



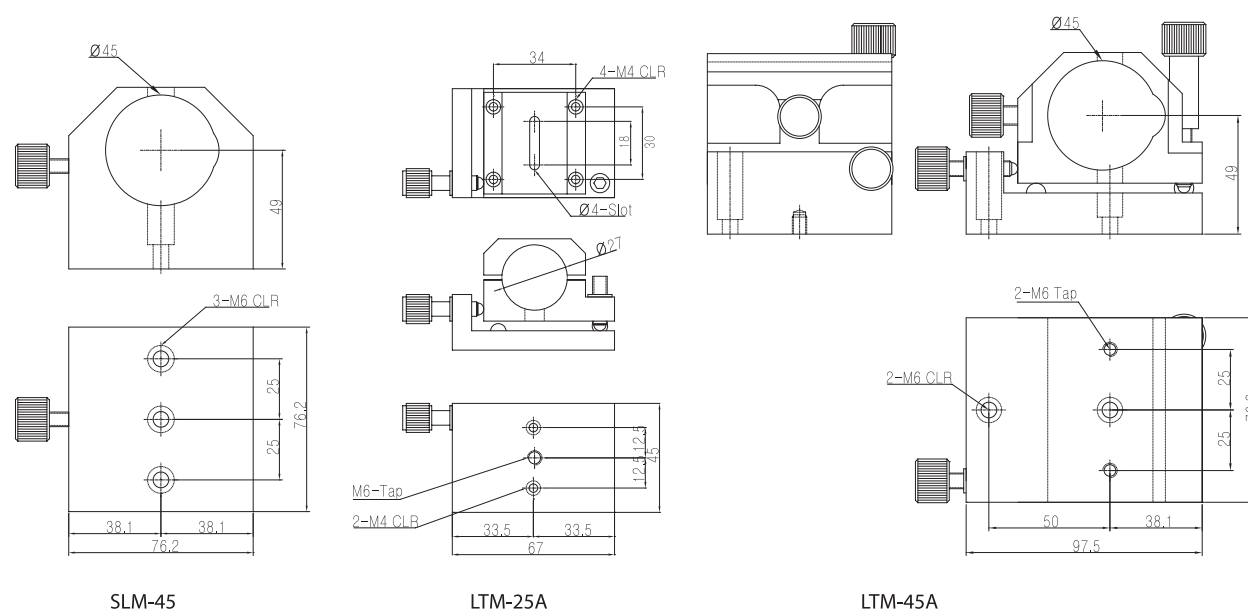
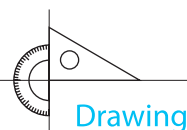
Laser Tilt Mounts

Laser Tilt Mounts / Gimbal Laser Tilt Mount
Laser Tilt Mounts
Beam Focusing Mount
Beam Expander
Medical Zoom Handpiece
Beam Dump

Laser Tilt Mounts



- Cylindrical Laser Mounting Holders.
- Accurate beam placement over long distances.
- Deal with V-groove so as to be able to fix so as to be stable.
- Ø25 ~ Ø45 Mounting.
- Laser automatically lines up over table holes.
- Angle adjustment
 - Basic type : AJS Adjusters 1/4-80 Pitch Screw
 - Select type : SM-13 Micrometers adhesion type



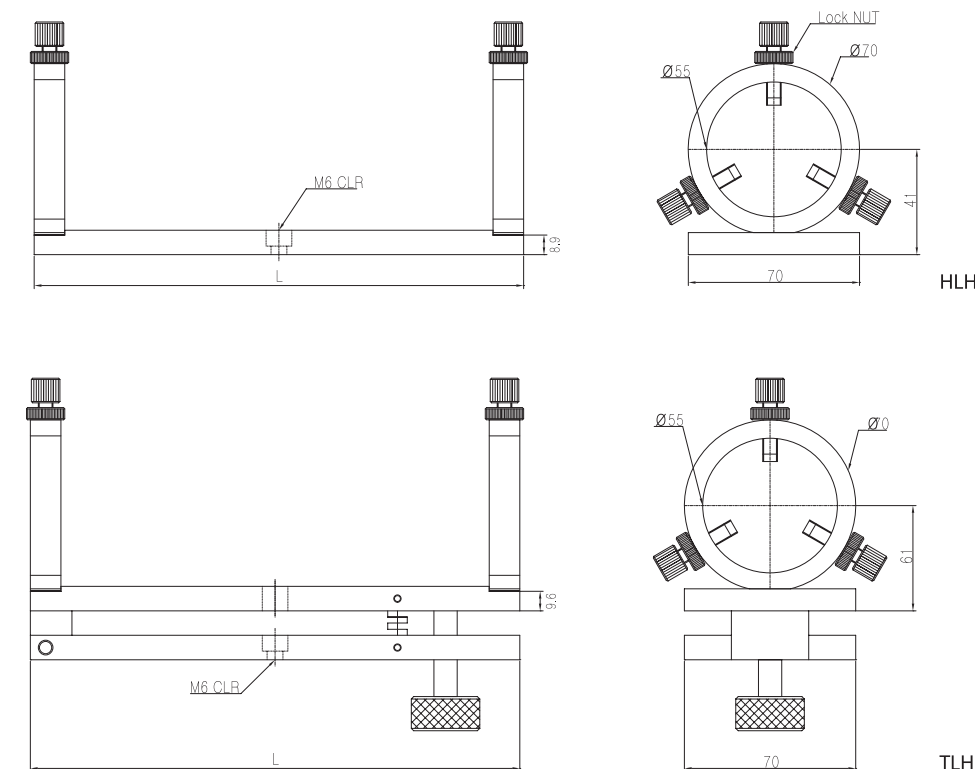
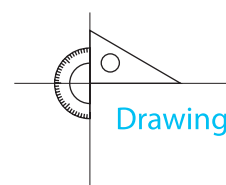
■ Laser Mount Series

Model	SLM-45	LTM-25A	LTM-45A
Size (mm)	76.2x6.2	45x67	76.2x97.5
Adjustment Range	Tilt Rotation $\pm 4.5^{\circ}$		
Description	Laser Holder	Laser Tilt Holder	
Material (Treatment)	Aluminum (Black Anodized)		
Holes Pattern	$\varnothing 45$, M6-CLR	$\varnothing 25.4$, M6-Tap, CLR	$\varnothing 45$, M6-Tap, CLR

Laser Tilt Mounts



- Basic type(HLH type) - Angle adjustment by 3 axis adjustment.
- TLH type - Angle adjustment of a vertical direction.



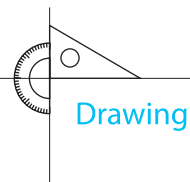
■ Laser Holder Series

Model	HLH-15	HLH-20	HLH-35	TLH-15	TLH-20
Size (mm)	Ø55×150	Ø55×200	Ø55×350	Ø55×150	Ø55×200
Description	Cylindrical Laser Holder				
Material (Treatment)	Aluminum (Black Anodized)				
Holes Pattern	M6-CLR				

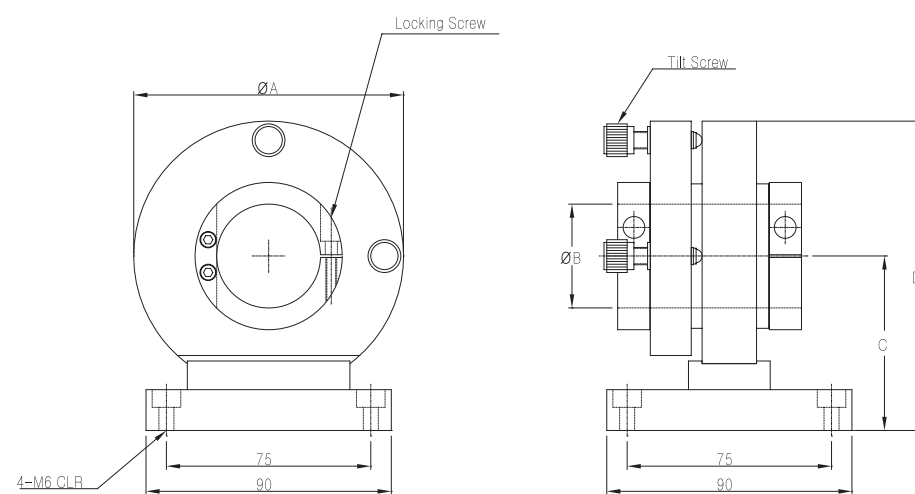
Gimbal Laser Tilt Mount



- Cylindrical Laser Mounting Holder.
- Tube design beam expander holder.
- Endure a high load.



Drawing



GLM-1, GLM-2

Model	GLM-1			GLM-2		
Laser Diameter	B	Ø38.1		B	Ø44.5	
Size (mm)	A	C	D	A	C	D
	Ø99	Ø64	Ø113.5	Ø106	Ø70	Ø123
Adjustment Range	Tilt $\pm 4^\circ$					
Adjustment Drive	2-Axis 80-Pitch Screw					
Material (Treatment)	Aluminum (Black Anodized)					
Holes Pattern (Bottom)	4-M6 CLR					
Load Capacity	Vertical	10Kg				
	Horizontal	15Kg				

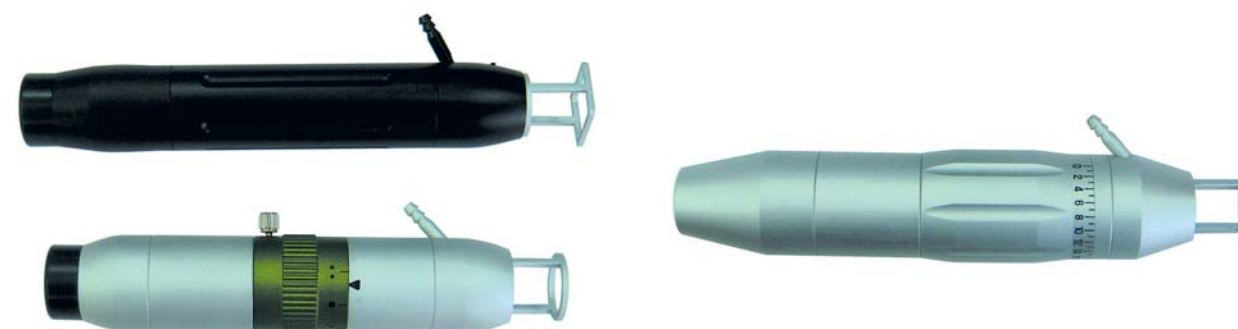
Beam Focusing Mount



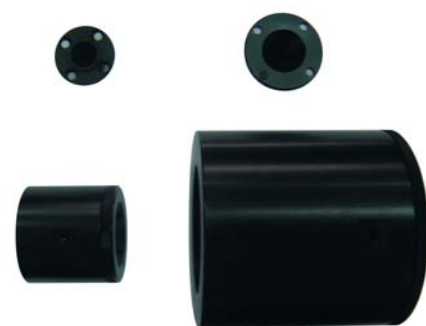
Beam Expander



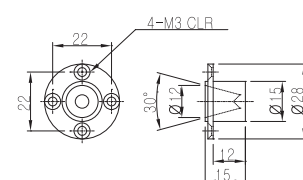
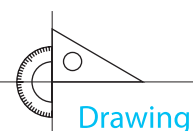
Medical Zoom Handpiece



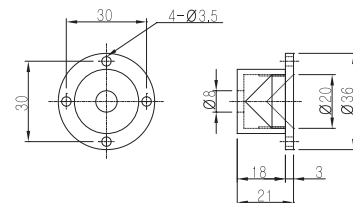
Beam Dump



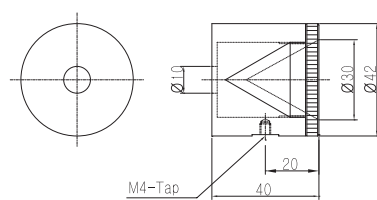
- Block unwanted laser beams or beams not in use.
- Entrance apertures of $\varnothing 8 \sim \varnothing 52$.
- M4-threaded base is included for easy post mounting.



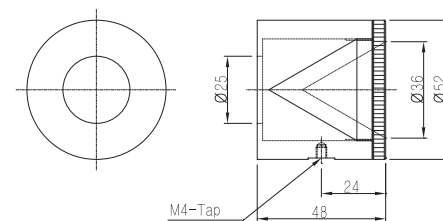
BD-20



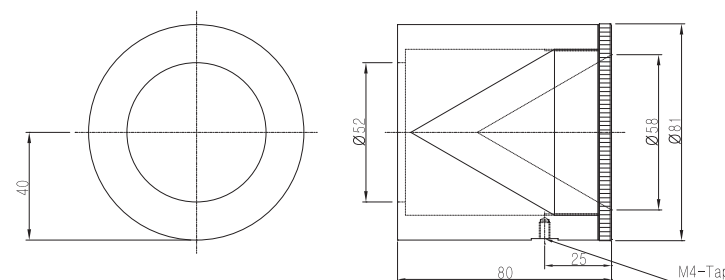
BD-30



BD-40

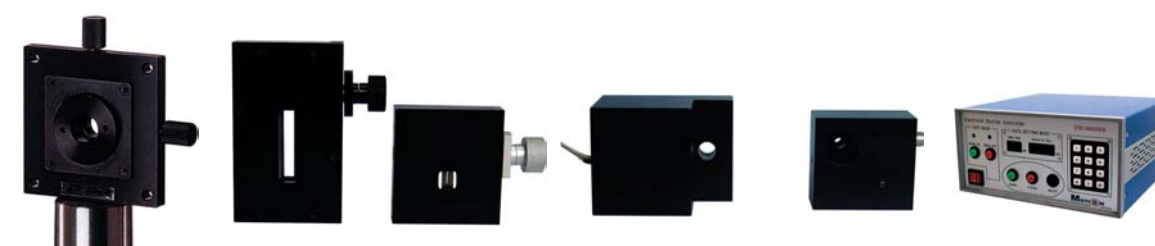


BD-50



BD-80

Model	BD-20	BD-30	BD-40	BD-50	BD-80
Entrance Aperture	Ø12	Ø8	Ø10	Ø25	Ø52
Material (Treatment)	Aluminum (Black Anodized)				
Holes Pattern	4-M3 CLR	4-Ø3.5	M4-Tap		



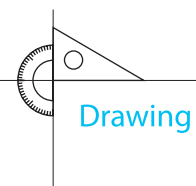
Pinhole & Shutter

Pinhole Holders
Iris Diaphragm Holder
Slit Mounts
Electric Shutter Controller

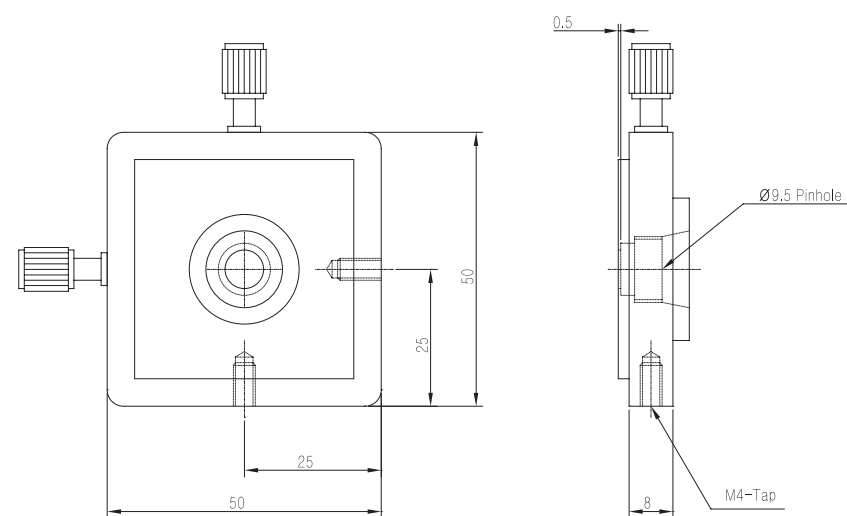
Pinhole XY Mount



■ Adjust minuteness point as equip Pinhole.



Drawing



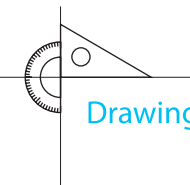
HPH-1

Model	HPH-1
Pinhole Diameter	Ø9.5
Size (mm)	50×50
Adjustment Range	XY: ±2mm
Adjustment Drive	2-Axis 80 Pitch Screw
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	2-M4 Tap
Pinhole	Option

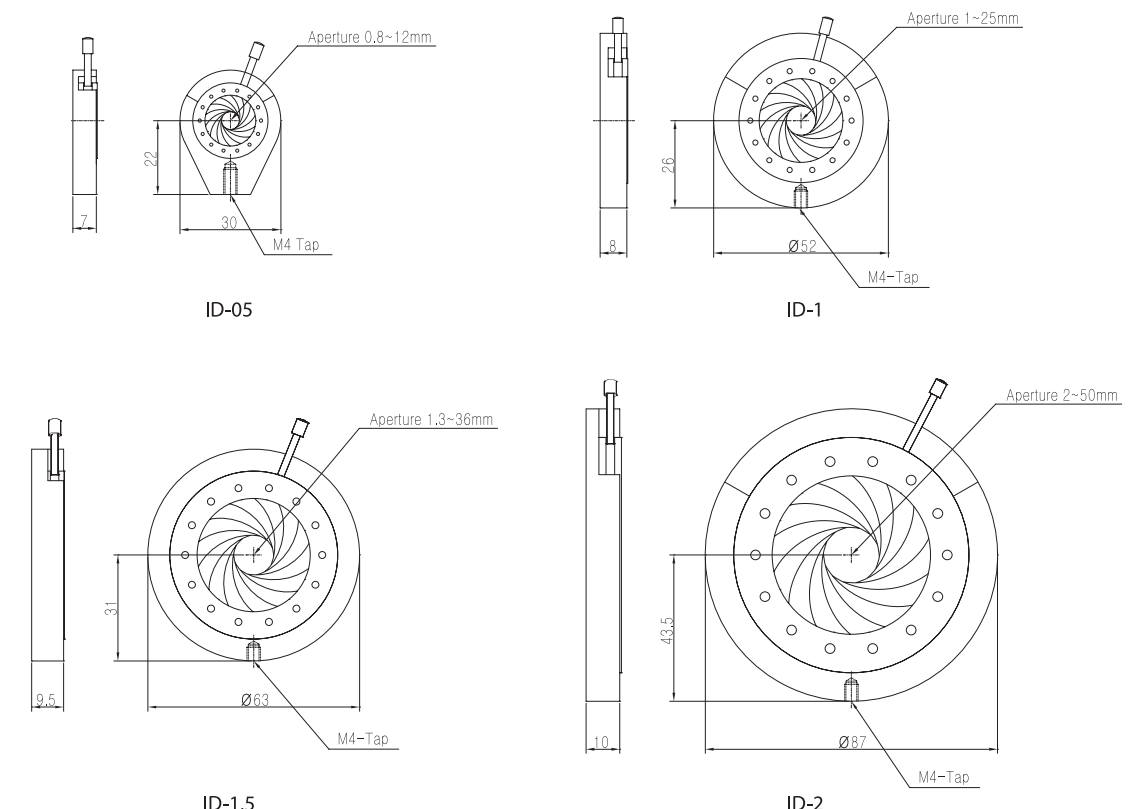
Iris Diaphragm Holder



- Continuously Variable Iris.
- Black Spring Steel Leaves.
- Black Anodized Aluminum Housing.
- Custom Sizes Available.



Drawing

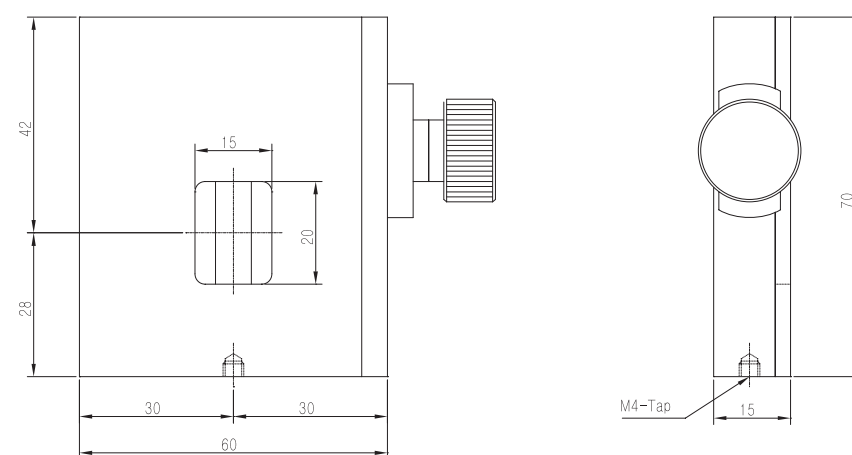
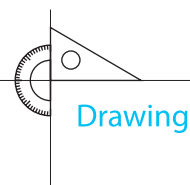


Model	ID-05	ID-1	ID-1.5	ID-2
Aperture	0.8~12mm	1~25mm	1.3~36mm	2~50mm
Material (Treatment)	Aluminum (Black Anodized)			
Holes Pattern	M4-Tap			

Slit Mounts



- A cutting adjusts thin beam.
- Adjustable slit length.



SLT-1

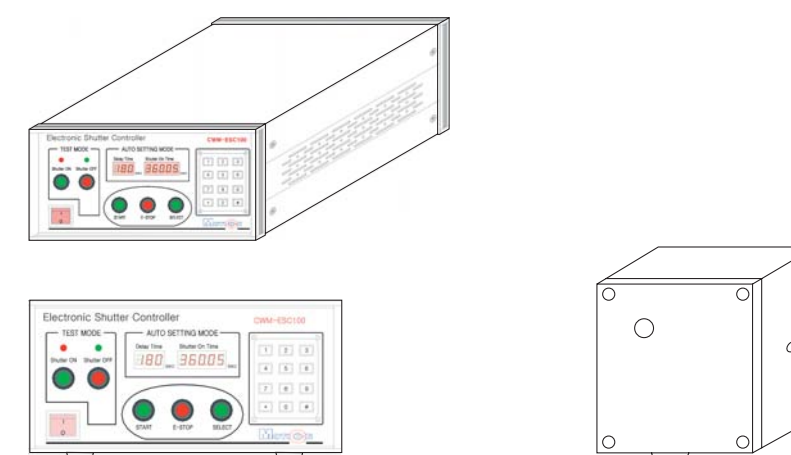
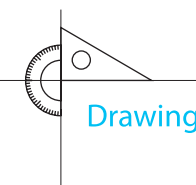
Model	SLT-1
Size (mm)	60×70
Adjustment Range (mm)	15
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	M4-Tap

An application or transformation are possible to the above-mentioned product.

Electric Shutter Controller



- Shutter actuation can be pre-delayed.
- Fast millisecond response time.
- Normally Closed.
- Passive Closure Mechanism.
- Laser Safety Applications.



Model	SHUTTER (ESC110)
Aperture	6mm
Height	42
Dimension	53×57×27
Shutter Response Time	< 3ms
Exposure Duration	10msec ~ 999sec
Time Delay Range	1sec ~ 999sec
Timing Accuracy	0.05% ± 10usec
Max. Repetition Rate	1Hz
Shutter Status Display	Green, Red LED
Easy Operating	Numeric Key pad

Model	CONTROLLER (ESC100)	
Operating Modes	Manual Mode (Testing)	Shutter ON
		Shutter OFF
	Auto Mode	Time Delay Setting
		Exposure Time Setting
Cable	Start, Emergency Stop	
	3M, 1.5M	
Power Requirements		
Dimension		

An application or transformation are possible to the above-mentioned product.



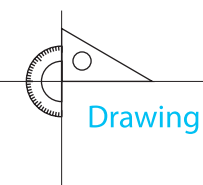
Fiber Mounts

Fiber Chuck Holder
Fiber Chuck Clamps
Bare Fiber Holders
Fiber Tilt Mounts
Precision Optical Positioning System
Fiber Couplers XYZ Objective Stage
Fiber Optics Mounts
Optical Fiber / Spatial Filters
Fiber Couplers Mounts
Optical Spatial Pinhole / Fiber Holders

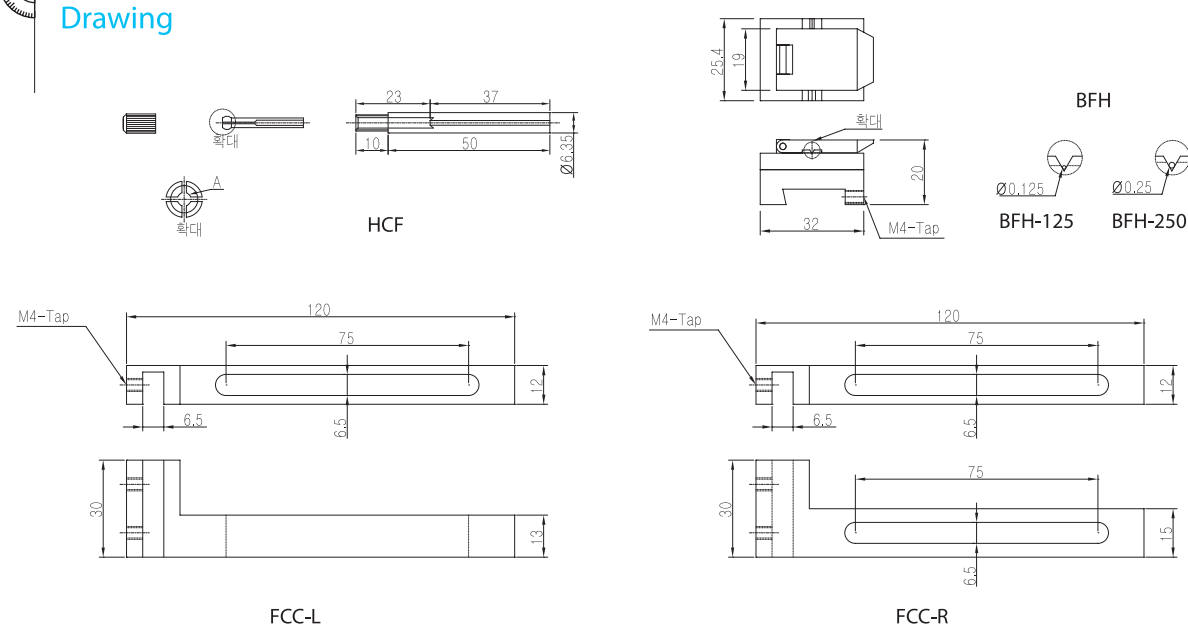
Fiber Chuck Holder / Fiber Chuck Clamps / Bare Fiber Holders



■ Remove and replace fibers repeatedly without damage.



Drawing



Model	HCF-125	HCF-250	HCF-1
Fiber Diameter	0.125	0.250	0.3~1
Description	Fiber Chuck Holder		

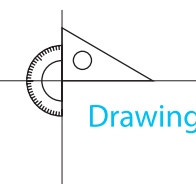
Model	BFH-125	BFH-250
Fiber Diameter	0.125	0.25
Stage Size (mm)	25.4x30x20	
Description	Rail Carriers	
Material (Treatment)	Aluminum (Black Anodized)	

Model	FCC-L	FCC-R
Size(mm)	120x30	
Description	Fiber Chuck Clamp	
Material(Treatment)	Aluminum (Black Anodized)	
Holes Pattern	M4 Tap, Ø6.5 Slot	

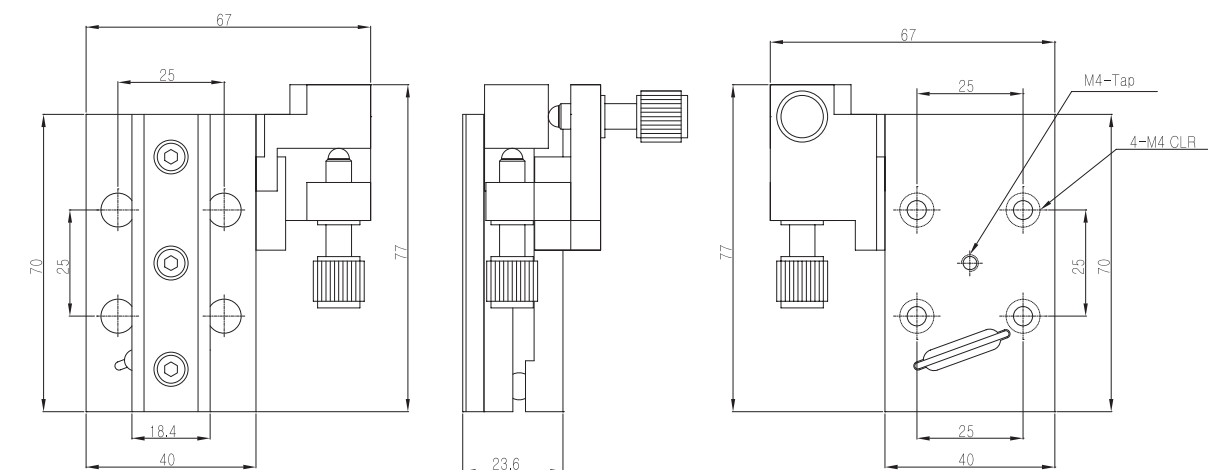
Fiber Tilt Mounts



- Tilt/Rotation functions in case of a fiber alignment align.
- Attach a rail so as to be able to equip FOP series unit and Accessories mount.



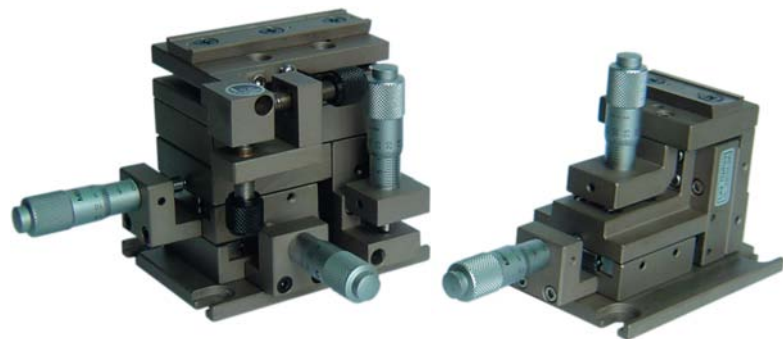
Drawing



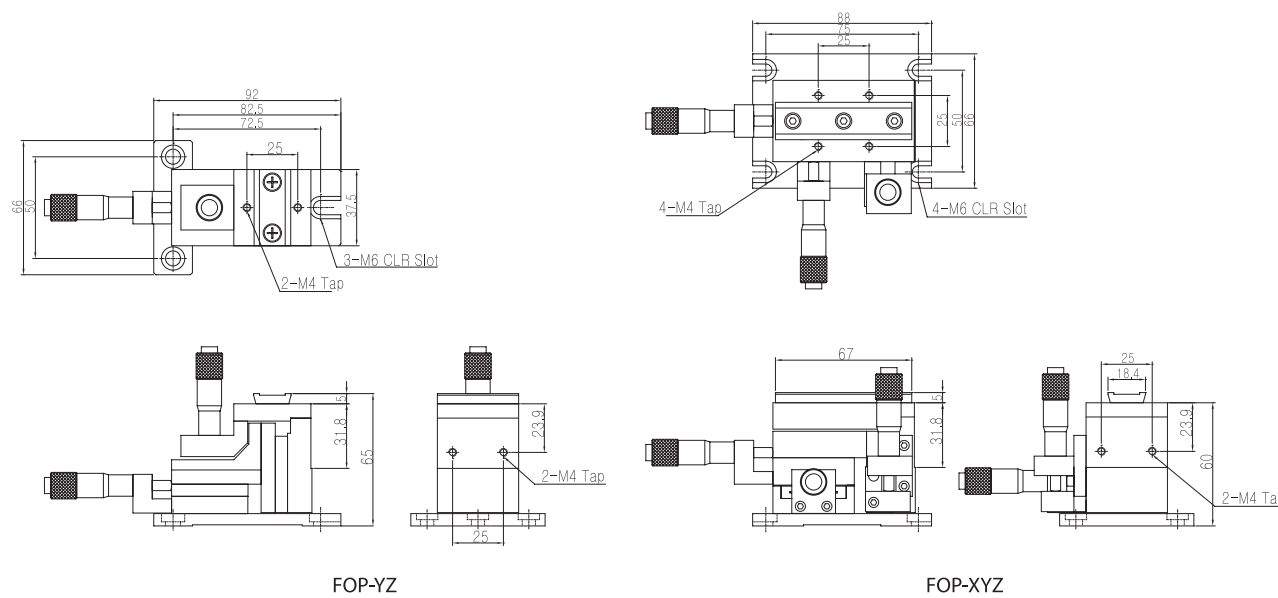
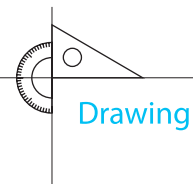
FTM-1 Right
FTM-2 Left

Model	FTM-L	FTM-R
Size (mm)	77x67x23.6	
Adjustment Range	Tilt $\pm 8^\circ$ / Rotation $\pm 8^\circ$	
Adjustment Drive	80-Pitch Screw	
Description	Right	Left
Material (Treatment)	Aluminum (Black Anodized)	
Holds Pattern (Top)	Ø8, M3, M4-Tap	
Holes Pattern (Bottom)	M4-Tap, CLR	

Precision Optical Position System



- Stainless steel construction for the ultimate long-term stability.
- Right and left handed configurations (FOP-XYZ-R type, FOP-XYZ-L type).
- Hardened steel, crossed-roller bearings for high rigidity and precision motion.

