

Motorized Extended Guide Goniometer

Stage Size 40 × 40 mm

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

Their smooth motion makes them ideal for frequent angle adjustment.

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• Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.

OSMS-40A RoHS CE

• Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- Contact our Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- Contact our Sales Division if you desire a rotation center height not listed in the catalog.
- Manual type (GOHT-40) is also available. Reference E174
- WEB Reference Catalog Code W7092

GOHT-40A***

Specificati	ons			
Part Number			OSMS-40A60	OSMS-40A75
(Opposite Mod	el)		OSMS-40A60R	OSMS-40A75R
	Travel [°]		±5	±4
	Stage Size [mm]		40×40	40×40
Mechanical	Travel Mec (reduction		Worm gear (1: 332)	Worm gear (1: 406)
Specifications	Positioning	Slide	Extended Contact Ball Guide	Extended Contact Ball Guide
	Stage Mate	erial	SUS440C quench hardened	SUS440C quench hardened
	Finish		Super black chrome	Super black chrome
	Weight [kg]		0.4	0.4
	Stage Heig	ht [mm]	15	15
Size Tolerance	Rotation C	enter Height [mm]	60±0.1	75±0.1
	Rotation Center	Deflection Accuracy [mm]	Within ϕ 0.01	Within ϕ 0.01
	(Full) [°/pulse]		about 0.00217	about 0.00177
	Resolution	(Half) [°/pulse]	about 0.00108	about 0.00089
	curacy ecifications MAX Speed [°/sec] Positional Repeatability [°] Load Capacity [N] Moment Stiffness [″/N · cm]		10	8.9
Accuracy			±0.004	±0.004
opeemeatorie			19.6(2.0kgf)	19.6(2.0kgf)
			Roll 0.6 Yaw 0.6	Roll 0.6 Yaw 0.6
	Lost Motio	n [°]	0.02	0.02
	Sensor Par	t Number	Micro photo sensor: GP1S092HCP	IF(Sharp Corporation): Limit Sensor
Sensor	Limit Sense	or	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
	Origin Sens	sor	None	None

Vacuum Options

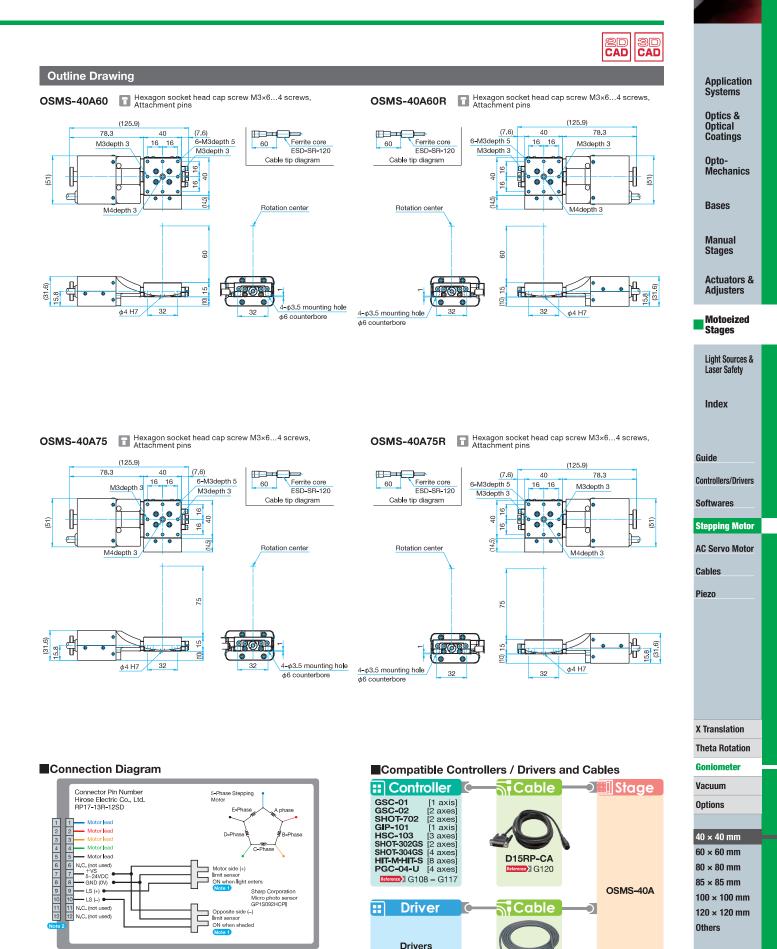
X Translation Theta Rotation

40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm Others

Motor / S	Motor / Sensor Specifications							
	Туре	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)						
Motor	Motor Part Number	PK523HPB-C12 (28mm)						
	Step Angle	0.72°						
	Power Voltage	DC5 - 24V±10%						
	Current Consumption	40mA 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, MC-7514PCL
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04-U

