

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide : KXG06020/KXG06030

Motorized Stage

KXG06020

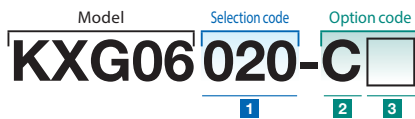


KXG06030



See page P.009

The drive unit areas are coated in clean grease.



Cable P.1-207~
Electrical specification P.1-051~

1 Travel length

020	20mm
030	30mm

2 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver)
PA	α Step (Driver set)

* Code MA · PA is the set of driver and cable.
* See page P.1-051~ for details of Motor option.

3 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-
C	4m	D214-2-4E
D	4m One end loose	D214-2-
E	Only connector (Cable is not)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-
M	Cable for electromagnetic brake	—
P	Cable for α step	—
Blank	Cable is not included	—

* One end loose position to only stage opposite side.
* The price includes M and P.
Not available non-cable.
See page P.1-207,209~ for details of cable.
Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/ cable products list	Motor code	Cable code
	C, F, G	Blank, A~H, J
MA	M	
PA	P	

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear
Ball

CAVE-X
Linear ball

Cross
Roller

Slide
Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

SPEC

Model	KXG06020-C	KXG06020-F	KXG06020-G	KXG06030-C	KXG06030-F	KXG06030-G
Travel length	20mm			30mm		
Table size	60×60mm			60×70mm		
Feed screw (Ball screw)	φ8 lead 1					
Guide	Linear ball guide					
Main materials-Finishing	Stainless—Opposite side of the end face finishing					
Weight	0.78kg	0.87kg	0.78kg	0.9kg	0.99kg	0.9kg
Resolution (Pulse)	Full/Half	2μm/1μm		1μm/0.5μm		1μm/0.5μm
	Microstep	0.1μm (1/20 on resolution)		0.05μm (1/20 on)		0.05μm (1/20 on)
MAX speed	20mm/sec	30mm/sec	20mm/sec	20mm/sec	30mm/sec	20mm/sec
Uni-directional positioning	Within 5μm					
Repeatability positioning	Within ±0.5μm					
Load capacity	5kgf [49N]					
Moment stiffness	Pitch 0.08/yaw 0.05/roll 0.05 ["/N · cm]					
Lost motion	Within 1μm					
Backlash	Within 1μm					
Straightness	Within 3μm					
Parallelism	Within 15μm					
Motion parallelism	Within 10μm					
Pitching/Yawing	Within 20"/15"					
Limit sensor	Installed					
Origin sensor	Installed					
Slit origin sensor	—					
Provided screw (Hexagon-headed)	4 of M4—12					

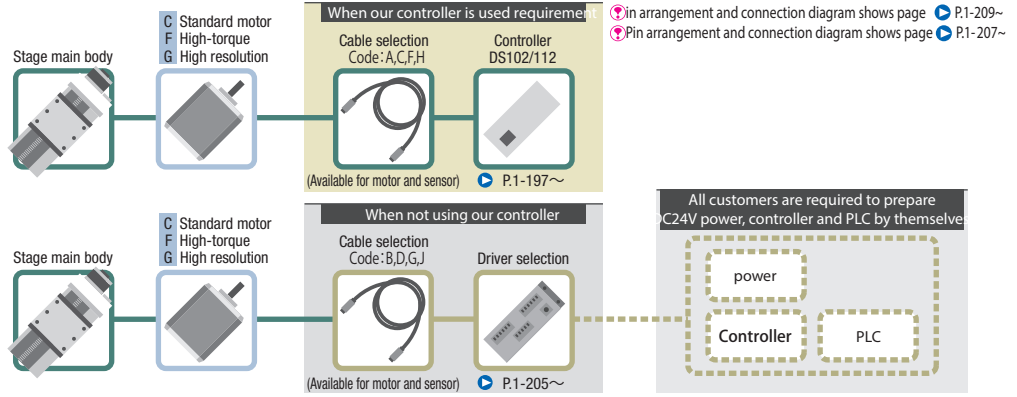
※ Might be changed specification due to motors. See page P.1-213~ for details.

Motor option

C Standard motor
 Motor model
 C005C-90215P

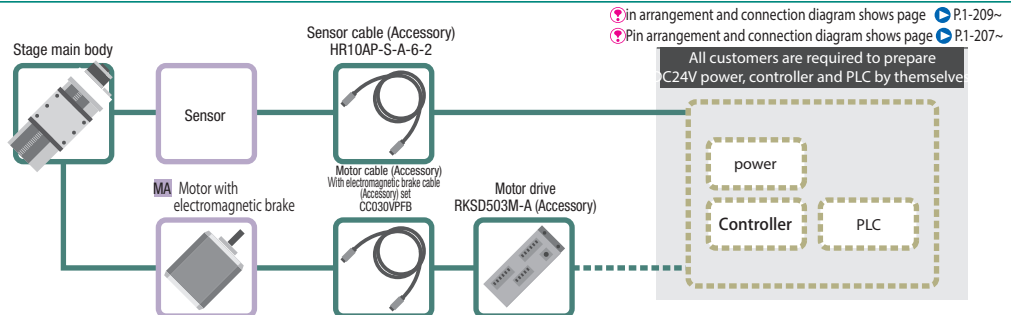
F High-torque
 Motor model
 PK525HPB-C1

G High resolution
 Motor model
 PK523HPMB-C1



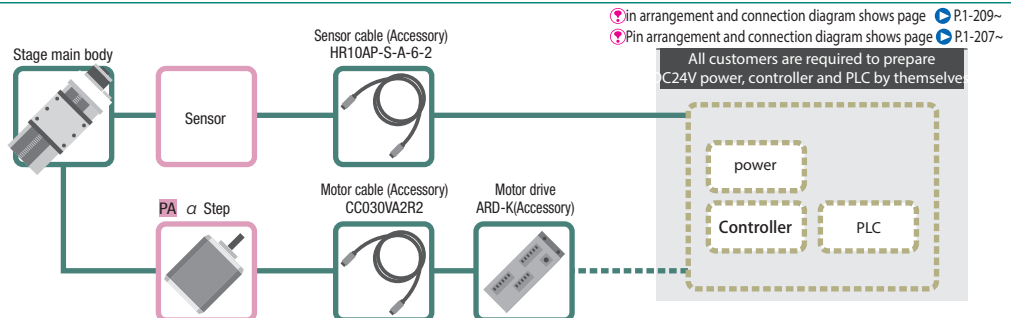
Motor option

MA With electromagnetic brake
 Motor model
 PKE545MC-A1



Motor option

PA α Step
 Motor model
 ARM24SAK



Motor code	C	F	G	MA	PA	
Feature	Standard	High-torque	High resolution	With electromagnetic brake	Small step-out	
Type	5 phase stepping motor 0.75A/Phase				α step motor	
Model*	C005C-90215P	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	
	Lead	2μm/1μm		2μm/1μm	1μm (Set to 1000P/R)	
	1mm	0.1μm		0.1μm	-	
MAX speed	Lead 1mm	20mm/sec	30mm/sec	20mm/sec	25mm/sec	30mm/sec

* Model is our own management model.

- Motorized Stage
- X
- XY
- Z
- Horizontal Z
- XYZ
- Goniometer
- Rotary
- Unit
- Controller
- Linear Ball
- CAVE-X Linear ball
- Cross Roller
- Slide Guide
- φ40
- φ50
- φ60
- φ70
- φ80
- φ100
- φ120
- Other
- 1
- 042

Motorized Stage

CAVE-X POSITIONER

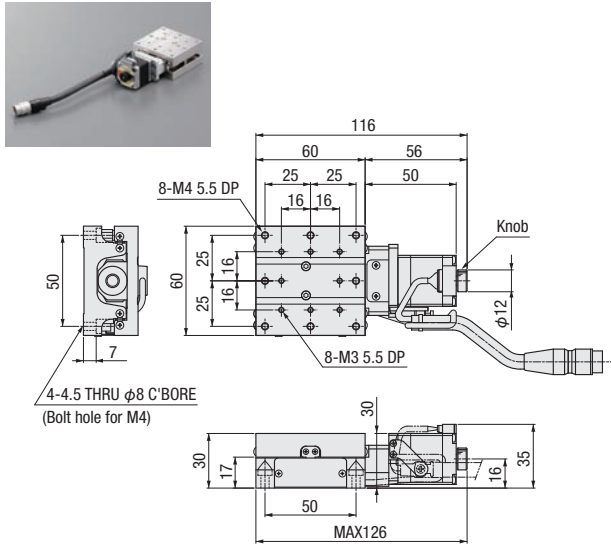
X-axis Linear Ball Guide: KXG06020/KXG06030

Motorized Stage

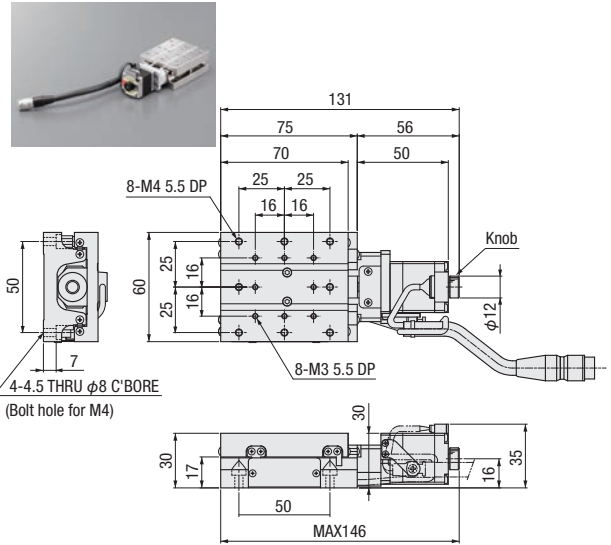
Dimensional outline drawings

※ The photo shows an image.

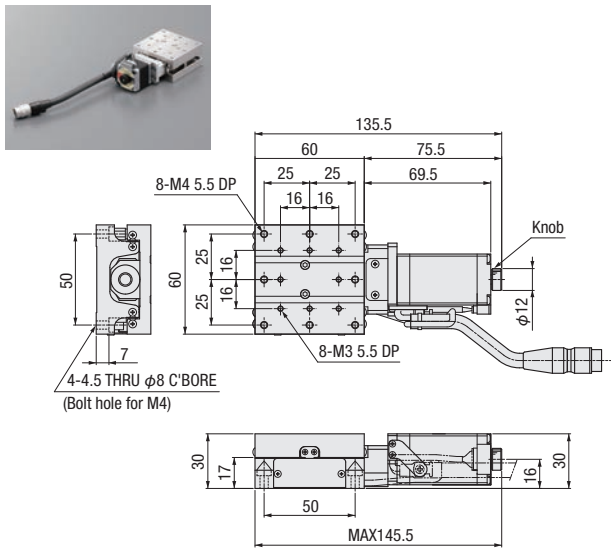
KXG06020-C



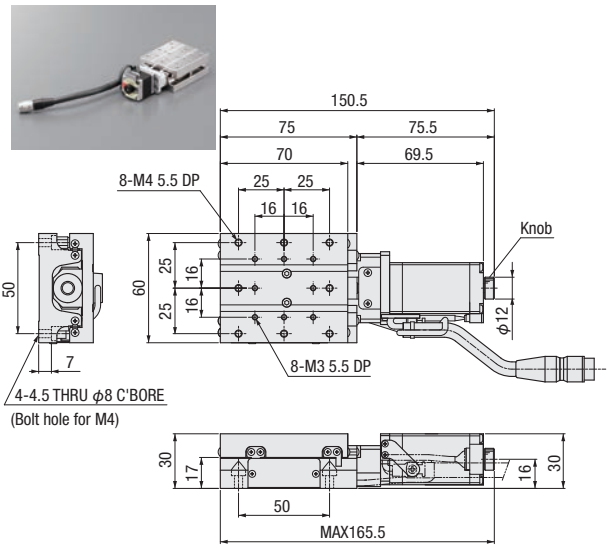
KXG06030-C



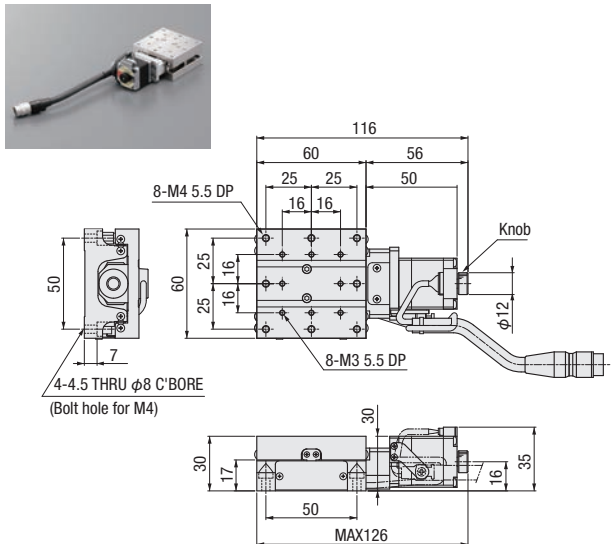
KXG06020-F



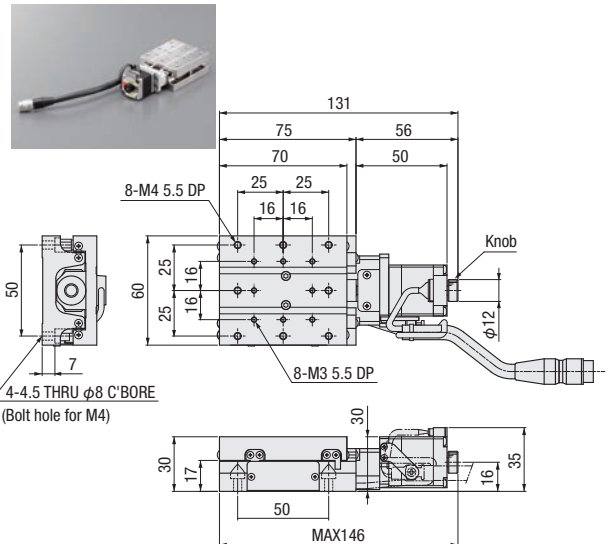
KXG06030-F



KXG06020-G



KXG06030-G



X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other



PART
COMMUNITY

CAD
DATA



CAD
3D·2D

Motorized Stage

X

XY

Z

Horizontal
Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear
Ball

CAVE-X
Linear ball

Cross
Roller

Slide
Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

1

044

Dimensional outline drawings

C Standard motor

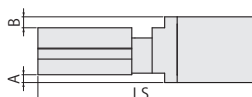
Motor model C005C-90215P

F High-torque

Motor model PK525HPB-C1

G High resolution

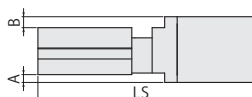
Motor model PK523HPMB-C1



Model	C (Standard) / F (High-torque) / G (High resolution) Common			C (Standard)	F (High-torque)	G (High resolution)
	Motor size	A	B	LS		
KXG06020-□	□28	—	—	116	136	116
KXG06030-□				131	151	131

MA With electromagnetic brake

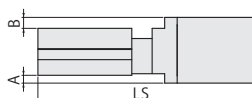
Motor model PKE545MC-A1



Model	MA (With electromagnetic brake)			C (Standard)	
	Motor size	A	B	LS	
KXG06020-MA	□42	5	7	164	116
KXG06030-MA				179	131

PA α step

Motor model ARM24SAK



Model	PA (α step)			C (Standard)	
	Motor size	A	B	LS	
KXG06020-PA	□28	—	—	129	116
KXG06030-PA				144	131

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYG06020/KYG06030

Motorized Stage

KYG06020



KYG06030



RoHS

Model Selection code Option code
KYG06 020-C

▶ Cable P.1-207~
 ▶ Electrical specification P.1-051~

1 Travel length

020	20mm
030	30mm

2 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With brake (Driver set)
PA	α Step (Driver set)

* See page ▶ P.1-051~ for details of Motor option.

3 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for brake	—
P	Cable for α step	—
Blank	Cable is not included (Standard)	—

* The price includes M, P and U.
 Not available non-cable.
 See page ▶ P.1-207,209~ for details of cable.
 Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
 Please check available cable from compatibility list.
 Not included cable for a main body. Please choose the code as below.

Motor/ cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
	MA	M
	PA	P

SPEC

Model	KYG06020-C	KYG06020-F	KYG06020-G	KYG06030-C	KYG06030-F	KYG06030-G
Travel length	20mm			30mm		
Table size	60×60mm			60×70mm		
Feed screw (Ball screw)	φ8 lead 1					
Guide	Linear ball guide					
Main materials-Finishing	Stainless—Opposite side of the end face finishing					
Weight	1.56kg	1.74kg	1.56kg	1.8kg	1.98kg	1.8kg
Resolution (Pulse)	Full/ Half	2μm/1μm		2μm/1μm		1μm/0.5μm
	Microstep	0.1μm (1/20 on resolution)		0.1μm (1/20 on resolution)		0.05μm (1/20 on resolution)
MAX speed	20mm/sec	30mm/sec	20mm/sec	20mm/sec	30mm/sec	20mm/sec
Load capacity	4kgf [39.2N]					
Perpendicularity	Within 10μm/ Full stroke			Within 15μm/ Full stroke		
Pitching/Yawing	Within 20"/15"					
Limit sensor	Installed					
	Installed					
	—					
Provided screw (Hexagon-headed bolt)	4 of M4—14					
Single-axis accuracy specification	Uni-directional positioning accuracy	Within 5μm				
	Repeatability positioning accuracy	Within ±0.5μm				
	Lost motion	Within 1μm				
	Backlash	Within 1μm				
	Straightness	Within 3μm				

※ Might be changed specification due to motors. See page ▶ P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

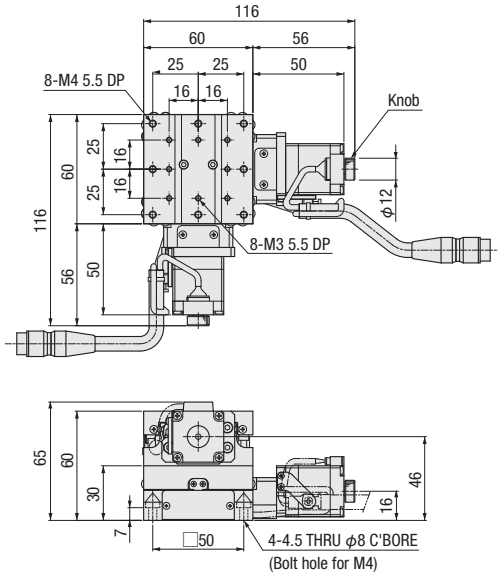
φ120

Other

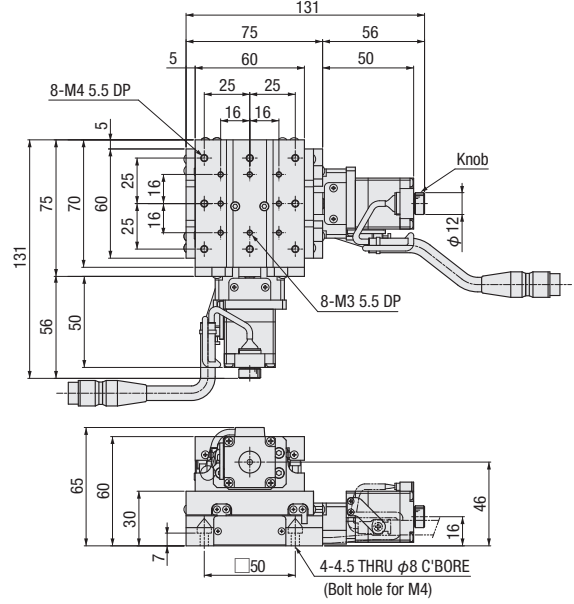
Dimensional outline drawings



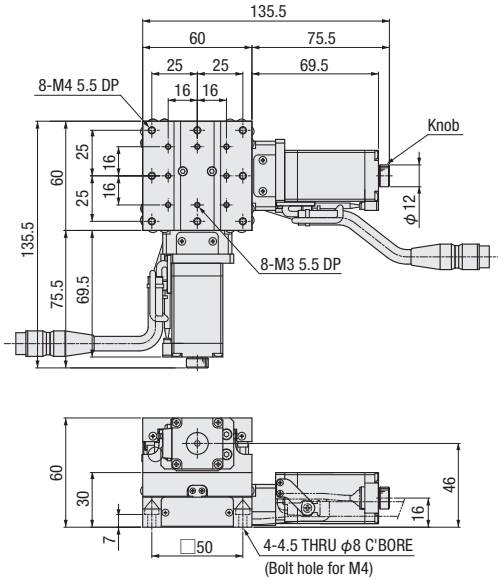
KYG06020-C



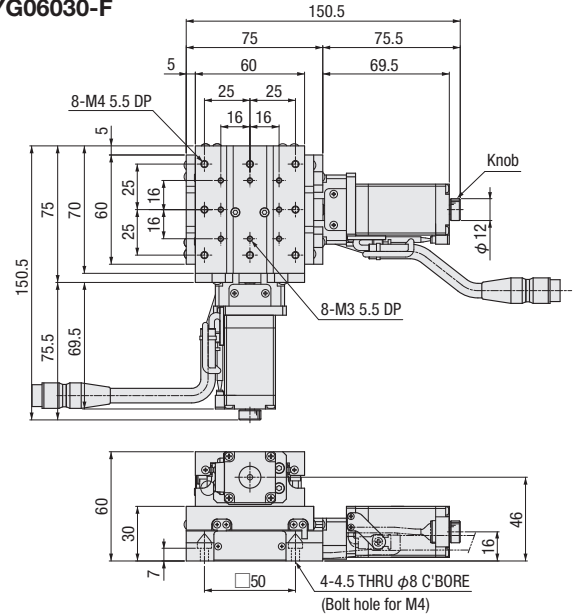
KYG06030-C



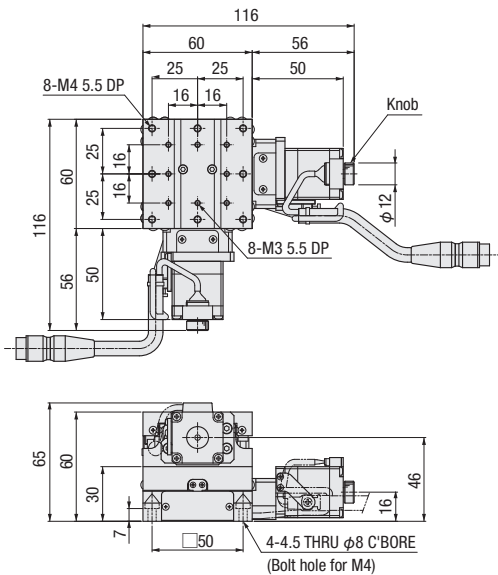
KYG06020-F



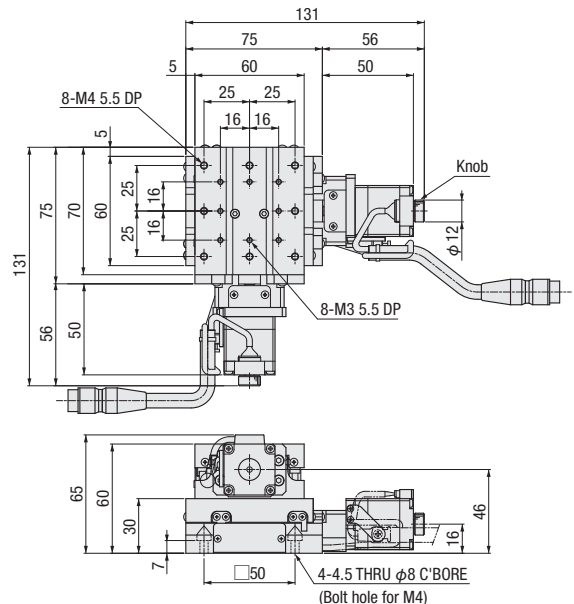
KYG06030-F



KYG06020-G



KYG06030-G



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X
Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

