

PJ-A3000

SERIES 302 — Vertical Profile Projectors

FEATURES

- The PJ-A3000 Series vertical profile projectors are medium-size 11.8" (300mm) models that feature high versatility and easy operation.
- Easy-to-read digital XY counter is located near the projection screen to minimize eye movement.
- Digital readout protractor screen facilitates angle measurement.



PJ-A3010F-200



PJ-A3005D-50



PJ-A3010F-100



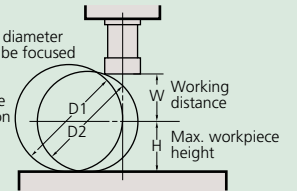
PJ-A3005F-150



PJ-A3010F-200

Projection Capacity

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			
	10X	20X	50X	100X
View field	ø31.5	ø15.7	ø6.3	ø3.1
W	66 (20)	32.5 (2)	12.6	5
H	-50 models*	123.5	123.5	123.5
	-100 models	91	91	91
	-150 models	103.5	103.5	103.5
	200 models	92.5	92.5	92.5
D1	-50 models*	224 (198)	87 (61)	27
	-100 models	182	87 (61)	27
	-150 models	207 (198)	87 (61)	27
	200 models	185	87 (61)	27
D2		154 (120)	69 (23)	25

(): When using surface illumination

SPECIFICATIONS

Optional Accessories

- 172-202:** 10X projection lens set (Standard accessory)
- 172-203:** 20X projection lens set
- 172-223:** 10X projection lens
- 172-224:** 20X projection lens
- 172-204:** 50X projection lens
- 172-207:** 100X projection lens
- 172-229:** Oblique illumination mirror for 10X lens
- 172-230:** Oblique illumination mirror for 20X lens
- 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")
- 172-160-2:** Green filter (for PJ-A3000, -50 models)
- 172-160-3:** Green filter (for -100, -150, -200 models)
- 512305:** Halogen bulb (24V, 150W)
- 383876:** Vinyl cover (standard accessory)

Fixture and Stage Accessories

- 176-106:** Rotary table (Effective diameter: 66mm)
- 172-196:** Rotary table (Effective diameter: 100mm)
- 172-198:** Rotary table with fine feed wheel (Effective diameter: 4" / 100mm)
- 176-105:** Swivel center support (Max. workpiece dia.: 2.7" / 70mm)
- 172-197:** Swivel center support (Max. workpiece dia.: 3.1" / 80mm)
- 176-107:** Holder with clamp
- 172-378:** V-block with clamp (Max. workpiece dia.: 1" / 25mm)
- 999678:** Fixture mount adapter
- 64PMI167:** Stand 22.4 x 20 x 32" (WxDxH)

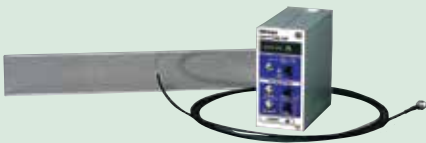
Availability	PJ-A3005D-50	PJ-A3005F-150	PJ-A3010F-100 PJ-A3010F-200
176-106	✓	✓	
172-196		✓	✓*
172-198		✓	✓*
176-105	✓		
172-197		✓	✓*
176-107	✓	✓	✓*
172-378	✓	✓	✓*

* Fixture mount adapter (999678) is required for PJ-3010F-200





QM-Data200

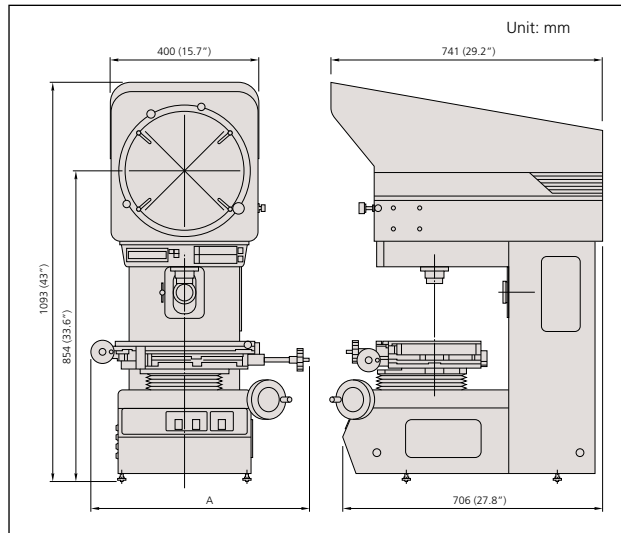
- 264-155A:** Stand-mount type
- 264-156A:** Arm-mount type
- 2-D data processing unit.
- (Refer to page I-23 for more details.)



