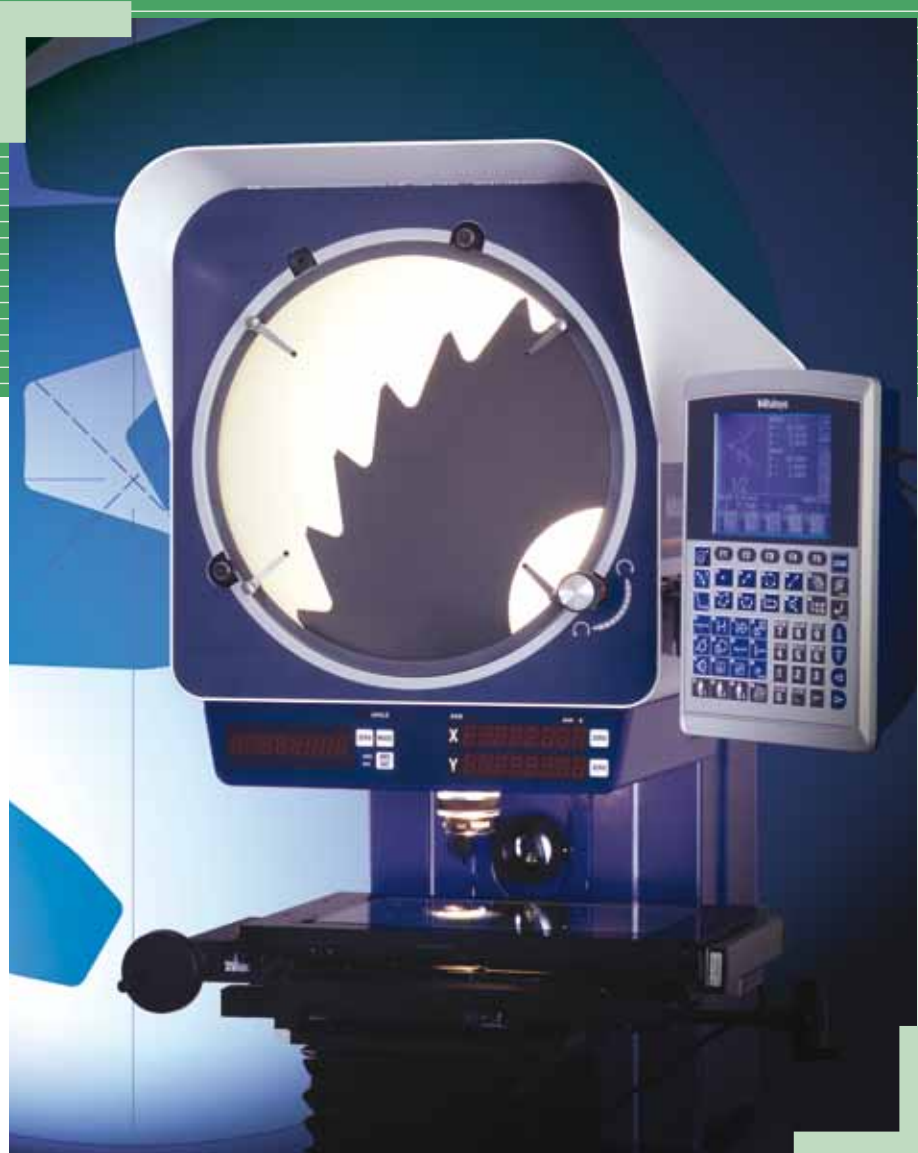


# PJ-A3000

PRE 1162(2)



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

**Mitutoyo**

# 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.

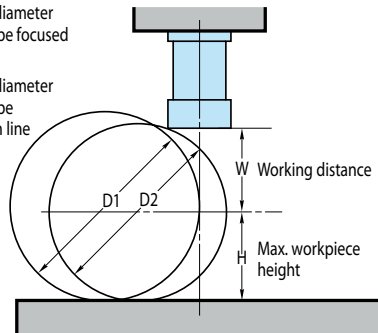
\*Except for 302-700, 302-709 and 302-719



## 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	
	PJ-A3005R-50	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	
	PJ-A3010F-100	91	91	91	91	91	91	91	
	PJ-13005F-150	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	
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
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")
Max. workpiece height	92.5 mm (3.64")		92.5 mm (3.64")		91 mm (3.58")		91 mm (3.58")

\*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

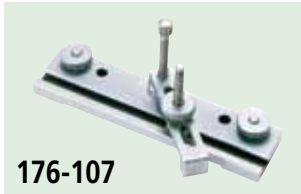


- Suitable for clamping cylinders and ball screws, etc.