1

046

Motorized Stage

CAVE-X POSITIONER

Z-axis Linear Ball Guide: KZG06020/KZG06030

Motorized Stage

KZG06020



KZG06030



RoHS



▶ Cable P.1-207~
▶ Electrical specification P.1-051~

1 Travel length

020	20mm
030	30mm

2 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With brake (Driver set)
PA	α Step (Driver set)

* See page P.1-051~ for details of motor option.

3 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for brake	—
P	Cable for α step	—
Blank	Cable is not included (Standard)	—

* The price includes M, P and U.
Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
MA	M	
PA	P	

SPEC

Model	KZG06020-C	KZG06020-F	KZG06020-G	KZG06030-C	KZG06030-F	KZG06030-G
Mechanical specification	Travel length		20mm		30mm	
	Table size		60×60mm		60×70mm	
	Feed screw (Ball screw) $\phi 8$ lead 1					
	Guide Linear ball guide					
	Main materials-Finishing Stainless—Opposite side of the end face finishing					
	Weight	1.14kg	1.23kg	1.14kg	1.26kg	1.35kg
Accuracy specification	Resolution (Pulse)	Full/Half		2 μ m/1 μ m		1 μ m/0.5 μ m
		Microstep		0.1 μ m (1/20 on resolution)		0.05 μ m (1/20 on resolution)
	MAX speed	20mm/sec	30mm/sec	20mm/sec	30mm/sec	20mm/sec
	Load capacity (Excitation)	3kgf [29.4N]				
$\phi 40$	Vertical degree	Within 10 μ m/Full stroke			Within 15 μ m/Full stroke	
	Pitching/Yawing	Within 20"/15"				
$\phi 50$	Limit sensor	Installed				
	Origin sensor	Installed				
	Slit origin sensor	—				
$\phi 60$	Provided screw (Hexagon-headed bolt)	4 of M4—10				
	Single axis accuracy specification	Uni-directional positioning accuracy	Within 5 μ m			
Repeatability positioning accuracy		$\pm 0.5\mu$ m				
Lost motion		Within 1 μ m				
Backlash		Within 1 μ m				
Straightness		Within 3 μ m				

※ Might be changed specification due to motors. See page P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

$\phi 40$

$\phi 50$

$\phi 60$

$\phi 70$

$\phi 80$

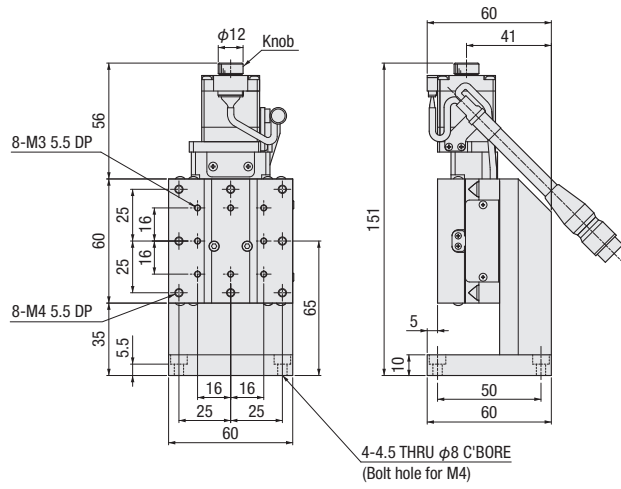
$\phi 100$

$\phi 120$

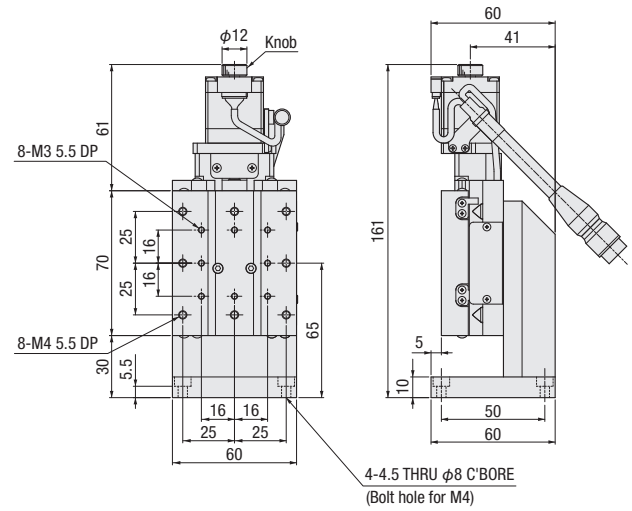
Other

Dimensional outline drawings

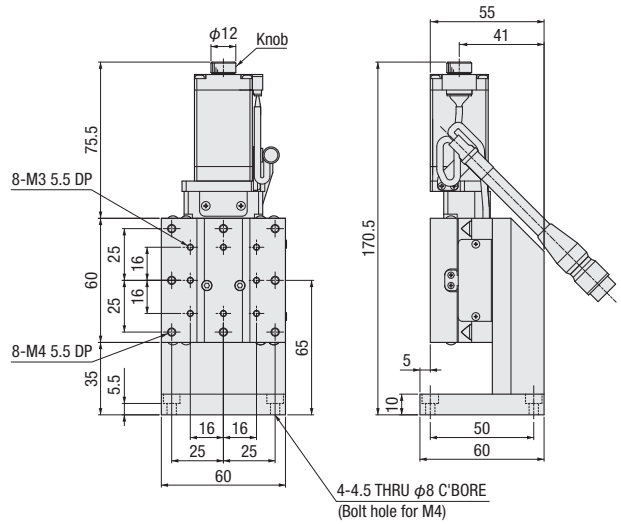
KZG06020-C



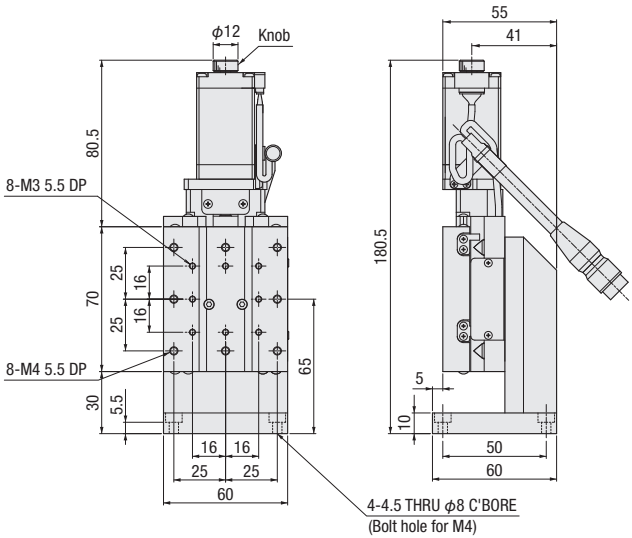
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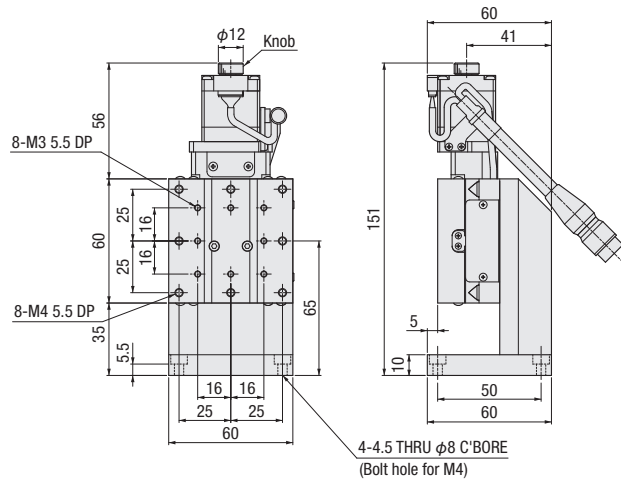
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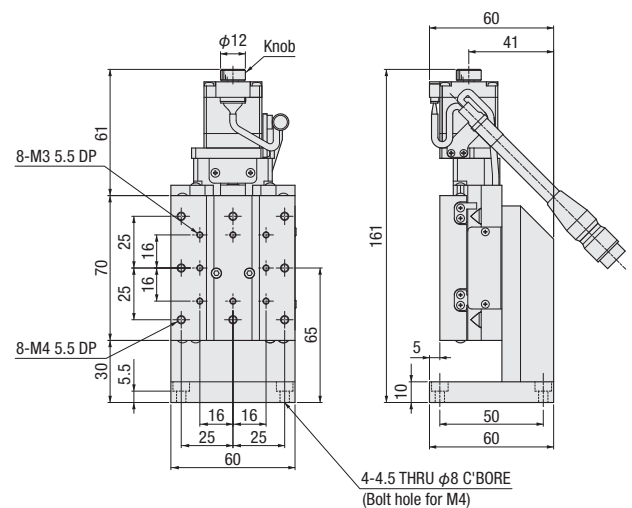
KZG06030-F



KZG06020-G



KZG06030-G



Motorized Stage

- X
- XY
- Z
- Horizontal Z
- XYZ
- Goniometer
- Rotary
- Unit
- Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

- φ40
- φ50
- φ60
- φ70
- φ80
- φ100
- φ120
- Other

Motorized Stage

CAVE-X POSITIONER

XYZ-axis Linear Ball Guide: KWG06020/KWG06030

Motorized Stage

KWG06020



KWG06030



RoHS

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Model Selection code Option code
KWG06 020-C

1

2

3

▶ Cable P.1-207~

▶ Electrical specification P.1-051~

1 Travel

020	20mm
030	30mm

2 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With brake (Driver set)
PA	α Step (Driver set)

* See page ▶ P.1-051~ for details of motor option.

3 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
Blank	Cable is not included (Standard)	—

* The price includes M, P and U.
 Not available non-cable.

* See page ▶ P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
 Please check available cable from compatibility list.
 Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

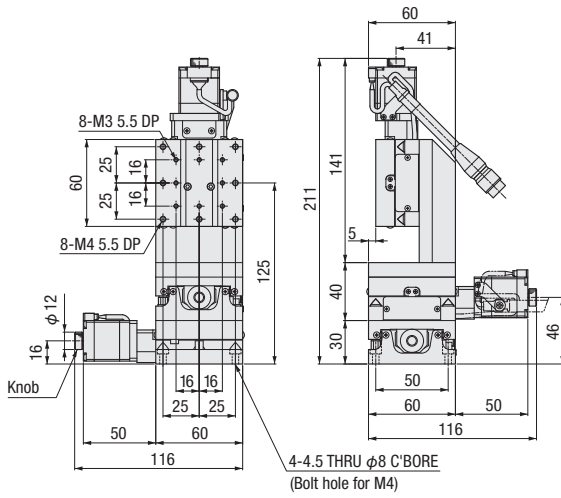
SPEC

Model	KWG06020-C	KWG06020-F	KWG06020-G	KWG06030-C	KWG06030-F	KWG06030-G
Mechanical specification	Travel length: 20mm Table size: 60×60mm Feed screw (Ball screw): φ8 lead 1 Guide: Linear ball guide Main materials-Finishing: Stainless—Opposite side of the end face finishing					
Weight	2.7kg	2.97kg	2.7kg	3.06kg	3.33kg	3.06kg
Accuracy specification	Resolution (Pulse) Full/Half: 2μm/1μm Resolution (Pulse) Microstep: 0.1μm (1/20 on resolution) MAX speed: 20mm/sec Load capacity: 3kgf [29.4N] Vertical degree: Within 10μm/ Full stroke Pitching/Yawing: Within 20"/15"					
Sensor	Limit sensor: Installed Origin sensor: Installed Slit origin sensor: — Provided screw (Hexagon-headed bolt): 4 of M4—12					
Single axis accuracy specification	uni-directional positioning: Within 5μm Repeatability positioning: Within ±0.5μm Lost motion: Within 1μm Backlash: Within 1μm Straightness: Within 3μm					

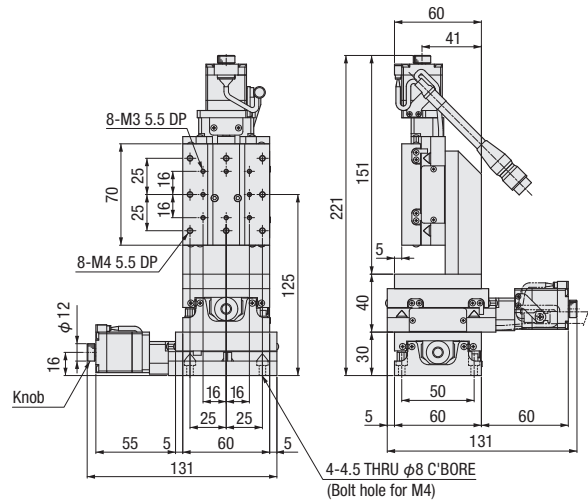
※ Might be changed specification due to motors. See page ▶ P.1-213 for details.

Dimensional outline drawings

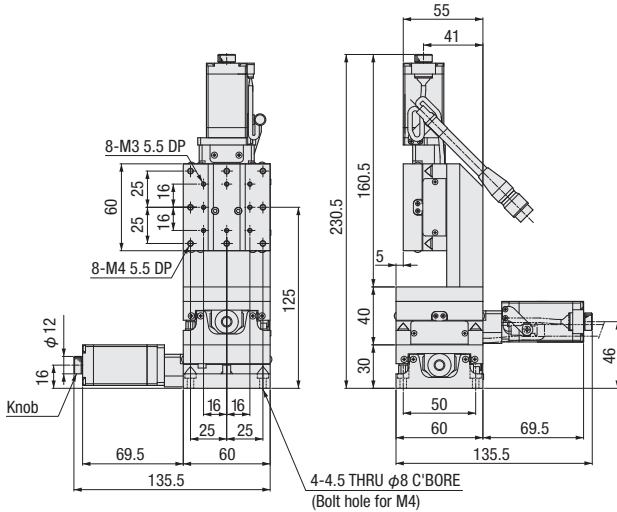
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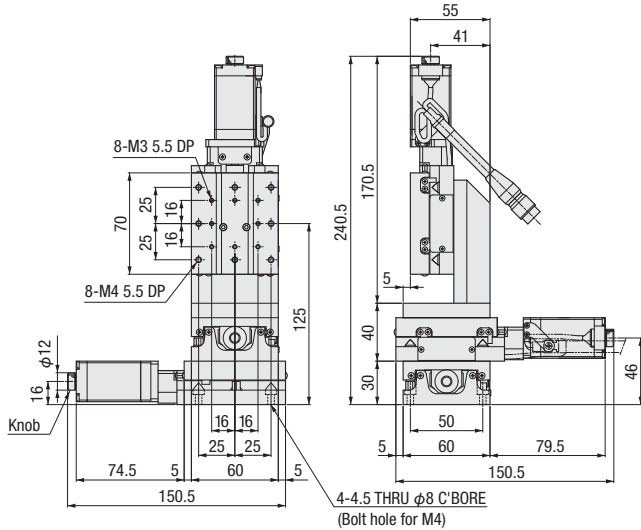
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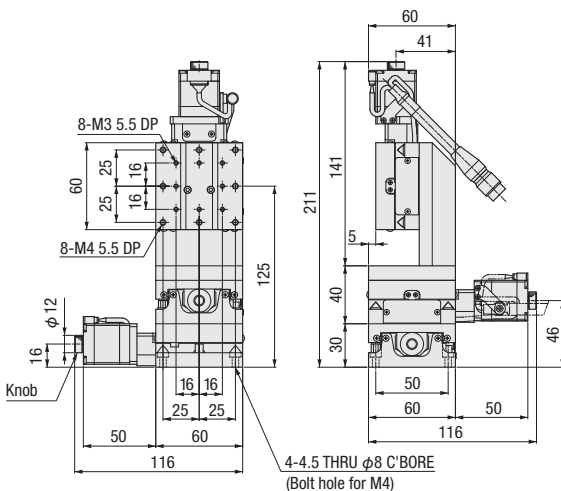
KWG06020-F



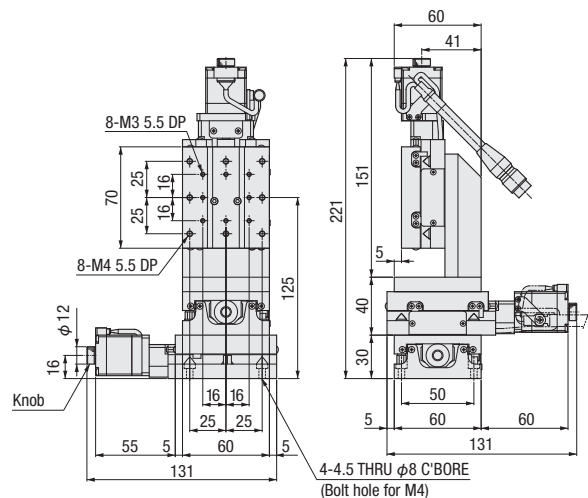
KWG06030-F



KWG06020-G



KWG06030-G



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

$\phi 40$

$\phi 50$

$\phi 60$

$\phi 70$

$\phi 80$

$\phi 100$

$\phi 120$

Other

1

050

Electrical Specification: KXG06020 / KXG06030

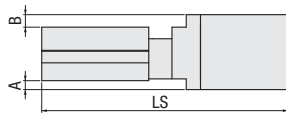
Electrical specification

Motor code		C	F	G	MA	PA	
Models		KXG06020 / KXG06030					
MotorSpecification (*1)	Type	5 phase stepping motor 0.75A/Phase				a step motor	
	Feature	Standard	High-torque	High resolution	With electromagnetic brake	Small step-out	
	Model (*2)	C005C-90215P	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	
	Brake	N/A			Installed	N/A	
	Maker	Oriental Motor Co.,Ltd.					
	Step angle (Position detector)	0.72°	0.72°	0.36°	0.72°	0.36° (Set to 1000P/R)	
	Mass	0.11kg	0.2kg	0.11kg	0.52kg	0.15kg	
	Motor size	size	28mm	28mm	28mm	42mm	28mm
		L size	42mm	61.5mm	42mm	69mm	45mm
	Excitation (moment) maximum	0.041N m	0.073N m	0.038N m	0.240N m	0.055N m	
Driver type	CRD5107P Oriental Motor Co.,Ltd.				RKSD503M-A	ARD-K	
Input power (Voltage frequency)	DC24V ±10			Single phase AC100-120V 50/60Hz	DC24V±10		
Sensor	Limit sensor	Installed					
	Origin sensor	Installed					
	Slit origin sensor	-					
	Model	EE-SX4320 (Omuron Co.,Ltd.)					
	Power voltage	DC5 24V ±10					
	Consumption current	Total 60mA or less					
	Control output	NPN open collector output DC5~24V 8 A or less Residual voltage 0.3V or less when the load current is 2mA					
Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)						
Connector	Motor	Model	HR10A-10J-12P (73) (Hirose Electric Co.,Ltd.)		motor side:5557-06R-210(MOLEX) electromagnetic brake side:5557-02R-210(MOLEX)	43025-1000 (Japan Molex)	
		Receiving connector	HR10A-10P-12S (73) (Hirose Electric Co.,Ltd.)		motor side:5559-06P-210(MOLEX) electromagnetic brake side:5559-02P-210(MOLEX)	43020-1000 (Japan Molex)	
	Sensor	Model	HR10A-10J-12P (73) (Hirose Electric Co.,Ltd.) In common with a		HR10A-7J-6P (73) (Hirose Electric Co.,Ltd.)		
Accuracy specification	Lead 1mm	Receiving	HR10A-10P-12S (73) (Hirose Electric Co.,Ltd.) In common with a		HR10A-7P-6S (73) (Hirose Electric Co.,Ltd.)		
		Full/Half	2µm/1µm	2µm/1µm	1µm/0.5µm	2µm/1µm	1µm(Set to 1000P/R)
	Micro step (1/20 split)	0.1µm	0.1µm	0.05µm	0.1µm	-	
MAX speed	Lead 1mm	20mm/sec	30mm/sec	20mm/sec	25mm/sec	30mm/sec	

*1 See page P.1-213~ for details of single motor specification. *2 Model is our own management model. * The electric specification of XY (PMG), Z (PZG), XYZ (PMZG) are the same.

