


Actuators




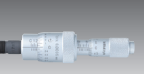
Actuator Mounting System Chart


F003


Micrometer Heads

	Micrometer Heads (Maintenance parts) Travel: 15mm or less SFN/SHTS/SHT/SHSS/SHS/SHM	F004
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	Micrometer Heads (Maintenance parts) Travel: 25mm or more SHS/SHN/SHH/MHN	F005
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	Differential Micrometer Heads (Maintenance parts) MHF	F006
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	Nut Drivers MNS	F006
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	Sub-micron Worm Drive Micrometer Heads WGP	F007
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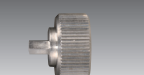
	Angled Micrometer Heads MDC	F008
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Differential Micrometer Heads


	Differential Micrometer Heads SHSP/SHPA/SHPB/SHPT/SHPC	F009
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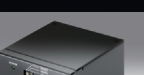
Fine Adjustment Screws

	Fine-pitch Screw Adjusters FPSA	F010
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	Hex Wrench with Knob KCL	F010
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Remote

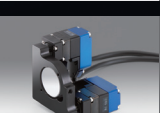
	Remote Actuator SGDC	F012
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	Remote Controller SRC	F013
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PKA

	Ultrasonic Motor Driven Actuator Guide PKA	F014
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	Translation Stages PKA	F014
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	Remote Control Mirror Holder PKA	F015
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	Compact Actuator PKA	F015
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	2-Axis Controller PKA	F015
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OptMike

	OptMike with Encoder Extension Cable for OptMike SOM-C/SOM-BCA	F016
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	OptMike-E (B type) Controllers OMEC	F017
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ACT

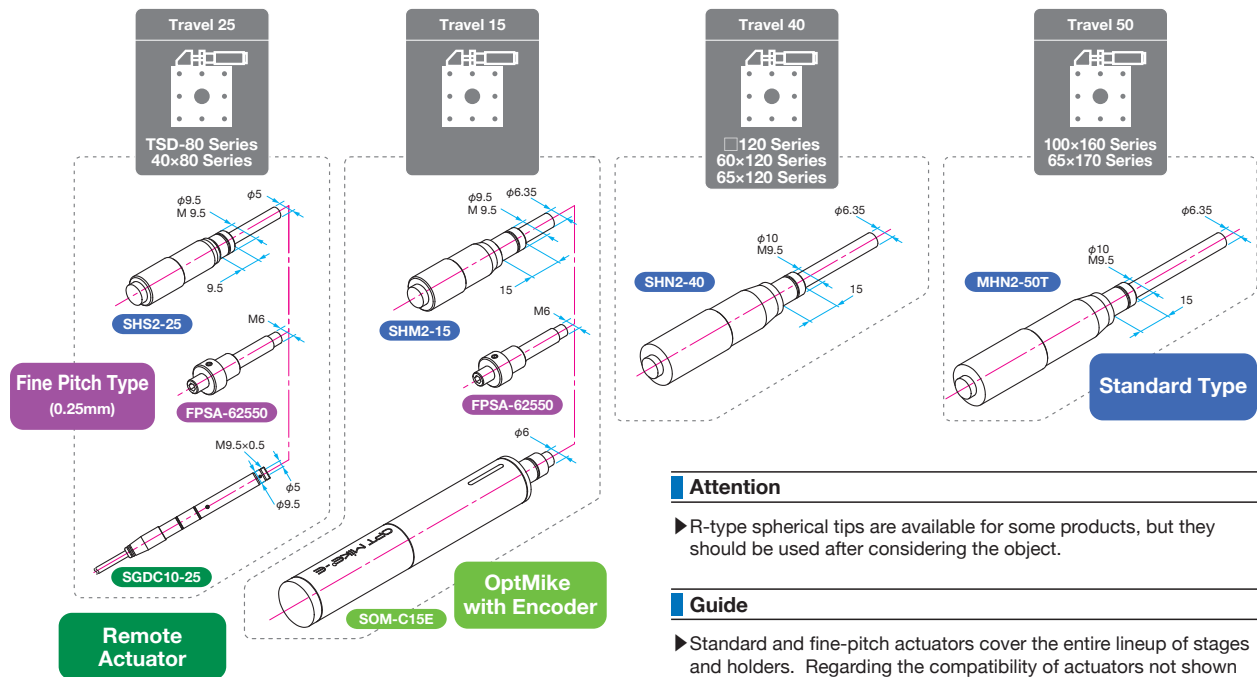
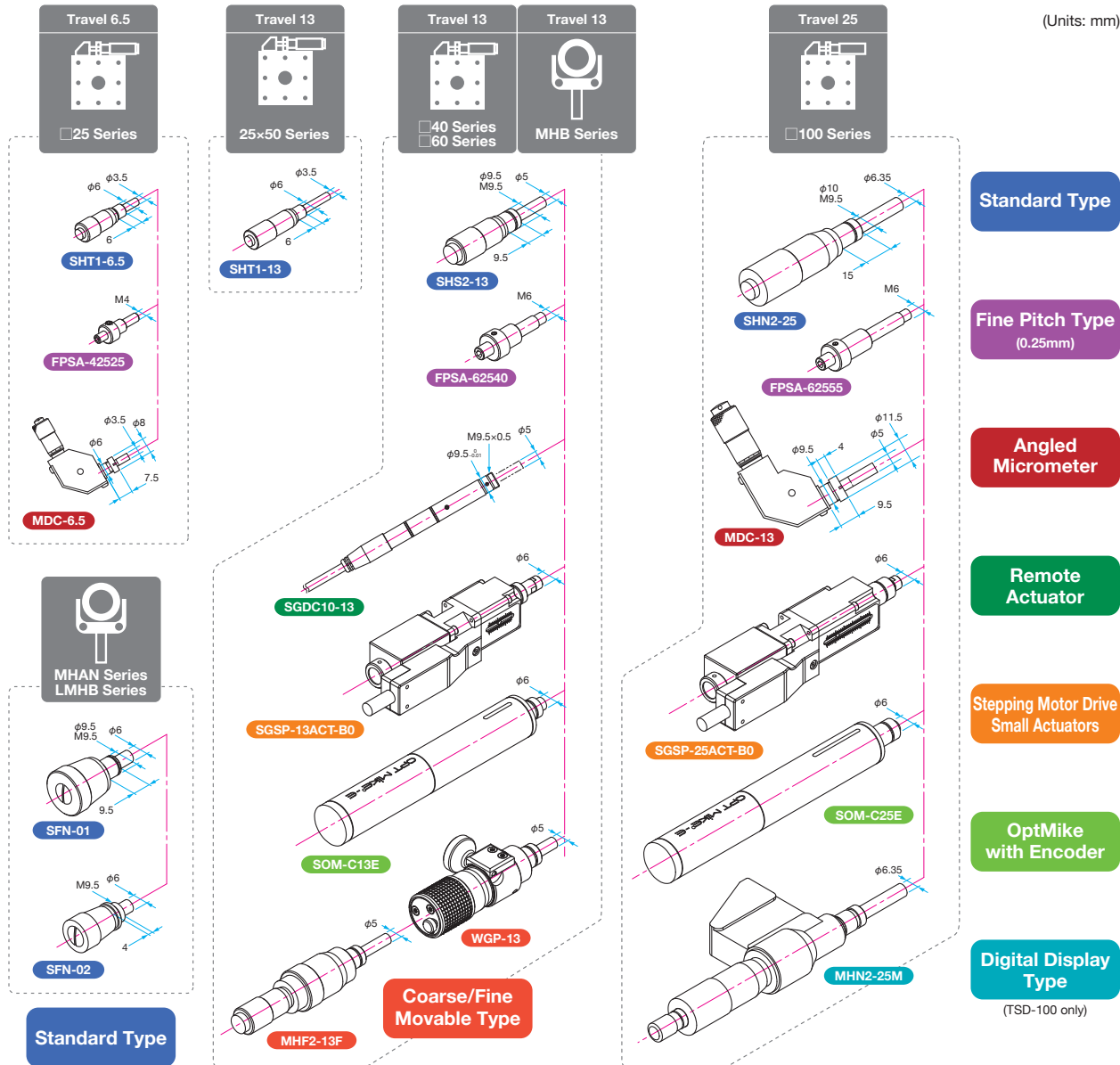
	Compact Stepping Motor Actuators SGSP-ACT	F018
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List of Products Compatible with SOM-C and SGSP-ACT **F020**

Actuator Mounting System Chart



(Units: mm)



Attention

- ▶ R-type spherical tips are available for some products, but they should be used after considering the object.

Guide

- ▶ Standard and fine-pitch actuators cover the entire lineup of stages and holders. Regarding the compatibility of actuators not shown above, refer to the page of each product or outline drawing.

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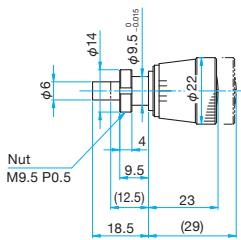
OptMike

ACT

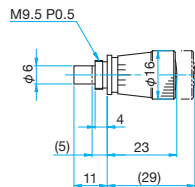
Micrometer heads used with Sigma Koki manual stages and holders.

