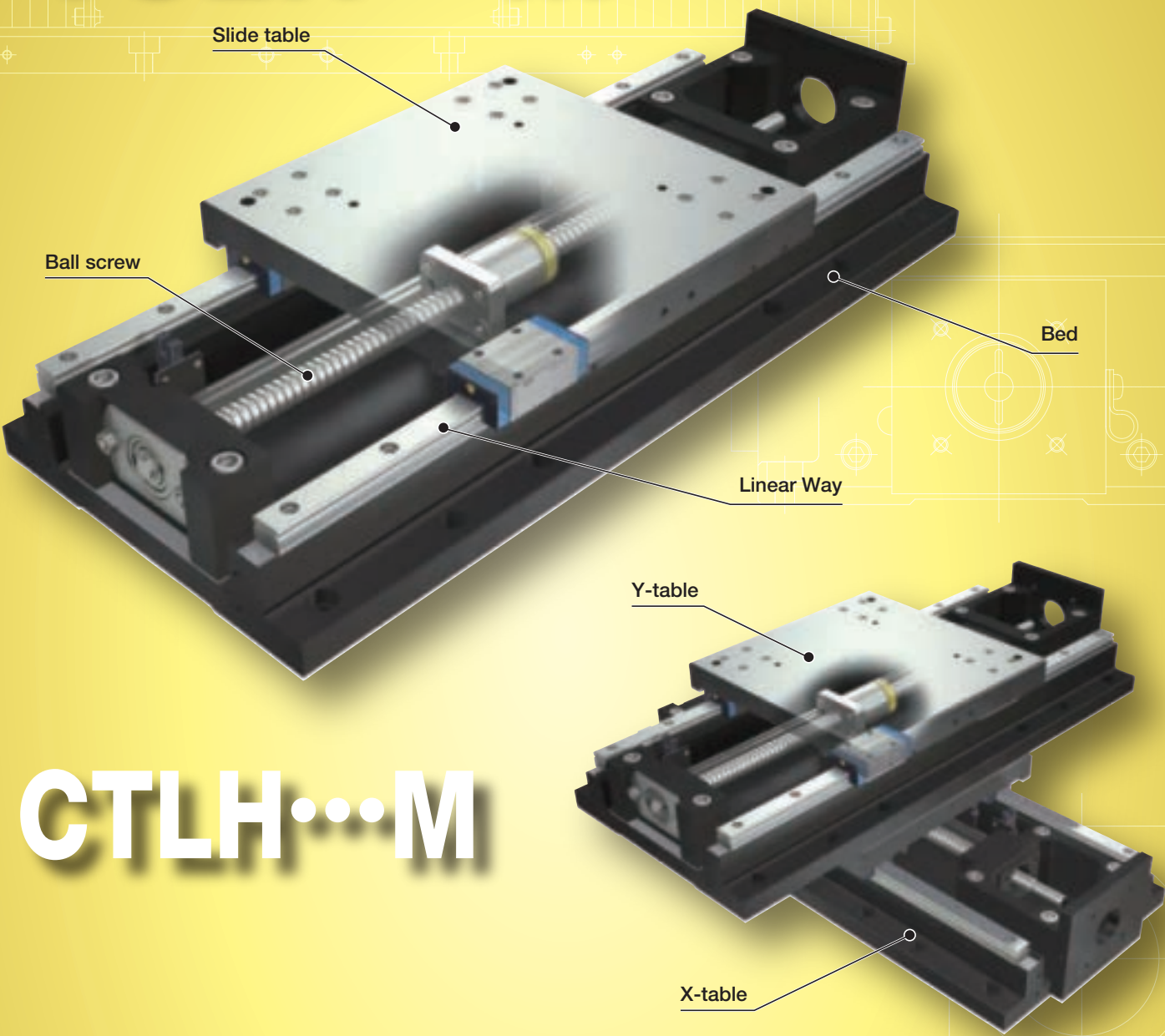


TSLH...M  
CTLH...M

TSLH...M • CTLH...M

# TSLH...M



# CTLH...M

### Major product specifications

|                             |                                       |
|-----------------------------|---------------------------------------|
| Driving method              | Precision ball screw                  |
| Linear motion rolling guide | Linear Way (ball type)                |
| Built-in lubrication part   | Lubrication part "C-Lube" is built-in |
| Material of table and bed   | Cast iron                             |
| Sensor                      | Provided as standard                  |

### Accuracy

|                               |             |
|-------------------------------|-------------|
| Positioning repeatability     | ±0.002      |
| Positioning accuracy          | 0.010~0.035 |
| Lost motion                   | —           |
| Parallelism in table motion A | 0.010~0.035 |
| Parallelism in table motion B | —           |
| Attitude accuracy             | —           |
| Straightness                  | 0.005~0.025 |
| Backlash                      | 0.001       |

unit: mm

# TSLH...M/CTLH...M

## Points

### ● High precision, high rigidity positioning table

High precision, high rigidity positioning table configured with high rigidity and vibration damping performance cast iron slide tables and beds.

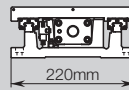
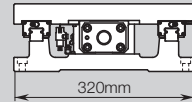
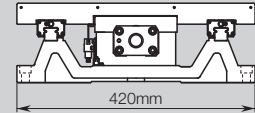
### ● High running accuracy and positioning accuracy

High running accuracy and high accuracy positioning are realized by incorporating 2 sets of Linear Way in parallel on cast iron slide tables and beds finished by accurate ground and combining with precision ball screws.

### ● High rigidity and large carrying mass

The structure with large carrying mass, and resistant to moment and complex load since 2 sets of Linear Way are optimally positioned on the high rigidity bed.

### Variation

| Shape                                                                                 | Model and size | Table width (mm) | Stroke length (mm) |     |     |     |     |     |     |     |     |      |
|---------------------------------------------------------------------------------------|----------------|------------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|
|                                                                                       |                |                  | 100                | 150 | 200 | 250 | 300 | 400 | 500 | 600 | 800 | 1000 |
|   | TSLH120M       | 120              | ☆                  | ☆   | ☆   | ☆   | ☆   | —   | —   | —   | —   | —    |
|  | TSLH220M       | 220              | —                  | ☆   | ☆   | ☆   | ☆   | ☆   | (☆) | (☆) | —   | —    |
|  | TSLH320M       | 320              | —                  | —   | —   | —   | ☆   | ☆   | ☆   | (☆) | (☆) | (☆)  |
|  | TSLH420M       | 420              | —                  | —   | —   | —   | —   | —   | ☆   | ☆   | ☆   | (☆)  |

Identification Number

Example of an Identification Number  
(Single-axis specification)

1

2

1

3

4

5

6

7

TSLH120M-300/AT30110JR

1 Model

Page II-120

2 Size

Page II-120

3 Stroke length

Page II-120

4 Designation of motor attachment

Page II-120

5 Ball screw lead

Page II-120

6 Designation of bellow

Page II-120

7 Surface treatment

Page II-120

Identification Number and Specification

1 Model

TSLH...M: Precision Positioning Table LH (single-axis specification)

2 Size

Size indicates table width.  
Select a size from the list of Table 1.

3 Stroke length

Select a stroke length from the list of Table 1.  
As for a table with bellows, available stroke length is somewhat shorter, so please see the dimension table.

4 Designation of motor attachment

As for a motor attachment, select it from the list of Table 3.  

- Motor should be prepared by customer.
- Please specify motor attachment applicable to motor for use.
- A coupling shown in Table 4 is mounted on the main body before shipment. However, the final position adjustment should be made by customer since it is only temporarily fixed.
- When specifying an AC servomotor attachment, an origin sensor is not provided.

5 Ball screw lead

5: Lead 5mm  
10: Lead 10mm

6 Designation of bellow

No symbol: Without bellows  
J : With bellows  
  
As for a table with bellows, available stroke length is somewhat shorter, so please see the dimension table.

7 Surface treatment

No symbol: Black chrome surface treatment  
R : Black chrome surface treatment 1  
L : Black chrome surface treatment 2  
  
Black chrome surface treatment: This treatment is performed on main parts excluding Linear Way, ball screw, and ball bearing.  
Black chrome surface treatment 1: In addition to the above black chrome surface treatment, this treatment is performed even on the surface of Linear Way.  
Black chrome surface treatment 2: In addition to the above black chrome surface treatment 1, this treatment is performed even on the surface of ball screw.  
The black chrome surface treatment improves the corrosion resistance by forming black permeable film on the surface.  
For the upper and lower surfaces of the main body and the reference surfaces of respective parts, surface treatment is excluded.

Table 1 Sizes, table width dimensions, and stroke lengths unit: mm

| Model and size | Table width | Stroke length                       |
|----------------|-------------|-------------------------------------|
| TSLH120M       | 120         | 100, 150, 200, 250, 300             |
| TSLH220M       | 220         | 150, 200, 250, 300, 400 ( 500, 600) |
| TSLH320M       | 320         | 300, 400, 500 ( 600, 800, 1 000)    |
| TSLH420M       | 420         | 500, 600, 800 (1 000)               |

Remark: If the stroke length shown in ( ) is needed, please contact **IKO**.

TSLH...M • CTLH...M

Identification Number

Example of an Identification Number  
(Two-axis specification)

1

2

1

3

4

5

6

7

8

9

CTLH120M-3020/AT30110JR C

1

Model

Page II-122

2

Size

Page II-122

3

X-axis stroke length

Page II-122

4

Y-axis stroke length

Page II-122

5

Designation of motor attachment

Page II-122

6

Ball screw lead

Page II-122

7

Designation of bellow

Page II-122

8

Surface treatment

Page II-122

9

Designation of combination direction

Page II-122

Identification Number and Specification

1

Model

CTLH...M: Precision Positioning Table LH (two-axis specification)

2

Size

Size indicates table width.

Select a size from the list of Table 2.

Tables of different sizes can also be combined.

3

X-axis stroke length

Select a stroke length from the list of Table 2.

4

Y-axis stroke length

Stroke lengths of respective axes are displayed in cm. Please note that allowable lengths for X- and Y-axes vary.

As for a table with bellows, available stroke length is somewhat shorter, so please see the dimension table.

Table 2 Sizes, table width dimensions, and stroke lengths unit: mm

| Model and size | Table width | Stroke length |        |
|----------------|-------------|---------------|--------|
|                |             | X-axis        | Y-axis |
| CTLH120M       | 120         | 100           | 100    |
|                |             | 200           | 100    |
|                |             | 200           | 200    |
|                |             | 300           | 200    |
| CTLH220M       | 220         | 300           | 300    |
|                |             | 200           | 200    |
|                |             | 300           | 200    |
|                |             | 300           | 300    |
| CTLH320M       | 320         | 400           | 300    |
|                |             | 400           | 400    |
|                |             | 400           | 300    |
|                |             | 500           | 400    |
|                |             | 500           | 500    |

5

Designation of motor attachment

As for a motor attachment, select it from the list of Table 3.

• Motor should be prepared by customer.

• Please specify motor attachment applicable to motor for use.

• A coupling shown in Table 4 is mounted on the main body before shipment. However, the final position adjustment should be made by customer since it is only temporarily fixed.

• When specifying an AC servomotor attachment, an origin sensor is not provided.

6

Ball screw lead

5: Lead 5mm

10: Lead 10mm

7

Designation of bellow

No symbol: Without bellows

J : With bellows

As for a table with bellows, available stroke length is somewhat shorter, so please see the dimension table.

8

Surface treatment

No symbol: Black chrome surface treatment

R : Black chrome surface treatment 1

L : Black chrome surface treatment 2

Black chrome surface treatment: This treatment is performed on main parts excluding Linear Way, ball screw, and ball bearing.

Black chrome surface treatment 1: In addition to the above black chrome surface treatment, this treatment is performed even on the surface of Linear Way.

Black chrome surface treatment 2: In addition to the above black chrome surface treatment 1, this treatment is performed even on the surface of ball screw.

The black chrome surface treatment improves the corrosion resistance by forming black permeable film on the surface.

For the upper and lower surfaces of the main body and the reference surfaces of respective parts, surface treatment is excluded.

9

Designation of combination direction

No symbol: Standard configuration

C : Reverse configuration

Standard configuration: A direction under the condition where X-axis motor side is placed at the front and Y-axis motor side is placed on the right side respectively.

Reverse configuration: A direction under the condition where X-axis motor side is placed at the front and Y-axis motor side is placed on the left side respectively.

