

## Motorized Goniometer Stage Lineup



# Motorized Rotary Stage Lineup



## Auto Focus



■Linear ball guide stage

## Liftable Panel and Plate

Available horizontal alignment with the horizontal Z stage.



■Horizontal Z cross-roller guide

## Angular Alignment of Optical Parts (Goniometer stage)

Fine angle adjustment of device for optical pick-up. (It has excellent durability)



Sinemotion Goniometer stage

## High-rigidity XY Stages



■XY slide guide

# Image Alignment (Rotation stage)

Can be used to interface with the image processing unit. Sine motion stages that integrated a ball bearing drive are designed with durability.



■Sine motion rotation stage

## 6-axis Stage Unit

It is ideal for alignment of LCD and digital camera image sensor. Please contact us if you need more information for configurations.



Stage unit (including special order)

## **Connection Example**



#### Configurations Operation by hand Host device Stage Stage Stage +++• Cable · Cable Cable +++ Stepping motor controller Stepping motor controller + DSCONTROL-WIN Motor driver ++ PC Cable Handy terminal **DT100** DSCONTROL-WIN Stage Stage Stage Motor driver Cable Cable Stepping motor controlle tepping motor controlle Cable Cable • DS100-USB-1.8 • D100-R9-2

# Controller

## Stepping motor controller See page > P.1-197 for specification details



|                            | SPEC                          |  |   |        |  |  |  |  |  |
|----------------------------|-------------------------------|--|---|--------|--|--|--|--|--|
| Model                      | DS102A                        | DS102A                                 | DS112A  | DS112A |  |  |  |  |  |
| Driver type                | DS102ANR: Fu<br>DS102AMS: Mic | II/Half switching<br>rostep (16 steps) | DS112ANR: Full/Half switching<br>DS112AMS: Microstep (16 steps) |        |  |  |  |  |  |
| Universal input and output | Without                       | With                                   | Without   | With   |  |  |  |  |  |
| Maxium power consumption   | 70                            | W                                      | DC24V Less than 2.5A  |        |  |  |  |  |  |
| Weight                     | 2.2                           | 2kg                                    | 1.2   | 2kg    |  |  |  |  |  |

## **Handy terminal: DT100** See page > P.1-199 for specification details



DT100 handy terminal feature allows remotely operation a stepping motor controller DS102/DS112 on the board and rack.

Available to use for continuous operation, step operation, zero return and program execution in hand. Displays 16 digits and 2 rows on the LCD.

## Basic Specifications

Operating condition:0~40°C、20~80%RH(drainless) Strage condition:-20~60°C、20~80%RH(drainless) Power input : DC24V (Supplied from controller)

| SPEC   |       |  |  |  |  |  |
|--------|-------|--|--|--|--|--|
| Model  | DT100 |  |  |  |  |  |
| Weight | 300g  |  |  |  |  |  |

# <section-header><section-header><text><text><text><text>

# Electrical Specification

## Connector Specifications

Being used on the 2 kinds of connector for our stages as follows. % For more information, see the electrical specification of each model.

| Connector type                             | HR10A-10J-12P (73) (Hirose El  | ectric Co.,Ltd.)  |   | SRCN2A21-16P (JAE   | 3)   |
|--|--|---|---|---|--|
| Applicable connector on<br>acceptance side | HR10A-10P-12S (73) (Hirose E   |   | SRCN6A21-16S (JAE                       | :)  |  |
| Pin counts                                 | 12   |   |   | 16  |  |
| Pin allocation                             | <pre></pre>  | $ \begin{array}{c} 10\\ 9\\ 8\\ \hline 7\\ 12\\ 6\\ \end{array} $ | $\langle \text{Pin allocation} \rangle$ |   |  |
| Pin assignment                             | I         Motor lead           2         Motor lead           3         Motor lead           4         Motor lead           5         Motor lead           6         CWLS output           7         CCWLS output           8         ORG2           9         Power input (+)           10         ORG1           11         Power input (-)           12         F.G | * May not function<br>properly when you<br>use DS series.         | <pre>⟨Pin assignment⟩</pre>             | 1 Motor lead<br>2 Motor lead<br>3 Motor lead<br>4 Motor lead<br>5 Motor lead<br>6 CWLS output<br>7 Open<br>8 CCWLS output<br>9 Open<br>10 Power input (+)<br>11 NORG出力<br>12 Electromagnetic brake (+)<br>13 Electromagnetic brake (-)<br>14 ORG output<br>15 Power input (-)<br>16 F.G | ** May not function<br>properly when you use<br>the electromagnetic<br>brake(+,-). |
| Stages                                     | KXG06 seriesKXL06 seriesPG seriesKXC04/06KS101 seriesKX seriesKH seriesKS32 seriesKRB seriesKS4sKGW seriesKG seriesKRW seriesKXT/KHE/K   | es<br>series<br>series<br>RE series                               | KS102 series<br>KXS18 series            |   |  |

## List of cables

|  |            |                |       |       |       |       |        |       |       | Cable opt          | ion code |             |        |            |              |            |                |     |
|--|------------|----------------|-------|-------|-------|-------|--------|-------|-------|--------------------|----------|-------------|--------|------------|--------------|------------|----------------|-----|
| Constitution                           | Stage-side | ide Coble type |       |       |       |       | Linear |       |       |                    |          | Horizo      | ntal Z | gonio      | meter        |            | Rotary         |     |
| connector                              | connector  | Cable type     | PG    | KXL   | KXS   | KXG   | кхс    | KS101 | KS102 | KX07/08<br>KX10/12 | KXT      | KH<br>KS332 | KHE    | KGB<br>KGW | KG05<br>KG07 | KRB<br>KRW | KS402<br>KS451 | KRE |
| 2m                                     |            | D214-2-2E      | Blank | A     |       | Α     | A      | Blank |       | Blank              |          | Blank       |        | Α          | Blank        | Α          | Blank          |     |
| One end loose 2m                       | 1          | D214-2-2EK     | 1     | В     |       | В     | В      | 1     |       | 1                  |          | 1           |        | В          | 1            | В          | 1              |     |
| 4m                                     | 1          | D214-2-4E      | 2     | С     |       | С     | С      | 2     |       | 2                  |          | 2           |        | С          | 2            | С          | 2              |     |
| One end loose 4m                       |            | D214-2-4EK     | 3     | D     |       | D     | D      | 3     |       | 3                  |          | 3           |        | D          | 3            | D          | 3              |     |
| Only connector (Cable is not included) | 10 nin     | —              | 4     | E     |       | E     | E      | 4     |       | 4                  |          | 4           |        | E          | 4            | E          | 4              |     |
| Without                                | i z pin    | —              | 5     | Blank |       | Blank | Blank  | 5     |       | 5                  |          | 5           |        | Blank      | 5            | Blank      | 5              |     |
| Robot cable 2m                         |            | D214-2-2R      | 6     | F     |       | F     | F      | 6     |       | 6                  | F        | 6           | F      | F          | 6            | F          | 6              | F   |
| Robot cable 4m                         |            | D214-2-4R      | 7     | Н     |       | Н     | Н      | 7     |       | 7                  | Н        | 7           | Н      | Н          | 7            | Н          | 7              | Н   |
| Robot cable 2m one end loose           |            | D214-2-2RK     | 9     | G     |       | G     | G      | 9     |       | 9                  | G        | 9           | G      | G          | 9            | G          | 9              | G   |
| Robot cable 4m one end loose           |            | D214-2-4RK     | 8     | J     |       | J     | J      | 8     |       | 8                  | J        | 8           | J      | J          | 8            | J          | 8              | J   |
| 2m                                     |            | D214-1-2E      |       |       | Α     |       |        |       | Blank |                    |          |             |        |            |              |            |                |     |
| One end loose 2m                       |            | D214-1-2EK     |       |       | В     |       |        |       | 1     |                    |          |             |        |            |              |            |                |     |
| 4m                                     |            | D214-1-4E      |       |       | С     |       |        |       | 2     |                    |          |             |        |            |              |            |                |     |
| One end loose 4m                       |            | D214-1-4EK     |       |       | D     |       |        |       | 3     |                    |          |             |        |            |              |            |                |     |
| Only connector (Cable is not included) | 16 nin     | _              |       |       | E     |       |        |       | 4     |                    |          |             |        |            |              |            |                |     |
| Without                                | ropin      | —              |       |       | Blank |       |        |       | 5     |                    |          |             |        |            |              |            |                |     |
| Robot cable 2m                         |            | D214-1-2R      |       |       | F     |       |        |       | 6     |                    |          |             |        |            |              |            |                |     |
| Robot cable 4m                         |            | D214-1-4R      |       |       | Н     |       |        |       | 7     |                    |          |             |        |            |              |            |                |     |
| Robot cable 2m one end loose           |            | D214-1-2RK     |       |       | G     |       |        |       | 9     |                    |          |             |        |            |              |            |                |     |
| Robot cable 4m one end loose           |            | D214-1-4RK     |       |       | J     |       |        |       | 8     |                    |          |             |        |            |              |            |                |     |
|  |            |                |       |       |       |       |        |       |       |                    |          |             |        |            |              |            |                |     |

