



# CARMAR ACCURACY CO., LTD

## PROFILE PROJECTOR. *(Quality control)*

### Applying range:

- \* electronic part, precision mold, precision tool,
- \* spring, screw processing, plastic, rubber, oil seal valve, and more.



**Leading  
Quality Controller.**

**Made in Taiwan**

We are Manufacturer of Linear Scale, Digital Readout, Profile Projector, Video Measuring Machine, CMM, and more

**CARMAR ACCURACY CO., LTD** *(As you can see it, we can measure it!!!)*

Tel: 886-4-23592289, #14

Fax: 886-4-23598060

Address: No. 6, 23rd Road, Industrial Park, Taichung City 408, Taiwan

E-mail: royal@carmar-tech.com

Web site: www.carmar-tech.com

# Vertical Standard Type Digital Optical Comparator

**PV-3000 series (Reverse image) / PV-3000E series (Erect image)**

PV series profile projectors are reliable and affordable measuring system of high precision and efficiency. The optical comparator is widely used in calibration labs or on the shop floor as a stand-alone unit. It's also a good choice for general purpose tool room work to measure complex shapes and hole patterns easily and quickly. We have made erect image type to meet different requirements.

## ● Features:

1. Excellent optical measuring system to project precisely magnified image.
2. Accuracy of the contour measuring is under 0.08%.
3. Equipped with Mini-printer and DC-3000 data processing system and foot-switch for measuring.
4. Erect image measuring for different requirements.



**PV-3015/3015E**

## ■ PV-3000(E) Series Specifications:

Model	PV-3007(E)	PV-3010(E)	PV-3015(E)		
Stage size (mm)	260 x 152	306 x 152	340 x 152		
Glass table size (mm)	125 x 100	175 x 100	196 x 96		
X-axis travel (mm)	75	100	150		
Y-axis travel (mm)	50	50	50		
Z-axis travel (mm)	90 (for focusing)	90 (for focusing)	90 (for focusing)		
Measuring accuracy (μm)	3.0 + L/75 L: measuring length (mm)	3.0 + L/50 L: measuring length (mm)	4.0 + L/25 L: measuring length (mm)		
Resolution (X/Y-axis)	0.5 μm				
Projector Screen	Size (mm)	12" (Ø312), usable range > Ø300			
	Rotation range	0 ~ 360°			
	Angle resolution	1' or 0.01°			
Objective Lens	Magnification	10X(Standard)	20X(Opt.)	50X(Opt.)	100X(Opt.)
	Object view (mm)	Ø30	Ø15	Ø6	Ø3
	Working Dist. (mm)	77.7	44.3	38.4	25.3
	Max. work-piece height (mm)	80	80	80	80
Data processing system	<b>DC-3000 multi-function data processing system :</b> Coordinate skew, mm/inch conversion, ABS/INC conversion, Zero setting, ½ calculation, 0° 90° 270° 360° conversion, linear compensation, RS-232 data output				
Illumination	Transmission and reflection light source : 24V/150W-halogen lamp				
Power	110V/220V(AC) , 50/60Hz , 400W total power				
Light source cooling	Forced air cooling				
Instruments dimension (mm)	770 x 550 x 1100	770 x 550 x 1100	770 x 550 x 1100		
Weight (kg)	120	125	130		
Option	Rotary table, swivel center support, edge detector and so on, please refer to accessories of optical comparator for more detail.				

# Vertical Enhanced Type Digital Optical Comparator

**PV-3000A** series (Reverse image) / **PV-3000AE** series (Erect image)

## ● Features:

The accuracy of PV-3000 series optical comparator can reach the international level.

1. Max travel distance can be up to 250 x 150 x 100 mm
2. High precision table design can afford load of 50 kgs without affecting the measuring performance.
3. Design with elevation of projecting screen for focusing to ensure stability and high precision.