- 332-151:** Optoeye
Edge detection system for QM-Data200
- 12AAE671:** Detector Attachment

						
		Model	PJ-A3010F-200	PJ-A3005F-150	PJ-A3010F-100	PJ-A3005D-50
		Order No.	302-701A	302-702A	302-703A	302-704A
Projected image		Inverted image				
Protractor screen	Effective diameter	12.4" / 315mm				
	Screen material	Fine ground glass				
	Reference line	Cross hair line				
	Angle display (LED)	Resolution: 1° or 0.01° (switchable), Range: ±360° Functions: Absolute/incremental mode switching, Zero Set				
Projection lens		Standard Accessory 10X (172-202)				
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				
XY range		8" x 4" (200 x 100mm)	6" x 2" (150 x 50mm)	4" x 4" (100x100mm)	2" x 2" (50 x 50mm)	
Resolution		.0001" / 0.001mm	.0001" / 0.001mm	.0001" / 0.001mm	.0001" / 0.001mm	
Measuring Unit		Built-in linear scales	Built-in linear scales	Built-in linear scales	Digimatic mic heads	
Table size		14.96x9.84" (380x250mm)	11.02x5.98" (280x152mm)	9.84x9.84" (250x250mm)	5.98x5.98" (152x152mm)	
Effective table area		10.47x6.69" (266x170mm)	7.24x3.23" (184x82mm)	5.6x5.6" (142x142mm)	3.23x3.23" (82x82mm)	
Max. workpiece height		3.64" (92.5mm)	4.07" (103.5mm)	3.58" (91mm)	4.86" (123.5mm)	
Functions		± direction switching, SPC output zero-setting	Zero-setting, ± direction switching, SPC output	Zero-setting, ± direction switching, SPC output	± direction switching, SPC output zero-setting	
Power supply		120V AC, 50/60Hz				
Mass		308 lbs. (140kg)	255 lbs. (116kg)	246 lbs. (112kg)	235 lbs. (107kg)	
Standard accessories		10X projection lens set, masking shield, power cord, halogen bulb, fuse, grounding wire, allen wrench, vinyl cover				

DIMENSIONS



Model	PJ-A3005D-50	PJ-A3010F-100	PJ-A3005F-150	PJ-A3010F-200
A	17.9" / 455mm	16.8" / 427mm	17.6" / 446mm	23.3" / 593mm

PJ-H30

SERIES 303 — High-Accuracy Profile Projectors

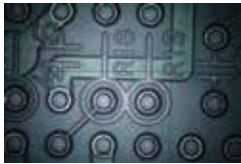
By separating axial motion, and stabilizing the XY measuring table in the vertical direction, high measuring accuracy of $(3+0.02L)\mu\text{m}$ has been achieved on the PJ-H30 Series Profile Projectors. Focusing is accomplished by moving the screen head up and down with the hand wheel or motorized unit. The power focusing (PJ-H30D type) provides higher performance.

FEATURES

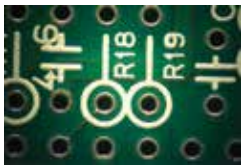
- Newly designed optical system with high NA lenses provides drastically brighter and clearer screen images during surface illumination.
- The three-lens mounting turret includes a 10X lens as standard. Four types of projection lenses (5X, 20X, 50X, 100X) are available.



Switchable surface illumination: vertical or oblique



Vertical illumination

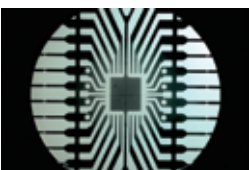
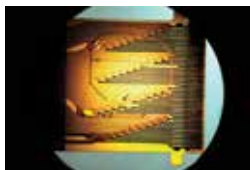
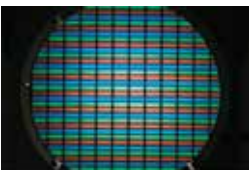


Oblique illumination

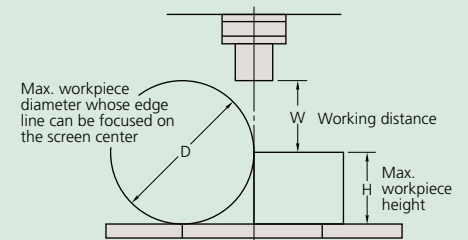


PJ-H30A3017B

XY stage travel range: 12x7" / 300x170mm



Projection Capacity



Unit: mm

	Magnification				
	5X	10X	20X	50X	100X
View field	ø61.2	ø30.6	ø15.3	ø6.12	ø3.06
H	100	100	100	100	100
W	66	70.5	56.5	50	50
D	148	197	137	114	114

Optional Accessories

172-271:	5X projection lens
172-472:	10X projection lens (standard accessory)
172-473:	20X projection lens
172-474:	50X projection lens
172-475:	100X projection lens
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")
12AAG981:	Green filter
172-269:	Machine stand
512305:	Halogen bulb (24V, 150W) (standard accessory)
383876:	Vinyl cover (standard accessory)

Fixture and Stage Accessories

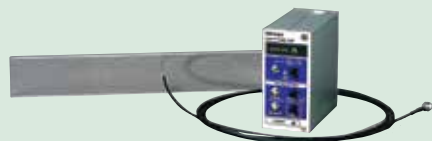
172-198:	Rotary table (Effective diameter: 4" / 100mm)
176-305:	Rotary table (Effective diameter: 7.2" / 183mm)
176-306:	Rotary table (Effective diameter: 9.4" / 240mm)
176-105:	Swivel center support (Max. workpiece dia.: 2.8" / 70mm)
172-197:	Swivel center support (Max. workpiece dia.: 3.1" / 80mm)
176-107:	Holder with clamp
172-378:	V-block with clamp (Max. workpiece dia.: 1" / 25mm)
176-317:	Fixture mount adapter C
176-304:	Fixture mount adapter A