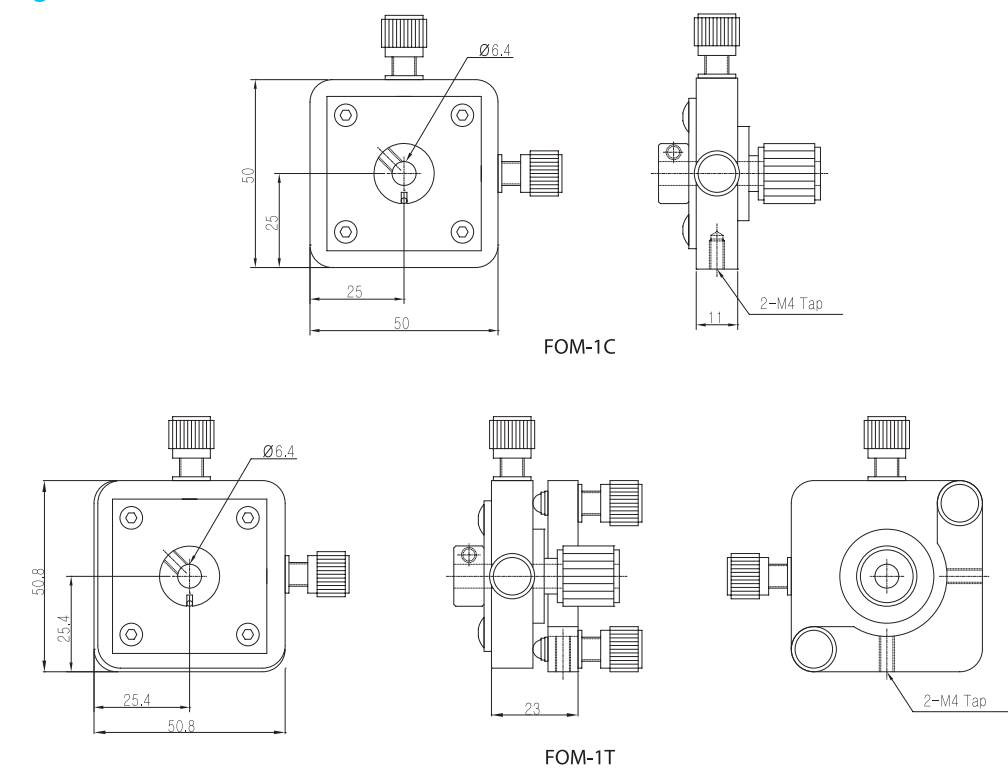
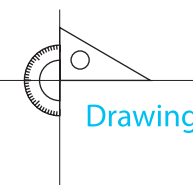


Model	FOP-YZ	FOP-XYZ
Size (mm)	92×66×65	88×66×65.5
Travel Range (mm)	±6.5	±6.5
Adjustment Drives	SM-13 Micrometer	
Travel Guide	V-Groove & Crossed-Roller	
Load Capacity	2.3kg	
Material (Treatment)	Steel	
Holes Pattern (Bottom)	M6-CLR Slot	

Fiber Optics Mounts

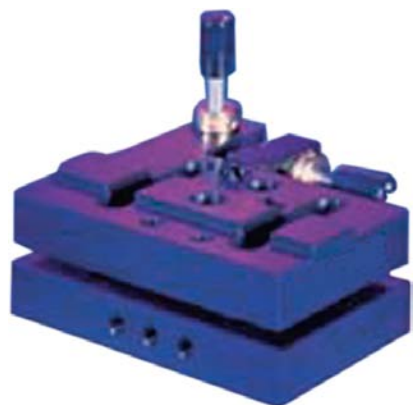


- Design so as to be able to equip Fiber Chuck Holder.
- 3-axis translation and 5-axis translation/gimbal versions.
- Lockable position feature.
- Accommodate bare, connectorized or polarization-preserving fibers.

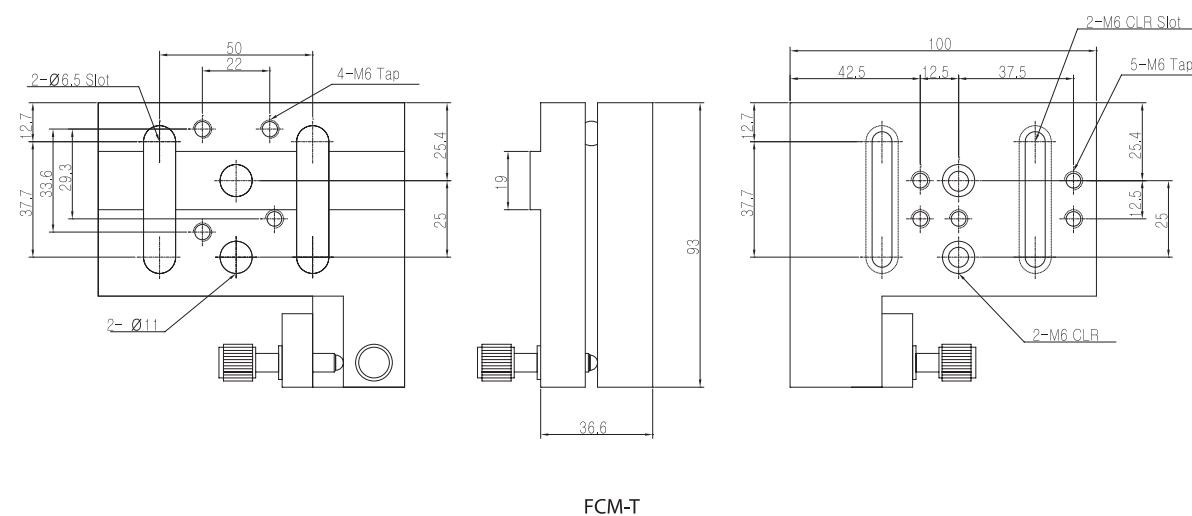
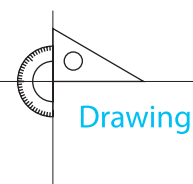


Model	FOM-1C	FOM-1T
Size (mm)	50×50	50.8×50.8
Adjustment Range	Tilt-Axis ±4° XY-Axis ±2mm Z-Axis ±2mm	Tilt-Axis ±4° XY-Axis ±2mm Z-Axis ±2mm
Description	Fiber Chuck Holes Ø6.4	
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern	M4-Tap	

Fiber Couples Mounts



■ Sub-assemblies can be used for single-mode fiber coupling when mounted on the FCM-TTilt Stage, forming an assembly identical to our FOC-T Single-mode Fiber Couplers.

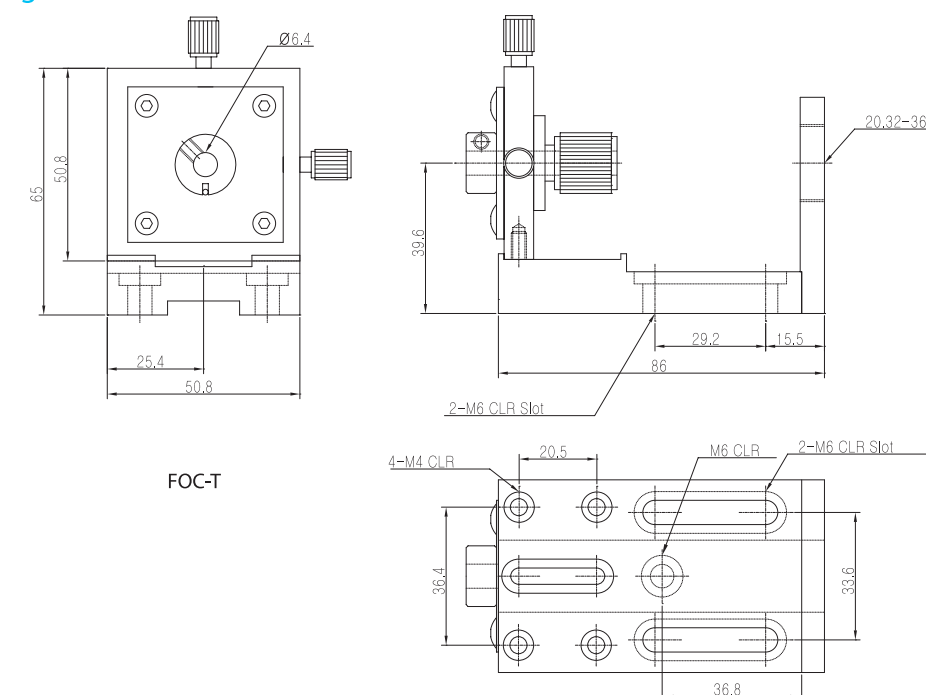
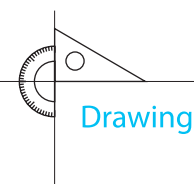


Model	FCM-T
Size (mm)	100×93
Adjustment Range	Tilt ±8° / Rotation ±8°
Adjustment Drive	80-Pitch Screw
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern (Top)	Ø6.5 Slot, Ø11, M6-Tap
Holes Pattern (Bottom)	M6-Tap, CLR, CLR Slot

Fiber Couples Mounts



- Useful as input couplers or output collimators

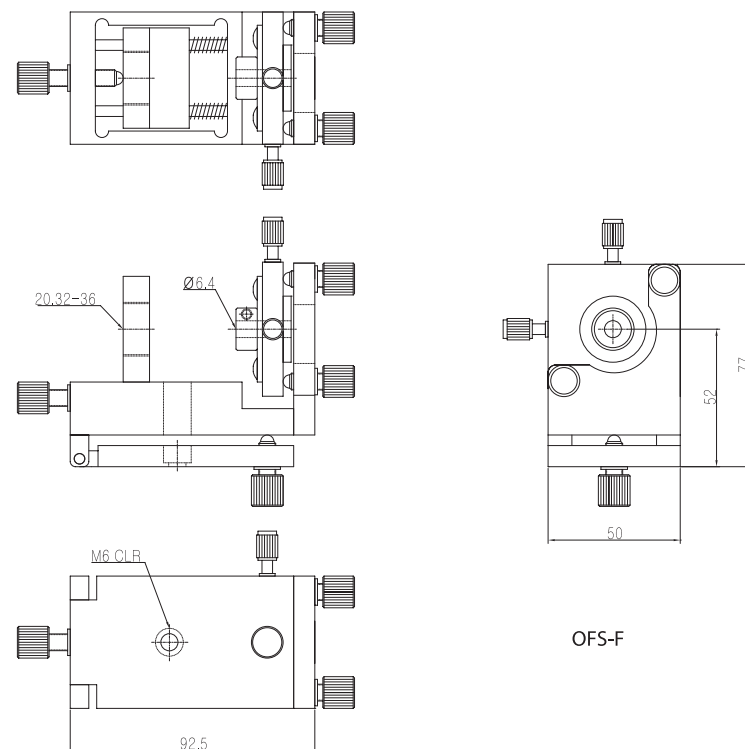
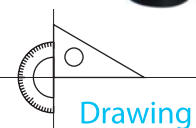


Model	FOC-T
Size(mm)	50.8×86×65
Travel Range(mm)	XY: ±2, Z: ±2
Adjustment Drive	80-Pitch Screw
Description	Fiber Chuck Holes Ø6.4 Objectives Lens Holes
Material(Treatment)	Aluminum (Black Anodized)
Holes Pattern	M4-CLR, M6-CLR, CLR Slot

Optical Fiber / Spatial Filters



- Equip selection objective lense, and focus on mount of a XYZ Tilt function.
- Easily adjust a subject optical axis align with a Tilt function of a vertical direction.

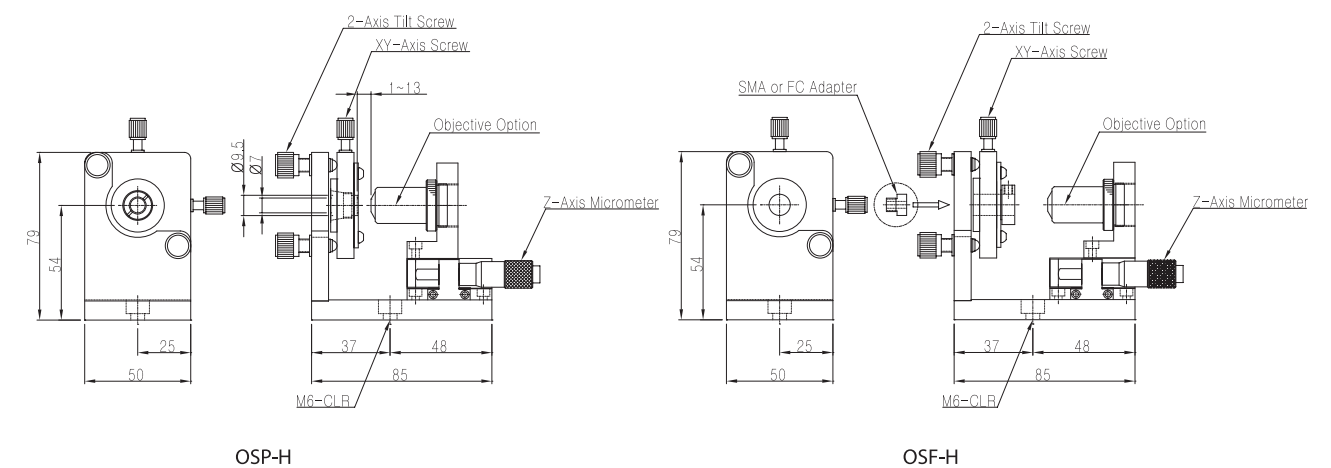
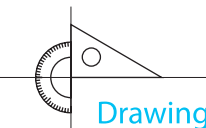


Model	OFS-F
Size (mm)	50×92.5×77
Travel Range (mm)	XY: ±3, Z: 13 (Objective)
Adjustment Drive	80-Pitch Screw Micrometer XY: SM-06, Z: SM-13
Description	Fiber Chuck Holes Ø6.4 Objectives Lens Holes
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	M6-CLR

Optical Spatial Pinhole / Fiber Holders



- Holder for guiding a laser beam to an optical fiber.
- Division for criss-cross fine motion.
- Have an overall tilt adjustment mechanism.
- Comes standard with an SMA or FC Adapter.



Model	OSP-H	OSF-H
Description	Ø9.5 Pinhole	SMA or FC Adapter (Ø10)
Size (mm)	50×85×79	
Adjustment Range	Tilt-Axis ±4°, XY-Axis ±2mm Z-Axis 13mm	
Adjustment Drive	XY Tilt-Axis 80-Pitch Screw Z-Axis 13mm Micrometer	
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern	M6 CLR	

Pinhole & Objective Lens는 별도 공급품목



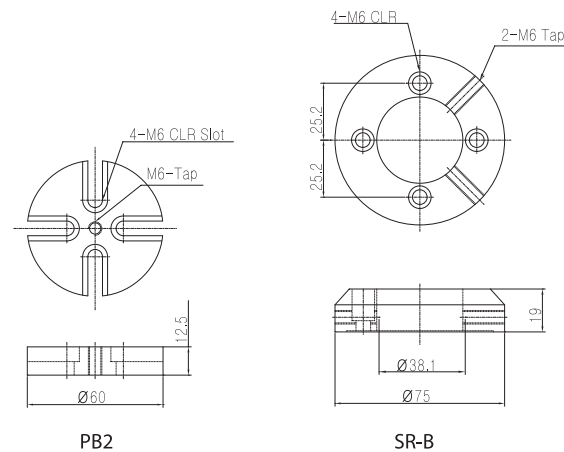
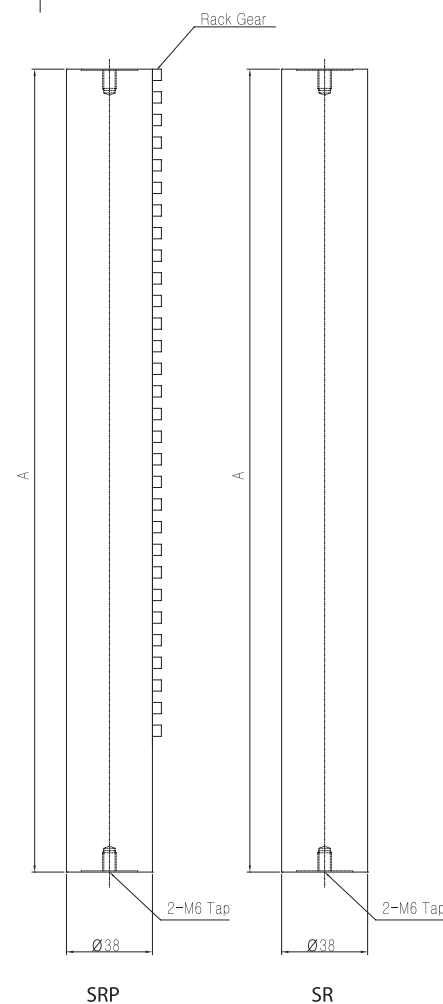
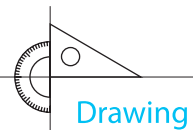
Stable Rods & Rod Clamps

Stable Rods
Rod Clamps
Rod90° Mounting Platforms
Dual Stable Rod System
Rod Precision Beam Steering
Beam Steering Device

Stable Rods



- Rods support lager loads with greater stability.
- Mounting rods anywhere on tables and breadboards.
- Easily adjustable with component in place.



Mounting Rod Base

Rod Series

Model	SR-20	SR-35	SR-50	SRP-20	SRP-35	SRP-50			
Size (mm)	ø38.1×200	ø38.1×350	ø38.1×500	ø38.1×200	ø38.1×350	ø38.1×500			
Description	Standard Rod			Damped Rod With Rack					
Material (Treatment)	Stainless Steel								
Holes Pattern	M6-Tap								

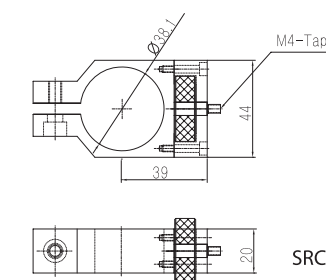
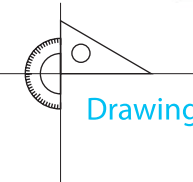
Mounting Rod Base

Model	PB-2	SR-B
Size (mm)	18×40	40×40
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern	M6-Tap, CLR Slot	38.1, M6-Tap, CLR

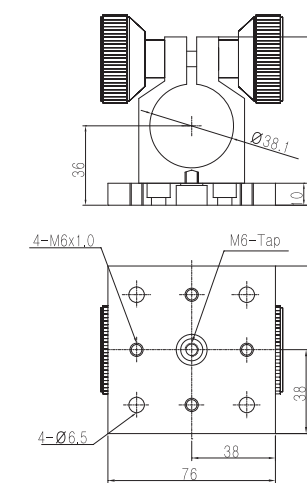
Rod Clamps



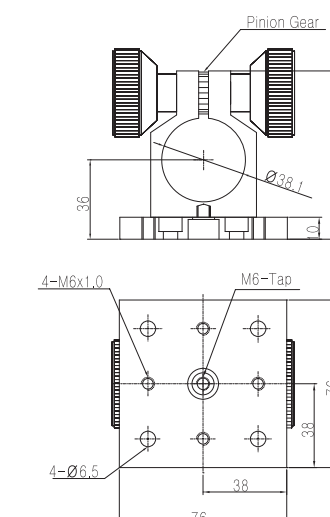
- Large mounting surface.
- Quick disconnect mechanism.
- Components attach in a variety of angular orientations.



SRC-150



SRC-3



SRC-7

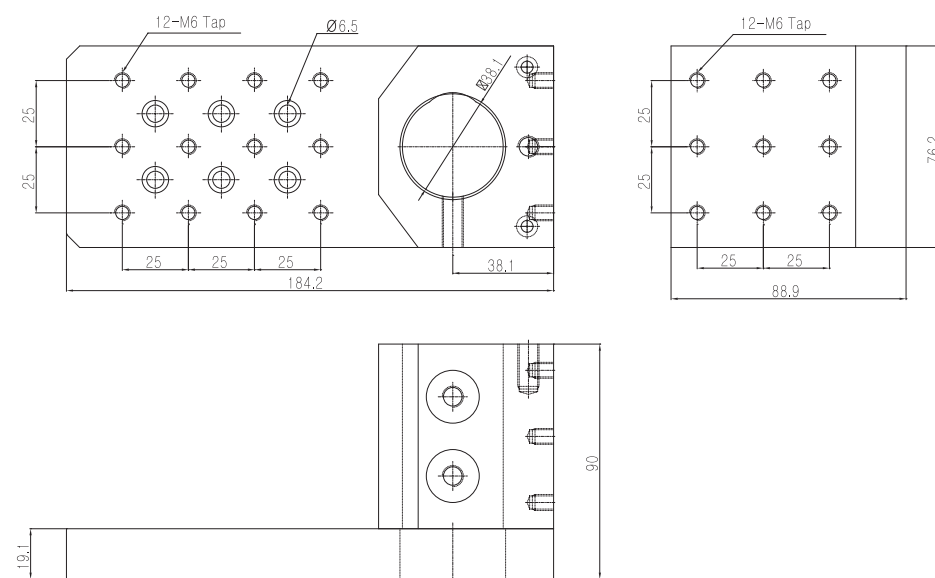
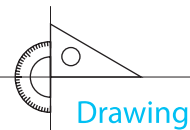
Rod Clamp Series

Model	SRC-150	SRC-3	SRC-7
Size (mm)	44×20	76×76	76×76
Description	Manual Adjustment Clamp		Rack&Pinion Adjustment Clamp
Material (Treatment)	Aluminum (Black Anodized)		
Holes Pattern	38.1, M4-Tap	M6-Tap, CLR Slot	M6-Tap, CLR

Rod90° Mounting Platforms



- Three Mounting surfaces.
- Two-piece design for increased versatility.
- Rigid lock-down.



RMP-90

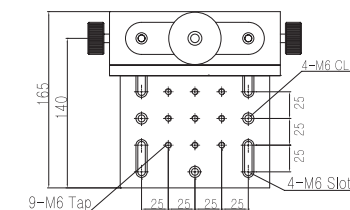
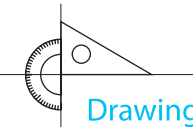
Rod Mounting Series

Model	RMP-90
Size (mm)	76.2 × 184.2 × 90
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	Ø38.1, M6-Tap, CLR

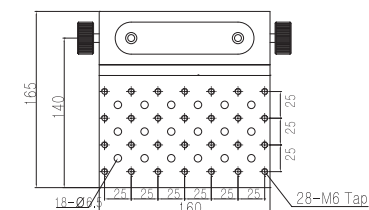
Dual Stable Rod System



- The Model DPP series Mounting Assembly positions heavy optical components and assemblies at various elevations with excellent stability.
- Dual-rod design provides stiffness and stability.



DPP-35



DPP-37

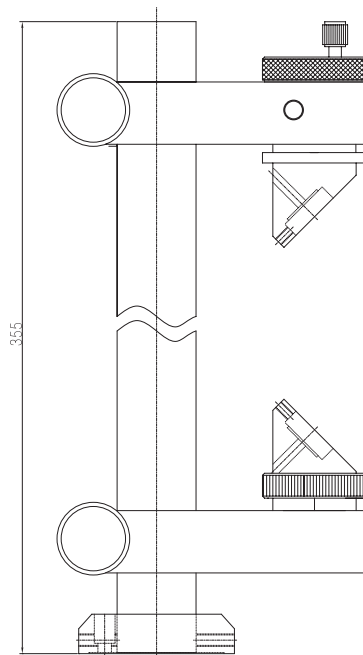
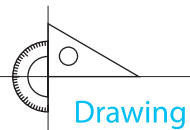
Model	DPP-35
Stage Size (mm)	160×110
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	M6-Tap, CLR, CLR Slot

Model	DPP-37
Stage Size (mm)	160×115×80
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern	M6-Tap, CLR, CLR Slot

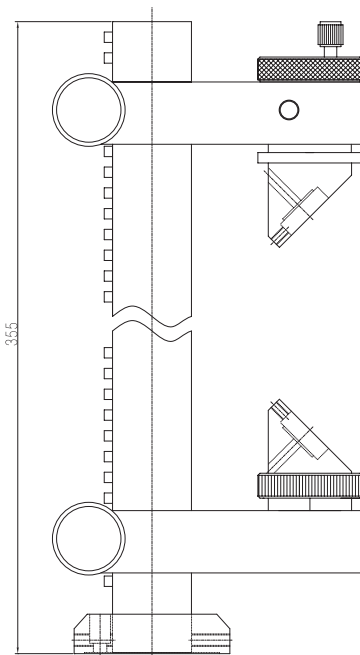
Rod Precision Beam Steering



- Stable, rigid design.
- Unmatched stability when used with our patented damped rods.
- High-resolution adjustment screws.
- Catter-free vertical height adjustment.
- Pre-loaded ball bearings for smooth, wobble-free motion.



SR-RC



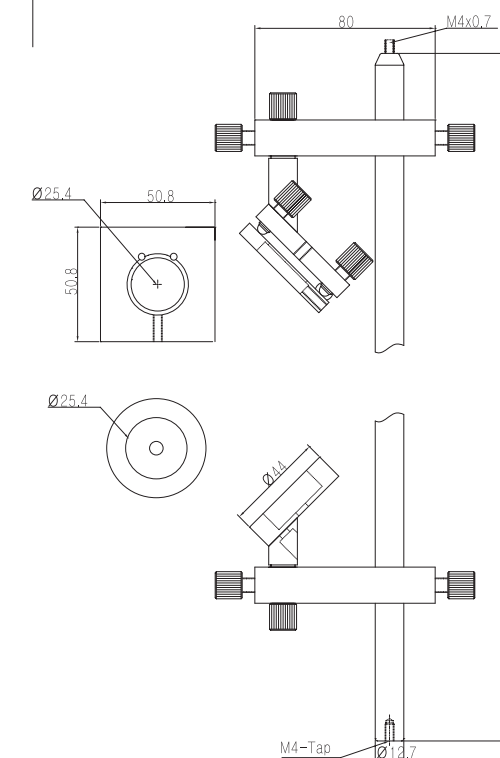
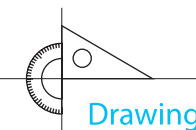
SRP-RC

Model	SR-RC	SRP-RC
Fine Elevation Adjustment Range	-20° to +7°	
Elevation Angle Resolution	15 arc sec	
Fine Azimuth Adjustment Range	15°	
Azimuth Adjustment Range	8 arc sec	
Rod Type	Standard	Gear

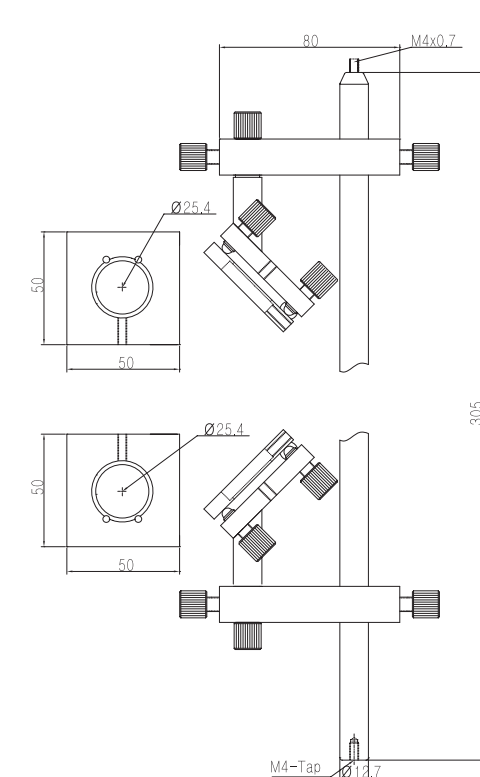
Beam Steering Device



- Direct, postholder, or base mounting.
- Precise beam direction / height control.
- Moveable mount position to either raise or lower beam.
- High-reflectivity enhanced aluminum coatings. (Black Anodized)



DBS-1



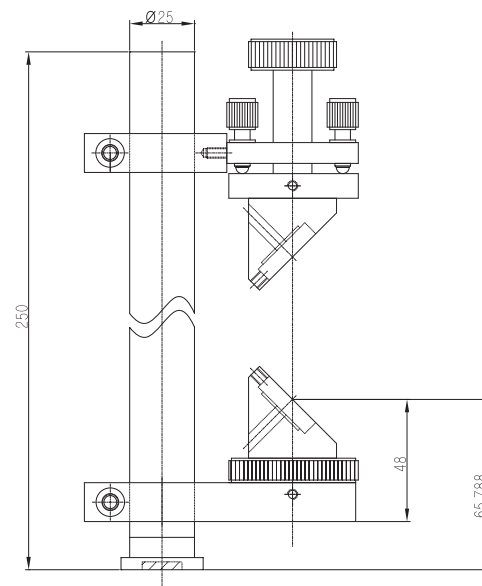
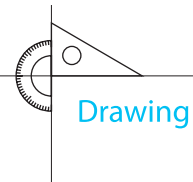
DBS-1T

Model	DBS-1	DBS-1T
Exit Aperture Height	64 ~ 248mm	
Entrance-Exit Beam Spacing	32 ~ 184mm	
Angular Adjustment Rang	8° Both Axis	
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern	Ø45, M6-CLR	Ø45, M6-Tap, CLR

Beam Steering Device



- Stable, rigid design.
- Coarse-fine azimuth angle control for accurate beam pointing over large distances.
- High-resolution adjustment screws.



