

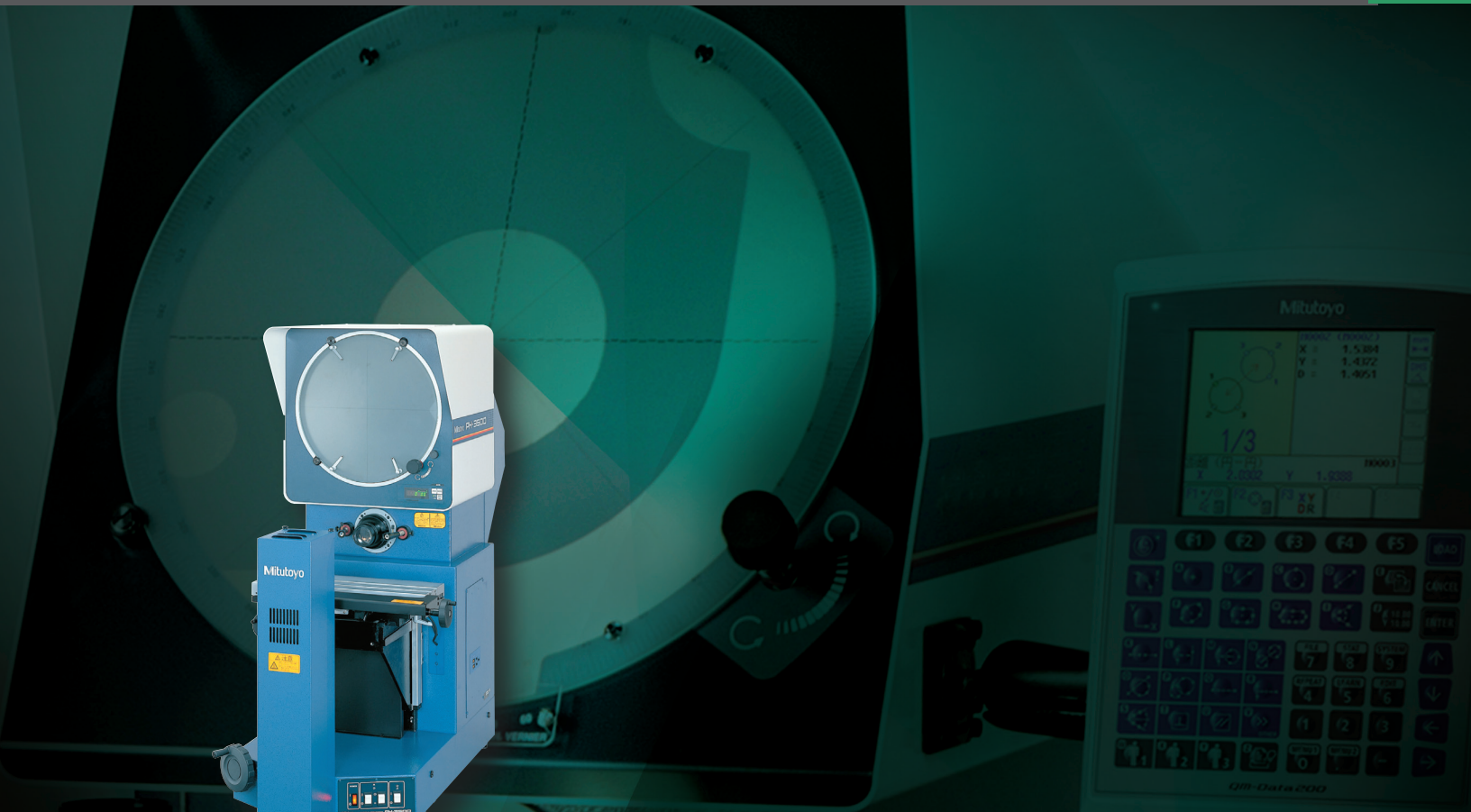
# Mitutoyo

Mitutoyo Quality

## PH-3515F PROFILE PROJECTOR

Heavy-Duty, Bench-Top Model with Horizontal Optical System

OPTICAL MEASURING



Bulletin No. 2210(2)