Availability	Models	
	PJ-H30A1010B	PJ-H30A2017B
	PJ-H30B1010B	PJ-H30B2017B
	PJ-H30D1010B	PJ-H30D2017B
	PJ-H30A2010B	PJ-H30A3017B
	PJ-H30B2010B	PJ-H30B3017B
	PJ-H30D2010B	PJ-H30D3017B
172-198	✓**	✓****
176-305	✓**	
176-306		✓****
176-107 *	✓**	✓****
172-378 *	✓**	✓****
172-197 *	✓**	✓****
176-105	✓***	✓***

*: Able to attach to a Rotary table (172-198 or 176-305)
 **: Fixture mount adapter C (176-317) is required.
 ***: Rotary table (172-198) is required.
 ****: Fixture mount adapter A (176-304) is required.

QM-Data200

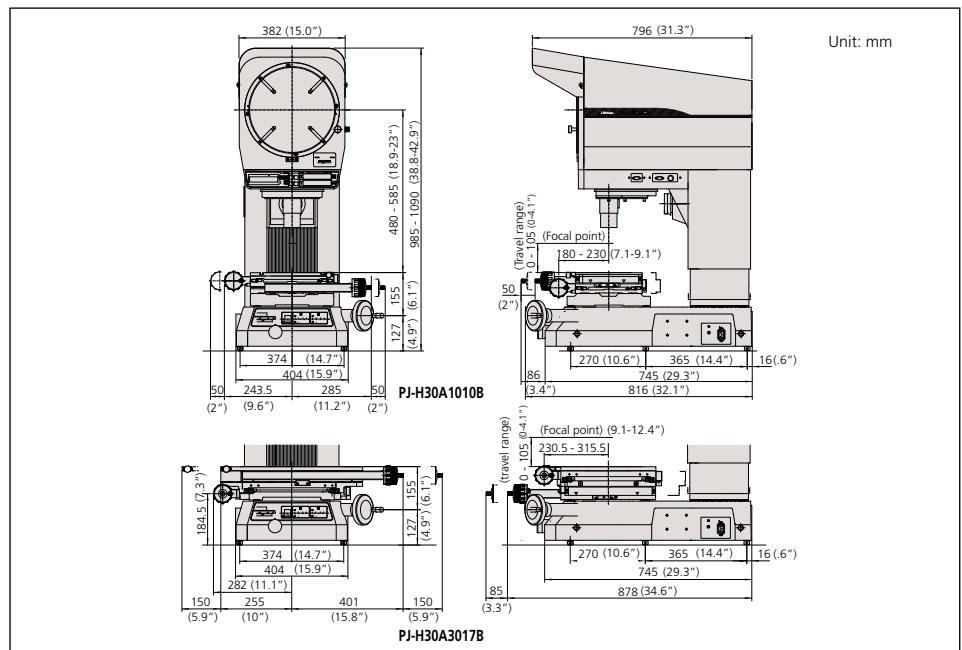
264-155A: Stand-mount type
264-156A: Arm-mount type*
 *Attachment stand (12AAG982) is required.
 2-D data processing unit.
 (Refer to page I-23 for more details.)



332-151:	Optoeye Edge detection system for QM-Data200
12AAE671:	Detector Attachment

Manual Focus type	Model No.	PJ-H30A1010B	PJ-H30A2010B	PJ-H30A2017B	PJ-H30A3017B
	Order No.	303-712-1A	303-713-1A	303-714-1A	303-715-1A
Power Focus, built-in OPTOEYE type	Model No.	PJ-H30D1010B	PJ-H30D2010B	PJ-H30D2017B	PJ-H30D3017B
	Order No.	303-732-1A	303-733-1A	303-734-1A	303-735-1A
Projected Image		Erect image			
Protractor screen	Effective diameter	12" / 306mm			
	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 (172-472), Optional accessories: 2X, 5X, 20X, 50X, 100X				
Lens mount	3-lenses mounting turret				
Magnification accuracy	Contour illumination	±0.1% or less			
	Surface illumination	±0.15% or less			
Contour illumination	Light source	Halogen bulb (24V 150W)			
	Optical system	Zoom telecentric system			
	Functions	Brightness adjustment, Heat-absorbing filter, Cooling fan			
Surface illumination	Light source	Halogen bulb (24V 150W)			
	Optical system	Vertical / Oblique illumination with an adjustable condenser lens			
	Functions	Non-stepped brightness adjustment, Heat-absorbing filter, Cooling fan			
	XY Range	4 x 4" 100 x 100mm	8 x 4" 200 x 100mm	8 x 6.7" 200 x 170mm	12 x 6.7" 300 x 170mm
	Resolution	.0001" / 0.001mm			
Measuring unit	Built-in Linear scale				
Table size		11.8 x 9.4" 300 x 240mm	13.8 x 11" 350 x 280mm	16.1 x 13.5" 410 x 342mm	20 x 13.5" 510 x 342mm
	Effective table area	7.1 x 5.9" 180 x 150mm	9.8 x 5.9" 250 x 150mm	10.6 x 9.4" 270 x 240mm	14.6 x 9.4" 370 x 240mm
Max. workpiece ht.	4.1" / 105mm				
Max. workpiece load	22lbs / 10kg	22lbs / 10kg	44 lbs / 20kg	44 lbs / 20kg	
Power supply	120V AC, 50/60Hz				
Mass	391lbs / 176kg	396lbs / 178kg	556lbs / 205kg	471lbs / 212kg	
Standard accessories	10X projection lens set, masking shield, power cord, halogen bulb, tube fuse, grounding wire, allen wrench, vinyl cover				