BSD-1

Model	BSD-1
Beam Height	Min:50mm, Max:300mm
Optic Size	25.4mm(1")
Fine height adjustment range	10mm
Tilt range for mirrors	±4°
Height adjustment Drive	80 tpi leadscrew
Description	Standard



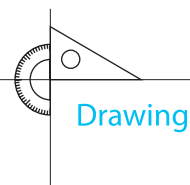
Angle & Mounting Brackets

Angle Bracket
Mounting Bracket

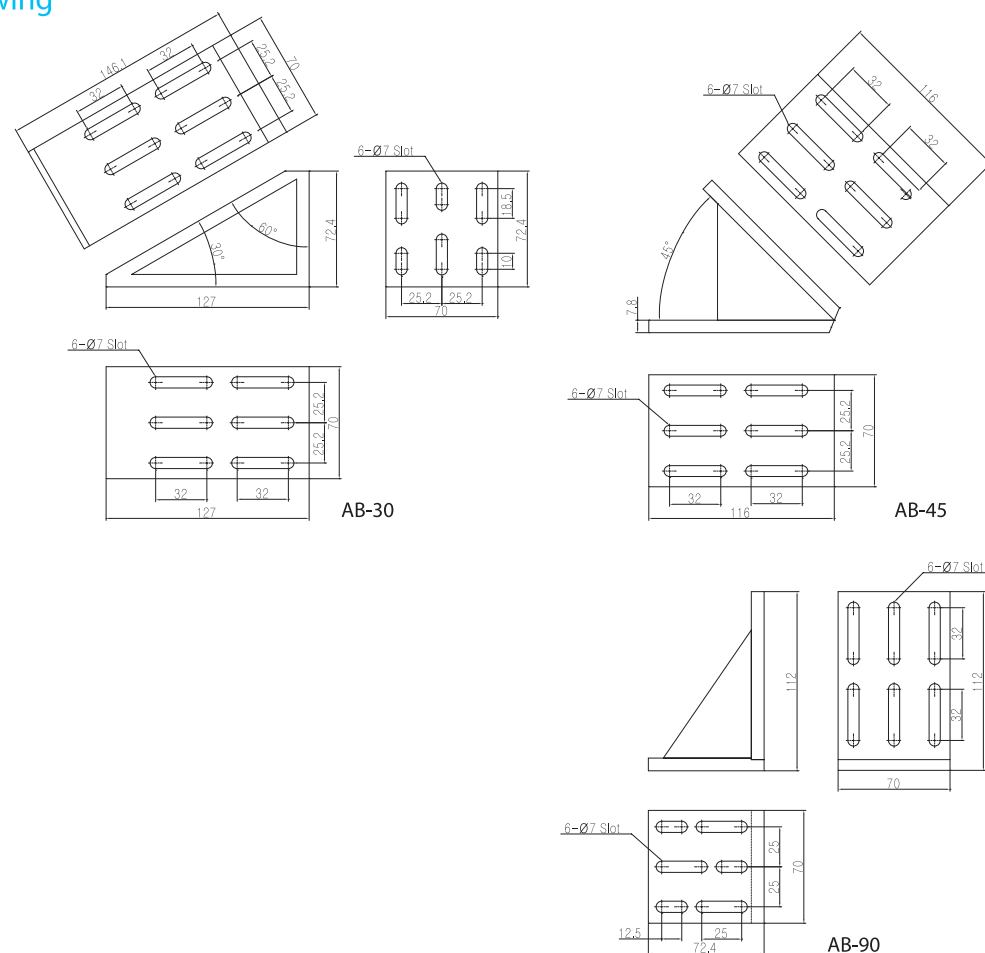
Angle Bracket



- 30°, 45°, 90° angle brackets.
- Useful for building three-axis stage assemblies.
- Orthogonal mounting platform for rod clamps.



Drawing

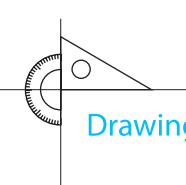


Model	AB-30	AB-45	AB-90
Size (mm)	127x70	116x70	72.4x70
Description	30° Bracket	45° Bracket	90° Bracket
Material (Treatment)	Aluminum (Black Anodized)		
Holes Pattern	Ø7-Slot		

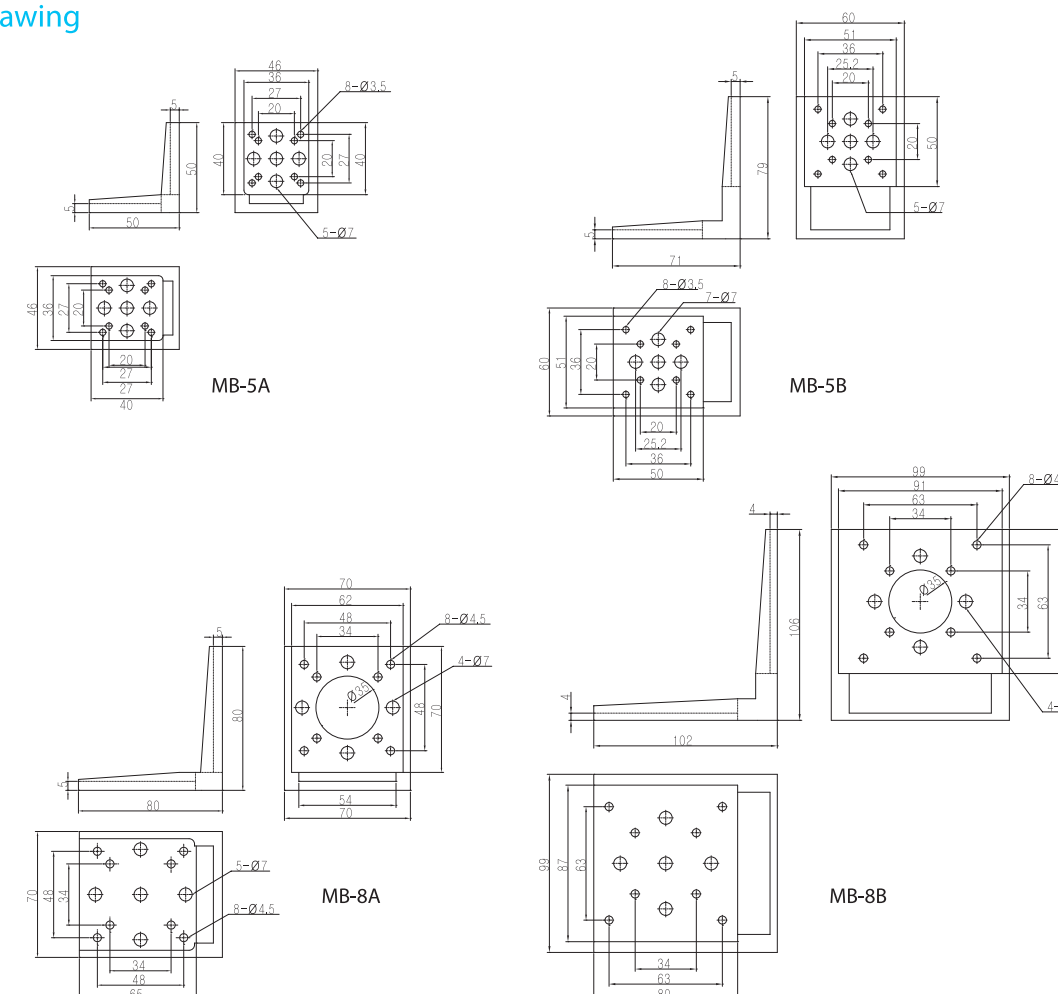
Mounting Bracket



- Orthogonal mounting platform for a stage.
- Assemble multi-axis positioners.

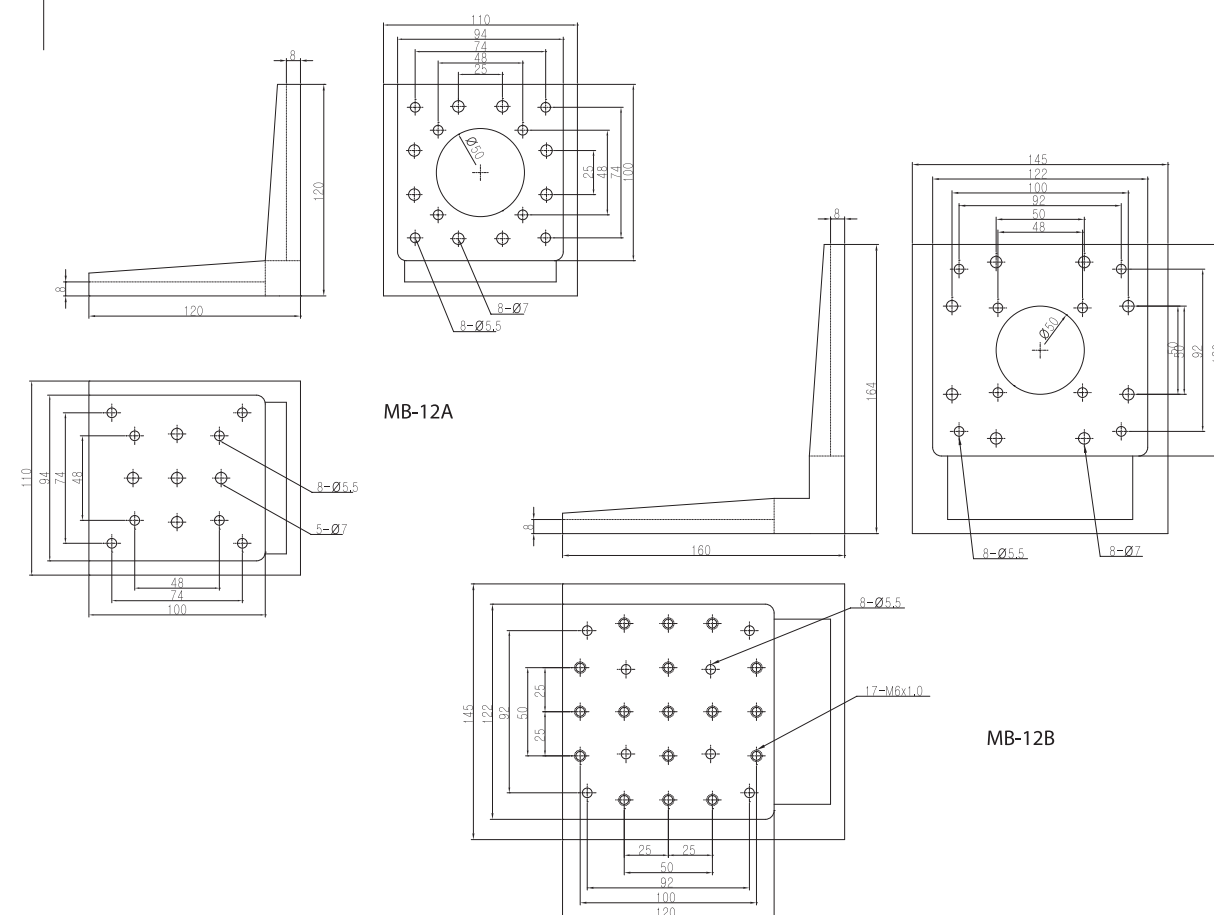
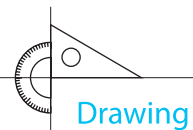
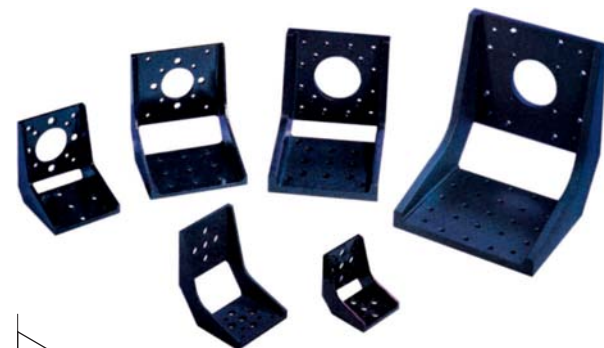


Drawing



Model	MB-5A	MB-5B	MB-8A	MB-8B
Size (mm)	46x50x50	60x71x79	70x80x80	99x102x106
Material (Treatment)	Aluminum (Black Anodized)			
Holes Pattern	Ø3.5, Ø7		Ø4.5, Ø7, Ø35	

Mounting Brackets



Model	MB-12A	MB-12B
Size (mm)	110×120×120	145×160×164
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern	Ø5.5, Ø7, Ø50	Ø5.5, M6-Tap



Translation Stage

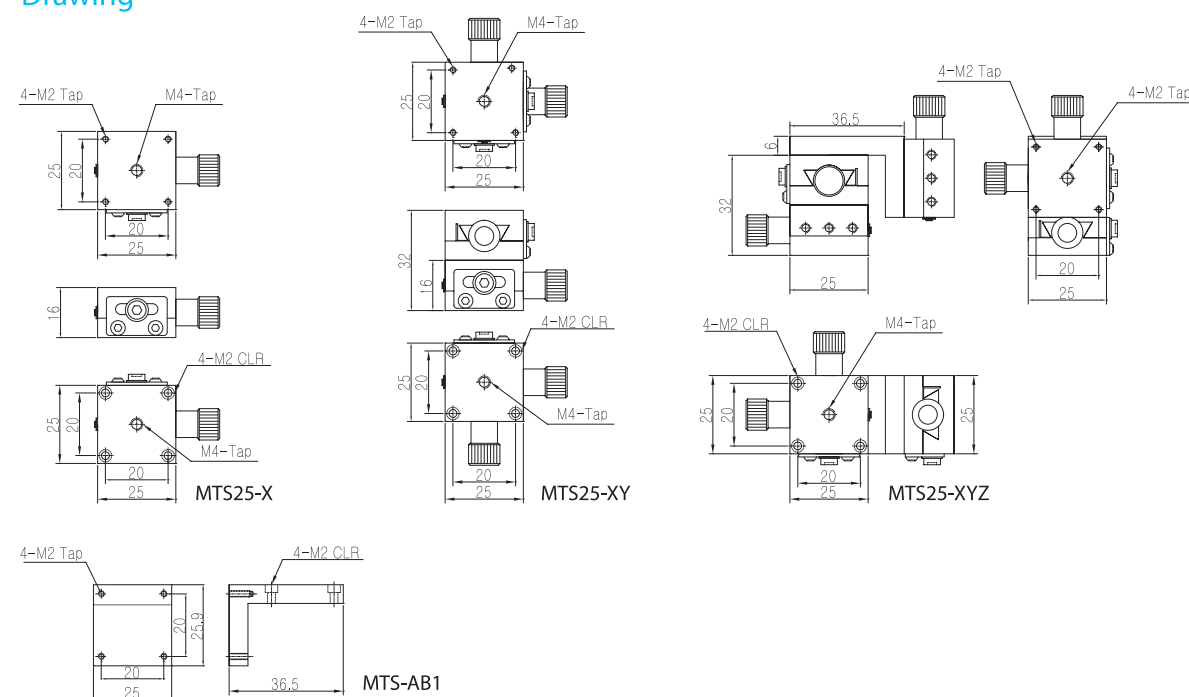
- Multi-Axis Translation Stage
- Basic Translation Stage
- Ball Slide Positioners
- Precision Translation Stage
- Steel Crossed Roller Translation Stage
- Al Crossed Roller Translation Stage
- Crossed Roller Translation Stage
- Ball Bearing Translation Stage
- Two-Axis Linear Stage
- Long Linear Translation Stage
- Rack&Pinion Dovetail Stage
- Probe Translation Stage
- High Resolution Stage

Multi-Axis Translation Stage



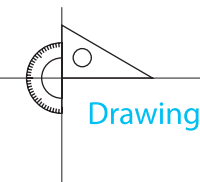
- Stable, preloaded dovetail design.
- MTS series provide smooth, high resolution 1,2,3-axis positioning for miniature components.

Drawing

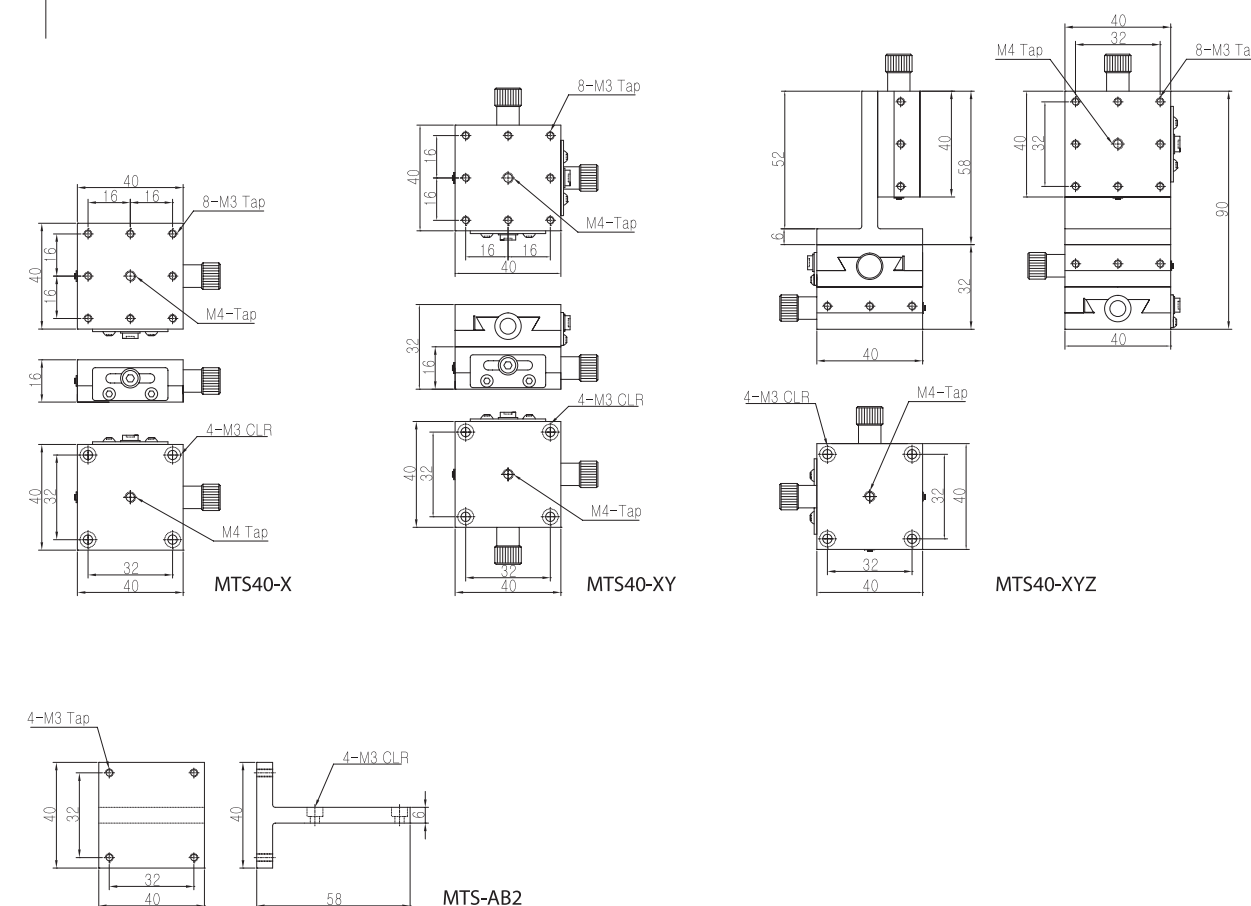


Model	MTS25-X	MTS25-XY	MTS25-XYZ	MTS-AB1
Size(mm)	25×25×16	25×25×32	25×52.5×38	25×25.9×36.5
Travel Distance	±5mm	XY: ±5mm	XYZ: ±5mm	-
Load Capacity	3.0kgf	2.9kgf	1.0kgf	-
Permissible Moment Load	Pitching	2.0 N.m	1.5 N.m	-
	Yawing	1.5 N.m	1.5 N.m	
	Rolling	1.3 N.m	1.5 N.m	
Description	One, Two, three Axis stage			Adaptor Bracket
Material(Treatment)	Aluminum(Black Anodized)			
Holes Pattern	M2, M3, M4-Tap			M2-Tap

Multi-Axis Translation Stage



Drawing

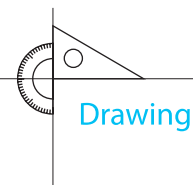


Model	MTS40-X	MTS40-XY	MTS40-XYZ	MTS-AB2
Size(mm)	40×40×16	40×40×32	40×40×90	40×40×58
Travel Distance	±7mm	XY: ±7mm	XYZ: ±7mm	-
Load Capacity	3.0kgf	2.8kgf	1.0kgf	-
Permissible Moment Load	Pitching	4.0 N.m	3.0 N.m	-
	Yawing	3.0 N.m	3.0 N.m	
	Rolling	3.0 N.m	3.0 N.m	
Description	One, Two, three Axis stage			Adaptor Bracket
Material(Treatment)	Aluminum(Black Anodized)			
Holes Pattern	M2, M3, M4-Tap			M3-Tap

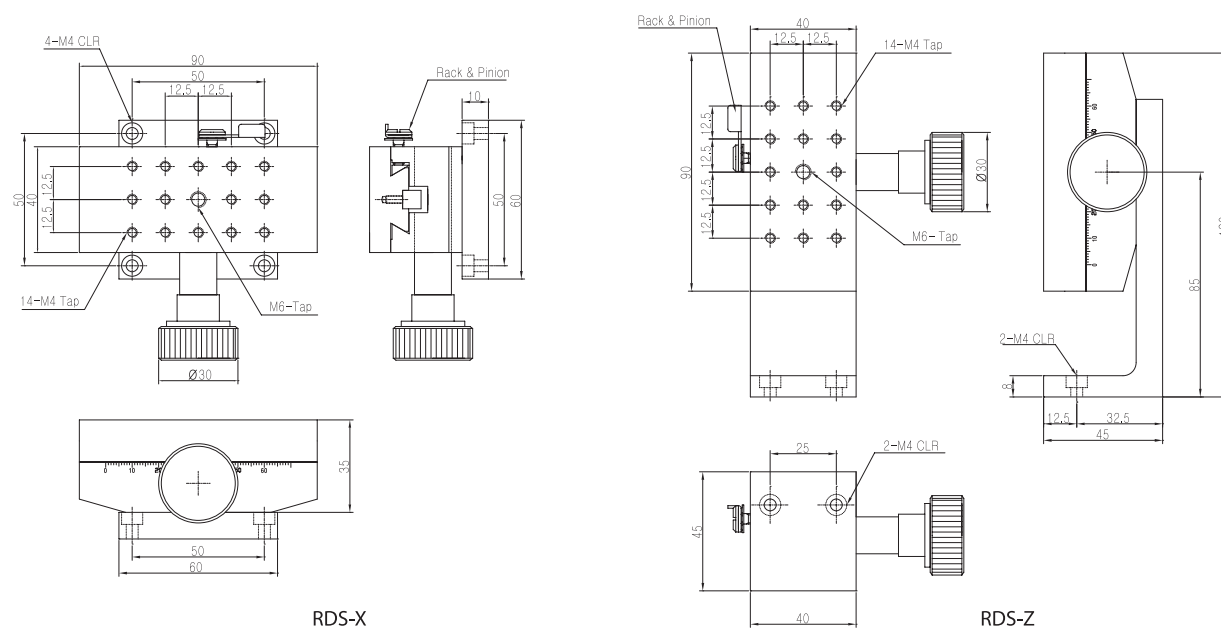
Rack&Pinion Dovetail Stage

■ Compact dovetail design.

■ Rack & pinion travel guide.



Drawing



Model	RDS-X	RDS-Z
Table Demension(mm)	40x90	
Travel Range(mm)	±30	
Travel Guide	Dovetail Type, Rack & Pinion	
Readable Resolution(mm)	0.1	
Straightness(mm)	0.03	
Load Capacity	4.0kgf	2.0kgf
Permissible Moment Load	Pitching	4.0 N.m
	Yawing	3.0 N.m
	Rolling	2.0 N.m
Material(Treatment)	Aluminum(Black Anodized)	

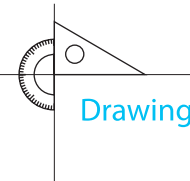
Basic Translation Stage



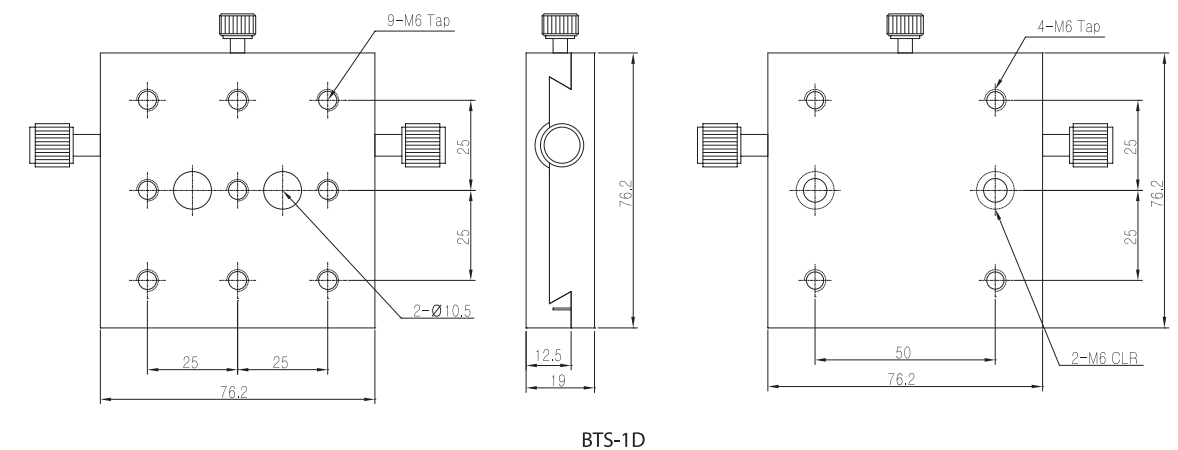
■ Unique preloaded dovetail slide design.

■ Adjustable from two sides.

■ Rapid positioning.



Drawing



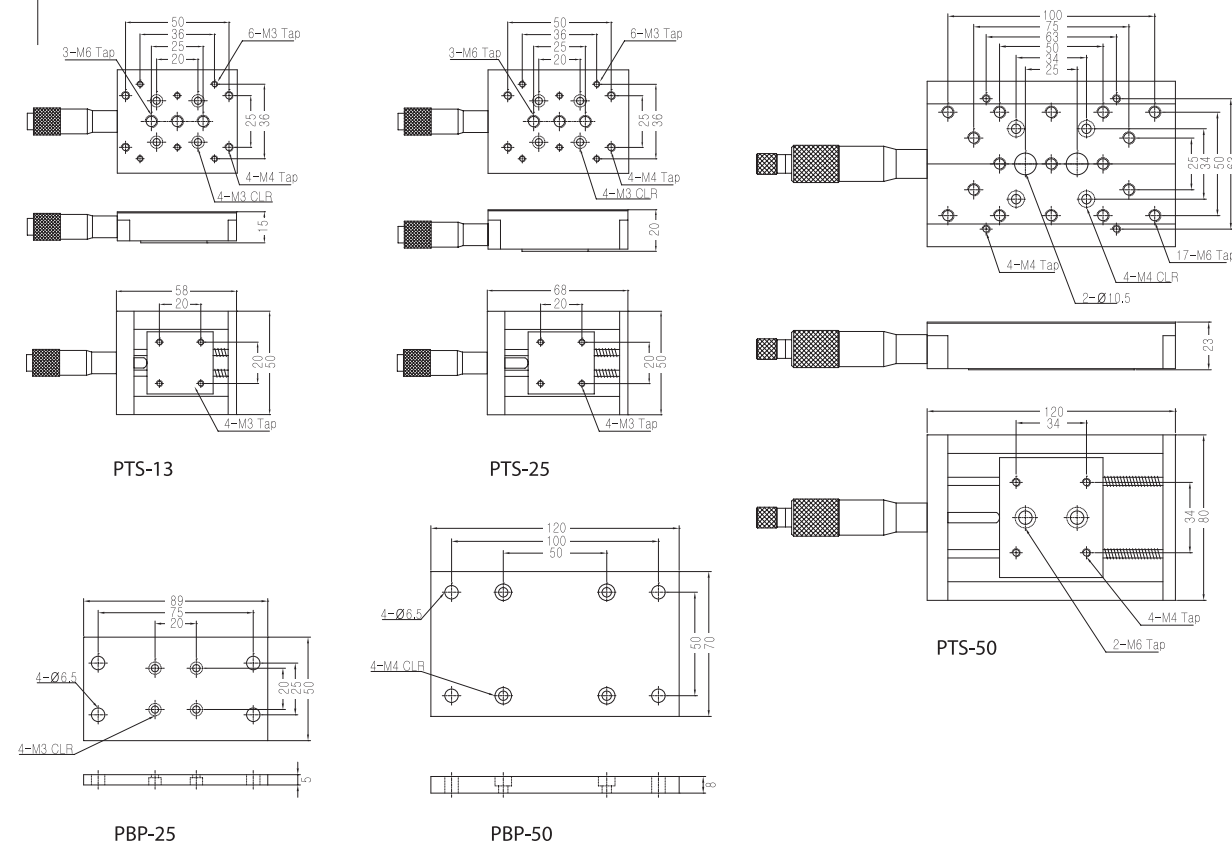
Model	BTS-1D	
Size(mm)	76.2x76.2x19	
Travel Range(mm)	±12.5	
Adjustment Drives	Leadscrew Drive	
Load Capacity	Centered 11 kg Vertical 2.3 kg	
Permissible Moment Load	Pitching	5.0 N.m
	Yawing	4.0 N.m
	Rolling	4.0 N.m
Description	Translation Stage	
Material(Treatment)	Aluminum (Black Anodized)	
Holes Pattern(Top)	Ø10.5, M6-Tap	
Holes Pattern(Bottom)	M6-Tap, CLR	

Precision Translation Stage



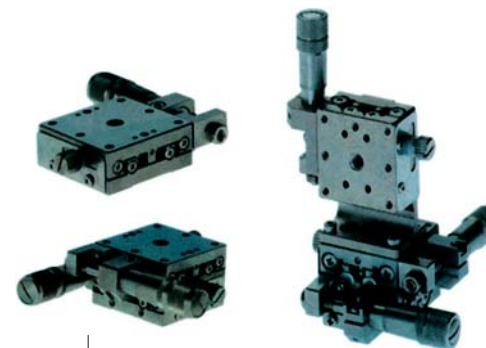
- Threaded micrometer mounting.
- Low-profile design.

Drawing



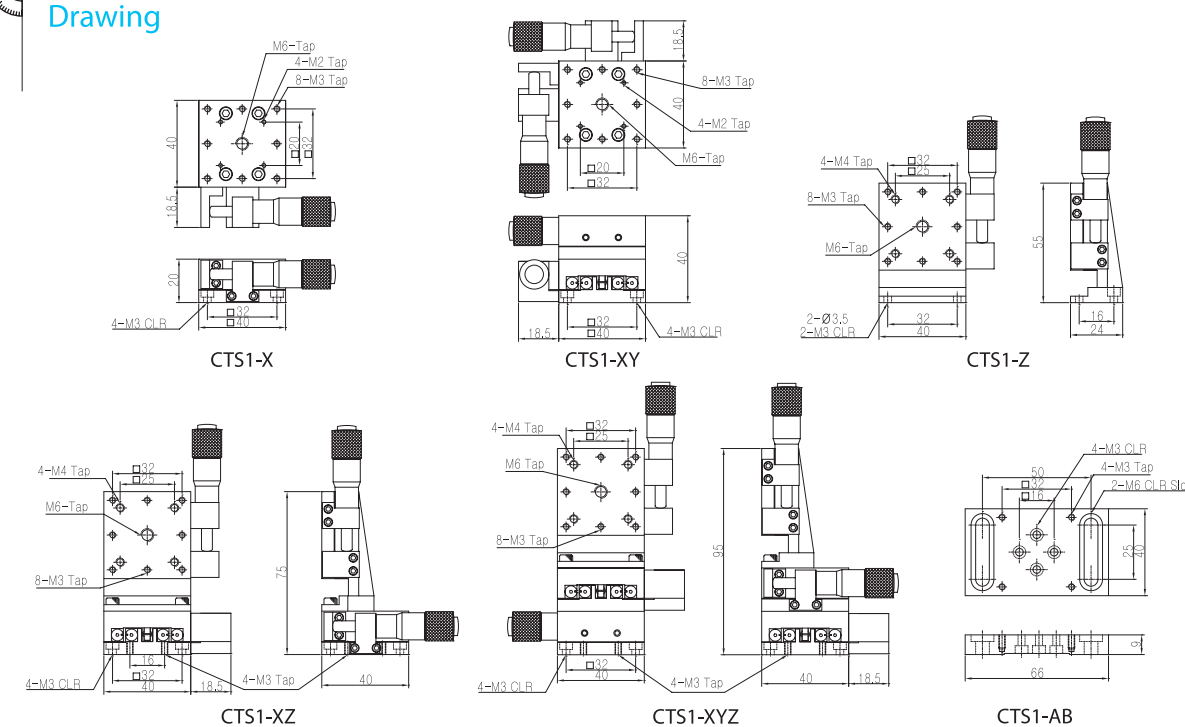
Model	PTS-13	PTS-25	PTS-50	PBP-25	PBP-50
Size(mm)	58×50×15	68×50×20	120×80×23	89×50×5	100×70×8
Position of Micrometer	Center			-	
Travel Range(mm)	±6.5	±12.5		-	
Adjustment Drives	SM-13 Micrometer	SM-25 Micrometer		-	
Material(Treatment)	Aluminum (Black Anodized)				
Holes Pattern(Top)	M3-Tap, CLR, M4, M6-Tap		Ø10.5, M4, M6-Tap	Ø6.5, M3-CLR	Ø6.5, M4-CLR
Holes Pattern(Bottom)	M4-Tap, M6-CLR			-	
Desciption	Precision Translation Stage			Base Plate	

Steel Crossed Roller Translation Stage



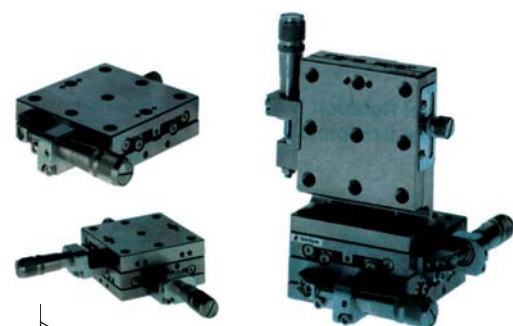
- Stainless steel construction with crossed roller bearings for high stability and rigidity.
- Right and left-hand configurations.

