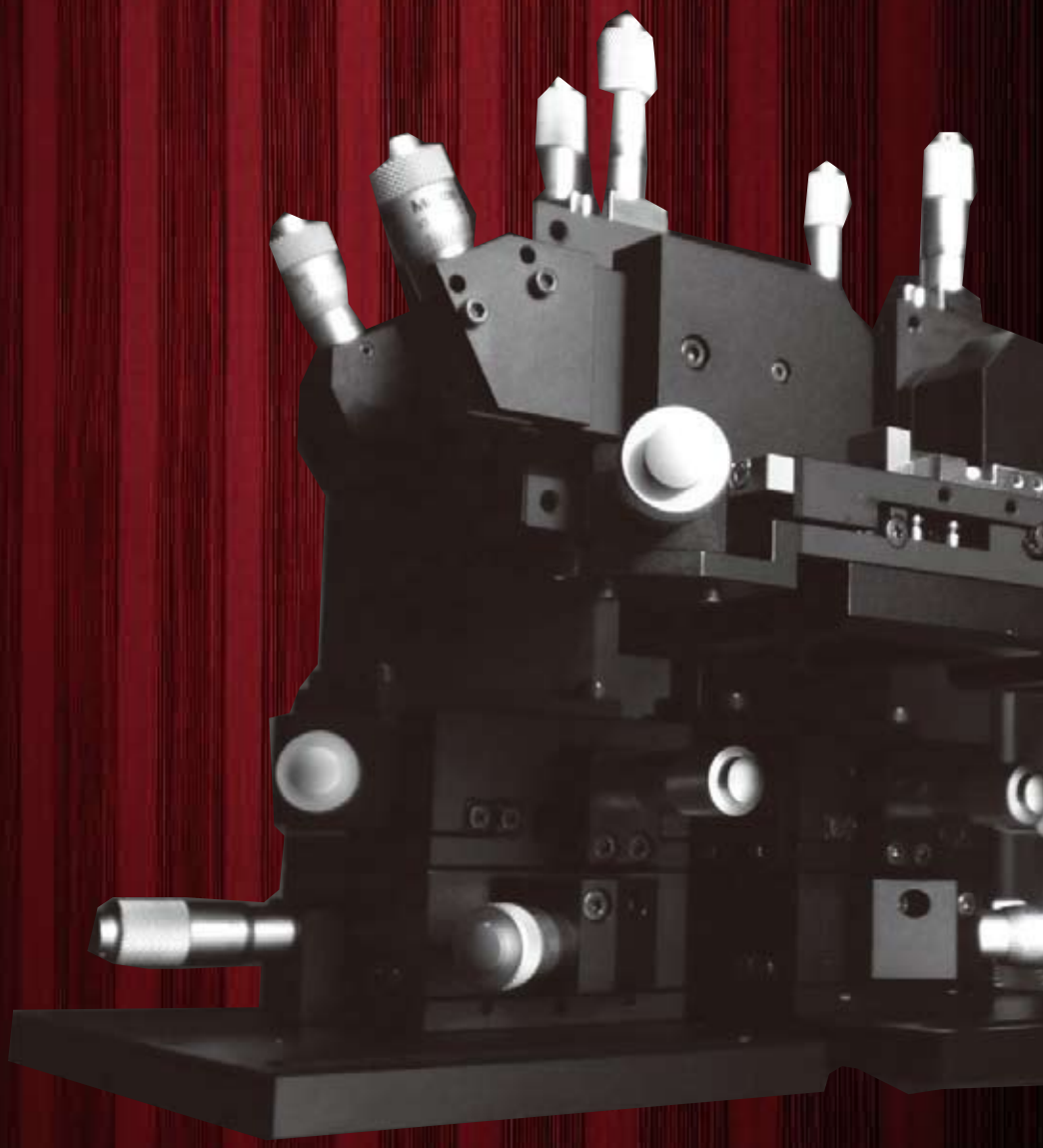
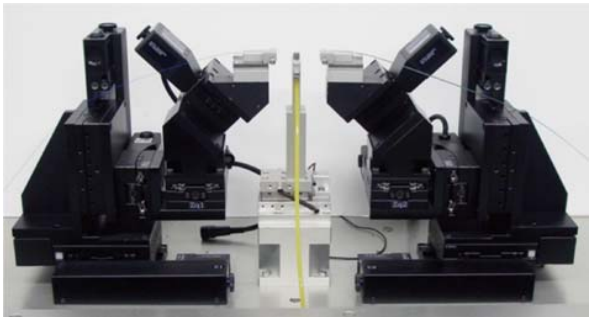
Alignment Systems



Guidance



■ By combination of high accuracy manual and motorized stages and the software with our dedicated design, we can propose the optimal alignment system to meet customer‘s requests.

■ We can also provide not only as a single device but also one unit, and even for parts.

■ By taking advantage of the accumulated know-how for many years as an optical equipment manufacturer, we can respond to a wide range of the needs from production equipment to experiment applications. In addition, we can propose the valuable solution to suitable our customer‘s projects.

■ Maintenance and repair are easy because many parts for the system are selected and used from our standard of our lineup.

Configuration

- Application
  - TOSA/ROSA Assembly Equipment
  - Waveguide Alignment and Evaluation Equipment
  - Lens Array and Fiber Array Assembly Equipment
  - CWDM Module Assembly Equipment
  - Fiber Alignment and Evaluation Equipment
  - Optical Switch Assembly Equipment
  - Assembly Equipment for Pitch Conversion Component of Tape Fiber
- System
  - YAG Laser Welding Automatic Alignment System
  - 12-Axis Automatic Alignment System
- Unit
  - Motorized Stage
    - 12-Axis Automatic Alignment Unit
    - 10-Axis Automatic Alignment Unit
    - 3-Axis Automatic Xy θ unit
  - Alignment Unit
    - 12-Axis Manual Alignment Unit
    - 10-Axis Manual Alignment Unit
    - 8-Axis Manual Alignment Unit
    - 6-Axis Manual Alignment Unit
    - 6-Axis Manual Alignment Unit
  - Manual Stage
  - Alignment Unit
- Components
  - Controller Unit
    - Motorized Linear Stage
    - Motorized Gonio Stage
    - Motorized Rotation Stage
  - Driver unit
    - Manual Linear Stage
    - Manual Gonio Stage
    - Manual Tilt Gonio Stage
- Accessory
  - Holder

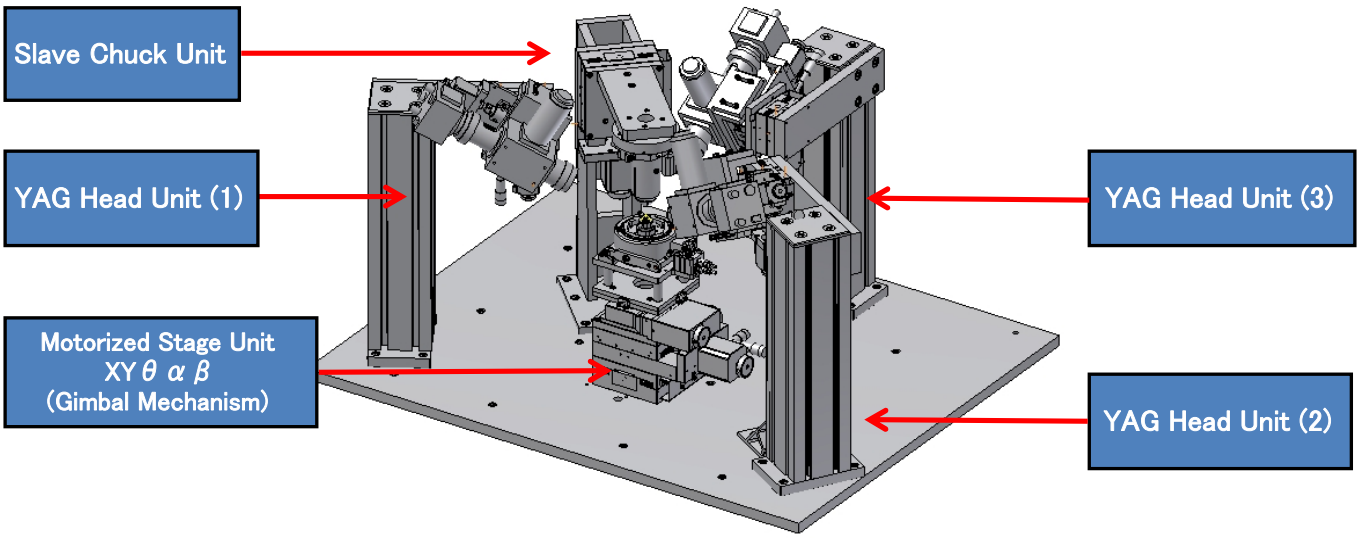
YAG Laser Welding Automatic Alignment System

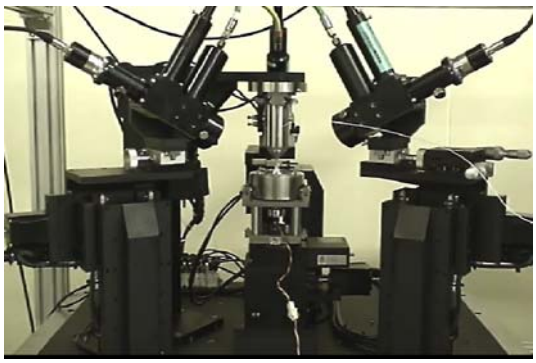
TOSA / ROSA / BOSA Assembly

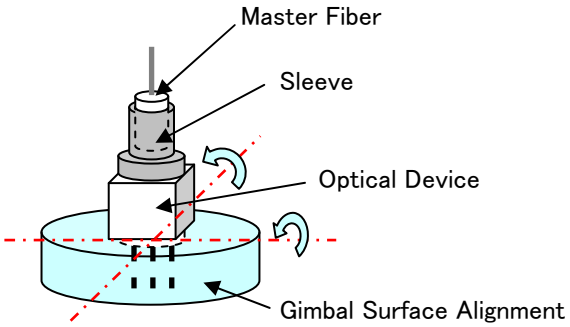
■ Assembly (Alignment) equipment of the active device.
■ Focused on the reliability and cost performance.
■ Each device holder has high reproducibility and it is easy for the attachment and detachment of the device.
■ By replacing each device holder, it is available for the device of the multi-product.
■ Each device holder comes with two types. (Other holder will be quoted separately.)
■ Customers can create freely the most efficient algorithm to match each device.
■ By adoption of gimbaled surface alignment mechanism, the device assembly time is greatly able to be reduced.
■ The operation switch for remote control of various devices is prepared.
■ By combination with a special optical system, since it is available for a ultra-high-speed alignment version, please contact

DAS-01AA

Configuration Example





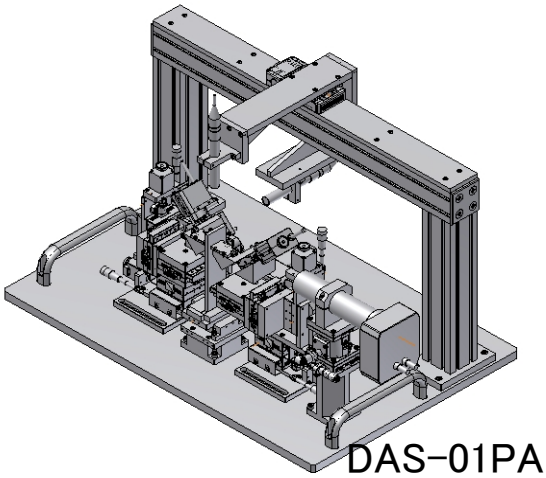


※ The reference value does not include power meter, reference light source, LD controller,
observation system unit, YAG laser or UV light source.
※ The separated expenses are required for shipping, installation, operation training and commissioning.

12-Axis Automatic Alignment System Configuration Guide

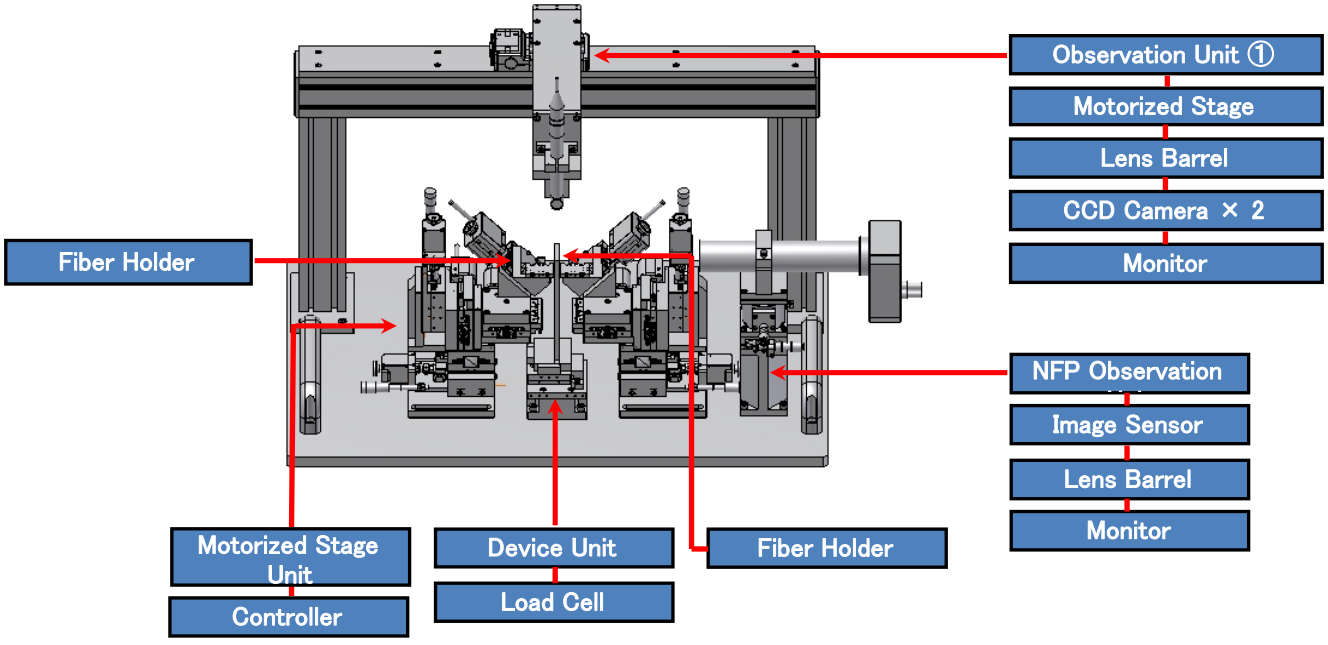
Waveguide (AWG / PLC) Alignment Equipment

■ Assembly (Alignment) equipment of the passive device.
■ Focused on the reliability and cost performance.
■ Each 6-axis unit is arranged on the incident side and outgoing side of the waveguide device, it will do automatic alignment of a variety of devices, evaluation, assembly, etc..
■ Equipped with a touch-sensitive mechanism in the central device holder station,
then, it can control the gap management between the devices and the coating thickness of the UV-curable resin.
■ Also possible for the alignment by the single core fiber array or by single core fiber to fiber, etc.
■ Each device holder can be fixed with magnet, and such fixing type can show a good reproducibility and is easy for attachment and detachment In addition, the assembly cycle is also be shortened because it has adopted a pre-set method.