DIMENSIONS



PV-5110

SERIES 304 — Profile Projectors

FEATURES

- Large 500mm screen
- Floor model uses a downward illumination system.
- Digital readout protractor screen (including zero-setting, ABS/INC coordinate switching functions) for easy and error-free angle measurement.
- Angled screen allows projected images to be easily traced or compared with a template.
- The oblique surface illumination system provides clear and bright images, allowing easy inspection of non-reflective workpieces such as plastic parts or printed materials.

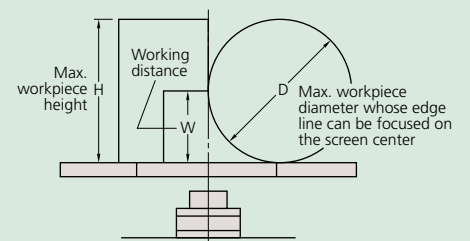


PV-5110



PV-5110

Projection Capacity



Unit: mm

	Magnification				
	5X	10X	20X	50X	100X
View field	ø101.6	ø50.8	ø25.4	ø10.16	ø5.08
H	125	181	206	87	87
W	60 (27)	60	60	32.4	22.5
D	120	120	120	64.8	45

(): When using surface illumination

Optional Accessories

- 172-401: 5X projection lens set
- 172-406: 5X projection lens
- 172-402: 10X projection lens set (standard accessory)
- 172-409: 10X projection lens
- 172-403: 20X projection lens set
- 172-411: 20X projection lens
- 172-404: 50X projection lens set
- 172-413: 50X projection lens
- 172-405: 100X projection lens set
- 172-415: 100X projection lens
- 172-422: Surface illumination unit (standard accessory)
- 172-116: Standard scale (50mm)
- 172-117: Standard scale (2")
- 172-118: Standard scale (200mm)
- 172-119: Standard scale (8")
- 172-161: Reading scale (300mm)
- 172-329: Reading scale (600mm)
- 172-162: Reading scale (12")
- 172-160-2: Green filter (standard accessory)
- 172-319: Canopy
- 512305: Halogen bulb (24V, 150W) (standard accessory)
- 510189: Vinyl cover (standard accessory)

Fixture and Stage Accessories

- 172-196: Rotary table*
(Effective diameter: 4" / 100mm)
- 172-198: Rotary table with fine feed wheel*
(Effective diameter: 4" / 100mm)
- 172-197: Swivel center support*
(Max. workpiece dia.: 3.1" / 80mm)
- 176-107: Holder with clamp*
- 172-378: V-block with clamp*
(Max. workpiece dia.: 1" / 25mm)

*Fixture mount adapter (999678) is required.



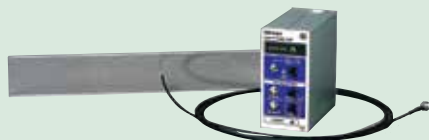
KA Counter (174-183A)

(Refer to page H-7 for more details.)



QM-Data200

- 264-155A: Stand-mount type
 - 264-156A: Arm-mount type
- 2-D data processing unit.
(Refer to page I-23 for more details.)



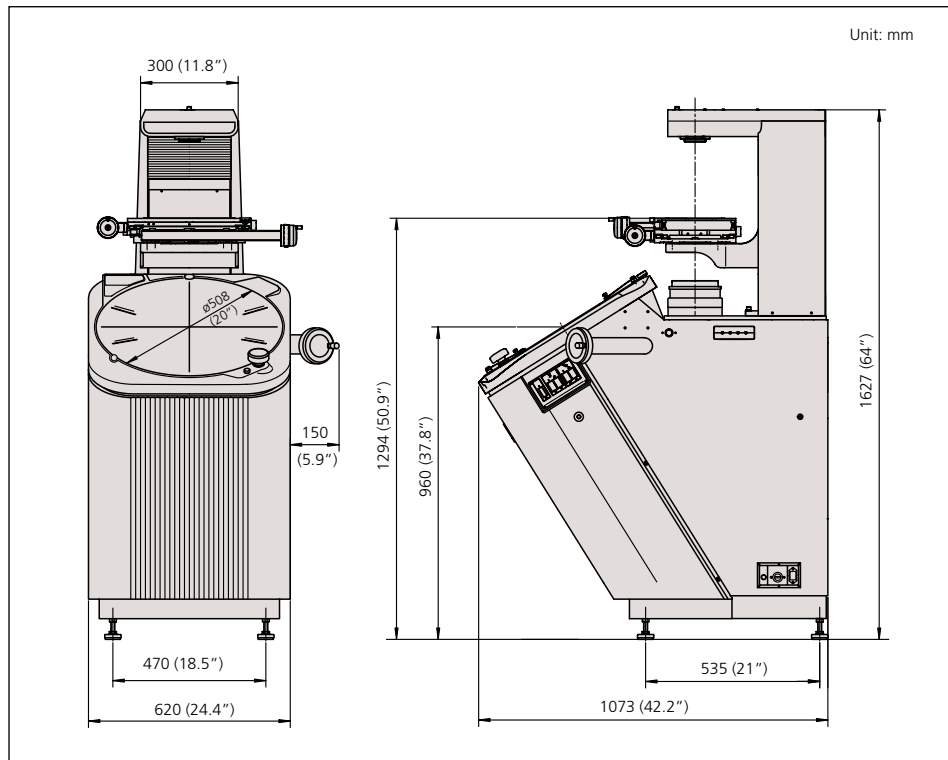
- 332-151: Optoeye
Edge detection system for QM-Data200
- 12AAE672: Detector Attachment (B)

