

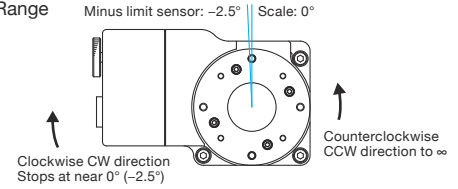
Stepping motor driven rotation stages fitted with bearing guide and worm gear feed mechanism.



- Motorized stages suitable for positioning for measuring, inspection and evaluation instruments.

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

- ▶ Attention is required when mounting in upside down direction or on a vertical plane.
- ▶ Precision and load capacity specifications may be partly not satisfied depending on the mounting direction.

Specifications

Part Number		SGSP-40YAW	SGSP-60YAW-0B	SGSP-60YAW-W-0B	
Mechanical Specifications	Rotation Range	Move in the counterclockwise CCW direction to ∞ , and stop at near 0 degree (-2.5°) in the clockwise CW direction.			
	Table Size [mm]	$\phi 40$	$\phi 60$	$\phi 60$	
	Travel Mechanism (reduction ratio)	Worm gear (1:144)	Worm gear (1:144)	Worm gear (1:144)	
	Positioning Slide	Bearing method	Bearing method	Bearing method	
	Stage Material	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze	Aluminum / Aluminum bronze	
	Weight [kg]	0.35	0.45	1.0	
Accuracy Specifications	Resolution	(Full) [$^\circ$ /pulse]	0.005	0.005	0.005
		(Half) [$^\circ$ /pulse]	0.0025	0.0025	0.0025
	MAX Speed [$^\circ$ /sec]	30	30	30	
	Positioning Accuracy [$^\circ$]	0.1	0.1	—	
	Positional Repeatability [$^\circ$]	0.02	0.02	0.02	
	Load Capacity [N]	19.6 (2.0kgf)	29.4 (3.0kgf)	29.4 (3.0kgf)	
	Moment Stiffness [$^\circ$ /N-cm]	2	1	—	
	Lost Motion [$^\circ$]	0.05	0.05	0.05	
	Backlash [$^\circ$]	0.1	0.1	0.1	
	Parallelism [μ m]	50	50	—	
	Concentricity [μ m]	30	30	—	
Wobble [mm]	0.02	0.02	—		
Sensor	Sensor Part Number	Micro Photoelectric Sensor: PM-F24 (SUNX Co., Ltd.)	Micro Photoelectric Sensor: PM-R24 (SUNX Co., Ltd.)	Micro Photoelectric Sensor: PM-R24 (SUNX Co., Ltd.)	
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	None	None	None	
	Proximity Origin Sensor	None	None	None	

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.66A/phase (Tamagawa Seiki Co., Ltd.)
	Motor Part Number	TS3664N4 (□24mm)
	Step Angle	0.72°
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	SG-5M, SG-5MA, SG-55M, SG-55MA, SG-514MCS, MC-7514PCL
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04

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□40mm

□60mm

□80mm

□85mm

□100mm

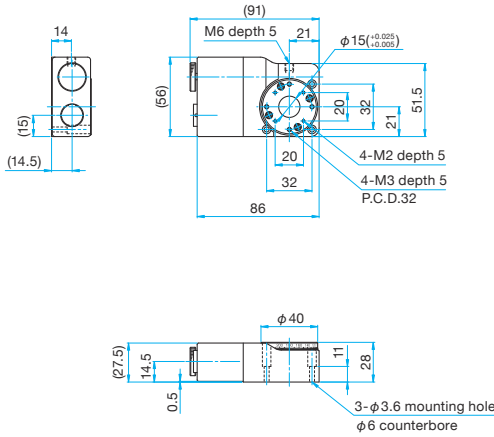
□120mm

Others

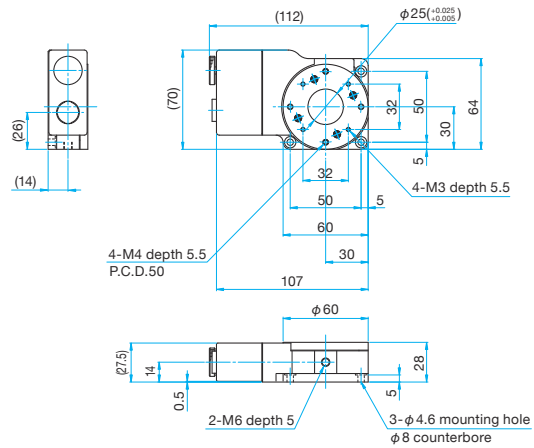


Outline Drawing

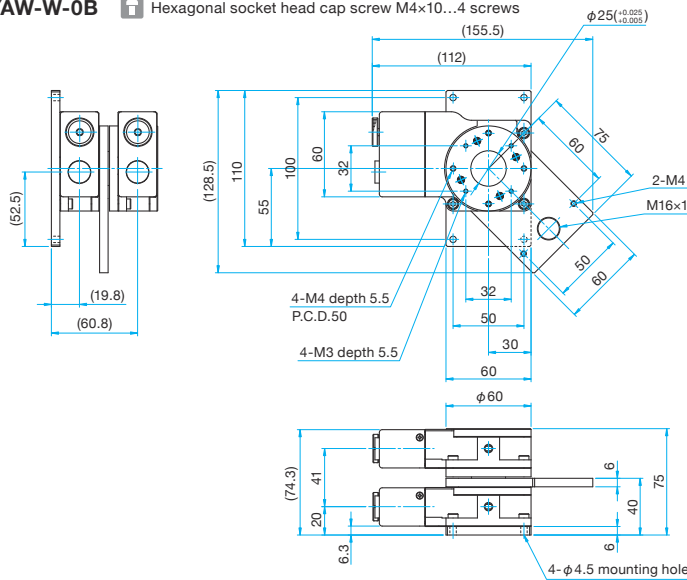
SGSP-40YAW Hexagonal socket head cap screw M3x15...3 screws



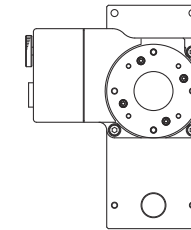
SGSP-60YAW-0B Hexagonal socket head cap screw M4x10...3 screws



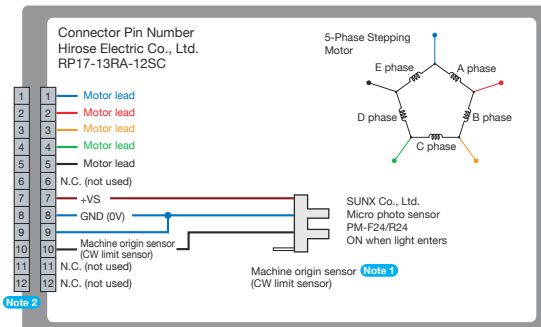
SGSP-60YAW-W-0B Hexagonal socket head cap screw M4x10...4 screws



When homing of SGSP-60YAW-W-0B is performed, the position will become as shown below.