Travel: 15mm or less

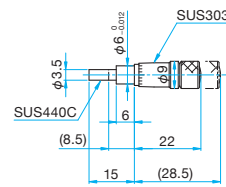
SFN-01



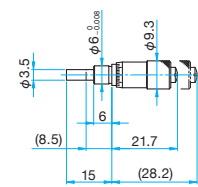
SFN-02



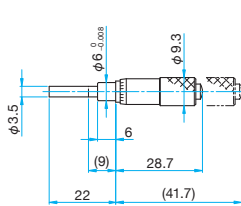
SHTS1-6.5



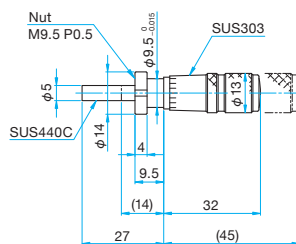
SHT1-6.5



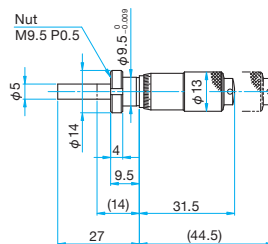
SHT1-13



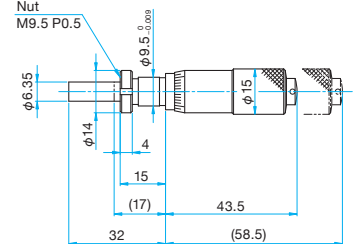
SHSS2-13



SHS2-13



SHM2-15



Attention

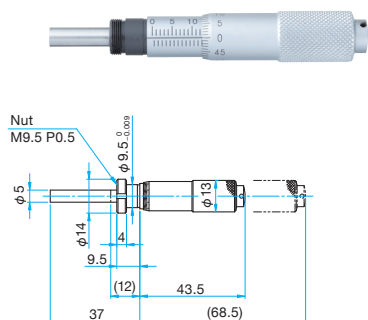
- ▶ Depending on the stage type, there is the possibility of shortened travel or interference with mounting parts. Contact our International Sales Division when you exchange the micrometer head.

Specifications

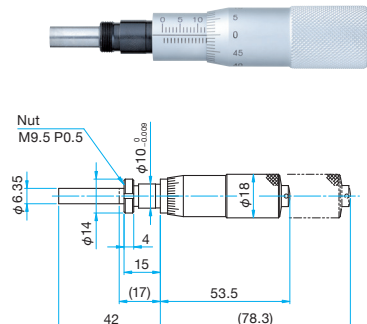
Part Number	Travel [mm]	Type	Readable Resolution [mm]	Lead of Actuator [mm]	Load Capacity (Static load) [N]	Weight [kg]
SFN-01	0 - 6	Fine pitch	0.005	0.25	19.6 (2kgf)	0.06
SFN-02	0 - 6	Fine pitch	0.005	0.25	19.6 (2kgf)	0.03
SHTS1-6.5	0 - 6.5	Stainless steel	0.01	0.5	29.4 (3kgf)	0.01
SHT1-6.5	0 - 6.5	Standard	0.01	0.5	29.4 (3kgf)	0.01
SHT1-13	0 - 13	Small diameter	0.01	0.5	39.2 (4kgf)	0.015
SHSS2-13	0 - 13	Stainless steel	0.01	0.5	39.2 (4kgf)	0.04
SHS2-13	0 - 13	Standard	0.01	0.5	39.2 (4kgf)	0.03
SHM2-15	0 - 15	Standard	0.01	0.5	39.2 (4kgf)	0.06

Travel: 25mm or more

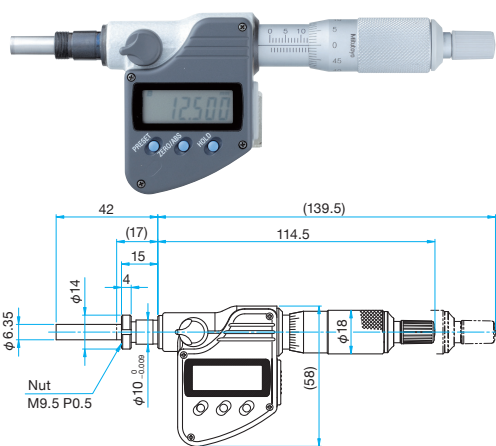
SHS2-25



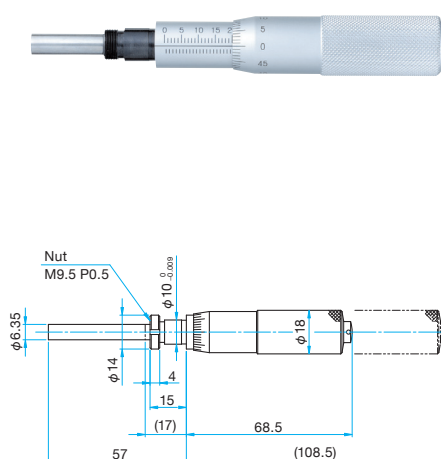
SHN2-25



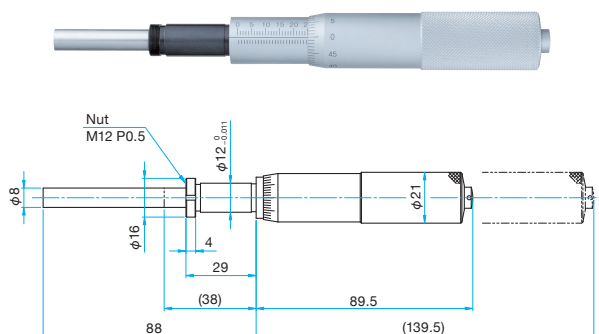
MHN2-25M



SHN2-40



SHH2-50



Attention

► Depending on the stage type, there is the possibility of shortened travel or interference with mounting parts. Contact our International Sales Division when you exchange the micrometer head.

Specifications

Part Number	Travel [mm]	Type	Readable Resolution [mm]	Lead of Actuator [mm]	Load Capacity (Static load) [N]	Weight [kg]
SHS2-25	0 - 25	Small diameter	0.01	0.5	39.2 (4kgf)	0.05
SHN2-25	0 - 25	Standard	0.01	0.5	39.2 (4kgf)	0.09
MHN2-25M	0 - 25	Digital display	0.001	0.5	39.2 (4kgf)	0.235
SHN2-40	0 - 40	Small diameter	0.01	0.5	39.2 (4kgf)	0.12
SHH2-50	0 - 50	Standard	0.01	0.5	39.2 (4kgf)	0.23

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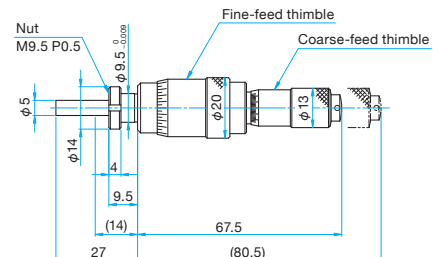
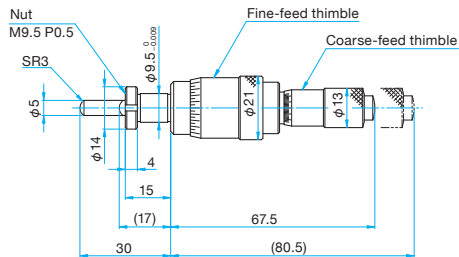
OptiMike

ACT

Differential Micrometer Heads (Maintenance parts) Nut Drivers

MHF
MNS
MHF (Travel Coarse: 0 – 13mm, Fine: 0 – 0.2mm)

RoHS
Catalog Code W8003

MHF2-13
MHF2-13F
2D CAD **3D CAD**


Attention

- ▶ Depending on the stage type, there is the possibility of shortened travel or interference with mounting parts. Contact our International Sales Division when you exchange the micrometer head.

Specifications

Part Number	Travel [mm]	Type	Readable Resolution [mm]	Lead of Actuator [mm]	Load Capacity (Static load) [N]	Weight [kg]
MHF2-13	Coarse: 0 – 13 Fine: 0 – 0.2	Coarse/Fine	Coarse: 0.01 Fine: 0.0005	Coarse: 0.5 Fine: 0.025	9.8 (1kgf)	0.1
MHF2-13F	Coarse: 0 – 13 Fine: 0 – 0.2	Coarse/Fine	Coarse: 0.01 Fine: 0.0005	Coarse: 0.5 Fine: 0.025	9.8 (1kgf)	0.1

MNS

Catalog Code W8004

Special tool required to remove or secure micrometer heads.

- Special nuts are used for fastening micrometers on some manual stages (TSD and TSDS series). This custom nut driver makes removing and attaching these nuts easier and faster.



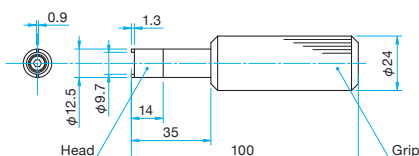
Specifications

Part Number	MNS-12.5-14.5
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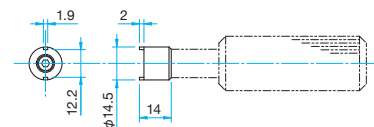
Outline Drawing

MNS-12.5-14.5

- Head for $\phi 12.5$ (mounted on the grip)
(compatible with TSD-40/60/65/-80, TSDC-40/60, TSDH-40/60)



- Head for $\phi 14.5$ (compatible with TSD-100 and 120)



Guide

- ▶ This product comes as a set of two head sizes. Refer to the following table for compatible stages.

Head Size [mm]	Part Number of Compatible Stage
For $\phi 12.5$	TSD-40*/60/65/-80, TSDC-40/60, TSDH-40/60
For $\phi 14.5$	TSD-100/TSD-120

* TSD-40 C type only.

Attention

- ▶ Not all manual stages (TSD and TSDS series) are compatible. Contact our International Sales Division if you have any question.
- ▶ We will replace the micrometer heads of a manual stage with a fine-pitch screw upon request. Note that replacement of the micrometer heads by customers may not be covered by the warranty of the stage itself.

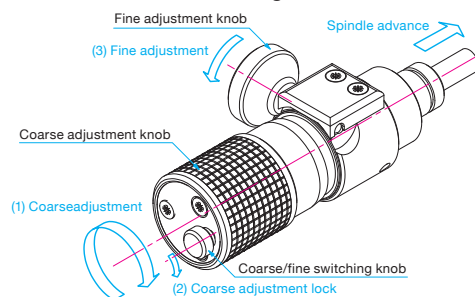
Fitted with Sigma Koki's unique worm-gear mechanism to enable coarse and fine adjustment over the entire travel (13mm).

