

# Precision Rotation Motorized Stages

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

HST-YAW

RoHS

CE

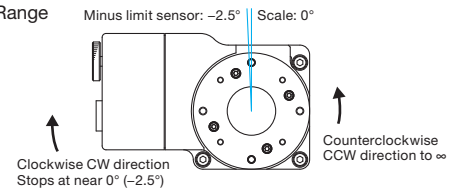
High precision and high stability rotation motorized stages fitted with bearing positioning slide. The combination of HST Series and 3 axis Stage Controllers HSC-103 can perform low-noise and low-vibration operation, compared with conventional products.



- Rotation motorized stages suitable for use when high load capacity is required.

## 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		HST-120YAW-0B	HST-160YAW-0B	
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]	$\phi$ 120	$\phi$ 160	
	Mechanical Specifications	Travel Mechanism (reduction ratio)	Worm gear (1:144)	Worm gear (1:144)
		Positioning Slide	Bearing method	Bearing method
		Stage Material	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze
		Weight [kg]	5	8.5
Accuracy Specifications	Resolution	(Full) [ $^\circ$ /pulse]	0.005	0.005
		(Half) [ $^\circ$ /pulse]	0.0025	0.0025
	MAX Speed [ $^\circ$ /sec]	30	30	
	Positioning Accuracy [ $^\circ$ ]	0.1	0.1	
	Positional Repeatability [ $^\circ$ ]	0.01	0.01	
	Load Capacity [N]	343 (35.0kgf)	392 (40.0kgf)	
	Moment Stiffness [ $^\circ$ /N·cm]	0.015	0.01	
	Lost Motion [ $^\circ$ ]	0.01	0.01	
	Backlash [ $^\circ$ ]	0.003	0.003	
	Parallelism [ $\mu$ m]	50	50	
	Concentricity [ $\mu$ m]	20	20	
	Wobble [mm]	0.01	0.01	
Sensor	Sensor Part Number	Micro Photoelectric Sensor: PM-U25 (SUNX Co., Ltd.)	Micro Photo Sensor: PM-F25 (SUNX Co., Ltd.)	
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	None	None	
	Proximity Origin Sensor	None	None	

## Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 1.4A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PKP546N18B (□42mm)
	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

## Compatible Cable

Cable	Driver Cable	D15D15A-CA
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## Compatible Driver / Controller

Control System	Compatible Driver	SG-5M*, MC-S0514ZU, SG-514MSC*, MC-7514PCL (* DC36V)
	Compatible Controller	HSC-103, SHOT-302GS, SHOT-304GS, HIT-M-HIT-SH, 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

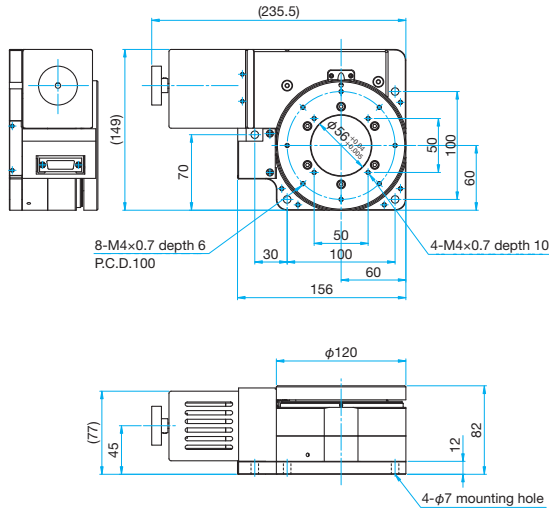
120 x 120 mm

Others

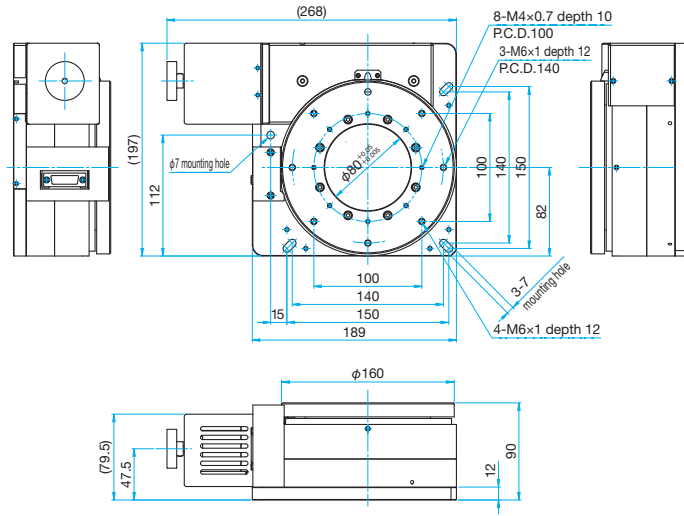


**Outline Drawing**

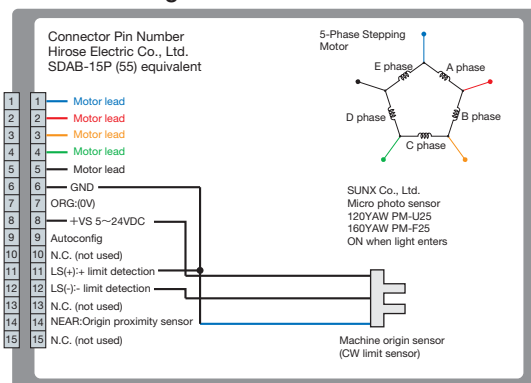
**HST-120YAW-0B** Hexagon socket head cap screw M6x20...4 screws



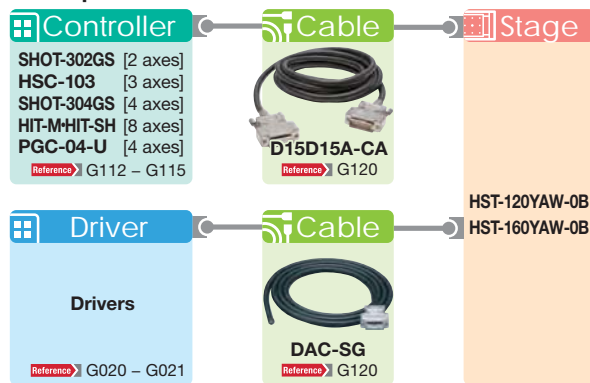
**HST-160YAW-0B** Hexagon socket head cap screw M6x20...4 screws



**Connection Diagram**



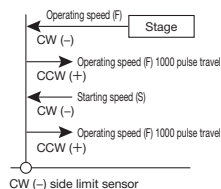
**Compatible Controllers / Drivers and Cables**



**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.



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