240V AC (switchable), 50/60Hz   |
| Mass                   |                      | PJ-A3010F-200: 140kg (308 lbs.) PJ-A 3005F-150, 150E/3010F-200E: 116kg (255 lbs.)<br>PJ-A3010F-100, 100E: 112kg (246 lbs.) PJ-A3005D-50, 50E: 107kg (235 lbs.)<br>PJ-A3005R-50: 106kg (233 lbs.) PJ-A3000: 109kg (240 lbs.) |
| Standard accessories   |                      | 10 X projection lens set, masking shield, battery code, halogen bulb, tube fuze, grounding wire, Allen key, cap   |

|  |  |
|--|--|
| Coordinate Measuring Machines              |  |
| Vision Measuring Systems                   |  |
| Form Measurement                           |  |
| Optical Measuring                          |  |
| Sensor Systems                             |  |
| Test Equipment and Seismometers            |  |
| Digital Scale and DRO Systems              |  |
| Small Tool Instruments and Data Management |  |

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