DAS-01PA

Configuration Example



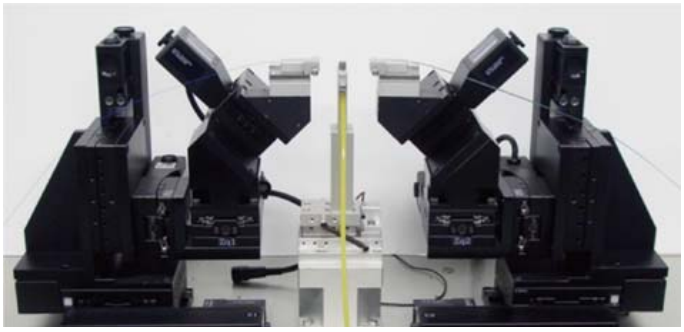
	P/N
Motorized Stage Unit	DAU-080A-0
Observation Unit ①	
NFP Observation Unit	
Device Unit	
Multi-Controller	SMC-16A
Driver Box	SMD-16
Base + Frame	

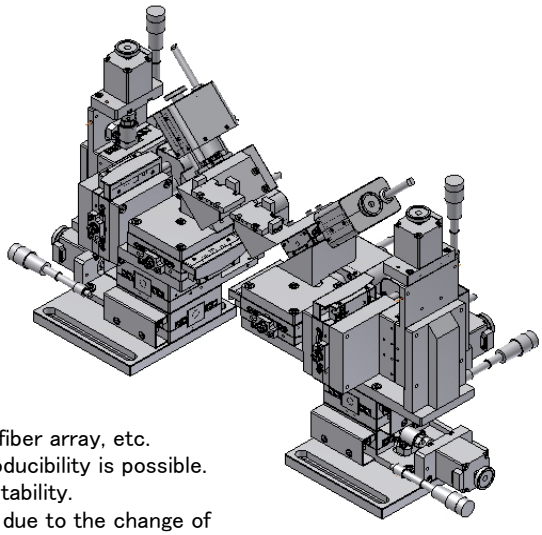
	P/N
Stage Cable	DMINIH-CA-3
GPB Cable	GP-IB-3

※ 1 The reference price does not include measuring instrument, vibration isolation table, light source, holder, etc. Please contact us for more information.
※ 2 Separated expenses are required for shipping, installation, operation training and commissioning.

12-Axis (6-axis) Automatic Alignment Unit

DAU-080A-0/-L/-R

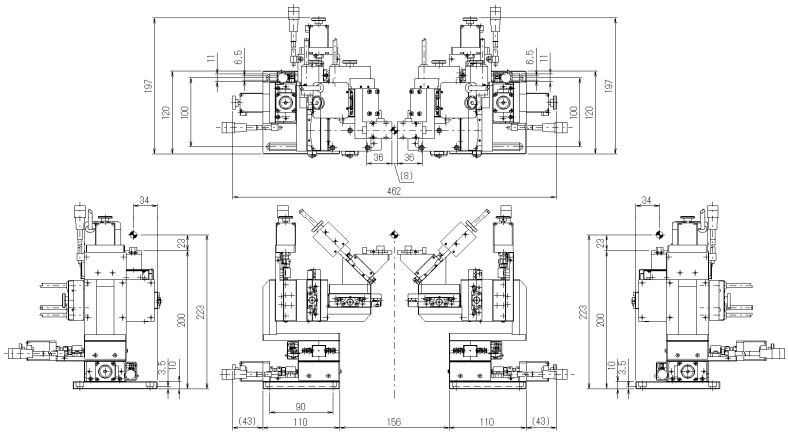




■ 12-axis motorized stage unit with 6-axis symmetric automatic-alignment.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high rigidity and high-performance stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.
(Fiber holder, fiber rotation holder, the fiber array holder, etc.)

SPEC

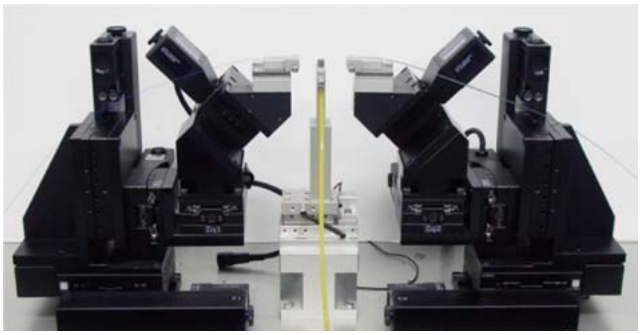
P/N	Axis		X	Y	Z	θx	θy	θz
	P/N		TSMM60-30X/XR			GOHT-60A85/R	GOHT-60A105/R	GOHT-40A60/R
DAU-080A-L	Travel		30mm	30mm	30mm	±9°	±7°	±5°
	Resolution	(Full)	2μm	2μm	2μm	≒0.00229°	≒0.00198°	≒0.0217
		(Half)	1μm	1μm	1μm	≒0.00115°	≒0.00095°	≒0.0108
	Positioning Accuracy		<6μm	<6μm	<6μm	–	–	–
	Positioning Accuracy		<1μm	<1μm	<1μm	<±0.004°	<±0.004°	<±0.004°
DAU-080A-R	Travel		10mm	10mm	10mm	±9°	±7°	±5°
	Resolution	(Full)	2μm	2μm	2μm	≒0.00229°	≒0.00198°	≒0.0217
		(Half)	1μm	1μm	1μm	≒0.00115°	≒0.00095°	≒0.0108
	Positioning Accuracy		<6μm	<6μm	<6μm	–	–	–
	Positioning Accuracy		<1μm	<1μm	<1μm	<±0.004°	<±0.004°	<±0.004°

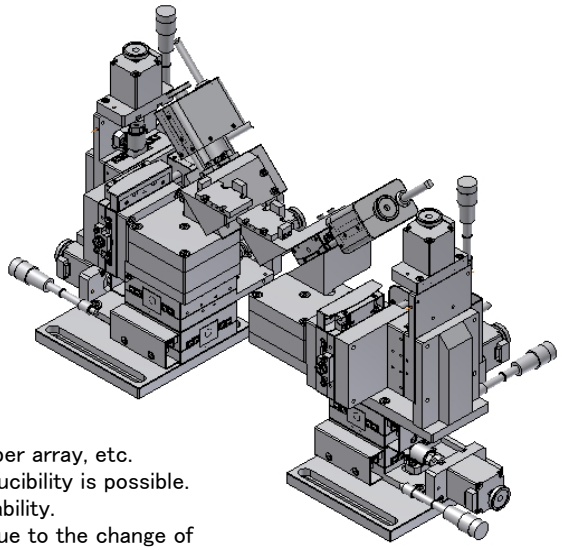


Number of Axis	P/N
12-Axis	DAU-080A-0
6-Axis	DAU-080A-L
6-Axis	DAU-080A-R

10-Axis (5-axis) Automatic Alignment Unit

DAU-070A-0/-L/-R

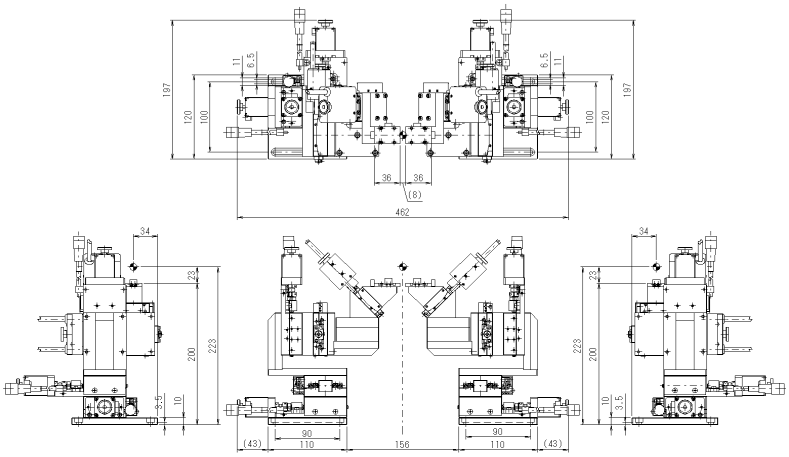




■ 10-axis motorized stage unit with 5-axis symmetric automatic-alignment.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high rigidity and high-performance stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.

SPEC

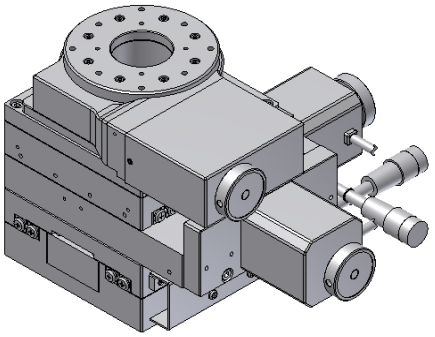
P/N	Axis	X	Y	Z	θx	θy
	P/N	TSMM60-30X/XR			GOHT-60A85/R	GOHT-60A105/R
DAU-080A-L	Travel	30mm	30mm	30mm	±9°	±7°
	Resolution (Full)	2μm	2μm	2μm	≒0.00229°	≒0.00198°
	Resolution (Half)	1μm	1μm	1μm	≒0.00115°	≒0.00095°
	Positioning Accuracy	<6μm	<6μm	<6μm	–	–
	Positioning Accuracy	<1μm	<1μm	<1μm	<±0.004°	<±0.004°
DAU-080A-R	Travel	10mm	10mm	10mm	±9°	±7°
	Resolution (Full)	2μm	2μm	2μm	≒0.00229°	≒0.00198°
	Resolution (Half)	1μm	1μm	1μm	≒0.00115°	≒0.00095°
	Positioning Accuracy	<6μm	<6μm	<6μm	–	–
	Positioning Accuracy	<1μm	<1μm	<1μm	<±0.004°	<±0.004°



Number of Axis	P/N
10-Axis	DAU-070A-0
5-Axis	DAU-070A-L
5-Axis	DAU-070A-R

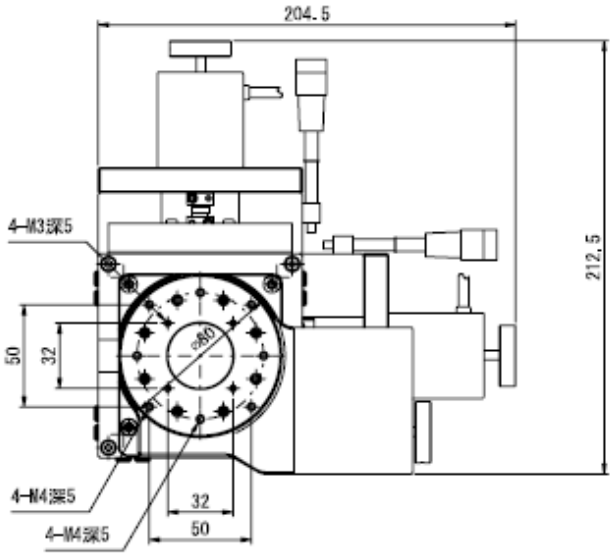
3-Axis Automatic XYθ Unit

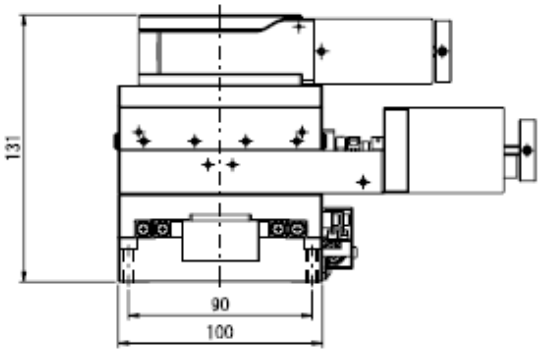
TAMM100-50X/R
SGSP-80YAW

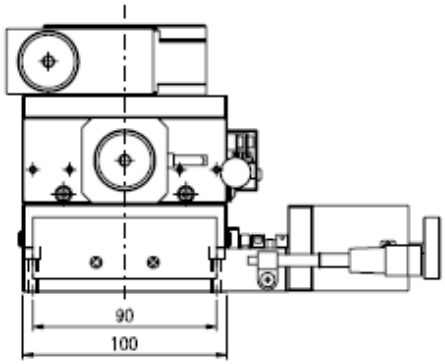


■ 3-axis automatic stage unit of XYθ required for the alignment of TOSA (UV bonded type) / ROSA, etc.
■ Can be mounted YAG welding surface alignment mechanism (gimbal) unit.
■ Effective to use in combination with the Z-axis.
■ With high rigidity and high-performance stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.
(Fiber holder, fiber rotation holder, the fiber array holder, etc.)

Outline Drawing

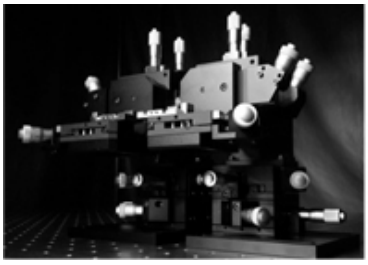


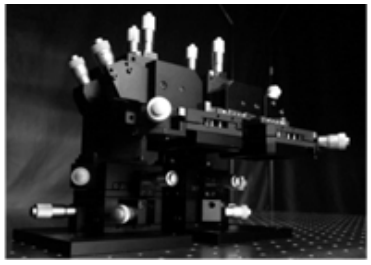


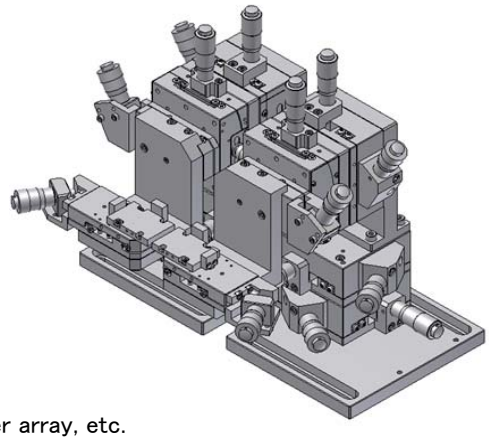


Axis	P/N
X	TAMM100-50XR
Y	TAMM100-50X
θ	SGSP-80YAW
	Total Reference Price

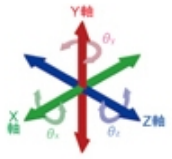
12-Axis (6-axis)
Manual Alignment Unit
DAU-080M-0/-L/-R



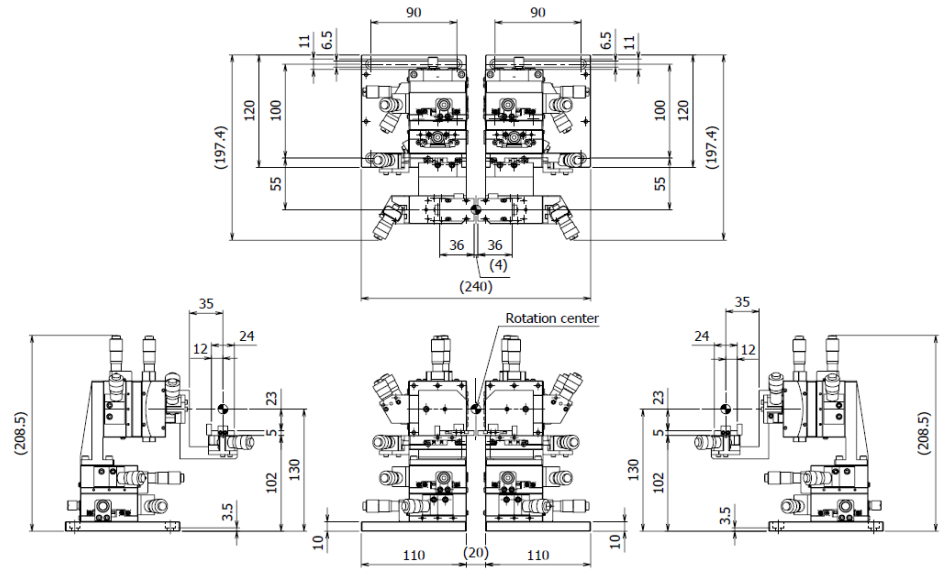




■ 12-axis (6-axis) manual fiber alignment unit.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high resolution stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.



