

# Precision Motorized Stages - 5 Phase Stepping Motor

Stage Size 165 × 165 mm / 165 × 220 mm / 165 × 420 mm

HST-Z

RoHS

High precision Z axis stages fitted with precision ball screws and precision crossed roller.



- The combination of HST Series and 3 axis Stage Controllers HSC-103 can perform low-noise and low-vibration operation, compared with conventional products.
- Steel body offers excellent stiffness and high load capacity.

### Guide

- ▶ Contact our sales team for more information regarding customization.  
[Reference](#) G123 [WEB Reference](#) [Catalog Code](#) W9500

Application Systems

Optics &amp; Optical Coatings

Opto-Mechanics

Bases

Manual Stages

Actuators &amp; Adjusters

Motorized Stages

Light Sources &amp; Laser Safety

Index

Guide

Controllers/Drivers

Softwares

Stepping Motor

AC Servo Motor

Cables

Piezo

X Translation

Theta Rotation

Goniometer

Vacuum

Options

40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others

Specifications			HST-50Z	HST-100Z	HST-200Z
Part Number			HST-50Z	HST-100Z	HST-200Z
Mechanical Specifications	Travel [mm]		50	100	200
	Stage Size [mm]		165×165	165×220	165×420
	Feed Screw		Ball screw diameter φ10mm, 2mm lead	Ball screw diameter φ10mm, 2mm lead	Ball screw diameter φ10mm, 2mm lead
	Positioning Slide		Crossed roller	Crossed roller	Crossed roller
	Stage Material		Steel	Steel	Steel
Weight [kg]		13	14.9	25.7	
Accuracy Specifications	Resolution	(Full) [μm/pulse]	4	4	4
		(Half) [μm/pulse]	2	2	2
	MAX Speed [mm/sec]		10	10	10*
	Positioning Accuracy [μm]		5	7	8
	Positional Repeatability [μm]		2	2	2
	Load Capacity [N]		98 (10.0kgf)	98 (10.0kgf)	98 (10.0kgf)
	Moment Stiffness	Pitch [°/N·cm]	0.015 (Y pitch)	0.020 (Y pitch)	0.030 (Y pitch)
		Yaw [°/N·cm]	0.01 (X pitch)	0.015 (X pitch)	0.020 (X pitch)
		Roll [°/N·cm]	0.005	0.015	0.015
	Lost Motion [μm]		1	1	1
	Backlash [μm]		1	1	1
	Perpendicularity of Motion [μm]		10	15	25
	Pitch [°] / Yaw [°]		25/15	25/20	25/25
Sensor	Sensor Part Number		Micro photo sensor: GP1S092HCPIF (Sharp Corporation)		
	Limit Sensor		Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sensor		Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)
	Proximity Origin Sensor		Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)

\* When HST-200Z is operated with 3 axis Stage Controllers HSC-103, the maximum speed is 20 mm/sec.

Motor / Sensor Specifications			
Motor	Type	5-phase stepping motor 1.4A/phase (Oriental Motor Co., Ltd.)	
	Motor Part Number	PKP544N18B (□42mm)	PKP544N18B (□42mm) PKP546N18B (□42mm)
	Step Angle	0.72°	
Sensor	Power Voltage	DC5 - 24V ±10%	
	Current Consumption	80mA or lower (20mA or lower per sensor)	
	Control Output	NPN open collector output DC30V or lower, 50mA or lower	
	Output Logic	When shaded: Output transistor OFF (no conduction): Limit sensor When shaded: Output transistor ON (conduction): Origin sensor, Proximity Origin Sensor	

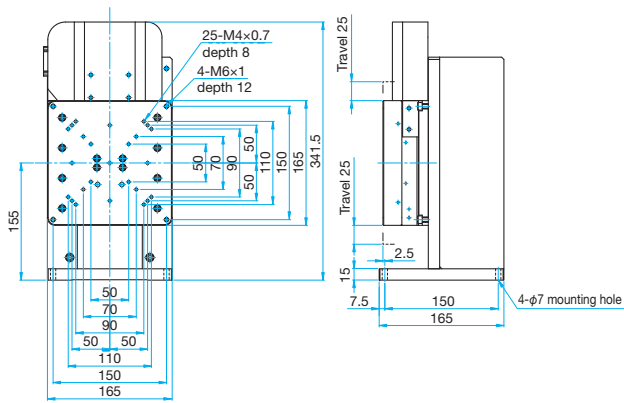
Compatible Cable		
Cable	Driver Cable	D15D15A-CA

Compatible Driver / Controller		
Control System	Compatible Driver	SG-5M, MC-S0514ZU, SG-514MSC, MC-7514PCL
	Compatible Controller	HSC-103, SHOT-302GS, SHOT-304GS, HIT-M-HIT-SH, PGC-04-U