 $\bigcirc$ 

#### In case of using ORG2

 Cable for four sensors
 12 pin
 D214-2-\*
 O
 I

 Please select a "cable code:5(without cable) "for your order. Please order a cable for 4 sensors.
 Please select a "cable for 4 sensors.

%See page > P.1-207 for 4 sensor cable.

## How to Check the Specification List

| SPEC                                 |                       |   |
|--------------------------------------|-----------------------|---|
| Model                                | KS000-00              | - |
| S Travel length                      | 00mm                  |   |
| Table size                           | 00×00mm               |   |
| Feed screw (Ball screw)              | $\phi 0$ lead 0       |   |
| Guide                                | 0000                  |   |
| Main materials-Finishing             | ○○−○○ processing      |   |
| E Weight                             | Okg                   |   |
| Resolution                           | Pulse                 |   |
| MAX speed                            | 00mm/sec              |   |
| Uni-directional positioning accuracy | Within 00µm           |   |
| Repeatability positioning accuracy   | Within ±00µm          |   |
| Load capacity                        | Okgf (ON)             |   |
| Moment stiffness                     | 00"N • cm             |   |
| Lost motion                          | Within 00µm           |   |
| Backlash                             | Within 00µm           |   |
| Straightness                         | Within 00µm           |   |
| Parallelism                          | Within 00µm           |   |
| Motion parallelism                   | Within 00µm           |   |
| Pitching/Yawing                      | Within 00"/Within 00" |   |
| Limit sensor                         | Installed             |   |
| B Origin sensor                      | Installed             |   |
| Slit origin sensor                   | -                     |   |
| rovided screw (hexagon-headed bolt)  | ⊖ of M–⊖              |   |

## **1**Travel length

- Represent the distance of the stage surface from CW limit to CCW limit.
- Tracing diagram shows at the stroke center.
- 2 Table size
- Shows size of stage table surface. Displays multiply width by length.

### **3Feed screw (Ball screw)**

• Shows size and lead of ball screw.

#### **④Guide**

· Shows system of moving guide.

## **5**Main materials-Finishing

 Shows materials and surface finishing that is configured upper side of stage and housing.

#### 6 Weight

• Shows mass of products. (not include cable weight)

## **Resolution**

 Shows stage travel length for a signal per pulse. Basically spec shows resolution at the full-step. The division number of full-step, half-step and micro-step driver might be changed at the controller.

Travel length per pulse (mm) = Ball bearing lead (mm)  $\times \frac{\text{Motor step angle}}{360^{\circ}} \times \frac{1}{n}$ 

#### %n is division number of micro-step.

- n=1 is for full-step, n=2 is for half-step. Selectable micro-step from
- 1 • 250 division number 16 paterns. Stage only has Full/Half display can be divided with our driver for micro-step.

## **®MAX speed**

- Put maximum load, the speed that can be driven by full-step setting with our controller.
- Speed can be different based on the driver controller and the load.

## Our State State

- $\triangleright$  See the inspector instruction P.2-187 $\sim$
- ®Repeatability positioning accuracy
- See the inspector instruction
- **1**Load capacity
- Load capacity means it can be mounted on the center of the stage.
   Speed value shows drivable with maximum speed. Load capacity of Z stage shows 'Load capacity (at the excitation)'.

#### 12 Moment stiffness

See the inspector instruction P.2-187~

## **BLost motion**

 $\triangleright$  See the inspector instruction P.2-187 $\sim$ 

#### 14 Backlash

- $\triangleright$  See the inspector instruction P.2-187 $\sim$
- 15Straightness
- See the inspector instruction P.2-187~

#### 16 Parallelism

 $\triangleright$  See the inspector instruction P.2-187 $\sim$ 

#### 17 Motion parallelism

See the inspector instruction P.2-187~

#### 18 Pitching/yawing

See the inspector instruction P.2-187~

19Sensor

 Shows presence or absence of the equipment such as limit, origin and slit origin sensors.

#### 20 Provided screw

· Shows size and numbers of the provided screws.



| Sele  | Intensiv<br>comparis |
|-------|----------------------|
| ction |                      |
| Guide | Me<br>spe            |
|       |                      |

| Intensive Motorized Stage [Travel length-20mm] |   |   |   |  |   |  |  |  |  |
|--|---|---|---|--|---|--|--|--|--|
|  | PG413                                   | PG513                                   | KXT04015                                | KXT06015   | PG615                                   |  |  |  |  |
| Mechanical<br>specification                    | The photo shows _PG615                  | The photo shows _ PG615                 |   | and a second sec | - market a                              |  |  |  |  |
| Travel length                                  | 13mm                                    | 13mm                                    | 15mm                                    | 15mm   | 15mm                                    |  |  |  |  |
| Table size                                     | 40×40mm                                 | 50×50mm                                 | 40×40mm                                 | 60×60mm  | 60×60mm                                 |  |  |  |  |
| Feed screw (Ball screw)                        | φ6 lead 1                               | φ6 lead 1                               | φ6 lead 1                               | φ6 lead 1  | φ6 lead 1                               |  |  |  |  |
| Guide  | Linear ball                             | Linear ball                             | Linear ball                             | Linear ball  | Linear ball                             |  |  |  |  |
| Main materials                                 | Stainless                               | Stainless                               | Steel                                   | Steel  | Stainless                               |  |  |  |  |
| Finishing                                      | Opposite side of the end face finishing | Opposite side of the end face finishing | Opposite side of the end face finishing | Opposite side of the end face finishing  | Opposite side of the end face finishing |  |  |  |  |
| Full length                                    | 142.5mm                                 | 152.5mm                                 | 105.5mm                                 | 125.5mm  | 162.5mm                                 |  |  |  |  |
| Full width                                     | 56.8mm                                  | 66.8mm                                  | 56mm                                    | 69.5mm   | 76.8mm                                  |  |  |  |  |
| Stage thickness                                | 20mm                                    | 20mm                                    | 20mm                                    | 20mm   | 20mm                                    |  |  |  |  |
| Weight   | 0.50kg                                  | 0.60kg                                  | 0.38kg                                  | 0.60kg   | 0.70kg                                  |  |  |  |  |