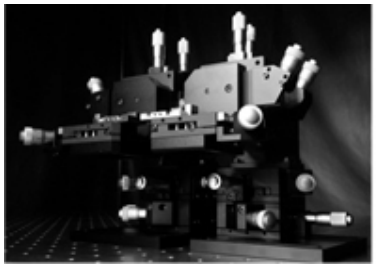
SPEC							
P/N	Axis	X	Y	Z	θx	θy	θz
	P/N	TAMF-601/R			GOHT-36A10 S/SR/SZ/SRZ		GOHT-60A60 BC/BCR
DAU-080M-L	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±2.5°	±2.5°	±5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	27.8″	27.8″	26.8″
DAU-080M-R	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±2.5°	±2.5°	±5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	27.8″	27.8″	26.8″

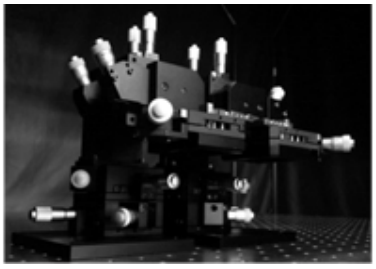


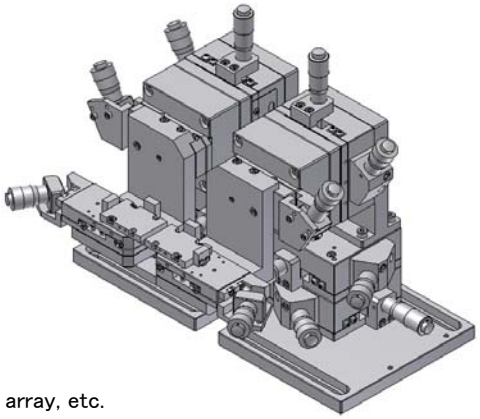
DAU-080M-RM-L　　DAU-080M-RM-R

Number of Axis	P/N
12-Axis	DAU-080M-0
6-Axis	DAU-080M-L
6-Axis	DAU-080M-R

10-Axis (5-axis)
Manual Alignment Unit
DAU-070M-0/-L/-R



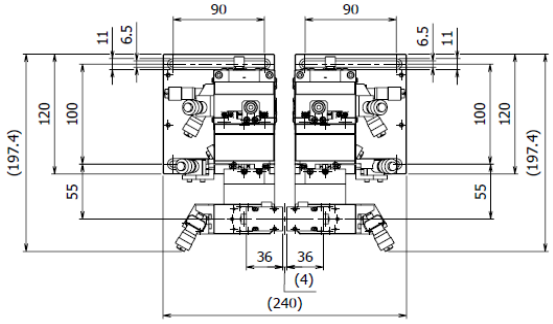


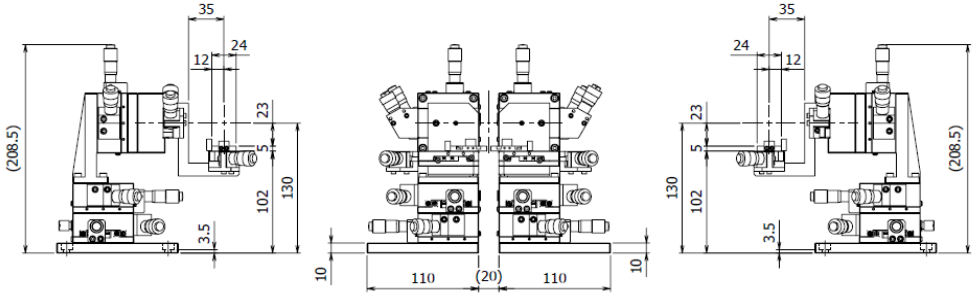


■ 10-axis (5-axis) manual fiber alignment unit.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high resolution stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.
(Fiber holder, fiber rotation holder, the fiber array holder, etc.)

SPEC

P/N	Axis	X	Y	Z	θx	θy
	P/N	TAMF-601/R			GOHT-36A10 S/SR/SZ/SRZ	
DAU-070M-L	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±2.5°	±2.5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	27.8″	27.8″
DAU-070M-R	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±2.5°	±2.5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	27.8″	27.8″



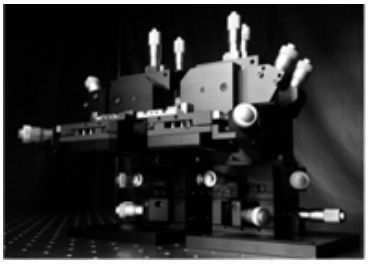


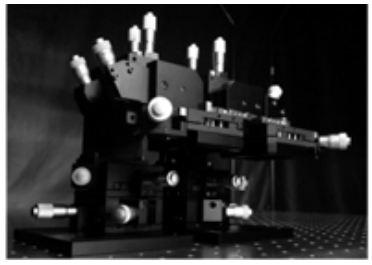
DAU-070M-RM-L

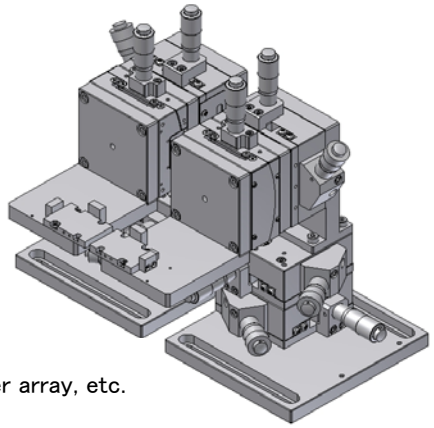
DAU-070M-RM-R

Number of Axis	P/N
10-Axis	DAU-070M-0
5-Axis	DAU-070M-L
5-Axis	DAU-070M-R

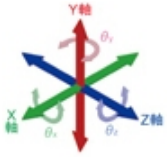
8-Axes (4 axes)
Manual Alignment Unit
DAU-060M-0/-L/-R





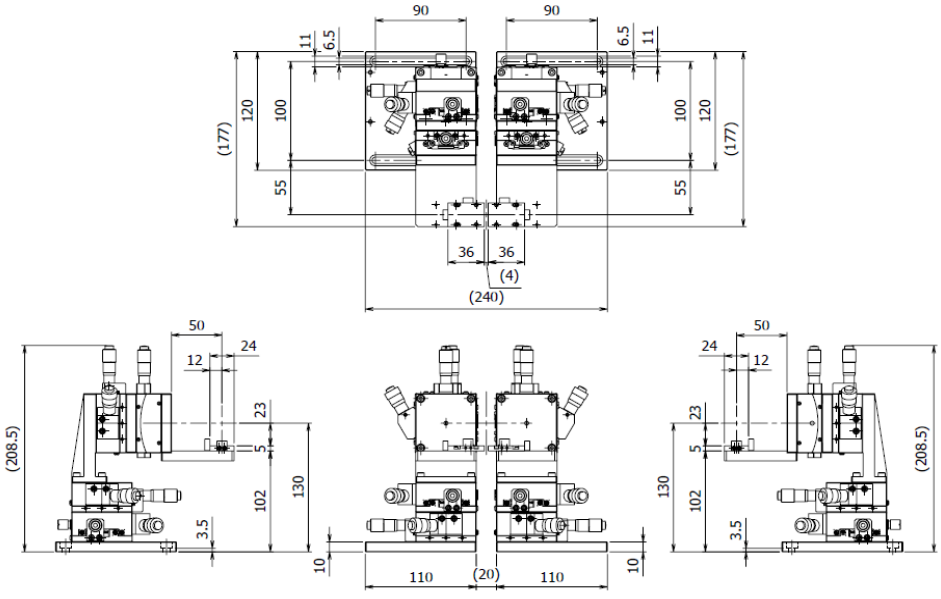


■ 8-axis (4-axis) manual fiber alignment unit.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high resolution stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.
(Fiber holder, fiber rotation holder, the fiber array holder, etc.)



SPEC

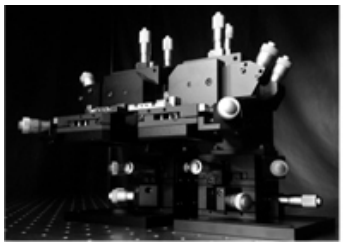
P/N	Axis	X	Y	Z	θz
	P/N	TAMF-601/R			GOHT-60A60 BC/BCR
DAU-060M-L	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	26.8″
DAU-060M-R	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	±5°
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	26.8″

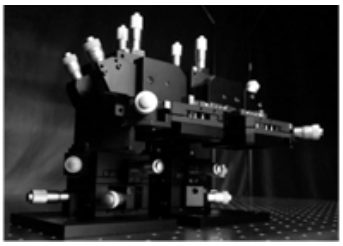


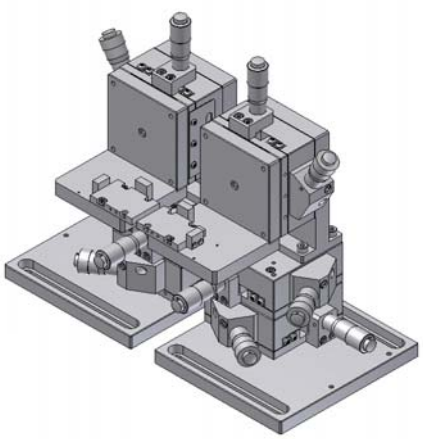
DAU-060M-RM-L　　DAU-060M-RM-R

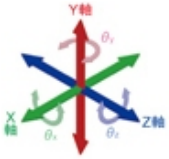
Number of Axis	P/N
8-Axis	DAU-060M-0
4-Axis	DAU-060M-L
4-Axis	DAU-060M-R

6-Axis (3-axis)
Manual Alignment Unit
DAU-050M-0/-L/-R





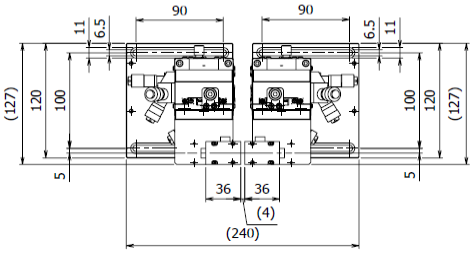


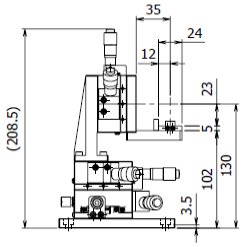


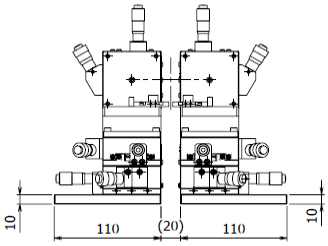
■ 8-axis (4-axis) manual fiber alignment unit.
■ Ideal for passive device alignment such as fiber array – optical waveguide – fiber array, etc.
■ With high resolution stage, alignment with excellent reproducibility is possible.
■ By fixed magnet system of the holder, available to secure the position repeatability.
■ By replacing the compatible holder, possible for the extension of application due to the change of device.
(Fiber holder, fiber rotation holder, the fiber array holder, etc.)

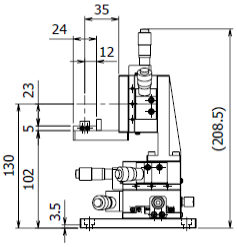
SPEC

P/N	Axis	X	Y	Z
	P/N	TAMF-601/R		
DAU-050M-L	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm
DAU-050M-R	Travel	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm	Coarse : ±6.5mm Fine : ±0.25mm
	Resolution	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm	Coarse : 0.01mm Fine : 0.0005mm









DAU-050M-RM-L

DAU-050M-RM-R

Number of Axis	P/N
6-Axis	DAU-050M-0
3-Axis	DAU-050M-L
3-Axis	DAU-050M-R

Multi-Controller

■ Multi-controller that has been developed for control of the alignment equipment.

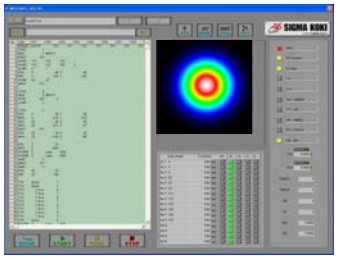
■ Original alignment software by our own development and expansion board required for equipment manufacturing are installed.

■ [ASS-02] for desktop FAPC and [ASS-04] for rack mounting FAPC are installed.

Main Specifications	
OS	Windows 7
Motion 4axis / 1	MC8042P (Nova Electronic Co., Ltd.) 4-axis independent control
Motion 4axis / 1	MC8082P (Nova Electronic Co., Ltd.) 8-axis independent control
AD	PCI-3155 (interface Co., Ltd.) 16-bit high-speed AD converter Single-ended 16CH, 8CH differential input
GP-IB	PCI-4304 (interface Co., Ltd.) IEE of the FIFO equipped 488 compliant GP-IB 1CH type

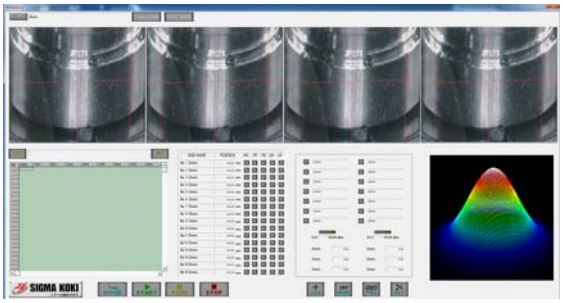
＊ Option (It is possible to add this board when it exceeds the number of IO driver mounted on a standard box)
PCI-2726CM (interface Co., Ltd.)
32-point sink-type current drive photocoupler input, 32 points high current open collector sinking output

■Alignment Software ASS-02



●Standard type of alignment software that was coded the required function for the motion control software of multi-axis control and for the alignment.
● Commands required to the alignment are almost available, and excellent in the cost performance.
● Ideal for the device assembly equipment that the function of image observation is not necessary.