Connection Diagram

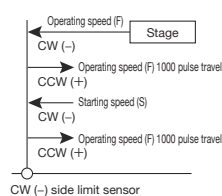


Note 1 When a travel command in the "+" direction is issued, the mounting table rotates to ∞ in the CCW (counterclockwise) direction viewed from the top surface, but it is stopped by the machine origin sensor (CW limit sensor) in the CW (clockwise) direction. Detect the machine origin using the method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

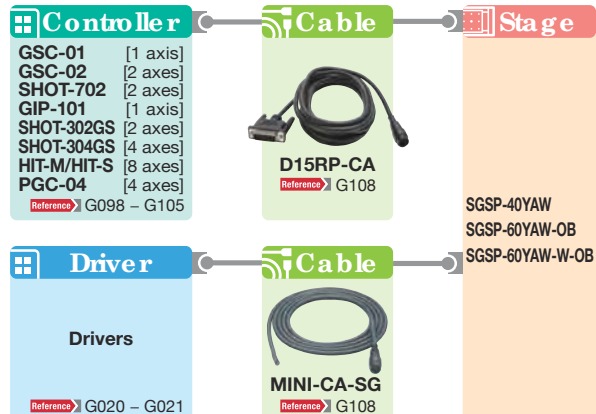
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

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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□ 40mm

□ 60mm

□ 80mm

□ 85mm

□ 100mm

□ 120mm

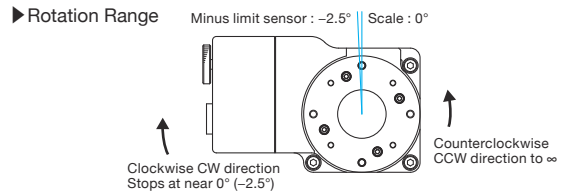
Others

Stepping motor driven rotation stages fitted with bearing guide and worm gear feed mechanism.



- Motorized stages suitable for positioning for measuring, inspection and evaluation instruments.

Guide



- 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

- Attention is required when mounting in upside down direction or on a vertical plane.
- Precision and load capacity specifications may be partly not satisfied depending on the mounting direction.

Specifications

Part Number		SGSP-80YAW	SGSP-120YAW	SGSP-160YAW	SGSP-120YAW-W	
Mechanical Specifications	Rotation Range	Move in the counterclockwise CCW direction to ∞ , and stop at near 0 degree (-2.5°) in the clockwise CW direction.				
	Table Size [mm]	$\phi 80$	$\phi 120$	$\phi 160$	$\phi 120$	
	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 [μ m]	50	50	60	—	
	Concentricity [μ m]	30	30	30	—	
Wobble [mm]	0.02	0.02	0.02	—		
Sensor	Sensor Part Number	Micro Photoelectric Sensor: PM-F24 (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°
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	SG-55M, SG-55MA, SG-514MSC, MC-7514PCL
	Compatible Controller	SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M-HIT-S, PGC-04

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□40mm

□60mm

□80mm

□85mm

□100mm

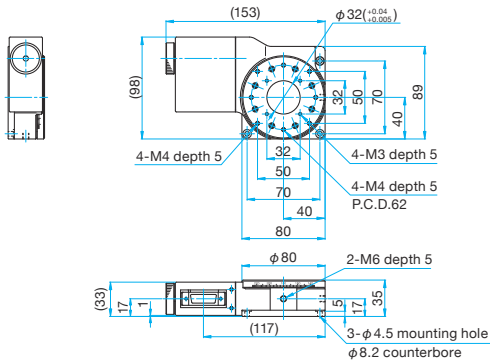
□120mm

Others

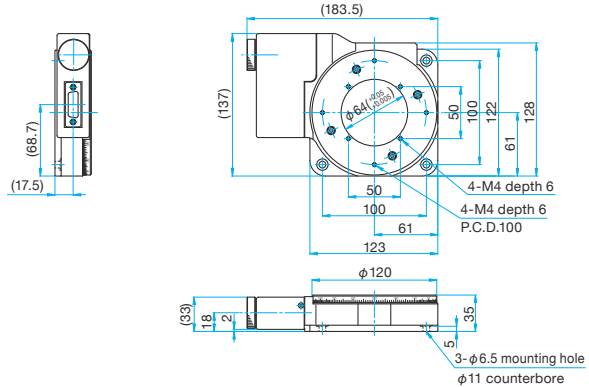


Outline Drawing

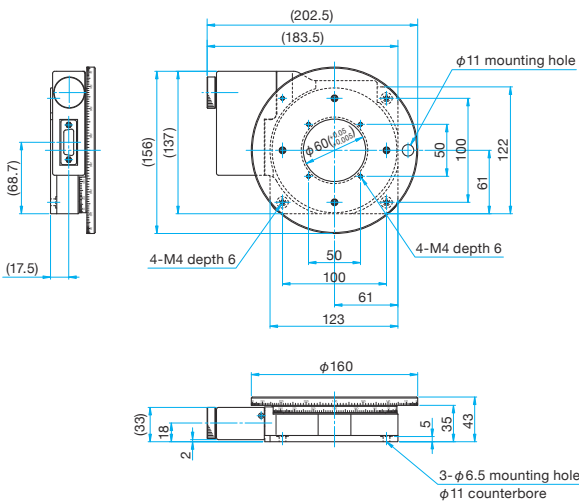
SGSP-80YAW Hexagonal socket head cap screw M4×10...3 screws



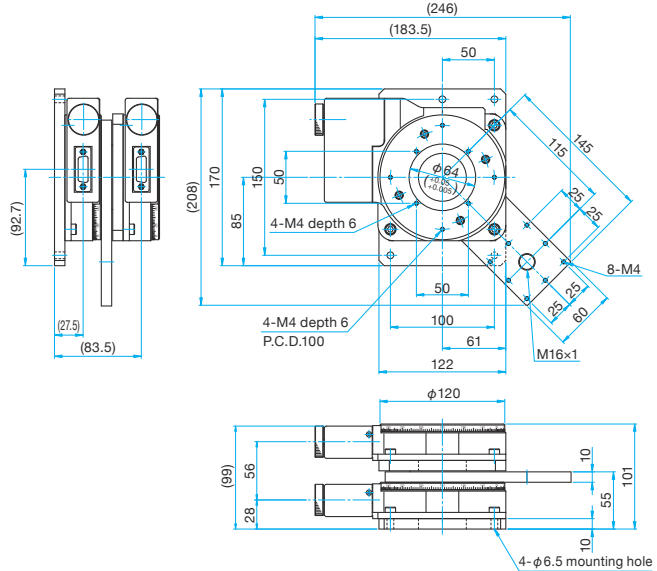
SGSP-120YAW Hexagon socket head cap screw M6×10...3 screws



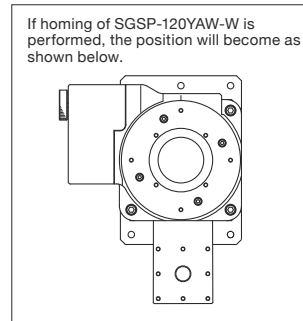
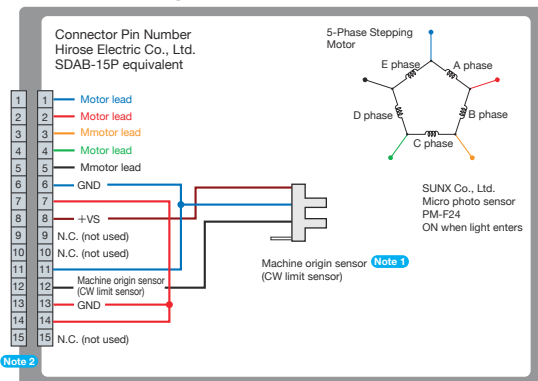
SGSP-160YAW Hexagon socket head cap screw M6×10...3 screws



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



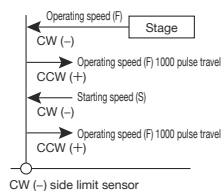
Connection Diagram



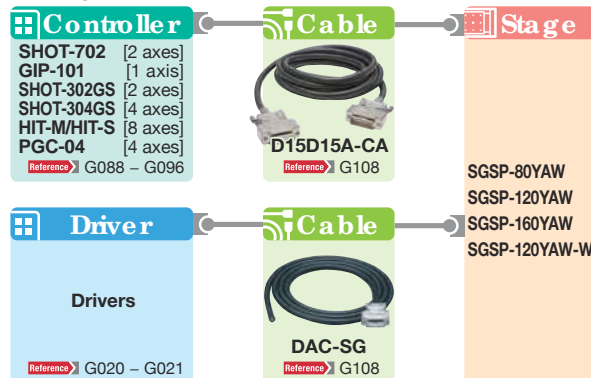
- Note 1** When a travel command in the "+" direction is issued, the mounting table rotates to ∞ in the CCW (counterclockwise) direction viewed from the top surface, but it is stopped by the machine origin sensor (CW limit sensor) in the CW (clockwise) direction. Detect the machine origin using the method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



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□40mm

□60mm

□80mm

□85mm

□100mm

□120mm

Others

High precision and high stability rotation motorized stages fitted with bearing positioning slide.