# Mitutoyo introduces the PH-3515F

## Profile Projectors that will meet any optical measuring or inspection challenge your shop can offer!

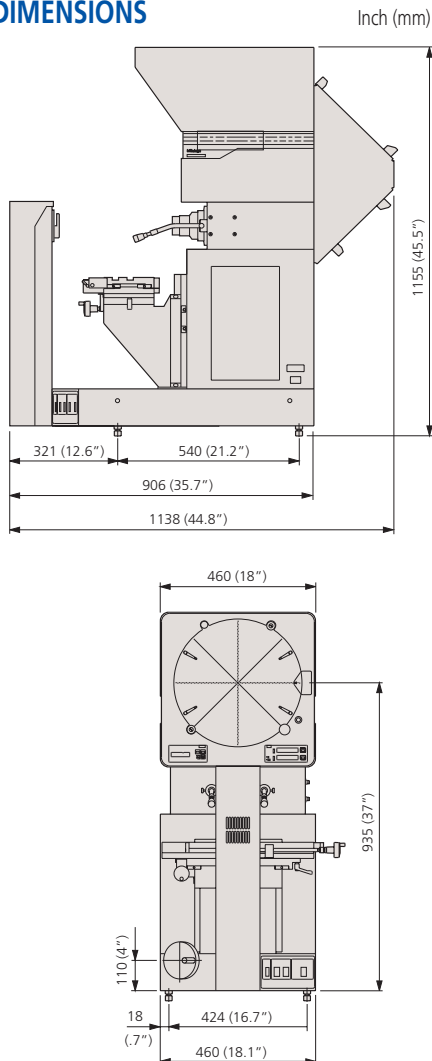
### FEATURES

- Erect image on high brightness screen.
- 14" (353mm) dia. protractor screen with crosshairs and staggered lines for easy alignment.
- Digital angle measurement of 1' or 0.01° with built in angle counter.
- Floating-type workstage incorporates linear scales for fast, accurate measurement.
- Halogen contour illumination.
- Fiber-optic illumination cables and halogen included.
- Suitable for thread pitch measurements — free from blurred or distorted images when the workpiece is angled.
- Wide range of accessories for varied applications.



Also available:  
Optional side mount surface illumination unit (172-423)