**PV-3015A/3015AE**

## ■ PV-3000A(E) Series Specifications:

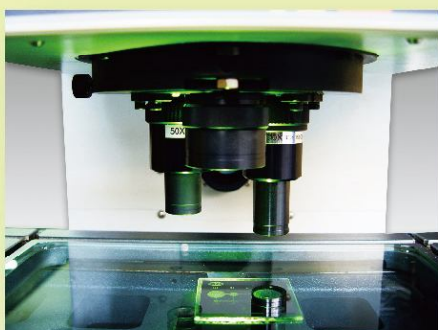
Model		PV-3015A(E)	PV-3020A(E)	PV-3025A(E)	
Stage size (mm)		354 x 228	404 x 228	450 x 280	
Glass size (mm)		210 x 160	260 x 160	306 x 196	
X-axis travel (mm)		150	200	250	
Y-axis travel (mm)		100	100	150	
Z-axis travel (mm)		100 (for focusing)	100 (for focusing)	100 (for focusing)	
Measuring accuracy (μm)		≤3.0 + L/75 ; L: measuring length (mm)			
Resolution (X/Y-axis)		0.5 μm			
Projector Screen	Size (mm)	12" (Ø312) , usable range > Ø300			
	Rotation range	0 ~ 360°			
	Angle resolution	1' or 0.01°			
Objective Lens	Magnification	10X(Standard)	20X(Opt.)	50X(Opt.)	100X(Opt.)
	Object view (mm)	Ø30	Ø15	Ø6	Ø3
	Working Dist. (mm)	77.7	44.3	38.4	25.3
	Max. work piece height (mm)	90	90	90	90
Data processing system	<b>DC-3000 multi-function data processing system :</b> Coordinate skew, mm/inch conversion, ABS/INC conversion, Zero setting, ½ calculation, 0° 90° 270° 360° conversion, linear compensation, RS-232 data output				
Illumination	Transmission and reflection light source : 24V/150W-halogen lamp				
Power	110V/220V(AC) , 50/60Hz , 400W total power				
Light source cooling	Forced air cooling				
Instruments dimension (mm)	780 x 780 x 1100	780 x 780 x 1100	810 x 780 x 1100		
Weight (kg)	160	160	180		
Option	Rotary table, swivel center support, edge detector and so on, please refer to accessories of optical comparator for more detail.				

# Vertical Enhanced Type Digital Optical Comparator

**PV-3000CE** series (Erect image)

## ● Features:

PV-3000 CE owns high quality optical measuring performance. There is a rotary lens turret which equips with three different lens. When working in different magnifications, users can rotate the lens, instead of changing lens individually.



**PV-3025CE**

## ■ PV-3000C(E) Series Specificaitons:

Model		PV-3015C(E)	PV-3020C(E)	PV-3025CE	
Stage size (mm)		354 x 228	404 x 228	450 x 280	
Glass table size (mm)		210 x 160	260 x 160	306 x 196	
X-axis travel (mm)		150	200	250	
Y-axis travel (mm)		100	100	150	
Z-axis travel (mm)		100 (for focusing)	100 (for focusing)	100 (for focusing)	
Measuring accuracy (μm)		3.0 + L/75 ; L: measuring length (mm)			
Resolution (X/Y-axis)		0.5 μm			
Projector Screen	Size (mm)	12" (Ø312) , usable range > Ø300			
	Rotation range	0 ~ 360°			
	Angle resolution	1' or 0.01°			
Objective Lens	Magnification	10X(Standard)	20X(Opt.)	50X(Opt.)	100X(Opt.)
	Object view (mm)	Ø30	Ø15	Ø6	Ø3
	Working Dist. (mm)	77.7	44.3	38.4	25.3
	Max. work piece height (mm)	90	90	90	90
Data processing system	<b>DC-3000 multi-function data processing system :</b> Coordinate skew, mm/inch conversion, ABS/INC conversion, Zero setting, ½ calculation, 0° 90° 270° 360° conversion, linear compensation, RS-232 data output				
Illumination	Transmission and reflection light source : 24V/150W-halogen lamp				
Power	110V/220V(AC) , 50/60Hz , 400W total power				
Light source cooling	Forced air cooling				
Instruments dimension (mm)	780 x 810 x 1120	780 x 810 x 1120	780 x 810 x 1120		
Weight (kg)	170	170	180		
Option	Rotary table, swivel center support, edge detector and so on, please refer to accessories of optical comparator for more detail.				

# Digital Optical Comparator

**PV-3000D** Series (Erect image)

PV-3000DE Series Digital Optical Comparator the Z-axis uses stepper motor drive, electric focusing, simultaneously increasing the count in the Z-axis grating, ladder components can be measured, greatly increased the performance. In addition, PV-3000DE Series projectors, the lens magnification is complete, customers can measure according to the different objects match different lens.

● **Features:**

**5X Lens**

Larger vision; electric Z axis, a better mode of operation.