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



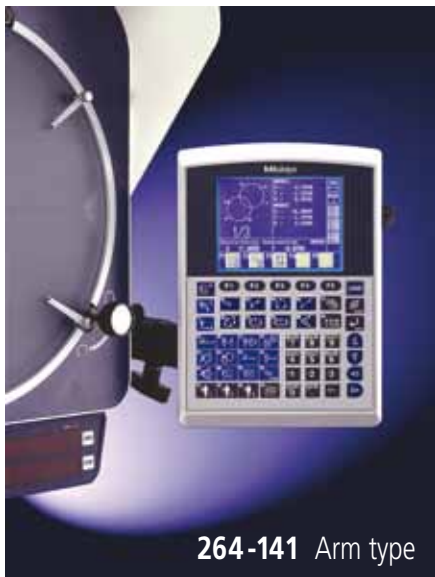
**172-378**

- 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

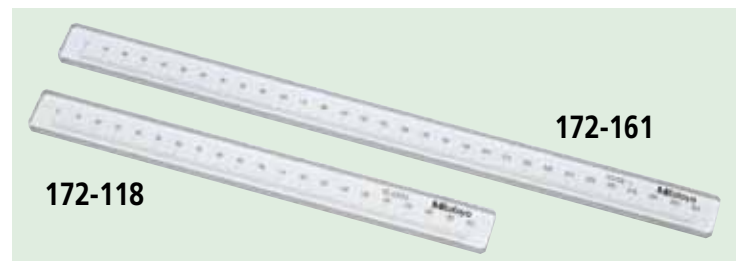
- The QM-Data 200 is a 2D data processing unit for optical instruments\*. This features powerful 2D coordinate measurement capabilities with unmatched simple key operation.