Table 3 Application of motor attachment

| Models of motor to be used |                                       |           |                           |                      | Flange<br>size<br>mm | Motor attachment     |                      |                      |          |
|----------------------------|---------------------------------------|-----------|---------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------|
| Type                       | Manufacturer                          | Series    | Model                     | Rated<br>output<br>W |                      | TSLH120M<br>CTLH120M | TSLH220M<br>CTLH220M | TSLH320M<br>CTLH320M | TSLH420M |
| AC servo<br>motor          | YASKAWA<br>ELECTRIC<br>CORPORATION    | Σ - V     | SGMJV-01                  | 100                  | □40                  | AT301                | —                    | —                    | —        |
|                            |                                       |           | SGMAV-01                  |                      |                      | AT301                | —                    | —                    | —        |
|                            |                                       |           | SGMJV-02                  | 200                  | □60                  | AT302                | AT303                | AT304                | —        |
|                            |                                       |           | SGMAV-02                  |                      |                      | AT302                | AT303                | AT304                | —        |
|                            |                                       |           | SGMJV-04                  | 400                  |                      | —                    | AT303                | AT304                | —        |
|                            |                                       |           | SGMAV-04                  |                      |                      | —                    | AT303                | AT304                | —        |
|                            |                                       |           | SGMJV-08                  | 750                  | □80                  | —                    | —                    | AT305                | AT306    |
|                            |                                       |           | SGMAV-08                  |                      |                      | —                    | —                    | AT305                | AT306    |
|                            | Mitsubishi<br>Electric<br>Corporation | J3        | HF-MP13                   | 100                  | □40                  | AT301                | —                    | —                    | —        |
|                            |                                       |           | HF-KP13                   |                      |                      | AT301                | —                    | —                    | —        |
|                            |                                       |           | HF-MP23                   | 200                  | □60                  | AT302                | AT303                | AT304                | —        |
|                            |                                       |           | HF-KP23                   |                      |                      | AT302                | AT303                | AT304                | —        |
|                            |                                       |           | HF-MP43                   | 400                  |                      | —                    | AT303                | AT304                | —        |
|                            |                                       |           | HF-KP43                   |                      |                      | —                    | AT303                | AT304                | —        |
|                            |                                       |           | HF-MP73                   | 750                  | □80                  | —                    | —                    | AT305                | AT306    |
|                            |                                       |           | HF-KP73                   |                      |                      | —                    | —                    | AT305                | AT306    |
|                            | Panasonic<br>Corporation              | MINAS A5  | MSMD01                    | 100                  | □40                  | AT307                | —                    | —                    | —        |
|                            |                                       |           | MSME01                    |                      |                      | AT307                | —                    | —                    | —        |
|                            |                                       |           | MSMD02                    | 200                  | □60                  | AT308                | AT309                | AT311                | —        |
|                            |                                       |           | MSME02                    |                      |                      | AT308                | AT309                | AT311                | —        |
|                            |                                       |           | MSMD04                    | 400                  |                      | —                    | AT310                | AT312                | —        |
|                            |                                       |           | MSME04                    |                      |                      | —                    | AT310                | AT312                | —        |
|                            |                                       |           | MSME08                    | 750                  | □80                  | —                    | —                    | AT313                | AT314    |
|                            |                                       |           | MSME08                    |                      |                      | —                    | —                    | AT313                | AT314    |
| Stepper<br>motor           | ORIENTAL<br>MOTOR<br>Co., Ltd.        | α step    | AR66                      |                      | □60                  | AT315                | —                    | —                    | —        |
|                            |                                       |           | AR69                      |                      |                      | AT315                | —                    | —                    | —        |
|                            |                                       |           | AR98                      |                      | □85                  | —                    | AT317                | AT318                | —        |
|                            |                                       |           | AR911                     |                      |                      | —                    | AT317                | AT318                | —        |
|                            |                                       |           | AS66                      |                      | □60                  | AT316                | —                    | —                    | —        |
|                            |                                       |           | AS69                      |                      |                      | AT316                | —                    | —                    | —        |
|                            |                                       |           | AS98                      |                      | □85                  | —                    | AT317                | AT318                | —        |
|                            |                                       |           | AS911                     |                      |                      | —                    | AT317                | AT318                | —        |
|                            |                                       | RK<br>CRK | RK56・CRK56 <sup>(1)</sup> | □60                  | AT316                | —                    | —                    | —                    |          |
|                            |                                       |           | RK59                      | □85                  | —                    | AT317                | AT318                | —                    |          |

Note (1) Applicable to the outer diameter φ8 of motor output shaft.  
Remark: For detailed motor specifications, please see respective motor manufacturer's catalog.

Table 4 Coupling models

| Motor attachment | Coupling models | Manufacturer                 | Coupling inertia $J_c$<br>$\times 10^{-5} \text{kg} \cdot \text{m}^2$ |
|------------------|-----------------|------------------------------|-----------------------------------------------------------------------|
| AT301            | UA-25C- 8× 8    | Sakai Manufacturing Co., Ltd | 0.290                                                                 |
| AT302            | UA-30C- 8×14    | Sakai Manufacturing Co., Ltd | 0.603                                                                 |
| AT303            | UA-35C-12×14    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT304            | UA-35C-14×15    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT305            | UA-40C-15×19    | Sakai Manufacturing Co., Ltd | 2.61                                                                  |
| AT306            | UA-40C-15×19    | Sakai Manufacturing Co., Ltd | 2.61                                                                  |
| AT307            | UA-25C- 8× 8    | Sakai Manufacturing Co., Ltd | 0.290                                                                 |
| AT308            | UA-30C- 8×11    | Sakai Manufacturing Co., Ltd | 0.603                                                                 |
| AT309            | UA-35C-11×12    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT310            | UA-35C-12×14    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT311            | UA-35C-11×15    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT312            | UA-35C-14×15    | Sakai Manufacturing Co., Ltd | 1.34                                                                  |
| AT313            | UA-40C-15×19    | Sakai Manufacturing Co., Ltd | 2.61                                                                  |
| AT314            | UA-40C-15×19    | Sakai Manufacturing Co., Ltd | 2.61                                                                  |
| AT315            | MSTS-25C- 8×10  | Nabeya Bi-tech Kaisha        | 0.71                                                                  |
| AT316            | MSTS-25C- 8× 8  | Nabeya Bi-tech Kaisha        | 0.71                                                                  |
| AT317            | MSTS-32C-12×14  | Nabeya Bi-tech Kaisha        | 2.7                                                                   |
| AT318            | MSTS-40C-14×15  | Nabeya Bi-tech Kaisha        | 9.0                                                                   |

Remark: For detailed coupling specifications, please see respective manufacturer's catalog.

Table 5 Accuracy

| Model and size            |          | Stroke length |        | Positioning repeatability | Positioning accuracy | Parallelism in table motion A | Straightness | Squareness of XY motion | Backlash |
|---------------------------|----------|---------------|--------|---------------------------|----------------------|-------------------------------|--------------|-------------------------|----------|
|                           |          | X-axis        | Y-axis |                           |                      |                               |              |                         |          |
| Single-axis specification | TSLH120M | 100           |        | ±0.002                    | 0.010                | 0.010                         | 0.005        | —                       | 0.001    |
|                           |          | 150           |        |                           |                      |                               |              |                         |          |
|                           |          | 200           |        |                           |                      |                               |              |                         |          |
|                           |          | 250           |        |                           |                      |                               |              |                         |          |
|                           |          | 300           |        |                           |                      |                               |              |                         |          |
|                           | TSLH220M | 150           |        | ±0.002                    | 0.010                | 0.010                         | 0.005        | —                       | 0.001    |
|                           |          | 200           |        |                           | 0.015                | 0.015                         |              |                         |          |
|                           |          | 250           |        |                           |                      |                               |              |                         |          |
|                           |          | 300           |        |                           | 0.020                | 0.020                         | 0.010        |                         |          |
|                           |          | 400           |        |                           |                      |                               |              |                         |          |
|                           | TSLH320M | 300           |        | ±0.002                    | 0.015                | 0.015                         | 0.005        | —                       | 0.001    |
|                           |          | 400           |        |                           | 0.020                |                               |              |                         |          |
|                           |          | 500           |        |                           |                      |                               |              |                         |          |
|                           | TSLH420M | 500           |        | ±0.002                    | 0.025                | 0.025                         | 0.015        | —                       | 0.001    |
|                           |          | 600           |        |                           | 0.030                | 0.030                         |              |                         |          |
|                           |          | 800           |        |                           | 0.035                | 0.035                         | 0.020        |                         |          |
|                           |          | 0.015         | 0.015  |                           | 0.005                |                               |              |                         |          |
| Two-axis specification    | CTLH120M | 100           | 100    | ±0.002                    | 0.020                | 0.020                         | 0.010        | 0.010                   | 0.001    |
|                           |          | 200           | 100    |                           |                      | 0.025                         |              |                         |          |
|                           |          | 200           | 200    |                           | 0.030                |                               | 0.030        |                         |          |
|                           |          | 300           | 200    |                           |                      |                               |              |                         |          |
|                           |          | 300           | 300    |                           |                      |                               |              |                         |          |
|                           | CTLH220M | 200           | 200    | ±0.002                    | 0.020                | 0.025                         | 0.010        | 0.010                   | 0.001    |
|                           |          | 300           | 200    |                           |                      |                               |              |                         |          |
|                           |          | 300           | 300    |                           | 0.030                | 0.035                         | 0.020        | 0.015                   |          |
|                           |          | 400           | 300    |                           |                      |                               |              |                         |          |
|                           |          | 400           | 400    |                           |                      |                               |              |                         |          |
|                           | CTLH320M | 300           | 300    | ±0.002                    | 0.020                | 0.020                         | 0.005        | 0.010                   | 0.001    |
|                           |          | 400           | 300    |                           | 0.025                | 0.025                         | 0.010        | 0.015                   |          |
|                           |          | 400           | 400    |                           |                      |                               |              |                         |          |
|                           |          | 500           | 400    |                           | 0.030                |                               |              |                         |          |
|                           |          | 500           | 500    |                           |                      |                               |              |                         |          |

Table 6 Maximum speed

| Motor type     | Model and size                   |                                  | Maximum speed mm/s |           |
|----------------|----------------------------------|----------------------------------|--------------------|-----------|
|                | Single-axis specification        | Two-axis specification           | Lead 5mm           | Lead 10mm |
| AC servo motor | TSLH120M<br>TSLH220M             | CTLH120M<br>CTLH220M             | 250                | 500       |
|                | TSLH320M<br>TSLH420M             | CTLH320M                         | 224                | 448       |
| Stepper motor  | TSLH120M<br>TSLH220M<br>TSLH320M | CTLH120M<br>CTLH220M<br>CTLH320M | 150                | 300       |

Remark: To measure the practical maximum speed, it is required to consider operation patterns based on the motor to be used and load conditions.

Table 7 Maximum carrying mass

| Model and size | Ball screw lead<br>mm | Maximum carrying mass<br>kg |          |
|----------------|-----------------------|-----------------------------|----------|
|                |                       | Horizontal                  | Vertical |
| TSLH120M       | 5                     | 135                         | 28       |
|                | 10                    | 135                         | 28       |
| TSLH220M       | 5                     | 218                         | 30       |
|                | 10                    | 187                         | 29       |
| TSLH320M       | 5                     | 168                         | 27       |
|                | 10                    | 175                         | 25       |
| TSLH420M       | 5                     | 519                         | 10       |
|                | 10                    | 237                         | 8        |

Table 8 Specifications of linear motion rolling guide

| Model and size | Basic dynamic load<br>rating <sup>(1)</sup><br>C<br>N | Basic static load<br>rating <sup>(1)</sup><br>C <sub>0</sub><br>N | Arrangement |         |                      |                      |
|----------------|-------------------------------------------------------|-------------------------------------------------------------------|-------------|---------|----------------------|----------------------|
|                |                                                       |                                                                   | L<br>mm     | ℓ<br>mm | Y <sub>d</sub><br>mm | Z <sub>d</sub><br>mm |
| TSLH120M       | 6 260                                                 | 8 330                                                             | 88          | 82      | 0                    | 2                    |
| TSLH220M       | 11 600                                                | 13 400                                                            | 157         | 145     | 0                    | 1                    |
| TSLH320M       | 25 200                                                | 28 800                                                            | 240         | 210     | 0                    | 6                    |
| TSLH420M       | 30 800                                                | 38 300                                                            | 300         | 290     | 0                    | 0                    |

Note <sup>(1)</sup> Represent the value per slide unit.