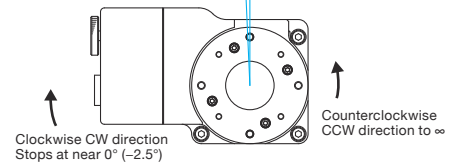


- Rotation motorized stages suitable for when high load capacity is required.
- Back up various inspection instruments according to usage such as the type, size, and measurement range of the measuring object.

Guide

▶ Rotation Range

Minus limit sensor: -2.5° | Scale: 0°



- ▶ 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

- ▶ Attention is required when mounting in upside down direction or on a vertical plane.
- ▶ Precision and load capacity specifications may be partly not satisfied depending on the mounting direction.

Specifications

Part Number		KST-120YAW	KST-160YAW	
Mechanical Specifications	Rotation Range	Move in the counterclockwise CCW direction to ∞ , and stop at near 0 degree (-2.5°) in the clockwise CW direction.		
	Table Size [mm]	$\phi 120$	$\phi 160$	
	Travel Mechanism (reduction ratio)	Worm gear (1:144)		
	Positioning Slide	Bearing method		
	Stage Material	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 [μ m]	50	50	
	Concentricity [μ m]	20	20	
	Wobble [mm]	0.01	0.01	
Sensor	Sensor Part Number	Micro Photoelectric Sensor: PM-U24 (SUNX Co., Ltd.)	Micro Photo Sensor: PM-R24 (SUNX Co., Ltd.)	
	Limit Sensor	Equipped (NORMAL CLOSE)		
	Origin Sensor	None		
	Proximity Origin Sensor	None		

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 1.4A/phase (Tamagawa Seiki Co., Ltd.)
	Motor Part Number	TS3624N42E ($\square 60$ mm)
	Step Angle	0.72°
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 Driver / Controller

Control System	Compatible Driver	SG-5M*, SG-55M*, SG-514MSC*, MC-7514PCL (* DC36V)
	Compatible Controller	SHOT-302GS, SHOT-304GS

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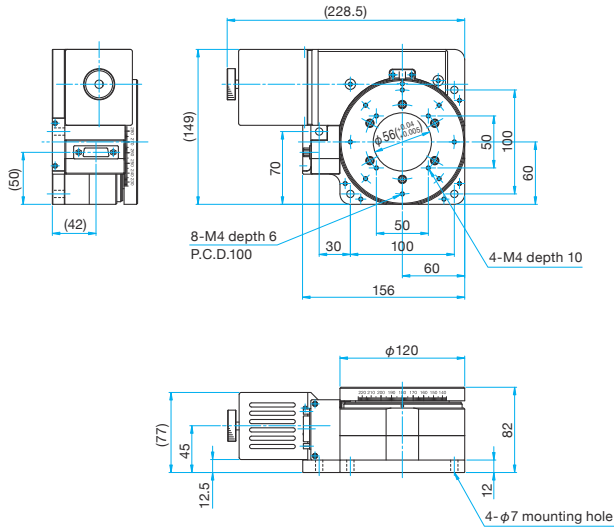
 40mm 60mm 80mm 85mm 100mm 120mm

Others

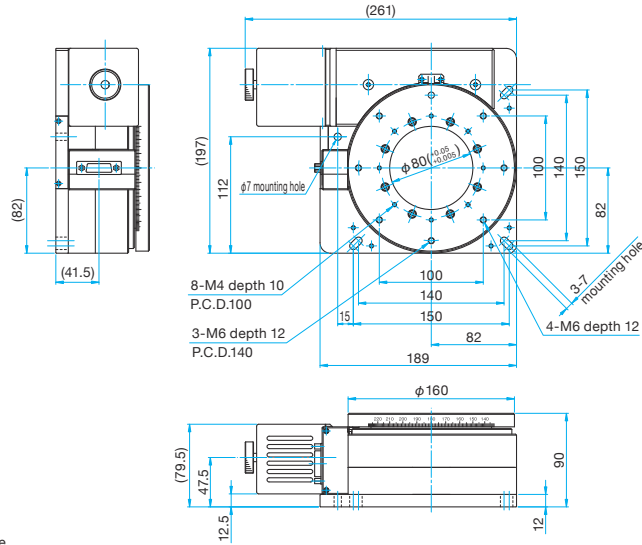


Outline Drawing

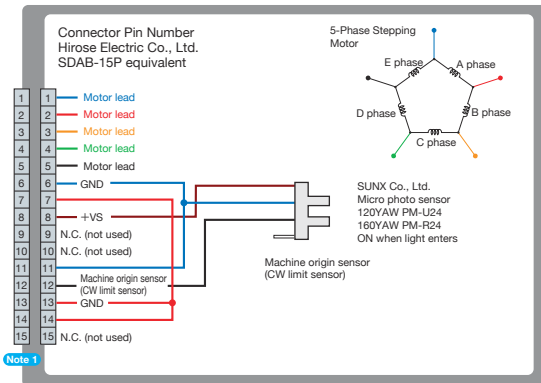
KST-120YAW Hexagon socket head cap screw M6×15...4 screws



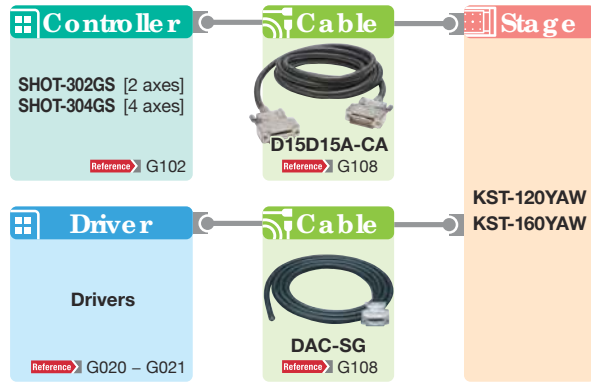
KST-160YAW Hexagon socket head cap screw M6×25...4 screws



Connection Diagram

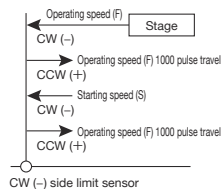


Compatible Controllers / Drivers and Cables



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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40mm

60mm

80mm

85mm

100mm

120mm

Others

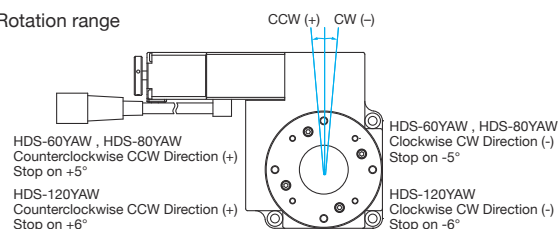
It is a small angle adjusting automatic rotation stages using in the alignments for a marker of semiconductor wafer.

- Good for the automatic alignment device which needs for adjusting the small angle of rotation by each sample.
- By using the ball screw system on the drive mechanism, it can reduce abrasion and backlash of parts which realized high durability.
- Since it converted linear motion by the ball screw into rotational motion by the steel belt, there is no difference between traveling center and end by rotation speed and resolution.