The diameter outside drawings

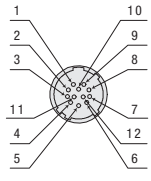
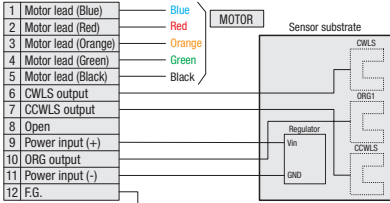
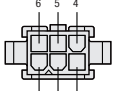
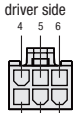


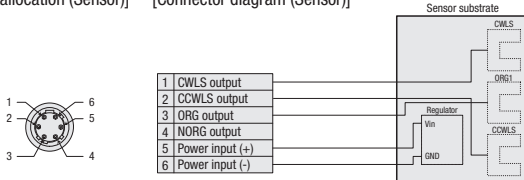
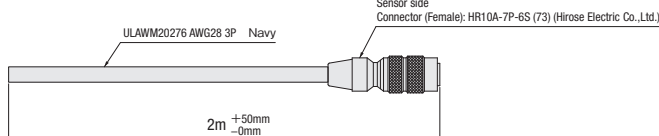
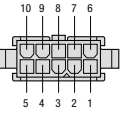
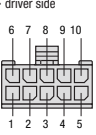
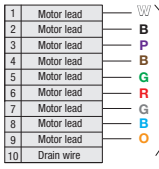
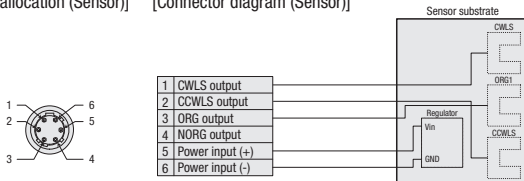
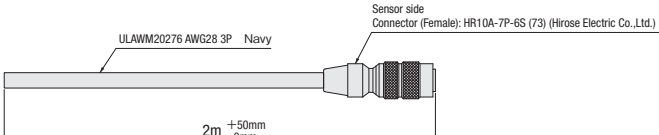
KXG series



Size	A	B	LS		
			20	30	
C	28	-	0	116	131
F	28	-	0	136	151
G	28	-	0	116	131
MA	42	5	7	164	179
PA	28	-	0	129	144

Note: The motor connector is projected from the upper, bottom and side surface in the motor code MA.

Pin allocation • Connection diagram

Motor code	KXG series															
C • T • G Available for motor and sensor	<p>[Motor and sensor pin allocation (the same)]</p>  <p>[Motor and sensor connection diagram (the same)]</p>  <p>* Please select other side cable from the cable option.</p>															
	<p>Motor cable type: CC030VPFB See page P.1-211 for details.</p> <p>Cable for motor (3m)</p> <p>• motor side</p>  <p>5559-06P-210 (MOLEX)</p> <p>• driver side</p>  <p>5557-06R-210 (MOLEX)</p> <p>Electromagnetic brake cable (3m)</p> <p>• motor side</p>  <p>5559-02P-210 (MOLEX)</p> 															
M A Motor Sensor	<p>[Pin allocation (Sensor)] [Connector diagram (Sensor)]</p>  <p>* Model number of other side cable: HR10AP-S-A-6-2 See page P.1-212 for details.</p>  <p>2m +50mm -0mm</p> <table border="1" data-bbox="989 1355 1244 1478"> <thead> <tr> <th colspan="2">Sensor side</th> </tr> </thead> <tbody> <tr> <td>Orange / Black dot</td> <td>1 CWLS</td> </tr> <tr> <td>Orange / Red dot</td> <td>2 CCWLS</td> </tr> <tr> <td>Gray / Black dot</td> <td>3 ORG</td> </tr> <tr> <td>Gray / Red dot</td> <td>4 NORG</td> </tr> <tr> <td>White / Black dot</td> <td>5 V+</td> </tr> <tr> <td>White / Red dot</td> <td>6 V-</td> </tr> </tbody> </table> <p>* The shields are connected with the connector shell.</p>		Sensor side		Orange / Black dot	1 CWLS	Orange / Red dot	2 CCWLS	Gray / Black dot	3 ORG	Gray / Red dot	4 NORG	White / Black dot	5 V+	White / Red dot	6 V-
	Sensor side															
Orange / Black dot	1 CWLS															
Orange / Red dot	2 CCWLS															
Gray / Black dot	3 ORG															
Gray / Red dot	4 NORG															
White / Black dot	5 V+															
White / Red dot	6 V-															
P A Motor Sensor	<p>Motor cable type: CC030VA2R2 See page P.1-211 for details.</p> <p>Cable for motor (3m)</p> <p>• motor side</p>  <p>43020-1000 (MOLEX)</p> <p>• driver side</p>  <p>43025-1000 (MOLEX)</p>  <p>[Pin allocation (Sensor)] [Connector diagram (Sensor)]</p>  <p>* Model number of other side cable: HR10AP-S-A-6-2 See page P.1-212 for details.</p>  <p>2m +50mm -0mm</p> <table border="1" data-bbox="989 1982 1244 2105"> <thead> <tr> <th colspan="2">Sensor side</th> </tr> </thead> <tbody> <tr> <td>Orange / Black dot</td> <td>1 CWLS</td> </tr> <tr> <td>Orange / Red dot</td> <td>2 CCWLS</td> </tr> <tr> <td>Gray / Black dot</td> <td>3 ORG</td> </tr> <tr> <td>Gray / Red dot</td> <td>4 NORG</td> </tr> <tr> <td>White / Black dot</td> <td>5 V+</td> </tr> <tr> <td>White / Red dot</td> <td>6 V-</td> </tr> </tbody> </table> <p>* The shields are connected with the connector shell.</p>		Sensor side		Orange / Black dot	1 CWLS	Orange / Red dot	2 CCWLS	Gray / Black dot	3 ORG	Gray / Red dot	4 NORG	White / Black dot	5 V+	White / Red dot	6 V-
	Sensor side															
Orange / Black dot	1 CWLS															
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Gray / Black dot	3 ORG															
Gray / Red dot	4 NORG															
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White / Red dot	6 V-															

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

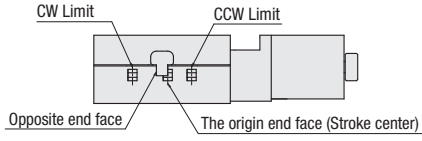
φ120

Other

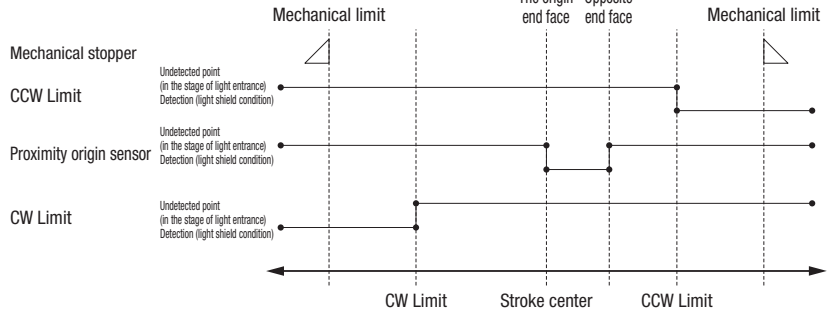
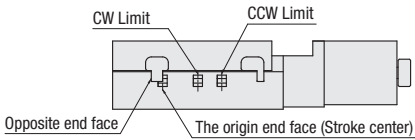
Electrical Specification: KXG06020/KXG06030

Timing chart

KXG06020



KXG06030



Unit [mm]	Direction of CW ←		→ Direction of CCW				
	Reference coordinate	Mechanical limit	CW Limit	The origin end face Stroke center	Opposite end face	CCW Limit	Mechanical limit
KXG06020	Return to origin	11	10.5	0	5	10.5	13
KXG06030	Return to origin	16	15.5	0	5	15.5	18

* Return to origin means that is performed return to origin type 4 using DS102/DS112 series.
 * The coordinate value should be on the design. Dimension error may occur about plus or minus 0.5 deg.

Note: The timing chart shows only timing of sensor, it is not for output signal logic.
 Refer to ON/OFF display of output transistor that shows on electrical specifications-sensor-output logic for output signal logic.

Linear Ball

CAVE-X
Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

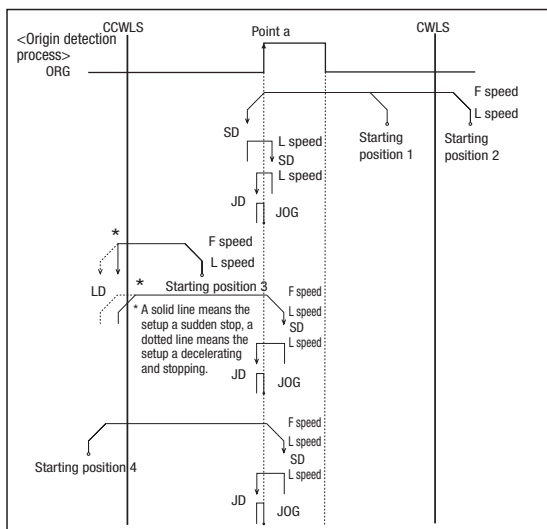
Return to origin method

Suruga's motorized stages is different from the wire connection as the number of sensors depending on models. It is necessary to choose type to suit correctly as return to origin operation is divided into same types. Selected wrong type may be operated incorrectly. Choose your best one whatever you need according to be recommended as below.

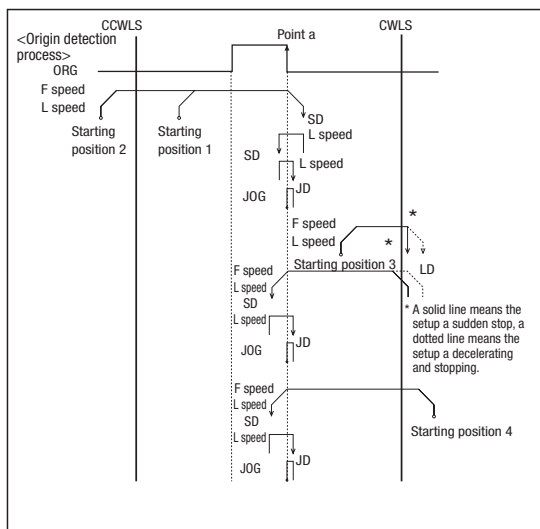
KXG06020/KXG06030 recommended return to origin Return to origin sequence P.1-201~

- Type 3: Detect in the direction of CCW and perform detected process for CCW edge of ORG signal.
- Type 4: Detect in the direction of CW and perform detected process for CW edge of ORG signal.
- Type 9: After finished Type3, perform detected process for CCW edge of TIMING signal.
- Type 10: After finished Type4, perform detected process for CW edge of TIMING signal.

[Type3]



[Type4]



Adaptive driver

Driver P.1-205~

DC24 type input

Model	CRD5107P	SD5107P3-A22
Divisions	1~1/250 (16 steps)	Full/Half

AC100V input

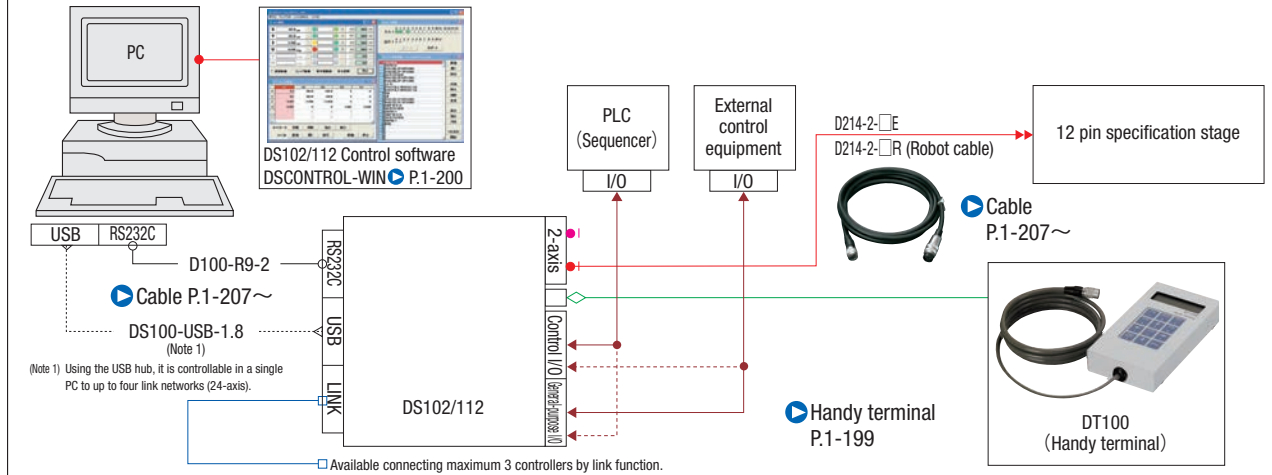
Model	RKD507-A
Divisions	1~1/250 (16 steps)

Adaptive stepping motor controller

Controller P.1-197~

Input power	General-purpose input/output port	Driver type	
		Full/Half	1~1/250 (16 steps)
AC100-240V	Without	DS102N	DS102MS
	With	DS102NR-IO	DS102MS-IO
DC24V	Without	DS112NR	DS112MS
	With	DS112NR-IO	DS112MS-IO

Connectin example



(Note 1) Using the USB hub, it is controllable in a single PC to up to four link networks (24-axis).

Available connecting maximum 3 controllers by link function.

Motorized Stage

CAVE-X POSITIONER

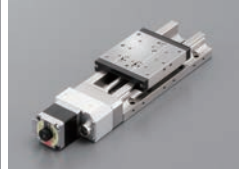
X-axis Linear Ball Guide: KXL06030/KXL06050/KXL06075

Motorized Stage

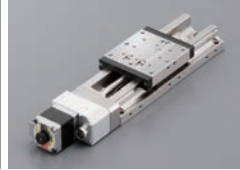
KXL06030-N



KXL06050-N



KXL06075-N



KXL06030-C



KXL06050-C



KXL06075-C



Freely customize the motor

RoHS

See page P.009

The drive unit areas are coated in clean grease.

Model Selection code Option code

KXL06 030-N1-C

1 2 3 4 5 6

Cable P.1-207~
Electrical specification P.1-077~

1 Travel length

030	30mm
050	50mm
075	75mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

1	Lead 1mm
2	Lead 2mm

4 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

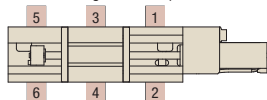
* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.

Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
U	Cable for servo motor	—
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.
Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

SPEC

Model	Uncovered	KXL06030-N1-C	KXL06030-N2-C	KXL06050-N1-C	KXL06050-N2-C	KXL06075-N1-C	KXL06075-N2-C
	Covered	KXL06030-C1-C	KXL06030-C2-C	KXL06050-C1-C	KXL06050-C2-C	KXL06075-C1-C	KXL06075-C2-C
Mechanical specification	Travel length	30mm		50mm		75mm	
	Table size	60×60mm					
	Feed screw (Ball screw)	$\varnothing 8$ lead 1	$\varnothing 8$ lead 2	$\varnothing 8$ lead 1	$\varnothing 8$ lead 2	$\varnothing 8$ lead 1	$\varnothing 8$ lead 2
	Guide	Linear ball guide					
Main materials-Finishing	Stainless—Opposite side of the end face finishing						
	Weight	Uncovered	1.28kg	1.40kg		1.54kg	
		Covered	1.34kg	1.44kg		1.60kg	
Resolution (Pulse)	Full/ Half	2 μ m/1 μ m	4 μ m/2 μ m	2 μ m/1 μ m	4 μ m/2 μ m	2 μ m/1 μ m	4 μ m/2 μ m
	Microstep	0.1 μ m (1/20 on resolution)	0.2 μ m (1/20 on resolution)	0.1 μ m (1/20 on resolution)	0.2 μ m (1/20 on resolution)	0.1 μ m (1/20 on resolution)	0.2 μ m (1/20 on resolution)
MAX speed		30mm/sec	35mm/sec	30mm/sec	35mm/sec	30mm/sec	35mm/sec
Accuracy specification	Uni-directional positioning accuracy	Within 5 μ m				Within 7 μ m	
	Repeatability positioning accuracy	Within $\pm 0.5\mu$ m					
	Load capacity	12kgf [117.6N]					
	Moment stiffness	Pitch 0.05/yaw 0.05/roll 0.05 ["/N · cm]					
	Lost motion	Within 1 μ m					
	Backlash	Within 1 μ m					
	Straightness	Within 3 μ m					
	Parallelism	Within 15 μ m					
Sensor	Motion parallelism	Within 10 μ m					
	Pitching/Yawing	2Within 0"/Within 15"					
	Limit sensor	Installed					
	Origin sensor	— ※Attachable in the origin sensor option					
Slit origin sensor	—						
Provided screw (Hexagon-headed bolt)	8 of M4—14						

※ Might be changed specification due to motors. See page P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