**PV-3000DE**

■ **PV-3000DE Series Specifications:**

Model		PV-3015DE			PV-3020DE	
Stage size (mm)		354 x 228			404 x 228	
Glass table size (mm)		210 x 160			260 x 160	
X \ Y-axis travel (mm)		150 x 100			200 x 100	
Z-axis travel (mm)		100			100	
Z-axis Speed (mm/s)		5, 1, 0.01 (adjustable)				
Measuring accuracy (μm)		X \ Y-axis: 3.0 + L/50 ; Z-axis: 4 + L/10; L: measuring length (mm)				
Resolution (X/Y/Z-axis)		0.5 μm				
Projector Screen	Size (mm)	12" (Ø312) , usable range > Ø300				
	Rotation range	0 ~ 360°				
	Angle resolution	1' or 0.01°				
Objective Lens	Magnification	5X(Opt.)	10X(Std.)	20X(Opt.)	50X(Opt.)	100X(Opt.)
	Object view (mm)	Ø60	Ø30	Ø15	Ø6	Ø3
	Working Dist. (mm)	53	77.7	44.3	38.4	25.3
	Max. work piece height (mm)	90	90	90	90	90
Data processing system		DC-3000 multi-function data processing system : Coordinate skew, mm/inch conversion, ABS/INC conversion, Zero setting, ½ calculation, 0° 90° 270° 360° conversion, linear compensation, RS-232 data output				
Illumination		Transmission : 24V/150W-halogen lamp, Forced air cooling Reflection: 21V/150W-halogen lamp with fiber, Forced air cooling				
Power		110V/220V(AC) , 50/60Hz , 400W total power				
Light source cooling		Forced air cooling				
Instruments dimension (mm)		670 x 570 x 1250				
Weight (kg)		150				
Option		Rotary table, swivel center support, edge detector, M2D and so on, please refer to accessories of optical comparator for more detail.				

# Horizontal Type Digital Optical Comparator

**PH series**

## ● Features:

1. Helix angle stage adjustable:  $\pm 15^\circ$
2. Heavy-duty, metal construction
3. Greater range and high accuracy
4. Powerful DRO provides fast geometric computations in a simple, easy to use format.



**PH-3020**



**PH-4025**

## ■ PH Series Specifications:

Model		PH-3020		PH-4025	
Stage size (mm)		400 x 150		450 x 200	
X-axis travel (mm)		200		250	
Z-axis travel (mm)		100		150	
Y-axis travel (mm)		75 (for focusing)		100 (for focusing)	
Turning range		$\pm 15^\circ$		$\pm 15^\circ$	
Measuring accuracy ( $\mu\text{m}$ )		$\leq 4.0 + L/25$ ; L: measuring length (mm)			
Resolution (X/Z-axis)		0.5 $\mu\text{m}$			
Projector Screen	Size (mm)	$\varnothing 300$		$\varnothing 400$	
	Rotation range	0 ~ 360°		0 ~ 360°	
	Angle resolution	1' or 0.01°		1' or 0.01°	
Objective Lens	Model	PH-3020			
	Magnification	10X(Standard)	20X(Opt.)	50X(Opt.)	100X(Opt.)
	Object view (mm)	$\varnothing 30$	$\varnothing 15$	$\varnothing 6$	$\varnothing 3$
	Working Dist. (mm)	77.7	44.3	38.4	25.3
	Model	PH-4025			
	Magnification	5X(Opt.)	10X(Std.)	20X(Opt.)	50X(Opt.)
Object view (mm)	$\varnothing 80$	$\varnothing 40$	$\varnothing 20$	$\varnothing 8$	$\varnothing 4$
Working Dist. (mm)	93.7	103.9	95.1	65.7	35.0
Data processing system	DC-3000 multi-function data processing system : Coordinate skew, mm/inch conversion, ABS/INC conversion, Zero setting, $\frac{1}{2}$ calculation, 0° 90° 270° 360° conversion, linear compensation, RS-232 data output				
Illumination	Transmission : 24V/150W-halogen lamp, Forced air cooling Reflection: 21V/150W-halogen lamp with fiber, Forced air cooling				
Power	110V/220V(AC) , 50/60Hz , 400W total power				
Light source cooling	Forced air cooling				
Instruments dimension (mm)	1090 x 830 x 1010			1215 x 646 x 1210	
Weight (kg)	160			240	
Option	Rotary table, swivel center support, edge detector and so on, please refer to accessories of optical comparator for more detail.				