

# Rotation Motorized Stages

Stage Size  $\phi$  80 mm /  $\phi$  120 mm /  $\phi$  160 mm

OSMS-YAW

RoHS

CE

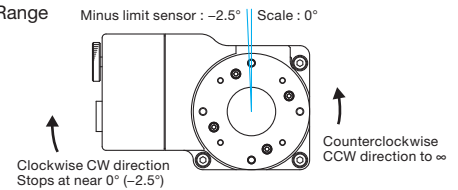
Stepping motor driven rotation stages utilizing precision bearings and worm gear drive mechanisms.



- Suitable for rotating optics about the optical axis, measuring, inspection and evaluation instruments.
  - 360° continuous motion
  - Low, compact profile
- Adapters to hold a variety of optics are available.

### Guide

#### ▶ Rotation Range



- ▶ Homing of rotation motorized stages is performed using the CW limit sensor as the origin sensor.
- ▶ Origin detection is adjusted so that the stage stops at 0 degrees when homing is performed in the MINI system at half step.

### Attention

- ▶ Load capacity and precision may be derated when mounted upside down or vertically. Contact us for informations regarding your specific application.

### Specifications

Part Number		OSMS-80YAW	OSMS-120YAW	OSMS-160YAW	OSMS-120YAW-W	
Guide	Rotation Range	Move in the counterclockwise CCW direction to $\infty$ , and stop at near 0 degree ( $-2.5^\circ$ ) in the clockwise CW direction.				
	Stage Size [mm]	$\phi$ 80	$\phi$ 120	$\phi$ 160	$\phi$ 120	
	Mechanical Specifications	Travel Mechanism (reduction ratio)	Worm gear (1:144)	Worm gear (1:144)	Worm gear (1:144)	Worm gear (1:144)
		Positioning Slide	Bearing method	Crossed roller	Crossed roller	Crossed roller
		Stage Material	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze
		Weight [kg]	1.1	2.0	2.5	5.5
Accuracy Specifications	Resolution	(Full) [ $^\circ$ /pulse]	0.005	0.005	0.005	0.005
		(Half) [ $^\circ$ /pulse]	0.0025	0.0025	0.0025	0.0025
	MAX Speed [ $^\circ$ /sec]	30	30	30	30	
	Positioning Accuracy [ $^\circ$ ]	0.15	0.1	0.1	—	
	Positional Repeatability [ $^\circ$ ]	0.02	0.02	0.02	0.02	
	Load Capacity [N]	98 (10.0kgf)	196 (20.0kgf)	196 (20.0kgf)	196 (20.0kgf)	
	Moment Stiffness [ $^\circ$ /N·cm]	0.2	0.1	0.1	—	
	Lost Motion [ $^\circ$ ]	0.05	0.05	0.05	—	
	Backlash [ $^\circ$ ]	0.08	0.08	0.08	0.08	
	Parallelism [ $\mu$ m]	50	50	60	—	
	Concentricity [ $\mu$ m]	30	30	30	—	
	Wobble [mm]	0.02	0.02	0.02	—	
Sensor	Sensor Part Number	Micro Photoelectric Sensor: PM-F25 (SUNX Co., Ltd.)				
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	None	None	None	None	
	Proximity Origin Sensor	None	None	None	None	

### Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK525HPB-C4 (□28mm)
	Step Angle	$0.72^\circ$
Sensor	Power Voltage	DC5 - 24V $\pm$ 10%
	Current Consumption	15mA or lower
	Control Output	NPN open collector output DC30V or lower, 50mA or lower
	Output Logic	When shaded: Output transistor OFF (no conduction)

### Compatible Driver / Controller

Control System	Compatible Driver	MC-S0514ZU, SG-514MSC, MC-7514PCL
	Compatible Controller	SHOT-702, HSC-103, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U

