

High Durability Motorized Rotation Stages

Stage Size ϕ 60 mm / ϕ 80 mm / ϕ 120 mm

HDS-YAW

RoHS

CE

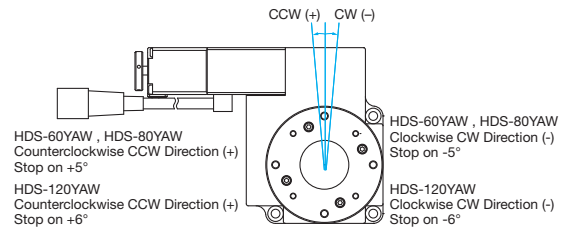
Limited range high duty cycle rotation stage.

- Good for the automatic alignment devices which need to repeatedly adjust the angle of rotation by a small amount.
- The ball screw system drive mechanism reduces abrasion and backlash for high durability.
- Since it converts linear motion of the ball screw into rotational motion using a steel belt, the angular speed and resolution is the same over the full range of travel.



Guide

- ▶ The origin sensor for HDS series is at the center of travel (0°).



Attention

- ▶ The HDS series should always be mounted horizontally. Performance can not be guaranteed if used in other orientations. If other orientations are required, please contact our Sales Division.

Specifications

Part Number		HDS-60YAW	HDS-80YAW	HDS-120YAW	
Mechanical Specifications	Rotation Range	$\pm 5^\circ$	$\pm 5^\circ$	$\pm 6^\circ$	
	Stage Size [mm]	$\phi 60$	$\phi 80$	$\phi 120$	
	Travel Mechanism	Ball screw with steel belt	Ball screw with steel belt	Ball screw with steel belt	
	Positioning Slide	Bearing method	Bearing method	Crossed roller guide	
	Stage Material	Aluminum	Aluminum	Aluminum	
	Finish	Black anodized	Black anodized	Black anodized	
	Weight [kg]	0.5	0.9	1.4	
Accuracy Specifications	Resolution	(Full) [$^\circ$ /pulse]	≈ 0.0053	≈ 0.0038	≈ 0.0022
		(Half) [$^\circ$ /pulse]	≈ 0.0027	≈ 0.0019	≈ 0.0011
	MAX Speed [$^\circ$ /sec]	60	60	60	
	Positioning Accuracy [$^\circ$]	0.05	0.05	0.05	
	Positional Repeatability [$^\circ$]	0.003	0.003	0.003	
	Load Capacity [N]	29.4 (3.0kgf)	58.8 (3.0kgf)	98 (10kgf)	
	Moment Stiffness [$^\circ$ /N·cm]	1	0.2	0.1	
	Lost Motion [$^\circ$]	0.003	0.003	0.003	
	Backlash [$^\circ$]	0.05	0.05	0.05	
	Parallelism [μ m]	50	50	50	
	Concentricity [μ m]	10	10	10	
Wobble [mm]	0.01	0.01	0.01		
Sensor	Sensor Part Number	Micro photo sensor: GP1S097HCZ(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	None	None	None	

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Tamagawa Seiki Co., Ltd.)	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	TS3664N4E10 ($\square 24$ mm)	PK523HPB-C12 ($\square 28$ mm)
	Step Angle	0.72°	
Sensor	Power Voltage	DC5 - $24V \pm 10\%$	
	Current Consumption	60mA or lower (20mA 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	

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-5MA, SG-55M, MC-S0514ZU, MC-7514PCL
	Compatible Controller	GSC-01, GIP-101, GSC-02, SHOT-702, HSC-103, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04-U