■Alignment Software ASS-04



● A software that was added the function of the image capturing to the alignment software ASS-02.
● Perfect software to the experiment or device assembly by checking the image that can not be monitored directly such as YAG welding, etc.
● As for management of production devices, there is a data save function, and it can be output in CSV file.

Number of Axis	P/N	Software
4-Axis	SMC-04A2	ASS-02
8-Axis	SMC-08A2	ASS-02
8-Axis	SMC-08A4	ASS-04
12-Axis	SMC-12A4	ASS-04
16-Axis	SMC-16A4	ASS-04

IO with Micro-step Driver Box

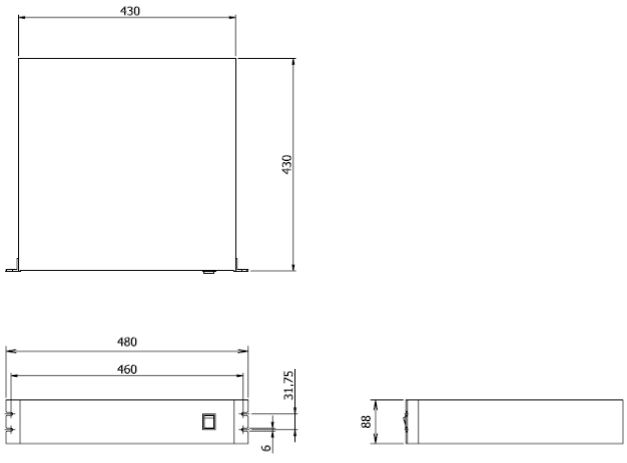
■SDB-04 for 4-axis for DC.IN type Micro-step Driver BOX

■ Best for the facility development and manufacturing of the alignment equipment.
■ Flat-screen specification for 19-inch rack-mount type (1U).
■ Design of the same shape with an emphasis on scalability.
■ Compact design with a built-in drive power.
■ Can control high-precision suitable for the application because of the possibility of 16 types (micro steps).
■ As a standard device, equipped with the digital IO needed to the equipment for the remote control of peripheral equipment and the drive signal tower of the solenoid valve.

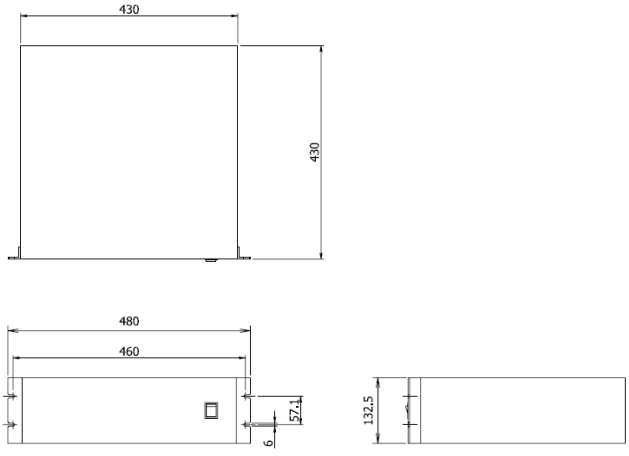
■SDB-08 for 8-axis DC.IN Type Micro-step Driver BOX

■ Best for the facility development and manufacturing of the alignment equipment.
■ Flat-screen specification for 19-inch rack-mount type (2U).
■ Design of the same shape with an emphasis on scalability.
■ Compact design with a built-in drive power.
■ Can control high-precision suitable for the application because of the possibility of 16 types (micro steps).
■ As a standard device, equipped with the digital IO needed to the equipment for the remote control of peripheral equipment and the drive signal tower of the solenoid valve.

Outline Drawing



SDB-04

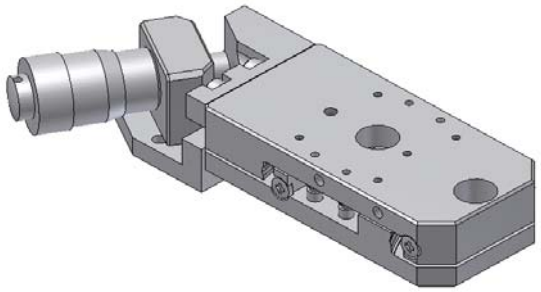


SDB-08

GOHT-36A10/S/SR/SZ/SRZ

α-axis tilt goniometer stage

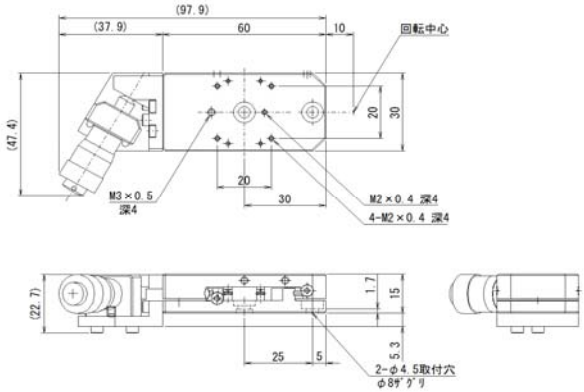
Feature
- High rigidity by integral guide
- High durability
- Small and small space



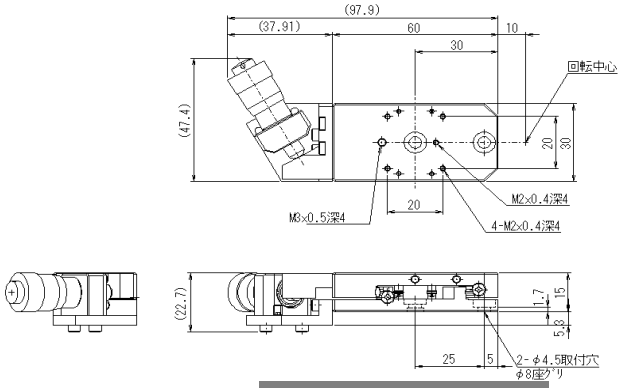
SPEC

	Parallelism (μm)	Rotation Center Height (mm)	Travel	Travel per Knob Rotation	Max. Moment Capacity (N・m)		Moment Stiffness (″/N・cm)		Load Capacity [N]	Weight (kg)
					Fx	Fy	Fx	Fy		
Specifications	30	10	±2.5°	≒27.6	0.015	0.01	0.5	1.5	29.4	0.25

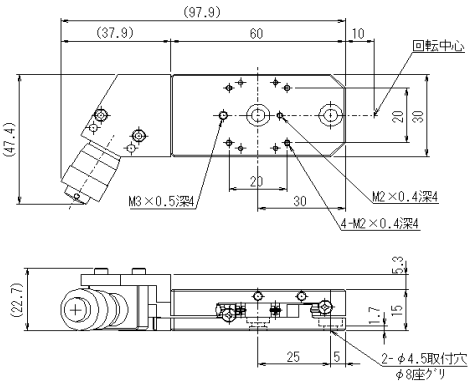
Outline Drawing



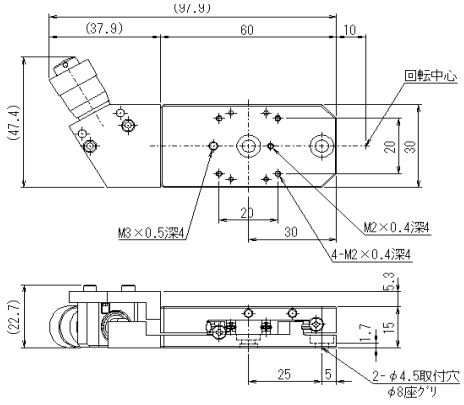
GOHT-36A10S



GOHT-36A10SR



GOHT-36A10SZ



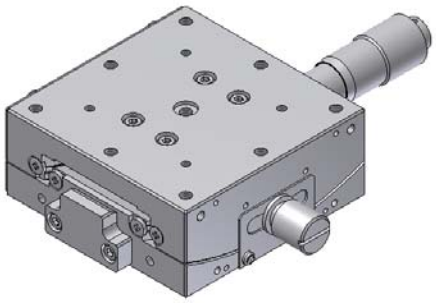
GOHT-36A10SRZ

GOHT-60A60/BC/BCR

α-axis micro-type guide integrated goniometer stage

Feature

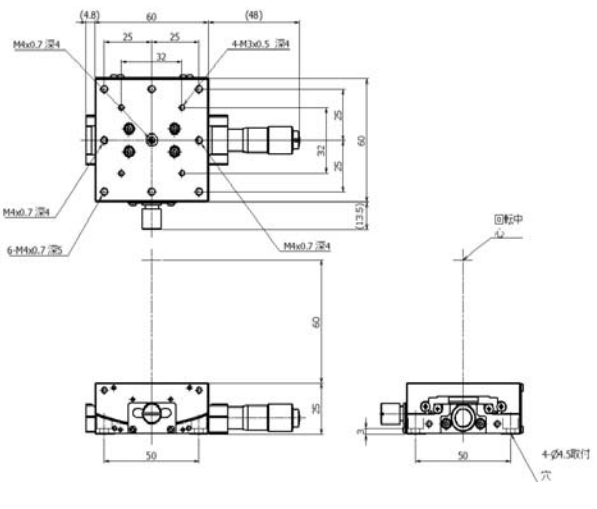
■High rigidity by integral guide
■High durability
■High-precision rotation center



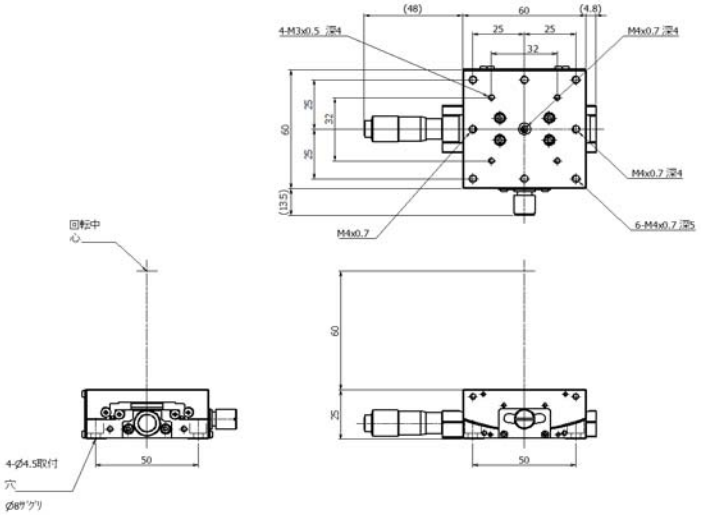
SPEC

	Parallelism (μm)	Rotation Center Height (mm)	Travel	Resolution ″/1DIV	Rotation Center Displacement (mm)	Max. Moment Capacity (N・m)			Moment Stiffness (″/N・cm)		Load Capacity (N)	Weight (kg)
						Fx	Fy	Fθ	Fx	Fy		
Specifications	30	60	±5°	≒26.8	φ0.01	3	6	3	0.3	0.3	98	0.4

Outline Drawing



GOHT-60A60BC

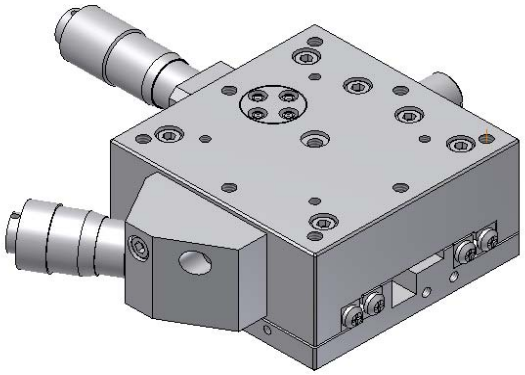


GOHT-60A60BCR

TAMF-601/R

X-axis coarse and fine type aluminum cross roller stage

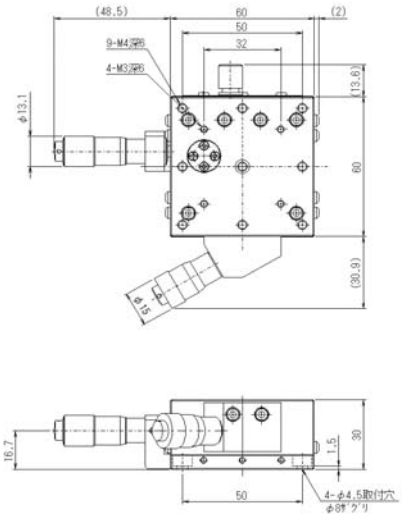
Feature
- Coarse and fine control
- High resolution
- High rigidity



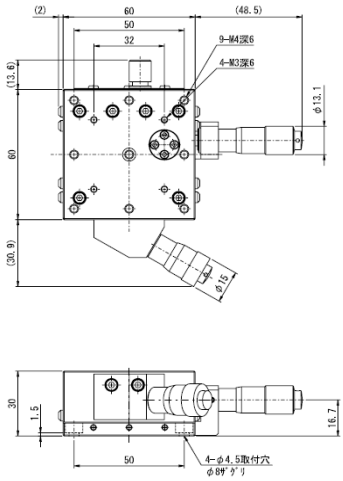
SPEC

	Parallelism (μm)	Running Parallelism (μm)	Perpendicularity (μm)	Pitch (″)	Yaw (″)	Max. Moment Capacity (N・cm)			Moment Stiffness (″/N・cm)			Load Capacity (N)	Resolution Fine (mm)	Travel (mm)		Readable Resolution (μm)	
						Fx	Fy	Fθ	Fx	Fy	Fθ			Coarse	Fine	Coarse	Fine
Specifications	30	10	2	20	10	8.6	6.4	5.6	0.1	0.1	0.1	4.9	0.0005 or less	±6.5	±0.25	10	0.5

Outline Drawing



TAMF-601



TAMF-601R

TAMM

Aluminum cross roller motorized stage

Feature

- Lightweight
- Compact slim body
- High durability
- High Repeatability
- Cost performance

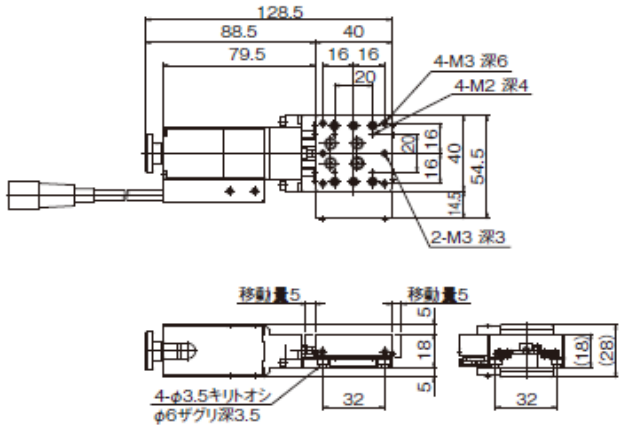
SPEC

Part Number		TAMM40-10C	TAMM50-10C	TAMM60-15C	TAMM70-15C
Opposite Model		TAMM40-10CR	TAMM50-10CR	TAMM60-15CR	TAMM70-15CR
Mechanical Specifications	Travel	10mm	10mm	15mm	15mm
	Table Size	40×40mm	50×50mm	60×60mm	70×70mm
	Feed Screw	Ball screw diameter φ4mm,1mm lead		Ball screw diameter φ6mm,1mm lead	
	Positioning Slide	Crossed roller			
	Stage Material	Aluminum – Black anodized			
	Weight	0.33kg	0.37kg	0.48kg	0.53kg
Accuracy Specifications	Resolution	2μm/pulse(Full) 1μm/pulse(Half)			
	MAX Speed	10mm/sec			
	Positioning Accuracy	＜6μm			
	Positional Repeatability	＜1μm			
	Load Capacity	29.4N【3.0kgf】	49N【5.0kgf】		
	Moment Stiffness	1.5″ /N・cm		0.5″ /N・cm	
	Lost Motion	＜1μm			
	Backlash	＜1μm			
	Parallelism	＜30μm			
	Running Parallelism	＜10μm			
	Pitch/Yaw	＜15″			
Sensor	Sensor Part Number	Micro photo sensor: GP1S097HCZ (Sharp Corporation): Limit sensor, origin sensor			
	Limit Sensor	Equipped (NORMAL CLOSE)			
	Origin Sensor	Equipped (NORMAL OPEN)			
	Proximity Origin Sensor	None			