| Accuracy<br>specification |                            | PG413         | PG513         | KXT04015            | KXT06015            | PG615        |
|---------------------------|----------------------------|---------------|---------------|---------------------|---------------------|--------------|
|                           | Full/Half                  | 2µm/1µm       | 2µm/1µm       | 2µm/1µm             | 2µm/1µm             | 2µm/1µm      |
| Resolution                | Micro step<br>(1/20 split) | 0.1µm         | 0.1µm         | _                   | _                   | 0.1µm        |
| MAX speed                 |                            | 10mm/sec      | 10mm/sec      | 10mm/sec            | 10mm/sec            | 10mm/sec     |
| Uni-directional po        | sitioning accuracy         | Within 6µm    | Within 6µm    | Within 10µm         | Within 10µm         | Within 6µm   |
| Repeatability pos         | itioning accuracy          | Within ±0.5µm | Within ±0.5µm | Within $\pm 1\mu m$ | Within $\pm 1\mu m$ | ±0.5µm       |
| Load capac                | ity                        | 10kgf [98N]   | 10kgf [98N]   | 10kgf [98N]         | 10kgf [98N]         | 10kgf [98N]  |
|                           | Pitch                      | 0.22"/N • cm  | 0.14"/N • cm  | 0.38"/N • cm        | 0.10"/N • cm        | 0.08"/N • cm |
| Moment                    | Yaw                        | 0.17"/N • cm  | 0.10"/N • cm  | 0.35"/N • cm        | 0.08"/N • cm        | 0.07"/N • cm |
|                           | Roll                       | 0.12"/N • cm  | 0.06"/N • cm  | 0.21"/N • cm        | 0.05"/N • cm        | 0.03"/N • cm |
| Lost motion               |                            | Within 1.0µm  | Within 1.0µm  | Within 2.5µm        | Within 2.5µm        | Within 1.0µm |
| Backlash                  |                            | Within 0.5µm  | Within 0.5µm  | -                   |                     |              |
| Straightnes               | S                          | Within 1.0µm  | Within 1.0µm  | Within 10µm         | Within 10µm         | Within 1.0µm |
| Parallelism               |                            | Within 15µm   | Within 15µm   | Within 20µm         | Within 20µm         | Within 15µm  |
| Motion para               | llelism                    | Within 5µm    | Within 5µm    | —                   | -                   | Within 5µm   |
| Pitching                  |                            | Within 15"    | Within 15"    | Within 30"          | Within 35"          | Within 15"   |
| Yawing                    |                            | Within 10"    | Within 10"    | Within 25"          | Within 30"          | Within 10"   |
| Cable type                |                            | D214-2-       | D214-2-       | D214-2-             | D214-2-             | D214-2-      |
|                           | Limit sensor               | Installed     | Installed     | Installed           | Installed           | Installed    |
| Sensor                    | Origin sensor              | Installed     | Installed     | Installed           | Installed           | Installed    |
| Slit origin sensor        |                            | Installed     | Installed     | _                   | _                   | Installed    |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Option             |                          | PG413               | PG513               | KXT04015         | KXT06015          | PG615               |
|--------------------|--------------------------|---------------------|---------------------|------------------|-------------------|---------------------|
| Opposite h         | and                      | 0                   | 0                   | 0                | 0                 | 0                   |
| Sensor vol         | tage                     | DC5V/24V Selectable | DC5V/24V Selectable | $ m DC5\sim 24V$ | $\rm DC5\sim 24V$ | DC5V/24V Selectable |
| _                  | Limit sensor             | Selectable          | Selectable          | N.C.             | N.C.              | Selectable          |
| Sensor<br>logic    | Origin sensor            | Selectable          | Selectable          | N.C.             | N.C.              | Selectable          |
| .09.0              | Slit origin sensor       | Selectable          | Selectable          | _                | _                 | Selectable          |
|                    | High-torque              | 0                   | 0                   | —                | —                 | 0                   |
|                    | High resolution          | 0                   | 0                   | —                | —                 | 0                   |
| Motor              | With brake               | 0                   | 0                   | _                | _                 | 0                   |
|                    | α <b>step</b>            | 0                   | 0                   | _                | _                 | 0                   |
|                    | AC servo                 | 0                   | 0                   | —                | —                 | 0                   |
| Clean grease stand | ard(except bearing part) | _                   | -                   | —                | —                 | -                   |
| Page               |                          | <b>○</b> P.1-021    | ▶P.1-021            | <b>○</b> P.1-017 | <b>○</b> P.1-017  | ▶P.1-021            |

| Intensive Motorized Stage<br>[Travel length-20mm] |                        |   |   |                        |  |  |  |  |  |
|---|------------------------|---|---|------------------------|--|--|--|--|--|
|   | KXC04015               | PG715                                   | KXG06020                                | KXC06020               |  |  |  |  |  |
| Mechanical<br>specification                       |                        | The photo shows _ PG615                 |   |                        |  |  |  |  |  |
| Travel length                                     | 15mm                   | 15mm                                    | 20mm                                    | 20mm                   |  |  |  |  |  |
| Table size  | 40×40mm                | 70×70mm                                 | 60×60mm                                 | 60×60mm                |  |  |  |  |  |
| Feed screw (Ball screw)                           | ф6 lead 1              | ф6 lead 1                               | φ8 lead 1                               | φ8 lead 1              |  |  |  |  |  |
| Guide   | Crossed roller         | Linear ball                             | Linear ball                             | Crossed roller         |  |  |  |  |  |
| Main materials                                    | Aluminum               | Stainless                               | Stainless                               | Aluminum               |  |  |  |  |  |
| Finishing   | Black almite finishing | Opposite side of the end face finishing | Opposite side of the end face finishing | Black almite finishing |  |  |  |  |  |
| Full length                                       | 102.5mm                | 172.5mm                                 | 116mm                                   | 114mm                  |  |  |  |  |  |
| Full width  | 40mm                   | 86.8mm                                  | 60mm                                    | 60mm                   |  |  |  |  |  |
| Stage thickness                                   | 30mm                   | 20mm                                    | 30mm                                    | 30mm                   |  |  |  |  |  |
| Weight  | 0.31kg                 | 0.90kg                                  | 0.78kg                                  | 0.44kg                 |  |  |  |  |  |