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 x 40 mm

60 x 60 mm

80 x 80 mm

85 x 85 mm

100 x 100 mm

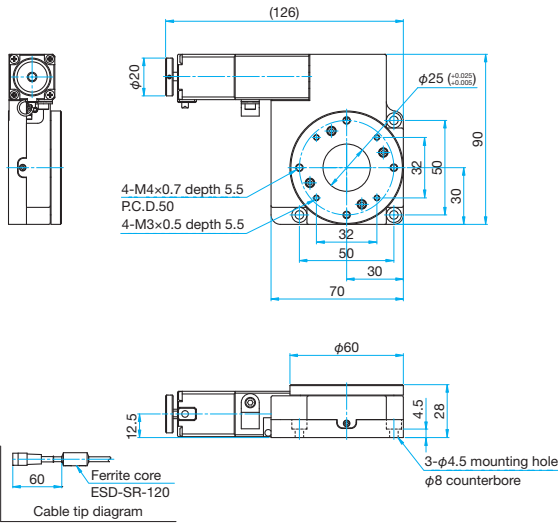
120 x 120 mm

Others

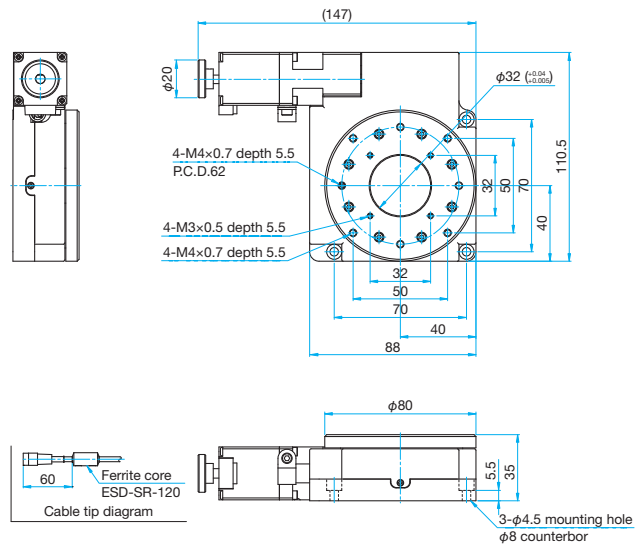


Outline Drawing

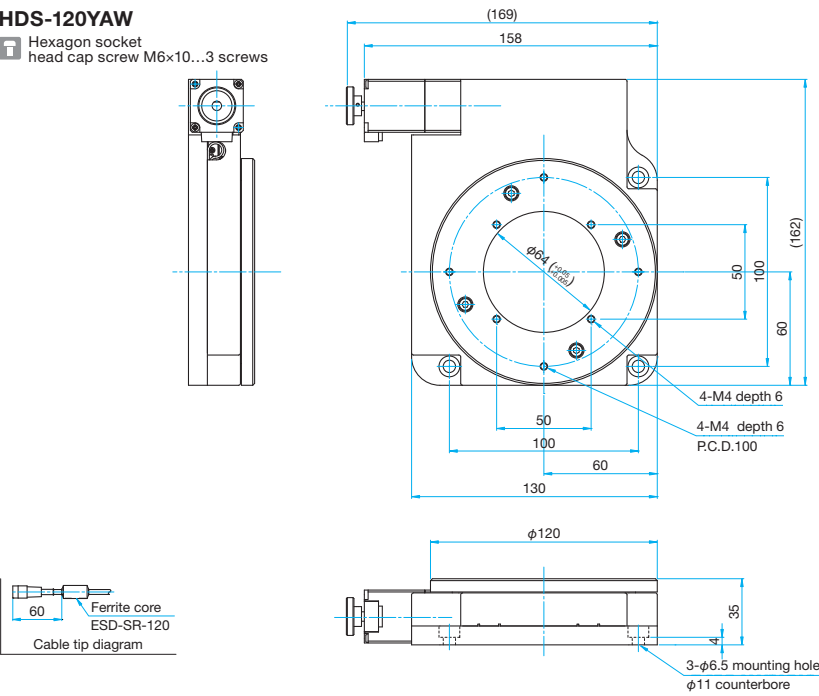
HDS-60YAW Hexagon socket head cap screw M4x10...3 screws



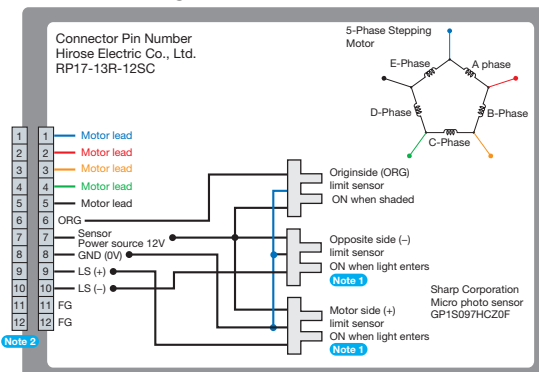
HDS-80YAW Hexagon socket head cap screw M4x12...3 screws



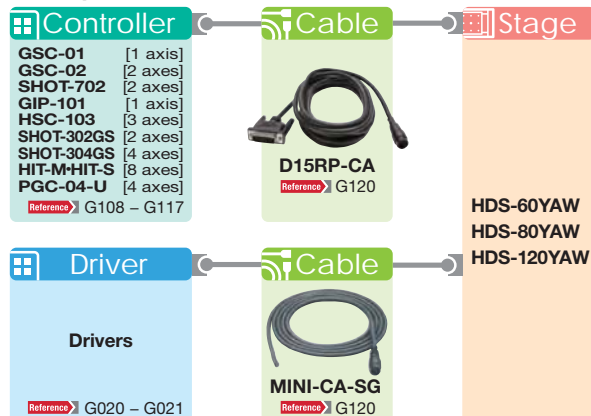
HDS-120YAW Hexagon socket head cap screw M6x10...3 screws



Connection Diagram



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 x 40 mm

60 x 60 mm

80 x 80 mm

85 x 85 mm

100 x 100 mm

120 x 120 mm

Others