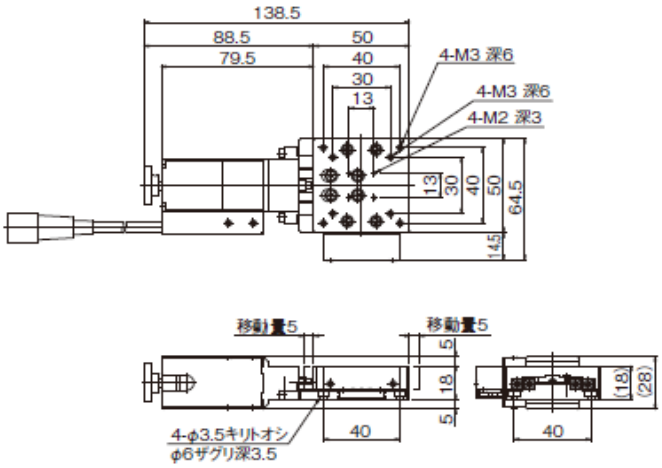
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	C9863-90215P （□28mm）
	Step Angle	0,72°
Sensor	Power Voltage	DC+5V～+24V
	Current Consumption	60mA or lower (20mA or lower per sensor)
	Control Output	NPN open collector output 50mA
	Output Logic	When shaded: Output transistor OFF (no conduction): Limit sensor
		When shaded: Output transistor ON (conduction): Origin sensor

Outline Drawing

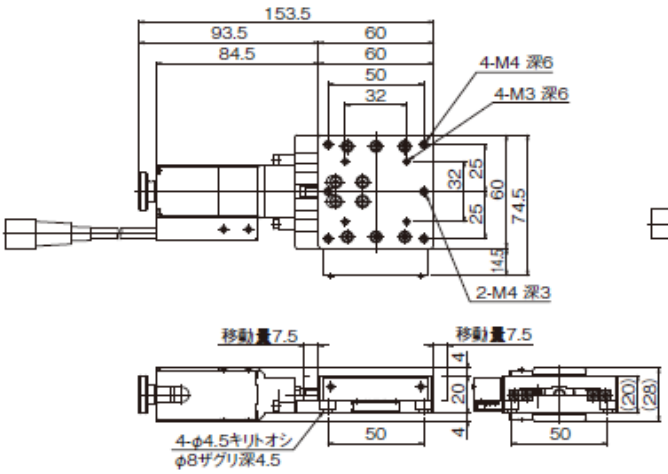
TAMM40-10C



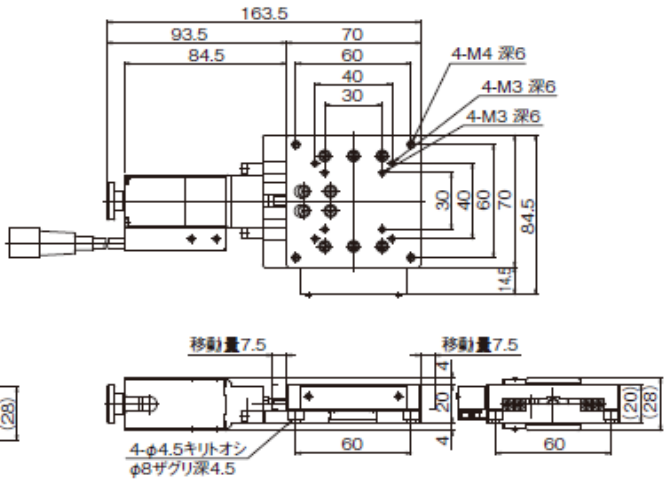
TAMM50-10C



TAMM60-15C



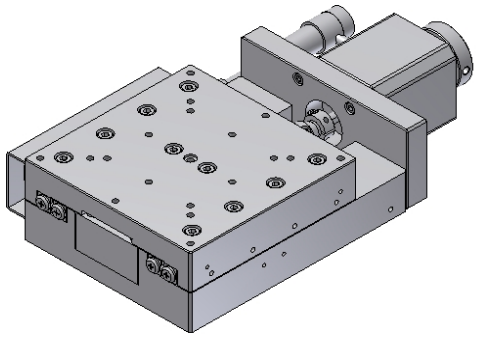
TAMM70-15C



TAMM/TSMM

Aluminum / steel cross roller stage

Feature
- High rigidity
- High durability
- High Repeatability
- Cost performance

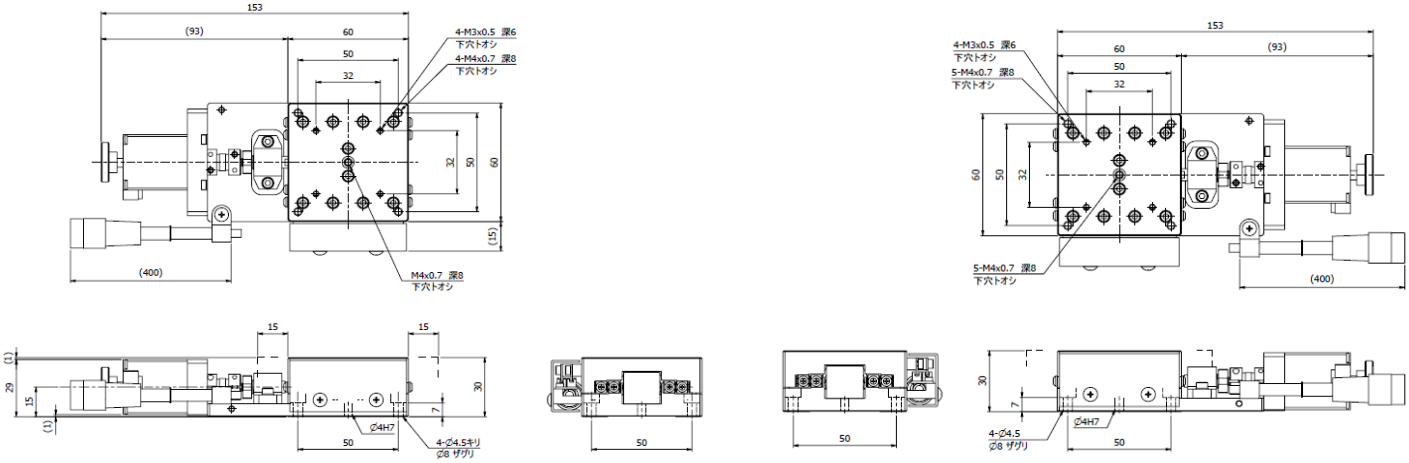


SPEC

Part Number		TSMM60-30X	TAMM100-50X	TSMM100-50X
Opposite Model		TSMM60-30XR	TAMM100-50XR	TSMM100-50XR
Mechanical Specifications	Travel	30mm	50mm	50mm
	Table Size	60×60mm	100×100mm	100×100mm
	Feed Screw	Ball screw diameter φ4mm,1mm lead	Ball screw diameter φ6mm,1mm lead	
	Positioning Slide	Crossed roller		
	Stage Material	Steel – Super black chrome	Aluminum – Black anodized	Steel – Super black chrome
	Weight	1kg	1.9kg	3kg
Accuracy Specifications	Resolution	2μm/pulse(Full) 1μm/pulse(Half)	2μm/pulse(Full) 1μm/pulse(Half)	2μm/pulse(Full) 1μm/pulse(Half)
	MAX Speed	10mm/sec	10mm/sec	
	Positioning Accuracy	＜6μm	＜6μm	
	Positional Repeatability	＜1μm	＜1μm	
	Load Capacity	68.6N【7.0kgf】	98N【10.0kgf】	
	Moment Stiffness	0.05″ /N・cm	0.05″ /N・cm	0.03″ /N・cm
	Lost Motion	＜1μm	＜1μm	
	Backlash	＜1μm	＜1μm	
	Parallelism	＜30μm	＜30μm	
	Running Parallelism	＜10μm	＜10μm	
	Pitch/Yaw	＜15″	＜15″	
Sensor	Sensor Part Number	Micro photo sensor: GP1S097HCZ (Sharp Corporation): Limit sensor, origin sensor		
	Limit Sensor	Equipped (NORMAL CLOSE)		
	Origin Sensor	Equipped (NORMAL OPEN)		
	Proximity Origin Sensor	None		

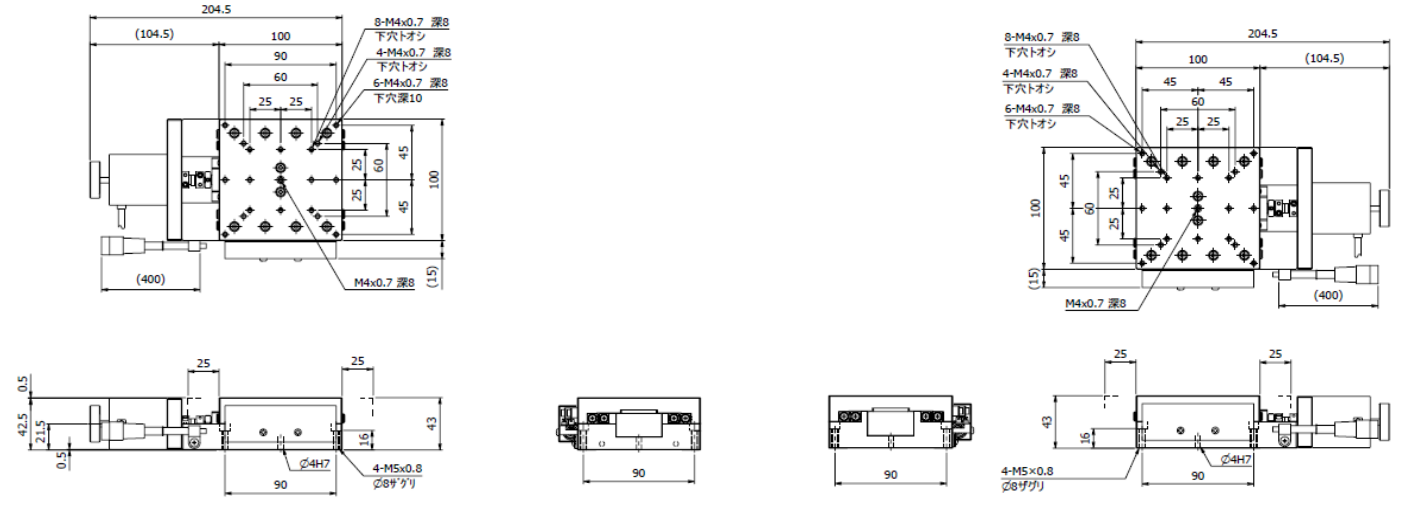
Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)	
	Motor Part Number	SH5281-7215 （□28mm）	TS3667N43E967 （□42mm）
	Step Angle	0,72°	
Sensor	Power Voltage	DC+5V～+24V	
	Current Consumption	60mA or lower (20mA or lower per sensor)	
	Control Output	NPN open collector output 50mA	
	Output Logic	When shaded: Output transistor OFF (no conduction): Limit sensor	
		When shaded: Output transistor ON (conduction): Origin sensor	

Outline Drawing



TSMM60-30X

TSMM60-30XR

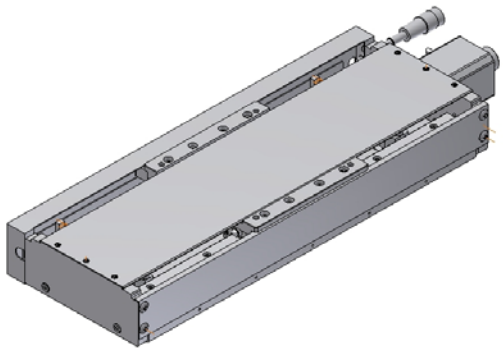


TAMM/TSMM100-50X

TAMM/TSMM100-50XR

KLSA/KLSS

Linear guide stage



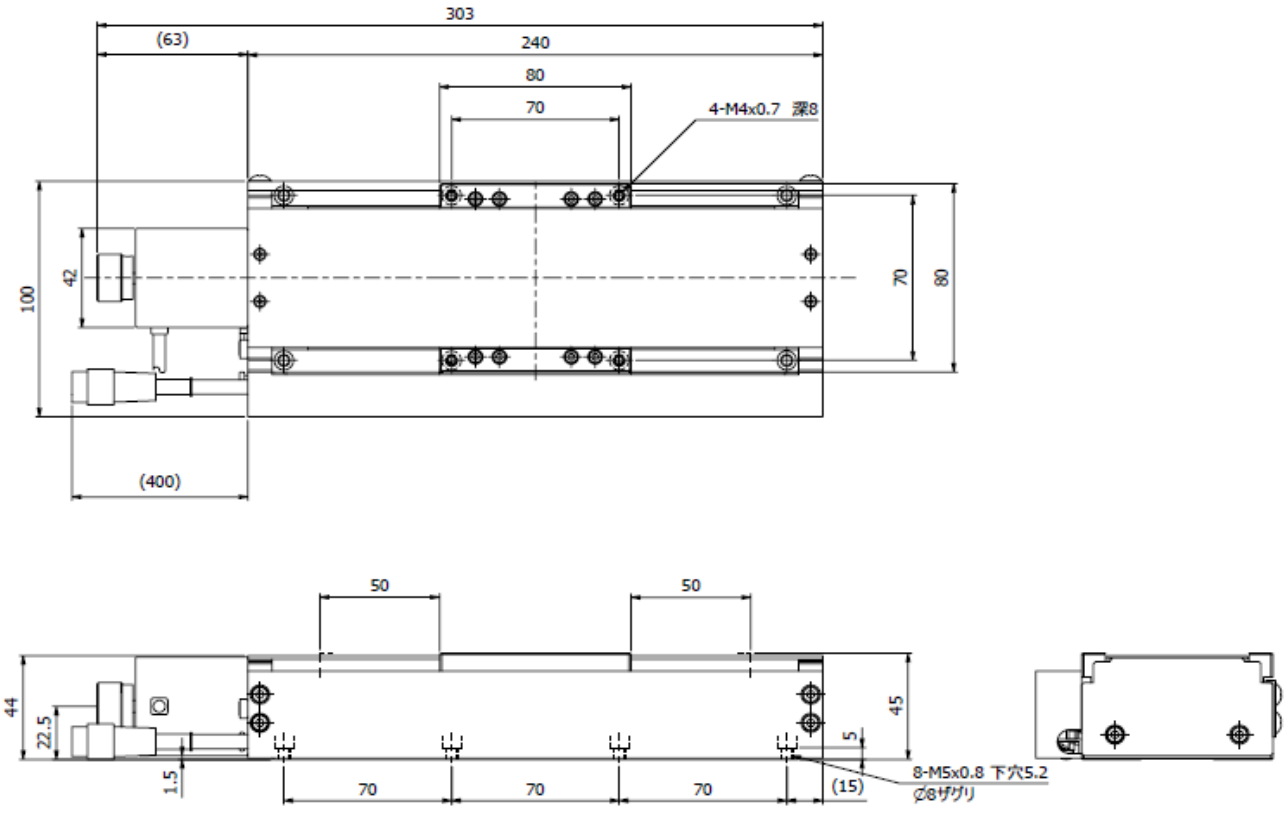
Feature
- Long stroke
- High durability
- High Repeatability
- High cost performance