\*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

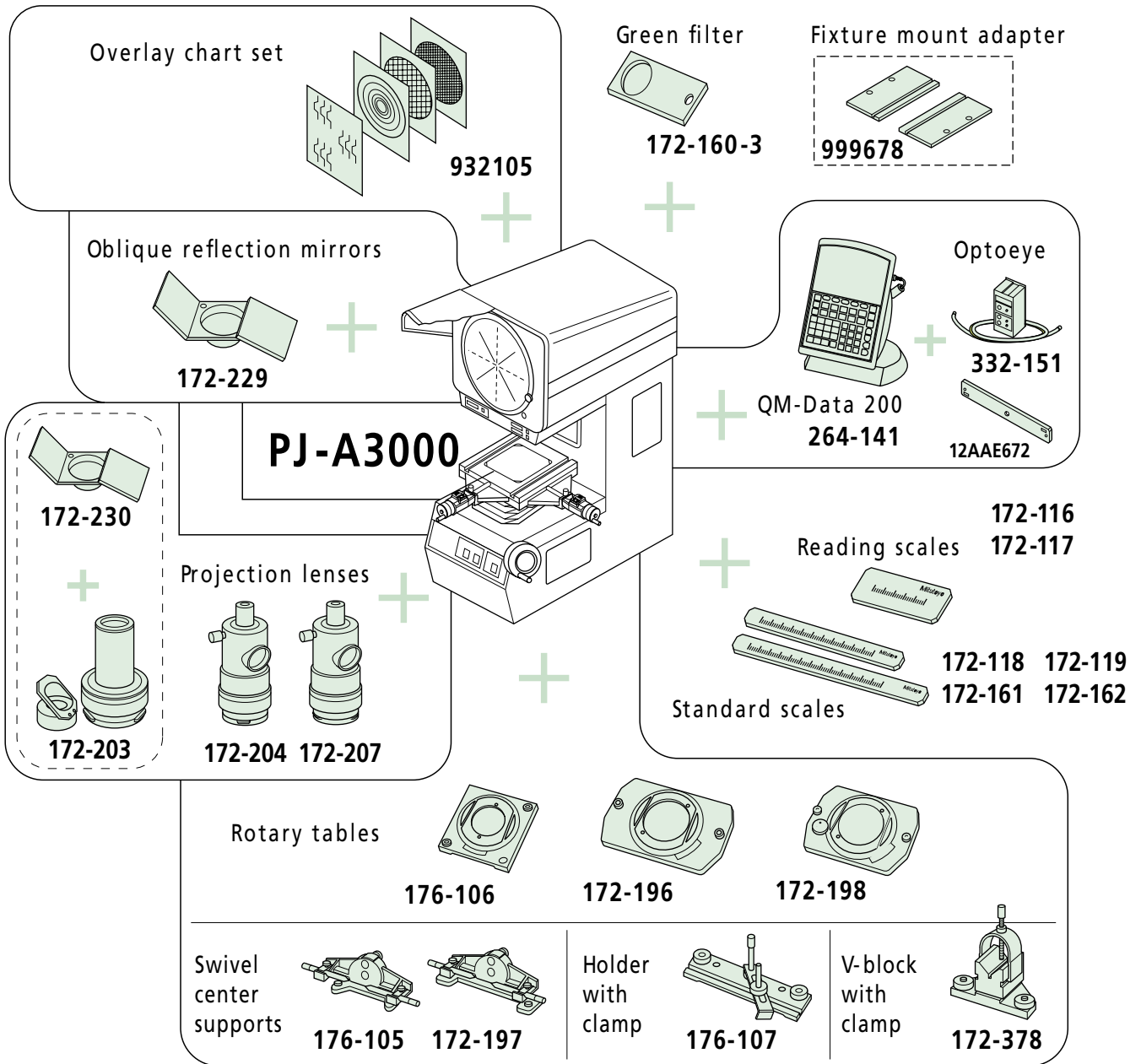


**12AAE671**

**332-151**



## System diagram

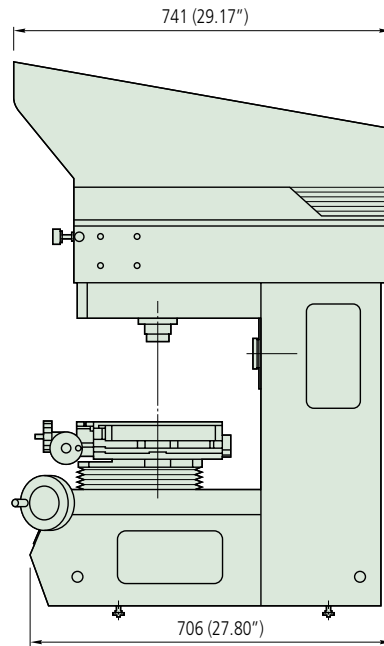
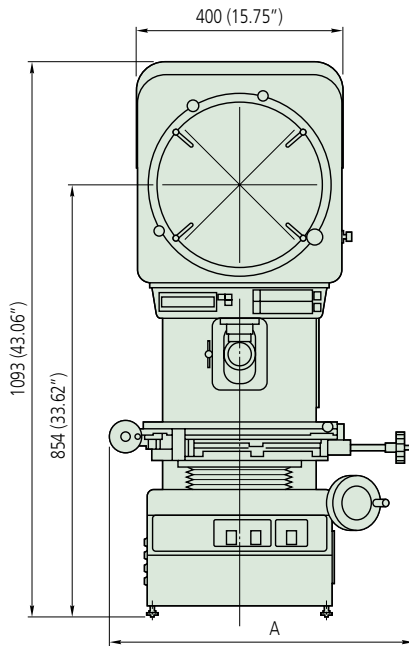


	176-106	172-196	176-105	172-197	176-107	176-378
PJ-A3005, PJ-A3005R-50, PJ-A3005D-50/E	✓	—	✓	—	✓	✓
PJ-A3005F-150/E, PJ-3010F-100/E, PJ-A3010F-200/E	—	✓*	—	✓*	✓*	✓*