Drawing

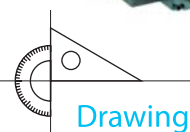


Model		CTS1-X	CTS1-XY	CTS1-Z	CTS1-XZ	CTS1-XYZ	CTS1-AB
Size(mm)		40×40×20	40×40×40	40×24×55	40×40×75	40×40×95	66×40×95
Position of Micrometer		Center / Side			Center / Side		-
Travel Range(mm)		13			13		
Adjustment Drives		Micrometer Head			Micrometer Head		
Travel Guide		V-Groove & Crossed-Roller			V-Groove & Crossed-Roller		
Load Capacity		4.0kgf	3.5kgf	2.0kgf	1.0kgf	2.0kgf	
Permissible Moment Load	Pitching	2.7 N.m	2.3 N.m	2.3 N.m	2.3 N.m	1.9 N.m	
	Yawing	2.2 N.m	1.9 N.m	1.9 N.m	1.9 N.m	1.9 N.m	
	Rolling	2.0 N.m	2.3 N.m	2.5 N.m	1.9 N.m	2.3 N.m	
Material(Treatment)		Steel					
Holes Pattern(Top)		M3-CLR, M3,M4,M6-Tap					M3-TAP, CLR
Holes Pattern(Bottom)		M3-CLR					M6 CLR Side

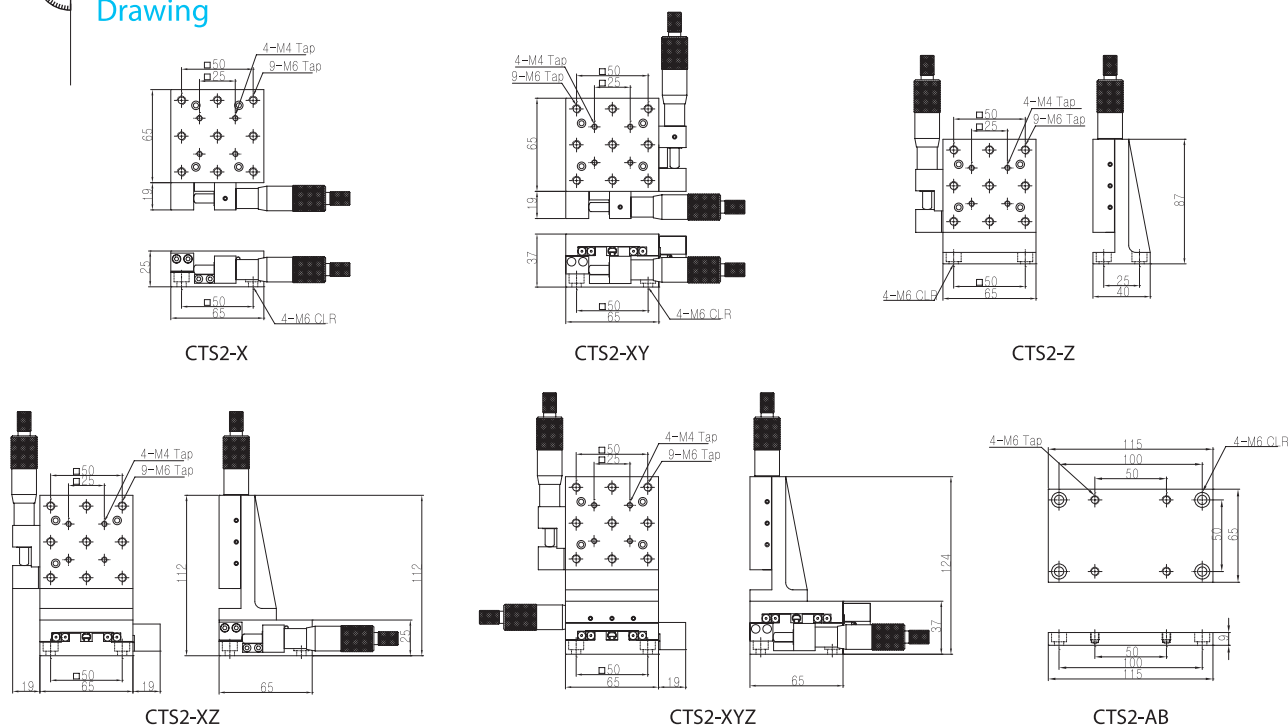
Steel Crossed Roller Translation Stage



- Stainless steel construction with crossed roller bearings for high stability and rigidity.
- Right and left-hand configurations.



Drawing

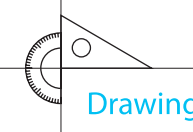


Model		CTS2-X	CTS2-XY	CTS2-Z	CTS2-XZ	CTS2-XYZ	CTS2-AB
Size(mm)		65×65×25	65×65×37	65×40×87	65×65×112	65×65×124	115×65×9
Position of Micrometer		Center / Side			Center / Side		-
Travel Range(mm)		25			25		
Adjustment Drives		Micrometer Head			Micrometer Head		
Travel Guide		V-Groove & Crossed-Roller			V-Groove & Crossed-Roller		
Load Capacity		8.0kgf	7.5kgf	3.0kgf	2.0kgf	3.0kgf	
Permissible Moment Load	Pitching	5.2 N.m	6.3 N.m	6.3 N.m	6.3 N.m	5.1 N.m	
	Yawing	4.3 N.m	5.1 N.m	5.1 N.m	5.1 N.m	5.1 N.m	
	Rolling	5.5 N.m	6.3 N.m	7.9 N.m	5.1 N.m	6.3 N.m	
Material(Treatment)		Steel					
Holes Pattern(Top)		M4 , M6-Tap					M6-Tap
Holes Pattern(Bottom)		M6-CLR					M6-CLR

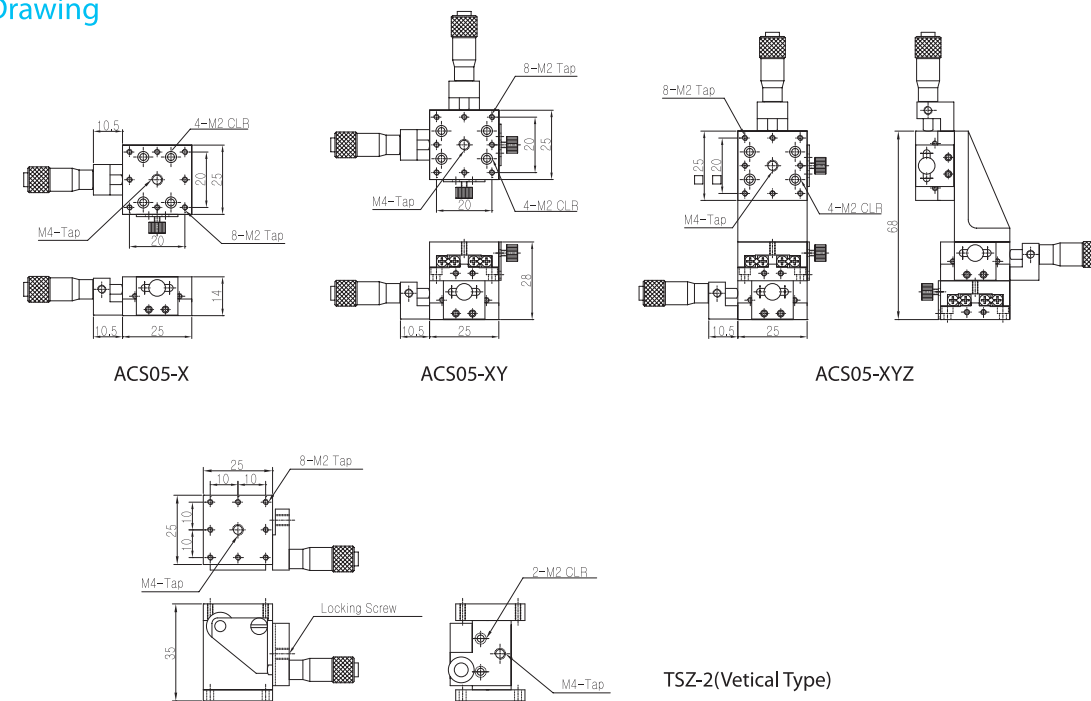
Al Crossed Roller Translation Stage



- Aluminum construction with crossed roller bearings for high stability and rigidity.



Drawing



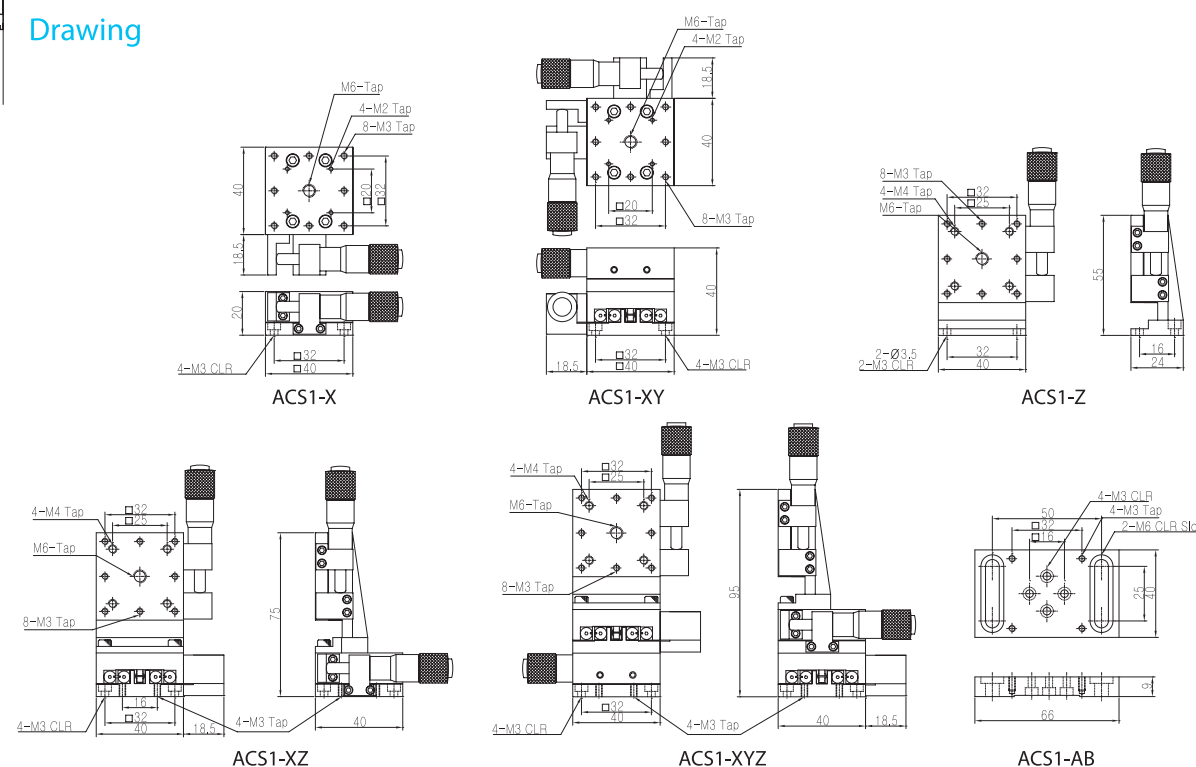
Model	ACS05-X	ACS05-XY	ACS05-XYZ
Size(mm)	25×25×14	25×25×28	25×25×68
Position of Micrometer	Center / Side		
Travel Range(mm)	6.5		
Adjustment Drives	Micrometer Head		
Travel Guide	V-Groove & Crossed-Roller		
Load Capacity	1.0kgf		0.5kgf
Permissive Moment Load	Pitching	1.2 N.m	0.5 N.m
	Yawing	0.9 N.m	0.5 N.m
	Rolling	0.5 N.m	0.5 N.m
Material(Treatment)	Aluminum (Black Anodized)		
Holes Pattern(Top)	M2-Tap, M2-CLR		
Holes Pattern(Bottom)	M2-CLR		

AI Crossed Roller Translation Stage



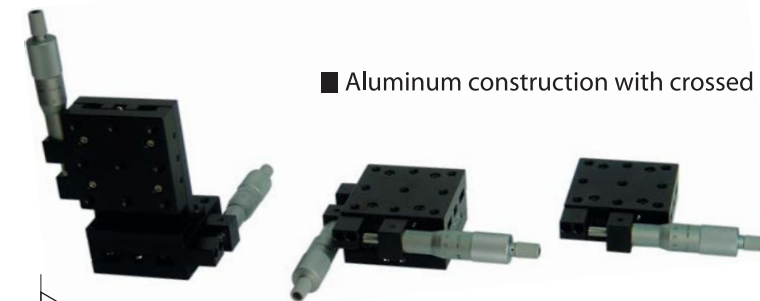
■ Aluminum construction with crossed roller bearings for high stability and rigidity.

Drawing



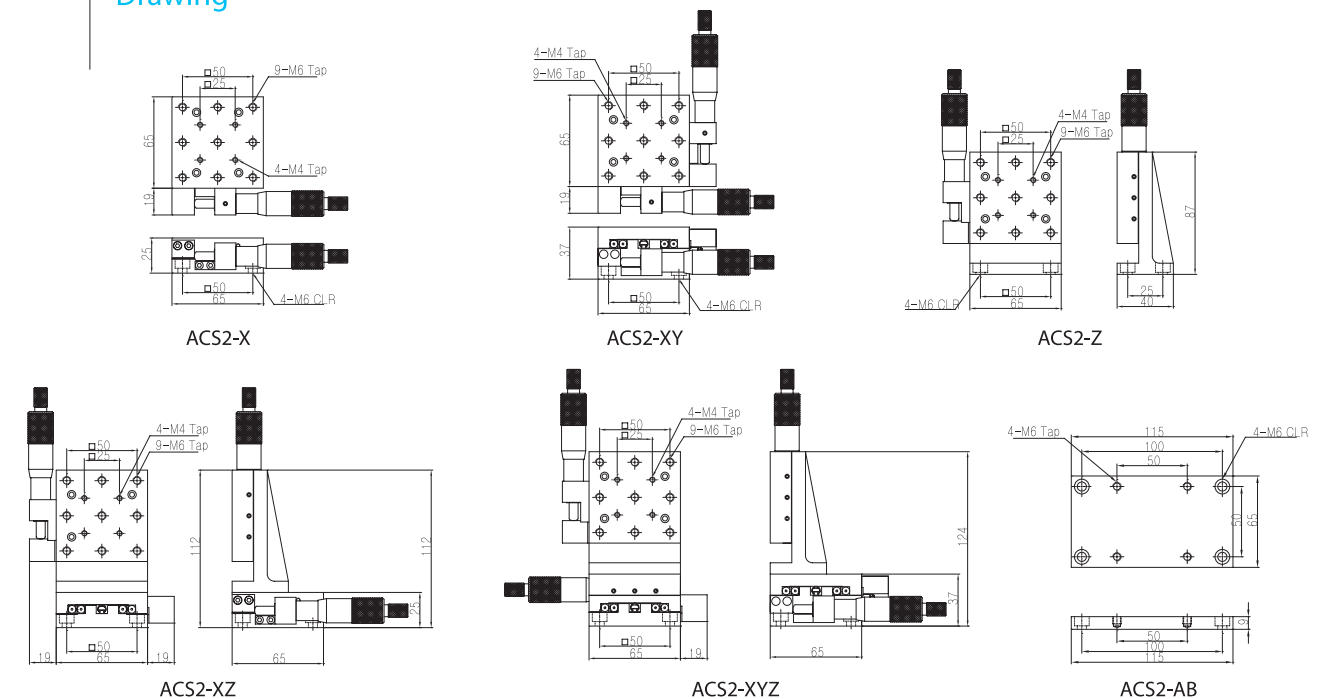
Model		ACS1-X	ACS1-XY	ACS1-Z	ACS1-XZ	ACS1-XYZ	ACS1-AB
Size(mm)		40×40×20	40×40×40	40×24×55	40×40×75	40×40×95	66×40×9
Position of Micrometer		Center / Side			Center / Side		
Travel Range(mm)		13			13		
Adjustment Drives		Micrometer Head			Micrometer Head		
Travel Guide		V-Groove & Crossed-Roller			V-Groove & Crossed-Roller		
Load Capacity		2.0kgf	1.8kgf	1.0kgf			
Permissive Moment Load	Pitching	2.7 N.m	2.0N.m	2.7 N.m	2.7 N.m	2.0 N.m	
	Yawing	2.2 N.m	2.2 N.m	2.2 N.m	2.0 N.m		
	Rolling	2.0 N.m	2.0 N.m	2.0 N.m	2.0 N.m		
Material(Treatment)		Aluminum (Black Anodized)					
Holes Pattern(Top)		M3-CLR, M3,M4,M6-Tap					M3-TAP, CLR
Holes Pattern(Bottom)		M3-CLR					M6 CLR Slot

AI Crossed Roller Translation Stage



■ Aluminum construction with crossed roller bearings for high stability and rigidity.

Drawing

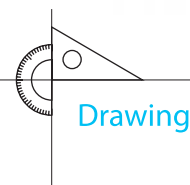


Model	ACS2-X	ACS2-XY	ACS2-Z	ACS2-XZ	ACS2-XYZ	ACS2-AB
Size(mm)	65×65×25	65×65×37	65×40×87	65×65×112	65×65×124	115×65×9
Position of Micrometer	Center / Side			Center / Side		-
Travel Range(mm)	25			25		
Adjustment Drives	Micrometer Head			Micrometer Head		
Travel Guide	V-Groove & Crossed-Roller			V-Groove & Crossed-Roller		
Load Capacity	5.0kgf	4.5kgf	2.0kgf			
Permissive Moment Load	Pitching	5.2 N.m				
	Yawing	4.3 N.m	4.3 N.m	4.3 N.m	4.3 N.m	4.3 N.m
	Rolling	5.5 N.m	5.2 N.m	5.5 N.m	4.3 N.m	5.2 N.m
Material(Treatment)	Aluminum(Black Anodized)					
Holes Pattern(Top)	M4 , M6-Tap					M6-Tap
Holes Pattern(Bottom)	M6-CLR					M6-CLR

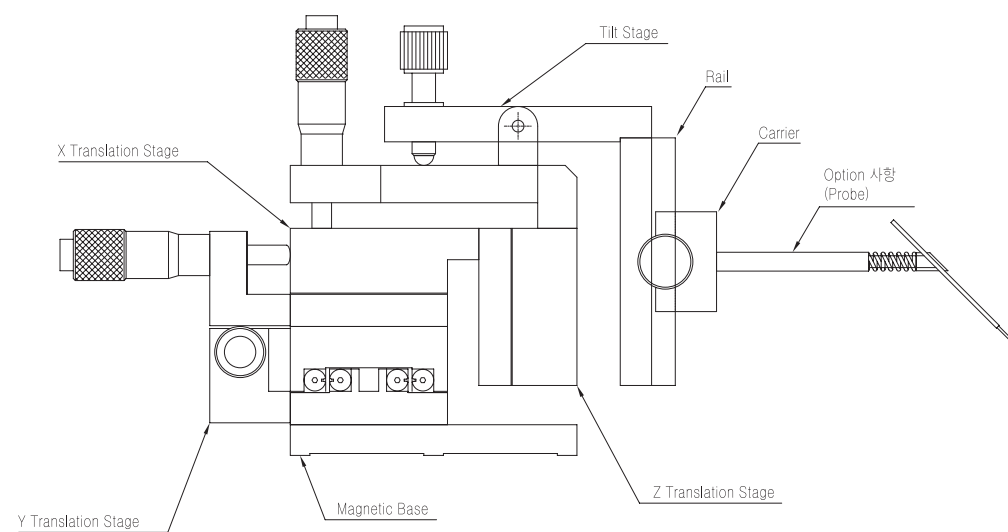
Probe Translation Stage



- For probe contact to be used under a microscope.
- Left / Right hand specification.
- Probe → Option



Drawing



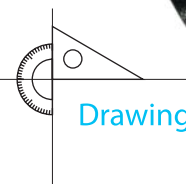
PTS-1

Model	PTS-1
Operation Direction	Left / Right Hand
Travel Range(mm)	XYZ: 13mm
Adjustment Drive	Micrometer Head, 80 Pitch Screw
Magnetic Stand	Yes
Probe Holder Material	Brass Rolled-gold
Material(Treatment)	Aluminum (Black Anodized)

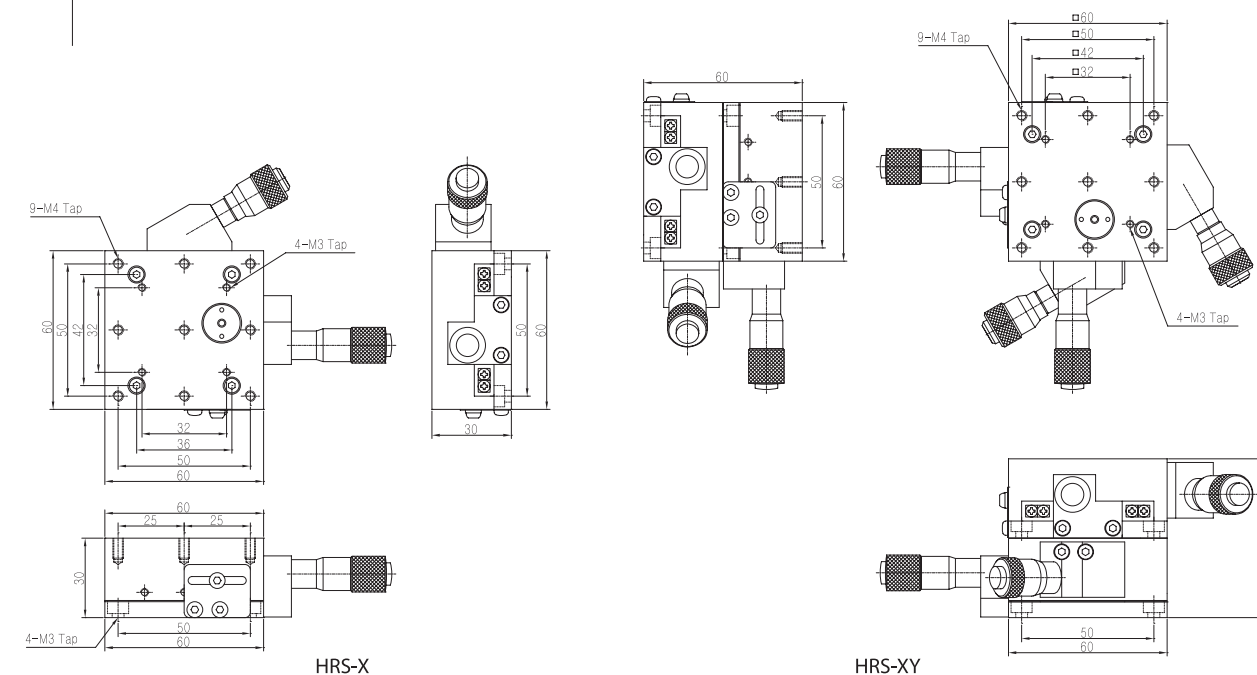
High Resolution Stage



- Application of fiber optics.
- Micrometer perform coarse / fine micrometer head.
- high resolution construction.



Drawing



HRS-X

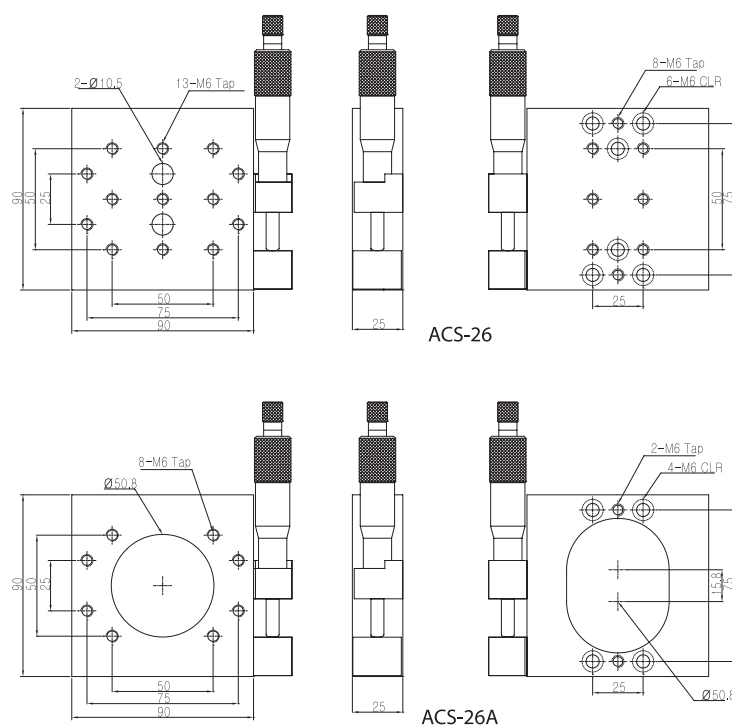
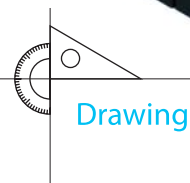
HRS-XY

Model	HRS-X	HRS-XY
Size(mm)	60×60×30	60×60×60
Travel Distance	Coarse ±6.5mm, Fine ±0.3mm	
Travel Guide	V-groove & Cross-Roller	
Adjustment Drives	SM-13 Micrometer, SM-15 Micrometer	
Load Capacity	5.0kgf	4.6kgf
Permissive Moment Load	Pitching	8.6 N.m
	Yawing	6.4 N.m
	Rolling	5.6 N.m
Material(Treatment)	Aluminum(Black Anodized)	
Holes Pattern	M3, M4 Tap	

Crossed Roller Translation Stage



- Crossed-roller bearing design for precision movement and larger load capacity.
- Reversible for left or right-hand applications.

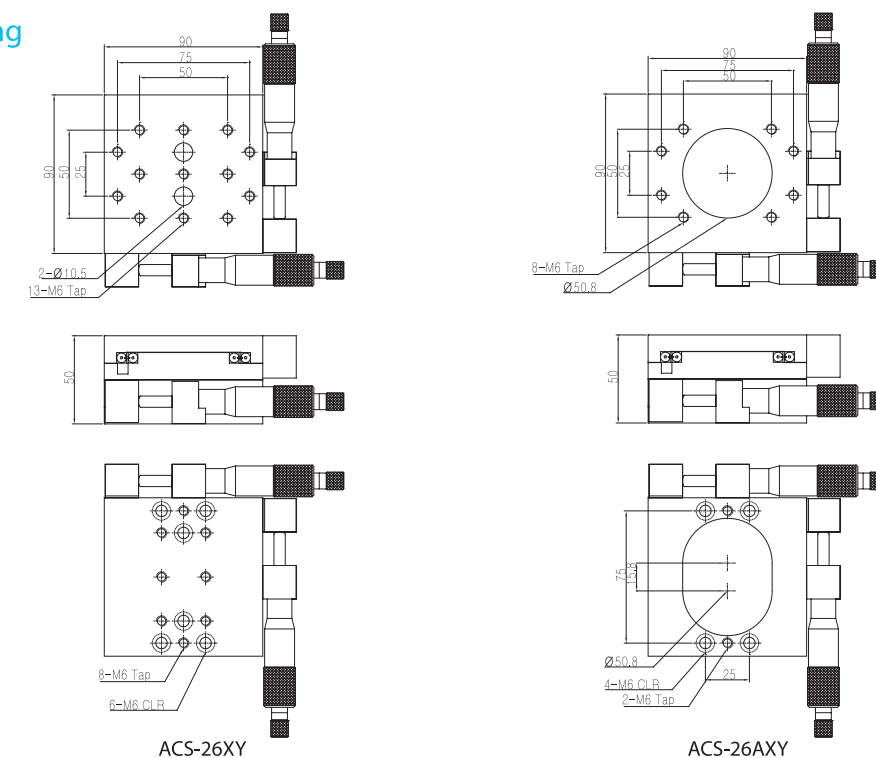
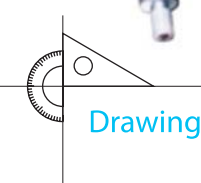


Model	ACS-26	ACS-26A
Size(mm)	90×90×25	
Position of Micrometer	Side	
Travel Range(mm)	±12.5	
Adjustment Drives	SM-25 Micrometer	
Travel Guide	V-Groove & Crossed-Roller	
Load Capacity	13kgf	
Permissive Moment Load	Pitching	28.0 N.m
	Yawing	22.5 N.m
	Rolling	25.0 N.m
Description	Solid Platform	Aperture Platform
Material(Treatment)	Aluminum(Black Anodized)	
Holes Pattern(Top)	Ø10.5, M6-Tap	Ø50.8, M6-Tap
Holes Pattern(Bottom)	M6-Tap, CLR	Ø50.8, M6-Tap, CLR

Crossed Roller Translation Stage



- Stackable for low profile multi-axis positioning.

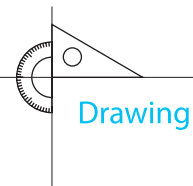


Model	ACS-26XY	ACS-26AXY
Size(mm)	90×90×50	
Position of Micrometer	Side	
Travel Range(mm)	±12.5	
Adjustment Drives	SM-25 Micrometer	
Travel Guide	V-Groove & Crossed-Roller	
Load Capacity	8.5kgf	
Permissive Moment Load	Pitching	11.5 N.m
	Yawing	9.5 N.m
	Rolling	11.5 N.m
Description	Solid Platform	Aperture Platform
Material(Treatment)	Aluminum(Black Anodized)	
Holes Pattern(Top)	Ø10.5, M6-Tap	Ø50.8, M6-Tap
Holes Pattern(Bottom)	M6-Tap, CLR	Ø50.8, M6-Tap, CLR

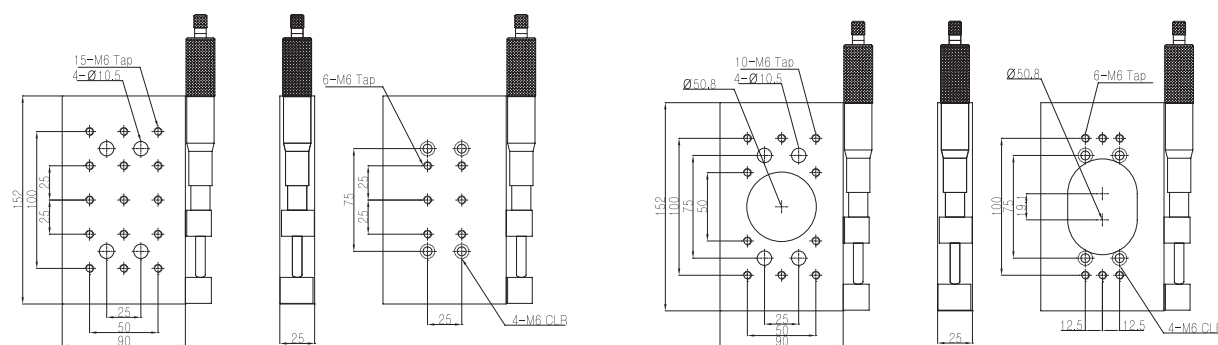
Crossed Roller Translation Stage



■ Stackable for low profile multi-axis positioning.