G090



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

WEB http://www.sigma-koki.com/english/ E-mail international@sigma-koki.com TEL +81-3-5638-8228 FAX +81-3-5638-6550

Reference G020 - G021

MINI-CA-SG

rence G120



Motorized Extended Guide Goniometer

Stage Size 60 × 60 mm

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

Their smooth motion makes them ideal for frequent angle adjustment.

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• Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.

OSMS-60A RoHS CE

• Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- Contact our Sales Division if you desire to assemble into an $\alpha\beta$ axis stage.
- Manual type (GOHT-60) is also available. Reference E178 WEB Reference Catalog Code W7093



GOHT-60A***

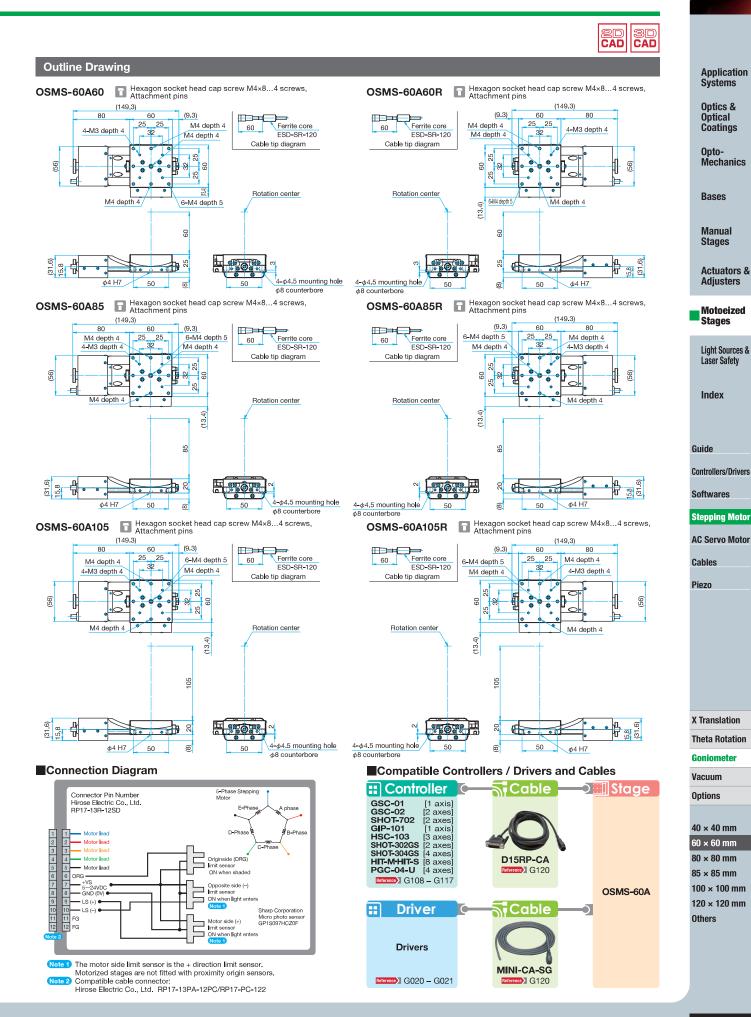
	Specificatio	ons				
	Part Number			OSMS-60A60	OSMS-60A85	OSMS-60A105
0.14	(Opposite Mode	l)		OSMS-60A60R	OSMS-60A85R	OSMS-60A105R
Guide		Travel [°]		±14	±9	±7
Controllers/Drivers		Stage Size	[mm]	60×60	60×60	60×60
Softwares	Mechanical	Mechanical Specifications Travel Mechanism (reduction ratio) Positioning Slide Stage Material Finish Weight [kg] Stage Height [mm]		Worm gear (1: 246)	Worm gear (1: 314)	Worm gear (1: 380)
Stepping Motor	Specifications			Extended Contact Ball Guide	Extended Contact Ball Guide	Extended Contact Ball Guide
Stepping motor				SUS440C quench hardened	SUS440C quench hardened	SUS440C quench hardened
AC Servo Motor				Super black chrome	Super black chrome	Super black chrome
Cables				0.85	0.75	0.75
oables				25	20	20
Piezo	Size Tolerance	Rotation Ce	enter 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
		Resolution	(Full) [°/pulse]	about 0.00293	about 0.00229	about 0.00198
		Resolution	(Half) [°/pulse]	about 0.00146	about 0.00115	about 0.00095
		MAX Speed	d [°/sec]	10	8	6.6
	Accuracy Specifications	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
		Lost Motio	ר [°]	0.02	0.02	0.02
X Translation		Sensor Par	t Number	Micro photo sensor: GF	P1S097HCZ0F(Sharp Corporation): Lir	mit Sensor, Origin Sensor
Theta Rotation	Sensor	Limit Senso	or	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)
Goniometer		Origin Sens	sor	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN)