SPECIFICATIONS

Model No.	PV-5110	
Order No.	304-919A	
Projected image	Invert image	
Protractor screen	Effective diameter	20" / 508mm
	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(172-472), 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	Zoom telecentric system
	Functions	2-step brightness switch, Heat-absorbing filter, Cooling fan
Surface illumination	Light source	Halogen bulb (24V 150W)
	Optical system	Vertical illumination
	Functions	Adjustable condenser lens. Oblique illumination (for 5X, 10X, and 20X), 2-step brightness switch, Heat-absorbing filter, Cooling fan
	XY Range	8 x 4" / 200 x 100mm
	Resolution	.0001" / 0.001mm*
Measuring unit	Built-in Linear scale	
Table size	15 x 9.8" / 380 x 250mm	
Effective table area	10.5 x 6.7" / 266 x 170mm	
Max. workpiece height	See (H) on page I-6	
Max. workpiece load	11lbs / 5kg	
Power supply	120V AC, 50/60Hz	
Mass	467lbs / 210kg	
Standard accessories	200x100mm (8" x 4") stage, 10X projection lens set, Surface illumination unit. Counter stand for KA counter, power cord, halogen bulb, fuse, grounding wire, allen wrench, vinyl cover	

* Counter not included

DIMENSIONS



PH-A14

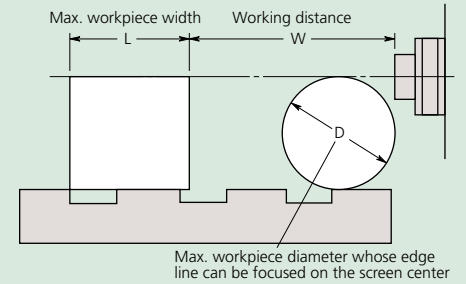
SERIES 172 — Profile Projector

FEATURES

- Benchtop model uses a horizontal optical system.
- Suitable for thread pitch measurements—blurred or distorted images will not be produced when workpiece is angled.
- Inverted image on the day-bright screen.
- 14" (356mm) diameter vernier protractor screen with solid line cross-hairs for easy alignment.
- Heavy-duty workpiece table incorporates linear scales for fast, accurate measurement.



Projection Capacity



PH-A14

Unit: mm

	Magnification			
	10X	20X	50X	100X
View field	35.6	17.3	7.12	3.56
L	235	235	80	109
W	93	40	14.6	11
D	105	105	30.4	19

Optional Accessories

172-011:	10X projection lens (standard accessory)
172-012:	20X projection lens
172-013:	50X projection lens set
172-014:	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

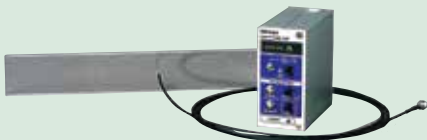
172-142:	Center support
172-143:	Center support riser
172-144:	Rotary vise (Max. workpiece dia.: 2.4" / 60mm)
172-234:	V-block with clamp (Max. workpiece dia.: 2" / 50mm)
172-132:	Vertical holder
64AAA129B:	Machine stand 23"W x 45" D x 20"H



KA Counter (174-183A)
(Refer to page H-7 for more details.)
64AAB149: Counter stand



QM-Data200
2-D data processing unit.
264-155A: Stand mount type
264-156A: Arm mount type
(Refer to page I-23 for more details.)