Drawing



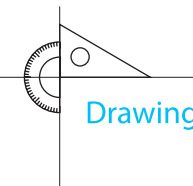
ACS-36

ACS-36A

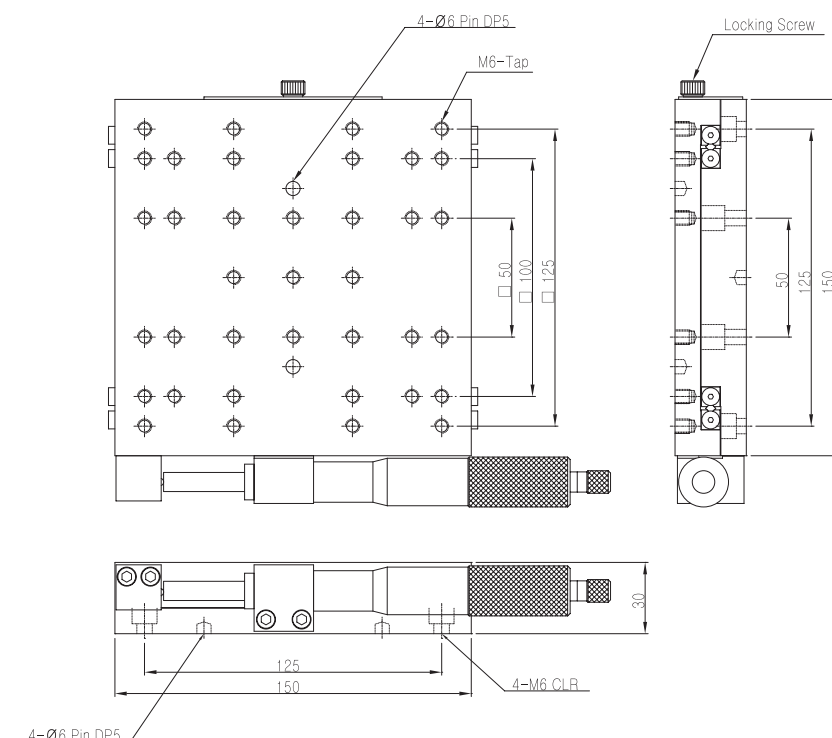
Model	ACS-36	ACS-36A
Size(mm)	90×152×25	
Position of Micrometer	Side	
Travel Range(mm)	±25	
Adjustment Drives	SM-50 Micrometer	
Travel Guide	V-Groove & Crossed-Roller	
Load Capacity	19kgf	
Permissive Moment Load	Pitching	55.5 N.m
	Yawing	43.5 N.m
	Rolling	65.5 N.m
Description	Solid Platform	Aperture Platform
Material(Treatment)	Aluminum(Black Anodized)	
Holes Pattern(Top)	Ø10.5, M6-Tap	Ø50.8, Ø10.5, M6-Tap
Holes Pattern(Bottom)	M6-Tap, CLR	Ø50.8, M6-Tap, CLR

AL Crossed Roller Translation Stage

■ Stackable for low profile multi-axis positioning.



Drawing

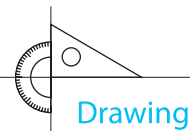


ACS150-X

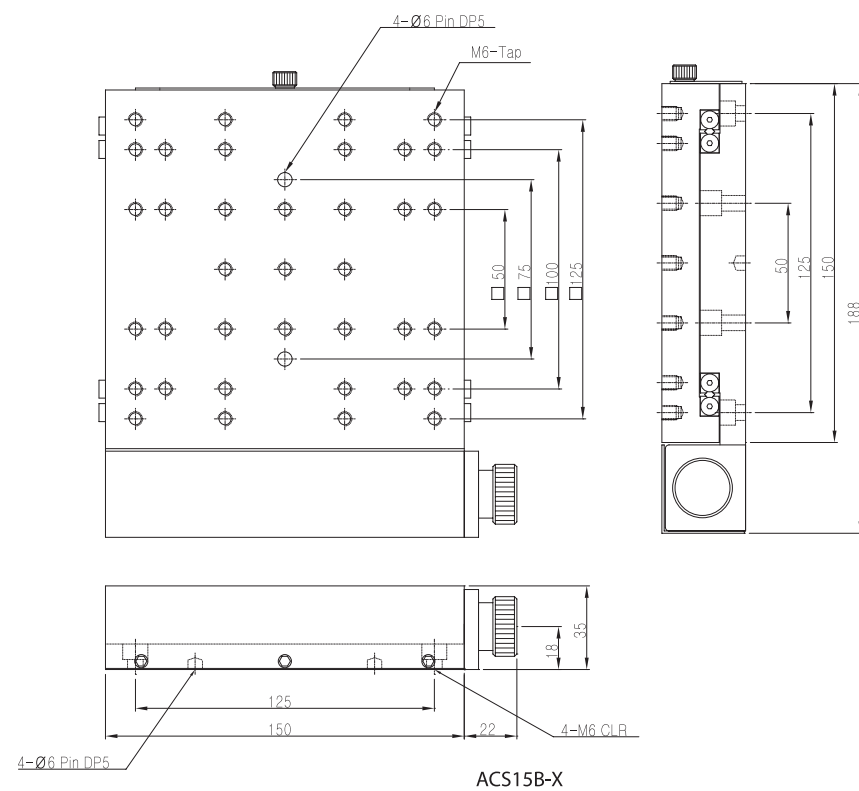
Model		ACS150-X
Size (mm)		150×150×30
Travel Range		±25mm
Load Capacity		25kgf
Permissive Moment Load	Pitching	59.0 N.m
	Yawing	47.0 N.m
	Rolling	69.0 N.m
Adjustment Drive		Micrometer Head
Travel Guide		Crossed-Roller
Material (Treatment)		Aluminum (Black Anodized)
Holes Pattern (Top)		37-M6 TAP
Holes Pattern (Bottom)		8-M6 CLR

AL Crossed Roller Translation Stage

- Stackable for low profile multi-axis positioning.



Drawing

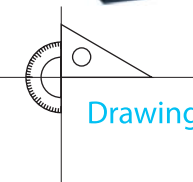


Model		ACS15B-X
Size (mm)		150×188×35
Travel Range		±25mm
Load Capacity		25kgf
Permissive Moment Load	Pitching	59.0 N.m
	Yawing	47.0 N.m
	Rolling	69.0 N.m
Adjustment Drive		Ball Screw Ø6 Lead 1mm
Travel Guide		Crossed-Roller
Material (Treatment)		Aluminum (Black Anodized)
Holes Pattern (Top)		37-M6 TAP
Holes Pattern (Bottom)		8-M6 CLR

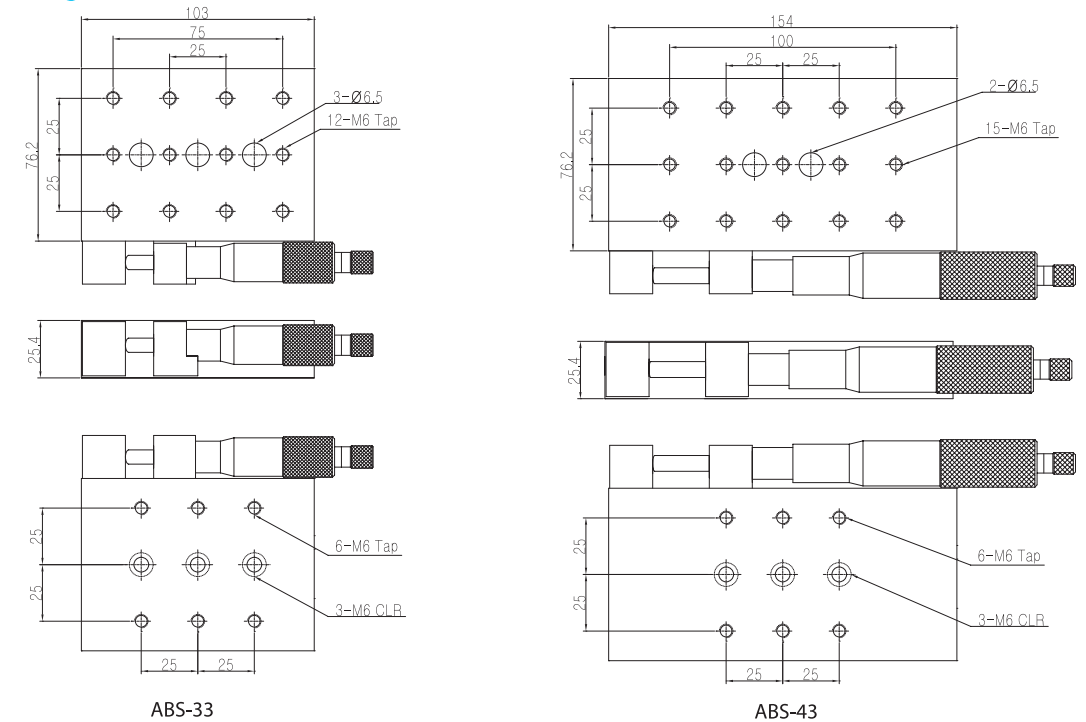
Crossed Roller Translation Stage



- Precision micrometer movements.
- Stackable for low profile multi-axis positioning.



Drawing



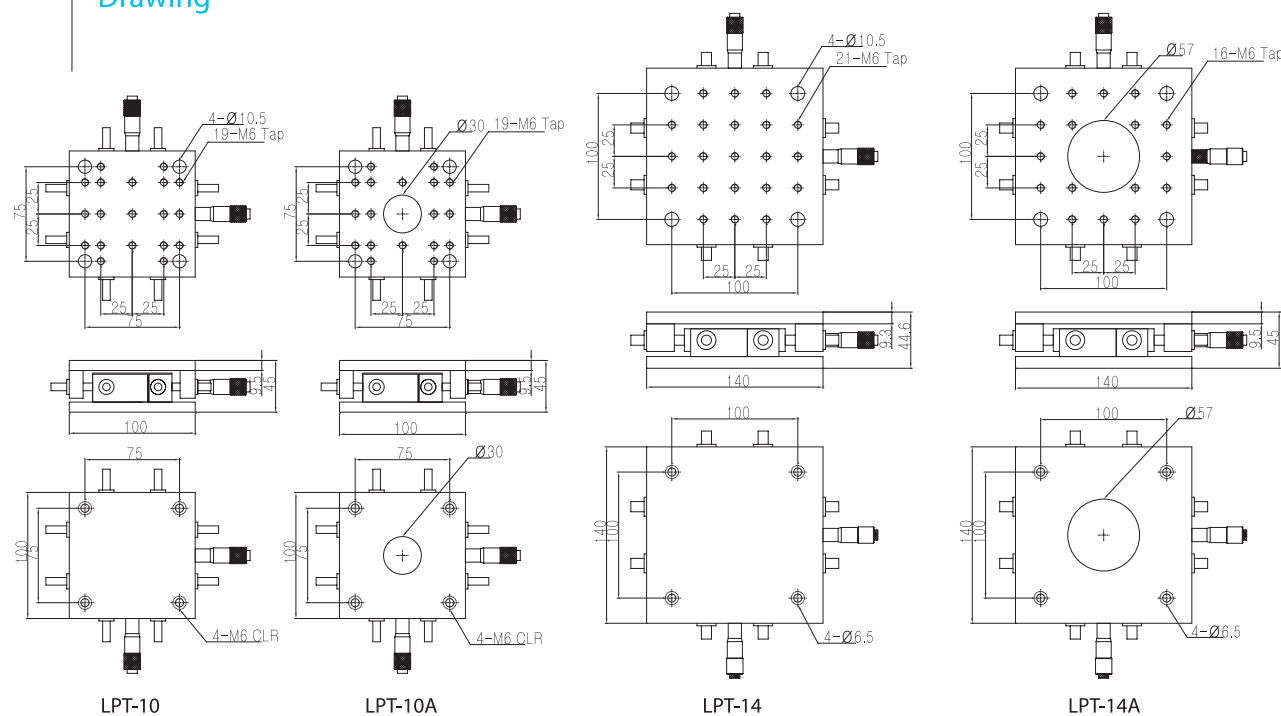
Model	ACS-33	ACS-43
Size(mm)	76.2×103×25.4	76.2×154×25.4
Position of Micrometer	Side	
Travel Range(mm)	±12.5	±25
Adjustment Drives	SM-25 Micrometers	SM-50 Micrometers
Travel Guide	Crossed-Roller	
Load Capacity	10.5kgf	11.5kgf
Permissive Moment Load	Pitching	21.0 N.m
	Yawing	17.0 N.m
	Rolling	19.0 N.m
Material(Treatment)	Aluminum(Black Anidized)	
Holes Pattern(Top)	Ø6.5, M6-Tap	
Holes Pattern(Bottom)	M6-Tap, CLR	

Two-Axis Linear Stage



- Stable in vertical orientation.
- Large platform for stable positioning of large objects.
- Center 45kg / Vertical 7kg load capacity.

Drawing



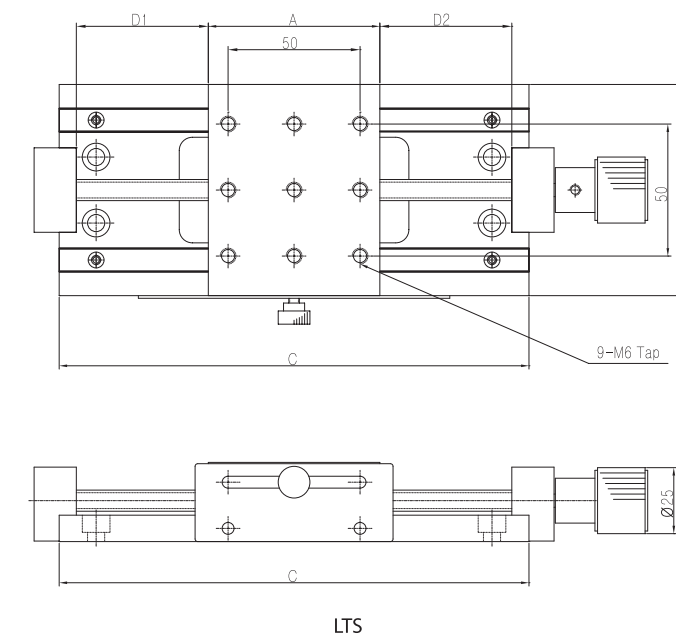
Model		LPT-10	LPT-10A	LPT-14	LPT-14A
Size(mm)		100×100×45		140×140×45	
Travel Range(mm)		±6.5		±6.5(±12.5)	
Adjustment Drive		SM-13 Micrometer		SM-13(SM-25) Micrometer	
Load Capacity		Center 45 kg, Vertical 7 Kg		Center 45 kg, Vertical 7 Kg	
Permissive Moment Load	Pitching	33.0 N.m		49.5 N.m	
	Yawing	30.0 N.m		45.5 N.m	
	Rolling	33.0 N.m		49.5 N.m	
Description		Solid Platform	Aperture Platform	Solid Platform	Aperture Platform
Material(Treatment)		Aluminum (Black Anodized)			
Holes Pattern(Top)		Ø10.5, M6-Tap	Ø30, Ø10.5, M6-Tap	Ø10.5, M6-Tap	Ø30, Ø10.5, M6-Tap
Holes Pattern(Bottom)		M4-Tap, M6-CLR	Ø30, M4-Tap, M6-CLR	M4-Tap, M6-CLR	Ø30, M4-Tap, M6-CLR

Long Liner Translation Stage



- This stage performs most suitably for switching and releasing mechanism of optics.
- Stoke cab be adjusted by changing a position of side stopper.
- Use as attach a Microscope or a CCD Camera.

Drawing



Model		LTS-50	LTS-100	LTS-150	LTS-200	LTS-300
Stage Size(Top)	A	65	80	120	140	160
	B	80				
	C	128	140	280	330	470
Travel Range(mm)	D1+D2	50	100	150	200	300
Travel Guide		Linear Guide				
Load Capacity		8kg				
Material(Treatment)		Aluminum(Black Anodized)				
Holes Pattern(Top)		M6-Tap				
Holes Pattern(Bottom)		M6-CLR				



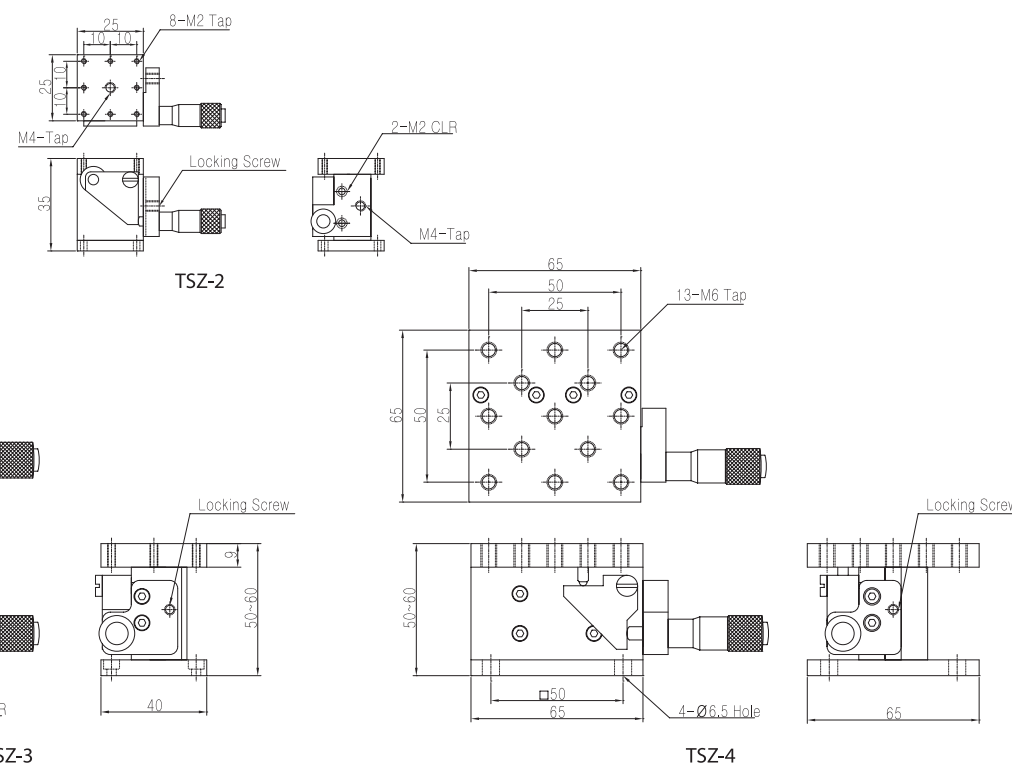
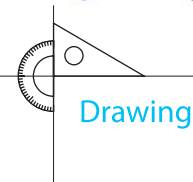
Vertical Translation Stage

Vertical Translation Stage
Laboratory Jacks Platforms
Laboratory Jacks Rotary Platform
Vertical Laboratory Jacks
Eccentric Rotation & Vertical Laboratory Jacks

Vertical Translation Stage

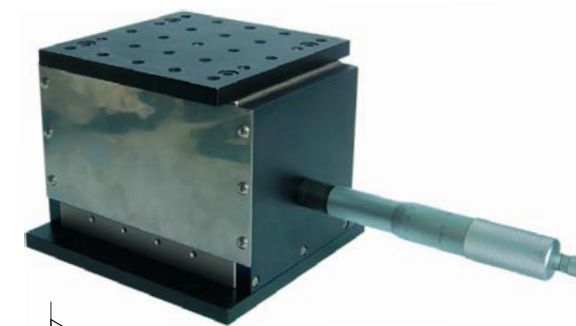


- This stage has the mechanism of relaying the operation of micrometer into vertical motion through leverage.
- Fine Micrometer movement.
- Available in four sizes.

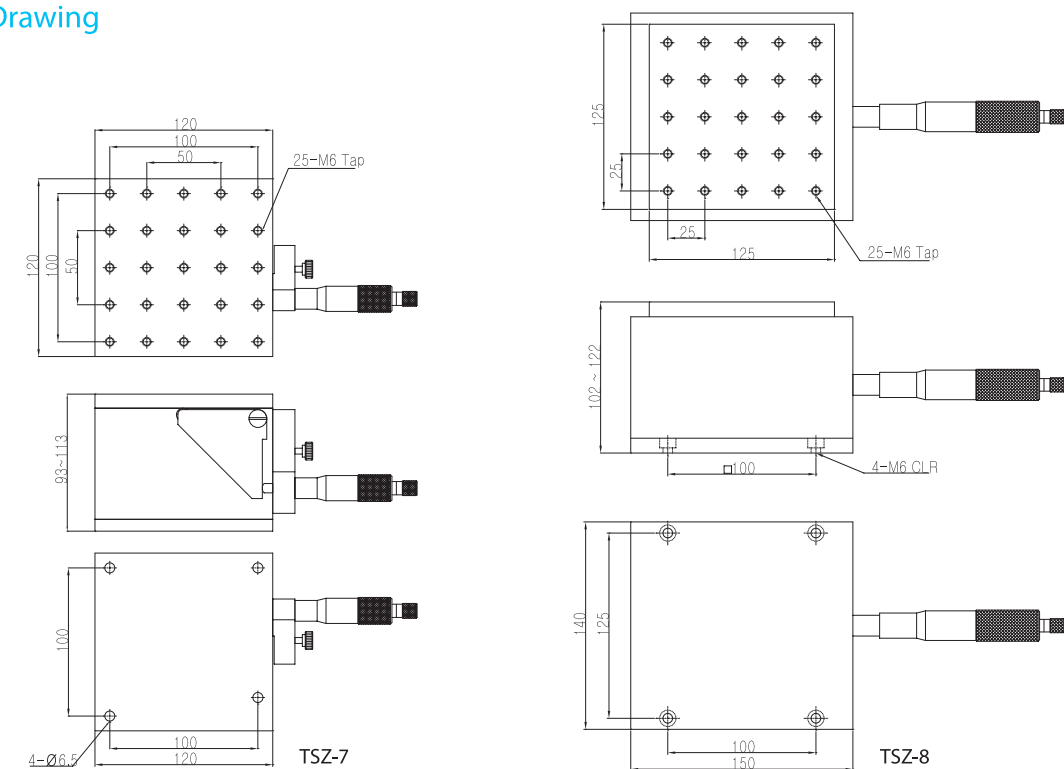
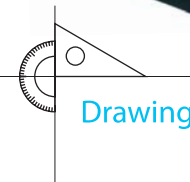


Model	TSZ-2	TSZ-3	TSZ-4
Stage Size(mm)	25×25	40×40	65×65
Travel Range(mm)	6	10	10
Adjustment Drives	SM-06 Micrometers	SM-13 Micrometers	
Load Capacity	1.0kgf	3.0kgf	4.0kgf
Permissive Moment Load	Pitching	0.7 N.m	2.3 N.m
	Yawing	0.5 N.m	1.5 N.m
	Rolling	0.5 N.m	2.0 N.m
Material(Treatment)	Aluminum(Black Anodized)		
Holes Pattern(Top)	M2,M4-Tap	M3,M4-Tap	M6-Tap
Holes Pattern(Bottom)	Ø2.5, M4-Tap	Ø3.5, M4-Tap	Ø6.5

Vertical Translation Stage



- High load capacity.
- Spring-loaded for negligible backlash.



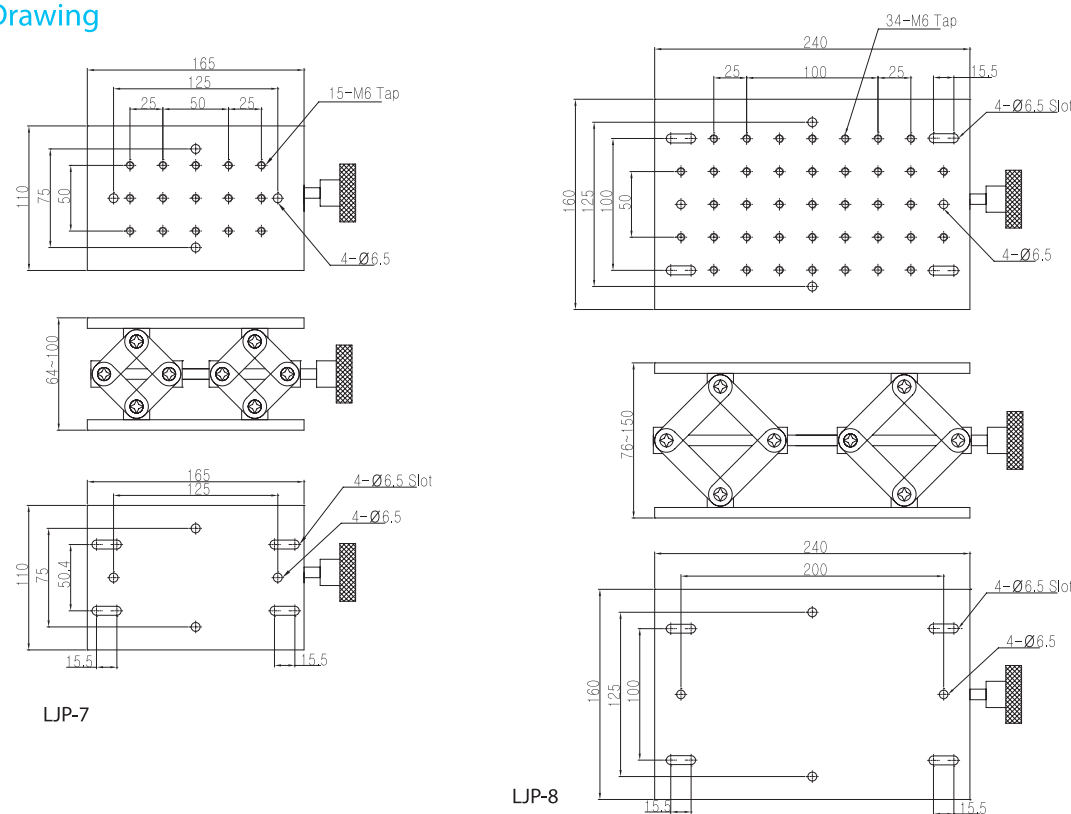
Model	TSZ-7	TSZ-8
Stage Size(mm)	120×120	125×125
Travel Range(mm)	20	20
Adjustment Drives	SM-25 Micrometers	SM-50 Micrometers
Load Capacity	8.0kgf	10.0kgf
Permissive Moment Load	Pitching	12.4 N.m
	Yawing	8.2 N.m
	Rolling	12.4 N.m
Material(Treatment)	Aluminum(Black Anodized)	
Holes Pattern(Top)	M6-Tap	
Holes Pattern(Bottom)	Ø6.5	

Laboratory Jacks Platforms



- Fine Lead Screw for precise movement.
- Locking knob secures jack in position.
- Large knob for ease of adjustment.

Drawing



Model	LJP-7	LJP-8
Stage Size(mm)	110×160	160×240
Vertical Adjustment	MIN64~MAX100	MIN76~MAX150
Load Capacity	9.5kgf	15.0kgf
Permissible Moment Load	Pitching	14.5 N.m
	Yawing	-
	Rolling	4.5 N.m
Material(Treatment)	Aluminum (Black Anodized)	
Holes Pattern(Top)	Ø6.5, M6-Tap	
Holes Pattern(Bottom)	Ø6.5 Slot	

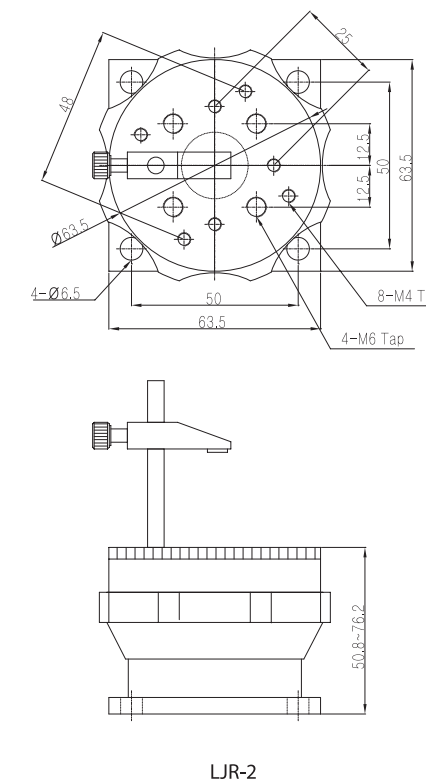
An application or transformation are possible to the above-mentioned product.

Laboratory Jacks Rotary Platform



- High Stability Lab Jack.
- 360° Coarse Rotation.
- Mounts Horizontal or Vertical.

Drawing



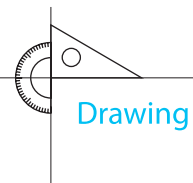
Model	LJR-2
Stage Size(Top)	Ø63.5
Vertical Adjustment	MIN50.8 ~ MAX76.2
Material(Treatment)	Aluminum (Black Anodized)
Holes Pattern(Top)	M4,M6-Tap
Holes Pattern(Bottom)	Ø6.5

An application or transformation are possible to the above-mentioned product.

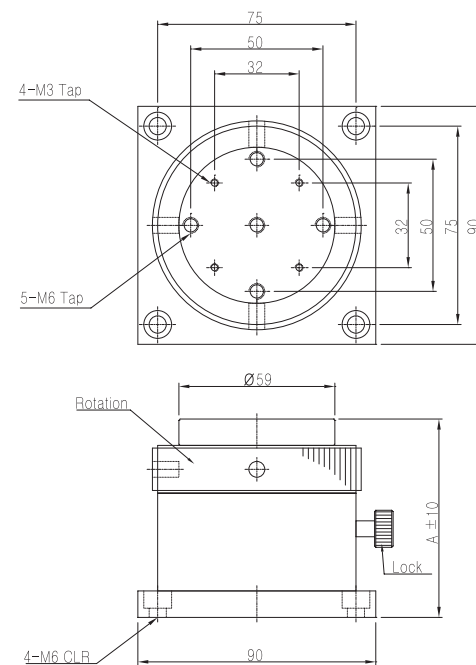
Vertical Laboratory Jacks



■ Hand driver rotation → Top plate Up / Down function.



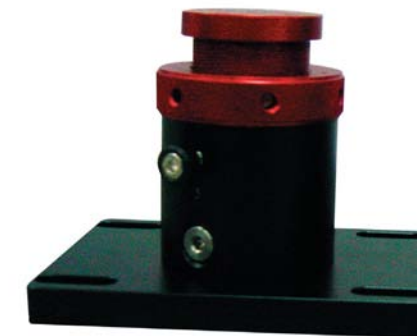
Drawing



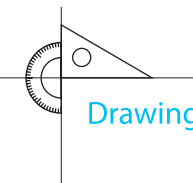
VLJ

Model	VLJ-3	VLJ-4
Stage Size (mm)	Ø59	
Vertical Range	MIN 75 ~ MAX 90	MIN 100 ~ MAX 125
Material (Treatment)	Aluminum (Black Anodized)	
Holes Pattern (Top)	4-M3 Tap, 5-M6 TAP	
Holes Pattern (Bottom)	4-M6 CLR	

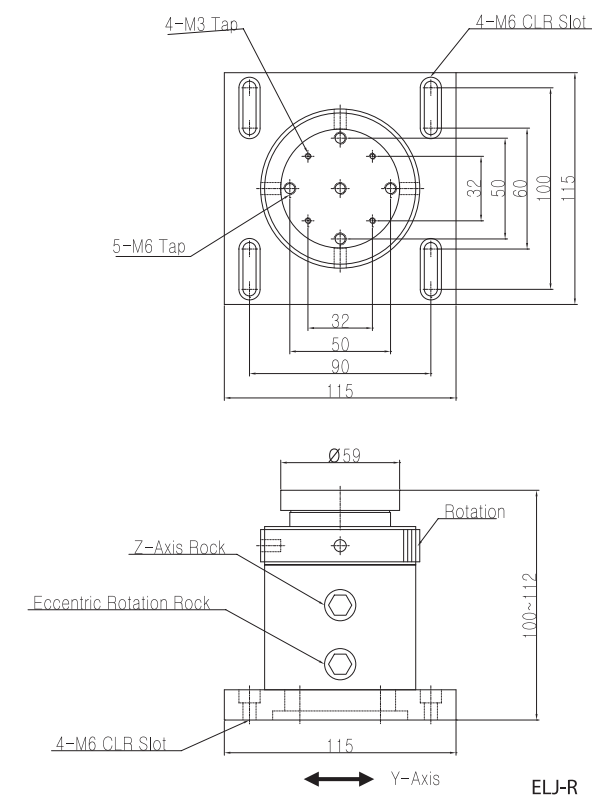
Eccentric Rotation & Vertical Laboratory Jacks



■ Eccentric rotation rock adjustment → Right/Left movement
→ 360° rotation → Rock adjustment.