Vacuum Options

40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm Others

	Туре	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)	
	Motor Part Number	PK523HPB-C12 ([]28mm)	
	Step Angle	0.72°	
	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, MC-S0514ZU, SG-514MSC, MC-7514PCL
	Compatible Controller	GSC-01, GSC-02, SHOT-702, GIP-101, HSC-103, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04-U





Two Axis Motorized Extended Guide Goniometer Stage Size 40 × 40 mm / 60 × 60 mm

High precision motorized goniometers with integrated bearing ways for superior stiffness, accuracy and durability. Their smooth motion makes them ideal for frequent angle adjustment.

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40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm Others



- Extended Contact bearing ways are machined directly into the main body reduce the number of parts and assembly time, making these very durable and cost effective.
- Attachment pins (accessories) are ideal for positioning when assembling into $\alpha\beta$ axis or mounting on various instruments or devices.

Guide

- Contact our Sales Division if you desire to assemble into an αβ axis stage.
- Manual type $\alpha\beta$ axis (GOHT-40,60) is

also available. Reference E176 – E179 WEB Reference Catalog Code W7104, W7105



GOHT-**B**B

Part Number	umber		OSMS-40B60	OSMS-60B60	OSMS-60B85		
(Opposite Model)				OSMS-40B60R	OSMS-60B60R	OSMS-60B85R	
	Upper β axis		Upper β axis	±5	±14	±9	
	Travel [°]		Lower a axis	±4	±9	±7	
	Stage Size [mm]			40×40	60×60	60×60	
Mechanical Specifications	Travel M	echanism	Upper β axis	Worm gear (1: 332)	Worm gear (1: 246)	Worm gear (1: 314)	
	(reductio	n ratio)	Lower a axis	Worm gear (1: 406)	Worm gear (1: 314)	Worm gear (1: 380)	
opcomodicito	Positioning Slide			Extended Contact Ball Guide	Extended Contact Ball Guide	Extended Contact Ball Guid	
	Stage Material			SUS440C quench hardened	SUS440C quench hardened	SUS440C quench hardened	
	Finish Weight [kg] Stage Height [mm]			Super black chrome	Super black chrome	Super black chrome	
				0.8	1.6	1.5	
				30	45	40	
Size Tolerance	Rotation Center Height [mm]		eight [mm]	60±0.2	60±0.2	85±0.2	
	Rotation Center Deflection Accuracy [mm]			Within ϕ 0.01	Within ϕ 0.01	Within ϕ 0.01	
	(Full) Upper β axis [°/pulse] Lower α axis			about 0.00217	about 0.00293	about 0.00229	
			Lower a axis	about 0.00177	about 0.00229	about 0.00198	
Accuracy	cv tion (Ha	tion (F	(Half)	Upper β axis	about 0.00108	about 0.00146	about 0.00115
Specifications		[°/pulse]	Lower a axis	about 0.00089	about 0.00115	about 0.00095	
	MAX Speed [°/sec]			8	8	6	
	Load Capacity [N]			14.7 (1.5kgf)	19.6 (2.0kgf)	19.6 (2.0kgf)	
	Sensor Part Number		er	Micro photo sensor: GP1S092HCPIF (Sharp Corporation)	Micro photo sensor: GP1S	097HCZ (Sharp Corporation)	
Sensor	Limit Sensor			Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOS	
	Origin Se	ensor		None	Equipped (NORMAL OPEN)	Equipped (NORMAL OPEN	
	Proximity	/ Origin Se	ensor	None	None	None	