Table 9.1 Specifications of ball screw 1

| Model and size | Lead<br>mm | Shaft dia.<br>mm | Axial clearance<br>mm | Basic dynamic load rating<br>C<br>N | Basic static load rating<br>C <sub>0</sub><br>N |
|----------------|------------|------------------|-----------------------|-------------------------------------|-------------------------------------------------|
| TSLH120M       | 5          | 15               | 0                     | 7 070                               | 12 800                                          |
|                | 10         |                  |                       | 7 070                               | 12 800                                          |
| TSLH220M       | 5          | 20               | 0                     | 8 230                               | 17 510                                          |
|                | 10         |                  |                       | 10 900                              | 21 700                                          |
| TSLH320M       | 5          | 25               | 0                     | 16 700                              | 43 500                                          |
| TSLH420M       | 10         |                  |                       | 15 800                              | 32 700                                          |

Table 9.2 Specifications of ball screw 2

unit: mm

| Model and size | Stroke length | Shaft dia. | Overall length |
|----------------|---------------|------------|----------------|
| TSLH120M       | 100           | 15         | 256            |
|                | 150           |            | 306            |
|                | 200           |            | 356            |
|                | 250           |            | 406            |
|                | 300           |            | 456            |
| TSLH220M       | 150           | 20         | 370            |
|                | 200           |            | 420            |
|                | 250           |            | 470            |
|                | 300           |            | 520            |
|                | 400           |            | 620            |
| TSLH320M       | 300           | 25         | 616            |
|                | 400           |            | 716            |
|                | 500           |            | 816            |
| TSLH420M       | 500           | 25         | 916            |
|                | 600           |            | 1 016          |
|                | 800           |            | 1 216          |

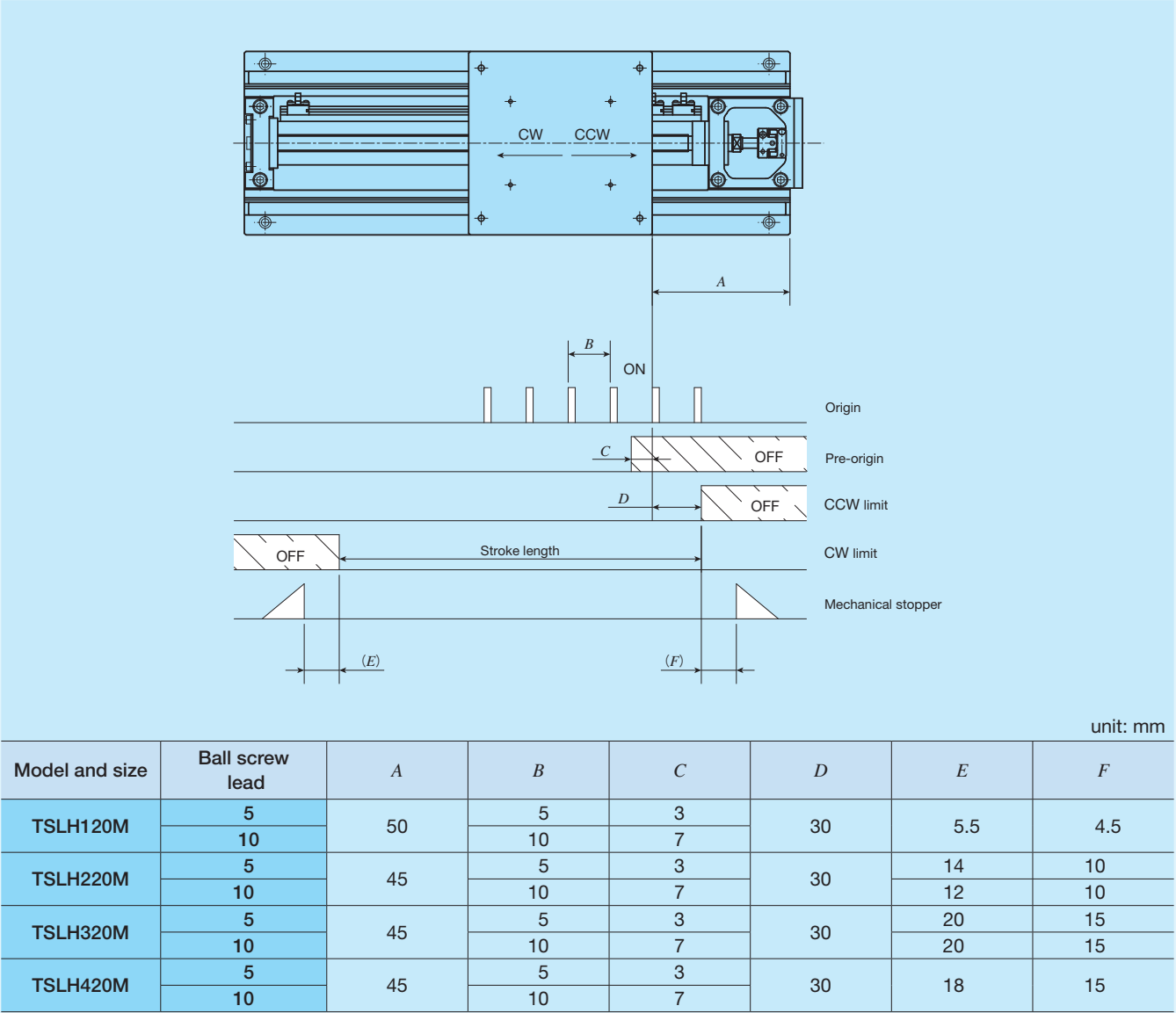
Table 10 Table inertia and starting torque

| Model and size            |          | Stroke length<br>mm |        | Table inertia $J_T$<br>$\times 10^{-5} \text{kg} \cdot \text{m}^2$ |           | Starting torque $T_s$<br>N · m |           |
|---------------------------|----------|---------------------|--------|--------------------------------------------------------------------|-----------|--------------------------------|-----------|
|                           |          | X-axis              | Y-axis | Lead 5mm                                                           | Lead 10mm | Lead 5mm                       | Lead 10mm |
| Single-axis specification | TSLH120M | 100                 |        | 1.2                                                                | 1.7       | 0.07                           |           |
|                           |          | 150                 |        | 1.4                                                                | 1.9       |                                |           |
|                           |          | 200                 |        | 1.5                                                                | 2.1       |                                |           |
|                           |          | 250                 |        | 1.7                                                                | 2.3       |                                |           |
|                           |          | 300                 |        | 1.9                                                                | 2.5       |                                |           |
|                           | TSLH220M | 150                 |        | 5.1                                                                | 6.9       | 0.12                           |           |
|                           |          | 200                 |        | 5.7                                                                | 7.5       |                                |           |
|                           |          | 250                 |        | 6.3                                                                | 8.1       |                                |           |
|                           |          | 300                 |        | 7.0                                                                | 8.7       |                                |           |
|                           |          | 400                 |        | 8.2                                                                | 10        |                                |           |
|                           | TSLH320M | 300                 |        | 20                                                                 | 26        | 0.20                           |           |
|                           |          | 400                 |        | 23                                                                 | 29        |                                |           |
|                           |          | 500                 |        | 26                                                                 | 32        |                                |           |
|                           | TSLH420M | 500                 |        | 30                                                                 | 39        | 0.22                           |           |
|                           |          | 600                 |        | 33                                                                 | 42        |                                |           |
|                           |          | 800                 |        | 39                                                                 | 48        |                                |           |
| Two-axis specification    | CTLH120M | 100                 | 100    | 1.8                                                                | 4.2       | 0.08                           |           |
|                           |          | 200                 | 100    | 2.2                                                                | 4.5       |                                |           |
|                           |          | 200                 | 200    | 2.3                                                                | 5.1       |                                |           |
|                           |          | 300                 | 200    | 2.7                                                                | 5.5       |                                |           |
|                           |          | 300                 | 300    | 2.8                                                                | 6.0       |                                |           |
|                           | CTLH220M | 200                 | 200    | 7.8                                                                | 16        | 0.12                           |           |
|                           |          | 300                 | 200    | 9.1                                                                | 17        |                                |           |
|                           |          | 300                 | 300    | 9.3                                                                | 18        |                                |           |
|                           |          | 400                 | 300    | 11                                                                 | 19        |                                |           |
|                           |          | 400                 | 400    | 11                                                                 | 21        |                                |           |
|                           | CTLH320M | 300                 | 300    | 27                                                                 | 51        | 0.22                           | 0.25      |
|                           |          | 400                 | 300    | 30                                                                 | 54        |                                |           |
|                           |          | 400                 | 400    | 30                                                                 | 57        |                                |           |
|                           |          | 500                 | 400    | 33                                                                 | 60        |                                |           |
|                           |          | 500                 | 500    | 34                                                                 | 62        |                                |           |

Remark: As for tables of two-axis specification, the figures represent values in X-axis. For values in Y-axis, see the figures for single-axis specification.

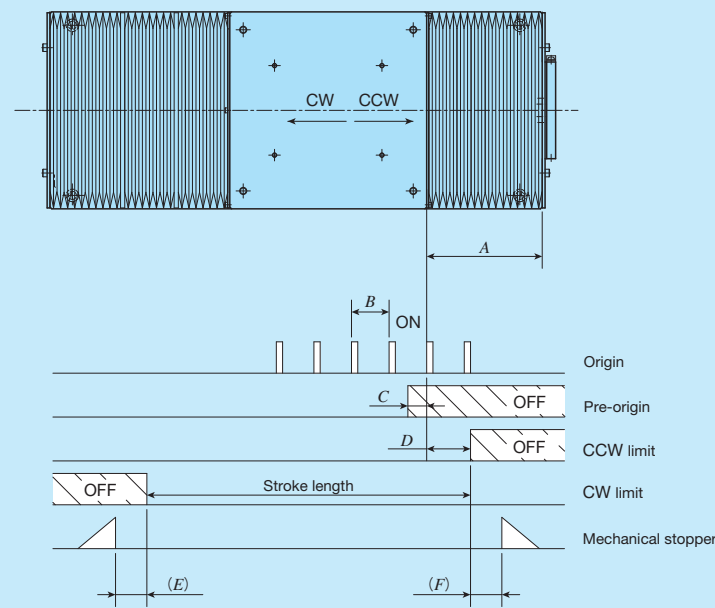
Sensor Specification

Table 11.1 Sensor timing chart (without bellows)



Remarks 1. For the specifications of respective sensors, please see the section of sensor specification in General Explanation.  
2. The values of respective axes in tables of two-axis specification are the same as those of tables of single-axis specification.