SPEC

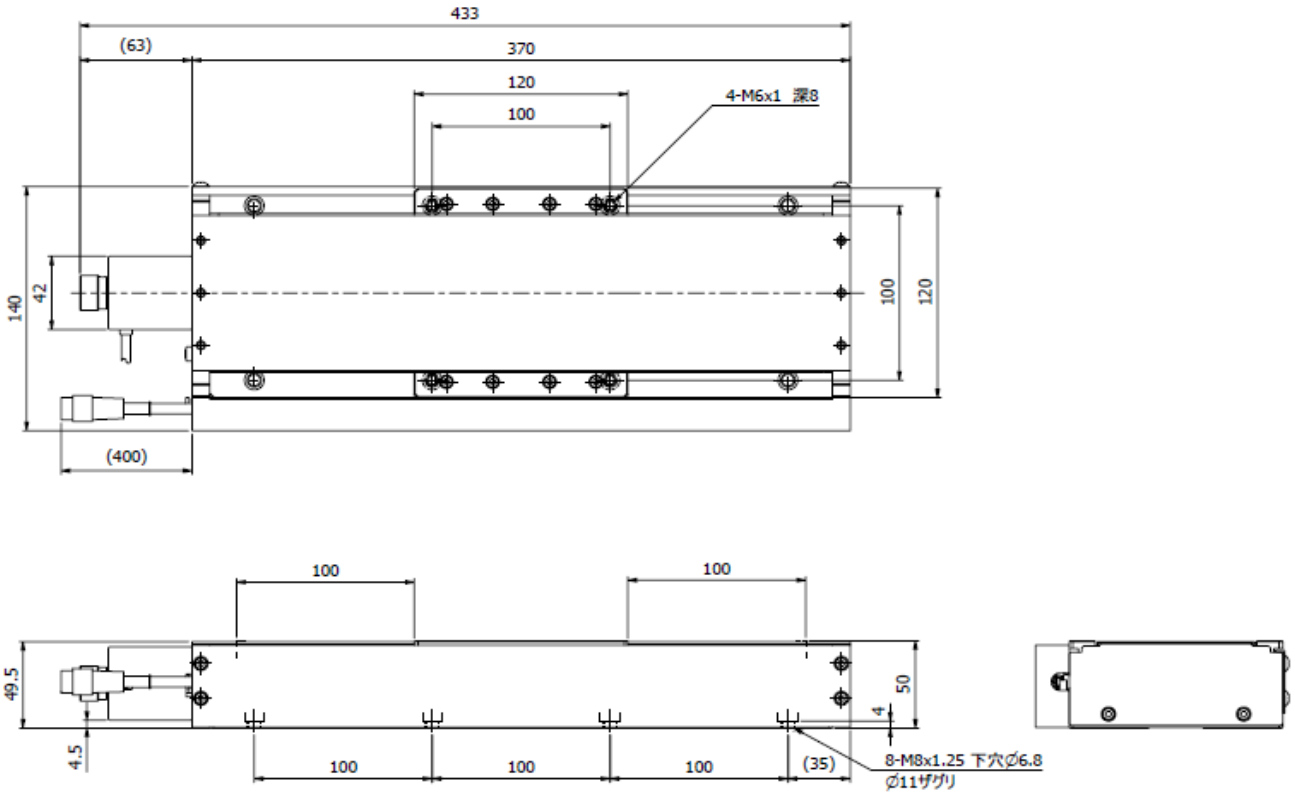
Part Number		KLSA-100X	KLSS-100X	KLSA-200X	KLSS-200X
Opposite Model		KLSA-100XR	KLSS-100XR	KLSA-200XR	KLSS-200XR
Mechanical Specifications	Travel	100mm		200mm	
	Table Size	80×80mm		120×120mm	
	Feed Screw	Ball screw diameter φ8mm , 1mm lead		Ball screw diameter φ10mm , 5mm lead	
	Positioning Slide	Linear bearing			
	Stage Material	Aluminum	Steel	Aluminum	Steel
	Weight	2.2kg	3.5kg	5.1kg	7.7kg
Accuracy Specifications	Resolution	4μm/pulse(Full) 2μm/pulse(Half)		10μm/pulse(Full) 5μm/pulse(Half)	
	MAX Speed	30mm/sec		50mm/sec	
	Positioning Accuracy	＜15μm		＜20μm	
	Positional Repeatability	＜±1μm			
	Load Capacity	147N【15kgf】		294N【30kgf】	
	Moment Stiffness	0.05″ /N・cm		0.02″ /N・cm	
	Lost Motion	＜4μm			
	Backlash	＜1μm			
	Parallelism	＜50μm			
	Running Parallelism	＜10μm			
	Pitch/Yaw	＜20″ /15″		＜40″ /20″	
Sensor	Sensor Part Number	Micro photo sensor: PM-L24 (SUNX Co., Ltd.): Limit sensor, origin sensor			
	Limit Sensor	Equipped (NORMAL CLOSE)			
	Origin Sensor	Equipped (NORMAL OPEN)			
	Proximity Origin Sensor	None			

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	PK545-NBW （□42mm）
	Step Angle	0.72°
Sensor	Power Voltage	DC+5V～+24V
	Current Consumption	45mmA or lower (15mA 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

Outline Drawing



KLSA/KLSS-100X



KLSA/KLSS-200X

GOHTM　□40mm/□50mm

Guide integrated goniometer stage


GOHTM-40A**


GOHTM-50A**

Feature

- High precision ・high rigidity ・high durability
- High cost performance
- Rotation center accuracy improvement
- A wealth of variation in height center of rotation
- Enhancement of the stage size (□ 40/50/60/70mm)

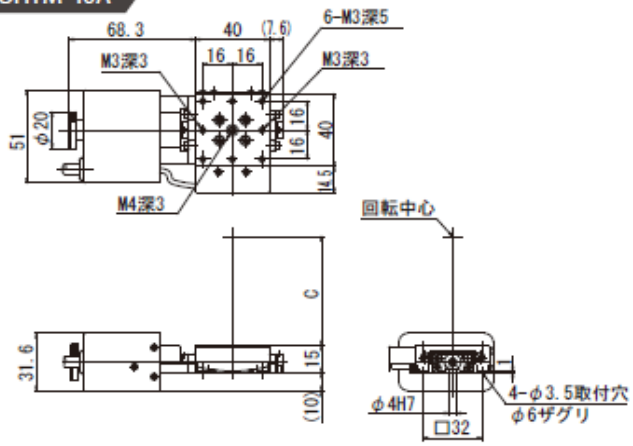
SPEC

Part Number		GOHTM-40A60	GOHTM-40A75	GOHTM-50A50	GOHTM-50A68	GOHTM-50A86
Opposite model		GOHTM-40A60R	GOHTM-40A75R	GOHTM-50A50R	GOHTM-50A68R	GOHTM-50A86R
Mechanical Specifications	Travel	±5°	±4°	±10°	±8°	±6°
	Table Size	40×40mm		50×50mm		
	Positioning Slide	Extended Contact Ball Guide		Extended Contact Ball Guide		
	Travel Mechanism	Worm gear (1:232)	Worm gear (1:406)	Worm gear (1:232)	Worm gear (1:300)	Worm gear (1:375)
	Stage Material	SUS440C quench hardened - Electroless nickel				
	Weight	0.4kg	0.4kg	0.9kg	0.9kg	0.9kg
Size Tolerance	Stage Height	15mm		18mm		
	Rotation Center Height	60±0.1	75±0.1	50±0.1	68±0.1	86±0.1
	Rotation Center Deflection Accuracy	＜φ0.01mm		＜φ0.01mm		
Accuracy Specifications	Resolution (Full)	≒0.00217° /pulse	≒0.00177° /pulse	≒0.00310° /pulse	≒0.0024° /pulse	≒0.00192° /pulse
	(Half)	≒0.00108° /pulse	≒0.00089° /pulse	≒0.00155° /pulse	≒0.0012° /pulse	≒0.00096° /pulse
	MAX Speed	10° /sec	8.9° /sec	9.3° /sec	7.2° /sec	5.8° /sec
	Positional Repeatability	＜±0.004°				
	Load Capacity	19.6N【2.0kgf】		29.4N【3.0kgf】		
	Moment Stiffness	Roll 0.6″/N・cm Yaw 0.6″/N・cm		Roll 0.4″/N・cm Yaw 0.4″/N・cm		
	Lost Motion	0.02°				
Sensor	Sensor Part Number	Micro photo sensor: GP1S097HCZ (Sharp Corporation): Limit sensor, origin sensor		Micro photo sensor: GP1S097HCZ (Sharp Corporation): Limit sensor, origin sensor		
	Limit Sensor	Equipped (NORMAL CLOSE)		Equipped (NORMAL CLOSE)		
	Origin Sensor	None		Equipped (NORMAL OPEN)		
	Proximity Origin Sensor	None		None		

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)	5-phase stepping motor 0.75A/phase (Tamagawa Seiki Co., Ltd.)
	Motor Part Number	C9863-90215P (□28mm)	TS3667N43E7 (□42mm)
	Step Angle	0,72°	0,72°
Sensor	Power Voltage	DC+5V～+24V	DC+5V～+24V
	Current Consumption	40mmA or lower (20mA per sensor)	60mmA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA	NPN open collector output 50mA
	Output Logic		When shaded: Output transistor OFF (no conduction): Limit sensor
		When shaded: Output transistor ON (conduction))	When shaded: Output transistor ON (conduction): Origin sensor

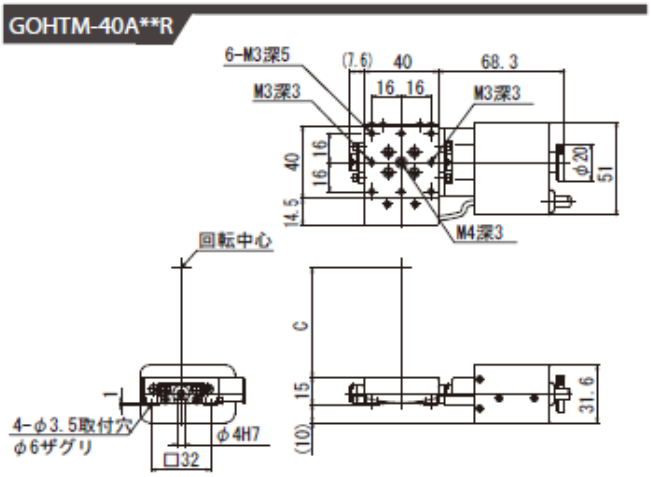
Outline Drawing

GOHTM-40A**



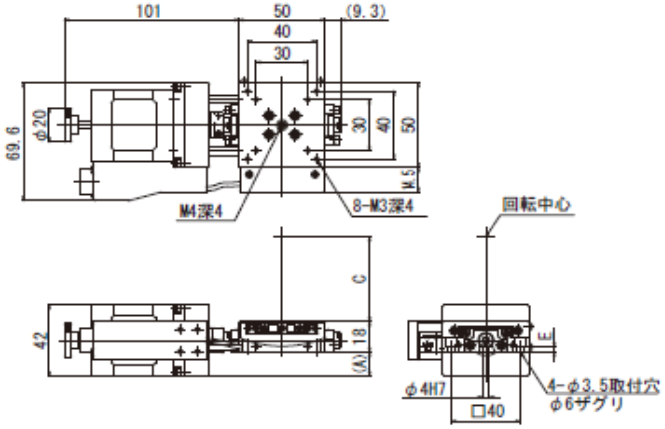
品番	C (mm)
GOHTM-40A60	60
GOHTM-40A75	75

GOHTM-40A**R



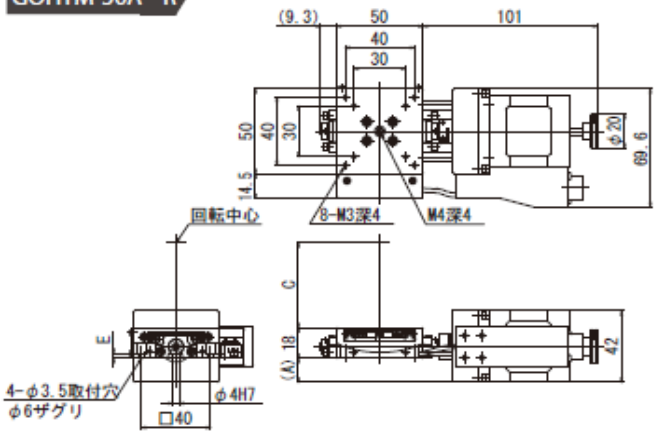
品番	C (mm)
GOHTM-40A60R	60
GOHTM-40A75R	75

GOHTM-50A**



品番	A(mm)	C (mm)	E(mm)
GOHTM-50A50	14	50	3
GOHTM-50A68	13	68	3
GOHTM-50A86	14	86	2

GOHTM-50A**R



品番	A(mm)	C (mm)	E(mm)
GOHTM-50A50R	14	50	3
GOHTM-50A68R	13	68	3
GOHTM-50A86R	14	86	2

GOHTM　□60mm/□70mm

Guide integrated goniometer stage


GOHTM-40A**


GOHTM-50A**

Feature

- High precision ・high rigidity ・high durability
- High cost performance
- Rotation center accuracy improvement
- A wealth of variation in height center of rotation
- Enhancement of the stage size (□ 40/50/60/70mm)