| Accı<br>specifi    | iracy<br>ication           | KXC04015      | PG715         | KXG06020      | KXC06020      |
|--------------------|----------------------------|---------------|---------------|---------------|---------------|
|                    | Full/Half                  | 2µm/1µm       | 2µm/1µm       | 2µm/1µm       | 2µm/1µm       |
| Resolution         | Micro step<br>(1/20 split) | 0.1µm         | 0.1µm         | 0.1µm         | 0.1µm         |
| MAX speed          |                            | 10mm/sec      | 10mm/sec      | 20mm/sec      | 20mm/sec      |
| Uni-directional po | sitioning accuracy         | Within 10µm   | Within 6µm    | Within 5µm    | Within 5µm    |
| Repeatability pos  | itioning accuracy          | Within ±0.5µm | Within ±0.5µm | Within ±0.5µm | Within ±0.3µm |
| Load capac         | ity                        | 5kgf [49N]    | 10kgf [98N]   | 5kgf [49N]    | 5kgf [49N]    |
|                    | Pitch                      | 0.33"/N • cm  | 0.03"/N • cm  | 0.08"/N • cm  | 0.15"/N • cm  |
| Moment             | Yaw                        | 0.44"/N • cm  | 0.03"/N • cm  | 0.05"/N • cm  | 0.12"/N • cm  |
|                    | Roll                       | 0.37"/N • cm  | 0.01"/N • cm  | 0.05"/N • cm  | 0.07"/N • cm  |
| Lost motion        | 1                          | Within 1µm    | Within 1µm    | Within 1µm    | Within 1µm    |
| Backlash           |                            | Within 0.5µm  | Within 0.5µm  | Within 1.0µm  | Within 0.5µm  |
| Straightnes        | s                          | Within 3µm    | Within 1µm    | Within 3µm    | Within 3µm    |
| Parallelism        |                            | Within 30µm   | Within 15µm   | Within 15µm   | Within 30µm   |
| Motion para        | allelism                   | Within 10µm   | Within 5µm    | Within 10µm   | Within 10µm   |
| Pitching           |                            | Within 25"    | Within 15"    | Within 20"    | Within 20"    |
| Yawing             |                            | Within 20"    | Within 10"    | Within 15"    | Within 15"    |
| Cable type         |                            | D214-2-       | D214-2-       | D214-2-       | D214-2-       |
|                    | Limit sensor               | Installed     | Installed     | Installed     | Installed     |
| Sensor             | Origin sensor              | Installed     | Installed     | Installed     | Installed     |
|                    | Slit origin sensor         | _             | Installed     | _             | _             |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Ор                 | otion                    | KXC04015        | PG715               | KXG06020        | KXC06020  |
|--------------------|--------------------------|-----------------|---------------------|-----------------|-----------|
| Opposite h         | and                      | _               | 0                   | —               | -         |
| Sensor vol         | tage                     | DC5~24V         | DC5V/24V Selectable | DC5~24V         | DC5~24V   |
| _                  | Limit sensor             | N.C.            | Selectable          | N.C.            | N.C.      |
| Sensor<br>logic    | Origin sensor            | N.C.            | Selectable          | N.C.            | N.C.      |
| .09.0              | Slit origin sensor       | _               | Selectable          | _               | -         |
|                    | High-torque              | _               | 0                   | 0               | 0         |
|                    | High resolution          | _               | 0                   | 0               | 0         |
| Motor              | With brake               | _               | 0                   | 0               | -         |
|                    | α <b>Step</b>            | 0               | 0                   | 0               | 0         |
|                    | AC servo                 | _               | 0                   | —               | -         |
| Clean grease stand | ard(except bearing part) | _               | _                   | 0               | -         |
| Page               |                          | <b>P</b> .1-083 | ▶ P.1-021           | <b>P</b> .1-041 | ► P.1-083 |

# Stage Selection Guide

| Intensive  | Motorized Stage      |
|------------|----------------------|
| comparison | [Travel length-30mm] |

| -                                   | •                   |   |   |   |   |
|-------------------------------------|---------------------|---|---|---|---|
|                                     | KX0725C             | PG430                                   | PG530                                   | KXL06030                                | KXG06030                                |
| Mechanical specification            |                     | The photo shows _PG650                  | The photo shows _PG650                  |   |   |
| Travel length                       | 25mm                | 30mm                                    | 30mm                                    | 30mm                                    | 30mm                                    |
| Table size                          | 70×70mm             | 40×60mm                                 | 50×70mm                                 | 60×60mm                                 | 60×70mm                                 |
| Feed screw (Ball screw)             | φ6 lead 1           | φ6 lead 1                               | φ6 lead 1                               | φ8 lead 1 (2)                           | φ8 lead 1                               |
| Guide                               | Crossed roller      | Linear ball                             | Linear ball                             | Linear ball                             | Linear ball                             |
| Main materials                      | Aluminum            | Stainless                               | Stainless                               | Stainless                               | Stainless                               |
| Finishing                           | White almite finish | Opposite side of the end face finishing |
| Weight () With cover type           | 1.0kg               | 0.6kg                                   | 0.78kg                                  | 1.28 (1.34) kg                          | 0.9kg                                   |
| Full length ( ) With cover type     | 197mm               | 171mm                                   | 181mm                                   | 198 (203) mm                            | 131mm                                   |
| Full width                          | 88.5mm              | 56.8mm                                  | 66.8mm                                  | 60mm                                    | 60mm                                    |
| Stage thickness ( ) With cover type | 21mm                | 20mm                                    | 20mm                                    | 30 (33) mm                              | 30mm                                    |
|                                     |                     |   |   |   |   |

| Accu<br>specifi     | racy<br>cation             | KX0725C      | PG430        | PG530        | KXL06030            | KXG06030     |
|---------------------|----------------------------|--------------|--------------|--------------|---------------------|--------------|
| Resolution          | Full/Half                  | 1µm/0.5µm    | 2µm/1µm      | 2µm/1µm      | 2µm/1µm (4µm/2µm)   | 2µm/1µm      |
| () means<br>lead 2  | Micro step<br>(1/20 split) | 0.05µm       | 0.1µm        | 0.1µm        | 0.1µm (0.2µm)       | 0.1µm        |
| MAX speed ()        | means lead 2               | 10mm/sec     | 10mm/sec     | 10mm/sec     | 30mm/sec (35mm/sec) | 20mm/sec     |
| Uni-directional po  | sitioning accuracy         | Within 5µm   | Within 12µm  | Within 12µm  | Within 5µm          | Within 5µm   |
| Repeatability pos   | itioning accuracy          | ±0.3µm       | ±0.5µm       | ±0.5µm       | ±0.5µm              | ±0.5μm       |
| Load capac          | ity                        | 10kg [98N]   | 10kg [98N]   | 10kg [98N]   | 12kg [117.6N]       | 5kg [49N]    |
|                     | Pitch                      | 0.09"/N • cm | 0.24"/N • cm | 0.12"/N • cm | 0.05"/N • cm        | 0.08"/N • cm |
| Moment<br>stiffness | Yaw                        | 0.07"/N • cm | 0.18"/N • cm | 0.13"/N • cm | 0.05"/N • cm        | 0.05"/N • cm |
|                     | Roll                       | 0.07"/N • cm | 0.26"/N • cm | 0.1"/N • cm  | 0.05"/N • cm        | 0.05"/N • cm |
| Lost motion         |                            | Within 1µm   | Within 1µm   | Within 1µm   | Within 1µm          | Within 1µm   |
| Backlash            |                            | Within 0.5µm | Within 0.5µm | Within 0.5µm | Within 1µm          | Within 1µm   |
| Straightness        | S                          | Within 1µm   | Within 2µm   | Within 2µm   | Within 3µm          | Within 3µm   |
| Parallelism         |                            | Within 30µm  | Within 15µm  | Within 15µm  | Within 15µm         | Within 15µm  |
| Motion para         | llelism                    | Within 10µm  | Within 10µm  | Within 10µm  | Within 10µm         | Within 10µm  |
| Pitching            |                            | Within 20"   | Within 20"   | Within 20"   | Within 20"          | Within 20"   |
| Yawing              |                            | Within 15"   | Within 15"   | Within 15"   | Within 15"          | Within 15"   |
| Cable type          |                            | D214-2-      | D214-2-      | D214-2-      | D214-2-             | D214-2-      |
|                     | Limit sensor               | Installed    | Installed    | Installed    | Installed           | Installed    |
| Sensor              | Origin sensor              | Installed    | Installed    | Installed    | Option              | Installed    |
|                     | Slit origin sensor         | Installed    | Installed    | Installed    | _                   |              |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Option                                     |                    | KX0725C                               | PG430               | PG530               | KXL06030        | KXG06030        |
|--|--------------------|---------------------------------------|---------------------|---------------------|-----------------|-----------------|
| Opposite h                                 | and                | 0                                     | 0                   | 0                   | -               | —               |
| Sensor vol                                 | tage               | DC5~24V                               | DC5V/24V Selectable | DC5V/24V Selectable | DC5~24V         | DC5~24V         |
| -  | Limit sensor       | N.C.                                  | Selectable          | Selectable          | N.C.            | N.C.            |
| Sensor<br>logic                            | Origin sensor      | Switchable (Factory preset mode N.C.) | Selectable          | Selectable          | N.C.            | N.C.            |
|  | Slit origin sensor | Switchable (Factory preset mode N.C.) | Selectable          | Selectable          | _               | —               |
| High-torque                                | High-torque        | _                                     | 0                   | 0                   | 0               | 0               |
|  | High resolution    | Standard                              | 0                   | 0                   | 0               | 0               |
| Motor                                      | With brake         | _                                     | 0                   | 0                   | 0               | 0               |
|  | α Step             | _                                     | 0                   | 0                   | 0               | 0               |
|  | AC servo           | _                                     | 0                   | 0                   | 0               | —               |
| Clean grease standard(except bearing part) |                    | _                                     | _                   | _                   | 0               | 0               |
| Page                                       |                    | <b>P</b> .1-093                       | <b>P</b> .1-025     | ▶ P.1-025           | <b>P</b> .1-055 | <b>P</b> .1-041 |