Table 11.2 Sensor timing chart (with bellows)



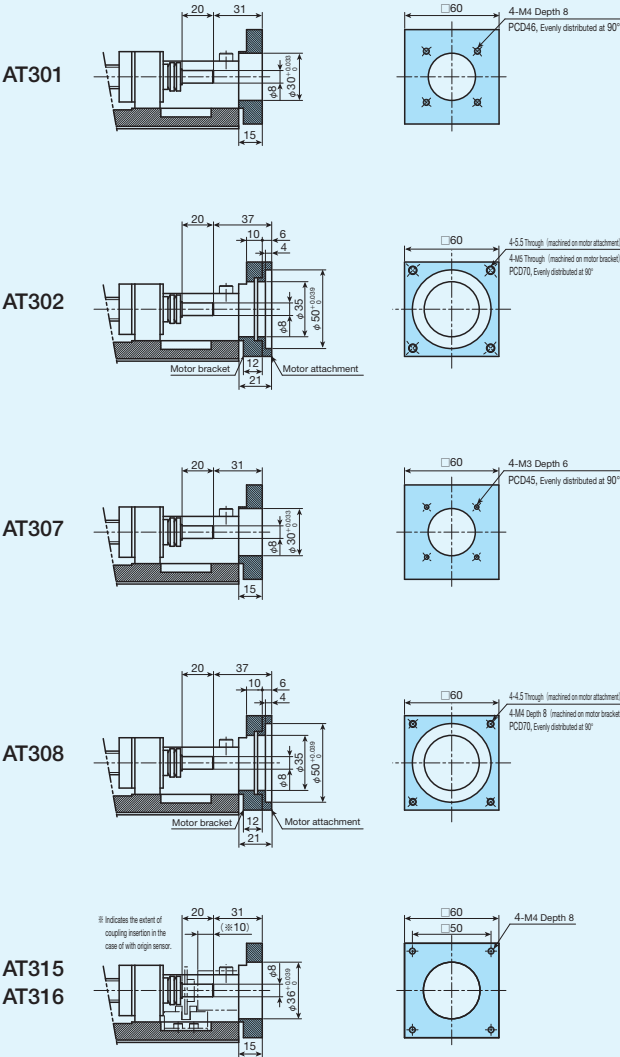
unit: mm

| Model and size | Ball screw lead | A    | B  | C | D  | E | F |
|----------------|-----------------|------|----|---|----|---|---|
| TSLH120M-100/J | 5               | 57.5 | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH120M-150/J | 5               | 62.5 | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH120M-200/J | 5               | 67.5 | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH120M-250/J | 5               | 72.5 | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH120M-300/J | 5               | 80   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH220M-150/J | 5               | 65   | 5  | 3 | 30 | 7 | 5 |
|                | 10              |      | 10 | 7 |    | 5 |   |
| TSLH220M-200/J | 5               | 70   | 5  | 3 | 30 | 7 | 5 |
|                | 10              |      | 10 | 7 |    | 5 |   |
| TSLH220M-250/J | 5               | 80   | 5  | 3 | 30 | 7 | 5 |
|                | 10              |      | 10 | 7 |    | 5 |   |
| TSLH220M-300/J | 5               | 85   | 5  | 3 | 30 | 7 | 5 |
|                | 10              |      | 10 | 7 |    | 5 |   |
| TSLH220M-400/J | 5               | 95   | 5  | 3 | 30 | 7 | 5 |
|                | 10              |      | 10 | 7 |    | 5 |   |
| TSLH320M-300/J | 5               | 80   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH320M-400/J | 5               | 90   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH320M-500/J | 5               | 95   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH420M-500/J | 5               | 90   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH420M-600/J | 5               | 95   | 5  | 3 | 30 | 5 | 5 |
|                | 10              |      | 10 | 7 |    |   |   |
| TSLH420M-800/J | 5               | 115  | 5  | 3 | 30 | 5 | 5 |

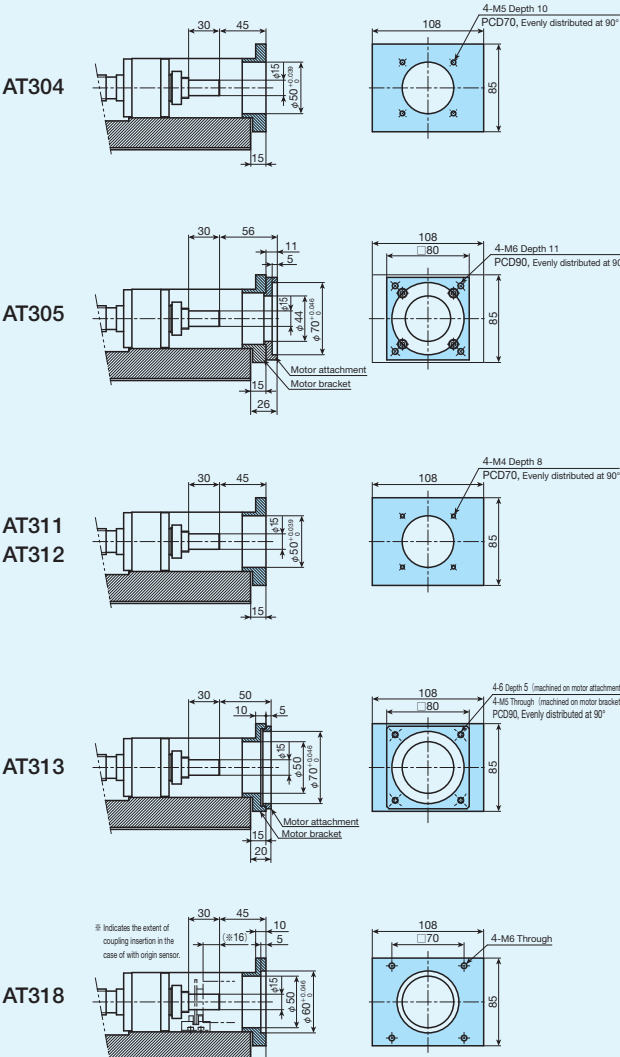
Remarks 1. For the specifications of respective sensors, please see the section of sensor specification in General Explanation.  
2. The values of respective axes in tables of two-axis specification are the same as those of tables of single-axis specification.

Dimensions of Motor Attachment

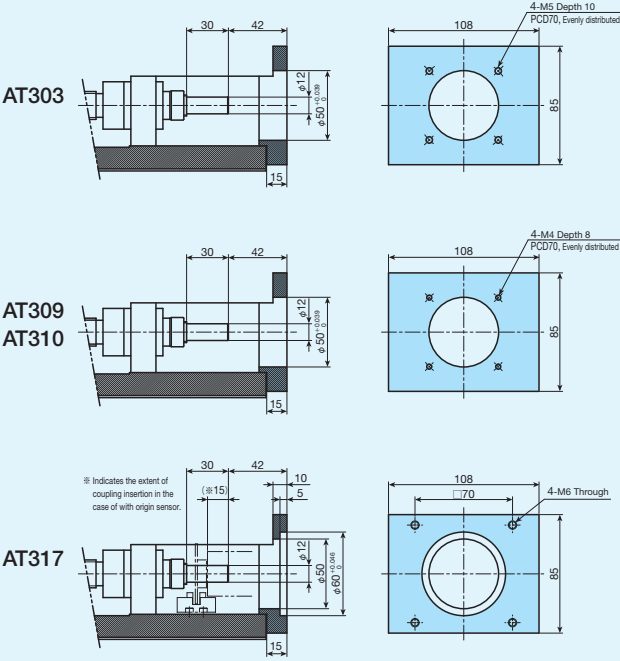
TSLH120M, CTLH120M



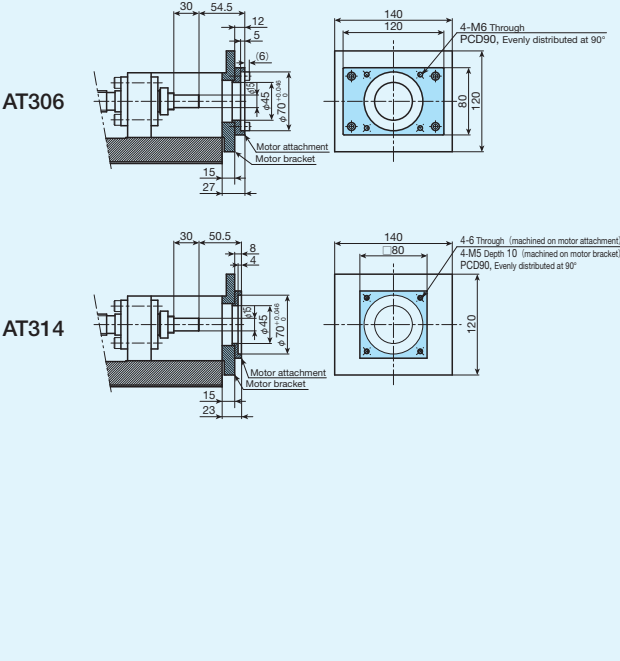
TSLH320M, CTLH320M



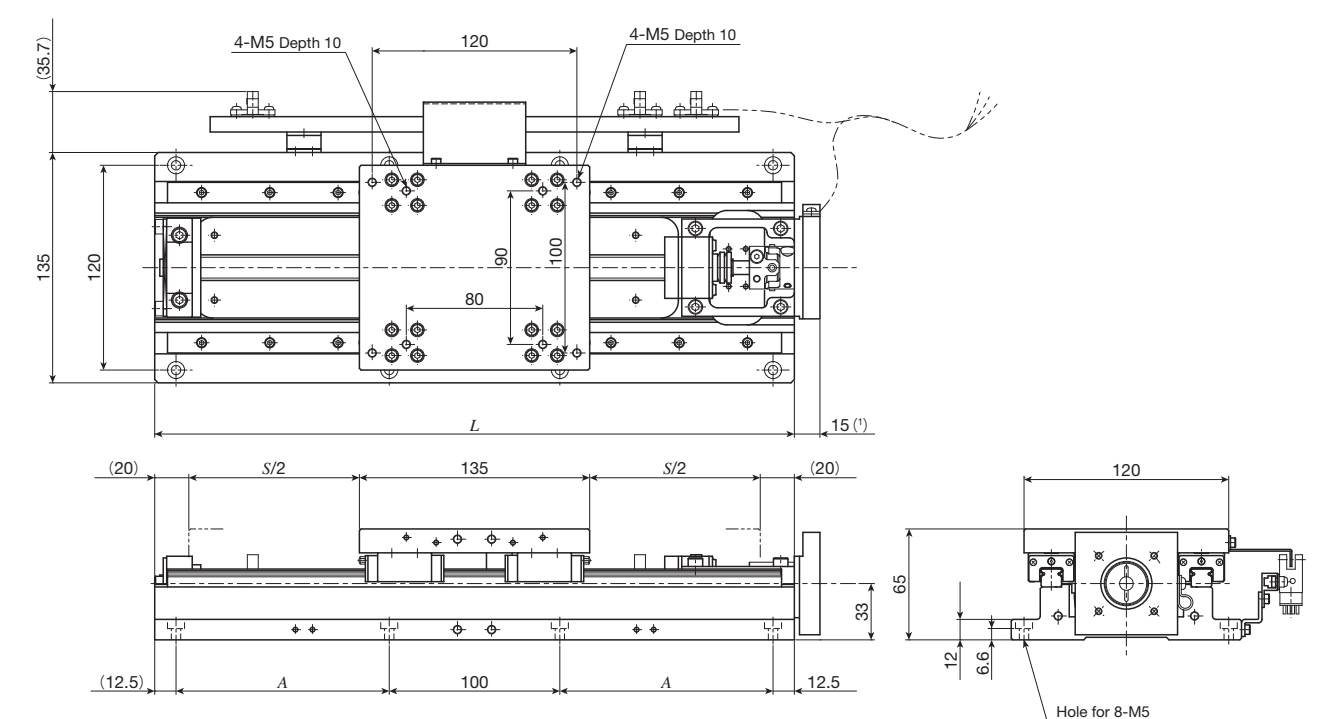
TSLH220M, CTLH220M



TSLH420M, CTLH420M



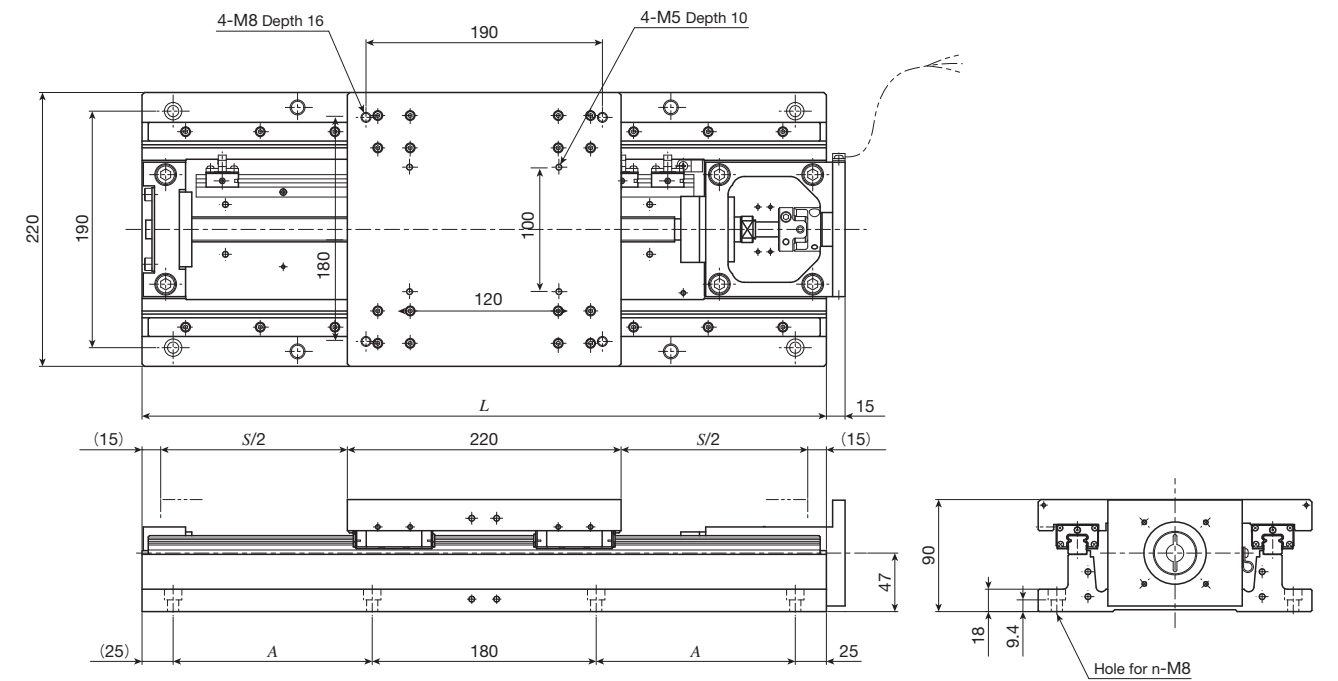
TSLH120M



| unit: mm              |                           |                            |                                   |                   |
|-----------------------|---------------------------|----------------------------|-----------------------------------|-------------------|
| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | Mounting holes of bed<br><i>A</i> | Mass (Ref.)<br>kg |
| TSLH120M-100          | 100                       | 275                        | 75                                | 10                |
| TSLH120M-150          | 150                       | 325                        | 100                               | 11                |
| TSLH120M-200          | 200                       | 375                        | 125                               | 12                |
| TSLH120M-250          | 250                       | 425                        | 150                               | 13                |
| TSLH120M-300          | 300                       | 475                        | 175                               | 14                |