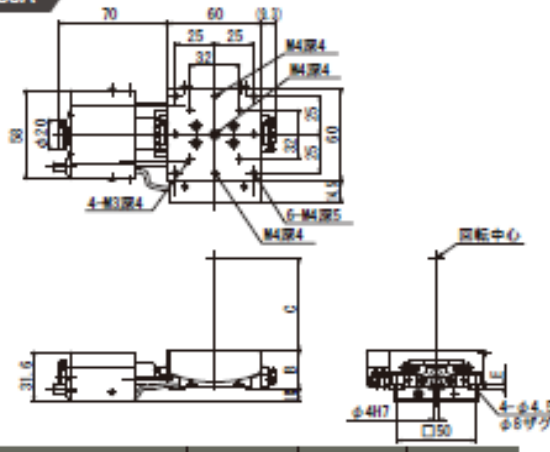
SPEC

Part Number		GOHTM-60A60	GOHTM-60A85	GOHTM-60A105	GOHTM-70A70	GOHTM-70A96	GOHTM-70A122
Opposite Model		GOHTM-60A60R	GOHTM-60A85R	GOHTM-60A105R	GOHTM-70A70R	GOHTM-70A96R	GOHTM-70A122R
Mechanical Specifications	Travel	±14°	±9°	±7°	±10°	±8°	±6°
	Table Size	60×60mm			70×70mm		
	Positioning Slide	Extended Contact Ball Guide			Extended Contact Ball Guide		
	Travel Mechanism	Worm gear (1:246)	Worm gear (1:314)	Worm gear (1:380)	Worm gear (1:274)	Worm gear (1:360)	Worm gear (1:450)
	Stage Material	SUS440C quench hardened – Electroless nickel			SUS440C quench hardened – Electroless nickel		
	Weight	0.85kg	0.75kg	0.75kg	1.45kg	1.45kg	1.45kg
Size Tolerance	Stage Height	25mm	20mm	20mm	26mm	26mm	26mm
	Rotation Center Height	60±0.1	85±0.1	105±0.1	70±0.1	96±0.1	122±0.1
	Rotation Center Deflection Accuracy	＜φ0.01㎜			＜φ0.01㎜		
Accuracy Specifications	Resolution (Full)	≒0.00293° /pulse	≒0.00229° /pulse	≒0.00198° /pulse	≒0.00263° /pulse	≒0.002° /pulse	≒0.0016° /pulse
	(Half)	≒0.00146° /pulse	≒0.00115° /pulse	≒0.00095° /pulse	≒0.00131° /pulse	≒0.001° /pulse	≒0.0008° /pulse
	MAX Speed	10° /sec	8° /sec	6.6° /sec	7.8° /sec	6° /sec	4.8° /sec
	Positional Repeatability	＜±0.004°					
	Load Capacity	29.4N【3.0kgf】			49N【5.0kgf】		
	Moment Stiffness	Roll 0.3″/N・cm Yaw 0.3″/N・cm			Roll 0.1″/N・cm Yaw 0.1″/N・cm		
	Lost Motion	0.02°					
Sensor	Sensor Part Number	Micro photo sensor: GP1S097HCZ (Sharp Corporation) : Limit sensor, origin sensor			Micro photo sensor: GP1S097HCZ (Sharp Corporation) : Limit sensor, origin sensor		
	Limit Sensor	Equipped (NORMAL CLOSE)			Equipped (NORMAL CLOSE)		
	Origin Sensor	Equipped (NORMAL OPEN)			Equipped (NORMAL OPEN)		
	Proximity Origin Sensor	None			None		

Motor	Type	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)	5-phase stepping motor 0.75A/phase (Tamagawa Seiki Co., Ltd.)
	Motor Part Number	C9863-90215P （□28mm）	TS3667N43E7 （□42mm）
	Step Angle	0,72°	0,72°
Sensor	Power Voltage	DC+5V～+24V	DC+5V～+24V
	Current Consumption	60mmA or lower (20mA per sensor)	60mmA or lower (20mA per sensor)
	Control Output	NPN open collector output 50mA	NPN open collector output 50mA
	Output Logic	When shaded: Output transistor OFF (no conduction):	When shaded: Output transistor OFF (no conduction):
		When shaded: Output transistor ON (conduction)	When shaded: Output transistor ON (conduction): Origin sensor

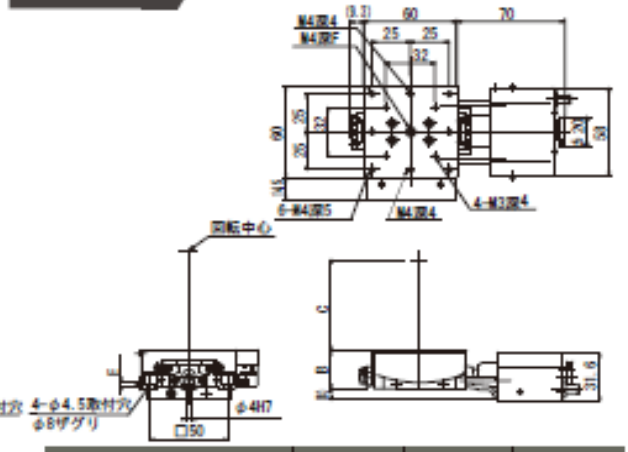
Outline Drawing

GOHTM-60A**



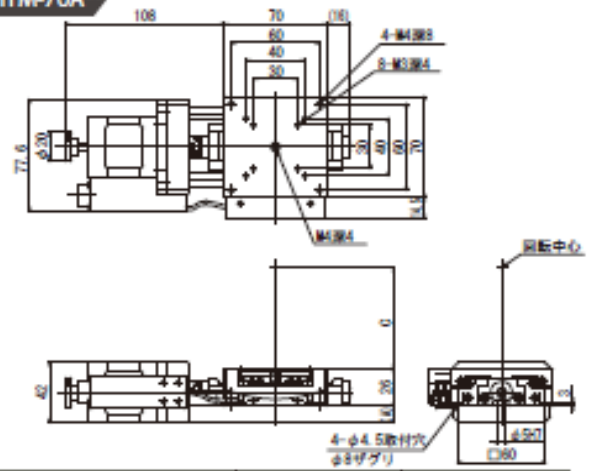
品番	A (mm)	C (mm)	E (mm)
GOHTM-60A60	25	60	3
GOHTM-60A85	20	85	2
GOHTM-60A105	20	105	2

GOHTM-60A**R



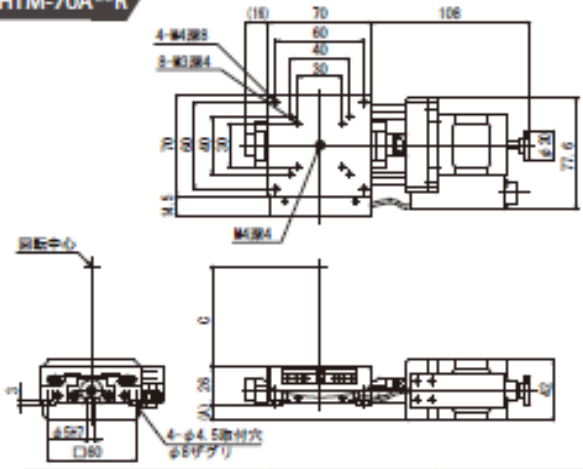
品番	A (mm)	C (mm)	E (mm)
GOHTM-60A60R	25	60	3
GOHTM-60A85R	20	85	2
GOHTM-60A105R	20	105	2

GOHTM-70A**



品番	A (mm)	C (mm)
GOHTM-70A70	11	70
GOHTM-70A96	13	96
GOHTM-70A122	14	122

GOHTM-70A**R



品番	A (mm)	C (mm)
GOHTM-70A70R	11	70
GOHTM-70A96R	13	96
GOHTM-70A122R	14	122

SGSP-YAW

Rotation Motorized Stages

Feature

High performance motorized rotation stage that is combined of compact and high rigidity by our own space-saving design

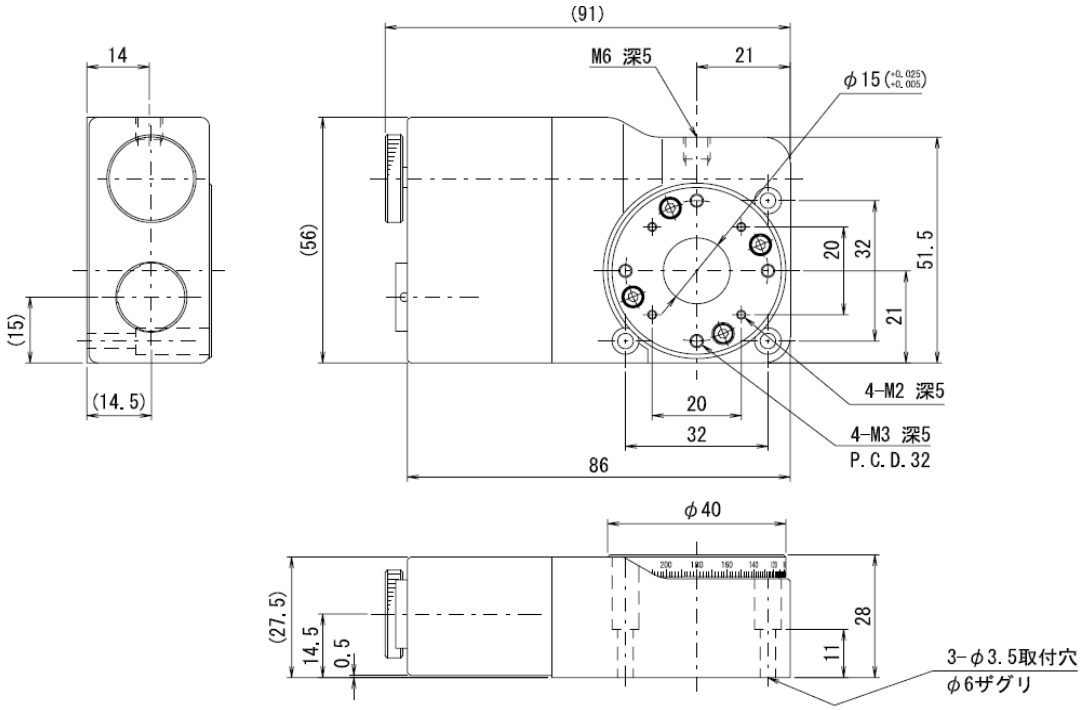
SPEC

Part Number		SGSP-40YAW	SGSP-60YAW-0B	SGSP-80YAW	SGSP-120YAW
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	φ40mm	φ60mm	φ80mm	φ120mm
	Travel Mechanism (reduction ratio)	Worm gear (1:144)			
	Positioning Slide	Bearing method	Crossed roller	Crossed roller	Crossed roller
	Stage Material	Aluminum / Aluminum bronze			
	Weight	0.35kg	0.45kg	1.1kg	2.0kg
Accuracy Specifications	Resolution(Full)	0.005° /pulse	0.005° /pulse	0.005° /pulse	0.005° /pulse
	(Half)	0.0025° /pulse	0.0025° /pulse	0.0025° /pulse	0.0025° /pulse
	MAX Speed	30° /sec	30° /sec	30° /sec	30° /sec
	Positioning Accuracy	＜0.1°	＜0.1°	＜0.15°	＜0.1°
	Positional Repeatabili	＜0.020°	＜0.020°	＜0.020°	＜0.020°
	Load Capacity	19.6N【2.0kgf】	29.4N【3.0kgf】	98N【10kgf】	196N【20kgf】
	Moment Stiffness	2″/N·cm	1″/N·cm	0.2″/N·cm	0.1″/N·cm
	Lost Motion	＜0.050°			
	Backlash	＜0.1°	＜0.1°	＜0.08°	＜0.08°
	Parallelism	＜50μm	＜50μm	＜50μm	＜50μm
	Concentricity	＜30μm	＜30μm	＜30μm	＜30μm
	Wobble	＜0.020mm	＜0.020mm	＜0.020mm	＜0.020mm
Sensor	Sensor Part Number	PM-F24(SUNX)	PM-R24(SUNX)	PM-F24(SUNX)	PM-F24(SUNX)
	Limit Sensor	Equipped (NORMAL CLOSE)			
	Origin Sensor	None			
	Proximity Origin Sensor	None			

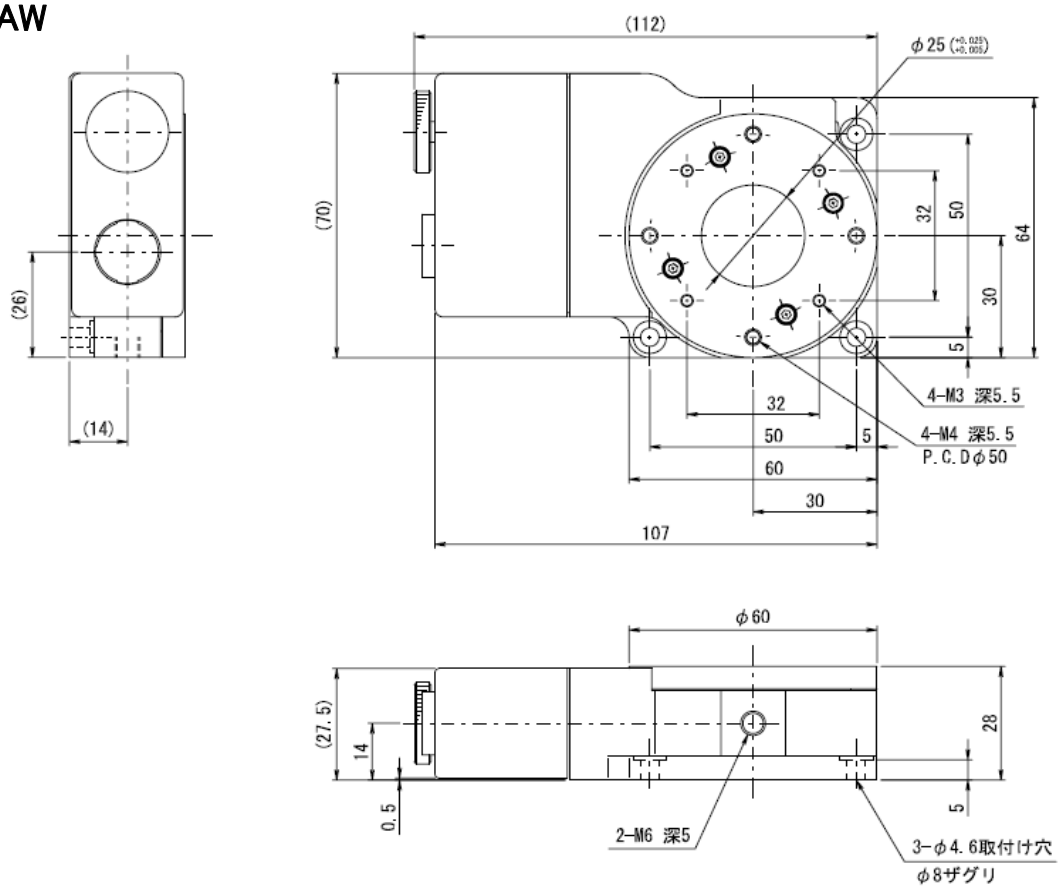
Motor	Type	5-phase stepping motor 0.66A/phase (Tamagawa Seiki Co., Ltd.)	5-phase stepping motor 0.75A/phase (Oriental Motor Co., Ltd.)
	Motor Part Number	TS3664N4(□24)	C9865-90215P(□28)
	Step Angle	0,72°	
Sensor	Power Voltage	DC5～24V±10%	
	Current Consumption	15mA or lower	
	Control Output	NPN open collector output DC30V or lower, 50mA or lower	
	Output Logic	When shaded: Output transistor OFF (no conduction)	