The compact design is suitable for downsizing systems or reducing adjustment time.

- The fine/coarse switching knob allows switching between coarse- or fine-adjustment at any position.
- Allows resolution of 0.5µm over the entire travel.
- Non-rotating spindle



Part Names and Handling Instructions



- (1) Coarse adjustment**
Make a rough position adjustment using the coarse adjustment knob.
- (2) Coarse adjustment lock**
Lock the coarse drive with the coarse/fine switching knob.
- (3) Fine adjustment**
Make a fine adjustment using the fine adjustment knob.

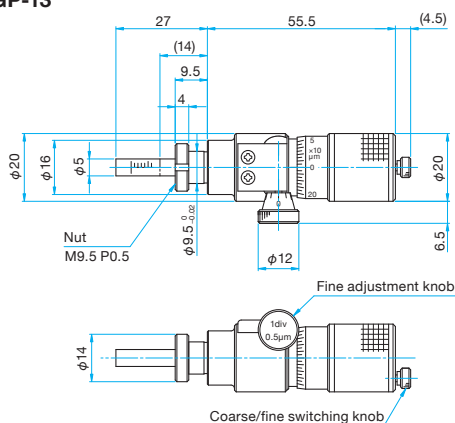
Common Specifications

Travel [mm]	Coarse: 0 – 13, Fine: 0 – 13
Load Capacity (Static load) [N]	39.2 (4kgf)
Readable Resolution [mm]	Coarse: 0.005, Fine: 0.0005
Lead of Actuator [mm]	Coarse: 0.25, Fine: 0.005
Weight [kg]	0.1

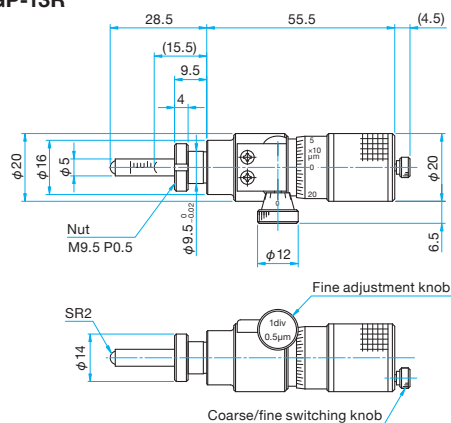
Part Number	Tip Shape
WGP-13	Flat type
WGP-13R	R type

Outline Drawing

WGP-13



WGP-13R

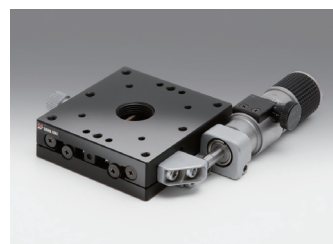


Guide

- ▶ Can be purchased assembled with manual stage. Contact our International Sales Division for more information.

Attention

- ▶ Depending on the stage type, there is the possibility of shortened travel or interference with mounting parts. Contact our International Sales Division when you exchange the micrometer head.
- ▶ The stopper inside the micrometer locks when you keep turning the coarse/fine adjustment knob. Stop turning the knob if you feel overload, otherwise it will cause damage.
- ▶ Since the fine-adjustment uses a worm-gear mechanism, we recommend positioning from one direction to minimize backlash effects.



Example of combination with stage

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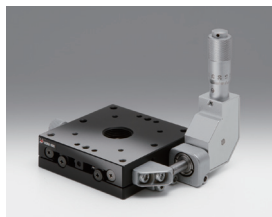
Remote

PKA

OptiMike

ACT

Unique right angle drives are direct replacements for micrometer heads used on Sigma Koki manual stages. Unidirectional control units are suitable for assembly into systems, offering excellent operability in confined spaces and improving work efficiency.



Example of mounting onto stage

- Compatible with the mounting brackets of micrometer heads used in products listed in the catalog.
- Angled micrometer heads can be rotated and secured at any position. Adjust to the most convenient position depending on the situation.

Guide

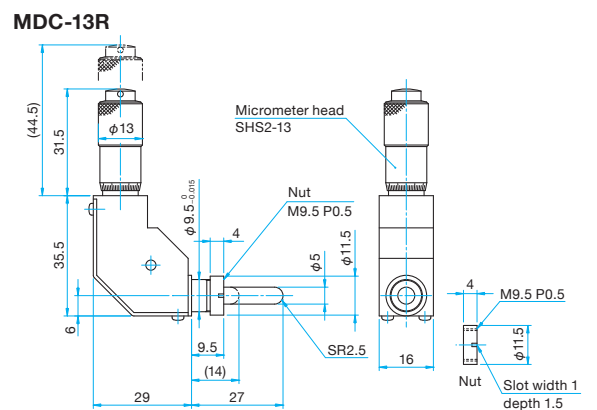
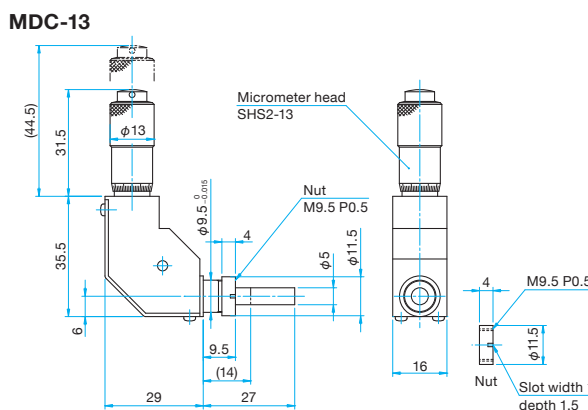
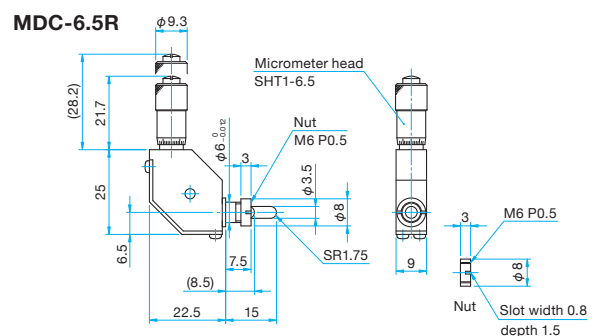
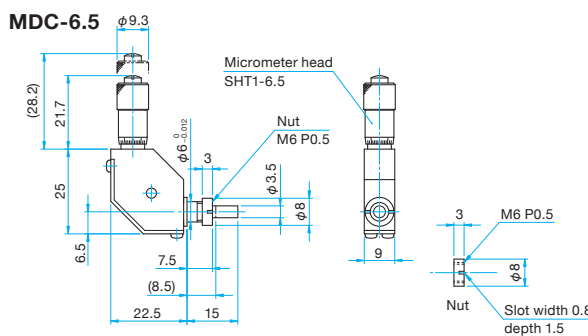
- ▶ When an angled micrometer head and stage are purchased together, they will be delivered in assembled condition. Contact our International Sales Division for more information. Depending on the combination, modification or additional work is required. Please check our International Sales Division together with the request of assembly.
- ▶ Can be purchased assembled with manual stage. Contact our International Sales Division for more information.
- ▶ Since the angled micrometer heads uses a pivoting mechanism, the feed rate of the micrometer heads compared to the scale is 1:1 at and around the center, but will be slightly less at the ends of travel. Thus, use the micrometer scale to make rough estimates only.

Attention

- ▶ Depending on the stage type and installation direction to attach an angled micrometer head, there is the possibility of shortened travel or interference with mounting parts. Contact our International Sales Division when you exchange the micrometer head.
- ▶ MDC-6.5 requires a special nut driver. Contact our International Sales Division for more information.



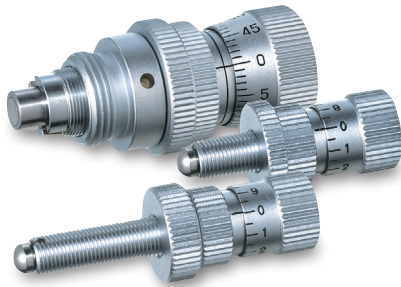
Outline Drawing



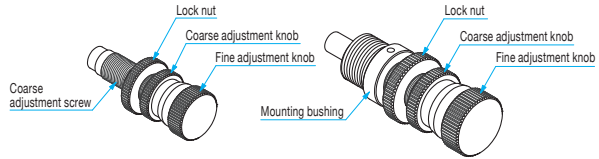
Specifications

Part Number	Travel [mm]	Readable Resolution [mm]	Lead of Actuator [mm]	Load Capacity (Static load) [N]	Tip Shape	Weight [kg]
MDC-6.5	0 - 6.5	0.01	0.5	29.4 (3kgf)	Flat type	0.03
MDC-6.5R	0 - 6.5	0.01	0.5	29.4 (3kgf)	R type	0.03
MDC-13	0 - 13	0.01	0.5	39.2 (4kgf)	Flat type	0.07
MDC-13R	0 - 13	0.01	0.5	39.2 (4kgf)	R type	0.07

Differential adjustment screws combine the ability to translate over long distances with the precision of a differential thread for fine motion. The double-spindle differential mechanism offers smooth coarse- and fine-adjustment.



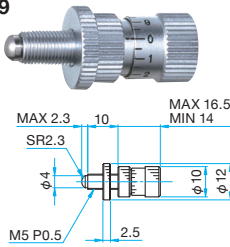
Part Names



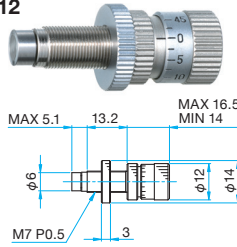
Attention

Note that fine adjustment is fitted with a scale, but coarse adjustment is not.