Note (1) When selecting AT302 or AT308, 21mm is applied.

TSLH220M

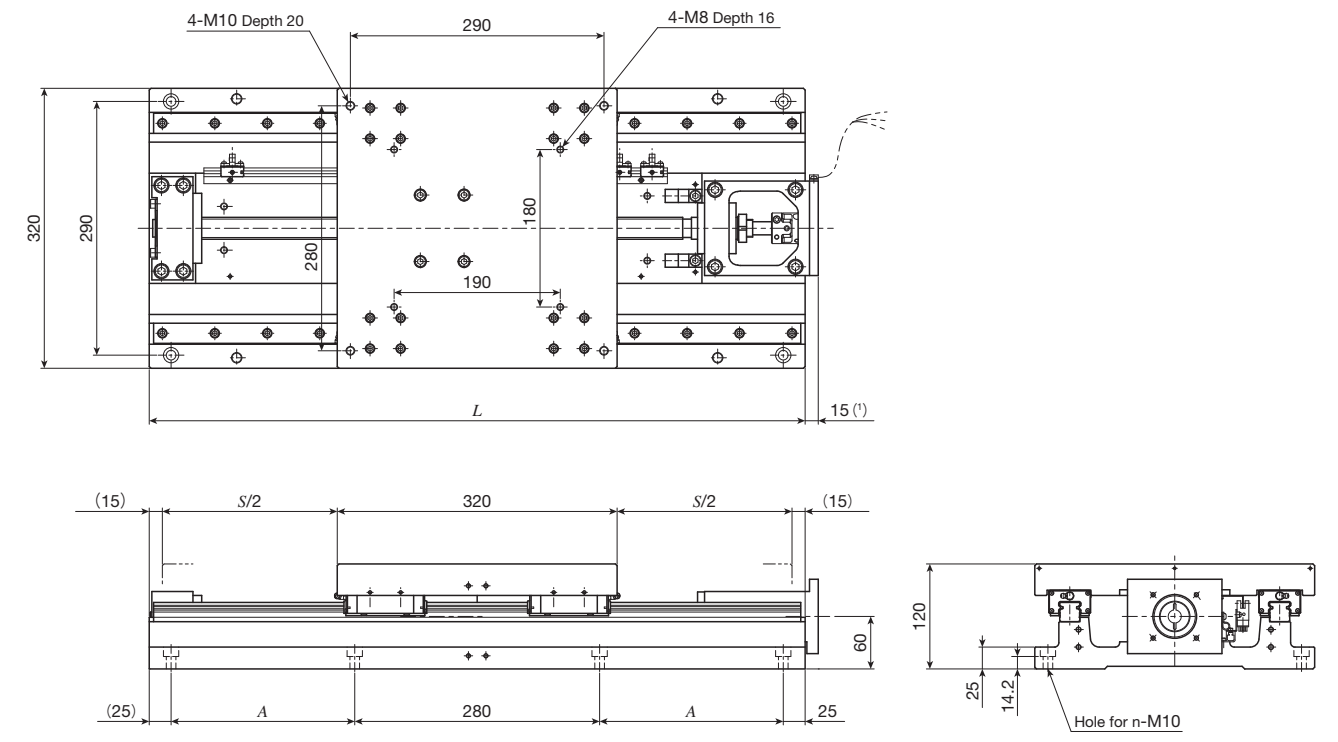


| unit: mm              |                           |                            |                                         |          |                   |
|-----------------------|---------------------------|----------------------------|-----------------------------------------|----------|-------------------|
| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | Mounting holes of bed                   |          | Mass (Ref.)<br>kg |
|                       |                           |                            | <i>A</i> (the number of<br>holes×pitch) | <i>n</i> |                   |
| TSLH220M-150          | 150                       | 400                        | 85                                      | 8        | 32                |
| TSLH220M-200          | 200                       | 450                        | 110                                     | 8        | 34                |
| TSLH220M-250          | 250                       | 500                        | 135                                     | 8        | 36                |
| TSLH220M-300          | 300                       | 550                        | 160                                     | 8        | 38                |
| TSLH220M-400          | 400                       | 650                        | 210 (2×105)                             | 12       | 42                |
| (TSLH220M-500)        | 500                       | 750                        | 260 (2×130)                             | 12       | 47                |
| (TSLH220M-600)        | 600                       | 850                        | 310 (2×155)                             | 12       | 51                |

Remark: If you are interested in a product of identification number shown in ( ), please contact IKO.

**IKO Precision Positioning Table LH**

**TSLH320M**

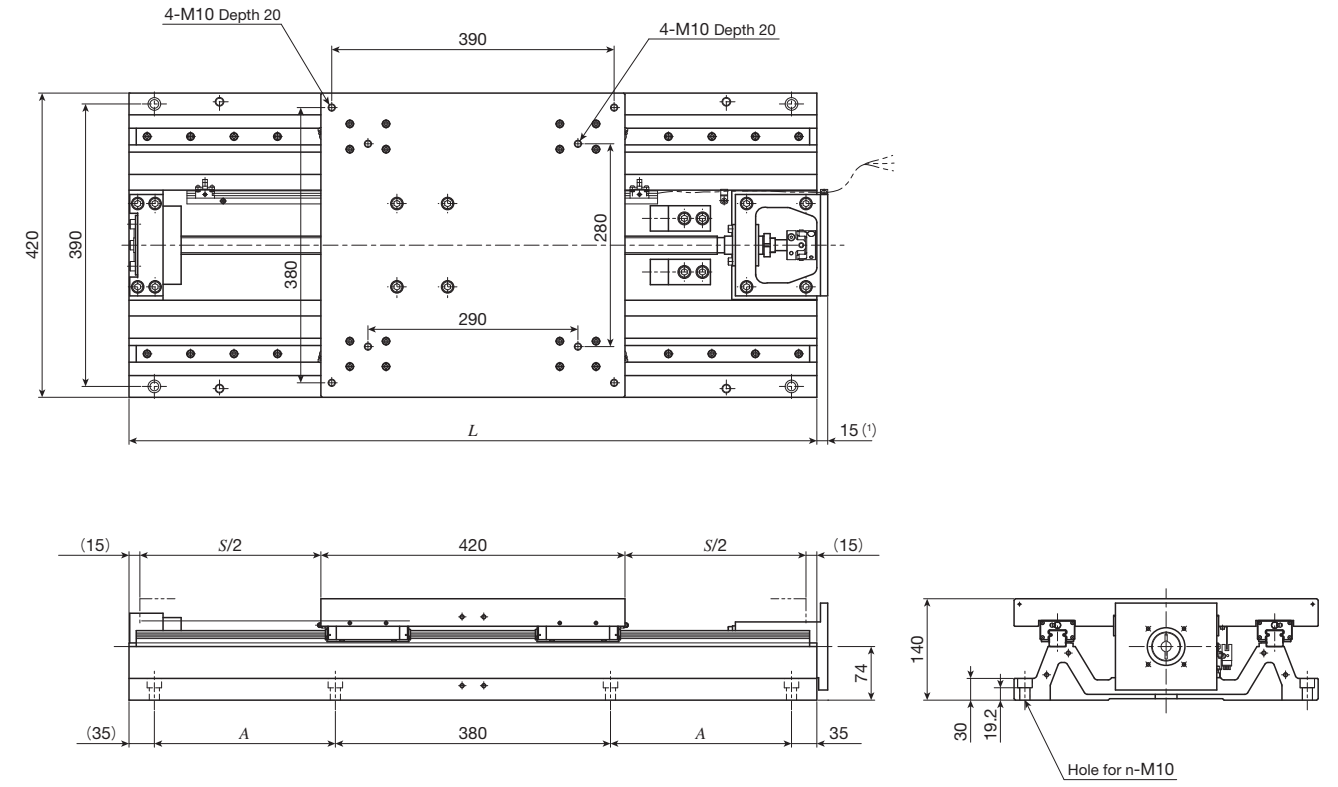


unit: mm

| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | Mounting holes of bed                   |          | Mass (Ref.)<br>kg |
|-----------------------|---------------------------|----------------------------|-----------------------------------------|----------|-------------------|
|                       |                           |                            | <i>A</i> (the number of<br>holes×pitch) | <i>n</i> |                   |
| TSLH320M- 300         | 300                       | 650                        | 160                                     | 8        | 100               |
| TSLH320M- 400         | 400                       | 750                        | 210                                     | 8        | 109               |
| TSLH320M- 500         | 500                       | 850                        | 260                                     | 8        | 118               |
| (TSLH320M- 600)       | 600                       | 950                        | 310                                     | 8        | 127               |
| (TSLH320M- 800)       | 800                       | 1 150                      | 410 (2×205)                             | 12       | 146               |
| (TSLH320M-1000)       | 1 000                     | 1 350                      | 510 (2×255)                             | 12       | 164               |

Note (¹) When selecting AT305, 26mm is applied. When selecting AT313, 20mm is applied.  
Remark: If you are interested in a product of identification number shown in ( ), please contact **IKO**.