Guide

▶ Rotation range



Attention

- ▶ Please be mounted HDS series in horizontal. Can not be guaranteed the performance if used in reversion on the roof or vertically situation. If you would like a special mounting, please contact our sales department.

Specifications

Part Number		HDS-60YAW	HDS-80YAW	HDS-120YAW	
Mechanical Specifications	Rotation Range	±5°	±5°	±6°	
	Table Size [mm]	φ60	φ80	φ120	
	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) [°/pulse]	≒0.00053	≒0.00038	≒0.00022
		(Half) [°/pulse]	≒0.00027	≒0.00019	≒0.00011
	MAX Speed [°/sec]	60	60	60	
	Positioning Accuracy [°]	0.05	0.05	0.05	
	Positional Repeatability [°]	0.003	0.003	0.003	
	Load Capacity [N]	29.4 (3.0kgf)	58.8 (3.0kgf)	98 (10kgf)	
	Moment Stiffness [°/N·cm]	1	0.2	0.1	
	Lost Motion [°]	0.003	0.003	0.003	
	Backlash [°]	0.05	0.05	0.05	
	Parallelism [μm]	50	50	50	
	Concentricity [μm]	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 0.66A/phase (Tamagawa Seiki Co., Ltd.)	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	TS3664N4 (□24mm)	C9863-90215P (□28mm)
	Step Angle	0.72°	
Sensor	Power Voltage	DC5 - 24V±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, SG-55MA, SG-514MSC
	Compatible Controller	GSC-01, GIP-101, GSC-02, SHOT-702, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04

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□40mm

□60mm

□80mm

□85mm

□100mm

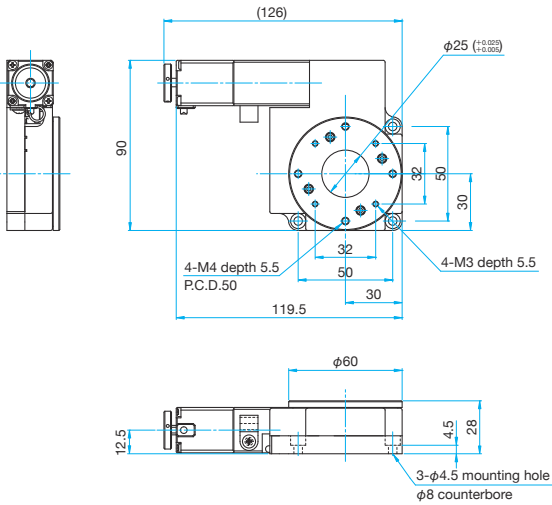
□120mm

Others

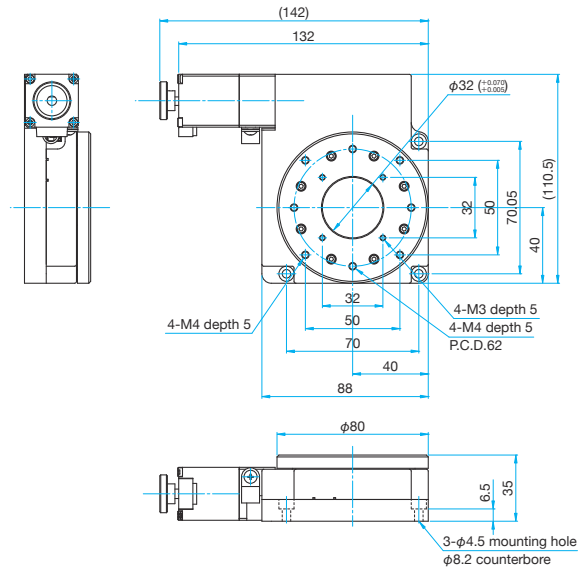


Outline Drawing

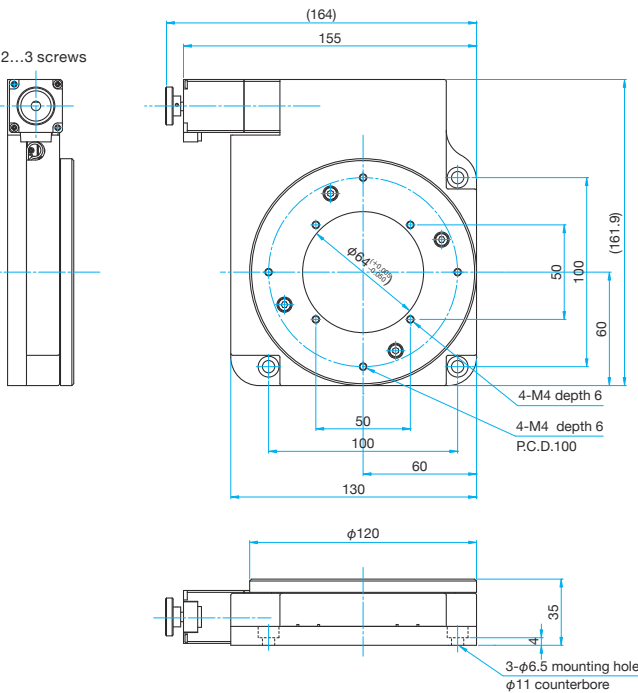
HDS-60YAW Hexagon socket head cap screw M4×12...3 screws



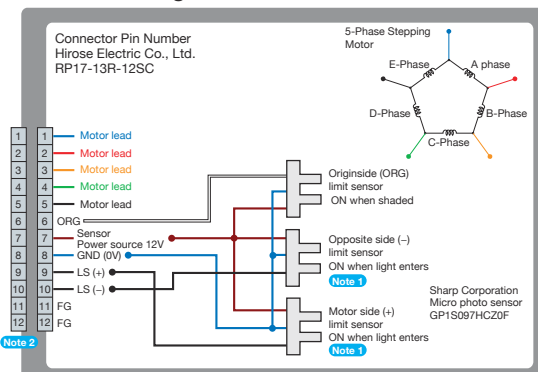
HDS-80YAW Hexagon socket head cap screw M4×12...3 screws



HDS-120YAW Hexagon socket head cap screw M6×12...3 screws

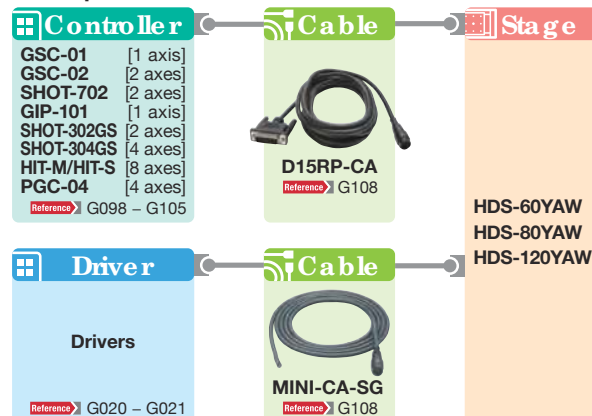


Connection Diagram



Note 1 The motor side limit sensor is the (+) forward direction limit sensor.
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

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□ 60mm

□ 80mm

□ 85mm

□ 100mm

□ 120mm

Others

Motorized Extended Guide Goniometer

OSMS-40A Stage size □40mm

RoHS

CE

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability.

Their smooth movement is ideal for frequent angle adjustment.



- Cost-effective motorized stages achieved by integrated structure in which guides are directly processed on the main body to reduce the number of parts and assembly time.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- ▶ Contact our International Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- ▶ Contact our International Sales Division if you desire a rotation center height not listed in the catalog.
- ▶ Manual type (GOHT-40) is also available.