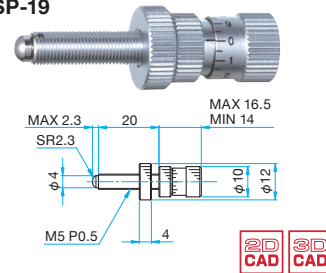
SHSP-9



SHSP-12



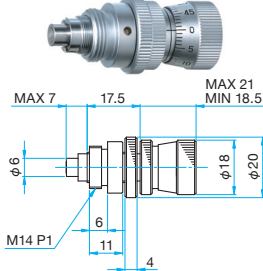
SHSP-19



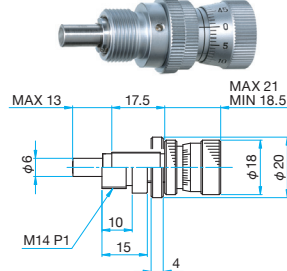
Specifications

Part Number	Travel of Coarse Drive [mm]	Travel of Fine Drive [mm]	Readable Resolution for Fine Drive [mm]	Lead of Actuator for Coarse Drive [mm]	Lead of Actuator for Fine Drive [mm]	Load Capacity (Static load) [N]	Weight [kg]
SHSP-9	0 - 5	0 - 0.25	0.0025	0.5	0.05	19.6 (2kgf)	0.01
SHSP-12	0 - 6.5	0 - 0.25	0.0025	0.5	0.05	29.4 (3kgf)	0.02
SHSP-19	0 - 11	0 - 0.25	0.0025	0.5	0.05	29.4 (3kgf)	0.01

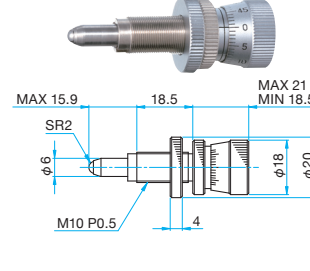
SHPA-4.5



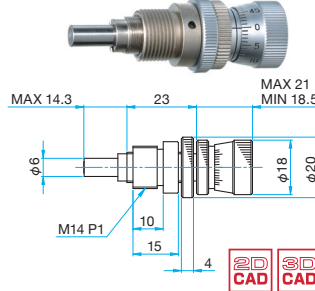
SHPB-7



SHPT-7



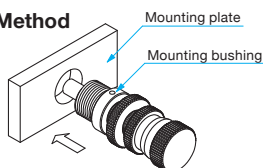
SHPC-10



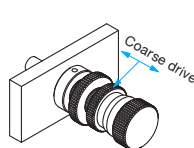
Specifications

Part Number	Travel of Coarse Drive [mm]	Travel of Fine Drive [mm]	Readable Resolution for Fine Drive [mm]	Lead of Actuator for Coarse Drive [mm]	Lead of Actuator for Fine Drive [mm]	Load Capacity (Static load) [N]	Weight [kg]
SHPA-4.5	0 - 4.5	0 - 0.25	0.001	0.5	0.05	29.4 (3kgf)	0.06
SHPB-7	0 - 7	0 - 0.25	0.001	0.5	0.05	29.4 (3kgf)	0.06
SHPT-7	0 - 7	0 - 0.25	0.001	0.5	0.05	29.4 (3kgf)	0.05
SHPC-10	0 - 10	0 - 0.25	0.001	0.5	0.05	29.4 (3kgf)	0.06

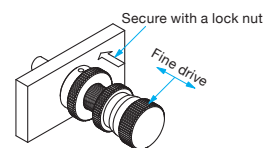
Mounting Method



(1) Screw the mounting bushing into the mounting plate to attach the micrometer.



(2) Make coarse adjustment using the coarse adjustment knob.



(3) After coarse adjustment, tighten the lock nut on the mounting bushing, and make fine adjustment using the fine adjustment knob.

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Suitable as direct replacements brackets of micrometer heads used on Sigma Koki manual stages. Elimination of knobs saves space and prevents inadvertent operation.

- The screw bushing has a lock mechanism.
- The flat-type tip is compatible with Sigma Koki manual stages and holders, enabling specification changes.
- Use a hex wrench with knob (KCL) or your hex wrench for adjustment.

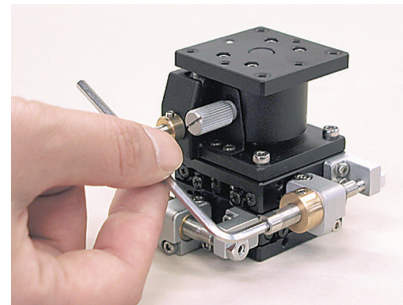


Guide

- ▶ Can be purchased assembled with manual stage. Contact our International Sales Division for more information.

Attention

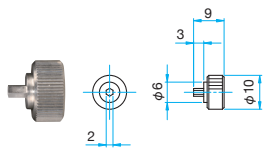
- ▶ Consider the object before replacing the flat-type tip with the R-type tip.



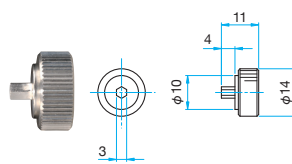
Example of combination with stage

Hex Wrench with Knob

KCL-203



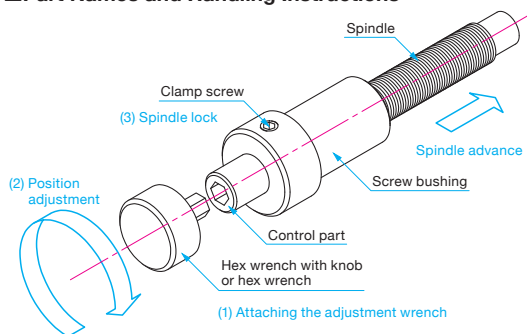
KCL-304



Specifications

Part Number	Compatible Products
KCL-203	FPSA-42525(R)
KCL-304	FPSA-62540(R)/FPSA-62550(R)/FPSA-62555(R)

Part Names and Handling Instructions



- (1) Attaching the adjustment wrench**
Attach the hex wrench or hex wrench with knob.
- (2) Position adjustment**
Adjust the position by turning the wrench.
- (3) Spindle lock**
Lock the spindle with the clamp screw.

Hex wrench used

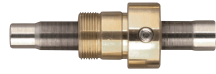
Part Number	FPSA-42525(R)	FPSA-62540(R)/62550(R)/62555(R)
Control Part	Wrench size for adjustment: B=2	Wrench size for adjustment: B=3
Clamp Lock	Wrench size for clamp: B=1.5mm	



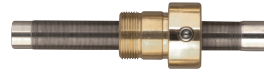
Length 25mm



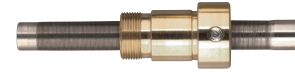
Length 40mm



Length 50mm

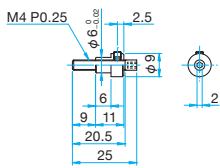


Length 55mm

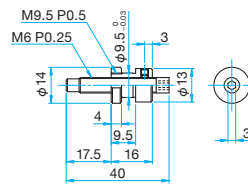


Tip Shape/Flat Type

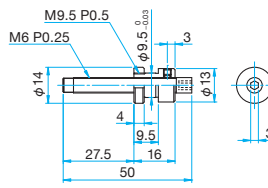
FPSA-42525



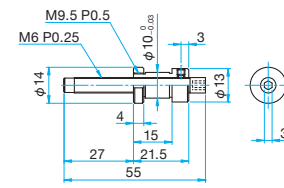
FPSA-62540



FPSA-62550



FPSA-62555

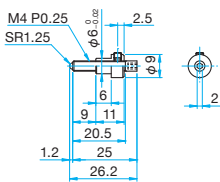


Specifications

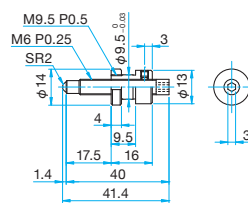
Part Number	Screw	Pitch [mm]	Length [mm]	Bush Diameter [mm]	Bush Length [mm]	Load Capacity (Static load) [N]	Weight [kg]
FPSA-42525	M4	0.25	25	6.0	6.0	29.4 (3kgf)	0.005
FPSA-62540	M6	0.25	40	9.5	5.5	39.2 (4kgf)	0.019
FPSA-62550	M6	0.25	50	9.5	5.5	39.2 (4kgf)	0.021
FPSA-62555	M6	0.25	55	10.0	11.0	39.2 (4kgf)	0.025

Tip Shape/R Type

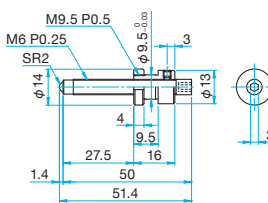
FPSA-42525R



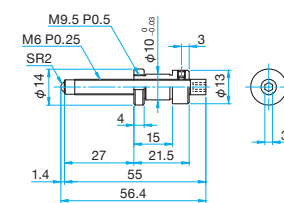
FPSA-62540R



FPSA-62550R



FPSA-62555R



Specifications

Part Number	Screw	Pitch [mm]	Length [mm]	Bush Diameter [mm]	Bush Length [mm]	Load Capacity (Static load) [N]	Weight [kg]
FPSA-42525R	M4	0.25	26.2	6.0	6.0	29.4 (3kgf)	0.005
FPSA-62540R	M6	0.25	41.4	9.5	5.5	39.2 (4kgf)	0.019
FPSA-62550R	M6	0.25	51.4	9.5	5.5	39.2 (4kgf)	0.021
FPSA-62555R	M6	0.25	56.4	10.0	11.0	39.2 (4kgf)	0.025

Application Systems

Optics & Optical Coatings

Holders

Bases

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Differential Micrometer Heads

Fine-pitch Screws

Remote

PKA

OptMike

ACT

Remote Actuator Remote Controller

SGDC
SRC

SGDC

RoHS

CE

Catalog Code

W8016

It is a low cost actuator equipped with a DC motor of a small size and high thrust force. It is compatible with micrometer head using the manual stage of Sigma Koki and can be easily automated.