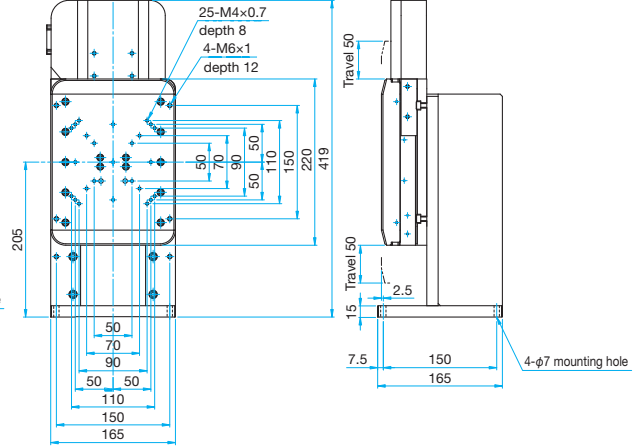


**Outline Drawing**

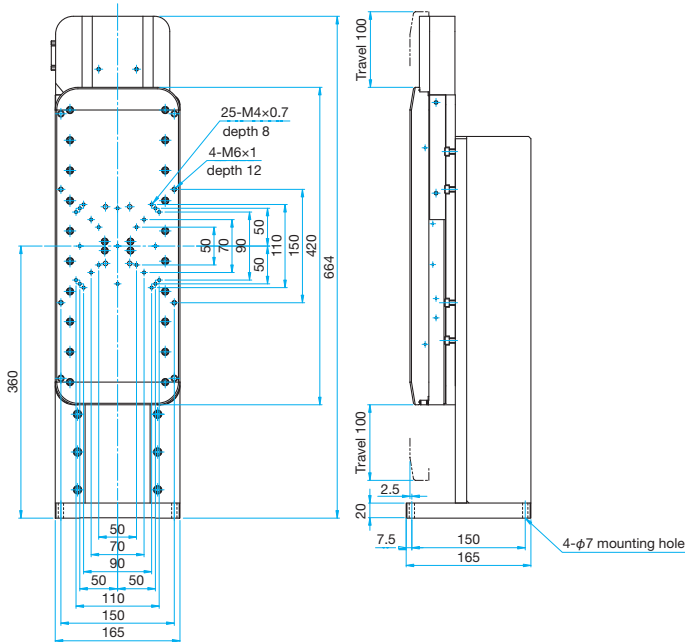
**HST-50Z** Hexagon socket head cap screw M6x25...4 screws



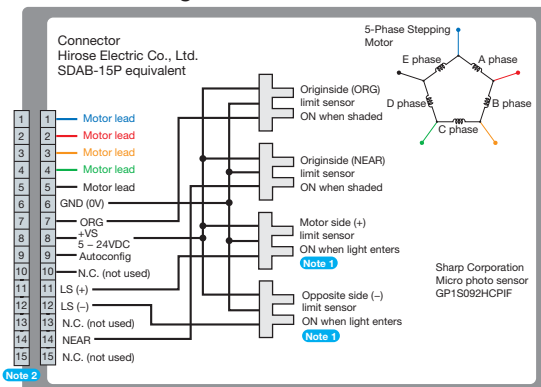
**HST-100Z** Hexagon socket head cap screw M6x25...4 screws



**HST-200Z** Hexagon socket head cap screw M6x30...4 screws

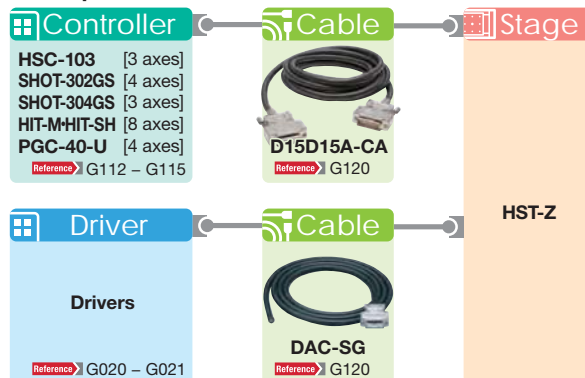


**Connection Diagram**



**Note 1** The motor side limit sensor is the + direction limit sensor.  
**Note 2** Compatible cable connector: DDK Ltd. 17JE-13150

**Compatible Controllers / Drivers and Cables**



Application Systems

Optics & Optical Coatings

Opto-Mechanics

Bases

Manual Stages

Actuators & Adjusters

**MotORIZED Stages**

Light Sources & Laser Safety

Index

- Guide
- Controllers/Drivers
- Softwares
- Stepping Motor**
- AC Servo Motor
- Cables
- Piezo

**X Translation**

Theta Rotation

Goniometer

Vacuum

Options

40 × 40 mm

60 × 60 mm

80 × 80 mm

85 × 85 mm

100 × 100 mm

120 × 120 mm

Others