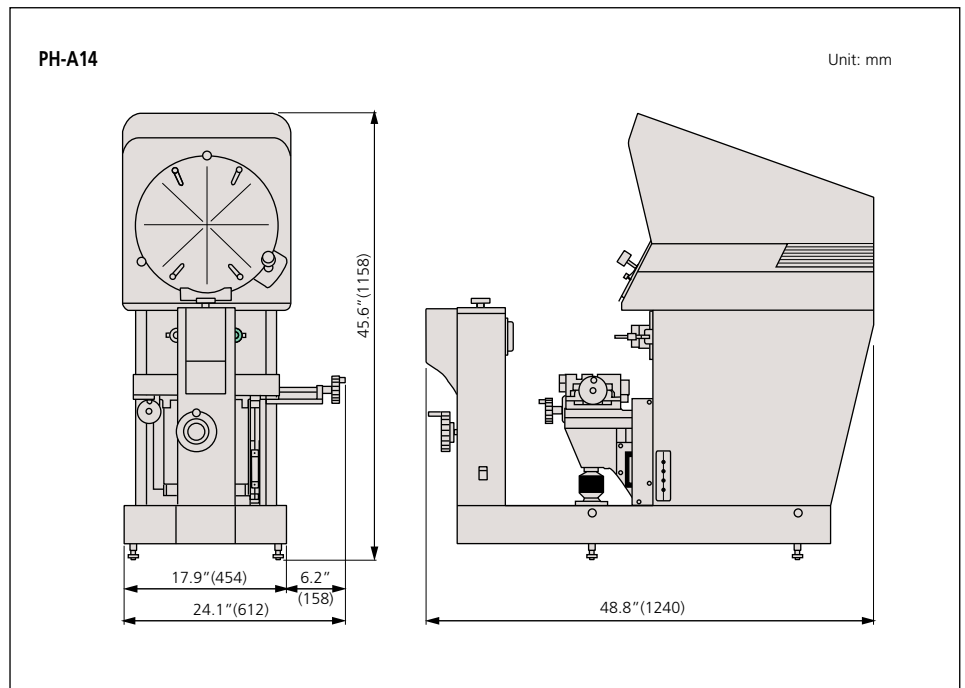
332-151: Optoeye
Edge detection system for QM-Data 200
12AAE671: Detector attachment (A)

SPECIFICATIONS

Model No.		PH-A14
Order No.		172-810-10A
Projected image		Inverted image
Protractor screen	Effective diameter	14" / 356mm
	Screen material	Fine ground glass
	Reference line	Cross hair line
	Screen rotation	±360°, fine feed and clamp
	Angle display	Vernier reading, Resolution: 2'
Projection lens		Standard accessory: 10X (172-011), Optional accessories: 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	Heat-absorbing filter, Cooling fan
Surface illumination	Light source	Halogen bulb (24V 150W)
	Optical system	Twin fiber optic illumination
XY Stage	Table travel (X-axis)	8" / 203.2mm
	Table size (X, Z)	16 x 6" / 407 x 153mm
	Vertical travel (Y-axis)	4" / 101.6mm
	Resolution	.00005" / 0.001mm*
	Measuring unit	Built in Linear scale
	Max. workpiece width	See (L) on page I-12
Power supply		120V AC, 50/60Hz
Mass		308lbs / 140kg
Standard accessories		10x projection lens set, work stage, power cord, halogen bulb, fuse, grounding wire, allen wrench

*Counter not included

DIMENSIONS



PH-3515F

SERIES 172 — Profile Projector

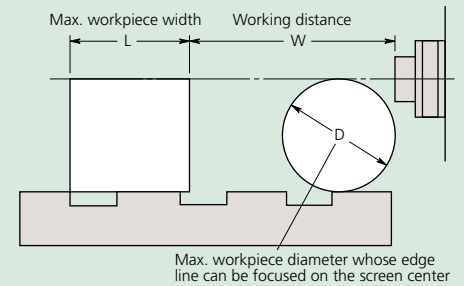
FEATURES

- Benchtop model uses a horizontal optical system.
- Suitable for thread pitch measurements—blurred or distorted images will not be produced when workpiece is angled.
- Erect image on the day-bright screen.
- Standard twin fiber-optic illumination.
- 14" (353mm) diameter protractor screen with cross-hairs and staggered lines for easy alignment.
- Digital angle measurement to 1' or 0.01°.
- Heavy-duty workpiece table incorporates linear scales for fast, accurate measurement.
- Built-in linear scales for use with optional display counters.



PH-3515F

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 (64)	93 (35)	40	14.6	9.5
D	152.4	152.4	116	30.4	19

() : When using surface illumination

Optional Accessories

172-145:	5X projection lens set
172-175:	5X projection lens
172-184:	10X projection lens set (standard accessory)
172-011:	10X projection lens
172-173:	20X projection lens set
172-165:	50X projection lens set
172-174:	50X projection lens
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)
172-423:	Twin surface illumination
12BAA653:	Fiber optical illumination cable (standard accessory)
12BAA637:	Halogen reflector lamp (standard accessory)
64AAB176:	Machine stand
383228:	Vinyl cover (standard accessory)

Fixture and Stage Accessories*

172-142:	Center support
172-143:	Center support riser
172-144:	Rotary vise (Max. workpiece dia.: 2.3" / 60mm)
172-234:	V-block with clamp (Max. workpiece dia.: 2" / 50mm)
172-132:	Vertical holder
172-001:	Tipped-saw support stand
172-002:	Cutter support stand

* See page I-13 for details



KA Counter (174-183A)

(Refer to page H-7 for more details.)