$\varnothing 40$

$\varnothing 50$

$\varnothing 60$

$\varnothing 70$

$\varnothing 80$

$\varnothing 100$

$\varnothing 120$

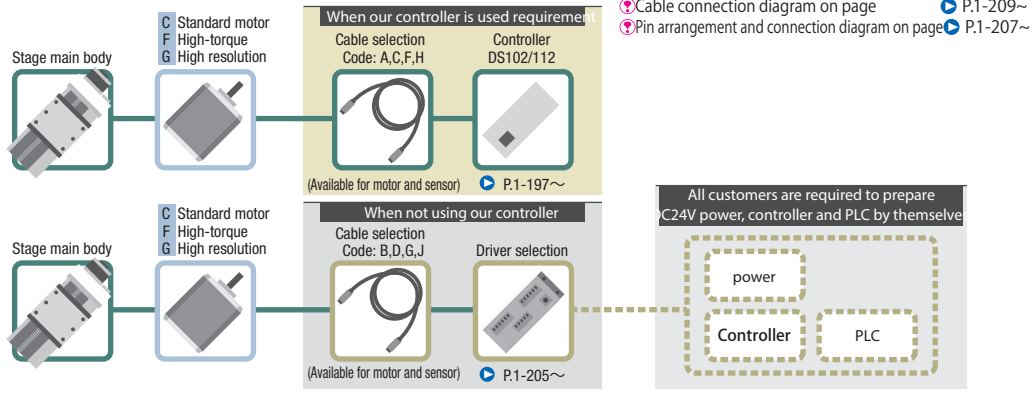
Other

Motor option

C Standard motor
 Motor model C005C-90215P

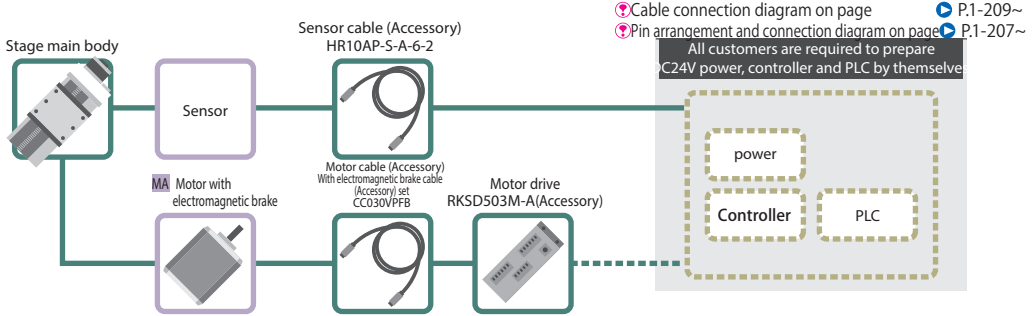
F High-torque
 Motor model PK525HPB-C1

G High resolution
 Motor model PK523HPMB-C1



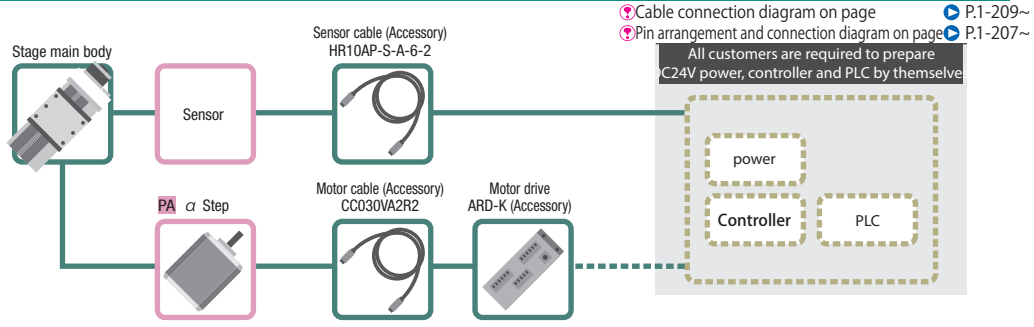
Motor option

MA With electromagnetic brake
 Motor model PKE545MC-A1



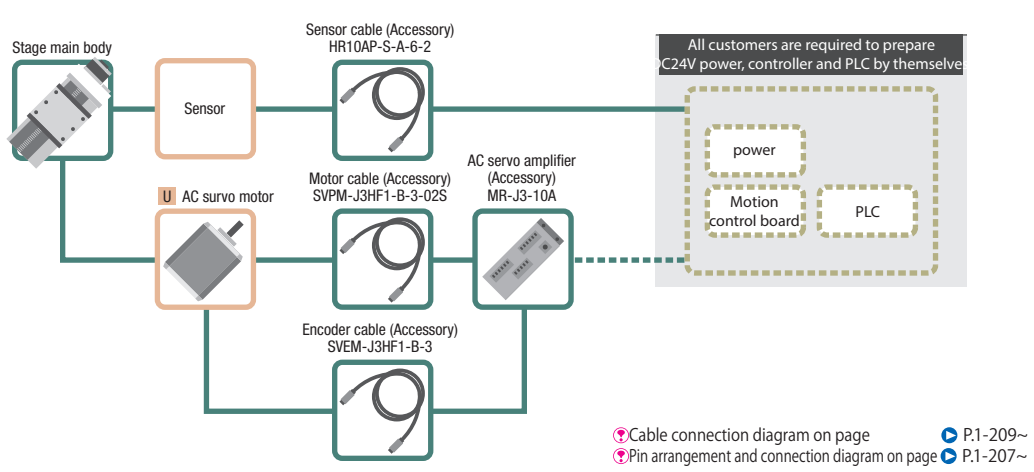
Motor option

PA α Step
 Motor model ARM24SAK



Motor option

U AC servo motor
 Motor model HF-KP053



Motor code		C	F	G	MA	PA	U
Feature		Standard	High-torque	High resolution	With electromagnetic brake	Small step-out	High speed
Type		5 phase stepping motor 0.75A/ Phase				α step motor	AC servo motor
Motor model*		C005C-90215P	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	HF-KP053
Resolution	Lead 1mm	Full/Half	2 μm/1 μm	1 μm/0.5 μm	2 μm/1 μm	1 μm(Set to 1000P/R)	18 bits encoder (262144P/R)
		Micro step (1/20 split)	0.1 μm	0.05 μm	0.1 μm	—	
	Lead 2mm	Full/Half	4 μm/2 μm	2 μm/1 μm	4 μm/2 μm	2 μm(Set to 1000P/R)	
		Micro step (1/20 split)	0.2 μm	0.1 μm	0.2 μm	—	
Max. speed	Lead 1mm	30mm/sec	35mm/sec	25mm/sec	25mm/sec	40mm/sec	50mm/sec
	Lead 2mm	35mm/sec	45mm/sec	30mm/sec	40mm/sec	80mm/sec	100mm/sec

*Model is our own management model.

Motorized Stage

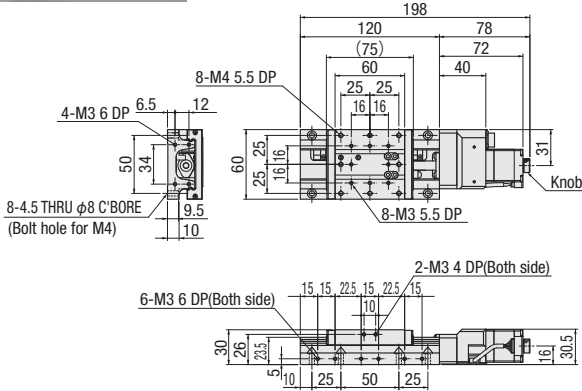
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXL06030/KXL06050/KXL06075

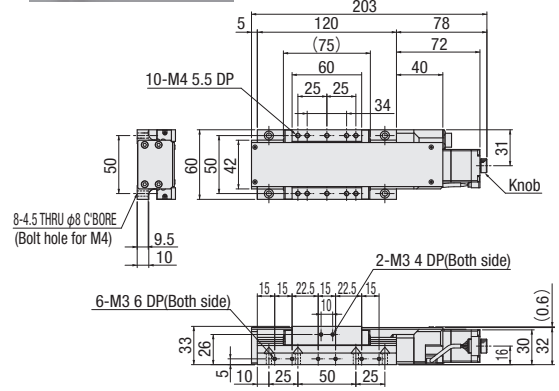
Motorized Stage

Dimensional outline drawings

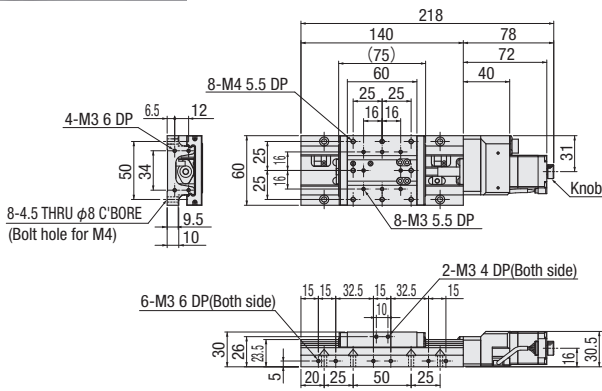
KXL06030-N1-C (KXL06030-N2-C)



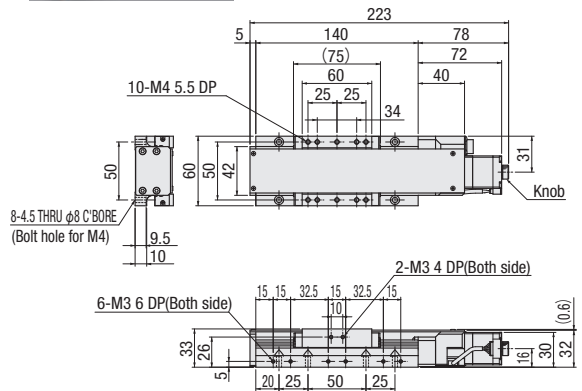
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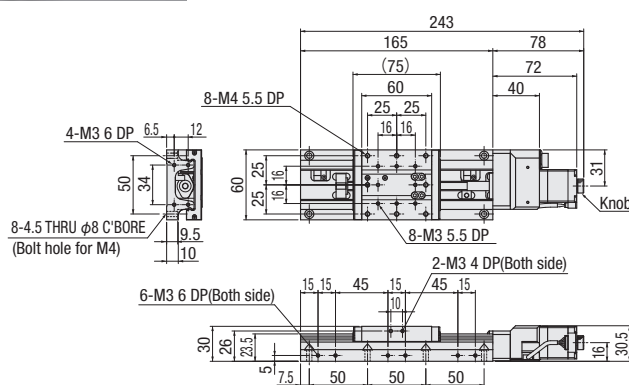
KXL06050-N1-C (KXL06050-N2-C)



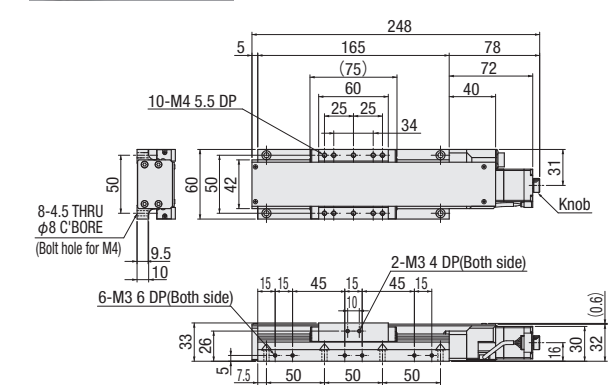
KXL06050-C1-C (KXL06050-C2-C)



KXL06075-N1-C (KXL06075-N2-C)



KXL06075-C1-C (KXL06075-C2-C)



X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

ϕ 40

ϕ 50

ϕ 60

ϕ 70

ϕ 80

ϕ 100

ϕ 120

Other



PART COMMUNITY

CAD DATA



CAD 3D-2D

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

1

058

Dimensional outline drawings

C Standard

Motor model C005C-90215P

F High-torque

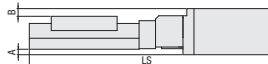
Motor model PK525HPB-C1

G High resolution

Motor model PK523HPMB-C1

Uncovered

Side view



Top view



Model	C (Standard) / F (High-torque) / G (High resolution) Common				C (Standard)	F (High-torque)	G (High resolution)
	Motor size	A	B	C			
KXL06030-N□-C,F,G	□28	—	—	—	198	218	198
KXL06050-N□-C,F,G		—	—	—	218	238	218
KXL06075-N□-C,F,G		—	—	—	243	263	243

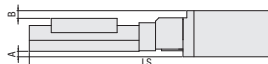
Covered

Model	C (Standard) / F (High-torque) / G (High resolution) Common				C (Standard)	F (High-torque)	G (High resolution)
	Motor size	A	B	C			
KXL06030-C□-C,F,G	□28	—	—	—	203	223	203
KXL06050-C□-C,F,G		—	—	—	223	243	223
KXL06075-C□-C,F,G		—	—	—	248	268	248

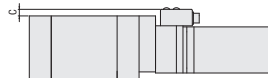
MA With electromagnetic brake

Motor model PKE545MC-A1

Side view



Top view



Uncovered

Model	MA (With electromagnetic brake)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-N□-MA	□42	5	7	6	245	198
KXL06050-N□-MA					265	218
KXL06075-N□-MA					290	243

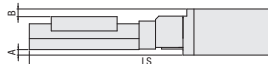
Covered

Model	MA (With electromagnetic brake)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-C□-MA	□42	5	4	6	250	203
KXL06050-C□-MA					270	223
KXL06075-C□-MA					295	248

PA α step

Motor model ARM24SAK

Side view



Top view



Uncovered

Model	PA (α step)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-N□-PA	□28	—	0.5	6	211	198
KXL06050-N□-PA					231	218
KXL06075-N□-PA					256	243

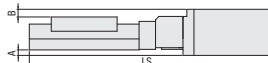
Covered

Model	PA (α step)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-C□-PA	□28	—	—	6	216	203
KXL06050-C□-PA					236	223
KXL06075-C□-PA					261	248

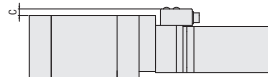
U AC servo motor

Motor model HF-KP053

Side view



Top view



Uncovered

Model	U (AC servo motor)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-N□-U	□40	4.7	6.5	6	240	198
KXL06050-N□-U					260	218
KXL06075-N□-U					285	243

Covered

Model	U (AC servo motor)				C (Standard)	
	Motor size	A	B	C	LS	
KXL06030-C□-U	□40	4.7	3.5	6	245	203
KXL06050-C□-U					265	223
KXL06075-C□-U					290	248

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide: KXL06100/KXL06150

Motorized Stage

KXL06100-N



KXL06150-N



KXL06100-C



KXL06150-C



Freely customize the motor

RoHS

See page P.009

Model Selection code Option code

KXL06 **100-N2-F**

1 2 3 4 5 6

Cable P.1-207~
Electrical specification P.1-077~

1 Travel length

100	100mm
150	150mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

2	Lead 2mm
---	----------

4 Motor option

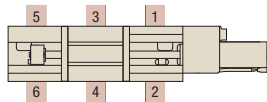
Code	Specification
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.
■ Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
U	Cable for servo motor	—
Blank	Without cable	—

* One end loose position to only stage opposite side.
* The price includes M, P and U.
Not available non-cable.
* See page P.1-207,209~ for details of cable.
* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor / cable products list	Motor code	Cable code
	F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

SPEC

Model	Uncovered	KXL06100-N2-F	KXL06150-N2-F
	Covered	KXL06100-C2-F	KXL06150-C2-F
Mechanical specification	Travel length	100mm	150mm
	Table size	60×60mm	
	Feed screw (Ball screw)	φ8 lead 2	
	Guide	Linear ball guide	
Main materials-Finishing	Stainless—Opposite side of the end face finishing		
	Weight	Uncovered 1.80kg Covered 1.86kg	2.10kg 2.16kg
Accuracy specification	Resolution (Pulse)	4μm/2μm	
		0.2μm (1/20 on resolution)	
	MAX speed	45mm/sec	
	Uni-directional positioning accuracy	Within 10μm	Within 15μm
	Repeatability positioning accuracy	Within ±0.5μm	
	Load capacity	12kgf [117.6N]	
	Moment stiffness	Pitch 0.05/yaw 0.05/roll 0.05 ["/N · cm]	
	Lost motion	Within 1μm	
	Backlash	1Within μm	
	Straightness	Within 5μm	
Sensor	Parallelism	Within 15μm	
	Motion parallelism	Within 10μm	Within 15μm
	Pitching/Yawing	Within 25"/Within 20"	
	Limit sensor	Installed	
Origin sensor	— ※Attachable in origin sensor option		
Slit origin sensor	—		
Provided screw (Hexagon-headed bolt)	8 of M4—14	14 of M4—14	

※ Might be changed specification due to motors. See page P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

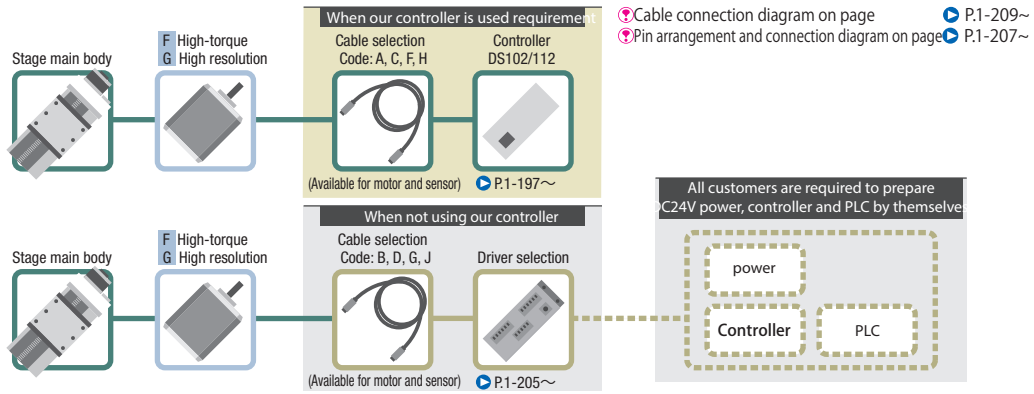
φ120

Other

Motor option

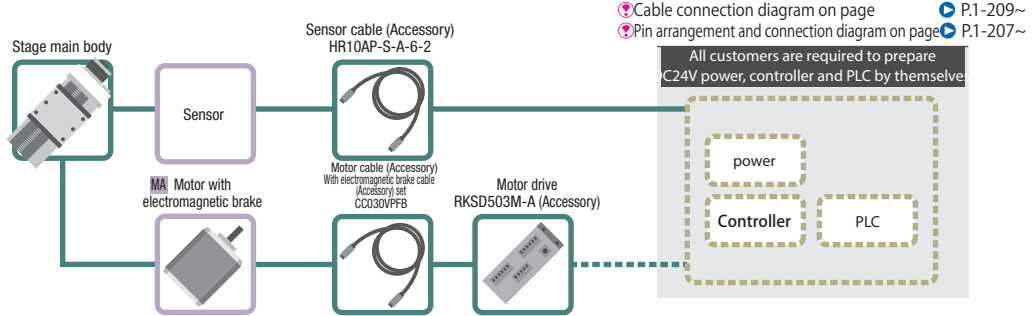
F High-torque
 Motor model
 PK525HPB-C1

G High resolution
 Motor model
 PK523HPMB-C1



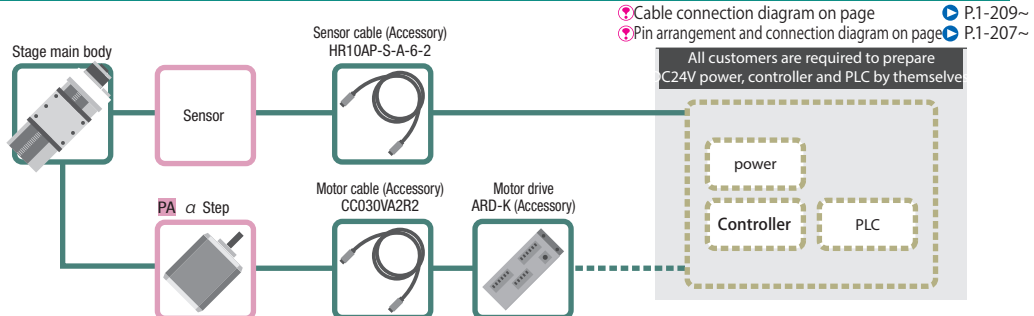
Motor option

MA With electromagnetic brake
 Motor model
 PKE545MC-A1



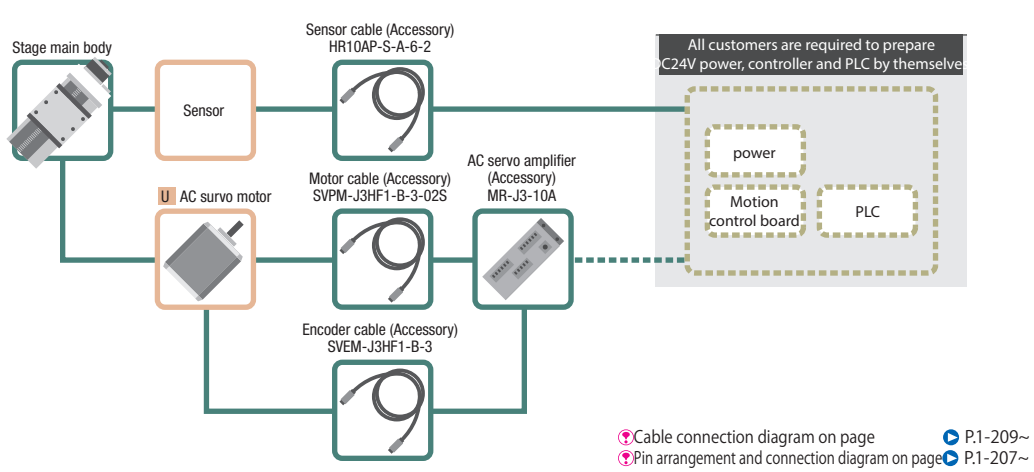
Motor option

PA α Step
 Motor model
 ARM24SAK



Motor option

U AC servo motor
 Motor model
 HF-KP053



Motor code	F	G	MA	PA	U	
Feature	High-torque	High resolution	With electromagnetic brake	Small step-out	High speed	
Type	5 phase stepping motor 0.75A/Phase			α step motor	AC servo motor	
Motor model*	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	HF-KP053	
Resolution	Lead 2mm	Full/Half	4 μm/2 μm	2 μm/1 μm	4 μm/2 μm	18 bits encoder (262144P/R)
		Micro step (1/20 split)	0.2 μm	0.1 μm	0.2 μm	
MAX speed	Lead 2mm	45mm/sec	30mm/sec	40mm/sec	80mm/sec	100mm/sec

* Model is our own management model.