Drawing



ELJ-R

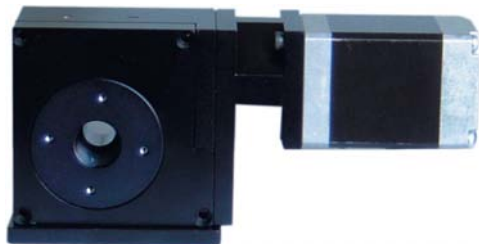
Model	ELJ-R
Stage Size (mm)	Ø59
Vertical Range	12mm
anual Rotation	360°
Material (Treatment)	Aluminum (Black Anodized)
Holes Pattern (Top)	4-M3 Tap, 5-M6 TAP
Holes Pattern (Bottom)	4-M6 CLR Slot



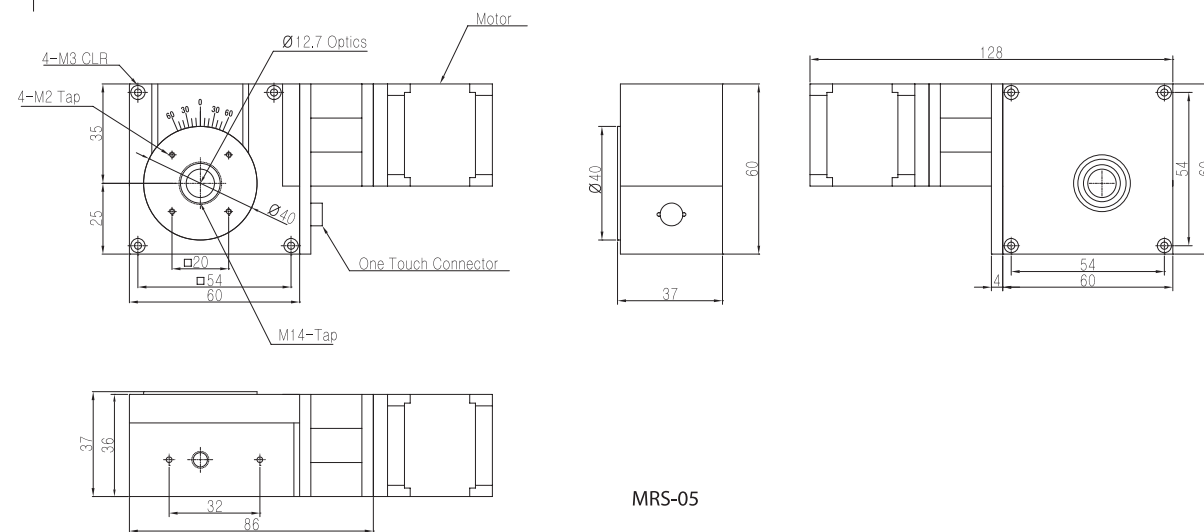
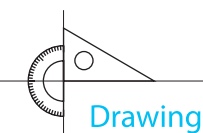
Motorized Stage

Motorized Rotary Stage
Motorized Translation Stage
Motorized Precision Stage
Motorized Vertical Translation Stage
Spin Coater Equipment
6-Axis High Precision Mount

Motorized Rotary Stage



- This stage is based on a ball bearing design with angular position controlled via a worm drive connected to a stepper motor.
- An external stepper motor controller is required for motorized operation.

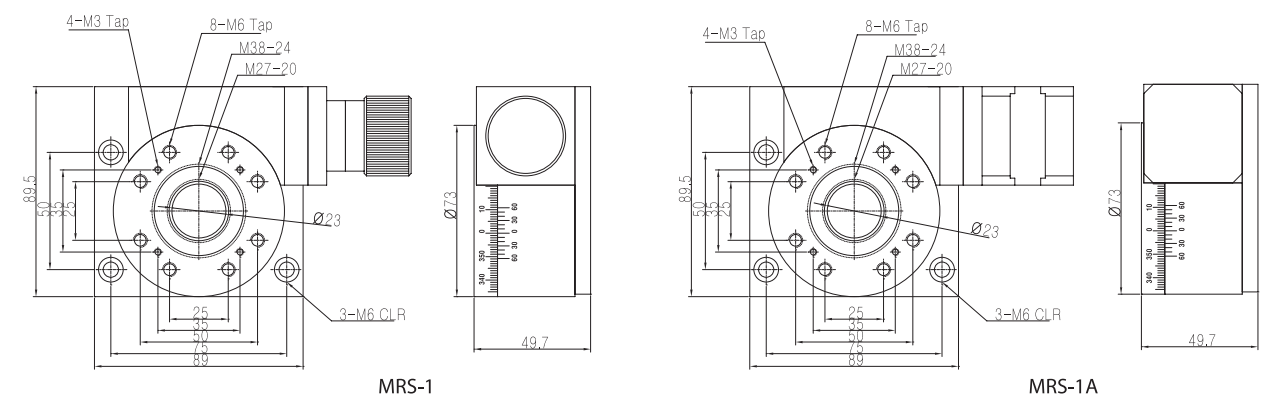
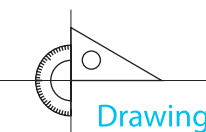


Model	MRS-05
Stage Size(mm)	Ø40
Mechanical Drive System	Worm Gear(Reduced Ratio 1/90)
Travel Guide	Ball Bearing
Stage Material	Aluminum(Black Anodized)
Load Capacity	2kg
Positional Accuracy	Within 0.05°
Repeatability	Within ±0.01°
Lost Motion	Within 0.05°
Backlash	Within 0.05°
Roundness	Within 5 μ m
Transversal Deviation	Within 30 μ m
Motor Type	5-Phase Stepping Motor
Holes Pattern(Top)	M6-Tap
Holes Pattern(Bottom)	M6-CLR

Motorized Rotary Stage

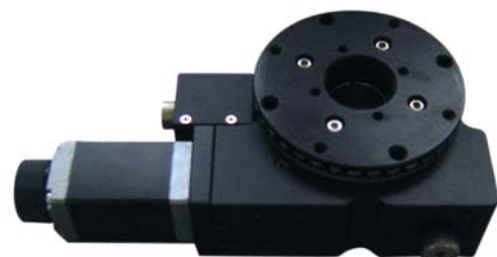


- The MRS Series motorized rotary stages are ideal for applications that require accurate and repeatable computer controlled positioning in limited space environment.
- Pre-loaded sealed bearings.
- A precision worm gear assembly.

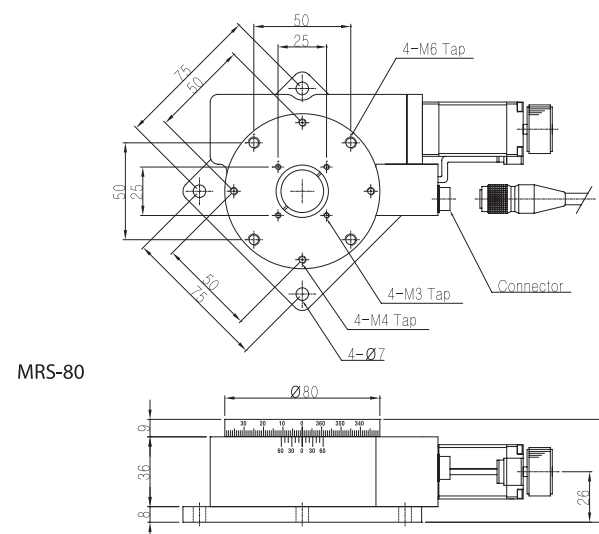
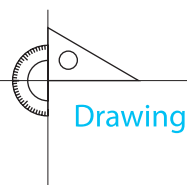


Model	MRS-1	MRS-1A
Stage Size(mm)	Ø73	
Mechanical Drive System	Worm Gear(Reduced Ratio 1/180)	
Travel Guide	Assembled Angular Bearing	
Stage Material	Aluminum(Black Anodized)	
Load Capacity	1.5kg	
Resolution	±0.01°	0.004° /Pulse(Full Step) 0.002° /Pulse(Half Step)
Positional Accuracy	Within 0.05°	Within 0.03°
Repeatability	Within ±0.05°	Within ±0.01°
Lost Motion	Within 0.05°	Within 0.05°
Backlash	Within 0.05°	Within 0.005°
Parallelism	Within 50 μ m	Within 50 μ m
Roundness	Within 5 μ m	Within 5 μ m
Transversal Deviation	Within 30 μ m	Within 30 μ m
Description	Manual 360° Rotation	5-Phase Stepping Motor
Holes Pattern(Top)	M6-Tap	
Holes Pattern(Bottom)	M6-CLR	

Motorized Rotary Stage

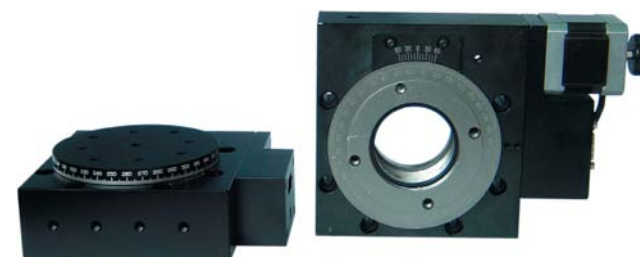


- Five-phase stepper motor.
- Positional repeatability to $\pm 0.005^\circ$
- 360° continuous motion.
- Low, compact profile.

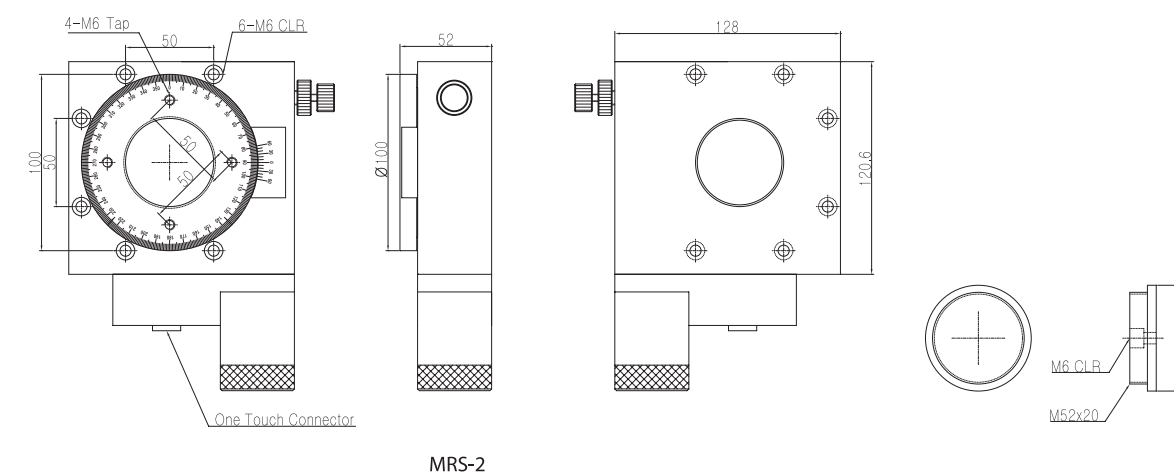
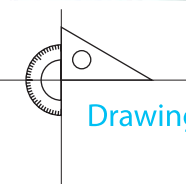


Model	MRS-80
Stage Size (mm)	Ø80
Mechanical Drive System	Worm Gear (Reduced ratio 1/90)
Guide	Deep Groove Ball Bearing
Stage Material	Aluminum (Black Anodized)
Load Capacity	30kg
Resolution	0.004° / Pulse (Full Step) 0.002° / Pulse (Half Step)
Positional Accuracy	Within 0.03°
Repeatability	Within ±0.005°
Lost Motion	Within 0.005°
Backlash	Within 0.005°
Parallelism	Within 120 μm
Roundness	Within 5 μm
Transversal Deviation	Within 20 μm
Motor Type	5-Phase Stepping Motor
Holes Pattern (Top)	M3, M4, M6-Tap
Holes Pattern (Bottom)	Ø7

Motorized Rotary Stage



- The MRS Series motorized rotary stages are ideal for applications that require accurate and repeatable computer controlled positioning in limited space environment.
- Pre-loaded sealed bearings.



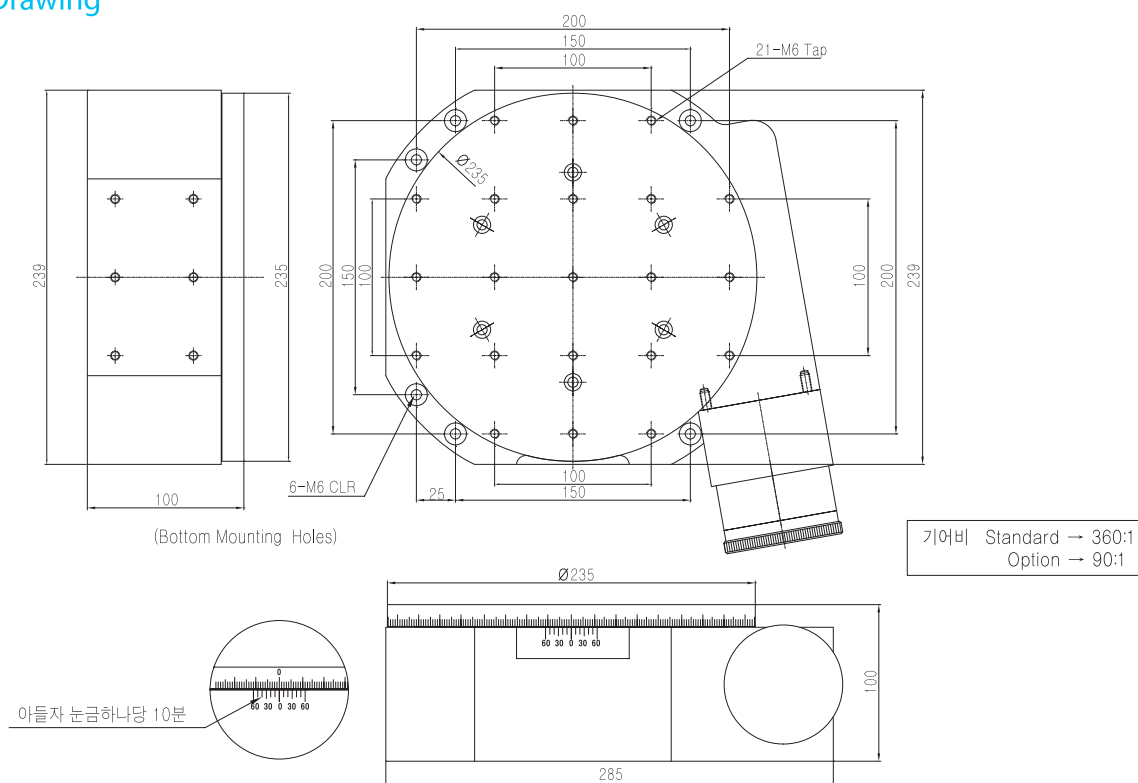
Model	MRS-2
Stage Size(mm)	Ø100
Mechanical Drive System	Worm Gear(Reduced Ratio 1/180)
Travel Guide	Assembled Angular Bearing
Stage Material	Aluminum(Black Anodized)
Load Capacity	5.0kg
Resolution	0.004° /Pulse(Full Step) 0.002° /Pulse(Half Step)
Positional Accuracy	Within 0.03°
Repeatability	Within ±0.005°
Lost Motion	Within 0.005°
Backlash	Within 0.005°
Parallelism	Within 120μm
Roundness	Within 5μm
Transversal Deviation	Within 20μm
Motor Type	5-Phase Stepping Motor
Holes Pattern(Top)	M6-Tap
Holes Pattern(Bottom)	M6-CLR

Motorized Rotary Stage



- 360° coarse manually.
- Gear Ratio 360:1
- 10 minutes per a vernier division.
- Option 5-phase Stepping Motor.

Drawing



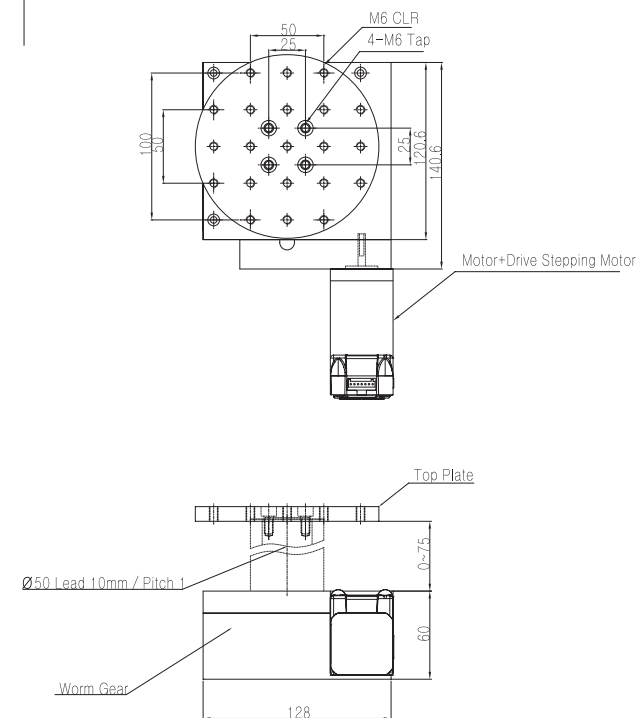
MRS-250

Model	MRS-250
Size(mm)	285×239×100
Stage Size(mm)	Ø235
Mechanical Drive System	Worm Gear(Gear Ratio 360:1)
Travel Guide	Ball Bearing
Stage Material	Aluminum(Black Anodized)
Motor Type (Option)	5-Phase Stepping Motor
Holes Pattern(Top)	M6-Tap, M6-CLR
Holes Pattern(Bottom)	M6-CLR

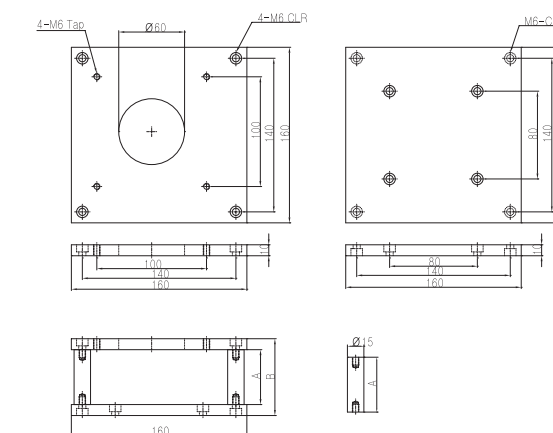
Motorized Vertical Translation Stage

- Worm Gear와 다줄 Lead Screw를 이용한 Jack Mount
- 작은 마력으로 고하중을 승강 할 수 있고 별도의 브레이크 장치가 없어도 낙하현상이 없는 제품입니다.
- 수동 Hand Drive type과 Motor 장착 Type이 있으며 정밀제어가 가능합니다.
- 25mm Type → Standard (Basic)
25mm 이상의 행정을 요할 시에는 별도의 Stage Block을 받쳐서 사용 하여야 합니다.

Drawing



Top Plate			
Size	ØA	Standard	Ø100
		Option	Ø125
			Ø150
			Ø200
Holes Pattern		M6-Tap, M6-CLR	

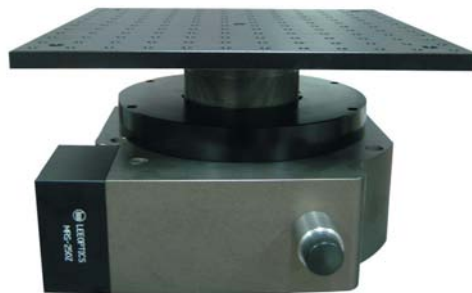


Motorized Vertical Translation Stage Block (MVS-B)

Model		MVS-B50	MVS-B75	MVS-B100	MVS-B125
Size	A	25	50	75	100
	B	45	70	95	120

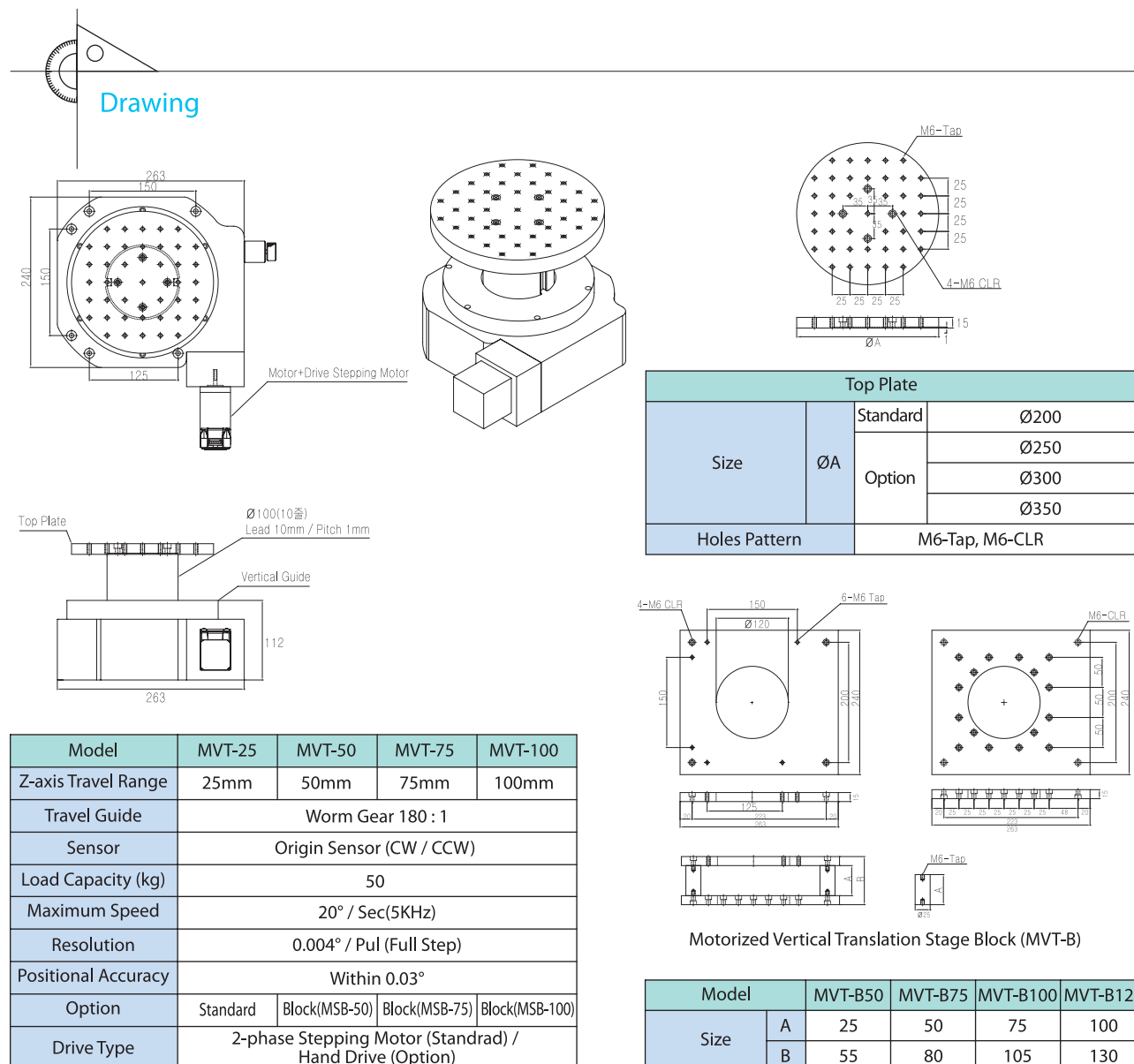
Model	MVS-25	MVS-50	MVS-75
Z-axis Travel Range	25mm	50mm	75mm
Travel Guide	Worm Gear 180 : 1		
Sensor	Origin Sensor (CW / CCW)		
Load Capacity (kg)	30		
Maximum Speed	20° / Sec(5KHz)		
Resolution	0.004° / Pul (Full Step)		
Positional Accuracy	Within 0.03°		
Option	Standard	Block(MVB-50)	Block(MVB-75)
Drive Type	2-Phase Stepping Motor (Standard) / Hand Drive (Option)		

Motorized Vertical Translation Stage

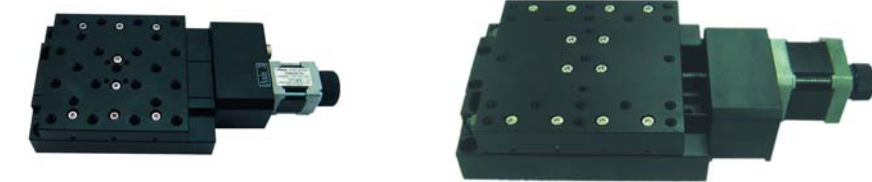


- Worm Gear와 다줄 Lead Screw를 이용한 Jack Mount
- 작은 마력으로 고하중을 승강 할 수 있고 별도의 브레이크 장치가 없어도 낙하현상이 없는 제품입니다.
- 수동 Hand Drive type과 Motor 장착 Type이 있으며 정밀제어가 가능합니다.
- 25mm Type → Standard (Basic)
25mm 이상의 행정을 요할 시에는 별도의 Stage Block을 받쳐서 사용 하여야 합니다.

Drawing

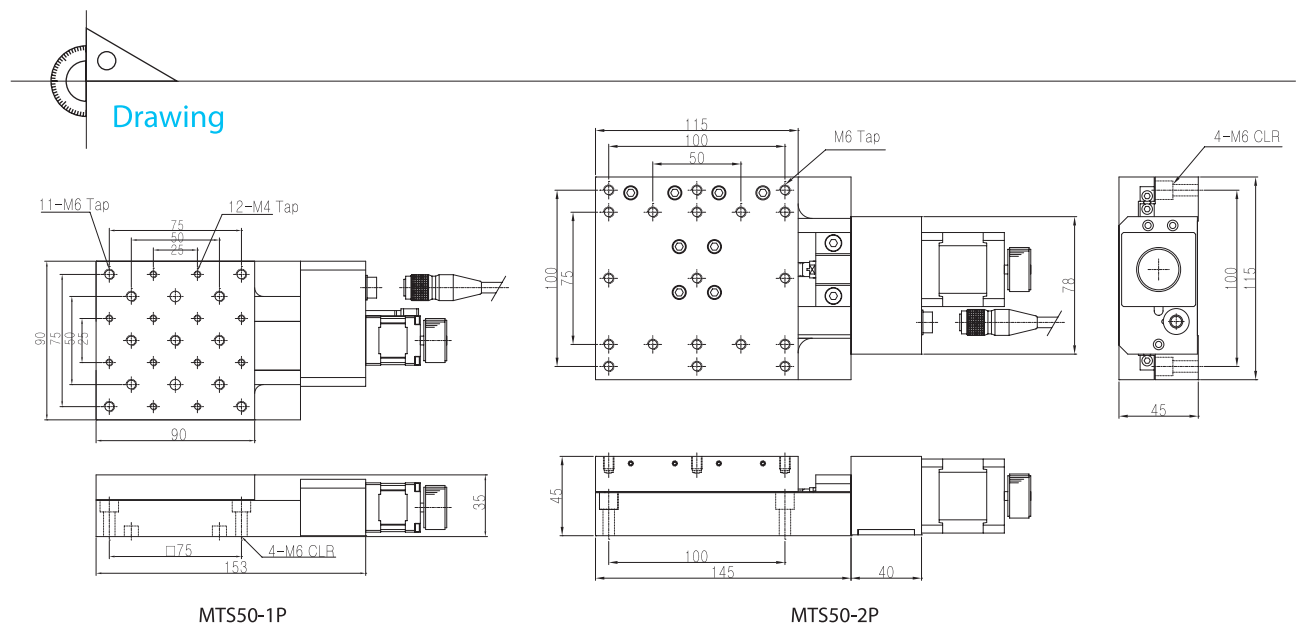


Motorized Translation Stage



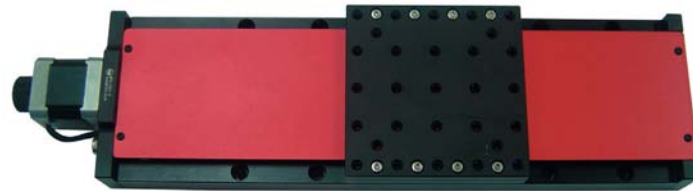
- An external stepper motor controller is required for operation.
- This stage is based on a crossed roller bearing design with built in bipolar stepper motor for position control.

Drawing

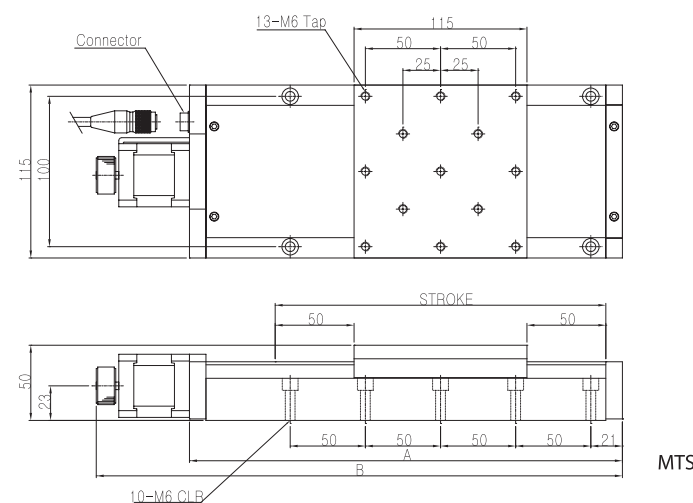
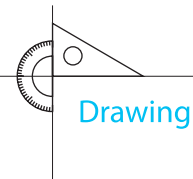


Model	MTS50-1P	MTS50-2P
Travel Distance	50mm	50mm
Stage Surface	90×90	115×115
Feeding Screw	Ball Screw Ø6 Lead 1	Ball Screw Ø8 Lead 2
Guide	Crossed-roller Guide	
Material	Aluminum (Black Anodized)	
Resolution	5 μ m /Pulse(Full) / 2 μ m /Pulse(Half)	
MAX Speed	10mm / sec	
Positional Accuracy	Within 10 μ m	
Repeatability	Within \pm 1 μ m	
Lost Motion	Within 5 μ m	
Backlash	Within 1 μ m	
Driving Parallelism	Within 100 μ m / Full Stroke	
Pitching / Yawing	Within 30" / Within 20"	
Holes Pattern(Top)	12-M4, 11-M6 Tap	M6-Tap
Holes Pattern(Bottom)	4-M6-CLR	M6-CLR

Motorized Translation Stage

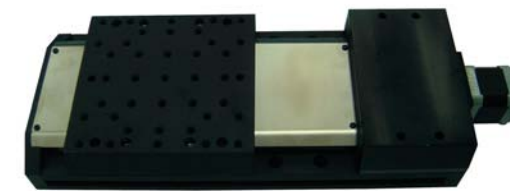


- Precision recirculating ball bearing slides provide accurate linear motion without ball cage migration.
- Rigid cover and flexible side bands protect the internal drive mechanism.
- Preloaded, backlash-free ballscrew drive allows for rapid movements with short step and settling time.