[Reference](#) ▶ E168



GOHT-40

Specifications

Part Number		OSMS-40A60	OSMS-40A75	
(Opposite Model)		OSMS-40A60R	OSMS-40A75R	
Mechanical Specifications	Travel [°]	±5	±4	
	Table Size [mm]	40×40	40×40	
	Travel Mechanism (reduction ratio)	Worm gear (1: 332)	Worm gear (1: 406)	
	Positioning Slide	Extended Contact Ball Guide	Extended Contact Ball Guide	
	Stage Material	SUS440C quench hardened	SUS440C quench hardened	
	Finish	Super black chrome	Super black chrome	
	Weight [kg]	0.4	0.4	
Size Tolerance	Stage Height [mm]	15	15	
	Rotation Center Height [mm]	60±0.1	75±0.1	
	Rotation Center Deflection Accuracy [mm]	Within φ0.01	Within φ0.01	
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.00217	about 0.00177
		(Half) [°/pulse]	about 0.00108	about 0.00089
	MAX Speed [°/sec]	10	8.9	
	Positional Repeatability [°]	±0.004	±0.004	
	Load Capacity [N]	19.6(2.0kgf)	19.6(2.0kgf)	
	Moment Stiffness [°/N·cm]	Roll 0.6 Yaw 0.6	Roll 0.6 Yaw 0.6	
	Lost Motion [°]	0.02	0.02	
Sensor	Sensor Part Number	Micro photo sensor: GP1S092HCPIF(Sharp Corporation): Limit Sensor		
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	None	None	

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK523HPB-C12 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC - 5V - +24V
	Current Consumption	40mA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA
	Output Logic	When shaded: Output transistor OFF (no conduction)

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-5MA, SG-55M, SG-55MA, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-01, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04

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□40mm

□60mm

□80mm

□85mm

□100mm

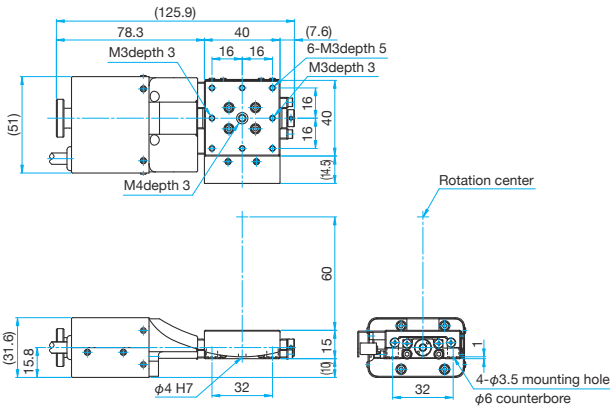
□120mm

Others

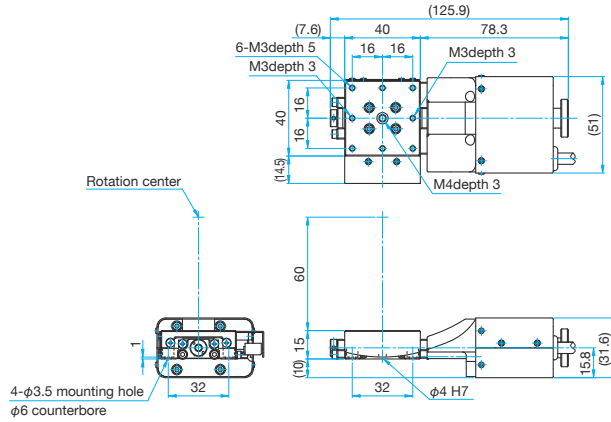


Outline Drawing

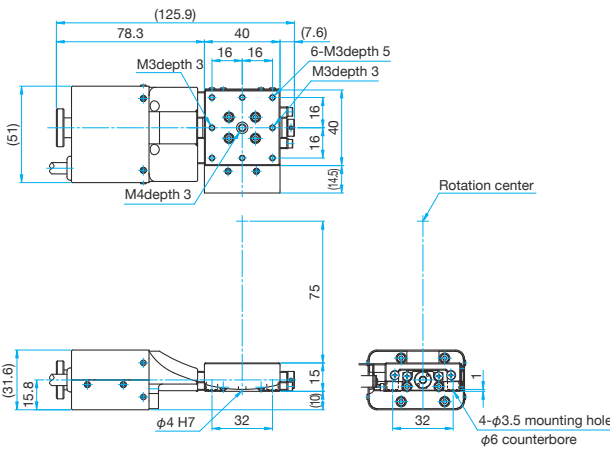
OSMS-40A60 Hexagon socket head cap screw M3x6...4 screws, Attachment pins



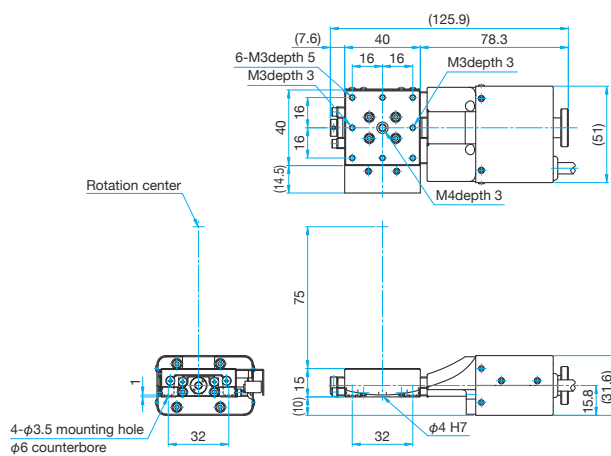
OSMS-40A60R Hexagon socket head cap screw M3x6...4 screws, Attachment pins



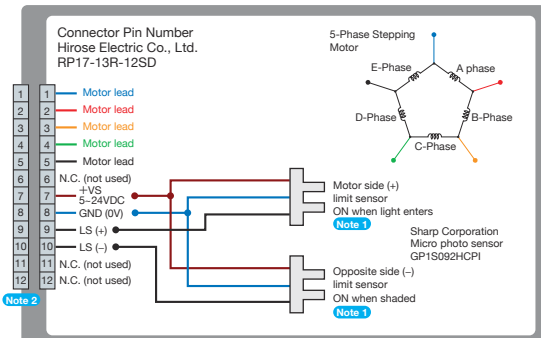
OSMS-40A75 Hexagon socket head cap screw M3x6...4 screws, Attachment pins



OSMS-40A75R Hexagon socket head cap screw M3x6...4 screws, Attachment pins

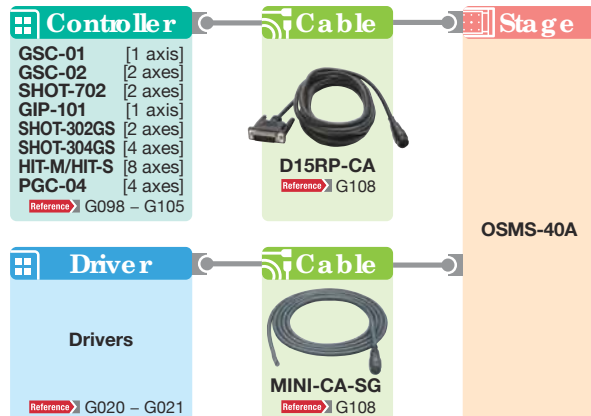


Connection Diagram



Note 1 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with origin and proximity origin sensors. Limit sensors are used as origin detection sensors.
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

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40mm

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80mm

85mm

100mm

120mm

Others

Motorized Extended Guide Goniometer

OSMS-60A Stage size □60mm

RoHS

CE

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability.

Their smooth movement is ideal for frequent angle adjustment.