### DIMENSIONS

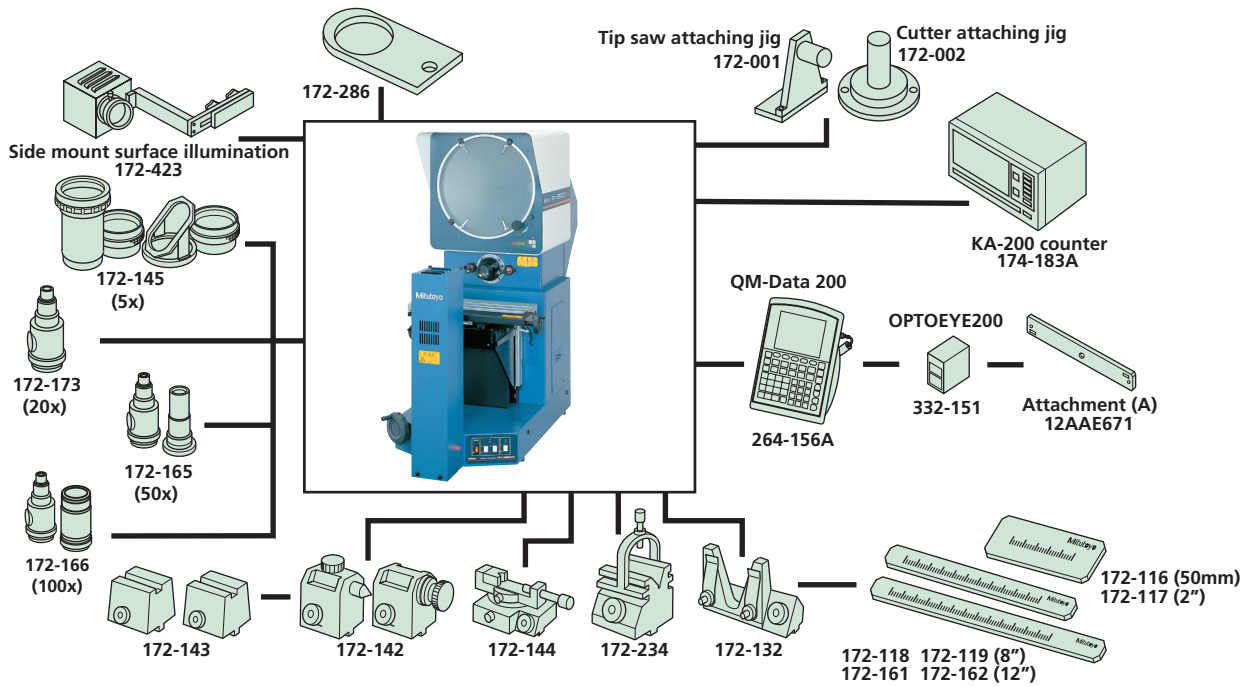


### SPECIFICATIONS

|   |  |   |
|---|--|---|
| Model No.                                   | PH-3515F   |   |
| Order No.                                   | 172-868A   |   |
| Projected Image                             | Erect image  |   |
| Protractor screen                           | Effective diameter   | 14" / 353mm   |
|   | Screen material  | Fine ground glass   |
|   | Reference line   | Cross hair line   |
|   | Screen rotation  | ±360°, fine feed and clamp  |
|   | Angle display(LED)   | Resolution: 1' or 0.01°(switchable), Range: ±370°, Functions: Absolute/incremental mode switching, Zero set         |
| Projection lens                             | Standard accessory: 10x(172-184), Optional accessories: 5X, 20X, 50X, 100X |   |
| 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-step brightness switch, Heat-absorbing filter, Cooling fan  |
| Surface illumination (Optional accessories) | light source   | Halogen bulb(24V 150W)  |
|   | Functions  | Adjustable condenser lens. Heat-absorbing filter, Cooling fan   |
|   | Table travel (X-axis)  | 10" / 254mm   |
| XY Stage                                    | Table size (X, Z)  | 17.7"x5.7" / 450x146mm  |
|   | Vertical travel (Y-axis)   | 6" / 152mm  |
| Power supply                                | Resolution   | 0.001mm/.00005"*  |
|   | Measuring Unit   | Built in Linear scale   |
| Mass  | Max. workpiece width   | See (L) on page I-10  |
|   | Max. workpiece load  | 100lbs / 45kg   |
| Standard accessories                        | Power supply   | 120V AC, 50/60Hz  |
|   | Mass   | 333lbs / 150kg  |
|   | Standard accessories   | 10x projection lens set, work stage, power cord, halogen bulb, tube fuse, grounding wire, allen wrench, Vinyl cover |