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

## Dimensions

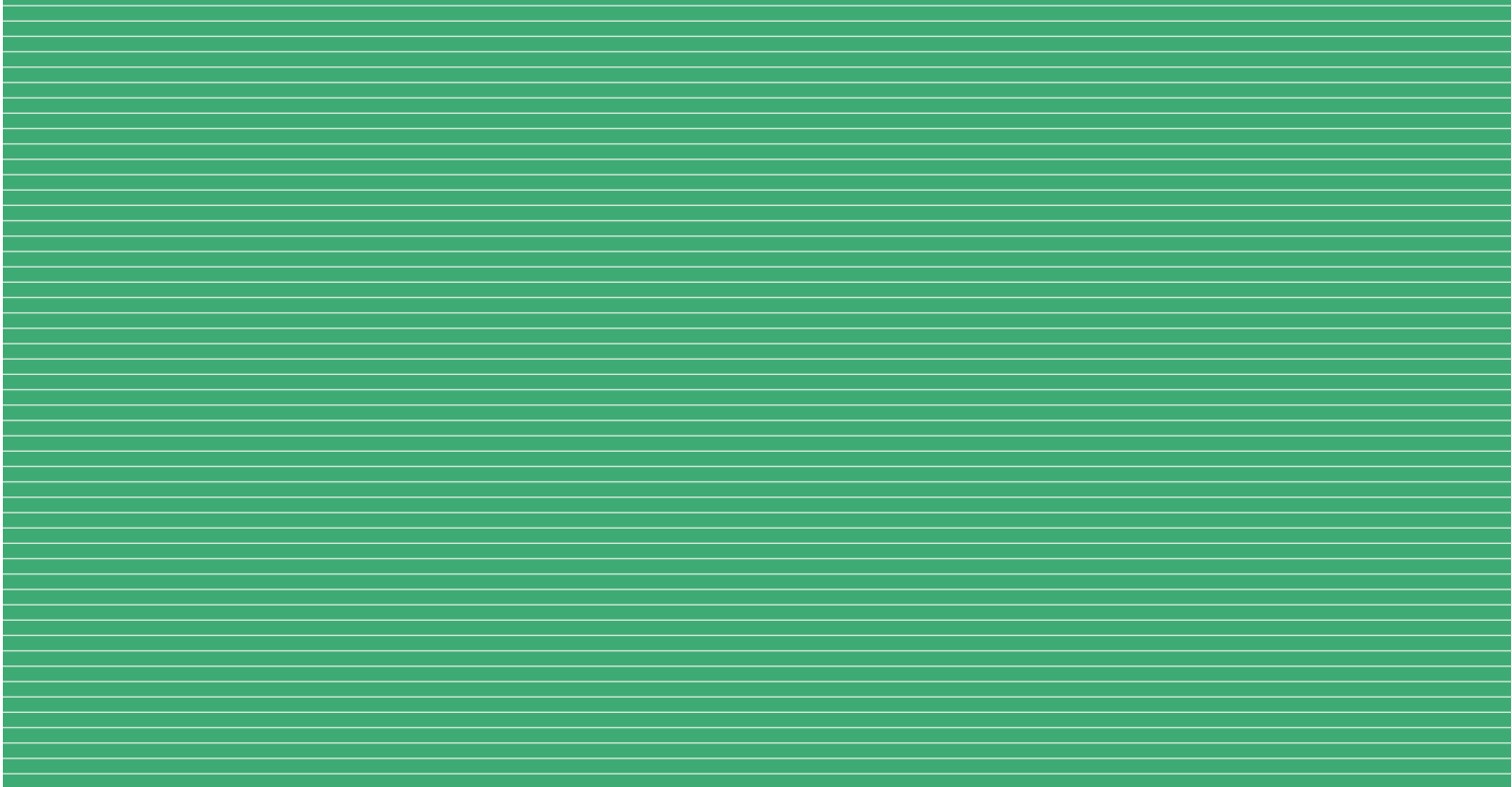
Unit: mm (inch)



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° 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.) PJ-A3010F-100, 100E: 112kg (246 lbs.) PJ-A3005D-50, 50E: 107kg (235 lbs.) 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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