Motorized Stage

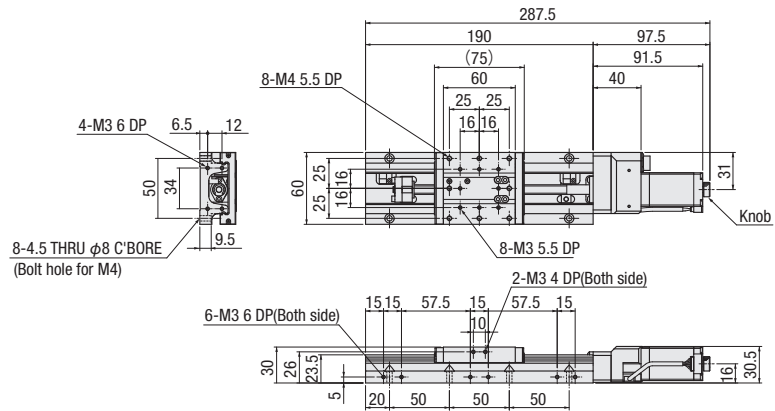
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXL06100/KXL06150

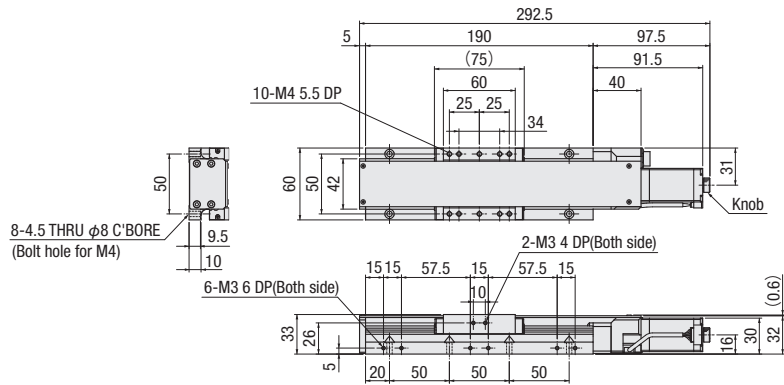
Motorized Stage

Dimensional outline drawings

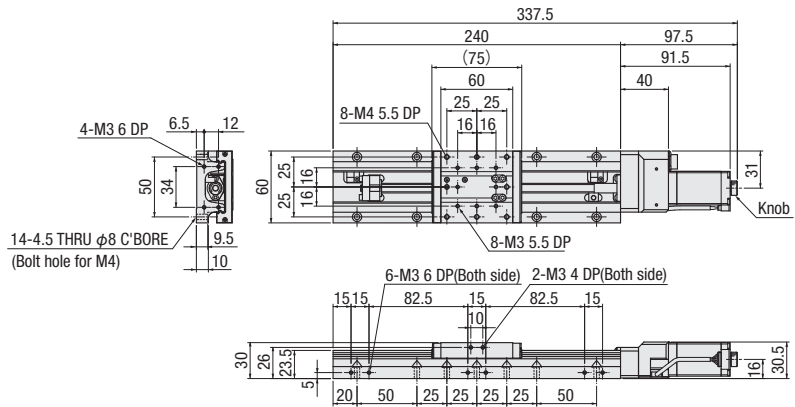
KXL06100-N2-F



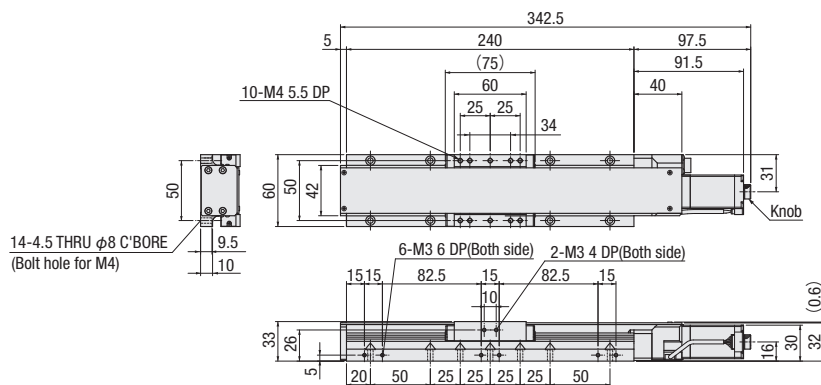
KXL06100-C2-F



KXL06150-N2-F



KXL06150-C2-F



X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Dimensional outline drawings

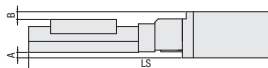
F High-torque

Motor model PK525HPB-C1

G High resolution

Motor model PK523HPMB-C1

Side view



Top view



Uncovered

Model	F (High-torque) / G (High resolution) Common				F (High-torque)	G (High resolution)
	Motor size	A	B	C	LS	
KXL06100-N2-F,G	□28	—	0.5	—	288	268
KXL06150-N2-F,G					338	318

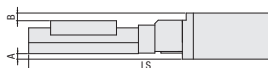
Covered

Model	F (High-torque) / G (High resolution) Common				F (High-torque)	G (High resolution)
	Motor size	A	B	C	LS	
KXL06100-C2-F,G	□28	—	—	—	293	273
KXL06150-C2-F,G					343	323

MA With electromagnetic brake

Motor model PKE545MC-A1

Side view



Top view



Uncovered

Model	MA (With electromagnetic brake)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-N2-MA	□42	5	7	6	315
KXL06150-N2-MA					365

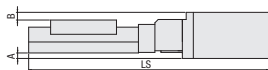
Covered

Model	MA (With electromagnetic brake)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-C2-MA	□42	5	4	6	320
KXL06150-C2-MA					370

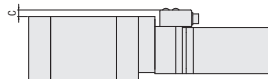
PA α step

Motor model ARM24SAK

Side view



Top view



Uncovered

Model	PA (α step)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-N2-PA	□28	—	0.5	6	281
KXL06150-N2-PA					331

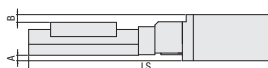
Covered

Model	PA (α step)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-C2-PA	□28	—	—	6	286
KXL06150-C2-PA					336

U AC servo motor

Motor model HF-KPO53

Side view



Top view



Uncovered

Model	U (AC servo motor)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-N2-U	□40	4.7	6.5	6	310
KXL06150-N2-U					360

Covered

Model	U (AC servo motor)				F (High-torque)
	Motor size	A	B	C	LS
KXL06100-C2-U	□40	4.7	3.5	6	315
KXL06150-C2-U					365

Motorized Stage

CAVE-X POSITIONER

X-axis Linear Ball Guide: KXL06200/KXL06300

Motorized Stage

KXL06200-N



KXL06300-N



KXL06200-C



KXL06300-C



Freely customize the motor

RoHS

See page P.009

Model Selection code Option code

KXL06 200-N2-F

1 2 3 4 5 6

Cable P.1-207~
Electrical specification P.1-077~

1 Travel length

200	200mm
300	300mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

2	Lead 2mm
---	----------

4 Motor option

Code	Specification
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

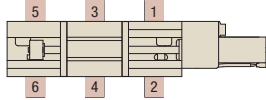
* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.

Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
U	Cable for servo motor	—
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.
Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

SPEC

Model	Uncovered	KXL06200-N2-F	KXL06300-N2-F	
	Covered	KXL06200-C2-F	KXL06300-C2-F	
Mechanical specification	Travel length	200mm	300mm	
	Table size	60×60mm		
	Feed screw (Ball screw)	φ8 lead 2		
	Guide	Linear ball guide		
Main materials-Finishing	Stainless—Opposite side of the end face finishing			
	Weight	Uncovered	2.42kg	3.02kg
		Covered	2.48kg	3.12kg
Accuracy specification	Resolution (Pulse)	4μm/2μm		
		0.2μm (1/20 on resolution)		
	MAX speed	45mm/sec		
	Uni-directional positioning accuracy	Within 15μm	Within 25μm	
	Repeatability positioning accuracy	Within ±0.5μm		
	Load capacity	12kgf [11 7.6N]		
	Moment stiffness	Pitch 0.05/yaw 0.05/roll 0.05 ["/N · cm]		
	Lost motion	Within 1μm		
	Backlash	Within 1μm		
	Straightness	Within 7μm		
Parallelism	Within 15μm			
	Motion parallelism	Within 20μm	Within 25μm	
	Pitching/Yawing	Within 30"/Within 20"	Within 35"/Within 20"	
Sensor	Limit sensor	Installed		
	Origin sensor	— ※Attachable in origin sensor option		
	Slit origin sensor	—		
Provided screw (Hexagon-headed bolt)	12 of M4—14		16 of M4—14	

※ Might be changed specification due to motors. See page P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

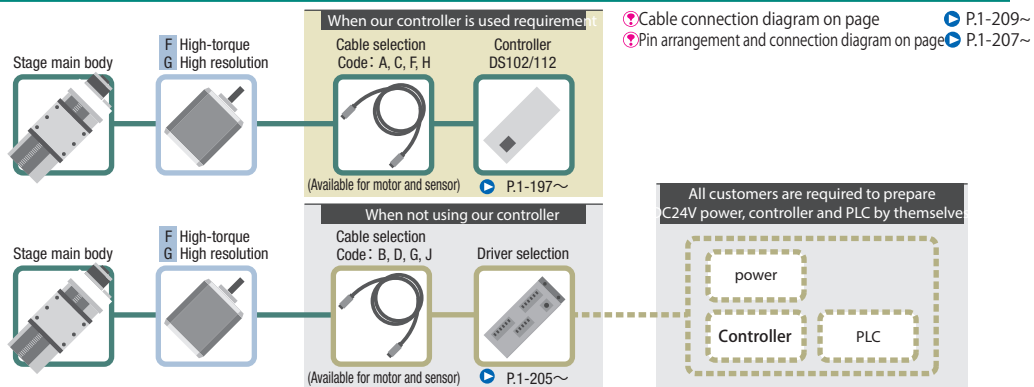
φ120

Other

Motor option

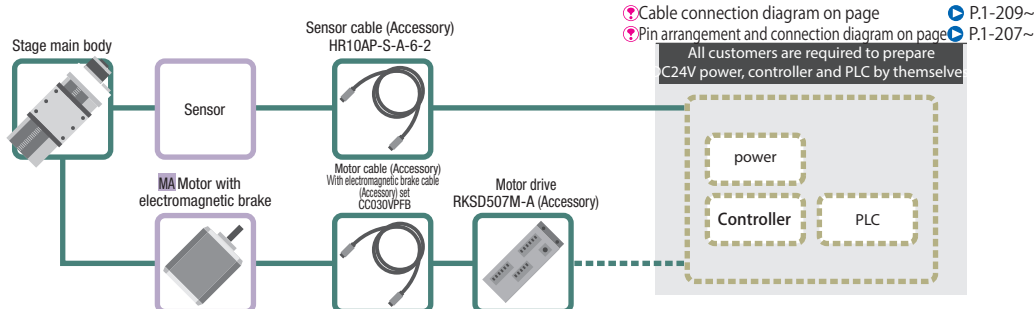
F High-torque
 Motor model
 PK525HPB-C1

G High resolution
 Motor model
 PK523HPMB-C1



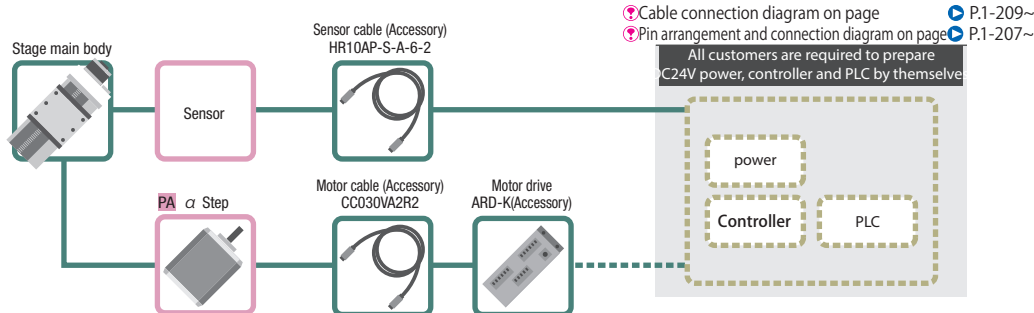
Motor option

MA With electromagnetic brake
 Motor model
 PKE545MC-A1



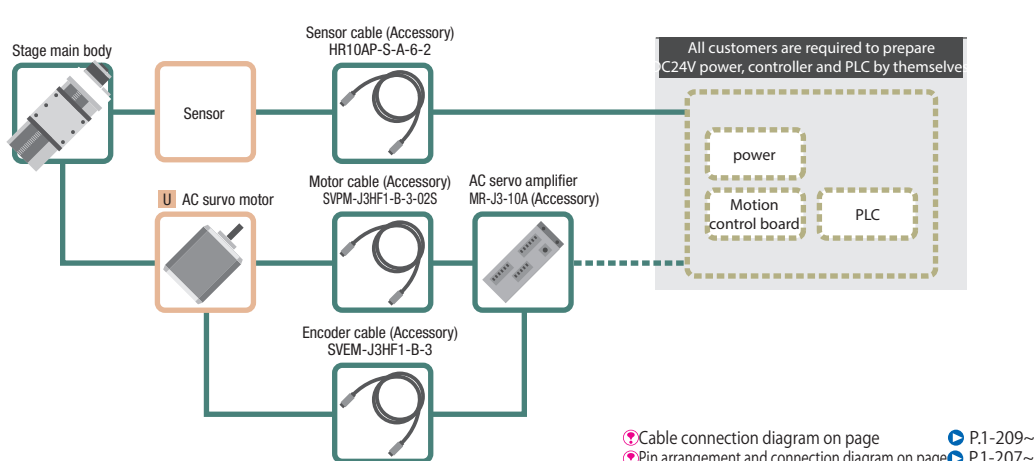
Motor option

PA α Step
 Motor model
 ARM24SAK



Motor option

U AC servo motor
 Motor model
 HF-KP053



Motor code	F	G	MA	PA	U	
Feature	High-torque	High resolution	With electromagnetic brake	Small step-out	High speed	
Type	5 phase stepping motor 0.75A/Phase			α step motor	AC servo motor	
Motor model*	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	HF-KP053	
Resolution	Lead 2mm	Full/Half	4 μ m/2 μ m	2 μ m/1 μ m	4 μ m/2 μ m	2 μ m (1000P/R setting)
		Micro step (1/20 split)	0.2 μ m	0.1 μ m	0.2 μ m	
MAX speed	Lead 2mm	45mm/sec	30mm/sec	40mm/sec	80mm/sec	100mm/sec

*Model is our own management model.

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

ϕ 40

ϕ 50

ϕ 60

ϕ 70

ϕ 80

ϕ 100

ϕ 120

Other

1

064

Motorized Stage

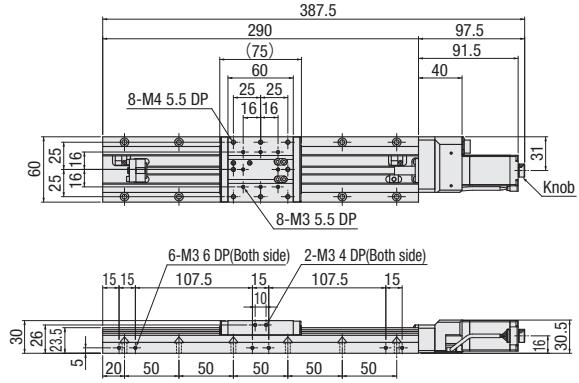
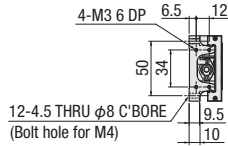
CAVE-X POSITIONER

X-axis Linear Ball Guide: KXL06200/KXL06300

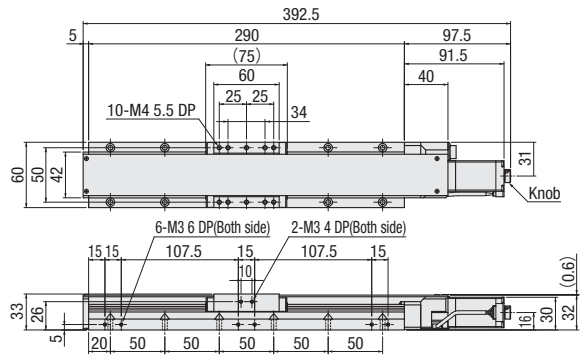
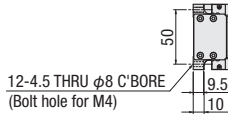
Motorized Stage

Dimensional outline drawings

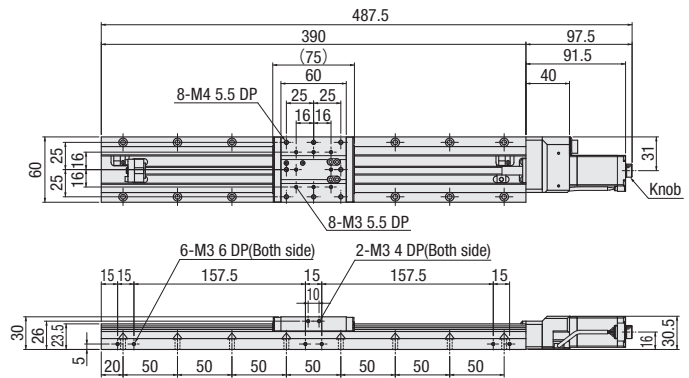
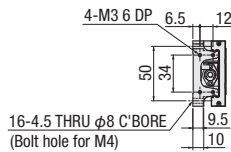
KXL06200-N2-F



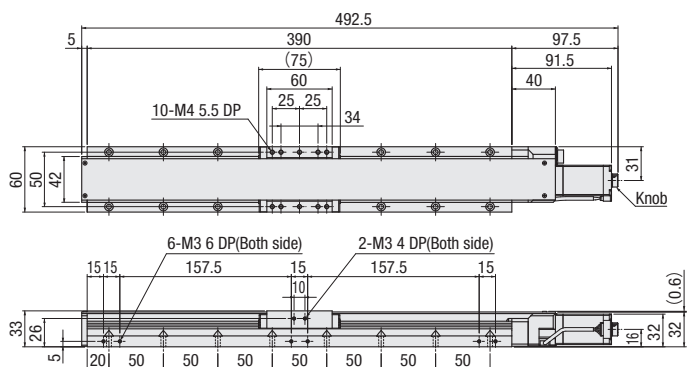
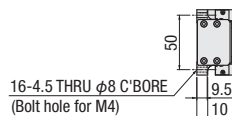
KXL06200-C2-F



KXL06300-N2-F



KXL06300-C2-F



X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other



PART COMMUNITY

CAD DATA



CAD 3D-2D

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

1

066

Dimensional outline drawings

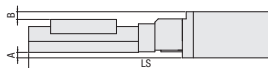
F High-torque

Motor model PK525HPB-C1

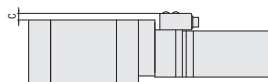
G High resolution

Motor model PK523HPMB-C1

Side view



Top view



Uncovered

Model	F (High-torque) /G (High resolution) Common				F (High-torque)	G (High resolution)
	Motor size	A	B	C	LS	
KXL06200-N2-F,G	□28	—	0.5	—	388	368
KXL06300-N2-F,G					488	468

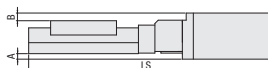
Covered

Model	F (High-torque) /G (High resolution) Common				F (High-torque)	G (High resolution)
	Motor size	A	B	C	LS	
KXL06200-C2-F,G	□28	—	—	—	393	373
KXL06300-C2-F,G					493	473

MA With electromagnetic brake

Motor model PKE545MC-A1

Side view



Top view



Uncovered

Model	MA (With electromagnetic brake)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-N2-MA	□42	5	7	6	415
KXL06300-N2-MA					515

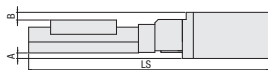
Covered

Model	MA (With electromagnetic brake)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-C2-MA	□42	5	4	6	420
KXL06300-C2-MA					520

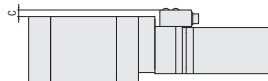
PA α step

Motor model ARM24SAK

Side view



Top view



Uncovered

Model	PA (α step)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-N2-PA	□28	—	0.5	6	381
KXL06300-N2-PA					481

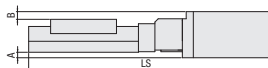
Covered

Model	PA (α step)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-C2-PA	□28	—	—	6	386
KXL06300-C2-PA					486

U AC servo motor

Motor model HF-KPO53

Side view



Top view



Uncovered

Model	U (AC servo motor)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-N2-U	□40	4.7	6.5	6	410
KXL06300-N2-U					510