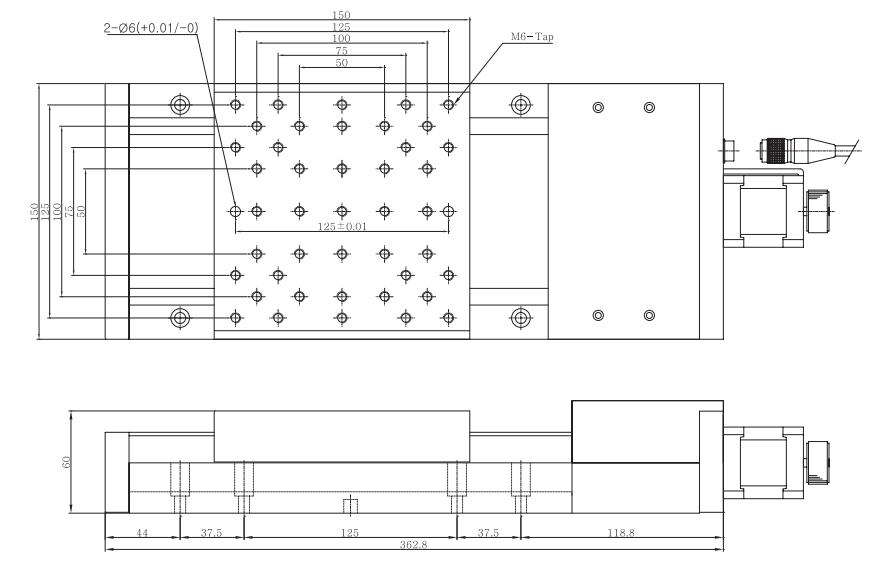
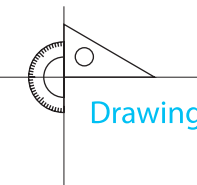


Model	MTS-100				MTS-150				MTS-200				MTS-250					
Travel Distance	100mm				150mm				200mm				250mm					
Stage Surface	115×115																	
Stage Size	A	288mm	B	350mm	A	338mm	B	400mm	A	388mm	B	450mm	A	438mm	B	500mm		
Feeding Screw	Ball Screw Ø8 Lead 2																	
Guide	LM Guide																	
Material	Aluminum (Black Anodized)																	
Resolution	5 μ m /Pulse(Full) / 2 μ m /Pulse(Half)																	
MAX Speed	30mm / sec [3kHz]																	
Positional Accuracy	Within 10 μ m				Within 10 μ m				Within 10 μ m				Within 15 μ m					
Repeatability	Within \pm 1 μ m																	
Lost Motion	Within 5 μ m																	
Backlash	Within 1 μ m																	
Driving Parallelism	-				-				Within 100 μ m / Full Stroke				Within 150 μ m / Full Stroke					
Pitching / Yawing	Within 25" / Within 15"				Within 30" / Within 20"												Within 50" / Within 30"	
Holes Pattern(Top)	13-M6 Tap																	
Holes Pattern(Bottom)	M6-CLR																	

Motorized Precision Stage



- Low Profile design.
- Lightweight Aluminium construction.
- Microstepping resolution.



MPS-100

Model	MPS-100
Travel Distance	100mm
Stage Surface	150x150
Feeding Screw	Ball Screw Ø8 Lead 2
Guide	LM Guide
Material	Aluminum (Black Anodized)
Resolution	5 μ m /Pulse(Full) / 2 μ m /Pulse(Half)
MAX Speed	30mm/sec [3kHz]
Positional Accuracy	Within 10 μ m
Repeatability	Within $\pm 1\mu$ m
Lost Motion	Within 5 μ m
Backlash	Within 1 μ m
Pitching / Yawing	Within 25" / Within 15"
Holes Pattern(Top)	M6-Tap
Holes Pattern(Bottom)	M6-CLR

Spin Coater Equipment (SPE-800P)



- Spin Coater size: 560x510x335
- Motor Type: Servo Motor & Belt-Driven
- Wafer size: Ø50 ~ Ø300



■ 동작 설명

- ① 9가지 설정값에 의한 rpm 제어
- ② 9가지 동작중 각각의 행정은 3가지로 구분 되어진다.
 - Min 0 rpm ~ Max 8000 rpm → 1 rpm 단위로 설정 가능.
 - 시간 : 0초 ~ 999초 → 1초 단위로 변경 가능.

■ 구동

- ① 희망하는 패턴이 들어있는 주소를 선택한 후 설정 확인.
- ② START 버튼 누름.
- ③ 첫번째 행정이 설정된 시간까지 일정속도로 회전.
- ④ 차례대로 2,3행정 진입.
- ⑤ 모든 행정이 종료되면 자동 정지 되고 KEY 입력 상태가 됨.

■ 주의사항

- ① 기기 동작중에 정지 시키고 싶으면 취소 스위치(ESC)를 길게 누르거나 비상 스위치를 누른다.
- ② 기기 동작중(모터 회전중)에는 ESC 스위치(취소 스위치)와 비상 스위치만이 작동된다.
 - 취소 스위치(ESC): 전원은 그대로 유지한 상태에서 모터만 정지.
 - 비상 스위치: 모든 기능 차단.
- ③ 구동 스위치를 누르면 진공 스위치가 눌러져 있지 않아도 자동으로 진공 밸브가 작동 되고 인장 시간 대기 후 모터가 작동 된다.
- ④ 구동하기 전에 항상 진공 밸브를 먼저 작동 시킨 후 START 버튼을 누르는 것이 바람직 하다.

■ 설정값 변경

- Address 변경: 메인화면 상태에서 UP 스위치 또는 DOWN 스위치를 누름.
- 희망 address 의 세부항목 변경
 - ① 메인 상태에서 SET 스위치 누름. (화면은 첫번째 행정임을 표시 → rpm 값, 시간값)
 - ② 그 상태에서 커서는 행정상태에서 점멸.
 - ③ UP / DOWN 스위치를 누르면 행정상태와 세부항목이 변경된다.
 - ④ 첫번째 행정의 세부항목을 변경하고 싶으면 SET 스위치를 다시 누른다.
 - 커서는 rpm행에서 점멸하고 다음 스위치를 기다린다.
 - ⑤ 취소 스위치 누르면 커서가 행정 변경으로 이동한다.
 - 취소 스위치를 누르지 않고 UP / DOWN 스위치를 누르면 rpm값은 변경된다.
- 시간값 변경
 - ① rpm 변경 상태에서 SET 스위치를 한번 더 누른다.
 - ② 커서는 시간값에서 점멸.
 - ③ UP / DOWN 스위치를 눌러 적당한 값으로 변경한다.

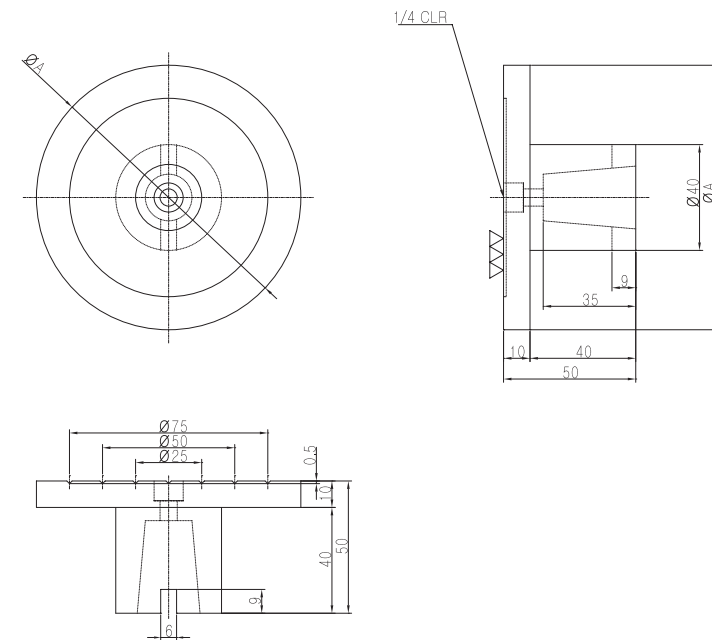
■ 설정값 저장

- ① 설정된 setting 상태에서 취소 스위치를 누른다. (메인 화면이 나올때까지 누른다.)
 - 메인 화면이 나오지 않은 상태에서 전원을 차단 하였다면 setting값은 저장되지 않는다.
- ② 설정값을 저장하기 위해서는 반드시 취소 스위치를 눌러서 빠져 나와야 한다.

■ VACUUM 작동

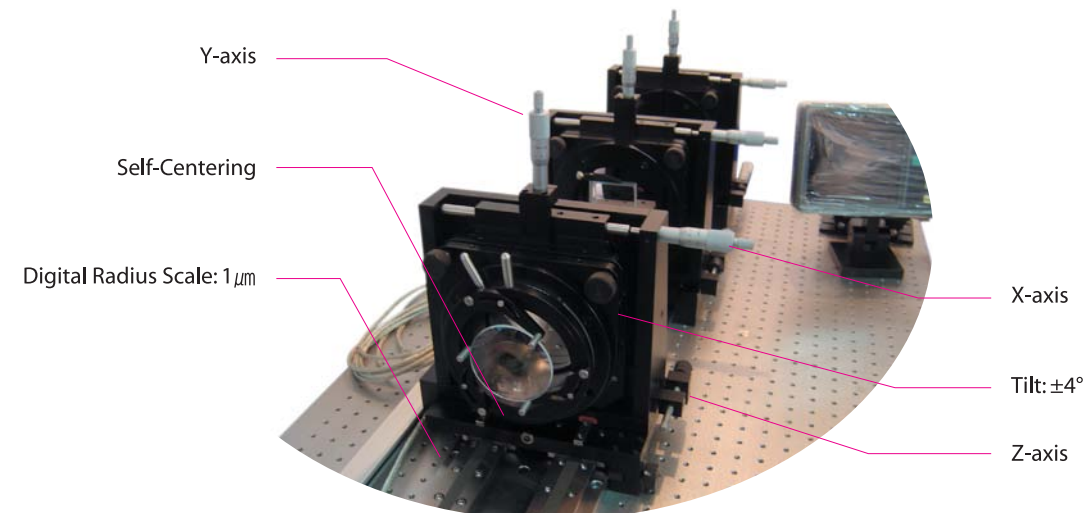
- ① 진공 펌프의 전원을 켜다.
- ② VACUUM 스위치를 누르면 VACUUM LED가 점등 되고 진공이 작동 된다.
- ③ VACUUM 해제는 VACUUM 상태에서 VACUUM 스위치를 누름으로써 가능하고 스위치를 한번 누르면 설정이 되고 한번 더 누르면 해제 된다.

■ Spin Coater Chuck



Model	SCC-2	SCC-3	SCC-4	SCC-5	SCC-6	SCC-7	SCC-8
Size(mm)	Ø50.8(2")×50	Ø76.2(3")×50	Ø101.6(4")×50	Ø127(5")×50	Ø152.4(6")×50	Ø177.8(7")×50	Ø203.2(8")×50
Description	Spin Coater Chuck						
Material(Treatment)	Aluminum (Black Anodized)						

6 Axis High Precision Mount



■ Testing Application

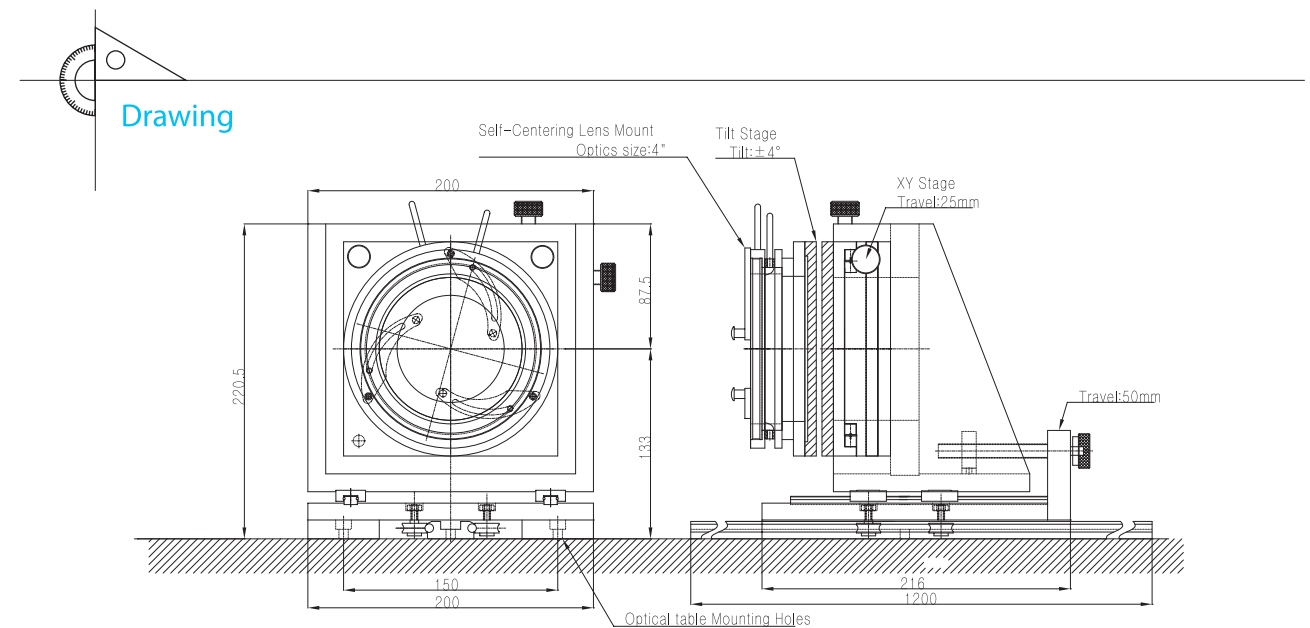
① Surface Testing

		Adjustment
• Flat Surfaces	Flat Mirror	→ X, Y Tilt
	Prism Face	
	Beamsplitter	
	Hard Disk Platter	
• Concave Surface	Lens Surface	→ X, Y, Z Translation
	Test Plate	
	Laser Cavity Mirror	
	Spherical Mirror	
• Convex Sphere	Convex Mirror	→ X, Y, Z Translation
	Ball Bearing	
	Lens Surface	
• Parabolas	Telescope Mirror	→ X, Y, Z Translation X, Y Tilt
	Collimator Objective	

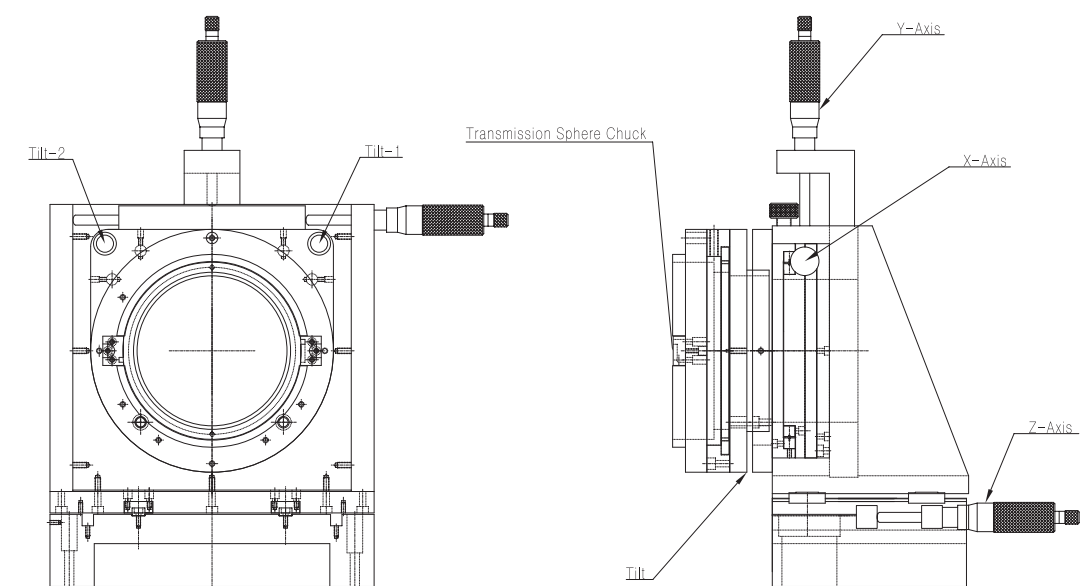
② Transmission Testing

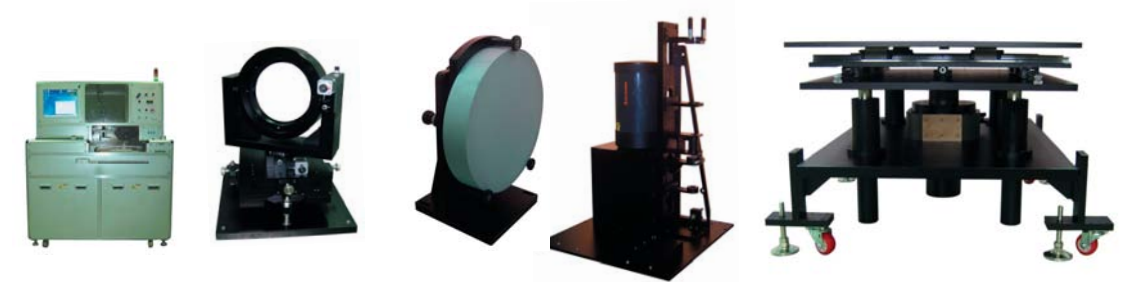
• Windows	Homogeneity	→ X, Y Tilt
	Wedge Measurement	
	Filter Transmission Quality	
• Lens Testing	Lens Assemblies	→ X, Y Tilt X, Y, Z Translation
• Afocal Systems	Beam Expander	→ X, Y Tilt
	Telescope	
	Binocular	
	Align Optcal Components Test Collimation	
• Finite Conjugate Systems	Microscope Objective	→ X, Y, Z Translation X, Y Tilt
	Copier Lense	
	Macro Lense	
	Simple Lense	

6 Axis High Precision Mount



Model		HPM-6
Travel Range	XY	25mm
	Z	50mm
	Tilt	±4°
Self Travel Range		Ø5 ~ Ø105





Application Equipment

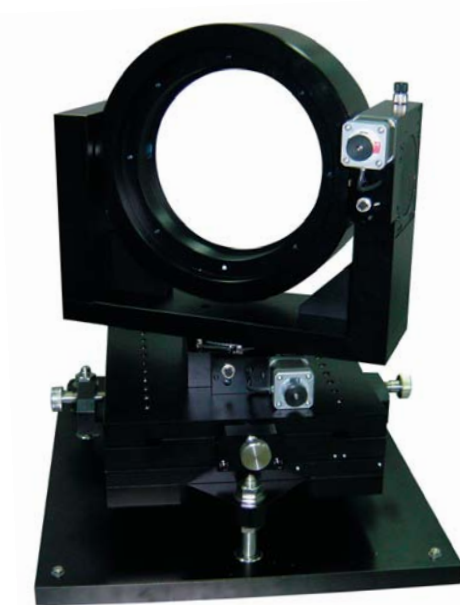
CleanRoom Correspondence High Precision Stage
Motor Gimbal Stage
Large Caliber Mirror Mount
Lidar System
5-Axis Test Equipment
Microscope Optical Application System

CleanRoom Correspondence High Precision Stage

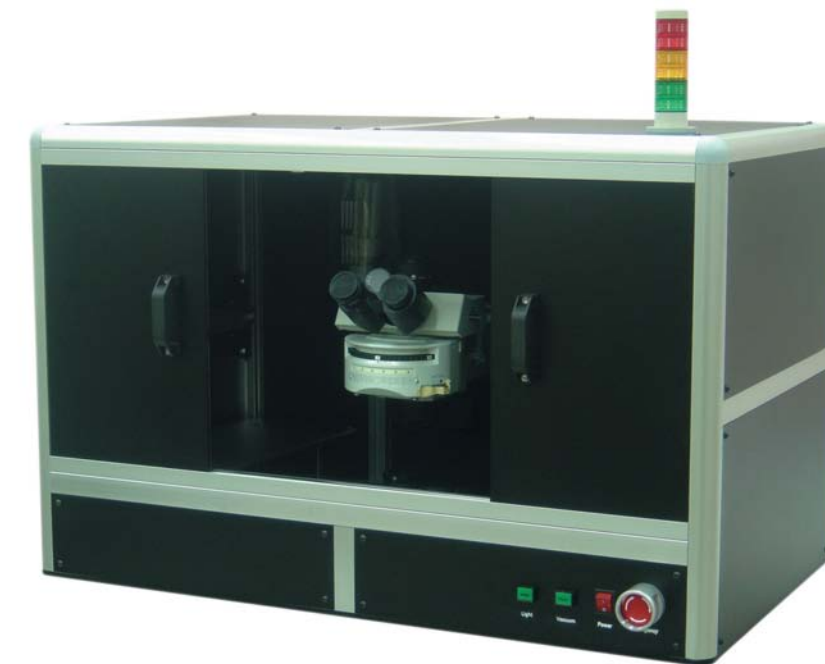


- 제품 사양 (Product Specification)
 - High Speed 10 μ m/sec ~ 10 μ m/sec
 - High Accuracy
 - Clean Room Class 10 correspondence
- 응용분야 (Application Field)
 - 박막두께 측정 (Thin Film thickness Measurement) Ellipsometer
 - 반사율, 투과율 측정 (Reflexibility, transmissivity)
 - 비접촉 3차원 측정
 - Optical density 측정
- 사양 (Specification)
 - size: 1300x1200x1500
 - Travel
 - X Axis: 450mm
 - Y Axis: 600mm
 - Z Axis: 100mm
 - Vacuum Top Plate : 410x410
12" wafer correspondence

Motor Gimbal Stage / Large Caliber Mirror Mount

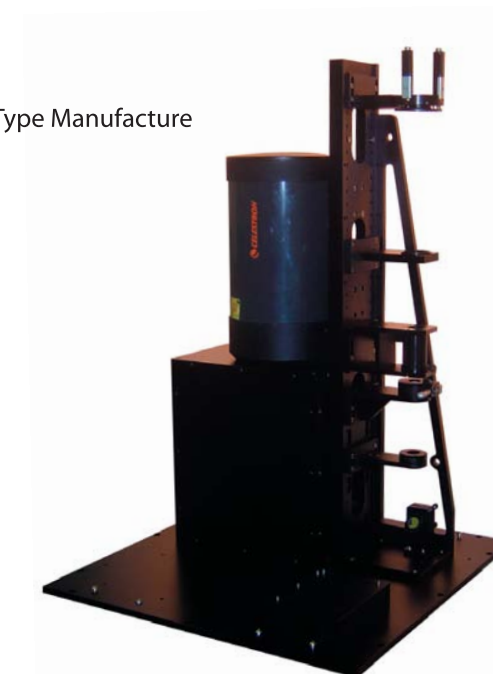


Microscope Optical Application System

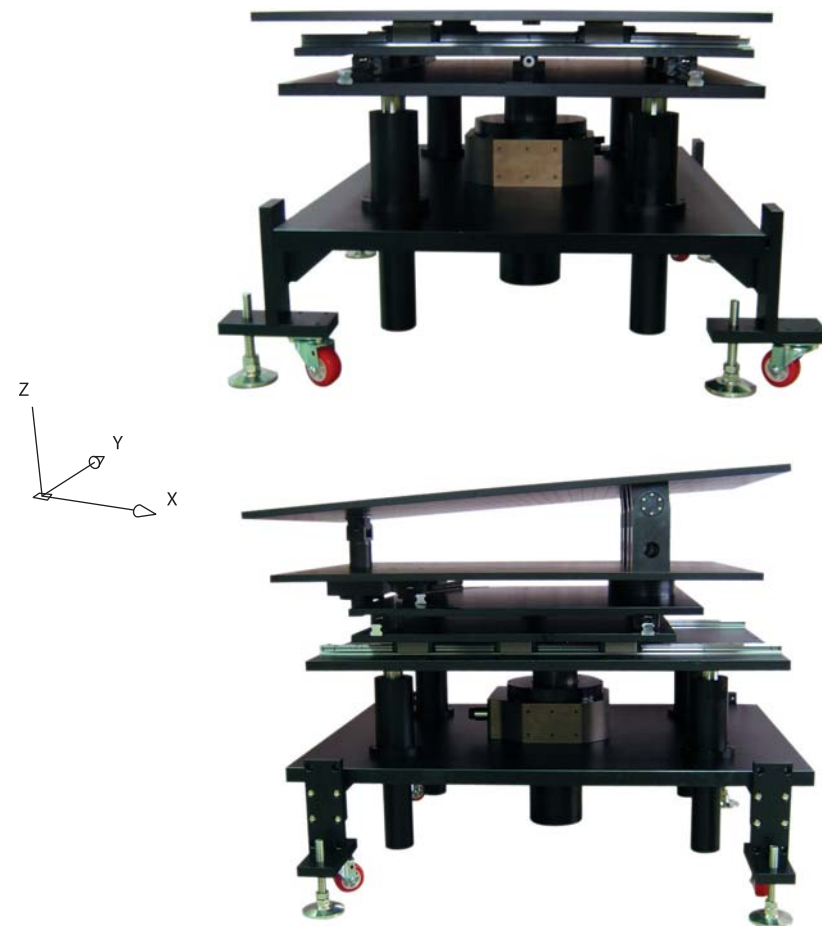


Lidar System

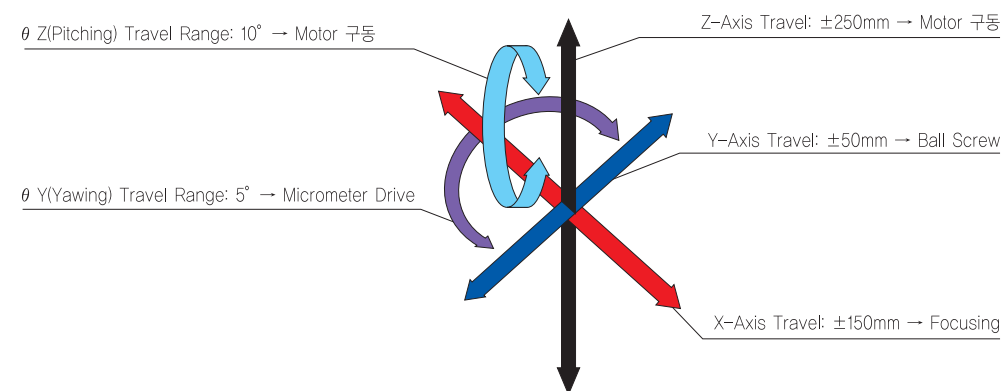
- Order Type Manufacture



5-Axis Test Equipment



■ Angular & Orthogonal



본 장비는 Large Aperture Surface(대구경), Aspheric Surface(비구면), Parabolic Surface(포물선 형태의 표면) 등 고하중용 Optical Test 장비입니다.



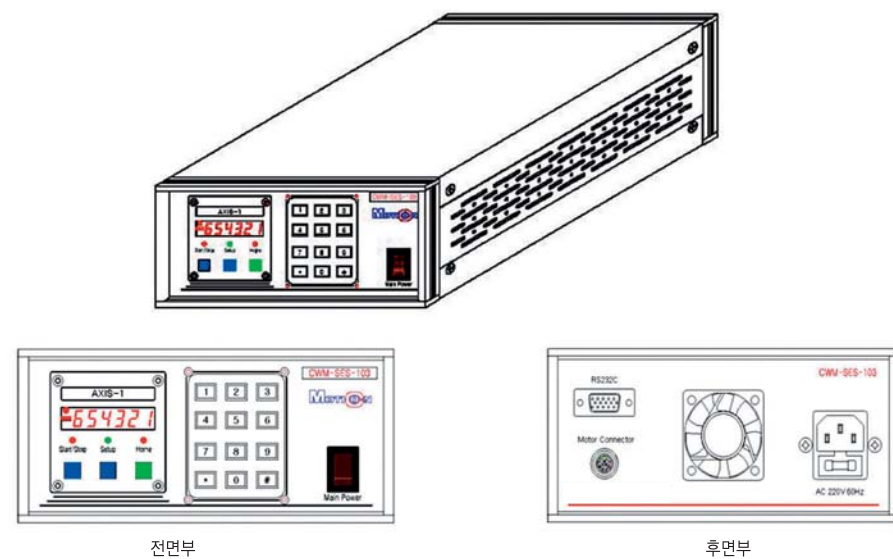
Controller

Motion Controller
Sanmei Invention Servo
Mdrive

Controller Driver Encoder 내장형 Servo Motor

Motion Controller

■ Economic Version 1 Axis Motion Controller (Numeric Pad)



CWM-SES-103-TP

■ 제품구성 및 사양

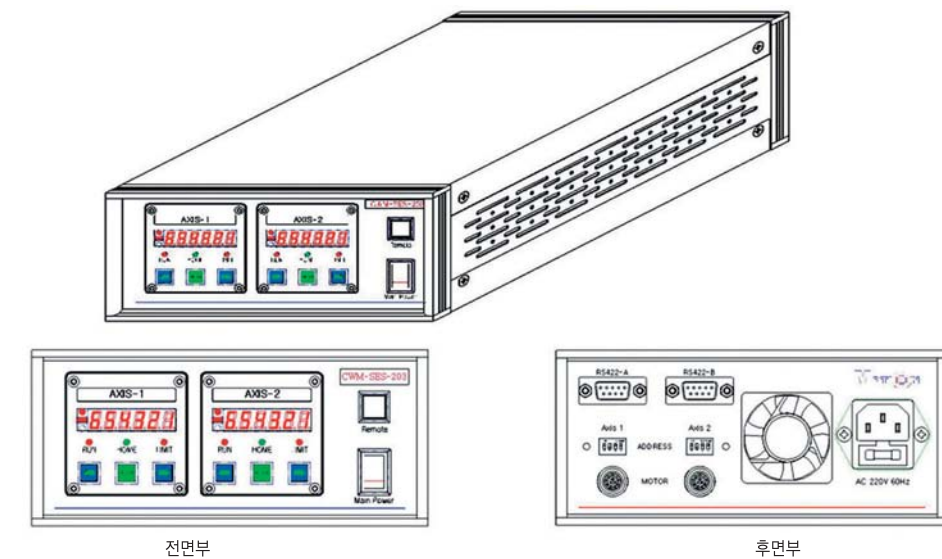
모델명 : CWM-SES-103-TP
(일반 1-축시리얼 모터컨트롤 SYSTEM)

기능 : REMOTE / LOCAL 제어

- STANDALONE(LOCAL 제어)
 - 시리얼통신 혹은 키 입력에 의한 N축 모터 제어
 - DIP S/W에 의한 속도, 가속도 설정.
 - 축당 부호 1DIGIT와 7-Segment 6DIGIT의 현 좌표 디스플레이 (FND) 출력
 - 축당 3개의 LED에 운전중(RUN), 원점(HOME), 리미트(LIMIT) 디스플레이
 - 축당 DATA 백업(현 좌표)
 - 축당 3개의 리미트 입력 가능
 - Numeric Key의한 입력으로 입력이 용이
- REMOTE 제어
 - RS232C INTERFACE(Daisy Chain)
 - PC의 COMMAND에 의한 원격제어
 - 모터드라이브 별도

Motion Controller

■ Economic Version N Axis Motion Controller



CWM-SES-N03 (N-축수)

■ 제품구성 및 사양

모델명 : CWM-SES-N03(N-축수)
(일반 N축시리얼 모터컨트롤 SYSTEM)

기능 : REMOTE / LOCAL 제어

- STANDALONE(LOCAL 제어)
 - 시리얼통신 혹은 키 입력에 의한 N축 모터 제어
 - DIP S/W에 의한 속도, 가속도 설정.
 - 축당 부호 1DIGIT와 7-Segment 6DIGIT의 현 좌표 디스플레이 (FND) 출력
 - 축당 3개의 LED에 운전중(RUN), 원점(HOME), 리미트(LIMIT) 디스플레이
 - 축당 DATA 백업(현 좌표)
 - 축당 3개의 리미트 입력 가능
- REMOTE 제어
 - RS232C INTERFACE(Daisy Chain)
 - PC의 COMMAND에 의한 원격제어
 - 모터드라이브 별도

Motion Controller

■ PMC-HS Series (High Speed 1축/2축 Programable Motion Controller)

PMC-HS Series는 Motion IC MCX302를 기반으로 펄스열 입력의 1축/2축의 Servo Motor, 또는 Stepping Motor의 위치결정 또는 속도를 제어하는 Controller입니다. EEPROM을 내재하여 각축의 동작 모드, 파라미터, 위치 데이터를 프로그램 하는것이 가능합니다. PMC-1HS는 1축용, PMC-2HS는 2축용 Controller입니다.