- A customer can remove the micrometer head on its own and replace with the remote actuator.
- It is possible to select the movement amount of 13mm and 25mm depending on the application.
- Since USB interface is a standard feature, it can easily be operated from the PC.
- Since the remote control is possible, it can also be used in a hard place to work as well as a narrow place.
- The speed can be adjusted while driving. * Adjust by variable speed knob and I/O



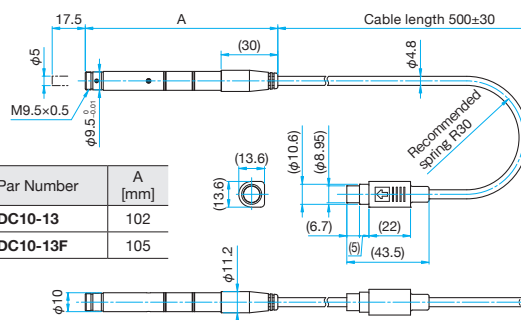
Attention

- ▶ When replacing the micrometer head with the remote actuator, micro nut is required in order to remove the micro. Please contact our international sales division, if the micro nut is required.
- ▶ Please be careful when handling cable. Shock, compression, bending, twisting, tensile bring to the disconnection of the cable.



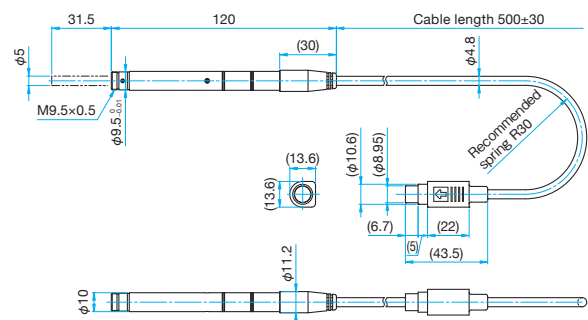
Outline Drawing

SGDC-10-13/13F



Par Number	A [mm]
SGDC10-13	102
SGDC10-13F	105

SGDC10-25



Specifications

Sensitivity (resolving power)	Under 0.1μm for reference
Lead of Screw	M3 P=0.5mm
Backlash	<0.03mm
Motor Type	DC motor (DC6V)
Temperature of Operation	5 – 40°C
Ambient Humidity	20 – 80%RH (no condensation)
Length of Cable	0.5m

Specifications

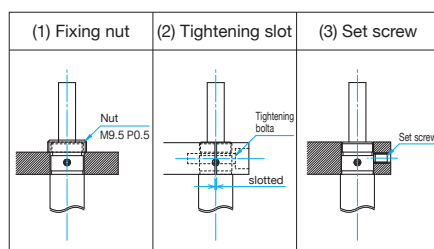
Par Number	Travel [mm]	Travel Speed* ¹ [mm/s]	Thrust Force* ² [N]	Weight [kg]
SGDC10-13	17.5	1	>29.5 (3kgf)	0.06
SGDC10-13F	17.5	0.2	>68.6 (7kgf)	0.06
SGDC10-25	31.5	1	>29.5 (3kgf)	0.08

*1 It is the guaranteed value for maximum speed. The speed can be adjusted.

*2 It is the guaranteed value at the maximum speed setting on the controller. Please be careful that the maximum thrust force can be over 20kgf.

Method of fixation

There are three methods of fixing for the actuator. When installing the unit, we recommend Fixing Nut method with the nut (M9.5×0.5).



Mounting methods (ex. TSD-601S)

Compatible with most manual translation stages



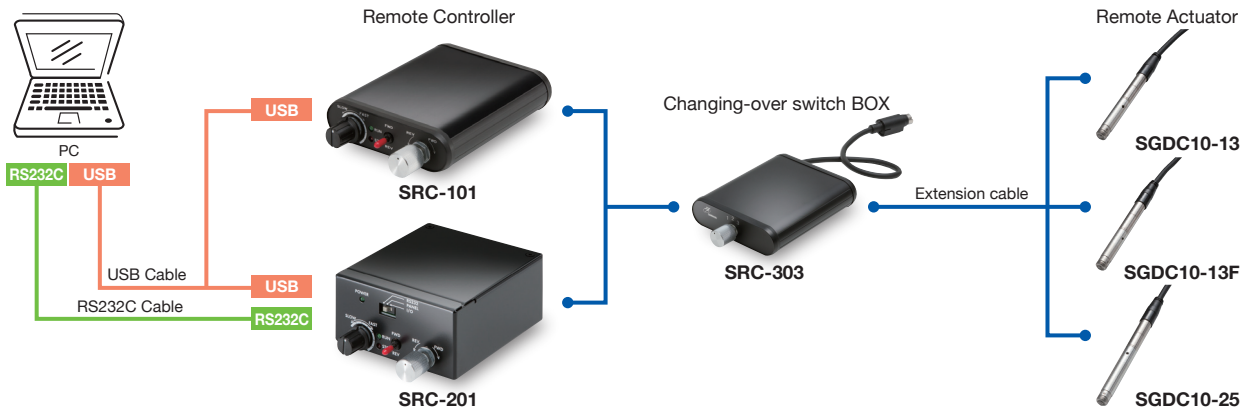
Easy conversion



1. Fixing a stage to tighten the Clamp screw of the stage.
2. Use the Allen wrench and remove the bracket from the stage.
3. Set screw is removed with Allen wrench and nut is removed with Nut driver. Micrometer can be removed.
4. Remote actuator is inserted and it fixes with Set screw and Nut. Please attach to direction of motor cable or twist of cable carefully.
5. A remote actuator is attached to a stage.

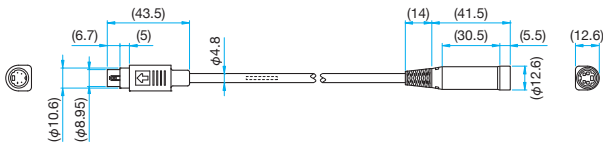
* Please attach a stage and an actuator in parallel.

System Chart



Option Extension cable

MDC-4-2/3/5



Specifications

Par Number	Product Name	Length of Cable [m]
MDC-4-2	Extension cable	2
MDC-4-3	Extension cable	3
MDC-4-5	Extension cable	5
USB/MINI-B-2	USB cable	2

SRC

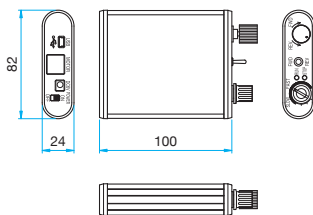
RoHS CE Catalog Code W8017



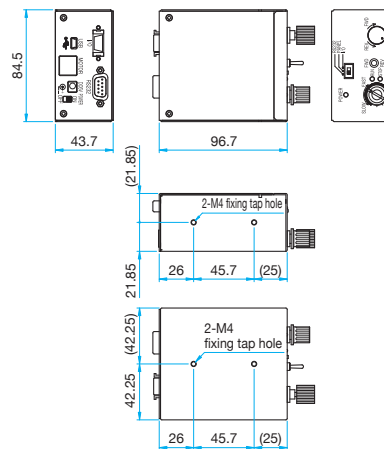
Outline Drawing

* excluding protrusions

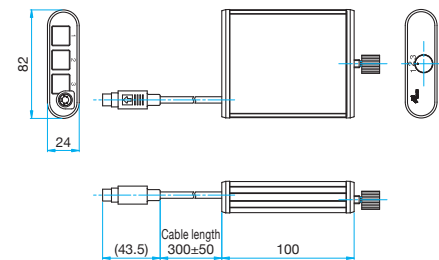
SRC-101



SRC-201



SRC-303



Specifications for SRC-101/201

Number of Controlling Axis	1 axis
Source Voltage	DC6V
Apparent Power	30VA
AC adaptor	AC100 – 240V ±10%
Drive System	PWM Control
Limit Sensor	Overload Detection Style
Motor type	DC motor (DC6V)
Temperature of Operation	5 – 40°C
Storage Temperature	20 – 80%RH (no condensation)
Control Switch	–20°C – 60°C
Control Switch	Shift Transmission, Micromotion, JOG

Specifications

Par Number	Interfaces	Control Signals	Weight [kg]
SRC-101	USB	–	0.15
SRC-201	USB, RS232C	Input Signals 6, Output Signals 4	0.38
SRC-303	–	–	0.15

Ultrasonic Motor Driven Actuator Guide

High resolution and high-speed motion ultrasonic motor driven actuator, allowing remote control. Compact shape with silent activation.

Friction activation system enables position-holding function when power is OFF.



Features

■ Compact

Smaller motors are used compared to electromagnetic motors, enabling configuration of compact systems. These actuators are approximately the same size as manual types and allow remote control, making them suitable for position adjustment in compact spaces.

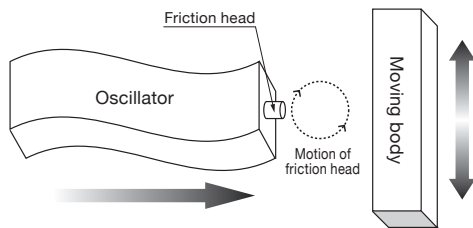
■ Fine Adjustment

The SPD SEL HI/LOW selection switch of the 2-axis controller (PKA-ID-02) allows switching between coarse drive and fine drive to make fine angle and position adjustment smoothly.

■ Silent Operation

Since the PKA series uses ultrasonic motors, the driving sound is extremely quiet, only a friction sound comes out.

Drive System



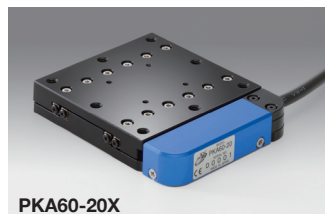
The PKA series uses the ultrasonic motor drive system, in which the stage and actuator are powered by friction drive. It drives the table face by controlling the oscillator so that the tip of ultrasonic motor (friction head) moves in a circular orbit, and moving the pressure contacted moving object.