**TSLH420M**

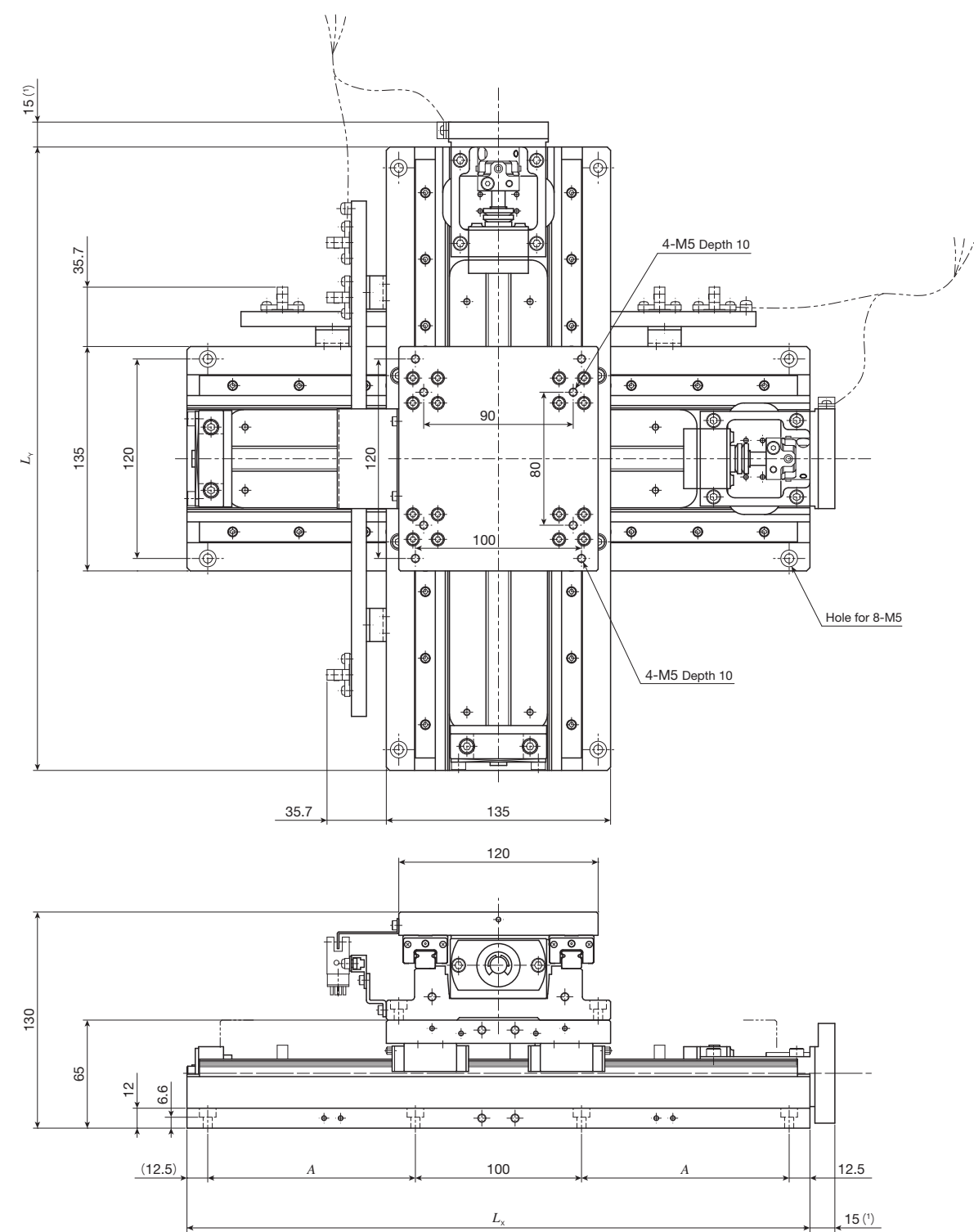


unit: mm

| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | Mounting holes of bed                   |          | Mass (Ref.)<br>kg |
|-----------------------|---------------------------|----------------------------|-----------------------------------------|----------|-------------------|
|                       |                           |                            | <i>A</i> (the number of<br>holes×pitch) | <i>n</i> |                   |
| TSLH420M- 500         | 500                       | 950                        | 250                                     | 8        | 176               |
| TSLH420M- 600         | 600                       | 1 050                      | 300                                     | 8        | 188               |
| TSLH420M- 800         | 800                       | 1 250                      | 400 (2×200)                             | 12       | 212               |
| (TSLH420M-1000)       | 1 000                     | 1 450                      | 500 (2×250)                             | 12       | 237               |

Note (¹) They represent the dimensions of motor bracket only. When selecting AT306, 27mm is applied. When selecting AT314, 23mm is applied.  
Remark: If you are interested in a product of identification number shown in ( ), please contact **IKO**.

CTLH120M

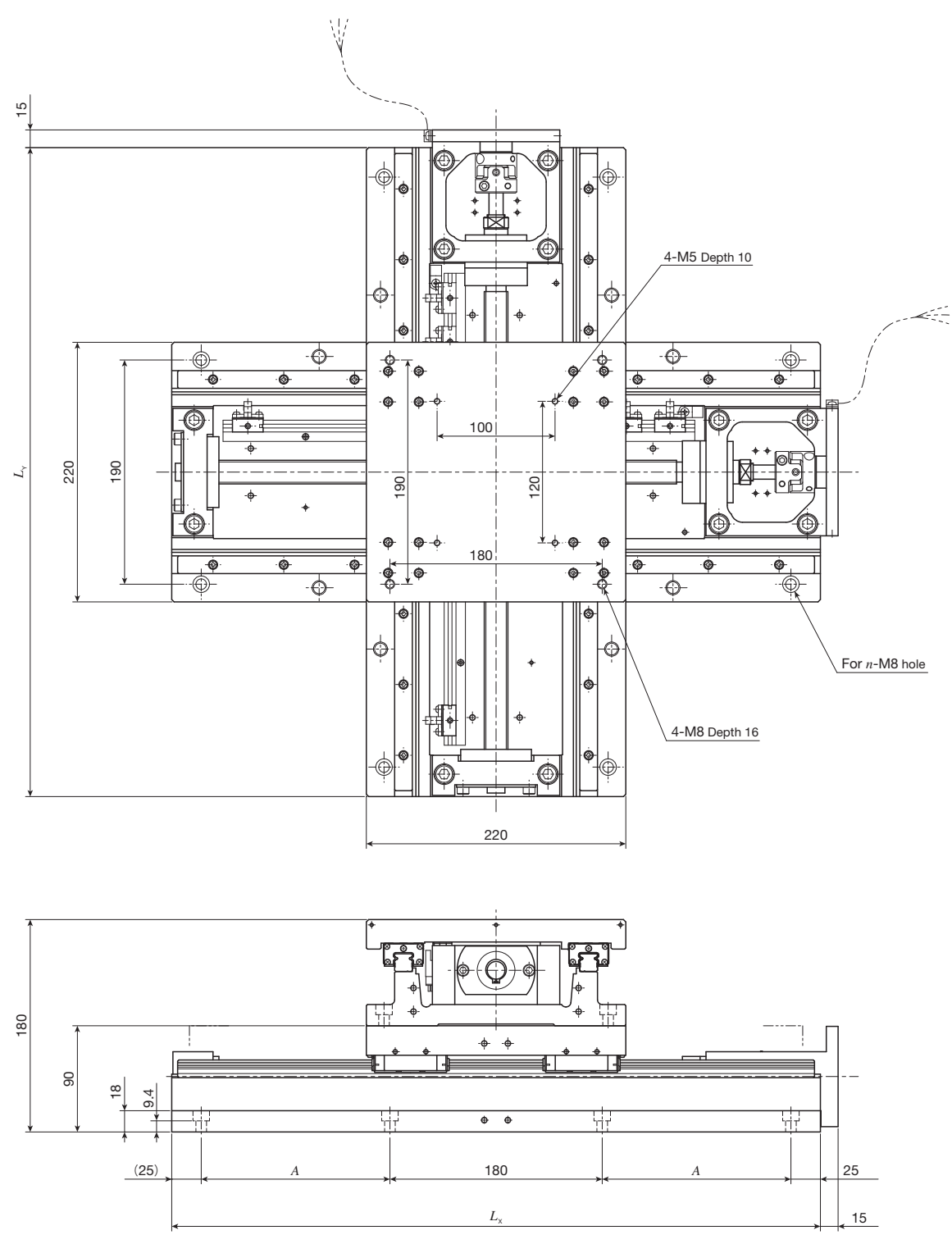


unit: mm

| Identification number | Stroke length <i>S</i> |        | Overall length       |                      | Mounting holes of bed<br><i>A</i> | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|----------------------|----------------------|-----------------------------------|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i> | <i>L<sub>y</sub></i> |                                   |                   |
| CTLH120M-1010         | 100                    | 100    | 275                  | 275                  | 75                                | 20                |
| CTLH120M-2010         | 200                    | 100    | 375                  | 275                  | 125                               | 22                |
| CTLH120M-2020         | 200                    | 200    | 375                  | 375                  | 125                               | 24                |
| CTLH120M-3020         | 300                    | 200    | 475                  | 375                  | 175                               | 26                |
| CTLH120M-3030         | 300                    | 300    | 475                  | 475                  | 175                               | 28                |

Note (¹) When selecting AT302 or AT308, 21mm is applied.  
Remark: As a combination of stroke length other than listed above and a table of different size is possible, please contact **I****K****□**.

CTLH220M

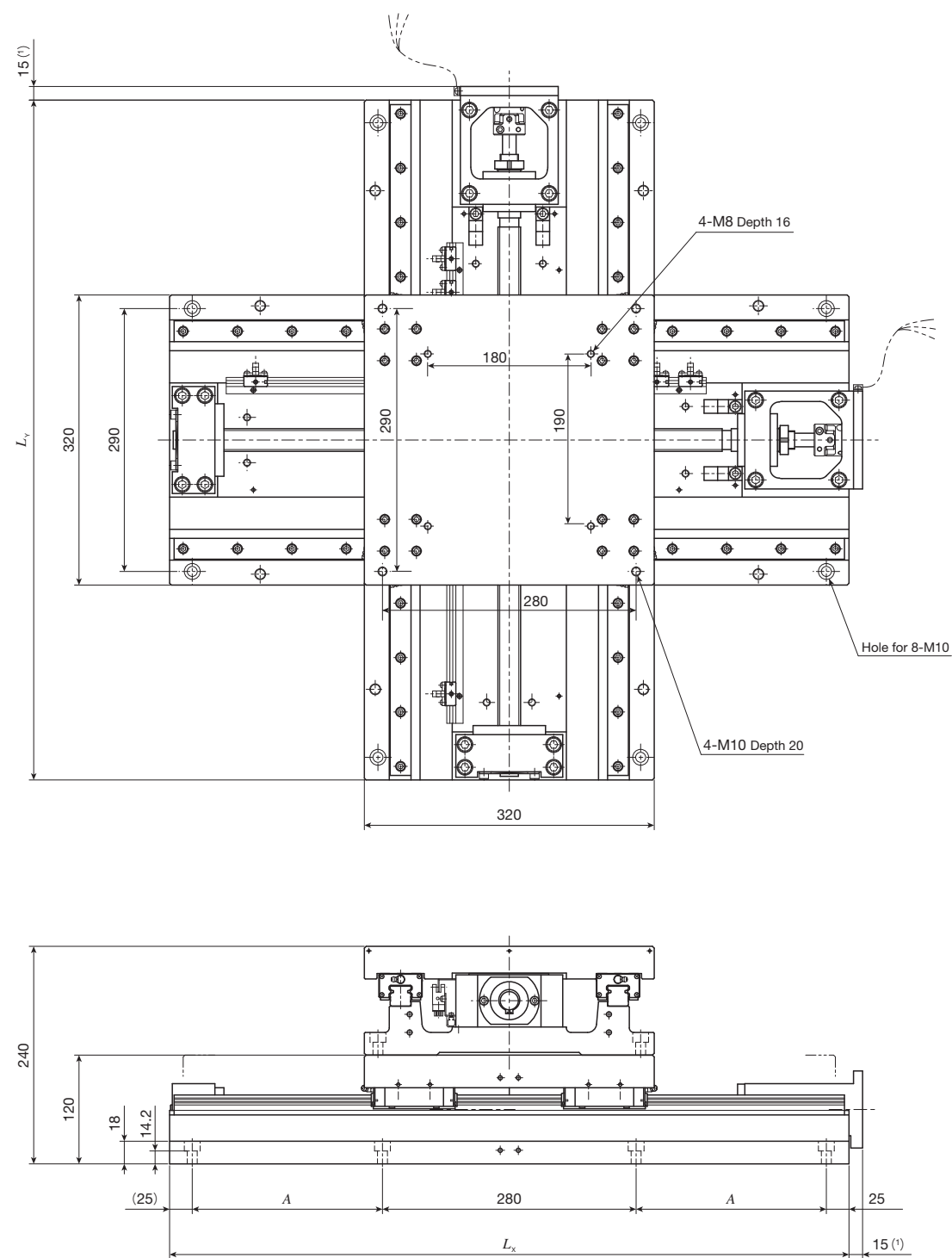


unit: mm

| Identification number | Stroke length <i>S</i> |        | Overall length       |                      | Mounting holes of bed<br><i>A</i> (the number of<br>holes×pitch) |    | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|----------------------|----------------------|------------------------------------------------------------------|----|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i> | <i>L<sub>y</sub></i> | <i>n</i>                                                         |    |                   |
| CTLH220M-2020         | 200                    | 200    | 450                  | 450                  | 110                                                              | 8  | 67                |
| CTLH220M-3020         | 300                    | 200    | 550                  | 450                  | 160                                                              | 8  | 71                |
| CTLH220M-3030         | 300                    | 300    | 550                  | 550                  | 160                                                              | 8  | 76                |
| CTLH220M-4030         | 400                    | 300    | 650                  | 550                  | 210 (2×105)                                                      | 12 | 80                |
| CTLH220M-4040         | 400                    | 400    | 650                  | 650                  | 210 (2×105)                                                      | 12 | 84                |

Remark: As a combination of stroke length other than listed above and a table of different size is possible, please contact **I****K****□**.