형 식	축제어	통신포트
PMC-1HS-232	1	RS-232C
PMC-1HS-USB	1	RS-232C, USB
PMC-2HS-232	2	RS-232C
PMC-2HS-USB	2	RS-232C, USB



■ 특징

- 최대 4MHz의 고속운전
- 4가지 동작모드: 스캔 모드, 연속 모드, 인덱스 모드, 프로그램 모드
- 각축 12가지 제어 명령어 조합에 의한 64스텝까지의 다양한 동작 구현
- PLC와 연결 가능한 병렬 입출력 단자 내장 (PI/F)
- 전용 소프트웨어에 의한 동작 프로그램, 파라미터 작성 및 편집
- XY Stage 동작에 편리한 조이스틱 신호 입력 대응
- 전기중 시리얼 포트 (RS232C) 탑재로 원격제어
- 티칭 유니트 (PMC-2TU-232)를 이용한 티칭 및 모니터링 기능



■ 정격 및 성능

모델명	PMC-1HS-232	PMC-1HS-USB	PMC-2HS-232	PMC-2HS-USB
제어축	1축		2축	
제어대상모터	펄스 열 입력의 스텝 모터 또는 서보 모터			
전원전압	20V DC ± 10%			
소비전력	6W Max.			
동작모드	스캔모드(SCAN)/ 연속모드(CONTINUOUS)/ 인덱스모드(INDEX)/프로그램모드(PROGRAM)			
위치설정방식	절대(Absolute)방식 / 상대(INCREMENTAL)방식			
인덱스스텝수각	축 64			
위치설정범위	-8,388,608 ~ 8,388,607 (펄스 스케일링 기능 가능)			
운전속도설정수	4개			
운전속도	1pps ~ 4Mpps (1 ~ 8000 x 배율 1~ 500)			
출력펄스방식	2펄스 출력방식 (라인 드라이브 방식)			
원점복귀모드	고속원점근접찾기(STEP1) → 저속원점찾기(STEP2) → 저속Z상찾기(STEP3) →고속웍셋이동(STEP4) 각 STEP의 검출 방법 및 실행/비실행 설정 가능			
프로그램기능				
저장	EEPROM			
스텝수	64 STEP			
제어명령어	ABS, INC, HOM, IJP, OUT, JMP, REP, RPE, END, TIM, NOP(12가지)			
스타트	파워 온 프로그램 자동 스타트			
원점복귀	파워 온 원점 복귀 실행			

Sanmei Invention Servo



- 고성능의 서보 운전이 가능한 스테핑 서보 시스템.
- 매끄럽고 조용한 동작으로 고정밀도의 위치결정 기능.
- 높은 Tact에 민첩한 동작이 요구되는 용도에 적합.

■ 데이터베이스 보정 제어

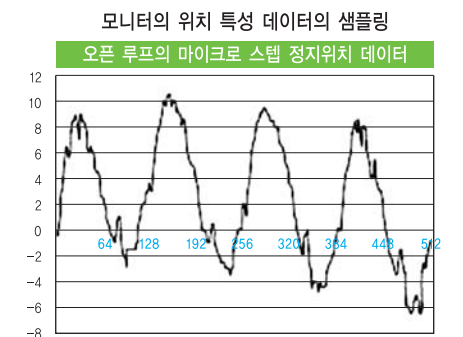
- si servo의 제어 방식은 단순한 마이크로 스텝 제어가 아닙니다. 모터 후부에 엔코더 및 메모리 소자를 탑재하고 있어서 1회전에 400펄스 분해능의 엔코더의 위치 정보와 전류 피드백을 기준으로 하고 여기에 더해서 모터 고유의 데이터를 공장 출하시 메모리에 기억시켜 모터 구동시에 보상,억제하는 정밀한 데이터베이스 보정형 제어법으로 고속, 고속정밀도 위치 결정을 실현시키고 있습니다.

■ 데이터베이스 메모리에 기억

- 샘플링 된 데이터는 모터내의 메모리에 기억되어 전원 투입시에 엔코더의 케이블을 통해 드라이버에 전송됩니다. 따라서 드라이버와 모터는 임의의 조합이 가능하게 됩니다.

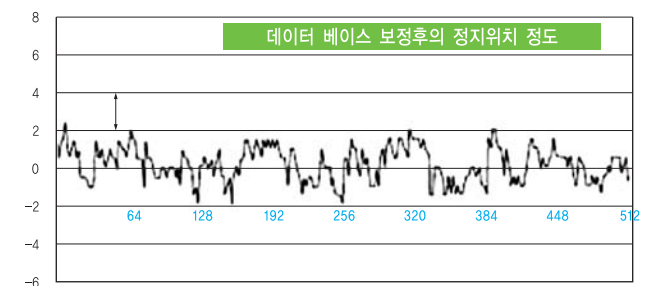
■ 모터의 특성 데이터를 샘플링

- 코깅 토크(Cogging Torque)나 토크 리플(Torque Ripple)은 모터의 가공, 조립, 정밀도에 기인해 발생하고이것들은 저진동, 고정밀도 위치결정을 저해하는 요인이 되고 있습니다. Si Servo에서는 이것들 제어에 악영향을 미치는 모터 고유의 데이터와 마이크로 스텝 제어시의 위치 결정 정밀도를 정확하게 측정해 파악하는 방법으로 그것을 최적의 전류 파형으로서 데이터 베이스화 합니다.



■ 고정도 위치 결정

- 마이크로스텝 제어처럼 단순히 분해능을 좀더 세세하게 하는 것 뿐만 아니라 실제의 정지 정밀도를 10,000펄스 엔코더 상당까지 끌어올려 기존 마이크로 스텝에서는 불가능 하던 1펄스마다의 일정 피치의 위치 결정을 실현 했습니다.

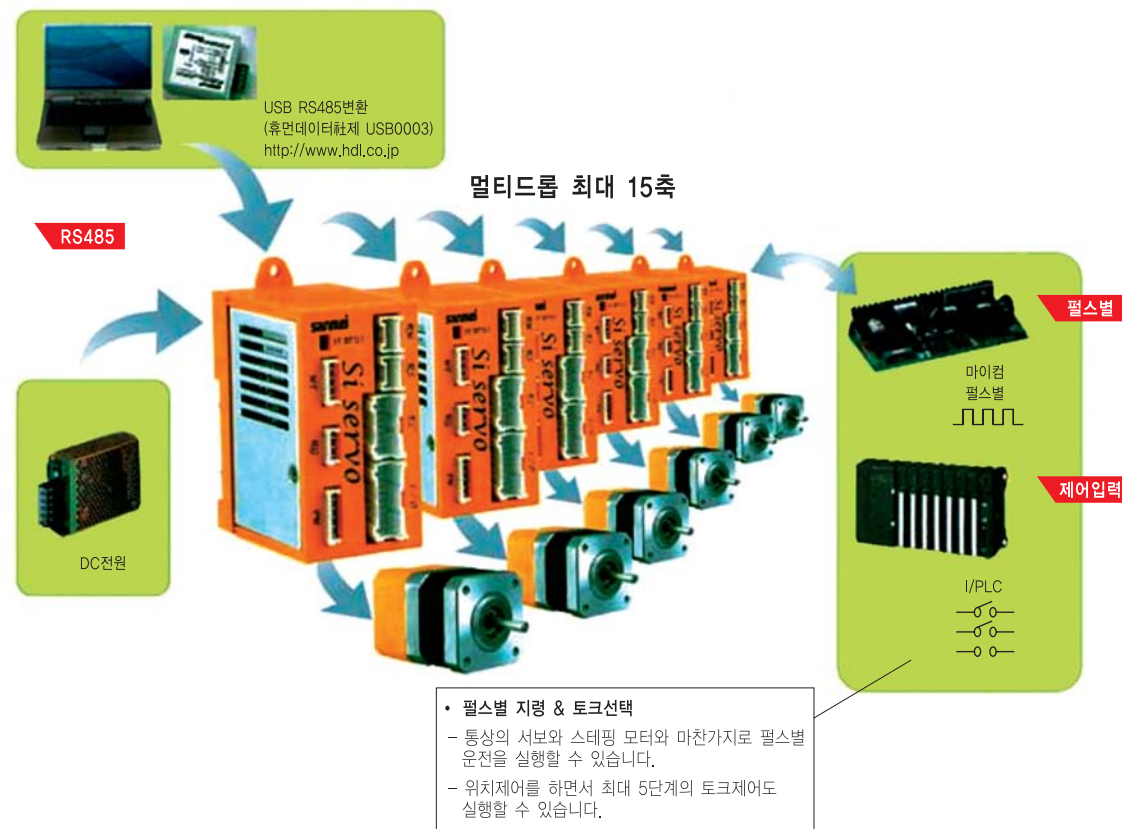


■ 커맨드 방식과 운전방식

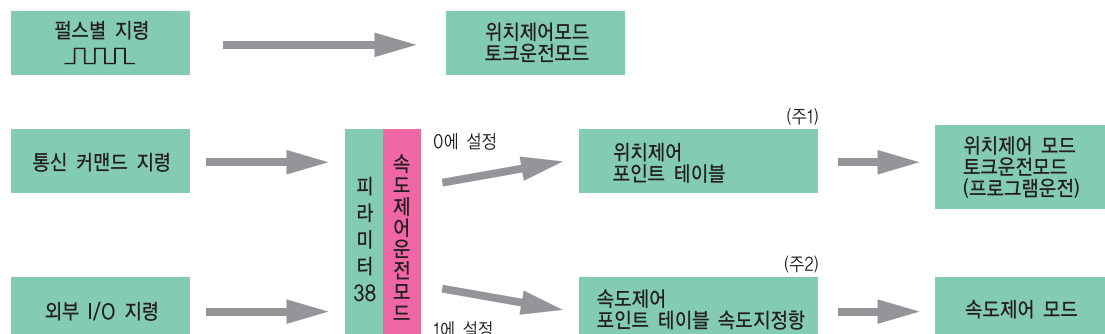
- 펄스별 지령에 의한 운전 외에 256개의 데이터를 기억하는 것이 가능한 포인트 테이블을 이용해서 프로그래밍 기능도 이용할 수 있기 때문에 크게 플렉서블(Flexible)한 운전이 가능합니다.

3종류의 인터페이스를 가지고 고객의 개발 환경에 대응해서 사용하는 것이 가능 합니다.

펄스별 입력, RS485의 통신 포트를 표준장비로 해서 커맨드 운전이 가능하고 I/O지령에 의한 운전도 가능합니다.



■ 운전방식 변환의 개요



(주역1) 포인트 번호는 최대 4비트의 외부 I/O에서 지령이 가능합니다.

(주역2) 속도제어에서는 포인트 테이블 위닉 속도 데이터를 최대 4비트의 외부 I/O에서 지령이 가능합니다.

■ Si-Servo의 사양

형 식			Si-02LDE	Si-02DE	Si-05LDE	Si-05DE
적용 모터 형식			TS3692N61S02	TS3641N61S02 TS3617N370S04 TS3617N371S04 TS3617N324S04 TS3617N325S04	적용 모터 형식	적용 모터 형식
정격출력 전류(A0-p)			0.35	2.0	2.0	5.0
최대출력 전류(A0-p)			1.0	4.5	6.0	13.0
제어방식			트랜지스터 PWM(정현파 구동)			
하용 부하 관성			모터 관성의 20배			
피드백			인크리멘탈 엔코더 200ppr, 인크리멘탈 엔코더 400ppr(S04)			
치수(mm)			39(W)×70(H)×55(D)		58.2(W)×76(H)×98(D)	
질량(kg)			0.18		0.34	
전원	전원	동력 전원	DC24V±10% 또는 DC36V±10%			
		제어 전원	DC24V±10%			
	전원 전류(A)		2A		5A	
위치 지령 방식			3모드 펄스열, RS485에 의한 통신, 제어 입력			
사용조건	사용온도		0 ~ +50℃			
	보존온도		-20 ~ +85℃			
	사용・보존 습도		90%RH이하 (결로가 없는 곳)			
	내진동		0.5G			
	대충격		2G			
내장기능	다이나믹 브레이크 기능		없음			
	회생 기능		외부에 회생 처리 회로를 접속 가능			
	오버 트레벨 방지 기능		하드 OT, 소프트 OT (파라미터에 의해 유효 / 무효를 선택, CW, CCW 리미트 기능)			
	펄스 지령 분해 기능		1 / 65,535 ~ 65,535			
	내부 속도 설정 기능		포인트 테이블 이동 속도, JOG 속도, 원점복귀 속도			
	표시 기능		LED 1점 (알람 표시, 서브 ON 상태)			
입출력	입력	제어 입력	5점 (파라미터로 기능을 선택)			
		지령펄스 입력	CW/CCW, PULSE/SIGN, A/B상입력(파라미터로 선택) 최대 응답 주파수 750kpps			
	출력	제어 출력	3점 (파라미터로 기능 선택), 브레이크 해제 신호			
보호기능			EEPROM 이상, 엔코더 이상, 시스템 이상, 과전류, 드라이버 과열, 위치 편차 과대, 모터 전원 이상, 제어 전원 이상			
원점복귀 방법			원점 LS신호 입력 또는 기계단 놀림 (파라미터에 의해 7방식의 선택)			
다축접속 기능			RS422/485에 의한 최대 15축 까지의 멀티 드롭			
설정 방식			PC를 사용한 파라메터 설정 (RS485 변환기가 필요함)			
규격, 환경적합, 보호등급			UL준거 / CE / 납프리 / IP40(모터만)			

Mdrive (일체형 스테핑 모터)

■ Mdrive는 Stepping Motor, Driver, Controller, Encoder가 결합된 일체형 Stepping Motor입니다.
원하는 사양에 따라 다양한 형태의 조합이 가능합니다.

■ Step Motor

- 고성능 스텝모터는 각 NEMA 사이즈마다 3가지 스텝 길이가 있으며, 토크에 따라 선택 가능합니다.

■ PCB AS SY

- 보다 진보된 기술의 IMS M3000칩을 기반으로 구성된 PCB는 모터와의 결합시 솔더링이 필요치 않으므로 제품에 신뢰성을 더하여 주며, 모터의 소음 및 공진 발생을 대폭 줄여 줍니다.
또한 보다 광범위한 전압 입력을 가능하게 하며, 높아져가는 환경사항을 위하여 -40~85℃까지의 온도범위를 허용합니다.

■ Heat Sink

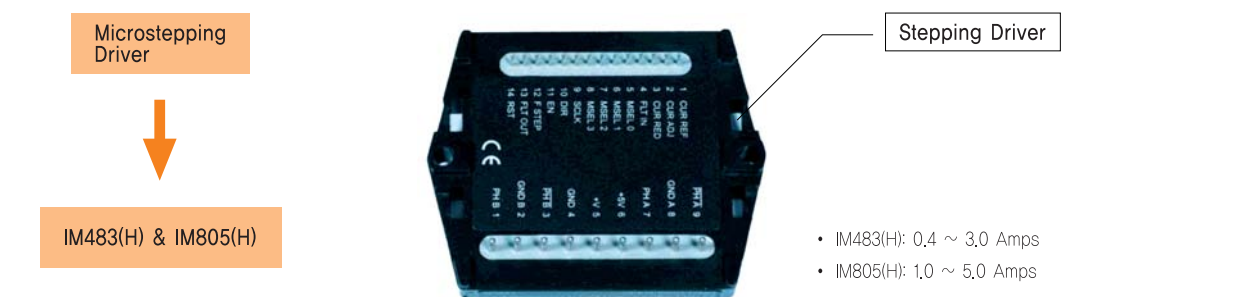
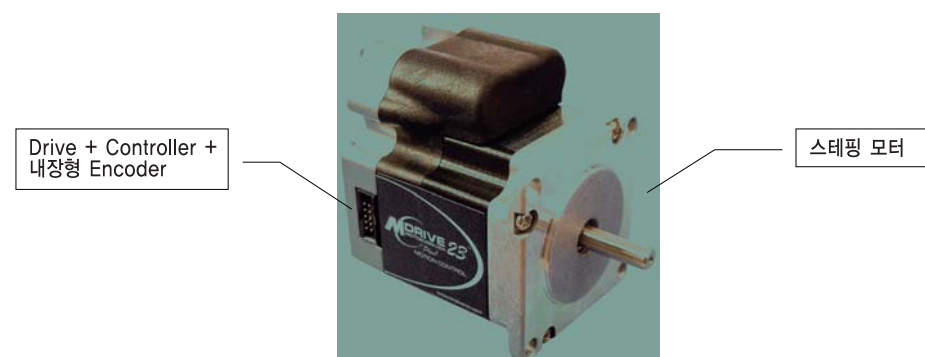
- 알루미늄 케이스로 이루어진 커버는 제품 조립 및 내구성을 강하게 해주며, 인터페이스에 따라서 편리한 선택을 할 수 있도록 합니다.

Stepping Motor + Driver
Stepping Motor + Driver + (외장형 Encoder) → MICRO STEPPING (MDM TYPE)



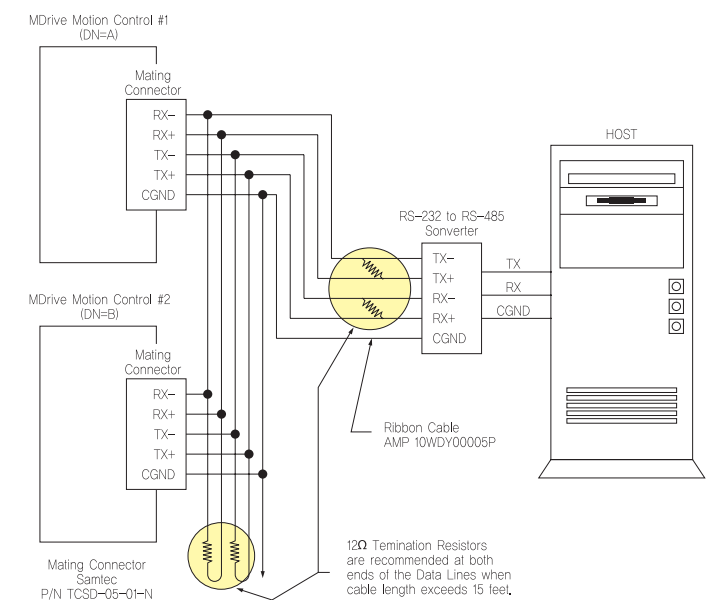
Stepping Motor + Driver + Speed Controller
Stepping Motor + Driver + Speed Controller + (외장형 Encoder) → SPEED STEPPING (MDO TYPE)

Stepping Motor + Driver + Controller
Stepping Motor + Driver + Controller + (내장형 Encoder) → MOTION CONTROL (MDI TYPE)



■ Mdrive 특징

- Multi 제어 기능
 - MDI 타입의 경우 'Party Mode'를 설정하여 Multi 통신으로 최대 62개의 Mdrive를 제어할 수 있으며 실시간으로 각 모터의 정보를 모니터링 할 수 있는 강력한 네트워크 기능을 제공 합니다.
- 쉽고 편리한 Interface
 - MDM 타입의 경우 전용 케이블과 SPI 인터페이스 소프트웨어를 이용하여 모터의 기본적인 파라미터를 설정 할 수 있으며 모터에서 발생한 에러코드를 모니터링 할 수 있습니다. MDI 타입은 전용 케이블과 프로그램 다운로드용 소프트웨어인 IMS terminal을 이용하여 사용자가 작성한 프로그램을 Mdrive에 적용 할 수 있으며 실시간 모니터링이 가능합니다.
- 다양한 옵션
 - 엔코더, 유성기어박스, 웹 스크류를 사용자의 요구에 따라 공급하며 IP-65 타입, CAN 통신등의 특수 사양도 주문 생산이 가능합니다.



Controller Driver Encoder 내장 Servo Motor

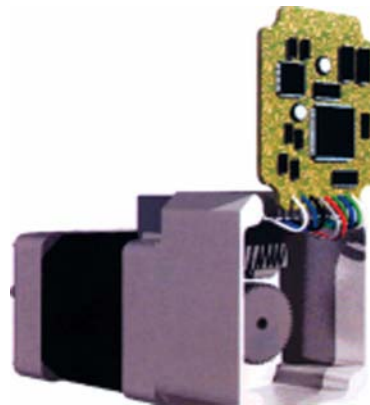
■ Cool Muscle

- Driver Controller Encoder 일체형 AC Servo Motor입니다.
Motor 후면에는 자기위치 Sensor와 32bit의 RISC CPU를 탑재한 인텔리전트 Driver기판이 내장되어 있어서 초소형입니다.

■ 개념

① ALL IN ONE 솔루션

- 인텔리전트 드라이버
모터 후면에는 인텔리전트 드라이버가 탑재되어 있기 때문에 드라이버 BOX가 불필요 합니다.
또한 Driver에는 Power Management가 내장되어 있어 Torque에 적합한 전류만 흐르기 때문에 모터의 온도 상승이나 소비 전력이 낮습니다.
- Controller
인텔리전트 드라이버 보드에는 32bit CPU 보드가 탑재되어 있기 때문에 Motion Program의 다운로드 및 실행이 가능하여 Motor 단독으로 제어 가능합니다.
별도로 콘트롤러가 불필요하기 때문에 공간 확보 및 비용(원가) 절감이 최적입니다.
- 고분해능 자기 Encoder
Coolmuscle의 고분해능 자기 Encoder에 의해 50,000분해능 1회전이 가능하고 AC Servo와 같은 기능이기 때문에 저속에서도 부드럽고 Close loop이기 때문에 탈조가 전혀 발생하지 않습니다.



② The Power Of Cool Muscle

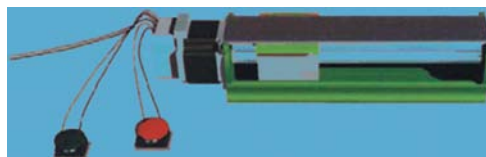
종래의 System

- 전형적인 종래의 슬라이더 시스템에는 드라이버, 콘트롤러, 원점 센서, 리미트 스위치가 필요하기 때문에 배선도 많고 소형화가 어렵습니다.



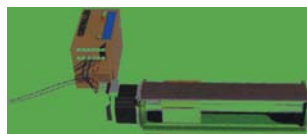
Cool Muscle을 사용한 System

- Cool Muscle을 사용함으로써 Driver Controller Box는 물론 원점 및 리미트 센서도 필요하지 않습니다. 그래서 초소형화와 원가 절감이 가능합니다.



■ 종류

- Cool Muscle는 펄스, 아날로그, 컴퓨터 등 다양한 인터페이스에 대응합니다.



① P Type

- : Pulse제어 시스템에 적용이 가능합니다.
오픈루프의 step motor의 탈조, 발열문제를 해결하고, 서보와 같은 기능이면서 저비용화, 초소형화를 실현 했습니다.

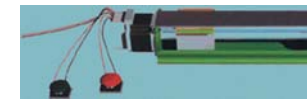


② V Type

- : 입력전압에 비례하여 위치 또는 속도제어가 가능합니다.
Parameter에 의해 최고속도, 이동거리의 설정가능 Feed system이나 밸브 등의 응용에 최적입니다.

③ C Type

- : 세가지 Type중에서 가장 Powerful한 Cool Muscle 입니다. 반복동작은 동작 Program을 다운로드한 후 PC나 PLC에서 동작시키고 임의 동작의 경우는 PC나 전용 PC에 접속하여 Command를 보내어 동작 시킬 수 있습니다.



C Type Cool Muscle에 다운로드한 프로그램을 간단하게 스위치로 실행

(솔루션-1) Program Download

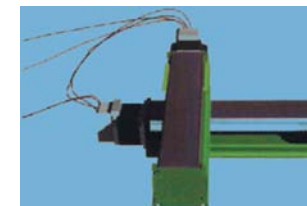
- : 많은 포지션 동작을 반복할 경우 Motor에 다운로드 함으로서 별도의 Controller가 필요 없어집니다.
다운로드한 프로그램은 스위치, PC, PLC에 의해 실행 시킬 수 있습니다.



PC를 사용한 다이내믹 Command에 의한 조작

(솔루션-2) Dynamic Command

- : 복잡한 동작이나 임의동작이 필요한 겨우는 Cool Muscle에 접속한 PC나 전용 Control PC로부터 Command를 보내는 것이 가능합니다.



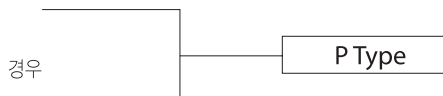
디지털제어에 의한 X, Y Stage

(솔루션-3) Network

- : 복수의 C Type Cool Muscle를 디지털제어 하는 것으로서 간단하고 저비용으로 단축 어플리케이션 개발이 가능합니다. HUB를 사용한 네트워크 방법도 있기 때문에 필요에 적합한 솔루션을 제공합니다.

④ Type별 최적 조건

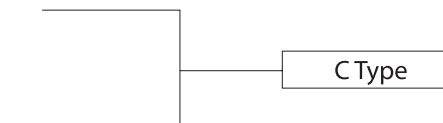
- Pulse로 제어를 하야만 하는 경우
- 현재 기계의 성능을 향상 시키고자 할 경우
- 오픈 Stepping Motor의 문제를 해결하고 싶을 경우
- 기계의 소형화 원가절감을 구현하고 싶을 경우



- 아날로그 위치 또는 속도제어를 하고 싶을 경우
- 기계의 소형화와 원가를 절감하고자 하는 경우
- 간단한 솔루션을 원할 경우



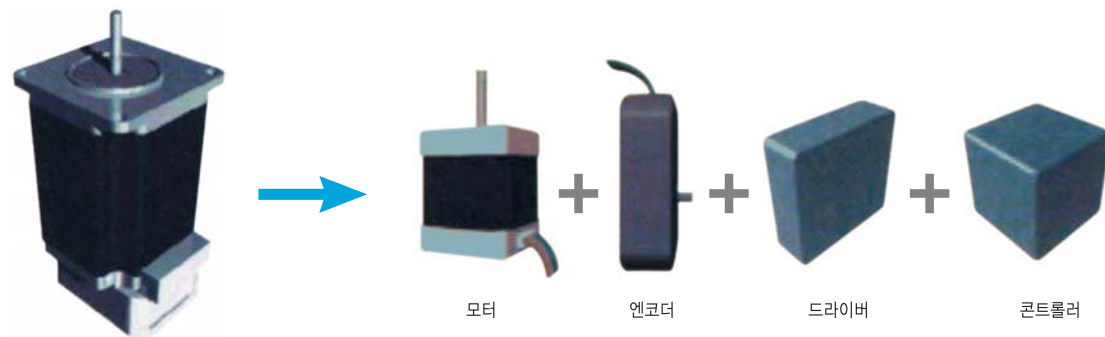
- 반복동작이 많을 경우
- PC 또는 전용 Controller로부터 동작을 시키고 싶을 경우
- 원호보간 동작이 필요할 경우
- 다축동작이 필요할 경우



■ 특징

① simple한 구조와 초소형

: 32bit의 RISC CPU부 인텔리전트 드라이버, 자기엔코더, Motor가 전체가 일체화. 배선도 간단해 지면서 기계 전체의 소형화가 가능합니다.

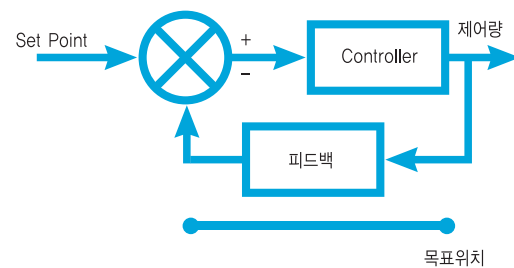


② Full Closed System

: Motor후면에 탑재되어 있는 고분해능 자기 센서와 인텔리전트 드라이버 보드에 의해 항상 현재 위치를 인식하고 보정하기 때문에 탈조의 걱정이 없습니다.

Cool Muscle을 사용한 System

: Sensor로부터의 피드백에 의해 Cool Muscle는 항상 현재 위치를 인식하고 필요한 경우는 위치를 보정한다.

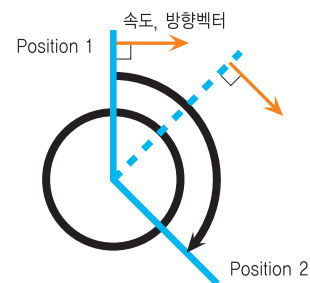


Cool Muscle을 사용한 System

: Motor가 위치를 인식하지 않고 있기 때문에 목표위치에 도달하지 않는 경우가 발생한다.

③ 부드러운 회전, 고정속성

: Cool Muscle의 고분해능 자기 Sensor로서 50,000분해/회전이 가능합니다.
또 Vector제어로서 저속에서도 정속하고 부드럽게 회전하기 때문에 기계의 저소음, 저진동화를 실현했습니다. 그리고 모터선이 짧고 금속 케이스에 밀착되어 있기 때문에 노이즈가 없습니다



Vector Control

: 벡터제어는 Servo에 적용되는 방식입니다.
벡터제어는 마이크로와 스텝핑제어와는 확실히 다릅니다.
마이크로 스텝핑과 틀린 벡터제어는 공진없이 부드러운 회전이 가능합니다.

④ 모터의 발열이 작다

: Power Management가 내장되어 있고 토크에 따라 전류가 흐릅니다.

이 때문에 모터의 온도상승이나 소비전력을 낮게 할 수가 있습니다. 또 시스템 모터의 특징을 활용하여 저속에서도 큰 토크가 가능합니다.



: Cool Muscle는 토크에 대한 전류만 흐르기 때문에 발열이 억제됩니다. 일방적인 Openloop의 스텝핑 모터는 최대의 전류가 항상 흐르기 때문에 높은 열이 발생합니다.

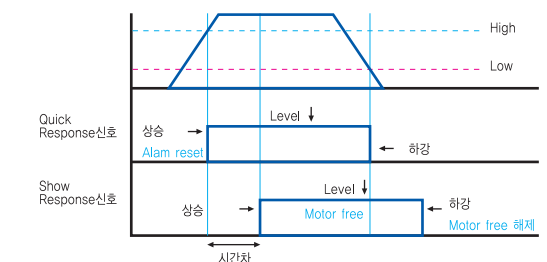
⑤ 다양한 인터페이스

: 펄스, 아날로그, 컴퓨터, PLC등 다양한 인터페이스를 지원합니다.
어플리케이션에 최적한 인터페이스로 선택 가능합니다.

	제어방법	TYPE
P type	펄스	CW/CCW 펄스지령/방향
V type	아날로그	위치제어 속도제어
C type	PC 전용 Control PC PLC 스위치	프로그램 다운로드 다이내믹 커맨드

⑥ Virtual 입력신호

: Cool Muscle의 Virtual을 이용하여 제한된 입력점을 유용하게 이용할 수가 있습니다.
원신호를 기준으로 시간차를 달리하여 2종류의 입력신호를 만듭니다.
각 신호의 상승, 하강, 레벨시에 기능의 할당이 가능합니다. 이 기술로 입력점 한점으로 복수의 기능을 할당할 수가 있습니다.

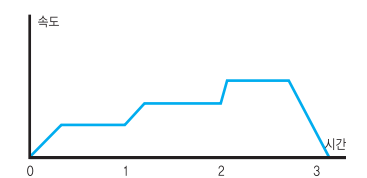


- Quick Slow Response 신호사용예: Alarm reset을 Quick Response 신호상승에 Motor free & 해제를 Slow Response 신호 Level 신호 하강시에 할당합니다. 입력점 기능을 파라미터에 의해 설정한다.

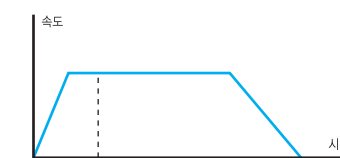
⑦ 다양한 동작지원

: Cool Muscle는 기본적인 PTP동작을 시작으로 다양한 동작 패턴을 지원합니다.

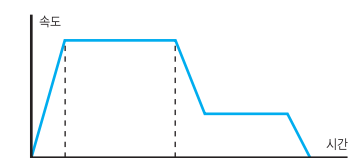
가속도, 감속도, 각각을 설정 가능, 속도, 가속도를 Motor 동작중에 임의로 변화 시키기도 하고 통과점에서 일시정지 하지 않은 상태에서 속도, 가속도, 변화는 PTP운동이나 Semi-Auto Teaching동작, 원보호간등의 복잡한 동작도 가능합니다.



일시정지 없는 PTP동작: 속도와 가속도를 변화시켜 원점부터 P3까지 정지하지 않고 이동한다.



가속도 감속도별 설정에서 PTP동작 : 가속도와 감속도를 각각 설정



Semi-Auto Teaching: Cool Muscle는 설정된 전류치로서 설정된 시간 Teaching을 할 수 있다.

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Leeoptics

Optical Components

Robot을 응용한 물체 감지 성능 Simulator



Leeoptics 이광학기기는

Optical Components 제조업체로 특수 사양의 Motion Controller / Alignment System / Mask Aligner System / Motor Translation Stage / Motor Rotation Stage / Spin Machine System / Rubbing Machine System / Laser Glass Cutting & Wallding System / R&D연구 / 의료용 Laser / FPD(LCD,PDP,OLED)측정 및 검사 장비 개발 등 고객이 원하시는 사양의 설계와 프로그램등을 제작하는 Optical components의 전문업체입니다.