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Options

40 x 40 mm

60 x 60 mm

80 x 80 mm

85 x 85 mm

100 x 100 mm

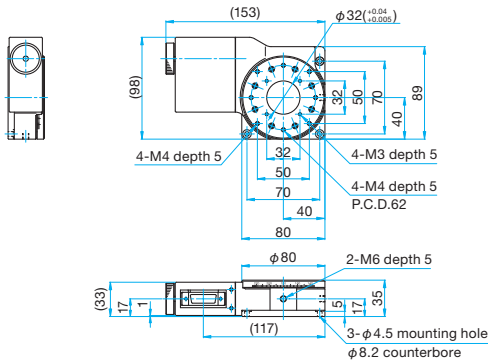
120 x 120 mm

Others

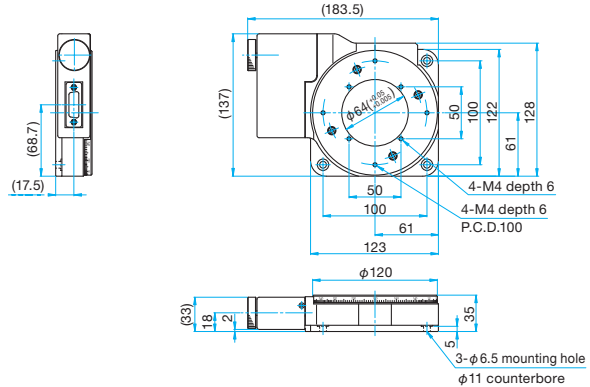


**Outline Drawing**

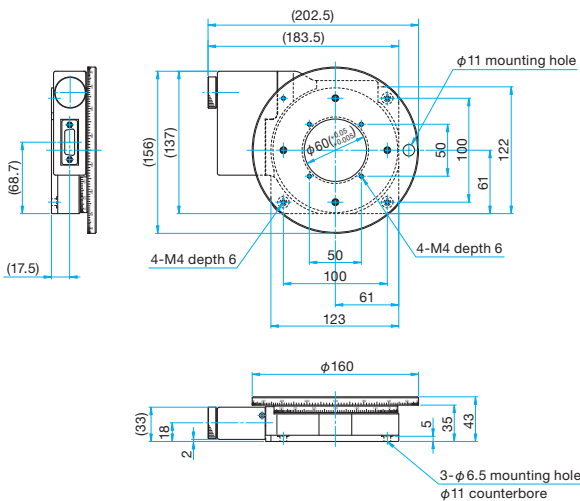
**OSMS-80YAW** Hexagonal socket head cap screw M4×10...3 screws



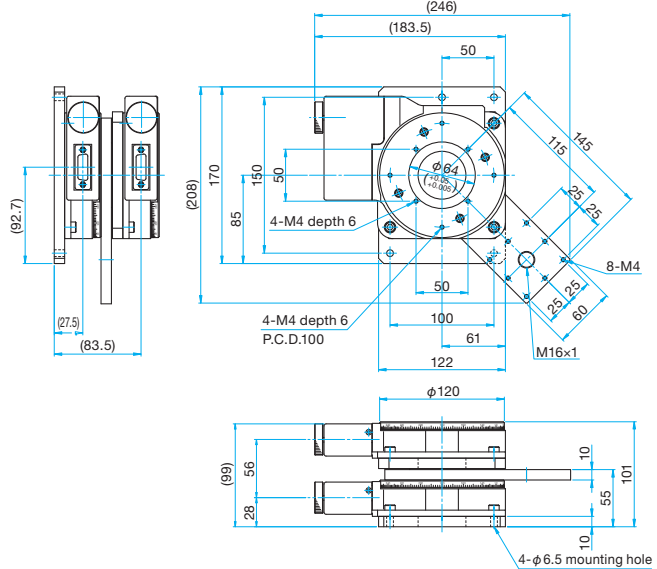
**OSMS-120YAW** Hexagon socket head cap screw M6×10...3 screws



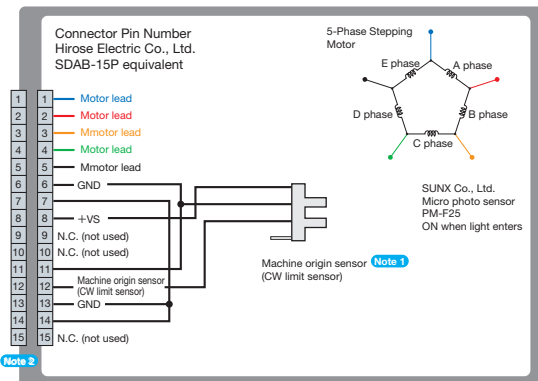
**OSMS-160YAW** Hexagon socket head cap screw M6×10...3 screws



**OSMS-120YAW-W** Hexagon socket head cap screw M6×18...3 screws



**Connection Diagram**

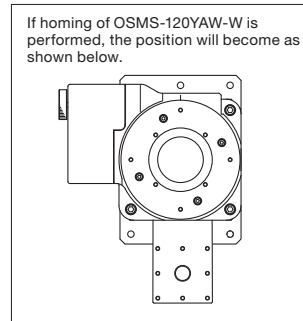
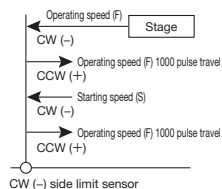


**Note 1** When a travel command in the "+" direction is issued, the mounting table rotates to ∞ in the CCW (counterclockwise) direction viewed from the top surface, but it is stopped by the machine origin sensor (CW limit sensor) in the CW (clockwise) direction. Detect the machine origin using the method (MINI system) that detects the origin with a machine origin sensor (CW limit sensor).

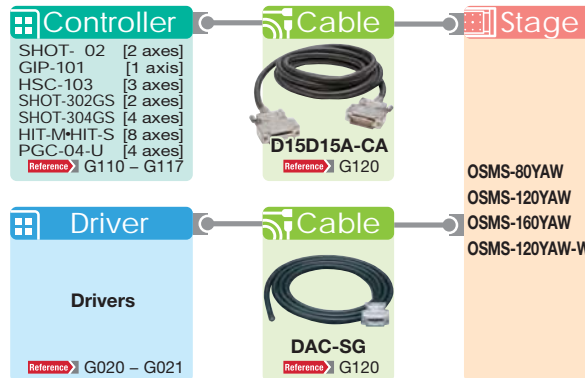
**Note 2** Compatible cable connector: DDK Ltd. 17JE-13150

**Machine Origin Detection**

**MINI System**  
When the machine origin detection command is issued, the stage starts traveling in the CW (-) direction at the operating speed (F) set with the memory switch, and stops by the CW (-) side limit sensor. Then it travels in the CCW (+) direction at the operating speed (F) for 1000 pulses. After stop, it starts traveling in the CW (-) direction again at the starting speed (S), and stops by the CW (-) side limit sensor. After that, it travels in the CCW (+) direction at the operating speed (F) for 1000 pulses. This position is regarded as the machine origin.



**Compatible Controllers / Drivers and Cables**



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