Covered

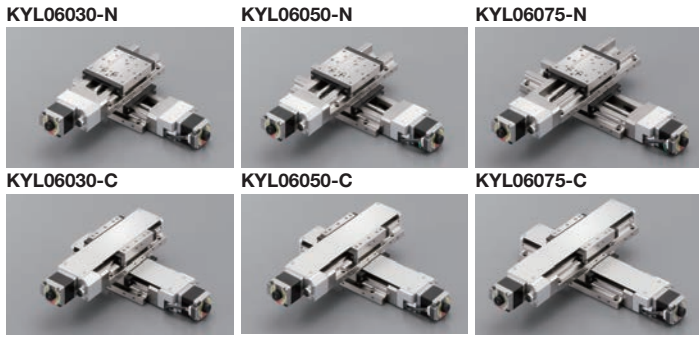
Model	U (AC servo motor)				F (High-torque)
	Motor size	A	B	C	LS
KXL06200-C2-U	□40	4.7	3.5	6	415
KXL06300-C2-U					515

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYL06030/KYL06050/KYL06075

RoHS



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Model Selection code Option code

KYL06030-N1-C

1 2 3 4 5 6

Cable P.1-207~
Electrical specification P.1-077~

1 Travel length

030	30mm
050	50mm
075	75mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

1	Lead 1mm
2	Lead 2mm

4 Motor option

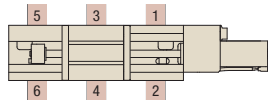
Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.
■ Position of origin sensor option (Please choose one position.)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
U	Cable for servo motor	—
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.
* The price includes M, P and U.
Not available non-cable.
* See page P.1-207,209~ for details of cable.
* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

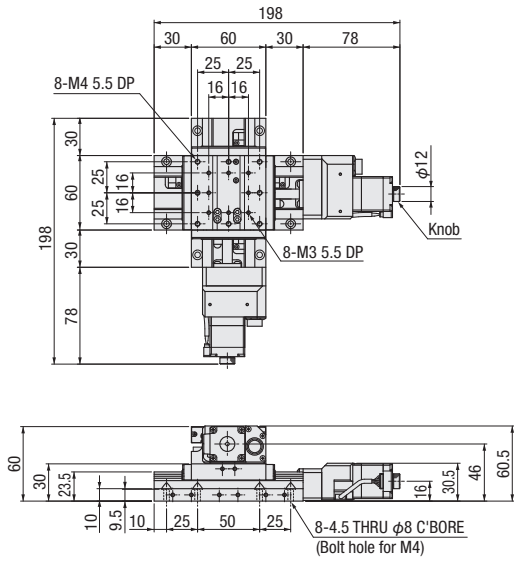
SPEC

Model	Uncovered	KYL06030-N1-C	KYL06030-N2-C	KYL06050-N1-C	KYL06050-N2-C	KYL06075-N1-C	KYL06075-N2-C
	Covered	KYL06030-C1-C	KYL06030-C2-C	KYL06050-C1-C	KYL06050-C2-C	KYL06075-C1-C	KYL06075-C2-C
Travel length		30mm		50mm		75mm	
Table size		60×60mm					
Feed screw (Ball screw)		φ8 lead 1	φ8 lead 2	φ8 lead 1	φ8 lead 2	φ8 lead 1	φ8 lead 2
Guide		Linear ball guide					
Main materials-Finishing		Stainless—Opposite side of the end face finishing					
Weight	Uncovered	2.56kg		2.8kg		3.08kg	
	Covered	2.68kg		2.88kg		3.32kg	
Resolution (Pulse)	Full/Half	2μm/1μm	4μm/2μm	2μm/1μm	4μm/2μm	2μm/1μm	4μm/2μm
	Microstep	0.1μm (1/20 on resolution)	0.2μm (1/20 on resolution)	0.1μm (1/20 on resolution)	0.2μm (1/20 on resolution)	0.1μm (1/20 on resolution)	0.2μm (1/20 on resolution)
MAX speed		30mm/sec	35mm/sec	30mm/sec	35mm/sec	30mm/sec	35mm/sec
Load capacity		10kgf [98N]					
Perpendicularity		Within 15μm/Full stroke		Within 25μm/Full stroke		Within 37.5μm/Full stroke	
Limit sensor		Installed					
Origin sensor		— ※Attachable in origin sensor option					
Slit origin sensor		—					
Provided screw (Hexagon-headed bolt)		8 of M4—14					
Stage accuracy specification	Uni-directional positioning accuracy	Within 5μm				Within 7μm	
	Repeatability positioning accuracy	Within ±0.5μm				Within 1μm	
	Lost motion	Within 1μm				Within 3μm	
	Backlash	Within 1μm				Within 3μm	
	Straightness	Within 3μm				Within 20"/Within 15"	
	Pitching/Yawing	Within 20"/Within 15"				Within 15"/Within 10"	

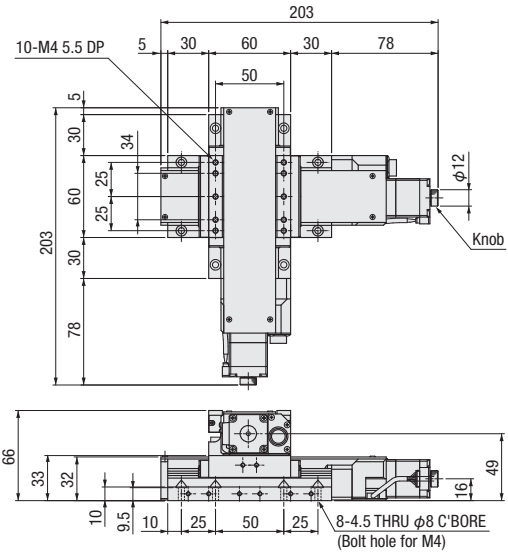
※ Might be changed specification due to motors. See page P.1-213~ for details.

Dimensional outline drawings

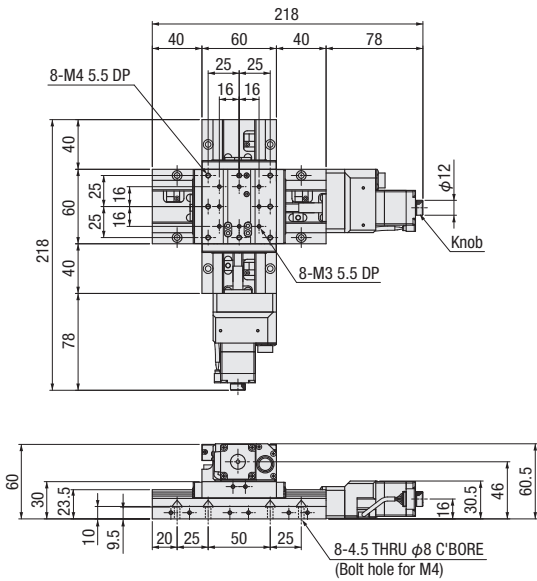
KYL06030-N1-C (KYL06030-N2-C)



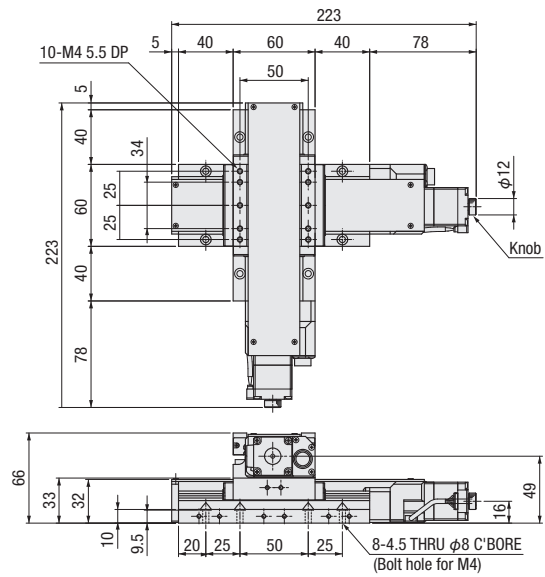
KYL06030-C1-C (KYL06030-C2-C)



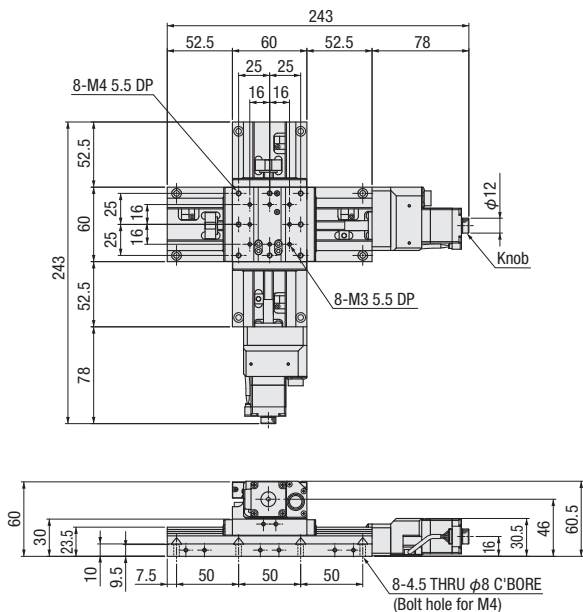
KYL06050-N1-C (KYL06050-N2-C)



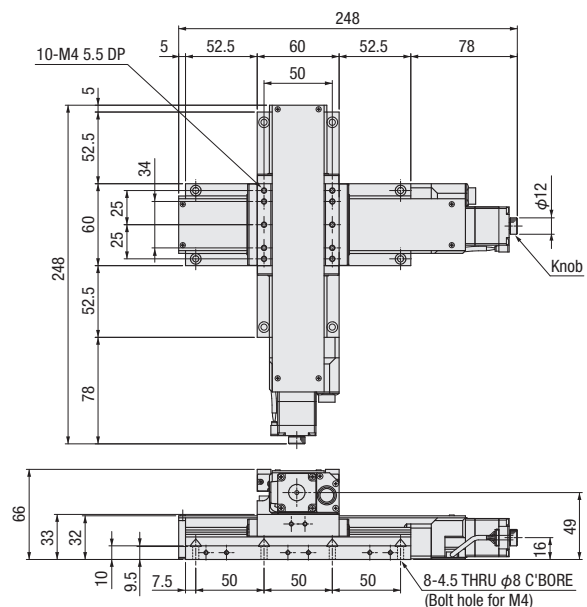
KYL06050-C1-C (KYL06050-C2-C)



KYL06075-N1-C (KYL06075-N2-C)



KYL06075-C1-C (KYL06075-C2-C)



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X
Linear ball

Cross Roller

Slide Guide

$\phi 40$

$\phi 50$

$\phi 60$

$\phi 70$

$\phi 80$

$\phi 100$

$\phi 120$

Other

1

068

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYL06100/KYL06150

Motorized Stage



RoHS



● Cable P.1-207~
● Electrical specification P.1-077~

1 Travel length

100	100mm
150	150mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

2	Lead 2mm
---	----------

4 Motor option

Code	Specification
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

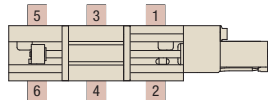
* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.

■ Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	
U	Cable for servo motor	
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.

Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

SPEC

Model	Uncovered	KYL06100-N2-F	KYL06150-N2-F	
	Covered	KYL06100-C2-F	KYL06150-C2-F	
Mechanical specification	Travel length	100mm	150mm	
	Table size	60×60mm		
	Feed screw (Ball screw)	ϕ 8 lead 2		
	Guide	Linear ball guide		
Main materials-Finishing	Stainless—Opposite side of the end face finishing			
	Weight	Uncovered	3.6kg	4.2kg
		Covered	3.72kg	4.32kg
Accuracy specification	Resolution (Pulse)	4 μ m/2 μ m		
		0.2 μ m (1/20 on resolution)		
	MAX speed	45mm/sec		
	Load capacity	10kgf [98N]		
	Perpendicularity	Within 50 μ m/Full stroke	Within 75 μ m/Full stroke	
Sensor	Limit sensor	Installed		
	Origin sensor	— ※Attachable in origin sensor option		
	Slit origin sensor	—		
Provided screw (Hexagon-headed bolt)		8 of M4—14	14 of M4—14	
Shaft accuracy specification	Uni-directional positioning accuracy	Within 10 μ m		
	Repeatability positioning accuracy	Within \pm 0.5 μ m		
	Lost motion	Within 1 μ m		
	Backlash	Within 1 μ m		
	Straightness	Within 5 μ m		
	Pitching/Yawing	Within 25" / Within 20"		

※ Might be changed specification due to motors. See page P.1-213~ for details.

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

ϕ 40

ϕ 50

ϕ 60

ϕ 70

ϕ 80

ϕ 100

ϕ 120

Other



PART COMMUNITY

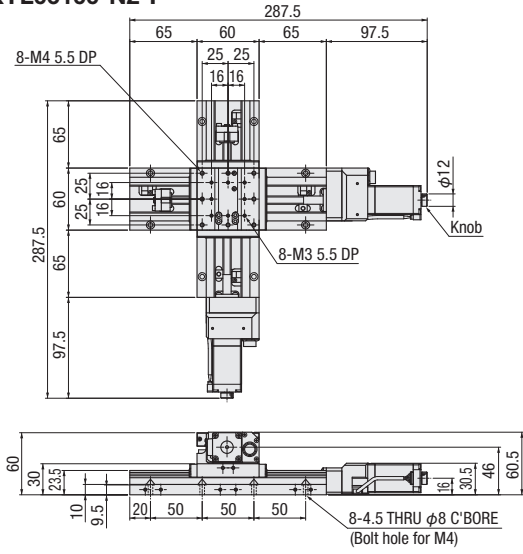
CAD DATA



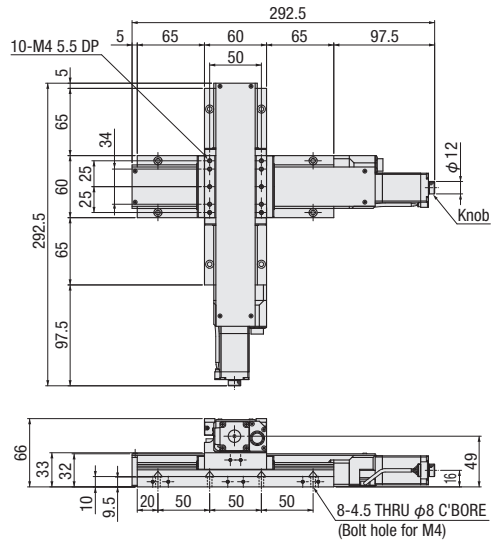
CAD 3D·2D

Dimensional outline drawings

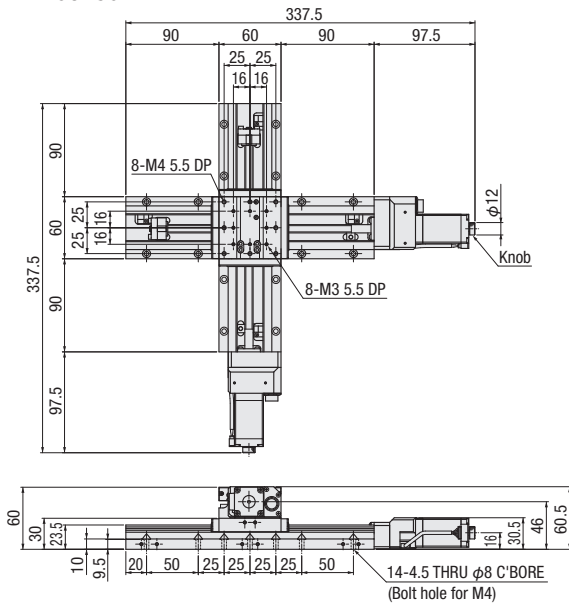
KYL06100-N2-F



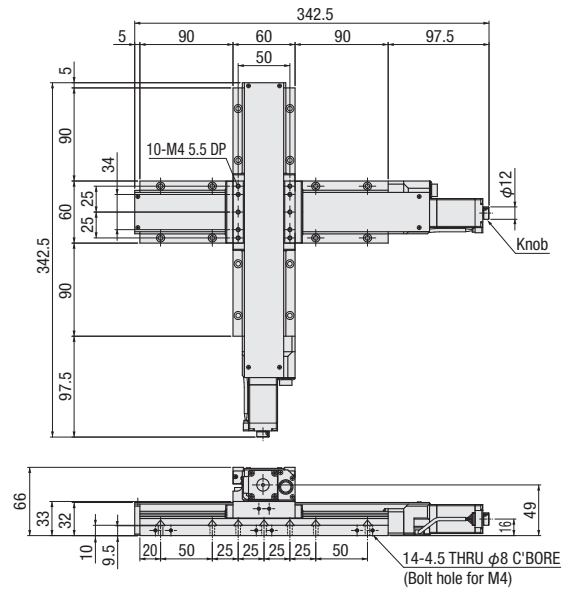
KYL06100-C2-F



KYL06150-N2-F



KYL06150-C2-F



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

$\phi 40$

$\phi 50$

$\phi 60$

$\phi 70$

$\phi 80$

$\phi 100$

$\phi 120$

Other

1

070

Motorized Stage

CAVE-X POSITIONER

XY-axis Linear Ball Guide: KYL06200/KYL06300

Motorized Stage

KYL06200-N



KYL06300-N



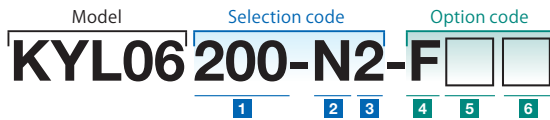
KYL06200-C



KYL06300-C



RoHS



🔗 Cable P.1-207~
🔗 Electrical specification P.1-077~

1 Travel length

200	200mm
300	300mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

2	Lead 2mm
---	----------

4 Motor option

Code	Specification
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

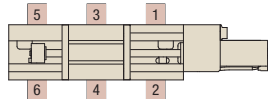
* Code MA · PA · U is the set of driver and cable.
* See page P.1-077~ for details of motor option.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.

■ Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	
U	Cable for servo motor	
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.
Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

(Note)
Please check available cable from compatibility list.
Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

SPEC

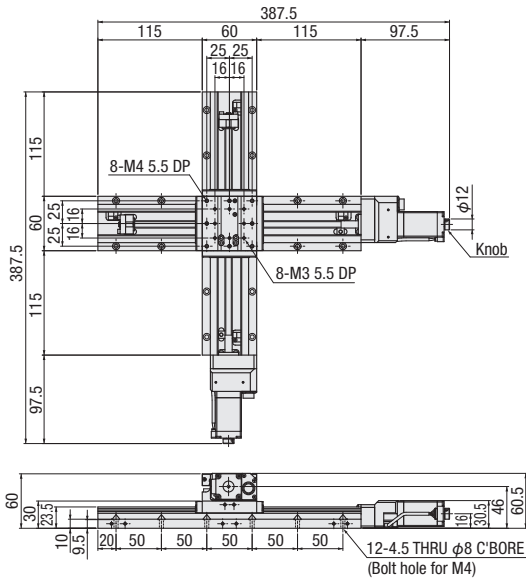
Model	Uncovered	KYL06200-N2-F	KYL06300-N2-F
	Covered	KYL06200-C2-F	KYL06300-C2-F
Travel length		200mm	300mm
Table size		60×60mm	
Feed screw (Ball screw)		φ8 lead 2	
Guide		Linear ball guide	
Main materials-Finishing		Stainless—Opposite side of the end face finishing	
Weight	Uncovered	4.84kg	6.04kg
	Covered	4.96kg	6.24kg
Resolution (Pulse)	Full/ Half	4μm/2μm	
	Microstep	0.2μm (1/20 on resolution)	
MAX speed		45mm/sec	
Load capacity		10kgf [98N]	
Perpendicularity		Within 100μm/Full stroke	Within 150μm/Full stroke
Sensor	Limit sensor	Installed	
	Origin sensor	— ※Attachable in origin sensor option	
	Slit origin sensor	—	
Provided screw (Hexagon-headed bolt)		12 of M4—14	16 of M4—14
Supplies accuracy specification	Uni-directional positioning accuracy	Within 15μm	Within 25μm
	Repeatability positioning accuracy		Within ±0.5μm
	Lost motion		Within 1μm
	Backlash		Within 1μm
	Straightness		Within 7μm
	Pitching/Yawing	Within 30"/Within 20"	

※ Might be changed specification due to motors. See page P.1-213~ for details.