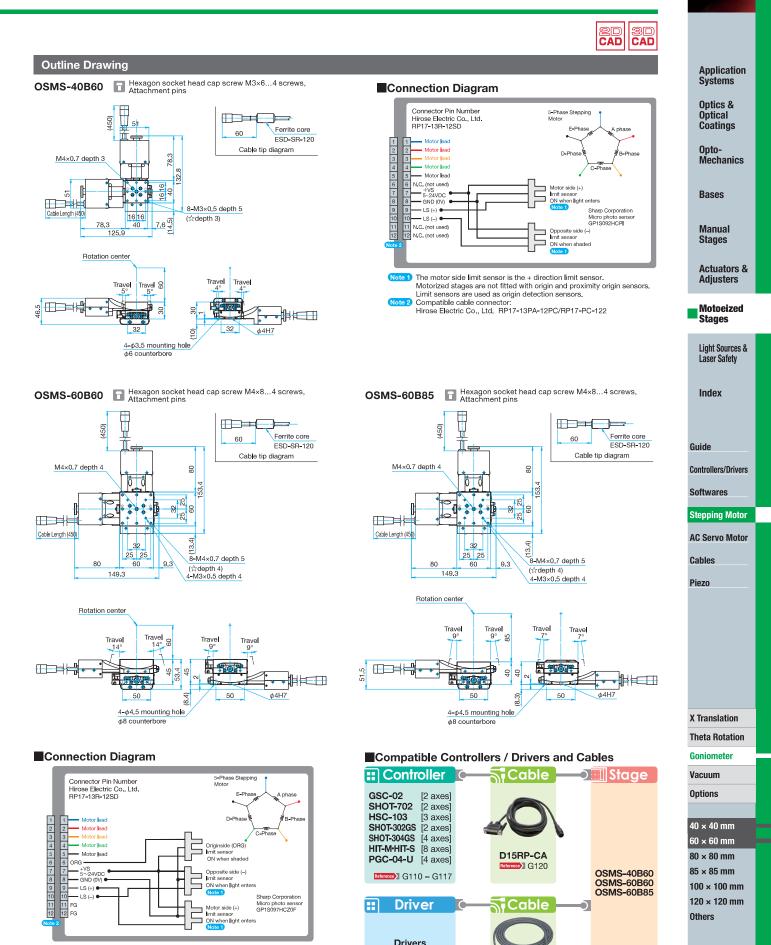
	Control Syst

Sensor Control Output NPN open collector output DC30V or lower, 50mA or lower Output Output Output transistor OFF (no conduction): Limit sensor		Туре	5-phase step	oping motor 0.75A/phase (Oriental Motor Co., Ltd.)	
Power Voltage DC5 - 24V±10% Current Consumption 80mA or lower (40mA or lower a per axis 20mA or lower ger a sensor) 120mA or lower (60mA or lower a per axis 20mA or lower per a sensor) Control Output NPN open collector output DC30V or lower, 50mA or lower Output Logic When shaded: Output transistor OFF (no conduction): Limit sensor	Motor	Motor Part Number		PK523HPB-C12 (□28mm)	
Sensor 80mA or lower (40mA or lower a per axis 20mA or lower re a sensor) 120mA or lower (60mA or lower a per axis 20mA or lower per a sensor) Control Output NPN open collector output DC30V or lower, 50mA or lower Output Logic When shaded: Output transistor OFF (no conduction): Limit sensor		Step Angle	0.72°		
Sensor Current Consumption (40mA or lower a per axis 20mA or lower per a sensor) 120mA or lower (60mA or lower a per axis 20mA or lower per a sensor) Control Output NPN open collector output DC30V or lower, 50mA or lower Output NPN open collector output DC30V or lower, 50mA or lower		Power Voltage		DC5 - 24V±10%	
Control Output NPN open collector output DC30V or lower, 50mA or lower Output Logic When shaded: Output transistor OFF (no conduction): Limit sensor	Canaar	Current Consumption		120mA or lower (60mA or lower a per axis 20mA or lower per a sensor)	
	Sensor	Control Output	NPN open collector output DC30V or lower, 50mA or lower		
When shaded: Output transistor ON (conduction): Origin sensor		Output Logic When shaded: Output transistor OFF (no conduction): Limit sensor When shaded: Output transistor ON (conduction): Origin sensor			

 Cable
 Driver Cable
 D15RP-CA (Controller), MINI-SG-CA (Driver)

 Compatible
 Driver / Controller
 Compatible Driver
 Compatible Driver

 Control System
 Compatible Driver
 SG-5M, MC-S0514ZU, SG-514MSC, MC-7514PCL
 Compatible Controller



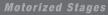
 Note
 The motor side limit sensor is the + direction limit sensor. Motorized stages are not fitted with proximity origin sensors.