Translation Stages

- Stage type actuator utilizing a cross roller guide with excellent rigidity and straightness.
- While the drive source is a small ultrasonic motor, high load capacity of 20N is ensured.
- Two table sizes, □40mm and □60mm, are available.



PKA40-15X



PKA60-20X

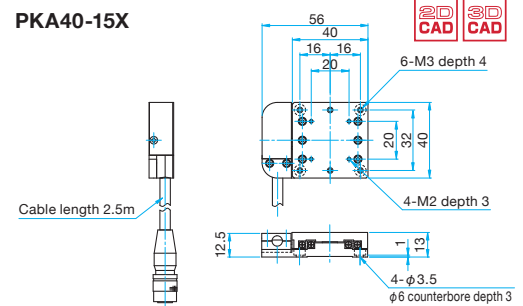
Specifications

Part Number	PKA40-15X	PKA60-20X
Table Size [mm]	40×40	60×60
Travel [mm]	15	20
Resolution [μm]	2 or lower	2 or lower
Holding Power [N]	1	1
Load Capacity [N]	20 (about 2kgf)	20 (about 2kgf)
Weight [kg]	0.1	0.2

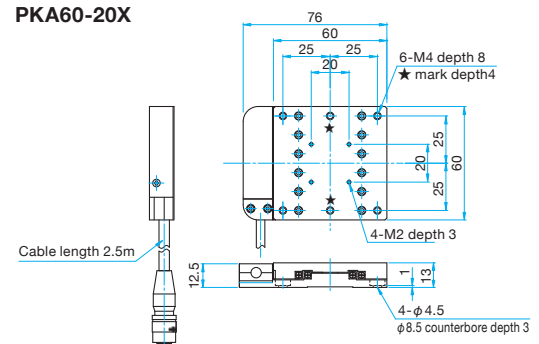
Catalog Code W8009

Outline Drawing

PKA40-15X

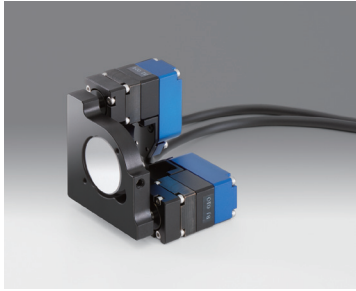


PKA60-20X



Remote Control Mirror Holder

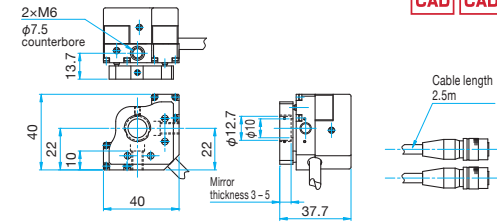
Catalog Code **W8010**



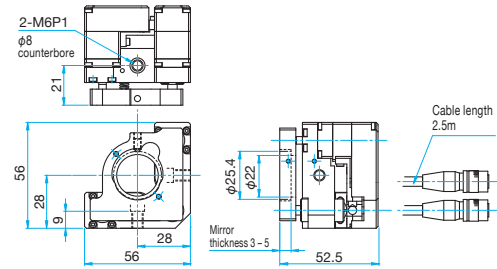
- Compact ultrasonic motor driven actuator mounted on high stability model mirror holders (MHG series).

Outline Drawing

PKA-12.7MH



PKA-25.4MH



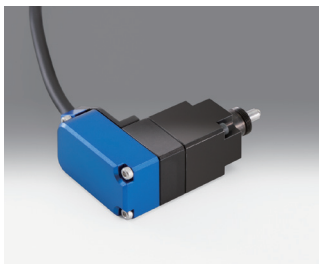
Specifications

Part Number	PKA-12.7MH	PKA-25.4MH
Compatible Optics Diameter [mm]	φ12.7	φ25.4
Compatible Optics Thickness [mm]	3 – 5	3 – 5
Number of Adjustable Axes	2	2
Travel [°]	±2.5	±3
Resolution [″]	2.0 or lower	0.5 or lower
Weight [kg]	0.2	0.4

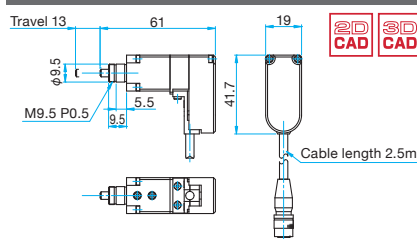
Compact Actuator

Catalog Code **W8011**

- High thrust force produced by using ball screw design.
- Can be used to automate manual stages by replacing manual micrometer heads (travel: 13mm).
- High speed motion (about 0.5mm/sec)



Outline Drawing



Specifications

Part Number	PKA-13ACT
Travel [mm]	13
Resolution [μm]	1 or lower
Holding Power [N]	30
Maximum Travel Speed [mm/s]	0.5 or more
Weight [kg]	0.2

2-Axis Controller

Catalog Code **W8012**



- Easy to manually control with jog sticks.
- Automatic control is possible by issuing simple commands from a PC connected via RS232C.

Guide

- ▶ Compatible with the measurement and control software SGTERRM and SGEMCS. [Reference](#) G024, G025
- ▶ Sample programs are available for download on the website.
 - SGCommander 32-bit version for Windows® (only for RS232C)
 - SGCommander 32/64-bit version for Windows® (only for RS232C)

Attention

- ▶ Power supply of the PKA-ID-02 is DC24V 1.8A. You need to purchase the PAT-001-POW1 (AC adapter) or prepare an adapter separately.

List of Commands

Command Name	Command	Details
Absolute coordinate pulse set command	A	Specifies the absolute coordinate value.
Absolute travel pulse set command	M	Specifies the absolute travel.
Drive command	G	Starts driving.
Theoretical origin return command	N	Returns to the theoretical origin.
Stop command	L	Stops travel.
Theoretical origin setting command	R	Resets the coordinate value.
Status check command	Q	Returns the status of coordinate value, etc.
Status check command 2	!	Returns B (Busy) or R (Ready).
Internal information check command	?	Returns the internal information.
Speed setting command	S	Sets the pulse per step when the SPDSEL switch is set to LOW.

Specifications

Part Number	PKA-ID-02
Number of Adjustable Axes	2
Interface	RS232C
Manual Operation	Jog stick
Power Voltage	DC24V 1.8A
Current Consumption [A]	1.8
Outer Dimensions [mm]	(W)50 × (D)142 × (H)100
Weight [kg]	0.53

OptMike with Encoder OptMike-E (B type) Controllers

SOM-C
OMEC

SOM-C

RoHS Catalog Code W8013

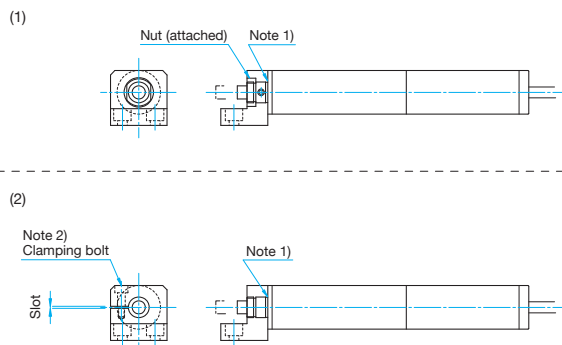
Motorized positioning micrometer heads fitted with an actuator whose lead screw is connected to a compact and highly efficient DC motor, encoder and high resolution gear head, achieving smooth operation with no vibration. Compatible with micrometer heads used on Sigma Koki manual stages, making it easy to motorize them.

- Embedded micro photo sensor enables limit/origin positioning by micron units.
- Encoder is set at the front of the motor instead of rear, there is no integration count for lost motion or backlash of gearhead.
- Precision ground lead screw minimizes backlash.



Mounting Methods

OptMike with encoder can be fixed in 2 ways described below. Fixing with a nut as shown in (1) is recommended for secure fixing and higher stability.



Note 1) Chamfer at least 0.5mm on mounting bracket inlet.
Note 2) Make sure not to clamp too hard to avoid the OptMike body getting crooked.

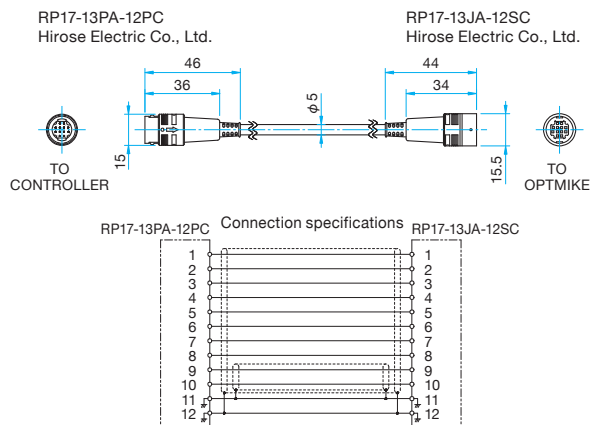
Guide

- ▶ Use the OptMike-E (B type) controllers (OMEC-2BG/4BG) sold separately. [Reference](#) F017
- ▶ Refer to the list of compatible products. [Reference](#) F020

Attention

- ▶ Secure with the attached nut when installing onto device or equipment. Be aware that securing by a set screw with point load (excessive load or tightening) may cause malfunction.