**CTLH320M**

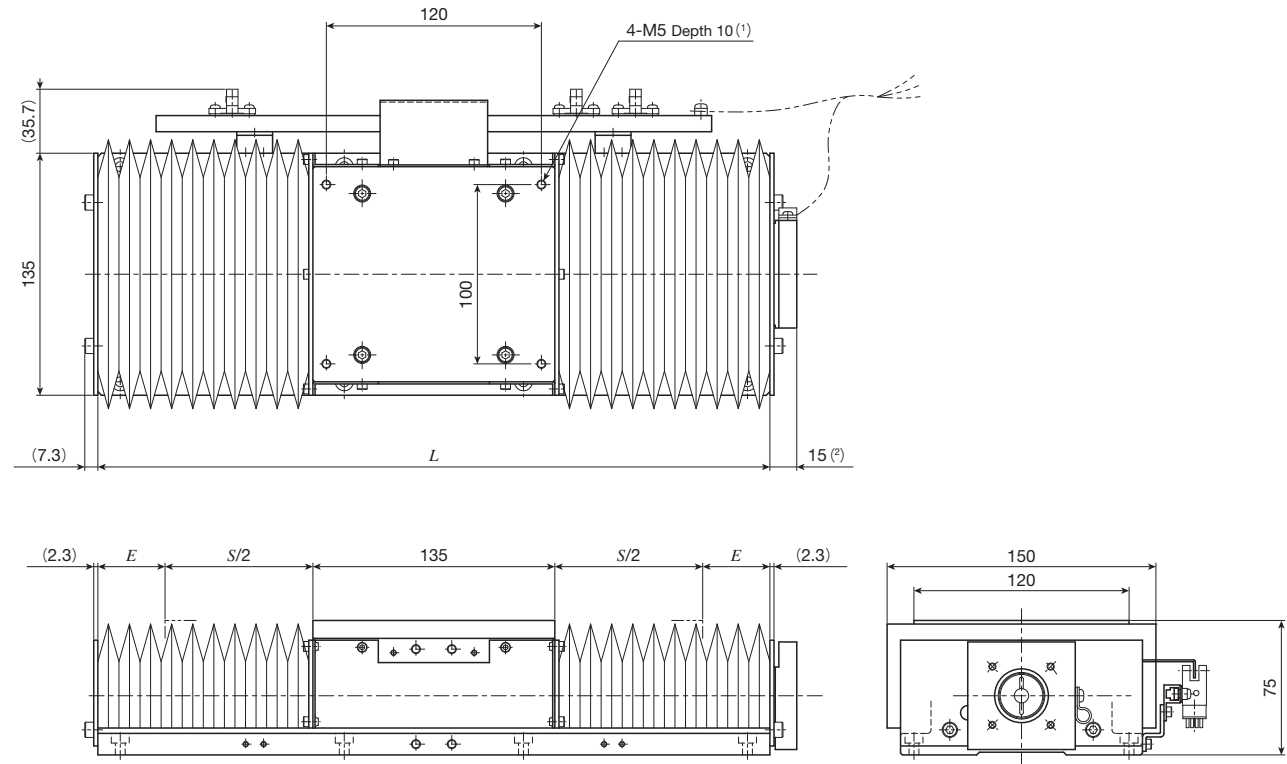


unit: mm

| Identification number | Stroke length <i>S</i> |        | Overall length       |                      | Mounting holes of bed<br><i>A</i> | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|----------------------|----------------------|-----------------------------------|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i> | <i>L<sub>y</sub></i> |                                   |                   |
| CTLH320M-3030         | 300                    | 300    | 650                  | 650                  | 160                               | 199               |
| CTLH320M-4030         | 400                    | 300    | 750                  | 650                  | 210                               | 209               |
| CTLH320M-4040         | 400                    | 400    | 750                  | 750                  | 210                               | 218               |
| CTLH320M-5040         | 500                    | 400    | 850                  | 750                  | 260                               | 227               |
| CTLH320M-5050         | 500                    | 500    | 850                  | 850                  | 260                               | 236               |

Note (1) When selecting AT305, 26mm is applied. When selecting AT313, 20mm is applied.  
Remark: As a combination of stroke length other than listed above and a table of different size is possible, please consult **IKE**.

**TSLH120M.../J Table with bellows**



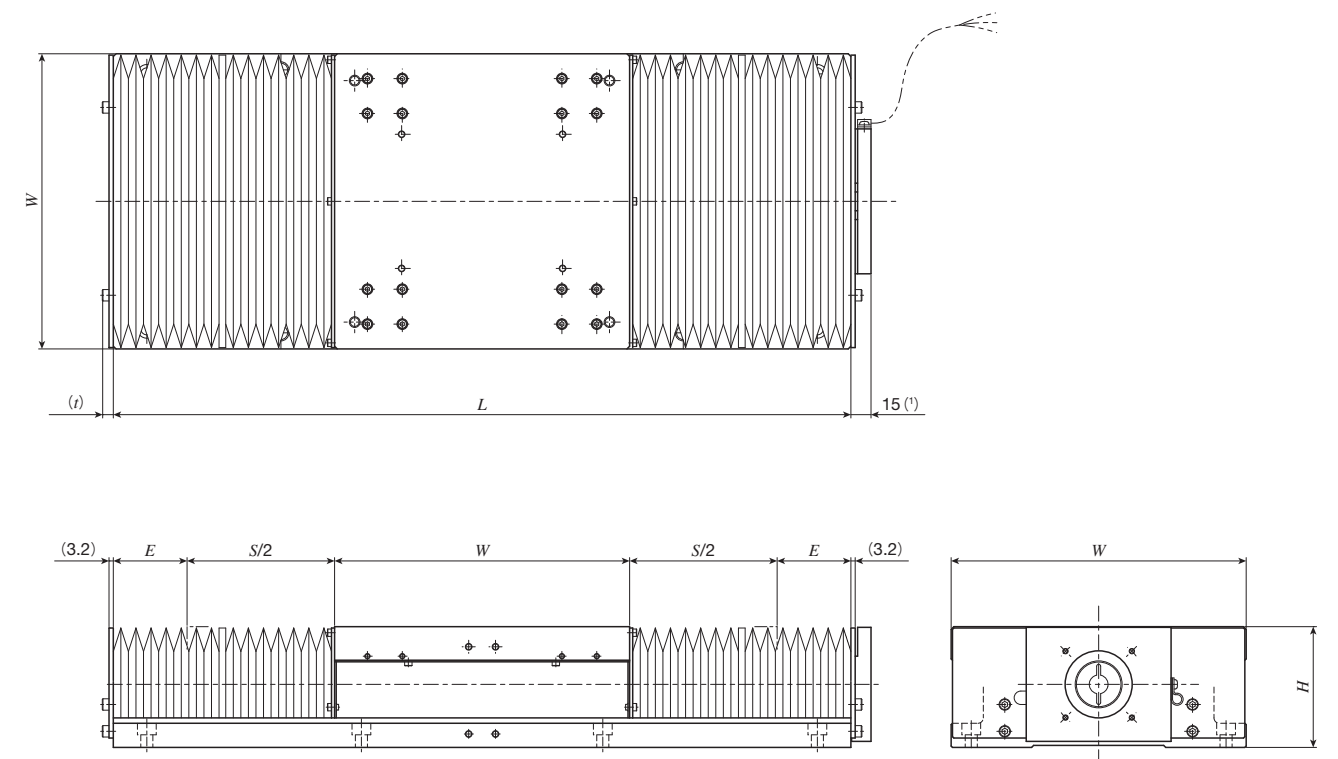
unit: mm

| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | <i>E</i> | Mass (Ref.)<br>kg |
|-----------------------|---------------------------|----------------------------|----------|-------------------|
| TSLH120M-100/J        | 85                        | 275                        | 27.5     | 13                |
| TSLH120M-150/J        | 125                       | 325                        | 32.5     | 14                |
| TSLH120M-200/J        | 165                       | 375                        | 37.5     | 15                |
| TSLH120M-250/J        | 205                       | 425                        | 42.5     | 16                |
| TSLH120M-300/J        | 240                       | 475                        | 50.0     | 17                |

Notes (1) Too deep insertion depth of the mounting bolt may affect the running performance of the moving table, so never insert a bolt longer than the depth of the through hole.  
(2) When selecting AT302 or AT308, 21mm is applied.  
Remarks 1. For the usage in vertical axis, the dimension of the bellows is different, so please contact **IKE**.  
2. For bed mounting dimensions, see the dimension table for TSLH120M.

**IKO Precision Positioning Table LH**

TSLH220M.../J, TSLH320M.../J, TSLH420M.../J Table with bellows

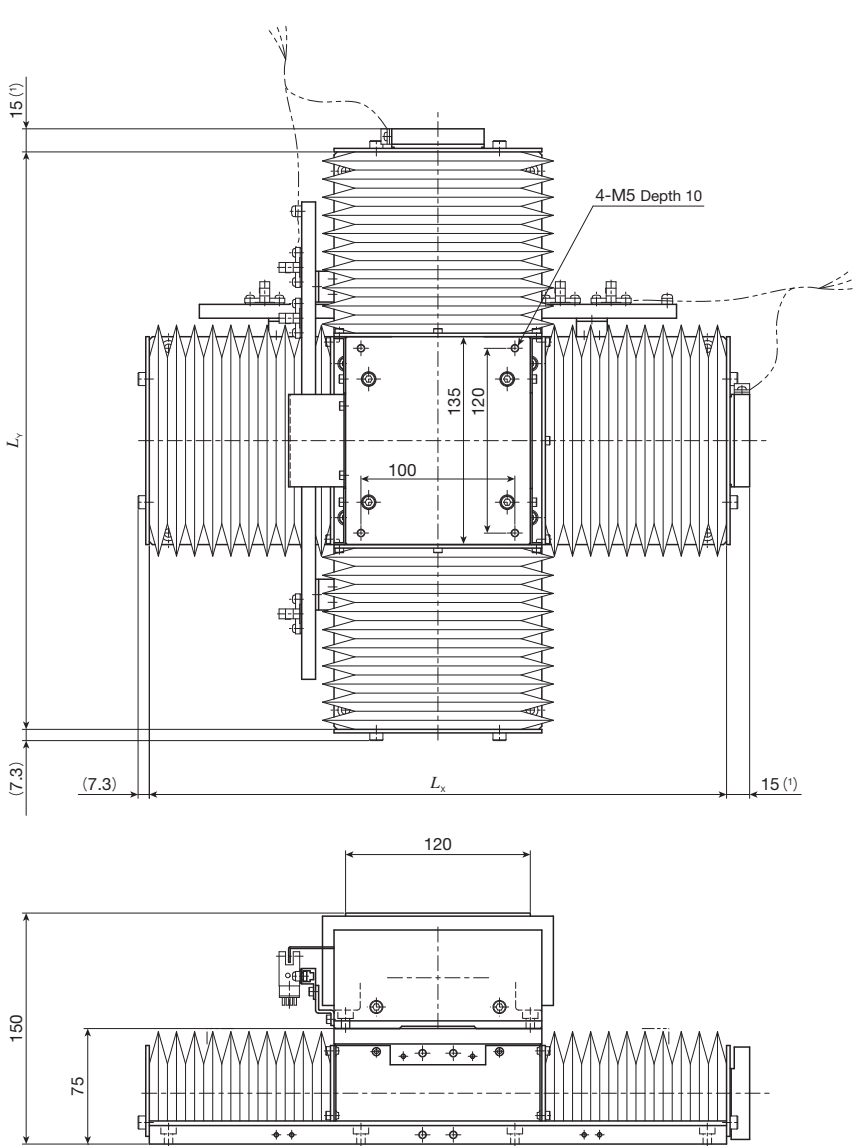


unit: mm

| Identification number | Stroke length<br><i>S</i> | Overall length<br><i>L</i> | <i>W</i> | <i>H</i> | <i>E</i> | <i>t</i> | Mass (Ref.)<br>kg |
|-----------------------|---------------------------|----------------------------|----------|----------|----------|----------|-------------------|
| TSLH220M- 150/J       | 110                       | 400                        | 220      | 90       | 35       | 8.2      | 33                |
| TSLH220M- 200/J       | 150                       | 450                        |          |          | 40       |          | 36                |
| TSLH220M- 250/J       | 180                       | 500                        |          |          | 50       |          | 38                |
| TSLH220M- 300/J       | 220                       | 550                        |          |          | 55       |          | 40                |
| TSLH220M- 400/J       | 300                       | 650                        |          |          | 65       |          | 44                |
| (TSLH220M- 500/J)     | 370                       | 750                        |          |          | 80       |          | 49                |
| (TSLH220M- 600/J)     | 440                       | 850                        |          |          | 95       |          | 53                |
| TSLH320M- 300/J       | 230                       | 650                        | 320      | 120      | 50       | 9.2      | 104               |
| TSLH320M- 400/J       | 310                       | 750                        |          |          | 60       |          | 113               |
| TSLH320M- 500/J       | 400                       | 850                        |          |          | 65       |          | 129               |
| (TSLH320M- 600/J)     | 480                       | 950                        |          |          | 75       |          | 131               |
| (TSLH320M- 800/J)     | 640                       | 1 150                      |          |          | 95       |          | 151               |
| (TSLH320M-1000/J)     | 800                       | 1 350                      |          |          | 115      |          | 169               |
| TSLH420M- 500/J       | 410                       | 950                        | 420      | 140      | 60       | 10.5     | 183               |
| TSLH420M- 600/J       | 500                       | 1 050                      |          |          | 65       |          | 195               |
| TSLH420M- 800/J       | 660                       | 1 250                      |          |          | 85       |          | 219               |
| (TSLH420M-1000/J)     | 830                       | 1 450                      |          |          | 100      |          | 244               |