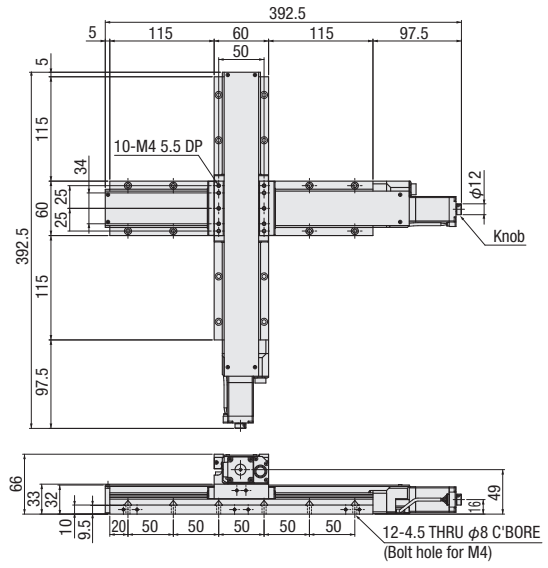


Dimensional outline drawings

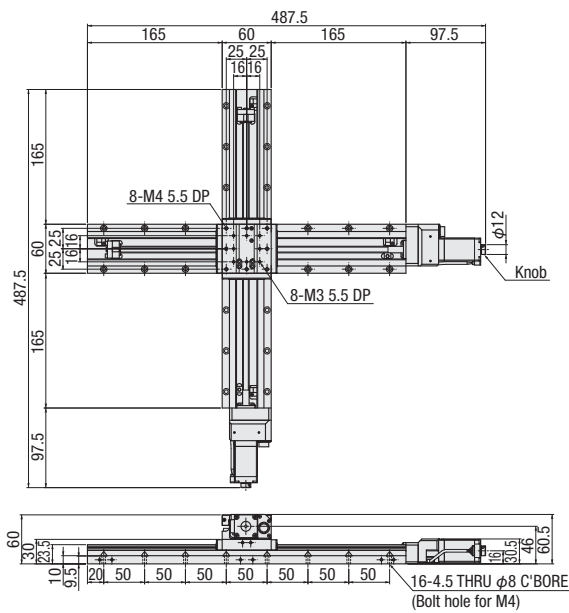
KYL06200-N2-F



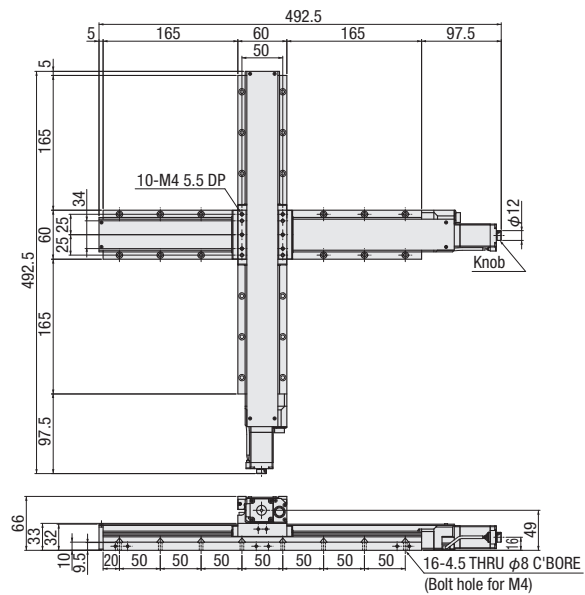
KYL06200-C2-F



KYL06300-N2-F



KYL06300-C2-F



Support guide option

We have a support guide option for 200mm and 300mm. You can use safely in overhang.

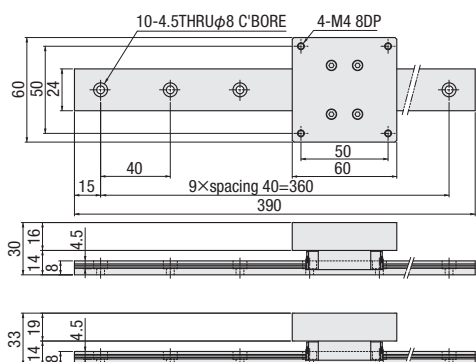
How to order

- For Uncovered model**
APW6016A-390A
- For covered model**
APW6019A-390A

Notes:

- Combination with slideguide, adaptor plate or CAVE-X POSITIONER should be selected customer side.
- ※ It is recommended to adjust in parallelism under 10 μ m and within 100mm.
- Slide guide materials: Stainless.
- Adaptor plate materials: Aluminum.
- Grease: Multemp PS2.
- If you have any questions, feel free to contact us.

[Dimensions] Slide guide model: SSEBW14-390(MISUMI)



• For Uncovered model
APW6016A-390A

• For covered model
APW6019A-390A

Motorized Stage

X
XY
Z
Horizontal Z
XYZ
Goniometer
Rotary
Unit
Controller

Linear Ball
CAVE-X Linear ball
Cross Roller
Slide Guide

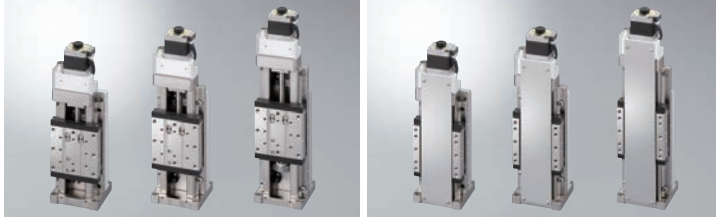
φ40
φ50
φ60
φ70
φ80
φ100
φ120
Other

Motorized Stage

CAVE-X POSITIONER

Z-axis Linear Ball Guide: KZL06030/KZL06050/KZL06075

KZL06030-N/KZL06050-N/KZL06075-N KZL06030-C/KZL06050-C/KZL06075-C



RoHS

Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Model Selection code Option code

KZL06 030-N1-C

1 2 3 4 5 6

▶ Cable P.1-207~
 ◀ Electrical specification P.1-077~

1 Travel length

030	30mm
050	50mm
075	75mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

1	Lead 1mm
---	----------

4 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

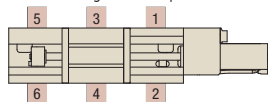
* Code MA · PA · U is the set of driver and cable.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page ▶ P.1-079~ for details of origin sensor option.

■ Position of origin sensor option (Please choose one position.)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	—
U	Cable for servo motor	—
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.

Not available non-cable.

* See page ▶ P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

(Note) Please check available cable from compatibility list.

Not included cable for a main body. Please choose the code as below.

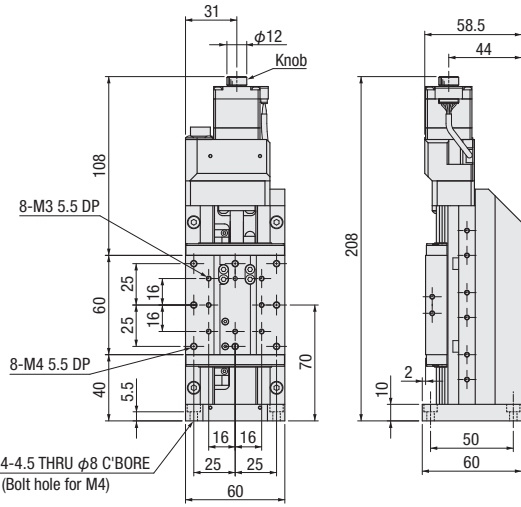
Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
MA	M	
PA	P	
U	U	

SPEC							
Model	Uncovered			Covered			
	KZL06030-N1-C	KZL06050-N1-C	KZL06075-N1-C	KZL06030-C1-C	KZL06050-C1-C	KZL06075-C1-C	
Mechanical specification	Travel length	30mm	50mm	75mm	30mm	50mm	75mm
	Table size	60×60mm					
	Feed screw (Ball screw)	φ8 lead 1					
	Guide	Linear ball guide					
	Main materials-Finishing	Stainless—Opposite side of the end face finishing					
Accuracy specification	Weight	2kg	2.12kg	2.26kg	2.06kg	2.16kg	2.32kg
	Resolution (Pulse)	Full/Half	2μm/1μm				
		Microstep	0.1μm (1/20 on resolution)				
	MAX speed	20mm/sec					
	Load capacity (Excitation)	7kgf [68.6N]					
Sensor	Vertical degree	Within 15μm/Full stroke	Within 25μm/Full stroke	Within 37.5μm/Full stroke	Within 15μm/Full stroke	Within 25μm/Full stroke	Within 37.5μm/Full stroke
	Limit sensor	Installed					
	Origin sensor	— ※Attachable in origin sensor option					
	Slit origin sensor	—					
	Provided screw (Hexagon-headed bolt)	4 of M4—10					
Style accuracy specification	Uni-directional positioning accuracy	Within 5μm		Within 7μm	Within 5μm		Within 7μm
	Repeatability positioning accuracy	Within ±0.5μm					
	Lost motion	Within 1μm					
	Backlash	Within 1μm					
	Straightness	Within 3μm					
	Pitching/Yawing	Within 20"/Within 15"					

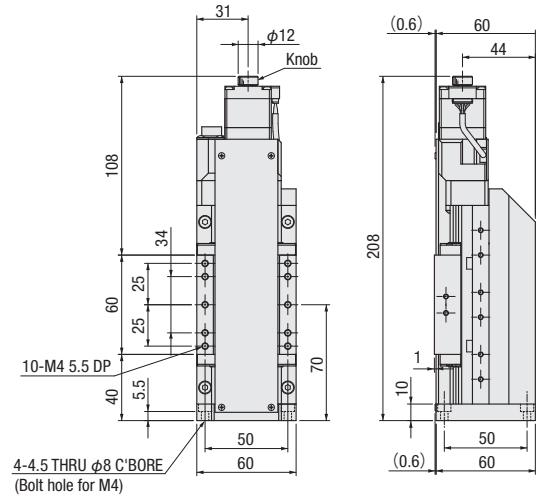
※ Might be changed specification due to motors. See page ▶ P.1-213~ for details.

Dimensional outline drawings

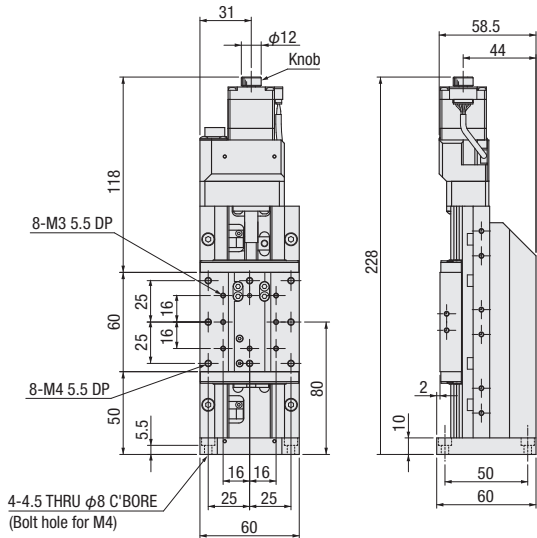
KZL06030-N1-C



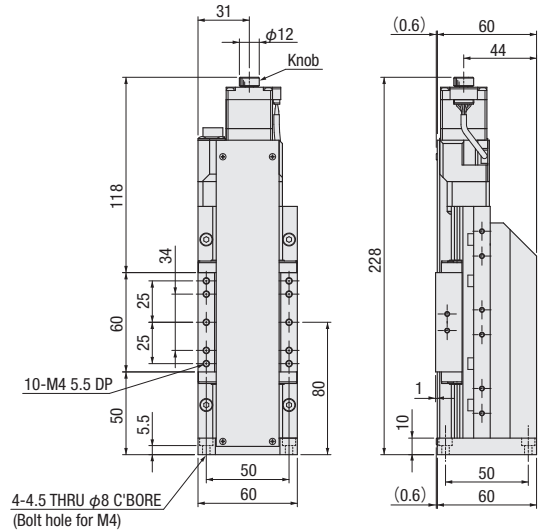
KZL06030-C1-C



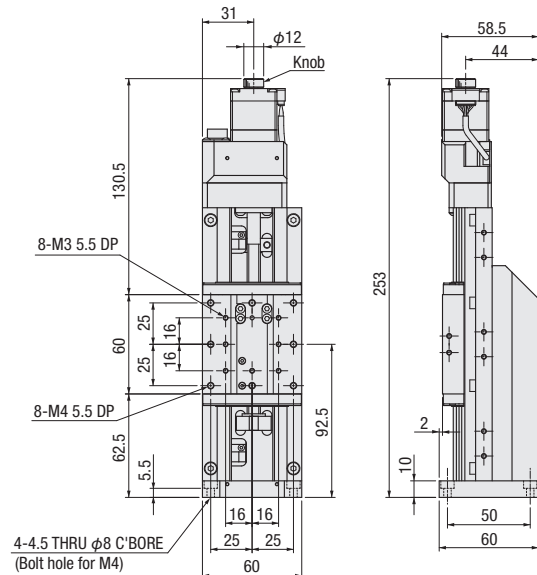
KZL06050-N1-C



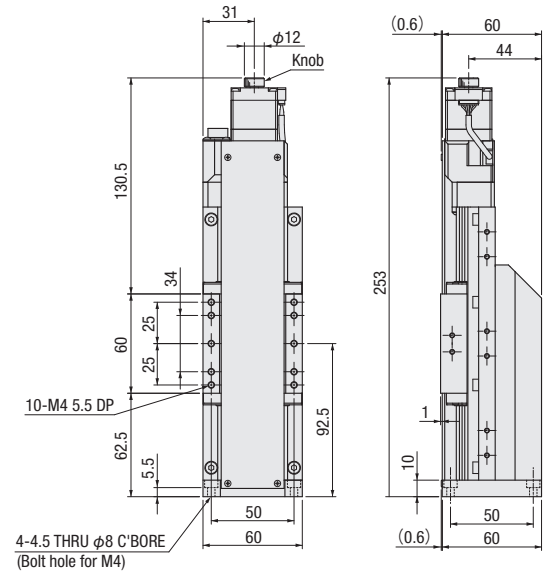
KZL06050-C1-C



KZL06075-N1-C



KZL06075-C1-C



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Motorized Stage

CAVE-X POSITIONER

XYZ-axis Linear Ball Guide: KWL06030/KWL06050

Motorized Stage

KWL06030-N



KWL06050-N



KWL06030-C



KWL06050-C



RoHS

Model Selection code Option code

KWL06030-N1-C

1 2 3 4 5 6

☑ Cable P.1-207~
☑ Electrical specification P.1-077~

1 Travel length

030	30mm
050	50mm

2 Cover type

N	Uncovered	
C	Covered	

3 Ball screw lead selection

1	Lead 1mm
---	----------

4 Motor option

Code	Specification
C	Standard
F	High-torque
G	High resolution
MA	With electromagnetic brake (Driver set)
PA	α Step (Driver set)
U	Servo motor (Amplifier set)

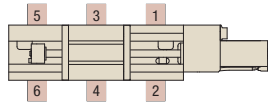
* Code MA · PA · U is the set of driver and cable.

5 Origin sensor option

Code	Specification
Blank	None
1	CCW right side
2	CCW left side
3	Center right side
4	Center left side
5	CW right side
6	CW left side

* See page P.1-079~ for details of origin sensor option.

■ Position of origin sensor option (Please choose one position)



6 Cable option

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
E	Only connector (Cable is not included)	—
F	Robot cable 2m	D214-2-2R
G	Robot cable 2m one end loose	D214-2-2RK
H	Robot cable 4m	D214-2-4R
J	Robot cable 4m one end loose	D214-2-4RK
M	Cable for electromagnetic brake	—
P	Cable for α step	
U	Cable for servo motor	
Blank	Cable is not included (Standard)	—

* One end loose position to only stage opposite side.

* The price includes M, P and U.

Not available non-cable.

* See page P.1-207,209~ for details of cable.

* Please select "Code A, C, F or H" when connect with stepping motor controller(DS102/112).

[Note]

Please check available cable from compatibility list.

Not included cable for a main body. Please choose the code as below.

Motor/cable products list	Motor code	Cable code
	C,F,G	Blank, A~H,J
	MA	M
	PA	P
U	U	

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

SPEC

Model	Uncovered		Covered	
	KWL06030-N1-C	KWL06050-N1-C	KWL06030-C1-C	KWL06050-C1-C
Travel length	30mm	50mm	30mm	50mm
Table size	60×60mm			
Feed screw (Ball screw)	φ8 lead 1			
Guide	Linear ball guide			
Main materials-Finishing	Stainless—Opposite side of the end face finishing			
Weight	4.56kg	4.92kg	4.74kg	5.04kg
Accuracy specification	Resolution (Pulse)	Full/ Half Microstep		2μm/1μm
				0.1μm (1/20 on resolution)
	MAX speed	20mm/ sec		
Load capacity	7kgf [68.6N]			
Perpendicularity	Within 15μm/ Full stroke	Within 25μm/ Full stroke	Within 15μm/ Full stroke	Within 25μm/ Full stroke
Sensor	Limit sensor	Installed		
	Origin sensor	— ※ Attachable in origin sensor option		
	Slit origin sensor	—		
Provided screw (Hexagon-headed bolt)	8 of M4—14			
Single-axis accuracy specification	Uni-directional positioning accuracy	Within 5μm		
	Repeatability positioning accuracy	Within ±0.5μm		
	Lost motion	Within 1μm		
	Backlash	Within 1μm		
	Straightness	Within 3μm		
	Pitching/Yawing	Within 20" / Within 15"		

※ Might be changed specification due to motors. See page P.1-213~ for details.