\* Counter not included

## SYSTEM DIAGRAM

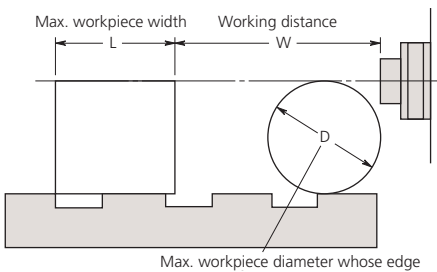


## ACCESSORIES

### Projection Lenses



### Projection Capacity



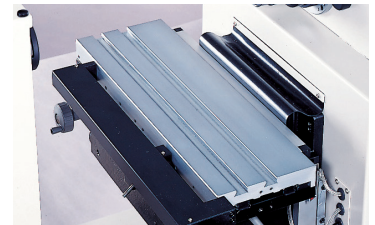
### PH-3515F

Unit: mm

|            | Magnification |         |       |      |      |
|------------|---------------|---------|-------|------|------|
|            | 5X            | 10X     | 20X   | 50X  | 100X |
| View field | 70.6          | 35.3    | 17.65 | 7.06 | 3.5  |
| L          | 175           | 235     | 235   | 80   | 109  |
| W          | 160<br>(64)   | 93 (35) | 40    | 14.6 | 9.5  |
| D          | 152.4         | 152.4   | 116   | 30.4 | 19   |

( ): When using surface illumination

### Workstage



|                     |   |
|---------------------|---|
| XY range            | X-axis (horizontal travel): 10" (254mm)   |
|                     | Y-axis (vertical travel): 6" (152mm)      |
| Measuring unit      | Linear Scale for each axis (AT100 Series) |
| Display unit        | (Optional)                                |
| Stage size (WxD)    | 17.72"x5.75" (450x146mm)                  |
| Swivel range        | ±10° (30' readout)                        |
| Max. workpiece load | 99 lbs. (45kg)                            |
| Dovetail groove     | Two (Pitch= 1.69" (43mm))                 |
| Focusing travel     | 2" (50mm)                                 |

### KA-200 Counter: 174-183A 64AAB149: Counter stand



### QM-Data200 2-D data processing unit. 264-155A: Stand mount type 264-156A: Arm mount type



### 332-151: Optoeye Edge detection system for QM-Data 200 12AAE671: Detector attachment (A)

See page 4 for additional optional accessories

## Optional Accessories

- 172-184: 10X projection lens (standard accessory)
- 172-173: 20X projection lens
- 172-165: 50X projection lens set
- 172-166: 100X projection lens set
- 172-116: Standard scale (50mm)
- 172-117: Standard scale (2")
- 172-118: Reading scale (200mm)
- 172-161: Reading scale (300mm)
- 172-119: Reading scale (8")
- 172-162: Reading scale (12")
- 172-286: Green filter
- 512305: Halogen bulb (24V, 150W) (standard accessory)

## Fixture and Stage accessories

- 172-142: Center support
- 172-143: Center support riser
- 172-144: Rotary vise  
(Max. workpiece dia.: 2.4" / 60mm)
- 172-234: V-block with clamp  
(Max. workpiece dia.: 2" / 50mm)
- 172-132: Vertical holder
- 64AAB176: Machine stand 22"W x 25" D x 26"H

## Stand

- 64AAB176  
Locking door  
22"W x 25"H x 29"D



## Center Support

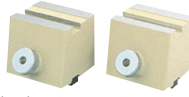
- 172-142



Clamps a cylindrical workpiece such as a screw  
Workpiece dia.: 120mm max

## Center Support Riser

- 172-143



Widens the damping capacity of the center support to a maximum diameter of 240mm.

## Reading Scales

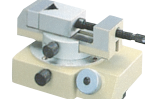
- 172-118 (200mm)
- 172-161 (300mm)
- 172-119 (8")
- 172-162 (12")



Designed for checking the magnified image of a standard scale.

## Rotary Vise

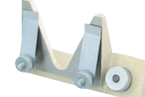
- 172-144



Workpiece dia.: 60mm max

## Vertical Holder

- 172-132



Set up a thin workpiece easily

## Standard Scales

- 172-116 (50mm)
- 172-117 (2")



Used for checking magnifying accuracy.

## V-Block w/ Clamp

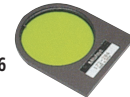
- 172-234



Workpiece dia.: 50mm max

## Green Filter

- 172-286



Increases the screen sharpness of the contour image.

|                               |                                 |                               |  |
|-------------------------------|---------------------------------|-------------------------------|--|
| 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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Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.



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