- Cost-effective motorized stages achieved by integrated structure in which guides are directly processed on the main body to reduce the number of parts and assembly time.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- ▶ Contact our International Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- ▶ Manual type (GOHT-60) is also available.
Reference E172



GOHT-60

Specifications					
Part Number		OSMS-60A60	OSMS-60A85	OSMS-60A105	
(Opposite Model)		OSMS-60A60R	OSMS-60A85R	OSMS-60A105R	
Mechanical Specifications	Travel [°]	±14	±9	±7	
	Table Size [mm]	60×60	60×60	60×60	
	Travel Mechanism (reduction ratio)	Worm gear (1: 246)	Worm gear (1: 314)	Worm gear (1: 380)	
	Positioning Slide	Extended Contact Ball Guide	Extended Contact Ball Guide	Extended Contact Ball Guide	
	Stage Material	SUS440C quench hardened	SUS440C quench hardened	SUS440C quench hardened	
	Finish	Super black chrome	Super black chrome	Super black chrome	
	Weight [kg]	0.85	0.75	0.75	
Size Tolerance	Stage Height [mm]	25	20	20	
	Rotation Center Height [mm]	60±0.1	85±0.1	105±0.1	
	Rotation Center Deflection Accuracy [mm]	Within ϕ 0.01	Within ϕ 0.01	Within ϕ 0.01	
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.00293	about 0.00229	about 0.00198
		(Half) [°/pulse]	about 0.00146	about 0.00115	about 0.00095
	MAX Speed [°/sec]	10	8	6.6	
	Positional Repeatability [°]	±0.004	±0.004	±0.004	
	Load Capacity [N]	29.4(3.0kgf)	29.4 (3.0kgf)	29.4 (3.0kgf)	
	Moment Stiffness [°/N·cm]	Roll 0.3 Yaw 0.3	Roll 0.3 Yaw 0.3	Roll 0.3 Yaw 0.3	
Sensor	Lost Motion [°]	0.02	0.02	0.02	
	Sensor Part Number	Micro photo sensor: GP1S097HCZ0F(Sharp Corporation): Limit Sensor, Origin Sensor			
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	

Motor / Sensor Specifications		
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK523HPB-C12 (□28mm)
	Step Angle	0.72°
Sensor	Power Voltage	DC - 5V - +24V
	Current Consumption	60mA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA
	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, SG-55MA, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-01, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04

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□40mm

□60mm

□80mm

□85mm

□100mm

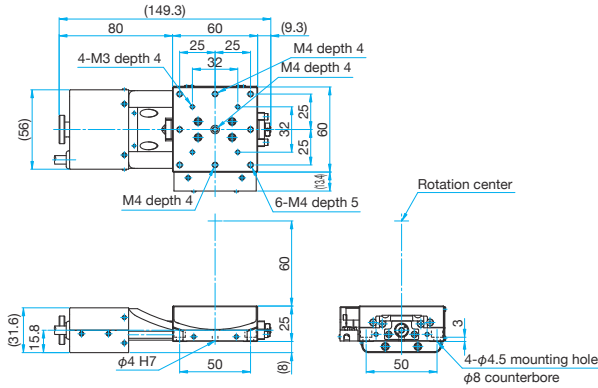
□120mm

Others

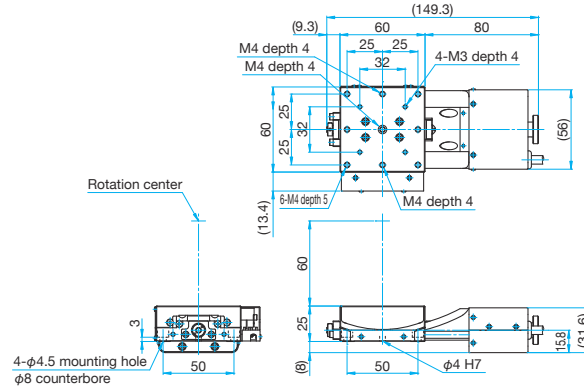


Outline Drawing

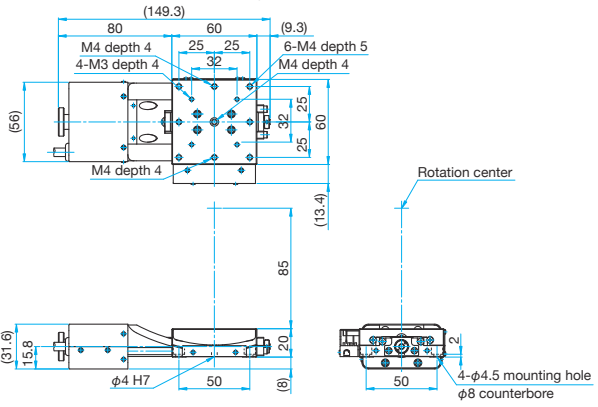
OSMS-60A60 Hexagon socket head cap screw M4x6...4 screws, Attachment pins



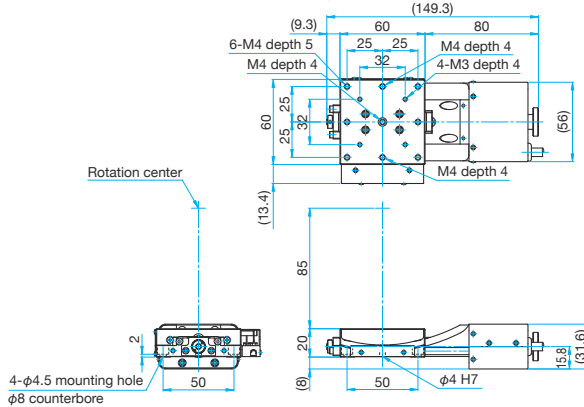
OSMS-60A60R Hexagon socket head cap screw M4x6...4 screws, Attachment pins



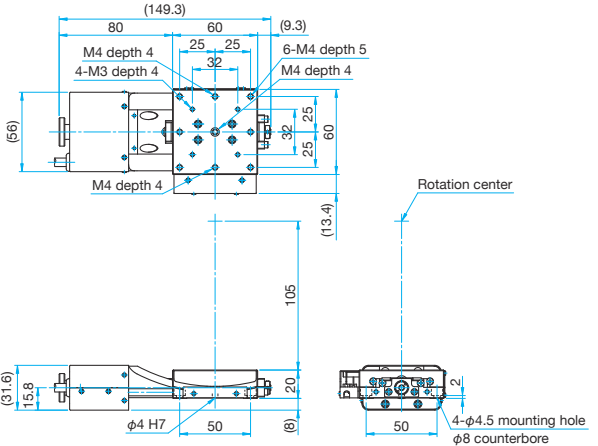
OSMS-60A85 Hexagon socket head cap screw M4x6...4 screws, Attachment pins



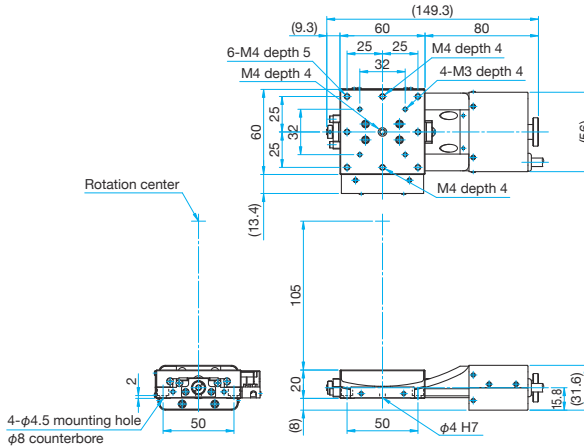
OSMS-60A85R Hexagon socket head cap screw M4x6...4 screws, Attachment pins