 $\,\,\%\,[-]\,{\rm means}$  "no guarantee, not available as a standard".

| Intensive<br>comparison [Travel length-30mm] |                        |                        |                        |  |  |  |  |
|--|------------------------|------------------------|------------------------|--|--|--|--|
|  | KS101-30               | KX0830C                | KS102-30               |  |  |  |  |
| Mechanical<br>specification                  | - Con                  | A SO                   |                        |  |  |  |  |
| Travel length                                | 30mm                   | 30mm                   | 30mm                   |  |  |  |  |
| Table size                                   | 60×70mm                | 80×80mm                | 80×80mm                |  |  |  |  |
| Feed screw (Ball screw)                      | φ8 lead 1              | ф8 lead 1              | φ8 lead 1              |  |  |  |  |
| Guide  | Crossed roller         | Crossed roller         | Crossed roller         |  |  |  |  |
| Main materials                               | Aluminum               | Aluminum               | Aluminum               |  |  |  |  |
| Finishing                                    | Black almite finishing | Black almite finishing | Black almite finishing |  |  |  |  |
| Weight                                       | 0.56kg                 | 1.2kg                  | 1.4kg                  |  |  |  |  |
| Full length                                  | 136mm                  | 212mm                  | 194.5mm                |  |  |  |  |
| Full width                                   | 80.5mm                 | 98.5mm                 | 96mm                   |  |  |  |  |
| Stage thickness                              | 30mm                   | 26mm                   | 46mm                   |  |  |  |  |

| Accuracy<br>specification |                            | KS101-30  | KX0830C      | KS102-30     |
|---------------------------|----------------------------|---|--------------|--------------|
|                           | Full/Half                  | 2µm/1µm   | 1µm/0.5µm    | 1µm/0.5µm    |
| Resolution                | Micro step<br>(1/20 split) | 0.05µm resolutin when select<br>a microstep motor | 0.05µm       | 0.05µm       |
| MAX speed                 |                            | 20mm/sec  | 10mm/sec     | 10mm/sec     |
| Uni-directional po        | sitioning accuracy         | Within 5µm  | Within 5µm   | Within 5µm   |
| Repeatability pos         | itioning accuracy          | ±0.3µm  | ±0.3µm       | ±0.3µm       |
| Load capac                | ity                        | 5kg [49N]   | 15kg [147N]  | 20kg [196N]  |
|                           | Pitch                      | 0.15"/N • cm                                      | 0.05"/N • cm | 0.07"/N • cm |
| Moment                    | Yaw                        | 0.08"/N • cm                                      | 0.04"/N • cm | 0.06"/N • cm |
|                           | Roll                       | 0.07"/N • cm                                      | 0.03"/N • cm | 0.02"/N • cm |
| Lost motion               | 1                          | Within 1µm  | Within 1µm   | Within 1µm   |
| Backlash                  | ·                          | Within 0.5µm                                      | Within 0.5µm | Within 0.5µm |
| Straightnes               | s                          | Within 3µm  | Within 1µm   | —            |
| Parallelism               |                            | Within 30µm                                       | Within 30µm  | Within 30µm  |
| Motion para               | allelism                   | Within 10µm                                       | Within 10µm  | Within 10µm  |
| Pitching                  |                            | Within 25"  | Within 20"   | Within 25"   |
| Yawing                    |                            | Within 20"  | Within 15"   | Within 15"   |
| Cable type                |                            | D214-2-   | D214-2-      | D214-1-      |
|                           | Limit sensor               | Installed   | Installed    | Installed    |
| Sensor                    | Origin sensor              | Installed   | Installed    | Installed    |
|                           | Slit origin sensor         | _   | Installed    | Installed    |

%Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Option                 |                            | KS101-30        | KX0830C                               | KS102-30        |
|------------------------|----------------------------|-----------------|---------------------------------------|-----------------|
| Opposite h             | and                        | 0               | 0                                     | 0               |
| Sensor vol             | tage                       | DC5~24V         | DC5~24V                               | DC5~24V         |
| _                      | Limit sensor               | N.C.            | N.C.                                  | N.C.            |
| Sensor<br>logic        | Origin sensor              | N.C.            | Switchable (Factory preset mode N.C.) | N.C.            |
| logio                  | Slit origin sensor         | —               | Switchable (Factory preset mode N.C.) | N.C.            |
|                        | High-torque                | _               | —                                     | -               |
|                        | High resolution            | 0               | Standard                              | Standard        |
| Motor                  | With brake                 | —               | —                                     | _               |
|                        | α <b>Step</b>              | 0               | —                                     | 0               |
|                        | AC servo                   | _               | —                                     | -               |
| Clean grease as a stan | idard(except bearing part) | _               | _                                     | _               |
| Page                   |                            | <b>P</b> .1-101 | ► P.1-093                             | <b>P</b> .1-109 |

Intensive

# Stage Selection Guide

| comparison [Travel length–50mm]     |                        |   |   |   |                        |  |  |
|-------------------------------------|------------------------|---|---|---|------------------------|--|--|
|                                     | KX1040C                | KXL06050                                | PG650                                   | PG750                                   | KX1250C                |  |  |
| Mechanical specification            |                        | and the second second                   |   | The photo shows _PG650                  |                        |  |  |
| Travel length                       | 40mm                   | 50mm                                    | 50mm                                    | 50mm                                    | 50mm                   |  |  |
| Table size                          | 100×100mm              | 60×60mm                                 | 60×100mm                                | 70×110mm                                | 120×120mm              |  |  |
| Feed screw (Ball screw)             | φ8 lead 1              | φ8 lead 1 (2)                           | φ6 lead 1                               | ф6 lead 1                               | φ8 lead 1              |  |  |
| Guide                               | Crossed roller         | Linear ball                             | Linear ball                             | Linear ball                             | Crossed roller         |  |  |
| Main materials                      | Aluminum               | Stainless                               | Stainless                               | Stainless                               | Aluminum               |  |  |
| Finishing                           | Black almite finishing | Opposite side of the end face finishing | Opposite side of the end face finishing | Opposite side of the end face finishing | Black almite finishing |  |  |
| Weight () With cover type           | 1.6kg                  | 1.40 (1.44) kg                          | 1.08kg                                  | 1.16kg                                  | 2.2kg                  |  |  |
| Full length ( ) With cover type     | 237mm                  | 218 (223) mm                            | 220mm                                   | 230mm                                   | 263mm                  |  |  |
| Full width                          | 114.5mm                | 60mm                                    | 76.8mm                                  | 86.8mm                                  | 134.5mm                |  |  |
| Stage thickness ( ) With cover type | 30mm                   | 30 (33) mm                              | 20mm                                    | 20mm                                    | 35mm                   |  |  |