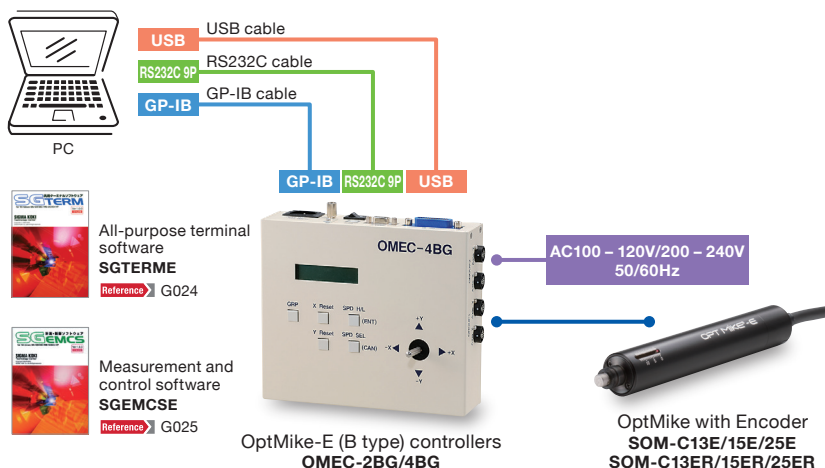
Option Extension Cable for OptMike SOM-BCA



Specifications

Part Number	Cable Length [m]
SOM-BCA5	5
SOM-BCA10	10

System Chart



Example of Combination with Stage



Application Systems

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Actuators

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Micrometer Heads

Differential Micrometer Heads

Fine-pitch Screws

Remote

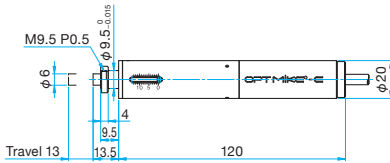
PKA

OptMike

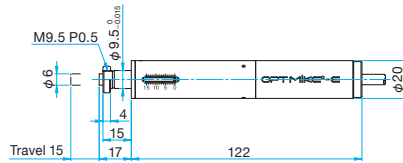
ACT

Outline Drawing

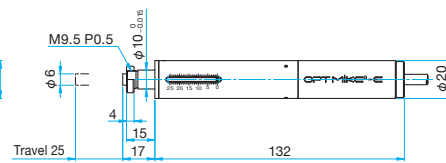
SOM-C13E



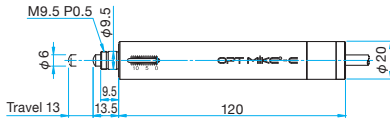
SOM-C15E



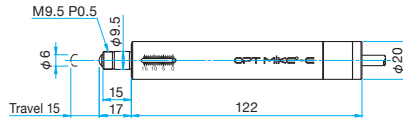
SOM-C25E



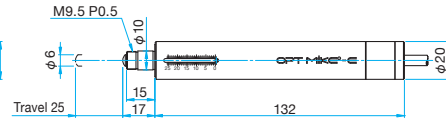
SOM-C13ER



SOM-C15ER



SOM-C25ER



Common Specifications

Maximum Travel [mm/sec]	0.1
Minimum Travel [mm/sec]	0.0015
Positional Repeatability [mm]	0.002
Lost Motion [mm]	0.003
Resolution [mm]	0.001
Thrust [N]	29.4 (3kgf)
Ambient Temperature [°C]	0 – 60
Ambient Humidity [%]	20 – 80
Cable Length [m]	1.3

Specifications

Part Number	Travel [mm]	Tip Shape	Positioning Accuracy [mm]	Weight [kg]
SOM-C13E	13	Flat type	0.012	0.19
SOM-C13ER	13	R type	0.012	0.19
SOM-C15E	15	Flat type	0.012	0.2
SOM-C15ER	15	R type	0.012	0.2
SOM-C25E	25	Flat type	0.015	0.2
SOM-C25ER	25	R type	0.015	0.2

OMEC

Catalog Code W8014

For the OptMike with encoder (SOM-C).
Fitted with RS232C, GP-IB and USB interfaces to allow both automatic control from a PC and manual control with a jog stick.



- Enables control of complex operations by issuing simple commands from a PC via the interfaces.
- Enables reliable and accurate operation with a double-loop positioning system by control system using both speed and position.

Attention

- ▶ The USB interface is compatible only with Sigma Koki's software.
- ▶ This controller is not compatible with Sigma Koki's OptMike without encoder or products of other companies. Connecting such products will interfere with normal operation and may cause malfunction.

Specifications

Part Number	Number of Control Axes [axes]
OMEC-2BG	2
OMEC-4BG	4

General Specifications

Power Voltage	AC100-120V/200-240V 50/60Hz 20VA
Operation Temperature	5 – 40°C
Ambient Humidity	20 – 85%RH (without condensation)
Storage Temperature	-20 – 60°C
External Dimensions	(W)200 × (H)52 × (D)172mm (not including protrusions)
Weight	1.5kg

Performance Specifications

Number of Control Axes	2 axes (2BG) 4 axes (4BG, but maximum 2 axes of the same group for simultaneous drive)
Coordinate Set Range	±32,767
Travel Speed	1.5 – 100µm/sec
Travel Speed Setting	32 steps
Pulse Travel Distance	1µm/pulse

Interface Specifications

RS232C	Connector	D-Sub 9pin, female connector, inch screw
	Baud rate	4800/9600/19200/38400
	Data length	8 bits
	Parity	None
	Stop bit	1 bit
GP-IB	Setting address	1 – 30
	Delimiter	CR + LF/CR/LF/EOI
USB	Full Speed mode is supported	
	Delimiter	CR

Driver

Compatible Motor	Coreless DC servo motor
Overload Detection (overcurrent detection)	Equipped
Encoder Signal	A/B-phase, 1µm/pulse by duplexing on the driver side
Limit Sensor	+limit and -limit (The direction in which the spindle is pulled is "-")
Polarity	Normal close

List of Commands

Command Name	Command	Functions
Machine origin return	H	Returns to the machine origin.
Theoretical origin setting	R	Clears the coordinates of current position.
Speed setting	D	Sets the travel speed.
Relative travel drive	M	Relative position travel drive
Absolute travel drive	A	Absolute position travel drive
Stop	L	Stops OptMike travel.
Theoretical origin return	N	Returns to the theoretical origin.
Control command	X	Sets lost motion.
Device status check	Q	Checks the OptMike coordinates.
Checks the controller status.	?	Checks the controller status.

Compact Stepping Motor Actuators | SGSP-ACT

Low price actuator fitted with a high-performance compact stepping motor and precision ground screws. Use in place of micrometer heads on Sigma Koki manual stages or mirror holders to motorize them.

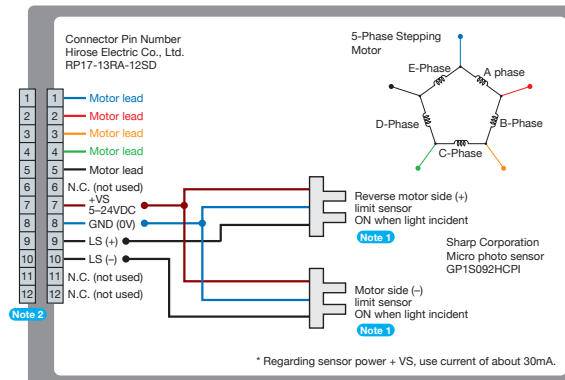


- Compatible with all Sigma-Koki stepper motor controllers.
- Models for 13mm and 25mm travel are available.

Guide

- ▶ Refer to the list of compatible products. [Reference](#) F020
- ▶ Custom tapped tips can be supplied. Contact our International Sales Division for more information.
- ▶ Recommended controllers include the single axis stage controller (GSC-01) and 2 axis stage controllers (GSC-02). [Reference](#) G098, G099

Schematic



Note 1 The limit sensor on the motor side is the minus limit sensor. Motorized stages are not fitted with origin and origin proximity sensors. Limit sensors are used as origin detection sensors.

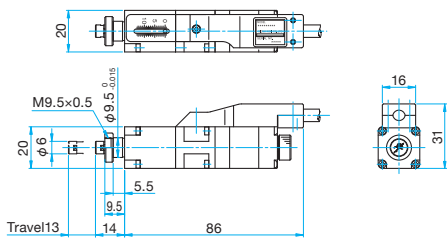
Note 2 Compatible cable connector: Hirose Electric Co., Ltd. RP17-13PA-12PC/RP17-PC-122



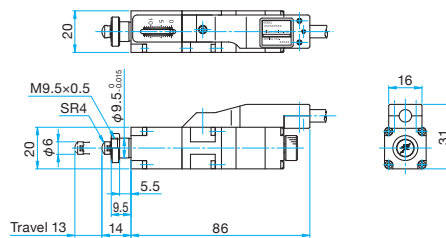
Common Specifications	
Single-Pulse Travel [μm] (full step/half step)	1/0.5
Type	5-phase stepping motor 0.35A/phase (Oriental Motor Co., Ltd.)
Motor Part Number	PK513PB-C9 (□20mm)
Feed screw [mm]	Precision ground screw φ4, 0.5mm lead