Outline Drawing

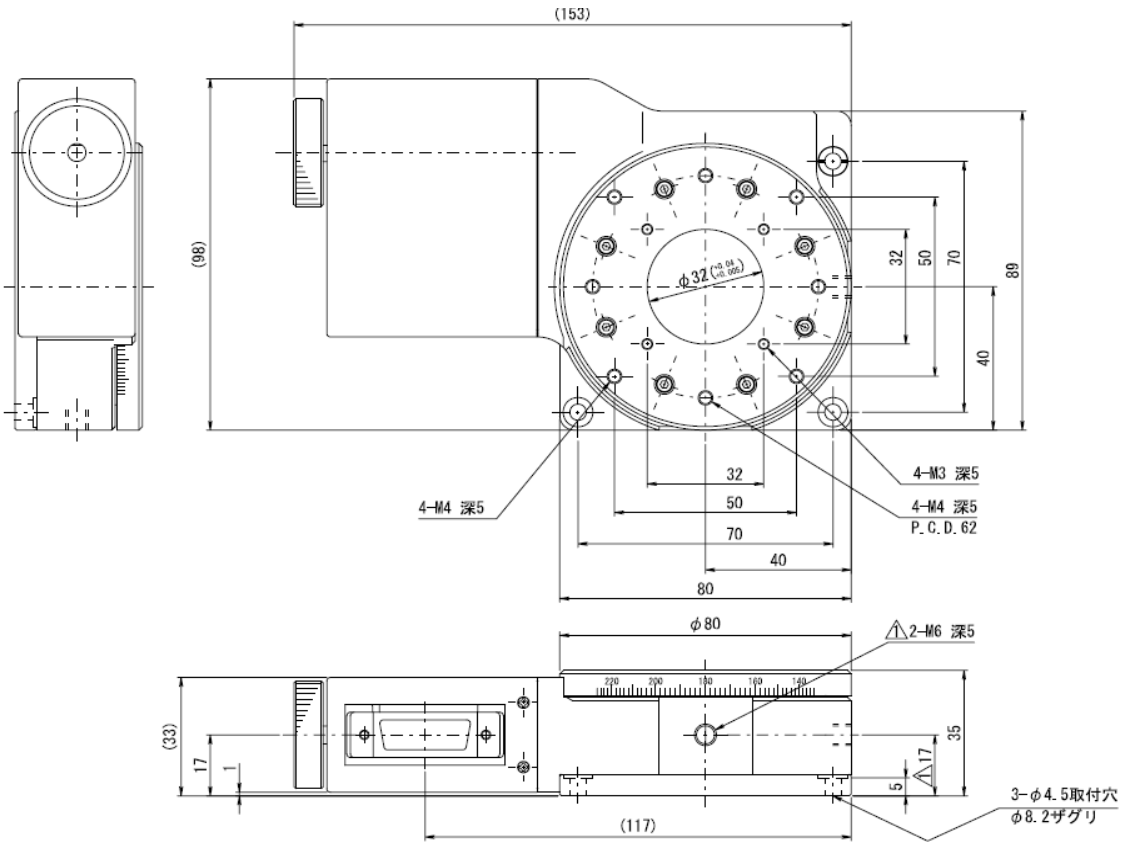
SGSP-40YAW



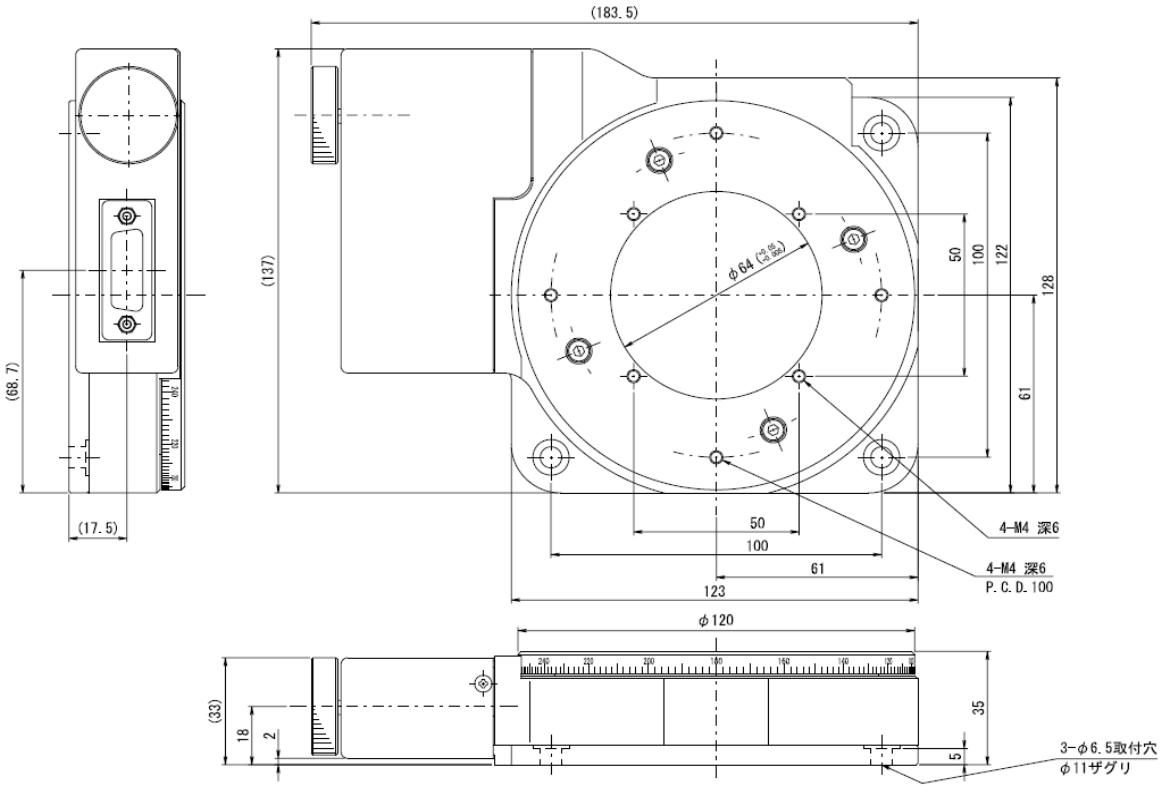
SGSP-60YAW



SGSP-80YAW



SGSP-120YAW



Various Holder

In addition to the following typical lineup, the custom-made of a variety of holders is possible to meet the needs of our customers.

Active System Holder

Fiber Holder

Optical fiber holder for connection to light source or instrument
Two types for LC and SC are available.

Sleeve Chuck Holder

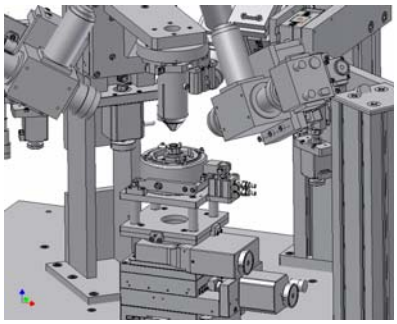
Chucking sleeve and receptacle
Lineup for Φ2mm, Φ2.99 and Φ4.7mm.

TO Holder

Chucking the device
Lineup for Φ5.6mm and Φ6mm.

＊Please contact us for other sizes.

＊Please contact us for other sizes.



Passive System Holder

Fiber Holder

・Desorption is possible by one touch (magnet)
・By using dedicated positioning unit, the fiber tip and the center of the alignment unit can be fixed.

Fiber Array Holder

・Fixing bare fiber.
・Three types line up by cladding diameter and jacket diameter.
・As needed, outer jacket or Sheath holder can be attached.

Holder with FC Type Connector

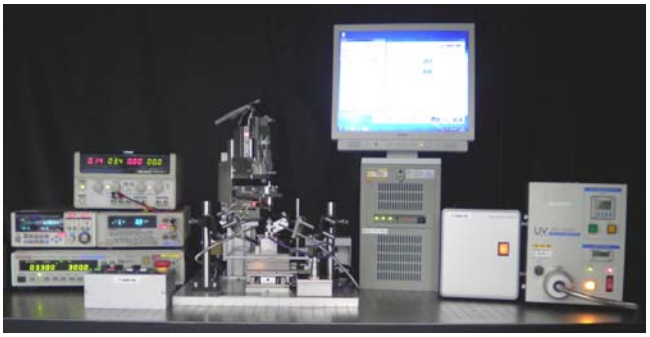
・Fixing fiber with FC type connector.
・As needed, outer jacket or Sheath holder can be attached.

Fiber Rotation Holder

・Fixing and rotating the polarization-maintaining fiber.
・Available for jacket diameter of 250 μm and 900 μm.

System Applications 1_TOSA/ROSA Assembly Equipment (UV)

◆ **Automatically aligning the light device and the sleeve with master fiber, and securing to YAG laser welding machine.**

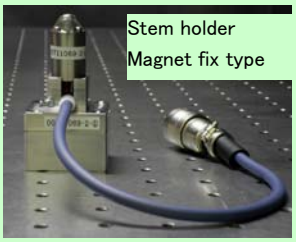


Equipment Overview

· Automatically probing the stem of a user original (PINAMP module) and the optimal alignment position of sleeve with master fiber, and fixing adhesion by irradiating UV light on the UV curable resin portion that was previously applied.
· By matching automatic operation commands (motion, flow control, and alignment), the flow can be newly produced and edited to meet user 's specification.
· Stem holder is fixed by magnet and also installed smoothly UV coating unit

Equipment Configuration

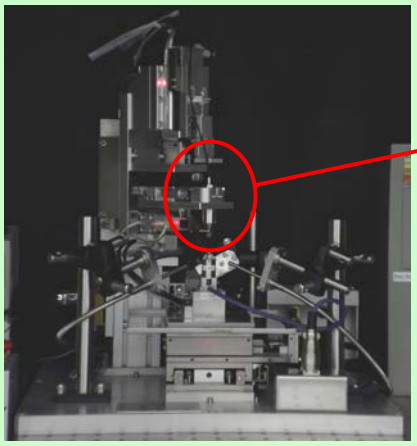
① 3-axis motorized stage
② Stem holder unit
③ 3-axis stage driver BOX
④ Motion control function Built-in PC Set
⑤ Manual operation control BOX
⑥ UV coating unit
⑦ UV light source
⑧ Dispenser unit
⑨ Connecting cable



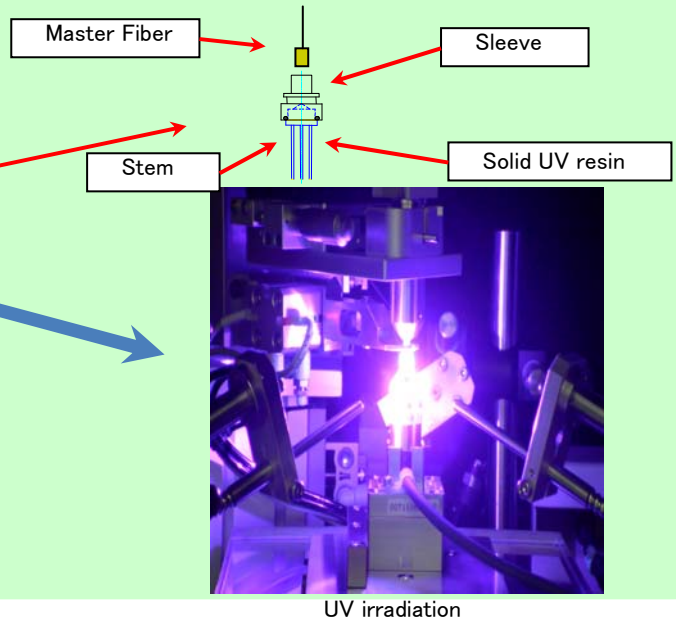
① Set the stem, and Installation to UV coating unit

UV coating unit

② After applying UV resin
Installation to the main



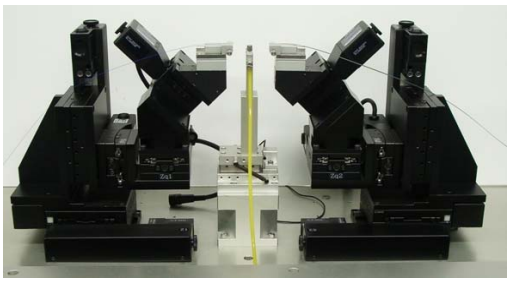
3-axis motorized stage



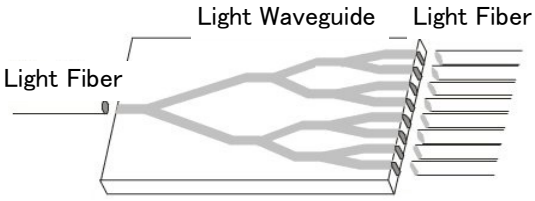
UV irradiation

System Applications 2_ Waveguide Alignment and Evaluation Equipment

◆ Equipment for automatically aligning the fiber (array) and the waveguide, and for characteristic evaluation.



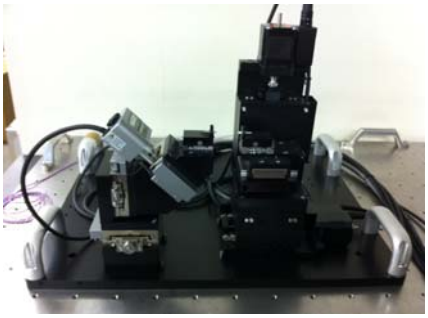
■ Assembly of the waveguide type devices that require alignment of the incident side and output side, then evaluation.
■ By the contact sensor slide way in the middle, can control the gap management of the device or the thickness of the UV-curable resin.
■ Effective in the alignment of single core fiber array or of single core fiber, etc.
■ By the magnet fixing type, fiber array unit has a good reproducibility and can be detached.

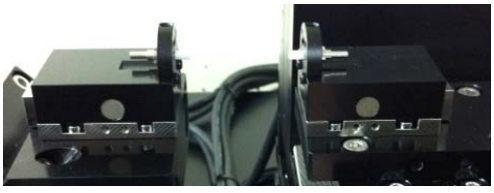


Equipment Configuration
① 12 axis motorized stage
② 12-axis stage driver BOX
③ Motion control function built-in PC set
⑤ Contact sensor
⑥ Fiber array unit
⑦ Connecting cable

System Applications 3_ Fiber Alignment and Evaluation Equipment

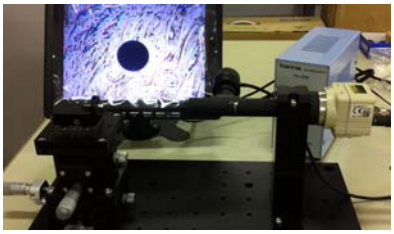
◆An example of an equipment for a special fiber auto alignment and for securing by UV curing adhesive.





■ Alignment of Fiber to Fiber, and perform adhesive.
■ By the contact sensor slide way, can control the gap management of the device, and perform the adhesive safely.

Equipment Configuration
① 6-axis motorized stage
② 6-axis stage driver BOX
③ Motion control function built-in PC set
④ High-definition CCD camera (preset jig)
⑤ Contact sensor
⑥ Fiber holder unit
⑦ Connecting cable



Contact sheet

info@hours-web.com

				Date	
Affiliation (Organization Name)					
Department			Name		
Country Address					
TEL		FAX		Email	