| Accu<br>specifi           | iracy<br>ication           | KX1040C      | KXL06050             | PG650        | PG750        | KX1250C      |
|---------------------------|----------------------------|--------------|----------------------|--------------|--------------|--------------|
| Resolution                | Full/Half                  | 1µm/0.5µm    | 2μm/1μm<br>(4μm/2μm) | 2µm/1µm      | 2µm/1µm      | 1µm/0.5µm    |
| lead 2                    | Micro step<br>(1/20 split) | 0.05µm       | 0.1 (0.2) µm         | 0.1µm        | 0.1µm        | 0.05µm       |
| MAX speed<br>() means lea | ad 2                       | 10mm/sec     | 30mm (35mm) /sec     | 10mm/sec     | 10mm/sec     | 10mm/sec     |
| Uni-directional po        | sitioning accuracy         | Within 5µm   | Within 5µm           | Within 12µm  | Within 12µm  | Within 5µm   |
| Repeatability pos         | itioning accuracy          | ±0.3µm       | ±0.5µm               | ±0.5µm       | ±0.5µm       | ±0.3µm       |
| Load capac                | ity                        | 20kg [196N]  | 12kg [117.6N]        | 10kg [98N]   | 10kg [98N]   | 25kg [245N]  |
|                           | Pitch                      | 0.04"/N • cm | 0.05"/N • cm         | 0.05"/N • cm | 0.03"/N • cm | 0.03"/N • cm |
| Moment                    | Yaw                        | 0.04"/N • cm | 0.05"/N • cm         | 0.05"/N • cm | 0.03"/N • cm | 0.02"/N • cm |
|                           | Roll                       | 0.02"/N • cm | 0.05"/N • cm         | 0.05"/N • cm | 0.03"/N • cm | 0.02"/N • cm |
| Lost motion               | 1                          | Within 1µm   | Within 1µm           | Within 1µm   | Within 1µm   | Within 1µm   |
| Backlash                  |                            | Within 0.5µm | Within 1µm           | Within 0.5µm | Within 0.5µm | Within 0.5µm |
| Straightnes               | s                          | Within 1µm   | Within 3µm           | Within 2µm   | Within 2µm   | Within 1µm   |
| Parallelism               |                            | Within 30µm  | Within 15µm          | Within 15µm  | Within 15µm  | Within 30µm  |
| Motion para               | allelism                   | Within 15µm  | Within 10µm          | Within 10µm  | Within 10µm  | Within 15µm  |
| Pitching                  |                            | Within 20"   | Within 20"           | Within 20"   | Within 20"   | Within 20"   |
| Yawing                    |                            | Within 15"   | Within 15"           | Within 15"   | Within 15"   | Within 15"   |
| Cable type                |                            | D214-2-      | D214-2-              | D214-2-      | D214-2-      | D214-2-      |
|                           | Limit sensor               | Installed    | Installed            | Installed    | Installed    | Installed    |
| Sensor                    | Origin sensor              | Installed    | Option               | Installed    | Installed    | Installed    |
|                           | Slit origin sensor         | Installed    | _                    | Installed    | Installed    | Installed    |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Ор                 | otion                    | KX1040C                               | KXL06050        | PG650      | PG750           | KX1250C                               |
|--------------------|--------------------------|---------------------------------------|-----------------|------------|-----------------|---------------------------------------|
| Opposite h         | and                      | Installed                             | Installed       | Installed  | Installed       | Installed                             |
| Sensor vol         | tage                     | DC5~24V                               | DC5~24V         | DC5~24V    | DC5~24V         | DC5~24V                               |
| _                  | Limit sensor             | N.C.                                  | N.C.            | Selectable | Selectable      | N.C.                                  |
| Sensor<br>logic    | Origin sensor            | Switchable (Factory preset mode N.C.) | N.C.            | Selectable | Selectable      | Switchable (Factory preset mode N.C.) |
| iogic (            | Slit origin sensor       | Switchable (Factory preset mode N.C.) | _               | Selectable | Selectable      | Switchable (Factory preset mode N.C.) |
| High-torque        | _                        | 0                                     | 0               | 0          | -               |                                       |
|                    | High resolution          | Standard                              | 0               | 0          | 0               | Standard                              |
| Motor              | With brake               | -                                     | 0               | 0          | 0               | -                                     |
|                    | α Step                   | —                                     | 0               | 0          | 0               | —                                     |
|                    | AC servo                 | —                                     | 0               | 0          | 0               | -                                     |
| Clean grease stand | ard(except bearing part) | —                                     | 0               | -          | _               | —                                     |
| Page               |                          | <b>P</b> .1-093                       | <b>P</b> .1-055 | ▶ P.1-025  | <b>P</b> .1-025 | <b>P</b> .1-093                       |

| comparison [Travel length-100mm]    |  |                        |  |                        |                        |  |  |
|-------------------------------------|--|------------------------|--|------------------------|------------------------|--|--|
|                                     | KXL06075   | KS102-70               | KXL06100   | KS102-100              | KXS18100               |  |  |
| Mechanical<br>specification         | and the second s |                        | and the second s |                        |                        |  |  |
| Travel length                       | 75mm   | 70mm                   | 100mm  | 100mm                  | 100mm                  |  |  |
| Table size                          | 60×60mm  | 80×130mm               | 60×60mm  | 80×160mm               | 180×180mm              |  |  |
| Feed screw (Ball screw)             | φ8 lead 1 (2)  | φ8 lead 1              | φ8 lead 2  | φ8 lead 1              | φ15 lead 5 (10)        |  |  |
| Guide                               | Linear ball  | Crossed roller         | Linear ball  | Crossed roller         | Slide guide            |  |  |
| Main materials                      | Stainless  | Aluminum               | Stainless  | Aluminum               | Aluminum               |  |  |
| Finishing                           | Opposite side of the end face finishing  | Black almite finishing | Opposite side of the end face finishing  | Black almite finishing | Black almite finishing |  |  |
| Weight ( ) With cover type          | 1.54 (1.60) kg   | 1.8kg                  | 1.80 (1.86) kg   | 2.1kg                  | 8.32 (8.12) kg         |  |  |
| Full length ( ) With cover type     | 243 (248) mm   | 244.5mm                | 287.5 (292.5) mm   | 274.5mm                | 401.5mm                |  |  |
| Full width                          | 60mm   | 96mm                   | 60mm   | 96mm                   | 180mm                  |  |  |
| Stage thickness ( ) With cover type | 30 (33) mm   | 46mm                   | 30 (33) mm   | 46mm                   | 75mm                   |  |  |
| Stage thickness () With cover type  | 30 (33) mm   | 46mm                   | 30 (33) mm   | 46mm                   | 75mm                   |  |  |