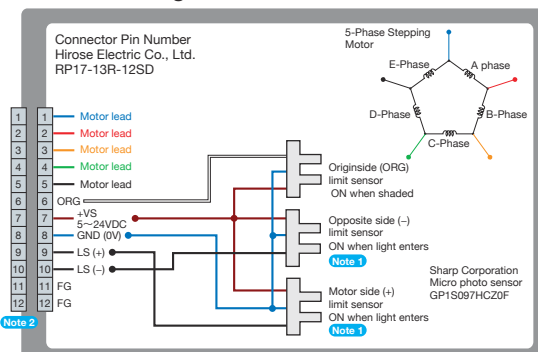
OSMS-60A105 Hexagon socket head cap screw M4x6...4 screws, Attachment pins



OSMS-60A105R Hexagon socket head cap screw M4x6...4 screws, Attachment pins



Connection Diagram



Note 1 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with proximity origin sensors.
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122

Compatible Controllers / Drivers and Cables

Controller	Cable	Stage
GSC-01 [1 axis] GSC-02 [2 axes] SHOT-702 [2 axes] GIP-101 [1 axis] SHOT-302GS [2 axes] SHOT-304GS [4 axes] HIT-M/HIT-S [8 axes] PGC-04 [4 axes] Reference: G098 - G105	D15RP-CA Reference: G108	OSMS-60A
Driver Drivers Reference: G020 - G021	MINI-CA-SG Reference: G108	

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60mm

80mm

85mm

100mm

120mm

Others

Motorized Goniometers - 5 Phase Stepping Motor

SGSP-A Stage size □60mm

RoHS

Stepping motor driven motorized goniometer stages fitted with crossed roller guide.



- High stiffness goniometer stages fitted with excellent abrasion-resistant crossed roller guide.
- Rotation center height from the table face is selectable according to the usage from 75mm, 100mm or 130mm.

Guide

- After purchasing two α axis stages, to assemble them into an $\alpha\beta$ axis stage, assembly adjustment cost and performance inspection cost will be charged separately.

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Options

□40mm

□60mm

□80mm

□85mm

□100mm

□120mm

Others

Specifications

Part Number		SGSP-60A75	SGSP-60A100	SGSP-60A130	
Mechanical Specifications	Angle Range [°]	±7	±5	±4	
	Table Size [mm]	60×60	60×60	60×60	
	Positioning Slide	Crossed roller guide	Crossed roller guide	Crossed roller guide	
	Travel Mechanism	Worm and worm wheel	Worm and worm wheel	Worm and worm wheel	
	Stage Material	Aluminum	Aluminum	Aluminum	
	Finish	Black anodized	Black anodized	Black anodized	
	Weight [kg]	0.65	0.55	0.65	
Size Tolerance	Stage Height [mm]	35	30	35	
	Rotation Center Height [mm]	75	100	130	
	Rotation Center Deflection Accuracy [mm]	φ0.05	φ0.05	φ0.05	
Accuracy Specifications	Resolution	(Full) [°/pulse]	about 0.002	about 0.001	about 0.001
		(Half) [°/pulse]	about 0.001	about 0.0005	about 0.0005
	MAX Speed [°/sec]	6	6	6	
	Positional Repeatability [°]	±0.004	±0.004	±0.004	
	Load Capacity [N]	24.5 (2.5kgf)	24.5 (2.5kgf)	24.5 (2.5kgf)	
	Moment Stiffness [°/N·cm]	1	1	1	
	Lost Motion [°]	0.02	0.02	0.02	
Sensor	Sensor Part Number	Micro photo sensor: GP1S092HCPI(Sharp Corporation)			
	Limit Sensor	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	
	Origin Sensor	None	None	None	
	Proximity Origin Sensor	None	None	None	

Motor / Sensor Specifications

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	C9863-90215P
	Step Angle	0.72°
Sensor	Power Voltage	DC5 - 24V
	Current Consumption	40mA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA
	Output Logic	When shaded: Output transistor OFF (no conduction)

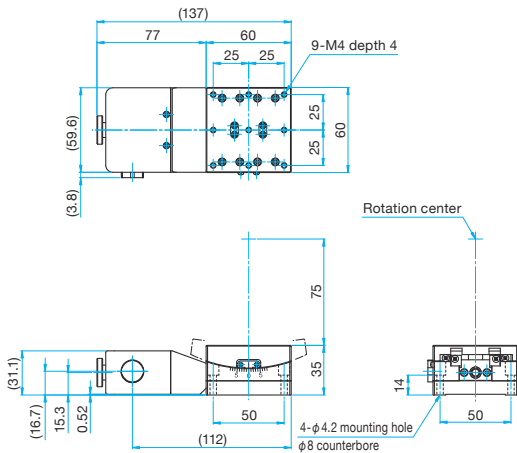
Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-55M, SG-514MSC
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S

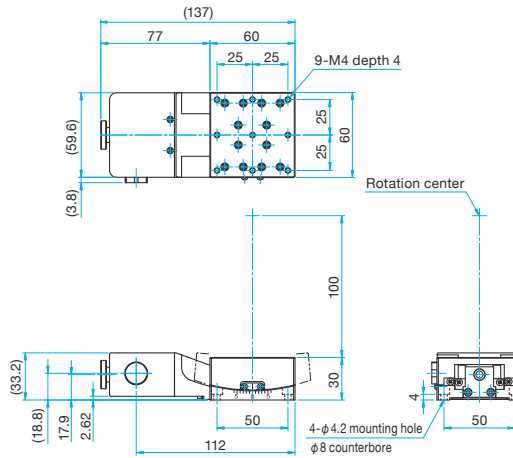


Outline Drawing

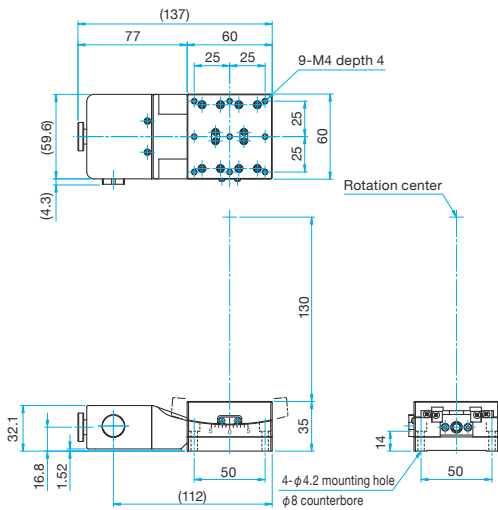
SGSP-60A75 Hexagonal socket head cap screw M4×18...4 screws



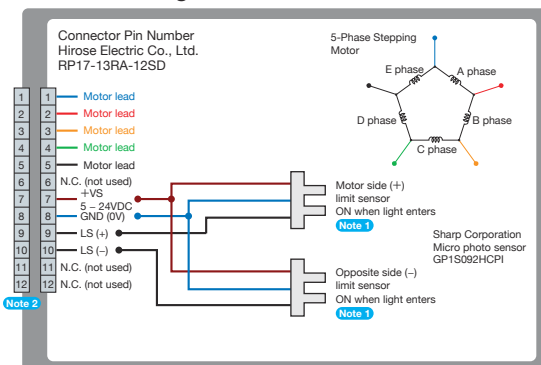
SGSP-60A100 Hexagonal socket head cap screw M4×18...4 screws



SGSP-60A130 Hexagonal socket head cap screw M4×18...4 screws

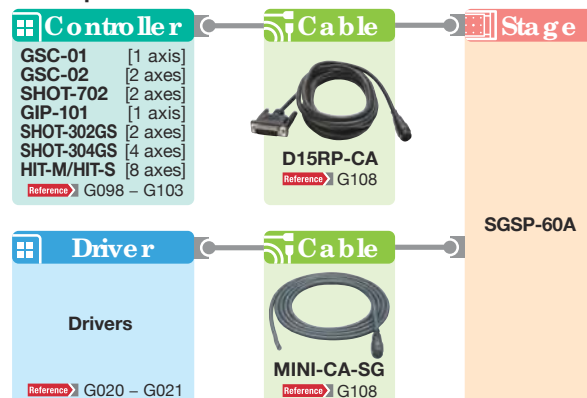


Connection Diagram



Note 1 The motor side limit sensor is the + direction limit sensor.
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. PR17-13PA-12PC/RP17-PC-122

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□ 40mm

□ 60mm

□ 80mm

□ 85mm

□ 100mm

□ 120mm

Others

Motorized Goniometers - 5 Phase Stepping Motor

SGSP-B Stage size □60mm

RoHS

Stepping motor driven motorized goniometer stages fitted with crossed roller guide.