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

■ G020~G021

MINI-CA-SG

G120



Motorized Crossed Roller Goniometers Stage Size 60 × 60 mm

SGSP-A



Aluminum body motorized goniometer with crossed roller bearings.

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- Light weight with compact footprint.
- Rotation center heights available: 75mm, 100mm or 130mm.

Guide

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

	Specificatio	ons							
Guide	Part Number			SGSP-60A75	SGSP-60A100	SGSP-60A130			
unuc		Angle Rang	e [°]	±7	±5	±4			
Controllers/Drivers		Stage Size	[mm]	60×60	60×60	60×60			
Softwares		Positioning Slide		Crossed roller guide	Crossed roller guide	Crossed roller guide			
oontmaroo	Mechanical Specifications	Travel Mech	nanism	Worm and worm wheel	Worm and worm wheel	Worm and worm wheel			
Stepping Motor	-	Stage Mate	rial	Aluminum	Aluminum	Aluminum			
AC Servo Motor		Finish		Black anodized	Black anodized	Black anodized			
		Weight [kg]		0.65	0.55	0.65			
Cables		Stage Heigl	nt [mm]	35	30	35			
Piezo	Size Tolerance	Rotation Center Height [mm]		75	100	130			
		Rotation Center Deflection Accuracy [mm]		ϕ 0.05	ϕ 0.05	φ0.05			
		Resolution	(Full) [°/pulse]	about 0.002	about 0.001	about 0.001			
		nesolution	(Half) [°/pulse]	about 0.001	about 0.0005	about 0.0005			
		MAX Speed [°/sec]		6	6	6			
	Accuracy Specifications	Positional Repeatability [°]		±0.004	±0.004	±0.004			
		Load Capacity [N] Moment Stiffness ["/N·cm]		24.5 (2.5kgf)	24.5 (2.5kgf)	24.5 (2.5kgf)			
				1	1	1			
			ו [°]	0.02	0.02	0.02			
X Translation		Sensor Par	Number	Micro ph	noto sensor: GP1S092HCPI(Sharp Cor	rporation)			
Theta Rotation	Sensor	Limit Senso	or	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)	Equipped (NORMAL CLOSE)			
	0011301	Origin Sens	or	None	None	None			
Goniometer		Proximity O	rigin Sensor	None	None	None			

Vacuum Options

40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm Others

	Туре	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
Sensor Co	Motor Part Number	C9863-90215P
	Step Angle	0.72°
	Power Voltage	DC5 - 24V±10%
	Current Consumption	40mA 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)

Compatible		
Control System	Compatible Driver	SG-5M, SG-55M, SG-514MSC
	Compatible Controller	GSC-01, GSC-02, SHOT-702, HSC-103, GIP-101, SHOT-302GS, SHOT-304GS, HIT-M+HIT-S, PGC-04-U

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Rotation center

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60 60

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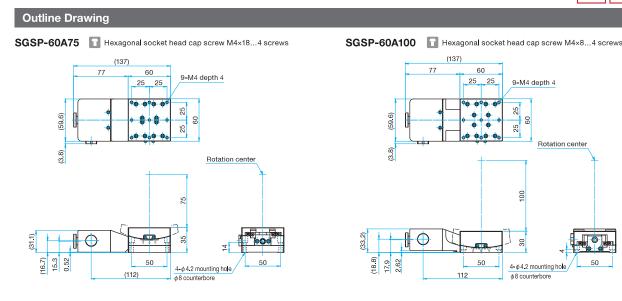
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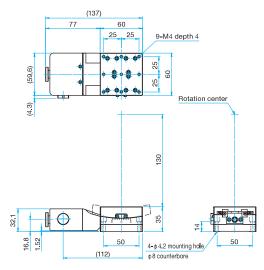
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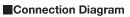
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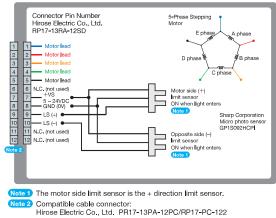
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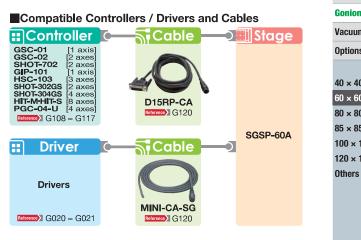












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Two Axis Motorized Crossed Roller Goniometers Stage Size 60 × 60 mm



Two axis aluminum body motorized goniometer with crossed roller bearings.