| Accuracy<br>specification |                            | KXL06075                                 | KS102-70      | KXL06100      | KS102-100     | KXS18100                                   |
|---------------------------|----------------------------|--|---------------|---------------|---------------|--|
| Pasalution                | Full/Half                  | Lead 1mm: 2µm/1µm<br>Lead 2mm: 4µm/2µm   | 1µm/0.5µm     | 4µm/2µm       | 1µm/0.5µm     | lead 5mm: 10µm/5µm<br>lead 10mm: 20µm/10µm |
| Resolution                | Micro step<br>(1/20 split) | Lead 1mm: 0.1µm<br>Lead 2mm: 0.2µm       | 0.05µm        | 0.2µm         | 0.05µm        | lead 5mm: 0.5µm<br>lead 10mm: 1µm          |
| MAX speed                 |                            | Lead 1mm: 30mm/sec<br>Lead 2mm: 35mm/sec | 10mm/sec      | 45mm/sec      | 10mm/sec      | lead 5mm: 30mm/sec<br>lead 10mm: 50mm/sec  |
| Uni-directional pos       | sitioning accuracy         | Within 7µm                               | Within 5µm    | Within 10µm   | Within 10µm   | Within 15µm                                |
| Repeatability pos         | itioning accuracy          | ±0.5µm                                   | ±0.3μm        | ±0.5µm        | ±0.3µm        | Within $\pm 1\mu m$                        |
| Load capac                | ity                        | 12kg [117.6N]                            | 20kg [196N]   | 12kg [117.6N] | 20kg [196N]   | 30kgf [294N]                               |
|                           | Pitch                      | 0.05"/N • cm                             | 0.01"/N • cm  | 0.05"/N • cm  | 0.005"/N • cm | 0.005"/N • cm                              |
| Moment<br>stiffness       | Yaw                        | 0.05"/N • cm                             | 0.014"/N • cm | 0.05"/N • cm  | 0.011"/N • cm | 0.008"/N • cm                              |
|                           | Roll                       | 0.05"/N • cm                             | 0.01"/N • cm  | 0.05"/N • cm  | 0.008"/N • cm | 0.003"/N • cm                              |
| Lost motion               |                            | Within 1µm                               | Within 1µm    | Within 1µm    | Within 1µm    | -  |
| Backlash                  |                            | Within 1µm                               | Within 0.5µm  | Within 1µm    | Within 0.5µm  | Within 2µm                                 |
| Straightness              | S                          | Within 3µm                               | —             | Within 5µm    | —             | Within 10µm                                |
| Parallelism               |                            | Within 15µm                              | Within 30µm   | Within 15µm   | Within 30µm   | Within 50µm                                |
| Motion para               | llelism                    | Within 10µm                              | Within 15µm   | Within 10µm   | Within 15µm   | Within 20µm                                |
| Pitching                  |                            | Within 20"                               | Within 25"    | Within 25"    | Within 25"    | Within 30"                                 |
| Yawing                    |                            | Within 15"                               | Within 20"    | Within 20"    | Within 20"    | Within 20"                                 |
| Cable type                |                            | D214-2-                                  | D214-1-       | D214-2-       | D214-1-       | D214-1-                                    |
|                           | Limit sensor               | Installed                                | Installed     | Installed     | Installed     | Installed                                  |
| Sensor                    | Origin sensor              | Option                                   | Installed     | Option        | Installed     | Installed                                  |
|                           | Slit origin sensor         | _  | Installed     | _             | Installed     | Installed                                  |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Op  | otion              | KXL06075        | KS102-70  | KXL06100  | KS102-100 | KXS18100  |
|---|--------------------|-----------------|-----------|-----------|-----------|-----------|
| Opposite hand                               |                    | —               | 0         | -         | 0         | —         |
| Sensor voltage                              |                    | DC5~24V         | DC5~24V   | DC5~24V   | DC5~24V   | DC5~24V   |
| Sensor<br>logic Origin se<br>Slit origin se | Limit sensor       | N.C.            | N.C.      | N.C.      | N.C.      | N.C.      |
|   | Origin sensor      | N.C.            | N.C.      | N.C.      | N.C.      | N.C.      |
|   | Slit origin sensor | _               | N.C.      | -         | N.C.      | N.C.      |
| Motor                                       | High-torque        | 0               | —         | Standard  | -         | Standard  |
|   | High resolution    | 0               | Standard  | 0         | Standard  | —         |
|   | With brake         | 0               | —         | 0         | -         | 0         |
|   | α <b>Step</b>      | 0               | 0         | 0         | 0         | 0         |
|   | AC servo           | 0               | —         | 0         | -         | 0         |
| Clean grease standard(except bearing part)  |                    | 0               | —         | 0         | -         | 0         |
| Page  |                    | <b>P</b> .1-055 | ▶ P.1-109 | ▶ P.1-059 | ▶ P.1-109 | ▶ P.1-123 |

 $\,\,\times\,[-]\,$  is uncovered the guarantee and no standard.

Motorized Stage

Intensive



| Intensive<br>comparison [Travel length-500mm] |  |   |                        |   |  |  |
|---|--|---|------------------------|---|--|--|
|   | KXL06150   | KXL06200                                | KXS18200               | KXL06300                                |  |  |
| Mechanical specification                      | Contraction of the second seco | No. Contraction                         |                        | STATE OF STATE                          |  |  |
| Travel length                                 | 150mm  | 200mm                                   | 200mm                  | 300mm                                   |  |  |
| Table size                                    | 60×60mm  | 60×60mm                                 | 180×180mm              | 60×60mm                                 |  |  |
| Feed screw (Ball screw)                       | φ8 lead 2  | φ8 lead 2                               | φ15 lead 5 (10)        | φ8 lead 2                               |  |  |
| Guide   | Linear ball  | Linear ball                             | Slide guide            | Linear ball                             |  |  |
| Main materials                                | Stainless  | Stainless                               | Aluminum               | Stainless                               |  |  |
| Finishing                                     | Opposite side of the end face finishing  | Opposite side of the end face finishing | Black almite finishing | Opposite side of the end face finishing |  |  |
| Weight ( ) With cover type                    | 2.10 (2.16) kg   | 2.42 (2.48) kg                          | 9.48 (9.37) kg         | 3.02 (3.12) kg                          |  |  |
| Full length ( ) With cover type               | 337.5 (342.5) mm   | 387.5 (392.5) mm                        | 501.5mm                | 487.5 (492.5) mm                        |  |  |
| Full width                                    | 60mm   | 60mm                                    | 180mm                  | 60mm                                    |  |  |
| Stage thickness ( ) With cover type           | 30 (33) mm   | 30 (33) mm                              | 75mm                   | 30 (33) mm                              |  |  |

| Accu<br>specifi     | iracy<br>ication           | KXL06150      | KXL06200      | KXS18200                                   | KXL06300      |
|---------------------|----------------------------|---------------|---------------|--|---------------|
| Resolution          | Full/Half                  | 4µm/2µm       | 4µm/2µm       | lead 5mm: 10µm/5µm<br>lead 10mm: 20µm/10µm | 4µm/2µm       |
|                     | Micro step<br>(1/20 split) | 0.2µm         | 0.2µm         | 0.5 (1) µm                                 | 0.2µm         |
| MAX speed           |                            | 45mm/sec      | 45mm/sec      | 30mm (50mm) /sec                           | 45mm/sec      |
| Uni-directional po  | sitioning accuracy         | Within 15µm   | Within 15µm   | Within 20µm                                | Within 20µm   |
| Repeatability pos   | itioning accuracy          | ±0.5μm        | ±0.5μm        | ±1µm                                       | ±0.5μm        |
| Load capac          | ity                        | 12kg [117.6N] | 12kg [117.6N] | 30kg [294N]                                | 12kg [117.6N] |
| Moment<br>stiffness | Pitch                      | 0.05"/N • cm  | 0.05"/N • cm  | 0.005"/N • cm                              | 0.05"/N • cm  |
|                     | Yaw                        | 0.05"/N • cm  | 0.05"/N • cm  | 0.008"/N • cm                              | 0.05"/N • cm  |
|                     | Roll                       | 0.05"/N • cm  | 0.05"/N • cm  | 0.003"/N • cm                              | 0.05"/N • cm  |
| Lost motion         |                            | Within 1µm    | Within 1µm    | _  | Within 1µm    |
| Backlash            |                            | Within 1µm    | Within 1µm    | Within 2µm                                 | Within 1µm    |
| Straightnes         | s                          | Within 5µm    | Within 7µm    | Within 15µm                                | Within 7µm    |
| Parallelism         |                            | Within 15µm   | Within 15µm   | Within 50µm                                | Within 15µm   |
| Motion para         | allelism                   | Within 15µm   | Within 20µm   | Within 20µm                                | Within 25µm   |
| Pitching            |                            | Within 25"    | Within 30"    | Within 50"                                 | Within 35"    |
| Yawing              |                            | Within 20"    | Within 20"    | Within 20"                                 | Within 20"    |
| Cable type          |                            | D214-2-       | D214-2-       | D214-1-                                    | D214-2-       |
|                     | Limit sensor               | Installed     | Installed     | Installed                                  | Installed     |
| Sensor              | Origin sensor              | Option        | Option        | Installed                                  | Option        |
|                     | Slit origin sensor         | _             | _             | Installed                                  | _             |

%Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Op                 | otion                    | KXL06150        | KXL06200  | KXS18200        | KXL06300        |
|--------------------|--------------------------|-----------------|-----------|-----------------|-----------------|
| Opposite hand      |                          | -               | -         | —               | -               |
| Sensor vol         | tage                     | DC5~24V         | DC5~24V   | DC5~24V         | DC5~24V         |
| _                  | Limit sensor             | N.C.            | N.C.      | N.C.            | N.C.            |
| Sensor<br>logic    | Origin sensor            | N.C.            | N.C.      | N.C.            | N.C.            |
|                    | Slit origin sensor       | _               | —         | _               | _               |
|                    | High-torque              | Standard        | Standard  | Standard        | Standard        |
|                    | High resolution          | 0               | 0         | —               | 0               |
| Motor              | With brake               | 0               | 0         | 0               | 0               |
|                    | α <b>step</b>            | 0               | 0         | 0               | 0               |
|                    | AC servo                 | 0               | 0         | 0               | 0               |
| Clean grease stand | ard(except bearing part) | 0               | 0         | 0               | 0               |
| Page               |                          | <b>P</b> .1-059 | ▶ P.1-063 | <b>P</b> .1-123 | <b>P</b> .1-063 |

 $\[-]$  is uncovered the guarantee and no standard.

| Intensive Motorized Stage<br>(Travel length-500mm] |                        |                        |                        |  |  |  |
|--|------------------------|------------------------|------------------------|--|--|--|
|  | KXS18300               | KXS18400               | KXS18500               |  |  |  |
| Mechanical<br>specification                        | A CONTRACTOR           |                        |                        |  |  |  |
| Travel length                                      | 300mm                  | 400mm                  | 500mm                  |  |  |  |
| Table size   | 180×180mm              | 180×180mm              | 180×180mm              |  |  |  |
| Feed screw (Ball screw)                            | φ15 lead 5 (10)        | φ15 lead 5 (10)        | φ15 lead 5 (10)        |  |  |  |
| Guide  | Slide guide            | Slide guide            | Slide guide            |  |  |  |
| Main materials                                     | Aluminum               | Aluminum               | Aluminum               |  |  |  |
| Finishing  | Black almite finishing | Black almite finishing | Black almite finishing |  |  |  |
| Weight ( ) With cover type                         | 10.72 (10.70) kg       | 11.92 (11.99) kg       | 13.10 (13.26) kg       |  |  |  |
| Full length  | 601.5mm                | 701.5mm                | 801.5mm                |  |  |  |
| Full width   | 180mm                  | 180mm                  | 180mm                  |  |  |  |
| Stage thickness                                    | 75mm                   | 75mm                   | 75mm                   |  |  |  |

| Accuracy<br>specification |                            | KXS18300                                   | KXS18400                                   | KXS18500                                   |
|---------------------------|----------------------------|--|--|--|
| Resolution                | Full/Half                  | lead 5mm: 10µm/5µm<br>lead 10mm: 20µm/10µm | lead 5mm: 10µm/5µm<br>lead 10mm: 20µm/10µm | lead 5mm: 10µm/5µm<br>lead 10mm: 20µm/10µm |
|                           | Micro step<br>(1/20 split) | 0.5µm (1µm)                                | 0.5µm (1µm)                                | 0.5µm (1µm)                                |
| MAX speed                 |                            | 30mm/sec<br>(50mm/sec)                     | 30mm/sec<br>(50mm/sec)                     | 30mm/sec<br>(50mm/sec)                     |
| Uni-directional po        | sitioning accuracy         | Within 30µm                                | Within 35µm                                | Within 40µm                                |
| Repeatability pos         | itioning accuracy          | ±1µm                                       | ±1µm                                       | ±1µm                                       |
| Load capacity             |                            | 30kg [294N]                                | 30kg [294N]                                | 30kg [294N]                                |
|                           | Pitch                      | 0.005"/N • cm                              | 0.005"/N • cm                              | 0.005"/N • cm                              |
| Moment<br>stiffness       | Yaw                        | 0.008"/N • cm                              | 0.008"/N • cm                              | 0.008"/N • cm                              |
|                           | Roll                       | 0.003"/N • cm                              | 0.003"/N • cm                              | 0.003"/N • cm                              |
| Lost motion               |                            | —  | _  | -  |
| Backlash                  |                            | Within 2µm                                 | Within 2µm                                 | Within 2µm                                 |
| Straightness              | S                          | Within 20µm                                | Within 25µm                                | Within 30µm                                |
| Parallelism               |                            | Within 50µm                                | Within 50µm                                | Within 50µm                                |
| Motion para               | llelism                    | Within 30µm Within 30µm                    |  | Within 30µm                                |
| Pitching                  |                            | Within 60" Within 60"                      |  | Within 70"                                 |
| Yawing                    |                            | Within 30"                                 | Within 30" Within 30"                      |  |
| Cable type                |                            | D214-1-                                    | D214-1-                                    | D214-1-                                    |
|                           | Limit sensor               | Installed                                  | Installed                                  | Installed                                  |
| Sensor                    | Origin sensor              | Installed                                  | Installed                                  | Installed                                  |
|                           | Slit origin sensor         | Installed                                  | Installed                                  | Installed                                  |

% Cable model for standard motor. Cable model may be changed when you select other motor type. Please refer detailed production page.

| Option                                     |                    | KXS18300        | KXS18400        | KXS18500  |
|--|--------------------|-----------------|-----------------|-----------|
| Opposite hand                              |                    | —               | —               | —         |
| Sensor voltage                             |                    | DC5~24V         | DC5~24V         | DC5~24V   |
|  | Limit sensor       | N.C.            | N.C.            | N.C.      |
| Sensor<br>logic                            | Origin sensor      | N.C.            | N.C.            | N.C.      |
| logio                                      | Slit origin sensor | N.C.            | N.C.            | N.C.      |
|  | High-torque        | Standard        | Standard        | Standard  |
|  | High resolution    | —               | —               | —         |
| Motor                                      | With brake         | 0               | 0               | 0         |
|  | α <b>step</b>      | 0               | 0               | 0         |
|  | AC servo           | 0               | 0               | 0         |
| Clean grease standard(except bearing part) |                    | 0               | 0               | 0         |
| Page                                       |                    | <b>P</b> .1-123 | <b>P</b> .1-127 | ▶ P.1-127 |