Note (1) When selecting AT305, 26mm is applied. When selecting AT313, 20mm is applied.  
Remarks 1. For the usage in vertical axis, the dimension of the bellows is different, so please contact **IKO**.  
2. If you are interested in a product of identification number shown in ( ), please contact **IKO**.  
3. For mounting dimensions, see the dimension tables for TSLH220M, TSLH320M, and TSLH420M.

CTLH120M.../J Table with bellows



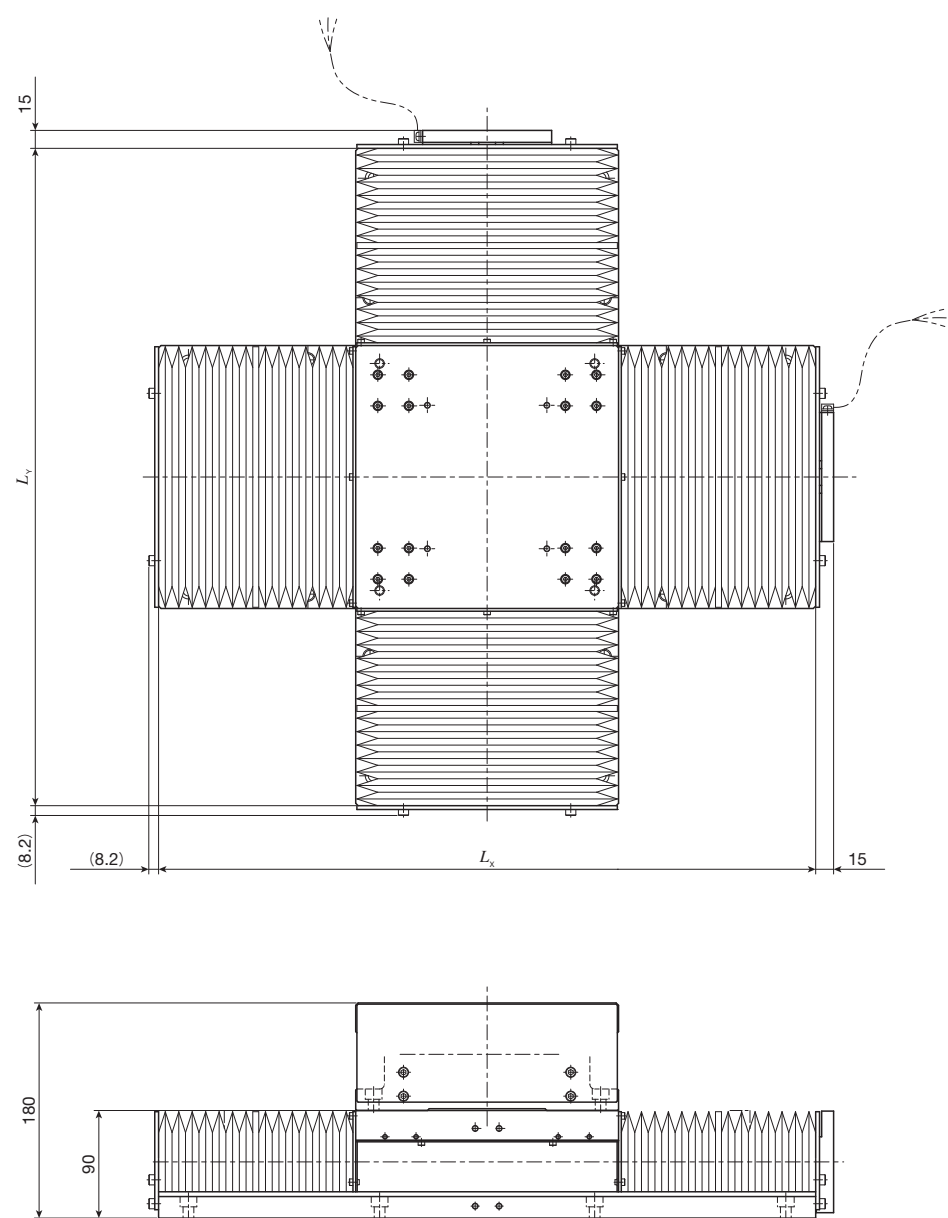
unit: mm

| Identification number | Stroke length <i>S</i> |        | Overall length of bed |                      | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|-----------------------|----------------------|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i>  | <i>L<sub>y</sub></i> |                   |
| CTLH120M-1010/J       | 85                     | 85     | 275                   | 275                  | 25                |
| CTLH120M-2010/J       | 165                    | 85     | 375                   | 275                  | 27                |
| CTLH120M-2020/J       | 165                    | 165    | 375                   | 375                  | 29                |
| CTLH120M-3020/J       | 240                    | 165    | 475                   | 375                  | 31                |
| CTLH120M-3030/J       | 240                    | 240    | 475                   | 475                  | 33                |

Note (1) When selecting AT302 or AT308, 21mm is applied.  
Remarks 1. For the usage in vertical axis, the dimension of the bellows is different, so please contact **IKO**.  
2. For mounting dimensions, see the dimension table for TSLH120M.

TSLH...M • CTLH...M

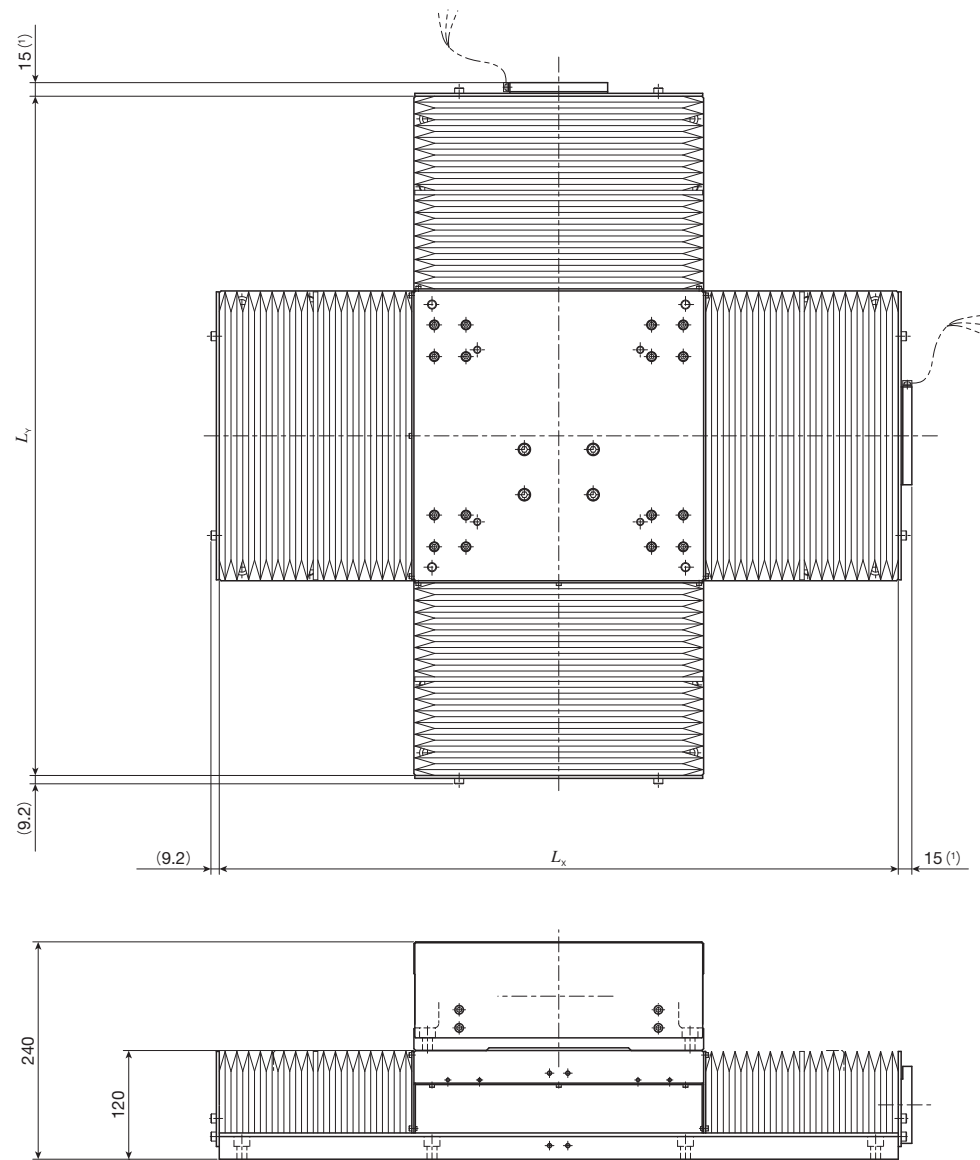
CTLH220M.../J Table with bellows



| Identification number | Stroke length <i>S</i> |        | Overall length of bed |                      | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|-----------------------|----------------------|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i>  | <i>L<sub>y</sub></i> |                   |
| CTLH220M-2020/J       | 150                    | 150    | 450                   | 450                  | 71                |
| CTLH220M-3020/J       | 220                    | 150    | 550                   | 450                  | 75                |
| CTLH220M-3030/J       | 220                    | 220    | 550                   | 550                  | 80                |
| CTLH220M-4030/J       | 300                    | 220    | 650                   | 550                  | 84                |
| CTLH220M-4040/J       | 300                    | 300    | 650                   | 650                  | 88                |

Remarks 1. For the usage in vertical axis, the dimension of the bellows is different, so please contact **IKE**.  
2. For mounting dimensions, see the dimension table for TSLH220M.

CTLH320M.../J Table with bellows



| Identification number | Stroke length <i>S</i> |        | Overall length of bed |                      | Mass (Ref.)<br>kg |
|-----------------------|------------------------|--------|-----------------------|----------------------|-------------------|
|                       | X-axis                 | Y-axis | <i>L<sub>x</sub></i>  | <i>L<sub>y</sub></i> |                   |
| CTLH320M-3030/J       | 230                    | 230    | 650                   | 650                  | 207               |
| CTLH320M-4030/J       | 310                    | 230    | 750                   | 650                  | 216               |
| CTLH320M-4040/J       | 310                    | 310    | 750                   | 750                  | 226               |
| CTLH320M-5040/J       | 400                    | 310    | 850                   | 750                  | 235               |
| CTLH320M-5050/J       | 400                    | 400    | 850                   | 850                  | 244               |

Note (1) When selecting AT305, 26mm is applied. When selecting AT313, 20mm is applied.  
Remarks 1. For the usage in vertical axis, the dimension of the bellows is different, so please contact **IKE**.  
2. For mounting dimensions, see the dimension table for TSLH320M.

TSLH...M • CTLH...M