Dimensional outline drawings



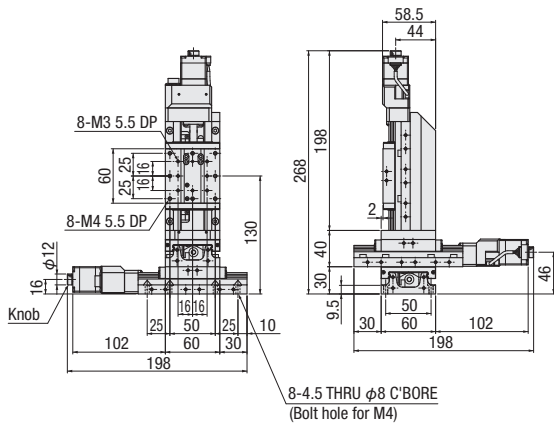
PART COMMUNITY

CAD DATA

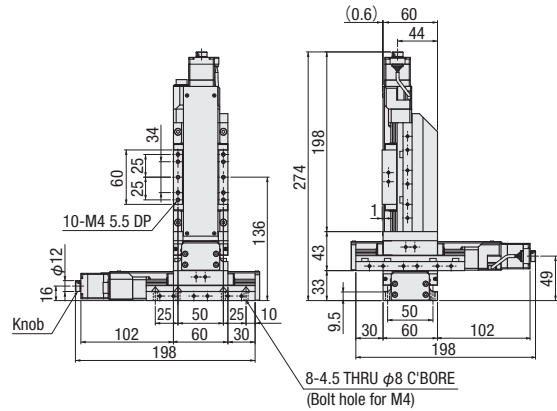


CAD 3D-2D

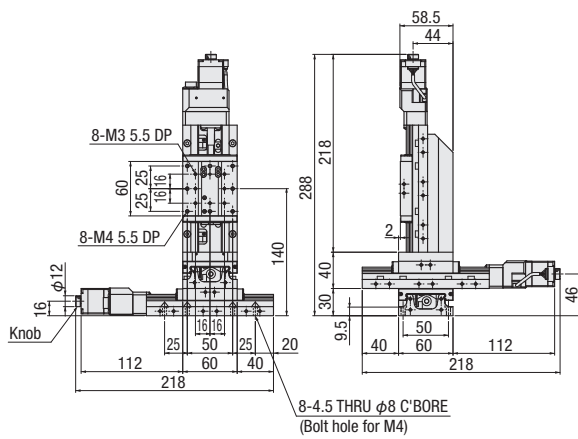
KWL06030-N1-C



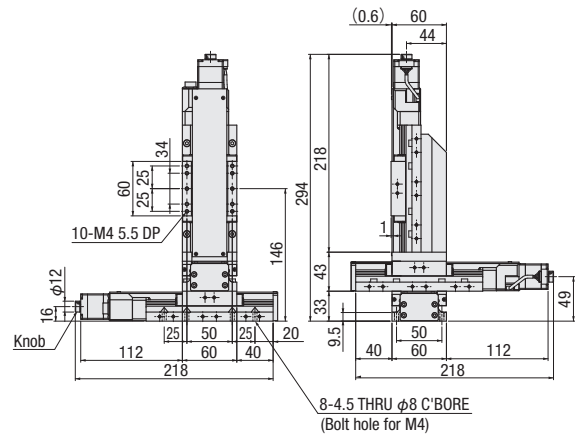
KWL06030-C1-C



KWL06050-N1-C



KWL06050-C1-C



Motorized Stage

X

XY

Z

Horizontal Z

XYZ

Goniometer

Rotary

Unit

Controller

Linear Ball

CAVE-X
Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

1

076

Electrical Specification: KXL Series

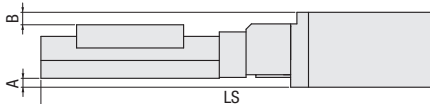
Motor • Electrical specification

Motor code	C	F	G	MA	PA	U			
Models	KXL06030 / KXL06050 / KXL06075 KXL06100 / KXL06150 / KXL06200 / KXL06300								
Motor Specification (*1)	Type	5 phase stepping motor 0.75A/Phase			α step motor	AC servo motor			
	Feature	Standard	High-torque	High resolution	With electromagnetic brake	Small step-out High speed			
	Model (*2)	C005C-90215P	PK525HPB-C1	PK523HPMB-C1	PKE545MC-A1	ARM24SAK	HF-KP053		
	Electromagnetic brake	-			Installed	-			
	Maker	Oriental Motor Co.,Ltd.					Mitsubishi Electric corporation		
	Step angle (Position detector)	0.72°		0.36°	0.72°	0.36° (Set to 1000P/R)	18 bits encoder (262144P/R)		
	Mass	0.11kg	0.2kg	0.11kg	0.52kg	0.15kg	0.35kg		
	Motor size	28mm		42mm	42mm	28mm	40mm		
	Excitation (moment) maximum torque	0.041N · m	0.073N · m	0.038N · m	0.240N · m	0.055N · m	0.480N · m		
	Driver type	P.1-205~			RKSD503M-A	ARD-K	MR-J3-10A		
Input power (Voltage · frequency)	-			Single phase AC100-120V 50/60Hz	DC24V±10%	Three and single phase AC200-230V 50/60Hz			
Sensor	Limit sensor	Installed					-		
	Origin sensor	-					*Sensor should be PM-L25 (SUNX Corp) when select the origin sensor		
	Slit origin sensor	-					-		
	Model	PM-L24 (Panasonic Industrial Devices SUNX)					-		
	Power voltage	DC5~24V ±10%					-		
	Consumption current	45mA or less (15mA or less per 1 sensor)					-		
	Control output	NPN open collector output DC30V or less 50mA or less Residual voltage 2V or less when the load current is 50mA Residual voltage 1V or less when the load current is 16mA					-		
Output logic	On detection (light shield condition): Output transistor OFF (Non-continuity)								
Connector	Motor	Model	HR10A-10R-12P (73) (Hirose Electric Co.,Ltd.)		43025-1000 (Japan Molex)	Motor cable Encoder	- -		
		Receiving connector	HR10A-10P-12S (73) (Hirose Electric Co.,Ltd.)		43020-1000 (Japan Molex)	Motor cable Encoder	JN4FT04SJ1-R (JAE) 1674320-1 (Tyco Electronics Japan G.K.)		
	Sensor	Model	HR10A-10R-12P (73) (Hirose Electric Co.,Ltd.)※In common with a motor		HR10A-7J-6P (73) (Hirose Electric Co.,Ltd.)				
		Receiving connector	HR10A-10P-12S (73) (Hirose Electric Co.,Ltd.)※In common with a motor		HR10A-7P-6S (73) (Hirose Electric Co.,Ltd.)				
Accuracy specification	Resolution	Lead 1mm	Full/Half	2µm/1µm	1µm/0.5µm	2µm/1µm	1µm/0.5µm	18 bits encoder (262144P/R)	
			Micro step (1/20 split)	0.1µm	0.05µm	0.1µm	-		
		Lead 2mm	Full/Half	4µm/2µm	2µm/1µm	4µm/2µm	2µm/1µm		
			Micro step (1/20 split)	0.2µm	0.1µm	0.2µm	-		
	Max. speed	Lead 1mm	30mm/sec	35mm/sec	25mm/sec	25mm/sec	40mm/sec		50mm/sec
		Lead 2mm	35mm/sec	45mm/sec	30mm/sec	40mm/sec	80mm/sec		100mm/sec

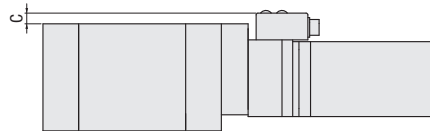
*1 See page P.1-213~ for details of single motor specification *2 Model is our own management model. * The electric specification of XY (PMG), Z (PZG), XYZ (PMZG) are the same.

Dimensional outline drawings

Side view



Top view



Standard type

Motor code	Size □ [mm]	A	B	C	LS						
					30	50	75	100	150	200	300
C	28	-	0.5	-	198	218	243	268	318	368	468
F	28	-	0.5	-	218	238	263	288	338	388	488
G	28	-	0.5	-	198	218	243	268	318	368	468
MA	42	5	7	6	245	265	290	315	365	415	515
PA	28	-	0.5	6	211	231	256	281	331	381	481
U	40	4.7	6.5	6	240	260	285	310	360	410	510

Covered type

Motor code	Size □ [mm]	A	B	C	LS						
					30	50	75	100	150	200	300
C	28	-	-	-	203	223	248	273	323	373	473
F	28	-	-	-	223	243	268	293	343	393	493
G	28	-	-	-	203	223	248	273	323	373	473
MA	42	5	4	6	250	270	295	320	370	420	520
PA	28	-	-	6	216	236	261	286	336	386	486
U	40	4.7	3.5	6	245	265	290	315	365	415	515

Note: The motor connector is projected from the upper, bottom and side surface in the motor code MA.

Linear Ball

CAVE-X Linear ball

Cross Roller

Slide Guide

φ40

φ50

φ60

φ70

φ80

φ100

φ120

Other

Pin allocation · Connection diagram

Motor code	KXL series	Motor code	KXL series																																																
C.F.G	<p>[Motor and sensor pin allocation (the same)]</p> <p>[Motor and sensor connection diagram (the same)]</p> <p>*Cable must be selected from option code of each products. See page P.1-211 for details of cable.</p>	MA	<p>*Motor cable model:CC030VPFB See page P.1-211 for details.</p> <p>Cable for motor (3m)</p> <p>motor side</p> <p>driver side</p> <p>5559-06P-210 (MOLEX)</p> <p>5557-06R-210 (MOLEX)</p> <p>Electromagnetic brake cable (3m)</p> <p>motor side</p> <p>driver side</p> <p>5559-02P-210 (MOLEX)</p>																																																
	<p>[Motor and sensor pin allocation (sensor)]</p> <p>[Motor and sensor connection diagram (sensor)]</p> <p>*Cable model:HR10AP-S-A-6-2 See page P.1-212 for details.</p> <p>Sensor side</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <tr><td>1</td><td>CWLS</td></tr> <tr><td>2</td><td>CCWLS</td></tr> <tr><td>3</td><td>ORG</td></tr> <tr><td>4</td><td>NORG</td></tr> <tr><td>5</td><td>V+</td></tr> <tr><td>6</td><td>V-</td></tr> </table> <p>*The shields are connected with the connector shell.</p>		Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-	<p>[Motor and sensor pin allocation (sensor)]</p> <p>[Motor and sensor connection diagram (sensor)]</p> <p>*Cable model:HR10AP-S-A-6-2 See page P.1-212 for details.</p> <p>Sensor side</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <tr><td>1</td><td>CWLS</td></tr> <tr><td>2</td><td>CCWLS</td></tr> <tr><td>3</td><td>ORG</td></tr> <tr><td>4</td><td>NORG</td></tr> <tr><td>5</td><td>V+</td></tr> <tr><td>6</td><td>V-</td></tr> </table> <p>*The shields are connected with the connector shell.</p>	Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-																				
Pin	Signals																																																		
1	CWLS																																																		
2	CCWLS																																																		
3	ORG																																																		
4	NORG																																																		
5	V+																																																		
6	V-																																																		
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3	ORG																																																		
4	NORG																																																		
5	V+																																																		
6	V-																																																		
PA	<p>*Motor cable model:CC030VA2R2 See page P.1-211 for details.</p> <p>Cable for motor (3m)</p> <p>motor side</p> <p>driver side</p> <p>43020-1000 (MOLEX)</p> <p>43025-1000 (MOLEX)</p>	UA	<p>*Motor cable model:SVPM-J3HF1-B-3-02S See page P.1-211 for details.</p> <p>Loose wire on the servo amplifier side</p> <table border="1"> <tr><th>Mark</th><th>Color</th><th>Pin</th><th>Signals</th></tr> <tr><td>FG</td><td>Green / Yellow</td><td>1</td><td>FG</td></tr> <tr><td>U</td><td>Red</td><td>2</td><td>UPhase</td></tr> <tr><td>V</td><td>White</td><td>3</td><td>VPhase</td></tr> <tr><td>W</td><td>Blue</td><td>4</td><td>WPhase</td></tr> </table> <p>*encoder cable model:SVEM-J3HF1-B-3 See page P.1-211 for details.</p> <p>The servo amplifier side</p> <table border="1"> <tr><th>Signals</th><th>Pin</th><th>Color</th><th>Motor (encoder) end</th></tr> <tr><td>P5</td><td>1</td><td>White</td><td>P5</td></tr> <tr><td>LG</td><td>2</td><td>Black</td><td>LG</td></tr> <tr><td>MR</td><td>3</td><td>Red</td><td>MR</td></tr> <tr><td>MRR</td><td>4</td><td>Black</td><td>MRR</td></tr> <tr><td>BAT</td><td>9</td><td>Green</td><td>BAT</td></tr> <tr><td>SD</td><td>Plate</td><td>Shield</td><td>SD</td></tr> </table>	Mark	Color	Pin	Signals	FG	Green / Yellow	1	FG	U	Red	2	UPhase	V	White	3	VPhase	W	Blue	4	WPhase	Signals	Pin	Color	Motor (encoder) end	P5	1	White	P5	LG	2	Black	LG	MR	3	Red	MR	MRR	4	Black	MRR	BAT	9	Green	BAT	SD	Plate	Shield	SD
	Mark		Color	Pin	Signals																																														
FG	Green / Yellow	1	FG																																																
U	Red	2	UPhase																																																
V	White	3	VPhase																																																
W	Blue	4	WPhase																																																
Signals	Pin	Color	Motor (encoder) end																																																
P5	1	White	P5																																																
LG	2	Black	LG																																																
MR	3	Red	MR																																																
MRR	4	Black	MRR																																																
BAT	9	Green	BAT																																																
SD	Plate	Shield	SD																																																
<p>[Motor and sensor pin allocation (sensor)]</p> <p>[Motor and sensor connection diagram (sensor)]</p> <p>*Cable model:HR10AP-S-A-6-2 See page P.1-212 for details.</p> <p>Sensor side</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <tr><td>1</td><td>CWLS</td></tr> <tr><td>2</td><td>CCWLS</td></tr> <tr><td>3</td><td>ORG</td></tr> <tr><td>4</td><td>NORG</td></tr> <tr><td>5</td><td>V+</td></tr> <tr><td>6</td><td>V-</td></tr> </table> <p>*The shields are connected with the connector shell.</p>	Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-	<p>[Motor and sensor pin allocation (sensor)]</p> <p>[Motor and sensor connection diagram (sensor)]</p> <p>*Cable model:HR10AP-S-A-6-2 See page P.1-212 for details.</p> <p>Sensor side</p> <table border="1"> <tr><th>Pin</th><th>Signals</th></tr> <tr><td>1</td><td>CWLS</td></tr> <tr><td>2</td><td>CCWLS</td></tr> <tr><td>3</td><td>ORG</td></tr> <tr><td>4</td><td>NORG</td></tr> <tr><td>5</td><td>V+</td></tr> <tr><td>6</td><td>V-</td></tr> </table> <p>*The shields are connected with the connector shell.</p>	Pin	Signals	1	CWLS	2	CCWLS	3	ORG	4	NORG	5	V+	6	V-																						
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Cable type

Great deal purchase both of cable and code.
 Cable connection diagram shows page P.1-207~

Code	Specification	Cable type
A	2m	D214-2-2E
B	2m One end loose	D214-2-2EK
C	4m	D214-2-4E
D	4m One end loose	D214-2-4EK
F	Robot cable 2m	D214-2-2R
H	Robot cable 4m	D214-2-4R
G	Robot cable 2m one end loose	D214-2-2RK
J	Robot cable 4m one end loose	D214-2-4RK

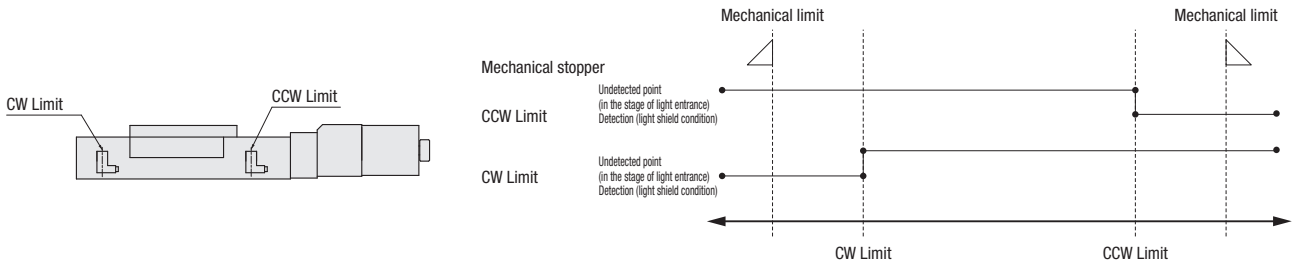
Motor code [MA · PA · U] compatible cable

One set for motor driver and motor cable(encoder)

Motor code	Cable code	Driver type	Motor cable	Encoder cable	Sensor cable
MA	M	RKSD503M-A (Oriental Motor Co.,Ltd.)	CC030VPFB P.1-211 Motor code MAJ	—	HR10AP-S-A-6-2 P.1-212 Refer sensor connection diagram
PA	P	ARD-K (Oriental Motor Co.,Ltd.)	CC030VA2R2 P.1-211 Motor code PAJ	—	
U	U	MR-J3-10A (Mitsubishi Electric corporation)	SVPM-J3HF1-B-3-02S P.1-211 Motor code UJ	SVEM-J3HF1-B-3 P.1-212 Motor code UJ	

Electrical Specification: KXL Series

Timing chart



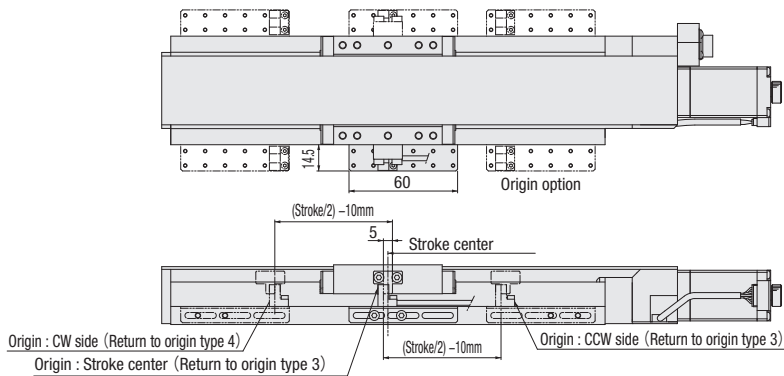
Unit [mm]	Reference coordinate	Mechanical limit	CW Limit	CCW Limit	Mechanical limit
KXL06030	Stroke center	17.5	15.5	15.5	17.5
KXL06050	Stroke center	27.5	25.5	25.5	27.5
KXL06075	Stroke center	40	37.5	37.5	40
KXL06100	Stroke center	52.5	50.5	50.5	52.5
KXL06150	Stroke center	77.5	75.5	75.5	77.5
KXL06200	Stroke center	102.5	100.5	100.5	102.5
KXL06300	Stroke center	152.5	150.5	150.5	152.5

* The coordinate value should be on the design. Dimension error may occur about plus or minus 0.5 deg.

Note: The timing chart shows only timing of sensor, it is not for output signal logic.

Refer to ON/OFF display of output transistor that shows on electrical specifications-sensor-output logic for output signal logic.

Sensor option dimensions

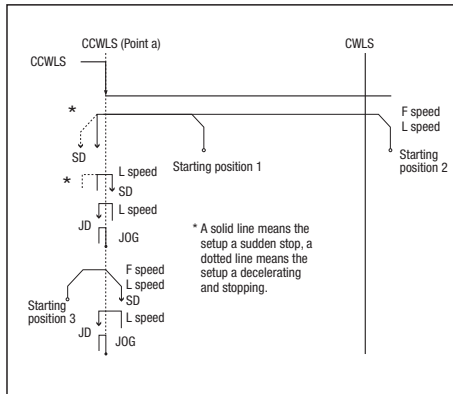


KXL series recommendation return to origin method

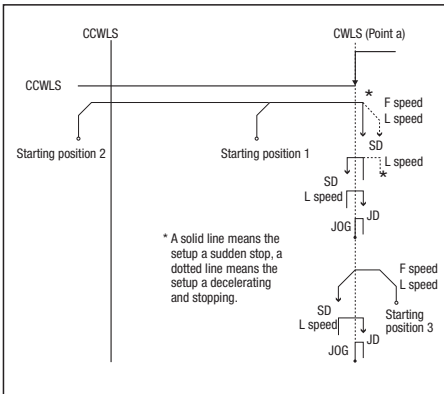
Suruga's motorized stages are different from the specification depending on the models. Therefore return to origin method other than recommendation may not be work correctly. Set to the way of recommendation return origin when using our controller.

Origin sensor option when not use

[Type5] Detect in the direction of CCW and perform detected process for CW edge (point a) of CWLS signal.



[Type6] Detect in the direction of CW and perform detected process for CCW edge (point a) of CWLS signal.



[Type11]

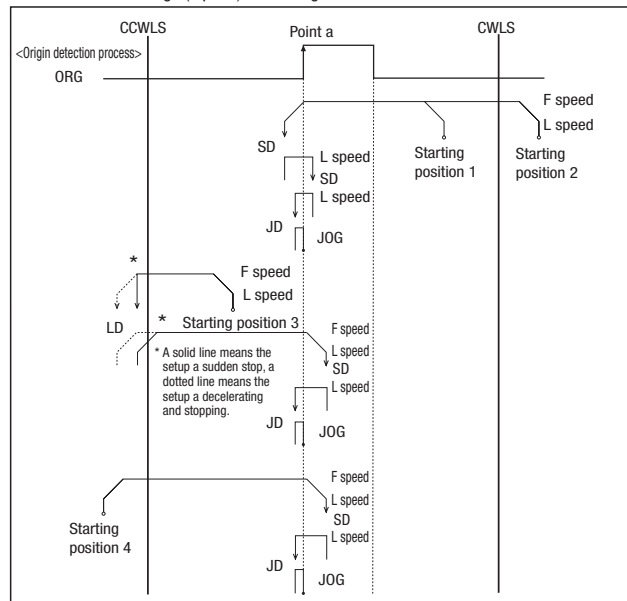
After finished type5, perform detected process for CCW edge of TIMING signal.

[Type12]

After finished type6, perform detected process for CW edge of TIMING signal.

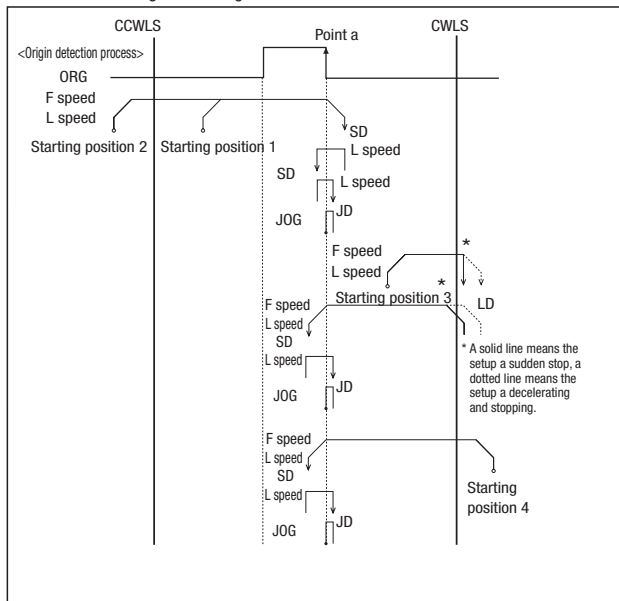
Origin sensor option when use

[Type3] Detect in the direction of CCW and perform detected process for CCW edge (a point) of ORG signal.



[Type9] After finished Type3, perform detected process for CCW edge of TIMING signal.

[Type4] Detect in the direction of CW and perform detected process for CW edge of ORG signal.



[Type10] After finished Type4, perform detected process for CW edge of TIMING signal.

Return to sequence ▶ P.1-201~

Adaptive driver

Driver ▶ P.1-205~

DC24 type input

Model	CRD5107P	SD5107P3-A22
Divisions	Micro step (1~1/250 [16 steps])	Normal (Full/Half)

AC100V input

Model	RKD507-A
Divisions	Micro step (1~1/250 [16 steps])

Adaptive stepping motor controller

Controller ▶ P.1-197~

Input power	General-purpose input/output port	Driver type (Divisions)	
		Normal (Full/Half)	Micro step (1-1/250 [16 steps])
AC100-240V	Without	DS102NR	DS102MS
	With	DS102NR-IO	DS102MS-IO
DC24V	Without	DS112NR	DS112MS
	With	DS112NR-IO	DS112MS-IO



DS112/102