Outline Drawing

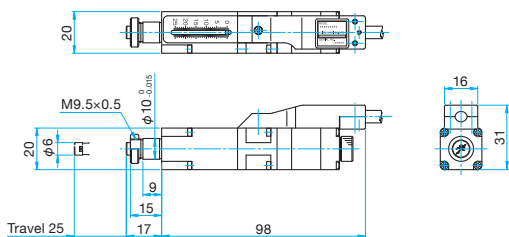
SGSP-13ACT-B0



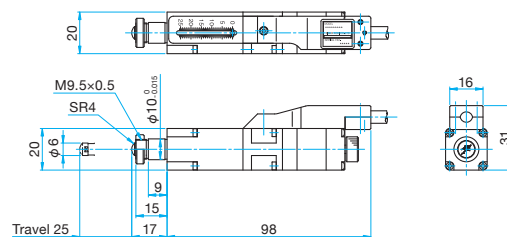
SGSP-13ACTR-B0



SGSP-25ACT-B0

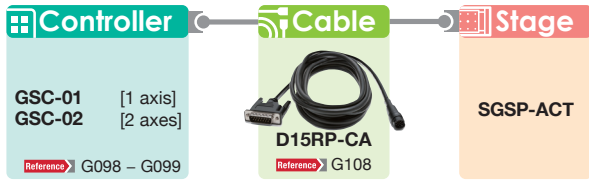


SGSP-25ACTR-B0

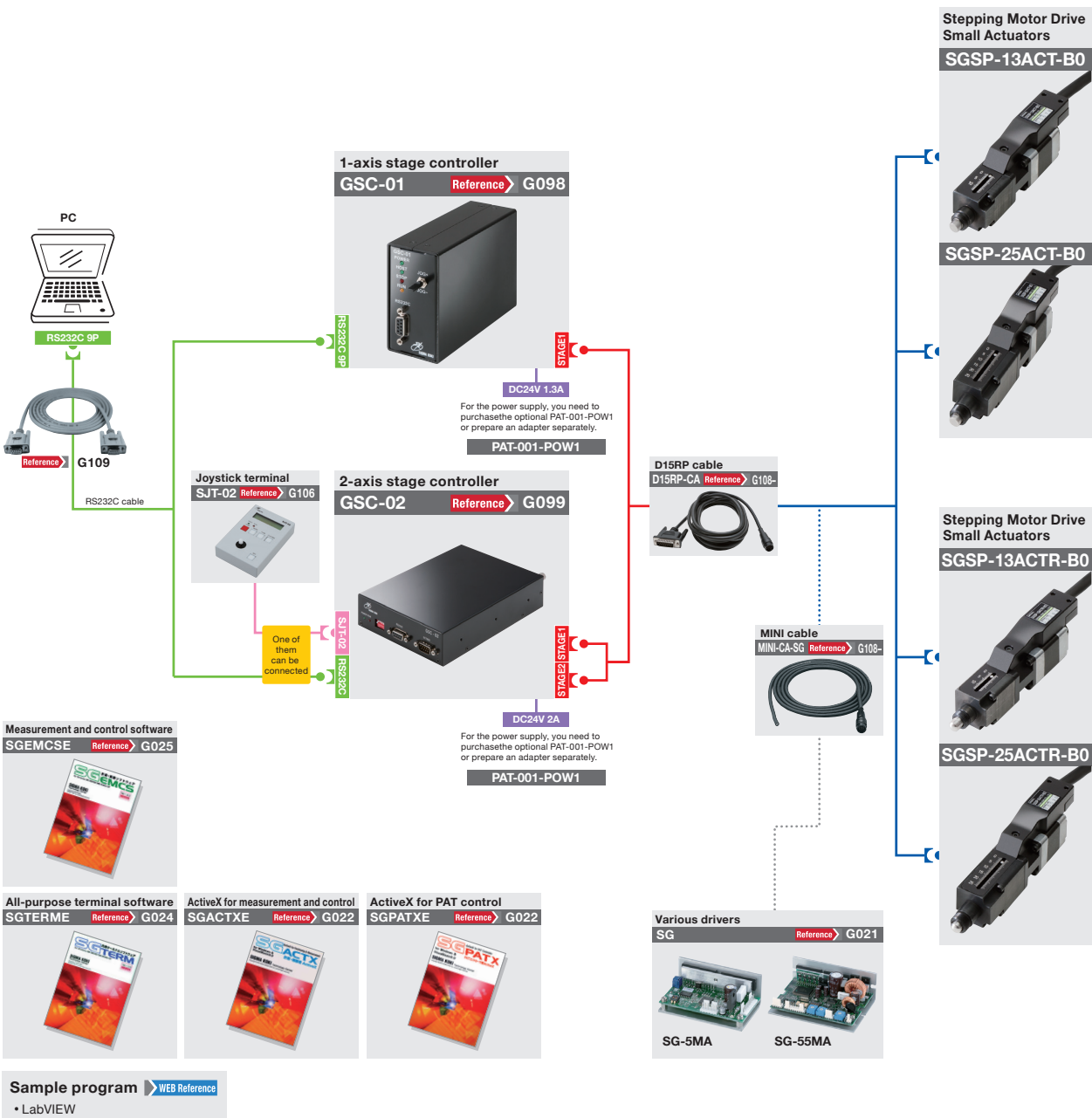


Part Number	Tip Shape	Travel [mm]	Maximum Travel [mm/sec]	Positioning Accuracy [mm]	Positional Repeatability [mm]	Lost Motion [mm]	Load Capacity (Static load) [N]	Weight [kg]
SGSP-13ACT-B0	Flat type	13	2	0.01	0.003	0.005	29.4 (3kgf)	0.16
SGSP-13ACTR-B0	R type	13	2	0.01	0.003	0.005	29.4 (3kgf)	0.16
SGSP-25ACT-B0	Flat type	25	2	0.015	0.003	0.005	29.4 (3kgf)	0.18
SGSP-25ACTR-B0	R type	25	2	0.015	0.003	0.005	29.4 (3kgf)	0.18

Compatible Controllers / Drivers and Cables



System Chart



- Application Systems
- Optics & Optical Coatings
- Holders
- Bases
- Manual Stages

Actuators

- MotORIZED Stages
- Light Sources
- Index
- Micrometer Heads
- Differential Micrometer Heads
- Fine-pitch Screws
- Remote
- PKA
- OptMike

ACT

List of Products Compatible with SOM-C and SGSP-ACT

List of Products Compatible with SOM-C13E

Gimbal Mirror Holders (MHAN) [Reference](#) C026

MHAN-25.4S	MHAN-30S	MHAN-40S
MHAN-50S	MHAN-50.8S	MHAN-60S
LMHA-30	LMHA-50	

Topmike Vertical Control Mirror Holders (LMHB) [Reference](#) C024

LMHB-30M	LMHB-50M	LHMB-60M
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Close-proximity Mirror Holders (MHE) [Reference](#) C029

MHE-30MR	MHE-30ML
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Steel Extended Contact Slide Stages (TSD) [Reference](#) Chapter E Manual Positioners

TSD-401C	TSD-401S	TSD-402C	TSD-402S				
TSD-403L	TSD-405CL	TSD-405SL					
TSD-601C	TSD-601S	TSD-602C	TSD-602S				
TSD-603	TSD-603L	TSD-604C	TSD-604S	TSD-605CL	TSD-605S	TSD-605C	TSD-605SL

Aluminum Crossed Roller Slide Stages (TAM) [Reference](#) Chapter E Manual Positioners

TAM-401C	TAM-401S	TAM-402C	
TAM-403L	TAM-404CL	TAM-404SL	TAM-405CL
TAM-601C	TAM-601S	TAM-602C	TAM-602S
TAM-603L	TAM-604CL	TAM-604SL	TAM-605CL

List of Products Compatible with SOM-C15E

Aluminum Crossed Roller Slide Stages (TAM) [Reference](#) Chapter E Manual Positioners

TAM-801C	TAM-801S	TAM-802C	TAM-802S	TAM-803L
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List of Products Compatible with SOM-C25E

Steel Extended Contact Slide Stages (TSD) [Reference](#) Chapter E Manual Positioners

TSD-801C	TSD-801S	TSD-802C	TSD-802S
TSD-1001C	TSD-1001S	TSD-1002C	TSD-1002S

Aluminum Crossed Roller Slide Stages (TAM) [Reference](#) E056

TAM-1001C	TAM-1001S
TAM-1002C	TAM-1002S

List of Products Compatible with SGSP-13ACT-B0

Gimbal Mirror Holders (MHAN) [Reference](#) C026

MHAN-25.4S	MHAN-30S	MHAN-40S
MHAN-50S	MHAN-50.8S	MHAN-60S

Topmike Vertical Control Mirror Holders (LMHB) [Reference](#) C024

LMHB-30M	LMHB-50M	LHMB-60M
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Steel Extended Contact Slide Stages (TSD) [Reference](#) Chapter E Manual Positioners

TSD-401C	TSD-401S	TSD-402C		
TSD-403L	TSD-404CL	TSD-404SL	TSD-405CL	
TSD-601C	TSD-601S	TSD-602C	TSD-603	TSD-603L
TSD-604C	TSD-604S	TSD-604CL	TSD-604SL	
TSD-605C	TSD-605CL			

Aluminum Crossed Roller Slide Stages [Reference](#) Chapter E Manual Positioners

TAM-401C	TAM-401S	TAM-402C	
TAM-403L	TAM-404CL	TAM-404SL	TAM-405CL
TAM-601C	TAM-601S	TAM-602C	TAM-602S
TAM-603L	TAM-604CL	TAM-604SL	TAM-605CL
			TAM-605SL

List of Products Compatible with SGSP-25ACT-B0

Steel Extended Contact Slide Stages (TSD) [Reference](#) Chapter E Manual Positioners

TSD-801C	TSD-801S	TSD-802C	
TSD-1001C	TSD-1001S	TSD-1002C	TSD-1002S

Aluminum Crossed Roller Slide Stages (TAM) [Reference](#) E056

TAM-1001C	TAM-1001S
TAM-1002C	TAM-1002S

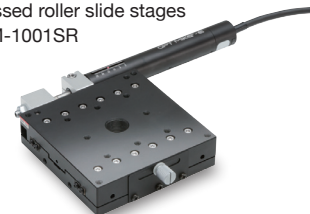
● Combined with gimbal mirror holder
MHAN-25.4S



● Combined with steel extended
contact slide stage
TSD-601S



● Combined with aluminum
crossed roller slide stages
TAM-1001SR



● Combined with steel extended
contact slide stage
TSD-403L



Guide

- ▶ Contact our International Sales Division for price and lead time.
- ▶ We will accept assembly separately. Contact our International Sales Division for more information.

Application Systems

Optics & Optical Coatings

Holders

Bases

Manual Stages

Actuators

Motorized Stages

Light Sources

Index

Micrometer Heads

Differential Micrometer Heads

Fine-pitch Screws

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OptMike

ACT