- Combination of two axes of excellent abrasion-resistant z stages enables flexible alignment.
- Rotation center height from the table face is selectable according to the usage from 75mm or 100mm.

Attention

- ▶ Assembly was adjusted for precision of both α and β axis stages. Note that if you disassemble the two axes, they might not work normally and may require assembly readjustment by us.

Specifications

Part Number		SGSP-60B75	SGSP-60B100
Mechanical Specifications	Angle Range [°]	(Upper)	β axis: ± 7
		(Lower)	α axis: ± 5
	Table Size [mm]	60×60	60×60
	Positioning Slide	Crossed roller	Crossed roller
	Travel Mechanism	Worm and worm wheel	Worm and worm wheel
	Stage Material	Aluminum	Aluminum
	Finish	Black anodized	Black anodized
Size Tolerance	Weight [kg]	1.10 (2 axes)	1.20 (2 axes)
	Stage Height [mm]	55	65
	Rotation Center Height [mm]	75	100
	Rotation Center Deflection Accuracy [mm]	—	—
Accuracy Specifications	Resolution	(Full) [°/pulse]	α axis: about 0.001, β axis: about 0.002
		(Half) [°/pulse]	α axis: about 0.0005, β axis: about 0.001
	MAX Speed [°/sec]	6	6
	Positional Repeatability [°]	Within ± 0.004	Within ± 0.004
	Load Capacity [N]	19.1 (1.9kgf)	19.1 (1.9kgf)
	Moment Stiffness [°/N·cm]	—	—
Sensor	Lost Motion [°]	—	—
	Sensor Part Number	GP1S092HCPI (Sharp Corporation)	
	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 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	C9863-90215P
	Step Angle	0.72°
Sensor	Power Voltage	DC5 – 24V
	Current Consumption	40mA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA
	Output Logic	When shaded: Output transistor OFF (no conduction)

Configuration

Part Number	SGSP-60B75	SGSP-60B100
(Upper) β axis	SGSP-60A75	SGSP-60A100
(Lower) α axis	SGSP-60A100	SGSP-60A130

(Reference) Precision Specifications of Single Axis Stage

Part Number	SGSP-60A75	SGSP-60A100	SGSP-60A130	
Accuracy Specifications	Positional Repeatability [°]	± 0.004	± 0.004	± 0.004
	Moment Stiffness [°/N·cm]	1	1	1
	Lost Motion [°]	0.02	0.02	0.02

Compatible Driver / Controller

Control System	Compatible Driver	SG-5M, SG-55M, SG-514MSC
	Compatible Controller	GSC-01, GSC-02, SHOT-702, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S

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□40mm

□60mm

□80mm

□85mm

□100mm

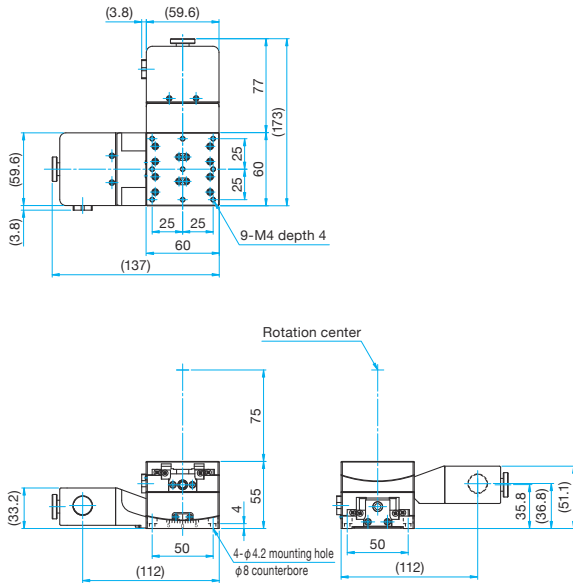
□120mm

Others

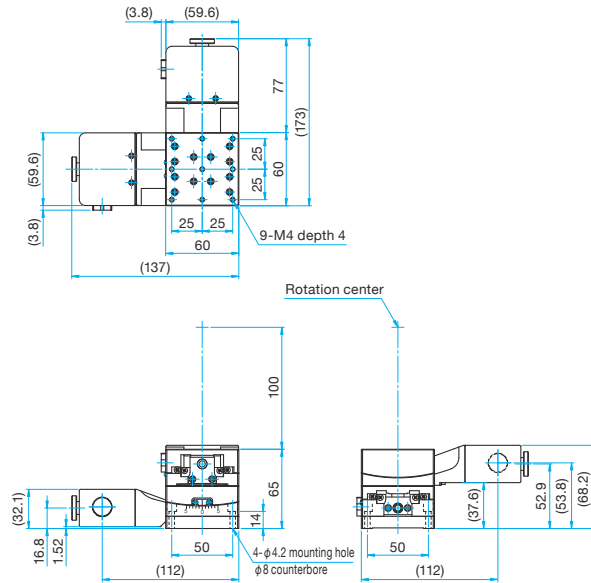


Outline Drawing

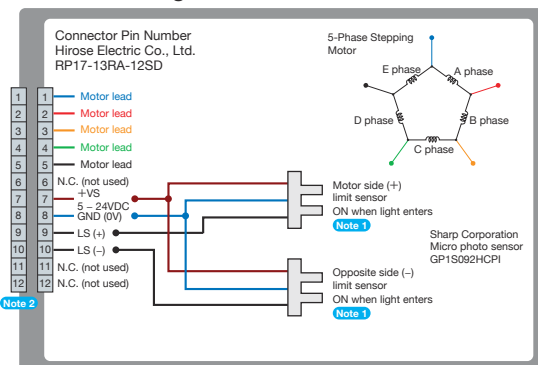
SGSP-60B75 Hexagonal socket head cap screw M4x8...4 screws



SGSP-60B100 Hexagonal socket head cap screw M4x18...4 screws

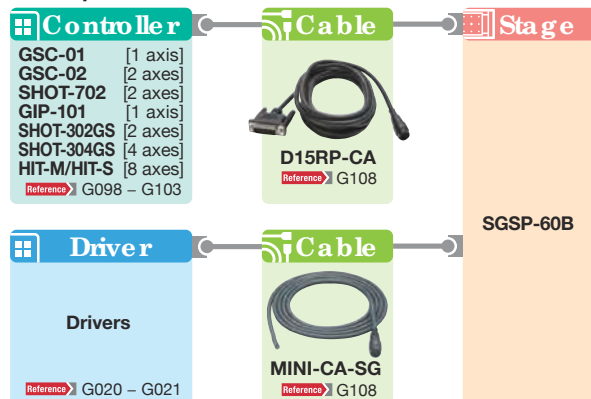


Connection Diagram



Note 1 The motor side limit sensor is the + direction limit sensor.
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. PR17-13PA-12PC/RP17-PC-122

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Others