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Options

40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm 0thers



- Light weight with compact footprint.
- Rotation center heights available: 75mm or 100mm.

Attention

Preassembled for best perpendicularity of *a* and *β* axis stages. Note that if you disassemble the two axes, the optimized alignement will be lost.

Specifications

Part Number				SGSP-60B75	SGSP-60B100
Mechanical Specifications	Angle Deng	. [0]	(Upper)	β axis: ±7	β axis: ±5
	Angle Range	÷[]	(Lower)	a axis: ±5	α axis: ±4
	Stage 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
	Weight [kg]			1.10 (2 axes)	1.20 (2 axes)
	Stage Height [mm]			55	65
Size Tolerance	Rotation Center Height [mm]			75	100
	Rotation Center Deflection Accuracy [mm]			-	-
	Resolution	(Full) [°/pı	lse]	α axis: about 0.001, β axis: about 0.002	α axis: about 0.001, β axis: about 0.001
		(Half) [°/p	ulse]	lpha axis: about 0.0005, eta axis: about 0.001	α axis: about 0.0005, β axis: about 0.0005
Accuracy	MAX Speed [°/sec]			6	6
Specifications	Load Capacity [N]			19 . 1 (1 . 9kgf)	19.1 (1.9kgf)
	Moment Stiffness ["/N·cm]			-	_
	Lost Motion [°]			-	_
Sensor	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 Sensor	Туре	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)		
	Motor Part Number	C9863-90215P		
	Step Angle	0.72°		
	Power Voltage	DC5 – 24V±10%		
	Current Consumption	80mA or lower (40mA or lower a per axis 20mA or lower per a sensor)		
	Control Output	NPN open collector output DC30V or lower, 50mA or lower		
	Output Logic	When shaded: Output transistor OFF (no conduction)		

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

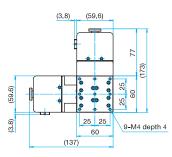
(Reference) Precision Specifications of Single Axis Stage				
Part Number		SGSP-60A75	SGSP-60A100	SGSP-60A130
Accuracy Specifications	Positional Repeatability [°]	±0.004	±0.004	±0.004
	Moment Stiffness ["/N·cm]	1	1	1
	Lost Motion [°]	0.02	0.02	0.02

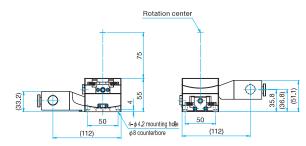
Compatible Driver / Controller			
Control System	Compatible Driver	SG-5M, MC-S0514ZU, SG-514MSC	
	Compatible Controller	GSC-02, SHOT-702, HSC-103, SHOT-302GS, SHOT-304GS, HIT-M·HIT-S, PGC-04-U	

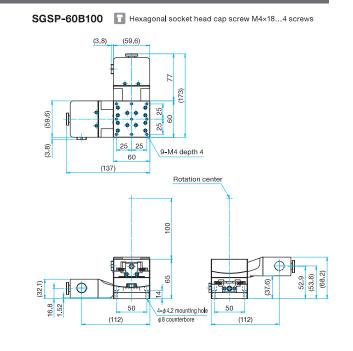
2D 3D CAD CAD

Outline Drawing









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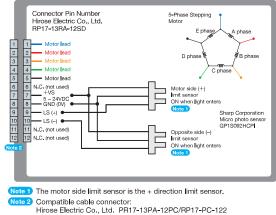
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40 × 40 mm 60 × 60 mm 80 × 80 mm 85 × 85 mm 100 × 100 mm 120 × 120 mm 0thers

Connection Diagram



Compatible Controllers / Drivers and Cables

D15RP-CA

Cable

MINI-CA-SG

🔊 G120

G120

SGSP-60B

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GSC-02 [2 axes] SHOT-702 [2 axes] HSC-103 [3 axes] SHOT-302GS [2 axes] SHOT-304GS [4 axes] HIT-M+HIT-S [8 axes] PGC-04-U [4 axes]

🔊 G109 – G117

Driver

Drivers

🚥 G020 – G021

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Re