64AAB149: Counter stand



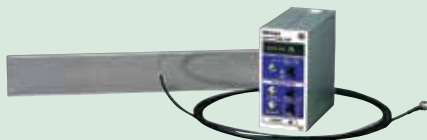
QM-Data200

2-D data processing unit.

264-155A: Stand mount type

264-156A: Arm mount type

(Refer to page I-23 for more details.)



332-151: Optoeye

Edge detection system for QM-Data200

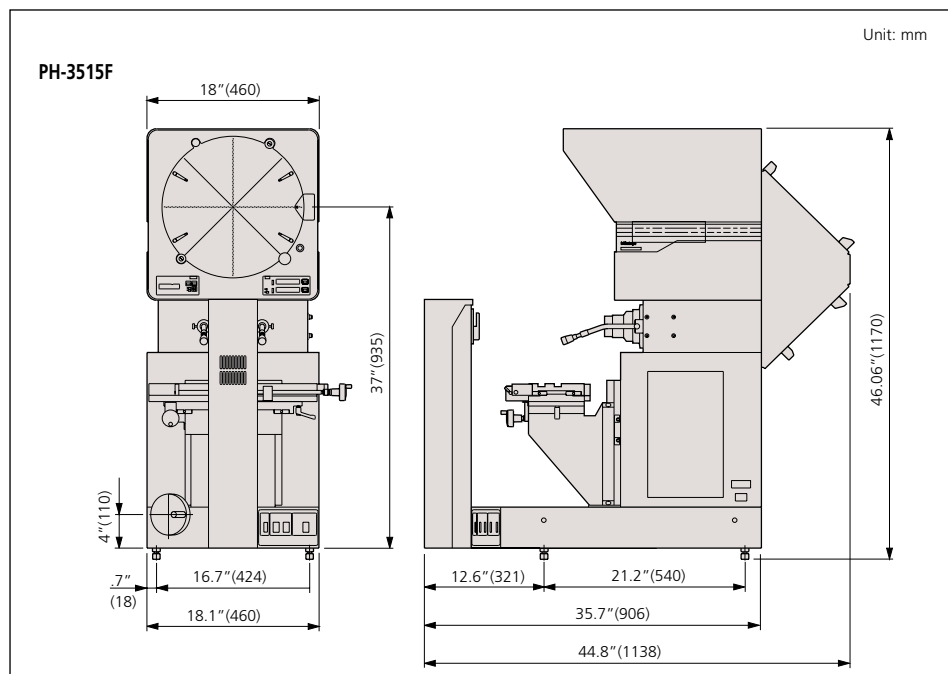
12AAE671: Detector attachment (A)

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) XY Stage	Light source	Halogen bulb (24V 150W)
	Functions	Adjustable condenser lens, Heat-absorbing filter, Cooling fan
	Table travel (X-axis)	10" / 254mm
	Table size (X, Z)	17.7" x 5.7" / 450 x 146mm
	Vertical travel (Y-axis)	6" / 152mm
	Resolution	0.001mm / 0.00005"*
	Measuring Unit	Built-in Linear scale
	Max. workpiece width	See (L) on page I-10
	Max. workpiece load	100lbs / 45kg
	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

DIMENSIONS



Accessories for Profile Projectors

SERIES 172 — Profile Projector

Standard Scales



172-116

- Used for checking magnification accuracy.

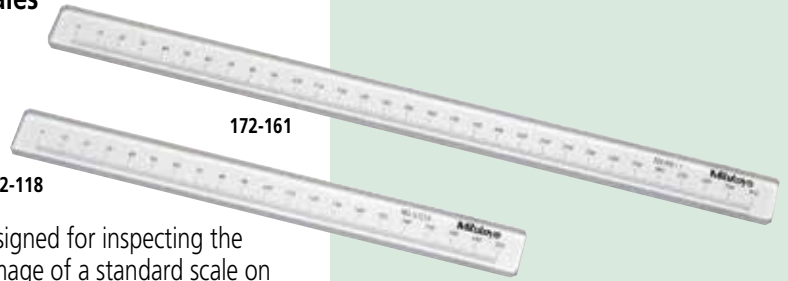
SPECIFICATIONS

Metric			
Graduation	Range	Order No.	Accuracy (20°C)*
0.1mm	50mm	172-116	(3+5L/1000)µm
0.1mm	80mm	172-330	(3+5L/1000)µm

*L = Measured length (mm)

Inch			
Graduation	Range	Order No.	Accuracy (20C)
.01"	2"	172-117	.00013"

Reading Scales



172-118

172-161

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

SPECIFICATIONS

Metric			
Graduation	Range	Order No.	Accuracy
0.5mm	200mm	172-118	18µm (15+15L/1000)µm
0.5mm	300mm	172-161	19.5µm (15+15L/1000)µm
0.5mm	600mm	172-329	24µm (15+15L/1000)µm

Inch			
Graduation	Range	Order No.	Accuracy
.02"	8"	172-119	.00071"
.02"	12"	172-162	.00077"

Micrometer Heads

for Profile Projectors and Toolmakers' Microscopes

Micrometer Heads for XY Stage

FEATURES

- Non-rotating device is provided.
- The thimble reading can be zero-set at any spindle position.
- Black and red figures of the bi-directional graduation allow easy reading in both directions.
- Clamping stem diameter: 18mm

SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Accuracy	Remarks
0.005mm	25mm	152-390	±2µm	for X-axis
0.005mm	25mm	152-389	±2µm	for Y-axis

Inch				
Graduation	Range	Order No.	Accuracy	Remarks
.0001"	1"	152-391	±.0001"	for X-axis
.0001"	1"	152-392	±.0001"	for Y-axis

Adjustable Micrometer Heads for XY Stages

FEATURES

- The adjustable spindle can be fed under the thimble clamped at any reading, allowing easy reference point setting.
- The spherical measuring face is carbide-tipped.
- Clamping stem diameter: 18mm

SPECIFICATIONS

Metric				
Graduation	Range	Order No.	Accuracy	Remarks
0.001mm*	25mm	152-402	±2µm	for X-axis
0.001mm*	25mm	152-401	±2µm	for Y-axis

*Obtained using vernier.



152-390

Digimatic Micrometer Heads

FEATURES

- Large LCD digits for error-free reading.
- The display rotates 330° for easy viewing.
- The spindle does not rotate.
- With SPC data output.

SPECIFICATIONS

Inch/Metric			
Resolution	Range	Order No.	Accuracy
.00005"/0.001mm	2" (50mm)	164-164	±.00015"

Optional Accessories

- 959149: SPC cable for series 164 (1m)
- 959150: SPC cable for series 164 (2m)



164-164

Overlay Chart Set

- Makes inspection of projected images easy.
- Twelve patterns are available in the set.
- Designed for use with profile projectors whose screen diameter is 300mm or larger.

Overlay chart set (12 sheets) Order No.: 12AAM027

12AAM587

Protractor (1°-grad. radial index) and radius (1mm-radius increment concentric semicircles)

12AAM588

Radius (0.1cm-reading scales and 5mm-radius increment concentric circles)

12AAM589

Radius (1X, 10X, 20X, 50X)

12AAM590

1mm-reading scales (20X, 50X)

12AAM591

10x10mm sections

12AAM592

0.5mm-reading scales

12AAM593

1x1mm sections

12AAM594

Protractor (1°-grad. diametral index)

12AAM595

1mm-reading vertical scale

12AAM596

Protractor (1°-grad. diametral index) and radius (1mm-radius increment concentric circles)

12AAM597

Metric, Unified, and Whitworth screw threads (20X)

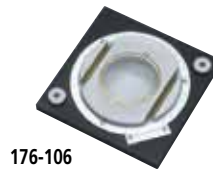
12AAM598

Metric screw thread (100X) and 20° and 14.5° gear teeth (20X)

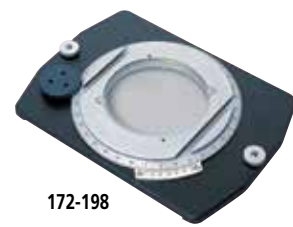
Workpiece Fixtures

for Profile Projectors and Measuring Microscopes

Rotary Tables



176-106



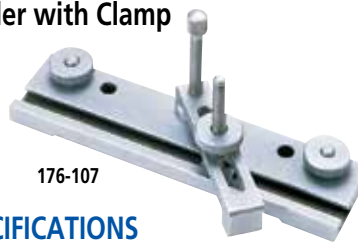
172-198

SPECIFICATIONS

Order No.	176-106	172-198
Effective glass dia.	66mm	100mm
Angle reading	6'	2' (w/ fine adjustment)
Mass	1.7kg	2.5kg

Note: Holder with clamp (176-107) can be mounted.

Holder with Clamp



176-107

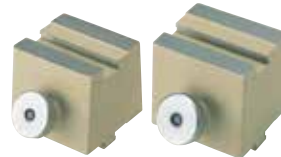
SPECIFICATIONS

Order No.	176-107
Max. workpiece height	35mm
Mass	0.42kg

Center Support



172-142



172-143

SPECIFICATIONS

Order No.	172-142
Max. workpiece height	120mm (240mm)*
Mass	3.3kg

*When using a center support riser (172-143)

Rotary Vise



172-144

SPECIFICATIONS

Order No.	172-144
Max. workpiece height	60mm
Width of jaw	40mm
Angle reading	5°
Mass	2.5kg

Swivel Center Supports



176-105



172-197

SPECIFICATIONS

Order No.	176-105	172-197
Max. workpiece dia.	70mm (45mm)*	80mm (65mm)*
Max. workpiece length	140mm	140mm
Swivel range	±10°	±10°
Mass	2.4kg	2.5kg

*When swiveled 10°

V-Block with Clamp



172-234



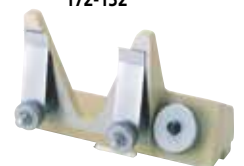
172-378

SPECIFICATIONS

Order No.	172-234	172-378
Max. workpiece dia.	50mm	25mm
Width of block	60mm	41mm
Mass	1.24kg	0.8kg

Vertical Holder

172-132



SPECIFICATIONS

Order No.	172-132
Mass	1.3kg